

## Getting Started Reference

# Novell® PlateSpin® Orchestrate

**2.5**

September 13, 2010

[www.novell.com](http://www.novell.com)



## Legal Notices

Novell, Inc. makes no representations or warranties with respect to the contents or use of this documentation, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc. reserves the right to revise this publication and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes.

Further, Novell, Inc. makes no representations or warranties with respect to any software, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc. reserves the right to make changes to any and all parts of Novell software, at any time, without any obligation to notify any person or entity of such changes.

Any products or technical information provided under this Agreement may be subject to U.S. export controls and the trade laws of other countries. You agree to comply with all export control regulations and to obtain any required licenses or classification to export, re-export or import deliverables. You agree not to export or re-export to entities on the current U.S. export exclusion lists or to any embargoed or terrorist countries as specified in the U.S. export laws. You agree to not use deliverables for prohibited nuclear, missile, or chemical biological weaponry end uses. See the [Novell International Trade Services Web page \(http://www.novell.com/info/exports/\)](http://www.novell.com/info/exports/) for more information on exporting Novell software. Novell assumes no responsibility for your failure to obtain any necessary export approvals.

Copyright © 2008-2010 Novell, Inc. All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the publisher.

Novell, Inc.  
404 Wyman Street, Suite 500  
Waltham, MA 02451  
U.S.A.  
[www.novell.com](http://www.novell.com)

*Online Documentation:* To access the latest online documentation for this and other Novell products, see [the Novell Documentation Web page \(http://www.novell.com/documentation\)](http://www.novell.com/documentation).

## Novell Trademarks

For Novell trademarks, see [the Novell Trademark and Service Mark list \(http://www.novell.com/company/legal/trademarks/tmlist.html\)](http://www.novell.com/company/legal/trademarks/tmlist.html).

## Third-Party Materials

All third-party trademarks are the property of their respective owners.

# Contents

<b>About This Guide</b>	<b>5</b>
<b>1 Overview</b>	<b>7</b>
1.1 Introduction to PlateSpin Orchestrate	7
1.1.1 What Is PlateSpin Orchestrate?	7
1.1.2 How Do I Obtain and License PlateSpin Orchestrate?	10
1.2 PlateSpin Orchestrate Documentation	10
1.2.1 PlateSpin Orchestrate Installation and Configuration Guide	11
1.2.2 PlateSpin Orchestrate Upgrade Guide	11
1.2.3 PlateSpin Orchestrate VM Client Guide and Reference	11
1.2.4 PlateSpin Orchestrate Virtual Machine Management Guide	11
1.2.5 PlateSpin Orchestrate Development Client Reference	11
1.2.6 PlateSpin Orchestrate Administration Guide	11
1.2.7 PlateSpin Orchestrate High Availability Configuration Guide	12
1.2.8 PlateSpin Orchestrate Command Line Reference	12
1.2.9 PlateSpin Orchestrate Server Portal Reference	12
1.2.10 PlateSpin Orchestrate Job Developer Guide and Reference	12
<b>2 Understanding Basic Functionality</b>	<b>13</b>
2.1 Basic PlateSpin Orchestrate Server, VM Client, and Development Client Terms and Concepts	13
2.1.1 The Grid	13
2.1.2 Users	13
2.1.3 Resources Running the PlateSpin Orchestrate Agent	14
2.1.4 Jobs	14
2.1.5 Typical Use of the Grid	14
2.2 System Architecture	14
2.3 How Do I Interact with PlateSpin Orchestrate?	16
2.4 How PlateSpin Orchestrate Components Communicate	18



# About This Guide

This *Getting Started Reference* provides a basic introduction to PlateSpin Orchestrate 2.5 components and what's new in the product since its last release.

- ♦ [Chapter 1, “Overview,” on page 7](#)
- ♦ [Chapter 2, “Understanding Basic Functionality,” on page 13](#)

## 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 2.5 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 2.5 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 Development Client tasks and tools used by the Orchestrate Administrator, see the [PlateSpin Orchestrate 2.5 Administrator Reference](#).

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

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

## Prerequisite Skills

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

- ♦ General understanding of network operating environments and systems architecture.
- ♦ Knowledge of basic UNIX 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) (<http://www.novell.com/documentation/feedback.html>) and enter your comments there.

## Additional Documentation

In addition to this *PlateSpin Orchestrate Getting Started Reference*, PlateSpin Orchestrate 2.5 includes the following additional guides that contain valuable information about the product:

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

Welcome to PlateSpin Orchestrate 2.5. This section of the *Getting Started Guide* includes the general information you need to become acquainted with the product.

