CA Spectrum®

Microsoft MOM and SCOM Integration Guide

Release 9.4

ca technologies

CA Technologies Product References

This guide references the following products:

- CA Spectrum®
- CA Spectrum Connector for Microsoft MOM (MOM Connector)
- CA Spectrum Connector for Microsoft SCOM (SCOM Connector)

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Chapter 1: MOM and SCOM Overview

This section contains the following topics:

Introduction

This guide describes how to integrate Microsoft® Operations Manager (MOM) and Microsoft® System Center Operations Manager (SCOM) with CA Spectrum.

- **MOM Connector**: A CA Spectrum executable that enables alert forwarding from Operations Manager to CA Spectrum.

- **SCOM Connector:** A CA Spectrum executable that enables alert forwarding from System Center Operations Manager to CA Spectrum.

MOM/SCOM Connector Comparison

Both the MOM Connector and the SCOM Connector support the following functionality:

- Extracting alerts from Microsoft Operations Manager or System Center Operations Manager and creating alarms on the appropriate system models in CA Spectrum.

- Supporting drilldown from CA Spectrum alarms. You can configure CA Spectrum alarms to display a URL that calls up the appropriate alert in the MOM or SCOM web console.

- Bidirectional alert/alarm clearing.

- Bidirectional alert/alarm acknowledgment.

The MOM Connector and the SCOM Connector have the following differences:

- Alert/alarm acknowledgments: The connectors handle acknowledgments differently.

  System Center Operations Manager does not support a resolution state for acknowledging an alert. Therefore, you must create one manually. You can then configure the SCOM Connector to use the new resolution state to synchronize acknowledgments of alerts and alarms. System Center Operations Manager does not provide acknowledgment synchronization by default.

  For more information, see Create an Acknowledged Resolution State (see page 33).

  By default, Microsoft Operations Manager 2005 provides an acknowledgment resolution state and acknowledgment synchronization.

- Deployment options: The SCOM Connector can be deployed to almost any Windows host in your environment. But the MOM Connector must run on the MOM server.

- The MOM Connector is not fully supported in a DSS environment. For more information, see MOM Connector in a DSS Environment (see page 11).

  Some versions of the SCOM connector are not fully supported in a DSS environment. Extra configuration is required to support distributed deployments. For more information, see SCOM Connector in a DSS Environment (see page 22).

- Distinct configuration files: The MOM configuration file is named ".momrc". The SCOM configuration file is named ".scomrc." For more information, see Install the MOM Connector (see page 12) or Install the SCOM Connector (see page 25).

Chapter 2: Install and Run the MOM Connector

This chapter assumes the following:

- You have an installed and configured Microsoft Operations Manager 2005 Management Server.

- You are integrating your MOM environment with CA Spectrum network management software.

This section contains the following topics:

Overview of the MOM Connector

MOM Connector is an application that synchronizes alarm data between CA Spectrum and Microsoft Operations Manager. The MOM Connector uses the CA Spectrum SSORB CORBA API to interface with CA Spectrum. It uses the MOM Connector Framework (MCF) to interface with Microsoft Operations Manager.

You can monitor and respond to MOM-generated alert conditions by creating CA Spectrum events and alarms. You can also monitor the status of the MOM agents managed by the MOM application using CA Spectrum.

The MOM Connector performs the following tasks:

- Creates CA Spectrum alarms when alerts are generated in MOM.

- Clears CA Spectrum alarms when the resolution state of the corresponding MOM alert is set to "Resolved" (and the reverse).

- Acknowledges a CA Spectrum alarm when the resolution state of the corresponding MOM alert is set to "Acknowledged."

Important! The MOM connector is not fully supported in a DSS environment. For more information, see <u>MOM Connector in a DSS Environment</u> (see page 11).

The following diagram illustrates the CA Spectrum/MOM architecture.
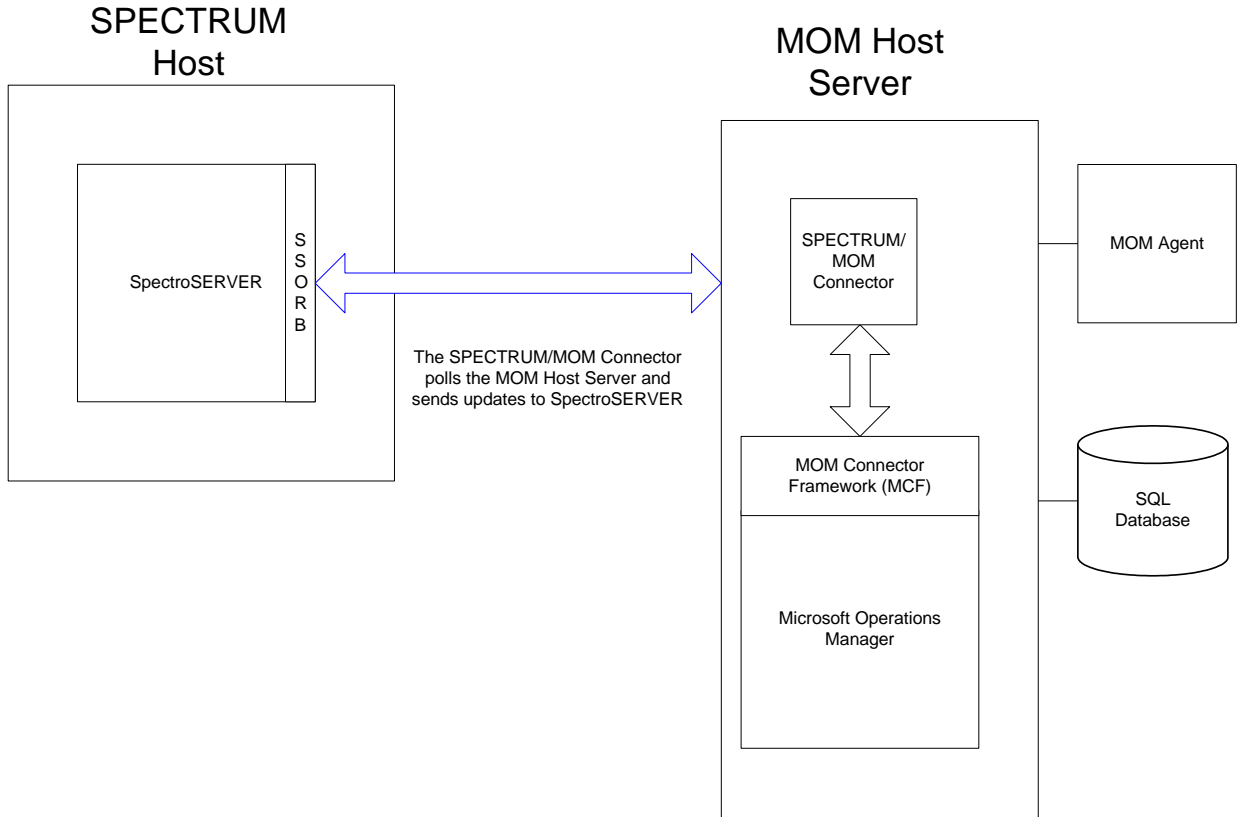
MOM Connector and Fault Tolerant Environments

