

VII Workstation Inventory

The Workstation Inventory component of Novell® ZENworks® 6.5 Desktop Management enables you to collect hardware and software inventory information from local and remote workstations of your enterprise. This inventory information is scanned and stored in a database that can be accessed by the ZENworks administrator.

From Novell ConsoleOne®, you can view the complete hardware and software inventory of the servers. You can also query the centralized database of the servers.

The following sections provide information on the features and tasks of Workstation Inventory:

- ◆ [Chapter 69, “Understanding Workstation Inventory,” on page 803](#)
- ◆ [Chapter 70, “Setting Up Workstation Inventory,” on page 817](#)
- ◆ [Chapter 71, “Understanding Workstation Inventory Components,” on page 887](#)
- ◆ [Chapter 72, “Understanding the Inventory Database Schema,” on page 909](#)
- ◆ [Chapter 73, “Managing Your Inventory System,” on page 943](#)
- ◆ [Chapter 74, “Viewing Inventory Information,” on page 1035](#)
- ◆ [Chapter 75, “Monitoring Workstation Inventory Using Status Logs,” on page 1099](#)
- ◆ [Appendix J, “Performance Tips,” on page 1107](#)
- ◆ [Appendix K, “Hardware Information Collected by the Inventory Scanners,” on page 1115](#)
- ◆ [Appendix L, “ZENworks 6.5 Desktop Management Inventory Attributes,” on page 1125](#)
- ◆ [Appendix M, “Enumeration Values,” on page 1145](#)
- ◆ [Appendix N, “Documentation Updates,” on page 1155](#)

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Understanding Workstation Inventory

The Workstation Inventory component of Novell® ZENworks® 6.5 Desktop Management gathers hardware and software inventory information from the workstations in your enterprise. ZENworks 6.5 Desktop Management collects, stores, and reports inventory information of the workstations on your network.

The inventory information can be useful to help you make business decisions on how to manage workstations. The following are some of the business decisions that you can make once you have obtained the inventory information:

- ◆ Workstations that need new applications
- ◆ Workstations that need updated hardware and drivers
- ◆ Workstations that should receive an application object
- ◆ Workstations that conform to the corporate hardware and software standard

This section provides a basic overview of ZENworks 6.5 Desktop Management - Workstation Inventory. It contains the following information:

- ◆ [“Workstation Inventory Terminology” on page 803](#)
- ◆ [“Overview of Inventory Components” on page 805](#)
- ◆ [“Understanding Inventory Scanning Cycle” on page 806](#)
- ◆ [“Understanding the Inventory Server Roles” on page 807](#)

Workstation Inventory Terminology

The following brief glossary provides basic definitions of Workstation Inventory terms:

Inventoried workstation: A Windows* workstation whose hardware and software information you want to scan and maintain in a central repository. To gather complete hardware and software inventory for a workstation, you must install the Inventory Agent (ZENworks 6.5 Desktop Management Agent) on that workstation.

Inventory server: A NetWare® or Windows ZENworks 6.5 Desktop Management server where you run the Inventory service. This server can also run any other ZENworks 6.5 Desktop Management services. The Inventory server collects the inventory information from associated inventoried workstations and stores it into the Inventory database.

Inventory database: A repository of inventory information of all the inventoried workstations.

Database server: A server running Sybase*, Oracle*, or MS SQL where your Inventory database is mounted. The database can run on an Inventory server or on a different server.

Management console: A Windows workstation or server running Novell ConsoleOne® with ZENworks 6.5 Desktop Management - Workstation Inventory ConsoleOne snap-ins installed. The management console provides the interface to administer the inventory system.

eDirectory Tree: The Novell eDirectory™ tree with eDirectory objects such as multiple levels of organizational units, users, groups, and other network resources. This hierarchical structure is referred to as the eDirectory tree in this document. For more information, see the [Novell eDirectory documentation Web site \(http://www.novell.com/documentation\)](http://www.novell.com/documentation).

Inventory Tree: A logical tree depicting the transmission of the inventory information from the inventoried workstations and the Inventory servers to the centralized enterprise Inventory database.

Standalone Server: An Inventory server that has an Inventory database and inventoried workstations attached to it.

Leaf Server: The lowest-level Inventory server in the inventory tree hierarchy. This server has one or more inventoried workstations attached to it and can have an Inventory database attached to it. This Inventory server collects the inventory information from the inventoried workstations attached to it and moves the information to the next-level Inventory server.

Intermediate Server: The Inventory server for moving the information from the lower-level Inventory servers up the Inventory server hierarchy. This server can have either inventoried workstations or an Inventory database, or both attached to it.

Root Server: The highest-level Inventory server in the inventory tree hierarchy. This server has the Inventory database that contains the inventory information of all the lower-level Inventory servers. At the Root Server level, you can view complete inventory information for the entire enterprise. This server can have inventoried workstations attached to it.

Site: A site is typically a geographical location. There can be multiple sites in your enterprise.

Software Dictionary or Dictionary: The Software Dictionary contains a list of software identifiers and rules. Each software identifier identifies a particular software installed on an inventoried workstation.

Software Identifiers: An entry that identifies an item of software is called as a software identifier. Each software identifier has a set of file matching attributes and corresponding software information attributes. During the Inventory scan, the scanner reads the attributes from the file headers, and if these attributes match the attributes configured in the dictionary, the information in the corresponding software information attributes is stored in the Inventory database.

Software Dictionary Rule: A software dictionary rule represents a set of conditions that control the scope of scanning process.

Unidentified Software: The software dictionary might not identify all the software products installed in your network. The software that are not listed in the dictionary are called Unidentified software.

Overview of Inventory Components

Before setting up Workstation Inventory, you should understand the inventory components, which interact together to perform inventory functions.

The following sections provide a brief overview of the Workstation Inventory components:

- ◆ [“Inventory Scanners” on page 805](#)
- ◆ [“Inventory Components on Servers” on page 805](#)
- ◆ [“Inventory Database” on page 806](#)
- ◆ [“Management Console” on page 806](#)

Inventory Scanners

Platform-dependent scanners determine the hardware and software configurations of workstations. These Inventory scanners are located at the inventoried workstations. When executed on the inventoried workstations, the scanner collects the inventory information for the inventoried workstations. The inventory information is subsequently transferred to the Inventory server and processed.

Using the Workstation Inventory policy, you can configure the scan settings for scheduling the scan on the workstations and customize hardware scanning. From the Inventory Service object (Inventory Service_ *server_name*), you can specify the location of the inventory information and also customize software scanning using the Software Dictionary snap-ins.

For more information about the Inventory scanner, see [“Understanding the Inventory Scanner” on page 890](#).

Inventory Components on Servers

The Inventory server components process the inventory information. The following components are Java* programs that work identically on NetWare and Windows Inventory servers:

- ◆ Selector
The Selector processes the inventory information and places the information in appropriate directories. For more information, see [“Understanding the Selector” on page 901](#).
- ◆ Sender and Receiver
The Sender on the Inventory server compresses the inventory information and then transfers it from the lower-level Inventory server to the Receiver on the higher-level Inventory servers. By using the Roll-Up policy, you can configure the next level destination Inventory server for roll-up, and also schedule the roll-up time. For more information, see [“Understanding the Sender-Receiver” on page 896](#).
- ◆ Storer
The Storer stores the collected inventory information in the Inventory database. By using the Database Location policy, you can configure the properties of the Inventory Database object (Inventory database_ *server_name*) and associate the database object to an Inventory server. For more information, see [“Understanding the Storer” on page 902](#).

- ◆ STR Converter

The STR Converter converts the ZENworks for Desktops 3.2 SP3 inventory information to the format required by ZENworks 6.5 Desktop Management. For more information about the STR Converter, see [“Understanding the Str Converter” on page 903](#).

- ◆ TCP Receiver

The TCP Receiver receives the roll-up inventory information from the ZENworks for Desktops 3.2 SP3 Inventory servers connected to it and converts the information to a format required by ZENworks 6.5 Desktop Management. For more information, see [“Understanding the TCP Receiver” on page 900](#).

- ◆ Dictionary Provider and Dictionary Consumer

All Inventory servers run the Dictionary Provider and Dictionary Consumer services. The Dictionary Consumer downloads the dictionary updates from the Dictionary Provider. For more information, see [“Understanding the Dictionary Provider - Dictionary Consumer” on page 905](#).

Inventory Database

The Inventory database is a repository of inventory information of the inventoried workstations. In Desktop Management, the database is a Common Information Model-based database and is implemented in Relational Database Management System (RDBMS). It is maintained in Sybase, Oracle, or MS SQL. For more information, see [“Setting Up the Inventory Database” on page 856](#).

Management Console

The management console is the Novell ConsoleOne, the single management tool for administration. This is a Java-based console that includes snap-ins for Workstation Inventory management operations.

Understanding Inventory Scanning Cycle

The Inventory scanning cycle is as follows:

1. The Inventory scanner checks whether an updated dictionary is available at its Inventory server and downloads the updated dictionary.
2. The Inventory scanner sends hardware and software information from the inventoried workstations to the Inventory server as per the scan schedule.
3. The Inventory server stores the inventory information in the Inventory database.
4. At the management console, you can view and retrieve the inventory information from the Inventory database using Inventory tools such as Reporting, Summary, etc.

Understanding the Inventory Server Roles

This section describes the following roles that you assign for an Inventory server:

- ◆ “Root Server” on page 807
- ◆ “Root Server with Inventoried Workstations” on page 809
- ◆ “Intermediate Server” on page 810
- ◆ “Intermediate Server with Database” on page 811
- ◆ “Intermediate Server with Inventoried Workstations” on page 812
- ◆ “Intermediate Server with Database and Inventoried Workstations” on page 813
- ◆ “Leaf Server” on page 814
- ◆ “Leaf Server with Database” on page 815
- ◆ “Standalone Server” on page 816
- ◆ “Quick Reference Table of the Inventory Server Roles” on page 816

For a quick reference table of the Inventory Server roles, see “Quick Reference Table of the Inventory Server Roles” on page 816.

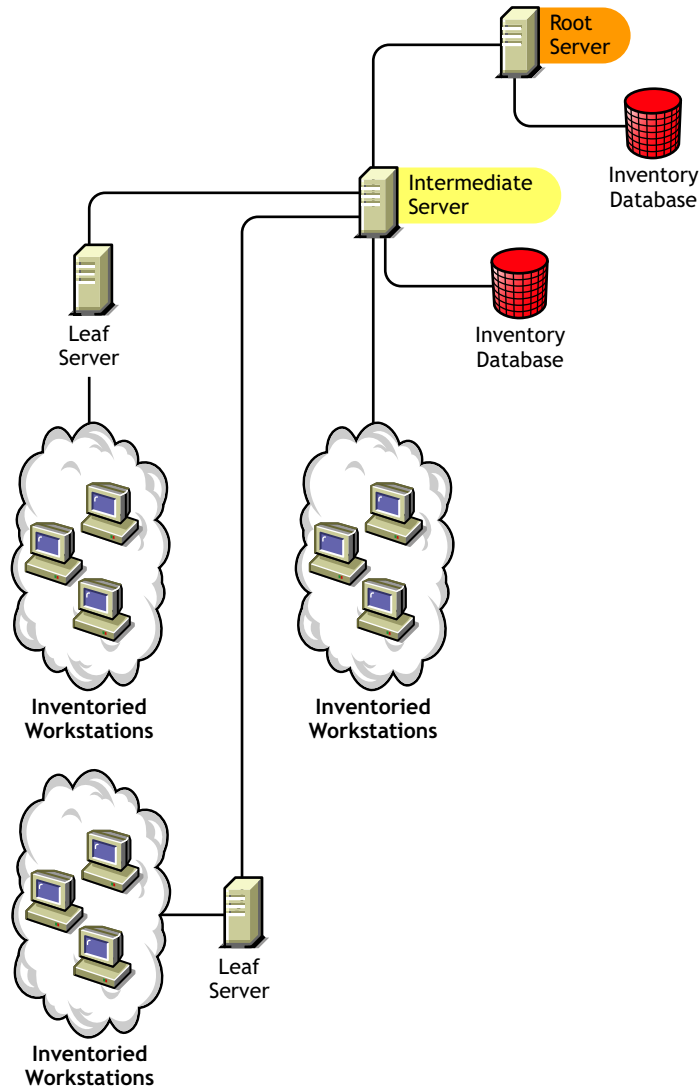
Root Server

The Root Server has the following characteristics:

- ◆ This server is the topmost Inventory server in the inventory tree hierarchy.
- ◆ This server has an Inventory database attached to it.

Choose Root Server to store the inventory information for your enterprise in a centralized database. The Inventory database at the Root Server contains the inventory information for all lower-level Inventory servers.

The following illustration depicts Leaf Servers connected to the Intermediate Server with Database. The Intermediate Server is attached to the Root Server.



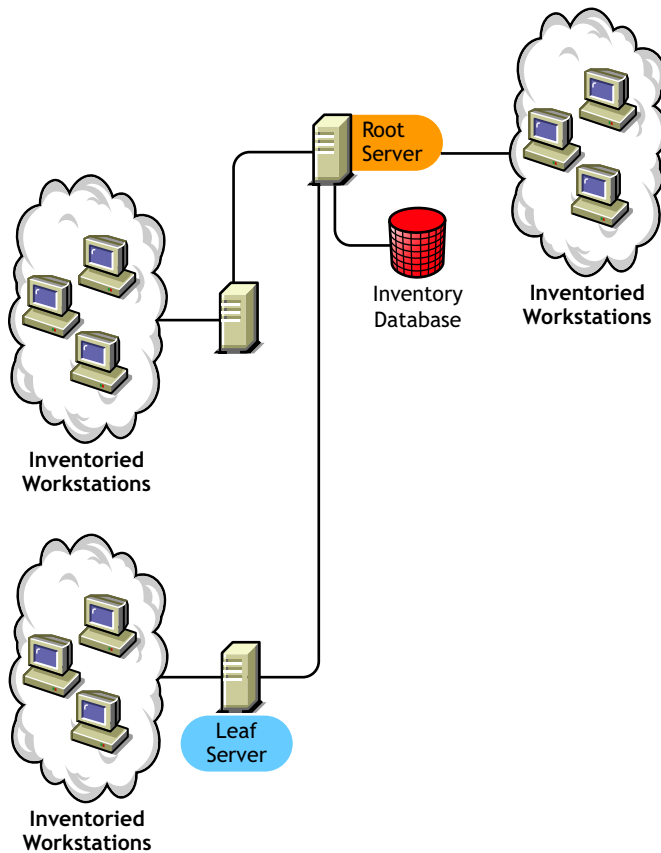
Root Server with Inventoried Workstations

The Root Server with Inventoried Workstations has the following characteristics:

- ◆ This server is the topmost Inventory server in the inventory tree hierarchy.
- ◆ This server has an Inventory database and inventoried workstations attached to it. We recommend that you deploy these inventoried workstations in a LAN.

Choose Root Server with Inventoried Workstations if you want to store the inventory information of your enterprise in a centralized database and if you have inventoried workstations in the same site as the Root Server. You can directly send the inventory information from these workstations to the Root Server. The Inventory database at the Root Server with Inventoried Workstations contains the inventory information for all these inventoried workstations as well as for all the lower-level Inventory servers.

The following illustration depicts a Root Server with inventoried workstations and Inventory database attached to it. The Leaf Servers are connected to the Root Server.



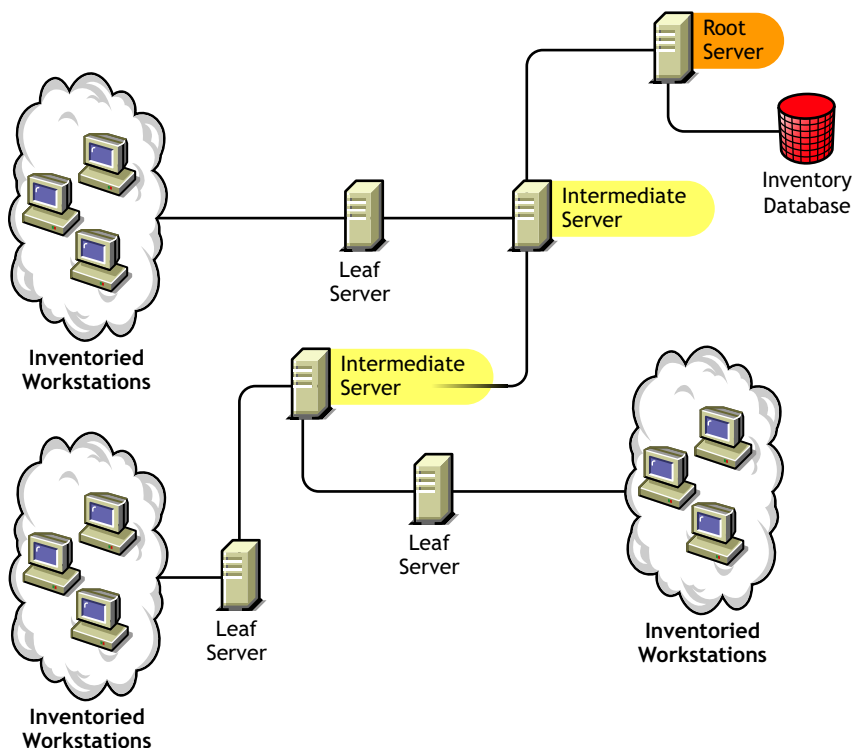
Intermediate Server

The Intermediate Server has the following characteristics:

- ◆ This Inventory server acts as a staging server for the lower-level Leaf Servers.
- ◆ The server moves the inventory information to the next-level Inventory server.
- ◆ This server does not have inventoried workstations or an Inventory database attached to it.
- ◆ There can be one or more Intermediate Servers in your enterprise.

Place Intermediate Servers on sites where the link parameters change substantially. The Intermediate Server stores the scan files to the disk to make up for the difference in bandwidth and reliability.

The following illustration depicts an Intermediate Server connected to Root Server. Two Leaf Servers roll up the inventory information to the Intermediate Server. This Intermediate Server rolls up the inventory information to another Intermediate Server that is connected to the Root Server.



In the illustration, there are many Leaf Servers and Intermediate servers at different levels. The Intermediate server is a staging server for uploading the scan information to the next-level server. The last Intermediate Server is attached to the topmost Root Server. This scenario is typical if there are many Leaf Servers in different geographical locations. All the Leaf Servers move the inventory information to the Intermediate Server.

In some scenarios, the Leaf Server connects to the Intermediate Server over a WAN.

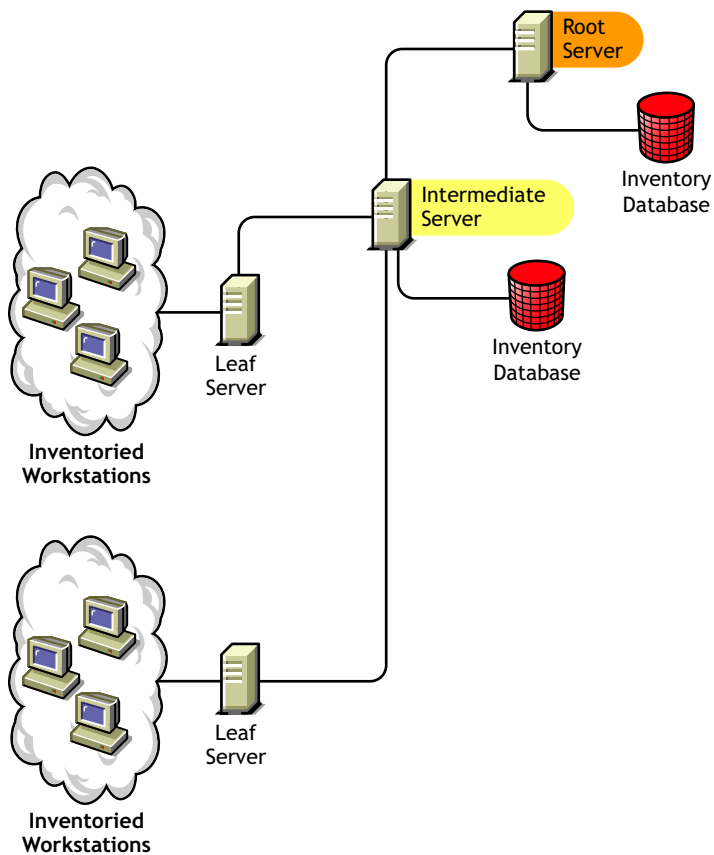
Intermediate Server with Database

The Intermediate Server with Database has the following characteristics:

- ◆ This Inventory server acts as a staging server for the lower-level Leaf Servers.
- ◆ The server moves the inventory information to the next-level Inventory server.
- ◆ This server has an Inventory database attached to it.
- ◆ There can be one or more Intermediate Servers with Database in your enterprise.

Choose Intermediate Server with Database if you want to administer an intermediate site by generating Inventory reports. The inventory information that is rolled up to this Inventory server is stored in the local Inventory database and also rolled up to the next-level Inventory server.

The following illustration depicts two Leaf Servers attached to the Intermediate Server. A consolidated inventory information of all Leaf Servers is available at the Intermediate Server level.



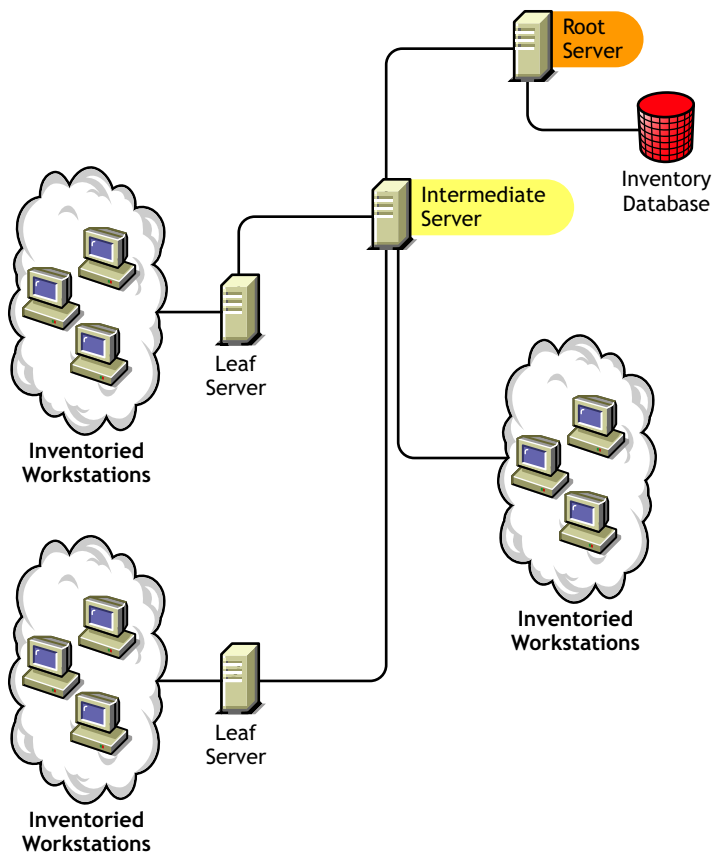
Intermediate Server with Inventoried Workstations

The Intermediate Server with Inventoried Workstations has the following characteristics:

- ◆ This Inventory server acts as an intermediate server for the lower-level Leaf Servers.
- ◆ This server moves the inventory information to the next-level Inventory server.
- ◆ This server has inventoried workstations attached to it
- ◆ The server does not have an Inventory database attached to it.
- ◆ There can be one or more Intermediate Servers with Inventoried Workstations in your enterprise.

Choose Intermediate Server with Inventoried Workstations if you want an Intermediate Server and the site having the Intermediate Server has inventoried workstations, whose inventory information you want to store it at the Root Server.

The following illustration depicts two Leaf Servers attached to the Intermediate Server. This Intermediate Server also has inventoried workstations attached to it.



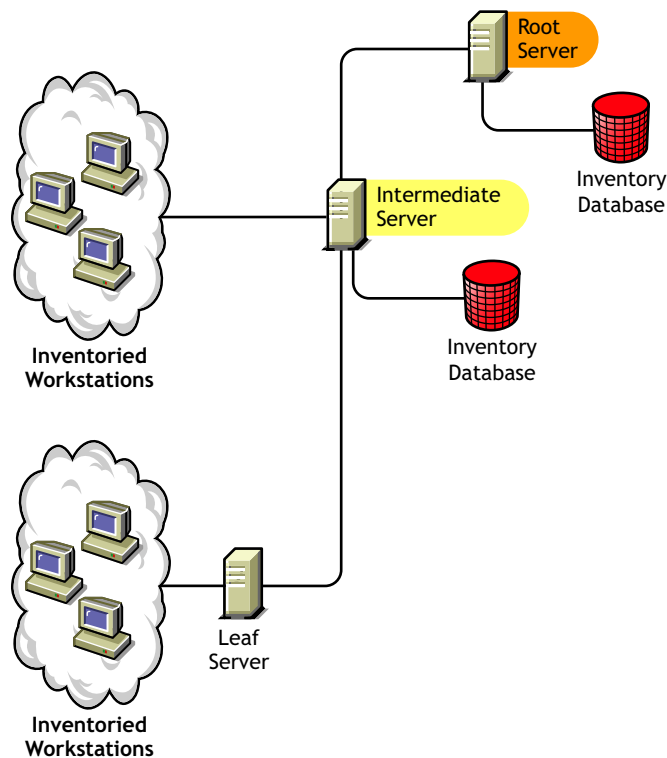
Intermediate Server with Database and Inventoried Workstations

The Intermediate Server with Database and Inventoried Workstations has the following characteristics:

- ◆ This Inventory server acts as a staging server for the lower-level Leaf Servers.
- ◆ This server moves the inventory information to the next-level Inventory server.
- ◆ This server has inventoried workstations attached to it.
- ◆ This server has an Inventory database attached to it.
- ◆ There can be one or more Intermediate Servers with Database and Inventoried Workstations in your enterprise.

Choose Intermediate Server with Database and Inventoried Workstations if you want the functionalities of **Intermediate Server with Database** and **Intermediate Server with Inventoried Workstations** available on the site.

The following illustration depicts two Leaf Servers attached to the Intermediate Server. The Intermediate Server has inventoried workstations attached to it. A consolidated Inventory database of all Leaf Servers and the inventoried workstations that are directly connected to the Intermediate Server is available at the Intermediate Server level.



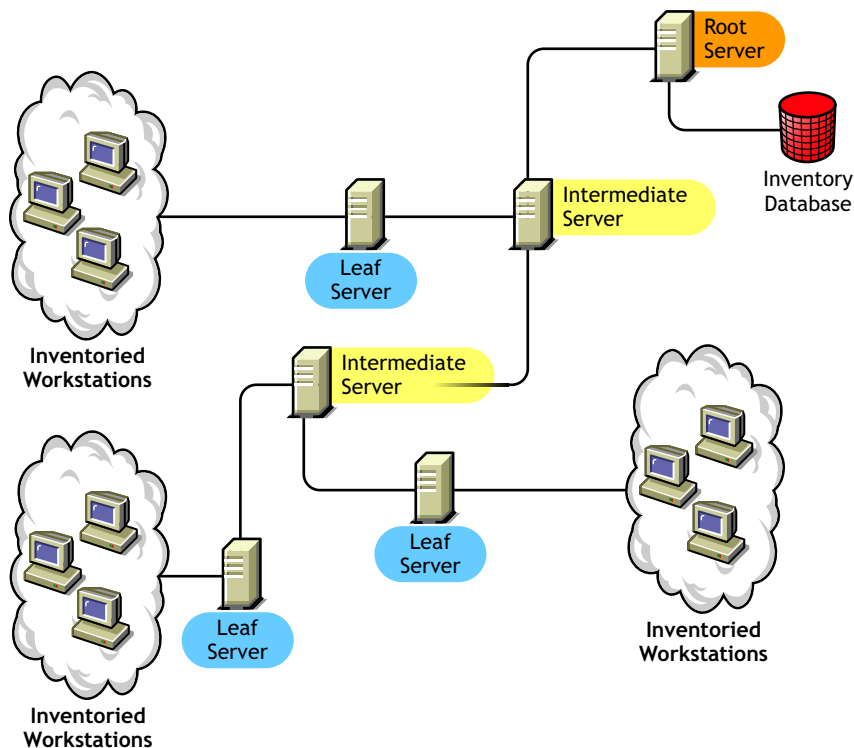
Leaf Server

The Leaf Server has the following characteristics:

- ◆ This Inventory server is at the lowest level in the inventory tree hierarchy.
- ◆ This server has inventoried workstations attached to it.
- ◆ This server moves the inventory information to the next-level Inventory server
- ◆ A simple Leaf Server does not have an Inventory database. An Inventory database is not required because there might be only few inventoried workstations attached to the Leaf server.

Choose Leaf Server if you have inventoried workstations at remote sites, and you want to obtain and store the inventory information from these inventoried workstations in a centralized database.

The following illustration depicts many Leaf Servers attached to the Intermediate Server. The Intermediate Server is connected to Root Server. A consolidated Inventory database of all Leaf Servers is available at the Root Server level.



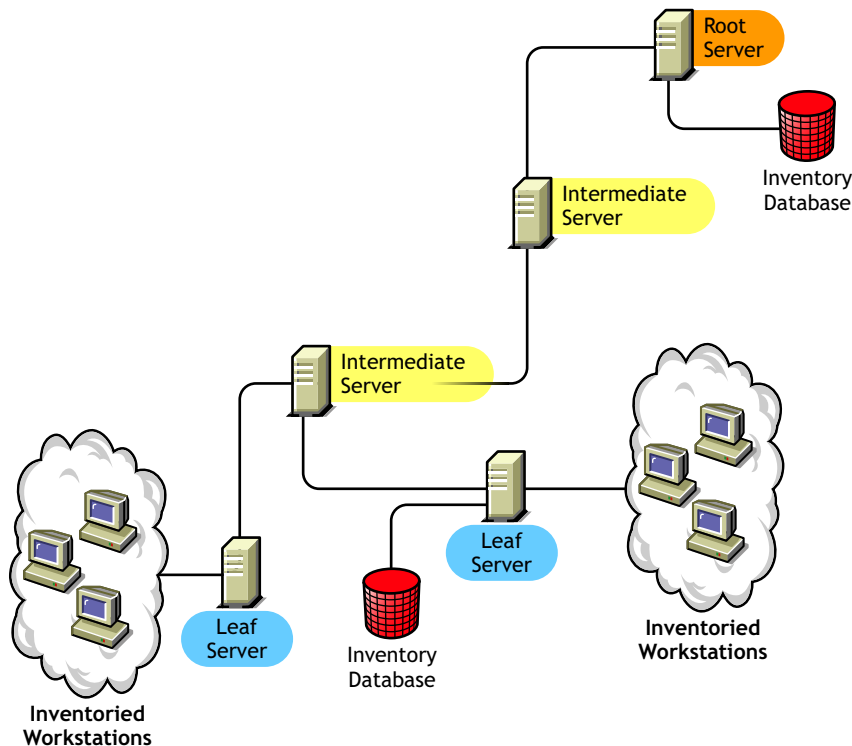
Leaf Server with Database

The Leaf Server with Database has the following characteristics:

- ◆ This Inventory server is at the lowest level in the inventory tree hierarchy.
- ◆ This server has inventoried workstations attached to it.
- ◆ This server moves the inventory information to the next-level Inventory server.
- ◆ This server has an Inventory database attached to it. You can assign a server as a Leaf Server with Database to maintain the inventory information for the inventoried workstations specific to the site.

Choose Leaf Server with Database if you want the functionalities of a **Leaf Server** as well as administer the site by generating Inventory reports.

The following illustration depicts two Leaf Servers attached to the Intermediate Server. One Leaf Server has an Inventory database attached to it. This database contains a consolidated inventory of all inventoried workstations attached to this Leaf Server.



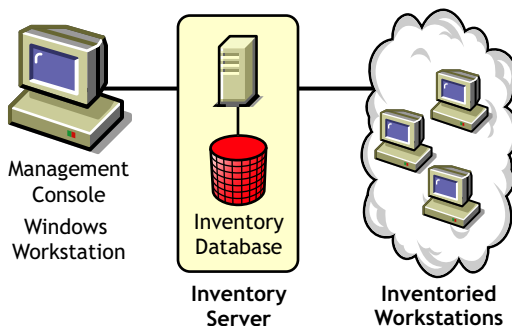
Standalone Server

The Standalone Server has the following characteristics:

- ◆ This Inventory server has inventoried workstations attached to it.
- ◆ This server has an Inventory database attached to it.
- ◆ There is no roll-up of scan information and there are no requirements for Intermediate Servers and a Root Server.

Use a Standalone Server if your network is made up of a single site and you want to administer that site.

The following illustration depicts Standalone Server.



Quick Reference Table of the Inventory Server Roles

Inventory Server	Is the Inventory Database Attached to the Inventory Server?	Are Inventoried Workstations Attached to the Inventory Server?
Root Server	Yes	No
Root Server with Inventoried Workstations	Yes	Yes
Intermediate Server	No	No
Intermediate Server with Database	Yes	No
Intermediate Server with Inventoried Workstations	No	Yes
Intermediate Server with Database and Inventoried Workstations	Yes	Yes
Leaf Server	No	Yes
Leaf Server with Database	Yes	Yes
Standalone Server	Yes	Yes

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Setting Up Workstation Inventory

Before you install Novell® ZENworks® 6.5 Workstation Inventory in your working environment, you must plan and decide the hierarchy of the Inventory server tree for your enterprise. You should organize your inventory deployment based on your network constraints and information requirements.

The following sections contain detailed information to help you deploy Workstation Inventory in your enterprise:

- ◆ “Deploying Workstation Inventory” on page 817
- ◆ “Setting Up the Inventory Database” on page 856
- ◆ “Configuring the Inventory Service Object” on page 877
- ◆ “Configuring the Database Location Policy” on page 878
- ◆ “Configuring the Workstation Inventory Policy” on page 879
- ◆ “Configuring the Roll-Up Policy” on page 881
- ◆ “Configuring the Dictionary Update Policy” on page 883
- ◆ “Setting Up Distribution of Dictionary” on page 884

Deploying Workstation Inventory

The following sections will help you to deploy Workstation Inventory:

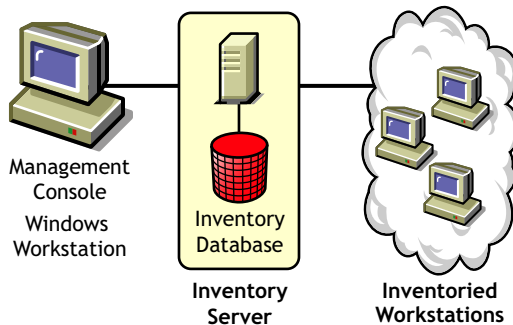
- ◆ “Simple Deployment” on page 818
- ◆ “Advanced Deployment” on page 820
- ◆ “Deploying the Inventory Agent” on page 839
- ◆ “Understanding the Effects of Workstation Inventory Installation” on page 842
- ◆ “Starting and Stopping the Inventory Service” on page 843
- ◆ “Changing the Role of the Inventory Server” on page 845

IMPORTANT: The recommendations discussed in the scenarios are generic. Based on the topology of your enterprise, further refinements might become necessary.

Simple Deployment

In the example scenario, the network consists of a single site and up to 5000 inventoried workstations. The Inventory server components and the database are located on a Standalone Server, and the inventoried workstations send scans to the Standalone server.

This scenario is illustrated in the following figure.



The following sections contain detailed information to help you deploy Workstation Inventory in a single site:

1. [“Deployment Options for Inventory Agent” on page 818](#)
2. [“Recommendations for Deployment” on page 818](#)
3. [“Installing Workstation Inventory” on page 819](#)
4. [“Understanding the Effects of Workstation Inventory Installation” on page 819](#)
5. [“Configuring the Required Policy” on page 819](#)
6. [“Starting the Inventory Service” on page 819](#)
7. [“Updating the Software Dictionary” on page 819](#)
8. [“Understanding the Inventory Scanning Cycle in the Standalone Scenario with Novell Client Installed on Inventoried Workstations” on page 819](#)

Deployment Options for Inventory Agent

Before installing the Inventory Agent on your workstation, you must deploy the Inventory servers to receive workstation scans. For more information about the deployment options for Inventory Agent, see [“Deploying the Inventory Agent” on page 839](#).

Recommendations for Deployment

- ◆ The minimum base Inventory server configuration includes 512 MB RAM and a database cache of 128 MB.
- ◆ The transmission of inventory information to the Inventory server and storage of the inventory information into the Inventory database is an ongoing back end process that can take several hours or even more than a day.
- ◆ If many inventoried workstations are attached to the same Inventory server, we recommend that you do not schedule the scan of all inventoried workstations at the same time, because this will stress the Novell eDirectory™ and the Inventory services.
- ◆ Ensure that the eDirectory time synchronization radius is set within 2 seconds.

- ♦ The optimal database cache size requirement for the server could vary because of the server environment. Determine the database cache size that needs to be set by trying a range of cache sizes in the runtime environment. The default Sybase* database cache size is 128 MB. For more information about improving the database performance, see [Appendix J, “Performance Tips,” on page 1107](#).

Installing Workstation Inventory

During the Workstation Inventory installation, configure the Inventory Standalone Configuration settings. For detailed information, see [“Desktop Management Server Installation Procedure”](#) in the *Novell ZENworks 6.5 Desktop Management Installation Guide*.

Understanding the Effects of Workstation Inventory Installation

For detail information on the effects of Workstation Inventory installation, see [“Understanding the Effects of Workstation Inventory Installation” on page 842](#).

Configuring the Required Policy

Configure the [Workstation Inventory Policy](#).

Starting the Inventory Service

After installing ZENworks 6.5 Desktop Management, the Inventory service is automatically started.

Updating the Software Dictionary

You must manually download the latest version of the dictionary from TID 10093255 in the [Novell Support Knowledgebase \(http://support.novell.com/search/kb_index.jsp\)](#) and update the software dictionary.

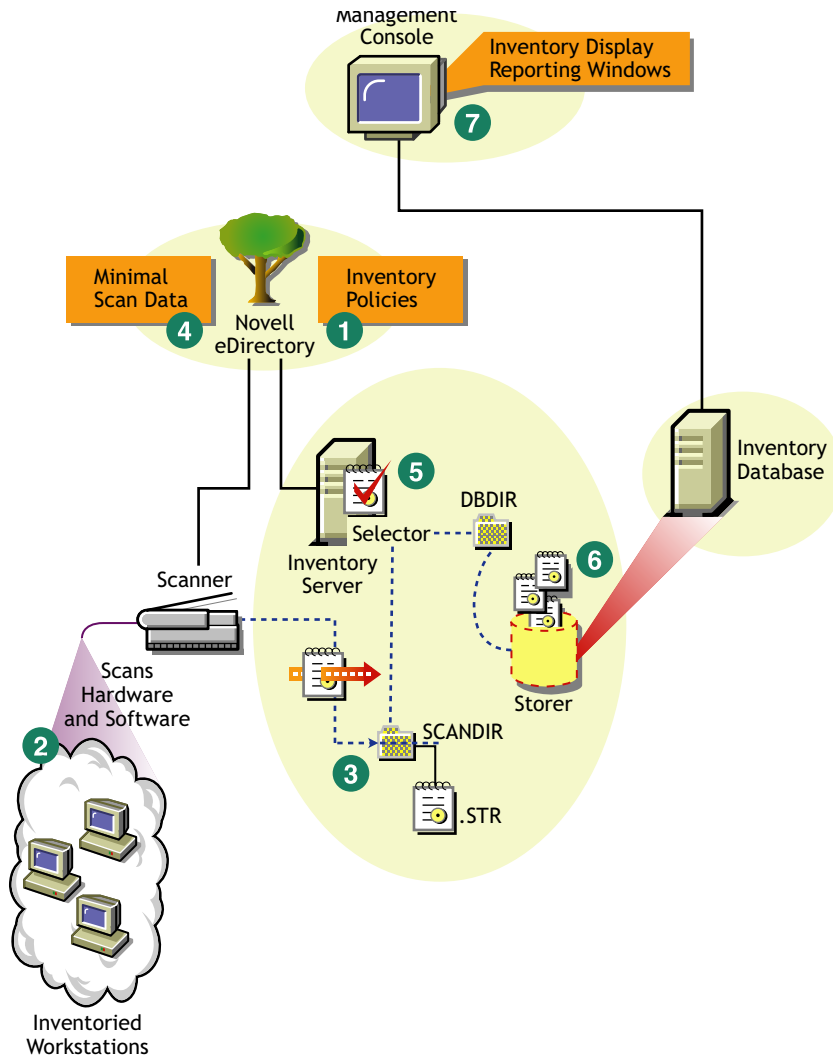
NOTE: The dictionary is updated and published once in every three months in this TID.

Understanding the Inventory Scanning Cycle in the Standalone Scenario with Novell Client Installed on Inventoried Workstations

The inventory scanning cycle is as follows:

1. The Inventory policies in eDirectory define the inventory settings, such as scanning time, the location of the scan directory, etc. These settings can be customized.
2. The scanner reads the inventory policies and collects the workstation inventory information. The Inventory scanner also checks whether an updated dictionary is available at its Inventory server and downloads the updated dictionary.
3. The scanner stores the inventory information of each inventoried workstation at the Inventory server.
4. The scanner stores the minimal inventory information of the inventoried workstation in the respective workstation objects in the eDirectory.
5. The Selector validates the inventory information and places the information in the Inventory database.
6. The Storer updates the database with the inventory information.
7. The ZENworks administrator views the inventory information.

The following illustrations depict the inventory scanning cycle in the Standalone Server with Novell Client installed.



Advanced Deployment

- ◆ [“Deploying Inventory in a Single Site with More than 5,000 Inventoried Workstations” on page 820](#)
- ◆ [“Deploying Inventory in Multiple or Enterprise Sites” on page 824](#)

Deploying Inventory in a Single Site with More than 5,000 Inventoried Workstations

In this example scenario, the network consists of a single site with more than 5000 workstations. The inventory configuration consists of two or more Standalone Servers, each server receiving scans from up to 5,000 inventoried workstations. All the Standalone Servers store the inventory data to a single database.

The following sections contain detailed information to help you deploy Workstation Inventory in a single site:

1. [“Deployment Options for Inventory Agent” on page 821](#)
2. [“Recommendations for Deployment” on page 821](#)
3. [“Installing Workstation Inventory” on page 821](#)
4. [“Understanding the Effects of Workstation Inventory Installation” on page 821](#)
5. [“Configuring the Required Policy” on page 822](#)
6. [“Starting the Inventory Service” on page 822](#)
7. [“Updating the Software Dictionary” on page 822](#)
8. [“Understanding the Inventory Scanning Cycle in the Standalone Scenario” on page 822](#)

Deployment Options for Inventory Agent

Before installing the Inventory Agent on your workstation, you must deploy the Inventory servers to receive inventory scans. For more information about the deployment options for Inventory Agent, see [“Deploying the Inventory Agent” on page 839](#).

Recommendations for Deployment

- ◆ The minimum base Inventory server configuration includes 512 MB RAM and a database cache of 128 MB.
- ◆ All inventoried workstations should send the inventory information to the nearest Inventory server on the LAN; policies must be created based on this information.
- ◆ The transmission of inventory information to the Inventory server and storage of the inventory information into the Inventory database is an ongoing back end process that can take several hours or even more than a day.
- ◆ If many inventoried workstations are attached to the same Inventory server, we recommend that you do not schedule the scan of all inventoried workstations at the same time, because this will stress the Novell eDirectory™ and the Inventory services.
- ◆ Ensure that the eDirectory time synchronization radius is set within 2 seconds.
- ◆ The optimal database cache size requirement for the server could vary because of the server environment. Determine the database cache size that needs to be set by trying a range of cache sizes in the runtime environment. The default Sybase* database cache size is 128 MB. For more information about improving the database performance, see [Appendix J, “Performance Tips,” on page 1107](#).

Installing Workstation Inventory

During the Workstation Inventory installation, configure the Inventory Standalone Configuration settings. For detail information on installing Workstation Inventory, see [Novell ZENworks 6.5 Desktop Management Installation Guide](#).

Understanding the Effects of Workstation Inventory Installation

For detail information on the effects of Workstation Inventory installation, see [“Understanding the Effects of Workstation Inventory Installation” on page 842](#).

Configuring the Required Policy

Configure the [Workstation Inventory Policy](#).

Starting the Inventory Service

After installing ZENworks 6.5 Desktop Management, the Inventory service is automatically started.

Updating the Software Dictionary

You can update the Software Dictionary in any one of the following ways:

- ◆ On each Inventory server, manually download the latest version of the dictionary from TID 10093255 in the [Novell Support Knowledgebase \(http://support.novell.com/search/kb_index.jsp\)](http://support.novell.com/search/kb_index.jsp) and update the software dictionary.
- ◆ Manually download the latest version of the dictionary from TID 10093255 in the [Novell Support Knowledgebase \(http://support.novell.com/search/kb_index.jsp\)](http://support.novell.com/search/kb_index.jsp) on one of the Standalone Servers and automatically distribute the dictionary from this server to all other Standalone Servers in your setup by configuring the [“Configuring the Dictionary Update Policy” on page 883](#). For more information, see [“Setting Up Distribution of Dictionary” on page 884](#).

NOTE: The dictionary is updated and published once in every three months in this TID.

Understanding the Inventory Scanning Cycle in the Standalone Scenario

The inventory scanning cycle is as follows:

1. The Inventory policies in eDirectory define the inventory settings, such as scanning time, the location of the scan directory, etc. These settings can be customized.
2. The scanner reads the inventory policies and collects the workstation inventory information. The Inventory scanner also checks whether an updated dictionary is available at its Inventory server and downloads the updated dictionary.

If Novell Client™ is not installed on the inventoried workstation, the Scanner accesses the eDirectory through the ZENworks 6.5 Desktop Management Middle Tier Server.

3. The scanner stores the inventory information of each inventoried workstation at the Inventory server.

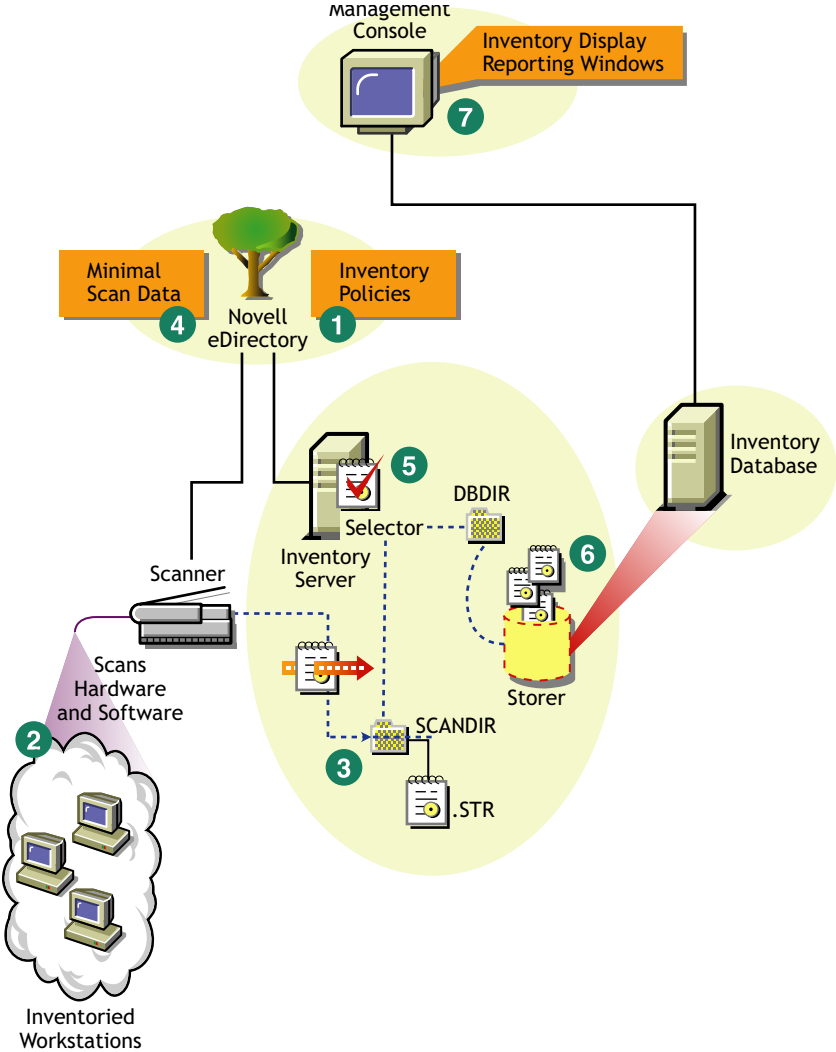
If Novell Client is not installed on the inventoried workstation, the Scanner sends the inventory information of each inventoried workstation to the Inventory server through the ZENworks 6.5 Desktop Management Middle Tier Server.

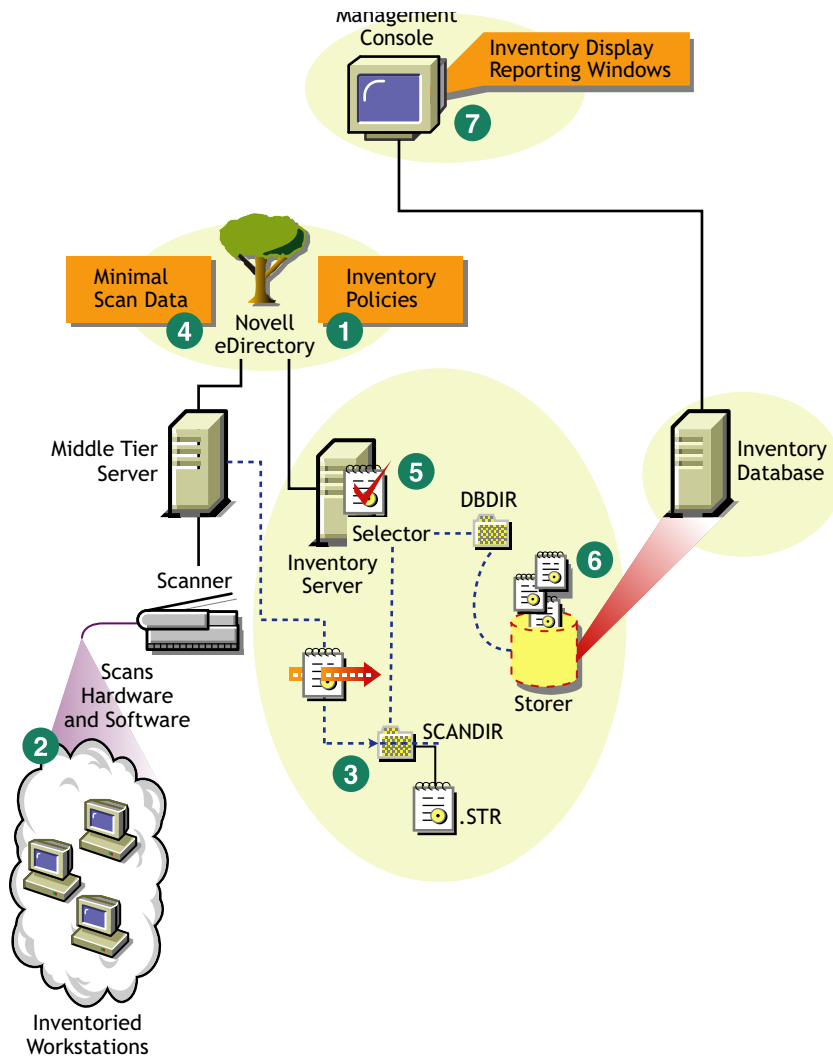
4. The scanner stores the minimal inventory information of the inventoried workstation in the respective workstation objects in the eDirectory.

If the Novell Client is not installed on the inventoried workstation, the Scanner accesses the eDirectory through the ZENworks 6.5 Desktop Management Middle Tier Server.

5. The Selector validates the inventory information and places the information in the Inventory database.
6. The Storer updates the database with the inventory information.
7. The ZENworks administrator views the inventory information.

The following illustrations depict the inventory scanning cycle in the Standalone Server, both with and without the Novell Client installed.





Deploying Inventory in Multiple or Enterprise Sites

The following sections contain detailed information to help you deploy Workstation Inventory in multiple or enterprise sites:

1. [“Designing the Inventory Tree” on page 825](#)
2. [“Deployment Options for Inventory Server and Inventory Database” on page 829](#)
3. [“Deployment Options for Inventory Agent” on page 834](#)
4. [“Recommendations for Deployment” on page 834](#)
5. [“Installing Workstation Inventory” on page 835](#)
6. [“Understanding the Effects of Workstation Inventory Installation” on page 835](#)
7. [“Configuring the Required Policies” on page 835](#)
8. [“Starting the Inventory Service” on page 836](#)
9. [“Updating the Software Dictionary” on page 836](#)
10. [“Understanding Rolling Up Inventory Information Across Servers” on page 836](#)

Designing the Inventory Tree

In an enterprise or multiple site, complete the following tasks, in order, to design the inventory tree:

- ♦ “1. List the sites in the enterprise” on page 825
- ♦ “2. What is the ideal place for the Root Server?” on page 826
- ♦ “3. Is any other database needed?” on page 826
 - “Optional step: If another database is needed” on page 826
- ♦ “4. Identify the route for Inventory information” on page 826
- ♦ “5. Identify servers on each site to act as Inventory and Database Servers” on page 827
- ♦ “6. Create the tree of servers for enterprise Inventory collection” on page 828
- ♦ “7. Create an implementation plan” on page 828
- ♦ “8. Start the actual deployment” on page 828

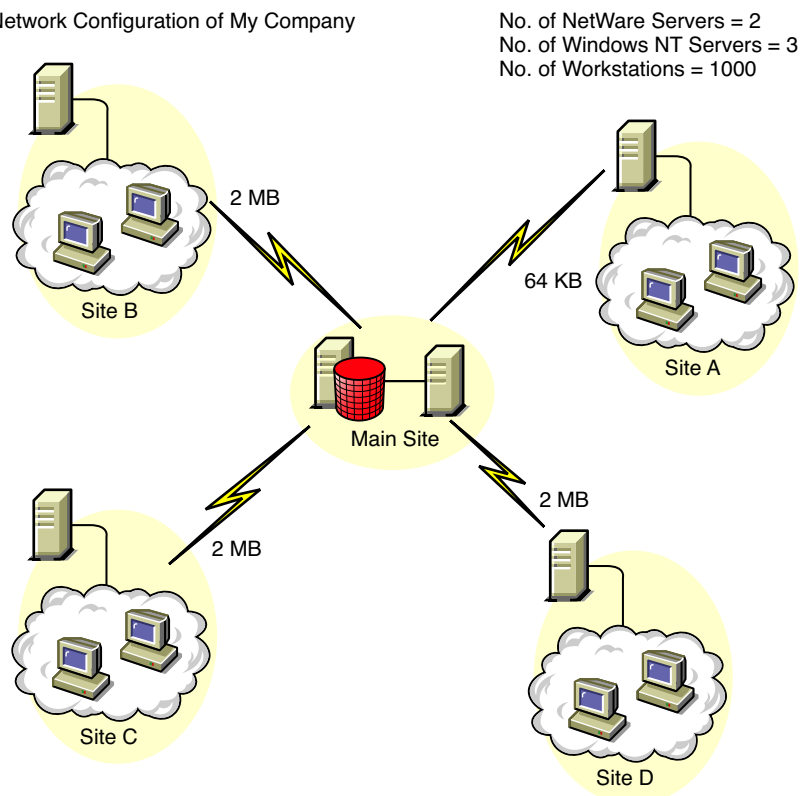
1. List the sites in the enterprise

Describe the entire network of your enterprise.

- ♦ List the various sites in your enterprise.
- ♦ List the physical links between the various sites.
- ♦ Identify the type of links in terms of bandwidth and reliability.

The following figure illustrates the network organization of a enterprise with servers in different locations.

Network Configuration of My Company



This illustration depicts four sites (Site A, Site B, Site C, and Site D) connected to a central site. It depicts the physical links between the sites and the type of links in terms of bandwidth.

2. What is the ideal place for the Root Server?

The Root Server in the inventory tree is the highest-level server. Necessarily, an Inventory database is attached to the Root Server.

The inventory information available from the Inventory database of the Root Server will consist of all information from lower-level sites on the network and from the Root Server site.

Factors that you must consider include:

- ◆ There must be high-speed links between the Root Server and the management console.
- ◆ We recommend that there should be high-speed links between the site having the Root Server and the sites having the lower-level Inventory servers.
- ◆ Using the management console, the administrator can collect the inventory information from any of the sites connected on high-speed links from the Root Server, or from the Root Server level site.
- ◆ A database server of suitable configuration should be provided for the Inventory server.

3. Is any other database needed?

In addition to the database at the Root Server, you can maintain database servers at different sites.

You might want to maintain additional databases if there are sites or subtrees that are managed for inventory at different locations, and these sites are connected to the network over a slow link.

You should also determine if there are specific reasons to have a separate database for a single site or a set of sites. There might be some organizational needs for your enterprise to have the database server on different sites, even if there is no product deployment need to have any other database.

NOTE: For a majority of enterprises, there could be no need to have any other database besides the enterprise-wide single database.

Optional step: If another database is needed

- ◆ If you decide to have additional database servers, identify the sites that need a database. Additionally, you need to examine whether the database will cater to the local site or a site with many subsites. Also, identify the sites that require information in each Inventory database.
- ◆ All the sites served by a single database should typically access this database instead of the database at the Root Server for inventory management. This reduces the load on the database at Root Server.
- ◆ Database administrators should be available for these sites.

4. Identify the route for Inventory information

Identify the routes for inventory information for all Inventory servers to the nearest database.

To devise a route plan:

- ◆ Each route can have an Intermediate Server at a staging site. The Intermediate Server receives and transmits the information to the next destination. These are application-layer-level routes for inventory information. There can be various network-layer-level routes between two adjacent servers, which will be determined and managed by the routers in the network.

- ◆ The route provides information indicating how inventory information travels from a particular site to its final destination, which is the database at the Root Server.
- ◆ There can be multiple routes. Choose the fastest and most reliable route. To determine the route, consider the physical network links.
- ◆ Routes identified and made operational can be changed later, although there might be some cost in terms of management and traffic generation. If there is no intermediate database involved, you can change the route by changing the eDirectory-based policy.
- ◆ Put Intermediate Servers on sites where the link parameters change substantially. Criteria to consider are difference in bandwidth, difference in reliability of the links, and the need for roll up of inventory information.
- ◆ Availability of Inventory servers on the intermediate site for staging the inventory information should be considered while deciding the sites for Intermediate Servers. Ensure that there is enough disk space on these servers to store all the inventory information on the disk until the Sender sends it to the next destination.

5. Identify servers on each site to act as Inventory and Database Servers

In ZENworks 6.5 Desktop Management, you choose the role for each Inventory server. For more information, see [“Understanding the Inventory Server Roles” on page 807](#).

The number of inventoried workstations attached to an Inventory server also determines the load. The following table lists the disk space requirements for the server:

Server Type	Disk Space Requirements
Leaf Server	$(n1 \times s) + (n1 \times z)$
Leaf Server with Database	$(n1 \times s \times 2) + \{(n1 \times dbg)\}$
Intermediate Server	$n2 \times z$
Intermediate Server with Database	$(n2 \times z) + (n2 \times s) + \{(n2 \times dbg)\}$
Intermediate Server with Inventoried Workstations	$(n1 \times s \times 2) + (n2 \times z)$
Intermediate Server with Database and Inventoried Workstations	$(n1 \times s \times 2) + (n2 \times z) + (n2 \times s) + \{(n1 \times dbg) + (n2 \times dbg)\}$
Root Server	$(n2 \times z) + (n2 \times s) + \{(n2 \times dbg)\}$
Root Server with Inventoried Workstations	$(n1 \times s \times 2) + (n2 \times z) + (n2 \times s) + \{(n1 \times dbg) + (n2 \times dbg)\}$
Standalone Server	$(n1 \times s \times 1) + \{(n1 \times dbg)\}$

In the table, $n1$ is the number of inventoried workstations attached to the server.

s is the size of the scan data files. This file size varies depending on the data collected. Calculate 400 KB scan data from each inventoried workstation to calculate the load.

dbg is the storage space of the inventory information in the database.

$n2$ is the number of inventoried workstations rolled up to the Inventory server.

z is the size of the compressed scan data file per inventoried workstation. The average compression ratio is 80-90% of the STR file size.

{ } denotes the disk space of the database server, depending on whether the database is on the same Inventory server or if it is connected to the Inventory server. If the database is on the same Inventory server, calculate the total disk space including the database space for the Inventory server. For example, if the Leaf Server with Database has the Inventory database on the same server, calculate the requirements for storage of inventory information, including the database disk space.

6. Create the tree of servers for enterprise Inventory collection

Ensure that the inventory tree you design follows these guidelines:

- ◆ The root of the tree is the Root Server.
- ◆ At least one Inventory server per site is recommended.
- ◆ Each site has inventoried workstations to be scanned.
- ◆ Optionally, there will be databases and Intermediate Servers on different sites.

7. Create an implementation plan

After you design the inventory tree, you should develop an implementation plan to cover the phased deployment plan for the network. Use the top-down deployment of the Workstation Inventory installation. Always begin the installation at the topmost level server (Root Server) and proceed with the next lower-level servers.

8. Start the actual deployment

After your implementation plan is finalized, start the actual deployment according to the plan.

Follow these steps:

1. Install the Inventory servers on the sites. For more information, see [“Installing Workstation Inventory” on page 835](#).
2. Create and configure the policies applicable to Inventory server and inventoried workstations. For more information, see [“Configuring the Required Policies” on page 835](#).

Adding a Database Server to an Existing Inventory Setup

If you have already configured the servers for inventory setup, and you need to add another database server, follow these instructions:

- 1** Run the installation program to install the Inventory database on the server.

The installation program installs the Sybase database. If you are maintaining the database in Oracle*, make sure that the Oracle database exists. For more information, see [“Setting Up the Sybase Inventory Database” on page 856](#). If you are maintaining the database in MS SQL, make sure that the MS SQL database exists. For more information, see [“Setting Up the MS SQL Server 2000 Inventory Database” on page 871](#)

- 2** Shut down the Inventory services. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).
- 3** Based on the database you select, make sure that you configure the database. For more information, see [“Configuring the Database Location Policy” on page 878](#).

- 4** If you want to attach a new database to an existing Inventory server, which does not have a database attached, you must change the role of the Inventory server in its Inventory Service object (Inventory Service_ *server_name*). For example, if you attach an Inventory database to an existing Leaf Server, you must change the server role from Leaf Server to Leaf Server with Database in the Inventory Service object of the Leaf Server.

If you want to attach an Inventory database to a freshly installed Inventory server, you must choose an appropriate server role for the Inventory server.

To change the role of an Inventory server:

- 4a** In ConsoleOne, right-click the Inventory Service object, click Properties, then click the Inventory Service Object Properties tab.
- 4b** Choose the new role of the Inventory Service object, then click Apply.
Follow the actions that you need to change the role. For more information, see [“Changing the Role of the Inventory Server” on page 845](#).
- 5** Make sure that you enforce Full Scan for the Inventory Service object.
 - 5a** In ConsoleOne, right-click the Inventory Service object, click Properties, then click the Inventory Service Object Properties tab.
 - 5b** Select the Enable Scan option, then click OK.
- 6** Bring up the Inventory service. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).

Deployment Options for Inventory Server and Inventory Database

This section covers these scenarios:

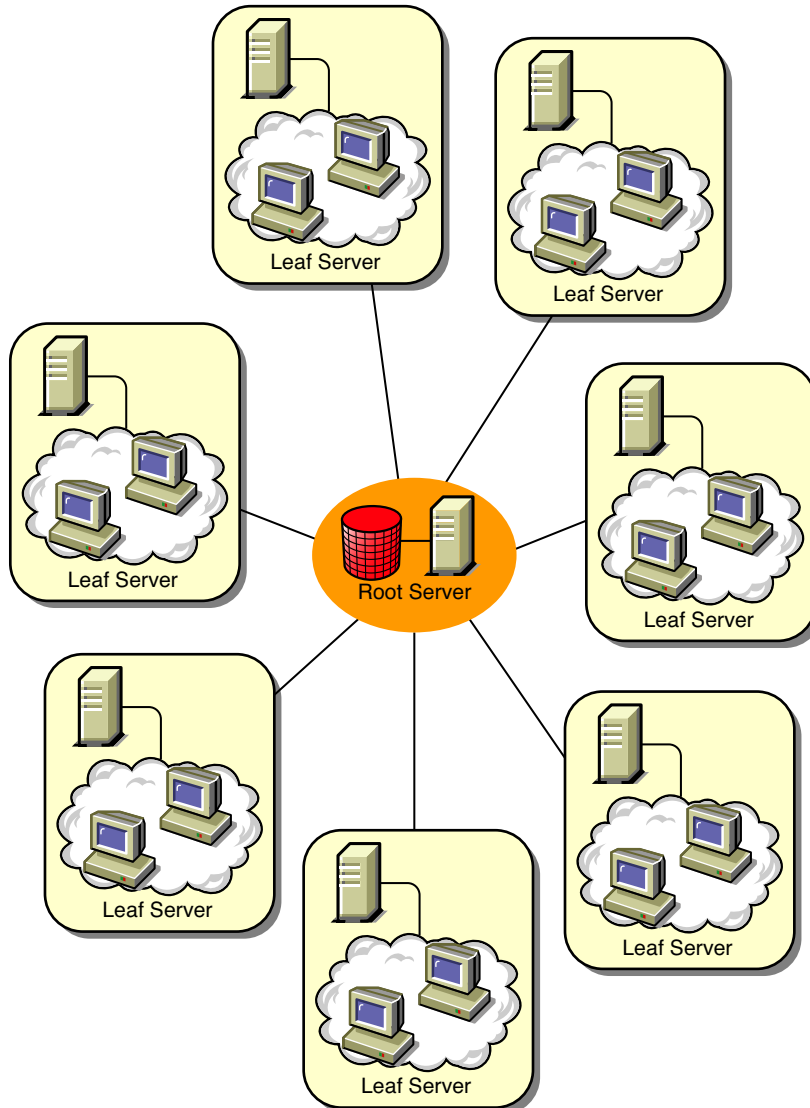
- ◆ [“Scenario 1: Inventory Deployment without Intermediate Servers in WAN” on page 830](#)
- ◆ [“Scenario 2: Inventory Deployment with Intermediate Servers in a WAN” on page 831](#)
- ◆ [“Scenario 3: Roll-Up of the Inventory information Across eDirectory Trees” on page 832](#)
- ◆ [“Scenario 4: Merging eDirectory Trees” on page 833](#)
- ◆ [“Scenario 5: Deploying Inventory Server Across Firewall” on page 833](#)

Scenario 1: Inventory Deployment without Intermediate Servers in WAN

In this scenario, the network consists of many remote sites connected to a Central Site over WAN. Each remote site has a Leaf Server that collects inventory information from workstations located in the same site, and rolls up the inventory information to the Root Server located at the central site. The remote sites are administered from the Central Site because the Leaf Servers do have Inventory database attached to it.

TIP: To locally administer the remote sites, you must have Inventory database attached to Leaf Servers and change the role of the Inventory server to Leaf Server with Database. For more information on how to change the role of an Inventory server, see ["Changing the Role of the Inventory Server"](#) on page 845.

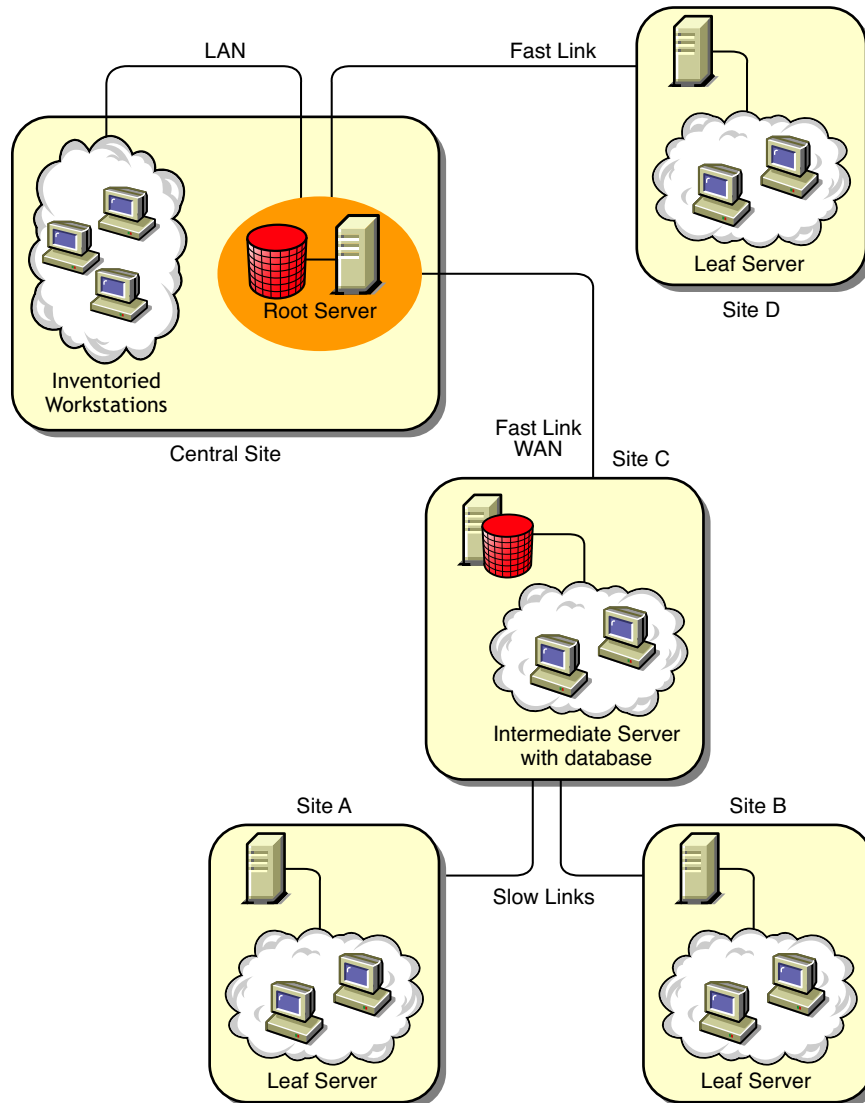
This scenario is illustrated in the following figure.



Scenario 2: Inventory Deployment with Intermediate Servers in a WAN

In this scenario, the network consists of four remote sites (A, B, C, and D), and a Central Site. Sites A and B are connected to Site C over slow links and are not directly connected to the Central Site. Site C is connected to the Central Site over a fast WAN link. Site D is directly connected to the Central Site over a fast link. Sites A, B and C are administered at Site C.

This scenario is illustrated in the following figure.



To administer the enterprise from the Central Site, and also administer Sites A and B from Site C, do the following:

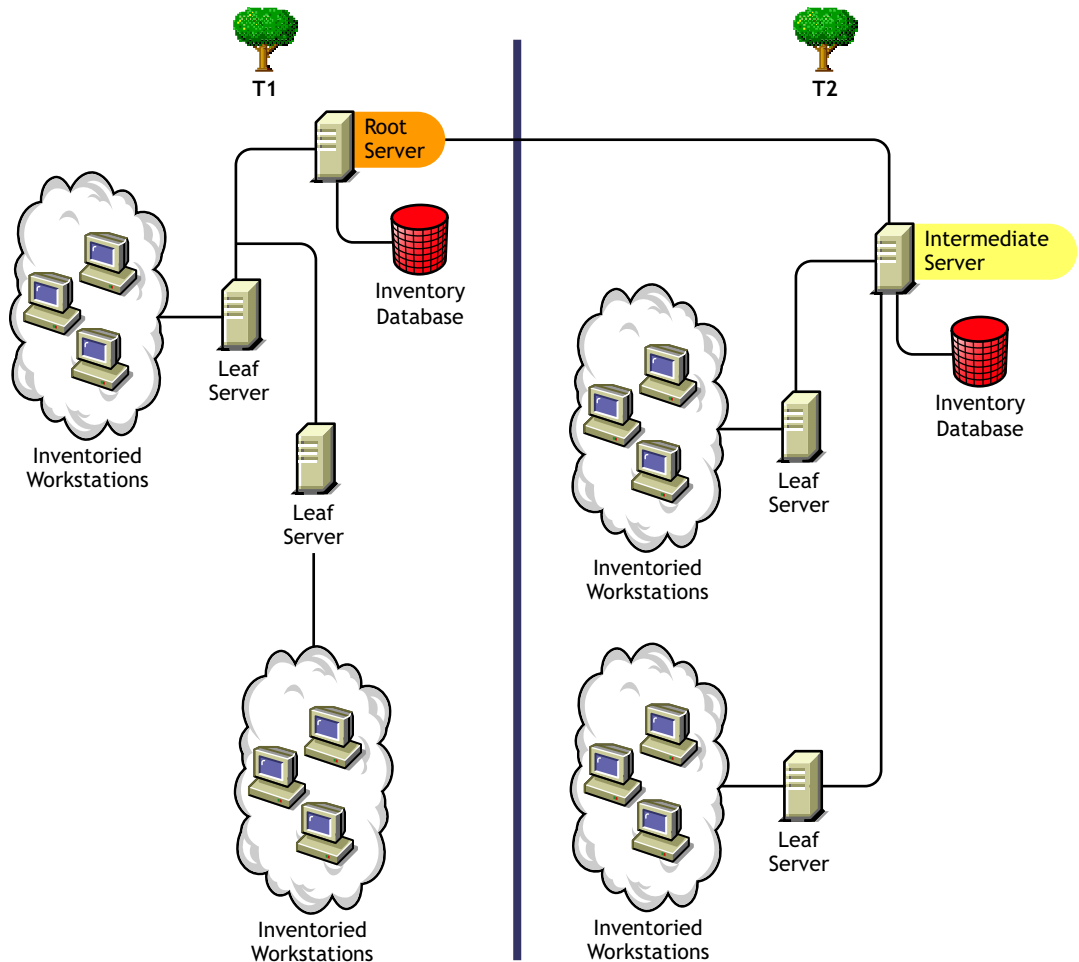
1. Install Leaf Servers at Sites A, B, and D.
2. Install Intermediate Servers with Database at Site C.
3. Configure Leaf Servers at Sites A and B to roll up the inventory information to the Intermediate Server with Database at Site C.
4. Configure the Intermediate Server with Database at Site C to roll up the inventory information to Root Server at the Central Site.

5. Configure the Leaf Server at Site D to roll up the inventory information to Root Server at the Central Site.

Scenario 3: Roll-Up of the Inventory information Across eDirectory Trees

In this configuration, you can deploy any of the previous scenarios. The highest-level Inventory server of one eDirectory tree rolls up the inventory information to an Inventory server located on the other eDirectory tree.

The following illustration depicts a sample scenario where you can deploy this inventory configuration.



There are two organizations: A and B. Each organization has its own eDirectory tree and inventory tree. Organization A has two Leaf Servers and a Root Server in its inventory tree. Organization B also has two Leaf Servers and a Root Server in its inventory tree. A decision is taken to merge both the organizations and both the inventory trees but to retain the eDirectory trees. After the merger, the role of the Root Server on the eDirectory tree T2 is changed to Intermediate Server with Database and the inventory information is rolled up from the Intermediate Server to the Root Server residing on the eDirectory tree T1.

Scenario 4: Merging eDirectory Trees

In this configuration, you can merge the inventory trees and the eDirectory trees. After you merge the eDirectory trees, you must manually change the eDirectory tree name and (optionally) the Inventory Service DN in the *inventory_server_installation_drive or volume\zenworks\inv\server\wminv\properties\config.properties* file before starting the Inventory service. For more information on merging the eDirectory trees, see the [Novell eDirectory documentation Web site \(http://www.novell.com/documentation\)](http://www.novell.com/documentation).

To merge the inventory trees, you must change the role of the Root Server of one inventory tree to roll up to an Inventory server in the other inventory tree.

To change the eDirectory tree name and the DN of an Inventory server, edit the following entries of the config.properties file:

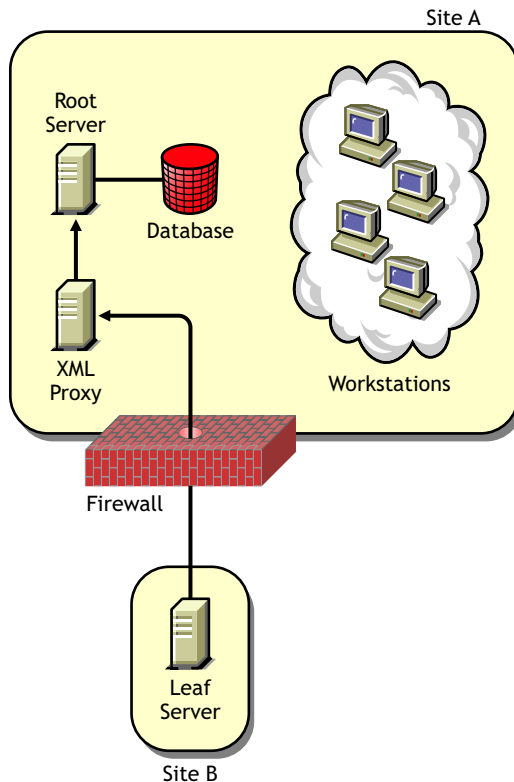
```
NDSTree=Target_eDirectory_tree_name
```

```
InventoryServiceDN=New_DN_of_the_Inventory_server
```

Scenario 5: Deploying Inventory Server Across Firewall

There are two sites; Site A and Site B connected through a WAN link. The Inventory server of Site A rolls up to an Inventory server in Site B. All communication from Site A to Site B flows through the firewall at Site B.

The following illustration depicts a sample scenario where you can deploy this inventory configuration:



To enable the roll-up:

- ◆ Install an XML proxy at Site A. For more information about installing the Proxy, see [“Installing the ZENworks Desktop Management Server”](#) in the *Novell ZENworks 6.5 Desktop Management Installation Guide*.
- ◆ You must have at least one XML proxy/site installed. One proxy server can handle requests for multiple Inventory servers.
- ◆ You can configure the port that the proxy listens to during the ZENworks 6.5 Desktop Management installation. For more information, see [“Installing the ZENworks Desktop Management Server”](#) in the *Novell ZENworks 6.5 Desktop Management Installation Guide*.

You must allow requests to the proxy server on this port at the firewall. You can configure the XML proxy to listen to standard ports allowed by your firewall.

The XML proxy does not support any commercial Web server. You must ensure that the port number assigned to the XML proxy is not used by any other service on the same server.

You must also configure the Roll-Up policy with the XML proxy server’s address and port number.

Deployment Options for Inventory Agent

Before installing the Inventory Agent on your workstation, you must deploy the Inventory servers to receive workstation scans. For more information about the deployment options for Inventory Agent, see [“Deploying the Inventory Agent”](#) on page 839.

Recommendations for Deployment

- ◆ When you configure the inventory scanning of inventoried workstations, we recommend staggering the inventory scanning to scan at different times or to scan some inventoried workstations at a time.
- ◆ If many inventoried workstations are attached to the same Inventory server, we recommend that you do not schedule the scan of all inventoried workstations at the same time, because this will stress the eDirectory and the Inventory service.
- ◆ You can attach inventoried workstations to the server as determined by the number of connections supported by Novell NetWare[®] or Windows* servers up to a maximum of 5,000 inventoried workstations.
- ◆ When you schedule the roll-up of information in the Inventory policies, we recommend the roll-up frequency should be at least one day. If the roll-up of inventory information is scheduled too frequently, for example less than one hour, there might be some performance degradation of the Inventory server.
- ◆ Use top-down deployment for Inventory installation. Always begin the installation at the topmost level server and proceed with the next lower-level servers. For example, in an inventory setup with a Root Server and a Leaf Server, complete the inventory installation at the Root Server, and then run the installation for the Leaf Server.
- ◆ If an Inventory server must receive Inventory scans either directly from the Inventory servers or through roll-up, you must install ZENworks 6.5 Desktop Management on this server.
- ◆ We recommend that you configure the DNS for your Inventory and database servers. If you have not configured the DNS, choose the IP address in the roll up and database location policies. Scheduling the frequency of information gathering and roll-up must be fine-tuned based on the Root Server. Make sure that the Root server is able to handle the load of the .str files.

Installing Workstation Inventory

For detail information on installing Workstation Inventory, see *Novell ZENworks 6.5 Desktop Management Installation Guide*.

Understanding the Effects of Workstation Inventory Installation

For detail information on the effects of Workstation Inventory installation, see “[Understanding the Effects of Workstation Inventory Installation](#)” on page 842.

Configuring the Required Policies

The following table lists the actions that you should follow to setup the server for Workstation Inventory.

To set up this type of server:	Do this:
Standalone Server	<ol style="list-style-type: none">1. Follow the steps in “Configuring the Database Location Policy” on page 8782. Follow the steps in “Configuring the Workstation Inventory Policy” on page 879
Root Server	<ol style="list-style-type: none">1. Follow the steps in “Configuring the Inventory Service Object” on page 8772. Follow the steps in “Configuring the Database Location Policy” on page 878
Root Server with Inventoried Workstations	<ol style="list-style-type: none">1. Follow the steps in “Configuring the Inventory Service Object” on page 8772. Follow the steps in “Configuring the Workstation Inventory Policy” on page 879.3. Follow the steps in “Configuring the Database Location Policy” on page 878
Intermediate Server	<ol style="list-style-type: none">1. Follow the steps in “Configuring the Inventory Service Object” on page 877.2. Follow the steps in “Configuring the Roll-Up Policy” on page 881.
Intermediate Server with Database	<ol style="list-style-type: none">1. Follow the steps in “Configuring the Inventory Service Object” on page 877.2. Follow the steps in “Configuring the Roll-Up Policy” on page 881.3. Follow the steps in “Configuring the Database Location Policy” on page 878.
Intermediate Server with Inventoried Workstations	<ol style="list-style-type: none">1. Follow the steps in “Configuring the Inventory Service Object” on page 877.2. Follow the steps in “Configuring the Workstation Inventory Policy” on page 879.3. Follow the steps in “Configuring the Roll-Up Policy” on page 881.
Intermediate Server with Database and Inventoried Workstations	<ol style="list-style-type: none">1. Follow the steps in “Configuring the Inventory Service Object” on page 877.2. Follow the steps in “Configuring the Workstation Inventory Policy” on page 879.3. Follow the steps in “Configuring the Roll-Up Policy” on page 881.4. Follow the steps in “Configuring the Database Location Policy” on page 878.
Leaf Server	<ol style="list-style-type: none">1. Follow the steps in “Configuring the Inventory Service Object” on page 877.2. Follow the steps in “Configuring the Workstation Inventory Policy” on page 879.3. Follow the steps in “Configuring the Roll-Up Policy” on page 881.

To set up this type of server:	Do this:
Leaf Server with Database	<ol style="list-style-type: none"> 1. Follow the steps in “Configuring the Inventory Service Object” on page 877. 2. Follow the steps in “Configuring the Workstation Inventory Policy” on page 879. 3. Follow the steps in “Configuring the Roll-Up Policy” on page 881. 4. Follow the steps in “Configuring the Database Location Policy” on page 878.

Starting the Inventory Service

After installing ZENworks 6.5 Desktop Management, the Inventory service is automatically started only if you have configured the Inventory Standalone Configuration settings during the installation.

To manually start the Inventory service, see “[Starting and Stopping the Inventory Service](#)” on page 843.

Updating the Software Dictionary

You can update the Software Dictionary in any one of the following ways:

- ◆ On each Inventory server, manually download the latest version of the dictionary from TID 10093255 in the [Novell Support Knowledgebase \(http://support.novell.com/search/kb_index.jsp\)](http://support.novell.com/search/kb_index.jsp) and update the software dictionary.
- ◆ Manually download the latest version of the dictionary from TID 10093255 in the [Novell Support Knowledgebase \(http://support.novell.com/search/kb_index.jsp\)](http://support.novell.com/search/kb_index.jsp) on one of the Standalone Servers and automatically distribute the dictionary from this server to all other Standalone Servers in your setup by configuring the “[Configuring the Dictionary Update Policy](#)” on page 883. For more information, see “[Setting Up Distribution of Dictionary](#)” on page 884.

NOTE: The dictionary is updated and published once in every three months in this TID.

Understanding Rolling Up Inventory Information Across Servers

If the inventory deployment rolls up inventory information across servers, the process of scanning is as follows:

1. The Inventory policies in eDirectory define the inventory settings, such as scanning time and the location of the scan directory. These settings can be customized.
2. The Scanner reads the Inventory policies and collects the workstation inventory information. The Inventory scanner also checks whether an updated dictionary is available at its Inventory server and downloads the updated dictionary.

If Novell Client is not installed on the inventoried workstation, the Scanner accesses the eDirectory through the ZENworks 6.5 Desktop Management Middle Tier Server.

3. The Scanner stores the inventory information of each inventoried workstation as a scan data file in the scan directory at the Inventory server.

If the Novell Client is not installed on the inventoried workstation, the Scanner sends the inventory information of each inventoried workstation to the Inventory server through the ZENworks 6.5 Desktop Management Middle Tier Server.

4. The Scanner stores the minimal inventory information of the inventoried workstation in the respective workstation objects in the respective workstation objects in the eDirectory.

If the Novell Client is not installed on the inventoried workstation, the Scanner accesses the eDirectory through the ZENworks 6.5 Desktop Management Middle Tier Server.

5. The Selector validates the .str file and places the file in the enterprise merge directory for roll-up of inventory information. If there is a database attached, the Selector places the files in the database directory also.
6. The Sender on the server has a Roll-Up policy to identify the server to which it will transmit the inventory information and the Roll-Up Schedule specifies time for roll-up of information. the sender compresses the .str files as a .zip file and places the .zip file in the enterprise push directory (entpushdir). The Sender then sends the .zip file to the Receiver on the next-level server.
7. The Receiver on the next-level server receives the .zip file.

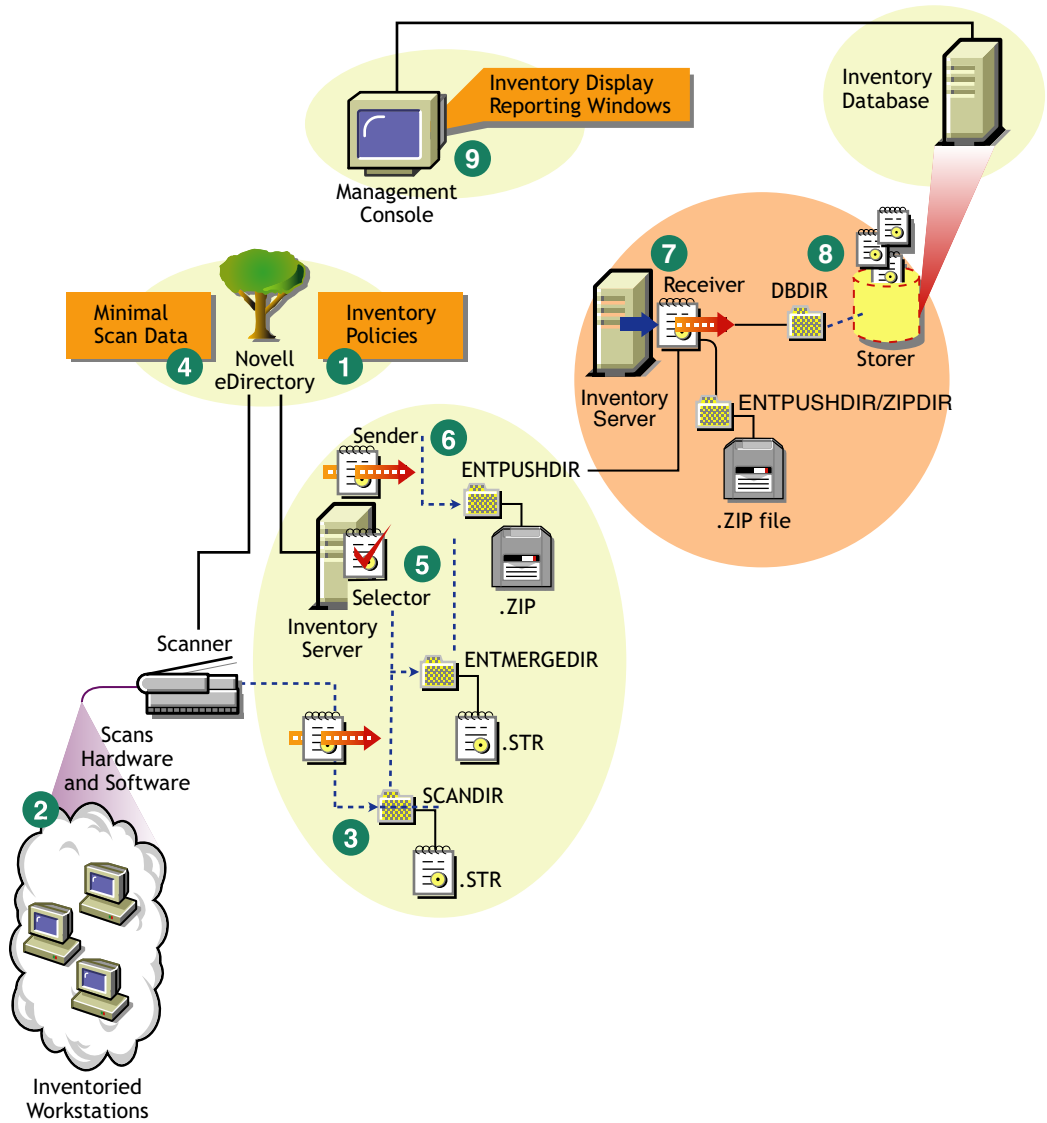
NOTE: The next-level Inventory server can be located on the same eDirectory tree or on a different eDirectory tree or across firewalls.

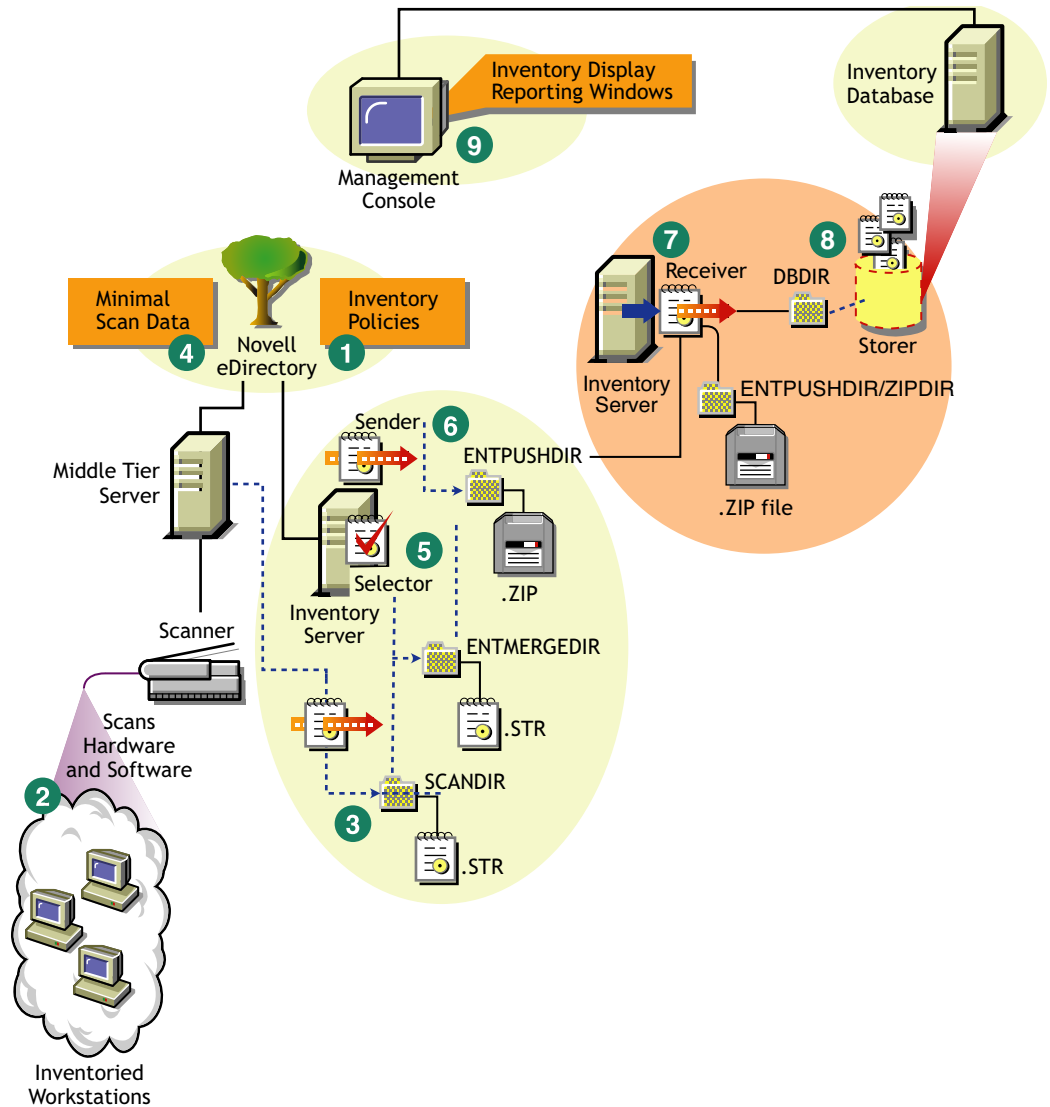
On the Intermediate Server, the Receiver copies the file in the enterprise push directory. On the Intermediate Server with Database, or the Intermediate Server with Database and Inventoried Workstations, the Receiver copies the file in \entpushdir and copies the file in the Database Directory.

On the Root Server, or the Root Server with Inventoried Workstations, the Receiver copies the file in \dbdir only.

8. The Storer extracts the .zip file containing the .str files in to a temp directory (dbdir\temp) and updates the database with the inventory information of the inventoried workstation .str file.
9. The ZENworks administrator views the inventory information, queries the database, generates inventory reports, and performs other Inventory based tasks in ConsoleOne.

The following illustrations depict the inventory scanning cycle in the Roll-Up scenario, both with and without the Novell Client installed.





Deploying the Inventory Agent

Before installing the Inventory Agent on your workstations, you must deploy the Inventory servers to receive workstation scans.

IMPORTANT: Before deploying Inventory Agent, we recommend that you customize your software scan rules to create a base-line configuration. For more information, see [“Customizing the Hardware Inventory Information To Be Scanned”](#) on page 944.

You can deploy the Inventory Agent in the following scenarios:

- ◆ “Scenario 1: Deploying the Inventory Agent to Workstations that are in the Same LAN as the Inventory Server” on page 840
- ◆ “Scenario 2: Deploying the Inventory Agent to Workstations that Send Scans over a WAN across Firewall” on page 840
- ◆ “Scenario 3: Deploying Inventory Agent to Workstations that Are Periodically Connected to the Network” on page 841

- ◆ “Scenario 4: Deploying Inventory Agent to Workstations that Are Never Connected to the Network” on page 842

Scenario 1: Deploying the Inventory Agent to Workstations that are in the Same LAN as the Inventory Server

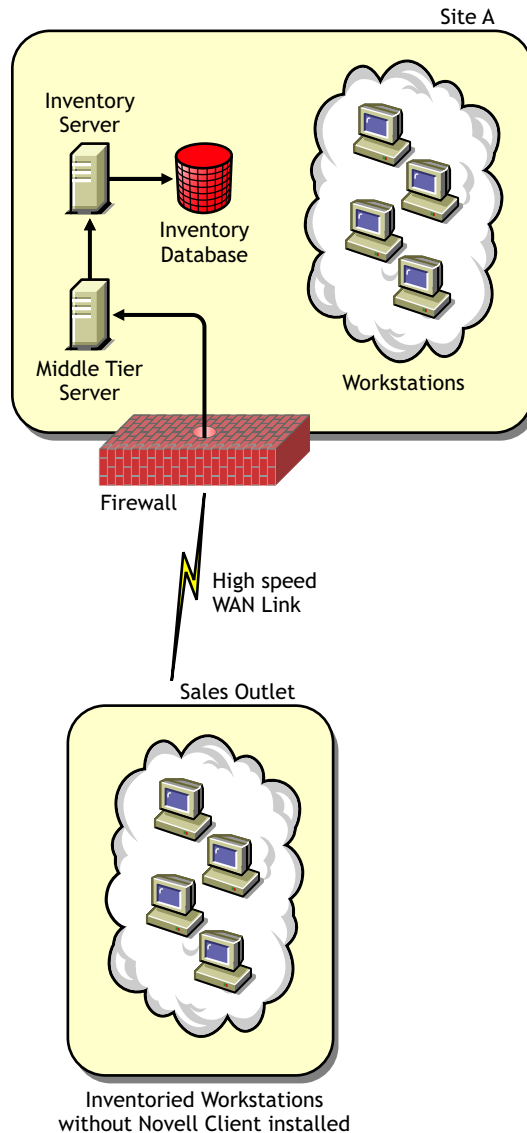
In this scenario, the inventoried workstations and the Inventory server are in the same LAN environment.

