

Oracle® Enterprise Manager Cloud Control

IBM Tivoli Netcool/OMNIBus REST Connector Installation and Configuration Guide



For Enterprise Manager 13c Release 5

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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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Preface

This *IBM Tivoli Netcool/OMNIBus REST Event Connector Installation and Configuration Guide* provides the information that you require to install and configure the IBM Tivoli Netcool/OMNIBus REST Event Connector that integrates Oracle Enterprise Manager with IBM Tivoli Netcool/OMNIBus management tools.

Audience

This *IBM Tivoli Netcool/OMNIBus REST Event Connector Installation and Configuration Guide* provides the information that you require to install and configure the IBM Tivoli Netcool/OMNIBus REST Event Connector that integrates Oracle Enterprise Manager with IBM Tivoli Netcool/OMNIBus management tools.

You should already be familiar with Oracle Enterprise Manager.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Related Documents

For more information, see the following books in the Oracle Enterprise Manager documentation set:

- *Oracle Enterprise Manager Cloud Control Basic Installation Guide*
- *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*
- *Oracle Enterprise Manager Cloud Control Administrator's Guide*
- *Oracle Enterprise Manager Cloud Control Upgrade Guide*
- *Oracle Enterprise Manager Framework, Host, and Services Metric Reference Manual*
- *Oracle Enterprise Manager Command Line Interface*
- *Oracle Enterprise Manager Cloud Control Extensibility Programmer's Guide*
- *Oracle Database 2 Day DBA*

The latest versions of this and other Oracle Enterprise Manager documentation can be found at: [Oracle Enterprise Manager Cloud Control 13.5](#)

Oracle Enterprise Manager also provides extensive online help. Click **Help** on any Oracle Enterprise Manager page to display the online Help system.

To download free release notes, installation documentation, white papers, or other collateral, please visit the Oracle Technology Network (OTN). You must register online before using OTN; registration is free and can be done at: <http://otn.oracle.com/membership/>

If you already have a user name and password for OTN, then you can go directly to the documentation section of the OTN Web site at: <http://otn.oracle.com/documentation/>

Conventions

The following text conventions are used in this document:

| Convention | Meaning |
|------------------------|--|
| boldface | Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary. |
| <i>italic</i> | Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values. |
| <code>monospace</code> | Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter. |

1

Introduction to the Connector

The IBM Tivoli Netcool/OMNIBus REST Event Connector integrates Oracle Enterprise Manager with IBM Tivoli Netcool/OMNIBus through Tivoli Netcool/OMNIBus' REST API, enabling the sharing of event information from Oracle Enterprise Manager to IBM Tivoli Netcool/OMNIBus.

The connector monitors all events sent from Oracle Enterprise Manager and automatically updates alert information in Netcool/OMNIBus. The connector supports the following features:

- Sharing of event information from Oracle Enterprise Manager to IBM Tivoli Netcool/OMNIBus.
- Customization of event to alert mappings between Oracle Enterprise Manager and IBM Tivoli Netcool/OMNIBus.
- Synchronization of event changes in Oracle Enterprise Manager with the alerts in IBM Tivoli Netcool/OMNIBus.

Versions Supported

This connector supports the following versions of Oracle Enterprise Manager and IBM Tivoli Netcool/OMNIBus:

- Oracle Enterprise Manager Cloud Control 13c Release 5 (13.5) and higher versions.
- IBM Tivoli Netcool/OMNIBus 8.1.

The IBM Tivoli Netcool/OMNIBus REST Event Connector communicates through the REST API component of IBM Tivoli Netcool/OMNIBus and functions with Oracle Enterprise Manager Cloud Control 13c Release 5 RU 10 (13.5.0.10.0) and later versions.

Retry

The **Retry** section, available on the connector configuration page, enables you to specify whether a failed ticketing request needs to be retried within a configurable expiration time. Enabling the Retry option gives you the option of specifying whether you want to resend a ticketing request if the request fails the first time, and specifying the time period after which you want to abandon the retry. Enterprise Manager retries every 2 minutes until the request is successful or the retry interval expires.

2

Installing the Connector

The following sections in this chapter discuss these topics:

- [Prerequisites](#)
- [Installing the Connector in Enterprise Manager](#)
- [Creating a Connector Instance](#)
- [Configuring the Connector](#)
- [Enabling and Disabling the Connector](#)
- [Providing General Settings](#)
- [Working with Event Templates](#)
- [Uninstalling the Connector](#)

Prerequisites

The IBM Tivoli Netcool/OMNIBus REST Event Connector communicates through IBM Tivoli Netcool/OMNIBus' REST API. Before using the IBM Tivoli Netcool/OMNIBus REST Event Connector, ensure that you meet the following prerequisites:

