

Workstation Inventory

VIII

The Workstation Inventory component of Novell® ZENworks® 7 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 72, “Understanding Workstation Inventory,” on page 889
- ♦ Chapter 73, “Setting Up Workstation Inventory,” on page 903
- ♦ Chapter 74, “Understanding Workstation Inventory Components,” on page 983
- ♦ Chapter 75, “Understanding the Inventory Database Schema,” on page 1005
- ♦ Chapter 76, “Managing Your Inventory System,” on page 1037
- ♦ Chapter 77, “Viewing Inventory Information,” on page 1113
- ♦ Chapter 78, “Monitoring Workstation Inventory Using Status Logs,” on page 1195
- ♦ Appendix M, “Performance Tips,” on page 1203
- ♦ Appendix N, “Hardware Information Collected by the Inventory Scanners,” on page 1217
- ♦ Appendix O, “ZENworks 7 Desktop Management Inventory Attributes,” on page 1229
- ♦ Appendix P, “Enumeration Values,” on page 1255
- ♦ Appendix Q, “Documentation Updates,” on page 1265

Understanding Workstation Inventory

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The Workstation Inventory component of Novell® ZENworks® 7 Desktop Management gathers hardware and software inventory information from the workstations in your enterprise. ZENworks 7 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 7 Desktop Management Workstation Inventory. It contains the following information:

- ♦ [Section 72.1, “Workstation Inventory Terminology,” on page 889](#)
- ♦ [Section 72.2, “Overview of Inventory Components,” on page 890](#)
- ♦ [Section 72.3, “Understanding Inventory Scanning Cycle,” on page 892](#)
- ♦ [Section 72.4, “Understanding the Inventory Server Roles,” on page 892](#)

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

72.1 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 7 Desktop Management Agent) on that workstation.

Inventory server: A NetWare®, Linux, or Windows ZENworks 7 Desktop Management server where you run the Inventory service. This server can also run any other ZENworks 7 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 7 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 not listed in the dictionary is called Unidentified software.

72.2 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 891

- ♦ “Inventory Components on Servers” on page 891
- ♦ “Inventory Database” on page 892
- ♦ “Management Console” on page 892

72.2.1 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 [Section 74.3, “Understanding the Inventory Scanner,” on page 986](#).

72.2.2 Inventory Components on Servers

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

- ♦ Selector

The Selector processes the inventory information and places the information in appropriate directories. For more information, see [Section 74.6, “Understanding the Selector,” on page 997](#).

- ♦ 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 [Section 74.4, “Understanding the Sender and Receiver,” on page 992](#).

- ♦ 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 [Section 74.7, “Understanding the Storer,” on page 999](#).

- ♦ STR Converter

The STR Converter converts the ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management inventory information to the format required by ZENworks 7 Desktop Management. For more information about the STR Converter, see [Section 74.8, “Understanding the Str Converter,” on page 999](#).

- ♦ TCP Receiver

The TCP Receiver receives the roll-up inventory information from the ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management Inventory servers connected to it and converts the

information to a format required by ZENworks 7 Desktop Management. For more information, see [Section 74.5, “Understanding the TCP Receiver,” on page 996](#).

- ◆ 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 [Section 74.10, “Understanding Dictionary Provider and Dictionary Consumer,” on page 1001](#).

72.2.3 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 [Section 73.2, “Setting Up the Inventory Database,” on page 945](#).

72.2.4 Management Console

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

72.3 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.

72.4 Understanding the Inventory Server Roles

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

- ◆ [“Root Server” on page 893](#)
- ◆ [“Root Server with Inventoried Workstations” on page 894](#)
- ◆ [“Intermediate Server” on page 895](#)
- ◆ [“Intermediate Server with Database” on page 896](#)
- ◆ [“Intermediate Server with Inventoried Workstations” on page 897](#)
- ◆ [“Intermediate Server with Database and Inventoried Workstations” on page 898](#)
- ◆ [“Leaf Server” on page 899](#)
- ◆ [“Leaf Server with Database” on page 900](#)
- ◆ [“Standalone Server” on page 901](#)

For a quick reference table of the Inventory Server roles, see [Section 72.4.10, “Quick Reference Table of the Inventory Server Roles,” on page 902](#).

72.4.1 Root Server

The Root Server has the following characteristics:

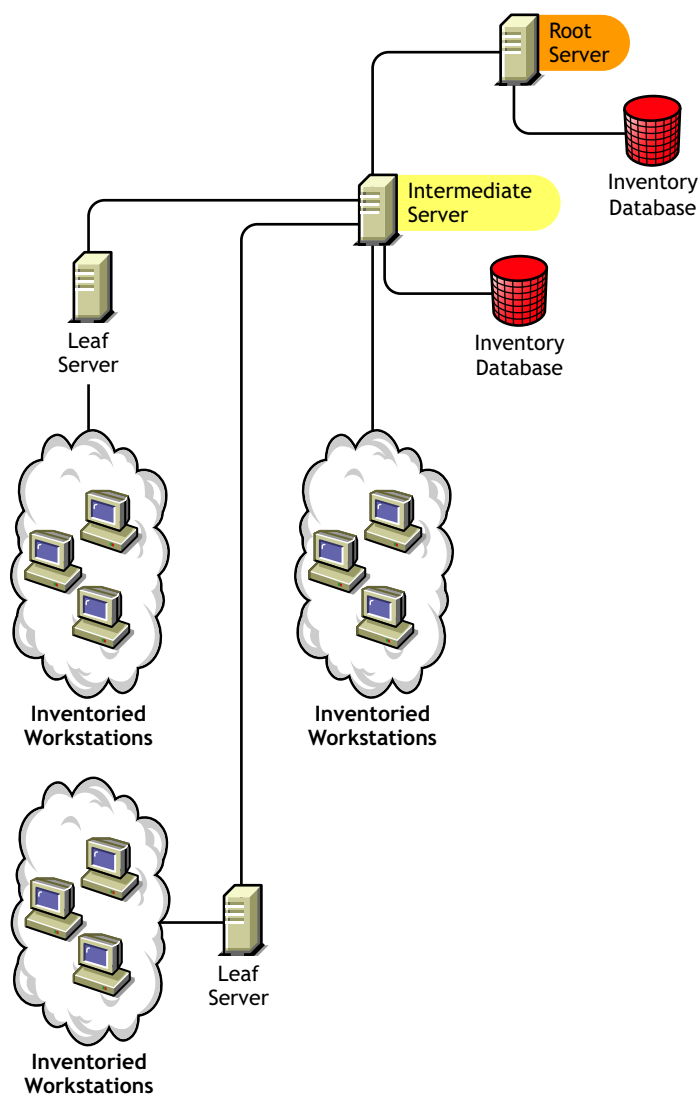
- ♦ This server is the topmost Inventory server in the inventory tree hierarchy.
- ♦ This server has an Inventory database attached to it.

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.

Figure 72-1 Root Server

Description: The Root Server at the topmost level, an Intermediate Server with Database at the lower level attached to the Root Server, and Leaf Servers attached to the Intermediate Server with Database.



72.4.2 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.

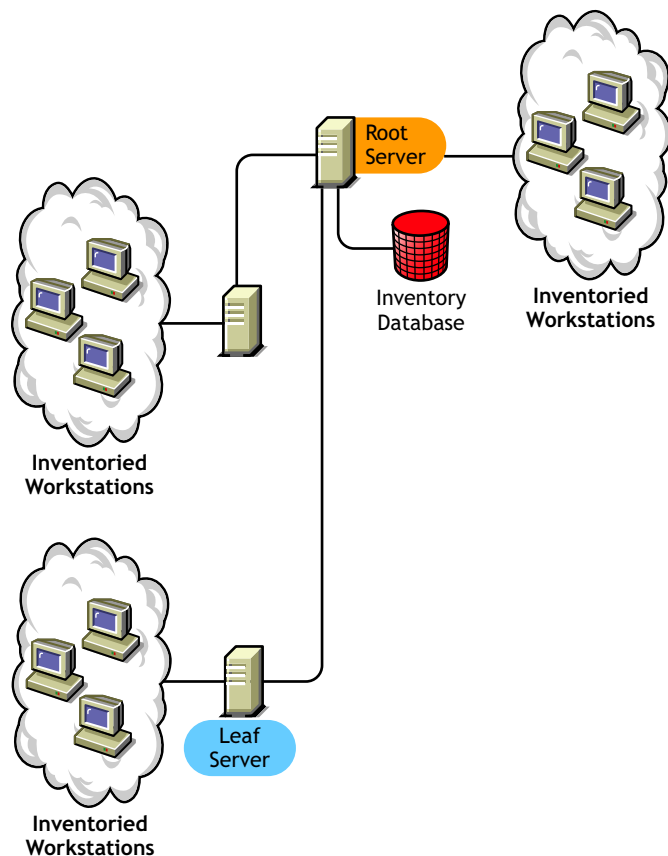
Choose Root Server with Inventoried Workstations if you want to store the inventory information of your enterprise in a centralized database and if you have inventoried workstations in the same site as the Root Server. You can directly send the inventory information from these workstations to the Root 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.

Figure 72-2 Root Server with Inventoried Workstations

Description: The Root Server at the highest level, with inventoried workstations attached to it. Also, more than one Leaf Server is attached to this Root Server with Inventoried Workstations.



72.4.3 Intermediate Server

The Intermediate Server has the following characteristics:

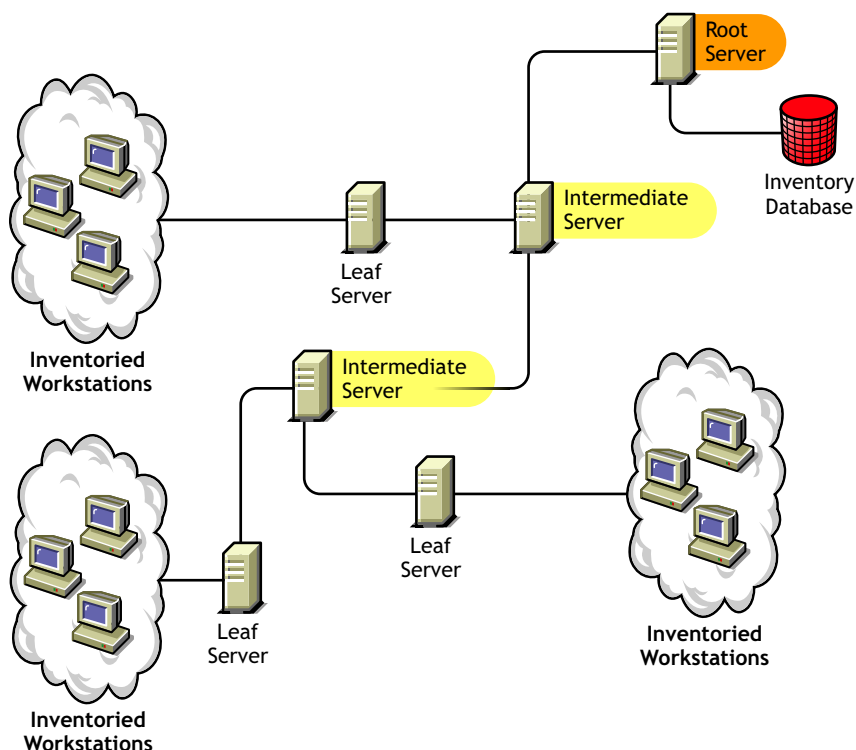
- ♦ This Inventory server acts as a staging server for the lower-level Leaf Servers.
- ♦ The server moves the inventory information to the next-level Inventory server.
- ♦ This server does not have inventoried workstations or an Inventory database attached to it.
- ♦ There can be one or more Intermediate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

Figure 72-3 *Intermediate Server*

Description: The Intermediate Server with the lower-level Leaf Servers and the highest-level 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.

72.4.4 Intermediate Server with Database

The Intermediate Server with Database has the following characteristics:

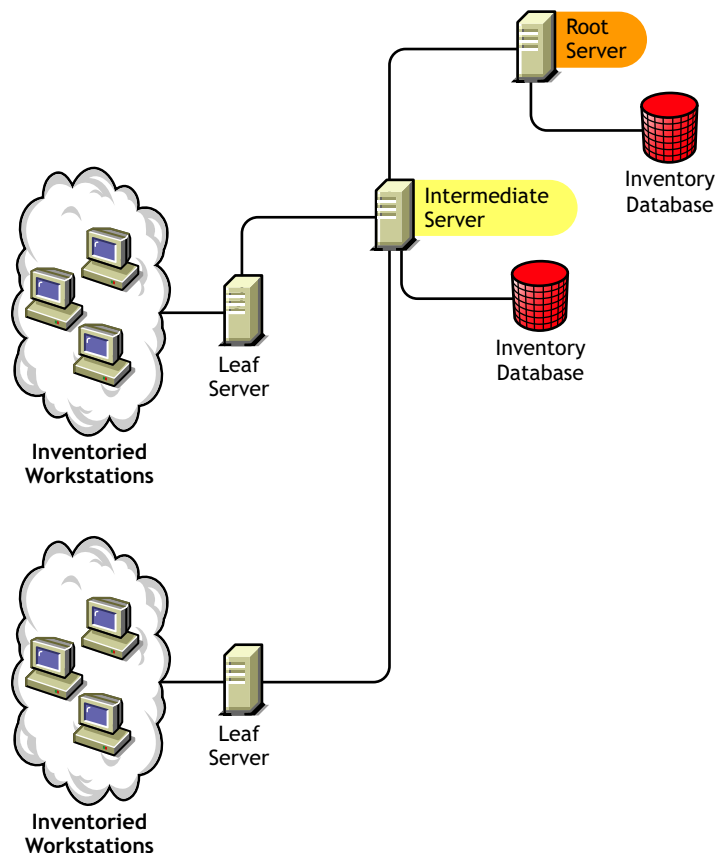
- ◆ This Inventory server acts as a staging server for the lower-level Leaf Servers.
- ◆ The server moves the inventory information to the next-level Inventory server.
- ◆ This server has an Inventory database attached to it.
- ◆ There can be one or more Intermediate Servers with Database in your enterprise.

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.

Figure 72-4 *Intermediate Server with Database*

Description: A Root Server along with an Intermediate Server which has an Inventory database, to which the lower-level Leaf Servers roll up the inventory information.



72.4.5 Intermediate Server with Inventoried Workstations

The Intermediate Server with Inventoried Workstations has the following characteristics:

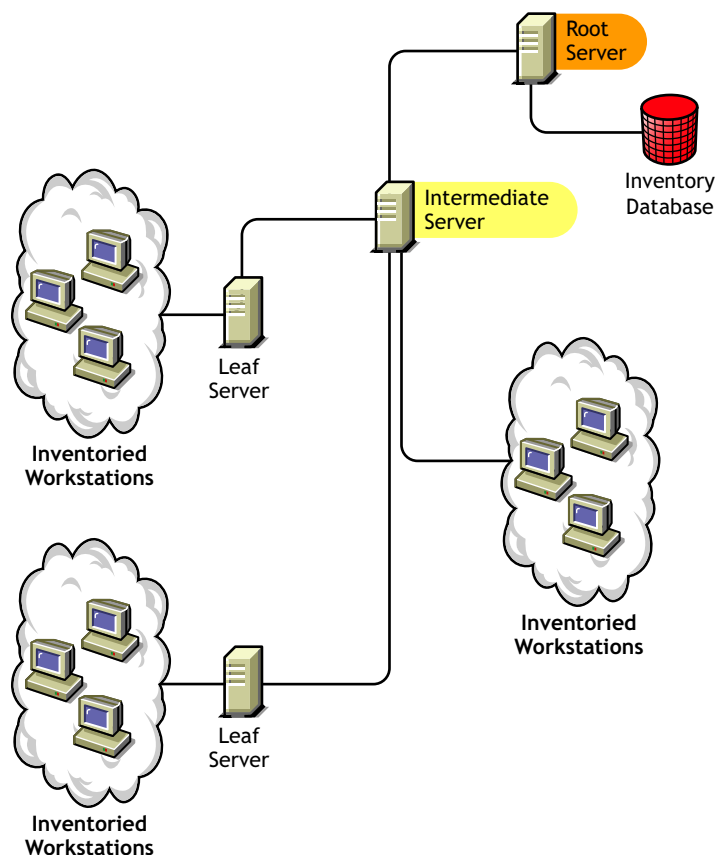
- ♦ This Inventory server acts as an intermediate server for the lower-level Leaf Servers.
- ♦ This server moves the inventory information to the next-level Inventory server.
- ♦ This server has inventoried workstations attached to it
- ♦ The server does not have an Inventory database attached to it.
- ♦ 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.

Figure 72-5 *Intermediate Server with Inventoried Workstations*

Description: A Root Server along with an Intermediate Server which has inventoried workstations attached to it.



72.4.6 Intermediate Server with Database and Inventoried Workstations

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

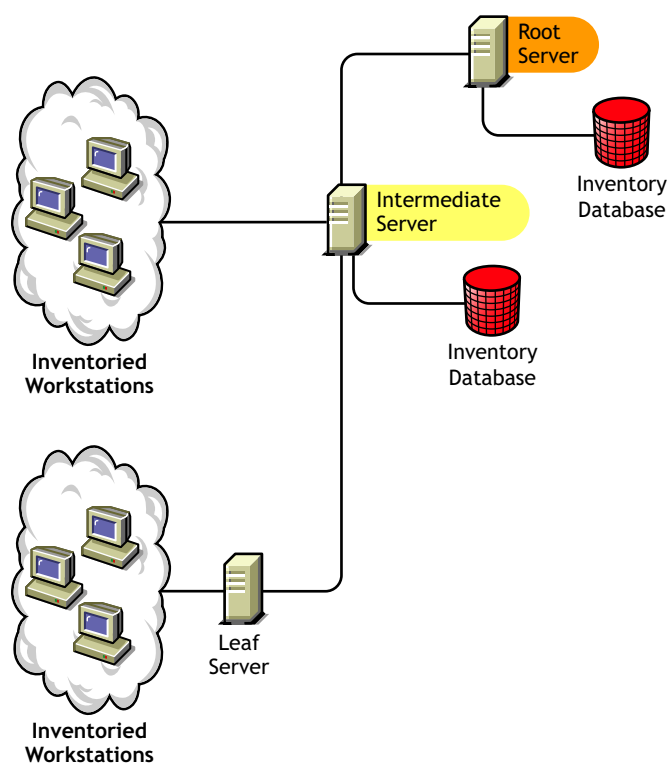
- ♦ This Inventory server acts as a staging server for the lower-level Leaf Servers.
- ♦ This server moves the inventory information to the next-level Inventory server.
- ♦ This server has inventoried workstations attached to it.
- ♦ This server has an Inventory database attached to it.
- ♦ There can 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.

Figure 72-6 *Intermediate Server with Database and Inventoried Workstations*

Description: A Root Server along with an Intermediate Server which has an Inventory database and inventoried workstations attached to it.



72.4.7 Leaf Server

The Leaf Server has the following characteristics:

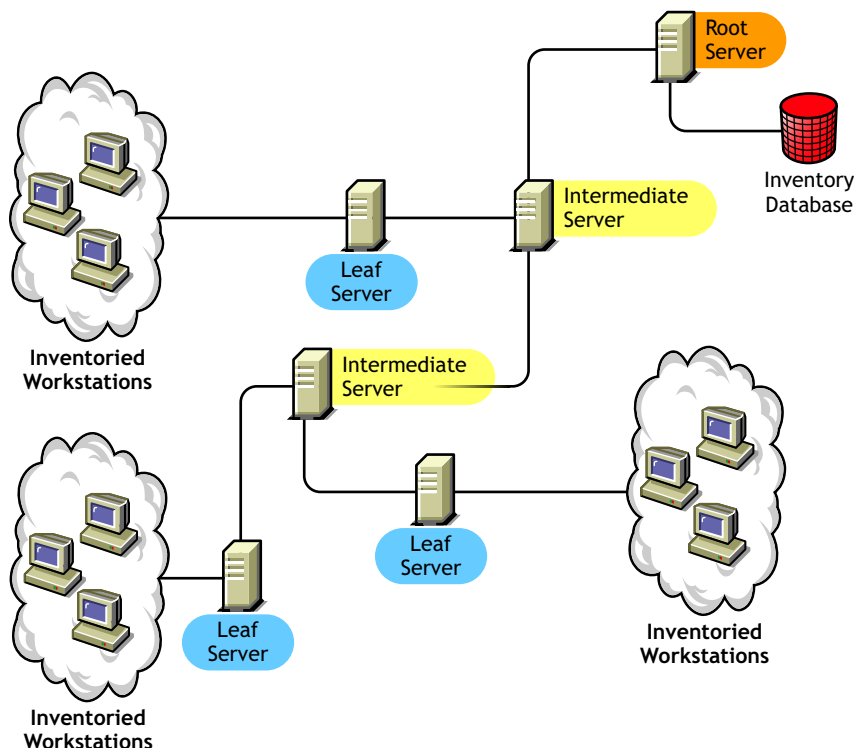
- ♦ This Inventory server is at the lowest level in the inventory tree hierarchy.
- ♦ This server has inventoried workstations attached to it.
- ♦ This server moves the inventory information to the next-level Inventory server
- ♦ A simple Leaf Server does not have an Inventory database. An Inventory 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.

Figure 72-7 Leaf Server

Description: Leaf Servers that roll up the inventory information to Intermediate Server. The Intermediate Server roll up the inventory information to the Root Server.



72.4.8 Leaf Server with Database

The Leaf Server with Database has the following characteristics:

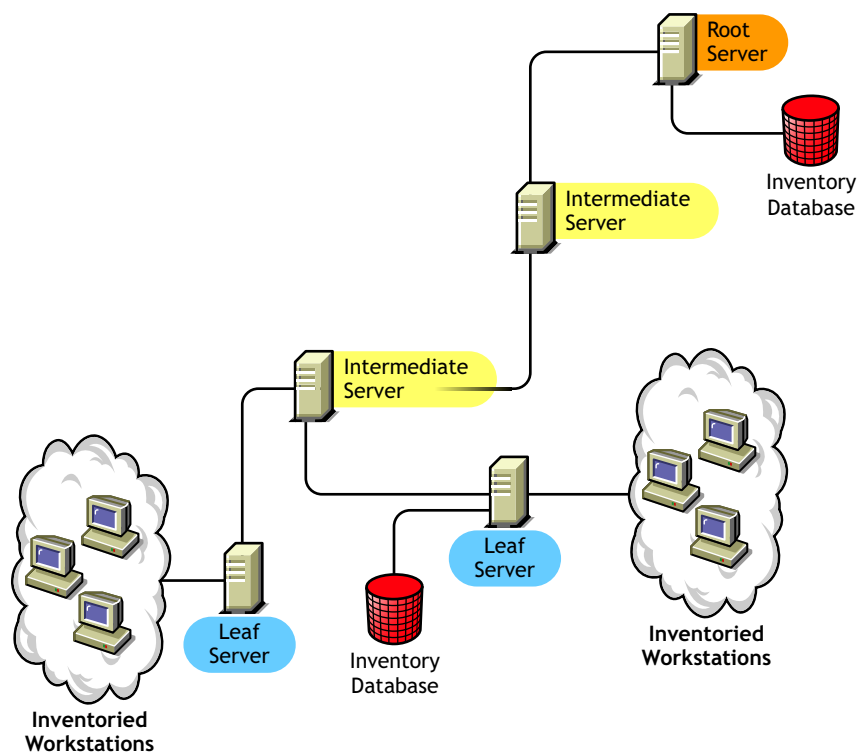
- This Inventory server is at the lowest level in the inventory tree hierarchy.
- This server has inventoried workstations attached to it.
- This server moves the inventory information to the next-level Inventory server.
- This server has an Inventory database attached to it. You can assign a server 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.

Figure 72-8 Leaf Server with Database

Description: A Leaf Server with Inventory database attached to it roll up the inventory information to Intermediate Server.



72.4.9 Standalone Server

The Standalone Server has the following characteristics:

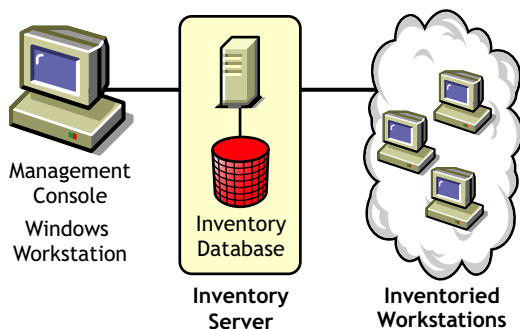
- ♦ This Inventory server has inventoried workstations attached to it.
- ♦ This server has an Inventory database attached to it.
- ♦ There is no roll-up of scan information and there are no requirements for Intermediate Servers and a Root Server.

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.

Figure 72-9 *Standalone Server*

Description: A Standalone Server that has inventoried workstations and Inventory database attached to it.



72.4.10 Quick Reference Table of the Inventory Server Roles

Table 72-1 *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

Setting Up Workstation Inventory

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Before you install Novell® ZENworks® 7 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:

- ♦ [Section 73.1, “Deploying Workstation Inventory,” on page 903](#)
- ♦ [Section 73.2, “Setting Up the Inventory Database,” on page 945](#)
- ♦ [Section 73.3, “Configuring the Inventory Service Object,” on page 972](#)
- ♦ [Section 73.5, “Configuring the Database Location Policy,” on page 974](#)
- ♦ [Section 73.6, “Configuring the Workstation Inventory Policy,” on page 975](#)
- ♦ [Section 73.7, “Configuring the Roll-Up Policy,” on page 977](#)
- ♦ [Section 73.8, “Configuring the Dictionary Update Policy,” on page 978](#)
- ♦ [Section 73.9, “Setting Up Distribution of Dictionary,” on page 979](#)

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

73.1 Deploying Workstation Inventory

The following sections help you to deploy Workstation Inventory:

- ♦ [Section 73.1.1, “Simple Deployment,” on page 903](#)
- ♦ [Section 73.1.2, “Advanced Deployment,” on page 906](#)

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

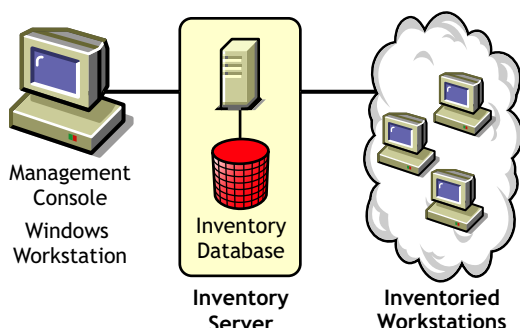
73.1.1 Simple Deployment

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.

Figure 73-1 Simple Workstation Inventory Deployment

Description: A Standalone Server that has inventoried workstations and an Inventory database attached to it.



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

1. [“Deployment Options for Inventory Agent” on page 904](#)
2. [“Recommendations for Deployment” on page 904](#)
3. [“Installing Workstation Inventory” on page 905](#)
4. [“Understanding the Effects of Workstation Inventory Installation” on page 905](#)
5. [“Configuring the Required Policy” on page 905](#)
6. [“Starting the Inventory Service” on page 905](#)
7. [“Updating the Software Dictionary” on page 905](#)
8. [“Understanding the Inventory Scanning Cycle in the Standalone Scenario with Novell Client Installed on Inventoried Workstations” on page 905](#)

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 926](#).

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 stresses Novell eDirectory™ and the Inventory services.
- ♦ Make sure 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 M, “Performance Tips,”](#) on page 1203.

Installing Workstation Inventory

During the Workstation Inventory installation, configure the Inventory Standalone Configuration settings. For detailed information, see the *Novell ZENworks 7 Desktop Management Installation Guide*.

Understanding the Effects of Workstation Inventory Installation

For detailed information on the effects of Workstation Inventory installation, see [Section 73.1.4, “Understanding the Effects of Workstation Inventory Installation,”](#) on page 929.

Configuring the Required Policy

Configure the [Workstation Inventory Policy](#).

Starting the Inventory Service

After installing ZENworks 7 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 \(http://novell.com/support/\)](#) 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

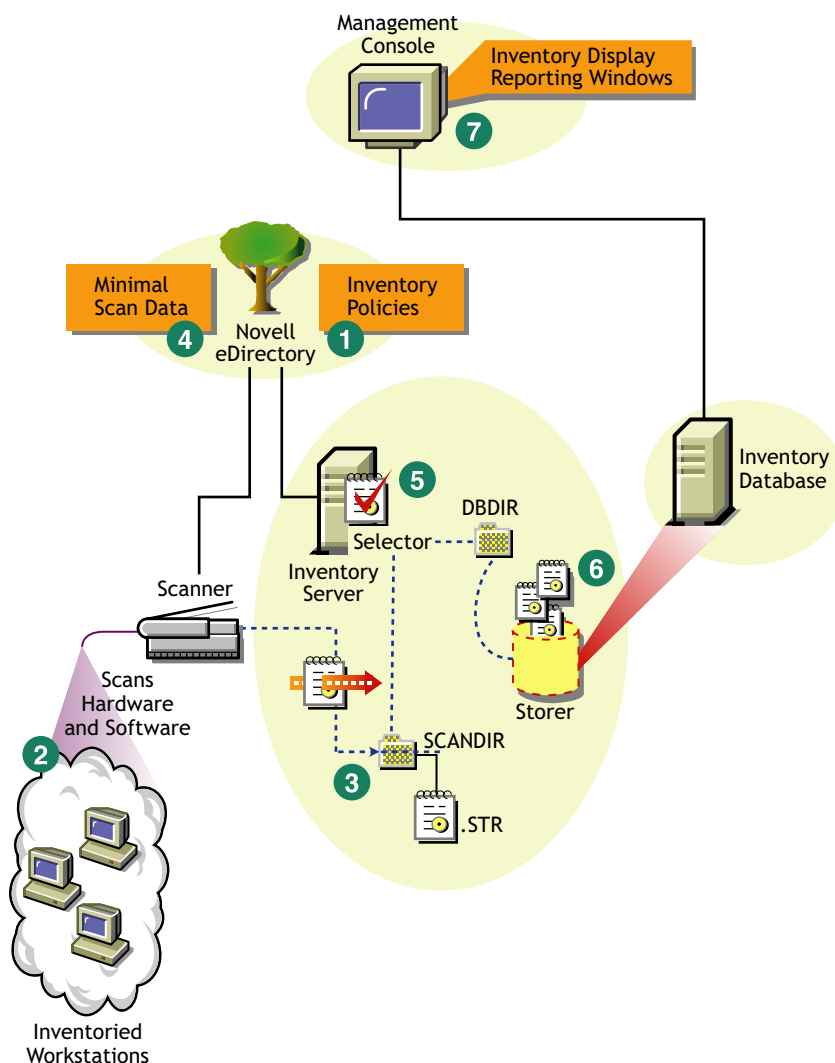
The inventory scanning cycle is as follows:

1. The Inventory policies in eDirectory define the inventory settings, such as scanning time 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.
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 scenario with Novell Client installed.

Figure 73-2 Inventory Scanning cycle in the Standalone scenario with Novell Client installed

Description: Inventory scanning cycle in the Standalone Server consisting of workstations with the Novell Client installed.



73.1.2 Advanced Deployment

- ♦ “Deploying Inventory in a Single Site with More than 5,000 Inventoried Workstations” on page 906
- ♦ “Deploying Inventory in Multiple or Enterprise Sites” on page 910

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 on a single site:

1. [“Deployment Options for Inventory Agent” on page 907](#)
2. [“Recommendations for Deployment” on page 907](#)
3. [“Installing Workstation Inventory” on page 907](#)
4. [“Understanding the Effects of Workstation Inventory Installation” on page 907](#)
5. [“Configuring the Required Policy” on page 908](#)
6. [“Starting the Inventory Service” on page 908](#)
7. [“Updating the Software Dictionary” on page 908](#)
8. [“Understanding the Inventory Scanning Cycle in the Standalone Scenario” on page 908](#)

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 926](#).

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 stresses Novell eDirectory™ and the Inventory services.
- ♦ Make sure 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 M, “Performance Tips,” on page 1203](#).

Installing Workstation Inventory

During the Workstation Inventory installation, configure the Inventory Standalone Configuration settings. For detail information on installing Workstation Inventory, see [Novell ZENworks 7 Desktop Management Installation Guide](#).

Understanding the Effects of Workstation Inventory Installation

For detail information on the effects of Workstation Inventory installation, see [Section 73.1.4, “Understanding the Effects of Workstation Inventory Installation,” on page 929](#).

Configuring the Required Policy

Configure the **Workstation Inventory Policy**.

Starting the Inventory Service

After installing ZENworks 7 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 \(http://novell.com/support/\)](http://novell.com/support/) and update the software dictionary.
- ♦ Manually download the latest version of the dictionary from TID 10093255 in the [Novell Support Knowledgebase \(http://www.novell.com/support\)](http://www.novell.com/support) 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 Dictionary Update Policy**” on page 978. For more information, see **Section 73.9, “Setting Up Distribution of Dictionary,”** on page 979.

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 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 the Novell Client is not installed on the inventoried workstation, the Scanner accesses eDirectory through the ZENworks 7 Desktop Management Middle Tier Server.

3. The scanner stores the inventory information of each inventoried workstation 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 7 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 eDirectory through the ZENworks 7 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 scenario, both with and without the Novell Client installed.

Figure 73-3 Inventory Scanning Cycle in the Standalone scenario with the Novell Client installed

Description: Inventory scanning cycle in the Standalone Server consisting of workstations with the Novell Client installed.

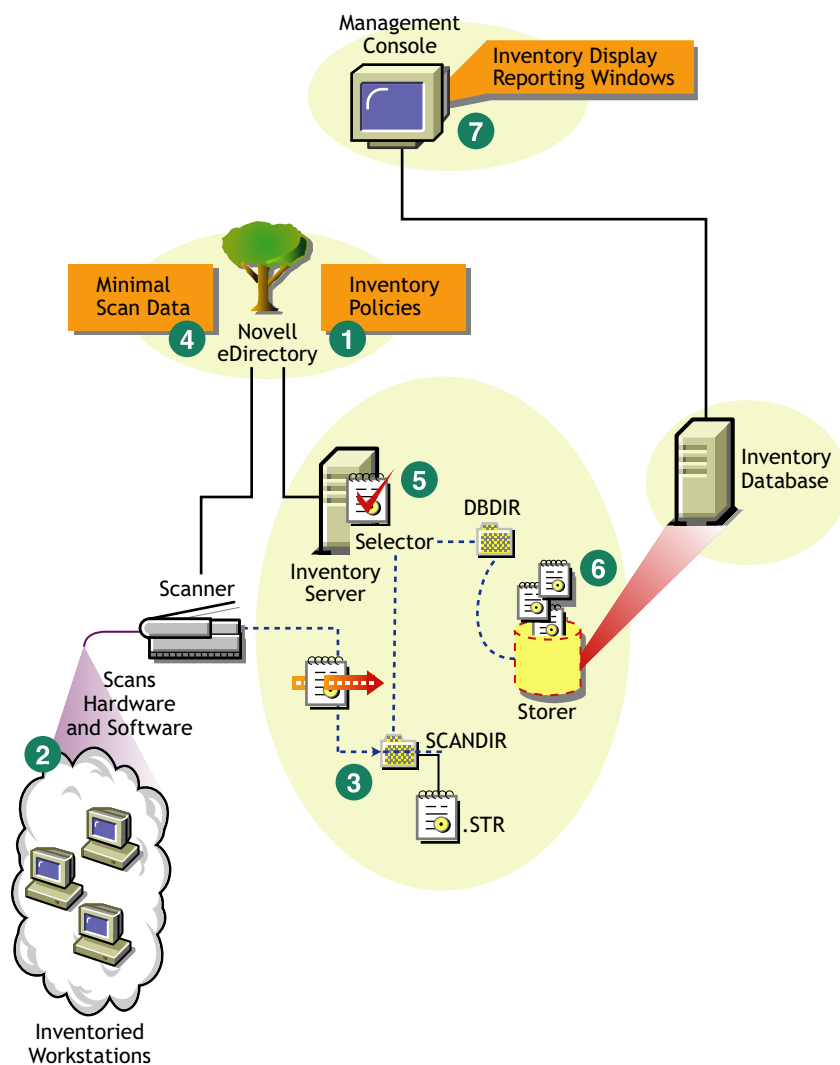
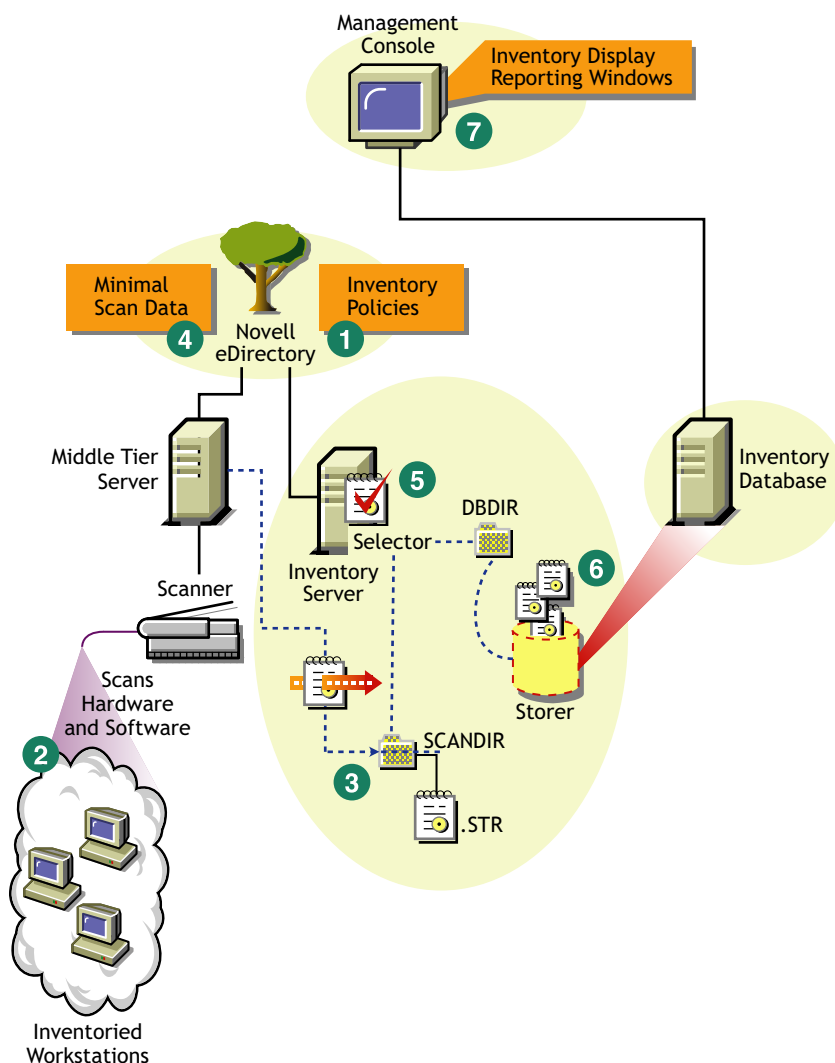


Figure 73-4 Inventory Scanning Cycle in the Standalone Server without the Novell Client installed

Description: Inventory scanning cycle in the Standalone scenario consisting of workstations 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 911
2. “Deployment Options for Inventory Server and Inventory Database” on page 916
3. “Deployment Options for Inventory Agent” on page 921
4. “Recommendations for Deployment” on page 921
5. “Installing Workstation Inventory” on page 922
6. “Understanding the Effects of Workstation Inventory Installation” on page 922
7. “Configuring the Required Policies” on page 922

8. “Starting the Inventory Service” on page 923
9. “Updating the Software Dictionary” on page 923
10. “Understanding Rolling Up Inventory Information Across Servers” on page 924

Designing the Inventory Tree

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

- ♦ “1. List the sites in the enterprise” on page 911
- ♦ “2. What is the ideal place for the Root Server?” on page 912
- ♦ “3. Is any other database needed?” on page 912
“Optional step: If another database is needed” on page 913
- ♦ “4. Identify the route for Inventory information” on page 913
- ♦ “5. Identify servers on each site to act as Inventory and Database Servers” on page 913
- ♦ “6. Create the tree of servers for enterprise Inventory collection” on page 914
- ♦ “7. Create an implementation plan” on page 915
- ♦ “8. Start the actual deployment” on page 915

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 an enterprise with servers in different locations.

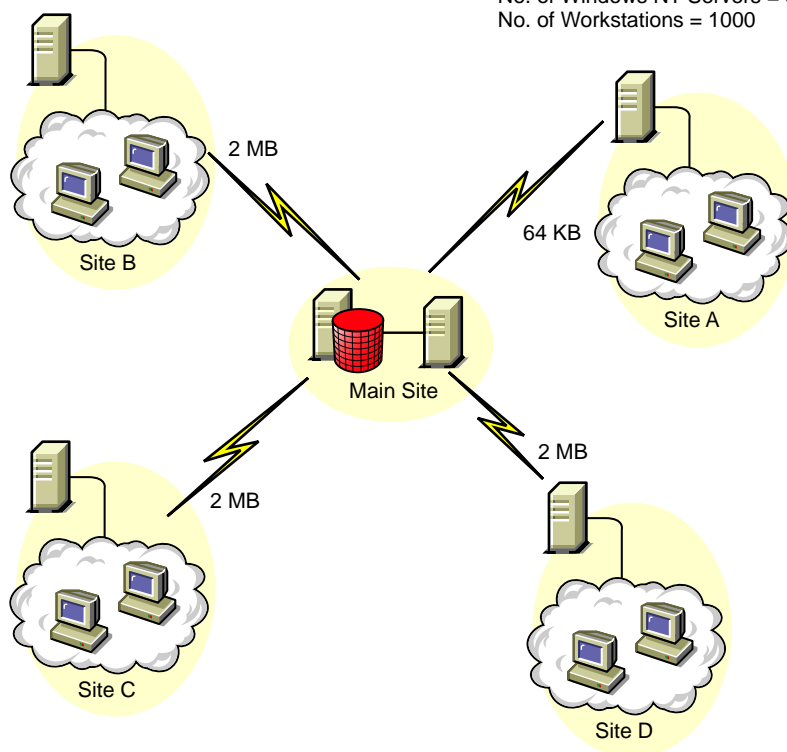
Figure 73-5 *Network organization of an enterprise*

Long Description: Typical characteristics of each site include two NetWare Inventory servers per site, and three Windows Inventory servers per site. Site B, Site C, and Site D

connect to the main site with a WAN connection of 2 MB. The WAN connection between the main site and Site A is 64 KB.

Network Configuration of My Company

No. of NetWare Servers = 2
No. of Windows NT Servers = 3
No. of Workstations = 1000



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 consists 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 caters 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 is 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. Make sure 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 7 Desktop Management, you choose the role for each Inventory server. For more information, see [Section 72.4, “Understanding the Inventory Server Roles,” on page 892](#).

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:

Table 73-1 *Disk Requirements for a ZENworks Inventory 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

Make sure 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 are 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 922](#).
2. Create and configure the policies applicable to Inventory server and inventoried workstations. For more information, see [“Configuring the Required Policies” on page 922](#).

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 945](#). 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 or MS SQL Server 2005 Inventory Database” on page 962](#).

- 2** Shut down the Inventory services. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).
- 3** Based on the database you select, make sure that you configure the database. For more information, see [Section 73.5, “Configuring the Database Location Policy,” on page 974](#).
- 4** If you want to attach a new database to an existing Inventory server that 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.
 - 4a1** 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 [Section 73.1.7, “Changing the Role of the Inventory Server,” on page 933](#).
- 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 [Section 73.1.5, “Starting and Stopping the Inventory Service,”](#) on page 931.

