

## Installation and Configuration Guide

# Novell® PlateSpin Orchestrate

**2.5**

February 3, 2011

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# About This Guide

This *Installation and Configuration Guide* explains how to install, monitor, and manage applications running on PlateSpin Orchestrate 2.5. It helps you plan the installation of the basic PlateSpin Orchestrate components, to install them, and helps you understand how to use them in basic usage scenarios.

- ♦ Chapter 1, “Planning the Orchestrate Server Installation,” on page 9
- ♦ Chapter 2, “Installation and Configuration,” on page 21
- ♦ Chapter 3, “First Use of Basic PlateSpin Orchestrate Components,” on page 101
- ♦ Appendix A, “PlateSpin Orchestrate Components: Install Patterns,” on page 135
- ♦ Appendix B, “Installing the Orchestrate Monitoring Agent On Windows Machines,” on page 137
- ♦ Appendix C, “Integrating PlateSpin Orchestrate with a Sentinel Collector,” on page 139
- ♦ Appendix D, “Uninstalling the Orchestrate Server,” on page 155
- ♦ Appendix E, “Documentation Updates,” on page 157

Information in this guide includes content about the latest release, which currently stands at 2.5.

For information about installing and using the Virtual Machine management capabilities of PlateSpin Orchestrate, see the *PlateSpin Orchestrate 2.5 VM Client Guide and Reference* or the *PlateSpin Orchestrate 2.5 Virtual Machine Management Guide*.

## Audience

The contents of this guide are of interest to the following individuals:

**VM Administrator:** A PlateSpin Orchestrate virtual machine (VM) administrator manages the life cycle of the VMs in the enterprise, including creating, starting, stopping, migrating, and deleting VMs. For more information about the tasks and tools used by the VM administrator, see the *PlateSpin Orchestrate 2.5 VM Client Guide and Reference*.

**Orchestrate Administrator:** A PlateSpin Orchestrate Administrator deploys jobs, manages users, and monitors distributed computing resources. Administrators can also create and set policies for automating the usage of these computing resources. For more information about the tasks and tools used by the Orchestrate Administrator, see the *PlateSpin Orchestrate 2.5 Administrator Reference*.

**User:** The end user of PlateSpin Orchestrate, also called a “Job Manager,” runs and manages jobs that have been created by a Job Developer and deployed by the administrator. It is also possible that the end user could be a developer who has created applications to run on distributed computing resources. For more information about the tasks and tools used by the Job Manager, see the *PlateSpin Orchestrate 2.5 Server Portal Reference*.

**Job Developer:** The developer has control of a self-contained development system where he or she creates jobs and policies and tests them in a laboratory environment. When the jobs are tested and proven to function as intended, the developer delivers them to the PlateSpin Orchestrate administrator. For more information about the tasks and tools used by the job developer, see the *PlateSpin Orchestrate 2.5 Developer Guide and Reference*.

## Prerequisite Skills

As data center managers or IT or operations administrators, it is assumed that users of the product have the following background:

- ◆ General understanding of network operating environments and systems architecture.
- ◆ Knowledge of basic Linux shell commands and text editors.

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## Additional Product Documentation

In addition to this *Installation and Configuration Guide*, PlateSpin Orchestrate 21 includes the following additional guides that contain valuable information about the product:

- ◆ *PlateSpin Orchestrate 2.5 Getting Started Reference*
- ◆ *PlateSpin Orchestrate 2.5 Upgrade Guide*
- ◆ *PlateSpin Orchestrate 2.5 High Availability Configuration Guide*
- ◆ *PlateSpin Orchestrate 2.5 Administrator Reference*
- ◆ *PlateSpin Orchestrate 2.5 VM Client Guide and Reference*
- ◆ *PlateSpin Orchestrate 2.5 Virtual Machine Management Guide*
- ◆ *PlateSpin Orchestrate 2.5 Development Client Reference*
- ◆ *PlateSpin Orchestrate 2.5 Command Line Reference*
- ◆ *PlateSpin Orchestrate 2.5 Server Portal Reference*
- ◆ *PlateSpin Orchestrate 2.5 Developer Guide and Reference*



# Planning the Orchestrate Server Installation

# 1

Before you begin installing PlateSpin Orchestrate 2.5, you need to compare your system resources with the requirements of the PlateSpin Orchestrate product. This section includes information to help you with that evaluation so that you can adequately plan for the installation. The following subsections are included:

- ◆ [Section 1.1, “PlateSpin Orchestrate Requirements,” on page 9](#)
- ◆ [Section 1.2, “Component Installation Methods,” on page 17](#)

## 1.1 PlateSpin Orchestrate Requirements

This section includes the hardware and software requirements for the following PlateSpin Orchestrate components:

- ◆ [Section 1.1.1, “PlateSpin Orchestrate Server,” on page 10](#)
- ◆ [Section 1.1.2, “Required Network Resources,” on page 11](#)
- ◆ [Section 1.1.3, “PlateSpin Orchestrate Agent,” on page 13](#)
- ◆ [Section 1.1.4, “VM Hosts,” on page 13](#)
- ◆ [Section 1.1.5, “PlateSpin Orchestrate VM Client,” on page 14](#)
- ◆ [Section 1.1.6, “PlateSpin Orchestrate Monitoring Server,” on page 14](#)
- ◆ [Section 1.1.7, “PlateSpin Orchestrate Monitoring Agent,” on page 15](#)
- ◆ [Section 1.1.8, “Other PlateSpin Orchestrate Clients,” on page 16](#)

## 1.1.1 PlateSpin Orchestrate Server

The network machine where you install PlateSpin Orchestrate 2.5 Server software must meet the following requirements:

**Table 1-1** Orchestrate Server Requirements

Item	Requirement
Server Usage	<ul style="list-style-type: none"><li>◆ <b>PlateSpin Orchestrate Server:</b> Your server might be capable of handling tasks in addition to the tasks an Orchestrate Server performs for PlateSpin Orchestrate. However, we strongly recommend that you install the Orchestrate Server software on a dedicated server to ensure optimal performance. For example, you might not want the server to host Novell eDirectory.</li></ul> <hr/> <p><b>NOTE:</b> Although you can install the PlateSpin Orchestrate Server on a Virtual Machine, do not try to manage that server using PlateSpin Orchestrate. In addition, installing the server on a VM slows down the performance of the product.</p> <hr/> <ul style="list-style-type: none"><li>◆ <b>PlateSpin Orchestrate Monitoring Server:</b> This pattern is an Apache Web server that is installed alongside the Orchestrate Server.</li></ul> <p>Refer to the information in <a href="#">Appendix A, "PlateSpin Orchestrate Components: Install Patterns,"</a> on page 135 for more detail about these patterns.</p>
Operating System	<ul style="list-style-type: none"><li>◆ SUSE Linux Enterprise Server 11 Service Pack 1 (SLES 11 SP1) on the 32-bit (x86) architecture and on the 64-bit (x86-64) architecture (Intel and AMD Opteron processors)</li><li>◆ SUSE Linux Enterprise Server 11 (SLES 11) on the 32-bit (x86) architecture and on the 64-bit (x86-64) architecture (Intel and AMD Opteron processors)</li><li>◆ SUSE Linux Enterprise Server 10 (SLES 10) Service Pack 3 (SP3) on the 64-bit (x86-64) architecture (Intel and AMD Opteron processors)</li></ul>
Hardware	<ul style="list-style-type: none"><li>◆ Processor: Xeon 2.8 GHz 32-bit, or equivalent AMD or Intel processor (minimum); Dual-Core Xeon 4 GHz 32-bit or 64-bit (recommended)</li><li>◆ RAM: 3 GB minimum; 4 GB recommended</li><li>◆ Disk Space: 350 MB minimum for installing; 1 GB recommended for managing fewer than 100 resources.</li></ul>
Hostname Resolution	The server must resolve device hostnames by using a method such as DNS (recommended).
IP Address	The server must have a static IP address or a permanently leased DHCP address.
<hr/> <p><b>NOTE:</b> For more information about the requirements for virtual machine management, see <a href="#">Section 1.1.5, "PlateSpin Orchestrate VM Client,"</a> on page 14.</p> <hr/>	

## 1.1.2 Required Network Resources

The Orchestrate Server must allow traffic on TCP ports 80, 8001, 8100, 8101 (these four ports are configurable), and UDP and TCP port 1099 (mandatory). The following list summarizes the network resources required in a PlateSpin Orchestrate setup:

- ◆ Port 80 is used for the Server Portal when monitoring is not installed. When monitoring is installed, the monitoring related Apache server takes port 80 and the Server Portal is moved to port 8080. The Monitoring Server transparently routes communication for the PlateSpin Orchestrate Server Portal to port 8080.
- ◆ Port 8001 is used for communication with the Administrator Information page.
- ◆ Port 8100 is used with a custom protocol for communication with the Orchestrate Agent and for invoking the zos command line interface or opening the Java Developer's toolkit.
- ◆ Port 8101 is also used for invoking the zos command line interface or opening the Java Developer's toolkit by using TLS.
- ◆ Port 1099 is used with RMI for invoking the zosadmin command line interface and/or for running the Orchestrate Development Client.

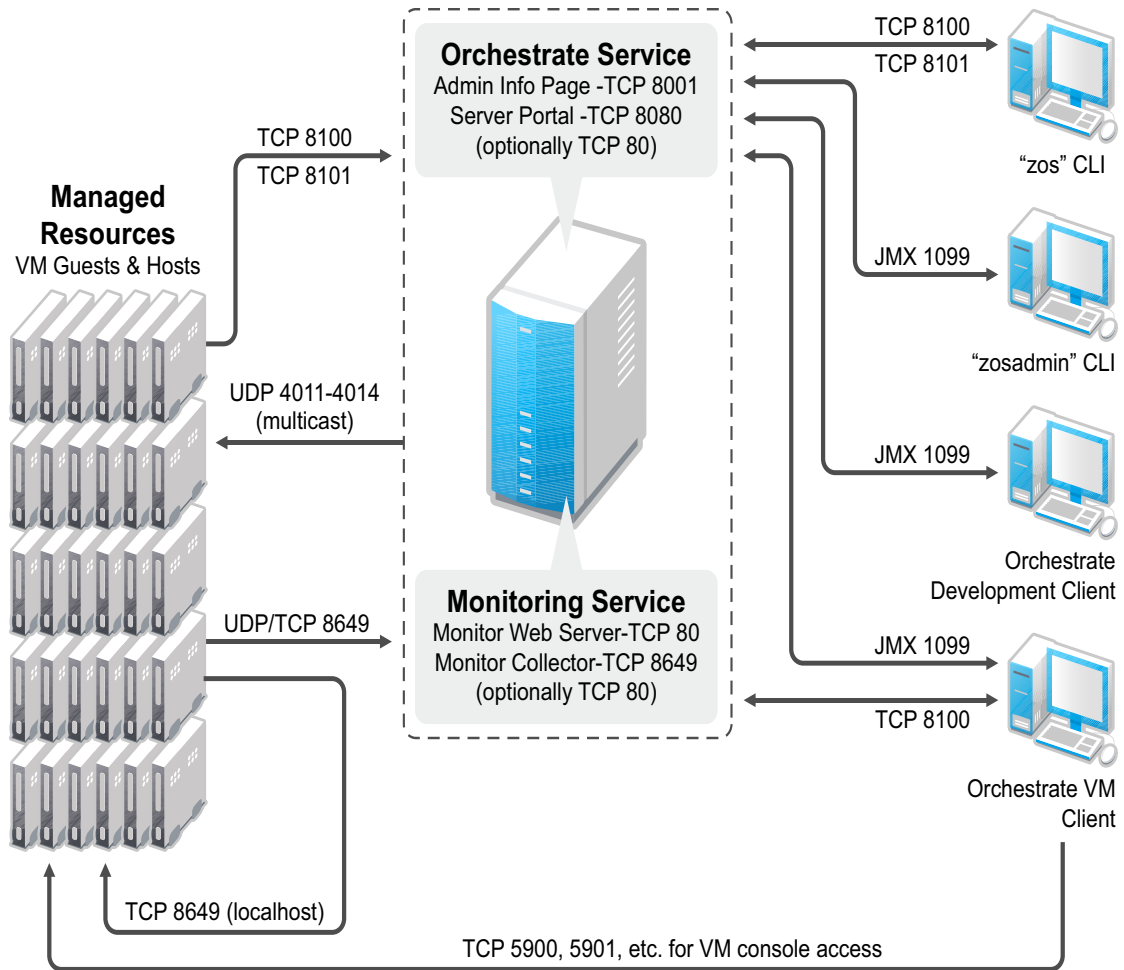
Monitored systems (physical and virtual) send metrics to the Monitoring Server on UDP port 8649. The Monitoring Server is installed on the same system as the PlateSpin Orchestrate Server.

Connections to VM consoles are accommodated through a VNC client. Typically, this means TCP port 5900 for the first VM on a VM host, 5901 for the second, and so on. Note that these connections go to the VM host, exposing the console on behalf of the VM.

Datagrid multicast file transfers use UDP ports 4011-4014. UDP port 4000 is used as a datagrid multicast request port and a control channel port. Multicast groups for datagrid multicast-based file transfers are 239.192.10.10-14.

The following illustration shows these relationships.

Figure 1-1 PlateSpin Orchestrate Network Resources



### 1.1.3 PlateSpin Orchestrate Agent

PlateSpin Orchestrate 2.5 manages jobs on and gathers data about data center computing resources running the PlateSpin Orchestrate Agent and meet the following minimum requirements:

**Table 1-2** Orchestrate Agent Requirements

Item	Requirement
Operating System	<p>Linux machines:</p> <ul style="list-style-type: none"> <li>◆ SUSE Linux Enterprise Server 9 SP4 (32-bit or 64-bit)</li> <li>◆ SUSE Linux Enterprise Server 10 SP3 (32-bit or 64-bit)</li> <li>◆ SUSE Linux Enterprise Server 11 (32-bit or 64-bit)</li> <li>◆ SUSE Linux Enterprise Server 11 SP1 (32-bit or 64-bit)</li> <li>◆ Red Hat Enterprise Linux 4 (latest update, 64-bit)</li> <li>◆ Red Hat Enterprise Linux 5 (latest update, 32-bit or 64-bit)</li> </ul> <p>Windows machines:</p> <ul style="list-style-type: none"> <li>◆ Windows Server 2003 (latest SP, 32-bit or 64-bit)</li> <li>◆ Windows Server 2008 R1 (32-bit or 64-bit)</li> <li>◆ Windows Server 2008 R2 (64-bit)</li> </ul> <p>vCenter Server</p> <ul style="list-style-type: none"> <li>◆ vSphere 4</li> </ul>
Hardware	The Orchestrate Agent does not require a minimum hardware configuration other than a minimum recommended disk space of 100 MB.
TCP Ports	The computing node communicates with the Orchestrate Server over a custom protocol. The server listens for the agent on port 8100 and 8101 (port 8101 is for secure agent connections). Network firewalls need to allow outgoing agent connections to these ports on the server.

### 1.1.4 VM Hosts

We recommend that computers designated as VM hosts in your data center be able to host the VM and run it according to designated parameters of the specific VM. The processor architecture must match the designated VM's processor in architecture, although not in version number. In order for a machine to serve as a host machine, it must also have a hypervisor installed along with the operating system. For a detailed list of the supported hypervisors, see [Table 2-2 on page 71](#).

**Table 1-3** Minimum and Recommended Hardware Requirements for VM Host Machines

Host Operating System	Minimum Requirements	Recommended Hardware
SLES 11 SP1	<ul style="list-style-type: none"> <li>◆ x86 or x86_64</li> <li>◆ 2 GB RAM</li> <li>◆ 30 GB Hard Drive Space</li> </ul>	<ul style="list-style-type: none"> <li>◆ x86 or x86_64</li> <li>◆ 4+ GB RAM</li> <li>◆ 100+ GB Hard Drive Space</li> </ul>

Host Operating System	Minimum Requirements	Recommended Hardware
SLES 10 SP3	<ul style="list-style-type: none"> <li>◆ x86_64</li> <li>◆ 2 GB RAM</li> <li>◆ 30 GB Hard Drive Space</li> </ul>	<ul style="list-style-type: none"> <li>◆ x86_64</li> <li>◆ 4+ GB RAM</li> <li>◆ 100+ GB Hard Drive Space</li> </ul>
Windows Server 2008 R2 enabled with Hyper-V	<ul style="list-style-type: none"> <li>◆ 1GHz (x86 processor) or 1.4GHz (x64 processor)</li> <li>◆ 512MB RAM</li> <li>◆ 10 GB Hard Drive Space</li> </ul>	<ul style="list-style-type: none"> <li>◆ 2+ GHz</li> <li>◆ 2+ GB RAM</li> <li>◆ 40+ GB Hard Drive Space</li> </ul>

## 1.1.5 PlateSpin Orchestrate VM Client

The PlateSpin Orchestrate VM Client lets you manage VMs in your enterprise. You can install the VM Client interface on the following platforms:

*Table 1-4 VM Client Supported Operating Systems and Installation Files*

Operating System	Installation File
◆ SLED 11 (32-bit)	sles11/i386/SLE11/nvmminst
◆ SLED 11 (64-bit)	sles11/x86_64/SLE11/nvmminst
◆ Windows XP SP3 (32-bit or 64-bit)	<cdrom_drive>\i386\Windows\vmclinet_install.exe
◆ Windows Vista SP2 (32-bit or 64-bit)	<cdrom_drive>\i386\Windows\vmclinet_install.exe
◆ Windows 7 (32-bit or 64-bit)	<cdrom_drive>\i386\Windows\vmclinet_install.exe

## 1.1.6 PlateSpin Orchestrate Monitoring Server

The PlateSpin Orchestrate Monitoring Server uses open source Ganglia monitoring of the performance of certain data on network resources in a user-defined time period. It can be installed on a server where any other PlateSpin Orchestrate pattern is installed, or on a server by itself

*Table 1-5 Monitoring Server Supported Operating Systems and Installation Files*

Operating System	Installation File
◆ SLES 11 SP1 (32-bit)	◆ <cdrom_drive>/suse/setup/descr/zw_mon_server-2.5.0.i386.pat
◆ SLES 11 SP1 (64-bit)	◆ <cdrom_drive>/suse/setup/descr/zw_mon_server-2.5.0.x86_64.pat
◆ SLES 11 (32-bit)	◆ <cdrom_drive>/suse/setup/descr/zw_mon_server-2.5.0.i386.pat
◆ SLES 11 (64-bit)	◆ <cdrom_drive>/suse/setup/descr/zw_mon_server-2.5.0.x86_64.pat

Operating System	Installation File
<ul style="list-style-type: none"> <li>◆ SLES 10 SP3 (64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cdrom_drive&gt;/suse/setup/descr/zw_mon_server-2.5.0.x86_64.pat</li> </ul>

## 1.1.7 PlateSpin Orchestrate Monitoring Agent

The PlateSpin Orchestrate Monitoring Agent is installed with any installation of the Orchestrate Server. It installs the Ganglia Agent on each monitored node, which collects performance metrics and sends the data to the Orchestrate Monitoring Server.

**Table 1-6** Monitoring Agent Supported Operating Systems and Installation Files

Operating System	Installation Pattern File
<ul style="list-style-type: none"> <li>◆ SLES 11 SP1 (32-bit)</li> <li>◆ SLES 11 SP1 (64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;sles11cd&gt;/suse/setup/descr/zw_mon_agent-2.5-0.i386.pat</li> <li>◆ &lt;sles11cd&gt;/suse/setup/descr/zw_mon_agent-2.5-0.x86_64.pat</li> </ul>
<ul style="list-style-type: none"> <li>◆ SLES 11 (32-bit)</li> <li>◆ SLES 11 (64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;sles11cd&gt;/suse/setup/descr/zw_mon_agent-2.5-0.i386.pat</li> <li>◆ &lt;sles11cd&gt;/suse/setup/descr/zw_mon_agent-2.5-0.x86_64.pat</li> </ul>
<ul style="list-style-type: none"> <li>◆ SLES 10 SP3 (64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/suse/setup/descr/zw_mon_agent-2.5-0.x86_64.pat</li> </ul>
<ul style="list-style-type: none"> <li>◆ SLES 9 SP4 (32-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/suse/setup/descr/zw_mon_agent-2.5-0.i386.pat</li> </ul>
<ul style="list-style-type: none"> <li>◆ RHEL 4 (latest update, 64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/RHEL4/novell-zenworks-monitor-gmond-3.0.4-67.1.x86_64.rpm</li> </ul>
<ul style="list-style-type: none"> <li>◆ RHEL 5 (latest update, 32-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/RHEL5/novell-zenworks-monitor-gmond-3.0.4-67.1.i386.rpm</li> </ul>
<ul style="list-style-type: none"> <li>◆ RHEL 5 (latest update, 64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/RHEL5/novell-zenworks-monitor-gmond-3.0.4-67.1.x86_64.rpm</li> </ul>
<ul style="list-style-type: none"> <li>◆ Windows 2008 R2 (64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/Windows/GmondSetup.exe</li> </ul>
<ul style="list-style-type: none"> <li>◆ Windows 2008 R1 (32-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/Windows/GmondSetup.exe</li> </ul>
<ul style="list-style-type: none"> <li>◆ Windows 2008 R1 (64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/Windows/GmondSetup.exe</li> </ul>
<ul style="list-style-type: none"> <li>◆ Windows 2003 (latest update, 32-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/Windows/GmondSetup.exe</li> </ul>
<ul style="list-style-type: none"> <li>◆ Windows 2003 (latest update, 64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ &lt;cd&gt;/Windows/GmondSetup.exe</li> </ul>

## 1.1.8 Other PlateSpin Orchestrate Clients

You can monitor and run jobs, run the command line interfaces, and create and modify jobs by using the tools and monitors included with the PlateSpin Orchestrate Clients. PlateSpin Orchestrate manages jobs on and gathers data about data center computing resources that meet the following minimum requirements:

**Table 1-7** Other PlateSpin Orchestrate Client Requirements

Item	Requirement
Operating System	Linux machines: <ul style="list-style-type: none"><li>◆ SUSE Linux Enterprise Desktop 11 (32-bit or 64 bit)</li></ul> Windows machines: <ul style="list-style-type: none"><li>◆ Windows XP (32-bit or 64-bit)</li><li>◆ Windows Vista (32-bit or 64-bit)</li><li>◆ Windows 7 (32-bit or 64-bit)</li></ul>
Hardware	The Orchestrate Development Client installation does not require a minimum hardware configuration other than a minimum recommended disk space of 100 MB and an SVGA-grade monitor.
TCP Ports	The Orchestrate Clients consist of various components that communicate with the Orchestrate Server: <ul style="list-style-type: none"><li>◆ Port 8100 is used with a custom protocol for invoking the zos command line interface or for opening the SDK (Java Developer's toolkit).</li><li>◆ Port 8101 is also used for invoking the zos command line interface or opening the Java Developer's toolkit by using TLS.</li><li>◆ Port 1099 is used with RMI for invoking the zosadmin command line interface or for running the Orchestrate Development Client.</li></ul>

**IMPORTANT:** The platforms listed here have been tested for the 2.5 release, and are the only platforms supported at this time.

Some of the installation programs for other operating systems that are embedded with the Administrator Information page have not been tested for this release.



## 1.2 Component Installation Methods

The following table shows the installation methods you can use for the Orchestrate Server, the Orchestrate Agents, the Orchestrate VM Client, and the other Orchestrate clients:

**Table 1-8** *PlateSpin Orchestrate Installation Methods and Sources*

PlateSpin Orchestrate Component	Supported Operating System	Installation Method and Source
Orchestrate Server	<ul style="list-style-type: none"><li>◆ SLES 11 SP1 (32-bit or 64-bit)</li><li>◆ SLES 11 (32-bit or 64-bit)</li><li>◆ SLES 10 SP3 (32-bit or 64-bit)</li></ul>	<p>Available as an RPM package distribution (ISO images, 32-bit or 64-bit) from the <a href="http://download.novell.com">Novell Downloads Web site (http://download.novell.com)</a> after purchase and receipt of a license key. Uses the Add-On CD installation (PlateSpin Orchestrate Server pattern) available in YaST.</p> <p>Requires server configuration after installation by using a text interface at the Linux console (<code>./config</code>) or by using a GUI program (<code>./guiconfig</code>).</p> <p>For installation details, see <a href="#">Section 2.3, “Installing and Configuring All PlateSpin Orchestrate Components Together,”</a> on page 22.</p>

PlateSpin Orchestrate Component	Supported Operating System	Installation Method and Source
Orchestrate Agent	<ul style="list-style-type: none"> <li>◆ SLES 9 SP4 (64-bit)</li> <li>◆ SLES 10 SP3 (32-bit or 64-bit)</li> <li>◆ SLES 11 SP1 (32-bit or 64-bit)</li> <li>◆ SLES 11 (32-bit or 64-bit)</li> <li>◆ RHEL 4 (latest update, 64-bit)</li> <li>◆ RHEL 5 (latest update, 32-bit or 64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Available as an RPM package distribution (ISO images, 32-bit or 64-bit) from the <a href="http://download.novell.com">Novell Downloads Web site (http://download.novell.com)</a> after purchase and receipt of a license key. Uses the Add-On CD installation (PlateSpin Orchestrate Agent pattern) available in YaST.</li> </ul> <p>For installation details, see <a href="#">Section 2.3, “Installing and Configuring All PlateSpin Orchestrate Components Together,”</a> on page 22.</p> <hr/> <p><b>NOTE:</b> YaST installation is supported only on SLES 10 and SLES 11, not on RHEL platforms. For these last two platforms, use either the RPMs located on the ISO (found in the RHEL directories) or use the <code>.sh</code> file that you can download from the Administrator Information page. See <a href="#">Section 2.4, “Installing the Orchestrate Agent Only,”</a> on page 47.)</p> <hr/> <ul style="list-style-type: none"> <li>◆ After Orchestrate Server installation, available from the server through a downloadable installation script (<code>.sh</code> file) from the Administrator Information page (port 8001) or run as a post-install from the ISO image.</li> </ul> <p>For installation details, see <a href="#">Section 2.4, “Installing the Orchestrate Agent Only,”</a> on page 47.</p> <hr/>
	<ul style="list-style-type: none"> <li>◆ Windows Server 2003 (latest SP, 32-bit or 64-bit)</li> <li>◆ Windows Server 2008 R1 (32-bit or 64-bit)</li> <li>◆ Windows Server 2008 R2 (64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ After Orchestrate Server installation, available as a downloadable GUI installation program (<code>.exe</code> file) from the Administrator Information page (port 8001).</li> </ul> <p>For installation details, see <a href="#">“Using the ISO to Install the Orchestrate Agent on Windows Machines”</a> on page 62 in <a href="#">Section 2.4, “Installing the Orchestrate Agent Only,”</a> on page 47.</p> <hr/>
	<ul style="list-style-type: none"> <li>◆ vSphere Server (vSphere 4)</li> </ul>	<ul style="list-style-type: none"> <li>◆ After Orchestrate Server installation, available as a downloadable GUI installation program (<code>.exe</code> file) from the Administrator Information page (port 8001).</li> </ul> <p>For installation details, see <a href="#">“Using the ISO to Install the Orchestrate Agent on Windows Machines”</a> on page 62 in <a href="#">Section 2.4, “Installing the Orchestrate Agent Only,”</a> on page 47.</p> <hr/>

PlateSpin Orchestrate Component	Supported Operating System	Installation Method and Source
Orchestrate Clients	<ul style="list-style-type: none"> <li>◆ SLED 11 (32-bit or 64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Available as an RPM package distribution (ISO images, 32-bit or 64-bit) available from the <a href="http://download.novell.com">Novell Downloads Web site (http://download.novell.com)</a> after purchase and receipt of a license key. Uses the Add-On CD installation (PlateSpin Orchestrate Agent pattern) available in YaST.</li> </ul> <p>For installation details, see <a href="#">Section 2.3, “Installing and Configuring All PlateSpin Orchestrate Components Together,”</a> on page 22.</p> <ul style="list-style-type: none"> <li>◆ After Orchestrate Server installation, available from the server through a downloadable installation script (.sh file) from the Administrator Information page (port 8001) or run as a post-install from the ISO image.</li> </ul> <p>For installation details, see <a href="#">Section 2.4, “Installing the Orchestrate Agent Only,”</a> on page 47.</p>
	<ul style="list-style-type: none"> <li>◆ Windows XP SP3 (32-bit)</li> <li>◆ Windows Vista SP2 (32-bit or 64-bit)</li> <li>◆ Windows 7 (32-bit or 64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ After Orchestrate Server installation, available as a downloadable GUI installation program (.exe file) in the ISO images (32-bit or 64-bit).</li> </ul> <p>For installation details, see in <a href="#">“Using the ISO to Install the Orchestrate Agent on Windows Machines”</a> on page 62 in <a href="#">Installing the Orchestrate Agent Only</a>.</p> <ul style="list-style-type: none"> <li>◆ After Orchestrate Server installation, available as a downloadable GUI installation program (.exe file) from the Administrator Information page (port 8001).</li> </ul> <p>For installation details, see in <a href="#">“Using the ISO to Install the Orchestrate Agent on Windows Machines”</a> on page 62 in <a href="#">Installing the Orchestrate Agent Only</a>.</p>
Monitoring Server	<ul style="list-style-type: none"> <li>◆ SLES 11 SP1 (32-bit or 64-bit)</li> <li>◆ SLES 11 (32-bit or 64-bit)</li> <li>◆ SLES 10 SP3 (32-bit or 64-bit)</li> </ul>	YaST Installation (required in order to use VM Client)

PlateSpin Orchestrate Component	Supported Operating System	Installation Method and Source
Monitoring Agent	<ul style="list-style-type: none"> <li>◆ SLES 9 SP4 (64-bit)</li> <li>◆ SLES 10 SP3 (32-bit or 64-bit)</li> <li>◆ SLES 11 SP1 (32-bit or 64-bit)</li> <li>◆ SLES 11 (32-bit or 64-bit)</li> <li>◆ RHEL 4 (latest update, 64-bit)</li> <li>◆ RHEL 5 (latest update, 32-bit or 64-bit)</li> </ul>	YaST Installation or RPMs on ISO (required in order to use VM Client)
	<ul style="list-style-type: none"> <li>◆ Windows Server 2003 (latest SP, 32-bit or 64-bit)</li> <li>◆ Windows Server 2008 R1 (32-bit or 64-bit)</li> <li>◆ Windows Server 2008 R2 (64-bit)</li> </ul>	<ul style="list-style-type: none"> <li>◆ After Orchestrate Server installation, available as a downloadable GUI installation program (.exe file) in the ISO images (64-bit).</li> </ul>

**NOTE:** If you install or configure PlateSpin Orchestrate components using a trial key, the product behaves normally for 90 days, although the trial key controls the number of users and managed nodes you can configure. For fully supported functionality, product components require a purchased license key. Contact your Novell Sales Representative or a Certified Novell Partner for purchase information.

# Installation and Configuration

# 2

This section explains the installation and setup of various components of PlateSpin Orchestrate.

- ♦ [Section 2.1, “Installation Prerequisites,” on page 21](#)
- ♦ [Section 2.2, “Pre-Install Configuration \(Multiple NICs and DNS Addresses\),” on page 21](#)
- ♦ [Section 2.3, “Installing and Configuring All PlateSpin Orchestrate Components Together,” on page 22](#)
- ♦ [Section 2.4, “Installing the Orchestrate Agent Only,” on page 47](#)
- ♦ [Section 2.5, “Installing the Orchestrate Development Client Only,” on page 74](#)
- ♦ [Section 2.6, “Installing the Orchestrate VM Client,” on page 82](#)
- ♦ [Section 2.7, “Uninstalling the VM Client,” on page 93](#)
- ♦ [Section 2.8, “Determining the Product Version,” on page 97](#)
- ♦ [Section 2.9, “Post-Install Configuration \(LDAP, ADS Authentication\),” on page 99](#)

## 2.1 Installation Prerequisites

During installation of an PlateSpin Orchestrate component, you need to have the following information available:

- ♦ (Optional) certificate authority information (internal, or signed certificate, private key, and public certificate)
- ♦ License key (a 90-day trial option is available)

For more information on these items, see [Table 2-1, “PlateSpin Orchestrate Configuration Information,” on page 32](#).

## 2.2 Pre-Install Configuration (Multiple NICs and DNS Addresses)

If your PlateSpin Orchestrate Server has multiple network interfaces and multiple DNS addresses, you need to edit the `/etc/hosts` file on the server to change the default `127.0.0.1` or `127.0.0.2` address to the actual IP address of the server. This is necessary because at server startup, PlateSpin Orchestrate tries to determine the `matrix.hostname.full` fact. If the IP address of the hostname is found to be a loopback address (for example, `127.0.0.2`), it is skipped and subsequently configured incorrectly.

If this change is not made, the *Install Agent* action performed on a VM misconfigures the VM to point to the wrong address (because the grid’s `matrix.hostname.full` fact is incorrect), resulting in no connection to the server.

## 2.3 Installing and Configuring All PlateSpin Orchestrate Components Together

This section discusses the installation and configuration of all PlateSpin Orchestrate components (except the Orchestrate VM Client) on one SUSE Linux Enterprise Server (SLES) 10 SP3 or SLES 11 SP1 machine. The steps are shown as an installation example; you would not normally install all of these components together on a single machine in a data center.

You should install the PlateSpin Orchestrate Server on a dedicated server for optimal performance.

After you install and configure the components you want from PlateSpin Orchestrate, there are other basic tasks you need to perform to make the PlateSpin Orchestrate system perform at a basic level. Those tasks are documented in [Chapter 3, “First Use of Basic PlateSpin Orchestrate Components,”](#) on page 101.

---

**IMPORTANT:** The Orchestrate Monitoring Server can be installed on any server because it runs independently of the other components. For more information, see [Section 1.1, “PlateSpin Orchestrate Requirements,”](#) on page 9.

---

This section includes the following information:

- ◆ [Section 2.3.1, “Installation and Configuration Steps,”](#) on page 22
- ◆ [Section 2.3.2, “PlateSpin Orchestrate Configuration Information,”](#) on page 31
- ◆ [Section 2.3.3, “Correcting Configuration Errors and Repeating the Configuration Process,”](#) on page 36
- ◆ [Section 2.3.4, “Uninstalling the Orchestrate Server,”](#) on page 36
- ◆ [Section 2.3.5, “Installing and Configuring the Orchestrate Server for Use with a PostgreSQL Audit Database on a Different Host,”](#) on page 37
- ◆ [Section 2.3.6, “Installing and Configuring the Orchestrate Server for Use with a Local PostgreSQL Audit Database,”](#) on page 41
- ◆ [Section 2.3.7, “Configuring the Audit Database After PlateSpin Orchestrate Is Configured,”](#) on page 44
- ◆ [Section 2.3.8, “Configuring the Remote Audit Database after PlateSpin Orchestrate Is Configured,”](#) on page 45
- ◆ [Section 2.3.9, “Modifying Audit Database Tables to Accommodate Long Names,”](#) on page 46

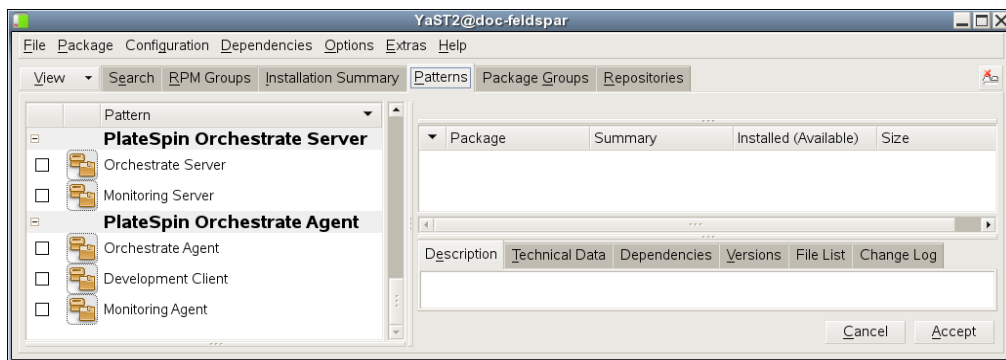
### 2.3.1 Installation and Configuration Steps

To install and configure a complete PlateSpin Orchestrate system (except the VM Client) on a SLES machine:

- 1 Review [Chapter 1, “Planning the Orchestrate Server Installation,”](#) on page 9 to verify that the device where you want to install the Orchestrate Server software fulfills the necessary requirements.
- 2 Download the appropriate PlateSpin Orchestrate Server ISO (32-bit or 64-bit) to an accessible network location.
- 3 (Optional) Create a DVD ISO (32-bit or 64-bit) that you can take with you to the machine where you want to install it.

#### 4 Install PlateSpin Orchestrate software:

- 4a Log in to the target SLES server as `root`, then open YaST2.
- 4b In the YaST Control Center, click *Software*, then click *Add-on Product* to display the Add-on Product Media dialog box.
- 4c In the Add-on Product Media dialog box, select the ISO media (*Local Directory* or *DVD*) to install.
  - 4c1 (Conditional) Select *DVD*, click *Next*, insert the DVD, then click *Continue*.
  - 4c2 (Conditional) Select *Local Directory*, click *Next*, select the *ISO Image* check box, browse to ISO on the file system, then click *OK*.
- 4d Read and accept the license agreement, then click *Next* to display YaST2.
- 4e In YaST2, click the *View* drop-down menu, then select *Patterns* to display the install patterns available on the PlateSpin Orchestrate ISO.



#### 4f Select the PlateSpin Orchestrate installation patterns that you want to install:

- ♦ **Orchestrate Server:** This pattern is the gateway between enterprise applications and resource servers. The Orchestrate Server manages computing nodes (resources) and the jobs that are submitted from applications to run on these resources.
- ♦ **Monitoring Server:** Uses open source Ganglia monitoring of the performance of certain data on network resources in a user-defined time period.

This pattern can be installed on a server where any other PlateSpin Orchestrate pattern is installed, or on a server by itself.
- ♦ **Orchestrate Agent:** This pattern is installed on all computing resources that are to be managed. It runs applications under the management of the Orchestrate Server and reports its status to the Orchestrate Server.
- ♦ **Development Client:** Installing this pattern lets the administrator of a computing resource troubleshoot, initiate, change, or shut down server functions for PlateSpin Orchestrate and its computing resources. For information about the tools included in this pattern, see [PlateSpin Orchestrate Clients](#) in [Appendix A, “PlateSpin Orchestrate Components: Install Patterns,”](#) on page 135.
- ♦ **Monitoring Agent:** This pattern is installed with any installation of the Orchestrate Server. It installs the Ganglia Agent on each monitored node, which collects performance metrics and sends the data to the Orchestrate Monitoring Server.

Refer to the information in [Appendix A, “PlateSpin Orchestrate Components: Install Patterns,”](#) on page 135 for more detail about these patterns.

If you choose not to install the PlateSpin Orchestrate Agent or the PlateSpin Orchestrate Clients on some machines now, you can install them later by using installers that are accessible from a hosted Web page from the PlateSpin Orchestrate Server, or you can repeat this process by downloading the ISO to the machine where you want to install the agent or clients. For more information, see [Section 2.4, “Installing the Orchestrate Agent Only,”](#) on page 47.

- 4g** Click *Accept* to install the packages.
- 5** Configure the PlateSpin Orchestrate components that you have installed. You can use one of two methods to perform the configuration:
- ◆ The PlateSpin Orchestrate product configuration script. If you use this method, continue with [Step 6](#).
  - ◆ The GUI Configuration Wizard. If you use this method, skip to [Step 7](#).

---

**TIP:** The text-based configuration process detects which RPM patterns are installed, but the GUI Configuration Wizard requires that you specify the components to be configured.

---

**IMPORTANT:** The configuration tools produce a configuration file that can be used to automatically reconfigure your system after an upgrade. If you use the tools to reconfigure your server after the original configuration has been done, make sure you reconfigure all of the components that are installed on the system (this is the default).

---

- 6** (Conditional) If you are using the PlateSpin Orchestrate product configuration script, run the script:

**6a** Make sure you are logged in as `root` to run the configuration script.

**6b** Run the script, as follows:

```
/opt/novell/zenworks/orch/bin/config
```

When the script runs, the following information is initially displayed:

```
Welcome to PlateSpin Orchestrate.
```

```
This program will configure PlateSpin Orchestrate 2.5.0
```

```
Select whether this is a new install or an upgrade
```

```
i) install
```

```
u) upgrade
```

```
- - - - -
```

```
Selection [install]:
```

**6c** Determine whether this is a new installation or an upgrade.

This example procedure discusses standard installation, so specify `i` (for install) or press Enter to accept the default. For more information about upgrade, see the [PlateSpin Orchestrate 2.5 Upgrade Guide](#).

When you make the selection, the following information is displayed:



Select products to configure

```
#  selected  Item
1)   yes    PlateSpin Orchestrate Monitoring Service
2)   yes    PlateSpin Orchestrate Server
3)   yes    PlateSpin Orchestrate Agent
```

Select from the following:

```
1 - 4) toggle selection status
      a) all
      n) none
      f) finished making selections
      q) quit -- exit the program
```

Selection [finish]:

The list shows the products listed whose patterns you previously installed.

**6d** Determine which installed products you want to configure. The options are listed with option numbers.

**6d1** Select or deselect an option by typing its number to toggle its selection status, or type *a* and press *Enter* to select all of them.

**6d2** When you have selected the products you want to configure, type *f* and press *Enter* to finish the selection and begin the configuration.

For information to help you complete the configuration process, see [Section 2.3.2, “PlateSpin Orchestrate Configuration Information,”](#) on page 31

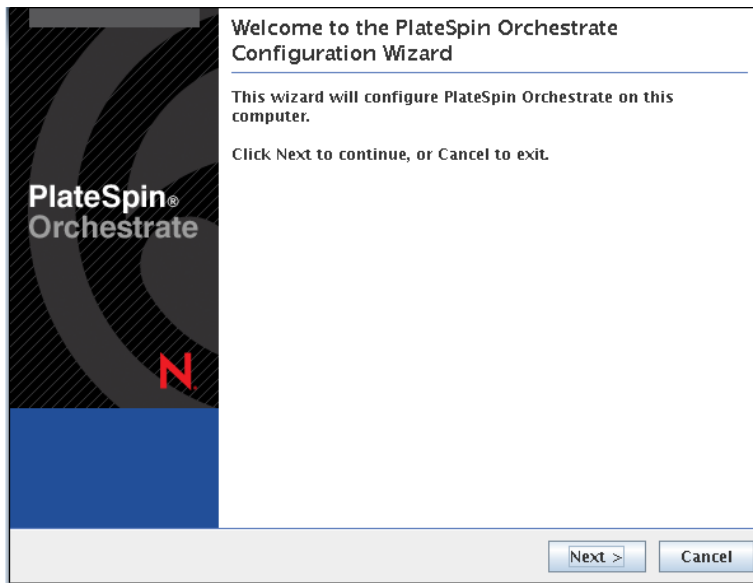
**6d3** When the you have finished answering questions about the configuration, continue with [Step 8](#).

**7** (Conditional) If you are using the GUI Configuration Wizard:

**7a** Enter the following command at the bash prompt of the machine where you installed the PlateSpin Orchestrate patterns:

```
/opt/novell/zenworks/orch/bin/guiconfig
```

The GUI Configuration Wizard launches.

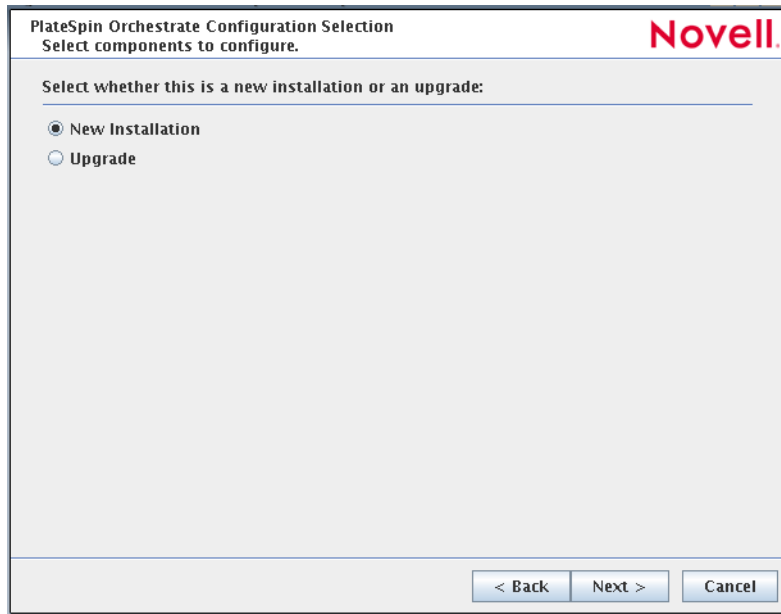


---

**IMPORTANT:** If you have only a keyboard to navigate through the pages of the GUI Configuration Wizard, use the Tab key to shift the focus to a control you want to use (for example, a *Next* button), then press the spacebar to activate that control.

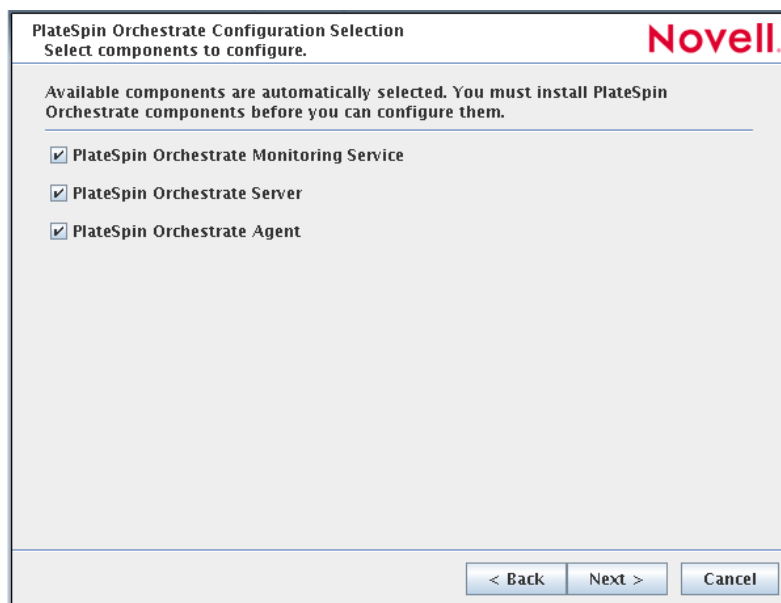
---

- 7b** Click *Next* to display the license agreement.
- 7c** Accept the agreement, then click *Next* to display the PlateSpin Orchestrate components page.



This section discusses new installation. For information about upgrading, see the [PlateSpin Orchestrate 2.5 Upgrade Guide](#).

- 7d** Select *New Installation*, then click *Next* to display the PlateSpin Orchestrate components page.



The components page lists the PlateSpin Orchestrate components that are available for configuration. By default, all installed components are selected for configuration.

**7e** Click *Next* to confirm the components you want to configure.

or

Deselect any PlateSpin Orchestrate components that you do not want to configure, then click *Next*.

(Conditional) If you selected the PlateSpin Orchestrate Monitoring Service as a component to install, the Monitoring Service Configuration page is displayed.

