AUTHORIZED DOCUMENTATION

Upgrade Guide

Novell® PlateSpin® Orchestrate™

2.0

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Contents

About This Guide

This *Upgrade Guide* introduces the process of upgrading Novell® ZENworks® Orchestrator 1.3 to PlateSpin® Orchestrate 2.0.1. The guide provides an introductory overview of the requirements for upgrading and explains which components are compatible. Further, it provides specific instructions for performing the upgrade. The guide is organized as follows:

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 Orchestrate VM Client tasks and tools used by the VM administrator, see the *PlateSpin Orchestrate 2.0 VM Client Guide and Reference*. For more information about the Orchestrate Development Client tasks and tools used by the VM administrator, see the *PlateSpin Orchestrate 2.0 Virtual Machine Management Guide*.

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* and the *PlateSpin Orchestrate 2.0 Command Line 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.

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Documentation Updates

For the most recent updates for this *Upgrade Guide*, visit the PlateSpin Orchestrate 2.0 Web site (http://www.novell.com/documentation/pso_orchestrate20/).

Documentation Conventions

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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.

Upgrade Overview

1

PlateSpin® Orchestrate from Novell® has been engineered to allow upgrading of Novell ZENworks® Orchestrator 1.3 components to continue working in the PlateSpin Orchestrate 2.0 environment. The upgrade process affects the following Orchestrator components:

- the Orchestrator Server (1.3) upgrades to PlateSpin Orchestrate Server (2.0.1)
- the Orchestrator Console (1.3) upgrades to PlateSpin Orchestrate Development Client (2.0.1)
- the Orchestrator Agent (1.3) upgrades to the PlateSpin Orchestrate Agent (2.0.1)
- the Orchestrator Virtual Machine Builder (1.3) upgrades to the PlateSpin Virtual Machine Builder (2.0)
- the Orchestrator VM Manager client (1.3) upgrades to PlateSpin Orchestrate VM Client (2.0.1)
- the Orchestrator Virtual Machine Builder Agent
- the Orchestrator Monitoring Server
- the Orchestrator Monitoring Agent

This section explains what you must do prior to initiating the upgrade process, how the process works, and how you can see the upgrade process happening. The following information is included:

- Section 1.1, “Basic Functions of the Upgrade,” on page 9
- Section 1.2, “Compatibility Checking Behavior,” on page 10
- Section 1.3, “Configuring the Upgrade,” on page 13

1.1 Basic Functions of the Upgrade

Before you begin the PlateSpin Orchestrate upgrade process, you need to know the underlying assumptions of the process so that you can better understand how to proceed. The following list details the most important of those assumptions:

- To check the installed Orchestrator components for version number, run the following command on a Linux machine where agent, client, or server components are installed.

  ```
  rpm -qa | grep 'novell-zen'
  ```

  To check version numbers on a Windows machine, open the *Add or Remove Programs* console in Windows and look for the agent or client version number in the programs list.
- The upgrade to PlateSpin Orchestrate must be done for all Orchestrator Server, Orchestrator Console, and all Orchestrator Agent components. Running older agents with newer server components or running older consoles and interfaces with newer server components (or vice versa) is not supported.
- Upgrading a prior release of a 32-bit ZENworks Orchestrator installation to a newer 64-bit version of PlateSpin Orchestrate is not supported. Similarly, upgrading a prior release of a 64-bit ZENworks Orchestrator installation to a newer 32-bit version of PlateSpin Orchestrate is not supported.

- The ZENworks Orchestrator Server must be upgraded before Orchestrator Agents are upgraded. The Orchestrate Server operates with older agents running, but older agents cannot communicate with the PlateSpin Orchestrate 2.0 Server. You can upgrade the agents by selecting the Upgrade option on the Resource Registration dialog in the Development Client (formerly referred to as the ZENworks Orchestrator Console). For more information, see "Walkthrough: Creating a Resource Account" in the *PlateSpin Orchestrate 2.0 Installation and Configuration Guide*.

  NOTE: Upgrading an agent before upgrading the server causes the agent to terminate and to throw the following message:

  ```
  11.05 06:23:39 : ERROR: Agent software version mismatch.
  11.05 06:23:39 : ERROR: Current agent version: 2.0.1
  11.05 06:23:39 : ERROR: Server expecting version: 1.3.0
  CTRL-C Received.
  Shutdown node core: perf162
  ZOS Agent Terminating: 11.05 06:23:39
  ```

- After you upgrade the server components, older versions of the ZENworks Orchestrator Agents, the ZENworks Orchestrator Console, and the Orchestrator VM Manager GUI might not work with the newer server components. The Orchestrate Development Client identifies the managed nodes that have non-compatible agents. For more information about component compatibility, see Section 1.2, "Compatibility Checking Behavior," on page 10.
- The ZENworks Orchestrator 1.3 VM Manager interface is not upgraded; it is replaced entirely by the PlateSpin Orchestrate VM Client. However, any previous version should be uninstalled before installing version 2.0.
- Errors can occur during the upgrade process. These errors can be resolved and the upgrade process can be re-run. For more information about how the recovery works, see Section 2.3, "Recovering from a Failed Orchestrator Server Upgrade," on page 29.
- After the PlateSpin Orchestrate Server is upgraded and started, rolling back to ZENworks Orchestrator 1.3 is not supported.
- Step-by-step information about the events occurring during the upgrade process is recorded in `server.log`, located in the `/var/opt/novell/zenworks/zos/server/logs` directory.

1.2 Compatibility Checking Behavior

For managed agents (nodes), the agents report the version incompatibility in the agent log file. On the server, the attempted connection by an incompatible agent is detected, and the agent is listed on the Orchestrator Console as incompatible and in need of either an upgrade or downgrade to the correct version. Also, an incompatible agent connection attempt causes the node manager on the server to raise a `NEED_UPGRADE` event that can be caught to provide custom handling of agents in need of upgrade.

This section includes the following information:

- Section 1.2.1, "Behavior Shown by the Orchestrate VM Client When Detecting Incompatibility," on page 11
- Section 1.2.2, "Development Client Behavior When Detecting Incompatibility," on page 11

1.2.1 Behavior Shown by the Orchestrate VM Client When Detecting Incompatibility

The information in this section lists the known behaviors exhibited when the PlateSpin Orchestrate VM Client (formerly referred to as Orchestrator VM Manager) is upgraded to version 2.0 when other Orchestrator components are not upgraded.

Even when the Orchestrator Monitoring Server is newer or older than the installed VM Management Interface, it is not necessarily incompatible with the interface. The interface does not detect or display the version of the Monitoring Server. The Monitoring Server uses Internet browser capabilities to display its information in HTML format, so the monitored information is still available.

1.2.2 Development Client Behavior When Detecting Incompatibility

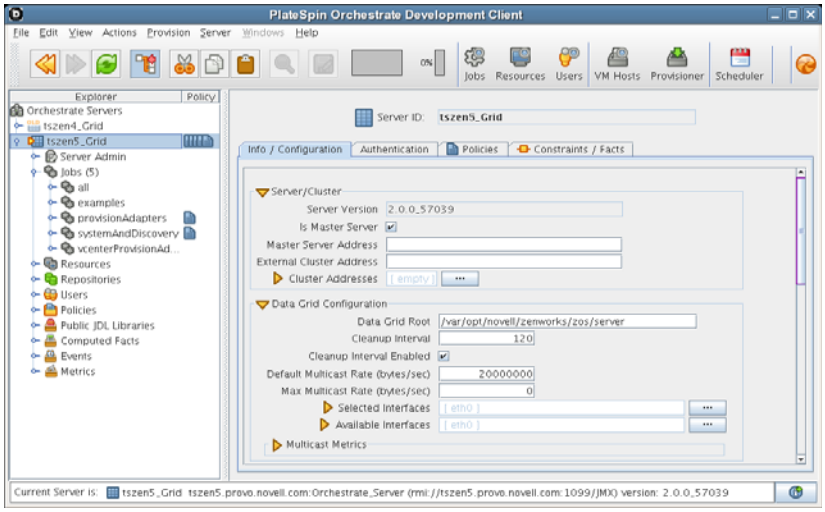
The PlateSpin Orchestrate Development Client detects incompatibility only in the Orchestrate Agent. The information in the following sections details that behavior.

- “If the Orchestrate Server Is Not Compatible with the Development Client” on page 11
- “When an Agent Version Does Not Match the Server Version” on page 12

If the Orchestrate Server Is Not Compatible with the Development Client

When the Orchestrate Development Client detects an older version of the ZENworks Orchestrator Server, the console displays an “old” icon overlay over the grid object.

Figure 1-1 *PlateSpin Orchestrator Development Client Displaying an “Old” Icon*



The Orchestrate Development Client displays a “new” icon overlay on the Grid Object if the Grid Object is newer than the Development Client. (The same behavior happens if you are using the ZENworks Orchestrator Console.) The version of the server is included in the tool tip display of the grid object in the Explorer tree view. The logged-in server shows the version at the bottom of the view.

When an Agent Version Does Not Match the Server Version

When an older, incompatible version of the agent communicates with the server, the server detects it and flags the agent as “old.” This incompatibility is displayed in the Orchestrate Development Client, where an older version of the agent is shown in the Tree view with an “old” icon or in the Monitor view with an “old” icon. At this point, the agent also logs a fatal connection error.

Figure 1-2 *Old Orchestrator Agent Resource Displayed in Tree View*

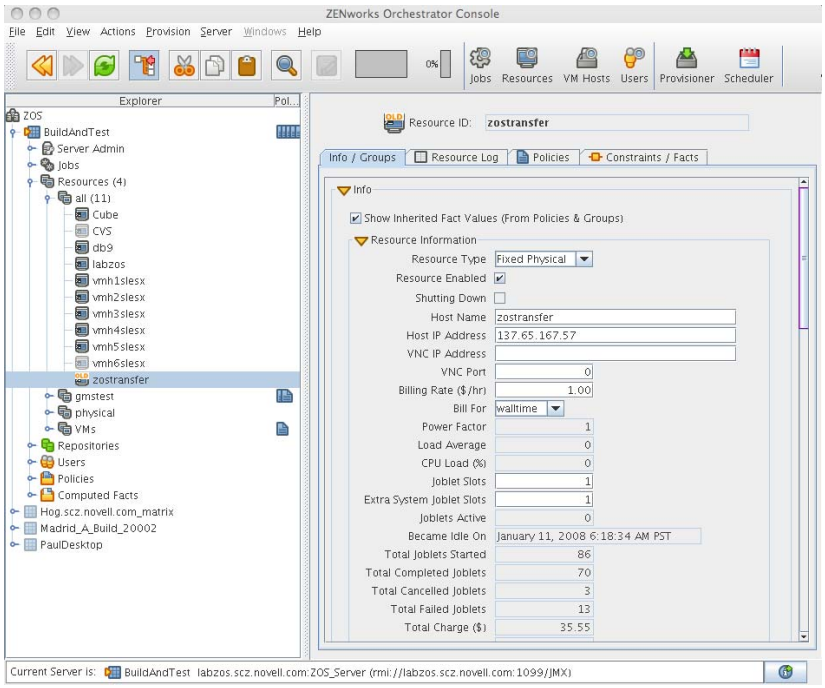
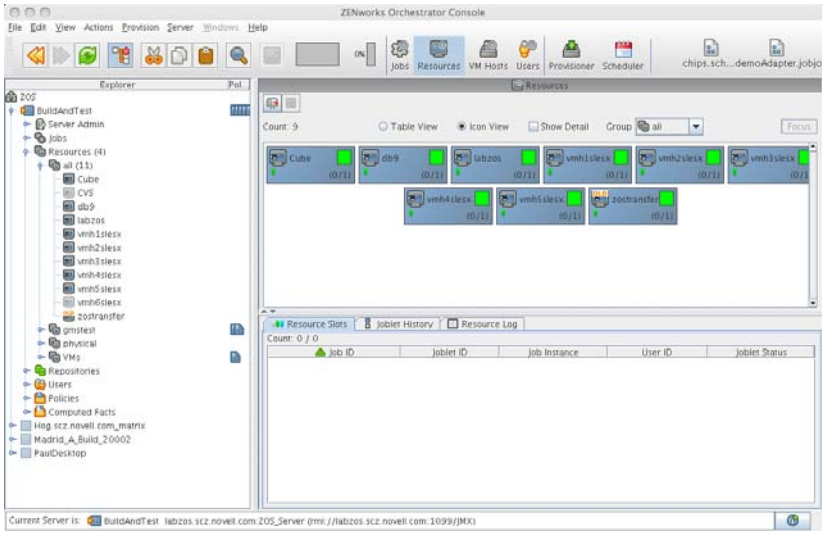


Figure 1-3 *Old Orchestrator Agent Resource Displayed in Tree View and Monitor View*



1.3 Configuring the Upgrade

Following the installation of the new software, you need to configure the software for your PlateSpin Orchestrate system. You can do this by launching either a terminal-based config script or a GUI Configuration Wizard from the command line.