If you are deploying a fault tolerant environment with the MOM Connector running, you must restart the MOM Connector after fault tolerance has been set up. Restart the connector because the connector only checks the landscape map once to find a backup SpectroSERVER, typically during initialization or startup. After the MOM Connector has finished initializing, it does not check again to find a backup SpectroSERVER unless it is restarted.

MOM Connector in a DSS Environment

When the MOM Connector is deployed in a Distributed SpectroSERVER (DSS) environment, Microsoft Operations Manager only forwards alerts to a single connector. The connector must be configured to connect to the SpectroSERVER that is managing the same set of servers and hosts as the Microsoft Operations Manager server.

When the Microsoft server connects to a connector on the main location server (MLS), only models that are present on the MLS have corresponding CA Spectrum alarms created for Microsoft Operations Manager alerts. Any Microsoft Operations Manager alerts that are forwarded to the MLS are not subsequently forwarded to other location servers in the DSS environment. Therefore, the alarms are not raised on models in the other SpectroSERVERs in the environment.

MOM Connector Software Requirements

Verify the following prerequisites before you install the connector software:

- CA Spectrum v9.2 or later.

- Microsoft Operations Manager 2005 (the only version that the CA Spectrum MOM Connector supports).

- The PATH environment variable on the Microsoft Operations Manager server is updated to include the path to the Microsoft .NET Framework.

Add the .NET Framework Path

You must add the path to the Microsoft .NET Framework to the PATH environment variable on the server running MOM. Verify that you have met the following prerequisites before adding the .NET path:

- The Microsoft .NET Framework, Version 1.1 is installed on the MOM Server Host.

  See the documentation provided with the Microsoft Operations Manager 2005 software or the relevant support website for the most accurate requirements.

- You know the path to the .NET Framework software.

Follow these steps:

1. Open the Windows Control Panel.

2. Double-click the System icon.

   The System Properties dialog opens.

3. Click the Advanced tab.

4. Click Environment Variables.

5. Select the Path variable in the System variables table and click Edit.

6. Add the .NET Framework path to the end of the value and click OK.

   Your changes are saved.

Install the MOM Connector

The following procedure describes how to install the MOM Connector software.

Note: In a Distributed SpectroSERVER (DSS) environment, the connector must be configured to connect to the SpectroSERVER that is managing the same set of servers and hosts as the Microsoft Operations Manager server. For more information, see MOM Connector in a DSS Environment (see page 11).

Follow these steps:

1. Copy the *<$SPECROOT>*/MOMConnector directory to the MOM Server Host.

   Note: Once you install the CA Spectrum MOM Connector on the MOM Server Host, you cannot move the directory; select a stable destination directory. For example: C:\Program Files\MOMConnector.

2. On the MOM Server Host, rename the file momrc.example to .momrc.

3. Open the .momrc file with a text editor.

4. Change the ssHost entry to the name of the SpectroSERVER Host. For example, ssHost=MOM01.

5. Execute the following command from the MOMConnector directory on the MOM Server Host:

   ```
   SpectrumMomConnector.exe --install
   ```

   This command sets up the required registry entries used by the MOM Connector and installs the MOM Connector as a Windows Service.

6. In the Windows Control Panel select Administrative Tools, Services.

   The Services dialog opens.

7. Double-click the Spectrum MOM Connector service.

8. Click the Log On tab and select the 'This account' option.

9. Choose a valid CA Spectrum user account, for example, Administrator.

10. Type and confirm the password for the account.

11. Click OK.

    The MOM Connector is now installed.

Add the MOM Host Server to the Host Security on SpectroSERVER

You must add the MOM Host Server name to the Server List on your SpectroSERVER to allow the servers to communicate.

Follow these steps:

1. Open the CA Spectrum Control Panel.

2. Select Configure, Host Security.

   The Host Security dialog opens.

3. Enter the MOM Host Server name in the text box under Server List.

4. Click Add.

   The MOM Host Server name is added to the Server List.

5. Click OK.

   Your changes are saved and the Host Security dialog closes.

Run the MOM Connector

Use the following procedure to run the MOM Connector.

Follow these steps:

1. Open the Windows Control Panel and select Administrative Tools, Services.

   The Windows Services dialog opens.

2. Select the Spectrum MOM Connector service.

3. Select Start from the Action menu.

   The MOM Connector service starts.

Verify that the MOM Connector is Running Properly

Verify that the MOM Connector is running from the Microsoft Operations Manager Administrator Console.