- To enable the HTTP Interface on IBM Tivoli Netcool/OMNIBus:
 1. Navigate to the ObjectServer Properties and set **NRestOS.Enable** to true
 2. If using HTTP also set the following properties:
 - **NHttpd.EnableHTTP** to true
 - **NHttpd.ListeningPort** to <port>
 3. If using HTTPS also set the following properties:
 - **NHttpd.SSLEnable** to true
 - **NHttpd.SSLListeningPort** to <port>
 - **NHttpd.SSLCertificate** to <certificate label>
 - **NHttpd.SSLCertificatePwd** to <password>

 **Note:**

For more details about enabling the ObjectServer HTTP interface, see [Enabling the HTTP interface and OSLC interface in the ObjectServer](#)

- My Oracle Support Preferred Credentials are set. To set the credentials, perform the following steps:
 1. From the Enterprise Manager console Setup menu, select **My Oracle Support**, then **Set Credentials**.

2. Enter the user name and password information, then click **Apply**.
3. From the Enterprise Manager console Setup menu, select **Extensibility**, then **Self Update**.
4. From the Self Update page, look for the IBM Tivoli Netcool/OMNIBus REST Event Connector in the table list. If it does not appear, go to the next step.
5. Click **Check Updates** to schedule a job to collect the metadata for the connector, as shown in following figure.

| Type | Available Updates | Downloaded Updates | Applied Updates | Description |
|---------------------------------------|-------------------|--------------------|-----------------|---|
| Agent Software | 0 | 0 | 0 | 1. Agent software has to be installed on hosts for managing the host. |
| BI Publisher Reports | 0 | 0 | 0 | 2. BI Publisher Reports can be run against Enterprise Manager data in a variety of output formats. These reports can also be scheduled and sent via e-mail. |
| Compliance Content | 0 | 0 | 0 | 3. Compliance Content contains Framework, Standard, Files with support of user and details on these entities. |
| Data Masking and Subsetting Templates | 0 | 0 | 0 | 4. Templates for Data Masking, Application data modeling and Subsetting |
| Diagnostic Checks | 0 | 0 | 0 | 5. Target side policy checks that identify conditions that may require the attention of target administrators. |
| Diagnostic Tools | 0 | 0 | 0 | 6. Auto-updatable entity for CRACHECK and Diagnostic Assistant(DA) |
| EM Deployment Prerequisite Resour | 0 | 0 | 0 | 7. EM Deployment Prerequisite Checks are the installables used for checking prerequisites for install, Upgrade, Patching of EM Platform and Plug-ins. |
| EM Update Manager | 0 | 0 | 0 | 8. EM Update Manager for managing server-side updates. |
| Enterprise Configuration Search | 0 | 0 | 0 | 9. Configuration search definitions can be used at the enterprise level to search the configuration data of managed targets such as hosts and databases. |
| Always-On Monitoring | 0 | 0 | 0 | 10. Enterprise Manager Always-On Monitoring |
| Extensibility Development Kit (EDK) | 0 | 0 | 0 | 11. Extensibility Development Kit (EDK) is a standalone tool designed to help development of Enterprise Manager extensions (for example, Plug-ins) |
| Management Connectors | 0 | 0 | 0 | 12. Management Connectors are components that integrate external enterprise networks into the Enterprise Manager Console. |
| Metrics Extensions | 0 | 0 | 0 | 13. Metrics Extensions enhance Enterprise Manager's monitoring capability by allowing you to create new metrics to monitor conditions specific to your environment. |
| Middleware Profiles and Gold Images | 0 | 0 | 0 | 14. A collection of Software Components used for provisioning of Oracle Application Server homes. |
| Monitoring Templates | 0 | 0 | 0 | 15. Monitoring Templates can be used to standardize monitoring across your enterprise by applying a subset of monitoring settings to targets. |
| Open Center to EM Migration Utility | 0 | 0 | 0 | 16. Utility to migrate assets managed by Open Center to Enterprise Manager |

Note:

You can also set up Self-Update in offline mode. See [Applying an Update in Offline Mode](#) in the *Oracle Enterprise Manager Cloud Control Administrator's Guide* for details.

Installing the Connector in Enterprise Manager

This section provides the procedure required to download and install (apply) the connector. The IBM Tivoli Netcool/OMNIBus REST Event Connector is not included out-of-the-box, so you need to download it from the Oracle Enterprise Manager store. All connectors in the Enterprise Manager store are available on the Self Update page for downloading.

To install (apply) the connector:

1. From the Enterprise Manager console Setup menu, select **Setup**, then select **Extensibility**, then select **Self Update**.
2. Click on the Management Connector link in the Type column. The IBM Tivoli Netcool/OMNIBus REST Event Connector appears in the list with a status of *Available*.
3. Click on the appropriate IBM Tivoli Netcool/OMNIBus REST Event Connector to select it, and then click **Download**.

The Schedule Download window appears, where you can determine when the download should be performed.