When you use the GUI Configuration Wizard, you have the option of configuring the software now or saving the config script for use during an automated mass upgrade. For more information, see Section 2.8, “Running the Upgrade Configuration on an Enterprise Scale,” on page 43.

Upgrading ZENworks Orchestrator 1.3 Components to PlateSpin Orchestrate 2.0

2

This section provides information about upgrading from Novell® ZENworks® Orchestrator 1.3 to PlateSpin® Orchestrate 2.0 from Novell. It is important that you upgrade the ZENworks Orchestrator components you have installed in the sequence that follows:

2.1 Upgrading the ZENworks Orchestrator Server Components

The following information lists the upgrade steps in the order that they should be performed.

1. Section 2.1.1, "Checking Out the VMs that Are to be Used in PlateSpin Orchestrate," on page 16
2. Section 2.1.2, "Backing Up the Orchestrator Server Prior to Upgrading," on page 16
3. Section 2.1.3, "Checking the Current Version of ZENworks Orchestrator," on page 16
4. Section 2.1.4, "Snapshotting the Existing Server Installation," on page 17
5. Section 2.1.5, "Upgrading the ZENworks Orchestrator Server Packages," on page 17

   If you use the command line tools to upgrade, we recommend that you also clean up any obsolete packages after the upgrade. Follow the steps in "Removing Obsolete and Unneeded ZENworks Orchestrator Patterns" on page 21.
6. Section 2.1.7, "Checking the Upgraded Version of the Orchestrate Server," on page 22
7. Section 2.1.8, "Configuring the Upgraded Server Packages," on page 23

NOTE: To perform a mass upgrade of ZENworks Orchestrator Server 1.3 components, we recommend that you use a reputable application software distribution method to upgrade to the newer versions that ship with PlateSpin Orchestrate 2.0. For example, you can use ZENworks Linux Management to distribute new agents and clients to Linux servers.

If you choose to use ZENworks Linux Management, you should enable the rollback command. This will let you easily roll back to the prior version of ZENworks Orchestrator prior if the upgrade to PlateSpin Orchestrate is unsuccessful.

For more information, see Section 2.8, "Running the Upgrade Configuration on an Enterprise Scale," on page 43.

2.1.1 Checking Out the VMs that Are to be Used in PlateSpin Orchestrate

Any VMs that are checked in to the ZENworks Orchestrator 1.3 Warehouse cannot be discovered in PlateSpin Orchestrate VM Client. Therefore, to continue to use VMs that were created in ZENworks Orchestrator, you must check them out of the Warehouse before upgrading to PlateSpin Orchestrate.

For information on checking out VMs from the 1.3 Warehouse, see Checking Out a Virtual Machine (http://www.novell.com/documentation/zen_orchestrator13/zos13_vm_mgt/data/b9ugoht.html#b9ugov1) in the *Novell ZENworks Orchestrator 1.3 Virtual Machine Management Guide*.

2.1.2 Backing Up the Orchestrator Server Prior to Upgrading

As with the installation of any software, it is always a wise precaution to back up a working copy of the older version of ZENworks Orchestrator before you install the newer version of PlateSpin Orchestrate. To back up the old version, copy the `/var/opt/novell/zenworks/zos/server` directory. Of course, because ZENworks Orchestrator jobs are nearly always running, the only guaranteed "safe" way to make this copy is to stop the server before you make the backup. Even so, if the server is not too busy, making a backup when it is running is usually acceptable.

If you want to restore the older version of ZENworks Orchestrator, stop the Orchestrator Server, copy the backup of the `/var/opt/novell/zenworks/zos/server` directory into its original location, and restart the Orchestrator Server.

2.1.3 Checking the Current Version of ZENworks Orchestrator

Before you upgrade the ZENworks Orchestrator packages from version 1.3 to the PlateSpin Orchestrate 2.0.1 packages, you should check which packages of the older Orchestrator version need to be upgraded and which non-Novell packages are included in the product packages.

To do this, run the following command:

```
rpm -qa | grep 'novell-zen'
```

We recommend that you record the results of this command so that you can compare it with the results of a similar task following the upgrade (see Section 2.1.7, "Checking the Upgraded Version of the Orchestrate Server," on page 22).

2.1.4 Snapshotting the Existing Server Installation

Before you begin the upgrade process of the ZENworks Orchestrator Server, make sure that all running jobs are complete. If the jobs have not completed on their own, the upgrade processes forcibly cancels them, which is the normal behavior when the server is shut down. The effect on the jobs is that they are terminated abruptly before they finish running. The specific consequence of this termination depends on the job that is terminated.

When you are sure that the jobs are complete, you need to run a specific shutdown command to prepare a snapshot of the current configuration of the server so that a new version of a server can be started with the configuration of the old server. After the snapshot is taken, the upgrade process starts a new instance of the server, reading in the previous server's configuration from the snapshot

Use the following steps to perform the snapshot:

1. Check the running status of the server:

   ```
   /etc/init.d/novell-zosserver status
   ```

   If the Orchestrator Server is already stopped, you must start it before a snapshot can be created:

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

2. Create a snapshot of the server's current configuration with the following command:

   ```
   /etc/init.d/novell-zosserver stop --snapshot
   ```

   You can also create the snapshot by using the Development Client to shut down the server. To do so, select *Server* > *Shutdown Server* to display the Server Shutdown Confirmation dialog box.

   Select *Perform Snapshot of Server State*, then click *Shutdown*.

2.1.5 Upgrading the ZENworks Orchestrator Server Packages

There are two methods for upgrading ZENworks Orchestrator Server Packages.

- If you want to use a graphical user interface (GUI) see "Upgrading ZENworks Orchestrator Server Packages Using YaST" on page 18.
- If you want to use the command line to upgrade the packages, see "Upgrading ZENworks Orchestrator Server Packages at the Command Line" on page 20.
- If you use ZENworks Linux Management tools to upgrade the packages, we recommend that you use the same tools to clean up the environment, see

Upgrading ZENworks Orchestrator Server Packages Using YaST

Use the following procedure if you want to use YaST, a graphical user interface, to upgrade the ZENworks Orchestrator packages. If you want to use the command line to upgrade, see "Upgrading ZENworks Orchestrator Server Packages at the Command Line" on page 20.

1 Download the appropriate PlateSpin Orchestrate 2.0.1 ISO (32-bit or 64-bit), then prepare it for installation:

- (Optional) Burn a DVD of the ISO image and load it into the DVD drive of the target machine.
- (Optional) Copy the ISO image to the local file system. For more information, see "Adding a Local Mount Point As An Installation Source in YaST" on page 19.
- (Optional) Mount the ISO image file on the machine where PlateSpin Orchestrate is to be installed (the "target" machine). For details, see "Adding a Local Directory As An Installation Source in YaST" on page 20.
- (Optional) If you are installing the ISO image to a large network, extract the product files from the ISO image to a web server / ftp server that can be accessed by the target machine without the need for authentication or anonymous login. For details, see "Adding an ISO or Web URL As An Installation Source in YaST" on page 20.

2 Upgrade ZENworks Orchestrator Server software packages:

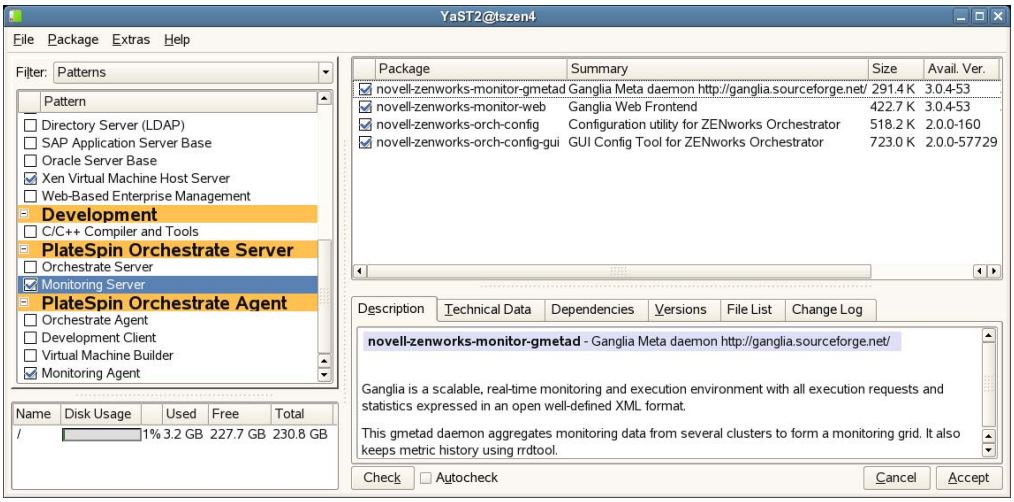
2a Log in to the target SLES server as `root`, then open YaST2.

2b In YaST2, select *Software* > *Add-on Product*, select the method to open the product ISO on your machine, click *Next*, then follow the procedures to mount the ISO.

2c From the License Agreement page, select the option to agree to the license terms, then click *Next*.

2d In YaST2, open the *Filter* drop-down list, select *Patterns* to display the Patterns and Packages view, then click *Details* to close the information pane and open the Package frame.

2e In the *Patterns* frame (left-hand side of the view), select a PlateSpin Orchestrate pattern already installed on this server. The *Package* frame lists the packages either installed or not yet installed for this pattern.



Component packages already installed to the server are checked.

NOTE: Package names for this release of PlateSpin Orchestrate continue to use "novell-zenworks" in the prefix or "ZENworks Orchestrator" in the summary description.

2f Right-click on any of the installed package names, click *All in This List > Update if newer version available*, then click *Accept* to install the upgraded packages.

2g Repeat Step 2f and Step 2f for each installed pattern you are upgrading.

IMPORTANT: The Orchestrate Server pattern includes a new package for version 2.0.1 called `chntpw`. Because the package is new, you must install it after the other packages in the pattern are upgraded.

In the *Packages* list, right click `chtpw`, select *Install*, then click *Accept* to install the package.

After the RPMs are upgraded, scripts are run that do the following:

- Back up the existing server instance directory
- Upgrade the RPMs for the selected PlateSpin Orchestrate patterns

3 Configure the PlateSpin Orchestrate Server. You can use one of two information gathering methods to perform the configuration:

- Run the Orchestrator product configuration script. If you use this method, continue with the steps in "Running the PlateSpin Orchestrate Product Configuration Script to Configure the Upgraded Packages" on page 23.
- Run the GUI Configuration Wizard. If you use this method, skip to the steps in "Running the GUI Configuration Wizard to Configure the Upgraded Packages" on page 24.