Follow these steps:

1. Open the MOM Administrator Console.

2. From the tree in the left pane, click Console Root, Microsoft Operations Manager (hostname), Administration, Product Connectors.

3. Verify that 'SPECTRUM_Connector' appears in the right pane.

Viewing CA Spectrum/MOM Alarms

When the MOM Connector receives alerts, it generates events based on the content of the alert. CA Spectrum then determines whether to generate an alarm.

After an alarm is generated, right-click the device model and select Alarm Details. You can view the cause of the alarm and the events that generated the alarm in the Alarm Details tab.

For information about sending MOM alerts to the MOM Connector, see Configure MOM Event Rules for Alert Forwarding (see page 15).

Uninstall the MOM Connector

You can uninstall the MOM Connector if necessary.

Follow these steps:

1. Select Start, Control Panel, Administrative Tools, Services.

    The Services window opens.

2. Right-click the Spectrum MOM Connector service and select Stop.

3. Execute the following command from the MOMConnector directory on the host server:

    `SpectrumMOMConnector.exe --remove`

    The MOM Connector no longer appears in the Windows Services dialog. The connector is removed from the list of Product Connectors in the MOM Administrator Console.

MOM Connector Remains in Windows Services after Uninstallation

Symptom:

After I uninstalled the MOM Connector, the Connector remains in the Windows services dialog. The MOM Connector service is listed as Disabled. I refreshed the Windows services dialog, but the service remains in the list.

Solution:

When the MOM Connector service is in a 'Disabled' state, you cannot reinstall it.

Restart Windows. The Services dialog releases the handle. When you call up the Services dialog, the service is removed. You can now reinstall the MOM Connector.

Chapter 3: Configure the MOM Connector

This section contains the following topics:

Configure MOM Event Rules for Alert Forwarding

An Event Rule specifies how a condition must be met for MOM to generate alerts to the CA Spectrum/MOM Connector. If the condition is met, an alert is generated. For an alert to be sent to the CA Spectrum/MOM Connector, the event resolution state must be set to SPECTRUM_Connector.

Note: See the Microsoft Operations Manager documentation for additional information about event processing rules that generate alerts.

Use the following procedure to create a new event rule that sends alerts that the rule generate to the SPECTRUM_Connector.

Follow these steps:

1. In Microsoft Operations Manager, select Console Root, Microsoft Operations Manager (hostname), Management Packs.

2. Select Rule Groups, Microsoft Operations Manager, Operations Manager 2005, Agent, Event Rules.

3. Right-click Event Rules and select Create Event Rule.

    The Select Event Rule Type dialog opens.

4. Select "Alert on or Respond to Event (Event)" as the rule type, and click Next.

    The Event Rules Properties - Event Provider dialog opens

5. Select "System" from the list box as the data provider and click Next.

    The Event Rules Properties - Criteria dialog opens

6. Click Next to proceed.

    The Event Rules Properties - Schedule dialog opens.

7. Click Next to proceed.

    The Event Rules Properties - Event Provider dialog opens.

8. Click Next to proceed.

   The Event Rules Properties - Alert dialog opens.

9. Select Generate alert.

10. Select SPECTRUM_Connector from the Resolution state list box.

11. Click Next.

   The Event Rule Properties - Alert Suppression dialog opens.

12. Clear the option to 'Suppress duplicate alerts,' and click Next.

   The Responses dialog opens.

13. Click Next to proceed.

   The Event Rule Properties - Knowledge Base dialog opens.

14. Click Next to proceed.

   The Event Rule Properties - General dialog opens.

15. Enter a name for the event rule in the Rule Name field, and click Finish.

Note: If alerts are not forwarded to CA Spectrum immediately, the MOM server is updating. Wait a few minutes, and check again for alerts.

Configure Alert Rules to Modify Alerts Generated by MOM Event Rules

By default, alerts created by MOM event rules are not forwarded to the MOM Connector because their resolution state is set to something other than SPECTRUM_Connector. Instead of changing your MOM event rules, you can create an alert rule to forward alerts to CA Spectrum. You can create an alert rule that modifies alerts created by event rules so that they are forwarded to CA Spectrum.

Follow these steps:

1. In the MOM administrator console, create an Alert Rule with your specified criteria. Be sure that the Rule Group containing your Alert Rule is associated with the correct Computer Groups.

2. In the new alert rule's properties, in the Responses tab, click Add, and select Launch a script.

   The Launch Script dialog opens.

3. In the Launch a Script dialog, create a new script. The language should be set to VBScript. Use the following format:

```
Option Explicit
Sub Main()
    Dim myAlert
    'change resolution state
    Set myAlert = ScriptContext.Alert
    myAlert.ResolutionState = 211
End Sub
```

Note: The scripts set myAlert.ResolutionState to 211, which is the default value for the connectorID parameter. If you have modified the connectorID value in the .momrc file, you will need to change the value used to define myAlert.ResolutionState in the scripts to the connectorID value specified in the .momrc file.

4. Once you have entered the script source, click Next.

5. Click Finish.

Note: The script does not require any parameters.

6. In the Alert Rule Properties dialog, click OK.

7. Right-click Console Root and select Microsoft Operations Manager (*<host_name>*), Management Packs node.

8. Select Commit Configuration Change from the menu.

It can take several minutes for the MOM system to update. When the update is complete, you see alerts that are forwarded to CA Spectrum.

Create Models for MOM Agents

Model each of the MOM agent hosts on your network so that you can view them in the Topology tab. When you model a MOM agent, CA Spectrum selects the host device model type that most accurately represents each MOM agent.

Follow these steps:

1. Click the Topology tab.

2. Click the Create a new model by IP icon in the toolbar.

The Create Model by IP Address dialog opens.

3. Enter the Network Address, Community Name, and Agent Port for CA Spectrum to use to communicate with MOM agents.

4. Click OK.

CA Spectrum creates a model that represents the host device with the specified IP address.