Deployment Options for Inventory Server and Inventory Database

This section covers these scenarios:

- ♦ [“Scenario 1: Inventory Deployment without Intermediate Servers in a WAN”](#) on page 916
- ♦ [“Scenario 2: Inventory Deployment with Intermediate Servers in a WAN”](#) on page 917
- ♦ [“Scenario 3: Roll Up of the Inventory Information Across eDirectory Trees”](#) on page 919
- ♦ [“Scenario 4: Merging eDirectory Trees”](#) on page 920
- ♦ [“Scenario 5: Deploying Inventory Server Across a Firewall”](#) on page 920

Scenario 1: Inventory Deployment without Intermediate Servers in a WAN

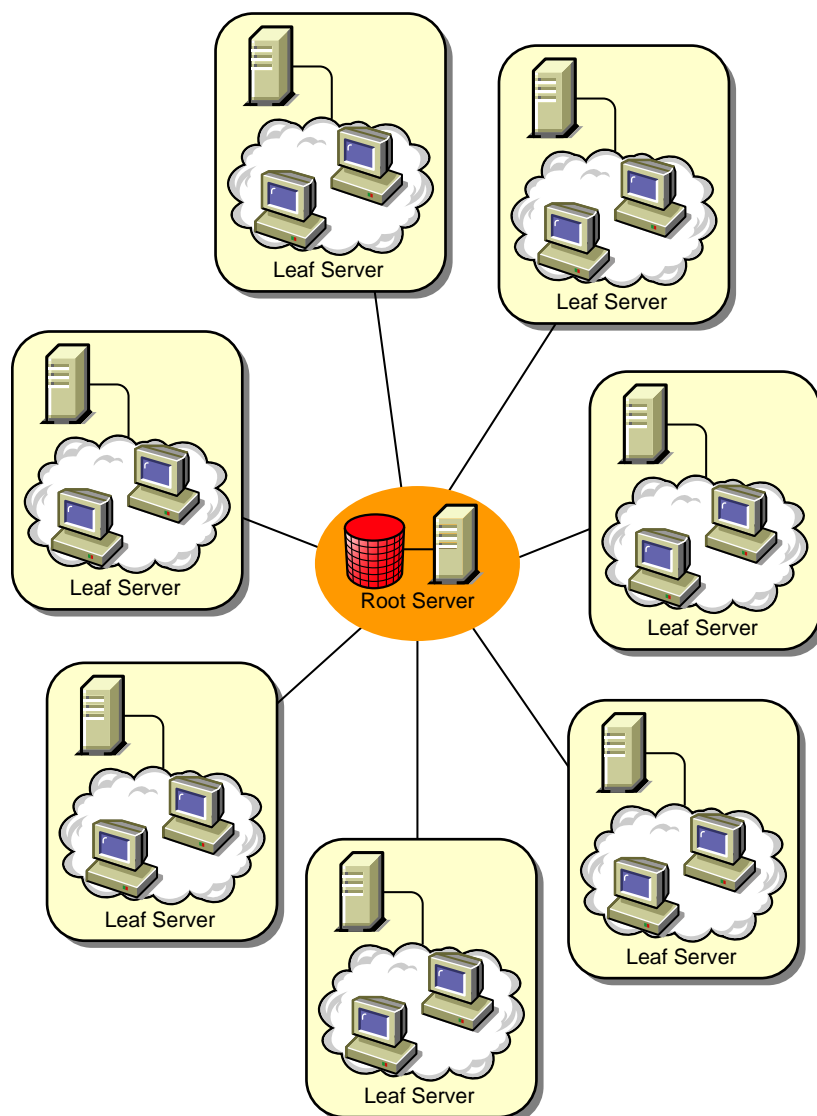
In this scenario, the network consists of many remote sites connected to a Central Site over a WAN. Each remote site has a Leaf Server that collects inventory information from workstations located in the same site, and rolls up the inventory information to the Root Server located at the central site. 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 the 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 [Section 73.1.7, “Changing the Role of the Inventory Server,”](#) on page 933.

This scenario is illustrated in the following figure.

Figure 73-6 Inventory Deployment without Intermediate Servers in a WAN

Description: Several Leaf Servers connected to a central Root Server.



Scenario 2: Inventory Deployment with Intermediate Servers in a WAN

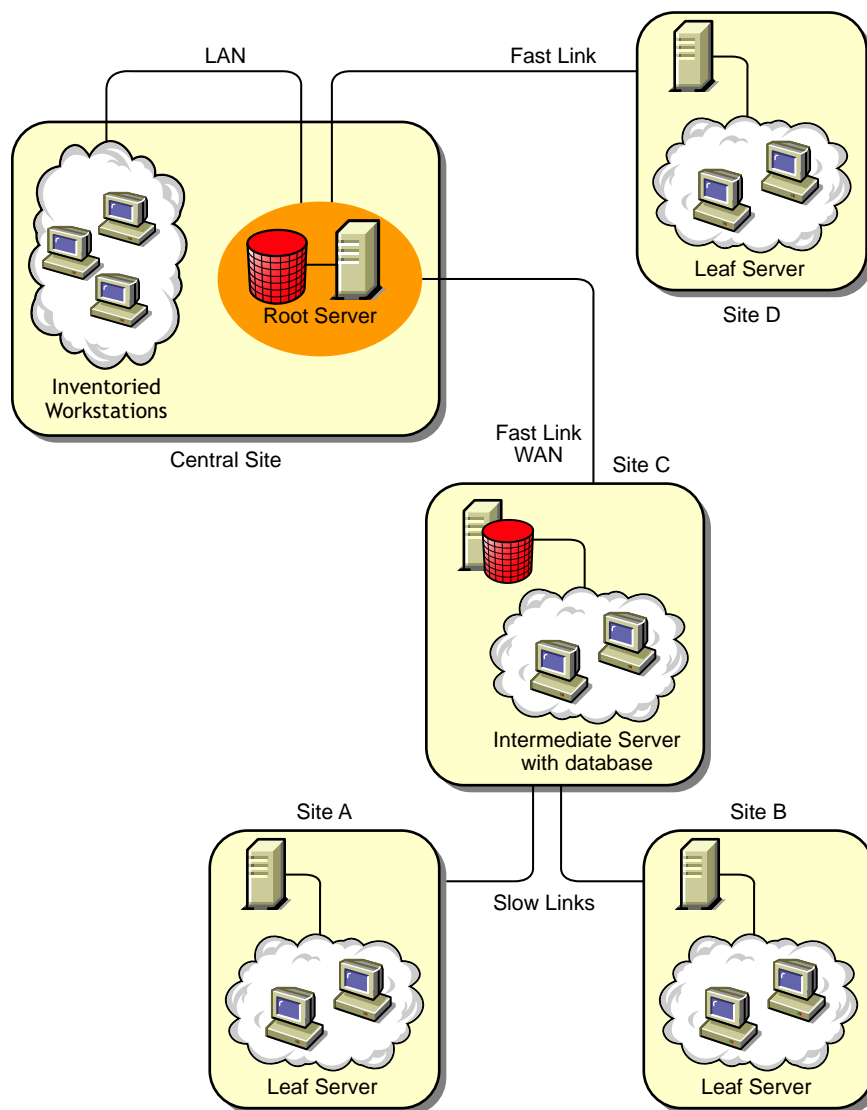
In this scenario, the network consists of four remote sites (A, B, C, and D), and a Central Site. Sites A and B are connected to Site C over slow links and are not directly connected to the Central Site. Site C is connected to the Central Site over a fast WAN link. Site D is directly connected to the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

This scenario is illustrated in the following figure.

Figure 73-7 Inventory Deployment with Intermediate Servers in a WAN

Long Description: This illustration depicts two Leaf Servers that roll up to the Intermediate Server. The Intermediate Server rolls up information to the Root Server. Another Leaf

Server in a different site rolls up information to the Root Server. The Root Server has inventoried workstations attached to it.



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.

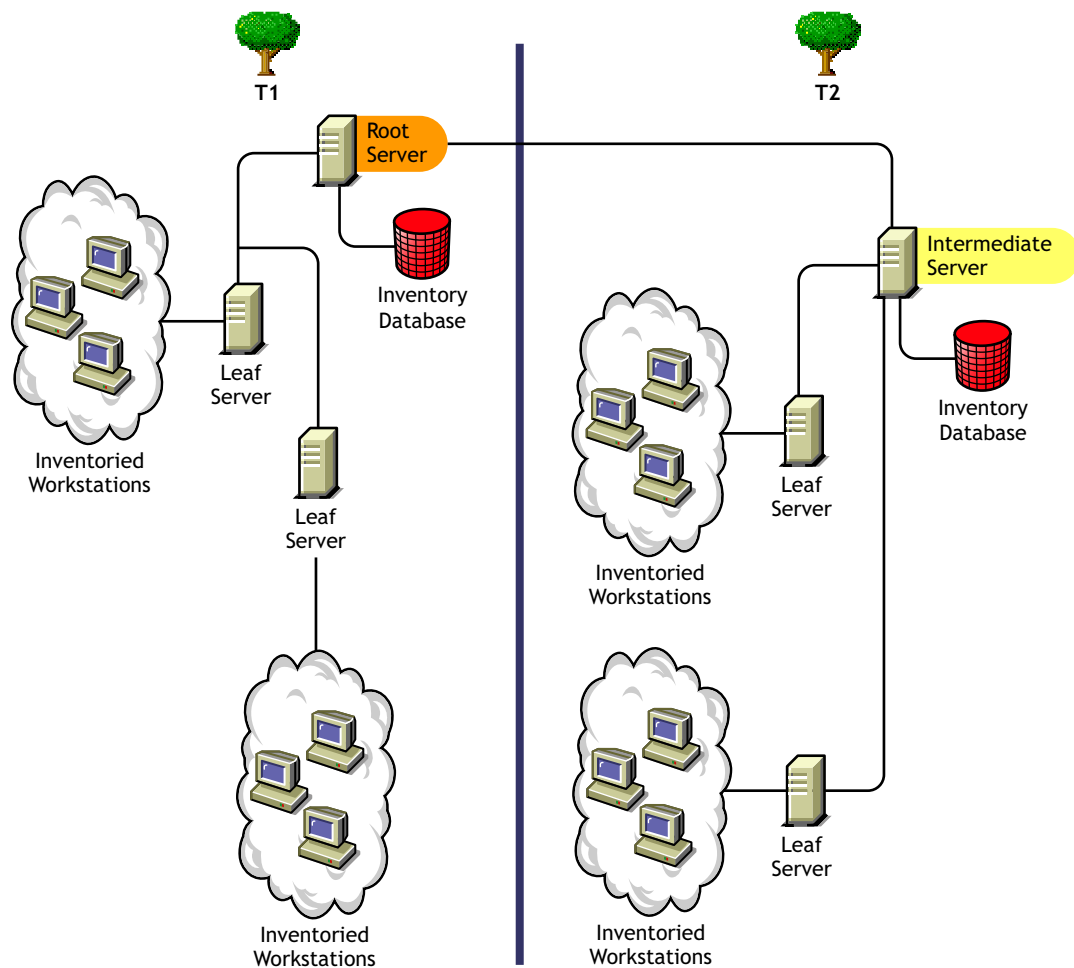
Scenario 3: Roll Up of the Inventory Information Across eDirectory Trees

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.

Figure 73-8 Roll Up of the Inventory Information across eDirectory Trees

Description: Roll-up of inventory information across eDirectory trees.



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
```

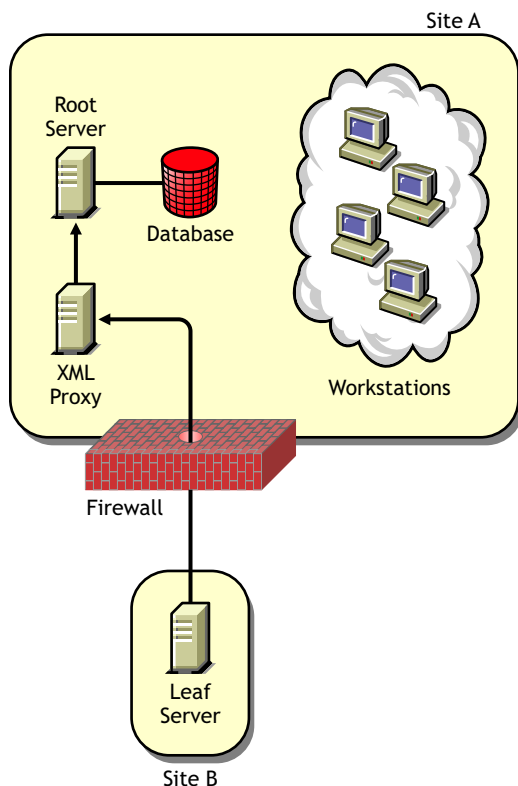
Scenario 5: Deploying Inventory Server Across a Firewall

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:

Figure 73-9 Deploying Inventory Server across a Firewall

Description: Deploying Inventory server across firewall



To enable the roll-up:

- ♦ Install an XML proxy at Site A. For more information about installing the proxy, see the *Novell ZENworks 7 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 7 Desktop Management installation. For more information, see the *Novell ZENworks 7 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 make sure 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 926*.

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 a group of 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 stresses eDirectory and the Inventory service.
- ♦ You can attach inventoried workstations to the server as determined by the number of connections supported by Inventory 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 7 Desktop Management on this server.
- ♦ We recommend that you configure DNS for your Inventory and database servers. If you have not configured 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 detailed information on installing Workstation Inventory, see the *Novell ZENworks 7 Desktop Management Installation Guide*.

Understanding the Effects of Workstation Inventory Installation

For detailed information on the effects of Workstation Inventory installation, see [Section 73.1.4, “Understanding the Effects of Workstation Inventory Installation,”](#) on page 929.

Configuring the Required Policies

The following table lists the actions that you should follow to set up the server for Workstation Inventory:

Table 73-2 *Policies Required to set up an Inventory Server*

To set up this type of server:	Do this:
Standalone Server	<ol style="list-style-type: none"> 1. Follow the steps in Section 73.5, “Configuring the Database Location Policy,” on page 974 2. Follow the steps in Section 73.6, “Configuring the Workstation Inventory Policy,” on page 975
Root Server	<ol style="list-style-type: none"> 1. Follow the steps in Section 73.3, “Configuring the Inventory Service Object,” on page 972 2. Follow the steps in Section 73.5, “Configuring the Database Location Policy,” on page 974
Root Server with Inventoried Workstations	<ol style="list-style-type: none"> 1. Follow the steps in Section 73.3, “Configuring the Inventory Service Object,” on page 972 2. Follow the steps in Section 73.6, “Configuring the Workstation Inventory Policy,” on page 975. 3. Follow the steps in Section 73.5, “Configuring the Database Location Policy,” on page 974
Intermediate Server	<ol style="list-style-type: none"> 1. Follow the steps in Section 73.3, “Configuring the Inventory Service Object,” on page 972. 2. Follow the steps in Section 73.7, “Configuring the Roll-Up Policy,” on page 977.
Intermediate Server with Database	<ol style="list-style-type: none"> 1. Follow the steps in Section 73.3, “Configuring the Inventory Service Object,” on page 972. 2. Follow the steps in Section 73.7, “Configuring the Roll-Up Policy,” on page 977. 3. Follow the steps in Section 73.5, “Configuring the Database Location Policy,” on page 974.
Intermediate Server with Inventoried Workstations	<ol style="list-style-type: none"> 1. Follow the steps in Section 73.3, “Configuring the Inventory Service Object,” on page 972. 2. Follow the steps in Section 73.6, “Configuring the Workstation Inventory Policy,” on page 975. 3. Follow the steps in Section 73.7, “Configuring the Roll-Up Policy,” on page 977.

To set up this type of server:	Do this:
Intermediate Server with Database and Inventoried Workstations	<ol style="list-style-type: none"> 1. Follow the steps in Section 73.3, "Configuring the Inventory Service Object," on page 972. 2. Follow the steps in Section 73.6, "Configuring the Workstation Inventory Policy," on page 975. 3. Follow the steps in Section 73.7, "Configuring the Roll-Up Policy," on page 977. 4. Follow the steps in Section 73.5, "Configuring the Database Location Policy," on page 974.
Leaf Server	<ol style="list-style-type: none"> 1. Follow the steps in Section 73.3, "Configuring the Inventory Service Object," on page 972. 2. Follow the steps in Section 73.6, "Configuring the Workstation Inventory Policy," on page 975. 3. Follow the steps in Section 73.7, "Configuring the Roll-Up Policy," on page 977.
Leaf Server with Database	<ol style="list-style-type: none"> 1. Follow the steps in Section 73.3, "Configuring the Inventory Service Object," on page 972. 2. Follow the steps in Section 73.6, "Configuring the Workstation Inventory Policy," on page 975. 3. Follow the steps in Section 73.7, "Configuring the Roll-Up Policy," on page 977. 4. Follow the steps in Section 73.5, "Configuring the Database Location Policy," on page 974.

Starting the Inventory Service

After installing ZENworks 7 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 [Section 73.1.5, "Starting and Stopping the Inventory Service,"](#) on page 931.

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://www.novell.com/support) (<http://www.novell.com/support>) and update the software dictionary.
- ♦ Manually download the latest version of the dictionary from TID 10093255 in the [Novell Support Knowledgebase](http://www.novell.com/support) (<http://www.novell.com/support>) on an Inventory server (preferably, the Root Server) and automatically distribute the dictionary to all servers in your setup by configuring the [Section 73.8, "Configuring the Dictionary Update Policy,"](#) on page 978. For more information, see [Section 73.9, "Setting Up Distribution of Dictionary,"](#) on page 979.

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 the Novell Client is not installed on the inventoried workstation, the Scanner accesses eDirectory through the ZENworks 7 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 7 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 eDirectory.

If the Novell Client is not installed on the inventoried workstation, the Scanner accesses eDirectory through the ZENworks 7 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 transmits the inventory information and the Roll-Up Schedule specifies a 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.

Figure 73-10 Inventory scanning cycle in the Roll-Up scenario with the Novell Client installed

Description: Inventory scanning cycle in the Roll-Up scenario consisting of workstations with the Novell Client installed.

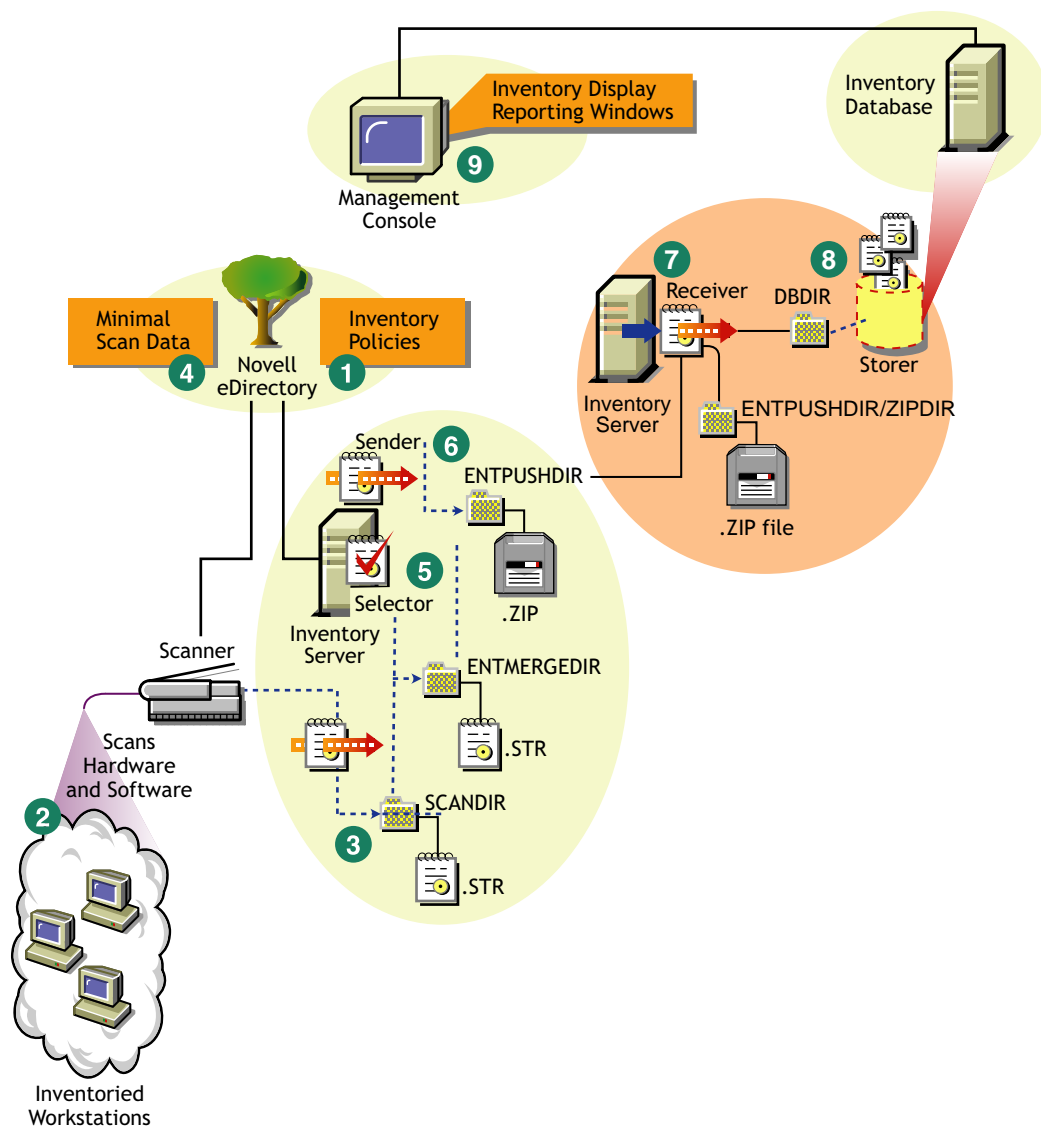
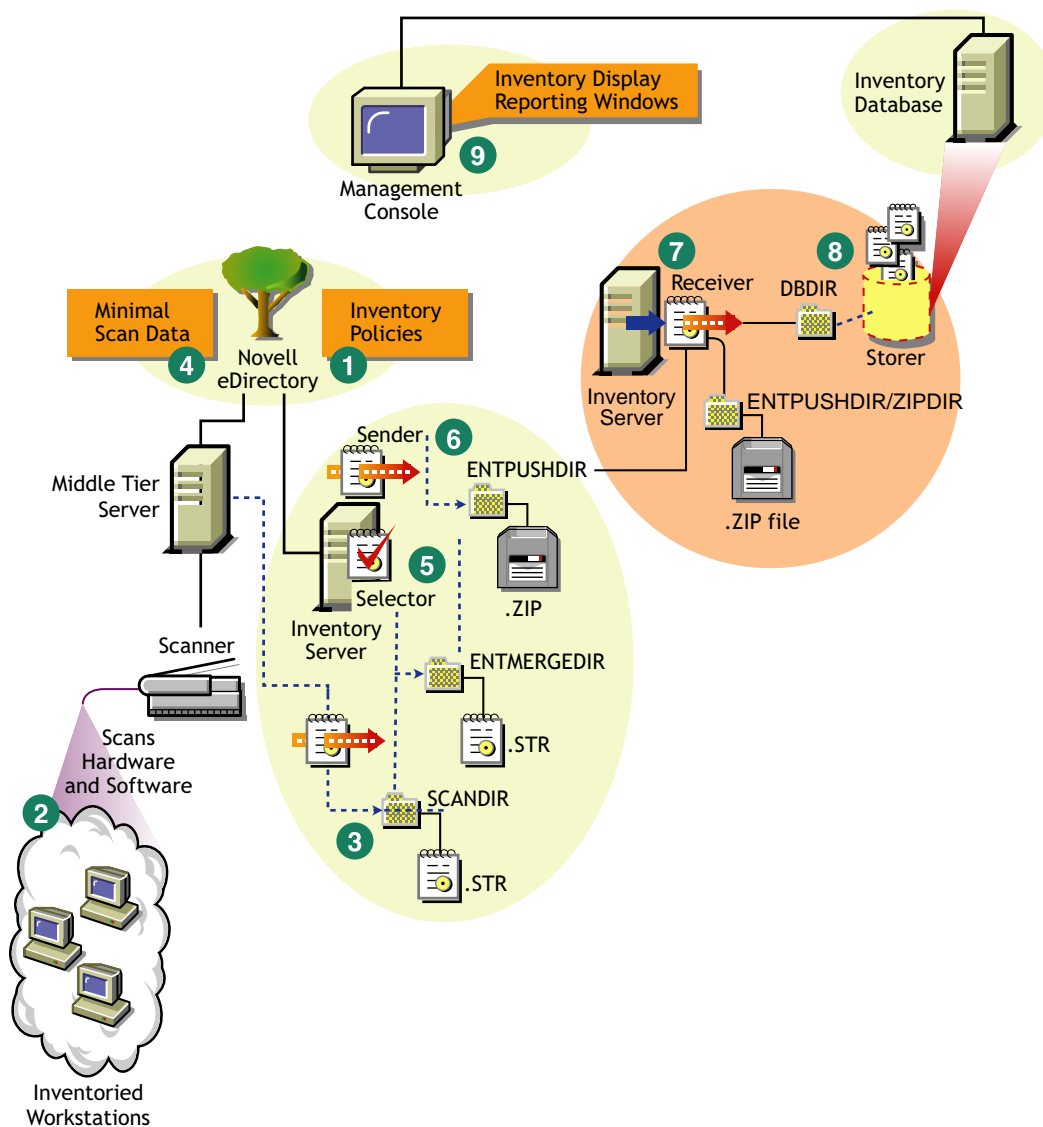


Figure 73-11 Inventory scanning cycle in the Roll-Up scenario without the Novell Client installed

Description: Inventory scanning cycle in the Roll-Up scenario consisting of workstations without the Novell Client installed.



73.1.3 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 [Section 76.2](#), “Customizing the Hardware Inventory Information To Be Scanned,” on page 1038.

You can deploy the Inventory Agent in the following scenarios:

- ♦ “Scenario 1: Deploying the Inventory Agent on Workstations that are in the Same LAN as the Inventory Server” on page 927
- ♦ “Scenario 2: Deploying the Inventory Agent on Workstations that Send Scans over a WAN across the Firewall” on page 927
- ♦ “Scenario 3: Deploying Inventory Agent on Workstations that Are Periodically Connected to the Network” on page 928
- ♦ “Scenario 4: Deploying Inventory Agent on Workstations that Are Never Connected to the Network” on page 929

Scenario 1: Deploying the Inventory Agent on 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 the Novell Client is installed on inventoried workstations or if you plan to install the Novell Client on inventoried workstations before installing the ZENworks 7 Desktop Management - Inventory Agent:
 - ♦ Install the ZENworks 7 Desktop Management Inventory Agent on inventoried workstations. For more information, see the *Novell ZENworks 7 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 the Novell Client is not installed on inventoried workstations or if you do not plan to install the Novell Client on inventoried workstations before installing the ZENworks 7 Desktop Management Inventory Agent:
 - ♦ Install the ZENworks 7 Desktop Management Inventory Agent, which works in the clientless mode. The Inventory Agent routes the requests through the Middle Tier. For more information, see the *Novell ZENworks 7 Desktop Management Installation Guide*.
 - ♦ You must have one ZENworks 7 Desktop Management Middle Tier Server for each site. For more information, see the *Novell ZENworks 7 Desktop Management Installation Guide*.
 - ♦ You can configure a maximum of 5000 workstations to send scans to an Inventory server.

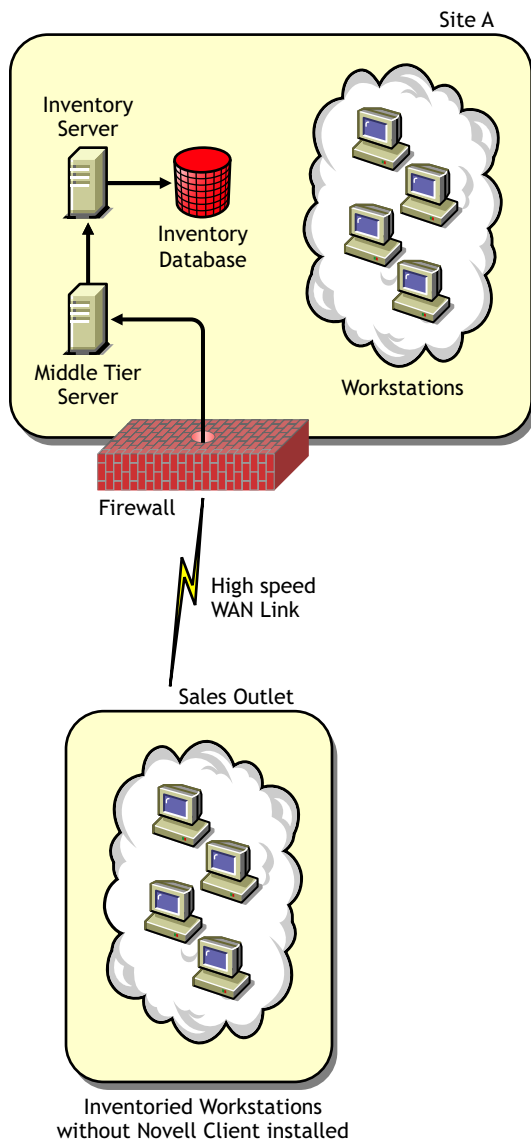
Scenario 2: Deploying the Inventory Agent on Workstations that Send Scans over a WAN across the Firewall

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 the 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 the *Novell ZENworks 7 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

Figure 73-12 Deploying the Inventory Agent on Workstations that send scans over a WAN across the Firewall

Description: Inventoried Workstations send the scan over a WAN across a Firewall



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

In this scenario, the Inventory Agent is installed on workstations that periodically connect 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 defers 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 [Section 76.5, “Scanning for Workstations That Are Periodically Connected to the Network,”](#) on page 1099.

Scenario 4: Deploying Inventory Agent on 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 1100.

73.1.4 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 Workstation 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 following attributes: zeninvRole (role of the server), zeninvScanFilePath (path to the `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.
- ♦ 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 Workstation 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 following attributes: `zeninvRole` (role of the server), `zeninvScanFilePath` (path to the `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 Linux Inventory Servers

- Copies the Workstation Inventory related files through the `novell-zenworks-invserver` and `novell-zenworks-invrmmcommon` RPMs.
- Creates an inventory user in the inventory and zenworks groups.
- Creates a scan directory (`/opt/novell/zenworks/inv/ScanDir`) with the subdirectories, assigns read and execute permissions for all the directories in the path of `ScanDir` and creates a samba share with Create rights to this directory for all users.
- Creates a dictionary directory (`/opt/novell/zenworks/inv/server/DictDir`), copies the files of general directory and private dictionary, and grants Read and Write rights to this 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 following attributes: `zeninvRole` (role of the server), `zeninvScanFilePath` (path to the `scandir` directory), `zeninvHostServer` (DN of the server on which Inventory server is installed) and `zeninvDictionarypath` (Path to the dictionary directory).
- Creates the NCP shares for the `ScanDir` and `DictDir` volumes of OES.
- Creates the Inventory server as a daemon in `/etc/init.d/novell-zdm-inv`, and adds it to be started when the server boots.

On 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.

73.1.5 Starting and Stopping the Inventory Service

The section provides information on:

- ♦ “Starting the Inventory Service on a NetWare Inventory Server” on page 931
- ♦ “Stopping the Inventory Service on a NetWare Inventory Server” on page 931
- ♦ “Starting the Inventory Service on a Windows Inventory Server” on page 932
- ♦ “Stopping the Inventory Service on a Windows Inventory Server” on page 932
- ♦ “Starting the Inventory Service on a Linux Inventory Server” on page 932
- ♦ “Stopping the Inventory Service on a Linux Inventory Server” on page 933

For more information about the various Inventory services, see [Section 74.1, “Understanding the Inventory Service Manager,” on page 983](#).

Starting the Inventory Service on a NetWare Inventory Server

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

To start the Inventory service 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 984](#).

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 [Section 78.4, “Viewing the Status of Inventory Components on a Server,” on page 1197](#).

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 is up and running. The Inventory database is 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 Inventoryservice 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 [Section 78.4, "Viewing the Status of Inventory Components on a Server," on page 1197](#).

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`.

Starting the Inventory Service on a Linux Inventory Server

- ♦ To start all Inventory services, do any of the following ways:

1. At the Linux server prompt, go to `/etc/init.d`.
2. Enter `./novell-zdm-inv start`.

Or

To start all Inventory services from any directory on Linux, enter

```
/etc/init.d/novell-zdm-inv start
```

- ♦ To start a specific Inventory service:

1. At the Linux server prompt, go to `/opt/novell/bin`.
2. Enter `StartSer Inventory_service`.

Stopping the Inventory Service on a Linux Inventory Server

- ♦ To stop all Inventory services, do any of the following ways:

1. At the Linux server prompt, go to `/etc/init.d`.
2. Enter `./novell-zdm-inv stop`.

Or

To stop all Inventory services from any directory on Linux, enter

```
/etc/init.d/novell-zdm-inv stop
```

- ♦ To stop a specific Inventory service:

1. At the Linux server prompt, go to `/opt/novell/bin`.
2. Enter `StopSer Inventory_service`.

73.1.6 Checking the Status of the Workstation Inventory Components Installed on Linux

The following table lists the Workstation Inventory components installed on Linux whose status you can check by executing commands at the Linux console prompt.

Table 73-3 *Commands to check the status of Workstation Inventory components installed on Linux*

Workstation Inventory Component	Command To Be Entered At the Linux Console Prompt
Inventory server daemon	<code>/etc/init.d/novell-zdm-inv status</code>
Sybase daemon	<code>/etc/init.d/novell-zdm-sybase status</code>
Inventory Proxy daemon	<code>/etc/init.d/novell-zen-zws status</code>

73.1.7 Changing the Role of the Inventory Server

When you install ZENworks 7 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 impact the existing inventory deployment. Also, consider the disk space requirements and make sure 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.

For detailed information about how to stop and restart the Inventory service, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).

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 934](#)
- ♦ [“Changing the Role of the Root Server with Inventoried Workstations” on page 935](#)
- ♦ [“Changing the Role of the Intermediate Server” on page 936](#)
- ♦ [“Changing the Role of the Intermediate Server with Database” on page 938](#)
- ♦ [“Changing the Role of the Intermediate Server with Database and Inventoried Workstations” on page 938](#)
- ♦ [“Changing the Role of the Intermediate Server with Inventoried Workstations” on page 939](#)
- ♦ [“Changing the Role of the Leaf Server” on page 941](#)
- ♦ [“Changing the Role of the Leaf Server with Database” on page 942](#)
- ♦ [“Changing the Role of the Standalone Server” on page 943](#)

Changing the Role of the Root Server

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

Table 73-4 Tasks to be performed to change the role of the Root Server

To change the role of the Root Server to ...	Tasks:
Root Server with 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 the inventoried workstations that you have attached to the Root Server with Inventoried Workstations are scanned for. 2. Make sure that you enable the Full Scan setting in the Inventory Service Object property page for the server. This setting ensures that a complete scan of the inventoried workstations attached to is done.

To change the role of the Root Server to ...	Tasks:
Intermediate Server	<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 Roll-Up policy to specify the next-destination server for roll-up of information from this server.
Intermediate Server with Database	<p>Perform the following task:</p> <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	<p>Perform the following tasks 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 are scanned for. 2. Make sure that you enable the Full Scan setting in the Inventory Service Object property page for the server. This setting ensures that a complete scan of the inventoried workstations is done. 3. Configure the Roll-Up policy to specify the next-destination server for roll-up of information from this server.
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 are scanned for. 3. After changing the role, make sure that you enable the Full Scan setting in the Inventory Service Object property page for the server. This setting ensures that a complete scan of the inventoried workstations is 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

Perform the actions specified in the following table:

Table 73-5 Tasks to be performed to change the role of the Root Server with Inventoried Workstations

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. Make sure that you enable the Full Scan setting in the Inventory Service Object property page for the server. This setting ensures that a complete scan of the inventoried workstations is 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 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

Perform the actions specified in the following table:

Table 73-6 *Tasks to be performed to change the role of the Intermediate Server*

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, make sure 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, make sure 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. Make sure 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 are scanned for. 2. Configure the Database Location policy. 3. Make sure 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 are 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

Perform the actions specified in the following table:

Table 73-7 Tasks to be performed to change the role of the Intermediate Server with Database

To Change the Role of the Intermediate Server with Database to ...	Tasks:
Root Server	<p>Perform the following task before changing the role:</p> <ol style="list-style-type: none"> 1. Remove the Roll-Up policy associated with the Intermediated Server with Database.
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 Intermediated Server with Database. 2. After changing the role, configure the Workstation Inventory Policy so that the inventoried workstations that you have attached are scanned for.
Intermediate 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 Intermediate Server with Database.
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 Workstation Inventory Policy so that the inventoried workstations attached are scanned for.
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 Intermediate Server with Database. 2. After changing the role, configure the Workstation Inventory Policy so that the inventoried workstations that you have attached are 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 and Inventoried Workstations

Perform the actions specified in the following table:

Table 73-8 Tasks to be performed to change the role of the Intermediate Server with Database and Inventoried Workstations

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"> 1. Remove the Roll-Up policy associated with the Intermediate Server with Database and Inventoried Workstations. 2. Remove the Workstation Inventory policy associated with the server so that the inventoried workstations do 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"> 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"> 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. 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"> 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"> 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

Perform the actions specified in the following table:

Table 73-9 Tasks to be performed to change the role of the Intermediate Server with Inventoried Workstations

To Change the Role of the Intermediate Server with Inventoried Workstations 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 with Inventoried Workstations. 2. After changing the role, configure the Database Location policy for the server. 3. After changing the role, make sure 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 with Inventoried Workstations 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. 3. After changing the role, configure the Database Location policy. 4. After changing the role, make sure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server	<p>Perform the following task before changing the role:</p> <ol style="list-style-type: none"> 1. Remove the Workstation Inventory policy.
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 to the server attached to this Inventory Service object. 2. After changing the role, configure the Database Location policy for the server. 3. After changing the role, make sure 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 Database Location policy for the server. 2. Make sure 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	<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 reinstall the Workstation Inventory component.</p>

Changing the Role of the Leaf Server

Perform the actions specified in the following table:

Table 73-10 Tasks to be performed to change the role of the Leaf Server

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, make sure 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, make sure 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, make sure 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 Database Location policy for the server. 2. Make sure 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:
Intermediate Server with Inventoried Workstations	This change of role does not require any specific policy modifications.
Leaf Server with Database	Perform the following tasks after changing the role: <ol style="list-style-type: none"> 1. Configure the Database Location policy for the server. 2. Make sure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Standalone Server	Perform the following tasks: <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

Perform the actions specified in the following table:

Table 73-11 Tasks to be performed to change the role of the Leaf Server with Database

To Change the Role of the Leaf Server with Database to ...	Tasks:
Root Server	Perform the following tasks: <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, make sure 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"> 1. Before changing the role, remove the Roll-Up policy associated with the Leaf Server with Database. 2. After changing the role, make sure that you enable the Full Scan setting in the Inventory Service Object property page for the server.
Intermediate Server	Perform the following task: <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.

To Change the Role of the Leaf Server with Database to ...	Tasks:
Intermediate Server with Database	Perform the following tasks: <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, make sure 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"> 1. After changing the role, make sure 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 task before changing the role: <ol style="list-style-type: none"> 1. Remove the Database Location policy associated with the Leaf Server with Database.
Leaf Server	Perform the following task before changing the role: <ol style="list-style-type: none"> 1. Remove the Database Location policy associated with the Leaf Server with Database.
Standalone Server	Perform the following task before changing the role: <ol style="list-style-type: none"> 1. Remove the Roll-Up policy.

Changing the Role of the Standalone Server

Perform the actions specified in the following table:

Table 73-12 Tasks to be performed to change the role of the Standalone Server

To Change the Role of the Standalone Server to ...	Tasks:
Root Server	Perform the following tasks: <ol style="list-style-type: none"> 1. Before changing the role, remove the Workstation Inventory policy associated with the Standalone Server. 2. After changing the role, make sure 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 task after changing the role: <ol style="list-style-type: none"> 1. After changing the role, make sure that you enable the Full Scan setting in the Inventory Service Object property page for the server.

To Change the Role of the Standalone Server to ...	Tasks:
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 Standalone Server. 2. After changing the role, configure the Roll-Up policy. 3. After changing the role, make sure 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:</p> <ol style="list-style-type: none"> 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, make sure 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 Roll-Up policy to specify the next-destination server for roll-up of information from the Intermediate Server with Database and Inventoried Workstations. 2. Make sure 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 tasks:</p> <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 Intermediate Server with Workstations.
Leaf Server	<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 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	<p>Perform the following task after changing the role:</p> <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.

73.2 Setting Up the Inventory Database

This section provides information on the following topics:

- ♦ [Section 73.2.1, “Setting Up the Sybase Inventory Database,” on page 945](#)
- ♦ [Section 73.2.2, “Setting Up the Oracle Inventory Database,” on page 951](#)
- ♦ [Section 73.2.3, “Setting Up the MS SQL Server 2000 or MS SQL Server 2005 Inventory Database,” on page 962](#)

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 [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).

73.2.1 Setting Up the Sybase Inventory Database

This section provides information on the following topics:

- ♦ [“Adding Non-English Enumerated Values for Inventory Attributes into the Inventory Database” on page 945](#)
- ♦ [“Manually Creating the Sybase Inventory Database Object” on page 946](#)
- ♦ [“Organizing the Sybase Database Spaces on NetWare, Windows, or Linux Servers \(AlterDBSpace Tool\)” on page 947](#)
- ♦ [“Understanding the Sybase Database Startup Parameters” on page 949](#)
- ♦ [“Backing Up the Sybase Inventory Database” on page 949](#)

Adding Non-English Enumerated Values for 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 P, “Enumeration Values,” on page 1255](#).

To add the non-English enum values:

- 1 Specify the JDBC connection settings in the `connection.prop` to connect to the Sybase database. The file is located in the following directory:

- ♦ **On NetWare or Windows:** `zenworks_directory\inv\server\wminv\properties`
- ♦ **On Linux:** `/etc/opt/novell/zenworks/inv`

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`

On the Inventory server, run the above command from the following directory:

- ♦ **On NetWare or Windows:** `zenworks_directory\inv\server\wminv\bin`
- ♦ **On Linux:** `/opt/novell/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, 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 password the 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 Sybase Database Spaces on NetWare, Windows, or Linux 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 7 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 following location:

- ♦ **On Windows:** *inventory_server_installation_directory\wminv\properties*
- ♦ **On Linux:** */etc/opt/novell/zenworks/inv*

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 Stop the Inventory database.
- 2 Stop the Inventory Service Manager that is 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 netware 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,

- ♦ On NetWare, enter `mgmtdb3=SYS: \ZENWORKS\ \INV\ \DB`
- ♦ On Windows, enter `mgmtdb3=C: \ZENWORKS\ \INV\ \DB`
- ♦ On Linux, enter `mgmtdb3=/opt/sybase/zenworks/inv/db`

- 5 Load the database.

- ♦ On NetWare, enter `mgmt dbs.`
- ♦ On Windows, run the database service.
- ♦ On Linux, enter `/etc/init.d/novell-zdm-sybase start.`

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

- 6 Make sure that the Database Location policy has been configured.
- 7 Start the Inventory Service Manager. For more information, see [“List of Services” on page 984.](#)
- 8 Stop the Storer service. For more information, see [“List of Services” on page 984.](#)
- 9 On the Inventory server console, run the AlterDBSpace service by entering the following command at the server prompt:
 - ♦ On NetWare or Windows: Enter `StartSer AlterDBSpace.`
 - ♦ On Linux: Go to `/opt/novell/bin`, then enter `StartSer AlterDBSpace.`

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

You will see a message that the database is adjusted.

10 Stop the Inventory Service Manager.

11 Exit the database and then load the database.

Make sure that while loading the database there are no errors. Errors indicate that the specified location of the database space files is incorrect or does not exist. Make sure 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 from the server. 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 950
- ♦ “Running Database Backup from ConsoleOne” on page 950
- ♦ “Restoring the Inventory Database” on page 951

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 [Section 73.5, “Configuring the Database Location Policy,” on page 974](#).
- ❑ The backup files are relative to the SCANDIR path. For example, if the SCANDIR path is `sys:\zenworks\inv\scandir`, the database will be backed up in `sys:\zenworks\inv\scandir\Backup` directory by default. To backup in another directory, in the [DBBackup Service] section of the server property file, you must modify the location of the backup destination in the ARGUMENTS parameter. For example, if the value of the ARGUMENTS parameter is changed to `""Backup\\day1""`, the database will be backed up in `sys:\zenworks\inv\scandir\backup\day1`.

NOTE: If the directory path is multi-level, enclose the value for ARGUMENTS in two double quotes and use `\\` instead of `\` as path separator.

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`.

IMPORTANT: When the properties file is modified, stop and start the inventory service for the modified property file to be loaded.

- ❑ 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\scandir\directory_you_specify`.

Database Backup creates a log file, `bacstatus.txt`, located in the `zenworks\inv\scandir` 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 interprets the double-byte characters as a different name, and backs 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 or Linux 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 is created in the `\winnt\system32` directory on Windows, and in the `root` directory on Linux.

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, `Backupst.txt`, located in the `ConsoleOne_installation_directory\1.2\bin` directory. 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.

73.2.2 Setting Up the Oracle Inventory Database

The following sections explain how to set up the Inventory database for Oracle9i and Oracle10g:

- ♦ “Creating the Oracle9i Inventory Database on a Windows Server” on page 952

- ♦ “Creating the Oracle9i Inventory Database on a UNIX Server” on page 954
- ♦ “Creating the Oracle10g Inventory Database on a Windows Server” on page 956
- ♦ “Creating the Oracle10g Inventory Database on a UNIX Server” on page 958
- ♦ “Manually Creating the Oracle Inventory Database Object” on page 960
- ♦ “Configuring and Running Multiple Oracle Database Instances on a Windows Server” on page 961

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

Creating the Oracle9i Inventory Database on a Windows Server

Make sure that the following prerequisites are met:

- ☐ Oracle 9.2.0.6 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 7 Companion 2 CD* to the schema directory:
 - `database\oracle9i\common`
 - `database\oracle9i\winnts\specific`
- 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 Make sure 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\schema.sql`.
Review the `c:\schema\inv.log` file to make sure that the database has been created successfully. If the database has not been successfully created, `inv.log` contains 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 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.

For more information about the list of attributes that contains enumerated values, see [Appendix P, “Enumeration Values,” on page 1255](#).

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 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;`

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

Review the `c:\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.

- 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 960](#).

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 7 Companion 2 CD* to the schema directory:


```
database\oracle9i\common
database\oracle9i\unixspecific
```
- 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.

On a Linux Inventory Server machine, Specify the JDBC connection settings in the `/etc/opt/novell/zenworks/inv/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`.

If your Inventory server is running on a Linux machine, run the above command from `/opt/novell/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.

Creating the Oracle10g Inventory Database on a Windows Server

Make sure that the following prerequisites are met:

- ☐ Oracle10g R1 or Oracle10g R2 must be installed on the server before configuring the Inventory database.
- ☐ To maintain the Inventory database on Oracle, Server 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`.
- 2** (Conditional) To create the Oracle10g R1 Inventory database, copy all the files in the following directories from the *ZENworks 7 Companion 2 CD* to the `c:\schema` directory:


```
database\oracle10gR1\common
database\oracle10gR1\winntspecific
```
- 3** (Conditional) To create the Oracle10g R2 Inventory database, copy all the files in the following directories from the *ZENworks 7 Companion 2 CD* to the `c:\schema` directory:


```
database\oracle10gR2\common
database\oracle10gR2\winntspecific
```
- 4** By default, `_create.sql`, `init.ora`, `_start.sql` are Read-only files. Make the files writable.
- 5** Create the `user_specified_path\zenworks\inventory\oracle\database\trace` directory structure.
- 6** In `c:\schema_create.sql`, replace all instances of `d:` with `user_specified_path`.
- 7** In `c:\schema\init.ora`, replace all instances of `d:` with `user_specified_path`.
- 8** 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.
- 9** Copy `c:\schema\init.ora` to `user_specified_path\zenworks\inventory\oracle\database`.
- 10** Copy `c:\schema_start.sql` to `user_specified_path\zenworks`.
- 11** Make sure that Oracle services are loaded correctly and the database is not mounted.
- 12** At the command prompt, enter `sqlplus /nolog` to load the Oracle server manager.
- 13** At the Oracle Server Manager prompt (sqlplus prompt), enter `@c:\schema\schema.sql`.
Review the `c:\schema\inv.log` file to make sure that the database has been created successfully. If the database has not been successfully created, `inv.log` contains the following error messages: Oracle not available, Out of space, Compilation error.
- 14** 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.

For more information about the list of attributes that contains enumerated values, see [Appendix P, “Enumeration Values,” on page 1255](#).

To add the non-English enum values:

14a On the Inventory Server machine, Specify the JDBC connection settings in the `connection.prop` file to connect to the Oracle database. The file is located in `zenworks_directory\inv\server\wminv\properties\` on Windows and in `/etc/opt/novell/zenworks/inv` on Linux.

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.

14b If your inventory server is running on a Windows machine, at the server prompt change to `zenworks_directory\inv\server\wminv\bin` and enter `AddEnums zenworks_directory\inv\server\wminv\properties`.

If your Inventory server is running on a Linux machine, at the server prompt change to `/opt/novell/bin/` and enter `AddEnums /etc/opt/novell/zenworks/inv`.

14c 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;`

15 At the sqlplus prompt, enter `@c:\schema\schema1.sql`.

Review the `c:\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.

16 At the sqlplus prompt, enter `connect / as sysdba` to login as DBA.

17 At the sqlplus prompt, enter `shutdown immediate;`

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

19 Continue with [“Manually Creating the Oracle Inventory Database Object” on page 960](#).

Creating the Oracle10g Inventory Database on a UNIX Server

NOTE: Information about Oracle 10g R2 is applicable only for ZENworks 7 with Support Pack 1

Make sure that the following prerequisites are met:

- ☐ Oracle10g R1 must be installed must be installed on Linux or Solaris versions supported by Oracle10g.
- ☐ 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).
- 3 (Conditional) To create the Oracle10g R1 Inventory database, copy all the files in the following directories from the *ZENworks 7 Companion 2 CD* to the `schema` directory:

```
Database\Oracle10gR1\Common
Database\Oracle10gR1\unixSpecific
```

- 4 (Conditional) To create the Oracle10g R2 Inventory database, copy all the files in the following directories from the *ZENworks 7 Companion 2 CD* to the `schema` directory:

```
Database\Oracle10gR2\Common
Database\Oracle10gR2\unixSpecific
```

- 5 By default, `_create.sql`, `init.ora`, `_start.sql` are Read-only files. Make the files writable.
- 6 Create the `user_specified_directory_path/zenworks/inventory/oracle/database/trace` directory structure in `/opt/oracle`.
- 7 In `schema/init.ora`, replace all instances of `$HOME` with `user_specified_directory_path`.
- 8 In `schema/_start.sql`, replace all instances of `$HOME` with `user_specified_directory_path`.
- 9 In `schema/_create.sql`, replace all instances of `$HOME` with `user_specified_directory_path`.
- 10 In `schema/schema.sql`, replace all instances of `$HOME` with the `schema` directory created in **Step 2**.
- 11 In `schema/schema1.sql`, replace all instances of `$HOME` with the `schema` directory created in **Step 2**.
- 12 Copy `schema/init.ora` to `user_specified_directory_path/zenworks/inventory/oracle/database`.
- 13 Copy `schema/_start.sql` to `user_specified_directory_path`.
- 14 Make sure the Oracle services are up and running and no database is mounted.

- 15 At the command prompt, enter `sqlplus /nolog` to load the Oracle Server Manager.
- 16 At the Oracle Server Manager prompt, enter `@$HOME/schema/schema.sql`, where `$HOME` is the schema directory created in [Step 2](#).
- 17 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` contains the following error messages: Oracle not available, Out of space, Compilation error.
- 18 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:

- 18a** On the Inventory Server machine, Specify the JDBC connection settings in the `connection.prop` file to connect to the Oracle database. The file is located in `zenworks_directory\inv\server\wminv\properties\on Windows` and in `/etc/opt/novell/zenworks/inv` on Linux.

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.

- 18b** If your inventory server is running on a Windows machine, at the server prompt change to `zenworks_directory\inv\server\wminv\bin` and enter `AddEnums zenworks_directory\inv\server\wminv\properties`.

If your Inventory server is running on a Linux machine, at the server prompt change to `/opt/novell/bin/` and enter `AddEnums /etc/opt/novell/zenworks/inv`.

- 18c** 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;`

- 19** 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.

- 20** At the sqlplus prompt, enter `connect / as sysdba` to login as DBA.
- 21** At the sqlplus prompt, enter `shutdown immediate;`
- 22** 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: Make sure 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 password the 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

Make sure that the following prerequisites are met:

- ☐ The ZENworks supported Oracle version 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_{tdb}.your_windows_nt/2000_name*
 - ♦ **SID:** By default, the value is *mgmt_{tdb}*.
- 4** Click *Finish*.

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

Make sure that the OracleServiceMGMTDB service is created and started.

- 5** Load the Inventory database.

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

Enter the following commands:

```
set instance mgmttdb
connect internal/password_for_administrator
```

73.2.3 Setting Up the MS SQL Server 2000 or MS SQL Server 2005 Inventory Database

This section provides information on the following topics:

- ♦ “Configuring the MS SQL Server 2000 Inventory Database” on page 962
- ♦ “Configuring the MS SQL Server 2005 Inventory Database” on page 965
- ♦ “Manually Creating the Inventory Database Object for MS SQL 2000 or MS SQL 2005” on page 968
- ♦ “Connecting the Inventory Server and ConsoleOne to the MS SQL 2000 or MS SQL 2005 Inventory Database” on page 970

Configuring the MS SQL Server 2000 Inventory Database

Prerequisites for configuring the database include the following:

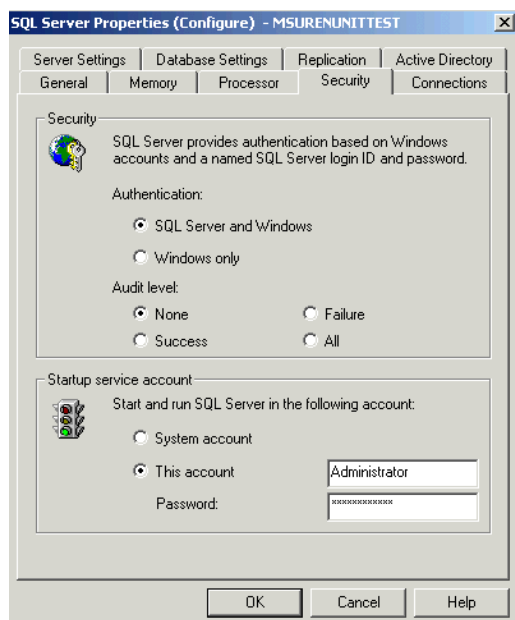
- ☐ Microsoft SQL Server 2000 installed on the Windows server.
- ☐ Minimum free disk space of 50 MB to extract the `p1mssqlinvdb.zip` file.
- ☐ Make sure that you have sufficient disk space to store the inventory information on the server that has the Inventory database.

To configure the Inventory database for MS SQL Server 2000:

- 1** Copy the `p1mssqlinvdb.zip` file from the *ZENworks 7 Companion 2* CD\database\mssql directory to *path_of_inventory_database_directory_on_the_database_server*.
- 2** Extract `p1mssqlinvdb.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 make sure that the authentication is set to SQL Server and Windows.

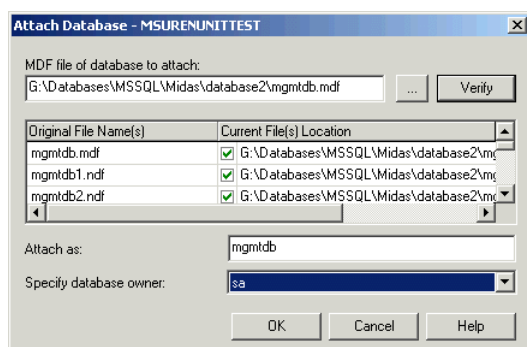
Description: The Security tab in the SQL Server Properties dialog box



- 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 Make sure 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.

Description: Attach Database dialog box



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

11 In the SQL Query Analyzer, do the following:**11a** Make sure that *mgmtdb* is selected in the drop-down list.**11b** Click *File*, then click *Open*.**11c** Select the *createloginnames.sql* query file from *ZENworks 7 Companion 2* CD\database\mssql directory.**11d** Click *Query*, then click *Execute*.

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

New Login Created

11e Log in 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
```

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 or you do not have permission”. 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 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.

For more information about the list of attributes that contains enumerated values, see

[Appendix P, “Enumeration Values,” on page 1255.](#)

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 Inventory Database Object for MS SQL 2000 or MS SQL 2005**” on page 968.

WARNING: Do not rename the mgmtdb database because it is set as the default database for the user account at login.

Configuring the MS SQL Server 2005 Inventory Database

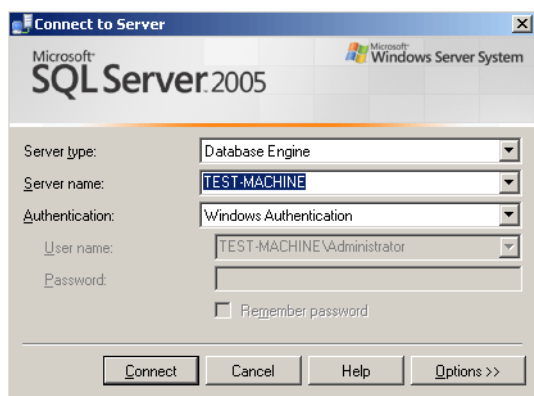
NOTE: Information about MS SQL 2005 is applicable only for ZENworks 7 with Support Pack 1.

Prerequisites for configuring the database include the following:

- ☐ Microsoft SQL Server 2005 installed on the Windows server.
- ☐ Minimum free disk space of 50 MB to extract the `p1mssqlinvdb.zip` file.
- ☐ Make sure that you have sufficient disk space to store the inventory information on the server that has the Inventory database.

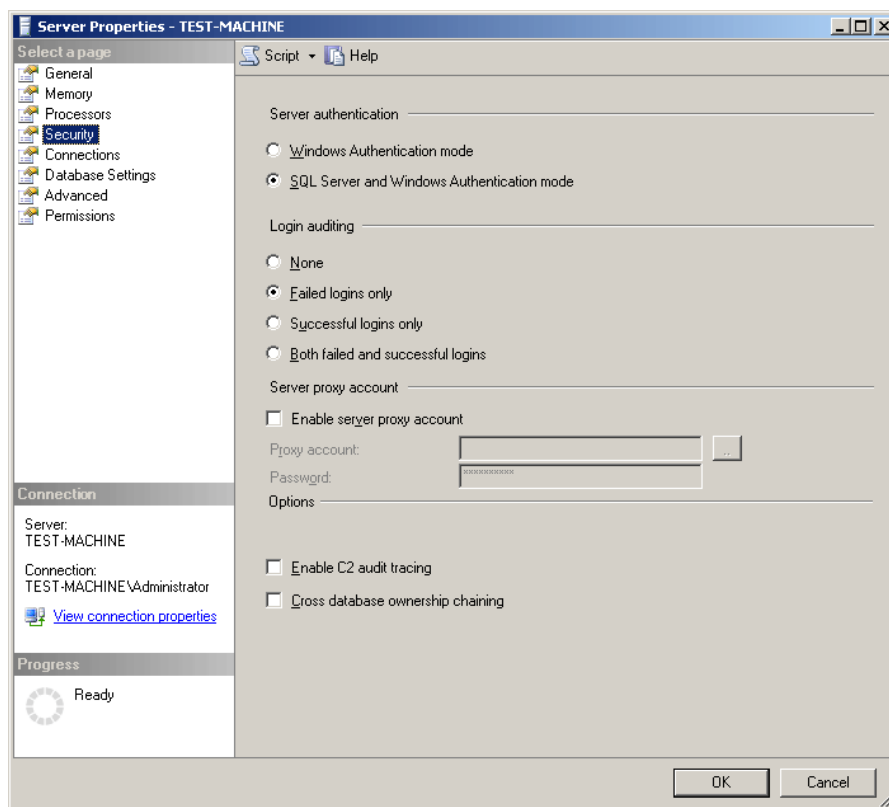
To configure the Inventory database for MS SQL Server 2005:

- 1 Copy the `p1mssqlinvdb.zip` file from the *ZENworks 7 Companion 2* CD\database\mssql directory to *path_of_inventory_database_directory_on_the_database_server*.
- 2 Extract `p1mssqlinvdb.zip`.
- 3 From the MS SQL server desktop *Start* menu, click *Programs*, click *Microsoft SQL Server 2005*, then click *SQL Server Management Studio*.
- 4 In the SQL Server Management Studio, connect to the Database Engine of the MSSQL Server by clicking on *File->Connect Object Explorer* and setting the properties.



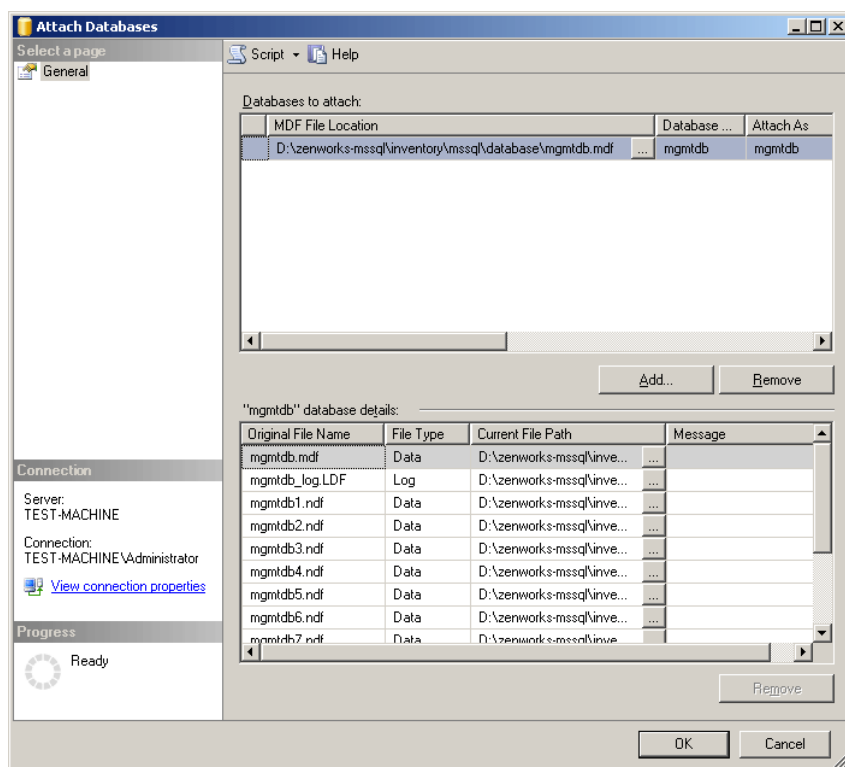
- 5 Browse to *machine_name_running_Inventory_database* in the Object Explorer, and right-click *machine_name_running_Inventory_database*, then click *Properties*.

- 6 In the SQL Server Properties dialog box, click the Security tab and make sure that the authentication is set to SQL Server and Windows.



- 7 Click OK.
- 8 Browse to *machine_name_running_Inventory_database/Database*, 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 *Add* button to browse to and select *mgmt.db.mdf* as the .mdf database file to be attached.
 - 9b Make sure that the value of the *Attach As* field is *mgmt.db*.
 - 9c Click *OK*.

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



9d Right-click *mgmtdb*, then select *New Query*.

9e In the SQL Query Analyzer, do the following:

9e1 Select the `createloginnames.sql` query file from *ZENworks 7 Companion 2* CD\database\mssql directory. Either drag and drop it on the opened query window or copy the contents of the sql file to the query window.

9e2 Click *Execute*.

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

9e3 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
```

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 or you do not have permission”. Ignore the error message.

9e4 Continue with “[Manually Creating the Inventory Database Object for MS SQL 2000 or MS SQL 2005](#)” on page 968

WARNING: Do not rename the mgmtldb database because it is set as the default database for the user account at login.

Manually Creating the Inventory Database Object for MS SQL 2000 or MS SQL 2005

NOTE: Information about MS SQL 2005 is applicable only for ZENworks 7 with Support Pack 1.

- 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: Make sure 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 password the 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 If you have installed ZENworks 7 Desktop Management, select *MSSQL*, then click the *Default Settings* button.

This populates the fields with default JDBC driver information.

The database settings for MS SQL 2000 are:

- ♦ **Driver:** *com.microsoft.jdbc.sqlserver.SQLServerDriver*
- ♦ **Protocol:** *jdbc:*
- ♦ **SubProtocol:** *microsoft:*
- ♦ **SubName:** *sqlserver://*
- ♦ **Port:** *1433*
- ♦ **Flags:** This field is not applicable for MS SQL 2000.
- ♦ **Database Service Name:** This field is not applicable for MS SQL 2000.

3g If you have installed ZENworks 7 Desktop Management and MS SQL 2000, select *MSSQL (2000)*, then click the *Default Settings* button.

This populates the fields with default JDBC driver information.

The database settings for MS SQL 2000 are:

- ♦ **Driver:** *com.microsoft.jdbc.sqlserver.SQLServerDriver*
- ♦ **Protocol:** *jdbc:*
- ♦ **SubProtocol:** *microsoft:*
- ♦ **SubName:** *sqlserver://*
- ♦ **Port:** *1433*
- ♦ **Flags:** This field is not applicable for MS SQL 2000.
- ♦ **Database Service Name:** This field is not applicable for MS SQL 2000.

3h If you have installed ZENworks 7 Desktop Management with Support Pack 1 and MS SQL 2005, select *MSSQL (2005)*, then click the *Default Settings* button.

This populates the fields with default JDBC driver information.

The database settings for MS SQL 2005 are:

- ♦ **Driver:** *com.microsoft.jdbc.sqlserver.SQLServerDriver*
- ♦ **Protocol:** *jdbc:*
- ♦ **SubProtocol:** This field is not applicable for MS SQL 2005.
- ♦ **SubName:** *sqlserver://*
- ♦ **Port:** *1433*
- ♦ **Flags:** This field is not applicable for MS SQL 2005.
- ♦ **Database Service Name:** This field is not applicable for MS SQL 2005.

3i Click *Apply*, then click *Close*.

- 4 Continue with “Connecting the Inventory Server and ConsoleOne to the MS SQL 2000 or MS SQL 2005 Inventory Database” on page 970.

Connecting the Inventory Server and ConsoleOne to the MS SQL 2000 or MS SQL 2005 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>).

NOTE: Skip to Step 5, if you have MS SQL 2005 as the database.

- 2 On a Windows Inventory server, do the following and then skip to **Step 4**:
 - 2a Install the driver.
 - 2b Copy the `msbase.jar`, `msutil.jar`, and `mssqlserver.jar` files to `inventory_server_installation_directory\inv\server\lib` directory.
- 3 On a Linux Inventory server, do the following and continue with **Step 4**:
 - 3a Extract `msbase.jar`, `msutil.jar`, and `mssqlserver.jar` from the downloaded Microsoft JDBC driver.
 - 3b Copy the `msbase.jar`, `msutil.jar`, and `mssqlserver.jar` files to the `/opt/novell/zenworks/java/lib/common` directory.
- 4 On the machine, running ConsoleOne with ZENworks 7 Inventory snap-ins, copy the `msbase.jar`, `msutil.jar`, and `mssqlserver.jar` files to the `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: Make sure 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 For MS SQL 2005, select *MS SQL (2005)*, 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:** Not applicable for MS SQL 20005
- ♦ **SubName:** *sqlserver://*
- ♦ **Port:** *1433*
- ♦ **Flags:** Not applicable for MS SQL 2005

- ♦ **Database Service Name:** Not applicable for MS SQL 2005

6h Click *Apply*, then click *Close*.

For more information on Performance tips, see [Section M.1, “Database Parameter Tuning Tips,” on page 1203](#).

73.3 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. For more information, see [Section 72.4, “Understanding the Inventory Server Roles,” on page 892](#).

Based on the new role you select, you will see a list of actions to be followed. For example, if you change the role of the Root Server to Root Server with Inventoried Workstations, you must configure the Workstation Inventory policy for the inventoried workstations that you have attached. Similarly, to change the role to any other server, follow the actions to make the new role change effective. For more information, see [Section 73.1.7, “Changing the Role of the Inventory Server,” on page 933](#).

Plan the change of roles carefully because these changes impact the existing inventory deployment.

Discard Scan Data Time: Select the date and 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 are discarded.

Scan Directory Path: Select the name of the volume on the Inventory server where you want to store the scan data files.

The Scan directory (*scandir*) path is the location on the Inventory server that stores the scan data files. The format of the Scan directory path is as follows:

inventory_server_name\volume_of_the_server_directory.

For a NetWare server, you cannot modify the Inventory server name specified in the Scan directory path. To modify the directory name, click *Browse* and select an existing directory.

For a Windows server, you cannot modify the Inventory server name specified in the Scan directory path. To modify the directory name, you must manually type it.

For a Linux server, you cannot modify the Inventory server name or the directory path specified in the Scan directory path of this property page. However, you can change the directory path using the *zeninvshares* script. For more information, see [Section 73.4, “Changing the ScanDir Path for a Linux Inventory Server,” on page 973](#).

Enable Scan of Machines: Select this option to specify hardware and software scanning of the inventoried workstations associated with this Inventory Service object. The scanners collect inventory information only if this option is enabled. By default, the scanners collect only hardware information for the inventoried workstations.

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 [Section 73.6, “Configuring the Workstation Inventory Policy,” on page 975](#).

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 To configure the software dictionary rules, click the *Software Inventory Configuration* tab. For more information on how to configure the software dictionary rules, see [Section 76.3, “Customizing the Software Inventory Information To Be Scanned For ZENworks 7 Inventoried Workstations,” on page 1051](#).
- 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. For more information on how to start the inventory service, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).

73.4 Changing the ScanDir Path for a Linux Inventory Server

You can change the scandir path for a Linux Inventory server using the zeninvshares script.

To change the scandir path:

- 1 At the Linux Inventory server prompt, execute the zeninvshares script by entering `/opt/novell/bin/zeninvshares`.
- 2 Enter the new scandir path.

NOTE: Do not choose a directory that might contain privileged information because this script grants everyone Read and Execute permissions to all the directories in the `scandir` path.

- 3 (Conditional) On the OES Linux Inventory server, you are prompted to enter the eDirectory administrator's name and password to assign the rights to the NCP shares.

After changing the scandir path, if your Linux Inventory server is running on OES, ensure that the following entry exists in `/etc/opt/novell/ncpserv.conf`:

```
VOLUME sys /usr/novell/sys
```

If the entry does not exist, you must manually add it to the file, and restart Novell eDirectory by entering `/etc/init.d/ndsd restart` at the Linux server prompt.

73.5 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 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 946](#).

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 951](#).

For an MS SQL database, you must configure the database object. For more information, see [“Setting Up the MS SQL Server 2000 or MS SQL Server 2005 Inventory Database” on page 962](#).

- 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 946](#).

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 951](#).

For an MS SQL database, you must configure the database object. For more information, see [“Setting Up the MS SQL Server 2000 or MS SQL Server 2005 Inventory Database” on page 962](#).

- 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 on how to start the inventory service, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).

73.6 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 4 or ZENworks for Desktops 4.0.1 is installed, click the *Software Scan* tab and configure the following settings. For more information, see [Section 76.4](#),

[“Customizing the Software Inventory Information To Be Scanned For ZENworks for Desktops 4.x and Earlier Versions of Inventoried Workstations,” on page 1099.](#)

IMPORTANT: Do not configure the settings for the inventoried workstations that have ZENworks 7 Desktop Management installed. To customize software scanning for workstations having ZENworks 7 Desktop Management installed, see [Section 76.3, “Customizing the Software Inventory Information To Be Scanned For ZENworks 7 Inventoried Workstations,” on page 1051.](#)

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 4 or ZENworks for Desktops 4.0.1 is installed. Do not configure the file for the inventoried workstations that have ZENworks7 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 [Section 76.4, “Customizing the Software Inventory Information To Be Scanned For ZENworks for Desktops 4.x and Earlier Versions of Inventoried Workstations,” on page 1099.](#)

- ♦ **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 1047.](#)
- ♦ **Zippped 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 1047.](#)
- ♦ **IBM Names:** Use this file to scan for IBM computer models. For more information how to configure this file, see [“Scanning for IBM Computer Models” on page 1046.](#)
- ♦ **HWRules:** Use this file to customize the information on nominal size of monitors. For more information on how to configure the hwrules.ini file, see

Section 76.2.5, “Customizing the Hardware Information for Monitor Size,” on page 1049.

- 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*.

73.7 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 suboption. If you want this policy to be applied on all servers, select the *General* suboption.
- 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: Make sure 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: Make sure 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 are 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 [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).

73.8 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 suboption. If you want this policy to be applied on all servers, select the *General* suboption.
- 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 select this check box, continue with [Step 9 on page 979](#). If you do not select this option, the Dictionary Update Service uses the following settings configured in this policy (Dictionary Update Policy); continue with [Step 4b on page 979](#).

NOTE: Do not select this option for a Standalone Server and a Root Server. You must manually configure the 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* suboption.
- 6** Configure the Dictionary Update Schedule page to establish the schedule for running the Dictionary Consumer.
We recommend that you configure the Weekly schedule.
- 7** Click *Apply*.
- 8** (Conditional) If you have not yet associated the Server Package, you are 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.

73.9 Setting Up Distribution of Dictionary

A software dictionary can be updated in the following ways:

- ♦ Manually download the latest version of the dictionary from TID 10093255 in the [Novell Support Knowledgebase \(http://www.novell.com/support\)](#) 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 \(http://www.novell.com/support\)](#) 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 \(http://www.novell.com/support\)](http://www.novell.com/support) 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, [Section 73.8, “Configuring the Dictionary Update Policy,” on page 978.](#)

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 newer, 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 \(http://www.novell.com/support\)](http://www.novell.com/support).
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 [Section 73.8, “Configuring the Dictionary Update Policy,” on page 978.](#)
3. For S1 and S2, you can either manually download the dictionary from the [Novell Support Web site \(http://www.novell.com/support\)](http://www.novell.com/support) 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 [Section 73.8, “Configuring the Dictionary Update Policy,” on page 978](#).

Understanding Workstation Inventory Components

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The following sections describe the Novell® ZENworks® 7 Workstation Inventory components and processes:

- ♦ Section 74.1, “Understanding the Inventory Service Manager,” on page 983
- ♦ Section 74.2, “Understanding the Server Configuration Service,” on page 986
- ♦ Section 74.3, “Understanding the Inventory Scanner,” on page 986
- ♦ Section 74.4, “Understanding the Sender and Receiver,” on page 992
- ♦ Section 74.5, “Understanding the TCP Receiver,” on page 996
- ♦ Section 74.6, “Understanding the Selector,” on page 997
- ♦ Section 74.7, “Understanding the Storer,” on page 999
- ♦ Section 74.8, “Understanding the Str Converter,” on page 999
- ♦ Section 74.9, “Understanding the Inventory Sync Service,” on page 1000
- ♦ Section 74.10, “Understanding Dictionary Provider and Dictionary Consumer,” on page 1001
- ♦ Section 76.7, “Removing Redundant Inventoried Workstations from the Inventory Database,” on page 1102
- ♦ Section 74.11, “Understanding the Upgrade Service,” on page 1001
- ♦ Section 74.12, “An Overview of the Inventory Components on an Inventory Server,” on page 1003
- ♦ Section 74.13, “Understanding the Inventory Database,” on page 1004

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

74.1 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 984
- ♦ “Services on NetWare Inventory Servers” on page 984
- ♦ “Services on Windows Servers” on page 985
- ♦ Section 74.1.4, “Services on Linux Inventory Servers,” on page 985

74.1.1 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.

74.1.2 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 displays the following message:

```
com.novell.zenworks.inventory.servercommonZENWorksInventoryService
Manager
```

- ♦ 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.

74.1.3 Services on Windows Servers

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 the Inventory service 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 *Start*.
- ♦ To start an Inventory service, go to the `installation_directory\inv\server\wminv\bin` directory, and 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, go to the `installation_directory\inv\server\wminv\bin` directory, and 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, go to the `installation_directory\inv\server\wminv\bin` directory, and 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 "*"`

- ♦ 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*.

74.1.4 Services on Linux Inventory Servers

- ♦ To start all Inventory services, do any of the following ways:
 1. At the Linux server prompt, go to `/etc/init.d`.
 2. Enter `./novell-zdm-inv start`.

Or

To start all Inventory services from any directory on Linux, enter

```
/etc/init.d/novell-zdm-inv start
```

- ♦ To start a specific Inventory service:
 1. At the Linux server prompt, go to `/opt/novell/bin`.
 2. Enter `StartSer Inventory_service`.

- ♦ To stop all Inventory services, do any of the following ways:
 1. At the Linux server prompt, go to `/etc/init.d`.
 2. Enter `./novell-zdm-inv stop`.

Or

To stop all Inventory services from any directory on Linux, enter

