Dashboard Guide

Novell®
Operations Center

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About This Guide

The Novell® Operations Center *Dashboard Guide* provides information on how to use the Web-based application that provides Operations Center users with a personalized and portable view into the Operations Center server.

Audience

This guide is intended for dashboard administrators and users.

Guide Sections

The following table shows which sections might be most helpful to you:

If your role is …	Then you might be interested in …
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Installer and Administrator	◆ Chapter 2, "Dashboard Installation," on page 13
	◆ Chapter 3, "Dashboard Configuration," on page 29
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Documentation Updates

In general, Operations Center provides two main sources of information to help you configure and use Operations Center products:

- ◆ **Online help:** The help is part of each product and available from multiple locations depending upon the product; look for help in the upper right of a window or dialog box as a drop-down menu option, a help button, or a question mark symbol (?).

- ◆ **Guides:** Available as PDF files on the installation CD, the guides provide an overview of how to solve a problem, complete a task, or use a specific Operations Center product.

Documentation Conventions

In Novell documentation, a greater-than symbol (>) is used to separate actions within a step and items in a cross-reference path. The > symbol is also used to connect consecutive links in an element tree structure where you can either click a plus symbol (+) or double-click the elements to expand them.

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

When a single path name can be written with a backslash for some platforms or a forward slash for other platforms, the path name is presented with a forward slash to preserve case considerations in the UNIX* or Linux* operating systems.

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 and enter your comments there.

About the Operations Center Dashboard

1

The Dashboard is a Web-based application that provides Operations Center users with a personalized and portable view into the Operations Center server. It allows for single sign-on, personalization, and integration of data from both Operations Center and other sources.

The Dashboard utilizes portlets to provide functionality and selected content from various sources. Dashboard portlets are JSR-168 compliant and any portlet that uses this standard could be deployed in the Dashboard. Portlets from third-party sources including Liferay v.5.2 are leveraged by the Dashboard.

A portlet is a Web-based application built for integration into a portal; it serves as a frame or container for content. Content, including content alarms from the Operations Center server, can be updated in real time.

For users, the Dashboard provides a personal Web desktop. They can personalize the Dashboard display, customize the content, and save changes between sessions. Not only can private, personal pages be created, but users can join communities that have shared pages. Content can be distributed among communities and the responsibility of moderating content can be delegated to various users.

 ◆ Section 1.1, "Getting Started with the Dashboard," on page 11

1.1 Getting Started with the Dashboard

As with any Web site or portal, there are two main phases to using the Dashboard:

1. Install and configure the Dashboard.
2. Build and maintain the Dashboard portal.

    When building a dashboard portal, the two primary considerations are users and content:

    ◆ **Users:** The Dashboard uses the same user accounts as the Operations Center server and users must have permissions in Operations Center to access that information in the Dashboard.

    ◆ **Content:** Content is distributed to users through personal pages or shared pages. Personal pages belong to a single user only. Shared pages can be accessed by members of a community.

Dashboard Installation

2

Because the Dashboard is a separate product with its own installation CD or media download, it is not installed as part of the Operations Center server. For more information about installing Operations Center, see the *Novell Operations Center 5.0 Server Installation Guide*.

During installation, various configuration values must be set for the Dashboard. After installation, you must start the Dashboard service. After the installation is verified, deploy additional portlets or make property changes to portlets.

- Section 2.1, "Installation Considerations and Requirements," on page 13
- Section 2.2, "Installing the Dashboard," on page 14
- Section 2.3, "Starting and Stopping the Dashboard," on page 26
- Section 2.4, "Enterprise-Wide Trusted Sites," on page 27

2.1 Installation Considerations and Requirements

There are system requirements for the computer used to install the Dashboard. There are other requirements for the computers that access the Dashboard through a browser. In addition, there are requirements for the Operations Center server to communicate with the Dashboard.

- Section 2.1.1, "Dashboard Server Requirements," on page 13
- Section 2.1.2, "Dashboard User System Requirements," on page 14
- Section 2.1.3, "Performance Considerations," on page 14

2.1.1 Dashboard Server Requirements

The Dashboard ships with Apache Tomcat v6.0 Web server.

Table 2-1 lists the system requirements for the Dashboard server:

Table 2-1   System Requirements for the Dashboard Server

Supported Platforms	◆ Solaris ◆ Linux ◆ Windows (both 32 bit and 64 bit) ◆ Currently, AIX and HPUX platforms are not supported
Supported Databases	◆ SQL Server 2008 ◆ Oracle 11g
Deployment	◆ While the Dashboard might be installed on a different physical server than the Operations Center server, the Dashboard server must resolve to the Operations Center server for communications

Additional Requirements	◆ JDK 6 or higher
	◆ Environment variable called %JAVA_HOME% in Windows or $JAVA_HOME in Linux/Unix set to point to your JDK directory
	◆ For more information, see Section 2.3, "Starting and Stopping the Dashboard," on page 26.

2.1.2 Dashboard User System Requirements

The following requirements enable access to the Dashboard:

Table 2-2 *Requirements for Accessing the Dashboard*

Supported Web Browsers	◆ Microsoft Internet Explorer 7, 8
	◆ Mozilla Firefox 3.6.*x*
	Browsers must be configured to allow Active X controls.
	If the Dashboard detects that the correct plug-in is not installed, it prompts you to install it.
Adobe SVG Viewer 3.0	To access data in the Operations Center Layout and the Chart Builder portlet. Applies to Chart Builder for IE only.

2.1.3 Performance Considerations

Because the Operations Center Dashboard offers the flexibility to design your own dashboards, you may be required to upgrade hardware, increase memory allocations, alter page designs (including number of charts or expressions on a chart) or limit the amount of users in order to achieve optimal performance.

Performance can vary based on the number of users, complexity of installation, and amount of data in your dashboard pages. For example, a page may be slow to load due to the amount of data being charted, or because of the management system involved, and/or other variables. We suggest you contact consulting for help in implementing a high performing solution.

2.2 Installing the Dashboard

Do the following in the order listed:

1. Section 2.2.1, "Verifying Your Operations Center server's Default Accounts and Configuration Settings," on page 15
2. Section 2.2.2, "Installing the Dashboard," on page 17
3. Section 2.2.3, "Configuring the Dashboard Database," on page 19
4. Section 2.2.5, "Configuring the Dashboard and Operations Center," on page 20
5. Section 2.2.6, "Starting the Dashboard for the First Time and Verifying the Installation," on page 23

2.2.1 Verifying Your Operations Center server's Default Accounts and Configuration Settings

◆ "Confirming Default Server Accounts" on page 15

◆ "Verifying Configuration Settings" on page 15

Confirming Default Server Accounts

By default, the Operations Center's default admin account is used to maintain a persistent connection between the Dashboard and the Operations Center server. While this can be changed later, verify the following default accounts still exist on the Operations Center server before installing the Dashboard:

◆ admin

◆ guest

If either of these accounts no longer exists, they need to be re-created. If re-creating the admin account, be sure to give it manage, define, access, and view permissions for the *Users* branch of the element hierarchy. This enables the account to create, delete, and update user accounts. The account does not need to be a member of the admins group.

Continue with "Verifying Configuration Settings" on page 15.

Verifying Configuration Settings

Because the Dashboard must communicate with the Operations Center server, we recommend verifying Operations Center server configuration settings before you start to install. For more information about the Configuration Manager and communication ports, see the *Novell Operations Center 5.0 Server Configuration Guide*.

The Operations Center server to which the Dashboard establishes a connection is considered the default Operations Center server and the Dashboard obtains all its Operations Center content from this server. However, the Dashboard does allow additional connections to other Operations Center servers so that users can view and use content from multiple servers while viewing Web pages in the Dashboard. For more information, see Section 3.8, "Creating Operations Center Server Profiles," on page 41.

To verify and update Operations Center Configuration Settings:

1 Open the Operations Center Configuration Manager.

2 Switch to the *Tasks* tab (*Networking* section) to verify the following settings for the Operations Center server that are important for maintaining open communication between Operations Center and the Dashboard:

◆ Host Name

◆ Client/Server Communication Mode

◆ Web Server Ports

◆ Image Server Comm Port

◆ Remote Services Port (RMI)

◆ Dashboard Communications Security (for RMI communications security)

The *Tasks* tab on the Operations Center Configuration Manager allows you to view all Networking settings in a single list, as shown in the following illustration:

3 Because the RMI communications security can be set in Operations Center only, and is automatically detected by the Dashboard, do one of the following:

- ◆ If *Remote Services Security (RMI)* is set to `Secured communication using SSL`, or `Secured communication using SSL and Client Certificates`, then:

    - ◆ Set Operations Center server's RMI communications to secure.

    - ◆ Configure the Operations Center Web server for secure communications.

- ◆ If *Remote Services Security (RMI)* is set to `Unsecured communication`, then:

    - ◆ Set Operations Center server's RMI communications to unsecure.

    - ◆ Configure the Operations Center Web server for unsecure communications.

Use the `Secured communication using SSL and Client Certificates` option when running the Dashboard with a reverse-proxy scenario where the connecting client is always the Apache Web server. For more information about configuring the Dashboard with a reverse-proxy scenario or configuring Apache to deliver client certificates, contact Novell Support as a Technical Information Document (TID) has been written on this subject.

For more information about securing communications between servers and setting up certificates, see "Communications Security" in *Novell Operations Center 5.0 Security Management Guide*.

4 Continue with Section 2.2.2, "Installing the Dashboard," on page 17.

2.2.2 Installing the Dashboard

Typically, the Dashboard is installed by using the Installation Wizard. It might also be installed using a console installation or an unattended (or silent) installation as detailed in Appendix B, "Running a Console or Unattended Installation," on page 227. For more information about any of these installation methods, see the *Novell Operations Center 5.0 Server Installation Guide*.

To install the Dashboard:

1 To obtain access to the installation files, do one of the following:

  ◆ Insert the Operations Center Dashboard CD into the CD drive of the server where the software is to be installed.

  ◆ Locate the Dashboard files that were downloaded on the server where the software is to be installed.

2 Do one of the following:

  ◆ **Windows:** If the Installation Wizard does not launch automatically, run `install.bat` from a command prompt.

    If User Access Control (UAC) is enabled, you must run the installation as the Administrator.

  ◆ **UNIX:** Set the variable path to where the Java executable is, mount the CD, then run `install.sh` from the root.

3 On the *Introduction* page, do the following:

  3a (Recommended) Stop all programs before continuing especially those any programs that might interfere with the dashboard installation.

  3b Click *Next* to continue.

4 On the *License Agreement* page, do the following as applicable:

  4a Review the contents of the license agreement.

  4b Select the *I accept the terms of the License Agreement* radio button if you agree with the terms.

  4c Click *Next* to continue.

5 On the *Choose JVM* page, do the following:

  5a To select the Java VM, do one of the following:

    ◆ (Windows 32-bit) Select the *Install a Java VM specifically for this application* radio button to install the Java VM.

    ◆ (Windows 32-bit) Select the *Choose a Java VM already installed on this application* radio button and select the desired Java VM from the list.

    ◆ Select *Search For Others* to list additional installed VMs.

    ◆ Select *Choose Another* to navigate to the location of the Java VM you want to use.

    IMPORTANT: If installing on a Windows 32-bit platform, select a 32-bit JVM. If installing on a Windows 64-bit platform, select a 64-bit JVM. Dashboard cannot run if the wrong JVM is selected.

  5b Click *Next* to continue.

6 On the *Choose Install Folder* page, do the following:

    6a Specify the install path on the server.

    We recommend that you do not install the Dashboard in the same directory as the Operations Center server.

    If necessary, click *Choose* to browse for a different location.

    6b Click *Next* to continue.

7 On the *Dashboard Server Configuration* page, do the following:

    7a Specify the Dashboard communications mode by selecting one of the following *Dashboard Communications Mode* radio buttons:

        ◆ **http only** to only use unsecure communications.

        ◆ **https only** to only use secure communications.

        ◆ **both** to allow both unsecure and secure communications.

    7b Specify the http port the Dashboard is to use for http communications in the *Dashboard Web Server Port (HTTP)* field.

    7c Specify the http port the Dashboard is to use for https communications in the *Dashboard Web Server Port (HTTPS)* field.

    7d Click *Next*.

    7e Specify the communications mode that the Dashboard uses to communicate with the Operations Center server by selecting one of the following *Operations Center Communications Mode* radio buttons:

        ◆ **http** to use unsecure communication with Operations Center.

        ◆ **https** to use secure communications with Operations Center.

    7f Click *Next*.

    7g Select the *Run Configuration Manager* after install option to launch the Configuration Manager during installation.

    7h Click *Next*.

8 On the *Pre-Installation Summary* page, do the following:

    8a Review the installation details.

    8b To change any settings, click *Previous* as necessary.

    8c To install, click *Install*.

9 While the Dashboard installs, note the following that occurs:

    ◆ The status display updates as the Dashboard installs.

    ◆ The Configuration Manager launches to configure settings for the installation if selected in Step 7g.

    Details on these settings are documented in Section 2.2.5, "Configuring the Dashboard and Operations Center," on page 20.

10 On the *Install Complete* page, click *Done* to close the Installation Wizard.

11 Continue with Section 2.2.3, "Configuring the Dashboard Database," on page 19.

2.2.3 Configuring the Dashboard Database

While the Dashboard installs by default with an embedded Hypersonic SQL database, the Dashboard must be configured to use an Oracle or SQL Server database.

The following prepackaged JDCB drivers are installed with the Dashboard installation in the *NovellOperationsCenter_install_path/Dashboard*/server/lib/ext/ directory:

* **Oracle:** ojdbc6.jar
* **SQL Server:** jtds-1.2.2.jar

To configure the Dashboard to use an Oracle or SQL Server database:

1 Do one of the following to create the schema for the new database:

* **Oracle:** Use the Oracle SQL*Plus Client to run the following scripts against your Oracle database.

  NovellOperationsCenter_install_path/Dashboard/data/scripts/create-oracle.sql

  NovellOperationsCenter_install_path/Dashboard/data/scripts/init-oracle.sql

  Note that the schema creation script contains some PL/SQL code which other jdbc based clients cannot execute.

* **SQL Server:** Run the following scripts against your SQL Server database.

  NovellOperationsCenter_install_path/Dashboard/data/scripts/create-sql-server.sql

  NovellOperationsCenter_install_path/Dashboard/data/scripts/init-sql-server.sql

2 Open the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/ROOT/WEB-INF/classes/portal-ext.properties file, and locate and copy the properties for your database type in the *Database Support* section.

3 Paste these database properties into the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/ROOT/WEB-INF/classes/portal-ext.custom.properties file, then uncomment the lines.

Optionally, you can encrypt the password. For more information about encrypting the database password, see Section 12.2, "Encrypting the Dashboard Database Password," on page 211.

For more information about the portal-ext.properties and portal-ext.custom.properties files, refer to Section 3.9, "Understanding Portal Properties Files," on page 43.

4 If the database installs without any errors, continue to Section 2.2.5, "Configuring the Dashboard and Operations Center," on page 20.

2.2.4 Verifying the Dashboard Default Time Zone for User Accounts

The default time zone for the portal is set to America/New_York for Dashboard users. It is important that its value be updated to an appropriate time zone if this is not the correct time zone for your users prior to the initial automatic synchronization with the Operations Center server.

To update the default time zone:

1 Open the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/ROOT/
WEB-INF/classes/portal-ext.properties file, and locate the list of time zones.

2 Open the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/ROOT/
WEB-INF/classes/portal-ext.custom.properties file. Add the user.timezone
property, and defining it with a time zone from the list in Step 1.

For more information about the portal-ext.properties and portal-
ext.custom.properties files, refer to Section 3.9, "Understanding Portal Properties Files,"
on page 43

WARNING: When Dashboard users are created via the automatic synchronization with Operations
Center server, their time zone is assigned based on the user.timezone property in the system-
ext.properties file. If this property isn't updated for the desired default time zone in the system-
ext.custom.properties file prior to synchronization, each user must update their time zone
individually via their Dashboard control panel. For more information about user synchronization,
see Section 4.1, "Operations Center and Dashboard Interaction," on page 49.

2.2.5 Configuring the Dashboard and Operations Center

The Operations Center Dashboard's Configuration Manager and the Operations Center's
Configuration Manager are two different configuration managers. You need to use both managers to
configure the Dashboard.

Configurations must be made for general Dashboard operation and communications with the
Operations Center server. In order for the Dashboard to communicate with the Operations Center
server, some configuration settings must match the settings of the Operations Center server's
configuration. These settings are found in the Operations Center Dashboard Configuration Manager
and must match the same settings in the Operations Center Configuration Manager.

WARNING: Changing the settings in either Configuration Manager replaces existing configuration
files and any manual changes are lost.

To configure the Dashboard:

1 To access the Operations Center Dashboard Configuration Manager, do one of the following:

   ◆ **Windows:** You have two options:

      ◆ Click *Start > All Programs > Novell Operations Center > Novell Operations Center
        Dashboard > Configure Novell Operations Center Dashboard*.

      ◆ At the DOS prompt, run customizer from the
        \NovellOperationsCenter_install_path\Dashboard\bin directory.

   ◆ **UNIX:** At a command prompt, run Customizer from the /
     NovellOperationsCenter_install_path/Dashboard/bin directory.

2 Click *Novell Operations Server* in the *Components* tab.
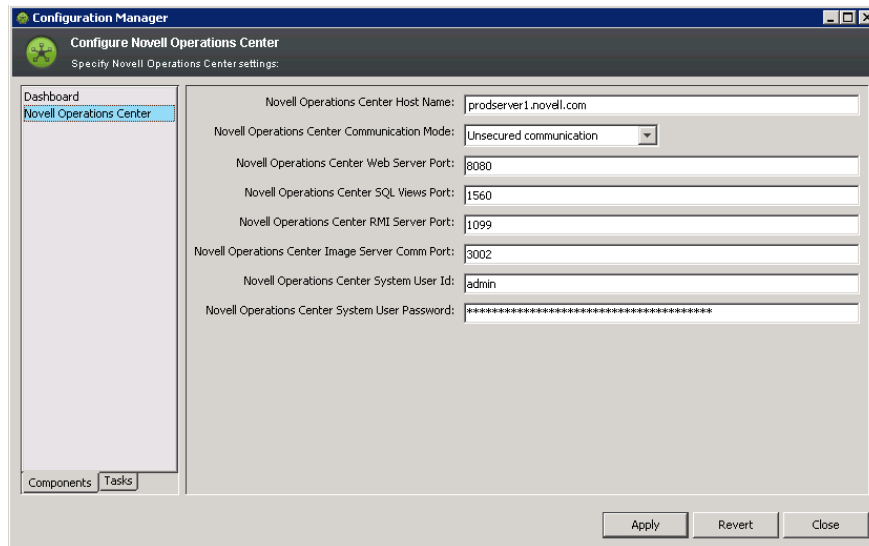
3 Configure the following settings:

Novell Operations Center Server Host Name: The host name for the Operations Center server.

Novell Operations Center Server Communication Mode: The method of communication for the Operations Center server. Select between *Unsecured communication* or *Secured communication using SSL.*

Novell Operations Center Server Web Server Port: The Web server port for the Operations Center server. If using unsecured communication, specify the Web Server Port number for HTTP from the Operations Center server. Or, if using Secured communication using SSL, specify the Web Server Port number for HTTPS from the Operations Center server.

Novell Operations Center Server SQL Views port: The port used by SQL Views for access to the Operations Center server. For more information, see the *Novell Operations Center 5.0 SQL Views Guide*.

Novell Operations Center Server RMI Server Port: The RMI server port for the Operations Center server. The default RMI port is 1099. Value must match the RMI server port specified in the Operations Center configuration manager. If the port is changed in the Dashboard Configuration Manager, then the port value must be updated in the Operations Center Configuration Manager, and vice versa.

Novell Operations Center Server Image Server Comm Port: The Image Server's Communication Port for the Operations Center server. If using a portlet that accesses the Operations Center server's Image server, value must match the Image server communications port that is specified in the Operations Center configuration manager. The Operations Center server's Image server can be accessed from the Dashboard IP Address. For more information on this, see the *Novell Operations Center 5.0 Server Configuration Guide*.

Novell Operations Center Server System User Id: The user name of the Operations Center admin account that is used for handling the persistent connection for user synchronization between the Dashboard and Operations Center.

For more information about user and group synchronization and the default admin account, see Section 4.1, "Operations Center and Dashboard Interaction," on page 49.

For more information about changing the default admin account, see

Novell Operations Center Server System User Password: The corresponding password of the Operations Center admin account specified in the *Operations Center server's System User Id* field.

4 To access the Dashboard configuration options, in the *Dashboard* section, click the *Components* tab.
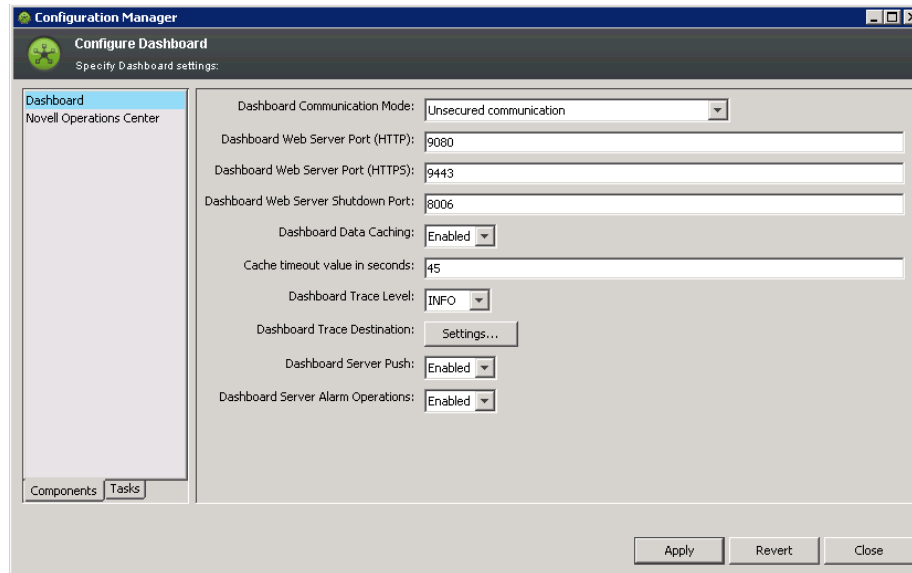
5 Configure the following settings:

Dashboard Communication Mode: The method of communication for the Dashboard. Select *Unsecured communication*, *Secured communication using SSL*, or *Support both unsecured and secured communication*.

Dashboard Web Server Port (HTTP): The port to access the Dashboard if using an unsecured communication protocol.

IMPORTANT: For all ports, verify that the port does not conflict with a port already in use.

Dashboard Web Server Port (HTTPS): The port to access the Dashboard if using a secure communication protocol.

Dashboard Web Server Shutdown Port: The TCP/IP port number to which the Dashboard listens for a shutdown command.

Dashboard Data Caching: The RMI connection between the Dashboard and Operations Center uses a memory sensitive cache to retain data for a predetermined amount of time. This cache resides on the Dashboard application and reduces the amount of calls to the Operations Center server. By default, the caching mechanism is enabled. Note that because this is a memory sensitive cache, it is purged if memory demands are exceeded by the Dashboard application.

Cache timeout value in seconds: The amount of time the data caching mechanism holds onto data. Defaults to 45 seconds.

Dashboard Trace Level: Controls how much information is passed to the server trace logs. Defaults to INFO, which is recommended. The trace levels are:

- **ERROR:** Logs error messages only.
- **WARN:** Logs error and warning messages.
- **INFO:** Logs informational, error, and warning messages.
- **DEBUG:** Logs all information and as the most detailed setting should be used only to track down problems.

Dashboard Trace Destination: Specifies the location of trace log output file. By default, all logging is saved to *NovellOperationsCenter_install_path*/Dashboard/server/logs/dashboard.trc.

On application startup, the current version of the Dashboard and a listing of all environment variables are written to the trace file. For more information, see Appendix C, "Troubleshooting Trace Logs," on page 233.

Dashboard Server Push: Push technology allows data from the Operations Center server to be received as new data appears. If disabled, data is only sent when the user refreshes or loads a page. By default, this option is enabled and applies to all Operations Center portlets. However, this setting can be overridden for each individual portlet taking precedence over this setting in the Operations Center Dashboard Configuration Manager.

Dashboard Server Alarm Options: Enables alarm operations similar to those on the Operations Center console. By default, this option is enabled and applies to alarms components for all Operations Center portlets. However, alarm options can also be overridden for each individual portlet taking precedence over this setting in the Operations Center Dashboard Configuration Manager. For more information, see Section 8.1.3, "Applying and Creating Alarm Filters," on page 134.

6 To restart the Dashboard, continue with Section 2.2.6, "Starting the Dashboard for the First Time and Verifying the Installation," on page 23.

After making changes in the Configuration Manager, it is necessary to restart the Dashboard for any changes to take affect.

2.2.6 Starting the Dashboard for the First Time and Verifying the Installation

The last step to installing the Dashboard is to start the Dashboard and log in to verify a successful connection.

IMPORTANT: At the initial start up of the Dashboard server, a user synchronization process imports all users and groups from the Operations Center server into the Dashboard. For more information about the user synchronization process, see Section 4.1, "Operations Center and Dashboard Interaction," on page 49.

When user accounts are created, a default time zone is assigned based on a property setting in the portal-ext.properties file. Be sure to validate, and override this setting if necessary in the portal-ext.custom.properties file, before starting the Dashboard server for the first time. For more information about time zone settings, see Section 2.2.4, "Verifying the Dashboard Default Time Zone for User Accounts," on page 19.

For more information about the `portal-ext.properties` and `portal-ext.custom.properties` files, refer to Section 3.9, "Understanding Portal Properties Files," on page 43

For more information on starting the Dashboard, see Section 2.3.1, "Starting the Dashboard," on page 26.

To log in to the Dashboard:

1 From your Web browser, access the URL of the Dashboard server:

http://*server*:*dashboard_port*

For example, the Dashboard is installed on your current machine and the HTTP port (Operations Center Dashboard Configuration Manager) set to 8080, then point your browser to:

http://localhost:8080

When successful, the guest home page for the Dashboard displays:
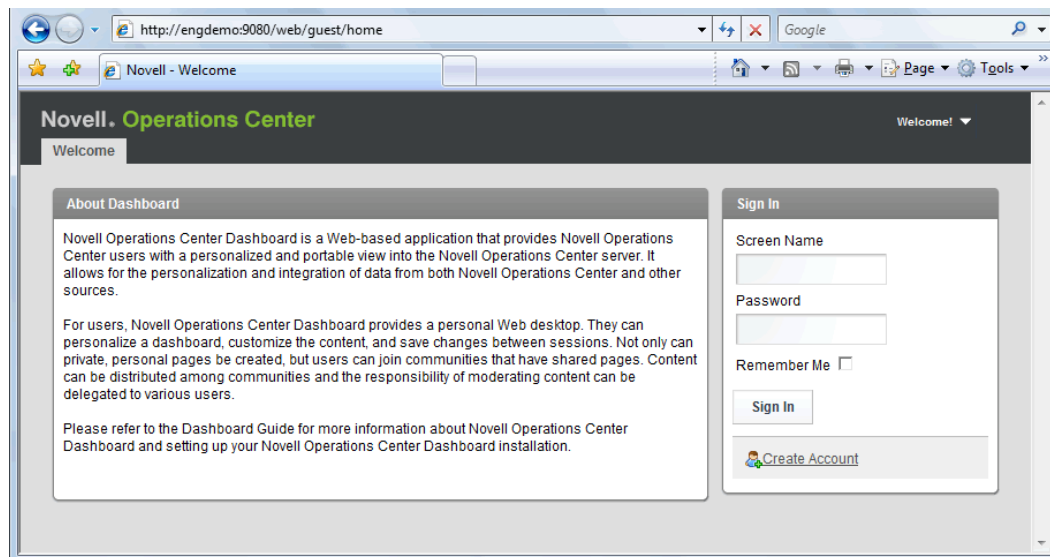
2 To verify RMI communication settings between the Dashboard and the Operations Center server, log in to the Dashboard.

Use the Operations Center default admin account credentials.

If successful, the Dashboard establishes a persistent administration connection to the Operations Center server. This connection is then used to verify the credentials provided by users in the login portlet. If the credentials are correct, the Access Control Synchronizer starts and users from Operations Center are imported.

After logged into the Dashboard, you can add and update content from your personal home page.

Next, configure the URL settings. For more information, see Section 3.2, "Updating Dashboard Administrative Configurations," on page 31.

3 If the connection or authentication fails, do the following as necessary:

- Confirm your administrator default account credentials.
- Verify that you are using the correct HTTP or HTTPS port.
- For all port configurations, verify that the port does not conflict with a port already in use.
- Confirm that the RMI connections specified in the Operations Center Dashboard Configuration Manager and the Operations Center Configuration Manager match.

  If settings are changed in the Configuration Manager, restart the associated server.

- Review the `dashboard.trc` file for error messages.
- Add the Dashboard server as a trusted site.

  For IE 7+ in Windows Vista or Windows Server 2008 and running in Protected Mode, the Dashboard server must be added as a trusted site before the Dashboard can function normally.

  To add the Dashboard to the list of trusted sites, click *Tools* and select *Internet Options*. Select the *Security* tab and click *Trusted Sites*. Click *Sites* and specify the Dashboard host as a trusted site.

2.2.7 Update Dashboard Configuration Settings

For the Dashboard to function properly, it is important that the Virtual Host and Mail Domain settings be updated, otherwise the Dashboard users may encounter redirect issues when navigating to the Dashboard or when the Dashboard is unable to send e-mail notifications.

For more information about other the Dashboard portal configuration settings, see Section 3.2, "Updating Dashboard Administrative Configurations," on page 31.

To update the Virtual Host and Mail Domain for the Dashboard:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Settings*.

3 Specify the fully qualified host name for the server where the Dashboard is running in the *Virtual Host* field.

4 Specify the domain name for the mail host for this instance in the *Mail Domain* field.

5 Click *Save* to save all updated settings.

6 Click *Back* to exit the Control Panel.

2.3 Starting and Stopping the Dashboard

The user account starting and stopping the Dashboard must have the proper permissions to create, update, and delete contents in the Dashboard directory on the Dashboard server. The user must also have one of the following set it its path: JAVA_HOME environment variable set to the JRE directory, or the JRE_HOME environment variable set to the JDK directory.

◆ Section 2.3.1, "Starting the Dashboard," on page 26
◆ Section 2.3.2, "Stopping the Dashboard," on page 27

2.3.1 Starting the Dashboard

For important notes about starting the Dashboard for the first time, see Section 2.2.6, "Starting the Dashboard for the First Time and Verifying the Installation," on page 23.

To start the Dashboard:

1 Do one of the following:

- ◆ **Windows:** Do one:

  - ◆ Run the *NovellOperationsCenter_install_path*/Dashboard/bin/startup.bat script file.

  - ◆ Start the *Operations Center Dashboard Windows* service.

    In the Windows *Start Menu*, select *Novell Operations Center > Novell Operations Center Dashboard > Start Novell Operations Center Dashboard*.

- ◆ **UNIX:** Issue the startup.sh command.

2.3.2 Stopping the Dashboard

To stop the Dashboard:

1 Do one of the following:

- ◆ **Windows:** Do one:

  - ◆ Run the *NovellOperationsCenter_install_path*/Dashboard/bin/shutdown.bat script file.

  - ◆ Stop the *Operations Center Dashboard Windows* service.

    In the Windows *Start Menu*, select *Novell Operations Center > Novell Operations Center Dashboard > Stop Novell Operations Center Dashboard*.

- ◆ **UNIX:** Issue the shutdown.sh command.

  If the Dashboard does not terminate normally after invoking the shutdown.sh command, issue the shutdown.sh command again using the -force option to perform a hard shutdown of the Dashboard.

2.4 Enterprise-Wide Trusted Sites

Because of Protected Mode functionality, the Dashboard server must be added as a trusted site before the Dashboard can be run successfully using IE 7+ in Windows Vista or Windows Server 2008 in Protected Mode.

Unfortunately, if Protected Mode is enabled for the entire enterprise, having each user modify the Trusted Sites list is difficult to maintain. Therefore, we recommend adding the Dashboard server to the list of Trusted Sites by the enterprise administrator through domain policy and pushed out to all clients.

Dashboard Configuration

3

Because the Operations Center Dashboard is built on top of Liferay 5.2, please refer to http://www.liferay.com/documentation/liferay-portal/5.2/ (http://www.liferay.com/documentation/liferay-portal/5.2/getting-started) for documentation on server configuration, portal administration, and Liferay content management functionality.

In addition, this section covers various administrator configurations required for the Dashboard, or for the proper functioning of various portlets.

- Section 3.1, "About the Dashboard Control Panel," on page 30
- Section 3.2, "Updating Dashboard Administrative Configurations," on page 31
- Section 3.3, "Using Auto-Login for Single Sign On (SSO)," on page 33
- Section 3.4, "Setting Session Timeout," on page 36
- Section 3.5, "Changing the Dashboard Account for Persistent Connection," on page 38
- Section 3.6, "Configuring the Mail Server," on page 39
- Section 3.7, "Configuring the Proxy Server," on page 40
- Section 3.8, "Creating Operations Center Server Profiles," on page 41
- Section 3.9, "Understanding Portal Properties Files," on page 43
- Section 3.10, "Deploying Portlets to the Dashboard," on page 44
- Section 3.11, "Default Portlet Settings," on page 45
- Section 3.12, "Granting or Denying Access to Portlets," on page 48

3.1 About the Dashboard Control Panel

All of the administrative functions that you will need to maintain the portal or its content can be found in the control panel. Additionally, developers can write portlets which can also be added to the control panel. Access the Control Panel through the options from the Welcome button.
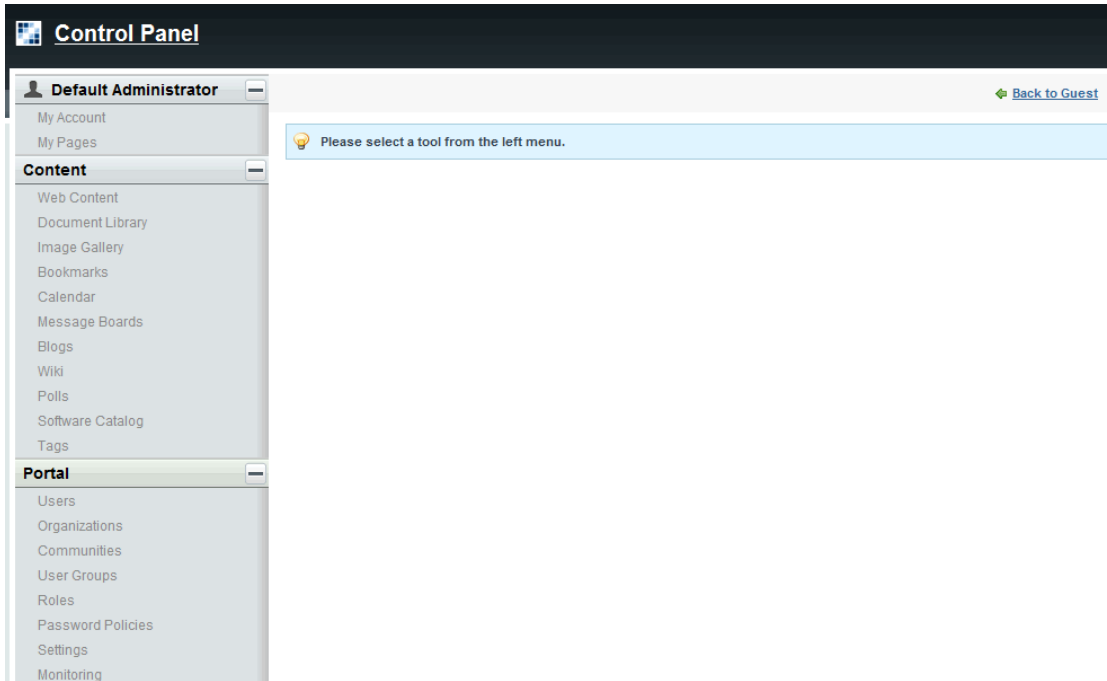
Administrative functions are listed in a logical order under main headings.

- ◆ *User***:** The first section is always the logged in user's personal space. Here, you can change your account information and manage your own personal pages.

- ◆ **Content:** The Content section contains links to all Liferay content management functions. You can maintain web content, documents, images, bookmarks, a calendar, administer a message board, configure a wiki, and more.

- ◆ **Portal:** The Portal section allows portal administrators to set up and maintain the portal. This is where you can add and edit users, organizations, communities, roles, and configure the settings of the portal.

- ◆ **Server:** The Server section contains administrative functions for configuring portal instances, plugins, and more.

The *Portal* section of the Control Panel is used for most administrative tasks, such as for the creation and maintenance of:

- ◆ Users
- ◆ Organizations
- ◆ Communities
- ◆ User Groups
- ◆ Roles

Additionally, it allows you to configure many server settings, including:

- Password Policies

  Note that Liferay Password Policies functionality for password expiration and password lockout are unsupported by the Dashboard.

- Authentication options, including Single Sign-On and LDAP integration
- Default User Associations
- Reserved Screen Names
- Mail Host Names
- E-mail Notifications

You will use the *Portal* section of the Control Panel to create your portal structure, implement security, and administer your users. Note that only users with the Administrator role—a portal scoped role—have permission to view this section of the Control Panel.

3.2 Updating Dashboard Administrative Configurations

Main Dashboard administrative configurations are handled through the *Control Panel* under *Settings*, and include:

- **Authentication:** Settings for general authentication, LDAP, CAS, NTLM, OpenID, Open SSO, and SiteMinder. Because users are loaded from the Operations Center server, do NOT change the default authentication method.
- **Default User Associations:** Default assignments to communities, user roles and user groups.
- **Reserved Credentials:** Reserved screen names and em ail addresses.
- **Mail Host Names:** Additional domains used to send e-mail messages related to certain portlets. For example, the login portlet allows users to request an account.
- **Mail Host Names:** Additional domains used to send e-mail messages related to certain portlets. For example, the login portlet allows users to request an account.
- **Display Settings:** Verify the language and time zone settings are correct for your implementation. By default, these are set to English (United States) and GMT respectively. Also, update the main site logo.

The following sections describe how to configure the Dashboard using the Control Panel:

- Section 3.2.1, "Updating Dashboard Administrative Configurations," on page 32
- Section 3.2.2, "Updating the Dashboard Logo," on page 33
- Section 3.2.3, "Understanding Portal Localization," on page 33

3.2.1 Updating Dashboard Administrative Configurations

To update main dashboard configurations:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Settings*.

3 Update settings as required. Use the following links under Configuration, Identification and Miscellaneous to access the settings:

General: Main configuration settings including portal name, virtual host, and mail domain. Also includes additional information about your business or organization.

IMPORTANT: Setting the Portal URL or Home URL can cause warnings to appear in the trace logs. For more information, see Section C.2.1, "No Such LayoutSet Exception," on page 236.

Authentication: Settings for general authentication, LDAP, CAS, NTLM, OpenID, Open SSO, and SiteMinder. Because users are loaded from the Operations Center server, do NOT change the default authentication method.

Default User Associations: Default assignments to communities, user roles and user groups.

Reserved Credentials: Reserved screen names and e-mail addresses.

Mail Host Names: Additional domains used to send e-mail messages related to certain portlets. For example, the login portlet allows users to request an account.

Email Notifications: System settings for e-mail notifications including password change notification.

Display Settings: Verify the language and time zone settings are correct for your implementation. By default, these are set to English (United States) and GMT respectively. Also, update the main site logo.

For more information about updating the dashboard's logo, see Section 3.2.2, "Updating the Dashboard Logo," on page 33.

For more information about internationalization, see Section 3.2.3, "Understanding Portal Localization," on page 33.

4 Click *Save* to save all updated settings.

5 Click *Back* to exit the Control Panel.

3.2.2 Updating the Dashboard Logo

The logo used for the main site of the Dashboard can be changed in the *Display Settings* from the *Control Panel*. For instructions, refer to Section 3.2, "Updating Dashboard Administrative Configurations," on page 31.

To restore the original `Novell Operations Center` logo to the Dashboard, go to *Control Panel* > *Display Settings* > *Logo* and upload the logo file available in the `NovellOperationsCenter_install_path`/NOC/Dashboard/server/webapps/ ManagedObjectsPortlets/image_gallery/ directory. Access to this image directory is also available at `http://server:port/ManagedObjectsPortlets/image_gallery`.

Logos can also be customized for different communities. For information on assigning logos for communities, refer to Section 5.2.3, "Updating Community Settings," on page 71.

3.2.3 Understanding Portal Localization

While the Dashboard can be internationalized, not all language packs are included. To localize to a specific language that is not currently implemented, contact Novell support.

3.3 Using Auto-Login for Single Sign On (SSO)

The Dashboard supports Single Sign On (SSO) capability through its auto-login function. SSO allows users to gain access to multiple systems (that support SSO) with a single login. For more information on user access to the Dashboard, see Chapter 4, "User Accounts," on page 49.

In situations where it is necessary to disable direct access to the Dashboard server or operations client, authentication can be verified against the SSO implementation before users are allowed to access the Dashboard or the operations client. For more information, see Section 3.3.2, "Disabling Direct Client Logins," on page 36.

- Section 3.3.1, "Implementing Auto-Login with Apache Web Server," on page 34
- Section 3.3.2, "Disabling Direct Client Logins," on page 36

3.3.1 Implementing Auto-Login with Apache Web Server

The Dashboard's auto-login can be used with any mechanism that can include in HTTP requests an HTTP header containing the user name to be auto-logged in. It is most commonly used with the Apache Web server set up as a reverse proxy.

When using an Apache reverse proxy, the security plug-in can authenticate incoming HTTP requests based on a certificate for a user name. The Apache Web server can then be configured to pass an HTTP header to the Dashboard containing the user name of the authenticated user. If the Dashboard server has been configured to allow auto-login, the user is automatically logged in bypassing the need for the user to provide user name and password.
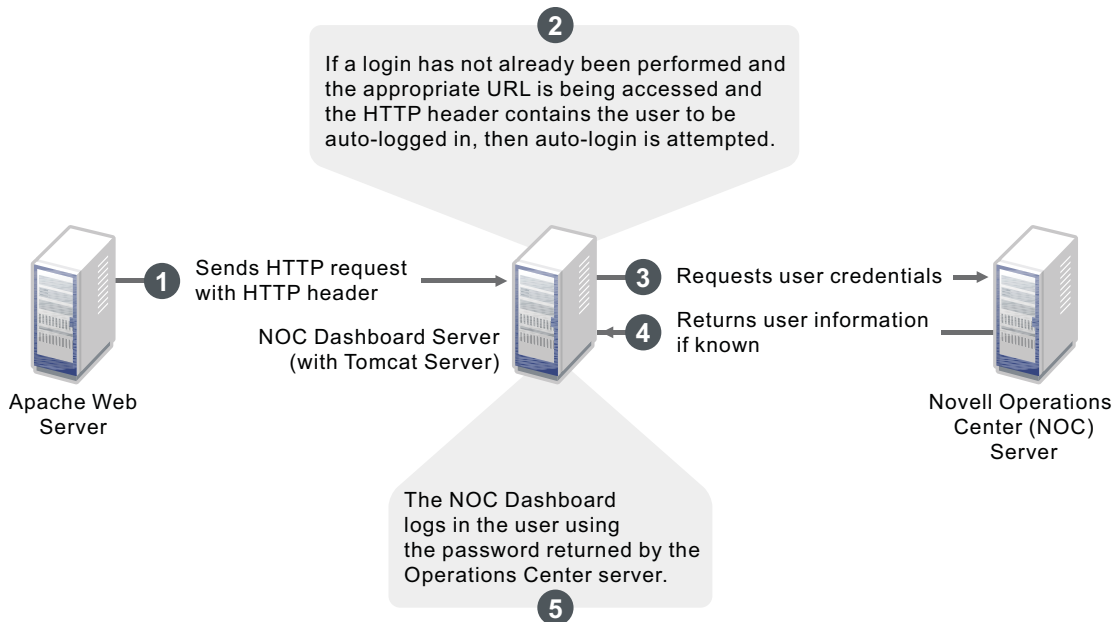
In the above illustration, an Apache Web Server is configured as a reverse proxy. The appropriate auto-login header (such as `remote-user`) is embedded into HTTP requests and the Dashboard server is configured to allow auto-login. Valid Operations Center users (a user that has already been created and exists in Operations Center) are authenticated if the specified HTTP header exists and the Dashboard is configured for auto-login, and the users are automatically logged into the Operations Center server.

To configure auto-login using the Apache Web server reverse proxy:

1 Configure the Dashboard for auto-login by updating the Dashboard configuration file.

    1a Open the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/ ROOT/WEB-INF/classes/portal-ext.custom.properties file in a text editor.

        For more information about the portal-ext.custom.properties file, refer to Section 3.9, "Understanding Portal Properties Files," on page 43.

    1b Add the following line, but do not change the value of the property:

        auto.login.hooks=com.mosol.liferay.authenticator.MOAuth

    1c Add the following line to specify the Web Server Request URIs that allow auto-login:

        mo.autologin.request.uris=.*

The value defaults to .* for all pages as shown in the code sample above.

This property can be configured to a specific page such as `/c/portal/login` and if a user has not yet established a portal login and accesses the `http://`*`dashboard_host`*`:`*`dashboard_port`*`/c/portal/login` page, the auto-login is attempted. However, if any other page is accessed without a previous a portal login established, then auto-login isn't attempted because the page is not a match for the property's regular expression.

To specify more than one specific page, use a pipe character (vertical line) to separate the values. For example, `/c/portal/login|/c/portal/layout` sets the auto-login to the login page and general layout page. If the general layout page is specified (`/c/portal/layout`, `.*`, and so on), then logging out of the portal triggers an immediate attempt to auto-login. If successful, the user is automatically logged in and does not see a login portlet.

1d Add the following line to request the header containing the principal to auto-login:

```
mo.autologin.header=remote-user
```

The value of `remote-user` is an http header only. In this configuration file you don't usually change the line itself nor declare specific users.

1e After saving the file, restart the Dashboard Web server for the changes to take effect.

For more information, see Section 2.3.1, "Starting the Dashboard," on page 26.

2 Configure the Apache Server to set up the reverse proxy to forward requests from "/" to the Dashboard server URL.

For more information on configuring the Apache Server reverse proxy, contact Novell Support as a Technical Information Document (TID) has been written on this subject.

3 Configure a custom HTTP header by adding a `remote-user`, or the header specified above in Step 1d on page 35, to contain the value of an existing Operations Center user.

4 We recommend using client certificates between the Apache server and the Dashboard.

For more information about setting up a keystore and truststore, see "Communications Security" in the *Novell Operations Center 5.0 Security Management Guide*.

For more information about configuring Apache for client certificates, contact Novell Support as a Technical Information Document (TID) has been written on this subject.

3.3.2 Disabling Direct Client Logins

When direct access should be disabled to the Dashboard server or operations client, user authentication against the SSO implementation can be forced before access to the Dashboard or the operations client is granted. This approach provides a single authentication pipeline for all users against the target system.

To disable direct client login:

1 Open the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/ROOT/ WEB-INF/classes/portal-ext.custom.properties file in a text editor.

For more information about the portal-ext.properties and portal-ext.custom.properties files, refer to Section 3.9, "Understanding Portal Properties Files," on page 43.

2 Add or update the following parameters as shown:

```
Client.DisableLogins=true
Client.DisableLogins.AllowedAccounts=admin,guest
```

Setting the Client.DisableLogins parameter to True disables logins to the operations client.

The Client.DisableLogins.AllowedAccounts parameter defines a comma-separated list of accounts that are allowed to log in when the SSO provider is not available and administrators need access the system.

3 Save the file, then restart the Dashboard Web server.

3.4 Setting Session Timeout

Both the Dashboard and the Operations Center server to which the Dashboard has established a connection times out based on inactivity.

- Section 3.4.1, "Setting Operations Center server Timeout," on page 37
- Section 3.4.2, "Setting Dashboard Timeout," on page 37
- Section 3.4.3, "Disabling Dashboard Session Timeout," on page 37

3.4.1 Setting Operations Center server Timeout

The Dashboard portlets attempt to reconnect to a server that has timed out or gone down if the Dashboard application has not timed the user out of the Dashboard session.

1 To update the timeout value in the Operations Center server's `formula.properties` file, change the `mo.remoteserver.context.keepAliveTime` property value (in minutes).

By default, a connection timeout occurs after 30 minutes of inactivity with the Operations Center server.

3.4.2 Setting Dashboard Timeout

By default, if a user does not perform any activity in the Dashboard for 30 minutes, the user is warned that the session will expire. The user can remain logged into the Dashboard for an additional 30 minutes by responding to the notification.