Note: If the model is not created successfully, verify that the information you entered in Step 3 is correct.

5. Select the new model in the Topology tab.

   The new model information is displayed in the Component Detail panel Information view.

6. Click 'set' next to the label displaying the IP address to the right of the model icon, and type the host name of the MOM agent host.

   This value is case-insensitive.

7. Press Enter to set the name.

   The MOM Connector uses one of the MOM alert properties to identify which model should receive the CA Spectrum event that is generated.

8. Repeat Step 1 through Step 7 for each MOM agent host in your network.

Chapter 4: Install and Run the SCOM Connector

This section contains the following topics:

Overview of the SCOM Connector

The SCOM Connector is a Windows service that synchronizes alarm data between CA Spectrum and Microsoft System Center Operations Manager. The SCOM Connector uses the CA Spectrum SSORB (CORBA) API to communicate with CA Spectrum and it uses the Operations Manager Connector Framework (OMCF) API to communicate with System Center Operations Manager.

Important! SCOM Connector versions are available to support multiple versions of System Center Operations Manager. With version 2012, Microsoft introduced some architectural changes that eliminated the Root Management Server (RMS). Therefore, your deployment differs fundamentally based on your version of Microsoft SCOM. For more information, see SCOM Connector Versions (see page 20).

The SCOM Connector synchronizes System Center Operations Manager alerts with CA Spectrum events and alarms. It provides bidirectional alert/alarm clearing as well as bidirectional alert/alarm acknowledgment. Thus, if you clear or acknowledge a System Center Operations Manager-related alarm in CA Spectrum, the corresponding alert is cleared or acknowledged in System Center Operations Manager, and the reverse.

Important! The SCOM connector is not fully supported in a DSS environment. For more information, see SCOM Connector in a DSS Environment (see page 22).

In CA Spectrum you can monitor and respond to System Center Operations Manager-generated alert conditions by generating CA Spectrum events and alarms. You can also monitor the status of the System Center Operations Manager agents managed by the Microsoft application using CA Spectrum.

The SCOM Connector performs the following tasks:

- Creates CA Spectrum alarms in response to alerts that are generated in System Center Operations Manager.

- Clears CA Spectrum alarms when the resolution state of the corresponding System Center Operations Manager alert is set to "Closed" (and the reverse).

- Acknowledges a CA Spectrum alarm when the resolution state of the corresponding System Center Operations Manager alert is set to "Acknowledged."

Note: By default, the SCOM Connector does not include a resolution state for acknowledging an alert; you must create it. For more information about creating this resolution state, see Create an Acknowledged Resolution State (see page 33).

SCOM Connector Versions

Changes to the SCOM Connector in CA Spectrum version 9.2.3 enable integration with Microsoft's System Center Operations Manager 2012.

Previous versions of Microsoft SCOM used a Root Management Server (RMS), which represented a single point of failure. With SCOM 2012, this server has been eliminated. As a result, CA has changed the SCOM Connector architecture for deployment with SCOM 2012.

Previous versions of the connector were deployed with one SCOM connector on the RMS. Because alerts from all SCOM servers were propagated to the RMS, one CA Spectrum SCOM Connector could send all SCOM alerts to CA Spectrum.

With no RMS running in the Microsoft SCOM environment, you must deploy a connector on each SCOM management server from which you want to collect alerts.

CA Spectrum architecture dictates that each connector can only be associated with a single landscape. Therefore, all CA Spectrum landscapes must reflect the devices that each management server is managing. Otherwise, the alerts are mapped under the VNM model.

The CA Spectrum SCOM Connector version for SCOM 2012 does not support new SCOM functionality, such as fault tolerance.

SCOM Connector Software Requirements

Verify the following prerequisites before you install the connector software:

- CA Spectrum v9.2 or later.

  Important! If you apply any hotfixes to your CA Spectrum environment, you must also upgrade the SCOM Connector. The installed CA Spectrum and SCOM Connector versions must be the same for the integration to operate properly.

- Microsoft System Center Operations Manager 2007 or Microsoft System Center Operations Manager 2012 or later.

  Comparable support is available for both versions of SCOM. New functionality that is introduced in Microsoft System Center Operations Manager 2012 is not supported. However, the SCOM Connector for Microsoft System Center Operations Manager 2012 offers better support for DSS deployments.

- Microsoft .NET Framework 3.0 or later. This software must be installed on the SCOM Connector Host.

  Important! On Windows 2012 Server, the .NET Framework v3.5 is required. If v4.0 of the .NET Framework is installed, the connector application fails. Be aware that .NET v4.0 is installed on this platform by default.

- Microsoft SCOM uses the SpectrumSCOMConnector.exe file to communicate with CA Spectrum. You must have vcredist_x86 (VS2008) for SpectrumSCOMConnector.exe to work properly. For more information, see http://www.microsoft.com/en-in/download/details.aspSPEC--SCOM downloadx?id.

SCOM Connector and Fault Tolerant Environments

If you are deploying the SCOM Connector in a fault tolerant environment, restart the Connector after you set up fault tolerance. The SCOM Connector only checks the landscape map once to find a backup SpectroSERVER. Typically this check is performed during initialization or at startup. After the SCOM Connector has completed the initialization, it does not check again for a backup SpectroSERVER unless you restart it.

SCOM Connector in a DSS Environment

When the SCOM Connector is deployed in a Distributed SpectroSERVER (DSS) environment, System Center Operations Manager only forwards alerts to a single connector. The connector must be configured to connect to the SpectroSERVER that is managing the same set of servers and hosts as the System Center Operations Manager server.

When the Microsoft server connects to a connector on the main location server (MLS), only models that are present on the MLS have corresponding CA Spectrum alarms created for System Center Operations Manager alerts. Any System Center Operations Manager alerts that are forwarded to the MLS are not subsequently forwarded to other location servers in the DSS environment. Therefore, the alarms are not raised on models in the other SpectroSERVERs in the environment.

