Oracle® Enterprise Manager

Connector Framework Integration Guide

10*g* Release 2 (10.2.0.2)

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ORACLE®

Oracle Enterprise Manager Connector Framework Integration Guide 10*g* Release 2 (10.2.0.2)

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Preface

This Preface contains these sections:

Audience

The Oracle Enterprise Manager Connector Framework Integration Guide is intended for system integrators who want to integrate other management systems with Enterprise Manager.

Documentation Accessibility

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Related Documentation

For information on setting up the environment for RAC provisiong jobs, see the following manuals in the Oracle Oracle Database 10*g* Release 2 Documentation Library:

- Oracle Clusterware and Oracle Real Application Clusters Installation Guide for Linux
- Oracle Clusterware and Oracle Real Application Clusters Installation and Configuration Guide for Microsoft Windows Platforms
- Oracle Clusterware and Oracle Real Application Clusters Administration and Deployment Guide

For information on Enterprise Manager, see the following manuals in the Oracle Enterprise Manager 10*g* Release 2 Documenation Library:

- Oracle Database 2 Day DBA
- *Oracle Enterprise Manager Concepts*
- *Oracle Enterprise Manager Quick Installation Guide*
- *Oracle Enterprise Manager Grid Control Installation and Basic Configuration*
- *Oracle Enterprise Manager Advanced Configuration*
- *Oracle Enterprise Manager Configuration for Oracle Collaboration Suite*
- *Oracle Enterprise Manager SNMP Support Reference Guide*
- *Oracle Enterprise Manager Policy Reference Manual*
- *Oracle Enterprise Manager Metric Reference Manual*
- *Oracle Enterprise Manager Command Line Interface*
- *Extending Oracle Enterprise Manager*

The latest versions of this and other Oracle Enterprise Manager documentation can be found at:

`http://www.oracle.com/technology/documentation/oem.html`

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

Printed documentation is available for sale in the Oracle Store at

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

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`http://otn.oracle.com/documentation/`

Conventions

The following text conventions are used in this guide:

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

Structure

This guide contains the following chapters and is organized as follows:

Chapter 1, "Using Connector Web Services Interfaces"

This chapter discusses the usage of the Connector Framework interfaces.

Chapter 2, "Reference Tables"

This chapter provides tabular reference information for connectors.

Chapter 3, "Error Messages and Debugging"

This chapter provides all Connector Framework-specific error messages and debugging information.

1

Using Connector Web Services Interfaces

This chapter discusses the usage of the Connector Framework interfaces in the following sections:

Connector Framework Overview

The Enterprise Manager Connector Framework extends Enterprise Manager by enabling bidirectional communication between Enterprise Manager and any other management framework systems, either general purpose or specialized. Through the Connector Framework, Enterprise Manager can exchange alerts or events, performance information, root cause analyses, and so forth with other management systems by utilizing their expertise areas. Through the Connector Framework, Enterprise Manager can also delegate management operations to other management systems where they have domain expertise.

The Oracle Enterprise Manager 10g Grid Control Connector Framework 1.0.0.0.0 provides web services interfaces, enabling you to send requests to a connector to perform the following tasks:

- Query Enterprise Manager data through a unified web services interface.
- Request Enterprise Manager to create a Real Application Clusters (RAC) database through a web services interface.
- Request Enterprise Manager to add nodes to or delete nodes from existing RAC databases through a web services interface.

Universal Limitations

The following universal limitations apply to this release of the Connector Framework.

- Only CFS and ASM storage types are currently supported.
- Only one disk group is currently permitted. Consequently, you need to disable flash_recovery when manually installing RAC.
- The Connector Framework only supports English in the Enterprise Manager credential user name, Oracle Clusterware/RAC AggregateTarget name, and node target name.
- The system integrated with Enterprise Manager through the Connector Framework should create a RAC database through the software library image before it can add a node to the RAC.
- Enterprise Manager does not currently provide context-sensitive help for the Connector Framework. This feature will be supported in the future.
- The operating system credential for all the hosts in the cluster must be the same.
- After deleting a node, the deleted node must be added back first before you can add any other node.
- The first node in the RAC (the one specified in the Create RAC job) cannot be deleted through the connector.
- For the Linux platform, the user running jobs on the target machine must be in the oinstall group.
- For the Windows platform:
  - The rac_database aggregate target name and the database instance name must be in uppercase.
  - The oms_delete_all_targets property must be set to true for Delete Node jobs.
- For the Linux platform, with CFS storage, the rac_database aggregate target name must be in uppercase.

Note: For information about patches and workarounds for known issues, see the *Oracle Enteprise Manager Connector Framework Release Notes* (B31145-01).

Prerequisites

The prerequisites for the Connector Framework require that you ensure the following:

- System requirements are met.
- emcli is set up.
- Privileges are assigned for the Windows Agent.
- Images are prepared and activated.

Additionally, for security purposes, the OMS should be set up using HTTPS.

The following sections explain how you can comply with these prerequisites. Refer to "Related Documentation" on page -vi for documentation resources on setting up your enviroment.

Complying with System Requirements

The Connector Framework has the following system requirements:

- Oracle Enterprise Manager Management Server version 10.2.0.2

- Oracle Enterprise Manager Management Agent version 10.2.0.2
- Oracle Database version 10.2.0.2

Setting up emcli

For the Connector Framework to function properly, you need to set up emcli by running it as shown:

$ORACLE_HOME/bin/emcli setup –url=<OMS URL> -username=<sysman>

For the Windows OMS, log on as the oms_username in the request model, and set up emcli using the command above.

Assigning Privileges for the Windows Agent

Privileges are required for users running the Agent. For example, to set a privilege for a user/group on Windows Server 2003, do the following:

1. From the Start menu, select **All Programs**, then **Administrative Tools**, then **Local Security Policy**. The Local Security Settings window appears.
2. Double-click **Local Policies** in the left pane, then click **User Rights Assignment** under it.
3. From the list in the right pane, right-click the policy you want to assign to a user, then select **Properties**.
4. Click the **Add User or Group...** button. The Select Users or Groups dialog box appears.
5. Specify the user/group name and click **OK**.

The following sections discuss privileges for specific platforms.

Windows NT or Windows Server

For Windows NT 4.0 or Windows Server 2003, assign the following privileges for users running the Agent:

- SE_TCB_NAME / "act as part of the operating system"
- SE_ASSIGNPRIMARYTOKEN_NAME / "replace a process level token"
- SE_INCREASE_QUOTA_NAME / "increase quotas"

Assign the following privilege for all users who want to run jobs:

- SE_BATCH_LOGON_NAME/ "logon as batch user"

Windows XP

SE_TCB_NAME is no longer required to run CreateProcessAsUser, and SE_INCREASE_QUOTA_NAME has a new user-visible string. Consequently, you need to assign the following privileges:

- SE_ASSIGNPRIMARYTOKEN_NAME / "replace a process level token"
- SE_INCREASE_QUOTA_NAME / "adjust memory quotas for a process"

Assign the following privilege for all users who want to run jobs:

- SE_BATCH_LOGON_NAME/ "logon as batch user"

Preparing and Activating the Images

For the RAC provisioning operation (particularly RAC creation) to function properly, you need to prepare and activate the software library images. The following steps explain how to accomplish this:

1. The Enterprise Manager Agent must be present on the target server. In this release, you need to use one of the following methods to install the Agent on the target computer:
   - Install the Agent from the Oracle Universal Installer (OUI).
   - Download and install the Agent.
   - Push the Agent to a host by selecting the **Deployments** tab from Enterprise Manager, clicking the **Install Agent** link from the Deployments page, then clicking the **Fresh Install** link from the Agent Installation Application page.
2. Create the base of the RAC image as follows:
   a. Install the clusterware with OCR and the voting disk.
   b. Choose the software-only installation option during the database installation.
   c. Apply version 10.2.0.2 and the optional database patch for bug 4437727.
   d. Start up DBCA and select **Manage Templates**.
   e. Create a database template:
      — Uncheck **Specify Flash Recovery** and select **IFILE**.
      — You do not need to specify anything for the storage section.
3. Before using the Enterprise Manager Provisioning feature in step 4, create a directory on the Enterprise Manager computer, and set the software library path on Enterprise Manager:
   a. Select the **Deployments** tab from Enterprise Manager.
   b. Select the **Provisioning** tab.
   c. Select the **Administration** tab.
   d. Click **Add** in the Software Library Configuration section. Your input can be:
      /home/oracle/swlibs
4. Build Oracle Clusterware and Oracle Database images from that node using the Provisioning feature:
   a. Select the **Deployments** tab from Enterprise Manager.
   b. Select the **Provisioning** tab.
   c. Click **Create Component**. The Create Component wizard appears and guides you through five steps.
      Note that the Files to Exclude for the Oracle Clusterware image are: *.log, *.err, *.out, *.trc, and those for the Oracle Database image are: *.log, *.dbf, sqlnet.ora, tnsnames.ora, listener.ora, and oratab.
5. Activate the images:
   a. Select the **Deployments** tab from Enterprise Manager.
   b. Select the **Provisioning** tab.

c. From the Components tab, select an image and click **Activate** to activate the image. Repeat this step for each image you want to activate.

Installing the Connector Framework

You install the Connector Framework to the OMS home. The $ORACLE_HOME in the procedure below refers to the OMS home.

To download and install the Connector Framework, do the following:

1. Download the Connector Framework installable files from OTN by clicking **Downloads**, then **Enterprise Manager**.
2. Stop OMS by running:

   $ORACLE_HOME/opmn/bin/opmnctl stopall
3. Start the Oracle Universal Installer (OUI) by running the following command:

   For Linux or Unix:

   $ORACLE_HOME/oui/bin/runInstaller

   For Windows:

   $ORACLE_HOME\oui\bin\setup
4. When prompted by OUI, locate products.xml in the installation source directory:

   connectors/framework/10.2.0.2/1.0/source/Disk1/stage
5. Follow the instructions in the OUI screens.
6. Access the Enterprise Manager web console from one of the following URLs:

   http://*server:port*/em/connector/ManagementService

   https://server:port/em/connector/ManagementService

Uninstalling the Connector Framework

The Connector Framework is installed to the OMS home. The $ORACLE_HOME in the procedure below refers to the OMS home. To uninstall the Connector Framework, do the following:

1. Stop OMS by running:

   $ORACLE_HOME/opmn/bin/opmnctl stopall
2. Start the Oracle Universal Installer (OUI) by running the following command:

   For Linux or Unix:

   $ORACLE_HOME/oui/bin/runInstaller

   For Windows:

   $ORACLE_HOME\oui\bin\setup
3. Click **Deinstall Products...**, open the list under OMS home, then open the list under the connector to be uninstalled.
4. Select the connector to be uninstalled and **Connector Framework 1.0.0.0.0** under it, then click the **Remove…** button.
5. Click **Yes** for confirmation, then exit OUI.