4. Click **Select** to download immediately.

If you want to schedule the download for a later time, specify the date and time when the download should occur, and click **Select**. You will need to return and finish the remainder of this procedure after the scheduled download date and time.

5. If necessary, refresh the screen until the status of the connector changes to Downloaded.
6. Click on the IBM Tivoli Netcool/OMNIBus REST Event Connector to select it, then click **Apply**.

After you respond to the prompt to confirm the operation, a page appears that indicates the request has been submitted.

7. Refresh the screen until the status of the connector changes from *Apply Scheduled* to *Applied*.

Creating a Connector Instance

To use the IBM Tivoli Netcool/OMNIBus REST Event Connector, you need to create one or more instances of this connector type. A connector instance refers to the configured instance of the connector with specific details, such as Connector Name, Web Service Endpoints, and so forth of the Tivoli Netcool/OMNIBus instance. Multiple connector instances for the same connector type are supported, which provides the flexibility to configure multiple Tivoli Netcool/OMNIBus instances with Enterprise Manager.

For example, since Enterprise Manager is monitoring production targets and test targets, you can then create two instances of the connector and configure Enterprise Manager so that incidents from production targets create tickets in one connector instance, and incidents from test targets create tickets in the second connector instance.

To create a connector instance:

1. From the Enterprise Manager console, click **Setup**.
2. Select **Extensibility** in the pane.
3. Select **Management Connectors** in the left pane.
4. Select a connector type from the Create Connector drop-down list and click the **Go** button.
5. Enter the connector name and description on the next screen and click **OK**.

The connector instance appears as unconfigured on the Management Connectors page, shown in the following image.

| Select | Status | Name | Type | Version | Category |
|-----------------------|--------------|---------------------------------------|---|------------|-----------------|
| <input type="radio"/> | Unconfigured | Tivoli Netcool/OMNIBus REST Connector | IBM Tivoli Netcool/OMNIBus REST Connector | 13.5.0.0.0 | Event Connector |

Configuring the Connector

Perform the following steps for basic configuration:

1. As Super Administrator, from the Enterprise Manager console, click **Setup**.
2. Click **Extensibility**, then **Management Connectors**.

The Management Connectors page appears that lists all created connector instances.

Note: The status column with a green tick mark indicates that the connector is already configured.

3. Click the **Configure** button for the IBM Tivoli Netcool/OMNIBus REST Event Connector. The General tab of the Configure Management Connector page appears.
4. Provide the required settings. See "[Providing General Settings](#)" for details.
5. Click OK.
6. The Management Connectors page reappears. The row for the IBM Tivoli Netcool/OMNIBus REST Event Connector should have a check mark in the Status column, as shown in the following figure.



Note:

If you chose HTTPS as the protocol to establish a connection between Netcool/OMNIBus and Enterprise Manager, make sure you have performed the steps specified in [Enabling SSL for HTTPS](#).

| Select | Status | Name | Type | Version | Category | Description |
|-----------------------|--------|---------------------------------------|---|------------|-----------------|-------------|
| <input type="radio"/> | ✓ | Tivoli Netcool/OMNIBus REST Connector | IBM Tivoli Netcool/OMNIBus REST Connector | 13.5.0.0.0 | Event Connector | |

Enabling and Disabling the Connector

You can enable or disable a connector instance without needing to reconfigure or remove the connector from the system.

You can enable or disable a connector from the Management Connector page by selecting the connector and clicking either the **Enable** or **Disable** button. After a connector is disabled, the ✖ icon appears under the Status column. By default, the connector instance is enabled as soon as it is configured.



Note:

Only enabled connectors are available to forward events.

Providing General Settings

The following sections explain how to provide various configuration details for the General tab of the Configure Management Connector page as shown in the following figure.

Management Connectors
Management Connectors > Configure Management Connector: Tivoli Netcool/OMNIBus REST Connector
Configure Management Connector: Tivoli Netcool/OMNIBus REST Connector

General **Template**

In order to configure this connector, the pre-requisite steps must already have been completed on the external system.

Connection Settings
Enter a set of administrator credentials and the webservice end points for relevant operations of the ticketing system. These are required for communications.

| * Web Service End Points | Operation | Web Service End Point (URL) |
|--------------------------|-------------|--|
| | createEvent | https://[hostname]:8443/objectserver/restapi/alerts/status |
| | updateEvent | https://[hostname]:8443/objectserver/restapi/alerts/status/kd/#EVT_ID# |

* Omnibus Username

* Omnibus Password

Proxy Settings

Proxy Host Proxy Port

Proxy Username Proxy Password

Retry
Specify whether or not you want to retry this connector operations if they fail, as well as the expiration time after which retry is aborted.

Enable Retry
Expiration (Hours)

The IBM Tivoli Netcool/OMNIBus REST Event Connector communicates with Netcool/OMNIBus through IBM Tivoli Netcool/OMNIBus' REST API. All of the following fields are mandatory:

- **Web Service End Points:** URL to use when creating and updating alerts in IBM Tivoli Netcool/OMNIBus.