PlateSpin Orchestrate Monitoring Service  
Configure required settings. **Novell.**

Specify a name for this Monitored Node. The name entered here will be used to identify this computer in the Monitoring GUI.

Node name:

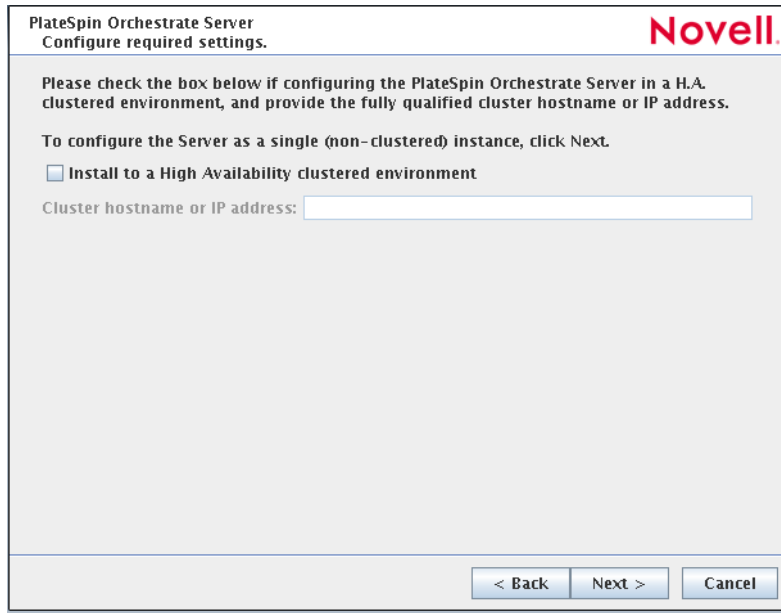
In addition to being a Monitored Node, you can also configure this computer to be the Monitoring Server.

Configure this computer to be the Monitoring Server

< Back   Next >   Cancel

See [Step 7e1](#) to continue.

(Conditional) If you did not select the PlateSpin Orchestrate Monitoring Service as a component to install, the High Availability configuration page is displayed.

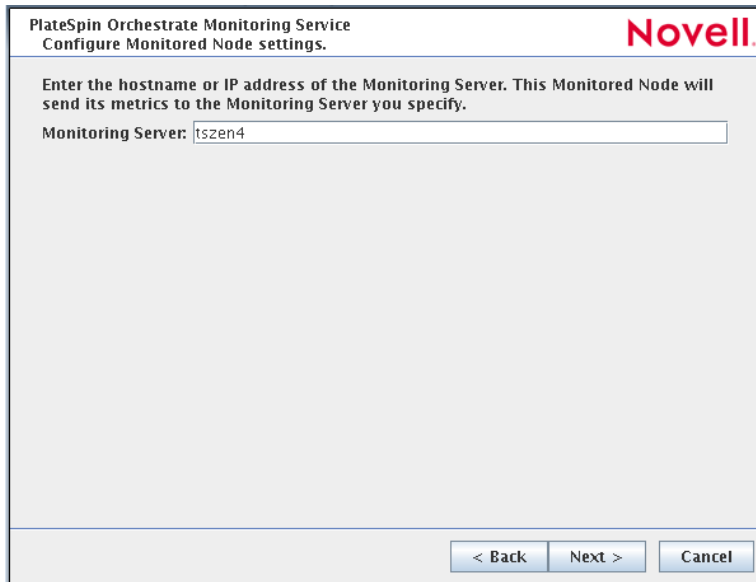


See [Step 7f](#) to continue.

**7e1** (Conditional) Specify a name for this monitored node. The default name is the computer name.

Select the *Configure this computer to be the Monitoring Server* check box if you want this computer to be a Monitoring Server, then click *Next* and continue with [Step 7f](#).

If you do not select this check box and click *Next*, a second page of the Monitoring Configuration Wizard is displayed.



Continue with [Step 7e2](#).

**7e2** (Conditional) Specify the host name or IP address you want to associate to this monitored node. This node sends its metrics to the Monitoring Server you specify.

**7e3** Click *Next* and continue with [Step 7f](#).

**7f** (Conditional) If you are configuring this Orchestrate Server in a High Availability environment, select the *Install to a High Availability* check box, then specify the fully qualified cluster hostname or IP Address.

or

If you are configuring this Orchestrate Server for a non-clustered instance, click *Next*.

**7g** On the settings pages and the succeeding pages of the wizard, provide information to be used in the configuration process. As the configuration questions in the wizard continue, refer to the information in [Table 2-1, “PlateSpin Orchestrate Configuration Information,” on page 32](#) for details about the configuration data that you need to provide. The GUI Configuration Wizard uses this information to build a response file that is consumed by the setup program inside the Configuration Wizard.

When you have finished answering the configuration questions in the wizard, the PlateSpin Orchestrate Configuration Summary page is displayed.

PlateSpin Orchestrate Configuration Summary  
Review and accept component settings.

Configure now

PlateSpin Orchestrate Monitoring Service  
Monitored Node: tszen4  
PlateSpin Orchestrate Server  
Grid Name: tszen4\_Grid  
PlateSpin Orchestrate Agent  
Agent Name: tszen4  
PlateSpin Orchestrate VM Builder

Response file: /etc/opt/novell/novell\_zenworks\_orch\_install.conf

---

**IMPORTANT:** Although this page of the wizard lets you navigate by using the Tab key and the spacebar, you need to use the Ctrl+Tab combination to navigate past the summary list. Click *Back* if you accidentally enter the summary list, and re-enter the page to navigate to the control buttons.

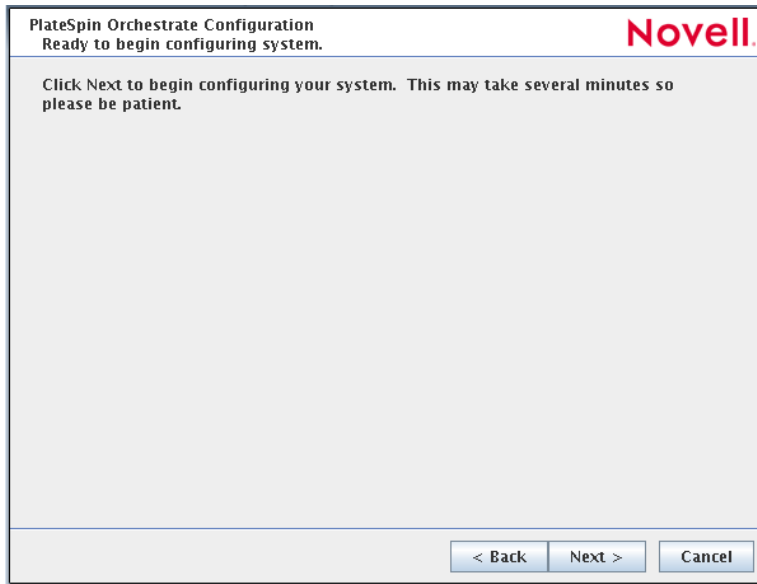
---

By default, the *Configure now* check box on this page is selected. If you accept the default of having it selected, the wizard starts PlateSpin Orchestrate and applies the configuration settings. If you deselect the check box, the wizard writes out the configuration file to /etc/opt/novell/novell\_zenworks\_orch\_install.conf without starting PlateSpin Orchestrate or applying the configuration settings.

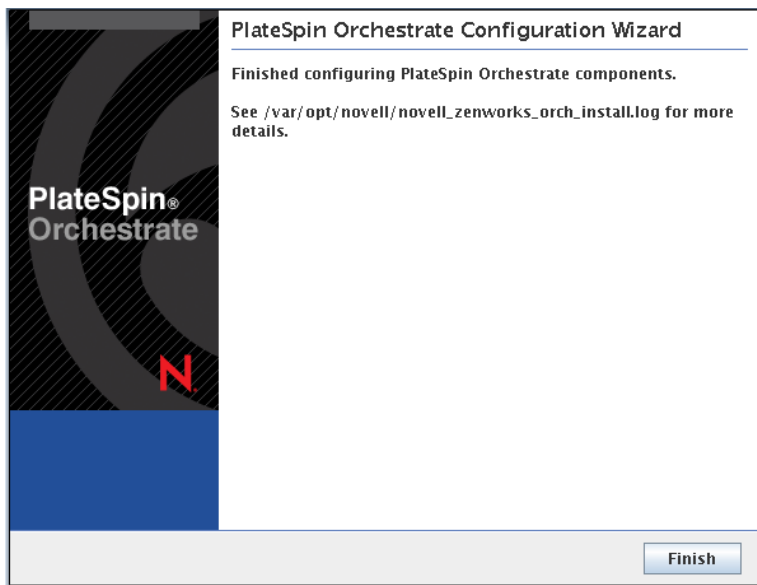
You can use this .conf file to start the Orchestrate Server or Agent and apply the settings either manually or with an installation script. Use the following command to run the configuration:

```
/opt/novell/zenworks/orch/bin/config -rs
```

7h Click *Next* to display the following wizard page.



7i Click *Next* to launch the configuration script. When the configuration is finished, the following page is displayed:



7j Click *Finish* to close the configuration wizard.

---

**IMPORTANT:** When the installation and configuration are complete, you need to register the resources to be managed by the PlateSpin Orchestrate system. Please refer to [Chapter 3, “First Use of Basic PlateSpin Orchestrate Components,” on page 101](#) for detailed information about getting resources to manage in the PlateSpin Orchestrate system.

---

- 8 Open the configuration log file (`/var/opt/novell/novell_zenworks_orch_install.log`) to make sure that the components were correctly configured.

You might want to change the configuration if you change your mind about some of the parameters you provided in the configuration process. For information about what to do in these circumstances, see [Section 2.3.3, “Correcting Configuration Errors and Repeating the Configuration Process,”](#) on page 36.

- 9 Access the PlateSpin Orchestrate Administrator Information Page to verify that the Orchestrate Server is installed and running. Use the following URL to open the page in a Web browser:

`http://DNS_name_or_IP_address_of_Orchestrate_Server:8001`

The Administrator Information page includes links to separate installation programs (installers) for the PlateSpin Orchestrate Agent and the PlateSpin Orchestrate Clients. The installers are used for various operating systems. You can download the installers and install the agent or the clients on any supported machine you choose. For more information, see [Section 2.4, “Installing the Orchestrate Agent Only,”](#) on page 47.

- 10 (Conditional and Optional) If you installed the PlateSpin Orchestrate Clients, you can increase the heap size that the JVM handles. This enables the console to manage a larger number of objects.

- 10a Open the `zoc` bash shell script at `/opt/novell/zenworks/zos/server/bin`.

On Microsoft Windows, the path to the console is `program files\novell\zos\clients\bin\zoc.bat`. For more information, see [Section 2.4, “Installing the Orchestrate Agent Only,”](#) on page 47.

- 10b Inside the script, find the following line where the JVM parameters are defined:

```
JVMARGS="-Xmx256m -Xms256m -Xmn64m -XX:NewSize=64m -XX:MaxNewSize=64m"
```

The `-Xmx` argument specifies the maximum heap size for the JVM. Increasing the heap size prevents a JVM out of memory condition.

- 10c Change the value in the `-Xmx` argument from 256MB to 512MB.

## 2.3.2 PlateSpin Orchestrate Configuration Information

The following table describes the information required by the PlateSpin Orchestrate configuration (`config`) and the configuration wizard (`guiconfig`). The information is organized to make it readily available if you want to evaluate the entire product. The information is listed in the order that it is presented in the configuration file.

**Table 2-1** *PlateSpin Orchestrate Configuration Information*

Configuration Information	Explanation
Orchestrate Monitoring	<p>If you installed the Orchestrate Monitoring Server and the Orchestrate Monitoring Agent, the following questions are asked during the configuration process.</p> <ul style="list-style-type: none"> <li>◆ <b>Monitored or Monitoring:</b> You can configure this host to be the Monitoring Server or a monitored node. Configure this host as the Monitoring Server? (y/n) <ul style="list-style-type: none"> <li>◆ Default value = yes (if the Monitoring Server is installed on this machine)</li> <li>◆ This question always appears if you installed the Monitoring Server component.</li> <li>◆ Because the configuration already knows that Orchestrate Monitoring is installed, you are choosing whether the machine being installed to is to be the controlling node for monitoring.</li> </ul> </li> <li>◆ <b>Monitoring Server:</b> Specify the hostname or IP address of the Monitoring Server. <ul style="list-style-type: none"> <li>◆ Default value = none</li> <li>◆ This question appears if you did not install the Monitoring Server on this machine. It is the name or IP address of the server (also known as the controlling node) where the Monitoring Agent will send its metrics.</li> </ul> </li> <li>◆ <b>Location:</b> Enter a name describing this monitored computer's location. <ul style="list-style-type: none"> <li>◆ Default value = <i>name_of_this_computer</i></li> <li>◆ This question always appears if you specify this computer as a monitored node (that is, you answer <code>no</code> when asked if this machine is to be the Monitoring Server).</li> <li>◆ The descriptive name you create here appears in the Monitoring user interface as the location of the device.</li> </ul> </li> </ul>
Type of Configuration	<p>Select whether this is a standard or high-availability server configuration.</p> <ul style="list-style-type: none"> <li>◆ Default value = <code>standard</code></li> <li>◆ Your answer here determines whether this is a standard installation or a High Availability installation.</li> </ul> <p>This section discusses standard installation, so specify <code>s</code> (for <code>standard</code>) or press Enter to accept the default. For more information about High Availability configuration, see the <a href="#">PlateSpin Orchestrate 2.5 High Availability Configuration Guide</a>.</p>



Configuration Information	Explanation
Orchestrate Server	<p>Because the PlateSpin Orchestrate Server must always be installed for a full PlateSpin Orchestrate system, the following questions are always asked when you have installed server patterns prior to the configuration process:</p> <ul style="list-style-type: none"> <li>◆ <b>PlateSpin Orchestrate grid name:</b> Select a name for the Orchestrator grid. <ul style="list-style-type: none"> <li>◆ Default = <code>hostname_grid</code></li> <li>◆ A grid is an administrative domain container holding all of the objects in your network or data center. The PlateSpin Orchestrate Server monitors and manages these objects, including users, resources, and jobs.</li> <li>◆ The grid name you create here is displayed as the name for the container placed at the root of the tree in the Explorer panel of the Orchestrate Development Client.</li> </ul> </li> <li>◆ <b>PlateSpin Orchestrate Administrator user:</b> Create an Administrator user for PlateSpin Orchestrate. <ul style="list-style-type: none"> <li>◆ Default = none</li> <li>◆ The name you create here is required when you access the PlateSpin Orchestrate Console or the <code>zosadmin</code> command line interface.</li> <li>◆ You should remember this username for future use.</li> </ul> </li> <li>◆ <b>PlateSpin Orchestrate Administrator password:</b> Specify the password for &lt;Administrator user&gt; <ul style="list-style-type: none"> <li>◆ Default = none</li> <li>◆ This password you create here is required when you access the PlateSpin Orchestrate Console or the <code>zosadmin</code> command line interface.</li> <li>◆ You should remember this password for future use.</li> </ul> </li> <li>◆ <b>Audit Database:</b> Enable auditing? <ul style="list-style-type: none"> <li>◆ Default = no</li> <li>◆ If you answer <code>yes</code> to this question, you need access to a relational database management system. <p>Novell has tested and supports only the PostgreSQL relational database as the audit database for this release of PlateSpin Orchestrate. If you use a different RDBMS, no support or documentation is available from Novell.</p> </li> <li>◆ For more information, see <a href="#">Section 2.3.5, "Installing and Configuring the Orchestrate Server for Use with a PostgreSQL Audit Database on a Different Host," on page 37</a> or <a href="#">Section 2.3.6, "Installing and Configuring the Orchestrate Server for Use with a Local PostgreSQL Audit Database," on page 41</a>.</li> </ul> </li> <li>◆ <b>License file:</b> Specify the full path to the license file. <ul style="list-style-type: none"> <li>◆ Default = none</li> <li>◆ A license key (90-day evaluation license or a full license) is required to use this product. You should have received this key from Novell, then you should have subsequently copied it to the network location that you specify here. Be sure to include the name of the license file in the path.</li> </ul> </li> </ul>

Configuration Information	Explanation
Orchestrate Server (continued)	<ul style="list-style-type: none"> <li>◆ <b>Server Portal</b><sup>1</sup>: Specify the Server Portal port. <ul style="list-style-type: none"> <li>◆ Default = 8080 (if Monitoring is installed) or 80 (if Monitoring is not installed).</li> <li>◆ Because Apache uses port 80 for Orchestrate Monitoring, it forwards non-monitoring requests to the Orchestrate Server on the port you specify here.</li> </ul> </li> <li>◆ <b>Administrator Information port</b><sup>1</sup>: Specify the Administrator Information page port. <ul style="list-style-type: none"> <li>◆ Default = 8001</li> <li>◆ Port 8001 on the Orchestrate Server provides access to an Administrator Information page that includes links to product documentation, agent and client installers, and product tools to help you understand and use the product. Specify another port number if 8001 is reserved for another use on this server.</li> </ul> </li> <li>◆ <b>Agent Port</b><sup>1</sup>: Specify the Agent port. <ul style="list-style-type: none"> <li>◆ Default = 8100</li> <li>◆ Port 8100 is used for communication between the Orchestrate Server and the Orchestrate Agent. Specify another port number if 8100 is reserved for another use.</li> </ul> </li> <li>◆ <b>TLS Certificate and Key</b><sup>1</sup>: Generate a TLS certificate and key? <ul style="list-style-type: none"> <li>Specify the full path to the TLS server certificate.</li> <li>Specify the full path to the TLS server private key.</li> <li>◆ Default = <code>yes</code> (the Orchestrate Server must generate a certificate and key for authentication)</li> <li>◆ A PEM-encoded TLS certificate and key is needed for secure communication between the Orchestrate Server and Orchestrate Agent.</li> <li>◆ If you respond with <code>no</code>, you need to provide the location of an existing certificate and key.</li> </ul> </li> <li>◆ <b>TLS Server Certificate</b><sup>2</sup>: Specify the full path to the TLS server certificate. <ul style="list-style-type: none"> <li>◆ Default = <code>/etc/ssl/servercerts/servercert.pem</code></li> <li>◆ Specify the path to the existing TLS certificate.</li> </ul> </li> <li>◆ <b>TLS Server Key</b><sup>2</sup>: Specify the full path to the TLS server private key. <ul style="list-style-type: none"> <li>◆ Default = <code>/etc/ssl/servercerts/serverkey.pem</code></li> <li>◆ Specify the path to the existing TLS private key.</li> </ul> </li> <li>◆ <b>Xen VNC password</b>: Set the password that will be used for VNC on Xen virtualization hosts. <ul style="list-style-type: none"> <li>◆ You will need this password when you log into virtual machines through VNC.</li> </ul> </li> </ul>

Configuration Information	Explanation
Orchestrate Agent	<p>You can install and configure the Orchestrate Agent on any computing node. It is not necessary to install it on the same machine with the Orchestrate Server. If you installed the Orchestrate Agent, the following questions are asked in the configuration process.</p> <ul style="list-style-type: none"> <li>◆ <b>Agent Name:</b> Specify the name of the Orchestrate Agent on this node. <ul style="list-style-type: none"> <li>◆ Default = none</li> <li>◆ The name you specify here is used by the Orchestrate Agent to authenticate to the Orchestrate Server.</li> </ul> </li> <li>◆ <b>Orchestrate Server:</b> Specify the hostname or IP address of the Orchestrate Server. <ul style="list-style-type: none"> <li>◆ Default = none</li> <li>◆ Specify the DNS name or IP address of the Orchestrate Server that this agent binds to.</li> </ul> </li> <li>◆ <b>Orchestrate Server Certificate</b><sup>3</sup>: Do you want to specify an existing Orchestrate Server certificate? <ul style="list-style-type: none"> <li>◆ Default = no</li> <li>◆ In configuring the Orchestrate Server, you either entered a PEM-encoded TLS certificate and key, or the system generated them.</li> <li>◆ If you answer <i>no</i>, the agent always trusts the server certificate. The certificate is downloaded from the Orchestrate Server to the Orchestrate Agent the first time the Agent connects.</li> <li>◆ If you answer <i>yes</i>, the Agent uses the certificate to verify that it is communicating with the correct server.</li> </ul> </li> <li>◆ <b>Virtual Machine</b><sup>3</sup>: Is the host a Virtual Machine? <ul style="list-style-type: none"> <li>◆ Default = no</li> <li>◆ This setting helps the PlateSpin Orchestrate system to know how to treat this host.</li> </ul> </li> <li>◆ <b>Agent Port</b><sup>3</sup>: Specify the Agent port on the Orchestrate Server. <ul style="list-style-type: none"> <li>◆ Default = 8100</li> <li>◆ Port 8100 is used for communication between the Orchestrate Server and the Orchestrate Agent. Specify another port number if 8100 is reserved for another use.</li> <li>◆ For an Agent installed on ESX, configure port 8101.</li> </ul> </li> <li>◆ <b>Agent IP Address:</b> Specify an optional local bind address for the agent. <ul style="list-style-type: none"> <li>◆ Default = none</li> <li>◆ If specified, the Agent tries to use this address locally when it connects to the Server. Otherwise, the operating system automatically sets the local address for each connection. This value is not normally needed.</li> </ul> </li> <li>◆ <b>Orchestrate Server Certificate File</b><sup>4</sup>: Specify the path to the Orchestrate Server certificate file. <ul style="list-style-type: none"> <li>◆ Default = /root/zos_server_cert.pem</li> </ul> </li> </ul>

Configuration Information	Explanation
Configuration Summary	<p>When you have completed the configuration process, you have the option of viewing a summary of the configuration information.</p> <ul style="list-style-type: none"> <li>◆ <b>View summary:</b> Do you want to view summary information? <ul style="list-style-type: none"> <li>◆ Default = <i>yes</i></li> <li>◆ Answering <i>yes</i> to this question displays a list of all the PlateSpin Orchestrate components you have configured and the information with which they will be configured.</li> <li>◆ Answering <i>no</i> to this question starts the configuration program.</li> </ul> </li> <li>◆ <b>Configuration information change:</b> Do you want to make any changes? <ul style="list-style-type: none"> <li>◆ Default = <i>no</i></li> <li>◆ Answering <i>yes</i> to this question restarts the configuration process so that you can make changes to the configuration information.</li> <li>◆ Answering <i>no</i> to this question starts the configuration program.</li> </ul> </li> </ul>

<sup>1</sup> This configuration parameter is considered an advanced setting for the Orchestrate Server in the PlateSpin Orchestrate Configuration Wizard. If you select the *Configure Advanced Settings* check box in the wizard, you have the option of changing the default values. If you leave the check box deselected the setting is configured with normal defaults.

<sup>2</sup> This configuration parameter is considered an advanced setting for the Orchestrate Server in the PlateSpin Orchestrate Configuration Wizard. If you select the *Configure Advanced Settings* check box in the wizard, this parameter is listed, but default values are provided only if the previous value is manually set to *no*.

<sup>3</sup> This configuration parameter is considered an advanced setting for the Orchestrate Agent in the PlateSpin Orchestrate Configuration Wizard. If you select the *Configure Advanced Settings* check box in the wizard, the setting is configured with normal defaults. Leaving the check box deselected lets you have the option of changing the default value.

<sup>4</sup> This configuration parameter is considered an advanced setting for the Orchestrate Agent in the PlateSpin Orchestrate Configuration Wizard, but only if you set *Provide Existing Orchestrate Server Certificate* to *yes*.

### 2.3.3 Correcting Configuration Errors and Repeating the Configuration Process

If you want to reconfigure the components of a PlateSpin Orchestrate system that you previously installed and configured, you can rerun the configuration script or the GUI Configuration Wizard and change your responses during the configuration process.

### 2.3.4 Uninstalling the Orchestrate Server

If you want to uninstall the Orchestrate Server at any time, see the detailed instructions in [Appendix D, “Uninstalling the Orchestrate Server,” on page 155](#)

## 2.3.5 Installing and Configuring the Orchestrate Server for Use with a PostgreSQL Audit Database on a Different Host

When you install PlateSpin Orchestrate, you can optionally point it to a relational database that you can use to audit the work done by the product. There is no relational database management system bundled with the product, but because PlateSpin Orchestrate is supported by default on SLES 11 SP1, use a PostgreSQL database that ships with SLES 10 (or SLES 11) and configure it for use with PlateSpin Orchestrate auditing. If you want to use another database, you have to configure it separately for use with PlateSpin Orchestrate.

- ♦ [“Installing the PostgreSQL Package and Dependencies on an Independent Host” on page 37](#)
- ♦ [“Configuring PostgreSQL to Accept Remote Database Connections” on page 39](#)
- ♦ [“Logging in Locally to the PostgreSQL Database” on page 39](#)
- ♦ [“Creating a PlateSpin Orchestrate User for the PostgreSQL Database” on page 40](#)
- ♦ [“Configuring the PlateSpin Orchestrate Audit Database on a Separate Host” on page 40](#)

### Installing the PostgreSQL Package and Dependencies on an Independent Host

When you enable and configure PlateSpin Orchestrate auditing, you create a small custom database and a simple schema that persists all of the PlateSpin Orchestrate jobs that have been run, along with their parameters. The database also maintains the login or logout activity of the PlateSpin Orchestrate users and resources and includes an “actions” table that records provisioning actions and their status (started, failed, completed successfully, etc.).

---

**NOTE:** We recommend that you install the PostgreSQL packages on a SLES 10 SP3 server (or SLES 11 SP1 server) that is different from the server where you install the PlateSpin Orchestrate Server. This ensures an adequate amount of space for running the server as the database is used.

We also recommend that you open TCP port 5432 (or whatever port you configure PostgreSQL to use —5432 is the PostgreSQL default) in the firewall of the RDBMS host. Without an open port in the host firewall, a remote Orchestrate Server cannot access the audit database.

For high availability Orchestrate Server configurations, you need to install the database outside of the high availability cluster.

If you want to run the database on the same host with PlateSpin Orchestrate, see [Section 2.3.6, “Installing and Configuring the Orchestrate Server for Use with a Local PostgreSQL Audit Database,” on page 41.](#)

---

If the SLES 10 SP3 machine (or the SLES 11 SP1 machine) does not have PostgreSQL packages installed and running, use YaST to search for `postgresql-server`, then install the package and its dependencies.

You can also run the following command from the bash prompt:

```
yast2 -i postgresql-server
```

When PostgreSQL is installed, you need to create the default database and start it. Use the following commands:

```
su - postgres
```

```
initdb
```

```
pg_ctl start
```

These commands create or update the PostgreSQL privilege database and installs the prepared tables. For more detail about what you will see when you run these commands, see [“Detail” on page 38](#).

---

**NOTE:** You cannot run the `pg_ctl` command as root. You must first change to the superuser for PostgreSQL (`su - postgres`). Failure to issue this command first results as follows:

```
# pg_ctl start
pg_ctl: cannot be run as root
Please log in (using, e.g., "su") as the (unprivileged) user that will
own the server process.
```

---

## Detail

```
postgres> initdb
The files belonging to this database system will be owned by user "postgres".
This user must also own the server process.
```

The database cluster will be initialized with locale `en_US.UTF-8`.  
The default database encoding has accordingly been set to `UTF8`.

```
creating directory /var/lib/pgsql/data ... ok
creating directory /var/lib/pgsql/data/global ... ok
creating directory /var/lib/pgsql/data/pg_xlog ... ok
creating directory /var/lib/pgsql/data/pg_xlog/archive_status ... ok
creating directory /var/lib/pgsql/data/pg_clog ... ok
creating directory /var/lib/pgsql/data/pg_subtrans ... ok
creating directory /var/lib/pgsql/data/pg_twophase ... ok
creating directory /var/lib/pgsql/data/pg_multixact/members ... ok
creating directory /var/lib/pgsql/data/pg_multixact/offsets ... ok
creating directory /var/lib/pgsql/data/base ... ok
creating directory /var/lib/pgsql/data/base/1 ... ok
creating directory /var/lib/pgsql/data/pg_tblspc ... ok
selecting default max_connections ... 100
selecting default shared_buffers ... 1000
creating configuration files ... ok
creating template1 database in /var/lib/pgsql/data/base/1 ... ok
initializing pg_authid ... ok
enabling unlimited row size for system tables ... ok
initializing dependencies ... ok
creating system views ... ok
loading pg_description ... ok
creating conversions ... ok
setting privileges on built-in objects ... ok
creating information schema ... ok
vacuuming database template1 ... ok
copying template1 to template0 ... ok
copying template1 to postgres ... ok
```

WARNING: enabling "trust" authentication for local connections  
You can change this by editing `pg_hba.conf` or using the `-A` option the  
next time you run `initdb`.

Success. You can now start the database server using:

```
postmaster -D /var/lib/pgsql/data
or
pg_ctl -D /var/lib/pgsql/data -l logfile start
postgres> postmaster -i
```

## Configuring PostgreSQL to Accept Remote Database Connections

To configure the PostgreSQL database to accept remote database connections, you need to add the following line to the `/var/lib/pgsql/data/pg_hba.conf` file:

```
host      all      all      0.0.0.0/0      trust
```

---

**NOTE:** After initial configuration, you can replace the `0.0.0.0/0` with a more restrictive mask. In a high availability server configuration, make sure that each host in the high availability cluster is enabled as a remote host.

For added security, the `/var/lib/pgsql/data/pg_hba.conf` file should list only the desired hosts. For example, only the Orchestrate Server would be included in the `trust` line.

---

After you make the change to the `pg_hba.conf` file, you need to specify the following command so that you do not receive an error when remote hosts try to connect:

```
pg_ctl reload
```

If `pg_hba.conf` is not configured when attempting to connect, an error similar to the following is displayed:

```
psql: FATAL: no pg_hba.conf entry for host "164.99.15.64", user "postgres",
database "postgres", SSL off
```

Depending on the environment, you might have to perform some additional configuration for remote database setup. Editing the `listen_addresses` section of the `postgresql.conf` file enables the database server to listen for incoming connections on the specified IP addresses. The following is an excerpt from that section of the file:

```
listen_addresses = 'localhost'
                # what IP address(es) to listen on;
                # comma-separated list of addresses;
                # defaults to 'localhost', '*' = all
```

After you modify the `listen_addresses` entry in `postgresql.conf`, use the following command to restart the PostgreSQL server (recommended in the PostgreSQL documentation):

```
pg_ctl restart
```

## Logging in Locally to the PostgreSQL Database

When you have installed the database, the next step is to check that you can connect to the database on the database host. The default admin username is `postgres`. Use the following commands to set up a password for the `postgres` user on the database host machine:

```
psql
```

---

**NOTE:** Remember the password. You need it to log in later to log in to the database.

---

Running this command results in a screen like this:

```
Welcome to psql 8.1.11, the PostgreSQL interactive terminal.
```

```
Type: \copyright for distribution terms
      \h for help with SQL commands
      \? for help with psql commands
      \g or terminate with semicolon to execute query
      \q to quit
```

```
postgres=# alter user postgres password 'pass';
ALTER ROLE
postgres=#
```

### Creating a PlateSpin Orchestrate User for the PostgreSQL Database

Next, set up a PostgreSQL user to own the audit database schema before you run the server configuration script or the GUI Configuration Wizard.

- 1 On the database host machine, use the following commands to log in as `root` at the database host machine:

```
su - postgres
psql
```

- 2 At the `psql` prompt on the database host, use the following command to create an audit database schema user, for example:

```
postgres=# create user zos password 'zos';
CREATE ROLE
```

---

**NOTE:** Single quotes surrounding the password are required.

---

- 3 Enter the `\q` command at the `psql` prompt to exit the database.

### Configuring the PlateSpin Orchestrate Audit Database on a Separate Host

The easiest way to configure the audit database is to do so when you configure the PlateSpin Orchestrate Server. Use the following procedure to configure the database.

---

**NOTE:** The questions presented in the text-based config script are shown here, but the questions presented in the graphical Configuration Wizard are similar.

---

- 1 After you have installed the PlateSpin Orchestrate packages you want, run the configuration (either the config script or the graphical Configuration Wizard) until you see the following question:

```
Enable Auditing (y/n) [no]:
```

- 2 Enter `yes` to answer this question. The following question displays:

```
Configure Audit DB (y/n) [no]:
```

- 3 Enter `yes` to answer this question. The following question displays:

```
Jdbc URL [jdbc:postgresql://localhost/]:
```



- 4 Enter the URL of the server where PostgreSQL is running, then press Enter.

```
jdbc:postgresql://IP_address_of_database_server/
```

This is a standard JDBC URL because this is a Java server that JDBC for the interface database. The URL must be properly formed, with a slash and without a database name at the end. We do not recommend using “localhost” as the URL.

The following prompt is displayed:

```
DB Admin Username:
```

- 5 Specify the PostgreSQL database administrator username, then press Enter.

This is the same username that was created when PostgreSQL was installed. In most instances, the username is `postgres`.

The following prompt is displayed:

```
DB Admin Password:
```

- 6 Specify the PostgreSQL database administrator password, then press Enter.

The following prompt is displayed:

```
Retype password:
```

- 7 Retype the database administrator password to verify it, then press Enter. The following prompt is displayed:

```
ZOS Audit Database Name [zos_db]:
```

- 8 Specify the name of the database you want to create for PlateSpin Orchestrate auditing, then press Enter. The following prompt is displayed:

```
Audit DB Username:
```

- 9 Specify the name you want to use for the PostgreSQL database user that will be used by PlateSpin Orchestrate for auditing (that is, a user with Read and Write privileges, not the administrator), then press Enter. The following prompt is displayed:

```
Audit DB Password:
```

- 10 Specify the password you want to use for authentication by the designated PostgreSQL database user, then press Enter. The following prompt is displayed:

```
Retype password:
```

- 11 Retype the password, then press Enter.

After you retype the new audit database password, the configuration interview for the Orchestrate Server continues normally.

## 2.3.6 Installing and Configuring the Orchestrate Server for Use with a Local PostgreSQL Audit Database

When you install PlateSpin Orchestrate, you can optionally point it to a relational database that you can use to audit the work done by the product. There is no relational database management system bundled with the product, but because PlateSpin Orchestrate is supported by default on either SLES 10 SP3 or SLES 11 SP1, you can use a PostgreSQL database and configure it for use with PlateSpin Orchestrate auditing. If you want to use some other database, you must configure it separately for use with PlateSpin Orchestrate.

- ♦ [“Installing the PostgreSQL Package and Dependencies” on page 42](#)
- ♦ [“Configuring PostgreSQL to Accept Local Database Connections” on page 42](#)

- ♦ [“Logging in Locally to the PostgreSQL Database” on page 43](#)
- ♦ [“Installing and Configuring the Local PlateSpin Orchestrate Audit Database” on page 43](#)

## Installing the PostgreSQL Package and Dependencies

---

**NOTE:** We recommend that you install the PostgreSQL package on either a SLES 10 SP3 or a SLES 11 SP1 server that is different from the server where you install the PlateSpin Orchestrate Server. This ensures an adequate amount of space for running the server as the database is used.

For more information, see [Section 2.3.5, “Installing and Configuring the Orchestrate Server for Use with a PostgreSQL Audit Database on a Different Host,” on page 37.](#)

---

If your SLES 10 SP3 or SLES 11 SP1 machine does not have the PostgreSQL package installed and running, use YaST to search for `postgresql-server`, then install the package and its dependencies.

You can also run the following command from the bash prompt:

```
yast2 -i postgresql-server
```

When PostgreSQL is installed, you need to create the default database and start it. Use the following commands:

```
su - postgres
```

```
initdb
```

```
pg_ctl start
```

These commands create or update the PostgreSQL privilege database and installs the prepared tables. For more detail about what you will see when you run these commands, see [“Detail” on page 38.](#)

---

**NOTE:** You cannot run the `pg_ctl` command as `root`. You must first change to the superuser for PostgreSQL (`su - postgres`). Failure to issue this command first results in the following messages:

```
# pg_ctl start
pg_ctl: cannot be run as root
Please log in (using, e.g., "su") as the (unprivileged) user that will
own the server process.
```

---

## Configuring PostgreSQL to Accept Local Database Connections

To configure the PostgreSQL database to accept remote database connections, you need to change the following line in the `/var/lib/pgsql/data/pg_hba.conf` file:

```
host    all         all             0.0.0.0/0      ident sameuser
```

The line should be changed as follows:

```
host    all         all             0.0.0.0/0      trust
```

## Logging in Locally to the PostgreSQL Database

When you have installed the database, the next step is to check that you can connect to the database on the database host. The default admin username is `postgres`. Use the following commands to set up a password for the `postgres` user on the database host machine:

```
psql
```

---

**NOTE:** Remember the password. You need it to log in to the database later.

---

Running this command results in a screen like this:

```
Welcome to psql 8.1.11, the PostgreSQL interactive terminal.
```

```
Type:  \copyright for distribution terms
        \h for help with SQL commands
        \? for help with psql commands
        \g or terminate with semicolon to execute query
        \q to quit
```

```
postgres=# alter user postgres password 'pass';
ALTER ROLE
postgres=#
```

---

**NOTE:** This is the message you would see if logging in to Postgres on a SLES 10 SP3 server. If logging in to Postgres on a SLES 11 SP1 server, you would see a message indicating a login to `psql 8.3.9`.

---

## Installing and Configuring the Local PlateSpin Orchestrate Audit Database

When you enable and configure PlateSpin Orchestrate auditing, you create a small custom database and a simple schema that persists all of the PlateSpin Orchestrate jobs that have been run, along with their parameters. The database also maintains the login or logout activity of the PlateSpin Orchestrate users and resources.

The easiest way to configure the audit database is to do so when you configure the PlateSpin Orchestrate Server. Use the following procedure to configure the database.

---

**NOTE:** The questions presented in the text-based config script are shown here, but the questions presented in the graphical Configuration Wizard are similar.

---

- 1 After you have installed the PlateSpin Orchestrate packages you want, run the configuration (either the config script or the graphical Configuration Wizard) until you see the following question:

```
Enable Auditing (y/n) [no]:
```

- 2 Enter `yes` to answer this question. The following question displays:

```
Configure Audit DB (y/n) [no]:
```

- 3 Enter `yes` to answer this question. the following question displays:

```
Jdbc URL [jdbc:postgresql://localhost/]:
```

- 4 Press `Enter` to accept the default (`jdbc:postgresql://localhost/`) by pressing `Enter`.

This is a standard JDBC URL because this is a Java server that uses JDBC for the interface database. The URL must be properly formed, with a slash and without a database name at the end.

The following prompt is displayed:

```
DB Admin Username:
```

- 5 Specify the PostgreSQL database administrator username, then press Enter.

This is the same name that was specified when PostgreSQL was installed. In most instances, the username is `postgres`.

The following prompt is displayed:

```
DB Admin Password:
```

- 6 Specify the PostgreSQL database administrator password, then press Enter.

The following prompt is displayed:

```
Retype password:
```

- 7 Retype the database administrator password to verify it, then press Enter. The following prompt is displayed:

```
ZOS Audit Database Name [zos_db]:
```

- 8 Specify the name of the database you want to create for PlateSpin Orchestrate auditing, then press Enter. The following prompt is displayed:

```
Audit DB Username:
```

- 9 Specify the name you want to use for the PostgreSQL database user that will be used by PlateSpin Orchestrate for auditing (that is, a user with Read and Write privileges, not the administrator), then press Enter. The following prompt is displayed:

```
Audit DB Password:
```

- 10 Specify the password you want to use for authentication by the designated PostgreSQL database user, then press Enter. The following prompt is displayed:

```
Retype password:
```

- 11 Retype the password, then press Enter.

After you retype the new audit database password, the configuration interview for the Orchestrate Server continues normally.

## 2.3.7 Configuring the Audit Database After PlateSpin Orchestrate Is Configured

If you have already installed and configured PlateSpin Orchestrate, it is still possible to configure an audit database.

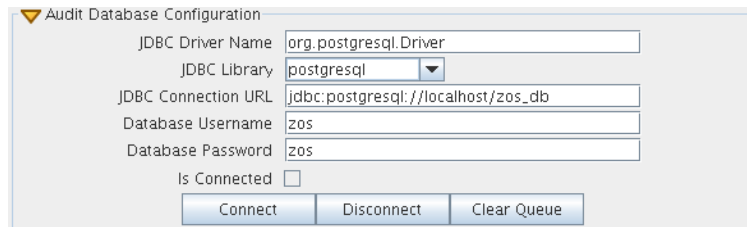
- 1 On the PlateSpin Orchestrate host machine, use your favorite editor to edit the script `/opt/novell/zenworks/zos/server/conf/audit_db_prep.sql`.
  - 1a Replace the `${DB_NAME}` variable with the PostgreSQL database name (for example, `zos_db`).
  - 1b Replace the `${DB_USER}` variable with the PostgreSQL schema owner name (for example, `zos`).
- 2 Use the following commands to run the modified script as the PostgreSQL database administrator:

```
su - postgres
psql -f audit_db_prep.sql
```

- 3 Use the following command to log into PostgreSQL, using the database name and schema owner substituted in Step 1 above:

```
su - postgres
psql -d zos_db -U zos -f audit_db_def.sql
```

- 4 Confirm that the database username and password match the values used when creating the schema owner database user in [“Creating a PlateSpin Orchestrate User for the PostgreSQL Database” on page 40](#). In this example, the username is `zos` and the password is `zos`.



Audit Database Configuration

JDBC Driver Name	org.postgresql.Driver
JDBC Library	postgresql
JDBC Connection URL	jdbc:postgresql://localhost/zos_db
Database Username	zos
Database Password	zos
Is Connected	<input type="checkbox"/>

Connect Disconnect Clear Queue

- 5 Confirm that the database username and password match the values you replaced in the variables of the `.sql` script. In this example, the username is `zos` and the password is `zos`.

- 6 Click *Connect*.

The *Is Connected* check box is selected: the Orchestrate Server is connected to the database so that any queued data and subsequent job, user, and resource events are written there.

## 2.3.8 Configuring the Remote Audit Database after PlateSpin Orchestrate Is Configured

If you have already installed and configured PlateSpin Orchestrate, it is still possible to configure an audit database.

- 1 On the PlateSpin Orchestrate host machine, use your favorite editor to edit the script `/opt/novell/zenworks/zos/server/conf/audit_db_def.sql`.
  - 1a Replace the `${DB_NAME}` variable with the PostgreSQL database name (for example, `zos_db`).
  - 1b Replace the `${DB_USER}` variable with the PostgreSQL schema owner name (for example, `zos`).
- 2 Use the following commands to run the modified script as the PostgreSQL database administrator for the remote database:

```
su - postgres
psql -h <psql-server-addr> -d postgres -U postgres -f audit_db_prep.sql
```

- 3 Use the following command to log into PostgreSQL, using the database name and schema owner substituted in Step 1 above:

```
su - postgres
psql -h <psql-server-addr> -d zos_db -U zos -f audit_db_def.sql
```

- 4 Confirm that the database username and password match the values used when creating the schema owner database user in [“Creating a PlateSpin Orchestrate User for the PostgreSQL Database” on page 40](#). In this example, the username is `zos` and the password is `zos`.

- 5 Confirm that the database username and password match the values you replaced in the variables of the `.sql` script. In this example, the username is `zos` and the password is `zos`.
- 6 Click *Connect*.

The *Is Connected* check box is selected: the Orchestrate Server is connected to the database so that any queued data and subsequent job, user, and resource events are written there.

### 2.3.9 Modifying Audit Database Tables to Accommodate Long Names

If your installation of PlateSpin Orchestrate uses Grid Object names that have an unusual number of characters, the server might lose its connection with the audit database.

If your Grid Objects are named with long names, you might have to configure some of the table columns in the audit database with different sizes. Here are some things you need to know about the database and how to make such changes:

- ♦ The default length of some names is pre-defined in the audit database. For example, the `username` and the `resource` name size in the audit database both default to 30 characters in allowable length.
- ♦ The workflow id (`originWorkflowId`, `parentWorkflowId`) in the workflow table is constructed by concatenating the name of the user who invoked the job + the name of the deployed job + an instance number. The default size value is 100.
- ♦ The job instance id (`jobinstanceid`) in the workflow table includes either the deployed name of the job or a server component name that invoked the job. For example, when the Scheduler invokes the job, then `Scheduler` is concatenated with the deployed job name. For example: `Scheduler(cpuinfo)`.
- ♦ The `name` column in the sessions table records both user and resource names.

The sql table definition is found at `<server>/conf/audit_db_def.sql`.

Use sql commands to change an existing table column. The following excerpts from the database show some table columns that you might need to change:

```
CREATE TABLE actions (
    targetobjectname VARCHAR(50) NOT NULL,
    username VARCHAR(30) NOT NULL,
    jobinstanceid VARCHAR(100)
```

```
CREATE TABLE workflow (  
  
    jobId VARCHAR(100) NOT NULL,  
    jobInstanceName VARCHAR(100) NOT NULL,  
    deployedJobName VARCHAR(30) NOT NULL,  
    originWorkflowId VARCHAR(100) NOT NULL,  
    parentWorkflowId VARCHAR(100),  
    username VARCHAR(30) NOT NULL,
```

```
CREATE TABLE sessions (  
  
    name VARCHAR(30) NOT NULL,
```

## 2.4 Installing the Orchestrate Agent Only

You might need to install the PlateSpin Orchestrate Agent on many different kinds of machines in your data center.

- ♦ [Section 2.4.1, “Installing the Orchestrate Agent Using the Product ISO,” on page 47](#)
- ♦ [Section 2.4.2, “Installing the Orchestrate Agent from the Administrator Information Page,” on page 62](#)
- ♦ [Section 2.4.3, “Performing a Silent Install of the PlateSpin Orchestrate Agent on Multiple Network Resources,” on page 69](#)
- ♦ [Section 2.4.4, “Installing the PlateSpin Orchestrate Agent on Other Supported Operating Systems,” on page 70](#)
- ♦ [Section 2.4.5, “Automatically Installing the Orchestrate Agent on a VM Host Using a Job,” on page 73](#)

---

**NOTE:** To automatically install the Orchestrate Agent on a VM that you created in the [VM Client](#), in the client, right-click a VM that has been shut down, then select *Install Agent*. This launches a job that installs the Orchestrate Agent on the VM, regardless of its platform. The agent’s service is started the next time you provision the VM. For more information, see [“Installing the PlateSpin Orchestrate Agent on a VM”](#) in the *PlateSpin Orchestrate 2.5 VM Client Guide and Reference*.

---

### 2.4.1 Installing the Orchestrate Agent Using the Product ISO

If you want to independently install the Orchestrate Agent to a node in your grid, you can do so, but the procedures for doing so vary depending on the platform where you are installing it.

- ♦ [“Using the ISO to Install the Orchestrate Agent on SLES 10.x and 11.x Machines” on page 47](#)
- ♦ [“Using the ISO to Install the PlateSpin Orchestrate 2.5 Agent on SLES 11 Machines” on page 55](#)
- ♦ [“Using the ISO to Install the Orchestrate Agent on Windows Machines” on page 62](#)

#### Using the ISO to Install the Orchestrate Agent on SLES 10.x and 11.x Machines

Use the following procedure if you want to use the Add-on CD method to install just the Orchestrate Agent to a SLES machine.