- ◆ If Novell Client is installed on inventoried workstations or if you plan to install Novell Client on inventoried workstations before installing the ZENworks 6.5 Desktop Management - Inventory Agent:
 - ◆ Install the ZENworks 6.5 Desktop Management - Inventory Agent on inventoried workstations. For more information, see “[Installing and Configuring the Desktop Management Agent](#)” in the *Novell ZENworks 6.5 Desktop Management Installation Guide*.
 - The Inventory Agent directly sends the scans to the Inventory server.
 - ◆ You can configure a maximum of 5000 inventoried workstations to send scans to an Inventory server.
- ◆ If Novell Client is not installed on inventoried workstations or if you do not plan to install Novell Client on inventoried workstations before installing the ZENworks 6.5 Desktop Management - Inventory Agent:
 - ◆ Install the ZENworks 6.5 Desktop Management Inventory Agent, which will work in the clientless mode. The Inventory Agent will route the requests through the Middle Tier. For more information, see “[Installing and Configuring the Desktop Management Agent](#)” in the *Novell ZENworks 6.5 Desktop Management Installation Guide*.
 - ◆ You must have one ZENworks 6.5 Desktop Management Middle Tier Server for each site. For more information, see “[Installing the ZENworks Middle Tier Server](#)” in the *Novell ZENworks 6.5 Desktop Management Installation Guide*.
 - ◆ You can configure a maximum of 5000 workstations to send scans to an Inventory server.

Scenario 2: Deploying the Inventory Agent to Workstations that Send Scans over a WAN across Firewall

Consider a scenario where there are two sites, A and B, that are connected via a WAN link. All communication from Site B to Site A goes through the firewall at Site A. Site B has five workstations with Inventory Agent installed, and they do not have the Novell Client installed. The five workstations must be inventoried and the scan must be sent directly to the Inventory server at Site A. You must install the Middle Tier Server at Site A. For more information, see “[Installing the ZENworks Middle Tier Server](#)” in the *Novell ZENworks 6.5 Desktop Management Installation Guide*. Site B must be connected to Site A through a fast WAN link. This should have sufficient bandwidth to handle traffic generated by the workstations when accessing policies in the eDirectory and sending scans to the Inventory server.

The following illustration depicts a sample scenario where you can deploy this inventory configuration



Scenario 3: Deploying Inventory Agent to Workstations that Are Periodically Connected to the Network

In this scenario, the Inventory Agent is installed on workstations that periodically connected to the network.

The inventoried workstations are connected periodically to the network. The workstation policies are refreshed when the inventoried workstation connects to the network. If the scan schedule expires, the Inventory Agent will defer scanning the inventoried workstation until the workstation is connected to the network.

We recommend that you set your scan schedule to match when the inventoried workstation connects to the network.

For more information, see [“Scanning for Workstations That Are Periodically Connected to the Network”](#) on page 1024.

Scenario 4: Deploying Inventory Agent to Workstations that Are Never Connected to the Network

In this scenario, the Inventory Agent is installed on workstations that are never connected to the network. For more information, see [“Collecting Inventory for Workstations That Are Not Connected to the Network” on page 1025](#).

Understanding the Effects of Workstation Inventory Installation

On the Inventory servers, the Workstation Inventory installation program does the following:

- ◆ On NetWare Inventory servers:
 - ◆ Copies the inventory related files to the *installation_volume*.
 - ◆ Copies the Workstation Inventory snap-ins to the ConsoleOne® directory.
 - ◆ Creates an Inventory Service object (Inventory Service_ *server_name*) in eDirectory for each server on which Inventory server is installed. This object is populated with the attributes: zeninvRole (role of the server), zeninvScanFilePath (path to scandir directory), zeninvHostServer (DN of the server on which Inventory server is installed), and zeninvDictionarypath (Path to the dictionary directory).
 - ◆ If the Inventory Service object already exists, the object is validated and re-created again if it is invalid.
 - ◆ During installation, the Inventory Service object is made a trustee of the NCP™ server with Compare and Read rights.
 - ◆ The installation program assigns the Inventory Service object as trustee to itself.
 - ◆ Creates the scan directory with the subdirectories in the specified volume on the Inventory server. [Root] is granted the Create rights to this directory.
 - ◆ Creates a dictionary directory (dictdir), and copies the files of general dictionary and private dictionary. [Root] is granted the Read and Write rights to this directory.
 - ◆ Creates the zenworks.properties file in sys:\system. This file contains the installation path of the Inventory server and the ZEN Web server.
 - ◆ During the Workstation Inventory installation, if you have configured Inventory Standalone Configuration settings, then the Inventory Service Manager is automatically started.
 - ◆ Installs the ZEN Web server on the Inventory server, if it is not installed already.
 - ◆ If Workstation Inventory is reinstalled in the same directory as the previous installation, the config.properties and directory.properties files are backed up and re-created.
- ◆ On Windows Inventory servers:
 - ◆ Copies the inventory related files to the *installation_directory*.
 - ◆ Copies the Workstation Inventory snap-in component to the ConsoleOne directory.
 - ◆ Creates the scan directory with the subdirectories in the specified directory on the Inventory server, and creates a share with Create rights to this directory for all users.
 - ◆ Creates a dictionary directory (dictdir), copies the files of general dictionary and private dictionary, and grants Read and Write rights to this directory for all users.

- ◆ Creates an Inventory Service object (Inventory Service_ *server_name*) in eDirectory for each server on which Inventory server is installed. This object is populated with the attributes: zeninvRole (role of the server), zeninvScanFilePath (path to scandir directory), zeninvHostServer (DN of the server on which Inventory server is installed) and zeninvDictionarypath (Path to the dictionary directory).
- ◆ If the Inventory Service object (Inventory Service_ *server_name*) already exists, the object is validated and re-created again if it is invalid.
- ◆ During installation, the Inventory Service object is made a trustee of the NCP server with Compare and Read rights.
- ◆ Assigns the Inventory Service object as trustee to itself.
- ◆ The Inventory Service Manager is created as a service.
- ◆ Edits the Registry settings to add the installation path of the Inventory server and the ZEN Web server.
- ◆ On the Inventory server, the ZENworks Service Management is created as a service.
- ◆ If the Workstation Inventory is reinstalled in the previous installation directory, the config.properties and directory.properties files are backed up and re-created.
- ◆ On the database servers:
 - ◆ Installs the Sybase database on the server you specify.
 - ◆ At server startup time, the database is loaded.
 - ◆ On NetWare, the mgmtdb.db entries are added to the sys:\system\mgmt dbs.ncf file. On Windows, the mgmtdb.db entries are added to the registry.
 - ◆ Creates two database objects (Inventory database_ *server_name* and Desktop Management database_ *server_name_*) for Sybase and configures the properties of the object.
 - ◆ If the database server is installed in the previous installation directory, the database files are re-created if they were found invalid or non-existing.
 - ◆ If Sybase is already installed, only the database files are copied.

Starting and Stopping the Inventory Service

The section provides information on:

- ◆ “Starting the Inventory Service on a NetWare Inventory Server” on page 844
- ◆ “Stopping the Inventory Service on a NetWare Inventory Server” on page 844
- ◆ “Starting the Inventory Service on a Windows Inventory Server” on page 844
- ◆ “Stopping the Inventory Service on a Windows Inventory Server” on page 845

For more information about the various Inventory services, see “Understanding the Inventory Service Manager” on page 887.

Starting the Inventory Service on a NetWare Inventory Server

Before you start the Inventory service, make sure that the Inventory database are up and running. The Inventory database will be automatically started after the installation.

To start an Inventory services on the NetWare Inventory server, enter **startinv** at the server console prompt.

To start an Inventory service, enter **startser *inventory_service_name*** at the server console prompt. For more information about different Inventory services, see [“List of Services” on page 887](#).

After starting the Inventory service, make sure that the Inventory services are up and running. To list all services, enter **listser *** at the server console prompt. To list an Inventory service, enter **listser *inventory_service_name*** at the server console prompt.

If the services are not up and running, check the Server Status log. For more information on the Server Status log, see [“Viewing the Status of Inventory Components on a Server” on page 1101](#).

Stopping the Inventory Service on a NetWare Inventory Server

To stop an Inventory service, enter **stopser *Inventory_service_name*** at the server console prompt.

To stop all the Inventory services, enter **stopser * at the server console prompt**.

Starting the Inventory Service on a Windows Inventory Server

Before you start the Inventory service, make sure that the Inventory database are up and running. The Inventory database will be automatically started after the installation.

To start the Inventory services on the Windows 2000/2003 Inventory server:

- 1 In the Control Panel, double-click Administrative Tools.
- 2 Double-click Services.
- 3 Select Novell Inventory Service, then click Start.

To start an Inventory service from the console prompt:

- 1 Go to the *installation_directory\inv\server\wminv\bin* directory.
- 2 At the prompt, enter **startser *inventory_service_name***.

After starting the Inventory service, make sure that the Inventory services are up and running. To list all services, enter **listser "*" at the server console prompt**. To list an Inventory service from the console prompt:

- 1 Go to the *installation_directory\inv\server\wminv\bin* directory.
- 2 At the prompt, enter **listser *inventory_service_name***.

If the services are not up and running, check the Server Status log. For more information on the Server Status log, see [“Viewing the Status of Inventory Components on a Server” on page 1101](#).

Stopping the Inventory Service on a Windows Inventory Server

To stop the Inventory services on a Windows 2000/2003 Inventory server:

- 1** In the Control Panel, double-click Administrative Tools.
- 2** Double-click Services.
- 3** Select Novell Inventory Service, then click Stop.

To stop an Inventory service on a Windows Inventory server from the console prompt:

- 1** Go to the *installation_directory\inv\server\wminv\bin* directory.
- 2** Enter **stopser *inventory_service_name***.

Changing the Role of the Inventory Server

When you install ZENworks 6.5 Desktop Management, by default, the role of the Inventory server is that of a Standalone. By configuring the Inventory Service object, you can assign specific roles to the Inventory server based on your inventory deployment.

For example, if the deployment plan identifies three servers, such as a Root Server, an Intermediate Server with Database, and a Leaf Server for inventory deployment, you install Workstation Inventory on these servers, and choose the role for the server. Later, if you want to make changes in the inventory deployment, such as attaching the inventoried workstations to the existing Root Server, you need to change the role of the Inventory Service object from Root Server to Root Server with Inventoried Workstations. Additionally, depending on the new role, there are some policies you need to configure.

To change the role for any Inventory server:

- 1** Plan the change of roles carefully because the changes will impact the existing inventory deployment. Also, consider the disk space requirements and ensure that you have the required configurations for Inventory.
- 2** In ConsoleOne, right-click the Inventory Service object (Inventory Service_*server_name*), click Properties, then click the Inventory Service Object Properties tab.
- 3** Choose the new role of the Inventory Service object, then click Apply.
- 4** Bring down the services running on the changed server, follow the actions that you need to change the role, and then bring up the server.

To stop all Inventory Services:

- ◆ At NetWare server console prompt, enter the following commands:

```
stopser *  
  
java -killZenWSInv
```
- ◆ On the Windows 2000/2003 server, from the Services window, click Novell Inventory Service, then click Stop.

To restart all Inventory Services:

- ◆ At NetWare server console prompt, enter **startinv**
- ◆ On the Windows 2000/2003 server, from the Services window, click Novell Inventory Service, then click Start.

The following sections contain information to help you change the role of the Inventory Service object:

- ◆ “Changing the Role of the Root Server” on page 846
- ◆ “Changing the Role of the Root Server with Inventoried Workstations” on page 848
- ◆ “Changing the Role of the Intermediate Server” on page 849
- ◆ “Changing the Role of the Intermediate Server with Database” on page 850
- ◆ “Changing the Role of the Intermediate Server with Database and Inventoried Workstations” on page 851
- ◆ “Changing the Role of the Intermediate Server with Inventoried Workstations” on page 852
- ◆ “Changing the Role of the Leaf Server” on page 853
- ◆ “Changing the Role of the Leaf Server with Database” on page 854
- ◆ “Changing the Role of the Standalone Server” on page 855

Changing the Role of the Root Server

To change the role of the Root Server to a different role, follow the actions specified in the following table:

To change the role of the Root Server to ...	Tasks:
Root Server with Inventoried Workstations	Perform the following tasks after changing the role: <ol style="list-style-type: none">1. Configure the Workstation Inventory Policy so that the inventoried workstations that you have attached to the Root Server with Inventoried Workstations will be scanned for.2. Ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server. This setting will ensure that a complete scan of the inventoried workstations attached to will be done.
Intermediate Server	Perform the following tasks: <ol style="list-style-type: none">1. Before changing the role, remove the Database Location policy associated with the Root Server.2. After changing the role, configure the Roll-Up policy to specify the next-destination server for roll-up of information from this server.
Intermediate Server with Database	Perform the following task: <ol style="list-style-type: none">1. After changing the role, configure the Roll-Up policy to specify the next-destination server for roll-up of information from this server.
Intermediate Server with Database and Inventoried Workstations	Perform the following tasks after changing the role: <ol style="list-style-type: none">1. Configure the Workstation Inventory Policy so that the inventoried workstations that you have attached will be scanned for.2. Ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server. This setting will ensure that a complete scan of the inventoried workstations will be done.3. Configure the Roll-Up policy to specify the next-destination server for roll-up of information from this server.

To change the role of the Root Server to ...	Tasks:
Intermediate Server with Inventoried Workstations	<p>Perform the following tasks:</p> <ol style="list-style-type: none"> 1. Before changing the role, remove the Database Location policy associated with the Root Server. 2. After changing the role, configure the Workstation Inventory Policy so that the inventoried workstations that you have attached will be scanned for. 3. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server. This setting will ensure that a complete scan of the inventoried workstations will be done. 4. After changing the role, configure the Roll-Up policy to specify the next-destination server for roll-up of information from this server.
Leaf Server, Leaf Server with Database, or Standalone Server	<p>Workstation Inventory does not allow you to change the Root Server to these servers because these changes affect the complete inventory system. If you want to assign these roles, you must uninstall Workstation Inventory, and then reinstall the Workstation Inventory component.</p>

Changing the Role of the Root Server with Inventoried Workstations

Follow the actions specified in the following table:

To Change the Role of the Root Server with Inventoried Workstations to ...	Tasks:
Root Server	Perform the following task before changing the role: <ol style="list-style-type: none">1. Remove the Workstation Inventory policy associated with the Root Server with Inventoried Workstations.
Intermediate Server	Perform the following tasks: <ol style="list-style-type: none">1. Before changing the role, remove the Database Location policy associated with the Root Server with Inventoried Workstations.2. Before changing the role, if the Workstation Inventory policy is associated with the Root Server with Inventoried Workstations, remove the policy for those inventoried workstations attached to this server.3. After changing the role, configure the Roll-Up policy to specify the next-destination server for roll-up of information from this server.
Intermediate Server with Database	Perform the following tasks: <ol style="list-style-type: none">1. Before changing the role, if the Workstation Inventory policy is associated with the Root Server with Inventoried Workstations, remove the policy for those inventoried workstations attached to this server.2. After changing the role, configure the Roll-Up policy to specify the next-destination server for roll-up of information from this server.
Intermediate Server with Database and Inventoried Workstations	Perform the following tasks after changing the role: <ol style="list-style-type: none">1. Ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server. This setting will ensure that a complete scan of the inventoried workstations will be done.2. Configure the Roll-Up policy to specify the next-destination server for roll-up of information from this server.
Intermediate Server with Inventoried Workstations	Perform the following task before changing the role: <ol style="list-style-type: none">1. Remove the Database Location policy is associated with the Root Server with Inventoried Workstations.
Leaf Server, Leaf Server with Database, or Standalone server	Workstation Inventory does not allow you to change the Root Server to these servers because these changes affect the complete inventory system. If you want to assign these roles, you must uninstall Workstation Inventory, and then reinstall the Workstation Inventory component.

Changing the Role of the Intermediate Server

Follow the actions specified in the following table:

To Change the Role of the Intermediate Server to ... Tasks:	
Root Server	<p>Perform the following tasks:</p> <ol style="list-style-type: none">1. Before changing the role, remove the Roll-Up policy associated with the Intermediate Server.2. After changing the role, configure the Database Location policy.3. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Root Server with Inventoried Workstations	<p>Perform the following tasks:</p> <ol style="list-style-type: none">1. Before changing the role, remove the Roll-Up policy associated with the Intermediate Server.2. After changing the role, configure the Workstation Inventory Policy for those workstations attached to this server.3. After changing the role, configure the Database Location policy.4. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server with Database	<p>Perform the following tasks after changing the role:</p> <ol style="list-style-type: none">1. Configure the Database Location policy for the server.2. Ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server
Intermediate Server with Database and Inventoried Workstations	<p>Perform the following tasks after changing the role:</p> <ol style="list-style-type: none">1. Configure the Workstation Inventory Policy so that all the inventoried workstations associated to this Inventory Service object will be scanned for.2. Configure the Database Location policy.3. Ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server with Inventoried Workstations	<p>Perform the following task after changing the role:</p> <ol style="list-style-type: none">1. Configure the Workstation Inventory Policy so that the inventoried workstations that you have attached will be scanned for.
Leaf Server, Leaf Server with Database, or Standalone server	<p>Workstation Inventory does not allow you to change the Intermediate Server to these servers because these changes affect the complete inventory system. If you want to assign these roles, you must uninstall Workstation Inventory, and then reinstall the Workstation Inventory component.</p>

Changing the Role of the Intermediate Server with Database

Follow the actions specified in the following table:

To Change the Role of the Intermediate Server with Database to ...	Tasks:
Root Server	Perform the following task before changing the role: <ol style="list-style-type: none">1. Remove the Roll-Up policy associated with the Intermediated Server with Database.
Root Server with Inventoried Workstations	Perform the following tasks: <ol style="list-style-type: none">1. Before changing the role, remove the Roll-Up policy associated with the Intermediated Server with Database.2. After changing the role, configure the Workstation Inventory Policy so that the inventoried workstations that you have attached will be scanned for.
Intermediate Server	Perform the following task before changing the role: <ol style="list-style-type: none">1. Remove the Database Location policy associated with the Intermediate Server with Database.
Intermediate Server with Database and Inventoried Workstations	Perform the following task after changing the role: <ol style="list-style-type: none">1. Configure the Workstation Inventory Policy so that the inventoried workstations attached will be scanned for.
Intermediate Server with Inventoried Workstations	Perform the following tasks: <ol style="list-style-type: none">1. Before changing the role, remove the Database Location policy associated with the Intermediate Server with Database.2. After changing the role, configure the Workstation Inventory Policy so that the inventoried workstations that you have attached will be scanned for.
Leaf Server, Leaf Server with Database, or Standalone server	Workstation Inventory does not allow you to change the Intermediate Server to these servers because these changes affect the complete inventory system. If you want to assign these roles, you must uninstall Workstation Inventory, and then reinstall the Workstation Inventory component.

Changing the Role of the Intermediate Server with Database and Inventoried Workstations

Follow the actions specified in the following table:

To Change the Role of the Intermediate Server with Database and Inventoried Workstations to ...	Tasks:
Root Server	Perform the following tasks before changing the role: <ol style="list-style-type: none"><li>1. Remove the Roll-Up policy associated with the Intermediate Server with Database and Inventoried Workstations.<li>2. Remove the Workstation Inventory policy associated with the server so that the inventoried workstations will not send the scan files to this server.
Root Server with Inventoried Workstations	Perform the following task before changing the role: <ol style="list-style-type: none"><li>1. Remove the Roll-Up policy associated with the Intermediate Server with Database and Inventoried Workstations.
Intermediate Server	Perform the following tasks before changing the role: <ol style="list-style-type: none"><li>1. Remove the Workstation Inventory policy associated with the lower-level servers that roll up to the Intermediate Server with Database and Inventoried Workstations server.<li>2. Remove the Database Location policy associated with the Intermediate Server with Database and Inventoried Workstations.
Intermediate Server with Database	Perform the following task before changing the role: <ol style="list-style-type: none"><li>1. Remove the Workstation Inventory policy of the Intermediate Server with Database.
Intermediate Server with Inventoried Workstations	Perform the following task before changing the role: <ol style="list-style-type: none"><li>1. Remove the Database Location policy associated with the Intermediate Server with Database and Inventoried Workstations.
Leaf Server, Leaf Server with Database, or Standalone Server	Workstation Inventory does not allow you to change the Intermediate Server to these servers because these changes affect the complete inventory system. If you want to assign these roles, you must uninstall Workstation Inventory, and then reinstall the Workstation Inventory component.

Changing the Role of the Intermediate Server with Inventoried Workstations

Follow the actions specified in the following table:

To Change the Role of the Intermediate Server with Inventoried Workstations to ...	Tasks:
Root Server	Perform the following tasks: <ol style="list-style-type: none"><li>1. Before changing the role, remove the Roll-Up policy associated with the Intermediate Server with Inventoried Workstations.<li>2. After changing the role, configure the Database Location policy for the server.<li>3. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Root Server with Inventoried Workstations	Perform the following tasks: <ol style="list-style-type: none"><li>1. Before changing the role, remove the Roll-Up policy associated with the Intermediate Server with Inventoried Workstations<li>2. After changing the role, configure the Workstation Inventory Policy for those inventoried workstations attached to the lower-level server that roll up to this server.<li>3. After changing the role, configure the Database Location policy.<li>4. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server	Perform the following task before changing the role: <ol style="list-style-type: none"><li>1. Remove the Workstation Inventory policy.
Intermediate Server with Database	Perform the following tasks: <ol style="list-style-type: none"><li>1. Before changing the role, remove the Workstation Inventory policy associated to the server attached to this Inventory Service object.<li>2. After changing the role, configure the Database Location policy for the server.<li>3. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server with Database and Inventoried Workstations	Perform the following task after changing the role: <ol style="list-style-type: none"><li>1. Configure the Database Location policy for the server.<li>2. Ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Leaf Server, Leaf Server with Database, or Standalone Server	Workstation Inventory does not allow you to change the Intermediate Server to these servers because these changes affect the complete inventory system. If you want to assign these roles, you must uninstall Workstation Inventory, and reinstall the Workstation Inventory component.

Changing the Role of the Leaf Server

Follow the actions specified in the following table:

To Change the Role of the Leaf Server to ...	Tasks:
Root Server	<p>Perform the following tasks:</p> <ol style="list-style-type: none">1. Before changing the role, remove the Roll-Up policy associated with the Leaf Server.2. Before changing the role, remove the Workstation Inventory policy associated with the server.3. After changing the role, configure the Database Location policy for the Root Server.4. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Root Server with Inventoried Workstations	<p>Perform the following tasks:</p> <ol style="list-style-type: none">1. Before changing this role, remove the Roll-Up policy associated with the Leaf Server.2. After changing the role, configure the Database Location policy.3. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server	<p>Perform the following tasks:</p> <ol style="list-style-type: none">1. Before changing the role, remove the Workstation Inventory policy for those inventoried workstations associated with the server or reconfigure.
Intermediate Server with Database	<p>Perform the following tasks:</p> <ol style="list-style-type: none">1. Before changing the role, remove the Workstation Inventory policy for those inventoried workstations associated with the server or reconfigure the policies to send the scans to another Inventory server.2. After changing the role, configure the Database Location policy for the server.3. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server with Database and Inventoried Workstations	<p>Perform the following task after changing the role:</p> <ol style="list-style-type: none">1. Configure the Database Location policy for the server.2. Ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server with Inventoried Workstations	<p>This change of role does not require any specific policy modifications.</p>
Leaf Server with Database	<p>Perform the following task after changing the role:</p> <ol style="list-style-type: none">1. Configure the Database Location policy for the server.2. Ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.

To Change the Role of the Leaf Server to ...	Tasks:
Standalone Server	<p>Perform the following task:</p> <ol style="list-style-type: none"> 1. Before changing the role, remove the Roll-Up policy associated with the Leaf Server. 2. After changing the role, configure the Database Location policy for the server.

Changing the Role of the Leaf Server with Database

Follow the actions specified in the following table:

To Change the Role of the Leaf Server with Database to ...	Tasks:
Root Server	<p>Perform the following tasks:</p> <ol style="list-style-type: none"> 1. Before changing the role, remove the Workstation Inventory policy associated with the Leaf Server with Database. 2. Before changing the role, remove the Roll-Up policy associated with Leaf Server with Database. 3. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Root Server with Inventoried Workstations	<p>Perform the following tasks:</p> <ol style="list-style-type: none"> 1. Before changing the role, remove the Roll-Up policy associated with the Leaf Server with Database. 2. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server	<p>Perform the following tasks:</p> <ol style="list-style-type: none"> 1. Before changing the role, remove the Workstation Inventory policy and the Database Location policy associated with the Leaf Server with Database.
Intermediate Server with Database	<p>Perform the following tasks:</p> <ol style="list-style-type: none"> 1. Before changing the role, remove the Workstation Inventory policy associated with the Leaf Server with Database. 2. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server with Database and Inventoried Workstations	<p>Perform the following tasks after changing the role:</p> <ol style="list-style-type: none"> 1. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server with Inventoried Workstations	<p>Perform the following task before changing the role:</p> <ol style="list-style-type: none"> 1. Remove the Database Location policy associated with the Leaf Server with Database.
Leaf Server	<p>Perform the following task before changing the role:</p> <ol style="list-style-type: none"> 1. Remove the Database Location policy associated with the Leaf Server with Database.

To Change the Role of the Leaf Server with Database to ... Tasks:

Standalone Server	Perform the following task before changing the role: 1. Remove the Roll-Up policy.
-------------------	---

Changing the Role of the Standalone Server

Follow the actions specified in the following table:

To Change the Role of the Standalone Server to ... Tasks:

Root Server	Perform the following tasks: 1. Before changing the role, remove the Workstation Inventory policy associated with the Standalone Server. 2. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Root Server with Inventoried Workstations	Perform the following tasks after changing the role: 1. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server	Perform the following tasks: 1. Before changing the role, remove the Workstation Inventory policy and the Database Location policy associated with the Standalone Server. 2. After changing the role, configure the Roll-Up policy . 3. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server with Database	Perform the following tasks: 1. Before changing the role, remove the Workstation Inventory policy associated with the Standalone Server. 2. After changing the role, configure the Roll-Up policy to specify the next-destination server for roll-up of information from the Intermediate Server with Database. 3. After changing the role, ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server with Database and Inventoried Workstations	Perform the following tasks after changing the role: 1. Configure the Roll-Up policy to specify the next-destination server for roll-up of information from the Intermediate Server with Database and Inventoried Workstations. 2. Ensure that you enable the Full Scan setting in the Inventory Service Object property page for the server
Intermediate Server with Inventoried Workstations	Perform the following tasks: 1. Before changing the role, remove the Database Location policy associated with the Standalone Server. 2. After changing the role, configure the Roll-Up policy to specify the next-destination server for roll-up of information from the Intermediate Server with Workstations.

To Change the Role of the Standalone Server to ... Tasks:

Leaf Server	Perform the following tasks: <ol style="list-style-type: none">1. Before changing the role, remove the Database Location policy associated with the Standalone Server.2. After changing the role, configure the Roll-Up policy to specify the next-destination server for roll-up of information from the Leaf Server.
Leaf Server with Database	Perform the following task after changing the role: <ol style="list-style-type: none">1. Configure the Roll-Up policy to specify the next-destination server for roll-up of information from the Leaf Server with Database.

Setting Up the Inventory Database

This section provides information on the following topics:

- ◆ [“Setting Up the Sybase Inventory Database” on page 856](#)
- ◆ [“Setting Up the Oracle Inventory Database” on page 863](#)
- ◆ [“Setting Up the MS SQL Server 2000 Inventory Database” on page 871](#)

If you want to replace the Inventory database, always stop the Inventory services before replacing the database. Replace the database and restart the Inventory services. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).

Setting Up the Sybase Inventory Database

This section provides information on the following topics:

- ◆ [“Adding Non-English Enumerated Values for Inventory Attributes into the Sybase Inventory Database” on page 856](#)
- ◆ [“Manually Creating the Sybase Inventory Database Object” on page 857](#)
- ◆ [“Organizing the Database Spaces for a Sybase Database on NetWare or Windows Servers \(AlterDBSpace Tool\)” on page 858](#)
- ◆ [“Understanding the Sybase Database Startup Parameters” on page 860](#)
- ◆ [“Backing Up the Sybase Inventory Database” on page 860](#)

Adding Non-English Enumerated Values for Inventory Attributes into the Sybase Inventory Database

You need to add the non-English enumerated values so the Inventory report can display the enum value for the inventory attributes in internationalized versions. The non-English enum values must be available in English version of the product so that the rolled-up inventory information from non-English sites can be properly captured at the high-level servers where only English versions are installed.

For more information about the list of attributes that contains enumerated values, see [Appendix M, “Enumeration Values,” on page 1145](#).

To add the non-English enum values:

- 1 Specify the JDBC connection settings in the *zenworks_directory\inv\server\wminv\properties\connection.prop* file to connect to the Sybase database.

You can do this by copying the template property settings for Sybase specified in the comments section in the *connection.prop* file. Specify the IP address, port number, and Database SID in the JDBC URL string that matches your Sybase server configuration.

- 2 At the server prompt, enter **AddEnums**
directory_name_containing_connection.prop

If your Inventory server is running on a Windows machine, run the above command from *zenworks_directory\inv\server\wminv\bin*.

After executing the command, the a message indicating that the non-English enums have been successfully inserted is displayed on the console prompt.

Manually Creating the Sybase Inventory Database Object

- 1 In ConsoleOne, right-click in the eDirectory tree where you want to create the database object, click New, click Object, click ZENworks Database, then click OK.
- 2 Enter a name for the database object, then click OK.
- 3 Configure the Database server options of the Database object.

- 3a In ConsoleOne, right-click the database object, then click Properties, then click the ZENworks Database tab.

- 3b Select the database server object using any of the following methods:

- ◆ If eDirectory is installed on the database server: in the Server DN field, browse for and select the Server object for the server where the database is physically installed and running.

The server's IP address is automatically populated to the Server IP Address or DNS Name drop-down list. If the selected server object has more than one IP address, select the appropriate IP address.

To clear the value set in the Server DN field, type the IP address of another database server or browse and select another server object.

- ◆ If eDirectory is not installed on the database server: enter the server's IP address or the DNS name in the Server IP Address or DNS Name field.

- 3c Type the values for the following options:

- ◆ **Database (Read-Write) User Name:** *MW_DBA*
- ◆ **Database (Read-Write) Password:** *novell*
- ◆ **Database (Read Only) User Name:** *MW_READER*
- ◆ **Database (Read Only) Password:** *novell*
- ◆ **Database (Write Only) User Name:** *MW_UPDATER*
- ◆ **Database (Write Only) Password:** *novell*

IMPORTANT: All Inventory components use the username and the password configured in the database object. By default, "novell" is the password for all options. But you can change it in the database, and update the same here.

3d Click Apply.

3e To configure the JDBC Driver properties, click the JDBC Driver Information tab.

3f Select Sybase, then click Default Settings.

This populates the fields with default JDBC driver information.

The database settings for Sybase are:

- ◆ **Driver:** *com.sybase.jdbc.SybDriver*
- ◆ **Protocol:** *jdbc:*
- ◆ **SubProtocol:** *sybase:*
- ◆ **SubName:** *Tds:*
- ◆ **Port:** *2638*
- ◆ **Flags:** *?ServiceName=mgmtdb&JCONNECT_VERSION=4*
- ◆ **Database Service Name:** *the database name specified against the -n Sybase startup parameter while invoking Sybase.*

By default, the value of the *-n* switch is the IP address of the database server. If you retain this switch value, you must enter the same IP address as the database service name.

3g Click Apply, then click Close.

Organizing the Database Spaces for a Sybase Database on NetWare or Windows Servers (AlterDBSpace Tool)

If there are more volumes or drives on the multiple physical disks of the database server, placing the Sybase database spaces files on separate volumes or drives improves the performance while accessing the database.

If you install the Sybase database component of ZENworks 6.5 Desktop Management, the system database file and the database spaces files are installed in the location on the database server you specify. On loading the Inventory database server, the system database file (*mgmtdb.db*) is loaded. This *mgmtdb.db* file references the inventory information in the database spaces files. The database spaces files (*mgmtdb1.db*, *mgmtdb2.db*, *mgmtdb3.db*, *mgmtdb4.db*, *mgmtdb5.db*, *mgmtdb6.db*, *mgmtdb7.db*, *mgmtdb8.db*, *mgmtdb9.db*, *mgmtdb10.db*, and *mgmtdb11.db*) contain the inventory information.

The *alterdb.props* file is installed on the database server in the *inventory_server_installation_directory\wminv\properties* directory. You can modify the sections in the file to specify the location of the database spaces on the volumes or drives.

The contents of the *alterdb.props* file are as follows:

```
#Database Space Properties

count=11

mgmtdb1=location_of_mgmtdb1
mgmtdb2=location_of_mgmtdb2
mgmtdb3=location_of_mgmtdb3
mgmtdb4=location_of_mgmtdb4
```

mgmtdb5=*location_of_mgmtdb5*
mgmtdb6=*location_of_mgmtdb6*
mgmtdb7=*location_of_mgmtdb7*
mgmtdb8=*location_of_mgmtdb8*
mgmtdb9=*location_of_mgmtdb9*
mgmtdb10=*location_of_mgmtdb10*
mgmtdb11=*location_of_mgmtdb11*
.....

To organize the database spaces:

- 1** Ensure that the database is not loaded.
- 2** Ensure that the Inventory Service Manager is not running on the Inventory server.
- 3** Manually move the database spaces files on the Inventory server.

Arrange the database space files in the following way for better performance:

- ◆ mgmtdb1 and mgmtdb2 in the same location
- ◆ mgmtdb3 and mgmtdb6 in the same location
- ◆ mgmtdb5 and mgmtdb7 in the same location
- ◆ mgmtdb8 and mgmtdb4 in the same location
- ◆ mgmtdb9 and mgmtdb10 in the same location
- ◆ mgmtdb11 in a location

IMPORTANT: If you want to move mgmtdb.db to another directory or volume on a network server, update the `sys:\system\mgmt dbs.ncf` file with the new location of the mgmtdb.db.

If you want to move mgmtdb.db to another directory or volume on a Windows server, run the `ntdbconfig.exe` located in the `zenworks\database\dbengine` directory. In the NTDBCONFIG dialog box, enter the new path of mgmtdb.db.

- 4** Modify the location of the eleven database space files in the `alterdb.props` file.

For example, for NetWare, enter `mgmtdb3=SYS: \\ZENWORKS\ \INV\ \DB` and for Windows, enter `mgmtdb3=C: \\ZENWORKS\ \INV\ \DB`

- 5** Load the database. Enter `mgmt dbs` on NetWare servers. On Windows servers, run the database service.

Ignore the error messages displayed on the console. These messages are displayed because the database spaces files are not loaded.

- 6** Ensure that the Database Location policy has been configured.

- 7** On the Inventory server console, run the AlterDBSpace service. Enter **StartSer AlterDBSpace**.

On the Inventory server, the AlterDBSpace tool runs as a service.

You will see a message that the database is adjusted.

8 Exit the database and then load the database.

Ensure that while loading the database there are no errors. Errors indicate that the specified location of the database space files are incorrect or do not exist. Ensure that the path of the database spaces is correct in the alterdb.props file and repeat the procedure to organize the database spaces.

IMPORTANT: If you place the database spaces in different volumes or drives, the log file should be placed in the same volume or drive as the System database file (mgmtdb.db).

Understanding the Sybase Database Startup Parameters

The startup parameters of the Sybase database are as follows:

- ◆ **-c:** Sets the initial memory reserves for caching database pages and other server information. For example, -c 32M reserves 32 MB cache size.
- ◆ **-gc:** Sets the maximum length of time in minutes that the database server runs without doing a checkpoint on each database. The default value is 60 minutes. For example, -gc 120 sets the checkpoint time as 120 minutes.
- ◆ **-gn:** Sets the number of execution threads to be used in the database server.
- ◆ **-m:** Deletes the transaction log when a checkpoint is done, either at shutdown or as a result of a checkpoint scheduled by the server.
- ◆ **-n:** Specifies the host name of the database server. For example, -n *IP_address*.
- ◆ **-ti:** Disconnects the connections that have not submitted a request for a certain number of minutes. The default is 240 (4 hours). A client machine in the middle of the database transaction locks until the transaction ends or the connection terminates. The -ti option is provided to disconnect inactive connections and to free their locks. For example, specify -ti 400.
- ◆ **-x:** Specifies a communication link. For example, -x tcpip indicates a TCP/IP link.
- ◆ **-ct:** Enables character set translation by converting strings between character sets that represent the same characters but at different values. This is useful when the client machine and the database use different character sets.
- ◆ **-gss:** Sets the stack size per internal execution thread in the server.
- ◆ **database_installation_path:** Specifies the installation path of the Inventory database. For example, c:\zenworks\inv\db\mgmtdb.db.

Backing Up the Sybase Inventory Database

Workstation Inventory provides a utility, Database Backup, to back up the Sybase Inventory database. We recommend that you back up the database on a weekly basis. However, if you are tracking the inventory of workstations frequently, increase the frequency of backup.

You can back up the database files and the transaction log to the location relative to the SCANDIR path.

You can run Database Backup either from the server console or ConsoleOne.

This section provides information on the following topics:

- ◆ “Running Database Backup from the Server Console” on page 861
- ◆ “Running Database Backup from ConsoleOne” on page 861
- ◆ “Restoring the Inventory Database” on page 862

Running Database Backup from the Server Console

Before running Database Backup from the server console, fulfill the following prerequisites:

- ❑ You can run Database Backup only on an Inventory server to which you have associated a database server. If you deployed more than one database server, you must run Database Backup for each database server.
- ❑ Ensure that the database you have to back up is configured in the Database Location policy. For more information on how to access the Database Location policy, see “Configuring the Database Location Policy” on page 878.
- ❑ In the [DBBackup Service] section of the server property file, you must modify the location of the backup destination in the ARGUMENTS parameter. The backup files are relative to the SCANDIR path. For example, if the SCANDIR path is `sys:\zenworks\inv\scandir`, the database is backed up in `sys:\zenworks\inv\database\directory_you_specify`. You must modify the server property file located on the server on which you are running Database Backup. Modify the server property file corresponding to the role of the server. For example, if you are running Database Backup on the Leaf Server with Database, modify the server property file, `leaf_db_wks.properties`.
- ❑ Ensure that the Service Manager is loaded when you run Database Backup.

To run Database Backup from the server console:

- 1 At the Inventory server console, enter **StartSer DBBACKUP**
- 2 View the status of the backup in the backup log file. The database will be copied to `zenworks_installation_path\zenworks\inv\db\directory_you_specify`

Database Backup creates a log file, `bacstatus.txt`, located in the `zenworks\inv\database` directory on NetWare and Windows 2000 servers. The log records the status of the backup operation. Open this text file to view the status of the backup. This file increases in size for every backup operation. Remove the existing contents of the file if you do not require the details.

Running Database Backup from ConsoleOne

- 1 In ConsoleOne, click Tools, click ZENworks Inventory, then click Database Backup.

If you want to back up the latest information in the Inventory database, right-click the database object, click ZENworks Inventory, then click Database Backup

- 2 Enter the path to the directory where the database backup will be saved

WARNING: Do not use double-byte characters in the directory name. If you do so, Sybase will interpret the double-byte characters as a different name, and will back up the database in the directory with the interpreted name.

If the Inventory database is running on a NetWare server, you can either enter the path or click Browse to browse for and select a directory. If you enter the database backup directory name without specifying the complete path, the backup directory will be created in the `sys:` directory.

If the Inventory database is running on a Windows machine, you must manually enter the backup directory path. If you enter the database backup directory name without specifying the complete path, the backup directory will be created in the `\winnt\system32` directory.

NOTE: If you want to back up the database to a non-existent directory, only one level of the new directory will be created. To back up the database to a subdirectory, ensure that the primary directory already exists. For example, if you want to back up the database to a new `c:\backup` directory, the `\backup` directory will be created and the database will be backed up. But if you want to back up the database to a new `\database` directory, located under `c:\backup`, the `\backup` directory must already exist.

3 Click Start Backup

This backs up the database to the specified directory on the server running the database and overwrites any existing files without prompting about the overwrite.

Database Backup creates a log file, `bacstatus.txt`, located in the `ConsoleOne_installation_directory\1.2\bin` directory on NetWare and Windows 2000 servers. The log records the status of the backup operation. Open this text file to view the status of the backup. This file increases in size for every backup operation. Remove the existing contents of the file if you do not require the details.

Restoring the Inventory Database

- 1 If the Inventory database server is up, stop the Storer service. At the database server console, enter **StopSer Storer**.
- 2 Exit the Sybase database.
 - ◆ On NetWare servers: At the database server prompt, enter **q** to stop the Sybase database.
 - ◆ On Windows 2000: In the Windows Control Panel, double-click Administrative Tools, double-click Services, select Novell Database - Sybase, then click Stop.
- 3 Copy the backup files, overwriting the working database files.
- 4 Restart the database server.

Setting Up the Oracle Inventory Database

The following sections explain how to set up the Inventory database for Oracle8i and Oracle 9i:

- ◆ “Creating the Oracle8i Inventory Database on a Windows Server” on page 863
- ◆ “Creating the Oracle9i Inventory Database on a Windows Server” on page 865
- ◆ “Creating the Oracle9i Inventory Database on a UNIX Server” on page 866
- ◆ “Manually Creating the Oracle Inventory Database Object” on page 868
- ◆ “Configuring and Running Multiple Oracle Database Instances on a Windows Server” on page 870

IMPORTANT: In this setup, the Inventory database is not mounted with any other version or instances of Oracle databases.

Creating the Oracle8i Inventory Database on a Windows Server

Ensure that the following prerequisites are met:

- Oracle 8.1.7 must be installed on the server.
- To maintain the Inventory database on Oracle, Workstation Inventory requires that you have a minimum of 25 user licenses.

You must manually create the Inventory database for Oracle on Windows servers by following the procedure below:

- 1 Create a directory `c:\schema` and copy all the files in the following directories from the *ZENworks 6.5 Companion 2* CD to the `\schema` directory:
`database\oracle8i\common`
`database\oracle8i\winntspecific`
- 2 By default `_create.sql`, `init.ora`, `_start.sql` are Read-only files. Make the files writable.
- 3 Create the `user_specified_path\zenworks\inventory\oracle\database\trace` directory structure.
- 4 In `c:\schema_create.sql`, replace all instances of `d:` with `user_specified_path`.
- 5 In `c:\schema\init.ora`, replace all instances of `d:` with `user_specified_path`.
- 6 In `c:\schema_start.sql`, replace all instances of `d:` with `user_specified_path`.
If `d:` is not found, check and correct the path of `INIT.ORA` in the database directory.
- 7 Copy `c:\schema\init.ora` to `user_specified_path\zenworks\inventory\oracle\database`.
- 8 Copy `c:\schema_start.sql` to `user_specified_path\zenworks`.
- 9 Ensure that the Oracle services are loaded correctly and no database is mounted.
- 10 At the command prompt, enter `svrmgrl` to load the Oracle Server Manager.
- 11 At the Oracle Server Manager prompt (svrmgrl prompt), enter `@c:\schema\schem.sql`.

Review the `c:\schema\inv.log` file to ensure that the database has been created successfully. If the database has not been successfully created, `inv.log` will contain the following error messages: Oracle not available, Out of space, Compilation error.

- 12 Add non-English enumerated (enum) values for certain Inventory attributes into the Inventory database.

IMPORTANT: You must perform this step on the English version of the product also.

You need to add the non-English enumerated values so the Inventory report can display the enum value for the inventory attributes in internationalized versions. The non-English enum values must be available in English version of the product so that the rolled-up inventory information from non-English sites can be properly captured at the high-level servers where only English versions are installed.

For more information about the list of attributes that contains enumerated values, see [Appendix M, “Enumeration Values,” on page 1145](#).

To add the non-English enum values:

12a Specify the JDBC connection settings in the `zenworks_directory\inv\server\wminv\properties\connection.prop` file to connect to the Oracle database.

You can do this by copying the template property settings for Oracle specified in the comments section in the `connection.prop` file. Specify the IP address, port number, and Database SID in the JDBC URL string that matches your Oracle server configuration.

12b At the server prompt, enter **AddEnums**
`directory_name_containing_connection.prop`

If your Inventory server is running on a Windows machine, run the above command from `zenworks_directory\inv\server\wminv\bin`.

12c Execute the following SQL statement at the svrmgrl prompt to ensure that the localized enumerated values are added correctly:

- ♦ To display the enumerated values in French: `connect mw_dba/password` and `SELECT * FROM cim.ostype_fr`
- ♦ To display the enumerated values in Spanish: `connect mw_dba/password` and `SELECT * FROM cim.ostype_es;`
- ♦ To display the enumerated values in German: `connect mw_dba/password` and `SELECT * FROM cim.ostype_de;`
- ♦ To display the enumerated values in Brazilian-Portuguese: `connect mw_dba/password` and `SELECT * FROM cim.ostype_pt_BR;`

13 At the svrmgrl prompt, enter `@c:\schema\schema1.sql`.

Review the `c:\schema\inv1.log` file to ensure that the database has been created successfully. If the database has not been successfully created, `inv1.log` will contain the following error messages: Oracle not available, Out of space, Compilation error.

14 At the svrmgrl prompt, enter `connect internal` to login as DBA.

15 At the svrmgrl prompt, enter `shutdown normal`.

16 At the svrmgrl prompt, enter `@path\zenworks_start.sql` to start the Inventory database.

17 Manually create the Inventory Database objects.

Creating the Oracle9i Inventory Database on a Windows Server

Ensure that the following prerequisites are met:

- ❑ Oracle9i release 2 must be installed on the server before configuring the Inventory database.
- ❑ To maintain the Inventory database on Oracle, Workstation Inventory requires that you have a minimum of 25 user licenses.

You must manually create the Inventory database for Oracle on Windows servers by following the procedure below:

- 1** Create a directory `c:\schema` and copy all the files in the following directories from the *ZENworks 6.5 Companion 2 CD* to the schema directory:
 - `database\oracle9i\common`
 - `database\oracle9i\winntspecific`
- 2** By default `_create.sql`, `init.ora`, `_start.sql` are Read-only files. Make the files writable.
- 3** Create the `user_specified_path\zenworks\inventory\oracle\database\trace` directory structure.
- 4** In `c:\schema_create.sql`, replace all instances of `d:` with `user_specified_path`.
- 5** In `c:\schema\init.ora`, replace all instances of `d:` with `user_specified_path`.
- 6** In `c:\schema_start.sql`, replace all instances of `d:` with `user_specified_path`.
If `d:` is not found, check and correct the path of `init.ora` in the database directory.
- 7** Copy `c:\schema\init.ora` to `user_specified_path\zenworks\inventory\oracle\database`.
- 8** Copy `c:\schema_start.sql` to `user_specified_path\zenworks`.
- 9** Ensure that Oracle services are loaded correctly and the database is not mounted.
- 10** At the command prompt, enter `sqlplus /nolog` to load the Oracle server manager.
- 11** At the Oracle Server Manager prompt (sqlplus prompt), enter `@c:\schema\schem.sql`.

Review the `c:\schema\inv.log` file to ensure that the database has been created successfully. If the database has not been successfully created, `inv.log` will contain the following error messages: `Oracle not available`, `Out of space`, `Compilation error`.

- 12** Add non-English enumerated (enum) values for certain Inventory attributes into the Inventory database.

IMPORTANT: You must perform this step on the English version of the product also.

You need to add the non-English enumerated values so the Inventory report can display the enum value for the inventory attributes in internationalized versions. The non-English enum values must be available in English version of the product so that the rolled-up inventory information from non-English sites can be properly captured at the high-level servers where only English versions are installed.

For more information about the list of attributes that contains enumerated values, see [Appendix M, "Enumeration Values," on page 1145](#).

To add the non-English enum values:

- 12a** Specify the JDBC connection settings in the `zenworks_directory\inv\server\wminv\properties\connection.prop` file to connect to the Oracle database.

You can do this by copying the template property settings for Oracle specified in the comments section in the connection.prop file. Specify the IP address, port number, and Database SID in the JDBC URL string that matches your Oracle server configuration.

12b At the server prompt, enter **AddEnums**
directory_name_containing_connection.prop

If your Inventory server is running on a Windows machine, run the above command from *zenworks_directory\inv\server\wminv\bin*.

12c Execute the following SQL statement at the sqlplus prompt to ensure that the localized enumerated values are added correctly:

- ♦ To display the enumerated values in French: **connect mw_dba/password** and **SELECT * FROM cim.ostype_fr**
- ♦ To display the enumerated values in Spanish: **connect mw_dba/password** and **SELECT * FROM cim.ostype_es;**
- ♦ To display the enumerated values in German: **connect mw_dba/password** and **SELECT * FROM cim.ostype_de;**
- ♦ To display the enumerated values in Brazilian-Portuguese: **connect mw_dba/password** and **SELECT * FROM cim.ostype_pt_BR;**

13 At the sqlplus prompt, enter **@c:\schema\schema1.sql**.

Review the *c:\schema\inv1.log* file to ensure that the database has been created successfully. If the database has not been successfully created, *inv1.log* will contain the following error messages: Oracle not available, Out of space, Compilation error.

14 At the sqlplus prompt, enter **connect / as sysdba** to login as DBA.

15 At the sqlplus prompt, enter **shutdown immediate**.

16 At the sqlplus prompt, enter **@path\zenworks_start.sql** to start the Inventory database.

17 Continue with [“Manually Creating the Oracle Inventory Database Object” on page 868](#).

Creating the Oracle9i Inventory Database on a UNIX Server

Make sure that the following prerequisites are met:

- Oracle 9.2.0.6 must be installed must be installed on Linux or Solaris versions supported by Oracle9i.
- Hard disk free space: 4 GB or above.
- Primary memory: 1 GB or above.
- To maintain the Inventory database on Oracle, Workstation Inventory requires that you have a minimum of 25 user licenses.

You must manually create the Inventory database for Oracle on UNIX servers by following the procedure below:

- 1** Log in as an Oracle user.
- 2** Create a /schema directory in the Oracle installation directory (by default, Oracle is installed in the /opt/oracle directory), and copy all the files in the following directories from the *ZENworks 6.5 SP2 Companion CD* to the schema directory:

database\oracle9i_unix\unixspecific
database\oracle9i_unix\common
- 3** By default, _create.sql, init.ora, _start.sql are Read-only files. Make the files writable.
- 4** Create the *user_specified_directory_path*/zenworks/inventory/oracle/database/trace directory structure in /opt/oracle.
- 5** In schema/init.ora, replace all instances of \$HOME with *user_specified_directory_path*.
- 6** In schema/_start.sql, replace all instances of \$HOME with *user_specified_directory_path*.
- 7** In schema/_create.sql, replace all instances of \$HOME with *user_specified_directory_path*.
- 8** In schema/schema.sql, replace all instances of \$HOME with the schema directory created in **Step 2**.
- 9** In schema/schema1.sql, replace all instances of \$HOME with the schema directory created in **Step 2**.
- 10** Copy schema/init.ora to *user_specified_directory_path*/zenworks/inventory/oracle/database.
- 11** Copy schema/_start.sql to *user_specified_directory_path*.
- 12** Make sure the Oracle services are up and running and no database is mounted.
- 13** At the command prompt, enter **sqlplus /nolog** to load the Oracle Server Manager.
- 14** At the Oracle Server Manager prompt, enter **@\$HOME/schema/schema.sql**, where \$HOME is the schema directory created in **Step 2**.
- 15** Review the schema/inv.log file to make sure that the database has been created successfully. If the database has not been successfully created, inv.log will contain the following error messages: Oracle not available, Out of space, Compilation error.
- 16** Add non-English enumerated (enum) values for certain Inventory attributes into the Inventory database.

IMPORTANT: You must perform this step on the English version of the product also.

You need to add the non-English enumerated values so the Inventory ConsoleOne utilities such as Inventory Report can display the enum value for the inventory attributes in internationalized versions. The non-English enum values must be available in English version of the product so that the rolled-up inventory information from non-English sites can be properly captured at the high-level servers where only English versions are installed.

To add the non-English enum values:

- 16a** On the Inventory Server machine, Specify the JDBC connection settings in the *zenworks_directory\inv\server\wminv\properties\connection.prop* file to connect to the Oracle database.

You can do this by copying the template property settings for Oracle specified in the comments section in the connection.prop file. Specify the IP address, port number, and Database SID in the JDBC URL string that matches your Oracle server configuration.

16b At the server prompt, enter **AddEnums**
directory_name_containing_connection.prop.

If your Inventory server is running on a Windows machine, run the above command from *zenworks_directory\inv\server\wminv\bin*.

16c Execute the following SQL statement at the sqlplus prompt to make sure that the localized enumerated values are added correctly:

- ♦ To display the enumerated values in French: **connect mw_dba/password** and **SELECT * FROM cim.ostype_fr**
- ♦ To display the enumerated values in Spanish: **connect mw_dba/password** and **SELECT * FROM cim.ostype_es;**
- ♦ To display the enumerated values in German: **connect mw_dba/password** and **SELECT * FROM cim.ostype_de;**
- ♦ To display the enumerated values in Brazilian-Portuguese: **connect mw_dba/password** and **SELECT * FROM cim.ostype_pt_BR;**
- ♦ To display the enumerated values in Japanese: **connect mw_dba/password** and **SELECT * FROM cim.ostype_ja;**

17 At the sqlplus prompt, enter **@\$HOME/schema/schema1.sql**, where \$HOME is schema directory created in [Step 2](#).

Review the schema/inv1.log file to make sure that the database has been created successfully. If the database has not been successfully created, inv1.log contains the following error messages: Oracle not available, Out of space, Compilation error.

18 At the sqlplus prompt, enter **connect / as sysdba** to login as DBA.

19 At the sqlplus prompt, enter **shutdown immediate**.

20 At the Oracle Server Manager prompt, enter **@user_specified_directory_path/zenworks/_start.sql** to start the Inventory database.

Manually Creating the Oracle Inventory Database Object

1 In ConsoleOne, right-click a location in the Novell eDirectory tree for the database object, then click New, click Object, click ZENworks Database, then click OK.

2 Type a name for the database object, then click OK.

3 Configure the database server options of the database object.

3a In ConsoleOne, right-click the database object (Inventory database_server_name), then click Properties, then click the ZENworks Database tab.

3b Select the database server object by using either of the following methods:

- ♦ If eDirectory is installed on the database server, then in the Server DN field, browse for and select the Server object of the server where the database is physically installed and running.

The server's IP address is automatically populated to the Server IP Address or DNS Name drop-down list. If the selected server object has more than one IP address, select the appropriate IP address.

IMPORTANT: Ensure that the DNS name of the database server configured for the database object is valid. If the DNS name is invalid, you must select an appropriate database server IP address in the Database object property page.

To clear the value set in the Server DN field, type the IP address of another database server or browse and select another server object.

- ◆ If eDirectory is not installed on the database server, then specify the server IP address or the DNS name in the Server IP Address or DNS Name field.

3c Specify the following values:

- ◆ **Database (Read-Write) User Name:** *MW_DBA*
- ◆ **Database (Read-Write) Password:** *novell*
- ◆ **Database (Read Only) User Name:** *MWO_READER*
- ◆ **Database (Read Only) Password:** *novell*
- ◆ **Database (Write Only) User Name:** *MWO_UPDATER*
- ◆ **Database (Write Only) Password:** *novell*

IMPORTANT: All Inventory components use the username and the password configured in the database object. By default, "novell" is the password for all options. But you can change it in the database, and update the same here.

3d Click Apply.

3e To configure the JDBC Driver properties, click the JDBC Driver Information tab.

3f Select Oracle, then click the Default Settings button.

This populates the fields with default JDBC driver information.

The database settings for Oracle are:

- ◆ **Driver:** *oracle.jdbc.driver.OracleDriver*
- ◆ **Protocol:** *jdbc:*
- ◆ **SubProtocol:** *oracle:*
- ◆ **SubName:** *thin:@*
- ◆ **Port:** *1521*
- ◆ **Flags:** This field is not applicable for Oracle
- ◆ **Database Service Name:** *orcl* (The value for the SID is the same as assigned for the database instance.)

3g Click Apply, then click Close.

Configuring and Running Multiple Oracle Database Instances on a Windows Server

Ensure that the following prerequisites are met:

- Oracle9i release 2 must be installed on the Windows Inventory server.
- To maintain the Inventory database in Oracle, Workstation Inventory requires that you have a minimum of 25 user licenses.
- You have already set up the Inventory database.

To configure and run Oracle instances:

- 1** At the database server, from the desktop Start menu, click Programs, click Oracle, click Database Administration, then click Oracle Database Configuration Assistant.
- 2** Click Create a Database, click Next, click Typical, click Next, click Copy Existing Database Files from the CD, then click Next.
- 3** Enter the following details:
 - ◆ **Global Database Alias:** `mgmt.db.your_windows_nt/2000_name`
 - ◆ **SID:** By default, the value is `mgmt.db`.
- 4** Click Finish.

This process takes a significant amount of time and creates the Oracle database.

Ensure that the OracleServiceMGMTDB service is created and started.

- 5** Load the Inventory database.

From the desktop menu, click Start, click Run, then click SQLPLUS to run the Oracle Server Manager.

Enter the following commands:

```
set instance mgmt.db  
connect internal/password_for_administrator
```

Setting Up the MS SQL Server 2000 Inventory Database

This section provides information on the following topics:

- ◆ “Configuring the MS SQL Server 2000 Inventory Database” on page 871
- ◆ “Manually Creating the MS SQL Server 2000 Inventory Database Object” on page 874
- ◆ “Connecting the Inventory Server and ConsoleOne to the MS SQL Server 2000 Inventory Database” on page 875

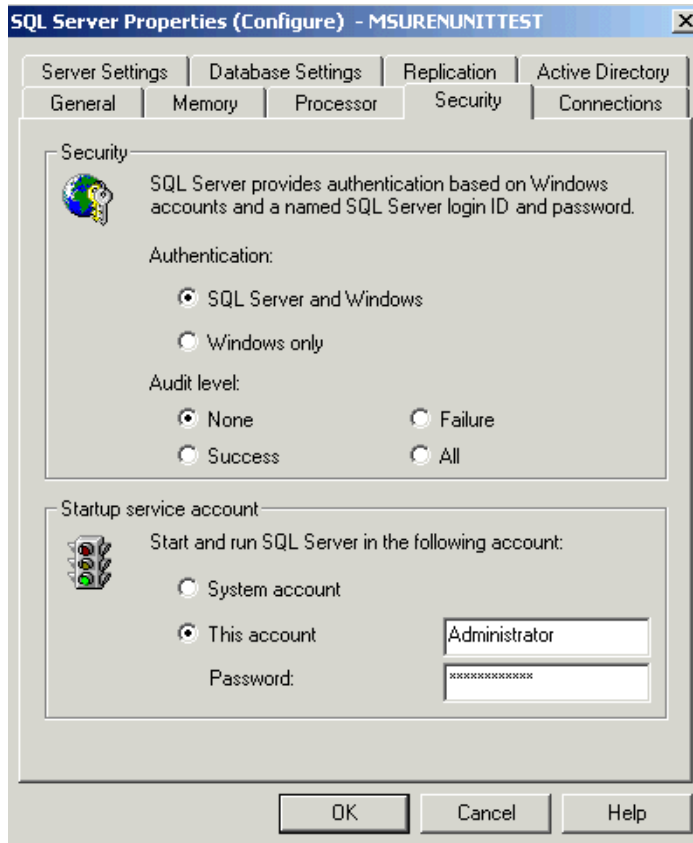
Configuring the MS SQL Server 2000 Inventory Database

Prerequisites for configuring the database include the following:

- Microsoft* SQL Server 2000 installed on the Windows server.
- Minimum free disk space of 50 MB to extract the p1mssqlinldb.zip file.
- Ensure that you have sufficient disk space to store the inventory information on the server that has the Inventory database.

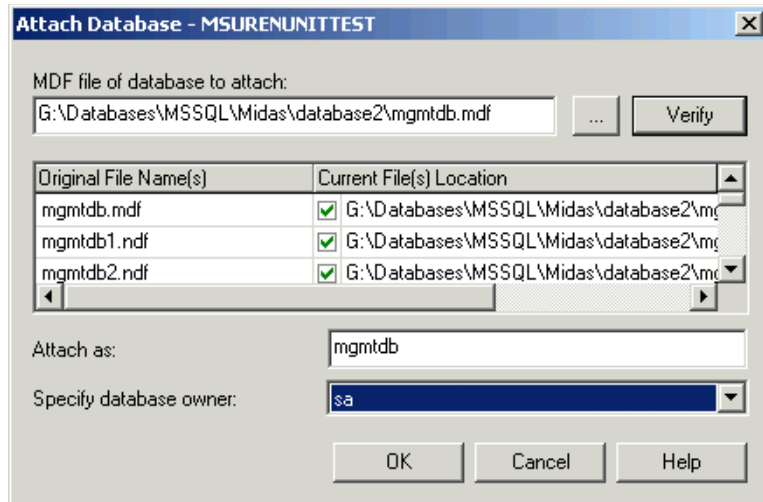
To configure the Inventory database for MS SQL Server 2000:

- 1** Copy the p1mssqlinldb.zip file from the *ZENworks 6.5 Companion 2 CD\database\mssql* directory to *path_of_inventory_database_directory_on_the_database_server*.
- 2** Extract p1mssqlinldb.zip.
- 3** From the MS SQL server desktop Start menu, click Programs, click Microsoft SQL Server, then click Enterprise Manager.
- 4** In the SQL Server Enterprise Manager, browse to Console Root/Microsoft SQL Servers/SQL Server Group/*machine_name_running_Inventory_database*.
- 5** Right-click *machine_name_running_Inventory_database*, then click Properties.
- 6** In the SQL Server Properties dialog box, click the Security tab and ensure that the authentication is set to SQL Server and Windows.



- 7** Click OK.
- 8** Browse to *machine_name_running_Inventory_database/Databases* and right-click Databases, click All Tasks, then double-click Attach Database.
- 9** In the Attach Database dialog box, do the following:
 - 9a** Click the Browse button to browse to and select mgmtdb.mdf as the .mdf database file to be attached.
 - 9b** Ensure that the value of the Attach As field is mgmtdb.
 - 9c** Select sa from the Specify database owner drop-down list.
 - 9d** Click OK.

The ZENworks Inventory database (mgmtdb) is attached to the Databases server group.



10 Select mgmtdb, then click the Tools menu, then click SQL Query Analyzer.

11 In the SQL Query Analyzer, do the following:

11a Ensure that mgmtdb is selected in the drop-down list.

11b Click File, then click Open.

11c Select the createloginnames.sql query file from *ZENworks 6.5 Companion 2* CD\database\mssql director directory.

11d Click Query, then click Execute.

On successful execution, the following message is displayed in the Message pane:

New Login Created

11e Login as MW_DBA in the SQL Query Analyzer and execute the following drop trigger sqls:

```
drop trigger cim.x$cim$component
go
drop trigger cim.x$cim$dependency
go
drop trigger managewise.x$managewise$designates
go
drop trigger managewise.x$managewise$currentloginuser
go
drop trigger managewise.x$managewise$lastloginuser
go
drop trigger cim.x$cim$installedsoftwareelement
go
```

NOTE: During the execution of the drop trigger sqls, the following error message might be displayed on the console, "Cannot drop the trigger '*trigger_name*', because it does not exist in the system catalog". Ignore the error message.

- 12** (Optional) Add non-English enumerated (enum) values for certain Inventory attributes into the Inventory database.

You need to add the non-English enumerated values so the Inventory report can display the enum value for the inventory attributes in internationalized versions. The non-English enum values must be available in English version of the product so that the rolled-up inventory information from non-English sites can be properly captured at the high-level servers where only English versions are installed.

For more information about the list of attributes that contains enumerated values, see [Appendix M, “Enumeration Values,” on page 1145](#).

To add the non-English enum values:

- 12a** Specify the JDBC connection settings in the `zenworks_directory\inv\server\wminv\properties\connection.prop` file to connect to the MS SQL database.

You can do this by copying the template property settings for MS SQL specified in the comments section in the `connection.prop` file. Specify the IP address, port number, and Database SID in the JDBC URL string that matches your MS SQL server configuration.

- 12b** At the server prompt, enter **AddEnums**
`directory_name_containing_connection.prop`

If your Inventory server is running on a Windows machine, run the above command from `zenworks_directory\inv\server\wminv\bin`.

After executing the command, the a message indicating that the non-English enums have been successfully inserted is displayed on the console prompt.

- 13** Continue with [“Manually Creating the MS SQL Server 2000 Inventory Database Object” on page 874](#).

Manually Creating the MS SQL Server 2000 Inventory Database Object

- 1** In ConsoleOne, right-click a location in the Novell eDirectory tree for the database object, then click New, click Object, click ZENworks Database, then click OK.
- 2** Type a name for the database object, then click OK.
- 3** Configure the database server options of the database object.
 - 3a** In ConsoleOne, right-click the database object (Inventory database_*server_name*), then click Properties, then click the ZENworks Database tab.
 - 3b** Select the database server object by using either of the following methods:
 - ◆ If eDirectory is installed on the database server, then in the Server DN field, browse for and select the Server object of the server where the database is physically installed and running.

The server's IP address is automatically populated to the Server IP Address or DNS Name drop-down list. If the selected server object has more than one IP address, select the appropriate IP address.

IMPORTANT: Ensure that the DNS name of the database server configured for the database object is valid. If the DNS name is invalid, you must select an appropriate database server IP address in the Database object property page.

To clear the value set in the Server DN field, type the IP address of another database server or browse and select another server object.

- ◆ If eDirectory is not installed on the database server, then specify the server IP address or the DNS name in the Server IP Address or DNS Name field.

3c Specify the following values:

- ◆ **Database (Read-Write) User Name:** *MW_DBA*
- ◆ **Database (Read-Write) Password:** *novell*
- ◆ **Database (Read Only) User Name:** *MWM_READER*
- ◆ **Database (Read Only) Password:** *novell*
- ◆ **Database (Write Only) User Name:** *MWM_UPDATER*
- ◆ **Database (Write Only) Password:** *novell*

IMPORTANT: All Inventory components use the username and the password configured in the database object. By default, “novell” is the password for all options. But you can change it in the database, and update the same here.

3d Click Apply.

3e To configure the JDBC Driver properties, click the JDBC Driver Information tab.

3f Select MSSQL, then click the Default Settings button.

This populates the fields with default JDBC driver information.

The database settings for MS SQL are:

- ◆ **Driver:** *com.microsoft.jdbc.sqlserver.SQLServerDriver*
- ◆ **Protocol:** *jdbc:*
- ◆ **SubProtocol:** *microsoft:*
- ◆ **SubName:** *sqlserver://*
- ◆ **Port:** *1433*
- ◆ **Flags:** This field is not applicable for MS SQL.
- ◆ **Database Service Name:** This field is not applicable for MS SQL.

3g Click Apply, then click Close.

4 Continue with “[Connecting the Inventory Server and ConsoleOne to the MS SQL Server 2000 Inventory Database](#)” on page 875.

Connecting the Inventory Server and ConsoleOne to the MS SQL Server 2000 Inventory Database

The Inventory server components and the ConsoleOne use Microsoft JDBC driver to connect to the Inventory database on MS SQL 2000. You must install and configure Microsoft SQL Server 2000 driver for JDBC driver with the Inventory system.

To configure the Microsoft SQL Server 2000 driver for JDBC to access the Inventory database running on MS SQL 2000:

- 1** Download the Windows English version of Microsoft JDBC driver from the [Microsoft SQL Server web site](http://www.microsoft.com/downloads/details.aspx?FamilyID=9f1874b6-f8e1-4bd6-947c-0fc5bf05bf71&DisplayLang=en) (<http://www.microsoft.com/downloads/details.aspx?FamilyID=9f1874b6-f8e1-4bd6-947c-0fc5bf05bf71&DisplayLang=en>).
- 2** Install the driver on a Windows machine.
- 3** Copy the msbase.jar, msutil.jar and mssqlserver.jar files to *inventory_server_installation_directory\inv\server\lib* directory.

- 4** On the machine, running ZENworks 6.5 Desktop Management ConsoleOne with Inventory snap-ins, copy the `msbase.jar`, `msutil.jar` and `mssqlserver.jar` files to `consoleone_installation_directory\lib\zen` directory.
- 5** In ConsoleOne, create a database object in the same container where Inventory server is installed.
 - 5a** Right-click the container.
 - 5b** Click New, click Object, select ZENworks Database from the list of objects, then click OK.
 - 5c** Enter a name for the database object, then click OK.
- 6** Configure the Database server options of the Database object.
 - 6a** In ConsoleOne, right-click the database object, click Properties, then click the ZENworks Database tab.
 - 6b** Select the database server object using any of the following methods:
 - ◆ If eDirectory is installed on the database server: in the Server DN field, browse for and select the Server object for the server where the database is physically installed and running.

The server's IP address is automatically populated to the Server IP Address or DNS Name drop-down list. If the selected server object has more than one IP address, select the appropriate IP address.

IMPORTANT: Ensure that the DNS name of the database server configured for the database object is valid. If the DNS name is invalid, you must select an appropriate database server IP address in the Database object property page.

To clear the value set in the Server DN field, type the IP address of another database server or browse and select another server object.
 - ◆ If eDirectory is not installed on the database server, then enter the server's IP address or the DNS name in the Server IP Address or DNS Name field.
 - 6c** Type the values for the following options:
 - ◆ **Database (Read-Write) User Name:** `MW_DBA`
 - ◆ **Database (Read-Write) Password:** `novell`
 - ◆ **Database (Read Only) User Name:** `MWM_READER`
 - ◆ **Database (Read Only) Password:** `novell`
 - ◆ **Database (Write Only) User Name:** `MWM_UPDATER`
 - ◆ **Database (Write Only) Password:** `novell`
 - 6d** Click Apply.
 - 6e** To configure the JDBC Driver properties, click the JDBC Driver Information tab.
 - 6f** Select MS SQL, then click Default Settings.

This populates the fields with default JDBC driver information.

Modify the database settings based on the configuration of your MS SQL Server. The database settings for MS SQL are:
 - ◆ **Driver:** `com.microsoft.jdbc.sqlserver.SQLServerDriver`
 - ◆ **Protocol:** `jdbc:`

- ◆ **SubProtocol:** *microsoft*.
- ◆ **SubName:** *sqlserver://*
- ◆ **Port:** *1433*
- ◆ **Flags:** Not applicable for MS SQL
- ◆ **Database Service Name:** Not applicable for MS SQL

6g Click Apply, then click Close.

For more information on Performance tips, see [“Database Parameter Tuning Tips” on page 1107](#).

Configuring the Inventory Service Object

The Inventory Service object settings configure scanning for the associated inventoried workstations.

To configure the Inventory Service object:

- 1** In ConsoleOne, right-click the Inventory Service object (Inventory Service_ *server_name*), then click Properties to display the Inventory Service Object Properties page.
- 2** Modify the following settings:

Inventory Server Role: Based on the servers that you have deployed for scanning inventory, you must specify the role of the server.

Discard Scan Data Time: Any scan data files (.zip files) that have scan information collected before the Discard Scan Data Time that you specify in the Inventory Service Object property page will be discarded.

Scan Directory Path: The directory on the Inventory server where scans received from the workstation or rolled up from other Inventory servers will be stored for further processing. On a NetWare Inventory server, the scan directory path is `\\complete_DNS_name_of_the_server\directory_path_of_scandir`. For example, `\\complete_DNS_name_of_the_server\sys:\zenworks\inv\scandir`. On a Windows Inventory server, the scan directory path is `\\complete_DNS_name_of_the_server\scandir`.

Enable Scan: To scan the inventoried workstations associated with the Inventory Service object, you must enable the scan option listed in the Inventory Service object property page. To disable the scanning of the inventoried workstations, deselect this option.

Start Full Scan: When scanning the inventoried workstation for the first time, the Scanner collects the complete inventory of the inventoried workstation. A complete inventory scan of the inventoried workstation is referred as a *full scan*. After the inventoried workstation is scanned, the next time the Scanner compares the current inventory information to the history data that it maintains. If there are any changes to the inventoried workstation, the Scanner creates a *delta scan*, which collects the changes in inventory since the last scan was done. The delta scan setting is the default scan operation for each successive scan after the first scanning of the inventoried workstation. If the Status Log reported by the inventory component indicates the scanning on the inventoried workstation is not successful, you can enforce a full scan. This policy setting is applicable for all inventoried workstations associated with it. To override the policy, set this option for an individual inventoried workstation. For more information about the Workstation object settings, see [“Configuring the Workstation Inventory Policy” on page 879](#).

NOTE: Using the Workstation Inventory policy, you can configure the Scheduled Full scan to send a full scan after a certain number of delta scans. The value must be between 5 and 65535. If you do not want the Scheduled Full scan, set the value to 65535

3 Click the Dictionary Settings tab and configure the required software dictionary rules. For more information, “[Configuring the ZENworks 6.5 SP1 or Later Software Dictionary Rules](#)” on page 988.

4 Click OK.

NOTE: If you are modifying the Inventory policies or configuring the objects, always stop the Inventory services. Configure the policies and properties of the objects. Restart the Inventory services again.

Configuring the Database Location Policy

The Database Location policy contains the location of the Inventory database. You can associate the Database Location policy with a container under which the Inventory Service object (Inventory Service_ *server_name*) is located through using the Service Location Package or with an Inventory server through using the Server Package.

NOTE: If you configure the Service Location Package and the Server Package, the Server Package settings will override the Service Location Package settings.

To associate the Database object with a container under which the Inventory Service object is located:

1 In ConsoleOne, right-click the Service Location Package, then click Properties to display the Policies page.

2 Select the check box under the Enabled column for the ZENworks Database policy.

3 Click Properties to display the Inventory Management page.

4 Browse to the DN of the Inventory Database object (Inventory database_ *server_name*), then click OK.

For a Sybase database, the database object is automatically created during the Workstation Inventory installation unless you are installing on a Windows server without eDirectory installed. To manually create the database object, see “[Manually Creating the Sybase Inventory Database Object](#)” on page 857.

For an Oracle database, you must create the database object and configure the object. For more information, see “[Setting Up the Oracle Inventory Database](#)” on page 863.

For an MS SQL database, you must configure the database object. For more information, see “[Setting Up the MS SQL Server 2000 Inventory Database](#)” on page 871.

5 Click OK.

6 Click the Associations tab, then click Add.

7 Browse to select the container under which the Inventory Service object (Inventory Service_ *server_name*) is located, then click OK.

8 Click Apply, then click Close.

To associate the Database object with an Inventory server:

- 1** In ConsoleOne, right-click the Server Package, then click Properties to display the Policies page.
- 2** Select the check box under the Enabled column for the ZENworks Database policy.
- 3** Click Properties to display the Inventory Management page.
- 4** Browse to the DN of the Inventory Database object (Inventory database_ *server_name*), then click OK.

For a Sybase database, the database object is automatically created during the Workstation Inventory installation unless you are installing on a Windows server without eDirectory installed. To manually create the database object, see [“Manually Creating the Sybase Inventory Database Object” on page 857](#).

For an Oracle database, you must create the database object and configure the object. For more information, see [“Setting Up the Oracle Inventory Database” on page 863](#).

For a MS SQL database, you must configure the database object. For more information, see [“Setting Up the MS SQL Server 2000 Inventory Database” on page 871](#).

- 5** Click OK.
- 6** Click the Associations tab, then click Add.
- 7** Browse to select an NCP server object of an Inventory server, then click OK.
- 8** Click Apply, then click Close.

NOTE: If you are modifying the Inventory policies or configuring the objects, always stop the Inventory services. Configure the policies and properties of the objects. Restart the Inventory services again. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).

Configuring the Workstation Inventory Policy

- 1** In ConsoleOne, right-click the Workstation package, then click Properties to display the Policies page.
- 2** Click the Policies tab, and then select a specific platform from the drop-down list to configure and enable the policy for that platform. The available platforms include: Windows 9x, WinNT-2000-XP, Windows NT, Windows 2000, or Windows XP.
- 3** Select the check box under the Enabled column for the Workstation Inventory Policy.
- 4** Click Properties to display the Workstation Inventory Policy page.
- 5** In the General page, configure the following settings:
 - 5a** Browse to and select the DN of the Inventory Service object (Inventory Service_ *server_name*).
 - 5b** Specify the number of delta scans after which a full scan is required.
- 6** (Optional) Customize the Inventory scan.
 - 6a** Click the Hardware Scan tab to specify the following settings:

Enable DMI Scan: Select this option to include scanning of hardware information from Desktop Management Interface (DMI) on the inventoried workstations.

Enable WMI Scan: Select this option to include WMI scanning of hardware information from Microsoft's Windows Management Instrumentation (WMI) on the inventoried workstations.

Enable Custom Scanning: Select this option to include Custom scanning of the inventoried workstations. You need to enter the name of the Custom Scan executable that should be run for custom scanning.

Custom Attribute Editor: Click this button to specify the list of custom attributes. Modify the list if necessary.

- 6b** To customize the software scan settings for the Windows inventoried workstations where ZENworks for Desktops 3.2, ZENworks for Desktops 4, or ZENworks for Desktops 4.0.1 is installed, click the Software Scan tab and configure the following settings. For more information, see [“Customizing the Software Inventory Information To Be Scanned For ZENworks for Desktops 4.X and Earlier Versions of Inventoried Workstations”](#) on page 1024.

IMPORTANT: Do not configure the settings for the inventoried workstations that have ZENworks 6.5 Desktop Management installed. To configure the software scan settings for ZENworks 6.5 Desktop Management inventoried workstations, see [“Customizing the Software Inventory Information To Be Scanned For ZENworks 6.5 or ZENworks 6.5 Support Packs Inventoried Workstations”](#) on page 958.

Enable Software Scan: Enables software scanning for the inventoried workstations associated with the Inventory policy. The scan program collects software information for the inventoried workstations and stores it in the Inventory database.

Custom Scan Editor: Enables you to customize the list of application details to scan for at the inventoried workstations. The Inventory scanner scans for the details of the applications listed in the Custom Scan Editor.

For example, specify the following details in the Custom Scan Editor: Vendor Name=Microsoft; Product Name=Microsoft Office; Product Version=10.0; FileName=winword.exe; File Size=1 MB. The Inventory scanner scans for the winword.exe file having a size of 1 MB on the inventoried workstations. If the file is found, the scanner stores “Microsoft;Microsoft Office;10.0” for “winword.exe;1 MB” in the Inventory database.

Product Identification Number: Enables you to scan for the product identification number of the Microsoft applications installed on the inventoried workstations.

Product Location: Enables you to scan for the full path of the applications installed on the inventoried workstations.

Perform only Custom Scanning: Enables you to scan only the customized software applications that are selected in the Custom Scan Editor.

- 6c** Click the Configuration Editor tab. If required, modify the settings of the following .ini files.

- ◆ **SWRules:** Configure the SWRules file for the Windows inventoried workstations on which ZENworks for Desktops 3.2, ZENworks for Desktops 4, or ZENworks for Desktops 4.0.1 is installed. Do not configure the file for the inventoried workstations that have ZENworks6.5 Desktop Management installed.

Use the SWRules file to customize the software scanning information of vendors and products. For more information on how to configure this file, see [“Customizing the Software Inventory Information To Be Scanned For ZENworks for Desktops 4.X and Earlier Versions of Inventoried Workstations”](#) on page 1024.

- ◆ **Asset Information:** Use this file to scan for vendor-specific information from the Desktop Management Interface (DMI). For more information how to configure this file, see [“Scanning for Vendor-Specific Asset Information from DMI” on page 954.](#)
- ◆ **Zipped Names:** Use this file to customize the hardware scanning of Jaz* and Zip* drives. For more information how to configure this file, see [“Customizing the Hardware Scanning Information of Jaz, Zip, and Floppy Drive Vendors” on page 953.](#)
- ◆ **IBM Names:** Use this file to scan for the IBM computer models. For more information how to configure this file, see [“Scanning for IBM Computer Models” on page 952.](#)
- ◆ **HWRules:** Use this file to customize the nominal size of monitors. For more information on how to configure the HWRules.ini file, see [“Customizing the Hardware Information for Monitor’s Size” on page 956.](#)

- 7** Click Apply.
- 8** Click the Policy Schedule tab.
- 9** Modify the settings for scheduling the scan of the inventoried workstations, click Apply, then click Close.
- 10** Click the Associations tab, then click Add.
- 11** Browse to and select the container object where the inventoried workstations are registered, then click OK.
- 12** Click Apply, then click Close.
- 13** In ConsoleOne, right-click the Inventory Service object (Inventory Service_*server_name*), click Properties, then click the Inventory Service object tab.
- 14** Make sure Enable Scan of Machines is selected, then click OK.

Configuring the Roll-Up Policy

The Roll-Up policy configures the Inventory server for roll-up of scan information. The settings in the Roll-Up policy identify the next-level Inventory server (DN of the Inventory Service object) for moving the inventory information from the selected Inventory server. These settings are stored in eDirectory and are associated with the Inventory server object.

To configure the Roll-Up policy:

- 1** In ConsoleOne, right-click the Server Package, click Properties, click Policies, then select the appropriate sub-option. If you want to this policy to be applied on all servers, select the General sub-option.
- 2** Select the check box under the Enabled column for the Inventory Rollup Policy.
- 3** Click Properties to display the Roll-Up Policy page.

- 4 Browse to and select the DN of the Inventory Service object (Inventory Service_ *server_name*).

Destination Server Object: You must specify the DN of the Inventory Service object at the next level Inventory server for moving the inventory information from the selected Inventory server. The server that you specify must be another Intermediate Server, Intermediate Server with Database, Intermediate Server with Database and Inventoried Workstations, Intermediate Server with Inventoried Workstations, Root Server, or Root Server with Inventoried Workstations.

NOTE: Ensure that the specified Inventory server is a different server, because the roll-up of information cannot happen on the same Inventory server. Also, the higher level roll-up Inventory server cannot specify the lower-level Inventory server as the next-destination server for roll-up of information.

If you want to roll up to an Inventory server in a different eDirectory tree, click the Set Context button, enter the tree name, and select the Inventory Service object of the next-level server.

- 5 By default, the DNS name or the IP address (if a DNS name is not configured) of the next-level server is populated in the field. If the next-level server has multiple IP addresses, select the preferred address.

IMPORTANT: Ensure that the DNS name of the next-level server is valid. If the DNS name is invalid, you must select an appropriate server IP address.

- 6 If the roll-up is to an Inventory server that is across the firewall, specify the IP address or the DNS name and the port number of the proxy server.

- 7 Click Apply.

- 8 Click the Roll-Up Policy tab, then click Roll-Up Schedule.

- 9 Modify the settings for scheduling the roll-up time, then click Apply.

When you schedule the roll-up of information in the Inventory policies, we recommend the roll-up frequency should be at least one day. It is likely that if the roll-up of inventory information is scheduled too frequently, for example less than one hour, there might be some performance degradation of the Inventory server.

- 10 (Conditional) If you have not yet associated the Server Package, you will be prompted to associate it with an Inventory server or a container. The policy you configured and enabled earlier will not be in effect until you associate this policy package with an Inventory server or a container.

To associate the policy package:

- 10a Click the Associations tab, then click Add.

- 10b Browse for and select the Inventory server or the container that you want to associate the Roll-Up policy to.

- 10c Click OK, then click OK.

- 11 Click Apply, then click Close.

NOTE: If you are modifying the Inventory policies or configuring the objects, always stop the Inventory services. Configure the policies and properties of the objects. Restart the Inventory services again. For more information, see ["Starting and Stopping the Inventory Service" on page 843](#).

Configuring the Dictionary Update Policy

The Dictionary Update policy configures the Inventory server to receive the software dictionary updates from other Inventory servers. You must manually download the dictionary updates to at least one Inventory server in your network. This Inventory server can then act as the source of dictionary updates to other Inventory servers.

- 1** In ConsoleOne, right-click the Server Package, click Properties, click Policies, then select the appropriate sub-option. If you want to this policy to be applied on all servers, select the General sub-option.
- 2** Select the check box under the Enabled column for the Dictionary Update policy.
- 3** Click Properties to display the Dictionary Update Policy page.
- 4** Configure the following settings:
 - 4a** (Recommended) Select the “Use the Roll-Up Server as the Update Source” check box if you want the Dictionary Update Service to use the Inventory server configured in the Roll-Up policy as the source for dictionary updates. If you do not select this option, the Dictionary Update Service will use the following settings.

If you select this check box, continue with [Step 9 on page 884](#). If you do not select this option, the Dictionary Update Service will use the following settings configured in this policy (Dictionary Update Policy); continue with [Step 4b on page 883](#).

NOTE: Do not select this option for a Standalone Server and a Root Server. You must manually configure the following settings of the policy.
 - 4b** In the Source Service Object field, browse to select the DN of the Inventory server, which provides the dictionary updates.
 - 4c** Select the IP address or the DNS name of the Inventory server, which provides the dictionary updates.
 - 4d** If the source Inventory server is across the firewall, specify the IP address or the DNS name and the port number of the XML proxy server.
 - 4e** Click Apply.
- 5** Click the Dictionary Update Policy tab, then click the Dictionary Update Schedule sub-option.
- 6** Configure the Dictionary Update Schedule page to establish the schedule for running the Dictionary Consumer.

We recommend you to configure the Weekly schedule.
- 7** Click Apply.
- 8** (Conditional) If you have not yet associated the Server Package, you will be prompted to associate it with an Inventory server or a container. The policy you configured and enabled earlier will not be in effect until you associate this policy package with an Inventory server or a container.

To associate the policy package:

8a Click the Associations tab, then click Add.

8b Browse for and select the Inventory server or the container that you want to associate the Dictionary Update policy to.

8c Click OK, then click OK.

9 Click Apply, then click Close.

NOTE: If you want to modify the Dictionary Update policy settings, you need not stop the Inventory services.

Setting Up Distribution of Dictionary

A software dictionary can be updated in the following ways:

- ♦ Manually download the dictionary from TID 10093255 in the [Novell Support Knowledgebase](http://support.novell.com/search/kb_index.jsp) (http://support.novell.com/search/kb_index.jsp) to each Inventory server.

NOTE: The dictionary is updated and published once in every three months in this TID.

- ♦ Manually download the dictionary from the Novell Support web site to one Inventory server (preferably, the Root Server) and automatically distribute the dictionary to all servers in your setup by configuring the Dictionary Update policy.

An Inventory server can receive dictionary updates from any other Inventory server, irrespective of the server's role. The role of the Inventory server indicates whether the server receives the inventory information, stores the information into a local Inventory database, or rolls up the inventory information.

To update and distribute the software dictionary between Inventory servers:

- 1** Manually download the dictionary from the Novell Support Web site and save it in the `zenworks_installation_directory\zenworks\inv\server\dictdir` directory on the Inventory server.
- 2** Configure the Dictionary Update policy. For more information see, “[Configuring the Dictionary Update Policy](#)” on page 883.

All Inventory servers have Dictionary Provider and Dictionary Consumer services that are automatically installed during the Workstation Inventory installation.

When an Inventory server is started, the Dictionary Consumer reads the Dictionary Update policy and contacts the Dictionary Provider (running on another Inventory server) specified in the policy.

Subsequently, the Dictionary Consumer checks for the dictionary updates based on the schedule set in the Dictionary Update policy. It compares the date of the dictionary file on the Dictionary Provider with the file that has been locally stored. If the file on the Dictionary Provider is latest, then the Dictionary Consumer downloads the file from the Dictionary Provider using XML-RPC as per the schedule.

The user-defined rules in the downloaded dictionary file are merged with the rules present in the local dictionary. If the merge yields a different set of rules from those locally present, the consolidated set of rules is written to the local dictionary. During the merge process, conflicts might arise, which are resolved on the basis of the following considerations:

- ♦ The rules in the downloaded dictionary always override the rules in the local dictionary.
- ♦ If a conflict arises between the software identifiers, the conflicting identifiers in the local dictionary are removed from the final (merged) dictionary.

- ◆ For a software dictionary rule, the final result is obtained by first writing the downloaded rules and then the local rules into the final dictionary; eliminating the duplicates during the process. This ensures that the downloaded software rules precede the local rules.

The following scenario illustrates the distribution of the software dictionary among the Inventory servers. In this scenario, there is an Inventory tree consisting of one Root Server (R1), one Leaf Server (L1), and two Standalone servers (S1 and S2). L1 rolls up the inventory information to R1.

Follow the below procedure to update the software dictionary on all the Inventory servers.

1. Manually download the dictionary on R1 from the [Novell Support Web site \(http://support.novell.com/cgi-bin/search/searchtid.cgi?/10093255.htm\)](http://support.novell.com/cgi-bin/search/searchtid.cgi?/10093255.htm).
2. Create and configure a Dictionary Update policy by specifying R1 as the Dictionary Provider, and associate the policy to L1. For more information on how to configure the Dictionary Update policy, see “[Configuring the Dictionary Update Policy](#)” on page 883.
3. For S1 and S2, you can either manually download the dictionary from the Novell Support Web site or configure the Inventory servers to automatically receive the latest version of the dictionary from R1.

For S1 and S2 to automatically receive the latest version of the dictionary from R1, create and configure a Dictionary Update policy by specifying R1 as the Dictionary Provider, and associate the policy to S1 and S2. For more information on how to configure the Dictionary Update policy, see “[Configuring the Dictionary Update Policy](#)” on page 883.

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Understanding Workstation Inventory Components

The following sections describe the Novell® ZENworks® 6.5 Workstation Inventory components and processes:

- ◆ “Understanding the Inventory Service Manager” on page 887
- ◆ “Understanding the Server Configuration Service” on page 889
- ◆ “Understanding the Inventory Scanner” on page 890
- ◆ “Understanding the Sender-Receiver” on page 896
- ◆ “Understanding the TCP Receiver” on page 900
- ◆ “Understanding the Selector” on page 901
- ◆ “Understanding the Storer” on page 902
- ◆ “Understanding the Str Converter” on page 903
- ◆ “Understanding the Inventory Sync Service” on page 903
- ◆ “Understanding the Dictionary Provider - Dictionary Consumer” on page 905
- ◆ “Understanding the Upgrade Service” on page 905
- ◆ “An Overview of the Inventory Components on an Inventory Server” on page 906
- ◆ “Understanding the Inventory Database” on page 907

Understanding the Inventory Service Manager

The Inventory Service Manager loads the inventory components on the Inventory server, based on the configuration parameters specified in the Inventory server properties file.

This sections contains the following:

- ◆ “List of Services” on page 887
- ◆ “Services on NetWare Inventory Servers” on page 888
- ◆ “Services on Windows Servers” on page 888

List of Services

The Service Manager loads the following important services. You can obtain the list of services that the Service Manager loads from the property file in *inventory_server_installation_directory_or_volume\zenworks\inv\server\wminv\properties*.

Server Configuration Service

Inventory Scheduler Service

Inventory Scheduler Service
Selector Service
Receiver Service
Sender Service
Storer Service
Str Converter Service
Upgrade Service
Dictionary Consumer Service
Dictionary Provider Service

You can use these service names to list, start, and stop the respective services.

The Inventory Service Manager reads the server property file (config.properties) and the role-based property file in the *inventory_server_installation_directory_or_volume\zenworks\inv\server\wminv\properties* directory, and loads the required services and server components.

IMPORTANT: Do not modify the property files because the updates might fail to load the services or the Service Manager.

Services on NetWare Inventory Servers

To start the Inventory server on a Novell NetWare[®] Inventory server, run `startinv.ncf` at the server console prompt.

You can start, stop, or list the services, if the Inventory Service Manager is already loaded.

- ◆ To check if the Inventory Service Manager is loaded, enter `java -show` at the Inventory server prompt

This will display the following message:

```
com.novell.zenworks.inventory.  
servercommonZENWorksInventoryServiceManager
```

- ◆ To start an Inventory service, enter `StartSer service_name` at the Inventory server prompt. *service_name* refers to any of the listed services. Follow the service naming syntax when you modify the *service_name*.

For example, to start the Storer, enter `StartSer Storer`

- ◆ To stop an Inventory service, enter `StopSer service_name` at the Inventory server prompt. *service_name* refers to any of the listed services. Follow the service naming syntax when you modify the *service_name*

For example, to stop the Storer, enter `StopSer Storer`

- ◆ To stop all Inventory services, enter `StopSer *` at the console prompt.
- ◆ To list an Inventory service, enter `ListSer service_name` at the Inventory server prompt. *service_name* refers to any of the listed services. Follow the service naming syntax when you modify the *service_name*.
- ◆ To list all Inventory services, enter `ListSer *` at the console prompt.

Services on Windows Servers

To manually start the Inventory service on the Windows* 2000/2003 Inventory server:

- 1** In the Control Panel, double-click Administrative Tools.
- 2** Double-click Services.
- 3** Select Novell Inventory Service, then click Start.

You can start, stop, or list the services, if the Inventory Service Manager is already loaded. In the Control Panel, double click Services and check the status of the Inventory service

- ◆ To start an Inventory service, enter **StartSer *service_name*** at the command prompt. *service_name* refers to any of the listed services. Follow the service naming syntax when you modify the *service_name*.

For example, to start the Storer, enter **StartSer Storer**

- ◆ To stop an Inventory service, enter **StopSer *service_name*** at the command prompt. *service_name* refers to any of the listed services. Follow the service naming syntax when you modify the *service_name*.

For example, to stop the Storer, enter **StopSer Storer**

- ◆ To list an Inventory service, enter **ListSer *service_name*** at the command prompt. *service_name* refers to any of the listed services. Follow the service naming syntax when you modify the *service_name*.

To list all Inventory services, enter **ListSer "*"**

NOTE: The StartSer, StopSer, and the ListSer are located in the *installation_directory*\WMIN\BIN directory.

- ◆ To stop the Inventory services on the Windows 2000/2003 Inventory server:
 1. In the Control Panel, double-click Administrative Tools.
 2. Double-click Services.
 3. Select Novell Inventory Service, then click Stop.

Understanding the Server Configuration Service

The Server Configuration Service performs the following tasks:

1. Reads the policy information from the Novell eDirectory™ and passes it to other Inventory components.
2. Validates the policies to ensure that the policies are correctly configured.
3. Validates the Inventory database engine version.

Understanding the Inventory Scanner

ZENworks 6.5 Desktop Management uses the Scanner to collect hardware and software information from Windows inventoried workstations.

The Scanners collect hardware details such as: floppy disk drive, hard disk drive, BIOS, bus, mouse, keyboard, display adapters, network adapter cards, modems, Jaz* drives, Zip* drives, sound cards, memory cards, serial ports, parallel ports, processors, and modems. The software scanning includes checking for applications on the inventoried workstations and reporting the information about the scanned software, such as the vendor name, the product name and version, etc.

