AUTHORIZED DOCUMENTATION

Installation and Configuration Guide

Novell®
PlateSpin Orchestrate

2.0

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Novell, Inc.
404 Wyman Street, Suite 500
Waltham, MA 02451
U.S.A.
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Contents

About This Guide

This *Installation and Configuration Guide* explains how to install, monitor, and manage applications running on PlateSpin® Orchestrate 2.0 from Novell®. 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.

Information in this guide includes content about the latest release, which currently stands at 2.0.1.

For information about installing and using the Virtual Machine management capabilities of PlateSpin Orchestrate, see the *PlateSpin Orchestrate 2.0 VM Client Guide and Reference* or the *PlateSpin Orchestrate 2.0 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 2.0 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 2.0 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 2.0 Job Manager Guide*.

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 2.0 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.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation, or go to www.novell.com/documentation/feedback.html (http://www.novell.com/documentation/feedback.html) and enter your comments there.

Additional Product Documentation

In addition to this *Installation and Configuration Guide*, PlateSpin Orchestrate 2.0 includes the following additional guides that contain valuable information about the product:

- *PlateSpin Orchestrate 2.0 Getting Started Reference*
- *PlateSpin Orchestrate 2.0 Upgrade Guide*
- *PlateSpin Orchestrate 2.0 High Availability Configuration Guide*
- *PlateSpin Orchestrate 2.0 Administrator Reference*
- *PlateSpin Orchestrate 2.0 VM Client Guide and Reference*
- *PlateSpin Orchestrate 2.0 Virtual Machine Management Guide*
- *PlateSpin Orchestrate 2.0 Development Client Reference*
- *PlateSpin Orchestrate 2.0 Command Line Reference*
- *PlateSpin Orchestrate 2.0 Job Manager Guide*
- *PlateSpin Orchestrate 2.0 Developer Guide and Reference*

Documentation Updates

This *Installation and Configuration Guide* is updated periodically. To view the most recent version, visit the PlateSpin Orchestrate 2.0 documentation Web site (http://www.novell.com/documentation/pso_orchestrate20/) and look for the documentation updates section included at the end of the book.

Documentation Conventions

In Novell documentation, a greater-than symbol (>) is used to separate actions within a step and items in a cross-reference path.

A trademark symbol (®, ™, etc.) denotes a Novell trademark. An asterisk (*) denotes a third-party trademark.

When a single pathname can be written with a backslash for some platforms or a forward slash for other platforms, the pathname is presented with a backslash. Users of platforms that require a forward slash, such as Linux or UNIX, should use forward slashes as required by your software.

Planning the Orchestrate Server Installation

1

Before you begin installing PlateSpin® Orchestrate 2.0 from Novell®, 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:

1.1 PlateSpin Orchestrate Requirements

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

1.1.1 Orchestrate Server

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

Table 1-1 *Orchestrate Server Requirements*

Item	Requirement
Server Usage	◆ **PlateSpin Orchestrate Server:** 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™. **NOTE:** 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. ◆ **PlateSpin Orchestrate Monitoring Server:** This pattern is an Apache* Web server that is installed alongside the Orchestrate Server. Refer to the information in Appendix A, “PlateSpin Orchestrate Components: Install Patterns,” on page 109 for more detail about these patterns.
Operating System	◆ SUSE® Linux Enterprise Server 10 (SLES 10) Service Pack 2 (SP2), on the 32-bit (x86) and 64-bit (x86-64) architectures (Intel* and AMD* Opteron* processors)
Hardware	◆ 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) ◆ RAM: 2 GB minimum; 4 GB recommended ◆ Disk Space: 350 MB minimum for installing; 1 GB recommended for managing fewer than 100 resources.
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.

Item	Requirement
TCP Ports	The server must allow traffic on TCP ports 80, 8001 8100, 8101, and 1099: ◆ Port 8080 is used for communication with the PlateSpin Orchestrate User Portal. If the server is running other services on ports 80, such as Apache requests on behalf of PlateSpin Orchestrate Monitoring, the installation program asks you for new ports to use. ◆ 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 or for running the Orchestrate Development Client.

NOTE: For more information about the requirements for virtual machine management, see Section 1.1.4, "Orchestrate VM Client," on page 12.

1.1.2 Orchestrate Agent

PlateSpin Orchestrate 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	Linux machines: ◆ SUSE Linux Enterprise Server 9 SP3 (32-bit or 64-bit) ◆ SUSE Linux Enterprise Server 10 SP1 (32-bit or 64-bit) ◆ SUSE Linux Enterprise Server 10 SP2 (32-bit or 64-bit) ◆ Red Hat* Enterprise Linux* 4 (32-bit or 64-bit) ◆ Red Hat Enterprise Linux 5 (32-bit or 64-bit) Windows* machines: ◆ Windows Server* 2003 (32-bit or 64-bit) ◆ Windows Server 2008 (32-bit or 64-bit) VMware* console operating systems: ESX machine: ◆ ESX 3.0.*x* /3.5.*x*

Item	Requirement
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. Additionally, the ESX machine listens for the agent on port 8101.

1.1.3 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 59.

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

Host Operating System	Minimum Requirements	Recommended Hardware
SLES 10 SP2	◆ x86 or x86_64 ◆ 2 GB RAM ◆ 30 GB Hard Drive Space	◆ x86 or x86_64 ◆ 4+ GB RAM ◆ 100+ GB Hard Drive Space
Windows Server 2008 enabled with Hyper-V	◆ 1GHz (x86 processor) or 1.4GHz (x64 processor) ◆ 512MB RAM ◆ 10 GB Hard Drive Space	◆ 2+ GHz ◆ 2+ GB RAM ◆ 40+ GB Hard Drive Space
ESX 3.0.*x*/3.5.*x*	*Subject to the VMWare support matrix	*Subject to the VMWare support matrix
VMware Virtual Center	*Subject to the VMWare support matrix	*Subject to the VMWare support matrix
VMware Server	*Subject to the VMWare support matrix	*Subject to the VMWare support matrix

1.1.4 Orchestrate VM Client

The VM Client allows you to 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
SLES 10 SP2 (32-bit and 64-bit)	`/SLE10/nvmminst`
Windows XP or Vista (32-bit or 64-bit)	`\Windows\nvmminst.exe`

1.1.5 Other 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 1-5 *Orchestrate Client Requirements*

Item	Requirement
Operating System	Linux machines: ◆ SUSE Linux Enterprise Server 10 SP2 (32-bit or 64-bit) Windows machines: ◆ Windows XP (32-bit or 64-bit) ◆ Windows Vista* (32-bit or 64-bit)
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: ◆ Port 8100 is used with a custom protocol for invoking the zos command line interface or for opening the SDK (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 or for running the Orchestrate Development Client.

IMPORTANT: The platforms listed here have been tested for the 2.0 release, and are the only platforms supported at this time.

Some of the install 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 1-6 *PlateSpin Orchestrate Installation Methods and Sources*

PlateSpin Orchestrate Component	Supported Operating System	Installation Method and Source
Orchestrate Server	SLES 10 SP2 (32-bit or 64-bit)	Available as an RPM package distribution (ISO images, 32-bit or 64-bit) from the Novell Downloads Web site (http://download.novell.com) after purchase and receipt of a license key. Uses the Add-On CD installation (PlateSpin Orchestrate Server pattern) available in YaST. Requires server configuration after installation by using a text interface at the Linux console (`./config`) or by using a GUI program (`./guiconfig`). For installation details, see Section 2.2, “Installing and Configuring All PlateSpin Orchestrate Components Together,” on page 19.

PlateSpin Orchestrate Component	Supported Operating System	Installation Method and Source
Orchestrate Agent	◆ SLES 9 SP3 (32-bit or 64-bit) ◆ SLES 10 SP1 (32-bit or 64-bit) ◆ SLES 10 SP2 (32-bit or 64-bit) ◆ RHEL 4 (32-bit or 64-bit) ◆ RHEL 5 (32-bit or 64-bit)	◆ Available as an RPM package distribution (ISO images, 32-bit or 64-bit) from the Novell Downloads Web site (http://download.novell.com) after purchase and receipt of a license key. Uses the Add-On CD installation (PlateSpin Orchestrate Agent pattern) available in YaST. For installation details, see Section 2.2, "Installing and Configuring All PlateSpin Orchestrate Components Together," on page 19. ◆ 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. For installation details, see Section 2.3, "Installing the Orchestrate Agent Only," on page 43.
	◆ Windows Server 2003 (32-bit or 64-bit) ◆ Windows Server 2008 (32-bit or 64-bit)	◆ 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. For installation details, see Section 2.3, "Installing the Orchestrate Agent Only," on page 43. ◆ After Orchestrate Server installation, available as a downloadable GUI installation program (`.exe` file) from the Administrator Information page (port 8001). For installation details, see "Using the ISO to Install the Orchestrate Agent on Windows Machines" on page 50 in Section 2.3, "Installing the Orchestrate Agent Only," on page 43.
	◆ VMware ESX 3.0.*x* ◆ VMware ESX 3.5.*x*	◆ Available as an RPM package distribution (ISO images, 32-bit or 64-bit) from the Novell Downloads Web site (http://download.novell.com) after purchase and receipt of a license key. Uses the Add-On CD installation (PlateSpin Orchestrate Agent pattern) available in YaST. For installation details, see Section 2.2, "Installing and Configuring All PlateSpin Orchestrate Components Together," on page 19. ◆ After Orchestrate Server installation, available from the server through a downloadable RPM from the Administrator Information page (port 8001) or run as a post-install from the ISO image. For installation details, see Section 2.3, "Installing the Orchestrate Agent Only," on page 43.

PlateSpin Orchestrate Component	Supported Operating System	Installation Method and Source
Orchestrate Clients	SLES 10 SP2 (32-bit or 64-bit)	◆ Available as an RPM package distribution (ISO images, 32-bit or 64-bit) available from the Novell Downloads Web site (http://download.novell.com) after purchase and receipt of a license key. Uses the Add-On CD installation (PlateSpin Orchestrate Agent pattern) available in YaST. For installation details, see Section 2.2, “Installing and Configuring All PlateSpin Orchestrate Components Together,” on page 19. ◆ 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. For installation details, see Section 2.3, “Installing the Orchestrate Agent Only,” on page 43.
	◆ Windows XP (32-bit or 64-bit) ◆ Windows Vista (32-bit or 64-bit)	◆ After Orchestrate Server installation, available as a downloadable GUI installation program (`.exe` file) in the ISO images (32-bit or 64-bit). For installation details, see in “Using the ISO to Install the Orchestrate Agent on Windows Machines” on page 50 in Installing the Orchestrate Agent Only. ◆ After Orchestrate Server installation, available as a downloadable GUI installation program (`.exe` file) from the Administrator Information page (port 8001). For installation details, see in “Using the ISO to Install the Orchestrate Agent on Windows Machines” on page 50 in Installing the Orchestrate Agent Only.
VM Builder	◆ SLES 10 SP2 (32-bit and 64-bit)	YaST Installation (required in order to use VM Client)
Monitoring Server	◆ SLES 10 SP2 (32-bit and 64-bit)	YaST Installation (required in order to use VM Client)
Monitoring Agent	◆ SLES 9 SP3 (32-bit and 64-bit) ◆ SLES 10 SP1 (32-bit and 64-bit) ◆ SLES 10 SP2 (32-bit and 64-bit) ◆ RHEL 4 (32-bit and 64-bit) ◆ RHEL 5 (32-bit and 64-bit)	YaST Installation or RPMs on ISO (required in order to use VM Client)

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 from Novell®.

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 29.

2.2 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 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.

The PlateSpin Orchestrate Server (Orchestrate Server) is supported on SUSE Linux Enterprise Server 10 Service Pack 2 (SLES 10 SP2) only. 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 83.

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.

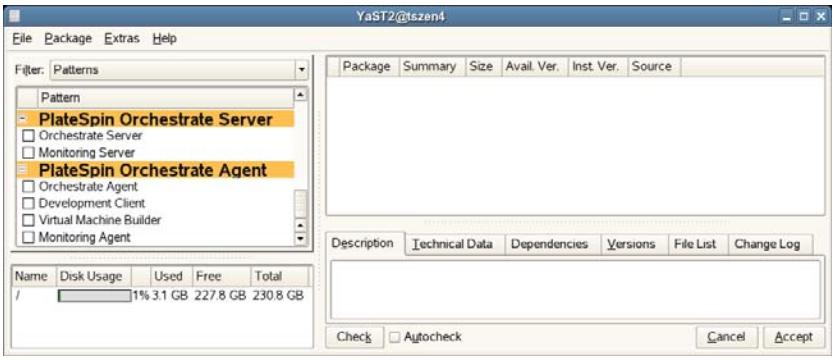
The VM Builder cannot be installed on a VM and must only be installed on the host operating system of the VM Builder node. Multiple servers with VM host capability can be used as VM Builder machines to make the VM Builder group.

This section includes the following information:

2.2.1 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 10 SP2 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 *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 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 109.
- **Virtual Machine Builder:** This pattern is an agent that builds the VM images as the jobs are sent to it by the Orchestrate Server. The Xen hypervisor must exist on the server where this pattern is installed.

  For better scale and performance, we recommend that this pattern be installed to a different server than the one where the Orchestrate Server is installed.
- **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 109 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 2.3, “Installing the Orchestrate Agent Only,” on page 43.

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

---

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 2.0

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 2.0 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
 4)    yes     PlateSpin Orchestrate VM Builder

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 2.2.2, "PlateSpin Orchestrate Configuration Information," on page 28

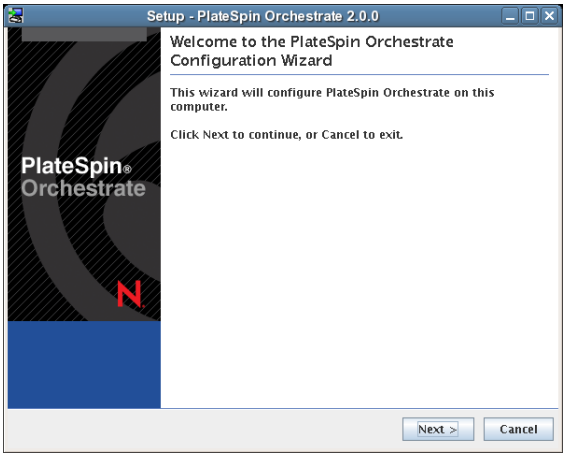
6d3 When the you have finished answering questions about the configuration, continue with Step 8.

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:

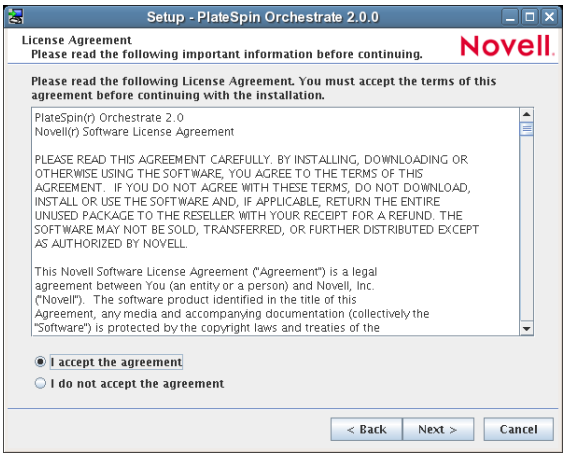
```
/opt/novell/zenworks/orch/bin/guiconfig
```

The GUI Configuration Wizard launches.

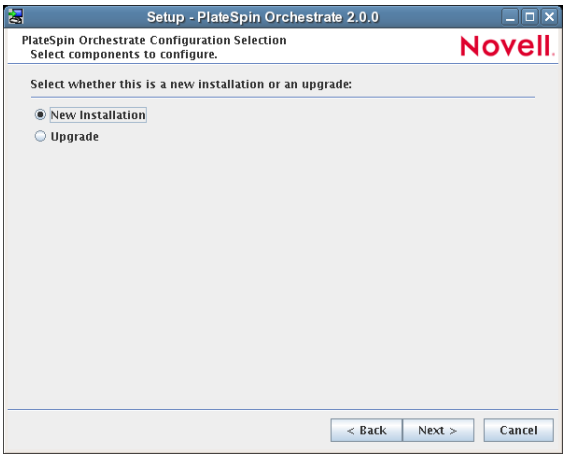


IMPORTANT: If you have only a keyboard to navigate through the pages of the GUI Configuration Wizard, use the Tab key to shift the focus to a control you want to use (for example, a *Next* button), then press the spacebar to activate that control.