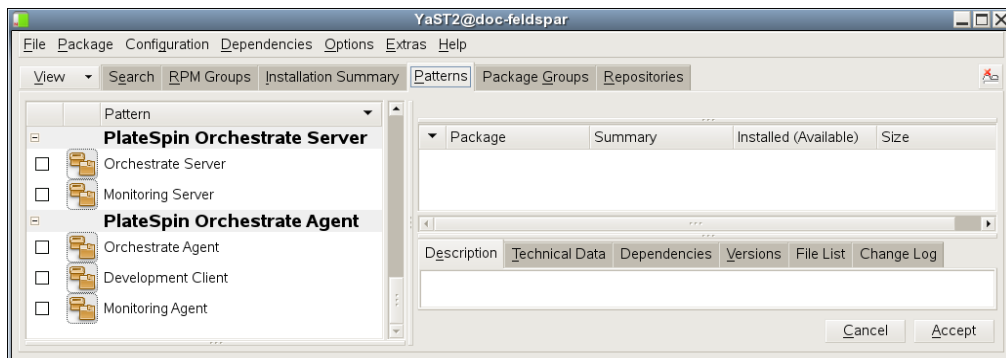
---

**NOTE:** The Orchestrate Agent is supported on SLES 10 SP3 and SLES 11.

For more information about installing on SLES 11, see [“Using the ISO to Install the PlateSpin Orchestrate 2.5 Agent on SLES 11 Machines”](#) on page 55.

---

- 1 To verify that the device where you want to install the agent and client software fulfills the necessary requirements, review [Chapter 1, “Planning the Orchestrate Server Installation,”](#) on page 9.
- 2 Download the appropriate PlateSpin Orchestrate Server ISO (32-bit or 64-bit) to an accessible network location.
- 3 (Optional) Create a DVD ISO (32-bit or 64-bit) that you can take with you to the machine where you want to install it.
- 4 Install PlateSpin Orchestrate Agent software:
  - 4a Log in to the target SLES server as `root`, then open YaST2.
  - 4b In the YaST Control Center, click *Software*, then click *Add-on Product* to display the Add-on Product Media dialog box.
  - 4c In the Add-on Product Media dialog box, select the ISO media (*Local Directory* or *DVD*) to install:
    - ◆ (Conditional) Select *DVD*, click *Next*, insert the DVD, then click *Continue*.
    - ◆ (Conditional) Select *Local Directory*, click *Next*, select the ISO Image check box, browse to and select the ISO in the file system, then click *OK*.
  - 4d Read and accept the license agreement, then click *Next* to display YaST2.
  - 4e In YaST2, click the *Filter* drop-down menu, then select *Patterns* to display the install patterns available on the PlateSpin Orchestrate ISO.



- 4f Select the PlateSpin Orchestrate installation patterns that you want to install:
  - ◆ **Orchestrate Agent:** Runs applications on all managed nodes under the management of the Orchestrate Server. An agent reports its status to the Orchestrate Server. Includes packages to help you configure the Orchestrate Agent.



- ♦ **Monitoring Agent:** This pattern installs the Ganglia Agent (gmond) on each monitored node, which collects performance metrics and sends the data to the Orchestrate Monitoring Server. This pattern includes packages that help you configure the Monitoring Agent.

If you select the Orchestrate Agent pattern, the Monitoring Agent pattern is selected by default. This is only a recommended dependence (most users install both components together) and is not binding. The autoselection is made for your convenience.

Refer to the information in [Appendix A, “PlateSpin Orchestrate Components: Install Patterns,” on page 135](#) for details on the installation data that you need to know.

**4g** Click *Accept* to install the packages.

You must install PlateSpin Orchestrate components before you can configure them.

**5** Configure the PlateSpin Orchestrate components that you have installed. You can use one of two methods to gather information for the configuration:

- ♦ The PlateSpin Orchestrate product configuration script. If you use this method, continue with [Step 6 on page 49](#).
- ♦ The GUI Configuration Wizard. If you use this method, skip to [Step 7 on page 50](#).

---

**NOTE:** The remaining steps in this procedure show the installation of the Orchestrate Agent as an example of component installation. Steps for installing any of the other components are similar. Refer to [Section 2.3.2, “PlateSpin Orchestrate Configuration Information,” on page 31](#) for further information you might need to configure a component.

---

**6** (Conditional) If you use the PlateSpin Orchestrate product configuration script, run it from the command line.

**6a** Make sure the product ISO is accessible. The script copies some files from the ISO.

**6b** Make sure you are logged in as `root` to run the configuration script.

**6c** Run the script, as follows:

```
/opt/novell/zenworks/orch/bin/config
```

When the script runs, the following information is initially displayed:

```
Welcome to PlateSpin Orchestrate.
```

```
This program will configure PlateSpin Orchestrate 2.5.0
```

```
Select whether this is a new install or an upgrade
```

```
i) install
```

```
u) upgrade
```

```
- - - - -
```

```
Selection [install]:
```

**6d** Press Enter to select the default (install) and display the following text, depending on which components you installed previously:

Select products to configure

```
#  selected  Item
1)   no     PlateSpin Orchestrate Monitoring Service (not installed)
2)   no     PlateSpin Orchestrate Server (not installed)
3)   yes    PlateSpin Orchestrate Agent
```

Select from the following:

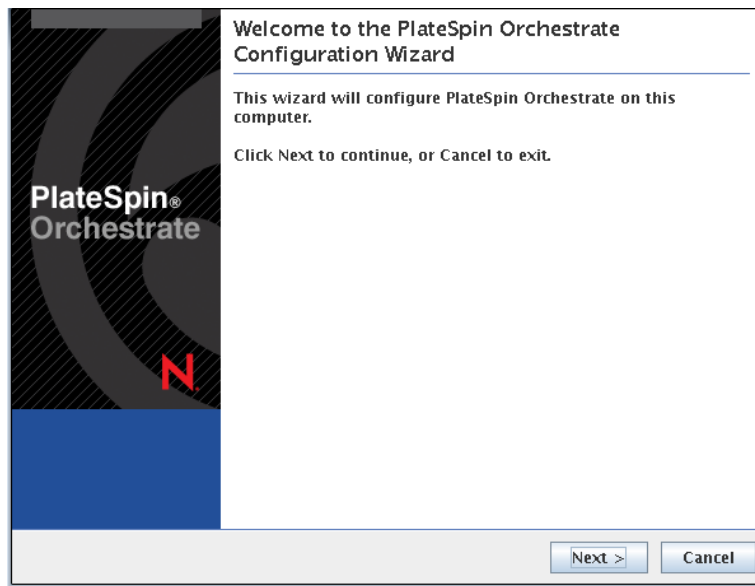
```
1 - 4) toggle selection status
a) all
n) none
f) finished making selections
q) quit -- exit the program
```

Selection [finish]:

- 6e** Type f and press Enter to finish the selection of the Orchestrate Agent (for this example, only the Orchestrate Agent is installed).
- 6f** Specify the name of the Orchestrate Agent on this node, then press Enter.
- 6g** Specify the hostname or IP address of the Orchestrate Server, then press Enter.
- 6h** Specify (yes or no) whether you want to use a certificate for verifying communication, then press Enter.
- 6i** Specify (yes or no) whether this is a virtual machine, then press Enter.
- 6j** Specify the port on the Orchestrate Server that you want to use for communication between this Agent and the Server, then press Enter.
- 6k** (Optional) Specify a local bind address for the Agent, then press Enter.
- 6l** Verify the configuration summary information, specify whether changes are needed, then (when all changes are made) press Enter to begin the configuration.
- 7** (Conditional) If you use the GUI Configuration Wizard, run it as follows:
  - 7a** Make sure the product ISO is accessible. The script copies some files from the ISO.
  - 7b** Make sure you are logged in as root to run the configuration wizard.
  - 7c** Run the wizard:

```
/opt/novell/zenworks/orch/bin/guiconfig
```

When the script runs, the following information is initially displayed:



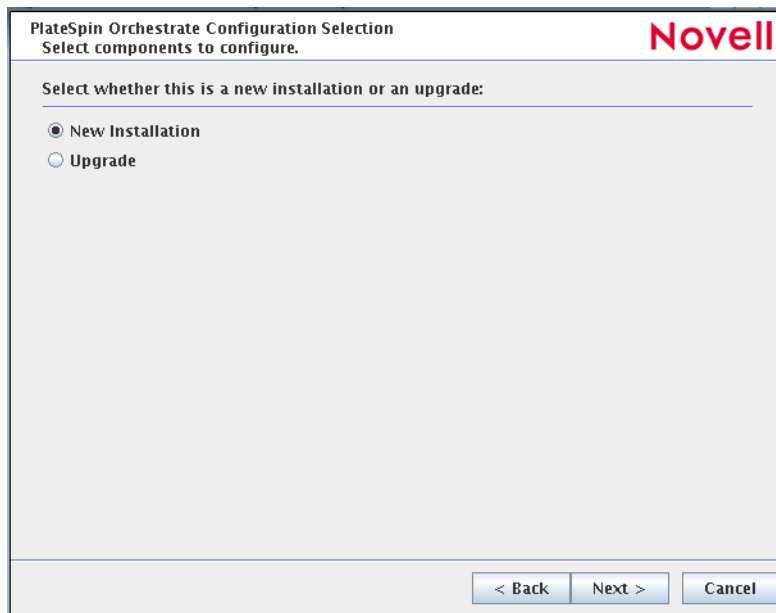
---

**IMPORTANT:** If you have only a keyboard to navigate through the pages of the GUI Configuration Wizard, use the Tab key to shift the focus to a control you want to use (for example, a *Next* button), then press the spacebar to activate that control.

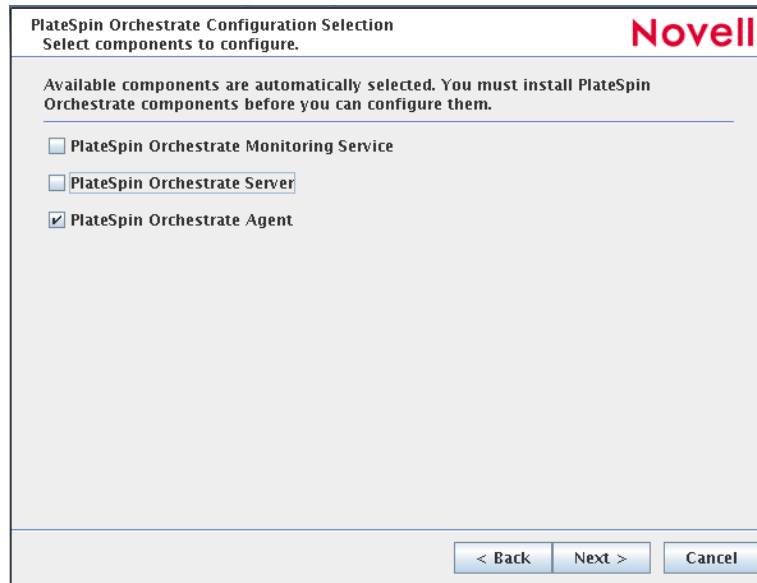
---

Default values are built into the script; most of these defaults are set to configure all of the product patterns that were installed using the Add-on Product Media utility in SLES 10 and in SLES 11.

- 7d** Click *Next* to display the license agreement.
- 7e** Select the option to accept the agreement, then click *Next* to open the installation type page of the wizard:

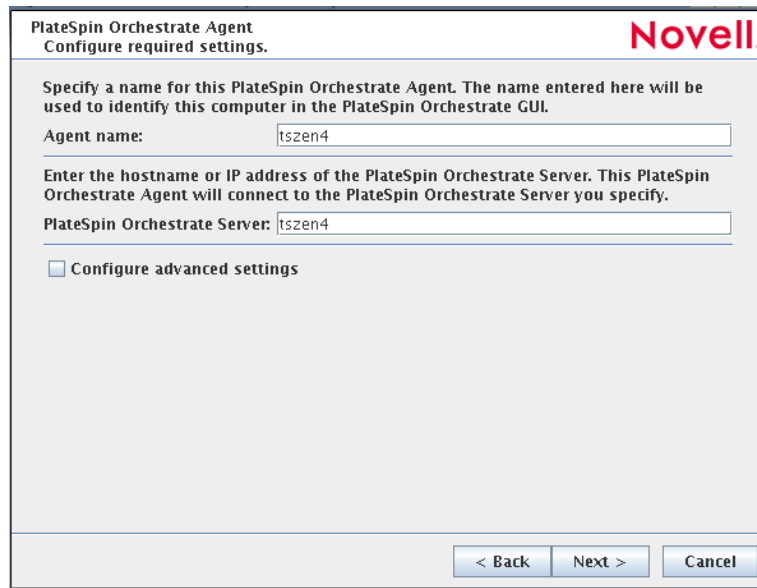


- 7f** Select *New Installation*, then click *Next* to display the *Orchestrate Components* page of the wizard:



The screenshot shows a dialog box titled "PlateSpin Orchestrate Configuration Selection" with the Novell logo in the top right corner. Below the title bar, it says "Select components to configure." A message states: "Available components are automatically selected. You must install PlateSpin Orchestrate components before you can configure them." There are three checkboxes listed: "PlateSpin Orchestrate Monitoring Service" (unchecked), "PlateSpin Orchestrate Server" (unchecked), and "PlateSpin Orchestrate Agent" (checked). At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

- 7g** Confirm that the *Orchestrate Agent* is selected for configuration, then click *Next* to display the *Orchestrate Agent Configuration* page:

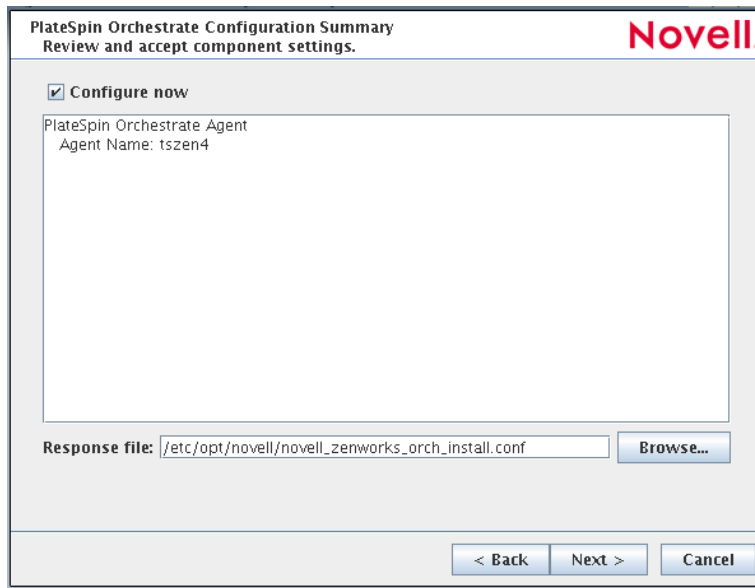


The screenshot shows a dialog box titled "PlateSpin Orchestrate Agent" with the Novell logo in the top right corner. Below the title bar, it says "Configure required settings." A message states: "Specify a name for this PlateSpin Orchestrate Agent. The name entered here will be used to identify this computer in the PlateSpin Orchestrate GUI." There is a text input field for "Agent name:" containing the text "tszen4". Below that, another message states: "Enter the hostname or IP address of the PlateSpin Orchestrate Server. This PlateSpin Orchestrate Agent will connect to the PlateSpin Orchestrate Server you specify." There is a text input field for "PlateSpin Orchestrate Server:" containing the text "tszen4". At the bottom, there is a checkbox for "Configure advanced settings" which is unchecked. At the bottom right, there are three buttons: "< Back", "Next >", and "Cancel".

- 7h** Check and if necessary change the name of the *Orchestrate Agent* and the *Orchestrate Server*.

If you select the *Configure Advanced Settings* check box in the wizard, you have the option of changing the default values. If you leave the check box deselected, the setting is configured with normal defaults. For information about the advanced settings see [Section 2.3.2, "PlateSpin Orchestrate Configuration Information," on page 31](#).

7i Click Next to display the configuration wizard summary page:



---

**IMPORTANT:** Although this page of the wizard lets you navigate by using the Tab key and the spacebar, you need to use the Ctrl+Tab combination to navigate past the summary list. Click *Back* if you accidentally enter the summary list, and re-enter the page to navigate to the control buttons.

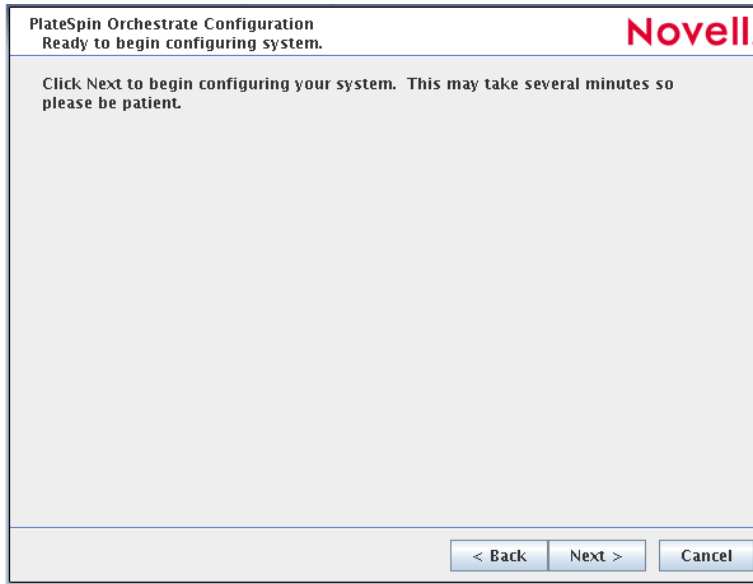
---

By default, the *Configure now* check box on this page is selected. If you accept the default of having it selected, the wizard starts the PlateSpin Orchestrate Agent and applies the configuration settings. If you deselect the check box, the wizard writes out the configuration file to `/etc/opt/novell/novell_zenworks_orch_install.conf` without starting PlateSpin Orchestrate or applying the configuration settings.

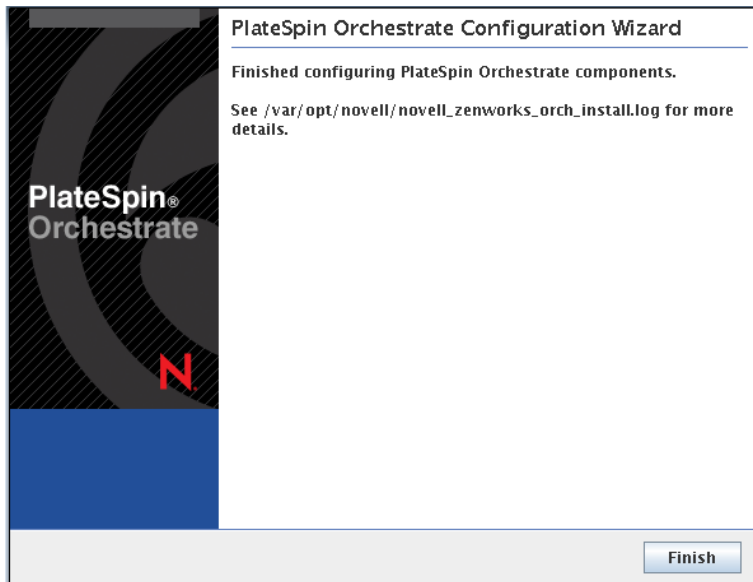
You can use this `.conf` file to start the Orchestrate Agent and apply the settings either manually or with an installation script. Use the following command to run the configuration:

```
/opt/novell/zenworks/orch/bin/config -rs
```

7j Click *Next* to display the following wizard page.



7k Click *Next* to launch the configuration script. When the configuration is finished, the following page is displayed:



7l Click *Finish* to close the configuration wizard.

---

**IMPORTANT:** When the installation and configuration are complete, you need to register the resources to be managed by the PlateSpin Orchestrate system. Please refer to [Chapter 3, “First Use of Basic PlateSpin Orchestrate Components,” on page 101](#) for detailed information about getting resources to manage in the PlateSpin Orchestrate system.

---

**8** (Optional) Increase the heap size that the JVM handles to enable the console to manage a large number of objects.

**8a** Open the bash shell script at `/opt/novell/zenworks/zos/server/bin`.

**8b** Inside the script, find the following line where the JVM parameters are defined:

```
JVMARGS="-Xmx256m -Xms256m -Xmn64m -XX:NewSize=64m -XX:MaxNewSize=64m"
```

The `-Xmx` argument specifies the maximum heap size for the JVM. Increasing the heap size prevents a JVM out of memory condition.

**8c** Change the value in the `-Xmx` argument from 256 MB to 512 MB.

## Using the ISO to Install the PlateSpin Orchestrate 2.5 Agent on SLES 11 Machines

PlateSpin Orchestrate 2.5 provides a separate ISO designated for SLES/SLED 11 installations of the PlateSpin Orchestrate Agent and Client.

Installation on SLES 11 is supported for the PlateSpin Orchestrate Agent only. Installation on SLED 11 is supported for the PlateSpin Orchestrate Clients only. Neither the PlateSpin Orchestrate Server nor the PlateSpin Orchestrate Monitoring Server are supported on SLED/SLES 11

---

**NOTE:** The Orchestrate Agent is also supported on SLES 10 SP3 and SLES 11. For more information, see [“Using the ISO to Install the Orchestrate Agent on SLES 10.x and 11.x Machines” on page 47.](#)

---

Use the following procedure if you want to use the Add-on CD method to install just the PlateSpin Orchestrate 2.5 Agent to a SLES 11 machine.

- 1** To verify that the device where you want to install the agent and client software fulfills the necessary requirements, review [Chapter 1, “Planning the Orchestrate Server Installation,” on page 9.](#)
- 2** Download the appropriate PlateSpin Orchestrate Server SLES 11 ISO (32-bit or 64-bit) to an accessible network location.
- 3** (Optional) Create a DVD ISO (32-bit or 64-bit) that you can take with you to the machine where you want to install it.
- 4** Install PlateSpin Orchestrate Agent software:
  - 4a** Log in to the target SLES 11 server machine as `root`, then open YaST2.
  - 4b** In the YaST Control Center, click *Software*, then click *Add-on Product* to display the Add-on Product Media dialog box.
  - 4c** In the Add-on Product Media dialog box, select the ISO media (*Local Directory* or *DVD*) to install:
    - ♦ (Conditional) Select *DVD*, click *Next*, insert the DVD, then click *Continue*.
    - ♦ (Conditional) Select *Local Directory*, click *Next*, select the *ISO Image* check box, browse to and select the ISO in the file system, then click *OK*.
    - ♦ (Conditional) Select *Local ISO image*, click *Next*, enter the repository name of the ISO image, browse to the location of the ISO image, then click *Next*.
  - 4d** Read and accept the license agreement, then click *Next* to display YaST2.
  - 4e** In YaST2, click the *Filter* drop-down menu, then select *Patterns* to display the install patterns available on the PlateSpin Orchestrate ISO.

- 4f** Select the PlateSpin Orchestrate installation patterns that you want to install:
- ♦ **Orchestrate Agent:** Runs applications on all managed nodes under the management of the Orchestrate Server. An agent reports its status to the Orchestrate Server. Includes packages to help you configure the Orchestrate Agent.
  - ♦ **Monitoring Agent:** This pattern installs the Ganglia Agent (gmond) on each monitored node, which collects performance metrics and sends the data to the Orchestrate Monitoring Server. This pattern includes packages that help you configure the Monitoring Agent.

If you select the Orchestrate Agent pattern, the Monitoring Agent pattern is selected by default. This is only a recommended dependence (most users install both components together) and is not binding. The autoselection is made for your convenience.

Refer to the information in [Appendix A, “PlateSpin Orchestrate Components: Install Patterns,” on page 135](#) for details on the installation data that you need to know.

- 4g** Click *OK* to install the patterns.

You must install PlateSpin Orchestrate components before you can configure them.

- 5** Configure the PlateSpin Orchestrate components that you have installed. You can use one of two methods to gather information for the configuration:
- ♦ The PlateSpin Orchestrate product configuration script. If you use this method, continue with [Step 6 on page 49](#).
  - ♦ The GUI Configuration Wizard. If you use this method, skip to [Step 7 on page 50](#).

---

**NOTE:** The remaining steps in this procedure show the installation of the Orchestrate Agent as an example of component installation. Steps for installing any of the other components are similar. Refer to [Section 2.3.2, “PlateSpin Orchestrate Configuration Information,” on page 31](#) for further information you might need to configure a component.

---

- 6** (Conditional) If you use the PlateSpin Orchestrate product configuration script, run it from the command line.

**6a** Make sure the product ISO is accessible. The script copies some files from the ISO.

**6b** Make sure you are logged in as `root` to run the configuration script.

**6c** Run the script, as follows:

```
/opt/novell/zenworks/orch/bin/config
```

When the script runs, the following information is initially displayed:

```
Welcome to PlateSpin Orchestrate.
```

```
This program will configure PlateSpin Orchestrate 2.5.0
```

```
Select whether this is a new install or an upgrade
```

```
i) install
```

```
u) upgrade
```

```
- - - - -
```

```
Selection [install]:
```

- 6d** Press `Enter` to select the default (install) and display the following text, depending on which components you installed previously:



Select products to configure

```
#  selected  Item
1)   no     PlateSpin Orchestrate Monitoring Service (not installed)
2)   no     PlateSpin Orchestrate Server (not installed)
3)   yes    PlateSpin Orchestrate Agent
```

Select from the following:

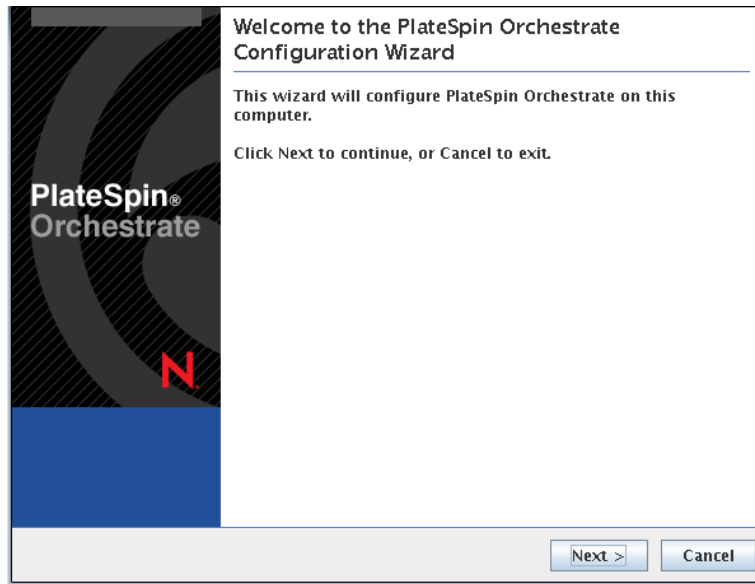
```
1 - 4) toggle selection status
      a) all
      n) none
      f) finished making selections
      q) quit -- exit the program
```

Selection [finish]:

- 6e** Type f and press Enter to finish the selection of the Orchestrate Agent (for this example, only the Orchestrate Agent is installed).
  - 6f** Specify the name of the Orchestrate Agent on this node, then press Enter.
  - 6g** Specify the hostname or IP address of the Orchestrate Server, then press Enter.
  - 6h** Specify (yes or no) whether you want to use a certificate for verifying communication, then press Enter.
  - 6i** Specify (yes or no) whether this is a virtual machine, then press Enter.
  - 6j** Specify the port on the Orchestrate Server that you want to use for communication between this Agent and the Server, then press Enter.
  - 6k** (Optional) Specify a local bind address for the Agent, then press Enter.
  - 6l** Verify the configuration summary information, specify whether changes are needed, then (when all changes are made) press Enter to begin the configuration.
- 7** (Conditional) If you use the GUI Configuration Wizard, run it as follows:
- 7a** Make sure the product ISO is accessible. The script copies some files from the ISO.
  - 7b** Make sure you are logged in as `root` to run the configuration wizard.
  - 7c** Run the wizard:

```
/opt/novell/zenworks/orch/bin/guiconfig
```

When the script runs, the following information is initially displayed:



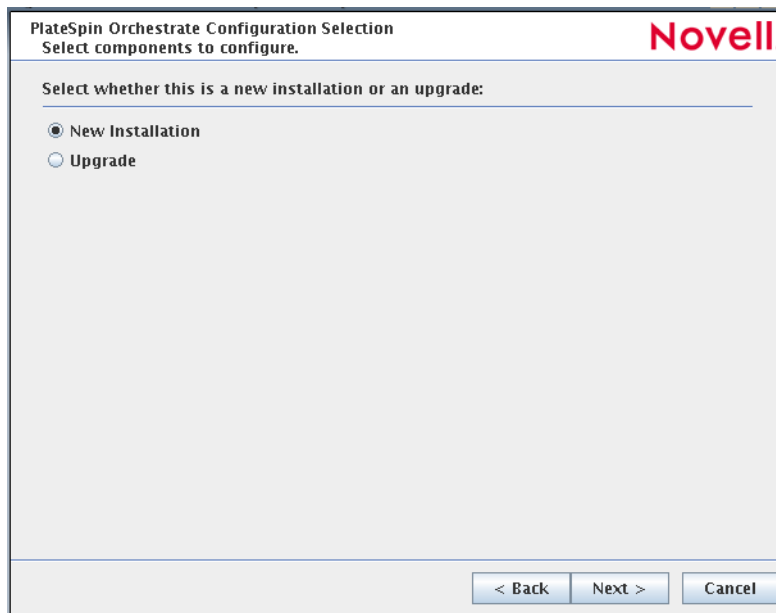
---

**IMPORTANT:** If you have only a keyboard to navigate through the pages of the GUI Configuration Wizard, use the Tab key to shift the focus to a control you want to use (for example, a *Next* button), then press the spacebar to activate that control.

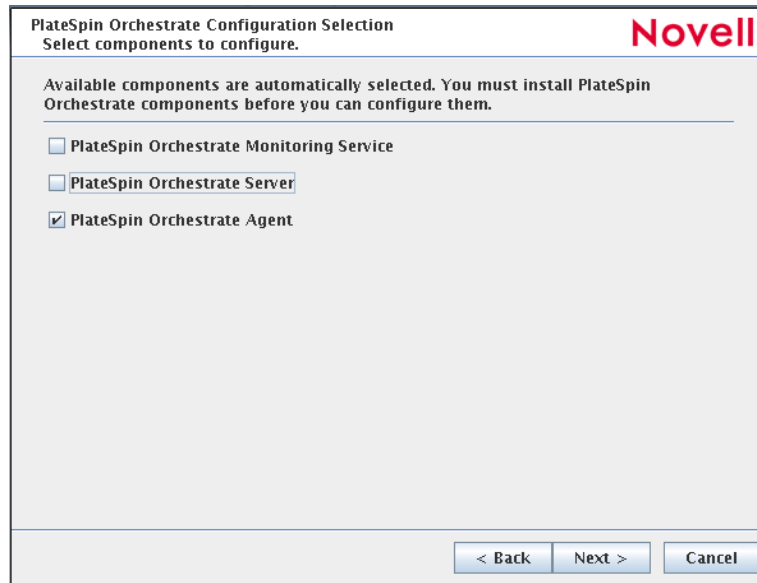
---

Default values are built into the script; most of these defaults are set to configure all of the product patterns that were installed using the Add-on Product Media utility in SLES 10 and in SLES 11.

- 7d** Click *Next* to display the license agreement.
- 7e** Select the option to accept the agreement, then click *Next* to open the installation type page of the wizard:

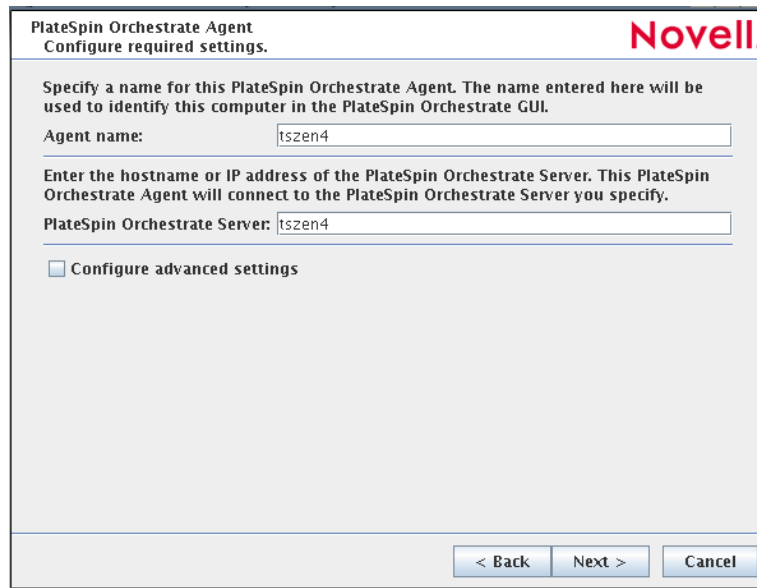


- 7f** Select *New Installation*, then click *Next* to display the *Orchestrate Components* page of the wizard:



The screenshot shows a dialog box titled "PlateSpin Orchestrate Configuration Selection" with the Novell logo in the top right corner. Below the title bar, it says "Select components to configure." A message states: "Available components are automatically selected. You must install PlateSpin Orchestrate components before you can configure them." There are three checkboxes: "PlateSpin Orchestrate Monitoring Service" (unchecked), "PlateSpin Orchestrate Server" (unchecked), and "PlateSpin Orchestrate Agent" (checked). At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

- 7g** Confirm that the *Orchestrate Agent* is selected for configuration, then click *Next* to display the *Orchestrate Agent Configuration* page:

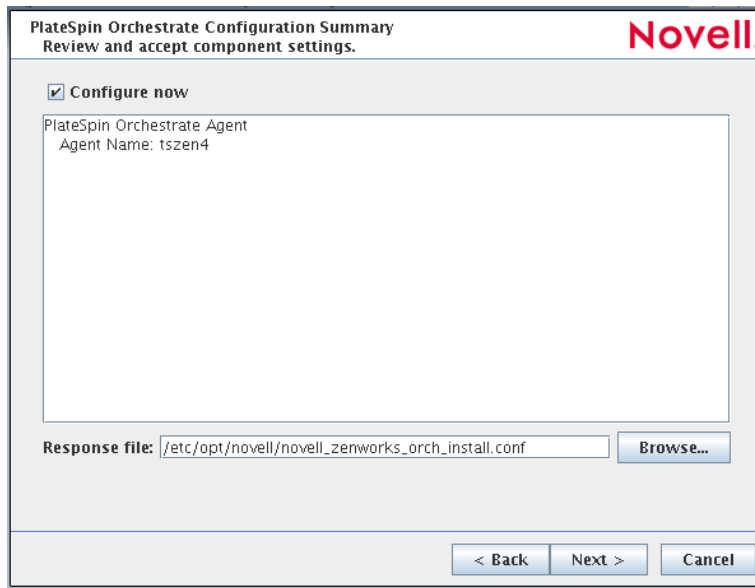


The screenshot shows a dialog box titled "PlateSpin Orchestrate Agent" with the Novell logo in the top right corner. Below the title bar, it says "Configure required settings." A message states: "Specify a name for this PlateSpin Orchestrate Agent. The name entered here will be used to identify this computer in the PlateSpin Orchestrate GUI." There is a text input field for "Agent name:" containing "tszen4". Another message states: "Enter the hostname or IP address of the PlateSpin Orchestrate Server. This PlateSpin Orchestrate Agent will connect to the PlateSpin Orchestrate Server you specify." There is a text input field for "PlateSpin Orchestrate Server:" containing "tszen4". There is a checkbox for "Configure advanced settings" which is unchecked. At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

- 7h** Check and if necessary change the name of the *Orchestrate Agent* and the *Orchestrate Server*.

If you select the *Configure Advanced Settings* check box in the wizard, you have the option of changing the default values. If you leave the check box deselected, the setting is configured with normal defaults. For information about the advanced settings see [Section 2.3.2, "PlateSpin Orchestrate Configuration Information," on page 31.](#)

7i Click Next to display the configuration wizard summary page:



---

**IMPORTANT:** Although this page of the wizard lets you navigate by using the Tab key and the spacebar, you need to use the Ctrl+Tab combination to navigate past the summary list. Click *Back* if you accidentally enter the summary list, and re-enter the page to navigate to the control buttons.

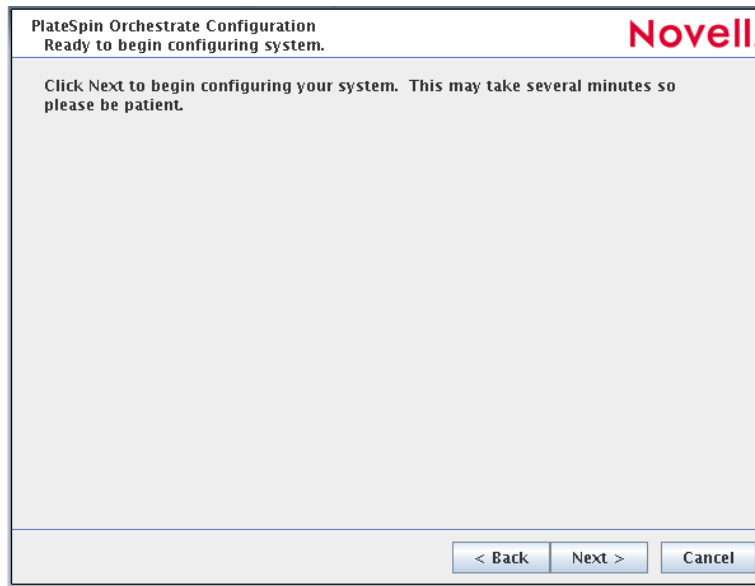
---

By default, the *Configure now* check box on this page is selected. If you accept the default of having it selected, the wizard starts the PlateSpin Orchestrate Agent and applies the configuration settings. If you deselect the check box, the wizard writes out the configuration file to `/etc/opt/novell/novell_zenworks_orch_install.conf` without starting PlateSpin Orchestrate or applying the configuration settings.

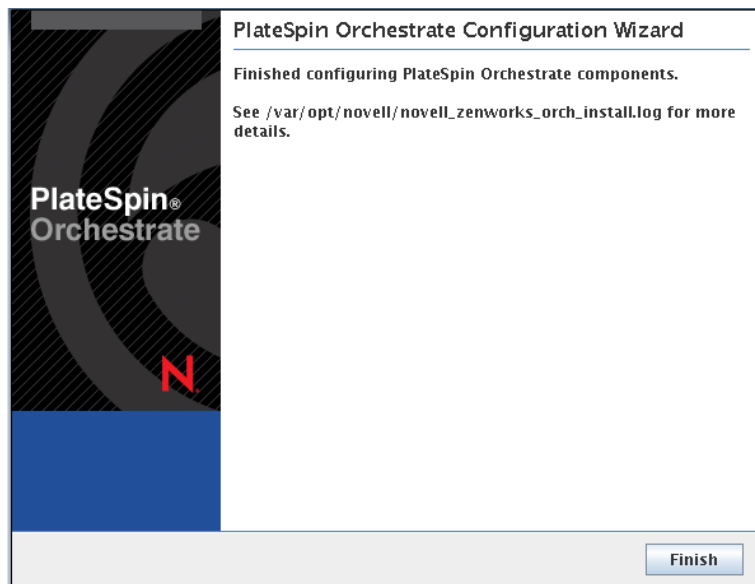
You can use this `.conf` file to start the Orchestrate Agent and apply the settings either manually or with an installation script. Use the following command to run the configuration:

```
/opt/novell/zenworks/orch/bin/config -rs
```

7j Click *Next* to display the following wizard page.



7k Click *Next* to launch the configuration script. When the configuration is finished, the following page is displayed:



7l Click *Finish* to close the configuration wizard.

---

**IMPORTANT:** When the installation and configuration are complete, you need to register the resources to be managed by the PlateSpin Orchestrator system. Please refer to [Chapter 3, “First Use of Basic PlateSpin Orchestrator Components,” on page 101](#) for detailed information about getting resources to manage in the PlateSpin Orchestrator system.

---

**8** (Optional) Increase the heap size that the JVM handles to enable the console to manage a large number of objects.

**8a** Open the bash shell script at `/opt/novell/zenworks/zos/server/bin`.

**8b** Inside the script, find the following line where the JVM parameters are defined:

```
JVMARGS="-Xmx256m -Xms256m -Xmn64m -XX:NewSize=64m -XX:MaxNewSize=64m"
```

The `-Xmx` argument specifies the maximum heap size for the JVM. Increasing the heap size prevents a JVM out of memory condition.

**8c** Change the value in the `-Xmx` argument from 256 MB to 512 MB.

## Using the ISO to Install the Orchestrate Agent on Windows Machines

The PlateSpin Orchestrate Agent is supported on Windows Server 2003 and Windows Server 2008, but not on Windows 7, Windows Vista, Windows XP, Windows 2000, or earlier releases (Windows ME, Windows 95, etc.). Use the following steps to download the PlateSpin Orchestrate component you want to install:

- 1** To verify that the device where you want to install the agent and client software fulfills the necessary requirements, review [Chapter 1, “Planning the Orchestrate Server Installation,” on page 9](#).
- 2** Download the appropriate PlateSpin Orchestrate Server ISO (32-bit or 64-bit) to an accessible network location.
- 3** Create a DVD from the ISO or use a tool that will mount the ISO.
- 4** Navigate to the directory path where the Windows packages reside.
- 5** Double-click the appropriate file (`.exe`) to launch an installation and configuration wizard. See [“Installing and Registering the SLES PlateSpin Orchestrate Agent from the Administrator Information page.” on page 63 in Installing the Orchestrate Agent from the Administrator Information Page](#) for information about this wizard.

## 2.4.2 Installing the Orchestrate Agent from the Administrator Information Page

After you install the server for PlateSpin Orchestrate on the network, you can launch the PlateSpin Orchestrate Administrator Information page. The page has links to various installer programs that you can use to install required PlateSpin Orchestrate software on the computing resources that you will be utilizing in the grid system.

The following browsers support the PlateSpin Orchestrate Server Portal and PlateSpin Orchestrate Administrator’s Web page applications:

- ♦ Internet Explorer version 6.0 or higher
- ♦ Netscape Navigator version 6.0 or higher
- ♦ Mozilla Firefox version 1.5 or higher

Using a supported browser, enter the following URL to access the Administrator Information page for PlateSpin Orchestrate from the server:

```
http://server_name_for_PlateSpin_Orchestrate:8001/
```

This URL is the DNS name (or IP address) of the server for PlateSpin Orchestrate. Be sure to use Port 8001 in the address to access and display the page, as shown in the following illustration:

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PlateSpin Orchestrate 2.5

[Installation](#) | [Online Documentation](#) | [SDK Java API](#) | [JDL Python API](#) | [CLI Tool Ref](#) | [Doc Feedback](#)

### Administrator Information

PlateSpin® Orchestrate information is posted to the Novell Product Documentation Web site. Links to all information are also provided here.

#### Where do I begin?

After you read the [product README](#), you need to follow the installation instructions for PlateSpin Orchestrate included in the *PlateSpin Orchestrate 2.5 Installation and Configuration Guide* ([PDE](#)). We also recommend that you review the complete [PlateSpin Orchestrate product documentation](#) set (includes books and samples) before you install this product in a production environment.

#### Online Documentation

PlateSpin Orchestrate is documented with the following content, available in both *.html* and *.pdf* formats. To view the online formats, click the associated link displayed in the following table.

Book Name	HTML	PDF [size]
<b>PlateSpin Orchestrate 2.5 README</b>	<a href="#">PlateSpin Orchestrate 2.5 README</a>  Lists known issues found in various components of PlateSpin Orchestrate. The issues were identified too late to include in product documentation.	<a href="#">readme_pso25.pdf</a> [5 MB]
<b>PlateSpin Orchestrate 2.5 Getting Started Guide</b>	<a href="#">PlateSpin Orchestrate 2.5 Getting Started Guide</a>  Introduces the fundamentals of PlateSpin Orchestrate. Includes a high-level overview of the basic product, a discussion of basic functionality, and information about the new features and fixes in the current release. The following content is included: <ul style="list-style-type: none"><li>■ Introduction and software architecture</li><li>■ Supported platforms</li><li>■ Key product features</li><li>■ What's new in this release</li></ul>	<a href="#">pso25_gstarted.pdf</a> [5 MB]
<b>PlateSpin Orchestrate 2.5 Installation and Configuration Guide</b>	<a href="#">PlateSpin Orchestrate 2.5 Installation and Configuration Guide</a>  Introduces the fundamentals of PlateSpin Orchestrate. Includes a walkthrough of the basic product installation and configuration. The following content is included:	<a href="#">pso25_install.pdf</a> [5 MB]

The page includes links to information for PlateSpin Orchestrate administrators, including product documentation and the installers for the PlateSpin Orchestrate Development Client and the PlateSpin Orchestrate Agent.

This section includes the following information about installing the Orchestrate Agent from the Administrator Information page:

- ◆ [“Installing and Registering the SLES PlateSpin Orchestrate Agent from the Administrator Information page.” on page 63](#)
- ◆ [“Installing and Registering the Windows PlateSpin Orchestrate Agent from the Administrator Information Page” on page 65](#)

### Installing and Registering the SLES PlateSpin Orchestrate Agent from the Administrator Information page.

PlateSpin Orchestrate requires computing resources in order to run applications. The PlateSpin Orchestrate Agent must be installed on each managed device to add that computing resource to the grid where the Orchestrate Server can manage it.

Use the following steps to install the agent on a SLES 10 SP3, SLES 11, RHEL 4 (latest update) or RHEL 5 (latest update) computing resource:

- 1 From the managed resource desktop, launch a browser to access the Web page for PlateSpin Orchestrate, as described above.
- 2 Scroll to the *Installation* section of the page:

## Installation

The various components of the PlateSpin Orchestrate system can be downloaded from this Web page and installed as necessary.

PlateSpin Orchestrate Agent	The PlateSpin Orchestrate Agent should be installed on all machines that are to be managed. Further information on how to perform <a href="#">unattended</a> or <a href="#">mass</a> installs can be found <a href="#">here</a> .	
	With Bundled JRE	Without JRE
Microsoft* Windows* Server <ul style="list-style-type: none"><li>Windows Server 2003 SP2 (32-bit and 64-bit)</li><li>Windows Server 2008 R2 (64-bit)</li></ul>	<a href="#">zosagent_windows_2_5_0_with_jre.exe</a>	
SUSE® Linux* Enterprise Server (SLES) RPM <ul style="list-style-type: none"><li>SLES 10 SP3 (32-bit and 64-bit)</li><li>SLES 11 SP1 (32-bit and 64-bit)</li></ul>		<a href="#">novell-zenworks-zos-agent-2.5.0-118739.i586.rpm</a> (requires PlateSpin Orchestrate Java RPM) <a href="#">Java 1.6.0 (32-bit)</a> <a href="#">Java 1.6.0 (64-bit)</a>
Red Hat* Enterprise Linux Server (RHEL) RPM <ul style="list-style-type: none"><li>RHEL 4.8 (32-bit and 64-bit)</li><li>RHEL 5.4 (32-bit and 64-bit)</li></ul>		<a href="#">novell-zenworks-zos-agent-2.5.0-118739.i586.rpm</a> (requires PlateSpin Orchestrate Java RPM) <a href="#">Java 1.6.0 (32-bit)</a> <a href="#">Java 1.6.0 (64-bit)</a>

PlateSpin Orchestrate Clients (User & Management Tools)	The PlateSpin Orchestrate Development Client is a thick desktop client designed for PlateSpin Orchestrate administration tasks including infrastructure management and monitoring.	
	With Bundled JRE	Without JRE
Microsoft Windows <ul style="list-style-type: none"><li>Windows XP SP3 (32-bit)</li><li>Windows Vista SP2 (32-bit and 64-bit)</li><li>Windows 7 (32-bit and 64-bit)</li></ul>	<a href="#">zoclients_windows_2_5_0_with_jre.exe</a>	
SUSE Linux Enterprise Server (SLES) RPM <ul style="list-style-type: none"><li>SLED 11 (32-bit and 64-bit)</li><li>SLED 10 SP3 (32-bit and 64-bit)</li><li>SLES 10 SP3 (32-bit and 64-bit)</li></ul>		<a href="#">novell-zenworks-zos-clients-2.5.0-118739.i586.rpm</a> <a href="#">Java 1.6.0 (32-bit)</a> <a href="#">Java 1.6.0 (64-bit)</a>

- 3 In the agent section of the PlateSpin Orchestrate Web page, identify the installer link for the operating system of the SLES Machine where you want to install the Orchestrate Agent.
- 4 Click the installer link to download the agent installer and the appropriate JRE (32-bit or 64-bit) to the SLES machine.