- ♦ [Section 1.1, “Introduction to PlateSpin Orchestrate,” on page 7](#)
- ♦ [Section 1.2, “PlateSpin Orchestrate Documentation,” on page 10](#)

## 1.1 Introduction to PlateSpin Orchestrate

The following sections contain information to help introduce you to PlateSpin Orchestrate:

- ♦ [Section 1.1.1, “What Is PlateSpin Orchestrate?,” on page 7](#)
- ♦ [Section 1.1.2, “How Do I Obtain and License PlateSpin Orchestrate?,” on page 10](#)

### 1.1.1 What Is PlateSpin Orchestrate?

PlateSpin Orchestrate transforms a static, manually operated data center into a highly flexible, automated environment where resources are dynamically allocated based on what is needed by any given business at any given time.

The core strength of the product is the capability to automatically, rapidly, and securely create and scale heterogeneous virtual environments. Its high degree of automation makes manual interventions almost unnecessary. Not only does this dramatically reduce data center operating costs, it also mitigates operating risks by eliminating human error, which is the number one cause of business outages.

The Orchestrate VM Client adds increased functionality to PlateSpin Orchestrate. This client helps administrators, IT operators, and job developers improve and expand the performance of the data center by automating provisioning and by using Virtual Machines (VMs) as resources in the data center computing environment. Better managed VMs can help control associated data center costs by addressing several data center issues, including cooling, space, power usage, and efficient hardware usage. For more information about the VM Client, see the [PlateSpin Orchestrate 2.5 VM Client Guide and Reference](#).

### Key Product Features

PlateSpin Orchestrate includes these core features:

- ♦ Creation and management of virtual environments
- ♦ Powerful automation and scheduling engine
- ♦ Support for most commonly used hypervisors
- ♦ Open API promotes extensibility

### New in the 2.5 Release

Some of the new features in PlateSpin Orchestrate 2.5 include:

- ♦ New Amazon EC2 provisioning adapter

- ♦ New vSphere 4 provisioning adapter with cluster/DRS support and multiple VCenter Server support
- ♦ Windows 2008 R2 Hyper-V provisioning adapter with added cluster support
- ♦ Windows sysprep support for Xen, vSphere 4, and Windows 2008 R2 Hyper-V provisioning adapters
- ♦ vBridge groups (networks), vNICs, vDisks for Xen, vSphere 4 and Windows 2008 R2 provisioning adapters
- ♦ Credential Manager for storing passwords
- ♦ vCPU slots for VM hosts (for Novell Cloud Manager)
- ♦ Integration with Sentinel 6 using a dedicated collector
- ♦ Ability to rename objects with meaningful names
- ♦ SLES 11 SP1 and SLES 10 SP3 support
- ♦ Monitoring system (ganglia) updated to version 3.1.7 to allow for custom monitoring probes
- ♦ Jetty Web services that enable applications like Novell Cloud Manager and Novell Business Service Manager to communicate with PlateSpin Orchestrate

### **New in the 2.1 Release**

Some of the new features in PlateSpin Orchestrate 2.1 include:

- ♦ Provisioning Adapters
  - ♦ Support for VMware vSphere 4.0
- ♦ Advanced network configuration of VMs
- ♦ Support for Windows sysprep for vSphere

### **New in The 2.0.2 Release**

Some of the new features in PlateSpin Orchestrate 2.0.x include:

- ♦ Provisioning Adapters
  - ♦ VMware Virtual Center
    - ♦ Usability improvements for connecting to Virtual Center
  - ♦ Xen
    - ♦ Improved automatic configuration of SLES VM hosts
- ♦ VM management UI (PlateSpin Orchestrate VM Client)
  - ♦ New UI themes
  - ♦ Improved list navigation through a “locator pop-up” and a filter field
  - ♦ Improved tooltips related to VM life cycle operations
  - ♦ Visibility into history of VM life cycle operations
  - ♦ Improved event logging (content and format)
  - ♦ Improved VM remote connection setup
  - ♦ Optional manual VM placement in addition to default automated placement



- ♦ Improved VM remote connection setup
- ♦ Support for PXE-based installation of virtual machines
- ♦ PlateSpin Orchestrate Server
  - ♦ Audit database now includes support for historical tracking of VM life cycle operations
  - ♦ New events based on RRD-based averaging of monitored metrics
- ♦ New platform support
  - ♦ PlateSpin Orchestrate 2.0.2 agents are supported on SLES 11 (32-bit and 64-bit)
  - ♦ PlateSpin Orchestrate 2.0.2 VM Client and Development Client are supported on SLED 11 (32-bit and 64-bit)
  - ♦ PlateSpin Orchestrate can manage the life cycle of SLES 11 virtual machines (32-bit and 64-bit)
  - ♦ Metrics gathering from 32-bit and 64-bit Windows virtual machines (disk I/O, network I/O, CPU, and RAM)