For Microsoft System Center Operations Manager 2007:

This connector essentially does not support DSS configurations. When the SCOM Connector is deployed in a Distributed SpectroSERVER (DSS) environment, subscribe the SCOM Connector to the Root Management Server (RMS).

You must also update the .scomrc file to include the hostname of the Root Management Server (RMS) in the "scomHost" field.

For Microsoft System Center Operations Manager 2012:

Microsoft System Center Operations Manager 2012 no longer uses a Root Management Server (RMS). Instead, each SCOM Management Server is a peer with other Management Servers in its own management group.

Deploy multiple SCOM connectors to support SCOM 2012 in a DSS environment. Each connector must be subscribed to single SCOM Management Server and must be configured to connect to a single SpectroSERVER in the DSS environment. The connector must be configured to connect to the SpectroSERVER that is managing the same set of servers and hosts as the SCOM Management Server. With this configuration, the connector supports a DSS configuration.

You must also update the .scomrc file on each connector to include the hostname of each Management Server (RMS) in the "scomHost" field.

Before Installing the SCOM Connector

The topics in this section assume the following:

- You have installed and configured a Microsoft System Center Operations Manager (SCOM) Management Server.

- You are integrating your System Center Operations Manager environment with CA Spectrum network management software.

- You are aware of basic deployment differences between versions of the connector.

  Versions of System Center Operations Manager prior to version 2012 and version 2012 and later have fundamental architectural differences. For more information, see SCOM Connector Versions (see page 20).

Before installing the SCOM Connector, verify the following:

- User Access (see page 23)

- Host Access (see page 24)

- Communication Ports (see page 24)

- Acknowledged Resolution States (see page 24)

- Host Names and Model Names (see page 25)

User Access

The user account under which the SCOM Connector will run must have access to both CA Spectrum and Microsoft System Center Operations Manager.

- In CA Spectrum, use the Users tab in the OneClick Console to create a CA Spectrum user model for the SCOM Connector user. The user model should be an administrator user but not necessarily a super user account.

  Important! The user model must already exist in CA Spectrum before you install the SCOM Connector.

- In Microsoft System Center Operations Manager, verify that the connector user is a member of the Administrator User Role. By default, the Administrator User Role in SCOM contains the local Administrator user group as a User Role Member. Therefore, to give the user access to SCOM, you can add the user to the local Administrator user group using the Windows Computer Management dialog.

Host Access

If the SCOM Connector is running on a host other than the SpectroSERVER host, add the SCOM Connector host to the SpectroSERVER host security. You can add the host by using SCP or by editing the *<$SPECROOT>*/.hostrc file.

For more information, see Add the SCOM Host Server to the Host Security on SpectroSERVER (see page 27).

Communication Ports

Firewalls must be configured to allow traffic to pass on certain ports:

- On the remote SpectroSERVER host, the connector tries to reach the Naming Service on Port 14006 by default.

  Note: We recommend verifying firewall configuration to enable connections to the required SSORB communication ports. For more information, see the *Distributed SpectroSERVER Administrator Guide*.

- On the remote SCOM host, the connector tries to reach the Connector Framework on Port 5724 by default. Verify that Port 5724 is open between the SCOM Connector and the Connector Framework on the RMS.

- By default, the CORBA API listens for communications from the connector on Port 14001.

- SpectroSERVER for TCP/CORBA uses port 14002.

- LocServ on SpectroSERVER for TCP/CORBA uses port 14004.

- You can set a different connector listening port in a configuration file. For more information, see Configure Connector Communication Settings (see page 27).

Acknowledged Resolution State

To enable bidirectional alert/alarm acknowledgment, you must create a custom resolution state within SCOM. The new resolution state is used to represent an alert that has been "Acknowledged."

More information:

Create an Acknowledged Resolution State (see page 33)

Host Names and Model Names

The host name of the SCOM alert must match the CA Spectrum model name for the integration to operate properly. Case is not considered. If the host name that arrives in CA Spectrum in an SCOM alert does not match the CA Spectrum model name to which it applies, the alarm is not raised or cleared. Synchronization of host names for SCOM alerts and model names in CA Spectrum must be maintained for the integration to operate properly.

When creating model names in CA Spectrum, consider establishing an internal policy such as setting the sysName for SNMP agents to the host name or fully qualified domain name (FQDN) for consistency. Use the Model Naming Order setting in the SpectroSERVER Control subview for the VNM model to control how models are named.

Note: Additional documentation discusses the Model Naming Order setting and the SpectroSERVER Control Subview. For more information, see the *Modeling and Managing Your IT Infrastructure Administrator Guide*.

Install the SCOM Connector

The following procedure describes how to install the SCOM Connector software.

Note: In a Distributed SpectroSERVER (DSS) environment, the connector must be configured to connect to the SpectroSERVER that is managing the same set of servers and hosts as the System Center Operations Manager server. For more information, see SCOM Connector in a DSS Environment .

Follow these steps:

1. Copy the <*$SPECROOT*>/SCOMConnector directory to the server where you plan to deploy the SCOM Connector.

   Important! Once you install the SCOM Connector on the server host, you cannot move the directory. Select a stable destination directory. For example, select C:\Program Files\SCOMConnector.

2. On the host server, rename the file "scomrc.example" to ".scomrc".

3. Open the .scomrc file with a text editor and modify the parameters as needed.

   Note: The .scomrc file contains descriptions of each of the available parameters.

   a. Specify the ssHost and scomHost parameters if the connector is remote from one or both of the management systems. For example, if the SCOM Connector is installed on the SCOM host and the SpectroSERVER is on a different host, specify a value for the ssHost parameter to enable the connector to reach CA Spectrum.

b. Specify the scomAckResolutionState parameter to enable bidirectional alarm/alert acknowledgment. The value of this parameter is the numeric identifier of the 'Acknowledged' resolution state in System Center Operations Manager.