Although your SLES machine might have the JRE installed, we recommend that you install it again to make sure it is present.

- 5 In the PlateSpin Orchestrate Agent section, download:

```
novell-zenworks-zos-agent-2.5.0-<build_number>.i586.rpm
```

- ♦ The Java 1.6.0 (32-bit) or Java 1.6.0 (64-bit) RPM

- 6 Install the Java 1.6.0 RPM by entering the one of the following commands (as applicable):

```
rpm -ivh novell-zenworks-zos-java-1.6.0_sun_update14-1.x86_64.rpm
```

or

```
rpm -ivh novell-zenworks-zos-java-1.6.0_sun_update14-1.i586.rpm
```

- 7 Install the Orchestrate Agent by entering the following command:

```
rpm -ivh novell-zenworks-zos-agent-2.5.0-<build_number>.i586.rpm
```



- 8 Edit `/opt/novell/zenworks/zos/agent/agent.properties` to set the value of `zos.agent.server` to the IP address of the PlateSpin Orchestrate Server where you want to register the agent.
- 9 Start the agent by entering the following command:  

```
/etc/init.d/novell-zosagent start
```
- 10 Register the agent to the PlateSpin Orchestrate Development Client. For more information on how to register the agent, see [Section 3.3, “Walkthrough: Creating a Resource Account,”](#) on page 106.

Agents can be automatically installed on multiple computing resources or groups of computing resources by using your favorite configuration management software.

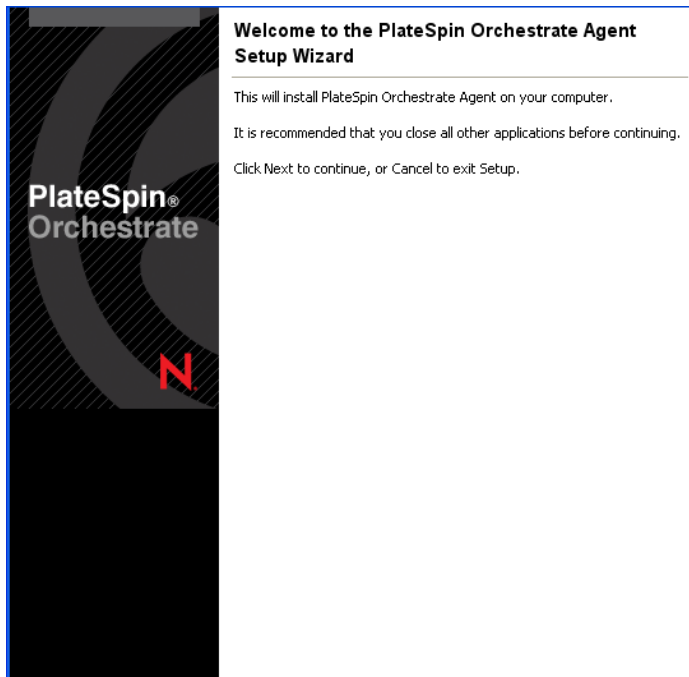
### **Installing and Registering the Windows PlateSpin Orchestrate Agent from the Administrator Information Page**

This section includes the following information about installing the Orchestrate Agent for Windows from the Administrator Information page:

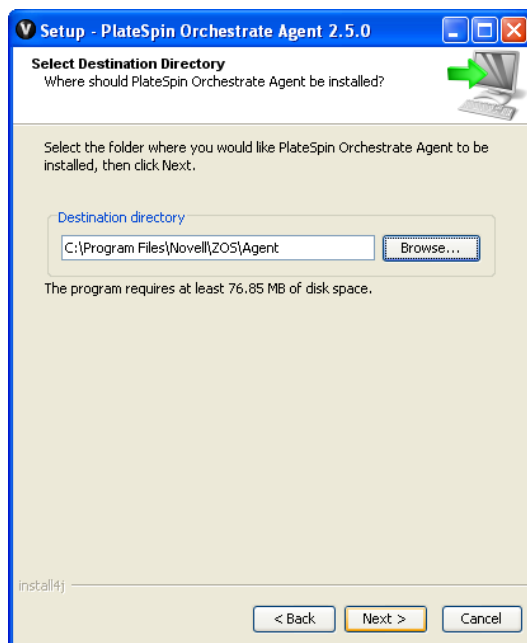
- 1 On the computer where the PlateSpin Orchestrate Agent for Windows is to be installed, launch the PlateSpin Orchestrate Administrator Information page, as shown above.
- 2 Scroll to the *Installation* section of the page:
- 3 In the agents section of the Web page, identify the `zosagent_windows_2_5_0_with_jre.exe` installer link.
- 4 Click the installer link to initiate the download of the Orchestrate Agent on the Windows computer.
- 5 At a Windows XP or Windows Vista location where you downloaded the client installer, double click the `zosagent_windows_2_5_0_with_jre.exe` icon to run the installer.

When you launch the installer on Windows XP or Windows Vista, a Security Warning for an Unknown Publisher is displayed. You can ignore this warning and run the installer without a problem.

The first page of the Orchestrate Agent Setup Wizard is displayed.

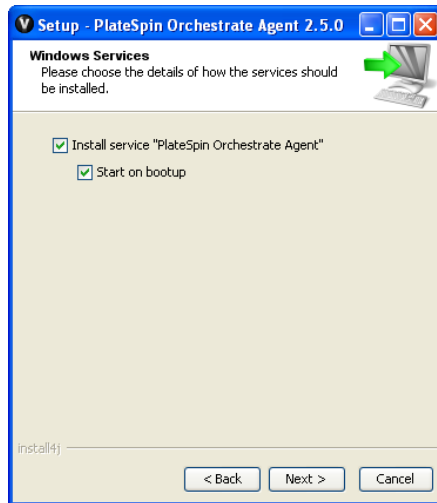


6 Click *Next* to display the Select Destination Directory dialog box.

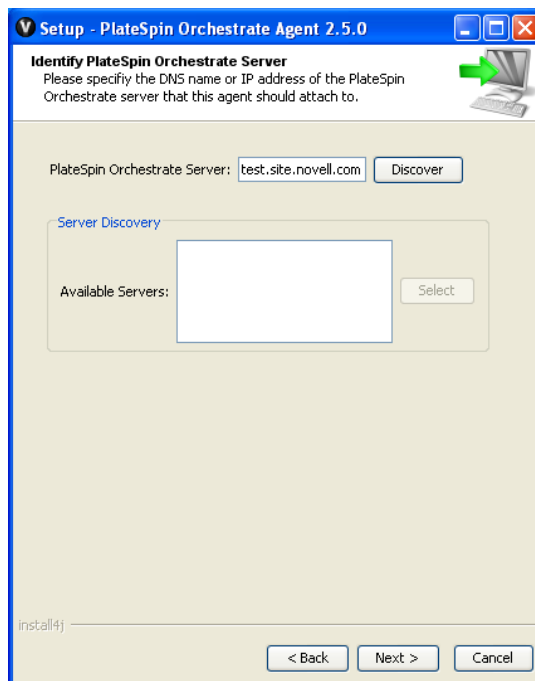


7 Accept the default location, then click *Next* to display the Select Start Menu Folder page of the Setup Wizard.

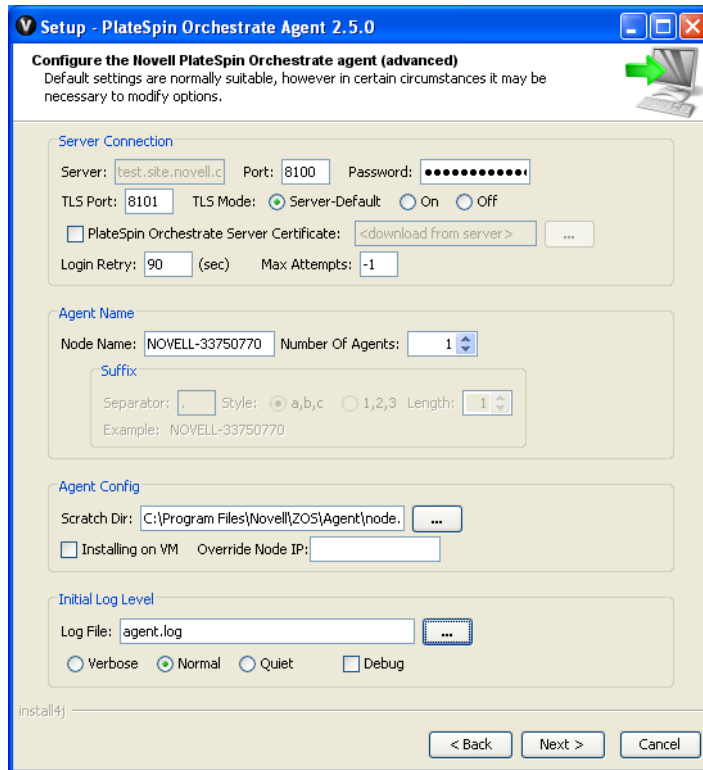
- 8 Enter the path to the folder where you want the Wizard to set up shortcuts to the Agent or select *Next* to accept the default and to display the Windows Services page.



- 9 Select the services you want to install (at a minimum, you must select *Install Service PlateSpin Orchestrate Agent*), then click *Next* to display the Identify PlateSpin Orchestrate Server page.

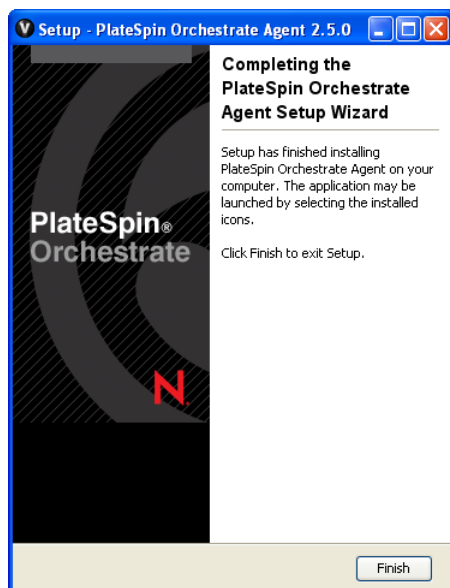


- 10 Enter the *PlateSpin\_Orchestrate\_Server\_name* in the *PlateSpin Orchestrate Server* field.  
You might find it easier to click *Discover* so that the installer searches for and finds the Orchestrate Server on the network. If the installer discovers several servers, make sure you select the server you previously associated with this agent.
- 11 Click *Next* to display the Agent Configuration page.



You can accept the defaults on this page of the setup wizard, or you can customize it according to your needs.

- 12 Click *Next* to run the Orchestrate Agent installation until the following page is displayed:



- 13 Click *Finish* to exit the setup.
- 14 Register the agent to the PlateSpin Orchestrate Development Client. For more information on how to register the agent, see [Section 3.3, “Walkthrough: Creating a Resource Account,” on page 106](#).

## 2.4.3 Performing a Silent Install of the PlateSpin Orchestrate Agent on Multiple Network Resources

In a large data center, it might not be practical to perform an interactive configuration of the Orchestrate Agent on the multiple servers that you intend to use for PlateSpin Orchestrate resources. The information in this section provides information about performing a silent install and configuration.

- ♦ [“Silent Install and Configuration of the Orchestrate Agent RPM” on page 69](#)
- ♦ [“Silent Install and Configuration of the Orchestrate Agent for Windows” on page 69](#)

### Silent Install and Configuration of the Orchestrate Agent RPM

Use the following process to configure the Orchestrate Agent RPM (downloaded from the product ISO) on multiple servers:

- 1 Perform the product installation and manual configuration of the agent on a “seed” machine. The processes to do this are described in [Section 2.3.1, “Installation and Configuration Steps,” on page 22](#).
- 2 On the “seed” machine, copy the file found at `/etc/opt/novell/novell_zenworks_orch_install.conf` to a location where you can modify it locally.
- 3 Edit the local copy of `novell_zenworks_orch_install.conf`, updating the fields that require a password (for security purposes, when a configuration program runs, the passwords in the `.conf` file are deleted).
- 4 Edit any other fields as necessary for the configuration of the Orchestrate Agent.
- 5 Distribute the modified file to the machines where you want to perform a silent configuration.
- 6 At the machine where you distributed the `.conf` file, open YaST and perform the Add-on Installation of the RPMs as described in [Step 1 through Step 4 in Section 2.3, “Installing and Configuring All PlateSpin Orchestrate Components Together,” on page 22](#). Make sure that you do not configure the agent manually.
- 7 From the bash prompt on the machine where you are configuring the agent, run the following command:

```
/opt/novell/zenworks/orch/bin/config -s -C $CONF_FILE
```

where `CONF_FILE` is the modified configuration file from [Step 5](#).

The silent configuration runs, then the agent is displayed in the PlateSpin Orchestrate Console as registered with the server node.

### Silent Install and Configuration of the Orchestrate Agent for Windows

The Windows Agent installer can be downloaded from the Administrator Information page, as documented in [Section 2.4.2, “Installing the Orchestrate Agent from the Administrator Information Page,” on page 62](#).

PlateSpin Orchestrate includes an installation help page that provides tips for installing the Windows Orchestrate Agent on many machines by using some sort of scripting or automation.

The page is accessed from the Orchestrate Server IP address:

```
http://IP_address:8001/install.html
```

Figure 2-1 PlateSpin Orchestrate Agent Silent Installation Help

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PlateSpin Orchestrate Installation Notes

**PlateSpin Orchestrate Agent: Unattended Installation Help**

This file provides details on some installation related tasks and operations for the PlateSpin® Orchestrate Agent and the PlateSpin Orchestrate Server.

Often it is necessary to perform an unattended install. This is particularly true for the Agent, which you might need to install on many machines using some sort of scripting or automation. For example, to install a Windows® version of the Agent that always connects to an Server called 'zos1,' you could use:

```
zosagent_windows_2_5_0_with_jre.exe -q -Dzos.agent.server=zos1
```

The following table lists the command line options you can use for Windows® (non-RPM) installations of the Agent.

Installation Options	Description
-q	Executes the installer in the unattended installation mode.
-manual	The default JRE search sequence is not performed, nor are the bundled JREs used. The installer acts as if no JRE at all has been found. It displays a dialog that lets you choose a JRE or download one if a JRE has been bundled dynamically. If you locate a JRE, it is used for the installed application.
-overwrite	This option is valid only if -q is set. In the unattended installation mode, the installer does not overwrite files where the overwrite policy requires it to ask the user. If -overwrite is set, all such files are overwritten.
-dir <directory>	This option is valid only if -q is set. It sets a different installation directory for the unattended installation mode. The next parameter must be the desired installation directory.
-D<property>=<value>	Properties may be passed in to the particular installer to override default startup options.

Agent Install Property	Description
zos.agent.server	The Server to connect to, empty for automatic discovery.
zos.agent.loglevel	Initial log level (quiet/normal/verbose). Overridden by server when connected.
zos.agent.debug	Generate a debug log (true/false).
zos.agent.password	The (hashed) password that the agent should use to authenticate to the Server.
zos.agent.name	The agent name to use (defaults to hostname)
zos.agent.numagents	The number of agents to run (normally 1).
zos.agent.suffixnum	If more than one agent is run, this specifies the number of digits in the (numeric) name suffix. If not set, alphabetic name extensions are used.
zos.agent.suffixsep	The separator string to be used before the suffix when 'numagents' is greater than 1. The form is '{name}{suffixsep}{extension}' (default is '.')
zos.agent.port	The communication port to use with the Server (default is 8100).
zos.agent.randomload	Randomize load average rather than actually measuring (true/false).

## 2.4.4 Installing the PlateSpin Orchestrate Agent on Other Supported Operating Systems

When you have the Orchestrate Server installed and you have also installed the VM Client, you can install the PlateSpin Orchestrate Agent on a machine (virtual or physical) that is running a supported operating system in order to manage resources on that machine in the VM Client.

- ◆ [“Supported Operating Systems and Hypervisors” on page 70](#)
- ◆ [“Other Supported Operating Systems \(When Not Performing VM Lifecycle Operations\)” on page 71](#)
- ◆ [“Installing the Orchestrate Agent” on page 72](#)

### Supported Operating Systems and Hypervisors

PlateSpin Orchestrate supports creating and managing virtual machines, which must be installed on physical machines (VM hosts). VM hosts can be installed on the platforms listed in the table below.

For example, these operating systems might be running in VMware or on a physical machine.

The operating system must have a hypervisor supported by PlateSpin Orchestrate. The following table lists the supported hypervisors and host operating systems. For a listing of currently supported guest operating systems, refer to the host operating system vendor’s Web site.

**Table 2-2** *Supported Operating Systems and Corresponding Hypervisors*

Operating System	Corresponding Hypervisor
SLES 11 SP1 (32-bit)	Xen 4.x
SLES 11 SP1 (64-bit)	Xen 4.x
SLES 11 (32-bit)	Xen 3.x
SLES 11 (64-bit)	Xen 3.x
SLES 10 SP3 (32-bit)	Xen 3.x
SLES 10 SP3 (64-bit)	Xen 3.x
Windows 2008 R2 (64-bit)	Hyper-V role
vCenter Server <sup>1</sup>	n/a

<sup>1</sup>Installing the Orchestrate Agent on your vCenter Server lets the Orchestrate Server manage the lifecycle of vCenter VMs inside your Orchestrate management clients. Unlike the case with Xen and Hyper-V, PlateSpin Orchestrate does not manage the VMs directly but rather uses the management interface provided by the vCenter Server.

With the hypervisor installed on one of the supported operating systems, the Orchestrate Server deploys the VMs to the host machine using the hypervisor-associated provisioning adapter to start and use the VMs for jobs. The provisioning adapters allow you to control various lifestyle operations of the VM. For a detailed explanation of the actions you can perform with a VM through its provisioning adapter, see “[Managing Virtual Machines](#)” in the *PlateSpin Orchestrate 2.5 VM Client Guide and Reference*.

### Other Supported Operating Systems (When Not Performing VM Lifecycle Operations)

For PlateSpin Orchestrate 2.5, additional supported operating systems for the Orchestrate Agent (if you are not planning to use VM lifecycle operations) include:

- ◆ Microsoft Windows Server 2003 (32-bit and 64-bit)
- ◆ Microsoft Windows Server 2008 R2 (64-bit)
- ◆ RHEL 4 or 5 (latest update)

Installing the agent to these servers lets you to send jobs to these servers to perform various distributed computing tasks. The operating system where you install the agent can be on a physical machine or running in a VM. For a more complete description of PlateSpin Orchestrate jobs, see “[Jobs](#)” in the *PlateSpin Orchestrate 2.5 Administrator Reference*.

## Installing the Orchestrate Agent

The manual installation procedure for the Orchestrate Agent depends on the operating system. The installed Orchestrate Agent components are:

```
novell-zenworks-monitor-gmond-3.0.4-50.x86_64.rpm
novell-zenworks-orch-config-2.5.0-119.noarch.rpm
novell-zenworks-orch-config-gui-2.5.0-<build_number>.noarch.rpm
novell-zenworks-zos-agent-2.5.0-<build_number>.i586.rpm
novell-zenworks-zos-java-1.6.0_sun_update14-1.x86_64.rpm
```

The Orchestrate Agent can be installed on the following operating systems:

- ♦ [“Microsoft Windows Server 2003 and Windows Server 2008” on page 72](#)
- ♦ [“RHEL 4” on page 72](#)
- ♦ [“RHEL 5” on page 73](#)
- ♦ [“VMware vCenter Server” on page 73](#)

---

**NOTE:** The Orchestrate Agent can be installed on VMware ESX 3.0.x /3.5.x VM hosts. Use the installation instructions for RHEL 4 or RHEL 5.

---

### Microsoft Windows Server 2003 and Windows Server 2008

To install the Orchestrate Agent on Microsoft Windows Server 2003 and Microsoft Windows Server 2008:

- 1 Download the pertinent 32-bit or 64-bit Add-On ISO.
- 2 Create a CD from the ISO or use ISO Buster (or a similar tool) to mount the CD.
- 3 Browse to the Windows folder for the Orchestrate Agent.
- 4 Double-click the Orchestrate Agent icon and follow the wizard through the setup.

See [Orchestrate Agent](#) in [Table 2-1](#) for an explanation of the configuration for the Orchestrate Agent.

---

**NOTE:** Installation of the Orchestrate Agent on a Windows machine does not install the Orchestrate Monitoring Agent (gmond).

For Monitoring Agent installation information, see [Appendix B, “Installing the Orchestrate Monitoring Agent On Windows Machines,” on page 137](#).

---

### RHEL 4

To install the five packages of the Orchestrate Agent on RHEL 4:

- 1 Download the pertinent 32-bit or 64-bit Add-On ISO.
- 2 Mount the ISO as a loopback device.

For example, if you are mounting the 64-bit SLES 11 ISO, the command is:

```
$ mount -o loop PlateSpin_Orchestrate-2.5.0-SLE11.x86_64.iso /mnt
```

- 3 Change your working directory to the location of the RHEL package:



```
$ cd /mnt/RHEL4
```

- 4 Use the `rpm` command to install the packages:

```
$ rpm -Uvh *.rpm
```

- 5 Use the `up2date` command to download and install any missing dependencies.

For example, if you are missing `libcap.so` and `libcap.so.1`, you would enter:

```
$ up2date --solvedeps=libcap.so, libcap.so.1
```

- 6 Run the configuration script:

```
$ /opt/novell/zenworks/orch/bin/config
```

See [Table 2-1 on page 32](#) for an explanation of the configuration for the Orchestrate Agent.

## RHEL 5

To install the five packages of the Orchestrate Agent on RHEL 5:

- 1 Download the pertinent 32-bit or 64-bit Add-On ISO from the DVD.

- 2 Mount the ISO as a loopback device.

For example, if you are mounting the 64 bit SLES 11 ISO, the command is:

```
$ mount -o loop PlateSpin_Orchestrate-2.5.0-SLE11.x86_64.iso /mnt
```

- 3 Change your working directory to the location of the RHEL package:

```
$ cd /mnt/RHEL5
```

- 4 Use the package manager included in RHEL to install the Orchestrate Agent packages. (Missing dependencies are met by using RHN):

```
$ yum localinstall *.rpm
```

- 5 Run the configuration script:

```
$ /opt/novell/zenworks/orch/bin/config
```

See [Table 2-1 on page 32](#) for an explanation of the configuration for the Orchestrate Agent.

## VMware vCenter Server

to install the PlateSpin Orchestrate Agent on a vCenter server, use the Windows agent installation program to install the agent on the Windows server. For more information, see [“Microsoft Windows Server 2003 and Windows Server 2008” on page 72](#).

### 2.4.5 Automatically Installing the Orchestrate Agent on a VM Host Using a Job

You can write a job to automatically install and configure the Orchestrate Agent on a host server. Such a job can be a script similar to the following, which is for an Apache VM:

```
"""
Search for a VM Grid objects using Constraints and run a VM operation on them.
"""
class test(Job):

    def job_started_event(self):

        # collect all VM Instances whose resource ID
```

```

# starts with the string "apache"

a = AndConstraint()

e1 = EqConstraint()
e1.setFact("resource.type")
e1.setValue("VM")
a.add(e1)

e2 = EqConstraint()
e2.setValue("apache*")
e2.setMatchMode(EqConstraint.MATCH_MODE_REGEXP)
e2.setFact("resource.id")
a.add(e2)

vms = getMatrix().getGridObjects(TYPE_RESOURCE,a,None)
for vm in vms:
    vm.installAgent()

```

For information on developing jobs, see the [PlateSpin Orchestrate 2.5 Developer Guide and Reference](#).

## 2.5 Installing the Orchestrate Development Client Only

You can use the PlateSpin Orchestrate Development Client to administer the Orchestrate Server from any SLES 10 or a Windows (XP or Vista) machine. No other PlateSpin Orchestrate components need to be installed on that machine. This section includes information that details how to install the Orchestrate Development Client by itself.

- ♦ [Section 2.5.1, “Installing the Orchestrate Development Client for Windows from the Administrator Information Page,” on page 74](#)
- ♦ [Section 2.5.2, “Using the ISO to Install the Orchestrate Development Client on Windows Machines,” on page 78](#)
- ♦ [Section 2.5.3, “Installing the Orchestrate Development Client for SLES 10 From the Administrator Information Page,” on page 79](#)
- ♦ [Section 2.5.4, “Using the ISO to Install the Orchestrate Client on SLES 10 Machines,” on page 80](#)
- ♦ [Section 2.5.5, “Using the ISO to Install the Orchestrate Client on SLES 11 Machines,” on page 81](#)

### 2.5.1 Installing the Orchestrate Development Client for Windows from the Administrator Information Page

After you install the PlateSpin Orchestrate Server on the network, you can launch the PlateSpin Orchestrate Administrator Information page. The page has links to various installer programs that you can use to install required PlateSpin Orchestrate software on the computing resources that you will be utilizing in the grid system.

The following browsers support the PlateSpin Orchestrate Server Portal and PlateSpin Orchestrate Administrator's Web page applications:

- ◆ Internet Explorer, version 6.0 or higher
- ◆ Netscape Navigator, version 6.0 or higher
- ◆ Firefox, version 1.5 or higher

Using a supported browser, enter the following URL to access the Administrator Information page for PlateSpin Orchestrate from the server:

`http://server_name_for_PlateSpin_Orchestrate:8001/`

This URL is the DNS name (or IP address) of the server for PlateSpin Orchestrate. Be sure to use Port 8001 in the address to access and display the page, as shown in the following illustration:

**Novell**

PlateSpin Orchestrate 2.5

[Installation](#) | [Online Documentation](#) | [SDK Java API](#) | [JDL Python API](#) | [CLI Tool Ref](#) | [Doc Feedback](#)

## Administrator Information

PlateSpin® Orchestrate information is posted to the Novell Product Documentation Web site. Links to all information are also provided here.

### Where do I begin?

After you read the [product Readme](#), you need to follow the installation instructions for PlateSpin Orchestrate included in the *PlateSpin Orchestrate 2.5 Installation and Configuration Guide* ([PDF](#)). We also recommend that you review the complete [PlateSpin Orchestrate product documentation](#) set (includes books and samples) before you install this product in a production environment.

### Online Documentation

PlateSpin Orchestrate is documented with the following content, available in both *.html* and *.pdf* formats. To view the online formats, click the associated link displayed in the following table.

Book Name	HTML	PDF [size]
<b>PlateSpin Orchestrate 2.5 Readme</b>	<a href="#">PlateSpin Orchestrate 2.5 Readme</a>  Lists known issues found in various components of PlateSpin Orchestrate. The issues were identified too late to include in product documentation.	<a href="#">readme_pso25.pdf</a> [ 5 MB]
<b>PlateSpin Orchestrate 2.5 Getting Started Guide</b>	<a href="#">PlateSpin Orchestrate 2.5 Getting Started Guide</a>  Introduces the fundamentals of PlateSpin Orchestrate. Includes a high-level overview of the basic product, a discussion of basic functionality, and information about the new features and fixes in the current release. The following content is included: <ul style="list-style-type: none"><li>■ Introduction and software architecture</li><li>■ Supported platforms</li><li>■ Key product features</li><li>■ What's new in this release</li></ul>	<a href="#">pso25_gstarted.pdf</a> [ 5 MB]
<b>PlateSpin Orchestrate 2.5 Installation and Configuration Guide</b>	<a href="#">PlateSpin Orchestrate 2.5 Installation and Configuration Guide</a>  Introduces the fundamentals of PlateSpin Orchestrate. Includes a walkthrough of the basic product product installation and configuration. The following content is included:	<a href="#">pso25_install.pdf</a> [ 5 MB]

The page includes links to information for PlateSpin Orchestrate administrators, including product documentation and the installers for the PlateSpin Orchestrate Development Client and the PlateSpin Orchestrate Agent.

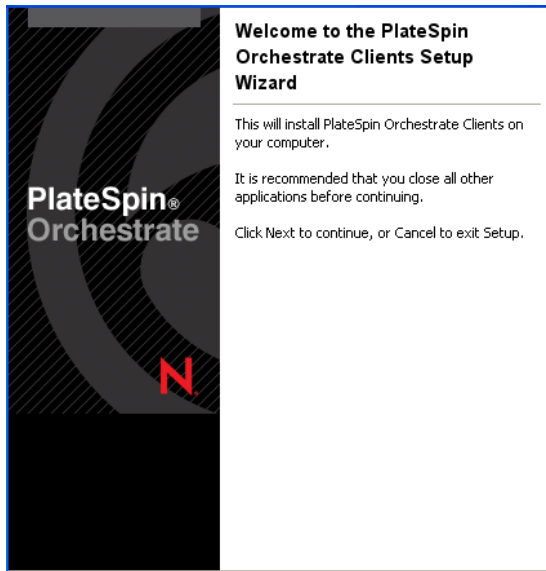
To install the Orchestrate Development Client for Windows from the Administrator Information page:

- 1 On the computer where the Orchestrate Development Client for Windows is to be installed, launch the PlateSpin Orchestrate Administrator Information page, as shown above.
- 2 Scroll to the *Installation* section of the page:

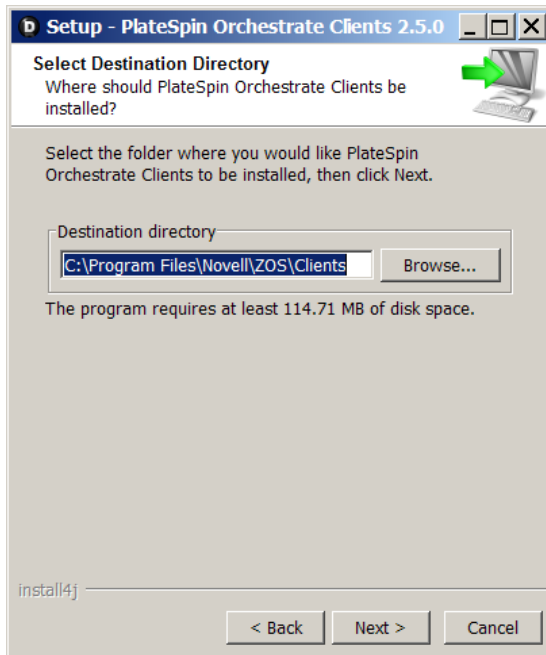
- 3 In the clients section of the Web page, identify the `zosclients_windows_2_5_0_with_jre.exe` installer link.
- 4 Click the installer link to initiate the download of the Orchestra Development Client on the Windows computer.
- 5 At a Windows XP or Windows Vista location where you downloaded the client installer, double click the `zosclients_windows_2_5_0_with_jre.exe` icon to run the installer.

When you launch the installer on Windows XP or Windows Vista, a Security Warning for an Unknown Publisher is displayed. You can ignore this warning and run the installer without a problem.

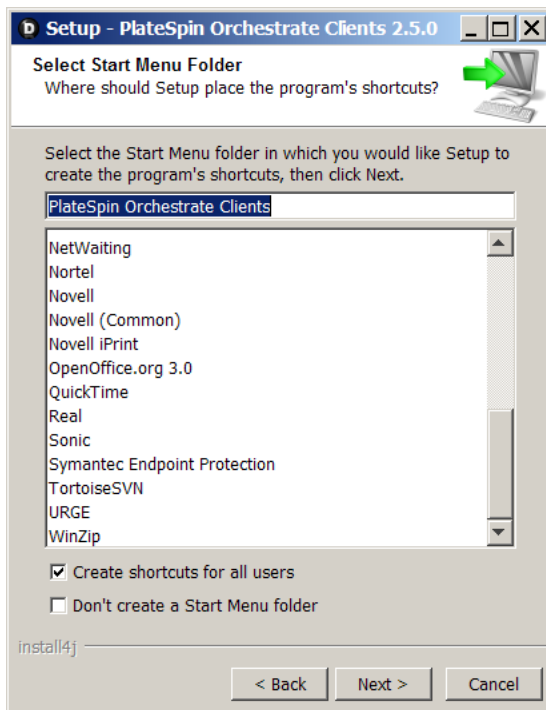
The first page of the Orchestra Clients Setup Wizard is displayed.



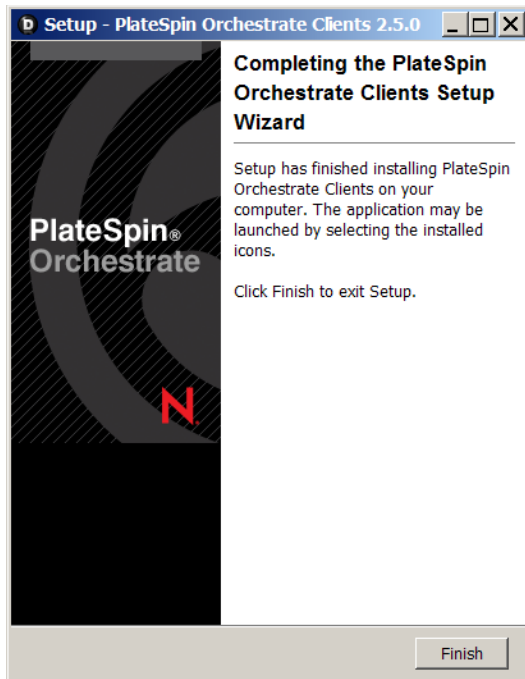
- 6 Click *Next* to display the License Agreement page.
- 7 Accept the license agreement, then click *Next* to display the Select Destination Directory page.



- 8 Select the folder where you want to install the clients, then click *Next* to display the Select Start Menu folder page.



- 9 Select the Start Menu folder where you want the install program to create the client shortcuts, then click *Next* to begin the installation. The file extraction and copy process proceeds until the following page is displayed:



The following items are installed on the Windows machine:

- ◆ **PlateSpin Orchestrate User Client & Toolkit:** The zos command line tool and a .jar file used to develop custom clients. The zos command line tool provides a non-Web method for a user to access the server.

For more information, see the [PlateSpin Orchestrate 2.5 Command Line Reference](#).

- ◆ **PlateSpin Orchestrate Development Client and Tools:** The PlateSpin Development Client, which is a thick client console for administrators. It also installs the zosadmin command line tool for administrators. Both of these tools require administrator login.

For more information, see the [PlateSpin Orchestrate 2.5 Development Client Reference](#) and the [PlateSpin Orchestrate 2.5 Command Line Reference](#).

- 10 Click *Finish* to exit the setup.

Installing these components on a Windows workstation adds several items to the program group available from *Start > All Programs > Novell > ZOS > Clients*. One of these programs is the PlateSpin Orchestrate Command Prompt. The PATH is preset in this prompt to run the zos and zosadmin commands.

## 2.5.2 Using the ISO to Install the Orchestrate Development Client on Windows Machines

The PlateSpin Orchestrate Client is supported on Windows Vista and Windows XP only. Use the following steps to download the PlateSpin Orchestrate Client for installation:

- 1 To verify that the device where you want to install the client software fulfills the necessary requirements, review [Chapter 1, “Planning the Orchestrate Server Installation,” on page 9](#).
- 2 Download the appropriate PlateSpin Orchestrate Server ISO (32-bit or 64-bit) to an accessible network location.

- 3 Create a DVD from the ISO or use a tool that will mount the ISO.
- 4 Navigate to the directory path (DVD drive:\Windows) where the Windows files reside.
- 5 Double-click the appropriate file (zosclients\_windows\_2\_5\_0\_with\_jre.exe) to launch an installation and configuration wizard.

See [Section 2.5.1, “Installing the Orchestrate Development Client for Windows from the Administrator Information Page,”](#) on page 74 for information about this wizard.

## 2.5.3 Installing the Orchestrate Development Client for SLES 10 From the Administrator Information Page

Before you can perform any PlateSpin Orchestrate management functions, such as creating user accounts and managing activities of the server, you need to install the PlateSpin Orchestrate Development Client. The console is a thick desktop client designed for administrative tasks including infrastructure management (for example, managing computing resources) and monitoring. You can install the console on the server itself or on another network computer.

When you install the Orchestrate Development Client, you also install the zosadmin command line tool that also facilitate the administration of PlateSpin Orchestrate and its computing resources.

The following steps explain how to install the Development Client and other Orchestrate Clients from the web hosted Administrator information page.

- 1 On the computer where the Orchestrate Development Client is to be installed, launch the PlateSpin Orchestrate Administrator Information page. For information about how to do this, see [Section 2.4.2, “Installing the Orchestrate Agent from the Administrator Information Page,”](#) on page 62.
- 2 Scroll to the *Installation* section of the page:
- 3 In the PlateSpin Orchestrate Clients section, download:

```
novell-zenworks-zos-clients-2.5.0-<build_number>.i586.rpm
```

- ♦ The Java 1.6.0 (32-bit) or Java 1.6.0 (64-bit) RPM

- 4 Install the Java 1.6.0 RPM by entering the one of the following commands (as applicable):

```
rpm -ivh novell-zenworks-zos-java-1.6.0_sun_update14-1.x86_64.rpm
```

or

```
rpm -ivh novell-zenworks-zos-java-1.6.0_sun_update14-1.i586.rpm
```

- 5 Install the Orchestrate Development Client by entering the following command:

```
rpm -ivh novell-zenworks-zos-clients-2.5.0-<build_number>.i586.rpm
```

- 6 Start the Development Client by entering the following command in /opt/novell/zenworks/zos/clients/bin:

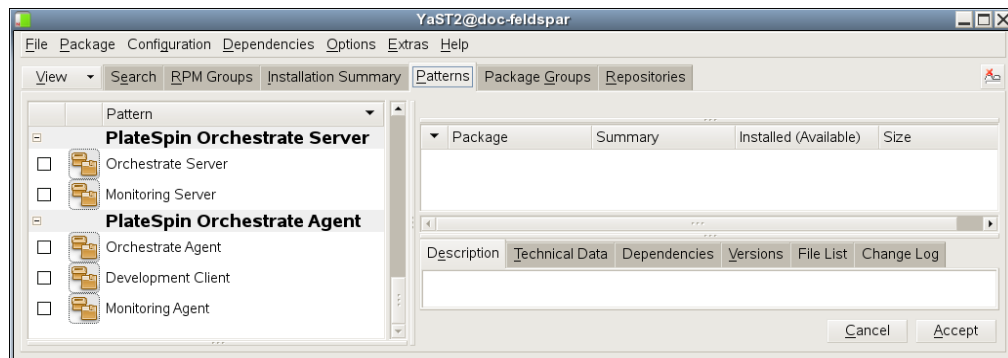
```
./zoc
```

- 7 Select the Orchestrate Server grid object you want to log onto, then enter the username and password for that server to connect to it.

## 2.5.4 Using the ISO to Install the Orchestrate Client on SLES 10 Machines

Use the following procedure if you want to use the Add-on CD method to install just the Orchestrate Agent or the Orchestrate Clients to a SLES machine.

- 1 To verify that the device where you want to install the agent and client software fulfills the necessary requirements, review [Chapter 1, “Planning the Orchestrate Server Installation,”](#) on [page 9](#).
- 2 Download the appropriate PlateSpin Orchestrate Server ISO (32-bit or 64-bit) to an accessible network location.
- 3 (Optional) Create a DVD ISO (32-bit or 64-bit) that you can take with you to the machine where you want to install it.
- 4 Install PlateSpin Orchestrate Client software:
  - 4a Log in to the target SLES server as `root`, then open YaST2.
  - 4b In the YaST Control Center, click *Software*, then click *Add-on Product* to display the Add-on Product Media dialog box.
  - 4c In the Add-on Product Media dialog box, select one of the following:
    - ♦ (Conditional) Select *DVD*, click *Next*, insert the DVD, then click *Continue*.
    - ♦ (Conditional) Select *Local Directory*, click *Next*, select the ISO Image check box, browse to the ISO in the file system, then click *OK*.
  - 4d Read and accept the license agreement, then click *Next* to display YaST2.
  - 4e In YaST2, click the *Filter* drop-down menu, then select *Patterns* to display the install patterns available on the PlateSpin Orchestrate ISO.



- 4f Select the PlateSpin Orchestrate Development Client installation pattern.

This pattern includes both a GUI console (the Development Client) and command line interface tools. These clients let you troubleshoot, initiate, change, or shut down server functions for PlateSpin Orchestrate and its computing resources. For information about the client tools, see [PlateSpin Orchestrate Clients](#). This pattern includes packages that help you configure the Orchestrate Clients.

Refer to the information in [Appendix A, “PlateSpin Orchestrate Components: Install Patterns,”](#) on [page 135](#) for details on the installation data that you need to know.
- 4g Click *Accept* to install the packages.

You must install PlateSpin Orchestrate components before you can configure them.



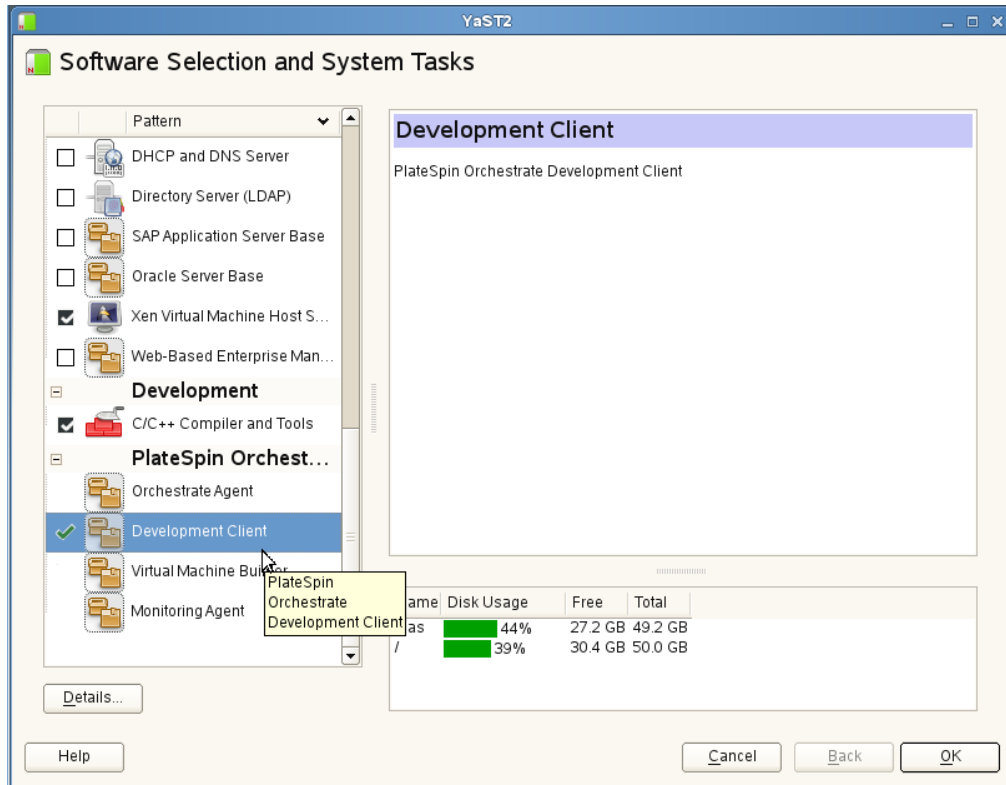
- 5 Launch the Orchestrate Development Client from `/opt/novell/zenworks/zos/clients/bin` with the following command:  

```
./zoc
```
- 6 Select the Orchestrate Server grid object you want to log in to, then enter the username and password for that server to connect to it.

## 2.5.5 Using the ISO to Install the Orchestrate Client on SLES 11 Machines

Use the following procedure if you want to use the Add-on CD method to install just the Orchestrate Orchestrate Clients to a SLES machine.

- 1 To verify that the device where you want to install the client software fulfills the necessary requirements, review [Chapter 1, “Planning the Orchestrate Server Installation,”](#) on page 9.
- 2 Download the appropriate PlateSpin Orchestrate Server ISO (32-bit or 64-bit) to an accessible network location.
- 3 (Optional) Create a DVD ISO (32-bit or 64-bit) that you can take with you to the machine where you want to install it.
- 4 Install PlateSpin Orchestrate Client software:
  - 4a Log in to the target SLES 11 server or SLED 11 machine as `root`, then open YaST2.
  - 4b In the YaST Control Center, click *Software*, then click *Add-on Product* to display the Add-on Product Media dialog box.
  - 4c In the Add-on Product Media dialog box, select one of the following:
    - ◆ (Conditional) Select *DVD*, click *Next*, insert the DVD, then click *Continue*.
    - ◆ (Conditional) Select *Local Directory*, click *Next*, select the *ISO Image* check box, browse to the ISO in the file system, then click *OK*.
    - ◆ (Conditional) Select *Local ISO image*, click *Next*, enter the repository name of the ISO image, browse to the location of the ISO image, then click *Next*.
  - 4d Read and accept the license agreement, then click *Next* to display YaST2.
  - 4e In YaST2, click the *Filter* drop-down menu, then select *Patterns* to display the install patterns available on the PlateSpin Orchestrate SLES 11 ISO.



- 4f** Select the PlateSpin Orchestrate Development Client installation pattern.

This pattern includes both a GUI console (the Development Client) and command line interface tools. These clients let you troubleshoot, initiate, change, or shut down server functions for PlateSpin Orchestrate and its computing resources. For information about the client tools, see [PlateSpin Orchestrate Clients](#). This pattern includes packages that help you configure the Orchestrate Clients.

Refer to the information in [Appendix A, “PlateSpin Orchestrate Components: Install Patterns,”](#) on page 135 for details on the installation data that you need to know.

- 4g** Click *Accept* to install the packages.

You must install PlateSpin Orchestrate components before you can configure them.

- 5** Launch the Orchestrate Development Client from `/opt/novell/zenworks/zos/clients/bin` with the following command:

```
./zoc
```

- 6** Select the Orchestrate Server grid object you want to log in to, then enter the username and password for that server to connect to it.

## 2.6 Installing the Orchestrate VM Client

The PlateSpin Orchestrate VM Client program is installed on your Windows or Linux administration machines. The interface is an Eclipse-based rich client environment designed to allow you to create and manage virtual machines (VMs).