Modify the URL for both operations based on whether the web service for IBM Tivoli Netcool/OMNIBus was set up using HTTP or HTTPS.

For HTTP:

- Change the protocol from `https` to `http`.
- Replace `[Hostname]` in the URL with the host name or IP address of the IBM Tivoli Netcool/OMNIBus system.
- Change the port number from `8443` to `8080`.
- Replace `[Hostname]` in the URL with the hostname or IP address of the system where the web service for IBM Tivoli Netcool/OMNIBus was installed.

For HTTPS:

- Replace `[Hostname]` in the URL with the hostname or IP address of the system where the web service for IBM Tivoli Netcool/OMNIBus was installed.

 **Note:**

It is possible that the port being used is not the default. On your ObjectServer verify your port number as defined in [Prerequisites](#).

Example:

If IBM Tivoli Netcool/OMNIBus was installed on a system with a host name of `omnibus`, the following URLs would be configured for the different protocols:

For HTTP:

```
http://omnibus:8080/objectserver/restapi/alerts/status
```

For HTTPS:

```
https://omnibus:8443/objectserver/restapi/alerts/status/kf/#EVT_ID#
```

- **Omnibus Username:** Username of the user that will access IBM Tivoli Netcool/OMNibus.
- **Omnibus Password:** Password of the user that will access IBM Tivoli Netcool/OMNibus.

Retry

The Retry section, available on the connector configuration page, enables you to specify whether failed operations need to be retried within a configurable expiration time.

When you enable the Retry option, you can specify whether you want to resend a Create or Update request if the request fails the first time, and specify the time period after which you want to abandon the retry. Enterprise Manager retries every five minutes until the request is successful or the retry interval expires.

By default, the Retry is disabled. This setting applies to all events the Netcool/OMNibus Connector processes. The retry period interval accepts the number of hours as any integer value; for example, **1** or **2**.

Working with Event Templates

When a connector instance is created in Enterprise Manager, all associated templates are available for ticket create/update operations.

The following sections provide information about adding, viewing, removing, and replacing event templates.

Adding Event Templates

You need to add event templates before they are recognized in Enterprise Manager. The connector provides out-of-box templates that are automatically registered when the connector instance is created. If you want to edit these, you can do so directly in Enterprise Manager. However, if you need to use a new template (other than one out-of-box), you need to register the new template using the `emctl` command. You can then edit the template in Enterprise Manager. See [Editing Templates](#) for more information.

To add and register a template:

1. Ensure that you have execute privilege on `emctl` and the ability to read the event template.
2. For each template, run the following `emctl register_template connector` command:

```
$ORACLE_HOME/bin/emctl register_template connector  
[-t<template.xml>]
```

```
[-repos_pwd <repos password>]  
[-cname <connectorName>]  
[-iname <internalName>]  
[-tname <templateName>]  
[-ttype <templateType>]  
[-d <description>]
```

Where:

```
-t Template(full path)  
-repos_pwd Enterprise Manager Root (SYSMAN) Password  
-cname Connector Name  
-iname Template Internal Name  
-tname Template Name Displayed  
-ttype Template Type  
    <templateType> 1 - inbound transformation  
    <templateType> 2 - outbound transformation  
    <templateType> 3 - XML outbound transformation  
-d Description
```

Example 2-1 Template Registration

The following command adds a new outbound template (newTemplate.xml) for a connector instance with the name Omnibus Connector Instance:

```
emctl register_template connector  
-t <template.xml>  
-repos_pwd <repos password>  
-cname "Omnibus Connector Instance"  
-iname "newTemplate"  
-tname "newTemplateOutbound"  
-ttype 2  
-d "Demo template"
```

Viewing Template Code

To view template code, do the following:

1. Select the connector instance and go to the Configure Management Connector page.
2. Select the **Template** tab, as shown in the figure below.
3. Click a template name or click **View** to view the XSLT code for the template.

The event templates are in XSLT format. A basic knowledge of XSLT is required to understand the code.

Management Connectors
 Management Connectors > Configure Management Connector: Tivoli Netcool/OMNIBus REST Connector
Configure Management Connector: Tivoli Netcool/OMNIBus REST Connector

General **Template**

The following is the list of templates used by this connector.

| Select | Name | Type | Description |
|----------------------------------|-----------------------|----------|--|
| <input checked="" type="radio"/> | Create Event Response | Inbound | This template handles a responses from creating an event in Tivoli |
| <input type="radio"/> | Update Event Response | Inbound | This template handles a responses from creating an event in Tivoli |
| <input type="radio"/> | Create Event Request | Outbound | This template generates a request to create an event in Tivoli |
| <input type="radio"/> | Update Event Request | Outbound | This template generates a request to update an event in Tivoli |

Removing a Template

To remove a template, do the following:

1. Select the connector instance and go to the Configure Management Connector page.
2. Select the **Template** tab.
3. Select the template and click **Delete**.
4. Click **Yes** to confirm the delete operation.