   Note: To enable bidirectional alarm/alert acknowledgment, create an Acknowledged resolution state. For more information, see Create an Acknowledged Resolution State (see page 33).

c. Set the scomWebHost parameter to point the AlertURL in CA Spectrum events to a SCOM web server. This parameter lets you specify a different server than the SCOM server.

   This value defaults to scomHost. Or, if neither scomWebHost nor scomHost is set, this value defaults to localhost.

d. (Optional) Specify the web URL port that is used to access the SCOM web console.

   ■ For SCOM 2007, the default is **port 51908**.

   ■ For SCOM 2012 and later, the default is **port 80**.

e. (Optional) For SCOM 2012 and later, specify the web console application name of the SCOM web console, where applicable.

   For example, type http://*SERVER_NAME*:*Port*/OperationsManager.

   The default is OperationsManager.

4. Execute the following command from the SCOMConnector directory on the host server:

   ```
   SpectrumSCOMConnector.exe --install
   ```

   This command sets up the required registry entries for the SCOM Connector and installs the SCOM Connector as a Windows Service.

5. In the Windows Control Panel, select Administrative Tools, Services.

   The Services dialog opens.

6. Double-click the Spectrum SCOM Connector service.

7. Click the Log On tab, and select 'This account'.

8. Select a user account for the connector to run under, such as Administrator. Select a valid CA Spectrum user.

9. Type and confirm the password for the account.

10. Click OK to accept your changes.

    The SCOM Connector is now installed.

More information:

Add the SCOM Host Server to the Host Security on SpectroSERVER

Add the SCOM Connector host name to the Server List on your SpectroSERVER to enable the servers to communicate.

Follow these steps:

1. Open the CA Spectrum Control Panel.

2. Select Configure, Host Security.

    The Host Security dialog opens.

3. Type the SCOM Connector host name in the text box under Server List.

4. Click Add.

    The SCOM Connector host name is added to the Server List.

5. Click OK.

    Your changes are saved and the Host Security dialog closes.

Note: You can also add the SCOM Connector host to the host security on the SpectroSERVER by editing the *<$SPECROOT>*/.hostrc file.

Configure Connector Communication Settings

You can set the SCOM Connector listening port in a configuration file. Setting a static port is a recommended best practice. When the connector instead selects a random listening port, intervening firewalls can disrupt communications among components in a distributed environment. The configuration file (.corbarc) must be present in the *<SCOMCONNECTOR>* folder on the server where the SCOM Connector is installed.

Follow these steps:

1. On the host server, navigate to the directory where you have copied the SCOM Connector folder.

2. Rename the corbarc.example file to '.corbarc'.

3. Open the .corbarc file using your preferred text editor.

4. Change the variable (indicated by italics) in the following line to match the hostname in your environment:

    `vbroker.se.iiop_tp.proxyHost=` *`<hostname of the server where the Connector is installed>`*

5. Change the variable (indicated by italics) in the following line to match the port that you want to configure as the static listening port for the connector:

    `vbroker.se.iiop_tp.scm.iiop_tp.listener.port=`*`<port number>`*

    Important!

    ■   The default port is 14001. This port must be open between the connector and the SpectroSERVER.

    ■   If the connector is installed on a machine where Spectrum is running, configure the connector listening port to the port that Spectrum is not using.
        Execute netstat –a | grep 14001 to check whether the 14001 port is in use.

6. Save the .corbarc file.

7. When you have started the connector with the above changes applied, verify the change by issuing the following commands:

    `netstat -ano | grep <SCOM Connector pid>`

    The information that is returned verifies whether the connector is using the listener port that you specified in the .corbarc file.

Start the SCOM Connector

The following procedure describes how to run the CA Spectrum/SCOM Connector.

Follow these steps:

1. Open Windows Control Panel and select Administrative Tools, Services.

    The Windows Services dialog opens.

2. Select the Spectrum SCOM Connector service.

3. Select Start from the Action menu to start the service.

    The SCOM Connector starts running.

Verify that the SCOM Connector is Running Properly

You can use SCOM Administration to verify that the SCOM Connector is running.

Follow these steps:

1. Open the SCOM Operations Console.

2. Change to the Administration context in the console.

3. From the tree in the left pane, expand Administration and select Product Connectors.

4. Verify that 'SPECTRUM Connector' appears in the right pane.

Viewing CA Spectrum SCOM Alarms

When the SCOM Connector receives alerts, it generates events based on the content of the alert. CA Spectrum then determines whether to generate an alarm.

Note: The host name of the SCOM alert must match the CA Spectrum model name (except for case) for the integration to operate properly. For more information, see Host Names and Model Names (see page 25).

After an alarm is generated, right-click the device model and select Alarm Details. You can view the cause of the alarm and the events that generated the alarm in the Alarm Details tab.

See Set Up SCOM Connector Subscriptions (see page 31) for information about sending SCOM alerts to the SCOM Connector.

Uninstall the SCOM Connector

The following procedure describes how to uninstall the SCOM Connector.

To uninstall the SCOM Connector

1. Select Start, Control Panel, Administrative Tools, Services.

    The Services window opens.

2. Right-click the Spectrum SCOM Connector service and select Stop.

3. Execute the following command from the SCOMConnector directory on the host machine:

   `SpectrumSCOMConnector.exe --remove`

   The SCOM Connector no longer appears in the Windows Services dialog and is removed from the list of Product Connectors in the SCOM Operations Console.

Chapter 5: Configure the SCOM Connector

This section contains the following topics:

Set Up SCOM Connector Subscriptions

Set up a connector subscription in System Center Operations Manager. The subscription lets the SCOM Connector forward alerts to CA Spectrum.

