HP OMi Management Pack for Oracle Database

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HP Operations Manager i for Linux and Windows® operating systems

User Guide

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Chapter 1: OMi Management Pack for Oracle Database

The HP OMi Management Pack for Oracle Database (OMi MP for Oracle Database) works with HP Operations Manager i (OMi) and enables you to monitor Oracle database environments. It includes Indicators - Health Indicators (HIs), Event Type Indicators (ETIs) and Correlation Rules that analyze the events that occur in the Oracle databases and report the health status of the Oracle databases. It also includes out of the box Management Templates for monitoring different types of Oracle database environments (single instance databases, Real Application Cluster (RAC), Automatic Storage Management (ASM), and Data Guard) and also includes capabilities to monitor the health and performance of systems. These Management Templates consist of a wide range of Aspects which enable the monitoring of Oracle components and the system components.

These Management Templates can be seamlessly deployed by administrators for monitoring Oracle databases in an environment. The Subject Matter Experts (SMEs) and developers can easily customize the Oracle Management Templates.

The OMi MP for Oracle Database works with OMi and provides the following additional functionalities to support a unified monitoring solution:

- Oracle instance based deployment and configuration
- Supports agent and agentless monitoring of Oracle instances

Chapter 2: Getting Started

The following section provides step-by-step instructions about monitoring Oracle databases using OMi MP for Oracle Database.

For information about Getting Started procedure on BSM Console, see Getting Started on BSM Console.

For information about Getting Started procedure on OMi Console, see Getting Started on OMi Console.

Getting Started on BSM Console

The following section provides step-by-step instructions about monitoring Oracle databases using OMi MP for Oracle Database.

Task 1: Adding Nodes to the BSM Console

Note: If the Node already exists in RTSM, you can skip this step and proceed to Task 2.

Before you begin monitoring, you need to add the nodes to the BSM console.

1. Open the Monitored Nodes manager from the Operations Management Administration:

   Admin > Operations Management > Setup > Monitored Nodes

2. In the Node Views pane, click **Predefined Node Filters > Monitored Nodes** and then click  and then click **Computer > Windows** or **Unix**. The Create New Monitored Nodes dialog box appears.

3. Specify the Primary DNS Name, IP address, Operating System, and Processor Architecture of the node and click **OK**.

   The newly created node is saved as a CI instance in RTSM.

   Note: The Node with Operations Agent needs to be activated to OMi server and certificate needs to be granted.

Task 2: Deploying the Oracle Discovery Aspect

To discover the Oracle CI on the added managed nodes, you must deploy the Oracle Discovery Aspect by following these steps:

1. Open the Management Templates & Aspects pane:

   Admin > Operations Management > Monitoring > Management Templates & Aspects

2. In the Configuration Folders pane:

   Configuration Folders > Database Management > Oracle > Oracle Aspects

3. In the **Oracle Aspects** folder, right-click the Oracle Discovery Aspect, and then click  **Assign and Deploy Item** to open the Assign and Deploy Wizard.

4. In the **Configuration Item** tab, click the CI to which you want to deploy the Oracle Discovery Aspect and then click **Next**.

5. In the **Required Parameters** tab, click **Next**.

   Note: Oracle Discovery Aspect do not have mandatory parameters. You will get a notification stating the following message:`There are no parameters that require editing for this Assignment`.

6. In the **All Parameters** tab, click **Next**

7. *(Optional).*In the **Configure Options** tab, if you do not want to enable the assignment immediately, clear the **Enable Assigned Objects** check box. You can then enable the assignment later using the Assignments & Tuning pane.

8. Click **Finish**.

Note: After the Oracle Discovery Aspect is deployed, a message stating the `Assignment and deployment jobs created` appears. To check the status of the deployment jobs, go to **Admin > Operations Management > Monitoring > Deployment Jobs**.

Task 4: Verifying Discovery

After you deploy the Oracle Discovery Aspect, you must verify if the CIs are populated in the Top view.

To view the CIs populated in the top view, follow these steps:

1. In the BSM Console, click **MyBSM**.

2. From the drop-down list, select **Top View**. The Top View page appears.

3. In the Top View page, select **ORA_Deployment**. The CIs are populated in the top view.

Task 5: Deploying the Oracle Management Templates or Oracle Aspects

If you are using **Monitoring Automation for Composite Applications** license, you can either deploy the Oracle Management Templates or Oracle Aspects to the CIs. For more information about deploying Oracle Management Templates, go to "Task 5a: Identifying and Deploying an Oracle Management Template" For information about deploying Oracle Aspects, go to "Task 5b: Deploying Oracle Aspects".

If you are using **Monitoring Automation for Servers** license, you can deploy the Oracle Aspects. For more information about deploying Oracle Aspects, go to"Task 5b: Deploying Oracle Aspects".

Task 5a: Identifying and Deploying an Oracle Management Template

You **must** deploy the Oracle Discovery Aspect even if the CIs are already populated by any other source such as SiteScope, DDM and so on. For more information, see "Task 2: Deploying the Oracle Discovery Aspect".

Before deploying the Oracle Management Templates, you must identify the Oracle Management Template suitable for your environment by following these recommendations:

- If you want to monitor the basic functionalities of Oracle database environment that consists of any of these environments - RAC, ASM, Dataguard or single instance databases, you can deploy **Essential Oracle Management Template**.
- For in-depth and detailed monitoring of RAC environments, you can deploy **Extensive Oracle Management Template**. This Management Template must be deployed on all instances in the cluster.
- For detailed monitoring of Dataguard environments, you can deploy **Extensive Oracle Management Template**. This Management Template must be deployed on primary and standby nodes.
- For detailed monitoring of ASM environments, you can deploy **Extensive Oracle Management Template**. This Management Template must be deployed on ASM CIs. You must ensure that the **ASM instance parameter** is set to **Yes**.
- For agentless monitoring, you can deploy **Hybrid Oracle Management Template**.

To deploy the Oracle Management Template, follow these steps:

1. Open the Management Templates & Aspects pane:

   Admin > Operations Management > Monitoring > Management Templates & Aspects

2. In the Configuration Folders pane:

Configuration Folders > Database Management > Oracle > Oracle Management Templates

3. In the **Oracle Management Templates** folder, click the Management Template that you want to deploy, and then click  . The Assign and Deploy wizard opens.

4. In the **Configuration Item** tab, click the CI to which you want to assign the Management Template, and then click **Next**. You can select multiple items by holding down the **Ctrl** or **Shift** key while selecting them. Click **Next** to accept the CIs and go to **Required Parameters**.

5. In the **Required Parameters** tab, you must specify the mandatory parameters - Oracle Instance User Name and Oracle Instance password. To specify the **Required Parameters**, follow these steps:

   Note: Required Parameters lists all mandatory parameters in the management template that do not have a value.

   a. Select the **Oracle Instance User Name** parameter in the list, and then click  . The Oracle Instance User Name dialog box opens.

   b. Click **Value**, specify the value, and then click **OK**

   c. Select the **Oracle Instance Password** parameter in the list, and then click  . The Oracle Instance Password dialog box opens.

   d. Click **Value**, specify the value, and then click **OK**.

6. Click **Next** to go to **All Parameters**.

7. In the **All Parameters** tab, you can change the default values of the parameters. To change the default values of the parameters, follow these steps:

   a. Select the **Oracle Instance Name** parameter and then click  . The Edit Instance Parameter window appears.

   b. Select the parameter from the list and then click  . The Edit Parameter dialog box opens. Click **Value**, specify the value, and then click **OK**.

   Note: In the **All Parameters** tab, you can override the default values of any parameter. You can specify a value for each parameter at the Management Template level. By default, parameters defines as expert parameters are not shown. To show expert parameters, click  **Hide/Unhide Expert Parameters**.

8. Click **Next**.

9. *Optional.* In the **Configure Options** tab, if you do not want to enable the assignment immediately,

clear the **Enable Assigned Objects** check box. You can then enable the assignment later using the Assignments & Tuning pane.

10. Click **Finish**.

Note: The username given during the deployment of a Management Template should have required privileges for OMi MP for Oracle Database to collect data. You can use the oracle user **system** or you can create a user. To create a user on the node, you can use the script **dbspiocr.sh or dbspiocr.bat** as mentioned in the following steps or you can create a user manually by referring the **dbspiocr.sql**. This script also contains information about the required list of privileges. The script is available at the following location only after deploying the Oracle Discovery Aspect.

Linux:

```
/var/opt/OV/bin/instrumentation
```

Usage:`dbspiocr.sh -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example:`dbspiocr.sh -oracle_home /app/oracle/product/db_1 -oracle_sid orcl -sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

Windows:

```
<ovagentdir>\bin\instrumentation
```

Usage:`dbspiocr.bat -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example:`dbspiocr.bat -oracle_home C:\app\oracle\product\db_1 -oracle_sid orcl -sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

In case of Oracle database 12.1 or later, the user name should begin with **c##** as prefix. For example, **c##hporamp**.

Task 5b: Deploying Oracle Aspects

You **must** deploy the Oracle Discovery Aspect even if the CIs are already populated by any other source such as SiteScope, DDM and so on. For more information, see "Task 2: Deploying the Oracle Discovery Aspect".

To deploy the Oracle Aspects, follow these steps:

1. Open the Management Templates & Aspects pane:

   Admin > Operations Management > Monitoring > Management Templates & Aspects

2. In the Configuration Folders pane:

Configuration Folders > Database Management > Oracle > Oracle Aspects

3. In the Management Templates & Aspects pane, click the Oracle Aspect that you want to deploy, and then click  . The Assign and Deploy wizard opens.

4. In the **Configuration Item** tab, click the CI to which you want to assign the Aspect, and then click **Next** to go to **All Parameters**.

   Note: The required parameters are already specified while deploying the Oracle Discovery Aspect.

   Note: In the **All Parameters** tab, you can override the default values of any parameter. You can specify a value for each parameter at the Management Template level. By default, parameters defines as expert parameters are not shown. To show expert parameters, click  **Hide/Unhide Expert Parameters**.

5. *(Optional).* In the **Configure Options** tab, if you do not want to enable the assignment immediately, clear the **Enable Assigned Objects** check box. You can then enable the assignment later using the Assignments & Tuning pane.

6. Click **Finish**.

Configuring OMi MP for Oracle Database for HP Operations Agent running with non-root user

In addition to the tasks mentioned in this section, the following tasks have to be performed for UNIX nodes that have Operations Agent running with *non-root* users.

Task 1: Before Deploying Oracle Discovery Aspect

Before deploying the Oracle Discovery Aspect, you must follow these steps:

1. You must provide read, write, and execute permissions to non-root user for `/var/opt/OV` directory.

2. You must create `/etc/opt/OV` directory and provide read, write, and execute permissions to non-root user.

Task 2: After Deploying Oracle Discovery Aspect

After deploying the Oracle Discovery Aspect, you must follow these steps:

1. Run the script as a root user under `/var/opt/OV/bin/instrumentation`:

   ```
   dbspi_root.pl
   ```

The `/etc/dbspi.su` is created.

2. Edit the `dbspi.su` file as a root user by uncommenting the lines or adding new lines :

   <user>:<commands>

   As in the following examples:

   ```
   oracle:/opt/oracle/product/sqlplus /nolog
   ```

   (allows sqlplus commands)

   or

   ```
   oracle:/opt/oracle/product/*
   ```

   (allows execution of all commands by Oracle user)

Task 3: After Deploying Oracle Management Template or Oracle Aspect

1. To identify the Oracle database alert log to be monitored, run the following command:

   ```
   /var/opt/OV/bin/instrumentation/dbspicao -l
   ```

2. You must provide read permission to the non-root user for alert log monitoring.

Monitoring Oracle Environment

After you deploy Management Template and Aspects, you can analyze the status and health of Oracle CIs from the following perspectives:

- Event Perspective
- Health Perspective
- Performance Perspective

Event Perspective

The Event Perspective provides complete information of events from an Event Perspective. In the Event Perspective, you can view the event information of the Oracle CI that are monitored by OMi MP for Oracle Database.

To view the Event Perspective of Oracle CIs, follow these steps:

1. Open the Operations Management pane:

   Applications > **Operations Management**

2. In the Operations Management pane, click **Event Perspective** tab. The View Explorer pane appears.

3. In the **Browse Views** tab, select **ORA_Deployment** that contains the Oracle CIs for which you want to view the events. Alternatively, you can use **Search** tab to find a Oracle CI.

4. Click the Oracle CI for which you want to view the Event Perspective. The list of events for the selected Oracle CI appears on the Event Browser pane.

   When you click an event from the Event Browser, the Event Details pane opens where you can view the following details:

   - **General** - Displays the detailed information about the selected event such as Severity, Lifecycle State, Priority, Related CI and so on.
   - **Additional Info** - Displays more detailed information about the attributes of the selected event.
   - **Source Info** - Displays an overview of the information available about the source of the selected event.
   - **Actions** - Displays the list of actions available for a selected event. There are two types of possible actions: User Actions and Automatic Action.
   - **Annotations** - Displays a list of the annotations attached to the selected event.
   - **Custom Attributes** - Displays a list of the attributes that either an administrator or the responsible user manually configured and added to the selected event.
   - **Related Events** - Displays an overview of all the events that are related to the event selected in the Event Browser.
   - **History** - Displays the history of the selected event.
   - **Resolver Hints** - Displays the information used to identify the node and CI associated with an event.
   - **Instructions** - Displays instruction information designed to help operators handle the associated event.
   - **Forwarding** - Displays the transfer of ownership details if any, for the events.

Health Perspective

The Health Perspective provides a high-level view of the overall health information of the related CIs in the context of events. In the Health Perspective, you can view the health information of the Oracle CIs that are monitored by OMi MP for Oracle Database.

To view the Health Perspective of Oracle CIs, follow these steps:

1. Open the Operations Management pane:

   Applications > **Operations Management**

2. In the Operations Management pane, click **Health Perspective** tab. The View Explorer pane appears.

3. In the **Browse Views** tab, select **ORA_Deployment** that contains the Oracle CIs for which you want to view the health related events. Alternatively, you can use **Search** tab to find an Oracle CI.

4. Click the **Oracle CI** for which you want to view the Health Perspective. The list of health related events for the selected Oracle CI appears on the Event Browser pane.

   When you click an event from the Event Browser pane, the following panes appear:

   - **Health Top View** - Displays the health top view of the selected event.
   - **Health Indicators** - Displays the Key Performance Indicators (KPIs) and HIs related to the CI that you select from the Health Top View pane.
   - **Actions** - Displays the list of actions available for a selected event.

Performance Perspective

Performance Perspective enables you to populate graphs from existing graph templates. You can also plot customized graphs by selecting the required metrics for a specific CI.

To view the Performance Perspective of Oracle CIs using graphs, follow these steps:

1. Open the Operations Management pane:

   Applications > **Operations Management**

2. In the Operations Management pane, click **Performance Perspective** tab. The View Explorer pane appears.

3. In the **Browse Views** tab, select **ORA_Deployment**. The list of CIs appear. Select a specific CI. The performance pane appears, which lists the default graphs available for the **ORA_Deployment** view.

4. Click the graph you want to plot from the **Graphs** tab, and then click  **Draw Graphs**. The selected graph is plotted on the right pane.

Note: For more information about Event Perspective, Health Perspective, and Performance Perspective, see the *Operations Manager i Concepts Guide*.

Getting Started on OMi Console

The following section provides step-by-step instructions about monitoring Oracle databases using OMi MP for Oracle Database.

Task 1: Adding Nodes to the OMi Console

Note: If the Node already exists in RTSM, you can skip this step and proceed to Task 2.

Before you begin monitoring, you need to add the nodes to the OMi console.

1. Open the Monitored Nodes manager from the Administration:

   Administration > Setup and Maintenance > Monitored Nodes

2. In the Node Views pane, click **Predefined Node Filters > Monitored Nodes** and then click  and then click **Computer > Windows** or **Unix**. The Create New Monitored Nodes dialog box appears.

3. Specify the Primary DNS Name, IP address, Operating System, and Processor Architecture of the node and click **OK**.

   The newly created node is saved as a CI instance in RTSM.

   Note: The Node with Operations Agent needs to be activated to OMi server and certificate needs to be granted.

Task 2: Deploying the Oracle Discovery Aspect

To discover the Oracle CI on the added managed nodes, you must deploy the Oracle Discovery Aspect by following these steps:

1. Open the Management Templates & Aspects pane:

   Administration > Monitoring > Management Templates & Aspects

2. In the Configuration Folders pane:

   Configuration Folders > Database Management > Oracle > Oracle Aspects

3. In the Management Templates & Aspects folder, right-click the Oracle Discovery Aspect, and then click **Assign and Deploy Item** to open the Assign and Deploy Wizard.

4. In the **Configuration Item** tab, click the CI to which you want to deploy the Oracle Discovery

Aspect and then click **Next**.

5. In the **Required Parameters** tab, click **Next**.

   Note: Oracle Discovery Aspect do not have mandatory parameters. You will get a notification stating the following message:`There are no parameters that require editing for this Assignment`.

6. In the **Parameter Summary** tab, click **Next**

7. *(Optional).*In the **Configure Options** tab, if you do not want to enable the assignment immediately, clear the **Enable Assignment(s)** check box. You can then enable the assignment later using the Assignments & Tuning manager.

8. Click **Finish**.

Note: After the Oracle Discovery Aspect is deployed, a message stating the `Assignment and deployment jobs created` appears. To check the status of the deployment jobs, go to **Administration > Monitoring > Deployment Jobs**.

Task 3: Verifying Discovery

After you deploy the Oracle Discovery Aspect, you must verify if the CIs are populated in the 360^0 View.

To view the CIs populated in the 360^0 view, follow these steps:

1. In the OMi Console, click **Workspaces > Dashboards > 360^0 View**.

2. From the drop-down list, select **360^0 View**. The 360^0 View page appears.

3. In the 360^0 View page, select **ORA_Deployment**. The CIs are populated in the 360^0 View.

Task 4: Deploying the Oracle Management Templates or Oracle Aspects

If you are using **Monitoring Automation for Composite Applications** license, you can either deploy the Oracle Management Templates or Oracle Aspects to the CIs. For more information about deploying Oracle Management Templates, go to Task 4a: Identifying and Deploying an Oracle Management Template For information about deploying Oracle Aspects, go to Task 4b: Deploying Oracle Aspects.

If you are using **Monitoring Automation for Servers** license, you can deploy the Oracle Aspects. For more information about deploying Oracle Aspects, go to Task 4b: Deploying Oracle Aspects.

Task 4a: Identifying and Deploying an Oracle Management Template

You **must** deploy the Oracle Discovery Aspect even if the CIs are already populated by any other source such as SiteScope, DDM and so on. For more information, see Task 2: Deploying the Oracle Discovery Aspect.

Before deploying the Oracle Management Templates, you must identify the Oracle Management Template suitable for your environment by following these recommendations:

- If you want to monitor the basic functionalities of Oracle database environment that consists of any of these environments - RAC, ASM, Dataguard or single instance databases, you can deploy **Essential Oracle Management Template**.
- For in-depth and detailed monitoring of RAC environments, you can deploy **Extensive Oracle Management Template**. This Management Template must be deployed on all instances in the cluster.
- For detailed monitoring of Dataguard environments, you can deploy **Extensive Oracle Management Template**. This Management Template must be deployed on primary and standby nodes.
- For detailed monitoring of ASM environments, you can deploy **Extensive Oracle Management Template**. This Management Template must be deployed on ASM CIs. You must ensure that the **ASM instance parameter** is set to **Yes**.
- For agentless monitoring, you can deploy **Hybrid Oracle Management Template**.

To deploy the Oracle Management Template, follow these steps:

1. Open the Management Templates & Aspects pane:

   Administration > Monitoring > Management Templates & Aspects

2. In the Configuration Folders pane:

   Configuration Folders > Database Management > Oracle > Oracle Management Templates

3. In the **Oracle Management Templates** folder, click the Management Template that you want to deploy, and then click  . The Assign and Deploy wizard opens.

4. In the **Configuration Item** tab, click the CI to which you want to assign the Management Template, and then click **Next**. You can select multiple items by holding down the **Ctrl** or **Shift** key while selecting them. Click **Next** to accept the CIs and go to **Required Parameters**.

5. In the **Required Parameters** tab, you must specify the mandatory parameters - Oracle Instance User Name and Oracle Instance password. To specify the **Required Parameters**, follow these

steps:

Note: Required Parameters lists all mandatory parameters in the management template that do not have a value.

a. Select the **Oracle Instance User Name** parameter in the list, and then click . The Oracle Instance User Name dialog box opens.

b. Click **Value**, specify the value, and then click **OK**.

c. Select the **Oracle Instance Password** parameter in the list, and then click . The Oracle Instance Password dialog box opens.

d. Click **Value**, specify the value, and then click **OK**.