6. Manually delete the following section from $ORACLE_HOME/j2ee/OC4J_EM/applications/em/em/WEB-INF/web.xml:

Example 1–1 Code for Management Service Interface for Connector Framework

```
<description>Management Service Interface for Connector Framework</description>
  <servlet>
    <servlet-name>ManagementService</servlet-name>
    <servlet-class>oracle.j2ee.ws.StatelessJavaRpcWebService</servlet-class>
    <init-param>
      <param-name>class-name</param-name>
      <param-value>oracle.sysman.connector.base.mgmtsvc.
                   ManagementServiceImpl</param-value>
    </init-param>
    <init-param>
      <param-name>interface-name</param-name>
      <param-value>oracle.sysman.connector.base.mgmtsvc.
                   IManagementService</param-value>
    </init-param>
  </servlet>
  <servlet-mapping>
    <servlet-name>ManagementService</servlet-name>
    <url-pattern>/connector/ManagementService</url-pattern>
  </servlet-mapping>
  <session-config>
    <session-timeout>35</session-timeout>
  </session-config>
  <mime-mapping>
    <extension>html</extension>
    <mime-type>text/html</mime-type>
  </mime-mapping>
  <mime-mapping>
    <extension>txt</extension>
    <mime-type>text/plain</mime-type>
  </mime-mapping>
```

7. Start OMS by running:

   $ORACLE_HOME/opmn/bin/opmnctl startall

Generating the Web Service Client Stub

To integrate your system with Enterprise Manager through the web services the Connector Framework exposes, you can generate a stub client from the WSDL file, which you can obtain from the following site:

http://server:port/em/connector/ManagementService?wsdl

Connector Interfaces

The Connector Framework uses models for requests and responses. A request model describes either a query or a desired state of the system. A response model describes the information related to the query or the current state of the system.

The Connector Framework exposes the following interfaces through web services:

- **getModel** — Intended for query operations.

- **setModel** — Intended for provisioning operations.

The following sections describe concepts and constructs used in these models.

Target Types

Model and aggregate target types are provided for Connector Framework integration. Table 1–1 shows the model target types and provides a description for each type.

Table 1–1 Model Target Types

Target Type	Description
host	Host target.
oracle_database	Single database instance target.
oracle_emrep	Management Services and Repository target.
oracle_emd	Enterprise Manager Agent target.
osm_instance	ASM instance target.
oracle_listener	Listener target.

Table 1–2 shows the aggregate target types and provides a description for each type.

Table 1–2 Model Aggregate Target Types

Target Type	Description
cluster	Oracle Clusterware target.
rac_database	Cluster database target.

Property Elements

Property elements are name-value pairs. To set properties, you can insert a value as shown in Example 1–2:

Example 1–2 Setting Properties

```
<Property>
     <Name>diskList</Name>
     <Value>/dev/raw/raw3</Value>
</Property>
```

To query properties, you should set xsi:nil="true" as shown in Example 1–3:

Example 1–3 Querying Properties

```
<Property>
     <Name>status</Name>
     <Value>xsi:nil="true"</Value>
</Property>
```

Note that the property "host" is returned as a <Host/> element instead of a <Property/> element in the response model. See Chapter 2, "Reference Tables" for more querying properties.

Target Lists

You can obtain lists of targets in the Enterprise Manager repository and members of an aggregate target.

Example 1–4 shows how you can query for the list of targets in the Enterprise Manager repository:

Example 1–4 Querying for the List of Targets

```
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.oracle.com/sysman/connector/msi EMModel.xsd"
xmlns="http://xmlns.oracle.com/sysman/connector/msi">
<RequestHeader>
   <RequestID>Test ID</RequestID>
   <Source>Test Source</Source>
   <Destination>Oracle</Destination>
 </RequestHeader>
 <Credential>
   <Name>sysman</Name>
   <Password>sysman</Password>
 </Credential>
 <Target>
   <Name>*</Name>
   <Type>*</Type>
   <Host>*</Host>
 </Target>
</EMModel>
```

Example 1–5 shows how you can query for members of an aggregate target:

Example 1–5 Querying for Members of an Aggregate Target

```
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.oracle.com/sysman/connector/msi EMModel.xsd"
xmlns="http://xmlns.oracle.com/sysman/connector/msi">
<RequestHeader>
    <RequestID>Test ID</RequestID>
   <Source>Test Source</Source>
   <Destination>Oracle</Destination>
 </RequestHeader>
 <Credential>
   <Name>sysman</Name>
   <Password>sysman</Password>
 </Credential>
 <AggregateTarget>
<Name>rac</Name>
<Type>rac_database</Type>
 <Target>
   <Name>*</Name>
   <Type>*</Type>
   <Host>*</Host>
 </Target>
</AggregateTarget>
</EMModel>
```

Request and Response Model Schema

Example 1–6 shows the EMModel.xsd schema that applies to all request and response models.

Example 1–6 EMModel.xsd Request and Response Model Schema

```
<?xml version="1.0" encoding="UTF-8" ?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
            xmlns="http://xmlns.oracle.com/sysman/connector/base/msi"
            elementFormDefault="qualified">
 <xsd:simpleType name="Name">
  <xsd:restriction base="xsd:string"/>
 </xsd:simpleType>
 <xsd:simpleType name="Type">
  <xsd:restriction base="xsd:string"/>
 </xsd:simpleType>
 <xsd:simpleType name="TargetType">
  <xsd:restriction base="xsd:string"/>
 </xsd:simpleType>
 <xsd:simpleType name="AggregateTargetType">
  <xsd:restriction base="xsd:string">
   <xsd:enumeration value="cluster"/>
   <xsd:enumeration value="rac_database"/>
  </xsd:restriction>
 </xsd:simpleType>
 <xsd:simpleType name="Host">
  <xsd:restriction base="xsd:string"/>
 </xsd:simpleType>
 <xsd:simpleType name="Username">
  <xsd:restriction base="xsd:string"/>
 </xsd:simpleType>
 <xsd:simpleType name="Password">
  <xsd:restriction base="xsd:string"/>
 </xsd:simpleType>
 <xsd:simpleType name="Value">
  <xsd:restriction base="xsd:string"/>
 </xsd:simpleType>
<xsd:simpleType name="RequestID">
  <xsd:restriction base="xsd:string"/>
 </xsd:simpleType>
 <xsd:complexType name="Credential">
  <xsd:sequence>
   <xsd:element name="Name" type="Username"/>
   <xsd:element name="Password" type="Password"/>
  </xsd:sequence>
 </xsd:complexType>
 <xsd:complexType name="Threshold">
  <xsd:sequence>
   <xsd:element name="ColumnName" type="xsd:string"/>
   <xsd:element name="Operator" type="xsd:string"/>
   <xsd:element name="WarningValue" type="Value" minOccurs="0"/>
   <xsd:element name="CriticalValue" type="Value" minOccurs="0"/>
   <xsd:element name="Response" type="xsd:string" minOccurs="0"/>
   <xsd:element name="Occurrences" type="xsd:int"/>
</xsd:sequence>
 </xsd:complexType>
 <xsd:complexType name="Metric">
  <xsd:sequence>
   <xsd:element name="Name" type="Name"/><!-- for example, ECM or regular. -->
   <xsd:element name="Type" type="Type"/>
```

```
   <xsd:element name="Threshold" type="Threshold" minOccurs="0"
maxOccurs="unbounded"/>
  </xsd:sequence>
 </xsd:complexType>
 <xsd:complexType name="Property">
  <xsd:sequence>
   <xsd:element name="Name" type="Name"/>
   <xsd:element name="Value" type="Value" nillable="true"/>
  </xsd:sequence>
 </xsd:complexType>
 <xsd:complexType name="ComplexProperty">
  <xsd:sequence>
   <xsd:element name="Type" type="Type"/>
   <xsd:element name="Property" type="Property" maxOccurs="unbounded"/>
  </xsd:sequence>
 </xsd:complexType>
 <xsd:complexType name="RequestHeader">
  <xsd:sequence>
   <xsd:element name="RequestID" type="RequestID"/>
   <xsd:element name="Source" type="Name"/>
   <xsd:element name="Destination" type="Name"/>
   <xsd:element name="RequestProperty" type="ComplexProperty" minOccurs="0"/>
  </xsd:sequence>
 </xsd:complexType>
 <xsd:complexType name="StorageType">
  <xsd:sequence>
   <xsd:element name="Type">
    <xsd:simpleType>
     <xsd:restriction base="xsd:string">
      <xsd:enumeration value="CFS"/>
      <xsd:enumeration value="ASM"/>
      <xsd:enumeration value="RAW"/>
     </xsd:restriction>
    </xsd:simpleType>
   </xsd:element>
   <xsd:element name="Property" type="Property" maxOccurs="unbounded"/>
  </xsd:sequence>
 </xsd:complexType>
 <xsd:complexType name="Job">
  <xsd:sequence>
   <xsd:element name="JobId" type="xsd:string"/>
   <xsd:element name="Target" type="Target" maxOccurs="unbounded" minOccurs="0"/>
   <xsd:element name="JobStatus" type="xsd:int" nillable="true" minOccurs="0"/>
   <xsd:element name="Property" type="Property" minOccurs="0"
maxOccurs="unbounded"/>
   <xsd:element name="Parameter" type="Property" minOccurs="0"
maxOccurs="unbounded"/>
  </xsd:sequence>
 </xsd:complexType>
 <xsd:complexType name="Target">
  <xsd:sequence>
   <xsd:element name="Name" type="Name"/>
   <xsd:element name="Type" type="TargetType"/>
   <xsd:element name="Host" type="Host" minOccurs="0"/>
   <xsd:element name="Storage" type="StorageType" minOccurs="0"/>
   <xsd:element name="Credential" type="Credential" minOccurs="0"/>
   <xsd:element name="Property" type="Property" minOccurs="0"
maxOccurs="unbounded"/>
   <xsd:element name="ComplexProperty" type="ComplexProperty"
maxOccurs="unbounded" minOccurs="0"/>
```

```
   <xsd:element name="Metric" type="Metric" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
 </xsd:complexType>
 <xsd:complexType name="AggregateTarget">
  <xsd:sequence>
   <xsd:element name="Name" type="Name"/>
   <xsd:element name="Type" type="AggregateTargetType"/><!-- for Aggregate target,
the host is not required. -->
   <xsd:element name="Host" type="Host" minOccurs="0"/>
   <xsd:element name="Storage" type="StorageType" minOccurs="0"/>
   <xsd:element name="Credential" type="Credential" minOccurs="0"/>
   <xsd:element name="Target" type="Target" minOccurs="1" maxOccurs="unbounded"/>
   <xsd:element name="Property" type="Property" minOccurs="0"
maxOccurs="unbounded"/>
   <xsd:element name="ComplexProperty" type="ComplexProperty"
maxOccurs="unbounded" minOccurs="0"/>
   <xsd:element name="Metric" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
 </xsd:complexType>
 <xsd:element name="EMModel">
  <xsd:annotation>
   <xsd:documentation>EM Model in integration.
   </xsd:documentation>
  </xsd:annotation>
  <xsd:complexType>
<xsd:sequence minOccurs="1">
    <xsd:element name="RequestHeader" type="RequestHeader"/>
    <xsd:element name="Credential" minOccurs="1" type="Credential"/>
    <xsd:element name="Job" type="Job" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="AggregateTarget" minOccurs="0" maxOccurs="unbounded"
type="AggregateTarget"/>
    <xsd:element name="Target" minOccurs="0" maxOccurs="unbounded" type="Target"/>
   </xsd:sequence>
  </xsd:complexType>
 </xsd:element>
</xsd:schema>
```