To change the Dashboard session timeout:

1 Update the following line in the *NovellOperationsCenter_install_path*/Dashboard/ server/webapps/ROOT/WEB-INF/web.xml file for the number of minutes before timeout:

```
<session-config>
  <session-timeout>30</session-timeout>
</session-config>
```

3.4.3 Disabling Dashboard Session Timeout

By default, session timeout is enabled for the Dashboard. To extend sessions and keep them open as long as the user's browser is open and a portal page is loaded, update the `portal-ext.custom.properties` file. When extending sessions, a smaller `session.timeout` value, such as 5 minutes, must be set.

To halt session timeout:

1 Stop the Dashboard server.

For more information, see Section 2.3.2, "Stopping the Dashboard," on page 27.

2 Update the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/ ROOT/WEB-INF/classes/portal-ext.custom.properties file to add the following line:

```
session.timeout.auto.extend=true
```

For more information about the `portal-ext.custom.properties` file, refer to Section 3.9, "Understanding Portal Properties Files," on page 43.

3 Update the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/ ROOT/WEB-INF/web.xml file to set a smaller session timeout:

```
<session-config>

  <session-timeout>5</session-timeout>

</session-config>
```

It is recommended to set the session timeout to 5 minutes.

4 Start the Dashboard server.

For more information, see Section 2.3.1, "Starting the Dashboard," on page 26.

3.5 Changing the Dashboard Account for Persistent Connection

By default, the Operations Center *admin* user account is used by the Dashboard to establish a persistent connection to receive user account information and data from the Operations Center server. The Dashboard can be configured to use a different account for the persistent connection. For more information about this account, see Section 2.1.2, "Dashboard User System Requirements," on page 14.

IMPORTANT: While you can deactivate the default admin account in the Dashboard, do not delete it. By deactivating the account, it cannot be used to log in to the Dashboard.

To change the persistent user account for the Dashboard:

1 On the Operations Center server console, create the new user account to use for the Dashboard persistent connection with the following properties/permissions:

   ◆ Is a member of the admins group

   ◆ Has both console and Web access

   For more information, see the *Novell Operations Center 5.0 Security Management Guide*.

2 Log in to the Dashboard using the default admin account.

3 To assign the new admin account as the Administrator role:

   3a Click *Welcome* and select *Control Panel*.

   3b Under *Portal,* select *Roles*.

   3c Click *Actions* next to *Administrator*, and select *Assign Members*.

   3d Click the *Users* tab, then click the *Available* tab.

   3e Locate the name of the new persistent user account.

   If the user is not available, synchronization has probably not occurred yet. Either wait for the users to be synchronized or log in as the new user to force the account to be synchronized.

   For more information, see Section 4.1.1, "Understanding User and Group Synchronization," on page 50.

   3f Select the check box next to the account name.

   3g Click *Update Associations*.

4 To deactivate the default admin account you no longer plan to use:

    4a Log out and log in using the new Administrator account.

    4b Click *Welcome* and select *Control Panel*.

    4c Under *Portal,* select *Users*.

    4d Click *Actions* next to the old admin account, and select *Deactivate*.

5 Update the Operations Center system account setting in the Operations Center Dashboard Configuration Manager:

    5a To access the Operations Center Dashboard Configuration Manager, do one of the following:

            ◆ **Windows:** You have two options:

                ◆ Click *Start > All Programs > Novell Operations Center > Novell Operations Center Dashboard > Configure Novell Operations Center Dashboard*.

                ◆ At the DOS prompt, run `customizer` from the `\`*`NovellOperationsCenter_install_path`*`\Dashboard\bin` directory.

            ◆ **UNIX:** At a command prompt, run `Customizer` from the `/NovellOperationsCenter_install_path/Dashboard/bin` directory.

    The Operations Center Dashboard Configuration Manager is displayed.

    5b Click *Novell Operations Center* in the *Components* tab.

    5c Update the following settings:

    Novell Operations Center Server System User Id: The user name of the Operations Center admin account that is used for handling the persistent connection for user synchronization between the Dashboard and Operations Center.

    For more information about user and group synchronization and the default admin account, see Section 4.1, "Operations Center and Dashboard Interaction," on page 49.

    Novell Operations Center Server System User Password: The corresponding password of the Operations Center admin account specified in the *Operations Center server's System User Id* field.

    5d Click *Apply*.

6 Restart the Dashboard server.

    For more information, see Section 2.3.1, "Starting the Dashboard," on page 26.

3.6 Configuring the Mail Server

The Dashboard requires a mail server to perform the following functionality:

◆ Users request a new user account and receive an e-mail with account information. To send this e-mail message requires an SMTP host running on an SMTP server. For more information authentication settings and customizing e-mail notifications, see Section 4.4.1, "Self-Service User Account Creation, Authentication and Notification Settings," on page 62.

◆ Users request a forgotten password and receive an e-mail with the password. An IMAP host and POP 3 host need to be configured to send this e-mail. For more information about disabling this feature or customizing e-mail notifications, see Section 4.4.1, "Self-Service User Account Creation, Authentication and Notification Settings," on page 62

By default, the Dashboard uses *localhost* for the mail server location.

To configure the mail server for the Dashboard e-mails:

1 Stop the Dashboard server.

For more information, see Section 2.3.2, "Stopping the Dashboard," on page 27.

2 Open the *NovellOperationsCenter_install_path*/Dashboard/server/conf/
Catalina/localhost/ROOT.xml file in a text editor.

3 Update the mail.smtp.host, mail.imap.host and pop3.host values. In the following example,
updates are made for acme.com:

```
<Resource
    name="mail/MailSession"
    auth="Container"
    type="javax.mail.Session"
    mail.imap.host="imap.acme.com"
    mail.pop3.host="pop3.acme.com"
    mail.smtp.host="webmachine.acme.com"
    mail.store.protocol="imap"
    mail.transport.protocol="smtp"
/>
```

4 Save the file, then restart the Dashboard server.

For more information, see Section 2.3.1, "Starting the Dashboard," on page 26.

3.7 Configuring the Proxy Server

Some of the portlets utilized by Dashboard users might have links to external Web sites. If using a
proxy server, configure those Dashboard settings to allow users access to these external Web site
references. Proxy server settings are set in the system.properties file:

```
## HTTP
    # Set the location of the HTTP proxy that the portal will use to fetch
    # external content.
    #http.proxyHost=192.168.0.200
    #http.proxyPort=4480

    # These are read for backwards compatibility and only used if the
    # "http.proxyHost" and "http.proxyPort" settings are not specified.
    #com.liferay.util.Http.proxy.host=192.168.0.200
    #com.liferay.util.Http.proxy.port=4480

    # Set the proxy authentication type.
    #com.liferay.util.Http.proxy.auth.type=username-password
    #com.liferay.util.Http.proxy.auth.type=ntlm

    # Set user name and password used for HTTP proxy authentication.
    #com.liferay.util.Http.proxy.username=
    #com.liferay.util.Http.proxy.password=

    # Set additional properties for NTLM authentication.
    #com.liferay.util.Http.proxy.ntlm.domain=
    #com.liferay.util.Http.proxy.ntlm.host=

    # Set the connection timeout when fetching HTTP content.
    #com.liferay.util.Http.timeout=5000
```

To update the Dashboard proxy server settings:

1 Open the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/ROOT/ `WEB-INF/classes/system-ext.properties` file in a text editor.

The `system-ext.properties` file overrides any default settings from the `system.properties` file.

2 Add the HTTP proxy server settings as shown above. Uncomment and modify the appropriate lines for your environment.

Do not change any other properties in this file unless you are aware of the consequences.

For more information about the `system.properties` file, see Appendix A, "System Properties File," on page 221.

3 Save the `system-ext.custom.properties` file when your changes are complete.

4 Edit the Web Server startup file to add `-Dsystem.properties.load=true` to the Java JM arguments line:

 ◆ **Windows:** Update the *NovellOperationsCenter_install_path*/Dashboard/bin/ `catalina.bat` file:

```
set JAVA_OPTS=-Xmx768m -XX:MaxPermSize=128m -XX:+PrintHeapAtGC -
XX:+PrintGCDetails -Xloggc:%CATALINA_HOME%\logs\mymogc.log -
XX:+DisableExplicitGC -Dsystem.properties.load=true -
Dfile.encoding=UTF8 -
Djava.security.auth.login.config=%CATALINA_HOME%/conf/jaas.config
```

 ◆ **UNIX:** Update the *NovellOperationsCenter_install_path*/Dashboard/bin/ `catalina.sh` file:

```
JAVA_OPTS="-Xmx768m -XX:MaxPermSize=128m -XX:+PrintHeapAtGC -
XX:+PrintGCDetails -Xloggc:$CATALINA_HOME/logs/mymogc.log -
XX:+DisableExplicitGC -Dsystem.properties.load=true -
Dfile.encoding=UTF8  -Djava.security.auth.login.config=$CATALINA_HOME/
conf/jaas.config"
```

5 Restart the Dashboard server for the changes to take affect.

For more information, see Section 2.3.1, "Starting the Dashboard," on page 26.

3.8 Creating Operations Center Server Profiles

By default, all portlets pull data from the default Operations Center server. This server was specified when the Dashboard was installed and configured. However, the Dashboard supports the selection of additional Operations Center servers to use as data sources. To establish communication between the Dashboard and another server, a server profile must be set up and selected in the portlet configuration.

Server profiles are used by all Operations Center portlets except for the Refresh portlet.

When the Dashboard communicates with a Operations Center server to retrieve data, the Dashboard uses one user license from that server. Each Operations Center server with which the Dashboard communicates should be running the same software version, including the same patch release.

Each server profile establishes a connection between the Dashboard and a specific Operations Center server. The Dashboard Default Profile, a server profile for the default Operations Center server is automatically created when the Dashboard is installed and configured using the

Configuration Manager. This default server profile cannot be edited as a server profile; any changes to the Dashboard connection with this Operations Center server must be made in the Configuration Manager.

Additional server profiles are created and edited using the *Operations Center Server Profiles* portlet. Note that Operations Center server Profiles portlets can be removed from the Web page without deleting the server profile from the Dashboard.

To create or edit a server profile:

1 If not already available, add the *Operations Center Server Profiles* portlet to a dashboard page.
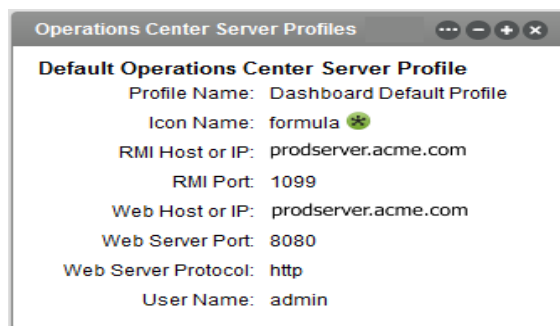
For more information about adding portlets, see Section 6.2, "Adding Portlets," on page 93.

2 Click ⬤ (*Options*) on the Operations Center server Profile portlet, and select ✎ *Preferences*.

3 Click *Create New Profile*.

To edit a profile, select it from the drop-down list for *Select Profile Name*, then click *Edit This Profile*.

4 Complete the following settings for the new profile:

Settings	Definition
Profile name	Name that displays on the portlet for the option to select a Operations Center server.
Icon name	Only default icons for Operations Center are available.
RMI host or IP	Communication settings for the Operations Center server.
RMI port	
Web host or IP	
Web server port	
Web server protocol	
Use logged in user credentials or *User Name and Password*	Enter a username and password or select the *Use logged in user credentials* check box. The *Use logged in user credentials* option provides access control because a user can only access data for which the user has permission in the Operations Center server.

Settings	Definition
Default profile	If selected, the Operations Center server defined in this profile is the default Operations Center server used by all portlets when they are added to a page in the Dashboard, unless another profile is specified within the portlet.

5 Click *Save* to save to create a profile or save changes to an existing profile.

The profile is available for use by any portlets that support selection of different Operations Center servers.

6 Click *Return to Full Page* to close portlet preferences.

3.9 Understanding Portal Properties Files

As with many systems, properties files are used to configure various default settings for the Dashboard. These are not limited to, but include:

- ◆ Database settings

  For more information about configuring the database connection, refer to Section 2.2.3, "Configuring the Dashboard Database," on page 19

- ◆ Portal Time Zone

  For more information about setting the time zone, refer to Section 2.2.4, "Verifying the Dashboard Default Time Zone for User Accounts," on page 19.

- ◆ Auto-Login

  For information about configuring auto-login with Apache Web Server, refer to Section 3.3.1, "Implementing Auto-Login with Apache Web Server," on page 34.

- ◆ Session timeout

  For information about setting and disabling session timeout, refer to Section 3.4, "Setting Session Timeout," on page 36.

- ◆ Synchronization with Operations Center

  For information about access control synchronizer settings, refer to Section 4.1.2, "Updating Access Control Synchronizer Settings," on page 51.

- ◆ Disabling of Self-Service Use Account Creation, Authentication and Notification Settings

  For information self-service features on account creation, refer to Section 4.4.1, "Self-Service User Account Creation, Authentication and Notification Settings," on page 62.

- ◆ Configuration settings for Liferay servlets, portlets, and standard functionality.

  For example, set the `my.places.max.elements` property to set the number of items (communities and organizations) shown in the Welcome drop-down list under My Places.

Liferay portal settings are defined in the `portal.properties` file. Other settings necessary to integrate Operations Center and Operations Center portlets are defined in the `portal-ext.properties` file. These file should never be modified due to risk of overwrite during any update process. Instead, custom configurations should always made in the `portal-ext.custom.properties` file.

Configurations in the `portal-ext.custom.properties` file always take precedence over settings in the `portal-ext.properties` file, which in turn always take precedence over settings in the `portal.properties` file.

For information about configurations that can be made to the Dashboard, through the `portal-ext.custom.properties`, please refer to http://www.liferay.com/community/wiki/-/wiki/Main/Portal+Properties+5.2.3 (http://www.liferay.com/community/wiki/-/wiki/Main/Portal+Properties+5.2.3)

3.10 Deploying Portlets to the Dashboard

Any portlet adhering to the JSR-168 standard can be deployed with Operations Center Dashboard. Portlets, including new versions of Operations Center portlets, can be deployed by saving the archive file in a specific the Dashboard directory or uploaded using Hot Deploy.

Portlets, layout templates, and themes are deployed by bundling the files into an archive file. A `.war` file is a standard practice based on Servlet 2.4 specification; refer to the JSR-168 specification for more information on Web application archives and portlets.

- Section 3.10.1, "Deploying a Portlet," on page 44
- Section 3.10.2, "Deploying a Portlet using Hot Deploy," on page 44

3.10.1 Deploying a Portlet

1 Bundle the new or modified portlet into a `.war` file and save it to the *NovellOperationsCenter_install_path*/Dashboard/deploy directory.

The directory to deploy new portlets is set in the *Control Panel* under *Plugins Installation* (Click *Install More Portlets* feature and select *Configuration*). If for some reason portlets are not deploying as expected, verify your settings.

The new portlet is automatically deployed based on the Interval setting. The default is every 10 seconds. However, the Dashboard server can be restarted in order to force an immediate update if necessary.

3.10.2 Deploying a Portlet using Hot Deploy

1 Click *Welcome* and select *Control Panel*.

2 Under *Server*, select *Plugins Installation*.

3 Click *Install More Portlets*.

4 Click *Upload File*.

5 Click *Browse* to locate the `.war` file to deploy.

6 Optionally, specify the context for the deployment.

7 Click *Install* to upload the archive file and deploy the portlet.

3.11 Default Portlet Settings

Global default settings for Operations Center portlets can be modified by editing the *NovellOperationsCenter_install_path*/NOC/server/webapps/ ManagedObjectsPortlets/WEB-INF/data/globals.xml file.

Default settings can be made per user basis by making a copy of globals.xml file and renaming it as *username*_globals.xml, and saving it in the same directory. *Username*_globals.xml file settings apply only to portlets added to a page by the specified user.

In the XML declarations, each portlet is made up of a set of portlet components where each value has an explanation and in brackets shows the accepted values. For example, in the globals.xml file, the following code snippet shows default height and width declarations for *Alarm* listings.

```
<component>
        <name>alarms</name>
        <preferences>
          <entry>
            <string>width</string>
            <string>400</string>
          </entry>
          <entry>
            <string>height</string>
            <string>300</string>
          </entry>
        </preferences>
</component>
```

Table 3-1 shows default properties that can be set for portlets in the globals.xml file.

Table 3-1 *Default Preferences for Portlets*

XML Component Name	Description
layout	Defaults for layout diagrams.
	Preference declarations include:
	◆ **width:** The width of the layout diagram.
	◆ **height:** The height of the layout diagram.
	◆ **Output.:** The output of the layout diagram (such as SVG or FLASH).
	◆ **relationships:** The diagram should display the relationships browser (True or False).
alarms	Defaults for all alarms listings.
	Preference declarations include:
	◆ **width:** The width of the embedded alarms control.
	◆ **height:** The height of the embedded alarms control.

XML Component Name	Description
elementselector	Default element for single element portlets.
	Preference declarations include:
	• **identity:** The DName of the element to be used as the starting element for all portlets that have an initial element as a starting point. If this option is not set, then the portlet selects the first home element of a user. If a home element has not been specified, then the *Services* element is used (`root=Organizations`).
elementsselector	Default elements for multi-element portlets.
	If this option is not active, then the list of elements is populated with all of the home elements for the logged in user. If the user does not have a home element, than an empty list is displayed. Preference declarations include:
	• **total:** The total number of elements shown.
	• **identity0:** The DName of the first element to be used.
	• **identityX:** Specify additional DNames defining name as `identity`*number* where *number* continues until 1, minus the specified value of total.
navigation	Default element for all portlets displaying an element navigation tree.
	There are no preference declarations made by default.
performance	Defaults for all performance chart portlets.
	Preference declarations include:
	• **width:** The width of the performance chart.
	• **height:** The height of the performance chart.
	• **chartWidth:** The width of the charts.
	• **chartHeight:** The height of the charts.

XML Component Name	Description
propertiestable	Defaults for all element properties tables.

Preference declarations include:

- **propertyList:** A list of properties that displays for the current element and its direct descendants.

For each item declaration contained in `propertyList`, specify `propertyListItem` structures with the following definitions:

- **columnHeader:** The column name displayed at the top of the table.
- **property:** The property to display.
- **logicSign:** The logic operator to apply to the value (such as equals, more, less).
- **conditionalValue:** The value that the property is evaluated against (any number).
- **condition:** The condition for setting the background color of the cell when the "*property [logicSign] conditionValue = conditional*

  For example, if set to "24 < 25 = True", the background to CRITICAL

  "[CRITICAL,MAJOR,MINOR, INFORMATIONAL,OK,UNKNOWN].
- **textBefore:** Any text to display immediately before the property value ($).
- **textAfter:** Any text to display immediately after the property value (%).
- **conditional:** When the evaluation results equals this value, then the background of the cell is set accordingly (True or False).
- **order:** Not used.
- **identity:** Unique key for this property, all properties must have a unique key.

3.12 Granting or Denying Access to Portlets

The Dashboard adheres to a JSP standard and is designed to be personalized. It offers many portlet options, including those that leverage Operations Center data as well as other third-party portlets offering various types of functionality.

As an administrator, you can grant or restrict access to each portlet. The following sections cover restricting access based on user roles or disabling portlets system-wide.

- Section 3.12.1, "Restricting Portlets Based on User Roles," on page 48

3.12.1 Restricting Portlets Based on User Roles

To restrict the use of a portlet based on user roles:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Plugins Configuration*.

3 By default, all portlets have the role *Users* listed, which allows all users access to the portlet. Restrict or grant access on a limited basis to the portlet by performing one of the following steps:

- Click the link for the desired portlet.
- To make the portlet unavailable to all users, deselect the *Active* check box.
- To grant access based on specific roles, specify the role names in the area provided. Users assigned to the roles listed can add the portlet to their Web pages.
- Click *Save*.

4 Click the *Back* link to exit the Control Panel.

User Accounts

4

User and group accounts from the Operations Center server are leveraged by the Dashboard so it is important to understand how these accounts are synchronized and configured. The following sections provide important details regarding the interaction between Operations Center and the Dashboard as well as account permissions and user account structure:

4.1 Operations Center and Dashboard Interaction

User and group accounts from the Operations Center server are leveraged by the Dashboard to give users access to the Dashboard portal pages and Operations Center data via the Dashboard portlets. Limited status information on specific elements can be seen using the Public User End View portlet without logging into the Dashboard.

Operations Center and the Dashboard use the same user and group accounts. User accounts are organized into groups that exist both in Operations Center and in the Dashboard.

Because the same user accounts are used by both Operations Center and the Dashboard, actions performed on a user account in the Dashboard impact the account in Operations Center and vice versa.

While actions performed on user groups in Operations Center impact the groups in the Dashboard, the reverse is not true. Because of this, groups in the Dashboard can be organized into a different structure designed to follow your corporate hierarchy.

User accounts can be managed (created and edited) by administrators and by users themselves.

User accounts have different permissions in the Dashboard and Operations Center. The permissions in Operations Center determine the Operations Center content that the user can access in the Dashboard.

4.1.1 Understanding User and Group Synchronization

Both user accounts and groups are synchronized between the Operations Center server and the Dashboard. There are two accounts in the Operations Center server that have a special use in the Dashboard: *admin* and *guest*.

During the first synchronization (on initial Dashboard server start up), all users and groups from the Operations Center server are imported into the Dashboard and setting up the same user/group associations in the Dashboard. Afterwards, synchronizations vary based on whether the action is on a user account or group and where the action is taken.

Table 4-1 details the action or location of a user or group and the resulting synchronization:

Table 4-1 *User/Group Synchronizations*

Action/Location	Result
User account actions in Operations Center	Users updated/deleted in Operations Center are updated/deleted in the Dashboard during the next synchronization.
User account actions in the Dashboard	The following actions taken in the Dashboard immediately have the same effect on the Operations Center server: ◆ Add, edit, or delete user accounts New users accounts are automatically added to the users group in the Operations Center server. ◆ Change user account settings For important information about passwords, see Section 4.2.3, "Understanding Password Policy," on page 53. The following actions in the Dashboard have no corresponding effect in the Operations Center server: ◆ Deactivate users ◆ Restore users
Group actions in Operations Center	Users removed from groups in the Operations Center server are removed from groups in the Dashboard during the next synchronization. Groups deleted in the Operations Center server are removed from the Dashboard during the next synchronization. This default behavior can be changed in Updating Access Control Synchronizer Settings (page 51).
Group actions in the Dashboard	Groups that are created/deleted in the Dashboard are not created/deleted in Operations Center. Changes made to group membership in the Dashboard are not made to groups in Operations Center. This allows for groups that are created and maintained exclusively in the Dashboard.

Dashboard user profiles are assigned a default time zone based upon a global setting in the `system-ext.properties` file. For more about the time zone setting, see Section 2.2.4, "Verifying the Dashboard Default Time Zone for User Accounts," on page 19. Users can later update this selection manually in their control panel.

4.1.2 Updating Access Control Synchronizer Settings

The first time that the Access Control Synchronizer runs (on initial Dashboard server start up), all the user accounts and groups from the Operations Center server are downloaded to the Dashboard, except those user accounts that have Web access restricted.

The Access Control Synchronizer continues to synchronize with the Operations Center server at specified intervals to maintain all users and groups. When each user logs into the Dashboard, their user account is automatically synchronized.

To update synchronization settings:

1 Open the *NovellOperationsCenter_install_path/Dashboard*/server/webapps/ROOT/ WEB-INF/classes/portal-ext.custom.properties file in a text editor.

For more information about the portal-ext.custom.properties file, refer to Section 3.9, "Understanding Portal Properties Files," on page 43.

2 Add and update synchronizer properties as required:

mo.acl.synchronizer.enabled: Enables the synchronization of users and groups between Operations Center and the Dashboard. Default is True.

mo.acl.synchronizer.interval: The time, in milliseconds, between each synchronization. Default is 300000, which equates to every 5 minutes.

Because the synchronizer synchronizes all accounts, consider the number of Operations Center users and groups as well as how often user and group information changes when setting this property.

mo.acl.synchronizer.on.login.enabled: Enables the synchronization of all user accounts whenever any user logs in. If enabled, the login process could take longer depending on the number of Operations Center users. If set to False, only the user's account is synchronized on login.

mo.acl.synchronizer.keepUserGroupSynchronized: If enabled, actions taken on groups in Operations Center are also taken on groups in the Dashboard the next time synchronization runs. If set to False, groups are update with changes from the Operations Center server.

3 Restart the Dashboard server for the changes to take affect. For more information, see Section 2.3.1, "Starting the Dashboard," on page 26.

4.1.3 Understanding the Use of the Default Admin Account

The Dashboard uses the default *admin* account to communicate with the Operations Center server. This account must have full privileges in Operations Center. The guest account in Operations Center is also used. For more information, see Section 3.5, "Changing the Dashboard Account for Persistent Connection," on page 38.

4.1.4 Understanding Access and Permissions for User Accounts

Because the Dashboard and Operations Center use the same user accounts, they are subject to two different sets of permissions in the Dashboard as follows:

◆ **Dashboard Permissions:** These are relevant to all functionality in the Dashboard.

When user accounts are created in the Dashboard and thus added to the Operations Center server, the user is automatically added to the users group in the Operations Center server and receives all permissions assigned to the users group.

These accounts are automatically set to have restricted access to the Operations Center console. This means that the user can only log in to the Dashboard or another Operations Center Web client; the user cannot log in to the Operations Center console. For more information on how access is restricted, see the *Novell Operations Center 5.0 Security Management Guide*.

◆ **Operations Center Permissions:** These are relevant for determining the data in the Operations Center server that the user can access.

Operations Center permissions cannot be changed in the Dashboard. To change permissions to Operations Center, you must access the permissions in the Operations Center console. For more information on permissions in Operations Center, see the *Novell Operations Center 5.0 Security Management Guide*.

When user accounts are added in Operations Center and given access to the portal, these users are automatically assigned to the users group in the Dashboard and are assigned to two roles: User and Power User. For more information on these roles, see Section 11.1, "Assigning Permissions Using Roles," on page 199.

4.2 Understanding User Account Requirements

The Dashboard requires a username, password, and unique e-mail address for its user accounts. In addition, there are other requirements for the username, password, and e-mail address.

◆ Section 4.2.1, "Understanding Username Restriction," on page 52
◆ Section 4.2.2, "Understanding Unique E-Mails," on page 53
◆ Section 4.2.3, "Understanding Password Policy," on page 53

4.2.1 Understanding Username Restriction

A user account for the Dashboard cannot have a username that contains the domain name managedobjects.com. The Dashboard uses this domain name for a reserved user account.

If there is a user with this domain name in the Operations Center server, it does not synchronize with the Dashboard and an error is outputted to the trace logs. For more information, see Section C.1.1, "User ID Exception – Unable to Synchronize User," on page 233.

4.2.2 Understanding Unique E-Mails

In order for the synchronization of users to occur in the Dashboard with the Operations Center server, the user account in Operations Center must have a unique, valid e-mail address.

IMPORTANT: User accounts must contain a valid, unique e-mail address to correctly synchronize between Operations Center server and the Dashboard.

A valid e-mail address follows this pattern: _@_._ where _ is a character. A valid e-mail address does not contain any spaces and has only one @ sign.

User accounts in the Operations Center server are not required to have e-mail addresses. When user accounts are synchronized with the Operations Center server, if the Dashboard encounters an account without an e-mail address, it creates an e-mail address similar to the following:

incrementalcount@novell.com

During the user synchronization, if the Dashboard encounters a user account with an e-mail address that already matches an e-mail address for an existing account in the Dashboard, the Dashboard attempts to address the problem by adding "generated_" to the beginning of the e-mail address. However, if there are multiple e-mail addresses that are the same, the Dashboard won't be able to correct them and there will be errors.

4.2.3 Understanding Password Policy

The Dashboard uses account information including passwords from the Operations Center server. How the Operations Center server handles passwords depends on the type of account:

- **Native Accounts:** In Operations Center, these accounts are stored and authenticated in the Operations Center server. For these accounts, the Operations Center administrator can set password policies.
- **External Accounts:** These accounts are stored in an external directory that are authenticated using LDAP. For these accounts, Operations Center does not store any password information.

When an account is created in the Dashboard, the account is a native account in Operations Center. The Dashboard enforces the password policy for Operations Center native accounts by default. If a password is entered during the account creation that does not match the password policy, then the account is not created.

Dashboard administrators as well as the users themselves can change passwords for user accounts in the Dashboard if the account is a native account in Operations Center. The Dashboard verifies that the password follows Operations Center password policy and allows the change if it does. If it does not, the Dashboard displays an error message and the password is not changed. If the account is an external account in Operations Center, the Dashboard does not show an option to change the password.

For information on how to create user accounts and change passwords, see Section 4.4, "Managing User Accounts," on page 61.

4.3 Configuring Dashboard User Account Structure

Before a user logs in, all users are considered a guest. The Operations Center guest account is used to display the default home page.

User accounts in the Dashboard are organized two ways:

* By a structure that represents the corporate hierarchy
* By groups

Groups from Operations Center are imported into the Dashboard automatically. Changes made to groups in the Dashboard do not impact the group in Operations Center. However, by default, changes made to groups in Operations Center do impact the group in the Dashboard; this setting can be changed in Section 4.1.2, "Updating Access Control Synchronizer Settings," on page 51.

The following sections review how you might organize the Dashboard user accounts into corporate hierarchy structure or configure the Dashboard groups:

* Section 4.3.1, "Understanding the Dashboard Portal Architecture," on page 54
* Section 4.3.2, "Configuring Corporate Hierarchy via Organizations and Locations," on page 57
* Section 4.3.3, "Configuring Groups," on page 60

4.3.1 Understanding the Dashboard Portal Architecture

The following addresses the relationship between the various entities that define the portal architecture.

* Portals are accessed by *Users*.
* *Users* can be collected into *User Groups*.
* *Users* can belong to *Organizations*.
* *Organizations* can be grouped into hierarchies, such as Home Office -> Regional Office -> Satellite Office.
* *Users*, *Groups*, and *Organizations* can belong to *Communities* that have a common interest.

The simplest way to think about this is that you have users and various ways those users can be grouped together. Some of these groupings follow an administratively organized hierarchy, and other groupings may be done by the users themselves (such as different users from multiple organizations starting a community called "Dog Lovers" that has a common interest in dogs). And

other groupings may be done administratively via Roles for other functions that may cut across the portal (such as a Message Board Administrators role made up of users from multiple communities and organizations, allowing those users to administer any message board in the portal).

This way of organizing portal concepts may be illustrated in the following manner:
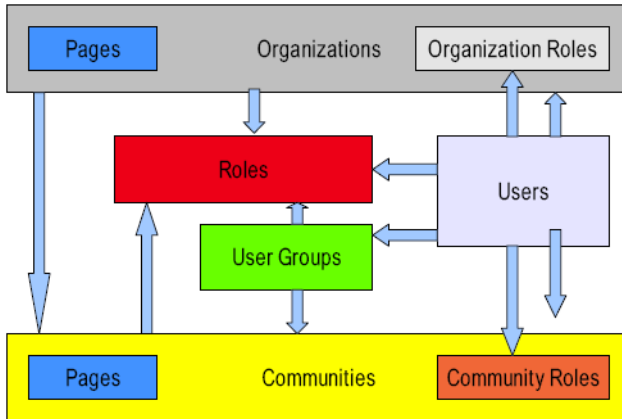
In the illustration above, each arrow may be read using the words "can be a member of." So this means that Organizations can be members of Communities, Communities can be members of Roles, Users can be members of anything, and so on. Though this seems very complex, it provides a powerful mechanism for portal administrators to configure portal resources and security in a consistent and robust manner.

It is important to note that the diagram illustrates only users and their collections. Permissions do not flow through all of these collections: permissions can be assigned to roles only.

Users

Users can be collected in multiple ways. They can be members of organization hierarchies, such as *Your Company, Inc. > Security > Internet Security*. They can be collected into arbitrary user groups, such as Bloggers, which would enable them to create blog entries in their personal space. They can be members of communities which draw together common interests. And they can have roles which describe their functions in the system, and these roles can be scoped by Portal, Organization, or Community.

For more information about the Dashboard user accounts including default user associations, see Section 4.4, "Managing User Accounts," on page 61.

User Groups

User groups are simple, arbitrary collections of users, created by administrators. They can be members of communities or roles. Permissions cannot be assigned to user groups. Though user groups do not have pages like some of the other collections of users (such as communities or organizations), they do have page templates which can be used to customize users' personal sets of pages.

For more information about user groups, see Section 4.3.3, "Configuring Groups," on page 60.

Roles

There are three kinds of roles:

- ◆ Portal Roles
- ◆ Organization Roles
- ◆ Pages Community Roles

These are called role *scopes*. Roles are used to define permissions across their scope: across the portal, across an organization, or across a community. For example, consider a role which grants access to create a Message Board category. A Portal role would grant that access across the portal, wherever there was a Message Board portlet. A Community role would grant that access only within a single community. An Organization role would grant that access only within an Organization.

Because Roles are used strictly for portal security, they also do not have pages, like Communities and Organizations.

Users, *User Groups*, *Communities*, or *Organizations* can be members of a role.

For more information about roles, see Chapter 11, "Portal and Community Permissions," on page 199.

Organizations

Organizations are hierarchical collections of *Users*. They are one of the two types of portal resources that can have pages. There is also a special type of Organization called a location, which can define where users are specifically located.

Organizations are useful for defining where a user belongs in a particular hierarchy. For example, if implementing the portal for a large organization, it may help to define user Joe Smith via his position in the organization chart. If Joe Smith is a Sales Engineer located in the New Jersey office, working in the North East division of the Sales department, he might be a member of the following organizations:

- ◆ Sales
- ◆ North East Division
- ◆ New Jersey Location

Then, if you add an Asset Publisher portlet as a static portlet on every user's home page (via a User Group page template) you can inform employees of various announcements via the content management system. If content is tagged appropriately, Joe Smith gets any announcements that are meant for Sales, the North East Division, or the New Jersey location.

Organizations can be members of *Communities*.

For more information about organizations, see Section 4.3.2, "Configuring Corporate Hierarchy via Organizations and Locations," on page 57.

Communities

Communities are collections of *Users* who have a common interest. The Dashboard's default pages are in the *Guest* community, because everyone—whether they are anonymous or members of the portal—has a common interest in the default, public pages of your site. There are three types of Communities:

- Open
- Restricted
- Hidden

An Open Community (the default) allows portal users to join and leave the Community whenever they want to, using the Control Panel or a Communities portlet added to a page to which they have access. A Restricted Community requires that users be added to the Community by a community administrator. Users may use the Control Panel or the Communities portlet to request membership. A Hidden community is just like a Restricted community, with the added concept that it does not show up at all in the Communities portlet or the Control Panel.

For more information about communities, see Chapter 5, "Personal Pages and Communities," on page 67.

4.3.2 Configuring Corporate Hierarchy via Organizations and Locations

Organizations are hierarchical collections of *Users*. They are one of the two types of portal resources that can have pages. There is also a special type of Organization called a location, which can define where users are specifically located.

An example of an organization is *Operations Center USA*. Organizations can have any number of sub-organizations or locations. Example locations of the *Operations Center USA* organization are *Operations Center Chicago*, *Operations Center San Francisco*, and *Operations Center Los Angeles*.

The following sections cover managing organizations and locations:

- "Understanding Organizations and Locations" on page 57
- "Adding an Organization or Location" on page 58
- "Configuring an Organization" on page 59
- "Searching for an Organization" on page 59

Understanding Organizations and Locations

Dashboard organizations are intended to model organizations in real life. They can be used to represent different companies, non-profit organizations, churches, schools, clubs, and so on. They have been used to represent a sports league, with various sports (soccer, baseball, basketball, etc.) and their teams as sub-organizations. If you have a collection of users that all belong to the same grouping, you may be able to model that as an organization.

Your dashboard may have only one organization or several, depending on what kind of site you are building. For example, a corporate site may model its own organization hierarchy, while a social networking site may have users from many separate organizations who access the site. Organizations can have a hierarchy to unlimited levels, and Users can be members of one or many organizations—inside of a hierarchy or across hierarchies.

Additionally, Organizations can be associated with Roles. One application of this in a corporate setting could be an IT Security group. You may have an organization within your IT organization that handles security for all of the applications companywide.

If you had users as members of this organization, you could grant the Administrator role you just granted to your own ID to the whole Organization, thereby giving the members of the IT Security organization administrative access to the portal. If a user in this organization later was hired by the Human Resources department, the simple administrative act of moving the user from the IT Security organization to the HR organization would remove this privilege from the user, since the user would no longer be in an organization that has the Administrator role. By adding the user to the HR organization, any roles the HR organization has (such as access to a benefits system in the portal) would be transferred to the user. In this manner, you can design your portal to correspond with your existing organization chart, and have users' permissions reflect their positions in the chart.

Of course, this is only one way to design it. If you have more complex requirements, you can combine Organizations with User Groups and scoped Roles to assemble the sets of permissions you wish to grant to particular users.

Organizations are one of two types of resources (the other being Communities) that can have its own pages. This allows members of the organizations (if they are granted the Manage Pages permission) to maintain their own pages. They can have a set of public pages which include information and applications appropriate for guests or logged in users who are not members of the Organization to make use of (such as a help desk ticket entry system for an IT page), and they can have a set of private pages with applications for the organization's own use (such as the back-end portlets of the same ticketing system).

Adding an Organization or Location

To add an organization:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Organizations*.

3 Click *Add*.

4 Specify a name for the new organization in the *Name* field.

5 Specify whether the new organization is a regular organization or location in the *Type* drop-down list.

6 If the organization is a location, select a *Country* and *Region*.

7 Click *Select link to specify a parent organization*. A list opens to select the organization that is the direct parent of the organization. Click the Remove button to remove the currently configured parent.

8 Click *Save*.

   The page shows additional options for entering information. Use the links to provide contact information about the organization: e-mail addresses, mailing addresses, Web sites and phone numbers.

9 Click *View All* to return to the list of organizations.

Configuring an Organization

To configure an organization:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Organizations*.

3 Click *Action* next to organization and select from the options to update and configure the organization.

  - ◆ **Edit:** Edit organization information.

  - ◆ **Manage Pages:** Lets you create and manage public and private pages for the Organization.

  - ◆ **Assign User Roles:** Lets you assign Organization-scoped roles to users. By default, Organizations are created with three roles: Organization Administrator, Organization Member, and Organization Owner. You can assign one or more of these roles to users in the organization. All members of the Organization get the Organization Member role.

  - ◆ **Assign Members:** Search and select users in the portal to be assigned to this organization as members.

  - ◆ **Add User:** Add new users in the portal who will be a member of this organization.

  - ◆ **View Users:** List of users who are members of this organization.

  - ◆ **Add Regular Organization:** Add a child organization to this organization to create hierarchies of organizations with parent-child relationships.

  - ◆ **Add Location:** Add a child Location, which is a special type of organization that cannot have any children added to it.

  - ◆ **View Suborganizations:** View all organizations that are children of this organization.

  - ◆ **Delete:** Deletes this organization from the portal. Make sure to verify that the organization has no users in it first.

4 Click *Save*.

NOTE: You are already a member of the organizations you create. By creating an organization, you become both a member and have the Organization Owner role, which gives you full rights to the organization.

Searching for an Organization

To search for an organization:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Organizations*.

3 Enter the search criteria in the search field.

4 Click *Advanced* to enter additional information such as address, region, type, or country; and specify how to match. Select *All* to find organizations that contain all search criteria, or *Any* to find organizations that contain at least one of the search criteria.

5 Click *Search*.

The results display at the bottom of the page.

4.3.3 Configuring Groups

Groups are designed to be a convenient mechanism for assigning users to communities and assigning permissions to users. Users can be members of one or more groups.

Understanding Groups

Groups are created and assigned like user accounts in the Dashboard. User Groups are arbitrary groupings of users. These groups are created by portal administrators to group users together who don't have an obvious organizational or community-based attribute or aspect which brings them together. Groups cannot have permissions like roles, but User Groups can be added to Roles. Why would you use User Groups, then? They come into play when you have complex security requirements and for page templates.

Assigning Users to a Group

To assign users to a group:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *User Groups*.

3 Click *Actions* and select *Assign Members* to see a list of current users for the group.

4 Click the *Available* tab to see a list of users who can be assigned to the group.

5 To assign a user, select the check box next to the user's name.

  If necessary, select multiple users.

6 Click *Update Associations*.

Configuring Groups

To configure a group:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *User Groups*.

3 Click *Action* next to organization and select from the options to update and configure the organization.

- ◆ **Edit:** Modify the name or description of the group.
- ◆ **Permissions:** Define which Users, User Groups, or Roles have permissions to edit the group.
- ◆ **Manage Pages:** User Groups don't have pages of their own, you can create page templates for a group. When a User Group has page templates, any users added to the group will have the group's pages copied to their personal pages. This allows you to do things like create a Bloggers user group with a page template that has the Blogs and Recent Bloggers portlets on it. The first time users who are added to this group log in to the portal, this page is copied to their personal pages. They automatically have a blog page that they can use.

- ◆ **Assign Members:** Search for and select users in the portal to be assigned to the group.
- ◆ **View Users:** View all users in a group.
- ◆ **Delete:** Deletes the group.

4 Click *Save*.

IMPORTANT: Actions taken on groups in the Dashboard (such as creating, updating, or deleting groups) do not impact the group in the Operations Center server. However, by default, changes made to groups in Operations Center do impact the group in the Dashboard.

4.4 Managing User Accounts

Managing user accounts involves the following:

- ◆ Creating users
- ◆ Editing user settings including passwords
- ◆ Deactivating and activating users
- ◆ Deleting users

Administrators can create users for their entity in the corporate hierarchy. The Dashboard also has functionality to allow users to create their own accounts (such as self-service account creation).

User accounts created in the Dashboard are automatically added to the Operations Center server and assigned to the users group. The user account is restricted to accessing only to the Operations Center Dashboard.

If there are specific e-mail addresses and/or user IDs that should not be used, identify them as reserved. These options can be found on the Control Panel under *Settings > Reserved Credentials*.

NOTE: When you create or delete users or alter user settings, the action applies to user accounts in the Operations Center server. Deactivating and activating users impacts the user account only in the Dashboard and has no impact on the user account in Operations Center.
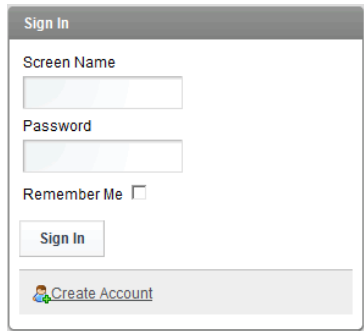

- ◆ Section 4.4.1, "Self-Service User Account Creation, Authentication and Notification Settings," on page 62
- ◆ Section 4.4.2, "Default Associations for User Accounts," on page 63
- ◆ Section 4.4.3, "Creating User Accounts," on page 63
- ◆ Section 4.4.4, "Activating, Deactivating, and Deleting Accounts," on page 65

4.4.1 Self-Service User Account Creation, Authentication and Notification Settings

By default, the Dashboard home page contains a Sign In portlet allowing users to create new accounts. New users receive an e-mail containing a password. If required, the user can be forced to create a new password on initial login.

Figure 4-1 *Sign In Portlet*

By default, the Dashboard uses the default local host for the IMAP and POP3 host to send e-mail to new users, for password requests, and password change notifications. For more information, see Section 3.6, "Configuring the Mail Server," on page 39.

Disable various user account authentication-related features in the Control Panel in *Settings > Authentication* including:

 - Automatic login.
 - Forgotten password request.
 - Self service user account creation with e-mail address.
 - E-mail verification on new accounts.

Configure e-mail notification functionality, including e-mail content, in the Control Panel in *Settings > Email Notifications*.

Some of these features can be disabled by adding and editing the relevant properties to *NovellOperationsCenter_install_path/Dashboard*/server/webapps/ROOT/WEB-INF/ classes `portal-ext.custom.properties` file.

For more information user authentication or e-mail notification, see the Liferay 5.2 documentation at http://www.liferay.com/documentation/liferay-portal/5.2/getting-started (http://www.liferay.com/ documentation/liferay-portal/5.2/getting-started). Liferay Password Policies settings for Password Lockout and Password Expiration are unsupported by the Dashboard.

For information about the `portal-ext.custom.properties` file, refer to Section 3.9, "Understanding Portal Properties Files," on page 43.

4.4.2 Default Associations for User Accounts

It is possible to select a default user groups, communities, and roles for all new users that are created in the dashboard.

To automatically assign all new users to one or more user groups, communities or roles:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Settings*.

3 Select *Default User Associations*.

Automatically assign new users to one or more user groups, communities or roles.

4 In the *Communities* field, enter one or more community names, one per line.

5 In the *Roles* field, enter one or more roles, one per line.

6 In the *User Groups* field, enter one or more user group names, one per line.

7 Click *Save*.

4.4.3 Creating User Accounts

Administrators can create and edit accounts for users through the Control Panel. By default, all new users are automatically active. Note that most users won't be able to perform most of the operations or have access to the Control Panel. Only those with administrative can perform all of the functions.

- ◆ "Adding a User" on page 64
- ◆ "Configuring User Accounts" on page 64
- ◆ "Searching for Users" on page 65

Adding a User

To add a new user:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Users*.

3 Click *Add*. The *Add User* form displays.

4 Specify user details in the fields provided.

First name, last name, e-mail address, and screen name are required.

5 Click *Organizations* to select any organizations and/or location for the user.

6 Click *Save*.

7 When the user ID is created, a password is automatically generated and an e-mail message with the password in it is sent to the user if the SMTP mail server connection was setup properly. Additional options are available through links on the right.

8 If you have not yet set up your mail server, click *Password* to change the default password for the user ID to something you can remember and send to the user.

Click *Save* after making changes.

9 Click *Roles* to assign administrative rights to the user if necessary. By default, all users are also assigned the *Power User* role. You can give this role certain permissions if you wish or disable it altogether.

Click *Select* to select any additional roles for the user.

Click *Save* after making changes.

NOTE: When a new user is added, the same user account is added to the Operations Center server and is automatically given access to the Operations Center Dashboard and is placed in the users group.

Configuring User Accounts

To configure a user account:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Users*.

3 Click *Action* next to the user and select from the options to update and configure the user account.

   ◆ **Edit User:** Modify the user account.

   ◆ **Permissions:** Define which Roles have permissions to edit the

     user.

   ◆ **Manage Pages:** Edit any pages the user has.

   ◆ **Impersonate User:** Browse the site as though you were the user in a new browser window.

   ◆ **Deactivate:** Deactivate the user account.

4 Click *Save*.

Searching for Users

When you have a long list of users, you can search for a specific user.

To search for a user:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Users*.

3 Enter search criteria in the Search field.

Click *Advanced* to define additional search criteria.

4 Click *Search* to find any users matching the criteria.

4.4.4 Activating, Deactivating, and Deleting Accounts

Using the Control Panel, you can deactivate accounts, which prevents a user from logging in to the Dashboard. You can also restore the account so it is active. These actions do not affect the user account in the Operations Center server.

After an account has been deactivated, you can permanently delete it. A user account deleted in the Dashboard is also deleted in the Operations Center server.

To activate, deactivate or delete a user account:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Users*.

3 Do any of the following:

   ◆ To deactivate a user account, click *Actions* and select *Deactivate* next to the user's name.

   ◆ To restore a user account that has been deactivated, click *No* for the *Active* drop-down list in advanced search options, then click *Search* to view all deactivated users.

   Click *Actions* and select *Activate*.

   ◆ To delete a user account, first deactivate the account, then in the user list for accounts that are not active, click *Actions* and select *Delete*.

4.5 Understanding User Sign On

For users to access the Dashboard, they must sign into the portal with a username and password for a valid Dashboard account. A username and password can be entered into the Dashboard one of two ways:

   ◆ **Sign In portlet:** The Sign In portlet appears on the home page of the Dashboard by default and allows users to enter a username and password that the Dashboard uses to grant access. It can also be accessed by clicking *Welcome* selecting *Sign In*.

   ◆ **Auto-login:** The Dashboard has auto-login functionality that supports Single Sign On (SSO) capability, which allows users to log in just once into the system and gain access to various resources. If a user has already logged in, that user does not need to log in again to gain access to the Dashboard. Auto-login must be configured. For more information, see Section 3.3.1, "Implementing Auto-Login with Apache Web Server," on page 34.

4.6 User Maintained Account Settings

After a user has logged into the Dashboard, that user can access account settings and make changes. The option to edit your password is only available if the user account is a native account in Operations Center. For important information, see Section 4.2.3, "Understanding Password Policy," on page 53.

Personal Pages and Communities

5

Dashboard pages can be considered as desktops where portlets are added. These include personal pages for individual users and shared pages among multiple users. Shared pages are grouped together into communities. Communities offer content to users with a similar interest or skill.

Users can have both personal and shared pages. They switch between personal pages and communities using a link.