6. Click **Next** to go to **Parameter Summary**.

7. In the **Parameter Summary** tab, you can change the default values of the parameters. To change the default values of the parameters, follow these steps:

a. Select the **Oracle Instance Name** parameter and then click . The Edit Instance Parameter window appears.

b. Select the parameter from the list and then click . The Edit Parameter dialog box opens. Click **Value**, specify the value, and then click **OK**.

Note: In the **Parameter Summary** tab, you can override the default values of any parameter. You can specify a value for each parameter at the Management Template level. By default, parameters defines as expert parameters are not shown. To show expert parameters, click **Hide/Unhide Expert Parameters**.

8. Click **Next**.

9. *Optional.* In the Configure Options tab, if you do not want to enable the assignment immediately, clear the **Enable Assignment(s)** check box. You can then enable the assignment later using the Assignments & Tuning pane.

10. Click **Finish**.

Note: The username given during the deployment of a Management Template should have required privileges for OMi MP for Oracle Database to collect data. You can use the oracle user **system** or you can create a user. To create a user on the node, you can use the script **dbspiocr.sh or dbspiocr.bat** as mentioned in the following steps or you can create a user manually by referring the **dbspiocr.sql**. This script also contains information about the required list of privileges. The

script is available at the following location only after deploying the Oracle Discovery Aspect.

Linux:

```
/var/opt/OV/bin/instrumentation
```

Usage:`dbspiocr.sh -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example:`dbspiocr.sh -oracle_home /app/oracle/product/db_1 -oracle_sid orcl -sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

Windows:

```
<ovagentdir>\bin\instrumentation
```

Usage:`dbspiocr.bat -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example:`dbspiocr.bat -oracle_home C:\app\oracle\product\db_1 -oracle_sid orcl -sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

In case of Oracle database 12.1 or later, the user name should begin with **c##** as prefix. For example, **c##hporamp**.

Task 4b: Deploying Oracle Aspects

You **must** deploy the Oracle Discovery Aspect even if the CIs are already populated by any other source such as SiteScope, DDM and so on. For more information, see "Task 2: Deploying the Oracle Discovery Aspect".

To deploy the Oracle Aspects, follow these steps:

1. Open the Management Templates & Aspects pane:

   Administration > Monitoring > Management Templates & Aspects

2. In the Configuration Folders pane:

   Configuration Folders > Database Management > Oracle > Oracle Aspects

3. In the Management Templates & Aspects pane, click the Oracle Aspect that you want to deploy, and then click  . The Assign and Deploy wizard opens.

4. In the **Configuration Item** tab, click the CI to which you want to assign the Aspect, and then click **Next** to go to **Required Parameters**.

   Note: The required parameters are already specified while deploying the Oracle Discovery Aspect.

Note: In the **Parameter Summary** tab, you can override the default values of any parameter. You can specify a value for each parameter at the Management Template level. By default, parameters defines as expert parameters are not shown. To show expert parameters, click **Hide/Unhide Expert Parameters**.

5. *(Optional).* In the **Configure Options** tab, if you do not want to enable the assignment immediately, clear the **Enable Assignment(s)** check box. You can then enable the assignment later using the Assignments & Tuning pane.

6. Click **Finish**.

Configuring OMi MP for Oracle Database for HP Operations Agent running with non-root user

In addition to the tasks mentioned in the section "Getting Started on OMi Console", the following tasks have to be performed for UNIX nodes that have Operations Agent running with *non-root* users.

Task 1: Before Deploying Oracle Discovery Aspect

Before deploying the Oracle Discovery Aspect, you must follow these steps:

1. You must provide read, write, and execute permissions to non-root user for `/var/opt/OV` directory.

2. You must create `/etc/opt/OV` directory and provide read, write, and execute permissions to non-root user.

Task 2: After Deploying Oracle Discovery Aspect

After deploying the Oracle Discovery Aspect, you must follow these steps:

1. Run the script as a root user under `/var/opt/OV/bin/instrumentation`:

   ```
   dbspi_root.pl
   ```

   The `/etc/dbspi.su` is created.

2. Edit the `dbspi.su` file as a root user by uncommenting the lines or adding new lines :

   <user>:<commands>

   As in the following examples:

   ```
   oracle:/opt/oracle/product/sqlplus /nolog
   ```

   (allows sqlplus commands)

   or

```
oracle:/opt/oracle/product/*
```

(allows execution of all commands by Oracle user)

Task 3: After Deploying Oracle Management Template or Oracle Aspect

1. To identify the Oracle database alert log to be monitored, run the following command:

   ```
   /var/opt/OV/bin/instrumentation/dbspicao -l
   ```

2. You must provide read permission to the non-root user for alert log monitoring.

Monitoring Oracle Environment

After you deploy Management Template and Aspects, you can analyze the status and health of Oracle CIs from the following perspectives:

- Event Perspective
- Health Perspective
- Performance Perspective

Event Perspective

The Event Perspective provides complete information of events from an Event Perspective. In the Event Perspective, you can view the event information of the Oracle CI that are monitored by OMi MP for Oracle Database.

To view the Event Perspective of Oracle CIs, follow these steps:

1. Open the Operations Console pane:

   Workspaces > Operations Console > Event Perspective

   The View Explorer pane appears.

2. In the **Browse Views** tab, select **ORA_Deployment** that contains the Oracle CIs for which you want to view the events. Alternatively, you can use **Search** tab to find a Oracle CI.

3. Click the Oracle CI for which you want to view the Event Perspective. The list of events for the selected Oracle CI appears on the Event Browser pane.

   When you click an event from the Event Browser, the Event Details pane opens where you can view the following details:

   - **General** - Displays the detailed information about the selected event such as Severity, Lifecycle State, Priority, Related CI and so on.
   - **Additional Info** - Displays more detailed information about the attributes of the selected event.

- **Source Info** - Displays an overview of the information available about the source of the selected event.
- **Actions** - Displays the list of actions available for a selected event. There are two types of possible actions: User Actions and Automatic Action.
- **Annotations** - Displays a list of the annotations attached to the selected event.
- **Custom Attributes** - Displays a list of the attributes that either an administrator or the responsible user manually configured and added to the selected event.
- **Related Events** - Displays an overview of all the events that are related to the event selected in the Event Browser.
- **History** - Displays the history of the selected event.
- **Resolver Hints** - Displays the information used to identify the node and CI associated with an event.
- **Instructions** - Displays instruction information designed to help operators handle the associated event.
- **Forwarding** - Displays the transfer of ownership details if any, for the events.

Health Perspective

The Health Perspective provides a high-level view of the overall health information of the related CIs in the context of events. In the Health Perspective, you can view the health information of the Oracle CIs that are monitored by OMi MP for Oracle Database.

To view the Health Perspective of Oracle CIs, follow these steps:

1. Open the Operations Console pane:

   Workspaces > Operations Console > Health Perspective

   The View Explorer pane appears.

2. In the **Browse Views** tab, select **ORA_Deployment** that contains the Oracle CIs for which you want to view the health related events. Alternatively, you can use **Search** tab to find an Oracle CI.

3. Click the **Oracle CI** for which you want to view the Health Perspective. The list of health related events for the selected Oracle CI appears on the Event Browser pane.

   When you click an event from the Event Browser pane, the following panes appear:

   - **Health Top View** - Displays the health top view of the selected event.
   - **Health Indicators** - Displays the Key Performance Indicators (KPIs) and HIs related to the CI

that you select from the Health Top View pane.

- **Actions** - Displays the list of actions available for a selected event.

Performance Perspective

Performance Perspective enables you to populate graphs from existing graph templates. You can also plot customized graphs by selecting the required metrics for a specific CI.

To view the Performance Perspective of Oracle CIs using graphs, follow these steps:

1. Open the Operations Console pane:

   Workspaces > Operations Console > Performance Perspective

   The View Explorer pane appears.

2. In the **Browse Views** tab, select **ORA_Deployment**. The list of CIs appear. Select a specific CI. The performance pane appears, which lists the default graphs available for the **ORA_Deployment** view.

3. Click the graph you want to plot from the **Graphs** tab, and then click  **Draw Graphs**. The selected graph is plotted on the right pane.

Note: For more information about Event Perspective, Health Perspective, and Performance Perspective, see the *Operations Manager i Concepts Guide*.

Chapter 4: Components

The OMi MP for Oracle Database includes the following components for monitoring Oracle databases in an environment:

- "Oracle Management Templates"
- "Overview of Oracle Aspects"
- "Parameters"
- "Configuration Items (CIs) and Configuration Item Types (CITs)"
- "Run-time Service Model (RTSM) Views"
- "Event Type Indicators (ETIs)"
- "Health Indicators (HIs)"
- "Policies Settings ETIs"
- "Topology Based Event Correlation (TBEC) Rules"
- "Operations Orchestration (OO) Flows"
- "Tools"

Oracle Management Templates

The Management Templates consists of several Aspects which enables you to monitor Oracle databases based on the criticality and type of the environment. By default, the OMi MP for Oracle Database consists of a set of Management Templates. You can deploy the out of the box Management Templates with the default parameters or you can customize the Management Templates based on your requirements. In addition, you can also create Management Templates based on the monitoring requirements using the Oracle Aspects.

Overview

The OMi MP for Oracle Database comprises the following Management Templates:

- Essential Oracle Management Template
- Extensive Oracle Management Template
- Hybrid Oracle Management Template

How to Access the Oracle Management Templates

1. Open Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.

2. Click **Configuration Folders > Database Management > Oracle > Oracle Management Templates**.

Note: For OMi MP for Oracle Database version 1.10 the Management Templates and Aspects version is 1.00.

Tasks

How to Deploy Oracle Management Templates

To deploy the Oracle Management Template, follow these steps:

1. Open Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Configuration Folders pane:

   Configuration Folders > Database Management > Oracle > Oracle Management Templates

3. In the Oracle Management Templates folder, click the Management Template that you want to deploy, and then click  . The Assign and Deploy wizard opens.

4. In the **Configuration Item** tab, click the CI to which you want to assign the Management Template, and then click **Next**. You can select multiple items by holding down the **CTRL** or **SHIFT** key while selecting them. Click **Next** to accept the CIs and go to **Required Parameters**.

5. In the **Required Parameters** tab, you must specify the mandatory parameters - Oracle Instance User Name and Oracle Instance password. To specify the **Required Parameters**, follow these steps:

   Note: Required Parameters lists all mandatory parameters in the management template that do not have a value.

   a. Select the **Oracle Instance User Name** parameter in the list, and then click the  . The Oracle Instance User Name dialog box opens.

b. Click **Value**, specify the value, and then click **OK**.

c. Select the **Oracle Instance Password** parameter in the list, and then click  . The Oracle Instance Password dialog box opens.

d. Click **Value**, specify the value, and then click **OK**.

6. Click **Next** to go to **Parameter Summary**.

7. In the **All Parameters** tab on BSM and **Parameter Summary** tab on OMi, you can change the default values of the parameters. To change the default values of the parameters, follow these steps:

   a. Select the **Oracle Instance Name** parameter and then click  . The Edit Instance Parameter window appears.

   b. Select the parameter from the list and then click  . The Edit Parameter dialog box opens. Click **Value**, specify the value, and then click **OK**.

   Note: In the **All Parameters**/**Parameter Summary** tab, you can override the default values of any parameter. You can specify a value for each parameter at the Management Template level. By default, parameters defines as expert parameters are not shown. To show expert parameters, click **Hide/Unhide Expert Parameters**.

8. Click **Next**.

9. *Optional.* In the **Configure Options** tab, if you do not want to enable the assignment immediately, clear the **Enable Assigned Objects** check box on BSM and clear the **Enable Assignment(s)** check box on OMi. You can then enable the assignment later using the Assignments & Tuning manager.

10. Click **Finish**.

Note: The username given during the deployment of a Management Template should have required privileges for OMi MP for Oracle Database to collect data. You can use the oracle user **system** or you can create a user. To create a user on the node, you can use the script **dbspiocr.sh or dbspiocr.bat** as mentioned in the following steps or you can create a user manually by referring the **dbspiocr.sql**. This script also contains information about the required list of privileges. The script is available at the following location only after deploying the Oracle Discovery Aspect.

Linux:

```
/var/opt/OV/bin/instrumentation
```

Usage: `dbspiocr.sh -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example: `dbspiocr.sh -oracle_home /app/oracle/product/db_1 -oracle_sid orcl -sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

Windows:

`<ovagentdir>\bin\instrumentation`

Usage: `dbspiocr.bat -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example: `dbspiocr.bat -oracle_home C:\app\oracle\product\db_1 -oracle_sid orcl -sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

In case of Oracle database 12.1 or later, the user name should begin with **c##** as prefix. For example, **c##hporamp**.

How to Automatically Assign Oracle Management Templates and Oracle Aspects

To automatically assign Oracle Management Templates or Oracle Aspects, you must specify the required privileges.

1. Open Automatic Assignment Rules pane:

   On BSM, click **Admin > Operations Management > Monitoring > Automatic Assignment Rules**.

   On OMi, click **Administration > Monitoring > Automatic Assignment Rules**.

   The pane consists of the Auto-Assignment Rules pane at the top, and a Parameter list at the bottom.

2. Click  **New Assignment** in the toolbar of the Auto-Assignment Rules pane and select the appropriate option. The Create Auto-Assignment Rule wizard is shown, at step **Select Target View**.

3. Select the Oracle view containing the CIs for which you want to create an automatic assignment, and click **Next** to go to **Select Item to Assign**.

4. In step **Select Item to Assign**, click the Oracle management template or aspect that you want to automatically assign to all CIs with a CI type appearing in the selected view.

   The list shows only the management templates that have a root CI type that appears in the view that you selected or, in case an aspect is auto-assigned, compatible aspects.

   The latest version of the management template or aspect that you want to assign is selected by default. If required, select a different version in column **Version**.

   Click **Next** to go to **Required Parameters**.

5. This step lists all mandatory parameters in the management template that do not yet have a value. As they are mandatory, however, all listed parameters *must* be given a value before the management template can be deployed.

   If all required values are specified, you can choose one of the following actions:

   - Click **Finish** to assign the configuration object to the selected CI and close the wizard or dialog.
   - Click **Next** to go to **All Parameters** on BSM and **Parameter Summary** on OMi, where you can override the default value of any parameter, including those that are not required.

   Note: To access **Configure Options** tab, click **Next** in this step, and **Next** again in **All Paramters / Parameter Summary** tab.

   To change a parameter, double-click it, or select it in the list and click  **Edit**.

   - For standard parameters, the Edit Parameter dialog opens.

     Click **Value**, specify the value, and then click **OK**.

   - For instance parameters, the Edit Instance Parameter dialog opens.

     Add instance values, and then for each instance value, specify dependent parameter values. After you specify the instances and dependent parameter values, click **OK**.

6. *Optional.* In the **All Parameters**/**Parameter Summary** tab, specify a value for each parameter that needs to be monitored against a different value than the default value.

   To change a parameter, double-click it, or select it in the list and click  **Edit**.

   - For standard parameters, the Edit Parameter dialog opens.

     Click **Value**, specify the value, and then click **OK**.

   - For instance parameters, the Edit Instance Parameter dialog opens.

     Add instance values, and then for each instance value, specify dependent parameter values. After you specify the instances and dependent parameter values, click **OK**.

   Click **Next** to go to the **Configure Options** tab, or **Finish** to save the assignment and close the wizard.

7. *Optional.* In step **Configure Options**, clear the **Enable Assigned Objects** check box on BSM or clear the **Enable Assignment(s)** check box on OMi, if you do not want to activate the assignment rule immediately. (You can activate automatic assignment rules later using the Automatic Assignment Rules pane.)

8. Click **Finish** to save the changes and close the wizard. The assignment rule is added to the list of auto-assignment rules.

An assignment may trigger an event to be sent to OMi if one of the following situations applies:

- A deployment job fails.
- An auto-assignment fails.
- An auto-assignment succeeds. This behavior can be configured in the Infrastructure Settings.

You can check if the automatic assignment rule successfully created the expected assignments as follows:

- Open Assignments & Tuning pane:

  On BSM, click **Admin > Operations Management > Monitoring > Assignments & Tuning**.

  On OMi, click **Administration > Monitoring > Assignments & Tuning**.

- In the **Browse Views** tab, select the view you identified when creating your automatic assignment rule.
- Expand the view, and select a node that corresponds to the root CI type of the assigned item. Assignments created as a result of Automatic Assignment Rules are shown in the list of assignments at the top of the right pane, and have the value `AutoAssignment` in the column **Assigned By**.

You can consider the following options for tuning the assignment:

- Use the Auto-Assignment Rules pane to tune the parameter values for all assignments triggered by the automatic assignment rule.
- Use the Assignments pane to tune, redeploy, delete, and enable or disable individual assignments.

How to Display an Assignment Report for an Oracle Management Template

1. Select the Management Template you want to create the report for.
2. Click  **Generate Assignment Report** in the Management Templates & Aspects pane.

   The preconfigured Assignment Report is displayed.

You can display additional types of reports from the Assignments & Tuning pane.

Essential Oracle Management Template

The Essential Oracle Management Template can be used to monitor Oracle databases in an environment. It comprises of essential Oracle Aspects and Infrastructure Aspects for monitoring the availability, health, and performance of Oracle database environments.

You have Oracle databases running in an environment, and want to check the availability, health, and performance of the databases and monitor the basic functionalities of the Oracle features - tablespaces, query, memory, objects, segments, transactions, locks and latches. In such a scenario, you can deploy the Essential Oracle Management Template on all the Oracle CIs in the environment. The Essential Oracle Management Template comprises of specific Aspects to monitor these features.

Note: To use and deploy Infrastructure Aspects, you must install OMi Management Pack for Infrastructure software.

How to Access the Essential Oracle Management Template

1. Open Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**

2. In the Configuration Folder pane, click **Configuration Folders > Database Management > Oracle > Oracle Management Templates > Essential Oracle Management Template**.

User Interface Reference

Management Template - General

Provides an overview of the attributes of the Management Template.

UI Element	Description
Name	Essential Oracle Management Template
Description	Manages Oracle database single instance environment in monitoring the primary areas of database such as availability, query performance, tablespace and Oracle alert log and so on along with critical infrastructure areas of CPU, Memory, and Disk.
ID	A unique identifier for this version.
Version ID	A unique identifier for this version of the Essential Oracle Management Template.
Version	The current version of the Essential Oracle Management Template. In this instance, the version of the Management Template is 1.0.
Change Log	Text that describes what is new or modified in this version of the Essential Oracle Management Template.

Management Template - Topology View

UI Element	Description
Topology View	Ora_Deployment is the Topology View for Essential Oracle Management Template. It contains the Oracle related CITs that you want to manage using the Management Template.
CI Type	The type of CIs that the Essential Oracle Management Template enables you to manage. This is the type of CI to which the Management Template can be assigned.

Management Template - Aspects

The Essential Oracle Management Template contains the following Oracle Aspects:

- "Basic Oracle Locks and Latches"
- "Basic Oracle Memory Performance"
- "Basic Oracle Query Performance"
- "Basic Oracle Segment"
- "Oracle Database Availability"
- "Oracle Discovery"
- "Oracle IO Performance"
- "Oracle Tablespace Health"
- "Oracle Transactions"

The Essential Oracle Management Template contains the following Infrastructure Aspects:

Resource Bottleneck Diagnosis

The Resource Bottleneck Diagnosis Aspect identifies congestions and bottleneck conditions for system resources like the CPU, memory, network and disk. CPU bottleneck monitoring is based on global CPU utilization and load average (Run Queue Length).

CI Type	Policy Template	Description	Policy Type
Computer	Sys_CPUBottleneckDiagnosis	This policy template detects CPU bottlenecks like exceeding the thresholds for CPU utilization percentage, processor queue length, total number of CPU on the system, and operating systems. If the threshold for CPU utilization is violated along with threshold for number of processes in the queue waiting for CPU time, the policy sends an alert. The message also displays a list of the top ten CPU utilization processes.	Service Auto Discovery Template
	Sys_ MemoryBottleneckDiagnosis	This policy template monitors the physical memory utilization and the bottlenecks. Memory bottleneck condition occurs when the memory utilization is high and the available memory is very low. It causes the system to slow down affecting overall performance. High memory consumption results in excessive page outs, high page scan rate, swap-out byte rate, and page request rate, eventually slowing down the system. The message also displays a list of top ten memory utilization processes.	
	Sys_DiskPeakUtilMonitor	This policy template monitors the utilization level of the disk on the system. It checks whether the utilization level is full.	
	Sys_ NetworkInterfaceErrorDiagnosis	This policy template monitors the system's network usage and checks for potential network bottlenecks or errors.	

System Infrastructure Discovery

Discovers and gathers information regarding the system resources, operating system, and applications on a managed node.

