# CA Spectrum® Infrastructure Manager and CA NSM

## Integration Guide

### Spectrum r9.2/ NSM r11.2 SP2

# CA Product References

This document references the following CA components and products:

- Alert Management System (AMS)
- CA Spectrum® Infrastructure Manager (CA Spectrum)
- CA Unicenter® NSM (CA NSM)
- CA Unicenter® Management Portal (Unicenter MP)
- CA Unicenter® Management Command Center (Unicenter MCC)
- CA NSM Distributed State Machine (DSM)
- WorldView

# Contact CA

**Contact Technical Support**

For your convenience, CA provides one site where you can access the information you need for your Home Office, Small Business, and Enterprise CA products. At http://ca.com/support, you can access the following:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

**Provide Feedback**

If you have comments or questions about CA product documentation, you can send a message to techpubs@ca.com.

If you would like to provide feedback about CA product documentation, complete our short customer survey, which is also available on the CA Support website, found at http://ca.com/docs.

# New Features in this Release

The CA Spectrum-NSM Integration Kit provides the following new features in release 5.0:

- Expanded CA NSM functionality for handling CA Spectrum suppressed alarms (see page 31).
- New Alert Management System (AMS) queues for CA Spectrum model classes (see page 28). New predefined message record and action policies map the AMS queues to the CA Spectrum model classes.
- Ability to control whether alarms are deleted when the DSM restarts (see page 31).

# Contents

# Chapter 1: About the CA Spectrum-NSM Integration

This guide describes how to install the CA Spectrum-NSM Integration Kit and briefly describes how the software processes CA Spectrum device model alarms so that they appear as events in CA NSM. This guide supports the following product and kit versions only:

- CA Spectrum versions from 9.1
- CA NSM versions from r11.2 SP2
- CA Spectrum-NSM Integration Kit 5.0

The three versions of Spectrum Integration Kit, 3.5, 4.0, and 5.0 can be installed independently of each other. So, you do not need to upgrade or degrade from either upper or lower versions.

**Note:** To install Spectrum Integration Kit 5.0, you must uninstall Spectrum Integration Kit 3.5 using the Spectrum Integration Kit 3.5 installer.

This section contains the following topics:



## CA Spectrum-NSM Integration Kit

The CA Spectrum integration with CA NSMis achieved using the CA Spectrum-NSM Integration Kit. After you install the CA Spectrum-NSM Integration Kit, you can do the following from CA NSM administrative interfaces:

- Monitor states of CA Spectrum objects
- View and manage CA Spectrum device model alarms
- View CA Spectrum device model alarms as events in the Event Console
- Access the CA Spectrum OneClick Console from the MCC or 2D Map

The CA Spectrum-NSM Integration Kit is included on the product media for both the CA NSM and CA Spectrum applications.

# How the CA Spectrum-NSM Integration Works

The CA Spectrum-NSM Integration Kit uses existing CA Spectrum and CA NSM architectures to establish a communication channel between the two products. After you install the kit, CA Spectrum uses the CA Spectrum UnicenterNotifier to forward alarms to CA NSM. The CA Spectrum UnicenterNotifier uses one of the following methods to forward the alarms:

- **SNMP Traps**

  Using traps is the default method. During installation, you specify the address or host name of the target DSM node to which the traps are sent and insert it in the trap commands in the files coldstart.bat, SetScript, and ClearScript.

- **Unicenter NSM Event Agent**

  Using the CA NSM Event Agent forwards alarms to a CA NSM Event Manager. The Event Manager then forwards the alarm information to the DSM using Message Records and Actions policy. This method is more reliable than the default method, because the Event Agent provides mechanisms like store and forward that help ensure that messages are delivered. Using the Event Agent requires preinstallation configuration.

When you install the CA Spectrum-NSM Integration Kit, it determines whether the necessary utilities reside on the target system, then loads DSM policy, message policy, and context menus for CA Spectrum objects. Alarms are loaded into CA NSM by the following process:

1. The UnicenterNotifier forwards a trap to CA NSM during installation that creates the SpectrumAgent object on the previously-discovered CA Spectrum server.
2. When you start the UnicenterNotifier for the first time, it forwards all open alarms to the CA NSM server.
3. In CA NSM, the DSM creates a SpectrumMO object with the appropriate condition and associates it with the CA NSM object that has the same address.
4. The SpectrumMO object is also created in a new CA Spectrum Business Process View.

The CA Spectrum alarms appear in the MCC and the 2D Map under either the existing objects in the topology or the new CA Spectrum Business Process View. The alarms appear as events in the Event Console with a prefix of "SPECTRUM:."

CA Spectrum and CA NSM use similar color schemes for object status. The following list describes the similarities and differences in object status color:

**Yellow**

Indicates a Minor state in both CA NSM and CA Spectrum.

**Orange**

Indicates a Major state in both CA NSM and CA Spectrum.

**Red**

Indicates a Critical state in both CA NSM and CA Spectrum.

**Grey**

Indicates a Suppressed state in CA Spectrum. Indicates an Unknown state in CA NSM.

**Brown**

Indicates a Maintenance state in CA Spectrum. Objects with this status appear as Unknown (grey) in CA NSM.

**More information:**

How to Use the Event Agent to Forward CA Spectrum Alarms (see page 12)

# CA Spectrum-NSM Integration Kit Components

The CA Spectrum-NSM Integration Kit contains the following components to accommodate installation in different CA NSM deployment environments.

**User Interface Components**

Provides the icons and context-sensitive OneClick launching for computers with CA NSM WorldView client installations.

**CA NSM Event Management Components**

Provides message record and action definitions for servers where the CA NSM Event Manager is installed.

**CA NSM WorldView Manager Components**

Provides WorldView class and object definitions for servers with the MDB or the CA NSM repository installed.

**CA NSM DSM Components**

Provides policy definitions for servers with CA NSM DSM installations. You have the option to reset the DSM and restart the awservices automatically. If you choose not to restart the DSM, you must run the commands "resetdsm" and "awservices start" manually for the integration to function.

### CA Spectrum UnicenterNotifier Installation

Provides capabilities to forward CA Spectrum alarm information to CA NSM. This component must be installed on the CA Spectrum server. The installation creates a standalone directory named UnicenterNotifier that contains a customized AlarmNotifier configuration for sending alarms to CA NSM. If the installation program determines that the NSM Event Agent is installed, you must specify whether to use the Event Agent to forward the events. If you decline or the Event Agent is not installed, UnicenterNotifier uses SNMP traps to forward events. The installation program also adds a Process Daemon ticket to keep UnicenterNotifier running continuously.