To install the VM Client, first fulfill the minimum requirements, then select the installation platform:

- ◆ [Section 2.6.1, “Minimum Installation Requirements,” on page 83](#)
- ◆ [Section 2.6.2, “Installing the Orchestrate VM Client on the Windows Operating System,” on page 84](#)
- ◆ [Section 2.6.3, “Installing Orchestrate VM Client in a Linux Environment,” on page 89](#)

## 2.6.1 Minimum Installation Requirements

To install the PlateSpin Orchestrate VM Client software, you must meet the following requirements:

- ◆ [“Host Servers for VM Repositories” on page 83](#)
- ◆ [“Workstations for Running the VM Client Software” on page 83](#)
- ◆ [“Uninstallation of Previous Versions of the Client” on page 84](#)

### Host Servers for VM Repositories

PlateSpin Orchestrate VM Client operates in conjunction with the PlateSpin Orchestrate Server software, which provides the grid environment for creating, storing, and using VMs. For information on installing PlateSpin Orchestrate Development Client for management of Orchestrate Servers, see [Section 2.5, “Installing the Orchestrate Development Client Only,” on page 74](#).

### Workstations for Running the VM Client Software

The following table contains a list of operating system, hardware requirements, and installation file paths for PlateSpin Orchestrate VM Client. The installed program execution file is found in the ISO in the indicated folder.

**Table 2-3** *Workstation Installation Constraints*

Operating System	Recommended Hardware	Installation File
Windows XP, Windows Vista, and Windows 7	<ul style="list-style-type: none"> <li>◆ i386 (32-bit) and 64-bit</li> <li>◆ 240 MB of free space</li> </ul>	<p><code>cd_image\Windows\vmclient_install.exe</code></p> <p>where <i>cd_image</i> is one of the following images:</p> <ul style="list-style-type: none"> <li>◆ PlateSpin_Orchestrate-2.5.0-SLE10.i386.iso</li> <li>◆ PlateSpin_Orchestrate-2.5.0-SLE10.x86_64.iso</li> <li>◆ PlateSpin_Orchestrate-2.5.0-SLE11.i386.iso</li> <li>◆ PlateSpin_Orchestrate-2.5.0-SLE11.x86_64.iso</li> </ul>
SLED/SLES 10 SP3	<ul style="list-style-type: none"> <li>◆ i386 (32-bit) and 64-bit</li> <li>◆ 257 MB of free space</li> </ul>	<p><code>cd_image/SLE10/vmclient_install</code></p> <p>where <i>cd_image</i> is one of the following images:</p> <ul style="list-style-type: none"> <li>◆ PlateSpin_Orchestrate-2.5.0-SLE10.i386.iso</li> <li>◆ PlateSpin_Orchestrate-2.5.0-SLE10.x86_64.iso</li> </ul>

Operating System	Recommended Hardware	Installation File
SLED/SLES 11	<ul style="list-style-type: none"> <li>◆ i386 (32-bit) and 64-bit</li> <li>◆ 257 MB of free space</li> </ul>	<p><code>cd_image/SLE11/vmclient_install</code></p> <p>where <code>cd_image</code> is one of the following images:</p> <ul style="list-style-type: none"> <li>◆ PlateSpin_Orchestrate-2.5.0-SLE11.i386.iso</li> <li>◆ PlateSpin_Orchestrate-2.5.0-SLE11.x86_64.iso</li> </ul>

## Uninstallation of Previous Versions of the Client

You must uninstall the previous version of VM Client before installing version 2.5:

- ◆ **Windows:** On the Windows machine where the client is installed, click *Start > Settings > Control Panel > Add or Remove Programs*, select *PlateSpin Orchestrate VM Client 2.0.2*, then click *Remove*.
- ◆ **Linux:** Run the following command:

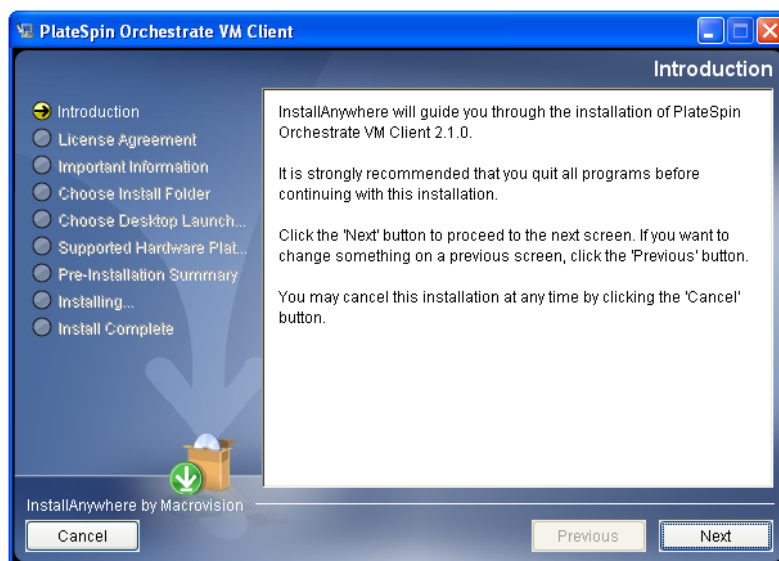
```
/opt/novell/zenworks/vmmanagement/Uninstall_ZENworks_VMM/
Uninstall_Novell_ZENworks_VM_Manager_2.0.2
```

This opens the InstallAnywhere utility to uninstall VM Client.

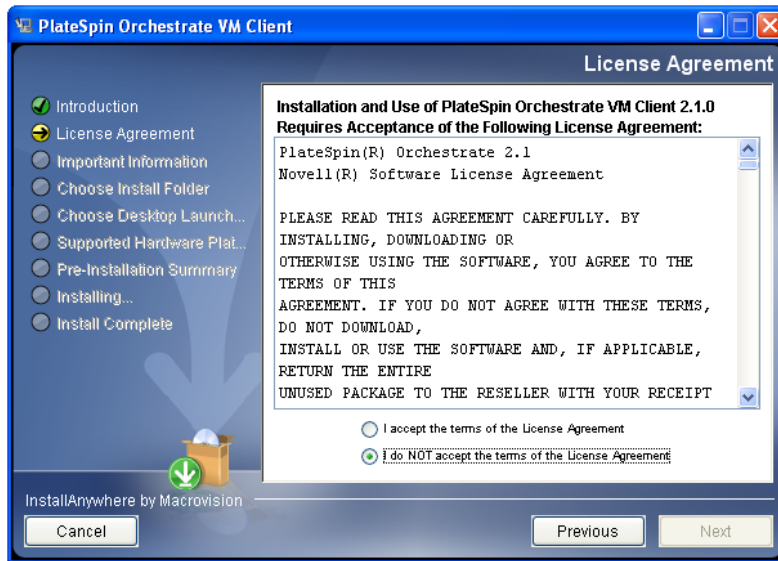
## 2.6.2 Installing the Orchestrate VM Client on the Windows Operating System

These installation steps apply only to Windows 7, Windows Vista, and Windows XP.

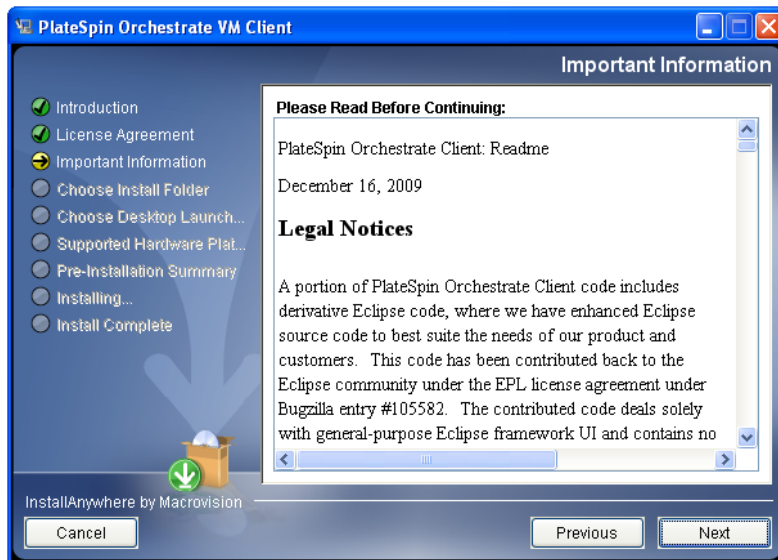
- 1 Copy the `vmclient_install.exe` file from the `\Windows` folder (see [Table 2-3 on page 83](#)) to a location on your management Windows workstation.
- 2 Double-click the `vmclient_install.exe` file to start the installation program:



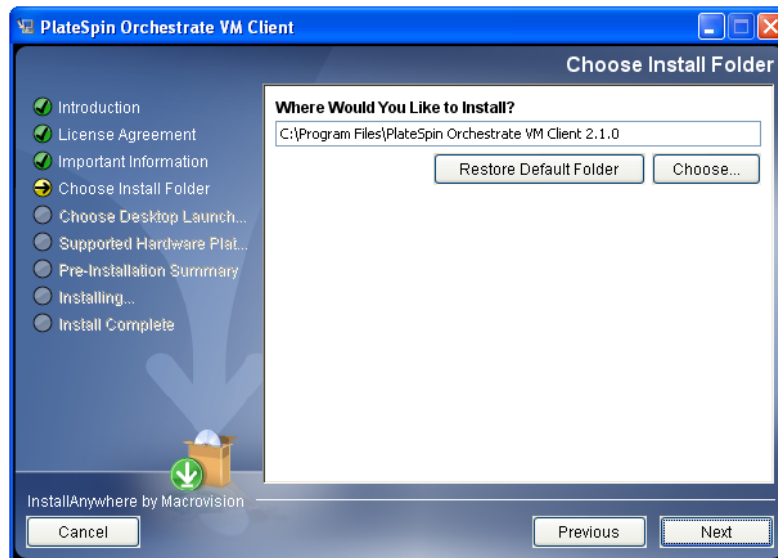
- 3 Click *Next* on the Introduction page to display the License Agreement page:



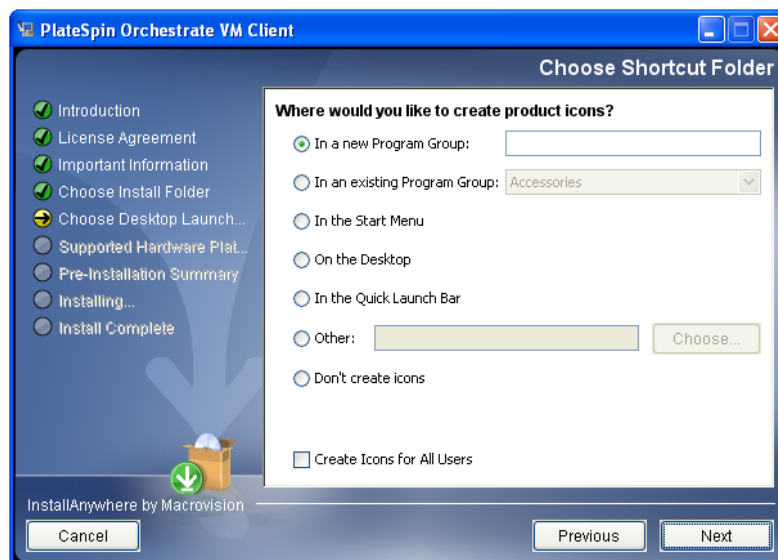
- 4 Read the terms of the license agreement; if you agree to abide by the terms, select the *I accept the terms of the License Agreement* option, then click *Next* to display the Important Information page; otherwise, click *Cancel* to exit the installation:



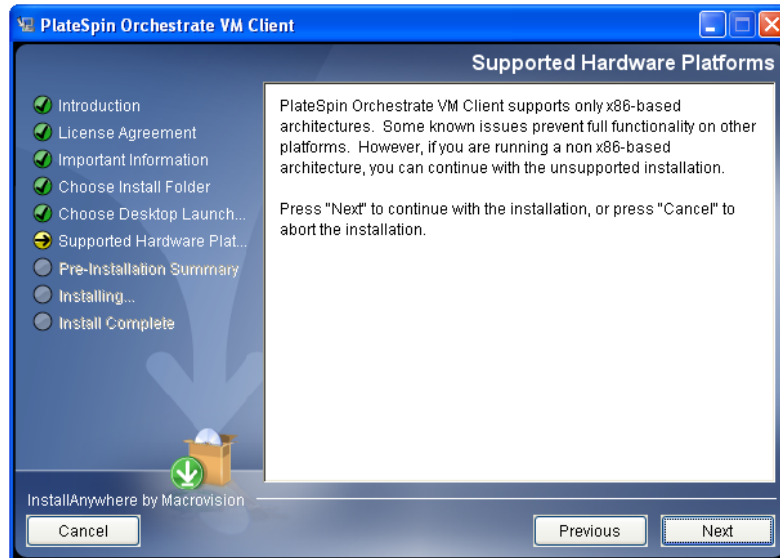
- 5 After reviewing the third-party licenses, if you agree with them, click *Next* to display the Choose Install Folder page; otherwise, click *Cancel* to exit the installation:



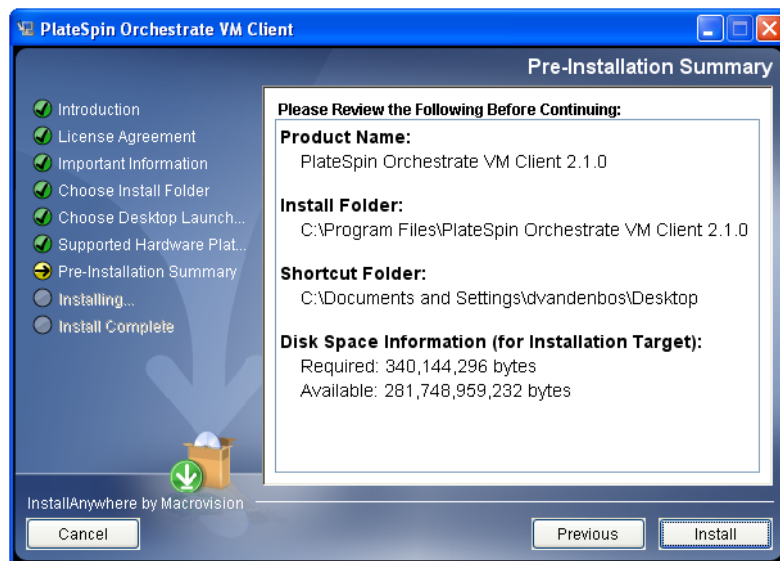
- 6 Select your installation folder, then click *Next* to display the Choose Shortcut Folder page:



- 7 Select a shortcut folder and any other options and groupings you want for the control of this interface, then click *Next* to display the Supported Hardware Platforms page:



- 8 Click *Next* to display the Pre-Installation Summary page:

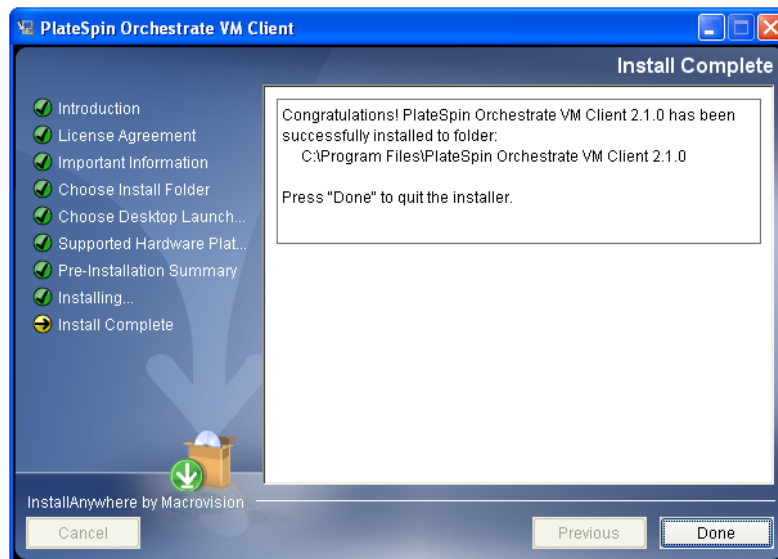


- 9 Verify the information and click *Previous* as necessary to make changes.

10 When ready, click *Install* to begin the installation:



When the installation has completed, the Install Complete page is displayed:



11 Click *Done* to finish the installation.

If you selected to place the shortcut icon on your desktop, this is what it looks like:



12 For some necessary setup tasks, continue with “[Managing Virtual Machines](#)” in the *PlateSpin Orchestrate 2.5 VM Client Guide and Reference*.



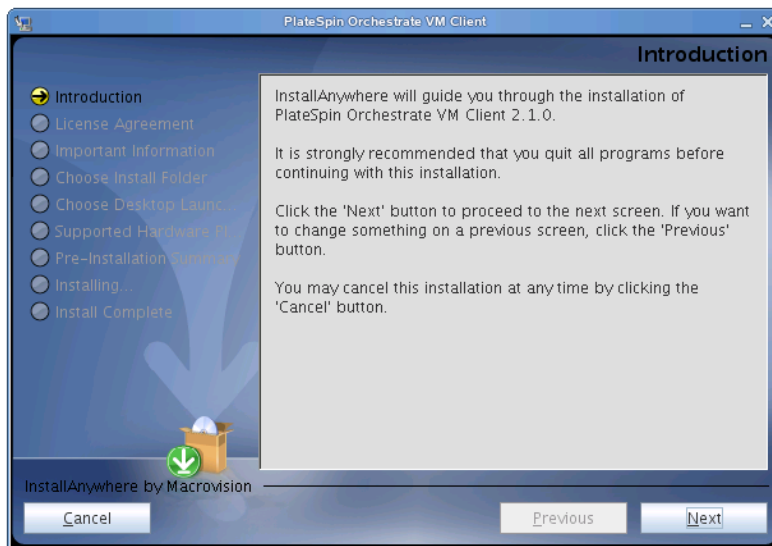
## 2.6.3 Installing Orchestrator VM Client in a Linux Environment

- 1 Copy the PlateSpin Orchestrator 2.5 product ISO file to your management Linux workstation.
- 2 Open a terminal on the workstation and log in as root.
- 3 Mount the PlateSpin Orchestrator 2.5 product ISO file to a temporary directory.

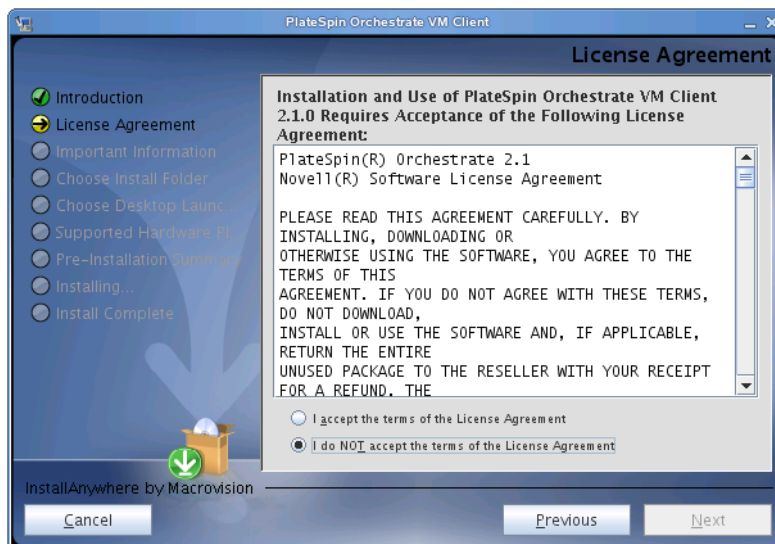
For example, if you copied the 32-bit version of the SLES 11 ISO file to Desktop, enter the following commands:

```
mkdir /mnt/iso
cd /Desktop
mount -o loop PlateSpin_Orchestrator-2.5.0-SLE11.i386.iso /mnt/iso
cd /mnt/iso/SLE11
```

- 4 From the /mnt/iso/SLE11 directory, enter `./vmclient_install` to launch the installer:



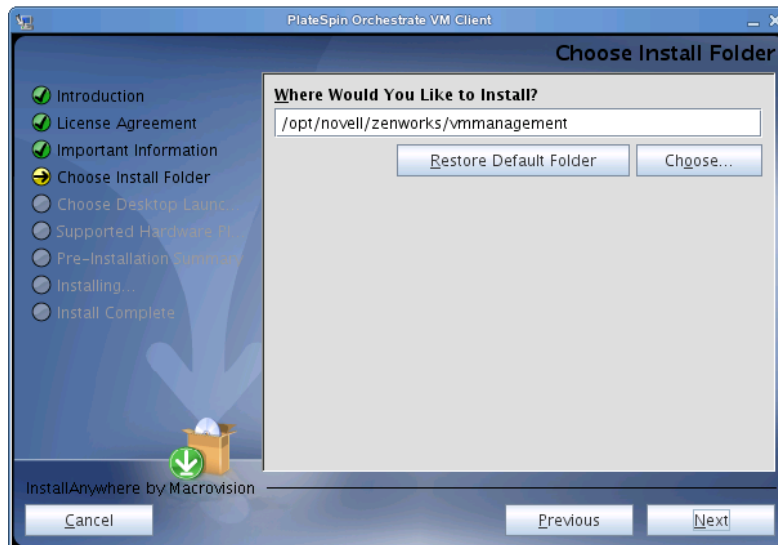
- 5 Click *Next* on the Introduction page to display the License Agreement page:



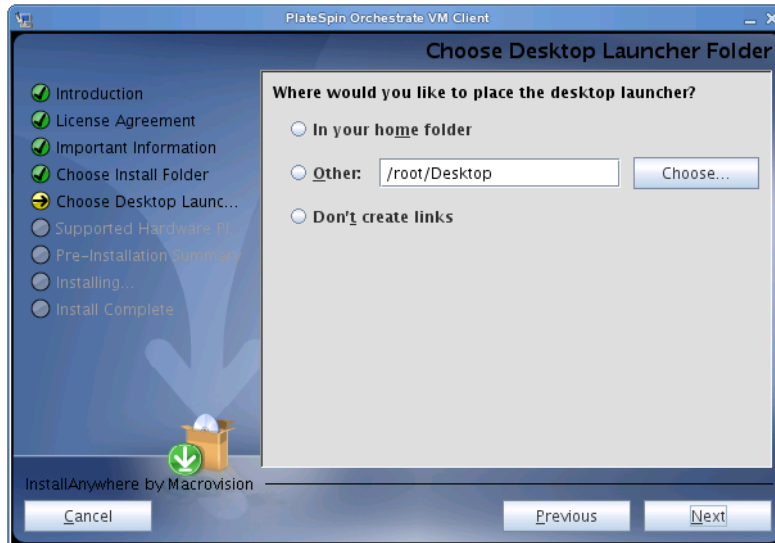
- 6 Read the terms of the license agreement; if you agree to abide by the terms, select the *I accept the terms of the License Agreement* option, then click *Next* to display the Important Information page; otherwise, click *Cancel* to exit the installation:



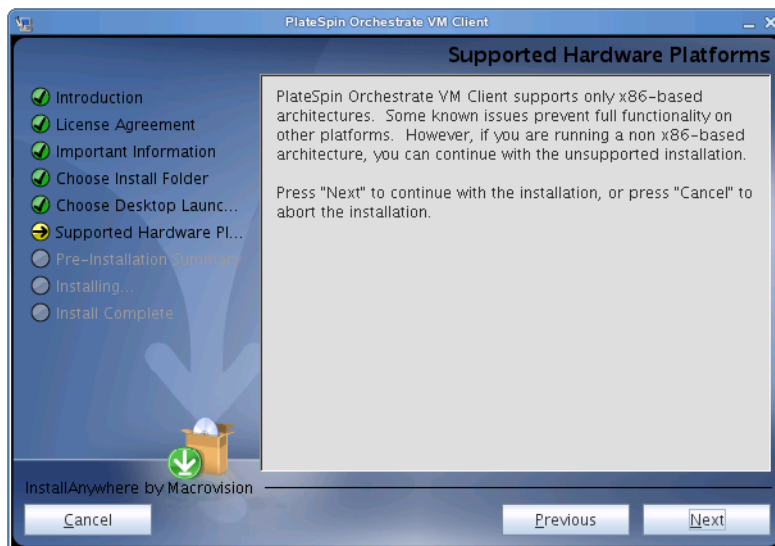
- 7 After reviewing the third-party licenses, if you agree with them, click *Next* to display the Choose Install Folder page; otherwise, click *Cancel* to exit the installation:



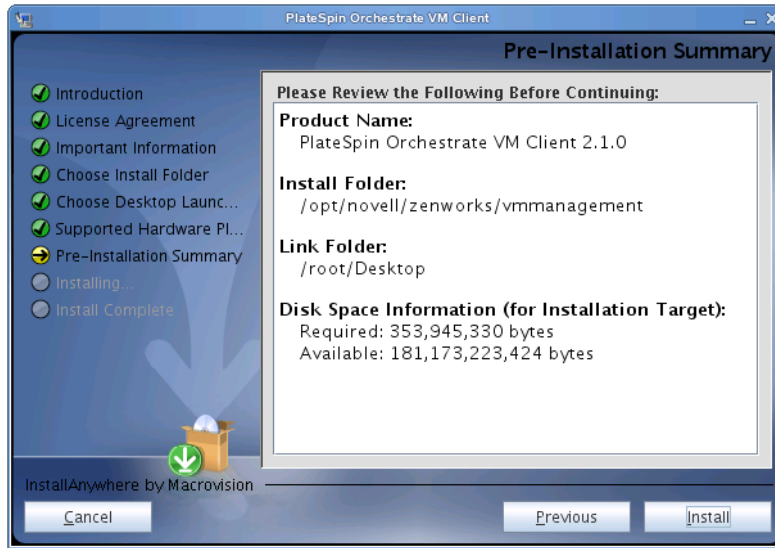
- 8 Select your installation folder, then click *Next* to display the Choose Desktop Launcher Folder page:



- 9 Select a shortcut folder and any other options and groupings you want for the control of this interface, then click *Next* to display the Supported Hardware Platforms page:

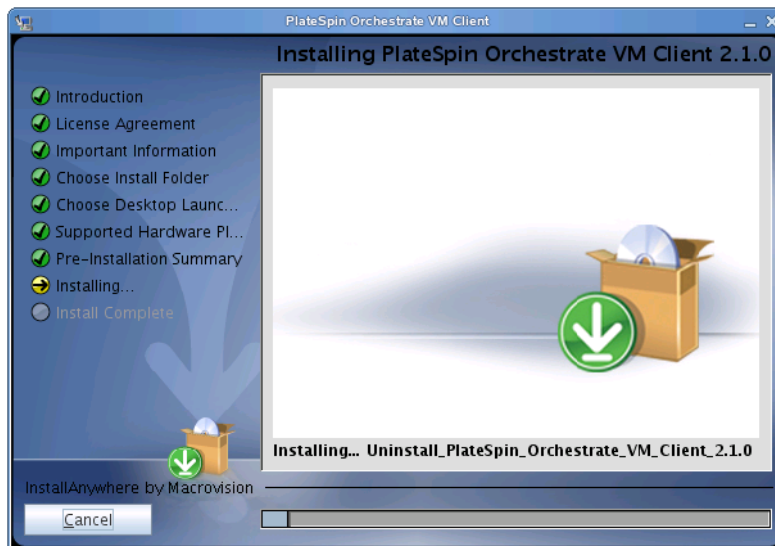


10 Click *Next* to display the Pre-Installation Summary page:

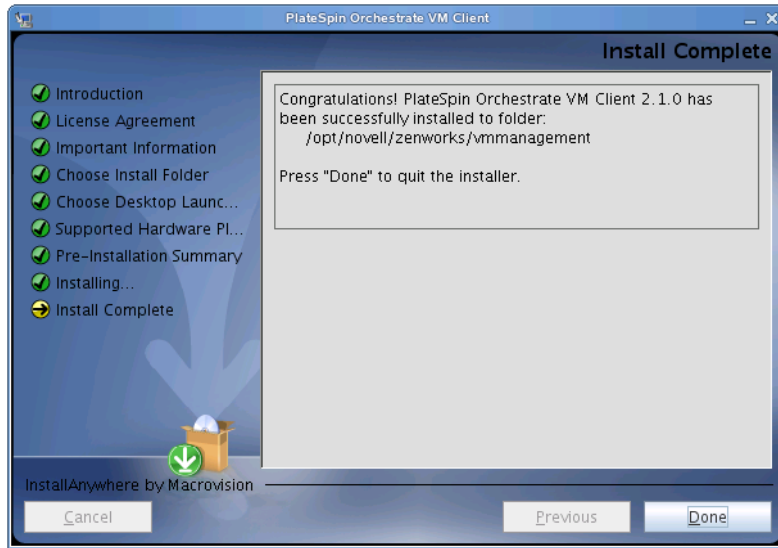


11 Verify the information and click *Previous* as necessary to make changes.

12 When ready, click *Install* to begin the installation:



When the installation has completed, the Install Complete page is displayed:



- 13 Click *Done* to finish the installation.

If you selected to place the launcher icon on your desktop, this is what it looks like:



- 14 For some necessary setup tasks, continue with [“Managing Virtual Machines”](#) in the *PlateSpin Orchestrate 2.5 VM Client Guide and Reference*.

## 2.7 Uninstalling the VM Client

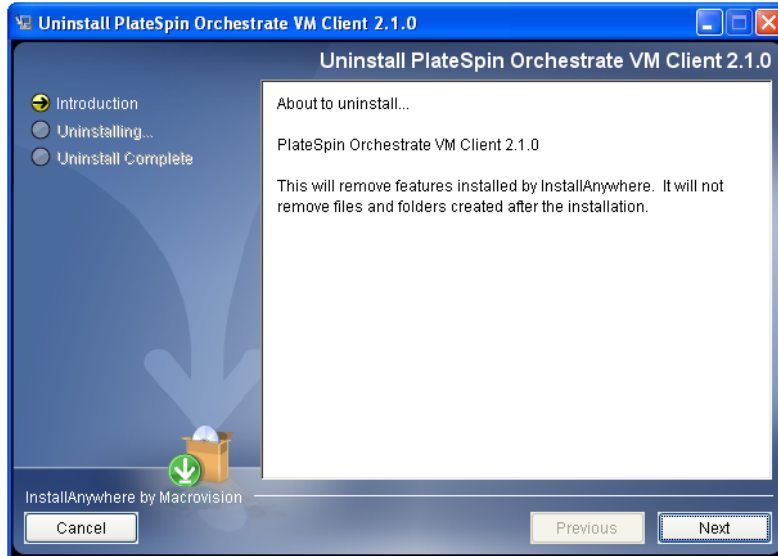
The PlateSpin Orchestrate VM Client program is installed on your Windows or Linux administration machines. You can uninstall the client from these machines.

Select the appropriate platform:

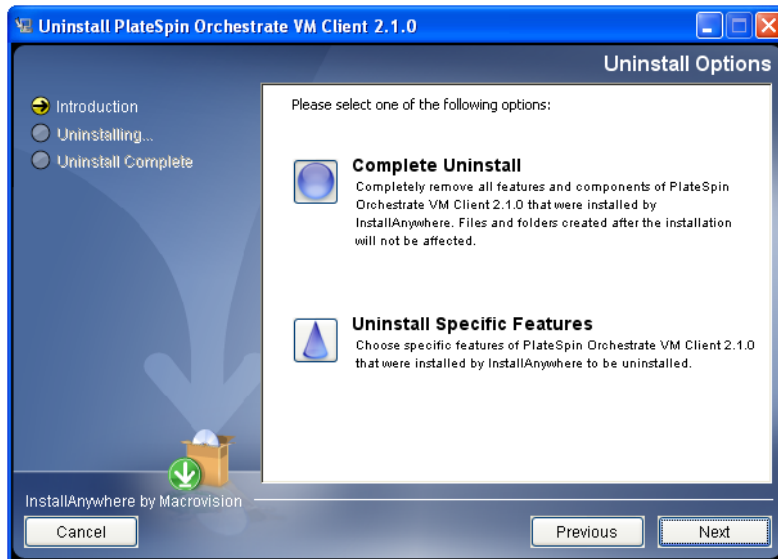
- ♦ [Section 2.7.1, “Uninstalling the Orchestrate VM Client from the Windows Operating System,”](#) on page 94
- ♦ [Section 2.7.2, “Uninstalling Orchestrate VM Client in a Linux Environment,”](#) on page 95

## 2.7.1 Uninstalling the Orchestra VM Client from the Windows Operating System

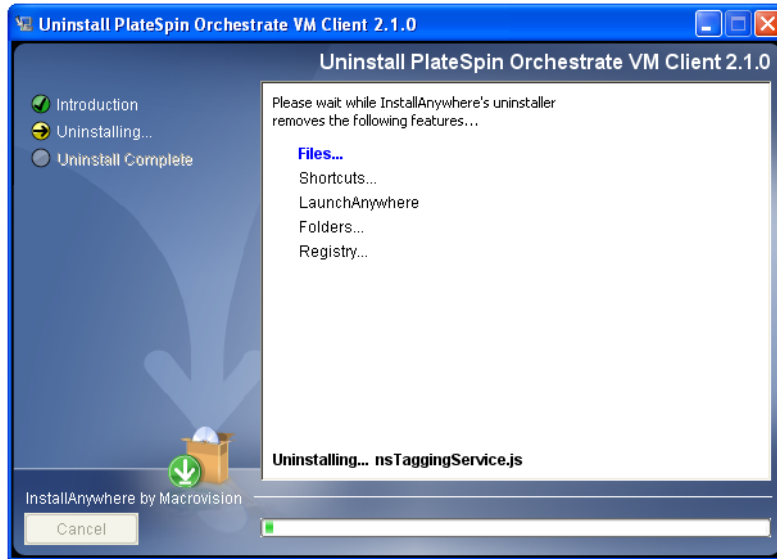
- 1 On the Windows machine where the client is installed, click *Start > Settings > Control Panel > Add or Remove Programs*.
- 2 Select *PlateSpin Orchestra VM Client 2.5.0*, then click *Remove* to open the InstallAnywhere utility, which displays the first wizard page:



- 3 Click *Next* to display the Uninstall Options page:

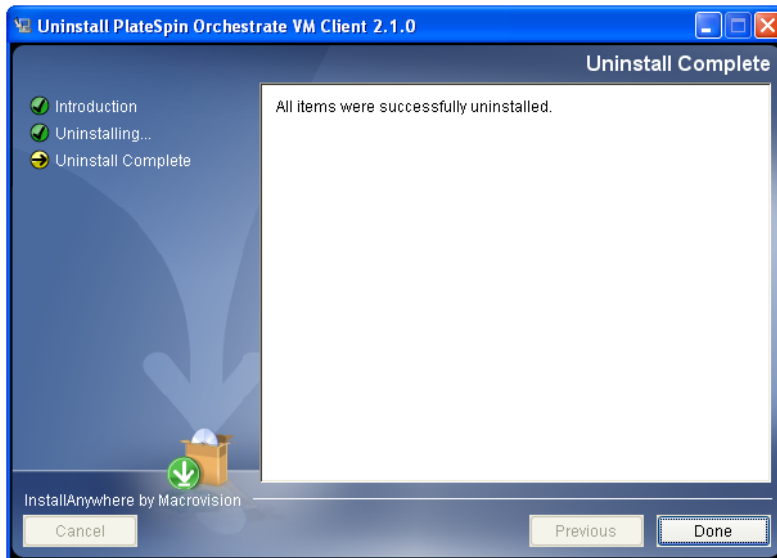


4 Click *Next* to display the Uninstalling page:



This removes all installation files and registry settings.

After the installation has completed, the Uninstall Complete page is displayed:



5 Click *Done* to complete the uninstallation.

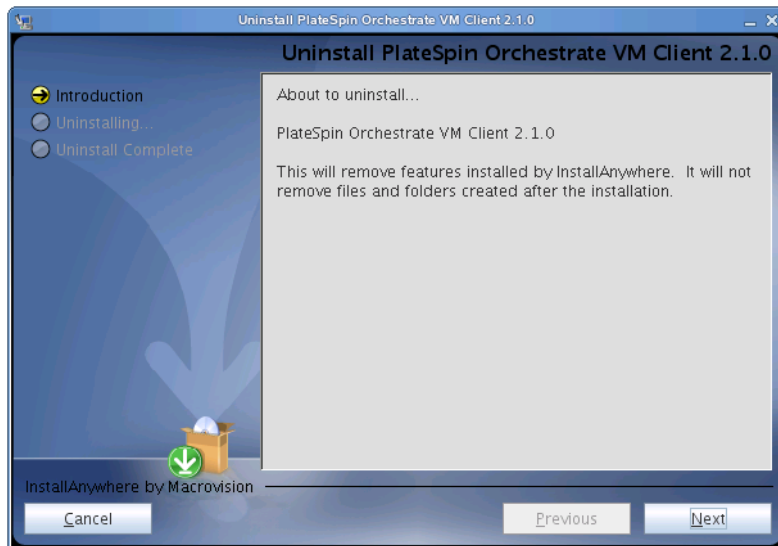
If you receive a message after it is uninstalled indicating that some folders could not be removed, you must delete them manually.

## 2.7.2 Uninstalling Orchestrate VM Client in a Linux Environment

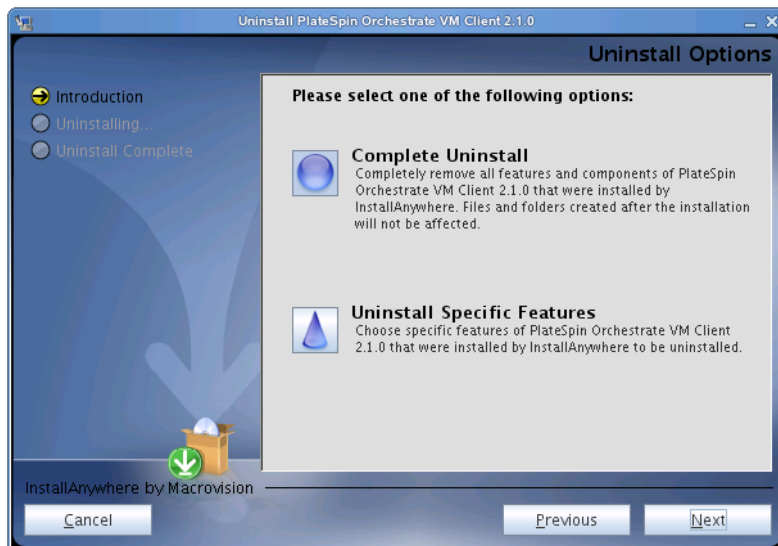
1 Run the following command:

/opt/novell/zenworks/vmmanagement/Uninstall\_PlateSpin\_VMM/  
Uninstall\_PlateSpin\_Orchestrator\_VM\_Client\_2.5.0

This opens the InstallAnywhere utility, which displays the first wizard page:

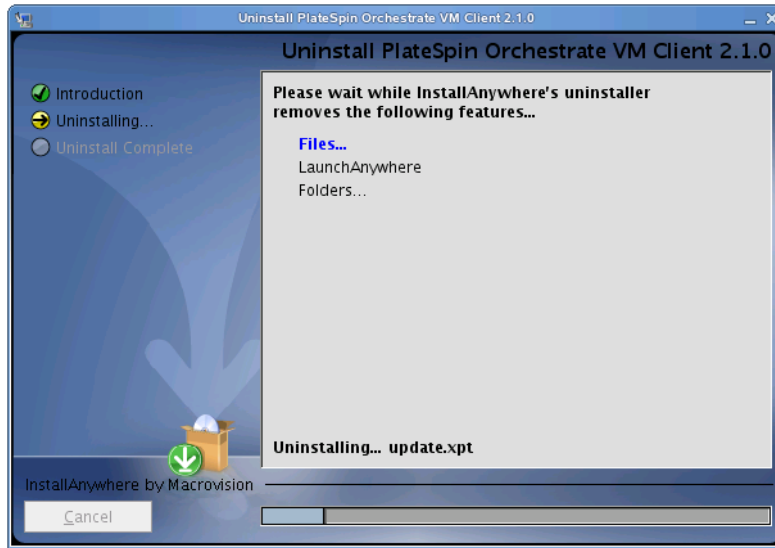


2 Click *Next* to display the Uninstall Options page:



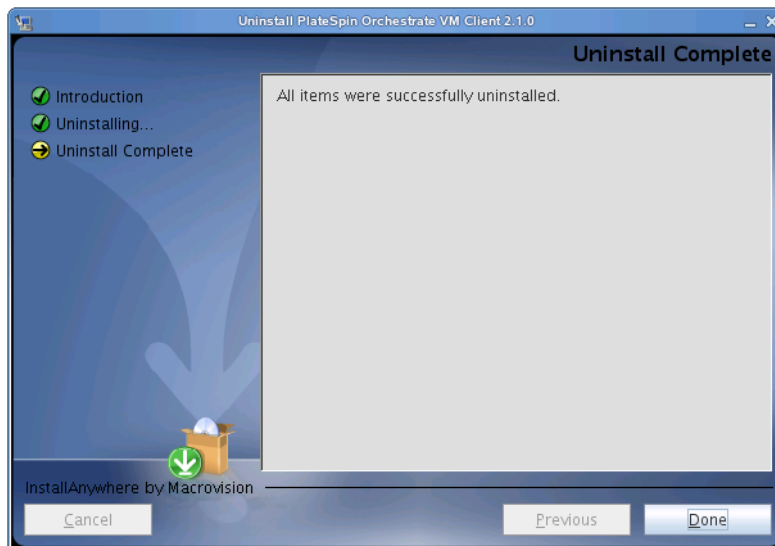


3 Click *Next* to display the Uninstalling page:



This removes all installation files.

After the installation has completed, the Uninstall Complete page is displayed:



4 Click *Done* to complete the uninstallation.

If you receive a message after it is uninstalled indicating that some folders could not be removed, you must delete them manually.

## 2.8 Determining the Product Version

PlateSpin Orchestrate is a product made up of many components, which you choose whether to install when you first install the product. If you are new to PlateSpin Orchestrate, if you need to determine component compatibility, or if you need to confer with Novell Support, it is useful to know how to obtain the version number of the different components.

One way to determine which version of the PlateSpin Orchestrate RPM packages you have installed is to use the following command on the machine where an PlateSpin Orchestrate component is installed:

```
rpm -qa | grep novell
```

The table below provides additional methods you can use to determine the version number for PlateSpin Orchestrate components.

**Table 2-4** *Determining the Component Version Number in PlateSpin Orchestrate*

Component	How to Determine Version Number
Orchestrate Server	<p>At the Orchestrate Development Client Explorer view, select the grid object, then open the Info/Configuration page of the workspace panel. The version number is listed in the <i>Server Version</i> field.</p> <p>Advanced PlateSpin Orchestrate users can also find the version value in the <code>matrix.version</code> fact.</p>
Orchestrate Agent	<p>After the agent is registered at the Orchestrate Development Client Explorer view, select its resource object listed under <i>Resources</i>, then open the Info/Groups page of the workspace panel. On the Info/Groups page, select <i>Agent Information</i>. The version number is listed in the <i>Agent Version</i> field.</p> <p>Advanced PlateSpin Orchestrate users can also find the version value in the <code>resources.agent.version</code> fact.</p>
Orchestrate Development Client	<p>At the console, click <i>Help &gt; About PlateSpin Orchestrate Console</i>.</p> <p>Console version number and license expiration date is listed on the About PlateSpin Orchestrate dialog box.</p>
Command Line Tools (zos, zosadmin)	No method is currently available.
Orchestrate VM Client	Version information is displayed in the Orchestrate VM Client.
Orchestrate Monitoring Server	<p>On the command line of the machine where the Monitoring Server is running, enter (at <code>/opt/novell/zenworks/monitor/sbin</code>) the following command:</p> <pre>gmetad -V</pre> <pre>gmetad -- version</pre>
Orchestrate Monitoring Agent	<p>On the command line of the machine where the agent is running, enter (at <code>/opt/novell/zenworks/monitor/sbin</code>) the following command:</p> <pre>gmond -V</pre> <pre>gmond -- version</pre>

## 2.9 Post-Install Configuration (LDAP, ADS Authentication)

There are some configuration steps you need to follow in the PlateSpin Development Client if you want to immediately configure the authentication of both users and resources to the PlateSpin Orchestrate Server using a directory service like ADS or LDAP. For more information, see “[The Orchestrate Server Authentication Page](#)” in the *PlateSpin Orchestrate 2.5 Development Client Reference*.

For more information about LDAP and Active Directory authentication, see “[PlateSpin Orchestrate and LDAP Authentication](#)” in the *PlateSpin Orchestrate 2.5 Administrator Reference*.



# First Use of Basic PlateSpin Orchestrate Components

# 3

After you install and configure the basic components of PlateSpin Orchestrate, (that is, the PlateSpin Orchestrate Server, the PlateSpin Orchestrate Agent, and the PlateSpin Orchestrate Clients), you will want to see them at work. The information in this section is organized sequentially (that is, in a “walkthrough” scenario) so that you can follow the process an administrator might use to begin applying PlateSpin Orchestrate capabilities in a production environment.

- ♦ [Section 3.1, “Walkthrough: Launching the PlateSpin Orchestrate Development Client,” on page 101](#)
- ♦ [Section 3.2, “Walkthrough: Logging In to the PlateSpin Orchestrate Server,” on page 103](#)
- ♦ [Section 3.3, “Walkthrough: Creating a Resource Account,” on page 106](#)
- ♦ [Section 3.4, “Walkthrough: Observing Discovery Jobs,” on page 115](#)
- ♦ [Section 3.5, “Walkthrough: Deploying a Sample Job,” on page 117](#)
- ♦ [Section 3.6, “Walkthrough: Creating a User Account,” on page 120](#)
- ♦ [Section 3.7, “Walkthrough: Running the Sample Job,” on page 126](#)
- ♦ [Section 3.8, “Walkthrough: Looking at the Job After It Has Run,” on page 126](#)
- ♦ [Section 3.9, “Walkthrough: Using the zosadmin Command to Gather Information,” on page 131](#)
- ♦ [Section 3.10, “Stopping and Starting PlateSpin Orchestrate Components,” on page 132](#)

The first three subsections listed above are basic tasks you need to perform to make the PlateSpin Orchestrate system perform at a basic level. The other sections include information to help you understand how the PlateSpin Orchestrate system can work in your production environment.

For information about the first use of PlateSpin Orchestrate VM Client components, see “[Overview](#)” in the *PlateSpin Orchestrate 2.5 VM Client Guide and Reference*.

## 3.1 Walkthrough: Launching the PlateSpin Orchestrate Development Client

This section assumes that you have installed all of the basic PlateSpin Orchestrate components, including the PlateSpin Orchestrate Server, the PlateSpin Orchestrate Agent, and the PlateSpin Orchestrate Clients. For more information about installation, see [Chapter 2, “Installation and Configuration,” on page 21](#).

The installation of the Orchestrate Clients actually installs four separate subcomponents: the PlateSpin Orchestrate Development Client, the zos command line interface, the zosadmin command line interface, and the Java SDK (toolkit) for PlateSpin Orchestrate. The Development Client and the command line interfaces (CLIs) constitute the clients for the product. You can use them to troubleshoot, initiate, change, or shut down server functions for PlateSpin Orchestrate and its computing resources. For more information about installing these clients, see [Section 2.4, “Installing the Orchestrate Agent Only,” on page 47](#).