7b Click *Next* to display the license agreement.

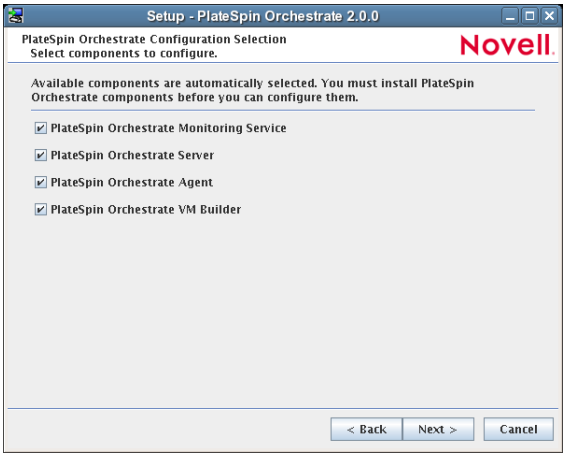


7c Accept the agreement, then click *Next* to display the PlateSpin Orchestrate components page.



This section discusses new installation. For information about upgrading, see the *PlateSpin Orchestrate 2.0 Upgrade Guide*.

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



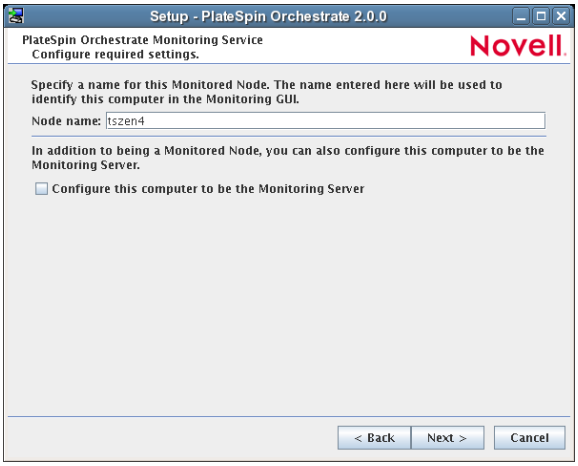
The components page lists the PlateSpin Orchestrate components that are available for configuration. By default, all installed components are selected for configuration.

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

or

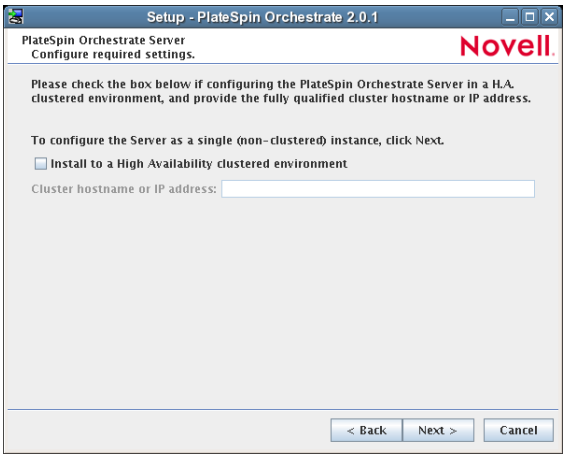
Deselect any PlateSpin Orchestrate components that you do not want to configure, then click *Next*.

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



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.

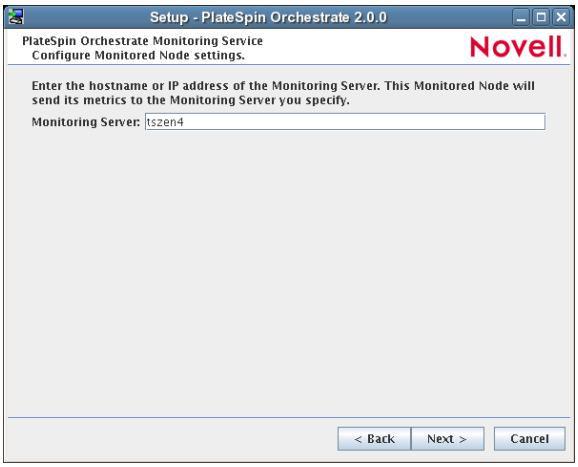


See Step 7f to continue.

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

Select the *Configure this computer* 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.

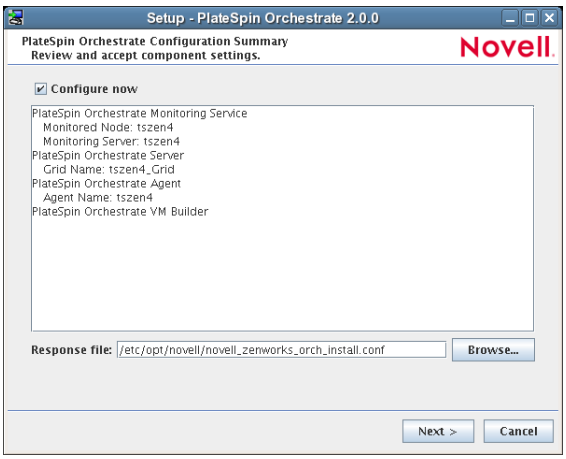
7f (Conditional) If you are configuring this Orchestrate Server in a High Availability environment, select the *Install to a High Availability* check box, then specify the fully qualified cluster hostname or IP Address.

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 29 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.



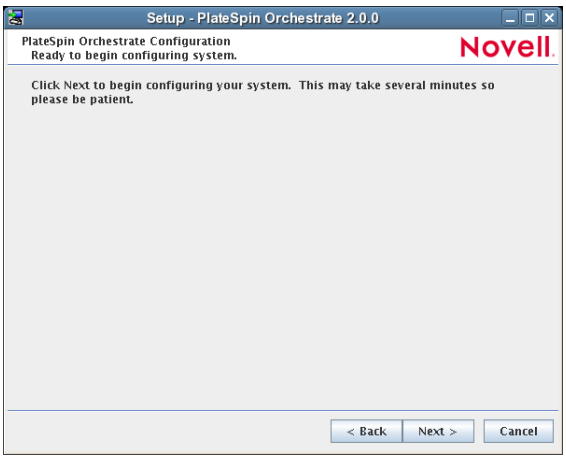
IMPORTANT: Although this page of the wizard lets you navigate by using the Tab key and the spacebar, you need to use the Ctrl+Tab combination to navigate past the summary list. Click *Back* if you accidentally enter the summary list, and re-enter the page to navigate to the control buttons.

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.

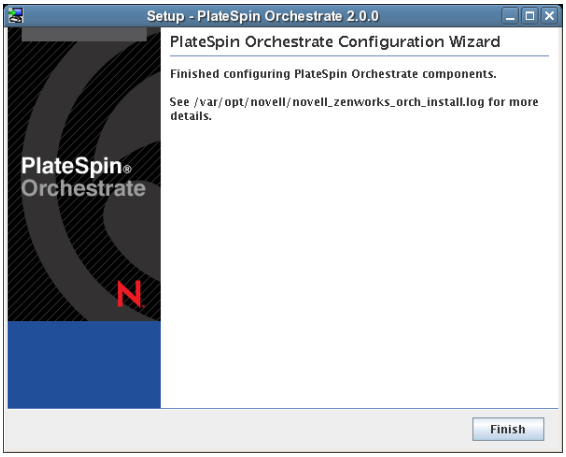
You can use this `.conf` file to start the Orchestrate Server or Agent and apply the settings either manually or with an installation script. Use the following command to run the configuration:

```
/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 83 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 2.2.3, "Correcting Configuration Errors and Repeating the Configuration Process," on page 33.

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 2.3, "Installing the Orchestrate Agent Only," on page 43.

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 `files\novell\zos\clients\bin\zoc.bat`. For more information, see Section 2.3, "Installing the Orchestrate Agent Only," on page 43.

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.

2.2.2 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	If you installed the Orchestrate Monitoring Server and the Orchestrate Monitoring Agent, the following questions are asked during the configuration process. ◆ **Monitored or Monitoring**: `You can configure this host to be the Monitoring Server or a monitored node. Configure this host as the Monitoring Server? (y/n)` ◆ Default value = yes (if the Monitoring Server is installed on this machine) ◆ This question always appears if you installed the Monitoring Server component. ◆ 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. ◆ **Monitoring Server:** `Specify the hostname or IP address of the Monitoring Server.` ◆ Default value = none ◆ 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. ◆ **Location:** `Enter a name describing this monitored computer's location.` ◆ Default value = *name_of_this_computer* ◆ This question always appears if you specify this computer as a monitored node (that is, you answer `no` when asked if this machine is to be the Monitoring Server). ◆ The descriptive name you create here appears in the Monitoring user interface as the location of the device.
Type of Configuration	`Select whether this is a standard or high-availability server configuration.` ◆ Default value = `standard` ◆ Your answer here determines whether this is a standard installation or a High Availability installation. This section discusses standard installation, so specify `s` (for `standard`) or press Enter to accept the default. For more information about High Availability configuration, see the *PlateSpin Orchestrate 2.0 High Availability Configuration Guide*.

Configuration Information	Explanation
Orchestrate Server	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: ◆ **PlateSpin Orchestrate grid name:** `Select a name for the Orchestrator grid.` ◆ Default = *`hostname_grid`* ◆ A grid is an administrative domain container holding all of the objects in your network or data center. The PlateSpin Orchestrate monitors and manages these objects, including users, resources, and jobs. ◆ 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. ◆ **PlateSpin Orchestrate Administrator user:** `Create an Administrator user for PlateSpin Orchestrate.` ◆ Default = none ◆ The name you create here is required when you access the PlateSpin Orchestrate Console or the `zosadmin` command line interface. ◆ You should remember this username for future use. ◆ **PlateSpin Orchestrate Administrator password:** `Specify the password for <Administrator user>` ◆ Default = none ◆ This password you create here is required when you access the PlateSpin Orchestrate Console or the `zosadmin` command line interface. ◆ You should remember this password for future use. ◆ **Audit Database:** `Enable auditing?` ◆ Default = `no` ◆ If you answer `yes` to this question, you need access to a relational database management system. 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. ◆ For more information, see Section 2.2.4, “Installing and Configuring the Orchestrate Server for Use with a PostgreSQL Audit Database on a Different Host,” on page 33 or Section 2.2.5, “Installing and Configuring the Orchestrate Server for Use with a Local PostgreSQL Audit Database,” on page 38. ◆ **License file:** `Specify the full path to the license file.` ◆ Default = none ◆ 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.

Configuration Information	Explanation

Orchestrate Server (continued)	◆ **User Portal**[1]: `Specify the User Portal port.`
	◆ Default = `8080` (if Monitoring is installed) or `80` (if Monitoring is not installed).
	◆ Because Apache uses port 80 for Orchestrate Monitoring, it forwards non-monitoring requests to the Orchestrate Server on the port you specify here.
	◆ **Administrator Information port**[1]: `Specify the Administrator Information page port.`
	◆ Default = `8001`
	◆ 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.
	◆ **Agent Port**[1]: Specify the Agent port.
	◆ Default = `8100`
	◆ 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.
	◆ **TLS Certificate and Key**[1]: `Generate a TLS certificate and key?`
	`Specify the full path to the TLS server certificate.`
	`Specify the full path to the TLS server private key.`
	◆ Default = `yes` (the Orchestrate Server must generate a certificate and key for authentication)
	◆ A PEM-encoded TLS certificate and key is needed for secure communication between the Orchestrate Server and Orchestrate Agent.
	◆ If you respond with `no`, you need to provide the location of an existing certificate and key.
	◆ **TLS Server Certificate**[2]: `Specify the full path to the TLS server certificate.`
	◆ Default = `/etc/ssl/servercerts/servercert.pem`
	◆ Specify the path to the existing TLS certificate.
	◆ **TLS Server Key**[2]: `Specify the full path to the TLS server private key.`
	◆ Default = `/etc/ssl/servercerts/serverkey.pem`
	◆ Specify the path to the existing TLS private key.
	◆ **Xen VNC password:** `Set the password that will be used for VNC on Xen virtualization hosts.`
	◆ You will need this password when you log into virtual machines through VNC.

Configuration Information	Explanation
Orchestrate Agent	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. ◆ **Agent Name:** `Specify the name of the Orchestrate Agent on this node.` ◆ Default = none ◆ The name you specify here is used by the Orchestrate Agent to authenticate to the Orchestrate Server. ◆ **Orchestrate Server:** `Specify the hostname or IP address of the Orchestrate Server.` ◆ Default = none ◆ Specify the DNS name or IP address of the Orchestrate Server that this agent binds to. ◆ **Orchestrate Server Certificate**[3]: `Do you want to specify an existing Orchestrate Server certificate?` ◆ Default = no ◆ In configuring the Orchestrate Server, you either entered a PEM-encoded TLS certificate and key, or the system generated them. ◆ If you answer `no`, 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. ◆ If you answer `yes`, the Agent uses the certificate to verify that it is communicating with the correct server. ◆ **Virtual Machine**[3]: `Is the host a Virtual Machine?` ◆ Default = no ◆ This setting helps the PlateSpin Orchestrate system to know how to treat this host. ◆ **Agent Port**[3]: `Specify the Agent port on the Orchestrate Server.` ◆ Default = `8100` ◆ 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. ◆ For an Agent installed on ESX, configure port 8101. ◆ **Agent IP Address:** `Specify an optional local bind address for the agent.` ◆ Default = none ◆ 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. ◆ **Orchestrate Server Certificate File**[4]: `Specify the path to the Orchestrate Server certificate file.` ◆ Default = `/root/zos_server_cert.pem`

Configuration Information	Explanation
Configuration Summary	When you have completed the configuration process, you have the option of viewing a summary of the configuration information. ◆ **View summary:** `Do you want to view summary information?` ◆ Default = `yes` ◆ Answering `yes` to this question displays a list of all the PlateSpin Orchestrate components you have configured and the information with which they will be configured. ◆ Answering `no` to this question starts the configuration program. ◆ **Configuration information change:** `Do you want to make any changes?` ◆ Default = `no` ◆ Answering `yes` to this question restarts the configuration process so that you can make changes to the configuration information. ◆ Answering `no` to this question starts the configuration program.

[1] 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.

[2] 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*.

[3] 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.

[4] 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*.

2.2.3 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.

2.2.4 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 10

SP2, you can use a PostgreSQL database 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

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.

NOTE: We recommend that you install the PostgreSQL packages on a SLES 10 SP2 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 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 2.2.5, "Installing and Configuring the Orchestrate Server for Use with a Local PostgreSQL Audit Database," on page 38.

If the SLES 10 SP2 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 35.

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.

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 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.

2.2.5 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 SLES 10 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 39
- “Logging in Locally to the PostgreSQL Database” on page 39
- “Installing and Configuring the Local PlateSpin Orchestrate Audit Database” on page 40

Installing the PostgreSQL Package and Dependencies

NOTE: We recommend that you install the PostgreSQL package on a SLES 10 SP2 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 2.2.4, “Installing and Configuring the Orchestrate Server for Use with a PostgreSQL Audit Database on a Different Host,” on page 33.

If your SLES 10 SP2 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 35.

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.
```

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=#
```

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.

2.2.6 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`).

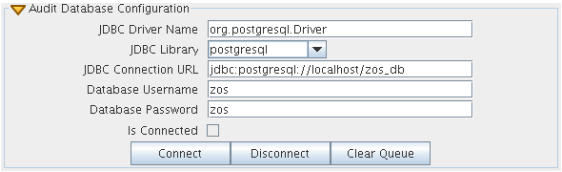
2 Use the following commands to run the modified script as the PostgreSQL database administrator:

```
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 37. 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.

2.2.7 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`).