The following sections contain detailed information about the Inventory Scanners:

- ◆ [“Inventory Scanning Process” on page 890](#)
- ◆ [“Types of Scan” on page 890](#)
- ◆ [“Scanning for the Hardware Inventory Information” on page 891](#)
- ◆ [“Scanning for the Software Inventory Information” on page 893](#)
- ◆ [“Inventory Scanner Log Files” on page 895](#)

You can customize the hardware information and the software information to be scanned. For more information, see [“Customizing the Hardware Inventory Information To Be Scanned” on page 944](#) and [“Customizing the Software Inventory Information To Be Scanned For ZENworks 6.5 or ZENworks 6.5 Support Packs Inventoried Workstations” on page 958](#).

Inventory Scanning Process

1. The Workstation Inventory policy lets you configure the Scheduler to adjust scanning times at the inventoried workstations. You can set different actions to run the scanners on one or more inventoried workstations.
2. The Inventory scanner checks whether an updated dictionary is available at its Inventory server and downloads the updated dictionary.
3. The scanner scans for the hardware and software information.
4. The scan information collected by the scanners is stored as scan data files (.str). The files are sent to the Inventory server.

Types of Scan

Following are the types of scans:

- ◆ **Full Scan:** The Scanner enforces a complete scanning of the inventoried workstation and this setting overrides the option set in the Inventory Service Object property page associated with the inventoried workstation. When scanning the inventoried workstation for the first time, the Scanner collects the complete hardware and software inventory of the inventoried workstation. This is referred to as a Full scan.
- ◆ **Delta Scan:** After the inventoried workstation is scanned, the next time the Scanner compares the current inventory information to the history data that it maintains. If there are any changes to the inventoried workstation, the Scanner reports the delta scan data, which contains only the changes in inventory since the last scan was reported. The Delta Scan setting is the default scan operation for each successive scan after the first scanning of the inventoried workstation.

- ◆ **Scheduled Full Scan:** The Scanner enforces a full scan of the inventoried workstations, associated with the Workstation Inventory policy, after the specified number of delta scans. The Scheduled Full scan can contain full and delta inventory information based on the Workstation Inventory policy settings. By default, one Scheduled full scan happens after every five delta scans.

Scanning for the Hardware Inventory Information

Following are the sources on the inventoried workstations from where the hardware inventory information is scanned:

- ◆ “Desktop Management Interface (DMI)” on page 891
- ◆ “Windows Management Instrumentation (WMI)” on page 892
- ◆ “Probe” on page 892

For more information about the hardware information collected by the Inventory scanner, see [Appendix K, “Hardware Information Collected by the Inventory Scanners,” on page 1115](#).

Desktop Management Interface (DMI)

The scanners for scanning the inventoried workstations (Windows 98, Windows 2000, and Windows XP) also include scanning based on the industry-standard Desktop Management Interface (DMI) specification 2.0. These programs use the Management Interface (MI) of DMI to look for the hardware components installed on the inventoried workstation. The scanners will scan for specific components that are instrumented on the inventoried workstation through DMI. The scanners will query the DMI service layer to retrieve this information.

The MI allows the DMI-compliant scanners to probe the Service Provider within the Service Layer. The Service Provider collects information from the manageable components and stores the collected information in the Management Information Format database. The Component Interface (CI) communicates with the manageable components and the Service layer. The following figure shows the scanner interaction with DMI.

For more information on DMI standards, see the [DMTF Web site \(http://www.dmtf.org\)](http://www.dmtf.org).

NOTE: If the inventoried workstations are DMI compliant and if the Enable DMI Scan check box is selected in the Workstation Inventory policy, the scanners will collect hardware information by querying the DMI Service Layer. Otherwise, the scanners probe for the hardware.

We recommend that you instrument DMI and also install DMI components that are supplied by the vendors.

For example, if you have a Compaq Family Deskpro EN Model-SFF6500 workstation running under Windows 98, download the Management Product software - Compaq Insight Management Desktop Agents software for Windows 98 from the Compaq Web site.

For Dell workstations, access the DM/Desktop Management Utilities software from the Dell Web site.

Windows Management Instrumentation (WMI)

The scanners collect hardware information from Windows inventoried workstations based on Microsoft* Windows Management Instrumentation (WMI) specification.

WMI is the Microsoft implementation of Web-Based Enterprise Management (WBEM) that enables accessing management information in an enterprise environment. WMI 1.5 is fully compliant with Common Information Model (CIM) schema, which is an industry standard. For more information, see [Microsoft WMI Web site \(http://www.microsoft.com/hwdev/driver/WMI\)](http://www.microsoft.com/hwdev/driver/WMI). WMI also works with existing management standards, such as DMI and SNMP.

The scanners use WMI to look for the hardware components installed on the inventoried workstation. The scanners also scan for specific components that are instrumented on the inventoried workstation through WMI.

WMI-compliant scanners are supported on Windows 98, Windows XP, and Windows 2000 inventoried workstations only.

You can view the WMI information of the inventoried workstations in the Workstation Inventory.

To obtain WMI information from the inventoried workstation, you must first download Microsoft's Windows Management Instrumentation - Core Software Installation from [Microsoft WMI Web site \(http://msdn.microsoft.com/downloads/default.asp?url=/downloads/sample.asp?url=/msdn-files/027/001/576/msdncompositedoc.xml\)](http://msdn.microsoft.com/downloads/default.asp?url=/downloads/sample.asp?url=/msdn-files/027/001/576/msdncompositedoc.xml), and then install WMI Core Software on Windows 98 workstations

IMPORTANT: Only the WMI Core Software Installation download is required to instrument an inventoried workstation for WMI. To troubleshoot any WMI related problems, you can use the WMI SDK download. Also, on Windows 2000/XP workstations, the WMI Core Software is already installed.

By default, both DMI and WMI scanning will be enabled. To disable either DMI or WMI scanning, deselect the Enable DMI or Enable WMI check box, in the Inventory policy window.

Probe

Probe is a special built-in algorithm in the Inventory scanner, which is used to collect hardware information.

Scanning for the Software Inventory Information

The Inventory scanner scans for the following software inventory information on the Windows inventoried workstations:

- ◆ [“Installed Software Information” on page 893](#)
- ◆ [“Disk Usage” on page 894](#)
- ◆ [“File Information” on page 894](#)
- ◆ [“AntiVirus Definition Files” on page 894](#)

Installed Software Information

The scanner collects software information from the following sources on the inventoried workstation: Microsoft Installer (MSI), Add-Remove Programs, Dictionary-based scan, and Probe.

MSI: includes software that are installed on the inventoried workstations using the Microsoft Installer.

Add-Remove Programs: includes software that are listed in the Add-Remove Programs window.

Dictionary-based scan: includes software that are collected based on the software dictionary rules. For more information, see [“Customizing the Software Inventory Information To Be Scanned For ZENworks 6.5 or ZENworks 6.5 Support Packs Inventoried Workstations” on page 958](#).

Probe: Probe is a special built-in algorithm in the Inventory scanner, which is used to collect software information about Windows operating system, Internet Explorer, Media Player, Outlook Express, Microsoft Office and its installed components, Novell Client™ and its installed components, and ZENworks Suite and its installed components.

The following table shows the software information collected by the scanner from the various sources:

Scanned Attributes	MSI	Add-Remove Programs	Dictionary-based scan	Probe
Product Name	Yes	Yes	Yes	Yes
Vendor Name	Yes	No	Yes	Yes
Product Version	Yes	Yes	Yes	Yes
Product Identifier	Yes	Yes	No	No
Product Install Location	Yes	Yes	Yes	Yes
Category	No	No	Yes	No
Description	No	No	Yes	No
Help Link	Yes	Yes	No	No
MSI Package GUID	Yes	Yes	No	Yes
Display/Internal Version	Yes	Yes	Yes	Yes
Language	Yes	Yes	No	Yes

Scanned Attributes	MSI	Add-Remove Programs	Dictionary-based scan	Probe
UnInstall String	Yes	Yes	No	No
Installation Source	Yes	Yes	No	No
Display Name	Yes	Yes	No	Yes
Support Pack	No	No	No	Yes
Product Edition	No	No	No	Yes
Last Execution Time	No	Yes	No	No
Usage Count	No	Yes	No	No

Disk Usage

The scanner collects the total disk usage information for the file extensions that are configured in the Software Dictionary editor. For more information, see [“Customizing the Software Inventory Information To Be Scanned For ZENworks 6.5 or ZENworks 6.5 Support Packs Inventoried Workstations” on page 958](#).

File Information

The scanner reports the following information for the files that match with the dictionary entries, and the files that belong to the unidentified software list, which is configured using the software dictionary rules. For more information, see [“Configuring the ZENworks 6.5 SPI or Later Software Dictionary Rules” on page 988](#)

The scanner reports the following file attributes: FileName, FileSize, LastModifiedTime, InternalName, FileVersion, ProductName, ProductVersion, CompanyName, Language, DirectoryPath, and SoftwareDictionaryID.

AntiVirus Definition Files

The scanner collects information about the latest virus definition date and version that are installed on the inventoried workstations for the following product versions:

- Symantec AntiVirus Corporate Edition 8.0
- Norton AntiVirus Corporate Edition for Windows 7.0
- Norton AntiVirus Corporate Edition 7.6.1.0000
- Symantec Norton AntiVirus 2000
- Symantec Norton Internet Security 2002
- Symantec Norton AntiVirus 2003 (9.00)
- Symantec Norton AntiVirus 2003 Professional Edition (9.00)
- Symantec Norton AntiVirus 2004 (10.00)
- Symantec Norton Internet Security 2004 (10.00)
- Symantec Norton AntiVirus 2004 Professional (10.00)
- Symantec Norton Internet Security 2004 Professional (10.00)
- Symantec Norton AntiVirus 2005 Professional (11.00)
- Symantec Norton Internet Security 2005 Professional (11.00)
- Network Associates McAfee VirusScan 4.0.3 (Windows 9x)
- Network Associates McAfee VirusScan NT 4.0.3a (Windows NT)

Network Associates McAfee NetShield 4.5.0
 Network Associates McAfee VirusScan 4.5.0
 Network Associates McAfee VirusScan 4.5.1
 Network Associates McAfee VirusScan (McAfee Security Center) 8.0
 Network Associates McAfee VirusScan ASaP
 Network Associates McAfee VirusScan Enterprise 7.1
 Network Associates McAfee VirusScan Enterprise 8.0
 Central Command Vexira AntiVirus Guard for Windows XP (2000 + NT) 2.10
 Central Command Vexira AntiVirus Windows 95/98
 Central Command Vexira AntiVirus NT/2000 Servers
 Central Command Vexira AntiVirus Server Edition (6.26.xx.xx)
 Sophos Anti-Virus - Windows NT/2000/XP/2003
 Sophos Anti-Virus - Windows 95/98
 Trend Micro PC-cillin 2002 (9.x)
 Trend Micro PC-cillin 2003 (10.x)
 Trend Micro Internet Security 11.x (PC-cillin)
 Trend Micro Internet Security 2005 12.x (PC-cillin)
 Trend Micro Server Protect 5.xx
 Trend Micro OfficeScan 5.xx - Client for Windows NT/2000/XP
 Trend Micro OfficeScan 5.xx - Client for Windows 9x

Inventory Scanner Log Files

Filename	Location	Description
inventory.xml	<i>windows_installation_drive/zenworks</i>	Contains complete hardware and software information after the scan.
inventorydata.xml	<i>windows_installation_drive/zenworks</i>	Contains delta scan information.
zenerrors.log	<i>windows_installation_drive/zenworks</i>	Contains the error and status information for the latest scan of the inventoried workstation.

Understanding the Sender-Receiver

The Sender and the Receiver on the Inventory servers transfer the scan files from the lower-level servers to the higher-level servers. The following sections contain more information:

- ◆ [“Understanding the Sender” on page 896](#)
- ◆ [“Understanding the Receiver” on page 897](#)
- ◆ [“Understanding the Compressed Scan Data File” on page 898](#)
- ◆ [“Sender-Receiver Directories” on page 898](#)

The processing done by the Sender-Receiver is as follows:

1. The Service Manager starts the Sender-Receiver component.
2. The Roll-Up Scheduler activates the Sender at the specified roll-up time.
3. The Sender moves the scan data files (.str) from the enterprise merge directory (entmergedir) to the enterprise push directory (entpushdir) and compresses the files as a .zip file.
4. Each .zip file is again compressed with the .prp file into a .zip file. The .prp file is an internal file containing information about the .zip file.
5. The Sender sends the .zip file from the entpushdir directory to the Receiver on the next-level Inventory server.
6. The Receiver places the .zip files to the entpushdir\zipdir directory.
7. The Receiver copies the .zip files to the entpushdir directory and deletes the .zip files from the entpushdir\zipdir directory.
8. The Receiver copies the .zip files to the database directory (dbdir) if a database is attached to the server.
9. The Sender-Receiver logs the status in eDirectory.

Understanding the Sender

The Sender is a Java component that runs on any Leaf Server or on the Intermediate Server. The Sender is a service loaded by the Service Manager. See [“An Overview of the Inventory Components on an Inventory Server” on page 906](#) for a quick reference table of server components.

The flow of information from the Sender in the roll-up of inventory information is as follows:

1. The Service Manager starts the Sender on the Inventory server. At the specified time scheduled in the Roll-Up Schedule, the Sender moves the scan data files (.str) from the enterprise merge directory (entmergedir) to the enterprise push directory (entpushdir).

The Sender compresses these .str files in the entpushdir directory of the server as a .zip file and then deletes the .str files. This .zip file is again compressed with the .prp file into a .zip file. The .prp file is an internal file containing information about the .zip file. For more information, see [“Understanding the Compressed Scan Data File” on page 898](#).
2. The Sender creates a new record in the zeninvRollUpLog attribute of the Inventory Service object in eDirectory with the following details: server on which the Sender compresses the .str files and the name and size of the .zip file.

3. Based on the Discard Scan Data Time in the Inventory Service object properties of the Receiver, the Sender deletes the compressed .zip files in the entpushdir directory that have been created earlier than the specified discard scan data time. This removes unwanted scan information being sent in the roll-up.
4. The Sender sends the compressed .zip files to the Receiver, with the oldest compressed files sent first.
5. The Sender, after transferring the .zip files, deletes the compressed files in the entpushdir directory.
6. After the roll-up of information, the Sender updates the zeninvRollUpLog attribute of the server on which the compressed file was created with the following details: server from which the Sender transmitted the file, name of the .zip file, time of transmission, total time taken to transmit the files, and the server to which it was sent.

The status information for all actions of the Sender is logged in the Roll-Up Log and Server Status log. For more information, see [“Monitoring Workstation Inventory Using Status Logs” on page 1099](#).

If the Sender is unable to connect to the Receiver, the Sender retries to connect after 10 seconds. The time interval increases exponentially by a factor of 2. After 14 retries, the Sender stops trying to connect to the Receiver. The Sender retries for approximately 23 hours before it discontinues trying. The Sender does not process any other information while it is establishing the connection.

Understanding the Receiver

The Receiver is a Java component that runs on the Intermediate Server or on the Root Server. The Receiver is a service loaded by the Service Manager. See [“An Overview of the Inventory Components on an Inventory Server” on page 906](#) for a quick reference table of server components.

The processing done by the Receiver is as follows:

1. The Receiver receives the scan .zip file from the Sender. The file is placed in the entpushdir\zipdir directory.
2. The Receiver copies the .zip file to the entpushdir directory and deletes the .zip files from the entpushdir\zipdir directory.

On an Intermediate Server, the file is copied to entpushdir. On an Intermediate Server with Database, or an Intermediate Server with Database and Inventoried Workstations, the file is copied to \entpushdir and copied to the Database Directory (\dbdir).

3. The Receiver on the Root Server or the Root Server with Inventoried Workstations receives the .zip files from the Senders and places the .zip files in the entpushdir\zipdir directory. It copies the files to the DBDIR directory on the server.
4. The Receiver logs the status information in the Roll-Up log. For more information, see [“Monitoring Workstation Inventory Using Status Logs” on page 1099](#).

Understanding the Compressed Scan Data File

The Sender compresses the scan data files (.str) into a .zip file. This .zip file is again compressed with the .prp file into a .zip file. The .zip file (containing the .zip files and .prp) is named using the following naming conventions:

scheduledtime_inventoryservername_treename_storedstatus.zip

where *scheduledtime* refers to the date and time when the .zip file is created, *inventoryservername* refers to the Inventory server on which the .zip file was compressed, *treename* refers to the unique tree name in which the .zip file is currently located, *storedstatus* refers to the storage status of the .zip file, and *zip* is the file extension for the compressed files.

The *storedstatus* is represented by 0, 1, or 2. 0 indicates the .zip file has not yet been stored. 1 indicates the .zip file will be stored for the first time in the server. 2 indicates the .zip file has already been stored once.

The .zip filename changes depending on if the database is attached to the server.

The .zip file contains the .zip files and a property file. The property file is named using the following conventions:

scheduledtime_inventoryservername.prp

The property file contains the scheduled time, Inventory server name, and signature. The signature helps to authenticate the .zip file.

Each .zip file can contain a maximum of 50 .str files.

Sender-Receiver Directories

The following table provides a quick reference of the directories that the Sender-Receiver uses:

Server	Sender	Receiver	ENTMERGDIR	ENTPUSHDIR \ ZIPDIR	ENTPUSHDIR	DBDIR
Leaf Server, Leaf Server with Database	Runs on this Inventory server	--	Sender moves the .str files to the entpushdir.	--	Sender compresses the .str files as a .zip file. Sender deletes the .str files. Sends the .zip file to the next-level Inventory server.	--
Intermediate Server	Runs on this Inventory server	Runs on this Inventory server	--	Receiver receives the .zip files from the lower-level server in this directory.	Receiver copies the .zip files from the lower-level Inventory server in this directory. Sender sends the .zip files to the next-level Inventory server.	--

Server	Sender	Receiver	ENTMERGDIR	ENTPUSHDIR \ ZIPDIR	ENTPUSHDIR	DBDIR
Intermediate Server with Inventoried Workstations	Runs on this Inventory server	Runs on this Inventory server	Sender moves the .str files to the entpushdir.	Receiver receives the .zip files from the lower-level Inventory server in this directory.	Receiver copies the .zip files from ZIPDIR into this directory. Sender sends the .zip files to the next-level Inventory server. Sender compresses the .str files in to .zip files. Sender deletes the .str files.	--
Intermediate Server with Database	Runs on this Inventory server	Runs on this Inventory server	--	Receiver receives the .zip files from the lower-level server in this directory.	Receiver copies the .zip files from ZIPDIR into this directory. Sender sends the .zip file to the next-level Inventory server.	Receiver copies the file in this directory.
Intermediate Server with Database and Workstations	Runs on this Inventory server	Runs on this Inventory server	Sender moves the .str files to the entpushdir.	Receiver receives the .zip files from the lower-level Inventory server in this directory.	Receiver copies the .zip files from ZIPDIR into this directory. Sender compresses the .str files as a .zip file. Sender deletes the .str files. Sender sends the .zip file to the next-level Inventory server.	Receiver copies the file in this directory.
Root Server, Root Server with Inventoried Workstations	--	Runs on this Inventory server	--	Receiver receives the .zip files from the lower-level Inventory server in this directory.	--	Receiver copies the .zip files from the lower-level Inventory server in this directory.

On the Standalone Server, the Receiver is not loaded.

Understanding the TCP Receiver

The TCP Receiver is a Java component on the Inventory server that converts ZENworks for Desktops 3.x residual .str and .zip files on the server and the .zip files received from lower-level ZENworks for Desktops 3.x Inventory servers to the format required by the ZENworks 6.5 Desktop Management Inventory server. See [“An Overview of the Inventory Components on an Inventory Server” on page 906](#) for a quick reference table of server components.

The processing done by the TCP Receiver is as follows:

- 1** The Service Manager starts the TCP Receiver on the Inventory server.
- 2** The TCP Receiver receives the scan .zip file from the ZENworks for Desktops 3.x Sender and places the file in the Receiver Conversion directory (entpushdir\rcvconv).
- 3** Converts the following files into the format required by ZENworks 6.5 Desktop Management components:

ZENworks for Desktops 3.x residual .zip files in \dbdir

ZENworks for Desktops 3.x residual .str and .prp files in dbdir\temp

ZENworks for Desktops 3.x residual .zip files in \entpushdir

ZENworks for Desktops 3.x residual .str files in \entpushdir

ZENworks for Desktops 3.x residual .str files in \entmergedir

ZENworks for Desktops 3.x .zip files

After conversion, these .zip files are copied to entpushdir\zipdir directory for further processing by the Receiver.

- 4** The Receiver logs the status information in the Roll-Up log. For more information, see [“Monitoring Workstation Inventory Using Status Logs” on page 1099](#).

The TCP Receiver uses the following directories:

- ◆ The TCP Receiver receives the ZENworks for Desktops 3.x .zip files in \entpushdir\rcvconv directory. The .zip files are converted to the ZENworks 6.5 Desktop Management format and copied to \entpushdir\zipdir directory
- ◆ The Upgrade service copies the ZENworks for Desktops 3.x residual .zip files in the \dbdir directory to the \entpushdir\dbdirconv directory. The .zip files are converted to the ZENworks 6.5 Desktop Management format and copied to the \dbdir directory.
- ◆ The Upgrade service copies the residual .str and .prp files in the dbdir\temp directory to the \entpushdir\dbdirconv directory. The .str and .prp files are converted to the ZENworks 6.5 Desktop Management format and copied to the \dbdir directory.
- ◆ The Upgrade service copies the residual .zip files in entpushdir directory to the \entpushdir\entpushzipconv directory. The .zip files are converted to the ZENworks 6.5 Desktop Management format and copied to the \entpushdir directory.
- ◆ The Upgrade service copies the residual .str files in the entpushdir directory to the \entpushdir\entpushstrconv directory. The .str files are converted to the ZENworks 6.5 Desktop Management format and copied to the \entpushdir directory.
- ◆ The Upgrade service copies residual .str files in the entmergedir to the \entpushdir\entmergeconv directory. The .str files are converted to the ZENworks for Desktops 4.x format and copied to the \entmergedir directory.

Understanding the Selector

The Selector is a Java component on the server that receives the inventory information from the inventoried workstations. These servers can be any of the following: Leaf Server, Leaf Server with Database, Intermediate Server with Database and Inventoried Workstations, Intermediate Server with Inventoried Workstations, Root Server with Inventoried Workstations, and Standalone Server. See [“An Overview of the Inventory Components on an Inventory Server” on page 906](#) for a quick reference table of server components.

The processing done by the Selector is as follows:

1. While scanning the inventoried workstation, the Scanner creates a scan data file (.str) in the scan directory (\scandir) at the server for each scan done on the inventoried workstation. The location of \scandir is obtained from the Inventory Service object. The Selector processes the .str files placed by the Scanner in the \scandir directory.

The Selector also detects the .str files generated by the ZENworks for Desktops 3 SP1 or ZENworks for Desktops 3.2 Scanners and moves the .str files to the \scandir\conv directory for the Str Converter to process these files.

The Selector processes the following types of .str files.

- ◆ **Full:** Contains complete hardware and software inventory information of the inventoried workstation.
- ◆ **Delta:** Contains only the changes in the inventory since the last scan.
- ◆ **Delete:** Contains the information needed for the Storer to delete the inventoried workstation object from the database. This .str file is created when the inventoried workstation object is deleted from the eDirectory.
- ◆ **Scheduled Full:** Contains full and delta scans. Depending upon the last stored status of the inventoried workstation object data, the Storer processes either the full or delta scan. The Scheduled Full .str file is used by the Storer to rectify the errors in the inventoried workstation inventory data that is stored in the database.

Using the [Workstation Inventory Policy](#), you can configure the Scheduled Full scan to send a full scan after a certain number of delta scans. The value must be between 5 and 65535. If you do not want the Scheduled Full scan, set the value to 65535.

2. The Selector checks for the following conditions to ensure that the .str file, generated by the Scanner, is valid.
 - ◆ If a Scheduled Full scan is done at the inventoried workstation, the .str file should contain both full and delta scan data. The Identification section in the Scheduled Full Str file should have **SCHEDFULL** as ScanType.
 - ◆ If delta scan is done at the inventoried workstation, the .str file should contain two instances of the Inventory Scanner objects.
 - ◆ The integer value logged in the .str file based on the .str file name with the actual value of the .str file.
 - ◆ The actual size of the .str file should be in sync with the size recorded in the .str file.

The Selector processes only valid .str files. If invalid files are present in the directory, the Selector deletes them.

3. Based on the role of the server, the Selector copies the individual .str files from the \scandir directory to the dbdir\entmergedir directory.

The following table lists the directories that the Selector copies or renames the files to:

Server	Copies the .str file to the database directory (dbdir)	Renames the .str file in the database directory (dbdir)	Renames the .str file in the enterprise merge directory (entmergedir)
Leaf Server with Database	Yes	--	Yes
Leaf Server	--	--	Yes
Intermediate Server with Database and Inventoried Workstations	Yes	--	Yes
Standalone Server	--	Yes	--
Root Server with Inventoried Workstations	--	Yes	--

- The Selector updates the sequence number of valid .str files in eDirectory.

The Selector determines whether to enforce a full scan if the scanning sequence number in the .str file is improper. If the .str file is invalid or if there are discrepancies in the sequence number of the .str file, the Selector enforces a full scan.

- The Selector logs the status in the Server log. For more information, see [“Monitoring Workstation Inventory Using Status Logs” on page 1099](#).

The Selector removes the existing .str files in the \scandir directory.

Understanding the Storer

The Storer is a Java component on the server that has a database attached to it. These servers can be any of the following: Leaf Server with Database, Intermediate Server with Database, Intermediate Server with Database and Inventoried Workstations, Root Server, and Root Server with Inventoried Workstations. See [“An Overview of the Inventory Components on an Inventory Server” on page 906](#) for a quick reference table of server components.

The Storer runs as a Service loaded by the Service Manager. It processes the files in the dbdir directory.

The processing done by the Storer is as follows:

- The Storer reads the Startup configuration parameters from the Inventory Server Configuration Service.
- The Selector places the .str files in dbdir and the Receiver places the .zip files in dbdir.
- The Storer processes the .str files and .zip files alternately.
- The Storer extracts the .zip file containing the compressed .zip files and the .prp file to a temp directory (dbdir\temp) and updates the database with the inventory information.
- If the inventoried workstations are connected directly to the Inventory server or if the .str files are stored for the first time in the tree, the Storer forces a full scan of an inventoried workstation if there are errors in the .str files. However, enforcing a full scan of the inventoried workstations located in a different tree is not supported.
- The Storer updates the status in the Workstation Status log and updates the Roll-Up log. For more information, see [“Monitoring Workstation Inventory Using Status Logs” on page 1099](#).

If the inventoried workstations are connected directly to the Inventory server or if the .str files are stored for the first time in the tree, the status messages are logged directly into the inventoried workstation objects and can be viewed from the Workstation Status Log.

For rolling up inventory information across trees, the roll-up status messages are logged into the first Inventory server receiving the rolled-up .str files in the tree.

7. The Storer processes the converted ZENworks for Desktops 3.x .str files and .zip files similar to the ZENworks 6.5 Desktop Management .str files. However, the Storer will not enforce a full scan if a processing error occurs during the conversion to .str files.

Understanding the Str Converter

The Str Converter is a Java component on the Inventory server that has workstations attached to it. The Str Converter is designed to operate on ZENworks for Desktops 3.x files and convert them to ZENworks 6.5 Desktop Management format in order to support backward compatibility with ZENworks for Desktops 3.0 SP1 and ZENworks for Desktops 3.2.

You can run the Str Converter on the following servers:

- ◆ Leaf Server with Inventoried Workstations
- ◆ Leaf Server with Inventoried Workstations and Database
- ◆ Intermediate Server with Inventoried Workstations
- ◆ Intermediate Server with Inventoried Workstations and Database
- ◆ Root Server with Inventoried Workstations
- ◆ Standalone Server

For a quick reference table of server components, see [“An Overview of the Inventory Components on an Inventory Server” on page 906](#).

The Str Converter runs as a Service loaded by the Service Manager. It processes the files in the scandir\conv directory.

The Str Converter process sequence is as follows:

1. The Str Converter reads the Startup configuration parameters, such as scandir, from the Inventory Server Configuration Service. If the conv and the convtemp directories do not exist, they are created under the scandir directory.
2. The selector places the ZENworks for Desktops 3.x .str files in conv directory.
3. The Str Converter converts the ZENworks for Desktops 3.x .str files into the ZENworks for Desktops 4.x format and places the files in the convtemp directory.
4. The converted .str files from the convtemp directory are moved to the scandir directory to be retrieved again by the Selector and are processed similar to ZENworks 6.5 Desktop Management .str files.

NOTE: The status log is not updated for the Str Converter component.

Understanding the Inventory Sync Service

The Inventory Sync Service is a service loaded by the Inventory Service Manager. It runs on all the Inventory servers that have inventoried workstations attached to them and removes the

inventory information of the workstations from the attached Inventory database if they have already been deleted from eDirectory.

The Inventory Sync Service schedule is not automatically created after the Workstation Inventory installation. To schedule the Inventory Sync Service:

- 1** In ConsoleOne[®], right-click the Inventory Service object (Inventory Service_ *server_name*) of the designated Inventory server, click Properties.
- 2** Click the Inventory Service Object tab, select the Inventory Service Sync Schedule sub-option.
- 3** Modify the settings for scheduling the Inventory Sync Service.
- 4** Click Apply, then click Close.

The Inventory Sync Scheduler reads the Inventory Service Sync Schedule and triggers the Inventory Sync service at the specified time. The Inventory Sync service, is started by the Inventory Service Manager, but is activated by the Inventory Service Sync Scheduler.

The processing done by the Inventory Sync service is as follows:

1. The Inventory Sync Service maintains a list of DN of all the inventoried workstations attached to that Inventory server. The Inventory Sync Service reads the list and validates whether each inventoried workstation is registered in eDirectory.
2. If the inventoried workstation is not present in eDirectory, the Inventory Sync Service creates a delete str file for that inventoried workstation in the scandir directory.
3. The Selector validates the delete str files and copies the files into the dbdir and entmergedir directories.
4. The Storer reads the delete str file in the dbdir and deletes the inventoried workstations from the attached Inventory database.
5. If the inventory deployment rolls up the inventory information across servers, the delete str file is also rolled up to the next level Inventory server.

The inventoried workstation is removed from the Inventory database at all Inventory server tree hierarchy levels.

NOTE: If you restore a backup of the Inventory database, the database will contain the workstations that you have removed from eDirectory. The Inventory service will not remove these workstations. To remove these workstations, you must use the Inventory Removal Service. For more information, see ["Removing the Redundant Inventoried Workstations from the Inventory Database"](#) on page 1027.

Understanding the Dictionary Provider - Dictionary Consumer

All Inventory servers and inventoried workstations have Dictionary Provider and Dictionary Consumer services that are automatically installed during the Workstation Inventory installation.

When an inventoried workstation is started, the Dictionary Consumer reads the Dictionary Update policy and contacts the Dictionary Provider (running on the Inventory server) specified in the policy.

Subsequently, the Dictionary Consumer checks for the dictionary updates based on the schedule set in the Dictionary Update policy. It compares the date of the dictionary file on the Dictionary Provider with the file that has been locally stored. If the file on the Dictionary Provider is latest, then the Dictionary Consumer downloads the file from the Dictionary Provider using XML-RPC as per the schedule.

Understanding the Upgrade Service

The Upgrade service runs as a service loaded by the Service Manager and performs the following functions:

1. Migrates ZENworks for Desktops 4 SP1 or ZENworks for Desktops 3.2 database to ZENworks 6.5 Desktop Management database. For more information, see [“Inventory Database Migration” on page 905](#).
2. Converts the ZENworks for Desktops 4 SP1 or ZENworks for Desktops 3.2 residue .str files to ZENworks 6.5 Desktop Management .str files. For more information, see [“Conversion and Movement of ZENworks for Desktops 3.x Residue Files” on page 906](#).

The Upgrade service performs all the functions in a state-driven method. This is to make sure that the Upgrade service does not execute the same steps when one step is executed successfully. The Upgrade service runs as an uninterrupted service. Therefore, you cannot manually stop the Upgrade service. The Upgrade service stops automatically after completing all its functions.

This section contains the following:

- ◆ [“Inventory Database Migration” on page 905](#)
- ◆ [“Conversion and Movement of ZENworks for Desktops 3.x Residue Files” on page 906](#)

Inventory Database Migration

The Inventory database migration consists of two phases: Schema migration and Data migration.

The Inventory database migration involves the following activities:

1. The .zip files that contains all the SQL scripts are unzipped. Before the schema migration begins, the SQL files are transformed by filling the constants from the database.
2. Schema migration phase: The tables, procedures, views, and other related schema objects are either altered or added in compliance with the ZENworks 6.5 Desktop Management schema. The grants are provided appropriately to the tables, procedures and views.
3. Data migration phase: The old data in the ZENworks for Desktops 3.x schema is migrated to the ZENworks 6.5 Desktop Management schema. This phase consumes some time depending upon the size of the database.
4. Post-migration corrections.

The Database migration activity is additionally traced into a migration log, which could be found in the *installation_path\zenworks\inv\server\wminv\logs\migrationlogs* directory.

Conversion and Movement of ZENworks for Desktops 3.x Residue Files

The residue files are the ZENworks for Desktops 3.x .str or .zip files that are collected before the ZENworks 6.5 Desktop Management Inventory services runs for the first time.

The Upgrade service performs the following functions:

- ◆ Converts the .str files in the dbdir directory to ZENworks 6.5 Desktop Management .str files
- ◆ Moves the .zip files in the dbdir directory to the dbdirconv directory
- ◆ Moves the .zip files in the entpush directory to the entpushzipconv directory.
- ◆ Moves the .str files in the entpush directory to the entpushstrconv directory.
- ◆ Moves the .str files in the entmerge directory to the entmergeconv directory.
- ◆ Moves the .str files and the .prp files in the dbdir\temp directory to the dbdirtempconv directory.

This is to make sure that the ZENworks 6.5 Desktop Management Storer and Sender-Receiver services process the residue files present in the dbdir, entpush, and entmerge directories before they process and refresh the new inventory information.

WARNING: You must not delete the residue files during or after upgrade.

Dbdirconv, entpushzipconv, entpushstrconv, entmergeconv, and dbdirtempconv are auxiliary directories created by the upgrade service to facilitate its functioning.

An Overview of the Inventory Components on an Inventory Server

Depending on the type of the Inventory server, the following inventory components exist on the Inventory server.

Server Component	Stand alone Server	Root Server	Root Server with Inventoried Workstations	Leaf Server with Database	Leaf Server	Intermediate Server	IntermediateServer with Database and Inventoried Workstations	Intermediate Server with Database	Intermediate Server with Inventoried Workstations
Service Manager or Server Configuration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Selector	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes
Storer	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No
Sender	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Receiver	No	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Str Converter	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes
TCP Receiver	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upgrade Service	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Server Component	Stand alone Server	Root Server	Root Server with Inventoried Workstations	Leaf Server with Database	Leaf Server	Intermediate Server	IntermediateServer with Database and Inventoried Workstations	Intermediate Server with Database	Intermediate Server with Inventoried Workstations
Database	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No
Dictionary Consumer and Dictionary Provider	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Understanding the Inventory Database

The Inventory database functions as a repository of the inventoried workstation hardware and software information. The Storer updates the database with the inventory information of the .str file. The network administrator can view the inventory information, query the database, and generate inventory reports in ConsoleOne. For more information, see [“Understanding the Inventory Database Schema” on page 909](#).

72 Understanding the Inventory Database Schema

This section describes the design of the Novell® ZENworks® 6.5 Inventory database schema implemented using the Common Information Model (CIM) of Distributed Management Task Force (DMTF). To understand this document effectively, you should be familiar with terminology such as CIM and Desktop Management Interface (DMI). You should also have a solid understanding of relational database based managed systems (RDBMS) and database concepts.

The following sections provide in-depth information:

- ◆ “Overview” on page 909
- ◆ “CIM Schema” on page 910
- ◆ “Inventory Database Schema in ZENworks 6.5 Desktop Management” on page 916

Overview

The DMTF is the industry organization leading the development, adoption, and unification of management standards and initiatives for desktop, enterprise, and Internet environments. For more information about DMTF, see the [DMTF Web site \(http://www.dmtf.org\)](http://www.dmtf.org).

The DMTF CIM is an approach to system and network management that applies the basic structuring and conceptualization techniques of the object-oriented paradigm. The approach uses a uniform modeling formalism that together with the basic repertoire of object-oriented constructs supports the cooperative development of an object-oriented schema across multiple organizations.

A management schema is provided to establish a common conceptual framework at the level of a fundamental topology, both with respect to classification and association, and to a basic set of classes intended to establish a common framework for a description of the managed environment. The management schema is divided into the following conceptual layers:

- ◆ **Core Model:** An information model that captures notions that are applicable to all areas of management.
- ◆ **Common Model:** An information model that captures notions that are common to particular management areas, but independent of a particular technology or implementation. The common areas are systems, applications, databases, networks, and devices. The information model is specific enough to provide a basis for the development of management applications. This model provides a set of base classes for extension into the area of technology-specific schema. The Core and Common models together are expressed as the CIM schema.
- ◆ **Extension Schemas:** This schema represents technology-specific extensions of the Common model. These schemas are specific to environments, such as operating systems, for example, NetWare® or Microsoft* Windows*.

CIM comprises a specification and a schema (see the [DMTF Web site \(http://www.dmtf.org/standards/standard_cim.php\)](http://www.dmtf.org/standards/standard_cim.php)). The specification defines the meta-schema plus a concrete representation language called Managed Object Format (MOF).

CIM Schema

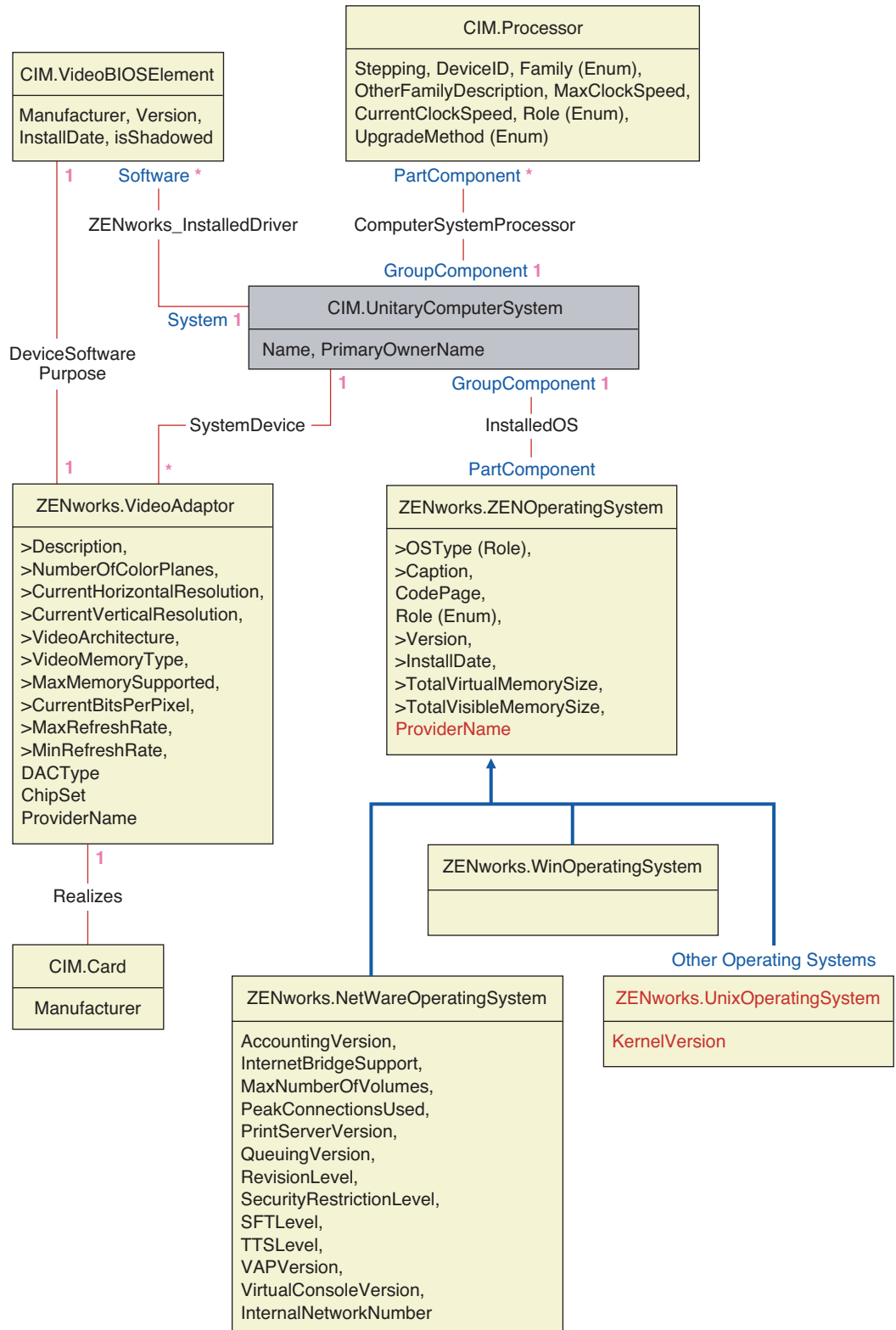
The elements of the meta schema are classes, properties, and methods. The meta schema also supports indications and associations as types of classes and references as types of properties.

Classes can be arranged in a generalization hierarchy that represents subtype relationships between classes. The generalization hierarchy is a rooted, directed graph that does not support multiple inheritance.

A regular class can contain scalar or array properties of any intrinsic type such as Boolean, integer, string, and others. It cannot contain embedded classes or references to other classes.

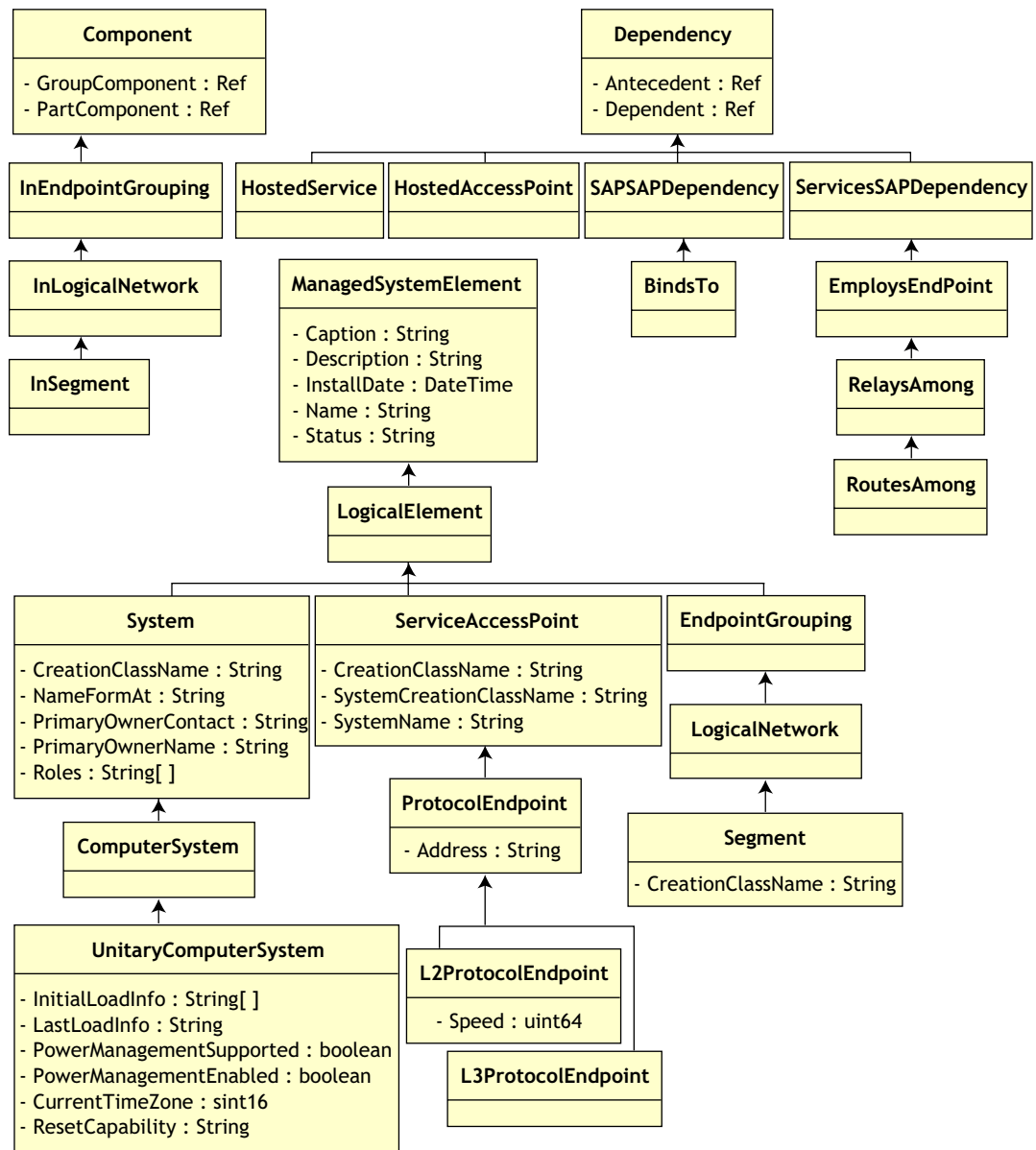
An association is a special class that contains two or more references. It represents a relationship between two or more objects. Because of the way associations are defined, it is possible to establish a relationship between classes without affecting any of the related classes. That is, addition of an association does not affect the interface of the related classes. Only associations can have references.

The schema fragment in the following illustration shows the relationships between some CIM objects that ZENworks 6.5 Desktop Management uses.



The illustration shows how the CIM schema maps to a relational DBMS schema. The classes are shown with the class name as the box heading. The associations are labeled within the lines between two classes.

The inheritance hierarchy of this schema fragment is shown in the following illustration of the CIM 2.2 schema. The references shown as type Ref are in bold with each association subtype narrowing the type of the reference.



CIM-to-Relational Mapping

CIM is an object model complete with classes, inheritance, and polymorphism. The generated mapping to a relational schema preserves these features to the maximum extent. The following two aspects are part of the relational mapping:

- ♦ **Logical Schema:** The logical schema defines how the data appears to applications, similar to an API. The goal is that the logical schema remains the same irrespective of the underlying database so that application software can run unchanged on any supported databases. Although SQL (pronounced as “sequel”) is a standard, this goal is not fully possible. Application software will need to know more about the database in use and this information can be abstracted and isolated to a small area of the application code.

- ◆ **Physical Schema:** The physical schema defines how the data is structured in the database. The schema tends to be specific to the database because of the nature of SQL and RDBMS. This document will describe the physical schema in general terms only.

A table in the database represents each class in the CIM hierarchy. A column of the appropriate type in the table represents each non-inherited property in the class. Each table also has a primary key, id\$, which is a 64-bit integer that uniquely identifies an instance. An instance of a CIM class is represented by a row in each table that corresponds to a class in its inheritance hierarchy. Each row has the same value for id\$.

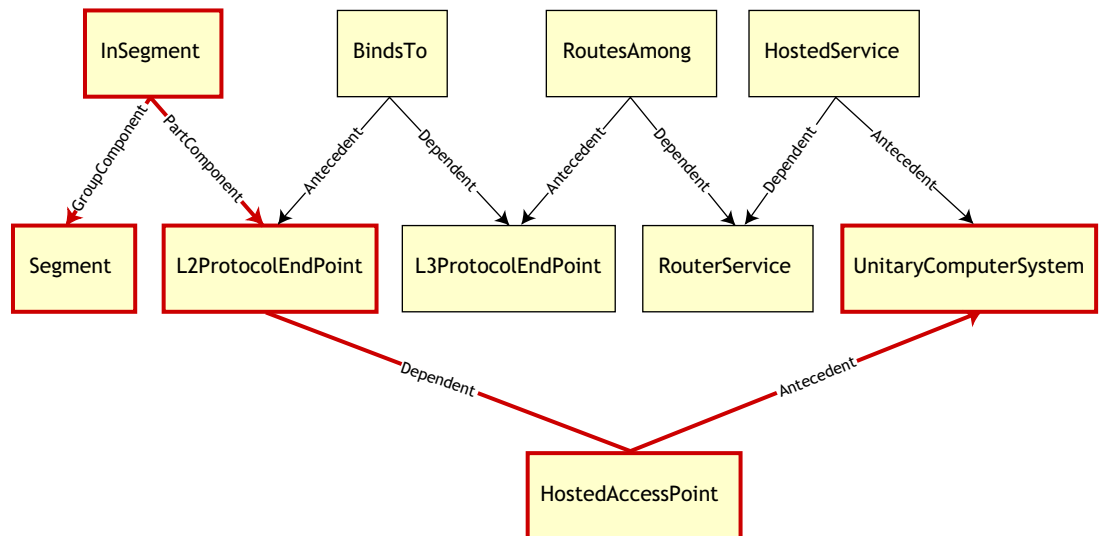
Each CIM class is also represented by a view that uses id\$ to join rows from the various tables in the inheritance hierarchy to yield a composite set of properties (inherited plus local) for an instance of that class. The view also contains an extra column, class\$, of type integer that represents the type of the actual (leaf-most) class of the instance.

Associations are mapped in the same manner as regular classes, with a reference property being represented by a column with the id\$ field of the referenced object instance. Thus, associations can be traversed by doing a join between the reference field in the association and the id\$ field in the referenced table.

The following illustration depicts a typical query using this mapping:

Get Computers for Segment

```
SELECT CIM.UnitaryComputerSystem.*
FROM   CIM.UnitaryComputerSystem, CIM.Segment, CIM.L2ProtocolEndPoint,
       CIM.HostedAccessPoint, CIM.InSegment
WHERE  CIM.SegmentName = 'xxx'
AND    CIM.InSegment.GroupComponent = CIM.Segment.id$
AND    CIM.InSegment.PartComponent = CIM.L2ProtocolEndPoint.id$
AND    CIM.HostedAccessPoint.Dependent = CIM.L2ProtocolEndPoint.id$
AND    CIM.HostedAccessPoint.Antecedent = CIM.UnitaryComputerSystem.id$
```



This query finds all the computers attached to a given network segment. The classes and relationships involved are highlighted with borders.

The following topics describe both the schema types:

- ◆ “Logical Schema” on page 914
- ◆ “Physical Schema” on page 916

Logical Schema

The logical schema is the database schema as seen by users of the database and the application program. The schema consists of stored procedures and views. The underlying tables are not visible to the application.

ZENworks 6.5 Desktop Management Inventory components use JDBC to issue SQL statements to the RDBMS and to convert between RDBMS data types and Java data types. Using JDBC with stored procedures and views provides a level of abstraction that insulates application code from the underlying database technology and from changes to the physical schema.

The various elements of the logical schema are discussed in more detail in the following sections:

- ◆ “Naming Schema Elements” on page 914
- ◆ “Users and Roles” on page 915
- ◆ “Data Types” on page 915
- ◆ “Views” on page 915

Naming Schema Elements

We recommend that you use the CIM names unchanged in the database schema. Some problems could still ensue because of the differences in the naming schemes, such as the following:

- ◆ Names in CIM and SQL are not case sensitive.
- ◆ All databases have different sets of reserved words that must be enclosed in quotes (“ ”) when used as schema element names; however, in Oracle*, enclosing a name in quotes makes it case sensitive.
- ◆ CIM classes avoid using SQL reserved words as names.
- ◆ CIM names are not limited in length and usually the names are long. Sybase* allows up to 128 characters, but Oracle restricts the names to 30 characters.

Most of these problems are avoided during schema generation by preserving the case of CIM names, abbreviating any names longer than 30 characters, and placing quotes around any name that is in the union of the sets of reserved words.

Any name longer than 28 characters is abbreviated to a root name of 28 or fewer characters to allow a two-character prefix so that all associated SQL schema elements can use the same root name. The abbreviation algorithm shortens a name so that it is mnemonic, recognizable, and also unique within its scope. The abbreviated name is given a # character as a suffix (note that # is an illegal character in CIM) to prevent clashes with other names. If two or more names within the same scope generate the same abbreviation, an additional digit is appended to make the name unique. For example, AttributeCachingForRegularFilesMin is abbreviated to AttCacForRegularFilesMin#.

All such mangled names are written to the mangled name table so that a program can look up the real CIM name and retrieve the mangled name to use with the SQL.

Views are the schema elements that are most often manipulated by application code and queries. They use the same name as the CIM class they represent. For example, the CIM.UnitaryComputerSystem class is represented by a view named CIM.UnitaryComputerSystem.

When necessary, names for indexes and auxiliary tables are created by concatenating the class name and property name separated by a \$ character. These names are usually abbreviated. For example, NetworkAdapter\$NetworkAddresses is abbreviated to NetAdapter\$NetAddresses#. This does not have any adverse impact on ZENworks 6.5 Desktop Management schema users.

Users and Roles

In SQL, a user with the same name as the schema is the owner of each schema, for example, CIM, ManageWise®, ZENworks, and others.

Additionally, there is an MW_DBA user that has Database Administrator privileges and rights to all schema objects. The MW_Reader role has read-only access to all schema objects and the MW_Updater role has read-write-execute access to all schema objects.

Application programs should access the database as either MW_Reader or MW_Updater for a Sybase database, MWO_Reader or MWO_Updater for an Oracle database, and MWM_Reader or MWM_Updater for MS SQL Server database, depending on their requirements.

Data Types

CIM data types are mapped to the most appropriate data type provided by the database. Usually, the Java application does not require the type because it uses JDBC to access the data.

Java does not natively support unsigned types, so you should use classes or integer types of the next size to represent them. Also, ensure that there are no problems while reading or writing to the database. For example, reading or writing a negative number to an unsigned field in the database is likely to cause an error.

Strings in CIM and Java are Unicode, so the database is created using the UTF8 character set. Internationalization does not pose any problems; however, it might create problems with case sensitivity in queries.

All databases preserve the case of string data stored within them, but might access the data as either case sensitive or otherwise during queries. In ZENworks 6.5 Desktop Management, the Inventory Query and the Data Export components are not affected because the queried data is retrieved from the database before being queried and so case sensitivity is automatically taken care of.

In CIM, strings can be specified with or without a maximum size in characters. Many strings have no specified size, which means they can be unlimited in size. For efficiency reasons, these unlimited strings are mapped to a variable string with maximum size of 254 characters. CIM strings with a maximum size are mapped to variable database strings of the same size. The size in the database is in bytes and not as characters because a Unicode character might require more than one byte for storage.

Views

Each CIM class is represented in the database by a view that contains all the local and inherited non-array properties of that class. The view is named the same as the CIM class.

Views can be queried using the SELECT statement and updated using the UPDATE statement. Because views cannot be used with the INSERT and DELETE statements, use the constructor and destructor procedures.

Physical Schema

The physical schema comprises elements necessary to implement the database. The physical schema differs for each database. A typical physical schema consists of:

- ◆ Table definitions 't\$xxx' Index definitions 'i\$xxx'
- ◆ Trigger definitions 'x\$xxx', 'n\$xxx' and 'u\$xxx'
- ◆ Sequence definitions (Oracle) 's\$xxx'
- ◆ Stored procedures and functions

The logical schema is layered on top of the physical schema and makes it unnecessary for users and applications to know the physical schema.

Inventory Database Schema in ZENworks 6.5 Desktop Management

The following section describes the database schema classes and the extensions and associations made to the CIM schema for use in ZENworks 6.5 Desktop Management. These extensions have ZENworks or ManageWise as their schema name. ZENworks.*classname* refers to the extended class in the ZENworks schema and ManageWise.*classname* refers to the extended class in the ManageWise schema.

The following sections will help you understand the ZENworks 6.5 Desktop Management database schema:

- ◆ [“Case Study of CIM Schema Implementation in ZENworks 6.5 Desktop Management” on page 916](#)
- ◆ [“Legends for Schema Diagrams” on page 919](#)
- ◆ [“Schema Diagrams of CIM and the Extension Schema in ZENworks 6.5 Desktop Management” on page 919](#)
- ◆ [“Custom Inventory Schema” on page 927](#)
- ◆ [“Software Inventory Schema” on page 928](#)
- ◆ [“Sample Inventory Database Queries” on page 933](#)

Case Study of CIM Schema Implementation in ZENworks 6.5 Desktop Management

The following scenario describes an inventoried workstation that has two parallel ports with a specified interrupt number.

In the following schema diagram, the CIM.UnitaryComputerSystem represents a managed inventory system.

In this illustration, class CIM.PointingDevice associates to CIM.UnitaryComputerSystem using the association CIM.SystemDevice with SystemDevice.GroupComponent pointing to CIM.UnitaryComputerSystem and SystemDevice.PartComponent pointing to CIM.PointingDevice. The relationship between the two classes is one to many. This means a computer system might have more than one pointing device.

Class CIM.IRQ associates to CIM.PointingDevice using the association CIM.AllocatedResource. Dependent pointing to CIM.PointingDevice and Antecedent pointing to CIM.IRQ.

Class ZENworks.ZENKeyboard associates to CIM.UnitaryComputerSystem using the association CIM.SystemDevice with SystemDevice.GroupComponent pointing to CIM.

UnitaryComputerSystem and SystemDevice.PartComponent pointing to ZENworks.ZENKeyboard. The relationship between the two classes is one to one. This means a computer system can have only one keyboard.

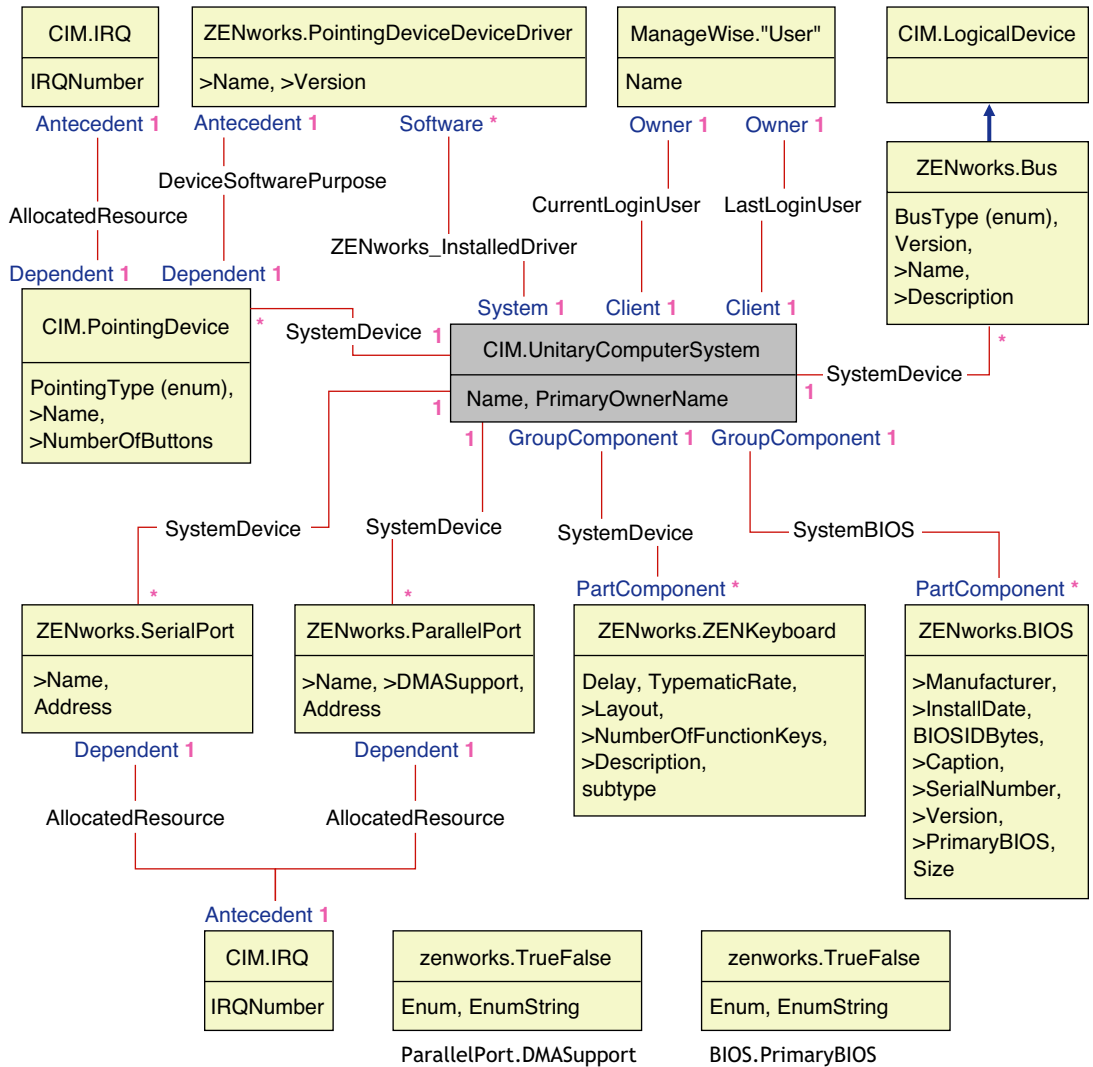
Class ZENworks.BIOS associates to CIM.UnitaryComputerSystem using the association CIM.SystemBIOS with SystemDevice.GroupComponent pointing to CIM.UnitaryComputerSystem and SystemBIOS.PartComponent pointing to ZENworks.BIOS. The relationship between the two classes is one to one. This means a computer system can have only one BIOS.

Class CIM.ZENworks.ParallelPort associates to CIM.UnitaryComputerSystem using the association CIM.SystemDevice with SystemDevice.GroupComponent pointing to CIM.UnitaryComputerSystem and SystemDevice.PartComponent pointing to CIM.ZENworks.ParallelPort. The relationship between the two classes is one to many. This means a computer system might have more than one parallel port.

Class ZENworks.BUS associates to CIM.UnitaryComputerSystem using the association CIM.SystemDevice with SystemDevice.GroupComponent pointing to CIM.UnitaryComputerSystem and SystemDevice.PartComponent pointing to ZENworks.BUS. The relationship between the two classes is one to many. This means a computer system can have more than one bus.

Class ManageWise.User associates to CIM.UnitaryComputerSystem using CurrentLoginUser and LastLoginUser. In the CurrentLoginUser association, the specific instance of User is the one who is currently logged into the inventoried workstation. In the LastLoginUser association, the specific instance of User is the one who logged last into the inventoried workstation.

Class CIM.IRQ associates to CIM.ParallelPort using the association CIM.AllocatedResource.Dependent pointing to CIM.ParallelPort and Antecedent pointing to CIM.IRQ.



The schema diagram illustrates the following:

- ◆ All components that a computer system manages are represented as associations from the UnitaryComputerSystem class. The type of references (1..n, 1..1) between two classes are marked.
- ◆ Those associations that do not have a schema name are assumed as CIM schema.

There are three instances of ZENworks.ParallelPort associated to one instance of CIM.UnitaryComputerSystem using three instances of CIM.SystemDevice associations. CIM.SystemDevice.GroupComponent references UnitaryComputerSystem and CIM.SystemDevice.PartComponent references ParallelPort.

This is called 1 to n object reference relationship and is depicted in the illustration as 1..*. Similarly, every instance of ParallelPort has a corresponding instance of CIM.IRQ designating the port's IRQ. This is one-to-one relationship and is depicted as 1..1.

All other classes follow similar representation. For schema diagrams of other classes, see [“Schema Diagrams of CIM and the Extension Schema in ZENworks 6.5 Desktop Management”](#) on page 919.

Legends for Schema Diagrams

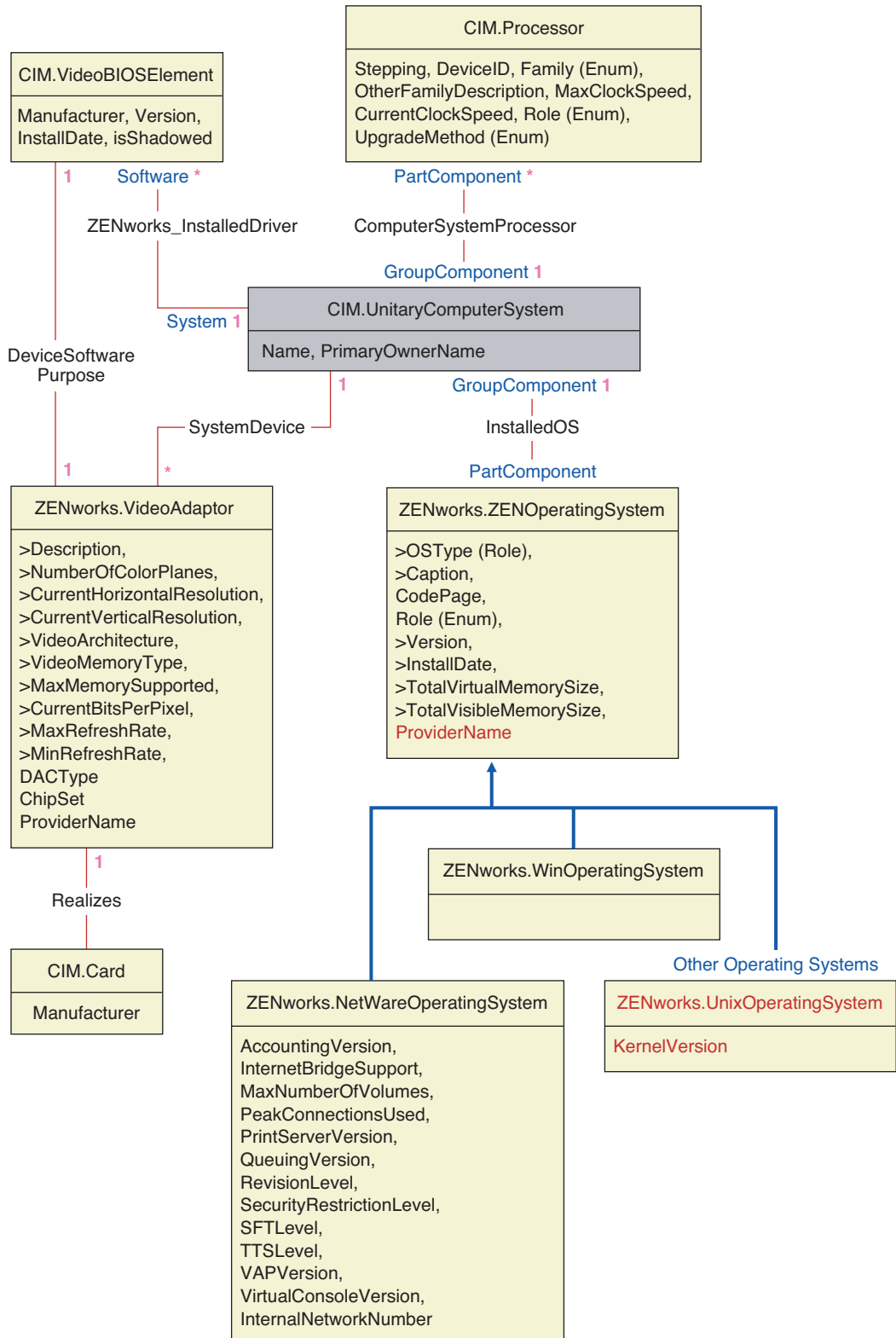
The legends for reading the schema diagrams are as follows:

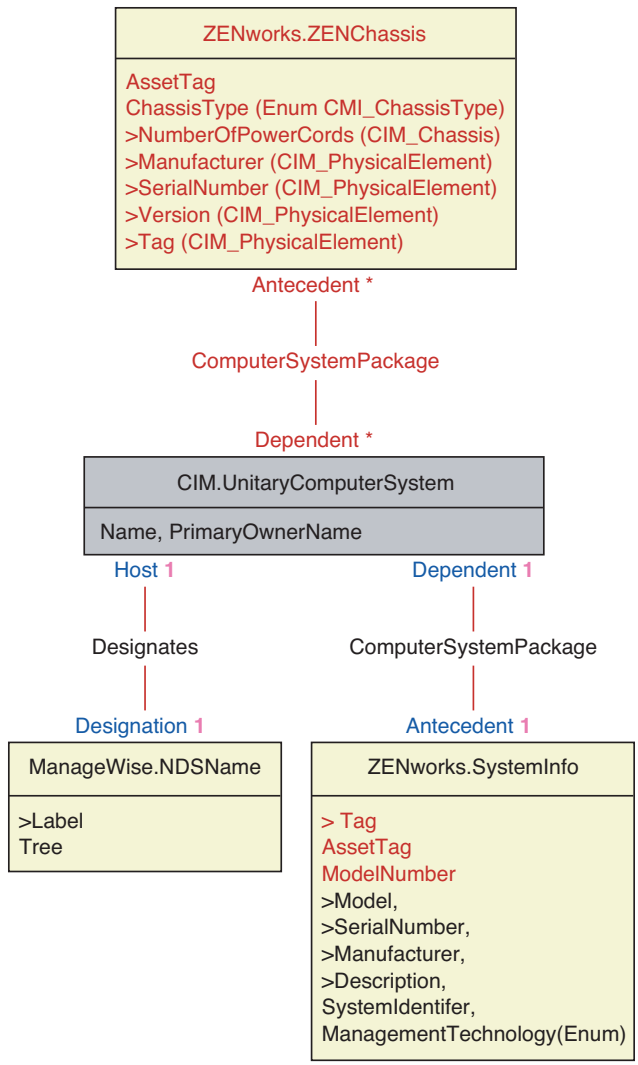
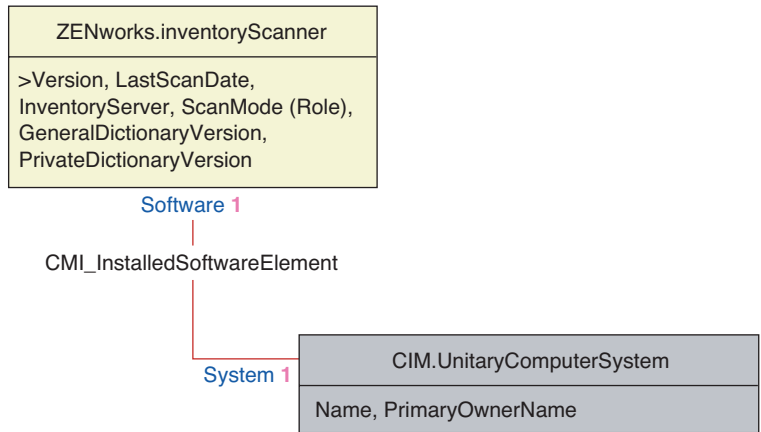
- ◆ Class names are enclosed in boxes with the class name as the heading and the attribute names within it.
- ◆ Red lines connect two classes using an association class.
- ◆ Blue lines indicate the class inheritance hierarchy. The class pointed by the arrow is the class that is being inherited from. The class from where the arrow originates is the inheriting class.
- ◆ The association class name is shown within the line joining two classes.
- ◆ References of the association class are marked on either side of the associated classes.

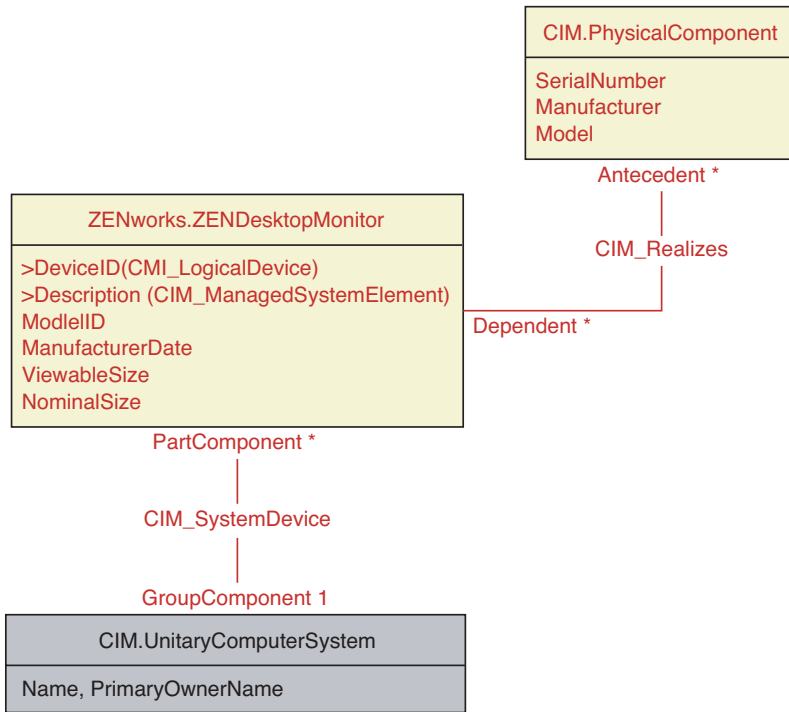
For an explanation of the CIM schema, see the CIM 2.2 schema specification on the [DMTF Web site \(http://www.dmtf.org\)](http://www.dmtf.org).

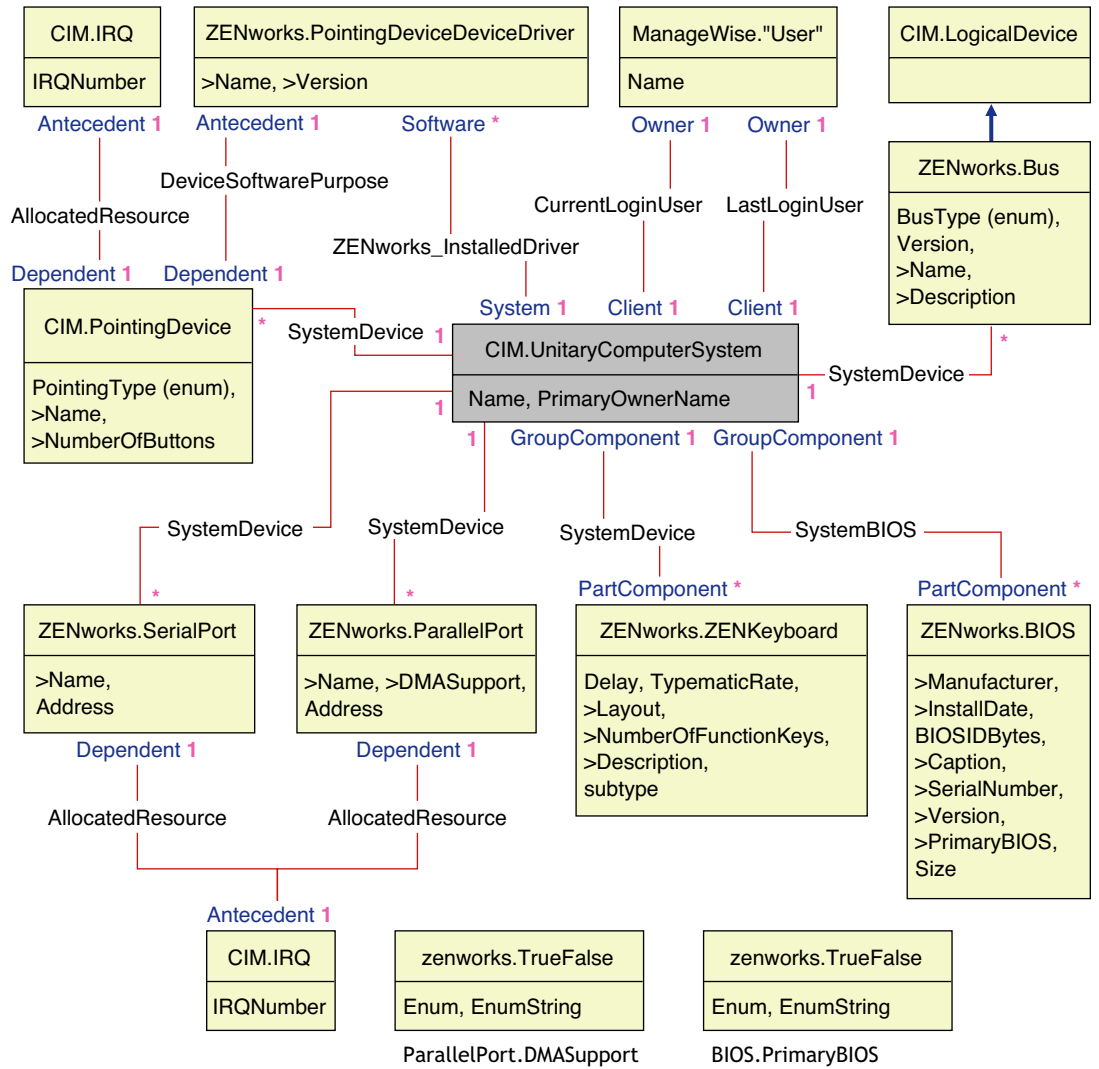
Schema Diagrams of CIM and the Extension Schema in ZENworks 6.5 Desktop Management

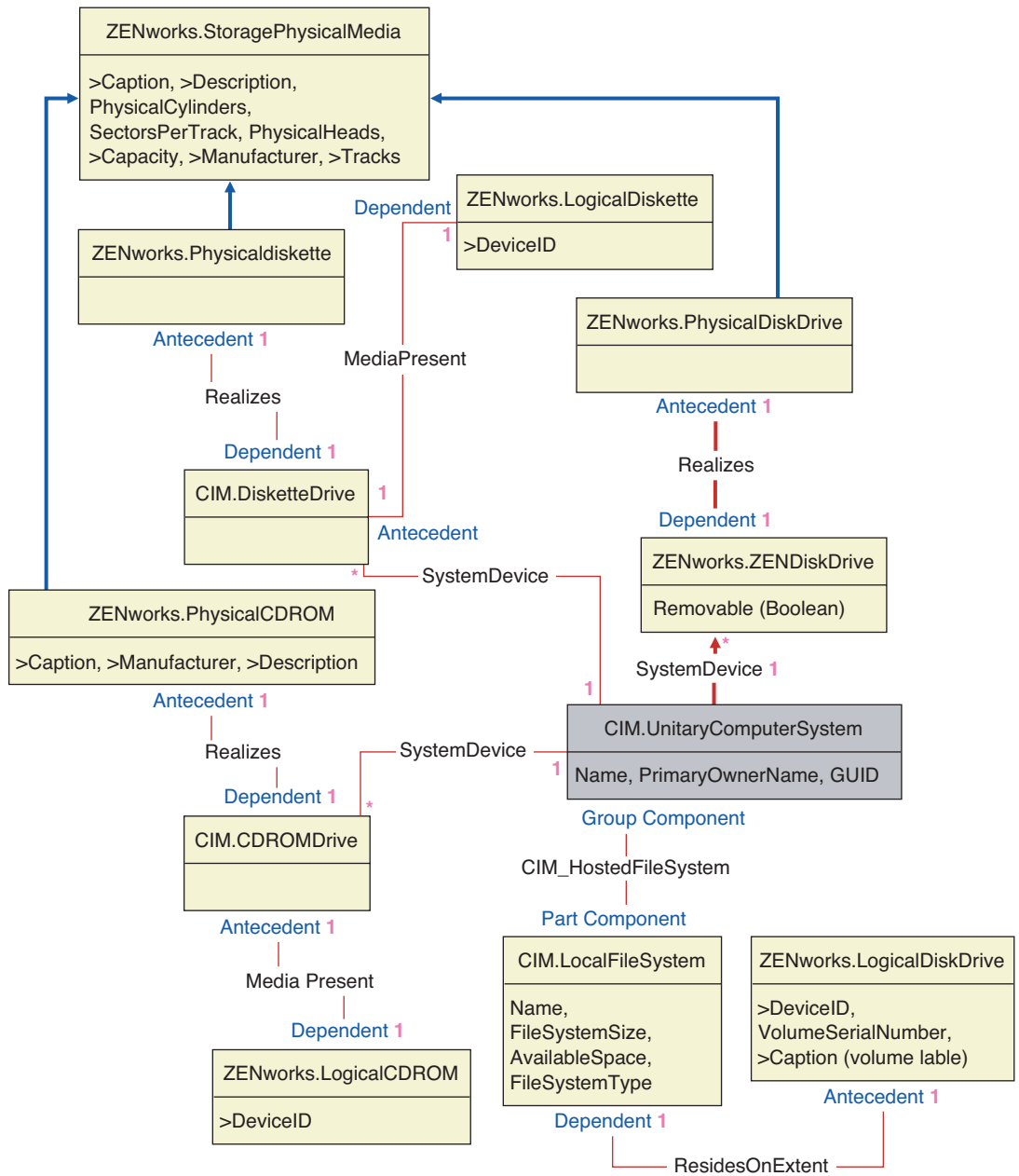
The following schema diagrams of the CIM and extension schema model the Inventory database in ZENworks 6.5 Desktop Management.

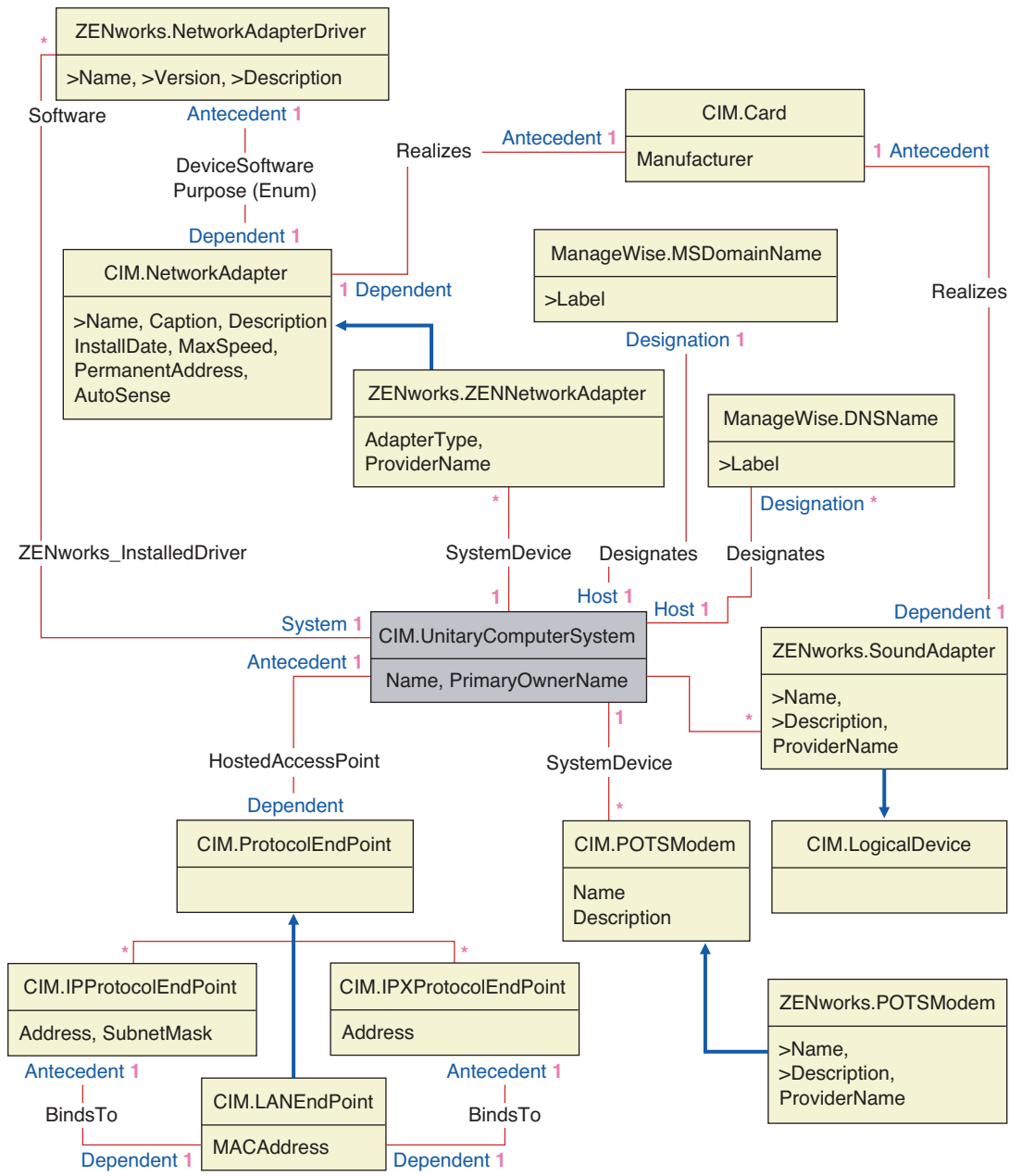


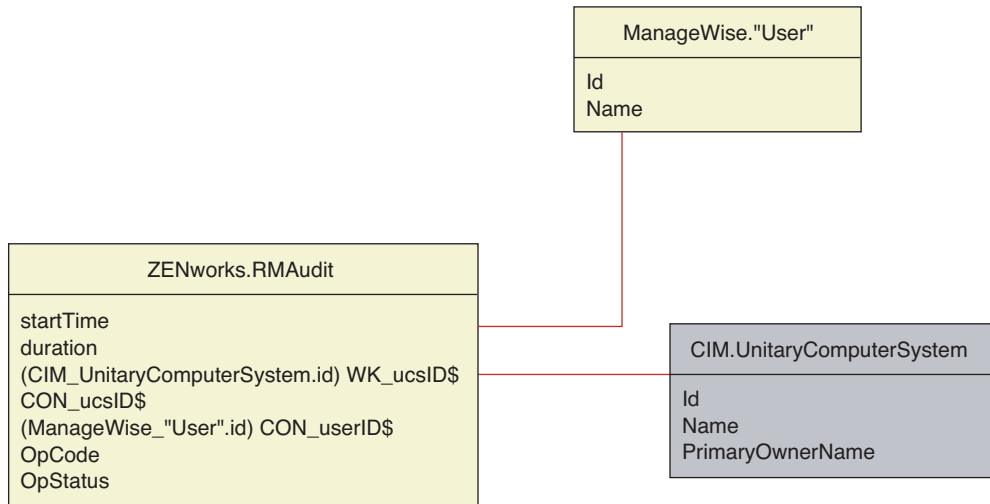
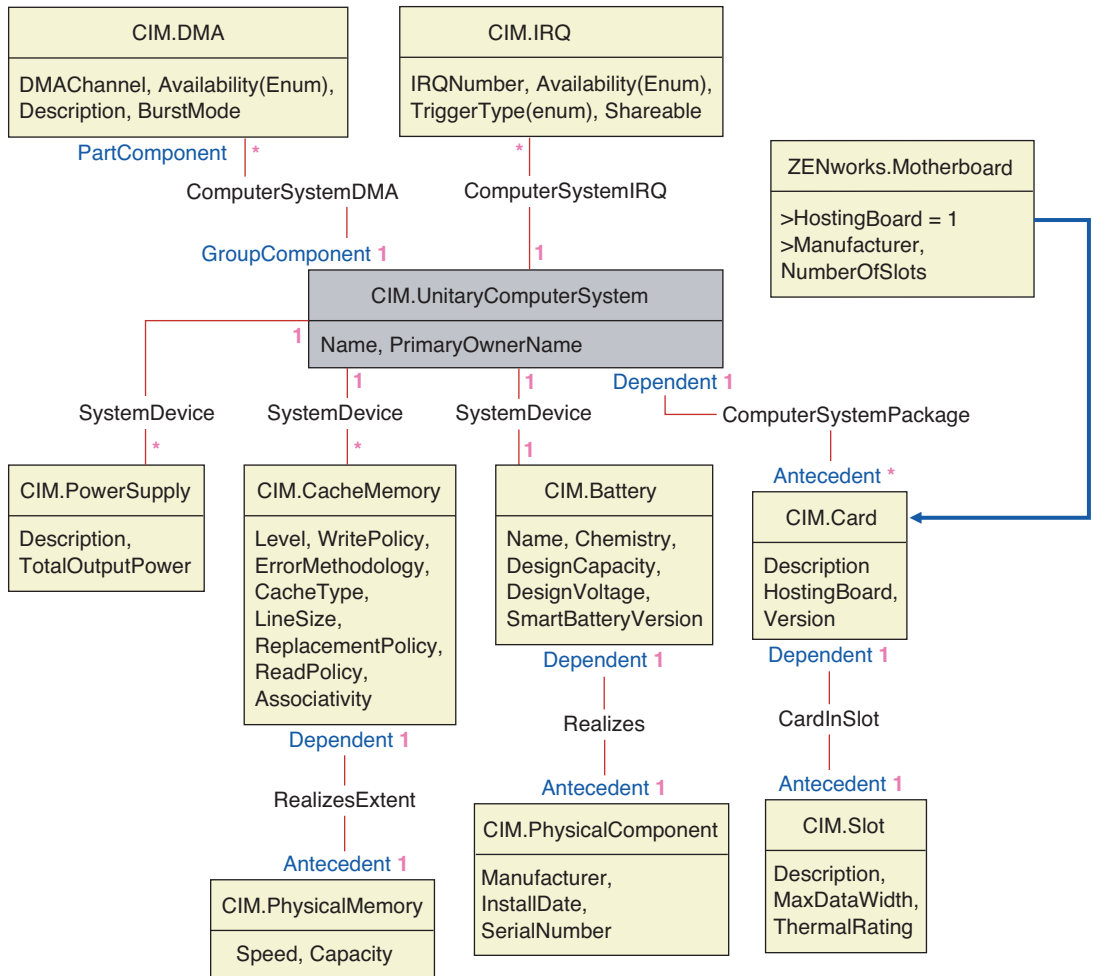










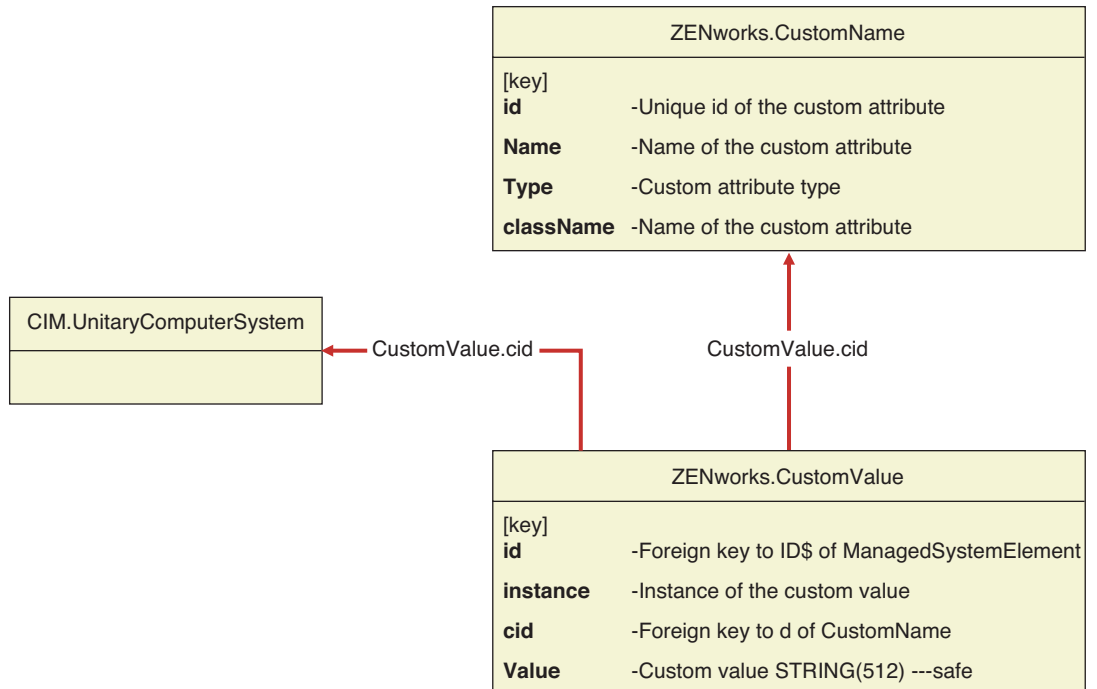


ZENworks.RMAuditConfigurations	
unit 16	maxAllowedRecords
unit 64	expiryTime

Custom Inventory Schema

A custom inventory attribute has the following qualifiers in the database:

Qualifier	Description
Name	The name of the custom attribute
Value	The value assigned to the custom attribute
Type	The data type of the custom attribute. ZENworks 6.5 Desktop Management treats all custom attributes as type "String" only.
ClassName	The Inventory Class (table) to which the custom attribute is associated to.
Instance	The number of values assigned to a given custom attribute. In ZENworks 6.5 Desktop Management, you cannot have more than one value for a custom attribute.
ID	The id (id\$) of the Inventory object to which the custom attribute is associated.
CID	The unique ID of the custom attribute name.



The custom inventory information is stored in two tables: **ZENworks.CustomName** and **Zenworks.CustomValue**.

The **ZENworks.CustomName** table contains the attribute name, ID, type (not used) and the class name. The attribute ID is automatically incremented when a new custom attribute is stored.

A sample ZENworks.CustomName table is as follows:

ID	Name	Class Name
1	Cost	ZENworks.VideoAdapter
2	ProductUnit	CIM.UnitaryComputerSystem

The Zenworks.CustomValue table contains the object instance ID, the attribute value and the reference to the associated custom attribute name. In the CustomValue table, a custom attribute can have multiple values for different instances of an inventory object but not for the same instance of the inventory object.

A sample Zenworks.CustomValue table is as follows:

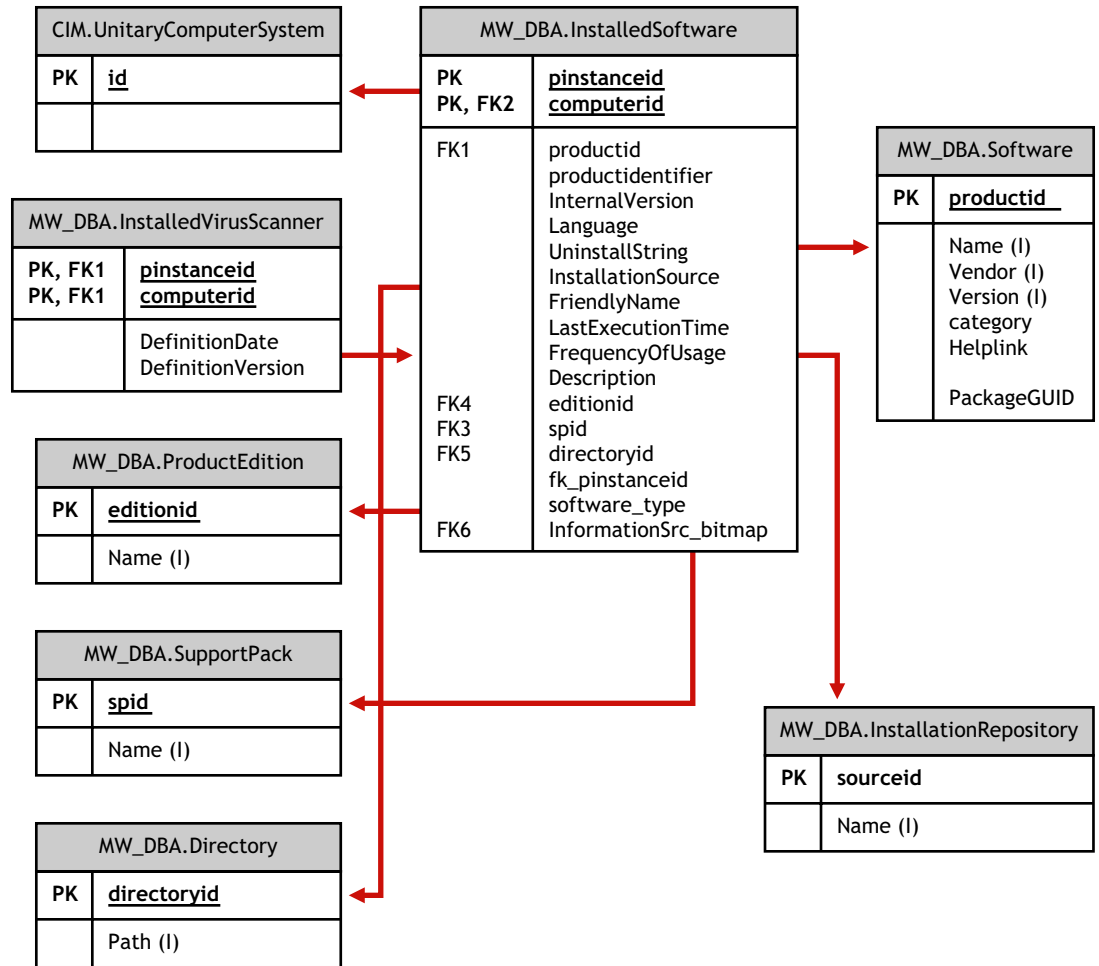
ID	Instance	CID	Value
28147497671065605	1	1	200.39
28147497671065606	1	1	345
69147497671045662	1	2	BAY-2

In the preceding example, the CustomName table has two custom attributes; Cost and ProductUnit. There are three rows in CustomValue table; two of them describe the cost of the video adapter, and the third one is the value of the ProductUnit attribute assigned directly to ComputerSystem.