```
/etc/init.d/novell-zdm-inv stop
```

- ♦ To stop a specific Inventory service:
 1. At the Linux server prompt, go to `/opt/novell/bin`.
 2. Enter `StopSer Inventory_service`.

The following table lists the Workstation Inventory components installed on Linux whose status you can check by executing commands at the Linux console prompt.

Table 74-1 *Commands to check the status of the Workstation Inventory components installed on Linux*

Workstation Inventory Component	Command To Be Entered At the Linux Console Prompt
Inventory server daemon	<code>/etc/init.d/novell-zdm-inv status</code>
Sybase daemon	<code>/etc/init.d/novell-zdm-sybase status</code>
Inventory Proxy daemon	<code>/etc/init.d/novell-zen-zws status</code>

74.2 Understanding the Server Configuration Service

The Server Configuration Service performs the following tasks:

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

74.3 Understanding the Inventory Scanner

ZENworks 7 Desktop Management uses the Scanner to collect hardware and software information from Windows inventoried workstations.

The Scanner collects 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 987](#)
- ♦ [Section 74.3.2, “Types of Scan,” on page 987](#)
- ♦ [Section 74.3.3, “Scanning for the Hardware Inventory Information,” on page 988](#)
- ♦ [Section 74.3.4, “Scanning for the Software Inventory Information,” on page 989](#)
- ♦ [“Inventory Scanner Log Files” on page 992](#)

You can customize the hardware and the software information to be scanned. For more information, see [Section 76.2, “Customizing the Hardware Inventory Information To Be Scanned,” on page 1038](#) and [Section 76.3, “Customizing the Software Inventory Information To Be Scanned For ZENworks 7 Inventoried Workstations,” on page 1051](#).

74.3.1 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.

74.3.2 Types of Scan

You can perform the following types of scans:

- ♦ **Full Scan:** The Scanner enforces a complete scanning of the inventoried workstation. 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.
- ♦ **Delta Scan:** After the inventoried workstation is scanned, on subsequent scans, 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:** After a specified number of delta scans, the Scanner enforces a full scan of the inventoried workstations, associated with the Workstation Inventory policy. 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.

74.3.3 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 988
- ♦ “Windows Management Instrumentation (WMI)” on page 988
- ♦ “Probe” on page 989

For more information about the hardware information collected by the Inventory scanner, see [Appendix N, “Hardware Information Collected by the Inventory Scanners,” on page 1217](#).

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 scan for specific components that are instrumented on the inventoried workstation through DMI. The scanners 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 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 are 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.

74.3.4 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 989
- ♦ “Disk Usage” on page 990
- ♦ “File Information” on page 990
- ♦ “AntiVirus Definition Files” on page 991

Installed Software Information

The scanner collects software information from the following sources on the inventoried workstation:

MSI: Includes software that is installed on the inventoried workstations using the Microsoft Installer.

Add-Remove Programs: Includes software that is listed in the Add/Remove Programs window.

Dictionary-based scan: Includes software that is collected based on the software dictionary rules. For more information, see [Section 76.3, “Customizing the Software Inventory Information To Be Scanned For ZENworks 7 Inventoried Workstations,” on page 1051.](#)

Probe: Probe is a special built-in algorithm in the Inventory scanner. It 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 the ZENworks suite and its installed components.

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

Table 74-2 *Software Information collected by the Inventory Scanner*

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
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 [Section 76.3, “Customizing the Software Inventory Information To Be Scanned For ZENworks 7 Inventoried Workstations,”](#) on page 1051.

File Information

The scanner reports certain 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 [Section 76.3.10, “Configuring the Software Dictionary Rules,”](#) on page 1062

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 is installed on the inventoried workstations for the following product versions:

Symantec* AntiVirus Corporate Edition 8.0
 Symantec* AntiVirus Corporate Edition 9.0
 Symantec* AntiVirus Corporate Edition 10.0
 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

74.3.5 Inventory Scanner Log Files

Table 74-3 Location and brief description of the Inventory Scanner log files

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

74.4 Understanding the Sender and 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 993
- ♦ “Understanding the Receiver” on page 993
- ♦ “Understanding the Compressed Scan Data File” on page 994
- ♦ “Sender-Receiver Directories” on page 994
- ♦ Section 74.8, “Understanding the Str Converter,” on page 999

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.

74.4.1 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 [Section 74.12, “An Overview of the Inventory Components on an Inventory Server,” on page 1003](#) 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 994](#).

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 1195](#).

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.

74.4.2 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 [Section 74.12, “An Overview of the Inventory Components on an Inventory Server,” on page 1003](#) for a quick reference table of server components.

On a Standalone Server, the Receiver is not loaded.

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 1195](#).

74.4.3 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.

74.4.4 Sender-Receiver Directories

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

Table 74-4 List of directories used by Sender and Receiver

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.	--
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.

Server	Sender	Receiver	ENTMERGDIR	ENTPUSHDIR \\ZIPDIR	ENTPUSHDIR	DBDIR
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.

74.5 Understanding the TCP Receiver

The TCP Receiver is a Java component on the Inventory server that converts ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management residual .str and .zip files on the server and the .zip files received from lower-level ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management Inventory servers to the format required by the ZENworks 7 Desktop Management Inventory server. See [Section 74.12, “An Overview of the Inventory Components on an Inventory Server,” on page 1003](#) 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 4.x and ZENworks 6.5 Desktop Management Sender and places the file in the Receiver Conversion directory (entpushdir\recvconv).
3. The TCP Receiver converts the following ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management files into the format required by ZENworks 7 Desktop Management components:

Residual .zip files in \dbdir
 .str and .prp files in dbdir\temp
 Residual .zip files in \entpushdir
 Residual .str files in \entpushdir
 Residual .str files in \entmergedir

.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 1195](#).

The TCP Receiver uses the following directories:

- The TCP Receiver receives the ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management .zip files in `\entpushdir\recvconv` directory. The .zip files are converted to the ZENworks 7 Desktop Management format and copied to `\entpushdir\zipdir` directory. The Upgrade service copies the ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management residual .zip files in the `\dbdir` directory to the `\entpushdir\dbdirconv` directory. The .zip files are converted to the ZENworks 7 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 7 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 7 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 7 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 and ZENworks 6.5 Desktop Management format and copied to the `\entmergedir` directory.

74.6 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 [Section 74.12, “An Overview of the Inventory Components on an Inventory Server,” on page 1003](#) 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 4.x and ZENworks 6.5 Desktop Management 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 is 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 <code>.str</code> file to the database directory (dbdir)	Renames the <code>.str</code> file in the database directory (dbdir)	Renames the <code>.str</code> 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	--

4. 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.

5. The Selector logs the status in the Server log. For more information, see [“Monitoring Workstation Inventory Using Status Logs” on page 1195](#).

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

74.7 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 [Section 74.12, “An Overview of the Inventory Components on an Inventory Server,” on page 1003](#) 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:

1. The Storer reads the Startup configuration parameters from the Inventory Server Configuration Service.
2. The Selector places the `.str` files in `dbdir` and the Receiver places the `.zip` files in `dbdir`.
3. The Storer processes the `.str` files and `.zip` files alternately.
4. 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.
5. 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.
6. 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 1195](#).

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 4.x and ZENworks 6.5 Desktop Management `.str` files and `.zip` files similarly to how it processes the ZENworks 7 Desktop Management `.str` files. However, the Storer does not enforce a full scan if a processing error occurs during the conversion to `.str` files.

74.8 Understanding the Str Converter

The Str Converter is a Java component on the Inventory server that has workstations attached to it. The Str Converter converts the ZENworks for Desktops 4.x and ZENworks 6.5 Desktop

Management files to the ZENworks 7 Desktop Management format in order to support backward compatibility with ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management.

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 [Section 74.12, “An Overview of the Inventory Components on an Inventory Server,”](#) on page 1003.

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 4.x and ZENworks 6.5 Desktop Management `.str` files in `conv` directory.
3. The Str Converter converts the ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management `.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 7 Desktop Management `.str` files.

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

74.9 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* suboption.
- 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 does not remove these workstations. To remove these workstations, you must use the Inventory Removal Service. For more information, see [Section 76.7, “Removing Redundant Inventoried Workstations from the Inventory Database,” on page 1102](#).

74.10 Understanding Dictionary Provider and 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 newer, then the Dictionary Consumer downloads the file from the Dictionary Provider using XML-RPC as per the schedule.

74.11 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.x and ZENworks 6.5 Desktop Management database to ZENworks 7 Desktop Management database. For more information, see [“Inventory Database Migration” on page 1002](#).

2. Converts the ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management residue .str files to ZENworks 7 Desktop Management .str files. For more information, see [“Conversion and Movement of ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management Residue Files” on page 1002](#).

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 1002](#)
- ♦ [“Conversion and Movement of ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management Residue Files” on page 1002](#)

74.11.1 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 7 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 4.x and ZENworks 6.5 Desktop Management schema is migrated to the ZENworks 7 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.

74.11.2 Conversion and Movement of ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management Residue Files

The residue files are the ZENworks for Desktops 4.x and ZENworks 6.5 Desktop Management .str or .zip files that are collected before the ZENworks 7 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 7 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 7 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.

74.12 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.

Table 74-5 *Inventory components running on the Inventory server*

Server Component	Stand alone Server	Root Server	Root Server with Inventoried Workstations	Leaf Server with Database	Leaf Server	Intermediate Server	Intermediate Server 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
Database	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No

Server Component	Stand alone Server	Root Server	Root Server with Inventoried Workstations	Leaf Server with Database	Leaf Server	Intermediate Server	Intermediate Server with Database and Inventoried Workstations	Intermediate Server with Database	Intermediate Server with Inventoried Workstations
Dictionary Consumer and Dictionary Provider	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

74.13 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 1005](#).

Understanding the Inventory Database Schema

75

This section describes the design of the Novell® ZENworks® 7 Inventory database schema implemented using the Common Information Model (CIM) of the Distributed Management Task Force (DMTF). To understand this section 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:

- ♦ [Section 75.1, “Overview,” on page 1005](#)
- ♦ [Section 75.2, “CIM Schema,” on page 1006](#)
- ♦ [Section 75.3, “Inventory Database Schema in ZENworks 7 Desktop Management,” on page 1013](#)

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

75.1 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).

75.2 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.

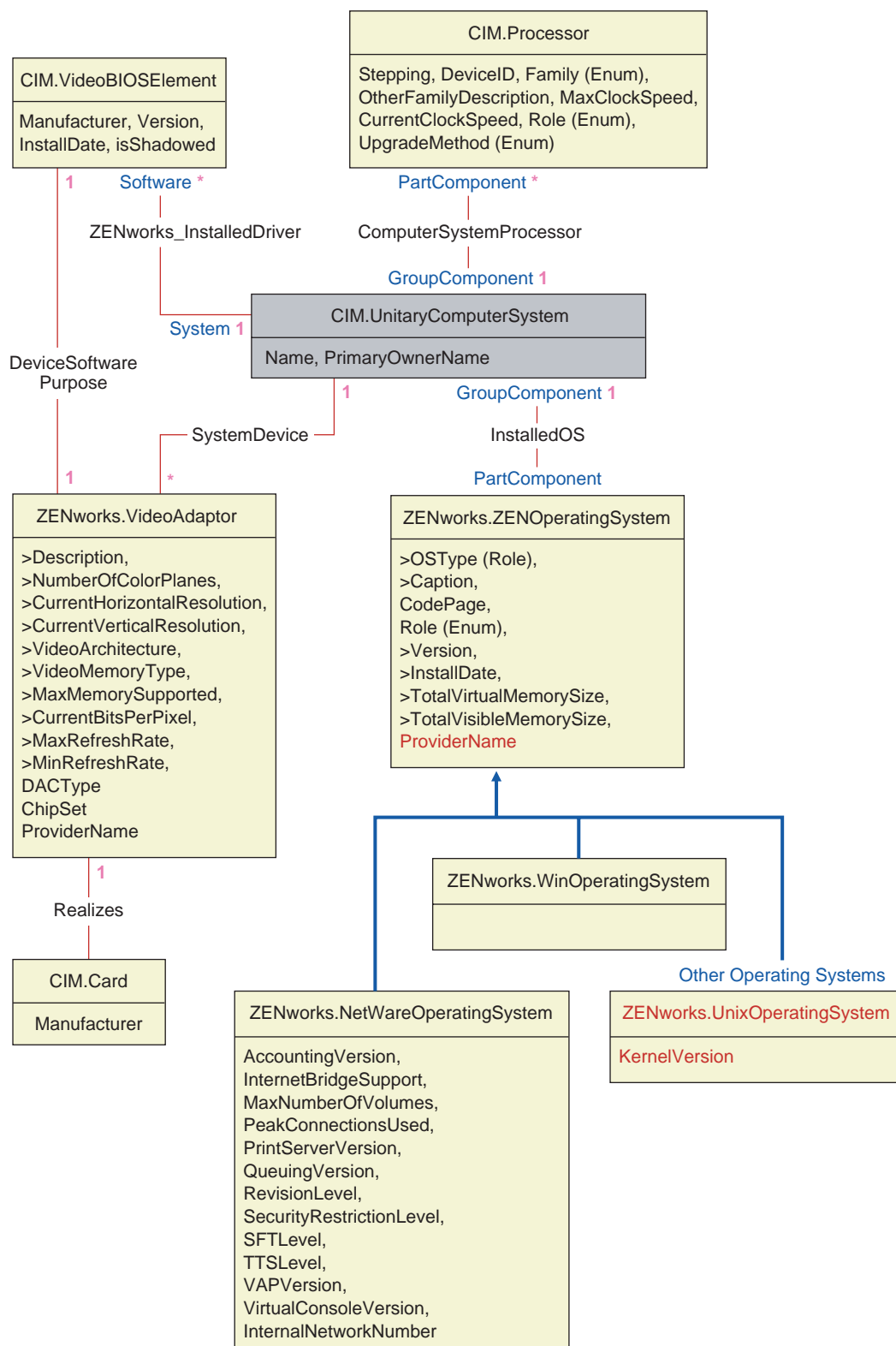
Classes can be arranged in a generalization hierarchy that represents subtype relationships between classes. The generalization hierarchy is a rooted, directed graph that does not support multiple inheritance.

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 7 Desktop Management uses.

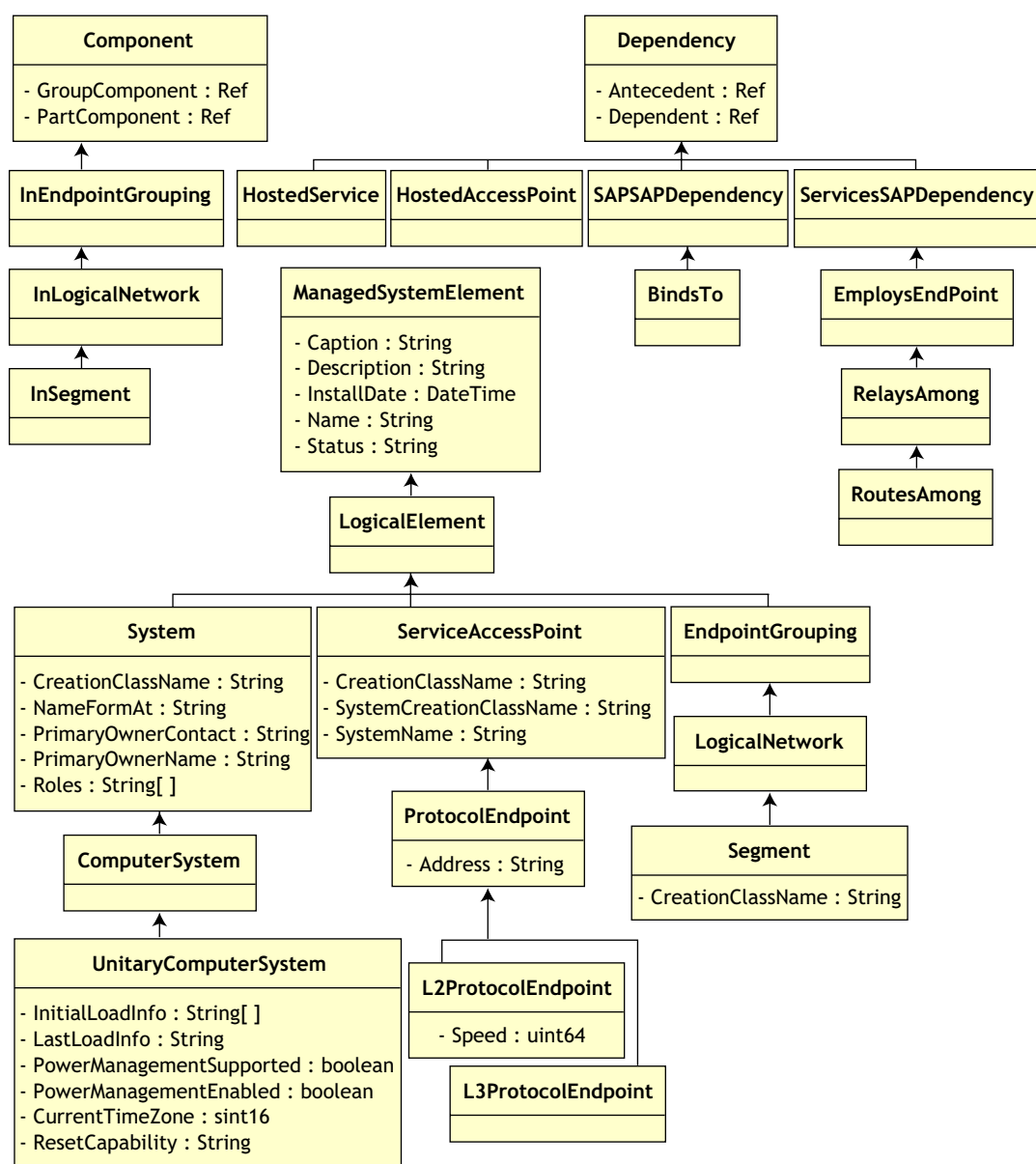
Description: The CIM schema as it maps to an RDBMS schema



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.

Description: The CIM 2.2 schema and its inheritance hierarchy



75.2.1 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 is a standard, this goal is not fully possible. Application software needs 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 describes 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.

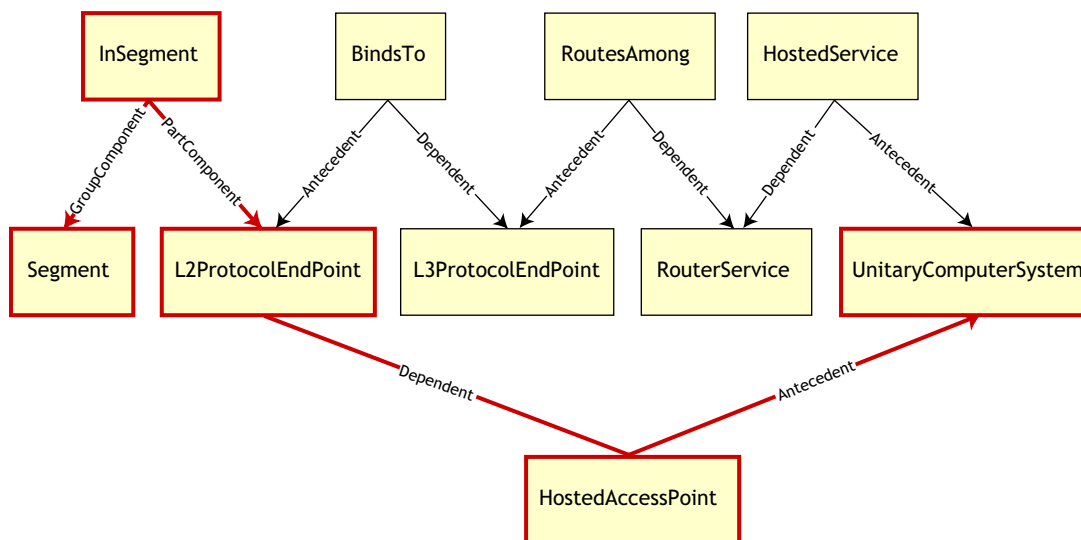
Associations are mapped in the same manner as regular classes, with a reference property being represented by a column with the `id$` field of the referenced object instance. Thus, associations can be traversed by doing a join between the reference field in the association and the `id$` field in the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

The following illustration depicts a typical query using this mapping:

Description: A query to find all computers on a network

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 1010
- ♦ “Physical Schema” on page 1012

75.2.2 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 7 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 1011
- ♦ “Users and Roles” on page 1011

- ♦ “Data Types” on page 1012
- ♦ “Views” on page 1012

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 7 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, make sure 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 UTF-8 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 7 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.

75.2.3 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.

75.3 Inventory Database Schema in ZENworks 7 Desktop Management

The following section describes the database schema classes and the extensions and associations made to the CIM schema for use in ZENworks 7 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 help you understand the ZENworks 7 Desktop Management database schema:

- ♦ “Case Study of CIM Schema Implementation in ZENworks 7 Desktop Management” on page 1013
- ♦ “Legends for Schema Diagrams” on page 1015
- ♦ “Schema Diagrams of CIM and the Extension Schema in ZENworks 7 Desktop Management” on page 1015
- ♦ “Custom Inventory Schema” on page 1023
- ♦ Section 75.3.6, “Sample Inventory Database Queries,” on page 1030

75.3.1 Case Study of CIM Schema Implementation in ZENworks 7 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

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 7 Desktop Management](#)” on page 1015.

75.3.2 Legends for Schema Diagrams

The legends for reading the schema diagrams are as follows:

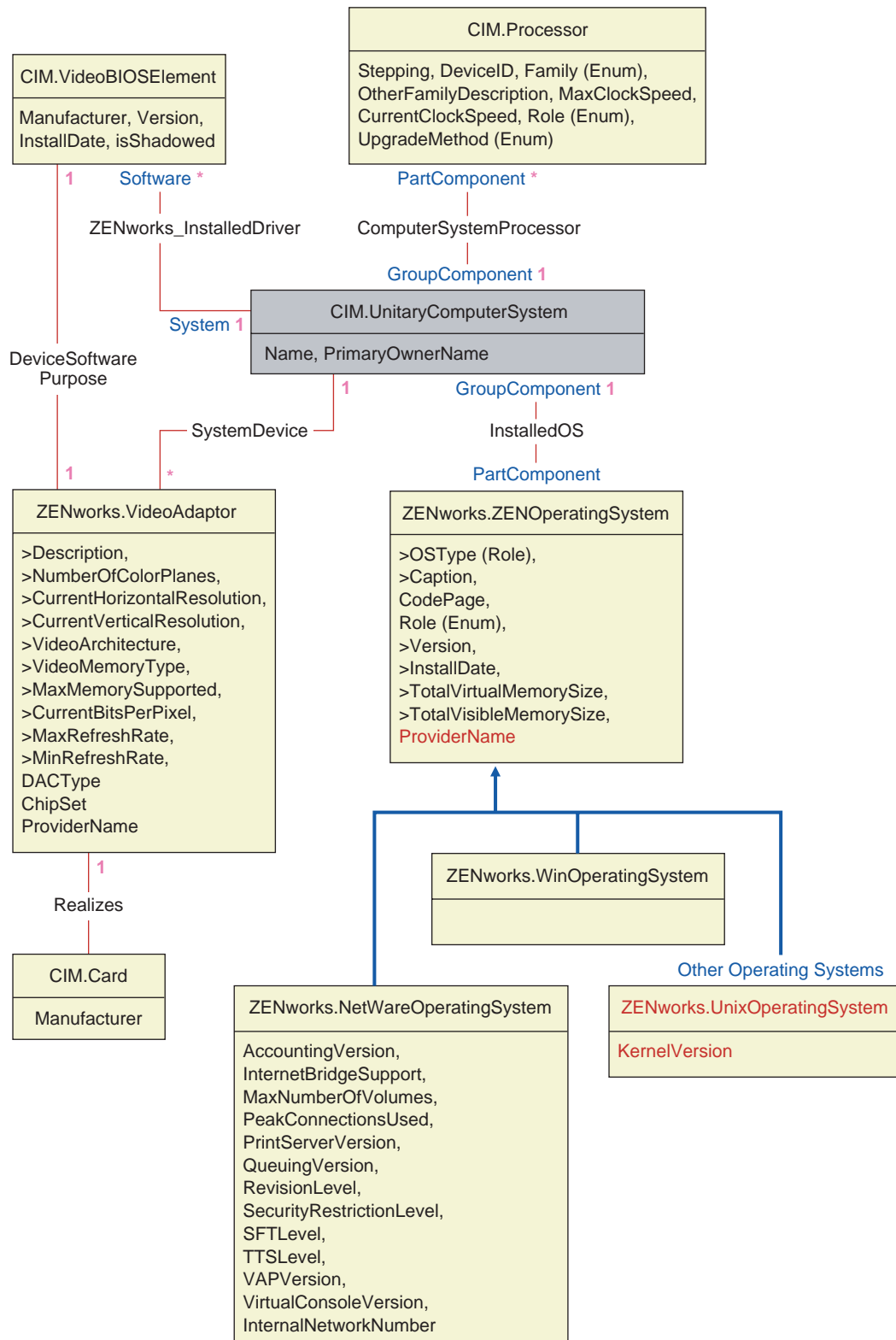
- ♦ Class names are enclosed in boxes with the class name as the heading and the attribute names within it.
- ♦ Red lines connect two classes using an association class.
- ♦ Blue lines indicate the class inheritance hierarchy. The class pointed by the arrow is the class that is being inherited from. 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).

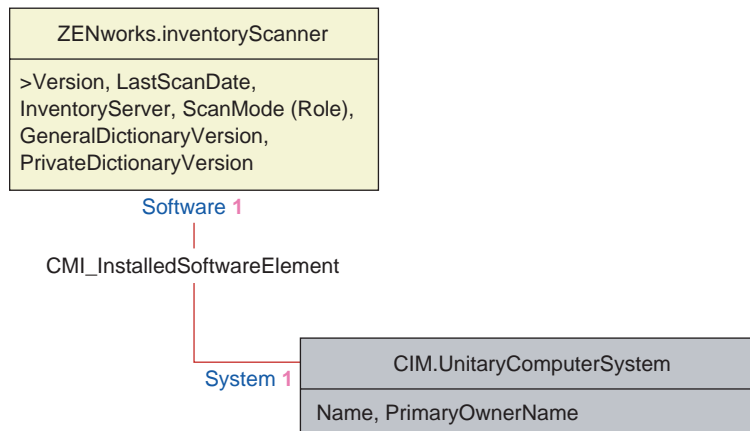
75.3.3 Schema Diagrams of CIM and the Extension Schema in ZENworks 7 Desktop Management

The following schema diagrams of the CIM and extension schema model the Inventory database in ZENworks 7 Desktop Management.

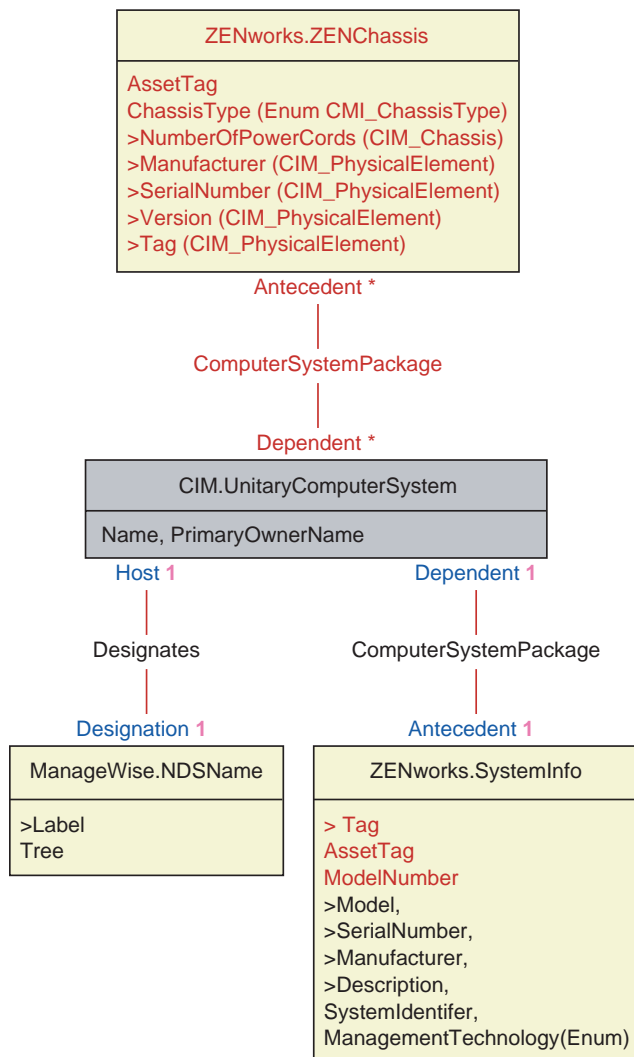
Description: Schema for Processor, Operating Systems, and Video Adapter



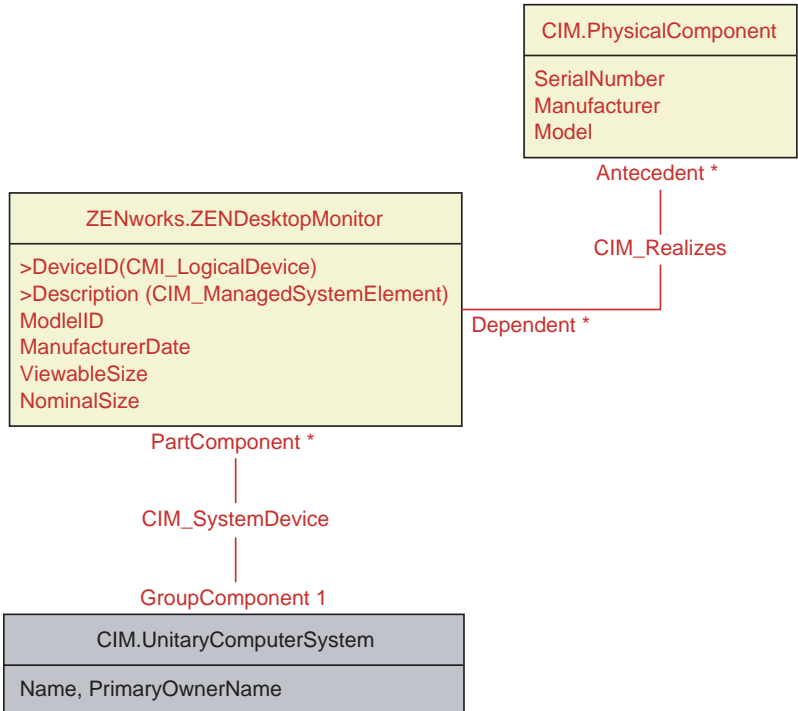
Description: Schema for Inventory Scanner and NetWare Client



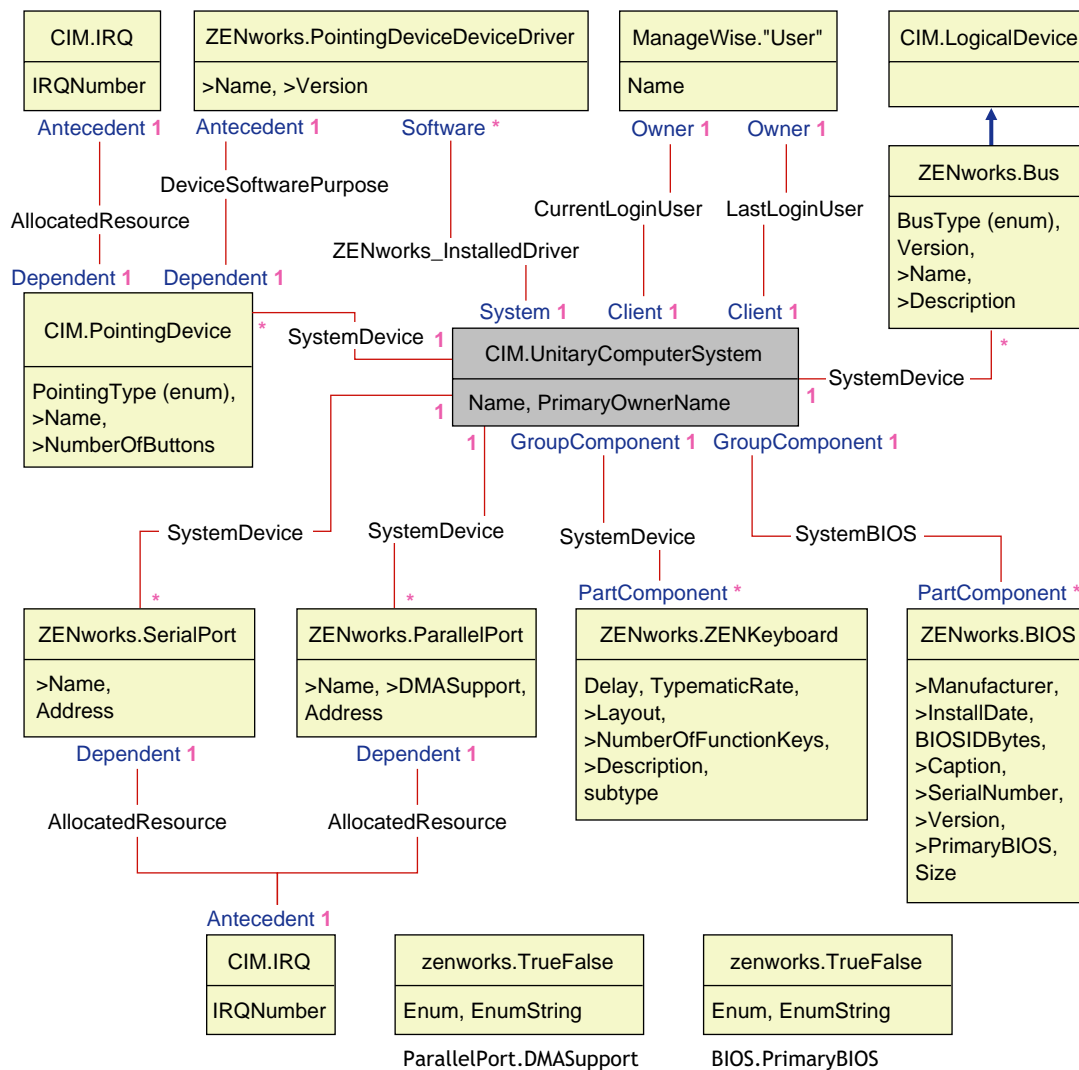
Description: Schema for Chassis and System Information



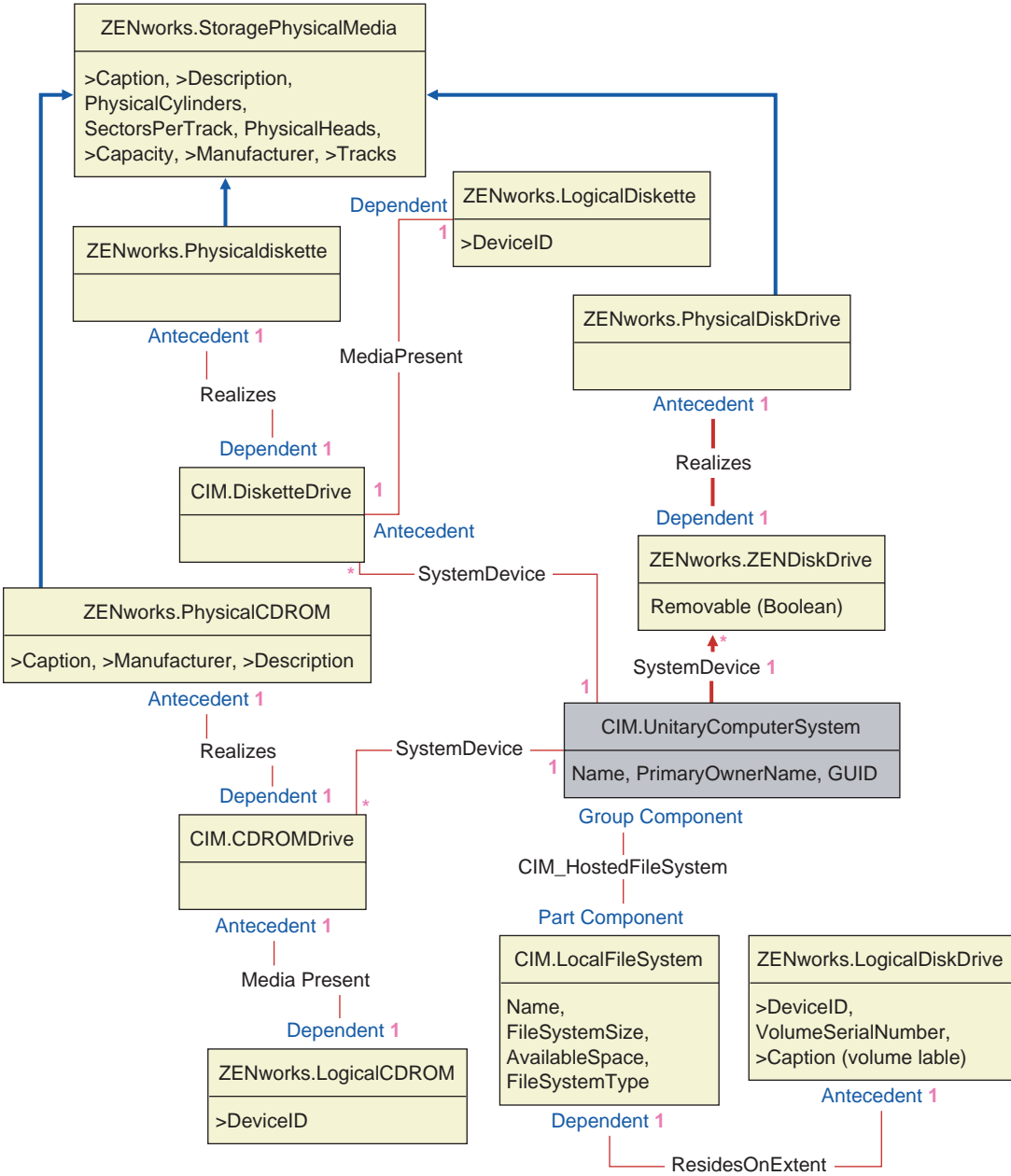
Description: Schema for Monitor



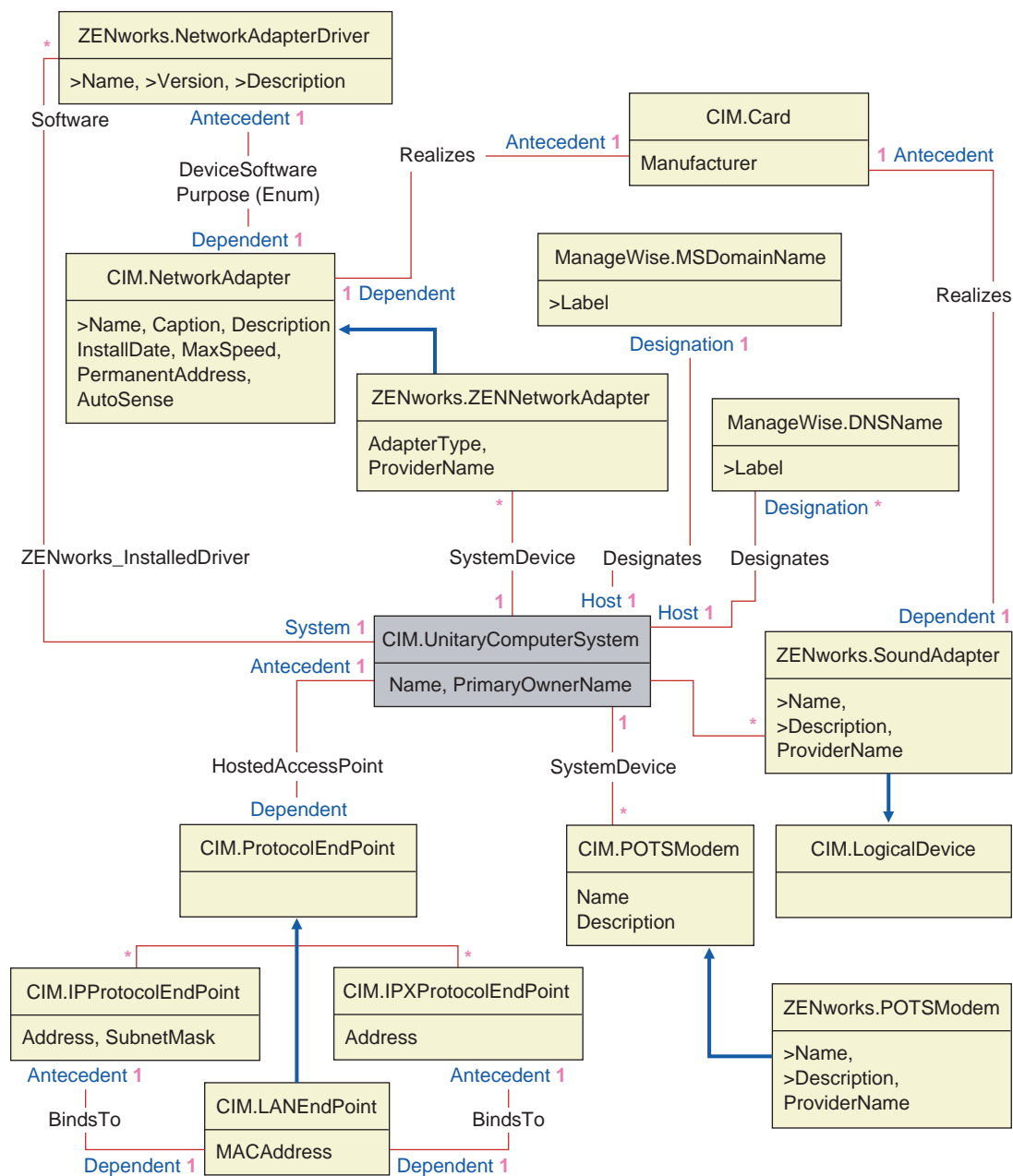
Description: Schema for Input devices, Port, Driver, User information, and BIOS



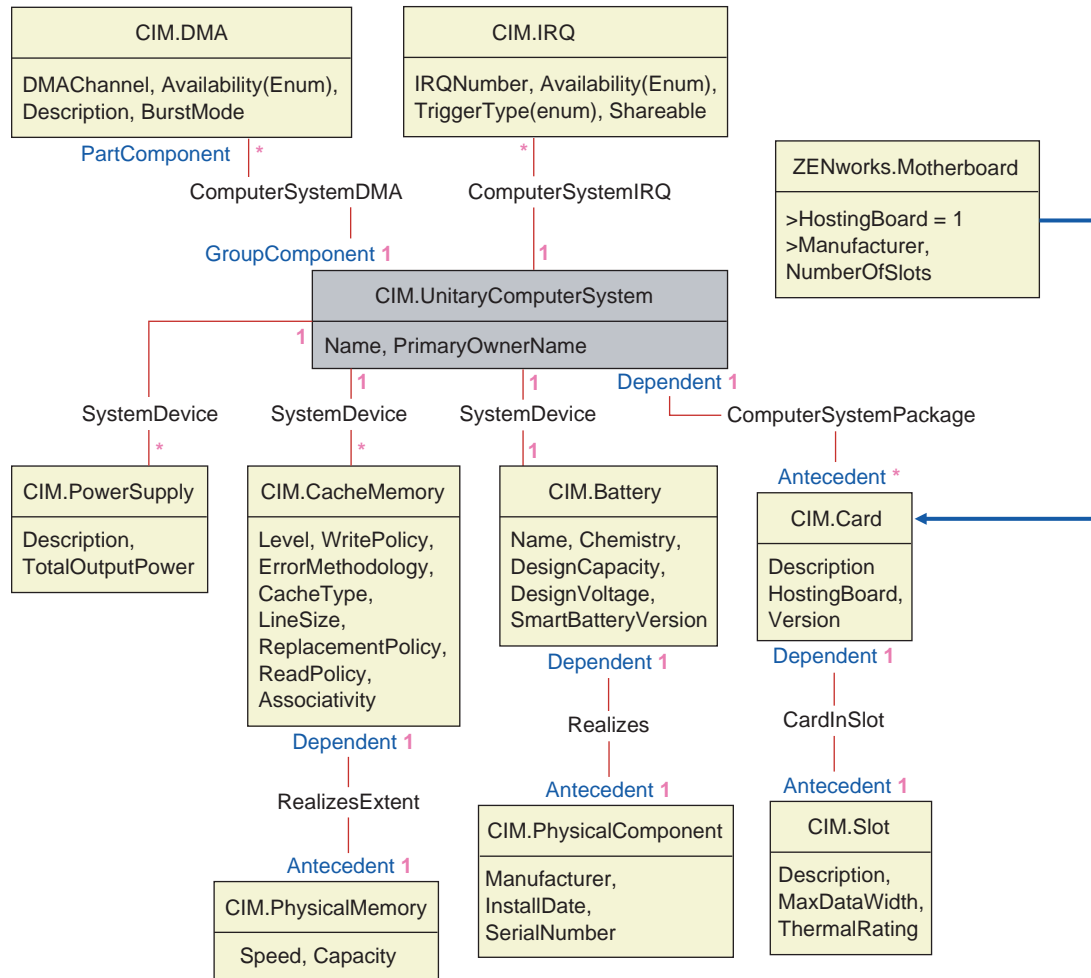
Description: Schema for Storage Media



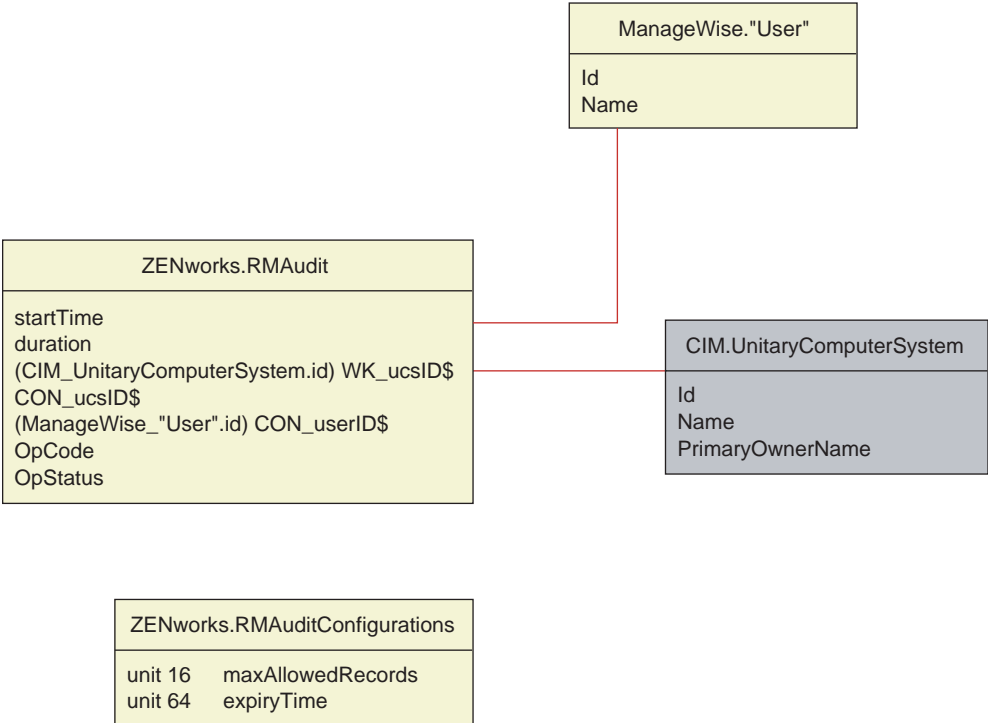
Description: Schema for Network, Modem, and Sound Adapter



Description: Schema for Battery, Card, Cache, Mother Board, and DMA



Description: Schema for Remote Management Audit



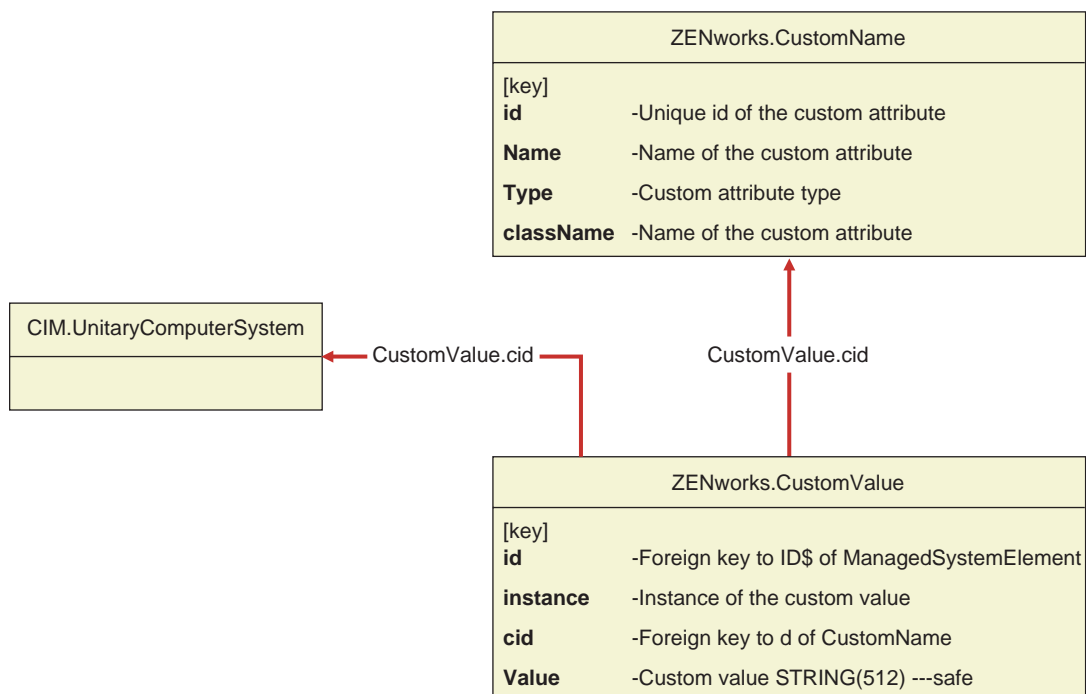
75.3.4 Custom Inventory Schema

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

Table 75-1 Qualifiers of Custom Inventory attributes

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 7 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 7 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.

Description: Schema for Custom Inventory



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.

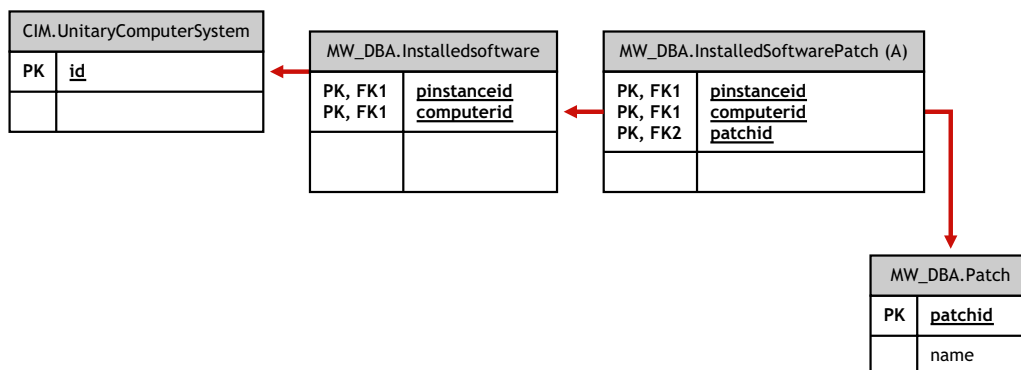
A sample Zenworks.CustomValue table is as follows:

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

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

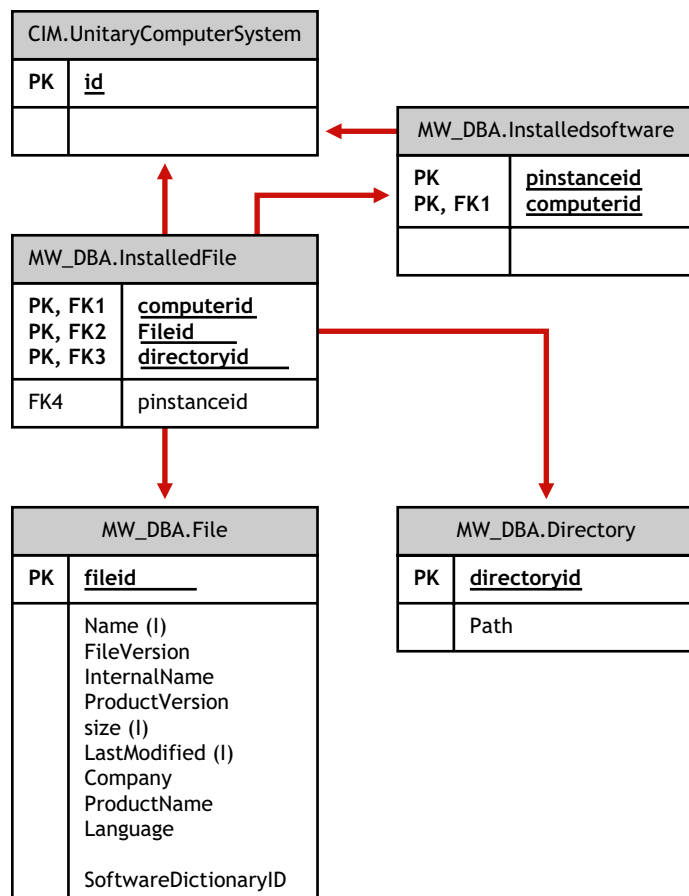
MW_DBA.InstalledVirusScanner inherits the software information from MW_DBA.InstalledSoftware along with virus specific information such as Definition date and Definition version.

Description: Schema for Software Patch



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.

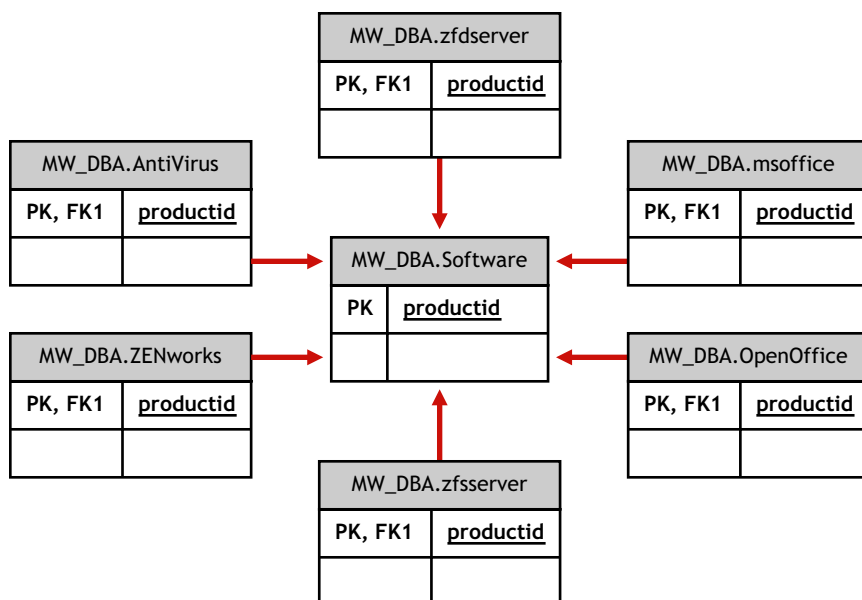
Description: Schema for File and Directory Information



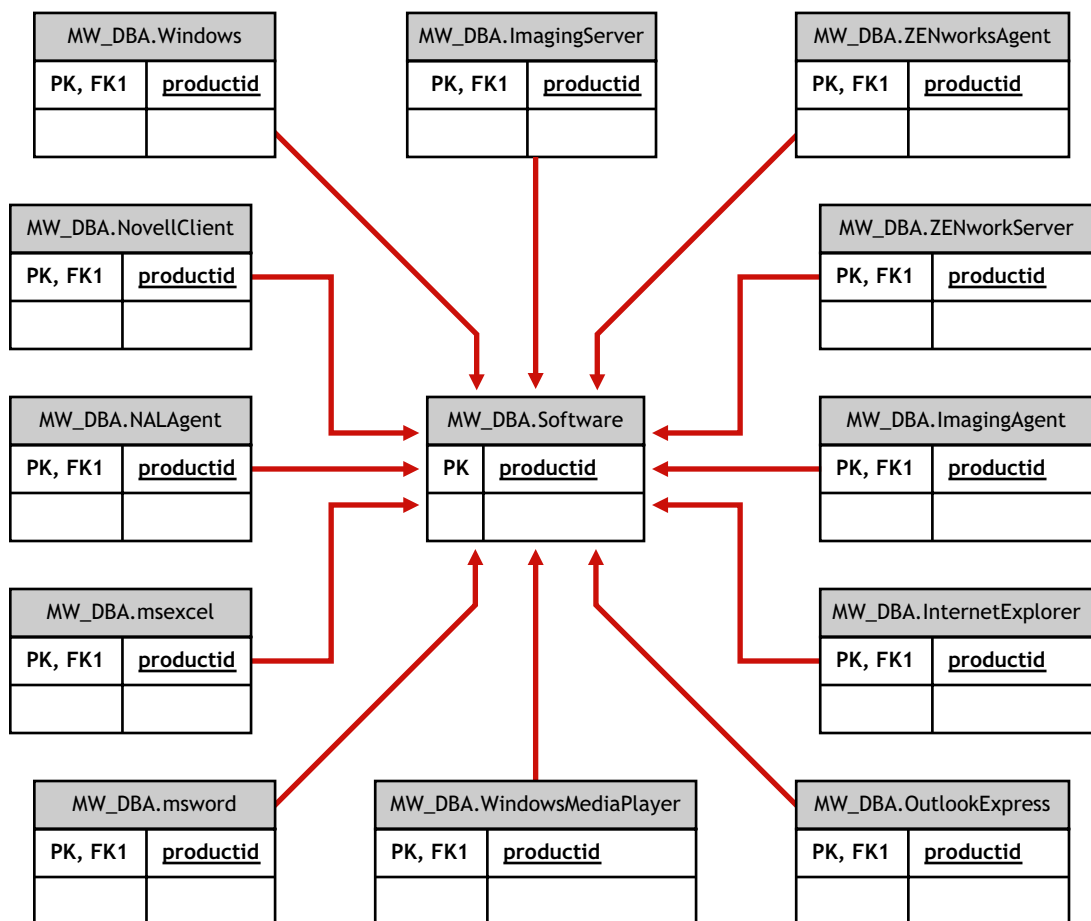
In the above illustration, class MW_DBA.File associates to MW_DBA.InstalledSoftware using the association MW_DBA.InstalledFile with MW_DBA.InstalledFile.pinstanceID pointing to MW_DBA.InstalledSoftware and MW_DBA.InstalledFile.fileID pointing to MW_DBA.File. The relationship between the two classes is 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.

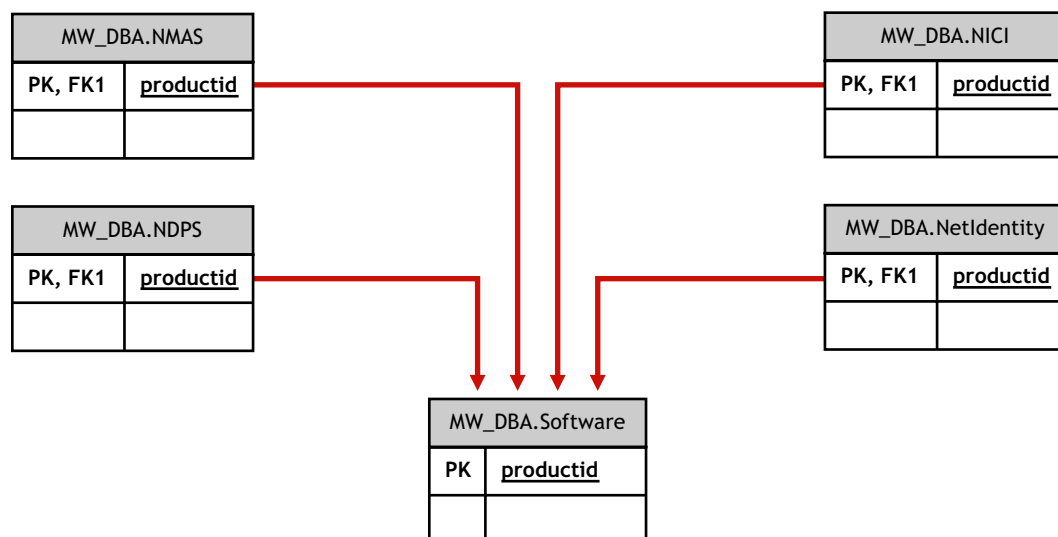
Description: Schema for Software Sub-classes



Description: Schema for Software Sub-classes



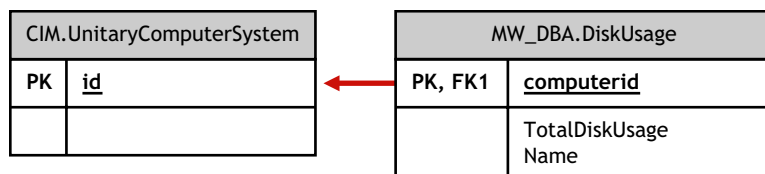
Description: Schema for Software Sub-classes



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.zfdnalserver	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.zfhaccesspoin	mw_dba.zfhdesktopsync	

Description: Schema for Disk Usage



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.

75.3.6 Sample Inventory Database Queries

The following are sample queries for retrieving the inventory information from the ZENworks 7 Desktop Management Inventory database.

Refer to the schema diagrams in “[Schema Diagrams of CIM and the Extension Schema in ZENworks 7 Desktop Management](#)” on page 1015 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 )
        )
    )