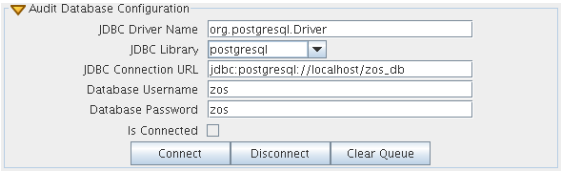
2 Use the following commands to run the modified script as the PostgreSQL database administrator for the remote database:

```
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 37. 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 Installing the Orchestrate Agent Only

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

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 2.0 VM Client Guide and Reference*.

2.3.1 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 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.

IMPORTANT: The Orchestrate Agent is supported on SLES 9 SP3, SLES 10 SP1 and SLES 10 SP2.

---

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.

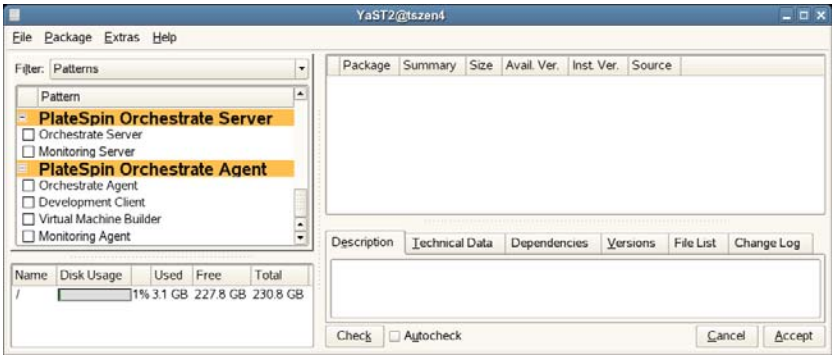
4b In the YaST Control Center, click *Software*, then click *Add-on Product* to display the Add-on Product Media dialog box.

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.
- **Virtual Machine Builder:** Installs software on the individual nodes where customers want the VMs to be created from the VM Client.
- **Monitoring Agent:** This pattern installs the Ganglia Agent 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 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 109 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 45.
- The GUI Configuration Wizard. If you use this method, skip to Step 7 on page 46.

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 2.2.2, "PlateSpin Orchestrate Configuration Information," on page 28 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 2.0

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
 4)     no     PlateSpin Orchestrate VM Builder (not installed)

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:

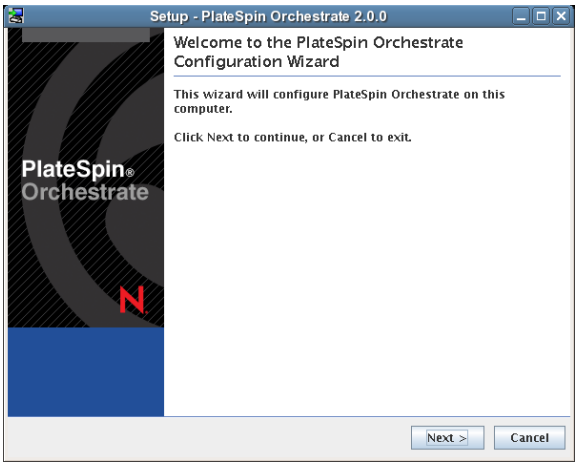
7a Make sure the product ISO is accessible. The script copies some files from the ISO.

7b Make sure you are logged in as `root` to run the configuration wizard.

7c Run the wizard:

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

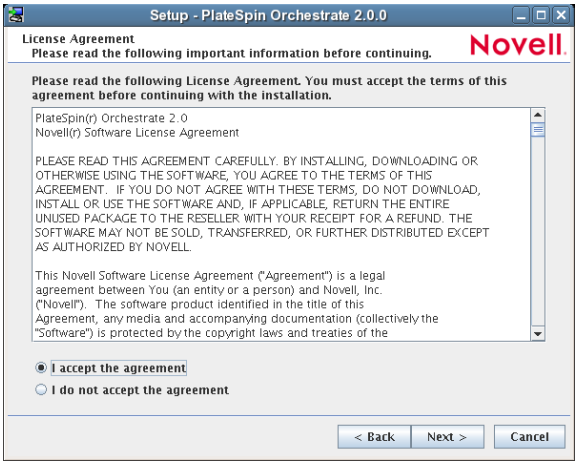
When the script runs, the following information is initially displayed:



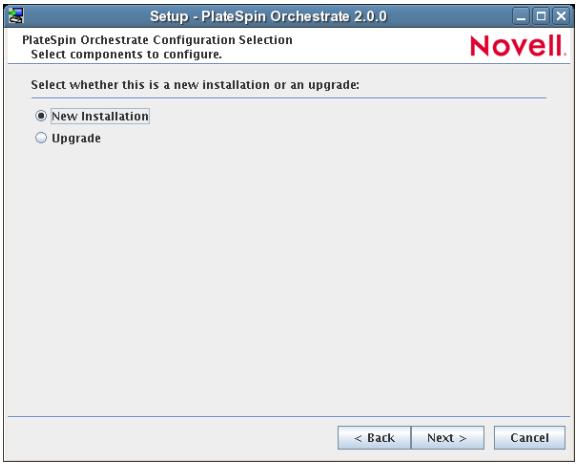
IMPORTANT: If you have only a keyboard to navigate through the pages of the GUI Configuration Wizard, use the Tab key to shift the focus to a control you want to use (for example, a *Next* button), then press the spacebar to activate that control.

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 9 and in SLES 10.

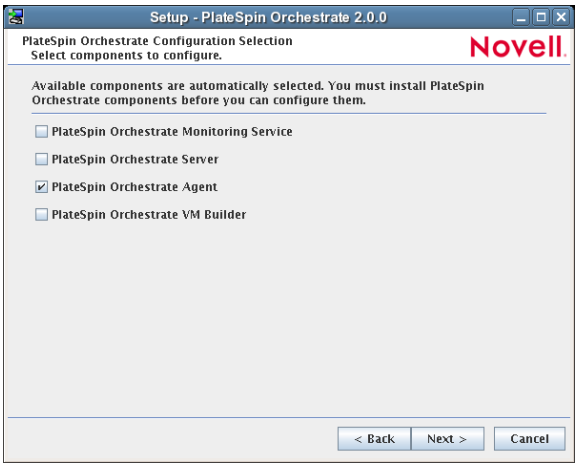
7d Click *Next* to display the license agreement:



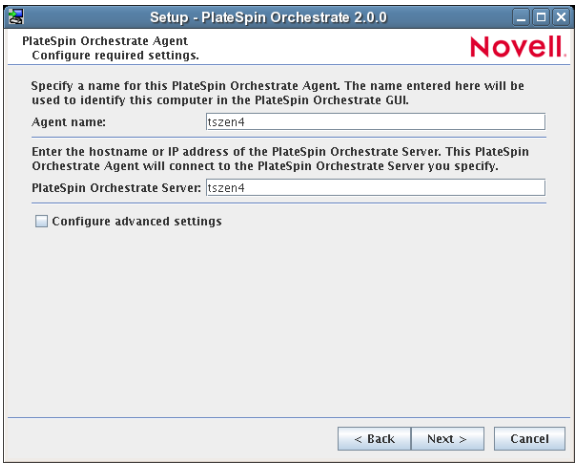
7e Select the option to accept the agreement, then click *Next* to open the installation type page of the wizard:



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



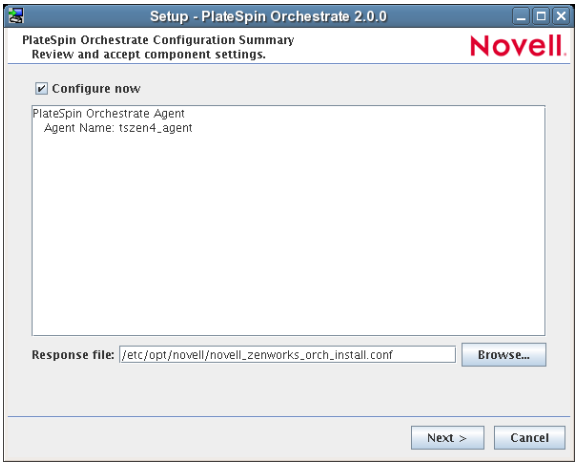
7g Confirm that the Orchestrate Agent is selected for configuration, then click *Next* to display the Orchestrate Agent Configuration page:



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 2.2.2, “PlateSpin Orchestrate Configuration Information,” on page 28.

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.

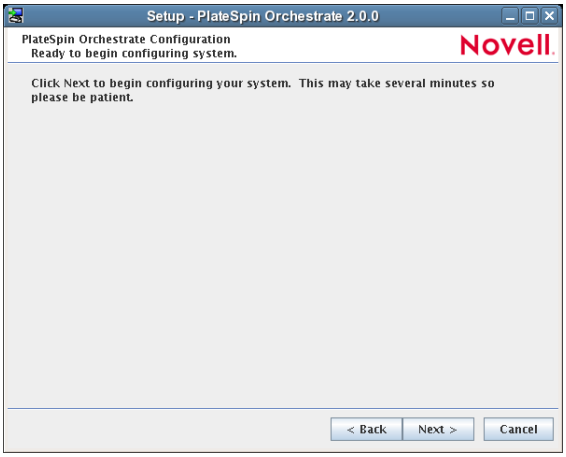
By default, the *Configure now* check box on this page is selected. If you accept the default of having it selected, the wizard starts the PlateSpin Orchestrate Agent and applies the configuration settings. If you deselect the check box, the wizard writes out the

configuration file to `/etc/opt/novell/novell_zenworks_orch_install.conf` without starting PlateSpin Orchestrate or applying the configuration settings.

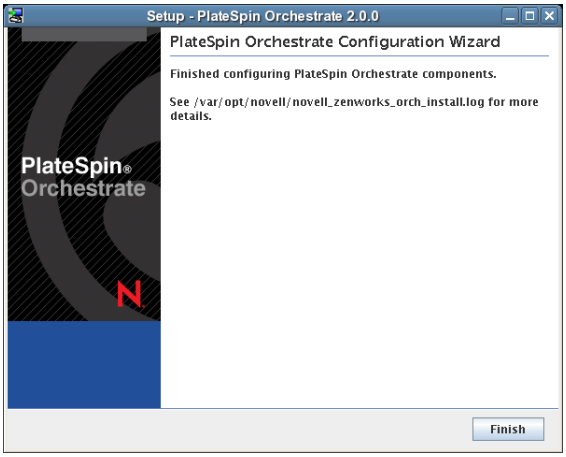
You can use this `.conf` file to start the Orchestrate Agent and apply the settings either manually or with an installation script. Use the following command to run the configuration:

```
/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 83 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 Orchestrate Agent on Windows Machines

The PlateSpin Orchestrate Agent is supported on Windows Server 2003 and Windows Server 2008, but not on 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 51 in Installing the Orchestrate Agent from the Administrator Information Page for information about this wizard.

2.3.2 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 User Portal and PlateSpin Orchestrate Administrator's Web page applications:

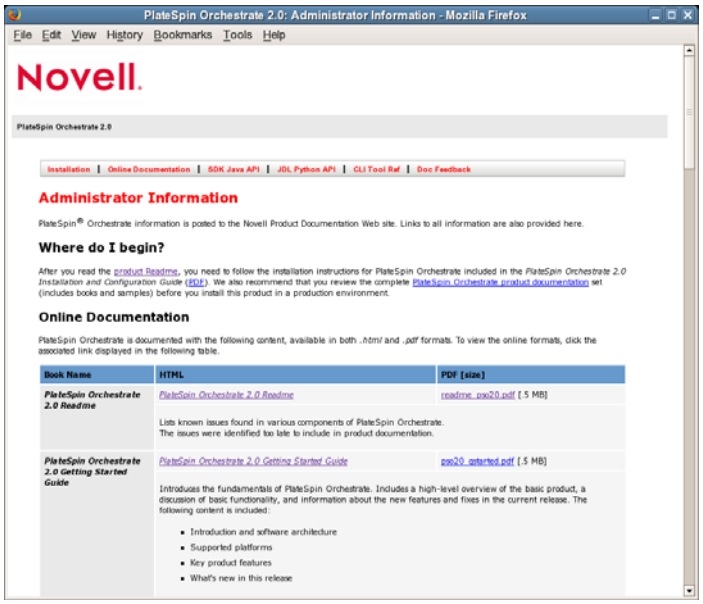
- Internet Explorer*, version 6.0 or higher
- Netscape* Navigator*, version 6.0 or higher

- Mozilla*, version 1.5 or higher
- Mozilla Firefox*

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:



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:

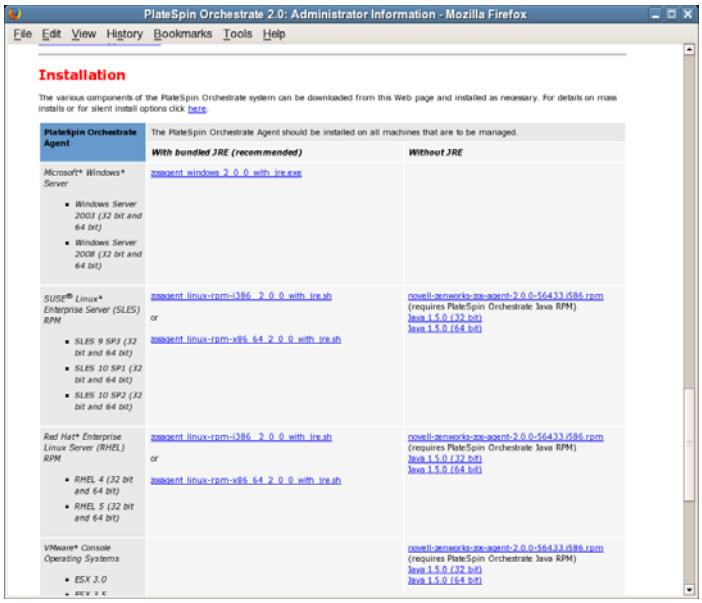
- “Installing and Registering the SLES PlateSpin Orchestrate Agent from the Administrator Information page.” on page 51
- “Installing and Registering the Windows PlateSpin Orchestrate Agent from the Administrator Information Page” on page 53
- “Installing and Registering the PlateSpin Orchestrate Agent on an ESX Machine from the Administrator Information Page” on page 56

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 9 SP3, SLES 10 SP1, SLES 10 SP2, RHEL 4 or RHEL 5 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:



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-2.0.1-57039.i586.rpm`
   - The Java 1.5.0 (32-bit) or Java 1.5.0 (64-bit) RPM
6. Install the Java 1.5.0 RPM by entering the one of the following commands (as applicable):

   ```
   rpm -ivh novell-zenworks-zos-java-1.5.0_sun_update11-52.x86_64.rpm
   ```

   or

   ```
   rpm -ivh novell-zenworks-zos-java-1.5.0_sun_update11-52.i586.rpm
   ```
7. Install the Orchestrate Agent by entering the following command:

   ```
   rpm -ivh novell-zenworks-zos-agent-2.0.1-57039.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 87.

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:

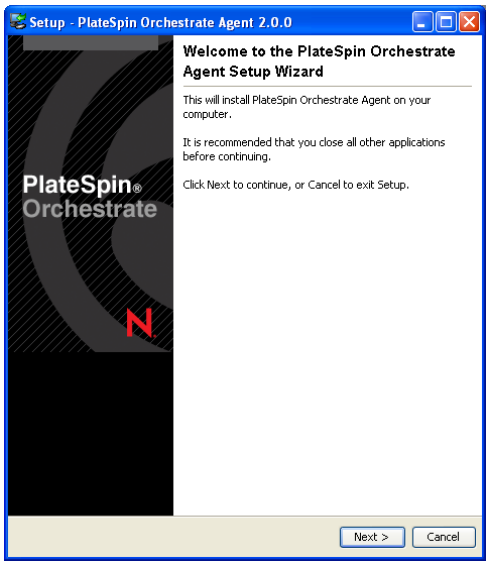
3 In the agents section of the Web page, identify the `zosagent_windows_2_0_1_with_jre.exe` installer link.

4 Click the installer link to initiate the download of the Orchestrate Agent on the Windows computer.

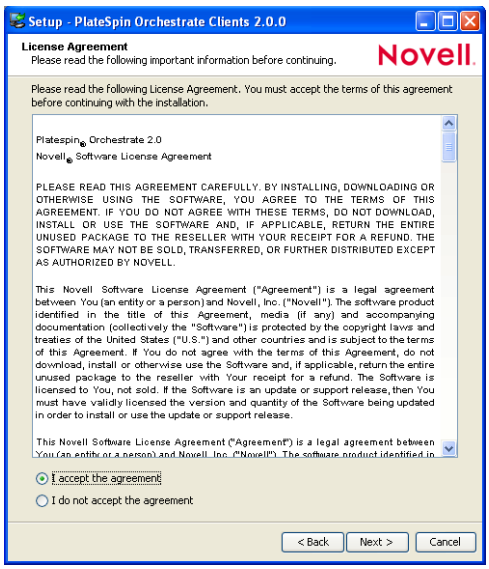
5 At a Windows XP or Windows Vista location where you downloaded the client installer, double click the `zosagent_windows_2_0_1_with_jre.exe` icon to run the installer.

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.

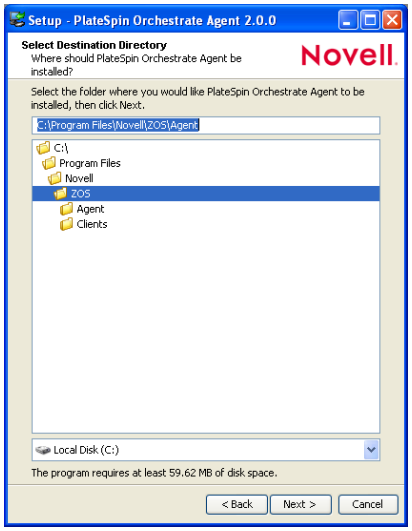
The first page of the Orchestrate Agent Setup Wizard is displayed.



6 Click *Next* to display the License Agreement page.

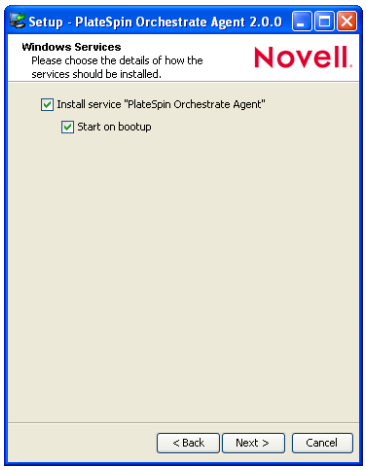


7 Accept the license agreement, then click *Next* to display the Select Destination Directory page.

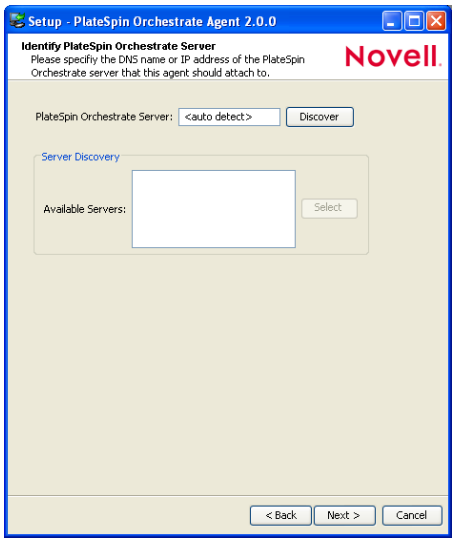


8 Accept the default location, then click *Next* to display the Select Start Menu Folder page of the Setup Wizard.

9 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.



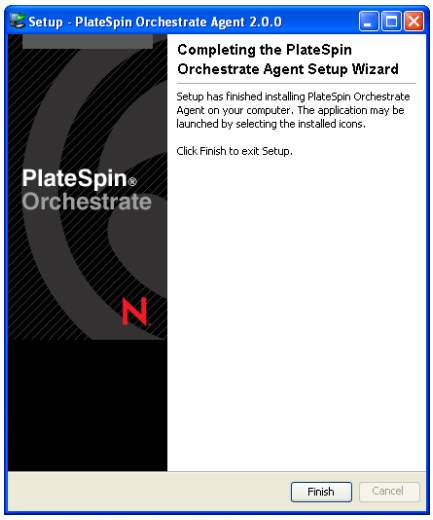
10 Select the services you want to install (at a minimum, you must select *Install Service PlateSpin Orchestrate Agent*), then click *Next* to display the Identify PlateSpin Orchestrate Server page.



11 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.

12 Accept the remaining defaults in the setup wizard pages 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 87.

Installing and Registering the PlateSpin Orchestrate Agent on an ESX Machine from the Administrator Information Page

1 From the Administrator Information Web page for PlateSpin Orchestrate, download the following:

- `novell-zenworks-zos-agent-2.0.1.rpm`
- The Java 1.5.0 (32-bit) or Java 1.5.0 (64-bit) RPM, depending upon the ESX processor on which you want to install the Orchestrate Agent.

For more information on how to access the Administrator Information Web page, see Section 2.3.2, "Installing the Orchestrate Agent from the Administrator Information Page," on page 50.

2 Copy the downloaded `novell-zenworks-zos-agent-2.0.rpm` and the appropriate Java 1.5.0 RPM to the ESX machine on which you want to install the Orchestrate Agent.

3 Install the Java 1.5.0 RPM by entering the following command:

```
rpm -ivh novell-zenworks-zos-java-1.5.0.rpm
```

4 Install the Orchestrate Agent by entering the following command:

```
rpm -ivh novell-zenworks-zos-agent-2.0.1rpm
```

5 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 to which you want to register the agent.

6 At the Linux bash prompt, enter the following command to open TCP port 8100:

```
esxcfg-firewall -o 8100,tcp,out,port_name
```

7 Enter the following command to open TCP port 8101:

```
esxcfg-firewall -o 8101,tcp,out,port_name
```

8 Start the agent by entering the following command:

```
/etc/init.d/novell-zosagent start
```

9 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 87.

2.3.3 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

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 2.2.1, "Installation and Configuration Steps," on page 20.

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 2.2, "Installing and Configuring All PlateSpin Orchestrate Components Together," on page 19. 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

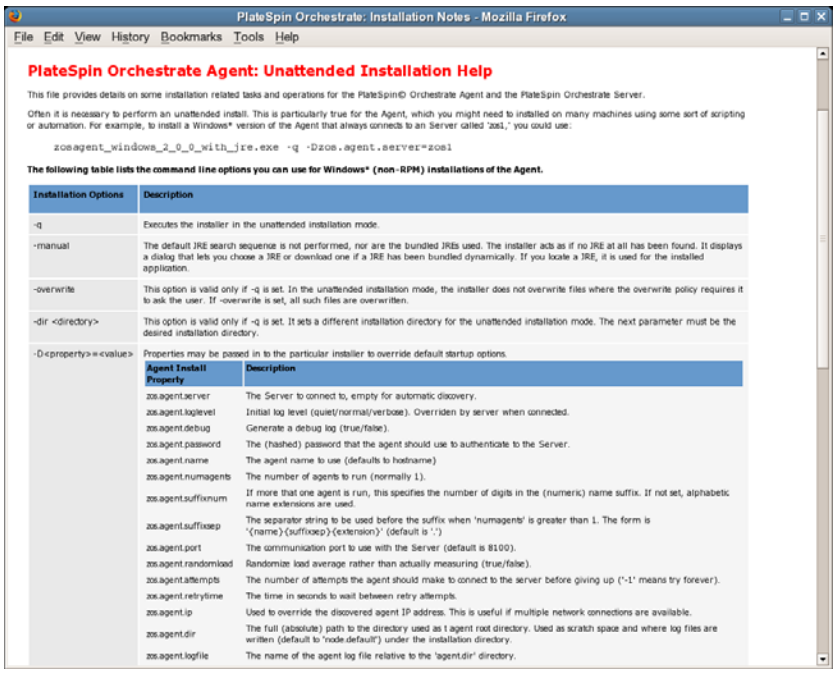
The Windows Agent installer can be downloaded from the Administrator Information page, as documented in Section 2.3.2, “Installing the Orchestrate Agent from the Administrator Information Page,” on page 50.

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*



2.3.4 Installing the PlateSpin Orchestrate Agent on Other Supported Operating Systems

When you have the Orchestrate Server installed and 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 that machine in the VM Client.

- “Supported Operating Systems and Hypervisors” on page 58
- “Installing the Orchestrate Agent” on page 59

Supported Operating Systems and Hypervisors

For PlateSpin Orchestrate 2.0, other supported operating systems are:

- Microsoft Windows Server 2003

- RHEL 4 or 5
- SLES 9

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 *Hypervisors and Supported Host Operating Systems*

Hypervisor	Host Operating System
Xen	SLES 10
	SLES 10 SP 1
	RHEL 5
	SLES 10 SP2 (NPIV is supported for Xen 3.0 hypervisor running only on SLES 10 SP2.)
VMware Server	SLES 10
	SLES 10 SP 1
	RHEL 4
	RHEL 5
	Windows Server 2003 and 2008
VMware Virtual Center	*Subject to the VMware support matrix
VMware ESX 3.0.*x*/3.5.*x*	*Subject to the VMware support matrix
Microsoft Hyper-V **NOTE:** Microsoft Hyper-V Server 2008 is not supported.	Windows Server 2008 enabled with Hyper-V

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 and migrate 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 2.0 VM Client Guide and 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-2.0.1-119.noarch.rpm
novell-zenworks-orch-config-gui-2.0.1-56295.noarch.rpm
```

```
novell-zenworks-zos-agent-2.0.1-56295.i586.rpm
novell-zenworks-zos-java-1.5.0_sun_update11-52.x86_64.rpm
```

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

- "Microsoft Windows Server 2003" on page 60
- "RHEL 4" on page 60
- "RHEL 5" on page 61
- "SLES 9" on page 61

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

To install the Orchestrate Agent on Microsoft Windows Server 2003:

1. Download the pertinent 32-bit or 64-bit Add-On ISO from the DVD.
2. Create a CD from the ISO or use ISOBuster (or a similar tool) to mount the CD.
3. Browse to the Windows 2003 folder for the Orchestrate Agent.
4. Double-click the Orchestrate Agent icon and follow the wizard through the setup.

   See Table 2-1 on page 29 for an explanation of the configuration for the Orchestrate Agent.

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 from the DVD.
2. Mount the ISO as a loopback device.

   If you are mounting a 64-bit ISO, the command is:

   ```
   $ mount -o loop PlateSpin_Orchestrate-2.0.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 29 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.

   If you are mounting a 64 bit ISO, the command is:

   ```
   $ mount -o loop PlateSpin_Orchestrate-2.0.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 29 for an explanation of the configuration for the Orchestrate Agent.

SLES 9

To install the five packages of the Orchestrate Agent on SLES 9:

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

   If you are mounting a 64-bit ISO, the command is:

   ```
   $ mount -o loop PlateSpin_Orchestrate-2.0.x86_64.iso /mnt
   ```
3. Change your working directory to the location of the SLES 9 package:

   ```
   $ cd /mnt/SLES9
   ```
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 29 for an explanation of the configuration for the Orchestrate Agent.

2.3.5 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 2.0 Developer Guide and Reference*.

2.4 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 2.4.1, “Installing the Orchestrate Development Client for Windows from the Administrator Information Page,” on page 63
- Section 2.4.2, “Using the ISO to Install the Orchestrate Development Client on Windows Machines,” on page 66
- Section 2.4.3, “Installing the Orchestrate Development Client for SLES 10 From the Administrator Information Page,” on page 67
- Section 2.4.4, “Using the ISO to Install the Orchestrate Client on SLES 10 Machines,” on page 67

2.4.1 Installing the Orchestrate Development Client for Windows 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.

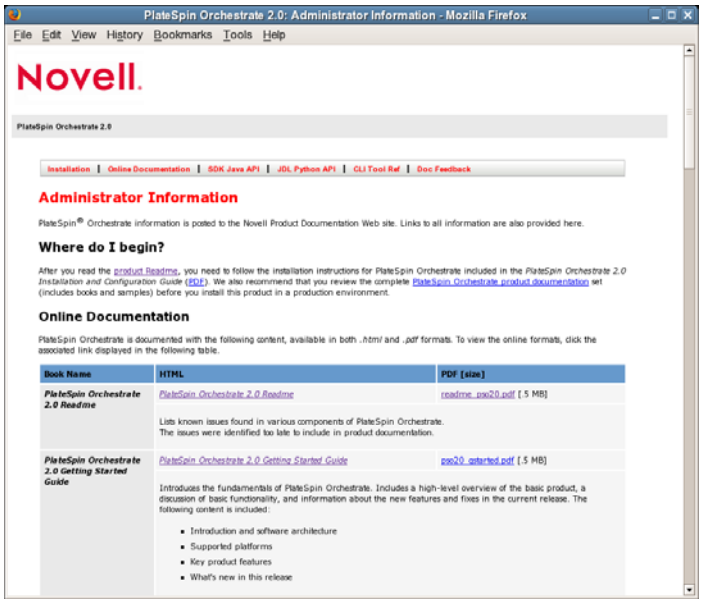
The following browsers support the PlateSpin Orchestrate User Portal and PlateSpin Orchestrate Administrator's Web page applications:

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

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:



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:

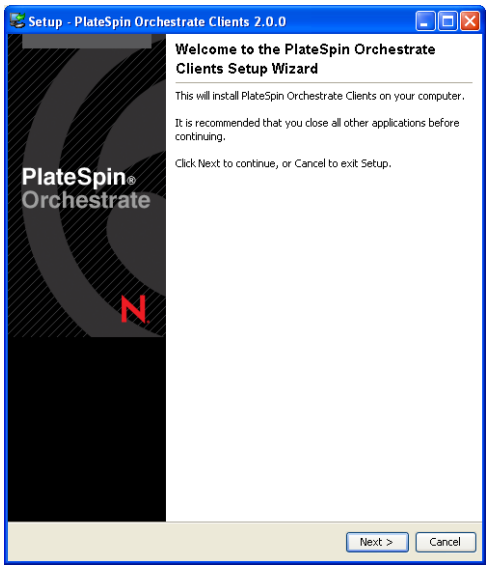
3 In the clients section of the Web page, identify the `zosclients_windows_2_0_1_with_jre.exe` installer link.

4 Click the installer link to initiate the download of the Orchestrate Development Client on the Windows computer.

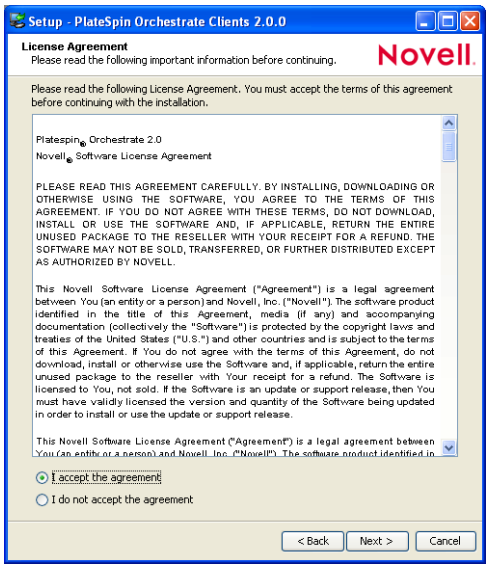
5 At a Windows XP or Windows Vista location where you downloaded the client installer, double click the `zosclients_windows_2_0_1_with_jre.exe` icon to run the installer.

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.

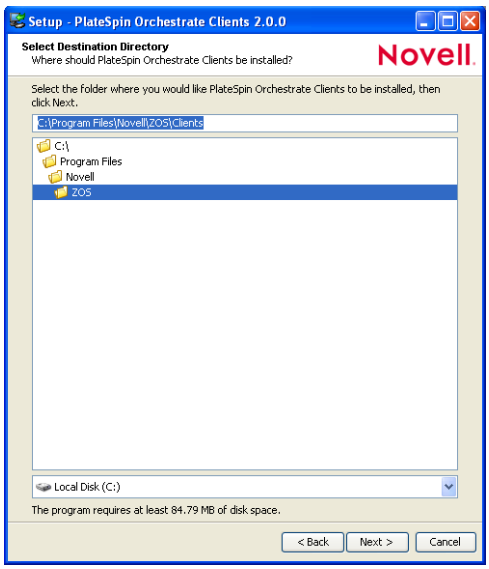
The first page of the Orchestrate Clients Setup Wizard is displayed.