Adding a Local Mount Point As An Installation Source in YaST

If you want to mount the ISO image file on a particular machine,

1 Log in to the target SLES 10 server as root.

2 From the command line of the target machine, enter the following commands

```
mkdir /mnt/iso
```

```
mount -o loop PlateSpin_Orchestrate-2.0.1.x86_64.iso /mnt/iso
```

(where you substitute the name of the ISO (32-bit or 64-bit) that you are using).

3 Open YaST2.

4 In the YaST Control Center, click *Software*, then click *Installation Source* to display the Configured Software Catalogs view.

5 In the Configured Software Catalogs view, click *Add* to open the Media Type view.

6 In the Media Type view, select *Local Directory*, then click *Next* to open the Local Directory or ISO view.

7 In the *Path to Directory or ISO Image* field of the Local Directory or ISO view, enter the mount point:

```
/mnt/iso
```

Adding a Local Directory As An Installation Source in YaST

If you want to mount the ISO image file on a particular machine,

1. Log in to the target SLES 10 server as root.
2. Open YaST2.
3. In the YaST Control Center, click *Software*, then click *Installation Source* to display the Configured Software Catalogs view.
4. In the Configured Software Catalogs view, click *Add* to open the Media Type view.
5. In the Media Type view, select *Local Directory*, then click *Next* to open the Local Directory or ISO view.
6. In the *Path to Directory or ISO Image* field of the Local Directory or ISO view, select *ISO Image*, browse to the path where you copied the ISO image file, then click *Next*.

Adding an ISO or Web URL As An Installation Source in YaST

To add an `.iso` file or Web URL as an installation source in YaST,

1. Log in to the target SLES 10 server as root, then open YaST2.
2. In the YaST Control Center, click *Software*, then click *Installation Source* to display the Configured Software Catalogs view.
3. In the Configured Software Catalogs view, then click *Add* to open the Media Type view.
4. In the Media Type view, select an installation media type.
   - **4a** (Example) If you extracted the ISO image to a Web Server or FTP Server, select *HTTP* (or *FTP*), then click *Next* to open the Server and Directory view.
   - **4b** In the *Server Name* field of the Server and Directory view, enter the Server Name (IP Address or DNS Name), in the *Directory on Server Field*, enter the directory name where you extracted the ISO, then click *Next*.

Upgrading ZENworks Orchestrator Server Packages at the Command Line

To prepare for the upgrade, download the appropriate PlateSpin Orchestrate 2.0.1 ISO (32-bit or 64-bit), then prepare it for installation:

- (Optional) Burn a DVD of the ISO image, mount the DVD, then extract the contents of the `.iso` folder to the local file system of the server.
- (Optional) Extract the contents of the `.iso` folder to the local file system of the server.

Use the following procedure if you want to use the `rug` command on the SLES server to upgrade the ZENworks Orchestrator packages to PlateSpin Orchestrate packages.

IMPORTANT: A known problem in the pattern and package versioning of SLES generates a list of patterns that are upgraded (in this case, to version 2.0.1) but the subordinate packages might still appear to be ZENworks Orchestrator 1.3 patterns. Some upgrade packages might also be missing from the list. The following steps are mandatory to ensure that the correct packages are upgraded.

---

1. At the command line, change to the directory where the Orchestrator `.iso` folder was extracted, then run the following command:

```
rug sa -t zypp "http://<ip_address_of_local_server>/
<directory_location_of_iso_files>"
```

NOTE: If you have chosen not to extract the files and you want to use the `.iso` image to upgrade, use the following command in this step:

```
rug sa -t zypp "iso:///?iso=$ISO_FILE_NAME&url=dir:///
$PATH_TO_ISO/"
```

For example, for the ISO located at `/root/Desktop/PlateSpin_Orchestrate-2.0.1.x86_64.iso`, you could use this command:

```
rug sa -t zypp "iso:///?iso=PlateSpin_Orchestrate-
2.0.1.x86_64.iso&url=dir:///root/Desktop/"
```

NOTE: If you are using an ftp server, extract the contents of the `.iso` to a folder, use the following command:

```
"ftp://<ip_address_of_local _server>/
<directory_location_of_iso_files>"
```

---

2. Run the following command to subscribe to the PlateSpin catalog:

   ```
   rug sub platespin
   ```

3. Run command to list the upgrade packages so you can visually confirm them:

   ```
   rug lu
   ```

4. Run the following command to upgrade the ZENworks Orchestrator Server to a PlateSpin Orchestrate Server:

   ```
   rug up
   ```

   Remember to type `y` (yes) when you are asked if you want to proceed with the upgrade transaction.

5. Repeat Step 1 through Step 4 for every server that needs to be upgraded.

6. From the command line of machine where you ran the `rug up` command, use the following command to bypass the 1.3 patterns that are not part of the upgrade:

   ```
   patterns_to_upgrade=$(rug --terse pt -i | grep zw | grep -v
   warehouse | grep -v orch_config | cut -d'|' -f2)
   ```

   The `vmwarehouse` and `orch_config` patterns are avoided in the upgrade.

7. Run the following command to install the patterns that are to be upgraded:

   ```
   rug in -t pattern $patterns_to_upgrade -y
   ```

Removing Obsolete and Unneeded ZENworks Orchestrator Patterns

After you upgrade ZENworks Orchestrator 1.3 packages to PlateSpin Orchestrate 2.0.1 packages, you need to manually remove the obsolete patterns and packages that remain after the upgrade.

1. On the machine where the ZENworks Orchestrator 1.3 VM Warehouse is installed, run the following command:

   ```
   rug rm -t pattern zw_vm_warehouse -y
   ```

   A system message is displayed:

```
The following packages will be removed:
  zw_vm_warehouse 1.3-0 (system)
```

2 Run the following command to remove the remainder of the VM Warehouse component:

```
rug rm novell-zenworks-vmwarehouse-base novell-zenworks-
vmwarehouse-cimproviders -y
```

A system message is displayed:

```
The following packages will be removed:
  novell-zenworks-vmwarehouse-base 1.3.0-46 (system)
  novell-zenworks-vmwarehouse-cimproviders 1.3.0-27 (system)
```

3 Because the Monitoring Server in PlateSpin Orchestrate must now be installed on the same machine with the Orchestrate Server, you need to remove it from its own server and install it on the Orchestrate Server machine. Run the following command from the command line of the Monitoring Server machine to stop the monitoring function:

```
/etc/init.d/novell-gmetad stop
```

4 Use the following command to remove the Monitoring Server pattern:

```
rug rm -t pattern zw_mon_server -y
```

A system message is displayed:

```
The following packages will be removed:
  zw_mon_server 1.3-0 (system)
```

5 Use the following command to remove the remainder of the Monitoring component on this machine:

```
rug rm novell-zenworks-monitor-gmetad novell-zenworks-monitor-
web -y
```

A system message is displayed:

```
The following packages will be removed:
  novell-zenworks-monitor-gmetad 3.0.4-44 (system)
  novell-zenworks-monitor-web 3.0.4-44 (system)
```

Make sure you install the monitoring components on the Orchestrate Server after you have removed Monitoring from its own machine. For more information, see "Installation and Configuration Steps" in the *PlateSpin Orchestrate 2.0 Installation and Configuration Guide*.

2.1.6 Running Discover on VM Images

Because many new facts have been added to PlateSpin Orchestrate VMs for version 2.0.1, it is necessary to re-discover all of the VMs in the grid so that the new facts are added to the VMs.

To do this from the Orchestrate Development Client tools menu, click *Provision* > *Discover VM Images*, select the Provisioning Adapter you want to run for the discovery, then click OK.

2.1.7 Checking the Upgraded Version of the Orchestrate Server

After you upgrade the ZENworks Orchestrator packages to PlateSpin Orchestrate 2.0.1, you should check the upgraded software packages to confirm that all of the earlier versions of the product components are now updated and which of the non-Novell packages have been updated.

To do this, change to the directory where the current version of PlateSpin Orchestrate was extracted, then run the following command:

```
rpm -qa | grep 'novell-zen'
```

Compare the results of this command with the results you had with the check you performed before the upgrade (see Section 2.1.3, “Checking the Current Version of ZENworks Orchestrator,” on page 16). If some of the components have not been upgraded from the earlier version, the incompatibility between the components could cause unexpected behavior.

2.1.8 Configuring the Upgraded Server Packages

You can use one of two information gathering methods to configure upgraded PlateSpin Orchestrate packages:

- “Running the PlateSpin Orchestrate Product Configuration Script to Configure the Upgraded Packages” on page 23
- “Running the GUI Configuration Wizard to Configure the Upgraded Packages” on page 24

Running the PlateSpin Orchestrate Product Configuration Script to Configure the Upgraded Packages

If you decide to use the product configuration script to configure the upgraded PlateSpin Orchestrate packages, follow these steps:

1. Make sure you are logged in as `root` to run the configuration script.
2. Run the script, as follows:

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

   When the script runs, the Install or Upgrade option is displayed as follows::

   ```
   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]:
   ```

3. Enter `u` to select the option to upgrade to PlateSpin Orchestrate.

   Depending on which components were installed, the script displays the products to upgrade

   ```
   Select products to upgrade

    #   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]:
```

4 Select the products you want to upgrade either by entering their individual product numbers (`1-5`) or by entering `a` to select all of the products for upgrade.

NOTE: We recommend that you upgrade all listed components at the same time. Although you can upgrade the packages one at a time, there is no need to do so. An upgrade of all the packages at the same time has been thoroughly tested.

If you upgrade any package separately, however, we recommend that you do not run the upgrade script again. Doing so might have unexpected results.

---

5 Enter `f` to finish the selection and begin the configuration.

The upgrade interview is nearly identical to the installation interview. For more information about the questions gathered during this interview that are added to the configuration script, see "PlateSpin Orchestrate Configuration Information" in "Installation and Configuration" in the *PlateSpin Orchestrate 2.0 Installation and Configuration Guide*.

The Orchestrator Server automatically starts at the end of a successful configuration process.

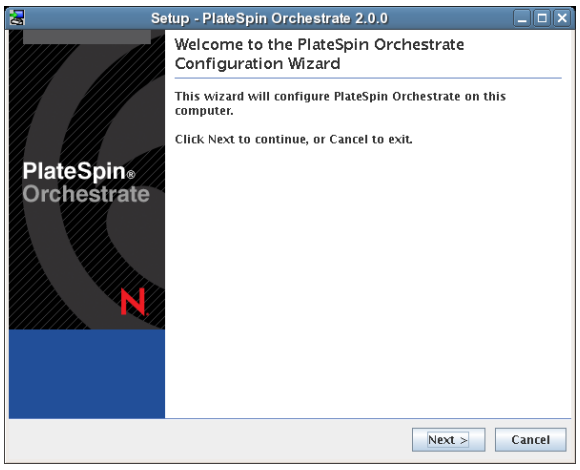
Running the GUI Configuration Wizard to Configure the Upgraded Packages

If you decide to use the GUI Configuration Wizard to configure the upgraded Orchestrator packages, follow these steps:

1 Run the script for the PlateSpin Orchestrate Configuration Wizard as follows:

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

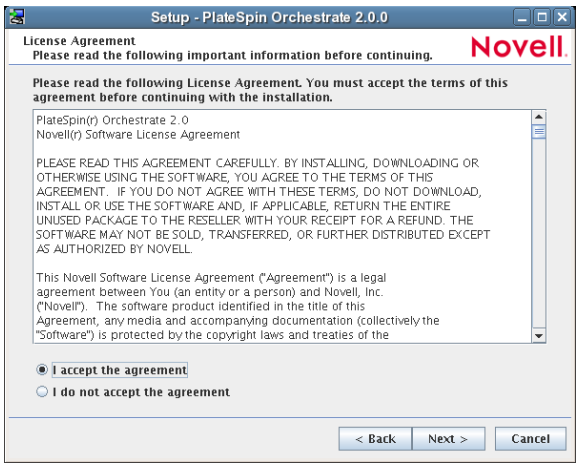
The GUI Configuration Wizard launches.