### **New in The 2.0.1 Release**

Some of the new features in PlateSpin Orchestrate 2.0.x include:

- ♦ New Provisioning Adapters
  - ♦ VMware ESX
    - ♦ No requirement for customers to run VMware Virtual Center (VMware ESXi requires Virtual Center)
    - ♦ VMware ESX management is more powerful
  - ♦ Microsoft Windows Server 2008 with the Hyper-V role enabled
- ♦ Easy to use new VM management GUI (VM Client)
  - ♦ Exposes only VM-related operations (that is, VM creation and management)
  - ♦ Incorporates many of the VM functions that were previously done in the ZENworks Orchestrator Console 1.3
- ♦ Authentication using LDAP
  - ♦ Active Directory support (in addition to “generic” LDAP)
  - ♦ Administrator privilege based on LDAP group membership
- ♦ Enhanced monitoring for disk and net I/O, CPU, and RAM
  - ♦ Monitoring of physical and virtual resources
- ♦ Event triggering facility
  - ♦ Events can start jobs or alert existing jobs
- ♦ Integration of N\_Port ID Virtualization (NPIV) for the XEN 30 hypervisor on SUSE Linux Enterprise Server (SLES) 10 SP2
  - ♦ VMs use virtual worldwide port numbers on the SAN
  - ♦ SAN zoning/LUN masking can be done through this port number
  - ♦ VMs can migrate freely without losing access to zoned storage
- ♦ Support for Orchestrate Agent installed on SLES 10 SP2 and Windows Server 2008 (32-bit and 64-bit)

- ♦ Support for installation inside virtual machines
  - ♦ Initially one (Xen virtual machine)

### 1.1.2 How Do I Obtain and License PlateSpin Orchestrate?

To download the product for evaluation or purchase, contact an authorized Novell Sales representative or a Certified Novell Partner.

You can evaluate the product before purchase by downloading a trial key, which controls the number of users and managed nodes you can configure. The trial key also sets an expiration date. The trial key is available on the product download site.

For fully supported functionality, PlateSpin Orchestrate requires a purchased license key. Contact your Novell Sales Representative or a Certified Novell Partner for purchase information.

#### Upgrading the Server from a Trial License to a Purchased License

If you are operating PlateSpin Orchestrate with a trial license key, use the following steps to upgrade to a license key you purchased from Novell:

- 1 Stop the PlateSpin Orchestrate Server.
- 2 Copy the purchased license file (`key.txt`) to the `/opt/novell/zenworks/zos/server/license` directory, overwriting the old license key.
- 3 Restart the Orchestrate Server.

## 1.2 PlateSpin Orchestrate Documentation

Before developing, deploying, and managing the PlateSpin Orchestrate jobs explained in this document, you should have a thorough understanding of how to deploy and manage all product components. These administrative tasks are explained in the following documents in both PDF and HTML formats:

- ♦ [Section 1.2.1, “PlateSpin Orchestrate Installation and Configuration Guide,” on page 11](#)
- ♦ [Section 1.2.2, “PlateSpin Orchestrate Upgrade Guide,” on page 11](#)
- ♦ [Section 1.2.3, “PlateSpin Orchestrate VM Client Guide and Reference,” on page 11](#)
- ♦ [Section 1.2.4, “PlateSpin Orchestrate Virtual Machine Management Guide,” on page 11](#)
- ♦ [Section 1.2.5, “PlateSpin Orchestrate Development Client Reference,” on page 11](#)
- ♦ [Section 1.2.6, “PlateSpin Orchestrate Administration Guide,” on page 11](#)
- ♦ [Section 1.2.7, “PlateSpin Orchestrate High Availability Configuration Guide,” on page 12](#)
- ♦ [Section 1.2.8, “PlateSpin Orchestrate Command Line Reference,” on page 12](#)
- ♦ [Section 1.2.9, “PlateSpin Orchestrate Server Portal Reference,” on page 12](#)
- ♦ [Section 1.2.10, “PlateSpin Orchestrate Job Developer Guide and Reference,” on page 12](#)

## 1.2.1 PlateSpin Orchestrate Installation and Configuration Guide

The [PlateSpin Orchestrate 2.5 Installation and Configuration Guide](#) introduces the fundamentals of PlateSpin Orchestrate. It includes a walkthrough of the basic product installation and configuration. The following content is included:

- ♦ Planning the installation
- ♦ Installation and configuration steps
- ♦ Trial use of the basic product

## 1.2.2 PlateSpin Orchestrate Upgrade Guide

The [PlateSpin Orchestrate 2.5 Upgrade Guide](#) provides details about the process of upgrading ZENworks Orchestrator 2.0.x to PlateSpin Orchestrate 2.1. The guide provides an introductory overview of the requirements for upgrading and explains which components are compatible.