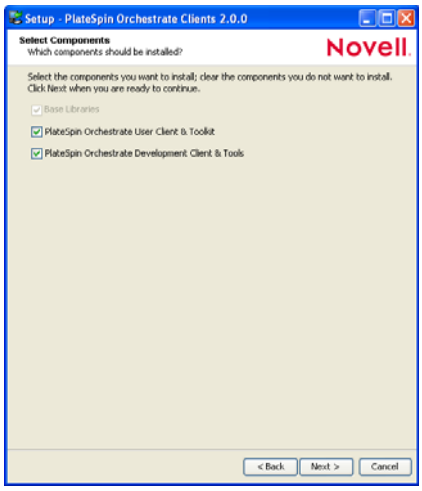
6 Click *Next* to display the License Agreement page.



7 Accept the license agreement, then click *Next* to display the Select Destination Directory page.



8 Accept the default location, then click *Next* to display the Select Components page of the Setup Wizard.



9 Select the client components that you want to install:

- **PlateSpin Orchestrate User Client & Toolkit:** Selecting this option installs 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 2.0 Command Line Reference*.

- **PlateSpin Orchestrate Development Client and Tools:** Selecting this option installs 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 2.0 Development Client Reference* and the *PlateSpin Orchestrate 2.0 Command Line Reference*.

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.

10 Accept the remaining defaults in the setup wizard pages to run the Orchestrate Development Client installation until the following page is displayed:

11 Click *Finish* to exit the setup.

2.4.2 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_0_1_with_jre.exe`) to launch an installation and configuration wizard.

See Section 2.4.1, "Installing the Orchestrate Development Client for Windows from the Administrator Information Page," on page 63 for information about this wizard.

2.4.3 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 2.3.2, "Installing the Orchestrate Agent from the Administrator Information Page," on page 50.
2. Scroll to the *Installation* section of the page:
3. In the PlateSpin Orchestrate Clients section, download:
   - `novell-zenworks-zos-clients-2.0.1-57039.i586.rpm`
   - The Java 1.5.0 (32-bit) or Java 1.5.0 (64-bit) RPM
4. Install the Java 1.5.0 RPM by entering the one of the following commands (as applicable):

   ```
   rpm -ivh novell-zenworks-zos-java-1.5.0_sun_update11-52.x86_64.rpm
   ```

   or

   ```
   rpm -ivh novell-zenworks-zos-java-1.5.0_sun_update11-52.i586.rpm
   ```
5. Install the Orchestrate Development Client by entering the following command:

   ```
   rpm -ivh novell-zenworks-zos-clients-2.0.1-57039.i586.rpm
   ```
6. Start the Development Client by entering the following command in `/opt/novell/zenworks/zos/clients/bin`:

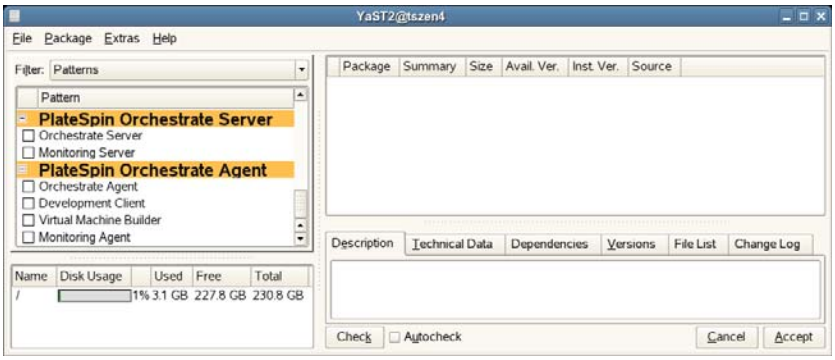
   ```
   ./zoc
   ```
7. Select the Orchestrate Server grid object you want to log onto, then enter the username and password for that server to connect to it.

2.4.4 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.

IMPORTANT: The Orchestrate Clients are not supported on SLES 9 SP3.

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 109 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 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 2.5.1, “Minimum Installation Requirements,” on page 69
- Section 2.5.2, “Installing the Orchestrate VM Client on the Windows Operating System,” on page 70
- Section 2.5.3, “Installing Orchestrate VM Client in a Linux Environment,” on page 75

2.5.1 Minimum Installation Requirements

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

- “Host Servers for VM Repositories” on page 69
- “Workstations for Running the VM Client Software” on page 69
- “Uninstallation of Previous Versions of the Client” on page 70

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 2.4, “Installing the Orchestrate Development Client Only,” on page 62.

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, Vista	◆ i386 (32-bit) and 64-bit ◆ 240 MB of free space	*cdrom_drive*\Windows\nvmminst.exe
SLES 10 SP2	◆ i386 (32-bit) and 64-bit ◆ 257 MB of free space	*cdrom_drive*/SLE10/nvmminst

NOTE: When you install the Xen kernel, make sure you install the `kernel-xenpae` to ensure that Xen VMs can be used on any 32-bit or 64-bit operating system.

Uninstallation of Previous Versions of the Client

You must uninstall the previous version of VM Client before installing version 2.0:

- **Windows:** On the Windows machine where the client is installed, click *Start* > *Control Panel* > *Add or Remove Programs*, select the Novell ZENworks VM Manager item, then click *Remove*.
- **Linux:** Run the following command:

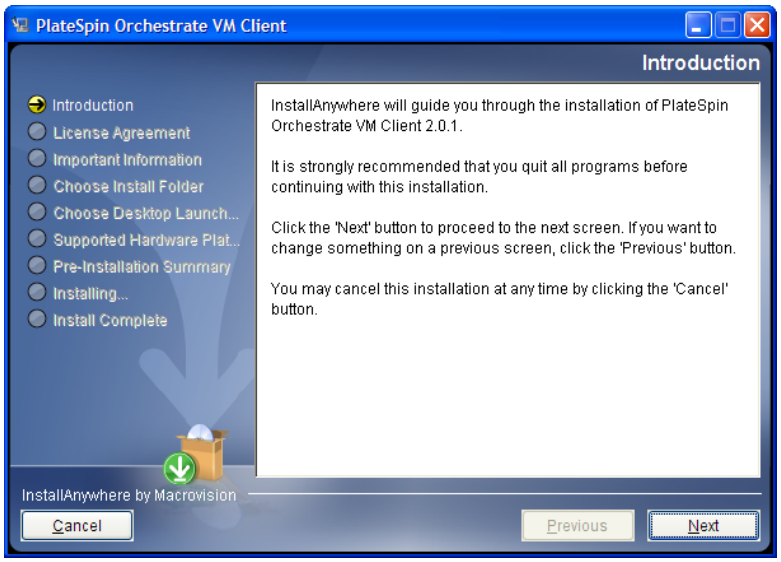
  ```
  /opt/novell/zenworks/vmmanagement/Uninstall_ZENworks_VMM/
  Uninstall_Novell_ZENworks_VM_Manager_1.3.0
  ```

  This opens the InstallAnyWhere utility to uninstall VM Client.

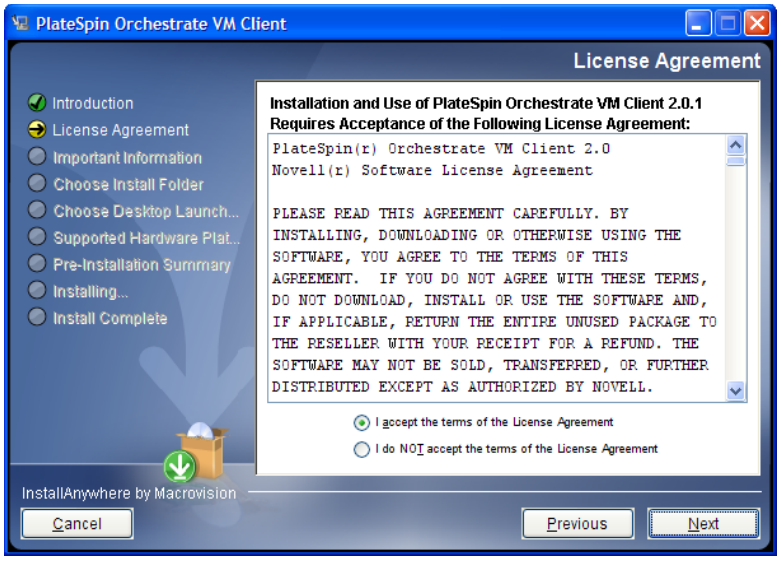
2.5.2 Installing the Orchestrate VM Client on the Windows Operating System

NOTE: These installation steps apply only to Windows Vista and Windows XP.

1. Copy the `nvmminst.exe` file from the \Windows folder (see Table 2-3 on page 69) to a location on your management Windows workstation.
2. Double-click the `nvmminst.exe` file to start the installation program:

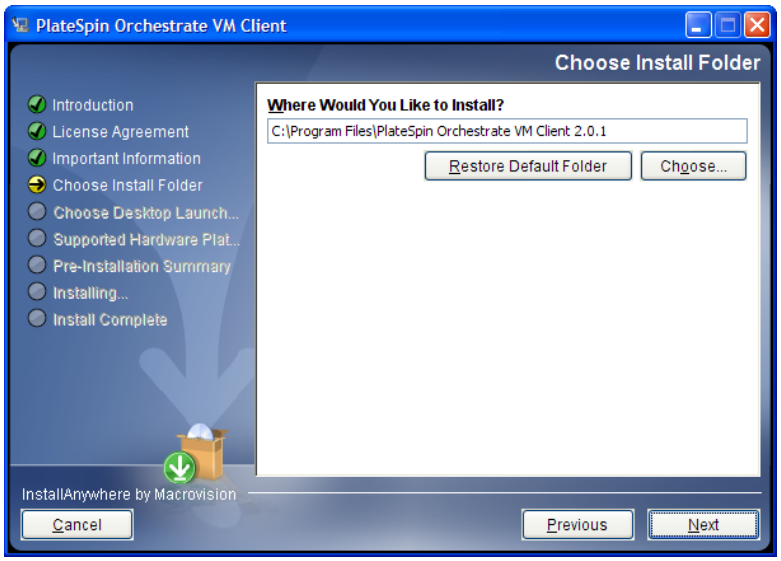


3 Click *Next* on the Introduction page to display the License Agreement page:

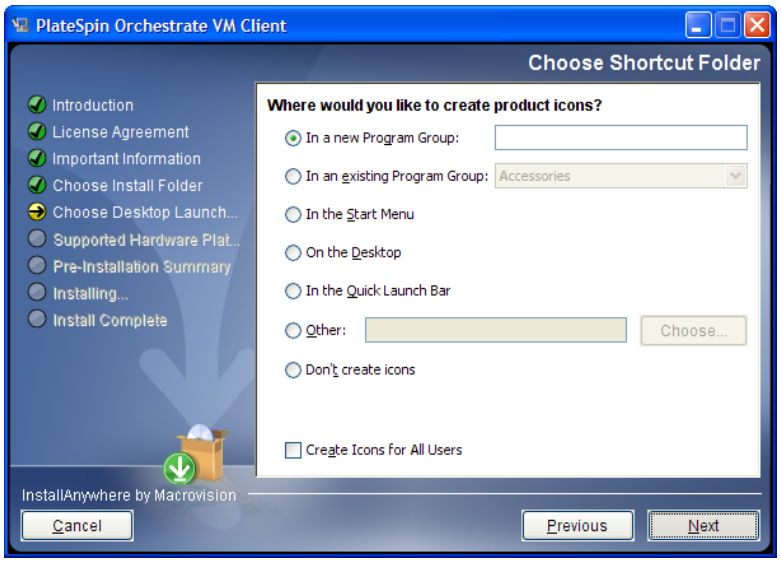


4 Read the terms of the license agreement; if you agree to abide by the terms, then click *Next* to display the Important Information page; otherwise, click *Cancel* to exit the installation:

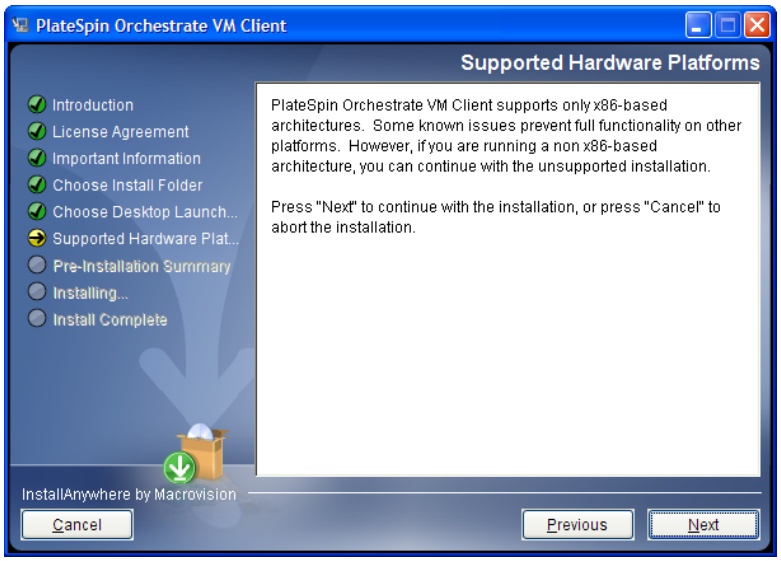
5 After reviewing the third-party licenses, if you agree with them, click *Next* to display the Choose Install Folder page; otherwise, click *Cancel* to exit the installation:



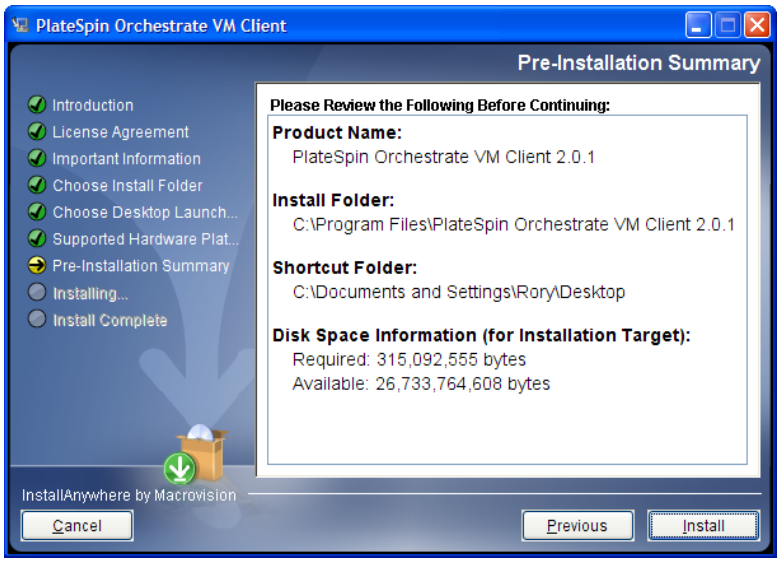
6 Select your installation folder, then click *Next* to display the Choose Shortcut Folder page:



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:

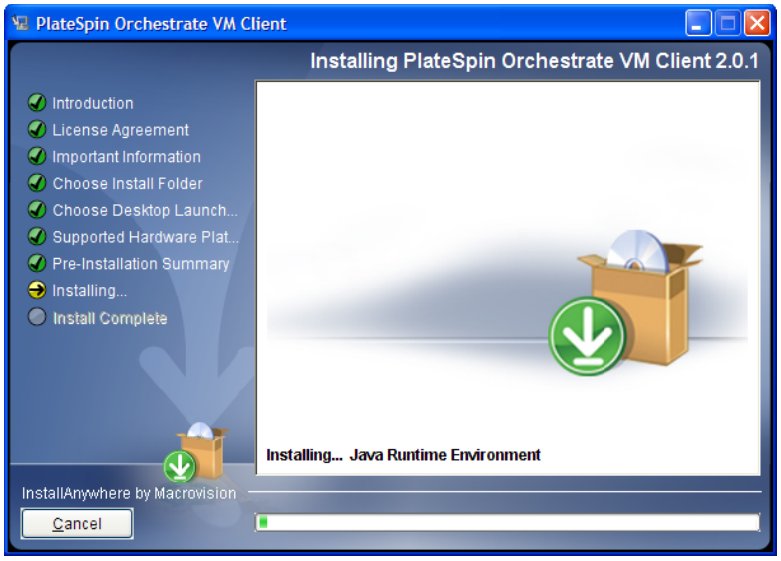


8 Click *Next* to display the Pre-Installation Summary page:

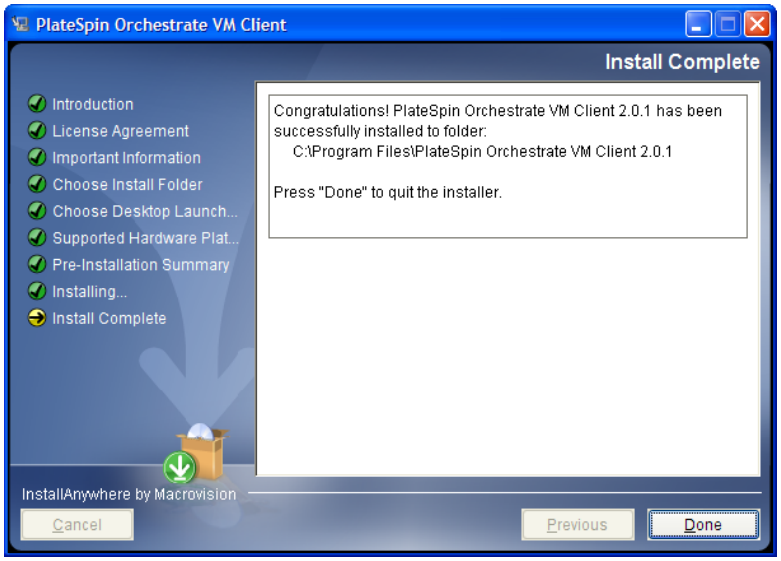


9 Verify the information and click *Previous* as necessary to make changes.

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 "Creating and Setting Up Virtual Machines" in the *PlateSpin Orchestrate 2.0 VM Client Guide and Reference*.