Note:

If the template you delete has an incident rule associated with it, ticketing will not function for this particular incident rule after the deletion.

Editing Templates

You can edit a template directly using the Enterprise Manager console instead of using the EM CLI command line interface.

1. Select the connector instance and go to the Configure Management Connector page.
2. Select the **Template** tab.
3. Select the template and click **Edit**.
4. Edit the Description and Template Contents fields as needed, then click **Save**.

The event template is automatically registered. Saving the registered template updates it in the repository.

Restoring Templates

After you edit or customize a template, you can restore it to its previous default contents if needed by performing the following steps using the Enterprise Manager console.



Note:

You can also restore out-of-box templates that you have may edited or customized to their default values.

1. Select the connector instance and go to the Configure Management Connector page.
2. Select the **Template** tab.
3. Select the template and click **Restore**.
4. Click **Yes** in the confirmation page that appears in order to restore.

Uninstalling the Connector

To uninstall the connector, you must first delete all defined instances of the connector, then you must delete the connector from the Self Update page.

1. From the Setup menu, select **Extensibility**, then **Management Connectors**.
2. Select an instance of the connector you want to delete, then click **Delete**.
3. On the Confirmation page, click **Yes**.
4. Repeat steps 2 and 3 until all instances of the connector have been deleted.
5. From the Setup menu, select **Extensibility**, then **Self Update**.
6. Click on the **Management Connector** link in the Type column. A list of updates appears for Management Connectors.
7. Click on the connector you want to delete, select **Actions**, then select **Delete**. The Delete Update window appears.
8. Click **Delete** to delete the connector. A pop-up confirmation window appears.
9. Click **OK** to confirm and delete the connector.

3

Forwarding Events to IBM Netcool/OMNIBus

Events generated or updated in Oracle Enterprise Manager are not transferred to IBM Tivoli Netcool/OMNIBus unless you create rules to invoke the IBM Tivoli Netcool/OMNIBus REST Event Connector. A rule identifies the conditions that must be met before the connector is invoked.

The following sections provide procedures that explain how to create and update rules:

- [Setting Event Rules](#)
- [Viewing Events in the IBM Netcool/OMNIBus Console](#)

Setting Event Rules

This section explains how to create new rules in Enterprise Manager that invoke the IBM Tivoli Netcool/OMNIBus REST Event Connector.

To set events rules:

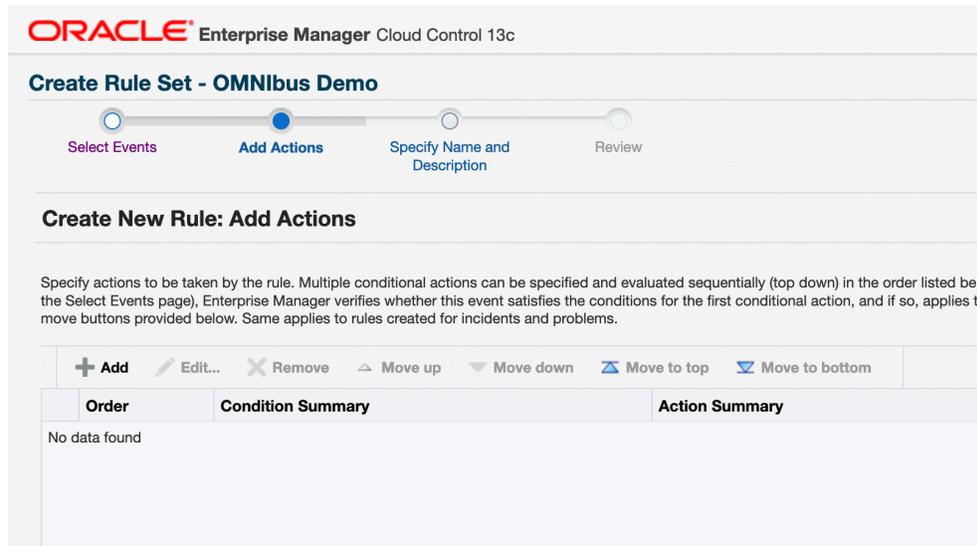
1. Log in to Enterprise Manager Cloud Control with a user account that has the Create Enterprise Rule Set resource privilege and at least View privileges on the targets where events are to be forward to Netcool/OMNIBus.
2. From the **Setup** menu, click **Incidents**, then **Incident Rules**.
3. Identify an existing rule set where the new rule can be added, or create a new rule set as follows:
 - a. Click **Create Rule Set** to invoke the Create Rule Set page.
 - b. Enter a name and description.
 - c. Create at least one rule in the ruleset.
 - d. Click **Save**.
4. Click the rule set for which you want to add the rule, then click **Edit**.
5. Click the **Rules** tab then click **Create**.