getModel Interface

For this query model, according to the request, the connector fills the empty properties with values and returns a filled XML You can query more than one property in one request.

Example 1–7 shows how you can query the JobStatus property of a job target. For release 1.0.0.0.0, the JobStatus and Output properties are returned regardless of which properties are requested.

Example 1–7 Querying the Job Status (Request)

```
<?xml version="1.0" encoding="UTF-8" ?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>JOBSTATUSQUERY0123456789</RequestID>
    <Source>JP</Source>
    <Destination>Oracle</Destination>
  </RequestHeader>
  <Credential>
    <Name>sysman</Name>
    <Password>welcome1</Password>
```

```
  </Credential>
  <Job>
    <JobId>1294ADF5443F9B67E0408EDB0B497568</JobId>
    <Property>
      <Name>JobStatus</Name>
      <Value xsi:nil="true" />
    </Property>
  <!--  <Property>
      <Name>output</Name>
      <Value xsi:nil="true"></Value>
    </Property> -->
  </Job>
</EMModel>
```

Example 1–8 shows how you can query the database target properties by sending a request.

Example 1–8 Querying Database Target Properties (Request)

```
<?xml version='1.0' encoding='UTF-8'?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>DBQUERY0123456789</RequestID>
    <Source>source</Source>
    <Destination>Oracle</Destination>
  </RequestHeader>
  <Credential>
    <Name>sysman</Name>
    <Password>welcome1</Password>
  </Credential>
  <Target>
    <Name>rac33_rac331</Name>
    <Type>oracle_database</Type>
    <!--general properties-->
    <Property>
      <Name>status</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>monitoring agent</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>host</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>homepage</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>version</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
```

```
    <Property>
      <Name>oracle home</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>critical alerts</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>warning alerts</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>critical policy violations</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>warning policy violations</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>compliance score</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>last load time</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <!--db properties-->
    <Property>
      <Name>instance name</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>listener</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>is archiving</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>is flashback logging</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
  </Target>
</EMModel>
```

The code for the following query targets is similar to querying the database target (Example 1–8), except that the target types would be different. See Table 1–1 and Table 1–2 for proper target types.

Example 1–9 shows the response you receive when you query the database target properties.

Example 1–9 Querying Database Target Properties (Response)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<ns0:EMModel xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ns0="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
   <ns0:RequestHeader>
      <ns0:RequestID>DBQUERY0123456789</ns0:RequestID>
      <ns0:Source>Oracle</ns0:Source>
      <ns0:Destination>source</ns0:Destination>
   </ns0:RequestHeader>
   <ns0:Credential>
      <ns0:Name>*</ns0:Name>
      <ns0:Password>*</ns0:Password>
   </ns0:Credential>
   <ns0:Target>
      <ns0:Name>rac33_rac331</ns0:Name>
      <ns0:Type>oracle_database</ns0:Type>
      <ns0:Host>bjx33</ns0:Host>
      <ns0:Property>
         <ns0:Name>is archiving</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>monitoring agent</ns0:Name>
         <ns0:Value>https://bjx33:3872/emd/main/</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical alerts</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical policy violations</ns0:Name>
         <ns0:Value>1</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>homepage</ns0:Name>
         <ns0:Value>/em/console/database/instance/sitemap?type=
          oracle_database&amp;target=rac33_rac331&amp;event=doLoad</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>last load time</ns0:Name>
         <ns0:Value>1153085627000</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>compliance score</ns0:Name>
         <ns0:Value>0.9580851063829787</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>warning policy violations</ns0:Name>
         <ns0:Value>9</ns0:Value>
      </ns0:Property>
      <ns0:Property>
```

```
            <ns0:Name>status</ns0:Name>
            <ns0:Value>1</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>is flashback logging</ns0:Name>
            <ns0:Value>0</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>instance name</ns0:Name>
            <ns0:Value>rac331</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>version</ns0:Name>
            <ns0:Value>10.2.0.1.0</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>warning alerts</ns0:Name>
            <ns0:Value>1</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>oracle home</ns0:Name>
            <ns0:Value>/home/oracle/oracle/product/10.2.0/db_1</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>listener</ns0:Name>
            <ns0:Value>LISTENER_BJX33_bjx33</ns0:Value>
         </ns0:Property>
      </ns0:Target>
</ns0:EMModel>
```

Example 1–10 shows how you can query the Listener properties by sending a request.

Example 1–10 Querying Listener Properties (Request)

```
<?xml version='1.0' encoding='UTF-8'?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>DBQUERY0123456789</RequestID>
    <Source>source</Source>
    <Destination>Oracle</Destination>
  </RequestHeader>
  <Credential>
    <Name>sysman</Name>
    <Password>welcome1</Password>
  </Credential>
  <Target>
    <Name>LISTENER_BJX33_bjx33</Name>
    <Type>oracle_listener</Type>
    <!--general properties-->
    <Property>
      <Name>status</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>monitoring agent</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
```

```
<Property>
  <Name>homepage</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>oracle home</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>critical alerts</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>warning alerts</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>critical policy violations</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>warning policy violations</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>compliance score</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>last load time</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<!--listener properties-->
<Property>
  <Name>alias</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>net address</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>listener.ora location</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>start time</Name>
  <Value xsi:nil="true">
  </Value>
```

```
    </Property>
  </Target>
</EMModel>
```

Example 1–11 shows the response you receive when you query the Listener properties.

Example 1–11 Querying Listener Properties (Response)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<ns0:EMModel xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ns0="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
   <ns0:RequestHeader>
      <ns0:RequestID>DBQUERY0123456789</ns0:RequestID>
      <ns0:Source>Oracle</ns0:Source>
      <ns0:Destination>source</ns0:Destination>
   </ns0:RequestHeader>
   <ns0:Credential>
      <ns0:Name>*</ns0:Name>
      <ns0:Password>*</ns0:Password>
   </ns0:Credential>
   <ns0:Target>
      <ns0:Name>LISTENER_BJX33_bjx33</ns0:Name>
      <ns0:Type>oracle_listener</ns0:Type>
      <ns0:Host>bjx33</ns0:Host>
      <ns0:Property>
         <ns0:Name>monitoring agent</ns0:Name>
         <ns0:Value>https://bjx33:3872/emd/main/</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical alerts</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>start time</ns0:Name>
         <ns0:Value>16-JUL-2006 23:18:20</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical policy violations</ns0:Name>
         <ns0:Value>2</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>homepage</ns0:Name>
         <ns0:Value>/em/console/net/lsnr/home?type=
          oracle_listener&amp;amp;target=LISTENER_BJX33_bjx33</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>last load time</ns0:Name>
         <ns0:Value>1153086286000</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>compliance score</ns0:Name>
         <ns0:Value>0.9367741935483871</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>warning policy violations</ns0:Name>
         <ns0:Value>2</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>status</ns0:Name>
```

```
            <ns0:Value>1</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>alias</ns0:Name>
            <ns0:Value>LISTENER_BJX33</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>net address</ns0:Name>
            <ns0:Value>(ADDRESS=(PROTOCOL=TCP)
             (HOST=219.142.73.17)(PORT=1521))</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>warning alerts</ns0:Name>
            <ns0:Value>0</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>oracle home</ns0:Name>
            <ns0:Value>/home/oracle/oracle/product/10.2.0/db_1</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>listener.ora location</ns0:Name>
            <ns0:Value>/home/oracle/oracle/product/
             10.2.0/db_1/network/admin</ns0:Value>
         </ns0:Property>
      </ns0:Target>
</ns0:EMModel>
```

Example 1–12 shows how you can query the host properties by sending a request.