Software Inventory Schema

The following software schema diagrams model the Inventory database in ZENworks 6.5 Desktop Management. In the following schema diagram, the CIM.UnitaryComputerSystem represents a managed inventory system.

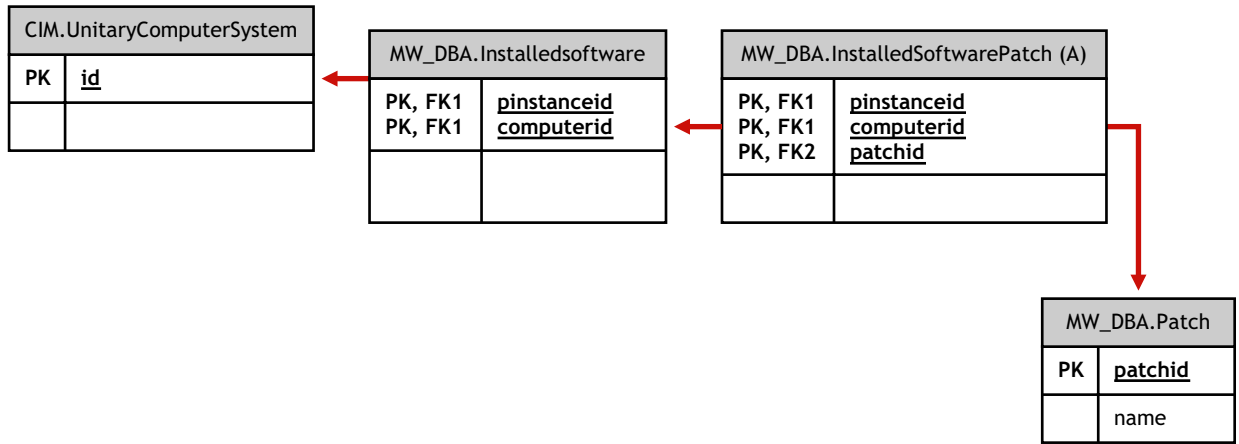
For more information about the tables, see [Appendix L, “ZENworks 6.5 Desktop Management Inventory Attributes,”](#) on page 1125.



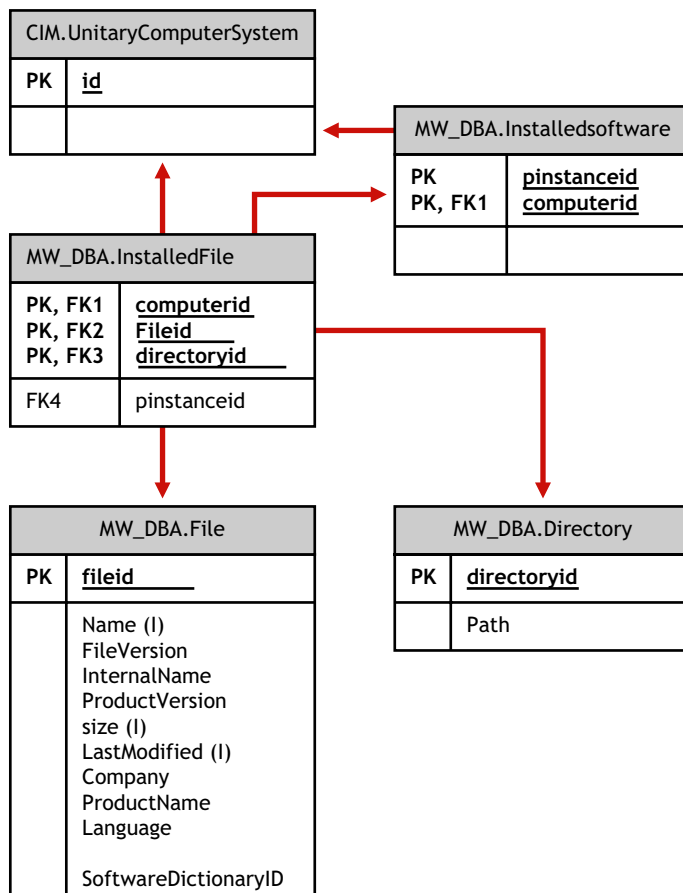
In the above illustration, class MW_DBA.Software associates to CIM.UnitaryComputerSystem using the association MW_DBA.InstalledSoftware with MW_DBA.InstalledSoftware. ComputerSystem pointing to CIM.UnitaryComputerSystem and MW_DBA.InstalledSoftware. ProductID pointing to MW_DBA.Software. The relationship between the two classes is one to many. This means a computer system might have more than one software information.

MW_DBA.InstalledSoftware association has Foreign key references to the following tables: ProductEdition, SupportPack, Directory, and Installation Repository.

MW_DBA.InstalledVirusScanner inherits the software information from MW_DBA.InstalledSoftware along with virus specific information such as Definition date and Definition version.

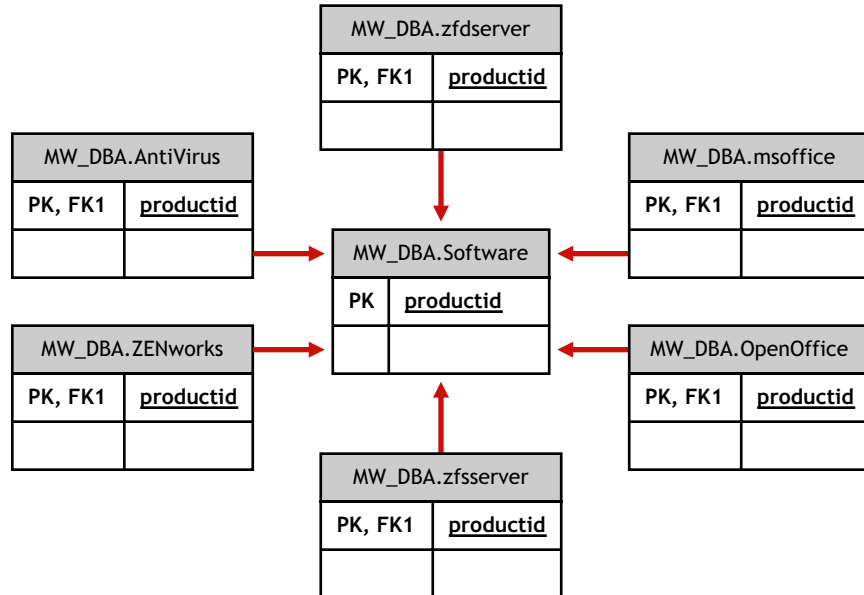


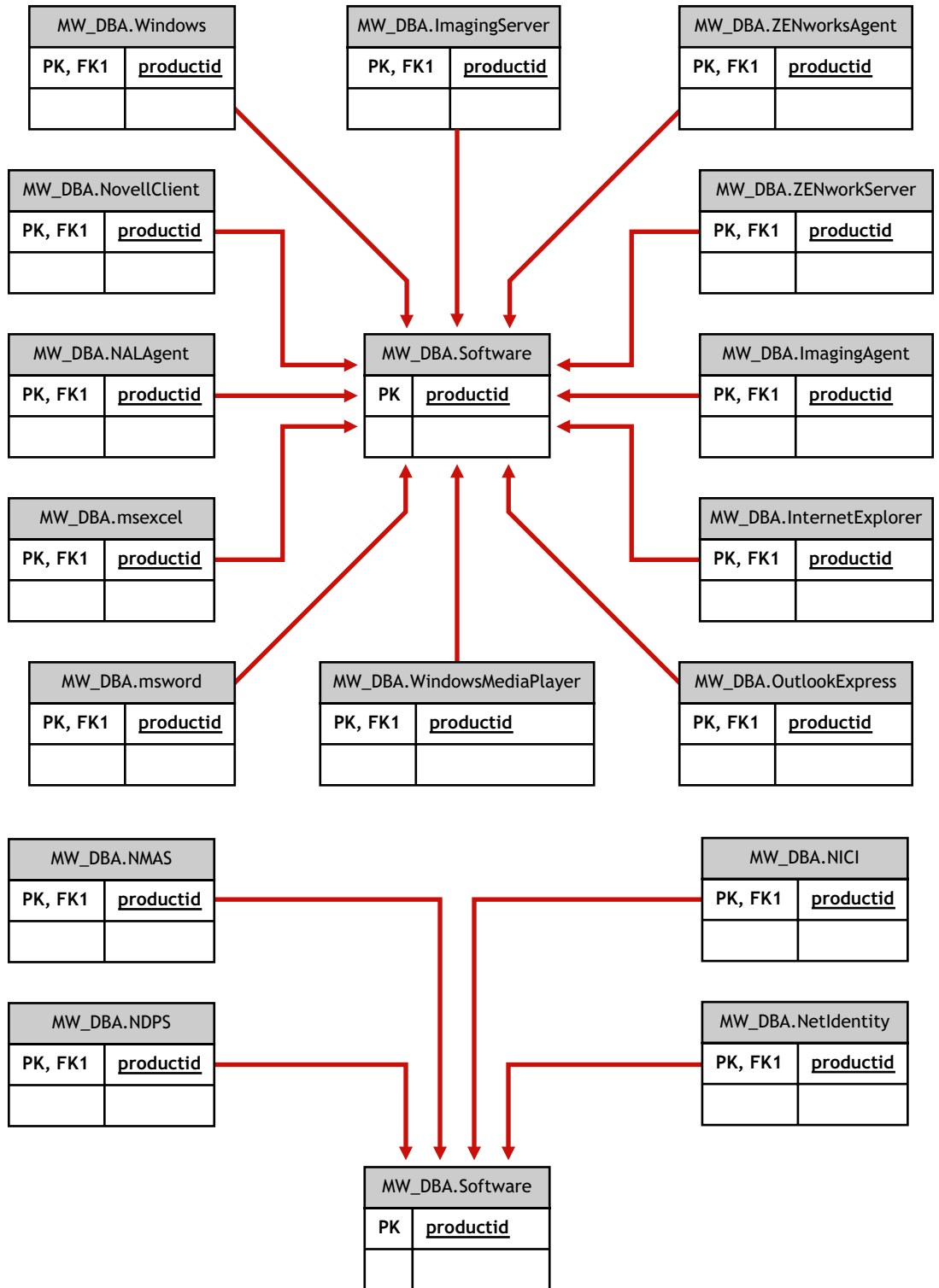
In the above illustration, class MW_DBA.Patch associates to MW_DBA.InstalledSoftware using the association MW_DBA.InstalledSoftwarePatch with MW_DBA.InstalledSoftwarePatch. pinstanceID pointing to MW_DBA.InstalledSoftware and MW_DBA.InstalledSoftwarePatch. PatchID pointing to MW_DBA.Patch. The relationship between the two classes is one to many. This means a software might have zero or more patch information.



In the above illustration, class MW_DBA.File associates to MW_DBA.InstalledSoftware using the association MW_DBA.InstalledFile with MW_DBA.InstalledFile.pinstanceID pointing to MW_DBA.InstalledSoftware and MW_DBA.InstalledFile.fileID pointing to MW_DBA.File. The relationship between the two classes is one to many. This means a software might have zero or more file information.

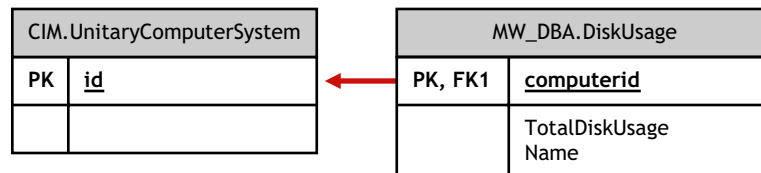
In this illustration, class MW_DBA.Directory associates to MW_DBA.InstalledSoftware using the association MW_DBA.InstalledFile with MW_DBA.InstalledFile.pinstanceID pointing to MW_DBA.InstalledSoftware and MW_DBA.InstalledFile.DirectoryID pointing to MW_DBA.Directory.





In the above illustrations, MW_DBA.MSoffice inherits the software information from MW_DBA.SOftware. This sub-class gets directly the MS office information. This is also applicable for the following classes:

mw_dba.zfdserver	mw_dba.zfdinventoryserver	mw_dba.zfdagent
mw_dba.zfsserver	mw_dba.zfdinventoryagent	mw_dba.zfsagent
mw_dba.zfsinventoryserver	mw_dba.mspowerpoint	mw_dba.msphotodraw
mw_dba.zfsinventoryagent	mw_dba.msoutlook	mw_dba.zfdwsmanager
mw_dba.zfsrmsserver	mw_dba.msaccess	mw_dba.zfdwsimportserver
mw_dba.zfsrmagent	mw_dba.mspublisher	mw_dba.zfdinvdbserver
mw_dba.zfdrmsserver	mw_dba.msfrontpage	mw_dba.zfsinvdbserver
mw_dba.zfdrmagent	mw_dba.msinfopath	mw_dba.zfdinvxmlproxyserver
mw_dba.zfsinvxmlproxyserver	mw_dba.zfdimagingagent	mw_dba.zfdimagingserver
mw_dba.zfdnalagent	mw_dba.zfdnalservice	mw_dba.zfdnaldb
mw_dba.middletier	mw_dba.zfsmmsserver	mw_dba.zfspds
mw_dba.zfspxeserver	mw_dba.zfsmmssrvmgmtagent	mw_dba.zfsmmstrafficanalysisagent
mw_dba.zfsmmsadctrendingagent	mw_dba.zfspdsdb	mw_dba.zfhserver
mw_dba.zfhaccesspoint	mw_dba.zfhdesktopsync	



In the above illustration, MW_DBA.DiskUsage has the computerID column foreign key references to the CIM.UnitaryComputerSystem.ID. The MW_DBA.DiskUsage table contains the total disk usage and the file extension name.

Sample Inventory Database Queries

The following are sample queries for retrieving the inventory information from the ZENworks 6.5 Desktop Management Inventory database.

Refer to the schema diagrams in [“Schema Diagrams of CIM and the Extension Schema in ZENworks 6.5 Desktop Management”](#) on page 919 to find out the associated schema classes and attribute information.

1. Retrieve the name and ID of all inventoried workstations from the database and also to the Novell eDirectory™ tree to which these workstations are registered. The query is as follows:

```

SELECT
    u.id$, u.name, m.tree
FROM
    ManageWise.NDSName m,
  
```

```

    CIM.UnitaryComputerSystem u,
    ManageWise.Designates s
WHERE
    s.Designation=m.id$ AND s.Host=u.id$;

```

In the above query, the tree name is part of the computer system name.

2. Retrieve the asset tag, manufacturer, and model number of all the inventoried workstations in the database. The query is as follows:

```

SELECT
    m.AssetTag,
    m.Manufacturer,
    m.ModelNumber,
    m.SerialNumber
FROM
    CIM.UnitaryComputerSystem u,
    CIM.ComputerSystemPackage s,
    ZENworks.SystemInfo m
WHERE
    s.Antecedent=m.id$ AND s.Dependent=u.id$;

```

3. Retrieve all the Microsoft applications with their versions and IDs that are installed on the inventoried workstation 'SJOHN164_99_139_79' registered under the 'NOVELL_AUS' eDirectory tree. The query is as follows:

```

SELECT
    m.Name,
    m.Version,
    im.ProductIdentifier
FROM
    CIM.UnitaryComputerSystem u,
    MW_DBA.InstalledSoftware im,
    MW_DBA.Software m
WHERE
    u.Name='SJOHN164_99_139_79.Novell_AUS' AND
    (im.computerid=u.id$ and im.productid=m.productid)
    AND m.Vendor LIKE 'Microsoft%';

```

4. Retrieve the processor information for the inventoried workstation 'SJOHN164_99_139_79.NOVELL_AUS'. The query is as follows:

```
SELECT
    procr.DeviceID,
    role.EnumString,
    family.EnumString,
    procr.OtherFamilyDescription,
    upg.EnumString,
    procr.MaxClockSpeed,
    procr.CurrentClockSpeed,
    procr.Stepping
FROM
    CIM.UnitaryComputerSystem ucs,
    CIM.ComputerSystemProcessor csp,
    CIM.Processor procr,
    CIM.Role_en_US role,
    CIM.Family_en_US family,
    CIM.UpgradeMethod_en_US upg
WHERE
    ucs.name='SJOHN164_99_139_79.Novell_AUS' AND
    csp.PartComponent=procr.id$ AND
    (
        (
            ( procr.Role IS NOT NULL AND procr.Role=role.Enum ) OR
            ( procr.Role IS NULL AND role.Enum=1000 )
        )
        AND
        procr.Family=family.Enum
        AND
        (
            ( procr.UpgradeMethod IS NOT NULL AND procr.UpgradeMethod=upg.Enum ) OR
            ( procr.UpgradeMethod IS NULL AND upg.Enum=1000 )
        )
    );
```

- Retrieve the ID of the UnitaryComputerSystem used for the inventoried workstation 'SJOHN164_99_139_79.NOVELL_AUS'. The query is as follows:

```
SELECT
    id$
FROM
    CIM.UnitaryComputerSystem
WHERE
    Name='SJOHN164_99_139_79.Novell_AUS';
```

- Find the number of inventoried workstations in the database. The query is as follows:

```
SELECT
    count(u.id$)
FROM
    CIM.UnitaryComputerSystem u,
    CIM.InstalledSoftwareElement s,
    ZENworks.InventoryScanner m
WHERE
    m.id$=s.Software AND u.id$=s.System;
```

- When you know the ID of the UnitaryComputerSystem for a particular inventoried workstation from the query as shown in query 5, query 4 can be modified as:

```
SELECT
    procr.DeviceID,
    role.EnumString,
    family.EnumString,
    procr.OtherFamilyDescription,
    upg.EnumString,
    procr.MaxClockSpeed,
    procr.CurrentClockSpeed,
    procr.Stepping
FROM
    CIM.UnitaryComputerSystem ucs,
    CIM.ComputerSystemProcessor csp,
    CIM.Processor procr,
    CIM.Role_en_US role,
    CIM.Family_en_US family,
    CIM.UpgradeMethod_en_US upg
WHERE
```



```

ucs.id$ = ? AND
csp.PartComponent=procr.id$ AND
(
  (
    ( procr.Role IS NOT NULL AND procr.Role=role.Enum ) OR
    ( procr.Role IS NULL AND role.Enum=1000 )
  )
  AND
procr.Family=family.Enum
  AND
  (
    ( procr.UpgradeMethod IS NOT NULL AND procr.UpgradeMethod=upg.Enum ) OR
    ( procr.UpgradeMethod IS NULL AND upg.Enum=1000 )
  )
);

```

Substitute the ID of the specified inventoried workstation in place of the ?, value for ucs.id\$ in the query.

8. List the IP address, IPX address, and MAC address of all workstations in the database. The query is as follows:

```

SELECT
  u.name,
  ip.Address,
  ipx.Address,
  mac.MACAddress
FROM
  CIM.UnitaryComputerSystem u,
  CIM.HostedAccessPoint s1,
  CIM.IPProtocolEndpoint ip,
  CIM.HostedAccessPoint s2,
  CIM.IPXProtocolEndpoint ipx,
  CIM.HostedAccessPoint s3,
  CIM.LANEndpoint mac
WHERE
  (s1.Dependent=ip.id$ and s1.Antecedent=u.id$) AND
  (s2.Dependent=ipx.id$ and s2.Antecedent=u.id$) AND
  (s3.Dependent=mac.id$ and s3.Antecedent=u.id$);

```

9. Retrieve the name and other properties of the drives on the hard disk of the specified inventoried workstation. The query is as follows:

```
SELECT
    n.Name,
    m.DeviceID,
    n.FileSystemSize,
    n.AvailableSpace,
    n.FileSystemType,
    m.VolumeSerialNumber,
    m.caption as VolumeLabel
FROM
    CIM.HostedFileSystem s,
    CIM.LocalFileSystem n,
    CIM.ResidesOnExtent r,
    ZENworks.LogicalDiskDrive m
WHERE
    (s.GroupComponent=? and s.PartComponent=n.id$) AND
    (r.Dependent=n.id$ and r.Antecedent=m.id$);
```

10. Retrieve all Custom attribute information stored in the database. The query is as follows:

```
SELECT * FROM ZENworks.CustomInformation;
```

11. Retrieve all Custom attribute information associated to the Class CIM. UnitaryComputerSystem. The query is as follows:

```
SELECT
    *
FROM
    ZENworks.CustomInformation
WHERE
    extractClass(id) IN
    (SELECT id FROM MW_DBA.t$Class WHERE
    ClassName='CIM. UnitaryComputerSystem')
```

12. Retrieve all the Microsoft Office installations in the enterprise. The query is as follows:

```
SELECT
    u.name,
    m.FriendlyName,
    im.InternalVersion,
    im.ProductIdentifier
FROM
    CIM.UnitaryComputerSystem u,
    MW_DBA.InstalledSoftware im,
    MW_DBA.Software m,
    MW_DBA.MSOffice mso
WHERE
    mso.id$m.productid AND
    m.productid=im.productid AND
    im.computerid=u.id$;
```

13. Retrieve all the Internet Explorer installations in the enterprise.. The query is as follows:

```
SELECT
    u.Name,
    m.Name,
    m.Version,
    im.InternalVersion,
    im.ProductIdentifier
FROM
    CIM.UnitaryComputerSystem u,
    MW_DBA.InstalledSoftware im,
    MW_DBA.Software m,
    MW_DBA.InternetExplorer ie
WHERE
    ie.id$m.productid AND
    m.productid=im.productid AND
    im.computerid=u.id$;
```

NOTE: Query 12 and 13 follow nearly the same syntax except for the table relating to the component. A similar approach can be used for the following components as well, Windows Media Player, Outlook Express, Microsoft Word, Microsoft Excel etc. The complete set of these tables are available in the Schema.

14. Retrieve all the Anti-Virus installations in the enterprise. The query is as follows:

```
SELECT
    u.Name,
    m.Name,
    m.Version,
    im.InternalVersion,
    ivs.DefinitionVersion,
    ivs.DefinitionDate
FROM
    CIM.UnitaryComputerSystem u,
    MW_DBA.InstalledSoftware im,
    MW_DBA.Software m,
    MW_DBA.InstalledVirusScanner ivs
WHERE
    ivs.pinstanceid=im.pinstanceid AND
    m.productid=im.productid AND
    im.computerid=u.id$;
```

15. Retrieve all the applications and the details of the files associated with the application that are installed on the inventoried workstation 'SJOHN164_99_139_79.NOVELL_AUS'. The query is as follows:

```
SELECT
    u.Name,
    m.Name,
    m.Version,
    m.Category,
    zfile.company,
    zfile.productname,
    zfile.productversion,
    zfile.name,
    dir.path,
    zfile.fileversion,
    zfile."size",
    zfile.lastmodified,
    zfile.internalname,
    zfile.softwaredictionaryid
FROM
```

```

CIM.UnitaryComputerSystem u,
MW_DBA.InstalledSoftware iso,
MW_DBA.Software m,
MW_DBA.InstalledFile ifile,
MW_DBA."file" zfile,
MW_DBA.Directory dir
WHERE
u.Name='SJOHN164_99_139_79.Novell_AUS' AND
iso.computerid=u.id$ AND
iso.productid=m.productid AND
iso.pinstanceid=ifile.pinstanceid AND
ifile.directoryid=dir.id AND
ifile.fileid=zfile.id;

```

16. Retrieve all the files present on the inventoried workstation 'SJOHN164_99_139_79.NOVELL_AUS' which has not been associated with a valid software. The query is as follows:

```

SELECT
u.Name,
zfile.name,
dir.path,
zfile.fileversion,
zfile."size",
zfile.lastmodified,
zfile.internalname,
zfile.productversion,
zfile.company,
zfile.productname
FROM
CIM.UnitaryComputerSystem u,
MW_DBA.InstalledFile ifile,
MW_DBA."file" zfile,
MW_DBA.Directory dir
WHERE
u.Name='SJOHN164_99_139_79.Novell_AUS' AND
u.id$=ifile.computerid AND
ifile.fileid=zfile.id AND

```

```
ifile.directoryid=dir.id AND  
ifile.pinstanceid is null;
```

17. Retrieve the disk usage details of files with known extensions on each inventories machine in the enterprise. The query is as follows:

```
SELECT  
    u.Name,  
    du.Name,  
    du.TotalDiskUsage  
FROM  
    CIM.UnitaryComputerSystem u,  
    MW_DBA.DiskUsage du  
WHERE  
    u.id$=du. Computerid AND  
    du.Name is not null;
```

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Managing Your Inventory System

This section contains the following information to help you customize the way Novell® ZENworks® 6.5 Workstation Inventory displays information:

- ◆ “Viewing the Servers Deployed for Inventory” on page 943
- ◆ “Customizing the Hardware Inventory Information To Be Scanned” on page 944
- ◆ “Customizing the Software Inventory Information To Be Scanned For ZENworks 6.5 or ZENworks 6.5 Support Packs Inventoried Workstations” on page 958
- ◆ “Customizing the Software Inventory Information To Be Scanned For ZENworks for Desktops 4.X and Earlier Versions of Inventoried Workstations” on page 1024
- ◆ “Scanning for Workstations That Are Periodically Connected to the Network” on page 1024
- ◆ “Scanning for Workstations That Are Never Connected to Your Network” on page 1024
- ◆ “Removing the Redundant Inventoried Workstations from the Inventory Database” on page 1027
- ◆ “Removing Duplicate Workstation Objects from the Inventory Database” on page 1029

Viewing the Servers Deployed for Inventory

Using ConsoleOne®, you can view the Inventory servers and databases that you configured for collecting inventory.

To get a complete Inventory tree view, you need to log into all the Novell eDirectory™ trees that contain Inventory servers present in your inventory tree. In ConsoleOne, select a container, click the View menu, then click Complete Tree View. All the Inventory servers within the container are displayed in the Complete Tree View.

To view a complete tree view if your inventory deployment involves roll-up of information between Inventory servers that are situated on different Novell eDirectory trees:

- 1** In ConsoleOne, select NDS Tree.
- 2** Click View, then click Complete Tree View.
- 3** Select the eDirectory trees or containers within the tree that contains the Inventory servers.
- 4** Click OK.

To view all Inventory server from the selected Inventory server to the highest-level server, in ConsoleOne, right-click the Inventory Service object (Inventory Service_ *server_name*), click View, then click Up Tree View or double-click the Inventory Service object.

If your inventory deployment consists of a single eDirectory tree, an Up Tree View displays all the Inventory servers from the selected Inventory server up to the highest level (Root Server).

If your inventory deployment involves roll-up of inventory information across Inventory servers located on different eDirectory trees, the Up Tree View displays all the Inventory servers from the selected Inventory server up to the highest level server to which you have logged in.

NOTE: You cannot collapse the inventory tree using the shortcut keys.

Customizing the Hardware Inventory Information To Be Scanned

This section describes how to customize the inventory information.

- ◆ “Customizing the Hardware Inventory Scanning of Inventoried Workstations” on page 944
- ◆ “Scanning for IBM Computer Models” on page 952
- ◆ “Customizing the Hardware Scanning Information of Jaz, Zip, and Floppy Drive Vendors” on page 953
- ◆ “Scanning for Vendor-Specific Asset Information from DMI” on page 954
- ◆ “Customizing the Hardware Information for Monitor’s Size” on page 956

Customizing the Hardware Inventory Scanning of Inventoried Workstations

ZENworks 6.5 Desktop Management allows you to collect information that is not part of the default hardware inventory from the inventoried workstations.

To collect information that is not part of the default inventory from the inventoried workstations, you must define attributes and their corresponding values for an Inventory class. By default, each Inventory class has its own attributes called as regular attributes and the values corresponding to the regular attributes are called as regular attribute values. The Inventory Scanner stores the user-defined attributes (called as custom attributes) and the corresponding values along with the regular attributes’ values. of the class in the Inventory database. This process is called custom hardware inventory scanning.

For example, you can add a custom attribute named Rate to the Processor table. The Inventory Scanner scans for the regular attribute values such as the processor type and stores the values of the Rate and the Processor Type in the Inventory database.

The following table lists the Inventory class and the regular attributes.

NOTE: The * in the table given below indicates that you need to specify the values in bytes. The + in the table given below indicates that you need to specify the enumerated values for these attributes. For more information on enumerated values, see [Appendix M, “Enumeration Values,” on page 1145](#).

Inventory Class Name as Displayed in the Custom Attribute Editor Dialog Box	Inventory Class Name in the Inventory Database	Regular Attributes
Asset	Zenworks.SystemInfo	Description, Caption, AssetTag, Model, ModelNumber, SystemIdentifier, ManagementTechnology, Serial Number, and Tag +
MAC Address	CIM.LANEndpoint	MAC Address
IP Address	CIM.IPProtocolEndpoint	Address, SubnetMask
IPX Address	CIM.IPXProtocolEndpoint	Address
Modem	Zenworks.ZENPOTSModem	Description, Name, ProviderName, DeviceID

Inventory Class Name as Displayed in the Custom Attribute Editor Dialog Box	Inventory Class Name in the Inventory Database	Regular Attributes
Network Adapter	Zenworks.ZENNetworkAdapter	MaxSpeed*, Name, PermanentAddress, AdapterType, ProviderName, MACAddress
Network Adapter Driver	Zenworks.NetworkAdapterDriver	Description, Name, Version
NetWare Client	Zenworks.NetwareClient	Version
Processor	CIM.Processor	stepping, DeviceID, Family+, OtherFamilyDescription, MaxClockSpeed*, CurrentClockSpeed*, Role+, UpgradeMethod+, Description, Name
BIOS	Zenworks.BIOS	Manufacturer, InstallDate, BIOSIDBytes, Caption, SerialNumber, Version, PrimaryBios+, size*
Bus	Zenworks.Bus	BusType+, Name, Description, Version, DeviceID
IRQ	CIM.IRQ	IRQNumber, Availability+, TriggerType+, Shareable+
KeyBoard	Zenworks.ZENKeyboard	Layout, SubType, Description, NumberOfFunctionKeys, Delay*, TypeMaticRate*
Display Adapter	Zenworks.VideoAdapter	NumberOfColorPlanes, CurrentHorizontalResolution, CurrentVerticalResolution, VideoArchitecture+, VideoMemoryType+, MaxMemorySupported*, CurrentBitsPerPixel, Description, MaxRefreshRate*, MinRefreshRate*, DACType, ChipSet, ProviderName
Display Driver	CIM.VideoBIOSElement	Manufacturer, Version, InstallDate, IsShadowed+
Parallel Port	Zenworks.ParallelPort	Name, DMASupport+, Address
Serial Port	Zenworks.SerialPort	Name, Address
Diskette Drive	Zenworks.ExtendedDisketteDrive	DisketteDeviceID, DisketteManufacture, DisketteDescription, DiskettePhysicalCylinders, DiskettePhysicalHeads, DisketteSectorsPerTrack, DisketteCapacity*
CDROM	Zenworks.ExtendedCDROMDrive	CDROMDeviceID, CDROMManufacturer, CDROMDescription, CDROMCaption
Physical Disk Drive	Zenworks.ExtendedDiskDrive	DiskRemovable+, DiskManufacturer, DiskDescription, DiskPhysicalCylinders, DiskPhysicalHeads, DiskSectorsPerTrack, DiskCapacity*
Logical Disk Drive	CIM.LocalFileSystem	Name, FileSystemType, FileSystemSize*, AvailableSpace*
Windows Operating System	Zenworks.WinOperatingSystem	OSType+, Version, CodePage, InstallDate, SizeStoredInPagingFiles*, Caption, OtherTypeDescription, TotalVirtualMemorySize*, TotalVisibleMemorySize* (specify the values in bytes), Role+
Multimedia Card	Zenworks.SoundAdapter	Description, Name, ProviderName

Inventory Class Name as Displayed in the Custom Attribute Editor Dialog Box	Inventory Class Name in the Inventory Database	Regular Attributes
Cache Memory	Zenworks.ExtendedCacheMemory	CacheMemoryLevel+, CacheMemoryWritePolicy+, CacheMemoryErrorMethodology, CacheMemoryCacheType+, CacheMemoryLineSize*, CacheMemoryReplacementPolicy+, CacheMemoryReadPolicy+, CacheMemoryAssociativity+, CacheMemorySpeed*, CacheMemoryCapacity*
Mother Board	Zenworks.MotherBoard	Version, Description, NumberOfSlots, Manufacturer
Battery	CIM.Battery	Name, Chemistry+, DesignCapacity*, DesignVoltage*, SmartBatteryVersion
Power Supply	CIM.PowerSupply	Description, TotalOutputPower*
DMA	CIM.DMA	DMACHannel, Description, Availability+, BurstMode+
Computer System Information	CIM.UnitaryComputerSystem	Name, PrimaryOwnerContactID, PrimaryOwnerName
Pointing Device	CIM.PointingDevice	PointingType+, Name, NumberOfButtons
Pointing Device Driver	Zenworks. PointingDeviceDeviceDriver	Name, Version
Slot	Zenworks.ExtendedSlot	SlotDescription, SlotMaxDataWidth, SlotThermalRating*
Monitor	Zenworks.ZENDesktopMonitor	DeviceID,Description,ManufacturerDate,ModelID,ViewableSize,NominalSize,SerialNumber,Manufacturer,Model
System Chassis	ZENworks.ZENChassis	ChassisType(+),Manufacturer,SerialNumber,AssetTag,Version,NumberOfPowerCords,Tag

The following sections give information on the tasks you need to perform to do custom scanning:

- ◆ [“Adding Custom Attributes” on page 946](#)
- ◆ [“Using the Custom.ini File to Add Custom Attribute Values” on page 947](#)
- ◆ [“Guidelines for Creating the CUSTOM.INI File” on page 949](#)
- ◆ [“Viewing Custom Attributes and Custom Attribute Values” on page 950](#)
- ◆ [“Custom Inventory Scanning Examples” on page 951](#)

Adding Custom Attributes

To add custom attributes to an Inventory class:

- 1** In the Workstation Inventory policy, click the Hardware Scan tab.
- 2** Select Enable Custom Scanning.
- 3** Click the Custom Attribute Editor.
- 4** In the Custom Attribute Editor dialog box, click Add.

- 5** From the Class Name drop-down list, select the class where you want to add the custom attribute. For example: Processor
- 6** Enter the custom attribute name in the Attribute Name field. For example: Rate.
- 7** Click OK.
You can add more than one custom attribute for a class.
- 8** Click OK, click Apply, then click OK.

Using the Custom.ini File to Add Custom Attribute Values

To add values to the custom attributes, you must create the custom.ini file. The administrator must communicate the list of Inventory classes to which the custom attributes can be added. The Inventory Scanner uses the custom.ini file to get information about custom attributes and their corresponding values.

The contents of a custom.ini file are as follows:

```
[START_CIM_OBJECT]
Class =
Inventory_Class_Name_as_displayed_in_the_Custom_Attribute_Editor_dialogbox
or_Inventory_Class_Name_in_Inventory_database
RegularAttrs = regular_attribute_name1, regular_attribute_name2, ...,
regular_attribute_nameN
RegularVals = regular_attribute_value1, regular_attribute_value2, ...,
regular_attribute_valueN
Action = A/D
custom_attribute = custom_attribute_value
custom_attribute = custom_attribute_value
...
...
custom_attribute = custom_attribute_value
[END_CIM_OBJECT]
```

where `Class` is a predefined Inventory class name (for the list of the predefined Inventory class names, refer to the [Inventory Class Name and Regular Attributes table](#)), `RegularAttrs` indicates the list of regular attribute names, `RegularVals` indicates the corresponding regular attribute values, the `Action` value `A` indicates the specified custom attributes to be added to the database table, and the `Action` value `D` indicates the specified custom attributes to be deleted from the database table.

You can enter comments after the semicolon (;). The data after the semicolon is ignored by the Scanner.

In the custom.ini file, the content between `[START_CIM_OBJECT]` and `[END_CIM_OBJECT]` is called as a “section”. The first three lines within the section are called as a query.

A sample custom.ini file that has one regular attribute, one regular attribute value, and one custom attribute and value is as follows:

```
[START_CIM_OBJECT]
Class = Computer System Information ;Inventory class name
RegularAttrs = Name ;Regular attribute name
RegularVals = John ;Regular attribute value
Action = A
Employee Number=BLR_5000234 ;Custom attribute and its value
[END_CIM_OBJECT]
```

In the above query, the employee number is added to the CIM.UnitaryComputerSystem table if the value of the Name attribute is John.

You can create a custom.ini file using either of the following methods:

- ◆ Use a text editor to create a custom.ini file and save it in the *windows_installation_drive/zenworks* directory of the inventoried workstation.
- ◆ Develop an application to automatically generate the custom.ini file and place the file in the *windows_installation_drive/zenworks* directory of the inventoried workstation. You must save the application in *windows_installation_drive/zenworks* directory of the inventoried workstation.

After developing the application, go to the Workstation Inventory policy's Hardware Scan tab, select the Enable Custom Scanning option, and specify the name of the application. For more information, see [“Configuring the Workstation Inventory Policy” on page 879](#).

This application is launched by the Scanner.

Guidelines for Creating the CUSTOM.INI File

Follow these guidelines as you work with the custom.ini file:

- ◆ If the Inventory class name is not specified, the custom attributes and their corresponding values are added to the CIM.UnitaryComputerSystem table.
- ◆ If the regular attribute name is not specified, the custom attributes and their corresponding values are added to the appropriate Inventory class only if one instance of the Inventory class exists in the Inventory database.

If multiple instances of the Inventory class exist, you must specify a minimum set of regular attributes and their corresponding values to distinguish the instances.

- ◆ Each regular attribute must have a corresponding value.
- ◆ If the action to be performed (addition or deletion) is not specified, the custom attribute values is added to the appropriate Inventory class.
- ◆ Do not use a semicolon (;) in a custom attribute name or custom attribute value. The data after the semicolon (;) is ignored by the Scanner.
- ◆ Use only alphanumeric characters in the custom attribute name.
- ◆ If the custom attribute value is a date, you must enter the date value in the format YYYY-MM-DD (year-month-day).
- ◆ If a query has more than one regular attribute or regular attribute value, use a comma (,) as the separator between regular attribute names and regular attribute values.
- ◆ If a regular attribute value has a comma (,) in it, precede the comma with a backslash (\).

For example, if the regular attribute value is “Novell, Ltd.”, the regular attribute value should be written as follows in the custom.ini file:

```
Novell\, Ltd.
```

- ◆ A custom.ini file can have more than one section.

A sample custom.ini file with two sections is as follows:

```
[START_CIM_OBJECT]
Class = Computer System Information
RegularAttrs = Name, PrimaryOwnerContactID
RegularVals = John, 56
Action = D
EmployeeName= Tom
EmployeeId=568
```

```

[END_CIM_OBJECT]
[START_CIM_OBJECT]
Class = Diskette Drive
RegularAttrs = DisketteDeviceID
RegularVals = A:
Action = A
Manufacturer = Sony
[END_CIM_OBJECT]

```

- ◆ If a query returns multiple instances for regular attributes, the custom attribute and its corresponding values are not added to the Inventory database.

For example, a workstation has two floppy drives, one mapped to A: and the other to B:, and the storage capacity of both the drives is 1440 KB. If you want to add “Rate” as the custom attribute, you cannot write a query using only the DisketteCapacity regular attribute as follows:

```

[START_CIM_OBJECT]
Class = Diskette Drive
RegularAttrs = DisketteCapacity
RegularVals = 1440
Action = A
Rate = $100
[END_CIM_OBJECT]

```

The above query returns two instances. One is the floppy drive mapped to a: and the other is the floppy drive mapped to b:. The custom attribute and its value are not added to the Inventory database.

You could rewrite the custom.ini file as follows:

```

[START_CIM_OBJECT]
Class = Diskette Drive
RegularAttrs = DisketteDeviceID
RegularVals = A:
Action = A
Rate = $100
[END_CIM_OBJECT]
[START_CIM_OBJECT]
Class = Diskette Drive
RegularAttrs = DisketteDeviceID
RegularVals = B:
Action = A
Rate = $100
[END_CIM_OBJECT]

```

Viewing Custom Attributes and Custom Attribute Values

You can view the custom attributes and the values of all the inventoried workstations in the Workstation Inventory. For more information, see [“Viewing the Inventory Summary of an Inventoried Workstation” on page 1036.](#)

Custom Inventory Scanning Examples

- ◆ **Example 1:** Adds the custom attributes Employee Name and Employee Code with values of XYZ and BLR_TERCH_5000234 respectively to CIM.UnitaryComputerSystem.

Using the **Custom Attribute Editor dialog box**, add Employee Name and Employee Code to Computer System Information.

Create the custom.ini file with the following contents:

```
[START_CIM_OBJECT]
Employee Name = XYZ
Employee Code = BLR_TERCH_5000234
[END_CIM_OBJECT]
```

After creating the custom.ini file, run the Novell Desktop Management Scheduler to start the scan.

- ◆ **Example 2:** Adds the custom attributes Price and Value \$4.00 to ZENworks.ExtendedDisketteDrive if the value of the regular attribute DisketteDeviceID is A:. Also adds custom attribute Price with a Value \$8.00 to ZENworks.ExtendedDisketteDrive if the value of the regular attribute DisketteDeviceID is B:

Using the **Custom Attribute Editor dialog box**, add Price to Diskette Drive.

Create the custom.ini file with the following contents:

```
[START_CIM_OBJECT]
Class =Diskette Drive
RegularAttr = DisketteDeviceID
RegularVals = A:
Price = $4.00
[END_CIM_OBJECT]
[START_CIM_OBJECT]
Class = Diskette Drive
RegularAttr = DisketteDeviceID
RegularVals = B:
Price = $ 8.00
[END_CIM_OBJECT]
```

After creating the custom.ini file, run the Novell Desktop Management Scheduler to start the scan.

- ◆ **Example 3:** Deletes the custom attribute Employee Name from CIM.UnitaryComputerSystem.

Create the custom.ini with the following contents:

```
[START_CIM_OBJECT]
Action = D
Employee Name = XYZ
[END_CIM_OBJECT]
```

After creating the custom.ini file, run the Novell Desktop Management Scheduler to start the scan.

- ◆ **Example 4:** To reset the value of Employee Code from BLR_TERCH_5000234 to BLR_TEST_1200012 in CIM.UnitaryComputerSystem

Create the custom.ini file with the following contents:

```
[START_CIM_OBJECT]
Action = A
```

```
Employee Code = BLR_TEST_1200012
[END_CIM_OBJECT]
```

After creating the custom.ini file, run the Novell Desktop Management Scheduler to start the scan.

- ◆ **Example 5:** Adds the custom attributes Price with value \$100.00 to CIM.Processor if the values of the regular attributes Family and MaxClockSpeed are 178 and 1500 respectively. Also adds the custom attributes Price with its value \$250.00 to CIM.Processor if the values of the regular attributes Family and MaxClockSpeed are 178 and 2000 respectively.

Using the **Custom Attribute Editor dialog box**, add Price to Processor.

Create the custom.ini file with the following contents:

```
[START_CIM_OBJECT]
Class = Processor
RegularAttr = Family, MaxClockSpeed
RegularVals = 178, 1500 ; Pentium 4 with MaxClockSpeed = 1500 MHz
Price = $ 100.00
[END_CIM_OBJECT]
[START_CIM_OBJECT]
Class = Processor
RegularAttr = Family, MaxClockSpeed
RegularVals = 178, 2000 ; Pentium 4 with MaxClockSpeed = 2000 MHz
Price = $ 2500.00
[END_CIM_OBJECT]
```

After creating the custom.ini file, run the Novell Desktop Management Scheduler to start the scan.

Scanning for IBM Computer Models

The IBMNames information (configured using the Configuration Editor > the IBMNames option in the Workstation Inventory policy) is used to get information about IBM inventoried workstations running under Windows 98. The Scanner reads the model name using the machine type and model number information specified in the Configuration Editor option of the Workstation Inventory policy.

Using the IBMNames information is an IBM-specific method of scanning model names of IBM inventoried workstations defined by the Scanner. If you have a new IBM inventoried workstation that is not listed in the Configuration Editor, the model number of the inventoried workstation will not be scanned. To add the machine type, model number, and model description of the new IBM inventoried workstation, you must edit the IBMNames information in the Configuration Editor using the Workstation Inventory policy. By adding this entry, you enable the Scanner to identify the new model name.

To add the IBM computer models:

- 1** In the Workstation Inventory policy, click the Configuration Editor tab.

For more information, see **“Configuring the Workstation Inventory Policy” on page 879**.

- 2** Click the IBMNames suboption, then click Set Defaults.

The default values are displayed.

```
[Product Names]
6260-??? = IBM PC 140
6272-??? = IBM PC 300GL
```


6282-??? = IBM PC 300GL

6284-??? = IBM PC 300GL

...

The format of each entry in the section is as follows:

`4_bytes_machine_type-3_byte_model_number=model_description`

For example, if the model is IBM PC 140 and the machine type is 6260, specify the model description as IBM PC 140. The entry in the `ibmnames.ini` is `6260-79T = IBM PC 140`.

If you want the Scanner to scan for all IBM computer models of a particular machine type with the same model description, the `3_byte_model_number` is specified with three question marks (???) as wildcard characters.

For example, to scan all models of a 6282 machine type with same model description, the entry is as follows:

`6282-???=IBM PC 300GL`

The machine type and model number are printed at the rear of the laptop or on the back side of the desktop workstation. For example, the 760E Thinkpad* model has the following label: `TYPE 9546-A98`.

3 Add or modify the entries.

If you specify incorrect values for the device ID entry, the device will not be displayed in the Inventory windows.

4 Click OK.

Customizing the Hardware Scanning Information of Jaz, Zip, and Floppy Drive Vendors

The scan information of the vendors for devices such as backup and floppy devices is usually unavailable on the inventoried workstation. Also, if the information is available, the vendor information does not usually contain the details. You can customize and update information about the vendors of these devices in Workstation Inventory policy > Configuration Editor > Zipped Names. The Scanners read this information during the hardware scanning process for these devices.

To customize and update the vendor information for display:

1 In the Workstation Inventory policy, click the Configuration Editor tab.

For more information, see [“Configuring the Workstation Inventory Policy” on page 879](#).

2 Click the ZIPPED NAMES suboption, then click Set Defaults.

The default values are displayed.

[Identifier]

`iomega ZIP 100=Iomega 100MB Backup Device`

`iomega jaz 1GB=Iomega 1GB Backup Device`

`IOMEGA ZIP 100 D.13=Iomega Corporation`

`IOMEGA ZIP 1GB D.13=Iomega Corporation`

...

The format of each entry in the section is as follows:

```
[Identifier]
device_id=vendor_display_name_you_specify
```

where *device_id* is the unique ID generated and updated in the registry by the vendor during the installation of the device on the inventoried workstation.

For example, the contents of the section are as follows:

```
[Identifier]
iomega ZIP 100=Iomega 100MB Backup Device
```

This entry is for a 100 MB Zip drive installed on the inventoried workstation.

3 Add or modify the entries.

If you specify incorrect values for the device ID entry, the device is not displayed in the Inventory windows.

4 Click OK.

Scanning for Vendor-Specific Asset Information from DMI

1 In the Workstation Inventory policy, click the Configuration Editor tab.

For more information, see [“Configuring the Workstation Inventory Policy” on page 879](#).

2 Click the Asset Information suboption, then click Set Defaults.

The following entries will be populated.

```
[ASSETTAG]
DMI1_CLASSNAME=
DMI1_ATTRIBUTEID=
DMI2_CLASSNAME=
DMI2_ATTRIBUTEID=
[SERIALNUMBER]
DMI1_CLASSNAME=
DMI1_ATTRIBUTEID=
DMI2_CLASSNAME=
DMI2_ATTRIBUTEID=
[MODEL]
DMI1_CLASSNAME=
DMI1_ATTRIBUTEID=
DMI2_CLASSNAME=
DMI2_ATTRIBUTEID=
[COMPUTERTYPE]
DMI1_CLASSNAME=
```

```
DMI1_ATTRIBUTEID=  
[MODELNUMBER]  
DMI1_CLASSNAME=  
DMI1_ATTRIBUTEID=
```

3 Specify the values.

The Asset Information contains the following sections:

- ◆ Contains Asset Tag in the section [ASSETTAG]
- ◆ Contains Serial Number in the section [SERIALNUMBER]
- ◆ Contains Computer Model in the section [MODEL]
- ◆ Contains Computer Type [COMPUTERTYPE]
- ◆ Contains Computer Model Number [MODELNUMBER]

Each section contains the particular DMI Class name and DMI Class Attribute ID.

The format of Asset Information is as follows:

```
[ASSETTAG]  
  
DMI1_CLASSNAME=DMI_class_name_for_asset_tag  
DMI1_ATTRIBUTEID=DMI_attribute_ID_for_asset_tag  
  
[SERIALNUMBER]  
  
DMI1_CLASSNAME=DMI_class_name_for_serial_number  
DMI1_ATTRIBUTEID=DMI_attribute_ID_for_serial_number  
  
[MODEL]  
  
DMI1_CLASSNAME=DMI_class_name_for_computer_model  
DMI1_ATTRIBUTEID=DMI_attribute_ID_for_computer_model
```

The value of the Asset Information sections can have a maximum string length of 64 characters.

A DMI Class name can be any DMI class other than DMTF|COMPONENTID|00x.

If there is more than one DMI vendor implementing different custom DMI classes, you can specify multiple DMI classes. A maximum of five classes can be specified in these sections. For example, the asset information for five classes is as follows:

```
[ASSETTAG]  
  
DMI1_CLASSNAME=DMI_class_name_for_asset_tag  
DMI1_ATTRIBUTEID=DMI_attribute_ID_for_asset_tag  
  
DMI2_CLASSNAME=DMI_class_name_for_asset_tag  
DMI2_ATTRIBUTEID=DMI_attribute_ID_for_asset_tag  
  
DMI3_CLASSNAME=DMI_class_name_for_asset_tag  
DMI3_ATTRIBUTEID=DMI_attribute_ID_for_asset_tag  
  
DMI4_CLASSNAME=DMI_class_name_for_asset_tag
```

```
DMI4_ATTRIBUTEID=DMI_attribute_ID_for_asset_tag
```

```
DMI5_CLASSNAME=DMI_class_name_for_asset_tag
```

```
DMI5_ATTRIBUTEID=DMI_attribute_ID_for_asset_tag
```

The Scanner processes DMI1 and if the values of DMI1 are valid, the Scanner does not process the remaining DMI classes.

- 4 Click OK.
- 5 Run the scans on the inventoried workstations.

Verify that the inventory information is in eDirectory Minimal Information and the Workstation Summary window.

Customizing the Hardware Information for Monitor's Size

The attributes scanned for a monitor includes the following:

Nominal Size: A number representing the diagonal width of the monitor (the distance from one corner of the screen to the opposite corner of the screen). For example, 17”.

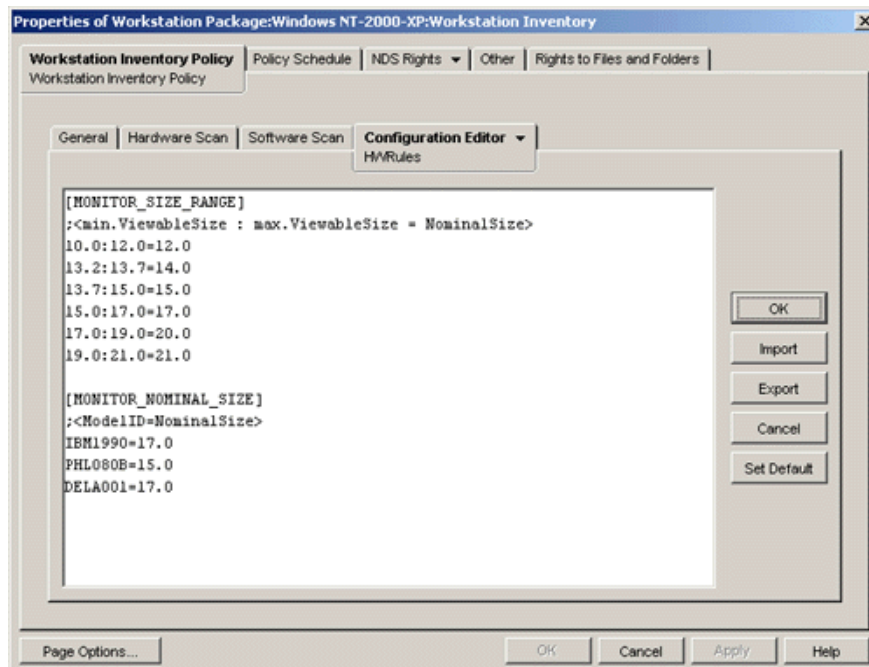
Viewable Size: A number representing the diagonal width of the screen image excluding the black borders around the image's edge. For example, 15.8”.

The Inventory scanner automatically scans for the viewable size of the monitor of Windows inventoried workstations. Using the Workstation Inventory policy, you can customize the nominal size of the monitor to be reported.

IMPORTANT: The Inventory scanner reports inventory information for the monitors that are manufactured only after 1997.

To customize the scan of the nominal size of the monitor:

- 1 In the Workstation Inventory policy, click the Configuration Editor tab, then click the HWRules sub-option.



2 Click Set Default.

The default values are displayed in the Configuration Editor box.

3 Add or modify the entries.

The format of HWRules.ini is as follows:

```
[MONITOR_SIZE_RANGE]
```

```
minimum_viewable_size_you_specify: maximum_viewable_size_you_specify =  
nominal_size_you_specify
```

```
[MONITOR_NOMINAL_SIZE]
```

```
model_ID_reported_by_scanner = nominal_size_you_specify
```

In the [MONITOR_SIZE_RANGE] section, specify the minimum and maximum range of the viewable size, and the corresponding nominal size of the monitor. The Inventory scanner scans for the model ID of the monitor and reports the nominal size configured in the [MONITOR_NOMINAL_SIZE] section of the HWRules.ini file.

In the [MONITOR_NOMINAL_SIZE] section, specify the model ID and its corresponding nominal size as reported by the Inventory scanner. This information is available in the Inventory Summary dialog box under the Hardware/Software Inventory > Hardware > Monitor attribute.

If the scanned model ID is not listed in [MONITOR_NOMINAL_SIZE], then the scanner scans the viewable size of the monitors. On the basis the viewable size, the scanner reports the nominal size configured in the [MONITOR_SIZE_RANGE] section of the HWRules.ini file.

For example, the contents of the HWRules ini file could be as follows:

```
[MONITOR_SIZE_RANGE]
```

```
10.0:12.0=12.0
```

```
13.2:13.7=14.0
```

```
[MONITOR_NOMINAL_SIZE]
```

```
IBM1990=17.0
```

```
PHL080B=15.0
```

4 Click OK to save the contents to the Workstation Inventory policy.

Customizing the Software Inventory Information To Be Scanned For ZENworks 6.5 or ZENworks 6.5 Support Packs Inventoried Workstations

The Inventory scanner has been enhanced with the following features that enables you to control the scanning process more effectively and efficiently for inventoried workstations having ZENworks 6.5 or ZENworks 6.5 SP1/SP2 Workstation Inventory:

- ◆ It supports scanning for the following software inventory information:
 - ◆ Windows* operating system and its patches
 - ◆ Internet Explorer and its patches
 - ◆ Windows Media Player and its patches
 - ◆ Outlook Express and its patches
 - ◆ Novell Client32™ and its installed components
 - ◆ ZENworks suite and its installed components
 - ◆ Microsoft* Office and its installed applications
 - ◆ Antivirus products such as Symantec* Antivirus Corporate Edition and McAfee* Antivirus
 - ◆ Virus definition date and version for the antivirus products such as Symantec Antivirus Corporate Edition and McAfee Antivirus
- ◆ It supports scanning for the products listed in the Windows Add/Remove Programs and the MSI database.
- ◆ Includes dictionary of software titles to provide more accurate report of Installed software.
- ◆ Provides rules to control the scope of software scan.
- ◆ Reports total disk usage against configured file extensions.

This section provides information on the following topics:

- ◆ [“What is ZENworks Software Dictionary?” on page 959](#)
- ◆ [“What is a Software Dictionary Rule?” on page 960](#)
- ◆ [“What are Software Identifiers?” on page 960](#)
- ◆ [“What is a Key Identifier?” on page 960](#)
- ◆ [“What is Unidentified Software?” on page 960](#)
- ◆ [“What is an Inherited Rule?” on page 960](#)
- ◆ [“What is An Overriding Rule?” on page 961](#)
- ◆ [“Understanding the Usage and Precedence of ZENworks 6.5 Software Dictionary Rules” on page 961](#)
- ◆ [“Understanding the Usage and Precedence of ZENworks 6.5 SP1 or Later Software Dictionary Rules” on page 967](#)
- ◆ [“Understanding the Software Dictionary Pattern Types” on page 973](#)
- ◆ [“Configuring the ZENworks 6.5 Software Dictionary Rules” on page 974](#)
- ◆ [“Configuring the ZENworks 6.5 SP1 or Later Software Dictionary Rules” on page 988](#)

- ◆ “Ignore Default File-Software Mapping Rules” on page 991
- ◆ “Software Dictionary” on page 991
- ◆ “Report Files with These File Extensions As Unidentified Software” on page 995
- ◆ “Manage Unidentified Software” on page 996
- ◆ “Report Multiple Software Versions” on page 997
- ◆ “Report Disk Space Used by File Extensions” on page 999
- ◆ “Software Scanning Filters - Drives and Directories” on page 1000
- ◆ “Software Scanning Filters - File Extensions” on page 1004
- ◆ “Software Scanning Filters - Files” on page 1006
- ◆ “Software Scanning Filters - Software” on page 1007
- ◆ “Disk Usage Scanning Filters - Drives and Directories” on page 1009
- ◆ “Disk Usage Scanning Filters - Files” on page 1013
- ◆ “Vendor Name Aliases” on page 1014
- ◆ “Software Name Aliases” on page 1015
- ◆ “Reconcile Software” on page 1016
- ◆ “Sorting Entries in the Table” on page 1017
- ◆ “Filtering Entries in the Table” on page 1017
- ◆ “Refreshing Entries in the Table” on page 1018
- ◆ “Disabling File Scan” on page 1018
- ◆ “Base-Lining the ZENworks 6.5 Software Dictionary Deployment” on page 1019
- ◆ “Base-Lining the ZENworks 6.5 SP1 or Later Software Dictionary Deployment” on page 1021
- ◆ “Viewing Software Information in the Inventory Summary” on page 1022
- ◆ “Generating Software Inventory Reports” on page 1022

What is ZENworks Software Dictionary?

ZENworks software dictionary contains a list of software identifiers and rules. Each software identifier identifies a particular product installed on an inventoried workstation. The rules control the scope of the scanning process.

The ZENworks software dictionary is automatically installed on an Inventory Server and inventoried workstations when you install the Workstation Inventory software. After you configure the required policies and start the Inventory service, the Inventory scanner reports the software information on the basis of the software dictionary.

There are two types of software dictionary: General dictionary and Private dictionary.

General Dictionary: The General dictionary is the part of the software dictionary that contains predefined software identifiers. On the basis of this dictionary, the Inventory scanner reports whether a particular product is installed on an inventoried workstation.

Private Dictionary: The private dictionary is the part of the software dictionary that contains user-defined software identifiers and rules that enable you to define the scope of Inventory scan and customize the software information. You can configure the rules. For more information on how to configure the rules, “[Configuring the ZENworks 6.5 SP1 or Later Software Dictionary Rules](#)” on page 988.

IMPORTANT: The rules that you define in the private dictionary override the predefined rules in the general dictionary.

What is a Software Dictionary Rule?

A software dictionary rule represents a set of conditions that control the scope of scanning process.

What are Software Identifiers?

An entry that identifies a software product is called as Software identifier. Each software identifier has a set of file matching attributes and corresponding software information attributes. During the Inventory scan, the scanner reads the attributes from the file headers, and if these attributes match the attributes configured in the dictionary, the information in the corresponding software information attributes is stored in the Inventory database.

What is a Key Identifier?

A software product might be identified through more than one software identifier in the dictionary. In such a scenario, the inventory scanner arbitrarily selects the software information from one of these software identifiers. A Key Identifier identifies the software identifier from which the inventory scanner should select the software information. The key identifier is useful when the different software identifiers have marginal differences between the values of the attributes (such as Description) and you want the inventory scanner to select the information from a specific software identifier.

What is Unidentified Software?

An Unidentified software has the following characteristics.

- ◆ It is installed on the inventoried workstations.
- ◆ It is configured in the [Report Files with These File Extensions As Unidentified Software](#) rule in ZENworks software dictionary.
- ◆ It is not configured in the [Software Dictionary](#) table.

What is an Inherited Rule?

An inherited rule is an entry in the software dictionary which is obtained from another Inventory server through the dictionary distribution. You cannot edit or delete these rules. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

What is An Overriding Rule?

The default software identifier in the General dictionary cannot be modified. But if you want to modify a default software identifier, you must create a new software identifier that overrides the default identifier. The inventory scanner will ignore the default the default identifier in favor of the overridden entry.

To create a software identifier that overrides a default identifier, you must specify same values for all the matching attributes defined in the default identifier and provide new values for the software information attributes.

Understanding the Usage and Precedence of ZENworks 6.5 Software Dictionary Rules

The software dictionary rules follow a precedence order. Few guidelines are applicable to all the software dictionary rules and few guidelines are applicable to certain categories of software dictionary rules. For more information, review the following sections:

- ◆ [“Guidelines Applicable to All Software Dictionary Rules” on page 961](#)
- ◆ [“Precedence between Report Software with Maximum Version and Report Multiple Versions of the Software” on page 961](#)
- ◆ [“Precedence of Software Dictionary Rules Grouped in the Software Scanning Category” on page 962](#)
- ◆ [“Precedence of Software Dictionary Rules Grouped in the Disk Usage Scanning Category” on page 965](#)

Guidelines Applicable to All Software Dictionary Rules

The following guidelines are applicable to all the software dictionary rules that you configure:

- ◆ All software dictionary rules are recorded in the software dictionary.
- ◆ All software dictionary rules are applied at the scanner.
- ◆ You can change the settings of the software dictionary rules using the Software dictionary ConsoleOne snap-ins. For more information on how to configure the software dictionary rules, see [“Configuring the ZENworks 6.5 SPI or Later Software Dictionary Rules” on page 988](#)
- ◆ Every inventory scan contains the version of dictionary files used for that scan. This information is stored in the inventory database.
- ◆ The user-defined entry overrides the default entry present in the software dictionary but only one new entry can overrides an existing entry at a time.

Precedence between Report Software with Maximum Version and Report Multiple Versions of the Software

If an entry in the “Report Multiple Versions of the Software” rule conflicts with an entry in the “Report Software with Maximum Version”, then the entry in “Report software with Maximum version” overrides the entry in the “Report Multiple Versions of the Software” rule.

Precedence of Software Dictionary Rules Grouped in the Software Scanning Category

The software dictionary rules in the Software Scanning category control the scope of scanning for the files on the local file systems.

The Software Scanning category included the following software dictionary rules:

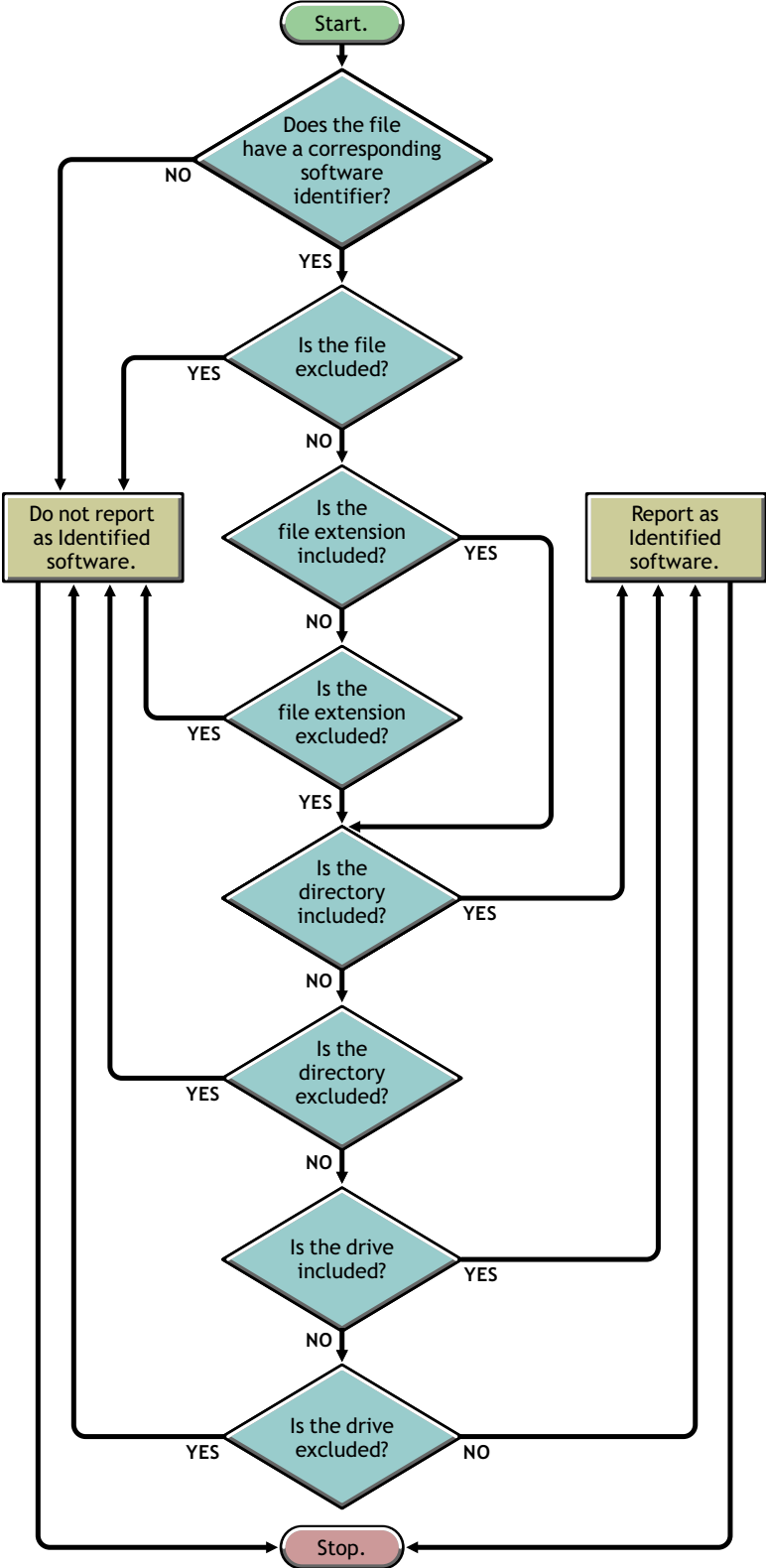
- ◆ “Include Local File Extensions” on page 979
- ◆ “Exclude Local File Extensions” on page 979
- ◆ “Include Local Directories” on page 980
- ◆ “Exclude Local Directories” on page 980
- ◆ “Include Local Drives” on page 981
- ◆ “Exclude Local Drives” on page 982
- ◆ “Exclude Local Software” on page 982
- ◆ “Exclude Local Files” on page 983

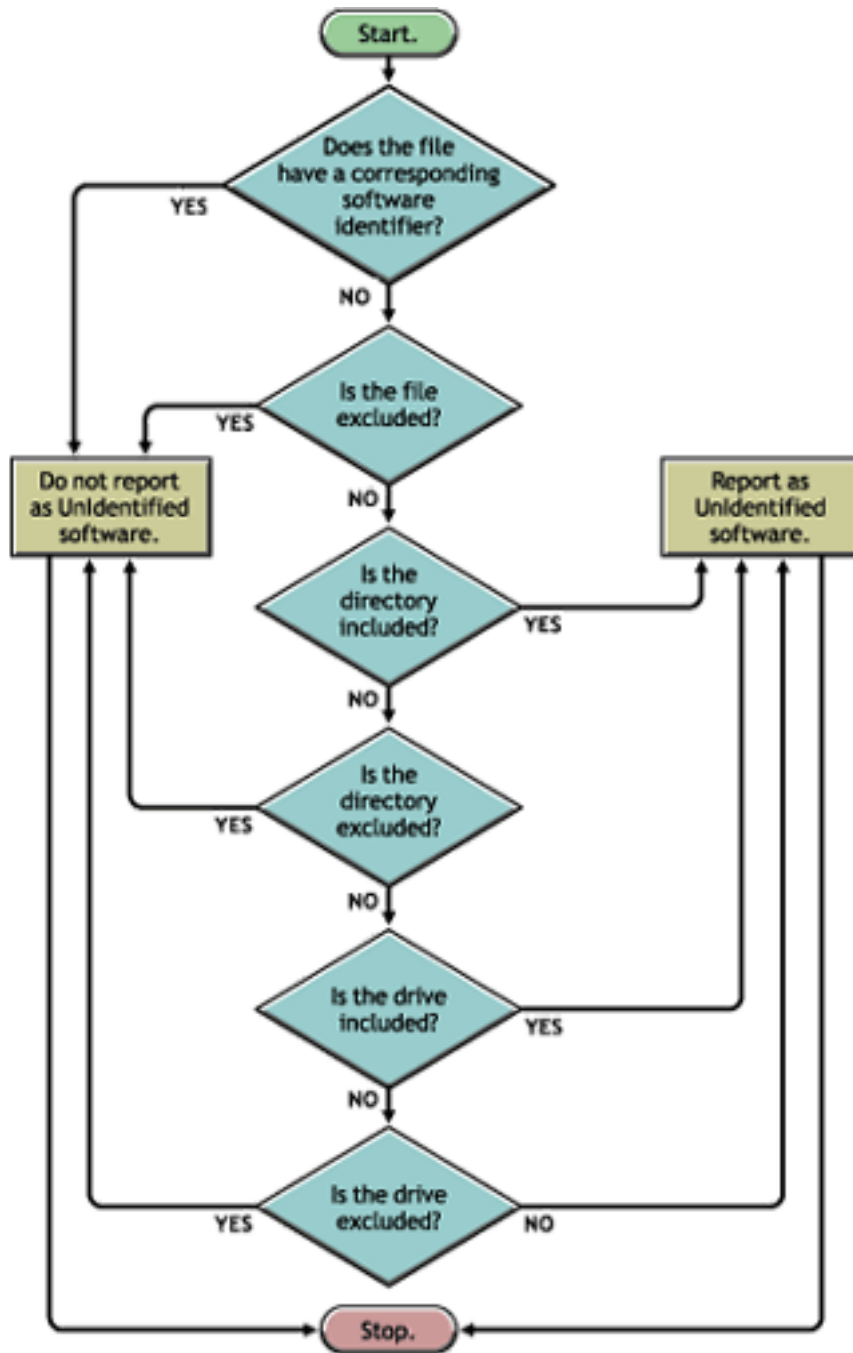
If you do not configure any of the above mentioned rules, the Inventory scanner scans for all files on the hard disk of the inventoried workstations. If the files have matching entries in the software dictionary, the files are reported as identified software. If the files do not have matching entries, then they are reported as unidentified software.

If you configure the above mentioned rules, following is the precedence of rules in the descending order:

- ◆ Exclude Local Files
- ◆ Exclude Local Software
- ◆ Include Local File Extensions
- ◆ Exclude Local File Extensions
- ◆ Include Local Directories
- ◆ Exclude Local Directories
- ◆ Include Local Drives
- ◆ Exclude Local Drivers

The following flowchart illustrates the precedence of these rules.





Precedence of Software Dictionary Rules Grouped in the Disk Usage Scanning Category

The software dictionary rules in the Disk Usage Scanning category determine whether a file should be considered for disk usage scan.

The Disk Usage Scanning category included the following software dictionary rules:

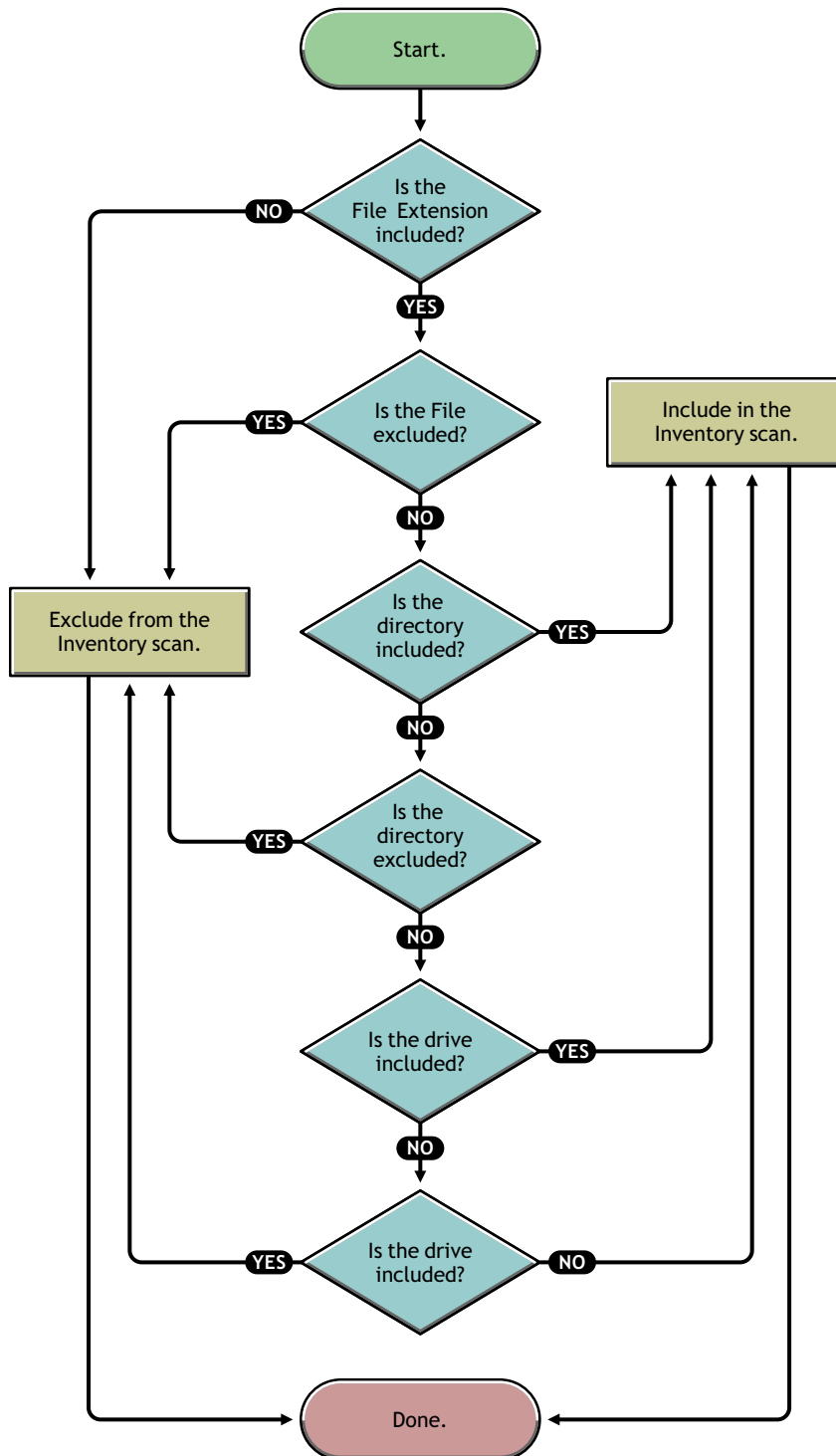
- ◆ “Disk Usage Scanning - Include Local File Extensions” on page 983
- ◆ “Disk Usage Scanning - Exclude Local Files” on page 984
- ◆ “Disk Usage Scanning - Include Local Directories” on page 984
- ◆ “Disk Usage Scanning - Exclude Local Directories” on page 985
- ◆ “Disk Usage Scanning - Include Local Drives” on page 985
- ◆ “Disk Usage Scanning - Exclude Local Drives” on page 986

For a file to be considered for the disk usage scan, its file extension must be listed in the **Disk Usage Scanning - Include Local File Extensions** rule and it should be excluded from inventory scan in the other Disk Usage Scanning rules.

Following is the precedence of rules in the descending order:

- ◆ Disk Usage Scanning - Exclude Local Files
- ◆ Disk Usage Scanning - Include Local Directories
- ◆ Disk Usage Scanning - Exclude Local Directories
- ◆ Disk Usage Scanning - Include Local Drives
- ◆ Disk Usage Scanning - Exclude Local Drives

The following flowchart illustrates the precedence of these rules.



Understanding the Usage and Precedence of ZENworks 6.5 SP1 or Later Software Dictionary Rules

The ZENworks software dictionary rules follow a precedence order. Few guidelines are applicable to all the software dictionary rules and few guidelines are applicable to certain categories of software dictionary rules. For more information, review the following sections:

- ◆ [“Guidelines Applicable to All Software Dictionary Rules” on page 967](#)
- ◆ [“Precedence between Report Only Maximum Software Version and Report All Software Versions” on page 967](#)
- ◆ [“Precedence of Software Dictionary Rules Grouped in the Software Scanning Category” on page 967](#)
- ◆ [“Precedence of Software Dictionary Rules Grouped in the Disk Usage Scanning Category” on page 970](#)

Guidelines Applicable to All Software Dictionary Rules

The following guidelines are applicable to all the software dictionary rules that you configure:

- ◆ All software dictionary rules are applied at the inventoried workstations by the inventory scanner.
- ◆ You can change the settings of the software dictionary rules using the Software dictionary ConsoleOne snap-ins. For more information on how to configure the software dictionary rules, see [“Configuring the ZENworks 6.5 SP1 or Later Software Dictionary Rules” on page 988](#).
- ◆ Every inventory scan contains the version of dictionary files used for that scan. This information is stored in the inventory database.
- ◆ The user-defined software identifier overrides the default software identifier present in the software dictionary but at a time only one user-defined software identifier can override a default software identifier.

Precedence between Report Only Maximum Software Version and Report All Software Versions

By default, the scanner reports only the highest version of the software installed. If a rule in “Report All Software Versions” conflicts with a rule in “Report Only Maximum Software Version”, then the rule in “Report Only Maximum Software Version” overrides the rule of Report All Software Versions.

Precedence of Software Dictionary Rules Grouped in the Software Scanning Category

The software dictionary rules in the Software Scanning category control the scope of scanning for the files on the local file systems.

The Software Scanning category includes the following software dictionary rules:

- ◆ [“Scan File Extensions” on page 1005](#)
- ◆ [“Ignore File Extensions” on page 1005](#)
- ◆ [“Scan Directories” on page 1003](#)
- ◆ [“Ignore Directories” on page 1003](#)
- ◆ [“Scan Drives” on page 1002](#)

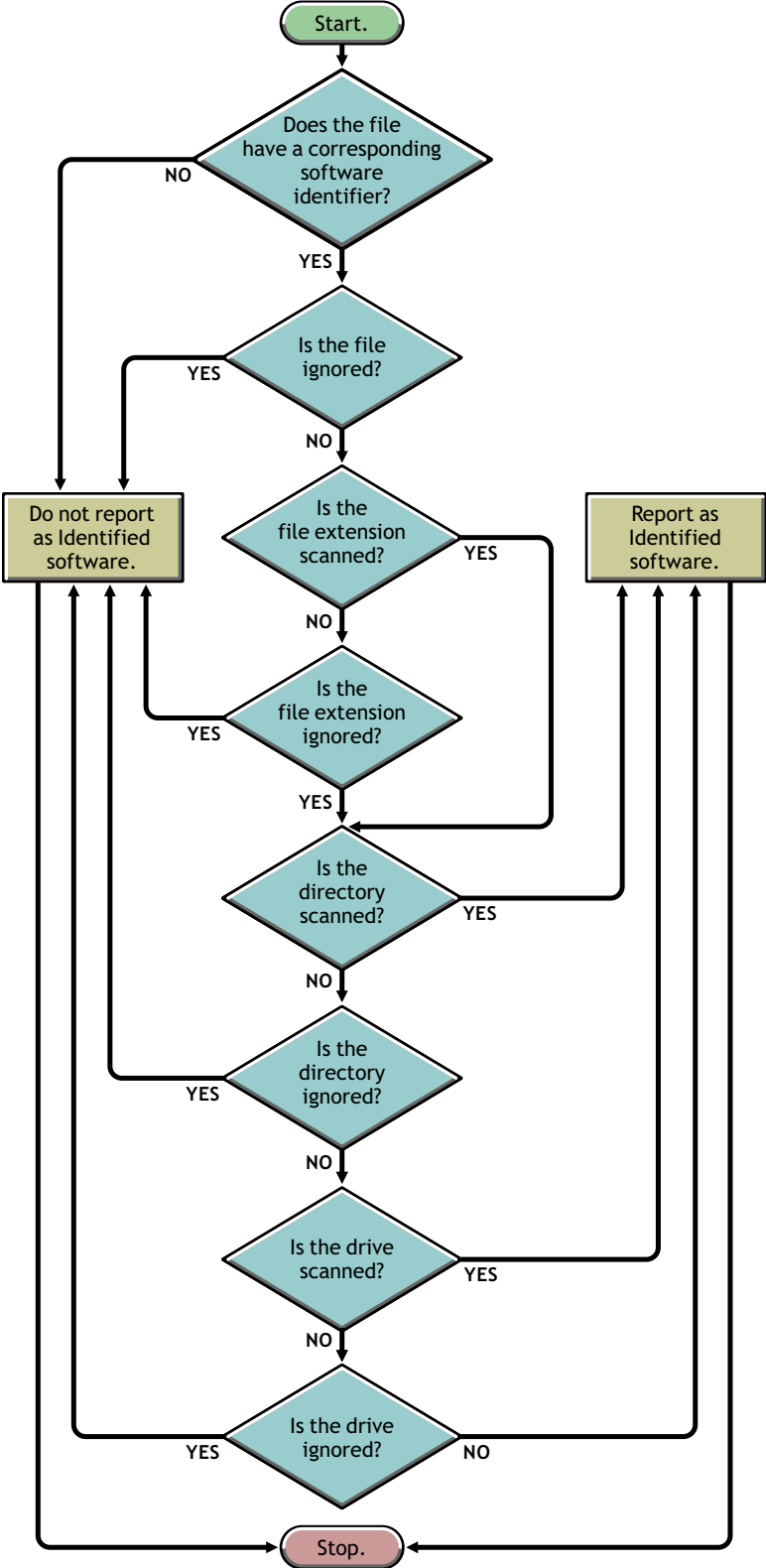
- ◆ “Ignore Drives” on page 1001
- ◆ “Software Scanning Filters - Software” on page 1007
- ◆ “Software Scanning Filters - Files” on page 1006

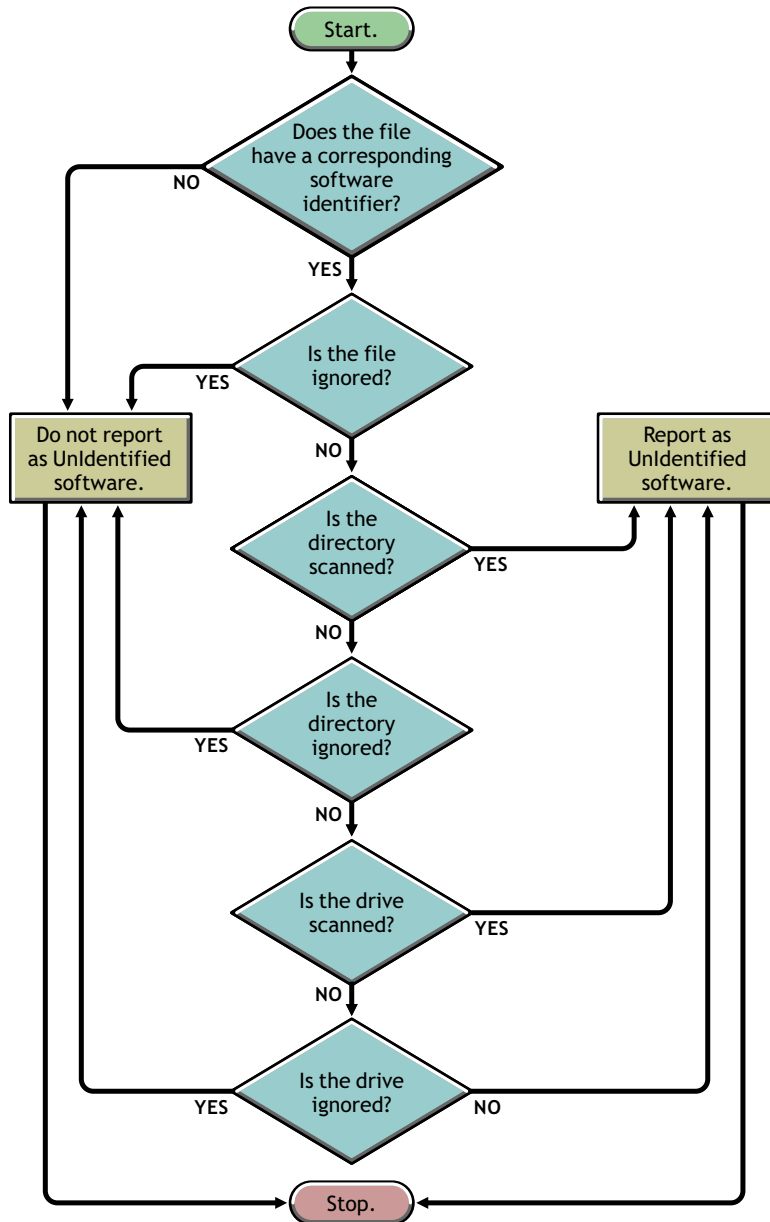
If you do not configure any of the above mentioned rules, the Inventory scanner scans for all files on the hard disk of the inventoried workstations. If the files have matching software identifier in the software dictionary, the files are reported as identified software. Otherwise, they are reported as unidentified software.

If you configure the above mentioned rules, following is the precedence of rules in the descending order:

- ◆ Software Scanning Filters - Files
- ◆ Software Scanning Filters - Software
- ◆ Scan File Extensions
- ◆ Ignore File Extensions
- ◆ Scan Directories
- ◆ Ignore Directories
- ◆ Scan Drives
- ◆ Ignore Drives

The following flowcharts illustrate the precedence of these rules.





Precedence of Software Dictionary Rules Grouped in the Disk Usage Scanning Category

The software dictionary rules in the Disk Usage Scanning category determine whether a file should be considered for disk usage scan.

The Disk Usage Scanning category includes the following software dictionary rules:

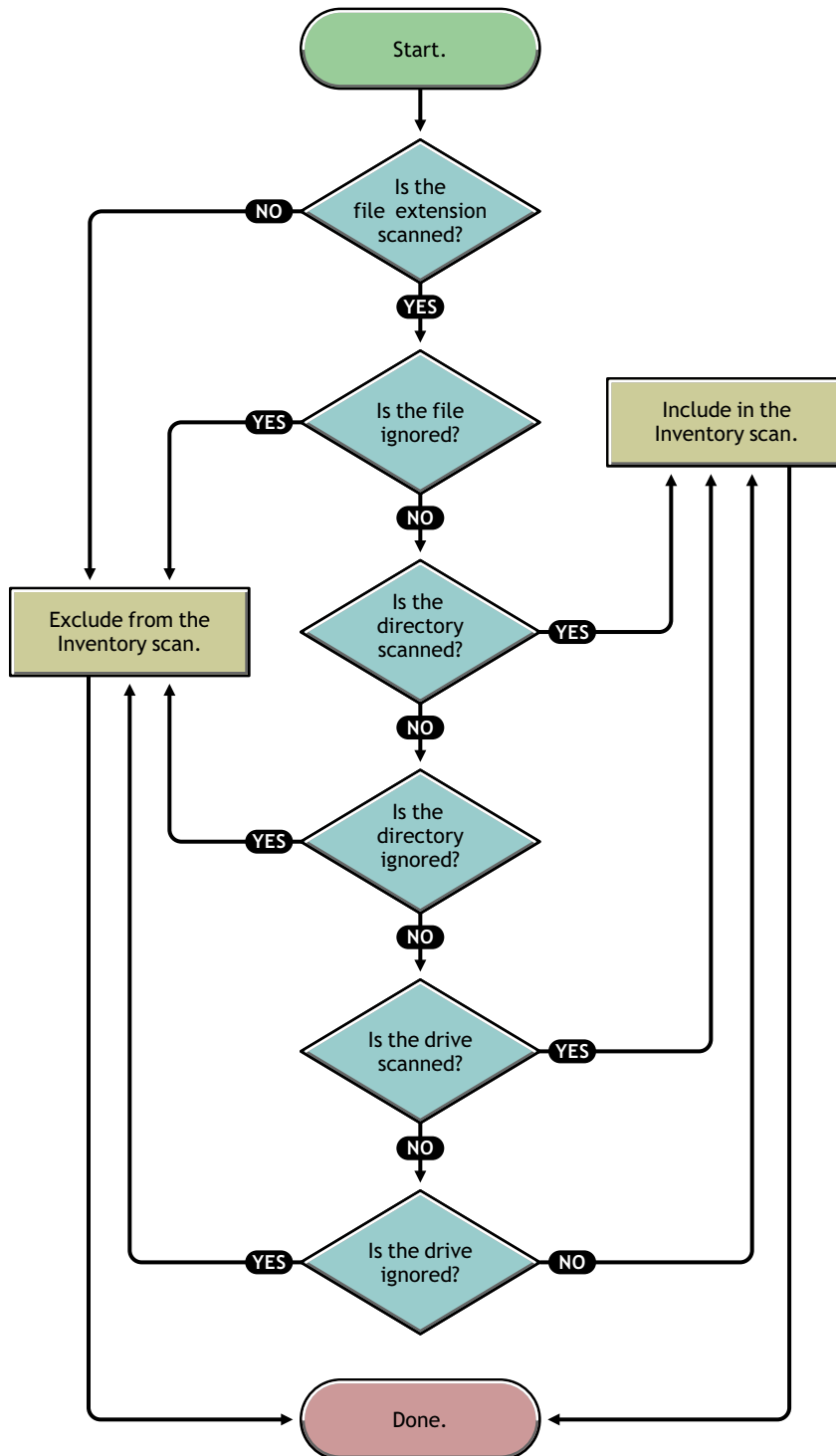
- ◆ “Report Disk Space Used by File Extensions” on page 999
- ◆ “Disk Usage Scanning Filters - Files” on page 1013
- ◆ “Scan Directories” on page 1012
- ◆ “Ignore Directories” on page 1011
- ◆ “Scan Drives” on page 1010
- ◆ “Ignore Drives” on page 1010

For a file to be considered for the disk usage scan, its file extension must be listed in the Report Disk Space Used by File Extensions rule and it should not be excluded from inventory scan in the other Disk Usage Scanning rules.

Following is the precedence of rules in the descending order:

- ◆ Report Disk Space Used by File Extensions
- ◆ Disk Usage Scanning Filters - Files
- ◆ Scan Directories
- ◆ Ignore Directories
- ◆ Scan Drives
- ◆ Ignore Drives

The following flowchart illustrates the precedence of these rules.



Understanding the Software Dictionary Pattern Types

Before configuring the software dictionary rules, you must be aware of the following software dictionary pattern types that are supported in ZENworks 6.5:

- ◆ “Regular Expression” on page 973
- ◆ “Expandable Expression” on page 973
- ◆ “System Expandable Expression” on page 973

Regular Expression

Regular Expression refers to the POSIX regular expressions. For more information on regexp (regular expressions), see [The Open Group Base Specifications Issue 6 Web site \(http://www.opengroup.org/onlinepubs/007904975/basedefs/xbd_chap09.html\)](http://www.opengroup.org/onlinepubs/007904975/basedefs/xbd_chap09.html).

Examples of Regular Expression usage:

- ◆ To find all vendor names starting with “Novell,” specify `Novell.*`
- ◆ To find executables, specify `[exe|EXE]`
- ◆ To find files with name containing 6 characters, starting with “r” and ending with “t”, specify `[r....t]`
- ◆ To find files with name starting from A to C, and ending with E, specify `[A-C].*[E]`
- ◆ To find files whose name does not contain any uppercase letters, specify `[^A-Z]+`

NOTE: To use meta characters such as `[, \, ^, $, ., |, ?, (,), *, and +` as characters, you must prefix them with a backslash (`\`). For example, to specify `c:\windows` as a regular expression, specify it as `c:\\windows`.

Expandable Expression

Expandable Expression contains displayable characters and the asterisk (*) wildcard character.

“*” matches to zero or more displayable characters.

Examples of Expandable Expression usage:

- ◆ To find all instances of the vendor name beginning with “Microsoft,” specify `Microsoft*`
- ◆ To find files with extension “.exe” in the scan, specify `exe`

System Expandable Expression

- ◆ **On NetWare:** A System expandable expression contains displayable characters or references to environmental variables.

Example of an environmental variable: `$sysdir`

- ◆ **On Windows:** A System expandable expression contains displayable characters, references to environmental variables, or the asterisk (*) wildcard character.

“*” matches to zero or more displayable characters.

Example of an environmental variable: `%temp%`

IMPORTANT: A System expandable expression can contain a combination displayable characters, references to environmental variables, or the asterisk (*) wildcard character but if it contains an environmental variable, you must specify it at the beginning of the expression. For example, `%temp%/*`

Examples of System Expandable Expression usage:

- ◆ To find the disk usage of the C drive, specify C
- ◆ To find files in the c:\program files directory, specify c:\program files
- ◆ To find files with extensions, “.com”, specify com

Configuring the ZENworks 6.5 Software Dictionary Rules

- 1** In ConsoleOne, right-click the Inventory Service object (Inventory Service_ *server_name*), then click Properties.
- 2** In the Dictionary Settings page, the Dictionary Path displays the complete path of the software dictionary files on the Inventory server. You can also use this page to access the dictionary for viewing and updating user defined entries. For more information, see [“Software Dictionary” on page 991](#).
- 3** In the Software Dictionary page, you can configure the following rules:
 - ◆ [“Report Software with Maximum Version” on page 977](#)
 - ◆ [“Report Multiple Versions of the Software” on page 978](#)

IMPORTANT: Before configuring the above listed software dictionary rules, you must be aware of the usage of these rules. For more information, [“Precedence between Report Software with Maximum Version and Report Multiple Versions of the Software” on page 961](#).

