Oracle® Enterprise Manager

System Monitoring Plug-In Installation Guide for Exadata InfiniBand Switch

Release 11.1.0.2.0

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The InfiniBand Switch Plug-in enables Enterprise Manager Grid Control to monitor the Sun DataCenter36 Infiniband Switch incorporated into the V2 release of the Oracle Database Machine.

Overview of the Plug-In

By deploying the plug-in to your Grid Control environment, you gain the following management features:

- Monitor InifiniBand Switch targets.

- Raise alerts and violations based on thresholds set on monitoring and configuration data.

- Provide rich out-of-box metrics and reports based on the gathered data.

> **Note:** High availability is not supported.

Versions Supported

This plug-in supports the following versions of products:

- Oracle Exadata Storage Server 11g Release 2 (11.2) and later

- Enterprise Manager Grid Control 11g Release 1 (11.1) and later (Oracle Management Service and Oracle Management Agent)

- Oracle Management Agent 11g Release 1 (11.1) and later

Metrics Collected by the Plug-In

The plug-in collects metrics on the status and health of the Sun DataCenter 36 Infiniband Switch.

Aggregate Sensor

The Aggregate Sensor takes input from multiple sensors and aggregates the data to identify problems with the switch that require attention. Whenever the sensor trips into an "Asserted" state (indicating a problem) or "Deasserted" (indicating that the problem is cleared) for a component on the switch, associated Enterprise Manager events will be generated.

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Response

This is the main metric indicating availability of the InfiniBand switch. It is collected every 60 seconds by default through the management interface of the switch.

Switch Configuration

This metric captures the switch configuration. The information collected is valuable only to Oracle Support, which will use it to assist in debugging situations.

Prerequisites

The following prerequisites must be met before you can use the plug-in:

- Install the following:

    - Enterprise Manager 11.1.0.1 or higher. Please note the minimum supported and required version for the Oracle Management Server and Repository is 11.1.0.1

    - Enterprise Manager Grid Control Agent release 10.2.0.5 or higher or Enterprise Manager Grid Control Agent release 11.1 or higher

- Set and validate the preferred credentials on all Agents where you want to deploy the plug-in.   This is essential in order to deploy the plug-in.

- The Infiniband Switch must be running at least version 1.1.3-2 or above. Use the following steps to verify the version of the switch firmware in your environment.

    - Log on to the management interface for the Infiniband Switch (using ssh).

    - Issue the command `nm2version`. The output should be similar to this:

    ```
    # nm2version
    Sun DCS 36p version: 1.1.3-2
    ```

    This would be a supported configuration for deploying the plug-in to monitor.

    If the command returns output similar to this:

    ```
    # nm2version
    NM2-36p version: 1.0.1-1
    ```

    Then you must upgrade your switch firmware. To do this follow the instructions listed in My Oracle Support (MOS) Document 888828.1

- SNMP must be configured correctly on the Infiniband Switch to allow the plug-in to obtain its information. To configure SNMP follow these instructions:

    - Log in to the switch ILOM web interface, click **Configuration**, then click **System Management Access**, and then click **SNMP**.

    - In the Settings section, select *State enabled*, select *Protocols v1*.

    - If you use a Read-Only community string other than *public*, then in the SNMP Communities section, click the **Add** button to add a new

Read-Only community string. This community string must match the community string you use when deploying adding an Exadata Infiniband Switch target as described below in *Defining an Oracle Infiniband Switch Target in Enterprise Manager Grid Control*. If the community strings do not match, the plug-in will be unable to retrieve any information from the switch. The default community string for plug-ins is *public* though this can be configured when creating a target and subsequently by modifying a targets monitoring configuration.

Deploying the Plug-In

After you ensure that the prerequisites are met, follow these steps to deploy the plug-in to the appropriate Management Agents.

1. Download the InifiniBand Switch Plug-In archive file to your desktop or computer on which the browser is launched. You can download the archive from Oracle Technology Network (OTN).

2. Log in to Enterprise Manager Grid Control as SYSMAN.

3. Click **Setup** from the upper-right-corner of the Grid Control Home page, then click **Management Plug-ins** from the left-side menu of the Setup page.

4. Click **Import**.

5. Click **Browse.** Navigate to the directory where you have downloaded the plug-in JAR file. Select the JAR file, then click **OK**.

6. Click **List Archive**. The plug-ins within the selected JAR file appear in a list.

7. Select the check box for the oracle_x2ib version 1.0and click **OK**.

8. Verify that you have set preferred credentials on all Agents where you want to deploy the plug-in.

9. In the Management Plug-ins page, click the icon in the **Deploy** column for the plug-in.

    The Deploy Management Plug-in wizard appears.

10. Click **Add Agents**.

11. Select **Agent** from the Target Type pull down menu.

12. Select the Agent(s) you want to deploy the plug-in to, then click **Select**.

13. Click **Next**, then click **Finish.** The plug-in is deployed to the selected Agents.

    If you see an error message stating that the preferred credential is not set up, go to the Preferences page and add the preferred credentials for the Agent target type. To go to the Preferences page, click **Preferences** from the top-right corner of the Grid Control page.