The Select Type of Rule to Create pop-up appears. As you proceed below, the wizard interface explains various rules and their usage. For detailed information, see the "Incident Management" chapter in the [Using Incident Management](#) .

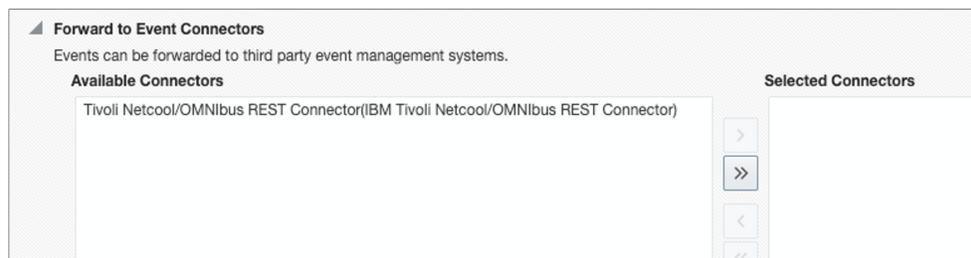
6. Select **Incoming events and updates to events**, then click **Continue**.

The Select Events page appears.

7. Select the criteria for events that you want to forward to Netcool/OMNIBus. If any new event matches the criteria specified, then the rule will be invoked to send the event to Netcool/OMNIBus. Click **Next**.



8. Click **Add**.
9. Select one or more connector instances listed in the Forward to Event Connectors section and, click the >> button, then click **Continue**.



The Add Actions page appears again, and lists the new action.

10. Click **Next**.
The Specify Name and Description page appears.
11. Enter a name and description for the rule, then click **Next**.
The Review page appears.
12. Click **Continue** if everything appears correct.

An information pop-up appears that states, "Rule has been successfully added to the current rule set. Newly added rules are not saved until the Save button is clicked."

You can click **Back** and make corrections to the rule if necessary.

13. Click **Save** to save the changes to the rule set.

The following process occurs after the event rule has been created successfully:

1. A request is sent to the Netcool/OMNibus Connector when an event is created per the criteria mentioned in the rule.
2. The alert is created or updated on the Netcool/OMNibus console.

3. In Enterprise Manager, the event is annotated with a comment on the Updates tab to indicate that an event is created or updated, as shown below:

| Time | Type | User | Message |
|------------------------------|---------------|--------|--|
| Nov 10, 2022 10:29:34 AM EST | Notification | - | Called Event Connector Tivoli REST Connector:oracle.system.core.connector.eventconnector.EventConnectorNotificationListener (Rule Owner=SYSMAN, Rule Name=Tivoli REST Rule,Tivoli REST Rule) |
| Nov 10, 2022 10:29:33 AM EST | Ticket update | SYSMAN | External alert 4091%SANCOMS was updated successfully on the external system through connector Tivoli REST Connector. |
| Nov 10, 2022 10:29:32 AM EST | Notification | - | The following notifications will be sent: 1 event connector(s) |
| Nov 10, 2022 10:29:31 AM EST | System update | - | Memory Utilization is 70.479%, crossed warning (0) or critical (100) threshold. |
| Nov 10, 2022 10:18:48 AM EST | Notification | - | Called Event Connector Tivoli REST Connector:oracle.system.core.connector.eventconnector.EventConnectorNotificationListener (Rule Owner=SYSMAN, Rule Name=Tivoli REST Rule,Tivoli REST Rule) |
| Nov 10, 2022 10:18:48 AM EST | Ticket update | SYSMAN | Alert 4091%SANCOMS was created successfully on the external system through connector Tivoli REST Connector. |
| Nov 10, 2022 10:18:47 AM EST | Notification | - | The following notifications will be sent: 1 event connector(s) |
| Nov 10, 2022 10:18:46 AM EST | Rule update | - | Incident created by rule (Name = Incident management rule set for all targets, Create incident for critical metric alerts [System generated rule]). |
| Nov 10, 2022 10:18:46 AM EST | System update | - | Memory Utilization is 71.166%, crossed warning (0) or critical (0.01) threshold. |

Viewing Events in the IBM Netcool/OMNIBus Console

After the event has been sent to IBM Netcool/OMNIBus, you can view it in the IBM Netcool/OMNIBus console. Full details of the event are sent to IBM Netcool/OMNIBus, including:

- Event class and name.
- Target type and name.
- Message.
- Severity.
- URL to the Enterprise Manager event details page.