**Note:** UnicenterNotifier is the only component from the integration kit that is installed on the CA Spectrum server.

**More information:**

Install the Unicenter NSM Integration with Spectrum Component (see page 15)

# Chapter 2: Installing

This section contains the following topics:



## System Requirements

Before installing this Integration Kit, your systems must meet the minimum requirements for the following:

- CA Spectrum versions from 9.1
- CA NSM versions from r11.2 SP2

**Important!** The CA Spectrum-NSM Integration Kit can be installed on only CA Spectrum and CA NSM hosts running supported versions of Windows. The integration installer is available as only a Windows executable.

**Note:** For more information about the system requirements for these applications, see their respective installation guides.

## Pre-Installation Tasks

Before you install the CA Spectrum-NSM Integration Kit, you must complete the following tasks to help ensure that the installation functions correctly:

- Discover the CA Spectrum server in CA NSM (see page 12).
- Perform the following actions if you want to use the Event Agent to forward CA Spectrum alarms to CA NSM:
  - Install and configure the Event Agent on the CA Spectrum server (see page 13)
  - Add the CA Spectrum user ID to a CA NSM user group if the user ID is something other than 'Administrator' (see page 14)

**More information:**

How to Use the Event Agent to Forward CA Spectrum Alarms (see page 12)

## CA Spectrum Server Discovery

Before you install the CA Spectrum-NSM Integration Kit, you must verify that CA NSM has discovered the SpectroSERVER. This integration requires a representative object in WorldView for the server.

The SpectroSERVER server object must be in one of the following classes after CA NSM discovers it:

- Windows_NetServer
- WindowsXP
- WindowsServer_2008
- Windows_Vista

**More information:**

Pre-Installation Tasks (see page 11)
How to Install the CA Spectrum-NSM Integration Kit (see page 14)

## How to Use the Event Agent to Forward CA Spectrum Alarms

By default, the CA Spectrum UnicenterNotifier uses SNMP traps to forward alerts to CA NSM. However, a more reliable method is to use the Event Agent to forward alerts to CA NSM as events based on message policy. In this scenario, the coldstart.bat, SetScript, and ClearScript files use the cawto command to send the alarms. When the Event Manager receives the alarms from UnicenterNotifier, it forwards them to the DSM, where they are classified and available to view with the CA NSM interfaces.

To use the Event Agent to forward alerts to CA NSM, complete the following process before you install the CA Spectrum-NSM Integration Kit:

1. Install the Event Agent on the CA Spectrum host server.

   **Note:** For more information about installing the Event Agent, see the *CA NSM Implementation Guide*.

2. Configure the CA NSM Event Manager to let the Administrator user run commands from the CA Spectrum server (see page 13).
3. Recycle opr.
4. Verify that the CA NSM Event Manager server has the Agent Technology common service installed and is configured to let Event Management forward alarm messages to the local DSM.

**More information:**

How the CA Spectrum-NSM Integration Works (see page 8)
Configuration and Maintenance (see page 19)
UnicenterNotifier Event Agent Formats (see page 20)
Event Message Formats (see page 24)

## Configure the CA NSM Event Manager to Receive Event Agent Alarms from CA Spectrum

To use the Event Agent to forward alarms from the CA Spectrum server to CA NSM, you must configure the Event Manager to let the CA Spectrum Administrator user run commands.

**To configure the CA NSM Event Manager to receive Event Agent alarms from CA Spectrum**

1. Enter the following command from a command prompt:

   ```
   caugui settings
   ```

   The EM Settings dialog opens.

2. Click the Event Management tab, scroll to "Users authorized to issue commands," double-click the Setting field for this entry, and append the field with the following:

   ```
   , AdministratorUserName@SpectrumServerName
   ```

   **Note:** The leading comma is part of the syntax.

   The CA Spectrum Administrator user on the CA Spectrum server that runs the UnicenterNotifier can now issue the Event Management commands necessary to forward CA Spectrum alarms.

3. Close the EM Settings dialog, and run the following commands from a command prompt:

   ```
   unicntrl stop opr
   unicntrl start opr
   ```

   The Event Management process stops and restarts, and the authorization change takes effect.

**More information:**

Pre-Installation Tasks (see page 11)

### Add the CA Spectrum User ID to the CA NSM Sysadmin User Group

If your CA Spectrum user ID is something other than Administrator, you must add the user ID to the Sysadmin user group in CA NSM Security Management.

**To add the CA Spectrum user ID to the CA NSM Sysadmin user group**

1. Click the icon for Users in the dialog that lists the EM icons.

   Icons for Security Management appear.

2. Click the icon for User Groups.

   The Security User Groups window opens.

3. Double-click the Sysadmin group.

   The User Group - Detail window opens.

4. Click New, add the CA Spectrum user ID, and click Add.

   The ID is added.

5. Select the Group menu and click Commit.

   The user ID is added to the Sysadmin group, and EM Security Management now recognizes the user.

**More information:**

Pre-Installation Tasks (see page 11)

# How to Install the CA Spectrum-NSM Integration Kit

The CA Spectrum-NSM Integration Kit installation components reside in the following locations:

- On the CA Spectrum product DVD in the NSM_Integration folder
- In the CA NSM intallation Product Explorer in the Post Installation Utilities folder

Use the following process to install and implement the kit:

1. Verify that CA NSM has discovered the SpectroSERVER server (see page 12).
2. Install the "Unicenter NSM Integration with Spectrum" component on the CA NSM server (see page 15).

   The installer automatically detects which CA NSM components are installed on the server and installs the appropriate integration files. After the installation completes, a message informs you if any components were not installed. If all necessary components are located on one CA NSM server, a message informs you that the integration has been fully installed.

3. (Optional) If you received a message stating that part of the integration did not install, repeat Step 2 to complete a distributed installation.

   For example, if the message tells you that the DSM component of the integration was not installed, install the "Unicenter Integration with Spectrum" component on the DSM server in your enterprise.