## 1.2.3 PlateSpin Orchestrate VM Client Guide and Reference

The [PlateSpin Orchestrate 2.5 VM Client Guide and Reference](#) provides in-depth information on the PlateSpin Orchestrate VM Client management interface, which is built on an Eclipse-based rich client platform. VM Client uses a graphical user interface (GUI) to help you create, store, edit, and use VMs. This interface can be installed on both Windows and Linux administration devices.

## 1.2.4 PlateSpin Orchestrate Virtual Machine Management Guide

In addition to managing virtual machines (VMs) and host servers using the PlateSpin Orchestrate VM Client, you can do other management work using the PlateSpin Orchestrate Development Client. The [PlateSpin Orchestrate 2.5 Virtual Machine Management Guide](#) provides instructions on the management tasks that you can do in the Development Client.

## 1.2.5 PlateSpin Orchestrate Development Client Reference

The [PlateSpin Orchestrate 2.5 Server Portal Reference](#) provides in-depth information on the PlateSpin Orchestrate Development Client, which is a thick-client browser console.

## 1.2.6 PlateSpin Orchestrate Administration Guide

The [PlateSpin Orchestrate 2.5 Administrator Reference](#) provides in-depth information on the PlateSpin Orchestrate Console, which is a thin-client browser console, and the PlateSpin Orchestrate user grid command line management and deployment tool. It is anticipated that developers will typically develop jobs using the zos command line tool, while higher level system administrators will use the PlateSpin GUI-based interfaces to submit, deploy and run jobs and manage network resources.

## 1.2.7 PlateSpin Orchestrate High Availability Configuration Guide

Provides information for installing and configuring PlateSpin Orchestrate in a high availability environment. The guide provides information about the components and configuration steps necessary for preparing this environment, including instructions for configuring the PlateSpin Orchestrate Server in a cluster. The guide also provides some information regarding the behaviors you can expect from PlateSpin Orchestrate in various failover scenarios.

## 1.2.8 PlateSpin Orchestrate Command Line Reference

The [PlateSpin Orchestrate 2.5 Command Line Reference](#) provides in-depth information on `zosadmin`, which is the PlateSpin Orchestrate administrator grid command-line management and deployment tool, and on `zos`, which is the PlateSpin Orchestrate job manager command-line management and deployment tool.

## 1.2.9 PlateSpin Orchestrate Server Portal Reference

The [PlateSpin Orchestrate 2.5 Server Portal Reference](#) provides basic information on how to deploy and manage specific, basic jobs on the PlateSpin Orchestrate Server by using the resources available in the data center. Job managers typically have limited rights and responsibilities and are not expected to know the intricacies of PlateSpin Orchestrate or to understand how to create the jobs themselves. Instead, they deploy and manage jobs through a thin-client interface called the PlateSpin Orchestrate Server Portal.

## 1.2.10 PlateSpin Orchestrate Job Developer Guide and Reference

The [PlateSpin Orchestrate 2.5 Developer Guide and Reference](#) explains the PlateSpin Orchestrate SDK operation and job construction.

# Understanding Basic Functionality

# 2

This section provides further information about some important administrator tasks that use the Development Client in PlateSpin Orchestrate 2.5. You can investigate these tasks further after you have successfully deployed and run your first job.

The section includes the following information:

- ♦ [Section 2.1, “Basic PlateSpin Orchestrate Server, VM Client, and Development Client Terms and Concepts,” on page 13](#)
- ♦ [Section 2.2, “System Architecture,” on page 14](#)
- ♦ [Section 2.3, “How Do I Interact with PlateSpin Orchestrate?,” on page 16](#)
- ♦ [Section 2.4, “How PlateSpin Orchestrate Components Communicate,” on page 18](#)

## 2.1 Basic PlateSpin Orchestrate Server, VM Client, and Development Client Terms and Concepts

This section includes the following information:

- ♦ [Section 2.1.1, “The Grid,” on page 13](#)
- ♦ [Section 2.1.2, “Users,” on page 13](#)
- ♦ [Section 2.1.3, “Resources Running the PlateSpin Orchestrate Agent,” on page 14](#)
- ♦ [Section 2.1.4, “Jobs,” on page 14](#)
- ♦ [Section 2.1.5, “Typical Use of the Grid,” on page 14](#)

### 2.1.1 The Grid

When you configure the PlateSpin Orchestrate Server and its agents, you create an entity called a compute grid. This grid consists of the objects in your network or data center that PlateSpin Orchestrate is responsible for monitoring and managing, including [Users](#), [Resources](#), and [Jobs](#).