Example 1–12 Querying Host Properties (Request)

```
<?xml version='1.0' encoding='UTF-8'?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
 <RequestHeader>
   <RequestID>DBQUERY0123456789</RequestID>
   <Source>source</Source>
   <Destination>Oracle</Destination>
 </RequestHeader>
 <Credential>
   <Name>sysman</Name>
   <Password>welcome1</Password>
 </Credential>
 <Target>
   <Name>cdcjp19.cn.oracle.com</Name>
   <Type>host</Type>
   <!--general properties-->
   <Property>
     <Name>status</Name>
     <Value xsi:nil="true">
     </Value>
   </Property>
   <Property>
     <Name>monitoring agent</Name>
     <Value xsi:nil="true">
     </Value>
   </Property>
   <Property>
     <Name>homepage</Name>
     <Value xsi:nil="true">
```

```
      </Value>
    </Property>
    <Property>
      <Name>version</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>critical alerts</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>warning alerts</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>critical policy violations</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>warning policy violations</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>compliance score</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>last load time</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <!--host properties-->
    <Property>
      <Name>cluster</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>cpu utilization</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>memory utilization</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>total io rate</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
  </Target>
</EMModel>
```

Example 1–13 shows the response you receive when you query the host properties.

Example 1–13 Querying Host Properties (Response)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<ns0:EMModel xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ns0="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
   <ns0:RequestHeader>
      <ns0:RequestID>DBQUERY0123456789</ns0:RequestID>
      <ns0:Source>Oracle</ns0:Source>
      <ns0:Destination>source</ns0:Destination>
   </ns0:RequestHeader>
   <ns0:Credential>
      <ns0:Name>*</ns0:Name>
      <ns0:Password>*</ns0:Password>
   </ns0:Credential>
   <ns0:Target>
      <ns0:Name>cdcjp19.cn.oracle.com</ns0:Name>
      <ns0:Type>host</ns0:Type>
      <ns0:Host>cdcjp19.cn.oracle.com</ns0:Host>
      <ns0:Property>
         <ns0:Name>monitoring agent</ns0:Name>
         <ns0:Value>https://cdcjp19.cn.oracle.com:3872/emd/main/</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical alerts</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical policy violations</ns0:Name>
         <ns0:Value>5</ns0:Value>
      </ns0:Property>
     <ns0:Property>
         <ns0:Name>homepage</ns0:Name>
         <ns0:Value>/em/console/monitoring/hostOverview$type=host$target=
          cdcjp19.cn.oracle.com</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>last load time</ns0:Name>
         <ns0:Value>1153125579000</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>compliance score</ns0:Name>
         <ns0:Value>0.755</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>total io rate</ns0:Name>
         <ns0:Value>29.72</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>warning policy violations</ns0:Name>
         <ns0:Value>2</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>status</ns0:Name>
         <ns0:Value>1</ns0:Value>
      </ns0:Property>
      <ns0:Property>
```

```
         <ns0:Name>version</ns0:Name>
         <ns0:Value>Red Hat Enterprise Linux AS release 4 (Nahant Update 3)
         </ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>memory utilization</ns0:Name>
         <ns0:Value>0.9767</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>warning alerts</ns0:Name>
         <ns0:Value>4</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>cpu utilization</ns0:Name>
         <ns0:Value>0.0161</ns0:Value>
      </ns0:Property>
   </ns0:Target>
</ns0:EMModel>
```

Example 1–14 shows how you can query the Agent properties by sending a request.

Example 1–14 Querying Agent Properties (Request)

```
<?xml version='1.0' encoding='UTF-8'?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>DBQUERY0123456789</RequestID>
    <Source>source</Source>
    <Destination>Oracle</Destination>
  </RequestHeader>
  <Credential>
    <Name>sysman</Name>
    <Password>welcome1</Password>
  </Credential>
  <Target>
    <Name>bjx33:3872</Name>
    <Type>oracle_emd</Type>
    <!--general properties-->
    <Property>
      <Name>status</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>monitoring agent</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>host</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>homepage</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
```

```
      <Name>version</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>oracle home</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>critical alerts</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>warning alerts</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>critical policy violations</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>warning policy violations</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>last load time</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <!--agent properties-->
    <Property>
      <Name>management service</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
  </Target>
</EMModel>
```

Example 1–15 shows the response you receive when you query the Agent properties.

Example 1–15 Querying Agent Properties (Response)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<ns0:EMModel xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ns0="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
   <ns0:RequestHeader>
      <ns0:RequestID>DBQUERY0123456789</ns0:RequestID>
      <ns0:Source>Oracle</ns0:Source>
      <ns0:Destination>source</ns0:Destination>
   </ns0:RequestHeader>
   <ns0:Credential>
      <ns0:Name>*</ns0:Name>
      <ns0:Password>*</ns0:Password>
   </ns0:Credential>
```

```
   <ns0:Target>
      <ns0:Name>bjx33:3872</ns0:Name>
      <ns0:Type>oracle_emd</ns0:Type>
      <ns0:Host>bjx33</ns0:Host>
      <ns0:Property>
         <ns0:Name>monitoring agent</ns0:Name>
         <ns0:Value>https://bjx33:3872/emd/main/</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>management service</ns0:Name>
         <ns0:Value>cdcjp19.cn.oracle.com:1159</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>warning alerts</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical alerts</ns0:Name>
         <ns0:Value>1</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>last load time</ns0:Name>
         <ns0:Value>1153084611000</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>homepage</ns0:Name>
         <ns0:Value>/em/console/admin/rep/emdConfig/emdTargetsMain$type=
          oracle*_emd$target=bjx33_3A3872</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical policy violations</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>oracle home</ns0:Name>
         <ns0:Value>/home/oracle/OracleHomes/agent10g</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>status</ns0:Name>
         <ns0:Value>1</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>warning policy violations</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>version</ns0:Name>
         <ns0:Value>10.2.0.1.0</ns0:Value>
      </ns0:Property>
   </ns0:Target>
</ns0:EMModel>
```

Example 1–16 shows how you can query Enterprise Manager Repository properties by sending a request.

Example 1–16 Querying Enterprise Manager Repository Properties (Request)

```
<?xml version='1.0' encoding='UTF-8'?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
```

```
<RequestHeader>
  <RequestID>DBQUERY0123456789</RequestID>
  <Source>source</Source>
  <Destination>Oracle</Destination>
</RequestHeader>
<Credential>
  <Name>sysman</Name>
  <Password>welcome1</Password>
</Credential>
<Target>
  <Name>Management Services and Repository</Name>
  <Type>oracle_emrep</Type>
  <!--general properties-->
  <Property>
    <Name>status</Name>
    <Value xsi:nil="true">
    </Value>
  </Property>
  <Property>
    <Name>monitoring agent</Name>
    <Value xsi:nil="true">
    </Value>
  </Property>
  <Property>
    <Name>host</Name>
    <Value xsi:nil="true">
    </Value>
  </Property>
  <Property>
    <Name>homepage</Name>
    <Value xsi:nil="true">
    </Value>
  </Property>
  <Property>
    <Name>critical alerts</Name>
    <Value xsi:nil="true">
    </Value>
  </Property>
  <Property>
    <Name>warning alerts</Name>
    <Value xsi:nil="true">
    </Value>
  </Property>
  <Property>
    <Name>critical policy violations</Name>
    <Value xsi:nil="true">
    </Value>
  </Property>
  <Property>
    <Name>warning policy violations</Name>
    <Value xsi:nil="true">
    </Value>
  </Property>
  <Property>
    <Name>last load time</Name>
    <Value xsi:nil="true">
    </Value>
  </Property>
  <!--em properties-->
  <Property>
```

```
      <Name>agent count</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>target count</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>administrator count</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>session count</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>database</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>tablespace</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>oms</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
  </Target>
</EMModel>
```

Example 1–17 shows the response you receive when you query the Enterprise Manager Repository.

Example 1–17 Querying Enterprise Manager Repository Properties (Response)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<ns0:EMModel xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ns0="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
   <ns0:RequestHeader>
      <ns0:RequestID>DBQUERY0123456789</ns0:RequestID>
      <ns0:Source>Oracle</ns0:Source>
      <ns0:Destination>source</ns0:Destination>
   </ns0:RequestHeader>
   <ns0:Credential>
      <ns0:Name>*</ns0:Name>
      <ns0:Password>*</ns0:Password>
   </ns0:Credential>
   <ns0:Target>
      <ns0:Name>Management Services and Repository</ns0:Name>
      <ns0:Type>oracle_emrep</ns0:Type>
      <ns0:Host>cdcjp19.cn.oracle.com</ns0:Host>
      <ns0:Property>
```

```
      <ns0:Name>target count</ns0:Name>
      <ns0:Value>31</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>agent count</ns0:Name>
      <ns0:Value>4</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>monitoring agent</ns0:Name>
      <ns0:Value>https://cdcjp19.cn.oracle.com:3872/emd/main/</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>administrator count</ns0:Name>
      <ns0:Value>4</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>session count</ns0:Name>
      <ns0:Value>15</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>critical alerts</ns0:Name>
      <ns0:Value>0</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>critical policy violations</ns0:Name>
      <ns0:Value>0</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>homepage</ns0:Name>
      <ns0:Value>/em/console/health/healthHome$type=oracle*_emrep$target=
       Management_20Services_20and_20Repository</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>last load time</ns0:Name>
      <ns0:Value>1153109200000</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>warning policy violations</ns0:Name>
      <ns0:Value>0</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>status</ns0:Name>
      <ns0:Value>1</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>tablespace</ns0:Name>
      <ns0:Value>MGMT_ECM_DEPOT_TS</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>tablespace</ns0:Name>
      <ns0:Value>MGMT_TABLESPACE</ns0:Value>
   </ns0:Property>
   <ns0:Property>
      <ns0:Name>warning alerts</ns0:Name>
      <ns0:Value>0</ns0:Value>
   </ns0:Property>
   <ns0:ComplexProperty>
      <ns0:Type>oms</ns0:Type>
      <ns0:Property>
         <ns0:Name>files pending load</ns0:Name>
```