Follow these steps:

1. After you have started the SCOM Connector for the first time, you will see CA Spectrum Connector listed as a Product Connector in the SCOM Operations Console. Right-click CA Spectrum Connector in the Operations Console and click Properties.

    The Product Connector Properties dialog opens.

2. Click Add in the Subscription section to create a new connector subscription.

    The Product Connector Subscription Wizard opens.

3. Enter a subscription name and a description in the General page and click Next.

4. Select the groups whose alerts you want forwarded to CA Spectrum in the Groups page and click Next.

5. Select the targets whose alerts you want forwarded to CA Spectrum in the Targets page and click Next.

6. Select the appropriate criteria for the alerts that will be forwarded to CA Spectrum in the Criteria page.

7. Click Create.

    The SCOM Connector subscription is created.

Create Models for SCOM Agents

You can model each of the SCOM agent hosts on your network so that you can view them in the Topology tab. When you model an agent, CA Spectrum selects the host device model type that most accurately represents each agent.

Follow these steps:

1. Log in to OneClick.

2. In the Landscapes area, select Universe Node.

3. Click the Topology Tab in the Contents Panel.

4. Click the Create a New Model by IP icon in the toolbar.

    The Create Model by IP Address dialog opens.

5. Enter the Network Address, Community Name, and Agent Port for CA Spectrum to use to communicate with SCOM agents.

6. Click OK.

    CA Spectrum creates a model that represents the host device with the specified IP address.

    Note: If the model is not created successfully, verify that the information that you entered previously is correct.

7. Select the new model in the Topology tab.

    The new model information is displayed in the Component Detail panel Information view.

8. Change the name of the model to the host name of the server that hosts the Operations Manager agent, as follows:

    a. Click 'set' next to the label displaying the IP address to the right of the model icon in the Information view.

    b. Enter the host name of the SCOM agent host.

        This value is case-insensitive.

    c. Press Enter to set the name.

    The SCOM Connector uses one of the System Center Operations Manager alert properties to identify the model that receives the CA Spectrum event that is generated.

9. Repeat the previous steps for each agent host on your network.

For more information, see *Modeling and Managing Your IT Infrastructure Administrator Guide*.

Create an Acknowledged Resolution State

By default, the SCOM Connector does not include a resolution state for acknowledging an alert. Instead, you must create one. Once you have created the resolution state in SCOM, the Connector can be configured to use that resolution state to synchronize the acknowledgment of alerts and alarms. By default, however, the SCOM Connector does not provide acknowledgment synchronization.

Follow these steps:

1. On the SCOM host, open the SCOM Operations Console.

2. In the Operations Console, select Administration, Settings.

3. Right-click Alerts in the central table.

4. In the Alert Resolution States tab, click New.

5. Type a name for the new resolution state, and select a Unique ID.

   Note: This Unique ID is used to configure the scomAckResolutionState parameter in the .scomrc file.

More information:

Acknowledged Resolution State (see page 24)

Chapter 6: Troubleshoot the SCOM Connector

This section contains the following topics:

SCOM Alerts Not Synchronized with CA Spectrum Alarms

Symptom:

When a System Center Operations Manager alert arrives in CA Spectrum, the appropriate CA Spectrum alarm is not raised or cleared.

Solution:

The host name of the System Center Operations Manager alert must match the CA Spectrum model name (except for case) for the integration to operate properly. If the host name that arrives in CA Spectrum in an SCOM alert does not match the CA Spectrum model name for which it applies, the alarm is not raised or cleared. Synchronization of host names for SCOM alerts and model names in CA Spectrum must be maintained for the integration to operate properly.

Important! If you have applied any hotfixes to your CA Spectrum environment, make sure that you have also upgraded the SCOM Connector. The installed CA Spectrum and SCOM Connector versions must be the same for the integration to operate properly.

More information:

Host Names and Model Names (see page 25)

Alert States Not Updated

Symptom:

I have installed the SCOM Connector and I have configured the integration. I have even followed the steps in Create an Acknowledged Resolution State (see page 33). The System Center Operations Manager alerts are coming through as alarms in CA Spectrum. However, when I acknowledge or unacknowledge an alarm in CA Spectrum, the resolution state does not update in SCOM. I eventually concluded that the SCOM Connector uses a random listening port each time it is restarted.

Solution:

To resolve the issue with alert states that are not updated on multiple servers, first check your firewall settings. Ports 14006 and 14001 (or the port that is set in the .corbarc file, if applicable) must be open between the SpectroSERVER and the SCOM Connector to enable bidirectional communication between these components.

The SCOM Connector uses listening port 14001 by default to receive communications from the CORBA API. If that port is in use, you can set another port in a CORBA configuration file. Edit the .corbarc file to include the listening port that you want to use.

SpectroSERVER for TCP/CORBA uses port 14002 and LocServ on SpectroSERVER for TCP/CORBA uses port 14004.

Note: If the connector is installed on a machine where Spectrum is running, configure the connector SCOM listening port to the port that Spectrum is not using. Execute Netstat –a | grep 14001 to check whether the 14001 port is in use.

We have included an example of this file to guide you in configuring the applicable parameters. For more information, see Configure Connector Communication Settings (see page 27).

SCOM Connector Loses Ownership of of Alerts After Reinstallation

Symptom:

If you uninstall and then reinstall the SCOM Connector, the Connector can lose ownership of SCOM Connector alerts.

Solution:

Manually forward the alerts again to the newly installed SCOM Connector.

SCOM Connector Remains in the Windows Services Dialog after Uninstallation

Symptom:

After I uninstalled the SCOM Connector, the Connector service remains in the Windows services dialog. The SCOM Connector service is listed as being in the "Disabled" state. Refreshing the Windows services dialog does not remove the SCOM Connector from the list.