5.1 Customizing Default Personal Pages

Personal pages are Web pages that can be viewed and modified by a single user only. When a user logs in on the Dashboard home page, the user's personal pages appear. Personal pages, and the portlets on them, are accessible only to that user. No other users, including administrators, can access these pages.

NOTE: The information from a portlet in a personal page can only be viewed by the page owner, even if view permissions are granted to other users. For example, in the case of a Calendar portlet, only the page owner could view the events on the calendar. To share information, place portlets on community or public pages.

To have personal pages, a user must be assigned the role of power user. For more information, see Section 11.1, "Assigning Permissions Using Roles," on page 199. For information on how to add pages, customize the look and feel of those pages and add content, see Chapter 6, "Adding Content to a Page Using Portlets," on page 89.

By default, power users have their own personal Web pages.

To modify the default setup of the power users personal Web page:

1 Add the following properties in the *NovellOperationsCenter_install_path*/Dashboard/
server/webapps/ROOT/WEB-INF/classes/portal-ext.custom.properties file:

```
## Default User
##
    #
    # Users who have the Power User role must have at least one private
personal
    # page. The settings for the initial private page are specified in the
    # following properties.
    #
    #
    # Set the layout name.
    #
    default.user.layout.name=Home
    #
    # Set the layout template id that matches an existing TPL.
    #
    #default.user.layout.template.id=1_2_1_columns
    #default.user.layout.template.id=1_column
    #default.user.layout.template.id=2_2_columns
    #default.user.layout.template.id=2_columns_i
    default.user.layout.template.id=2_columns_ii
    #default.user.layout.template.id=2_columns_iii
    #default.user.layout.template.id=3_columns
    #
    # Set the layout ids for the column specified in the layout template.
    #
    default.user.layout.column-
1=mo_alarms_WAR_ManagedObjectsPortlets,23,61,65,
    default.user.layout.column-2=8,11,36,33,
    default.user.layout.column-3=
    default.user.layout.column-4=
    #
    # Enter either "800x600" or "1024x768" to set the layout resolution.
    #
    default.user.layout.resolution=800x600
```

In the above code, the following lines define the portlets and the columns where the properties
can be displayed:

```
    default.user.layout.column-
1=mo_alarms_WAR_ManagedObjectsPortlets,23,61,65,
    default.user.layout.column-2=8,11,36,33,
```

2 To find a listing of all Operations Center portlets and determine their names to reference them,
look at the *NovellOperationsCenter_install_path*/Dashboard/server/webapps/
ROOT/WEB-INF/portlet.xml file.

Use the <portlet-name> in the list followed by _WAR_ManagedObjectsPortlets as shown
above in the code sample for the mo_alarms portlet.

5.2 Creating and Maintaining Communities

Communities are very much like Organizations except that they are not hierarchical. They are designed instead to be islands to themselves which anyone from any organization (or from no organization at all) can join. Use Communities in any situation where you need to cut across the organizational structure of your portal, or where you have a site that would apply to almost anybody. For example, the home page for the Intranet is probably best placed in a community that any member of the portal can access.

Communities are groupings of pages and users based on shared interests or skills. And, a user can belong to any number of communities. Examples of communities might include:

- A human resources community where staff members discuss issues related to health insurance.
- A tech support community of users who have the skills to provide technical support to an organization.
- A marketing community where marketing personnel shares marketing and corporate information.

The Dashboard default home page is in a community called *Guest*, and this is where you would put your public web site. As you can see, there are several scenarios in which you would want to use something like a community instead of an organization, and this is why they have a distinct role within Liferay Portal.

Communities can be created and managed in two ways. The first is through the *Control Panel*, like every other user/page collection. The second is through the *My Communities* portlet, which can be added to any page. Why two ways? Because the *My Communities* portlet also doubles as a way to navigate from community to community, and allows users to browse the list of communities.

Permissions can be assigned to users to delegate community management tasks. For more information, see Chapter 11, "Portal and Community Permissions," on page 199.

Every community must have at least one page (represented by a tab) to be active, but there is no limit on the number of pages that a community can have.

After a community is named, define its characteristics and add content pages. Consider the following:

- Every community must have at least one page (represented by a tab) to be active, but there is no limit on the number of pages that a community can have.
- Pages can be private or public. A public page can be accessed by a guest who has the appropriate URL. A private page can only be accessed by users who are logged in and assigned to the community.
- URLs must be defined for public and private pages.
- A default look and feel can be set for all private and public pages.

NOTE: You are already a member of the organizations you create. By creating an organization, you become both a member and have the Organization Owner role, which gives you full rights to the organization.
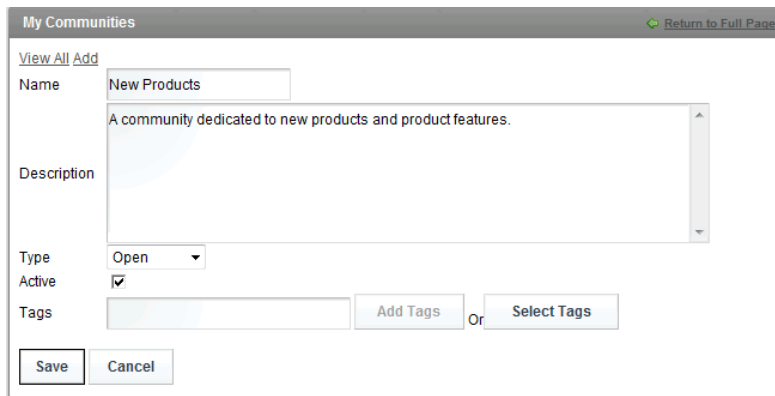

To create and configure communities:

5.2.1 Creating a New Community

To create a community:

1 Do one of the following:

- ◆ Go to a page that has a *My Communities* portlet.

  Click *Add Community*.

- ◆ Click *Welcome* and select *Control Panel*.

  Under *Portal*, select *Communities*.

  Click *Add*.

2 Name the new community and optionally add a description.

3 Select one of the following to indicate the type of community:

- ◆ **Open:** Appears in the *My Communities* portlet and users can join and leave the community whenever they want.
- ◆ **Restricted:** Appears in the *My Communities* portlet but users must request membership and be approved before joining.
- ◆ **Private:** Does not appear in the *My Communities* portlet. Users are added manually by a community administrator.

4 Deselect the *Active* check box to inactivate the community and no data can be added to it.

5 Specify keywords in the *Tags* field to identify the community and leverage the portals tagging feature.

6 Click *Save*.

5.2.2 Performing Actions on a Community

To configure a community:

1 Do one of the following:

- ◆ Go to a page that has a *My Communities* portlet.
- ◆ Click *Welcome* and select *Control Panel*.

  Under *Portal*, select *Communities*.

2 Click *Action* next to the community and select from the options to update and configure the community.

- ◆ **Edit:** Edit the community definition.
- ◆ **Manage Pages:** Create and manage public and private pages for the community. Also update community settings.
- ◆ **Assign User Roles:** Assign community-scoped roles to users. By default, communities are created with three roles: *Community Administrator*, *Community Member*, and *Community Owner*. Assign one or more of these roles to users in the community. All members of the community get the *Community Member* role.
- ◆ **Assign Members:** Takes you to a screen where you can search and select users in the portal to be assigned to this community as members.
- ◆ **Join/Leave:** If you are not a member of the community, you will have a Join or Request Membership option. If you are a member of the community you will see an option to leave the community.
- ◆ **Delete:** Users with administrative access to the portal or who are owners of the community can delete it.

3 Click *Save*.

5.2.3 Updating Community Settings

Various settings can be configured for each community including a friendly URL, a custom logo, generation of a sitemap structure to notify search engines, and monitoring through Google Analytics.
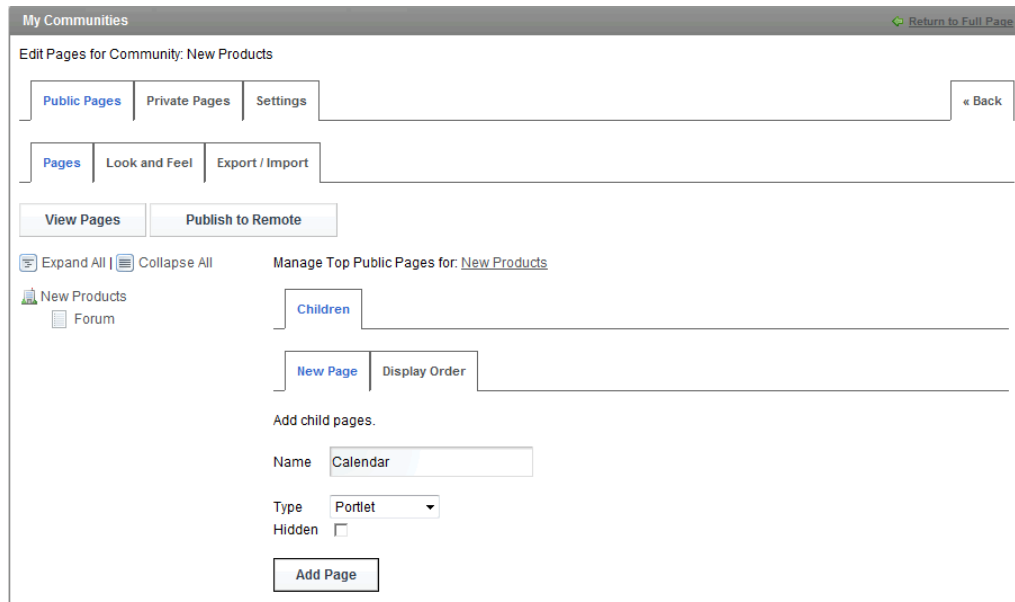
To update the settings for a community:

1 Do one of the following:

- ◆ Go to a page that has a *My Communities* portlet.

- ◆ Click *Welcome* and select *Control Panel*.

  Under *Portal*, select *Communities*.

2 Click *Action* next to the community and select *Manage Pages*.

3 Click the *Settings* tab.

4 Select from the following tabs to specify settings for the community.

- ◆ **Staging:** Activate staging.
- ◆ **Virtual Host:** Specify a public and private virtual host that maps to the public and private friendly URL. Also specify a friendly URL that is used for both public and private pages.
- ◆ **Sitemap:** Generate a sitemap to notify Google and Yahoo of the structure of the community pages.
- ◆ **Monitoring:** Specify a Google Analytics ID to setup tracking for community pages in an existing Google Analytics configuration.
- ◆ **Logo:** Add a custom logo for the community.
- ◆ **Merge Pages:** Configure the top level pages to merge with the top level Guest community. This helps user navigate between the two sites seamlessly.

5 Click *Save*.

5.3 Adding Pages

Pages can be added to a community in a hierarchy that creates pages under an existing page. It is possible to rearrange the order of child pages. The pages in the top-level of the hierarchy are added as tabs in the community. Pages that are children of a top-level page do not display on the tab unless a Navigation portlet is added to that tab.

Web pages can be personal or associated with a community.

- ◆ **Adding:** Add pages to personal or community pages using *Manage Pages*. Using this option, it is possible to add pages to the current community only. Pages can be added to other communities by using the *My Communities* portlet.
- ◆ **Exporting:** Export the pages of a community using *Manage Pages*.
- ◆ **Importing:** Import pages to a community using *Manage Pages* or the *My Communities* portlet. Importing a page overwrites all the pages in the community. Take caution, because importing a page overwrites the current page and thus discontinues access to the Dashboard. For more information on export and import options for a community, see Section 5.2, "Creating and Maintaining Communities," on page 69.

When building Web pages, particularly when adding portlets to add content, consider how the content is viewed. Users can view dashboard Web pages using a variety of devices, including mobile phones.

A user's ability to add pages depends on the permissions assigned to the user. For more information, see Chapter 11, "Portal and Community Permissions," on page 199.

To make it easier to create a page, copy an existing page and save it as a new page using the *Copy* option. This option is available on the *Page* tab.

- ◆ Section 5.3.1, "Adding Child Pages," on page 73
- ◆ Section 5.3.2, "Editing an Existing Page," on page 74

5.3.1 Adding Child Pages

1 Do one of the following:

  ◆ Go to a page that has a *My Communities* portlet.

  ◆ Click *Welcome* and select *Control Panel*.

    Under *Portal*, select *Communities*.

2 Click *Action* next to the community and select *Manage Pages*.

3 Select either *Public Pages* or *Private Pages*, depending on which set of pages you want to edit.
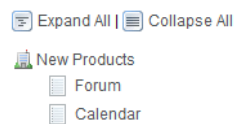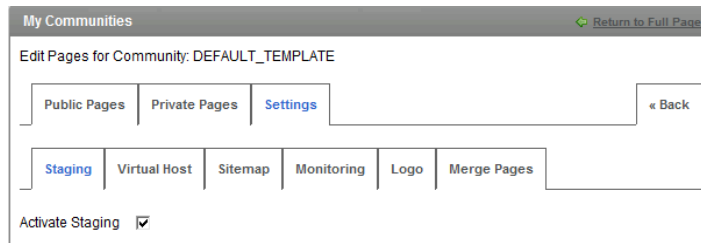

4 In the *Name* field, specify the name of the page.

5 From the *Type* drop-down list, select the type of page, choosing from *Portlet*, *Panel*, *Embedded*, *Web Content*, *URL*, or *Link to Page*.

The first page must be of *portlet* type.

6 Select the *Hidden* check box if the page is to be hidden.

7 Click *Add Page*. The new page shows in the list of links on the left side.

8 Define additional pages as required.

Pages added when the name of the community is selected are top-level pages that appear as tabs.

Select a page link to add child pages underneath. Select the *Copy Parent* check box to copy settings from the parent page.

9 Select each page and click the *Page* tab to specify various settings for the page including friendly URL, meta tags, custom JavaScript, and meta robot settings.

10 To change the order of the top-level page tabs, do the following:

◆ Click the community name and select the *Display Order* tab.

◆ Move the page names up and down as required.

◆ Click *Update Display Order* to save your changes.

11 Click *Look and Feel* at any level to set the default theme and colors for all private or public pages or the specific page.

12 Click *View Pages* to open the community in a new browser window.

13 Click *Publish to Remote* to publish pages remotely.

5.3.2 Editing an Existing Page

1 Click *Welcome* and select *Manage Pages*.

2 Select the page to edit, then click *Page*.

3 Edit the settings as necessary:

◆ To copy the contents of another page to the selected page, select an existing page name from the *Copy Page* drop-down list.

For example, to copy the contents of *Support* to the *myFinances* page, click the *Support in the Copy Page* option. Note that any existing content on the page is overwritten.

◆ To delete a page, edit it, then click *Delete*.

4 Click *Save*.

5.4 Community Provisioning

Communities are ideal workspaces for teams to collaborate on common projects. They provide an isolated area where a group of people can place all of their data pertaining to a particular topic, and many organizations have used them for this purpose. It is a far better way to share data than using e-mail and a shared folder on a network. Instead,
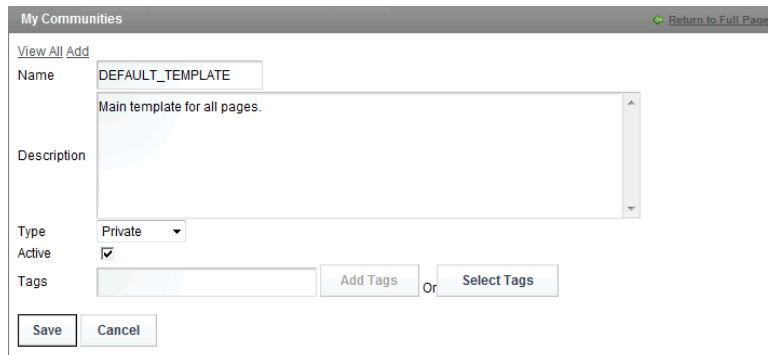
◆ The *Document Library* portlet (under *Content Management*) empowers users to access and update documents simultaneously, and all versions of the documents are preserved.

◆ A *Calendar* portlet (under *Collaboration*) can be used to keep track of the team's appointments and meetings, and can send notifications out to the team.

◆ A *Wiki* portlet (under *Collaboration*) can be used to document the project as it progresses.

◆ A *Message Boards* portlet (under *Collaboration*) can be used to keep all team discussions in one place.

The ad-hoc creation of communities for this purpose allows portal administrators to create communities based on templates. What this means is that you can create a template community that has a pre-defined set of pages and portlets, and then use that template to very quickly create multiple communities that are pre-populated with those pages and portlets. Defining community templates streamlines the community creation process for administrators, making it very easy to quickly create communities for teams.

Templates can be created for open, restricted, and private communities. Additionally, create a default template that applies to all kinds of communities.

To setup a community template:

1 Do one of the following:

- ◆ Go to a page that has a *My Communities* portlet.

  Click *Add Community*.

- ◆ Click *Welcome* and select *Control Panel*.

  Under *Portal*, select *Communities*.

  Click *Add*.

2 Name the community one of the following:

- ◆ **DEFAULT_TEMPLATE:** to create a default template used by all types of communities.
- ◆ **OPEN_TEMPLATE:** to create a template used by all open communities.
- ◆ **RESTRICTED_TEMPLATE:** to create a template used by all restricted communities.
- ◆ **PRIVATE_TEMPLATE:** to create the template used by all private communities.

3 Select *Private* for the community type.

4 Click *Save*.

5 Click *Actions* for the community template and select *Manage Pages*.

6 Click *Settings*. The *Setting* tab opens.

7 Select the *Activate Staging* check box.

8 Use the *Public Pages* or *Private Pages* tabs to create pages in the template and populate them with portlets.

Use *View Pages* to view the pages you are creating, to add portlets, and to change layouts. These pages will be surrounded by a red border. This indicates that you are working in a staging environment.

For more information about adding pages and portlets to a community, see Section 5.3, "Adding Pages," on page 72.

9 Any future communities that you create will have the same layouts and portlets as what you have defined based on the default template and any templates defined for that community type.

IMPORTANT: Never publish changes to a template; leave it always in staging mode.

5.5 Assign Users to a Community

Users must be assigned to a private community in order to gain access to it. After assigned, the user accesses the community via the community's URL. Users who do not have personal pages go directly to the community pages on login.

Open communities allow users to join and leave at any time without approval from an administrator. Restricted communities force users to request membership which is approved by an administer. Private communities only receive new members who are assigned by an administrator either individually or by association.

In the *My Communities* portlet, under the *Available Communities* tab, the user can join any open communities or request to join any restricted communities.

Community administrators can assign users to communities in two ways:

- **Directly:** Assign users directly to a community by assigning their user account to the community.
- **Indirectly:** Assign users indirectly by first assigning them to entities, such as groups, organizations, or locations, then assign these entities to a community. Users who belong to a group, organization, or location that is assigned to a community are also assigned to the community.

All community members, regardless of whether they were assigned directly or indirectly, have access to the same functionalities.

For more information about setting default communities for users, see Section 4.4.2, "Default Associations for User Accounts," on page 63.

TIP: If the list of available users, user groups, organizations, or locations is long, use the Search function to locate specific entities.

- Section 5.5.1, "Assign Users Directly to a Community," on page 77
- Section 5.5.2, "Assigning Groups, Organizations, or Locations to a Community," on page 77
- Section 5.5.3, "Removing Users," on page 78

5.5.1 Assign Users Directly to a Community

1 In the *My Communities* portlet, locate the desired community.

2 Click *Actions* and select *Assign Members* next to the community.

The *Users* tab displays the users currently directly assigned to the community.

3 Click *Available* to view a list of all users.

4 Select the check box next to the user names to add to the community.

5 Click *Update Associations*.

5.5.2 Assigning Groups, Organizations, or Locations to a Community

1 In the *My Communities* portlet, locate the desired community.

2 Click *Actions* and select *Assign Members* next to the community.

3 Select *User Groups* or *Organizations*.

The selected tab displays the user groups or organizations currently directly assigned to the community.

4 Click *Available* to view a list of all available user groups, organizations, or locations.

5 Select the check box next to the entities to assign to the community.

6 Click *Update Associations*.

5.5.3 Removing Users

Users are able to remove themselves from open communities from the *My Communities* portlet (Click *Actions* and select *Leave*). Users are not able to remove themselves from private communities; they must be removed by a community administrator.

Community administrators can remove users from any community. If a user is a member of the community through membership in a group, organization, or location that is assigned to the community, you need to do one of two things:

- ◆ "Removing Users Directly Assigned to a Community" on page 78
- ◆ "Removing A Group, Organization, or Locations Assigned to a Community" on page 78

Removing Users Directly Assigned to a Community

1 In the *My Communities* portlet, locate the desired community.

2 Click *Actions* and select *Assign Members* next to a community.

The *Users* tab opens.

3 Click *Current*.

4 Deselect the check box next to the names of users to remove from the community.

5 Click *Update Associations*.

Removing A Group, Organization, or Locations Assigned to a Community

1 In the *My Communities* portlet, locate the desired community.

2 Click *Actions* and select *Assign Members* next to a community.

The *Users* tab opens.

3 Select *User Groups* or *Organizations*.

4 Deselect the check box next to the names to remove from the community.

5 Click *Update Associations*.

5.6 Changing Page Layout

By default, a dashboard page uses the two-column layout to display content on the Web page. The page can be easily changed to use another page layout using various page layout templates.

To change the layout of a page:

1 Click *Welcome* and select *Layout Template*.
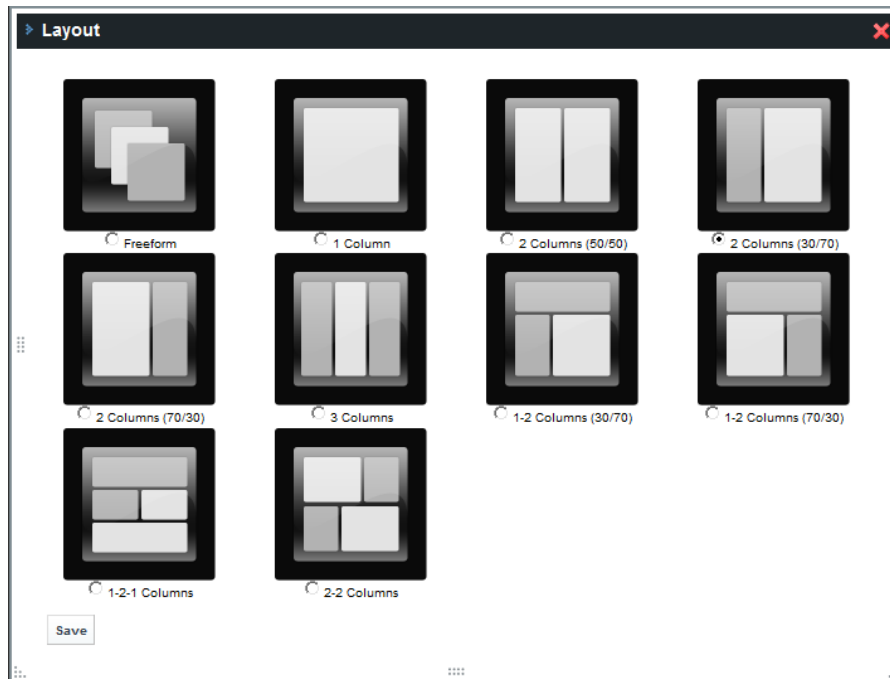
2 Select the desired layout.

3 Click *Save*.

5.7 Changing the Look and Feel

Themes are used to set the look and feel for a page. To set these options, click *Welcome* and select *Manage Pages*, then click the *Look and Feel* tab. The look and feel for pages within a community can also be set by the community administrator on the *My Communities* portlet. A child page inherits the look and feel of a parent page unless it is specifically changed.

5.7.1 Understanding the Four Default Themes

The Dashboard comes with six default themes and color schemes. Additional themes can be downloaded by using theme Gallery portlet.

Novell Theme

The Novell theme is the default theme and is the selected theme for all images shown in this guide:

Figure 5-1 *Novell Theme*
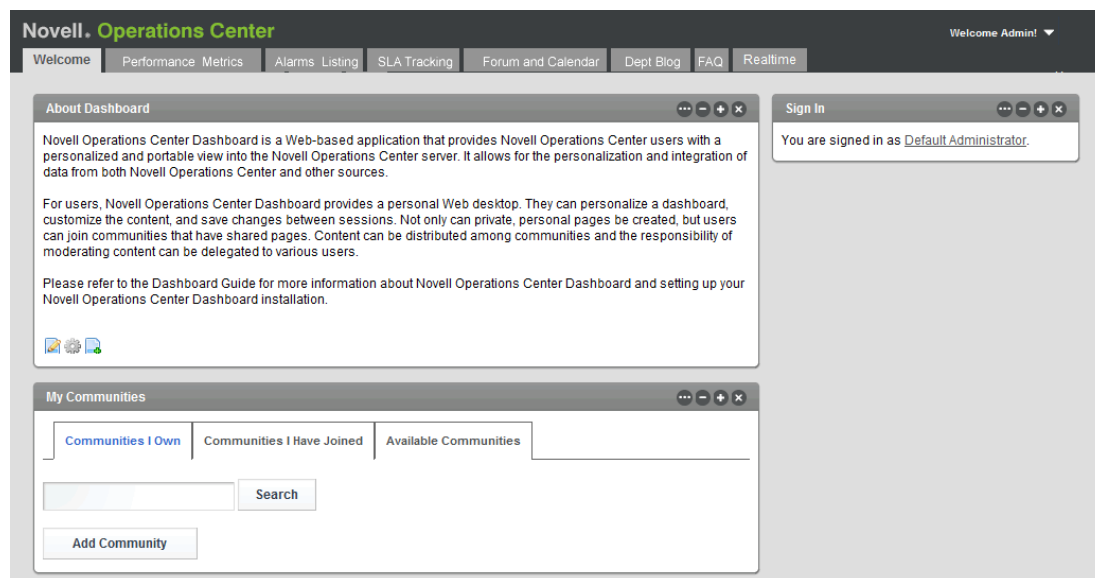
Simple Theme

The Simple theme is a very clean looking theme with a blue tabs and portlet title bars:

Figure 5-2 *Simple Theme*

Classic Theme

The Classic theme has a black header showing page portlets displayed in blue, green or orange boundaries.

Figure 5-3 *Classic Theme*
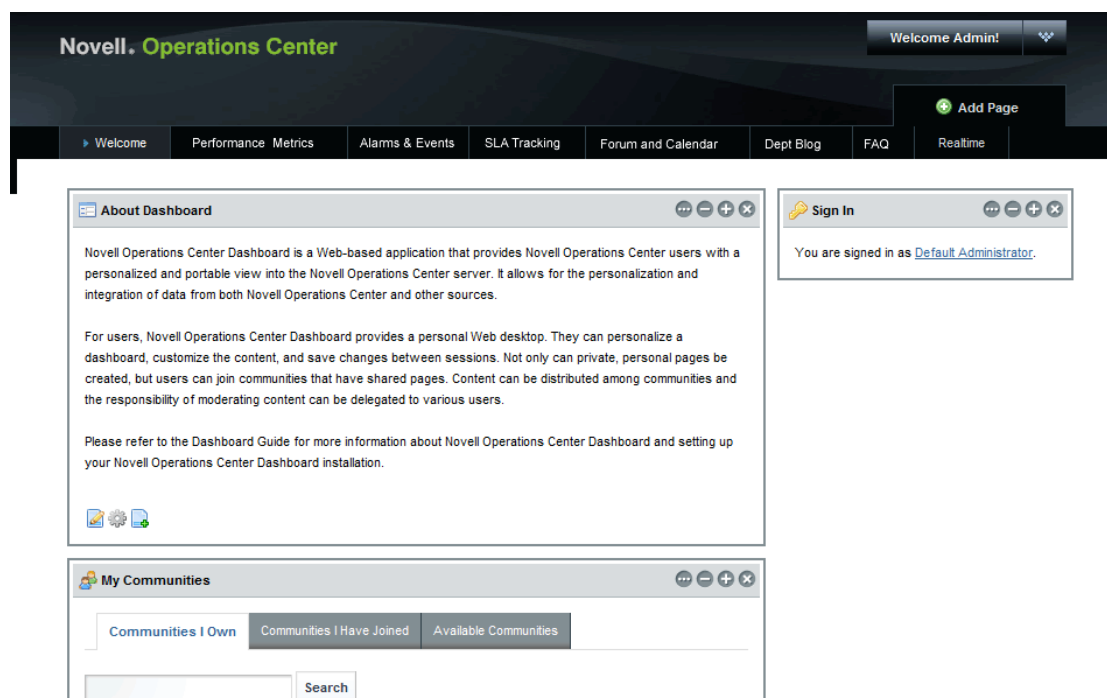
The Classic theme can be selected in the following colors:

- ◆ Blue (default)
- ◆ Green
- ◆ Orange

Desktop Theme

The Desktop Theme simulates a desktop look and feel. The Welcome menu is replaced with a spherical icon in the top left corner of the page for the Liferay version, with portlets displaying as tabs across the top.

Figure 5-4 *Desktop Theme*
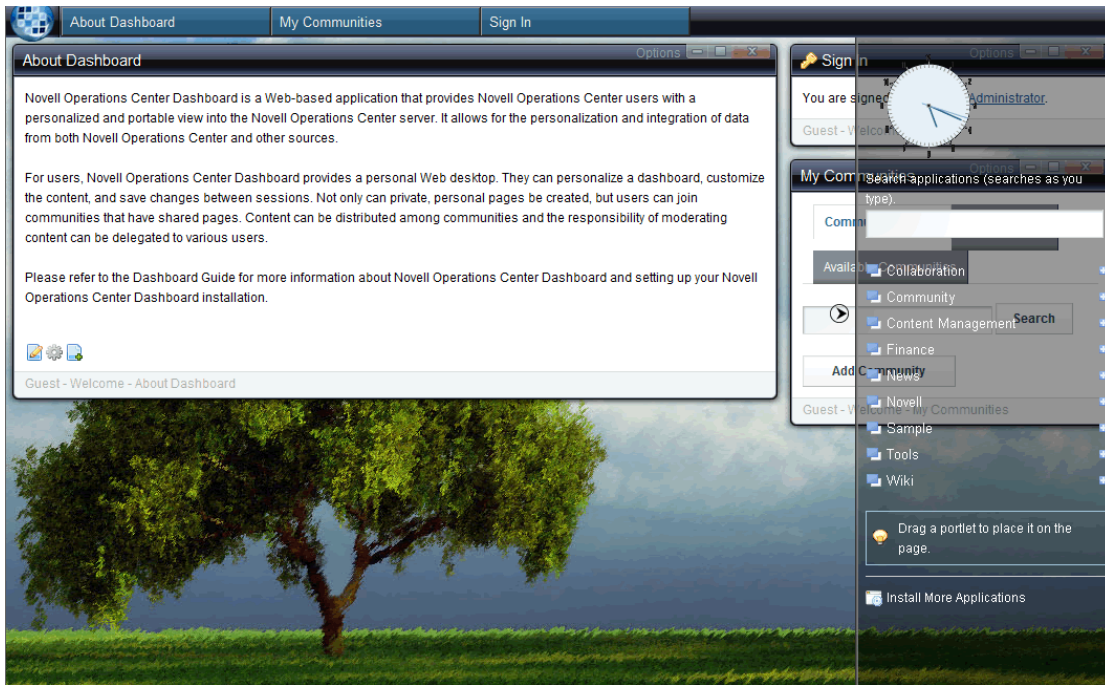
The Desktop theme has the following variations:

- ◆ Liferay (as shown in the illustration above)
- ◆ Mac

5.7.2 Selecting the Look and Feel

To set the look and feel (such as theme and color scheme):

1 Click *Welcome* and select *Manage Pages*.

2 Click the *Look and Feel* tab.

3 Select a theme and, if applicable, a color scheme.

5.7.3 Installing Additional Themes

New themes can be downloaded and installed from the Liferay community.

To install new themes:

1 Click *Welcome* and select *Manage Pages*.

2 Click the *Look and Feel* tab.

3 Click *Install More*. The *Plugin Installer* opens with the *Theme Plugins* tab open.

4 Use the *Page Number* field or/and *Next* and *Previous* links to locate a theme.

5 Click theme name to view details about theme.

6 Click *Install* to install theme. A message displays that theme is downloaded successfully and installation is in progress.

7 Click *Welcome* and select *Manage Pages*.

8 Click the *Look and Feel* tab.

9 Select the new theme when it displays under the *Look and Feel* tab.

5.8 Importing and Exporting Data and Configurations from Communities

Various data can be imported and exported for communities using LAR files. Import and export options include pages, portlet configurations, permissions, themes, and categories.

Even though a LAR file might contain all data from a community, a partial import can be accomplished by disabling the data you do not wish to import.

IMPORTANT: Imported pages overwrite all existing pages in the community.

To import pages:

1 Do one of the following:

- Go to a page that has a *My Communities* portlet.
- Click *Welcome* and select *Control Panel*.

  Under *Portal*, select *Communities*.

2 Click *Actions* next to the desired community and select *Manage Pages*.

3 Select the *Public Pages* or *Private Pages* tab.

4 Select the *Export / Import* tab.

5 Select the *Import* tab.

6 Click the Browse button to select the LAR file to import.then

> **WARNING:** Imported pages replace all existing pages in the community.

7 Specify the data to import by selecting the desired check box options.

8 Click *Import*.

To export pages:

1 Do one of the following:

* Go to a page that has a *My Communities* portlet.
* Click *Welcome* and select *Control Panel*.

  Under *Portal*, select *Communities*.

2 Click *Actions* next to the desired community and select *Manage Pages*.

3 Select the *Public Pages* or *Private Pages* tab.

4 Select the *Export / Import* tab.

5 Select the *Export* tab.

6 Specify the name of the LAR file where the data is to be saved.

7 Specify the data to export including pages, portlets, permissions, theme and categories by selecting the desired check box options.

8 To export, click *Export*.

Adding Content to a Page Using Portlets

<div style="text-align: right; font-size: 3em;">6</div>

Any dashboard page can be customized by changing the layout, selecting themes for the "look and feel", adding content via portlets, and adding navigation or other functionality to the page. These changes are saved between sessions. The various actions that a user can take depend on the permissions assigned. For more information about permissions, see Chapter 11, "Portal and Community Permissions," on page 199.

Content from other sources can be added to the Dashboard using portlets. The Dashboard leverages portlets that are JSR-168 compliant and any third-party portlets built with this standard can be deployed in the Dashboard. For more information, see Chapter 2, "Dashboard Installation," on page 13.

The following sections list the various portlets or web applications that are available; and describe how to add them, share them as well as add various other features to a page:

- Section 6.1, "Understanding Available Content via Portlets," on page 89
- Section 6.2, "Adding Portlets," on page 93
- Section 6.3, "Understanding Sharing Portlets," on page 96
- Section 6.4, "Adding a Site Map, Breadcrumbs, or Navigation to a Page," on page 96
- Section 6.5, "Adding a Refresh Feature to Pages," on page 97
- Section 6.6, "Integrating Reports from External Reporting Tools Using iFrames," on page 98

6.1 Understanding Available Content via Portlets

The following types of portlets are available in the dashboard:

- A library of standard portlets from Liferay.

  For a list of all portlets, including Operations Center portlets, see Table 6-1 on page 90.

  For Liferay 5.2 documentation and more information on their portlet library, go to http://www.liferay.com/documentation/liferay-portal/5.2/ (http://www.liferay.com/documentation/liferay-portal/5.2/)

- Operations Center portlets that expose Operations Center Service Management content, such as alarms

  For more information, see Chapter 7, "Exposing Operations Center Content," on page 101.

- Basic page navigation features

  For more information, see Section 6.4, "Adding a Site Map, Breadcrumbs, or Navigation to a Page," on page 96.

The visibility and access to any portlet is governed by assigned permissions. For more information, see Chapter 11, "Portal and Community Permissions," on page 199. The Dashboard ships with many default portlets that can be added to a Web page to add content to the page. You can disable

these portlets or restrict their use. For more information, see Portlet Availability. You can also develop your own complaint portlets and use those with the dashboard. Because the Dashboard is JSR-168 compliant, it is able to leverage portlets that are also compliant.

The dashboard leverages portlets from Liferay. Additional documentation about these portlets is available at http://www.liferay.com/documentation/liferay-portal/5.2/ (http://www.liferay.com/documentation/liferay-portal/5.2/). Some portlets might require the installation of third-party software; check the software documentation for more information.

Some portlets rely on receiving information from other sources on the Internet, such as the RSS portlets. These portlets require that the user have Internet access in order to work properly.

The ability of users to see shared content, such as the Calendar portlet is dependent on the user's permissions. For more information, see Chapter 11, "Portal and Community Permissions," on page 199. For information on how to add portlets to Web pages, see Section 6.2, "Adding Portlets," on page 93.

Table 6-1 lists the portlet categories and default portlets available:

Table 6-1 *Dashboard Portlets*

Category	Description/Available Portlets
Collaboration	Collaboration portlets facilitate interaction among coworkers: ◆ Blogs ◆ Blogs Aggregator ◆ Calendar ◆ Message Boards ◆ Recent Bloggers ◆ SMS Text Messenger ◆ Wiki
Community	Community portlets allow the sharing of information among people with a similar skill, interest, or task to perform: ◆ Bookmarks ◆ Directory ◆ Invitation ◆ My Communities ◆ Page Comments ◆ Page Ratings For more information on communities, see Section 5.2, "Creating and Maintaining Communities," on page 69.

Category	Description/Available Portlets
Content Management	Content Management System (CMS) portlets help manage documents and images and publish content. Some add navigation functionality to a page. ◆ Asset Publisher ◆ Breadcrumb ◆ Categories Navigation ◆ Document Library and Document Library Display ◆ Image Gallery ◆ Navigation ◆ Nested Portlets ◆ Polls Display ◆ Recent Documents ◆ Site Map ◆ Tags Navigation ◆ Web Content Display, List and Search ◆ XSL Content For generic instructions on how to add a portlet to a page as well as instructions for adding a site map, breadcrumbs and navigation to a page, see Chapter 6, "Adding Content to a Page Using Portlets," on page 89.
Finance	Finance portlets include tools and informative content: ◆ Currency Converter ◆ Loan Calculator

Category	Description/Available Portlets
Operations Center	Operations Center portlets allow you to surface Service Management data: ◆ Alarms ◆ Chart Builder ◆ Element Properties ◆ Layout ◆ Operations Center server Profiles ◆ Navigation ◆ Performance ◆ Properties Table ◆ Public End User View ◆ Refresh ◆ Root Cause ◆ Search ◆ Show Impacted ◆ Starter ◆ Status ◆ Summary ◆ Tree Map For more information, see Chapter 7, "Exposing Operations Center Content," on page 101 and Chapter 8, "Configuring Operations Center Portlets," on page 129.
News	News portlets display or share news information: ◆ Alerts ◆ Announcements ◆ RSS
Sample	Sample portlets include: ◆ Hello Velocity ◆ Hello World ◆ IFrame ◆ Web Proxy

Category	Description/Available Portlets
Tools	Tools portlets include the following tools and functionality: ◆ Dictionary ◆ Language ◆ Network Utilities ◆ Password Generator ◆ Quick Note ◆ Search ◆ Sign In ◆ Software Catalog ◆ Translator ◆ Unit Converter
Wiki	Wiki portlets allow users to easily add content to a Web page: ◆ Wiki ◆ Wiki Display

6.2 Adding Portlets

Portlets can be added to pages. When you add a portlet to a community, generally the objects in the portal belong to that community only. For example, if a Message Board is added to the Support community, all of the topics created through that portlet belong to the Support community only.

The admin portlets (Enterprise Admin, Organization Admin, and Location Admin) are the exception because they span all communities and thus can be accessed through multiple communities.

6.2.1 Adding a Portlet

1 Go to *Welcome* and click *Add Application*.
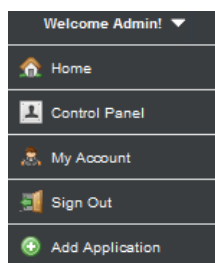
2 Click a category to open a list of portlets.

For Service Management portlets, expand *Operations Center*.
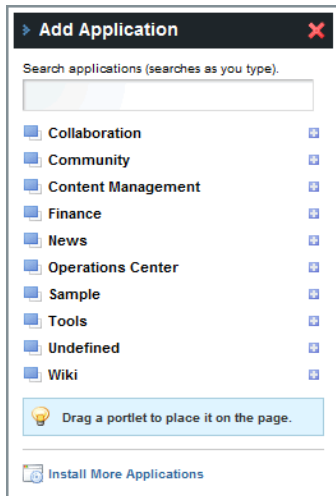
3 To add a portlet to the page, do one of the following:

- Click *Add* next to a portlet.
- Click the portlet name and drag to the desired position on the page.

4 Add more portlets as needed.

6.2.2 Moving Portlets on a Page

In the dashboard, new portlets are automatically added at the top of the page above any existing portlets (unless you've strategically placed it when dragging over from Add Applications onto the page). A portlet can be moved to a new location depending on the page layout. For example, if the page layout has two columns, a portlet can be moved from the left column into the right column.

To reposition a portlet to a different location on the same page:

1 Click the portlet title bar and drag the portlet to a new location on the page:
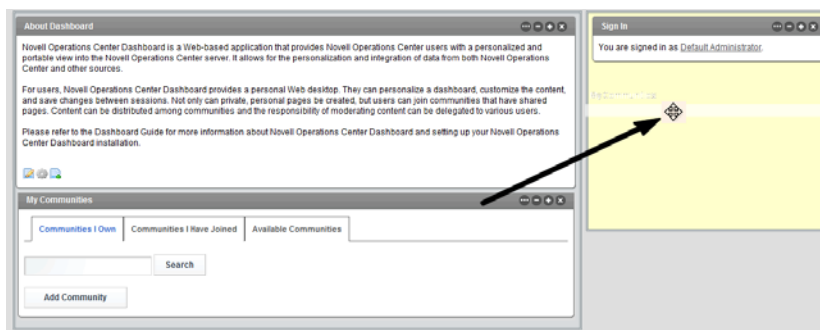
6.2.3 Configuring Portlet "Look and Feel"
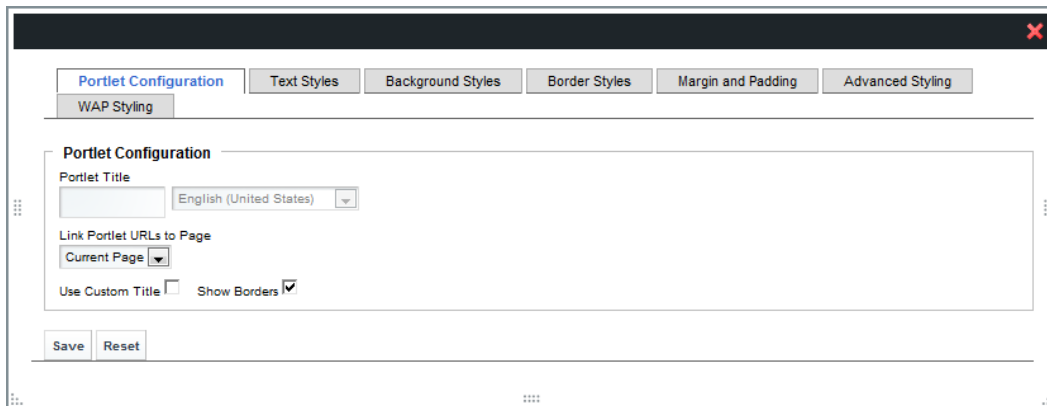
After a portlet is added to a page, you can configure its appearance including:

- General portlet settings such as title and disable borders
- Text, background, and border styles
- Background styles
- Margin and padding
- Custom css for advanced styling
- WAP Styling

In addition to appearance, some portlets have other configuration options.

To configure the look and feel for a portlet:

1 Click ⚫ *Options*, and select 🎨*Look and Feel.*

2 Select one of the following tabs:

- **Portlet Configuration:** Set portlet title options, disable borders, and link portlet URLs to pages:
- **Text Styles:** Define styles for portlet text including alignment, line height, and spacing.
- **Background Styles:** Set the color for the portlet background.
- **Border Styles:** Set color and spacing styes for the portlet border.
- **Margin and Padding:** Set margin and spacing for the portlet.
- **Advanced Styling:** Define any custom css.
- **WAP Styling:** Set options for the portlet when viewed by a wireless device.

3 Make any changes, then click *Save*.

6.3 Understanding Sharing Portlets

Some portlets allow information to be shared among dashboard users. For users to access a portlet, the following is required:

- The user must be assigned a role that has permission to the portlet.

  For more information, see Chapter 11, "Portal and Community Permissions," on page 199.

- The portlet must be on a public page or a page governed by one of the roles the user is assigned.

6.4 Adding a Site Map, Breadcrumbs, or Navigation to a Page

Site Map, Breadcrumb, and Navigation portlets are available to add navigational features to any the dashboard page.

1 Go to *Welcome* and click *Add Application*.

2 To add a Site Map portlet, do the following:

- Under *Content Management*, click and drag *Site Map* to a location on the page.
- Click ⬤ *Options* and select ⚙ *Configuration* to configure the following options on the Site Map portlet:

  Root layout: The page where the site map begins.

  Display depth: The number of child levels displayed on each page.

  Click *Save*.

The Site Map portlet adds a hierarchical listing of all pages in a community:
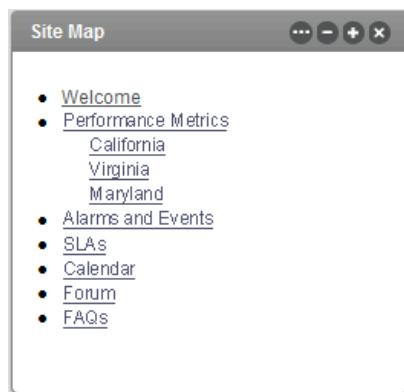
3 To add a Breadcrumb portlet, do the following:

- Under *Content Management*, click and drag *Breadcrumb* to a location on the page.
- Click ⬤ *Options* and select ⚙ *Configuration* to configure the following options on the Site Map portlet:

  Display Style: Select *1* for plain type or *2* for bold type.

  Click *Save*.

The Breadcrumb portlet displays the current page, plus links back to the preceding parent pages:

4 To add a Navigation portlet, do the following:

- Under *Content Management*, click and drag *Navigation* to a location on the page.
- Click ● *Options* and select ⚙ *Configuration* to configure the Site Map portlet:

  Bullet style: Varies the lines between the pages in the list.

  Display style: Indicates how the page names are presented.

  Click *Save*.

The Navigation portlet displays a listing of links to all pages within the current portlet.

6.5 Adding a Refresh Feature to Pages

Add the Refresh portlet to the Web page in order to allow the user to refresh the page on demand or by scheduling a refresh as designated intervals.

To refresh data in a the dashboard Web page:

1 Go to *Welcome* and click *Add Application*.

2 Under *Operations Center*, click and drag *Refresh* to a location on the page.

3 Click *Refresh* in the Refresh portlet to reload the page.

4 To schedule automatic refresh, do the following:

- Click ● *Options* and select 📝 *Preferences* to configure the Refresh portlet.
- Schedule refreshing at any of the following intervals:

  None
  30 seconds
  1 minute
  2 minutes
  3 minutes
  4 minutes
  5 minutes

- Click *Save*.

If a scheduled refresh is set, the date and time of the last refresh, as well as a countdown to the next refresh, are displayed.

If a scheduled refresh interval is not set, then a message displays, indicating the automatic refresh option is disabled.

6.6 Integrating Reports from External Reporting Tools Using iFrames

If you have reports from third-party reporting tools that include Operations Center data, you can now access and run these through the dashboard pages using iFrames.
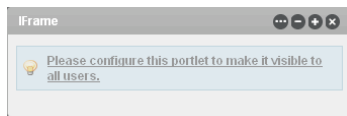
This section explains how to integrate reports from Crystal Reports as an example. Sample reports leveraging Operations Center data are available in *NovellOperationsCenter_install_path/ NOC/database/examples/mosql*. For more information about using Business Objects Crystal Reports for queries and reporting of Operations Center data, see the *Novell Operations Center 5.0 SQL Views Guide*.

To integrate with Business Objects Crystal Reports from the Dashboard:

1 Add the *iFrame* portlet to a page.

Select *iFrame* under *Sample* in *Add Applications*. For more information on adding portlets to a page, see Section 6.2.1, "Adding a Portlet," on page 93.