4. Install the "SPECTRUM UnicenterNotifier Installation" component on the CA Spectrum server (see page 17).

To maintain the integration between CA NSM and CA Spectrum, you must verify that the following are continuously running:

- aws_dsm (receives traps from UnicenterNotifier)
- UnicenterNotifier
- Event Management components on SpectroSERVER and CA NSM server (if you use the Event Agent)

**More information:**

How to Change the DSM Server (see page 23)
System Requirements (see page 11)

## Install the Unicenter NSM Integration with Spectrum Component

To install the components that CA NSM requires for the integration, you must install the "Unicenter NSM Integration with Spectrum" component of the CA Spectrum-NSM Integration Kit on the CA NSM server.

**Important!** The CA Spectrum-NSM Integration Kit can be installed on only CA Spectrum and CA NSM hosts running supported versions of Windows. The integration installer is available as only a Windows executable.

**To install the "Unicenter NSM Integration with Spectrum" component**

1. Do one of the following:
   - CA Spectrum installation DVD: Navigate to the NSM_Integration folder on the CA Spectrum DVD, and run setup.exe.
   - CA NSM installation DVD: Insert the DVD into the drive. The Product Explorer appears automatically. Navigate to the Post-Installation Utilities folder, click CA Spectrum Integration Kit and then Install.

   A welcome screen appears.

2. Click Next.

   The Setup Type screen appears.

3. Select Unicenter NSM Integration with Spectrum and click Next.

   The integration begins to install. A dialog opens asking whether you want to enable the ability to clear CA Spectrum alarms in CA NSM.

4. Click Yes or No to specify whether to enable the ability to clear CA Spectrum alarms in CA NSM.

   The Spectrum Main Location Server screen appears.

5. Enter the name of the CA Spectrum Main Location server in the Server field and click Next.

   The Event Trap Daemon Setup screen appears.

6. (Optional) Enter the name of the SpectroSERVER to use for the CA Spectrum integration in the Server field and click Next.

   The OneClick Launch Setup screen appears.

7. Enter the name of the OneClick web server to use for starting OneClick. Also, enter the port number (separated from the server name by a colon) if you do not use port 80. Click Next.

   A dialog appears.

8. Click Yes to specify that it is safe to reset the DSM to enable the DSM policy installed by the CA Spectrum-NSM Integration Kit.

   The DSM resets and a dialog appears.

9. Click Yes to provide permission to issue the "awservices start" command to restart the DSM.

   The DSM restarts, and one of the following messages appears:

   - If the server contains all required CA NSM components, the message confirms that all necessary files for the CA NSM side of the integration have been installed.
   - If the server does not contain all required CA NSM components, the message lists each component that was not installed. You must install the CA Spectrum-NSM Integration Kit again on a server that contains the missing component to complete a distributed installation.

10. Click OK.

    The Installation Complete screen appears.

11. Click Finish.

    The "Unicenter NSM Integration with Spectrum" component is installed.

**More information:**

CA Spectrum-NSM Integration Kit Components (see page 9)
How to Install the CA Spectrum-NSM Integration Kit (see page 14)

## Install the Spectrum UnicenterNotifier Installation Component

Install the "Spectrum UnicenterNotifier Installation" component to forward CA Spectrum alarm information to CA NSM. During this installation, you can specify whether to use the CA NSM Event Agent to forward events if the Event Agent is present on the server. Otherwise, UnicenterNotifier uses SNMP traps to forward events. Install this component on the CA Spectrum server that you want to use for the integration.

**To install the Spectrum UnicenterNotifier Installation component**

1. Do one of the following:
   - CA Spectrum installation DVD: Navigate to the NSM_Integration folder on the CA Spectrum DVD, and run setup.exe.
   - CA NSM installation DVD: Insert the DVD into the drive. The Product Explorer appears automatically. Navigate to the Post-Installation Utilities folder, click CA Spectrum Integration Kit and then Install.

   A welcome screen appears.
2. Click Next.

   The Setup Type screen appears.
3. Select Spectrum UnicenterNotifier Installation and click Next.

   The installation begins. If the CA NSM Event Agent is present on the server, a dialog opens.
4. Click Yes or No to specify whether enable the ability to forward CA Spectrum events through the Event Agent.

   If the Event Agent is not present or you clicked No, the DSM Server setup dialog opens.
5. Enter the name or IP address of the DSM server to which to forward events and click Next.

   The Spectrum UnicenterNotifier Installation component is installed.

**More information:**

How to Install the CA Spectrum-NSM Integration Kit (see page 14)

# Chapter 3: Configuring, Maintaining, and Using the Integration

The following section contains configuration, maintenance, and usage procedures and information that you can use after you install the CA Spectrum-NSM Integration Kit.

This section contains the following topics:



## Configuration and Maintenance

The following procedures are required post-installation configuration tasks:

- Configure UnicenterNotifier (see page 19)
- Grant the CA NSM server access to the CA Spectrum server (see page 22)

**More information:**

How to Use the Event Agent to Forward CA Spectrum Alarms (see page 12)

### CA Spectrum UnicenterNotifier

The CA Spectrum UnicenterNotifier forwards alarms to the CA NSM server. It can do so using the following communication methods:

- SNMP traps
- The CA NSM Event Agent

**More information:**

Pre-Installation Tasks (see page 11)
Configuration and Maintenance (see page 19)

### UnicenterNotifier Trap Formats

If the UnicenterNotifier on the CA Spectrum server uses SNMP to forward traps to the DSM, the following trap formats are used:

- coldstart.bat:

```
awtrap -h < DSMSERVER > 1.3.6.1.2.1 0
```

- SetScript and ClearScript:

```
./awtrap -h <DSMSERVER> 1.3.6.1.2.1 6 $TNG_SEVERITY 1.3.6.1.2.1
-s "$FORMATED_MNAME" 1.3.6.1.2.1 -s "$IPADDRESS" 1.3.6.1.2.1
-s "$CAUSE" 1.3.6.1.2.1 -s $MHANDLE 1.3.6.1.2.1 -s "$MO_ARG" 1.3.6.1.2.1
-s "" 1.3.6.1.2.1 -s "$NEWPCAUSE" 1.3.6.1.2.1 -s $MTYPE 1.3.6.1.2.1
-s "$EVENTMSG" 1.3.6.1.2.1 -s "$FILTERED_MODELCLASS"
```

To reconfigure the trap destination after installation, you must change the DSM server name in these scripts.