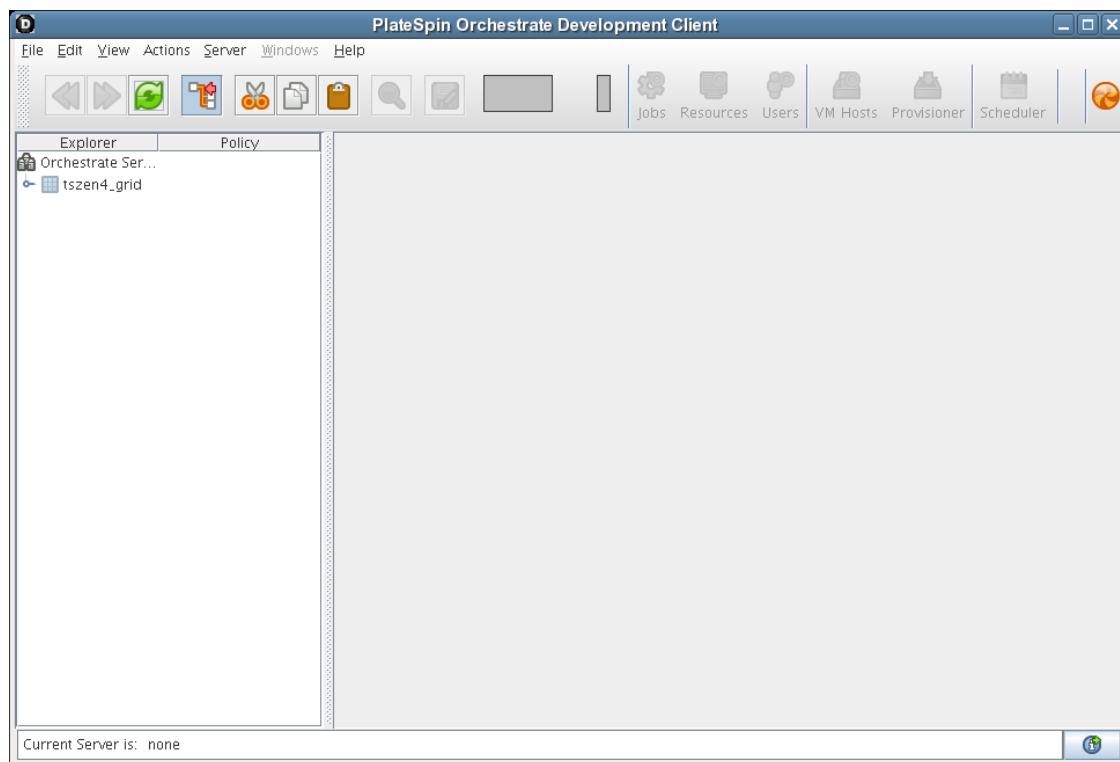
Those who use the Orchestrate Development Client are the job developer, who uses the tools in the Development Client to create and debug jobs, and the PlateSpin Orchestrate administrator (sometimes called the grid administrator), who oversees job deployment and overall PlateSpin Orchestrate usage.

To launch the Development Client:

- 1 Navigate to the location where the Development Client was installed.
  - ♦ **SLES 10 SP3:** Change to the following directory:  
`/opt/novell/zenworks/zos/server/bin`
  - ♦ **Windows:** In the *Start* menu, click *All Programs > Novell > ZOS > Clients*.
- 2 Launch the Development Client.
  - ♦ **SLES 10 SP3:** Use the following command to launch the Orchestrate Development Client:  
`./zoc`
  - ♦ **Windows:** In the *Start* menu, click *Programs > Novell > ZOS > Clients* submenu, click *PlateSpin Orchestrate Development Client*.

When the Orchestrate Development Client is launched, it broadcasts throughout the network to discover all of the PlateSpin Orchestrate Servers that have been previously installed. The server or servers are displayed at the root of the Explorer panel in the Development Client.

**Figure 3-1** PlateSpin Orchestrate Development Client After First Launch



---

**NOTE:** PlateSpin Orchestrate Server discovery by the Development Client might not find and display Orchestrate Servers that are installed on virtual machines; the Development Client can only discover servers on a broadcast-capable network.

---

To begin using the Development Client, you first need to log in to an Orchestrate Server. To understand and continue with the server login process, see [Section 3.2, “Walkthrough: Logging In to the PlateSpin Orchestrate Server,”](#) on page 103.

## 3.2 Walkthrough: Logging In to the PlateSpin Orchestrate Server

Before you can perform any administrator functions, you need to log in to the Orchestrate Server to establish your credentials as an authorized administrator. The information in this sections explains three methods for logging in to the server.

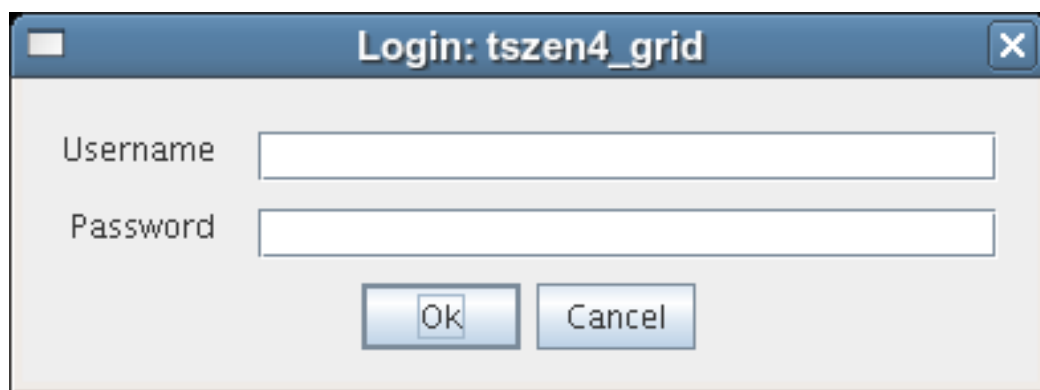
- ♦ [Section 3.2.1, “Logging In by Using the Explorer,”](#) on page 103
- ♦ [Section 3.2.2, “Logging In Explicitly to a Named Server,”](#) on page 104
- ♦ [Section 3.2.3, “Logging In As Default,”](#) on page 104

When you have logged in to the Orchestrate Server, you can create accounts for the computing resources that will eventually run computing jobs. To understand how resource accounts are created, see [Section 3.3, “Walkthrough: Creating a Resource Account,”](#) on page 106.

### 3.2.1 Logging In by Using the Explorer

If the PlateSpin Orchestrate grid you created during the install is displayed in the Explorer panel, the Orchestrate Server that services it is available for authentication. The grid cannot be expanded and navigated until you log in to the Orchestrate Server in that grid.

- 1 In the Explorer panel of the PlateSpin Orchestrate Development Client, click the grid name to launch a server login dialog box.

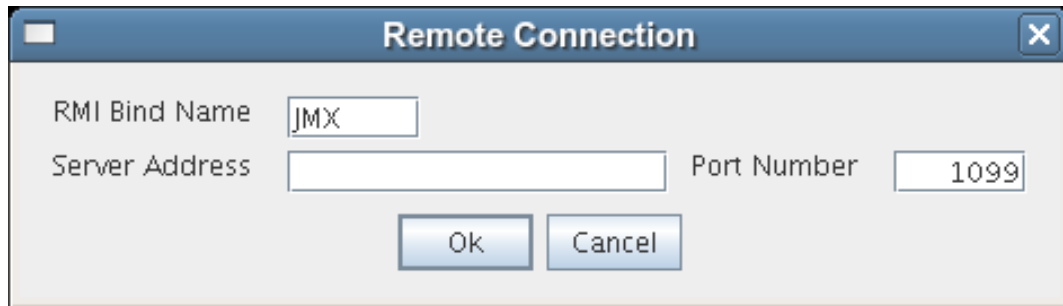


- 2 In the dialog box, enter the Administrator user name and password that you supplied when you installed the server, then click *OK* to log in to the server.

### 3.2.2 Logging In Explicitly to a Named Server

If you are not operating in a broadcast-capable network and you have installed the Orchestrate Clients on a machine with a different subnet from the server, PlateSpin Orchestrate might not be able to discover your Orchestrate Server. If this is the case, you must log in explicitly to the server you are looking for. Use the following steps to log in explicitly to a named server.

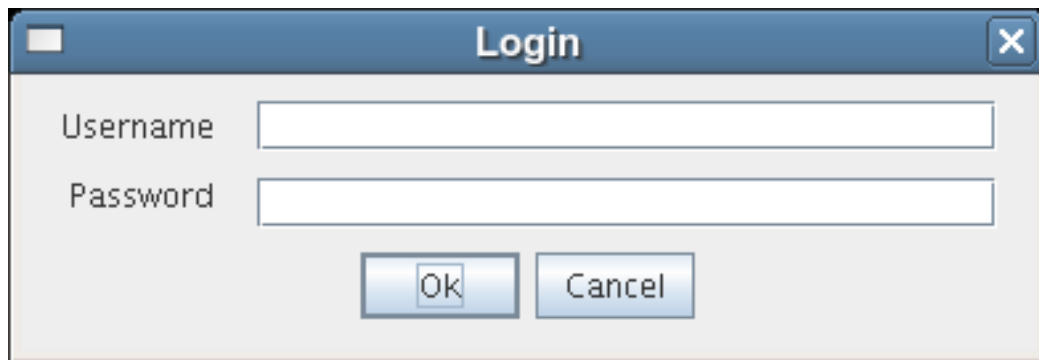
- 1 From the PlateSpin Orchestrate Development Client, click *Server*, then click *Login* to display the Remote Connection dialog box.



PlateSpin Orchestrate supports multiple servers on the same network.

This login option allows you to select the server before you enter the administrator name and password.

- 2 In the dialog box, specify the IP address of the Orchestrate Server in the *Server Address* field, then click *OK* to display the login dialog box.



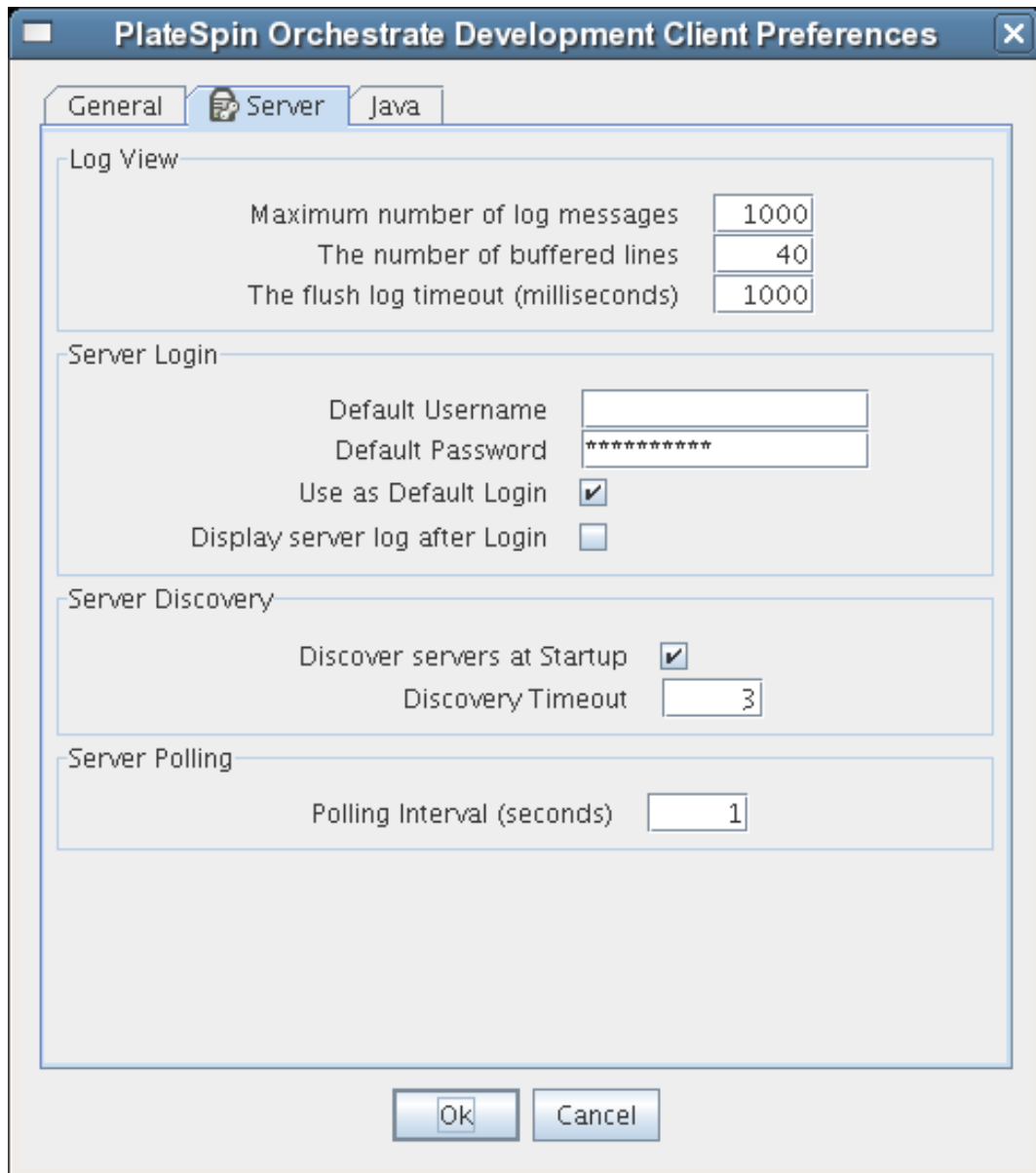
- 3 Specify the administrator name (created during the install) in the *Username* field, specify the administrator password in the *Password* field, then click *OK* to log in to the server.

### 3.2.3 Logging In As Default

If you want to save time during login, you can set a login preference to prepopulate the administrator username and password. Use the following steps to set the preference and log in as default.

- 1 From the Development Client, click *Edit*, then click *Preferences* to display the Orchestrate Development Client Preferences dialog box.

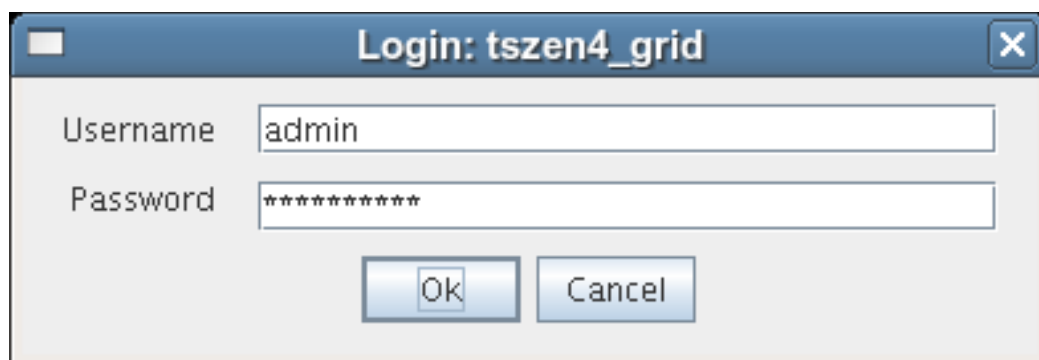




- 2 In this dialog box, click the *Server* tab to display the *Server* page.
- 3 In the *Server Login* section of the page, specify the administrator username in the *Default Username* field, then specify the administrator password in the *Default Password* field.
- 4 Select the *Use as Default Login* check box, then click *OK*.

The next time you log in, either to an explicit, named server or by exploring the PlateSpin Orchestrate grid, the default login dialog box is displayed.

**Figure 3-2** Default Login Dialog Box



If the default user you provided as a preference is still accurate, you can simply click *OK* to log in.

---

**TIP:** If you re-install PlateSpin Orchestrate and specify a new administrator username and password, that information is not displayed in the default login unless you change the login preferences. The information you provided in the earlier install and established as the default is retained as a cached file in the user directory until it is overwritten with new default preferences.

---

### 3.3 Walkthrough: Creating a Resource Account

After being installed on a computing node, having its credentials defined, and associating itself with the computing node, the Orchestrate Agent begins broadcasting the availability of its host as a potential computing resource. Before the Orchestrate Server can allow an agent to authenticate and establish ongoing communication, you need to create a resource account for the agent on the Orchestrate Server. When this account is created or “registered,” the agent’s host node can be discovered and recognized as a computing resource that can perform the jobs assigned to it.

It is also possible to create a resource account for an agent before that agent is actually installed on a computing node. You can also create a resource account on the Orchestrate Server and have it waiting in an offline state in anticipation of agent installation and login.

This section includes the information you need to create a resource account on the Orchestrate Server:

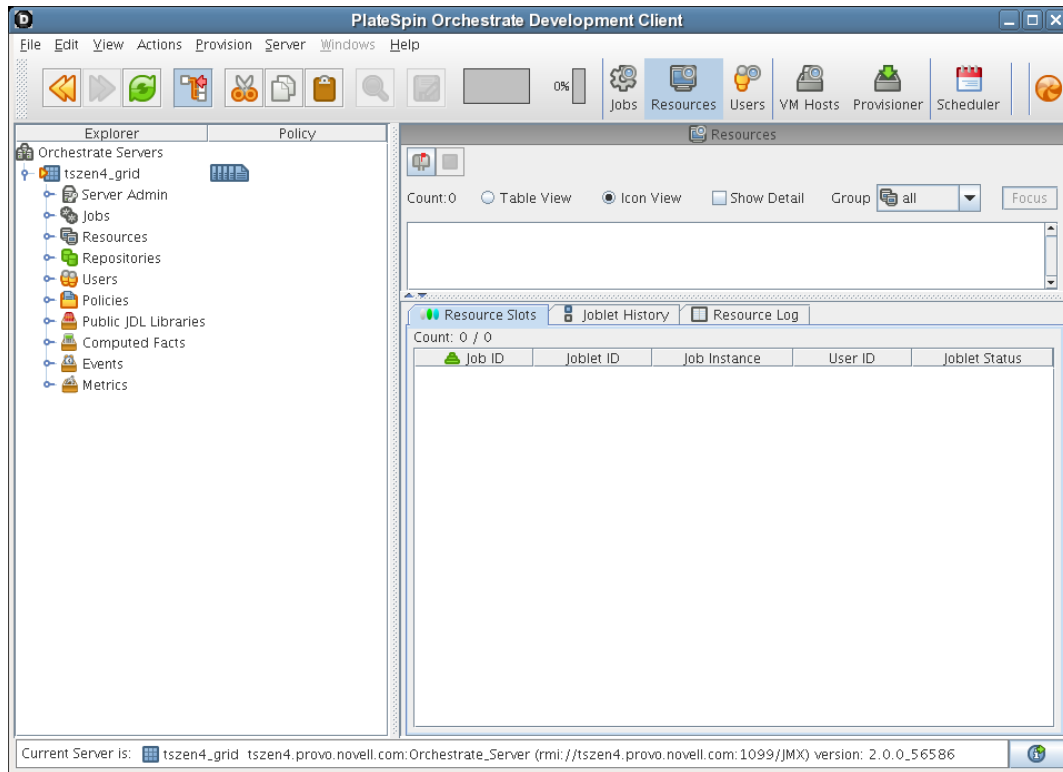
- ♦ [Section 3.3.1, “Opening the Resources Monitor,” on page 107](#)
- ♦ [Section 3.3.2, “Automatically Registering a Resource,” on page 108](#)
- ♦ [Section 3.3.3, “Manually Registering a Resource,” on page 109](#)
- ♦ [Section 3.3.4, “Selecting a Resource for Manual Registration,” on page 114](#)

When resources are created, connected to the Orchestrate Server and online, you will see some jobs deploy and run on their own. For more information, see [Section 3.4, “Walkthrough: Observing Discovery Jobs,” on page 115](#).



### 3.3.1 Opening the Resources Monitor

Now that you have installed an Orchestrate Server and launched the PlateSpin Orchestrate Development Client, you can begin to create resource accounts.

- 1 Open the PlateSpin Orchestrate Development Client and click *Resources* to open the Resources Monitor in the Workspace panel of the Development Client.



From this monitor, you can see the resources that are connected to the server and what they are doing in the grid.


If an agent is installed but has not been registered (that is, no account is created for it), it attempts a server login every 90 seconds. If this is the case (as in the figure above), the Resource Registration icon has a “flag up”  status, meaning that an agent is waiting to register. If the icon has a “flag down”  status, either no PlateSpin Orchestrate Agents have been installed in the network or all active agents are logged in, so none are waiting to register.

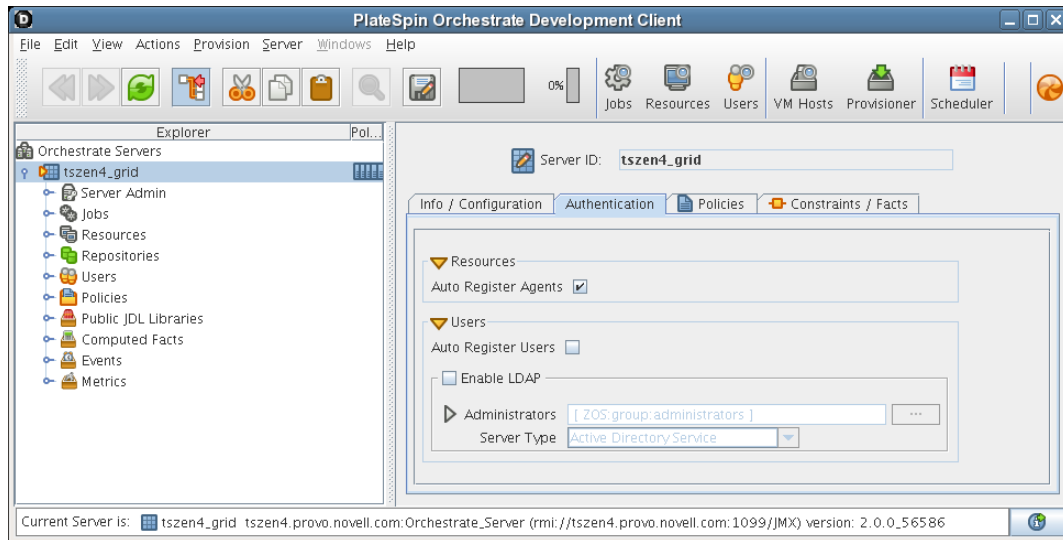
You can use the Development Client to register a resource automatically (see [“Automatically Registering a Resource” on page 108](#)) or to register a resource manually (see [“Manually Registering a Resource” on page 109](#)). You can also select which agents can log in to create accounts (see [Section 3.3.4, “Selecting a Resource for Manual Registration,” on page 114](#)).

The Resources Monitor has many features to help you manage resources when they are registered, including the jobs and joblets assigned to individual resources. For more detailed information about the Resources Monitor, see “Monitoring Server Resources” in the [PlateSpin Orchestrate 2.5 Administrator Reference](#).

### 3.3.2 Automatically Registering a Resource

If your network environment does not require a high level of security (such as in a development and testing environment) and you want a quick way to create a resource account, you can do so at the Development Client.

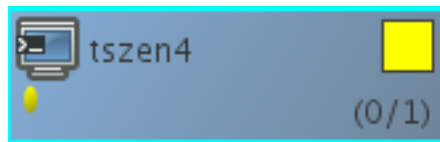
- 1 In the PlateSpin Orchestrate Development Client, select the grid object in the Explorer panel to open the *Authentication* page in the Client workspace.
- 2 In the *Resources* section of the page, select the *Auto Register Agents* check box, then click the Save icon  in the toolbar to save the setting.



The resource object is created and registered in PlateSpin Orchestrate, although it is offline (the object is dimmed in the tree of the Explorer panel) until it the agent tries to log in.

The next time the agent tries to log in, it is automatically authenticated and PlateSpin Orchestrate creates a a new resource account.

When the resource is online, the Resources Monitor displays a labeled box representing the registered agent. This box includes information about the agent, including the number of available slots it has and a status color indicating its state of readiness for PlateSpin Orchestrate jobs.



The status color window can be white (inactive), green (available for use), or blue (in use). If the color changes from green to blue, a job is running on this resource. To find out what kind of job is running, you can click the *Jobs* monitor button on the toolbar.

### 3.3.3 Manually Registering a Resource

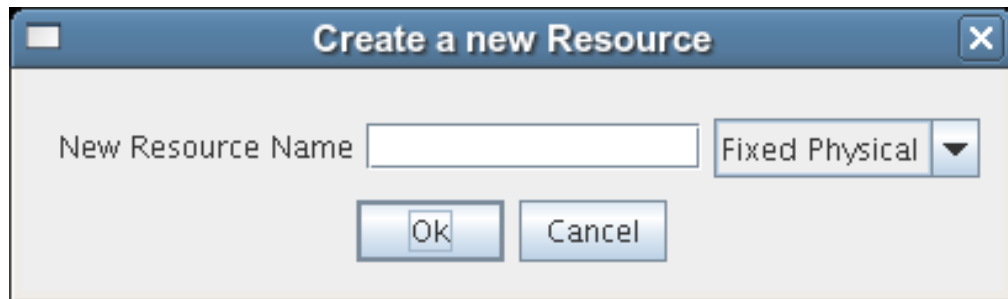
If you want a higher level of security between the agent and the server, you can manually create a resource account in the Development Client before the Orchestrate Agent is installed. This section walks through both stages of the procedure.

- ♦ [“Use the Orchestrate Development Client to Create a Resource Account” on page 109](#)
- ♦ [“Installing an Orchestrate Agent to Match the New Resource” on page 111](#)

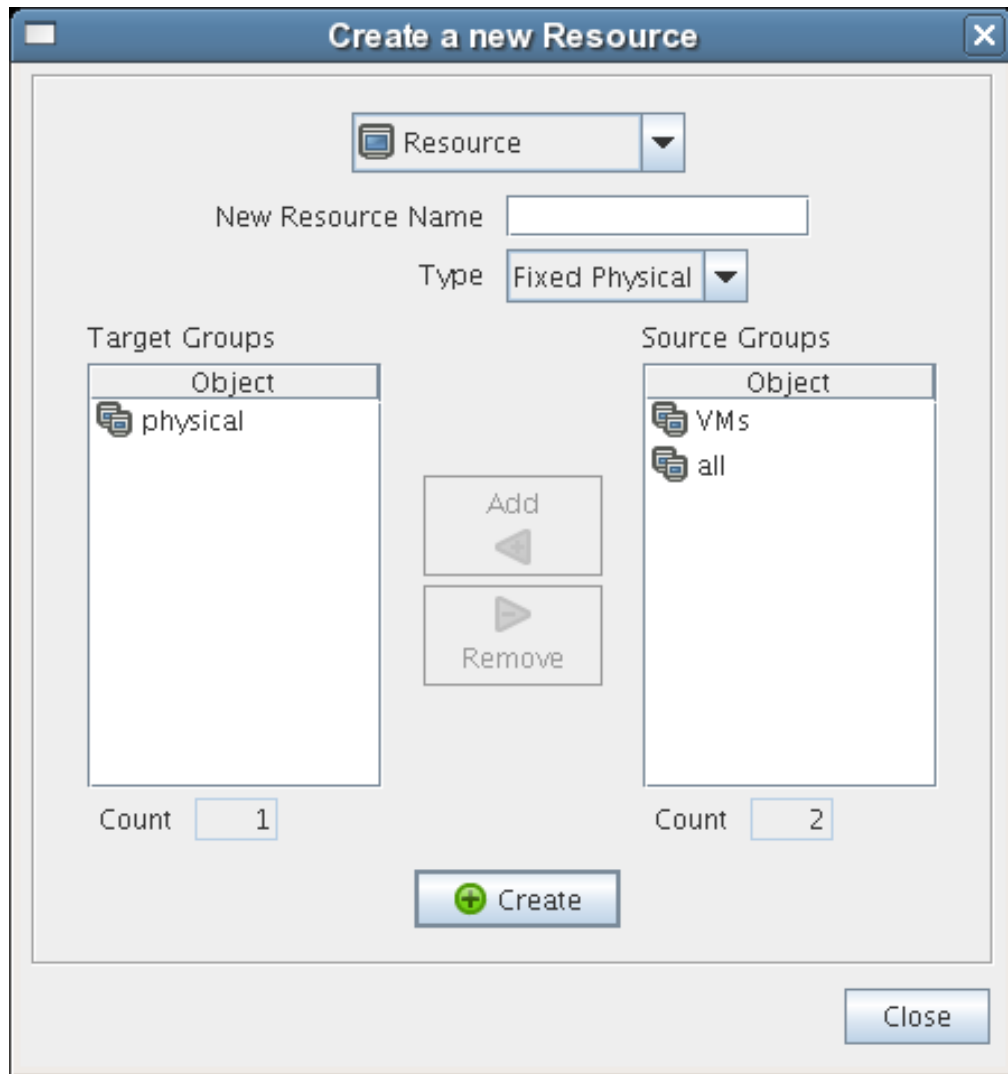
#### Use the Orchestrate Development Client to Create a Resource Account

Use the following steps to create a resource object in the PlateSpin Orchestrate Development Client.

- 1 Make sure that the *Auto Register Agents* check box on the grid object’s *Authentication* page is not selected (see [Step 2 on page 108](#)).
- 2 (Optional) Create a new resource from the Explorer panel in the Development Client.
  - 2a In the Explorer panel in the Development Client, right-click *Resources*, then click *New Resource* to display the Create a new Resource dialog box.




- 2b Specify the name of the new resource you want to create in the *New Resource Name* field, then click *OK*.
- 3 (Optional) Create a new resource from the Main Menu in the Development Client.
    - 3a In the Development Client, click *Actions* > click *Create Resource* to display the an expanded version of the Create a new Resource dialog box.



This dialog box includes a method for designating the resource as a fixed physical type or a virtual machine type. It also includes a method for including the resource in various resource groups. In this walkthrough, we will install an Orchestrate Agent on a fixed physical resource and include it in the *physical* resource group.

The Virtual Machine resource type is not available if you installed the High Performance Computing license only for PlateSpin Orchestrate.

- 3b** Make sure *Fixed Physical* is selected in the *Type* drop-down box, specify the new resource name in the *New Resource Name* field, then *Create*, then click *Close*.

The resource account is created, but is offline , as indicated by its object icon in the Explorer panel or in the Information view of each resource group to which it belongs. The resource is not online until an Orchestrate Agent matching the resource is installed.

## Installing an Orchestrate Agent to Match the New Resource

This section demonstrates installing an Orchestrate Agent to be used as a resource in your PlateSpin Orchestrate grid. The information in this part of the walkthrough assumes that a resource account has already been created for the Orchestrate Agent being installed.

- 1 From the managed device desktop, launch a browser to access the Web page for PlateSpin Orchestrate, as described in Section 2.4.2, “Installing the Orchestrate Agent from the Administrator Information Page,” on page 62.
- 2 Scroll to the *Installation* section of the page:

### Installation

The various components of the PlateSpin Orchestrate system can be downloaded from this Web page and installed as necessary.

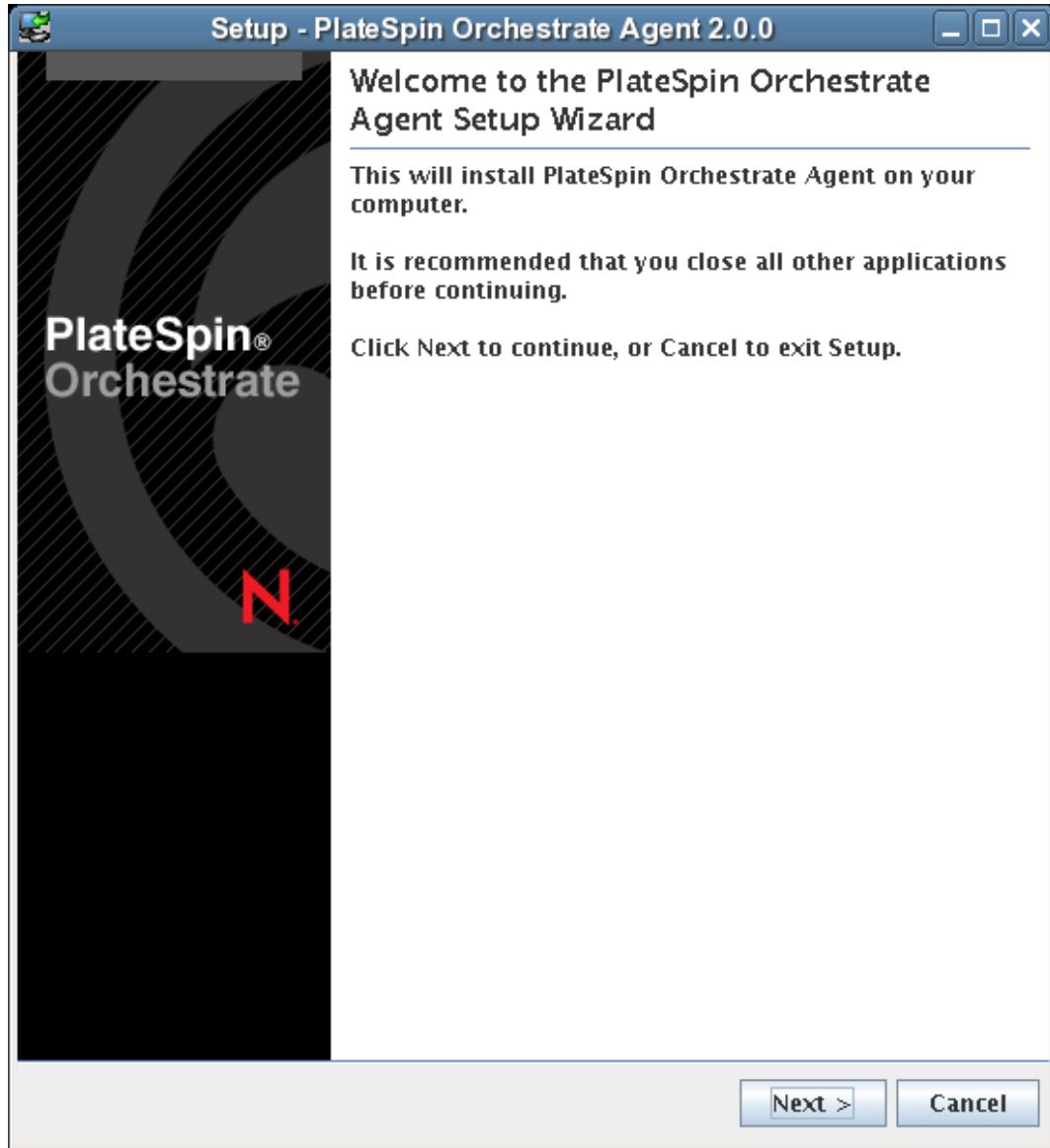
	The PlateSpin Orchestrate Agent should be installed on all machines that are to be managed. Further information on how to perform <a href="#">unattended</a> or <a href="#">mass</a> installs can be found <a href="#">here</a> .	
<b>PlateSpin Orchestrate Agent</b>	<b>With Bundled JRE</b>	<b>Without JRE</b>
<p>Microsoft® Windows* Server</p> <ul style="list-style-type: none"> <li>▪ Windows Server 2003 SP2 (32-bit and 64-bit)</li> <li>▪ Windows Server 2008 R2 (64-bit)</li> </ul>	<a href="#">zosagent_windows_2_5_0_with_jre.exe</a>	
<p>SUSE® Linux* Enterprise Server (SLES) RPM</p> <ul style="list-style-type: none"> <li>▪ SLES 10 SP3 (32-bit and 64-bit)</li> <li>▪ SLES 11 SP1 (32-bit and 64-bit)</li> </ul>		<a href="#">novell-zenworks-zos-agent-2.5.0-118739.i586.rpm</a> (requires PlateSpin Orchestrate Java RPM) <a href="#">Java 1.6.0 (32-bit)</a> <a href="#">Java 1.6.0 (64-bit)</a>
<p>Red Hat* Enterprise Linux Server (RHEL) RPM</p> <ul style="list-style-type: none"> <li>▪ RHEL 4.8 (32-bit and 64-bit)</li> <li>▪ RHEL 5.4 (32-bit and 64-bit)</li> </ul>		<a href="#">novell-zenworks-zos-agent-2.5.0-118739.i586.rpm</a> (requires PlateSpin Orchestrate Java RPM) <a href="#">Java 1.6.0 (32-bit)</a> <a href="#">Java 1.6.0 (64-bit)</a>

	The PlateSpin Orchestrate Development Client is a thick desktop client designed for PlateSpin Orchestrate administration tasks including infrastructure management and monitoring.	
<b>PlateSpin Orchestrate Clients (User &amp; Management Tools)</b>	<b>With Bundled JRE</b>	<b>Without JRE</b>
<p>Microsoft Windows</p> <ul style="list-style-type: none"> <li>▪ Windows XP SP3 (32-bit)</li> <li>▪ Windows Vista SP2 (32-bit and 64-bit)</li> <li>▪ Windows 7 (32-bit and 64-bit)</li> </ul>	<a href="#">zosclients_windows_2_5_0_with_jre.exe</a>	
<p>SUSE Linux Enterprise Server (SLES) RPM</p> <ul style="list-style-type: none"> <li>▪ SLED 11 (32-bit and 64-bit)</li> <li>▪ SLED 10 SP3 (32-bit and 64-bit)</li> <li>▪ SLES 10 SP3 (32-bit and 64-bit)</li> </ul>		<a href="#">novell-zenworks-zos-clients-2.5.0-118739.i586.rpm</a> <a href="#">Java 1.6.0 (32-bit)</a> <a href="#">Java 1.6.0 (64-bit)</a>

- 3 In the agent section of the Administrator Information page, identify the installer link for the operating system of the device where you want to install the agent. For this walkthrough, we will install the Windows agent on a Windows operating system.

- 4 Click the installer link to download the `zosagent_windows_2_0_0_with_jre.exe` version of the agent to the computing node where you plan to install it.
- 5 From the machine where you will install the agent (in this walkthrough, a Windows 2008 64-bit machine), open the desktop and navigate to the location where you saved the Orchestrator Agent file, then double-click the `zosagent_windows_2_0_0_with_jre.exe` icon to launch the PlateSpin Orchestrator Agent Setup Wizard.



- 6 Follow the prompts in the wizard until the *Identify PlateSpin Orchestrator Server* page displays, then you need to ensure that you correctly enter the `Platespin_Orchestrator_Server_name` in the *PlateSpin Orchestrator Server* field.

---

**IMPORTANT:** Make sure that the name you give the agent during the installation matches the name of the resource account you created in [“Use the Orchestrator Development Client to Create a Resource Account”](#) on page 109.

---

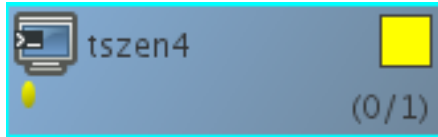




You might find it easier to click *Discover* so that the installer searches for and finds the Orchestrate Server on the network.

- 7** Accept the remaining defaults on the wizard pages to complete the installation of the Agent.
- 8** When the installation is complete, click *Finish* to exit the wizard.
- 9** In the PlateSpin Orchestrate Development Client, open the Resources Monitor to observe the resource object you created change from offline to online. When the object is no longer dimmed, the agent has logged in as a resource and is registered.

When the resource is online, the Resources Monitor displays a labeled box representing the registered agent. This box includes information about the agent, including the number of available slots it has and a status color indicating its state of readiness for PlateSpin Orchestrate jobs.



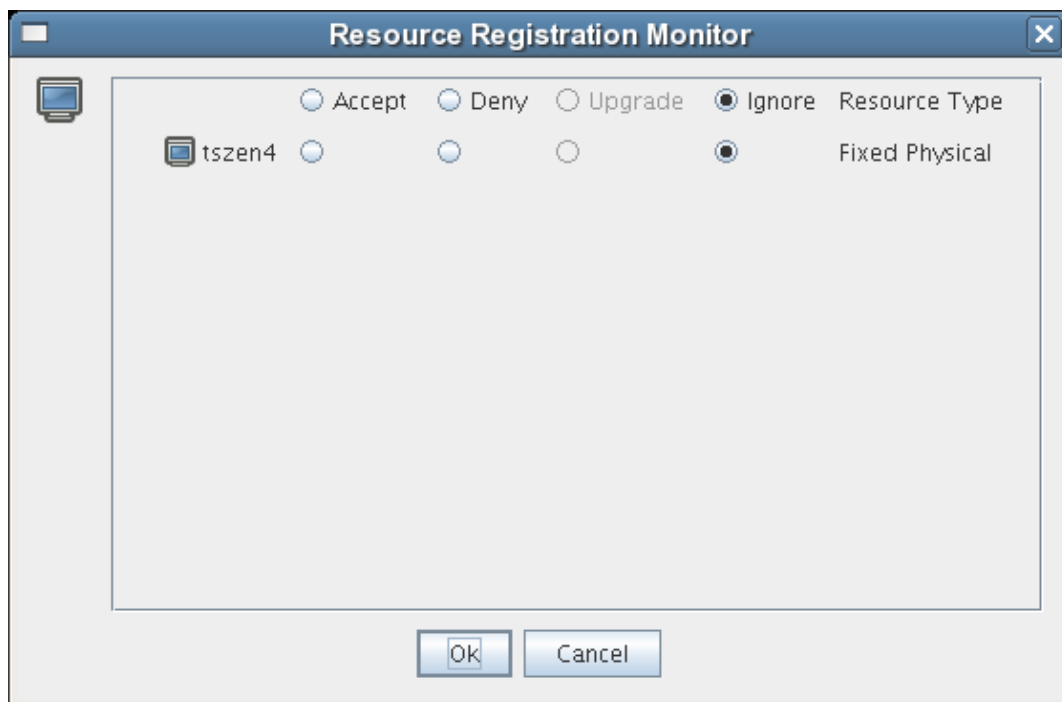
The status color window can be white (inactive), green (available for use), or blue (in use). If the color changes from green to blue, a job is running on this resource. To find out what kind of job is running, you can click on the *Jobs* monitor button on the toolbar.

### 3.3.4 Selecting a Resource for Manual Registration

If you do not select the *Auto Register Agents* check box on the grid object's *Authentication* page, you have the option of explicitly accepting or denying the login attempts of a resource, thus preventing it from creating an account.

The following steps assume that you have already created a resource in your grid.

- 1 In the Resources Monitor, click the Resource Registration (mailbox) icon to open the Resource Registration Monitor dialog box.

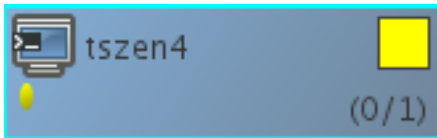


This dialog box lets you preview the Orchestrate Agents that are installed in the network and trying to log in to the server. The top row of radio buttons is a mass selector for all listed agents, allowing you the choice to accept, deny, or ignore automatic registration for all agents, both those currently listed and those that might try to log in later.

If you want to choose the agents that can be allowed to auto register, you can visually identify the agent by name and select how you want to handle that agent's request for registration the next time it tries to log in.

- 2 For this example, select the *Accept* radio button adjacent to the agent you want to register, then click *OK*.
- 3 From the PlateSpin Orchestrate Development Client, open the Resources Monitor to observe the resource object you created change from offline to online. When the object is no longer dimmed, the agent has logged in as a resource and is registered.

When the resource is online, the Resources Monitor displays a labeled box representing the registered agent. This box includes information about the agent, including the number of available slots it has and a status color indicating its state of readiness for PlateSpin Orchestrate jobs.



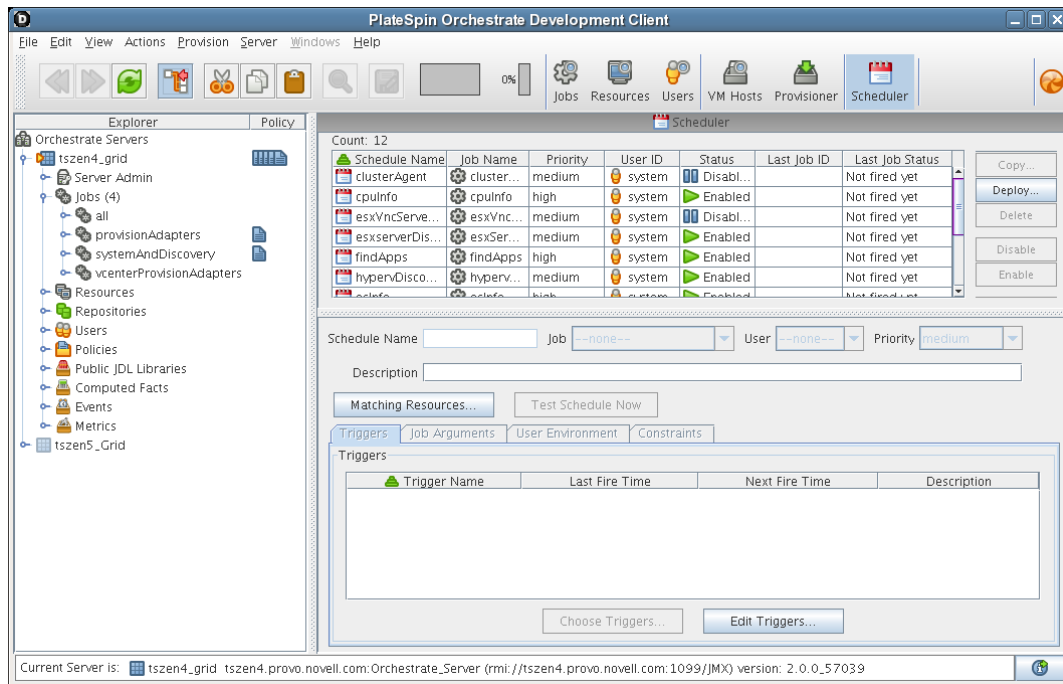
The status color window can be white (inactive), blue (in use), green (available for use), or blue (in use). If the color changes from green to blue, a job is running on this resource. To find out what kind of job is running, you can click on the *Jobs* monitor button on the toolbar.

### 3.4 Walkthrough: Observing Discovery Jobs

When you created a resource account for the first time, you might have noticed the status window of the Resource object change colors (see [Step 2 on page 115](#)) from blue to green. You might also notice new jobs displayed as objects in the Explorer panel. What you are observing are the “discovery” jobs that are shipped with PlateSpin Orchestrate (different discovery jobs are shipped with PlateSpin Orchestrate, depending on which management pack you license).

To understand the reason why these jobs run:

- 1 In the PlateSpin Orchestrate Development Client, click *Scheduler* to open the Job Schedule view in the workspace.