CI Type	Policy Template	Policy Description	Policy Type
Computer	OPC_PERL_ INCLUDE_ INSTR_DIR	This policy template is used for setting `OPC_PERL_ INCLUDE_INSTR_DIR` in operations agent xpl config namespace. Set the value to TRUE for Infrastructure SPI policies to work.	Node Info Template
	Sys_ SystemDiscovery	This policy template gathers service information from the managed nodes such as hardware resources, operating system attributes, and applications.	Service Auto-Discovery Template

System Fault Analysis

The System Fault Analysis Aspect monitors the kernel log file, boot log file, and event log file for critical error conditions and instructions on what might have caused it.

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_LinuxKernelLog	This policy template monitors the kernel log file `/var/log/` and alerts in case of any kernel service failure. It checks for error conditions that match the `<*> kernel: <@.service>: <*.msg> failed` pattern in the kernel log file. If any matches are found, this condition sends an alert with minor severity.	Logfile Entry Template
Computer	Sys_LinuxBootLog	This policy template monitors the boot log file `/var/log/boot.log` and alerts in case of any system boot errors. It checks for the following conditions: • **Service startup failed** - Checks for error conditions that match the `<*> <@.service>: <@.daemon> startup failed` pattern in the boot log file. If any matches are found, this condition sends an alert with minor severity. • **Service failed** - Checks for error conditions that match the `<*> <@.service>: <*.msg> failed` pattern in the log file. If any matches are found, this condition sends an alert with critical severity.	

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_LinuxSecureLog	This policy template alerts the user in case of any secure login failure. It checks for the error conditions that match the `<*> sshd : Failed password for <@.user> from <*.host> port <#> ssh2` pattern. If any matches are found, this condition sends an alert with warning severity.	
Computer	Sys_AIXErrptLog	This policy template monitors the errpt log file `/var/opt/OV/tmp/sispi/errpt.log` and generates an error report from entries in an error log. It checks for error conditions that match `<@.errcode> <2#.mo><2#.dd><2#.hh><2#.mm><2#.yy> <@> <@> <@.object> <*.msgtext>` each column in the errpt log file. If any matches are found, this condition sends an alert with warning severity.	
Computer	Sys_MSWindowsServer_DNSWarnError	This policy template monitors the log file for the Microsoft DNS server service and its corresponding process and forwards the error log entries with a warning, or error severity. The policy looks for the following errors recorded in the DNS log file: • The DNS server could not allocate memory for the resource record. • The DNS server was unable to service a client request due a shortage of available memory. • The DNS server could not create a zone transfer thread. • The DNS server encountered an error while writing to a file. • The DNS server could not initialize the remote procedure call (RPC) service.	Windows Event Log Template
Computer	Sys_MSWindowsServer_DHCPWarnError	This policy template monitors the DHCP event logs and forwards the event log entries with warning, or error severity. The policy looks for	

CI Type	Policy Template	Policy Description	Policy Type
		the following errors: • Iashlpr cannot contact the NPS service. • There are no IP addresses available for BOOTP clients in the scope or superscope. • The DHCP server is unable to reach the NPS server for determining the client's NAP access state. • There are no IP addresses available for lease in the scope or superscope. • The DHCP service failed to initialize the audit log. • The DHCP/BINL service on the local computer has determined that it is not authorized to start. • The DHCP/BINL service on this workgroup server has encountered another server with IP Address. • The DHCP service failed to restore the DHCP registry configuration. • The DHCP service was unable to read the global BOOTP file name from the registry. • The DHCP service is not servicing any clients because there are no active interfaces. • There is no static IP address bound to the DHCP server. • The DHCP Server service failed to register with Service Controller. • The DHCP Server service failed to initialize its registry parameters.	

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_MSWindowsServer_NFSWarnError	This policy template monitors the NFS event logs and forwards the event log entries with warning, or error severity. The policy looks for the following errors: • Server for NFS detected a low disk space condition and has stopped recording audits. • The audit log has reached its maximum file size. • Server for NFS could not register with RPC Port Mapper. • The Server for NFS received a failure from the NFS driver during phase 2 initialization.	
Computer	Sys_MSWindowsServer_TerminalServiceWarnError	This policy template forwards the terminal service event logs entries with warning, or error severity. The policy looks for the following errors: • A connection request was denied because the terminal server is currently configured to not accept connections. • Autoreconnect failed to reconnect user to session because authentication failed. • Terminal Service start failed. • The terminal server received large number of incomplete connections.	
Computer	Sys_MSWindowsServer_WindowsLogonWarnError	This policy template monitors the Windows logon and initialization event logs and forwards the error log entries with warning, or error severity. The policy looks for the following errors recorded in the Windows log file: • Windows license is invalid. • Windows license activation failed. • The Windows logon process has failed to switch the desktop.	

CI Type	Policy Template	Policy Description	Policy Type
		• The Windows logon process has unexpectedly terminated. • The Windows logon process has failed to spawn a user application. • The Windows logon process has failed to terminate currently logged on user's processes. • The Windows logon process has failed to disconnect the user session.	

Extensive Oracle Management Template

The Extensive Oracle Management Template can be used for monitoring single instance databases and high availability environments - RAC, Data Guard, and ASM environments. This Management Template comprises complete set of Oracle Aspects and Infrastructure Aspects to monitor the availability, status, and health of the Oracle database environments.

You have an environment which comprises Oracle databases, Oracle RAC, and ASM in a high availability environment. You want to check the availability and performance of all the databases and monitor the Oracle advanced features - ASM, Data Guard, RAC and also monitor the basic functionalities of the Oracle features - tablespaces, query, archiving, memory, objects, segments, transactions, sessions, shared server, locks and latches. The Extensive Oracle Management Template comprises of specific Aspects for monitoring these features.

Note: To use and deploy Infrastructure Aspects, you must install OMi Management Pack for Infrastructure software.

How to Access the Extensive Oracle Management Template

1. Open Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Configuration Folder pane, click **Configuration Folders > Database Management > Oracle > Oracle Management Templates > Extensive Oracle Management Template**.

User Interface Reference

Management Template - General

Provides an overview of the attributes of the Management Template.

UI Element	Description
Name	Extensive Oracle Management Template
Description	Manages Oracle database single instance environment as well as High-availability environments in monitoring the primary and advanced areas of database such as availability, query performance, tablespace, Real Application Cluster, DataGuard, ASM and Oracle alert log and so on along with deep infrastructure areas of CPU, Memory and Disk.
ID	A unique identifier for this version.
Version ID	A unique identifier for this version of the Extensive Oracle Management Template.
Version	The current version of the Extensive Oracle Management Template. In this instance, the version of the Management Template is 1.0.
Change Log	Text that describes what is new or modified in this version of the Management Template.

Management Template - Topology View

UI Element	Description
Topology View	Ora_Deployment is the Topology View for Extensive Oracle Management Templates. It contains the Oracle related CITs that you want to manage using the Management Template.
CI Type	The type of CIs that the Extensive Oracle Management Template enables you to manage. This is the type of CI to which the Management Template can be assigned.

Management Template - Aspects

The Extensive Oracle Management Template contains the following Oracle Aspects:

- "Oracle ASM Health"
- "Oracle Archive Health"
- "Oracle DataGuard Faults"
- "Oracle Database Availability"

- "Oracle Database Space Utilization"
- "Oracle Discovery"
- "Oracle IO Performance"
- "Basic Oracle Locks and Latches"
- "Oracle Memory Performance"
- "Oracle Object Faults"
- "Oracle Parallel Query"
- "Oracle Query Performance"
- "Oracle RAC Health"
- "Oracle Segment Space"
- "Oracle Sessions Performance"
- "Oracle Shared Server Performance"
- "Oracle Tablespace Health"
- "Oracle Transactions"
- "Oraspi Base"

The Extensive Oracle Management Template contains the following Infrastructure Aspects:

Bandwidth Utilization and Network IOPS

Monitors I/O operations, and performance of the systems in the network. It monitors the network I/O operations and performance based on the bandwidth used, outbound queue length and average bytes transferred per second.

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_ NetworkUsageAndPerformance	This policy monitors the network usage of the systems and shows error rates and collisions to identify potential network bottlenecks. This policy template monitors the physical NICs of only the vMA machines. It does not monitor performance data for package collision on Windows operating systems as the BYNETIF_ COLLISION metric is not available on Windows operating systems.	Measurement Threshold Template
	Sys_PerNetifOutbyteBaseline-AT	This policy monitors the network interface outbyte rate for a network interface in a given interval. It monitors the outgoing bytes on each network interface on the managed node individually. This policy processes each instance of network interface separately for every interval.	
	Sys_PerNetifInbyteBaseline-AT	This policy monitors the inbyte rate for a network interface in a given interval. It monitors the incoming bytes on each network interface on the managed node individually. This policy processes each instance of network interface separately for every interval.	

CPU Performance

Monitors I/O operations, and performance of the systems in the network. It monitors the network I/O operations and performance based on the bandwidth used, outbound queue length and average bytes transferred per second.

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_CPUSpikeCheck	This policy template monitors the variation in processor performance. A system experiences CPU spike when there is a sharp rise in the CPU usage immediately followed by a decrease in usage. Sys_ CPUSpikeCheck policy template monitors CPU time spent in user mode and system mode. It also monitors the total CPU time when the CPU is busy.	Measurement Threshold Template
	Sys_ GlobalCPUUtilization-AT	This policy template monitors the performance of the CPUs on the managed node and sends out an alert when the utilization across all CPUs violates the threshold levels.	
	Sys_PerCPUUtilization-AT	This policy template monitors the utilization for each CPU on the managed node. This policy processes each CPU instance separately for every interval.	
	Sys_ RunQueueLengthMonitor-AT	This policy template monitors the number of processes waiting in the run queue of the CPU and sends out an alert when the number of processes in run queue violates the threshold levels.	

Memory and Swap Utilization

Monitors memory performance of the system. Memory performance monitoring is based on Memory utilization (in percentage), Swap space utilization (in percentage), Free memory available (in MBs) and Free swap space available (in MBs).

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_ MSWindowsNonPagedPoolUtilization-AT	This policy template monitors the memory for non-paged pool. Non-paged pool is an area of physical system memory for objects that cannot be written to disk even when they are not being used.	Measurement Threshold Template
	Sys_ MSWindowsPagedPoolUtilization-AT	This policy template monitors the memory for paged pool. The paged pool is an area of physical system memory for objects that can be written to disk when they are not being used.	
	Sys_MemoryUsageAndPerformance	This policy template monitors the memory usage of the system and shows error rates and collisions to identify potential memory bottlenecks.	
	Sys_MemoryUtilization-AT	This policy template monitors the global memory utilization. Memory utilization is the percentage of physical memory in use during the interval. This includes system memory that is occupied by the kernel, buffer cache and user memory.	
	Sys_SwapCapacityMonitor	This policy template monitors the swap space utilization of the system.	
	Sys_SwapUtilization-AT	This policy template monitors the global swap space used by the system on the managed node.	

Remote Disk Space Utilization

Monitors the space utilization of the remote disk.

CI Type	Policy Template	Description	Policy Type
Computer	Sys_ LinixNFSUtilizationMonitor	This policy template monitors space utilization level for NFS remote filesystems on Linux platforms.	Measurement Threshold Template
	Sys_ LinuxCIFSUtilizationMonitor	This policy template monitors space utilization level for CIFS remote filesystems on Linux platforms.	

Space Availability and Disk IOPS

Monitors the disk I/O operations and space utilization of the system.

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_ FileSystemUtilizationMonitor	This policy template monitors the utilization of the file systems on the node.	Measurement Threshold Template
	Sys_ PerDiskAvgServiceTime-AT	This policy template monitors the disk IO service time. Disk Average Service time is the time spent by the disk on processing each disk request during the interval. This policy requires HP Performance Agent on the node.	
	Sys_PerDiskUtilization-AT	This policy determines the multi-instance baseline for disk. Disk utilization is the percentage of time the disk was busy servicing requests for the system.	

System Infrastructure Discovery

Discovers and gathers information regarding the system resources, operating system, and applications on a managed node.

CI Type	Policy Template	Policy Description	Policy Type
Computer	OPC_PERL_ INCLUDE_ INSTR_DIR	This policy template is used for setting `OPC_PERL_ INCLUDE_INSTR_DIR` in operations agent xpl config namespace. Set the value to TRUE for Infrastructure SPI policies to work.	Node Info Template
	Sys_ SystemDiscovery	This policy template gathers service information from the managed nodes such as hardware resources, operating system attributes, and applications.	Service Auto-Discovery Template

Hybrid Oracle Management Template

The Hybrid Oracle Management Template can be used for monitoring Oracle databases in an environment using agent and agentless monitoring. It comprises agent based Oracle Aspects, agent based Infrastructure Aspects, and agentless Oracle Aspects.

Note: To use and deploy Infrastructure Aspects, you must install OMi Management Pack for Infrastructure software.

How to Access the Hybrid Oracle Management Template

1. Open Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Configuration Folder pane, click **Configuration Folders > Database Management > Oracle > Oracle Management Templates > Hybrid Oracle Management Template**.

User Interface Reference

Management Template - General

Provides an overview of the attributes of the Management Template.

UI Element	Description
Name	Hybrid Oracle Management Template
Description	Manages Oracle database single instance environment in monitoring the primary areas of database such as availability and performance through agent and agentless Aspects along with critical infrastructure areas of CPU, Memory and Disk.
ID	A unique identifier for this version.
Version ID	A unique identifier for this version of the Management Template.
Version	The current version of the Management Template. In this instance, the version of the Management Template is 1.0.
Change Log	Text that describes what is new or modified in this version of the Management Template.

Management Template - Topology View

UI Element	Description
Topology View	Oracle_View is the Topology View for Hybrid Oracle Management Template. It contains the Oracle related CITs that you want to manage using the Management Template.
CI Type	The type of CIs that the Oracle Management Template enables you to manage. This is the type of CI to which the Management Template can be assigned. The Oracle Management Templates contains Computer CITs.

Management Template - Aspects

The Hybrid Oracle Management Template comprises the following Oracle Aspects:

- "Basic Oracle Locks and Latches"
- "Basic Oracle Memory Performance"
- "Basic Oracle Query Performance"
- "Basic Oracle Segment"
- "Oracle Archive Health"
- "Oracle Database Availability"
- "Oracle Discovery"
- "Oracle IO Performance"
- "Oracle Tablespace Health"
- "Oracle Transactions"
- "Oraspi Base"

The Hybrid Oracle Management Template contains the following Infrastructure Aspects:

System Infrastructure Discovery

Discovers and gathers information regarding the system resources, operating system, and applications on a managed node.

CI Type	Policy Template	Policy Description	Policy Type
Computer	OPC_PERL_ INCLUDE_ INSTR_DIR	This policy template is used for setting `OPC_PERL_ INCLUDE_INSTR_DIR` in operations agent xpl config namespace. Set the value to TRUE for Infrastructure SPI policies to work.	Node Info Template
	Sys_ SystemDiscovery	This policy template gathers service information from the managed nodes such as hardware resources, operating system attributes, and applications.	Service Auto-Discovery Template

Resource Bottleneck Diagnosis

The Resource Bottleneck Diagnosis Aspect identifies congestions and bottleneck conditions for system resources like the CPU, memory, network and disk. CPU bottleneck monitoring is based on global CPU utilization and load average (Run Queue Length).

CI Type	Policy Template	Description	Policy Type
Computer	Sys_CPUBottleneckDiagnosis	This policy template detects CPU bottlenecks like exceeding the thresholds for CPU utilization percentage, processor queue length, total number of CPU on the system, and operating systems. If the threshold for CPU utilization is violated along with threshold for number of processes in the queue waiting for CPU time, the policy sends an alert. The message also displays a list of the top ten CPU utilization processes.	Measurement Threshold Template
	Sys_ MemoryBottleneckDiagnosis	This policy template monitors the physical memory utilization and the bottlenecks. Memory bottleneck condition occurs when the memory utilization is high and the available memory is very low. It causes the system to slow down affecting overall performance. High memory consumption results in excessive page outs, high page scan rate, swap-out byte rate, and page request rate, eventually slowing down the system. The message also displays a list of top ten memory utilization processes.	
	Sys_DiskPeakUtilMonitor	This policy template monitors the utilization level of the disk on the system. It checks whether the utilization level is full.	
	Sys_ NetworkInterfaceErrorDiagnosis	This policy template monitors the system's network usage and checks for potential network bottlenecks or errors.	

System Fault Analysis

The System Fault Analysis Aspect monitors the kernel log file, boot log file, and event log file for critical error conditions and instructions on what might have caused it.

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_LinuxKernelLog	This policy template monitors the kernel log file `/var/log/` and alerts in case of any kernel service failure. It checks for error conditions that match the `<*> kernel: <@.service>: <*.msg> failed` pattern in the kernel log file. If any matches are found, this condition sends an alert with minor severity.	Logfile Entry Template
Computer	Sys_LinuxBootLog	This policy template monitors the boot log file `/var/log/boot.log` and alerts in case of any system boot errors. It checks for the following conditions: • **Service startup failed** - Checks for error conditions that match the `<*> <@.service>: <@.daemon> startup failed` pattern in the boot log file. If any matches are found, this condition sends an alert with minor severity. • **Service failed** - Checks for error conditions that match the `<*> <@.service>: <*.msg> failed` pattern in the log file. If any matches are found, this condition sends an alert with critical severity.	
Computer	Sys_LinuxSecureLog	This policy template alerts the user in case of any secure login failure. It checks for the error conditions that match the `<*> sshd : Failed password for <@.user> from <*.host> port <#> ssh2` pattern. If any matches are found, this condition sends an alert with warning severity.	
Computer	Sys_AIXErrptLog	This policy template monitors the errpt log file `/var/opt/OV/tmp/sispi/errpt.log` and generates an error report from entries in an error log. It checks for error conditions that match `<@.errcode> <2#.mo><2#.dd><2#.hh><2#.mm><2#.yy> <@> <@> <@.object> <*.msgtext>` each column in the errpt log file. If any matches are found, this condition sends an alert with warning severity.	

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_MSWindowsServer_DNSWarnError	This policy template monitors the log file for the Microsoft DNS server service and its corresponding process and forwards the error log entries with a warning, or error severity. The policy looks for the following errors recorded in the DNS log file: • The DNS server could not allocate memory for the resource record. • The DNS server was unable to service a client request due a shortage of available memory. • The DNS server could not create a zone transfer thread. • The DNS server encountered an error while writing to a file. • The DNS server could not initialize the remote procedure call (RPC) service.	Windows Event Log Template

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_MSWindowsServer_DHCPWarnError	This policy template monitors the DHCP event logs and forwards the event log entries with warning, or error severity. The policy looks for the following errors: • Iashlpr cannot contact the NPS service. • There are no IP addresses available for BOOTP clients in the scope or superscope. • The DHCP server is unable to reach the NPS server for determining the client's NAP access state. • There are no IP addresses available for lease in the scope or superscope. • The DHCP service failed to initialize the audit log. • The DHCP/BINL service on the local computer has determined that it is not authorized to start. • The DHCP/BINL service on this workgroup server has encountered another server with IP Address. • The DHCP service failed to restore the DHCP registry configuration. • The DHCP service was unable to read the global BOOTP file name from the registry. • The DHCP service is not servicing any clients because there are no active interfaces. • There is no static IP address bound to the DHCP server. • The DHCP Server service failed to register with Service Controller. • The DHCP Server service failed to initialize its registry parameters.	

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_MSWindowsServer_NFSWarnError	This policy template monitors the NFS event logs and forwards the event log entries with warning, or error severity. The policy looks for the following errors: • Server for NFS detected a low disk space condition and has stopped recording audits. • The audit log has reached its maximum file size. • Server for NFS could not register with RPC Port Mapper. • The Server for NFS received a failure from the NFS driver during phase 2 initialization.	
Computer	Sys_MSWindowsServer_TerminalServiceWarnError	This policy template forwards the terminal service event logs entries with warning, or error severity. The policy looks for the following errors: • A connection request was denied because the terminal server is currently configured to not accept connections. • Autoreconnect failed to reconnect user to session because authentication failed. • Terminal Service start failed. • The terminal server received large number of incomplete connections.	

CI Type	Policy Template	Policy Description	Policy Type
Computer	Sys_MSWindowsServer_WindowsLogonWarnError	This policy template monitors the Windows logon and initialization event logs and forwards the error log entries with warning, or error severity. The policy looks for the following errors recorded in the Windows log file: • Windows license is invalid. • Windows license activation failed. • The Windows logon process has failed to switch the desktop. • The Windows logon process has unexpectedly terminated. • The Windows logon process has failed to spawn a user application. • The Windows logon process has failed to terminate currently logged on user's processes. • The Windows logon process has failed to disconnect the user session.	

The Hybrid Oracle Management Template contains the following Agentless Aspects:

Oracle Database Availability (Agentless)

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	Oracle Database Availability	N/A	Monitors Oracle database availability.	Measurement Threshold template

Oracle Database Response Time (Agentless)

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	Oracle Database Response Time	N/A	Monitors Oracle database response time.	Measurement Threshold template

Overview of Oracle Aspects

Oracle Aspects are used to monitor the building blocks or units of an Oracle database - tablespace, memory, objects, segments, Real Application Cluster (RAC), and Automatic Storage Management (ASM) environments.