2 Click the configuration link inside the portlet.

3 Specify the URL of the reporting program in the Source URL field.

4 Specify other settings for the portlet as required.

5 Click *Save*.

6 Click the *Return to Full Page* link to display the page from the reporting tool.
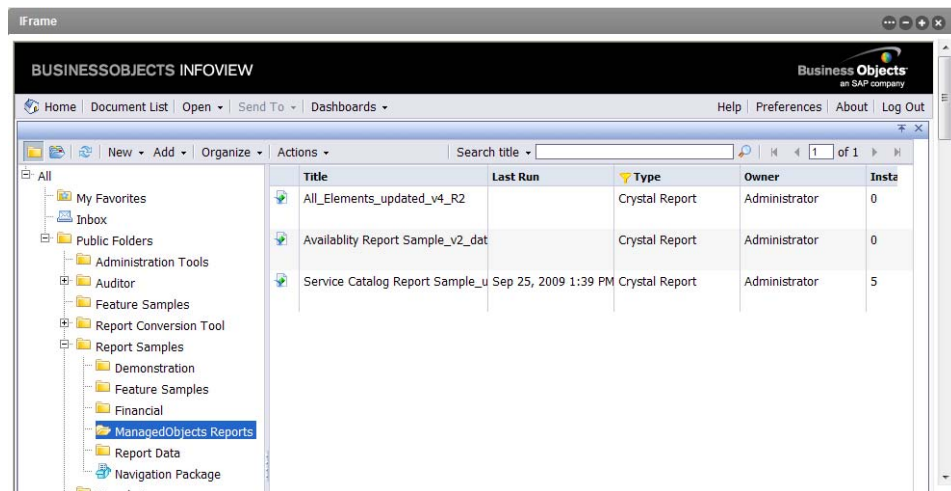
7 Select and view the desired report.
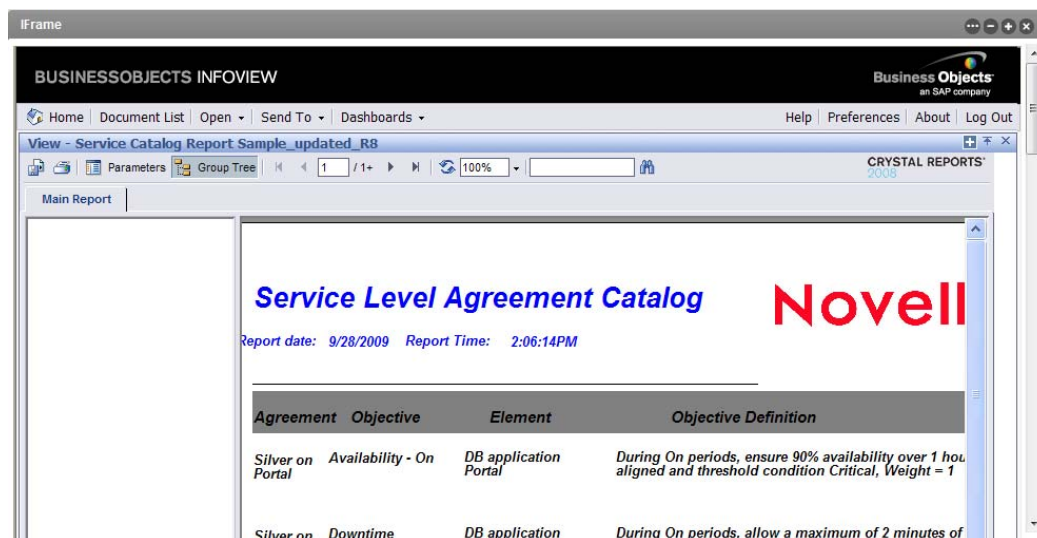
Exposing Operations Center Content

7

The data that can be viewed in a Operations Center portlet depends on the permissions the user has in Operations Center. This is true for all portlets except the Public End User View portlet, which can be configured so guest users can see limited status information about selected elements. For more information about permissions in Novell Operations Center Script Debugger, see the *Novell Operations Center 5.0 Security Management Guide*.

Review the following sections to

- Section 7.1, "Understanding the Operations Center Portlets," on page 101
- Section 7.2, "Configuring Portlet View Links," on page 104
- Section 7.3, "Configuring the User's Default Home Element," on page 105
- Section 7.4, "Performing Common Configurations for Operations Center Portlets," on page 106
- Section 7.5, "Setting Technical Configurations for Operations Center Portlets," on page 119
- Section 7.6, "Installing Third-Party Software," on page 126
- Section 7.7, "Troubleshooting Operations Center Portlets," on page 127

7.1 Understanding the Operations Center Portlets

Operations Center portlets are added to a page in the same way as other content. Configuring the look and feel of these portlets is also the same as for other portlets. For more information, see Chapter 6, "Adding Content to a Page Using Portlets," on page 89.

- Some data, such as alarms, can be viewed in real time with automatic updates from the Operations Center server. Operations that are performed on alarms on the Operations Center console can also be performed in the Dashboard.
- Element status data from Operations Center is available in the Dashboard using Operations Center portlets. For some portlets, you can select the Operations Center server as the source for displayed content.
- The defaults for Operations Center portlets are read from an XML file that can be modified.
- For some portlets to display correctly, a third-party plug-in must be installed on the user's computer.

Review the following sections to understand data types in Operations Center and how to set options for portlets:

- Section 7.1.1, "Understanding Data Types in Operations Center," on page 102
- Section 7.1.2, "Setting Options for a Portlet," on page 103

7.1.1 Understanding Data Types in Operations Center

Table 7-1 lists the types of data and views from Operations Center that can be displayed in the Dashboard:

Table 7-1 *Novell Operations Center Portlets by Portlet Type*

Type	Description/Available Portlets
Element Status	Visual representation of the current condition of elements. Related portlets include: ◆ Status For more information, see Configuring the Status Portlet (page 163). ◆ Public End User View For more information, see Configuring the Public End User View Portlet (page 155).
Properties	Properties specified for an element. Related portlets include: ◆ Properties Table For more information, see Configuring the Properties Table Portlet (page 153). ◆ Element Properties For more information, see Configuring the Element Properties Portlet (page 140).
Alarms	Both historical alarms and real-time alarms in either a full view or summary view. Operations can also be performed for real-time alarms in the full view. Related portlets include: ◆ Summary For more information, see See Understanding the Summary Portlet (page 165). ◆ Alarms For more information, see Configuring the Alarms Portlet (page 130).
Root cause/ Show impacted	The cause of an element's state or the elements affected by the selected element. Related portlets include: ◆ Root Cause For more information, see Configuring the Root Cause Portlet (page 156). ◆ Show Impacted For more information, see Configuring the Show Impacted Portlet (page 161).
Performance	A chart of performance metrics, SLA data, availability and downtime. Related portlets include: ◆ Performance For more information, see Configuring a Performance Portlet (page 146).
Layout/ Relationships	Visual representation of element relationships. Related portlets include: ◆ Layout For more information, see Configuring the Layout Portlet (page 141).

Type	Description/Available Portlets
Tree Map	Visual representation of alarms, both historical and real time. Related portlets include: ◆ Tree Map For more information, see Configuring the Tree Map Portlet (page 166).
Navigation/ Element Selection	Related portlets include: ◆ Navigation Displays the hierarchy from the Operations Center server with an indicator for status and controls the elements shown on the other portlets on the page. For more information, seeConfiguring the Navigation Portlet (page 144). ◆ Starter Displays an element with an indicator for status and controls the elements shown on the other portlets on the page. For more information, seeConfiguring the Starter Portlet (page 162). ◆ Search Locate elements in Operations Center and display properties for the found elements. Found elements can also be selected to control the elements shown in other portlets on the page. For more information, see Search Portlet (page 157).
Service Level Agreements	Related portlets include: ◆ SLA Compliance For more information, see Section 9.2, "Configuring the SLA Compliance Portlet," on page 171. ◆ SLA Status For more information, see Section 9.3, "Configuring the SLA Status Portlet," on page 178.
Administrative	Related portlets include: ◆ Operations Center Server Profiles For more information, see Section 7.5.3, "Selecting an Alternate Operations Center Server Connection," on page 121.

7.1.2 Setting Options for a Portlet

Data is displayed using components within portlets. Some of the components allow data to be updated automatically when the Operations Center server receives new data.

Options for data content and formatting are set within each portlet.

To set options for any portlet:

1 Click ⬤ *Options* and select 📝 *Preferences*.

2 Make changes to the options.
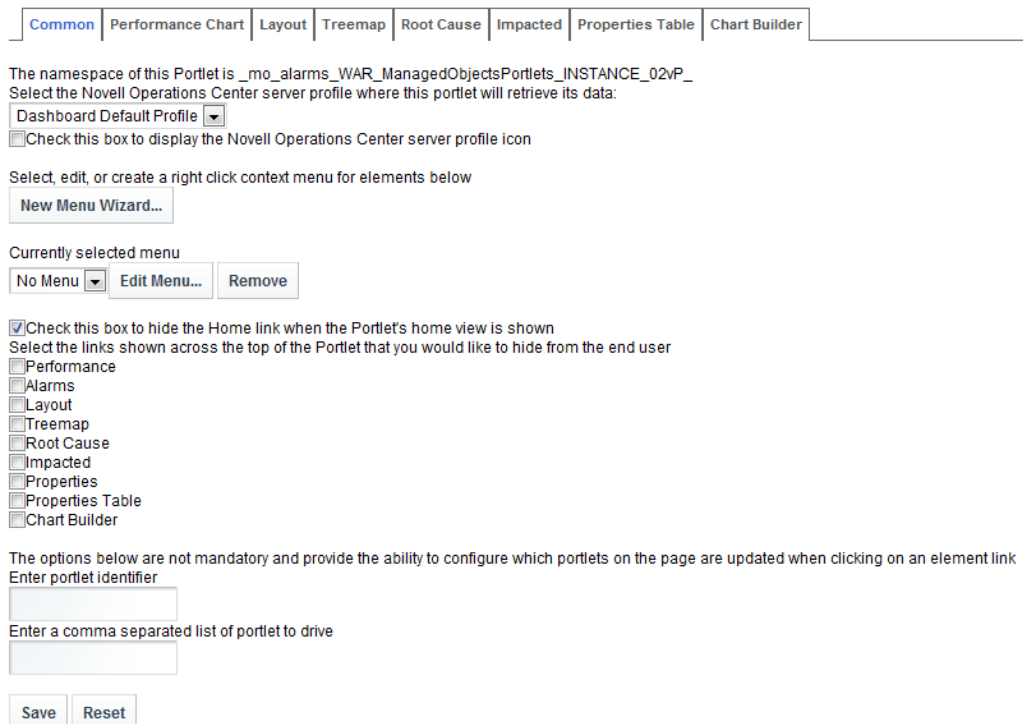
3 Click *Save*.

7.2 Configuring Portlet View Links

Nearly all Operations Center portlets, those that contain actual data from a Operations Center server, include multiple views within the portlet. When available and enabled, these views are accessible to the user via an *Action* link at the top of the portlet:

- *Performance*
- *Alarms*
- *Layout*
- *Treemap*
- *Root Cause*
- *Impacted*
- *Properties*
- *Properties Tab*
- *Chart Builder*

To disable/enable top links for a portlet:

1 Click ● *Options* and select ✎ *Preferences*.

2 Click the *Advanced* tab.

3 Click the *Common* tab.

4 To add a *Home* link at the top of the portlet, deselect the *Check this box to hide the Home link when the Portlet's home view is shown* check box.

By default this option is selected and a *Home* link does not appear on the portlet.

5 To hide any of the portlet links, select the undesired check boxes by selecting from *Performance*, *Alarms*, *Layout*, *Treemap*, *Root Cause*, *Impacted*, *Properties*, *Properties Table*, and *Chart Builder*.

By default these options are deselected and all links appear on the portlet.

6 Click *Save*.

The options for components vary depending on the portlet.

In addition to showing links to components in the main section of the portlet, links to other components can also be available through a right-click context menu. The right-click context menu can be used to add functionality to portlets.

7.3 Configuring the User's Default Home Element

The home element (starting element) for each user is set within the user or group account settings in the Operations Center server. The home element is used to populate element-based Service Management portlets if a starting element hasn't been defined for that portlet.

The *Home* option is on the user's or group's property page. By default, all users start with the *Enterprise* element. The elements that a user can view depend on the user's permissions in Operations Center.

To set a user's or group's default starting element:

1 From the Operations Center console, in the *Explorer* pane, expand *Enterprise > Administration > Security > Users* (or *Groups*).

2 Right-click the user or group, then click *Properties*.

3 Select the *User* (or *Group*) property page.

The *Home* field shows the default starting element.

4 To change the *Home* field, click *Browse*.

5 Select a starting element, considering the user's or group's permissions for specific elements in the hierarchy.

6 Click *OK*.

7 Click *Apply* on the property page.

7.4 Performing Common Configurations for Operations Center Portlets

7.4.1 Home Element for Portlets

An element must be selected as the starting point for viewing data within portlets. Each user has a starting element, called the home element, which is set in Operations Center and is the default starting element for all the Operations Center portlets for that user.

The Starter portlet or Navigation portlet can be used to change the starting elements on the fly for all the portlets on the page. Each portlet can also be configured to use a specific starting element.

Within each portlet, by default, the starting element for which data is displayed is the user's home element. The user can select a different starting element for each portlet using the element component.

To set the starting element:

1 Click ● *Options* and select ☑ *Preferences*.

2 Click the *Elements* tab.
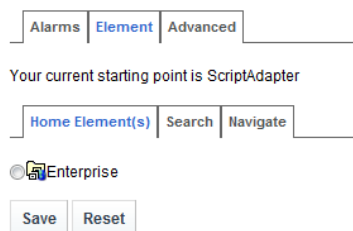
3 Do one of the following:
- Use the *Search* tab to search for elements. The search is by name and allows for the use of wildcards (*).
- Use the *Navigate* tab to select an element from the hierarchy by clicking + and – to expand and contract the list.

4 After selecting an element, it appears on the *Home Element(s)* tab.

5 Click *Save*.

7.4.2 Starting Element for Multiple Portlets on a Page

There are four portlets that can be configured to drive (or set) the element on other portlets on the same page. The include the Starter, Navigation, Search and Status portlets. The following sections provide information about configuring these portlets:

- Section 8.11, "Configuring the Starter Portlet," on page 162
- Section 8.4, "Configuring the Navigation Portlet," on page 144
- Section 8.9, "Search Portlet," on page 157
- Section 8.12, "Configuring the Status Portlet," on page 163

You can also use the right-click menu if they have been configured for this function.

7.4.3 Configuring the Starting Element

The element from which the user accesses the right-click context menu can become the starting element of the other Operations Center portlets on the page. The options for configuring the starting element link on the right-click context menu are in the Menu Wizard, accessed by either creating a new menu or editing an existing menu.

To add the element name on the right-click context menu as the link for the starting element, select the *Check this box to display a menu item to drive the contents on the page with the selected element* check box. When the user selects the element name, that element becomes the selected element on the Operations Center portlets on the page (similar to the functionality of the Navigation portlet or Starter portlet).

If you choose to display the element name as a menu option, you can also change the text displayed for that menu item by entering the new text for the *Enter the text to be displayed for the driver menu item (enabled above)* option.

7.4.4 Adding Right-Click Context Menus

A right-click context menu can be created, edited and used in any portlet that supports the right-click menu functionality (any portlet that has the *Advanced > Common* tab in its Preferences).

Figure 7-1 *Root Cause Portlet with Right-Click Context Menu*
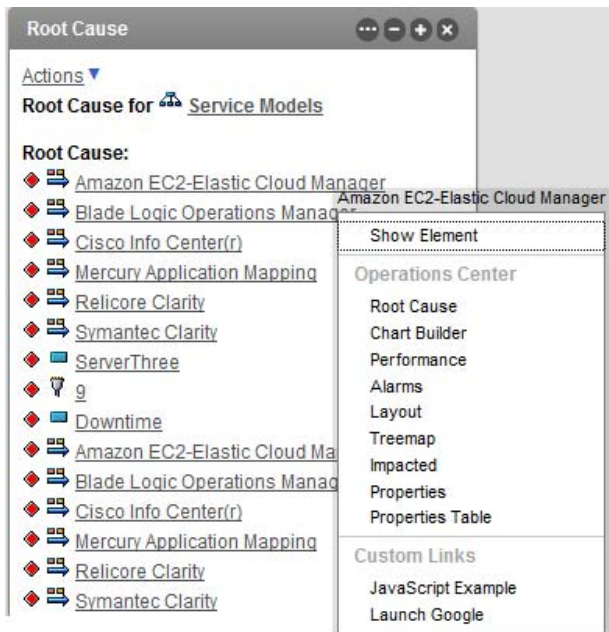
When right-click context menus are implemented, right-clicking an element on the portlet can:

- Update the contents of Operations Center portlets on a page to show the selected element's information
- Open additional components, such as the *Alarms* view, *Layout* view, *Root Cause* view, *Performance* view, and so on
- Open any URL and send context-sensitive information to the URL
- Execute custom JavaScript commands
- Execute operations

The right-click context menu functionality is currently available on the Operations Center Navigation, Search, Show Impacted, Status, and Root Cause portlets.
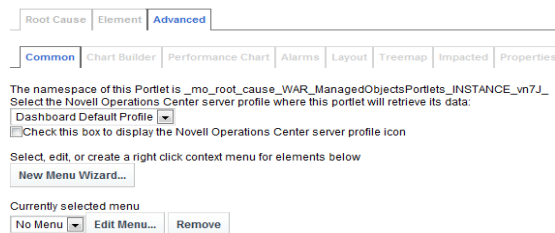
- "Creating a New Menu" on page 110
- "Editing an Existing Menu" on page 112

Creating a New Menu

While it is possible to create multiple menus for a portlet, only one menu can be active at a time. Multiple menu options can be grouped together on the right-click context menu under a submenu if a grouping title is specified.
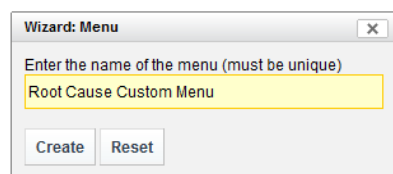
To create a right-click menu:

1 Click *Options* and select *Preferences*.

2 Click the *Advanced* tab, then select the *Common* tab.

3 Click *New Menu Wizard*.

4 Specify a unique name for the menu, then click *Create*.

If the name already exists, a message indicates the menu failed to save. After a name has been entered, it cannot be changed.

5 Determine the menu name that displays in the right-click menu box:

Check this box to display the element's name as the title of the menu: When a user right-clicks an element, the element's name displays as the name of the right-click menu.

Enter the text to be displayed for the title of the menu: Specify a menu title to instead of the element's name. This option is disabled by selecting the previous check box.

If neither check box is selected, no title is displayed.

6 Enter options to set starting element for other Operations Center portlets on a page, open additional components, open URLs, execute JavaScript commands, or execute operations by adding links to the right-click context menu.

7 To group the menu items, enter a title for the group for the *Enter the text to be displayed for the grouping of the links above* option.

8 Click *Save*.

Editing an Existing Menu

After you have created a menu, it is available for use and editing in all portlets that support the right-click menu functionality. If you make changes to the menu in one portlet, those changes are applicable for all instances of the menu in all portlets.

To later edit or remove operations, return to the *Common* tab under *Advanced*. Under *Currently selected menu*, select the operation name from the drop-down list, then click *Edit Menu*. To remove a link, click *Remove*.

To edit a menu:

1 Click *Options* and select *Preferences*.

2 Click the *Advanced* tab, then select the *Common* tab.

3 From the *Currently Selected Menu* drop-down list, select a different menu if required, then click *Edit Menu*.

A window opens with the menu options:

4 Make changes, then click *Save*.

7.4.5 Accessing URLs from Right-Click Menus

URLs can be included as menu options in right-click context menus. These links can open any URL and send context sensitive information to it. This is a powerful way of launching third-party applications and allowing for context-sensitive display (such as display a remedy ticket associated with a particular element).
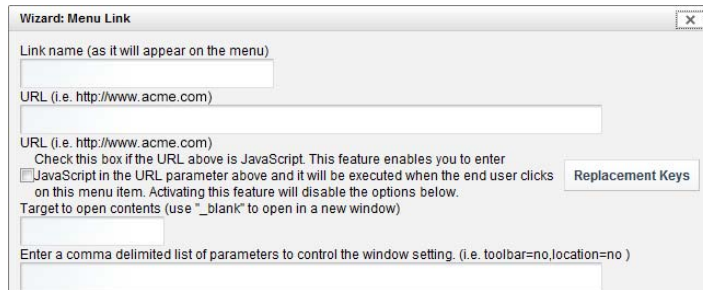
Parameters can be passed from the Dashboard to the new URL to customize what appears in the Web page that the URL opens. Parameters can be based on the element from which the user accessed the right-click content menu and can include the DName, element name, and a specified element property, which are all stored in the Operations Center server. For more information on elements including DName and properties, see *Viewing Element Properties* in the *Novell Operations Center 5.0 User Guide*.

To create a menu option to a URL and optionally pass parameters:

1 Click *Options* and select *Preferences*.

2 Click the *Advanced* tab, then select the *Common* tab.

3 Open an existing menu or click *New Menu Wizard* to create a new menu.

Specific steps for defining a custom link are detailed in the remaining steps.

For basic steps about defining a new menu, see "Creating a New Menu" on page 110.

4 Under *Custom Links*, click *New Link Wizard* to open the Wizard: Menu Link window.

5 To specify basic link information to create the menu link and to set properties for the browser window that the URL will load in, do the following:

5a Specify the name of the option in the *Link Name* field.

5b Specify the full URL for the link in the *URL* field.

5c Leave the *Check this box if the URL above is JavaScript check box* deselected.

5d Specify the name of the browser window to open the URL in the *Target to open contents* field.

Enter _blank if it is to always open in a new window.

5e Specify a comma delimited list of parameters to control the size and location of the window.

For example, `toolbar=no,location=no`.

6 (Optional) To hide the URL link when a specific property value exists, select the *Check this box if this link is restricted from displaying unless the below name-value pair is matched.* check box.

Specify the property name and property value expression in the fields provided.

7 (Optional) To set up parameters that are passed by the URL, do the following as necessary:

```
☐ Check this box to send the element dname as a parameter to the url
Enter the parameter to be used for the dname (i.e. use "dname" to create a parameter of
"dname=[dname value]")

[                    ]

☐ Check this box to send the element name as a parameter to the url
Enter the parameter to be used for the name (i.e. use "name" to create a parameter of "name=
[name value]")

[                    ]

☐ Check this box to send an element property as a parameter to the url
☐ Check this box to append element property to the url (This will not pass element property as
   parameter)
Enter the parameter to be used for the property (i.e. use "property" to create a parameter of
"property=[property value]")

[                    ]

Enter the property name to be sent to the target url

[                    ]
```

◆ To pass the element DName to the URL, select the *Check this box to send the element dname as a parameter to the URL* check box.

Specify the parameter expression that is appended to the URL in the field provided (such as `dname=dname_value`).

◆ To pass the element name to the URL, select the *Check this box to send the element name as a parameter to the URL* check box.

Specify the parameter expression that is appended to the URL in the field provided (such as `name=name_value`).

◆ To pass an element property name/value pair to the URL, select the *Check this box to send an element property as a parameter to the URL* check box and/or to append the URL with an element property, select the *Check this box to append element property to the url.*

Specify the parameter name to be used for the passed or appended property.

Then, the property name to match for in the element's properties in Operations Center.

8 Click *Create*.

The new link displays under *Custom Links*:

Custom Links		
Name	URL	
Acme	http://www.acme.com	Edit Remove

7.4.6 Issuing JavaScript Commands from Right-Click Menus

JavaScript commands can be executed by menu options in a right-click context menu. Links for JavaScript commands are created and edited the same way as URL links.

To create a right-click menu that issues a JavaScript command:

1 Click ⚫ *Options* and select ✎ *Preferences*.

2 Click the *Advanced* tab, then select the *Common* tab.

3 Open an existing menu or click *New Menu Wizard* to create a new menu.

Specific steps for defining a custom link are detailed in the remaining steps.

For basic steps about defining a new menu, see "Creating a New Menu" on page 110.

4 Under *Custom Links*, click *New Link Wizard* to open the Wizard: Menu Link window.

5 To specify basic link information to create the menu link and to set properties for the browser window that the URL will load in, do the following:

5a Specify the name of the option in the *Link Name* field.

5b Specify the JavaScript command, including any parameters in the *URL* field.

5c Select the *Check this box if the URL above is JavaScript* check box.

For help in determining the parameters for the JavaScript to use elements and properties of an element from Operations Center, click *Replacement Key*.

5d Specify the name of the browser window to open the URL.

Enter _blank if it is to always open in a new window.

5e Specify a comma delimited list of parameters to control the size and location of the window.

For example, `toolbar=no,location=no`.

6 Click *Save* to save any changes.

The new JavaScript command option displays under *Custom Links*.

7.4.7 Adding Portlet View Links to Right-Click Menus

On the right-click context menu, there can be links that open other components. The other components use the element from which the right-click menu was accessed as the starting element.

The options for configuring the components links on the right-click context menu are on the Wizard: Menu window, accessed by creating a new menu or editing an existing menu.

To add component links, select the *Check this box to display a menu item for each common component (such as Root Cause, Impacted, Layout, and so on)* check box. Each component name then appears on the right-click context menu.

7.4.8 Performing Operations Center Server-Side Operations from Right-Click Menus

In the Dashboard, server-side operations defined in Operations Center can be added to right-click context menus. For more information on operations, including how to define operations on the Operations Center console, see *Modifying Element and Alarm Menus* in the *Novell Operations Center 5.0 Server Configuration Guide*.

Custom operations can be added as the Dashboard right-click menu options. However, they require custom development to interface with the Dashboard. Contact Novell Support (http://support.novell.com) for more information.

To create a menu option that runs a server-side operation:

1 In Operations Center console, create or note the operation you wish to access from the Dashboard.

Take note of the *Menu Text* specified for the operation definition.
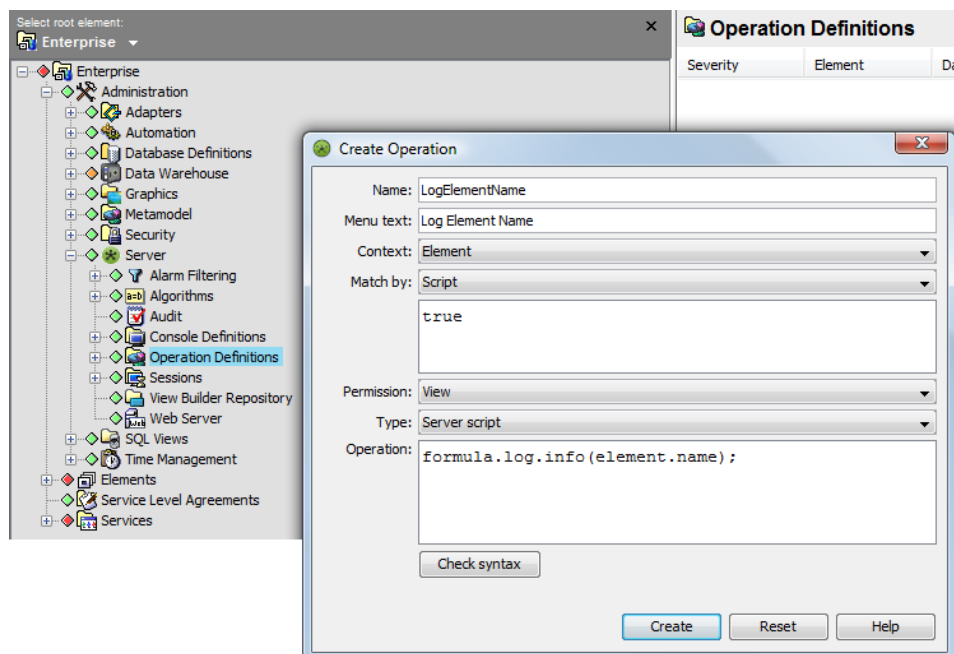
For details on creating operations, see *Modifying Element and Alarm Menus* in the *Novell Operations Center 5.0 Server Configuration Guide*.
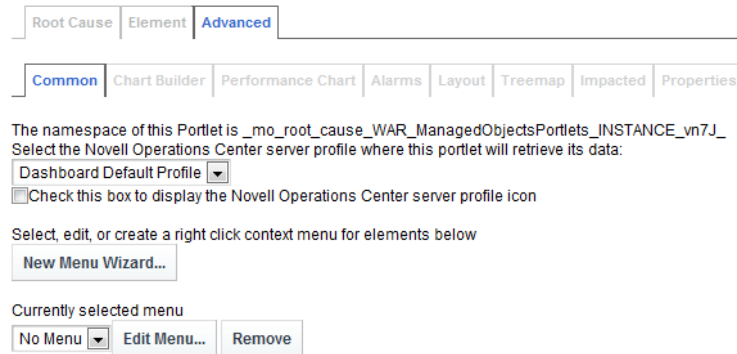
2 On the Dashboard portlet, on the portlet title bar, click 💬 (*Options*) and select click ✏️ (*Preferences*).

Click the *Advanced* tab, then click the *Common* tab.

For basic steps about defining a new menu, see .
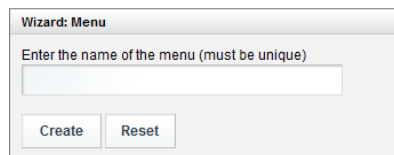
Specific steps for defining the operations menu option are detailed in the remaining steps.

3 Click *New Menu Wizard*.
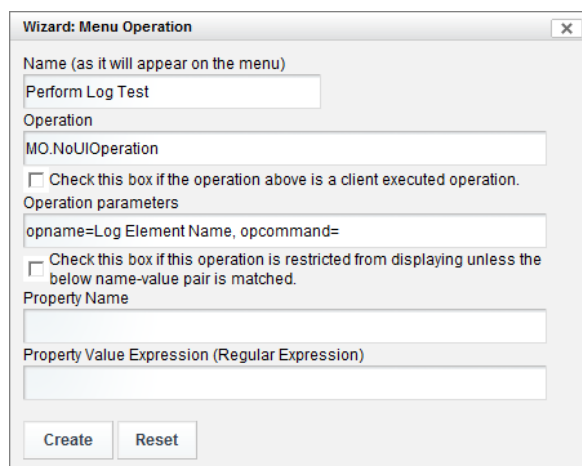
To edit the menu later, use *Edit Menu*.

4 In the Wizard: Menu dialog box, enter the menu name, then click *Create*.

5 In the Wizard dialog box, under *Operations*, click *New Operation Wizard*. The Wizard: Menu Operation dialog box displays:

6 Specify the name of the menu option in the *Name* field.

This is the name that will show in the menu.

7 Enter `MO.NoUIOperation` in the *Operation* field.

8 Because this is a server-side operation, leave the *Check This Box If the Operation Above Is a Client Executed Operation* check box deselected.

The type of operation (client side or server side) is defined when the operation is created on the Operations Center console. By default, the Dashboard assumes that the operation is server side and runs on the Operations Center server.

9 Specify any parameters in the *Operation parameters* field using the following syntax:

`opname=OperationMenuText,opcommand=`

where *MenuText* is the menu text for the operation created in Operations Center.

10 Select the *Check this box if this operation is restricted from displaying unless the below name-value pair is matched* check box if the operation is to be unavailable if the *Property Name* and *Value* specified cannot be validated with the current element.

(Optional) Specify a *Property Name* and *Property Value* to be matched.

11 Click *Create*. The new operation displays in the Menu's Operations listing.

Operations			
Name	**Operation**		
Perform Log Test	MO.NoUIOperation	Edit	Remove

12 Click *Save* on subsequent dialogs to finish creating the new menu.

13 Verify the newly created menu is selected under *Currently selected menu* in *Preferences* for the *Advanced > Common* tab.

Click *Save* and exit Preferences.

The new menus are available in the right-click context menus for the portlet.

7.4.9 Viewing Source Data for Charts

Various charting-type portlets contain an additional *d* link that allow the user to access the data used to generate the chart. The following portlets contain a *d* link added in the bottom right corner of the portlet:

- Performance portlet

  For more information about the Performance portlet, see Section 8.5, "Configuring a Performance Portlet," on page 146.

- Chart Builder portlets

  For more information about Chart Builder portlets, see Chapter 10, "Chart Builder Portlet," on page 183.

Clicking the *d* link in a portlet displays source data used to generate the chart as shown in Figure 7-2 on page 119.

Figure 7-2 *Source Data for Chart*
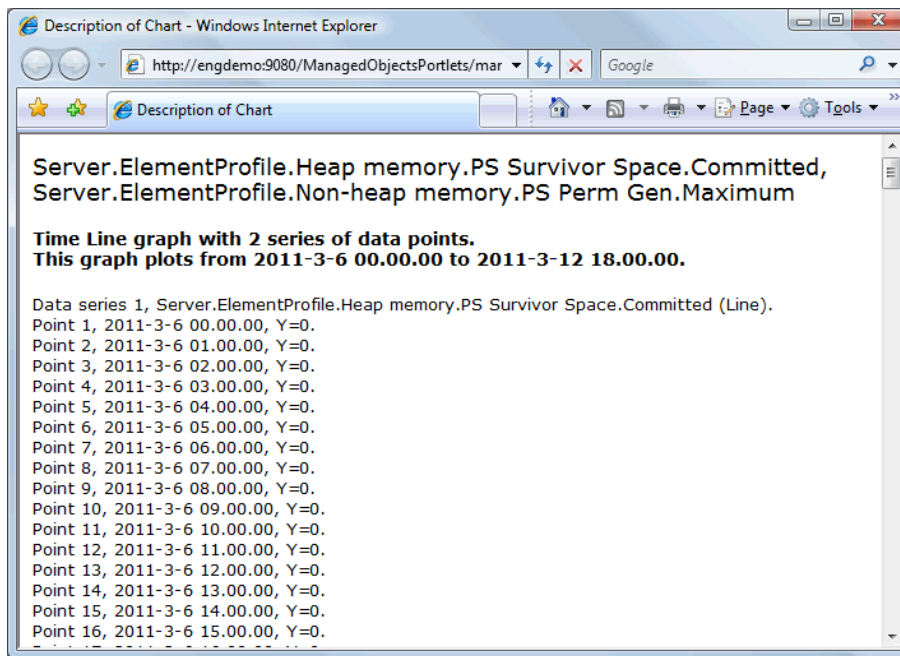
7.5 Setting Technical Configurations for Operations Center Portlets

The following sections provide details on technical configurations that can be made to configure or increase performance for Dashboard portlets:

- Section 7.5.1, "Configuring Default Alarms Limits Returned from the Operations Center Server," on page 120
- Section 7.5.2, "Configuring Performance Data Point Retrieval from the Operations Center Server," on page 120
- Section 7.5.3, "Selecting an Alternate Operations Center Server Connection," on page 121

7.5.1 Configuring Default Alarms Limits Returned from the Operations Center Server

There is a default limit of 1000 alarms/outages/breaches when using the SLA or the Alarms portlets. This limit is set on the Operations Center server. If the user has more alarms (Alarms portlet) or outages/breaches (SLA Compliance portlets) and would like see more alarms, this limit needs to be appropriately set.

To increase the maximum number of alarms that are returned from the Operations Center server:

1 Open the `NovellOperationsCenter_install_path`/NOC/config/ `Formula.custom.properties` file in a text editor.

If the `Formula.custom.properties` file does not exist, create it. For more information about the `Formula.custom.properties` file, see "Making Custom Changes" in the *Novell Operations Center 5.0 Server Configuration Guide*.

2 Add the following property and customize the value:

`HyperQuery.NumPoints.SizeLimit=30000`

3 Stop and restart the Operations Center server for the changes to take effect.

7.5.2 Configuring Performance Data Point Retrieval from the Operations Center Server

The amount of data points returned for a performance chart can increase or decrease rendering performance. The Operations Center server uses an algorithm to determine how many data points to return for the Performance portlet when charting raw data. Using a setting the `mo-settings.xml` file, you can configure the aggressiveness of the algorithm to reduce the number of data points used to draw a line while preserving the natural line shape.

This setting is only applied when the Performance portlet is charting raw data.

To configure the level of data point retrieval for the Performance portlet:

1 Stop the Dashboard.

For information on stopping the Dashboard, see Section 2.3.2, "Stopping the Dashboard," on page 27.

2 Edit the `NovellOperationsCenter_install_path`/NOC/Dashboard/server/webapps/ `ManagedObjectsPortlets/WEB-INF/mo-settings.xml` file to add the following:

`<entry>`

`<string>performance.charts.ldpreduce.rpd.epsilon</string>`

`<string>`*desiredvalue*`</string>`

`</entry>`

Where *desiredvalue* is the level of aggressiveness between `0` and `1.0`. Set to `0` to turn the algorithm off and return all data points. We recommend increasing the value slowly, if at all, in increments of `.05`. The default value is `0.1`.

3 Start the Dashboard.

For information on stopping the Dashboard, see Section 2.3.1, "Starting the Dashboard," on page 26.
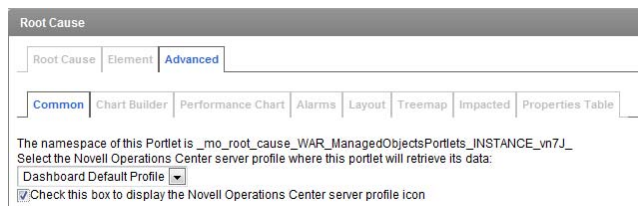
7.5.3 Selecting an Alternate Operations Center Server Connection

By default, all Operations Center portlets retrieve data from the default Operations Center server. Within some portlets, it is possible to poll a different Operations Center server. In this case, a different server profile is selected for the portlet.

Server profiles are used by the Alarms, Element Properties, Layout, Navigation, Performance, Properties Table, Root Cause, Search, Show Impacted, Starter, Status, Summary, and Tree Map portlets. For information about creating a server profile, see Section 3.8, "Creating Operations Center Server Profiles," on page 41.

To select a server profile for a portlet:

1 Click *Options* and select *Preferences*.

2 Click the *Advanced* tab, then select the *Common* tab.

3 From the *Select the Operations Center server profile where this portlet retrieves its data* option, select the server that serves up Operations Center data for the portlet.

The default establishes a connection with the default Operations Center server.

For steps on creating a new Operations Center server connection, see Section 3.8, "Creating Operations Center Server Profiles," on page 41.

4 Because each server profile has an icon associated with it, choose to display this icon on the portlet to help distinguish the server from which data is retrieved by selecting the *Check this box to display the Operations Center server profile icon* check box.

Later, hovering over the server icon while viewing the content of a portlet shows the profile name in a tooltip.

5 Click *Save*.

7.5.4 Scheduling Portlets

Cached versions portlet reports can improve performance when viewing portlets by updating the data at scheduled intervals only; not upon every request to view the portlet. Note that the data displayed in a scheduled portlet is no longer real-time because it is serving up.

The following sections describe how to define schedules for portlets:

Understanding Portlet Scheduling

Scheduled reports are useful when information needs to be published and shared with users on a regular basis. For example, a report could be scheduled to run every Monday morning at 6:00 a.m. so that when users log in first thing Monday morning, it is quick and easy to view the latest status.

A portlet can be scheduled to run hourly, daily, weekly, monthly; or a custom schedule specified by a Cron string, such as "every Friday at noon", or "every weekday and 9:30 am", or even "every 5 minutes between 9:00 am and 10:00 am on every Monday, Wednesday and Friday".

Only some portlets have the Scheduling feature. When available, a *Scheduling* tab will be available under the *Advanced* tab in *Preferences*.

Note the following important aspects and tips on portlet scheduling:

- Portlet data displays in Real-Time until a schedule is set and applied.
- Subsequent changes to the preferences of a scheduled portlet may not take effect until the next scheduled run. To regenerate the report immediately after changes in *Preferences*, go to *Advanced > Scheduling* and click *Run Now*.
- Cached versions created by a schedule only save and cache data for the primary (home) view of the portlet. If a portlet contains links to other views, reports or portlets; these other pages are not serving up cached data.
- When scheduling reports, it is usually a good idea to run the report, then schedule it, so that a cached version is available in the portal page for the lapse of time before the next scheduled report generation.

◆ To confirm a schedule is defined and active for a portlet, go to *Preferences > Advanced > Scheduling*. If active, the following type of status information displays including the last time the portlet was run and the next scheduled time.

Defining the Schedule

To define a schedule for a portlet:

1 Click ⬤ *Options* and select 📝 *Preferences*, then select *Advanced*.

2 Click *Scheduling*.

The report scheduler displays:

3 Select one of the *Select Schedule* radio buttons: *Hourly*, *Daily*, *Weekly*, *Monthly*, or *Cron*.

Depending on the time frame selected, specify the calendar day of the week, day of the month, hour, and minute values, or specify a cron string.

For more information about cron strings, see .

4 Click *Start Schedule* to begin using the schedule.

The report is now generated based on the selected schedule and the following message screen displays:
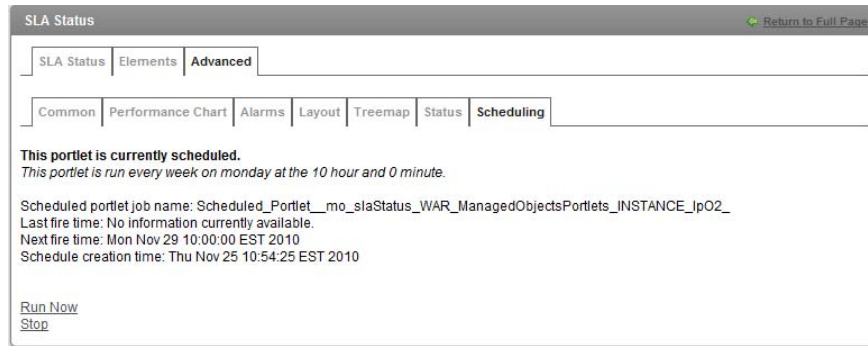
It provides some basic information about the schedule, when it was created, when it last ran and when it is expected to run again. This screen also provides two possible actions:

- ◆ **Run Now:** Forces the portlet to re-cache its data immediately.
- ◆ **Stop:** Unschedules the portlet.

At this time, the Job Name is used internally only by the scheduling mechanism and should be left as the default, which uses the unique portlet namespace.

5 Click *Save*.

If you exit *Preferences* without clicking *Save*, your changes are lost.

Forcing a Manual Refresh of Cached Data

To define a schedule for a portlet:

1 Click ● *Options* and select 🖉 *Preferences*, then select *Advanced*.

2 Click *Scheduling*.

The following message screen displays:
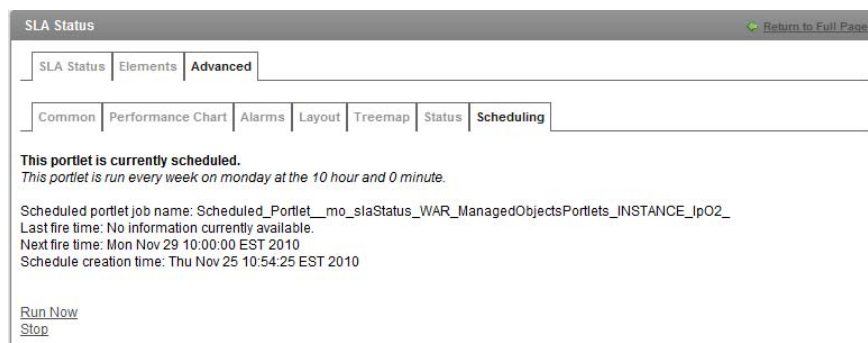
3 Click *Run Now* to generate a new version of the cached report.

Understanding Cron Strings

Cron expressions are strings that are actually made up of seven sub-expressions, that describe individual details of the schedule. These sub-expression are separated with white-space, and represent:

1. Seconds

2. Minutes

3. Hours

4. Day-of-Month

5. Month

6. Day-of-Week

7. Year (optional)

Cron expressions use the following special characters:

- ***** Use to select all values within a field.

- **?** Use to declare no specific value. Use to specify something in one of the two fields in which the character is allowed, but not the other. For example, to fire on a particular day of the month (say, the 10th), but it doesn't matter what day of the week it happens to be, put "10" in the day-of-month field, and "?" in the day-of-week field.

- **-** Use to specify ranges within a sub-expression. For example, "10-12" in the hour field means "the hours 10, 11 and 12".

- **,** Use to specify additional values. For example, "MON,WED,FRI" in the day-of-week field means "the days Monday, Wednesday, and Friday".

- **/** Use to specify increments. For example, "0/15" in the seconds field means "the seconds 0, 15, 30, and 45". And "5/15" in the seconds field means "the seconds 5, 20, 35, and 50". You can also specify '/' after the '' character - in this case '' is equivalent to having '0' before the '/'. '1/3' in the day-of-month field means "fire every 3 days starting on the first day of the month".

- **L** (Last) has different meaning in each of the two fields in which it is allowed. For example, the value "L" in the day-of-month field means "the last day of the month" - day 31 for January, day 28 for February on non-leap years. If used in the day-of-week field by itself, it simply means "7" or "SAT". But if used in the day-of-week field after another value, it means "the last occurrence of that day in the month" - for example "6L" means "the last friday of the month". When using the 'L' option, it is important not to specify lists, or ranges of values, as you'll get confusing results.

- **W** (Weekday) Use to specify the weekday (Monday-Friday) nearest the given day. As an example, if you were to specify "15W" as the value for the day-of-month field, the meaning is: "the nearest weekday to the 15th of the month". So if the 15th is a Saturday, the trigger fires on Friday the 14th. If the 15th is a Sunday, the trigger fires on Monday the 16th. If the 15th is a Tuesday, then it fires on Tuesday the 15th. However if you specify "1W" as the value for day-of-month, and the 1st is a Saturday, the trigger fires on Monday the 3rd, as it doesn't 'jump' over the boundary of a month's days. The 'W' character can only be specified when the day-of-month is a single day, not a range or list of days.

- **#** Use to specify "the nth" XXX day of the month. For example, the value of "6#3" in the day-of-week field means "the third Friday of the month" (day 6 = Friday and "#3" = the 3rd one in the month). Other examples: "2#1" = the first Monday of the month and "4#5" = the fifth Wednesday of the month. Note that if you specify "#5" and there is not 5 of the given day-of-week in the month, then no firing occurs that month.

Table 7-2 *Examples of Chron Expressions for Scheduling*

Schedule fires...	Cron Expression
Every 5 minutes.	0 0/5 * * * ?
Every 5 minutes, at 10 seconds after the minute (i.e. 10:00:10 am, 10:05:10 am, etc.).	10 0/5 * * * ?
Exactly at 10:30, 11:30, 12:30, and 13:30, on every Wednesday and Friday.	0 30 10-13 ? * WED,FRI
Every half hour between the hours of 8 am and 10 am on the 5th and 20th of every month. Note that the trigger will NOT fire at 10:00 am, just at 8:00, 8:30, 9:00 and 9:30.	0 0/30 8-9 5,20 * ?
At 10:15am on the last Friday of every month.	0 15 10 ? * 6L

For additional information on the format of the Cron string, consult the Quartz Enterprise Job Scheduler Web site (http://www.quartz-scheduler.org/docs/tutorials/crontrigger.html).

7.5.5 Automatic Data Updates with Push Technology

Using push technology, the Dashboard can receive data updates as they occur in the Operations Center server instead of having the Dashboard request updates on a regularly scheduled interval.

By default, the Alarms, Layout, Tree Map, and Status portlets are enabled to refresh content automatically from the Operations Center server. This feature can be disabled in the configuration options for each portlet (or any portlet that utilizes these portlets as views/links).

Push technology be enabled globally for all portlets in the Operations Center Dashboard Configuration Manager. The settings within each portlet override the global setting in the Operations Center Dashboard Configuration Manager.

7.6 Installing Third-Party Software

Some of the portlets in the Dashboard rely on plug-ins or third-party software to display properly.

- Section 7.6.1, "SVG Viewer," on page 127
- Section 7.6.2, "Flash Player," on page 127

7.6.1 SVG Viewer

The Layout and Chart Builder portlets rely on an Adobe* SVG Viewer to render images properly. Note that as Chart Builder SVG rendering is not supported on Mozilla* Firefox, users must select Flash, PNG, or JPG before accessing data through the Chart Builder portlet.

If the Adobe SVG plug-in is not installed on your machine, you are prompted to install it when you first access the Layout portlet. Follow the on-screen instructions to download and install the SVG plug-in.

Figure 7-3   *SVG Plug-in Not Installed Message*
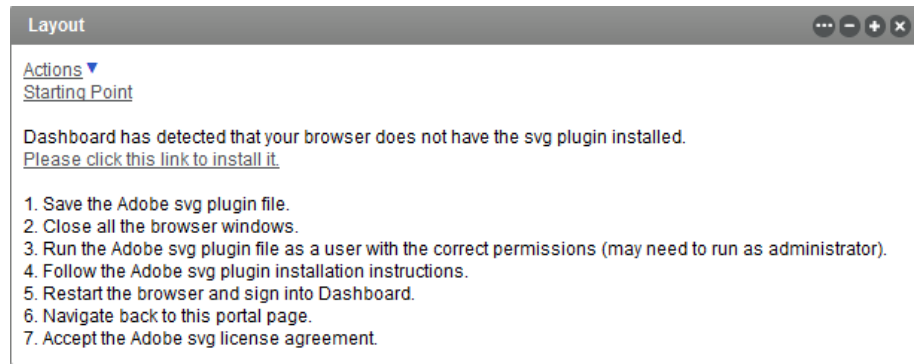
To properly view Chinese fonts in the report created from the Layout portlet, the Chinese version of the Adobe SVG Viewer must be installed on your machine.