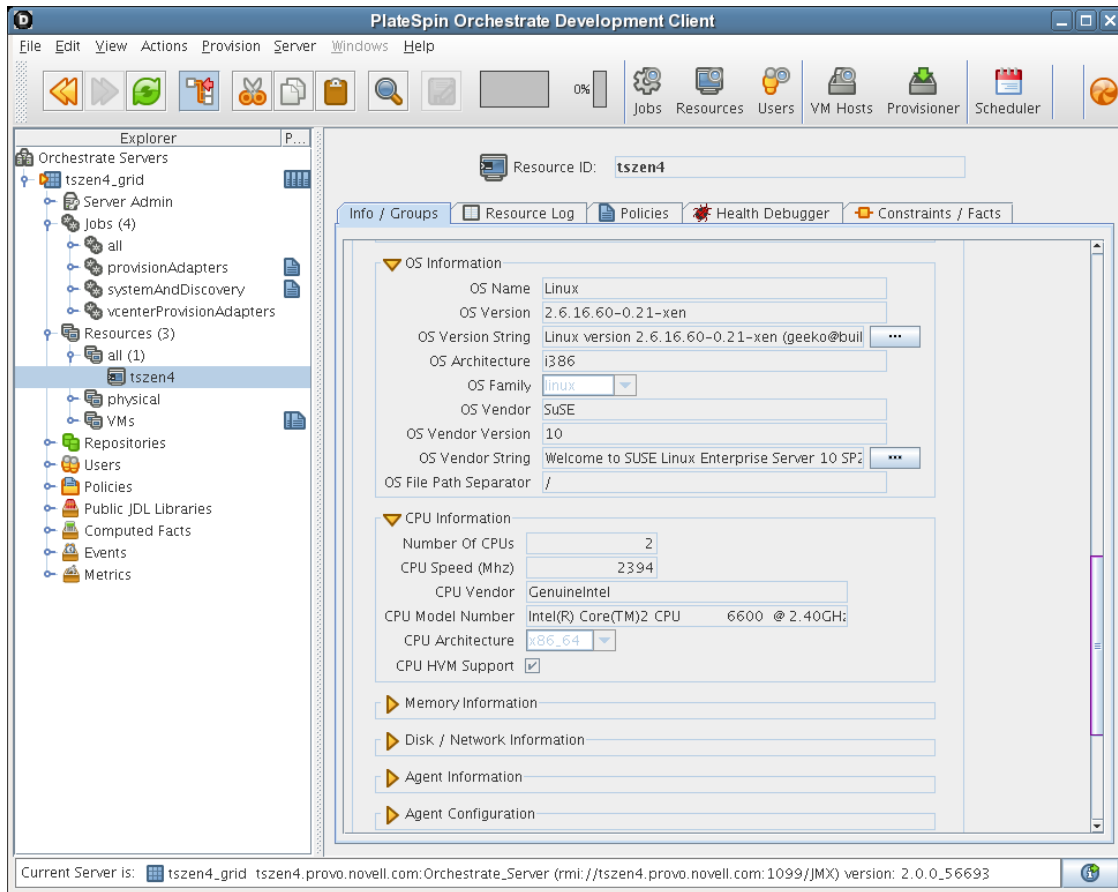


In this walkthrough of basic PlateSpin Orchestrate functionality, you can see that several jobs are configured to run. If you select one of the jobs, such as `cpuInfo`, you will see that it was configured with a trigger called `RESOURCE_ONLINE`. All of the discovery jobs, like `cpuInfo`, are configured to run when the resource is online, that is, when the resource agent has logged into the Orchestrate Server.

The discovery jobs run basic operations at resource start as a convenience, to gather data that you or a job developer might need later when creating jobs, or that the PlateSpin Orchestrate system might need as it allocates resources to run jobs. For example, the `cpuInfo` job and the `osInfo` job do some basic probing of the computing node (the machine where the agent is installed and has a resource account) for later reference.

To verify this, you can view the resource account that you created earlier in [Walkthrough: Creating a Resource Account \(page 106\)](#) by selecting its object in the Explorer panel. By default, the *Info/Groups* page for the resource opens in the Development Client workspace.

Figure 3-3 Resource Information Page After Discovery Jobs Run



If you scroll down on the *Info/Groups* page, you see that the discovery jobs have gathered basic data about the processor and operating system of this computing node. If the jobs had not run at resource start, this information about the resource would not be ready for use.

Now that you have seen a how jobs are run by the PlateSpin Orchestrate system on resource start, you can walk through the process of deploying and running a sample job on your own by proceeding with [Section 3.5, “Walkthrough: Deploying a Sample Job,”](#) on page 117.

## 3.5 Walkthrough: Deploying a Sample Job

One of the main functions of the PlateSpin Orchestrate Server is to run application requests, called jobs, on grid resources. Because the Orchestrate Server is capable of handling multiple application requests, it uses a policy-based broker and scheduler to decide when and how a job should run on the resources. These decisions are based on many controlled factors, including the number of resource nodes, their cost, and a variety of other factors as requested by the application, but managed under policy constraints set up by the administrator or the job developer.

Developing a job involves the creation of an application executable and a job file. See the [PlateSpin Orchestrate 2.5 Developer Guide and Reference](#) for more information on creating and building jobs by using the PlateSpin Orchestrate Job Description Language (JDL) and the job policies.

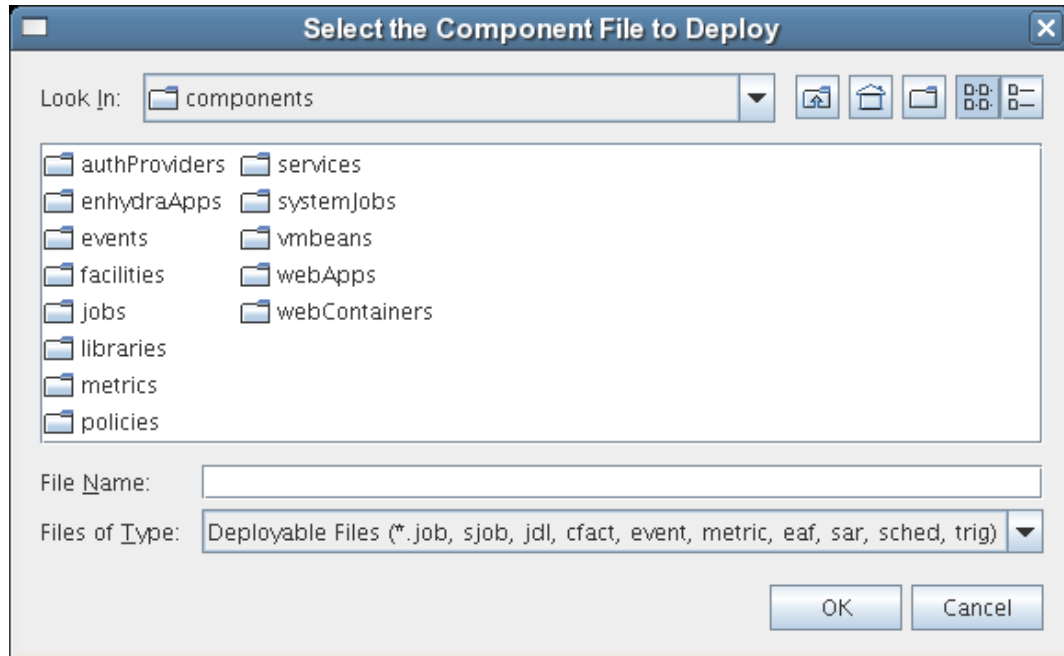
Before a job can run, the PlateSpin Orchestrate administrator must deploy it, which involves moving it from a development state to a state where it is ready and available for users. Only the administrator has the necessary rights to deploy a job.

There are three methods you can use to deploy a job:

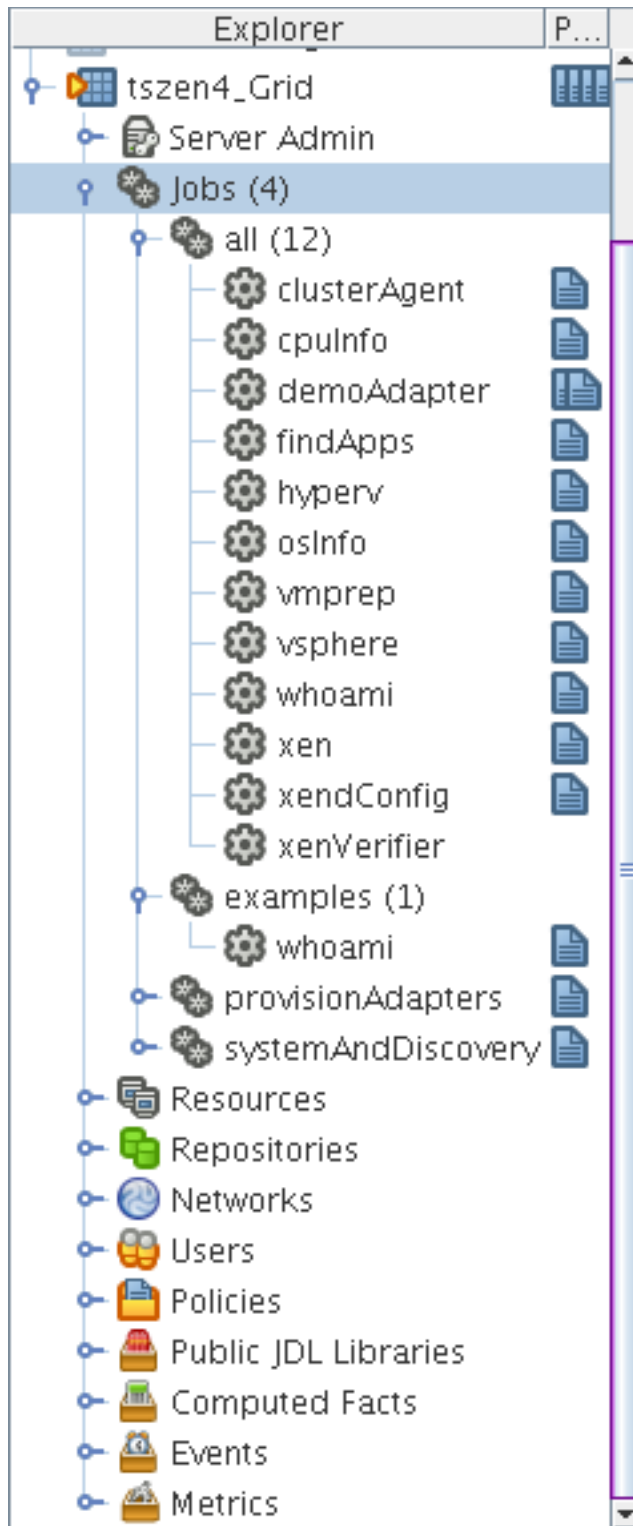
- ◆ Deploy from the PlateSpin Orchestrate Development Client by right-clicking the *Jobs* container in the Explorer panel.
- ◆ Deploy from the PlateSpin Orchestrate Development Client by selecting the *Actions* menu in the Development Client.
- ◆ Deploy from the `zosadmin` command line (`zosadmin deploy path_to_job`).

For this walkthrough, we will deploy a simple job developed for PlateSpin Orchestrate customers to demonstrate how jobs are deployed and run. Although the walkthrough shows only the first method for deploying, the other methods are relatively simple, so no further explanation is provided.

- 1 In the Explorer panel of the PlateSpin Orchestrate Development Client, right-click the *Jobs* object, then click *Deploy Job* to open the Select the Component File to Deploy dialog box.



- 2 Open the *Look In* drop-down list, then navigate to the location of the job you want to deploy. Although a job developer can store PlateSpin Orchestrate jobs at any location on the network, the sample jobs shipped with PlateSpin Orchestrate are limited to the directories where the product is installed. For this walkthrough, navigate to the `/opt/novell/zenworks/zos/server/examples` directory on the PlateSpin Orchestrate Server. If the Development client is installed on a Windows machine, the default location is `c:\Program Files\Novell\zos\clients\examples`.
- 3 Select `whoami.job`, then click *OK* to deploy the job to the *Jobs* container. The *whoami* job appears in the *all* container and in the *examples* container in the tree.



When deployed, the job is sent over the wire to the Orchestrate Server with which it is associated. It is persisted there until undeployed.

When the job is available, you need to create a user who can run that job. For more information, see [Section 3.6, “Walkthrough: Creating a User Account,” on page 120](#)

## 3.6 Walkthrough: Creating a User Account

Although PlateSpin Orchestrate has some pre-assembled jobs, such as the `cpuInfo` discovery job that you learned about earlier, most jobs must be developed by a job developer, then be run and managed by a user (also called a job manager). Without an authorized individual who can log in to the PlateSpin Orchestrate system to manage the use of a job, the product does not realize its potential.

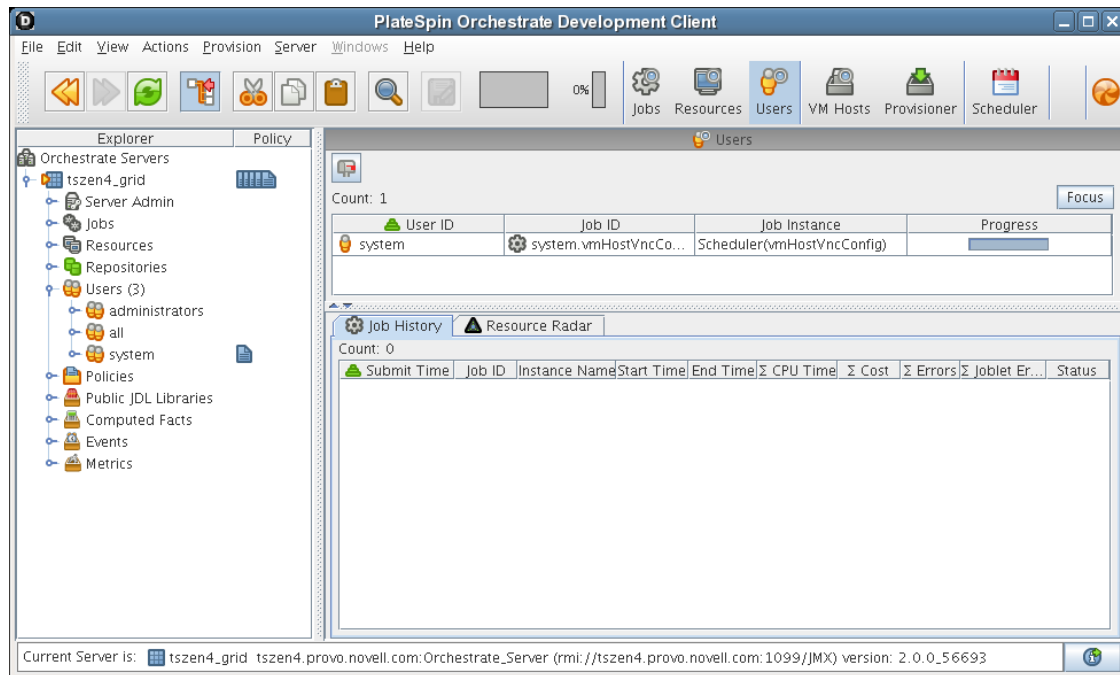
This section of the walkthrough introduces the basics of creating a user account:

- ◆ Section 3.6.1, “Opening the Users Monitor,” on page 120
- ◆ Section 3.6.2, “Automatically Registering a User,” on page 121
- ◆ Section 3.6.3, “Manually Registering a User,” on page 122
- ◆ Section 3.6.4, “Logging In a User for Manual Registration,” on page 124
- ◆ Section 3.6.5, “Directory Service Authentication (Optional),” on page 126

### 3.6.1 Opening the Users Monitor



Now that the Orchestrate Server has run discovery jobs and you have deployed a sample job, you can begin to create user accounts. To do so, open the Orchestrate Development Client and click *Users* in the toolbar to open the Users Monitor in the Workspace panel of the Development Client.

**Figure 3-4** Users Monitor of the PlateSpin Orchestrate Development Client



In this monitor, you can see the users that are connected to the server and what they are doing in the grid.




If a user logs in but has not been registered (that is, no account is created for that user), the authentication to the server is retried every 90 seconds. If this is the case, the User Registration icon has a “flag up”  status, meaning that a user is waiting to register. If the icon has a “flag down”  status, either no user accounts have been created or all active users are logged in, so none are waiting to register.

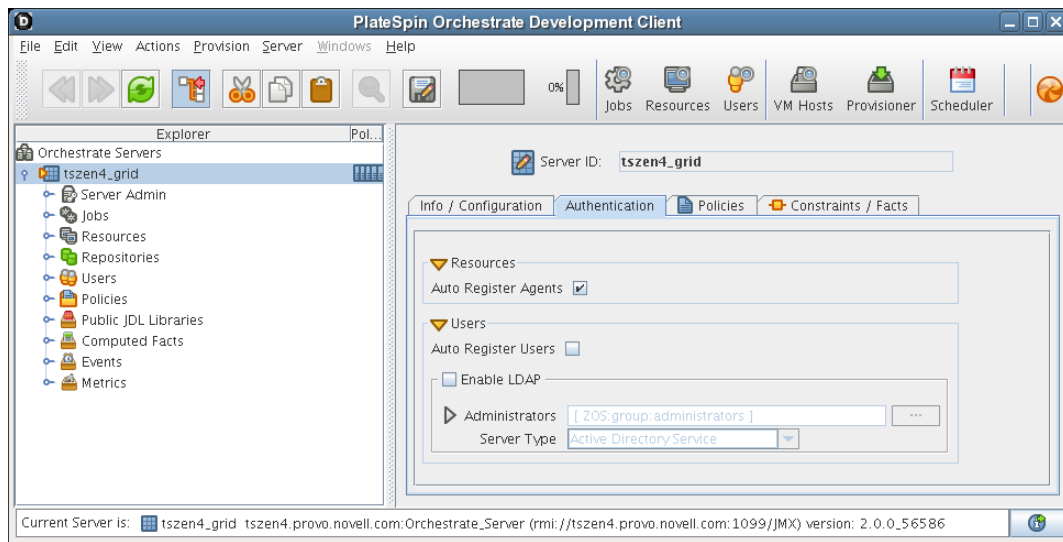
You can use the Development Client to register a user automatically (see [Section 3.6.2, “Automatically Registering a User,” on page 121](#)) or to register a user manually (see [Section 3.6.3, “Manually Registering a User,” on page 122](#)). You can also select which users can log in to create accounts (see [Section 3.3.4, “Selecting a Resource for Manual Registration,” on page 114](#)).

The Users Monitor has many features to help you manage users when they are registered, including the jobs and joblets assigned to individual users. For more detailed information about the Users Monitor, see the [PlateSpin Orchestrate 2.5 Development Client Reference](#).

### 3.6.2 Automatically Registering a User

If your network environment does not require a high level of security (such as in a development and testing environment) and you want a quick way to create a user account without a password, you can do so at the Orchestrate Development Client.

- 1 In the Explorer panel of the Development Client, select the grid object representing the Orchestrate Server to open the *Info/Configuration* page of the grid object, then select the *Authentication* tab to open the Authentication page.
- 2 In the *Users* section of the page, select the *Auto Register Users* check box, then click the Save  icon.



- 3 Use the `zos` command line interface to log in to the server.
  - 3a From a system terminal, enter the following command:

```
zos login -u user_ID
```

If you are attempting to log in to a machine other than the local host, you can alter the command to the following:


```
zos login Orchestrate_Server_name -u user_ID
```

- 3b** When prompted for the user password, press Enter.
- 3c** (Conditional) If you are prompted for a decision regarding whether you want to accept the server certificate, enter yes.

---

**NOTE:** You can assign a password for the user at a later time in the *Info/Groups* page of the User Object.

---

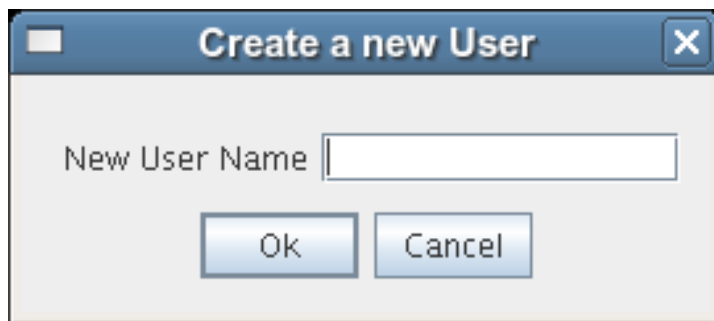
When a user logs out, the User object icon  is dimmed in the Explorer panel or in the Information view of each User group to which it belongs.

### 3.6.3 Manually Registering a User


If you want a higher level of security for authorized users, you can manually create a user account in the Development Client before the user logs in. When a user is created in the PlateSpin Orchestrate Development Client, that user is ready to run jobs.

To create a new user in the Development Client Explorer panel:

- 1** In the Explorer panel in the Development Client, right-click *Users* > click *New User* to display the Create a New User dialog box.



- 2** Specify the name of the new user you want to create in the *New User Name* field, then click *OK*.

The user account is created, but is not currently running jobs, as indicated by its object icon  in the Explorer panel or in the Information view of each User group to which it belongs.

To create a new user through the *Actions* menu:

- 1** In the Development Client, click *Actions* > *Create User* to display an expanded version of the Create a New User dialog box.



This dialog box includes a method for designating the user as a member of the *administrators* user group. In this walkthrough, we will create the user as a member of the *all* group, which does not place the user in the *administrators* group.

- 2 Specify the new username in the *New User Name* field, click *Create*, then click *Close*.
- 3 Define the user password.
  - 3a In the Orchestrate Development Client Explorer tree, select the new User in the Users object *all* group to open its Info/Groups page.
  - 3b In the Info/Groups page, select the collapse/expand icon in the Personal Information section to open the fields of that section.

Personal Information

First Name

Last Name

Password

Email

City


State

Country

Site

Name	Value


Environment


- 3c** In the *Password* field, change the default password, then click the Save  icon to display the Password Confirmation dialog box.

Password Confirmation

New Password

Confirm New Password

- 3d** In the *Confirm New Password* field, enter the password you defined previously, click *OK*, then click the Save  icon to save the password.

When a user logs out, the User object icon  is dimmed in the Explorer panel or in the Information view of each User group to which it belongs.

### 3.6.4 Logging In a User for Manual Registration

If you do not select the *Auto Register Users* check box on the grid object's *Info/Configuration* page, you have the option of explicitly accepting or denying the login attempts of a user, thus preventing that user from creating an account.

- 1** Make sure that the *Auto Register Users* check box on the grid object's Authentication page is not selected (see [Step 2 on page 108](#)) and that you have created a new user.
- 2** Use the `zos` command line interface to log in to the server.
  - 2a** From a system terminal or from a PlateSpin Orchestrator login in Windows, enter the following command:

```
zos login --user=user
```


If you are attempting to log in to a machine other than the local host, you can alter the command to the following:

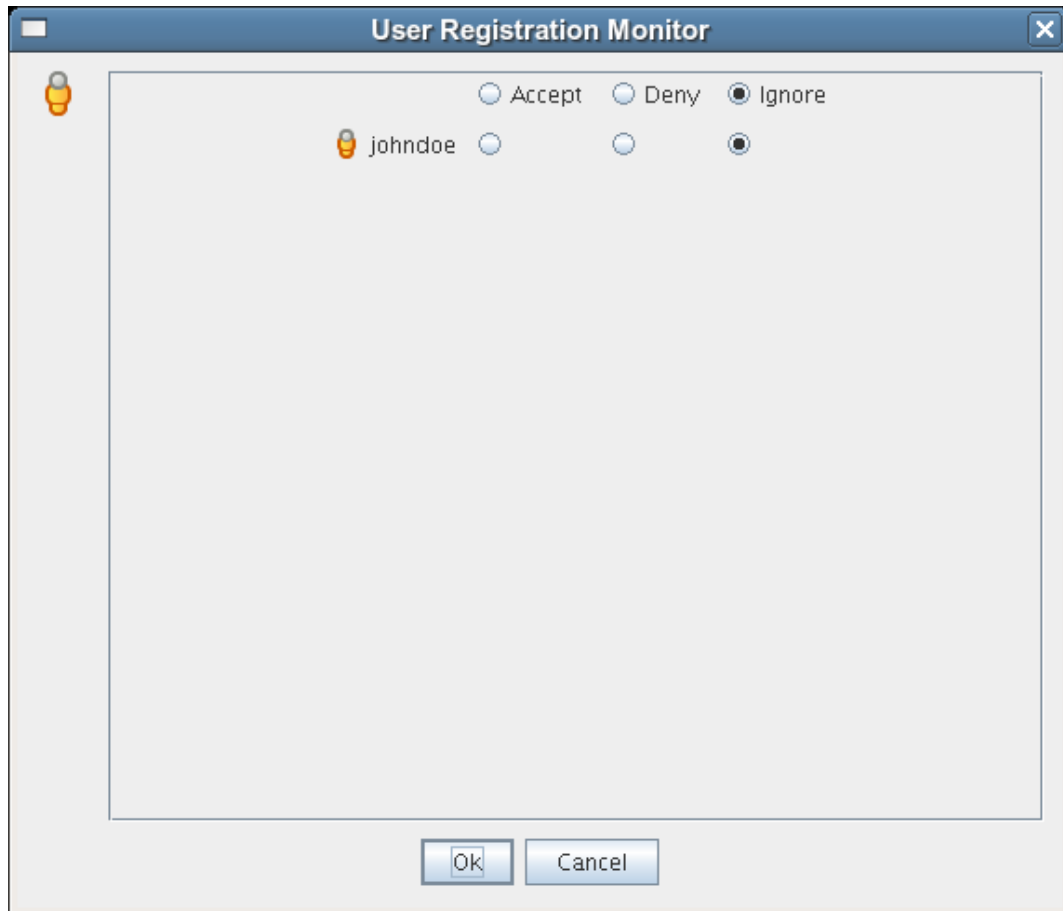
```
zos login Orchestrator_Server_name --user=user
```

- 2b** Enter the password for the user credentials. For this walkthrough, you can simply press *Enter* to enter an empty password.
- 2c** When prompted for a decision regarding whether you want to accept the server certificate, enter *yes*.

An error message is generated:

```
ERROR: login failed: user name or password 'incorrect'
```


- 3** In the Users Monitor, click the User Registration icon  to open the User Registration Monitor dialog box.



This dialog box lets you preview the users who are trying to log in to the server. The top row of radio buttons is a mass selector for all listed users, allowing you the choice to accept, deny, or ignore automatic registration for all listed agents.

If you want to choose the users that can be allowed to auto register, you can identify the user by name and select how you want to handle that agent's request for registration the next time it tries to log in.

- 4 For this example, select the *Accept* radio button adjacent to the user you want to register, then click *OK*.

The user account is created, but is not currently running jobs, as indicated by its object icon  in the Explorer panel, or in the Information view of each User group to which it belongs.

### 3.6.5 Directory Service Authentication (Optional)

There are some configuration steps you need to follow in the PlateSpin Development Client if you want to immediately configure the authentication of both users and resources to the PlateSpin Orchestrate Server using a directory service like ADS or LDAP. For more information, see “[The Orchestrate Server Authentication Page](#)” in the *PlateSpin Orchestrate 2.5 Development Client Reference*.

## 3.7 Walkthrough: Running the Sample Job

Deployed jobs can be run from the Server Portal, from the Scheduler utility inside of the PlateSpin Orchestrate Development Client, or from the `zos` command line. For the purpose of this walkthrough, we will run a sample job from the command line after logging in as a user.

- 1 From a system terminal, enter the following command:

```
zos run whoami
```

If you have more than one resource connected, you might want to run the job on one resource in particular. If you want to run the job this way, you can do so by adding an argument to the command line:

```
zos run whoami resource=name_of_resource
```

Now that you have run the sample job, you need to use some of the PlateSpin Orchestrate tools to verify that it has run. For more information, see [Section 3.8, “Walkthrough: Looking at the Job After It Has Run,”](#) on page 126

## 3.8 Walkthrough: Looking at the Job After It Has Run

After you have run the job, there are several ways to verify that it has run. This section explains those methods.

- ♦ [Section 3.8.1, “Verification at the Command Line,”](#) on page 126
- ♦ [Section 3.8.2, “Verification at the Jobs Monitor,”](#) on page 128
- ♦ [Section 3.8.3, “Verification at the Server Portal,”](#) on page 129

### 3.8.1 Verification at the Command Line

The following sections explain some of the `zos` commands that you can use to verify that a job has run and monitor some of the results of the job:

- ♦ [“zos jobs”](#) on page 127
- ♦ [“zos jobinfo job\\_name”](#) on page 127

- ♦ “zos status --detail” on page 127
- ♦ “zos log job\_id --verbose” on page 128

## zos jobs

You can use the `zos jobs` command to list all of the jobs that have run while you have been logged in as a user. Running this command yields an output like this:

```
Job           JobID           User           Started           Elapsed State
whoami       userA.whoami.60 userA           12/24/2008 02:35:38 0:00:00
Completed
```

## zos jobinfo job\_name

You can use the `zos jobinfo -e job_name` command to display information for a named job the last time it was run. Running this command yields an output like this:

```
Jobname/Parameters  Attributes
-----
whoami              Desc: This is a demo example of enhanced exec

    numJoblets      Desc: The number of joblets to schedule
                    Type: Integer
                    Default: 1

    resource        Desc: The resource id to run on
                    Type: String
                    Default: .*
```

## zos status --detail

You can use the `zos status --detail` command to display the status of the most recently run job. Running this command yields an output like this:

```
Job Status for userA.whoami.60
-----
                State: Completed
Resource Count: 0                (0 this job)
Percent Complete: 100%
Queue Pos: n/a
Child Job Count: 0                (0 this job)
Joblet Counts: 1 (0)             (1 (0/0/1/0/0) this job)

Instance Name: whoami
Job Type: whoami
Memo:
Priority: medium
Arguments: resource=tszen4_agent

Submit Time: 12/24/2008 02:35:38
Delayed Start: n/a
Start Time: 12/24/2008 02:35:38
End Time: 12/24/2008 02:35:39
Elapsed Time: 0:00:00
Queue Time: 0:00:00
Pause Time: 0:00:00
```

```
Total CPU Time: 0:00:00      (0:00:00 this job)
Total GCycles: 0:00:00      (0:00:00 this job)
Total Cost: $0.0002         ($0.0002 this job)
Burn Rate: $0.8982/hr      ($0.8982/hr this job)
```

```
Termination Type: n/a
Job Error: <none>
```

```
Joblet Error Count: 0      (0 this job)
Node Error Count: 0       (0 this job)
Excluded Nodes: 0        (0 this job)
```

```
Bad Provision Count: 0    (0 this job)
Excluded Provisions: 0    (0 this job)
```

### **zos log job\_id --verbose**

If you know the Job ID for a particular job that has run, you can use the `zos log job_id --verbose` command to display its detailed job log. Running this command yields an output like this:

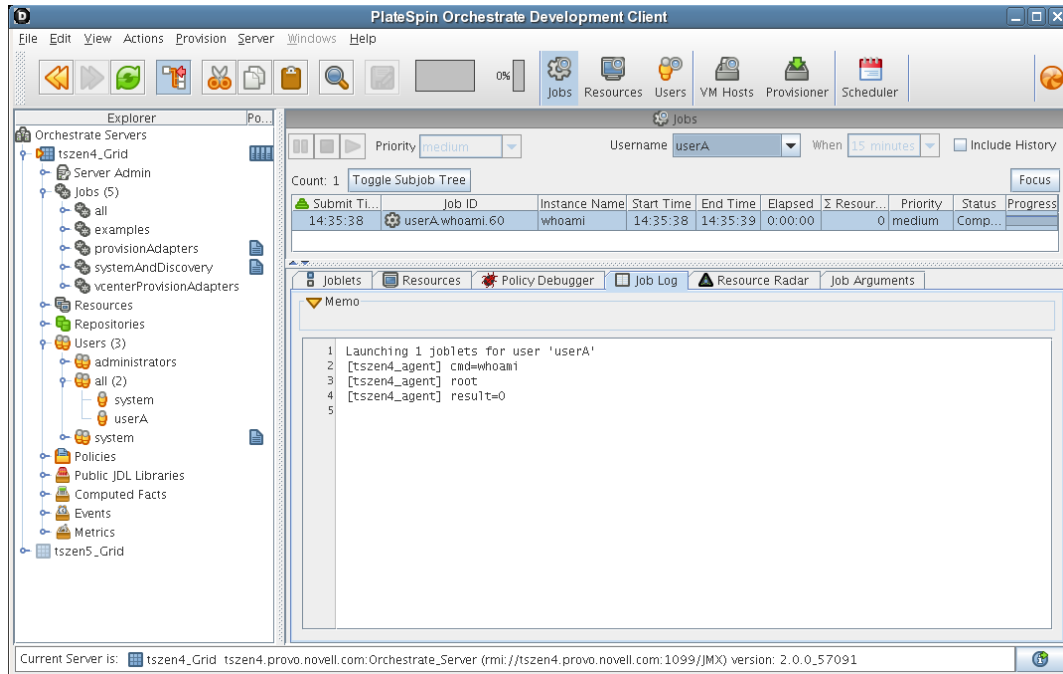
```
Agent connected with ID: user_userA_64 (comms ok), Session ID: 52
Launching 1 joblets for user 'userA'
[tszen4_agent] cmd=whoami
[tszen4_agent] root
[tszen4_agent] result=0
Agent ID: null logged out.
```

## **3.8.2 Verification at the Jobs Monitor**

If you want to use the PlateSpin Orchestrate Development Client to verify that the job has run, you can open the *Jobs* Monitor to look at the Job Log and see the result of the job being run.

- 1** In the Development Client, click *Jobs* in the main toolbar to open the Jobs Monitor view.
- 2** In the Jobs Monitor view, click the *Job Log* tab to open the Jobs page in the workspace panel.





- 3 In the *Username* drop-down list box, select the user who ran the whoami job.

Although there is much more you can learn about a job in the Jobs Monitor view, you can see by displaying a recent job that the Development Client picks up the job activity and makes it available at the Development Client.

### 3.8.3 Verification at the Server Portal

Your data center might have an individual whose main function is to regularly schedule and run jobs on data center resources. That person, the job manager or PlateSpin Orchestrate user, uses a graphical interface called the PlateSpin Orchestrate Server Portal. This section introduces the Server Portal and how you can use it to verify that a job has run.

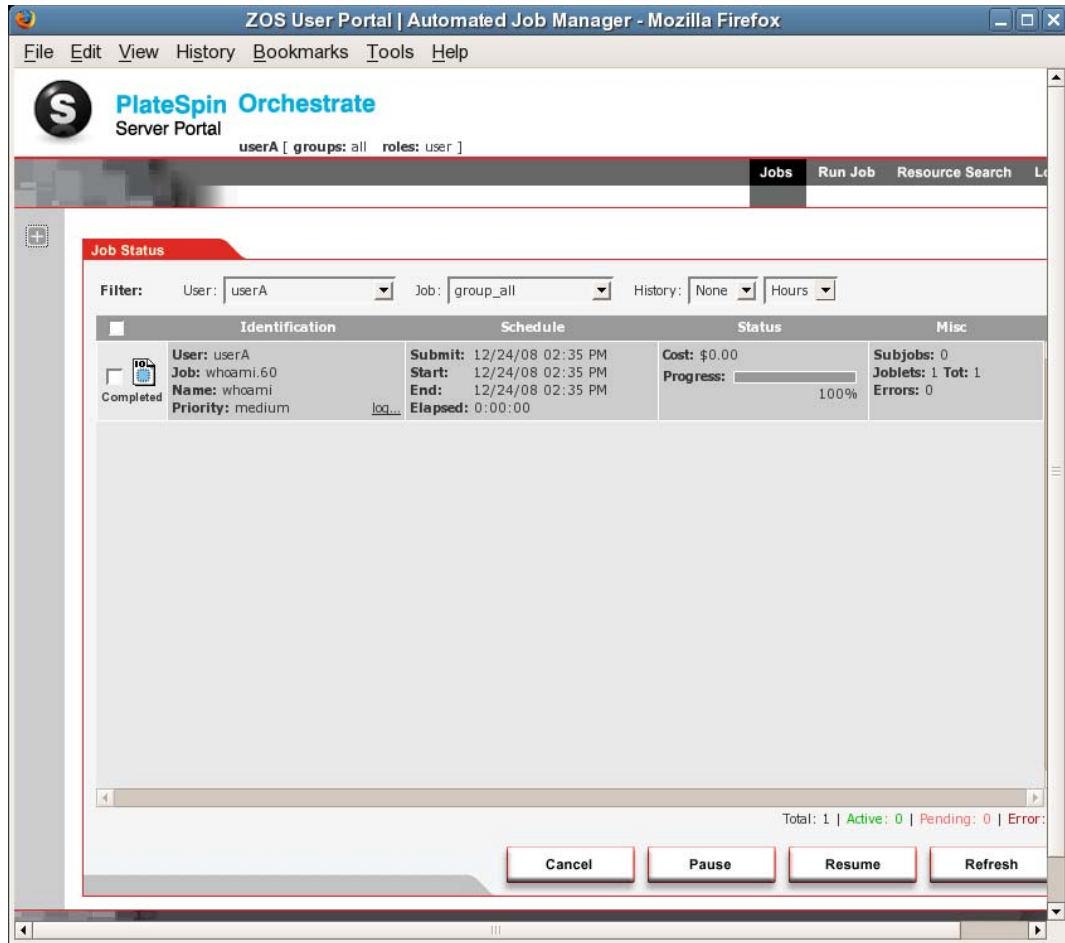
- 1 On any machine with a Web browser, enter the following URL:

*Orchestrate\_Server\_DNS\_Name\_or\_IP\_Address:designated\_User\_Portal*

For example:

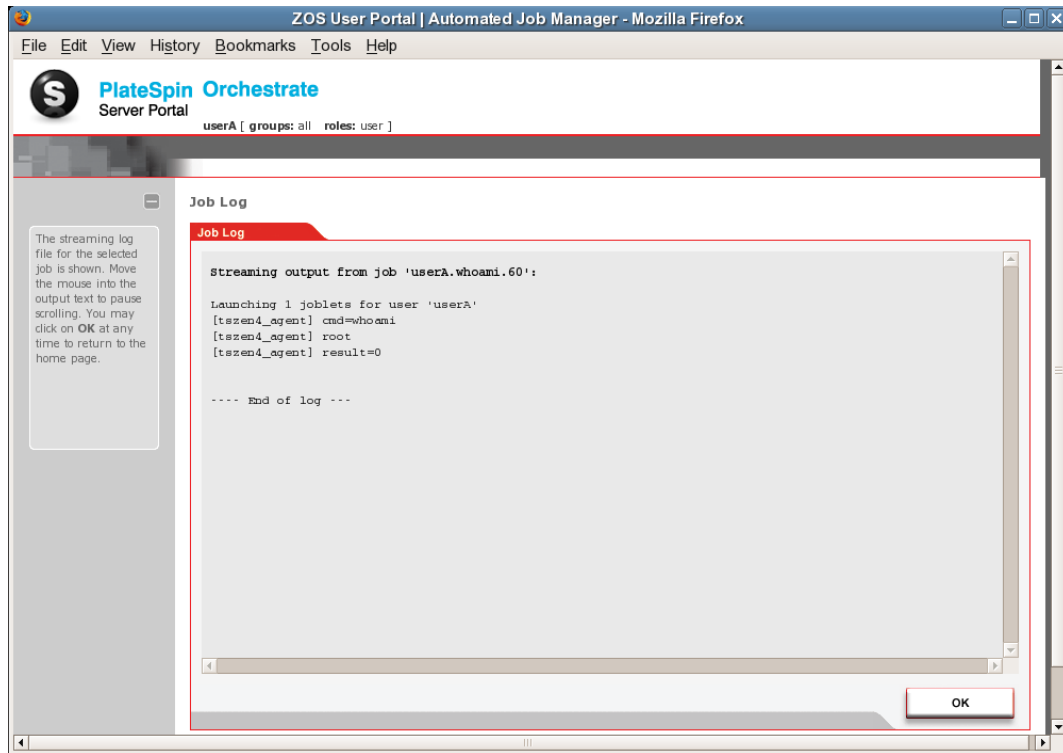
10.255.255.255:80

(The default port is 80, unless you have ZENworks Monitoring installed.) When you enter the URL, the Server Portal is displayed in the browser.



2 Verify that the job you ran is displayed in the history of the Server Portal.

- 3 Click the *log* link in the *Identification* column of the job history to open the job log.



You now have a basic understanding of the Server Portal and how to use it to verify that a job has run. As the last experiment in the walkthrough for PlateSpin Orchestrate, you can use the `zosadmin` command line to gather information about your system. For more information, see [Section 3.9, “Walkthrough: Using the `zosadmin` Command to Gather Information,”](#) on page 131.

## 3.9 Walkthrough: Using the `zosadmin` Command to Gather Information

You can use the `zosadmin` command line to learn what users or nodes are defined in your PlateSpin Orchestrate system. Follow these steps to learn about the users and nodes in your system.

- 1 Log in to the PlateSpin Orchestrate system by using the following command:

```
zosadmin login
```

You can also use the server’s host name as an argument when you log in.

If you use the `grid=` parameter, you can specify the grid name you want to log into. If other Orchestrate Servers are installed on the local host, the system cannot log in to any of them unless you use this parameter. For more information, see “[The `zosadmin` Command Line Tool](#)” in the *PlateSpin Orchestrate 2.5 Command Line Reference*.

- 2 Enter the administrator’s user name and password.

If the login was successful, the command line tool returns a message like this:

```
Logged into tszen4_grid on server 'tszen4.provo.novell.com'
```

- 3 Enter the following command to list the active users on your PlateSpin Orchestrate system:

```
zosadmin users
```

You can add the `--help` option at the command line to determine the run options for this command.

- 4 Enter the following command to list the active nodes on your PlateSpin Orchestrate system:

```
zosadmin nodes
```

You can add the `--help` option at the command line to determine the run options for this command.

With the completion of this part of the walkthrough, you have a good understanding of the parts of PlateSpin Orchestrate and how they work. If you want more information about the details of the PlateSpin Orchestrate Development Client, see the [PlateSpin Orchestrate 2.5 Administrator Reference](#). If you want to learn about the job manager's role, see the [PlateSpin Orchestrate 2.5 Server Portal Reference](#) and [PlateSpin Orchestrate 2.5 Developer Guide and Reference](#).

## 3.10 Stopping and Starting PlateSpin Orchestrate Components

Use the following methods for stopping and starting PlateSpin Orchestrate components.

- ♦ [Section 3.10.1, “Stopping and Starting the PlateSpin Orchestrate Server,” on page 132](#)
- ♦ [Section 3.10.2, “Stopping and Starting the PlateSpin Orchestrate Agent,” on page 133](#)
- ♦ [Section 3.10.3, “Starting and Stopping the PlateSpin Orchestrate Development Client,” on page 133](#)

### 3.10.1 Stopping and Starting the PlateSpin Orchestrate Server

You can use the following methods for stopping and starting the PlateSpin Orchestrate Server.

- ♦ [“Stopping the Server” on page 132](#)
- ♦ [“Starting the Server” on page 132](#)

#### Stopping the Server

You need to shut down the Orchestrate Server before you power off the computer where it is running. This routine prevents possible data corruption. You must be logged in to an Orchestrate Server in order to stop it. There are two methods to stop the current server:

- ♦ If you are in the PlateSpin Orchestrate Development Client, click *Server* > click *Shutdown ZOS*.
- ♦ If you are at the command line, enter the following command:

```
/etc/init.d/novell-zosserver stop
```

#### Starting the Server

The PlateSpin Orchestrate installation and configuration automatically starts the Orchestrate Server. The Orchestrate Server must be stopped before you can start it. You must be logged in to an Orchestrate Server to start it. There are two methods you can use to start the current server:

- ♦ If you are at the command line, enter the following command:

```
/etc/init.d/novell-zosserver start
```

- ◆ To restart the Orchestrate Server from the command line, enter the following command:

```
/etc/init.d/novell-zosserver restart
```

This command stops the server before restarting it.

### 3.10.2 Stopping and Starting the PlateSpin Orchestrate Agent

You can use the following methods for stopping and starting the PlateSpin Orchestrate Agent.

- ◆ [“Stopping the Agent” on page 133](#)
- ◆ [“Starting the Agent” on page 133](#)

#### Stopping the Agent

There are several methods you can use to stop the agent:

- ◆ If you are in the PlateSpin Orchestrate Development Client, select the *Resources Monitor*, select a resource, then click the red icon in the work area to shut down that agent.
- ◆ If you are running the agent on a Windows machine, click *Start > Programs > Novell > ZOS > Agent > Shutdown ZOS Agent*.
- ◆ If you are at the Linux bash prompt, enter the following command:

```
/etc/init.d/novell-zosagent stop
```

#### Starting the Agent

- ◆ To start the PlateSpin Orchestrate Agent from a Windows machine, double-click the *ZOS Agent* shortcut on your desktop or click *Start > Programs > Novell > ZOS > Agent > Start ZOS Agent*.
- ◆ If you are at the Linux bash prompt, enter the following command:

```
/etc/init.d/novell-zosagent start
```

### 3.10.3 Starting and Stopping the PlateSpin Orchestrate Development Client

You can use the following methods for stopping and starting the PlateSpin Orchestrate Development Client.

- ◆ [“Stopping the Orchestrate Development Client” on page 133](#)
- ◆ [“Starting the Orchestrate Development Client” on page 134](#)

#### Stopping the Orchestrate Development Client

To stop the PlateSpin Orchestrate Development Client at the Development Client itself, click *File > Exit*, or click the shutdown icon on the Development Client window.

## Starting the Orchestrate Development Client

To start the Orchestrate Development Client from a Linux machine: enter `./zoc`.

- ◆ On a SLES 10 machine, if you have installed the Orchestrate Server along with the Orchestrate Development Client, change to `/opt/novell/zenworks/zos/server/bin` and enter the following command

```
./zoc
```

- ◆ On a SLES 10 machine, if you have installed the Orchestrate Development Client alone, change to `/opt/novell/zenworks/zos/clients/bin` and enter the following command

```
./zoc
```

To start the Orchestrate Development Client on a Windows machine, double-click the *ZOS Clients* shortcut on your desktop or click *Start > Programs > Novell > ZOS > Clients > PlateSpin Orchestrate Development Client*.

# PlateSpin Orchestrate

## Components: Install Patterns



The table in this section provides information about each of the server and agent installation patterns in PlateSpin Orchestrate.

- ◆ [Section A.1, “Installation Patterns in YaST,” on page 135](#)

### A.1 Installation Patterns in YaST

The table in this section provides information about each of the server and agent installation patterns.

**Table A-1** *PlateSpin Orchestrate Install Patterns Information*

Install Pattern and {Short Name}	Default Packages Installed	Required Patterns	Additional Recommended Patterns	Server/ Agent
<b>PlateSpin Orchestrate Server patterns</b>				
Orchestrate Server [zw_zos_server]	novell-zenworks-zos-java novell-zenworks-zos-server novell-zenworks-zos-server-data-agent novell-zenworks-zos-server-data-clients novell-zenworks-zos-server-data-jre	zw_orch_config	zw_mon_server zw_zos_clients	S
Monitoring Server [zw_mon_server]	novell-zenworks-monitor-gmetad novell-zenworks-monitor-web	zw_mon_agent zw_orch_config		S
<b>PlateSpin Orchestrate Agent patterns</b>				
Orchestrate Agent [zw_zos_agent]	chntpw fuse novell-zenworks-zos-agent novell-zenworks-zos-java xen-cim-cmpi ntfs-3g python-pywbem	zw_orch_config	zw_mon_agent	A
Development Client [zw_zos_clients]	novell-zenworks-zos-clients novell-zenworks-zos-java			S or A

<b>Install Pattern and {Short Name}</b>	<b>Default Packages Installed</b>	<b>Required Patterns</b>	<b>Additional Recommended Patterns</b>	<b>Server/ Agent</b>
Monitoring Agent [zw_mon_agent]	novell-zenworks-monitor-gmond	zw_orch_config		A
PlateSpin Orchestrate Config (not listed; included in all patterns except Client [zw_orch_config])	novell-zenworks-orch-config novell-zenworks-orch-config-gui			S or A



# Installing the Orchestrate Monitoring Agent On Windows Machines

Installing the PlateSpin Orchestrate Agent on a Microsoft Windows Server 2003 or Windows Server 2008 (see [Section 2.4.4, “Installing the PlateSpin Orchestrate Agent on Other Supported Operating Systems,”](#) on page 70) does not automatically install the Orchestrate Monitoring Agent.