Solution:

When the SCOM Connector is in this state, you cannot reinstall it. Restart the server. After Windows restarts, the Services dialog releases the handle and the service is removed. You can now reinstall the SCOM Connector.

Chapter 7: Launch the Web Console

This section contains the following topics:

Launch the Web Console from the OneClick Console

The CA Spectrum integration with MOM and SCOM lets you launch the applicable Web Console from the OneClick Console.

To launch the MOM Web console from OneClick

1. Select any CA Spectrum model that has an associated MOM-based alarm.

2. Click the Alarms tab in the Contents panel.

3. Click the Alarm Details tab in the Component Detail panel.

4. Click the omAlertURL at the bottom of the window to display alarm details.

    Note: A hyperlink is not shown for alarms that lack an associated URL.

To launch the SCOM Web console from OneClick

1. Select any CA Spectrum model that has an associated MOM- or SCOM-based alarm.

2. Click the Alarms tab in the Contents panel.

3. Click the Alarm Details tab in the Component Detail panel.

    The Web Context URL provides a link labeled, "Click here to launch."

Configure the SCOM Connector to Provide HTTPS URLs

SCOM supports HTTPS for the web console. You can configure the SCOM Connector to provide HTTPS URLs.

Follow these steps:

1. Open the .scomrc file with a text editor.

2. Specify the scomWebPrefix parameter with a value of https, as follows:

    ```
    scomWebPrefix = https
    ```

3. Save the .scomrc file.

4. Restart the SCOM Connector.

   Your changes are applied.

Change the OneClick Web Context URL

You can change the context URL for launching the MOM Web Console from OneClick. This procedure requires a working knowledge of XML and HTML. Although this procedure applies to both MOM and SCOM, it uses MOM as an example.

Note: You can preserve the customized XML that is created in this procedure from being overwritten during a CA Spectrum or OneClick upgrade or a reinstallation. For more information, see the *OneClick Customization Guide*.

Follow these steps:

1. In the OneClick installation directory (<*$SPECROOT*>), navigate to the following location:

   <*$SPECROOT*>/tomcat/webapps/spectrum/WEB-INF/alarm/config

2. Open the column-alarmwebcontexturl-config.xml file for editing.

3. Modify the text between the <html> and </html> tags to display an alternate hyperlink in OneClick. For example, replace the existing text to display a hyperlink in OneClick that reads, "Launch MOM Web Console".

   Replace this text:

   "<html>Click here to launch</html>"

   With the following text:

   "<html>Launch MOM Web Console</html>"

Chapter 8: Supported CA Spectrum Events

This section contains the following topics:

CA Spectrum Events

This chapter shows the CA Spectrum events that are generated based on alerts received from MOM- or SCOM-managed hosts. The tables in this chapter contain the following information:

CA Spectrum Event

The CA Spectrum event created based on a MOM or SCOM alert.

Event Code

The CA Spectrum event code for the event.

Event Action

The processing that is performed on the event based on the instructions in the event disposition file. For example, raise an alarm, clear an alarm, or check for a frequent problem.

Alarm Code

The alarm code generated or cleared by the event.

Alarm Severity

The severity of the alarm generated.

Supported MOM Connector CA Spectrum Events

The following table lists the CA Spectrum events supported by the MOM Connector.

CA Spectrum Event	Event Code	Event Action	Alarm Code	Alarm Severity
Success	0x3e0000a	N/A	N/A	N/A
Information	0x3e0000b	N/A	N/A	N/A
Warning	0x3e0000c	Alarm Generated	0x3e0000c	Minor
Error	0x3e0000d	Alarm Generated	0x3e0000d	Major
Critical Error	0x3e0000e	Alarm Generated	0x3e0000e	Critical

CA Spectrum Event	Event Code	Event Action	Alarm Code	Alarm Severity
Security Breach	0x3e0000f	Alarm Generated	0x3e0000f	Critical
Service Not Available	0x3e00010	Alarm Generated	0x3e00010	Critical

Supported SCOM Connector CA Spectrum Events

The following table lists the CA Spectrum events supported by the SCOM Connector.

CA Spectrum Event	Event Code	Event Action	Alarm Code	Alarm Severity
Information	0x3e00012	N/A	N/A	N/A
Warning	0x3e00013	Alarm Generated	0x3e00011	Minor
Error	0x3e00014	Alarm Generated	0x3e00012	Critical

Glossary

CA Spectrum event

A *CA Spectrum event* is an event that is generated based on alerts received from MOM-
or SCOM-managed hosts.

Microsoft Operations Manager (MOM)

Microsoft Operations Manager (MOM) is an application that provides real-time events
and alerts on the performance of Microsoft Windows servers and applications in your
network.

MOM agent

The *MOM agent* is installed agent software that resides on a system managed by MOM.
A MOM agent collects system events and statistics.

MOM Connector

MOM Connector is an application that synchronizes alarm data between CA Spectrum
and Microsoft Operations Manager. The MOM Connector uses the CA Spectrum SSORB
CORBA API to interface with CA Spectrum. It uses the MOM Connector Framework
(MCF) to interface with Microsoft Operations Manager.

MOM host server

The *MOM host server* is responsible for management tasks, such as event-based alert
generation.

SCOM agent

SCOM agent is installed agent software that resides on a system managed by Microsoft
System Center Operations Manager. A SCOM agent collects system events and statistics.

SCOM Connector

The *SCOM Connector* is an application that synchronizes alarm data between CA
Spectrum and System Center Operations Manager. The SCOM Connector uses the CA
Spectrum SSORB CORBA API to interface with CA Spectrum. It uses the Operations
Manager Connector Framework to interface with SCOM.

SCOM host server

SCOM host server is responsible for management tasks, such as event-based alert
generation.

System Center Operations Manager (SCOM)

System Center Operations Manager (SCOM) is an application that provides real-time
events and alerts on the health of servers and applications in your IT environment.

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