### 2.1.2 Users

For PlateSpin Orchestrate, a user is an individual who authenticates to the Orchestrate Server for the purpose of managing (that is, running, monitoring, canceling, pausing, stopping, or starting) a deployed job, or a user who authenticates through the Orchestrate VM Client to manage virtual machines. The PlateSpin Orchestrate administrator can use the Orchestrate Development Client to identify users who are running jobs and to monitor the jobs that are currently running or that have run during the current server session.

### 2.1.3 Resources Running the PlateSpin Orchestrate Agent

For PlateSpin Orchestrate, a resource is a computing node somewhere in your network (that is, your grid or data center network), which has a PlateSpin Orchestrate Agent installed on it. When the Orchestrate Agent is installed on a resource, communication between the agent and the PlateSpin Orchestrate Server is established and the computing resource can be discovered and can begin performing jobs that are assigned to it by the Orchestrate Server.

### 2.1.4 Jobs

For PlateSpin Orchestrate, a job is remotely executable logic that can run on some or all of the resources in the Orchestrate grid. Job logic is written in Python, and can include instructions and policies that dictate how, when, and where that job runs. In addition, the job can embed instructions that dictate processes or applications that the resource needs to launch.

A Job Developer uses Python in a prepackaged Job Definition Language (JDL) editor to create or modify a job. When the job is ready, the administrator of the PlateSpin Orchestrate system uses the Orchestrate Server functionality to deploy it and to allocate appropriate resources to run it, based on its parameters and associated policies.

### 2.1.5 Typical Use of the Grid

In general, the everyday use of the grid and its components follows this sequence:

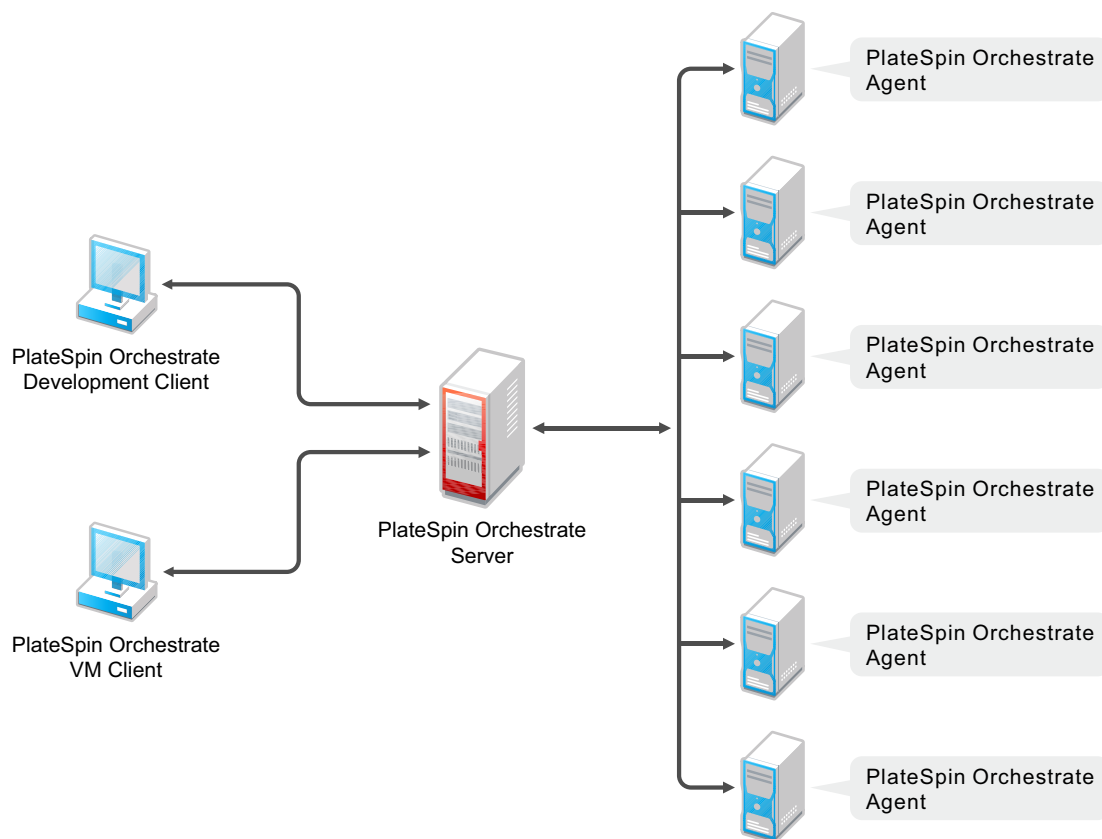
1. Jobs are created using JDL. A job might also optionally reference one or more policies (defined in XML).
2. The Orchestrate Server is started. It discovers all the available computing resources.
3. The administrator logs in to the Orchestrate Server and deploys jobs that users can run. The administrator might also create user logins.
4. Users log in to the Orchestrate Server run jobs.
5. When a user selects a job to run, he or she runs the job based on selected options; for example, he or she might select when to run the job, how many computing resources the job should run on, the type of computing resources to be used, and so on.
6. Users monitor and control their own jobs by using certain functions, such as canceling a job, pausing a job, or even changing the priority of a job if they have rights to do so.
7. Administrators can monitor and control all of the running jobs. They can dynamically change how a job runs, they can change job priorities, and so on.
8. Steps 5, 6, and 7 can be repeated as long as the Orchestrate Server is running.