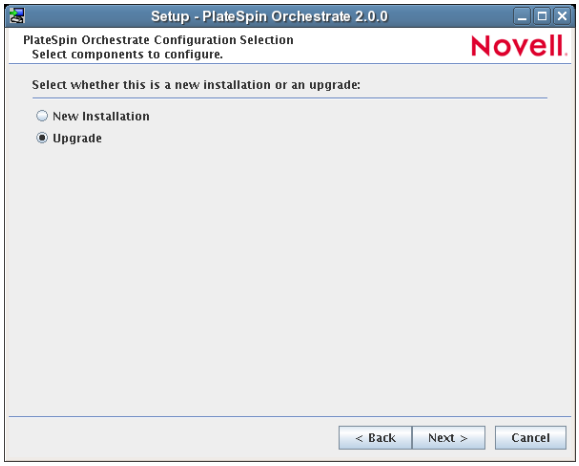
IMPORTANT: If you only have a keyboard to navigate through the pages of the GUI Configuration Wizard, use the Tab key to shift the focus to a control you want to use (for example, a *Next* button), then press the spacebar to activate that control.

---

2 Click *Next* to display the license agreement.

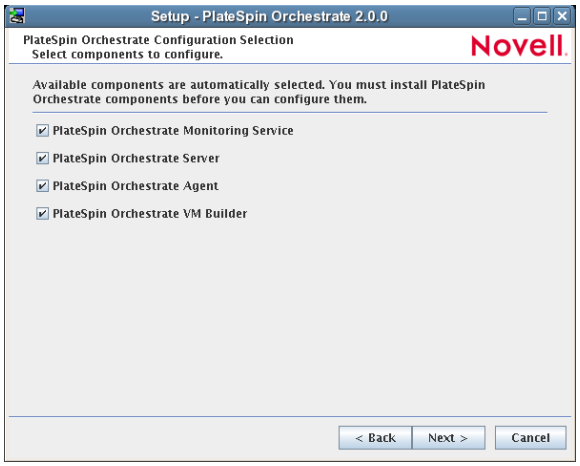


3 Accept the agreement, then click *Next* to display the PlateSpin Orchestrate Configuration Selection page.



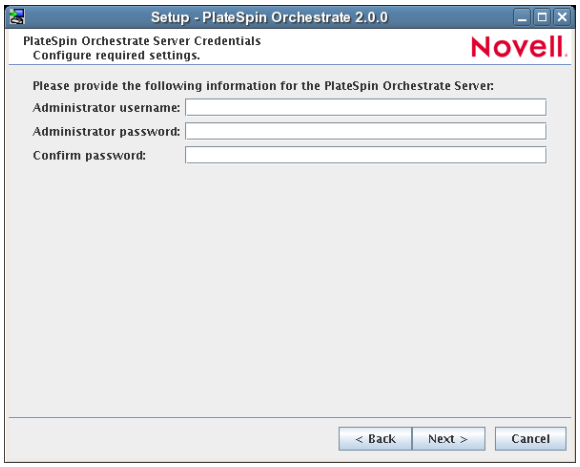
4 Select *Upgrade*, then click *Next* to display the PlateSpin Orchestrate components page.

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



5 Deselect any PlateSpin Orchestrate components that you do not want to upgrade, then click *Next* to open the wizard page where you choose to configure the server for a High Availability clustered environment.

6 Click *Next* on the High Availability page to open the wizard page where you can begin configuring required settings.



(This example does not demonstrate configuring the server for a High Availability environment)

7 Fill in the fields as needed for each of the configuration pages.

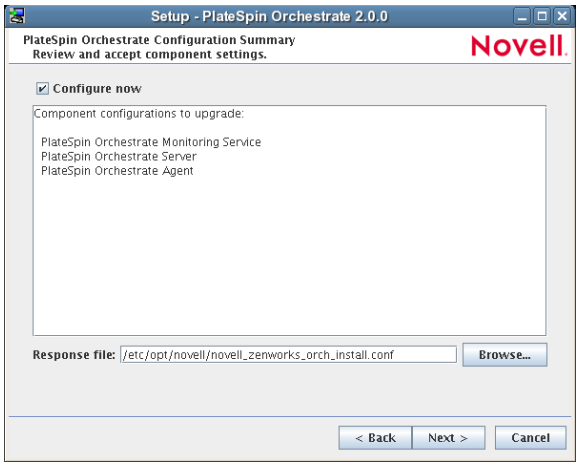
If you need clarification for the data to enter into the fields of the configuration pages, refer to the table in "PlateSpin Orchestrate Configuration Information" section of the *PlateSpin Orchestrate 2.0 Installation and Configuration Guide*.

Make sure you provide the path to the new PlateSpin Orchestrate license file during the configuration.

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

If an error is displayed during the configuration process, the script or wizard stops the configuration and does not proceed.

8 Click *Next* to display the Configuration Summary page of the configuration wizard.



IMPORTANT: Although this page of the wizard lets you navigate using the Tab key and Spacebar, you need to use the Shift+Tab combination to navigate past the summary list. Click *Back* if you accidentally go to the summary list, then 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, the wizard starts PlateSpin Orchestrate and applies the configuration settings.

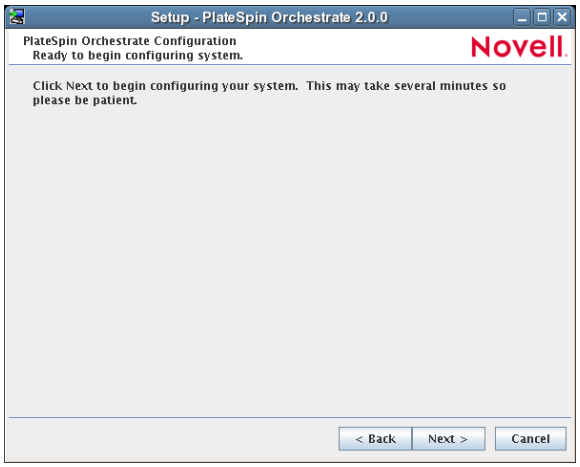
If you deselect the check box, the wizard writes the configuration file to `/etc/opt/novell/novell_zenworks_orch_install.conf` without starting PlateSpin Orchestrate or applying the configuration settings.

You can use this `.conf` file to start the Orchestrator server or client 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
```

9 Click *Next* to display a message asking whether you want to overwrite the `.conf` response file.

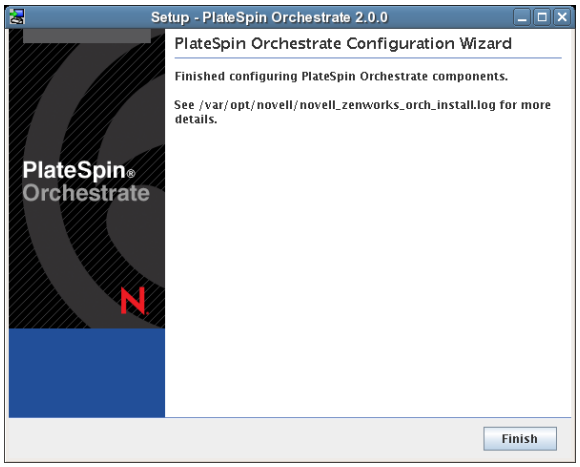
10 To upgrade, you need to overwrite the existing file. When prompted, click *Yes* to overwrite the file and display the configuration page.



11 Click *Finish* to dismiss the configuration wizard.

12 Click *Next* to begin the upgrade configuration for the PlateSpin Orchestrate Service.

When the configuration is complete, the Finish page of the configuration wizard is displayed.



The Orchestrate Server automatically starts at the end of a successful configuration process.

2.2 Orchestrator Components That Are Not Upgraded

When you upgrade from the ZENworks Orchestrator Server to PlateSpin Orchestrate, the core components are not upgraded or redeployed. Instead, the old core components are replaced with new core PlateSpin Orchestrate components. If, however, you made any changes to the core components, those changes are saved and you can manually re-enter the configuration you want after the upgrade.

For example, suppose you have deployed the Xen* provisioning adapter job and you made custom changes to the `xen30` policy file. When the Orchestrator Server prepares for an upgrade, it repackages the Xen provisioning adapter by creating a `.sar` archive and then stores it in `/`*`Orchestrator_instance_directory`*`/snapshot/deployment/core/xen.sar`. This `xen.sar` archive contains the current state of the Xen provisioning adapter, including your custom changes.

Later, when the Orchestrator server is upgraded, the new Xen provisioning adapter for the new server is deployed, but the changes you made previously are not applied. To apply these changes to the new server, you have two choices:

- Use the PlateSpin Orchestrate Development Client to manually apply the changes to the new server's core component. (You can review what these changes were by looking at the snapshot files in the `xen.sar` archive.)
- (Conditional) If you are migrating between servers of the same version whose core components have not changed, you can use the `zosadmin redeploy` command to manually redeploy the snapshotted core component.

2.3 Recovering from a Failed Orchestrator Server Upgrade

It is possible that the upgrade process could have problems. If this should occur, we suggest you follow these general steps to recover from those errors and "roll back" to the previous version of ZENworks Orchestrator.

- Section 2.3.1, "Failure Scenario 1: Error Resolution," on page 29
- Section 2.3.2, "Failure Scenario 2: Cannot Resolve Error," on page 29

2.3.1 Failure Scenario 1: Error Resolution

Follow these steps if you can resolve the error.

1. Open the upgrade log file to learn about the reason for the error, then resolve it.
2. Re-run the configuration

2.3.2 Failure Scenario 2: Cannot Resolve Error

Follow these steps if you cannot resolve the error:

1. Remove the new instance directory for the Orchestrator server, not including the datagrid.
2. Copy the old instance directory `/var/opt/novell/zenworks/zos.bak` to restore the Orchestrator Server data from the snapshot.
3. Restore the previous version RPMs of the ZENworks Orchestrator software.

2.4 Restoring ZENworks Orchestrator If the Upgrade Fails

If you use ZENworks Linux Management in your network, you can use it to restore an older version of the ZENworks Orchestrator Server if an upgrade has failed. This section contains information that can help you roll back a failed upgrade of PlateSpin Orchestrate 2.0 back to ZENworks Orchestrator 1.3.

- Section 2.4.1, "Requirements," on page 29
- Section 2.4.2, "Rollback Procedure," on page 30

2.4.1 Requirements

This scenario requires that you have already installed the ZENworks Orchestrator 1.3 ISO. That is, the 1.3 version of the Orchestrator Server should be running with exactly the same packages you originally installed and configured.

The scenario also requires that you have a PlateSpin Orchestrate 2.0 ISO on hand. It is important that you enable rollback through ZENworks Linux Management before you actually execute the rollback. ZENworks Linux Management records the changes you make to the RPM database when you enable rollback.

Rollback works only if you previously installed ZENworks Orchestrator packages using ZENworks Linux Management. ZENworks Linux Management records data about each package that it installs, deletes, or upgrades.

For more information about using ZENworks Linux Management for rollback, see Reverting to a Previously Installed Software Configuration State (http://www.novell.com/documentation/zlm72/lm7admin/index.html?page=/documentation/zlm72/lm7admin/data/b94fftd.html) in the *ZENworks 7.2 Linux Management Administration Guide*.

2.4.2 Rollback Procedure

Use the following steps to roll back a PlateSpin Orchestrate 2.0 upgrade to ZENworks Orchestrator 1.3

1. Make sure that you have the ZENworks Management Daemon installed, with rollback tools enabled.

   ```
   rug get rollback
   ```

2. Check repositories to ensure that they are disabled. You want only ZENworks Orchestrator upgrades.

   2a Run the following command to list the repositories:

   ```
   rug sl
   ```

   2b Run the following command to list the catalogs of subscribed repositories:

   ```
   rug ca
   ```

   2c Run the following command to unsubscribe from each subscribed repository:

   ```
   rug unsub "<name_of repository>"
   ```

3. Add a ZENworks Orchestrator 1.3 Server ISO as a repository.

   3a Run the following command, followed by the local path of the ISO, the ftp or http addresses, or the path to the CD or DVD media where the installation source of ZENworks Orchestrator 1.3 currently resides.

   ```
   rug sa -t zypp
   <installation_source_of_Orchestrator_1.3_Server> zos13
   ```

   This command adds the Orchestrator 1.3 repository to the ZENworks Management Daemon. The daemon uses the RPMs in the repository to roll back the server to its former state. For this reason, the repository (the `zos13` shown in the example) must have the same RPM package versions as ZENworks Orchestrator 1.3.

   For more information about adding repositories, see the *ZENworks 7.2 Linux Management Administration Guide* (http://www.novell.com/documentation/zlm72/lm7admin/data/front.html).

   3b Run the following command to list and confirm existing repositories:

   ```
   rug sl
   ```

   3c Run the following command to list and confirm the catalogs of subscribed repositories:

   ```
   rug ca
   ```

4. Subscribe to the `zos13` repository.

   4a Run the following command to subscribe to the `zos13` repository:

   ```
   rug sub zos13
   ```

4b Run the following command to list the catalogs and confirm the catalogs of subscribed repositories:

```
rug ca
```

The new repository shows `Yes` in the `Sub'd` (subscribed) column.

4c Run the following command to list and confirm updates:

```
rug lu
```

The message, `No updates are available`, is displayed, which indicates that no new updates to the repository are available–the RPMs match those in the `zos12` catalog.

5 Add a PlateSpin Orchestrate 2.0 Server ISO as a repository.

5a Run the following command, followed by the local path of the ISO, the ftp or http addresses, or the path to the CD or DVD media where the installation source of PlateSpin Orchestrate 2.0.1 currently resides.

```
rug sa -t zypp
<installation_source_of_PS_Orchestrate_2.0.1_Server> pso20
```

This command adds the PlateSpin Orchestrate 2.0 repository to the ZENworks Management Daemon. The daemon uses the RPMs in the repository to roll back the server to its former state. For this reason, the repository (the `pso20` shown in the example) must have the same RPM package versions as PlateSpin Orchestrate 2.0.1.

For more information about adding repositories, see the *ZENworks 7.2 Linux Management Administration Guide* (http://www.novell.com/documentation/zlm72/lm7admin/data/front.html).

5b Run the following command to list and confirm existing repositories:

```
rug sl
```

5c Run the following command to list and confirm the catalogs of subscribed repositories:

```
rug ca
```

6 Subscribe to the `pso20` repository.

6a Run the following command to subscribe to the `pso20` repository:

```
rug sub pso20
```

6b Run the following command to list the catalogs and confirm the catalogs of subscribed repositories:

```
rug ca
```

The new repository shows `Yes` in the `Sub'd` (subscribed) column for both the `zos13` and `pso20` repositories.

6c Run the following command to list and confirm the updated PlateSpin Orchestrate 2.0.1 packages:

```
rug lu
```

7 Run the following command to verify that the Orchestrator Server and the Orchestrator Agent are in a running state:

```
ps ax | grep java
```

8 Run the following command to perform the package upgrade (while the server is in a running state).

```
rug up
```

The upgrade scripts of the PlateSpin Orchestrate 2.0 RPM packages stop the Orchestrator Server and the Orchestrator Agent before the upgrade, then take a snapshot of the Orchestrator Server that is required for the upgrade.

9 When the package upgrade is complete, run the following command to launch the configuration script to upgrade the Orchestrator Server.

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

NOTE: For details on running the configuration script, see "Installation and Configuration Steps" in the *PlateSpin Orchestrate 2.0 Installation and Configuration Guide*.

If the upgrade configuration fails, error information is displayed in the terminal.

Because of the configuration upgrade failure, you need to use the ZENworks Management Daemon to roll back to the former (that is, the ZENworks Orchestrator 1.3) running state without losing data.

10 Run the following command to confirm that PlateSpin Orchestrate 2.0 packages are installed:

```
rpm -qa | grep zos
```

Because the 2.0.1 packages are installed but not configured, you cannot use them to start the Orchestrate Server.

11 Run the follow command to confirm that an instance of the Orchestrate Server was created:

```
ls /var/opt/novell/zenworks/zos/
```

The `agent`, `server` and `server.save` folders should be listed.

12 Run the following command to launch the ZENworks Linux Management (that is, the ZENworks Management Daemon) for rolling back to ZENworks Orchestrator 1.3.

```
rug ro 1 hour ago
```

NOTE: The rollback parameter, `1 hour ago`, is conditional: it specifies the state of the packages on the SLES server at a given time in the past. You need to specify the time when you are sure that Orchestrator 1.3 packages were installed and running so that you can roll back the current Orchestrate 2.0 packages to Orchestrator 1.3 packages.

---

13 Run the following commands to confirm that the system has been rolled back to version 1.3 and that a server instance exists:

```
rpm -qa | grep zos
ls /var/opt/novell/zenworks/zos/
```

14 Run the following command to start the ZENworks Orchestrator and ZENworks Orchestrator Agent:

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

2.5 Upgrading the ZENworks Orchestrator Agents and Clients

It is likely that you have installed ZENworks Orchestrator Agents and Orchestrator Clients on machines other than where the ZENworks Orchestrator Server components were installed. This section includes information that helps you to walk through the upgrade of those agents and clients.

- Section 2.5.1, "Checking the Current Version of the Orchestrator Agent," on page 33

NOTE: To perform a mass upgrade of ZENworks Orchestrator Agents we recommend that you use a reputable application software distribution method to upgrade to the newer versions that ship with PlateSpin Orchestrate 2.0. For example, you can use ZENworks Linux Management to distribute new agents and clients to Linux servers.

For more information, see Section 2.8, “Running the Upgrade Configuration on an Enterprise Scale,” on page 43.

2.5.1 Checking the Current Version of the Orchestrator Agent

Before you upgrade the ZENworks Orchestrator Agent packages from an earlier version to the current PlateSpin Orchestrate version, you should check which packages of the older Orchestrator version need to be upgraded and which non-Novell packages are included in the product packages.

To do this, change to the directory where the current version of the Orchestrator `.iso` was extracted, then run the following command:

```
rpm -qa | grep 'novell-zen'
```

We recommend that you record the results of this command so that you can compare it with the results of a similar task following the upgrade (see

2.5.2 Backing Up the Orchestrator Agent Prior to Upgrading

As with the installation of any software, it is always a wise precaution to back up a working copy of ZENworks Orchestrator 1.3 Agent directories before you install the newer version, such as PlateSpin Orchestrate 2.0. To back up the old version, copy the `/var/opt/novell/zenworks/zos/agent` directory.

2.5.3 Using the Product ISO to Upgrade Agents and Clients on a SLES 10 SP1 Machine

This section includes information about upgrading the agent and client packages on the product ISO.

Upgrading ZENworks Orchestrator Agent Packages Using YaST

Use the following procedure if you want to use YaST, a graphical user interface, to upgrade the ZENworks Orchestrator packages to PlateSpin Orchestrate packages. If you want to use the command line to upgrade, see "Upgrading ZENworks Orchestrator Agent Packages Using the rug Command" on page 35.

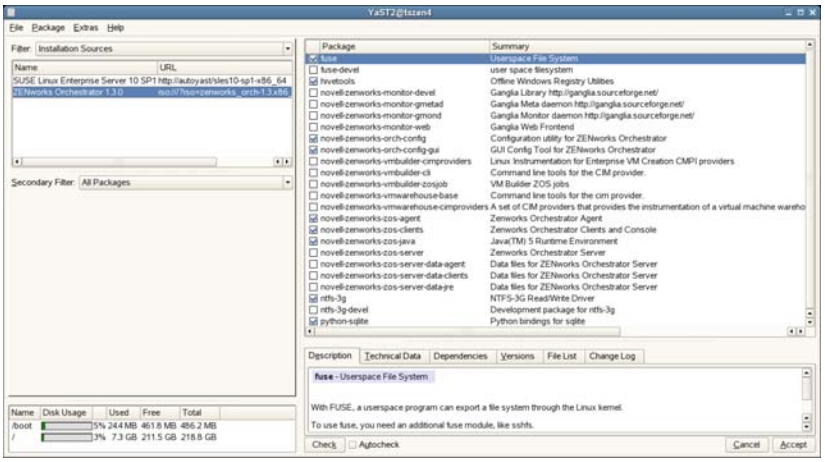
1 Download the appropriate PlateSpin Orchestrate 2.0.1 ISO (32-bit or 64-bit), then prepare it for installation:

- (Optional) Burn a DVD of the ISO image and load it into the DVD drive of the target machine.
- (Optional) Copy the ISO image to the local file system. For more information, see "Adding a Local Mount Point As An Installation Source in YaST" on page 19.
- (Optional) Mount the ISO image file on the machine where PlateSpin Orchestrate is to be installed (the "target" machine). For details, see "Adding a Local Directory As An Installation Source in YaST" on page 20.
- (Optional) If you are installing the ISO image to a large network, extract the product files from the ISO image to a web server / ftp server that can be accessed by the target machine without the need for authentication or anonymous login. For details, see "Adding an ISO or Web URL As An Installation Source in YaST" on page 20.

2 Upgrade ZENworks Orchestrator Agent software packages:

2a Log in to the target SLES server as `root`, then open YaST2.

2b In YaST2, open the *Filter* drop-down menu, then select *Installation Sources* to display the install patterns available on the PlateSpin Orchestrate installation media.



Component packages already installed to the server are checked.

2c Right-click on any of the installed package names, click *All in This List* > *Update if newer version available*.

2d Click *Accept* to install the upgraded packages.

After the server RPMs are upgraded, the program runs a script that does the following:

- Stops job activity on the existing agent
- Backs up the existing agent data to a retrievable format
- Upgrades the RPMs for the selected PlateSpin Orchestrate patterns

WARNING: The preceding steps have been tested and validated in YaST. Using other methods to update packages in YaST have not proven successful.

2e Run the configuration program on the machine where the agents or clients are installed. You have two options for running the script:

- Run the PlateSpin Orchestrate product configuration script. If you use this method, continue with the steps in "Running the Product Configuration Script to Upgrade Agents" on page 36.
- Run the GUI Configuration Wizard. If you use this method, skip to the steps in "Running the GUI Configuration Wizard to Upgrade Agents" on page 37.

Upgrading ZENworks Orchestrator Agent Packages Using the rug Command

Use the following procedure if you want to use YaST, a graphical user interface, to upgrade the ZENworks Orchestrator packages. If you want to use the GUI Configuration Wizard to upgrade, see "Upgrading ZENworks Orchestrator Agent Packages Using YaST" on page 34.

1 Download the appropriate PlateSpin Orchestrate 2.0 ISO (32-bit or 64-bit), then prepare it for installation:

- (Optional) Burn a DVD of the ISO image, mount the DVD, then extract the contents of the `.iso` folder to the local file system of the server.
- (Optional) Extract the contents of the `.iso` folder to the local file system of the server.

2 At the command line, change to the directory where the Orchestrator `.iso` folder was extracted, then run the commands to upgrade ZENworks Orchestrator:

2a Run the following command:

```
rug sa -t zypp "http://<ip_address_of_local_server>/
<directory_location_of_iso_files>"
```

NOTE: If you have chosen not to extract the files and you want to use the `.iso` image to upgrade, use the following command in this step:

```
rug sa -t zypp "iso:///?iso=$ISO_FILE_NAME&url=dir:///
$PATH_TO_ISO/"
```

For example, for the ISO located at `/root/Desktop/PlateSpin_Orchestrate-2.0.1.x86_64.iso`, you could use this command:

```
rug sa -t zypp "iso:///?iso=PlateSpin_Orchestrate-
2.0.1.x86_64.iso&url=dir:///root/Desktop/"
```

NOTE: If you are using an ftp server, extract the contents of the `.iso` to a folder, use the following command:

```
"ftp://<ip_address_of_local _server>/
<directory_location_of_iso_files>"
```

2b Run the following command:

```
rug sub platespin
```

2c Run the following command:

```
rug up -y
```

3 Configure the PlateSpin Orchestrate Agent. You can use one of two information gathering methods to perform the configuration:

- Run the PlateSpin Orchestrate product configuration script. If you use this method, continue with the steps in "Running the Product Configuration Script to Upgrade Agents" on page 36.
- Run the GUI Configuration Wizard. If you use this method, skip to the steps in "Running the GUI Configuration Wizard to Upgrade Agents" on page 37.

2.5.4 Checking the Upgraded Orchestrate Agent

After you upgrade the ZENworks Orchestrator 1.3 packages to PlateSpin Orchestrate 2.0.1, you should check the upgraded software packages to confirm that all of the earlier versions of the product components are now updated and which of the non-Novell packages have been updated.

To do this, change to the directory where the PlateSpin Orchestrate 2.0.1 `.iso` was extracted, then run the following command:

```
rpm -qa | grep 'novell-zen'
```

Compare the results of this command with the results you had with the check you performed before the upgrade (see Section 2.5.1, "Checking the Current Version of the Orchestrator Agent," on page 33). If some of the components have not been upgraded from the earlier version, the incompatibility between the components could cause unexpected behavior.

2.5.5 Configuring the Upgraded Agent Packages

You can use one of two information gathering methods to configure upgraded PlateSpin Orchestrate packages:

- "Running the Product Configuration Script to Upgrade Agents" on page 36
- "Running the GUI Configuration Wizard to Upgrade Agents" on page 37

Running the Product Configuration Script to Upgrade Agents

If you decided to use the product configuration script to upgrade ZENworks Orchestrator Agents and Clients referred to Step 2e on page 35,

1 Make sure you are logged in as `root` to run the configuration script.

2 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]:
```

3 Enter `u` to select the option to upgrade to PlateSpin Orchestrate.

The following information is displayed:

```
Select products to upgrade

 #   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]:
```

4 Toggle the items in the list that you want to upgrade to `yes`.

5 Enter `f` to finish the selection and begin the configuration.

6 Enter `y` or `n` to view or bypass a summary information screen of the configuration you have completed. If you chose to view the summary, you can proceed with the upgrade (by entering `yes`) or abort the upgrade (by entering `no`).

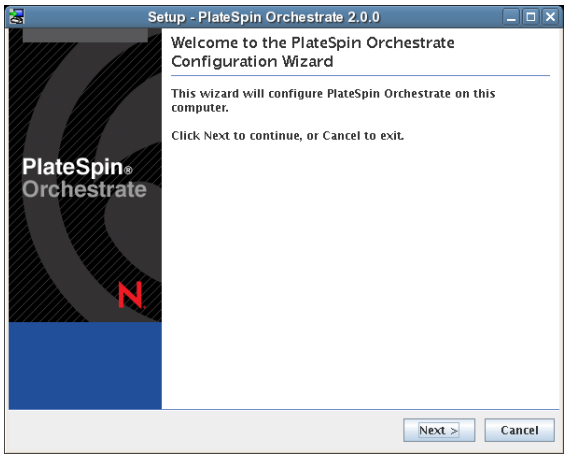
Running the GUI Configuration Wizard to Upgrade Agents

If you decided to upgrade ZENworks Orchestrator Agents and Clients to PlateSpin Orchestrate Agents using the GUI Configuration Wizard referred to in Step 2e on page 35,

1 Run the script for the PlateSpin Orchestrate Configuration Wizard as follows:

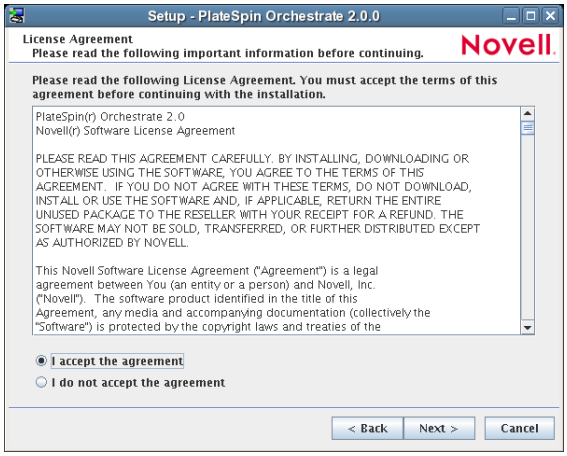
```
/opt/novell/zenworks/orch/bin/guiconfig
```

The GUI Configuration Wizard launches.

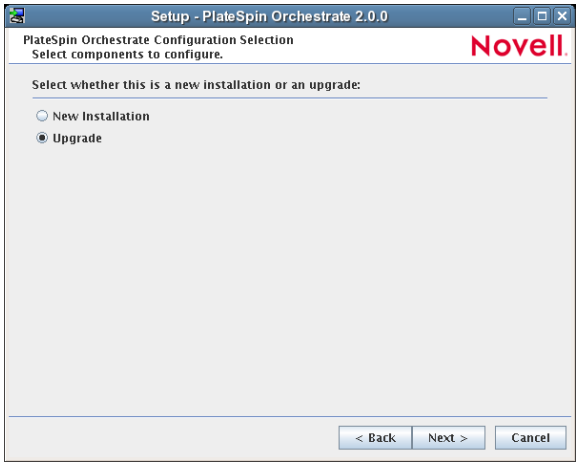


IMPORTANT: If you only have a keyboard to navigate through the pages of the GUI Configuration Wizard, use the Tab key to shift the focus to a control you want to use (for example, a *Next* button), then press the spacebar to activate that control.

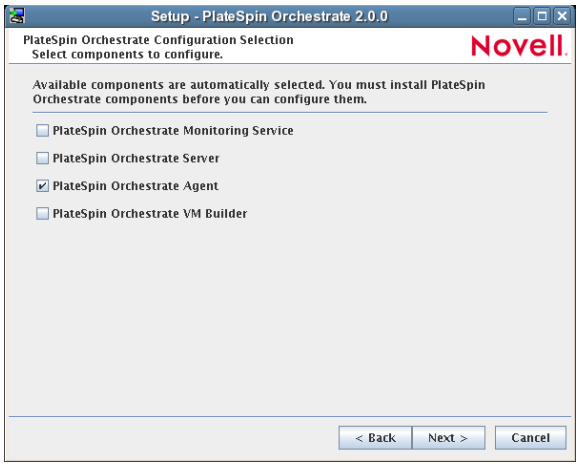
2 Click *Next* to display the license agreement.



3 Accept the agreement, then click *Next* to display the PlateSpin Orchestrate Configuration Selection page.

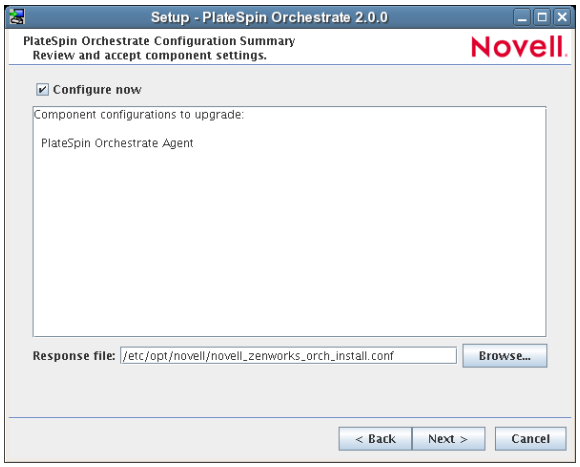


4 Select *Upgrade*, then click *Next* to display the PlateSpin Orchestrate components page.



This page lists the components that are available for configuration (already installed). By default, all previously installed components are selected for configuration.

5 Select all the agent components you want to upgrade, then click *Next* to display the Configuration Summary page of the configuration wizard.



6 Commit the configuration.

6a (Optional) Click *Next* to apply the configuration settings.

6b Deselect the Configure now check box so that the wizard can write the configuration file to `/etc/opt/novell/novell_zenworks_orch_install.conf` without starting Orchestrator or applying the configuration settings.

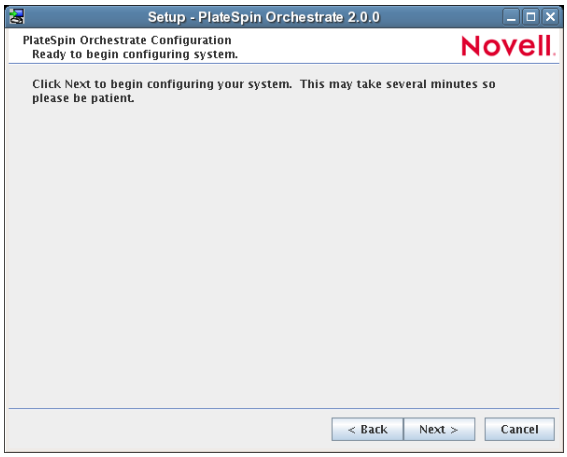
NOTE: You can use this `.conf` file to start the Orchestrator Agent and apply the settings either manually or with an installation script. Use the following command to run the configuration:

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

---

7 Click *Next* to display a message asking whether you want to overwrite the `.conf` response file.

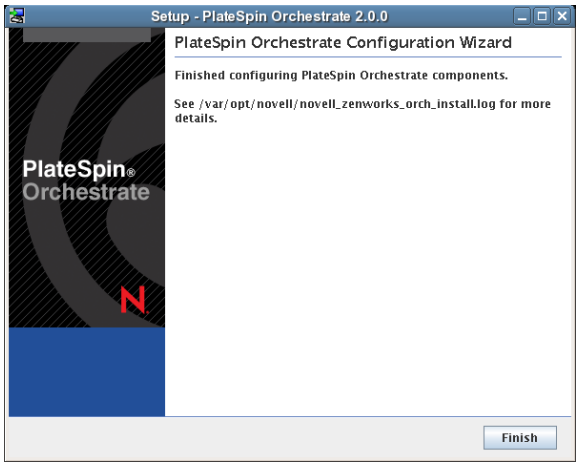
8 To upgrade, you need to overwrite the existing file. When prompted, click *Yes* to overwrite the file and display the configuration page.



9 Click *Finish* to dismiss the configuration wizard.

10 Click *Next* to begin the upgrade configuration for the ZENworks Orchestrator Service to the PlateSpin Orchestrate Service.

When the configuration is complete, the Finish page of the configuration wizard is displayed.



2.5.6 Using the ISO to Upgrade the Orchestrator Agent and Clients on Red Hat Enterprise Linux 4 Machines

Use the following procedure if you want to use the Add-on method to install just the Orchestrate Agent and the PlateSpin Orchestrate Monitoring Agent to a Red Hat Enterprise Linux (RHEL) 4 machine.

1 Shut down the Orchestrator Console on the machine where you intend to install the new PlateSpin Orchestrate Development Client.

2 Download the appropriate PlateSpin Orchestrate Server ISO (32-bit or 64-bit) to an accessible network location.

3 Mount the PlateSpin Orchestrate ISO as a loopback device as in the following example:

```
mount -o loop PlateSpin_Orchestrate-2.0.1.x86_64.iso /mnt
```

This mounts the ISO in the `/mnt` folder.