```

```
);
```

5. 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' ;
```

6. 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;
```

7. 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 components such as Windows Media Player,

Outlook Express, Microsoft Word, and Microsoft Excel. The complete set of these tables is 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' that 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 inventoried 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;

```

Managing Your Inventory System

76

This section contains the following information to help you customize the way Novell® ZENworks® 7 Workstation Inventory displays information:

- ♦ [Section 76.1, “Viewing the Servers Deployed for Inventory,” on page 1037](#)
- ♦ [Section 76.2, “Customizing the Hardware Inventory Information To Be Scanned,” on page 1038](#)
- ♦ [Section 76.3, “Customizing the Software Inventory Information To Be Scanned For ZENworks 7 Inventoried Workstations,” on page 1051](#)
- ♦ [Section 76.4, “Customizing the Software Inventory Information To Be Scanned For ZENworks for Desktops 4.x and Earlier Versions of Inventoried Workstations,” on page 1099](#)
- ♦ [Section 76.5, “Scanning for Workstations That Are Periodically Connected to the Network,” on page 1099](#)
- ♦ [Section 76.6, “Scanning for Workstations That Are Never Connected to Your Network,” on page 1099](#)
- ♦ [Section 76.7, “Removing Redundant Inventoried Workstations from the Inventory Database,” on page 1102](#)
- ♦ [Section 76.8, “Removing Duplicate Workstation Objects from the Inventory Database,” on page 1105](#)

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

76.1 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:

- 1 Log into all the Novell eDirectory™ trees that contain Inventory servers present in your inventory tree.
- 2 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:

- 1 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.

76.2 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 1038](#)
- ♦ [“Scanning for IBM Computer Models” on page 1046](#)
- ♦ [“Customizing the Hardware Scanning Information of Jaz, Zip, and Floppy Drive Vendors” on page 1047](#)
- ♦ [“Scanning for Vendor-Specific Asset Information from DMI” on page 1047](#)
- ♦ [Section 76.2.5, “Customizing the Hardware Information for Monitor Size,” on page 1049](#)

76.2.1 Customizing the Hardware Inventory Scanning of Inventoried Workstations

ZENworks 7 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 attribute 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 following table 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 P, “Enumeration Values,” on page 1255](#).

Table 76-1 *List of Inventory class and its regular attributes*

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
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

Inventory Class Name as Displayed in the Custom Attribute Editor Dialog Box	Inventory Class Name in the Inventory Database	Regular Attributes
Diskette Drive	Zenworks.ExtendedDiskette Drive	DisketteDeviceID, DisketteManufacture, DisketteDescription, DiskettePhysicalCylinders, DiskettePhysicalHeads, DisketteSectorsPerTrack, DisketteCapacity*
CDROM	Zenworks.ExtendedCDROM Drive	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
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*

Inventory Class Name as Displayed in the Custom Attribute Editor Dialog Box	Inventory Class Name in the Inventory Database	Regular Attributes
Monitor	Zenworks.ZENDesktopMonit or	DeviceID,Description,ManufacturerDate,Mo delID,ViewableSize,NominalSize,SerialNum ber,Manufacturer,Model
System Chassis	ZENworks.ZENChassis	ChassisType(+),Manufacturer,SerialNumber, AssetTag,Version,NumberOfPowerCords,Ta g

The following sections give information on the tasks you need to perform to do custom scanning:

- ♦ “Adding Custom Attributes” on page 1041
- ♦ “Using the Custom.ini File to Add Custom Attribute Values” on page 1041
- ♦ “Guidelines for Creating the CUSTOM.INI File” on page 1043
- ♦ “Viewing Custom Attributes and Custom Attribute Values” on page 1044
- ♦ “Custom Inventory Scanning Examples” on page 1044

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 *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.

NOTE: If custom attributes are used in Oracle Inventory database, the custom attribute name must be less than 10 characters.

- 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_dialo
```

```

gbox 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 the `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 [Section 73.6, “Configuring the Workstation Inventory Policy,” on page 975](#).

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 are 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 [Section 77.1.2, “Viewing the Inventory Summary of an Inventoried Workstation,”](#) on page 1114.

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.

76.2.2 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 is not 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 [Section 73.6, “Configuring the Workstation Inventory Policy,” on page 975](#).

- 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 is not displayed in the Inventory windows.

- 4 Click *OK*.

76.2.3 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 [Section 73.6, “Configuring the Workstation Inventory Policy,” on page 975](#).

- 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*.

76.2.4 Scanning for Vendor-Specific Asset Information from DMI

- 1 In the Workstation Inventory policy, click the *Configuration Editor* tab.

For more information, see [Section 73.6, “Configuring the Workstation Inventory Policy,” on page 975.](#)

2 Click the *Asset Information* suboption, then click *Set Defaults*.

The following entries are 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.

76.2.5 Customizing the Hardware Information for Monitor 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".

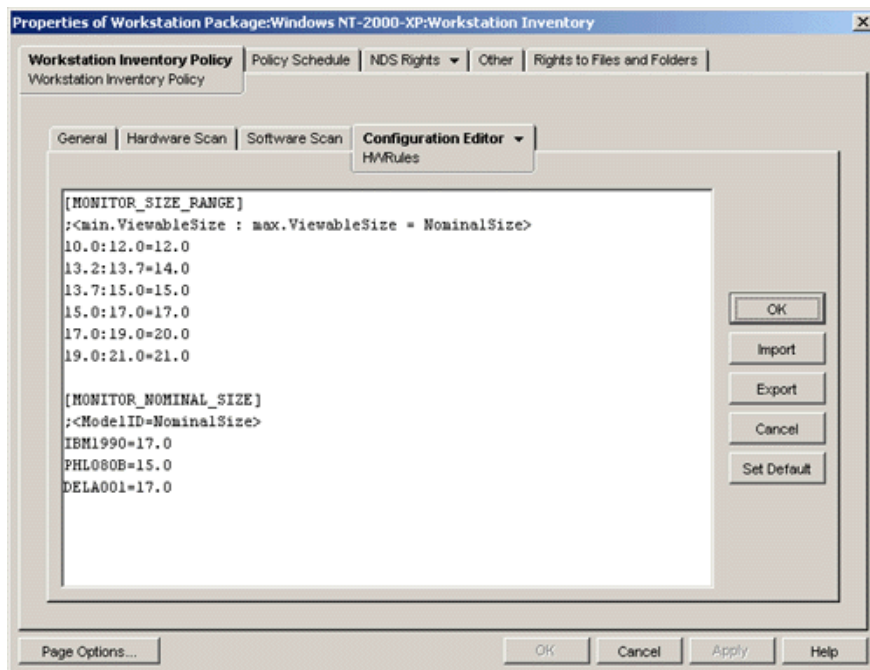
The Inventory scanner automatically scans for the viewable size of the monitor of Windows inventoried workstations. Using the Workstation Inventory policy, you can customize the nominal size of the monitor to be reported.

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* suboption.

Description: Configuring the HWRules.ini file in the Workstation Inventory dialog box



- 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.

76.3 Customizing the Software Inventory Information To Be Scanned For ZENworks 7 Inventoried Workstations

The Inventory scanner has been enhanced with the following features that enable you to control the scanning process more effectively and efficiently for inventoried workstations having ZENworks 7 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
 - ♦ The 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.
- ♦ It includes dictionary of software titles to provide more accurate report of Installed software.
- ♦ It provides rules to control the scope of software scan.
- ♦ It reports total disk usage against configured file extensions.

This section provides information on the following topics:

- ♦ [Section 76.3.1, “What is the ZENworks Software Dictionary?,” on page 1052](#)
- ♦ [Section 76.3.2, “What is a Software Dictionary Rule?,” on page 1052](#)
- ♦ [Section 76.3.3, “What is a Software Identifier?,” on page 1052](#)
- ♦ [Section 76.3.4, “What is a Key Identifier?,” on page 1053](#)
- ♦ [Section 76.3.5, “What is Unidentified Software?,” on page 1053](#)
- ♦ [Section 76.3.6, “What is an Inherited Rule?,” on page 1053](#)
- ♦ [Section 76.3.7, “What is an Overriding Rule?,” on page 1053](#)

- ♦ [Section 76.3.8, “Understanding the Usage and Precedence of ZENworks Software Dictionary Rules,” on page 1053](#)
- ♦ [Section 76.3.9, “Understanding the Software Dictionary Pattern Types,” on page 1061](#)
- ♦ [Section 76.3.10, “Configuring the Software Dictionary Rules,” on page 1062](#)
- ♦ [Section 76.3.29, “Disabling File Scan,” on page 1095](#)
- ♦ [Section 76.3.30, “Base-Lining the Software Dictionary Deployment,” on page 1096](#)
- ♦ [Section 76.3.31, “Viewing Software Information in the Inventory Summary,” on page 1097](#)
- ♦ [Section 76.3.32, “Generating Software Inventory Reports,” on page 1097](#)

76.3.1 What is the ZENworks Software Dictionary?

The 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: the General dictionary and the 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, [Section 76.3.10, “Configuring the Software Dictionary Rules,” on page 1062](#).

IMPORTANT: The rules that you define in the private dictionary override the predefined rules in the general dictionary.

76.3.2 What is a Software Dictionary Rule?

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

76.3.3 What is a Software Identifier?

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.

76.3.4 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.

76.3.5 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.

76.3.6 What is an Inherited Rule?

An inherited rule is an entry in the software dictionary that 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 7 Inventory server.

76.3.7 What is an Overriding Rule?

The default software identifier in the General dictionary cannot be modified. If you want to modify a default software identifier, you must create a new software identifier that overrides the default identifier. The inventory scanner ignores the default the default identifier in favor of the overridden entry.

To create a software identifier that overrides a default identifier, you must specify the same values for all the matching attributes defined in the default identifier and provide new values for the software information attributes.

76.3.8 Understanding the Usage and Precedence of ZENworks Software Dictionary Rules

The ZENworks software dictionary rules follow a precedence order. Some guidelines are applicable to all the software dictionary rules and some 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 1054**
- ♦ **“Precedence between Report Only Maximum Software Version and Report All Software Versions” on page 1054**
- ♦ **“Precedence of Software Dictionary Rules in the Software Scanning Category” on page 1054**
- ♦ **“Precedence of Software Dictionary Rules in the Disk Usage Scanning Category” on page 1058**

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 [Section 76.3.10, “Configuring the Software Dictionary Rules,” on page 1062](#).
- ♦ 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 only one user-defined software identifier can be used at a time to 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 in “Report All Software Versions”.

Precedence of Software Dictionary Rules 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 1081](#)
- ♦ [“Ignore File Extensions” on page 1080](#)
- ♦ [“Scan Directories” on page 1078](#)
- ♦ [“Ignore Directories” on page 1077](#)
- ♦ [“Scan Drives” on page 1077](#)
- ♦ [“Ignore Drives” on page 1076](#)
- ♦ [Section 76.3.20, “Software Scanning Filters - Software,” on page 1083](#)
- ♦ [Section 76.3.19, “Software Scanning Filters - Files,” on page 1081](#)

If you do not configure any of the rules mentioned above, the Inventory scanner scans for all files on the hard disk of the inventoried workstations. If the files have matching software identifiers in the software dictionary, the files are reported as identified software. Otherwise, they are reported as unidentified software.

If you configure the rules mentioned above, they take precedence in the following 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.

Figure 76-1 *Precedence of Software Dictionary rules in the Software Scanning category*

Description: Precedence of Software Scanning rules for the software to be reported as Identified software

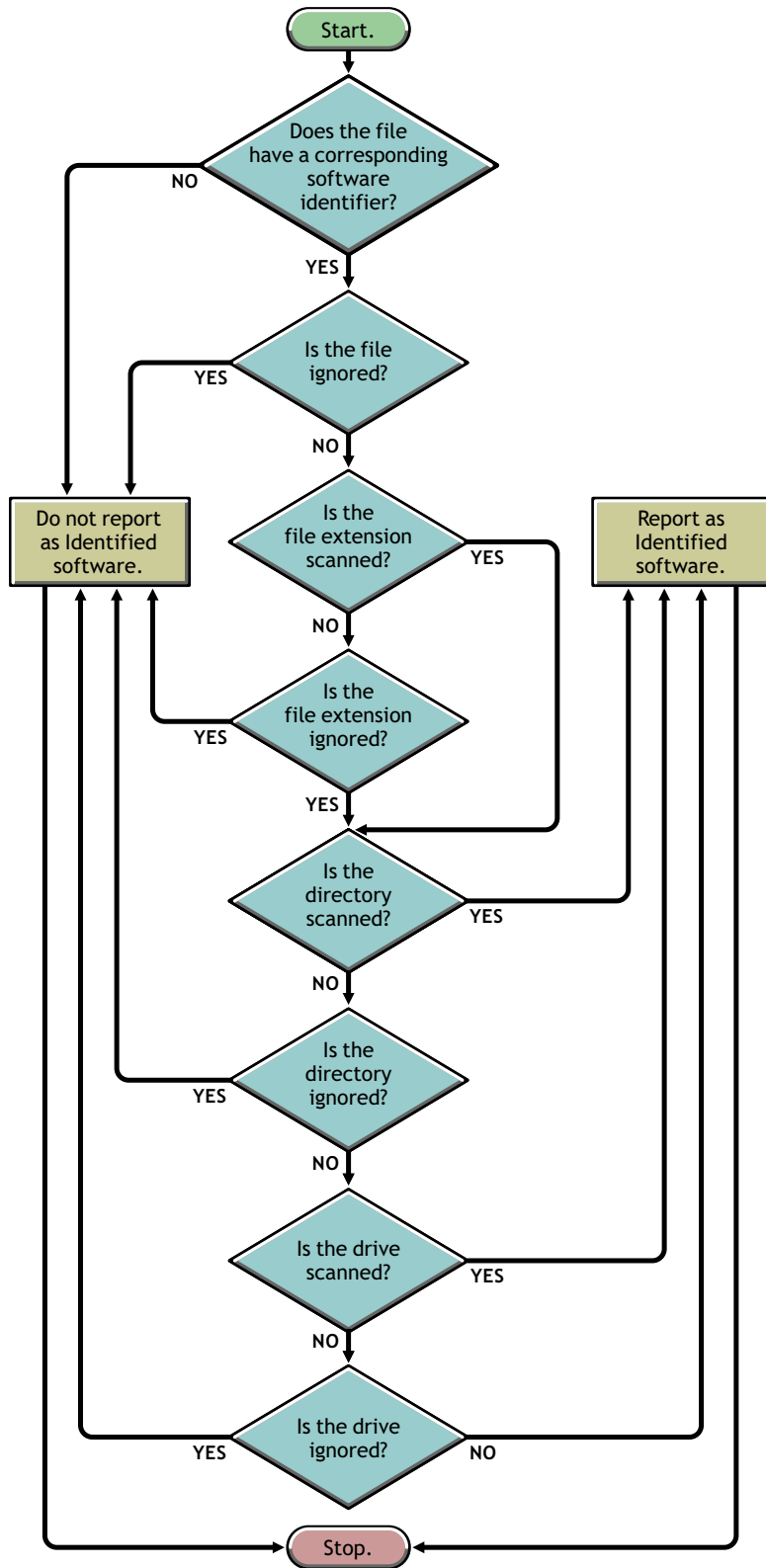
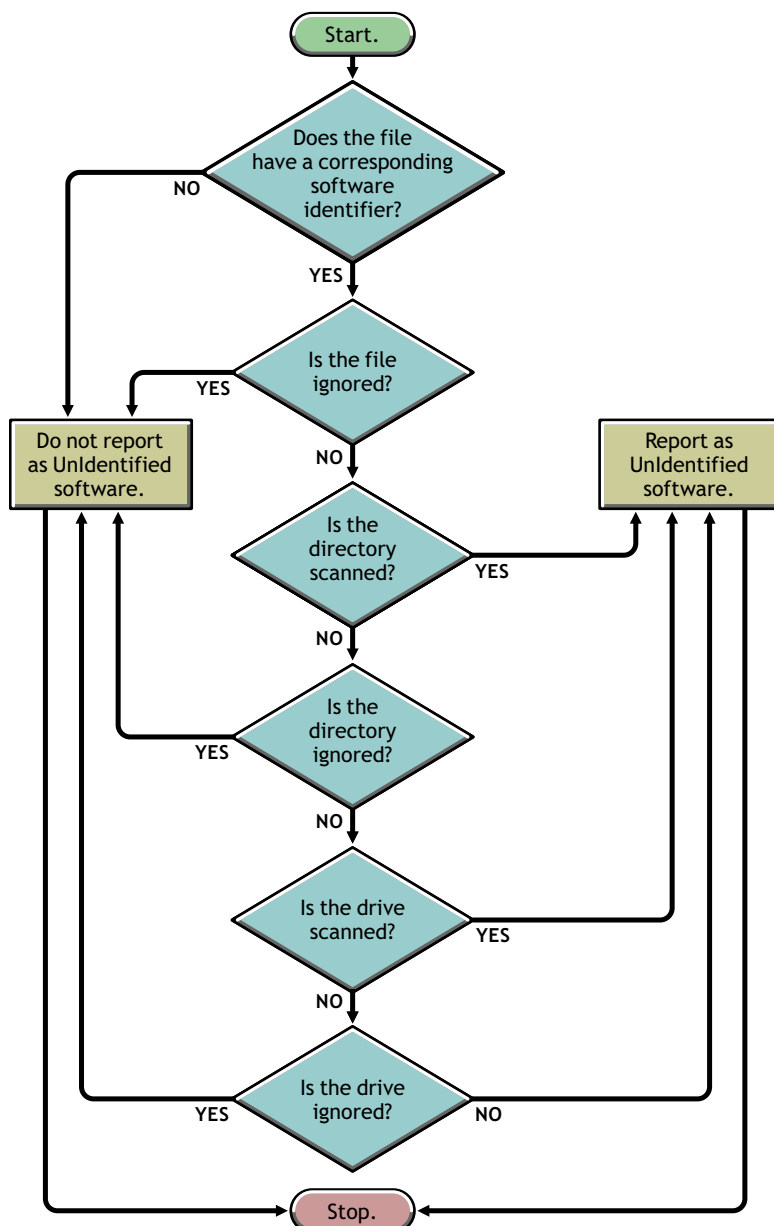


Figure 76-2 *Precedence of Software Dictionary rules in the Software Scanning category*

Description: Precedence of Software Scanning rules for the software to be reported as UnIdentified software



Precedence of Software Dictionary Rules 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:

- ♦ [Section 76.3.16, “Report Disk Space Used by File Extensions,” on page 1074](#)
- ♦ [Section 76.3.22, “Disk Usage Scanning Filters - Files,” on page 1089](#)

- ♦ “Scan Directories” on page 1088
- ♦ “Ignore Directories” on page 1087
- ♦ “Scan Drives” on page 1086
- ♦ “Ignore Drives” on page 1086

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.

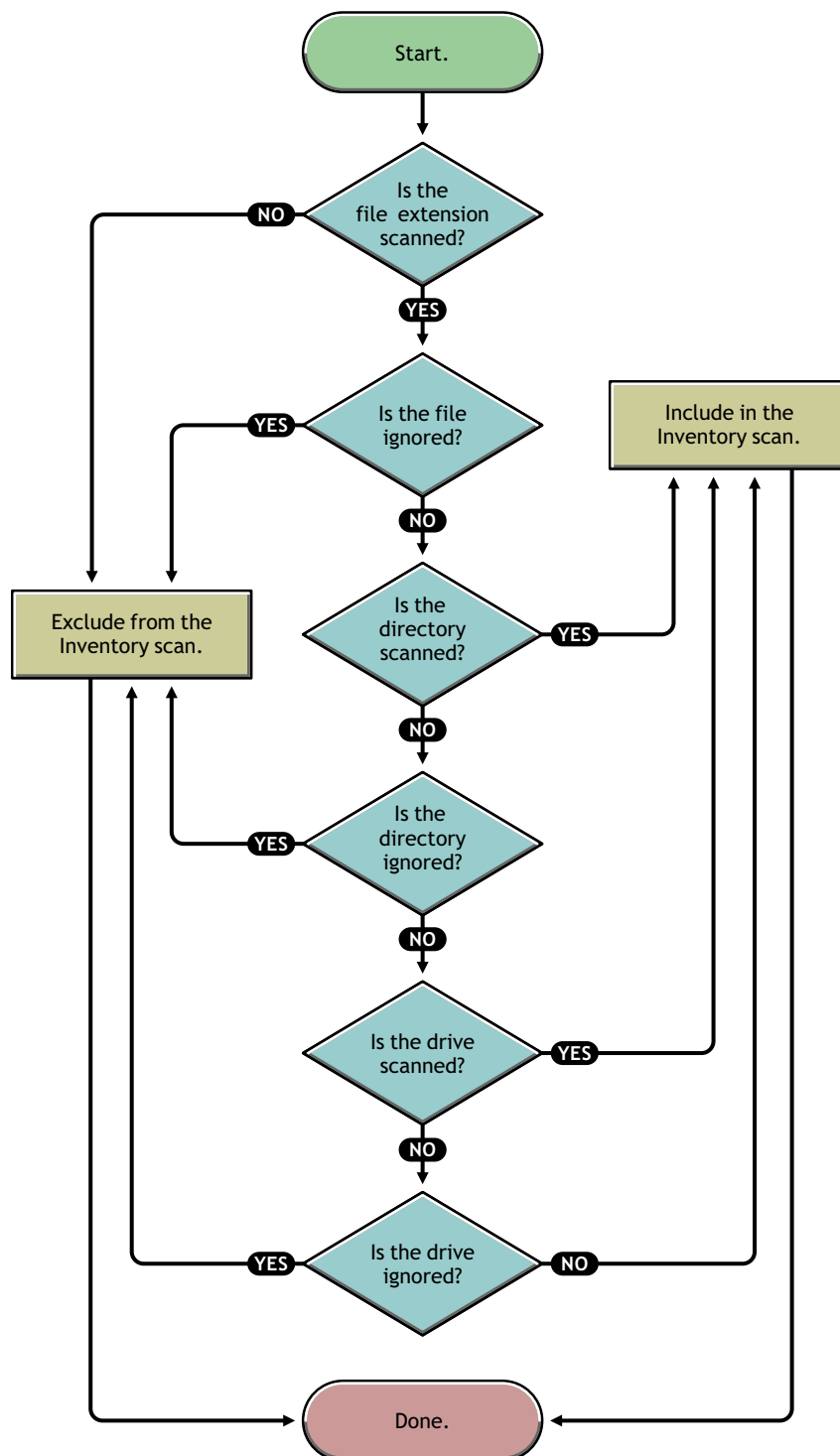
The following list indicates the precedence of rules in the descending order:

- ♦ 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.

Figure 76-3 Precedence of Software Dictionary rules in the Disk Usage Scanning category

Description: Precedence of Disk Usage Scanning rules



76.3.9 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 7:

- ♦ “Regular Expression” on page 1061
- ♦ “Expandable Expression” on page 1061
- ♦ “System Expandable Expression” on page 1061

Regular Expression

A 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 a name starting from A to C, and ending with E, specify `[A-C].*[E]`
- ♦ To find files whose name do 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

An 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 the 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 of displayable characters, references to environmental variables, or the asterisk (*) wildcard character, however, 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 the extensions, “.com”, specify com.

76.3.10 Configuring the Software Dictionary Rules

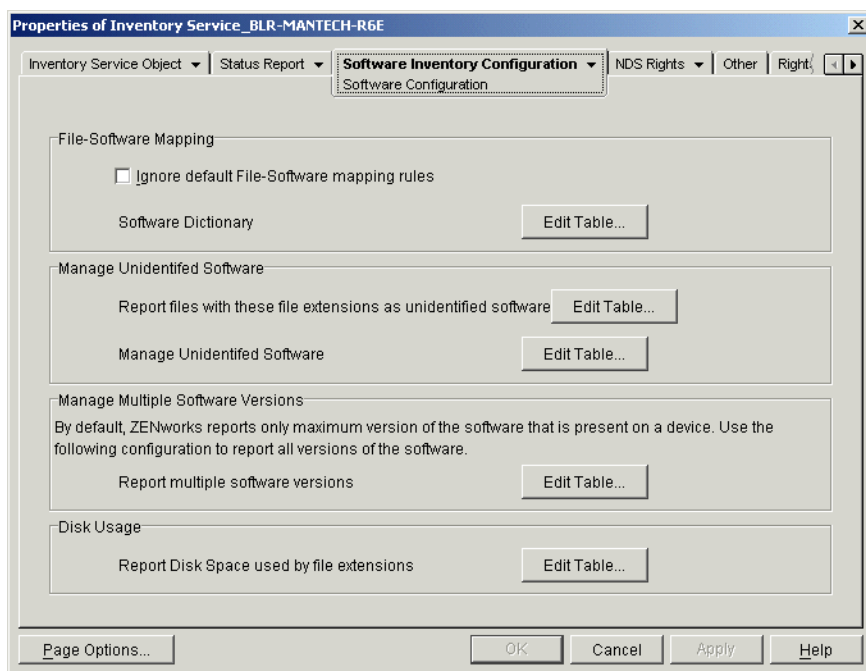
- 1 In ConsoleOne, right-click the Inventory Service object (Inventory Service_*server_name*), then click *Properties*.
- 2 Click the *Software Inventory Configuration* tab. The Software Configuration page is displayed by default.

You can configure the following settings to scan the software inventory information:

- ♦ **File - Software Mapping:** Includes the following rules:
 - ♦ [Section 76.3.11, “Ignore Default File-Software Mapping Rules,” on page 1065](#)
 - ♦ [Section 76.3.12, “Software Dictionary,” on page 1065](#)
- ♦ **Manage Unidentified Software:** Includes the following rules:
 - ♦ [Section 76.3.13, “Report Files with These File Extensions As Unidentified Software,” on page 1069](#)
 - ♦ [Section 76.3.14, “Manage Unidentified Software,” on page 1070](#)
- ♦ **Manage Multiple Software Versions:** Includes the following rule:
 - ♦ [Section 76.3.15, “Report Multiple Software Versions,” on page 1071](#)
- ♦ **Disk Usage:** Includes the following rule:
 - ♦ [Section 76.3.16, “Report Disk Space Used by File Extensions,” on page 1074](#)

IMPORTANT: Before configuring any ZENworks software dictionary rules, you must be aware of how to use these rules. For detailed information, see [Section 76.3.8, “Understanding the Usage and Precedence of ZENworks Software Dictionary Rules,” on page 1053](#).

Description: Software Configuration page

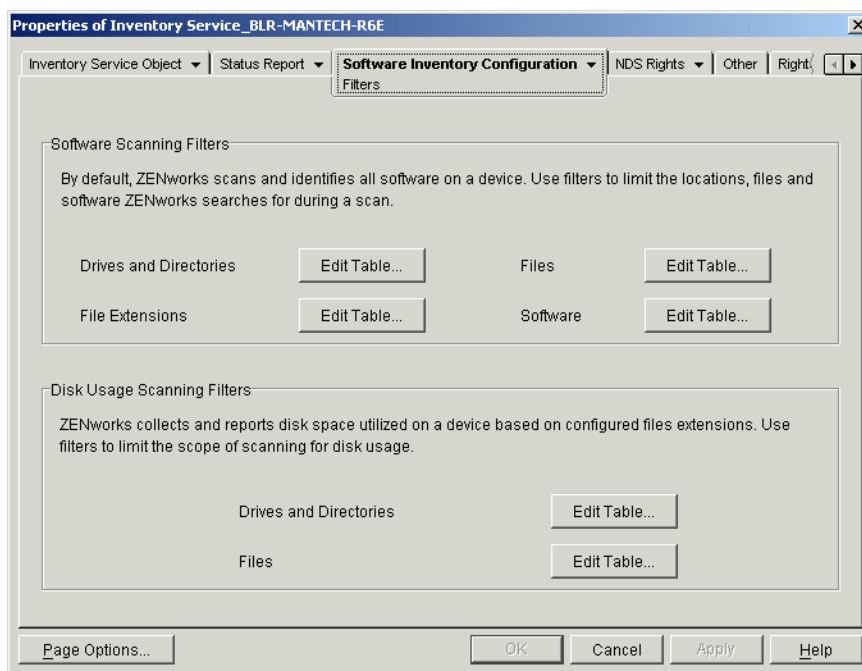


3 To control the scope of scanning for files, click the *Filters* page and configure the following settings:

- ♦ **Software Scanning Filters:** Includes the following filters:
 - ♦ [Section 76.3.17, “Software Scanning Filters - Drives and Directories,” on page 1075](#)
 - ♦ [Section 76.3.18, “Software Scanning Filters - File Extensions,” on page 1079](#)
 - ♦ [Section 76.3.19, “Software Scanning Filters - Files,” on page 1081](#)
 - ♦ [Section 76.3.20, “Software Scanning Filters - Software,” on page 1083](#)
- ♦ **Disk Usage Scanning Filters:** Includes the following filters:
 - ♦ [Section 76.3.21, “Disk Usage Scanning Filters - Drives and Directories,” on page 1084](#)
 - ♦ [Section 76.3.22, “Disk Usage Scanning Filters - Files,” on page 1089](#)

IMPORTANT: Before configuring any ZENworks software dictionary rules, you must be aware of how to use these rules. For detailed information, see [Section 76.3.8, “Understanding the Usage and Precedence of ZENworks Software Dictionary Rules,” on page 1053](#)

Description: Filters page



4 Click the *Aliases* page to configure the following options:

- ♦ **Specify Aliases:** Allows you to configure aliases for vendor and software names.

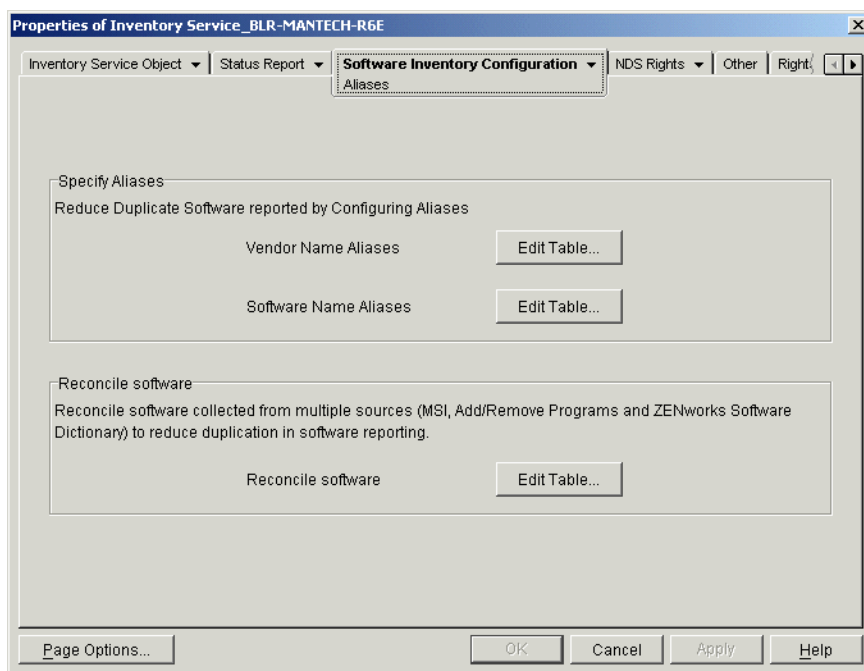
By default, the software information is categorized by vendor name in the Inventory ConsoleOne utilities. The software from the same vendor might sometimes have differing vendor names or product names. In this scenario, the Inventory ConsoleOne utilities display the software information under different sections.

However, you can merge the software information by specifying aliases. You customize these settings in the following software dictionary rules:

- ♦ **Section 76.3.23, “Vendor Name Aliases,”** on page 1090
- ♦ **Section 76.3.24, “Software Name Aliases,”** on page 1092
- ♦ **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 **Section 76.3.25, “Reconcile Software,”** on page 1093.

IMPORTANT: Before configuring any ZENworks software dictionary rules, you must be aware of how to use these rules. For detailed information, see **Section 76.3.8, “Understanding the Usage and Precedence of ZENworks Software Dictionary Rules,”** on page 1053.

Description: Aliases page



5 Click *Apply*, then click *Close*.

76.3.11 Ignore Default File-Software Mapping Rules

In the Software Configuration property page, 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.

76.3.12 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 by creating a new software identifier.

To configure rules in the ZENworks software dictionary:

- 1 In the Software Configuration property page, click the *Edit Table* option of *Software Dictionary*.

The Software Dictionary table is displayed.

Description: Software Dictionary table

Dictionary	Key identifier	Filename	File Last Modified Time	Minimum file size	Maximum file size	Software
33823	No	MYREAD...	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 Body
33819	No	AGMAIL.E...	2004-01-19 23:29	1511424	1511424	Group M
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	17120	17120	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	BSERAS...	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 W
33809	No	MAINCTR...	2003-08-06 08:32	327680	327680	Silence I
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	photo

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 [Section 76.3.6, “What is an Inherited Rule?”](#) on page 1053.

2 In the Software Dictionary table, you can perform the following operations:

- ♦ [“Manually Adding Entries to the Software Dictionary”](#) on page 1066
- ♦ [“Automatically Adding Entries to the Software Dictionary”](#) on page 1068
- ♦ [“Deleting Entries from the Software Dictionary”](#) on page 1068
- ♦ [“Modifying the Values of the Software Dictionary Entries”](#) on page 1068
- ♦ [“Excluding a Software from a Scan”](#) on page 1069
- ♦ [Section 76.3.26, “Sorting Entries in the Table,”](#) on page 1094
- ♦ [Section 76.3.27, “Filtering Entries in the Table,”](#) on page 1094
- ♦ [Section 76.3.28, “Refreshing Entries in the Table,”](#) on page 1095

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 In the Software Dictionary table, 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 In the Software Dictionary table, 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 one of the following 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 you want to exclude 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**.

76.3.13 Report Files with These File Extensions As Unidentified Software

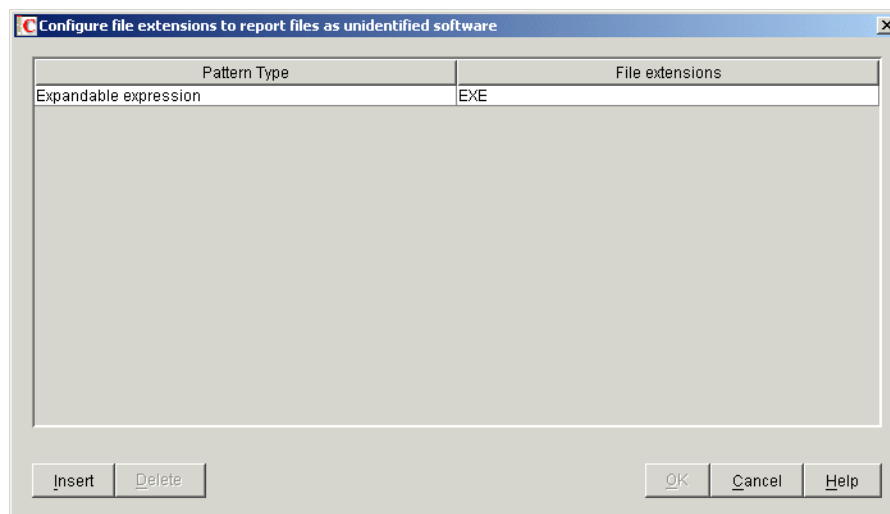
The “Report Files with These File Extensions As Unidentified Software” rule allows you to configure file extension of files that must be reported as unidentified software.

To configure the rule:

- 1 In the Software Configuration property page, click the *Edit Table* option of *Report Files with These File Extensions As Unidentified Software*.

The “Configure File Extensions to Report Files as Unidentified Software” table is displayed.

Description: [Configure File Extensions to Report Files as Unidentified Software table](#)



- 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 7 Inventory server.

To delete an entry from the table, select the entry and click *Delete*. You can delete only the non-inherited entries.

76.3.14 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 In the Software Configuration property page, click the *Edit Table* option of *Manage Unidentified Software*.

The Manage Unidentified Software table is displayed.

Description: Manage Unidentified Software table

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 7 Inventory server.

- 2 In the Manage Unidentified Software table, you can perform the following operations:
 - ♦ “Including Unidentified Software in a Scan” on page 1071
 - ♦ “Excluding Unidentified Software from the Scan” on page 1071
 - ♦ Section 76.3.26, “Sorting Entries in the Table,” on page 1094
 - ♦ Section 76.3.27, “Filtering Entries in the Table,” on page 1094
 - ♦ Section 76.3.28, “Refreshing Entries in the Table,” on page 1095

- 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 Manage Unidentified Software 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 Manage Unidentified Software table.
- 2 Click *Ignore Files* located in the *Add To* pane.

The entry is automatically added to the table in **Software Scanning Filters - Files**.

76.3.15 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.

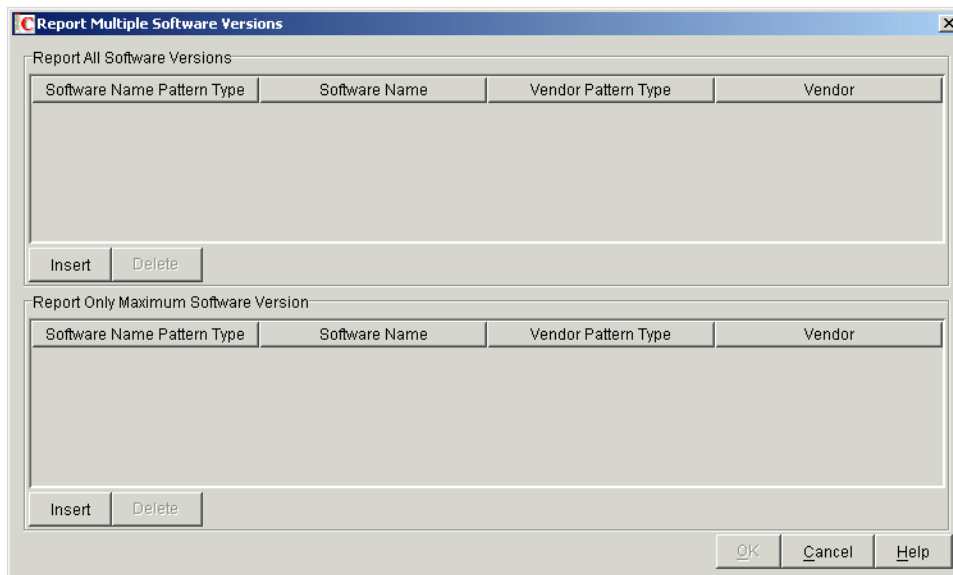
By default, the Inventory scanner scans for the highest version of the software installed on the inventoried workstation.

To configure this rule:

- 1 In the Software Configuration property page, click the *Edit Table* option of *Report Multiple Software Versions*.

The Report Multiple Software Versions dialog box is displayed.

Description: Report Multiple Software Versions dialog box



- 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 7 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 7 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*

76.3.16 Report Disk Space Used by File Extensions

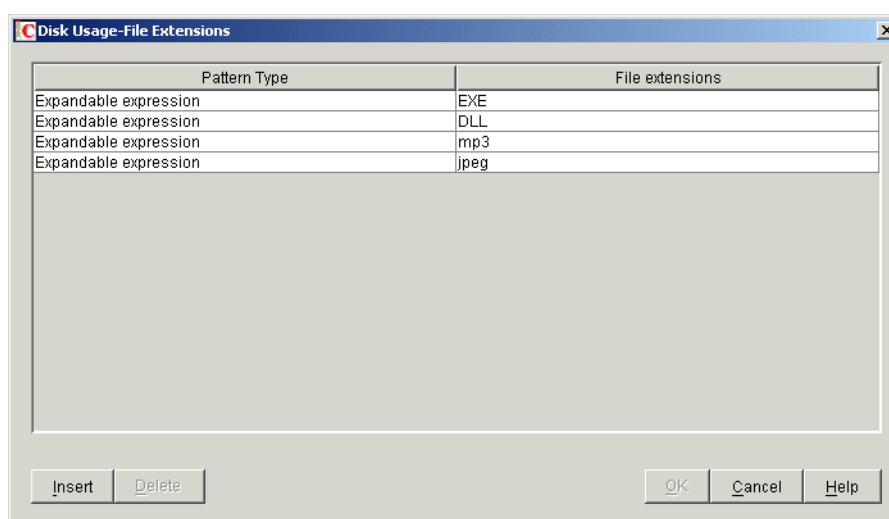
The “Report Disk Space Used by File Extensions” rule allows you to specify the file extension of the files whose total disk usage you want to scan.

To configure this rule:

- 1 In the Software Configuration property page, click the *Edit Table* option of *Report Disk Space Used by File Extensions*.

The Disk Usage - File Extensions table is displayed.

Description: [Disk Usage - File Extensions table](#)



- 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 7 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.

76.3.17 Software Scanning Filters - Drives and Directories

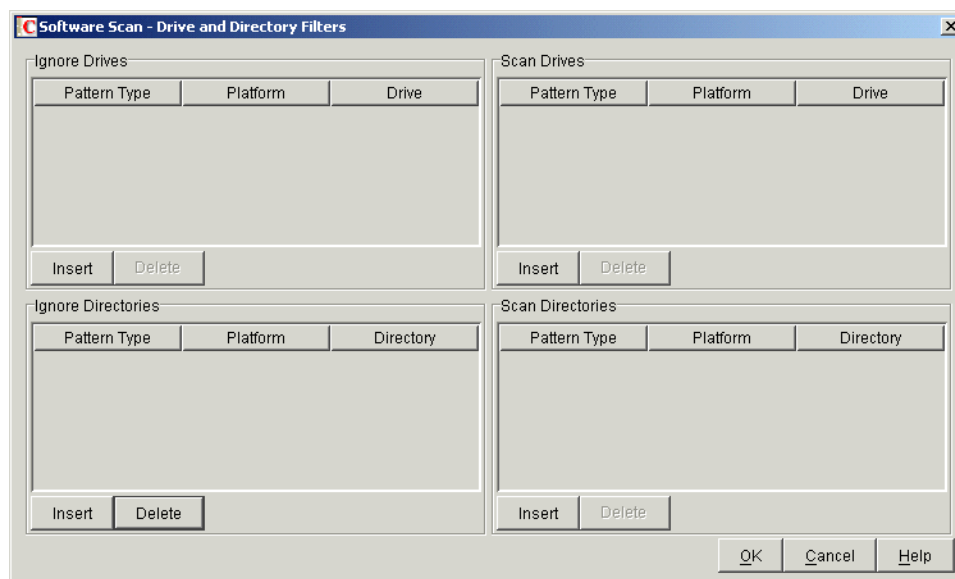
The “Drives and Directories” filter the allows you to control the scanning for software files located in specified drives and directories.

To configure this filter:

- 1 In the Filters property page, click the *Edit Table* option of *Drives and Directories* located in the *Software Scanning Filters* pane.

The Software Scan - Drive and Directory Filters dialog box is displayed.

Description: Software Scan - Drive and Directory Filters dialog box



- 2 Configure the following filters:

- ♦ “Ignore Drives” on page 1076
- ♦ “Scan Drives” on page 1077
- ♦ “Ignore Directories” on page 1077
- ♦ “Scan Directories” on page 1078

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 7 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 7 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 7 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 7 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.

76.3.18 Software Scanning Filters - File Extensions

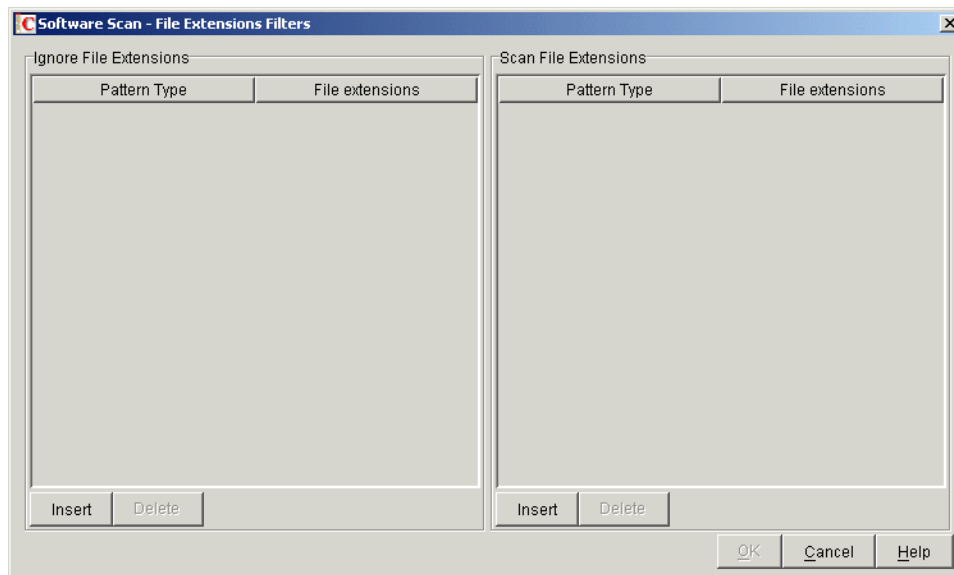
The “File Extensions” filter allows you to control scanning for software files with a specified extension.

To configure this filter:

- 1 In the Filters property page, click the *Edit Table* option of *File Extensions* located in the *Software Scanning Filters* pane.

The Software Scan - File Extensions Filters dialog box is displayed.

Description: Software Scan - File Extensions Filters dialog box



- 2 Configure the following filters:
 - ♦ “Ignore File Extensions” on page 1080
 - ♦ “Scan File Extensions” on page 1081
- 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 begin 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 7 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 a “.exe” extension 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 7 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.

76.3.19 Software Scanning Filters - Files

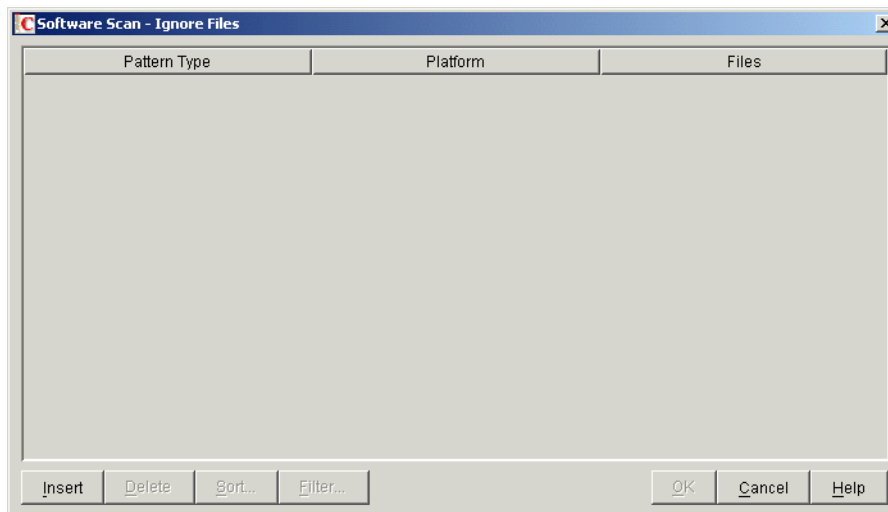
The “Files” filter allows you to control scanning for specified files.

To configure this filter:

- 1 In the Filters property page, click the *Edit Table* option of *Files* located in the *Software Scanning Filters* pane.

The Software Scan - Ignore Files table is displayed.

Description: Software Scan - Ignore Files table



- 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 7 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.**

76.3.20 Software Scanning Filters - Software

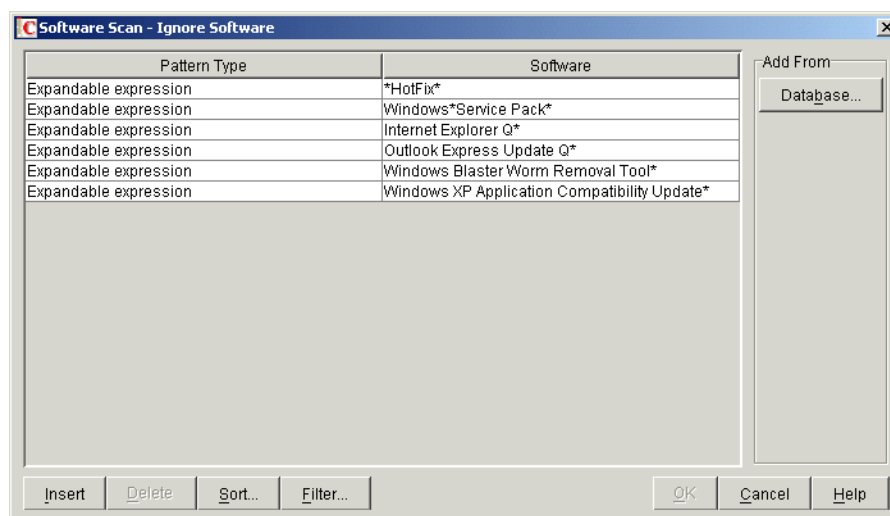
The “Software” filter allows you to configure software to be excluded during the Inventory scan.

To configure this filter:

- 1 In the Filters property page, click the *Edit Table* option of *Software* located in the *Software Scanning Filters* pane.

The Software Scan - Ignore Software table is displayed.

Description: Software Scan - Ignore Software table



- 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*

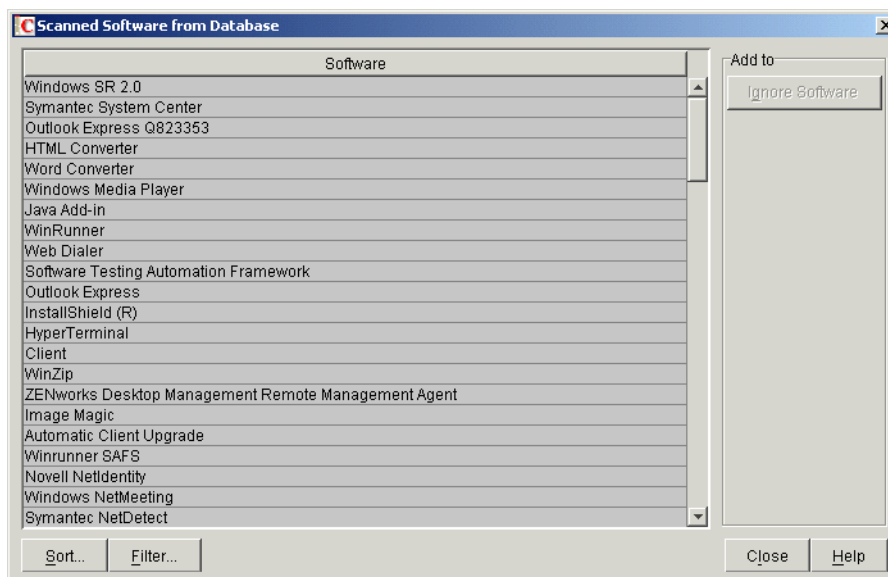
The Inventory scanner does not report the software that has names beginning with “Adobe.”

Automatically Adding Entries to the Table

1. Click *Database* located in the *Add From* pane.

The Scanned Software from Database dialog box is displayed.

Description: Scanned Software from Database dialog box



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 7 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.**

76.3.21 Disk Usage Scanning Filters - Drives and Directories

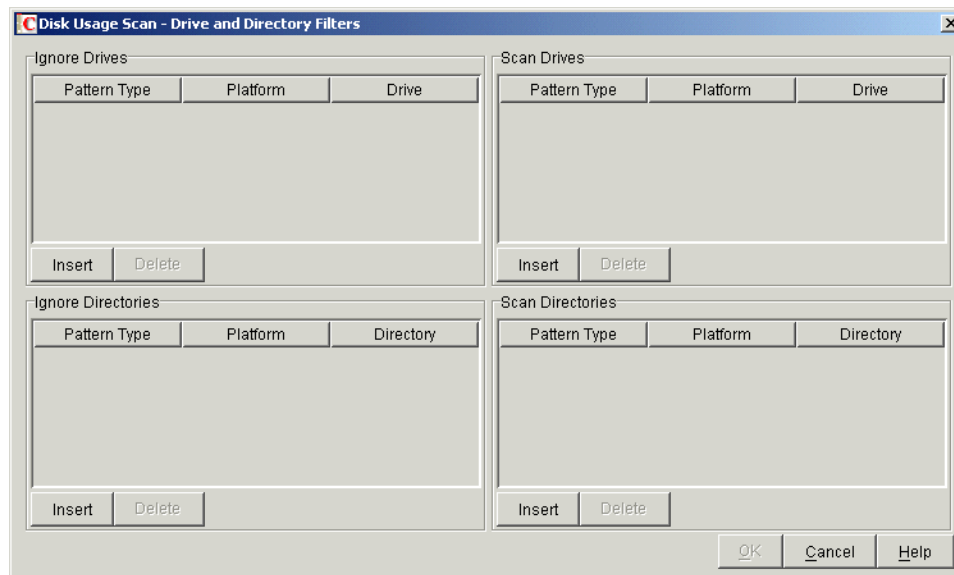
The “Drives and Directories” filter allows you to configure drives and directories to be included or excluded during the Inventory disk usage scanning.

To configure this filter:

- 1 In the Filters property page, click the *Edit Table* option of *Drives and Directories* located in the *Disk Usage Scanning Filters* pane.

The Disk Usage Scan - Drive and Directory Filters dialog box is displayed.

Description: Disk Usage Scan - Drive and Directory Filters dialog box



2 Configure the following filters:

- ♦ “Ignore Drives” on page 1086
- ♦ “Scan Drives” on page 1086
- ♦ “Ignore Directories” on page 1087
- ♦ “Scan Directories” on page 1088

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, 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 7 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 7 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 7 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 7 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.

76.3.22 Disk Usage Scanning Filters - Files

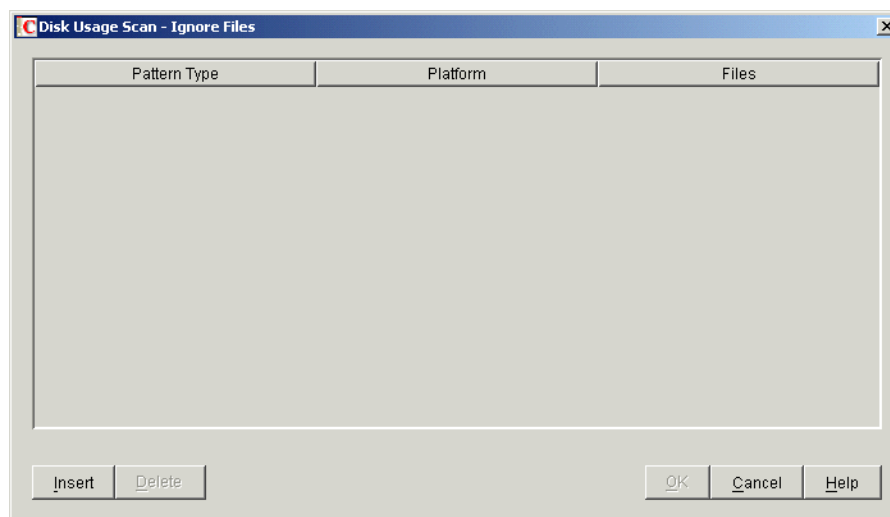
The “Files” filter allows you to configure files to be excluded during the Inventory disk usage scanning.

To configure this filter:

- 1 In the Filters property page, click the *Edit Table* option of *Files* located in the *Disk Usage Scanning Filters* pane.

The Disk Usage Scan - Ignore Files dialog box is displayed.

Description: Disk Usage Scan - Ignore Files



- 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 7 Inventory server.

To delete an entry from the table, select the entry and click *Delete*. You can delete only the non-inherited entries.

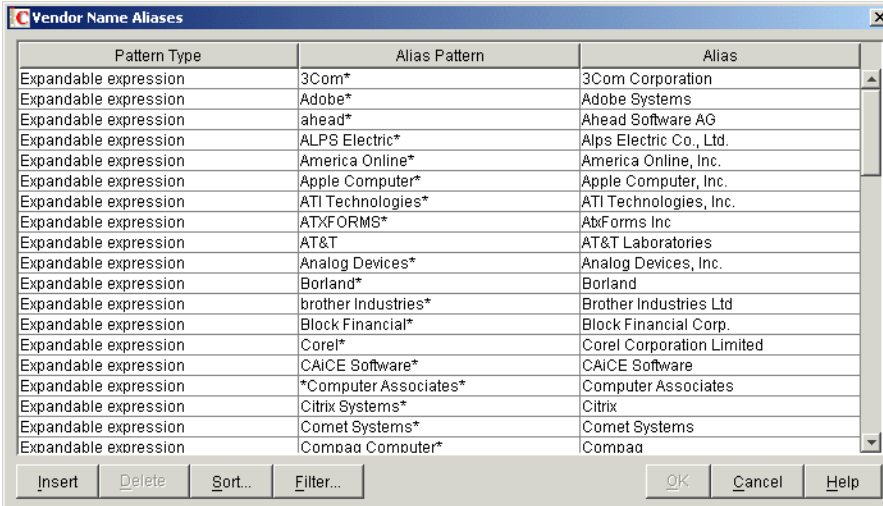
76.3.23 Vendor Name Aliases

The “Vendor Name Aliases” rule allows you to configure aliases for vendor names.

- 1 In the Aliases property page, click the *Edit Table* option of *Vendor Name Aliases* located in the *Specify Aliases* pane.

The Vendor Name Aliases table is displayed.

Description: Vendor Name Aliases table



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*	AtForms 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 7 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**

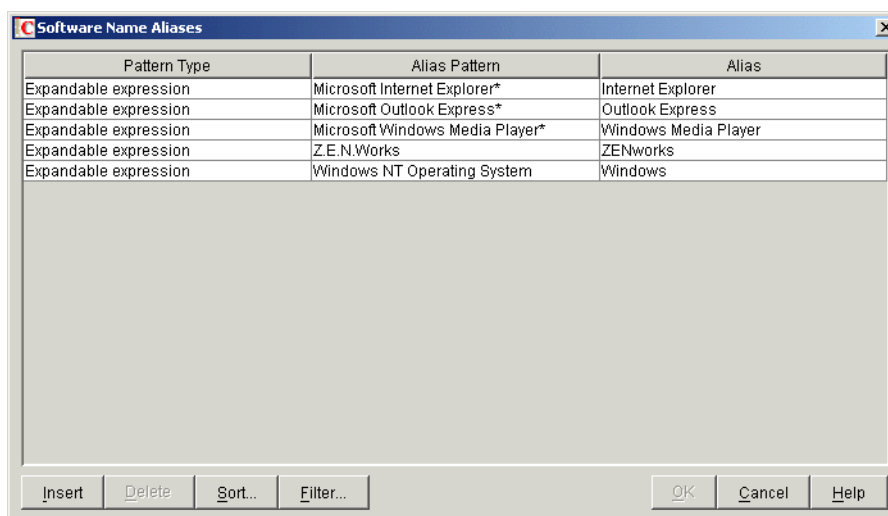
76.3.24 Software Name Aliases

The “Software Name Aliases” rule allows you to configure aliases for software names.

- 1 In the Aliases property page, click the *Edit Table* option of *Software Name Aliases* located in the *Specify Aliases* pane.

The Software Name Aliases table is displayed.

Description: Software Name Aliases



- 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 7 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.](#)

76.3.25 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 In the Aliases property page, click the *Edit Table* option of *Reconcile Software* located in the *Reconcile Software* pane.

The Reconcile Software table is displayed.

[Description: Reconcile Software table](#)

Add-Remove Program(ARP/MSI Software name)	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 7 Inventory server.

2 To reconcile software:

- ♦ Specify software and vendor names for software identified through Add/Remove Programs or the MSI but not yet been associated.
- ♦ (Optional) Change the software and vendor names for 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.**

76.3.26 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*.

76.3.27 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*.

76.3.28 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.

76.3.29 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:

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*.

76.3.30 Base-Lining the Software Dictionary Deployment

When you deploy the software dictionary for the first time, the default dictionary settings are effective and the Inventory scanner reports 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 and Reporting.

To avoid these problems, we recommend that you 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 include all sections or departments of your enterprise that you want to collect inventory for.

- 2 Attach these inventoried workstations to a Standalone Inventory Server that 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 might 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 until the inventory information is stored into the Inventory database.
- 5 Reconfigure the software dictionary based on the inventory information that is available in the database to resolve the above discussed problems. Perform the following tasks:
 - ♦ **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 includes the following:

- ♦ Applications that are not yet identified by the software dictionary.
- ♦ Application files that are already identified by the software dictionary.
- ♦ Application files that might be redundant such as Operating System files or DOS files.

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 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, or 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 **Section 76.3.25, “Reconcile Software,” on page 1093** rule contains default configurations to merge these two entries but this might 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 1063**.
- 6 Re-scan all the inventoried workstations.
 - 7 After the inventory information is stored in the Inventory database, you should see that all the entries that you marked for dictionary during the earlier scan are scanned and reported as a software.
 - 8 Repeat Step 3 through Step 7 till you fine-tune the dictionary according to your requirements.

76.3.31 Viewing Software Information in the Inventory Summary

- 1 Configure the Inventory database. For more information on how to configure the Inventory database, see **Section 77.1.1, “Configuring the Inventory Database,” on page 1114**.
- 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.

A list of Software Groups and Software of the vendor is displayed. Software Group includes software patch and representative file information of the group. Software includes software patch and representative file information of the product.

For more information, see **Section 77.1.2, “Viewing the Inventory Summary of an Inventoried Workstation,” on page 1114**.

76.3.32 Generating Software Inventory Reports

You can now generate the following Software Inventory reports:

- ♦ Add-Remove Programs by Application
- ♦ 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 Application
- ♦ MSI Products by Machine
- ♦ Microsoft Office Components by Machine
- ♦ Microsoft Office Installation Count
- ♦ Microsoft Office by Machine
- ♦ Novell Client Components by Machine
- ♦ Novell Client 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
- ♦ Windows Security Patches by Patch

For more information about each report, see “[Types of Inventory Reports](#)” on page 1131.

76.4 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.

76.5 Scanning for Workstations That Are Periodically Connected to the Network

ZENworks 7 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 waits 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 workstation 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 collects 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 functionality in your enterprise, see “[Scenario 3: Deploying Inventory Agent on Workstations that Are Periodically Connected to the Network](#)” on page 928.

76.6 Scanning for Workstations That Are Never Connected to Your Network

ZENworks 7 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 1100](#)
- ♦ [“Collecting Inventory for Workstations That Are Not Connected to the Network” on page 1100](#)
- ♦ [“Limitations” on page 1102](#)

76.6.1 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 7 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.

76.6.2 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 7 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 [Section 9.3, “Using Zwsreg.exe,” on page 135](#).

- 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 7 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 suboptions: *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* suboption.

Configure Asset Information and click the *Export* button to save the file as `asset.ini` in a local directory

- ♦ Click the *Zipped Names* suboption.

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* suboption.

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 `customhwattrlist.ini`.

- ♦ In the Workstation Inventory Policy property page, click *Hardware Scan* tab.

The *Enable Custom Scanning* check box is selected by default.

- ♦ Click *Custom Attribute Editor*, then click *Export*.

- ♦ Save the file as `customhwattrlist.ini` in a local directory.

- 4** Copy the INI files created in **Step 3** 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 7 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 where the ZENworks 7 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.

76.6.3 Limitations

You should be aware of the following limitations with collecting inventory for workstations that are never connected your network.

- ♦ The minimal information is not 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 7 Desktop Management scanner from the command line.

76.7 Removing 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, which contains a list of inventoried workstations that must be removed from the Inventory database.

IMPORTANT: You must make sure that the Inventory Service Manager is loaded when you run the Inventory Removal Service.

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` 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 [Section 76.7.1, “Understanding the NDS Lookup for DB Utility,” on page 1104](#).

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 workstations. For more information on Query, see [Section 77.1.3, “Viewing Inventory Information by Querying the Database,” on page 1127](#).

- 2 Copy the `inventoryremovallist.txt` file to the `ZENworks_installation_path\zenworks\inv\server\wminv\properties` directory.

For Linux, copy the `inventoryremovallist.txt` file to the `/etc/opt/novell/zenworks/inv/` directory.

- 3 In the `ZENworks_installation_path\zenworks\inv\server\wminv\properties\inventoryremoval.properties` file, make sure that the value of `FilePath` is the location of `inventoryremovallist.txt` (specified in [Step 2](#)).

For Linux, in the `/etc/opt/novell/zenworks/inv/InventoryRemoval.properties` file, make sure that the value of `FilePath` is the location of `inventoryremovallist.txt`.

NOTE: Make sure 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.

For Linux, at the server console prompt, enter `/opt/novell/bin/StartSer RemoveInventory` to start the Inventory Removal service.

The Inventory Removal service operates in the following order:

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.

76.7.1 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 make sure 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`.

For Linux, specify the path of the lookup file in `/etc/opt/novell/zenworks/inv/InventoryRemoval.properties`.

NOTE: Make sure 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 `deletewslst.txt`.

IMPORTANT: The lookup filename should consist of alphanumeric characters only.

- 3 At the server console prompt, enter `startser NDSLookupForDB`.

For Linux, at the server console prompt, enter `/opt/novell/bin/StartSer NDSLookupForDB`.

76.8 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:

- ♦ [Section 76.8.1, “Running the Dupremove Utility,” on page 1105](#)
- ♦ [Section 76.8.2, “Understanding the Dupremove Switches,” on page 1106](#)

76.8.1 Running the Dupremove Utility

- 1 Stop the Inventory service. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).
- 2 Make sure 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 [Section 76.8.2, “Understanding the Dupremove Switches,” on page 1106](#).

After editing the file, go to `sys:\system` and enter `dupremove` from the Inventory server system console prompt.

- ♦ On a Windows Inventory server:

Edit

`Inventory_server_installation_directory\zenworks\inv\server\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 [Section 76.8.2, “Understanding the Dupremove Switches,” on page 1106](#).

After editing the file, go to

`Inventory_server_installation_directory\zenworks\inv\server\wminv\bin` and enter `dupremove` from the Inventory server command prompt.

- ♦ On a Linux Inventory server:

Edit `/opt/novell/bin/dupremove` to configure the required parameters. Refer to `dupremove` for information about configuring the parameters. For detailed information about the parameters, see [Section 76.8.2, “Understanding the Dupremove Switches,” on page 1106](#).

After editing the file, go to `/opt/novell/bin` and enter `./dupremove` from the Inventory server command prompt.

IMPORTANT: You must enclose the parameters within double quotes in `dupremove.ncf`, `dupremove.bat` or `dupremove` 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 retries 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 or Linux Inventory server, press Ctrl+C.

- 4** Start the Inventory service. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).
- 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 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 [Section 73.3, “Configuring the Inventory Service Object,” on page 972](#).
 - ♦ 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.

76.8.2 Understanding the Dupremove Switches

- ♦ “-host” on [page 1106](#)
- ♦ “-dbtype” on [page 1106](#)
- ♦ “-sid” on [page 1107](#)
- ♦ “-port” on [page 1107](#)
- ♦ “Dupremove Functions” on [page 1107](#)
- ♦ “-user” on [page 1112](#)
- ♦ “-password” on [page 1112](#)

-host

Specify the IP address of the server on which the Inventory database is running.

-dbtype

The Inventory database type. It can include any of the following values:

Table 76-2 *List of Dbtype values*

Inventory Database Running On	Dbtype Value
Sybase	0
Oracle	1
MS SQL	2

-sid

The service ID identifying the Inventory database. -sid is required to connect to JDBC. It can include any of the following values:

Table 76-3 *Sample sid values*

Inventory Database Running On	Sample SID Values
Sybase	mgmtldb
Oracle	orcl
MS SQL	mgmtldb

-port

The port number on which the Inventory database is running. It can include any of the following values:

Table 76-4 *Sample port values*

Inventory Database Running On	Sample Port Values
Sybase	2638
Oracle	1521
MS SQL	1433

Dupremove Functions

You must use the following Dupremove functions only one at a time in the `dupremove.bat`, `dupremove.ncf`, or `dupremove`:

IMPORTANT: The values for the Dupremove functions are case-sensitive.

Table 76-5 *Detail explanation and examples of the Dupremove functions*

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, edit the Java command in dupremove.bat, dupremove.ncf, or dupremove as follows:</p> <pre>java -Djava.compiler= com.novell.zenworks.desktop.invento ry.storer.DatabaseOperator "- host=127.0.0.1" "-listwsdup" "- dbtype=0" "-sid=mgmtldb" "- 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, edit the Java command in dupremove.bat, dupremove.ncf, or dupremove as follows:</p> <pre>java -Djava.compiler= com.novell.zenworks.desktop.invento ry.storer.DatabaseOperator "- host=127.0.0.1" "-listwsdirty" "- dbtype=1" "-sid=orcl" "-port=1521"</pre>

Dupremove Switch	Description	Possible Values / Pattern Types	Examples
-listwspattern	Lists workstation objects on the basis of the pattern you define.	<ul style="list-style-type: none"> ♦ Workstation names beginning with with a specific character or a string ♦ Workstation names containing a specific character or a string ♦ Workstation names ending with a specific character or a string 	<ul style="list-style-type: none"> ♦ To list all the workstation objects whose DN starts with "cn=ws" and that have duplicate entries in the Sybase Inventory database, edit the Java command in dupremove.bat, dupremove.ncf, or dupremove as follows: <pre>java -Djava.compiler= com.novell.zenworks.desktop.invent ory.storer.DatabaseOperator" -host=127.0.0.1""- listwspattern=cn=ws%%""- dbtype=0" "-sid=mgmtdb" "- port=2638"</pre> ♦ To list all the workstation objects whose DN contains "ou=novell" and that have duplicate entries in the Oracle Inventory database, edit the Java command in dupremove.bat, dupremove.ncf, or dupremove as follows: <pre>java -Djava.compiler= com.novell.zenworks.desktop.invent ory.storer.DatabaseOperator" -host=127.0.0.1""- listwspattern=%ou=novell%%""- dbtype=1" "-sid=orcl" "- port=1521"</pre> ♦ To list all the workstation objects whose DN ends with "T=novell_inc" and that have duplicate entries in the MS SQL Inventory database, edit the Java command in dupremove.bat, dupremove.ncf, or dupremove as follows: <pre>java -Djava.compiler= com.novell.zenworks.desktop.invent ory.storer.DatabaseOperator" -host=127.0.0.1""- listwspattern=%T=novell_inc""- dbtype=2" "sid=mgmtdb" "- port=1433"</pre>

IMPORTANT: You must enter the typed DN of the workstation.

Dupremove Switch	Description	Possible Values / Pattern Types	Examples