Adobe SVG plug-ins can be downloaded from the Adobe SVG Viewer download area (http:// store1.adobe.com/svg/viewer/install/).

7.6.2 Flash Player

Portlet charts can be rendered in 3D by using the Flash format. However, the Adobe Flash* player does not support a 64-bit Internet Explorer (IE) browser, so when you configure any charting portlet to display Flash graphics, the charts do not display properly in 64-bit Internet Explorer.

You are prompted to install the Flash player. However, if you manually install the player and restart browser, the 64-bit Internet Explorer still asks you to install the plug-in.

Refer to Flash Player support on 64-bit operating systems (http://www.adobe.com/cfusion/ knowledgebase/index.cfm?id=6b3af6c9) for more information on this issue.

7.7 Troubleshooting Operations Center Portlets

- Section 7.7.1, "Operations Center server Unavailable," on page 127

7.7.1 Operations Center server Unavailable

The `Operations Center server is currently not accessible.` message displays when the Operations Center server is not available. Contact your Operations Center administrator to see when the server is available again. After the Operations Center server is back up, you must log out of the Dashboard and log back in to the Dashboard to see current data.

Configuring Operations Center Portlets

8

8.1 Configuring the Alarms Portlet

The alarms portlet shows a detailed listing of alarms that allows you to click and open the alarm's properties. A total alarm count indicates the total number of alarms for the element while severity indicators show the number of alarms for each severity. As in the Operations Center console, alarm operations can be performed (when available), alarm filters can be created and applied, and alarm data can be exported to an Excel file.

Figure 8-1 *Alarm Portlet*
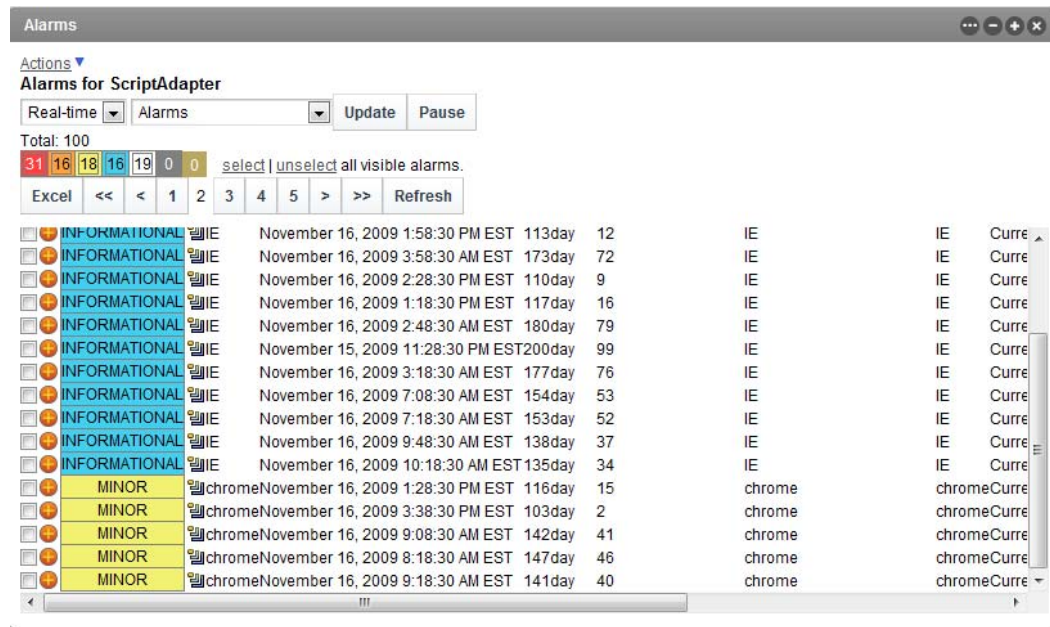
The Alarms portlet returns a maximum number of alarms based on a property set on the Operations Center server. For instructions on configuring this property, see Section 7.5.1, "Configuring Default Alarms Limits Returned from the Operations Center Server," on page 120.

The Alarms portlet is also available as a view from other Operations Center portlets including Summary, Layout, Performance, Tree Map, Element Properties, Properties Table, Show Impacted, Root Cause, Chart Builder, Performance and Summary. Click *Actions* and select *Go to > Alarms* from any of these portlets.

[The following sections cover various Alarm portlet functionality:]

8.1.1 Viewing Alarms

The actual alarms shown in the portlet/view depend on various factors set in the configuration options:

- **Alarm Type:** Displays the following types of real-time events:

  alarms
  audit events
  service level breaches
  service level metrics

  For more information on alarms, see *Filtering and Managing Alarms* in the *Novell Operations Center 5.0 User Guide*.

  For more information on service level breaches and metrics, see the *Novell Operations Center 5.0 Service Level Agreement Guide*.

- **Severity:** Displays alarms of varying severities.

  For more information on alarm severities, see *Viewing Alarm Severity* in the *Novell Operations Center 5.0 User Guide*.

- **Alarm Filters:** Limits the number of alarms shown. You can check to see which alarm filters are enabled.
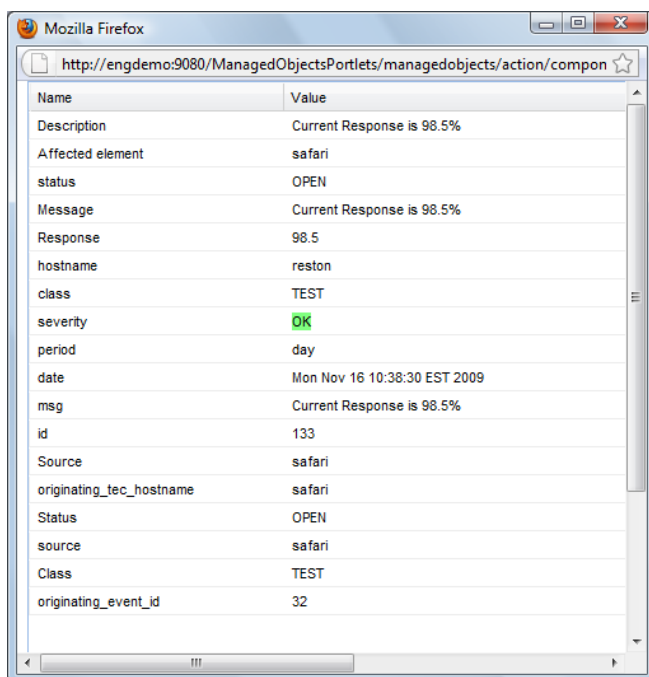
To view the *Alarms* listing:

1 Do any of the following:

  - Click a severity color indicatory to hide or show matching alarms.
  - Click any column heading to sort the rows in the table in either ascending or descending order.
  - Use the arrow or number buttons to move through data in either the alarm properties or the alarms listing.

◆ Double-click any alarm to open a list of all alarm properties in a new window.

If the Alarm Properties window becomes hidden behind the main browser window when another alarm is clicked, switch back to the Alarm Properties window to view properties on the new alarm.

◆ Click *Refresh* to refresh the data.

◆ Click *Excel* to export the data to an Excel file.

If the File Download window doesn't open, check your browser settings to see if pop-up dialog boxes are blocked.

8.1.2 Performing Alarms General Configuration

To configure preferences for the Alarms portlet:

1 Click ⬤ *Options* and select 🖉 *Preferences* and update settings on the *General* tab:

```
Alarms                                                    ↻ Return to Full Page

 ┌─────┬─────────┬──────────┐
 │Alarms│ Element │ Advanced │
 └─────┴─────────┴──────────┘
   ┌─────────┬─────────┐
   │ General │ Filters │
   └─────────┴─────────┘

Show Alarm Options                                        ☑

Alarm table width                                        │100%          │

Alarm table height                                       │300px         │

Enter a comma separated list of alarm severities to hide (i.e. CRITICAL,MAJOR will filter out all
CRITICAL and MAJOR alarms). Use an empty box to show all severities.    │              │

Enter a comma separated list of alarm columns to display. Use an empty box to show all alarm
columns.                                                 │Date/Time,Element,ID│ │...│

Enter the name of the column used for the initial sort.  │Severity      │

Check this box to perform the initial alarm sort in ascending order.    ☑

Check this box to show the alarm severity for the entire row of each alarm.    ☐

Check this box to show alarm operations for each alarm.  ☑

Check this box to allow the exporting of the alarms to Excel.    ☑

Check this box to enable automatic refresh of Portlet content.    ☑

Enable Historical Alarm                                  ☐
┌────────────┐ ┌────────────────┐
│Real-time ▼ │ │Alarms        ▼ │
└────────────┘ └────────────────┘

┌──────┐ ┌───────┐
│ Save │ │ Reset │
└──────┘ └───────┘
```

For other portlets, the *Alarms* tab is found under the *Advanced* tab.

2 Fill in the fields and select the check boxes:

Show Alarm Options: Select the check box to show alarm selectors at the top of the alarms portlet. This includes alarm type drop-down lists and update/pause buttons to apply, alarm filters by severity and options to select or unselect all alarms.

Alarm table width: The size of the table expressed as a percentage of the portlet page. Defaults to 100%.

Alarm table height: The number of rows displayed at one time in the table; expressed in pixels. Defaults to 300.

Enter a comma separated list of alarm severities to hide: To hide alarms with specific severity levels, specify the severity names (such as MINOR). You can also filter alarms by severity using the colored bar when viewing the alarms.

Enter a comma separated list of alarm columns to display: To specify alarm columns to display (and hide all other columns), specify the column names. Leave blank to display all columns. Columns available to display are dependent on the source of the alarm.

If alarms are currently displayed in the portlet, click the browse (...) button to select columns from a list based on a sampling from the current alarms. If no alarms are currently displayed in the portlet, the selector is unable to show columns to select from. Use the left and right arrow buttons to move a column name between the Available list and the Selected list. Use the up and down arrows to reorder column names.

Enter the name of the column used for the initial sort: Specify a column name to use as a sort key for displayed alarms. Severity is the default sort key. You can also change the sort key while viewing the alarms table by clicking a column heading.

Check this box to perform the initial alarm sort in ascending order: Selected by default. Deselect the check box to initially sort in descending order. Use this option or click column headings when viewing the table to change the sort order.

Check this box to show the alarm severity for the entire row of each alarm: Not selected by default; only the alarm severity column is shaded in each row. Selecting the check box shades the entire row the same color as the severity.

Check this box to show alarm operations for each alarm: Selected by default. Enables alarm operations to be performed in the Dashboard as they are on the Operations Center console. Deselect the check box to prevent users from performing alarm operations.

Check this box to allow the exporting of the alarms to Excel: Selected by default; allows exporting alarms. Deselect to remove the Excel option.

Check this box to enable automatic refresh of Portlet content: Selected by default. Enables the Dashboard to receive new data from the Operations Center server as changes occur. Deselect to manually control updates.

Enable Historical Alarm: By default, real-time alarms are shown. To show real-time audit events, service level breaches, or service level metrics, select the check box, then select the desired options from the drop-down lists.

3 Click *Save*.

8.1.3 Applying and Creating Alarm Filters

View a subset of alarms by applying a filter based on one or more alarm properties, such as severity, element ID, or date/time stamp. For example, apply a filter to display only those alarms with a specific severity message or class, or alarms received within a specific date and time range. Each filter consists of one or more conditions, combined using AND or ANY logic.

Understanding Alarm Filters

Note the following important rules about Alarm filters on portlets:

* **Alarm Filters are shared by all Alarm portlets:** A single list of alarm filters is available to users of any alarm portlet.

* **Applying an alarm filter does not change the total alarm count for each severity:** At the top of the alarms portlet (if the *Show Alarm Options* check box is selected on the *General* tab). For example, if there are a total of 100 CRITICAL alarms, but an applied filter removes these alarms from the table, 100 still displays next in the red severity button.

* **Filters are applied in the order in which they are listed:** Multiple filters are applied using the AND operator, meaning the resulting set of alarms must match all the active filters.

When *Show Alarm Options* is enabled in portlet *Preferences*, alarm count totals displays at the top of the alarms component. These alarm count totals do not change even when alarm filters are applied.

Figure 8-2 *Alarms for Script Adapter*
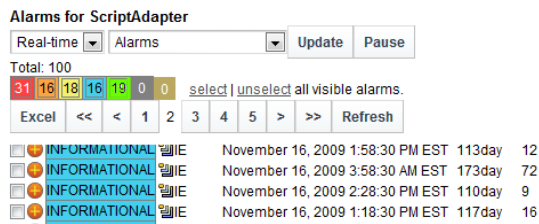
Enabling an Alarm Filter

To enable an alarm filter (or to see what is enabled):

1 Click ● *Options* and select 🖊 *Preferences* to open the *Filters* tab.

Note that for other portlets, open the *Advanced* tab to get to the *Alarms* tab.

2 Select the *Active* check box next to filters that should be applied.

Only the active filters are applied to the alarms; other filters are ignored.

3 From the *Type* drop-down list, specify if matching alarms should be included in the view or excluded from the view by selecting *Include* or *Exclude*.

4 Click *Save* to apply the settings, then click the ⬅ Return to Full Page (*Back Arrow and Return to Full Page link*) to return to the alarms view.
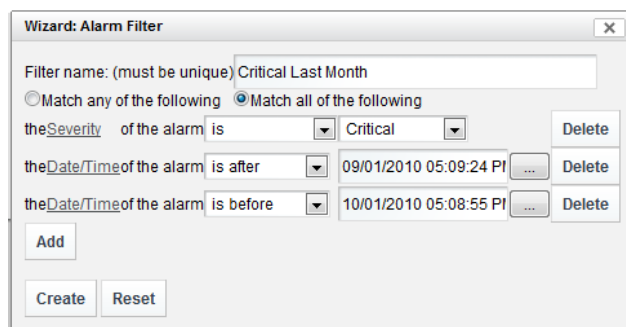
The active filters are applied and the filtered alarms display.

Creating an Alarm Filter

To create an alarm filter:

1 Click ● *Options* and select 🖊 *Preferences* to open the *Filters* tab.

Note that for other portlets, open the *Advanced* tab to get to the *Alarms* tab.

2 On the *Filters* tab, click *New Filter Wizard* to open the Alarm Filter dialog box.

3 In the *Filter Name* field, specify a name for the filter.
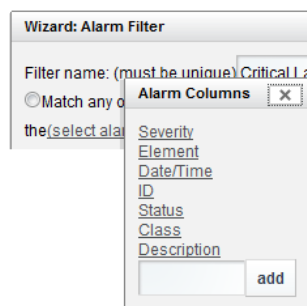
4 Click *Add* to display a filter condition row:

5 Define the condition statement by selecting the following:

◆ **Alarm Column:** Click the *Select Alarm Column* link to specify the alarm column whose values are considered.
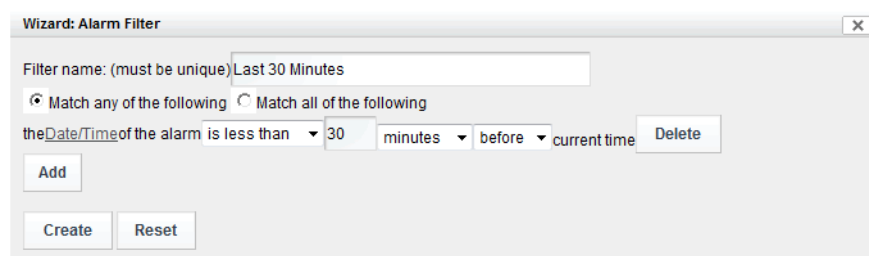
The available alarm column selectors varies depending on adapter and currently selected elements. The input field at the bottom can be used to enter a column name that is not listed. This could be used later for alarms that originate from other elements, because filters are shared by all Alarm portlets.

◆ **Operator for Comparison:** An operator is used to compare the alarm column value to a specified value (greater than, less than, and so on).

Operators and comparison value selectors vary depending on the alarm column type and adapters. For more information, see "Understanding Operators and Alarm Values" on page 138.

For example, the following condition selects alarms received within the last 30 minutes:

◆ **Comparison Value:** A comparison value is used to determine whether an alarm is selected.

When Severity is the selected alarm column, a drop-down list of severity codes and colors displays in the right column. The codes vary among adapters.

For a specific date/time comparison, use the calendar selector to select a date. In some cases, a relative "rolling" date/time comparison is necessary. For example, a filter could select alarms that are within 30 days of the current date/time. Use the "is less than" or "is more than" operator to specify the time interval for comparing the current date and time. Also specify whether the filter should pull alarms that are before or after the current date/time.
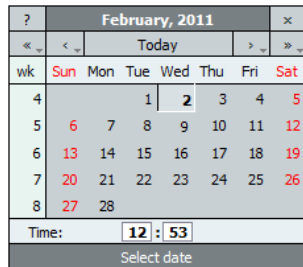
◆ **Text-Type Columns:** Specify case-sensitive matching for text-type alarm columns. Select the check box to match exactly each letter in the alarm column with the string entered in the filter field.
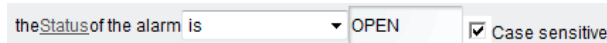
6 To define another condition, click *Add*.

The following example shows a filter with two statements.
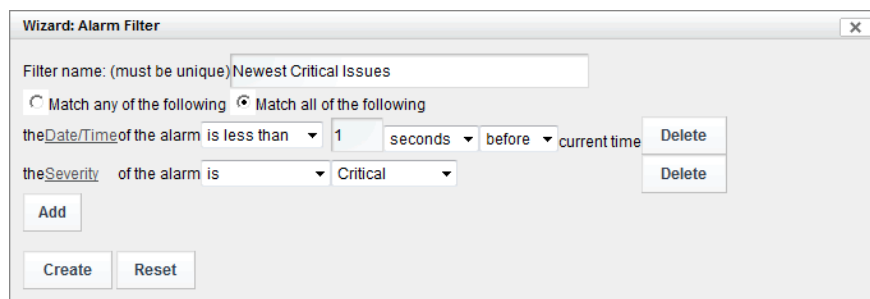
The filter matches alarms with a date and time stamp before the specified date/time and a CRITICAL severity.

7 Select the *Match any of the following* or *Match all of the following* radio button to determine whether alarms must meet any (OR logic) or all (AND logic) of the condition statements defined for the filter.

8 Click *Create* to create the filter.

Don't forget to enable the filter! See "Enabling an Alarm Filter" on page 135.

Understanding Operators and Alarm Values

Table 8-1 provides an overview of the relationships among the three fields used to define alarm filters. The available operators depend on the type of alarm column.

Table 8-1 *Relationships Among Alarm Filter Values*

Alarm Column Type	Operators	Match Criteria	Notes
Text-based (such as Element, Class, Status, Description)	contains does not contain is is not begins with ends with matches regex	Specify appropriate value based on selected alarm column.	◆ For exact matches, use is/is not. ◆ For partial matches anyplace in an alarm value, use contains/ does not contain. ◆ For partial matches using the first or last characters, use begins with/ends with. ◆ To match column content with a Java Regular Expression, use matches regex and specify the expression in the far right field. ◆ In regular expressions, standard wildcards (?) and (*) are allowed, as well as standard operators, such as OR and BETWEEN.
Date, Time	is is not is before is after	Specify Date/Time.	To select a date range, create a before and an after statement, joined by the Match all operator.
	is less than is more than	Specify a date/time interval to compare with current time. This is a relative date/time comparison.	For example, to match dates that are within 30 days earlier than the current date, use the criteria: date/time is less than 30 days before the current date.
Severity	is is not is higher than is lower than	Select from severity levels appropriate to the adapter.	Use is to not exclude all but one severity code. To select a contiguous range of severity codes, create two statements using higher than and lower than, joined by the Match all operator.

Alarm Column Type	Operators	Match Criteria	Notes
Numeric	begins with contains does not contain ends with is is greater than is less than is not	Enter the number.	For exact matches, use is/ is not.
			For partial matches anyplace in an alarm value, use contains/ does not contain.
			For partial matches using the first or last characters, use begins with/ends with.
			To select a contiguous range of values, create two statements using greater than and less than, joined by the Match all operator.
			After placing the cursor in the filter value column (the last column in the row), enter a value. Otherwise, it is not possible to edit the other columns or close the Alarm Filter dialog box. An error message prompts for a numeric value.

Editing and Deleting Filters

Alarm filters can be edited and deleted.

IMPORTANT: Ask other users who might share an alarm filter before you modify or remove it.

To edit or delete filters:

1 To edit a filter:

    1a Edit the filter.

    1b Click *Save*.

    1c Click *Edit* next to a filter name to open the Alarm Filter dialog box.

2 To delete a filter:

    2a Click *Remove* next to a filter name to display a confirmation dialog box.

    2b Click *OK* to confirm the deletion.

    The filter disappears from the *Alarm Filter* pane.

8.1.4 Performing Alarm Operations

With the alarms portlet, you can perform many of the same operations against alarms that can be performed in the Operations Center console. In some cases, as with Service Level Breaches, alarm operations available in the Dashboard are not identical to those available in the Operations Center console.

Alarms operations are enabled by default in the alarm portlet configuration. The Dashboard has a global option to show alarm operations in all portlets that is set in the Operations Center Dashboard Configuration Manager. However, the configuration options in each portlet override the settings in the Operations Center Dashboard Configuration Manager.

To perform alarm operations:

1 (Optional) Select more than one alarm by selecting the check boxes for the desired alarms.

2 Right-click the ⊕ icon for an individual alarm or for one of the selected alarms, then select the alarm operation.

    If multiple alarms are selected, alarms operations are applicable for all currently selected alarms.

    The operations available depend on the source of the alarm(s). For more information about alarms, see *Filtering and Managing Alarms* in the *Novell Operations Center 5.0 User Guide*.

8.2 Configuring the Element Properties Portlet

The Element Properties portlet displays all the properties of the selected element.

The Element Properties portlet is also available as a view from other Operations Center portlets including Alarms, Summary, Layout, Performance, Tree Map, Properties Table, Show Impacted, Root Cause, Chart Builder, Performance and Summary. Click *Actions* and select *Go to > Properties* from any of these portlets.

To configure the Element Properties portlet:

1 Click ⚫ *Options* and select 🖉 *Preferences*.
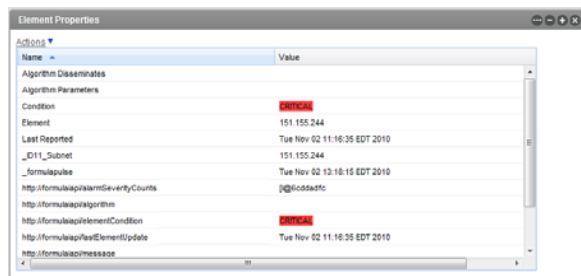
2 Click the *Element* tab to select the element to display.

    The only configuration option for the properties component is selecting the element to display.

8.3 Configuring the Layout Portlet

The Layout component displays either the *Layout View* or the *Relationship View* (created in the Relationship Browser window) from the Operations Center console. For more information about the *Layout View*, see the *Novell Operations Center 5.0 Custom Drawing and Layout Guide*. For information on the Relationship Browser drawings, see the *Novell Operations Center 5.0 Service Modeling Guide*.

The Layout portlet is also available as a view from other Operations Center portlets including Alarms, Summary, Performance, Tree Map, Element Properties, Properties Table, Show Impacted, Root Cause, Chart Builder, Performance and Summary. Click *Actions* and select *Go to > Layout* from any of these portlets.

By default, Figure 8-3 shows the element's *Layout View* and is automatically updated when the element changes in the Operations Center server:

Figure 8-3 *Layout Portlet showing a Layout view for a Demonstration Adapter*
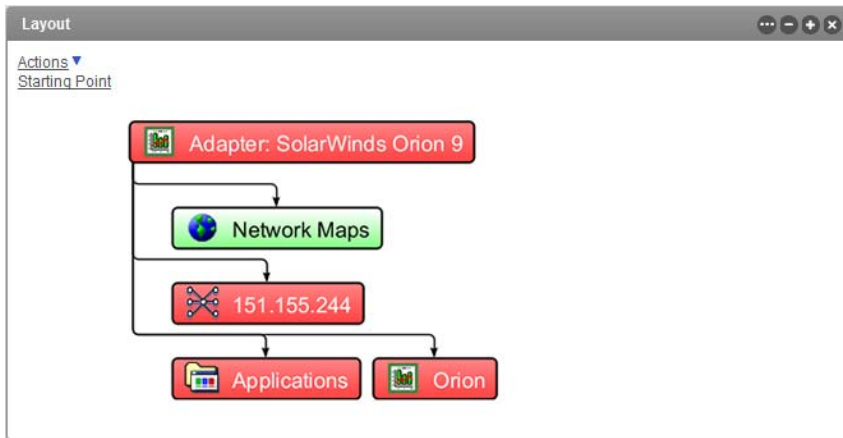
To view and configure the Layout portlet:

- ◆ Section 8.3.1, "Viewing the Property Table Listing," on page 142
- ◆ Section 8.3.2, "Configuring the Layout View," on page 142

8.3.1 Viewing the Property Table Listing

While viewing the *Property Table* listing, do any of the following:

1 Click an element to drill down.

2 Click the *Starting Point* link to return to the element first displayed.

3 Hover the mouse over an element to show the same tooltip or pop-up dialog box if a predefined tooltip or pop-up dialog box was configured for the *Layout View* on the Operations Center console:
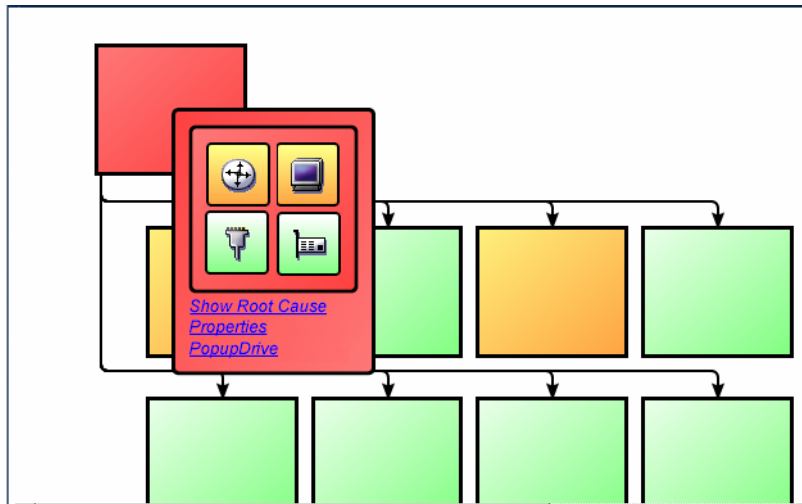
For information on how to define a tooltip/pop-up dialog box, see the *Novell Operations Center 5.0 Custom Drawing and Layout Guide*.

8.3.2 Configuring the Layout View

In order to view the *Layout* portlet/view, the Adobe SVG Viewer 3.0 must be installed on the computer. For more information about the Adobe SVG Viewer, see Section 7.6.1, "SVG Viewer," on page 127.

If the Dashboard cannot detect this plug-in, the following message displays. Follow the on-screen instructions to download and install the SVG plug-in.

Figure 8-4 *SVG Plugin Not Installed Message*
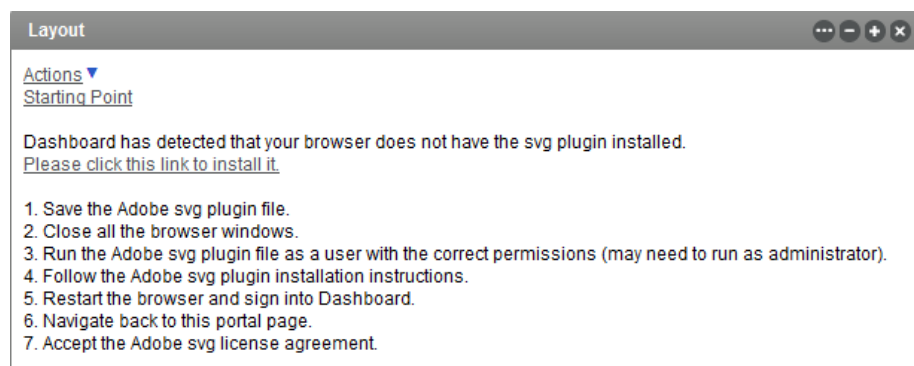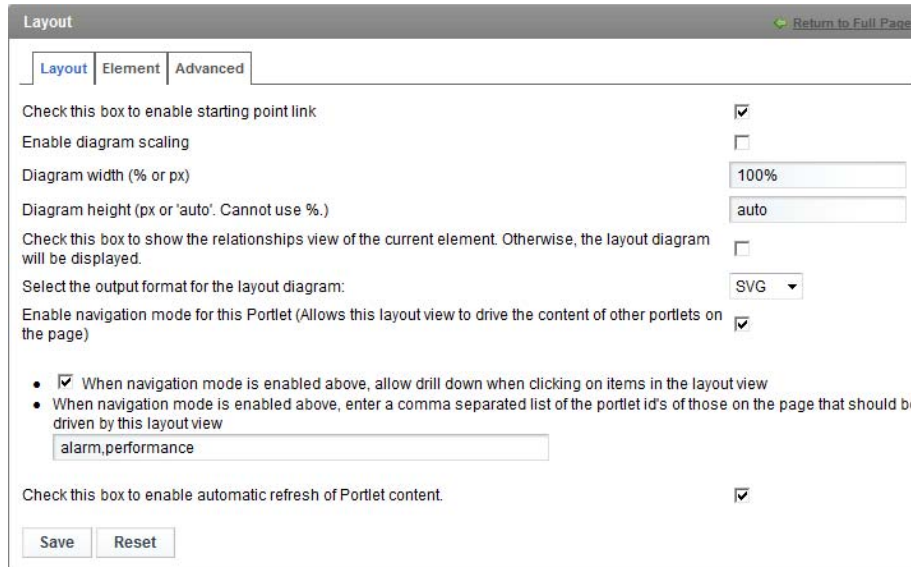
If the message continues to appear after you have successfully installed the Adobe plug-in, then verify that your browser is configured to allow Active X controls to run.

To configure the Layout portlet/view:

1 Click ⬤ *Options* and select 📝 *Preferences*.

2 Click the *Layout* tab.

For other portlets other than Layout, the *Layout* tab is found under the *Advanced* tab.

3 Fill in the fields or select the options:

Check this box to enable starting point link: Selected by default. Displays the *Starting Point* link in the diagram. Deselect to hide the *Starting Point* link.

Enable diagram scaling: Select the check box to render the SVG diagram using the specified width and height in fields below. Deselect the check box to render the diagram using the dimensions calculated by the software, which, in general, provide the best scaled view of the diagram.

Diagram width: Determines the size of the diagram within the portlet and is expressed as a percent. The default is `100%`.

Diagram height: Determines the height of the diagram within the portlet and is expressed as pixels or a percentage. The default is `auto`.

Check this box to show the relationships view of the current element. Otherwise, the layout diagram will be displayed: By default, this option is not selected and the layout diagram displays. Select the check box to show relationships between the current element and other elements.

Select the output format for the layout diagram: Select SVG or Flash.

Enable Navigation Mode for this Portlet: If selected, enables the Layout portlet to function as a driver for the content displayed in other portlets except for the Navigation portlet. Selecting an element on the Layout portlet drawing displays information about the element in

other portlets on the Web page. This feature is only available when using SVG on IE, and is not supported on Firefox. For more information about setting up portlets to be driven by other portlets, see Section 8.4, "Configuring the Navigation Portlet," on page 144.

- ◆ **When Navigation Mode is enabled above, allow drill down when clicking on items in the Layout view:** If selected, updates the Layout diagram to display children of a selected element. If not selected, the diagram does not change. The previous check box must be selected.

- ◆ **When Navigation Mode is enabled above, enter a comma separated list of portlet IDs that should be driven by this layout view:** Specify a comma-separated list of portlet IDs corresponding to portlets on the web page that should update to display information related to an element selected on the Layout portlet. For information on creating portlet IDs, see Section 8.4, "Configuring the Navigation Portlet," on page 144.

4 Click *Save* before exiting the configuration options.

8.4 Configuring the Navigation Portlet

Use the Navigation portlet to set the starting element for other portlets on a page. The Navigation portlet displays an element hierarchy with icons show the element's current condition. For more information on element status, see *Monitoring Elements and Element State* in the *Novell Operations Center 5.0 User Guide*.

The elements displayed depend on the user's permissions in Operations Center. Click the + and – icons to expand and collapse the element hierarchy displayed on the Navigation portlet.

Figure 8-5 *Navigation Portlet*
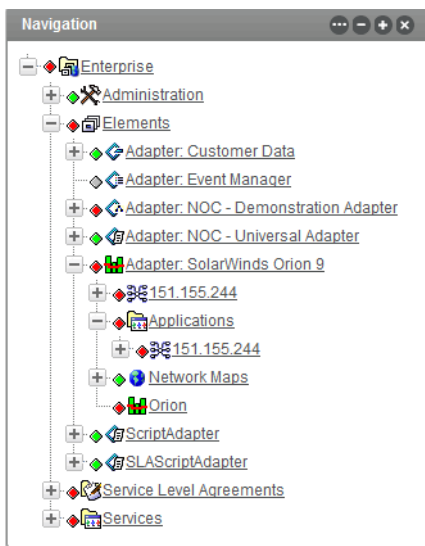
By default, the element selected on the Navigation portlet is the element shown in all portlets on the page (where applicable). This is similar to the Configuring the Starter Portlet (page 162). The default starting element is the user's home element.

If both a Navigation portlet and a Starter portlet exist on the same page, either portlet can be used to drive other portlets on the page. However, after a portlet is set up to be driven by the Navigation portlet, it is no longer driven by the Starter portlet (and vice versa), unless set up on the Starter portlet, too.

8.4.1 Configuring Display and Behavior of the Navigation Portlet

To configure the Navigation portlet:

1 Click ⬤ *Options* and select ✏ *Preferences*.

The Navigation tab opens.

2 In the *Indicator Image* drop-down, select a status icon shape, or select `None` to hide status indicators.

3 In the *Height* field, specify the height in pixels, or `auto` to allow the portlet to grow vertically as needed.

4 In the *Label Click Model* drop-down, select the expected behavior to happen when element name links are clicked:

   ◆ **Expand and Drive:** Expands the tree to show any element children and updates the content on the page.

   ◆ **Expand Only:** Expands the tree to show any element children.

   ◆ **Drive Only:** Updates the content on the page.

5 Click *Save*, then exit the preferences for the portlet.

8.4.2 Enabling the Navigation Portlet to Drive Referenced Portlets

To enable specific portlets to be driven by element selection on the Navigation portlet:

1 To set up a portlet identifier for the portlet to be driven by the Navigation portlet:

   1a Click ⬤ *Options* and select ✏ *Preferences*.

   1b Click the *Advanced* tab, then click the *Common* tab.

   1c In the *Enter portlet identifier* field, specify a unique name for the portlet.

   For example, if it is the Alarms portlet, you might enter `Alarms`.

   1d Click *Save*, then exit the preferences for the portlet.

2 To refer to the portlet on the Navigation portlet:

   2a Click ⬤ *Options* and select ✏ *Preferences*.

   2b Click the *Advanced* tab, then click the *Common* tab.

2c In the *Enter a comma separated list of portlet to drive* field, specify the identifier set up in the previous portlet.

If referencing more than one portlet on the page, use commas to separate the entries without any extra spaces.

2d Click *Save*, then exit the preferences for the Navigation portlet.

3 The Navigation portlet now drives the referenced portlets when an element is clicked on the Navigation portlet.

8.5 Configuring a Performance Portlet

The Performance portlet can create line or bar charts that graphically measure:

- ◆ **SLA Compliance:** view SLA data charts to determine if the objectives of a Service Level Agreement are being met.
- ◆ **Element Performance Metrics:** shows element performance or alarm data over time.
- ◆ **Availability:** shows element availability (not in a CRITICAL state) during a period of time.
- ◆ **Downtime:** shows element downtime (in a CRITICAL state) during a period of time.

The Performance portlet is also available as a view from other Operations Center portlets including Alarms, Summary, Layout, Tree Map, Element Properties, Properties Table, Show Impacted, Root Cause, Chart Builder and Summary. Click *Actions* and select *Go to > Performance* from any of these portlets.

The following bar chart shows the availability for a selected element:

Figure 8-6 *Performance Chart*
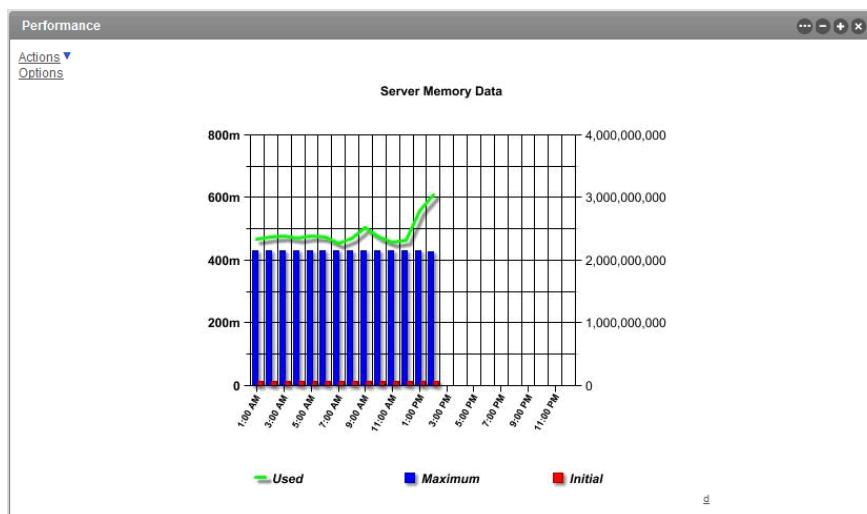
When charting raw data, increase performance by reducing the number of data points returned while preserving the natural shape of the line. For more information about configuring this custom setting, see Section 7.5.2, "Configuring Performance Data Point Retrieval from the Operations Center Server," on page 120.
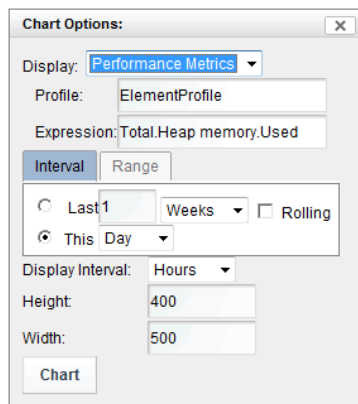
To view and define the Performance portlet:

- Section 8.5.1, "Viewing a Performance Chart," on page 147
- Section 8.5.2, "Configuring the Performance Portlet," on page 148

8.5.1 Viewing a Performance Chart

While viewing the Performance chart, do the following:

1 Click *Options* to select another metric, adjust the chart interval or range, or change the portlet size:

The *Options* link is enabled in the portlet configuration preferences to make these options available from the chart view.

Any changes made using the *Options* link apply to the chart for the duration of the session and requires the user to manually adjust the settings to return to chart defaults during that session.

For additional information on specifying chart metric settings, see Section 8.5.2, "Configuring the Performance Portlet," on page 148.

2 Click the *d* link located in the lower right to view the data used to render the chart.

For more information about viewing source data, see Section 7.4.9, "Viewing Source Data for Charts," on page 119.

8.5.2 Configuring the Performance Portlet

To configure the performance portlet:
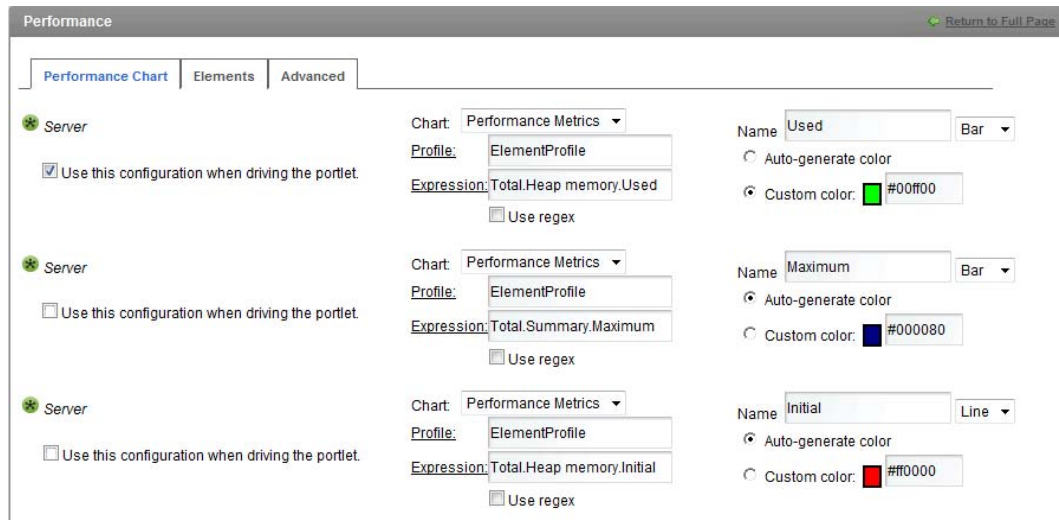
1 Click ⬤ *Options* and select ✎ *Preferences*. Begin defining the Performance component by selecting one or more starting elements.

The current starting element(s) display in the top of the *Performance Chart* tab.

To change or add elements, use the *Elements* tab.

For more information, see Section 7.4.1, "Home Element for Portlets," on page 107.

In some cases, select the same element multiple times to show more than one chart series for the element.

2 Select one of the folowing types of chart in the *Chart* drop-down list to create and define the settings:

 ◆ **Performance Metrics:** Performance metrics are based on user-defined profiles that select elements for which performance and alarm data is collected.

   After the elements are selected, expressions are added to the profile to determine which element properties are stored. For example, an expression can save the total number of alarms by severity for selected elements.

   For more information about profiles and expressions, see the *Capturing Alarm and Performance History*.

   When the Performance Metrics chart type is selected, it is necessary to select a profile and associated expression, which together determine the chart content. In some cases, it may be useful to use a regular expression to match profile expressions. For example, if the

portlet is to be driven by another portlet, and therefore the selected element is not fully predictable, regular expressions can be used to match a number of predicted expressions for the element.

Chart:	Performance Metrics ▼
Profile:	ElementProfile
Expression:	.*Heap.*
	☑ Use regex

Click the *Profile* link to select a profile.

To specify a profile expression, do one of the following:

- Select from a list of profile expressions by clicking the *Expression* link.
- Specify a regular expression to match profile expressions.
  1. Select the *Use regex* checkbox.
  2. Enter the regular expression to match in the *Expression* field.

     For example, instead of specifying `Heap memory.PS Eden Space.Committed` as the expression for the Server element, using a regular expression, we could define any of the following:

     - **[ABCH]eap.*** Match any expression that has A,B,C or H in the beginning of theword.
     - **.*Heap.*** Match any expression that has "Heap" in its name.
     - **^Heap.*** Match any expression that begins with Heap.
     - **\Deap.*** Match any expression that begins with a non-digit and then has "eap".
     - **[^abc]eap.*** Match any expression that does begin with a,b or c and then has "eap".

     Regular expressions must conform to the Java standard regexes. For more information, go to the Java API for java.util.regex.Pattern (http://download.oracle.com/javase/1.4.2/docs/api/java/util/regex/Pattern.html).

- **SLA Data:** SLA data charts show if the objectives of a Service Level Agreement are being met.

  To define an SLA Data chart, select an existing Service Level Agreement and one of its objectives by clicking the *SLA* and *Objective* links, then select one of the metrics to include in the chart.

  For details on defining SLAs, see the *Novell Operations Center 5.0 Service Level Agreement Guide*.

Chart:	SLA Data ▼
SLA:	Standard Availability
Objective:	Availability - On
Metric	Availability ▼

To select a *Metric* option, choose from:

- **Availability:** The amount of time that a service is operational.

- **Breaches:** Breach alarms are issued for an SLA when an objective is out of compliance (fails). The defined health rules determine when an SLA is in violation.

- **Condition:** Tracks element conditions over time.

- **Health:** Health grades assigned to an SLA based on the health of each objective. Operations Center uses health as a measurement for whether the SLA is in or out of compliance.

- **Outages:** Incidents that result in key services, such as data or call centers, becoming unavailable (going offline). An outage occurs when an element reaches or goes below a specified condition.

- **Key Metric:** Formed from querying data in an external data source. (The key metric can then be used to determine SLA compliance by defining a calculation objective for the element based on the SLA Metric Catalog properties.)

- **Availability:** The Availability chart shows element availability (not in a CRITICAL state) during a period of time:

Chart: Availability ▼
Calendar Default ▼

Failures are highlighted in red and are easy to identify at a glance.

(Optional) Select a calendar to apply when determining availability.

- **Downtime:** The Downtime chart shows element downtime (in a CRITICAL state) during a period of time:

Chart: Downtime ▼
Display in Minutes ▼
Calendar Default ▼

Specify the time intervals to use when displaying downtime.

(Optional) Select a calendar to apply when determining downtime.

3 (Optional) In the *Name* field, specify a custom name for the series.

The name can display in the chart legend and/or the chart title. If left blank, the default name is formatted as *ElementName*,*Profile*,*Expression* for Performance Metrics charts and *ElementName*,*SLA*,*Objective* for SLA data charts.

4 (Optional) Specify a chart format for the series by selecting *Line* or *Bar* from the drop-down list.

5 (Optional) Do one of the following to specify the color for the data series.

- Select the *Auto-generate color* radio button to have the color randomly selected.

- Select *Custom color* radio button, then enter a six-character hex color value in the *Custom color* field.

6 (Conditional) Click the *Use this configuration when driving the portlet* check box to use the associated configuration settings when the portlet is updated from an element selection in another portlet.

In this scenario, even though the element changes, the portlet continues using the selected configuration settings for charting the new element including chart type and other chart selections, as well as labels, type, and color selections as defined in this configuration.

When more than one configuration has this option selected and regular expressions are in use (Perormance Metrics only), the Performance portlet uses settings from the configuration that first matches a profile expression for the element.

7 Repeat thru for each of the elements to chart.

8 To specify time control settings for the chart, by selecting one of the following:

    ◆ **Interval:** Defines a fixed interval.

        Select only the current (This) hour/day/week/month or select multiple intervals (Last…).

        If *Last* is selected, select *Rolling* to calculate the interval using the current time as the ending of the interval. If rolling is unselected, the interval is calculated in full units and the end of the interval is the end of the preceding unit of time. For example, if the current time is 4:35pm and the interval is for the last 2 hours, without rolling the interval is 2-4pm. Whereas with rolling selected, the interval is 2:35-4:35pm.

        Specify the time interval displayed in the chart: Minutes, Hours, Days, Weeks or Months.

    ◆ **Range:** Specifies a start and end date.

        Click inside the *To* or *From* fields to open a calendar, then select a date.

        Specify the time interval displayed in the chart: Minutes, Hours, Days, Weeks or Months.

9 (Optional) To enable chart view time options, select the *Show chart controls on the View page* check box.

The *Options* link displays on dashboard pages. If this option is deselected, users must go into the portlet Preferences to adjust any chart selections.

10 Customize the chart format and appearance using any of the chart title and size, output file format, line axis or x axis appearance, and date format options:

Chart Option	Description
Chart	◆ **Title:** Specify a title for the chart. This displays at the top of the chart. Use the variable `$element$` to dynamically populate the chart title with the element name(s). For example, `Performance Data for $element$` shows the following title when the chart includes two elements: Performance Data for *Server1_Name*, *Server2_Name* ◆ **Title Style:** Specify the font name, style and size to use for the chart title. The default is `Name:Helvetica; Size:12.0; Style:Bold;.` Changing the title color is optional. ◆ **Width:** The chart height as a percentage. ◆ **Height:** The chart width as a percentage. ◆ **Output Format:** The type of file that the chart generates: FLASH, JPG, or PNG.
Line Axis	◆ **Grid Color:** A six-character hex color value to use for the color of horizontal grid lines. ◆ **Tick Style:** Specify the style of the tick marks on the vertical axis. The default `Name:Helvetica; Size:12.0; Style:Bold;.` Changing the tick mark color is optional. ◆ **Label:** Specify the text used to label the vertical axis. ◆ **Label Style:** Specify the font name, size and style to use for the vertical axis label. The default is `Name:Helvetica; Size:12.0; Style:Bold;.` Changing the label color is optional.
X axis	◆ **Grid Color:** A six-character hex color value to use for the color of vertical grid lines. ◆ **Tick Style:** The style of the tick marks on the horizontal axis. The default `Name:Helvetica; Size:12.0; Style:Bold;.` Changing the tick mark color is optional. ◆ **Label:** Specify the text used to label the horizontal axis. ◆ **Label Style:** Specify the font name, size and style to use for the horizontal axis label. The default is `Name:Helvetica; Size:12.0; Style:Bold;.` Changing the label color is optional.
Date Format	◆ **Year:** The syntax used to display the chart year. Defaults to yyyy. ◆ **Month:** The syntax used to display the chart month. Defaults to MMMM. ◆ **Week:** The syntax used to display the chart week. Defaults to MM/d. ◆ **Day:** The syntax used to display the chart day. Defaults to MM/d. ◆ **Hour:** The syntax used to display the chart hour. Defaults to hh:mm:a. ◆ **Minute:** The syntax used to display the chart hour. Defaults to hh:mm.