 - ◆ [“Add Unidentified Software to Dictionary” on page 978](#)
 - ◆ [“Scan as Unidentified Software” on page 978](#)
- 4** In the Includes-Excludes page, you can configure the following rules to control the scope of scanning the files in the specified location.:
 - ◆ [“Include Local File Extensions” on page 979](#)
 - ◆ [“Exclude Local File Extensions” on page 979](#)
 - ◆ [“Include Local Directories” on page 980](#)
 - ◆ [“Exclude Local Directories” on page 980](#)
 - ◆ [“Include Local Drives” on page 981](#)
 - ◆ [“Exclude Local Drives” on page 982](#)
 - ◆ [“Exclude Local Software” on page 982](#)
 - ◆ [“Exclude Local Files” on page 983](#)

IMPORTANT: Before configuring the above listed software dictionary rules, you must be aware of the usage of these rules. For more information, [“Precedence of Software Dictionary Rules Grouped in the Software Scanning Category” on page 962](#).
- 5** In the Disk Usage Scanning page, you can configure the following disk usage information to be included and excluded during the Inventory scan:
 - ◆ [“Disk Usage Scanning - Include Local File Extensions” on page 983](#)
 - ◆ [“Disk Usage Scanning - Exclude Local Files” on page 984](#)
 - ◆ [“Disk Usage Scanning - Include Local Directories” on page 984](#)
 - ◆ [“Disk Usage Scanning - Exclude Local Directories” on page 985](#)
 - ◆ [“Disk Usage Scanning - Include Local Drives” on page 985](#)
 - ◆ [“Disk Usage Scanning - Exclude Local Drives” on page 986](#)

IMPORTANT: Before configuring the above listed software dictionary rules, you must be aware of the usage of these rules. For more information, [“Precedence of Software Dictionary Rules Grouped in the Disk Usage Scanning Category” on page 965.](#)

6 In the Software Aliases page, you can configure aliases for vendor names and software names. You can use this page to edit the Add-Remove software table that improves the ability of the Inventory scanner in associating the software identified through the Add Remove Programs dialog box with the corresponding software identified through the dictionary. This association is required because of the following reasons:

- ◆ The software products from the same vendor may not contain the same vendor name in the file header of the software. A software product can be identified by different names in the dictionary and in other software information sources such as the Add-Remove Programs.
- ◆ By default, the software information is displayed for each unique vendor name in the Inventory Query window, Inventory Summary window, and the Inventory reports. If the vendor or software names differ in software dictionary and the Add-Remove Programs, the Inventory ConsoleOne utilities, display multiple entries for each vendor and software.

For more information on configuring the settings of the Software Aliases page, review the following sections:

- ◆ [“Edit Aliases for Vendor Names” on page 987](#)
- ◆ [“Edit Aliases for Software Names” on page 987](#)
- ◆ [“Edit Add-Remove Software” on page 988](#)

7 Click Apply, then click Close.

Access Software Dictionary

The “Access Software Dictionary” rule allows you to view the software dictionary entries. You can also use this table to add, modify, and delete the entries in the software dictionary. A software product can be identified by more than one software identifier. The Key Identifier option in the Access Software Dictionary table allows you to determine the key identifier whose information must be reported by the scanner.

To configure the rule:

- 1** Click Edit Table.
- 2** In the Configure Software Dictionary table, click Insert to add a new row.
- 3** Specify values for the following identifiers.

Filename, File Date (yyyy-dd-mm), File Timestamp (hours:minutes:seconds), Minimum File Size (bytes), Maximum File Size (bytes), Product Name, Product Support Pack Version, Product Version, Internal Version, Description, Vendor, Platform, and Category.

The following identifiers are called as matching attributes: Filename, File Date, File Time, File Min Size, File Max Size, and Internal Version. From the list of matching attributes, you must configure the “File Name” attribute; others are optional. The values of these matching attributes are compared with the values scanned by the Inventory scanner from the file headers on the inventoried workstations. If the values match, then these attributes and the corresponding software information attributes (Product Name, Product Support Pack Version, Product Version, Description, Vendor, Platform, and Category) are stored in the Inventory database.

NOTE: When you add an entry in the table, a unique ID called as Dictionary Identifier is automatically assigned to this entry. You cannot change this ID.

For example, configure the following settings in the Configure Software Dictionary table:

Filename= MSACCESS.EXE
File Date= 1998-30-01
File Timestamp= 05:30
Minimum File Size= 299854
Maximum File Size= 400000
Product Name= Access
Product Version= 7.0
Internal Version= 7.0
Description= Microsoft Access
Vendor= Microsoft
Platform= win95
Category= Database

If the Inventory scanner finds a file with the following values during the scan: “File Name= MSACCESS.EXE; File Date= 1998-30-01; File Timestamp= 05:30; File Size= 400000; Internal Version= 7.0,” then the following information is stored in the Inventory database:

File Name= MSACCESS.EXE
File Date= 1998-30-01
File Timestamp= 05:30
File Size= 400000
Product Name= Access
Product Version= 7.0
Internal Version= 7.0
Description= Microsoft Access
Vendor= Microsoft
Platform= win95
Category= Database

IMPORTANT: When you add a new entry to the table, ensure that the value of one of its matching attribute is unique.

4 (Optional) Select the Key Identifier check box for this entry.

A key identifier helps you to identify a software product. Each key identifier has a set of file matching attributes and corresponding software information attributes. During the Inventory scan, the scanner reads the attributes from the file headers, and if these attributes match the attributes configured in the dictionary, the information in the corresponding software information attributes is stored in the Inventory database.

For example, the Configure Dictionary table has the following entries for MS Word:

Filename	File date	File timestamp	Minimum File Size	Maximum File Size	Product name	Product version	Internal version	Description	Vendor
winword.exe	2004-30-1	05:30	10000	10000	Word	2002	10.0.4219	Microsoft Word	Microsoft
osa.exe	2004-30-02	16:00	10000	10000	Word	2002	10.0.4300	Microsoft Office XP Component	Microsoft

If the key identifier has not been defined, the software information for MS Word might be selected from anyone of the above entries.

To ensure that the information from the identifier corresponding to “Winword.exe” is selected, you must select the key identifier check box for “Winword.exe.” If you select “Winword.exe” as the key identifier in the Configure Software Dictionary table, the Inventory scanner will store the information related to winword.exe into the Inventory database.

5 Click OK.

IMPORTANT: You can automatically add entries to this table from the Configure Scanned Unidentified Software table located in the [Add Unidentified Software to Dictionary](#) rule.

In the Configure Software Dictionary table, you can also perform the following tasks:

- ◆ Exclude a software from scan by adding the software to the table in the [Exclude Local Software](#) rule.

In the Configure Software Dictionary table, select the software entry that you want to exclude during the next scan, and click the Exclude Software button.

- ◆ Sort the entries of the table.
- ◆ Delete the entries from the table.
- ◆ Apply filters to the entries of the table.

Report Software with Maximum Version

The “Report Software with Maximum Version” rule allows you to configure the software, whose highest version must be reported by the Inventory scanner.

To configure the rule:

- 1** Click Edit Table.
- 2** In the table, click Insert to add a new row.
- 3** In the Name Pattern drop-down list, select [Expandable Expression](#) or [Regular Expression](#).
- 4** Specify a software name pattern.
- 5** (Optional) In the Vendor Pattern drop-down list, select [Expandable Expression](#) or [Regular Expression](#).
- 6** (Optional) Specify a vendor name pattern.
- 7** Click OK.

For example, if you want the Inventory scanner to report only the highest version of the Adobe Acrobat Reader installed on the inventoried workstation, configure the following settings in the table:

Name Pattern = Expandable expression

Name= Acrobat* Reader*

Vendor Pattern = Expandable expression

Vendor = Adobe*

If the inventoried workstation has Adobe Acrobat Reader versions 4.0 and 5.0 installed, the Inventory scanner reports Adobe Acrobat Reader 5.0.

NOTE: By default, the scanner reports only the highest version of the software.

Report Multiple Versions of the Software

The “Report Multiple Versions of the Software” rule allows you to configure the software for which the Inventory scanner must report all versions of the software installed on the inventoried workstation.

To configure the rule:

- 1 Click Edit Table.
- 2 In the table, click Insert to add a new row.
- 3 In the Name Pattern drop-down list, select **Expandable Expression** or **Regular Expression**.
- 4 Specify a software name pattern.
- 5 In the Vendor Pattern drop-down list, select **Expandable Expression** or **Regular Expression**.
- 6 Specify a vendor name pattern.
- 7 Click OK.

For example, if you want the Inventory scanner to report all versions of the Adobe Acrobat Reader installed on the inventoried workstation, configure the following settings in the table:

Name Pattern = Expandable Expression

Name= Acrobat* Reader*

Vendor Pattern = Expandable Expression

Vendor = Adobe*

If the inventoried workstation has Acrobat Reader 6.0 and Acrobat Reader 5.0 installed, the Inventory scanner will report Acrobat Reader 6.0 and Acrobat Reader 5.0.

Add Unidentified Software to Dictionary

The software dictionary might not identify all the software products installed in you network. The software that are not listed in the dictionary are called Unidentified software.

Click Edit table. The Configure Scanned Unidentified Software table lists the unidentified software that is stored in the Inventory database.

If you want the unidentified software to be identified in subsequent scans, select the software entry in the table and click the Software Dictionary button. The entry is automatically added to Configure Software Dictionary table located in the Software Dictionary rule.

In the Configure Scanned Unidentified Software table, you can also sort the entries, and also apply filters to the entries of the table.

Scan as Unidentified Software

Allows you to configure the file extensions of the files, that should included in the list of “Unidentified” software. You can view the list of unidentified software in the **Add Unidentified Software to Dictionary** rule.

To configure the rule:

- 1 Click Edit Table.
- 2 In the Configure Software to be Reported as Unidentified table, click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select **Expandable Expression** or **Regular Expression**.

- 4 Specify a file extension pattern.
- 5 Click OK.

For example, if you want the Inventory scanner to report all files with extension “.exe” that do not have an entry in the dictionary as “Unidentified”, configure the following settings in the table:

Pattern Type = Expandable expression
File Extension = exe

Include Local File Extensions

The “Include Local File Extensions” rule allows you to configure the files with specified extensions that should be scanned for at the inventoried workstations. This rule acts as a filter on the list of software identifiers. A file that is listed as a software identifier and whose extension is included in this table will be reported.

To configure a file extension to be included in the scan:

- 1 Click Edit Table.
- 2 In the File Extension Include table, click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select **Expandable Expression** or **Regular Expression**.
- 4 Specify a file extension pattern.
- 5 Click OK.

For example, if you want the Inventory scanner to scan for files with extension “.exe”, configure the following settings in the Configure File Extension Includes table:

Pattern Type = Regular expression
File Extension = [exe|EXE]

The Inventory scanner scans and stores only the files with extension “.exe” in the Inventory database.

NOTE: You must exclude all other file extensions present on the machine for this rule to be effective by configuring the **Exclude Local File Extensions** rule.

Exclude Local File Extensions

The “Exclude Local File Extensions” rule allows you to configure the file with specified extensions that should not be scanned for at the inventoried workstations.

To configure a file extension to be excluded from the scan:

- 1 Click Edit Table.
- 2 In the Configure File Extension Exclude table, click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select **Expandable Expression** or **Regular Expression**.
- 4 Specify a file extension pattern.
- 5 Click OK.

For example, if you do not want the Inventory scanner to scan for files with extension “.exe”, configure the following settings in the Configure File Extension Excludes table:

Pattern Type = Expandable expression
File Extension = exe

The Inventory scanner will not scan for the files with extension “.exe”.

IMPORTANT: Since the default behavior of the scanner is to include all file extensions, you need not configure the **Include Local File Extensions** rule for the remaining file extensions on the inventoried workstation.

Include Local Directories

The “Include Local Directories” rule allows you to configure the directories that should be scanned for files at the inventoried workstations.

To configure a directory to be included in the scan:

- 1 Click Edit Table.
- 2 In the Configure Scan - Include Directories table, click Insert to add a new row.
- 3 In the Platform drop-down list, select NetWare, Windows, or Any.
- 4 In the Pattern Type drop-down list, select **System Expandable Expression** or **Regular Expression**.

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to “Any.” If you select System expandable expression, you cannot select “Any” as the platform.

- 5 Specify a directory name pattern.
- 6 Click OK.

For example, if you want the Inventory scanner to scan for files in the c:\programfiles directory on all the Windows inventoried workstations, configure the following settings in the Configure Scan - Include Directories table:

Platform = Windows

Pattern Type = System expandable expression

Directory= C:\ProgramFiles

The Inventory scanner scans only the files in c:\programfiles for software information.

NOTE: You must exclude all other directories present on the machine for this rule to be effective by configuring the **Include Local Directories** rule.

Exclude Local Directories

The “Exclude Local Directories” rule allows you to configure the directories that should not be scanned for files at the inventoried workstations.

To configure a directory to be excluded during the scan:

- 1 Click Edit Table.
- 2 In the Configure Scan - Exclude Directories table, click Insert to add a new row.
- 3 In the Platform drop-down list, select NetWare, Windows, or Any.
- 4 In the Pattern Type drop-down list, select **System Expandable Expression** or **Regular Expression**.

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to “Any.”

If you select System expandable expression, you cannot select “Any” as the platform.

- 5 Specify a directory name pattern.

6 Click OK.

For example, if you want the Inventory scanner not to scan the files in the c:\programfiles directory on all the Windows inventoried workstations, configure the following settings in the Configure Scan - Exclude Directories table:

Platform = Windows
Pattern Type = System expandable expression
Directory= C:\ProgramFiles

The Inventory scanner will not scan for the files in C:\ProgramFiles.

IMPORTANT: Since the default behavior of the scanner is to include all directories, you need not configure the **Include Local Directories** rule for the remaining directories on the inventoried workstation.

Include Local Drives

The “Include Local Drives” rule allows you to configure the drives or volumes that should be scanned for files at the inventoried workstations.

To configure a drive to be included in the scan:

- 1** Click Edit Table.
- 2** In the Configure Include Drive table, click Insert to add a new row.
- 3** In the Platform drop-down list, select NetWare, Windows, or Any.
- 4** In the Pattern Type drop-down list, select **System Expandable Expression** or **Regular Expression**.

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to "Any." If you select System expandable expression, you cannot select "Any" as the platform.

- 5** Specify a drive name pattern.
- 6** Click OK.

For example, if you want the Inventory scanner to scan for files in the “C” drive on all the Windows inventoried workstations, configure the following settings in the Configure Include Drives table:

Platform = Windows
Pattern Type = System expandable expression
Drive Name= C

The Inventory scanner scans only the files in the C drive for the software information.

NOTE: You must exclude all other drives present on the machine for this rule to be effective by configuring the **Exclude Local Drives** rule.

Exclude Local Drives

The “Exclude Local Drives” rule allows you to configure the drives that should not be scanned for files at the inventoried workstations.

To configure a drive to be excluded during the scan:

- 1 Click Edit Table.
- 2 In the Configure Scan - Exclude Drives table, click Insert to add a new row.
- 3 In the Platform drop-down list, select NetWare, Windows or Any.
- 4 In the Pattern Type drop-down list, select **System Expandable Expression** or **Regular Expression**.

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to “Any.” If you select System expandable expression, you cannot select “Any” as the platform.

- 5 Specify a drive name pattern.
- 6 Click OK.

For example, if you want the Inventory scanner not to scan the files in “C” drive on all the Windows inventoried workstations, configure the following settings in the Configure Scan - Exclude Drives table:

Platform = Windows

Pattern Type = System expandable expression

Drive Name= C

The Inventory scanner will not scan the files in the C drive.

IMPORTANT: Since the default behavior of the scanner is to include all drives, you need not configure the **Include Local Drives** rule for the remaining drives on the inventoried workstation.

Exclude Local Software

The “Exclude Local Software” rule allows you to configure the software that should not be reported by the Inventory scanner.

To configure a software not to be reported:

- 1 Click Edit Table.
- 2 In the Configure Exclude Software table, click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select **Expandable Expression** or **Regular Expression**.
- 4 Specify a software name pattern.
- 5 Click OK.

For example, if you want the Inventory scanner not to report any software whose name begin with “Adobe”, configure the following settings in the Configure Exclude Software table:

Pattern Type= Expandable expression

Software = Adobe*

The Inventory scanner will not report the software with name beginning with “Adobe”.

You can also add the entries to table in the following ways:

- ◆ Click the Add from Database button in the Configure Exclude Software table. The Add from Database option allows you to choose the software that has to be excluded from the list of software reported by the scanner.

The Exclude Scanned Software table lists the software that is stored in the Inventory database. If you want a software product to be excluded from subsequent scans, select the software entry in the table and click Exclude Software. The entry is added to the Configure Exclude Software table located in the Exclude Local Software rule.

In the Scanned Software in Database list, you can sort the entire and also, apply filters to the entries.

- ◆ In the Configure Software Dictionary table (located in the Software Dictionary rule), select the software that you want to exclude during the next scan, and click the Exclude Software button.

Exclude Local Files

The “Exclude Local Files” rule allows you to configure the files that should be excluded during the Inventory scan. These files will be skipped by the Inventory scanner.

To configure the software:

- 1** Click Edit Table.
- 2** In the Exclude Local Files table, click Insert to add a new row.
- 3** In the Platform drop-down list, select NetWare, Windows or Any.
- 4** In the Pattern Type drop-down list, select **System Expandable Expression** or **Regular Expression**.

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to "Any." If you select System expandable expression, you cannot select "Any" as the platform.

- 5** Specify a filename pattern.
- 6** Click OK.

For example, if you do not want the Inventory scanner to report files with extension, “.com” from Windows inventoried workstations, configure the following settings in the Exclude Local Files table:

Platform= Windows

Pattern Type = System expandable expression

Software = *.com

Disk Usage Scanning - Include Local File Extensions

The “Include Local File Extensions” rule allows you to configure the files with specified extensions whose disk usage should be scanned for at the inventoried workstations.

- 1** Click Edit Table.
- 2** In the Configure Usage - File Extensions table, click Insert to add a new row.
- 3** In the Pattern Type drop-down list, select **Expandable Expression** or **Regular Expression**.
- 4** Specify a file extension pattern.

5 Click OK.

For example, if you want the Inventory scanner to scan for disk usage of all files with extension “.mp3”, configure the following settings in the Configure Usage - File Extensions table:

Pattern Type = Expandable expression

File Extension = mp3

The Inventory scanner considers only the files with extension “.mp3” for disk usage scanning.

Disk Usage Scanning - Exclude Local Files

The “Exclude Local Files” rule allows you to configure a file whose disk usage should not be scanned for at the inventoried workstations.

1 Click Edit Table.

2 In the Configure Usage - Ignore Files table, click Insert to add a new row.

3 In the Platform drop-down list, select NetWare, Windows or Any.

4 In the Pattern Type drop-down list, select **System Expandable Expression** or **Regular Expression**.

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to "Any." If you select System expandable expression, you cannot select "Any" as the platform.

5 Specify a filename pattern.

6 Click OK.

For example, if you want the Inventory scanner not to scan for the disk usage of all executables whose name start with “gwe”, configure the following settings in the Configure Usage - Ignore Files table:

Platform = Windows

Pattern Type = System expandable expression

File Extension = gwe*.exe

The Inventory scanner will not consider the files of “gwe*.exe” pattern for disk usage scanning.

IMPORTANT: Since the behavior of the Include Local Files rule is the default behavior in software dictionary, you need not configure the **Disk Usage Scanning - Include Local File Extensions** rule for the remaining files on the machine.

Disk Usage Scanning - Include Local Directories

The “Include Local Directories” rule allows you to configure the directories on the inventoried workstations to be included in the disk usage scanning.

1 Click Edit Table.

2 In the Configure Usage - Include Directories table, click Insert to add a new row.

3 In the Platform drop-down list, select NetWare, Windows or Any.

4 In the Pattern Type drop-down list, select **System Expandable Expression** or **Regular Expression**.

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to "Any." If you select System expandable expression, you cannot select "Any" as the platform.

5 Specify a directory name pattern.

6 Click OK.

For example, if you want the Inventory scanner to include the c:\programfiles directory on all the Windows inventoried workstations in disk usage scanning, configure the following settings in the Configure Usage - Include Directories table:

Platform = Windows

Pattern Type = System expandable expression

Directory= c:\programfiles

The Inventory scanner considers only the files in the c:\programfiles for disk usage scanning.

NOTE: You must exclude all other directories present on the inventoried workstation for this rule to be effective by configuring the [Disk Usage Scanning - Exclude Local Directories](#) rule.

Disk Usage Scanning - Exclude Local Directories

The “Exclude Local Directories” rule allows you to configure the directories on the inventoried workstations that should be excluded from disk usage scanning.

1 Click Edit Table.

2 In the Configure Usage - Exclude Directories table, click Insert to add a new row.

3 In the Platform drop-down list, select NetWare, Windows or Any.

4 In the Pattern Type drop-down list, select [System Expandable Expression](#) or [Regular Expression](#)

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to "Any." If you select System expandable expression, you cannot select "Any" as the platform.

5 Specify a directory name pattern.

6 Click OK.

For example, if you want the Inventory scanner to exclude the c:\programfiles directory on all the Windows inventoried workstations from disk usage scanning, configure the following settings in the Configure Usage - Exclude Directories table:

Platform = Windows

Pattern Type = System expandable expression

Directory= c:\programfiles

The Inventory scanner will not scan for the disk usage of C:\ProgramFiles.

IMPORTANT: Since the default behavior of the scanner is to include all directories, you need not configure the [Disk Usage Scanning - Include Local Directories](#) rule for the remaining directories on the inventoried workstation.

Disk Usage Scanning - Include Local Drives

The “Include Local Drives” rule allows you to configure the drives or volumes on the inventoried workstations to be considered for disk usage scanning.

1 Click Edit Table.

2 In the Configure Usage - Include Drive table, click Insert to add a new row.

3 In the Platform drop-down list, select NetWare, Windows or Any.

- 4 In the Pattern Type drop-down list, select **System Expandable Expression** or **Regular Expression**.

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to "Any." If you select System expandable expression, you cannot select "Any" as the platform.

- 5 Specify a drive name pattern.
- 6 Click OK.

For example, if you want the Inventory scanner to scan for the disk usage of C drive on all the Windows inventoried workstations, configure the following settings in the Configure Usage - Include Drive table:

Platform = Windows
Pattern Type = System expandable expression
Drive Name= C

The Inventory scanner considers the files in C drive on the Windows inventoried workstations for disk usage scanning.

NOTE: You must exclude all other drives present on the inventoried workstation for this rule to be effective by configuring the **Disk Usage Scanning - Exclude Local Drives** rule.

Disk Usage Scanning - Exclude Local Drives

The "Exclude Local Drives" rule allows you to configure the drives or volumes on the inventoried workstations that should be excluded from disk usage scanning.

- 1 Click Edit Table.
- 2 In the Configure Usage - Exclude Drives table, click Insert to add a new row.
- 3 In the Platform drop-down list, select NetWare, Windows or Any.
- 4 In the Pattern Type drop-down list, select **System Expandable Expression** or **Regular Expression**.

IMPORTANT: If you select Regular expression as the pattern type, then the corresponding value in the Platform column is automatically changed to "Any." If you select System expandable expression, you cannot select "Any" as the platform.

- 5 Specify a drive name pattern
- 6 Click OK.

For example, if you want the Inventory scanner not to scan for the disk usage of C: on all the Windows inventoried workstations, configure the following settings in the Configure Usage - Exclude Drives table:

Platform = Windows
Pattern Type = System expandable expression
Drive Name= C

The Inventory scanner will not consider the files in C drive on the Windows inventoried workstations for disk usage scanning.

IMPORTANT: Since the default behavior of the scanner is to include all drives and volumes, you need not configure the **Disk Usage Scanning - Include Local Drives** rule for the remaining drives or volumes of the inventoried workstation.

Edit Aliases for Vendor Names

The “Aliases for Vendor Names” rule allows you to configure aliases for vendor names.

To configure an alias for a vendor name:

- 1 Click Edit Table.
- 2 In the Edit Vendor Name Aliases table, click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select **Expandable Expression** or **Regular Expression**.
- 4 Specify a vendor name pattern.
- 5 Specify an alias.
- 6 Click OK.

For example, if you want the Inventory scanner to report all instances of the vendor name beginning with “Microsoft” as “Microsoft Corporation” in the Inventory database, configure the following settings in the Edit Vendor Name Aliases table:

Pattern Type = Expandable expression

Pattern = Microsoft*

Alias = Microsoft Corporation

If the Inventory scanner reports the following vendor names during the scan: Microsoft, Microsoft Inc., Microsoft Inc. Corporation; then all these names are reported as “Microsoft Corporation” in the Inventory database.

Edit Aliases for Software Names

The “Aliases for Software Names” rule allows you to configure aliases for the software names.

To configure an alias for a software name:

- 1 Click Edit Table.
- 2 In the Edit Software Name Aliases table, click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select **Expandable Expression** or **Regular Expression**.
- 4 Specify a software name pattern.
- 5 Specify an alias.
- 6 Click OK.

For example, if you want the Inventory scanner to report all instances of the product name, “WinZip” as “WinZip Application” in the Inventory database, configure the following settings in the Edit Software Name Aliases table:

Pattern Type = Expandable expression

Pattern = WinZip

Alias = WinZip Application

If the Inventory scanner scans the following product names during the scan: WinZip, WinZip Executables, WinZip Applications; then the name of the software that exactly match “WinZip” is stored as “WinZip Application” in the Inventory database. The names of the remaining software are reported as scanned.

Edit Add-Remove Software

The “Edit Add-Remove Software” rule improves the ability of the scanner in associating the software identified through the Add Remove Programs dialog box with the corresponding software identified through the dictionary.

Click Edit Table. By default, the Edit Add-Remove Software table displays the following information that has been stored in the database:

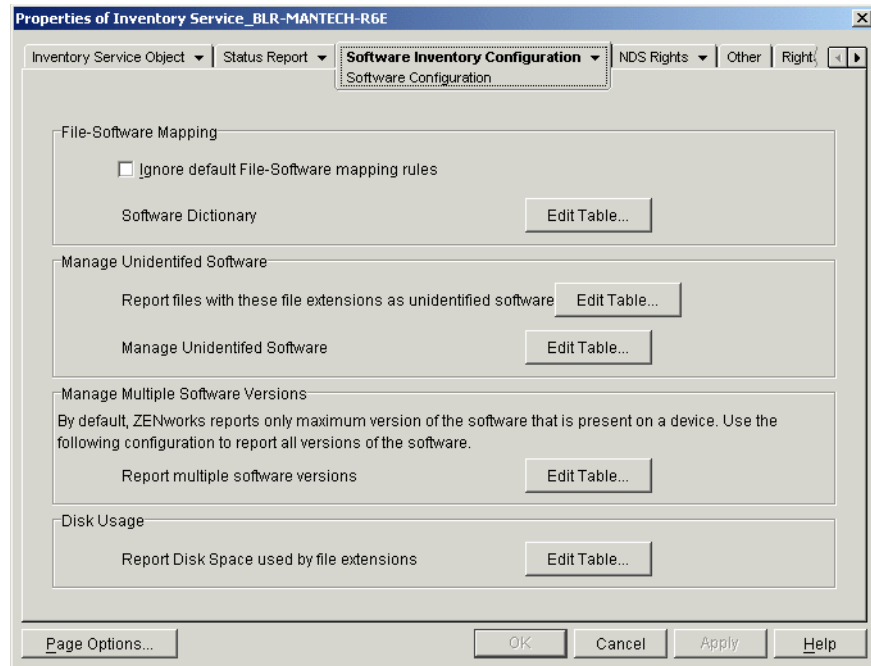
- ◆ Software key (list of registry keys for a software)
- ◆ Displayed software name (the name of the software as displayed in the Add-Remove Programs dialog box)

You can specify the software name and the vendor name that matches with the corresponding value in the dictionary.

Configuring the ZENworks 6.5 SP1 or Later Software Dictionary Rules

- 1** In ConsoleOne, right-click the Inventory Service object (*Inventory Service_server_name*), then click Properties.
- 2** In the Software Configuration page, you can configure the following settings to scan the software inventory information:
 - ◆ **File - Software Mapping:** Includes the following rules:
 - ◆ “Ignore Default File-Software Mapping Rules” on page 991
 - ◆ “Software Dictionary” on page 991
 - ◆ **Manage Unidentified Software:** Includes the following rules:
 - ◆ “Report Files with These File Extensions As Unidentified Software” on page 995
 - ◆ “Manage Unidentified Software” on page 996
 - ◆ **Manage Multiple Software Versions:** Includes the following rule:
 - ◆ “Report Multiple Software Versions” on page 997
 - ◆ **Disk Usage:** Includes the following rule:
 - ◆ “Report Disk Space Used by File Extensions” on page 999

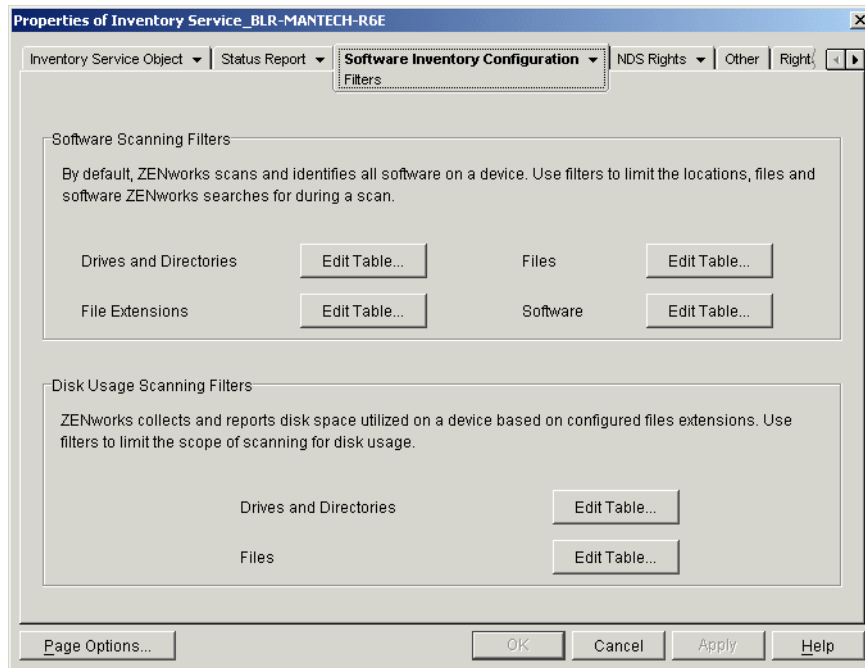
IMPORTANT: Before configuring any ZENworks software dictionary rules, you must be aware of how to use these rules. For detailed information, see “Understanding the Usage and Precedence of ZENworks 6.5 SP1 or Later Software Dictionary Rules” on page 967.



3 In the Filters page, you can control the scope of scanning for files.

- ◆ **Software Scanning Filters:** Includes the following filters:
 - ◆ “Software Scanning Filters - Drives and Directories” on page 1000
 - ◆ “Software Scanning Filters - File Extensions” on page 1004
 - ◆ “Software Scanning Filters - Files” on page 1006
 - ◆ “Software Scanning Filters - Software” on page 1007
- ◆ **Disk Usage Scanning Filters:** Includes the following filters:
 - ◆ “Disk Usage Scanning Filters - Drives and Directories” on page 1009
 - ◆ “Disk Usage Scanning Filters - Files” on page 1013

IMPORTANT: Before configuring any ZENworks software dictionary rules, you must be aware of how to use these rules. For detailed information, see “Understanding the Usage and Precedence of ZENworks 6.5 SP1 or Later Software Dictionary Rules” on page 967



4 In the Aliases page, you can do the following:

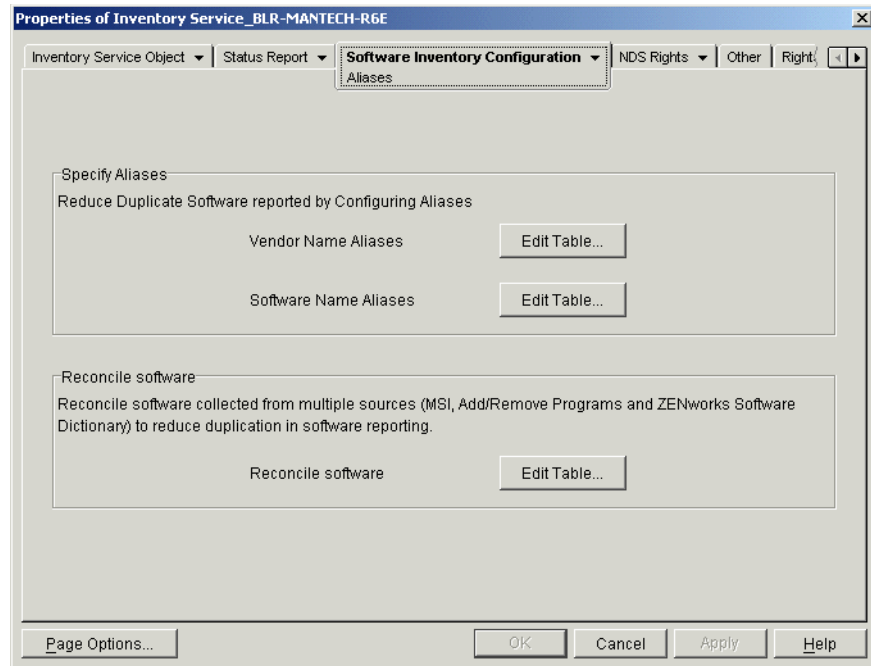
- ◆ **Specify Aliases:** Allows you to configure aliases for vendor and software names.

By default, the software information is categorized by vendor name in the Inventory ConsoleOne utilities. The software from the same vendor might sometimes have differing vendor names or product names. In this scenario, the Inventory ConsoleOne utilities display the software information under different sections.

However, you can merge the software information by specifying aliases. You customize these settings in the following software dictionary rules:

- ◆ “Vendor Name Aliases” on page 1014
- ◆ “Software Name Aliases” on page 1015
- ◆ **Reconcile Software:** Allows you to merge the software identified through Add/Remove Programs or the MSI, and the software identified through the ZENworks software dictionary. For more information, see “Reconcile Software” on page 1016.

IMPORTANT: Before configuring any ZENworks software dictionary rules, you must be aware of how to use these rules. For detailed information, see “Understanding the Usage and Precedence of ZENworks 6.5 SP1 or Later Software Dictionary Rules” on page 967.



- 5 Click Apply, then click Close.

Ignore Default File-Software Mapping Rules

Select the “Ignore Default File-Software Mapping Rules” check box if you do not want the Inventory scanner to use the default File-Software mapping rules that are configured in the ZENworks software dictionary for scanning software inventory information.

IMPORTANT: This option is not available for selection if the software dictionary is updated from another Inventory server.

Software Dictionary

The “Software Dictionary” option allows you to configure software identifiers in the ZENworks software dictionary.

By default, the ZENworks software dictionary contains predefined software identifiers. You can create new software identifiers in the ZENworks software dictionary by editing the predefined software identifiers or creating a new software identifier.

To configure rules in the ZENworks software dictionary:

- 1 Click Edit Table.

The Software Dictionary table is displayed.

Dictionary ...	Key identifier	Filename	File Last Modified Time...	Minimum file size	Maximu...	Softw...
33823	No	MVREAD...	2003-07-14 15:25	2460160	2460160	Reader
33822	No	NETSONI...	2000-12-18 12:56	3000096	3000096	Netsonic
33821	No	MSHOW...	2003-10-29 11:37	639056	639056	Mshow
33820	No	PCBODY...	2003-01-20 18:06	942080	942080	PC Bodyc
33819	No	AGMAIL.E...	2004-01-19 23:29	1511424	1511424	Group Mc
33818	No	NOTETA...	2002-08-26 17:26	1725440	1725440	NoteTab
33817	No	CITYDES...	2002-08-08 17:21	3891200	3891200	CityDesk
33816	No	EEBED9...	2003-08-17 22:22	294912	294912	Executab
33815	No	EXEAPI1...	2003-08-17 22:31	171120	171120	Executab
33814	No	PIM.EXE	2002-12-02 19:01	1646592	1646592	Mp3 Play
33813	No	2020.EXE	2001-05-08 16:21	2085376	2085376	20/20
33812	No	BSEAS...	2003-09-22 11:18	208896	208896	Erase
33811	No	ACU.EXE	2003-09-26 11:29	1339392	1339392	ACU
33810	No	PCARMD...	2002-04-18 01:17	45056	45056	AMBIT Wi
33809	No	MAINCTR...	2003-08-06 08:32	327680	327680	Silence Ir
33808	No	KILLAD.E...	2000-01-27 16:00	30720	30720	KillAd
33807	No	IPHOTON...	2003-11-30 23:00	1458176	1458176	Newsgro
33806	No	IPHOTO...	2003-10-28 22:50	1839104	1839104	Iphoto

The Software Dictionary table displays the data stored in the ZENworks software dictionary. It might contain entries that are:

- ◆ **Light gray in color:** Indicates that these entries will not be considered in a scan because the table already contains entries that override these entries.
- ◆ **Dark gray in color:** These are inherited rules. For more information about inherited rules, see [“What is an Inherited Rule?”](#) on page 960.

2 In the Software Dictionary table, you can perform the following operations:

- ◆ [“Manually Adding Entries to the Software Dictionary”](#) on page 992
- ◆ [“Automatically Adding Entries to the Software Dictionary”](#) on page 994
- ◆ [“Deleting Entries from the Software Dictionary”](#) on page 994
- ◆ [“Modifying the Values of the Software Dictionary Entries”](#) on page 994
- ◆ [“Excluding a Software from a Scan”](#) on page 995
- ◆ [“Sorting Entries in the Table”](#) on page 1017
- ◆ [“Filtering Entries in the Table”](#) on page 1017
- ◆ [“Refreshing Entries in the Table”](#) on page 1018

3 Click OK.

Manually Adding Entries to the Software Dictionary

1 In the Software Dictionary table, click Insert to add a new row.

2 Specify values for the following attributes:

Filename, File Last Modified Time (yyyy-dd-mm hours:minutes), Minimum File Size (bytes), Maximum File Size (bytes), Software Name, Support Pack, Software Version, Internal Version, Description, Vendor, Platform, and Category.

The following attributes are called “matching attributes”: Filename, File Last Modified Time, Minimum File Size, Maximum File Size, and Internal Version. The values of these matching attributes are compared with the values scanned by the Inventory scanner from the file headers on the inventoried workstations. If the values are same, the values in the corresponding software information attributes (Software Name, Support Pack, Software Version, Description, Vendor, Platform, and Category) are stored in the Inventory database.

In the Software Dictionary table, you must specify values for the following attributes: Filename, Software Name, and Vendor. It is optional to specify values for other attributes.

When you add an entry, a unique ID called the Dictionary Identifier is automatically assigned to this entry

For example, configure the following settings in the Software Dictionary - Row Editor table:

Filename= MSACCESS.EXE
File Last Modified Time = 1998-30-01 05:30
Minimum File Size = 299854
Maximum File Size = 400000
Software Name = Access
Software Version = 7.0
Internal Version = 7.0
Description = Microsoft Access
Vendor = Microsoft
Category = Database

If the Inventory scanner finds a file with the following values during the scan: “File Name= MSACCESS.EXE; File Last Modified Time= 1998-30-01 05:30; File Size= 300000”, then the following information is stored in the Inventory database:

Software Name = Access
Software Version = 7.0
Description = Microsoft Access
Vendor = Microsoft
Category = Database

If you do not specify a value for an attribute, then this attribute is not considered to determine the overriding entry. Also, only the matching attributes are considered to determine the overriding entry. For example, the Configure Dictionary table has the following entries for MS Word:

Filename	Minimum File Size	Maximum File Size	Software Name	Vendor
winword.exe	10000	10000	Word	Microsoft
winword.exe	0	30000	Word	Microsoft

To determine the overriding entry, only the maximum file size value is considered. Consequently, the second entry with 30000 maximum file size overrides the first entry.

3 (Optional) Select the Key Identifier check box for this entry.

For example, the Software Dictionary table has the following entries for MS Word:

Filename	File Last Modified Time	Minimum File Size	Maximum File Size	Software Name	Software version	Internal version	Description	Vendor
winword.exe	2004-30-10 5:30	10000	10000	Word	2002	10.0.4219	Microsoft Word	Microsoft
osa.exe	2004-30-02 16:00	10000	10000	Word	2002	10.0.4300	Microsoft Office XP Component	Microsoft

If the key identifier has not been defined, the software information for MS Word might be selected from anyone of the above entries.

To ensure that the information from the identifier corresponding to “Winword.exe” is selected, select Key Identifier for “Winword.exe.” If you select “Winword.exe” as the key identifier in the Configure Software Dictionary table, the Inventory scanner stores the information related to winword.exe into the Inventory database.

Automatically Adding Entries to the Software Dictionary

- 1** Click Unidentified Software located in the Add From pane.
- 2** In the Manage Unidentified Software table, do the following:
 - 2a** Select the entry to be added to the software dictionary.
 - 2b** Click Software Dictionary located in the Add To pane.
 - 2c** Click Close.

Deleting Entries from the Software Dictionary

- 1** Select the entry to be deleted.
- 2** Click Delete.

IMPORTANT: You can delete only the non-inherited entries.

Modifying the Values of the Software Dictionary Entries

- 1** In the Software Dictionary table, double-click the entry whose values you want to modify.

You can modify only one entry at a time.

TIP: You can also invoke the Row Editor dialog box by selecting the entry you want to modify and pressing either one of the keys: Enter, Spacebar, or F2.

- 2** Modify the values.

You cannot modify the values of the Dictionary Identifier and Filename attributes.

- 3** Click OK.

IMPORTANT: You cannot modify the values of an inherited rule. Also, modifying a default predefined rule creates a new user-defined rule.

Excluding a Software from a Scan

- 1 In the Software Dictionary table, select the corresponding entry for the software that must be excluded from the Inventory scan.
- 2 Click Ignore Software located in the Add To pane.

The entry is added to the Ignore Software table in [Software Scanning Filters - Software](#).

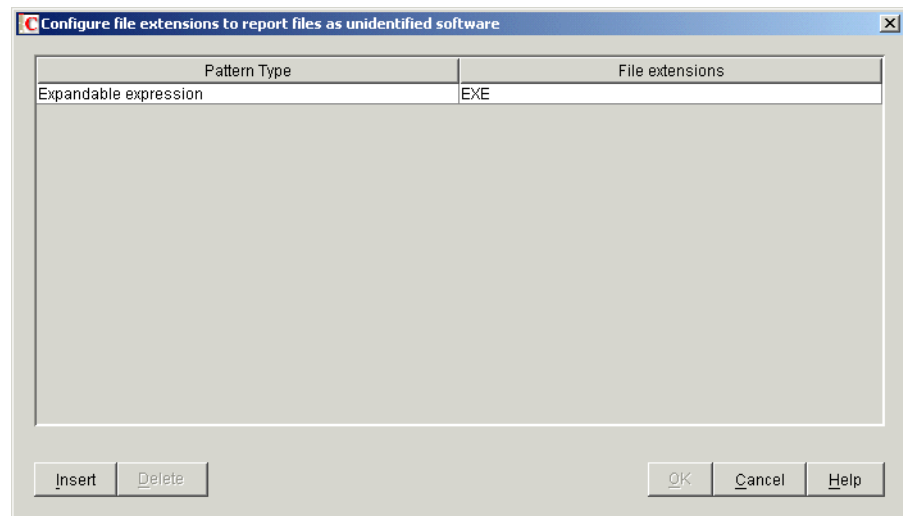
Report Files with These File Extensions As Unidentified Software

The “Report Files with These File Extensions As Unidentified Software” rule allows you to configure file extension of files that must be reported as unidentified software.

To configure the rule:

- 1 Click Edit Table.

The “Configure File Extensions to Report Files as Unidentified Software” table is displayed.



- 2 Click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select Expandable expression or Regular expression.
- 4 Specify a file extension.
- 5 Click OK.

For example, if you want the Inventory scanner to report the software with the “exe” extension as Unidentified software, configure the following settings in the table:

Pattern Type = Expandable expression

File Extensions = exe

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the table, select the entry and click Delete. You can delete only the non-inherited entries.

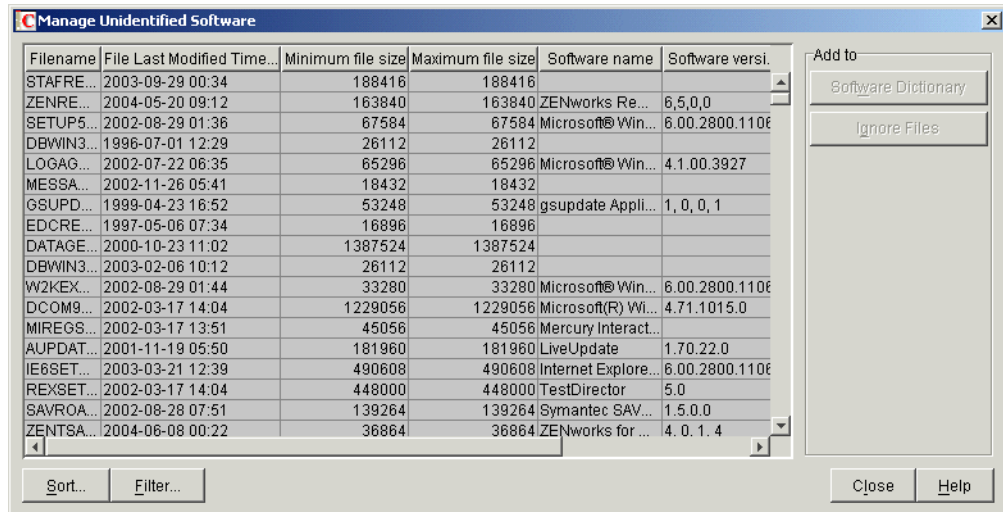
Manage Unidentified Software

The “Manage Unidentified Software” rule allows you to include or exclude the **unidentified software** from the inventory scan.

To configure this rule:

- 1 Click Edit Table.

The Manage Unidentified Software table is displayed.



Filename	File Last Modified Time...	Minimum file size	Maximum file size	Software name	Software versi.
STAFRE...	2003-09-29 00:34	188416	188416		
ZENRE...	2004-05-20 09:12	163840	163840	ZENworks Re...	6,5,0,0
SETUP5...	2002-08-29 01:36	67584	67584	Microsoft Win...	6.00.2800.1106
DBWIN3...	1996-07-01 12:29	26112	26112		
LOGAG...	2002-07-22 06:35	65296	65296	Microsoft Win...	4.1.00.3927
MESSA...	2002-11-26 05:41	18432	18432		
GSUPD...	1999-04-23 16:52	53248	53248	gsupdate Appli...	1, 0, 0, 1
EDCRE...	1997-05-06 07:34	16896	16896		
DATAGE...	2000-10-23 11:02	1387524	1387524		
DBWIN3...	2003-02-06 10:12	26112	26112		
W2KEX...	2002-08-29 01:44	33280	33280	Microsoft Win...	6.00.2800.1106
DCOM9...	2002-03-17 14:04	1229056	1229056	Microsoft(R) Wi...	4.71.1015.0
MIREGS...	2002-03-17 13:51	45056	45056	Mercury Interact...	
AUPDAT...	2001-11-19 05:50	181960	181960	LiveUpdate	1.70.22.0
IE6SET...	2003-03-21 12:39	490608	490608	Internet Explore...	6.00.2800.1106
REXSET...	2002-03-17 14:04	448000	448000	TestDirector	5.0
SAVROA...	2002-08-28 07:51	139264	139264	Symantec SAV...	1.5.0.0
ZENTSA...	2004-06-08 00:22	36864	36864	ZENworks for ...	4.0.1.4

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

- 2 In the Manage Unidentified Software table, you can perform the following operations:

- ◆ “Including Unidentified Software in a Scan” on page 996
- ◆ “Excluding Unidentified Software from the Scan” on page 997
- ◆ “Sorting Entries in the Table” on page 1017
- ◆ “Filtering Entries in the Table” on page 1017
- ◆ “Refreshing Entries in the Table” on page 1018

- 3 Click OK.

Including Unidentified Software in a Scan

If you want unidentified software to be reported as a known software in subsequent scans, do the following:

- 1 Select the software entry in the table.
- 2 Click Software Dictionary located in the Add To pane.

The entry is automatically added to the **Software Dictionary** table.

Excluding Unidentified Software from the Scan

If you want unidentified software not to be reported in subsequent scans, do the following:

- 1 Select the software entry in the table.
- 2 Click Ignore Files located in the Add To pane.

The entry is automatically added to the table in [Software Scanning Filters - Files](#).

Report Multiple Software Versions

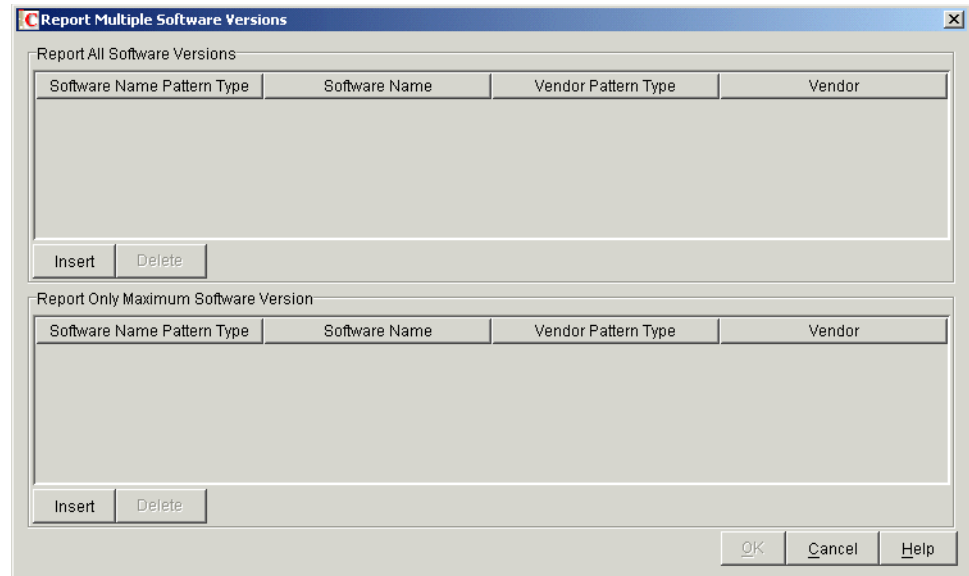
The “Report Multiple Software Versions” rule allows you to specify the software for which the Inventory scanner must report multiple versions installed on the inventoried workstation.

By default, the Inventory scanner scans for the highest version of the software installed on the inventoried workstation.

To configure this rule:

- 1 Click Edit Table.

The Report Multiple Software Versions dialog box is displayed.



- 2 If you want the Inventory scanner to report all versions of the software installed on the inventoried workstations, configure a rule in the Report All Software Versions table.
 - 2a In the Report All Software Versions table, click Insert to add a new row.
 - 2b In the Software Name Pattern Type drop-down list, select Expandable expression or Regular expression.
 - 2c Specify a software name.
 - 2d (Optional) In the Vendor Pattern Type drop-down list, select Expandable expression or Regular expression.
 - 2e (Optional) Specify a vendor name.

For example, if you want the Inventory scanner to report all versions of the Adobe Acrobat Reader installed on the inventoried workstation, configure the following settings in the table:

Software Name Pattern Type = Expandable expression

Software Name = Acrobat* Reader*

Vendor Pattern Type = Expandable expression

Vendor Name = Adobe*

If the inventoried workstation has Acrobat Reader versions 5.0 and 6.0 installed, the Inventory scanner reports both versions of Acrobat Reader (5.0 and 6.0).

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the table, select the entry and click delete. You can delete only the non-inherited entries.

- 3** If you want the Inventory scanner to report only the highest version of the software installed on the inventoried workstations, configure a rule in the Report Only Maximum Software Version table.

3a In the Report Only Maximum Software Version table, click Insert to add a new row.

3b In the Software Name Pattern Type drop-down list, select Expandable expression or Regular expression.

3c Specify a software name.

3d (Optional) In the Vendor Pattern Type drop-down list, select Expandable expression or Regular expression.

3e (Optional) Specify a vendor name.

For example, if you want the Inventory scanner to report only the highest version of the Adobe Acrobat Reader installed on the inventoried workstation, configure the following settings in the table:

Software Name Pattern Type = Expandable expression

Software Name = Acrobat* Reader*

Vendor Pattern Type = Expandable expression

Vendor Name= Adobe*

If the inventoried workstation has Adobe Acrobat Reader versions 4.0 and 5.0 installed, then the Inventory scanner reports only Adobe Acrobat Reader 5.0.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the table, select the entry and click delete. You can delete only the non-inherited entries.

- 4** Click OK.

By default, the scanner reports only the highest version of the software installed. If a rule in Report All Software Versions conflicts with a rule in Report Only Maximum Software Version, then the rule in Report Only Maximum Software Version overrides the rule of Report All Software Versions.

For example, if you want the Inventory scanner to report all versions of Microsoft software except for Microsoft Office, and also report only the highest version of Microsoft Office installed, configure the following filters as shown below:

- ♦ **Report All Software Versions:** Configure the following settings:
 - Software Name Pattern Type = Expandable expression
 - Software Name = *
 - Vendor Pattern Type = Expandable expression
 - Vendor Name= Microsoft*
- ♦ **Report Only Maximum Version:** Configure the following settings:
 - Software Name Pattern Type = Expandable expression
 - Software Name = *office*
 - Vendor Pattern Type = Expandable expression
 - Vendor Name= Microsoft*

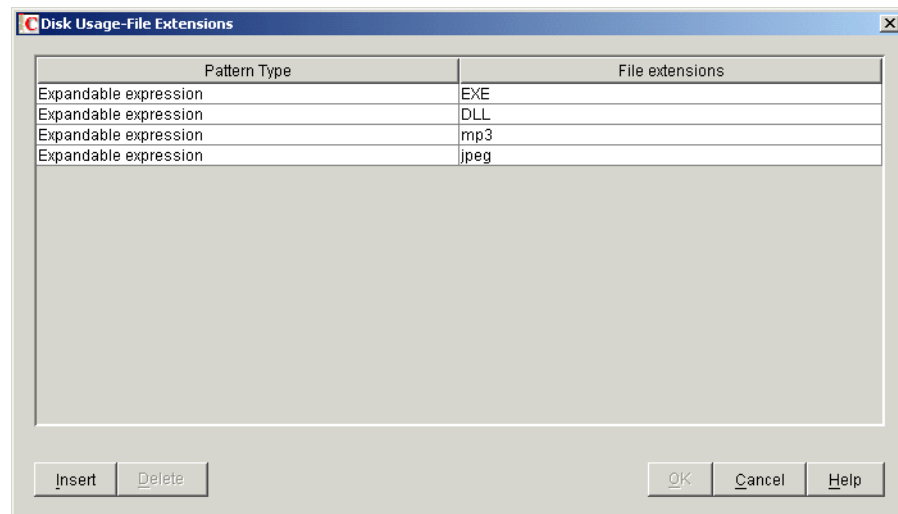
Report Disk Space Used by File Extensions

The “Report Disk Space Used by File Extensions” rule allows you to specify the file extension of the files whose total disk usage you want to scan.

To configure this rule:

- 1 Click Edit Table.

The Disk Usage - File Extensions table is displayed.



- 2 Click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select Expandable expression or Regular expression.
- 4 Specify a file extension.
- 5 Click OK.

For example, if you want the Inventory scanner to scan for disk usage of all files with extension “.pif,” configure the following settings in the Disk Usage - File Extensions table:

Pattern Type = Expandable expression

File Extension = pif

The Inventory scanner scans and stores only the total disk usage for all files with extension “.pif” in the Inventory database.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Disk Usage - File Extensions table, select the entry and click Delete. You can delete only the non-inherited entries.

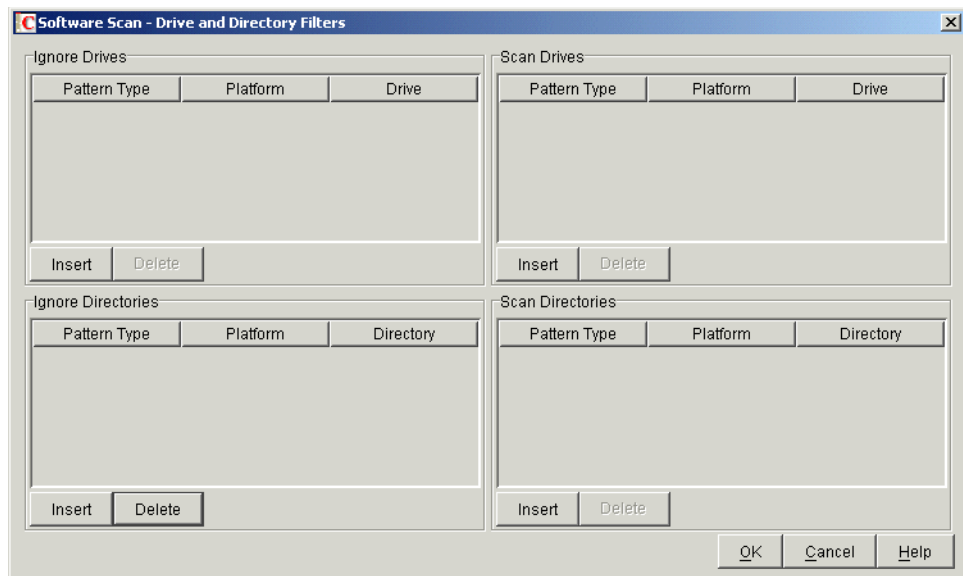
Software Scanning Filters - Drives and Directories

The “Drives and Directories” filter the allows you to control the scanning for software files located in specified drives and directories.

To configure this filter:

- 1 Click Edit Table.

The Software Scan - Drive and Directory Filters dialog box is displayed.



- 2 Configure the following filters:

- ◆ “Ignore Drives” on page 1001
- ◆ “Scan Drives” on page 1002
- ◆ “Ignore Directories” on page 1003
- ◆ “Scan Directories” on page 1003

By default, the Inventory scanner scans all directories on the inventoried workstations. If you have configured a rule that ignores all directories during a scan by using the **Ignore Directories** filter, but now want to include a specific directory in a scan, you can identify the specific directory using the **Scan Directories** filter. The settings of the Scan Directories filter overrides the settings of the Ignore Directories and Ignore Drives filters.

For example, if you want the Inventory scanner to ignore all files and directories in C: except for the c:\program files directory on Windows inventoried workstations, configure the following filters as shown below:

- ◆ **Ignore Drives:** Configure the following settings:
Pattern Type = System expandable expression
Platform = Windows
Drive = C
- ◆ **Scan Directories:** Configure the following settings:
Pattern Type = System expandable expression
Platform = Windows
Drive = c:\program files

3 Click OK.

Ignore Drives

The “Ignore Drives” filter allows you to specify the drives that should not be scanned for on the inventoried workstations.

By default, the Inventory scanner scans all drives.

To configure this filter:

- 1** In the Ignore Drives table, click Insert to add a new row.
- 2** In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.
- 3** (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried workstations.

IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column automatically changes to “Any.” You cannot change the value.

- 4** Specify a drive name.

For example, if you want the Inventory scanner not to scan the files in C drive on all the Windows inventoried workstations, configure the following settings in the Ignore Drives table:

Pattern Type = System expandable expression
Platform = Windows
Drive = C

The Inventory scanner does not scan the files in the C drive.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Ignore Drives table, select the entry and click Delete. You can delete only the non-inherited entries.

Scan Drives

The “Scan Drives” filter allows you to specify the drives that should be scanned for at the inventoried workstations.

To configure this filter:

- 1** In the Scan Drives table, click Insert to add a new row.
- 2** In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.
- 3** (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried workstations.
IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column automatically changes to “Any.” You cannot change the value.
- 4** Specify a drive name.

For example, if you want the Inventory scanner to scan for files in the C drive on all the Windows inventoried workstations, configure the following settings in the Scan Drives table:

Pattern Type = System expandable expression

Platform = Windows

Drive = C

You must also configure the following settings in the Ignore Drives table:

Pattern Type = System expandable expression

Platform = Windows

Drive = *

The Inventory scanner scans only the files in the C drive for the software information.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Scan Drives table, select the entry and click Delete. You can delete only the non-inherited entries.

IMPORTANT: By default, the Inventory scanner scans all drives on the inventoried workstations. If you have configured all drives to be ignored during a scan by using the Ignore Drives filter, but now want to include a specific drive in a scan, you can identify the specific drive using the Scan Drives filter. The settings of the Scan Drives filter override the settings of the Ignore Drives filter.

Ignore Directories

The “Ignore Directories” filter allows you to specify the directories that should not be scanned for at the inventoried workstations.

By default, the Inventory scanner scans all directories.

To configure this filter:

- 1** In the Ignore Directories table, click Insert to add a new row.
- 2** In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.
- 3** (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried workstations.
IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column automatically changes to “Any.” You cannot change the value.
- 4** Specify a directory name.

For example, if you do not want the Inventory scanner to scan the files in the c:\program files directory on all the Windows inventoried workstations, configure the following settings in the Ignore Directories table:

Pattern Type = System expandable expression
Platform = Windows
Directory= C:\Program Files

The Inventory scanner does not scan for the files in c:\program files.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Ignore Directories table, select the entry and click Delete. You can delete only the non-inherited entries.

Scan Directories

The “Scan Directories” filter allows you to specify the directories that should be scanned for at the inventoried workstations.

To configure this filter:

- 1** In the Scan Directories table, click Insert to add a new row.
- 2** In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.
- 3** (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried workstations.
IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column automatically changes to “Any.” You cannot change the value.
- 4** Specify a directory name.

For example, if you want the Inventory scanner to scan for files in the c:\program files directory on all the Windows inventoried workstations, configure the following settings in the Scan Directories table:

Pattern Type = System expandable expression

Platform = Windows

Directory = C:\Program Files

You must also configure the following settings in the Ignore Directories table:

Pattern Type = System expandable expression

Platform = Windows

Directory = *

The Inventory scanner scans only the files in c:\program files for software information.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Scan Directories table, select the entry and click Delete. You can delete only the non-inherited entries.

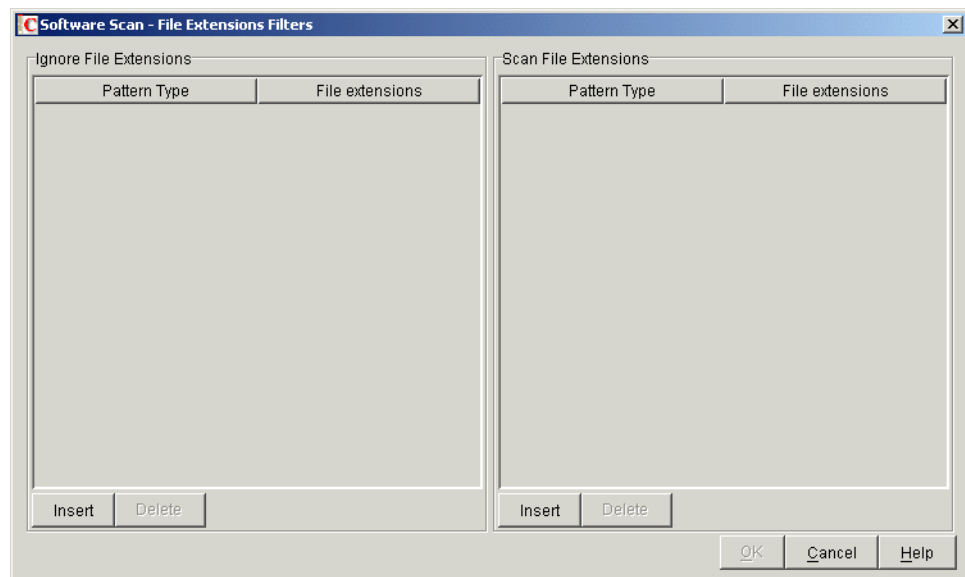
Software Scanning Filters - File Extensions

The “File Extensions” filter allows you to control scanning for software files with a specified extension.

To configure this filter:

- 1 Click Edit Table.

The Software Scan - File Extensions Filters dialog box is displayed.



- 2 Configure the following filters:

- ◆ “Ignore File Extensions” on page 1005
- ◆ “Scan File Extensions” on page 1005

- 3 Click OK.

Ignore File Extensions

The “Ignore File Extensions” filter allows you to specify the file extensions that should not be scanned for at the inventoried workstations.

To configure this filter:

- 1 In the Ignore File Extensions table, click Insert to add a new row.
- 2 In the Pattern Type drop-down list, select Expandable expression or Regular expression.
- 3 Specify a file extension.

For example, if you do not want the Inventory scanner to scan for files whose extension begins with “.ex”, configure the following settings in the Ignore File Extensions table:

Pattern Type = Expandable expression

File Extension = ex*

The Inventory scanner does not scan for the files whose extension begin with “.ex.” For example, .ex1, .ex2, .exe, and exec.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Ignore File Extensions table, select the entry and click Delete. You can delete only the non-inherited entries.

Scan File Extensions

The “Scan File Extensions” filter allows you to specify the file extensions that should be scanned for at the inventoried workstations.

If you have excluded file extensions from scanning by using the Ignore File Extensions filter, but now want to include a specific file extension in the scan, you can identify the specific file extension using the Scan File Extensions filter. The settings of the Scan File Extensions filter override the settings of the Ignore File Extensions filter.

To configure this filter:

- 1 In the Scan File Extensions table, click Insert to add a new row.
- 2 In the Pattern Type drop-down list, select Expandable expression or Regular expression.
- 3 Specify a file extension.

For example, if you want the Inventory scanner to scan for all files with a “.exe” extension, configure the following settings in the Scan File Extension table:

Pattern Type = Regular expression

File Extension = [exe|EXE]

The Inventory scanner scans and stores only the files with extension “.exe” in the Inventory database.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Scan File Extensions table, select the entry and click Delete. You can delete only the non-inherited entries.

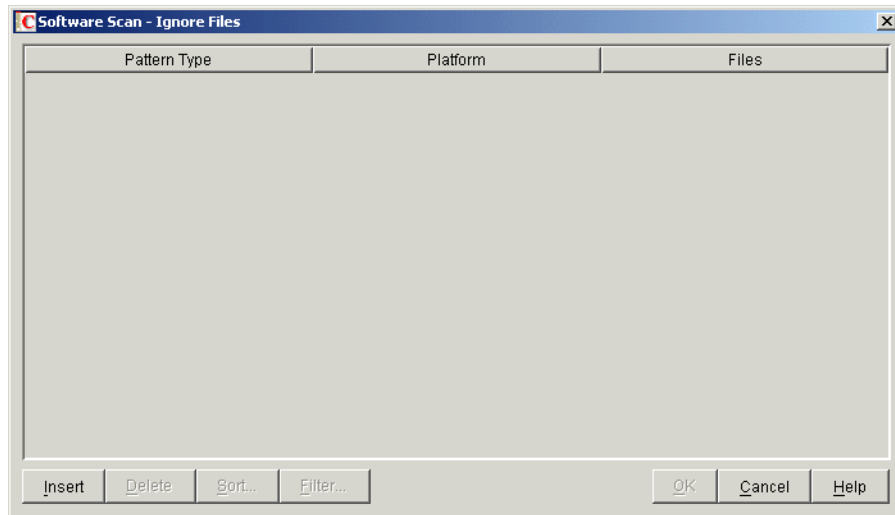
Software Scanning Filters - Files

The “Files” filter allows you to control scanning for specified files.

To configure this filter:

- 1 Click Edit Table.

The Software Scan - Ignore Files table is displayed.



- 2 Click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.
- 4 (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried workstations.

IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column is automatically changed to “Any.” You cannot change the value.

- 5 Specify a filename.
- 6 Click OK.

For example, if you want the Inventory scanner to scan notepad.exe on all the Windows inventoried workstations, configure the following settings:

Platform = Windows

Pattern Type = System expandable expression

Files=notepad.exe

This table also displays files that are added from the Manage Unidentified Software table.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

You can also perform the following operations in the Software Scan - File Filters table:

- ◆ Deleting only the non-inherited entries.
- ◆ [Sorting Entries in the Table.](#)
- ◆ [Filtering Entries in the Table.](#)
- ◆ [Refreshing Entries in the Table.](#)

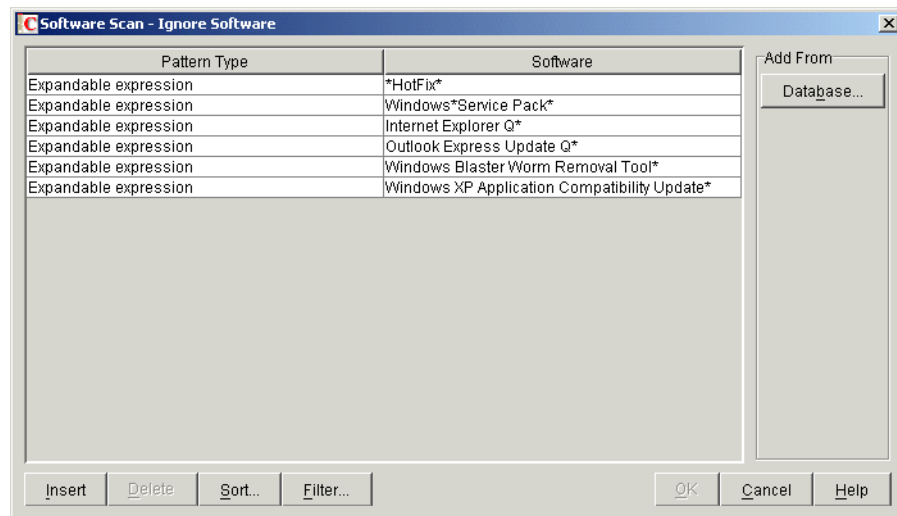
Software Scanning Filters - Software

The “Software” filter allows you to configure software to be excluded during the Inventory scan.

To configure this filter:

- 1 Click Edit Table.

The Software Scan - Ignore Software table is displayed.



- 2 You can add entries to the Ignore Software table either manually or automatically.

Manually Adding Entries to the Table

1. Click Insert to add a new row.
2. In the Pattern Type drop-down list, select Expandable expression or Regular expression.
3. Specify a software name.
4. Click OK.

For example, if you do not want the Inventory scanner to scan for the Adobe products, configure the following settings:

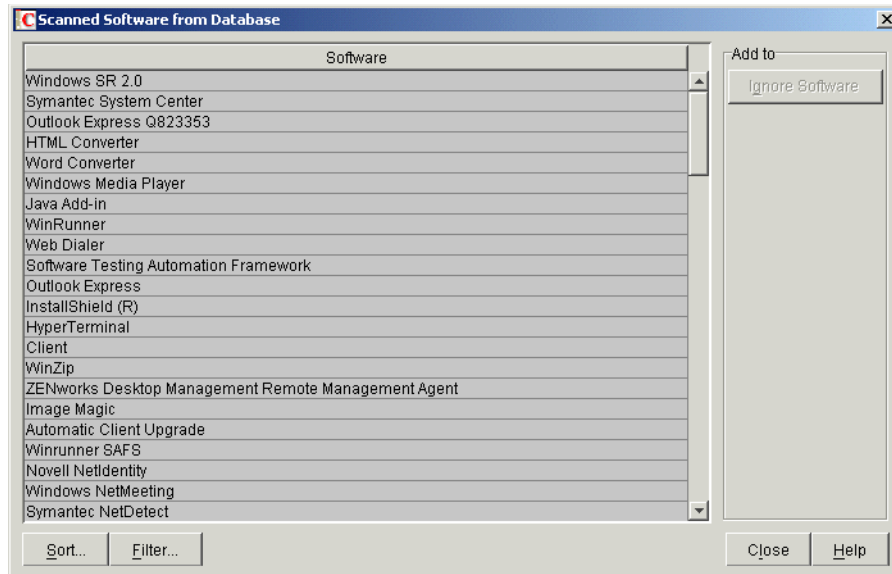
Pattern Type= Expandable expression

Software = Adobe*

The Inventory scanner does not report the software that has names beginning with “Adobe.”

Automatically Adding Entries to the Table

1. Click Database located in the Add From pane.
The Scanned Software from Database dialog box is displayed.



2. Select the software that you want to add to the Ignore Software table.
3. Click the Ignore Software button located in the Add to pane.
4. Click Close.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

You can also perform the following operations in the Software Scan - Ignore Software table:

- ◆ Deleting only the non-inherited entries.
- ◆ **Sorting Entries in the Table.**
- ◆ **Filtering Entries in the Table.**
- ◆ **Refreshing Entries in the Table.**

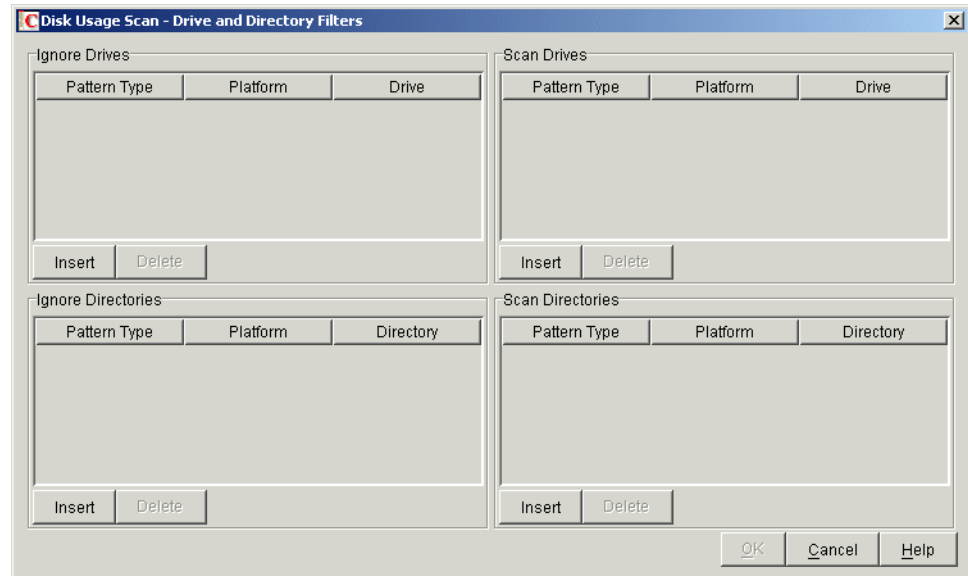
Disk Usage Scanning Filters - Drives and Directories

The “Drives and Directories” filter the allows you to configure drives and directories to be included or excluded during the Inventory disk usage scanning.

To configure this filter:

- 1 Click Edit Table.

The Disk Usage Scan - Drive and Directory Filters dialog box is displayed.



- 2 Configure the following filters:

- ◆ “Ignore Drives” on page 1010
- ◆ “Scan Drives” on page 1010
- ◆ “Ignore Directories” on page 1011
- ◆ “Scan Directories” on page 1012

By default, the Inventory scanner scans the disk usage of all directories on the inventoried workstations. If you have configured all directories to be ignored during a disk usage scan using the Ignore Directories filter, but now want to include a specific directory in scan, identify the specific directory in the Scan Directories filter. The settings of the Scan Directories filter override the settings of the Ignore Directories and Ignore Drives filters.

For example, if you want the Inventory scanner to ignore the disk usage of all files and directories in C: except for the c:\program files directory on Windows inventoried workstations, configure the following filters as shown below:

- ◆ **Ignore Drives:** Configure the following settings:
 - Pattern Type = System expandable expression
 - Platform = Windows
 - Drive = C

- ◆ **Scan Directories:** Configure the following settings:

Pattern Type = System expandable expression

Platform= Windows

Drive=c:\program files

- 3 Click OK.

Ignore Drives

The “Ignore Drives” filter allows you to specify the drives that should not be scanned for disk usage at the inventoried workstations.

By default, the Inventory scanner scans all drives.

To configure the “Ignore Drives” filter:

- 1 In the Ignore Drives table, click Insert to add a new row.
- 2 In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.
- 3 (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried workstations.

IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column automatically changes to “Any.” You cannot change the value.

- 4 Specify a drive name.

For example, if you want the Inventory scanner not to scan for the disk usage of C drive on all the Windows* inventoried workstations, configure the following settings in the Ignore Drives table:

Pattern Type = System expandable expression

Platform = Windows

Drive = C

The Inventory scanner does not scan the disk usage of files on the C drive.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Ignore Drives table, select the entry and click Delete. You can delete only the non-inherited entries.

Scan Drives

The “Scan Drives” filter allows you to specify the drives whose disk usage should be scanned for at the inventoried workstations.

To configure the “Scan Drives” filter:

- 1 In the Scan Drives table, click Insert to add a new row.
- 2 In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.

- 3** (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried workstations.

IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column automatically changes to “Any.” You cannot change the value.

- 4** Specify a drive name.

For example, if you want the Inventory scanner to scan for the disk usage of C drive on all the Windows inventoried workstations, configure the following settings in the Scan Drives table:

Pattern Type = System expandable expression

Platform = Windows

Drive = C

You must also configure the following settings in the Ignore Drives table:

Pattern Type = System expandable expression

Platform = Windows

Drive = *

The Inventory scanner scans and stores the disk usage of the files in the C drive into the Inventory database.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Scan Drives table, select the entry and click Delete. You can delete only the non-inherited entries.

IMPORTANT: By default, the Inventory scanner scans the disk usage of all drives on the inventoried workstations. If you have configured all drives to be ignored during a disk usage scan using the Ignore Drives filter, but now want to include a specific drive in the scan, identify the specific drive in the Scan Drives filter. The settings of the Scan Drives filter override the settings of the Ignore Drives filter.

Ignore Directories

The “Ignore Directories” filter allows you to specify the directories whose disk usage should not be scanned for at the inventoried workstations.

By default, the Inventory scanner scans all directories.

To configure the “Ignore Directories” filter:

- 1** In the Ignore Directories table, click Insert to add a new row.
- 2** In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.
- 3** (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried workstations.

IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column automatically changes to “Any.” You cannot change the value.

- 4** Specify a directory name.

For example, if you want the Inventory scanner not to scan for the disk usage of the c:\program files directory on all the Windows inventoried workstations, configure the following settings in the Ignore Directories table:

Pattern Type = System expandable expression

Platform = Windows

Directory= c:\program files

The Inventory scanner does not scan for the disk usage of c:\program files.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Ignore Directories table, select the entry and click Delete. You can delete only the non-inherited entries.

Scan Directories

The “Scan Directories” filter allows you to specify the directories whose disk usage should be scanned for at the inventoried workstations.

To configure the “Scan Directories” filter:

- 1** In the Scan Directories table, click Insert to add a new row.
- 2** In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.
- 3** (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried workstations.

IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column automatically changes to “Any.” You cannot change the value.

- 4** Specify a directory name.

For example, if you want the Inventory scanner to scan for disk usage of the c:\program files directory on all the Windows inventoried workstations, configure the following settings in the Scan Directories table:

Pattern Type = System expandable expression

Platform = Windows

Directory = c:\program files

You must also configure the following settings in the Ignore Directories table:

Pattern Type = System expandable expression

Platform = Windows

Directory = *

The Inventory scanner scans and stores only disk usage of files in c:\program files into the Inventory database.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

To delete an entry from the Scan Directories table, select the entry and click Delete. You can delete only the non-inherited entries.

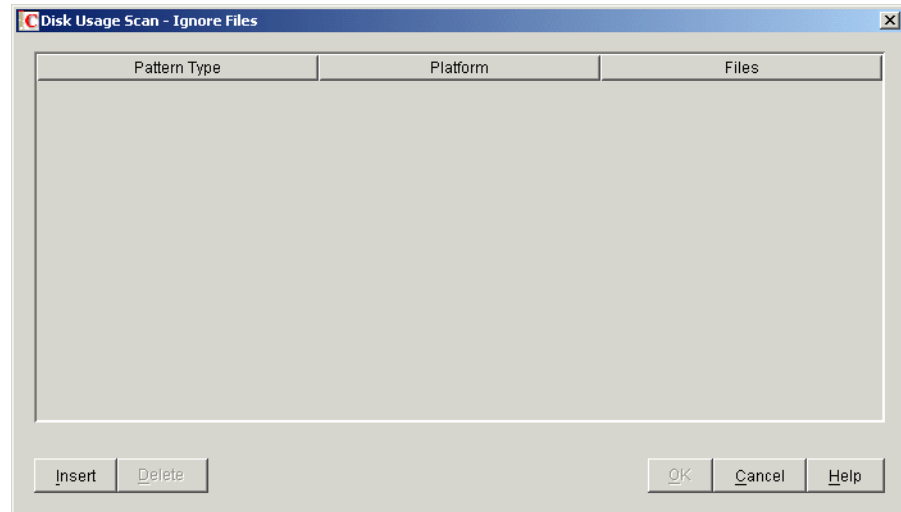
Disk Usage Scanning Filters - Files

The “Files” filter allows you to configure files to be excluded during the Inventory disk usage scanning.

To configure this filter:

- 1 Click Edit Table

The Disk Usage Scan - Ignore Files dialog box is displayed.



- 2 Click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select System expandable expression, Expandable expression, or Regular expression.
- 4 (Conditional) If you select System expandable expression as the pattern type, then select NetWare or Windows in the Platform drop-down list, depending on the operating system of the inventoried serves.

IMPORTANT: If you select Expandable expression or Regular expression as the pattern type, the corresponding value in the Platform column automatically changes to “Any.” You cannot change the value.

- 5 Specify a file.
- 6 Click OK.

For example, if you want the Inventory scanner to scan for disk usage of all files with extension “.exe” except msoffice.exe, configure the following rules as shown below:

- ♦ **Disk Usage Scan - Ignore Files:** Configure the following settings:
Pattern Type = Expandable expression
Files = msoffice.exe

- ◆ **Report Disk Space used by file extensions:** Configure the following settings:

Pattern Type = Expandable expression

Files = exe

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

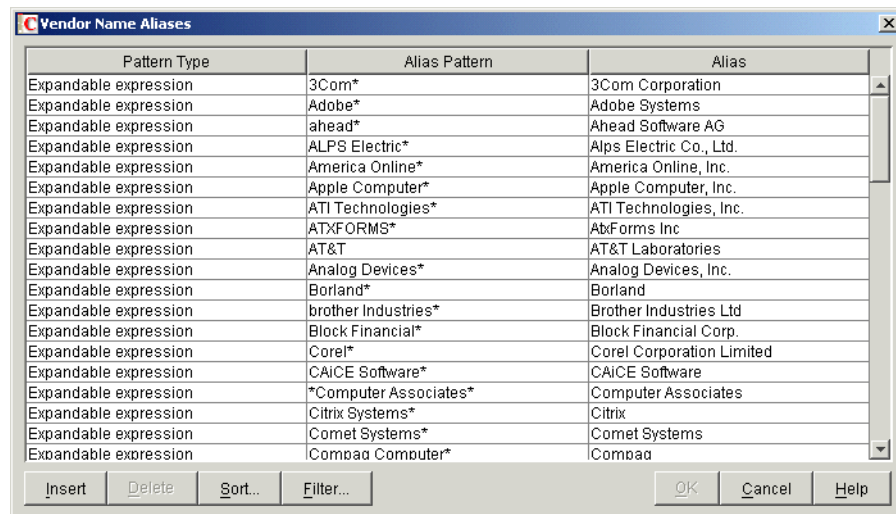
To delete an entry from the table, select the entry and click Delete. You can delete only the non-inherited entries.

Vendor Name Aliases

The “Vendor Name Aliases” rule allows you to configure aliases for vendor names.

- 1 Click Edit Table.

The Vendor Name Aliases table is displayed.



Pattern Type	Alias Pattern	Alias
Expandable expression	3Com*	3Com Corporation
Expandable expression	Adobe*	Adobe Systems
Expandable expression	ahead*	Ahead Software AG
Expandable expression	ALPS Electric*	Alps Electric Co., Ltd.
Expandable expression	America Online*	America Online, Inc.
Expandable expression	Apple Computer*	Apple Computer, Inc.
Expandable expression	ATI Technologies*	ATI Technologies, Inc.
Expandable expression	ATXFORMS*	AbForms Inc
Expandable expression	AT&T	AT&T Laboratories
Expandable expression	Analog Devices*	Analog Devices, Inc.
Expandable expression	Borland*	Borland
Expandable expression	brother Industries*	Brother Industries Ltd
Expandable expression	Block Financial*	Block Financial Corp.
Expandable expression	Corel*	Corel Corporation Limited
Expandable expression	CAICE Software*	CAICE Software
Expandable expression	*Computer Associates*	Computer Associates
Expandable expression	Citrix Systems*	Citrix
Expandable expression	Comet Systems*	Comet Systems
Expandable expression	Compaq Computer*	Compaq

- 2 Click Insert to add a new row.
- 3 In the Pattern Type drop-down list, select Expandable expression or Regular expression.
- 4 Specify an alias pattern.
- 5 Specify an alias.
- 6 Click OK.

For example, if you want the Inventory scanner to report all instances of the vendor name beginning with “Microsoft” as “Microsoft Corporation” in the Inventory database, configure the following settings:

Pattern Type = Expandable expression

Alias Pattern = Microsoft*

Alias = Microsoft Corporation

If the Inventory scanner reports Microsoft, Microsoft Inc., or Microsoft Inc. Corporation vendor names during the scan, then the name of the vendor beginning with “Microsoft” is stored as “Microsoft Corporation” in the Inventory database.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

You can also perform the following operations in the Vendor Name Aliases table:

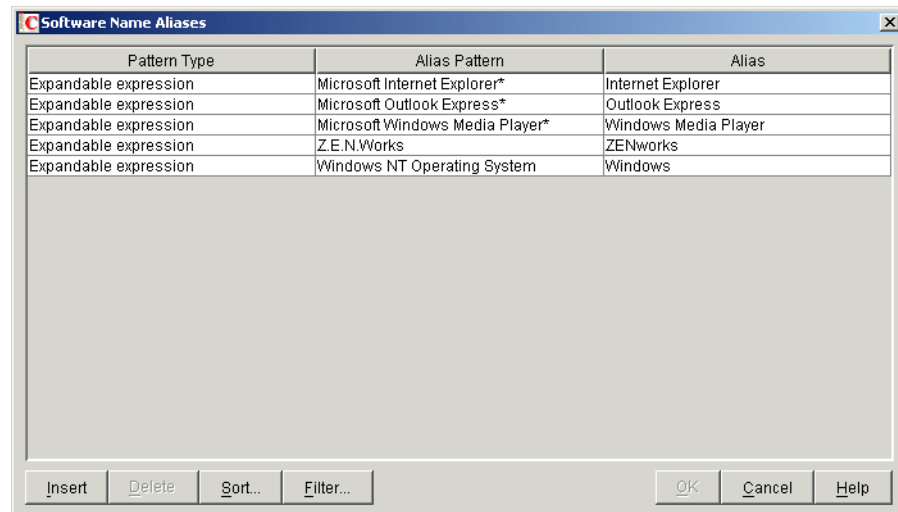
- ◆ Deleting only the non-inherited entries.
- ◆ **Sorting Entries in the Table.**
- ◆ **Filtering Entries in the Table.**
- ◆ **Refreshing Entries in the Table**

Software Name Aliases

The “Software Name Aliases” rule allows you to configure aliases for software names.

- 1** Click Edit Table.

The Software Name Aliases table is displayed.



Pattern Type	Alias Pattern	Alias
Expandable expression	Microsoft Internet Explorer*	Internet Explorer
Expandable expression	Microsoft Outlook Express*	Outlook Express
Expandable expression	Microsoft Windows Media Player*	Windows Media Player
Expandable expression	Z.E.N.Works	ZENworks
Expandable expression	Windows NT Operating System	Windows

- 2** Click Insert to add a new row.
- 3** In the Pattern Type drop-down list, select Expandable expression or Regular expression.
- 4** Specify an alias pattern.
- 5** Specify an alias.
- 6** Click OK.

For example, if you want the Inventory scanner to report all instances of the product name “WinZip” as “WinZip Application” in the Inventory database, configure the following settings:

Pattern Type = Expandable expression

Alias Pattern = WinZip

Alias = WinZip Application

If the Inventory scanner scans the WinZip, WinZip Executables, or WinZip Applications product names, then the name of the software that exactly matches “WinZip” is stored as “WinZip Application” in the Inventory database. The remaining software names are reported as scanned.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

You can also perform the following operations in the Software Name Aliases table:

- ◆ Deleting only the non-inherited entries.
- ◆ **Sorting Entries in the Table.**
- ◆ **Filtering Entries in the Table.**
- ◆ **Refreshing Entries in the Table.**

Reconcile Software

The “Reconcile Software” rule allows you to associate the software identified through Add/Remove Programs or the MSI, with an appropriate software and vendor identified and configured through the ZENworks software dictionary. The association might be necessary because the software entries in Add/Remove Programs or the MSI might not use the same software name and vendor as configured in the ZENworks software dictionary.

To configure the rule:

- 1 Click Edit Table.

The Reconcile Software table is displayed.

Add-Remove Program (ARP) key	Displayed ARP/MSI Software name	Software name	Vendor
{624C9AE0-6CD8-4166-9D...		XML Spy	Altova
Adobe Acrobat 5.0		Acrobat Reader	Adobe Systems
Adobe Acrobat Reader 3.02		Acrobat Reader	Adobe Systems
LiveUpdate1.6		LiveUpdate	Symantec Corporation
LiveUpdate1.7		LiveUpdate	Symantec Corporation
Visual C++ 6.0 Professional...		Visual C++	Microsoft
{A4D7B764-4140-11D4-88...		Nero - Burning Rom	Ahead
TextPad 4		TextPad	Helios Software Solutions
Winamp		Winamp	America Online
Winamp3		Winamp	America Online
AR System User 5.1		Action Request System	BMC Software company
AR System User 5.1		Action Request System	BMC Software company
CM Synergy 6.2		CM Synergy	Telelogic AB
CONSOLE1		ConsoleOne	Novell
{7699B723-9718-41DE-8C...		Crystal Reports	Seagate
Java 2 SDK Standard Editio...		Java2 SDK	Sun
Java 2 SDK Standard Editio...		Java2 SDK	Sun
{35A3A4F4-B792-11D6-A78...		Java2 SDK	Sun
JRE 1.3.1_01		Java JRE	Sun

By default, the Reconcile Software table displays predefined mapping of software in the Add/Remove Programs or MSI with the software configured in the software dictionary. It also displays the Add/Remove Programs or MSI software identified during the last scan for which you can configure software and vendor names. This table has the following columns:

- ◆ The Add-Remove Program (ARP) key.
You cannot edit the values of this attribute.
- ◆ The ARP /MSI name as displayed either in Add/Remove Programs or in the MSI.
The Displayed ARP/MSI Software name shows the software identified through Add/Remove Programs or the MSI and stored in the Inventory database.
You cannot edit the values of this attribute.

- ◆ The software name associated with its corresponding Add/Remove Programs or MSI name.
- ◆ The vendor name associated with its corresponding Add/Remove Programs or MSI name.

IMPORTANT: The table might contain **inherited rules**. You can edit or delete these rules only in the software dictionary of the inventory server configured in the Dictionary Update policy. These rules are displayed in dark gray color if you are accessing the software dictionary of ZENworks 6.5 SP1 or later Inventory server.

2 To reconcile software, do the following in this table:

- ◆ Specify software and vendor names for the software identified through Add/Remove Programs or the MSI but not yet been associated.
- ◆ (Optional) Change the software and vendor names for the software that has already been configured in the software dictionary.

You can also perform the following operations in the Reconcile Software table:

- ◆ Deleting only the non-inherited entries.
- ◆ **Sorting Entries in the Table.**
- ◆ **Filtering Entries in the Table.**
- ◆ **Refreshing Entries in the Table.**

Sorting Entries in the Table

You can sort the entries in the table by one, two, or three columns.

1 Click Sort.

The Sort dialog box is displayed.

2 In the Sort by drop-down list, select the table column by which you want to sort the entries.

3 Select Ascending or Descending.

4 (Optional) To sort by either two or three columns, configure the Then by drop-down lists and select Ascending or Descending.

5 Click OK

Filtering Entries in the Table

1 Click Filter.

The Filter dialog box is displayed.

2 In the Filter dialog box, do the following to create a query:

2a Select an attribute.

2b Select an operator. The operators displayed depend on the attribute you select in Step 2a.

2c Type a value.

2d (Optional) To create an advanced query, select one of the following logical operators and define the query:

Logical Operator	Functionality
AND	Creates a new row. The filter displays items that match the conditions in each row joined by AND.
OR	Creates a new row. The filter displays items that match the conditions in either row joined by OR.
New Row	Creates a new row to form a new query.
Delete Row	Deletes the row from the filter.
End	Closes the query expression. If you select End in a row that is followed by other rows, the subsequent rows and groups are deleted.

3 Click OK.

After applying the filter, the table list displays only the resulting entries. To clear the filter:

1 Click Filter.

The Filter dialog box is displayed.

2 Click Clear, then click OK.

Refreshing Entries in the Table

Use the Refresh option if you want to reapply the sort or filter operations. To refresh entries in the table, either click Refresh or press F5.

IMPORTANT: The Refresh button is displayed only when you apply sort or filter operations to the table.

Disabling File Scan

You can disable the software scanning for all software except for the following:

- ◆ Software registered in the Add/Remove Programs dialog box
- ◆ Software installed through MSI
- ◆ Software scanned by default such as Microsoft Windows, Internet Explorer, Outlook, MediaPlayer, ZENworks, Novell client, Microsoft Office and the set of Antivirus programs

To disable the file scanning, review the following sections:

- ◆ [“Disabling File Scan in ZENworks 6.5” on page 1018](#)
- ◆ [“Disabling File Scan in ZENworks 6.5 SP1 or Later” on page 1019](#)

Disabling File Scan in ZENworks 6.5

- 1** In ConsoleOne, right-click the Inventory Service Object, click Properties.
- 2** Click the Software Inventory Configuration tab, then click the Software Dictionary sub-option.
- 3** Click the Edit Table button of the “Scan as Unidentified Software” rule.
- 4** By default, the table has an entry with the EXE file extension. Delete the entry.

- 5** Click OK.
- 6** Click Apply.
- 7** In the Software Inventory Configuration tab, click the Disk Usage Scanning sub-option.
- 8** Click the Edit Table button of the “Include Local File Extensions” rule.
- 9** By default, the table has entries with the EXE, DLL, MP3, and JPEG file extensions. Delete all entries.
- 10** Click OK.
- 11** Click Apply, then click Close.

Disabling File Scan in ZENworks 6.5 SP1 or Later

- 1** In ConsoleOne, right-click the Inventory Service Object, click Properties.
- 2** Click the Software Inventory Configuration tab.
The Software Configuration page is displayed by default.
- 3** Select the “Ignore Default File-Software Mapping Rules” check box.
- 4** Click the Edit Table button of the “Report Files with These File Extensions As Unidentified Software” rule.
- 5** By default, the table has an entry with the EXE file extension. Delete the entry.
- 6** Click OK.
- 7** Click Apply, then click Close.

Base-Lining the ZENworks 6.5 Software Dictionary Deployment

When you deploy the software dictionary for the first time, the default dictionary settings will be effective and the Inventory scanner will report the following information:

- ◆ Unidentified software
- ◆ Multiple instances of software installed on the same inventoried workstation
- ◆ Redundant drives and directories that do not contain software

This scan results in storing huge amount of irrelevant information in the Inventory database. It also degrades the performance of Storer and all ConsoleOne Inventory utilities such as Query, Reporting, etc.

To avoid these problems, we recommend you to fine tune the software dictionary according to your requirements before deploying it in your enterprise. Do the following to fine tune the software dictionary:

- 1** Deploy a small representative set of inventoried workstations in the test lab.
NOTE: This representative set should typically represent all sections or departments of your enterprise that you want to collect inventory for.
- 2** Attach these inventoried workstations to a Standalone Inventory Server, which is also deployed in the test lab.
- 3** In addition to defaults that are listed in the table of the “[Scan as Unidentified Software](#)” on [page 978](#) rule, you may want to scan for additional file extensions and report them as identified software. These could be extensions of application files like DLLs, etc.

- 4 Schedule the scan and wait till the inventory information is stored into the Inventory database.
- 5 Re-configure the software dictionary based on the inventory information that is available in the database to resolve the above discussed problems:

- ◆ **UnIdentified Software:** Based on the Scan as Unidentified Software settings, all the information related to the unidentified software can be viewed in the **“Add Unidentified Software to Dictionary” on page 978** table.

The result will contain the following:

- ◆ Applications that are not yet identified by the software dictionary.
- ◆ Application files that are part of already identified by the software dictionary.
- ◆ Application files that might be redundant. For example, Operating System files, DOS files, etc.