```
            <ns0:Value>0</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>oldest load file</ns0:Name>
            <ns0:Value>0</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>load directory</ns0:Name>
            <ns0:Value>/home/oracle/OracleHomes/oms10g/sysman/recv</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>status</ns0:Name>
            <ns0:Value>1</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>name</ns0:Name>
            <ns0:Value>cdcjp19.cn.oracle.com:4889_Management_Service</ns0:Value>
         </ns0:Property>
      </ns0:ComplexProperty>
      <ns0:ComplexProperty>
         <ns0:Type>database</ns0:Type>
         <ns0:Property>
            <ns0:Name>type</ns0:Name>
            <ns0:Value>oracle_database</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>name</ns0:Name>
            <ns0:Value>emrep.cn.oracle.com</ns0:Value>
         </ns0:Property>
      </ns0:ComplexProperty>
   </ns0:Target>
</ns0:EMModel>
```

Example 1–18 shows how you can query the RAC properties by sending a request.

Example 1–18 Querying RAC Properties (Request)

```
<?xml version='1.0' encoding='UTF-8'?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>CLUSTERDBQUERY0123456789</RequestID>
    <Source>source</Source>
    <Destination>Oracle</Destination>
  </RequestHeader>
  <Credential>
    <Name>sysman</Name>
    <Password>welcome1</Password>
  </Credential>
  <Target>
    <Name>rac33</Name>
    <Type>rac_database</Type>
    <!--general properties-->
    <Property>
      <Name>status</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>monitoring agent</Name>
```

```
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>host</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>homepage</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>version</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>oracle home</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>critical alerts</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>warning alerts</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>critical policy violations</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>warning policy violations</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>compliance score</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
  <Name>last load time</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<!--cluster database properties-->
<Property>
  <Name>cluster</Name>
  <Value xsi:nil="true">
  </Value>
</Property>
<Property>
```

```
      <Name>database name</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>is archiving</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
  </Target>
</EMModel>
```

Example 1–19 shows the response you receive when you query the RAC properties.

Example 1–19 Querying RAC Properties (Response)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<ns0:EMModel xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ns0="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
   <ns0:RequestHeader>
      <ns0:RequestID>CLUSTERDBQUERY0123456789</ns0:RequestID>
      <ns0:Source>Oracle</ns0:Source>
      <ns0:Destination>source</ns0:Destination>
   </ns0:RequestHeader>
   <ns0:Credential>
      <ns0:Name>*</ns0:Name>
      <ns0:Password>*</ns0:Password>
   </ns0:Credential>
   <ns0:Target>
      <ns0:Name>rac33</ns0:Name>
      <ns0:Type>rac_database</ns0:Type>
      <ns0:Host>bjx33</ns0:Host>
      <ns0:Property>
         <ns0:Name>is archiving</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>monitoring agent</ns0:Name>
         <ns0:Value>https://bjx33:3872/emd/main/</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>database name</ns0:Name>
         <ns0:Value>rac33</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical alerts</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical policy violations</ns0:Name>
         <ns0:Value>9</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>homepage</ns0:Name>
         <ns0:Value>/em/console/rac/racSitemap?event=doLoad&amp;
          type=rac_database&amp;target=rac33</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>last load time</ns0:Name>
```

```
            <ns0:Value>1153084601000</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>compliance score</ns0:Name>
            <ns0:Value>0.8763636363636365</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>warning policy violations</ns0:Name>
            <ns0:Value>2</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>status</ns0:Name>
            <ns0:Value>1</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>cluster</ns0:Name>
            <ns0:Value>crs33</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>version</ns0:Name>
            <ns0:Value>10.2.0.1.0</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>warning alerts</ns0:Name>
            <ns0:Value>0</ns0:Value>
         </ns0:Property>
         <ns0:Property>
            <ns0:Name>oracle home</ns0:Name>
            <ns0:Value>/home/oracle/oracle/product/10.2.0/db_1</ns0:Value>
         </ns0:Property>
      </ns0:Target>
</ns0:EMModel>
```

Example 1–20 shows how you can query the Oracle Clusterware properties by sending a request.

Example 1–20 Querying Oracle Clusterware Properties (Request)

```
<?xml version='1.0' encoding='UTF-8'?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>CLUSTERQUERY0123456789</RequestID>
    <Source>source</Source>
    <Destination>Oracle</Destination>
  </RequestHeader>
  <Credential>
    <Name>sysman</Name>
    <Password>welcome1</Password>
  </Credential>
  <Target>
    <Name>crs33</Name>
    <Type>cluster</Type>
    <!--general properties-->
    <Property>
      <Name>status</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
```

```
      <Name>monitoring agent</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>homepage</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>version</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>oracle home</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>critical alerts</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>warning alerts</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>critical policy violations</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>warning policy violations</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <Property>
      <Name>last load time</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
    <!--cluster properties-->
    <Property>
      <Name>cluster database</Name>
      <Value xsi:nil="true">
      </Value>
    </Property>
  </Target>
</EMModel>
```

Example 1–21 shows the response you receive when you query the Oracle Clusterware properties.

Example 1–21 Querying Oracle Clusterware Properties (Response)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<ns0:EMModel xmlns:xsd="http://www.w3.org/2001/XMLSchema"
```

```
xmlns:ns0="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
   <ns0:RequestHeader>
      <ns0:RequestID>CLUSTERQUERY0123456789</ns0:RequestID>
      <ns0:Source>Oracle</ns0:Source>
      <ns0:Destination>source</ns0:Destination>
   </ns0:RequestHeader>
   <ns0:Credential>
      <ns0:Name>*</ns0:Name>
      <ns0:Password>*</ns0:Password>
   </ns0:Credential>
   <ns0:Target>
      <ns0:Name>crs33</ns0:Name>
      <ns0:Type>cluster</ns0:Type>
      <ns0:Host>bjx33</ns0:Host>
      <ns0:Property>
         <ns0:Name>monitoring agent</ns0:Name>
         <ns0:Value>https://bjx33:3872/emd/main/</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>cluster database</ns0:Name>
         <ns0:Value>rac33</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>warning alerts</ns0:Name>
         <ns0:Value>6</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical alerts</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>last load time</ns0:Name>
         <ns0:Value>1153084469000</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>homepage</ns0:Name>
         <ns0:Value>/em/console/rac/cluster/racClusterSitemap?event=
             doLoad&amp;amp;type=cluster&amp;amp;target=crs33</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>critical policy violations</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>oracle home</ns0:Name>
         <ns0:Value>/home/oracle/oracle/product/10.2.0/crs</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>status</ns0:Name>
         <ns0:Value>1</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>warning policy violations</ns0:Name>
         <ns0:Value>0</ns0:Value>
      </ns0:Property>
      <ns0:Property>
         <ns0:Name>version</ns0:Name>
         <ns0:Value>2.1</ns0:Value>
      </ns0:Property>
```

```
   </ns0:Target>
</ns0:EMModel>
```

setModel Interface

For this provisioning model, the connector compares the state described in the request model with the current state of the system and decides what action to take. If the request is valid, the operation is taken asynchronously. A job ID is immediately returned to the requester. The requester can use the job ID to query the job status later.

The setModel API supports the following provisioning operations:

- Create a RAC
- Add a node to an existing RAC
- Delete a node from an existing RAC

Prerequisites for the Windows OMS

For the setModel jobs to succeed on Windows OMS, you need to change the Log On property for the Oracleagent10gAgent service from Local System Account to oms_username/oms_password as specified in the request model. For example, to change the Log On property for Windows Server 2003, do the following:

1. From the Start menu, select **All Programs**, then **Administrative Tools**, then **Services**.
2. Right-click **Oracleagent10gAgent** in the list of services, then select **Properties**.
3. Select the **Log On** tab, then select **This account**.
4. Enter the oms_username and oms_password to be specified in your setModel request model, then click **OK**.
5. Right-click **Oracleagent10gAgent** in the list of services and click **Stop**.
6. Right-click **Oracleagent10gAgent** in the list of services and click **Start**.

Creating a RAC

Example 1–22 and Example 1–23 show how to send a request to the connector to create a one-node RAC with the following parameters:

- Enterprise Manager Host Target Name — bjx33.cn.oracle.com
- One-node RAC Name — RAC33
- Cluster Name — CRS33
- Instance Name — RAC33_RAC331
- Storage Type — ASM
- Language — Japanese

Note: The default target name for a RAC instance in Enterprise Manager is <rac_name>_<rac_instance_name>. In Example 1–22 and Example 1–23, the Enterprise Manager target name is RAC33_RAC331. The Connector Framework uses this default naming rule. Make sure that you pass the correct target name in the request.

Example 1–22 Creating a One-node RAC (Linux platform with ASM storage)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>INITIALCREATION1234567890</RequestID>
    <Source>Oracle</Source>
    <Destination>Oracle</Destination>
    <RequestProperty>
      <Type>Singleton</Type>
      <Property>
        <Name>Platform</Name>
        <Value>Linux</Value>
      </Property>
    </RequestProperty>
  </RequestHeader>
  <Credential>
    <Name>sysman</Name>
    <Password>welcome1</Password>
  </Credential>
  <AggregateTarget>
    <Name>CRS33</Name>
    <Type>cluster</Type>
    <Target>
      <Name>bjx33.cn.oracle.com</Name>
      <Type>host</Type>
      <Host>bjx33.cn.oracle.com</Host>
      <Credential>
        <Name>oracle</Name>
        <Password>welcome1</Password>
      </Credential>
      <Property>
        <Name>CRS_HOME</Name>
        <Value>/home/oracle/oracle/product/10.2.0/crs</Value>
      </Property>
      <Property>
        <Name>ORACLE_HOME_NAME</Name>
        <Value>OraCrs10g_home</Value>
      </Property>
      <Property>
        <Name>publicNode</Name>
        <Value>bjx33</Value>
      </Property>
      <Property>
        <Name>privateNode</Name>
        <Value>bjx33-priv</Value>
      </Property>
      <Property>
        <Name>vipNode</Name>
        <Value>bjx33-vip</Value>
      </Property>
    </Target>
    <Property>
      <Name>softwareImageName</Name>
      <Value>crs33</Value>
    </Property>
    <Property>
      <Name>s_ocrpartitionlocation</Name>
      <Value>/dev/raw/raw6</Value>
    </Property>
```

```
  <Property>
    <Name>s_votingdisklocation</Name>
    <Value>/dev/raw/raw11</Value>
  </Property>
</AggregateTarget>
<AggregateTarget>
  <Name>RAC33</Name>
  <Type>rac_database</Type>
  <Storage>
    <Type>ASM</Type>
    <Property>
        <Name>diskGroupName</Name>
        <Value>DATA33</Value>
    </Property>
    <Property>
        <Name>diskList</Name>
        <Value>/dev/raw/raw2</Value>
    </Property>
    <Property>
        <Name>redundancy</Name>
        <Value>external</Value>
    </Property>
    <Property>
        <Name>asmPassword</Name>
        <Value>welcome1</Value>
    </Property>
  </Storage>
  <Target>
    <Name>RAC33_RAC331</Name>
    <Type>oracle_database</Type>
    <Host>bjx33.cn.oracle.com</Host>
    <Credential>
      <Name>oracle</Name>
      <Password>welcome1</Password>
    </Credential>
    <Property>
      <Name>ORACLE_HOME</Name>
      <Value>/home/oracle/oracle/product/10.2.0/db_1</Value>
    </Property>
    <Property>
      <Name>ORACLE_HOME_NAME</Name>
      <Value>OraDb10g_home1</Value>
    </Property>
    <Property>
      <Name>db_username</Name>
      <Value>sys</Value>
    </Property>
    <Property>
      <Name>db_password</Name>
      <Value>welcome1</Value>
    </Property>
    <Property>
      <Name>oms_username</Name>
      <Value>oracle</Value>
    </Property>
    <Property>
      <Name>oms_password</Name>
      <Value>welcome1</Value>
    </Property>
  </Target>
```

```
    <Property>
      <Name>templateName</Name>
      <Value>General_Purpose.dbc</Value>
    </Property>
    <Property>
      <Name>gdbName</Name>
      <Value>RAC33</Value>
    </Property>
    <Property>
      <Name>sid</Name>
      <Value>RAC33</Value>
    </Property>
    <Property>
      <Name>characterSet</Name>
      <Value>JA16EUC</Value>
    </Property>
    <Property>
      <Name>nationalCharacterSet</Name>
      <Value>AL16UTF16</Value>
    </Property>
    <Property>
      <Name>initParams</Name>
      <Value>nls_territory=japan,nls_language=japanese</Value>
    </Property>
    <Property>
      <Name>softwareImageName</Name>
      <Value>db33</Value>
    </Property>
  </AggregateTarget>
</EMModel>
```