**More information:**

How to Change the DSM Server (see page 23)
Add Customized User Data to Alarm Messages (see page 21)

### UnicenterNotifier Event Agent Formats

If the UnicenterNotifier on the CA Spectrum server uses the Event Agent to forward alarms to CA NSM, the following formats are used:

- coldstart.bat:

```
cawto "SpectrumWTO RESET 1"
```

- SetScript and ClearScript:

```
cawto "SpectrumWTO SET $TNG_SEVERITY $FORMATED_MNAME $IPADDRESS
$MTYPE $CAUSE $MHANDLE $MO_ARG *UDATA* $NEWPCAUSE *EVENTMSG*$EVENTMSG
*MDCL*$FILTERED_MODELCLASS"
```

If the CA NSM Event Manager changes after the installation, you must configure the Event Agent accordingly.

**Note:** For more information about the Event Agent, see the *CA NSM Inside Event and Alert Management* guide.

**More information:**

How to Use the Event Agent to Forward CA Spectrum Alarms (see page 12)
Add Customized User Data to Alarm Messages (see page 21)

## Add Customized User Data to Alarm Messages

You can customize alarm messages by adding CA Spectrum parameters to appear on the Event Console. The related CA Spectrum object in WorldView stores the additional user data in the instance level property "udata."

To add customized user data to alarm messages, replace the *UDATA* placeholder in the SetScript and ClearScript files with the parameter that you want to add.

When you use the Event Agent to forward messages, the user data parameter must be one word, such as *user_data_parameter*.

**More information:**

Event Message Formats (see page 24)
UnicenterNotifier Trap Formats (see page 20)
UnicenterNotifier Event Agent Formats (see page 20)

## Polling Alarms in a Distributed SpectroSERVER Environment

In a distributed SpectroSERVER (DSS) environment, UnicenterNotifier can be installed on any CA Spectrum server in the DSS environment. UnicenterNotifier can forward alarms on any CA Spectrum severs in the DSS environment to CA NSM. For this configuration, CA Spectrum Alarm Notification Manager (SANM) is required to assist UnicenterNotifier in this task.

**Note:** For more information about the DSS environment in CA Spectrum, see the *CA Spectrum Distributed SpectroSERVER Administrator Guide.* For more information about using SANM, see the *CA Spectrum Alarm Notification Manager User Guide*.

## Grant the CA NSM Server Access to the CA Spectrum Server

You must grant the CA NSM server access to the CA Spectrum server for the CA Spectrum-NSM integration to work correctly. Granting access to the CA Spectrum server enables the communication between the two products and lets you launch the OneClick Console from the CA NSM server.

**Note:** In a distributed environment, you must grant the CA NSM server access to all of the SpectroSERVERs in the distributed SpectroSERVER (DSS) environment.

**To grant the CA NSM server access to the CA Spectrum server**

1. Open the CA Spectrum Control Panel on the CA Spectrum server.
2. Click Host Security.

   The Host Security dialog opens.
3. Add the CA NSM server to the Server List and click OK.

   The CA NSM server is granted access to the CA Spectrum server.

**More information:**

Configuration and Maintenance (see page 19)
AMS Configuration and Maintenance (see page 27)

## Event Management and DSM Configuration and Maintenance

The following sections detail how to configure the Event Management and DSM servers in a distributed environment and how to view and maintain event messages forwarded from CA Spectrum in the CA NSM Event Console.

### Configure a Distributed CA NSM Event Manager and DSM Environment

If you use the Event Agent to forward CA Spectrum alarms to CA NSM and the Event Manager and DSM are installed on different servers, you must set the DSM server name manually on the Event Manager server for the two components to communicate.

**To configure a distributed CA NSM Event Manager and DSM environment**

1. Select the Enterprise Management view in the MCC.

   The Enterprise Management tree appears in the left pane.
2. Expand your Event Management server, expand Event Management, and select Messages.
3. Find the message ID "SpectrumWTO*" and open the record.

4. Open the entry in row 2 (Action=COMMAND) under the Actions tab, and add the following parameter before the -s CA Spectrum parameter:

   `-@ <DSM Servername>`

   Click OK.

   The DSM server name is set on the Event Manager.

5. Click OK.

   Your changes to the Message Record are saved.

6. Select My Actions, Execute an Action from the MCC main menu.

   The Execute an Action dialog opens.

7. Enter opreload in the Command field, select the Execute using OPERA check box, and click Execute.

   The Event Manager is reloaded, and your changes take effect.

**More information:**

How to Change the DSM Server (see page 23)

## How to Change the DSM Server

Complete the following process if you need to change the DSM server used for the CA Spectrum-NSM integration in a distributed CA NSM environment:

1. Install the CA Spectrum-NSM Integration Kit on the new DSM server (see page 14).
2. Assign the CA Spectrum server and the SpectrumAgent objects in WorldView to the new DSM server.
3. (Optional) Assign CA Spectrum objects to the new DSM server if you want to keep them. You can do this with a TRIX script such as the following:

```
MODIFYOBJECT="SpectrumMO" DSM_Server "<old DSM name>"
BEGIN
DSM_Server TNGWV_OT_STRING "<new DSM name>" 0
DSM_Address TNGWV_OT_STRING "<new DSM IP>" 0
END
```

4. Change the trap destination in the UnicenterNotifier scripts or, if you use the Event Agent, change the DSM server name (see page 22).
5. Restart awservices on the new DSM server.

**More information:**

UnicenterNotifier Trap Formats (see page 20)

## Event Message Formats

Message records and actions control the display of CA Spectrum alarm messages on the Event Console. The following list describes the format of event messages that CA Spectrum forwards to CA NSM:

- The Node column contains the following information:

  `<device model name>`

- The Source column contains the following information:

  `<SpectrumServer>:SpectrumAgent`

- The Category column contains the following information:

  `<alarm text>`

- The Message column contains the message text, which depends on the CA Spectrum event message type. CA Spectrum generates the following event message types:

  **STATUS**

  Messages created when the model status changes. STATUS messages have one of the following formats:

  ```
  Spectrum: STATUS: <status> MODEL: <model name>:Spectrum TYPE:<model type>
  ALARM: <alarm text> - EVENT: <event text> (event [eventID]) UDATA: *UDATA*
  CAUSE: <causeID> MHANDLE: <mhandleID>
  Severity: I - Normal, W - Minor, Major, E: Critical
  ```

  OR:

  ```
  Spectrum: STATUS: AUTOCLEARED MODEL: <model name>:Spectrum
  Severity=I
  ```