## 2.2 System Architecture

PlateSpin Orchestrate is built as an enterprise server with capabilities to support extremely large computing environments. It includes all the services required to provide an enhanced grid computing application server environment.

A simple view of the PlateSpin Orchestrate system architecture is shown below, showing the PlateSpin Orchestrate software components:

**Figure 2-1** *PlateSpin Orchestrate Software Architecture*



### The PlateSpin Orchestrate Server

The PlateSpin Orchestrate Server is the gateway between enterprise applications and resource servers. The server has two primary functions:

- ♦ To manage the resource servers
- ♦ To manage jobs to run on the computing resource

In the first function, the server manages the computing resources by collecting, maintaining, and updating their status availability, service cost, and other facts. Changes to the computing resources can be made by the administrator.

The second function of the server is to run remote applications—called jobs—on the computing resources. The Orchestrate Server uses a policy-based broker and scheduler to decide when and how a job should run on the computing resources. The decisions are based on many controlled factors, including the number of computing resources, their cost, and a variety of other factors as specified by the policy constraints set up by the server administrator. The Orchestrate Server runs the job and provides all the job's output responses back to the user. The server provides failover capabilities to allow jobs to continue if computing resources and network conditions degrade.

### The PlateSpin Orchestrate Agent

The PlateSpin Orchestrate Agent is installed on all computing resources that are to be managed. It runs jobs under the management of the Orchestrate Server.

## The PlateSpin Orchestrate Development Client and Other Client Tools

The PlateSpin Orchestrate Clients let a computing resource administrator troubleshoot, initiate, change, or shut down server functions for PlateSpin Orchestrate and its computing resources. The clients also monitor all managed computing resource job activity and provide facilities to manage application jobs. When you install the Clients on a computing resource, you are installing the following tools:

- ♦ zos command line interface
- ♦ zosadmin command line interface
- ♦ PlateSpin Orchestrate Development Client
- ♦ Java SDK (toolkit)

---

**NOTE:** The PlateSpin Orchestrate VM Client is installed separately.

---

The PlateSpin Orchestrate Development Client is a graphical user interface running on Java. It provides a way for the PlateSpin Orchestrate administrator to troubleshoot and to initiate, change, or shut down the functioning of the Orchestrate Server and its resources. It also functions as a monitor of all PlateSpin Orchestrate job activity, and it provides an interface for managing PlateSpin Orchestrate jobs. For more information about the Orchestrate Development Client, see the [PlateSpin Orchestrate 2.5 Development Client Reference](#).

For more information about the client tools, see [Section 2.3, “How Do I Interact with PlateSpin Orchestrate?”](#) on page 16. For more information about the toolkit, see “[Provisioning Adapter Hooks](#)” in the [PlateSpin Orchestrate 2.5 Developer Guide and Reference](#).

## The PlateSpin Orchestrate VM Client

PlateSpin Orchestrate VM Client is a user interface for managing the life cycle of the virtual machines (VMs) in your enterprise, including creating, starting, stopping, migrating, and deleting VMs. For information about installing the Orchestrate VM Client, see “[Installing the Orchestrate VM Client](#)” in the [PlateSpin Orchestrate 2.5 Installation and Configuration Guide](#).