4 Navigate to the directory path where the RHEL 4 packages reside. For example:

```
cd /mnt/RHEL4
```

There are five packages in the `/RHEL4` directory (the list below is for a 64-bit ISO):

```
novell-zenworks-monitor-gmond-3.0.4-50.x86_64.rpm
novell-zenworks-orch-config-2.0.1-141.noarch.rpm
novell-zenworks-orch-config-gui-2.0.1-57039.noarch.rpm
novell-zenworks-zos-agent-2.0.1-57039.i586.rpm
novell-zenworks-zos-java-1.5.0_sun_update11-52.x86_64.rpm
```

5 Use the `rpm` command to install the packages:

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

If you encounter an issue regarding missing dependencies, you can use the `up2date` command to download and install those. For example, if you were missing `libcaplso` or `libcap.so.1`, you would run the following:

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

6 (Optional) Increase the heap size that the JVM handles to enable the Orchestrate Development Client to manage a large number of objects.

6a Open the `zoc` bash shell script at `/opt/novell/zenworks/zos/server/bin`.

6b 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.

6c Change the value in the `-Xmx` argument from 256 MB to 512 MB.

6d Save the script.

NOTE: Upgraded agent and client software does not require you to execute the configuration script on RHEL 5 machines.

2.5.7 Using the ISO to Upgrade the Orchestrator Agent on Red Hat Enterprise Linux 5 Machines

Use the following procedure if you want to use the Add-on method to upgrade the Orchestrator Console to a PlateSpin Orchestrate Development Client running on a Red Hat Enterprise Linux (RHEL) 5 machine.

1 Shut down the Orchestrator Console on the machine where you intend to install the new Orchestrate Development Client.

2 Download the appropriate PlateSpin Orchestrate ISO (32-bit or 64-bit) to an accessible network location.

3 Mount the PlateSpin Orchestrate ISO as a loopback device as in the following example:

```
mount -o loop PlateSpin_Orchestrate-2.0.1.x86_64.iso /mnt
```

This mounts the ISO in the `/mnt` folder.

4 Navigate to the directory path where the RHEL 5 packages reside. For example:

```
cd /mnt/RHEL5
```

There are five packages in the /RHEL5 directory:

```
novell-zenworks-monitor-gmond-3.0.4-50.x86_64.rpm
novell-zenworks-orch-config-2.0.1-141.noarch.rpm
novell-zenworks-orch-config-gui-2.0.1-57039.noarch.rpm
novell-zenworks-zos-agent-2.0.1-57039.i586.rpm
novell-zenworks-zos-java-1.5.0_sun_update11-52.x86_64.rpm
```

5 Use the rpm command to install the packages:

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

If you encounter an issue regarding missing dependencies, you can use the up2date command to download and install those. For example, if you were missing libcaplso or libcap.so.1, you would run the following:

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

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

6a Open the zoc bash shell script at /opt/novell/zenworks/zos/server/bin.

6b 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.

6c Change the value in the -Xmx argument from 256MB to 512MB.

6d Save the script.

NOTE: Upgraded agent and client software does not require you to execute the configuration script on RHEL 5 machines.

2.5.8 Using the ISO to Upgrade the Orchestrator Agent or the Orchestrator Clients on Windows Machines

The PlateSpin Orchestrate Agent and the PlateSpin Orchestrate Development Client are supported on Windows* 2003 and Windows XP. To upgrade, we recommend that you use the methods native to the OS to uninstall an older agent or client from the machine, then install the new 2.0 release of the Orchestrate Agent or the Orchestrate Development Client.

Use the following steps to download the PlateSpin Orchestrate component you want to install:

1 Download the appropriate PlateSpin Orchestrate 2.0.1 ISO (32-bit or 64-bit) to an accessible network location.

2 Create a DVD from the ISO or use a tool that will mount the ISO.

3 Navigate to the directory path where the Windows packages (Windows 2003 or Windows XP) reside.

4 Double-click the appropriate file (.exe) to launch an installation and configuration wizard for the console.

2.6 Using the Administrator Information Page to Upgrade the Agents and Clients

The Administrator Information Page page includes installers for the PlateSpin Orchestrate 2.0 Agents and Clients for Windows and various Linux/UNIX machines (see "Installing the Orchestrate Agent from the Administrator Information Page" in the *PlateSpin Orchestrate 2.0 Installation and Configuration Guide*). The page has no facility for upgrading an agent or client.

To upgrade, we recommend that you use the methods native to the OS to uninstall an older agent or client from the machine, then install the new 2.0 release of the Orchestrate Agent or Orchestrate Development Client.

2.7 Upgrading the ZENworks VM Manager Console to PlateSpin Orchestrate VM Client

If you installed the ZENworks Orchestrator VM Manager console, the new version (PlateSpin Orchestrate VM Client) must be installed in its place. There is no upgrade option for this component.

To install the new client, you must do the following:

1. Before upgrading ZENworks Orchestrator to PlateSpin Orchestrate, check out all of the VMs from the Warehouse, then perform that upgrade (see Section 2.1, "Upgrading the ZENworks Orchestrator Server Components," on page 15).

   VMs that are checked in to the Warehouse cannot be recovered in PlateSpin Orchestrate. They must be checked out before upgrading in order for them to be discoverable in VM Client.

2. Uninstall the ZENworks VM Manager client:

   - **Windows:** Click *Start* > *Control Panel* > *Add or Remove Programs*, select the *ZENworks Orchestrator VM Manager* item, then click *Remove*.
   - **Linux:** Run the following command:

     ```
     /opt/novell/zenworks/vmmanagement/Uninstall_ZENworks_VMM/
     Uninstall_ZENworks_Orchestrator_VM_Manager_1.3.0
     ```

3. Follow the steps in "Installing the Orchestrate VM Client" in the *PlateSpin Orchestrate 2.0 Installation and Configuration Guide* to install the new client.

2.8 Running the Upgrade Configuration on an Enterprise Scale

If you have a number of ZENworks Orchestrator Server components or ZENworks Orchestrator Agent components to upgrade in an enterprise environment, you might want to follow these general steps to accomplish the upgrade.

1. Use a reputable configuration management tool to distribute and install the upgrade software. Examples include ZENworks Linux Management, ZENworks Configuration Management, and the Red Hat Network*.
2. Configure the upgraded components on a base machine, then, use the configuration software to distribute the respective `.conf` files to the servers or nodes being upgraded.

2.9 Upgrading a ZENworks Orchestrator 1.3 High Availability Configuration

This section provides an example of upgrading a ZENworks Orchestrator 1.3 high availability configuration to a PlateSpin Orchestrate 2.0 high availability configuration with the following details:

- Two ZENworks Orchestrator Servers

  c114
  c115

- One additional server (c122) with the following Orchestrator components installed

  Monitoring Server
  VM Warehouse
  Orchestrator Agent
  Orchestrator Clients
  Linux High Availability Clients

Upgrade to PlateSpin Orchestrate by following these sections and their subordinate steps in this order:

1. Section 2.9.1, “Snapshotting the ZENworks Orchestrator Environment,” on page 44
2. Section 2.9.2, “Enabling Rollback and Backing Up the Server Instance,” on page 45
3. Section 2.9.3, “Upgrading the ZENworks Orchestrator Server,” on page 46
4. Section 2.9.4, “Removing Obsolete ZENworks Orchestrator Patterns,” on page 46
5. Section 2.9.5, “Configuring Upgraded Orchestrate Servers in the High Availability Environment,” on page 46
6. Section 2.9.6, “Installing and Configuring Monitoring in the High Availability Environment,” on page 47

2.9.1 Snapshotting the ZENworks Orchestrator Environment

To prepare the environment for an upgrade to a PlateSpin Orchestrate environment, snapshot the old environment.

1. From the machine where the VM Warehouse is installed (c122), stop all VMs, then move them out of the warehouse to another repository on a VM host in the grid.
2. Use the high availability client (Heartbeat2) to stop the Orchestrate Server. This prevents the high availability cluster from re-starting the Orchestrate Server.
3. Use the following command to restart the Orchestrate Server on the host where it was last running.

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

4. Use the following command to stop and snapshot the Orchestrate Server.

   ```
   /etc/init.d/novell-zosserver stop --snapshot
   ```

2.9.2 Enabling Rollback and Backing Up the Server Instance

When the old environment is snapshotted, you need to further prepare the Orchestrate Server for the upgrade.

1. From the command line of both Orchestrate Servers (c114 and c115), use the rug command to enable the rollback for the server.

   ```
   rug set rollback true
   ```

2. From the command line of both Orchestrate Servers (c114 and c115) use the following command to back up your server instance before you upgrade.

   ```
   cp -rH /var/opt/novell/zenworks/zos/server ~/server.bkp
   ```

   You can use the `rpm -qa | grep zenwo | sort` command to list the rpms that are currently in the cluster:

   c114: This is one of the ZENworks Orchestrator Servers. Its RPM packages include:

   ```
   novell-zenworks-orch-config-1.3.0-41
   novell-zenworks-orch-config-gui-1.3.0-33604
   novell-zenworks-zos-clients-1.3.0-33604
   novell-zenworks-zos-java-1.5.0_sun_update11-52
   novell-zenworks-zos-server-1.3.0-33604
   novell-zenworks-zos-server-data-agent-1.3.0-33604
   novell-zenworks-zos-server-data-clients-1.3.0-33604
   novell-zenworks-zos-server-data-jre-1.3.9-33604
   ```

   c115: This is another ZENworks Orchestrator Server. Its RPM packages include:

   ```
   novell-zenworks-orch-config-1.3.0-41
   novell-zenworks-orch-config-gui-1.3.0-33604
   novell-zenworks-zos-clients-1.3.0-33604
   novell-zenworks-zos-java-1.5.0_sun_update11-52
   novell-zenworks-zos-server-1.3.0-33604
   novell-zenworks-zos-server-data-agent-1.3.0-33604
   novell-zenworks-zos-server-data-clients-1.3.0-33604
   novell-zenworks-zos-server-data-jre-1.3.9-33604
   ```

   c122: This is the server with Monitoring (Agent and Server), the VM Warehouse, the Orchestrator Agent, the Orchestrator Clients, and the Heartbeat Client for high availability. Its RPM packages include:

   ```
   novell-zenworks-monitor-gmetad-3.0.4-44
   novell-zenworks-monitor-gmond-3.0.4.44
   novell-zenworks-monitor-web-3.0.4.44
   novell-zenworks-orch-config-1.3.0-41
   novell-zenworks-orch-config-gui-1.3.0-33604
   novell-zenworks-vmbuilder-cimproviders-1.3.0-33604
   novell-zenworks-vmbuilder-cli-1.3.0-4
   novell-zenworks-vmbuilder-zosjob-1.3.0-3
   novell-zenworks-vmwarehouse-base-1.3.0-46
   novell-zenworks-vmwarehouse-comproviders-1.3.0-27
   ```

```
novell-zenworks-zos-server-agent-1.3.0-33604
novell-zenworks-zos-server-clients-1.3.0-33604
novell-zenworks-zos-java-1.5.0_sun_update11-52
```

2.9.3 Upgrading the ZENworks Orchestrator Server

To upgrade the ZENworks Orchestrator Server in a high availability environment, use the ZENworks Linux Management `rug` command.

The steps for upgrading the Orchestrator Server patterns in a high availability environment are the same as for a normal upgrade. The procedure is detailed in the section entitled "Upgrading ZENworks Orchestrator Server Packages at the Command Line" on page 20. Remember to perform the upgrade on each ZENworks Orchestrator Server in the environment.

2.9.4 Removing Obsolete ZENworks Orchestrator Patterns

After you upgrade ZENworks Orchestrator 1.3 packages to PlateSpin Orchestrate 2.0 packages, you need to remove the obsolete ZENworks Orchestrator 1.3 patterns that are not used in PlateSpin Orchestrate.