Grouping of Oracle Aspects

The Oracle Aspects are grouped as follows:

Basic

A basic aspect contains policy templates, instrumentation, and parameters for monitoring the basic features of Oracle databases - memory, objects, and query. "Basic Oracle Object Faults" is an example of basic aspect type.

Advanced

An advanced aspect contains additional policy templates, instrumentation, and parameters for monitoring the advanced features of Oracle databases - RAC, ASM, and Data Guard type of environments. An advanced Aspect may contain policy templates which are part of Basic Aspect type. "Oracle ASM Health" and "Oracle RAC Health" are examples of advanced Aspects.

Nested

"Oraspi Base" is an example of a Nested aspect. The Oraspi Base Aspect is a part of all the Basic and Advanced Aspects.

Discovery

The Oracle Discovery Aspect discovers the Oracle, RAC, and ASM instances in the environment. Oracle Discovery is an example of a Discovery Aspect.

How to Access the Oracle Aspects

1. Open Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.

2. Click **Configuration Folders > Database Management > Oracle > Oracle Aspects**.

Tasks

How to Create Oracle Aspects

1. Open Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Configuration Folders pane, click the configuration folder in which you want to create the new aspect. If you need to create a new configuration folder, click  .

3. In the Management Templates & Aspects pane, click  , and then click  **Aspect**. The Create Aspect wizard opens.

4. In the **General** tab, type a unique **Name** for the new aspect.

   Click **Next**.

5. Each aspect enables you to manage one feature or characteristic of one or more types of configuration item. In the CI Types page, select one or more **Available CI Type(s)** to which this aspect can be assigned, and then click  to add them to the list of assigned CITs. (Press **CTRL** to select several CITs.)

   Click **Next**.

6. In the **Instrumentation** tab, click  to add instrumentation to the aspect. The Add Instrumentation dialog box opens, which enables you to select the instrumentation that you want to add. Click **Next**.

7. *Optional.* In the **Aspects** tab, click  , and then click the  **Add Existing Aspect**. The Add Existing Aspect dialog box opens, which enables you to select an existing aspect that you want to nest within this aspect. Click an aspect, and then click **OK**. Click **Next**.

8. If suitable Aspects do not exist, click  , and then click  **Add New Aspect** to create them from here.

9. In the **Policy Templates** tab, click  **Add Policy Template**on BSM or **Add Policy Template From List** on OMi. The Add Policy Template to Aspect or Add Policy Template From List dialog box opens. Select the policy templates that you want to add, and then click **OK**. (Press **CTRL** to select several policy templates.)

10. If suitable policy templates do not exist, click  , and then click  **Add New Policy Template** to create them from here.

11. In the **Policy Templates** tab, select the **Version** of the policy templates that you want to add.

    Note: Each modification to a policy template is stored in the database as a separate version. Aspects contain specific versions of policy templates. If a new version of a policy template becomes available later, you have to update the aspect to include the latest version, if that is what you want.

12. *Optional.* In the **Policy Templates** tab, click the policy template to which you want to add a deployment condition, click , and then click the **Edit Deployment Condition**. The Edit Deployment Condition dialog box opens, which enables you to specify deployment conditions for the selected policy template. Set the condition and then click **OK**.

    In the Policy Templates page, click **Next**.

13. In the **Parameters** tab, you see a list of all the parameters from the policy templates that you added to this aspect.

    To combine parameters:

    a. Press **CTRL** and click the parameters that you want to combine.

    b. Click . The Edit/Combine Parameters dialog box opens.

    c. Type a **Name** for the combined parameters.

    d. *Optional.* Specify a **Description**, **Default Value**, and whether the combined parameter is **Read Only**, an **Expert Setting**, or **Hidden**.

    Note: Read Only prevents changes to the parameter value when the aspect is assigned to a CI. Hidden also prevents changes, but additionally makes the parameter invisible. Users can choose whether to show expert settings when they make an assignment.

    e. You can set either a specific default value, or you can click **From CI Attribute** and then browse for a CI attribute. When you specify a CI attribute, Operations Management sets the parameter value automatically during deployment of the policy templates, using the actual value of this attribute from the CI. You can also set conditional parameter values here.

    f. Click **OK**.

    You can also edit the parameters without combining them, to override the defaults in the policy template. Click one parameter, and then click . The Edit/Combine Parameters dialog box opens.

14. In the Create Aspect wizard, click **Finish** to save the aspect and close the wizard. The new aspect appears in the Management Templates & Aspects pane.

How to Deploy Oracle Aspects

1. Open Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects** .

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.

2. In Configuration Folder pane,click **Configuration Folders > Database Management > Oracle > Oracle Aspects**.

3. In the Management Templates & Aspects pane, click the Aspect that you want to deploy, and then click  . The Assign and Deploy wizard opens.

4. In the **Configuration Item** tab, click the CI to which you want to assign the Aspect, and then click **Next**. You can select multiple items by holding down the **CTRL** or **SHIFT** key while selecting them. Click **Next** to accept the CIs and go to **Required Parameters**.

5. In the **Required Parameters** tab, you must specify the mandatory parameters - Oracle Instance User Name and Oracle Instance password.

   Note: Required Parameters lists all mandatory parameters in the management template that do not have a value.

   a. Select the Oracle Instance Name parameter in the list, and then click the  . The Oracle Instance Name dialog box opens.

   b. Click **Value**, specify the value, and then click **OK**.

   c. Select the Oracle Instance Password parameter in the list, and then click  . The Oracle Instance Password dialog box opens.

   d. Click **Value**, specify the value, and then click **OK**.

6. Click **Next** to go to **All Parameters** on BSM and **Parameter Summary** on OMi. To change the default values of the parameters, you can select the parameter and then click  . The Edit Parameter dialog box opens. Click **Value**, specify the value, and then click **OK.**

   Note: In the **All Parameters/Parameter Summary** tab, you can override the default values of any parameter. You can specify a value for each parameter at the Management Template level. By default, parameters defines as expert parameters are not shown. To show expert parameters, click  **Hide/Unhide Expert Parameters**.

7. Click **Next** to go to **Configure Options** tab.

8. *Optional.* In the **Configure Options** tab, if you do not want to enable the assignment immediately, clear the **Enable Assigned Objects** check box on BSM or clear the **Enable Assignment(s)** check box on OMi. You can then enable the assignment later using the Assignments & Tuning pane.
9. Click **Finish**.

Note: The username given during the deployment of a Management Template should have required privileges for OMi MP for Oracle Database to collect data. You can use the oracle user **system** or you can create a user. To create a user on the node, you can use the script **dbspiocr.sh or dbspiocr.bat** as mentioned in the following steps or you can create a user manually by referring the **dbspiocr.sql**. This script also contains information about the required list of privileges. The script is available at the following location only after deploying the Oracle Discovery Aspect.

Linux:

```
/var/opt/OV/bin/instrumentation
```

Usage: `dbspiocr.sh -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example: `dbspiocr.sh -oracle_home /app/oracle/product/db_1 -oracle_sid orcl -sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

Windows:

```
<ovagentdir>\bin\instrumentation
```

Usage: `dbspiocr.bat -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example: `dbspiocr.bat -oracle_home C:\app\oracle\product\db_1 -oracle_sid orcl -sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

In case of Oracle database 12.1 or later, the user name should begin with **c##** as prefix. For example, **c##hporamp**.

Oracle Aspects

An Oracle Aspect comprises policy templates, instrumentation, and parameters for monitoring the health and performance of Oracle databases. Each Oracle Aspect can be used to monitor individual units of Oracle databases.

User Interface Reference

General	Provides an overview of the general attributes of the Oracle Aspects.

CI Type	The type of CIs that the Aspect can be assigned to. This is the type of CI to which the Management Template can be assigned. The Oracle Aspects contain the Computer and Oracle CITs.
Instrumentation	Provides a single package which contains the binaries for discovery, collection, and data logging.
Aspects	Provides an overview of any Aspects that the Oracle Aspect contains. You can expand each item in the list to see more details about the nested aspect. The Oracle Base aspect is part of all the other Aspects.
Policy Templates	Provides an overview of the policy templates that the Oracle Aspect contains. You can expand each item in the list to see more details about the policy template.

The OMi MP for Oracle Database comprises the following Aspects:

Basic Oracle Locks and Latches

This Aspect monitors the consumption of Oracle locks (in percentage) and also checks the usage of the counters - session wait lock count and latch count. This is a basic type of aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	DBSPI - 0028	N/A	Monitors the percentage of DML locks used to total configured.	Measurement Threshold Template
	OracleDB_ 0029	N/A	Monitors the number of sessions waiting for a release of a lock.	
	DBSPI - 0043	N/A	Monitors the percentage of enqueue timeouts to enqueue requests.	

Basic Oracle Memory Performance

This Aspect monitors the Oracle memory units - BufferCache, Shared Pool, and Library Cache. This is a Basic type of aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	OracleDB_0021	N/A	Monitors the percentage of buffer busy waits to logical reads.	Measurement Threshold Template
	OracleDB_0022	N/A	Monitors the total percentage of buffer cache.	
	OracleDB_0023	N/A	Monitors the percentage of current buffer cache.	
	OracleDB_0024	N/A	Monitors the percentage of enqueue waits to enqueue requests.	
	OracleDB_0026	N/A	Monitors the percentage of cache in dictionary cache.	
	OracleDB_0027	N/A	Monitors the percentage of library cache.	
	OracleDB_0032	N/A	Monitors the number of waits for redo log space.	
	OracleDB_0033	N/A	Monitors the percentage of redo allocation latch failures.	
	OracleDB_0034	N/A	Monitors the percentage of redo copy latch failures.	
	OracleDB_0035	N/A	Monitors the rate of background checkpoints completed.	
	OracleDB_0045	N/A	Monitors the percentage of free pool memory.	
	OracleDB_0083	N/A	Monitors the rate of DBWR checkpoints.	

Basic Oracle Object Faults

This Aspect monitors the Oracle database objects - tables, indexes, and triggers. This is a basic type of aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	OracleDB_0030	N/A	Monitors the rate at which full table scan occurs.	Measurement Threshold Template
	OracleDB_0042	N/A	Monitors the percentage of never analyzed tables and indexes.	
	OracleDB_0047	N/A	Monitors the number of tables cached.	ConfigFile Template
	OracleDB_0078	N/A	Monitors the number of invalid objects.	Measurement Threshold Template
	OracleDB_0079	N/A	Monitors the number of disabled triggers.	
	OracleDB_0080	N/A	Monitors the number of disabled constraints.	
	OracleDB_0081	N/A	Monitors the number of snapshot errors.	

Basic Oracle Query Performance

This Aspect monitors the performance of Oracle queries by checking the Oracle metrics - Elapsed time and CPU time. This is a basic type of aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	OracleDB_0106	Roll Up	Monitors the SQL statements with high elapsed time per run.	Measurement Threshold Template
	OracleDB_0107	Roll Up	Monitors the SQL statements with high CPU time per run.	
	OracleDB_0108	Roll Up	Monitors the SQL statements performing full table scan.	
	OracleDB_0119	N/A	Monitors the number of heavy SQL statements.	
	OracleDB_0306	Drill Down	Monitors the SQL statements with high elapsed time per run. (drill down).	
	OracleDB_0307	Drill Down	Monitors the SQL statements with high CPU time per run. (drill down).	
	OracleDB_0308	Drill Down	Monitors the SQL statements performing full table scan. (drill down).	

Basic Oracle Segment

This Aspect monitors the units of database storage - segments and extents. This is a basic type of aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	OracleDB_0016	Roll Up	Monitors the segments that cannot extend.	Measurement Threshold Template
	OracleDB_0215	N/A	Monitors the segment size that is allocated (in MB).	ConfigFile Template
	OracleDB_0216	Drill Down	Monitors the segments that cannot extend.	Measurement Threshold Template

Basic Oracle Transactions

This Aspect monitors the Oracle transactions percentage, commit rate, and open cursor. This is a basic type of aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	OracleDB_0031	N/A	Monitors the number of users with percentage of open cursors to maximum configured.	Measurement Threshold Template
	OracleDB_0044	N/A	Monitors the number of transactions.	Config File Template
	OracleDB_0054	N/A	Monitors the rate at which rollbacks are being generated.	Measurement Threshold Template
	OracleDB_0084	N/A	Monitors the transactions that are long running.	
	OracleDB_0085	N/A	Monitors the percentage of current transactions to be configured.	

Oracle Advanced Replication

This Aspect monitors the errors and failures that occur in Oracle Advanced Replication Servers.

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	OracleDB_0113	N/A	Monitors the number of DBMS jobs.	Measurement Threshold Template
	OracleDB_0114	N/A	Monitors the number of failed DBMS jobs.	
	OracleDB_0115	N/A	Monitors the number of deferred transactions.	
	OracleDB_0116	N/A	Monitors the number of error transactions.	
	OracleDB_0117	N/A	Monitors the number of failed admin requests.	
	OracleDB_0118	N/A	Monitors the number of failed material views.	

Oracle Archive Health

This Aspect monitors the Oracle device space, archive frequency rate and redo logs that are not archived.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0056	N/A	Monitors the no of archive logs that fit in archive device.	Measurement Threshold Template
	OracleDB_0057	N/A	Monitors the average time in minutes between archive log writes.	
	OracleDB_0058	N/A	Monitors the percentage of free space on archive device.	
	OracleDB_0060	N/A	Monitors the number of redo logs not archived.	

Oracle ASM Health

This Aspect monitors the Oracle ASM disk group status and disk group free space.

CI Type	Policy Template	Roll Up or Drill Down Metric	Policy Description	Policy Type
Oracle	DBSPI - 0133	N/A	Monitors the number of non-mounted diskgroups.	Measurement Threshold Template
	OracleDB_0334	N/A	Monitors the disk groups with low free space.	

Oracle Database Availability

This Aspect monitors the Oracle database connection status, processes, and logons.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0001	N/A	Monitors the database status.	Measurement Threshold Template
	OracleDB_0002	N/A	Monitors the database process check.	
	OracleDB_0037	N/A	Monitors the number of logons.	Config File Template
	OracleDB_0082	N/A	Monitors the maximum number of sessions since startup.	Measurement Threshold Template
	OracleDB_0087	N/A	Monitors the percentage of current processes to be configured.	
	OracleDB_0201	N/A	Reports uptime information.	ConfigFile Template
	OracleDB_ ListenerStatus	N/A	Checks for Oracle listener every 5 minutes.	Schedule Task Template

Oracle DataGuard Faults

This Aspect monitors the gaps and failures that occur in Oracle dataguard servers.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0126	N/A	Monitors the number of hours the archived files that are not sent to the standby databases.	Measurement Threshold Template
	OracleDB_0127	N/A	Monitors the number of dataguard destinations that are getting errors or are in an invalid state.	
	OracleDB_0128	N/A	Monitors the number of hours the log files are not applied to the standby databases.	
	OracleDB_0129	N/A	Monitors the number of hours the last sql query was processed on the logical standby databases.	
	OracleDB_0130	N/A	Monitors the number of hours the latest time stamp in the redo was received on the logical standby databases.	
	OracleDB_0137	N/A	Monitors the fast-start failovers that have occurred.	

Oracle Discovery

This Aspect discovers the Oracle, RAC, and ASM instances.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Computer, Node, Oracle	OracleDB_Discovery	N/A	This policy discovers the instances on the nodes.	Service Auto-Discovery Template
	OracleDB_DeepDiscovery	N/A	This policy discovers the databases, tablepaces, datafiles, and services on the managed nodes. It is scheduled to run once daily.	Scheduled Task

Note: The CIs discovered from the OracleDB_DeepDiscovery policy does not get synchronized into BSM.

Oracle IO Performance

This Aspect monitors the physical and logical read rate of Oracle instances.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0086	N/A	Monitors the number of physical reads per minute.	Measurement Threshold Template
	OracleDB_0088	N/A	Monitors the number of logical reads per minute.	
	OracleDB_0213	N/A	Monitors the number of physical reads and writes to the disk since the last collection for each tablespace.	ConfigFile Template

Oracle Locks and Latches

The Oracle Locks and Latches Aspect monitors the consumption of Oracle locks (in percentage) and also checks the usage of session wait lock count and latch count. This is an advanced version of the Basic Oracle locks and latches aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0028	N/A	Monitors the percentage of DML locks used to total configured.	Measurement Threshold Template
	OracleDB_0029	N/A	Monitors the number of sessions waiting for release of a lock.	
	OracleDB_0038	N/A	Monitors the number of latches with high contention ratio and threshold.	
	OracleDB_0043	N/A	Monitors the percentage of enqueue timeouts to enqueue requests.	
	OracleDB_0097	N/A	Monitors the number of tables with table locks disabled.	

Oracle Memory Performance

The Oracle Memory Aspect monitors the Oracle memory units - buffer cache, shared pool, and library cache. This is the advanced version of the Basic Oracle Memory Performance aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0019	N/A	Monitors the desk sort rate.	Measurement Threshold Template
	OracleDB_0020	N/A	Monitors the percentage of memory sorts.	
	OracleDB_0021	N/A	Monitors the percentage of buffer busy waits to logical reads.	
	OracleDB_0022	N/A	Monitors the total percentage of buffer cache.	
	OracleDB_0023	N/A	Monitors the percentage of current buffer cache.	
	OracleDB_0024	N/A	Monitors the percentage of enqueue waits to enqueue requests.	
	OracleDB_0026	N/A	Monitors the percentage of cache in dictionary cache.	
	OracleDB_0027	N/A	Monitors the percentage of library cache.	
	OracleDB_0032	N/A	Monitors the no of waits for redo log space.	
	OracleDB_0033	N/A	Monitors the number of users with percentage of open cursors.	
	OracleDB_0034	N/A	Monitors the percentage of redo copy latch misses.	
	OracleDB_0035	N/A	Monitors the rate of background checkpoints completed.	
	OracleDB_0039	N/A	Monitors the percentage of gethits to gets in dictionary cache.	
	OracleDB_0040	N/A	Monitors the percentage of pinhits to pins in dictionary cache.	
	OracleDB_0045	N/A	Monitors the percentage of free pool memory.	
	OracleDB_0051	N/A	Monitors the percentage of cursors in cache parameter.	Config File Template

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
	OracleDB_0052	N/A	Monitors the rate of total sorts on disk and in memory.	Measurement Threshold Template
	OracleDB_0059	N/A	Monitors the percentage of cursors in cache parameter.	
	OracleDB_0075	N/A	Monitors the ratio of recursive calls to cumulative opened cursors.	
	OracleDB_0083	N/A	Monitors the rate of DBWR checkpoints.	

Oracle Object Faults

The Oracle Objects Aspect monitors the Oracle database objects - table, index, and triggers. This is the advanced version of the Basic Oracle Object Faults aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0005	N/A	Monitors the number of foreign objects in system tablespace.	Measurement Threshold Template
	OracleDB_0030	N/A	Monitors the rate at which full table scans occur for long tables.	
	OracleDB_0041	N/A	Monitors the rate at which full table scans occur for short tables.	Config File Template
	OracleDB_0042	N/A	Monitors the percentage of never analyzed tables and indexes.	Measurement Threshold Template
	OracleDB_0046	N/A	Monitors the percentage of rows fetched by index.	
	OracleDB_0047	N/A	Monitors the number of cached tables.	Config File Template
	OracleDB_0048	N/A	Monitors the percentage of chained rows fetched.	Measurement Threshold Template
	OracleDB_0077	N/A	Monitors the sys dual status.	
	OracleDB_0078	N/A	Monitors the number of invalid objects.	
	OracleDB_0079	N/A	Monitors the number of disabled triggers.	
	OracleDB_0080	N/A	Monitors the number of disabled constraints.	
	OracleDB_0081	N/A	Monitors the number of snapshot errors.	

Oracle Parallel Query

The Oracle Parallel Query Aspect monitors the Oracle parallel query rate and busy percentage. This is the advanced version of the Oracle Parallel Query aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0070	N/A	Monitors the percentage of parallel query servers that are busy.	Measurement Threshold Template
	OracleDB_0071	N/A	Monitors the percentage of parallel query servers busy high watermark.	
	OracleDB_0074	N/A	Monitors the rate of parallel queries initiated.	
	OracleDB_0076	N/A	Monitors the percentage of full table scans through rowid range compared to total.	