## The PlateSpin Orchestrate Server Portal

The PlateSpin Orchestrate Server Portal is a web-based user interface for managing jobs. It provides end users with the ability to start and monitor jobs on managed computing resources. For more information about the Server Portal, see “[Using the PlateSpin Orchestrate Server Portal](#)” in the [PlateSpin Orchestrate 2.5 Server Portal Reference](#).

## 2.3 How Do I Interact with PlateSpin Orchestrate?

Administrators and users perform their activities by using their own graphical tool or command line interface tools. In general, the same functions are available in either the graphical or the command line tools. The toolset is summarized in the chart below.



**Table 2-1** Summary of the PlateSpin Orchestrate Toolset

Role	Tool Type	Description	Common Function
Administrator	Graphical Interface	The PlateSpin Orchestrate Development Client	<ul style="list-style-type: none"> <li>♦ Stops or starts the Orchestrate Server(s)</li> </ul>
	Command Line Interface	Sample command line for help: <code>zosadmin command --help</code>	<ul style="list-style-type: none"> <li>♦ Deploys jobs.</li> <li>♦ Manages Group and Policy associations.</li> <li>♦ Monitors jobs.</li> <li>♦ Helps troubleshoot jobs/policies.</li> <li>♦ Monitors computing resource usage.</li> <li>♦ Creates and manages user accounts.</li> </ul>
	Graphical Interface	The PlateSpin Orchestrate VM Client	<ul style="list-style-type: none"> <li>♦ Discovers host servers in the Orchestrate grid</li> <li>♦ Discovers existing VMs</li> <li>♦ Creates, edits, installs, and deletes VMs</li> <li>♦ Manages VM repositories</li> <li>♦ Stops, starts, pauses, or suspends VMs</li> <li>♦ Migrates or moves VMs</li> <li>♦ Installs the Orchestrate Agent on VMs</li> <li>♦ Creates and clones VM templates</li> <li>♦ Provides group management of VMs, host servers, storage locations, and templates</li> <li>♦ Resyncs state of VMs and hosts with Orchestrate Server</li> <li>♦ Provides access to VM and Host consoles</li> <li>♦ Shows details of VM and host configurations</li> <li>♦ Provides error log and progress views</li> </ul>

Role	Tool Type	Description	Common Function
User	Graphical Interface	The Orchestrate Server Portal	<ul style="list-style-type: none"> <li>◆ Displays deployed jobs.</li> <li>◆ Displays available computing resources.</li> </ul>
	Command Line Interface	Sample command line for help: <code>zos command --help</code>	<ul style="list-style-type: none"> <li>◆ Runs jobs.</li> <li>◆ Monitors running jobs.</li> <li>◆ Manages the user's own jobs. That is, a user can cancel, pause, restart, and change job priority.</li> </ul>

Other functions can also be performed by using either the graphical or command line tools. The sections that follow show examples of performing these functions from either interface, when applicable.