-remwsdup	Removes workstation objects from the Inventory database.	<ul style="list-style-type: none"> ♦ * (asterisk): Removes inventory information from all the workstation objects having duplicate entries in the database ♦ Typed_DN_of_a_workstation: Removes inventory information of the specific workstation object having duplicate entries in the database 	<ul style="list-style-type: none"> ♦ To remove all information from all workstation objects having duplicate entries in the MS SQL Inventory database, edit the Java command in <code>dupremove.bat</code>, <code>dupremove.ncf</code>, or <code>dupremove</code> as follows: <pre>java -Djava.compiler= com.novell.zenworks.desktop.in ventory.storer.DatabaseOperator" -host=127.0.0.1" "- remwsdup=*"-dbtype=2" "- sid=mgmtdb" "-port=1433"</pre> ♦ To remove all information from one workstation object having a duplicate entry in the Oracle Inventory database, edit the Java command in <code>dupremove.bat</code>, <code>dupremove.ncf</code>, or <code>dupremove</code> as follows: <pre>java -Djava.compiler= com.novell.zenworks.desktop.in ventory.storer.DatabaseOperator" -host=127.0.0.1"- remwsdup=ws.novell.novell_inc"- dbtype=1" "-sid=orcl" "- port=1521"</pre>

Dupremove Switch	Description	Possible Values / Pattern Types	Examples
-remwspattern	Removes workstation objects on the basis of the pattern you define.	<ul style="list-style-type: none"> ♦ Workstation names beginning with with a specific character or a string ♦ Workstation names containing a specific character or a string ♦ Workstation names ending with a specific character or a string <hr/> <p>IMPORTANT: You must enter the typed DN of the workstation.</p> <hr/>	<ul style="list-style-type: none"> ♦ To remove all the workstation objects whose DN starts with "cn=ws" and that have duplicate entries in the Sybase Inventory database, edit the Java command in dupremove.bat, dupremove.ncf, or dupremove as follows: <pre>java -Djava.compiler= com.novell.zenworks.desktop.invent ory.storer.DatabaseOperator" -host=127.0.0.1""- remwspattern=cn=ws%""- dbtype=0" "-sid=mgmtdb" "- port=2638"</pre> ♦ To remove all the workstation objects whose DN contains "ou=novell" and that have duplicate entries in the Oracle Inventory database, edit the Java command in dupremove.bat, dupremove.ncf, or dupremove as follows: <pre>java -Djava.compiler= com.novell.zenworks.desktop.invent ory.storer.DatabaseOperator" -host=127.0.0.1""- remwspattern=%ou=novell%""- dbtype=1" "sid=orcl" "- port=1521"</pre> ♦ To remove all the workstation objects whose DN ends with "T=novell_inc" and that have duplicate entries in the MS SQL Inventory database, edit the Java command in dupremove.bat, dupremove.ncf, or dupremove as follows: <pre>java -Djava.compiler= com.novell.zenworks.desktop.invent ory.storer.DatabaseOperator" -host=127.0.0.1""- remwspattern=%T=novell_inc%"" -dbtype=2" "-sid=mgmtdb" "- port=1433"</pre>

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"> 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.inv entory.storer.DatabaseOperator" -host=127.0.0.1""- remwsfile=c:\\windows\\wsname.t xt" "-dbtype=2" "-sid=mgmtdb""- port=1433"</pre> <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.

Viewing Inventory Information

The following sections indicate how you can view the inventory information:

- ♦ [Section 77.1, “Viewing the Inventory Information Using ConsoleOne,” on page 1113](#)
- ♦ [Section 77.2, “Exporting the Inventory Information,” on page 1156](#)
- ♦ [Section 77.3, “Viewing Inventory Information Without Using ConsoleOne,” on page 1163](#)
- ♦ [Section 77.4, “Retrieving Inventory information from the Inventory Database Without Using the CIM Schema,” on page 1165](#)

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

77.1 Viewing the Inventory Information Using ConsoleOne

The following sections 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 [Section 77.1.2, “Viewing the Inventory Summary of an Inventoried Workstation,” on page 1114](#).

- ♦ 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 [Section 77.1.3, “Viewing Inventory Information by Querying the Database,” on page 1127](#).

- ♦ You can list minimal information stored in the eDirectory™ Workstation object.

For more information, see [Section 77.1.4, “Viewing the Minimal Inventory Information from an eDirectory Object,” on page 1130](#).

- ♦ You can use a list of reports that generate the inventory information from the Inventory database specific to your needs.

For more information, see [Section 77.1.5, “Running Inventory Reports,” on page 1131](#).

- ♦ You can now quickly and easily view the inventory information.

For more information, see [Section 77.1.6, “Quickly and Easily Viewing the Inventory Data Using Quick Reports,” on page 1145](#).

77.1.1 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 is 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 *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.

77.1.2 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 [Section 77.1.1, “Configuring the Inventory Database,” on page 1114](#).
- 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® 7 Desktop Management provides the following inventory information collected from the inventoried workstations:




Table 77-1 Inventory information as displayed in Inventory Summary















Scan Data Group	Scan Data Item	Description
 Inventory Information	General Dictionary Version	Version number of the General Dictionary NOTE: The General Dictionary version is not same as the ZENworks product version.
	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 > General > System Information	Asset Tag	Asset tag number that the ROM-based setup program creates
	Computer Model	Identifying information of the computer such as Compaq or Dell
	Computer Type	Type of computer, such as IBM PC
	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 > 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 > General > eDirectory Login Details	Current login user	User logged into the Primary eDirectory tree when the inventoried workstation was scanned







Scan Data Group	Scan Data Item	Description
	Last login user	User most recently logged into the Primary eDirectory tree through Novell Client when the inventoried workstation was scanned
 Hardware/Software Inventory >  General >  Login Details >  Windows Domain	Name	Domain name of the inventoried workstation
 Hardware/Software Inventory >  Software >  Application Vendors > <i>Vendor_name</i> >  <i>software_group_name</i> >  <i>software</i>	Name	Vendor-defined name of the product represented as a vendor trademark or registered trademark
	Version	<p>User-friendly version of a product</p> <p>For example, the version for Windows 2000 is 2000 or Major.Minor Version of the Product</p>
	Category	<p>Product category to which the product belongs</p> <p>For example, Office is a part of the Productivity tools category and Solitaire is a game</p>
	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	<p>A unique, 16-character identifier for an installed product. This identifier is available from MSI on Windows</p> <p>The format is ABCD-1234-WXYZ-PQRS</p>
	Internal Version	<p>Internal version of a product</p> <p>The format is:</p> <p><i>major version.minor version.build.sub build number</i></p> <p>or</p> <p><i>major version.minor version.build</i></p>
	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




Scan Data Group	Scan Data Item	Description
	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
	Frequency of Usage	Number of times the product has been 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
	NOTE: 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
	NOTE: This is applicable only for antivirus products.	
 Hardware/Software Inventory >  Software >  Application Vendors > <i>Vendor_name</i> >  <i>software_group_name</i> >  <i>software</i> >  Patches	Name	Vendor-defined name for the patch
 Hardware/Software Inventory >  Software >  Application Vendors > <i>Vendor_name</i> >  <i>software_group_name</i> >  <i>software</i> >  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



















Scan Data Group	Scan Data Item	Description
	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 that this file represents
	Language	User-friendly name for the language of this copy of the file
	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 >  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 >  Software >  Device Drivers >  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 >  Software >  Device Drivers >  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 >  Software >  Device Drivers >  Network Drivers	Description	Description of the network driver
	Name	Network driver name
	Version	Version number of the network driver
 Hardware/Software Inventory >  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















Scan Data Group	Scan Data Item	Description
 Hardware/Software Inventory >  Hardware >  Monitor	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
	Total Memory Size	Total memory of the operating system
	Version	Version number of the operating system
	Device ID	Unique ID of a desktop monitor that is attached to an inventoried workstation 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) For example, 17" 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 For example, 15.8"
	Manufacturer	Name of the monitor's manufacturer For example, DELL Computer Corp
	Serial Number	Manufacturer's number used to identify a monitor For example, 23DDC24N9067
	Model	Product name of the monitor given by the manufacturer For example, DELL E771a
	Manufacture Date	Year in which the monitor was manufactured For example, 2003


Scan Data Group	Scan Data Item	Description
	Model ID	Unique ID of a model of the monitor; it is a combination of the Manufacturer ID and Product ID For example, DELA001
 Hardware/Software Inventory >  Hardware >  Chassis	Asset Tag	Asset tag number of the system chassis. 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 For example, Compaq
	Serial Number	Manufacturer's number used to identify a system chassis For example, 53R661S
	Version	Version number of the system chassis
	Tag	Unique ID of the system chassis attached to a particular inventoried workstation For example, System Enclosure 0
 Hardware/Software Inventory >  Hardware >  Pointing Device >  <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 >  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 >  Hardware >  Display Adapter >  <i>Display adapter name</i>	Chip Set	Chip set used by the controller to compare system capabilities










Scan Data Group	Scan Data Item	Description
	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
	Number of Color Planes	Number of color planes supported by the video system
	Provider	Vendor name
 Hardware/Software Inventory >  Hardware >  BIOS	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
	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 >  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




Scan Data Group	Scan Data Item	Description
	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 or Pentium III
	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 >  Hardware >  Modem	Description	Additional information about the modem
	Name	Identifying information of the modem
	Device ID	Special hexadecimal string identifying the modem type
 Hardware/Software Inventory >  Hardware >  Battery	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
	Description	Expanded description of the input voltage capability for this power supply
 Hardware/Software Inventory >  Hardware >  Power Supply	Total Output Power (in milliwatts)	Attribute value that represents the total output power of the power supply
	Total Memory	Total memory of the inventoried workstation
 Hardware/Software Inventory >  Hardware >  Disk Drives >  Floppy	Capacity	Floppy drive capacity

Scan Data Group	Scan Data Item	Description
	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 >  Hardware >  Disk Drives >  Physical Disk >  Fixed Disk	Description	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 >  Hardware >  Disk Drives >  Physical 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 >  Hardware >  Disk Drives >  Logical 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
	Name	Name of the CD drive attached to the inventoried workstation
	Description	Description of the CD
 Hardware/Software Inventory >  Hardware >  Disk Drives >  CDROM	Name	Name of the CD drive attached to the inventoried workstation
	Description	Description of the CD

Scan Data Group	Scan Data Item	Description
 Hardware/Software Inventory >  Hardware >  Ports >  Serial Port	Drive Letter	Mapped drive name of the CD
	Manufacturer	Vendor name
	Caption	Caption of the CD
	Address	Base input/output address for this serial port
	IRQ Number	IRQ number of the serial port
 Hardware/Software Inventory >  Hardware >  Ports >  Parallel Port	Name	The logical name of the I/O device on this serial port, under this operating environment
	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 >  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
	IRQ Number	IRQ number of the parallel port
 Hardware/Software Inventory >  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

Scan Data Group	Scan Data Item	Description
	Permanent Address	Node address stored permanently in the adapter
	Provider	Name of the provider
 Hardware/Software Inventory >  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 >  Network >  DNS	DNS Name	The DNS name of the inventoried workstation
 Hardware/Software Inventory >  Network >  Network (instance_number) >  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 >  Network (instance_number) >  IPX	IPX Address	The IPX™ address of the inventoried workstation
 Hardware/Software Inventory >  Network >  Network (instance_number) >  MAC	MAC Address	Unique node address permanently coded in the network adapter that identifies a specific computer on a network
 Hardware/Software Inventory >  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 >  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

Scan Data Group	Scan Data Item	Description
 Hardware/Software Inventory >  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
	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 >  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 >  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

Scan Data Group	Scan Data Item	Description
 Hardware/Software Inventory >  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 is 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.

77.1.3 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 [Section 77.1.1, “Configuring the Inventory Database,” on page 1114](#).
- 3 Specify the criteria for the query:

Query the Inventory database for: By default, the *Workstations* option is enabled. The query locates all inventoried workstations satisfying the query expression. If ZENworks 7 Server Management and ZENworks 7 Desktop Management are installed in the same environment, then the *Workstations*, the *Servers*, and *Both* options are 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 is prefixed by an asterisk (*).

For example, to find the machines that do not have a 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 1129](#).

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 is set to NULL by default and other relational operators are not 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 is 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 to 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 is 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 displays 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') returns W1 and the query (SerialPort!='COM1') also returns 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.

77.1.4 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 1130](#).

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](#) is 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:

Table 77-2 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

Minimal Information	Inventory Database
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
Video Type	Hardware - Display - Type

77.1.5 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 would be empty if you have not configured ZENworks 7 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 1131](#)
- ♦ [“Types of Inventory Reports” on page 1131](#)
- ♦ [“Generating Inventory Reports” on page 1140](#)
- ♦ [“Understanding the Proxy Database” on page 1142](#)
- ♦ [“Printing an Inventory Report” on page 1143](#)
- ♦ [“Exporting an Inventory Report to a File” on page 1143](#)
- ♦ [“Understanding User-Defined Reports” on page 1144](#)

Prerequisites for Generating Inventory Reports

Before running the inventory reports, make sure that you have installed the appropriate ODBC client. For more information, see the *Novell ZENworks 7 Desktop Management Installation Guide*.

Types of Inventory Reports

You can generate the types of reports described below, assuming you have already configured ZENworks 7 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.

Table 77-3 *List of Inventory reports and information displayed by each report*

Inventory Report Group	Report Name	Selection Criteria	Information Displayed in the Inventory Report
Hardware Inventory	Asset Management Report	Scope, Machine Name, IP Address, and DNS Name 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.

Inventory Report Group	Report Name	Selection Criteria	Information Displayed in the Inventory Report
	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.
	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)	<p>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.</p> <p>You can also select the Show Chart box to display the Physical Disk Listing report in a pie chart.</p>
	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.

Inventory Report Group	Report Name	Selection Criteria	Information Displayed in the Inventory Report
	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)	<p>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.</p> <p>You can also select the Show Chart box to display the Processor Listing report in a pie chart.</p>
	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 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	<p>Date and time of the last inventory scan, Inventory server name, and recent information on each inventoried workstation.</p> <p>You can also select the Show Chart box to display the System Configuration Inventory report in a pie chart.</p>
	Memory Listing	Show Chart, Scope, Machine Name, IP Address, DNS Name, Total Memory (Lower Bound in MB), and Total Memory (Upper Bound in MB)	<p>List of all the inventoried workstations within a range of memory size (such as 200-400 MB) and the total number of such machines.</p> <p>You can also select the Show Chart box to display the Memory Listing report in a pie chart.</p>
	Operating System Listing	Show Chart, Scope, Machine Name, IP Address, DNS Name, Operating System Type, and Operating System Version	<p>List of all inventoried workstations that match the specified operating system type and version.</p> <p>You can also select the Show Chart box to display the Operating System Listing in a pie chart.</p>

Inventory Report Group	Report Name	Selection Criteria	Information Displayed in the Inventory Report
	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 inventoried workstations that match the specified computer manufacturer's name.
	System Internal Hardware Inventory Report	Scope, Machine Name, IP Address, and DNS Name 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 Application	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.
	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.
	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.

Inventory Report Group	Report Name	Selection Criteria	Information Displayed in the Inventory Report
	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 Application	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.
	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.

Inventory Report Group	Report Name	Selection Criteria	Information Displayed in the Inventory Report
	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.
	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.

Inventory Report Group	Report Name	Selection Criteria	Information Displayed in the Inventory Report
	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.
	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.

Inventory Report Group	Report Name	Selection Criteria	Information Displayed in the Inventory Report
	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.
	Windows Security Patches by Patch	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 7 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 7 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 7 Handheld Management components installed on these machines.
	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 7 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 7 suites installed on these machines.

Inventory Report Group	Report Name	Selection Criteria	Information Displayed in the Inventory Report
	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 7 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 7 Server Management installed on these machines.
Others	User Defined Reports For more information on how to create user-defined reports, see the "Understanding User-Defined Reports" on page 1144.	Based on the options specified by the user in the <code>consoleone\consoleone_version\bin\userreports.ini</code> 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, click *Tools*, then click *ZENworks Reports*. For more information on how to configure the Inventory database, see [Section 77.1.1, "Configuring the Inventory Database," on page 1114.](#)
- 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 is enabled only if both ZENworks 7 Desktop Management and ZENworks 7 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 displays 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.
- ♦ 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 text fields only.

You can use * to retrieve the remaining entire text of a string where as ? can be used to retrieve only one character of a string.

Example 1: Lets assume that a machine name is "workstation1". If you query using work*, then workstation1 is found. If you query using work?, then the machine is not found. To find workstation1 using the ?, you must query using work???????, where each ? represents a character.

Example 2: Lets assume that the machine name is "CN=MACHINE1.OU=ENG.O=NOVELL.T=TREE". To find the machine, you can query by using "CN=MA*.OU=ENG.O=NOVELL.T=TREE" or CN=MA*. The machine name can be queried partly also. If you want to query by "O=novell.T=TREE", use * as "*O=novell.T=TREE".

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 starts on the console on invoking the selected report. This is called the ZENworks 7 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 1142
- ♦ “Shutting Down the Proxy Database” on page 1142
- ♦ “Configuring the Proxy Databases to Run on Ports Other Than the Default Ports” on page 1143

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 7 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 7 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 7 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 7 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, "Unable to connect..." error message is displayed.

- 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 reads the proxy ports configuration file, get the port, and start Sybase in the specified port.

The Reporting snap-in modifies 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 is 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 is not 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 is not 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 displaying information in the Inventory database.

Before generating the reports, you must make sure 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 are 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*.

77.1.6 Quickly and Easily Viewing the Inventory Data Using Quick Reports

In ZENworks 7, Workstation Inventory provides a new tool called Quick Reports to easily retrieve and view the data from the ZENworks Inventory database. Each Quick Report contains a list of inventory attributes and a query that you define using the Quick Report wizard.

The following sections provide more information about working with Quick Report:

- ♦ “Invoking the Quick Report Wizard” on page 1145
- ♦ “Creating a Quick Report” on page 1146
- ♦ “Modifying an Existing Quick Report” on page 1148
- ♦ “Viewing the Data Retrieved by the Quick Report” on page 1150
- ♦ “Deleting a Quick Report” on page 1152
- ♦ “Configuring the Inventory Database” on page 1153
- ♦ “Working with the Query Results Window” on page 1154

Invoking the Quick Report Wizard

Invoke the Quick Report Wizard using any of the following methods:

- ♦ To invoke the Quick Report from a database object, right-click the database object, click *ZENworks Inventory*, then click *Quick Report*.
- ♦ To invoke the Quick Report from the ConsoleOne *Tools* menu, click *ZENworks Inventory*, then click *Quick Report*.

If you have already configured the Inventory database, the Quick Report wizard uses that database.

If you have not yet configured the Inventory database, the Quick Report wizard is displayed, and you can configure the database using the wizard. For more information, see [“Configuring the Inventory Database”](#) on page 1153.

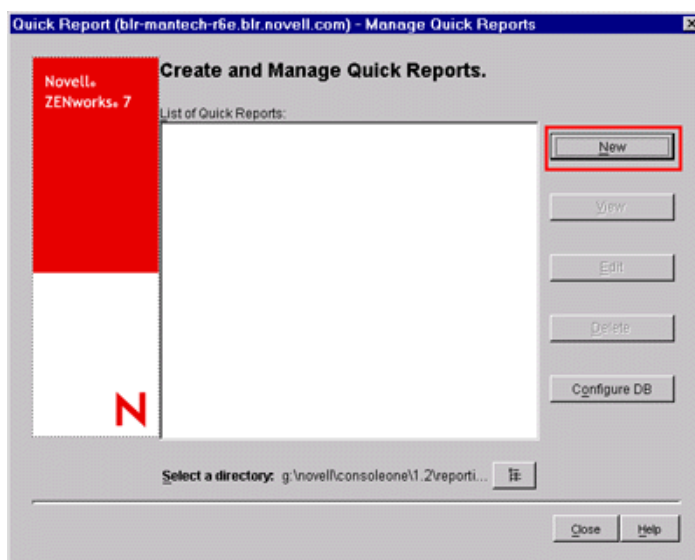
Creating a Quick Report

- 1 Invoke the Quick Report wizard.

The Create and Manage Quick Reports page is displayed.

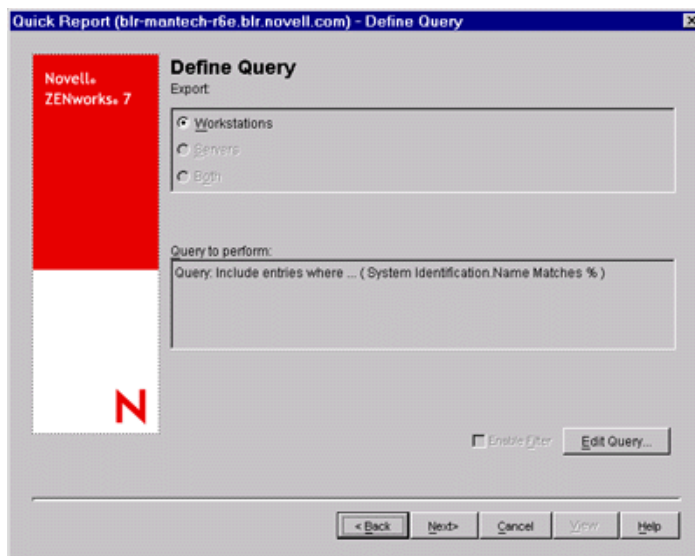
- 2 Click *New*.

Description: Creating a new Quick Report



- 3 In the Define Query page, define the query criteria and specify the scope for viewing the data from the Inventory database.

Description: Define Query page



You can use either the default query or define a new query.

Using the Default Query:

To use the default query, click Next. The Quick Report is created with the default query: System Identification.Name Matches %.

Defining a New Query:

3a Select one of the following options.

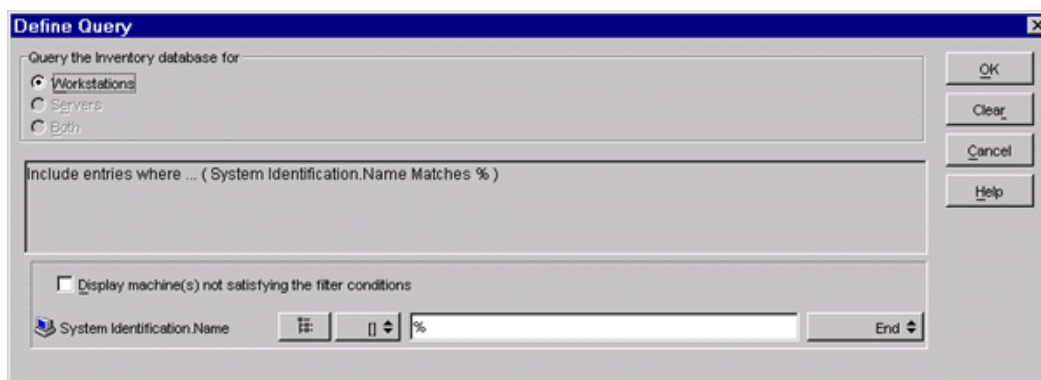
- ♦ **Workstations:** Select this option to view the data satisfying the specified filter conditions for inventoried workstations. If you have only Desktop Management installed, this option is enabled by default and the other two options are unavailable.
- ♦ **Servers:** Select this option to view the data satisfying the specified filter conditions for inventoried servers. If you have only Server Management installed, this option is enabled by default and the other two options are unavailable.
- ♦ **Both:** Select this option to view the data satisfying the specified filter conditions for both inventoried servers and inventoried workstations. If you want to view data for inventoried workstations only, or for inventoried servers only, use one of the other query options. This option is available only if you have both ZENworks 7 Desktop Management and ZENworks 7 Server Management installed.

3b (Optional) If you want to apply the filter condition defined in the Define Query window, select the *Enable Filter* option.

This option is available only if you define the query using the following software classes and its attributes in the Define Query window: Software Group, Software Group File Information, Software Group Patch Information, Software, File Information, Patch Information, Exclude File Information, and Disk Usage.

3c Click *Edit Query* to change the query.

Description: Defining a new query criteria



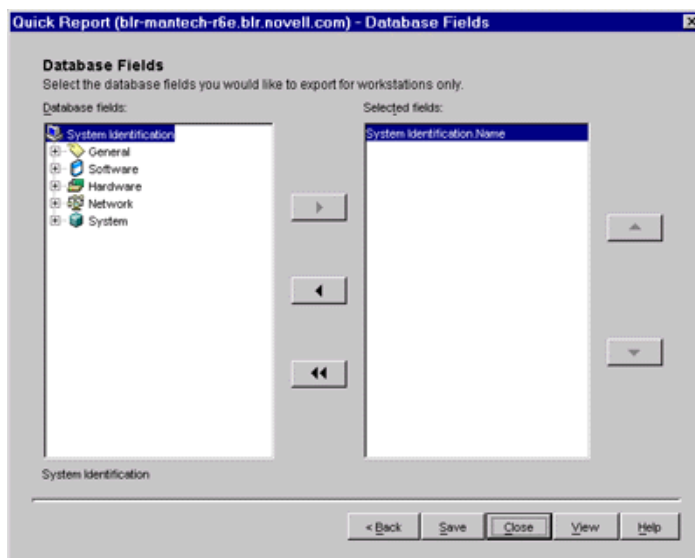
For detailed information on how to change the query, see [Section 77.1.3, “Viewing Inventory Information by Querying the Database,”](#) on page 1127.




3d Review the query and make changes as necessary. The Query to Perform pane displays the query you define.

3e Click *Next*.

- 4 In the Database Fields page, do the following:

Description: Database Fields page



- 4a** From the *Database Fields* list, select the inventory attribute that you want to report.
By default, *System Identification.Name* is selected. You cannot deselect or change the order of this attribute.
- 4b** Click [Description: Add icon](#)  to add the selected inventory attribute to the *Selected Fields* list.
If you select a group attribute, all attributes of the group are added. For example, if you select the *Software* attribute, the *Software* attributes such as vendor name, product name, and version are included in the *Selected Fields* list.
- 4c** To add an additional inventory attribute, repeat [Step 4a](#) and [Step 4b](#).
-
- NOTE:** You can change the order of the attributes using [Description: Move Up icon](#)  and [Description: Move Down icon](#) .
-
- 4d** To view the report, click *View*.
The data is displayed in the Query Results window. For more information about the Query Results window, see [“Working with the Query Results Window” on page 1154](#).
- 4e** To save the report, click *Save*, specify the filename, and then click *OK*.

IMPORTANT: Only the saved Quick Reports are listed on the Create and Manage Quick Reports page.

- 4f** Click *Close*.

Modifying an Existing Quick Report

- 1** In the Create and Manage Quick Reports page, select the Quick Report that you want to modify from the list of Quick Reports.

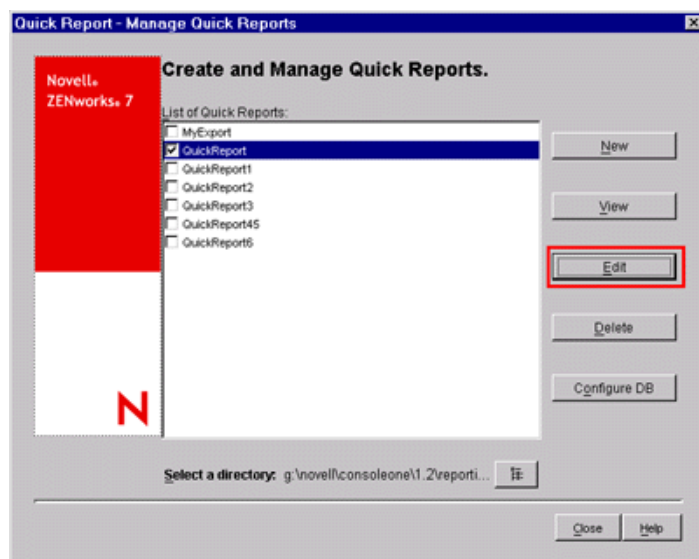
You can modify only one Quick Report at a time.

By default, the list displays all the Quick Reports saved in the `ConsoleOne_installation_directory\consoleone\1.2\reporting\export` directory. To modify a Quick Report residing in another directory, click the *Browse* icon to browse and select the directory.

IMPORTANT: Only the saved Quick Reports are listed on the Create and Manage Quick Reports page.

2 Click *Edit*.

Description: Modifying a Quick Report



3 (Optional) In the Define Query page, change the existing query criteria and specify the scope for viewing the data from the Inventory database.

To define a new query:

3a Select one of the following options.




- ♦ **Workstations:** Select this option to view the data satisfying the specified filter conditions for inventoried workstations.
- ♦ **Servers:** Select this option to view the data satisfying the specified filter conditions for inventoried servers.
- ♦ **Both:** Select this option to view the data satisfying the specified filter conditions for both inventoried servers and inventoried workstations.

3b (Optional) If you want to apply the filter condition, select the *Enable Filter* option.

This option is available only if you define the query using the following software classes and its attributes in the Define Query window: Software Group, Software Group File Information, Software Group Patch Information, Software, File Information, Patch Information, Exclude File Information, and Disk Usage.

3c Click *Edit Query* to change the query.

For detailed information on how to change the query, see [Section 77.1.3, “Viewing Inventory Information by Querying the Database,”](#) on page 1127.

- 3d** Review the query and make changes as necessary. The Query to Perform pane displays the query you define.
- 3e** Click *Next*.
- 4** (Optional) In the Database Fields page, do the following:
- 4a** From the *Database Fields* list, select the inventory attribute that you want to report.
By default, *System Identification.Name* is selected. You cannot deselect or change the order of this attribute.
- 4b** Click [Description: Add icon](#)  to add the selected inventory attribute to the Selected Fields list.
If you select a group attribute, all attributes of the group are added. For example, if you select the *Software* attribute, the *Software* attributes such as vendor name, product name, and version are included in the *Selected Fields* list.
- 4c** To add an additional inventory attribute, repeat [Step 4a](#) and [Step 4b](#).
-
- NOTE:** You can change the order of the attributes using [Description: Move Up icon](#)  and [Description: Move Down icon](#) .
-
- 4d** To view the report, click *View*.
The report is displayed in the Query Results window. For more information about the Query Results window, see [“Working with the Query Results Window” on page 1154](#).
- 4e** To save the report, click *Save*, specify the filename, and then click *OK*.
-
- IMPORTANT:** Only the saved Quick Reports are listed on the Create and Manage Quick Reports page.
-
- 4f** Click *Close*.

Viewing the Data Retrieved by the Quick Report

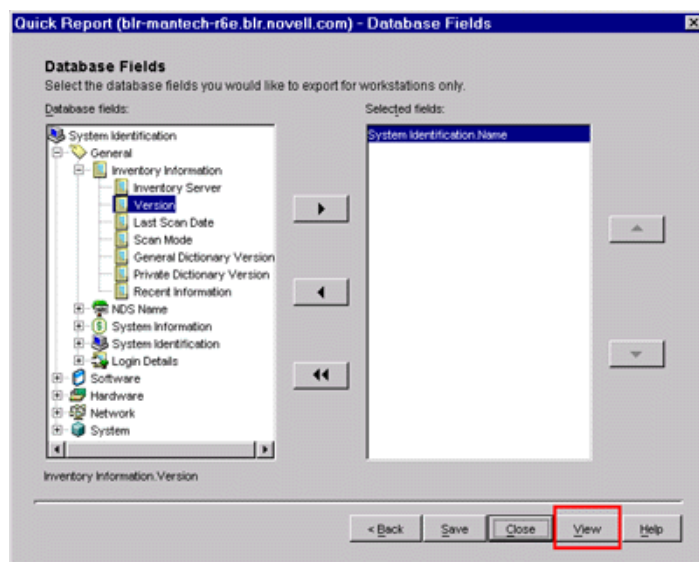
You can view the data retrieved by the Quick Report using any of the following methods:

- ♦ [“Viewing the Data While Creating or Modifying a Quick Report” on page 1151](#)
- ♦ [“Viewing the Data of a Saved Quick Report” on page 1151](#)

Viewing the Data While Creating or Modifying a Quick Report

- 1 In the Database Fields page, click *View*.

Description: Clicking the View button in the Database Fields page



Viewing the Data of a Saved Quick Report

- 1 In the Create and Manage Quick Reports page, select the Quick Report that you want to view from the list of Quick Reports.

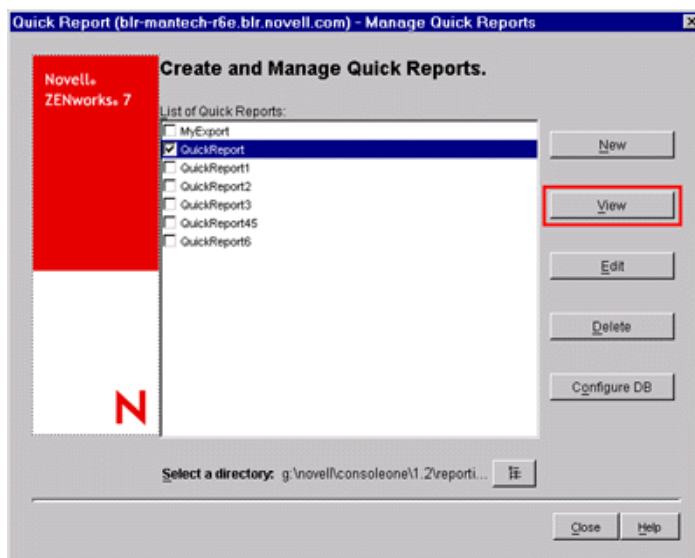
You can view only one Quick Report at a time.

By default, the list displays all the Quick Reports saved in the `ConsoleOne_installation_directory\consoleone\1.2\reporting\export` directory. To view a Quick Report residing in another directory, click the *Browse* icon to browse and select the directory.

IMPORTANT: Only the saved Quick Reports are listed on the Create and Manage Quick Reports page.

2 Click *View*.

Description: Clicking the View button in the Create and Manage Quick Reports page



The data is displayed in the Query Results window. For more information about the Query Results window, see [“Working with the Query Results Window” on page 1154](#).

Deleting a Quick Report

- 1 In the Create and Manage Quick Reports page, select the Quick Report that you want to delete from the list of Quick Reports.

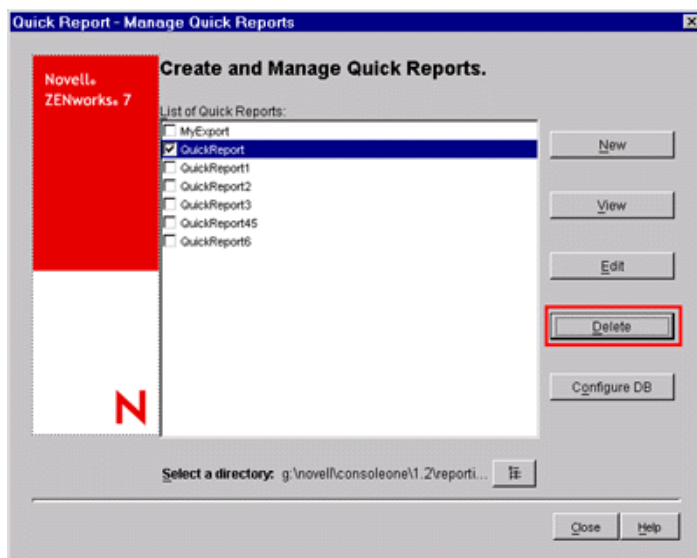
You can select and delete multiple reports at a time.

By default, the list displays all the Quick Reports saved in the `ConsoleOne_installation_directory\consoleone\1.2\reporting\export` directory. To delete a Quick Report residing in another directory, click the *Browse* icon to browse and select the directory.

IMPORTANT: Only the saved Quick Reports are listed on the Create and Manage Quick Reports page.

- 2 Click *Delete*.

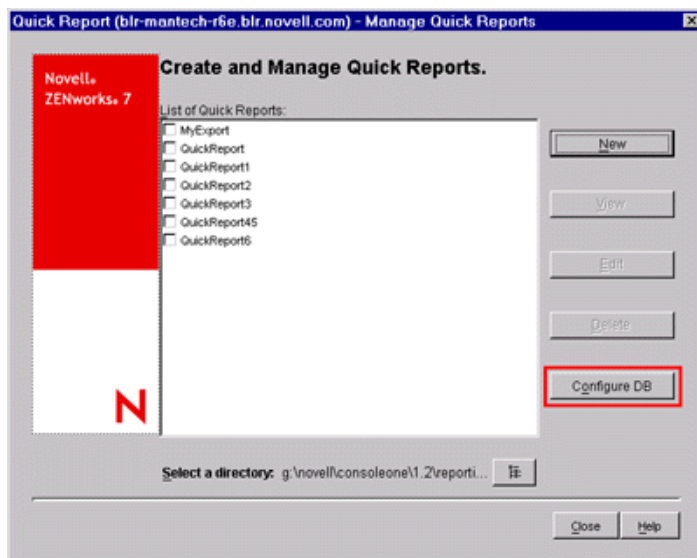
Description: Deleting a Quick Report



Configuring the Inventory Database

- 1 In Create and Manage Quick Reports page, click *Configure DB*.

Description: Configuring the Inventory database



The Configure ZENworks Database window is displayed.

- 2 Click *Browse* to select an existing ZENworks database object from the list.

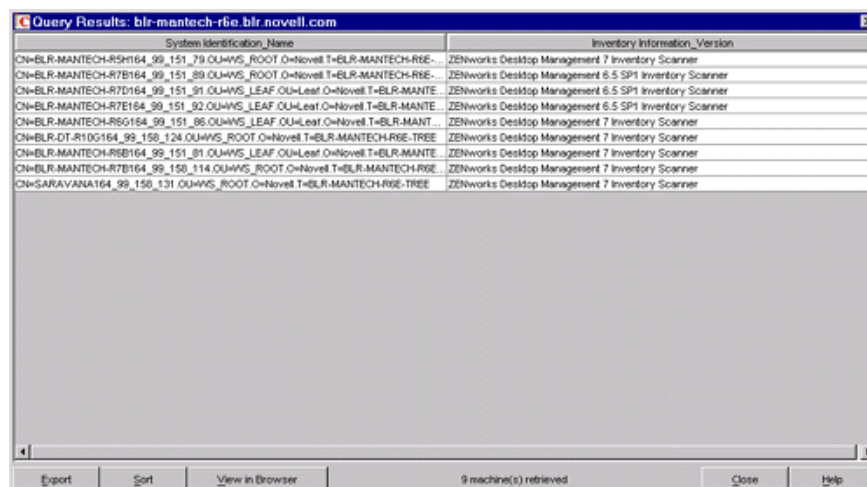
This database object contains the database settings such as the protocol, port in use by the database, and so forth.

- 3 Click *OK*.

Working with the Query Results Window

The Query Results window displays the data stored in the ZENworks Inventory database on querying the selected quick report. The Query Results window displays data for a maximum of 500 inventoried machines.

Description: Query Results window



You can perform the following operations in this window:

- ◆ **Export entries to an xml or a csv file.**
- ◆ **Sort the display of entries.**
- ◆ View the data in a browser.

IMPORTANT: When you click *View in Browser*, the inventory data is exported in the XML format for rendering in the browser. Make sure that the browser, such as Microsoft Internet Explorer or Mozilla* Firefox, is the default application associated with the XML format.

If Internet Explorer is the default application associated with the XML format and it is already opened, and when you click *View in Browser*, you want the data to displayed in a new Internet Explorer window, do the following:

1. Invoke Windows Explorer on the machine running Quick Report.
2. Click the *Tools* menu, then click *Folder Options*.
3. In the Folder Options window, click the *File Types* tab.
4. From the list of registered file types, select *XML*.
5. In the *Details for 'XML' extension* pane, click *Advanced*.
6. In the Edit File Type window, click *New*.
7. Specify an action name, and in the *Application Used to Perform Action* field, type `Internet_Explorer_installation_directory\iexplore.exe" -new %1`.
8. Click *OK*.
9. In Edit File Type window, select the newly created action from the Actions pane, and click *Set Default*.
10. Click *OK*, then click *Close*.

- ♦ Stop the data retrieval process.

The Quick Report retrieves the data from the ZENworks Inventory database. You can stop the retrieval process by clicking *Stop* in the status bar of the Query Results dialog box.

The status bar displays the count of machines whose data has been retrieved. If you stop the process while the data for a single machine has not yet been completely retrieved, the Query Results dialog box displays the data retrieved until that time, but the status bar does not contain any message. And, if you stop the process while the data is being retrieved for multiple machines, the status bar displays the count of machines for which the data has been completely retrieved.

- ♦ Re-order the columns by dragging and dropping them.
- ♦ Re-size the columns.
- ♦ Select the entries by using the mouse or pressing Ctrl+A.
- ♦ Copy and paste the entries to the Clipboard by pressing Ctrl+C and Ctrl+V.

Exporting the Entries to an XML or a CSV File

- 1 Click *Export*.
- 2 In the Export Results dialog box, specify the XML or the CSV filename, and select the corresponding file type.

By default, the file is saved as `quick_report_name.xml` in the `ConsoleOne_installation_directory\consoleone\1.2\reporting\export` directory.

NOTE: If you specify a filename within double quotes, and without an extension or with an extension other than `.xml` or `.csv`, the file is stored in the comma-separated value (CSV) format irrespective of the file type you select.

Sorting the Display in Ascending or Descending Order

- 1 Click *Sort*.
- 2 In the *Sort Items By* list, select the column by which you want to sort the entries.
- 3 Select either *Ascending* or *Descending*.
- 4 Configure the *Then By* drop-down lists.
- 5 Click *OK*.

For example, the Query Results window has the following entries:

Product Name	Vendor Name
Microsoft Word	Microsoft
Microsoft Excel	Microsoft
ZENworks	Novell
iPrint	Novell
GroupWise	Novell
Adobe Acrobat	Adobe

If you want to sort the entries first by the vendor name in the ascending order and then sort all the Novell products in the ascending order, do the following:

- 1 Click the *Sort* button.
- 2 In the *Sort By* drop-down list, select *Vendor Name*.
- 3 Select the *Ascending* option.
- 4 In the *Then By* drop-down list, select *Product Name*.
- 5 Select the *Ascending* option.
- 6 Click *OK*.

The entries are displayed as shown below:

Product Name	Vendor Name
Adobe Acrobat	Adobe
Microsoft Excel	Microsoft
Microsoft Word	Microsoft
GroupWise	Novell
iPrint	Novell
ZENworks	Novell

77.2 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 are exported depending upon the export scope. For example, you can export only those inventoried workstations with a particular processor speed. The Data Export tool exports 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 help you use the Data Export tool:

- ♦ [Section 77.2.1, “Procedure to Export the Inventory Information,” on page 1156](#)
- ♦ [Section 77.2.2, “Loading an Existing Configuration File,” on page 1159](#)
- ♦ [Section 77.2.3, “Running the Data Export Program From the Inventory Server,” on page 1160](#)

77.2.1 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 [Section 77.1.1, “Configuring the Inventory Database,” on page 1114](#).

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 option lets you modify the settings for data export and then export the data to a `.csv` or `.xml` file. For more information, see [Section 77.2.2, “Loading an Existing Configuration File,” on page 1159](#).

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 [Section 77.1.3, “Viewing Inventory Information by Querying the Database,” on page 1127](#).

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

The *Enable Filter* option is not available for selection if the query contains attributes belonging to different categories. For example, a query containing `software.name=word`, `softwaregroup.name=office`, and `diskusage.name=exe`.

If you want the results stored in `.csv` or `.xml` file to be filtered on the basis of the above query, select the *Enable Filter* check box.

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 7 Server Management and ZENworks 7 Desktop Management, the Data Export tool allows you to change the scope of exporting the inventory information.

By default, the *Workstations* option is enabled. The query locates all inventoried workstations satisfying the query expression. If ZENworks 7 Server Management and ZENworks 7 Desktop Management are installed in the same environment, the *Workstations*, the *Servers* and the *Both* options are 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 this option to run the data export processing from the workstation computer. This option accesses 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 this option 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 are 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 [Section 77.2.4, “An Overview of XML and the Contents of an XML File,” on page 1161](#).

77.2.2 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 Make sure that you have generated the data configuration files.

Complete the procedure outlined in [Section 77.2.1, “Procedure to Export the Inventory Information,” on page 1156](#). 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 [Section 77.1.1, “Configuring the Inventory Database,” on page 1114](#).

- 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 [Section 77.1.3, “Viewing Inventory Information by Querying the Database,” on page 1127](#).

- 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 this option to run the data export processing from the workstation computer. This option accesses 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 this option 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*.

77.2.3 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 Make sure that you have generated the data configuration files.

Follow the Step 1 to Step 5 as outlined in [Section 77.2.1, “Procedure to Export the Inventory Information,” on page 1156](#) and make sure 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, `dbexport.bat` on Windows servers, `/opt/novell/bin/DBExport` on Linux 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 is 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.

77.2.4 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. The 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

77.3 Viewing Inventory Information Without Using ConsoleOne

The `desktop4.exe` application that ships with ZENworks 7 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 7 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 7 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 are located in the `consoleone_installation_directory\bin` directory.

- 2 Specify 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 7 Desktop Management, specify `ZFD`. If you have installed ZENworks 7 Server Management, specify `ZFS`. If you have installed ZENworks 7 Desktop Management and ZENworks 7 Server Management in the same setup, specify `BOTH`.

Database Administrator Username: Specify the database administrator username in the `DBAUSERNAME` parameter.

Database Administrator Password: Specify 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 launch the Inventory Query application in which you can specify the query you want to perform. 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=WINXP-R1B164_99_151_48.OU=WsProm.O=novell"  
-n"MANTECHR5C-TREE" -c"Query" -d"Sybase"
```