Note that for the Windows platform job shown in Example 1–23 , the connector creates the C:\temp directory on the target computer if it does not already exist when running the Create RAC job.

Example 1–23 Creating a One-node RAC (Windows platform with CFS storage)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<EMModel xmlns="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.oracle.com/sysman/connector/base/msi/EMModel.xsd"
>
   <RequestHeader>
      <RequestID>RACCreation</RequestID>
      <Source>ORACLE</Source>
      <Destination>Oracle</Destination>
      <RequestProperty>
         <Type>Singleton</Type>
         <Property>
            <Name>Platform</Name>
            <Value>Windows</Value>
         </Property>
      </RequestProperty>
   </RequestHeader>
   <Credential>
      <Name>sysman</Name>
      <Password>welcome1</Password>
   </Credential>
   <AggregateTarget>
      <Name>CRS33</Name>
```

```
      <Type>cluster</Type>
      <Target>
         <Name>bjx33.cn.oracle.com</Name>
         <Type>host</Type>
         <Host>bjx33.cn.oracle.com</Host>
         <Credential>
            <Name>oracle</Name>
            <Password>welcome1</Password>
         </Credential>
         <Property>
            <Name>CRS_HOME</Name>
            <Value>D:\oracle\product\10.2.0\crs</Value>
         </Property>
         <Property>
            <Name>ORACLE_HOME_NAME</Name>
            <Value>OraCrs10g_home</Value>
         </Property>
         <Property>
            <Name>publicNode</Name>
            <Value>bjx33</Value>
         </Property>
         <Property>
            <Name>privateNode</Name>
            <Value>bjx33-priv</Value>
         </Property>
         <Property>
            <Name>vipNode</Name>
            <Value>bjx33-vip</Value>
         </Property>
      </Target>
      <Property>
         <Name>softwareImageName</Name>
         <Value>cfs10202</Value>
      </Property>
      <Property>
         <Name>RESPONSEFILE_VERSION</Name>
         <Value>2.2.1.0.0</Value>
      </Property>
      <Property>
         <Name>sl_OHPartitionsAndSpace_valueFromDlg</Name>
         <Value>{"1","1","10000","1","I:","3"}</Value>
      </Property>
      <Property>
         <Name>ret_PrivIntrList</Name>
         <Value>{"Public:219.142.73.0:1","Interconnect:10.0.0.0:2"}</Value>
      </Property>
   </AggregateTarget>
   <AggregateTarget>
      <Name>RAC33</Name>
      <Type>rac_database</Type>
      <Storage>
         <Type>CFS</Type>
         <Property>
            <Name>datafileDestination</Name>
            <Value>I:</Value>
         </Property>
      </Storage>
      <Target>
         <Name>RAC33_RAC331</Name>
         <Type>oracle_database</Type>
```

```
            <Host>bjx33.cn.oracle.com</Host>
            <Credential>
               <Name>oracle</Name>
               <Password>welcome1</Password>
            </Credential>
            <Property>
               <Name>ORACLE_HOME</Name>
               <Value>D:\oracle\product\10.2.0\db_1</Value>
            </Property>
            <Property>
               <Name>ORACLE_HOME_NAME</Name>
               <Value>OraDb10g_home1</Value>
            </Property>
            <Property>
               <Name>db_username</Name>
               <Value>sys</Value>
            </Property>
            <Property>
               <Name>db_password</Name>
               <Value>welcome1</Value>
            </Property>
            <Property>
               <Name>oms_username</Name>
               <Value>oracle</Value>
            </Property>
            <Property>
               <Name>oms_password</Name>
               <Value>welcome1</Value>
            </Property>
         </Target>
         <Property>
            <Name>templateName</Name>
            <Value>cfs10202.dbc</Value>
         </Property>
         <Property>
            <Name>gdbName</Name>
            <Value>RAC16</Value>
         </Property>
         <Property>
            <Name>sid</Name>
            <Value>RAC16</Value>
         </Property>
         <Property>
            <Name>characterSet</Name>
            <Value>JA16EUC</Value>
         </Property>
         <Property>
            <Name>nationalCharacterSet</Name>
            <Value>AL16UTF16</Value>
         </Property>
         <Property>
            <Name>initParams</Name>
            <Value>nls_territory=japan,nls_language=japanese</Value>
         </Property>
         <Property>
            <Name>softwareImageName</Name>
            <Value>cfsdb10202</Value>
         </Property>
      </AggregateTarget>
   </EMModel>
```

Example 1–24 shows that the response model will have a job ID for this request.

Example 1–24 Job ID in CreateRAC Response Model

```
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>INITIALCREATION1234567890</RequestID>
    <Source>JP</Source>
    <Destination>Oracle</Destination>
  </RequestHeader>
  <Credential>
    <Name>*</Name>
    <Password>*</Password>
  </Credential>
  <Job>
    <JobId>12320443534534534543</JobId>
    <JobStatus>2</JobStatus>
  </Job>
</EMModel>
```

Note: A job can be executed more than once. To query the status and output of a particular execution, you need both the job ID and execution ID. In this release, the Connector Framework always submits a one-time job, so the job ID is sufficient to query the status and output of the job. In most cases, the job ID is the same as the execution ID.

Adding a Node to an Existing RAC

Example 1–25 and Example 1–26 build on the one-node RAC (RAC33) in Example 1–22 and Example 1–23 by adding another host. Example 1–25 and Example 1–26 show how to send a request to the connector to create a two-node RAC with the following parameters:

- Enterprise Manager Host Target Name — bjx32.cn.oracle.com
- Instance Name — RAC33_RAC332

For an Add Node job, although the value of the s_ocrpartitionlocation and s_votingdisklocation properties specified in the cluster <AggregateTarget> are not used, you still need to specify them. You can set them to the same value as the Create RAC job.

<Storage> is required for an Add Node job if the storage type is ASM. This is not required for other storage types. When the storage type is ASM, only the asmPassword property is required in the request model for the Add Node job.

Example 1–25 Adding a Node to an Existing RAC (Linux platform with ASM storage)

```
<?xml version='1.0' encoding='UTF-8'?>
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>ADDNODE1234567890</RequestID>
    <Source>JP</Source>
    <Destination>Oracle</Destination>
```

```
  <RequestProperty>
    <Type>Singleton</Type>
    <Property>
      <Name>Platform</Name>
      <Value>Linux</Value>
    </Property>
  </RequestProperty>
</RequestHeader>
<Credential>
  <Name>sysman</Name>
  <Password>welcome1</Password>
</Credential>
<AggregateTarget>
  <Name>CRS33</Name>
  <Type>cluster</Type>
  <Target>
    <Name>bjx33.cn.oracle.com</Name>
    <Type>host</Type>
    <Host>bjx33.cn.oracle.com</Host>
    <Credential>
      <Name>oracle</Name>
      <Password>welcome1</Password>
    </Credential>
    <Property>
      <Name>CRS_HOME</Name>
      <Value>/home/oracle/oracle/product/10.2.0/crs</Value>
    </Property>
    <Property>
      <Name>publicNode</Name>
      <Value>bjx33</Value>
    </Property>
  </Target>
  <Target>
    <Name>bjx32.cn.oracle.com</Name>
    <Type>host</Type>
    <Host>bjx32.cn.oracle.com</Host>
    <Credential>
      <Name>oracle</Name>
      <Password>welcome1</Password>
    </Credential>
    <Property>
      <Name>CRS_HOME</Name>
      <Value>/home/oracle/oracle/product/10.2.0/crs</Value>
    </Property>
    <Property>
      <Name>ORACLE_HOME_NAME</Name>
      <Value>OraCrs10g_home</Value>
    </Property>
    <Property>
      <Name>publicNode</Name>
      <Value>bjx32</Value>
    </Property>
    <Property>
      <Name>privateNode</Name>
      <Value>bjx32-priv</Value>
    </Property>
    <Property>
      <Name>vipNode</Name>
      <Value>bjx32-vip</Value>
    </Property>
```