Oracle Query Performance

The Oracle Query Aspect monitors Oracle Query performance metrics - Elapsed Time and CPU time. This aspect is an advanced version of the Basic Oracle Query Performance aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0101	Roll Up	Monitors the number of SQL statements with high disk reads per run.	Measurement Threshold Template
	OracleDB_0102	Roll Up	Monitors the number of SQL statements with high fetches.	
	OracleDB_0103	Roll Up	Monitors the number of SQL statements with long table scans.	
	OracleDB_0104	Roll Up	Monitors the number of SQL statements with high run rate.	
	OracleDB_0105	Roll Up	Monitors the number of SQL statements with high buffer gets per run.	
	OracleDB_0106	Roll Up	Monitors the number of SQL statements with high elapsed time per run.	
	OracleDB_0107	Roll Up	Monitors the number of SQL statements with high CPU time per run.	
	OracleDB_0108	Roll Up	Monitors the number of SQL statements performing full table scan.	
	OracleDB_0119	N/A	Monitors the number of heavy SQL statements.	
	OracleDB_0301	Drill Down	Monitors the number of SQL statements with high disk reads per run.	
	OracleDB_0302	Drill Down	Monitors the number of SQL statements with high fetches.	
	OracleDB_0303	Drill Down	Monitors the number of SQL statements with long table scans.	
	OracleDB_0304	Drill Down	Monitors the number of SQL statements with high run rate.	
	OracleDB_0305	Drill Down	Monitors the number of SQL statements with high buffer gets per run.	

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
	OracleDB_0306	Drill Down	Monitors the number of SQL statements with high elapsed time per run.	
	OracleDB_0307	Drill Down	Monitors the number of SQL statements with high CPU time per run.	
	OracleDB_0308	Drill Down	Monitors the number of SQL statements performing full table scan.	

Oracle RAC Health

The Oracle RAC Aspect monitors the status and performance of Oracle Real Application Clusters in the environment.

CI Type	Policy Template	Roll Up or Drill Down	Description	Policy Type
Oracle	OracleDB_0121	N/A	Monitors the number of blocks that encounter a failure during interconnect.	Measurement Threshold Template
	OracleDB_0122	N/A	Monitors the number of blocks that get lost during interconnect.	
	OracleDB_0123	N/A	Monitors the average waiting time for consistent read per block.	
	OracleDB_0131	N/A	Monitors the number of blocks that are received during interconnect.	
	OracleDB_0132	N/A	Monitors the datafiles of cluster databases with highest sum of rate of transfer for consistent read blocks as well as current blocks.	
	OracleDB_0146	N/A	Monitors the CRS NodeApps Virtual IP status.	
	OracleDB_0147	N/A	Monitors the CRS NodeApps Listener status.	
	OracleDB_0148	N/A	Monitors the CRS NodeApps Global Service Daemon status	
	OracleDB_0149	N/A	Monitors CRS NodeApps Oracle Notification Service status	
	OracleDB_0150	N/A	Monitors Oracle RAC VIP Relocation of a node.	
	OracleDB_CRSAlertLog	N/A	Monitors the Oracle CRS Alert Log file.	LogFile Entry Template

Oracle Segment Space

The Oracle Segment Aspect monitors the units of database storage - segments and extents. This aspect is the advanced version of the Basic Oracle Segment aspect.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0016	Roll Up	Monitors the number of segments that cannot extend.	Measurement Threshold Template
	OracleDB_0017	Roll Up	Monitors the number of segments approaching max extent.	
	OracleDB_0018	Roll Up	Monitors the number of segments adding extents rapidly.	
	OracleDB_0215	N/A	Monitors the segment size allocated (in MB).	ConfigFile Template
	OracleDB_0216	Drill Down	Monitors the number of segments that cannot extend.	Measurement Threshold Template
	OracleDB_0217	Drill Down	Monitors the number of segments approaching max extent.	
	OracleDB_0218	Drill Down	Monitors the number of segments adding extents rapidly.	

Oracle Sessions Performance

The Oracle Sessions Aspect monitors the Oracle Sessions performance.

CI Type	Policy Template	Roll Up or Drill Down Metric	Description	Policy Type
Oracle	OracleDB_0109	Roll Up	Monitors the sessions with high number of hard parses.	Measurement Threshold Template
	OracleDB_0110	Roll Up	Monitors the sessions with high free buffer wait.	
	OracleDB_0111	Roll Up	Monitors the sessions with high latch free wait.	
	OracleDB_0112	Roll Up	Monitors the sessions with high suspended time.	
	OracleDB_0309	Drill Down	Monitors the sessions with hard number of parses	
	OracleDB_0310	Drill Down	Monitors sessions with high free buffer wait.	
	OracleDB_0311	Drill Down	Monitors sessions with high free latch wait.	
	OracleDB_0312	Drill Down	Monitors sessions with high suspended time	

Oracle Shared Server Performance

This Aspect monitors the Oracle shared server percentage and dispatcher busy percentage.

CI Type	Policy Template	Roll Up or Drill Down	Description	Policy Type
Oracle	OracleDB_0090	N/A	Monitors the percentage busy for all dispatchers.	Measurement Threshold Template
	OracleDB_0091	N/A	Monitors the percentage of clients currently connected to all dispatchers.	
	OracleDB_0092	N/A	Monitors the percentage of shared servers waiting for requests.	
	OracleDB_0095	N/A	Monitors the maximum percentage of shared pool allocated to UGA.	
	OracleDB_0096	N/A	Monitors the percentage of highwater to max shared server processes.	

Oracle Database Space Utilization

This Aspect monitors the Oracle dump device space, flash recovery area and the overall size of the database.

CI Type	Policy Template	Roll Up or Drill Down	Description	Policy Type
Oracle	OracleDB_0062	N/A	Monitors the percentage of space used on background dump device.	Measurement Threshold Template
	OracleDB_0064	N/A	Monitors the percentage of space used on user dump device.	
	OracleDB_0065	N/A	Monitors the percentage of space used on core dump device.	
	OracleDB_0066	N/A	Monitors the size in MB of alert log.	
	OracleDB_0136	N/A	Monitors the percentage of disk space used by FRA.	
	OracleDB_0212	N/A	Monitors the instance size that is allocated and the instance size that is free.	

Oracle Streams

This Aspect monitors Oracle Stream pool size and errors.

CI Type	Policy Template	Roll Up or Drill Down	Description	Policy Type
Oracle	OracleDB_0140	N/A	Reports the estimated optimum size proposed for Oracle streams pool.	Measurement Threshold Template
	OracleDB_0141	N/A	Monitors the capture processes having errors in an Oracle streams environment.	
	OracleDB_0142	N/A	Monitors propagation errors in an Oracle streams environment.	
	OracleDB_0143	N/A	Monitors the apply processes having errors in an Oracle streams environment.	
	OracleDB_0144	N/A	Monitors the general apply errors in an Oracle streams environment.	
	OracleDB_0145	N/A	Monitors the number of messages having capture to apply latency higher than the specified threshold in and Oracle streams environment.	

Oracle Tablespace Health

The Oracle Tablespace Aspect monitors the Oracle Table space status, free space, datafile status, freespace, and segments.

CI Type	Policy Template	Roll Up or Drill Down	Description	Policy Type
Oracle	OracleDB_0003	Roll Up	Monitors the number of table spaces with free extents low.	Measurement Threshold Template
	OracleDB_0006	Roll Up	Monitors the number of table spaces with low free space percentage.	
	OracleDB_0007	N/A	Monitors the number of tablespaces that are not online.	
	OracleDB_0008	N/A	Monitors the number of tablespaces with high ratio of block to physical reads.	
	OracleDB_0009	N/A	Monitors the number of tablespaces with high use of temp segments to total.	
	OracleDB_0011	N/A	Monitors the number of fragmented tablespaces.	
	OracleDB_0014	N/A	Monitors the number of datafiles not online.	
	OracleDB_0203	Drill Down	Monitors the number of tablespaces with low free space.	
	OracleDB_0206	Drill Down	Monitors the number of table spaces with low free space.	
	OracleDB_0210	N/A	Monitors the tablespace.	ConfigFile Template

Oracle Transactions

This Aspect monitors the Oracle transactions percentage, commit rate, and open cursor. This is an advanced version of Basic Oracle Transactions aspect.

CI Type	Policy Template	Roll Up or Drill Down	Policy Description	Policy Type
Oracle	OracleDB_0031	N/A	Monitors the number of users with percentage of open cursors to maximum configured.	Measurement Threshold Template
	OracleDB_0044	N/A	Monitors the number of transactions.	ConfigFile Template
	OracleDB_0049	N/A	Monitors the rate of user calls.	
	OracleDB_0050	N/A	Monitors the ratio of recursive calls to user calls.	Measurement Threshold Template
	OracleDB_0054	N/A	Monitors the rate at which rollbacks are being generated.	
	OracleDB_0084	N/A	Monitors the long running transactions.	
	OracleDB_0085	N/A	Monitors the percentage of current transactions to be configured.	

Oracle UDA

This Aspect monitors the user defined metrics.

CI Type	Policy Template	Roll Up or Drill Down	Description	Policy Type
Oracle	OracleDB_07XX	N/A	Monitors the user defined metrics.	Measurement Threshold Template
	OracleDB_UDM	N/A	Sample template to create UDM	ConfigFile Template

Oraspi Base

The Oraspi Base Nested Aspect is used for monitoring Oracle databases. This Nested Aspect is used by all the Basic and Advanced Aspects.

CI Type	Policy Template	Policy Description	Policy Type
Oracle	OracleDB_ Messages	Interception of messages submitted by DB SPI programs.	Open Message Interface
	OracleDB_ Logger	Monitors the datalogger feed.	Schedule Task
	OracleDB_ VeryHigh	By default, runs the collector every 5 minutes. The schedule can be modified as required in the environment.	
	OracleDB_ High	By default, runs the collector every 15 minutes. The schedule can be modified as required in the environment.	
	OracleDB_ Medium	By default, runs the collector every 1 hour. The schedule can be modified as required in the environment.	
	OracleDB_ Low	By default, runs the collector once in a day. The schedule can be modified as required in the environment.	
	OracleDB_ AlertLog	Monitors the alert log file.	LogFile Entry
	Oracle DB_ Configuration	This policy template contains the parameters (user id, password, listener name) for establishing connection to the oracle databases.	Config File Template

Parameters

Parameters are variables that are an integral component of Oracle Management Templates, Oracle Aspects, and Policy Templates. Each parameter corresponds to a variable. Parameters contain default values that are used for monitoring the different components of Oracle databases. You can also modify the values of the variables to suit your monitoring requirements.

Types of Parameters

The parameters are grouped as follows:

- **Instance Parameters** - These parameters are essential for monitoring Oracle CIs. For example, Oracle instance name is an Instance Parameter.
- **Mandatory Parameters** - These parameters contain the essential information required by policy templates. For example, Oracle instance name is a mandatory parameter.

- **Dependent Parameters** - There are some parameters which are a subset of the mandatory parameters. Such parameters are referred to as dependent parameters. For example, Oracle username is a dependent parameter of Oracle instance name.
- **Expert Parameters** - These parameters can be used by SMEs and Administrators.

OMi MP for Oracle Database Parameters

OMi MP for Oracle Database contains the following parameters:

Parameter	Parameter Type	Description	Default Values
Oracle Instance Name	Mandatory	Oracle Instance Name that should be monitored.	CI Name
Oracle Instance User Name	Dependent	Oracle User Name with the required privileges to collect data.	
Oracle Instance Password	Dependent	Password for Oracle User Name.	
Filter	Expert	Filter the monitored components. For example, Oracle Segment Filter parameter filters the segments for monitoring.	
Oracle Instance Collection	Expert	Turn on or off collection for Oracle Instance.	ON
Oracle Instance Tracing	Expert	Enable Tracing on or off for trace to be captured on node at `%ovdatadir%/dbspi/log/trace` .	OFF
Frequency of High Scheduler	Expert	Frequency for the scheduler which is expected to run for high intervals (in minutes).	15
Frequency of Low Scheduler	Expert	Frequency for the scheduler which is expected to run for short intervals (in hours).	24
Frequency of Medium Scheduler	Expert	Frequency for the scheduler which is expected to run for medium intervals (in hours).	1

Parameter	Parameter Type	Description	Default Values
Frequency of Very High Scheduler	Expert	Frequency for the scheduler which is expected to run for very high intervals (in minutes).	5
Frequency	Mandatory	Frequency of monitoring by a policy template. For example, the frequency of monitoring Oracle Database availability.	
Threshold	Mandatory	Threshold of a policy template. For example, the threshold of monitoring available database nodes.	
Severity	Mandatory	Severity level of a policy template. For example, the severity of monitoring critical database nodes count.	

Tuning Parameters

You can edit the parameters of the Oracle Management Templates and Oracle Aspects that are already deployed to the CIs.

1. Open Assignments & Tuning pane:

   On BSM, click **Admin > Operations Management > Monitoring > Assignments & Tuning**.

   On OMi, click **Administration > Monitoring > Assignments & Tuning**.

2. In the **Browse Views** tab, select the **Ora_Deployment** view that contains the CI for which you want to tune parameters. Alternatively, you can use the Search tab to find a CI.

3. In the list of Oracle CIs, click a CI. The Assignments pane shows details of any existing assignments for the Oracle CI.

4. Click the assignment for which you want to tune parameters. The Assignment Details pane shows the current parameter values.

5. In the Assignment Details pane, change the parameters:

   a. *Optional.* By default, the list shows only mandatory parameters. To see all parameters, click  .

   b. Select a parameter in the list, and then click  .

- For standard parameters, the Edit Parameter dialog box opens.

  Click **Value**, specify the value, and then click **OK**.

- For instance parameters, the Edit Instance Parameter dialog box opens.

  Change the instance values if necessary, and then for each instance value, change dependent parameter values. After you change the instances and dependent parameter values, click **OK**.

6. In the Assignment Details pane, click **Save Changes**. Operations Console deploys the new parameter values to the relevant HP Operation Agents.

Configuration Items (CIs) and Configuration Item Types (CITs)

CIs are components that have to be managed in order to deliver an IT Service. CIs typically include IT Services, hardware, and software.

CIT describes the type of a CI and its attributes. The Oracle CIs that are discovered in an environment are grouped under the CITs. OMi MP for Oracle Database comprises the following CITs:

- Oracle
- Oracle RAC

Run-time Service Model (RTSM) Views

A View enables you to build and visualize a subset of the overall CI model that comprises Oracle CITs related to specific area of interest.

How to Access RTSM Views

1. Open Modeling Studio pane:

   On BSM, click **Admin > RTSM Administration > Modeling > Modeling Studio**.

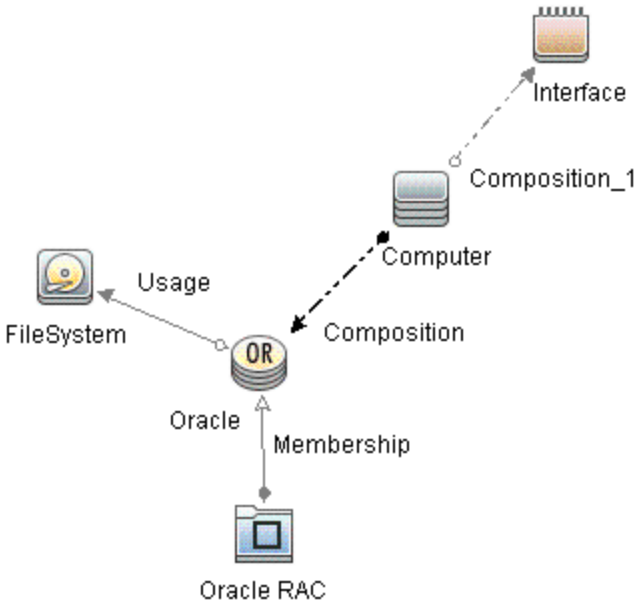
   On OMi, click **Administration > RTSM Administration > Modeling > Modeling Studio**.

2. Click **Resource Type** as **Views**.

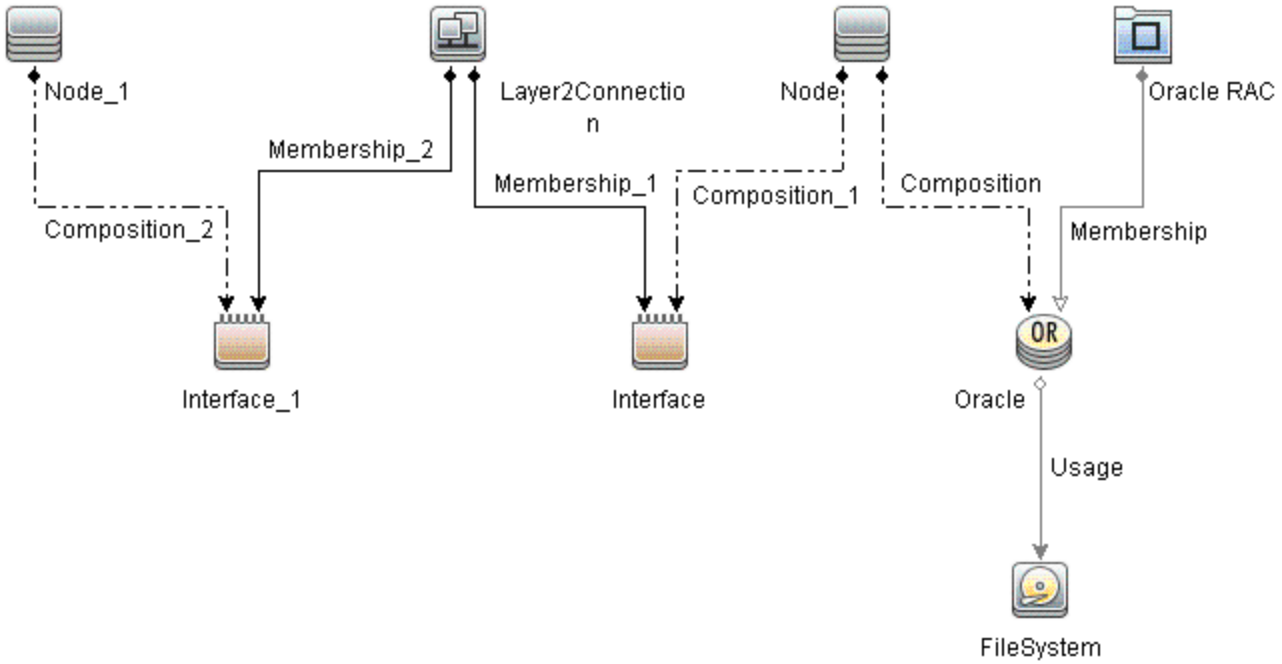
3. Click **Database > Oracle** from the list.

By default, OMi MP for Oracle Database includes the following Views:

- **ORA_Deployment:** This view refers to the Oracle, Oracle RAC, Computer, and File System CITs. The following image shows the relationship among the CITs.



- **ORA_Network_Deployment:** This view refers to the Oracle, Oracle RAC, Node, Interface, and File System CITs. The following image shows the relationship among the CITs.



Event Type Indicators (ETIs)

ETIs are categorization of events based on the type of occurrence. The OMi MP for Oracle Database includes the following ETIs to monitor Oracle-related events:

How to Access the Event Type Indicators:

1. Open Indicators pane:

   On BSM, click **Admin > Operations Management > Monitoring > Indicators**.

   On OMi, click **Administration > Service Health > Health- and Event Type Indicators**.

2. In the CI Type pane, click **InfrastructureElement > RunningSoftware > Database > Oracle**.

CI Type	ETI	Description	Value
Oracle	Archive Status	Indicates the status of an Oracle Archive Log.	Normal
	Checkpoint Rate	Indicates high checkpoint rate.	Normal
	Control File ReadWrite Status	Indicates Oracle control file read or write errors.	Normal
	Flash Recovery Errors	Indicates the errors related to flash recovery in an Oracle Instance.	Normal
	Heavy SQL Statements	Indicates the number of heavy SQL statements in an Oracle Instance.	Normal
	Latch Contention Ratio	Indicates possible latching problems.	Normal
	Latch Hit Ratio	Indicates possible latching problems.	Normal, High
	Locks Usage Level	Indicates the ratio of locks used in an Oracle database Instance.	Normal, High
	Materialized View Errors	Indicates the errors related to materialized views in an Oracle database instance.	Normal
	Memory Sort Rate	Indicates the ratio of which sorts have been performed solely on memory. A low memory sort ratio implies a high disk sort ratio.	Normal
	Oracle Database Process Status	Indicates Oracle database service/process status.	Running
	Oracle Disk ReadWrite Errors	Indicates Oracle disk read write errors.	Normal
	Oracle Session Count	Indicates Oracle session count to be configured.	Normal
	Streams Errors	Indicates the errors in an Oracle streams environment.	Normal
Database	SQL Query Tuning	Indicates SQL statements with low query tuning.	Normal
Oracle	Tablespaces Free Space Fragmentation Index	Indicates the fragmented tablespaces in an Oracle database Instance.	Normal, Moderate, High
	Total Sort Rate	Indicates the total sorts on disk and in memory in an Oracle database Instance.	Normal

The CITs from HPOM that are mapped to RTSM (Run-time Service Model) using the OMi MP for Oracle Database are **Oracle** and **Oracle RAC**.