You must first add these files to the software dictionary using the “Software Dictionary” button (located in the **“Add Unidentified Software to Dictionary” on page 978** table). And then remove these settings from the **“Scan as Unidentified Software” on page 978** rule.

NOTE: If you want to add these files to be reported as Unidentified later, you must again add these files to the **“Scan as Unidentified Software” on page 978** rule.

The effectiveness of this exercise is based on the following assumptions:

- ◆ The representative set should not be different from the sections or departments of your enterprise; otherwise it would amount for large number of un-identified software being scanned and reported.
- ◆ The inventoried workstations in the enterprise are largely controlled by the enterprise administrator, who installs and copies the non-standard applications.
- ◆ **Multiple instances of Software on the same inventoried workstation:** For an inventoried workstation, the same software can be reported twice if one entry is reported from the Add Remove Program scanning or the MSI scanning, and the other is reported based on the software dictionary configuration. The **“Edit Add-Remove Software” on page 988** rule contains default configurations to merge these two entries but this may not be complete. In order to resolve this problem, you must manually configure the Edit Add-Remove Software rule.
- ◆ **Redundant drives and directories that do not contain software:** Configure the rules in Software Scanning page and the Disk Usage Scanning pages of the software dictionary to eliminate these drives and directories from scan. For more information about the software dictionary rules, see **“Configuring the ZENworks 6.5 SP1 or Later Software Dictionary Rules” on page 988**.

- 6 Re-scan all the inventoried workstations.
- 7 After the inventory information is stored in the Inventory database, you could notice that all the entries that you marked for dictionary during the earlier scan would be scanned and reported as a software.
- 8 Repeat Step 3 through Step 7 till you fine tune the dictionary according to your requirements.

Base-Lining the ZENworks 6.5 SP1 or Later Software Dictionary Deployment

When you deploy the software dictionary for the first time, the default dictionary settings will be effective and the Inventory scanner will report the following information:

- ◆ Unidentified software
- ◆ Multiple instances of software installed on the same inventoried workstation
- ◆ Redundant drives and directories that do not contain software

This scan results in storing huge amount of irrelevant information in the Inventory database. It also degrades the performance of Storer and all ConsoleOne Inventory utilities such as Query, Reporting, etc.

To avoid these problems, we recommend you to fine tune the software dictionary according to your requirements before deploying it in your enterprise. Do the following to fine tune the software dictionary:

- 1** Deploy a small representative set of inventoried workstations in the test lab.
NOTE: This representative set should typically represent all sections or departments of your enterprise that you want to collect inventory for.
- 2** Attach these inventoried workstations to a Standalone Inventory Server, which is also deployed in the test lab.
- 3** In addition to defaults that are listed in the table of the **Report Files with These File Extensions As Unidentified Software** rule, you may want to scan for additional file extensions and report them as identified software. These could be extensions of application files like DLLs, etc.
- 4** Schedule the scan and wait till the inventory information is stored into the Inventory database.
- 5** Re-configure the software dictionary based on the inventory information that is available in the database to resolve the above discussed problems:
 - ◆ **UnIdentified Software:** Based on the **Report Files with These File Extensions As Unidentified Software** settings, all the information related to the unidentified software can be viewed in the **Manage Unidentified Software** table.

The result will contain the following:

- ◆ Applications that are not yet identified by the software dictionary.
- ◆ Application files that are part of already identified by the software dictionary.
- ◆ Application files that might be redundant. For example, Operating System files, DOS files, etc.

Perform the following tasks in the Manage Unidentified Software table:

- ◆ Add the applications that are not yet identified by the software dictionary to the **Software Dictionary** table using the Software Dictionary button located in the Add To pane.
- ◆ Add the application files that are part of already identified by the software dictionary and application files that might be redundant to the **Software Scanning Filters - Files** table using the Ignore Files button located in the Add To pane.

The effectiveness of this exercise is based on the following assumptions:

- ◆ The representative set should not be different from the sections or departments of your enterprise; otherwise it would amount for large number of un-identified software being scanned and reported.

- ♦ The inventoried workstations in the enterprise are largely controlled by the enterprise administrator, who installs and copies the non-standard applications.
 - ♦ **Multiple instances of Software on the same inventoried workstation:** For an inventoried workstation, the same software can be reported twice if one entry is reported from the Add Remove Program scanning or the MSI scanning, and the other is reported based on the software dictionary configuration. The **“Reconcile Software” on page 1016** rule contains default configurations to merge these two entries but this may not be complete. In order to resolve this problem, you must manually configure the Edit Add-Remove Software rule.
 - ♦ **Redundant drives and directories that do not contain software:** Configure the rules in Software Scanning page and the Disk Usage Scanning pages of the software dictionary to eliminate these drives and directories from scan. For more information about the software dictionary rules, see **Step 3 on page 989**.
- 6** Re-scan all the inventoried workstations.
 - 7** After the inventory information is stored in the Inventory database, you could notice that all the entries that you marked for dictionary during the earlier scan would be scanned and reported as a software.
 - 8** Repeat Step 3 through Step 7 till you fine tune the dictionary according to your requirements.

Viewing Software Information in the Inventory Summary

To view the software inventory information of an inventoried workstation in the Inventory Summary:

- 1** Configure the Inventory database. For more information on how to configure the Inventory database, see **“Configuring the Inventory Database” on page 1036**.
- 2** Right-click an inventoried workstation object, click Actions, then click Inventory.
- 3** In the Summary dialog box, click Inventory Information > Hardware/Software Inventory > Software > Application Vendors to view the software inventory information.

On choosing Application Vendor, a list of Software Group and Software of the vendor are displayed. Software Group can contain software patch and representative file information of the group. Software can contain software patch and representative file information of the product.

For more information, see **“Viewing the Inventory Summary of an Inventoried Workstation” on page 1036**.

Generating Software Inventory Reports

You can now generate the following Software Inventory reports:

- ♦ Add-Remove Programs by Machine
- ♦ Anti-Virus Signature Files by Machine
- ♦ Anti-Virus Signature Machine Count
- ♦ Disk Usage by Machine
- ♦ Exception List by Machine
- ♦ Installed NetWare Software by Machine

- ◆ Internet Explorer Installation Count
- ◆ Internet Explorer Patches by Machine
- ◆ Internet Explorer by Machine
- ◆ MSI Products by Machine
- ◆ Microsoft Office Components by Machine
- ◆ Microsoft Office Installation Count
- ◆ Microsoft Office by Machine
- ◆ Novell Client Components by Machine
- ◆ Novell Installation Count
- ◆ Novell Client by Machine
- ◆ Novell ZENworks Desktop Management Installed Agent Components by Machine
- ◆ Novell ZENworks Desktop Management Installed Server Components by Machine
- ◆ Novell ZENworks Handheld Management Installed Components by Machine
- ◆ Novell ZENworks Installed Components by Machine
- ◆ Novell ZENworks Installed Suites by Machine
- ◆ Novell ZENworks Server Management Installed Agent Components by Machine
- ◆ Novell ZENworks Server Management Installed Server Components by Machine
- ◆ Outlook Express Installation Count
- ◆ Outlook Express by Machine
- ◆ Software Dictionary Application Files by Machine
- ◆ Software Dictionary Applications by Machine
- ◆ Software Dictionary Versions Machine Count
- ◆ Software Dictionary Versions by Machine
- ◆ Software Installation Count
- ◆ Software Installations
- ◆ Software by Machine
- ◆ System Software Inventory Report
- ◆ Windows Components by Machine
- ◆ Windows Installation Count
- ◆ Windows Media Player Count
- ◆ Windows Media Player Patches by Machine
- ◆ Windows Media Player by Machine
- ◆ Windows Operating System by Machine
- ◆ Windows Security Patches by Machine

For more information about each report, see [“Types of Inventory Reports” on page 1053](#).

Customizing the Software Inventory Information To Be Scanned For ZENworks for Desktops 4.X and Earlier Versions of Inventoried Workstations

Refer to the [ZENworks for Desktops 4.0.1 Documentation Web site \(http://www.novell.com/documentation/zdpr/index.html\)](http://www.novell.com/documentation/zdpr/index.html) to know how to customize the software inventory information for the ZENworks for Desktops 4.x inventoried workstations.

Scanning for Workstations That Are Periodically Connected to the Network

ZENworks 6.5 Desktop Management Inventory Scanner scans hardware and software information for all workstations that are registered to eDirectory but are temporarily disconnected from your network.

This helps the administrator to gather the inventory for the users who connect to the network less frequently but want their machines to be inventoried.

If the Inventory Scanner is scheduled to collect the inventory for an inventoried workstation that is registered to eDirectory but not connected to the network, the Inventory Scanner will wait until the workstation is reconnected to the network.

The Scheduler caches the Workstation Inventory policy from eDirectory and the cache information will be available till the machine is up and running. The Scheduler launches the Scanner. The Scanner checks whether the inventoried workstation is connected to the network.

If the inventoried workstation is connected, the Inventory Scanner will collect the inventory of the workstation and will update the information to the Inventory database. If the inventoried workstation is not connected, the Scanner reports an error to the Scheduler and the Scheduler launches the Inventory Scanner after every 15 minutes until it is successful.

For more information on how to deploy this in your enterprise, see [“Scenario 3: Deploying Inventory Agent to Workstations that Are Periodically Connected to the Network” on page 841.](#)

Scanning for Workstations That Are Never Connected to Your Network

ZENworks 6.5 Desktop Management Inventory Scanner helps you to collect the hardware and software information for workstations that are not connected to your network even at least once.

To collect the inventory for workstations that are never connected to your network, review the following sections:

- ◆ [“Prerequisites” on page 1025](#)
- ◆ [“Collecting Inventory for Workstations That Are Not Connected to the Network” on page 1025](#)
- ◆ [“Limitations” on page 1027](#)

Prerequisites

To collect the inventory for the workstations that are never connected to your network, make sure that the following prerequisites have been met:

- The ZENworks 6.5 Desktop Management Inventory Agent must be installed on the workstation
- The workstation should have at least one valid network adapter such as Ethernet, Token Ring, or FDDI installed.

Collecting Inventory for Workstations That Are Not Connected to the Network

To collect the inventory for the workstations that are never connected to your network:

- 1** Manually create an eDirectory workstation object for the workstation that you want to scan for.

Enter the following commands at the console prompt of an existing inventoried workstation that is connected to the network, and has ZENworks 6.5 Inventory agent and the recommended version of Novell Client installed:

```
zwsreg.exe -unreg
```

```
zwsreg.exe -IMPORTWS workstation_name -IMPORTSERVER NONE
```

```
zwsreg.exe -unreg
```

For more information on how to run `zwsreg.exe`, see [“Zwsreg.exe Usage” on page 87](#).

- 2** Manually create the `zfdscanner.ini` file with the following contents on the workstation:

```
[ZfDScanner]

WorkstationTypedDN=complete_typed_workstation_DN

TreeName=eDirectory_tree_name

ServerName=Inventory_server_DNS_name

WMIScan=TRUE or FALSE

DMIScan=TRUE or FALSE

ScheduleFullScan=a_value_between_5_and_100

CustomHWScan=TRUE or FALSE

CustomHWScanBinaryName=name_of_binary_exe

SoftwareScan=TRUE
```

You must enter the values for the following parameters: `WorkstationTypedDN`, `TreeName`, and `ServerName`. For the remaining parameters, if you do not specify the values or if you specify invalid values, the Inventory scanner sets the following default values:

```
WMIScan = TRUE

DMIScan=TRUE

ScheduleFullScan=5

CustomHWScan=FALSE

CustomHWScanBinaryName=
```

- 3** Using ZENworks 6.5 Desktop Management ConsoleOne, create the following .ini files: asset.ini, zipnames.ini, ibmnames.ini, and hwrules.ini.
- 3a** In ConsoleOne, right-click the Workstation package, click Properties, click Policies, then select any of the sub-options: Win95-98, WinNT-2000-XP, WinNT, Win2000, or WinXP.
- 3b** Select the Workstation Inventory Policy, then click Properties.
- 3c** Click Configuration Editor tab and do the following:
- ◆ Click the Asset Information sub-option.
Configure Asset Information and click the Export button to save the file as asset.ini in a local directory
 - ◆ Click the Zipped Names sub-option.
To configure Zipped Names with the default values, click the Default button. Click the Export button to save the file as zipnames.ini in a local directory.
 - ◆ Click the IBM Names suboption.
To configure the IBM Names with the default values, click the Default button. Click the Export button to save the file as ibmnames.ini in a local directory.
 - ◆ Click the HW Rules sub-option.
To configure HW Rules with default values, click the Default button. Click Export to save the file as hwrules.ini in a local directory.
- 3d** (Optional) If you want custom hardware scan functionality, create customhwatrrlist.ini
- ◆ In the Workstation Inventory Policy property page, click Hardware Scan tab.
The Enable Custom Scanning check box will be selected by default.
 - ◆ Click Custom Attribute Editor, then click Export.
 - ◆ Save the file as customhwatrrlist.ini in a local directory.
- 4** Copy the INI files created in **Step 3 on page 1026** to the %SystemRoot%\zenworks directory on the workstation that you want to scan for.
- 5** Copy generaldictionary.xml and privatedictionary.xml from *zenworks_installation_drive_or_volume\zenworks\inv\server\dictdir* on the Inventory server to the %SystemRoot%\zenworks directory on the workstation that you want to scan for.
- 6** Run the ZENworks 6.5 Desktop Management Inventory scanner on the workstation that you want to inventory. At the console prompt, enter the following command from the ZENworks Inventory installation directory:
- ```
zfdinvscanner.exe -d zfdscanner.ini_file_path
```
- TIP:** If zfdscanner.ini is present in the same location from where the ZENworks 6.5 Desktop Management Scanner is running, you need not specify the zfdscanner.ini\_file\_path to run the Inventory scanner.
- The Inventory scanner generates the .str file and saves it in the %SystemRoot%\zenworks directory.
- 7** Copy the .str file to the *Inventory\_server\_installation\_path\zenworks\scandir* directory.

## Limitations

You should be aware of the following limitations with collecting inventory for workstations that are never connected your network.

- ◆ The minimal information will not be reported in eDirectory for disconnected workstations.
- ◆ If the .str file of the workstation is deleted by the Storer or the Selector, you must manually trigger a full scan on the workstation and copy the .str file to *inventory\_server\_installation\_path\zenworks\scandir*.

To trigger a full scan, delete *%SystemRoot%\zenworks\hist.ini* on the workstation and run the ZENworks 6.5 Desktop Management scanner from the command line.

## Removing the Redundant Inventoried Workstations from the Inventory Database

You can remove the unwanted, redundant, or obsolete inventoried workstations from the Inventory database using the Inventory Removal service.

The Inventory Removal service is a manual service that runs on the Inventory server. The service removes the inventoried workstations from the Inventory database using the *inventoryremovallist.txt* file. The *inventoryremovallist.txt* contains a list of inventoried workstations that must be removed from the Inventory database.

**IMPORTANT:** You must ensure that the Inventory Service Manager is loaded when you run the Inventory Removal Service.

**IMPORTANT:** You can run the Inventory Removal service on the Intermediate Server only if the Intermediate Server has either inventoried workstations or database attached to it.

To remove the inventoried workstations from the Inventory database:

- 1 Create *inventoryremovallist.txt*, containing a list of inventoried workstations to be removed from the Inventory database, by using any of the following methods:
  - ◆ To automatically create *inventoryremovallist.txt*, use the NDS Lookup for DB utility. By default, this utility creates a lookup file, *deletewslst.txt*, that contains a list of the inventoried workstations. For more information about the NDS Lookup for DB utility, see [“Understanding the NDS Lookup for DB Utility” on page 1028](#).

After generating a lookup file, do the following:

- ◆ Rename the lookup file to *inventoryremovallist.txt*.
- ◆ (Optional) In the lookup file, add the DNs of any other inventoried workstations that must be removed from the Inventory database and that have not yet been listed in the lookup file.
- ◆ To manually create *inventoryremovallist.txt*, use any text editor to create the file with the following contents:

```
DN of the inventoried workstation (as stored in the Inventory database)
to be removed from the Inventory database
DN of the inventoried workstation (as stored in the Inventory database)
to be removed from the Inventory database
...
...
DN of the inventoried workstation (as stored in the Inventory database)
to be removed from the Inventory database
```

A sample inventoryremovallist.txt file is as follows:

```
CN=WS1.OU=WORKSTATIONS.OU=WEST.O=XYZ.T=XYZ-TREE
CN=WS99.OU=WORKSTATIONS.OU=NORTH.O=XYZ.T=XYZ-TREE
CN=WS50.OU=WORKSTATIONS.OU=EAST.O=XYZ.T=XYZ-TREE
```

To generate the list of inventoried workstations that must be removed you can either perform a query on a selected criteria or manually enter the names of the inventoried servers. For more information on Query, see [“Viewing Inventory Information by Querying the Database” on page 1049](#).

- 2** Copy the inventoryremovallist.txt file to the `ZENworks_installation_path\zenworks\inv\server\wminv\properties` directory.
- 3** In the `ZENworks_installation_path\zenworks\inv\server\wminv\properties\inventoryremoval.properties` file, ensure that the value of `FilePath` is the location of `inventoryremovallist.txt` (specified in Step 2).  
**NOTE:** Ensure that the path separator is a forward slash ( / ) and not a backslash ( \ ).
- 4** At the server console prompt, enter **StartSer RemoveInventory** to start the Inventory Removal service.

The Inventory Removal service follows the order below:

1. The Inventory Removal service reads each line of the `inventoryremovallist.txt` file and creates a delete str file for each inventoried workstation that is listed in the `inventoryremovallist.txt` file.

The delete str file is saved in the `scandir` directory if the Selector is running, else it will be placed in the `dbdir` or `entmergedir` directories depending on the Inventory server role.

2. The Selector validates the delete str file and copies it into the `dbdir` and `entmergedir` directories.
3. The Storer reads the delete str file from `dbdir` and deletes the inventoried workstation from the attached Inventory database.
4. If the inventory deployment rolls up scan data, the delete str is also rolled up to the next level Inventory server.

The inventoried workstation is deleted from the Inventory database at all Inventory servers deployed at the enterprise level.

## Understanding the NDS Lookup for DB Utility

NDS Lookup for DB automatically generates a list of inventoried workstations that are stored in the Inventory database but do not have a corresponding entry in eDirectory. By default, this lookup file is named `deletewslst.txt`

The excess workstations in the Inventory database exist because these workstations have been deleted from eDirectory but their corresponding entries were not removed from the database.

The list generated by NDS Lookup for DB helps you in identifying the redundant workstation objects to be removed from the Inventory database by using the Inventory Removal Service.

**IMPORTANT:** You must run this utility only on the Inventory server to which an Inventory database is attached. Also, you must ensure that the Service Manager is loaded when you run this utility.

To run this utility:

- 1 Specify the path of the lookup file in `inventory_server_installation_path\inv\server\wminv\properties\inventoryremoval.properties`.

**NOTE:** Ensure that the path separator is a forward slash ( / ) and not a backslash ( \ ).

- 2 (Optional) Configure the lookup filename in the server role property file, which can be any of the following files, depending on role of the Inventory server: `root_db_wks.properties`, `root_db.properties`, `int_db_wks.properties`, `int_db.properties`, `leaf_db_wks.properties`, or `standalone.properties`.

The server role property file contains the [NDSLookupForDB Service] section with the lookup filename in the ARGUMENTS parameter. The default lookup filename is `deletewslis.txt`.

**IMPORTANT:** The lookup filename should consist of alphanumeric characters only.

- 3 At the server console prompt, enter `startser NDSLookupForDB`.

## Removing Duplicate Workstation Objects from the Inventory Database

You can now remove the duplicate workstation objects from the Inventory database by using the Dupremove utility.

Duplicate workstation objects are workstations that have multiple entries in the Inventory database. If the Inventory database has duplicate workstation objects, it not only results in wasted database space but also reporting of duplicate information by the Inventory ConsoleOne utilities such as Query, Summary, Inventory Reports, and Data Exports.

The following sections provide more information on how to use the Dupremove utility:

- ♦ [“Running the Dupremove Utility” on page 1029](#)
- ♦ [“Understanding the Dupremove Switches” on page 1030](#)

### Running the Dupremove Utility

- 1 Stop the Inventory service. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).
- 2 Ensure that the Database server is up and running.
- 3 Run the Dupremove utility.
  - ♦ On a NetWare Inventory server:  
Edit `sys:\system\dupremove.ncf` to configure the required parameters. Refer to `dupremove.ncf` for information about configuring the parameters. For detailed information about the parameters, see [“Understanding the Dupremove Switches” on page 1030](#).

- ◆ On a Windows Inventory server:

Edit `Inventory_server_installation_directory\wminv\bin\dupremove.bat` to configure the required parameters. Refer to `dupremove.bat` for information about configuring the parameters. For detailed information about the parameters, see [“Understanding the Dupremove Switches” on page 1030](#).

After editing the file, enter **dupremove** from the server command prompt.

**IMPORTANT:** You must enclose the parameters within double quotes, either at the server prompt or in `dupremove.ncf/dupremove.bat` files, and there should be no spaces within double quotes. For example, `“-dbtype=1”`.

If you specify wrong parameters, or spaces within double quotes, the Dupremove utility retires endlessly.

To stop this process on a NetWare Inventory server, you must first procure the process ID of the Dupremove utility by entering `java -show` at the server prompt, and then enter `java -killDupremove_process_ID`.

To stop the process on a Windows Inventory server, press Ctrl+C.

- 4** Start the Inventory service. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).
- 5** Enforce a full scan either on all affected workstation objects or on all workstation objects that send the inventory data to this Inventory server:
  - ◆ To enforce a full scan on an affected workstation object:
    - 5a** In ConsoleOne, right-click the workstation object, then click Properties.
    - 5b** Click the ZENworks Inventory tab, then click the Workstation Scan Configuration suboption.
    - 5c** Select Start Full Scan.
    - 5d** Click Apply, then click Close.
    - 5e** Repeat [Step 5a](#) through [Step 5d](#) for all affected workstation objects.
  - ◆ To enforce a full scan on all workstation objects that send the inventory data to this Inventory server, enforce a full scan on the Inventory Service object. For more information, see [“Configuring the Inventory Service Object” on page 877](#).

## Understanding the Dupremove Switches

- ◆ [“-host” on page 1030](#)
- ◆ [“-dbtype” on page 1031](#)
- ◆ [“-sid” on page 1031](#)
- ◆ [“-port” on page 1031](#)
- ◆ [“Dupremove Functions” on page 1032](#)
- ◆ [“-user” on page 1034](#)
- ◆ [“-password” on page 1034](#)

### -host

Specify the IP address of the server on which the Inventory database is running.

## **-dbtype**

-dbtype is the Inventory database type. It can include any of the following values:

| <b>Inventory Database Running On</b> | <b>Dbtype Value</b> |
|--------------------------------------|---------------------|
| Sybase                               | 0                   |
| Oracle                               | 1                   |
| MS SQL                               | 2                   |

## **-sid**

-sid is the service ID identifying the Inventory database. -sid is required to connect to JDBC. It can include any of the following values:

| <b>Inventory Database Running On</b> | <b>Sample SID Values</b> |
|--------------------------------------|--------------------------|
| Sybase                               | mgmtdb                   |
| Oracle                               | orcl                     |
| MS SQL                               | mgmtdb                   |

## **-port**

-port is the port number on which the Inventory database is running. It can include any of the following values:

| <b>Inventory Database Running On</b> | <b>Sample Port Values</b> |
|--------------------------------------|---------------------------|
| Sybase                               | 2638                      |
| Oracle                               | 1521                      |
| MS SQL                               | 1433                      |

## Dupremove Functions

Following are the Dupremove functions that you must use only one at a time in the dupremove.bat or dupremove.ncf:

**IMPORTANT:** The values for the Dupremove functions are case-sensitive.

| Dupremove Switch | Description                                                                                                      | Possible Values / Pattern Types                                                                                                                                                                                                                                                                                                                   | Examples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -listwsdup       | Lists all workstations that have duplicate entries in the Inventory database.                                    | ---                                                                                                                                                                                                                                                                                                                                               | <p>To list all the workstation objects that have duplicate entries in the Sybase Inventory database, enter the following command in dupremove.ncf or dupremove.bat:</p> <pre>java -Djava.compiler= com.novell.zenworks.desktop.inventory.storer.DatabaseOperator -host=127.0.0.1 -listwsdup -dbtype=0 -sid=mgmtdb -port=2638</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| -listwsdirty     | Lists all workstations whose scan data has not been updated in the Inventory database and that need a full scan. | --                                                                                                                                                                                                                                                                                                                                                | <p>To list all the workstation objects that have duplicate entries in the Oracle Inventory database, enter the following command in dupremove.ncf or dupremove.bat:</p> <pre>java -Djava.compiler= com.novell.zenworks.desktop.inventory.storer.DatabaseOperator -host=127.0.0.1 -listwsdirty -dbtype=1 -sid=orcl -port=1521</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| -listwspattern   | Lists workstation objects on the basis of the pattern you define.                                                | <ul style="list-style-type: none"> <li>◆ Workstation names beginning with a specific character or a string</li> <li>◆ Workstation names containing a specific character or a string</li> <li>◆ Workstation names ending with a specific character or a string</li> </ul> <p><b>IMPORTANT:</b> You must enter the typed DN of the workstation.</p> | <ul style="list-style-type: none"> <li>◆ To list all the workstation objects whose DN starts with "cn=ws" and that have duplicate entries in the Sybase Inventory database, enter the following command in dupremove.ncf or dupremove.bat: <pre>java -Djava.compiler= com.novell.zenworks.desktop.inventory.storer.DatabaseOperator -host=127.0.0.1 -listwspattern=cn=ws%% -dbtype=0 -sid=mgmtdb -port=2638</pre> </li> <li>◆ To list all the workstation objects whose DN contains "ou=novell" and that have duplicate entries in the Oracle Inventory database, enter the following command in dupremove.ncf or dupremove.bat: <pre>java -Djava.compiler= com.novell.zenworks.desktop.inventory.storer.DatabaseOperator -host=127.0.0.1 -listwspattern=%ou=novell%% -dbtype=1 -sid=orcl -port=1521</pre> </li> <li>◆ To list all the workstation objects whose DN ends with "T=novel_inc" and that have duplicate entries in the MS SQL Inventory database, enter the following command in dupremove.ncf or dupremove.bat: <pre>java -Djava.compiler= com.novell.zenworks.desktop.inventory.storer.DatabaseOperator -host=127.0.0.1 -listwspattern=%T=novell_inc -dbtype=2 -sid=mgmtdb -port=1433</pre> </li> </ul> |



| Dupremove Switch | Description                                                         | Possible Values / Pattern Types                                                                                                                                                                                                                                                                                                             | Examples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -remwsdup        | Removes workstation objects from the Inventory database.            | <ul style="list-style-type: none"> <li>* (asterisk): Removes inventory information from all the workstation objects having duplicate entries in the database</li> <li><i>Typed_DN_of_a_workstation</i>: Removes inventory information of the specific workstation object having duplicate entries in the database</li> </ul>                | <ul style="list-style-type: none"> <li>To remove all information from all workstation objects having duplicate entries in the MS SQL Inventory database, enter the following command in dupremove.ncf or dupremove.bat: <pre>java -Djava.compiler= com.novell. zenworks.desktop.inventory.storer. DatabaseOperator "-host=127.0.0.1" "-remwsdup=*" "-dbtype=2" "-sid=mgmtdb" "-port=1433"</pre> </li> <li>To remove all information from one workstation object having a duplicate entry in the Oracle Inventory database, enter the following command in dupremove.ncf or dupremove.bat: <pre>java -Djava.compiler= com.novell. zenworks.desktop.inventory.storer. DatabaseOperator "-host=127.0.0.1" "-remwsdup=ws.novell.novell_inc" "-dbtype=1" "-sid=orcl" "-port=1521"</pre> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| -remwspattern    | Removes workstation objects on the basis of the pattern you define. | <ul style="list-style-type: none"> <li>Workstation names beginning with a specific character or a string</li> <li>Workstation names containing a specific character or a string</li> <li>Workstation names ending with a specific character or a string</li> </ul> <p><b>IMPORTANT:</b> You must enter the typed DN of the workstation.</p> | <ul style="list-style-type: none"> <li>To remove all the workstation objects whose DN starts with "cn=ws" and that have duplicate entries in the Sybase Inventory database, enter the following command in dupremove.ncf or dupremove.bat: <pre>java -Djava.compiler= com.novell. zenworks.desktop.inventory.storer. DatabaseOperator "-host=127.0.0.1" "-remwspattern=cn=ws%" "-dbtype=0" "-sid=mgmtdb" "-port=2638"</pre> </li> <li>To remove all the workstation objects whose DN contains "ou=novell" and that have duplicate entries in the Oracle Inventory database, enter the following command in dupremove.ncf or dupremove.bat: <pre>java -Djava.compiler= com.novell. zenworks.desktop.inventory.storer. DatabaseOperator "-host=127.0.0.1" "-remwspattern=%ou=novell%" "-dbtype=1" "-sid=orcl" "-port=1521"</pre> </li> <li>To remove all the workstation objects whose DN ends with "T=novel_inc" and that have duplicate entries in the MS SQL Inventory database, enter the following command in dupremove.ncf or dupremove.bat: <pre>java -Djava.compiler= com.novell. zenworks.desktop.inventory.storer. DatabaseOperator "-host=127.0.0.1" "-remwspattern=%T=novell_inc%" "-dbtype=2" "-sid=mgmtdb" "-port=1433"</pre> </li> </ul> |

| Dupremove Switch | Description                                                       | Possible Values / Pattern Types                         | Examples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|-------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -remwsfile       | Removes the workstation objects whose names are listed in a file. | <i>Complete path of the file including the filename</i> | <ul style="list-style-type: none"> <li>To remove all the workstation objects that have duplicate entries in the MS SQL Inventory database and are listed in c:\windows\wsname.txt: <pre>java -Djava.compiler= com.novell.zenworks.desktop.inventory.storer.DatabaseOperator "-host=127.0.0.1" "-remwsfile=c:\\windows\\wsname.txt" "-dbtype=2" "-sid=mgmtdb" "-port=1433"</pre> </li> </ul> <p>The contents of c:\windows\wsname.txt are as follows:</p> <pre>CN=a.OU=b.O=c.T=Novell_inc CN=ws.OU=novell.T=novell_inc WS1.novell.novell_inc WS2.novell.novell_inc</pre> |

#### **-user**

Provide the user name only if you have not logged into the Inventory database as the default user (mw\_dba).

#### **-password**

Provide the password for the user specified in the “-user” switch.

# 74 Viewing Inventory Information

This following section provides information on how to view the inventory information:

- ◆ [“Viewing the Inventory Information Using ConsoleOne” on page 1035](#)
- ◆ [“Exporting the Inventory Information” on page 1065](#)
- ◆ [“Viewing Inventory Information Without Using ConsoleOne” on page 1072](#)
- ◆ [“Retrieving Inventory information from the Inventory Database Without Using the CIM Schema” on page 1075](#)

## Viewing the Inventory Information Using ConsoleOne

The following sections will explain the various types of information you can view using Novell® ConsoleOne®:

- ◆ You can list hardware and software components found on the inventoried workstation and any custom information you have specified for the workstation.

The Workstation Inventory window displays the inventory items for an inventoried workstation. This window displays the information from the last inventory scan for the inventoried workstation.

For more information about viewing the inventory information of an inventoried workstation, see [“Viewing the Inventory Summary of an Inventoried Workstation” on page 1036](#).

- ◆ You can list inventoried workstations with the inventory information from the Inventory database satisfying the criteria you specify in the Inventory Query window. You form a query by specifying the component and its attribute for the inventoried workstations within the selected database sites.

For more information about querying the Inventory database, see [“Viewing Inventory Information by Querying the Database” on page 1049](#).

- ◆ You can list minimal information stored in the eDirectory™ Workstation object.

For more information, see [“Viewing the Minimal Inventory Information from an eDirectory Object” on page 1052](#).

- ◆ You can use a list of reports that generate the inventory information from the Inventory database specific to your needs.

For more information, see [“Running Inventory Reports” on page 1053](#).

## Configuring the Inventory Database

If you want to use ConsoleOne to view the inventory information stored in the database, you must configure the database. The inventory information from the Inventory database that you configure will be used for generating inventory reports, viewing inventory information, and for querying the inventory information from the database.

To configure the Inventory database:

- 1** In ConsoleOne, select a container.
- 2** Invoke Configure DB.
  - ◆ To invoke Configure DB from a database object, right-click the database object, click ZENworks Inventory, then click Configure DB. This configures the database object.
  - ◆ To invoke the Configure DB dialog box from the ConsoleOne Tools menu, click Tools, click ZENworks Inventory, then click Configure DB.
- 3** Click Browse to browse for and select the ZENworks Database object.

You can also select an existing ZENworks Database object from the list of Database objects.

This Database object contains the database settings such as the protocol, port in use by the database, and others.
- 4** To apply this database configuration to all the sessions, select the Apply Configuration Across Sessions check box.
- 5** Click OK.

The database you configured is used for data retrieval unless you change it again using this same procedure.

## Viewing the Inventory Summary of an Inventoried Workstation

The Inventory Summary window displays the information from the last inventory scan for the inventoried workstation.

To view the inventory information of an inventoried workstation:

- 1** Configure the Inventory database.










For more information, see [“Configuring the Inventory Database” on page 1036](#).
- 2** Right-click an inventoried workstation object, then click Actions, then click Inventory.













or

In the Query Results window, double-click an inventoried workstation.

ZENworks® 6.5 Desktop Management provides the following inventory information collected from the inventoried workstations:







| Scan Data Group                                                                                                                                                                                                                                                                                                                                                                                                                        | Scan Data Item                                                                                                                                                                                                                                                                                                               | Description                                                                                                                     |                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
|  Inventory Information                                                                                                                                                                                                                                                                                                                                | General Dictionary Version                                                                                                                                                                                                                                                                                                   | Version number of the General Dictionary                                                                                        |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Inventory Server                                                                                                                                                                                                                                                                                                             | Name of the Inventory server to which the scans are sent                                                                        |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Last Scan Date                                                                                                                                                                                                                                                                                                               | List of all inventoried workstations that were scanned on or before the specified date and time                                 |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Private Dictionary Version                                                                                                                                                                                                                                                                                                   | Version number of the Private Dictionary                                                                                        |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Scan Mode                                                                                                                                                                                                                                                                                                                    | Mode used by the Inventory scanner to scan the inventoried workstation                                                          |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Version                                                                                                                                                                                                                                                                                                                      | Version number of the Inventory scanner                                                                                         |                                                      |
|  Hardware/Software Inventory > <br>General >  System Information                                                                                                                    | Asset Tag                                                                                                                                                                                                                                                                                                                    | Asset tag number that the ROM-based setup program creates                                                                       |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Computer Model                                                                                                                                                                                                                                                                                                               | Identifying information of the computer, for example, Compaq, Dell, and others.                                                 |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Computer Type                                                                                                                                                                                                                                                                                                                | Type of computer, such as IBM PC, and others                                                                                    |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Machine Name                                                                                                                                                                                                                                                                                                                 | DNS name of the inventoried workstation                                                                                         |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Management Technology                                                                                                                                                                                                                                                                                                        | Technology available on the inventoried workstation such as DMI, WMI, and others                                                |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Model Number                                                                                                                                                                                                                                                                                                                 | Model number of the inventoried workstation                                                                                     |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Serial Number                                                                                                                                                                                                                                                                                                                | Serial number of the inventoried workstation assigned by manufacturer                                                           |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Tag                                                                                                                                                                                                                                                                                                                          | Unique identifier of system information                                                                                         |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        |  Hardware/Software Inventory > <br>General >  System Identification | Primary Owner Name                                                                                                              | The name of the primary user or owner of this system |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                              | Primary Owner Contact                                                                                                           | The phone number of the primary user of this system  |
| Name                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                              | Name of the inventoried workstation as represented in eDirectory, such as the fully qualified DN of the inventoried workstation |                                                      |
|  Hardware/Software Inventory > <br>General >  Login Details > <br>eDirectory Login Details | Current login user                                                                                                                                                                                                                                                                                                           | User logged in to the Primary eDirectory tree when the inventoried workstation was scanned                                      |                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | Last login user                                                                                                                                                                                                                                                                                                              | User most recently logged into the Primary eDirectory tree through Novell Client when the inventoried workstation was scanned   |                                                      |


| Scan Data Group                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Scan Data Item      | Description                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Hardware/Software Inventory > <br>General >  Login Details >  Windows<br>Domain                                                                                                                                                | Name                | Domain name of the inventoried workstation                                                                                                                                     |
|  Hardware/Software Inventory > <br>Software >  Application Vendors ><br><i>Vendor_name</i> > <br><i>software_group_name</i> >  <i>software</i> | Name                | Vendor-defined name of the product represented as a vendor trademark or registered trademark                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Version             | User-friendly version of a product<br><br>For example, the version for Windows* 2000 is 2000 or Major.Minor Version of the Product                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Category            | Product category to which the product belongs<br><br>For example, Office is a part of the Productivity tools category and Solitaire is a game                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Description         | Description of the product                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Help Link           | Support web site URL for the product that is available in ARP and MSI                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Package GUID        | Vendor-defined GUID for a product that is available in MSI                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Product Identifier  | A unique, 16-character identifier for an installed product. This identifier is available from MSI on Windows<br><br>The format is ABCD-1234-WXYZ-PQRS                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Internal Version    | Internal version of a product<br><br>The format is:<br><br><i>major version.minor version.build.sub build number</i><br><br>or<br><br><i>major version.minor version.build</i> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Language            | User-friendly name for the language of this copy of the product                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Uninstall String    | The command to invoke for uninstalling this product instance. Currently, this is available in Add-Remove Programs (ARP) and MSI on Windows                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Install Source      | Identifies the file system path where the installation files were stored when installing this product instance. Currently, this is available in ARP and MSI on Windows         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Last Execution Time | Date and time stamp when the product was last executed                                                                                                                         |










| Scan Data Group                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Scan Data Item               | Description                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Frequency of Usage           | Number of times the product is used                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Friendly Name                | Display name of the software                                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Installation Repository      | Source of scan, which can be, Add-Remove Programs, MSI, Software Dictionary, or PRODUCTS.DAT                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Support Pack                 | Installed support pack number of the product                                                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Product Edition              | Product edition defined by the vendor. For example, Professional                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Path                         | Directory path where the product is installed on the inventoried workstation                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | AntiVirus Definition Date    | The date of the virus definition file installed on the computer. Some anti-virus products combine date and version into a single string<br><b>NOTE:</b> This is applicable only for antivirus products. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | AntiVirus Definition Version | The vendor-defined version of the virus definition file that has been installed on a computer<br><b>NOTE:</b> This is applicable only for antivirus products.                                           |
|  Hardware/Software Inventory > <br>Software >  Application Vendors ><br>Vendor_name > <br>software_group_name >  software ><br> Patches                                | Name                         | Vendor-defined name for the patch                                                                                                                                                                       |
|  Hardware/Software Inventory > <br>Software >  Application Vendors ><br>Vendor_name > <br>software_group_name >  software ><br> Representative File Information | File Name                    | Name of the file representing the software                                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | File Version                 | Version of the file representing the software                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | File Size                    | Size of the file representing the software                                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Last Modified                | Last modified date of the file representing the software                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Internal Name                | Internal name                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Product Version              | The version of the product represented by this file                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Company                      | Vendor name                                                                                                                                                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Product Name                 | The product which this file represents                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Language                     | User-friendly name for the language of this copy of the file                                                                                                                                            |

| Scan Data Group                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Scan Data Item              | Description                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | File Path                   | Location of the file on the inventoried workstation                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Software Dictionary ID      | ID of the file as represented in the General software dictionary          |
|  Hardware/Software Inventory > <br>Software >  Disk Usage                                                                                                                                                                                                                                           | File Extension Name         | The file extension for which the disk usage is scanned for                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Total Disk Usage            | Total disk usage for all the files of the specified extension.            |
|  Hardware/Software Inventory > <br>Software >  Device Drivers > <br>Pointing Device Drivers >  <i>Pointing Device driver name</i> | Name                        | Name of the mouse driver                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Version                     | Version number of the mouse driver                                        |
|  Hardware/Software Inventory > <br>Software >  Device Drivers > <br>Display Drivers                                                                                                                                | Install Date                | Install date of the display driver                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Manufacturer                | Name of the display driver manufacturer                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Is Shadowed (True or False) | If True, the display driver is currently being shadowed                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Version                     | Version number of the display driver                                      |
|  Hardware/Software Inventory > <br>Software >  Device Drivers > <br>Network Drivers                                                                                                                        | Description                 | Description of the network driver                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Name                        | Network driver name                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Version                     | Version number of the network driver                                      |
|  Hardware/Software Inventory > <br>Software >  Operating System                                                                                                                                                                                                                               | Code Page                   | Language code page of the operating system                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | OS Type                     | Operating system of the inventoried workstation                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Install Date                | Install date of the operating system                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Caption                     | Operating system name, for example, Windows 95/Windows 2000               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Other Description           | Additional description of the operating system if available               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Role                        | Type of the operating system such as server or workstation                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Total Virtual Memory Size   | Total number of bytes in the virtual address space of the calling process |



















| Scan Data Group                                                                                                                                                                                                                                                                                                 | Scan Data Item        | Description                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                 | Total Memory Size     | Total memory of the operating system                                                                                                                                                                                                                                                                               |
|                                                                                                                                                                                                                                                                                                                 | Version               | Version number of the operating system                                                                                                                                                                                                                                                                             |
|  Hardware/Software Inventory > <br>Hardware >  Monitor       | Device ID             | Unique ID of a desktop monitor that is attached to an inventoried workstation<br><br>For example, DesktopMonitor1                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                 | Description           | Description of the monitor.                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                 | Nominal Size          | A number representing the diagonal width of the monitor (the distance from one corner of the screen to the opposite corner of the screen)<br><br>For example, 17"<br><br>You can customize the scan of the nominal size of the monitor by configuring the HWRules .ini file using the Workstation Inventory policy |
|                                                                                                                                                                                                                                                                                                                 | Viewable Size         | A number representing the diagonal width of the screen image excluding the black borders around the image's edge<br><br>For example, 15.8"                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                 | Manufacturer          | Name of the monitor's manufacturer<br><br>For example, DELL* Computer Corp                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                 | Serial Number         | Manufacturer's number used to identify a monitor<br><br>For example, 23DDC24N9067                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                 | Model                 | Product name of the monitor given by the manufacturer<br><br>For example, DELL E771a                                                                                                                                                                                                                               |
|                                                                                                                                                                                                                                                                                                                 | Manufacture Date      | Year in which the monitor was manufactured<br><br>For example, 2003                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                 | Model ID              | Unique ID of a model of the monitor. It is a combination of the Manufacturer ID and Product ID<br><br>For example, DELA001                                                                                                                                                                                         |
|  Hardware/Software Inventory > <br>Hardware >  Chassis | Asset Tag             | Asset tag number of the system chassis.<br><br>For example, S11127.                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                 | Number of Power Cords | Total number of power cords attached to a system chassis                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                 | Chassis Type          | Represents whether the system chassis is a laptop, desktop, notebook, docking station and so on                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                 | Manufacturer          | Name of the system chassis manufacturer<br><br>For example, Compaq*                                                                                                                                                                                                                                                |



















| Scan Data Group                                                                                                                                                                                                                                                                                                                                                                                                                             | Scan Data Item                | Description                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Serial Number                 | Manufacturer's number used to identify a system chassis<br><br>For example, 53R661S                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Version                       | Version number of the system chassis                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Tag                           | Unique ID of the system chassis attached to a particular inventoried workstation<br><br>For example, System Enclosure 0 |
|  Hardware/Software Inventory > <br>Hardware >  Pointing Device > <br><i>Pointing device name</i>         | IRQ Number                    | Interrupt assigned to this device                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Name                          | Identifying information of the mouse                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Number of Buttons             | Number of buttons on the mouse                                                                                          |
|  Hardware/Software Inventory > <br>Hardware >  Keyboard                                                                                                                                   | Delay                         | Delay before the repeat of a key                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Description                   | Description of the keyboard, such as IBM Enhanced 101 or 102 keys                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Layout                        | Layout of the keyboard                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Number of Function Keys       | Total number of function keys                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Subtype                       | Type of the keyboard                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Typematic Rate                | Rate of processing the keys                                                                                             |
|  Hardware/Software Inventory > <br>Hardware >  Display Adapter > <br><i>Display adapter name</i> | Chip Set                      | Chip set used by the controller to compare system capabilities                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Current Bits/Pixel            | Number of adjacent color bits for each pixel                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Current Horizontal Resolution | Number of horizontal pixels shown by the display                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Current Vertical Resolution   | Number of vertical pixels shown by the display                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | DAC Type                      | Digital-to-Analog converter type                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Description                   | Description of the display adapter                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Maximum Memory Supported      | Maximum memory that the display adapter supports for VIDEO RAM                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Maximum Refresh Rate          | Maximum refresh rate of the monitor for redrawing the display, measured in Hertz                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             | Minimum Refresh Rate          | Minimum refresh rate of the monitor for redrawing the display, measured in Hertz                                        |










| Scan Data Group                                                                                                                                                                                                                                                                                                   | Scan Data Item               | Description                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                   | Number of Color Planes       | Number of color planes supported by the video system                                               |
|                                                                                                                                                                                                                                                                                                                   | Provider                     | Vendor name                                                                                        |
|                                                                                                                                                                                                                                                                                                                   | Video Architecture           | The architecture of the video subsystem in this system, for example, CGA/VGA/SVGA/8514A            |
|                                                                                                                                                                                                                                                                                                                   | Video Memory Type            | The type of video memory for this adapter, for example, VRAM/SRAM/DRAM/EDO RAM                     |
|  Hardware/Software Inventory > <br>Hardware >  BIOS            | BIOS Identification Bytes    | Byte in the BIOS that indicates the computer model                                                 |
|                                                                                                                                                                                                                                                                                                                   | Install Date                 | The manufacturing date of the BIOS                                                                 |
|                                                                                                                                                                                                                                                                                                                   | Manufacturer                 | BIOS vendor name                                                                                   |
|                                                                                                                                                                                                                                                                                                                   | Caption                      | BIOS label                                                                                         |
|                                                                                                                                                                                                                                                                                                                   | Primary BIOS                 | True state indicates Primary BIOS                                                                  |
|                                                                                                                                                                                                                                                                                                                   | Serial Number                | Serial number of the computer, assigned during manufacture                                         |
|                                                                                                                                                                                                                                                                                                                   | Size                         | Size of the BIOS                                                                                   |
|                                                                                                                                                                                                                                                                                                                   | Version                      | Version or revision level of the BIOS                                                              |
|  Hardware/Software Inventory > <br>Hardware >  Processor | Current Clock Speed (in MHz) | Current clock speed of the processor                                                               |
|                                                                                                                                                                                                                                                                                                                   | Device ID                    | Special hexadecimal string identifying the processor type                                          |
|                                                                                                                                                                                                                                                                                                                   | Maximum Clock Speed (in MHz) | Maximum clock speed of the processor                                                               |
|                                                                                                                                                                                                                                                                                                                   | Other Family Description     | Additional description about the Processor Family, such as Pentium Processor with MMX technology   |
|                                                                                                                                                                                                                                                                                                                   | Processor Family             | Identification of the processor family such as Pentium II, Pentium III, and others                 |
|                                                                                                                                                                                                                                                                                                                   | Processor Stepping           | Single-byte code characteristic provided by microprocessor vendors to identify the processor model |
|                                                                                                                                                                                                                                                                                                                   | Role                         | Type of processor such as central processor, math coprocessor, and others                          |
|                                                                                                                                                                                                                                                                                                                   | Upgrade Method               | The method by which this processor can be upgraded, if upgrades are supported                      |
|  Hardware/Software Inventory > <br>Hardware >  Modem     | Description                  | Additional information about the modem                                                             |

| Scan Data Group                                                                                                                                                                                                                                                                                                                                                                                                 | Scan Data Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Description                                                                   |                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------|
|  Hardware/Software Inventory > <br>Hardware >  Battery                                                                                                        | Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Identifying information of the modem                                          |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Device ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Special hexadecimal string identifying the modem type                         |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Provider                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Name of the vendor                                                            |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Chemistry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | The battery chemistry, for example, lithium-ion or nickel metal hydride       |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Design Capacity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | The design capacity of the battery in mWatt-hours                             |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Design Voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | The design voltage of the battery in mVolts                                   |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Install Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The battery manufacture date                                                  |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Manufacturer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | The name of the company that manufactured the battery                         |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Device name for this battery, for example, Duracell* DR-36                    |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Serial Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | The serial number for this battery                                            |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Smart Battery Version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The Smart Battery Data Specification version number supported by this battery |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 |  Hardware/Software Inventory > <br>Hardware >  Power Supply                                                                                                                                                                                                             | Description                                                                   | Expanded description of the input voltage capability for this power supply |
|                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Total Output Power (in milliwatts)                                            | Attribute value that represents the total output power of the power supply |
|                                                                                                                                                                                                                                                                                                                                                                                                                 |  Hardware/Software Inventory > <br>Hardware >  Memory                                                                                                                                                                                                              | Total Memory                                                                  | Total memory of the inventoried workstation                                |
|  Hardware/Software Inventory > <br>Hardware >  Disk Drives >  Floppy | Capacity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Floppy drive capacity                                                         |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Floppy drive description                                                      |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Drive Letter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Letter name of the drive                                                      |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Manufacturer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Vendor name                                                                   |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Physical Cylinders                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Floppy drive cylinders                                                        |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Physical Heads                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Floppy drive R/W heads                                                        |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | Sectors/Track                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Floppy drive sectors per track                                                |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                 |  Hardware/Software Inventory > <br>Hardware >  Disk Drives >  Physical<br>Disk >  Fixed Disk | Description                                                                   | Description                                                                |

| Scan Data Group                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Scan Data Item       | Description                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Manufacturer         | Vendor name                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Physical Cylinders   | Number of cylinders                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Physical Heads       | Number of heads                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Sectors/Track        | Fixed disk drive sectors per track                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Size                 | Size of the fixed disk                                       |
|  Hardware/Software Inventory > <br>Hardware >  Disk Drives >  Physical<br>Disk >  Removable Disk          | Description          | Description                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Manufacturer         | Vendor name                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Physical Cylinders   | Number of cylinders                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Physical Heads       | Number of heads                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Sectors/Track        | Removable disk drive sectors per track                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Size                 | Size of the removable disk                                   |
|  Hardware/Software Inventory > <br>Hardware >  Disk Drives >  Logical<br>Disk >  <i>Logical disk name</i> | Drive Letter         | Letter name of the drive                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | File System Type     | Type of file system, such as File Allocation Table (FAT)     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Free Size            | Drive's actual size in MB                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Volume Label         | Name of the hard disk volume                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Size                 | Drive's available space in MB                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Volume Serial Number | Hard disk volume serial number                               |
|  Hardware/Software Inventory > <br>Hardware >  Disk Drives >  CDROM                                                                                                                | Name                 | Name of the CD drive attached to the inventoried workstation |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Description          | Description of the CD                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Drive Letter         | Mapped drive name of the CD                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Manufacturer         | Vendor name                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Caption              | Caption of the CD                                            |
|  Hardware/Software Inventory > <br>Hardware >  Ports >  Serial Port                                                                                                                | Address              | Base input-output address for this serial port               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | IRQ Number           | IRQ number of the serial port                                |

| Scan Data Group                                                                                                                                                                                                                                                                                                                                                                                          | Scan Data Item              | Description                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                          | Name                        | The logical name of the I/O device on this serial port, under this operating environment                                                                                      |
|  Hardware/Software Inventory > <br>Hardware >  Ports >  Parallel Port | Address                     | Base I/O address for this parallel port                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                          | DMA Support (True or False) | If True, DMA is supported                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Name                        | The logical name of the input-output device on this parallel port, under this operating environment                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                          | IRQ Number                  | IRQ number of the parallel port                                                                                                                                               |
|  Hardware/Software Inventory > <br>Hardware >  Bus                                                                                                     | Bus Type                    | Bus type indicates PCI, ISA, and others                                                                                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Description                 | Bus description                                                                                                                                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Name                        | Bus name                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Version                     | Version of the bus supported by the motherboard                                                                                                                               |
|  Hardware/Software Inventory > <br>Hardware >  Network Adapter                                                                                         | Adapter Type                | Type of network adapter, such as FDDI or token ring                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Auto Sense                  | A Boolean value indicating whether the network adapter is capable of automatically determining the speed or other communication characteristics of the attached network media |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Card Manufacturer           | Name of the card manufacturer                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Description                 | Adapter description                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Install Date                | Install date of the network adapter                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Maximum Speed               | Rate at which the data is transferred over the LAN                                                                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Name                        | Network adapter name                                                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Permanent Address           | Node address stored permanently in the adapter                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Provider                    | Name of the provider                                                                                                                                                          |
|  Hardware/Software Inventory > <br>Hardware >  Sound Adapter                                                                                     | Description                 | Description of the multimedia component for the workstation                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Name                        | Label of the multimedia card                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                          | Provider                    | Name of the provider                                                                                                                                                          |
|  Hardware/Software Inventory > <br>Network >  DNS                                                                                                | DNS Name                    | The DNS name of the inventoried workstation                                                                                                                                   |

| Scan Data Group                                                                                                                                                                                                                                                                                                                                                                                                                | Scan Data Item   | Description                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Hardware/Software Inventory > <br>Network >  Network<br>( <i>instance_number</i> ) >  IP  | IP Address       | The unique address assigned to a computer on an IP Internet                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                | Subnet Mask      | The subnet mask of the inventoried workstation paired with an IP address specifies to an IP router which octets or bits in the IP address are the network ID and which octets or bits are the node ID |
|  Hardware/Software Inventory > <br>Network >  Network<br>( <i>instance_number</i> ) >  IPX | IPX Address      | The IPX™ address of the inventoried workstation                                                                                                                                                       |
|  Hardware/Software Inventory > <br>Network >  Network<br>( <i>instance_number</i> ) >  MAC | MAC Address      | Unique node address permanently coded in the network adapter that identifies a specific computer on a network                                                                                         |
|  Hardware/Software Inventory > <br>Network > IP                                                                                                                                                                                                              | IP Address       | The unique address assigned to a computer on an IP Internet                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                | Subnet Mask      | The subnet mask of the inventoried workstation paired with an IP address specifies to an IP router which octets or bits in the IP address are the network ID and which octets or bits are the node ID |
| Hardware/Software Inventory > Network > IPX                                                                                                                                                                                                                                                                                                                                                                                    | IPX Address      | The IPX address of the inventoried workstation                                                                                                                                                        |
| Hardware/Software Inventory > Network > MAC                                                                                                                                                                                                                                                                                                                                                                                    | MAC Address      | Unique node address permanently coded in the network adapter that identifies a specific computer on a network                                                                                         |
|  Hardware/Software Inventory > <br>System >  System IRQ                                                                                                               | Availability     | Availability of the specific IRQ channel                                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                | IRQ Number       | Number of the Interrupt Request Line (IRQ), from 0 to 15                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                | IRQ Trigger Type | IRQ Trigger type                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                | Shareable        | If True, the system IRQ can be shared across devices                                                                                                                                                  |
|  Hardware/Software Inventory > <br>System >  System Cache                                                                                                             | Associativity    | Defines the system cache associativity (direct-mapped, 2-way, 4-way)                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                | Cache Type       | Defines the system cache type, for example, Instruction, Data, Unified                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                | Capacity         | Size of the data store where the cache information is kept                                                                                                                                            |

| Scan Data Group                                                                                                                                                                                                                                                                                                  | Scan Data Item     | Description                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                  | Error Methodology  | Error correction scheme supported by this cache component, for example, Parity/Single Bit ECC/ MultiBit ECC                                                       |
|                                                                                                                                                                                                                                                                                                                  | Level              | Indicates the cache level; internal cache that is built in to the microprocessors; external cache that is between the CPU and DRAM                                |
|                                                                                                                                                                                                                                                                                                                  | Line Size          | Size in bytes of a single cache bucket or line                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                  | Read Policy        | Indicates whether the data cache is for read operations                                                                                                           |
|                                                                                                                                                                                                                                                                                                                  | Replacement Policy | Algorithm that the cache uses to determine which cache lines or buckets should be reused                                                                          |
|                                                                                                                                                                                                                                                                                                                  | Speed              | Speed of this System Cache module in nanoseconds                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                  | Write Policy       | Indicates the two different ways (Write-Back and Write-Through Cache) that the cache can handle to write to the memory                                            |
|  Hardware/Software Inventory > <br>System >  System DMA        | Availability       | Indicates whether Virtual Direct Memory Access (DMA) is supported                                                                                                 |
|                                                                                                                                                                                                                                                                                                                  | Description        | Name of the logical device that is currently using this DMA channel                                                                                               |
|                                                                                                                                                                                                                                                                                                                  | DMA Burst Mode     | A data transmission mode in which data is sent faster than normal                                                                                                 |
|                                                                                                                                                                                                                                                                                                                  | DMA Channel Number | Number of the Direct Memory Access (DMA) channel that a computer uses for transferring data to and from devices quicker than from computers without a DMA channel |
|  Hardware/Software Inventory > <br>System >  System Slot | Description        | Card currently occupying this slot                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                  | Maximum Data Width | Maximum bus width of cards accepted in the slot                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                  | Thermal Rating     | Maximum thermal dissipation of the slot in milliwatts                                                                                                             |
|  Hardware/Software Inventory > <br>System >  Motherboard | Manufacturer       | Name of the motherboard manufacturer                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                  | Number of Slots    | The number of expansion slots in the motherboard for adding more memory, graphic capabilities, and support for special devices                                    |
|                                                                                                                                                                                                                                                                                                                  | Version            | Version of the motherboard                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                  | Description        | General description of the motherboard                                                                                                                            |



**NOTE:** For an enumerated attribute, the value will be displayed in the format *enumerated\_value [enumerated\_ID]*. For example, Processor.Processor Family = Pentium (R) III [17].

The Status bar displays the following information:

- ◆ **Tree Name:** Displays the eDirectory tree name where the inventoried workstation resides.
- ◆ **Recent Information:** Set to Yes if the Inventory database has been updated with the latest inventory information of the selected inventoried workstation.

## Viewing Inventory Information by Querying the Database

Using ConsoleOne, you can query the Inventory database to display the hardware and software components of inventoried workstations that you want to view. The Inventory Query window displays the information satisfying the criteria you specify.

The Inventory database stores inventory information (general, hardware, software, network, and system information) for each inventoried workstation. Querying the Inventory database helps to create groups of similar devices and to focus your reports on specific types of machines. For example, you can query the database to find machines that have an i486D processor and a VGA card.

To query the Inventory database for inventory information:

- 1** In ConsoleOne, select a container.
- 2** Invoke the query.
  - ◆ To invoke the Inventory query from a database object, right-click the database object, click ZENworks Inventory, then click Inventory Query.
  - ◆ To invoke the Inventory query from the ConsoleOne Tools menu, you must first configure the Inventory database, then click Tools, click ZENworks Inventory, then click Inventory Query. For more information on how to configure the Inventory database, see [“Configuring the Inventory Database” on page 1036](#).
- 3** Specify the criteria for the query:

**Query the Inventory database for:** By default, the Workstations option will be enabled. The query locates all inventoried workstations satisfying the query expression. If ZENworks 6.5 Server Management and ZENworks 6.5 Desktop Management are installed in the same environment, then the Workstations, the Servers, and Both options will be available. When you select Workstations, the query locates all inventoried workstations satisfying the query expression. Choose Both to include all inventoried workstations and inventoried servers satisfying the query expression.

**Find Type:** Select Simple or Advanced. Click Simple to specify a simple query. When you choose a Simple query, you specify one attribute, relational operators, and the value of the attribute. Choose Advanced query to specify many attributes. You can combine multiple query groups so each group defines a set of query criteria. For example, use the Advanced query to run a query to discover all devices in the database with 486 processors and use query connectors, and add another query to discover which of these inventoried workstations have a VGA color video adapter.

**Display Machine(s) Not Satisfying the Query:** Select the check box to retrieve machines that do not satisfy the query.

**Attribute:** Select the component or component attributes. Attributes that you can specify to query on the inventoried workstations are grouped into the following categories: General, Software, Hardware, Network, and System.

The custom attribute will be prefixed by an asterisk (\*).

For example, to find the machines that do not have pointing device installed, select Pointing Device as the component. To specify the version of BIOS as a component in the query, select BIOS as the component and VERSION as the component attribute.

**Operator or Relational Operator:** Select to determine the relationship between the components and the value. The relational operators are grouped on the basis on the data type of the attribute selected in the Select Attribute window as shown in the following table:

| Data Type of the Attribute | Relational Operators                                                                                                                      |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| String                     | Equal To (=), Not Equal To (!=), Matches ([ ]), Does Not Match (![ ]) and Is NULL (null)                                                  |
| Numeric                    | Equal (=), Not Equal (!=), Less Than (<), Less Than or Equal To (<=), Greater Than (>), Greater Than or Equal To (>=), and Is NULL (null) |
| Date                       | After (>), On or After (>=), Before (<), On or Before (<=), and Is NULL (null)                                                            |
| Enum                       | Equal To (=), Not Equal To (!=), and Is NULL (null)                                                                                       |
| Custom                     | Includes all the relational operators that are grouped under the String, Numeric, and Date data types                                     |

For more information on using the relational operators, see [“Using Relational Operators” on page 1051](#).

**NOTE:** If the query does not display the result when the data type of the attribute is Custom and the relational operator is Numeric or Date, use the Equal To operator to find the values for the custom attributes that are stored in the Inventory database.

If you select only the component in the Select Attribute window, the Relational Operator will be set to NULL by default and other relational operators will not be available.

**Value:** Description values are the possible values of an inventory component. For example, 6.0 is a possible value for the DOS-Version attribute. Description values are not case sensitive.

**NOTE:** For an enumerated attribute, the value will be displayed in the format, *enumerated\_value* [*enumerated\_ID*]. For example, Processor.Processor Family = Pentium (R) III [17].

If you choose Matches ([ ]) or Does Not Match (![ ]) as the relational operator, you can use wildcards to substitute characters in the Value field. The following table lists the wildcards that can be used according the SQL documentation:

| Example        | Specifies to Include                                |
|----------------|-----------------------------------------------------|
| ?              | Any one character                                   |
| _ (underscore) | Any one character                                   |
| %              | Any string of zero or more characters               |
| [ ]            | Any one character in the specified range or set     |
| [^]            | Any one character not in the specified range or set |

**NOTE:** To define a query using special characters such as ? or [, specify the query in the following formats: [?] or [ [ ].

The list of description values displayed for an Inventory component is taken from the Inventory database corresponding to the component.

**Logical Operator:** This option is available only for the Advanced query. Logical Operator forms query groups that will be combined with the previous query group by using the relational operator specified between the query groups.

**Save:** This option is available only for the Advanced query. It saves the query expression as a file in the location that you specify. The query file does not have a default extension; however, we recommend the .qry extension for easy reference.

**Load:** This option is available only for the Advanced query. It loads the query file that you specify. You must provide the full filename with its extension.

#### 4 Click Find.

This will query based on the query criteria you specify and display the inventoried workstations that match the query in the Query Results window.

In the Query Results window, double-click the inventoried workstation or click File, then click Advanced Inventory to view the inventory information of the inventoried workstation.

### Using Relational Operators

- ◆ **Match:** Use the Match operator to find the inventoried workstations that satisfy the query condition.

For example, use the Match operator to find all the inventoried workstations with IP address 164.99.151.%,

- ◆ **NULL:** Use the NULL operator to query for those inventoried workstations whose particular attribute is not scanned but the component has been scanned and some attributes are populated.

For example, to find a list of inventoried workstations for which BIOS.Manufacturer is not scanned, form a BIOS.Manufacturer is NULL query. This query will display the inventoried workstations for which the BIOS has been scanned.

- ◆ **NOT SATISFYING:** Use the NOT SATISFYING query (or the NOT SATISFYING filter condition) to find filter conditions for the inventoried workstations that negate the given query.

For example, two workstations W1 and W2 contain serial ports COM1 and COM2. The query (SerialPort='COM1') will return W1 and the query (SerialPort!='COM1') will also return the W1 because W1 contains the serial port COM2. To query the inventoried workstations that do not contain the serial port COM1 you must use <NOT SATISFYING>(SerialPort='COM1'). To use the NOT SATISFYING option, click the Display Machines Not Satisfying the Query check box in the query window.

## Viewing the Minimal Inventory Information from an eDirectory Object

The Scanners store minimal inventory information as an eDirectory Workstation object. You can view this minimal information from ConsoleOne. The Minimal Information page lists the inventory information of the scanned inventoried workstations.

For more information about the listed items in this page, see [“Mapping Between Minimal Information Attributes and Attributes in the Inventory Database” on page 1052](#).

To view the inventory information stored in eDirectory:

- 1 Right-click an inventoried workstation that has been successfully scanned, click Properties, click the ZENworks Inventory tab, then click Minimal Information.

If you click the More Workstation Information button in this page, the [Workstation Inventory window](#) will be displayed.

### Mapping Between Minimal Information Attributes and Attributes in the Inventory Database

The following table shows the mapping between minimal information attributes and attributes in the Inventory database:

| Minimal Information | Inventory Database                                         |
|---------------------|------------------------------------------------------------|
| Asset Tag           | Scanned Inventory - Asset Tag                              |
| BIOS Type           | Hardware - BIOS - Type                                     |
| Computer Model      | Scanned Inventory.Computer Model                           |
| Computer Type       | Scanned Inventory.Computer Type                            |
| Disk Information    | Hardware - Disk - Hard Disk - Drive Letter                 |
| IP Address          | Network - IP Address                                       |
| IPX Address         | Network - IPX Address                                      |
| Last Scan Date      | Date and time when the inventoried workstation was scanned |
| MAC Address         | Network - MAC Address                                      |
| Memory Size         | Hardware - Memory - Total Extended Memory                  |
| Model Number        | Scanned Inventory.Model Number                             |
| NIC Type            | Hardware - Network Adapter Driver - Description            |
| Novell Client       | Novell Client version                                      |
| OS Type             | Software - Operating Systems - OS - Name                   |
| OS.Version          | Software - Operating Systems - OS - Version                |
| Processor           | Hardware - Processor                                       |
| Serial Number       | Workstation Serial Number                                  |
| Subnet Mask         | Network - Subnet Mask                                      |

| Minimal Information | Inventory Database        |
|---------------------|---------------------------|
| Video Type          | Hardware - Display - Type |

## Running Inventory Reports

You can run reports to gather inventory information from the Inventory database. The Inventory reports are designed using Crystal Reports.

You can select from a predefined set of report forms to generate a report.

You can print or export the report as desired. Remember that any reports you generate will be empty if you have not configured ZENworks 6.5 Desktop Management to start populating the Inventory database with the information you want.

This section covers the information on the following topics:

- ◆ [“Prerequisites for Generating Inventory Reports” on page 1053](#)
- ◆ [“Types of Inventory Reports” on page 1053](#)
- ◆ [“Generating Inventory Reports” on page 1060](#)
- ◆ [“Understanding the Proxy Database” on page 1062](#)
- ◆ [“Printing an Inventory Report” on page 1063](#)
- ◆ [“Exporting an Inventory Report to a File” on page 1063](#)
- ◆ [“Understanding User-Defined Reports” on page 1064](#)

### Prerequisites for Generating Inventory Reports

Before running the inventory reports, ensure that you have installed the appropriate ODBC client. For more information, see [Novell ZENworks 6.5 Desktop Management Installation Guide](#).

### Types of Inventory Reports

You can generate the types of reports described below, assuming you have already configured ZENworks 6.5 Desktop Management to start populating the Inventory database with the information you want. The following table lists the Simple Inventory lists that provide information on individual aspects of Workstation Inventory, such as operating systems and their selection criteria. The table also lists the Comprehensive Inventory Reports that combine several aspects of Workstation Inventory into each report, such as memory, hard disk, and processor.

The following table lists the Inventory reports, and also provide information on individual aspects of each report such as the selection criteria and the information displayed in the report.

| <b>Inventory Report Group</b> | <b>Report Name</b>      | <b>Selection Criteria</b>                                                                                                                                                                                                                                                                                                                    | <b>Information Displayed in the Inventory Report</b>                                                                                                                          |
|-------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hardware Inventory            | Asset Management Report | Scope, Machine Name, IP Address, and DNS Name<br><br>You can also select to display the following options in the report: Memory, Processor, Display Adapter, Keyboard, Pointing Device, Fixed and Removable Disk, Floppy, CDROM, Network Adapter, and Monitor                                                                                | Memory, processor, display details, keyboard, pointing device, fixed and removable disk, floppy, CD drive, network adapter, and monitor details for inventoried workstations. |
|                               | BIOS Listing            | Scope, Machine Name, IP Address, DNS Name, BIOS Install Date, and Manufacturer                                                                                                                                                                                                                                                               | List of all the inventoried workstations with BIOS manufacturer, BIOS release date, and the total number of such machines.                                                    |
|                               | Battery Listing         | Scope, Machine Name, IP Address, DNS Name, and Name                                                                                                                                                                                                                                                                                          | List of all inventoried workstations that match the specified battery name.                                                                                                   |
|                               | Bus Listing             | Scope, Machine Name, IP Address, DNS Name, and Bus Type                                                                                                                                                                                                                                                                                      | List of all inventoried workstations with the selected bus type.                                                                                                              |
|                               | CDROM Listing           | Scope, Machine Name, IP Address, DNS Name, Caption, Description, and Manufacturer                                                                                                                                                                                                                                                            | List of all inventoried workstations that match the specified CD caption, description, and manufacturer's name.                                                               |
|                               | Display Adapter Listing | Scope, Machine Name, IP Address, DNS Name, Video Architecture, and Description                                                                                                                                                                                                                                                               | List of all inventoried workstations that match the specified display adapter's video architecture and description.                                                           |
|                               | Floppy Listing          | Scope, Machine Name, IP Address, DNS Name, Manufacturer, and Description                                                                                                                                                                                                                                                                     | List of all inventoried workstations that match the specified floppy description and manufacturer's name.                                                                     |
|                               | Hardware Summary Report | Scope, Machine Name, IP Address, DNS Name, Operating System Type, Operating System Version, Processor Family, Curr. Clock Speed (Lower Bound in MHz), Curr. Clock Speed (Upper Bound in MHz), Total Memory (Lower Bound in MB), Total Memory (Upper Bound in MB), Hard Disk Size (Lower Bound in GB), and Hard Disk Size (Upper Bound in GB) | Operating system name, operating system version, processor family, processor current clock speed, memory, and hard disk size for each inventoried workstation.                |
|                               | Keyboard Listing        | Scope, Machine Name, IP Address, DNS Name, Description, and Layout                                                                                                                                                                                                                                                                           | List of all inventoried workstations that match the specified keyboard description and layout.                                                                                |
|                               | Modem Listing           | Scope, Machine Name, IP Address, DNS Name, and Name                                                                                                                                                                                                                                                                                          | List of all inventoried workstations that match the specified modem name.                                                                                                     |

| <b>Inventory Report Group</b>  | <b>Report Name</b>               | <b>Selection Criteria</b>                                                                                                                                                                                                   | <b>Information Displayed in the Inventory Report</b>                                                                                                                                                                                                                                                   |
|--------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                | Monitor Listing                  | Scope, Machine Name, IP Address, DNS Name, Manufacturer, Manufacture Date, Nominal Size (Lower Bound in inches), and Nominal Size (Upper Bound in inches)                                                                   | List of all inventoried workstations that match the specified monitor manufacturer's name, manufacture date, and the specified range of monitor's nominal size.                                                                                                                                        |
|                                | Network Adapter Listing          | Scope, Machine Name, IP Address, DNS Name, and Name                                                                                                                                                                         | List of all inventoried workstations that match the specified network adapter's name.                                                                                                                                                                                                                  |
|                                | Physical Disk Listing            | Show Chart, Scope, Machine Name, IP Address, DNS Name, Removable, Manufacturer, Description, Total Size (Lower Bound in GB), and Total Size (Upper Bound in GB)                                                             | List of all inventoried workstations that match the specified physical disk manufacturer's name, description, the specified range of total size and disks that are fixed, removable, or both.<br><br>You can also check the Show Chart box to display the Physical Disk Listing report in a pie chart. |
|                                | Pointing Device Listing          | Scope, Machine Name, IP Address, DNS Name, Pointing Device Type, and Pointing Device Name                                                                                                                                   | List of all inventoried workstations that match the specified pointing device type and name.                                                                                                                                                                                                           |
|                                | Power Supply Listing             | Scope, Machine Name, IP Address, DNS Name, and Description                                                                                                                                                                  | List of all inventoried workstations that match the specified power supply description.                                                                                                                                                                                                                |
|                                | Processor Listing                | Show Chart, Scope, Machine Name, IP Address, DNS Name, Processor Family, Maximum Speed (Lower Bound in MHz), Maximum Speed (Upper Bound in MHz), Current Speed (Lower Bound in MHz), and Current Speed (Upper Bound in MHz) | List of all the inventoried workstations with a processor family (such as Pentium Pro), processor maximum clock speed, and the processor current clock speed of the machines.<br><br>You can also check the Show Chart box to display the Processor Listing report in a pie chart.                     |
|                                | Sound Adapter Listing            | Scope, Machine Name, IP Address, DNS Name, and Name                                                                                                                                                                         | List of all inventoried workstations that match the specified sound adapter name.                                                                                                                                                                                                                      |
|                                | Storage Devices Inventory Report | Scope, Machine Name, IP Address, and DNS Name<br><br>You can also select to display the following options in the report: Fixed and Removable Disk, Logical Disk, Floppy, and CDROM.                                         | Fixed disk, removable disk, logical disk, floppy, and CD drive details for each inventoried workstation.                                                                                                                                                                                               |
|                                | System Chassis Listing           | Scope, Machine Name, IP Address, DNS Name, Chassis Type, and Manufacturer                                                                                                                                                   | List of all inventoried workstations that match the specified system chassis type and manufacturer's name.                                                                                                                                                                                             |
| System Configuration Inventory | Inventory Scan Listing           | Show Chart, Scope, Machine Name, IP Address, DNS Name, Last Scan Date (On or Before), Inventory Server Name, and Recent Information                                                                                         | Date and time of the last inventory scan, Inventory server name, and recent information on each inventoried workstation.<br><br>You can also check the Show Chart box to display the System Configuration Inventory report in a pie chart.                                                             |

| <b>Inventory Report Group</b> | <b>Report Name</b>                        | <b>Selection Criteria</b>                                                                                                                                                                    | <b>Information Displayed in the Inventory Report</b>                                                                                                                                                                                 |
|-------------------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | Memory Listing                            | Show Chart, Scope, Machine Name, IP Address, DNS Name, Total Memory (Lower Bound in MB), and Total Memory (Upper Bound in MB)                                                                | List of all the inventoried workstations within a range of memory size (such as 200-400 MB) and the total number of such machines.<br><br>You can also check the Show Chart box to display the Memory Listing report in a pie chart. |
|                               | Operating System Listing                  | Show Chart, Scope, Machine Name, IP Address, DNS Name, Operating System Type, and Operating System Version                                                                                   | List of all inventoried workstations that match the specified operating system type and version.<br><br>You can also check the Show Chart box to display the Operating System Listing in a pie chart.                                |
|                               | Networking Information Report             | Scope, Machine Name, IP Address, and DNS Name                                                                                                                                                | Network adapter type, DNS, IP address, MAC address, IPX address, and Windows Domain name for each inventoried workstation.                                                                                                           |
|                               | System Information Listing                | Scope, Machine Name, IP Address, DNS Name, and Computer Manufacturer                                                                                                                         | List of all inventories workstations that match the specified computer manufacturer's name.                                                                                                                                          |
|                               | System Internal Hardware Inventory Report | Scope, Machine Name, IP Address, and DNS Name<br><br>You can also select to display the following options in the report: System IRQ, System Cache, System DMA, System Slot, and Motherboard. | IRQ, cache, DMA, slot, and motherboard for each inventoried workstation.                                                                                                                                                             |
| Software Inventory            | Add-Remove Programs by Machine            | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, and Software Name                                                                                         | List of all software that are listed in the "Add-Remove Programs" list for each inventoried workstation.                                                                                                                             |
|                               | Anti-Virus Signature Files by Machine     | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Software Name, Min Virus Definition Date and Max Virus Definition Date                                    | List of all antivirus signature files grouped by antivirus product installed on each inventoried workstation.                                                                                                                        |
|                               | Anti-Virus Signature Machine Count        | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Software Name, Min Virus Definition Date and Max Virus Definition Date                                    | List showing the count of inventoried workstations that have any antivirus product installed.                                                                                                                                        |
|                               | Disk Usage by Machine                     | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, and File Extension                                                                                        | List of all inventoried workstations and the disk usage that match the specified file extension.                                                                                                                                     |
|                               | Exception List by Machine                 | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, File Name, Vendor Name, and Product Name                                                                  | List of all inventoried workstations and the file information that match the specified filename, vendor name, and product name.                                                                                                      |



| <b>Inventory Report Group</b> | <b>Report Name</b>                     | <b>Selection Criteria</b>                                                                                                      | <b>Information Displayed in the Inventory Report</b>                                                                           |
|-------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
|                               | Installed NetWare Software by Machine  | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, and Software Name                           | List of all inventoried NetWare® machines and the products.dat details that match the given software name.                     |
|                               | Internet Explorer Installation Count   | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Internet Explorer Version, and Service Pack | List showing the count of inventoried workstations with Internet Explorer installed.                                           |
|                               | Internet Explorer Patches by Machine   | Scope, Machine Name, IP Address, DNS Name, Internet Explorer Version, and Service Pack                                         | List of all installed patches for the Internet Explorer version that matches the specified value and patch name.               |
|                               | Internet Explorer by Machine           | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Internet Explorer Version, and Service Pack | List of all Internet Explorer installations that match the specified version.                                                  |
|                               | MSI Products by Machine                | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Software Name, and Vendor Name              | List of all products installed on each inventoried workstation and that are listed in the MSI (Microsoft* Installer) database. |
|                               | Microsoft Office Components by Machine | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Microsoft Office Version, and Service Pack  | List of all products that match the specified product name and vendor name, and have been installed from the specified source. |
|                               | Microsoft Office Installation Count    | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Microsoft Office Version, and Service Pack  | List showing the count of inventoried workstations with Microsoft Office installed.                                            |
|                               | Microsoft Office by Machine            | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Microsoft Office Version, and Service Pack  | List of all Microsoft Office installations that match the specified version.                                                   |
|                               | Novell Client Components by Machine    | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Novell Client Version, and Service Pack     | List of all Novell Client components that match the specified version.                                                         |
|                               | Novell Client Installation Count       | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Novell Client Version, and Service Pack     | List showing the count of inventoried workstations with Novell Client installed.                                               |
|                               | Novell Client by Machine               | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Novell Client Version, and Service Pack     | List of all Novell Client installations that match the specified version.                                                      |

| <b>Inventory Report Group</b> | <b>Report Name</b>                               | <b>Selection Criteria</b>                                                                                                                                                                              | <b>Information Displayed in the Inventory Report</b>                                                                                                  |
|-------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | Outlook Express Installation Count               | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, and Outlook Express Version                                                                                         | List showing the count of inventoried workstations with Outlook Express installed.                                                                    |
|                               | Outlook Express by Machine                       | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, and Patch Name                                                                                                      | List of all Outlook Express installations that match the specified version.                                                                           |
|                               | Software Dictionary Application Files by Machine | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Vendor Name, Software Name, and Software Version                                                                    | List of all inventoried workstations and their software dictionary application files that match the specified vendor, software, and software version. |
|                               | Software Dictionary Applications by Machine      | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Vendor Name, Software Name, and Software Category                                                                   | List of all inventoried workstations and their software dictionary applications that match the specified vendor, software, and software version.      |
|                               | Software Dictionary Versions Machine Count       | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, General Dictionary Version, and Private Dictionary Version                                                          | List showing the count of all inventoried workstations with specified General Dictionary and Private Dictionary versions.                             |
|                               | Software Dictionary Versions by Machine          | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, General Dictionary Version, and Private Dictionary Version                                                          | List of all inventoried workstations with specified General Dictionary and Private Dictionary versions.                                               |
|                               | Software Installation Count                      | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Vendor Name, Software Name, and Software Version                                                                    | List showing the count of inventoried workstations with specified vendor name, software, and version.                                                 |
|                               | Software Installations                           | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Vendor Name, Software Name, and Software Version                                                                    | List of all inventoried workstations with specified vendor name, software, and version.                                                               |
|                               | Software by Machine                              | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Vendor Name, Software Name, and Software Version                                                                    | List of all inventoried workstations and software information that match the specified vendor name, software, and version.                            |
|                               | System Software Inventory Report                 | Scope, Machine Name, IP Address, and DNS Name. You can also select to display the following options in the report: Display Driver, Pointing Device Driver, Network Adapter Driver, and NetWare Client. | Drivers (such as pointing device drivers, network adapter drivers, and display drivers) and Novell NetWare® Client for each inventoried workstation.  |

| <b>Inventory Report Group</b> | <b>Report Name</b>                                                        | <b>Selection Criteria</b>                                                                                            | <b>Information Displayed in the Inventory Report</b>                                                                                                                               |
|-------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | Windows Components by Machine                                             | Scope, Machine Name, IP Address, DNS Name, Windows Version, and Service Pack                                         | List of all Windows components that match the specified version.                                                                                                                   |
|                               | Windows Installation Count                                                | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Windows Version, and Service Pack | List showing the count of inventoried workstations that have Windows operating system installed.                                                                                   |
|                               | Windows Media Player Count                                                | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, and Windows Media Player Version  | List showing the count of inventoried workstations with Windows Media Player installed.                                                                                            |
|                               | Windows Media Player Patches by Machine                                   | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, and Windows Media Player Version  | List of all patches for Windows Media Player installations that match the specified version and patch name.                                                                        |
|                               | Windows Media Player by Machine                                           | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, and Windows Media Player Version  | List of all Windows Media Player installations that match the specified version.                                                                                                   |
|                               | Windows Operating System by Machine                                       | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Windows Version, and Service Pack | List of all Windows operating systems that match the specified version and serial number.                                                                                          |
|                               | Windows Security Patches by Machine                                       | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, Max Last Scan Time, Windows Version, and Service Pack | List of all patches for Windows operating systems that match the specified version and patch name.                                                                                 |
|                               | Novell ZENworks Desktop Management Installed Agent Components by Machine  | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, and Max Last Scan Time                                | List of all machines that were successfully last scanned within the specified time range and the agent components of ZENworks 6.5 Desktop Management installed on these machines.  |
|                               | Novell ZENworks Desktop Management Installed Server Components by Machine | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, and Max Last Scan Time                                | List of all machines that were successfully last scanned within the specified time range and the server components of ZENworks 6.5 Desktop Management installed on these machines. |
|                               | Novell ZENworks Handheld Management Installed Components by Machine       | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, and Max Last Scan Time                                | List of all machines that were successfully last scanned within the specified time range and the ZENworks 6.5 Handheld Management components installed on these machines.          |

| Inventory Report Group | Report Name                                                                                                                                                        | Selection Criteria                                                                                       | Information Displayed in the Inventory Report                                                                                                                                     |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | Novell ZENworks Installed Components by Machine                                                                                                                    | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, and Max Last Scan Time                    | List of all machines that were successfully last scanned within the specified time range and the ZENworks 6.5 components installed on these machines.                             |
|                        | Novell ZENworks Installed Suites by Machine                                                                                                                        | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, and Max Last Scan Time                    | List of all machines that were successfully last scanned within the specified time range and the ZENworks 6.5 suites installed on these machines.                                 |
|                        | Novell ZENworks Server Management Installed Agent Components by Machine                                                                                            | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, and Max Last Scan Time                    | List of all machines that were successfully last scanned within the specified time range and the agent components of ZENworks 6.5 Server Management installed on these machines.  |
|                        | Novell ZENworks Server Management Installed Server Components by Machine                                                                                           | Scope, Machine Name, IP Address, DNS Name, Min Last Scan Time, and Max Last Scan Time                    | List of all machines that were successfully last scanned within the specified time range and the server components of ZENworks 6.5 Server Management installed on these machines. |
| Others                 | User Defined Reports<br><br>For more information on how to create user-defined reports, see the <a href="#">“Understanding User-Defined Reports” on page 1064.</a> | Based on the options specified by the user in the consoleone\consoleone_version\bin\userreports.ini file | Displays the user-defined report.                                                                                                                                                 |

**NOTE:** The Show Chart selection criteria display a graphical representation of the Inventory report.

## Generating Inventory Reports

- 1** Invoke the Inventory report using any of the following methods:
  - ◆ To invoke the Inventory report from a database object, right-click the database object, then click Reporting.
  - ◆ To invoke the Inventory report from the ConsoleOne Tools menu, you must first configure the database, and then click Tools, then click ZENworks Reports. For more information on how to configure the Inventory database, see [“Configuring the Inventory Database” on page 1036.](#)

- 2** Click the report you want to generate.

The description for the report is displayed on the right side of the screen.

See the table with listing of simple Inventory lists and listing of the comprehensive inventory reports.

### 3 Specify the selection criteria.

The Scope selection criteria will be enabled only if both ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management are installed on the same machine.

For example, if you want to view the inventory information of all inventoried workstations, select Workstation as the scope selection criteria. The report will display the inventory information of all inventoried workstations within the configured Inventory database.

Based on the type of report you want, you can filter the information. For example, to view all inventoried workstations that have the Windows\* 2000 operating system, you would select Operating System Listing, specify the selection criteria scope as Both, and the operating system type as Windows 2000.

Depending on the type of report you want, you can filter the information.

Follow these guidelines as you work with the Reporting dialog:

- ◆ The selection criteria in the Inventory report is case-sensitive.  
For example, if you want to know the list of machines whose Distinguished Name is “CN=MACHINE1.OU=ENG.O=NOVELL”, specify “OU=ENG.O=NOVELL” as the selection criterion. All the machines whose DN contains “OU=ENG.O=NOVELL” are displayed in the Inventory report but the machines whose DN contains “ou=eng.o=novell” are not displayed in the Inventory report.
- ◆ If the Reporting dialog box allows wildcards, you can use an asterisk (\*) or question mark (?) with all selection criteria. The wildcard characters can be used for character data only.

The following table lists examples of wildcards.

| Example       | Specifies to Include                                                                          |
|---------------|-----------------------------------------------------------------------------------------------|
| *             | All items                                                                                     |
| 164.99.*      | All items starting with 164.99.                                                               |
| 164.9?.215.23 | All items starting with 164.9, followed by any character, and ending with “.215.23”           |
| 164.96.215.23 | The single named item, in this case the inventoried workstation with the specified IP address |

### 4 Click Run Selected Report.

A status box appears displaying the progress of the report generation. When the report is generated, it appears in the viewer. Use the buttons on the toolbar to page through, print, or export the report.

**NOTE:** ZENworks Inventory report supports only the following double-byte character languages: German, English, Spanish, French, Portugese, and Japanese. Other double-byte characters might not be displayed properly in the Inventory reports.

## Understanding the Proxy Database

When you run the reports from a non-English management console on a Sybase\* Inventory database running on NetWare, the Sybase database will start on the console on invoking the selected report. This is called the ZENworks 6.5 Desktop Management proxy database.

A Sybase ASA icon is displayed in the system tray of the management console as soon as you run the selected report. The proxy database automatically connects to the remote database on which the reports are being invoked and retrieves the required information. Because the data in the remote database (Sybase running on NetWare) is stored in UTF-8 format and Crystal Reports cannot display the characters encoded in UTF-8 format, the proxy database converts all UTF-8 data into the local Windows language character set.

The following sections provide information on:

- ◆ [“Invoking the Proxy Database” on page 1062](#)
- ◆ [“Shutting Down the Proxy Database” on page 1062](#)
- ◆ [“Configuring the Proxy Databases to Run on Ports Other Than the Default Ports” on page 1063](#)

### Invoking the Proxy Database

The proxy database is invoked in the following scenarios:

- ◆ If reports are invoked from a non-English management console on the ZENworks 6.5 Desktop Management or ZENworks for Desktops 4.x Sybase Inventory database running on NetWare.
- ◆ If reports are invoked from a non-English management console on the ZENworks for Desktops 4.x Sybase Inventory database running on Windows.

The proxy database is not invoked in the following scenarios:

- ◆ If reports are invoked from an English management console.
- ◆ If reports are invoked from a non-English management console on the ZENworks 6.5 Desktop Management or ZENworks for Desktops 4.x Inventory database mounted on Oracle\* or MSSQL 2000 database.
- ◆ If reports are invoked from a non-English management console on the ZENworks 6.5 Desktop Management Sybase Inventory database running on Windows.
- ◆ If any inventory components other than reports are invoked.

Two proxy databases can be mounted simultaneously; one for the ZENworks 6.5 Desktop Management database and, the other for the ZENworks for Desktops 4.x database.

### Shutting Down the Proxy Database

If you close the Reporting dialog box or if you close ConsoleOne, you must manually shut down the proxy database.

To manually shut down the proxy database:

- 1 In the management console, right-click the proxy database icon located in the system tray, then click Exit.

## Configuring the Proxy Databases to Run on Ports Other Than the Default Ports

If the default ports that are used by Sybase are also used by other applications, there might be potential port conflicts. To avoid this, you can configure the proxy database to run on ports other than the default ports.

- 1** Bring up Proxy DB on Port 2639/2640 depending on the database port with the database messages redirected to a file.  

If 2639/2640 are already blocked by some other application, then Sybase mounts the proxy database on a free port that it finds and puts this information in the output file. On trying to connect, there is an error message “Unable to connect...”
- 2** Exit Proxy Sybase, get the port number from the output file, and enter the port number into the Proxy Ports configuration file (*consoleone\1.2\bin\zen\sybaseproxy\proxyproperties.properties*)
- 3** Invoke the reports again, so Sybase will read the proxy ports configuration file, get the port, and start Sybase in the specified port.  

The Reporting snap-in would modify ODBC DSN with the new port information.
- 4** Restart ConsoleOne for the changes to take effect.

## Printing an Inventory Report

- 1** **Generate and view the report.**
- 2** To change the default settings of the Printer, click the Printer Setup icon and modify the settings.
- 3** Click the printer icon.

## Exporting an Inventory Report to a File

- 1** **Generate and view the report.**
- 2** On the toolbar, click the Export Report icon.
- 3** In the Export dialog box, specify the location and file format.

If you choose to export the Inventory report to a text file, in the Export to Text dialog box, select the User defined option and set the value to 16 because the data exported will be truncated if the value is less than 16.

If you want to export the Inventory report to an HTML file, you can select HTML 3.2 or HTML 4.0 (DHTML) file format. We recommend that you export to HTML 4.0 (DHTML) because the data exported to HTML 3.2 will not be formatted properly.

If you want to export the Inventory report to a comma-separated value (.csv) file, do the following:

- 3a** Export the report to Microsoft Excel.  

**NOTE:** If you choose to export to .csv at this point, the report will not be properly exported.
  - 3b** Open the .xls file.
  - 3c** Click File, then click Save As.
  - 3d** In the Save as type field, choose CSV (Comma delimited) (\*.csv).
  - 3e** Click Save.
- 4** Click OK.

- 5 Browse for and select the directory where you want to save the exported file.
- 6 Click OK.

## Understanding User-Defined Reports

You can use the Crystal Report Designer to generate reports with the information in the Inventory database.

Before generating the reports, you must ensure that the report file (.rpt) is created using Crystal Report Designer 8.0/8.5. For more information on how to create a .rpt file, see the Crystal Report documentation.

**IMPORTANT:** Except for the Software Inventory reports, you can use any Inventory report as a template to create a report.

To generate the User-defined Inventory report:

- 1 On the machine where you are designing the report, set the ODBC DSN name to ZenInventory.
  - 1a Click Start, click Settings, then click Control Panel.
  - 1b Double-click ODBC Data Sources (32 Bit), then click Add
  - 1c Select the ODBC driver for the database you want to connect to.
  - 1d Click Finish.
  - 1e Specify the Data Source name as ZenInventory and specify the details.

**NOTE:** If you want to specify a data source name other than ZenInventory, you must configure the ODBC name on each of the machines where you invoke user-defined reports through ConsoleOne.

- 2 After you have designed the report, place the report in the `\consoleone\version\reporting\canned\novellreporting\zeninventory\locale` directory.

Where *locale* can be EN for English language reports, FR for French language reports, PT\_BR for Portuguese-Brazilian language reports, DE for German language reports, and ES for Spanish language reports. The non-English reports will be displayed based on the respective locale of the machine.

- 3 Set the values in the `userreports.ini` file in the `\consoleone\version\bin` directory. The `userreports.ini` file must contain the following values:

```
#[ReportName] <actual name of the rpt file without the .rpt extension>
#DisplayName=User Defined Report's display name
#Param1=Constant,Display name,<if combo then {val-1|val-2|val-3}>
#<where Param1 is the internal name of the parameter as stored in the .
rpt file>
#<Constants are 1, 2 and 3 for Combo selection, text field and numeric
field respectively>
```

For example, you can set the value as given below:

```
[ListSystemInformation]
DisplayName=System Information
Role=1,Role,{2|3|5}
```



```
IPAddress=2, IP Address
DNName=2, Distinguished Name
DNTree=2, Distinguished Tree
DNSName=2, DNS Name
[ListMemory]
DisplayName=Memory
Role=1, Role, {2|3|5}
IPAddress=2, IP Address
DNName=2, Distinguished Name
DNTree=2, Distinguished Tree
DNSName=2, DNS Name
MemoryLowerLimit=3, Memory Lower Bound
```

After you set the values in the userreports.ini file, the user defined report is displayed in the inventory reports tree. You can specify multiple reports in the userreports.ini file.

**NOTE:** if the userreports.ini file is empty, the user cannot view the user-defined reports in the inventory reports tree.

#### 4 Click Run Selected Report.

## Exporting the Inventory Information

You can customize the inventory information you want to export from the Inventory database into a comma-separated value (.csv) or an XML file.

You select the inventory components that should be exported, such as the Operating System Name and Version. You can further filter the inventoried workstations whose attributes will be exported depending upon the export scope. For example, you can export only those inventoried workstations with a particular processor speed. The Data Export tool will export all inventoried workstations satisfying these query conditions into a .csv or .xml file.

If you want to reuse the same data export settings for export, you can save the data export configurations.

The following sections will help you use the Data Export tool:

- ◆ [“Procedure to Export the Inventory Information” on page 1066](#)
- ◆ [“Loading an Existing Configuration File” on page 1068](#)
- ◆ [“Running the Data Export Program From the Inventory Server” on page 1069](#)
- ◆ [“An Overview of XML and the Contents of an XML File” on page 1070](#)

## Procedure to Export the Inventory Information

- 1** In ConsoleOne, select a container.
- 2** Invoke the Data Export tool.
  - ◆ To invoke the Data Export tool from a database object, right-click the database object, click ZENworks Inventory, then click Data Export.
  - ◆ To invoke the Data Export tool from the ConsoleOne Tools menu, you must first configure the Inventory database and then click Tools, click ZENworks Inventory, then click Data Export. For more information on how to configure the Inventory database, see [“Configuring the Inventory Database” on page 1036](#).
- 3** Select Create a New Database Query.

This option lets you add a new query that defines the inventory components such as hardware, software, network, and others that you want to export. You can also specify the criteria to limit the inventoried workstations and the database sites to be included in the query. Based on the inventory components and criteria you specify, the inventory information from the database is exported to a .csv or .xml file.

**NOTE:** If you want to load existing configuration settings for data export, select Open a Saved Database Query. This options lets you modify the settings for data export and then export the data to a .csv or .xml file. For more information, see [“Loading an Existing Configuration File” on page 1068](#).