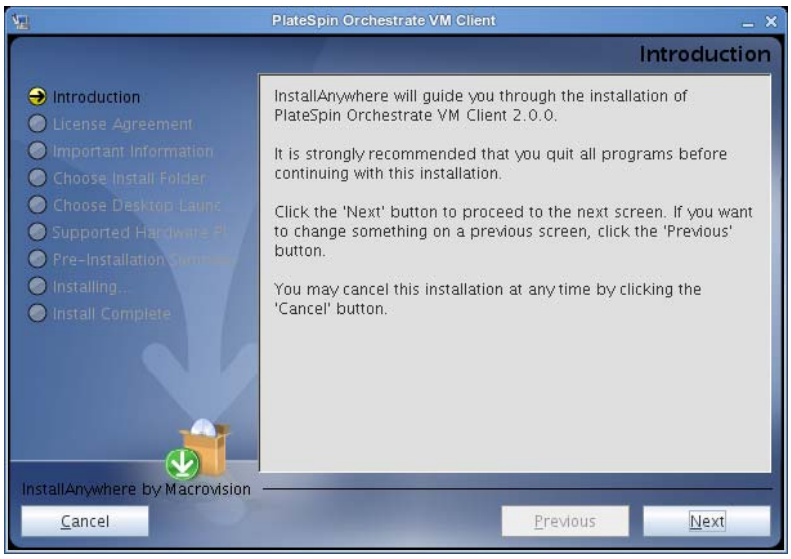
2.5.3 Installing Orchestrate VM Client in a Linux Environment

1. Copy the PlateSpin Orchestrate 2.0 product ISO file to your management Linux workstation.
2. Open a terminal on the workstation and log in as `root`.
3. Mount the PlateSpin Orchestrate 2.0 product ISO file to a temporary directory.

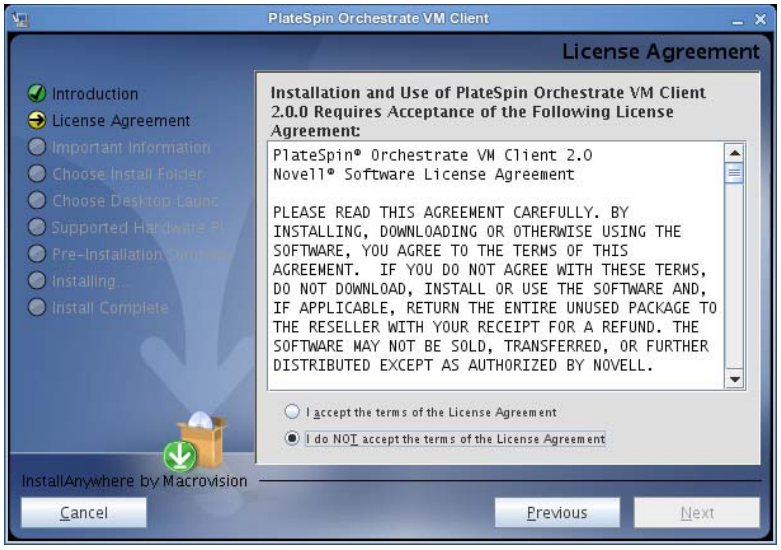
   For example, if you copied the 32-bit version of the ISO file to `Desktop`, enter the following commands:

   ```
   mkdir /mnt/iso
   cd /Desktop
   mount -o loop PlateSpin_Orchestrate-2.0.i386.iso /mnt/iso
   cd /mnt/iso/sle10
   ```

4. From the `/mnt/iso/sle10` directory, enter `./nvmminst` to launch the installer:

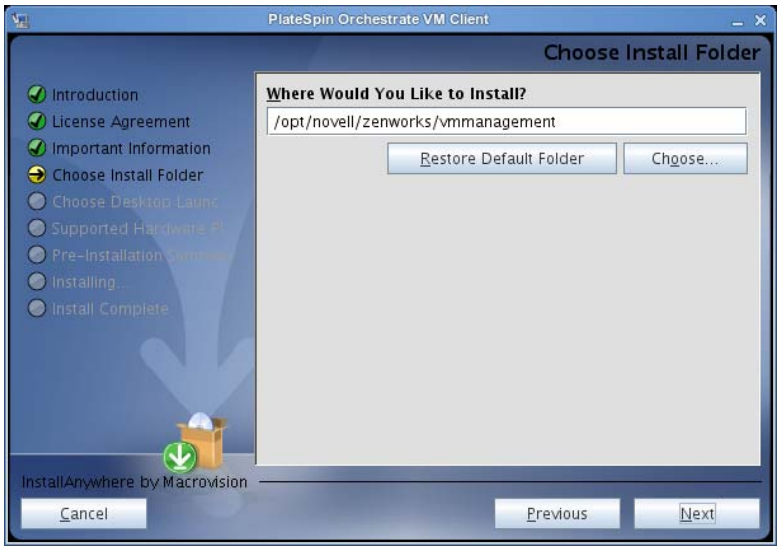


5. Click *Next* on the Introduction page to display the License Agreement page:

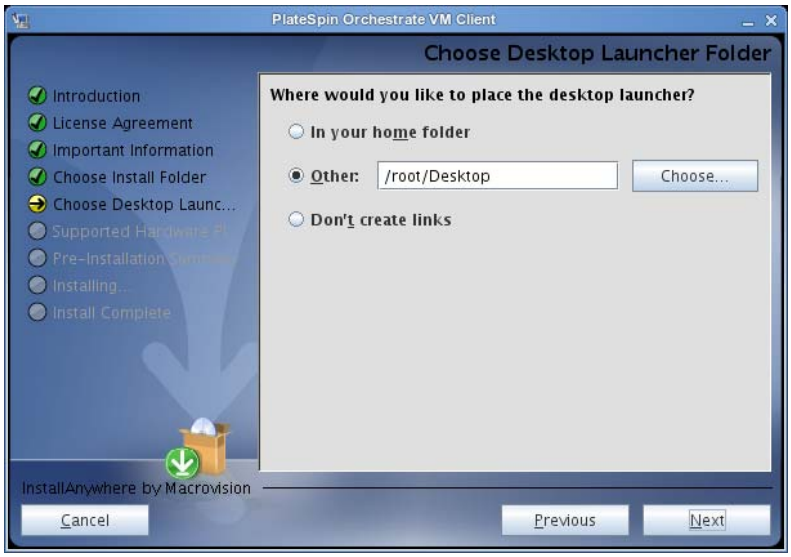


6 Read the terms of the license agreement; if you agree to abide by the terms, then click *Next* to display the Important Information page; otherwise, click *Cancel* to exit the installation:

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:

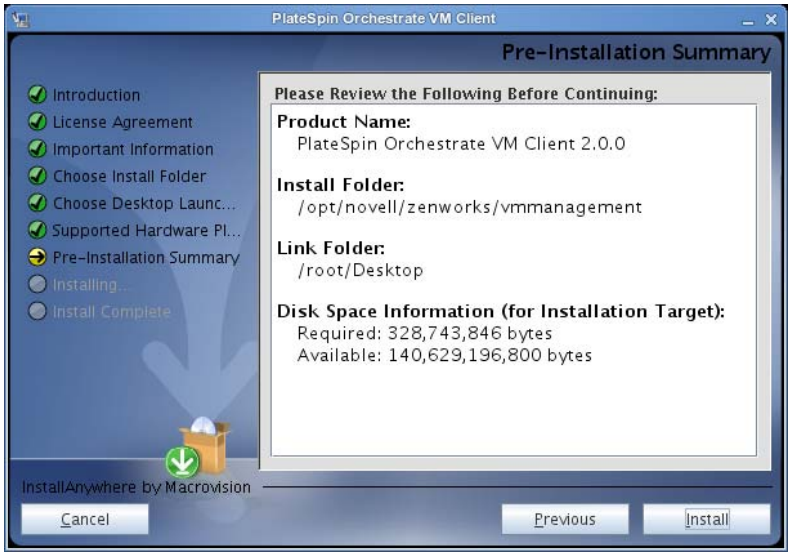


8 Select your installation folder, then click *Next* to display the Choose Desktop Launcher Folder page:



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:

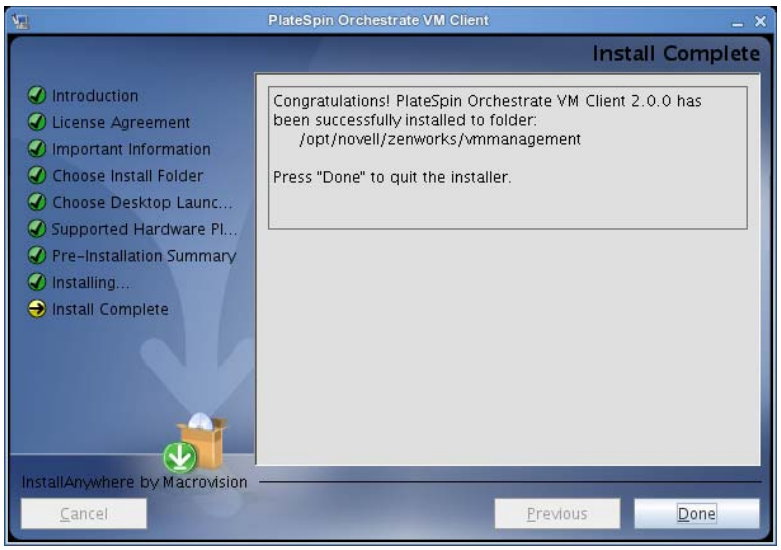
10 Click *Next* to display the Pre-Installation Summary page:



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 "Creating and Setting Up Virtual Machines" in the *PlateSpin Orchestrate 2.0 VM Client Guide and Reference*.

2.6 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 2.6.1, "Uninstalling the Orchestrate VM Client from the Windows Operating System," on page 79
- Section 2.6.2, "Uninstalling Orchestrate VM Client in a Linux Environment," on page 80

2.6.1 Uninstalling the Orchestrate VM Client from the Windows Operating System

1 On the Windows machine where the client is installed, click *Start* > *Control Panel* > *Add or Remove Programs*.

2 Select the PlateSpin Orchestrate VM Client item, then click *Remove*.

This removes all installation files and registry settings.

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

2.6.2 Uninstalling Orchestrate VM Client in a Linux Environment

1 Run the following command:

```
/opt/novell/zenworks/vmmanagement/Uninstall_PlateSpin_VMM/
Uninstall_PlateSpin_Orchestrate_VM_Client_2.0.1
```

This opens the InstallAnyWhere utility to uninstall VM Client.

2 Respond to the prompts, as necessary.

2.7 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	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 *Server Version* field. Advanced PlateSpin Orchestrate users can also find the version value in the `matrix.version` fact.
Orchestrate Agent	After the agent is registered at the Orchestrate Development Client Explorer view, select its resource object listed under *Resources*, then open the Info/Groups page of the workspace panel. On the Info/Groups page, select *Agent Information*. The version number is listed in the *Agent Version* field. Advanced PlateSpin Orchestrate users can also find the version value in the `resources.agent.version` fact.

Component	How to Determine Version Number
Orchestrate Development Client	At the console, click *Help* > *About PlateSpin Orchestrate Console*. Console version number and license expiration date is listed on the About PlateSpin Orchestrate dialog box.
Command Line Tools (zos, zosadmin)	No method is currently available.
VM Builder	Version information is displayed in the Orchestrate VM Client.
Orchestrate VM Client	Version information is displayed in the Orchestrate VM Client.

Orchestrate Monitoring Server	On the command line of the machine where the Monitoring Server is running, enter (at `/opt/novell/zenworks/monitor/sbin`) the following command:
	
	`gmetad -V`
	
	`gmetad -- version`

Orchestrate Monitoring Agent	On the command line of the machine where the agent is running, enter (at `/opt/novell/zenworks/monitor/sbin`) the following command:
	
	`gmond -V`
	
	`gmond -- version`

First Use of Basic PlateSpin Orchestrate Components

3

After you install and configure the basic components of PlateSpin® Orchestrate from Novell®, (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.

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 2.0 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 19.

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 2.3, "Installing the Orchestrate Agent Only," on page 43.

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:

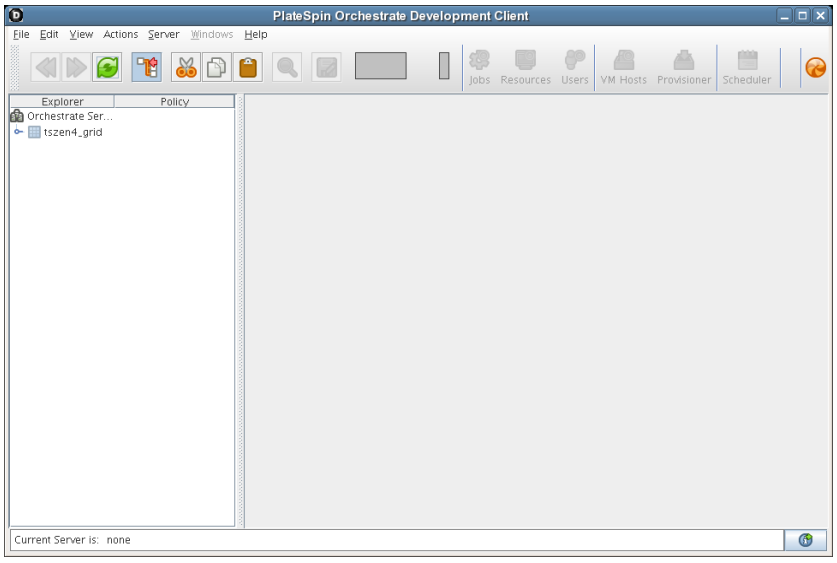
1. Navigate to the location where the Development Client was installed.
   - **SLES 10 SP2:** Change to the following directory:

     `/opt/novell/zenworks/zos/server/bin`
   - **Windows:** In the *Start* menu, click *Programs* > *Novell* > *ZOS* > *Clients*.
2. Launch the Development Client.
   - **SLES 10 SP2:** Use the following command to launch the Orchestrate Development Client:

     `./zoc`
   - **Windows:** In the *Start* menu, click *Programs* > *Novell* > *ZOS* > *Clients* submenu, click *ZOS Management Console*.

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 85.

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.