Health Indicators (HIs)

HIs analyze the events that occur in Oracle CIs and report the health of the Oracle CIs. The OMi MP for Oracle Database includes the following HIs to monitor the Oracle-related events:

How to Access the Health Indicators

1. Open Indicators pane:

   On BSM, click **Admin > Operations Management > Monitoring > Indicators**.

   On OMi, click **Administration > Service Health > Health- and Event Type Indicators**.

2. In the CI Type pane, click **InfrastructureElement > RunningSoftware > Database > Oracle**.

CI Type	HI	Description	Value
Database	CPU Usage by SQL	Indicates SQL statements with high CPU time per execution.	High Normal
	Server Transaction Rate	Indicated the rate of transactions for the entire database server.	High Normal
	SQL Query Tuning	Indicates SQL statements with low query tuning.	Low Normal
Oracle	Database Object Status	Indicates database object status.	Invalid Valid Enabled Disabled
	Database Segment Status	Indicates the status of segments in an Oracle database instance.	Normal Inextensible
	Database Segment Usage Level	Indicates the usage of segments in an Oracle database Instance.	High Normal
Database	Database Server Status	Indicates database server availability.	Up Down

CI Type	HI	Description	Value
Oracle	Datafiles Status	Indicates Oracle datafiles status.	Online Offline
	Default Bufferpool Busy Ratio	Indicates the ratio of buffered data requests of the Oracle default buffer pool.	High Low
	Default Bufferpool Hit Ratio	Indicates the ratio of buffered data requests of the Oracle default buffer pool.	High Normal Low
	Dictionary Cache Miss Ratio	Indicates the effectiveness of the Oracle dictionary cache.	High Normal Low
	Dispatcher Busy Ratio by Network	Indicates the workload of the Oracle dispatcher.	High Normal Low
	Dispatcher Process Queue Response Time	Indicates the average time an item in the Oracle dispatcher queue waits before being processed.	High Low
Oracle	Flash Recovery Area Usage Level	Indicates the availability of an Oracle instance as affected by the percentage of space used by Flash Recovery Area.	High Medium Normal
	Library Cache Functioning	Indicates the performance of an Oracle database instance as affected by: 1 - library cache misses to executions 2 - library cache get hits to gets 3 - library cache pin hits to pins	HighReload LowGetHits LowPinHits Normal
	Logical Read Rate	Indicates the performance of an Oracle instance as affected by the number of logical reads per min.	High Normal
	Long Table Scans Percentage	Indicates the percentage of long table scans that are performed.	High Normal Low
	Oracle Background Dump Device Usage Level	Indicates Oracle background dump device space usage.	High Normal

CI Type	HI	Description	Value
Oracle	Oracle Core Dump Device Usage Level	Indicates Oracle core dump device space usage.	High Normal
	Oracle Opened Cursor Current	Indicates the Oracle current opened cursor.	High Normal
	Oracle Parse Count (Hard)	Indicates the hard parses during this sample period.	High Normal
	Oracle Parse Count (Failures)	Indicates the Oracle parse failures.	High Normal
	Oracle Session Connect Time	Indicates the connect time for the Oracle session.	High Normal
	Oracle User Dump Device Usage Level	Indicates Oracle user dump device space usage.	High Normal
	Oracle Users Call Rate	Indicates rate of recursive calls to user calls and rate of recursive calls to cumulative opened cursors.	High Normal
	Physical Read Rate	Indicates the performance of an Oracle instance as affected by the number of physical reads per min.	High Normal
	Row Cache Hit Ratio	Indicates the ratio of which row data requests could be served from the cache.	High Low
Database	Replication Status	Indicates database server replication status.	Broken Failed Up
	Server Transaction Rate	Indicates the rate of transactions for the entire database server.	High Normal
Oracle	Shared Pool Memory	Indicates the performance of an Oracle database instance as affected by the free space in shared pool memory.	Low Normal
	SQL Disk ReadWrite Rate	Indicates SQL statement with high disk read-write per execution.	High Normal
Database	SQL Query Performance	Indicates SQL statements with high elapsed time per execution.	Low Normal

CI Type	HI	Description	Value
Oracle	Streams Apply Status	Indicates the performance of an Oracle instance as affected by apply processes having errors in an Oracle streams environment.	Disabled Aborted Normal
	Streams Capture Status	Indicates the performance of an Oracle instance as affected by capture processes having errors in an oracle streams environment.	Disabled Aborted Normal
	Streams Propagation Status	Indicates the performance of an Oracle instance as affected by propagation processes having errors in an oracle streams environment.	Disabled Aborted Normal
	Tablespace Temp Segment Usage	Indicates the high use of temp segments to allocated of tablespaces in an Oracle database instance.	High Normal
	Tablespaces Availability	Indicates the availability of DB Tablespaces in a Oracle database instance.	Online Offline
	Tablespace Physical Read Ratio	Indicates the ratio of block to physical reads of tablespaces in an Oracle database instance.	High Normal
	Tablespace Usage Level	Indicates the usage of tablespaces in an Oracle database instance.	High Moderate Normal
	Wait Locked Sessions	Indicates the performance of an Oracle database instance as affected by the number of sessions held by locks.	High Normal
	Waits On Redo Log Space	Indicates the performance of an Oracle database Instance as affected by the number of waits for redo log space.	High Normal

Policies Settings ETIs

The following table lists the ETIs and the policies that set the ETIs.

ETI/HI	Policy Name	Policy Description
Archive Status	ORA-00270	Error creating archive log.
	ORA-00272	Error writing archive log.
	ORA-00290	Operating system archiving error.
	ORA-00255	Error archiving log.

ETI/HI	Policy Name	Policy Description
Background Dump Device Usage Level	OracleDB_0062	Background dump device free space is low.
Checkpoint Rate	OracleDB_0035	Rate of background checkpoints completed.
	OracleDB_0083	Rate of DBWR checkpoints.
Control File ReadWrite Status	ORA-00204	Error reading control file.
	ORA-00206	Error writing control file.
	ORA-00210	Cannot open control file.
	ORA-00221	Error on write to control file.
Oracle Core Dump Device Usage Level	OracleDB_0065	Core dump device free space is low.
CPU Usage by SQL	OracleDB_0107	Number of seconds used by SQL server to total amount of elapsed time since last probing: 1. SQL server has excessive load 2. Thread is in an endless CPU loop
Database Object Status	OracleDB_0077	SYS.DUAL status, row status invalid.
	OracleDB_0078	Database Objects invalid.

ETI/HI	Policy Name	Policy Description
Oracle Database Process Status	OracleDB_0002	The critical Oracle process indicated either aborted or was killed.
	ORA-00348	Single process redo failure.
	ORA-00443	Background process did not start.
	ORA-00444	Background process failed while starting.
	ORA-00445	Background process did not start after n seconds.
	ORA-00447	Fatal error in background process.
	ORA-00470	LGWR process terminated with error.
	ORA-00471	DBWR process terminated with error.
	ORA-00472	PMON process terminated with error.
	ORA-00473	ARCH process terminated with error.
	ORA-00474	SMON process terminated with error.
	ORA-00475	TRWR process terminated with error.
	ORA-00476	RECO process terminated with error.
	ORA-00477	SNPx process terminated with error.
	ORA-00480	LCKx process terminated with error.
	ORA-00483	During shutdown a process abnormally terminated.
Database Segment Status	OracleDB_0016	Number of segments that cannot extend.
Database Segment Usage Level	OracleDB_0017	Number of segments approaching max extent.
Database Server Status	OracleDB_0001	Database status check.
Datafiles Status	OracleDB_0014	Number of data files not online.
Default Buffer Pool Hit Ratio	OracleDB_0022	Total buffer cache hit percentage.
Dictionary Cache Miss Ratio	OracleDB_0026	Percentage of cache get misses to gets in dictionary cache.
Dispatcher Busy Ratio by Network	OracleDB_0090	Average percentage busy for all Dispatchers.

ETI/HI	Policy Name	Policy Description
Flash Recovery Area Usage Level	OracleDB_0136	Percentage of space used by Flash Recovery Area.
Flash Recovery Errors	ORA-38767	Flashback retention target parameter mismatch.
	ORA-38776	Cannot begin flashback generation - flash recovery area is disabled.
	ORA-38786	Recovery area is not enabled.
	ORA-38791	Flashback did not start because file string was not in a valid incarnation.
	ORA-38861	Flashback recovery stopped before reaching recovery target.
Heavy SQL Statements	OracleDB_0119	Number of heavy SQL statements.
SQL Disk ReadWrite Rate	OracleDB_0101	Number of SQL statement with high disk reads per execution.
Oracle User Dump Device Usage Level	OracleDB_0064	Percentage of space used on user dump device.
Latch Contention Ratio	OracleDB_0038	Number of latches with high contention ratio threshold.
Latch Hit Ratio	OracleDB_0033	Percentage of redo allocation latch misses.
	OracleDB_0034	Percentage of redo copy latch misses.
Library Cache Functioning	OracleDB_0027	Percentage of library cache misses to executions.
	OracleDB_0039	Percentage of gethits to gets in dictionary cache.
	OracleDB_0040	Percentage of pinhits to pins in dictionary cache.
Locks Usage Level	OracleDB_0028	Percentage of DML locks used to total configured.
Long Table Scan Percentage	OracleDB_0103	SQL statements with long table scans.
Logical Read Rate	OracleDB_0088	Number of logical reads per minute.

ETI/HI	Policy Name	Policy Description
Materialized View Errors	ORA-12008	Error in materialized view refresh path.
	ORA-12057	Materialized view "string"."string" is invalid and must complete refresh.
	ORA-12096	Error in materialized view log on "string"."string".
	ORA-12097	Changes in the master tables during refresh. Try refresh again.
	ORA-19809	Limit exceeded for recovery files.
	ORA-19816	WARNING: Files may exist in location that are not known to database.
Memory Sort Rate	OracleDB_0020	Percentage of memory sorts.
Oracle Disk Read Write Errors	ORA-01114	IO error writing block to file.
	ORA-01115	IO error reading block from file.
	ORA-01116	Error in opening datafile.
	ORA-01242	Data file suffered media failure.
	ORA-01243	System tablespace file suffered media failure.
Oracle Session Count	ORA-00018	Maximum number of sessions exceeded.
	ORA-00019	Maximum number of sessions licenses exceeded.
	ORA-00020	Maximum number of processes exceeded.
Oracle Users Call Rate	OracleDB_0050	Ratio of recursive calls to user calls.
	OracleDB_0075	Ratio of recursive calls to cumulative opened cursors.
Physical Read Rate	OracleDB_0086	Number of physical reads per minute.
Replication Status	OracleDB_0113	Number of broken DBMS jobs.
	OracleDB_0114	Number of failed DBMA jobs.
Server Transaction Rate	OracleDB_0085	Percentage of current transactions to configured.
Shared Pool Memory	OracleDB_0045	Percentage of shared pool memory.
SQL Query Performance	OracleDB_0106	SQL statement with high elapsed time per execution.

ETI/HI	Policy Name	Policy Description
SQL Query Tuning	OracleDB_0030	Rate at which full table scans (long tables) occur.
	OracleDB_0042	Percentage of never analyzed tables and indexes.
	OracleDB_0046	Percentage of rows retrieved by index.
	OracleDB_0048	Percentage of chained rows retrieved.
	OracleDB_0070	Percentage of busy parallel query servers.
	OracleDB_0071	Percentage of busy highwater to maximum parallel query servers.
	OracleDB_0074	Rate of parallel queries initiated.
	OracleDB_0076	Percentage of full table scans using rowid range scans compared to total full table scans.
Streams Apply Status	OracleDB_0143	Monitors the apply processes having errors in an oracle streams environment.
Streams Capture Status	OracleDB_0141	Monitors the capture processes having errors in an oracle streams environment.
Streams Propagation Status	OracleDB_0142	Monitors propagation errors in an oracle streams environment.

ETI/HI	Policy Name	Policy Description
Streams Errors	ORA-24093	AQ agent string is not granted privileges of database user string.
	ORA-26662	Unable to process STREAMS Data Dictionary information for object.
	ORA-26666	Cannot alter STREAMS process string.
	ORA-26671	Maximum number of STREAMS processes exceeded.
	ORA-26672	Timeout occurred while stopping STREAMS process string.
	ORA-26713	Remote object does not exist or is inaccessible
	ORA-26715	Time limit reached.
	ORA-26745	Cursors (string) are not sufficient.
	ORA-26786	A row with key string exists but has conflicting column (s) string in table string.
	ORA-26816	STREAMS apply process "string" (OS id string) is exiting due to ORA-number.
	ORA-26819	STREAMS capture server for apply "string" and capture "string"encounters disabled or aborted propagation "string".
	ORA-26826	STREAMS apply coordinator and apply slave are unable to communicate.
	E144_ StrmsApplyErrs	Monitors general apply errors in an oracle streams environment.
Tablespaces Availability	OracleDB_0007	Number of tablespaces not ONLINE.
Tablespaces Free Space Fragmentation Index	OracleDB_0011	Number of fragmented tablespaces.
Tablespace Physical Read Ratio	OracleDB_0008	Number of table spaces with high ratio of block to physical reads.
Tablespace Temp Segment Usage	OracleDB_0009	Number of tablespaces with high use of temp segments to total.
Tablespace Usage Level	OracleDB_0206	Number of tablespaces with low free space percentage.

ETI/HI	Policy Name	Policy Description
Total Sort Rate	OracleDB_0052	Drill down data for # of segments approaching max extent.
Wait Locked Sessions	OracleDB_0029	Number of sessions waiting for release of a lock
Waits On Redo Log Space	OracleDB_0032	Number of waits for redo log space.

Topology Based Event Correlation (TBEC) Rules

The OMi MP for Oracle Database includes the following rules to correlate Oracle-related events:

For more information on how the correlation rules work, see the *Operations Manager i Concepts Guide*.

How to Access the Correlation Rules

- Open Correlation Rules pane:

  On BSM, click **Admin > Operations Management > Event Correlation > Topology-Based Event Correlation**.

  On OMi, click **Administration > Event Processing > Correlation > Topology-Based Event Correlation**.

Database::FileSystem:Disk Usage Level >> Oracle Device Usage Level HIs

Description: Filesystem usage level impacts Oracle Space Usage (Background, User and Core dump device free space)		
Cause		
CIT: File system	ETI: Disk Usage Level	Value: Near Capacity
Symptom 1		
CIT: Oracle	ETI: Oracle Background Dump Device Usage Level	Value: High
Symptom 2		
CIT: Oracle	ETI: Oracle Core Dump Device Usage Level	Value: High
Symptom 3		
CIT: Oracle	ETI: Oracle User Dump Device Usage Level	Value: High

Database::Computer:Memory Usage Level >> Oracle Performance HIs

Description: Memory Usage Impacts Oracle Performance		
Cause		
CIT: Computer	ETI: Memory Usage Level	Value: Near Capacity/Much Higher Than Normal
Symptom 1		
CIT: Oracle	ETI: Dictionary Cache Miss Ratio	Value: High
Symptom 2		
CIT: Oracle	ETI: Library Cache Functioning	Value: HighReload, LowGetHits, LowPinHits
Symptom 3		
CIT: Oracle	ETI: Memory Sort Rate	Value: Low
Symptom 4		
CIT: Oracle	ETI: SQL Query Performance	Value: Low

Database::FileSystem: Oracle Tablespace Usage Level >> Disk Usage Level

Description: Correlates High Disk Space Usage by Db Tablespace to Near Capacity Disk Usage Level of FileSystem		
Cause		
CIT: Oracle	ETI: Tablespace Usage Level	Value: High
Symptom		
CIT: File System	ETI: Disk Usage Level	Value: Near Capacity

Database::FileSystem:Oracle Tablespace Temp Segment Usage Level >> Disk Usage Level

Description: Correlates High Disk Space Usage by Db Tablespace Temp Usage to Near Capacity Disk Usage Level of FileSystem		
Cause		
CIT: Oracle	ETI: Tablespace Temp Segment Usage	Value: High
Symptom		
CIT: File System	ETI: Disk Usage Level	Value: Near Capacity

Database::Computer:Oracle CPU Usage by SQL >> CPU Load

Description: CPU usage by Oracle SQL query and Heavy SQL statements increase CPU Load on Computer		
Cause		
CIT: Oracle	ETI: CPU Usage by SQL	Value: High
Symptom		
CIT: Computer	ETI: CPU Load	Value: Bottlenecked, Constrained, Busy, Overloaded

Database::Computer:Oracle Heavy SQL Statement >> CPU Load

Description: Oracle Heavy SQL statements increase CPU Load on Computer		
Cause		
CIT: Oracle	ETI: Heavy SQL Statements	Value: High
Symptom		
CIT: Computer	ETI: CPU Load	Value: Bottlenecked, Constrained, Busy, Overloaded

Database::Computer:Node Status >> Oracle Database Server Status

Description: Correlates Unavailability of node to that of Database		
Cause		
CIT: Computer	ETI: Node Status	Value: Down, Unknown, Suspended, Hang
Symptom		
CIT: Oracle	ETI: Database Server Status	Value: Down

Database::Computer:Ping Availability >> Oracle Database Server Status

Description: Correlates Unavailability of node to that of Database		
Cause		
CIT: Computer	ETI: Ping Availability	Value: Unavailable
Symptom		

Description: Correlates Unavailability of node to that of Database		
CIT: Oracle	ETI: Database Server Status	Value: Down

Database::Interface:InterfaceCommunicationStatus >> Oracle Database Broken Jobs

Description: Correlates Interface Communication Status of node to Oracle Database Broken Jobs		
Cause		
CIT: Interface	ETI: Interface Communication Status	Value: Unavailable
Symptom		
CIT: Oracle	ETI: Replication Status	Value: Broken

Database::Interface:InterfaceCommunicationStatus >> Oracle Database Failed Jobs

Description: Correlates Interface Communication Status of node to Oracle Database Failed Jobs		
Cause		
CIT: Interface	ETI: Interface Communication Status	Value: Unavailable
Symptom		
CIT: Oracle	ETI: Replication Status	Value: Failed

Database::Interface:InterfaceCommunicationStatus >> Oracle Database Stream Propagation Error

Description: Correlates Interface Communication Status of node to Oracle Database Stream Propagation Error		
Cause		
CIT: Interface	ETI: Interface Communication Status	Value: Unavailable
Symptom 1		
CIT: Oracle	ETI: Streams Propagation Status	Value: Aborted
Symptom 2		
CIT: Oracle	ETI: Streams Propagation Status	Value: Disabled

Database::Interface:InterfaceUtilization >> Oracle Database Replication Status

Description: Correlates Interface Utilization of node to Oracle Database Replication and SQL Query Performance Health		
Cause		
CIT: Interface	ETI: Interface Utilization	Value: High, Higher Than Normal, Much Higher Than Normal
Symptom 1		
CIT: Oracle	ETI: Replication Status	Value: Broken, Failed
Symptom 2		
CIT: Oracle	ETI: Dispatcher Busy Ratio by Network	Value: High
Symptom 3		
CIT: Oracle	ETI: SQL Query Performance	Value: Low

Database::Interface:InterfaceUtilization >> Oracle Database SQL Query Performance

Description: Correlates Interface Utilization of node to Oracle Database SQL Query Performance		
Cause		
CIT: Interface	ETI: Interface Utilization	Value: High Much Higher Than Normal
Symptom		
CIT: Oracle	ETI: SQL Query Performance	Value: Low

Generic::Computer:Memory Usage Level>> Database Performance HIs

Description: Memory Usage impacts Database Performance		
Cause		
CIT: Computer	ETI: Memory Usage Level	Value: Critical, Higher Than Normal, Much Higher Than Normal, Near Capacity
Symptom		
CIT: Database	ETI: SQL Query Performance	Value: Low

Generic::Interface:InterfaceCommunicationStatus >> Database Job Status

Description: Correlates Interface Communication Status of node to Database Job Status		
Cause		
CIT: Interface	ETI: Interface Communication Status	Value: Unavailable
Symptom		
CIT: Database	ETI: Replication Status	Value: Failed, Broken

Generic::Interface:InterfaceUtilization >> Database Replication and Query Performance Status

Description: Correlates Interface Utilization of node to Database Replication and Query Performance Health		
Cause		
CIT: Interface	ETI: Interface Utilization	Value: High, Much Higher Than Normal, Higher Than Normal
Symptom 1		
CIT: Database	ETI: SQL Query Performance	Value: Low
Symptom 2		
CIT: Database	ETI: Replication Status	Value: Broken, Failed

Generic::Node:Node Status >> Database Server Status

Description: Correlates unavailability of node to that of Database		
Cause		
CIT: Node	ETI: Node Status	Value: Unknown, Suspended, Hang, Down, Maintenance
Symptom		
CIT: Database	ETI: Database Server Status	Value: Down

Generic::Node:Ping Availability >> Database Server Status

Description: Correlates ping unavailability of node to that of Database
Cause

Description: Correlates ping unavailability of node to that of Database		
CIT: Node	ETI: Ping Availability	Value: Unavailable
Symptom		
CIT: Database	ETI: Database Server Status	Value: Down

Operations Orchestration (OO) Flows

HP Operations Orchestration provides OO flows that enable IT process automation and run book automation. For more information, see the *Operations Orchestration* documentation. The following section provides information about using OO flows for OMi MP for Oracle Database.