11 To plot all available data points, select the *Show Raw Data* check box.

All data points are plotted on the chart regardless of the time interval selected.

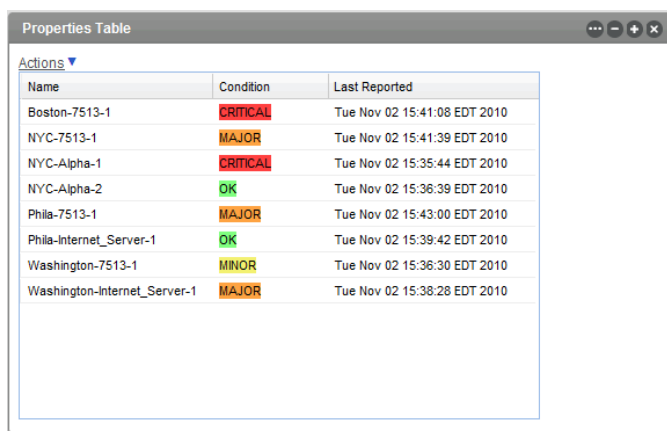If the option is not selected, the chart plots 24 points for a day.

When the *Show Raw Data* check box is enabled, it is possible to increase performance by reducing the number of data points returned while preserving the natural shape of the line. For more information about configuring this custom setting, see Section 7.5.2, "Configuring Performance Data Point Retrieval from the Operations Center Server," on page 120.

12 To display the date and time the chart was last updated, select the *Show last updated date/time* check box.

13 Click *Save*.

8.6 Configuring the Properties Table Portlet

The Properties Table portlet provides a summary view of an element and its children. It can be customized for the number of properties shown and the order that they display.

Figure 8-7 *Properties Table Portlet*

The Properties Table portlet is also available as a view from other Operations Center portlets including Alarms, Summary, Layout, Tree Map, Element Properties, Show Impacted, Root Cause, Chart Builder, Performance and Summary. Click *Actions* and select *Go to > Properties Table* from any of these portlets.

- Section 8.6.1, "Viewing the Properties Table Listing," on page 153
- Section 8.6.2, "Configuring the Portlet Properties Table," on page 153

8.6.1 Viewing the Properties Table Listing

To view the *Properties Table* listing:

1 To sort data by severity, click the *Condition* heading.

2 To sort the data in descending or ascending order according to that property, click any column heading.

8.6.2 Configuring the Portlet Properties Table
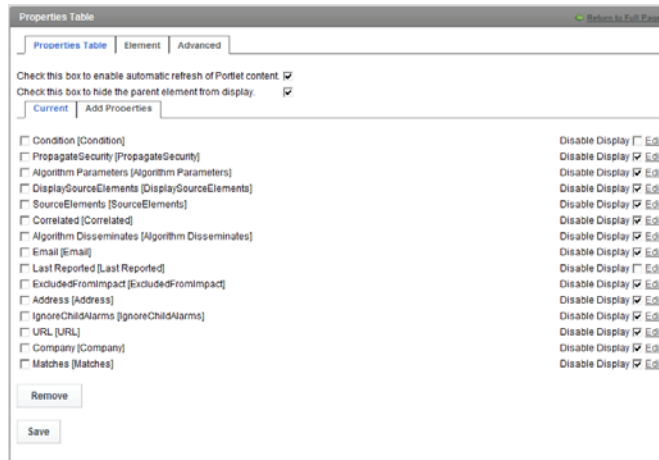
- "Configuring Columns for the Properties Table" on page 154
- "Adding Properties" on page 154

Configuring Columns for the Properties Table

To configure column heading for the Properties Table:

1 Click ● *Options* and select 🖉 *Preferences*.

The columns currently displayed appear on the *Current* tab.

2 To remove the column from the Properties Table display without deleting it from Preferences, select the option's *Disable Display* check box.

3 To edit any of the properties, click the associated *Edit* link.

4 After making the necessary configurations, click *Save*.

Adding Properties

To add a new property to the *Properties Table*:

1 Click *Add Properties*.

2 Specify the following options:

Enter the name to be used as the header of the column: Specify the name to display on the portlet.

Enter the property name to be retrieved from Novell Operations Center: Specify the name of the Operations Center property.

Enter text to be displayed before the property value (i.e., $): (Optional) Specify any text to display in front of the property's value.

Enter text to be displayed after the property value (i.e., %): (Optional) Specify any text to display after the properties value.

Check this box to enable the display rules below: If enabled, use the selectors to set a value at which the background is highlighted, then specify a background color.

3 Click *Add Property* to save the settings.

4 Click the *Current* tab to specify the display order for the new property.

8.7 Configuring the Public End User View Portlet

The Public End User View portlet provides a quick indication of status to guest users (not logged into the Dashboard and Operations Center).

Figure 8-8 *Public End User View Portlet*
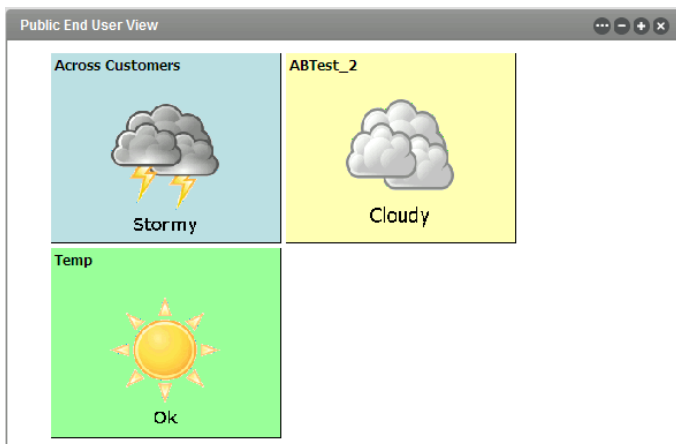
Elements display with a graphical status indicated by a weather condition graphic. In the illustration, the state of the elements is as follows:

- Across Customer is currently in a critical state
- ABTest_2 is currently in a minor state
- Temp is currently in an OK state

For more information on elements and their various states, see *Monitoring Elements and Element State* in the *Novell Operations Center 5.0 User Guide*.

When this portlet is added to a private or community page, logged in users can see the elements for which they have View permissions in the Operations Center server. They can also configure the elements displayed using the Elements tab in the preferences.

To enable guest users view the Public End User View portlet:

1 Log in to the Dashboard.

2 Add the portlet to a public dashboard Web page.

3 To set the log in credentials for the portlet on the *Home* tab of the preferences:

    3a On the portlet title bar, click 🔵 *Options* and select 📝 *Preferences*.

    3b Click the *Home* tab.

    3c Specify the *Login* and *Password* for a user who has the permissions required to view the selected elements.

    3d Click *Save*.

4 To set the configuration option for the portlet to allow guest users to view the portlet:

    4a On the portlet title bar, click 🔵 *Options* and click the ⚙ (*Configuration*) icon. The *Permissions* tab displays.

    4b Configure Guest permissions as desired.

    4c Click *Submit*.

5 Select the elements to be displayed using the Elements tab of the preferences.

8.8 Configuring the Root Cause Portlet

The Root Cause portlet displays both a summary and details regarding the cause of the selected element's current state.

The Root Cause portlet is also available as a view from other Operations Center portlets including Alarms, Summary, Layout, Tree Map, Element Properties, Properties Table, Show Impacted, Chart Builder, Performance and Summary. Click *Actions* and select *Go to > Root Cause* from any of these portlets.

Figure 8-9 *Root Cause Portlet Displaying the Root Cause Component with Display Notes Selected*
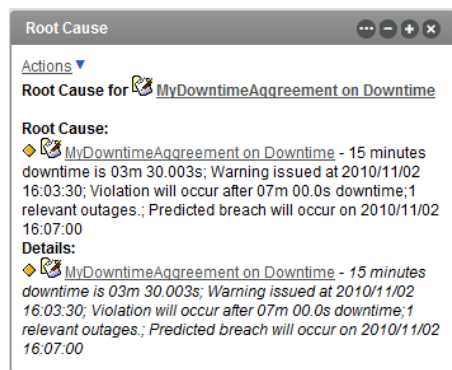
Element state is indicated by a status icon, the color of which corresponds to the element's current condition that is mapped to colors in the Operations Center server. For more information about element condition settings, see *Managing Condition/Severity Colors* in the *Novell Operations Center 5.0 User Guide*.

Element details can vary by the type of element and the alarms associated with it. Details, which is a configuration turned off by default, can include the number of active alarms, the highest alarm severity, the alarm id numbers, and so on.

To configure the Root Cause portlet:

1 Click ⬤ *Options* and select ✏ *Preferences*.

2 Click the *Root Cause* tab.

For other portlets other than Root Cause, the *Root Cause* tab is found under the *Advanced* tab.

3 Select the *Display Notes* check box to display more details for each element.

8.9 Search Portlet

The Search portlet is used to find elements in the Operations Center hierarchy.

Figure 8-10 *The Search Portlet*

View information about the properties of found elements in the search results. Or, use it to update the starting elements in other portlets by selecting one of the found elements. In addition, you can

- Section 8.9.1, "Configuring Search Parameters," on page 157
- Section 8.9.2, "Configuring Properties for Found Elements," on page 159

8.9.1 Configuring Search Parameters

1 To search for elements, enter the element name or a portion of the name and a wildcard (*), then click *Search*.

This is the default type of search.

Define other types of searches using the search parameters.

2 To set search parameters, click ⬤ *Options* and select ✏ *Preferences*.

They appear in the default theme when you hover the mouse over the right side of the title bar.

3 Click the *Search* tab, then click the *Configuration* tab:

4 To search for elements based on an element name and a property:

Enter the Label for the Name Input Field: By default, the search is conducted by element name. In the *Enter the label for the name input* field, replace "Name" with the exact element name to locate. You can also enter a portion of the element name and a wildcard (*).

Enter a Property to Search By: (Optional) Search for an element property by typing the property name as it appears in Operations Center. Also specify a text description of the property in the *Enter the property name for search dialog display* field; this can aid users in knowing what to enter for the search.

5 To narrow the search, add the following criteria:

Class: To limit the search to elements of a specific class, enter the class name as it appears in Operations Center. The search results include elements in that class only. For more information about classes, see the *Novell Operations Center 5.0 Service Modeling Guide*.

Condition: To limit the search to elements of a specific condition, enter the condition as it appears in Operations Center. For more information on element conditions, see *Managing Condition/Severity Colors* in the *Novell Operations Center 5.0 User Guide*.

Scope: Restrict the search to only the top level at which the element is first found by selecting TOPLEVEL. To include child elements of the first found element, select *SUBTREE*.

Depth: Select the number of levels to search for elements. The default is 10.

Timeout: To prevent the search from running indefinitely, add a timeout value as the number of minutes. The default is 1.
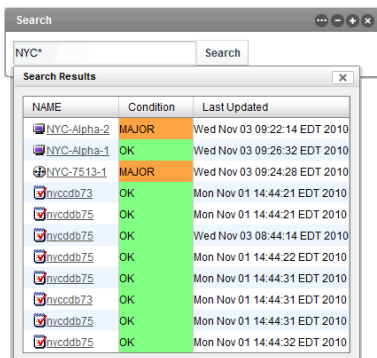
TIP: Consider implementing options that sets limits on search results. Restricting the search results can be helpful to reduce the amount of time it takes for users to obtain results.

---

6 To provide users with the option of setting the maximum number of results before conducting the search, select the *Display max results option in search dialog* check box.

7 (Optional) Add a text description for this field in the *Enter the label for max results input* field. The description displays on the Search portlet.

8 Selecting this option displays a value in the *Number of results to display* setting on the Search portlet; the default is 20. If set to 0, then no limit is set and all results are returned. The user can change this value.

9 Click *Save* to save the search configuration.

8.9.2 Configuring Properties for Found Elements

By default, elements found using the Search portlet display the element condition, including both the condition severity text and associated color. Other properties associated with an element in the Operations Center server might also be displayed. For more information on properties in Operations Center, see *Viewing Element Properties* in the *Novell Operations Center 5.0 User Guide* and *Novell Operations Center 5.0 Service Modeling Guide*.

Figure 8-11 *Search Portlet with Eleven Results*

To configure properties for found elements:

- "Adding Properties Displayed in Search Results" on page 159
- "Setting the Order in Which Properties are Displayed" on page 160

Adding Properties Displayed in Search Results

To add properties displayed for elements found after a search:

1 Click ⬤ *Options* and select 📝 *Preferences*.

2 Click the *Search* tab, then click the *Add Properties* tab:

3 Fill in the fields:

Name for the header of the column: Enter the name to display in the column to describe the property. This field is required. It can be any text.

Name of property to retrieve from Operations Center: Enter the property name as it appears in Operations Center. The name is required, is case-sensitive and must match exactly. For more information on properties in Operations Center, see *Viewing Element Properties* in the *Novell Operations Center 5.0 User Guide*.

Text to be displayed before the property value: To display anything before the property value, such as a dollar sign ($), enter it here.

Text to be displayed after the property value: To display anything after the property value, such as a % sign, enter it here.

Rules for setting the background color: Options to set the background color of the property value to match a specific condition if the property value is equal to, greater than (>), or less than (<) a specific numeric value.

The colors are mapped to conditions on the Operations Center console. For more information, see *Managing Condition/Severity Colors* in the *Novell Operations Center 5.0 User Guide*.

Setting the Order in Which Properties are Displayed

To set the order that the properties are displayed and edit the properties displayed:

1 Click the *Current* tab:

2 After selecting properties to display for elements found after a search, edit a property by clicking *Edit*.

The options are the same as when you added the property. The properties display in a table after the search is complete according to the order that they were added.

3 Click the up and down arrows next to the property to change the order.

4 Click *Save* after making any changes.

5 To remove a property, select it, then click *Remove*.

WARNING: This option cannot be undone.

6 Click *Update* to save all changes.

8.10 Configuring the Show Impacted Portlet

The Show Impacted portlet shows the elements that are affected by the current state of the selected element in both a summary view and a detailed view.

The Show Impacted portlet is also available as a view from other Operations Center portlets including Alarms, Summary, Layout, Tree Map, Element Properties, Properties Table, Root Cause, Chart Builder, Performance and Summary. Click *Actions* and select *Go to > Impacted* from any of these portlets.

Figure 8-12   *Show Impacted Portlet Displaying Impacted Component with Display Notes Selected*
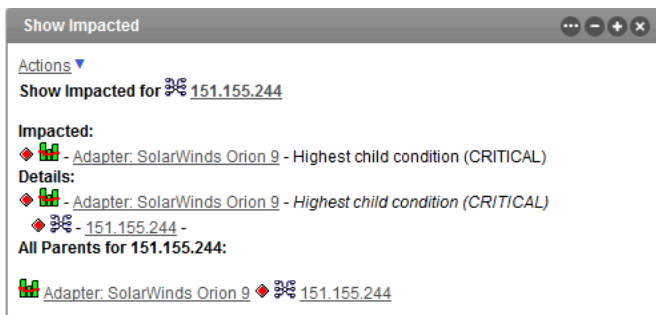
Element state is indicated by a status icon, the color of which corresponds to the element's current condition that is mapped to colors in the Operations Center server. For more information about element condition settings, see the *Managing Condition/Severity Colors* in the *Novell Operations Center 5.0 User Guide*.

Element details can vary by the type of element and the alarms associated with it. Details, which is a configuration turned off by default, can include the highest child condition, the highest alarm severity, the number of active alarms, the number of active critical alarms, and so on.

To configure the Impacted portlet/view:

1 Click ⬤ *Options* and select 🖉 *Preferences*.

2 Click the *Impacted* tab.

For portlets other than Show Impacted, the *Impacted* tab is found under the *Advanced* tab.

3 Select the *Display Notes* check box to display more details for each element.

8.11 Configuring the Starter Portlet

The element displayed on the Starter portlet is the starting element for all the portlets on the page. The Starter portlet initially shows the home element for the user.

You can select an icon to display as a status indicator for the element. The color of the icon identifies its current condition. The color is based on the colors set for condition in the Operations Center server. For more information, see *Managing Condition/Severity Colors* in the *Novell Operations Center 5.0 User Guide*.

Figure 8-13   *Starter Portlet*

To change the starting element for all portlets on the page:

1 On the Starter portlet, Click *Options* and select *Preferences*.

2 Click the *Advanced* tab to access the *Elements* tab.
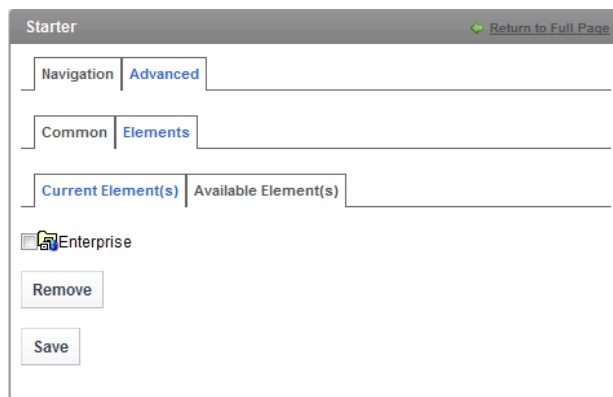
The current start element displays on the *Current Element* tab.

3 Click the *Advanced Element* tab.

4 Use the Search or Navigate tabs to locate, then select one or more elements.

5 On the *Current Element* tab, click *Save*.

6 Click the *Navigation* tab to select the status indicator icon.
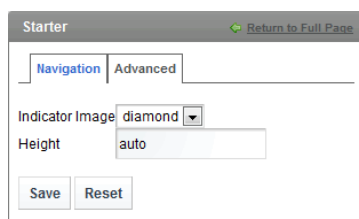
7 Select one of the following for the status indicator icon:

- ◆ *Diamond*
- ◆ *Square*
- ◆ *Oval*
- ◆ *Arrow*
- ◆ *None*

The default is the diamond.

Click *None* to use no status indicator icon.

8 Specify the number of pixels in the *Height* text box to set the size of the portlet height.

9 Click *Save*.

8.12 Configuring the Status Portlet

The Status portlet shows the current condition of one or more elements. The condition color is the same severities as shown on the Operations Center console. For more information about element condition and the color indicators, see *Managing Condition/Severity Colors* in the *Novell Operations Center 5.0 User Guide*.

The Status Portlet can also be used to set the starting element for other portlets on the Web page, similar to the Configuring the Navigation Portlet (page 144).

Figure 8-14 *Status Portlet*

- ◆ Section 8.12.1, "Viewing the Status Portlet," on page 163
- ◆ Section 8.12.2, "Configuring the Status Portlet," on page 164

8.12.1 Viewing the Status Portlet

To view a Status portlet:

1 Hover the mouse over the name of the element to view any available element information or any menu options.

You might see the date and time that the element was last updated, notes for the element, and links to other components.
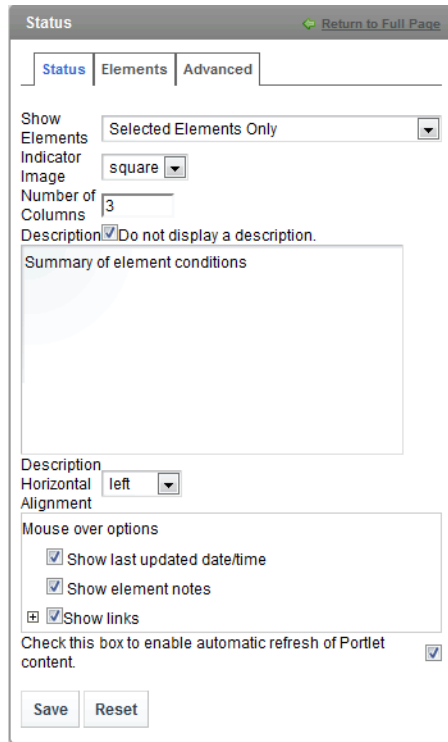
2 If the Status Portlet is being used as a driver portlet, click any element to update other portlets on the page.

8.12.2 Configuring the Status Portlet

You can configure the type of icon displayed shown on the Status portlet. By default, the condition is automatically updated when the element's condition changes in the Operations Center server. You can turn off this option in the preferences.

To configure the Status portlet:

1 On the portlet title bar, click ⦿ *Options* and select 🖉 (*Preferences*). Click the *Status* tab.

Note: For other portlets other than Status, the *Status* tab is found under the *Advanced* tab.

2 Set the various options on the Status portlet:

The following options configure the Status portlet to display the condition of an element:

Show Elements: Show selected elements only, selected elements with children elements, or selected elements children elements only. Regardless of the selection, the Dashboard implements user permissions as assigned in Operations Center. A user must have permission to view an element in order to see its status. For more information on permissions, see the *Novell Operations Center 5.0 Security Management Guide*.

Indicator Image: Select a square, oval, or arrow for the type of icon to display the current condition. The default is a square.

Number of Columns: Enter a number and the portlet calculates how to display the elements using the specified number of columns. The default is 3.

Description: Specify a description for the portlet information in the Description text area. HTML coding is accepted in the text description. Use HTML for additional formatting, such as font style or line breaks. Click the *Description Horizontal Alignment* list, then select left, right, or center to display the descriptive text horizontally.

Select the *Do not display a description* check box to use no description on the portlet.

Show last updated date/time: Select this check box to show the last date and time that the element was updated, when the mouse hovers over the element.

Show element notes: Select this check box to show all comments saved for the element on the Operations Center console, when the mouse hovers over the element. For more information on comments associated with elements, see *Monitoring Elements and Element State* in the *Novell Operations Center 5.0 User Guide*.

Show links: Select this check box to show links to additional components, when the mouse hovers over the elements, then select the components to show links for. Click the *Advanced* tab to configure the options for each component.

Enable automatic refresh of Portlet content: Select this check box to enable automatic updates of the condition of elements displayed. The condition of an element changes automatically when the condition changes in the Operations Center server. Deselect the check box to control updates manually.

3 Click the *Element* tab to select the elements to display.

4 For options to use the Status portlet to set the starting element of other portlets on the Web page, click the *Advanced* tab, then click the *Common* tab.

The options are the same as for the Configuring the Navigation Portlet (page 144).

5 Be sure to click *Save* before exiting the configuration options.

8.13 Understanding the Summary Portlet

The summary view on the Summary portlet shows the total number of alarms for the element. It also shows a breakdown of the number of alarms by severity as indicated by color in the pie chart. No actions can be taken in this portlet and there are no configuration options except to select the element to display.

Figure 8-15 *Summary Portlet*
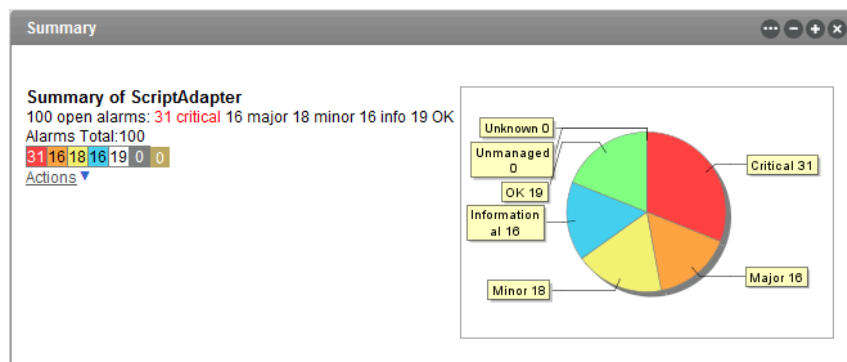
8.14 Configuring the Tree Map Portlet

A tree map allows you to visualize data significance. The size of a square provides an indication of the data element's importance either by condition or alarm count. And, the color of each square represents its severity.

The Tree Map portlet is also available as a view from other Operations Center portlets including Alarms, Summary, Layout, Element Properties, Properties Table, Show Impacted, Root Cause, Chart Builder, Performance, and Summary. Click *Actions* and select *Go to > Treemap* from any of these portlets.

Figure 8-16 *Tree Map Portlet*
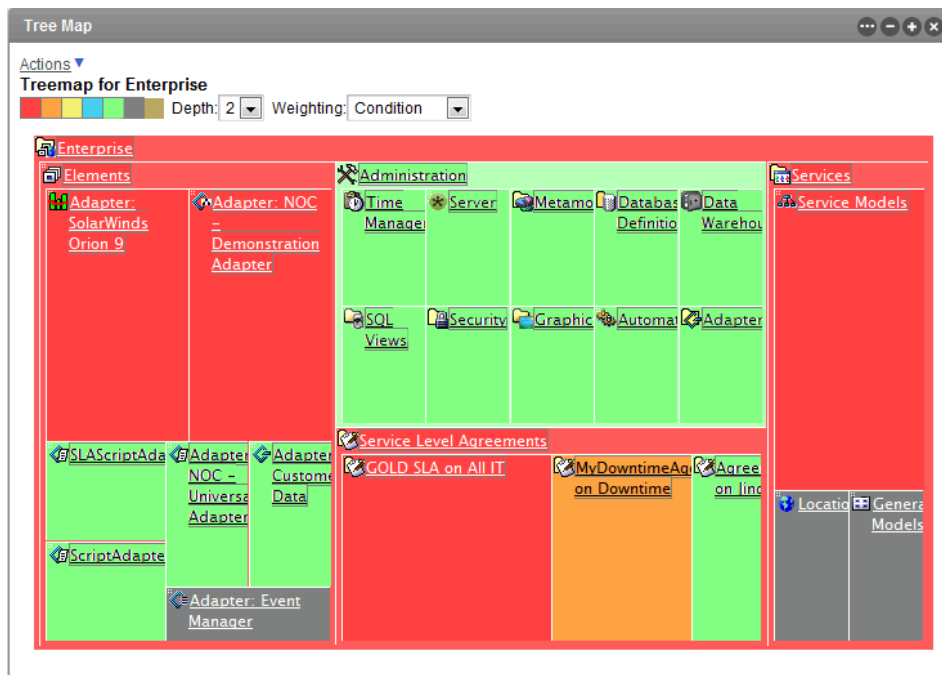
- Section 8.14.1, "Changing the Tree Map Portlet Display," on page 166
- Section 8.14.2, "Configuring the Tree Map," on page 167

8.14.1 Changing the Tree Map Portlet Display
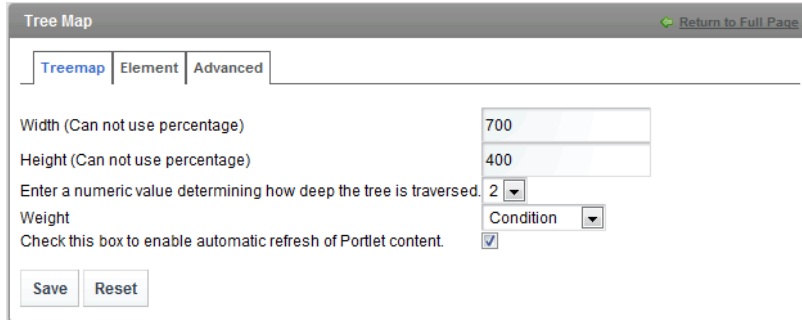
While viewing a Treemap portlet, do the following options to change the display:

1 To hide elements based on their color, click the color in the color bar.

The color indicators for severity are set on the Operations Center console.

For more information, see *Managing Condition/Severity Colors* in the *Novell Operations Center 5.0 User Guide*.

2 To change how the element is evaluated to determine the size of the square, click the *Weighting* drop-down to select between *Condition* or *Alarm Count*.

Use the *Depth* drop-down list to specify the number of levels traversed to calculate the value for the weight of the element.

3 To drill down into the hierarchy, click the name in a square.

8.14.2 Configuring the Tree Map

To configure the Tree Map portlet/view:

1 Click ● *Options* and select ✎ *Preferences*.

2 Click the *Tree Map* tab.

For other portlets other than Tree Map, the *Tree Map* tab is found under the *Advanced* tab.

3 Fill in the fields:

Width: Sets the width of the tree map within the portlet and is expressed as pixels. The default is 400.

Height: Sets the height of the tree map within the portlet and is expressed as pixels. The default is 300.

Numeric value determining how deep the tree is traversed: Sets the default number of levels the tree is traversed and the default depth option when viewing the tree map.

Weight: Sets the default the weight value.

Check this box to enable automatic refresh of Portlet content: Enables the Dashboard to receive new data from the Operations Center server as changes occur. Selected by default.

4 Click *Save*.

SLA Reporting Portlets

<div style="text-align: right; font-size: xx-large">9</div>

This section describes how to use portlets that are designed to create reports using Service Level Agreement (SLA) data from Operations Center. For more information about SLAs, see the *Novell Operations Center 5.0 Service Level Agreement Guide*.

9.1 Understanding the SLA Reporting Portlets

The Service Level Manager (SLM) is required in Operations Center to store and use data related to SLAs. The SLM is a separate product that has its own licensing. For more information about the SLM, see the *Novell Operations Center 5.0 Service Level Agreement Guide*.

Reports related to SLA compliance and availability provide data on the compliance/health, availability, and downtime for Service Level Agreements and objectives. You can use predefined portlets in the Dashboard to create the following types of reports that use data related to SLAs compliance and availability:

- **SLA Compliance:** a detailed view that shows health, downtime, availability, outages, and breaches related to SLAs for specified elements over a specified interval of time.
- **SLA Status:** shows the compliance/availability from a status or summary perspective with links to SLA Compliance reports.

SLA data from Operations Center can also be accessed via the Alarm portlet and the Performance portlet. For more information about the Alarms Portlet, see Section 8.1, "Configuring the Alarms Portlet," on page 130. For more information about the Performance portlet, see Section 8.5, "Configuring a Performance Portlet," on page 146.

9.1.1 Generating SLA Report Portlets

The SLA-related portlets allow you to set when the report data is generated (for example, when the portlet receives new data from the Managed Objects server). The options are:

- **Live:** Whenever the user clicks on the portlet, the report data is generated in real-time.
- **Scheduled:** You set when the portlet generates report data. Data is cached for better performance.

    For more information about scheduling, see Section 7.5.4, "Scheduling Portlets," on page 122.

- **Ad hoc:** *(SLA Compliance Portlet only)* Allows a user to run a report again, on-the-fly, with new selections for time categories, date range/date interval and exception-based reporting options. These selections do not affect saved portal report setup and are not retained after the user logs out of the portal. See Section 9.2.3, "Regenerating the Report with Ad-Hoc Options," on page 177.

If you do not set a report to be either live or scheduled, the data in the report is current as of the time of the initial report display. For example, if the report is run at 4:16 p.m., all of the tabs show data as of 4:16 p.m.

9.1.2 SLA Report Portlet Options

These reports have the following helpful options for configuring SLA reporting:

- ◆ (*SLA Status Report Only*) Allow the user to select the element to use by configuring a Starter portlet, Navigation portlet, Search portlet, or Status portlet to dynamically control element selection for a SLA Status portlet implemented within the same portal page.

  For more information about setting up user navigation to drive the *SLA Status* portlet, see Section 9.3.3, "Setting Up User Navigation to Drive an SLA Status Portlet," on page 181.

- ◆ Report scheduling to set when data for the report is generated.

  For more information about report scheduling, see Section 7.5.4, "Scheduling Portlets," on page 122.

- ◆ (*SLA Compliance Report Only*) Allow the user to rerun the report with new selections for time categories, date range/date interval and exception-based reporting options.

  For more information about ad-hoc options, see Section 9.2, "Configuring the SLA Compliance Portlet," on page 171 and Section 9.2.3, "Regenerating the Report with Ad-Hoc Options," on page 177.

- ◆ Time zone setting to customize data display for international users.

9.2 Configuring the SLA Compliance Portlet

The SLA Compliance portlet displays compliance/agreement health or availability/downtime data, outage counts, breaches counts, root cause, and a detailed listing of all outages and breaches for specified intervals of time.

Health/compliance, availability, or downtime for agreements and objectives (OLA) are shown in a calendar view. This report can include charts of the agreement health or downtime or availability, lists of outages, and lists of breaches. Data can be shown at various levels of detail (for example, year, month, week, day, hour, minute). The *Show Key Metric* feature can chart the objective value being measured as a percentage or inverted value.

The report portlet can reveal up to six reports, or tabs, of information for the user:*Compliance/ Availability*, *Root Cause*, *Breaches*, *Details*, *Charts*, and *Outages*. These tabs can be hidden from display with report settings found in *Preferences*.

Figure 9-1   SLA Compliance Portlet showing the Compliance tab
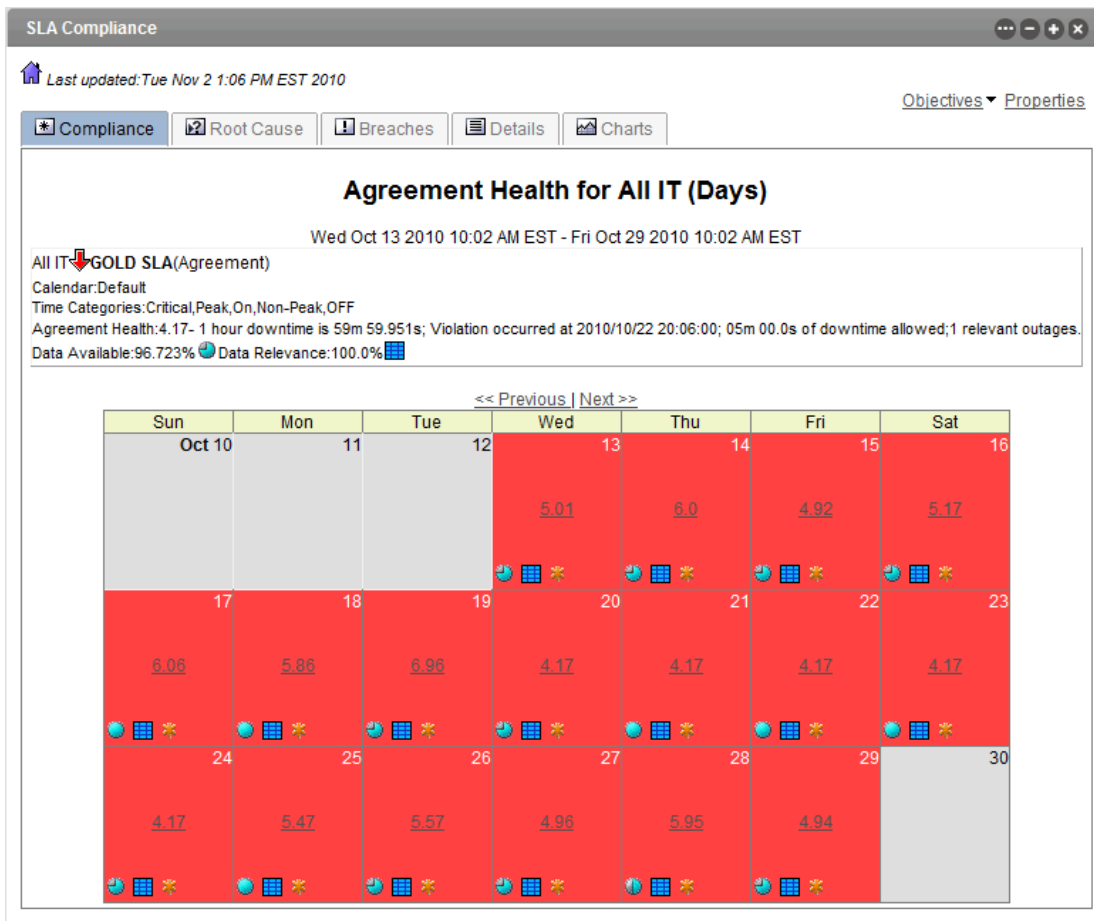
For samples of other tabs in this report, see the *Novell Operations Center 5.0 Service Level Agreement Guide*

The SLA Compliance portlet uses the following icons and indicators to show levels of data availability, compliance and relevance:

Table 9-1 *Degrees of Data Availability and Relevance*

Icons	Type	Description
	Data Available	Indicates the amount of data available for the measured period of time. Icons indicate specific value targets or ranges of values, such as 0%, 0.1%–33%, 33.1%–65.9%, 66%–99.9%, 100%.
	Compliance Grades	Indicates a level of compliance from A–F based on compliance percentage. Icons indicate the range where, by default, green is 80–100%, blue is 70–89%, yellow is 60–69%, orange is 50–59%, and red is any compliance less than 50%.
	Data Relevance	Indicates the relevancy of data to the reported period of time. For instance, there can be data available, but it is not considered (relevant) if the associated Time Category is filtered out (for example, a blackout). Icons indicate specific value targets or ranges of values, such as 0%, 0.1%–33%, 33.1%–65.9%, 66%– 99.9%, 100%.

For more information about the data displayed in this report, particularly information about outage duration, see the *Novell Operations Center 5.0 Service Level Agreement Guide*

Note the following tips and information when setting up the *SLA Compliance* report:

- There are three main types of reports: compliance/health, availability, and downtime. Each one has slightly different options to select in *Preferences*. When creating any of these reports, select a calendar from Operations Center to filter the display based on time category selection.

- To create a report on health and compliance, select the objective definition option for the calculation rules, then select an agreement and objective. For this type of report, the calendar for the agreement is always used. By default, the time defined in the objective is used to calculate compliance.

- For downtime reports, time category filtering does not affect the summary metrics.

- To allow users to change the calendar and other various report parameters on-the-fly, enable *Show Options*. The calendar appears as one of the options when the user clicks *Options*. In *Preferences*, you must select both the *Show Options* option and the *Show Calendar* option for the user to see both the *Options* link in the portlet view and the calendar within those options.

- When specifying a time span for any type of report, make sure to specify one that is reasonable for reporting. Users typically want to look at a year's worth of data in months or weeks, rather than hours or minutes, with the ability to drill down into hours or minutes.

- The SLA Compliance portlet returns a maximum number of outages and breaches based on a property set on the Operations Center server. For instructions on configuring this property, see Section 7.5.1, "Configuring Default Alarms Limits Returned from the Operations Center Server," on page 120.

- Setup a schedule to run the report at specified intervals. Users view a cached version for improved performance. Cached versions are saved for the main tabbed reports. If drilling into data, views at that level are real-time and not cached.

  For more information about scheduling, see Section 7.5.4, "Scheduling Portlets," on page 122.
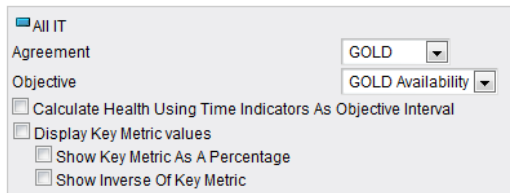
The following sections cover how to configure the *SLA Compliance* portlet settings, using the portlet at run-time and ad-hoc options:

9.2.1 Setting Up the SLA Compliance Portlet

To configure the SLA Compliance Portlet:

1 Click ⬤ *Options* and select 🖉 *Preferences*.

2 Click the *Elements* tab to select the element for the report to generate data on.

The default element selection is *Enterprise*. For more information on selecting the element, see Section 7.4.1, "Home Element for Portlets," on page 107.

3 Click the SLA Compliance tab to specify report parameters and options.

4 Select whether the report is to be run for a specific agreement, or on availability or downtime in the *Agreement* drop-down list.

5 If reporting on an agreement, select *All* or select a specific objective from the *Objective* drop-down list.

```
▭ All IT
Agreement                          GOLD           ▾
Objective                          GOLD Availability ▾
☐ Calculate Health Using Time Indicators As Objective Interval
☐ Display Key Metric values
   ☐ Show Key Metric As A Percentage
   ☐ Show Inverse Of Key Metric
```

If a specific objective is selected, do any of the following:

- Select the *Calculate Health Using the Time Indicators as Objective Interval* check box to have the specified time indicators used as the interval over which the objective is evaluated to determine compliance.
- Select the *Display Key Metric Values* check box to use any of the following sub-options:
    - Select *Show Key Metric as a Percentage* check box to display the key metric as a percentage value.
    - Select *Show Inverse of Key Metric* check box to display the inverse value of the key metric.

6 If reporting on availability or downtime, do the following:

   6a Click the *Calendar* drop-down list, then select a calendar.

6b Specify Availability/Downtime calculation rules by selecting one of the following radio button options:

* **Use Element Outages** to calculate outages in the report.

* **Specify Outage Definition** which requires specifying a minimum outage duration and threshold condition.

* **Apply Agreement Definition** which requires selecting an agreement and an objective.

    Click the *Agreements* drop-down list, then select an agreement. If the selected element has no associated agreements, then no agreement names display. Remote agreements are listed with the prefix "Remote."

    Click the *Objective* drop-down list, then select an objective, or select *All* to display all objectives. If the selected agreement has no associated objectives, no objective names display.

7 Configure the report title by doing the following:

* Specify the report title in the *Title* field.

* Select the *Use Default Title* check box to use the default title for all displays.

* Select the *Hide title* check box to not show a title in the report.

8 Indicated the time categories for the report to run against by selecting the *Time Categories* check boxes.

9 Select one of the following time selectors:

Use Interval: Use the various options to select an interval range for the report to run against. Time intervals are always determined relative to the time that the report is run.

Use Date Range: Use the various options to select a specific start and end time for the report to run against. Click the ▦ (*Calendar*) icon to select a date/time.

Use Real-Time: (Agreements only) Reports on real-time data (only available if reporting on health and compliance and an agreement is selected in the *Agreement/Availability* drop-down list).

10 Click the *Home Page* drop-down list, then select the tab for the report to use as the default report page.

11 Select any of the following check boxes options to enable various report features:

Show Header Information: Displays the summary header information in the box at the top of each tab. The header information includes calendar and time category selections, overall health or downtime or availability metrics, and the overall data available and data relevance indicators.

Show Root Cause: Includes the *Root Cause* tab in the report. Only applies to health and compliance for Agreements.

Show Breaches: Includes the *Breaches* tab in the report. Only applies to health and compliance for Agreements. Also, select from the following options:

- ◆ **Show Objective Breaches:** Displays objective breaches in the *Breaches* tab.

- ◆ **Show Major Breaches:** Displays major condition breaches, which are breach warning alarms, in the *Breaches* tab.

- ◆ **Show Cleared Breaches:** Displays cleared breaches in the *Breaches* tab. Excluding cleared breach alarms eliminates all warning and violation breaches associated with a cleared breach alarm. Only applies to health and compliance reports.

- ◆ **Show Breach List:** Displays a detailed list of all breaches in the *Breaches* tab. By default, shows breach violations (CRITICAL) only. Includes cleared and warning (MAJOR) breaches based on *Show Cleared Breaches* and *Show Major Breaches* selections. Only applies to health and compliance reports.

Show Details: Includes the *Details* tab in the report. Only applies to health and compliance for Agreements.

Show Charts: Includes the *Charts* tab in the report.

Show Outages: Displays the *Outages* tab. Also, select from the following options:

- ◆ **Show Outages Not Generated by Element Condition Changes:** Includes manually entered or imported outages, as well as system generated outages (for example, based on real-time state data) when reporting on downtime, availability, and agreement or objective health.

◆ **Show Outages List:** Displays a detailed list of outages in the *Outages* tab. Outages include only those outages that start in the report interval.

Show Options: Displays options for the user viewing the report to change the time intervals and time categories in the report.

Show Calendar: Displays a calendar under *Options* that allows users to select to run the report using a different calendar than the one selected in Edit mode. *Show Options* must be selected for this option to have any effect.

Indicate Negligible Impact: Displays availability that is slightly less than 100% as <100% (with a down arrow).

12 Click the *Report Time Zone* drop-down list, then select the time zone for the report to use in presenting data.

13 Click *Save*.

If you exit *Preferences* without clicking *Save* first, your changes are lost.

14 If this report is to be run automatically on scheduled intervals, click *Advanced*, then click *Scheduling* to configure the report to run at regular intervals.

For more information about *Scheduling*, see Section 7.5.4, "Scheduling Portlets," on page 122.

9.2.2 Using the SLA Compliance Portlet

While viewing the *SLA Compliance* portlet, do any of the following:

◆ Click any of the available tabs (*Compliance*, *Details*, *Chart*, *Outages*, *Breaches*, or *Root Cause*) to change the display to that view.

◆ Click *Next/Previous* to navigate to the next or the previous time period for the given report.

◆ Click *Objectives* to view objectives related to the SLA. A tooltip displays with information on the objectives. Click the icons to view compliance, root cause, breaches, details or charts for the objective.
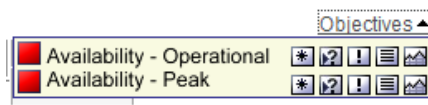
◆ Click *Options* to runs an ad hoc query. The *Options* panel opens, as shown in the following figure:

For more information, see Section 9.2.3, "Regenerating the Report with Ad-Hoc Options," on page 177.

9.2.3 Regenerating the Report with Ad-Hoc Options

While viewing the *SLA Compliance* portlet, there are various on-the-fly options that can be used to modify and rerun the report. These options are available if *Show Options* is enabled in *Preferences*.

The *Options* selections do not change the original report options as set in *Preferences* or *Scheduling*. They are used only for the immediate view. When the view is changed or the session expires, these selections are not retained.

To change the time categories, calendar or reporting ranges for the portlet:

1 Click the *Options* link.

2 Use the *Report On* check boxes to select or clear any time categories.

3 Click the *Calendar* drop-down list, then select a calendar to use for filtering time categories.

4 Select one of the following radio buttons to adjust the time reported on:

  ◆ **Use Interval** to select a date interval, such as the last 30 days.

  ◆ **Use Date Range** to select a date range.

    Select the time to report on: minutes, hours, days, weeks, months, or years.
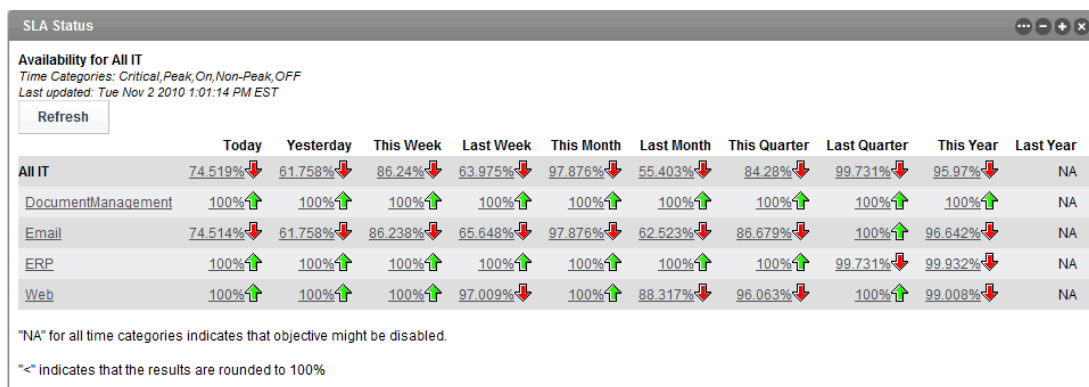
◆ **Use Real-Time** to report on real-time data (only available if reporting on health and compliance for an agreement.

5 Click *Run* to run the report with the new selections.

9.3 Configuring the SLA Status Portlet

The *SLA Status* portlet displays a status summary on agreement health, availability, or downtime for the selected element's children during the specified time frames. This report uses the same data as an *SLA Compliance* portlet and includes access to SLA Compliance reports by clicking any of the metrics.

Figure 9-2 *The SLA Status Portlet*

The *SLA Status* portlet can also display child availability and child downtime. Detailed information in this report shows outages, downtime, availability, committed time, downtime contributed (as a percent), and outages contributed (as a percent) for leaf children.

Note the following tips and information when setting up the *SLA Status* report:

◆ When configuring the report, decide whether the user of the report can see only that element (selected element option) or that element and its children (viewable elements option). The elements that the user can view are governed by privileges set in Operations Center.

◆ When reporting on child availability and downtime, you must select a calendar to use to calculate values. You must also select to define outages as either element outages, outages based on a minimum duration and threshold that you set, or apply an SLA agreement and objective.

◆ In contrast to the *SLA Compliance* portlet, instead of selecting a use interval or data range, you select the time periods for which data displays and whether an arrow or status box displays.

◆ Setup a schedule to run the report at specified intervals. Users view a cached version for improved performance.

For more information about scheduling, see Section 7.5.4, "Scheduling Portlets," on page 122.

The following sections cover how to configure the *SLA Status* settings, using the portlet and user navigation options:

◆ Section 9.3.1, "Setting Up the SLA Status Portlet," on page 179

◆ Section 9.3.2, "Using the SLA Status Portlet," on page 181

◆ Section 9.3.3, "Setting Up User Navigation to Drive an SLA Status Portlet," on page 181

9.3.1 Setting Up the SLA Status Portlet

To configure the SLA Status Portlet:

1 Click ⚫ *Options* and select 📝 *Preferences*.

2 Click the *Elements* tab to select the element(s) for the report to generate data on.

The default element selection is *Enterprise*. For more information on selecting the element, see Section 7.4.1, "Home Element for Portlets," on page 107.