where `Desktop4` is the name of the application; `"CN=WINXP-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=WINXP-R1B164_99_151_48.OU=WsProm.O=novell"
-n"MANTECHR5C-TREE" -c"Query" -D"Sybase"
```

where Desktop4 is the name of the application; “CN=WINXP-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=WINXP-R1B164_99_151_48.OU=WsProm.O=novell" -
n"INDYPROM-TREE" -c"Inventory" -D"Oracle"
```

where Desktop4 is the name of the application; “CN=WINXP-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=WINXP-R1B164_99_151_48.OU=WsProm.O=novell" -
n"INDYPROM-TREE" -c"Inventory" -D"Oracle"
```

where Desktop4 is the name of the application; “CN=WINXP-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 [Section 77.1.3, “Viewing Inventory Information by Querying the Database,” on page 1127](#). For more information on inventory information displayed by the Workstation Inventory, see [Section 77.1.2, “Viewing the Inventory Summary of an Inventoried Workstation,” on page 1114](#).

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 [Section 69.8, “Starting Remote Management Operations Without Using ConsoleOne,” on page 846](#).

77.4 Retrieving Inventory information from the Inventory Database Without Using the CIM Schema

ZENworks 7 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 7 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.

77.4.1 List of Inventory Views

Table 77-4 ZENworks Inventory Views and their functionality

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	
		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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.zen_bios	Retrieves the BIOS information	DesignVoltage	The design voltage of the battery in mVolts	Yes
		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	
		Caption	BIOS label	
		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	
mw_dba.zen_bus	Retrieves the Bus information	PrimaryBIOS	True state indicates Primary BIOS	Yes
		BIOSIDBytes	Byte in the BIOS that indicates the computer model	
		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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
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)	
		Speed	Speed of this System Cache module in nanoseconds	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.zen_cdrom	Retrieves the CDROM information	Capacity	Size of the data store where the cache information is kept	No
		DeviceID	Drive letter allocated for the CD on the inventoried workstation	
		Manufacturer	Vendor name of the CD	
		Description	Description of the CD	
mw_dba.zen_chassis	Retrieves the Chassis information	Caption	Caption of the CD	Yes
		AssetTag	Asset tag number of the system chassis. For example, S11127	
		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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
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	
		PrimaryOwnerContact	The phone number of the primary user of this system	
mw_dba.zen_currentlogin_details	Retrieves the current login information	CurrentUser	User logged into 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

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.zen_displaydriver	Retrieves the display driver information	VideoMemoryType	The type of video memory for this adapter, for example, VRAM/SRAM/DRAM/EDO RAM	Yes
		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	
		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	
		Manufacturer	Name of the display driver manufacturer	
		Version	Version number of the display driver	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
		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	Distinguished name	No
mw_dba.zen_dma	Retrieves the DMA information	Tree	eDirectory tree name	Yes
		Description	Name of the logical device that is currently using this DMA channel	
		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	
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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.zen_inventoryscanner	Retrieves the inventory scanner information	SectorsPerTrack	Floppy drive sectors per track	Yes
		Capacity	Floppy drive capacity	
		LastScanDate	The date when the Scanner was last scanned. Stored as milliseconds so it can be read and displayed in any appropriate date format.	
		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	
mw_dba.zen_ipaddress	Retrieves the IP address	privatedictionaryversion	Version of the Private dictionary	No
		Address	The unique address assigned to a computer on an IP Internet	
		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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
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_lastlogintails	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_macaddresses	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 For example, DesktopMonitor1	No
		ModelID	Unique ID of a model of the monitor. It is a combination of the Manufacturer ID and Product ID 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) For example, 17"	
			You can customize the scan of the nominal size of the monitor by configuring the HWRules ini file using the Workstation Inventory policy.	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
		ViewableSize	A number representing the diagonal width of the screen image excluding the black borders around the image's edge For example, 15.8"	
		ManufacturedDate	Year in which the monitor was manufactured	
		MonitorSerialNumber	Manufacturer's number used to identify a monitor For example, 23DDC24N9067	
		Manufacturer	Name of the monitor's manufacturer For example, DELL Computer Corp	
		Model	Product name of the monitor given by the manufacturer 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

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.zen_mousedriver	Retrieves the mouse driver information	MouseName	Identifying information of the mouse	No
		NumberOfButtons	Number of buttons on the mouse	
		IRQNumber	Interrupt assigned to this device	
		DriverName	Name of the mouse driver	
		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	
		InstallDate	Install date of the network adapter	
		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	
			For example, IBM 10/100 Ethernet adapter, EN-2420Px Ethernet adapter	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
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	
		PortAddress	Base I/O address for this parallel port	
mw_dba.zen_powersupply	Retrieves the power supply information	IRQNumber	IRQ number of the parallel port	No
		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	Yes
		DeviceID	Special hexadecimal string identifying the processor type	
		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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
		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	
		SlotDescription	Card currently occupying this slot	
		MaxDataWidth	Maximum bus width of cards accepted in the slot	
		ThermalRating	Maximum thermal dissipation of the slot in milliwatts	
mw_dba.zen_unixOS	Retrieves the UNIX operating system information	Type	Operating system of the inventoried workstation	Yes

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.zen_windowsOS	Retrieves the Windows operating system information	Caption	Operating system name	Yes
		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	
		KernelVersion	Version number of the operating system	
		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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.zen_software	Retrieves the software information	RevisionLevel	NetWare server specific attributes	Yes
		SecurityRestrictionLevel	NetWare server specific attributes	
		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	
		Name	Vendor-defined name of the product represented as a vendor trademark or registered trademark	
		Vendor	Vendor name of the software	
		Version	User-friendly version of a product 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 The format is ABCD-1234-WXYZ-PQRS	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
		InternalVersion	Internal version of a product The format is: <i>major version.minor version.build.sub build number</i> or <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	
		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.	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.zen_softwaregroup	Retrieves the software group information	InformationRepository	Source of scan, which can be, Add/Remove Programs, MSI, Software Dictionary, or PRODUCTS.DAT	Yes
		Category	Product category to which the product belongs 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	
		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	
mw_dba.zen_softwaregroup	Retrieves the software group information	ProductID	A unique, 16-character identifier for an installed product. This identifier is available from MSI on Windows. The format is ABCD-1234-WXYZ-PQRS	Yes

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
		InternalVersion	Internal version of a product The format is: <i>major version.minor version.build.sub build number</i> or <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	
		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.	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
		InformationRepository	Source of scan, which can be, Add/Remove Programs, MSI, Software Dictionary, or PRODUCTS.DAT	
		Category	Product category to which the product belongs 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
		Vendor	Vendor name for the antivirus product	
		Version	User-friendly version of the antivirus product	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
		ProductID	A unique, 16-character identifier for an installed antivirus product. This identifier is available from MSI on Windows. The format is ABCD-1234-WXYZ-PQRS	
		InternalVersion	Internal version of the antivirus product The format is: <i>major version.minor version.build.sub build number</i> or <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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
		Description	Description of the antivirus product	
		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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
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	
		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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
		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
mw_dba.zen_removable disk	Retrieves the removable disk information	LastScanTime	The date when the Scanner was last scanned. Stored as milliseconds so it can be read and displayed in any appropriate date format.	No
		RecentInformation	Latest information	
		Manufacturer	Vendor name for the removable disk	
		Description	Description of the removable disk	
		PhysicalCylinders	Total number of cylinders or tracks on the disk	
		PhysicalHeads	Number of heads	
mw_dba.zen_fixeddisk	Retrieves the fixed disk information	SectorsPerTrack	Number of sectors per track	No
		Capacity	Total size	
		Manufacturer	Vendor name of the fixed disk	
		Description	Description of the fixed disk	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.zen_WindowsLocalFileSystem	Retrieves the Windows local file system information	PhysicalCylinders	Total number of cylinders or tracks on the disk	No
		PhysicalHeads	Number of heads	
		SectorsPerTrack	Number of sectors per track	
		Capacity	Total size	
		Name	Windows local file system name	
		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	
mw_dba.zen_NetWareLocalFileSystem	Retrieves the NetWare local file system information	VolumeSerialNumber	Windows local file system volume number	No
		Name	NetWare local file system name	
		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	

Inventory View Name	Functionality	Attributes	Description	Is the view Localized?
mw_dba.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	

77.4.2 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.

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
```


Monitoring Workstation Inventory Using Status Logs

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Novell® ZENworks® 7 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:

- ♦ [Section 78.1, “Viewing the Scan History of an Inventoried Workstation,” on page 1195](#)
- ♦ [Section 78.2, “Viewing the Scan Status of an Inventoried Workstation,” on page 1196](#)
- ♦ [Section 78.3, “Viewing the Roll-Up History of the Server,” on page 1197](#)
- ♦ [Section 78.4, “Viewing the Status of Inventory Components on a Server,” on page 1197](#)
- ♦ [Section 78.5, “Viewing the Status of the Last Scan in the Workstation Scan Log,” on page 1198](#)
- ♦ [Section 78.6, “Viewing the Roll-Up Log for Servers,” on page 1199](#)
- ♦ [Section 78.7, “Status Logs and Scan Logs Overview,” on page 1200](#)
- ♦ [Section 78.8, “Viewing the Status Log in XML Format,” on page 1200](#)

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

78.1 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:

Table 78-1 Details available in the Status Report 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.

78.2 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:

Table 78-2 Details available in 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.

78.3 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 that 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:

Table 78-3 Details available in the Roll-Up 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*.

78.4 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.

Table 78-4 *Inventory Details displayed in the Server Status window*

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*.

78.5 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:

Table 78-5 *Details available in the Workstation Scan 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.

78.6 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:

Table 78-6 Details available in the Roll-Up 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*.

78.7 Status Logs and Scan Logs Overview

Table 78-7 *List of the Inventory 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 <i>Tools</i> , click <i>ZENworks Inventory</i> , then click <i>Workstation Scan Log</i>
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 <i>Tools</i> , click <i>ZENworks Inventory</i> , then click <i>Roll-Up Log</i>
Workstation Scan Status	Scan program, Storer	Time of scan and status message	In ConsoleOne, right-click the inventoried workstation, click <i>Properties</i> , click the <i>ZENworks Inventory</i> tab, then click <i>Scan Status</i>
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 <i>Properties</i> , click <i>Status Report</i> , then click <i>Server Status</i>
Roll-Up Status	Sender, Receiver, Storer	Roll up start time, message	In ConsoleOne, right-click the Inventory Service object, click <i>Properties</i> , click <i>Status Report</i> , then click <i>Roll-Up Status</i>

78.8 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® 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 are in the current log file.

To view the log data file, use a third-party XML browser.

M

Performance Tips

This section provides information on the system and database parameters that you need to tune to obtain improved performance for Novell® ZENworks® 7 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:

- ♦ [Section M.1, “Database Parameter Tuning Tips,” on page 1203](#)
- ♦ [Section M.2, “Improving the Throughput of the Inventory Storer,” on page 1209](#)
- ♦ [Section M.3, “Performance Tips for the Inventory Server \(Support Pack 1\),” on page 1212](#)
- ♦ [Section M.4, “Performance Tips for the Inventory ConsoleOne Utilities,” on page 1214](#)
- ♦ [Section M.5, “References,” on page 1216](#)

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

M.1 Database Parameter Tuning Tips

- ♦ [“Sybase in the NetWare, Windows, or Linux Environment” on page 1203](#)
- ♦ [“Oracle in the NetWare, Windows, or Linux Environment” on page 1206](#)
- ♦ [“MS SQL in the Windows Environment” on page 1208](#)

M.1.1 Sybase in the NetWare, Windows, or Linux Environment

- ♦ We recommend you to set the database cache size as follows by configuring the -c parameter in the Sybase startup:

Table M-1 *Recommended total system memory and Sybase cache memory*

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 multiprocessors 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:

Table M-2 *Recommended free hard disk space*

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: Make sure 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 7 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, make sure that the Sybase Inventory database is up and running, and then stop the Storer.

If you have ZENworks 7 Desktop Management installed, do the following to run the Sybindex utility. If you have ZENworks 7 Desktop Management with Support Pack 1 installed, see [Section M.3, “Performance Tips for the Inventory Server \(Support Pack 1\),” on page 1212](#) to run the Sybindex utility.

On a NetWare server: At the server console prompt, enter `sybindex`.

On a Windows server: At the server command prompt, go to `inventory_server_installation_path\zenworks\inv\server\wminv\bin` and enter `sybindex`.

On a Linux server: At the server command prompt, go to `/opt/novell/bin` and enter `sybindex`.

NOTE: If the Sybase Inventory database is either not hosted on the current Inventory server or is running on a port other than 2638, edit the `sybindex.ncf` (on NetWare), `sybindex.bat` (on Windows), or `sybindex` (on Linux) to change the host and port before running `sybindex`.

Changing the Database Cache Size on a NetWare Database Server

- 1 Stop the Inventory service. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).
- 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 [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).

Changing the Database Cache Size on a Windows Database Server

- 1 Stop the Inventory service. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).
- 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 949](#).
- 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 [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931.](#)

Changing the Database Cache Size on a Linux Database Server

- 1 Stop the Inventory service. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931.](#)
- 2 Close all connections to the Inventory database.
- 3 Quit the Sybase server.
- 4 Open the `mgmt dbs .sh` file in the `/opt/novell/zenworks/bin/` 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 [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931.](#)

For more information on Performance tips, see [Section M.1, “Database Parameter Tuning Tips,” on page 1203.](#)

M.1.2 Oracle in the NetWare, Windows, or Linux Environment

- ♦ Use the following memory recommendations:

Table M-3 *Recommended total system memory and Oracle SGA memory*

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

- ♦ Use the following disk space recommendations:

Table M-4 *Recommended free hard disk space*

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

Inventoried Workstations in the Database (thousands)	Free Hard Disk Space (GB)
Up to 25	12
Up to 30	13
Up to 35	15
Up to 40	20
Up to 45	25

IMPORTANT: Make sure 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 multiprocessors for servers hosting the database.
- ♦ Refer to the Oracle performance tuning documentation and other general recommendations that are listed in the [Section M.5, “References,” on page 1216](#) 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 `mgmtldbo.ncf` or the `mgmtldbo.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 the 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.

M.1.3 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 [Section M.1, “Database Parameter Tuning Tips,” on page 1203](#).

M.1.4 MS SQL in the Windows Environment

- ♦ We recommend that you use a dedicated server for MS SQL.
- ♦ On the MS SQL server, make sure 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:

Table M-5 *Recommended total system memory, processor speed and MS SQL cache memory*

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

- ♦ Use the following disk space recommendations:

Table M-6 *Recommended free hard disk space*

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

Inventoried Workstations in the Database (thousands)	Free Hard Disk Space (GB)
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 multiprocessors for servers hosting the database.
- ♦ For additional tips on MS SQL, refer to the [MS SQL Server documentation \(http://www.sql-server-performance.com/default.asp\)](http://www.sql-server-performance.com/default.asp).

M.2 Improving the Throughput of the Inventory Storer

You can now improve the throughput of the Inventory Storer by deploying multiple Root Servers to directly store the inventory data to the Oracle 9.2.0.6 Inventory database.

The following sections provide more information:

- ♦ [Section M.2.1, “Factors to be Considered Before Deployment,” on page 1209](#)
- ♦ [Section M.2.2, “Procedure to Improve the Throughput,” on page 1209](#)
- ♦ [Section M.2.3, “Recommendations for Administering the ZENworks Inventory Server,” on page 1211](#)
- ♦ [Section M.2.4, “Recommendations for Administering the Inventory Database,” on page 1212](#)

M.2.1 Factors to be Considered Before Deployment

- ♦ **Network Topology:** The Root Servers and the Database server must be located in the same LAN.
- ♦ **Frequency of Scans Received by the Inventory Server:** Large number of scans to be processed within a short duration. For example, scanning 25000 workstations every day.
- ♦ **Scan Type:** An initial FULL scan storage would take more time compared to subsequent DELTA scan times.
- ♦ **Total number of Root Servers:** If the size of the scan files is smaller, you can achieve a better throughput by deploying a maximum of 6 to 8 Root Servers. But if you deploy more than 8 servers, the throughput might degrade. All servers that you plan to deploy must receive approximately equivalent number of scans.