- 4** Click Next.
- 5** Specify the filter conditions for the inventoried workstations.
  - 5a** Click Edit Query. For more information on how to define a query, see [“Viewing Inventory Information by Querying the Database” on page 1049](#).
  - 5b** (Optional) The Enable Filter option is available for selection only if you define the query using the software classes and its attributes of a supported category. Following are supported categories:
    - Category 1: Software Group, Software Group File Information, Software Group Patch Information, Software, File Information, and Patch Information
    - Category 2: Exclude File Information
    - Category 3: Disk Usage
- 5c** Set the scope for exporting the information from the Inventory database.

If the ConsoleOne snap-ins and the Data Export tool have been installed for both ZENworks 6.5 Server Management and ZENworks 6.5 Desktop Management, the Data Export tool allows you to change the scope of exporting the inventory information.

By default, the Workstations option will be enabled. The query locates all inventoried workstations satisfying the query expression. If ZENworks 6.5 Server Management and ZENworks 6.5 Desktop Management are installed in the same environment, the Workstations, the Servers and the Both options will be available. When you select Workstations, the query locates all inventoried workstations satisfying the query expression. Choose Both to include all inventoried workstations and inventoried servers satisfying the query expression.

**5d** Review the query that you define.

**5e** Click Next.

**6** Select the database fields from the list of database fields, then click Add.

If you select a group component, all subcomponents of the group are added. For example, if you select the Software component group, the subcomponents of Software such as vendor name, product name, and version are added.

**7** Click Next.

**8** View the data export settings.

**8a** Click Save Configuration to save the configurations settings to an .exp file. Specify the filename for the .exp file and then click Save.

The configuration file (.exp) contains the settings such as the inventory components you selected, and also the query formed for filtering the inventoried workstation data export. You create an .exp file so that you can reload the configuration settings and generate the .csv or .xml files any time you need to.

**8b** Click Next.

**9** Select the machine from where you intend to perform the query.

**9a Perform the Query from This Computer:** Select Perform the Query from This Computer to run the data export processing from the workstation computer. This option will access the Inventory database on the specified database server and export the data in to a .csv or .xml file.

**Perform the Query on a Remote Server:** Select Perform the Query on a Remote Server to run the data export program from any server that has Workstation Inventory components installed.

Running the Data Export program from a server is recommended if you are exporting data from a large database with more than 10,000 inventoried workstations or if you have specified complex queries with more than 20 database fields selected for exporting.

**9b** If you want to apply default encoding of the machine to the .csv or .xml file, select Default Encoding. The Default Encoding check box is selected by default. To apply Unicode encoding to the .csv or .xml file, select Unicode Encoding.

**NOTE:** If you create an .exp file to perform the data export from the local machine but use the same .exp to perform data export from a remote server and you want Unicode encoding, you must manually edit the .exp file and set the value of DEExportEncode to UNICODE.

**9c** Click Next.

**10** Select an export option.

**10a** Select one the following options:

**Export to CSV:** Saves the inventory information in a .csv file.

**Export to XML:** Saves the inventory information in a .xml file.

**10b** Specify the path and the filename where you want to create the .csv or.xml file.

**10c** Click Finish.

If the configuration settings are not saved, you will be prompted to save the changes

This generates the .csv or .xml file in the specified directory.

Open the .csv file in Microsoft Excel or any other CSV-supported viewer to view the exported data.

Open the .xml file in a XML viewer such as XML Spy. For more information, see [“An Overview of XML and the Contents of an XML File” on page 1070](#).

## Loading an Existing Configuration File

You can load an existing configuration file (.exp). An .exp file contains the settings such as the inventory components you selected, and also the query formed for filtering the inventoried workstation data export.

After you load the .exp file, you can modify the settings for data export and then export the data to a .csv or .xml file.

To load existing configuration settings for data export:

- 1** Ensure that you have generated the data configuration files.

Complete the procedure outlined in [“Procedure to Export the Inventory Information” on page 1066](#). This procedure generates the .csv or .xml file and the data configuration files.

- 2** In ConsoleOne, select a container and invoke the Data Export tool using any of the following methods:

- ◆ To invoke the Data Export tool from a database object, right-click the database object, click ZENworks Inventory, then click Data Export.
- ◆ To invoke the Data Export tool from the ConsoleOne Tools menu, you must first configure the Inventory database and then click Tools, click ZENworks Inventory, then click Data Export. For more information on how to configure the Inventory database, see [“Configuring the Inventory Database” on page 1036](#).

- 3** Select Open a Saved Database Query, then click Next.

The default directory for .exp files is `consoleone\consoleone_version\reporting\export`. Click Browse to open an existing .exp file.

If the .exp and .cfg files are invalid or are an older version, the data export will not proceed. The data export displays the number of servers and servers that satisfy the query and filter conditions for export.

- 4** Select a saved database query from the list of saved queries.

**4a** Select a saved database query from the list of saved queries. The list box displays the .exp files that are saved in `consoleone\consoleone_version\reporting\export`.

or

Click Browse to open an existing .exp file in any other location.

**4b** (Optional) If the .exp and .cfg files are invalid or are an older version, the data export will not proceed. The data export displays the number of servers and servers that satisfy the query and filter conditions for export.

If you want to modify the existing query, click Edit and modify the query and select the new database fields. For more information on how to define a query, see [“Viewing Inventory Information by Querying the Database” on page 1049](#).

**4c** Click Next.

- 5** View the data export settings.

- 5a** Click Save Configuration to save the configurations settings to an .exp file. Specify the filename for the .exp file and then click Save.

The configuration file (.exp) contains the settings such as the inventory components you selected, and also the query formed for filtering the inventoried workstation data export. You create an .exp file so that you can reload the configuration settings and generate the .csv or .xml files any time you need to.

- 5b** Click Next.

- 6** Select the machine from where you intend to perform the query.

- 6a Perform the Query from This Computer:** Select Perform the Query from This Computer to run the data export processing from the workstation computer. This option will access the Inventory database on the specified database server and export the data in to a .csv or .xml file.

**Perform the Query on a Remote Server:** Select Perform the Query on a Remote Server to run the data export program from any server that has Workstation Inventory components installed.

Running the Data Export program from a server is recommended if you are exporting data from a large database with more than 10,000 inventoried workstations or if you have specified complex queries with more than 20 database fields selected for exporting.

- 6b** If you want to apply default encoding of the machine to the .csv or .xml file, select Default Encoding. The Default Encoding check box is selected by default. To apply Unicode encoding to the .csv or .xml file, select Unicode Encoding.

- 6c** Click Next.

- 7** Select an export option.

- 7a** Select one the following options:

**Export to CSV:** Saves the inventory information in a .csv file.

**Export to XML:** Saves the inventory information in a .xml file.

- 7b** Specify the path and the filename where you want to create the .csv or.xml file.

- 7c** Click Finish.

## Running the Data Export Program From the Inventory Server

Running the Data Export program from a server is recommended if you are exporting information from a large database with more than 10,000 inventoried workstations or if you have specified complex queries with more than 20 database fields selected for exporting.

To run the data export program from the server:

- 1** Ensure that you have generated the data configuration files.

Follow the Step 1 to Step 5 as outlined in [“Procedure to Export the Inventory Information” on page 1066](#) and ensure that you save the settings in the .exp file.

When you save an .exp file, a corresponding data configuration file is created in the same directory with the same filename as the .exp file and with the .cfg file extension.

- 2** Click Perform the Query on a Remote Server to run the data export program from any server that has Workstation Inventory components installed, then click Finish.
- 3** Copy the .exp file and .cfg file to the server.

These two files should exist in the same directory on the Inventory server.

From the server console, run `dbexport.ncf` on NetWare servers or `dbexport.bat` on Windows servers. To do so, enter

```
DBEXPORT "configuration_filename.exp" "csv_filename.csv"
```

where *configuration\_filename.exp* is an existing file that contains the data export settings. You must enter the *configuration\_filename.exp* and the *csv\_filename.csv* filenames within double quotes. The data exported from the database will be stored in *csv\_filename.csv*.

The corresponding `.cfg` file for the `.exp` file should be in the same folder as the `.exp` file. The `.cfg` file contains the list of the database attributes to be exported.

If the `.exp` and `.cfg` files are invalid or are older versions, the data export will not proceed. The data export displays the number of inventoried workstations that satisfy the query and filter conditions for export.

## An Overview of XML and the Contents of an XML File

Workstation Inventory allows you to export the inventory information from the Inventory database into an Extensible Markup Language (.xml) file by using the Data Export tool.

XML is a markup language that provides a format for describing structured data. An XML document is a text-based format. The XML source is made up of XML elements. The XML tags are not predefined and you must define your own tags.

For more information about XML, see the [World Wide Web Consortium \(W3C\) XML Activity and Information web site \(http://www.w3.org/XML\)](http://www.w3.org/XML).

A sample .xml file is as follows:

```
<?xml version="1.0" encoding='UTF-8'?>
<!DOCTYPE InventoryInformation [<!ELEMENT Attribute (value)>
<!ATTLIST Attribute
 name CDATA #REQUIRED
 type (custom | regular) #REQUIRED
 units CDATA #IMPLIED
>
<!ELEMENT Class (Attribute*)>
<!ATTLIST Class
 name CDATA #REQUIRED
 instance CDATA #REQUIRED
>
<!ELEMENT InventoryInformation (Machine+)>
<!ELEMENT Machine (Class+)>
<!ATTLIST Machine
 name CDATA #REQUIRED
>
```

```

<!ELEMENT value (#PCDATA)>]
>
<InventoryInformation>
 <Machine name="blr-stl-zen1.blr.novell.com">
 <Class name="Processor" instance="1">
 <Attribute name="Current Clock Speed" type="regular" units="MHz">
 <value>2800</value>
 </Attribute>
 <Attribute name="Processor Family" type="regular">
 <value>"Intel (R) Xeon(TM) "</value>
 </Attribute>
 </Class>
 <Class name="IP" instance="1">
 <Attribute name="IP Address" type="regular">
 <value>164.99.163.9</value>
 </Attribute>
 <Attribute name="Subnet Mask" type="regular">
 <value>255.255.252.0</value>
 </Attribute>
 </Class>
 </Machine>
</InventoryInformation>

```

XML uses a Document Type Definition (DTD) to describe the data. DTD is embedded within the XML document.

A DTD lists the elements, attributes, and entities contained in a document and also, defines the relationship between the elements and attributes.

Following is the DTD embedded in the preceding sample xml file:

```

<?xml version="1.0" encoding='UTF-8'?>
<!DOCTYPE InventoryInformation [<!ELEMENT Attribute (value)>
<!ATTLIST Attribute
 name CDATA #REQUIRED
 type (custom | regular) #REQUIRED
 units CDATA #IMPLIED
>
<!ELEMENT Class (Attribute*)>
<!ATTLIST Class

```

```

 name CDATA #REQUIRED
 instance CDATA #REQUIRED
 >
<!ELEMENT InventoryInformation (Machine+)>
<!ELEMENT Machine (Class+)>
<!ATTLIST Machine
 name CDATA #REQUIRED
 >
<!ELEMENT value (#PCDATA)>]
>

```

The following table explains the elements used in the sample XML file:

| Elements Used in the Sample XML File | Description                 |
|--------------------------------------|-----------------------------|
| Class                                | Device name                 |
| Type                                 | Custom or Regular attribute |
| Units                                | Unit information            |
| Instance                             | Device instance count       |

## Viewing Inventory Information Without Using ConsoleOne

The desktop4.exe application that ships with ZENworks 6.5 Desktop Management allows you to view the Workstation Inventory and query the Inventory database without using ConsoleOne.

You can install desktop4.exe using either of the following methods:

- ◆ Install the ZENworks 6.5 Desktop Management Workstation Inventory ConsoleOne snap-ins. This automatically installs desktop4.exe. Desktop4.exe is located in the *Consoleone\_installation\_directory\consoleone\_version\bin* directory.
- ◆ From the desktop directory in the *ZENworks 6.5 Companion 2 CD*, extract desktop.zip to a temporary directory on your machine. Copy the contents of the *temporary\_directory\desktop* directory to *Consoleone\_installation\_directory*.

Before you run desktop4.exe, you must perform the following tasks:

**1** Identify your Inventory database.

Depending upon the Inventory database that you have configured for, you must edit the following .ini files: sybase.ini, oracle.ini, or mssql.ini. These files will be located in the *consoleone\_installation\_directory\bin* directory.

**2** Enter the following details in the .ini file:

**IP Address:** IP address of the server on which the Inventory database is running.

**User Name:** Database user ID having Read permissions on the database.

**Password:** Database password for the above user.



**Scope:** The scope for querying the Inventory database. If you have installed ZENworks 6.5 Desktop Management, enter **ZFD**. If you have installed ZENworks 6.5 Server Management, enter **ZFS**. If you have installed ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management in the same setup, enter **BOTH**.

**Database Administrator Username:** Enter the database administrator username in the *DBAUSERNAME* parameter.

**Database Administrator Password:** Enter the database administrator password in the *DBAPASSWORD* parameter.

A sample sybase.ini file is as follows:

```
Novell Inc.

IPADDRESS=164.99.149.247

USERNAME=MW_READER

PASSWORD=novell

ZFD / ZFS / BOTH

SCOPE=Both

DBAUSERNAME=MW_DBA

DBAPASSWORD=novell
```

A sample oracle.ini file is as follows:

```
Novell Inc.

IPADDRESS=164.99.149.247

USERNAME=MWO_READER

PASSWORD=novell

ZFD / ZFS / BOTH

SCOPE=ZFD

ORACLE_SID=orcl

DBAUSERNAME=MW_DBA

DBAPASSWORD=novell
```

A sample mssql.ini file is as follows:

```
Novell Inc.

IPADDRESS=164.99.149.247

USERNAME=MW_READER

PASSWORD=novell

ZFD / ZFS / BOTH

SCOPE=ZFS

ORACLE_SID=orcl

DBAUSERNAME=MW_DBA

DBAPASSWORD=novell
```

You can run `desktop4.exe` from the MS-DOS prompt or by using a `.bat` file. You must specify valid values for the following parameters:

- ◆ **-w:** Typeful and fully qualified distinguished name (DN) of the inventoried workstation
- ◆ **-n:** eDirectory tree name to which the inventoried workstation is registered.
- ◆ **-c:** Inventory operation to be performed on the inventoried workstation. To perform a query, enter `-c"Query"`. To perform an inventory summary, enter `-c"Inventory"`.
- ◆ **-d:** Type of the Inventory database server: Sybase, Oracle, or MSSQL.

For example, to perform a query using `desktop4.exe`, use either of the following methods:

- ◆ At the MS-DOS prompt, enter the following command:

```
Desktop4 -w"CN=WIXP-R1B164_99_151_48.OU=WSProm.O=Novell"
-n"MANTECHR5C-TREE" -c"Query" -D"Sybase"
```

where `Desktop4` is the name of the application; `"CN=WIXP-R1B164_99_151_48.OU=WSProm.O=Novell"` is the DN of the inventoried workstation; `"MANTECHR5C-TREE"` is the eDirectory tree name; `"Query"` is the Inventory operation to be performed on the inventoried workstation; and `"Sybase"` is the Inventory database.

- ◆ Use a `.bat` file:

- 1 Create a `.bat` file with the following contents in the same directory as `desktop4.exe`:

```
Desktop4 -w"CN=WIXP-R1B164_99_151_48.OU=WSProm.O=Novell"
-n"MANTECHR5C-TREE" -c"Query" -D"Sybase"
```

where `Desktop4` is the name of the application; `"CN=WIXP-R1B164_99_151_48.OU=WSProm.O=Novell"` is the DN of the inventoried workstation; `"MANTECHR5C-TREE"` is the eDirectory tree name; `"Query"` is the Inventory operation to be performed on the inventoried workstation; and `"Sybase"` is the Inventory database.

- 2 Run the `.bat` file.

You can perform an inventory summary using either of the following methods:

- ◆ At the MS-DOS prompt, enter the following command:

```
Desktop4 -w"CN=WIXP-R1B164_99_151_48.OU=WSProm.O=Novell" -n"INDYPROM-
TREE" -c"Inventory" -D"Oracle"
```

where `Desktop4` is the name of the application; `"CN=WIXP-R1B164_99_151_48.OU=WSProm.O=Novell"` is the DN of the inventoried workstation; `"INDYPROM-TREE"` is the eDirectory tree name; `"Inventory"` is the Inventory operation to be performed on the inventoried workstation; and `"Oracle"` is the Inventory database.

- ◆ Use a `.bat` file:

- 1 Create a `.bat` file with the following contents in the same directory as `desktop4.exe`:

```
Desktop4 -w"CN=WIXP-R1B164_99_151_48.OU=WSProm.O=Novell" -n"INDYPROM-
TREE" -c"Inventory" -D"Oracle"
```

where `Desktop4` is the name of the application; `"CN=WIXP-R1B164_99_151_48.OU=WSProm.O=Novell"` is the DN of the inventoried workstation; `"INDYPROM-TREE"` is the tree name; `"Inventory"` is the Inventory operation to be performed on the inventoried workstation; and `"Oracle"` is the Inventory database.

- 2 Run the `.bat` file.

For more information on how to query an Inventory database, see [“Viewing Inventory Information by Querying the Database” on page 1049](#). For more information on inventory information displayed by the Workstation Inventory, see [“Viewing the Inventory Summary of an Inventoried Workstation” on page 1036](#).

Desktop4.exe is a back-end utility that can be leveraged by developing user-friendly interface to launch desktop4.exe.

Using desktop4.exe, you can also initiate Remote Management operations. For more information, see [“Starting Remote Management Operations Without Using ConsoleOne” on page 763](#).

## Retrieving Inventory information from the Inventory Database Without Using the CIM Schema

ZENworks 6.5 Desktop Management SP1 provides easy-to-use Inventory database views that allow you to retrieve inventory information from the Inventory database without using the CIM schema.

The Inventory views are predefined views that are automatically created in the Inventory database after you install the Workstation Inventory component of ZENworks 6.5 Desktop Management SP1.

The nomenclature for the Inventory views is `database_schema_name.zen_devicename`. For example, `mw_dba.zen_processor`.

Inventory views that are associated with enums have localized views. For example, `mw_dba.zen_processor_ja` is the Japanese view for the Processor.

This section includes the following information:

- ◆ [“List of Inventory Views” on page 1075](#)
- ◆ [“How to Use the Inventory Views” on page 1098](#)

### List of Inventory Views

| Inventory View Name | Functionality                   | Attributes   | Description                                                       | Is the view Localized? |
|---------------------|---------------------------------|--------------|-------------------------------------------------------------------|------------------------|
| mw_dba.zen_asset    | Retrieves the Asset information | SystemName   | DNS name of the inventoried workstation                           | Yes                    |
|                     |                                 | Manufacturer | Name of the manufacturer                                          |                        |
|                     |                                 | Model        | Model of the computer system                                      |                        |
|                     |                                 | SerialNumber | Serial number of the computer system assigned by the manufacturer |                        |
|                     |                                 | Tag          | Unique identifier of system information                           |                        |

| Inventory View Name | Functionality                     | Attributes           | Description                                                                      | Is the view Localized? |
|---------------------|-----------------------------------|----------------------|----------------------------------------------------------------------------------|------------------------|
|                     |                                   | ManagementTechnology | Technology available on the inventoried workstation such as DMI, WMI, and others |                        |
|                     |                                   | AssetTag             | Asset tag number that the ROM-based setup program creates                        |                        |
|                     |                                   | ModelNumber          | Model number of the computer system                                              |                        |
| mw_dba.zen_battery  | Retrieves the Battery information | Name                 | Device name for the battery, for example, Duracell* DR-36                        | Yes                    |
|                     |                                   | Chemistry            | The battery chemistry, for example, lithium-ion or nickel metal hydride          |                        |
|                     |                                   | DesignCapacity       | The design capacity of the battery in mWatt-hours                                |                        |
|                     |                                   | DesignVoltage        | The design voltage of the battery in mVolts                                      |                        |
|                     |                                   | SmartBatteryVersion  | The Smart Battery Data Specification version number supported by this battery    |                        |
|                     |                                   | InstallDate          | The battery manufacture date                                                     |                        |
|                     |                                   | Manufacturer         | The name of the company that manufactured the battery                            |                        |
|                     |                                   | SerialNumber         | The serial number for the battery                                                |                        |
| mw_dba.zen_bios     | Retrieves the BIOS information    | Caption              | BIOS label                                                                       | Yes                    |
|                     |                                   | InstallDate          | The manufacturing date of the BIOS                                               |                        |
|                     |                                   | SerialNumber         | Serial number of the computer, assigned during the manufacture                   |                        |
|                     |                                   | Version              | Version or revision level of the BIOS                                            |                        |
|                     |                                   | Manufacturer         | BIOS vendor name                                                                 |                        |
|                     |                                   | PrimaryBIOS          | True state indicates Primary BIOS                                                |                        |

| Inventory View Name    | Functionality                          | Attributes        | Description                                                                                                                        | Is the view Localized? |
|------------------------|----------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| mw_dba.zen_bus         | Retrieves the Bus information          | BIOSIDBytes       | Byte in the BIOS that indicates the computer model                                                                                 | Yes                    |
|                        |                                        | Size              | Size of the BIOS                                                                                                                   |                        |
|                        |                                        | BusType           | Bus type indicates PCI, ISA, and others                                                                                            |                        |
|                        |                                        | BusName           | Bus name                                                                                                                           |                        |
|                        |                                        | BusDescription    | Bus description                                                                                                                    |                        |
|                        |                                        | BusVersion        | Version of the bus supported by the motherboard                                                                                    |                        |
| mw_dba.zen_cachememory | Retrieves the Cache memory information | DeviceID          | The unique hexadecimal ID for the specific bus                                                                                     | Yes                    |
|                        |                                        | ErrorMethodology  | Error correction scheme supported by this cache component, for example, Parity/Single Bit ECC/MultiBit ECC                         |                        |
|                        |                                        | Level             | Indicates the cache level; internal cache that is built in to the microprocessors; external cache that is between the CPU and DRAM |                        |
|                        |                                        | WritePolicy       | Indicates the two different ways (Write-Back and Write-Through Cache) that the cache can handle to write to the memory             |                        |
|                        |                                        | CacheType         | Defines the system cache type, for example, Instruction, Data, Unified                                                             |                        |
|                        |                                        | LineSize          | Size in bytes of a single cache bucket or line                                                                                     |                        |
|                        |                                        | ReplacementPolicy | Algorithm that the cache uses to determine which cache lines or buckets should be reused                                           |                        |
|                        |                                        | ReadPolicy        | Indicates whether the data cache is for read operations                                                                            |                        |
|                        |                                        | Associativity     | Defines the system cache associativity (directmapped, 2-way, 4-way)                                                                |                        |

| Inventory View Name            | Functionality                      | Attributes         | Description                                                                                                                     | Is the view Localized? |
|--------------------------------|------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                                |                                    | Speed              | Speed of this System Cache module in nanoseconds                                                                                |                        |
|                                |                                    | Capacity           | Size of the data store where the cache information is kept                                                                      |                        |
| mw_dba.zen_cdrom               | Retrieves the CDROM information    | DeviceID           | Drive letter allocated for the CD on the inventoried workstation                                                                | No                     |
|                                |                                    | Manufacturer       | Vendor name of the CD                                                                                                           |                        |
|                                |                                    | Description        | Description of the CD                                                                                                           |                        |
|                                |                                    | Caption            | Caption of the CD                                                                                                               |                        |
| mw_dba.zen_chassis             | Retrieves the Chassis information  | AssetTag           | Asset tag number of the system chassis. For example, S11127                                                                     | Yes                    |
|                                |                                    | NumberOfPowerCords | Total number of power cords attached to a system chassis                                                                        |                        |
|                                |                                    | ChassisType        | Represents whether the system chassis is a laptop, desktop, notebook, docking station and so on                                 |                        |
|                                |                                    | Manufacturer       | Name of the system chassis manufacturer. For example, Compaq                                                                    |                        |
|                                |                                    | SerialNumber       | Manufacturer's number used to identify a system chassis. For example, 53R661S                                                   |                        |
|                                |                                    | Tag                | Unique ID of the system chassis attached to a particular inventoried workstation. For example, System Enclosure 0               |                        |
|                                |                                    | Version            | Version number of the system chassis                                                                                            |                        |
| mw_dba.zen_computerinformation | Retrieves the computer information | ComputerName       | Name of the inventoried workstation as represented in eDirectory, such as the fully qualified DN of the inventoried workstation | No                     |
|                                |                                    | PrimaryOwner       | The name of the primary user or owner of this system                                                                            |                        |

| Inventory View Name            | Functionality                             | Attributes                  | Description                                                                                | Is the view Localized? |
|--------------------------------|-------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------|------------------------|
|                                |                                           | PrimaryOwnerContact         | The phone number of the primary user of this system                                        |                        |
| mw_dba.zen_currentlogindetails | Retrieves the current login information   | CurrentUser                 | User logged in to the Primary eDirectory tree when the inventoried workstation was scanned | No                     |
| mw_dba.zen_disk                | Retrieves the disk information            | RemovableDisk               | Removable disk                                                                             | Yes                    |
|                                |                                           | Manufacturer                | Vendor name of the disk                                                                    |                        |
|                                |                                           | Description                 | Description of the disk                                                                    |                        |
|                                |                                           | PhysicalCylinders           | Number of cylinders                                                                        |                        |
|                                |                                           | PhysicalHeads               | Number of heads                                                                            |                        |
|                                |                                           | SectorsPerTrack             | Removable disk drive sectors per track                                                     |                        |
|                                |                                           | Capacity                    | Capacity of the removable disk                                                             |                        |
| mw_dba.zen_diskusage           | Retrieves the disk usage information      | FileExtension               | The file extension for which the disk usage is scanned for.                                | No                     |
|                                |                                           | TotalDiskUsage              | Total disk usage for all the files of the specified extension                              |                        |
| mw_dba.zen_displayadapter      | Retrieves the display adapter information | Description                 | Description of the display adapter                                                         | Yes                    |
|                                |                                           | VideoMemoryType             | The type of video memory for this adapter, for example, VRAM/SRAM/DRAM/EDO RAM             |                        |
|                                |                                           | MaxMemorySupported          | Maximum memory that the display adapter supports for VIDEO RAM                             |                        |
|                                |                                           | CurrentBitsPerPixel         | Number of adjacent color bits for each pixel                                               |                        |
|                                |                                           | CurrentHorizontalResolution | Number of horizontal pixels shown by the display                                           |                        |
|                                |                                           | CurrentVerticalResolution   | Number of vertical pixels shown by the display                                             |                        |
|                                |                                           | MaxRefreshRate              | Maximum refresh rate of the monitor for redrawing the display, measured in Hertz           |                        |

| Inventory View Name          | Functionality                            | Attributes          | Description                                                                                                                                                       | Is the view Localized? |
|------------------------------|------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                              |                                          | MinRefreshRate      | Minimum refresh rate of the monitor for redrawing the display, measured in Hertz                                                                                  |                        |
|                              |                                          | VideoArchitecture   | The architecture of the video subsystem in this system, for example, CGA/VGA/SVGA/8514A                                                                           |                        |
|                              |                                          | NumberOfColorPlanes | Number of color planes supported by the video system                                                                                                              |                        |
|                              |                                          | ChipSet             | Chip set used by the controller to compare system capabilities                                                                                                    |                        |
|                              |                                          | DACType             | Digital-to-Analog converter type                                                                                                                                  |                        |
|                              |                                          | ProviderName        | Vendor name                                                                                                                                                       |                        |
| mw_dba.zen_displaydriver     | Retrieves the display driver information | Manufacturer        | Name of the display driver manufacturer                                                                                                                           | yes                    |
|                              |                                          | Version             | Version number of the display driver                                                                                                                              |                        |
|                              |                                          | InstallDate         | Install date of the display driver                                                                                                                                |                        |
|                              |                                          | IsShadowed          | If True, the display driver is currently being shadowed                                                                                                           |                        |
| mw_dba.zen_distinguishedname | Retrieves the distinguished name         | DistinguishedName   | Distinguish name                                                                                                                                                  | No                     |
|                              |                                          | Tree                | eDirectory tree name                                                                                                                                              |                        |
| mw_dba.zen_dma               | Retrieves the DMA information            | Description         | Name of the logical device that is currently using this DMA channel                                                                                               | Yes                    |
|                              |                                          | DMACHannel          | Number of the Direct Memory Access (DMA) channel that a computer uses for transferring data to and from devices quicker than from computers without a DMA channel |                        |
|                              |                                          | Availability        | Indicates whether Virtual Direct Memory Access (DMA) is supported                                                                                                 |                        |
|                              |                                          | BurstMode           | A data transmission mode in which data is sent faster than normal                                                                                                 |                        |



| Inventory View Name         | Functionality                               | Attributes               | Description                                                                                                                                   | Is the view Localized? |
|-----------------------------|---------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| mw_dba.zen_dnsname          | Retrieves the DNS name                      | HostName                 | DNS name of the inventoried workstation                                                                                                       | No                     |
| mw_dba.zen_floppy           | Retrieves the floppy information            | DeviceID                 | The floppy name representing the floppy                                                                                                       | No                     |
|                             |                                             | Manufacturer             | Vendor name                                                                                                                                   |                        |
|                             |                                             | Description              | Floppy drive description                                                                                                                      |                        |
|                             |                                             | PhysicalCylinders        | Total number of cylinders or tracks on the floppy                                                                                             |                        |
|                             |                                             | PhysicalHeads            | Floppy drive R/W heads                                                                                                                        |                        |
|                             |                                             | SectorsPerTrack          | Floppy drive sectors per track                                                                                                                |                        |
|                             |                                             | Capacity                 | Floppy drive capacity                                                                                                                         |                        |
| mw_dba.zen_inventoryscanner | Retrieves the inventory scanner information | LastScanDate             | The date when the Scanner was last scanned. Stored as milliseconds time value so it can be read and displayed in any appropriate date format. | Yes                    |
|                             |                                             | InventoryServer          | Name of the Inventory server to which the scans are sent. It is not the complete DN of the server name.                                       |                        |
|                             |                                             | Version                  | Version of the Scanner running on the inventoried workstation                                                                                 |                        |
|                             |                                             | ScanMode                 | The management technology used by the Scanner, such as WMI or DMI, for scanning the computer system                                           |                        |
|                             |                                             | RecentInformation        | Latest inventory information                                                                                                                  |                        |
|                             |                                             | generaldictionaryversion | Version of the General dictionary                                                                                                             |                        |
|                             |                                             | privatedictionaryversion | Version of the Private dictionary                                                                                                             |                        |
| mw_dba.zen_ipaddress        | Retrieves the IP address                    | Address                  | The unique address assigned to a computer on an IP Internet                                                                                   | No                     |

| Inventory View Name         | Functionality                      | Attributes           | Description                                                                                                                                                                                           | Is the view Localized? |
|-----------------------------|------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                             |                                    | SubnetMask           | The subnet mask of the inventoried workstation paired with an IP address specifies to an IP router which octets or bits in the IP address are the network ID and which octets or bits are the node ID |                        |
| mw_dba.zen_ipxaddress       | Retrieves the IPX address          | Address              | The IPX address of the inventoried workstation                                                                                                                                                        | No                     |
| mw_dba.zen_irq              | Retrieves the IRQ information      | IRQNumber            | Number of the Interrupt Request Line (IRQ), from 0 to 15                                                                                                                                              | Yes                    |
|                             |                                    | Availability         | Availability of the specific IRQ channel                                                                                                                                                              |                        |
|                             |                                    | TriggerType          | IRQ Trigger type                                                                                                                                                                                      |                        |
|                             |                                    | Shareable            | If True, the system IRQ can be shared across devices                                                                                                                                                  |                        |
| mw_dba.zen_keyboard         | Retrieves the keyboard information | KeyboardLayout       | Layout of the keyboard                                                                                                                                                                                | No                     |
|                             |                                    | KeyboardSubtype      | Type of the keyboard                                                                                                                                                                                  |                        |
|                             |                                    | KeyboardDescription  | Description of the keyboard, such as IBM Enhanced 101 or 102 keys                                                                                                                                     |                        |
|                             |                                    | NumberOfFunctionKeys | Total number of function keys                                                                                                                                                                         |                        |
|                             |                                    | KeyboardDelay        | Delay before the repeat of a key                                                                                                                                                                      |                        |
|                             |                                    | TypematicRate        | Rate of processing the keys                                                                                                                                                                           |                        |
| mw_dba.zen_lastlogindetails | Retrieves the last login details   | LastUser             | User most recently logged into the Primary eDirectory tree through Novell Client when the inventoried workstation was scanned                                                                         | No                     |
| mw_dba.zen_macaddress       | Retrieves the MAC address          | MACAddress           | Unique node address permanently coded in the network adapter that identifies a specific computer on a network                                                                                         | No                     |
| mw_dba.zen_memory           | Retrieves the memory information   | TotalMemory          | Total memory of the inventoried workstation                                                                                                                                                           | No                     |

| Inventory View Name            | Functionality                            | Attributes         | Description                                                                                                                                                                                                                                                                                                        | Is the view Localized? |
|--------------------------------|------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| mw_dba.zen_microsoftdomainname | Retrieves the Microsoft domain name      | DomainName         | Domain name of the inventoried workstation                                                                                                                                                                                                                                                                         | No                     |
| mw_dba.zen_internalmodem       | Retrieves the internal modem information | Name               | Identifying information of the modem                                                                                                                                                                                                                                                                               | No                     |
|                                |                                          | Description        | Additional information about the modem                                                                                                                                                                                                                                                                             |                        |
|                                |                                          | ProviderName       | Name of the vendor                                                                                                                                                                                                                                                                                                 |                        |
|                                |                                          | DeviceID           | Special hexadecimal string identifying the modem type                                                                                                                                                                                                                                                              |                        |
| mw_dba.zen_monitor             | Retrieves the monitor information        | DeviceID           | Unique ID of a desktop monitor that is attached to an inventoried workstation<br><br>For example, DesktopMonitor1                                                                                                                                                                                                  | No                     |
|                                |                                          | ModelID            | Unique ID of a model of the monitor. It is a combination of the Manufacturer ID and Product ID<br><br>For example, DELA001                                                                                                                                                                                         |                        |
|                                |                                          | MonitorDescription | Description of the monitor                                                                                                                                                                                                                                                                                         |                        |
|                                |                                          | NominalSize        | A number representing the diagonal width of the monitor (the distance from one corner of the screen to the opposite corner of the screen)<br><br>For example, 17"<br><br>You can customize the scan of the nominal size of the monitor by configuring the HWRules ini file using the Workstation Inventory policy. |                        |
|                                |                                          | ViewableSize       | A number representing the diagonal width of the screen image excluding the black borders around the image's edge<br><br>For example, 15.8"                                                                                                                                                                         |                        |
|                                |                                          | ManufacturedDate   | Year in which the monitor was manufactured                                                                                                                                                                                                                                                                         |                        |
|                                |                                          |                    |                                                                                                                                                                                                                                                                                                                    |                        |

| Inventory View Name       | Functionality                             | Attributes          | Description                                                                                                                    | Is the view Localized? |
|---------------------------|-------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                           |                                           | MonitorSerialNumber | Manufacturer's number used to identify a monitor<br><br>For example, 23DDC24N9067                                              |                        |
|                           |                                           | Manufacturer        | Name of the monitor's manufacturer<br><br>For example, DELL Computer Corp                                                      |                        |
|                           |                                           | Model               | Product name of the monitor given by the manufacturer<br><br>For example, DELL E771a                                           |                        |
| mw_dba.zen_motherboard    | Retrieves the motherboard information     | Description         | General description of the motherboard                                                                                         | No                     |
|                           |                                           | Manufacturer        | Name of the motherboard manufacturer                                                                                           |                        |
|                           |                                           | Version             | Version of the motherboard                                                                                                     |                        |
|                           |                                           | NumberOfSlots       | The number of expansion slots in the motherboard for adding more memory, graphic capabilities, and support for special devices |                        |
| mw_dba.zen_mouse          | Retrieves the mouse information           | MouseType           | Mouse type                                                                                                                     | Yes                    |
|                           |                                           | MouseName           | Identifying information of the mouse                                                                                           |                        |
|                           |                                           | NumberOfButtons     | Number of buttons on the mouse                                                                                                 |                        |
|                           |                                           | IRQNumber           | Interrupt assigned to this device                                                                                              |                        |
| mw_dba.zen_mousedriver    | Retrieves the mouse driver information    | DriverName          | Name of the mouse driver                                                                                                       | No                     |
|                           |                                           | DriverVersion       | Version number of the mouse driver                                                                                             |                        |
| mw_dba.zen_NetworkAdapter | Retrieves the network adapter information | Caption             | Network adapter caption                                                                                                        | Yes                    |
|                           |                                           | Description         | Network adapter description                                                                                                    |                        |

| Inventory View Name             | Functionality                                    | Attributes       | Description                                                                                                                                                    | Is the view Localized? |
|---------------------------------|--------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| mw_dba.zen_NetworkAdapterDriver | Retrieves the network adapter driver information | InstallDate      | Install date of the network adapter                                                                                                                            | No                     |
|                                 |                                                  | Name             | Network adapter name                                                                                                                                           |                        |
|                                 |                                                  | PermanentAddress | Node address stored permanently in the adapter                                                                                                                 |                        |
|                                 |                                                  | MACAddress       | The MAC address stored in the network adapter                                                                                                                  |                        |
|                                 |                                                  | MaxSpeed         | Rate at which the data is transferred over the LAN                                                                                                             |                        |
|                                 |                                                  | AdapterType      | Type of network adapter, such as FDDI or token ring                                                                                                            |                        |
|                                 |                                                  | ProviderName     | Name of the provider                                                                                                                                           |                        |
|                                 |                                                  | Description      | Description of the network adapter driver installed on the inventoried workstation<br><br>For example, IBM 10/100 Ethernet adapter, EN-2420Px Ethernet adapter |                        |
| mw_dba.zen_parallelport         | Retrieves the parallel port information          | Name             | Name of the network adapter driver                                                                                                                             | Yes                    |
|                                 |                                                  | Version          | Version of the network adapter                                                                                                                                 |                        |
|                                 |                                                  | PortName         | The logical name of the input-output device on this parallel port, under this operating environment                                                            |                        |
|                                 |                                                  | HasDMASupport    | If True, DMA is supported                                                                                                                                      |                        |
| mw_dba.zen_powersupply          | Retrieves the power supply information           | PortAddress      | Base I/O address for this parallel port                                                                                                                        | No                     |
|                                 |                                                  | IRQNumber        | IRQ number of the parallel port                                                                                                                                |                        |
|                                 |                                                  | Description      | Expanded description of the input voltage capability for this power supply                                                                                     |                        |
| mw_dba.zen_processor            | Retrieves the processor information              | TotalOutputPower | Attribute value that represents the total output power of the power supply                                                                                     | No                     |
|                                 |                                                  | DeviceID         | Special hexadecimal string identifying the processor type                                                                                                      |                        |

| Inventory View Name     | Functionality                           | Attributes             | Description                                                                                        | Is the view Localized? |
|-------------------------|-----------------------------------------|------------------------|----------------------------------------------------------------------------------------------------|------------------------|
|                         |                                         | Description            | Additional information about the processor                                                         |                        |
|                         |                                         | Role                   | Type of processor such as central processor, math coprocessor, and others                          |                        |
|                         |                                         | Family                 | Identification of the processor family such as Pentium II, Pentium III, and others                 |                        |
|                         |                                         | OtherFamilyDescription | Additional description about the Processor Family, such as Pentium Processor with MMX technology   |                        |
|                         |                                         | UpgradeMethod          | The method by which this processor can be upgraded, if upgrades are supported                      |                        |
|                         |                                         | MaxClockSpeed          | Maximum clock speed of the processor                                                               |                        |
|                         |                                         | CurrentClockSpeed      | Current clock speed of the processor                                                               |                        |
|                         |                                         | Stepping               | Single-byte code characteristic provided by microprocessor vendors to identify the processor model |                        |
| mw_dba.zen_serialport   | Retrieves the serial port information   | PortName               | The logical name of the I/O device on this serial port, under this operating environment           | No                     |
|                         |                                         | PortAddress            | Base input-output address for this serial port                                                     |                        |
|                         |                                         | IRQNumber              | IRQ number of the serial port                                                                      |                        |
| mw_dba.zen_soundadapter | Retrieves the sound adapter information | Name                   | Label of the multimedia card                                                                       | No                     |
|                         |                                         | Description            | Description of the multimedia component for the workstation                                        |                        |
|                         |                                         | ProviderName           | Name of the provider                                                                               |                        |
| mw_dba.zen_systemslot   | Retrieves the system slot information   | SlotDescription        | Card currently occupying this slot                                                                 | No                     |

| Inventory View Name  | Functionality                                      | Attributes           | Description                                                               | Is the view Localized? |
|----------------------|----------------------------------------------------|----------------------|---------------------------------------------------------------------------|------------------------|
| mw_dba.zen_unixOS    | Retrieves the Unix operating system information    | MaxDataWidth         | Maximum bus width of cards accepted in the slot                           | Yes                    |
|                      |                                                    | ThermalRating        | Maximum thermal dissipation of the slot in milliwatts                     |                        |
|                      |                                                    | Type                 | Operating system of the inventoried workstation                           |                        |
|                      |                                                    | Caption              | Operating system name                                                     |                        |
|                      |                                                    | CodePage             | Language code page of the operating system                                |                        |
|                      |                                                    | Version              | Version number of the operating system                                    |                        |
|                      |                                                    | InstallDate          | Install date of the operating system                                      |                        |
|                      |                                                    | VirtualMemorySize    | Total number of bytes in the virtual address space of the calling process |                        |
|                      |                                                    | VisibleMemorySize    | Total memory as reported by the operating system                          |                        |
|                      |                                                    | ProviderName         | Name of the provider                                                      |                        |
| mw_dba.zen_windowsOS | Retrieves the Windows operating system information | KernelVersion        | Version number of the operating system                                    | Yes                    |
|                      |                                                    | SwapSpaceSize        | Total swap space size                                                     |                        |
|                      |                                                    | Type                 | Operating system of the inventoried workstation                           |                        |
|                      |                                                    | OtherTypeDescription | Additional description of the operating system if available               |                        |
|                      |                                                    | Caption              | Operating system name                                                     |                        |
|                      |                                                    | CodePage             | Language code page of the operating system                                |                        |
|                      |                                                    | Version              | Version number of the operating system                                    |                        |
|                      |                                                    | InstallDate          | Install date of the operating system                                      |                        |
|                      |                                                    | VirtualMemorySize    | Total number of bytes in the virtual address space of the calling process |                        |
|                      |                                                    |                      |                                                                           |                        |

| Inventory View Name      | Functionality                                      | Attributes              | Description                                                               | Is the view Localized? |
|--------------------------|----------------------------------------------------|-------------------------|---------------------------------------------------------------------------|------------------------|
| mw_dba.zen_NetWareOS     | Retrieves the NetWare operating system information | VisibleMemorySize       | Total memory as reported by the operating system                          | Yes                    |
|                          |                                                    | ProviderName            | Name of the provider                                                      |                        |
|                          |                                                    | Type                    | Operating system of the inventoried workstation                           |                        |
|                          |                                                    | Caption                 | Operating system name                                                     |                        |
|                          |                                                    | CodePage                | Language code page of the operating system                                |                        |
|                          |                                                    | Version                 | Version number of the operating system                                    |                        |
|                          |                                                    | InstallDate             | Install date of the operating system                                      |                        |
|                          |                                                    | VirtualMemorySize       | Total number of bytes in the virtual address space of the calling process |                        |
|                          |                                                    | VisibleMemorySize       | Total memory as reported by the operating system                          |                        |
|                          |                                                    | SizeStoredInPagingFiles | NetWare server specific attributes                                        |                        |
|                          |                                                    | ProviderName            | Name of the provider                                                      |                        |
|                          |                                                    | AccountingVersion       | NetWare server specific attributes                                        |                        |
|                          |                                                    | InternetBridgeSupport   | NetWare server specific attributes                                        |                        |
|                          |                                                    | MaxNumberOfConnections  | NetWare server specific attributes                                        |                        |
|                          |                                                    | MaxNumberOfVolumes      | NetWare server specific attributes                                        |                        |
|                          |                                                    | PeakConnectionsUsed     | NetWare server specific attributes                                        |                        |
|                          |                                                    | PrintServerVersion      | NetWare server specific attributes                                        |                        |
|                          |                                                    | QueuingVersion          | NetWare server specific attributes                                        |                        |
| RevisionLevel            | NetWare server specific attributes                 |                         |                                                                           |                        |
| SecurityRestrictionLevel | NetWare server specific attributes                 |                         |                                                                           |                        |



| Inventory View Name | Functionality                      | Attributes            | Description                                                                                                                                                                    | Is the view Localized? |
|---------------------|------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                     |                                    | SFTLevel              | NetWare server specific attributes                                                                                                                                             |                        |
|                     |                                    | TTSlevel              | NetWare server specific attributes                                                                                                                                             |                        |
|                     |                                    | VAPVersion            | NetWare server specific attributes                                                                                                                                             |                        |
|                     |                                    | VirtualConsoleVersion | NetWare server specific attributes                                                                                                                                             |                        |
|                     |                                    | InternalNetworkNumber | NetWare server specific attributes                                                                                                                                             |                        |
| mw_dba.zen_software | Retrieves the software information | Name                  | Vendor-defined name of the product represented as a vendor trademark or registered trademark                                                                                   | Yes                    |
|                     |                                    | Vendor                | Vendor name of the software                                                                                                                                                    |                        |
|                     |                                    | Version               | User-friendly version of a product<br><br>For example, the version for Windows 2000 is 2000 or Major.Minor Version of the Product                                              |                        |
|                     |                                    | ProductID             | A unique, 16-character identifier for an installed product. This identifier is available from MSI on Windows<br><br>The format is ABCD-1234-WXYZ-PQRS                          |                        |
|                     |                                    | InternalVersion       | Internal version of a product<br><br>The format is:<br><br><i>major version.minor version.build.sub build number</i><br><br>or<br><br><i>major version.minor version.build</i> |                        |
|                     |                                    | Language              | User-friendly name for the language of this copy of the product                                                                                                                |                        |

| Inventory View Name | Functionality | Attributes            | Description                                                                                                                                                             | Is the view Localized? |
|---------------------|---------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                     |               | FriendlyName          | Display name of the software                                                                                                                                            |                        |
|                     |               | Uninstallstring       | The command to invoke for uninstalling this product instance. Currently, this is available in Add-Remove Programs (ARP) and MSI on Windows                              |                        |
|                     |               | Supportpack           | Installed support pack number of the product                                                                                                                            |                        |
|                     |               | SoftwareEdition       | Product edition defined by the vendor. For example, Professional                                                                                                        |                        |
|                     |               | LastExecutionTime     | Date and time stamp when the product was last executed                                                                                                                  |                        |
|                     |               | Frequencyofusage      | Number of times the product is used                                                                                                                                     |                        |
|                     |               | Description           | Description of the product.                                                                                                                                             |                        |
|                     |               | InstallationSource    | Identifies the file system path where the installation files were stored when installing this product instance. Currently, this is available in ARP and MSI on Windows. |                        |
|                     |               | InformationRepository | Source of scan, which can be, Add-Remove Programs, MSI, Software Dictionary, or PRODUCTS.DAT                                                                            |                        |
|                     |               | Category              | Product category to which the product belongs<br><br>For example, Office is a part of the Productivity tools category and Solitaire is a game                           |                        |
|                     |               | Helplink              | Support web site URL for the product that is available in ARP and MSI                                                                                                   |                        |
|                     |               | PackageGUID           | Vendor-defined GUID for a product that is available in MSI                                                                                                              |                        |

| Inventory View Name      | Functionality                                                    | Attributes      | Description                                                                                                                                                                    | Is the view Localized? |
|--------------------------|------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| mw_dba.zen_softwaregroup | Retrieves the software group information                         | Path            | Directory path where the product is installed on the inventoried workstation                                                                                                   | Yes                    |
|                          |                                                                  | Name            | Vendor-defined name of the software group represented as a vendor trademark or registered trademark                                                                            |                        |
|                          |                                                                  | Vendor          | Vendor name for the software group                                                                                                                                             |                        |
|                          |                                                                  | Version         | User-friendly version of a software group                                                                                                                                      |                        |
|                          |                                                                  | ProductID       | A unique, 16-character identifier for an installed product. This identifier is available from MSI on Windows.<br><br>The format is ABCD-1234-WXYZ-PQRS                         |                        |
|                          |                                                                  | InternalVersion | Internal version of a product<br><br>The format is:<br><br><i>major version.minor version.build.sub build number</i><br><br>or<br><br><i>major version.minor version.build</i> |                        |
|                          |                                                                  | Language        | User-friendly name for the language of this copy of the product                                                                                                                |                        |
|                          |                                                                  | FriendlyName    | Display name of the software                                                                                                                                                   |                        |
|                          |                                                                  | Uninstallstring | The command to invoke for uninstalling this product instance. Currently, this is available in Add-Remove Programs (ARP) and MSI on Windows.                                    |                        |
|                          |                                                                  | Supportpack     | Installed support pack number of the product                                                                                                                                   |                        |
| SoftwareEdition          | Product edition defined by the vendor. For example, Professional |                 |                                                                                                                                                                                |                        |

| Inventory View Name      | Functionality                               | Attributes            | Description                                                                                                                                                             | Is the view Localized? |
|--------------------------|---------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                          |                                             | LastExecutionTime     | Date and time stamp when the product was last executed                                                                                                                  |                        |
|                          |                                             | Frequencyofusage      | Number of times the product group is used                                                                                                                               |                        |
|                          |                                             | Description           | Description of the product group                                                                                                                                        |                        |
|                          |                                             | InstallationSource    | Identifies the file system path where the installation files were stored when installing this product instance. Currently, this is available in ARP and MSI on Windows. |                        |
|                          |                                             | InformationRepository | Source of scan, which can be, Add-Remove Programs, MSI, Software Dictionary, or PRODUCTS.DAT                                                                            |                        |
|                          |                                             | Category              | Product category to which the product belongs<br><br>For example, Office is a part of the Productivity tools category and Solitaire is a game                           |                        |
|                          |                                             | Helplink              | Support web site URL for the product that is available in ARP and MSI                                                                                                   |                        |
|                          |                                             | PackageGUID           | Vendor-defined GUID for a product that is available in MSI                                                                                                              |                        |
|                          |                                             | Path                  | Directory path where the product is installed on the inventoried workstation                                                                                            |                        |
| mw_dba.zen_softwarepatch | Retrieves the software patch information    | productid             | Software ID of the software patch                                                                                                                                       | No                     |
|                          |                                             | PatchName             | Vendor-defined name for the patch                                                                                                                                       |                        |
| mw_dba.zen_antivirus     | Retrieves the antivirus product information | Name                  | Vendor-defined name of the antivirus product represented as a vendor trademark or registered trademark                                                                  | Yes                    |

| Inventory View Name | Functionality | Attributes        | Description                                                                                                                                                                                | Is the view Localized? |
|---------------------|---------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                     |               | Vendor            | Vendor name for the antivirus product                                                                                                                                                      |                        |
|                     |               | Version           | User-friendly version of the antivirus product                                                                                                                                             |                        |
|                     |               | ProductID         | A unique, 16-character identifier for an installed antivirus product. This identifier is available from MSI on Windows.<br><br>The format is ABCD-1234-WXYZ-PQRS                           |                        |
|                     |               | InternalVersion   | Internal version of the antivirus product<br><br>The format is:<br><br><i>major version.minor version.build.sub build number</i><br><br>or<br><br><i>major version.minor version.build</i> |                        |
|                     |               | Language          | User-friendly name for the language of this copy of antivirus product                                                                                                                      |                        |
|                     |               | FriendlyName      | Display name of the antivirus product                                                                                                                                                      |                        |
|                     |               | Uninstallstring   | The command to invoke for uninstalling this product instance. Currently, this is available in Add-Remove Programs (ARP) and MSI on Windows.                                                |                        |
|                     |               | Supportpack       | Installed support pack number of the antivirus product                                                                                                                                     |                        |
|                     |               | SoftwareEdition   | Antivirus Product edition defined by the vendor                                                                                                                                            |                        |
|                     |               | LastExecutionTime | Date and time stamp when the antivirus product was last executed                                                                                                                           |                        |
|                     |               | Frequencyofusage  | Number of times the antivirus product is used                                                                                                                                              |                        |
|                     |               | Description       | Description of the antivirus product                                                                                                                                                       |                        |

| Inventory View Name       | Functionality                                               | Attributes            | Description                                                                                                                                                                       | Is the view Localized? |
|---------------------------|-------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                           |                                                             | InstallationSource    | Identifies the file system path where the installation files were stored when installing this antivirus product instance. Currently, this is available in ARP and MSI on Windows. |                        |
|                           |                                                             | InformationRepository | Source of scan, which can be, Add-Remove Programs, MSI, Software Dictionary, or PRODUCTS.DAT                                                                                      |                        |
|                           |                                                             | DefinitionDate        | The date of the virus definition file installed on the computer. Some anti-virus products combine date and version into a single string.                                          |                        |
|                           |                                                             | DefinitionVersion     | The vendor-defined version of the virus definition file that has been installed on a computer                                                                                     |                        |
|                           |                                                             | Category              | Product category to which the antivirus product belongs                                                                                                                           |                        |
|                           |                                                             | Helplink              | Support web site URL for the antivirus product that is available in ARP and MSI                                                                                                   |                        |
|                           |                                                             | PackageGUID           | Vendor-defined GUID for the antivirus product that is available in MSI                                                                                                            |                        |
|                           |                                                             | Path                  | Directory path where the antivirus product is installed on the inventoried workstation                                                                                            |                        |
| mw_dba.zen_dictionaryfile | Retrieves the ZENworks software dictionary file information | fileid                | Dictionary File ID                                                                                                                                                                | Yes                    |
|                           |                                                             | directoryid           | Directory ID                                                                                                                                                                      |                        |
|                           |                                                             | FileName              | Filename of the dictionary file                                                                                                                                                   |                        |
|                           |                                                             | Directory             | Directory name in which the dictionary file is stored                                                                                                                             |                        |
|                           |                                                             | FileVersion           | Dictionary file version                                                                                                                                                           |                        |

| Inventory View Name     | Functionality                           | Attributes           | Description                                                      | Is the view Localized? |
|-------------------------|-----------------------------------------|----------------------|------------------------------------------------------------------|------------------------|
|                         |                                         | FileSize             | Dictionary file size                                             |                        |
|                         |                                         | LastModified         | Last modified date of the dictionary file                        |                        |
|                         |                                         | InternalName         | Internal name                                                    |                        |
|                         |                                         | ProductVersion       | The version of the product represented by this file              |                        |
|                         |                                         | Company              | Vendor name                                                      |                        |
|                         |                                         | ProductName          | The product which this file represents                           |                        |
|                         |                                         | Language             | User-friendly name for the language of this copy of the file     |                        |
|                         |                                         | SoftwareDictionaryID | ID of the file as represented in the General software dictionary |                        |
| mw_dba.zen_excludedfile | Retrieves the excluded file information | fileid               | Excluded file ID                                                 | Yes                    |
|                         |                                         | directoryid          | Directory ID                                                     |                        |
|                         |                                         | FileName             | Filename of the excluded file                                    |                        |
|                         |                                         | Directory            | Directory name in which the excluded file is stored              |                        |
|                         |                                         | FileVersion          | Excluded file version                                            |                        |
|                         |                                         | FileSize             | Excluded file size                                               |                        |
|                         |                                         | LastModified         | Last modified date of the excluded file                          |                        |
|                         |                                         | InternalName         | Internal name                                                    |                        |
|                         |                                         | ProductVersion       | The version of the product represented by this file              |                        |
|                         |                                         | Company              | Vendor name                                                      |                        |
|                         |                                         | ProductName          | The product which this file represent                            |                        |
|                         |                                         | Language             | User-friendly name for the language of this copy of the file     |                        |
| mw_dba.zen_locktable    | Retrieves the lock table information    | ComputerName         | Computer name                                                    | Yes                    |

| Inventory View Name               | Functionality                                       | Attributes        | Description                                                                                                                                   | Is the view Localized? |
|-----------------------------------|-----------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                                   |                                                     | LastScanTime      | The date when the Scanner was last scanned. Stored as milliseconds time value so it can be read and displayed in any appropriate date format. |                        |
| mw_dba.zen_removabledisk          | Retrieves the removable disk information            | RecentInformation | Latest information                                                                                                                            |                        |
|                                   |                                                     | Manufacturer      | Vendor name for the removable disk                                                                                                            | No                     |
|                                   |                                                     | Description       | Description of the removable disk                                                                                                             |                        |
|                                   |                                                     | PhysicalCylinders | Total number of cylinders or tracks on the disk                                                                                               |                        |
|                                   |                                                     | PhysicalHeads     | Number of heads                                                                                                                               |                        |
|                                   |                                                     | SectorsPerTrack   | Number of sectors per track                                                                                                                   |                        |
|                                   |                                                     | Capacity          | Total size                                                                                                                                    |                        |
| mw_dba.zen_fixeddisk              | Retrieves the fixed disk information                | Manufacturer      | Vendor name of the fixed disk                                                                                                                 | No                     |
|                                   |                                                     | Description       | Description of the fixed disk                                                                                                                 |                        |
|                                   |                                                     | PhysicalCylinders | Total number of cylinders or tracks on the disk                                                                                               |                        |
|                                   |                                                     | PhysicalHeads     | Number of heads                                                                                                                               |                        |
|                                   |                                                     | SectorsPerTrack   | Number of sectors per track                                                                                                                   |                        |
|                                   |                                                     | Capacity          | Total size                                                                                                                                    |                        |
| mw_dba.zen_WindowsLocalFileSystem | Retrieves the Windows local file system information | Name              | Windows local file system name                                                                                                                | No                     |
|                                   |                                                     | FileSystemSize    | Windows local file system size                                                                                                                |                        |
|                                   |                                                     | AvailableSpace    | Windows local file system space                                                                                                               |                        |
|                                   |                                                     | FileSystemType    | Windows local file system type                                                                                                                |                        |
|                                   |                                                     | Caption           | Windows local file system caption                                                                                                             |                        |
|                                   |                                                     | DeviceID          | Device ID                                                                                                                                     |                        |



| Inventory View Name                   | Functionality                                       | Attributes         | Description                                  | Is the view Localized? |
|---------------------------------------|-----------------------------------------------------|--------------------|----------------------------------------------|------------------------|
|                                       |                                                     | VolumeSerialNumber | Windows local file system volume number      |                        |
| mw_dba.<br>zen_NetWareLocalFileSystem | Retrieves the NetWare local file system information | Name               | NetWare local file system name               | No                     |
|                                       |                                                     | FileSystemSize     | NetWare local file system size               |                        |
|                                       |                                                     | AvailableSpace     | NetWare local file system space              |                        |
|                                       |                                                     | FileSystemType     | NetWare local file system type               |                        |
|                                       |                                                     | Caption            | NetWare local file system caption            |                        |
|                                       |                                                     | DeviceID           | Device ID                                    |                        |
|                                       |                                                     | VolumeSerialNumber | NetWare local file volume serial number      |                        |
| mw_dba.<br>zen_LinuxLocalFileSystem   | Retrieves the Linux local file system information   | Name               | Linux local file system name                 | No                     |
|                                       |                                                     | FileSystemSize     | Linux local file system size                 |                        |
|                                       |                                                     | AvailableSpace     | Linux local file system available space      |                        |
|                                       |                                                     | FileSystemType     | Linux local file system type                 |                        |
|                                       |                                                     | Caption            | Linux local file system caption              |                        |
|                                       |                                                     | DeviceID           | Device ID                                    |                        |
|                                       |                                                     | VolumeSerialNumber | Linux local file system volume serial number |                        |

## How to Use the Inventory Views

You can use the Inventory views in SQL statements, and execute the SQL statements from the Inventory database prompt or in any third-party application.

**IMPORTANT:** You must not edit the Inventory views that ship with ZENworks 6.5 Desktop Management SP1 or later.

### Examples:

- ◆ To retrieve all the processor information:

```
select * from mw_dba.zen_processor
```

- ◆ To retrieve specific processor information:

```
select DeviceID, Description, Role, Family, OtherFamilyDescription,
UpgradeMethod, MaxClockSpeed, CurrentClockSpeed from mw_dba.zen_processor
```

- ◆ To retrieve all software information:

```
select * from mw_dba.zen_software
```

- ◆ To retrieve software information along with its suite details:

```
select soft.name, softsuite.name from mw_dba.zen_software soft, mw_dba.
zen_softwaregroup softsuite where soft.name = 'ZENworks Desktop
Management Inventory Server' and soft.parentinstanceid=softsuite.
pinstanceid;
```

- ◆ To retrieve software patch information:

```
select suite.name, patchname from mw_dba.zen_softwaregroup suite, mw_dba.
zen_softwarepatch patch where suite.pinstanceid=patch.pinstanceid
```

- ◆ To retrieve software suite patch information:

```
select soft.name, patchname from mw_dba.zen_software soft, mw_dba.
zen_softwarepatch patch where soft.pinstanceid=patch.pinstanceid;
```

- ◆ To retrieve anti-virus software information:

```
select * from mw_dba.zen_antivirus
```

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## Monitoring Workstation Inventory Using Status Logs

Novell® ZENworks® 6.5 Workstation Inventory lets you track whether the scan or the roll-up of information is successful by viewing the log files and scan history.

The inventory components report the status of the inventory scanning and roll-up of scan information in Novell eDirectory™.

For example, when you view the scan logs, you can determine whether the scan was successful or if there were any errors while scanning the inventoried workstation or at the time of roll-up.

You can view the following status information:

- ◆ [“Viewing the Scan History of an Inventoried Workstation” on page 1099](#)
- ◆ [“Viewing the Scan Status of an Inventoried Workstation” on page 1100](#)
- ◆ [“Viewing the Roll-Up History of the Server” on page 1101](#)
- ◆ [“Viewing the Status of Inventory Components on a Server” on page 1101](#)
- ◆ [“Viewing the Status of the Last Scan in the Workstation Scan Log” on page 1102](#)
- ◆ [“Viewing the Roll-Up Log for Servers” on page 1103](#)
- ◆ [“Status Logs and Scan Logs Overview” on page 1104](#)
- ◆ [“Viewing the Status Log in XML Format” on page 1104](#)

### Viewing the Scan History of an Inventoried Workstation

The Scan Status reports the history of the scans done at the inventoried workstation. For example, you view the Scan Status window to determine whether the scan was successful for the inventoried workstation, or whether the Storer has stored the .str files of the inventoried workstation in the database. The inventory components (Scanner and Storer) write the scan information in the Status log.

To invoke the Scan Status window:

- 1 In ConsoleOne®, right-click the inventoried workstation, click Properties, click the ZENworks Inventory tab, then click Scan Status.

If the scan is disabled in the Inventory policy, the Scanner does not log any status messages in the Status Report log.

The following table lists the details of the log:

| Status Information | Details                                                                                                                                                     |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Time of Scan       | Displays the date and time of the scan.                                                                                                                     |
| Message            | Displays the message reported by the inventory components while scanning the inventoried workstation and storing the inventory information in the database. |

You can export the log file as a .csv or tab-delimited file.

The Scan Status displays the history of the latest ten scans of the selected inventoried workstation.

## Viewing the Scan Status of an Inventoried Workstation

The Workstation Scan Status reports the scan status of the inventoried workstation in the eDirectory and the Inventory database from the specified time. For example, you can view the scan status of an inventoried workstation in the eDirectory and Inventory database during the specified time and date.

To view the scan status of an inventoried workstation:

- 1** In ConsoleOne, select a container object, click Tools, click ZENworks Inventory, then click Workstation Scan Status.
- 2** Specify the date and time.
- 3** To include all subcontainers within the selected container, select the Search Subcontainers option.

All the inventoried workstations in the selected container with their scan status in eDirectory and Inventory database during the specified time and date are displayed in the Results of Scan Status Lookup dialog box.

The following table lists the details of the scan status lookup:

| Parameter                   | Details                                                                                            |
|-----------------------------|----------------------------------------------------------------------------------------------------|
| Workstation DN              | Displays the DN of all inventoried workstations satisfying the filter condition.                   |
| Status in Novell eDirectory | Displays whether the inventoried workstation is scanned in eDirectory.                             |
| Status in Database          | Displays whether the scanned information of the inventoried workstation is stored in the database. |
| Last Scan Time              | Displays the time when the inventoried workstation was last scanned according to eDirectory.       |

# Viewing the Roll-Up History of the Server

The Roll-Up Status reports the status of the roll-up information from the server that initiated the roll-up of information. For example, if your inventory setup consists of a Leaf Server which initiates the roll-up of information to the next-level Root Server, the Roll-Up log displays the roll-up history of the Leaf Server.

If the roll-up of information is across trees, the Roll-Up log might fail to display the roll-up history of the next-level servers. To view the Roll-Up log, you must explicitly log into all trees from the inventoried workstation where you are running ConsoleOne and view the Roll-Up log.

The inventory components of the server (Sender, Receiver, and Storer) write the roll-up information in the Roll-Up Status. For example, you view the Roll-Up log to determine whether there were any errors during roll-up of inventory information from the server. This log also displays the most recent storage time of the inventory information that was stored in the database on the topmost level server (Root Server). This log displays the history of the ten previous roll-up sessions done from the current server and the roll-up history from the next-level servers.

The following table lists the details of the log:

| Status Information | Details                                                                                                             |
|--------------------|---------------------------------------------------------------------------------------------------------------------|
| Roll-Up Start Time | Displays the date and time of the roll-up.                                                                          |
| Message            | Displays the message reported by the inventory component while moving the inventory information across the servers. |

You can export the file as a .csv or tab-delimited file.

To invoke the Roll-Up Status window:

- 1 In ConsoleOne, right-click the Inventory Service object (Inventory Service\_ *server\_name*), from which the roll-up is done, click Properties, click the Status Report tab, then click Roll-Up Status.

# Viewing the Status of Inventory Components on a Server

The Server Status window reports the status of the Inventory server components on the selected server. You can view the Server Status log for any Inventory Service object. For example, you can determine whether the Sender sent the files to the Receiver or whether the Storer was able to establish the connection with the database successfully. The Server Status window displays the details of the ten latest status messages logged by the Inventory server components.

If the Inventory server components (Sender, Receiver, Selector, Storer, Service Manager, Roll-Up Scheduler, Inventory Sync Service) encounter an error while starting or running on the server, the status of the server displays the information.

The following table lists the details of the log:

| Status Information | Details                                                                               |
|--------------------|---------------------------------------------------------------------------------------|
| Time of Log        | Displays the date and time when the message was reported by the inventory components. |
| Source             | Displays the inventory component that has logged the status message.                  |
| Message Type       | Displays the severity of the message.                                                 |
| Message            | Displays the message reported by the inventory components.                            |

You can export the log file as a .csv or tab-delimited file.

To view the Server Status window:

- 1 In ConsoleOne, right-click the Inventory Service object (Inventory Service\_ *server\_name*), click Properties, click Status Report, then click Server Status.

## Viewing the Status of the Last Scan in the Workstation Scan Log

The Workstation Scan log reports the status of the latest scan done at the inventoried workstations associated with the selected Container. For example, you view the Workstation Scan log to determine whether the latest scans were successful for the inventoried workstations or whether the Storer has stored the inventoried workstation .str files in the database. The inventory components (Scanner and Storer) write the scan information in the Status log.

You can also choose whether to display error, warning, and informational status messages of the inventoried workstations.

The following table lists the details of the log:

| Status Information       | Details                                                                                                                                                    |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scanned Workstation Name | Displays the DN of the inventoried workstation.                                                                                                            |
| Time of Scan             | Displays the date and time the status was logged.                                                                                                          |
| Message Type             | Displays the severity of the message.                                                                                                                      |
| Message                  | Displays the message reported by the inventory components while scanning the inventoried workstation or storing the inventory information in the database. |

You can export the file as a .csv or tab-delimited file.

If the scan is disabled in the Inventory policy, the Scanner does not log any status messages in the Status Report log.

To view the Workstation Scan log window:

- 1 In ConsoleOne, click the container, click Tools, click ZENworks Inventory, then click Workstation Scan Log.
- 2 Click the message severity type, then click OK.

- 3** To export the Workstation scan log to files, click Export.
- 4** Choose the file type, then specify the filename.
- 5** Click OK.

When the Scanner creates a .str file of an inventoried workstation and the Selector processes this file, the inventory components also log the status of the scanning in the Workstation Status log. It is possible that at the same time, the Storer is processing the .str files of another inventoried workstation. Meanwhile, the Scanner continues scanning and updates the Workstation Status log for the next scan.

## Viewing the Roll-Up Log for Servers

The Roll-Up log reports the status of the latest roll-up from the Inventory Service objects in the Container. For example, you view the Roll-Up log to determine whether the latest roll-up of information from the Roll-Up server for the Inventory Service object was successful. The inventory components (Sender, Receiver, and Storer) write the roll-up information in the Roll-Up log. You can also choose to display error, warning, and informational status messages of the Intermediate servers.

The following table lists the details of the log:

| Status Information     | Details                                                                                               |
|------------------------|-------------------------------------------------------------------------------------------------------|
| Roll-Up Initiated From | Displays the DN of the Intermediate server that initiated the roll-up.                                |
| Roll-Up Start Time     | Displays the date and time the roll-up of information was initiated.                                  |
| Source                 | Displays the inventory component that logs the status.                                                |
| Message Type           | Displays the severity of the message.                                                                 |
| Message                | Displays the message reported by the inventory components while scanning the inventoried workstation. |

You can export the log as a .csv or tab-delimited file.

To invoke the Roll-Up Log window:

- 1** In ConsoleOne, click the container that contains the Inventory Service object (Inventory Service\_ *server\_name*), click Tools, click ZENworks Inventory, then click Roll-Up Log.
- 2** Click the severity type of the messages you want to view, then click OK.
- 3** To export the Roll-Up log to files, click Export.
- 4** Choose the file type, then specify the filename.
- 5** Click OK.

# Status Logs and Scan Logs Overview

The following table lists the status logs and scan logs:

| Status/Scan Log                          | Inventory Components that Log the Status                               | Details of the Log                                                                                        | How to View the Log File in ConsoleOne                                                                                             |
|------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Workstation Scan Log                     | Scan program, Storer                                                   | Scanned inventoried workstation name, time of scan, inventory component, message type, and status message | Click the container, click Tools, click ZENworks Inventory, then click Workstation Scan Log                                        |
| Roll-Up Log                              | Sender, Receiver, Storer                                               | Roll-up initiated from, roll-up start time, inventory component, message type, status message             | Click the container for the Inventory Service object, click Tools, click ZENworks Inventory, then click Roll-Up Log                |
| Workstation Scan Status                  | Scan program, Storer                                                   | Time of scan and status message                                                                           | In ConsoleOne, right-click the inventoried workstation, click Properties, click the ZENworks Inventory tab, then click Scan Status |
| Status of Inventory Components on Server | Sender, Receiver, Selector, Storer, Service Manager, Roll-Up Scheduler | Time of log, source, message type, message                                                                | In ConsoleOne, right-click the Inventory Service object, click Properties, click Status Report, then click Server Status           |
| Roll-Up Status                           | Sender, Receiver, Storer                                               | Roll up start time, message                                                                               | In ConsoleOne, right-click the Inventory Service object, click Properties, click Status Report, then click Roll-Up Status          |

## Viewing the Status Log in XML Format

All inventory components log the status messages in a log file maintained in XML (Extensible Markup Language) format. Unlike the status logs that contain a history of the ten latest status messages, the status XML log stores all status messages.

The log file contains the following information:

- ◆ Inventory module name
- ◆ Date and time of status logging
- ◆ Severity of the message
- ◆ Message text and status message number
- ◆ DN name, if the inventory module is associated with a particular DN object in eDirectory
- ◆ Product specific details of the module

The format of the log file is as follows:

```
?xml version="1.0" encoding="UTF-8"?>
?xml stylesheet type="text/xsl" href="inventorylog.xsl"?
<message_log>
 <message_entry>
```



```
<module_name>Scanner</module_name>
<severity>Critical</severity>
<date_time>8/3/00 12:49 PM</date_time>
 <message_tag>unable to create scan data files</ message_tag>
 <dn_name>Inv_server</dn_name>
</message_entry>
</module_name>Storer</module_name>
 <severity>Critical</severity>
 <date_time>8/3/00 12:49 PM</date_time>
 <message_tag>unable to update the database</message_tag>
 <dn_name>Inv_server</dn_name>
</message_entry>
..
</message_log>
```

A sample style sheet and Document Type Declaration (DTD) file are located in *inventory\_installation\_directory\inv\server\xmlog* on the server.

The *inventorylog.xml* log file is located in the *inventory\_installation\_directory\inv\server\xmlog* directory on NetWare<sup>®</sup> and Windows\* servers.

By default, the maximum size of the log file is 120 KB. To modify the maximum size of the log file, edit the *inventorylog.ini* file. On NetWare and Windows servers, this file is in the *inventory\_installation\_directory\inv\server\xmlog* directory.

The contents of *inventorylog.ini* are as follows:

```
max_file_size=100 KB
```

Modify the `MAX_FILE_SIZE` parameter, if required.

If the file size exceeds the value specified in the `MAX_FILE_SIZE` parameter, the file is archived as *filename\_old.xml*. The latest messages will be in the current log file.

To view the log data file, use a third-party XML browser.



# J

## Performance Tips

This section provides information on the system and database parameters that you need to tune to obtain improved performance for Novell<sup>®</sup> ZENworks<sup>®</sup> 6.5 Desktop Management Workstation Inventory. Specific tuning tips are provided for working with Inventory Reports, Database Export, and Query.

In addition to reviewing this information, we recommend that you refer to vendor documentation or other related articles regarding performance tuning and database tuning available on the Internet

This chapter contains the following sections:

- ◆ “Database Parameter Tuning Tips” on page 1107
- ◆ “Performance Tips for the Inventory ConsoleOne Utilities” on page 1112
- ◆ “References” on page 1113

### Database Parameter Tuning Tips

- ◆ “Sybase in the NetWare and Windows Environment” on page 1107
- ◆ “Oracle in the Windows Environment” on page 1109
- ◆ “Optimizing the Performance of the Oracle Database” on page 1111
- ◆ “MS SQL in the Windows Environment” on page 1111

### Sybase in the NetWare and Windows Environment

- ◆ We recommend you to set the database cache size as follows by configuring the `-c` parameter in the Sybase\* startup:

| Inventoried Workstations in the Database (in thousands) | Total Memory of the System | Sybase Cache Memory |
|---------------------------------------------------------|----------------------------|---------------------|
| less than 1                                             | 384 MB                     | 128 MB              |
| 1 - 5                                                   | 512 MB                     | 128 MB              |
| 5 - 10                                                  | 512 MB - 768 MB            | 128 MB - 256 MB     |
| 10 - 25                                                 | 768 MB - 1 GB              | 256 MB - 400 MB     |
| greater than 25                                         | 1 - 2 GB                   | 30 - 40% of RAM     |

- ◆ If you have more than 5,000 workstations, we recommend that you use multi processors for servers hosting the database and span the data files.

- ◆ If you have more than 10,000 workstations, we recommend that you use a dedicated server for the database.
- ◆ The following table lists the free hard disk space recommendations:

| Inventoried Workstations in the Database (thousands) | Free Hard Disk Space (GB) |
|------------------------------------------------------|---------------------------|
| Up to 5                                              | 1                         |
| Up to 10                                             | 2                         |
| Up to 15                                             | 3                         |
| Up to 20                                             | 5                         |
| Up to 25                                             | 6                         |
| Up to 30                                             | 7                         |
| Up to 35                                             | 8                         |
| Up to 40                                             | 9                         |
| Up to 45                                             | 11                        |

**IMPORTANT:** Ensure that the drives in which the database files are located have sufficient additional free disk space for storing the temporary files generated during the operations of Inventory ConsoleOne utilities.

- ◆ If the Storer is taking significant time to store the inventory information in the following scenarios, you can run the Sybindex utility to improve the Storer performance:
  - ◆ Many Inventory agents are simultaneously upgraded to ZENworks 6.5 and subsequently, all these agents send the full scans for the time to the Inventory server.
  - ◆ The administrator manually triggers full scan from the Inventory Service object resulting in all Inventory agents send the full scan to the Inventory server.
  - ◆ The Inventory database is either re-installed or changed and then the administrator manually triggers full scan from the Inventory Service object resulting in all Inventory agents sending the full scan to the Inventory server

Before running the Sybindex utility, ensure that the Sybase Inventory database is up and running, and then stop the Storer.

To run the Sybindex utility:

**On a NetWare® server:** At the server console prompt, enter **sybindex**.

**On a Windows\* server:** At the server console prompt, go to *inventory\_server\_installation\_path\zenworks\inv\server\wminv\bin* and enter **sybindex**.

After the utility runs, restart Storer.

To change the database cache size on the database server on NetWare database server:

- 1 Stop the Inventory service. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).
- 2 Close all connections to the Inventory database.

- 3** Quit the Sybase server.
- 4** Open the mgmt dbs.ncf file in the sys:\system directory.
- 5** Modify the *-c* parameter.  
For example, *-c 64M* sets the cache size to 64 MB.
- 6** Save the file.
- 7** On the server console, load the Inventory database. Enter **MGMTDBS** .
- 8** Start the Inventory service. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).

To change the database cache size on a Windows database server:

- 1** Stop the Inventory service. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).
- 2** Stop the Sybase service.  
On Windows 2000/2003, in the Control Panel, double-click Administrative Tools, double-click Services, select Novell Database - Sybase, then click Stop.
- 3** On the database server, run the *ntdbconfig.exe* file from the *inventory\_database\_installation\_path\zenworks\database\dbengine* directory.  
*Ntdbconfig.exe* is a ZENworks database configuration utility for the ZENworks database using Sybase on Windows servers. This utility enables you to reconfigure the Sybase service. For the list of parameters recommended by Sybase, see [“Understanding the Sybase Database Startup Parameters” on page 860](#).
- 4** Modify the *-c* parameter.
- 5** Click OK.
- 6** Restart the Sybase service.  
On Windows 2000/2003, in the Control Panel, double-click Administrative Tools, double-click Services, select Novell Database - Sybase, then click Start.
- 7** Stop the Inventory service. For more information, see [“Starting and Stopping the Inventory Service” on page 843](#).

For more information on Performance tips, see [“Database Parameter Tuning Tips” on page 1107](#).

## Oracle in the Windows Environment

- ◆ The following table lists the memory recommendations for the Windows platform.

| Inventoried Workstations in the Database (in thousands) | Total Memory of the System | Oracle SGA Memory       |
|---------------------------------------------------------|----------------------------|-------------------------|
| less than 1                                             | 512 MB                     | 128 MB                  |
| 1 - 5                                                   | 768 MB                     | 256 MB                  |
| 5 - 10                                                  | 1 GB                       | 400 MB                  |
| 10 - 100                                                | 1 GB - 2 GB                | 40% of the total memory |

- ◆ The following table lists the free hard disk space recommendations:

| Inventoried Workstations in the Database (thousands) | Free Hard Disk Space (GB) |
|------------------------------------------------------|---------------------------|
| Up to 5                                              | 3                         |
| Up to 10                                             | 6                         |
| Up to 15                                             | 9                         |
| Up to 20                                             | 11                        |
| Up to 25                                             | 12                        |
| Up to 30                                             | 13                        |
| Up to 35                                             | 15                        |
| Up to 40                                             | 20                        |
| Up to 45                                             | 25                        |

**IMPORTANT:** Ensure that the drives in which the database files are located have sufficient additional free disk space for storing the temporary files generated during the operations of Inventory ConsoleOne utilities.

- ◆ Stop unnecessary services and applications running on the server to enable a background service such as Oracle\* server to run.
- ◆ We recommend that you use a dedicated server to host the Oracle database.
- ◆ Span the data files across multiple physical disks if you have more than 10,000 workstations.
- ◆ Set the virtual memory value between 2 - 4 times the RAM.
- ◆ We recommend that you use multi processors for servers hosting the database.
- ◆ For Windows platforms, refer to the Oracle performance tuning documentation and other general recommendations that are listed in the [“References” on page 1113](#) section.
  - ◆ Reduce the priority of the foreground application.
  - ◆ Reduce the file cache value and maximize data for network applications.
- ◆ Modify the init.ora file for specific organizational requirements.

For example, to obtain about 260 MB of Oracle SGA with db\_block\_size=4096, modify the init.ora file with the following values:

```
db_block_buffers = 50000
shared_pool_size = 32768000
sort_area_size = 10000000
```

- ◆ Invoke and append lines to the \_start.sql file. The \_start.sql file is invoked by the mgmtdbo.ncf or the mgmtdbo.bat file when you start the Inventory database instance. Append the following lines to the existing \_start.sql file:

```
connect mw_dba;

alter table cim.t$product cache;
```

- ◆ If you run Inventory database on Oracle9i, you can set `db_cache_size` instead of `db_block_buffers * db_block_size`.
- ◆ Refer to the Oracle Administration guide or Performance guide for more information.

## Optimizing the Performance of the Oracle Database

If you have an Inventory database on Oracle, you can improve the performance of the database when you generate the inventory reports or query the database.

You use the database buffer cache to store the most recently used data blocks. The database cache is determined as `db_block_buffers * db_block_size`. These parameters are specified in the `zenworks\database\init.ora` file on the database server.

`DB_BLOCK_BUFFERS` specifies the number of database buffers. `DB_BLOCK_SIZE` specifies the size of each database buffer in bytes.

The size of each buffer in the buffer cache is equal to the size of the data block.

If there is additional memory, you configure the database cache size by increasing the `DB_BLOCK_BUFFERS` parameter in the `init.ora` file. If you run Inventory database on Oracle9i, you can set `db_cache_size` instead of `db_block_buffers * db_block_size`.

For more information for Performing tips, see [“Database Parameter Tuning Tips” on page 1107](#).

## MS SQL in the Windows Environment

- ◆ We recommend that you use a dedicated server for MS SQL.
- ◆ On MS SQL server, ensure that the tempdb system database is located on the drive having sufficient disk space.
- ◆ Boost the MS SQL server priority.
- ◆ Enable optimization for background services.
- ◆ Use the configuration in the following table:

| Inventoried Workstations in the Database (thousands) | Total Memory of the System | MS SQL Cache Memory | Processor Speed       |
|------------------------------------------------------|----------------------------|---------------------|-----------------------|
| less than 10                                         | 512 MB                     | 256 MB              | Pentium III: 450 M Hz |
| 10 - 20                                              | 512 MB - 1 GB              | 256 MB - 384 MB     | Pentium 4: 1.8 G Hz   |
| 20 - 50                                              | 1 GB - 1.5 GB              | 512 MB - 768 MB     | Pentium 4: 1.8 G Hz   |

- ◆ The following table lists the free hard disk space recommendations:

| Inventoried Workstations in the Database (thousands) | Free Hard Disk Space (GB) |
|------------------------------------------------------|---------------------------|
| Up to 5                                              | 5                         |
| Up to 10                                             | 10                        |
| Up to 15                                             | 15                        |
| Up to 20                                             | 20                        |
| Up to 25                                             | 26                        |
| Up to 30                                             | 31                        |
| Up to 35                                             | 36                        |
| Up to 40                                             | 41                        |
| Up to 45                                             | 46                        |

- ◆ Span the data files across the multiple physical disks if you have more than 5,000 workstations.
- ◆ We recommend that you use multi processors for servers hosting the database.
- ◆ For additional tips on MS SQL, refer to the [MS SQL Server documentation \(http://www.ms-sql-server-performance.com\)](http://www.ms-sql-server-performance.com).

## Performance Tips for the Inventory ConsoleOne Utilities

This section discusses the performance tips for the following Inventory ConsoleOne utilities:

- ◆ “[Inventory Reports Performance Tips](#)” on page 1112
- ◆ “[Inventory Data Export Performance Tips](#)” on page 1113
- ◆ “[Inventory Query Performance Tips](#)” on page 1113

**NOTE:** If the Inventory ConsoleOne utilities are retrieving data from a large database, you must stop the Storer service before running the utilities. This improves the performance of the ConsoleOne utilities.

### Inventory Reports Performance Tips

- ◆ If you have more than 1000 workstations in your database, listing all of the subreports consumes time. We recommend that you specify the list of subreports. By doing so, the general performance of the reports is improved.
- ◆ If your Inventory database is running on MS SQL, execute the following script at the Inventory server console prompt before generating Inventory reports:

```
CREATE INDEX i$FkPinstanceId ON ZENworks.
t$InstalledProduct(fk_pinstanceid) ON CIM9
```

The script helps in generating the reports in optimal time.



## Inventory Data Export Performance Tips

- ◆ To maximize the performance of Inventory Data Export, you need to enable the filter condition in Database Export. Based on the query you specify, the Database Export will export only selected software.
- ◆ During export, deselect the attributes that you do not want to use. To do this, use the Database Export and the Required Attributes Only option.
- ◆ Perform the software export separately. This will greatly improve the performance of the Non-Software Export function.

## Inventory Query Performance Tips

- ◆ Specify queries using the AND condition in multiple groups to increase performance.
- ◆ Split a complex query with several logical operators into multiple groups separated by a logical operator.
- ◆ If you want to use a complex query, increase the database cache size. For more information on tuning databases, see “[Database Parameter Tuning Tips](#)” on page 1107.
- ◆ Save fast, narrowed-down queries for future use.
- ◆ Do not invoke the Inventory Query by connecting to a database over a slow link.
- ◆ If a complex query takes more than 10 minutes to execute over a fast link, you probably do not have any workstations that match the query you specified. The following message will be displayed:

```
No Computer system matched the query
```

Close the Result window, narrow your input query and retry. Repeat the process of narrowing your query until you locate your workstations.

- ◆ For optimal performance, we recommend that you do not use more than four groups and not more than three logical operators separating the four groups in your query.
- ◆ If you know the exact logical string, avoid using the MATCHES operator. The MATCHES operator searches the database for a result based on the pattern you specify. This will result in performance degradation.
- ◆ If you want to check for a particular inventory component not stored in the Inventory database, use the (ISNULL) operator instead of a query with a regular attribute.

## References

For additional information on performance tuning tips, refer to the following documentation for specific components:

- ◆ [MS SQL performance information \(http://www.sql-server-performance.com\)](http://www.sql-server-performance.com)
- ◆ Oracle9i Database and Performance guide and reference
- ◆ Oracle9i Database Administrator’s guide





## Hardware Information Collected by the Inventory Scanners

The Scanners collect the following hardware information.