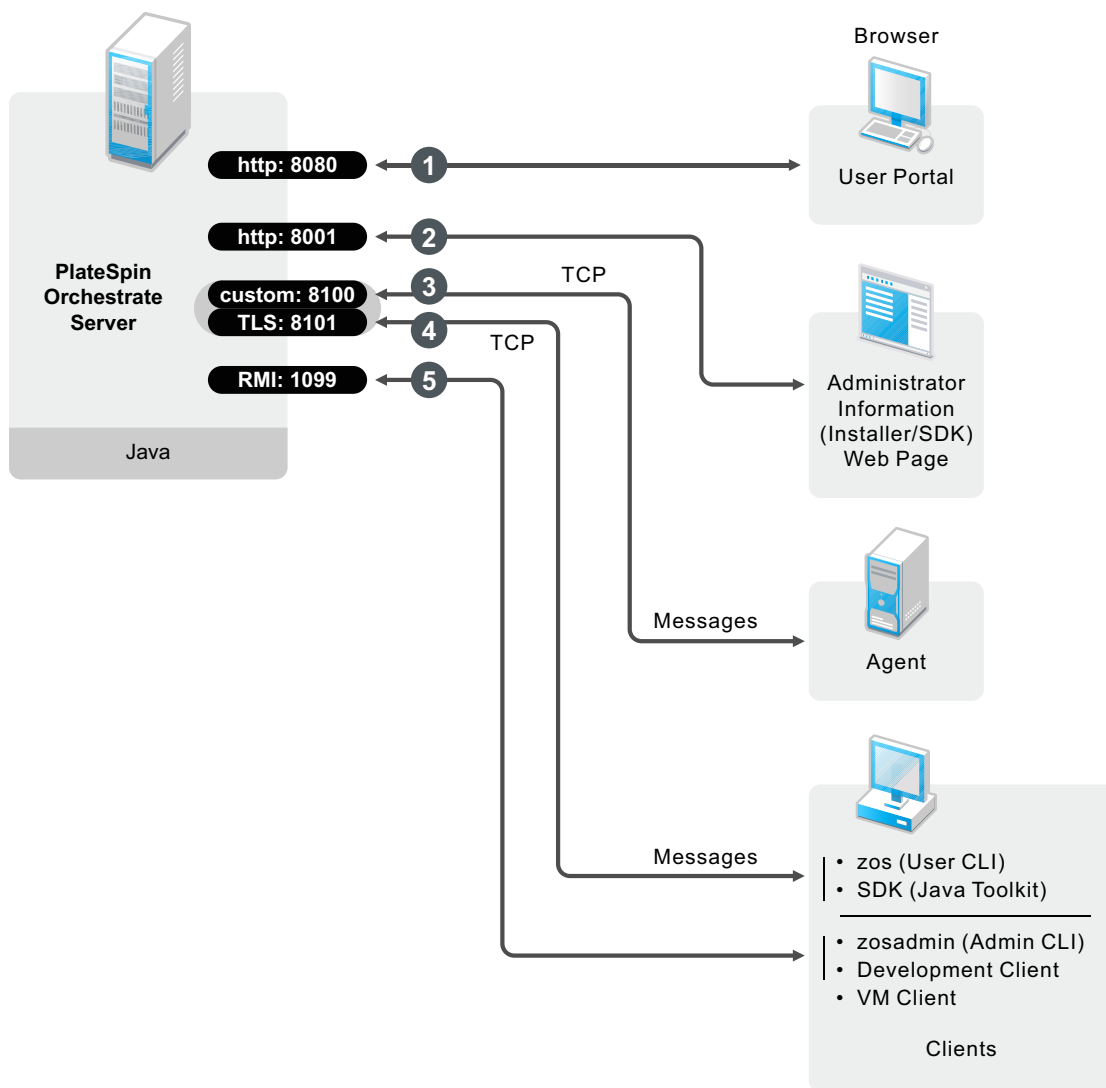
To help you understand how these tools can be used, you can find more information in the following sections:

- ◆ The [PlateSpin Orchestrate 2.5 VM Client Guide and Reference](#)
- ◆ The [PlateSpin Orchestrate 2.5 Development Client Reference](#)
- ◆ “The zosadmin Command Line Tool” and “The zos Command Line Tool” in the [PlateSpin Orchestrate 2.5 Command Line Reference](#).
- ◆ “Using the PlateSpin Orchestrate Server Portal” in the [PlateSpin Orchestrate 2.5 Server Portal Reference](#).

## 2.4 How PlateSpin Orchestrate Components Communicate

The following diagram illustrates how the various components of PlateSpin Orchestrate communicate with the Orchestrate Server. An explanation for each communication link follows the diagram.

**Figure 2-2** *Communication Ports Used By the Orchestrate Server*



1. To open the Server Portal for managing jobs in a Web browser, enter the URL of the Orchestrate Server followed by the port designated for the Server Portal during installation. In a basic installation of PlateSpin Orchestrate, this is port 8080. The URL would therefore be entered as follows:

`http://DNS_Name_or_IP_Address:8080`

2. Administrators who want more information about PlateSpin Orchestrate and a method to access or install additional clients or agents can access the Administrator Information page. To do so, open a Web browser and enter the URL to the Orchestrate Server, followed by the port designated for the Web Info page during installation. In a basic installation of PlateSpin Orchestrate, the default is port 8001. The URL would therefore be entered as follows:

`http://DNS_Name_or_IP_Address:8001`

3. The Orchestrate Server establishes and maintains contact with an installed Orchestrate Agent on a computing resource through port 8100, using a custom protocol.

4. When a user invokes the `zos` command line interface (available after PlateSpin Orchestrate clients are installed on a machine), or when using the Java toolkit SDK, those client tools communicate with the Orchestrate Server over ports 8100 and 8101.
5. When the administrator invokes the `zosadmin` command line interface (available after PlateSpin Orchestrate clients — including the Orchestrate Development Client — are installed on a machine), or when using the PlateSpin Orchestrate Development Client, those client tools communicate with the Orchestrate Server over port 1099, which uses a Java RMI (Remote Method Invocation) protocol.