  **INFO**

  Messages created for every alarm forwarded from CA Spectrum. In the case of multiple alarms for a model, not every alarm changes the status of the model. INFO messages have one of the following formats:

  ```
  Spectrum: INFO: <status> MODEL: <model name>:Spectrum TYPE:<model type>
  ALARM: <alarm text> - EVENT: <event text> (event[eventID]) UDATA: *UDATA*
  CAUSE: <causeID> MHANDLE: <mhandleID>
  ```

  OR:

  ```
  Spectrum: INFO: NOTCLEARED MODEL: <model name>:Spectrum RC: <reason>
  ```

**QINFO**

Messages that the Event Agent could not originally forward to the Event Manager because of network problems or other issues. The Event Agent queues such messages and forwards them when the connection to the Event Manager is restored. The DSM does not process queued messages. QINFO messages have the following format:

```
Spectrum: QINFO: <status> MODEL: <model name>:Spectrum TYPE: <model type>
ALARM: <alarm text> - EVENT: <event text> (event[eventID]) UDATA: *UDATA*
CAUSE: <causeID> MHANDLE: <mhandleID>
```

**RESTATE**

Messages created when an alarm is cleared and the model status changes to a value other than Normal. RESTATE messages have the following format:

```
Spectrum: RESTATE: <status> MODEL: <model name>:Spectrum TYPE: <model type>
ALARM N/A - EVENT: N/A UDATA: N/A CAUSE: N/A MHANDLE: <mhandleID>
```

**STATUS: AUTOCLEARED**

Messages created for all CA Spectrum objects when a cold start message is received, indicating a UnicenterNotifier restart.

**INFO: NOTCLEARED**

Messages created when a user unsuccesfully attempts to clear a CA Spectrum alarm.

**NEW**

Messages created when a new CA Spectrum object is created in WorldView. By default, NEW messages are not displayed. To see these messages, you must enable notification of new CA Spectrum objects (see page 26). NEW messages have the following format:

```
Spectrum: NEW: <status> IP: <IP address> MODEL: <model name>:Spectrum
WVPARENT: <WV parent name>
```

The following list describes parameter definitions for the message formats described previously:

**<status>**

Specifies the alarm status, which can be CLEARED, Unknown, Normal, Repaired, Minor, Major, or Critical.

**<model name>**

Specifies the CA Spectrum model name MNAME. Depending on the CA Spectrum naming schema, this can be an IP address, the system name, or the DNS name. The suffix :Spectrum is appended to enable synchronization with the object name in WorldView.

**<device model name>**

Specifies the model name for a device in a device-level alarm. For sub-device level alarms, this value is the MNAME of the device parent.

**<model type>**

Specifies the CA Spectrum model type (MTYPE).

**<alarm text>**

Specifies the text of the alarm in CA Spectrum (PCAUSE).

**<event text>**

Specifies the CA Spectrum event text (EVENTMSG).

***UDATA***

Indicates a placeholder for user data you want to add to an alarm.

**<causeID>**

Specifies the CA Spectrum alarm cause ID (CAUSE).

**<mhandleID>**

Specifies the CA Spectrum model handle (MHANDLE).

**<WV parent name>**

Specifies the name of the parent object. If no parent object exists, the value is NULL.

**More information:**

How to Use the Event Agent to Forward CA Spectrum Alarms (see page 12)
Add Customized User Data to Alarm Messages (see page 21)

## Enable Notification of New CA Spectrum Objects

When a CA Spectrum alarm arrives for a model that does not have a corresponding object in WorldView, a WorldView object is created automatically. You can enable an automatic message in the Event Console that informs you of the object creation by activating an evaluate action.

To enable notification of new CA Spectrum objects, run the following command from a command prompt on the CA NSM Event Manager server:

```
cd "%ProgramFiles%\CA\SPECTRUM Integration V5.0 with Unicenter NSM"

SetNewMsg on
```

Notification for new CA Spectrum objects is enabled.

## AMS Configuration and Maintenance

After installing the CA Spectrum-NSM Integration Kit, Alert Management System (AMS) alerts are created by default for alarms with a status of Minor, Major, or Critical. Alert creation is controlled by message records, and the alert properties are defined in the alert classes listed in the following table:

| Message Record | Alert Class | Alert Urgency | Alert Display Attribute |
|---|---|---|---|
| Spectrum: INFO: Minor MODEL: * MDCL: <MODELCLASS> TYPE: *... | SPECTRUM<MODELCLASS> minor | 5 | Warning |
| Spectrum: INFO: Major MODEL: * MDCL: <MODELCLASS> TYPE: *... | SPECTRUM<MODELCLASS> major | 4 | Major |
| Spectrum: INFO: Critical MODEL: * MDCL: <MODELCLASS> TYPE: *... | SPECTRUM<MODELCLASS> critical | 3 | Critical |

You can adapt these settings to fit your needs.

If you do not want to use AMS and MCC Alert views, run the following commands from a command prompt on the Event Manager server to turn off this integration functionality:

```
cd "%ProgramFiles%\CA\SPECTRUM Integration V5.0 with Unicenter NSM"
SetAMSalerts off
```

If you use AMS and MCC Alert views with the CA Spectrum-NSM Integration Kit, consider a maintenance policy for the AMS alerts. Closed alerts remain in the MDB unless archived or purged.

**Note:** For more information about AMS configuration and maintenance policy for alerts, see the CA NSM *Inside Event and Alert Management* guide.

**More information:**

AMS Queues and Classes (see page 28)

## AMS Queues and Classes

Messages from CA Spectrum include one of the following values for the $FILTERED_MODELCLASS variable. CA Spectrum resolves these values before sending the alarm to CA NSM.

- SpectrumSwitch
- SpectrumRouter
- SpectrumHost
- SpectrumService
- SpectrumOther

AMS has queues with names that correspond to those in the previous list. The following table lists the classes associated with the queues:

| Queue | Class |
|---|---|
| SpectrumSwitch | SpectrumSwitchMinor<br>SpectrumSwitchMajor<br>SpectrumSwitchCritical |
| SpectrumRouter | SpectrumRouterMinor<br>SpectrumRouterMajor<br>SpectrumRouterCritical |
| SpectrumHost | SpectrumHostMinor<br>SpectrumHostMajor<br>SpectrumHostCritical |
| SpectrumService | SpectrumServiceMinor<br>SpectrumServiceMajor<br>SpectrumServiceCritical |
| SpectrumOther | SpectrumOtherMinor<br>SpectrumOtherMajor<br>SpectrumOtherCritical |

When Event Management creates an alert for a CA Spectrum managed object, message record and action policy associates each class with the corresponding queue.