In this example, you need to remove the VM Warehouse and the Monitoring Service from c122. The Monitoring Service and the Orchestrate Server must be installed on the same machine, so install the Monitoring Service on c114 and c115.

For more information see "Removing Obsolete and Unneeded ZENworks Orchestrator Patterns" on page 21.

2.9.5 Configuring Upgraded Orchestrate Servers in the High Availability Environment

In a high availability environment, it is necessary to configure only one of the newly upgraded PlateSpin Orchestrate Servers in the cluster. You should upgrade the machine that was last running for the purpose upgrading patterns (in this scenario, it will be c114).

1. From the command line of the machine where you last ran commands to upgrade patterns (c114) run the following command to begin the upgrade configuration:

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

   The upgrade script introduction is 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]:
   ```

2. Enter `u` to begin the upgrade.

The product selection section of the script is displayed:

```
Select products to upgrade

 #   selected  Item
 1)     no     PlateSpin Orchestrate Monitoring Service
 2)    yes     PlateSpin Orchestrate Server
 3)     no     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]:
```

3. Deselect the PlateSpin Orchestrate Monitoring Service, make sure that the PlateSpin Orchestrate Server is the only component selected, then enter `f` to finish the selection. and display the high availability section of the script:

```
Gathering information for upgrading PlateSpin Orchestrate Server . . .

Select whether this is a standard or high-availability server

s) standard
h) ha
- - - - - -

Selection [standard]:
```

4. Enter `h` to indicate that this is a high availability server, then enter the fully qualified cluster hostname or IP address that is to be used for configuring this server instance.
5. Continue with the upgrade configuration script, providing the information required.

   Make sure you select port 8080 for the User Portal; port 80 is to be used for the Monitoring Server.
6. When the script presents the question of whether to use the existing license file, enter `n` (no). Because this is an upgrade the existing license does not work for the upgraded server. You need to provide a new license file. Enter the path to the new license file.
7. At the configuration summary section of the script, confirm the data you have supplied, then enter `yes` to proceed with the upgrade of the server.
8. On other machines in the cluster where the Orchestrate Server was upgraded, copy the new license key (`key.txt`) in `/opt/novell/zenworks/zos/server/license`.

2.9.6 Installing and Configuring Monitoring in the High Availability Environment

When you have completed configuring the Orchestrate Servers for the high availability environment, you need to install PlateSpin Orchestrate Monitoring (both the Monitoring Server and the Monitoring Agent) and then restart the Orchestrate Server instance in the clustering tools.

IMPORTANT: Before you install and configure the Orchestrate Monitoring Service, make sure that the Orchestrate Servers are not bound to port 80.

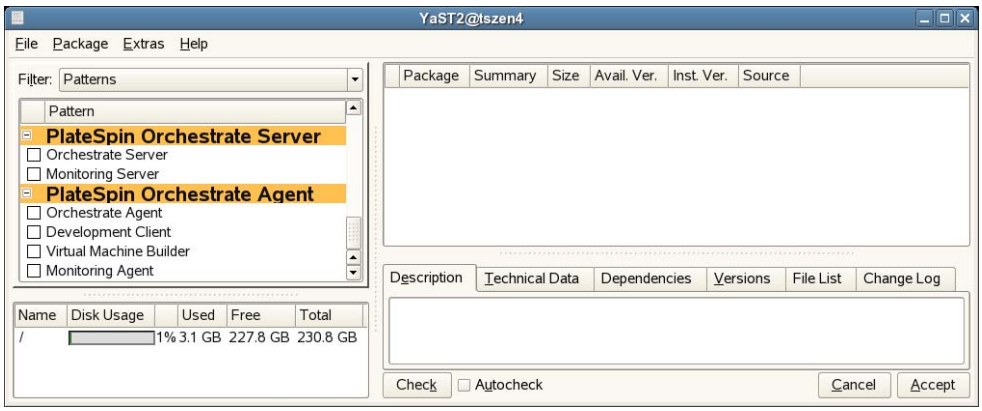
You should following the steps in the following sections in the following order to install and configure Orchestrate Monitoring after you upgrade to PlateSpin Orchestrate 2.0:

1. “Installing the Monitoring Components” on page 48
2. “Configuring the Monitoring Service” on page 49
3. “Preparing the Orchestrate Primary Monitoring Server” on page 50
4. “Preparing the Orchestrate Secondary Monitoring Server(s)” on page 51
5. “Configuring the Heartbeat2 High Availability Client” on page 51

Installing the Monitoring Components

You need to install PlateSpin Orchestrate Monitoring (both the Server and the Agent) on both Orchestrate Servers (c114 and c115) after they have been initially upgraded.

1. Log in to the target SLES 10 SP2 server as `root`, then open YaST2.
2. In the YaST Control Center, click *Software*, then click *Add-on Product* to display the Add-on Product Media dialog box.
3. In the Add-on Product Media dialog box, select the ISO media (*Local Directory* or *DVD*) to install.
   - **3a** (Conditional) Select *DVD*, click *Next*, insert the DVD, then click *Continue*.
   - **3b** (Conditional) Select *Local Directory*, click *Next*, select the *ISO Image* check box, browse to ISO on the file system, then click *OK*.
4. Read and accept the license agreement, then click *Next* to display YaST2.
5. In YaST2, click the *Filter* drop-down menu, then select *Patterns* to display the install patterns available on the PlateSpin Orchestrate ISO.



6 Select the PlateSpin Orchestrate Monitoring patterns:

- **Monitoring Server:** Uses open source Ganglia monitoring of the performance of certain data on network resources in a user-defined time period.
- **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.

7 Click *Accept* to install the packages.

8 Repeat Steps 1-7 on the Orchestrate Servers that are part of the high availability environment.

Configuring the Monitoring Service

For this section, the configuration procedure is shown using the text-based configuration tool only. You can also perform it using the GUI Configuration Wizard. You need to configure the Monitoring components one Orchestrate Server only. For this example, it is configured on c114.

1 From the Orchestrate Server machine, make sure you are logged in as `root` to run the configuration script.

2 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]:
```

3 Press Enter to select the default (install).

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

```
Select products to configure

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

4 Press Enter to finish the selection of the Monitoring Service.

The following question is displayed:

```
You can configure this host to be the Monitoring Server or a monitored node

Configure this host as the Monitoring Server? (y/n) [y]:
```

5 Press Enter to accept the default (yes) and indicate that you want to use this machine as a Monitoring Server.

The following information is displayed:

```
Enter a name describing this monitored computer's location. This name
appears in the Monitoring interface as the location of the device.

Location [c114]:
```

6 Press Enter to accept the default name or specify a name that you want to describe the monitored computer's location.

7 View the configuration summary information to confirm that it is correct, then if you do not want to make changes, press enter to configure Orchestrate Monitoring Services.

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

Preparing the Orchestrate Primary Monitoring Server

The machine where you installed PlateSpin Orchestrate Monitoring Services and where you performed the configuration using the config or guiconfig scripts is considered the primary monitoring server. In this example (see "Installing the Monitoring Components" on page 48 and "Configuring the Monitoring Service" on page 49) this would be c114.

To configure the primary monitoring server, you need to run a script that does the following:

- creates monitoring directories on shared storage
- copies monitoring files to the shared storage
- creates backups of the original monitoring files
- links files from shared storage to the local places
- turns off `Apache2`, `gmond`, and `gmetad` services

You can use the example script below as a template for this script. Paste it into an `.sh` file and run it on the primary monitoring server.

NOTE: This script assumes that `/zos` is the name of the shared storage area.

```
mkdir -p /zos/monitor
cp -av /etc/apache2 /zos/monitor
ln -sf /etc/mime.types /zos/monitor/apache2/mime.types
mv /etc/apache2/ /etc/apache2.orig
ln -sf /zos/monitor/apache2 /etc


cp -av /etc/opt/novell/zenworks/monitor /zos/monitor
mv /etc/opt/novell/zenworks/monitor /etc/opt/novell/zenworks/monitor.orig
ln -sf /zos/monitor/monitor /etc/opt/novell/zenworks/monitor
```

```
cp -av /var/opt/novell/zenworks/monitor/rrds /zos/monitor
mv /var/opt/novell/zenworks/monitor/rrds
/var/opt/novell/zenworks/monitor/rrd.orig
ln -sf /zos/monitor/rrds /var/opt/novell/zenworks/monitor

chkconfig apache2 off
chkconfig gmond off
chkconfig gmetad off

rcapache2 stop
rcnovell-gmetad stop
rcnovell-gmond stop
```

Preparing the Orchestrate Secondary Monitoring Server(s)

The machine where you installed PlateSpin Orchestrate Monitoring Services but did not configure the monitoring services are considered the secondary monitoring server(s). In this example (see "Installing the Monitoring Components" on page 48) this would be c115.

To configure a secondary monitoring server, you need to run a script that does the following:

- creates backups of the original monitoring files
- links files from shared storage to the local places
- turns off `Apache2`, `gmond`, and `gmetad` services

You can use the example script below as a template for this script. Paste it into an `.sh` file and run it on a secondary monitoring server.

```
mv /etc/apache2/ /etc/apache2.orig
ln -sf /zos/monitor/apache2 /etc

mv /etc/opt/novell/zenworks/monitor /etc/opt/novell/zenworks/monitor.orig
ln -sf /zos/monitor/monitor /etc/opt/novell/zenworks/monitor

mv /var/opt/novell/zenworks/monitor/rrds
/var/opt/novell/zenworks/monitor/rrd.orig
ln -sf /zos/monitor/rrds /var/opt/novell/zenworks/monitor

chkconfig apache2 off
chkconfig gmond off
chkconfig gmetad off

rcapache2 stop
rcnovell-gmetad stop
rcnovell-gmond stop
```

Configuring the Heartbeat2 High Availability Client

The final step in preparing to upgrade your ZENworks Orchestrate 1.3 high availability environment to a PlateSpin Orchestrate 2.0 high availability environment is to configure the Heartbeat2 client for the changes made in previous steps. You can either do this manually, using the Heartbeat2 interface to add the appropriate information and parameters, or you can run a script to accomplish the same thing.

The lines of sample code below are excerpted from the `/opt/novell/zenworks/orch/bin/ha/cluster_zos_server.xml` file on the Orchestrate Server.

```
<primitive id="Apache2" class="lsb" type="apache2" provider="heartbeat">
        <instance_attributes id="apache_attr">
            <attributes>
                <nvpair id="apache2_target_role" name="target_role"
value="started"/>
            </attributes>
        </instance_attributes>
        <operations>
            <op id="Apache2_Status" name="status" description="Monitor
the status of Apache2" interval="120" timeout="15" start_delay="15"
role="Started" on_fail="restart"/>
        </operations>
    </primitive>
    <primitive id="Gmetad" class="lsb" type="novell-gmetad"
provider="heartbeat">
        <instance_attributes id="gmetad_attr">
            <attributes>
                <nvpair id="gmetad_target_role" name="target_role"
value="started"/>
            </attributes>
        </instance_attributes>
        <operations>
            <op id="Gmetad_Status" name="status" description="Monitor
the status of Gmetad" interval="300" timeout="15" start_delay="15"
role="Started" on_fail="restart"/>
        </operations>
    </primitive>
    <primitive id="Gmond" class="lsb" type="novell-gmond"
provider="heartbeat">
        <instance_attributes id="gmond_attr">
            <attributes>
                <nvpair id="gmond_target_role" name="target_role"
value="started"/>
            </attributes>
        </instance_attributes>
        <operations>
            <op id="Gmond_Status" name="status" description="Monitor the
status of Gmetad" interval="300" timeout="15" start_delay="15"
role="Started" on_fail="restart"/>
        </operations>
    </primitive>
```

These lines need to be put into an `.xml` text file. For this example, the file is named `sample.xml`.

When the file is ready, run the following command for this file:

```
/usr/sbin/cibadmin -o resources -U -x sample.xml
```