The following table contains the DMI/WMI components that are addressed in the DMI/WMI information.

| Scan Data                     | DMI Class and Attribute      | WMI Class and Attribute                                                                                                                           |
|-------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| System.Manufacturer           | DMTF Component  1            | Win32_ComputerSystemProduct.Vendor                                                                                                                |
| System.MachineName            | Not applicable               | Win32_ComputerSystem.Caption                                                                                                                      |
| System.AssetTag               | DMTF System Enclosure  001.2 | Not applicable                                                                                                                                    |
| System.Model                  | DMTF Component 2             | Win32_ComputerSystemProduct.Name                                                                                                                  |
| System.ModelNumber            | Not applicable               | Not applicable                                                                                                                                    |
| System.SystemIdentifier(GUID) | Not applicable               | Not applicable                                                                                                                                    |
| System.SerialNumber           | DMTF Component 3             | Win32_ComputerSystemProduct.<br>IdentifyingNumber                                                                                                 |
| System.Tag                    | Not applicable               | Not applicable                                                                                                                                    |
| System.ManagementTechnology   | Not applicable               | Not applicable                                                                                                                                    |
| eDirectory.DNName             | Not applicable               | Not applicable                                                                                                                                    |
| eDirectory.TreeName           | Not applicable               | Not applicable                                                                                                                                    |
| NetworkAdapter.MACAddress     | Not applicable               | Win32_NetworkAdapterConfiguration.<br>MACAddress<br><br>(Only on Windows 2000/XP; get it through<br>association with Win32_NetworkAdapterSetting) |
| IP.Address                    | Not applicable               | Win32_NetworkAdapterConfiguration.IPAddress<br><br>(Only on Windows 2000/XP; get it through<br>association with Win32_NetworkAdapterSetting)      |
| IP.Subnet (Subnet Mask)       | Not applicable               | Win32_NetworkAdapterConfiguration.IPSubnet<br><br>(Only on Windows 2000/XP; get it through<br>association with Win32_NetworkAdapterSetting)       |

| Scan Data                    | DMI Class and Attribute                                     | WMI Class and Attribute                                                                                                                                     |
|------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NetworkAdapter.MACAddress    | Not applicable                                              | Win32_NetworkAdapterConfiguration.<br>MACAddress<br><br>(Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting)              |
| IPX.Address                  | Not applicable                                              | Win32_NetworkAdapterConfiguration.IPXAddress<br><br>(Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting)                  |
| NetworkAdapter.MACAddress    | Not applicable                                              | Win32_NetworkAdapterConfiguration.<br>MACAddress<br><br>(Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting)              |
| DNS.HostName                 | Not applicable                                              | Win32_NetworkAdapterConfiguration.<br>DNSHostName + DNSDomain<br><br>(Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting) |
| Modem.Description            | Not applicable                                              | Win32_POTSModem.Description                                                                                                                                 |
| Modem.Name                   | Not applicable                                              | Win32_POTSModem.Name                                                                                                                                        |
| Modem.Vendor                 | Not applicable                                              | Not applicable                                                                                                                                              |
| Modem.DeviceID               | Not applicable                                              | Win32_POTSModem.DeviceID                                                                                                                                    |
| NetworkAdapter.DriverVersion | DMTF Network Adapter Driver<br> 001.Driver Software Version | Not applicable                                                                                                                                              |
| Login.CurrentLoggedInUser    | Not applicable                                              | Not applicable                                                                                                                                              |
| Login.LastLoggedIn User      | Not applicable                                              | Not applicable                                                                                                                                              |
| Login.DomainName             | Not applicable                                              | Win32_ComputerSystem.Domain                                                                                                                                 |
| NWClient.Version             | Not applicable                                              | Not applicable                                                                                                                                              |
| Processor.stepping           | Not applicable                                              | CIM_Processor.Stepping                                                                                                                                      |
| Processor.DeviceID           | Not applicable                                              | CIM_Processor.DeviceID                                                                                                                                      |
| Processor.Family             | DMTF Processor 004.3                                        | CIM_Processor.Family                                                                                                                                        |
| Processor.OtherFamily        | Not applicable                                              | CIM_Processor.OtherFamilyDescription                                                                                                                        |
| Processor.MaxClockSpeed      | DMTF Processor 004.5                                        | CIM_Processor.MaxClockSpeed                                                                                                                                 |
| Processor.CurrentClockSpeed  | DMTF Processor 004.6                                        | CIM_Processor.CurrentClockSpeed                                                                                                                             |
| Processor.Role               | DMTF Processor 004.2                                        | CIM_Processor.ProcessorType                                                                                                                                 |
| Processor.Upgrade            | DMTF Processor 004.7                                        | CIM_Processor.UpgradeMethod                                                                                                                                 |
| Processor.Description        | DMTF Processor 004.4                                        | CIM_Processor.Description                                                                                                                                   |

| Scan Data                              | DMI Class and Attribute                      | WMI Class and Attribute                           |
|----------------------------------------|----------------------------------------------|---------------------------------------------------|
| Processor.Name                         | Enum equivalent of DMTF Processor 004.3      | CIM_Processor.Name                                |
| BIOS.Manufacturer                      | DMTF SystemBIOS 001.2                        | Win32_BIOS.Manufacturer                           |
| BIOS.BIOSDate                          | Not applicable                               | Win32_BIOS.InstallDate                            |
| BIOS.BIOSIDBytes                       | Not applicable                               | Not applicable                                    |
| BIOS.Copyright                         | Not applicable                               | Win32_BIOS.Caption                                |
| BIOS.SerialNumber                      | Not applicable                               | Win32_BIOS.SerialNumber                           |
| BIOS.BIOSType                          | DMTF SystemBIOS 001.3                        | Win32_BIOS.SMBIOSBIOSVersion                      |
| BIOS.PrimaryBIOS                       | DMTF SystemBIOS 001.9                        | Win32_BIOS.PrimaryBIOS                            |
| BIOS.Size                              | DMTF SystemBIOS 001.4                        | Not applicable                                    |
| Bus.Type                               | Not applicable                               | Win32_Bus.BusType                                 |
| Bus.Name                               | Not applicable                               | Win32_Bus.Name                                    |
| Bus.Description                        | Not applicable                               | Win32_Bus.Descripction                            |
| Bus.Version                            | Not applicable                               | Not applicable                                    |
| Bus.DeviceID                           | Not applicable                               | Win32_Bus.DeviceID                                |
| IRQ.Number                             | DMTF IRQ 002.IRQNumber                       | CIM_IRQ.IRQNumber                                 |
| IRQ.Availability                       | DMTF IRQ 002.Availability                    | CIM_IRQ.Availability                              |
| IRQ.TriggerType                        | DMTF IRQ 002.TriggerType                     | CIM_IRQ.TriggerType                               |
| IRQ.Shareable                          | DMTF IRQ 002.Shareable                       | CIM_IRQ.Shareable                                 |
| Keyboard.Layout                        | DMTF Keyboard 003.Layout                     | CIM_Keyboard.Layout                               |
| Keyboard.Subtype                       | Not applicable                               | Not applicable                                    |
| Keyboard.Type                          | DMTF Keyboard 003.Keyboard.Type              | CIM_Keyboard.Description                          |
| Keyboard.Fkeys                         | Not applicable                               | CIM_Keyboard.NumberOfFunctionKeys                 |
| Keyboard.Delay                         | Not applicable                               | Not applicable                                    |
| Keyboard.TypeomaticRate                | Not applicable                               | Not applicable                                    |
| VideoAdapter.NumberOfColorPlanes (NEW) | Not applicable                               | Win32_VideoController.NumberOfColorPanes          |
| VideoAdapter.HorizontalResolution      | DMTF Video 004.Current Horizontal Resolution | Win32_VideoController.CurrentHorizontalResolution |
| VideoAdapter.VerticalResolution        | DMTF Video 004.Current Vertical Resolution   | Win32_VideoController.CurrentVerticalResolution   |
| VideoAdapter.DisplayType               | DMTF Video 004.Video Type                    | Win32_VideoController.VideoArchitecture           |

| Scan Data                          | DMI Class and Attribute                           | WMI Class and Attribute                         |
|------------------------------------|---------------------------------------------------|-------------------------------------------------|
| VideoAdapter.MemoryType            | DMTF Video 004.Video Memory Type                  | Win32_VideoController.VideoMemoryType           |
| VideoAdapter.MaxMemorySupported    | DMTF Video 004.Video RAM Memory Size              | Win32_VideoController.AdapterRAM                |
| VideoAdapter.Bitsperpixel          | DMTF Video 004.Current Number of Bits per Pixel   | Win32_VideoController.CurrentBitsPerPixel       |
| VideoAdapter.ControllerDescription | DMTF Video 004.Video Controller Description       | Win32_VideoController.Description               |
| VideoAdapter.MaxRefreshrate        | DMTF Video 004.Maximum Refresh Rate               | Win32_VideoController.MaxRefreshRate            |
| VideoAdapter.MinRefreshrate        | DMTF Video 004.Minimum Refresh Rate               | Win32_VideoController.MinRefreshRate            |
| VideoAdapter.DACType               | Not applicable                                    | Win32_VideoController.AdapterDACType            |
| VideoAdapter.ChipSet               | Not applicable                                    | Win32_VideoController.VideoProcessor            |
| VideoAdapter.ProviderName          | Not applicable                                    | Win32_VideoController.VideoAdapterCompatibility |
| VideoBIOS.VideoBIOSManufacturer    | DMTF Video BIOS 001.BIOS Manufacturer             | CIM_VideoBIOSElement.Manufacturer               |
| VideoBIOS.VideoBIOSVersion         | DMTF Video BIOS 001.Video. BIOS Version           | CIM_VideoBIOSElement.Version                    |
| VideoBIOS.VideoBIOSReleaseDate     | DMTF Video BIOS 001.Video. BIOS Release Date      | CIM_VideoBIOSElement.InstallDate                |
| VideoBIOS.VideoBIOS.IsShadowed     | DMTF Video BIOS 001.Video. Shadowing State        | CIM_VideoBIOSElement.IsShadowed                 |
| ParallelPort.Name                  | DMTF Parallel Ports 003.Parallel Port Index       | CIM_ParallelController.Name                     |
| ParallelPort.DMASupport            | DMTF Parallel Ports 003.DMA Support               | CIM_ParallelController.DMASupport               |
| ParallelPort.Address               | DMTF Parallel Ports 003.Parallel Base I/O Address | Not applicable                                  |
| ParallelPort.IRQ                   | DMTF Parallel Ports 003.IRQ Used                  | Not applicable                                  |
| SerialPort.Name                    | DMTF Serial Ports 004.Serial Port Index           | CIM_SerialController.Name                       |
| SerialPort.Address                 | DMTF Serial Ports 004.Serial Base I/O Address     | Not applicable                                  |
| SerialPort.IRQ                     | DMTF Serial Ports 004.IRQ Used                    | Not applicable                                  |

| Scan Data                        | DMI Class and Attribute                                                                                               | WMI Class and Attribute                                                                                                                |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| FloppyDrive.DeviceID             | DMTF Logical Drives 001.Logical Drive Name<br><br>(when DMTF Logical Drives 001.Logical Drive Type=Floppy Drive(7))   | Win32_LogicalDisk.DeviceID<br><br>(where Win32_LogicalDisk.DriveType = 2 (Removable Disk) and Win32_LogicalDisk.MediaType = [1,10])    |
| FloppyDrive.Manufacture          | Not applicable                                                                                                        | Not applicable                                                                                                                         |
| FloppyDrive.Description          | Hard Code: Floppy Drive<br><br>(when DMTF Disks 003.Storage Type=Floppy Disk(4))                                      | Win32_LogicalDisk.Description<br><br>(where Win32_LogicalDisk.DriveType = 2 (Removable Disk) and Win32_LogicalDisk.MediaType = [1,10]) |
| FloppyDrive.MaxNumberOfCylinders | Not applicable                                                                                                        | Not applicable                                                                                                                         |
| FloppyDrive.NumberOfHeads        | Not applicable                                                                                                        | Not applicable                                                                                                                         |
| FloppyDrive.SectorsPerTrack      | Not applicable                                                                                                        | Not applicable                                                                                                                         |
| FloppyDrive.Size                 | DMTF Logical Drives 001.Logical Drive Size<br><br>(when DMTF Logical Drives 001.Logical Drive Type = Floppy Drive(7)) | Win32_LogicalDisk.Size<br><br>(where Win32_LogicalDisk.DriveType = 2 (Removable Disk) and Win32_LogicalDisk.MediaType = [1,10])        |
| CDROMDrive.DeviceID              | DMTF Logical Drives 001.Logical Drive Name<br><br>(When DMTF Logical Drives 001.Logical Drive Type = 6)               | Win32_CDROMDrive.Drive                                                                                                                 |
| CDROMDrive.Manufacture           | Not applicable                                                                                                        | Win32_CDROMDrive.Manufacturer                                                                                                          |
| CDROMDrive.Description           | Not applicable                                                                                                        | Win32_CDROMDrive.Description                                                                                                           |
| CDROMDrive.Caption               | Hard code: CDROM Device<br><br>(when DMTF Disks 001.Logical Drive Type = 6)                                           | Win32_CDROMDrive.Caption                                                                                                               |
| HardDrive.Media Type             | DMTF Disks 003.Removable Media                                                                                        | Win32_DiskDrive.MediaType                                                                                                              |
| HardDrive.Vendor                 | Not applicable                                                                                                        | Win32_DiskDrive.Manufacturer                                                                                                           |
| HardDisk.Description             | DMTF Disks 003.Interface Description<br><br>(when DMTF Disks 003.Storage Type=Hard Disk(3))                           | Win32_DiskDrive.Description                                                                                                            |
| HardDisk.Cylinders               | DMTF Disks 003.Number of Physical Cylinders                                                                           | Win32_DiskDrive.TotalCylinders                                                                                                         |
| HardDisk.Heads                   | DMTF Disks 003.Number of Physical Heads                                                                               | Win32_DiskDrive.TotalHeads                                                                                                             |

| Scan Data                                 | DMI Class and Attribute                                    | WMI Class and Attribute                                                                         |
|-------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| HardDisk.Sectors                          | DMTF Disks 003.Number of Physical Sectors per Track        | Win32_DiskDrive.SectorsPerTrack                                                                 |
| HardDisk.Capacity                         | DMTF Disks 003.Total Physical Size                         | Win32_DiskDrive.Size                                                                            |
| LogicalDrive.Name                         | Not applicable                                             | Win32_LogicalDisk.DeviceID<br><br>(when Win32_LogicalDisk.DriveType = 3 (Local Disk))           |
| LogicalDrive.VolumeSerialNumber           | Not applicable                                             | Win32_LogicalDisk.VolumeSerialNumber<br><br>(when Win32_LogicalDisk.DriveType = 3 (Local Disk)) |
| LogicalDrive.Volume (Volume Label)        | Not applicable                                             | Win32_LogicalDisk.VolumeName<br><br>(when Win32_LogicalDisk.DriveType = 3 (Local Disk))         |
| Operating System.OSType                   | Not applicable                                             | Win32_OperatingSystem.OSType                                                                    |
| OperatingSystem.Version                   | Not applicable                                             | Not applicable                                                                                  |
| OperatingSystem.Codepage                  | Not applicable                                             | Win32_OperatingSystem.CodeSet                                                                   |
| OperatingSystem.InstallDate               | Not applicable                                             | Win32_OperatingSystem.InstallDate                                                               |
| OperatingSystem.TotalSwapSpaceSize        | DMTF System Memory Settings 001.Total Size of Paging Files | Win32_OperatingSystem.SizeStoredInPagingFiles                                                   |
| OperatingSystem.Description               | DMTF Operating System 001. Operating System Description    | Win32_OperatingSystem.Caption                                                                   |
| OperatingSystem.OtherTypeDescription      | Not applicable                                             | Win32_OperatingSystem.OtherTypeDescription                                                      |
| OperatingSystem.VirtualMemorySize         | DMTF System Memory Settings 001.Total Virtual Memory       | Win32_OperatingSystem.TotalVirtualMemory                                                        |
| OperatingSystem.VisibleMemorySize         | Not applicable                                             | Win32_OperatingSystem.TotalVisibleMemorySize                                                    |
| OperatingSystem.Role                      | Not applicable                                             | Not applicable                                                                                  |
| InventoryScanner.Version                  | Not applicable                                             | Not applicable                                                                                  |
| InventoryScanner.LastScanDate             | Not applicable                                             | Not applicable                                                                                  |
| InventoryScanner.InventoryServer          | Not applicable                                             | Not applicable                                                                                  |
| InventoryScanner.ScanMode                 | Not applicable                                             | Not applicable                                                                                  |
| InventoryScanner.GeneralDictionaryVersion | Not applicable                                             | Not applicable                                                                                  |
| InventoryScanner.PrivateDictionaryVersion | Not applicable                                             | Not applicable                                                                                  |



| Scan Data               | DMI Class and Attribute                                            | WMI Class and Attribute             |
|-------------------------|--------------------------------------------------------------------|-------------------------------------|
| SoundCard.Description   | Not applicable                                                     | Win32_SoundDevice.Description       |
| SoundCard.Name          | Not applicable                                                     | Win32_SoundDevice.Name              |
| SoundCard.Manufacturer  | Not applicable                                                     | Win32_SoundDevice.Manufacturer      |
| Cache.Level             | DMTF System Cache 003.<br>System Cache Level                       | Win32_CacheMemory.Level             |
| Cache.WritePolicy       | DMTF System Cache 003.<br>System Cache Write Policy                | Win32_CacheMemory.WritePolicy       |
| Cache.ErrorCorrection   | DMTF System Cache 003.<br>System Cache Error Correction            | Win32_CacheMemory.ErrorCorrectType  |
| Cache.Type              | DMTF System Cache 003.<br>System Cache Type                        | Win32_CacheMemory.CacheType         |
| Cache.LineSize          | DMTF System Cache 003.Line<br>Size                                 | Win32_CacheMemory.LineSize          |
| Cache.ReplacementPolicy | DMTF System Cache 003.<br>Replacement Policy                       | Win32_CacheMemory.ReplacementPolicy |
| Cache.ReadPolicy        | DMTF System Cache 003.Read<br>Policy                               | Win32_CacheMemory.ReadPolicy        |
| Cache.Associativity     | DMTF System Cache 003.<br>Associativity                            | Win32_CacheMemory.Associativity     |
| Cache.Speed             | DMTF System Cache 003.<br>System Cache Speed                       | Win32_CacheMemory.CacheSpeed        |
| Cache.Size              | DMTF System Cache 003.<br>System Cache Size                        | Win32_CacheMemory.MaxCacheSize      |
| MotherBoard.Version     | Not applicable                                                     | Win32_BaseBoard.Version             |
| MotherBoard.Description | Not applicable                                                     | Win32_BaseBoard.Description         |
| MotherBoard.Slots       | DMTF Motherboard 001.Number<br>of Expansion slots                  | Not applicable                      |
| MotherBoard.Manufacture | Not applicable                                                     | Win32_BaseBoard.Manufacture         |
| Battery.Name            | DMTF Portable Battery 002.<br>Portable Battery Device Name         | Win32_Battery.Name                  |
| Battery.Chemistry       | DMTF Portable Battery 002.<br>Portable Battery Device<br>Chemistry | Win32_Battery.Chemistry             |
| Battery.Capacity        | DMTF Portable Battery 002.<br>Portable Battery Design Capacity     | Win32_Battery.DesignCapacity        |
| Battery.Voltage         | DMTF Portable Battery 002.<br>Portable Battery Design Voltage      | Win32_Battery.DesignVoltage         |

| Scan Data                           | DMI Class and Attribute                                                 | WMI Class and Attribute                         |
|-------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------|
| Battery.Version                     | DMTF Portable Battery 002. Portable Battery Smart Battery Version       | Win32_Battery.SmartBatteryVersion               |
| Battery.Manufacturer                | DMTF Portable Battery 002. Portable Battery Manufacturer                | Win32_PortableBattery.Manufacturer              |
| Battery.ManufactureDate             | DMTF Portable Battery 002. Portable Battery Manufacturer Date           | Win32_Battery.InstallDate                       |
| Battery.SerialNumber                | DMTF Portable Battery 002. Portable Battery Serial Number               | Not applicable                                  |
| PowerSupply.InputVoltageDescription | DMTF Power Supply 002.Power Supply Input Voltage Capability Description | CIM_UninterruptiblePowerSupply.Description      |
| PowerSupply.Power                   | DMTF Power Supply 002.Total Output Power                                | CIM_UninterruptiblePowerSupply.TotalOutputPower |
| DMA.Number                          | DMTF DMA 001.DMA Number                                                 | CIM_DMA.DMAChannel                              |
| DMA.Description                     | DMTF DMA 001.DMA Description                                            | CIM_DMA.Description                             |
| DMA.Availability                    | DMTF DMA 001.DMA Channel Availability                                   | CIM_DMA.Availability                            |
| DMA_BurstMode                       | DMTF DMA 001.DMA BurstMode                                              | CIM_DMA.BurstMode                               |
| UCS.DNNName                         | Not applicable                                                          | Not applicable                                  |
| UCS.PrimaryOwnerContact             | DMTF General Information 001.3                                          | CIM_UnitaryComputerSystem.PrimaryOwnerContact   |
| UCS.PrimaryOwnerName                | DMTF General Information 001.4                                          | CIM_UnitaryComputerSystem.PrimaryOwnerName      |
| PointingDevice.DeviceType           | DMTF Pointing Device Pointing Device Type(1)                            | CIM_PointingDevice.PointingType                 |
| PointingDevice.Type                 | DMTF Pointing Device Pointing Device Interface (2)                      | CIM_PointingDevice.Name                         |
| PointingDevice.NumberOfButtons      | DMTF Pointing Device Pointing Device Buttons (4)                        | CIM_PointingDevice.NumberOfButtons              |
| PointingDevice.DriverName           | DMTF Pointing Device Pointing Device Driver Name (6)                    | Not applicable                                  |
| PointingDevice.DriverVersion        | DMTF Pointing Device Pointing Device Driver Version (7)                 | CIM_PointingDevice.Name                         |
| PointingDevice.IRQ                  | DMTF Pointing Device Pointing Device IRQ (3)                            | Not applicable                                  |
| Slot.Description                    | DMTF System Slots 003. Description                                      | Win32_SystemSlot.SlotDesignation                |

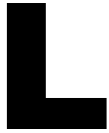
| Scan Data                     | DMI Class and Attribute                   | WMI Class and Attribute                                                             |
|-------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------|
| Slot.MaxDataWidth             | DMTF System Slots 003.MaxDataWidth        | Win32_SystemSlot. MaxDataWidth                                                      |
| Slot.ThermalRating            | DMTF System Slots 003.Slot Thermal Rating | Win32_SystemSlot. ThermalRating                                                     |
| FileSystem.Drive              | Not applicable                            | Win32_LogicalDiskDeviceID<br>(when Win32_LogicalDisk.DriveType = 3 (Local Disk))    |
| FileSystem.FileSystemSize     | Not applicable                            | Win32_LogicalDisk.Size<br>(when Win32_LogicalDisk.DriveType = 3 (Local Disk))       |
| FileSystem.AvailableSpace     | Not applicable                            | Win32_LogicalDisk.FreeSpace<br>(when Win32_LogicalDisk.DriveType = 3 (Local Disk))  |
| FileSystem.FileSystem         | Not applicable                            | Win32_LogicalDisk.FileSystem<br>(when Win32_LogicalDisk.DriveType = 3 (Local Disk)) |
| Monitor.Device ID             | Not applicable                            | Not applicable                                                                      |
| Monitor.Description           | Not applicable                            | Not applicable                                                                      |
| Monitor.Manufacturer Date     | Not applicable                            | Not applicable                                                                      |
| Monitor.Model ID              | Not applicable                            | Not applicable                                                                      |
| Monitor.ViewableSize (inches) | Not applicable                            | Not applicable                                                                      |
| Monitor.NominlaSize (inches)  | Not applicable                            | Not applicable                                                                      |
| Monitor.Serial Number         | Not applicable                            | Not applicable                                                                      |
| Monitor.Manufacturer          | Not applicable                            | Not applicable                                                                      |
| Monitor.Model                 | Not applicable                            | Not applicable                                                                      |
| Chassis.Type (enum)           | DMTF Physical Container Global Table 1    | Win32_SystemEnclosure. ChassisTypes                                                 |
| Chassis.Manufacturer          | DMTF FRU  4                               | Win32_SystemEnclosure. Manufacturer                                                 |
| Chassis.SerialNumber          | DMTF FRU  7                               | Win32_SystemEnclosure. SerialNumber                                                 |
| Chassis.AssetTag              | DMTF Physical Container Global Table 2    | Win32_SystemEnclosure. SMBIOSAssetTag                                               |
| Chassis.Version               | Not applicable                            | Win32_SystemEnclosure. Version                                                      |
| Chassis.NumberOfPowerCords    | Not applicable                            | Win32_SystemEnclosure. NumberOfPowerCords                                           |
| Chassis.Tag                   | Not applicable                            | Win32_SystemEnclosure.Tag                                                           |

**NOTE:** PCMCIA modems are connected to the computer through the PCMCIA slots on the inventoried workstations. The Scanner detects PCMCIA modems that are active on the computer. If you want to know which modem is installed on the computer, use the Windows System Device Manager on the Windows workstation.

Non-PCMCIA modems are connected to the computer through the external ports. For example, some non-PCMCIA modems are connected through the serial ports. The Scanner detects non-PCMCIA modems that are installed on the computer.

Non-PCMCIA modems might not be active at the time of scanning. Also, these modems might not be connected, although they are configured on the computer. In this case, the Scanner detects the modem and reports the scan information of the modem.

The Inventory scanner reports inventory information for the monitors that are manufactured only after 1997.



## ZENworks 6.5 Desktop Management Inventory Attributes

The following table lists the Workstation Inventory attributes that ZENworks 6.5 Desktop Management uses.

Each row in the table has:

- ◆ The name of the attribute as displayed in the Inventory Database Export Wizard in ConsoleOne
- ◆ The name of the attribute in the exported .csv file (first row in the .csv file)
- ◆ The inventory database attribute name
- ◆ The type of the attribute in the Inventory database
- ◆ The length of the attribute in the Inventory database
- ◆ A brief description of the attribute

| Export Wizard Attribute Name    | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name           | Data Type | Length | Description of the Attribute                                                                                |
|---------------------------------|---------------------------------------------------------|------------------------------------------|-----------|--------|-------------------------------------------------------------------------------------------------------------|
| General-NDSName-Label           | NDSName_LABEL                                           | ManageWise.NDSName.Label                 | String    | 254    | The DN name of the inventoried workstation registered in eDirectory.                                        |
| SystemInfo.Description          | Asset_Description                                       | Zenworks.SystemInfo.Description          | String    | 254    | Description of the system asset information.                                                                |
| SystemInfo.Caption              | Asset_Caption                                           | Zenworks.SystemInfo.Caption              | String    | 64     | Identifying information of the computer.                                                                    |
| SystemInfo.Tag                  | Asset_Asset Tag                                         | Zenworks.SystemInfo.Tag                  | String    | 254    | Asset tag number that the ROM-based setup program creates. This is unique to every inventoried workstation. |
| SystemInfo.ModelNumber          | Asset_Model Number                                      | Zenworks.SystemInfo.Model                | String    | 64     | Model number value for the computer, assigned during manufacture.                                           |
| SystemInfo.SerialNumber         | Asset_Serial Number                                     | Zenworks.SystemInfo.SerialNumber         | String    | 64     | Model serial number value for the computer, assigned during manufacture.                                    |
| SystemInfo.ManagementTechnology | Asset_Management Technology                             | Zenworks.SystemInfo.ManagementTechnology | Integer   |        | The management technology available on the computer system.                                                 |

| Export Wizard Attribute Name              | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name            | Data Type                     | Length | Description of the Attribute                                                                                                                           |
|-------------------------------------------|---------------------------------------------------------|-------------------------------------------|-------------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| CurrentLoginUser.Name                     | Current Login User. Name                                | ManageWise."User". Name                   | String                        | 254    | User logged in to the Primary eDirectory tree when the inventoried workstation was scanned.                                                            |
| LastLoginUser.Name                        | Last Login User. Name                                   | ManageWise."User". Name                   | String                        | 254    | User most recently logged into the Primary eDirectory tree through Novell Client when the inventoried workstation was scanned.                         |
| Product.Name                              | Applications_Name                                       | CIM.Product.Name                          | String                        | 254    | Name of the software application.                                                                                                                      |
| Product.Vendor                            | Applications_Vendor                                     | CIM.Product.Vendor                        | String                        | 254    | Name of the software application manufacturer.                                                                                                         |
| Product.Version                           | Applications_Version                                    | CIM.Product.Version                       | String                        | 64     | Version of the software application.                                                                                                                   |
| Product.Location                          | Applications_Path                                       | CIM.Directory. Location                   | String                        | 254    | The product installation path.                                                                                                                         |
| Product.IdentifyingNumber                 | Applications_Identifying Number                         | CIM.Product. IdentifyingNumber            | String                        | 64     | Microsoft product ID                                                                                                                                   |
| WinOperating System. OSType               | Windows_Name                                            | ZENworks. WINOperatingSystem. OSType      | Unsigned Small Integer (enum) |        | Operating system name. For example, Windows 2000. See <a href="#">"Enumeration Values for Software-Operating Systems-Windows - Name"</a> on page 1146. |
| WinOperating System. Version              | Windows_Version                                         | ZENworks. WINOperatingSystem. Version     | String                        | 254    | Version of the operating system.                                                                                                                       |
| WinOperating System. Caption              | Windows_Caption                                         | ZENworks. WINOperatingSystem. Caption     | String                        | 64     | Short name of the operating system. For example, Windows 2000.                                                                                         |
| WinOperating System. Role                 | Windows_Role                                            | ZENworks. WINOperatingSystem. Role        | Integer (enum)                |        | The role of the computer system. For example, server or workstation.                                                                                   |
| WinOperating System. OtherTypeDescription | Windows_Other Description                               | ZENworks. WINOperatingSystem. Description | String                        | 254    | More description about the operating system.                                                                                                           |
| WinOperating System. InstallDate          | Windows_Install Date                                    | ZENworks. ZENOperatingSystem .InstallDate | String                        | 25     | Installation date of the operating system.                                                                                                             |
| WinOperating System. CodePage             | Windows_Code Page                                       | ZENworks. WINOperatingSystem. CodePage    | String                        | 254    | Current language code page being used.                                                                                                                 |

| Export Wizard Attribute Name               | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name                     | Data Type        | Length | Description of the Attribute                                                                                                                              |
|--------------------------------------------|---------------------------------------------------------|----------------------------------------------------|------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| WinOperating System.TotalVisibleMemorySize | Windows_Total Memory (MB)                               | ZENworks.WINOperatingSystem.TotalVisibleMemorySize | Integer          |        | Total memory as reported by the Windows operating system.                                                                                                 |
| WinOperating System.TotalVirtualMemorySize | Windows_Total Virtual Memory (MB)                       | ZENworks.WINOperatingSystem.TotalVirtualMemorySize |                  |        | Total virtual memory as reported by the Windows operating system.                                                                                         |
| InventoryScanner.Version                   | Scanner Information_Version                             | ZENworks.InventoryScanner.Version                  | String           | 64     | Version of the Scanner running on the inventoried workstation.                                                                                            |
| InventoryScanner.LastScanDate              | Scanner Information_Last Scan Date                      | ZENworks.InventoryScanner.LastScanDate             | Unsigned Integer |        | The date when the Scanner was last scanned. Stored as milliseconds time value so it can be read and displayed in any appropriate date format.             |
| InventoryScanner.Inventory Server          | Scanner Information_Inventor y Server                   | ZENworks.InventoryScanner.InventoryServer          | String           | 254    | Name of the Inventory server to which the scans are sent. It is not the complete DN of the server name.                                                   |
| InventoryScanner.ScanMode                  | Scanner Information_Scan Mode                           | ZENworks.InventoryScanner.ScanMode                 | Integer (enum)   |        | The management technology used by the Scanner, such as WMI or DMI, for scanning the computer system.                                                      |
| NetWareClient.Version                      | Netware Client_Version                                  | ZENworks.NetWareClient.Version                     | String           | 64     | Version of the NetWare client software installed on the inventoried workstation.                                                                          |
| NetworkAdapterDriver.Description           | Network Adapter Driver_Description                      | ZENworks.NetworkAdapterDriver.Description          | String           | 254    | Description of the network adapter driver installed on the inventoried workstation. For example, IBM 10/100 Ethernet adapter, EN-2420Px Ethernet adapter. |
| NetworkAdapterDriver.Name                  | Network Adapter Driver_Name                             | ZENworks.NetworkAdapterDriver.Name                 | String           | 254    | Name of the network adapter driver software installed that corresponds to the adapter. For example, ne2000.sys, pppmac.vxd, and others.                   |
| NetworkAdapterDriver.Version               | Network Adapter Driver_Version                          | ZENworks.NetworkAdapterDriver.Version              | String           | 64     | Network adapter driver version.                                                                                                                           |

| Export Wizard Attribute Name       | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name                    | Data Type              | Length | Description of the Attribute                                                                                                                                                                                                                                                                                                                     |
|------------------------------------|---------------------------------------------------------|---------------------------------------------------|------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PointingDeviceDeviceDriver.Name    | Pointing Device Driver_Name                             | ZENworks.<br>PointingDeviceDeviceDriver.Name      | String                 | 254    | Name of the mouse driver installed on the inventoried workstation.                                                                                                                                                                                                                                                                               |
| PointingDeviceDeviceDriver.Version | Pointing Device Driver_Version                          | ZENworks.<br>PointingDeviceDeviceDriver.Version   | String                 | 64     | Mouse driver version.                                                                                                                                                                                                                                                                                                                            |
| PointingDevice.Name                | Pointing Device_Name                                    | CIM.PointingDevice.<br>Name                       | String                 | 254    | The name of the pointing device, such as Mouse. The string stored in this field will be MOUSE.<br><br>The CIM.PointingDevice.PointingType field determines the type of the pointing device.<br><br>The different types of pointing devices are as listed in <a href="#">"Enumeration Values for Hardware-Pointing Device-Name"</a> on page 1147. |
| PointingDevice.Numberofbuttons     | Pointing Device_Number of Buttons                       | CIM.PointingDevice.<br>NumberOfButtons            | Unsigned Tiny Integer  |        | The number of buttons used by the pointing device.                                                                                                                                                                                                                                                                                               |
| PointingDevice.IRQNumber           | Pointing Device_IRQ Number                              | CIM.IRQ.IRQNumber                                 | Unsigned Integer       |        | The IRQ channel on the system to which the Mouse pointing device is attached. This information is stored in an IRQ class and not in the PointingDevice class in the database. For more information on how they are associated, see <a href="#">"Understanding the Inventory Database Schema"</a> on page 909.                                    |
| PointingDevice.PointingType        | Pointing Device_Type                                    | CIM.PointingDevice.<br>PointingType               | Integer (enum)         |        | The pointing device type.                                                                                                                                                                                                                                                                                                                        |
| ZENKeyboard.Numberoffunction keys  | Keyboard_Numberof Function Keys                         | ZENworks.<br>ZENKeyboard.<br>NumberOfFunctionKeys | Unsigned Small Integer |        | Number of function keys on keyboard.                                                                                                                                                                                                                                                                                                             |
| ZENKeyboard.Layout                 | Keyboard_Layout                                         | ZENworks.<br>ZENKeyboard.layout                   | String                 | 254    | Layout information. For example, US English.                                                                                                                                                                                                                                                                                                     |
| ZENKeyboard.SubType                | Keyboard_Subtype                                        | ZENworks.<br>ZENKeyboard.<br>SubType              | Unsigned Integer       |        | A number indicating the subtype of the keyboard.                                                                                                                                                                                                                                                                                                 |



| Export Wizard Attribute Name             | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name                      | Data Type                         | Length | Description of the Attribute                                                                               |
|------------------------------------------|---------------------------------------------------------|-----------------------------------------------------|-----------------------------------|--------|------------------------------------------------------------------------------------------------------------|
| ZENKeyboard.Delay                        | Keyboard_Delay (mSecs)                                  | ZENworks.ZENKeyboard.Delay                          | Unsigned Integer                  |        | Delay before the repeat of a key.                                                                          |
| ZENKeyboard.Typematicrate                | Keyboard_Typematic Rate (mSecs)                         | ZENworks.ZENKeyboard.Typematic Rate                 | Unsigned Integer                  |        | Rate of processing the keys.                                                                               |
| ZENKeyboard.Description                  | Keyboard_Description                                    | ZENworks.ZENKeyboard.Description                    | String                            | 254    | Keyboard description indicating the type of keyboard. For example, IBM enhanced (101/102 key) keyboard.    |
| VideoBIOSElement.Manufacturer            | Display Driver_Manufacturer                             | CIM.VideoBIOSElement.Manufacturer                   | String                            | 254    | Manufacturer of the video BIOS driver installed on the system.                                             |
| VideoBIOSElement.Version                 | Display Driver_Version                                  | CIM.VideoBIOSElement.Version                        | String                            | 254    | Version of the Video BIOS driver.                                                                          |
| VideoBIOSElement.Install Date            | Display Driver_Install Date                             | CIM.VideoBIOSElement.InstallDate                    | String                            | 25     | Video BIOS release date.                                                                                   |
| VideoBIOSElement.IsShadowed              | Display Driver_Is Shadowed                              | CIM.VideoBIOSElement.ISShadowed                     | BIT (Used for Boolean conditions) |        | A Boolean condition indicating if the video BIOS supports shadow memory. 0 represents False and 1 is True. |
| VideoAdapter.NumberOfcolorpanes          | Display Adapter_Number of Color Planes                  | ZENworks.VideoAdapter.NumberOf ColorPlanes          | Unsigned Integer                  |        | Number of color planes supported by the video system.                                                      |
| VideoAdapter.CurrentVerticalResolution   | Display Adapter_Current Vertical Resolution             | ZENworks.VideoAdapter.Current Vertical Resolution   | Unsigned Integer                  |        | Vertical resolution of the display.                                                                        |
| VideoAdapter.CurrentHorizontalResolution | Display Adapter_Current Horizontal Resolution           | ZENworks.VideoAdapter.Current Horizontal Resolution | Unsigned Integer                  |        | Horizontal resolution of the display.                                                                      |
| VideoAdapter.Description                 | Display Adapter_Description                             | ZENworks.VideoAdapter.Description                   | String                            | 254    | Video adapter description.                                                                                 |
| VideoAdapter.MinRefreshRate              | Display Adapter_Minimum Refresh Rate                    | ZENworks.VideoAdapter.MinRefresh Rate               | Unsigned Integer                  |        | Minimum refresh rate of the monitor for redrawing the display, measured in Hertz.                          |

| Export Wizard Attribute Name     | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name            | Data Type                        | Length | Description of the Attribute                                                                                                                                                                    |
|----------------------------------|---------------------------------------------------------|-------------------------------------------|----------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VideoAdapter.MaxRefreshRate      | Display Adapter_Maximum Refresh Rate                    | ZENworks.VideoAdapter.MaxRefreshRate      | Unsigned Integer                 |        | Maximum refresh rate of the monitor for redrawing the display, measured in Hertz.                                                                                                               |
| VideoAdapter.VideoArchitecture   | Display Adapter_Video Architecture                      | ZENworks.VideoAdapter.VideoArchitecture   | Unsigned Integer<br>(enum)       |        | The architecture of the video subsystem in this system. For example, CGA/VGA/SVGA/8514A. See <a href="#">“Enumeration Values for Hardware-Display Adapter-Video Architecture” on page 1147.</a> |
| VideoAdapter.VideoMemoryType     | Display Adapter_Video Memory Type                       | ZENworks.VideoAdapter.VideoMemoryType     | Unsigned Small Integer<br>(Enum) |        | The type of memory for this adapter. For example, VRAM/SRAM/DRAM/EDO RAM. See <a href="#">Enumeration Values for Hardware-Display Adapter-Video Memory Type.</a>                                |
| VideoAdapter.Maxmemorysupported  | Display Adapter_Maximum Memory Supported(KB)            | ZENworks.VideoAdapter.MaxMemorySupported  | Unsigned Integer                 |        | Maximum memory that the display adapter supports for VIDEO RAM.                                                                                                                                 |
| VideoAdapter.CurrentBitsPerPixel | Display Adapter_Current Bits/Pixel                      | ZENworks.VideoAdapter.CurrentBitsPerPixel | Unsigned Integer                 |        | Number of adjacent color bits for each pixel.                                                                                                                                                   |
| VideoAdapter.ChipSet             | Display Adapter_Chip Set                                | ZENworks.VideoAdapter.ChipSet             | String                           | 254    | The chip set used in the video adapter.                                                                                                                                                         |
| VideoAdapter.DACType             | Display Adapter_DAC Type                                | ZENworks.VideoAdapter.DAC Type            | String                           | 254    | The digital to analog converter type used in the video adapter.                                                                                                                                 |
| VideoAdapter.ProviderName        | Display Adapter_Provider                                | ZENworks.VideoAdapter.Provider            | String                           | 254    | The manufacturer or the provider name.                                                                                                                                                          |
| ZENPOTSModem.Caption             | Modem_Caption                                           | ZENworks.ZENPOTSModem.Caption             | String                           | 64     | The short name of the modem.                                                                                                                                                                    |
| ZENPOTSModem.Description         | Modem_Description                                       | ZENworks.ZENPOTSModem.Description         | String                           | 254    | The complete description of the modem. For example, Standard 2400 bps modem, IBM PCMCIA HPC modem.                                                                                              |

| Export Wizard Attribute Name | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name          | Data Type                                 | Length | Description of the Attribute                                                                                                                      |
|------------------------------|---------------------------------------------------------|-----------------------------------------|-------------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| ZENPOTSModem.Name            | Modem_Name                                              | ZENworks.<br>ZENPOTSModem.<br>Name      | String                                    | 254    | The name of the modem dictating its type and usage. For example, Standard Windows Modem means that this is used in standard Windows architecture. |
| ZENPOTSModem.ProviderName    | Modem_Provider                                          | ZENworks.<br>ZENPOTSModem.<br>Provider  | String                                    | 254    | The manufacturer or the provider name.                                                                                                            |
| ZENPOTSModem.DeviceID        | Modem_Device ID                                         | ZENworks.<br>ZENPOTSModem.<br>DeviceID  | String                                    | 64     | The unique ID assigned to the device.                                                                                                             |
| BIOS.BIOSIDBytes             | BIOS_BIOS Identification Bytes                          | ZENworks.<br>BIOS.BIOS<br>IDBytes       | String                                    | 254    | Byte in the BIOS that indicates the computer model.                                                                                               |
| BIOS.SerialNumber            | BIOS_Serial Number                                      | ZENworks.<br>BIOS.Serial<br>Number      | String                                    | 64     | Serial number of BIOS assigned by the manufacturer.                                                                                               |
| BIOS.PrimaryBIOS             | BIOS_Primary Bios                                       | ZENworks.<br>BIOS.PrimaryBIOS           | BIT<br>(Used for Boolean conditions here) |        | True when set to 1, indicating that this BIOS is the primary BIOS. Used in systems with additional BIOS chips.                                    |
| BIOS.InstallDate             | BIOS_Install Date                                       | ZENworks.<br>BIOS.Install<br>Date       | String                                    | 25     | The release date of the BIOS given by the manufacturer.                                                                                           |
| BIOS.Version                 | BIOS_Version                                            | ZENworks.<br>BIOS.Version               | String                                    | 254    | Version or revision level of the BIOS.                                                                                                            |
| BIOS.Manufacturer            | BIOS_Manufacturer                                       | ZENworks.<br>BIOS.<br>Manufacturer      | String                                    | 254    | The manufacturer name of BIOS.                                                                                                                    |
| BIOS.Caption                 | BIOS_Caption                                            | ZENworks.<br>BIOS.Caption               | String                                    | 64     | The name of the BIOS as given by the BIOS manufacturer.                                                                                           |
| BIOS."size"                  | BIOS_Size(KB)                                           | ZENworks.<br>BIOS.size                  | Unsigned Integer                          |        | Size of the BIOS in bytes.                                                                                                                        |
| Processor.CurrentClockSpeed  | Processor_Current Clock Speed(MHz)                      | CIM.<br>Processor.<br>CurrentClockSpeed | Unsigned Integer                          |        | Current clock speed of the processor in MHz.                                                                                                      |
| Processor.Maxclockspeed      | Processor_Maximum Clock Speed(MHz)                      | CIM.<br>Processor.<br>MaxClock<br>Speed | Unsigned Integer                          |        | Maximum clock speed of the processor in MHz.                                                                                                      |

| Export Wizard Attribute Name     | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name        | Data Type                        | Length | Description of the Attribute                                                                                                                                                                                                                                       |
|----------------------------------|---------------------------------------------------------|---------------------------------------|----------------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor.Role                   | Processor_Role                                          | CIM.Processor.Role                    | String                           | 254    | Type of processor such as central processor, math coprocessor, and others                                                                                                                                                                                          |
| Processor.Family                 | Processor_Processor Family                              | CIM.Processor.Family                  | Unsigned Small Integer<br>(enum) |        | Family the processor belongs to.<br>See <a href="#">“Enumeration Values for Hardware-Processor-Processor Family”</a> on page 1147.                                                                                                                                 |
| Processor.Otherfamilydescription | Processor_Other Family Description                      | CIM.Processor.OtherFamily Description | String                           | 64     | Additional description about the processor family, such as the Pentium processor with MMX technology when the processor cannot be designated using Family.                                                                                                         |
| Processor.UpgradeMethod          | Processor_Upgrade Method                                | CIM.Processor.Upgrade Method          | Unsigned Small Integer<br>(Enum) |        | The method by which this processor can be upgraded, if upgrades are supported.<br><br>See <a href="#">“Enumeration Values for Hardware-Processor-Upgrade Method”</a> on page 1148.                                                                                 |
| Processor.Stepping               | Processor_Processor Stepping                            | CIM.Processor.Stepping                | String                           | 254    | Single-byte code characteristic provided by microprocessor vendors to identify the processor stepping model.                                                                                                                                                       |
| Processor.Device ID              | Processor_DeviceID                                      | CIM.Processor.DeviceID                | String                           | 64     | Special hexadecimal string identifying the processor type.                                                                                                                                                                                                         |
| CacheMemory.Speed                | Cache Memory_Speed(nsec)                                | CIM.PhysicalMemory.Speed              | Unsigned Integer                 |        | Speed of this System Cache module in nanoseconds. This is stored in CIM.PhysicalMemory class and is associated to CIM.CacheMemory. For more information on how they are associated, see <a href="#">“Understanding the Inventory Database Schema”</a> on page 909. |

| Export Wizard Attribute Name  | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name    | Data Type                        | Length | Description of the Attribute                                                                                                                                                                                                                                            |
|-------------------------------|---------------------------------------------------------|-----------------------------------|----------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CacheMemory.Capacity          | Cache Memory_Capacity(MB)                               | CIM.PhysicalMemory.Capacity       | Unsigned Integer                 |        | Capacity of this System Cache module in nanoseconds. This is stored in CIM. PhysicalMemory class and is associated to CIM. CacheMemory. For more information on how they are associated, see <a href="#">"Understanding the Inventory Database Schema" on page 909.</a> |
| CacheMemory.Level             | Cache Memory_Level                                      | CIM.CacheMemory."Level"           | Unsigned Small Integer<br>(enum) |        | Indicates the cache level: internal cache that is built in to the microprocessors, or external cache that is between the CPU and DRAM.                                                                                                                                  |
| CacheMemory.WritePolicy       | Cache Memory_Write Policy                               | CIM.CacheMemory.WritePolicy       | Unsigned Small Integer<br>(enum) |        | Indicates the two different ways (Write-Back and Write-Through Cache) that the cache can handle to write to the memory.                                                                                                                                                 |
| CacheMemory.Errormethodology  | Cache Memory_Error Methodology                          | CIM.CacheMemory.Error Methodology | String                           | 254    | Error correction scheme supported by this cache component, for example, Parity/Single Bit ECC/ MultiBit ECC.                                                                                                                                                            |
| CacheMemory.Cachetype         | Cache Memory_Cache Type                                 | CIM.CacheType                     | Unsigned Small Integer<br>(enum) |        | Defines the system cache type. For example, Instruction, Data, Unified.                                                                                                                                                                                                 |
| CacheMemory.LineSize          | Cache Memory_Line Size (Bytes)                          | CIM.CacheMemory.LineSize          | Unsigned Integer                 |        | Size in bytes of a single cache bucket or line.                                                                                                                                                                                                                         |
| CacheMemory.ReplacementPolicy | Cache Memory_Replacement Policy                         | CIM.CacheMemory.ReplacementPolicy | Unsigned Integer<br>(enum)       |        | Algorithm that the cache uses to determine which cache lines or buckets should be reused.                                                                                                                                                                               |
| CacheMemory.ReadPolicy        | Cache Memory_Read Policy                                | CIM.CacheMemory.ReadPolicy        | Unsigned Small Integer<br>(enum) |        | Indicates whether the data cache is for read operation.                                                                                                                                                                                                                 |
| CacheMemory.Associativity     | Cache Memory_Associativity                              | CIM.CacheMemory.Associativity     | Unsigned Integer<br>(enum)       |        | Defines the system cache associativity (direct-mapped, 2-way, 4-way).                                                                                                                                                                                                   |

| Export Wizard Attribute Name     | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name                | Data Type              | Length | Description of the Attribute                       |
|----------------------------------|---------------------------------------------------------|-----------------------------------------------|------------------------|--------|----------------------------------------------------|
| Diskette Drive.Manufacturer      | Diskette Drive_Manufacturer                             | ZENworks.Physical Diskette.Manufacturer       | String                 | 254    | Vendor name.                                       |
| Diskette Drive.Description       | Diskette Drive_Description                              | ZENworks.Physical Diskette.Description        | String                 | 254    | Floppy diskette description.                       |
| Diskette Drive.PhysicalCylinders | Diskette Drive_Physical Cylinders                       | ZENworks.Physical Diskette.Physical Cylinders | Unsigned Integer       |        | Total number of cylinders or tracks on the floppy. |
| Diskette Drive.PhysicalHeads     | Diskette Drive_Physical Heads                           | ZENworks.Physical Diskette.Physical Heads     | Unsigned Small Integer |        | Number of heads.                                   |
| Diskette Drive.Capacity          | Diskette Drive_Capacity (MB)                            | ZENworks.Physical Diskette.Capacity           | Unsigned Integer       |        | Total size.                                        |
| Diskette Drive.SectorsPerTrack   | Diskette Drive_Sectors/Track                            | ZENworks.Physical Diskette.SectorsPer Track   | Unsigned Integer       |        | Number of sectors per track.                       |
| Diskette Drive.DeviceID          | Diskette Drive_DeviceID                                 | CIM.Diskette Drive                            | String                 | 64     | The drive name representing the floppy drive.      |
| ZENDiskDrive.Manufacturer        | Physical Disk Drive_Manufacturer                        | ZENworks.PhysicalDisk.Manufacturer            | String                 | 254    | Vendor name.                                       |
| ZENDiskDrive.Description         | Physical Disk Drive_Description                         | ZENworks.PhysicalDisk.Description             | String                 | 254    | Hard disk vendor description.                      |
| ZENDiskDrive.PhysicalCylinders   | Physical Disk Drive_Physical Cylinders                  | ZENworks.PhysicalDisk.Physical Cylinders      | Unsigned Integer       |        | Total number of cylinders.                         |
| ZENDiskDrive.PhysicalHeads       | Physical Disk Drive_Physical Heads                      | ZENworks.PhysicalDisk.Physical Heads          | Unsigned Small Integer |        | Number of heads.                                   |
| ZENDiskDrive.SectorsPerTrack     | Physical Disk Drive_Sectors/Track                       | ZENworks.PhysicalDisk.SectorsPer Track        | Unsigned Integer       |        | Number of sectors per track.                       |

| Export Wizard Attribute Name        | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name         | Data Type        | Length | Description of the Attribute                                                                                    |
|-------------------------------------|---------------------------------------------------------|----------------------------------------|------------------|--------|-----------------------------------------------------------------------------------------------------------------|
| ZENDiskDrive.Capacity               | Physical Disk Drive_Capacity(MB)                        | ZENworks.PhysicalDisk.Capacity         | Unsigned Integer |        | Total size of the hard disk.                                                                                    |
| ZENDiskDrive.Removable              | Physical Disk Drive_Removable                           | ZENworks.LogicalDiskDrive.Removable    | BIT              |        | 0 indicates that it is a fixed disk and 1 indicates that it is a removable disk.                                |
| LocalFileSystem.DeviceID            | Logical Disk Drive_Device ID                            | ZENworks.LogicalDiskDrive.DeviceID     | String           | 64     | The drive letter, such as C: or A:.                                                                             |
| LocalFileSystem.FileSystemSize      | Logical Disk Drive_Size(MB)                             | CIM.LocalFileSystem.FileSystemSize     | Integer          |        | The total size of the file system or the logical disk.                                                          |
| LocalFileSystem.AvailableSpace      | Logical Disk Drive_Free Size(MB)                        | CIM.LocalFileSystem.AvailableSpace     | Integer          |        | The available size of the file system or the logical disk.                                                      |
| LocalFileSystem.VolumeSerial Number | Logical Disk Drive_Volume Serial Number                 | CIM.LocalFileSystem.VolumeSerialNumber | String           | 254    | The volume serial number of the specified drive.                                                                |
| LocalFileSystem.Caption             | Logical Disk Drive_Caption                              | CIM.LocalFileSystem.Caption            | String           | 64     | The volume label of the specified drive.                                                                        |
| LocalFileSystem.FileSystemType      | Logical Disk Drive_File System Type                     | CIM.LocalFileSystem.FileSystemType     | String           | 254    | The file system on the drive, such as FAT or NTFS.                                                              |
| CDROMDrive.Manufacturer             | CDROM_Manufacturer                                      | ZENworks.PhysicalCDROM.Manufacturer    | String           | 254    | The manufacturer of the CD-ROM drive.                                                                           |
| CDROMDrive.Caption                  | CDROM_Caption                                           | ZENworks.PhysicalCDROM.Caption         | String           | 64     | CD-ROM label.                                                                                                   |
| CDROMDrive.Description              | CDROM_Description                                       | ZENworks.PhysicalCDROM.Description     | String           | 254    | Description of the CD drive, as given by the manufacturer. For example, ATAPI CDROM, CREATIVE CD1620E SL970520. |
| CDROMDrive.DeviceID                 | CDROM_Device ID                                         | ZENworks.LogicalCDROM.DeviceID         | String           | 64     | Drive letter allocated for the CD on the inventoried workstation.                                               |
| SerialPort.Name                     | Serial Port_Name                                        | ZENworks.SerialPort.Name               | String           | 254    | The name of the serial port.<br>For example, COM1, COM2, and others.                                            |
| SerialPort.Address                  | Serial Port_Address                                     | ZENworks.SerialPort.Address            | Unsigned Integer |        | The address mapped in memory for the serial port.                                                               |

| Export Wizard Attribute Name | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name   | Data Type                              | Length | Description of the Attribute                                                                                                                                                                                                                                                                                                  |
|------------------------------|---------------------------------------------------------|----------------------------------|----------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SerialPort.IRQNumber         | Serial Port_IRQ Number                                  | CIM.IRQ.IRQNumber                | Unsigned Integer                       |        | <p>The IRQ channel on the system to which the serial port is attached. In the database, this information is stored in an IRQ class and not in a Serial Port class.</p> <p>For more information on how they are associated, see <a href="#">Chapter 72, "Understanding the Inventory Database Schema,"</a> on page 909.</p>    |
| ParallelPort.Name            | Parallel Port_Name                                      | ZENworks.ParallelPort.Name       | String                                 | 254    | The name of the parallel port. For example, LPT1 and others.                                                                                                                                                                                                                                                                  |
| ParallelPort.Address         | Parallel Port_Address                                   | ZENworks.ParallelPort.Address    | Unsigned Integer                       |        | The name of the parallel port. For example, LPT1 and others.                                                                                                                                                                                                                                                                  |
| ParallelPort.DMASupport      | Parallel Port_DMA Support                               | ZENworks.ParallelPort.DMASupport | BIT (used for Boolean conditions here) |        | If True or 1, then it means that DMA is the channel that is allocated for bulk data transfer for use with devices connected to the parallel ports.                                                                                                                                                                            |
| ParallelPort.IRQNumber       | Parallel Port_IRQ Number                                | CIM.IRQ.IRQNumber                | Unsigned Integer                       |        | <p>The IRQ channel on the system to which the parallel port is attached. This information is stored in an IRQ class and not in a parallel port class in the database.</p> <p>For more information on how they are associated, see <a href="#">Chapter 72, "Understanding the Inventory Database Schema,"</a> on page 909.</p> |
| Bus.Version                  | Bus_Version                                             | ZENworks.Bus.Bus Version         | String                                 | 254    | Version of the bus supported by the inventoried workstation.                                                                                                                                                                                                                                                                  |
| Bus.Description              | Bus_Description                                         | ZENworks.Bus.Description         | String                                 | 254    | Description of the bus.                                                                                                                                                                                                                                                                                                       |
| Bus.BusType                  | Bus_Bus Type                                            | ZENworks.Bus.BusType             | Integer (enum)                         |        | The bus type of the system.                                                                                                                                                                                                                                                                                                   |
| Bus.Name                     | Bus_Name                                                | ZENworks.Bus.Name                | String                                 | 254    | Name of the internal system bus.                                                                                                                                                                                                                                                                                              |



| Export Wizard Attribute Name       | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name           | Data Type              | Length | Description of the Attribute                                                                                                                                                  |
|------------------------------------|---------------------------------------------------------|------------------------------------------|------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bus.DeviceID                       | Bus_Device ID                                           | ZENworks.Bus.DeviceID                    | String                 | 64     | The unique ID for the specific bus.                                                                                                                                           |
| ZENNetworkAdapter.Name             | Network Adapter_Name                                    | CIM.ZENworks.ZENAdapter.Name             | String                 | 254    | Network adapters installed on the system.                                                                                                                                     |
| ZENNetworkAdapter.MaxSpeed         | Network Adapter_Max_Speed (Mbps)                        | CIM.ZENworks.ZENAdapter.MaxSpeed         | Unsigned Integer       |        | Rate at which the adapter can transfer data.                                                                                                                                  |
| ZENNetworkAdapter.PermanentAddress | Network Adapter_Permanent Address                       | CIM.ZENworks.ZENAdapter.PermanentAddress | String                 | 64     | Machine address stored permanently in the adapter (MAC address).                                                                                                              |
| ZENNetworkAdapter.MACAddress       | Network Adapter_Address                                 | CIM.ZENworks.ZENAdapter.MACAddress       | String                 | 64     | The MAC address stored in the network adapter.                                                                                                                                |
| ZENNetworkAdapter.ProviderName     | Network Adapter_Provider                                | CIM.ZENworks.ZENAdapter.Provider         | String                 | 254    | The manufacturer or the provider.                                                                                                                                             |
| ZENNetworkAdapter.AdapterType      | Network Adapter_Adapter Type                            | CIM.ZENworks.ZENAdapter.AdapterType      | String                 | 254    | Type of the adapter, such as Ethernet or FDDI adapter.                                                                                                                        |
| SoundAdapter.Description           | Multimedia Card_Description                             | ZENworks.SoundAdapter.Description        | String                 | 254    | Description of the multimedia component for the inventoried workstation.                                                                                                      |
| SoundAdapter.Name                  | Multimedia Card_Name                                    | ZENworks.SoundAdapter.Name               | String                 | 254    | Name of the sound card installed on the system.                                                                                                                               |
| SoundAdapter.Manufacturer          | Multimedia Card_Manufacturer                            | ZENworks.SoundAdapter.Manufacturer       | String                 | 254    | Vendor name.                                                                                                                                                                  |
| SoundAdapter.ProviderName          | Multimedia Card_Provider                                | ZENworks.SoundAdapter.Provider           | String                 | 254    | The provider or the manufacturer of the multimedia card.                                                                                                                      |
| Battery.Name                       | Battery_Name                                            | CIM.Battery.Name                         | String                 | 254    | Name of the battery installed on the system.                                                                                                                                  |
| Battery.Chemistry                  | Battery_Chemistry                                       | CIM.Battery.Chemistry                    | Unsigned Small Integer |        | Indicates the battery's chemistry, such as lead acid, nickel cadmium and others.<br><br>See <a href="#">"Enumeration Values for Hardware-Battery-Chemistry"</a> on page 1147. |
| Battery.DesignCapacity             | Battery_Design Capacity(mWatt-hours)                    | CIM.Battery.Design Capacity              | Unsigned Integer       |        | The design capacity of the battery in mWatt-hours.                                                                                                                            |

| Export Wizard Attribute Name    | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name       | Data Type        | Length | Description of the Attribute                                                   |
|---------------------------------|---------------------------------------------------------|--------------------------------------|------------------|--------|--------------------------------------------------------------------------------|
| Battery.DesignVoltage           | Battery_Design Voltage(MilliVolts)                      | CIM.Battery. DesignVoltage           | Unsigned Integer |        | The design voltage of the battery in mVolts.                                   |
| Battery. SmartBatteryVersion    | Battery_ Smart Battery Version                          | CIM.Battery. SmartBatteryVersion     | String           | 64     | The Smart Battery Data Specification version number supported by this battery. |
| Battery.Manufacturer            | Battery_ Manufacturer                                   | CIM. PhysicalComponent. Manufacturer | String           | 254    | Vendor name of the battery.                                                    |
| Battery.InstallDate             | Battery_ Install Date                                   | CIM. PhysicalComponent. InstallDate  | String           | 25     | Date of manufacturing the battery.                                             |
| Battery.SerialNumber            | Battery_ Serial Number                                  | CIM. PhysicalComponent. SerialNumber | String           | 64     | Battery serial number.                                                         |
| PowerSupply.Description         | Power Supply_ Description                               | CIM.Power Supply. Description        | String           | 254    | Name and description of the power supply on the system.                        |
| PowerSupply. TotalOutputPower   | Power Supply_ Total Output Power (MilliWatts)           | CIM.Power Supply.Total OutputPower   | Unsigned Integer |        | Total output power of the power supply.                                        |
| IPProtocolEndPoint. Address     | IP Address_ Address                                     | CIM.IP Protocol Endpoint. Address    | String           | 254    | IP address of the inventoried workstation.                                     |
| IPProtocolEndPoint. Subnet Mask | IP Address_ Subnet Mask                                 | CIM.IP Protocol Endpoint. SubnetMask | String           | 254    | The subnet mask of the inventoried workstation.                                |
| DNSName.LABEL                   | DNS_ LABEL                                              | ManageWise. DNSName. Label           | String           | 254    | DNS name of the inventoried workstation.                                       |
| IPXProtocolEndPoint. Address    | IPX Address_ Address                                    | CIM.IPX Protocol Endpoint. Address   | String           | 254    | IPX address of the inventoried workstation.                                    |
| LANEndPoint. MACAddress         | MAC Address_ Address                                    | CIM.LAN Endpoint. MACAddress         | String           | 12     | MAC address of the inventoried workstation.                                    |
| MotherBoard.Version             | MotherBoard_ Version                                    | ZENworks. Motherboard. Version       | String           | 64     | Motherboard version.                                                           |
| MotherBoard.Description         | MotherBoard_ Description                                | ZENworks. Motherboard. Description   | String           | 254    | The description of the motherboard.                                            |

| Export Wizard Attribute Name | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name     | Data Type                     | Length | Description of the Attribute                                                                                                                                                                                            |
|------------------------------|---------------------------------------------------------|------------------------------------|-------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MotherBoard.Manufacturer     | MotherBoard_Manufacturer                                | ZENworks.Motherboard.Manufacturer  | String                        | 254    | The manufacturer of the motherboard.                                                                                                                                                                                    |
| MotherBoard.NumberOfSlots    | MotherBoard_Number Of Slots                             | ZENworks.Motherboard.Numberofslots | Integer                       |        | The number of expansion slots on the motherboard.                                                                                                                                                                       |
| IRQ.Number                   | IRQ_IRQ Number                                          | CIM.IRQ.IRQNumber                  | Unsigned Integer              |        | The system interrupt number.                                                                                                                                                                                            |
| IRQ.Availability             | IRQ_Availability                                        | CIM.IRQ.Availability               | Unsigned Small Integer (Enum) |        | Indicates whether the IRQ channel is used or available. Enumeration values are as follows:<br><br>1 = "Other"<br>2 = "Unknown"<br>3 = "Available"<br>4 = "In Use/Not Available"<br>5 = "In Use and Available/Shareable" |
| IRQ.TriggerType              | IRQ_IRQ Trigger Type                                    | CIM.IRQ.TriggerType                | Unsigned Small Integer        |        | IRQ trigger type indicating whether edge (value=4) or level triggered (value=3) interrupts occur. Enumeration values are as follows:<br><br>1 = "Other"<br>2 = "Unknown"<br>3 = "Level"<br>4 = "Edge"                   |
| IRQ.Shareable                | IRQ_IRQ Shareable                                       | CIM.IRQ.Shareable                  | Unsigned Small Integer        |        | Boolean indicating whether the IRQ can be shared.                                                                                                                                                                       |
| SLOT.MaxDataWidth            | Slot_Maximum Data Width                                 | CIM.Slot.MaxData Width             | Unsigned Small Integer        |        | Maximum bus width of adapter cards that can be inserted into this slot in bits. If the value is Unknown, enter 0. If the value is other than 8, 16, 32, 64 or 128, enter 1. It is expressed in bits.                    |
| SLOT.ThermalRating           | Slot_Thermal Rating (MilliWatts)                        | CIM.Slot.Thermal Rating            | Unsigned Integer              |        | Maximum thermal dissipation of the slot in milliwatts.                                                                                                                                                                  |
| SLOT.Description             | Slot_Description                                        | CIM.SlotDescription                | String                        | 254    | The description of the adapter mounted on the slot.                                                                                                                                                                     |

| Export Wizard Attribute Name   | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name              | Data Type                                    | Length | Description of the Attribute                                                                                                                                                                                           |
|--------------------------------|---------------------------------------------------------|---------------------------------------------|----------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DMA.DMAChannel                 | DMA_DMA Channel Number                                  | CIM.DMA.DMAChannel                          | Unsigned Integer                             |        | The DMA channel number.                                                                                                                                                                                                |
| DMA.Description                | DMA_Description                                         | CIM.DMA.Description                         | String                                       | 254    | The name of the device using the DMA channel.                                                                                                                                                                          |
| DMA.Availability               | DMA_Availability                                        | CIM.DMA.Availability                        | Unsigned Small Integer                       |        | Indicates whether the DMA channel is available.<br><br>Enumeration values are as follows:<br><br>1 = "Other"<br>2 = "Unknown"<br>3 = "Available"<br>4 = "In Use/Not Available"<br>5 = "In Use and Available/Shareable" |
| DMA.BurstMode                  | DMA_DMA Burst Mode                                      | CIM.DMA.BurstMode                           | BIT<br><br>(used for Boolean condition here) |        | Indication that the DMA channel supports the burst mode.                                                                                                                                                               |
| NetWareOperatingSystem.Version | NetWare.Version                                         | ZENworks.NetWareOperating.Version           | String                                       | 254    | Version of the NetWare operating system.                                                                                                                                                                               |
| Memory.TotalMemory             | Memory_TotalMemory(MB)                                  | ZENOperatingSystem.TotalVisibleMemorySize   | Integer                                      |        | Total memory of the Windows operating system.                                                                                                                                                                          |
| MSDomainName.Label             | WindowsDomain_Name                                      | ManageWise.MSDomainName                     | String                                       | 254    | The Windows domain to which the workstation is attached.                                                                                                                                                               |
| Monitor.DeviceID               | Monitor_DeviceID                                        | ZENworks.ZENDesktopMonitor.DeviceID         | Integer                                      |        | Unique ID of a desktop monitor that is attached to a computer system.                                                                                                                                                  |
| Monitor.Description            | Monitor_Description                                     | ZENworks.ZENDesktopMonitor.Description      | varchar                                      | 254    | Description of the monitor.                                                                                                                                                                                            |
| Monitor.ModelID                | Monitor_ModelID                                         | ZENworks.ZENDesktopMonitor.ModelID          | varchar                                      |        | Unique ID of a model of the monitor. It is a combination of the Manufacturer ID and Product ID.                                                                                                                        |
| Monitor.ManufactureDate        | Monitor_Manufacture Date                                | ZENworks.ZENDesktopMonitor.ManufacturerDate | char                                         | 25     | Year in which the monitor was manufactured.                                                                                                                                                                            |

| Export Wizard Attribute Name | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name             | Data Type          | Length | Description of the Attribute                                                                                                               |
|------------------------------|---------------------------------------------------------|--------------------------------------------|--------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Monitor.ViewableSize         | Monitor_ViewableSize                                    | ZENworks.ZENDesktopMonitor.ViewableSize    | integar            |        | A number representing the diagonal width of the screen image excluding the black borders around the image's edge.                          |
| Monitor.NominalSize          | Monitor_NominalSize                                     | ZENworks.ZENDesktopMonitor.NominalSize     | integar            |        | A number representing the diagonal width of the monitor (the distance from one corner of the screen to the opposite corner of the screen). |
| Monitor.Serial Number        | Monitor_Serial Number                                   | ZENworks.ZENDesktopMonitor.Serial Number   | varchar            | 128    | Manufacturer's number used to identify a monitor.                                                                                          |
| Monitor.Manufacturer         | Monitor_Manufacturer                                    | ZENworks.ZENDesktopMonitor.Manufacturer    | varchar            | 254    | Name of the monitor's manufacturer.                                                                                                        |
| Monitor.Model                | Monitor_Model                                           | ZENworks.ZENDesktopMonitor.Model           | varchar            | 254    | Product name of the monitor given by the manufacturer.                                                                                     |
| Chassis.AssetTag             | Chassis_AssetTag                                        | ZENworks_ZENChassis                        | varchar            | 254    | Asset tag number of the system chassis.                                                                                                    |
| Chassis.ChassisType          | Chassis_ChassisType                                     | ZENworks_ZENChassis                        | unsigned small int |        | Represents whether the system chassis is a laptop, desktop, notebook, docking station and so on.                                           |
| Chassis.NumberOfPowerCords   | Chassis_NumberOfPowerCords                              | ZENworks_ZENChassis                        | varchar            | 128    | Total number of power cords attached to a system chassis.                                                                                  |
| Chassis.Manufacturer         | Chassis_Manufacturer                                    | ZENworks_ZENChassis                        | varchar            | 254    | Name of the system chassis manufacturer.                                                                                                   |
| Chassis.SerialNumber         | Chassis_SerialNumber                                    | ZENworks_ZENChassis                        | varchar            | 128    | Manufacturer's number used to identify a system chassis.                                                                                   |
| Chassis.Version              | Chassis_Version                                         | ZENworks_ZENChassis                        | varchar            | 64     | Version number of the system chassis.                                                                                                      |
| Chassis.Tag                  | Chassis_Tag                                             | ZENworks_ZENChassis                        | varchar            | 64     | Unique ID of the system chassis attached to a particular computer system.                                                                  |
| Software.ProductIdentifier   | Software_productIdentifier                              | MW_DBA.InstalledSoftware.productIdentifier | varchar            | 254    | A unique, 16-character identifier for an installed product. This identifier is available from MSI on Windows.                              |

| Export Wizard Attribute Name | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name                 | Data Type | Length | Description of the Attribute                                                                                                                                            |
|------------------------------|---------------------------------------------------------|------------------------------------------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Software.InternalVersion     | Software_InternalVersion                                | MW_DBA.InstalledSoftware.InternalVersion       | varchar   | 64     | Internal version of a product                                                                                                                                           |
| Software.Language            | Software_Language                                       | MW_DBA.InstalledSoftware.Language              | smallint  |        | User-friendly name for the language of this copy of the product.                                                                                                        |
| Software.UninstallString     | Software_UninstallString                                | MW_DBA.InstalledSoftware.UninstallString       | varchar   | 254    | The command to invoke for uninstalling this product instance. Currently, this is available in Add-Remove Programs (ARP) and MSI on Windows.                             |
| Software.InstallationSource  | Software_InstallationSource                             | MW_DBA.InstalledSoftware.InstallationSource    | varchar   | 254    | Identifies the file system path where the installation files were stored when installing this product instance. Currently, this is available in ARP and MSI on Windows. |
| Software.FriendlyName        | Software_FriendlyName                                   | MW_DBA.InstalledSoftware.FriendlyName          | varchar   | 254    | Display name of the software.                                                                                                                                           |
| Software.LastExecutionTime   | Software_LastExecutionTime                              | MW_DBA.InstalledSoftware.LastExecutionTime     | bigint    |        | Date and time stamp when the product was last executed.                                                                                                                 |
| Software.FrequencyOfUsage    | Software_FrequencyOfUsage                               | MW_DBA.InstalledSoftware.FrequencyOfUsage      | smallint  |        | Number of times the product is used.                                                                                                                                    |
| Software.Description         | Software_Description                                    | MW_DBA.InstalledSoftware.Description           | varchar   | 254    | Description of the product.                                                                                                                                             |
| Software.DefinitionDate      | Software_DefinitionDate                                 | MW_DBA.InstalledVirusScanner.DefinitionDate    | bigint    |        | The date of the virus definition file installed on the computer. Some anti-virus products combine date and version into a single string.                                |
| Software.DefinitionVersion   | Software_DefinitionVersion                              | MW_DBA.InstalledVirusScanner.DefinitionVersion | varchar   | 64     | The vendor-defined version of the virus definition file that has been installed on a computer                                                                           |
| Software.Edition             | Software_Edition                                        | MW_DBA.ProductEdition.Name                     | varchar   | 128    | Product edition defined by the vendor. For example, Professional.                                                                                                       |
| Software.SupportPack         | Software_Supportpack                                    | MW_DBA.SupportPack.Name                        | varchar   | 128    | Support pack name.                                                                                                                                                      |

| Export Wizard Attribute Name | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name | Data Type | Length | Description of the Attribute                                                                  |
|------------------------------|---------------------------------------------------------|--------------------------------|-----------|--------|-----------------------------------------------------------------------------------------------|
| Software.Path                | Software_Path                                           | MW_DBA.Directory.Path          | varchar   | 254    | Directory path where the product is installed on the computer system.                         |
| Software.Name                | Software_Name                                           | MW_DBA.Software.Name           | varchar   | 254    | Vendor-defined name of the product represented as a vendor trademark or registered trademark. |
| Software.Vendor              | Software_Vendor                                         | MW_DBA.Software.Vendor         | varchar   | 254    | Name of the software manufacturer                                                             |
| Software.Version             | Software_Version                                        | MW_DBA.Software.Version        | varchar   | 64     | User-friendly version of a product.                                                           |
| Software.Category            | Software_Category                                       | MW_DBA.Software.Category       | varchar   | 64     | Product category to which the product belongs.                                                |
| Software.HelpLink            | Software_HelpLink                                       | MW_DBA.Software.HelpLink       | varchar   | 254    | Support web site URL for the product that is available in ARP and MSI.                        |
| Software.PackageGUID         | Software_PackageGUID                                    | MW_DBA.Software.PackageGUID    | varchar   | 64     | Vendor-defined GUID for a product that is available in MSI.                                   |
| Software.PatchName           | Software_PatchName                                      | MW_DBA.Patch.Name              | varchar   | 254    | Vendor-defined name for the patch.                                                            |
| File.Name                    | File_Name                                               | MW_DBA.File.Name               | varchar   | 254    | Name of the file representing the software.                                                   |
| File.FileVersion             | File_FileVersion                                        | MW_DBA.File.FileVersion        | varchar   | 64     | Version of the file representing the software.                                                |
| File.InternalName            | File_InternalName                                       | MW_DBA.File.InternalName       | varchar   | 254    | Internal name.                                                                                |
| File.ProductVersion          | File_ProductVersion                                     | MW_DBA.File.ProductVersion     | varchar   | 64     | The version of the product represented by this file.                                          |
| File.Size                    | File_size                                               | MW_DBA.File.size               | bigint    |        | Size of the file representing the software.                                                   |
| File.LastModified            | File_LastModified                                       | MW_DBA.File.LastModified       | bigint    |        | Last modified date of the file representing the software.                                     |
| File.Company                 | File_Company                                            | MW_DBA.File.Company            | varchar   | 254    | Vendor name.                                                                                  |
| File.ProductName             | File_ProductName                                        | MW_DBA.File.ProductName        | varchar   | 254    | The product which this file represents.                                                       |
| File.Language                | File_Language                                           | MW_DBA.File.Language           | smallint  |        | User-friendly name for the language of this copy of the file                                  |

| Export Wizard Attribute Name | Export Attribute Name (Column Heading in the .csv file) | Database Schema Attribute Name   | Data Type | Length | Description of the Attribute                                      |
|------------------------------|---------------------------------------------------------|----------------------------------|-----------|--------|-------------------------------------------------------------------|
| File.SoftwareDictionaryID    | File_SoftwareDictionaryID                               | MW_DBA.File.SoftwareDictionaryID | varchar   | 64     | ID of the file as represented in the General software dictionary. |
| DiskUsage.TotalDiskUsage     | DiskUsage.TotalDiskUsage                                | MW_DBA.DiskUsage.TotalDiskUsage  | bigint    |        | Total disk usage for all the files of the specified extension.    |
| DiskUsage.Name               | DiskUsage.Name                                          | MW_DBA.DiskUsage.Name            | varchar   | 32     | The file extension for which the disk usage is scanned for.       |



# M

## Enumeration Values

This section provides information on the following topics:

- ◆ “Enumeration Values for General-System Information-Management Technology” on page 1146
- ◆ “Enumeration Values for General-Inventory Information-Scan Mode” on page 1146
- ◆ “Enumeration Values for Software-Operating Systems-Windows - Name” on page 1146
- ◆ “Enumeration Values for Installation Repository” on page 1146
- ◆ “Enumeration Values for Hardware-Display Adapter-Video Architecture” on page 1147
- ◆ “Enumeration Values for Hardware-Display Adapter-Video Memory Type” on page 1147
- ◆ “Enumeration Values for Hardware-Pointing Device-Name” on page 1147
- ◆ “Enumeration Values for Hardware-Battery-Chemistry” on page 1147
- ◆ “Enumeration Values for Hardware-Processor-Processor Family” on page 1147
- ◆ “Enumeration Values for Hardware-Processor-Upgrade Method” on page 1148
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- ◆ “Enumeration Values for Hardware-Bus-Protocol Supported” on page 1148
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- ◆ “Enumeration Values for Language” on page 1150

## Enumeration Values for General-System Information-Management Technology

|             |                 |                         |
|-------------|-----------------|-------------------------|
| 1 = Unknown | 3= DMI Enabled  | 5= SNMP Enabled         |
| 2 = Other   | 4 = WMI Enabled | 6 = DMI and WMI Enabled |

## Enumeration Values for General-Inventory Information-Scan Mode

|             |         |                 |
|-------------|---------|-----------------|
| 1 = Unknown | 3= DMI  | 5= SNMP         |
| 2 = Other   | 4 = WMI | 6 = DMI and WMI |

## Enumeration Values for Software-Operating Systems-Windows - Name

|             |              |                     |
|-------------|--------------|---------------------|
| 0 = Unknown | 18 = WINNT   | 59 = Dedicated      |
| 1 = Other   | 21 = NetWare | 63 = Windows (R) Me |
| 16 = WIN95  | 36 = Linux   | 67 = Windows XP     |
| 17 = WIN98  | 58 = Windows |                     |

## Enumeration Values for Installation Repository

The following Installation Repository enum values are displayed in the Software > Software Group Components > Software Group and Software > Software Components > Software classes.

|                                              |                                                   |                                                           |
|----------------------------------------------|---------------------------------------------------|-----------------------------------------------------------|
| 0 = Others                                   | 7 = MSI, Add Remove Programs, Software Dictionary | 20 = Software Dictionary, Probe                           |
| 1 = MSI                                      | 8 = NetWare Products.dat                          | 21= MSI, Software Dictionary, Probes                      |
| 2 = Add/Remove Programs                      | 12 = Software Dictionary, NetWare Products.dat    | 22 = Add Remove programs, Software Dictionary, Probe      |
| 3 = MSI, Add Remove Programs                 | 16 = Probe                                        | 23 = MSI, Add Remove programs, Software Dictionary, Probe |
| 4 = Software Dictionary                      | 17 = MSI, Probe                                   | 24 = NetWare Products.dat, Probe                          |
| 5 = MSI, Software Dictionary                 | 18 = Add Remove Programs, Probe                   | 28 = Software Dictionary, NetWare Products.dat, Probe     |
| 6 = Add Remove Programs, Software Dictionary | 19 = MSI, Add Remove Programs, Probe              |                                                           |

## Enumeration Values for Hardware-Display Adapter-Video Architecture

|             |            |                          |
|-------------|------------|--------------------------|
| 1 = Other   | 6 = SVGA   | 11 = XGA                 |
| 2 = Unknown | 7 = MDA    | 12 = Linear Frame Buffer |
| 3 = CGA     | 8 = HGC    | 160 = PC-98              |
| 4 = EGA     | 9 = MCGA   |                          |
| 5 = VGA     | 10 = 8514A |                          |

## Enumeration Values for Hardware-Display Adapter-Video Memory Type

|             |                            |            |
|-------------|----------------------------|------------|
| 1 = Other   | 6 = WRAM                   | 11 = 3DRAM |
| 2 = Unknown | 7 = EDO RAM                | 12 = SDRAM |
| 3 = VRAM    | 8 = Burst Synchronous DRAM | 13 = SGRAM |
| 4 = DRAM    | 9 = Pipelined Burst SRAM   |            |
| 5 = SRAM    | 10 = CDRAM                 |            |

## Enumeration Values for Hardware-Pointing Device-Name

|             |                 |                            |
|-------------|-----------------|----------------------------|
| 1 = Other   | 4 = Track Ball  | 7 = Touch Pad              |
| 2 = Unknown | 5 = Track Point | 8 = Touch Screen           |
| 3 = Mouse   | 6 = Glide Point | 9 = Mouse - Optical Sensor |

## Enumeration Values for Hardware-Battery-Chemistry

|                    |                          |
|--------------------|--------------------------|
| 1 = Other          | 5 = Nickel Metal Hydride |
| 2 = Unknown        | 6 = Lithium-ion          |
| 3 = Lead Acid      | 7 = Zinc air             |
| 4 = Nickel Cadmium | 8 = Lithium Polymer      |

## Enumeration Values for Hardware-Processor-Processor Family

|             |                                     |                                    |
|-------------|-------------------------------------|------------------------------------|
| 1 = Other   | 24 = AMD Duron(TM) Processor Family | 130 = Itanium(TM) Processor Family |
| 2 = Unknown | 25 = K5 Family                      | 176 = Pentium(R) III Xeon(TM)      |

|                                                   |                                       |                                                                      |
|---------------------------------------------------|---------------------------------------|----------------------------------------------------------------------|
| 11 = Pentium(R) Brand                             | 26 = K6 Family                        | 177= Pentium(R) III Processor with Intel(R) SpeedStep(TM) Technology |
| 12 = Pentium(R) Pro                               | 27 = K6 -2                            | 178 = Pentium(R) 4 Processor                                         |
| 13 = Pentium(R) II                                | 28 = K6 -3                            | 181 = Inter(R) Xeon (TM) Processor MP                                |
| 14 = Pentium(R) Processor with MMX(TM) Technology | 29 = AMD Athlon (TM) Processor Family | 182 = AMD Athlon XP (TM) Processor Family                            |
| 15 = Celeron(TM)                                  | 30 = AMD29000 Family                  | 183 = AMD Athlon MP(TM) Processor Family                             |
| 16 = Pentium(R) II Xeon(TM)                       | 31 = K6-2+                            | 300 = 6 x 86                                                         |
| 17 = Pentium(R) II                                |                                       |                                                                      |

## Enumeration Values for Hardware-Processor-Upgrade Method

|                    |                            |                     |
|--------------------|----------------------------|---------------------|
| 1= Other           | 5 = Replacement/Piggy Back | 9 = Slot 2          |
| 2 = Unknown        | 6 = None                   | 10 = 370 Pin Socket |
| 3 = Daughter Board | 7 = LIF Socket             | 11 = Slot A         |
| 4 = ZIF Socket     | 8 = Slot 1                 | 12 = Slot M         |

## Enumeration Values for Hardware-Chassis-Chassis Type

|                         |                          |                            |
|-------------------------|--------------------------|----------------------------|
| 1 = Other               | 10 = Notebook            | 19 = SubChassis            |
| 2 = Unknown             | 11 = Hand Held           | 20 = Bus Expansion Chassis |
| 3 = Desktop             | 12 = Docking Station     | 21 = Peripheral Chassis    |
| 4 = Low Profile Desktop | 13 = All in One          | 22 = Storage Chassis       |
| 5 = Pizza Box           | 14 = Sub Notebook        | 23 = Rack Mount Chassis    |
| 6 = Mini Tower          | 15 = Space-Saving        | 24 = Sealed-Case PC        |
| 7= Tower                | 16 = Lunch Box           | 25 = Multi-system Chassis  |
| 8 = Portable            | 17 = Main System Chassis |                            |
| 9 = LapTop              | 18 = Expansion Chassis   |                            |

## Enumeration Values for Hardware-Bus-Protocol Supported

|                  |                |                            |
|------------------|----------------|----------------------------|
| 0 = Internal     | 6 = VME Bus    | 12 = Internal Processor    |
| 1 = ISA          | 7 = NuBus      | 13 = Internal Power Bus    |
| 2 = EISA         | 8 = PCMCIA Bus | 14 = PNP ISA Bus           |
| 3 = MicroChannel | 9 = C Bus      | 15 = PNP Bus               |
| 4= TurboChannel  | 10 = MPI Bus   | 16= Maximum Interface Type |

5 = PCI Bus

11 = MPSA Bus

## Enumeration Values for Hardware-Processor-Role

1 = Other

3 = Central Processor

5 = DSP Processor

2 = Unknown

4 = Math Processor

6 = Video Processor

## Enumeration Values for System-System Cache-Level

1 = Other

3 = Write Back

5 = Varies with Address

2 = Unknown

4 = Write Through

6 = Determination Per I/O

## Enumeration Values for System-System Cache-Cache Type

1 = Other

3 = Instruction

5 = Unified

2 = Unknown

4 = Data

## Enumeration Values for System-System Cache-Replacement Policy

1 = Other

4 = First In First Out (FIFO)

7 = Most Frequently Used (MFU)

2 = Unknown

5 = Last In First Out (LIFO)

8 = Data Dependent Multiple Algorithms

3 = Least Recently Used (LRU)

6 = Least Frequently Used (LFU)

## Enumeration Values for System-System Cache-Read Policy

1 = Other

3 = Read

5 = Read and Read-ahead

2 = Unknown

4 = Read-ahead

6 = Determination Per I/O

## Enumeration Values for System-System Cache-Write Policy

1 = Other

3 = Write Back

5 = Varies with Address

2 = Unknown

4 = Write Through

6 = Determination Per I/O

## Enumeration Values for System-System Cache-Associativity

|                   |                           |                            |
|-------------------|---------------------------|----------------------------|
| 1 = Other         | 4 = 2-way Set-Associative | 7 = 8-way Set-Associative  |
| 2 = Unknown       | 5 = 4-way Set-Associative | 8 = 16-way Set-Associative |
| 3 = Direct Mapped | 6 = Fully Associative     |                            |

## Enumeration Values for System-System IRQ-Availability

|             |                          |                                        |
|-------------|--------------------------|----------------------------------------|
| 1 = Other   | 3 = Available            | 5 = In Use and Available/<br>Shareable |
| 2 = Unknown | 4 = In Use/Not Available |                                        |

## Enumeration Values for System-System IRQ-IRQ Trigger Type

|             |           |
|-------------|-----------|
| 1 = Other   | 3 = Level |
| 2 = Unknown | 4 = Edge  |

## Enumeration Values for System-System DMA-Availability

|             |                          |                                        |
|-------------|--------------------------|----------------------------------------|
| 1 = Other   | 3 = Available            | 5 = In Use and Available/<br>Shareable |
| 2 = Unknown | 4 = In Use/Not Available |                                        |

## Enumeration Values for Language

The following Language enum values are displayed in the following classes: Software Group, Software Group File Information, Software, File Information, and Exclude Information.

|             |                                          |                                                       |
|-------------|------------------------------------------|-------------------------------------------------------|
| 0=Neutral   | 97=Not supported                         | 1095=Windows XP: Gujarati.<br>This is Unicode only.   |
| 1=Arabic    | 101=Divehi                               | 1037=Hebrew                                           |
| 2=Bulgarian | 127=Invariant Locale                     | 1081=Windows 2000/XP: Hindi.<br>This is Unicode only. |
| 3=Catalan   | 1024=Process or User Default<br>Language | 1038=Hungarian                                        |
| 4=Chinese   | 2048=System Default Language             | 1039=Icelandic                                        |
| 5=Czech     | 1078=Afrikaans                           | 1057=Indonesian                                       |
| 6=Danish    | 1052=Albanian                            | 1040=Italian (Standard)                               |
| 7=German    | 1025=Arabic (Saudi Arabia)               | 2064=Italian (Switzerland)                            |
| 8=Greek     | 2049=Arabic (Iraq)                       | 1041=Japanese                                         |

|               |                                                                |                                                          |
|---------------|----------------------------------------------------------------|----------------------------------------------------------|
| 9=English     | 3073=Arabic (Egypt)                                            | 1099=Windows XP: Kannada.<br>This is Unicode only.       |
| 10=Spanish    | 4097=Arabic (Libya)                                            | 1111=Windows 2000/XP:<br>Konkani. This is Unicode only.  |
| 11=Finnish    | 5121=Arabic (Algeria)                                          | 1042=Korean                                              |
| 12=French     | 6145=Arabic (Morocco)                                          | 2066=Windows 95                                          |
| 13=Hebrew     | 7169=Arabic (Tunisia)                                          | 1088=Windows XP: Kyrgyz.                                 |
| 14=Hungarian  | 8193=Arabic (Oman)                                             | 1062=Latvian                                             |
| 15=Icelandic  | 9217=Arabic (Yemen)                                            | 1063=Lithuanian                                          |
| 16=Italian    | 10241=Arabic (Syria)                                           | 2087=Windows 98 only:<br>Lithuanian (Classic)            |
| 17=Japanese   | 11265=Arabic (Jordan)                                          | 1071=FYRO Macedonian                                     |
| 18=Korean     | 12289=Arabic (Lebanon)                                         | 1086=Malay (Malaysian)                                   |
| 19=Dutch      | 13313=Arabic (Kuwait)                                          | 2110=Malay (Brunei<br>Darussalam)                        |
| 20=Norwegian  | 14337=Arabic (U.A.E.)                                          | 1102=Windows 2000/XP:<br>Marathi. This is Unicode only.  |
| 21=Polish     | 15361=Arabic (Bahrain)                                         | 1104=Windows XP: Mongolian                               |
| 22=Portuguese | 16385=Arabic (Qatar)                                           | 1044=Norwegian (Bokmal)                                  |
| 24=Romanian   | 1067=Windows 2000/XP:<br>Armenian. This is Unicode only.       | 2068=Norwegian (Nynorsk)                                 |
| 25=Russian    | 1068=Azeri (Latin)                                             | 1045=Polish                                              |
| 26=Croatian   | 2092=Azeri (Cyrillic)                                          | 1046=Portuguese (Brazil)                                 |
| 27=Slovak     | 1069=Basque                                                    | 2070=Portuguese (Portugal)                               |
| 28=Albanian   | 1059=Belarusian                                                | 1094=Windows XP: Punjabi.<br>This is Unicode only.       |
| 29=Swedish    | 1026=Bulgarian                                                 | 1048=Romanian                                            |
| 30=Thai       | 1109=Burmese                                                   | 1049=Russian                                             |
| 31=Turkish    | 1027=Catalan                                                   | 1103=Windows 2000/XP:<br>Sanskrit. This is Unicode only. |
| 32=Urdu       | 1028=Chinese (Taiwan)                                          | 3098=Serbian (Cyrillic)                                  |
| 33=Indonesian | 2052=Chinese (PRC)                                             | 2074=Serbian (Latin)                                     |
| 34=Ukrainian  | 3076=Chinese (Hong Kong<br>SAR, PRC)                           | 1051=Slovak                                              |
| 35=Belarusian | 4100=Chinese (Singapore)                                       | 1060=Slovenian                                           |
| 36=Slovenian  | 5124=Windows 98/Me,<br>Windows 2000/XP: Chinese<br>(Macau SAR) | 1034=Spanish (Spain,<br>Traditional Sort)                |
| 37=Estonian   | 1050=Croatian                                                  | 2058=Spanish (Mexican)                                   |
| 38=Latvian    | 1029=Czech                                                     | 3082=Spanish (Spain, Modern<br>Sort)                     |
| 39=Lithuanian | 1030=Danish                                                    | 4106=Spanish (Guatemala)                                 |

|                    |                                                             |                                                      |
|--------------------|-------------------------------------------------------------|------------------------------------------------------|
| 41=Farsi           | 1125=Windows XP: Divehi. This is Unicode only.              | 5130=Spanish (Costa Rica)                            |
| 42=Vietnamese      | 1043=Dutch (Netherlands)                                    | 6154=Spanish (Panama)                                |
| 43=Armenian        | 2067=Dutch (Belgium)                                        | 7178=Spanish (Dominican Republic)                    |
| 44=Azeri           | 1033=English (United States)                                | 8202=Spanish (Venezuela)                             |
| 45=Basque          | 2057=English (United Kingdom)                               | 9226=Spanish (Colombia)                              |
| 47=FYRO Macedonian | 3081=English (Australian)                                   | 10250=Spanish (Peru)                                 |
| 54=Afrikaans       | 4105=English (Canadian)                                     | 11274=Spanish (Argentina)                            |
| 55=Georgian        | 5129=English (New Zealand)                                  | 12298=Spanish (Ecuador)                              |
| 56=Faeroese        | 6153=English (Ireland)                                      | 13322=Spanish (Chile)                                |
| 57=Hindi           | 7177=English (South Africa)                                 | 14346=Spanish (Uruguay)                              |
| 62=Malay           | 8201=English (Jamaica)                                      | 15370=Spanish (Paraguay)                             |
| 63=Kazak           | 9225=English (Caribbean)                                    | 16394=Spanish (Bolivia)                              |
| 64=Kyrgyz          | 10249=English (Belize)                                      | 17418=Spanish (El Salvador)                          |
| 65=Swahili         | 11273=English (Trinidad)                                    | 18442=Spanish (Honduras)                             |
| 67=Uzbek           | 12297=Windows 98/Me, Windows 2000/XP: English (Zimbabwe)    | 19466=Spanish (Nicaragua)                            |
| 68=Tatar           | 13321=Windows 98/Me, Windows 2000/XP: English (Philippines) | 20490=Spanish (Puerto Rico)                          |
| 69=Not supported   | 1061=Estonian                                               | 1072=Sutu                                            |
| 70=Punjabi         | 1080=Faeroese                                               | 1089=Swahili (Kenya)                                 |
| 71=Gujarati        | 1065=Farsi                                                  | 1053=Swedish                                         |
| 72=Not supported   | 1035=Finnish                                                | 2077=Swedish (Finland)                               |
| 73=Tamil           | 1036=French (Standard)                                      | 1114=Windows XP: Syriac. This is Unicode only.       |
| 74=Telugu          | 2060=French (Belgian)                                       | 1097=Windows 2000/XP: Tamil. This is Unicode only.   |
| 75=Kannada         | 3084=French (Canadian)                                      | 1092=Tatar (Tatarstan)                               |
| 76=Not supported   | 4108=French (Switzerland)                                   | 1098=Windows XP: Telugu. This is Unicode only.       |
| 77=Not supported   | 5132=French (Luxembourg)                                    | 1054=Thai                                            |
| 78=Marathi         | 6156=Windows 98/Me, Windows 2000/XP: French (Monaco)        | 1055=Turkish                                         |
| 79=Sanskrit        | 1110=Windows XP: Galician                                   | 1058=Ukrainian                                       |
| 80=Mongolian       | 1079=Windows 2000/XP: Georgian. This is Unicode only.       | 1056=Windows 98/Me, Windows 2000/XP: Urdu (Pakistan) |
| 86=Galician        | 1031=German (Standard)                                      | 2080=Urdu (India)                                    |
| 87=Konkani         | 2055=German (Switzerland)                                   | 1091=Uzbek (Latin)                                   |



88=Not supported

89=Not supported

90=Syriac

96=Not supported

3079=German (Austria)

4103=German (Luxembourg)

5127=German (Liechtenstein)

1032=Greek

2115=Uzbek (Cyrillic)

1066=Windows 98/Me,  
Windows NT 4.0 and later:  
Vietnamese



# N

## Documentation Updates

This section contains information on documentation content changes that have been made in the *Administration* guide for Workstation Inventory since the initial release of Novell® ZENworks® 6.5 Desktop Management. The information will help you to keep current on updates to the documentation.

All changes that are noted in this section were also made in the documentation. The documentation is provided on the Web in two formats: HTML and PDF. The HTML and PDF documentation are both kept up-to-date with the documentation changes listed in this section.

The documentation update information is grouped according to the date the changes were published. Within a dated section, the changes are alphabetically listed by the names of the main table of contents sections for Workstation Inventory.

If you need to know whether a copy of the PDF documentation you are using is the most recent, the PDF document contains the date it was published on the front title page or in the Legal Notices section immediately following the title page.

The documentation was updated on the following dates:

- ◆ “December 23, 2005” on page 1156
- ◆ “September 23, 2005 (Support Pack 2)” on page 1156
- ◆ “June 17, 2005” on page 1157
- ◆ “March 11, 2005” on page 1158
- ◆ “February 11, 2005 (Support Pack 1)” on page 1158
- ◆ “October 25, 2004” on page 1159
- ◆ “August 25, 2004” on page 1160
- ◆ “July 23, 2004” on page 1160

## December 23, 2005

Updates were made to the following sections.

| Location                                                                             | Change                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">“Configuring the MS SQL Server 2000 Inventory Database” on page 871.</a> | Added the following note in <a href="#">Step 11e on page 873</a> :<br><br><b>NOTE:</b> During the execution of the drop trigger sqls, the following error message might be displayed on the console, “Cannot drop the trigger ' <i>trigger_name</i> ', because it does not exist in the system catalog”. Ignore the error message. |
| <a href="#">“Generating Inventory Reports” on page 1060.</a>                         | Added the following note in <a href="#">Step 4 on page 1061</a> :<br><br><b>NOTE:</b> ZENworks Inventory report supports only the following double-byte character languages: German, English, Spanish, French, Portugese, and Japanese. Other double-byte characters might not be displayed properly in the Inventory reports.     |

## September 23, 2005 (Support Pack 2)

Updates were made to the following sections.

| Location                                                                                 | Change                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">“Backing Up the Sybase Inventory Database” on page 860.</a>                  | This section has been reorganized. There is no change in the content of the section.                                                                                                    |
| <a href="#">“Creating the Oracle9i Inventory Database on a UNIX Server” on page 866.</a> | This is a new section.                                                                                                                                                                  |
| <a href="#">“Setting Up the Oracle Inventory Database” on page 863.</a>                  | This section has been reorganized. There is no change in the content of the section.                                                                                                    |
| <a href="#">“Understanding the Inventory Sync Service” on page 903</a>                   | Added the following sentence to the second para of this section:<br><br>“The Inventory Sync Service schedule is not automatically created after the Workstation Inventory installation” |

## June 17, 2005

Updates were made to the following sections.

| Location                                                                                                    | Change                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">“Collecting Inventory for Workstations That Are Not Connected to the Network” on page 1025.</a> | In <a href="#">Step 2 on page 1025</a> , the following entry has been newly added to the contents of zfdscanner.ini:<br><br><code>SoftwareScan=TRUE</code>                                                                                                                                                                |
| <a href="#">“Creating the Oracle8i Inventory Database on a Windows Server” on page 863.</a>                 | Added a step, <a href="#">Step 2 on page 863</a> .                                                                                                                                                                                                                                                                        |
| <a href="#">“Creating the Oracle9i Inventory Database on a Windows Server” on page 865.</a>                 | Added a step, <a href="#">Step 2 on page 865</a> .                                                                                                                                                                                                                                                                        |
| <a href="#">“Disabling File Scan” on page 1018.</a>                                                         | This is a new section.                                                                                                                                                                                                                                                                                                    |
| <a href="#">“Manually Creating the MS SQL Server 2000 Inventory Database Object” on page 874.</a>           | This is a new section.                                                                                                                                                                                                                                                                                                    |
| <a href="#">“Manually Creating the Oracle Inventory Database Object” on page 868.</a>                       | Added the following important note in <a href="#">Step 3c on page 869</a> :<br><br><b>IMPORTANT:</b> All Inventory components use the username and the password configured in the database object. By default, “novell” is the password for all options. But you can change it in the database, and update the same here. |
| <a href="#">“Manually Creating the Sybase Inventory Database Object” on page 857.</a>                       | Added the following important note in <a href="#">Step 3c on page 857</a> :<br><br><b>IMPORTANT:</b> All Inventory components use the username and the password configured in the database object. By default, “novell” is the password for all options. But you can change it in the database, and update the same here. |

## March 11, 2005

Updates were made to the following sections.

| Location                                                                                                    | Change                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">“Removing the Redundant Inventoried Workstations from the Inventory Database” on page 1027.</a> | Documented a sample inventoryremovallist.txt file.                                                                                                               |
| <a href="#">“Scanning for Workstations That Are Never Connected to Your Network” on page 1024.</a>          | In <a href="#">Step 5 on page 1026</a> , documented the destination directory to which the generaldictionary.xml and privatedictionary.xml files must be copied. |

## February 11, 2005 (Support Pack 1)

Updates were made to the following sections.

| Location                                                                                                                                                            | Change                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <a href="#">“Customizing the Software Inventory Information To Be Scanned For ZENworks 6.5 or ZENworks 6.5 Support Packs Inventoried Workstations” on page 958.</a> | Updated this section with many changes for ZENworks 6.5 Desktop Management Support Pack 1 |
| <a href="#">“Removing the Redundant Inventoried Workstations from the Inventory Database” on page 1027.</a>                                                         | Updated this section with many changes for ZENworks 6.5 Server Management Support Pack 1  |
| <a href="#">“Removing Duplicate Workstation Objects from the Inventory Database” on page 1029.</a>                                                                  | This is a new section.                                                                    |

| Location                                                                                                  | Change                 |
|-----------------------------------------------------------------------------------------------------------|------------------------|
| “Retrieving Inventory information from the Inventory Database Without Using the CIM Schema” on page 1075. | This is a new section. |

## October 25, 2004

Updates were made to the following sections.

| Location                                                                       | Change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| “Advanced Deployment” on page 820.                                             | <ol style="list-style-type: none"> <li>1. Renamed the section, “Custom Deployment - Deploying Inventory in a Multiple or Enterprise Sites” to “Advanced Deployment”.</li> <li>2. Updated this section with information to help you deploy Workstation Inventory in advanced deployment scenarios.</li> </ol>                                                                                                                                                                                                                                                                                                                                                    |
| “Deploying the Inventory Agent” on page 839.                                   | Updated this section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| “Simple Deployment” on page 818.                                               | <ol style="list-style-type: none"> <li>1. Renamed the section, “Typical Deployment - Deploying Inventory in a Single Site” to “Simple Deployment”.</li> <li>2. Updated this section with information to help you deploy Workstation Inventory in a simple deployment scenario.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                       |
| “Understanding the Effects of Workstation Inventory Installation” on page 842. | Specified the rights granted to the scandir and dictdir directories.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| “Understanding the Inventory Server Roles” on page 807.                        | <p>In the following sections, added the criteria to select a specific Inventory server role:</p> <ul style="list-style-type: none"> <li>◆ “Root Server” on page 807</li> <li>◆ “Root Server with Inventoried Workstations” on page 809</li> <li>◆ “Intermediate Server” on page 810</li> <li>◆ “Intermediate Server with Database” on page 811</li> <li>◆ “Intermediate Server with Inventoried Workstations” on page 812</li> <li>◆ “Intermediate Server with Database and Inventoried Workstations” on page 813</li> <li>◆ “Leaf Server” on page 814</li> <li>◆ “Leaf Server with Database” on page 815</li> <li>◆ “Standalone Server” on page 816</li> </ul> |

## August 25, 2004

Updates were made to the following sections.

| Location                                                                                                                   | Change                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">“Connecting the Inventory Server and ConsoleOne to the MS SQL Server 2000 Inventory Database” on page 875.</a> | Rectified the Microsoft SQL Server Web site URL to be referred for downloading the Windows English version of Microsoft JDBC driver. |

## July 23, 2004

Updates were made to the following sections. The changes are explained below.

| Location                                                                                                       | Change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">“Understanding the Inventory Service Manager” on page 887 &gt; “List of Services” on page 887.</a> | <p>Appended this section with the following information:</p> <p>The Inventory Service Manager reads the server property file (config.properties) and the role-based property file in the <i>inventory_server_installation_directory_or_volume\zenworks\inv\server\wminv\properties</i> directory, and loads the required services and server components.</p> <p><b>IMPORTANT:</b> Do not modify the property files because the updates might fail to load the services or the Service Manager.</p> |
| <a href="#">“Viewing the Servers Deployed for Inventory” on page 943.</a>                                      | <p>Added the following note:</p> <p><b>NOTE:</b> You cannot collapse the inventory tree using the short-cut keys.</p>                                                                                                                                                                                                                                                                                                                                                                              |