```
  </Target>
  <Property>
    <Name>s_ocrpartitionlocation</Name>
    <Value>/dev/raw/raw6</Value>
  </Property>
  <Property>
    <Name>s_votingdisklocation</Name>
    <Value>/dev/raw/raw11</Value>
  </Property>
</AggregateTarget>
<AggregateTarget>
  <Name>RAC33</Name>
  <Type>rac_database</Type>
  <Storage>
    <Type>ASM</Type>
    <Property>
        <Name>asmPassword</Name>
        <Value>welcome1</Value>
    </Property>
  </Storage>
  <Target>
    <Name>RAC33_RAC331</Name>
    <Type>oracle_database</Type>
    <Host>bjx33.cn.oracle.com</Host>
    <Credential>
      <Name>oracle</Name>
      <Password>welcome1</Password>
    </Credential>
    <Property>
      <Name>ORACLE_HOME</Name>
      <Value>/home/oracle/oracle/product/10.2.0/db_1</Value>
    </Property>
  </Target>
  <Target>
    <Name>RAC33_RAC332</Name>
    <Type>oracle_database</Type>
    <Host>bjx32.cn.oracle.com</Host>
    <Credential>
      <Name>oracle</Name>
      <Password>welcome1</Password>
    </Credential>
    <Property>
      <Name>ORACLE_HOME</Name>
      <Value>/home/oracle/oracle/product/10.2.0/db_1</Value>
    </Property>
    <Property>
      <Name>ORACLE_HOME_NAME</Name>
      <Value>OraDb10g_home1</Value>
    </Property>
    <Property>
      <Name>db_username</Name>
      <Value>sys</Value>
    </Property>
    <Property>
      <Name>db_password</Name>
      <Value>welcome1</Value>
    </Property>
    <Property>
      <Name>oms_username</Name>
      <Value>oracle</Value>
```

```
      </Property>
      <Property>
        <Name>oms_password</Name>
        <Value>welcome1</Value>
      </Property>
    </Target>
  </AggregateTarget>
</EMModel>
```

Note that for the Windows platform job shown in Example 1–26 , the connector creates the C:\temp directory on the target computer if it does not already exist when running the Create RAC job.

Example 1–26 Adding a Node to an Existing RAC (Windows platform with CFS storage)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<EMModel xmlns="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.oracle.com/sysman/connector/base/msi/EMModel.xsd"
>
   <RequestHeader>
      <RequestID>RACAddNode</RequestID>
      <Source>Oracle</Source>
      <Destination>Oracle</Destination>
      <RequestProperty>
         <Type>Singleton</Type>
         <Property>
            <Name>Platform</Name>
            <Value>Windows</Value>
         </Property>
      </RequestProperty>
   </RequestHeader>
   <Credential>
      <Name>sysman</Name>
      <Password>welcome1</Password>
   </Credential>
   <AggregateTarget>
      <Name>CRS33</Name>
      <Type>cluster</Type>
      <Target>
         <Name>bjx33.cn.oracle.com</Name>
         <Type>host</Type>
         <Host>bjx33.cn.oracle.com</Host>
         <Credential>
            <Name>oracle</Name>
            <Password>welcome1</Password>
         </Credential>
         <Property>
            <Name>publicNode</Name>
            <Value>bjx33</Value>
         </Property>
         <Property>
            <Name>CRS_HOME</Name>
            <Value>d:\oracle\product\10.2.0\crs</Value>
         </Property>
      </Target>
      <Target>
         <Name>bjx32.cn.oracle.com</Name>
         <Type>host</Type>
         <Host>bjx32.cn.oracle.com</Host>
```

```
      <Credential>
         <Name>oracle</Name>
         <Password>welcome1</Password>
      </Credential>
      <Property>
         <Name>CRS_HOME</Name>
         <Value>d:\oracle\product\10.2.0\crs</Value>
      </Property>
      <Property>
         <Name>ORACLE_HOME_NAME</Name>
         <Value>OraCrs10g_home</Value>
      </Property>
      <Property>
         <Name>publicNode</Name>
         <Value>bjx32</Value>
      </Property>
      <Property>
         <Name>privateNode</Name>
         <Value>bjx32-priv</Value>
      </Property>
      <Property>
         <Name>vipNode</Name>
         <Value>bjx32-vip</Value>
      </Property>
   </Target>
   <Property>
      <Name>RESPONSEFILE_VERSION</Name>
      <Value>2.2.1.0.0</Value>
   </Property>
   <Property>
      <Name>sl_OHPartitionsAndSpace_valueFromDlg</Name>
      <Value>{"1","1","10000","1","I:","3"}</Value>
   </Property>
   <Property>
      <Name>ret_PrivIntrList</Name>
      <Value>{"Public:219.142.73.0:1","Interconnect:10.0.0.0:2"}</Value>
   </Property>
</AggregateTarget>
<AggregateTarget>
   <Name>RAC33</Name>
   <Type>rac_database</Type>
   <Target>
      <Name>RAC33_RAC331</Name>
      <Type>oracle_database</Type>
      <Host>bjx33.cn.oracle.com</Host>
      <Credential>
         <Name>oracle</Name>
         <Password>welcome1</Password>
      </Credential>
      <Property>
         <Name>ORACLE_HOME</Name>
         <Value>d:\oracle\product\10.2.0\db_1</Value>
      </Property>
   </Target>
   <Target>
      <Name>RAC33_RAC332</Name>
      <Type>oracle_database</Type>
      <Host>bjx32.cn.oracle.com</Host>
      <Credential>
         <Name>oracle</Name>
```

```
            <Password>welcome1</Password>
         </Credential>
         <Property>
            <Name>ORACLE_HOME</Name>
            <Value>d:\oracle\product\10.2.0\db_1</Value>
         </Property>
         <Property>
            <Name>ORACLE_HOME_NAME</Name>
            <Value>OraDb10g_home1</Value>
         </Property>
         <Property>
            <Name>db_username</Name>
            <Value>sys</Value>
         </Property>
         <Property>
            <Name>db_password</Name>
            <Value>welcome1</Value>
         </Property>
         <Property>
           <Name>oms_username</Name>
           <Value>oracle</Value>
         </Property>
         <Property>
           <Name>oms_password</Name>
           <Value>welcome1</Value>
         </Property>
      </Target>
   </AggregateTarget>
</EMModel>
```

Example 1–27 shows that the response model will have a job ID for the request.

Example 1–27 Job ID in ExtentRAC Response Model

```
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>ADDNODE1234567890</RequestID>
    <Source>JP</Source>
    <Destination>Oracle</Destination>
  </RequestHeader>
  <Credential>
    <Name>*</Name>
    <Password>*</Password>
  </Credential>
  <Job>
    <JobId>12320443534534534543</JobId>
    <JobStatus>2</JobStatus>
  </Job>
</EMModel>
```

Deleting a Node from an Existing RAC

Example 1–28 and Example 1–29 show how to send a request to the connector to remove the second node that was added in Example 1–25 and Example 1–26.

Note: When deleting an inaccessible node, an initialization error appears for steps S3 and S5. You can ignore these errors, which are caused by inaccessible targets.

Example 1–28 Scaling a Two-node RAC to a One-node RAC (Linux platform with ASM storage)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<EMModel xmlns="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.oracle.com/sysman/connector/base/msi/EMModel.xsd"
>
   <RequestHeader>
      <RequestID>DeleteNode</RequestID>
      <Source>Oracle</Source>
      <Destination>Oracle</Destination>
      <RequestProperty>
         <Type>Singleton</Type>
         <Property>
            <Name>Platform</Name>
            <Value>Linux</Value>
         </Property>
      </RequestProperty>
   </RequestHeader>
   <Credential>
      <Name>sysman</Name>
      <Password>welcome1</Password>
   </Credential>
   <AggregateTarget>
      <Name>CRS33</Name>
      <Type>cluster</Type>
      <Target>
         <Name>bjx33.cn.oracle.com</Name>
         <Type>host</Type>
         <Host>bjx33.cn.oracle.com</Host>
         <Property>
            <Name>CRS_HOME</Name>
            <Value>/home/oracle/oracle/product/10.2.0/crs</Value>
         </Property>
      </Target>
   </AggregateTarget>
   <AggregateTarget>
      <Name>RAC33</Name>
      <Type>rac_database</Type>
      <Target>
         <Name>RAC33_RAC331</Name>
         <Type>oracle_database</Type>
         <Host>bjx33.cn.oracle.com</Host>
         <Credential>
            <Name>oracle</Name>
            <Password>welcome1</Password>
         </Credential>
         <Property>
            <Name>ORACLE_HOME</Name>
            <Value>/home/oracle/oracle/product/10.2.0/db_1</Value>
         </Property>
         <Property>
            <Name>db_username</Name>
            <Value>sys</Value>
```

```
         </Property>
         <Property>
            <Name>db_password</Name>
            <Value>welcome1</Value>
         </Property>
         <Property>
            <Name>oms_username</Name>
            <Value>oracle</Value>
         </Property>
         <Property>
            <Name>oms_password</Name>
            <Value>welcome1</Value>
         </Property>
      </Target>
   </AggregateTarget>
</EMModel>
```

Example 1–29 Scaling a Two-node RAC to a One-node RAC (Windows platform with CFS storage)

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<EMModel xmlns="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.oracle.com/sysman/connector/base/msi/EMModel.xsd"
>
   <RequestHeader>
      <RequestID>DeleteNode</RequestID>
      <Source>Oracle</Source>
      <Destination>Oracle</Destination>
      <RequestProperty>
         <Type>Singleton</Type>
         <Property>
            <Name>Platform</Name>
            <Value>Windows</Value>
         </Property>
      </RequestProperty>
   </RequestHeader>
   <Credential>
      <Name>sysman</Name>
      <Password>welcome1</Password>
   </Credential>
   <AggregateTarget>
      <Name>CRS33</Name>
      <Type>cluster</Type>
      <Target>
         <Name>bjx33.cn.oracle.com</Name>
         <Type>host</Type>
         <Host>bjx33.cn.oracle.com</Host>
         <Property>
            <Name>CRS_HOME</Name>
            <Value>d:\oracle\product\10.2.0\crs</Value>
         </Property>
      </Target>
   </AggregateTarget>
   <AggregateTarget>
      <Name>RAC33</Name>
      <Type>rac_database</Type>
      <Target>
         <Name>RAC33_RAC331</Name>
```

```
            <Type>oracle_database</Type>
            <Host>bjx33.cn.oracle.com</Host>
            <Credential>
               <Name>oracle</Name>
               <Password>welcome1</Password>
            </Credential>
            <Property>
               <Name>ORACLE_HOME</Name>
               <Value>d:\oracle\product\10.2.0\db_1</Value>
            </Property>
            <Property>
               <Name>db_username</Name>
               <Value>sys</Value>
            </Property>
            <Property>
               <Name>db_password</Name>
               <Value>welcome1</Value>
            </Property>
            <Property>
               <Name>oms_username</Name>
               <Value>oracle</Value>
            </Property>
            <Property>
               <Name>oms_password</Name>
               <Value>welcome1</Value>
            </Property>
         </Target>
         <Property>
            <Name>oms_delete_all_targets</Name>
            <Value>true</Value>
         </Property>
      </AggregateTarget>
</EMModel>
```

Example 1–30 shows that the response model will have a job ID for the request.