## Close CA Spectrum Alerts Automatically

When a CA Spectrum alarm clear message arrives at the CA NSM server, the related AMS alert is not automatically closed by default. You can enable automatic alert closure, however, by configuring the caamscmd command line utility.

**To close CA Spectrum alerts automatically**

1. Run the following command from a command prompt on the CA NSM Event Manager server:

   ```
   cd "%ProgramFiles%\CA\SPECTRUM Integration V5.0 with Unicenter NSM"
   SetCaamscmd on
   ```

   The automatic alert closure functionality is activated.

2. Run the following command from a command prompt:

   ```
   caugui settings
   ```

   The EM Settings dialog opens.

3. Click the Event Management tab, scroll to "Users authorized to issue commands," double-click the Setting field for this entry, and append the field with the following:

   ```
   , NT AUTHORITY\SYSTEM
   ```

   **Note:** The leading comma is part of the syntax.

   The local system account user is authorized to issue commands.

   **Note:** This setting is different for non-English operating systems. Identify the value from the user column in the CA NSM Event Console for DSM status change messages.

4. Close the EM Settings dialog, and run the following commands from a command prompt:

   ```
   unicntrl stop opr
   unicntrl start opr
   ```

   The CA NSM Event Management process restarts, and the authorization change takes effect.

**More information:**

Enable Alert Closure Postprocessing (see page 30)

## Clear Alarms from CA NSM User Interfaces

You can use the following CA NSM interfaces to clear CA Spectrum alarms manually:

- **MCC or 2D Map**—On the client server, open one of these interfaces, right-click, and select Clear Alarms.
- **MCC Alert view**—On the AMS Manager server, open this view, right-click an alarm, and select Close.

Either method works provided that the CA NSM user and computer are properly authorized in CA Spectrum. The following table describes which computer and user combinations are required to perform each method:

| Method | User | Computer |
|---|---|---|
| MCC or 2D Map | operating system user | individual user's client server |
| MCC Alert view | caunint | AMS Manager server |

To help ensure proper user and computer authorization, do the following:

- Use the OneClick Users view to create a corresponding CA Spectrum user for each authorized CA NSM user.
- Add all authorized CA NSM computer names to the server list on the Host Security dialog of the CA Spectrum Control Panel.

**Note:** For more information about how to create users in CA Spectrum and set up host security, see the *CA Spectrum Administrator Guide.*

**More information:**

Enable Alert Closure Postprocessing (see page 30)

## Enable Alert Closure Postprocessing

When a CA Spectrum alert is closed in AMS (manually or automatically), you can enable postprocessing that clears the CA Spectrum alarms of the related model.

To enable alert closure postprocessing, enter the following command from a command prompt on the CA NSM Event Manager server:

```
cd "%ProgramFiles%\CA\SPECTRUM Integration V5.0 with Unicenter NSM"
SetAMSclose on
```

For the postprocessing to work correctly, verify that you follow the correct procedure when clearing alarms from CA NSM manually, and make sure that the local system account user is added to the users authorized to issue commands when closing CA Spectrum alerts automatically.

**More information:**

Clear Alarms from CA NSM User Interfaces (see page 30)
Close CA Spectrum Alerts Automatically (see page 29)

### Delete Alarms When the DSM Restarts

You can control whether alarms are deleted when the DSM restarts. By default, alarms are not deleted, but you can change a setting so that they are. Deleting alarms is useful if the DSM was offline for a long time and alarms are not up to date, or if many alarms are reporting a normal state.

**To delete alarms when the DSM restarts**

1. Open the following file with a text editor:

   %*AGENTWORKS_DIR*%\SERVICES\CONFIG\AWS_NSM\DM\spectrum.atp

2. Locate the setting deleteOnStart = 0, change it to deleteOnStart = 1, and save the file.

3. Run the following commands:

   ```
   ldatp spectrum.atp
   awservices stop
   awservices start
   ```

   The updated policy is loaded, and alarms are deleted each time the DSM restarts.

## Suppressed Alarms

In basic CA Spectrum, the fault isolation feature determines which devices are the root cause of an issue and changes the condition of the other affected devices to "suppressed." By default, CA Spectrum does not generate alarms for these suppressed devices. This feature minimizes unnecessary alarms and helps you to more quickly resolve networking issues.

CA NSM can also benefit from the CA Spectrum fault isolation feature to minimize unnecessary alerts and to augment trouble ticket information. To do so, CA Spectrum must generate alarms for the suppressed devices and send these alarms to CA NSM. You can use CA Spectrum Policy Manager to enable CA Spectrum to generate these alarms.

When enabled, CA Spectrum generates "suppressed-model" alarms for suppressed devices. Then, CA Spectrum sends the suppressed-model alarm to CA NSM. If the same device is discovered in CA NSM, CA NSM then sets the status of the device object to *unmanaged*. CA NSM does not generate alerts for these unmanaged device objects. Instead, alerts are created for the root cause objects only, helping you to isolate and correct issues more quickly.

For example, assume that the suppressed-model alarms are disabled, and a router that connects to three servers goes down. CA Spectrum generates a Lost Contact event for the router and all three servers. Using root cause analysis, CA Spectrum determines that the router is probably the root cause of the problem. CA Spectrum correlates the server events to the router event, and it suppresses the server models. Because the suppressed-model alarms are disabled, the Lost Contact events for the servers appear in the Events list, but no corresponding alarms appear on the Alarms tab in CA Spectrum.

However, enabling the suppressed-model alarms lets CA NSM benefit from CA Spectrum root cause analysis. In the scenario above, CA Spectrum generates a suppressed-model alarm for each suppressed server. CA Spectrum forwards these alarms to CA NSM, which changes the status of each suppressed device to *unmanaged*.

**Note:** Suppressed-model alarms are also known as "suppressed alarms" in other CA Spectrum guides.

**More information:**

Enable Alarms for Suppressed Devices in CA Spectrum (see page 34)

## CA Spectrum Suppressed Alarms in CA NSM

Suppressed alarms apply to objects in CA Spectrum that are not identified as the cause of an outage or other situation. CA Spectrum does root cause analysis to pinpoint problems. For example, if a router fails, so do the servers to which it connects. Instead of creating alarms for the router *and* the servers, CA Spectrum determines that the router is the root cause of the problem and suppresses the alarms for the servers. The server events appear in the Events list, but no alarms are created.