When creating the mapping for the Operations Orchestration (OO) flows, you can set default values for the attributes listed in the following table. You need not specify these values each time you run the flows.

Attribute	Description
omServerPort	Port number of the HPOM Tool WS.
omServerUser	User name for the HPOM Server that will use used in the HPOM Tool WS.
omServerPassword	Password for the HPOM Server that will use used in the HPOM Tool WS.

How to upload OO flows

To upload OO Flows from OMi MP for Oracle Database, follow these steps:

1. In BSM or OMi, go to the directory:

   `<HPBSM_Root_Directory>/conf/opr/oo`

2. Copy the required OO JAR file to a temporary location on a system where HP OO Studio (version 07.51.02 or greater) is installed.

   The file names can be one of the following:

   HPOprOO<content_name>.jar

   For HP OO Studio version 09.00:

   - HPOprOOOra90.jar for Oracle

   For HP OO Studio version 07.51.02 to 07.60:

   - HPOprOOOra.jar for Oracle

   To install and upload the OO flows run the command:

```
java -jar -Xmx1024m "<temp>/HPOprOO<content_name>" -centralPassword
<centralpassword>
```

For example:

```
java -jar -Xmx1024m "<temp>/HPOprOOOra90" -centralPassword <centralpassword>
```

Note: If the admin user in HP OO is not the default user, another parameter is required. For further details about installing content and the options available, see the HP Operations Orchestration Software Development Kit Guide.

Using HP OO Studio, the uploaded OO flows can be accessed under:

../Library/Operations Management/..

3. From OMi, complete the mapping of OO flows to CIs and map the OO flow input variables to CI attributes using:

   On BSM, click **Admin > Integration > Operations Orchestration**.

   On OMi, click **Administration > Operations Console > Run Books Mapping**.

The following section lists the Oracle OO flows:

Oracle Health Check

You can use this flow to check the health of an Oracle Server.

Note: You can run this flow only on an Oracle Server, which is monitored by HPOM Smart Plug-in for Oracle.

This flow checks the following:

- If the Oracle Server is available.
- If the Oracle Tablespaces are online.
- If the Oracle Datafiles are online.

You must map this flow to the **Oracle CIT**.

The following table lists the user input items when executing this OO flow.

Flow input	Description
omNode	FQDN of the Oracle node. This must be a managed node for the HPOM Server and must be specified each time you run the OO flow.

Flow input	Description
omServer	FQDN of the HPOM Server. You can map this input to the Event attribute **Originating Server**.
instance	Name of the Oracle Instance.
timeout	Timeout value to be used when running the remote command on the node. This is an optional attribute and the default value is 100000.

Oracle Performance Check

You can use this flow to check the performance of an Oracle Server.

This flow checks the following:

- If the **Number of Physical Reads per Minute** for Oracle database instance is above the specified threshold.
- If the **Redo Log Buffer Space Request Count** for Oracle database instance is above the specified threshold.
- If the **Dictionary Cache Hit Percentage** for Oracle database instance is above the specified threshold.
- If the **Current Transactions Percentage** for Oracle database instance is above the specified threshold.
- If the **Number of Sessions Waiting for release of a Lock** for Oracle database instance is above the specified threshold.

Note: You can run this flow only on an Oracle Server, which is monitored by HP Operations Manager Smart Plug-in for Oracle.

You must map this flow to the **Oracle CIT**.

The following table lists the user input items when executing this OO flow.

Flow input	Description
omNode	FQDN of the Oracle node. This must be a managed node for the HPOM Server and must be specified each time you run the OO flow.
PhysReadsRate_Threshold	Threshold value for **Number of Physical Reads per Minute** for Oracle database instance. This is an optional attribute.
RedoLogSpaceWait_ Threshold	Threshold value for **Redo Log Buffer Space Request Count** for Oracle database instance. This is an optional attribute.

Flow input	Description
DictionaryCacheMissRatio_Threshold	Threshold value for **Dictionary Cache Hit Percentage** for Oracle database instance. This is an optional attribute.
TransactionPct_Threshold	Threshold value for **Current Transactions Percentage** for Oracle database instance. This is an optional attribute.
SessWaitLokCnt_Threshold	Threshold value for **Number of Sessions Waiting for release of a Lock** for Oracle database instance. This is an optional attribute.
timeout	Timeout value to be used when running the remote command on the node. This is an optional attribute and the default value is 100000.
instance	Name of the Oracle Instance.
omServer	FQDN of the HPOM Server. You can map this input to the Event attribute **Originating Server**.

Tools

The OMi MP for Oracle Database is packaged with tools which enable administering, monitoring, and troubleshooting the Oracle CIs. It comprises the following tools:

How to Access Tools

1. Open Tools pane:

   On BSM, click **Admin > Operations Management > Operations Console > Tools**.

   On OMi, click **Administration > Operations Console > Tools**.

2. In the CI Type pane:

   For Oracle CIs, click **Configuration Item > Infrastructure Element > Running Software > Database > Oracle**.

   For Computer CIs, click **Administration > Operations Console > Tools > Configuration Item > Infrastructure Element > Node > Computer**.

CI Type	Tool	Description
Computer	DisplayOracleMPErrorFile	To view the contents of the OMi MP for Oracle Database error file.
	RunSelfHealingCollectorforOracleMP	Collects error and log information that can be sent to HP Support for OMi MP for Oracle Database troubleshooting issues.
	EnableOracleMPMonitoring	Enables OMi MP for Oracle Database collection and alert notification.
	Disable Oracle MP Monitoring	Disables OMi MP for Oracle Database collection and alert notification.
	VerifyOracleMPDeployment	Shows OMi MP for Oracle Database deployed files, versions, number of policies, defaults file, and performs a connection check.
	EnableOracleMPTrace	Turns On OMi MP for Oracle Database tracing.
	DisableOracleMPTrace	Turns Off OMi MP for Oracle Database tracing.

CI Type	Tool	Description
Oracle	Archive Device Free Space	Reports free space in archive location for Oracle database instance configured to Smart Plug-in for Databases.
	Archive Log Write Rate	Average time in minutes between archive log writes of Oracle database instances configured to Smart Plug-in for Databases.
	Background Dump Device Usage Level	Reports information about the background dump directory for Oracle database instance configured to Smart Plug-in for Databases.
	Cached Tables	Tables cached for Oracle database instance configured to Smart Plug-in for Databases.
	Core Dump Device Usage Level	Reports information about the core dump device usage level for Oracle database instance configured to Smart Plug-in for Databases.
	Database Object Status	Reports invalid objects and invalid PL/SQL or missing dependencies for Oracle database instance configured to Smart Plug-in for Databases.
	Datafiles Status	Data files that are not online for Oracle database instance configured to Smart Plug-in for Databases.
	Disabled Constraints	Reports disabled constraints for Oracle database instance configured to Smart Plug-in for Databases.
	Disabled Triggers	Reports disabled triggers for Oracle database instance configured to Smart Plug-in for Databases.
	Flash Recovery Area Usage Level	Reports Flash Recovery Area (FRA) disc space utilization status for Oracle database instance configured to Smart Plug-in for Databases.
	Global Cache Block Status	Reports information about blocks lost for instances configured to Smart Plug-in for Databases.

CI Type	Tool	Description
	Global Cache Blocks Timed Out Count	Reports global cache blocks timed out counts of instances.
	Oracle Database Connection Check	Checks the connection of all the Oracle database instances configured to Smart Plug-in for Databases.
	Oracle Product Manuals	Starts a web browser and connects to the Oracle product manuals web site.
	Oracle Segments Near Max Extents	Reports segments approaching max extents for Oracle database instance configured to Smart Plug-in for Databases.
	Oracle Segments Not Extendable	Reports segments that cannot extent for Oracle database instance configured to Smart Plug-in for Databases.
	Oracle Sessions Waiting For Lock	Reports sessions waiting for a lock for Oracle database instance configured to Smart Plug-in for Databases.
	Shared Pool Memory	Reports shared pool free memory for Oracle database instance configured to Smart Plug-in for Databases.
	Shared Servers Waiting For Requests	Shared servers waiting for requests for Oracle database instance configured to Smart Plug-in for Databases.
	SQL Statements CPU Time	SQL statements with high CPU time for execution for Oracle database instance configured to Smart Plug-in for Databases.
	SQL Statements Performing Full Table Scans	SQL statements performing full table scan for Oracle database instance configured to Smart Plug-in for Databases.
	SQL Statements With High Buffer Gets Per Execution	SQL Statements With High Buffer Gets Per Execution or Oracle database instance configured to Smart Plug-in for Databases.

CI Type	Tool	Description
	SQL Statements With High Disk Reads	SQL Statements With High Disk Reads Per Execution for Oracle database instance configured to Smart Plug-in for Databases.
	SQL Statements With High Elapsed Time Per Execution	SQL Statements With High Elapsed Time Per Execution for Oracle database instance configured to Smart Plug-in for Databases.
	SQL Statements With High Execution Rate	SQL Statements With High Execution Rate for Oracle database instance configured to Smart Plug-in for Databases.
	SQL Statements With High Fetches	SQL Statements With High Fetches for Oracle database instance configured to Smart Plug-in for Databases.
	SQL Statements With Long Table Scans	SQL Statements With Long Table Scans for Oracle database instance configured to Smart Plug-in for Databases.
	Tables And Indexes Unanalyzed	Reports % of tables and indexes that are unanalyzed for Oracle database instance configured to Smart Plug-in for Databases.
	Tablespace Free Space	Reports free space for all tablespaces for Oracle database instance configured to Smart Plug-in for Databases.
	Tablespaces Fragmented	Reports tablespaces that have fragmented free space for Oracle database instance configured to Smart Plug-in for Databases.
	Tablespaces With High Read	Tablespaces with high ratio of block to physical reads for Oracle database instance configured to Smart Plug-in for Databases.
	User Dump Device Usage Level	Reports information about the user dump directory for Oracle database instance configured to Smart Plug-in for Databases.

CI Type	Tool	Description
	Users Logons	Reports currently logged in users for Oracle database instance configured to Smart Plug-in for Databases.

Chapter 5: Customizing Management Templates

OMi MP for Oracle Database can be customized to suit your monitoring requirements. You can edit the existing Oracle Management Templates or create new Oracle Management Templates to monitor any database environment.

This section provides information about the following:

Customizing Oracle Management Templates before Deployment

The following section provides information about customization scenarios for OMi MP for Oracle Database.

- Creating Oracle Management Templates
- Editing Oracle Management Templates
- User Defined Metrics

Creating Oracle Management Templates

1. Open the Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Configuration Folders pane:

   Configuration Folders > Database Management > Oracle

3. Select the Oracle configuration folder and if you need to create a new configuration folder, click  . The Create Configuration Folder opens.

4. Type the name of the new configuration folder and the description. For example, you can type the new configuration folder name as Test.

5. Click **OK**. The new configuration folder is created.

   Configuration Folders > Database Management > Oracle > Test

6. In the Management Templates & Aspects pane, select the new configuration folder and click

and then click **Management Template**. The Create Management Template wizard opens.

7. In the **General** tab, type a **Name** for the new Oracle Management Template.

   Click **Next**.

8. An Oracle Management Template enables you to manage Oracle CIs and all the related dependent CIs. Select **Ora_Deployment** from the list as the Topology View. The Ora_Deployment shows the Oracle CIs and all the related CITs.

9. Click an item in the topology map to select the **CI Type** of the CIs that this Management Template enables you to manage. This is the type of CI to which the Management Template can be assigned. For example, you can select Oracle to monitor Oracle databases.

   Click **Next**.

10. In the **Aspects** tab, click , and then click **Add Existing Aspect** to add existing Aspects to the new Oracle Management Template. The Add Existing Aspect dialog box opens. Select the Aspects that you want to add, and then click **OK**.

    If suitable Aspects do not exist, click the , and then click **Add New Aspect** to create them from here.

11. For each aspect that you add, you must specify at least one **Target CI**.

    Click an Aspect in the list, and then in the topology map click the CIT you want the Aspect to monitor when this Management Template is assigned. (Press **CTRL** to select several CITs.) Each CIT that you select here must correspond to one of the CI types assigned within the aspect itself (or a child of one of those CITs). For example, you can select Oracle CI from the topology map.

12. In the **Parameters** tab, you see a list of all the parameters from the Aspects that you added to this Management Template.

    To combine parameters:

    a. Press **CTRL** and click the parameters that you want to combine.

    b. Click the . The Edit/Combine Parameters dialog box opens.

    c. Type a **Name** for the combined parameters.

    d. *Optional.* Specify a **Description**, **Default Value**, and whether the combined parameter is **Read Only**, an **Expert Setting**, or **Hidden**.

       You can specify either a specific default value, or you can click **From CI Attribute** and then browse for a CI attribute. When you specify a CI attribute, Operations Management sets the

parameter value automatically during the deployment of the underlying policy templates, using the actual value of this attribute from the CI. You can also change values of conditional parameters. (The conditions are read-only and cannot be changed at Management Template level.)

Read Only prevents changes to the parameter value when the Management Template is assigned to a configuration item. Hidden also prevents changes, but additionally makes the parameter invisible when the Management Template is assigned, and during parameter tuning. Users can choose whether to show expert settings when they make an assignment.

e. Click **OK**.

You can also edit the parameters without combining them, to override the defaults in the Aspects or policy templates. Click one parameter, and then click  . The Edit/Combine Parameters dialog box opens.

13. In the Create Management Template wizard, click **Finish** to save the Management Template and close the wizard. The new Management Template appears in the Management Templates & Aspects pane.

Editing Oracle Management Templates

You can edit the Oracle Management Templates and modify the following components:

- Parameters
- Oracle Aspects

Editing Parameters

Use Case: You are using Essential Oracle Management Template to monitor single instance databases in your environment. You are monitoring the table spaces with low free space in the environment and want to modify the parameters corresponding to tablespaces to closely monitor the free space available.

To closely monitor tablespaces in your environment, you must modify the tablespace parameters - tablespaces with low free space frequency, tablespaces with low free space threshold, tablespaces with low free space severity.

1. Open the Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.

2. In the Configuration Folders pane:

Configuration Folders > Database Management > Oracle > Oracle Management Templates > Essential Oracle Management Template

3. Select the **Essential Oracle Management Template** from the list, and then click  . The Edit Management Template dialog box opens.
4. Click the **Parameters** tab. The list of parameters appear.
5. Double-click the **tablespace** parameter. The Edit Parameter window appears.

   In this instance, tablespace parameter is tablespaces with low free space frequency, tablespaces with low free space threshold or tablespaces with low free space severity.
6. You can change the default value by using the drop down text. For example, you can change the value of the parameter tablespace with low free space frequency to High from Medium.
7. Click **OK**. The Edit Management Template dialog box opens.
8. Click **OK**. The version of the Oracle Management Template is incremented.

Note: The version number of the Oracle Management Template is incremented when any customizations are made to the Oracle Management Template.

Editing Aspects

Use Case: You are using Extensive Oracle Management Template to monitor a high availability Oracle RAC environment operating with ASM solution. You do not want to use some Aspects which are part of the Extensive Oracle Management Template.

1. Open the Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.
2. In the Configuration Folders pane:

   Configuration Folders > Database Management > Oracle > Oracle Management Templates > Essential Oracle Management Template
3. Select the **Essential Oracle Management Template** from the list, and then click  . The Edit Management Template dialog box opens.
4. Click the **Aspects** tab. The list of Aspects appear.

5. Select the Aspect that you want to delete from the list. For example, you want to delete the Oracle Data Guard Faults Aspect.
6. Click  to delete the selected Aspect.
7. Click **OK**. The version of the Oracle Management Template is incremented.

User Defined Metrics (UDM)

You can collect additional data from Oracle databases by creating User Defined Metrics (UDMs). By default, the UDMs are part of User Defined Aspects (UDA). The User Defined Aspect includes the following policies:

- OracleDB_07XX - Measurement Threshold policy for monitoring UDM
- OracleDB_UDM - Sample Config file policy template to create a UDM

Tasks

How to Create User Defined Metrics

To create user defined metrics, follow these steps:

1. Open the Management Templates & Aspects pane:

   On BSM, click **Admin > Operations Management > Monitoring > Management Templates & Aspects**.

   On OMi, click **Administration > Monitoring > Management Templates & Aspects**.
2. In the Configuration Folders pane:

   Configuration Folders > Database Management > Oracle > Oracle Aspects > Oracle UDA
3. In the Oracle UDA folder, select 1.0 and then click  . The Edit Aspect dialog box opens.
4. Click the **Policy Templates** tab and select the OracleDB_ UDM policy template (Config File policy) and then click  .
5. Click the **Policy Data** tab. It contains details about defining a user defined metric and a sample example of a user defined metric. You can edit the data and save the file. The version number of the OracleDB_UDM policy is incremented by 0.1.
6. To define the parameters for the metric, you must create a copy of the measurement threshold template OracleDB_07XX.
7. Open the Policy Templates groups pane:

Administration > Monitoring > Policy Templates

8. In the Policy Templates groups pane:

   Templates grouped by Type > Measurement Threshold Templates > OracleDB_07XX

9. To copy OracleDB_07XX, right-click and select copy item and paste the item.

10. Rename the file as OracleDB_0701.

11. Select the policy template OracleDB_0701 and then click  .

    Note: You must edit the policy in raw mode.

12. In the **Policy Parameters** tab, you can select and edit the parameters. For example, to modify the UDM frequency, you can select the parameters UDM frequency and then click  . The Edit Parameter window opens. You can modify the default values and then click OK. The version of the policy template OracleDB_0701 increments by 1.

How to Deploy User Defined Metrics

You must deploy the policy templates - OracleDB_0701 and Oracle Sample UDM for monitoring UDM.

1. Open the Policy Templates groups pane:

   On BSM, click **Admin > Operations Management > Monitoring > Policy Templates**.

   On OMi, click **Administration > Monitoring > Policy Templates**.

2. In the Policy Templates pane, expand the tree, click the policy template that you want to deploy, and then click  . The Assign and Deploy Policy Template wizard opens.

3. In the **Configuration Item** tab, click the configuration item to which you want to assign the policy template, and then click **Next**.

4. In the **Parameters** tab, specify a value for each parameter:

   a. Select a parameter in the list, and then click  .

      - For standard parameters, the Edit Parameter dialog box opens.

        Click **Value**, specify the value, and then click **OK**.

      - For instance parameters, the Edit Instance Parameter dialog box opens.

        Change the instance values if necessary, and then for each instance value, change dependent parameter values. After you change the instances and dependent parameter values, click **OK**.

Click **Next**.

5. *Optional.* If you do not want to enable the assignment immediately, clear the **Enable Assigned Objects** check box on BSM and clear the **Enable Assignment(s)** check box on OMi. You can then enable the assignment later using the Assignments & Tuning pane.

6. Click **Finish**.

Chapter 6: Troubleshooting

The following section provides information about troubleshooting scenarios:

Licensing count is not updated

Problem: Licensing count is not updated on License Management

Solution: To resolve this problem, follow these steps:

1. After installing OMi MP for Oracle Database, ensure that the license is activated by following these steps:

   a. Open License Management pane:

   On BSM, click **Admin > Platform > Setup and Maintenance > License Management**.

   On OMi, click **Administration > Setup and Maintenance > License Management**.

   b. Click  and select the `license.dat` file. The license details appears in the License Management window.

   The License Management provides details about the name, license type, days left, expiration date, capacity, and capacity details.

2. To check for the license usage on the managed node, run the following command on the managed node:

   For Windows: `ovodetect -t`

   For UNIX (except AIX): `/opt/OV/bin/ovodetect -t`

   For AIX: `/usr/lpp/OV/bin/ovodetect -t`

   If the output of the preceding command is mpinstance="1" then Oracle databases are being monitored. If the output of the preceding command is mpinstance="0" then Oracle databases are not being monitored.

3. If the license is still not updated in **License Management**, restart agent on the managed node by running the following command:

   For Windows: `ovc -restart opcmsga`

   For UNIX (except AIX): `/opt/OV/bin/ovc -restart opcmsga`

   For AIX: `/usr/lpp/OV/bin/ovc -restart opcmsga`

Oracle Instance does not appear in RTSM

Problem: Oracle instance does not sync in RTSM from node.