M.2.2 Procedure to Improve the Throughput

- 1 Make sure that the Inventory database has been successfully migrated.
- 2 Stop the Inventory service and the Inventory database.
- 3 Configure a minimum of two Root Servers but a maximum of eight Root Servers to store the inventory data to an Oracle 9.2.0.6 Inventory database.

4 Make sure that the Database server has the following requirements:

- ♦ Three physical disks
- ♦ Each disk has a drive with at least 30 GB free disk space
- ♦ Two Pentium IV processors with 2.4 GHz and 2 GB RAM

For example, on Windows let's assume that the C drive is on disk1, the E drive on disk2, and the F drive on disk3. And the F drive contains the database files.

5 Create the following directory structure for database files on all the three drives:

`drive_name\zenworks\inventory\oracle\database`

For example:

```
c:\zenworks\inventory\oracle\database\  
f:\zenworks\inventory\oracle\database\  
e:\zenworks\inventory\oracle\database\
```

Let's assume that all the inventory database files are present in
f:\zenworks\inventory\oracle\database.

6 Move the following database files from

f:\zenworks\inventory\oracle\database as explained below:

- ♦ Move log1.ora, cim8.ora, cim81.ora, cim82.ora, and index1.ora to
c:\zenworks\inventory\oracle\database.
- ♦ Move the following files to e:\zenworks\inventory\oracle\database:

```
rbs1.ora  
tmp1.ora  
cim1.ora  
cim2.ora  
cim21.ora  
cim3.ora  
cim4.ora  
cim5.ora  
cim51.ora  
cim7.ora  
cim71.ora  
cim72.ora  
index2.ora
```

7 Edit the f:\zenworks\inventory\oracle\database\init.ora file to set values for the following parameters as mentioned:

```
db_cache_size=700000000 or above  
shared_pool_size = 300000000 or above  
pga_aggregate_target=300000000 or above  
sort_area_size=100000000 or above  
log_buffer = 1024000 or above  
compatible=8.1.6.0.0 or above  
open_cursors=2048  
session_cached_cursors=2048  
processes=200
```

- 8 Extract the platform-specific `atlasperf_alterctrl.sql` from `ZENworks_installation_directory\zenworks\inv\server\wminv\properties\sql.zip`.

If Oracle is running on Windows, extract `atlasperf_alterctrl.sql` from the `oracle\winntspecific` directory within `sql.zip`.

If Oracle is running on Unix, extract `atlasperf_alterctrl.sql` from the `oracle\unixspecific` directory within `sql.zip`.

- 9 Modify the file paths in `atlasperf_alterctrl.sql`, if required, and execute `atlasperf_alterctrl.sql` at the SQLPLUS prompt.
- 10 Start the Inventory database.
- 11 Extract the `\oracle\common\atlasperf_alterfreelist.sql` file from `ZENworks_installation_directory\zenworks\inv\server\wminv\properties\sql.zip`, and execute `atlasperf_alterfreelist.sql` at the SQLPLUS prompt.
- 12 Open the Oracle Enterprise Manager console, and make sure that all the indices and primary key constraints of the following tables are set to Degree of the Parallel option - Default, NOLOGGING and Free Lists is 10:

```
zenworks.t$installedproduct
cim.t$product
mw_dba.installedsoftwarepatch
mw_dba.patch
mw_dba."file"
mw_dba.installedfile
```

- 13 On all Inventory servers, edit `ZENworks_installation_directory\zenworks\inv\server\wminv\properties\storerdebug.properties` to set the value of the following parameters as mentioned:


```
filebatchupdate=true
cursorclosedelay=500
```
- 14 Start the Inventory services on all the Inventory servers that are connected to this database.

M.2.3 Recommendations for Administering the ZENworks Inventory Server

- ♦ Avoid or minimize the frequency of importing or removing workstations because it would result in many FULL scans.
- ♦ Avoid NDS time out of sync situation because it may trigger FULL scans.
- ♦ Trigger FULL scan on the Inventory service object only if required because it would trigger FULL scans on all inventoried machines connected to the Inventory server.
- ♦ Balance the load of inventory scan and zip files on each server.
- ♦ Stagger the inventory scan and the roll-up schedule.
- ♦ Avoid scheduling too many frequent scans and roll-ups such as daily scans and daily roll-ups.

- ♦ Minimize the scanning of unknown application files and tune the software dictionary. For detailed information, see [Section 76.3.30, “Base-Lining the Software Dictionary Deployment,”](#) on page 1096.

M.2.4 Recommendations for Administering the Inventory Database

- ♦ Resize the Oracle SGA parameters appropriately to handle the concurrent updates.
- ♦ Configure appropriate database server hardware requirements such as adding memory, disks.
- ♦ If required, rebuild the indices in the database and scatter them to different tablespaces. Do not have more than one index of the same table on a tablespace.
- ♦ Scatter the data files on multiple physical disks.
- ♦ Apply the standard recommendations as suggested in the Oracle administration or Performance guides.
- ♦ Use a dedicated network between the Inventory server and the Inventory database. For example, 100 MBPS.
- ♦ Add enough rollback segments and properly size them to avoid the ORA-01555 error.
- ♦ If a large number of workstations are processed for FULL scan, delete old database and use a new database.

M.3 Performance Tips for the Inventory Server (Support Pack 1)

IMPORTANT: Review this section only if you installed ZENworks 7 Desktop Management with Support Pack 1

The Server Inventory service might demand high (up to 100%) processor utilization in the following scenarios:

- ♦ Many Inventory agents are simultaneously upgraded to ZENworks 7 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.
- ♦ The Server Inventory process or other applications are running on the ZENworks server.
- ♦ The indexes of the Inventory database might have to be recreated.

If the utilization rate is unacceptable, or if the Inventory Storer takes a considerable amount of time to store the inventory data, perform the following tasks to improve the Inventory server performance:

- 1 Stop the Inventory Service. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,”](#) on page 931.
- 2 Close all instances of ConsoleOne that are connected to this database.

3 If your Inventory database is running on Sybase, modify the database indexes using the sybindex utility.

- ♦ To run the sybindex utility on a NetWare server:

1. On the Inventory server, extract `Inventory_server_installation_path\zenworks\inv\server\wminv\properties\sql.zip` to a temporary directory retaining the directory structure. For example, extract `sql.zip` to `sys:\sql`. The temporary directory contains the Sybase directory.
2. If the Sybase Inventory database is either not hosted on the Inventory server or is running on a port other than 2638, edit `Inventory_server_installation_path\zenworks\inv\server\wminv\properties\sqlupdater.properties` to specify the host and port on which the Sybase Inventory database is running.
3. At the Inventory server system console prompt, enter:
`sybindex -path complete_path_of_sql.zip_extracted_directory\sybase.`
 For example, `sybindex -path sys:\sql\sybase` where `sql` is the directory to which `sql.zip` is extracted in Step 1.

- ♦ To run the sybindex utility on a Windows server:

1. On the Inventory server, extract `Inventory_server_installation_path\zenworks\inv\server\wminv\properties\sql.zip` to a temporary directory retaining the directory structure. For example, extract `sql.zip` to `c:\sql`. The temporary directory contains the Sybase directory.
2. If the Sybase Inventory database is either not hosted on the Inventory server or is running on a port other than 2638, edit `Inventory_server_installation_path\zenworks\inv\server\wminv\properties\sqlupdater.properties` to specify the host and port on which the Sybase Inventory database is running.
3. At the Inventory server command prompt, navigate to `Inventory_server_installation_path\zenworks\inv\server\wminv\bin`, and enter
`sybindex -path complete_path_of_sql.zip_extracted_directory/sybase.`
 For example, `sybindex -path c:\sql\sybase` where `sql` is the directory to which `sql.zip` is extracted in Step 1.

- ♦ To run the Sybindex utility on a Linux server:

1. On the Inventory server, extract `/etc/opt/novell/zenworks/inv/sql.zip` to a temporary directory retaining the directory structure. For example, extract `sql.zip` to `/home/user`. The temporary directory contains the Sybase directory.
2. If the Sybase Inventory database is either not hosted on the Inventory server or is running on a port other than 2638, edit `/etc/opt/novell/zenworks/inv/SQLUpdater.properties` to specify the host and port on which the Sybase Inventory database is running.
3. At the Inventory server command prompt, navigate to `/opt/novell/bin`, and enter
`sybindex -path complete_path_of_sql.zip_extracted_directory/sybase.`
 For example, `sybindex -path home/user/sql/sybase`

NOTE: This execution might take significant amount of time to complete depending on the database size.

- 4 If your Inventory database is running MSSQL database, execute the following scripts available in the MSSQL directory of
`Inventory_server_installation_path\zenworks\inv\server\wminv\properties\sql.zip` with appropriate user logins as explained below from the MS SQL Query Analyzer:
 - ♦ Log in as CIM and execute `mssql_perf_cim.sql`.
 - ♦ Log in as ZENworks and execute `mssql_perf_zenworks`.
 - ♦ Log in as ManageWise and execute `mssql_perf_managewise`.
 - ♦ Log in as MW_DBA and execute `mssql_perf_mw_dba`.

Ignore any warnings related to DROP statements during the script execution.
- 5 Restart the Inventory Service. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).
- 6 Restart the ConsoleOne.
- 7 To improve the throughput of the Storer, you can tune the parameters of the service.
 - 7a Stop the Inventory service. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).
 - 7b Run a text editor and navigate to the
`Inventory_server_installation_path\zenworks\inv\server\wminv\properties` directory.
 - 7c Open the `storerdebug.properties` file, make the following value change to the uncommented parameter:
`filebatchupdate=true`
 - 7d Save the changes and close the file.
 - 7e Restart the Inventory service. For more information, see [Section 73.1.5, “Starting and Stopping the Inventory Service,” on page 931](#).

M.4 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 1215](#)
- ♦ [“Inventory Data Export Performance Tips” on page 1215](#)
- ♦ [“Inventory Query Performance Tips” on page 1215](#)

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.

If your database is huge, make sure that the machine running the Inventory ConsoleOne utilities has at least 5 GB free hard disk space.

M.4.1 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.

M.4.2 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 exports 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 greatly improves the performance of the Non-Software Export function.

M.4.3 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 [Section M.1, "Database Parameter Tuning Tips," on page 1203](#).
- ♦ 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 is 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 results 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.

M.5 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

N

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

Table N-1 Hardware information collected on the NetWare inventoried servers

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.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.MACAddress (Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting)
IP.Address	Not applicable	Win32_NetworkAdapterConfiguration.IPAddress (Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting)

Scan Data	DMI Class and Attribute	WMI Class and Attribute
IP.Subnet (Subnet Mask)	Not applicable	Win32_NetworkAdapterConfiguration.IPSubnet (Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting)
NetworkAdapter.MACAddress	Not applicable	Win32_NetworkAdapterConfiguration.MACAddress (Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting)
IPX.Address	Not applicable	Win32_NetworkAdapterConfiguration.IPXAddress (Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting)
NetworkAdapter.MACAddress	Not applicable	Win32_NetworkAdapterConfiguration.MACAddress (Only on Windows 2000/XP; get it through association with Win32_NetworkAdapterSetting)
DNS.HostName	Not applicable	Win32_NetworkAdapterConfiguration.DNSHostName + DNSDomain (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 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

Scan Data	DMI Class and Attribute	WMI Class and Attribute
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
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.Descriptipion
Bus.Version	Not applicable	Not applicable
Bus.DeviceID	Not applicable	Win32_Bus.DeviceID
IRQ.Number	DMTF IRQ 002.IRQNumbe r	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.Layou t	CIM_Keyboard.Layout
Keyboard.Subtype	Not applicable	Not applicable
Keyboard.Type	DMTF Keyboard 003.Keyb oard.Type	CIM_Keyboard.Description
Keyboard.Fkeys	Not applicable	CIM_Keyboard.NumberOfFunctionKeys
Keyboard.Delay	Not applicable	Not applicable
Keyboard.TypeomaticRate	Not applicable	Not applicable
VideoAdapter.NumberOfColor Planes (NEW)	Not applicable	Win32_VideoController.NumberOfColorP anes

Scan Data	DMI Class and Attribute	WMI Class and Attribute
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
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

Scan Data	DMI Class and Attribute	WMI Class and Attribute
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
FloppyDrive.DeviceID	DMTF Logical Drives 001.Logical Drive Name (when DMTF Logical Drives 001.Logical Drive Type=Floppy Drive(7))	Win32_LogicalDisk.DeviceID (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 (when DMTF Disks 003.Storage Type=Floppy Disk(4))	Win32_LogicalDisk.Description (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 (when DMTF Logical Drives 001.Logical Drive Type = Floppy Drive(7))	Win32_LogicalDisk.Size (where Win32_LogicalDisk.DriveType = 2 (Removable Disk) and Win32_LogicalDisk.MediaType = [1,10])
CDROMDrive.DeviceID	DMTF Logical Drives 001.Logical Drive Name (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 (when DMTF Disks 001.Logical Drive Type = 6)	Win32_CDROMDrive.Caption

Scan Data	DMI Class and Attribute	WMI Class and Attribute
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 (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
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_LogicalDiskDeviceID (when Win32_LogicalDisk.DriveType = 3 (Local Disk))
LogicalDrive.VolumeSerialNumber	Not applicable	Win32_LogicalDisk.VolumeSerialNumber (when Win32_LogicalDisk.DriveType = 3 (Local Disk))
LogicalDrive.Volume (Volume Label)	Not applicable	Win32_LogicalDisk.VolumeName (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

Scan Data	DMI Class and Attribute	WMI Class and Attribute
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
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.System Cache Level	Win32_CacheMemory.Level
Cache.WritePolicy	DMTF System Cache 003.System Cache Write Policy	Win32_CacheMemory.WritePolicy
Cache.ErrorCorrection	DMTF System Cache 003.System Cache Error Correction	Win32_CacheMemory.ErrorCorrectType
Cache.Type	DMTF System Cache 003.System Cache Type	Win32_CacheMemory.CacheType
Cache.LineSize	DMTF System Cache 003.Line Size	Win32_CacheMemory.LineSize
Cache.ReplacementPolicy	DMTF System Cache 003.Replacement Policy	Win32_CacheMemory.ReplacementPolicy
Cache.ReadPolicy	DMTF System Cache 003.Read Policy	Win32_CacheMemory.ReadPolicy
Cache.Associativity	DMTF System Cache 003.Associativity	Win32_CacheMemory.Associativity
Cache.Speed	DMTF System Cache 003.System Cache Speed	Win32_CacheMemory.CacheSpeed

Scan Data	DMI Class and Attribute	WMI Class and Attribute
Cache.Size	DMTF System Cache 003.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.Nu mber of Expansion slots	Not applicable
MotherBoard.Manufacture	Not applicable	Win32_BaseBoard.Manufacture
Battery.Name	DMTF Portable Battery 002.Portable Battery Device Name	Win32_Battery.Name
Battery.Chemistry	DMTF Portable Battery 002.Portable Battery Device Chemistry	Win32_Battery.Chemistry
Battery.Capacity	DMTF Portable Battery 002.Portable Battery Design Capacity	Win32_Battery.DesignCapacity
Battery.Voltage	DMTF Portable Battery 002.Portable Battery Design Voltage	Win32_Battery.DesignVoltage
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.InputVoltageDesc ription	DMTF Power Supply 002.Power Supply Input Voltage Capability Description	CIM_UninterruptiblePowerSupply.Descrip tion
PowerSupply.Power	DMTF Power Supply 002.Total Output Power	CIM_UninterruptiblePowerSupply.TotalOu tputPower
DMA.Number	DMTF DMA 001.DMA Number	CIM_DMA.DMAChannel
DMA.Description	DMTF DMA 001.DMA Description	CIM_DMA.Description

Scan Data	DMI Class and Attribute	WMI Class and Attribute
DMA.Availability	DMTF DMA 001.DMA Channel Availability	CIM_DMA.Availability
DMA_BurstMode	DMTF DMA 001.DMA BurstMode	CIM_DMA.BurstMode
UCS.DNName	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
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 (when Win32_LogicalDisk.DriveType = 3 (Local Disk))
FileSystem.FileSystemSize	Not applicable	Win32_LogicalDisk.Size (when Win32_LogicalDisk.DriveType = 3 (Local Disk))

Scan Data	DMI Class and Attribute	WMI Class and Attribute
FileSystem.AvailableSpace	Not applicable	Win32_LogicalDisk.FreeSpace (when Win32_LogicalDisk.DriveType = 3 (Local Disk))
FileSystem.FileSystem	Not applicable	Win32_LogicalDisk.FileSystem (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.NominalSize (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 7 Desktop Management Inventory Attributes



The following table lists the Workstation Inventory attributes that ZENworks® 7 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

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

Table O-1 Workstation Inventory attributes used in ZENworks Desktop Management

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 Novell® 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.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
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.
CurrentLoginUser.Name	Current Login User.Name	ManageWise."User".Name	String	254	User logged into 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 in to 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

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
WinOperatingSystem.OSType	Windows_Name	ZENworks.WINOperatingSystem.OSType	Unsigned Small Integer (enum)		Operating system name. For example, Windows 2000. See Section P.3, "Enumeration Values for Software-Operating Systems-Windows - Name," on page 1256.
WinOperatingSystem.Version	Windows_Version	ZENworks.WINOperatingSystem.Version	String	254	Version of the operating system.
WinOperatingSystem.Caption	Windows_Caption	ZENworks.WINOperatingSystem.Caption	String	64	Short name of the operating system. For example, Windows 2000.
WinOperatingSystem.Role	Windows_Role	ZENworks.WINOperatingSystem.Role	Integer (enum)		The role of the computer system. For example, server or workstation.
WinOperatingSystem.OtherTypeDescription	Windows_OtherDescription	ZENworks.WINOperatingSystem.Description	String	254	More description about the operating system.
WinOperatingSystem.InstallDate	Windows_InstallDate	ZENworks.ZENOperatingSystem.InstallDate	String	25	Installation date of the operating system.
WinOperatingSystem.CodePage	Windows_CodePage	ZENworks.WINOperatingSystem.CodePage	String	254	Current language code page being used.
WinOperatingSystem.TotalVisibleMemorySize	Windows_TotalMemory (MB)	ZENworks.WINOperatingSystem.TotalVisibleMemorySize	Integer		Total memory as reported by the Windows operating system.
WinOperatingSystem.TotalVirtualMemorySize	Windows_TotalVirtualMemory (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.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
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_Inventory 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.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
NetworkAdapterDriver.Version	Network Adapter Driver_Version	ZENworks.NetworkAdapterDriver.Version	String	64	Network adapter driver version.
PointingDeviceDeviceDriver.Name	Pointing Device Driver_Name	ZENworks.PointingDeviceDeviceDriver.Name	String	254	Name of the mouse driver installed on the inventoried workstation.
PointingDeviceDeviceDriver.Version	Pointing Device Driver_Version	ZENworks.PointingDeviceDeviceDriver.Version	String	64	Mouse driver version.
PointingDevice.Name	Pointing Device_Name	CIM.PointingDevice.Name	String	254	<p>The name of the pointing device, such as Mouse. The string stored in this field is MOUSE.</p> <p>The CIM.PointingDevice.PointingType field determines the type of the pointing device.</p> <p>The different types of pointing devices are as listed in Section P.7, "Enumeration Values for Hardware-Pointing Device-Name," on page 1257.</p>
PointingDevice.NumberOfButtons	Pointing Device_Number of Buttons	CIM.PointingDevice.NumberOfButtons	Unsigned Tiny Integer		The number of buttons used by the pointing device.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
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 "Understanding the Inventory Database Schema" on page 1005.
PointingDevice.PointingType	Pointing Device_Type	CIM.PointingDevice.PointingType	Integer (enum)		The pointing device type.
ZENKeyboard.NumberOfFunctionKeys	Keyboard_Number of Function Keys	ZENworks.ZENKeyboard.NumberOfFunctionKeys	Unsigned Small Integer		Number of function keys on keyboard.
ZENKeyboard.Layout	Keyboard_Layout	ZENworks.ZENKeyboard.layout	String	254	Layout information. For example, US English.
ZENKeyboard.SubType	Keyboard_Subtype	ZENworks.ZENKeyboard.SubType	Unsigned Integer		A number indicating the subtype of the keyboard.
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.TypeMaticRate	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.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
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.Is Shadowed	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.NumberOfColorPlanes	Unsigned Integer		Number of color planes supported by the video system.
VideoAdapter.CurrentVerticalResolution	Display Adapter_Current Vertical Resolution	ZENworks.VideoAdapter.CurrentVerticalResolution	Unsigned Integer		Vertical resolution of the display.
VideoAdapter.CurrentHorizontalResolution	Display Adapter_Current Horizontal Resolution	ZENworks.VideoAdapter.CurrentHorizontalResolution	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.MinRefreshRate	Unsigned Integer		Minimum refresh rate of the monitor for redrawing the display, measured in Hertz.
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.

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.VideoArchitecture	Display Adapter_Video Architecture	ZENworks.VideoAdapter.VideoArchitecture	Unsigned Integer (enum)		The architecture of the video subsystem in this system. For example, CGA/VGA/SVGA/8514A. See Section P.5, "Enumeration Values for Hardware-Display Adapter-Video Architecture," on page 1257.
VideoAdapter.VideoMemoryType	Display Adapter_Video Memory Type	ZENworks.VideoAdapter.VideoMemoryType	Unsigned Small Integer (Enum)		The type of memory for this adapter. For example, VRAM/SRAM/DRAM/EDO RAM. See Enumeration Values for Hardware-Display Adapter-Video Memory Type.
VideoAdapter.MaximumMemorySupported	Display Adapter_Maximum Memory Supported(KB)	ZENworks.VideoAdapter.MaximumMemorySupported	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.

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.Description	Modem_Description	ZENworks.ZENPOTSModem.Description	String	254	The complete description of the modem. For example, Standard 2400 bps modem, IBM PCMCIA HPC modem.
ZENPOTSModem.Name	Modem_Name	ZENworks.ZENPOTSModem.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.ZENPOTSModem.Provider	String	254	The manufacturer or the provider name.
ZENPOTSModem.DeviceID	Modem_Device ID	ZENworks.ZENPOTSModem.DeviceID	String	64	The unique ID assigned to the device.
BIOS.BIOSIDBytes	BIOS_BIOS Identification Bytes	ZENworks.BIOS.BIOSIDBytes	String	254	Byte in the BIOS that indicates the computer model.
BIOS.SerialNumber	BIOS_Serial Number	ZENworks.BIOS.Serial Number	String	64	Serial number of BIOS assigned by the manufacturer.
BIOS.PrimaryBIOS	BIOS_Primary Bios	ZENworks.BIOS.PrimaryBIOS	BIT (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.BIOS.Install Date	String	25	The release date of the BIOS given by the manufacturer.
BIOS.Version	BIOS_Version	ZENworks.BIOS.Version	String	254	Version or revision level of the BIOS.
BIOS.Manufacturer	BIOS_Manufacturer	ZENworks.BIOS.Manufacturer	String	254	The manufacturer name of BIOS.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
BIOS.Caption	BIOS_Caption	ZENworks. BIOS.Caption	String	64	The name of the BIOS as given by the BIOS manufacturer.
BIOS."size"	BIOS_Size(KB)	ZENworks. BIOS.size	Unsigned Integer		Size of the BIOS in bytes.
Processor.CurrentClockSpeed	Processor_Current Clock Speed(MHz)	CIM. Processor. CurrentClockSpeed	Unsigned Integer		Current clock speed of the processor in MHz.
Processor.Maxclockspeed	Processor_Maximum Clock Speed(MHz)	CIM. Processor. MaxClockSpeed	Unsigned Integer		Maximum clock speed of the processor in MHz.
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 (enum)		Family the processor belongs to. See Section P.9, "Enumeration Values for Hardware-Processor-Processor Family," on page 1258.
Processor.Otherfamily description	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.

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.UpgradeMethod	Processor_Upgrade Method	CIM.Processor.Upgrade Method	Unsigned Small Integer (Enum)		The method by which this processor can be upgraded, if upgrades are supported. See Section P.10, "Enumeration Values for Hardware-Processor-Upgrade Method," on page 1258.
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 "Understanding the Inventory Database Schema" on page 1005.

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 "Understanding the Inventory Database Schema" on page 1005.
CacheMemory.Level	Cache Memory_Level	CIM.CacheMemory."Level"	Unsigned Small Integer (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 (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.ErrorMethodology	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 (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.

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.ReplacementPolicy	Cache Memory_Replacement Policy	CIM.Cache Memory.ReplacementPolicy	Unsigned Integer (enum)		Algorithm that the cache uses to determine which cache lines or buckets should be reused.
CacheMemory.ReadPolicy	Cache Memory_Read Policy	CIM.Cache Memory.ReadPolicy	Unsigned Small Integer (enum)		Indicates whether the data cache is for read operation.
CacheMemory.Associativity	Cache Memory_Associativity	CIM.Cache Memory.Associativity	Unsigned Integer (enum)		Defines the system cache associativity (direct-mapped, 2-way, 4-way).
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.SectorsPerTrack	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.

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.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.SectorsPerTrack	Unsigned Integer		Number of sectors per track.
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.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
LocalFileSystem.FileSystemType	Logical Disk Drive_ File System Type	CIM.LocalFileSyst em.FileSystemType	String	254	The file system on the drive, such as FAT or NTFS.
CDROMDrive.Manufacturer	CDROM_Manufacturer	ZENworks. Physical CDROM. Manufacturer	String	254	The manufacturer of the CD-ROM drive.
CDROMDrive.Caption	CDROM_Caption	ZENworks. Physical CDROM. Caption	String	64	CD-ROM label.
CDROMDrive.Description	CDROM_ Description	ZENworks. Physical CDROM. 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. Logical CDROM. 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. 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 Chapter 75, "Understanding the Inventory Database Schema," on page 1005.</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.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
ParallelPort.IRQNumber	Parallel Port_IRQ Number	CIM.IRQ.IRQNumber	Unsigned Integer		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. For more information on how they are associated, see Chapter 75, "Understanding the Inventory Database Schema," on page 1005.
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.
Bus.DeviceID	Bus_Device ID	ZENworks.Bus.DeviceID	String	64	The unique ID for the specific bus.
ZENNetworkAdapter.Name	Network Adapter_Name	CIM.ZENworks.ZENNetworkAdapter.Name	String	254	Network adapters installed on the system.
ZENNetworkAdapter.MaxSpeed	Network Adapter_Max_Speed (Mbps)	CIM.ZENworks.ZENNetworkAdapter.MaxSpeed	Unsigned Integer		Rate at which the adapter can transfer data.
ZENNetworkAdapter.PermanentAddress	Network Adapter_Permanent Address	CIM.ZENworks.ZENNetworkAdapter.PermanentAddresses	String	64	Machine address stored permanently in the adapter (MAC address).
ZENNetworkAdapter.MACAddress	Network Adapter_Address	CIM.ZENworks.ZENNetworkAdapter.MACAddress	String	64	The MAC address stored in the network adapter.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
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. See Section P.8, "Enumeration Values for Hardware-Battery-Chemistry," on page 1257.
Battery.DesignCapacity	Battery_Design Capacity(mWatt-hours)	CIM.Battery.Design Capacity	Unsigned Integer		The design capacity of the battery in mWatt-hours.
Battery.DesignVoltage	Battery_Design Voltage(MilliVolts)	CIM.Battery.DesignVoltage	Unsigned Integer		The design voltage of the battery in mVolts.

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.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.PowerSupply.Description	String	254	Name and description of the power supply on the system.
PowerSupply.TotalOutputPower	Power Supply_Total Output Power (MilliWatts)	CIM.PowerSupply.TotalOutputPower	Unsigned Integer		Total output power of the power supply.
IPProtocolEndPoint.Address	IP Address_Address	CIM.IPProtocolEndpoint.Address	String	254	IP address of the inventoried workstation.
IPProtocolEndPoint.Subnet Mask	IP Address_Subnet Mask	CIM.IPProtocolEndpoint.SubnetMask	String	254	The subnet mask of the inventoried workstation.
DNSName.LABEL	DNS_LABEL	ManageWise.DNS Name.Label	String	254	DNS name of the inventoried workstation.
IPXProtocolEndPoint.Address	IPX Address_Address	CIM.IPXProtocolEndpoint.Address	String	254	IPX address of the inventoried workstation.
LANEndPoint.MACAddress	MAC Address_Address	CIM.LANEndpoint.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_NumberOfSlots	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: 1 = "Other" 2 = "Unknown" 3 = "Available" 4 = "In Use/Not Available" 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: 1 = "Other" 2 = "Unknown" 3 = "Level" 4 = "Edge"
IRQ.Shareable	IRQ_IRQ Shareable	CIM.IRQ.Shareable	Unsigned Small Integer		Boolean indicating whether the IRQ can be shared.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
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.
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. Enumeration values are as follows: 1 = "Other" 2 = "Unknown" 3 = "Available" 4 = "In Use/Not Available" 5 = "In Use and Available/Shareable"
DMA.BurstMode	DMA_DMA Burst Mode	CIM.DMA.BurstMode	BIT (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.

Export Wizard Attribute Name	Export Attribute Name (Column Heading in the .csv file)	Database Schema Attribute Name	Data Type	Length	Description of the Attribute
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_ManufactureDate	ZENworks.ZENDesktopMonitor.ManufacturerDate	char	25	Year in which the monitor was manufactured.
Monitor.ViewableSize	Monitor_ViewableSize	ZENworks.ZENDesktopMonitor.ViewableSize	integer		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	integer		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_SerialNumber	ZENworks.ZENDesktopMonitor.SerialNumber	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.

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.Model	Monitor_Model	ZENworks.ZENDesktopMonitor.Model	varchar	254	Product name of the monitor given by the manufacturer.
Chassis.AssetTag	Chassis_AssetTag	ZENworks_ZENC_hassis	varchar	254	Asset tag number of the system chassis.
Chassis.ChassisType	Chassis_ChassisType	ZENworks_ZENC_hassis	unsigned small int		Represents whether the system chassis is a laptop, desktop, notebook, docking station and so on.
Chassis.NumberOfPowerCords	Chassis_NumberOfPowerCords	ZENworks_ZENC_hassis	varchar	128	Total number of power cords attached to a system chassis.
Chassis.Manufacturer	Chassis_Manufacturer	ZENworks_ZENC_hassis	varchar	254	Name of the system chassis manufacturer.
Chassis.SerialNumber	Chassis_SerialNumber	ZENworks_ZENC_hassis	varchar	128	Manufacturer's number used to identify a system chassis.
Chassis.Version	Chassis_Version	ZENworks_ZENC_hassis	varchar	64	Version number of the system chassis.
Chassis.Tag	Chassis_Tag	ZENworks_ZENC_hassis	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.
Software.InternalVersion	Software_InternalVersion	MW_DBA.InstalledSoftware.InternalVersion	varchar	64	Internal version of a product

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.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.

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.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_Support pack	MW_DBA.SupportPack.Name	varchar	128	Support pack name.
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.

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.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
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.

Enumeration Values

This section provides information on the following topics:

- ◆ Section P.1, “Enumeration Values for General-System Information-Management Technology,” on page 1255
- ◆ Section P.2, “Enumeration Values for General-Inventory Information-Scan Mode,” on page 1256
- ◆ Section P.3, “Enumeration Values for Software-Operating Systems-Windows - Name,” on page 1256
- ◆ Section P.4, “Enumeration Values for Installation Repository,” on page 1256
- ◆ Section P.5, “Enumeration Values for Hardware-Display Adapter-Video Architecture,” on page 1257
- ◆ Section P.6, “Enumeration Values for Hardware-Display Adapter-Video Memory Type,” on page 1257
- ◆ Section P.7, “Enumeration Values for Hardware-Pointing Device-Name,” on page 1257
- ◆ Section P.8, “Enumeration Values for Hardware-Battery-Chemistry,” on page 1257
- ◆ Section P.9, “Enumeration Values for Hardware-Processor-Processor Family,” on page 1258
- ◆ Section P.10, “Enumeration Values for Hardware-Processor-Upgrade Method,” on page 1258
- ◆ Section P.11, “Enumeration Values for Hardware-Chassis-Chassis Type,” on page 1258
- ◆ Section P.12, “Enumeration Values for Hardware-Bus-Protocol Supported,” on page 1259
- ◆ Section P.13, “Enumeration Values for Hardware-Processor-Role,” on page 1259
- ◆ Section P.14, “Enumeration Values for System-System Cache-Level,” on page 1259
- ◆ Section P.15, “Enumeration Values for System-System Cache-Cache Type,” on page 1259
- ◆ Section P.16, “Enumeration Values for System-System Cache-Replacement Policy,” on page 1259
- ◆ Section P.17, “Enumeration Values for System-System Cache-Read Policy,” on page 1260
- ◆ Section P.18, “Enumeration Values for System-System Cache-Write Policy,” on page 1260
- ◆ Section P.19, “Enumeration Values for System-System Cache-Associativity,” on page 1260
- ◆ Section P.20, “Enumeration Values for System-System IRQ-Availability,” on page 1260
- ◆ Section P.21, “Enumeration Values for System-System IRQ-IRQ Trigger Type,” on page 1260
- ◆ Section P.22, “Enumeration Values for System-System DMA-Availability,” on page 1261
- ◆ Section P.23, “Enumeration Values for Language,” on page 1261

P.1 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
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P.2 Enumeration Values for General-Inventory Information-Scan Mode

1 = Unknown	3= DMI	5= SNMP
2 = Other	4 = WMI	6 = DMI and WMI

P.3 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	

P.4 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	

P.5 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	

P.6 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	

P.7 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

P.8 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

P.9 Enumeration Values for Hardware-Processor-Processor Family

1 = Other	24 = AMD Duron(TM) Processor Family	130 = Itanium(TM) Processor
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		

P.10 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

P.11 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

P.12 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	

P.13 Enumeration Values for Hardware-Processor-Role

1 = Other	3= Central Processor	5= DSP Processor
2 = Unknown	4 = Math Processor	6 = Video Processor

P.14 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

P.15 Enumeration Values for System-System Cache-Cache Type

1 = Other	3 = Instruction	5 = Unified
2 = Unknown	4 = Data	

P.16 Enumeration Values for System-System Cache-Replacement Policy

1 = Other	4 = First In First Out (FIFO)	7 = Most Frequently Used (MFU)
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2 = Unknown	5 = Last In First Out (LIFO)	8 = Data Dependent Multiple Algorithms
3 = Least Recently Used (LRU)	6 = Least Frequently Used (LFU)	

P.17 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

P.18 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

P.19 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	

P.20 Enumeration Values for System-System IRQ-Availability

1 = Other	3 = Available	5 = In Use and Available/Shareable
2 = Unknown	4 = In Use/Not Available	

P.21 Enumeration Values for System-System IRQ-IRQ Trigger Type

1 = Other	3 = Level
2 = Unknown	4 = Edge

P.22 Enumeration Values for System-System DMA-Availability

1 = Other	3 = Available	5 = In Use and Available/ Shareable
2 = Unknown	4 = In Use/Not Available	

P.23 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. This is Unicode only.
1=Arabic	101=Divehi	1037=Hebrew
2=Bulgarian	127=Invariant Locale	1081=Windows 2000/XP: Hindi. This is Unicode only.
3=Catalan	1024=Process or User Default 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. This is Unicode only.
10=Spanish	4097=Arabic (Libya)	1111=Windows 2000/XP: 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: 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 Darussalam)

20=Norwegian	14337=Arabic (U.A.E.)	1102=Windows 2000/XP: 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: 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. This is Unicode only.
29=Swedish	1026=Bulgarian	1048=Romanian
30=Thai	1109=Burmese	1049=Russian
31=Turkish	1027=Catalan	1103=Windows 2000/XP: 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 SAR, PRC)	1051=Slovak
35=Belarusian	4100=Chinese (Singapore)	1060=Slovenian
36=Slovenian	5124=Windows 98/Me, Windows 2000/XP: Chinese (Macau SAR)	1034=Spanish (Spain, Traditional Sort)
37=Estonian	1050=Croatian	2058=Spanish (Mexican)
38=Latvian	1029=Czech	3082=Spanish (Spain, Modern 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	3079=German (Austria)	2115=Uzbek (Cyrillic)
89=Not supported	4103=German (Luxembourg)	1066=Windows 98/Me, Windows NT 4.0 and later: Vietnamese
90=Syriac	5127=German (Liechtenstein)	
96=Not supported	1032=Greek	

Q

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® 7 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.

The documentation was updated on the following date:

- ♦ [Section Q.1, “September 7, 2007,” on page 1265](#)
- ♦ [Section Q.2, “July 27, 2007,” on page 1265](#)
- ♦ [Section Q.3, “May 4, 2007,” on page 1266](#)
- ♦ [Section Q.4, “October 30, 2006,” on page 1267](#)
- ♦ [Section Q.5, “July 14, 2006 \(Support Pack 1\),” on page 1267](#)
- ♦ [Section Q.6, “December 23, 2005,” on page 1269](#)
- ♦ [Section Q.7, “December 9, 2005,” on page 1270](#)
- ♦ [Section Q.8, “September 30, 2005,” on page 1271](#)

Q.1 September 7, 2007

Updates were made to the following sections. The changes are explained below.

Q.1.1 Setting Up Workstation Inventory

The following updates were made in this section:

Location	Change
Section 73.2.3, “Setting Up the MS SQL Server 2000 or MS SQL Server 2005 Inventory Database,” on page 962	Added a warning: Do not rename the mgmtldb database

Q.2 July 27, 2007

Updates were made to the following sections. The changes are explained below.

Q.2.1 Setting Up Workstation Inventory

The following updates were made in this section:

Location	Change
"Configuring the MS SQL Server 2000 Inventory Database" on page 962	Modified the text in Step 11e on page 964 to better reflect the error message display: <code>Cannot drop the trigger 'trigger_name', because it does not exist or you do not have permission.</code>
"Configuring the MS SQL Server 2005 Inventory Database" on page 965	Modified the text in "Creating the Oracle10g Inventory Database on a UNIX Server" on page 958 to better reflect the error message display: <code>Cannot drop the trigger 'trigger_name', because it does not exist or you do not have permission.</code>
"Creating the Oracle10g Inventory Database on a UNIX Server" on page 958	Modified the sub steps 1 and 2 in the Step 18 on page 959 to add the non-English Enum values on the Windows and Linux system. Modified the command to shutdown immediate; in the Step 21 on page 960
Section 77.3, "Viewing Inventory Information Without Using ConsoleOne," on page 1163	in the -c query "-c:" on page 1164 modified the text to explain that the -c query launches the Inventory Query application in which you can specify the query you want to perform
"Creating the Oracle10g Inventory Database on a Windows Server" on page 956	Modified the sub steps 1 and 2 in the Step 14 on page 956 to add the non-English Enum values on the Windows and Linux system. Modified the command to shutdown immediate; in the Step 17 on page 957

Q.3 May 4, 2007

Updates were made to the following sections. The changes are explained below.

Q.3.1 Setting Up the Inventory Database

The following updates were made in this section.

Location	Change
"Organizing the Sybase Database Spaces on NetWare, Windows, or Linux Servers (AlterDBSpace Tool)" on page 947	Added steps to the procedure for organizing the database spaces. The procedure now explains better how the alterdbspace utility works.

Q.4 October 30, 2006

Updates were made to the following sections. The changes are explained below.

- ♦ [Section Q.4.1, “Setting Up the Inventory Database,” on page 1267](#)

Q.4.1 Setting Up the Inventory Database

The following updates were made in this section.

Location	Change
Section 73.2.2, “Setting Up the Oracle Inventory Database,” on page 951	Added detail regarding settings and commands for Linux Inventory Servers as detailed in the procedure explained in “Creating the Oracle9i Inventory Database on a UNIX Server” on page 954.

Q.5 July 14, 2006 (Support Pack 1)

For Support Pack 1, each section in the guide was modified with the following note:

NOTE: The information in this section also applies to ZENworks 7 Desktop Management with Support Pack 1.

Other updates were made to the following sections. The changes are explained below.

- ♦ [Section Q.5.1, “Appendix L: Performance Tips,” on page 1267](#)
- ♦ [Section Q.5.2, “Managing Your Inventory System,” on page 1267](#)
- ♦ [Section Q.5.3, “Setting Up Workstation Inventory,” on page 1268](#)
- ♦ [Section Q.5.4, “Viewing Inventory Information,” on page 1268](#)

Q.5.1 Appendix L: Performance Tips

The following updates were made in this section:

Location	Change
Section M.1.1, “Sybase in the NetWare, Windows, or Linux Environment,” on page 1203	Added a paragraph to reference the new section in the appendix.
Section M.3, “Performance Tips for the Inventory Server (Support Pack 1),” on page 1212	Added this section for Support Pack 1.

Q.5.2 Managing Your Inventory System

The following updates were made in this section:

Location	Change
Section 76.7, "Removing Redundant Inventoried Workstations from the Inventory Database," on page 1102	Added new paragraph to Step 2 on page 1103 . Added new paragraph to Step 3 on page 1103 . Added new paragraph to Step 4 on page 1103 .
Section 76.7.1, "Understanding the NDS Lookup for DB Utility," on page 1104	Added new paragraph to Step 1 on page 1104 . Added new paragraph to Step 3 on page 1104 .

Q.5.3 Setting Up Workstation Inventory

The following updates were made in this section:

Location	Change
"Creating the Oracle10g Inventory Database on a Windows Server" on page 956	Changed the content of this section.
Section 73.2.3, "Setting Up the MS SQL Server 2000 or MS SQL Server 2005 Inventory Database," on page 962	Added "MS SQL Server 20005" to the title of the section.
"Configuring the MS SQL Server 2005 Inventory Database" on page 965	Added this section for Support Pack 1.
"Manually Creating the Inventory Database Object for MS SQL 2000 or MS SQL 2005" on page 968	Added "MS SQL 2005" to the section title and changed the content accordingly.
"Connecting the Inventory Server and ConsoleOne to the MS SQL 2000 or MS SQL 2005 Inventory Database" on page 970	Added "MS SQL 2005" to the section title and changed the content accordingly.

Q.5.4 Viewing Inventory Information

The following updates were made in this section:

Location	Change
"Generating Inventory Reports" on page 1140	Deleted an example from the first bullet in Step 3 on page 1140 .

Q.6 December 23, 2005

Updates were made to the following sections. The changes are explained below.

- ♦ [Section Q.6.1, “Appendix L: Performance Tips,” on page 1269](#)
- ♦ [Section Q.6.2, “Deploying Workstation Inventory,” on page 1269](#)
- ♦ [Section Q.6.3, “Managing Your Inventory System,” on page 1269](#)
- ♦ [Section Q.6.4, “Viewing Inventory Information,” on page 1269](#)

Q.6.1 Appendix L: Performance Tips

The following updates were made in this section:

Change	Location
“Oracle in the NetWare, Windows, or Linux Environment” on page 1206.	Added the reference to Linux in the entire section.
“Sybase in the NetWare, Windows, or Linux Environment” on page 1203.	Added the reference to Linux in the entire section.

Q.6.2 Deploying Workstation Inventory

The following updates were made in this section:

Location	Change
“Configuring the MS SQL Server 2000 Inventory Database” on page 962	Added the following information to Step 11e on page 964 : “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.”

Q.6.3 Managing Your Inventory System

The following updates were made in this section:

Change	Location
“Removing Duplicate Workstation Objects from the Inventory Database” on page 1105.	Added the reference to Linux in the entire section.

Q.6.4 Viewing Inventory Information

The following updates were made in this section:

Change	Location
"Generating Inventory Reports" on page 1140.	Added the following information as a note in Step 4 on page 1141 : "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."

Q.7 December 9, 2005

The page design of the entire guide was reformatted to comply with revised Novell documentation standards.

Other upates were made to the following sections. The changes are explained below.

- ♦ **Section Q.7.1, "Setting Up Workstation Inventory," on page 1270**
- ♦ **Section Q.7.2, "Understanding Workstation Inventory Components," on page 1270**
- ♦ **Section Q.7.3, "Viewing Inventory Information," on page 1270**

Q.7.1 Setting Up Workstation Inventory

The following updates were made in this section:

Location	Change
Section 73.3, "Configuring the Inventory Service Object," on page 972.	Newly added Step 3 on page 973 .

Q.7.2 Understanding Workstation Inventory Components

The following updates were made in this section:

Change	Location
Section 74.3.3, "Scanning for the Hardware Inventory Information," on page 988.	Following products have been added to the list of antivirus products scanned by. the Inventory scanner: Symantec AntiVirus Corporate Edition 9.0 Symantec AntiVirus Corporate Edition 10.0

Q.7.3 Viewing Inventory Information

The following updates were made in this section:

Change	Location
"Generating Inventory Reports" on page 1140 > Step 3 on page 1140.	Updated the guidelines to be followed as you work with the Reporting dialog.

Q.8 September 30, 2005

Updates were made to the following sections. The changes are explained below.

- ♦ [Section Q.8.1, “Setting Up Workstation Inventory,” on page 1271](#)

Q.8.1 Setting Up Workstation Inventory

The following updates were made in this section:

Location	Change
“Backing Up the Sybase Inventory Database” on page 949	This section has been reorganized. There is no change in the content of the section.