Adding InifiniBand Switch Targets for Monitoring

After successfully deploying the plug-in, follow these steps to add the InifiniBand Switch target to Grid Control for central monitoring and management:

1. Click the **Targets** tab, the click **All Targets**.

2. Select **Agent** from the "Search" pull down menu. Enter the server hostname of the first database server name in your cluster in the search field, then click **Go**.

3. Click on the Agent you want to add as a target.

4. Select the **Oracle InifiniBand Switch** target type from the "Add" pull down menu, then click **Go**.

5. Enter the following parameters in the Add Exadata Infiniband Switch page:

   - Name: Enter the name of the first switch in the rack

   - Infiniband Switch IP or DNS Name: Enter the IP address or DNS name for the switch

   - SNMP Read Community String: Accept the default value

   - SNMP Timeout: Accept the default value

6. Click **Test Connection** to make sure the parameters you entered are correct.

7. If the test is successful, click **OK**.

Adding the Plug-in to the Exadata Database System Target

You are now ready to add the InifiniBand Switch plug-in into the Exadata database system target.

1. Click the **Targets** tab, then click **Systems**.

2. Click on the appropriate system target.

3. Click on the **Edit System** link, located under Related Links in the lower right corner of the page.

4. Click the **Add** button.

5. Select the **InifiniBand Switch** target type from the "Add" pull down menu. A list of available InifiniBand Switch targets appears.

6. Select the check box for the appropriate InifiniBand Switch target, then click **Select**.

   Note that the component count has increased by one to reflect the InifiniBand Switch you just added.

7. Click **OK** to finish.

8. To verify that the target has been added, click **Launch Dashboard**.

   You should see the InifiniBand Switch listed under the Target Type column. The InifiniBand Switch Plug-in deployment is complete.

InifiniBand Switch Configuration

To enable Grid Control to collect metric data for the InifiniBand Switch target, XXX

1. Log in to the ILOM interface for the InfiniBand switch.

2. Click the **Configuration** link.

3. Click the **SNMP** link under System Management Access.

4. Check the following checkboxes:
   - State: **Enabled**
   - Protocols: **v1**

5. For setting trap destinations:
   - Click the **Configuration** tab.
   - Click the **Alert Management** tab.

   > **Note:** Here, you can configure 15 alerts/traps. To edit, select an alert and click Edit. A window will open where you can enter the trap details:
   >
   > ```
   > Level = minor
   > Type = SNMP Trap
   > Address = [emagent host IP]
   > Destination Port = [emagent recvlt port]
   > SNMP Version = v1
   > Community Name = public
   > ```
   >
   > Where `emagent recvlt port` is the `SnmpRecvletListenNIC` property value if it is enabled in the `emd.properties` file; otherwise, it is the `EMD_URL` property port in the `emd.properties` file.

6. Click **Save** when finished.

Setting Up Alerts

After configuring the InifiniBand Switch targets to send SNMP alerts, set up alerts in Grid Control.

1. Log in to Enterprise Manager Grid Control as SYSMAN.

2. Click the **Targets** tab, then **All Targets**.

3. In the All Targets page, from the **Search** list, select **Oracle Exadata InifiniBand Switch** and click **Go**.

4. Click the target you are interested in. The target home page appears.

5. Click **Metric and Policy Settings** in the Related Links section of the page.

6. In the Metric and Policy Settings page, you can modify metric threshold values, edit monitoring settings for specific metrics, change metric collection schedules, and disable collection of a metric.

   You can modify the thresholds directly in the table or click the edit icon (pencil icon) to access the Edit Advanced Settings page. For more information on the fields displayed in this page and how the thresholds can be modified, click **Help** from the top-right corner of this page.

Information Provided by the Plug-in

The plug-in provides status and health of the Sun DataCenter 36 Infiniband Switch. The availability of the switch is tested through the Management Interface and the Aggregate Sensor State is also retrieved and alerted upon if the Sensor State transitions into an "Asserted" State.

Aggregate Sensor

This provides feedback on the "Aggregate Sensor" state of the switch. This sensor is a special kind of composite sensor that takes input from multiple sensors and aggregates them to indicate a problem that requires attention.

Whenever the sensor trips into an "Asserted" state (indicating a problem) or "Deasserted" (indicating that the problem is cleared) for a component on the switch, it will be shown in the target's home page. Notifications can be setup to alert administrators of this problem using Enterprise Managers built-in notification system.

Response

This is the main metric indicating availability of the switch. It is collected through the management interface of the switch. The collection interval for this is also 60 seconds.

Switch Configuration

This setting captures the switch configuration. The information collected is of no real value until directed by Oracle Support to view it. It is provided purely to assist in debugging situations and should really only be used when directed by Oracle Support or Development.

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