CA NSM has the following expanded severity values to handle messages for suppressed alarms and cleared suppressed alarms:

| CA Spectrum Severity | CA NSM Severity |
|---|---|
| 0 | Normal |
| 3 | Warning |
| 4 | Major |

| CA Spectrum Severity | CA NSM Severity |
|---|---|
| 0 | Normal |
| 5 | Critical |
| 9 | Suppressed alarm |
| 10 | Clear suppression, status is Normal |
| 13 | Clear suppression, status is Warning |
| 14 | Clear suppression, status is Major |
| 15 | Clear suppression, status is Critical |

The Agent Technology DSM does the following when it receives a suppressed-model alarm:

- Sets the state to *unknown* for the corresponding CA Spectrum objects that CA NSM manages. Gray icons on the interface represent the objects.
- Locates the physical device (router, switch, server, and so on) identified as the root cause of the alarm.
- Sets the state to *unmanaged* for the suppressed device, and stops all DSM state changes until CA Spectrum sends a message to clear suppression.

## Enable Alarms for Suppressed Devices in CA Spectrum

By default, CA Spectrum does not generate alarms for suppressed devices. After you install the integration kit, you can use CA Spectrum Policy Manager to enable alarms for suppressed devices. When alarms are enabled, CA Spectrum generates suppressed-model alarms for suppressed devices and sends these alarms to CA NSM. CA NSM uses the alarm information to benefit from root cause analysis in CA Spectrum, changing the status of corresponding devices to *unmanaged*.

**To enable alarms for suppressed devices in CA Spectrum**

1. Export the current CA Spectrum policy configuration XML files.

   **Note:** For detailed instructions about exporting, viewing, modifying, and enabling the policy configuration files, see the *CA Spectrum Policy Manager User Guide.* Also, refer to this guide for information about using CA Spectrum Policy Manager in a distributed SpectroSERVER (DSS) environment.

2. Open the policies.xml.current file in the *<$SPECROOT>*/PolicyMgmt directory and check for the text "No previously saved policy data exists..." and do one of the following:

   - If the text exists, extract all XML files from the policy.zip file (located in the UnicenterNotifier directory) to the *<$SPECROOT>*/PolicyMgmt directory.
   - If the text does not exist, edit the following policy files as instructed, and rename each file to remove ".current" from its name:
     - **Policies.xml.current**—If the <policy-definitions> element does not already contain the following text, insert it:

       ```
       <policy enforced="true" name="NSM-Spectrum Integration Policy">
          <policy-rule-name name="SetAllDeviceEnableSuppressedAlarmAtt"/>
       </policy>
       ```

     - **Policy-rules.xml.current**—If the <policy-rule-definitions> element does not already contain the following text, insert it:

       ```
       <policy-rule name="SetAllDeviceEnableSuppressedAlarmAtt">
          <device-policy-search-criteria-name name="All Devices"/>
          <policy-settings-name
           name="SetEnableSuppressedAlarmTrue"/>
       </policy-rule>
       ```

     - **Policy-settings.xml.current**—If the <policy-settings-definition> elements do not already contain the following text, insert it:

       ```
       <policy-settings name="SetEnableSuppressedAlarmTrue">
          <set-attr-value id="0x12ddf" value="TRUE"/>
       </policy-settings>
       <policy-settings name="SetEnableSuppressedAlarmFalse">
          <set-attr-value id="0x12ddf" value="FALSE"/>
       </policy-settings>
       ```

**Note:** Refer to the XML files in policy.zip for a sample of the settings above.

The XML files are updated with the new policy information.

3. Enable the policy.

   **Note:** When you enable a policy, the Enable Policy Manager option is set to "Yes," and the Distribution Mode option is set to "Distributed."

   Alarms for suppressed devices are enabled, and CA Spectrum passes suppressed-model alarms to CA NSM.

   **Note:** You should confirm that the policy is enabled. When enabled, "NSM-Spectrum Integration Policy" appears in the policy list view. Also, the EnableSuppressedAlarms attribute is set to "Yes" for all devices in the landscape.

**More information:**

Suppressed Alarms (see page 31)

## Disable Alarms for Suppressed Devices in CA Spectrum

If you do not want CA Spectrum to control the state of your CA NSM device objects, you can use the CA Spectrum Policy Manager to disable alarms for suppressed devices. By disabling these alarms, CA Spectrum cannot send information about suppressed devices to CA NSM.

**To disable alarms for suppressed devices in CA Spectrum**

1. Export the current CA Spectrum policy configuration XML files.

   **Note:** For detailed instructions about exporting, viewing, modifying, and enabling the policy configuration files, see the *CA Spectrum Policy Manager User Guide.*

2. Open the policy-rules.xml.current file from the *<$SPECROOT>*/PolicyMgmt directory.

3. Change the "SetAllDeviceEnableSuppressedAlarmAtt" section as follows, then save and close the file:

```
<policy-rule name="SetAllDeviceEnableSuppressedAlarmAtt">
    <device-policy-search-criteria-name name="All Devices"/>
    <policy-settings-name name="SetEnableSuppressedAlarmFalse"/>
</policy-rule>
```

4. Rename the file to remove ".current" from its name.

5. Enable the policy.

   Alarms for suppressed devices are disabled, and CA Spectrum does not pass suppressed-model alarms to CA NSM.

**Note:** You should confirm that the policy is enabled. When enabled, "NSM-Spectrum Integration Policy" appears in the policy list view. Also, the EnableSuppressedAlarms attribute is set to "No" for all devices in the landscape.

## Delete CA Spectrum Objects in CA NSM

For maintenance, you can delete CA Spectrum objects in CA NSM manually. You can delete an object from WorldView and DSM or from WorldView only, and you can delete all child objects in DSM and WorldView simultaneously.

To delete a CA Spectrum object in DSM and its associated WorldView object, do one of the following:

- Right-click the CA Spectrum object in Node View and select Delete.