| Field | Value |
|------------------|---|
| Local Node Alias | Managed |
| Managed Status | Capacity |
| Alert Group | Default Class |
| Class | No |
| Flash | https://[redacted]em/redirect?pageType=sdk-core-event-console-detail&eventIssueID=8AE6968C50BA406FB03088F3D44E2C83 |
| URL | CPU Utilization is 7.492%, crossed warning (0) or critical (0.01) threshold. Target Host [redacted] Target Type: host |
| Summary | 1 |
| Cause Type | 0 |
| Count | Tivoli REST Rule |
| Poll | 11/10/2022 9:56:23 AM |
| Agent | Metric Alert: Load.cpusUtil |
| State Change | Not in Task List |
| Alert Key | Public |
| Local Sec. Obj. | Group |
| TaskList | Card |
| Local Root Obj. | Serial |
| Group | 4090 |
| Card | |
| Serial | |

To view the event in Enterprise Manager, copy the URL listed in the event and paste in the address bar of a browser. You will be asked to log in to Oracle Enterprise Manager. After logging in, the Oracle Enterprise Manager event information is displayed, as shown below:

Incident Manager
Incident Manager > Event Details

✓ **CPU Utilization is 16.732%, fallen below warning (99) and critical (100) thresholds.**

General | Notifications | My Oracle Support Knowledge | All Updates | History | Related Events | Related Metrics

Event Details

Metric: CPU Utilization (%)
Metric Group: Load
Target: ██████████ (Host)

Event Reported: Nov 10, 2022 10:08:43 AM EST
Last Updated: Nov 10, 2022 10:08:47 AM EST
Closed On: Nov 10, 2022 10:08:45 AM EST
Message: CPU Utilization is 16.732%, fallen below warning (99) and critical (100) thresholds.
Last Comment: Called Event Connector Tivoli REST Connector:oracle.sysman.core.connector.eventconnector.EventConnectorNotifierListener (Rule Owner=SYSMAN, Rule Name=Tivoli REST Rule,Tivoli REST Rule): on Nov 10, 2022 10:08:47 AM EST

Incident ID: 5003
Internal Event Name: Load:cpuJ2ll
Event Type: Metric Alert
Category: Capacity
Recorded: Nov 10, 2022 10:08:45 AM EST

[Show internal values for attributes ...](#)

Guided Resolution

Diagnostics
View system load and top processes
Problem Analysis
View Metric Help

Actions
Reevaluate Alert
Edit Thresholds

Corrective Actions
No corrective action defined.
Add corrective action

This event will be automatically cleared when the underlying issue is resolved.

Metric Data

Critical Threshold: 100
Warning Threshold: 99
Number of Occurrences: 2
Last Known Value: 5.964
Last Collection Timestamp: Nov 14, 2022 5:12:14 PM EST

You can change the event information sent to IBM Netcool/OMNIBus, or you can change the mappings between the Enterprise Manager event and IBM Netcool/OMNIBus event by modifying the event templates.

See [Working with Event Templates](#) , for details.

4

Working with Event Templates

This chapter provides information about the default event templates shipped with the IBM Tivoli Netcool/OMNIBus REST Connector.

Event templates are XML transformation style sheets that map Enterprise Manager event attributes to Netcool/OMNIBus alert attributes.

The Netcool/OMNIBus REST Event connector contains predefined event templates for Create and Update event operations on the Netcool/OMNIBus system. You can customize these templates to fulfill your particular requirements. Oracle recommends that you back up these factory-built templates before customizing them.

This chapter discusses the following topics:

- [Default Templates](#)
- [Severity Mappings](#)
- [Customizing Event Mappings](#)

Default Templates

This section describes the default mappings between the Enterprise Manager event data fields and the Netcool/OMNIBus alert data fields.

XML Style Sheet (XSL) files contain the mappings between the two systems. These files are located in the Self Update archive that was installed in [Installing the Connector in Enterprise Manager](#).

[Table 4-1](#) lists the XSL files that perform the mappings and provides a summary of each.

Table 4-1 XSL Files That Perform Mappings

| File | Description |
|--------------------------------------|--|
| <code>createEvent_request.xml</code> | Transforms the Oracle Enterprise Manager event data to the IBM Netcool/OMNIBus alert format for the createEvent operation. |
| <code>updateEvent_request.xml</code> | Transforms the Oracle Enterprise Manager event data to the IBM Netcool/OMNIBus alert format for the updateEvent operation. |

Create Event Template

The Oracle Enterprise Manager Connector Framework invokes the `createEvent` operation whenever an event is generated in Oracle Enterprise Manager and there is a rule configured to invoke the Netcool/OMNIBus connector. `createEvent_request.xml` is invoked during the process to transform the data from Oracle Enterprise Manager format to Netcool/OMNIBus alert format. [Table 4-2](#) lists the default field mappings between the IBM Tivoli Netcool/OMNIBus alert and the Oracle Enterprise Manager event.