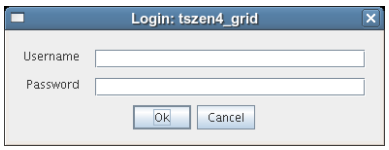
- Section 3.2.1, “Logging In by Using the Explorer,” on page 85
- Section 3.2.2, “Logging In Explicitly to a Named Server,” on page 85
- Section 3.2.3, “Logging In As Default,” on page 86

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 87.

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.

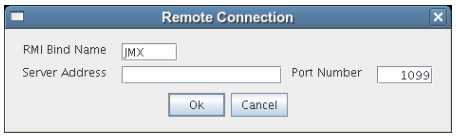


2 In the dialog box, enter the Administrator user name and password that you supplied when you installed the server, then click *OK* to log in to the server.

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.

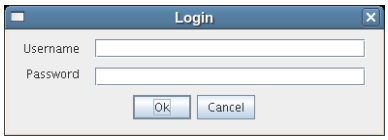
1 From the PlateSpin Orchestrate Development Client, click *Server,* then click *Login* to display the Remote Connection dialog box.



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.

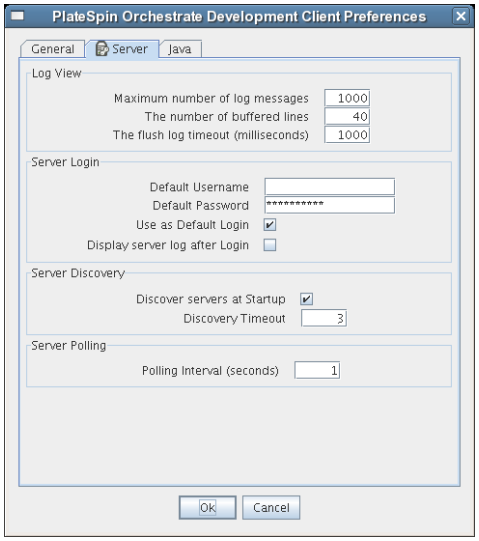


3 Specify the administrator name (created during the install) in the *Username* field, specify the administrator password in the *Password* field, then click *OK* to log in to the server.

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.



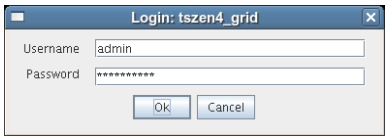
2 In this dialog box, click the *Server* tab to display the Server page.

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:

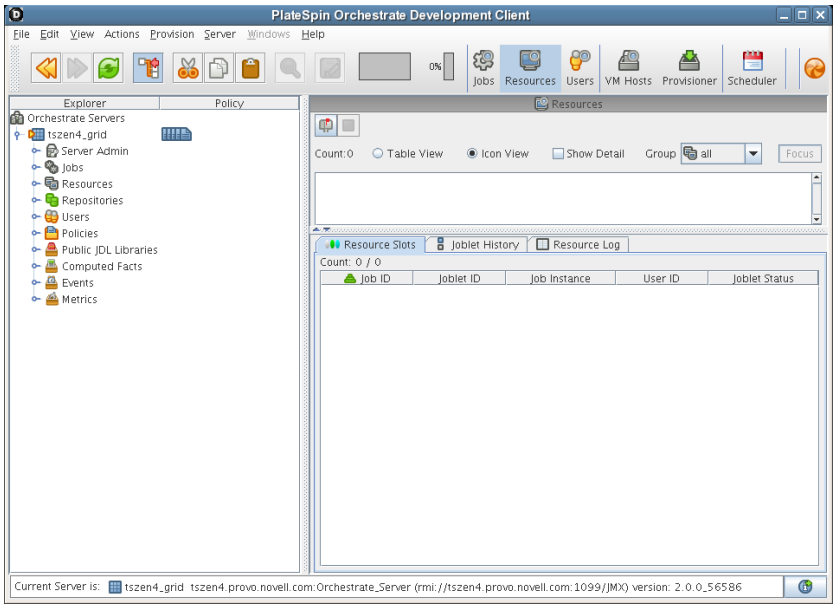
- Section 3.3.1, "Opening the Resources Monitor," on page 87
- Section 3.3.2, "Automatically Registering a Resource," on page 88
- Section 3.3.3, "Manually Registering a Resource," on page 89
- Section 3.3.4, "Selecting a Resource for Manual Registration," on page 93

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 94.

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.

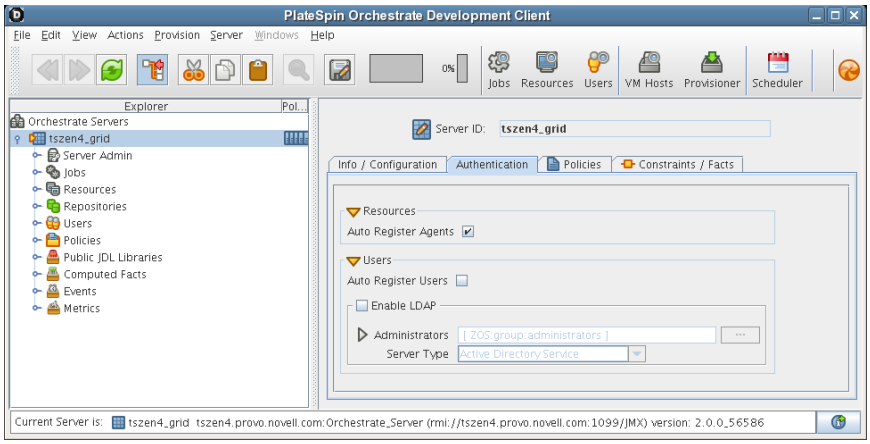
You can use the Development Client to register a resource automatically (see "Automatically Registering a Resource" on page 88) or to register a resource manually (see "Manually Registering a Resource" on page 89). You can also select which agents can log in to create accounts (see Section 3.3.4, "Selecting a Resource for Manual Registration," on page 93).

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 2.0 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.

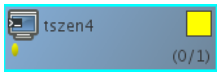
1. In the PlateSpin Orchestrate Development Client, select the grid object in the Explorer panel to open the *Authentication* page in the Client workspace.
2. In the *Resources* section of the page, select the *Auto Register Agents* check box, then click the Save icon in the toolbar to save the setting.



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), yellow (available for use), or blue (in use). If the color changes from yellow 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

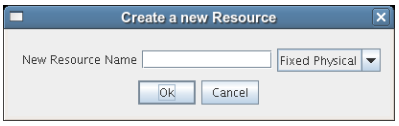
If you want a higher level of security between the agent and the server, you can manually create a resource account in the Development Client before the Orchestrate Agent is installed. This section walks through both stages of the procedure.

- “Use the Orchestrate Development Client to Create a Resource Account” on page 89
- “Installing an Orchestrate Agent to Match the New Resource” on page 90

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.

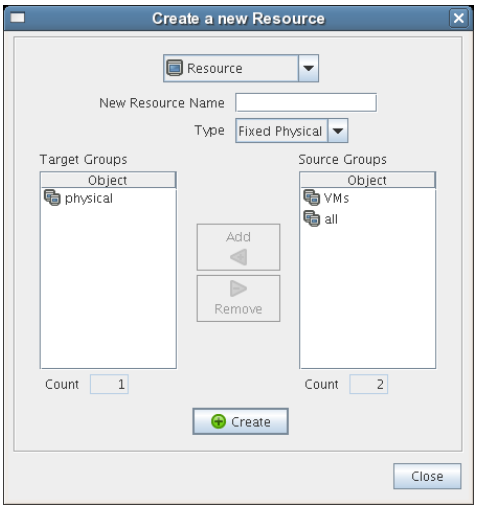
1. Make sure that the *Auto Register Agents* check box on the grid object’s *Authentication* page is not selected (see Step 2 on page 88).
2. (Optional) Create a new resource from the Explorer panel in the Development Client.
   - **2a** In the Explorer panel in the Development Client, right-click *Resources*, 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*.

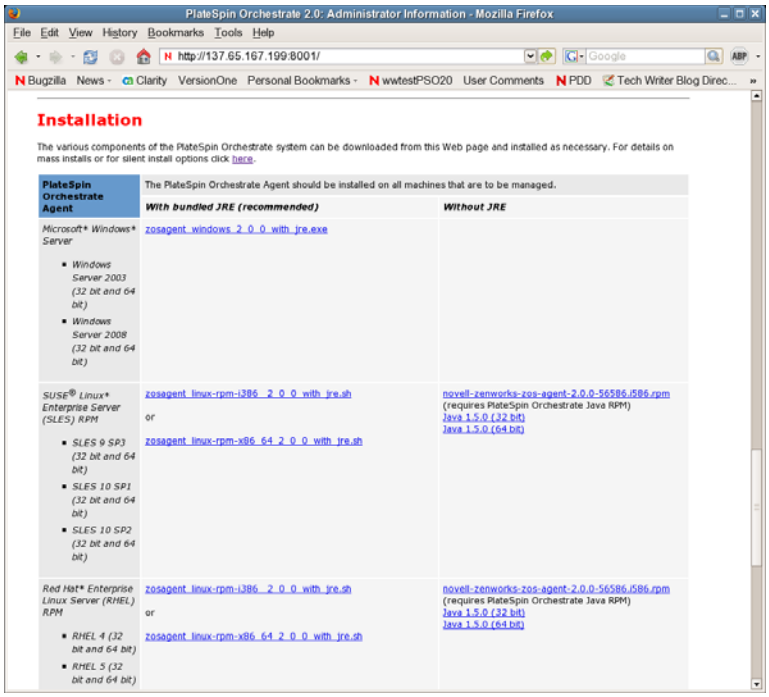
The resource account is created, but is offline  , as indicated by its object icon in the Explorer panel or in the Information view of each resource group to which it belongs. The resource is not online until an Orchestrate Agent matching the resource is installed.

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 2.3.2, “Installing the Orchestrate Agent from the Administrator Information Page,” on page 50.

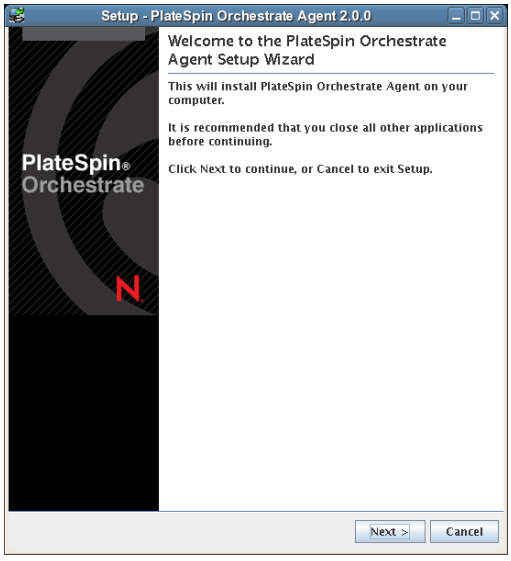
2 Scroll to the *Installation* section of the page:



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 Orchestrate Agent file, then double-click the `zosagent_windows_2_0_0_with_jre.exe` icon to launch the PlateSpin Orchestrate Agent Setup Wizard.



6 Follow the prompts in the wizard until the *Identify PlateSpin Orchestrate Server* page displays, then you need to ensure that you correctly enter the *Platespin_Orchestrate_Server_name* in the *PlateSpin Orchestrate 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 Orchestrate Development Client to Create a Resource Account" on page 89.

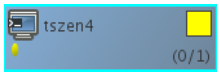
You might find it easier to click *Discover* so that the installer searches for and finds the Orchestrate Server on the network.

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.



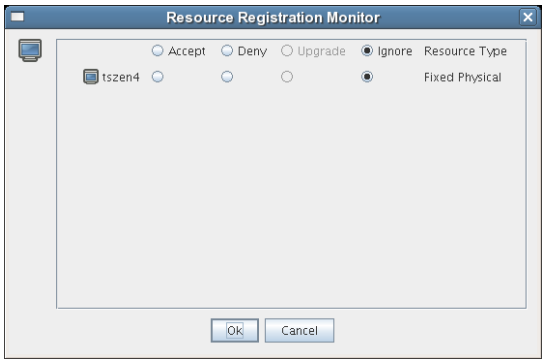
The status color window can be white (inactive), yellow (available for use), or blue (in use). If the color changes from yellow to blue, a job is running on this resource. To find out what kind of job is running, you can click on the *Jobs* monitor button on the toolbar.

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.



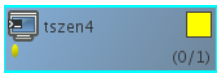
   This dialog box lets you preview the Orchestrate Agents that are installed in the network and trying to log in to the server. The top row of radio buttons is a mass selector for all listed agents, allowing you the choice to accept, deny, or ignore automatic registration for all agents, both those currently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



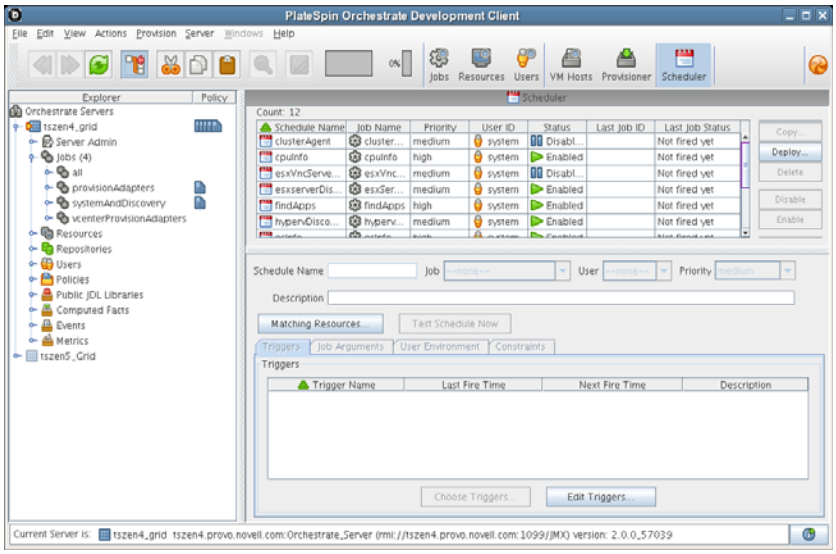
The status color window can be white (inactive), blue (in use), yellow (available for use), or blue (in use). If the color changes from yellow to blue, a job is running on this resource. To find out what kind of job is running, you can click on the *Jobs* monitor button on the toolbar.

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 93) from blue to yellow. 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.

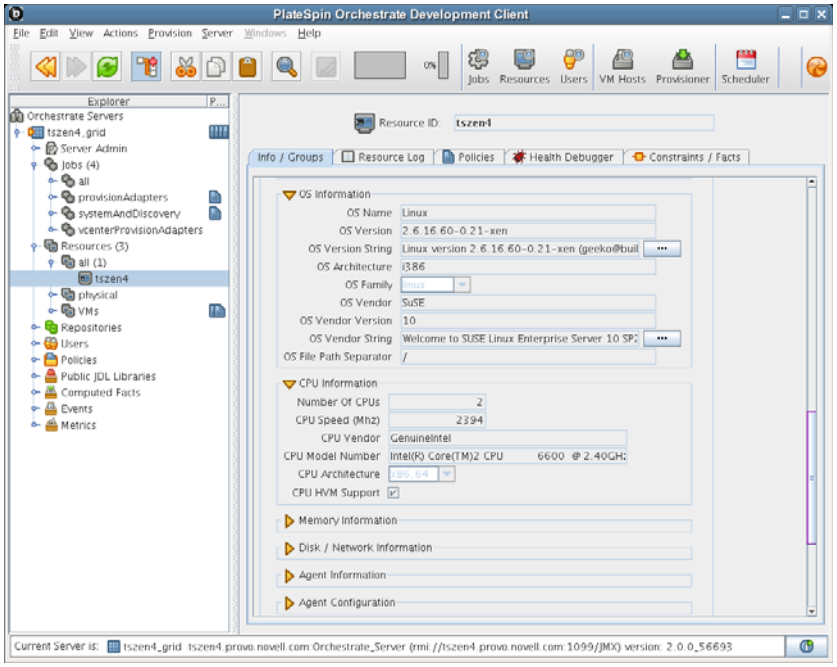


In this walkthrough of basic PlateSpin Orchestrate functionality, you can see that several jobs are configured to run. If you select one of the jobs, such as `cpuInfo`, you will see that it was configured with a trigger called RESOURCE_ONLINE. All of the discovery jobs, like `cpuInfo`, are configured 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 87) 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 95.