  **Note:** To access Node View, right-click the SpectrumAgent object in the MCC and select Actions, View Node, or enter the following command at a command prompt:

  `nodeview -target <SpectrumServer>`

- Enter the following command on one line at a command prompt:

  `awm_config -@ <DSMServer> -s SPECTRUM SpectrumAgent:<SpectrumServer> "DELETE:OBJ:SpectrumAgent:<model name>"`

To delete the SpectrumAgent DSM object, which deletes all CA Spectrum child objects in DSM and WorldView, do one of the following:

- Right-click the SpectrumAgent object in Node View and select Delete Children.
- Enter the following command on one line at a command prompt:

  `awm_config -@ <DSMServer> -s SPECTRUM SpectrumAgent:<SpectrumServer> "DELETE:ALL"`

To delete only the CA Spectrum object in WorldView, right-click the object in the MCC Topology view and select Delete.

**Note:** Use this method only if the object does not exist in DSM.

## How Objects Are Synchronized in CA Spectrum and CA NSM

Because CA Spectrum alarms exist and are maintained separately from CA NSM, you must be aware of how alarms are synchronized between the two products.

1. When UnicenterNotifier shuts down, it issues an event or notification to CA NSM. It does not cause the status of CA Spectrum objects to change.
2. When UnicenterNotifier restarts, it issues a "restart" event to CA NSM, which causes CA NSM to set the state of all CA Spectrum objects to "Normal." UnicenterNotifier also forwards all open alarms to CA NSM.
3. When the DSM shuts down, DSM does not change the status of CA Spectrum objects. When the DSM restarts, it sets the state of all CA Spectrum objects to "Normal" and calls restartTicket.exe to remotely restart UnicenterNotifier.exe on the CA Spectrum server. This process forwards all open CA Spectrum alarms to the DSM.

### Unsynchronized Data Requires a Restart

Data can become unsynchronized between CA NSM and CA Spectrum in the following situations:

- **Disabling the suppressed alarms feature**—After you disable the suppressed alarms feature in CA Spectrum, the suppressed-object alarms previously generated by CA Spectrum still exist on the Alarms tab. Until CA Spectrum clears these alarms, the corresponding CA NSM objects remain in the *unmanaged* state even after you disable the suppressed alarms feature. When the devices are no longer suppressed, CA NSM is notified to remove the *unmanaged* state. Eventually, the CA Spectrum and CA NSM data is synchronized when all alarms are cleared.
- **Contact lost between CA NSM and CA Spectrum**—When contact is lost between CA NSM and CA Spectrum, the clear alarm and alarm set messages typically sent from CA Spectrum cannot reach CA NSM. Even when the connection is reestablished, the state of objects in the two applications is unsynchronized.

In either case, you can manually synchronize the data between CA NSM and CA Spectrum. To do so, run the restartSpec.bat file on CA NSM. This file is located in the C:\Program Files\CA\SPECTRUM Integration V5.0 directory. Running this file resets the state of device objects in CA NSM, returning them to a normal state. Then, CA Spectrum resends all existing alarms to CA NSM. If appropriate, the state of CA NSM device objects is updated to match the objects in CA Spectrum.

# Launch the OneClick Console

You can access the OneClick Console from the MCC or the 2D Map to launch OneClick in the context of CA Spectrum objects.

**Note:** If you have Internet Explorer enhanced security configuration enabled on your MCC server, you may be unable to launch the OneClick Console from the CA Spectrum object context menus in the MCC. In this case, you must have Internet Explorer open before you start OneClick.

To start the OneClick Console from the MCC or 2D Map, do one of the following:

- From the MCC, right-click a CA Spectrum object and select Actions, OneClick.
- From the 2D Map, right-click a CA Spectrum object and select OneClick.

After you enter CA Spectrum login credentials, the CA Spectrum object you selected appears in the OneClick Console, where you can perform management operations.

**Note:** The OneClick Console requires the Java Runtime Environment (JRE). The JRE includes the Java Web Start client, which is required to run JNLP applications like OneClick. You can install the JRE from the OneClick home page: http://<*OneClickServer*>:<*port*>/spectrum.

# Chapter 4: Integrating with Unicenter Management Portal

This section contains the following topics:



## CA Spectrum and Unicenter MP

After you install the CA Spectrum-NSM Integration Kit, you can also view CA Spectrum objects and launch CA Spectrum interfaces from Unicenter Management Portal (Unicenter MP). From Unicenter MP, you can interact with CA Spectrum in the following ways:

- View events generated by CA Spectrum in the Event Console
- View alerts generated by CA Spectrum in the Alert Console
- View the CA Spectrum Business Process View and the CA Spectrum objects contained in this view
- Create CA Spectrum portlets
- Launch the CA Spectrum Business Services view
- Launch the OneClick Console from a link or in context from the Portal Explorer

**Note:** For more information about interacting with CA Spectrum through Unicenter MP, see the Unicenter Management Portal online help.

## Establish a CA Spectrum Connection in Unicenter MP

To view CA Spectrum objects, alerts, and interfaces in Unicenter MP, you must establish a connection to the CA Spectrum server in Unicenter MP after installing the CA Spectrum-NSM Integration Kit. You also must verify that Unicenter MP is connected to the WorldView server that collects and displays data from the CA Spectrum server.

**To establish a CA Spectrum connection in Unicenter MP**

1. Log in to Unicenter MP as an administrator.
2. Click Task 1: Manage Components on the UMP Administration Wizard.

   The Manage Components page appears.

3. Click the Connection link for Spectrum.

   The Manage Data Sources page appears.

4. Click New.

   The New Data Source page appears.

5. Enter the name of the CA Spectrum server, specify whether the server is set up with SSL and whether you want it to be your default CA Spectrum data source, and click OK.

   You are connected to the CA Spectrum server.

6. Access the Manage Components page again, and click the Connection link for Unicenter WorldView Management.

   The Manage Data Sources: Unicenter WorldView Management page appears.

7. Do one of the following, depending on whether the appropriate WorldView connection is already defined:

   - If no connection exists with the WorldView server that collects CA Spectrum information, click New, enter the information for the WorldView server used by the CA Spectrum integration, and click OK.

     **Note:** Verify that you set the WorldView server as the default data source.

     You are connected to the WorldView server that collects and displays information provided by CA Spectrum.

   - If Unicenter MP is already connected to the WorldView server that collects CA Spectrum information, select the WorldView server on the Manage Data Sources page, click Edit, verify that the server is set as the default WorldView data source, and click OK.

     Unicenter MP is configured to receive data from the WorldView server that collects CA Spectrum information.

# Index