Solution: To resolve this problem, follow these steps:

1. Open the Infrastructure Settings pane:

   On BSM, click **Admin > Platform > Setup and Maintenance > Infrastructure Settings**

   On OMi, click **Administration > Setup and Maintenance > Infrastructure Settings**

2. In the Infrastructure Settings Manager, select **Applications** as **Operations Management**.

3. In the Operations Management - HPOM Topology Synchronization Settings, the packages for Topology Sync should contain the packages that are used for topology synchronization - **default;nodegroups;operations-agent;HPOprSys;HPOprOra**.

4. Make sure that the policies - **OracleDB_Discovery** and **OracleDB_DeepDiscovery** are deployed on the managed node for discovering Oracle instances by running the following command:

   Windows: `ovpolicy -l`

   UNIX (except AIX): `/opt/OV/bin/ovpolicy -l`

   AIX: `/usr/lpp/OV/bin/ovpolicy -l`

5. Check the Oracle discovery log file on the managed node:

   UNIX: `/tmp/oracle_disc.log`

   Windows: `%temp%\dbspi_disc_Oracle.log`

6. Run the following command to obtain the policy id of OracleDB_Discovery:

   ```
   ovpolicy -polname "OracleDB_Discovery" -list -level1
   ```

7. Verify whether the **OracleDB_Discovery** policy files exist by checking entries in the `policyid.out` file:

   UNIX: `/var/opt/OV/tmp/agtrep/`

   Windows: `%OvDataDir%\tmp\agtrep\`

8. Run the following command to synchronize the Oracle instance information to the OMi server from the discovery output file `agtrep.xml`:

   ```
   ovagtrep -publish -all
   ```

9. Make sure that the Oracle instance information is synchronized to the OMi MA server. Check the

log files available at the following location:

Linux: `/var/opt/OV/dbspi/log/trace`

Windows: `C:\usr\OV\dbspi\log\trace`

Management Templates and Aspects are not deployed to the managed nodes

Problem: Management Templates and Aspects are not deployed to the managed nodes.

Solution: To resolve this problem, follow these steps:

1. To check the deployment status:

   On BSM, click **Admin > Operations Management > Monitoring > Deployment Jobs**

   On OMi, click **Administration > Monitoring > Deployment Jobs**

2. To check the assignment status:

   On BSM, click **Admin > Operations Management > Monitoring > Assignments & Tuning**

   On OMi, click **Administration > Monitoring > Assignments & Tuning**

3. Check the following OMi log files:

   UNIX:

   `/opt/HP/BSM/log/EJBContainer/opr-webapp.log`

   `/opt/HP/BSM/log/EJBContainer/opr-configserver.log`

   Windows:

   `%topaz_home%\log\EJBContainer\opr-webapp.log`

   `%topaz_home%\log\EJBContainer\opr-configserver.log`

No data for Performance Manager i (PMi) Graphs

Problem 1: The information to create graphs is not available from OMi MP for Oracle Database

Solution 1: To resolve this problem, follow these steps:

1. Run the following command to check if the graph data sources are created:

   `ovcodautil –obj`

Verify the list of datasources and ensure **DBSPI_ORA_GRAPH** is created.

2. If the data sources are not created, run the following command to create the data source:

   ```
   dbspigre
   ```

3. The errors related to data source creation are logged in the Console of command prompt.

4. Make sure that the graph policies are deployed on the nodes and policies log data into the below files:

   UNIX:

   ```
   /var/opt/OV/dbspi/dsi/oracle/<SID>/<SID>.dat
   ```

   Windows:

   ```
   C:\usr\OV\dbspi\dsi\oracle\<SID>.dat
   ```

5. Ensure that the ***.fm** files are deployed on the managed node. Missing `*.fm` files or improper `*.fm` files leads to NULL or zero data logged or populated into the data sources.

6. If the data is being logged into the `.dat` files in the required format, make sure that the **OracleDB_Logger** policy (`dbspimwc` command) is deployed on the managed node. The **OracleDB_Logger** policy reads the data from the `.dat` files and writes the data into the respective data source.

7. You can run the following command to verify if the data is being logged in the datasources.

   ```
   ovcodautil -dumpds <datasource_name>
   ```

   In this instance, data source is, **DBSPI_ORA_GRAPH**, **ORADB_<hostname>_<instance>**, etc.

Problem 2: In case you are reusing any of the old nodes with Operations Agent 11.x and PA DSI (Data Source Integration) and if data sources are already created, this impacts data logging.

Solution 2: To resolve this problem, follow these steps:

1. Go to the below location:

   UNIX: `/var/opt/OV/dbspi`

   Windows: `C:\Usr\dbspi`

2. Edit defaults file and add the following command:

   ```
   DATALOGGING_NEWLOGIC ON
   ```

3. To clean up and delete the old data, run the follow commands:

a. Clean the old data:

UNIX: `/var/opt/OV/bin/instrumentation/dbspi_mwclup`

Windows: `%OvDataDir%\bin\instrumentation\dbspimwi-cleanup`

b. To restart data sources, run the command `ovc –restart coda`.

4. Create an empty file:

UNIX: `/var/opt/OV/conf/dsi2ddf/nocoda.opt`

Windows: `%OvDataDir%\conf\dsi2ddf\nocoda.opt`

5. For creating new CODA data sources and logging data for PMi, run the following commands:

`dbspigre`

Problem 3: If the managed node is monitored by Smart Plug-in for Oracle Database.

Solution 3: To resolve this problem, follow these steps:

1. You can backup the data of `DBSPI_ORA_<data sources>` to the HP Reporter or any other Reporting solution that you are using.

   Example: Run the following command to backup the data of `DBSPI_ORA_<data sources>` on HP Reporter, `gathercoda –h <Oracle_hostname>`.

2. Uninstall the HP Operations Smart Plug-in for Oracle from the managed node.

   For more information about uninstalling from managed node, see *HP Operations Smart Plug-in for Databases Installation and Configuration Guide*.

3. To remove the data sources, run the following command:

   Windows: `dbspimwi -cleanup`

   UNIX: `dbspi_mwclup`

Unable to log data into Reporter data sources

Problem: OMi MP for Oracle Database is not logging data into Reporter data sources

Solution: To resolve this problem, follow these steps:

1. Run the following command to check if the report data sources are created:

   `ovcodautil –obj`

In this instance, data sources like **DBSPI_ORA_REPORT, ORAOSM_<hostname>_ <instance>**, etc.

2. If the data sources are not created, run the following command to create the data source:

   Windows: `dbspimwi –osm`

   UNIX: `dbspi_mw_int –osm`

3. The errors related to data source creation are logged in the console of command prompt.

4. Ensure that the report policies are deployed on the nodes. Data for reports is logged by the report policies directly into the data sources.

Oracle metric collection fails

Problem: Oracle metric collection fails

Solution: You can identify this problem by following these steps:

1. You can enable tracing for an Oracle Instance by changing the Oracle Instance Tracing parameter to **ON**. Oracle Instance Tracing parameter is an Expert parameter. To show expert parameters, click **Hide/Unhide Expert Parameters**.

   Select the View and then the corresponding instance and parameters and change the Oracle Instance Tracing parameter to ON.

   or

2. Run the **EnableOracleMP Trace** tool to enable tracing for all instances on the node.

   The instrumentation log files are available at the following locations:

   UNIX:

   `/var/opt/OV/dbspi/log/trace`

   `/var/opt/OV/App_Monitoring/Oracle/log/*`

   Windows:

   `C:\usr\OV\dbspi\log\trace`

   `%OvDataDir%\App_Monitoring\Oracle\log\*`

Server scheduling metrics fails to execute after deploying

Problem: Oracle scheduling metrics are not executing after deployment.

Solution: To resolve this problem, follow these steps:

1. Ensure the below four policies are deployed on the managed node by following these steps:

   a. On BSM , click **Admin > Operations Management > Policy Templates** and on OMi, click **Administration > Monitoring > Policy Templates**.

   b. In Policy Template Groups pane, click **Scheduler Task Templates**.

   c. Check if these **OracleDB_High**, **OracleDB_Low**, **OracleDB_Medium** and **OracleDB_Veryhigh** are deployed.

2. Navigate to the following location, to check if the respective policy files are valid:

   - **For Windows**: `%OvDataDir%\App_Monitoring\Oracle\xml\`
   - **For UNIX**: `/var/opt/OV/App_Monitoring/Oracle/xml/`

3. The scheduler xml files are created using the instrumentation file: `SpiConfHandler.pl`

   Folder location of the instrumentation file:

   - **For Windows**: `%OvDataDir%\bin\instrumentation\`
   - **For UNIX**: `/var/opt/OV/bin/instrumentation/`

4. To enable tracing, run the **EnableOracleMPTrace** tool.

5. The scheduler log file is created at the following path, after enabling the tracing.

   - **For Windows**: `%OvDataDir%\App_Monitoring\Oracle\log\SpiConfHandler.pl.log`
   - **For UNIX**: `/var/opt/OV/App_Monitoring/Oracle/log/SpiConfHandler.pl.log`

6. If you do not want to run any metric, the “NORUN” value can be selected in the Frequency parameter.

   For more information about editing the parameter value, see the section "Tuning Parameters".

Collection failure does not generate alerts on the Server

Problem: Whenever collector encounters an error, no alerts are generated on the Server.

Solution: To resolve this problem, follow these steps:

1. Enable tracing by following one of below methods:

   a. Tracing can be enabled through Assignment & Tuning pane by following steps:

      i. On BSM, click **Admin > Operations Management > Monitoring > Assignments & Tuning** and on OMi, click **Administration > Monitoring > Assignments & Tuning**.

      ii. In the Browse Views pane, select **Ora_Deployment**. Select the CI with the problem.

      iii. In the Assignment Item pane, select the **Oraspi Base** Aspect.

      iv. In the Assignment Details pane, click  to view the expert parameters.

      v. Double-click the **Oracle Instance Tracing** parameter.

      The Edit Instance Parameter wizard opens.

      vi. Click  and then select **Oracle Instance Tracing** parameter and select  . Change the value to **ON** and click **OK**.

      vii. Click **OK**.

   b. To enable tracing on all instances on the node, follow these steps:

      i. Click **Workspaces > Operations Console > Event Perspective**.

      ii. From the **View Explorer**, select a view and then select an event from the Event Browser.

      You can view the tools in the Action pane.

      iii. Double-click **EnableOracle MP Trace** tool. The Preview Tool Execution wizard opens.

      > **Note:** Retain the optional parameter blank.

      iv. Click **Run Tool**.

2. Navigate to the below location and ensure appropriate instrumentation files are deployed on the node.

   Windows: `%OvDataDir%\bin\instrumentation`

   UNIX: `/var/opt/OV/bin/instrumentation`

3. The `dbspicao` is the collector which is used to get the Oracle metrics.

a. To check the connection of the collector, run the command `dpspicao -dpv`.

b. To verify if the threshold value has exceeded the limit, run the command `dpspicao -pv -m <metric>`.

   The metric values is printed on the Command Console.

4. If the threshold value has exceeded the limit, run the following command to generate Alarms:

   `dbspicao –m <metric> -i <Instance name>`

   `-m` = (metric) Specifies the metric numbers or number ranges on which to collect data.

   `-i` = (instance) Specifies the database instance (optional)

5. Instrumentation log files for tracing are available at below location:

   UNIX:

   `/var/opt/OV/dbspi/log/trace`

   `/var/opt/OV/App_Monitoring/Oracle/log/*`

   Windows:

   `C:\usr\OV\dbspi\log\trace`

   `%OvDataDir%\App_Monitoring\Oracle\log\*`

Appendix: Data Sources for Logging

The metric data is logged into specific data sources for generating graphs and reports.

Graphs

Graphs represent pictorial representation of metrics. The OMi MP for Oracle Database includes the Oracle graph family, which is mapped to the Oracle CIT. The graphs are generated from the **DBSPI_ ORA_GRAPH** data source. For information about creating and viewing graphs, see the *Performance Graphing documents available in the OMi documentation*. The following table provides information about the format of generic data source:

INSTANCE NAME	E001_DBINS TANCESTAT	E004_USERST MPDFLTCNT	E005_OBJCTS FORIGNCNT	...
<value>	<value>	<value>	<value>	<value>
<value>	<value>	<value>	<value>	<value>

The following table provides information about the Graph Templates:

Graph Templates	Metric Name	Metric Description	Data Source Column
Archive Device	OracleDB_ 0058	Percentage of free space on archive device.	E0058_ DbInstanceStat
Archive Logs	OracleDB_ 0056	Number of archive logs in archive device.	E056_ ArchvFreeSpcCnt
	OracleDB_ 0057	Average time of archive log writes.	E057_ ArchiveFreqRate
Calls	OracleDB_ 0050	Ratio of recursive calls to user calls.	E050_ RcsvUsrCalRatio
	OracleDB_ 0075	Ratio of recursive calls to cumulative opened cursors.	E075_ RcrsvCursrRatio
Checkpoints	OracleDB_ 0035	Rate of background checkpoints completed.	E035_ BckgndCkptRate
	OracleDB_ 0083	Rate of DBWR checkpoints.	E083_DbwrCkptrate

Graph Templates	Metric Name	Metric Description	Data Source Column
Dump Devices	OracleDB_0062	Percentage of space used on background dump device.	E062_BkgrDumpSpcePct
	OracleDB_0064	Percentage of space used on user dump device.	E064_UserDumpSpacPct
	OracleDB_0065	Percentage of space used on core dump device.	E065_CoreDumpSpacPct
	OracleDB_0066	Size in MB of alert log.	E066_AlertLogSize
Initialization Limits	OracleDB_0028	Percentage of DML locks used to total configured.	E028_LocksUsedPct
	OracleDB_0031	Number of users with percentage of open cursors to maximum configured.	E031_OpenCrsrPctCnt
	OracleDB_0085	Percentage of current transactions to configured.	E085_TransactionPct
	OracleDB_0087	Percentage of current processes to configured.	E087_ProcessPct
	OracleDB_0089	Percentage of enqueues to configured.	E089_EnqueuePct
Multi-threaded Server	OracleDB_0090	Percentage of busy (average) for all dispatchers.	E090_DsptchrBusyPct
	OracleDB_0091	Number of clients currently connected to all dispatchers.	E091_NumDsptchrClnts
	OracleDB_0092	Percentage of shared servers waiting for requests.	E092_ShrSrvrReqWtPct
	OracleDB_0093	Percentage of busy to max shared server processes.	E093_SharedServerPct
	OracleDB_0094	Current percentage of shared pool allocated to UGA.	E094_SesUGAMemCurPct
	OracleDB_0095	Maximum percentage of shared pool allocated to UGA.	E095_SesUGAMemMaxPct
	OracleDB_0096	Percentage of high water to max shared server processes.	E096_ShrdSrvHWMPct

Graph Templates	Metric Name	Metric Description	Data Source Column
Parallel Query Option	OracleDB_0070	Percentage of parallel query servers busy.	E070_PQServrsBusyPct
	OracleDB_0071	Percentage of parallel query servers busy highwatermark.	E071_PQSrvHighwtrPct
	OracleDB_0074	Rate of parallel queries initiated.	E074_PQQueryRate
	OracleDB_0076	Percentage of full table scans using rowid range scans compared to total full table scans.	E076_PQRangeScanPct
Rollbacks	DBSPI-0068	Number of rollback segment shrinks.	E068_RBSgmntShrnkCnt
	OracleDB_0069	Percentage of rollback segment wait.	E069_RBSegWaitPctCnt
RollBacks Generated	OracleDB_0054	Rate of generated rollbacks.	E054_RollbackRate
Redo	OracleDB_0032	Number of waits for redo log space.	E032_RedoLgSpcReqCnt
	OracleDB_0033	Percentage of redo allocation latch misses.	E033_RedoAlocLtchPct
	OracleDB_0034	Percentage of redo copy latch misses.	E034_RedoCopyLtchPct
Sessions	OracleDB_0082	Maximum number of sessions from startup.	E082_SessHighWatrCnt

Graph Templates	Metric Name	Metric Description	Data Source Column
Sharedpool	OracleDB_0022	Total buffer cache hit percentage.	E022_TotBufCacHitPct
	OracleDB_0023	Current buffer cache hit percentage.	E023_CurBufCacHitPct
	OracleDB_0026	Percentage of cache get misses to gets in dictionary cache.	E026_DictCacheHitPct
	OracleDB_0027	Percentage of library cache misses to executions.	E027_LibCachRelodPct
	OracleDB_0039	Percentage of gethits to gets in dictionary cache.	E039_LibCacGetHitPct
	OracleDB_0040	Percentage of pinhits to pins in dictionary cache.	E040_LibCacPinHitPct
	OracleDB_0045	Percentage of free pool memory.	E045_ShrdPoolFreePct
	OracleDB_0059	Percentage of cursors in cache parameter.	E059_CursorCachePct
Sorts	OracleDB_0019	Disk sort rate.	E019_SortDiskRate
	OracleDB_0052	Rate of total sorts on disk and in memory.	E052_SortTotalRate
Sorts Memory/Rows	OracleDB_0020	Percentage of memory sorts.	E020_SortMemoryPct

Graph Templates	Metric Name	Metric Description	Data Source Column
Tablespace	OracleDB_0006	Number of tablespaces with low free space percentage.	E006_TblSpFreePctCnt
	OracleDB_0007	Number of tablespaces that are not online.	E007_TblSpcStatusCnt
	OracleDB_0008	Number of tablespaces with high ratio of block to physical reads.	E008_TSBReadRatioCnt
	OracleDB_0009	Number of tablespaces with high use of temp segments to total.	E009_TSTmpExntPctCnt
	OracleDB_0011	Number of fragmented tablespaces.	E011_TblSpcFrgmntCnt
	OracleDB_0016	Number of segments that cannot extend.	E016_SegmntExtendCnt
	OracleDB_0017	Number of segments approaching max extent.	E017_SegMaxExtentCnt
	OracleDB_0018	Number of segments adding extents rapidly.	E018_SegExtRapidCnt
Table Scan	OracleDB_0030	Rate at which full table scans (long tables) occur.	E019_SortDiskRate
Tables and Indexes	OracleDB_0042	Percentage of the tables and indexes which were never analyzed.	E042_UnlyzTblIndxPct
	OracleDB_0046	Percentage of the rows fetched by index.	E046_RowFetcbyIdxPct
	OracleDB_0048	Percentage of chained rows fetched.	E048_ChandRowFtchPct
Waits	OracleDB_0021	Percentage of buffer busy waits to logical reads.	E021_BufferBusyPct
	OracleDB_0024	Percentage of enqueue waits to enqueue requests.	E024_EQWaitsReqPct
	OracleDB_0038	Number of latches with high contention ratio greater than threshold.	E038_LtchOvrLimitCnt
	OracleDB_0043	Percentage of enqueue timeouts to enqueue requests.	E043_EQTimeoutReqPct
	OracleDB_0029	Number of sessions waiting for release of a lock.	E029_SessWaitLckCnt

Generic Data Source

The generic data source reserves a column for the database instance name, labeled instance name. This column also contains the information that differentiates the data collected for each instance. Other column represents the graphing metrics. The following table is a sample of the Data source Table. The complete list of all the graphing metrics is stored in the **dbspiorag.fm** file located at:

Windows: `<ovagentdir>\bin\instrumentation`

Linux: `/var/opt/OV/bin/instrumentation`

Reports

The web based reports enable you to check the health and efficiency of specific Oracle databases. The reports are generated from the **DBSPI_ORA_REPORT** data source. The following table provides information about the Oracle Reports that are available. For information about viewing and accessing reports, see the *HP Service Health Reporter (SHR) documentation*.

The **DBSPI_ORA_REPORT** contains information about the following columns:

- Instance Name
- Metric ID
- Value ID
- System ID
- Object ID

The following table provides information about the **DBSPI_ORA_REPORT** data source:

01/09/14 05:25:03 PM	INSTANCENAME	onehp
01/09/14 05:25:03 PM	METRICID	201.00
01/09/14 05:25:03 PM	VALUEID	1.00
01/09/14 05:25:03 PM	VALUE	5.00
01/09/14 05:25:03 PM	SYSTEMID	Machine Name
01/09/14 05:25:03 PM	OBJECTID	onehp

The following table provides information about the Reports:

Metric ID	Description	Object ID	Value ID	Value
201	Reports uptime information	Instance Name	1	Up=5 Down=0

Metric ID	Description	Object ID	Value ID	Value
212	Instance size in MB allocated and free	Instance Name	1	Megabytes Allocated
			2	Megabytes Free
210	Tablespace size in MB allocated and free	Tablespace Name	1	Megabytes Allocated
			2	Megabytes Free
215	Segment size in MB allocated	Segment Name	1	Megabytes Allocated
213	Number of physical reads and writes to the disk since the last collection for each tablespace.	Tablespace Name	2	Delta of physical reads and writes since last collection
037	Number of logons	N/A; These metrics are stored in the graphing data source.		
044	Number of Transactions			
119	Number of heavy SQL statements	Instance Name	1	Number of queries

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