Table 4-2 Netcool/OMNIBus Field Name

| Netcool/OMNIBus Field Name | Value |
|----------------------------|---|
| Identifier | Set to the event <code>EventId</code> field. |
| Node | Set to the event <code>TargetName</code> field. |
| NodeAlias | Set to the event <code>TargetName</code> field followed by the <code>Target_Host</code> property information. |
| Manager | Hard coded to "Oracle Enterprise Manager." |
| Agent | Set to the event <code>NotificationRuleName</code> field. |
| Summary | Set to the event <code>Message</code> field. |
| Severity | Set the severity based on the event severity as specified in Severity Mappings . |
| AlertGroup | Set to the event <code>EventCategory</code> field. |
| AlertKey | Set to the <code>EventClass</code> field followed by the event <code>EventName</code> field. |
| FirstOccurrence | Set to the event <code>ReportedDate</code> field. |
| LastOccurrence | Set to the event <code>ReportedDate</code> field. |
| URL | Set to the event <code>EventURL</code> field. |
| Type | Problem |

Update Event Template

The Oracle Enterprise Manager Connector Framework invokes the `updateEvent` operation whenever an event is updated in Oracle Enterprise Manager and there is a rule configured to invoke the Netcool/OMNIBus REST Event connector. `updateEvent_request.xml` is invoked during the process to transform the data from Oracle Enterprise Manager format to Netcool/OMNIBus alert format. [Table 4-3](#) lists the default field mappings between the IBM Netcool/OMNIBus alert and the Oracle Enterprise Manager event.

Table 4-3 Update Event Template Mapping

| Netcool/OMNIBus Field Name | Value |
|----------------------------|--|
| Severity | Set the severity based on the event severity as specified in Severity Mappings . |
| Summary | Set to the event <code>Message</code> field. |
| LastOccurrence | Set to the event <code>ReportedDate</code> field. |

Severity Mappings

The Netcool/OMNIBus alert severity is set based on the Enterprise Manager event severity value. [Table 4-4](#) shows the values used when creating the alert in Netcool/OMNIBus.

Table 4-4 Netcool/OMNibus Alert Severity Mappings

| When the event severity is ... | Set the alert severity to ... |
|--------------------------------|-------------------------------|
| Clear | 0 |
| Informational | 1 |
| Minor Warning | 2 |
| Warning | 2 |
| Critical | 5 |
| Fatal | 5 |

Customizing Event Mappings

If the out-of-box event templates do not satisfy your requirements, you can modify them. To do this, Oracle recommends that you use one of the existing templates as the base template. Copy the event template to a new file, modify, and register the new event template.

You can edit a template directly on Enterprise Manager instead of using the EM CLI command.

See [Editing Templates](#) and [Restoring Templates](#) for more information.

In most cases, when you modify the event template, you might only be changing the mappings. The following examples illustrate this concept:

Example 4-5 Make Warning Severity set to '5' in IBM Tivoli Netcool/OMNibus

To create a template to change warning severity to high urgency, change the following attribute in the template under the variable severity from:

```
<xsl:when test="emcf:SystemAttributes/emcf:SeverityCode = 'WARNING'">2</xsl:when>
```

to:

```
<xsl:when test="emcf:SystemAttributes/emcf:SeverityCode = 'WARNING'">5</xsl:when>
```

Example 4-2 Change the Type from "Problem" to "Information"

If you only want the event in IBM Tivoli Netcool/OMNibus to not be reported as a problem, but rather as informational, find the section labeled `Type` field and make the following change:

```
<number name="Type">13</number>
```

The templates are highly customizable. Oracle recommends that only users with advanced knowledge of XSLT make complex changes.

You can use event rules as a filter to associate proper event templates with events. You can have as many event templates as desired.

5

Enabling SSL for HTTPS

The IBM Tivoli Netcool/Omnibus REST Event Connector supports HTTPS protocol. This chapter describes how to establish a connection between the external system and Enterprise Manager

- [Importing the Web Service Certificate into Enterprise Manager](#)

Importing the Web Service Certificate into Enterprise Manager

1. Obtain the root certificate for the OMNIBUS Server. The following article describes both how to create and find your certificates:

```
https://www.ibm.com/support/pages/configuring-nhttpsd-ssl
```

2. Append the external Certificate Authority's certificate to:

```
$INSTANCE_HOME/sysman/config/b64LocalCertificate.txt
```

3. Ensure that only the following is appended to the `b64LocalCertificate.txt` file (that is, do not include blank lines or comments or any other special characters):

```
-----BEGIN CERTIFICATE----- <<<Certificate in Base64 format>>> -----END  
CERTIFICATE-----
```

4. Restart the OMS. Run the following commands:

```
emctl stop oms
```

```
emctl start oms
```

Note:

Do not run the `emctl secure oms/agent` command after adding the external certificate to the `b64LocalCertificate.txt` file. If you run the `emctl secure` command later, then repeat the steps 1 through 3 to make sure the external certificate exists on the `b64certificate.txt` file.