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 2.0 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.

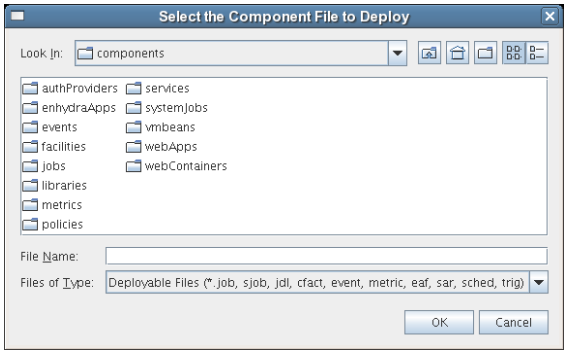
There are three methods you can use to deploy a job:

- 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.

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 97

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.

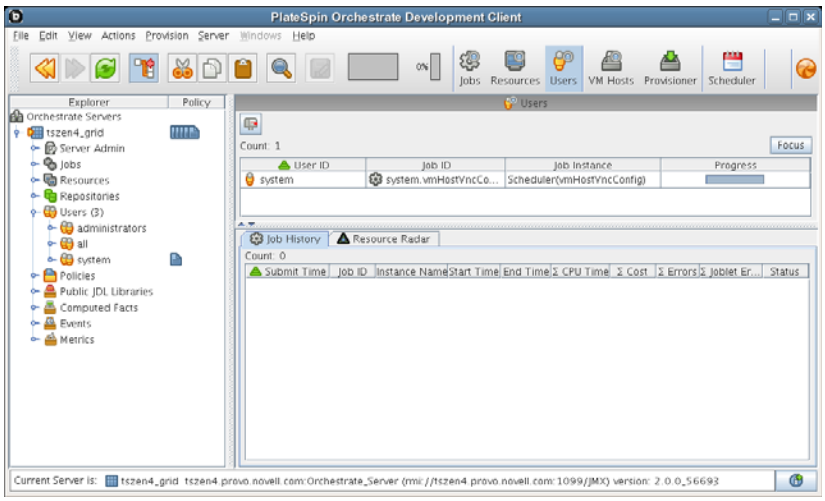
This section of the walkthrough introduces the basics of creating a user account:

- Section 3.6.1, "Opening the Users Monitor," on page 97
- Section 3.6.2, "Automatically Registering a User," on page 98
- Section 3.6.3, "Manually Registering a User," on page 99
- Section 3.6.4, "Logging In a User for Manual Registration," on page 100

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.

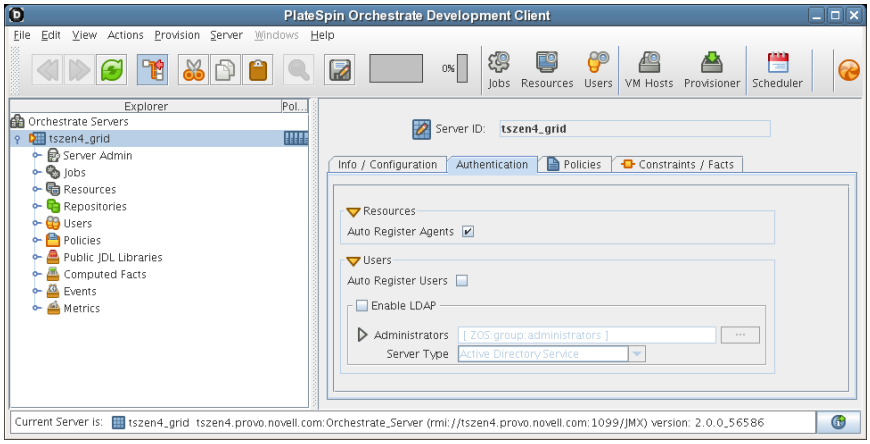
You can use the Development Client to register a user automatically (see Section 3.6.2, "Automatically Registering a User," on page 98) or to register a user manually (see Section 3.6.3, "Manually Registering a User," on page 99). You can also select which users can log in to create accounts (see Section 3.3.4, "Selecting a Resource for Manual Registration," on page 93).

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 2.0 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:

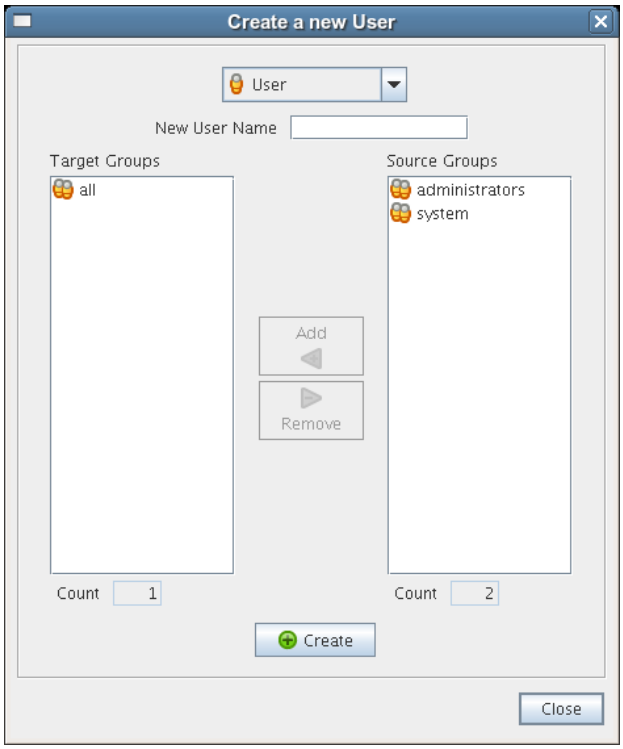
1 In the Explorer panel in the Development Client, right-click *Users* > click *New User* to display the Create a New User dialog box.

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.



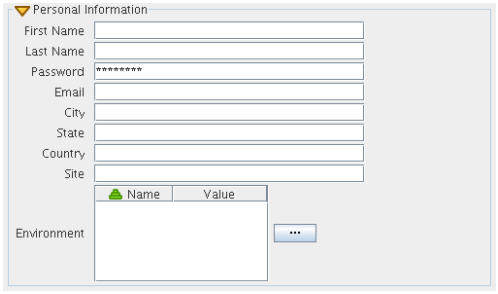
This dialog box includes a method for designating the user as a member of the *administrators* user group. In this walkthrough, we will create the user as a member of the *all* group, which does not place the user in the administrators group.

2 Specify the new username in the *New User Name* field, click *Create*, then click *Close*.

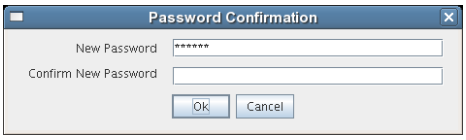
3 Define the user password.

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.



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



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 88) 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
```

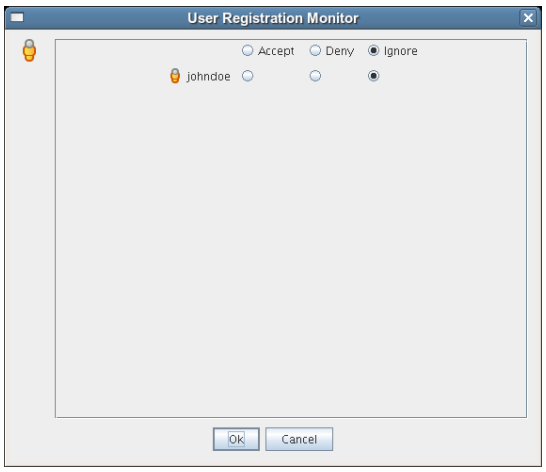
If you are attempting to log in to a machine other than the local host, you can alter the command to the following:

```
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`.

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.

3.7 Walkthrough: Running the Sample Job

Deployed jobs can be run from the User 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 do 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 102

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.

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

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

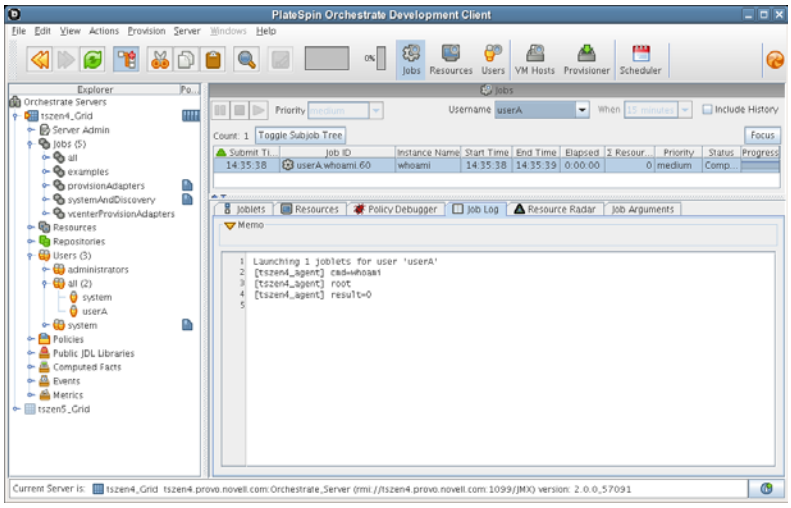
If you know the Job ID for a particular job that has run, you can use the `zos log job_id --verbose` command to display its detailed job log. Running this command yields an output like this:

```
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 User 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 User Portal. This section introduces the User Portal and how you can use it to verify that a job has run.

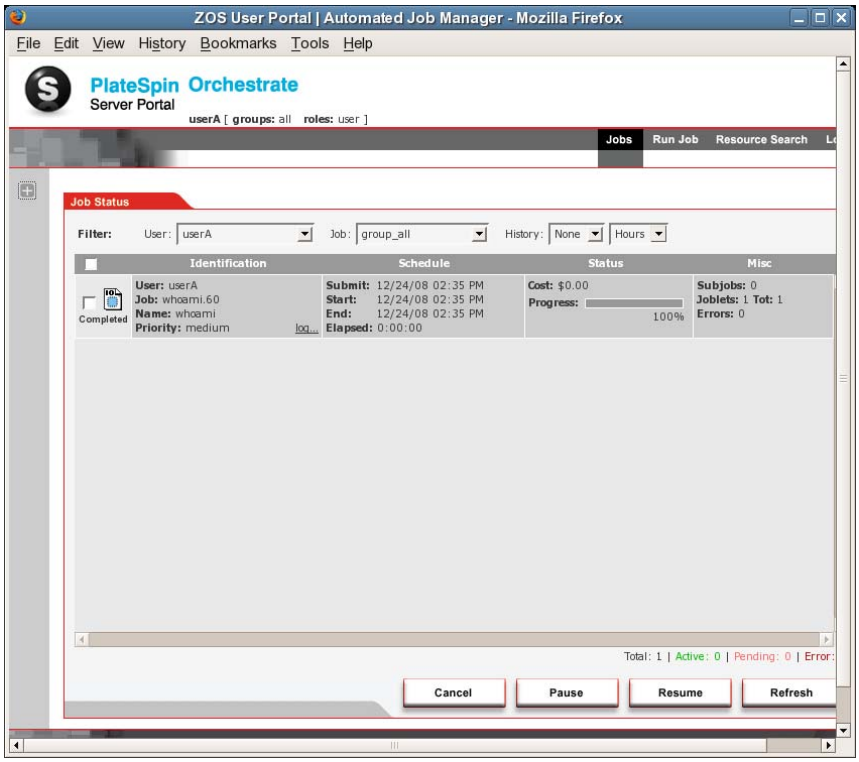
1. On any machine with a Web browser, enter the following URL:

   Orchestrate_Server_DNS_Name_or_IP_Address:*designated_User_Portal*

   For example:

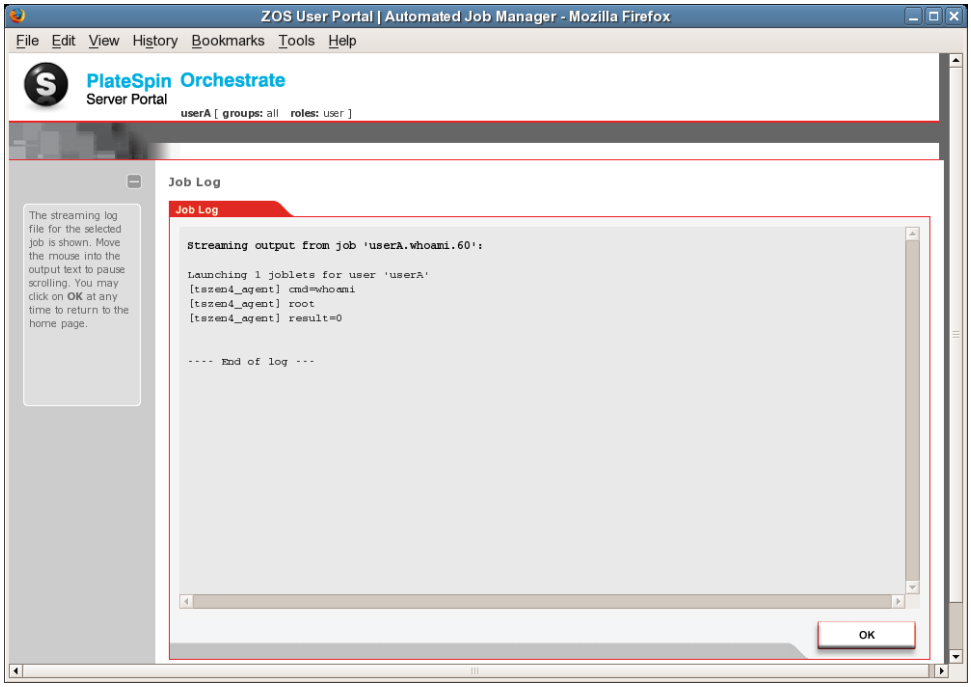
   `10.255.255.255:80`

   (The default port is 80, unless you have ZENworks Monitoring installed.) When you enter the URL, the User Portal is displayed in the browser.



2 Verify that the job you ran is displayed in the history of the User 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 User 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 106.

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 2.0 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 2.0 Administrator Reference*. If you want to learn about the job manager's role, see the *PlateSpin Orchestrate 2.0 Job Manager GuidePlateSpin Orchestrate 2.0 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 107

- Section 3.10.2, “Stopping and Starting the PlateSpin Orchestrate Agent,” on page 107
- Section 3.10.3, “Starting and Stopping the PlateSpin Orchestrate Development Client,” on page 108

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 107
- “Starting the Server” on page 107

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 107
- “Starting the Agent” on page 108

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 108
- "Starting the Orchestrate Development Client" on page 108

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

A

The table in this section provides information about each of the server and agent installation patterns in PlateSpin® Orchestrate from Novell®.

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
PlateSpin Orchestrate Server patterns				
Orchestrate Server	novell-zenworks-zos-java	zw_orch_config	zw_mon_server	S
[zw_zos_server]	novell-zenwroks-zos-server		zw_zos_clients	
	novell-zenworks-zos-server-data-agent			
	novell-zenworks-zos-server-data-clients			
	novell-zenworks-zos-server-data-jre			
Monitoring Server	novell-zenworks-monitor-gmetad	zw_mon_agent		S
[zw_mon_server]	novell-zenworks-monitor-web	zw_orch_config		
PlateSpin Orchestrate Agent patterns				
Orchestrate Agent	chntpw	zw_orch_config	zw_mon_agent	A
[zw_zos_agent]	fuse			
	novell-zenworks-zos-agent			
	novell-zenworks-zos-java			
	xen-cim-cmpi			
	ntfs-3g			
	python-pywbem			
Development Client	novell-zenworks-zos-clients			S or A
[zw_zos_clients]	novell-zenworks-zos-java			

Install Pattern and {Short Name}	Default Packages Installed	Required Patterns	Additional Recommended Patterns	Server /Agent
Virtual Machine Builder [zw_vm_builder]	python-pywbem sblim-cmpi-xenvm-builder	zw_zos_agent zw_zos_clients zw_orch_config	zw_mon_agent	A
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