3 Click the SLA Status tab to specify report parameters and options.

4 Select whether the report is to be run for selected elements only, selected specific elements including children, or the children of the selected elements from the *Show Elements* drop-down list.

5 For each selected element, do the following:

5a Select whether the report is to be run for a specific agreement, or on availability or downtime in the *Agreement* drop-down list.

5b If reporting on an agreement, select *All* or select a specific objective from the *Objective* drop-down list.

5c If reporting on availability or downtime, do the following:

5c1 Click the *Calendar* drop-down list, then select a calendar.

5c2 Specify Availability/Downtime calculation rules by selecting one of the following radio button options:

◆ **Use Element Outages** to calculate outages in the report.

◆ **Specify Outage Definition** which requires specifying a minimum outage duration and threshold condition.

◆ **Apply Agreement Definition** which requires selecting an agreement and an objective.

Click the *Agreements* drop-down list, then select an agreement. If the selected element has no associated agreements, then no agreement names display. Remote agreements are listed with the prefix "Remote."

Click the *Objective* drop-down list, then select an objective, or select *All* to display all objectives. If the selected agreement has no associated objectives, no objective names display.

6 Configure the report title by doing the following:

◆ Specify the report title in the *Title* field.

◆ Select the *Use Default Title* check box to use the default title for all displays.

◆ Select the *Hide title* check box to not show a title in the report.

7 Configure the indicator values to show for each element using the options under *Indicators*:

◆ Include *Today*, *Yesterday*, *This Week*, *Last Week*, *This Month*, *Last Month*, *This Quarter*, *Last Quarter*, *This Year*, and *Last Year* values by leaving the *Hide* check boxes unselected.

◆ Select *None*, *Arrow* or *Status* from the *Indictor* drop-down lists to specify the type of indicator show with each value.

◆ Select the *View SLA Compliance Information in New Window* check box to open the related SLA Compliance report in a pop-up window. If this option is unselected, SLA Compliance reports open in the same page.

8 Indicate the time categories for the report to run against by selecting the associated check box under *Time Categories*.

9 Click the *Home Page* drop-down list, then select the tab for the report to use as the default report page when displaying a *SLA Compliance* view.

10 Select the following check boxes to enable various report features shown in the *SLA Compliance* views:

Show Header Information: Displays the summary header information in the box at the top of each tab.

The header information includes calendar and time category selections, overall health or downtime or availability metrics, and the overall data available and data relevance indicators.

Show Root Cause: Includes the *Root Cause* tab in the report. Only applies to health and compliance for Agreements.

Show Breaches: Includes the *Breaches* tab in the report. Only applies to health and compliance for Agreements. Also, select from the following options:

- ◆ **Show Objective Breaches:** Displays objective breaches in the *Breaches* tab.

- ◆ **Show Major Breaches:** Displays major condition breaches, which are breach warning alarms, in the *Breaches* tab.

- ◆ **Show Cleared Breaches:** Displays cleared breaches in the *Breaches* tab. Excluding cleared breach alarms eliminates all warning and violation breaches associated with a cleared breach alarm. Only applies to health and compliance reports.

- ◆ **Show Breach List:** Displays a detailed list of all breaches in the *Breaches* tab. By default, shows breach violations (CRITICAL) only. Includes cleared and warning (MAJOR) breaches based on *Show Cleared Breaches* and *Show Major Breaches* selections. Only applies to health and compliance reports.

Show Details: Includes the *Details* tab in the report. Only applies to health and compliance for Agreements.

Show Charts: Includes the *Charts* tab in the report.

Show Outages: Displays the *Outages* tab. Also, select from the following options:

- ◆ **Show Outages Not Generated by Element Condition Changes:** Includes manually entered or imported outages, as well as system generated outages (for example, based on real-time state data) when reporting on downtime, availability, and agreement or objective health.

- ◆ **Show Outages List:** Displays a detailed list of outages in the *Outages* tab. Outages include only those outages that start in the report interval.

Show Options: Displays options for the user viewing the report to change the time intervals and time categories in the report.

Show Calendar: Displays a calendar under *Options* that allows users to select to run the report using a different calendar than the one selected in Edit mode. *Show Options* must be selected for this option to have any effect.

Indicate Negligible Impact: Displays availability that is slightly less than 100% as <100% (with a down arrow).

11 Click the *Report Time Zone* drop-down list, then select the time zone for the report to use in presenting data.

12 Click *Save*.

If you exit *Preferences* without clicking *Save* first, your changes are lost.

13 If this report is to be run automatically on scheduled intervals, click *Advanced*, then click *Scheduling* to configure the report to run at regular intervals.

For more information about *Scheduling*, see Section 7.5.4, "Scheduling Portlets," on page 122.

9.3.2 Using the SLA Status Portlet

While viewing the *SLA Status* portlet, do any of the following:

◆ Click *Refresh* to update the data in the view. Only real-time data is refreshed in the view. Scheduled reports update the next time the schedule job runs.

◆ To navigate between *SLA Status* views, do the following:

  ◆ Click an element name to drill-in to an SLA Status report for child elements.

  ◆ Click the *Up* link to return to the parent SLA Status report.

  ◆ Click the *Home* link to return to the default home view of the *SLA Status* report.

◆ Click any metrics value to view the *SLA Compliance* report.

For more information on the *SLA Compliance* report, see Section 9.2, "Configuring the SLA Compliance Portlet," on page 171.

9.3.3 Setting Up User Navigation to Drive an SLA Status Portlet

If you use the SLA Status portlet on a page, you can also add and configure a Starter portlet, Navigation portlet, Search portlet, or Status portlet to dynamically control element selection for a SLA Status portlet implemented within the same portal page.

For SLA portlets, you'll configure a default element(s) but in addition, you can set up a Starter portlet, Navigation portlet, Search portlet, or Status portlet on the same page can also allow users the ability dynamically change the element selection that drives data in the SLA portlet.

These portlets can be used to create a single page to report on multiple services for a single user, or to create a single page for multiple role-based users, or to produce a single page that supports multiple end users who have different data access priviledges. It eliminates the need to create multiple customers without having to create separate portal pages for everyone.

For more information, see Section 7.4.2, "Starting Element for Multiple Portlets on a Page," on page 108 or the section on each portlet type:

◆ Section 8.11, "Configuring the Starter Portlet," on page 162

◆ Section 8.4, "Configuring the Navigation Portlet," on page 144

◆ Section 8.9, "Search Portlet," on page 157

◆ Section 8.12, "Configuring the Status Portlet," on page 163

Chart Builder Portlet

10

The Chart Builder portlet allows you to build and deploy charts containing data from Operations Center that meet the reporting needs of your organization.

The Chart Builder portlet is also available as a view from other Operations Center portlets including Alarms, Summary, Layout, Element Properties, Properties Table, Show Impacted, Tree Map Root Cause, Performance, and Summary. Click *Actions* and select *Go to > Chart Builder* from any of these portlets.

The Chart Builder functionality relies on the Image server for delivery of charts. For more information about the Image server settings in the Configuration Manager, see Section 2.2.1, "Verifying Your Operations Center server's Default Accounts and Configuration Settings," on page 15 and Section 2.2.5, "Configuring the Dashboard and Operations Center," on page 20. For more information about using and configuring the Image Server, see the *Novell Operations Center 5.0 Server Configuration Guide*.

The Chart Builder portlet also requires an SVG view to render properly in IE. For more information about the SVG Viewer, see Section 7.6.1, "SVG Viewer," on page 127. Chart Builder does not support SVG rendering for Mozilla Firefox; users must select Flash, PNG, or JPG to view data through Chart Builder.

Charts use templates that leverage data from Operations Center. Templates are PCXML files that use the Operations Center JSP tag libraries to incorporate data from Operations Center. The Dashboard has predefined templates that are ready to use, or you can create your own custom templates.

- Section 10.1, "Predefined Templates," on page 183
- Section 10.2, "Custom Templates," on page 189

10.1 Predefined Templates

Predefined templates show the following types of data:

- Alarm counts in pie or bar charts
- SLA status in a dashboard
- Status and location of an element on a map chart
- Numeric element properties in a speedometer gauge

These templates can be added to a Web page by using the Chart Builder portlet.

All Chart Builder templates automatically contain a *d* link added to the bottom right corner of the portlet that allows the user to view the source data used to generate the chart. For more information about viewing source data, see Section 7.4.9, "Viewing Source Data for Charts," on page 119

The following sections show examples of the predefined templates included with the Dashboard and provide steps for deploying charts and configuring the SLA Status Dashboard:

- Section 10.1.1, "Chart Display Examples," on page 184
- Section 10.1.2, "Deploying Charts," on page 187
- Section 10.1.3, "Setting Up the SLA Status Dashboard," on page 188

10.1.1 Chart Display Examples

The following sections show examples of the different types of displays:

Alarms Charts

By default, there are four types of charts that show alarm data.

The user can click the *d* link located in the bottom right corner of the portlet to view data used to generate the chart.

Figure 10-1 *Element Alarms Pie Chart in the Chart Builder Portlet*
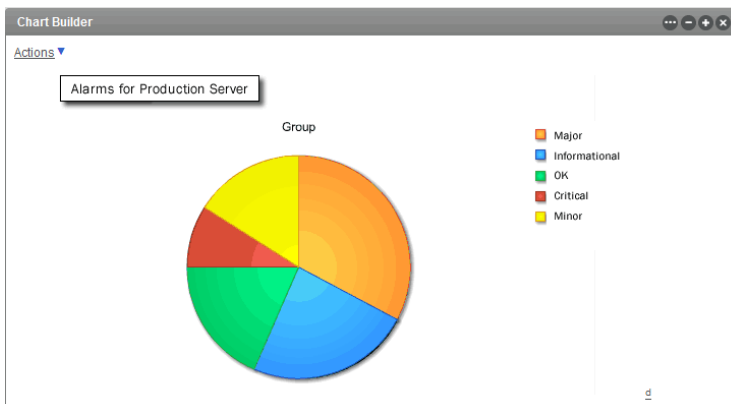
Figure 10-2 *Child Element Alarms Bar Chart in the Chart Builder Portlet*
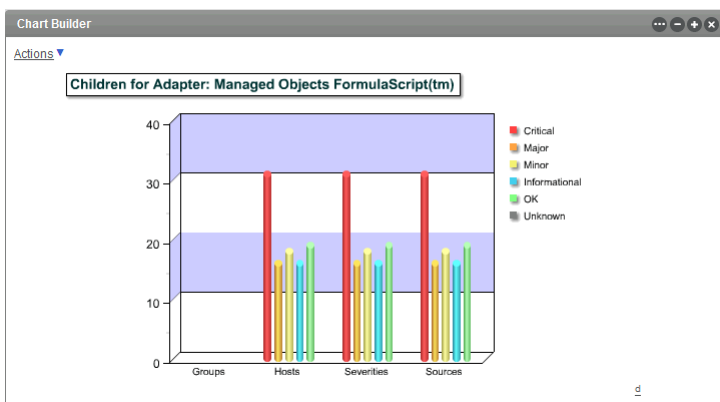
Figure 10-3 *Element Alarms Bar Chart in ChartBuilder Portlet*
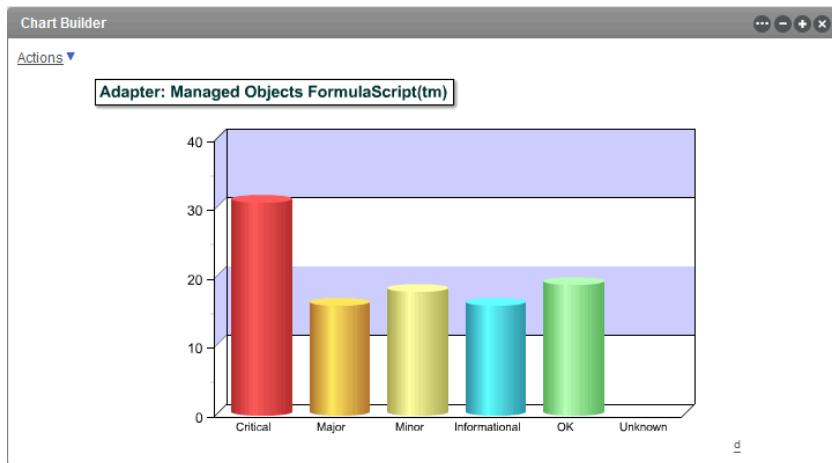
Figure 10-4 *Element Alarms Radar and Pie Chart in Chart Builder Portlet*
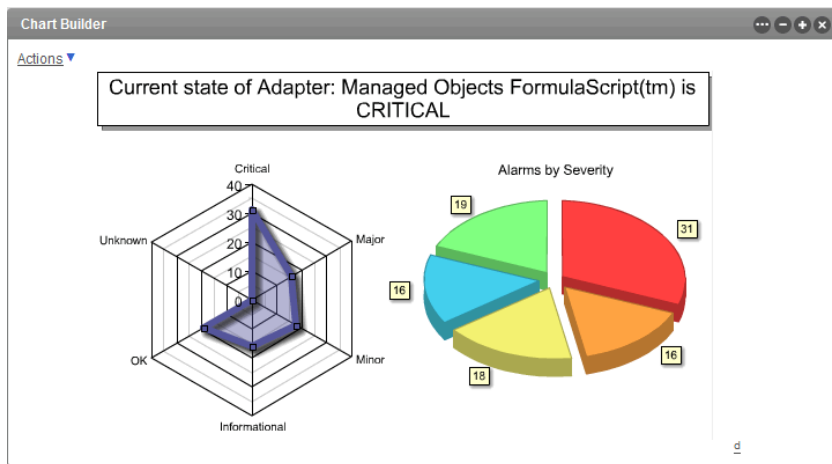
Map Chart

The Map Chart template shows a map from the *Locations* hierarchy tree in Operations Center with drill-down to show alarm charts. The user can click the *d* link located in the bottom right corner of the portlet to view data used to generate the chart.

Figure 10-5   *Maps with Drill-down URL in the Chart Builder Portlet*
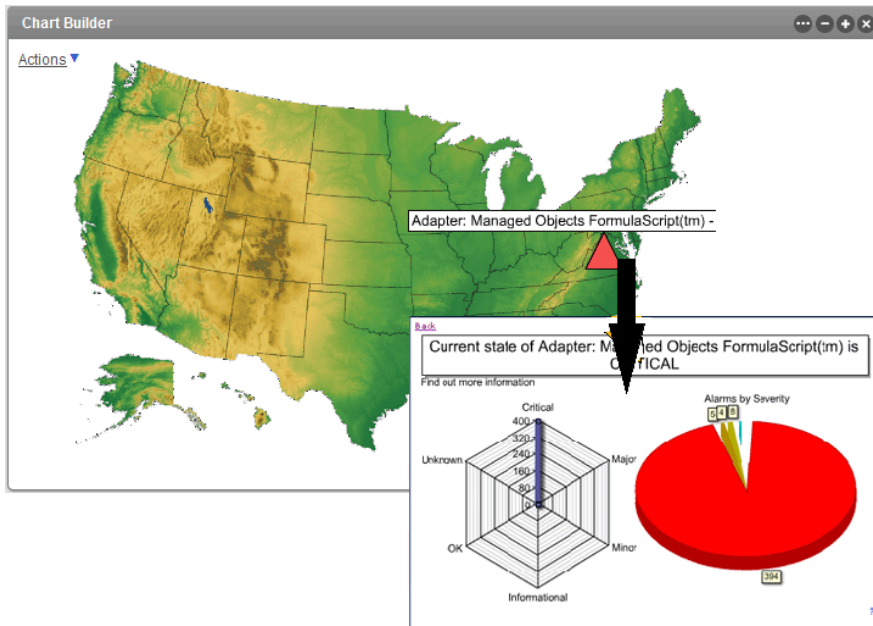
Element Properties Gauge

The Element Properties Gauge template shows element property information in a gauge speedometer. The user can click the *d* link located in the bottom right corner of the portlet to view data used to generate the chart.

Figure 10-6   *Element Property Gauge in Chart Builder Portlet*
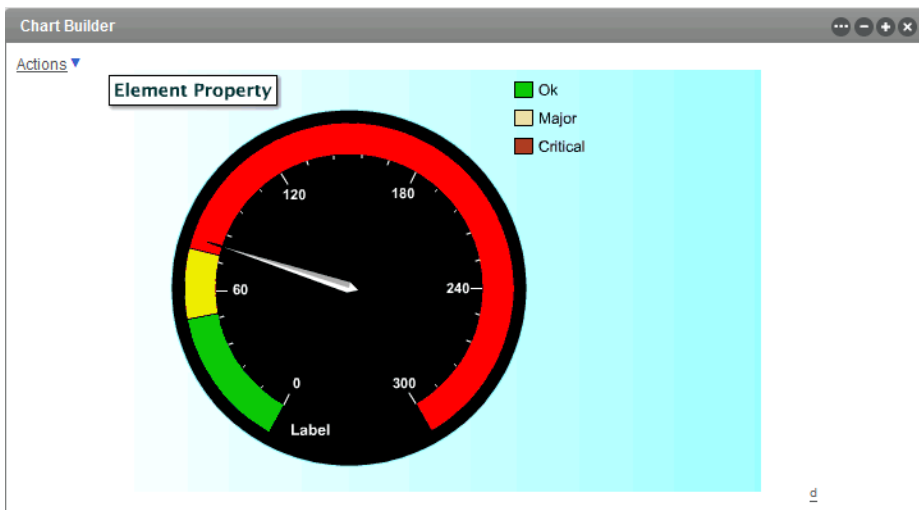
SLA Status Dashboard

The SLA Status Dashboard template shows service level agreement status information including breach and outage counts overlayed with health, downtime, availability and cost impact levels. The user can click the *d* link located in the bottom right corner of the portlet to view data used to generate the chart.

Figure 10-7 *SLA Status Dashboard in the Chart Builder Portlet*
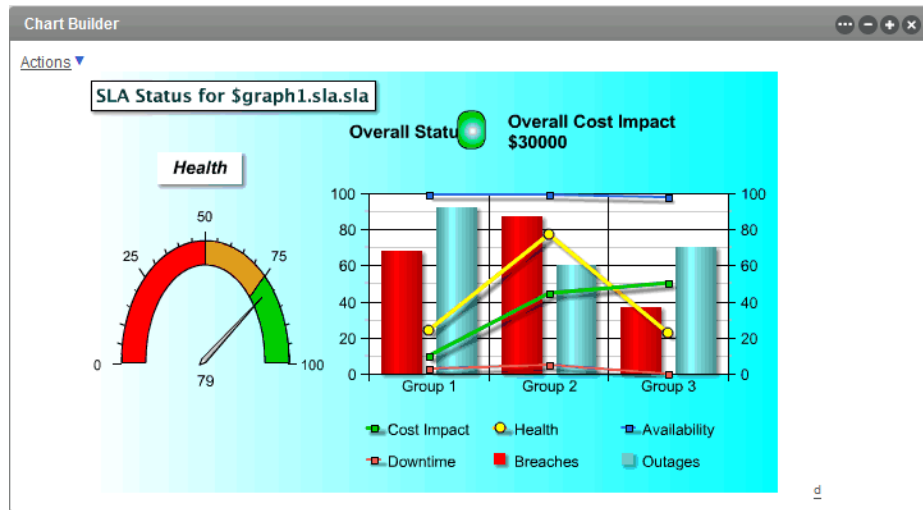
10.1.2 Deploying Charts

Charts are deployed and configured by using the Chart Builder portlet in the Dashboard.

If some of the chart elements overlap after you configure the chart, increase the chart width.

To configure the Chart Builder Portlet:

1 Add the Chart Builder portlet to a web page.

For more information on adding a portlet to a page, see Section 6.2.1, "Adding a Portlet," on page 93.

2 Click the Configuration icon and select *Preferences.*

3 Select a .jsp template from the drop-down list to specify the chart type.

The PCXML files are samples, or templates, that administrators use to create a new chart. They are not fully coded to show custom static data or dynamic information from Operations Center.

Click *Manage* to upload a new chart template from your file system.

4 Specify the chart width in the *Chart Width* field.

5 Specify the chart height in the *Chart Height* field.

6 Click the *Chart Output* drop-down list, then select the output type.

7 Specify other chart options as required, such as the chart title.

For specific information about running the SLA Status Dashboard template example, see Section 10.1.3, "Setting Up the SLA Status Dashboard," on page 188.

8 Click *Save* to save the chart settings.

9 Click to open the *Elements* tab and select an element to drive the portlet.

10 Click *Save* to save the element selection.

10.1.3 Setting Up the SLA Status Dashboard

The SLA Status Dashboard uses data from the Service Level Manager (SLM) in Operations Center and has different configuration options. Using this chart requires a license for SLM. For more information about SLM and SLA data, see the *Novell Operations Center 5.0 Service Level Agreement Guide*.

Cleared breaches can be included in the Dashboard, even if they are not included in the summary metrics and statistics. This can occur when a breach is cleared on a day that is not included in the reported interval.

To set up custom chart options for the SLA Status Dashboard template:

1 Follow the basic directions to setup the Chart Builder portlet and use the *Elements* tab to select an element to drive the portlet. See Section 10.1.2, "Deploying Charts," on page 187.

2 Click *Select SLA Root Element* to select the element with the associated SLA.

3 Select the *Time Control* value by using one of the following time selectors:

Use Interval: Use the options to select an interval range for running the report. Time intervals are always determined relative to the time that the report is run.

Use Date Range: Use the options to select a specific start and end time to include in the report. Click the (*Calendar*) icon to select the date/time.

Use Real-Time: Reports on real-time data.

4 To specify an agreement name in the *SLA* field, click *SLA* to browse, then select an applicable agreement:

- ◆ **None:** Shows information for an element.
- ◆ **Objective:** Shows information for an objective. First, select an option, then specify the objective in the *Objective* option.

If no agreement is selected, the health displays as 100 with 0 breaches existing (if breaches are selected to display).

5 To specify an objective in the *Objective* field, click *Objective* to browse and select an applicable objective:

   ◆ To show information for an element, specify *None*.

   ◆ To show information for an agreement, specify *None*, then specify the agreement in the *SLA* option.

6 Select the appropriate *Time Categories* check boxes.

7 Specify a title in the *Chart Title* field.

8 Select the *Show Overall Cost Calculation* check box to include a cost total amount in the portlet display.

9 Set the options to configure the cost calculation:

   9a Click *Calculate Cost Metric Using Each* drop-down list, then select the metric that drives the cost calculation.

   9b Specify a *Cost Impact Per Metric Instance Number* to facilitate cost calculations.

   9c Specify an *OverAll Cost Multiplier Number* to multiply the cost impact per metric instance.

10 Select one or more of the following check boxes to customize the display:

   Show Costs in Chart: Cost values.

   Show Health in Chart: Health indicators. If no agreement is selected, health displays as 100%.

   Show Availability in Chart: Availability data.

   Show Downtime in Chart: Downtime data. Click the *Show Downtime In* drop-down list, then select the interval display for downtime data.

   Show Outages in Chart: Outages.

   Show Outages Not Generated by Element Condition Changes: Manually created outages.

   Show Breaches in Chart: Breaches. If no agreement is selection, no breaches display.

   Show Cleared Breaches: Cleared breaches.

   Show Warning Breaches: Warning breaches.

   Show the Last Updated Date/Time: Date and time of the last data update.

11 Click *Save* to save the chart settings.

10.2 Custom Templates

Custom templates are made in the Corda Builder tool, then deployed by using Chart Builder portlet. You create a template by making a PCXML file, then incorporating data from Operations Center by using JSP tags. When a template is created, it can be uploaded to the Chart Builder portlet and configured to appear on a Web page.

   ◆ Section 10.2.1, "Creating the Template File," on page 190
   ◆ Section 10.2.2, "Integrating Operations Center Data," on page 193
   ◆ Section 10.2.3, "Creating Drill-Down URLs for a Chart," on page 195
   ◆ Section 10.2.4, "An Example: Modifying a PCXML File with JSP Tags," on page 195

10.2.1 Creating the Template File

APCXML file is created using Corda Builder*, a wizard-based tool, which is later with JSP tags to leverage data from Operations Center.

Chart Builder templates use Velocity*, a templating mechanism. To learn more about Velocity, go to the Apache Velocity Project (http://velocity.apache.org/).

The following sections cover how to create a new chart for the Chart Builder portlet.

◆ "Creating a Chart" on page 190
◆ "Modifying Chart Settings and Properties" on page 192
◆ "Modifying Map Settings and Properties" on page 192

Creating a Chart

To create a chart by using the chart wizard:

1 In the Operations Center installation directory, browse to and launch the
NovellOperationsCenter_install_path/NOC/image/bin/CordaBuilder executable.

The Corda Builder tool launches:
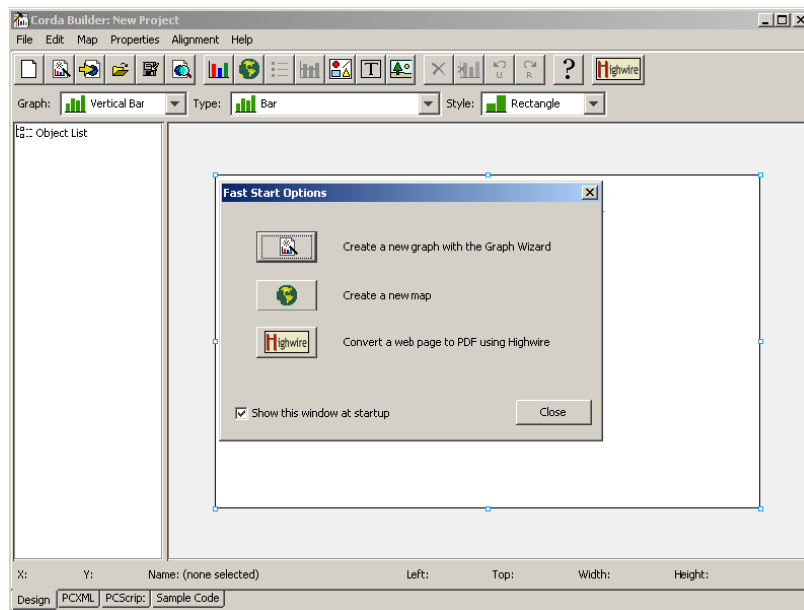
2 Do one of the following:

- Click *Graph Wizard*, then continue with Step 3.

- To create a map, click *Map*, then skip to Step 4.

- Click *Close* to cancel the Fast Start options and open an existing template.

- Click *Close* to work from scratch without using the wizard.

- If creating a chart or graph, the easiest way is to work from a template, then customize a chart or graph as necessary.

3 Select *Create New Project from a Template*.

4 In the *Template Selection* tab, select template names in the *Template Selection* left pane to preview the various styles.

5 When you have found a chart style you want to use, click *Next* to continue.

6 In the *Graph Type Selection* tab, select the graph type, subtype, and style.

7 Click *Next* to continue.

8 In the *Data Selection* tab, do one of the following:

- Use the Graph Data spreadsheet to specify valid data if you want to create a chart with static values.

- Specify placeholder information to replace with JSP tags later to pull data from Operations Center.

9 Click *Next* to continue.

10 In the *General* tab, specify border, background, and color theme options.

11 In the *Title* tab, specify the chart title, and specify border, shadow, and font settings for the title.

12 Select *Continue Customizing Project*, then click *Finish*.

The chart template is displayed in the Corda Builder tool.

13 Continue to "Modifying Chart Settings and Properties" on page 192, or "Modifying Map Settings and Properties" on page 192 if creating a map.

Modifying Chart Settings and Properties

To modify chart settings and properties:

1 Double-click any of the objects in the *Object* drop-down list, or double-click any element directly on the map.

2 Click the *PCXML* tab to view the chart code directly.

To integrate Operations Center data, the file needs to be modified to include JSP tags to pull in dynamic data. See Section 10.2.2, "Integrating Operations Center Data," on page 193

3 To publish the chart with static data, verify that all data points are correct.

4 To publish the chart, click *File > Publish*.

5 Select image types to be created by selecting the appropriate check boxes.

6 Browse and save the file to a directory and with a filename that can be remembered later.

7 Continue to Section 10.2.2, "Integrating Operations Center Data," on page 193.

Modifying Map Settings and Properties

To modify map settings and properties:

1 Double-click any of the objects (such as, *Graph*, *Legend_Graph*, *Title*) in the *Object* drop-down list, or double-click any element directly on the actual chart.

If creating a map the easiest way is to build it based on a template using a map from the map library, then customize further as necessary.

2 Click *Template*.

3 Click *Predefined*.

4 Browse the maps hierarchy tree, then select the PCXML file for the continent, country, region, US, or world.

5 Click *OK* to select the map.

The chart is displayed in the Corda Builder tool.

6 Continue to Section 10.2.2, "Integrating Operations Center Data," on page 193.

10.2.2 Integrating Operations Center Data

After a chart has been created through the Corda Builder, the PCXML file must be customized to work with Operations Center data.

This is where you leverage the various tag libraries (see the *Novell Operations Center 5.0 JSP Tag Libraries Guide*) and define the various user setup options that format or drive the chart. Depending on chart requirements, this can include:

- Operations Center element selection
- Date/time or date range selection
- Time category selection
- Performance Series (profile/expression) selectors
- SLA (agreement/objective) selectors
- A custom check box series option
- A custom field option (that is, a chart title)
- A custom drop-down list option

To customize a chart with Operations Center data:

1 To launch the Corda Builder if it is not already open, go to the Operations Center installation directory, then browse to and launch the *NovellOperationsCenter_install_path*/NOC/ image/bin/CordaBuilder executable.

2 Open a template PCXML file. If one is not already open, then click the *PCXML* tab.

3 Select and copy all the code, then open a text/HTML editor and paste in the PCXML code.

4 Add the required UI Model code in the .jsp file header.

These are the options that form the editor portion of the chart and drive the generation of the chart at runtime. For an example, see Section 10.2.4, "An Example: Modifying a PCXML File with JSP Tags," on page 195.

Following are the available UI Model selectors:

Selector Type	Attributes	Fields[1]	Description
calendar	label		Provides a drop-down list to select a calendar. For example: `<selector type="calendar" label="Select calendar:" />`
check box	label, name, checked		Provides a check box selection. `label` is the text displayed for the check box. For example: `<var type="check box" label="Use Breaches for Cost Counts" name="useBreaches" checked="checked" />`

Selector Type	Attributes	Fields[1]	Description
date	label		Provides options to run report for an interval, date range, or real-time data. For example: `<selector type="date" label="Run report for:" />`
element	label		Provides an element link to browse and select a root element to drive the chart/report. For example: `<selector type="element" label="Select element:" />`

nativePerformance	label	profile,
		
		expression
			Provides fields to specify the profile and expression. Also provides links to browse and select. For example:
			
			`<selector type="nativePerformance" label="Select Metric:">`
			
			`<required name="profile" />`
			
			`<required name="expression" />`
			
			`</selector>`

select	label, name, options		Provides a drop-down list selection. `options` are the actual values of the drop-down list items. For example: `<var type="select" label="Select your favorite fruit" name="Fruit" options="Apples,Oranges,Blueberries" />`

sla	label	sla,
		
		objective
			Provides fields to specify the agreement and objective.
			
			Provides links to browse and select, as well. For example:
			
			`<selector type="sla" label="Select SLA:">`
			
			`<required name="sla" />`
			
			`<required name="objective" />`
			
			`</selector>`

textbox	label, name, size		Provides a simple field option. For example: `<var type="textbox" label="Chart Title:" name="title" size="35" />`
timeCategories	label		Provides a check box list for time categories selection. For example: `<selector type="timeCategories" label="Time Categories included:" />`

[1]If no required fields are specified, all available fields are applied. If one field is specified in the selector, only the specified field is used. All fields that are not specified are hidden and not used.

5 Add any necessary taglib references.

For more information about using the tag libraries, see the *Novell Operations Center 5.0 JSP Tag Libraries Guide*.

For an example, see Section 10.2.4, "An Example: Modifying a PCXML File with JSP Tags," on page 195.

6 Update any places where information is dynamic.

Instead of the placeholder static values, insert the code to pull the data from Operations Center where needed. For an example, see Section 10.2.4, "An Example: Modifying a PCXML File with JSP Tags," on page 195.

7 Add drill-down URL links, if desired. See Section 10.2.3, "Creating Drill-Down URLs for a Chart," on page 195

8 Close all open tags.

9 Save the file as a `.jsp` file to a working directory.

10 Continue to Section 10.2.5, "Uploading New Templates," on page 197

10.2.3 Creating Drill-Down URLs for a Chart

When you create a custom chart through the Chart Builder, it is possible to set up links (URLs) that allow for drill-down functionality.

The following parameters are required for the drill-down URLs in chart templates:

- ◆ **template parameter (+ id):** Specifies the location of the template to include.
- ◆ **goto parameter (+ id):** Sends the request to the helder include file.

An example of a link is:

```
<%= response.encodeUrl( request.getContextPath() + "/
Controller?backLink"+id+"="+java.net.URLEncoder.encode(thisLink)+"&goto"+id+"
=/chartBuilderDrillDown.jsp&template"+id+"=/generated/templates/
radarAndPieAlarms.jsp&dname"+id+"="+java.net.URLEncoder.encode(dname) ) %>
```

The Dashboard ships with a Chart Builder example (see the Map Drill Down Example template) that shows a map with this drill-down functionality. Although the example is not intended for use out-of-the-box without further customization, it shows how Chart Builder can be used to build a custom map with drill-down support. The link can be configured to drill down to one element.

10.2.4 An Example: Modifying a PCXML File with JSP Tags

The example uses an example code snippet from the `ElementBarAlarms.jsp` file after it was edited to expose Operations Center information. Compare this to the `ElementBarAlarms.PCXML` file to view the raw file before it was updated. This is an example of how you might modify a PCSML file, actual edits depend on the chart you are building.

To modify a PCXML file with JSP Tags:

1 Add the UI Model code to the header for each chart setup option in the Dashboard:

```
<%--
<uimodel title="Element Alarm Counts as a Bar Chart">
    <variable prefix="graph1">
        <var type="textbox" label="Enter the title of this chart:"
name="title" size="35" />
        <selector label="Select the element for which to display alarm
counts:" type="element" />
        <var type="check box" label="Show the last updated date/time:"
name="datetime" />
    </variable>
</uimodel>
--%>
```

2 Get access to element info by using DName. Insert the DName code as follows below the xml
version code but above the chart tag as shown in the first line below:

```
<element:exists name="$graph1.element.dname" id="element">
<Chart Version='4.40.00' BorderType='None' BorderColor='#99ccff'
BGGradientColor='#4d718e'>
```

3 Use value entered in edit options to set chart title.

```
<Textbox Name='Title' Top='6' Left='4' Width='121' Height='23'>
    <Properties ShadowStyle='Fade' HJustification='Left' Font='Name:Lucida
Sans; Size:14.0; Style:Bold; Color:#003333;'/>
     <Text>$graph1.textbox.title.value</Text>
   </Textbox>
```

4 Leverage Formula tag to get condition colors as shown in the bottom half of this section.

```
 <Graph Name='graph' Top='49' Left='20' Width='503' Height='263'
Type='Bar' SubType='Basic'>
     <Properties AnimateStyle='Default' Effect='2D'
SingleSeriesMulticolor='True' ShadowStyle='Fade' UseGridStripes='True'
GridStripeColor='#ccccff' PercentSpaceBetweenBars='30'/>
    <DataLabels Font='Size:11.0; Style:Bold; Color:White;' BGColor='Black'
FormatString='%_VALUE %_CATEGORY_NAME Alarms' ShowBarZeroValues='True'
ShadowStyle='Fade' />
     <HTMLTable TableAttributes='border=&#x27;3&#x27;
cellspacing=&#x27;0&#x27; cellpadding=&#x27;3&#x27;'
HeaderTR='align=&#x27;center&#x27;' HeaderTR2='align=&#x27;center&#x27;'
DataTR='align=&#x27;center&#x27;' FooterTR='align=&#x27;center&#x27;'
FooterTH='align=&#x27;center&#x27;' />
    <formula:colors id="colors">
      <ColorPalette  Color1='<%=colors.getConditionColor("critical")%>'
Color2='<%=colors.getConditionColor("major")%>'
Color3='<%=colors.getConditionColor("minor")%>'
Color4='<%=colors.getConditionColor("informational")%>'
Color5='<%=colors.getConditionColor("ok")%>'
Color6='<%=colors.getConditionColor("unknown")%>' Color7='#66ccff'
Color8='#33cc99' Color9='#cc6666' Color10='#f0f066' Color11='#ffccaa'
Color12='#aaccff' Color13='#66ddaa' Color14='#f09999' Color15='#f0f0aa'
Color16='#ccf0aa'/>
    </formula:colors>
     <ValueScale Position='Left' MinorGrid='Visible:False;'
MinorFont='Size:10.0;'/>
    <CategoryScale MinorFont='Size:10.0;'/>
   </Graph>
```

5 Use Element tag to get severity counts and plug into data values as shown in the bottom half of this section.

```
<GraphData Name='graph' Method='Replace'>
  <Categories>
    <Category Name='Critical'/>
    <Category Name='Major'/>
    <Category Name='Minor'/>
    <Category Name='Informational'/>
    <Category Name='OK'/>
    <Category Name='Unknown'/>
  </Categories>
    <Series Name='Count'>
        <Data Value='<%=element.getAlarmCount("(severity=critical)")%>'/>
        <Data Value='<%=element.getAlarmCount("(severity=major)")%>'/>
        <Data Value='<%=element.getAlarmCount("(severity=minor)")%>'/>
        <Data
Value='<%=element.getAlarmCount("(severity=informational)")%>'/>
        <Data Value='<%=element.getAlarmCount("(severity=ok)")%>'/>
        <Data Value='<%=element.getAlarmCount("(severity=unknown)")%>'/>
    </Series>
</GraphData>
```

6 Print time data was last updated.

```
<%
  if ($graph1.check box.datetime.value) {
      java.text.DateFormat lu = java.text.DateFormat.getDateTimeInstance(
java.text.DateFormat.MEDIUM, java.text.DateFormat.MEDIUM );
  %>
  <Textbox Name='textbox3' Top='314' Left='1' Width='537' Height='19'>
   <Properties AutoWidth='False' AutoHeight='False' AutoSizeText='True'
BorderType='None' TransparentFill='True' Font='Size:11.0; Style:Italic;'/>
    <Text>Last updated <%= lu.format( new java.util.Date() ) %></Text>
  </Textbox><%
  }
  %>
```

7 Close the chart and element tag.

```
</Chart>
</element:exists>
```

10.2.5 Uploading New Templates

After creating a new template, use the Chart Builder portlet in the Dashboard to upload it to your Web page. After uploading it, you must configure it.

To upload a chart template:

1 From a Chart Builder portlet, click ● *Options* and select ✐ *Preferences*. The Chart Builder tab opens.

2 Click *Manage*.

3 Click *Browse* to browse and select a chart template file.

4 Click *Upload* to add the template.

5 The template is now available to use with the Chart Builder portlet.

10.2.6 Deleting Templates

You can remove templates that you uploaded by using the Chart Builder portlet in the Dashboard.

To delete a chart template:

1 From a Chart Builder portlet, click ● *Options* and select ✎ *Preferences.*. The Chart Builder tab opens.

2 Click *Manage*.

3 Select the check box for the chart template.

4 Click *Delete*.

Portal and Community Permissions

<div style="text-align: right">11</div>

Permissions are granted to users to perform actions that on a set of resources. Permissions can be assigned either to individual users or to a group of users who share the same role.

The administrator can use permissions to delegate tasks to users. For example, assign a user the permissions needed to manage a specific community.

11.1 Assigning Permissions Using Roles

Roles are groupings of users that share a particular function within the portal, according to a particular scope. Roles can be granted permissions to various functions within portlet applications.

Roles are used to define permissions across their scope: across the portal, across an organization, or across a community. For example, consider a role which grants access to create a Service Management category. A Portal role would grant that access across the portal, wherever there was a Service Management portlet.

Roles are scoped by:

- Portal
- Organization
- Community

A Community role grants access only within a single community. An Organization role grants that access only within an Organization. Because Roles are used strictly for portal security, they also do not have pages, like Communities and Organizations.

Administrators can define roles through the Control Panel. Roles are assigned permissions and then are assigned users or user groups. Users, User Groups, Communities, or Organizations can be members of a role.

In the Dashboard, there are two types of roles that you are likely to require:

- Roles related to portal administration. For example, these roles might have rights to create new communities and maintain their pages.
- Roles that allow users to perform specific tasks within or for a community.

NOTE: While the following sections cover setting and assigning permissions for a community, these same features and steps apply for organizations.

The following sections cover roles and assigning permissions to them:

- Section 11.1.1, "Community Roles," on page 200
- Section 11.1.2, "Portal Administration Roles," on page 203
- Section 11.1.3, "Configuring Roles," on page 205
- Section 11.1.4, "Understanding the Power Users Role," on page 206
- Section 11.1.5, "Granting Role Permissions for Other Roles," on page 206

11.1.1 Community Roles

When a community or organization is created, there are three default roles that are created:

- **Administrator:** are super users of their community and can assign community roles to users.
- **Owner:** are super users of their community and can assign community roles to users.
- **Member:** is the default role assigned to all users who belong the community or organization.

For information about assigning community users to these default roles, see "Assigning Community Roles" on page 202.

In addition, you may wish to create additional roles that grants specific administrative capabilities for the community or allows access to perform an action within the community. For example, you may want a role that can assign users, or a "Journal" role that is in charge of updating journal entries.

In the beginning, setting up community roles is a three step process. However, once the roles are defined for a community, you'll just be assigning users to the roles.

- "Creating Community Roles" on page 200
- "Granting Portlet Permissions" on page 201
- "Assigning Community Roles" on page 202

Creating Community Roles

Community-type roles allow you to define permissions for specific functionality that you'll want to grant to a subset of community members.

To create a community role:

1 Click *Welcome*, and select *Control Panel*.

2 Under *Portal*, select *Roles*.

3 Click *Add*.

4 Specify the name of the role.

5 Specify a description for the role.

6 Select *Community* from the *Type* drop-down list.

7 Click *Save*.

8 Continue to .

Granting Portlet Permissions

Once a role is defined, the next step is to define portlet permissions which cover permissions that are defined within various portlets.

To grant portlet permissions to a role:

1 Click *Welcome*, and select *Control Panel*.

2 Under *Portal*, select *Roles*.

3 Click *Actions* next to the desired role and select *Define Permissions*.

4 Click *Add Portlet Permissions*. A list of portlets displays.

5 Click the desired portlet link to define permissions for that portlet type.

6 Select the *All* check box to grant permissions to set preferences, view and configure the portlet, or select any of the following check boxes:

- **Preferences:** grant access to update preferences of the portlet.
- **View:** grant access to view the portlet.
- **Configuration:** grant access to update configuration settings for the portlet.

7 Click *Save*.

8 Continue to "Assigning Community Roles" on page 202.

Assigning Community Roles

At a minimum, you'll likely want to assign the Administrator and Owner roles to at least one community member. When more specialized community roles are defined, you'll want to assign users to them.

For information about assigning default roles to users, see Section 4.4.2, "Default Associations for User Accounts," on page 63.

To assign community users to a role:

1 Click *Welcome*, and select *Control Panel*.

2 Under *Portal*, select *Communities*.

3 Click *Actions* next to the community and select *Assign User Roles*.

4 Click the name of the desired role.

5 Click the *Available* tab.

6 Select the check box of each user to assign to the role.

7 Click *Update Associations*.

11.1.2 Portal Administration Roles

Portal scoped roles are related to portal administration. For example, these roles might have rights to create new communities and maintain their pages.

By default, there are four portal scoped roles:

- ◆ **Admin:** has administrative privileges.
- ◆ **Power User:** by default, all users are also assigned the Power User role. You can give this role certain permissions if you wish or disable it altogether
- ◆ **User:** is the most basic user.
- ◆ **Guest(Visitor):** is all non-logged in users.

Assign permissions for portal-wide activities that are in several categories, such as Community, Location, Organization, Password Policy, etc. This allows you to create a Role that, for example, can create new Communities in the portal. This would allow you to grant users that particular permission without making them overall portal administrators.

NOTE: Portal permissions can only be assigned to roles of *Regular* type.

For information about assigning default roles to users, see Section 4.4.2, "Default Associations for User Accounts," on page 63.

To create a portal administration role:

1 Click *Welcome*, and select *Control Panel*.

2 Under *Portal*, select *Roles*.

3 Click *Add*.

4 Specify the name of the role.

5 Specify a description for the role.

6 Select *Regular* from the *Type* drop-down list.

7 Click *Save*. The role displays in the *Roles* page.

8 To define permissions for the role, do the following:

    8a Click *Actions* next to the role and select *Define Permissions*.

    8b Click *Add Portal Permissions*.

    8c Select *Portal* for each action you wish to grant to the role.

8d Click *Save*.

9 To assign members to the role, do the following:

9a Click *Assign Members*.

9b Click the *Users*, *User Groups*, *Communities* or *Organizations* tab.

9c Click the *Available* tab.

9d Select the check box for the desired user(s), user group(s), community/Communities or Organization(s) to assign to the role.

9e Click *Save*.

11.1.3 Configuring Roles

To configure or change a role:

1 Click *Welcome* and select *Control Panel*.

2 Under *Portal*, select *Roles*.

3 Click *Action* next to role and select from the available options to update and configure the role, which include:

- ◆ **Edit:** Edit the role by changing its name or description.

- ◆ **Permissions:** Define which Roles (and thereby users and user groups) have permissions to edit the Role.

- ◆ **Define Permissions:** Define the permissions for this roles.

- ◆ **Assign Members:** Search and select users in the portal to be assigned to this role. These users inherit any permissions given to the role.

- ◆ **View Users:** View the users who are in the Role.

- ◆ **Delete:** Deletes the Role.

4 Click *Save*.

11.1.4 Understanding the Power Users Role

By default, many portlets in the Dashboard are configured so that *Power Users* have access to them, but regular users do not. If you decide to remove the *Power Users* role from the default user associations, you will need to modify the permissions on certain portlets.

11.1.5 Granting Role Permissions for Other Roles

For all roles, you can give permissions to other roles for the maintenance of that role.

To assign permissions to another role:

1 Click *Welcome*, and select *Control Panel*. The Control Panel opens.

2 Under *Portal*, select *Roles*.

3 Click *Actions* next a role of Community or Organization type, and select *Permissions.*

4 Grant permissions as necessary to the members of the selected role by selecting its associated check box.

- ◆ **Assign Members:** Allows them to assign users as members of the role.
- ◆ **Define Permissions:** Allows them to define permissions for the role.
- ◆ **Delete:** Allows them to delete the role.
- ◆ **Manage Announcements:** Allows them to maintain announcements.
- ◆ **Permissions:** Allows them to view permissions on the role.
- ◆ **Update:** Allows them to edit the role.

◆ **View:** Allows them to view role attributes.

5 Click *Submit*.

11.2 Setting Individual Permissions

Various individual permissions can be granted or denied for roles as the page or portlet level.

11.2.1 Assigning Individual Permissions to Pages

Page permissions are applicable only to the page for which they were configured.

To assign individual permissions for a single page:

1 Click *Welcome* and select *Manage Pages*.

2 Click the link for the desired page.

3 Click *Permissions*.

Role	Add Discussion	Update	View
Business Service Management	☐	☐	☐
EMEA	☐	☐	☐
Guest	☐	☐	☑
Journal	☐	☐	☐
North America	☐	☐	☐
Owner	☑	☑	☑
Portal Community Admin	☐	☐	☐
Power User	☐	☐	☐
User	☐	☐	☐
Community 4354	☐	☐	☐
Community Member	☑	☐	☑

Permissions — « Back — Showing 13 results. — Showing 13 results. — Submit

4 For each entity, assign permissions by moving them from the Available to the Current table:

◆ **Add Discussion:** to allow users assigned to the role to add and manage discussions for the page.

Update: to allow users assigned to the role to update the page.

View: to allow users assigned to the role to view the page.