A separate installation package is available for installing the Monitoring Agent on Windows platforms where you have installed the Orchestrate Agent.

For information about one useful function of the Orchestrate Monitoring Agent, see [Section 1.1.7, “PlateSpin Orchestrate Monitoring Agent,”](#) on page 15.

This section includes the following information:

- ♦ [Section B.1, “Installing the Monitoring Agent,”](#) on page 137
- ♦ [Section B.2, “Configuring the Monitoring Agent,”](#) on page 138

## B.1 Installing the Monitoring Agent

- ♦ [Section B.1.1, “Hardware and Software Requirements,”](#) on page 137
- ♦ [Section B.1.2, “Installing the Monitoring Agent,”](#) on page 137
- ♦ [Section B.1.3, “Starting and Stopping the Monitoring Agent,”](#) on page 138
- ♦ [Section B.1.4, “Uninstalling the Monitoring Agent,”](#) on page 138

### B.1.1 Hardware and Software Requirements

The PlateSpin Orchestrate Monitoring Agent (gmond) can be installed only on Windows Server 2003 or Windows Server 2008 machines where the Orchestrate Agent is also installed. Only a 32-bit version of gmond is provided, but it will run normally on 64-bit systems. It requires the same minimum hardware configuration as the Orchestrate Agent. Port 8649 must be available for gmond to communicate with the agent.

### B.1.2 Installing the Monitoring Agent

To install the Orchestrate Monitoring Agent as a service on a local Windows Server 2003 or Windows Server 2008 machine:

- 1 Download the pertinent Add-On ISO from the product DVD.
- 2 Create a CD from the ISO or use ISO Buster (or a similar tool) to mount the ISO.
- 3 Browse to the `windows/` folder to search for the Orchestrate Monitoring Agent.
- 4 Double-click the Monitoring Agent icon (`gmondsetup.exe`) and follow the wizard through the setup.

---

**NOTE:** You must be logged on as Administrator to run the installation program.

---

- 4a** (Conditional) If you are installing on Windows Server 2008, click *Accept* on the User Account Control dialog box to allow the installation to proceed as system administrator.
- 4b** On the Welcome page, click *Next*.
- 4c** On the Ganglia open source license page, select *Accept*.
- 4d** On the Select Destination Location page, choose a location where you want to install the gmond service.  
We recommend that you use the default location (the 32-bit `C:\Program Files\Gmond` folder).
- 4e** Select the components that you want to install, then click *Next*.
- 4f** (Optional) If you want the monitoring agent to communicate with an Orchestrate Monitoring server, enter the name and port number of the server in the appropriate fields, then click *Next*.
- 4g** (Optional) If you do not want the monitoring agent to communicate with an Orchestrate Monitoring server, make sure that you do not enter any information in the *Monitoring Server Name* field, then click *Next*.
- 4h** On the Ready to Install page, review the components to be installed, then click *Install*.
- 4i** On the Completing the gmond Setup Wizard page, click *Finish*.

### B.1.3 Starting and Stopping the Monitoring Agent

If you are logged on as the Windows administrator, you can start and stop the gmond service using the Windows Services Control Panel.

- 1** From the desktop, click *My Computer*, select *Manage*, expand *Services and Applications*, expand *Services*, then right click the gmond service object and choose the Start or Stop option as needed.

### B.1.4 Uninstalling the Monitoring Agent

You can uninstall gmond using the Add/Remove Programs utility in the Windows Control Panel. Uninstalling gmond automatically shuts down the gmond service prior to uninstalling.

## B.2 Configuring the Monitoring Agent

This version of the Monitoring Agent uses the open source gmond 3.1.7 code. It is preconfigured to run only on a Windows local machine. It does not support multicasting. The installation includes a preconfigured `gmond.conf` that will work strictly on the local host. You can manually edit `gmond.conf` for a different configuration, but your changes are not supported by Novell.

If you choose to customize an unsupported configuration for your needs, you can test the configuration by stopping the gmond service and then restarting gmond from the Windows command line prompt. Use the `-d` (debug) and `-f` (foreground) options to capture any error messages generated by the new configuration.

# Integrating PlateSpin Orchestrate with a Sentinel Collector



This section provides details about integrating the Novell Sentinel collector for PlateSpin Orchestrate with your PlateSpin Orchestrate and Sentinel installations to make PlateSpin Orchestrate logging easier to view and interpret.

This integration is not required for PlateSpin Orchestrate to function. Logging with Novell Sentinel is entirely independent of the audit database feature. For more information about installing the audit database feature, see [Section 2.3.5, “Installing and Configuring the Orchestrate Server for Use with a PostgreSQL Audit Database on a Different Host,”](#) on page 37.

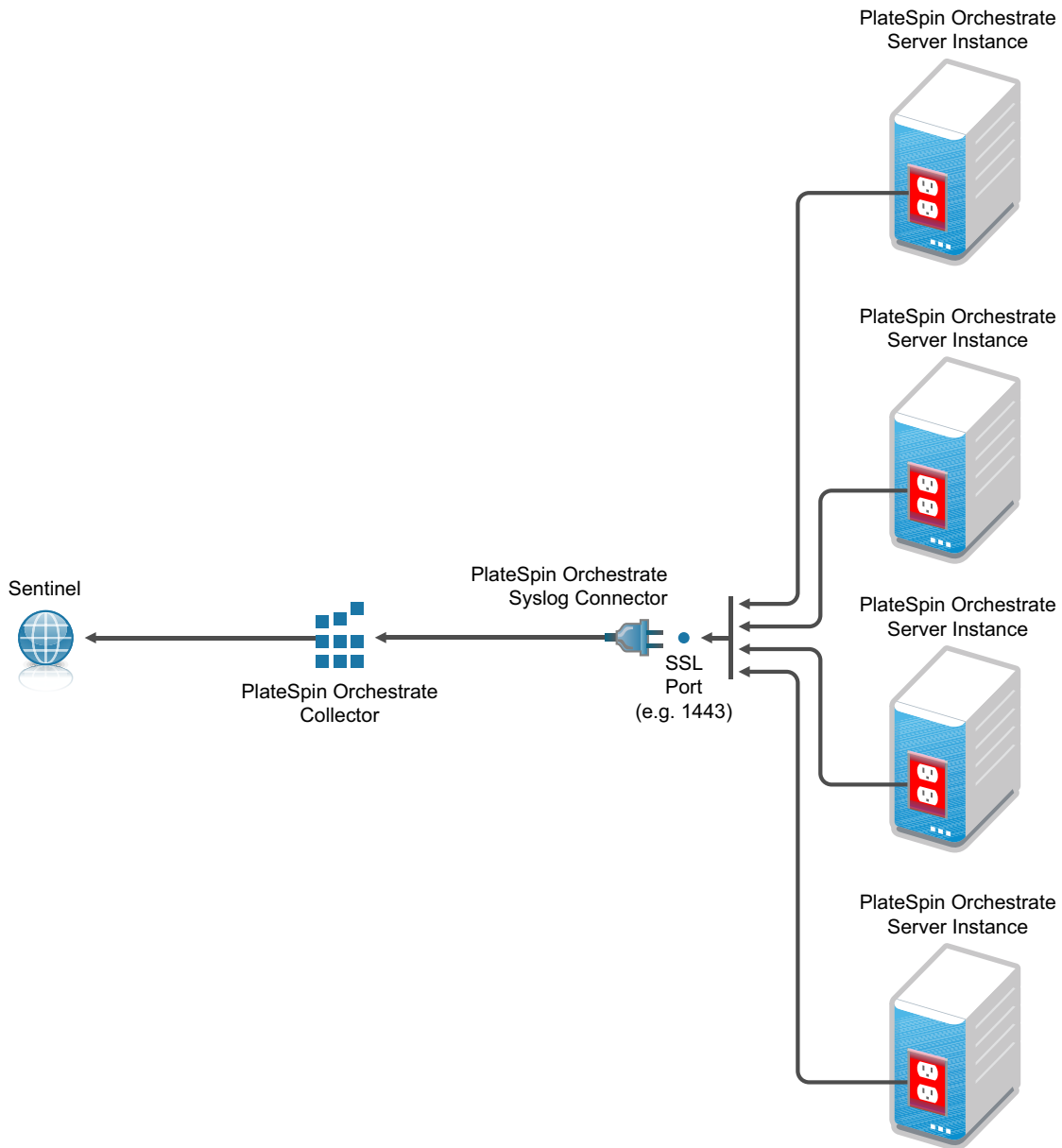
- ♦ [Section C.1, “Integration Architecture,”](#) on page 139
- ♦ [Section C.2, “System Requirements,”](#) on page 140
- ♦ [Section C.3, “Importing and Deploying the PlateSpin Orchestrate Sentinel Collector Plug-in,”](#) on page 141
- ♦ [Section C.4, “Connecting the PlateSpin Orchestrate Server to the Sentinel Collector Plug-in,”](#) on page 146
- ♦ [Section C.5, “Verifying the Sentinel Configuration After Connecting to PlateSpin Orchestrate,”](#) on page 146
- ♦ [Section C.6, “PlateSpin Orchestrate Server Data Displayed in the Event Fields of the Sentinel Event Source Server,”](#) on page 147
- ♦ [Section C.7, “PlateSpin Orchestrate Log Levels Mapped to Sentinel Log Levels,”](#) on page 149
- ♦ [Section C.8, “Event Classification and Taxonomy Keys,”](#) on page 150

## C.1 Integration Architecture

Novell Sentinel is a security information and event management solution that receives information from many sources throughout an enterprise, then standardizes the information, prioritizes it, and then presents it to you so that you can make threat, risk, and policy-related decisions. The Sentinel Control Center (SCC) is the main user interface for viewing and interpreting this data. For overall information about Novell Sentinel, see the [Novell Sentinel 6.1 product documentation Web site \(http://www.novell.com/documentation/sentinel61/index.html\)](http://www.novell.com/documentation/sentinel61/index.html).

PlateSpin Orchestrate can be configured to send log events to Sentinel over a single SSL connection (typically port 1443). The events are sent in RFC5424 (syslog) format, and are received by the Sentinel Event Source Server, which, for each event, parses the syslog header, and then hands the event over to the PlateSpin Orchestrate Collector plug-in for Sentinel. The Sentinel collector parses the encapsulated PlateSpin Orchestrate log event and then performs normalization tasks before finally submitting it to the Sentinel event processing engine. These normalization tasks include mapping PlateSpin Orchestrate log levels to Sentinel numerical event severities and extracting event metadata.

**Figure C-1** Simplified Architecture for PlateSpin Orchestrate Collector Integration



---

**NOTE:** Multiple PlateSpin Orchestrate Server instances can send syslog messages to a single Syslog Connector.

---

## C.2 System Requirements

Integrating Sentinel and PlateSpin Orchestrate requires the following:

- ◆ PlateSpin Orchestrate Server 2.5 installed and running on a SLES 10 SP3 or SLES 11 SP1 server.

- ♦ A database (MS-SQL or Oracle 10gR2 (<http://www.novell.com/products/sentinel/techspecs.html>)) installed as recommended in the *Database Installation* ([http://www.novell.com/documentation/sentinel61/s61\\_install/data/bgmrzy2.html](http://www.novell.com/documentation/sentinel61/s61_install/data/bgmrzy2.html)) section of the *Novell Sentinel 6.1 Installation Guide*.
- ♦ Sentinel 6.1.1.1 (and higher) installed and running.

---

**NOTE:** Sentinel 6.1x must be separately purchased from Novell.

---

Sentinel can be installed on the same server with PlateSpin Orchestrate, assuming that the server has sufficient RAM, processing power, and the disk space to accommodate running the two products side-by-side; otherwise they should be run on separate servers that communicate using TCP/IP.

For more information about the server requirements for PlateSpin Orchestrate, see [Section 1.1, “PlateSpin Orchestrate Requirements,”](#) on page 9.

For more information about the server requirements for Sentinel, see *System Requirements* ([http://www.novell.com/documentation/sentinel61/s61\\_install/data/bgmq7g2.html](http://www.novell.com/documentation/sentinel61/s61_install/data/bgmq7g2.html)) in the *Novell Sentinel 6.1 Installation Guide*.

- ♦ The appropriate Sentinel Syslog Connector, [available for download \(http://support.novell.com/products/sentinel/secure/sentinelplugins.html\)](http://support.novell.com/products/sentinel/secure/sentinelplugins.html) from Novell Support.
- ♦ The appropriate PlateSpin Orchestrate/Sentinel Collector Plug-in, available for download on the [Sentinel Collectors download page \(http://support.novell.com/products/sentinel/secure/sentinelplugins.html\)](http://support.novell.com/products/sentinel/secure/sentinelplugins.html).

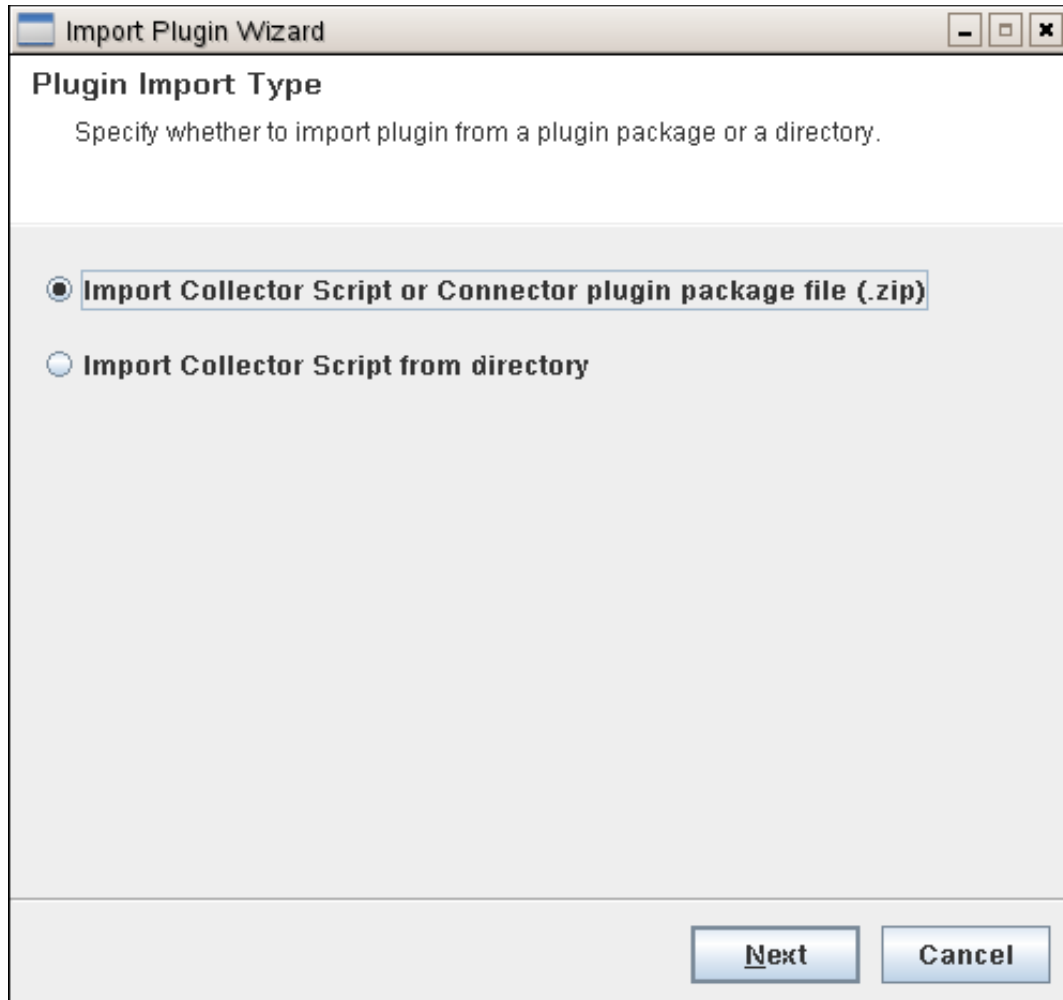
---

**NOTE:** Collector-specific information is available in .pdf format with the download above. Users should consult with Novell Support to determine the appropriate connector and collector for use with PlateSpin Orchestrate.

---

## C.3 Importing and Deploying the PlateSpin Orchestrate Sentinel Collector Plug-in

- 1 From the running Sentinel Control Center, click *Event Source Management > Live View* to display the Event Source Management (Live View) window.
- 2 From the Event Source Management (Live View) window, click *Tools > Import plug-in...* to display the Import Plugin Wizard.



- 3 From the Import Plug-in Wizard, select *Import Collector Script or Connector plugin package file (.zip)*, then click *Next* to open a file browser.

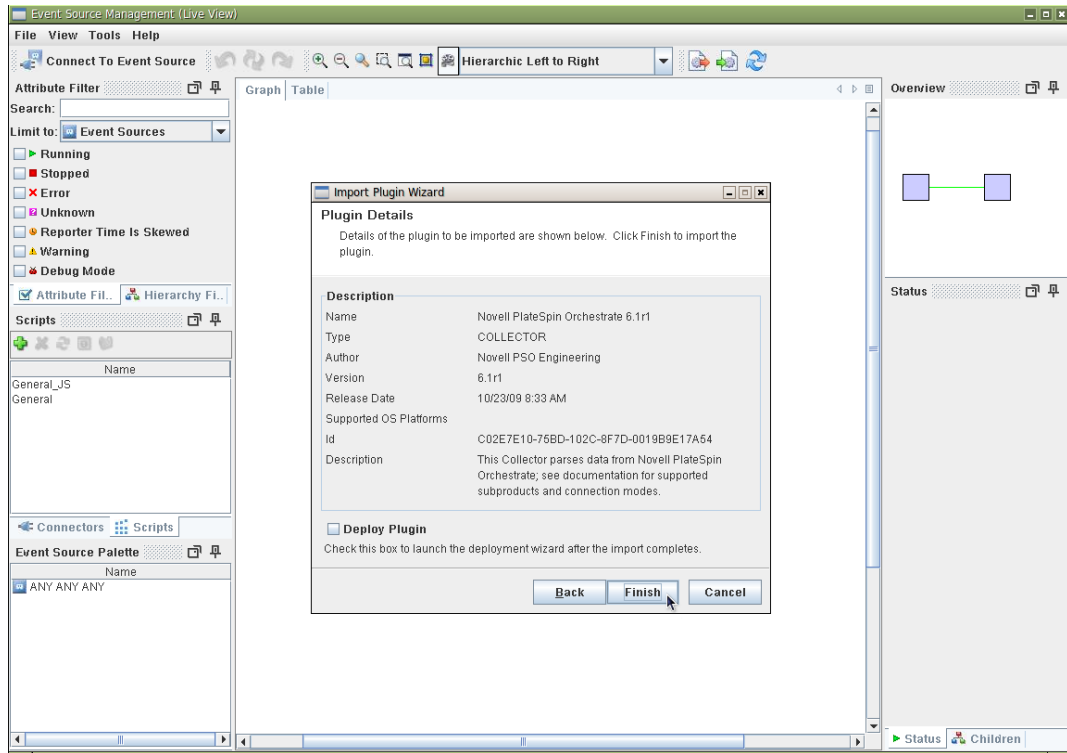
---

**IMPORTANT:** When you try to import the syslog connector, you might see a message like this:

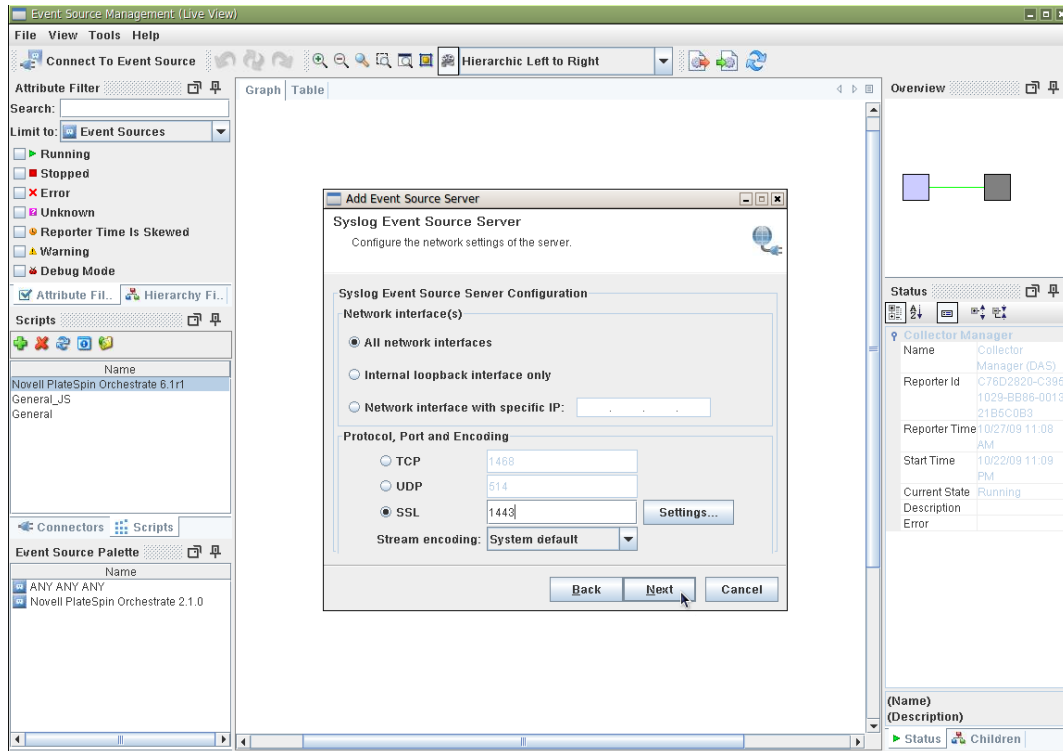
No universal SYSLOG collector found. Resolve this problem by importing either the Novell Generic Collector or another Syslog collector that is designated as a universal Syslog collector.

You can safely ignore this message. If you need more information, see the *Syslog Connector Installation Guide*.

- 4 From the file browser, locate and select the PlateSpin Orchestrate Collector .zip file, PlateSpin\_Orchestrate\_6.1r.clz.zip (or similar), click *OK* to display the Plugin Details page.



- 5 On the Plugin details page, click *Finish* to display the Graph page of the Event Source Management Live View.
- 6 On the Graph page, right-click the Collector Manager icon, then click *Add Event Source Server* to display the *Select Connector Plugin* page of the Add Event Source Server wizard.
- 7 From the Select Connector Plugin page, make sure that the Syslog connector is selected in the Installed Connectors table, then click *Next* to display *Syslog Event Source Server* page of the wizard.



- 8 On the *Syslog Event Source Server* page of the tool, Select *SSL*, enter 1443 as the default port number, then click *Next* to display the *Message Handling* page of the wizard.

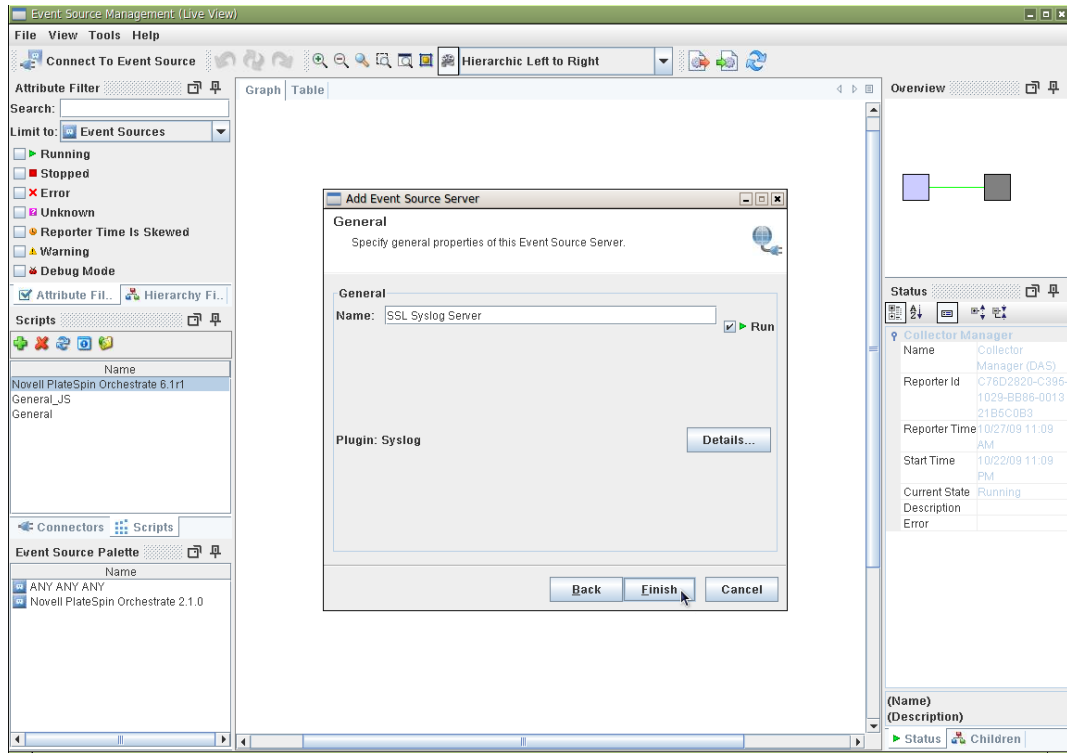
---

**NOTE:** Port 1443 is used in this example to eliminate conflict with other Novell products.

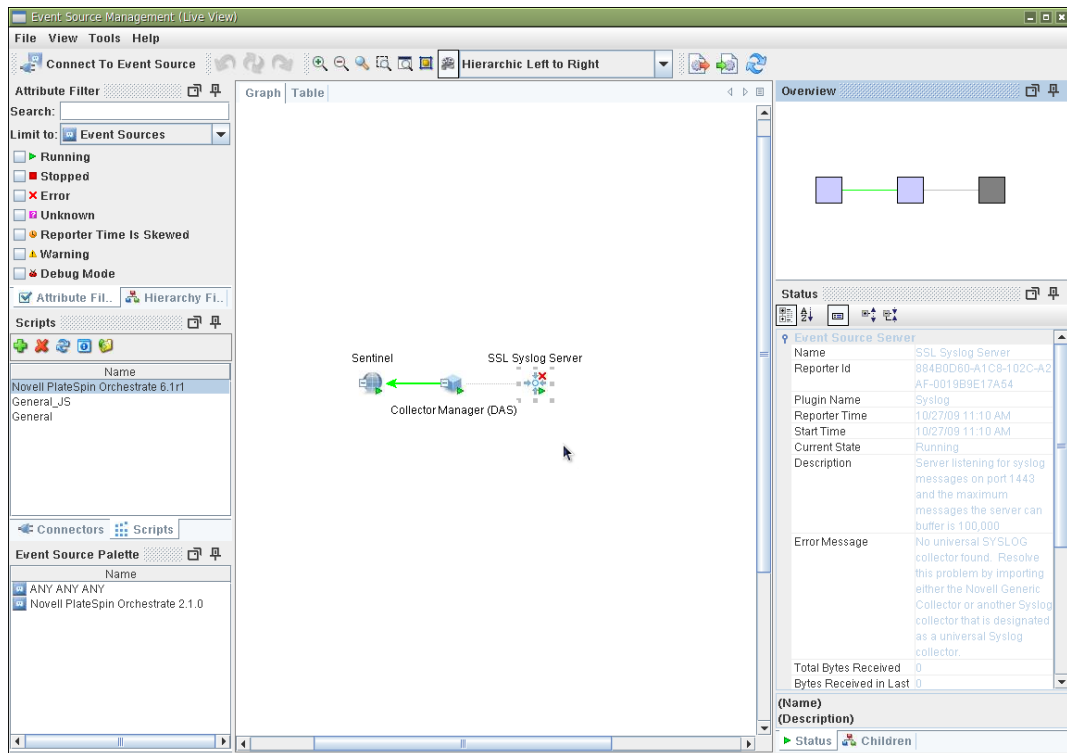
It is not required that you use 1443 in this field, but any port number that you configure here must match the port number you assign for Sentinel integration in the PlateSpin Development Client. For more information, see “[The Sentinel Server Configuration Panel](#)” in the *PlateSpin Orchestrate 2.5 Development Client Reference*.

- 9 Click *Next* on the *Message Handling* page and succeeding pages of the wizard until you reach the *General* page.





- On the *General* page of the wizard, make sure that the *Run* check box is selected, then click *Finish* to display the revised Graph page of the Event Source Management Live View.



---

**NOTE:** In this graph page, the Event Source Server icon displays a superimposed red cross. The view also displays a warning (No universal SYSLOG connector found...) is visible in the right hand pane. You can safely disregard these warnings.

---

## C.4 Connecting the PlateSpin Orchestrate Server to the Sentinel Collector Plug-in

After you deploy the PlateSpin Orchestrate Sentinel Collector Plug-in, use the following steps to configure the connection between the plug-in and the PlateSpin Orchestrate Server.

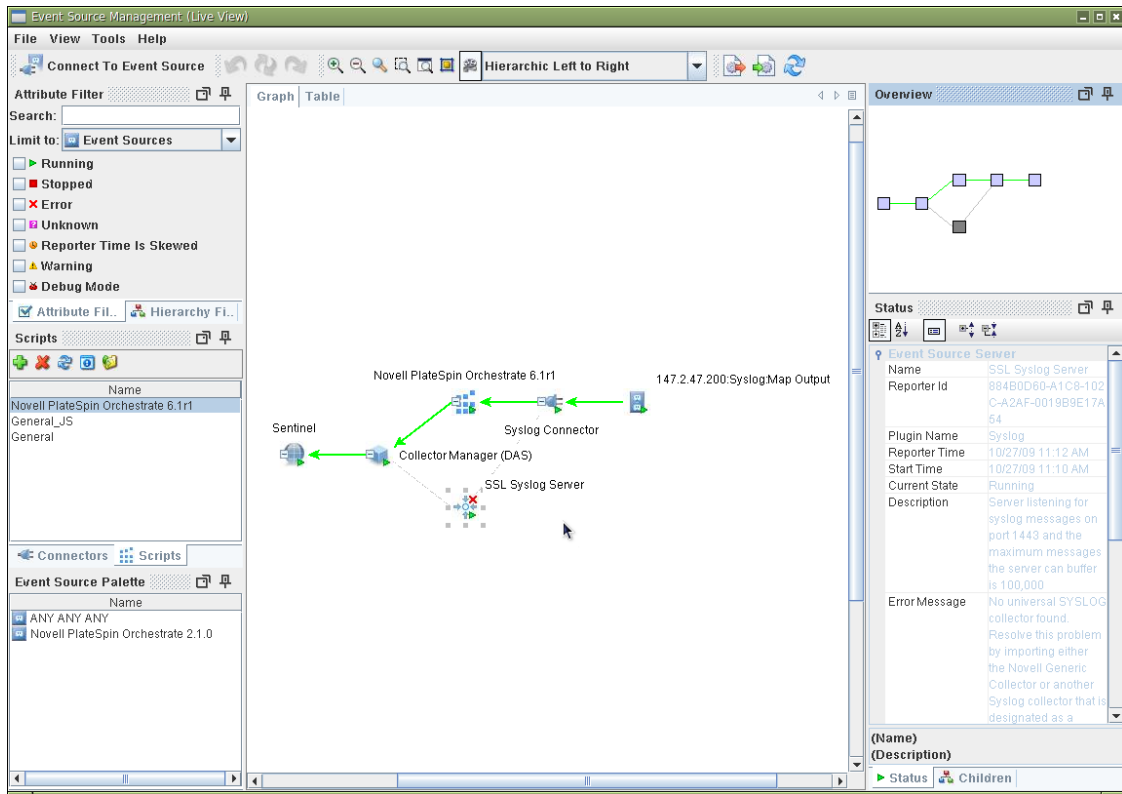
- 1** From a running PlateSpin Orchestrate Development Client, select the Grid Server object that you want to connect to the Sentinel Collector Plug-in, then log in to that grid.
- 2** In Admin View of the object, select *Info/Configuration*, then scroll to the *Sentinel Server Configuration* panel in this view to configure the collector.
  - 2a** In the *Server Hostname* and *Server Port Number* fields, ensure that the server hostname points to the host running the Sentinel Event Source Server and that the port value is listed as 1443, then click *Connect*.
  - 2b** Verify that the *Is Connected* check box is selected.

For more information about these fields in the PlateSpin Orchestrate Server Admin View of Development Client, see “[The Sentinel Server Configuration Panel](#)” in the *PlateSpin Orchestrate 2.5 Development Client Reference*.

## C.5 Verifying the Sentinel Configuration After Connecting to PlateSpin Orchestrate

The first time that the PlateSpin Orchestrate Server connects to Sentinel through the SSL port, Sentinel automatically creates and configures its connector, collector, and Event Source Server. You can verify this on the Graph page of the Event Source Management Live View.

**Figure C-2** Event Source Server Diagram Showing the PlateSpin Orchestrate Server and Sentinel Server Connections



## C.6 PlateSpin Orchestrate Server Data Displayed in the Event Fields of the Sentinel Event Source Server

For each logging event, the PlateSpin Orchestrate Server passes a free form text log message and log event metadata to the Sentinel Event Source Server. The following table shows how the data are mapped:

**Table C-1** PlateSpin Orchestrate Logged Data Mapped to Sentinel Event Source Server Fields

Sentinel Event Field Name	PlateSpin Orchestrate Data Represented
Message	A free-form text log message.
TargetServiceName	The PlateSpin Orchestrate grid name.
ReporterIP	The IP address of the PlateSpin Orchestrate Server.
TargetServiceComp	The originating facility of the PlateSpin Orchestrate event.
EventName	A name formatted as gridname: taxonomy_key. For more information, see <a href="#">Section C.8, "Event Classification and Taxonomy Keys,"</a> on page 150.
ProductName	The product is always PlateSpin Orchestrate for convenient event filtering.

---

**Sentinel Event Field Name    PlateSpin Orchestrate Data Represented**

---

*InitUserName*                      The name of the PlateSpin Orchestrate user. Used for user-oriented events.  
*InitUserID*

---

For some events, the PlateSpin Orchestrate Sentinel Collector passes some structured data related to the log event. When available, this data appears in the *ExtendedInformation* Sentinel Event field, which is a list of key/value pairs delimited by semicolons. Some keys are always present in *ExtendedInformation*, but others appear only when relevant. The following table lists these keys:

**Table C-2** *PlateSpin Orchestrate Key/Value Pairs Displayed in the ExtendedInformation Field of the Sentinel Event Source Server*

---

<b>Key</b>	<b>Displayed</b>	<b>Value</b>
loglevel	always	The original PlateSpin Orchestrate log level, for example, NOTICE, or INFO.
eventclass	always	A symbolic identifier for this class of event, e.g. admin_login, policy_association. This also serves as the taxonomy key. Value is unclassified if the event does not contain any additional structured data.
group	when relevant	The Grid object group related to this log event.
job	when relevant	The job related to this log event.
jobinstance	when relevant	The job instance ID related to this log event.
member	when relevant	The Grid object group member related to this log event.
policy	when relevant	The policy related to this log event.
repository	when relevant	The repository related to this log event.
resource	when relevant	The resource related to this log event.
schedule	when relevant	The schedule related to this log event.
trigger	when relevant	The trigger related to this log event.
type	when relevant	The Grid object type related to this log event.
user	when relevant	The name of the user related to this log event. This key also appears in the <i>InitUserName</i> and <i>InitUserID</i> fields.
vbridge	when relevant	The Vbridge related to this log event.
vdisk	when relevant	The Vdisk related to this log event.
vm	when relevant	The VM related to this log event.
vmhost	when relevant	The VM host server related to this log event.
vnic	when relevant	The VNIC related to this log event.
target	when relevant	The name of the Grid object related to this log event.
action	when relevant	The action related to this log event.

---

## C.7 PlateSpin Orchestrate Log Levels Mapped to Sentinel Log Levels

The information in the following table shows the correlation between PlateSpin Orchestrate logging levels and those you are likely to see in Novell Sentinel.

**Table C-3** *PlateSpin Orchestrate Log Levels Mapped to Sentinel Log Levels*

PlateSpin Orchestrate Log Level (alpha)	Sentinel Collector Log Level (numeric)	Comments	Usage Examples
EMERGENCY	5	Standard level for urgent condition that requires immediate attention and indicates that the system is no longer functioning.	
ALERT	5	A condition that should be corrected immediately	
CRITICAL	5	Critical conditions.	
ERROR	4	Errors that have been correctly handled.	Unsuccessful job runs and provisioner/VM actions that have been correctly handled but may require manual attention.
WARNING	3	Warning messages.	Unexpected but recoverable events indicating degraded operational status, for example, grid objects becoming unhealthy.
NOTICE	2	Conditions that are not error conditions, but should possibly be handled specially.	Events expected occasionally as part of usual business operations, for example, password changes, failed authentications and authorizations, grid objects returning to good health, server shutdown.
STATUS	1	Conditions that report on changes in operational conditions.	Events expected frequently as part of usual business operations, for example, successful authentications (logins and logouts), deletion of grid objects, change in group membership, (un)deployment of jobs/policies/schedules/triggers, policy (de-)association.
INFO	1	Informational messages.	Non-security-sensitive events expected very frequently as part of usual business operations, for example, successful job runs and provisioner/VM actions, resources going online/offline, session expiration/timeout.

## C.8 Event Classification and Taxonomy Keys

The value of the `eventclass` key in Sentinel's *ExtendedInformation* event field specifies a class of events where this particular event belongs. This mechanism lets classification of multiple events into a single event class, even when their message bodies and/or other `ExtendedInformation` key/value pairs differ. For example, any event detailing the logout of a user from a PlateSpin Orchestrate administrator account is classified with the event class `admin_logout`. This event class also serves as the taxonomy key for use by Sentinel.

Many log events currently generated are currently unclassified, so their event class are unclassified. We anticipate the number of unclassified log events to decrease incrementally over subsequent PlateSpin Orchestrate releases.

All non-failure events are logged on success rather than on action initiation. For example, an event with the event class `job_deployed` would only be seen after the job had been successfully deployed, not when the deployment attempt was initiated.

**Table C-4** *eventclass* Taxonomy Keys

Value of <code>eventclass</code> Taxonomy Key	Events in This Classification	Other Keys Typically Used with This Class of Events
<code>unclassified</code>	Any event not yet assigned an event class.	
<code>sentinel</code>	Events relating to integration of PlateSpin Orchestrate with Sentinel.	
<code>authorization_failure</code>	Any kind of authorization failure.	<code>action</code>
<code>authentication_failure</code>	Any kind of authentication failure.	<code>action</code>
<code>admin_login</code>	Login to a PlateSpin Orchestrate administrator account (for example, through <code>zosadmin</code> or through the PlateSpin Orchestrate Development Client).	<code>user</code>
<code>admin_logout</code>	Logout from a PlateSpin Orchestrate administrator account (for example, through <code>zosadmin</code> or through the PlateSpin Orchestrate Development Client).	<code>user</code>
<code>user_login</code>	Logout from a grid user account.	<code>user</code>
<code>user_logout</code>	Login of a resource to the grid.	<code>user</code>
<code>user_password_change</code>	Password change for grid user account.	<code>user</code>
<code>resource_login</code>	Logout of a resource from the grid.	<code>resource</code>
<code>resource_logout</code>	Logout of a resource from the grid.	<code>resource</code>
<code>repository_created</code>	New repository created.	<code>repository</code>
<code>repository_deleted</code>	Repository deleted.	<code>repository</code>
<code>resource_created</code>	New resource created.	<code>resource</code> , <code>type</code>
<code>resource_deleted</code>	Resource deleted.	<code>resource</code>

<b>Value of eventclass Taxonomy Key</b>	<b>Events in This Classification</b>	<b>Other Keys Typically Used with This Class of Events</b>
user_created	New user created.	user
user_deleted	User deleted.	user
session_not_found	User or agent session not found.	session
vbridge_created	New vBridge created.	vbridge, vmhost
vbridge_deleted	vBridge deleted.	vbridge
vdisk_created	New vDisk created.	vdisk, vm
vdisk_deleted	vDisk deleted.	vbridge
vmnic_created	New vNIC created.	vmnic, vm
vmnic_deleted	vNIC deleted.	vmnic
group_created	New group created.	group, type
group_deleted	Group deleted.	group, type
group_member_added	New member added to Grid object group.	group, member, type
group_member_removed	Member removed from Grid object group.	group, member, type
job_deployed	New job deployed to the grid.	job
job_undeployed	Job undeployed from the grid.	job
schedule_deployed	New schedule deployed to the grid.	schedule
schedule_undeployed	Schedule undeployed from the grid.	schedule
trigger_deployed	New trigger deployed to the grid.	trigger
trigger_undeployed	Trigger undeployed from the grid.	trigger
policy_association	Association of a PlateSpin Orchestrate policy with a Grid object.	policy, target
policy_disassociation	Disassociation of a PlateSpin Orchestrate policy with a Grid object.	policy, target
policy_created	Policy added to grid.	policy
policy_removed	Policy removed from grid.	policy
job_started	Job (instance) started.	jobinstance
job_finished	Job (instance) finished.	jobinstance, outcome (completed, cancelled, or failed), reason (when cancelled)
vm_applyconfig	VM apply config action initiated.	vm, user

<b>Value of eventclass Taxonomy Key</b>	<b>Events in This Classification</b>	<b>Other Keys Typically Used with This Class of Events</b>
vm_build	VM build action initiated.	vm, user
vm_check_status	VM check status action initiated.	vm, user
vm_checkpoint	VM checkpoint action initiated.	vm, user, checkpoint
vm_clone	VM clone action initiated.	vm, user
vm_create_template	VM create_template action initiated.	vm, user
vm_delete	VM delete action initiated.	vm, user
vm_destroy	VM destroy action initiated.	vm, user
vm_install_agent	VM install agent action initiated.	vm, user
vm_make_standalone	VM make standalone action initiated.	vm, user
vm_migrate	VM migrate action initiated.	vm, user
vm_move	VM move action initiated.	vm, user
vm_pause	VM pause action initiated.	vm, user
vm_personalize	VM personalize action initiated.	vm, user
vm_provision	VM provision action initiated.	vm, user
vm_restart	VM restart action initiated.	vm, user
vm_restore	VM restore action initiated.	vm, user, checkpoint
vm_resume	VM resume action initiated.	vm, user
vm_saveconfig	VM save config action initiated	vm, user
vm_shutdown	VM shutdown action initiated.	vm, user
vm_suspend	VM suspend action initiated.	vm, user
resource_healthy	The Resource became healthy.	resource
resource_unhealthy	The Resource became unhealthy.	resource
repository_healthy	The Repository became healthy.	repository
repository_unhealthy	The Repository became unhealthy.	repository
vbridge_healthy	The vBridge became healthy.	vbridge
vbridge_unhealthy	The vBridge became unhealthy.	vbridge
vnic_healthy	The vNIC became healthy.	vnic
vnic_unhealthy	The vNIC became unhealthy.	vnic
vdisk_healthy	The vDisk became healthy.	vdisk
vdisk_unhealthy	The vDisk became unhealthy.	vdisk



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<b>Value of eventclass Taxonomy Key</b>	<b>Events in This Classification</b>	<b>Other Keys Typically Used with This Class of Events</b>
vmhost_healthy	The VM host became healthy.	vmhost
vmhost_unhealthy	The VM host became unhealthy.	vmhost

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# Uninstalling the Orchestrate Server

# D

There is no supported wizard or self-contained uninstall tool to remove PlateSpin Orchestrate Server from your Linux machines. However, if you no longer want to use the server on a given machine, you can use a Linux package management tool to perform the uninstall. There is a variety of tools you can use to perform the uninstall:

- ◆ Use the `rug` command line tool on SLES 10 machines to remove the server packages.  

```
rug remove -t pattern <pattern_name>
```
- ◆ Use the `zypper` command line tool to remove the server packages on SLES 11 machines.  

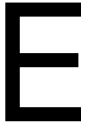
```
zypper remove <RPM_Package>
```
- ◆ Use the YaST setup and configuration tool on either SLES 10 or SLES 11 machines to select and remove the software packages.
- ◆ Use the `rpm -qa` command to look for installed RPMs and the `rpm -e` command to manually remove one or more of them.

To remove the patterns:

- 1** Shut down all Orchestrate components running anywhere on the grid, including the Orchestrate Agent, the Orchestrate Server, the Orchestrate Monitoring Server, and the Orchestrate Monitoring Agent.
- 2** Use a package management tool to uninstall the Orchestrate RPMs:
  - ◆ `novell-zenworks-monitor-gmond`
  - ◆ `novell-zenworks-zos-agent`
  - ◆ `novell-zenworks-zos-server-data-clients`
  - ◆ `novell-zenworks-monitor-web`
  - ◆ `novell-zenworks-zos-server-data-jre`
  - ◆ `novell-zenworks-orch-config-gui`
  - ◆ `novell-zenworks-monitor-gmetad`
  - ◆ `novell-zenworks-orch-config`
  - ◆ `novell-zenworks-zos-clients`
  - ◆ `novell-zenworks-zos-server-data-agent`
  - ◆ `novell-zenworks-vmwarehouse-base`
  - ◆ `novell-zenworks-zos-java`
  - ◆ `novell-zenworks-zos-server`
  - ◆ `novell-pso-ws`
- 3** Verify deletion of all of the following directories used by the Orchestrate Server:
  - ◆ `/opt/novell/zenworks/server`
  - ◆ `/var/opt/novell/zenworks/server`

- ♦ /etc/opt/novell/zenworks/monitor
- ♦ /opt/novell/zenworks/agent
- ♦ /var/opt/novell/zenworks/agent
- ♦ /root/.novell/zos
- ♦ /root/.novell/zoc
- ♦ /etc/apache2/conf.d/zos.conf
- ♦ /etc/apache2/conf.d/ganglia-auth.conf
- ♦ /opt/novell/pso-ws
- ♦ /etc/opt/novell/pso-ws
- ♦ /var/opt/novell/pso-ws

# Documentation Updates



This section contains information about documentation content changes that were made in this *PlateSpin Orchestrate Installation and Configuration Guide* after the initial release of PlateSpin Orchestrate 2.5. The changes are listed according to the date they were published.

The documentation for this product is provided on the Web in two formats: HTML and PDF. The HTML and PDF documentation are both kept up-to-date with the changes listed in this section.

If you need to know whether a copy of the PDF documentation that you are using is the most recent, the PDF document includes a publication date on the title page.

The documentation was updated on the following dates:

- ◆ [Section E.1, “February 3, 2011,” on page 157](#)
- ◆ [Section E.2, “January 25, 2011,” on page 157](#)

## E.1 February 3, 2011

Updates were made to the following sections:

Location	Update Description
<a href="#">System Requirements</a> in <a href="#">Appendix C, “Integrating PlateSpin Orchestrate with a Sentinel Collector,” on page 139.</a>	Updated the URL for downloading Sentinel Collector and Sentinel Connector, along with a note for users cautioning to work with Novell Support to determine the correct version of these components to work with PlateSpin Orchestrate.

## E.2 January 25, 2011

Updates were made to the following sections:

Location	Update Description
<a href="#">Appendix D, “Uninstalling the Orchestrate Server,” on page 155</a>	Added content due to popular demand.
Entire book.	Removed references to VM Builder, which has been deprecated with this version of the product.