5 Click *Submit*.
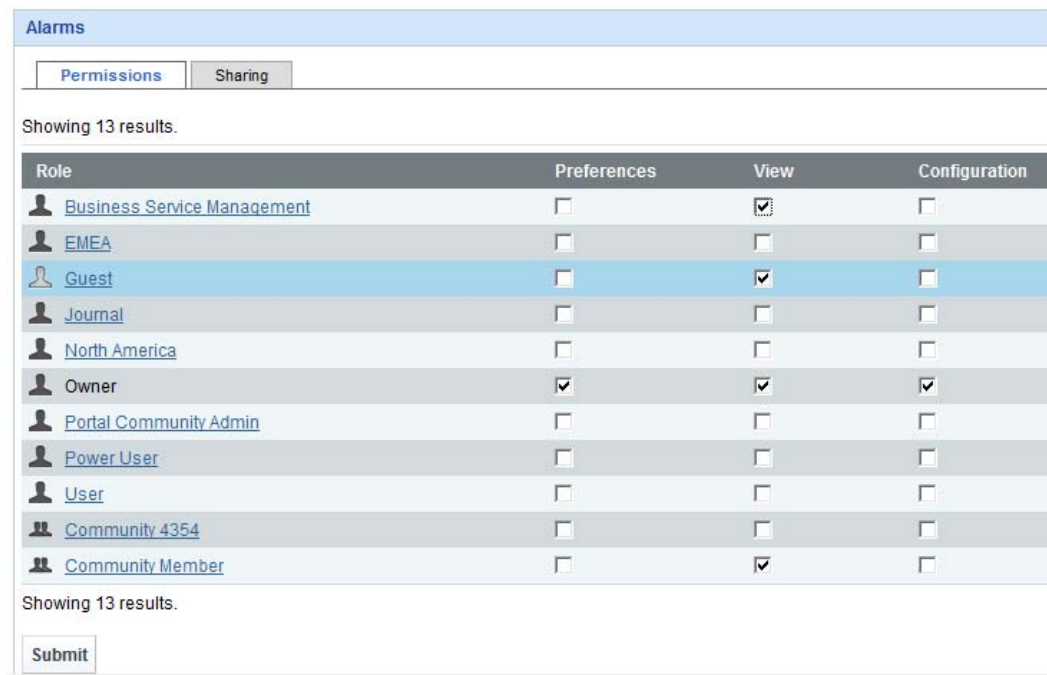
11.2.2 Assigning Individual Permissions to a Portlet

While permissions can be configured for an individual portlet, it is not the best way to implement permissions because you may need to repeat the process for many users.

Portlet permissions are applicable only to the portlet instance for which they were configured.

To configure permissions for a portlet instance:

1 Click ⚙ (*Configuration*) for the portlet.

2 Click the *Permissions* tab.

Role	Preferences	View	Configuration
👤 Business Service Management	☐	☑	☐
👤 EMEA	☐	☐	☐
👤 Guest	☐	☑	☐
👤 Journal	☐	☐	☐
👤 North America	☐	☐	☐
👤 Owner	☑	☑	☑
👤 Portal Community Admin	☐	☐	☐
👤 Power User	☐	☐	☐
👤 User	☐	☐	☐
👥 Community 4354	☐	☐	☐
👥 Community Member	☐	☑	☐

Alarms — Permissions / Sharing — Showing 13 results. Showing 13 results. Submit

3 For each role select any of the following check boxes as desired:

- **Preferences:** to allow users assigned to the role to view and modify preferences for that portlet.

  View: to allow users assigned to the role to view that portlet.

  Configuration: to allow users assigned to the role to view and modify configuration settings for that portlet.

4 Click *Submit*.

11.3 Delegating Tasks with Roles

Use permissions to assign tasks to users to help with the administration of the Dashboard. For example, assign to a user some of the roles of an enterprise, organization, or location administrator. Assign users to manage communities and pages within communities. You can moderate content by distributing it among communities and delegate the responsibility for moderating communities to various users.

To delegate tasks using roles:

1 Assign permissions to a role that allow a user to perform a specific task.

2 Assign that role to the resource.

3 Then assign users to that role.

Roles can be assigned to any resource, regardless of scope.

11.4 Verifying User Permissions

The impersonate feature allows you to log in as a user and see exactly what the user sees. This is useful to verify that permissions are set correctly.

1 Click *Welcome* and select *Control Panel*.

2 Select *User Groups* under the *Portal* section.

3 Click *Action* for the user and select *Impersonate User*.

Advanced Administrative Topics

<div style="text-align: right; font-size: 3em;">12</div>

This section covers various administrative topics, such as:

12.1 Setting the JVM Memory

Memory for the Java Virtual Machine (JVM) for the Dashboard Web server (*Maximum Memory Pool*) is set to 1024 MB by default. It may be necessary to modify this memory setting for your implementation depending on the amount of data you wish to view in the dashboard. Contact Novell Consulting for help with properly sizing your implementation.

IMPORTANT: Before making any changes, contact Novell Support (http://support.novell.com) for recommendations.

To change the JVM memory for the Dashboard Windows Service:

1 To access the Operations Center Dashboard properties page, run
`NovellOperationsCenter_install_path\Dashboard\server\bin\tomcat6w.exe //ES//NOCDashboard`.

Where `ES` is the command line option for editing the service configuration. See the Apache Tomcat 6.0 How-To page on Windows Servvice (http://tomcat.apache.org/tomcat-6.0-doc/windows-service-howto.html) for more information on command line arguments.

2 Click the *Java* tab.

3 In the *Maximum Memory Pool* field, change the JVM memory setting.

4 Save the changes.

To change the JVM memory by customizing the JAVA_OPS variable, edit one of the following files in the `NovellOperationsCenter_install_path/Dashboard/server/bin` directory:

- **On Windows:** `setenv.bat`
- **On Unix:** `setenv.sh`

12.2 Encrypting the Dashboard Database Password

Database credentials are set in the `portal-ext.custom.properties` file, but the password can be encrypted to further secure your implementation.

To encrypt the database password:

1 To generate the encrypted password, run one of the following scripts:

- ◆ **Windows:** `NovellOperationsCenter_install_path/Dashboard`/bin/encrypt.bat
- ◆ **UNIX:** `NovellOperationsCenter_install_path/Dashboard`/bin/encrypt.sh

2 Copy and paste the encrypted password into the `NovellOperationsCenter_install_path/Dashboard`/server/webapps/ROOT/WEB-INF/classes/portal-ext.custom.properties file for the active database configuration.

If the database properties have not previously been added to the `portal-ext.custom.properties`, copy and paste the associated lines from the `portal-ext.properties` file in the same directory. The `portal-ext.properties` file should never be edited directly due to overwrites during software upgrades.

Note that the copied encrypted password should begin with `X-TEAV` and must not contain any passwords on the end.

3 Restart the Dashboard.

For more information about starting and stopping the Dashboard, see Section 2.3, "Starting and Stopping the Dashboard," on page 26.

12.3 Configuring Dashboard Ports for RMI Callbacks

Traditionally, firewall communication is restricted from the Dashboard to the Operations Center server. For more information on these RMI port settings, see Section 2.2.1, "Verifying Your Operations Center server's Default Accounts and Configuration Settings," on page 15.

However, in some environments, it may be necessary to specify the exact ports available to use for communication from the Operations Center server to the Dashboard.

To specify the RMI Callback Port:

1 Stop the Dashboard.

For information on stopping the Dashboard, see Section 2.3.2, "Stopping the Dashboard," on page 27.

2 Edit the `NovellOperationsCenter_install_path`\NOC\Dashboard\server\webapps\ManagedObjectsPortlets\WEB-INF\mo-settings.xml file to add the following:

```
<entry>

    <string>rmi.callback.port</string>

 <string>PortNumber</string>

</entry>
```

Where *PortNumber* is the port number or a range of acceptable port numbers. For example, `<string>6050:6059</string>` sets 6050 as the lowest available port number and 6059 as the highest available port number.

3 Start the Dashboard.

For information on starting the Dashboard, see Section 2.3.1, "Starting the Dashboard," on page 26.

12.4 Moving a Dashboard Configuration

After configuring the Dashboard, you might want to move the Dashboard configuration to another machine. For example, you can first deploy the Dashboard in a test or development environment, then later move it to a production environment for general use.

- Section 12.4.1, "Preparing to Move a Dashboard Configuration," on page 213
- Section 12.4.2, "Moving a Dashboard Configuration," on page 213

12.4.1 Preparing to Move a Dashboard Configuration

To successfully move a the Dashboard configuration, there are two prerequisites:

- Both the existing server and the target server must have the same version of the Dashboard, including the same patch bundles installed, and
- The configuration settings in the Operations Center Dashboard Configuration Manager must be the same on both servers.

12.4.2 Moving a Dashboard Configuration

To move a Dashboard configuration:

1 Shut down both the Dashboard servers.

2 Copy `NovellOperationsCenter_install_path/Dashboard`/server/bin/ `lportal.script` from the existing server to the target server.

3 Modify the `server_profiles` section of the target server's `NovellOperationsCenter_install_path/Dashboard`/server/webapps/ `ManagedObjectsPortlets/WEB-INF/data/serverprofiles-ext.xml` file for the server's properties.

4 Determine if any customizations were made to the existing server and if those customizations need to be made on the target server, as well.

   Some files that might have been customized are:

   - **portal-ext.custom.properties:** In `NovellOperationsCenter_install_path/ Dashboard`/server/webapps/ROOT/WEB-INF/classes/, it is used for auto-login, persistent connection account, disabling of portlets, power user personal pages changes, or for overriding other liferay properties set in portal.properties.

     Note that any settings in `portal-ext.custom.properties` file takes precedence over those in the `portal-ext.properties` file. Due to risk of overwrite, the `portal-ext.properties` and `portal.properties` files should not be customized.

   - **system-ext.properties:** In `NovellOperationsCenter_install_path/Dashboard`/ `server/webapps/ROOT/WEB-INF/classes/`, it is used for proxy server configuration

   - **web.xml:** In `NovellOperationsCenter_install_path/Dashboard`/server/conf/, it is used for session management

   - **globals.xml:** In `NovellOperationsCenter_install_path/Dashboard`/server/ `webapps/ManagedObjectsPortlets/WEB-INF/data/`, it is used for global defaults for all Operations Center portlets

5 Make the necessary customizations on the target server.

12.5 Upgrading the Dashboard

The following sections cover information about software patches as well as upgrading the Dashboard.

- Section 12.5.1, "About Patches," on page 214
- Section 12.5.2, "Installing Patches," on page 215
- Section 12.5.3, "Rolling Back a Patch Installation," on page 216
- Section 12.5.4, "Upgrading myMO/the Dashboard," on page 216
- Section 12.5.5, "Upgrading from the Dashboard Embedded Database to Oracle or SQL Server," on page 218

12.5.1 About Patches

Operations Center sends software updates for the Dashboard in patch bundles, which must be installed on the Dashboard server. Before installing a patch, read all correspondence sent along with the patch, including a Readme file or e-mail.

Patch files use the naming convention: *nnn-yyyy-mm-dd*CR*iiiiii*-R*xxxxx*-META-DASH.jar as follows:

Table 12-1 *Naming Conventions*

Patch Filename Component	Definition
nnn	Software version number (such as 500 for version 5.0.0).
yyyy	Current year.
mm	Current month (such as 03 for March).
dd	Current day (such as 01, 02, 03).
iiiiii	Issue number
xxxxx	Release number
META	If present, indicates the patch contains all interdependent patches.
DASH	Indicates that the patch is for the Dashboard. The name MO indicates that the patch is for Operations Center. For more information on installing this patch, see the *Novell Operations Center 5.0 Server Installation Guide*.

12.5.2 Installing Patches

The procedure for installing the patch is the same for UNIX and Windows. The type of file for a patch is `.jar`. If you receive the file with a different extension, rename it to `.jar` before installing it.

One or more patches can be applied at a time, but patches and rollbacks cannot be applied at the same time with the same command. When a patch has already been applied, but is a older version than what you are installing, it is necessary to rollback the patch before installing the newer version of the patch.

When a patch bundle is applied, all previously applied patches are removed before the patch is applied.

To install the patch:

1 Copy the patch bundle to the root of the Dashboard installation directory.

The installation directory in the file system should have a minimum free disk space of twice the size of the patch bundle file.

For example, if the `.jar` file is 50 MB, then the free disk space should be at least 100 MB.

2 At a command prompt, enter `Java` to verify that Java is installed.

Patch files are issued as `.jar` files. The patch bundle is a Java executable file so it is necessary to have Java (either 32-bit or 64-bit) running on the machine where the Dashboard is installed.

3 If you receive the patch file with a different extension than `.jar`, rename it to `.jar` before installing it.

4 At the command prompt in the Dashboard installation directory, enter `java -jar` and the filename of the patch bundle.

For example, if the Dashboard is installed in the `C:` directory and the name of the patch bundle is `500-20100328-DASH.jar`, then the command is:

```
C:\NovellOperationsCenter_install_path\Dashboard>java -jar 500-20100328-
DASH.jar
```

For additional options when running the installation, enter:

```
java -jar patch_bundle_filename(s) --help
```

Where, *patch_bundle_filename(s)* is a list of one or more patch files separated by a space.

This displays the following options:

- ◆ **–describe:** Prints patch manifest information.
- ◆ **–prompt:** Displays the Operations Center Dashboard Configuration Manager after the patch is installed.
- ◆ **–verbose:** Prints detailed information to the screen as the patch is installed.
- ◆ **--force:** Forces a patch to install even if it has already been applied. Never use the force command unless instructed to by Novell Support.

Add one of these commands at the end of the `java -jar patch_bundle_filename` command when installing the patch bundle (for example, `java -jar 500-20110328-DASH.jar --verbose`).

If installing on Windows and User Access Control (UAC) is enabled, you must run the command prompt as the Administrator.

5 During installation, the following occurs:

- A back up is automatically created for all files that are overwritten. For more information about rollback files, see Section 12.5.3, "Rolling Back a Patch Installation," on page 216.

- Patches (of the same version) that have already been applied are skipped unless the `--force` option was set.

- The Operations Center Configuration Manager always runs silently and applies the current settings.

- The patch does not override the existing Operations Center Configuration Manager settings.

  For more information regarding the Operations Center Configuration Manager, see the *Novell Operations Center 5.0 Server Configuration Guide*.

6 Review the following chapter to configure and start the Dashboard.

After the patch has been installed and a rollback file is created, the patch cannot be installed again. If you attempt to run the patch bundle `.jar` file again, the following error messages are displayed:

```
ERROR: Unable to continue since rollback jar already exists

ERROR: unable to create rollback jar
```

12.5.3 Rolling Back a Patch Installation

As part of the patch installation process, Operations Center automatically backs up all files that are overwritten and places them in a file called *patch_filename*-`rollback.jar`, such as `500-201180723-DASH-rollback.jar`.

If you decide to remove the changes made by the patch to Operations Center, run this rollback JAR file from the Operations Center root installation directory. The command for running the rollback file is the same as when the patch is installed. For example:

```
C:\OperationsCenter_install_path>java -jar 500-20110723-DASH-rollback.jar
```

When multiple rollback patches are applied using the same command, they are applied in the reverse order.

12.5.4 Upgrading myMO/the Dashboard

The following notes apply when upgrading your version of the Dashboard:

- The `Dashboard_install_path`/server/webapps/root/WEB-INF/portal-ext.xml file, which may have been customized for various property settings, is overwritten during the upgrade process. A copy is automatically saved as `portal-ext.xml.previous` in the same directory. If you had modified this file as part of your installation, you will need to restore these changes after the upgrade installation.

- Custom theme content is not updated during upgrades and any static links to documentation must be changed manually.

For instructions on upgrading the dashboard:

- "Upgrading to myMO 4.7" on page 217
- "Upgrading to Dashboard 5.0" on page 218

Upgrading to myMO 4.7

Before upgrading to myMO v4.7, be sure to review the upgrade notes in "myMO/Dashboard Upgrade Considerations" in *Novell Operations Center 5.0 Release Notes*.

Liferay 5.x introduced a Role Based Access Control (RBAC) algorithm that assigns permissions using Roles, and other user grouping objects (groups, organizations, permissions) are assigned to roles.

For additional information from Liferay about the new permission algorithm and why it was implemented, see http://www.liferay.com/web/raymond.auge/blog/-/blogs/1339340/maximized (http://www.liferay.com/web/raymond.auge/blog/-/blogs/1339340/maximized).

The permission algorithm is set in the *permissions.user.check.algorithm* property in the `portal-ext.properties` file. Because myMO v4.7 employs this new RBAC algorithm for assigning permissions, upgrading to myMO v4.7 requires additional steps to convert existing permissions from Algorithm 2 to the new Algorithm 5.

To upgrade to myMO 4.7:

1 Install myMO 4.7 over the existing myMO 4.6 directory.

2 Start the myMO service.

myMO runs with algorithm 2 for backwards compatibility with existing permissions.

For more information about starting the myMO service, see Section 2.3.1, "Starting the Dashboard," on page 26.

3 Login to the Operations Center Dashboard.

4 Click *Welcome* and select *Control Panel*.

5 Under *Server,* select *Server Administration*.

6 Click the *Data Migration* tab.

7 Click *Execute* to start the permissions conversion process.

8 When the conversion process is complete, logout of myMO and stop the myMO service.

For more information about stopping the myMO service, see Section 2.3.2, "Stopping the Dashboard," on page 27.

9 Modify the `myMO_install_path`/server/webapps/ROOT/WEB-INF/classes/portal-ext.ccustom.properties file to set the following:

`permissions.user.check.algorithm = 5`

10 Restart the myMO service.

For more information about starting the myMO service, see Section 2.3.1, "Starting the Dashboard," on page 26.

myMO now uses the latest permission algorithm with roles that were created during the permission conversion process.

11 New roles, created from existing permissions by the conversion process, can be accessed from the *Roles* page in the *Control Panel*. It may be helpful to rename these autogenerated roles with more meaningful names.

Upgrading to Dashboard 5.0

Before upgrading to Operations Center 5.0, be sure to review the upgrade notes in "Upgrades from Managed Objects to Operations Center v5.0" and "myMO/Dashboard Upgrade Considerations" in *Novell Operations Center 5.0 Release Notes*.

To upgrade from myMO to Operations Center Dashboard 5.0:

1 Do one of the following:

 ◆ If upgrading from myMO 4.6, follow the same steps as outlined in "Upgrading to myMO 4.7" on page 217, where you are installing Dashboard 5.0 over the existing myMO 4.6 directory.

 ◆ If upgrading from myMO 4.7, install the Dashboard over the existing myMO 4.7 directory.

12.5.5 Upgrading from the Dashboard Embedded Database to Oracle or SQL Server

If running an existing myMO/Dashboard implementation, you must switch from using the default Hypersonic SQL embedded database to upgrade to an Oracle or SQL Server database. If you have been using myMO/Dashboard with the embedded database, it is possible to upgrade your database and preserve existing data.

See Section 2.1.2, "Dashboard User System Requirements," on page 14 for supported database versions.

You must be running v4.7 to use an Oracle or SQL Database. During the v4.7 and v5.0 installation, the upgrade process upgrades the Hypersonic SQL embedded database and stores the files in the new default location of `Dashboard_install_path`/data/hsql.

IMPORTANT: myMO/Dashboard must be started at least once using the Hypersonic SQL embedded database, so that it can run a critical database verification processes. If you are installing Dashboard for the first time or have just upgraded, you must start myMO/Dashboard once before implementing the following steps to migrate the database to Oracle or SQL Server.

To migrate myMO/Dashboard to use an Oracle or SQL Server database on an existing integration:

1 Stop myMO. See Section 2.3.2, "Stopping the Dashboard," on page 27.

2 Do one of the following to create the schema for the new database:

 ◆ **Oracle:** Use the Oracle SQL*Plus Client to run the `Dashboard_install_path`/data/ scripts/create-oracle.sql file against your Oracle database.

  Note that the schema creation script contains some PL/SQL code which other jdbc based clients cannot execute.

 ◆ **SQL Server:** Run the `Dashboard_install_path`/data/scripts/create-sql-server.sql file against your SQL Server database.

3 Open the *Dashboard_install_path*/server/webapps/ROOT/WEB-INF/classes/portal-ext.custom.properties file and make the following changes in the *Database Support* section:

   3a Copy and paste the lines for the desired database and customize for your configuration from the portal-ext.properties file in the same directory, noting the following:

       ◆ jdbc.default.driverClassName and hibernate.dialect property values should not be changed.

       ◆ For the jdbc.default.url property, specify a valid url string for the given driver. jtds for sql server and oracle for oracle).

       ◆ For jdbc.default.username and jdbc.default.password properties, specify the credentials of a user that has valid access writes to the database.

       ◆ The jdbc.default.schema property is only specified for oracle and required only when running the dbmigrate script.

   Be sure to uncomment the lines from the portal-ext.properties file.

   Optionally, you can encrypt the password. For more information about encrypting the database password, see .

4 If needed, install the appropriate database drivers. Prepackaged JDCB drivers are available as part of the installation in the *Dashboard_install_path*/server/lib/ext/ directory. Install one of the following drivers:

   ◆ **Oracle:** ojdbc6.jar

   ◆ **SQL Server:** stds-1.2.2.jar

5 Using a command prompt, from *Dashboard_install_path*/bin/, do one of the following to migrate existing data from the database:

   ◆ **Windows:** Run dbmigrate.bat

   ◆ **UNIX:** Run dbmigrate.sh

The migration process copies all data from the Hypersonic SQL embedded database, located in the `Dashboard_install_path`/data/hsql directory, to the destination database as specified in step 3.

6 Restart myMO/Dashboard and verify that existing data is available. See Section 2.3.1, "Starting the Dashboard," on page 26.

12.6 Performing System Recovery

If the Operations Center server stops, the following occurs:

- The Dashboard continues to function for users already logged in, but data from Operations Center is not available. Operations Center portlets display a message stating that the Operations Center server is not accessible. After the Operations Center server restarts, users must log out of the Dashboard and log in again in order to see Operations Center data.

- Users who were not logged in before the server stopped cannot log in to the Dashboard until the Operations Center server is back up.

- The Access Control Synchronizer stops and user accounts are not synchronized until the Operations Center server has come back up.

If the Dashboard Web server stops for any reason, when it restarts, it identifies all users who were logged in to the Dashboard at the time of stoppage and logs them out of the Operations Center server. It then begins working as usual. For errors that can be logged in the trace file if the Dashboard Web server stops while writing data, see Section C.1.2, "Data Dispatcher Exception – Broken Pipe," on page 234.

System Properties File

A

The `system.properties` file contains properties that relate to the Dashboard including the proxy server configuration, default language, and default time zone. This file is never modified at any time.

The following sections describe how to override `system.properties` file properties as well as view default system properties:

- Section A.1, "Overriding System Settings in the Systems Properties File," on page 221
- Section A.2, "Viewing the Default System Properties," on page 222

A.1 Overriding System Settings in the Systems Properties File

The `system.properties` file contains properties that relate to the Dashboard including the proxy server configuration, default language, and default time zone. This file is never modified at any time.

Instead, a *NovellOperationsCenter_install_path/Dashboard*/server/webapps/ROOT/ WEB-INF/classes/system-ext.properties file is used to override setting, when necessary.

WARNING: Exercise caution when modifying the `system-ext.properties` file. Do not change any properties unless you are fully aware of the consequences. Changing some properties could cause conflicts with the Operations Center server and can have unintended consequences.

To configure the systems property file:

1 For the Dashboard to recognize the `system-ext.properties` file, open the *NovellOperationsCenter_install_path/Dashboard*\bin\catalina.bat (Windows) or the *NovellOperationsCenter_install_path/Dashboard*/bin/catalina.sh (UNIX) file.

2 Add the following line to the set *JAVA_OPTS* property:

```
-Dsystem.properties.load=true
```

A.2 Viewing the Default System Properties

1 To view the default system.properties on your installation, open the copy contained in the *NovellOperationsCenter_install_path/Dashboard*/server/webapps/ROOT/WEB-INF/lib/portal-ejb.jar file.

The system.properties file cannot be edited.

The code for the default system.properties file is as follows:

```
##
## Java
##
    #
    # The file encoding must be set to UTF-8 in order for the
    # internationalization to work correctly.
    #
    file.encoding=UTF-8
    #
    # Java uses the underlying operating system to generate images. If you
are
    # using UNIX and do not start the portal in a X Windows session, then
Java
    # will not know how to generate images and you'll get lots of nasty
    # exceptions. Setting this property to true will fix that. Sometimes
this
    # property cannot be set dynamically when the server starts and you'll
need
    # to edit your start script to include this as a system property.
    #
    java.awt.headless=true
    #
    # Set the default language.
    #
    user.country=US
    user.language=en
    #
    # The time zone must be set GMT so that the portal knows how to
properly
    # translate time across time zones.
    #
    user.timezone=GMT
##
## Servlet Filters
##
    #
    # If the user can unzip compressed HTTP content, the compression filter
will
    # zip up the HTTP content before sending it to the user. This will
speed up
    # page rendering for users that are on dial up.
    #
    com.liferay.filters.compression.CompressionFilter=true
    com.liferay.filters.compression.CompressionFilter.encoding=UTF-8
    #
    # The strip filter will remove blank lines from the outputted content.
This
    # will speed up page rendering for users that are on dial up.
    #
```

```
    com.liferay.filters.strip.StripFilter=true
    com.liferay.filters.strip.StripFilter.encoding=UTF-8
    #
    # The layout cache filter will cache pages to speed up page rendering
for
    # guest users. Set the refresh time in milliseconds on how often the
cache
    # should refresh. Set it to 0 if the cache never times out. Default
time
out
    # is set to one hour.
    #
    com.liferay.portal.servlet.filters.layoutcache.LayoutCacheFilter=true

com.liferay.portal.servlet.filters.layoutcache.LayoutCacheFilter.encoding
=UTF-8

com.liferay.portal.servlet.filters.layoutcache.LayoutCacheFilter.refresh.
time=3600000
    #
    # The virtual host filter maps hosts to public and private pages. For
    # example, if the public virtual host is www.helloworld.com and the
friendly
    # URL is /helloworld, then http://www.helloworld.com is mapped to
    # http://localhost:8080/web/helloworld.
    #
    com.liferay.portal.servlet.filters.virtualhost.VirtualHostFilter=true
    #
    # The CAS filter will redirect the user to the CAS login page for SSO.
See
    # http://www.ja-sig.org/products/cas for more information.
    #
    com.liferay.filters.sso.cas.CASFilter=false
##
## Logging
##
    #
    # Set any logger that implements org.apache.commons.logging.Log.
    #

#org.apache.commons.logging.Log=org.apache.commons.logging.impl.Log4JLogg
er
    #
    # Set the following to true if Log4j complains that it was not properly
    # configured.
    #
    log4j.configure.on.startup=true
##
## Encryptor
##
    #
    # Set the security provider class.
    #

com.liferay.util.Encryptor.provider.class=com.sun.crypto.provider.SunJCE
##
## HTTP
##
```

```
    #
    # Set the location of the HTTP proxy that the portal will use to fetch
    # external content.
    #
    #http.proxyHost=192.168.0.200
    #http.proxyPort=4480
    #
    # These are read for backwards compatibility and only used if the
    # "http.proxyHost" and "http.proxyPort" settings are not specified.
    #
    #com.liferay.util.Http.proxy.host=192.168.0.200
    #com.liferay.util.Http.proxy.port=4480
    #
    # Set the proxy authentication type.
    #
    #com.liferay.util.Http.proxy.auth.type=username-password
    #com.liferay.util.Http.proxy.auth.type=ntlm
    #
    # Set user name and password used for HTTP proxy authentication.
    #
    #com.liferay.util.Http.proxy.username=
    #com.liferay.util.Http.proxy.password=
    #
    # Set additional properties for NTLM authentication.
    #
    #com.liferay.util.Http.proxy.ntlm.domain=
    #com.liferay.util.Http.proxy.ntlm.host=
    #
    # Set the connection timeout when fetching HTTP content.
    #
    com.liferay.util.Http.timeout=5000
##
## Format
##
    #
    # Set the location of the class that implements
    # com.liferay.format.PhoneNumberFormat. This class will format phone
    # numbers.
    #

com.liferay.util.format.PhoneNumberFormat=com.liferay.util.format.USAPhon
eNumberFormat

#com.liferay.util.format.PhoneNumberFormat=com.liferay.util.format.Identi
calPhoneNumberFormat
##
## Axis
##
    #
    # Urls that match the specified pattern will use the SimpleHTTPSender.
Urls
    # that do not match the specified pattern will use Axis' default
HTTPSender.
    #

com.liferay.util.axis.SimpleHTTPSender.regexp.pattern=.*mappoint\.net.*

##
## XSS (Cross Site Scripting)
```

```
##
    #
    # Set the pattern to strip text of XSS hacks.
    #
com.liferay.util.XSSUtil.regexp.pattern=(?i)<[\\s]*/?script.*?>|<[\\s]*/
?embed.*?>|<[\\s]*/
?object.*?>|<[\\s]*a[\\s]*href[^>]*javascript[\\s]*:[^(^)^>]*[(][^)]*[)][
^>]*>[^<]*(<[\\s]*/[\\s]*a[^>]*>)*
##
## Upload Servlet Request
##
    #
    # Set the maximum file size. Default is 1024 * 1024 * 1000.
    #
    com.liferay.util.servlet.UploadServletRequest.max.size=104857600
    #
    # Set the temp directory for uploaded files.
    #
    #com.liferay.util.servlet.UploadServletRequest.temp.dir=C:/Temp
##
## Session Parameters
##
    #
    # Encrypt session parameters so that browsers cannot remember them.
    #
    com.liferay.util.servlet.SessionParameters=true
##
## Lucene
##
    #
    # Set a timeout to avoid lock errors.
    #
    #org.apache.lucene.writeLockTimeout=30000
##
## Quartz
##
    #
    # Make threads daemon so the JVM exits cleanly.
    #
    org.quartz.threadPool.makeThreadsDaemons=true
##
## Velocity Engine
##
    #
    # Input a list of comma delimited class names that extend
    # com.liferay.util.velocity.VelocityResourceListener. These classes
will
    # run in sequence to allow you to find the applicable ResourceLoader
    # to load a Velocity template.
    #
com.liferay.util.velocity.VelocityResourceListener=com.liferay.portal.vel
ocity.ServletVelocityResourceListener,\
com.liferay.portal.velocity.JournalTemplateVelocityResourceListener,\
com.liferay.portal.velocity.DefaultVelocityResourceListener
```

Running a Console or Unattended Installation

B

Alternative methods for installing Operations Center software are provided in the following sections:

- Section B.1, "Console Installation," on page 227
- Section B.2, "Unattended Installation," on page 228

B.1 Console Installation

The console installation runs a text-based version of the Dashboard installation wizard. In a console installation:

- The options are the same as the Windows-based version, except that you must type the responses.
- There are no *Choose* buttons to open directories to locate files. Instead, you must provide the path names for the files.
- There is no option to open the Configuration Manager at the end of the installation. The default settings for the Configuration Manager are automatically applied.
- You can run a console installation on a Unix machine without having an X Window system set to display graphical (X client) applications on the local X server display. However, you will still need the local X server display to open the Configuration Manager on that machine, if you opt to do so after installing Operations Center.

To run a console installation:

1 Do one of the following:

- **Windows:** Insert the Operations Center Installation CD and from the directory where the installation executable file resides, type `install.bat -i console` at a command prompt.
- **Unix:** Create a home directory for the installation, mount the Operations Center Installation CD, then from the directory where the installation executable file resides, type `install.sh -i console` at a command prompt.

2 Follow the prompts in the script to provide the information required to install the product. For more information about installer prompts, see Section 2.2.2, "Installing the Dashboard," on page 17.

3 Continue with Section 2.2.3, "Configuring the Dashboard Database," on page 19.

B.2 Unattended Installation

This method installs Operations Center without opening the Installation Wizard. It takes all of the default values and run silently in the background. A response file can be used to supply predefined values including:

- Options from the installation wizard
- Licensing information from the license file
- Configuration Manager settings
- A configuration stored in the Configuration Storage data source

This method is intended for when you need to rerun the installation often, such as in a test environment.

You can run a silent installation on a Unix machine without having an X Window system set to display graphical (X client) applications on the local X server display. However, you will still need the local X server display to open the Configuration Manager on that machine.

For more information about the Configuration Manager and configurations and the Configuration Storage data source, see the *Novell Operations Center 5.0 Server Configuration Guide*.

Use the following sections to run an unattended installation:

- Section B.2.1, "Running an Unattended Installation," on page 228
- Section B.2.2, "Using a Response File," on page 230
- Section B.2.3, "Sample Response File," on page 230

B.2.1 Running an Unattended Installation

To run an unattended installation:

1 To install Operations Center, do one of the following:

- **Windows:** Insert the Operations Center Dashboard Installation CD and from the directory where the installation executable file resides, type `install.bat -i silent` at a command prompt.
- **Unix:** Create a home directory for the installation, mount the Operations Center Dashboard Installation CD, then from the directory where the installation executable file resides, type `install.sh -i silent` at a command prompt.

Default install options are used to complete the installation.

2 After the unattended installation has completed, continue with Section 2.2.3, "Configuring the Dashboard Database," on page 19.

To run an unattended installation:

1 To install Operations Center, do one of the following:

- **Windows:** Insert the Operations Center Installation CD and from the directory where the installation executable file resides, type `install.bat -i silent` at a command prompt.

- **Unix:** Create a home directory for the installation, mount the Operations Center Installation CD, then from the directory where the installation executable file resides, type `install.sh -i silent` at a command prompt.

Default install options are used to complete the installation.

2 After the unattended installation has completed, continue with .

Using a Response File to Customize Installation Options

To run an unattended installation with a response file:

1 Because there are multiple ways to create a response file, depending on the content you want to include, do one of the following:

- To create a response file that includes the options from the installation wizard, licensing information, configuration manager settings, and a configuration stored in the Configuration storage data source, at a command prompt on the machine that has the existing the Dashboard installation that you want to use, enter the following:

  ```
  mosjava com.mosol.install.myMOInstallerResponseFile responsefile.rsp
  installdir
  ```

  replacing *responsefile* with the name of the response file to be created and *installdir* with the installation directory for the existing the Dashboard installation.

  For example, type:

  ```
  mosjava com.mosol.install.myMOInstallerResponseFile C:/
  moresponse.rps C:/NovellOperationsCenter_install_paht\Dashboard
  ```

  to create a response file called `moresponse.rps` that uses the Dashboard installation located in the `C:/` directory.

- To create a response file that includes installation wizard options only, run a wizard-based or console installation by typing the following at a command prompt:

`install.bat -i install method -r filename` for Windows where *install method* is the installation method (either GUI or console) and *filename* is the name of the response file, such as `myinstall.rsp`.

`install.sh -i install method -r filename` for Unix where *install method* is the installation method (either GUI or console) and *filename* is the name of the response file, such as `myinstall.rsp`.

When a response file is created, it is saved in the Dashboard installation directory.

2 Copy the response file to the server where want to install the Dashboard.

If necessary, edit the file using a text editor. Some changes that you can make include:

- Adding licensing information
- Changing configuration settings
- Modifying the configuration from the Configuration Storage data source

3 To use the response file to install the Dashboard, do one of the following:

- **Windows:** Insert the Dashboard Installation CD and from the directory where the installation executable file resides, type `install.bat -i silent -f filename.rsp` at a command prompt replacing *filename* with the name of the response file.

- **Unix:** Create a home directory for the installation, mount the Dashboard Installation CD, then from the directory where the installation executable file resides, type `install.sh -i silent -f` *filename*`.rsp` at a command prompt replacing *filename* with the name of the response file.

The options in the response file are used to automatically complete the installation.

4 After the unattended installation has completed, continue with .

B.2.2 Using a Response File

Use the response file during the process of performing a silent installation of the Dashboard on a different machine. The installation uses the options in the response file to automatically complete the installation wizard.

To install the Dashboard using the response file:

1 Copy the response file to the machine where you want to install the Dashboard.

If necessary, edit the response file using a text editor.

2 Perform a silent installation, enter the following at a command prompt:

- **Windows:** `install.bat –i silent –f` *filename*`.rsp`

    where *filename* is the name of the response file (such as `myinstall.rsp`).

- **UNIX:** `install.sh –i silent –f` *filename*`.rsp`

    where *filename* is the name of the response file (such as `myinstall.rsp`).

B.2.3 Sample Response File

This section contains a sample response file for a the Dashboard installation, which is a standard ASCII text file. Response files are created from an actual installation of the product, giving you default values that are determined by that installation.

Because a response file's content contains very few carriage returns, the following sample's content is word-wrapped automatically where the documentation program can break a long string, such as at spaces, forward slashes, or certain characters. For example, in a text editor with word-wrap turned off, this sample response file contains 5 lines, one of which contains most of the content.

```
#Thu Feb 07 10:46:06 EST 2008
LICENSE_CONTENTS=
CONFIGURATIONS_CONTENTS=
USER_INSTALL_DIR=C\:\\myMOFeb7_Clone0
CUSTOMIZE_PROPERTIES_CONTENTS=<config>\n  <properties>\n    <entry>\n
<string>MOCommunicationsMode</string>\n      <string>https</string>\n    </
entry>\n    <entry>\n      <string>MyMORMICache</string>\n      <string>false</
string>\n    </entry>\n    <entry>\n      <string>MOServerHost</string>\n
<string>dhendricks</string>\n    </entry>\n    <entry>\n
<string>JavaHome</string>\n      <string>C\:\\Documents and
Settings\\sshetty\\Local
Settings\\Temp\\I1202399004\\Windows\\resource\\jre</string>\n    </entry>\n
<entry>\n      <string>MymoLogLevel</string>\n      <string>WARN</string>\n
</entry>\n    <entry>\n      <string>MOSqlServerPort</string>\n
<string>7560</string>\n    </entry>\n    <entry>\n      <string>MymoLogInfo</
string>\n      <string>FILE "C\:\\myMOFeb7\\logs\\dashboard.trc" SIZE 5000000
```

RENAME "C\:\\myMOFeb7\\logs\\mymo.%36datetime.trc"</string>\n   </entry>\n
<entry>\n   <string>MOImageServerPort</string>\n   <string>7002</
string>\n   </entry>\n   <entry>\n   <string>LocalDomain</string>\n
<string>localdomain</string>\n   </entry>\n   <entry>\n
<string>MyMOWebServerPort</string>\n   <string>7081</string>\n   </
entry>\n   <entry>\n   <string>HttpsCommentEnd</string>\n   <string></
string>\n   </entry>\n   <entry>\n   <string>MyMOWebServerShutdownPort</
string>\n   <string>7006</string>\n   </entry>\n   <entry>\n
<string>jvm.home</string>\n   <string>C\:\\Program
Files\\Java\\jre1.5.0_13</string>\n   </entry>\n   <entry>\n
<string>MyMOCommunicationsMode</string>\n   <string>bidirSSL</string>\n
</entry>\n   <entry>\n   <string>UserName</string>\n   <string>sjones</
string>\n   </entry>\n   <entry>\n   <string>MOWebServerPort</string>\n
<string>7080</string>\n   </entry>\n   <entry>\n
<string>MyMOServerPushEnabled</string>\n   <string>false</string>\n   </
entry>\n   <entry>\n   <string>MORMIServerPort</string>\n
<string>7099</string>\n   </entry>\n   <entry>\n
<string>MyMOServerAlarmOperationsEnabled</string>\n   <string>false</
string>\n   </entry>\n   <entry>\n   <string>InstallDir</string>\n
<string>C\:\\myMOFeb7</string>\n   </entry>\n   <entry>\n
<string>HostName</string>\n   <string>djones</string>\n   </entry>\n
<entry>\n   <string>HttpCommentEnd</string>\n   <string>--></
string>\n   </entry>\n   <entry>\n   <string>HttpCommentHead</string>\n
<string><\!--</string>\n   </entry>\n   <entry>\n   <string>IpAddress</
string>\n   <string>192.168.10.228</string>\n   </entry>\n   <entry>\n
<string>MyMOWebServerSSLPort</string>\n   <string>7443</string>\n   </
entry>\n   <entry>\n   <string>MyMORMICacheTimeout</string>\n
<string>75</string>\n   </entry>\n   <entry>\n
<string>HttpsCommentHead</string>\n   <string></string>\n   </entry>\n </
properties>\n</config>

Troubleshooting Trace Logs

C

The *NovellOperationsCenter_install_path/Dashboard*/server/logs/dashboard.trc file contains error and warning messages related to the Dashboard server.

C.1 Errors

C.1.1 User ID Exception – Unable to Synchronize User

The Dashboard uses the managedobjects.com domain name for a reserved user account. If any Dashboard user account has a username containing "managedobjects.com the following error occurs:

```
2007-05-02 10:13:02,670 ERROR com.mosol.liferay.authenticator.MOAuth - Unable
to synchronize user managedobjects.com.1001
com.liferay.portal.UserIdException
        at
com.liferay.portal.service.impl.UserLocalServiceImpl.validate(UserLocalServic
eImpl.java:1460)
        at
com.liferay.portal.service.impl.UserLocalServiceImpl.addUser(UserLocalService
Impl.java:194)
        at sun.reflect.GeneratedMethodAccessor513.invoke(Unknown Source)
        at
sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.
java:25)
        at java.lang.reflect.Method.invoke(Method.java:585)
        at
org.springframework.aop.support.AopUtils.invokeJoinpointUsingReflection(AopUt
ils.java:280)
        at
org.springframework.aop.framework.ReflectiveMethodInvocation.invokeJoinpoint(
ReflectiveMethodInvocation.java:187)
        at
org.springframework.aop.framework.ReflectiveMethodInvocation.proceed(Reflecti
veMethodInvocation.java:154)
        at
org.springframework.transaction.interceptor.TransactionInterceptor.invoke(Tra
nsactionInterceptor.java:107)
        at
org.springframework.aop.framework.ReflectiveMethodInvocation.proceed(Reflecti
veMethodInvocation.java:176)
```

```
        at
org.springframework.aop.framework.JdkDynamicAopProxy.invoke(JdkDynamicAopProx
y.java:210)
        at $Proxy7.addUser(Unknown Source)
        at
com.liferay.portal.service.UserLocalServiceUtil.addUser(UserLocalServiceUtil.
java:94)
```

For more information, see Section 4.2.1, "Understanding Username Restriction," on page 52.

C.1.2 Data Dispatcher Exception – Broken Pipe

If the Dashboard Web server stops while writing data, an exception can be thrown that appears as a SocketException or broken pipe error. This exception is not a true error because no data was lost and the Dashboard will recover itself and resume normal operations.

For more information, see Section 12.6, "Performing System Recovery," on page 220.

The following is a sample of the code that might appear for this type of exception:

```
2007-02-23 15:44:13,555 ERROR Web.Server -
StandardWrapperValve[DataDispatcher]: Servlet.service() for servlet
DataDispatcher threw exception
java.net.SocketException: Broken pipe
        at java.net.SocketOutputStream.socketWrite0(Native Method)
        at
java.net.SocketOutputStream.socketWrite(SocketOutputStream.java:92)
        at java.net.SocketOutputStream.write(SocketOutputStream.java:136)
        at
org.apache.coyote.http11.InternalOutputBuffer$OutputStreamOutputBuffer.doWrit
e(InternalOutputBuffer.java:652)
        at
org.apache.coyote.http11.filters.ChunkedOutputFilter.doWrite(ChunkedOutputFil
ter.java:166)
        at
org.apache.coyote.http11.InternalOutputBuffer.doWrite(InternalOutputBuffer.ja
va:523)
        at org.apache.coyote.Response.doWrite(Response.java:513)
        at
org.apache.coyote.tomcat4.OutputBuffer.realWriteBytes(OutputBuffer.java:380)
        at
org.apache.tomcat.util.buf.ByteChunk.append(ByteChunk.java:348)
        at
org.apache.coyote.tomcat4.OutputBuffer.writeBytes(OutputBuffer.java:407)
        at
org.apache.coyote.tomcat4.OutputBuffer.write(OutputBuffer.java:394)
        at
org.apache.coyote.tomcat4.CoyoteOutputStream.write(CoyoteOutputStream.java:11
0)
        at
org.apache.coyote.tomcat4.CoyoteOutputStream.write(CoyoteOutputStream.java:10
4)
        at
org.jahia.bin.AbstractDispatchingServlet.service(AbstractDispatchingServlet.j
ava:171)
        at javax.servlet.http.HttpServlet.service(HttpServlet.java:853)
        at
org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationF
```

```
ilterChain.java:247)
            at
org.apache.catalina.core.ApplicationFilterChain.access$000(ApplicationFilterC
hain.java:98)
            at
org.apache.catalina.core.ApplicationFilterChain$1.run(ApplicationFilterChain.
java:176)
            at java.security.AccessController.doPrivileged(Native Method)
            at
org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterCha
in.java:172)
            at
org.apache.catalina.core.StandardWrapperValve.invoke(StandardWrapperValve.jav
a:260)
            at
org.apache.catalina.core.StandardPipeline$StandardPipelineValveContext.invoke
Next(StandardPipeline.java:643)
            at
org.apache.catalina.core.StandardPipeline.invoke(StandardPipeline.java:480)
            at
org.apache.catalina.core.ContainerBase.invoke(ContainerBase.java:995)
            at
org.apache.catalina.core.StandardContextValve.invoke(StandardContextValve.jav
a:191)
            at
org.apache.catalina.core.StandardPipeline$StandardPipelineValveContext.invoke
Next(StandardPipeline.java:643)
            at
org.apache.catalina.core.StandardPipeline.invoke(StandardPipeline.java:480)
            at
org.apache.catalina.core.ContainerBase.invoke(ContainerBase.java:995)
            at
org.apache.catalina.core.StandardContext.invoke(StandardContext.java:2396)
            at
org.apache.catalina.core.StandardHostValve.invoke(StandardHostValve.java:180)
            at
org.apache.catalina.core.StandardPipeline$StandardPipelineValveContext.invoke
Next(StandardPipeline.java:643)
            at
org.apache.catalina.valves.ErrorDispatcherValve.invoke(ErrorDispatcherValve.j
ava:170)
            at
org.apache.catalina.core.StandardPipeline$StandardPipelineValveContext.invoke
Next(StandardPipeline.java:641)
            at
com.mosol.Formula.Server.WebServerErrorReportValve.invoke(WebServerErrorRepor
tValve.java:73)
            at
org.apache.catalina.core.StandardPipeline$StandardPipelineValveContext.invoke
Next(StandardPipeline.java:641)
            at
org.apache.catalina.core.StandardPipeline.invoke(StandardPipeline.java:480)
            at
org.apache.catalina.core.ContainerBase.invoke(ContainerBase.java:995)
            at
org.apache.catalina.core.StandardEngineValve.invoke(StandardEngineValve.java:
174)
            at
org.apache.catalina.core.StandardPipeline$StandardPipelineValveContext.invoke
```

```
Next(StandardPipeline.java:643)
            at
org.apache.catalina.core.StandardPipeline.invoke(StandardPipeline.java:480)
            at
org.apache.catalina.core.ContainerBase.invoke(ContainerBase.java:995)
            at
org.apache.coyote.tomcat4.CoyoteAdapter.service(CoyoteAdapter.java:223)
            at
org.apache.coyote.http11.Http11Processor.process(Http11Processor.java:405)
            at
org.apache.coyote.http11.Http11Protocol$Http11ConnectionHandler.processConnec
tion(Http11Protocol.java:380)
            at
org.apache.tomcat.util.net.TcpWorkerThread.runIt(PoolTcpEndpoint.java:508)
            at
org.apache.tomcat.util.threads.ThreadPool$ControlRunnable.run(ThreadPool.java
:533)
            at java.lang.Thread.run(Thread.java:595)
```

C.2 Warnings

◆ Section C.2.1, "No Such LayoutSet Exception," on page 236

C.2.1 No Such LayoutSet Exception

If no Portal URL and Home URL have been specified in Section 3.2, "Updating Dashboard Administrative Configurations," on page 31, warnings similar to the following can appear:

```
2007-04-20 17:09:44,520 WARN
com.liferay.portal.servlet.filters.virtualhost.VirtualHostFilter -
com.liferay.portal.NoSuchLayoutSetException: No LayoutSet exists
with the key {companyId=managedobjects.com,virtualHost=qaredhat40}
```

This warning has no impact on the functioning of the Dashboard.

Documentation Updates

D

This section contains information on documentation content changes that were made in the *Dashboard Guide* after the initial release of Operations Center 5.0. The changes are listed according to the date they were published.

If you need to know where a copy of the PDF documentation you are using is the most recent, the PDF document includes a publication date on the title page.

* Section D.1, "September 2011 Patch Release," on page 237

D.1 September 2011 Patch Release

Updates were made to the following sections:

Location	Update
Section 6.2, "Adding Portlets," on page 93	Operations Center portlet are no longer located under the Novell structure. The are found under Operations Center when adding a new application/portlet.
Section 8.1.2, "Performing Alarms General Configuration," on page 133	New feature in Alarms portlet preferences allows you to select alarm columns based on a list sampled from the current alarms. You can also now define multiple configurations for use when the portlet is dynamically updated via a selection in another portlet.

The alarm pagination configuration option is no longer available for the Alarms portlet due to performance issues. |
Section 8.5.2, "Configuring the Performance Portlet," on page 148	Regular expressions can now be used when charting performance profile expressions.
Section 12.1, "Setting the JVM Memory," on page 211	Additional parameter information added to the command to update JVM memory.
Section B.2.1, "Running an Unattended Installation," on page 228	Correction made to the command used to create a response file.