Example 1–30 Job ID in Delete Node Response Model

```
<EMModel xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xmlns="http://xmlns.oracle.com/sysman/connector/base/msi">
  <RequestHeader>
    <RequestID>DELETENODE1234567890</RequestID>
    <Source>JP</Source>
    <Destination>Oracle</Destination>
  </RequestHeader>
  <Credential>
    <Name>*</Name>
    <Password>*</Password>
  </Credential>
  <Job>
    <JobId>12320443534534534543</JobId>
    <JobStatus>2</JobStatus>
  </Job>
</EMModel>
```

Handling an Error Case

When an error occurs after you submit a request model, an error code is returned in the <RequestHeader/> of the response model. See Table 3–1 for the cause of the error

and how to fix it. Example 1–31 shows what occurs when you send a delete node job request to a three-node RAC. Error code CNTR - 0015 appears, which means that the action is not supported and you should delete one node.

Example 1–31 Attempting to Scale a Three-node RAC to a One-node RAC

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<EMModel xmlns="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.oracle.com/sysman/connector/base/msi/EMModel.xsd"
>
   <RequestHeader>
      <RequestID>DeleteNode</RequestID>
      <Source>Oracle</Source>
      <Destination>Oracle</Destination>
      <RequestProperty>
         <Type>Singleton</Type>
         <Property>
            <Name>Platform</Name>
            <Value>Windows</Value>
         </Property>
      </RequestProperty>
   </RequestHeader>
   <Credential>
      <Name>sysman</Name>
      <Password>welcome1</Password>
   </Credential>
   <AggregateTarget>
      <Name>CRS33</Name>
      <Type>cluster</Type>
      <Target>
         <Name>bjx33.cn.oracle.com</Name>
         <Type>host</Type>
         <Host>bjx33.cn.oracle.com</Host>
         <Property>
            <Name>CRS_HOME</Name>
            <Value>d:\oracle\product\10.2.0\crs</Value>
         </Property>
      </Target>
   </AggregateTarget>
   <AggregateTarget>
      <Name>RAC33</Name>
      <Type>rac_database</Type>
      <Target>
         <Name>RAC33_RAC331</Name>
         <Type>oracle_database</Type>
         <Host>bjx33.cn.oracle.com</Host>
         <Credential>
            <Name>oracle</Name>
            <Password>welcome1</Password>
         </Credential>
         <Property>
            <Name>ORACLE_HOME</Name>
            <Value>d:\oracle\product\10.2.0\db_1</Value>
         </Property>
         <Property>
            <Name>db_username</Name>
            <Value>sys</Value>
         </Property>
         <Property>
```

```
            <Name>db_password</Name>
            <Value>welcome1</Value>
         </Property>
         <Property>
            <Name>oms_username</Name>
            <Value>oracle</Value>
         </Property>
         <Property>
            <Name>oms_password</Name>
            <Value>welcome1</Value>
         </Property>
      </Target>
      <Property>
         <Name>oms_delete_all_targets</Name>
         <Value>true</Value>
      </Property>
   </AggregateTarget>
</EMModel>
```

Example 1–32 shows the response model for Example 1–31.

Example 1–32 Response Model for a Three-node RAC to a One-node RAC

```
<?xml version = '1.0' encoding = 'UTF-8'?>
<ns0:EMModel xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ns0="http://xmlns.oracle.com/sysman/connector/base/msi"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ns0:RequestHeader>
    <ns0:RequestID>DeleteNode</ns0:RequestID>
    <ns0:Source>Oracle</ns0:Source>
    <ns0:Destination>Oracle</ns0:Destination>
    <ns0:RequestProperty>
      <ns0:Type>Error</ns0:Type>
      <ns0:Property>
        <ns0:Name>Message</ns0:Name>
        <ns0:Value>CNTR-0015</ns0:Value>
      </ns0:Property>
    </ns0:RequestProperty>
  </ns0:RequestHeader>
  <ns0:Credential>
    <ns0:Name>******</ns0:Name>
    <ns0:Password>******</ns0:Password>
  </ns0:Credential>
  <ns0:AggregateTarget>
    <ns0:Name>CRS33</ns0:Name>
    <ns0:Type>cluster</ns0:Type>
    <ns0:Target>
      <ns0:Name>bjx33.cn.oracle.com</ns0:Name>
      <ns0:Type>host</ns0:Type>
      <ns0:Host>bjx33.cn.oracle.com</ns0:Host>
      <ns0:Property>
        <ns0:Name>CRS_HOME</ns0:Name>
        <ns0:Value>d:\oracle\product\10.2.0\crs</ns0:Value>
      </ns0:Property>
    </ns0:Target>
  </ns0:AggregateTarget>
  <ns0:AggregateTarget>
    <ns0:Name>RAC33</ns0:Name>
    <ns0:Type>rac_database</ns0:Type>
    <ns0:Target>
```

```
        <ns0:Name>RAC33_RAC331</ns0:Name>
        <ns0:Type>oracle_database</ns0:Type>
        <ns0:Host>bjx33.cn.oracle.com</ns0:Host>
        <ns0:Credential>
          <ns0:Name>oracle</ns0:Name>
          <ns0:Password>welcome1</ns0:Password>
        </ns0:Credential>
        <ns0:Property>
          <ns0:Name>ORACLE_HOME</ns0:Name>
          <ns0:Value>d:\oracle\product\10.2.0\db_1</ns0:Value>
        </ns0:Property>
           <ns0:Property>
              <ns0:Name>db_username</ns0:Name>
              <ns0:Value>sys</ ns0:Value>
           </ns0:Property>
           <ns0:Property>
              <ns0:Name>db_password</ns0:Name>
              <ns0:Value>welcome1</ns0:Value>
           </ns0:Property>
           <ns0:Property>
              <ns0:Name>oms_username</ns0:Name>
              <ns0:Value>oracle</ns0:Value>
           </ns0:Property>
           <ns0:Property>
              <ns0:Name>oms_password</ns0:Name>
              <ns0:Value>welcome1</ns0:Value>
           </ns0:Property>
      </ns0:Target>
    </ns0:AggregateTarget>
  </ns0:EMModel>
```

2

Reference Tables

This chapter provides tabular reference information for connectors. The following sections provide reference tables for the following categories:

- Request Attributes
- Queryable Properties
- Complex Response Properties
- Status Codes

This chapter also provides information about the response file properties that the Create RAC and Add Node jobs generate for the Windows platform.

Request Attributes

The tables in this section provide query paths, descriptions, and data types for the following property types:

- setModel Request
- Request Header
- Create RAC
- Add Node
- Delete Node

Table 2–1 provides path types, descriptions, and data types for setModel request elements.

Table 2–1 setModel Request Elements

Path Type	Description	Data Type
<EMModel xmlns:xsi=http://www.w3.org/2001/XMLSchema-instance xmlns="**http://xmlns.oracle.com/sysman/connector/base/msi**">	EMModel element.	Complex Type
<RequestHeader/>	The request header. See Table 2–2.	Complex Type
<Credential>	The credential for Enterprise Manager.	Complex Type
<Name>sysman</Name>	User name.	String
<Password>welcome1</Password>	Password.	String

Table 2–1 (Cont.) setModel Request Elements

Path Type	Description	Data Type
</Credential>	End of Credential.	Complex Type
<AggregateTarget>	EMModel should contain two aggregate targets: one of type cluster, and one of type rac_database. This aggregate target is of type cluster. It contains information about the cluster.	Complex Type
<Name>CRS30</Name>	Name of the cluster.	String
<Type>cluster</Type>	Type of the aggregate target.	String (enumeration: "cluster" "rac_database"
<Target>	The number of targets in the cluster aggregate target should be the same as the number of hosts in the cluster. Each target element contains information about a host in the cluster.	Complex Type
<Name>bjx30</Name>	Name of the host.	String
<Type>host</Type>	Target type. In the cluster aggregate target, it should be set to "host."	String
<Host>bjx30</Host>	Name of the host.	String
<Credential>	Credential of the host.	Complex Type
<Name>oracle</Name>	User name.	String
<Password>welcome1 </Password>	Password.	String
</Credential>	End of Credential.	Complex Type
<Property/>	Property of the target. See the corresponding table in this section for the properties of the "host" target type.	Complex Type
</Target>	End of Target.	Complex Type
<Property/>	Property of the cluster aggregate target. See the corresponding table in this section for the properties of the "cluster" aggregate target type.	Complex Type
</AggregateTarget>	End of AggregateTarget.	Complex Type
<AggregateTarget>	EMModel should contain two aggregate targets: one of type cluster and one of type rac_database. This aggregate target is of type rac_database. It contains information about the RAC.	Complex Type
<Name>RAC30</Name>	Name of the RAC database.	String (length <=8)
<Type>rac_database</Type>	Type of the aggregate target.	String (enumeration: "cluster" or "rac_ database")
<Storage>	Storage element contains storage information for the RAC. This element can be omitted for the Add Node job request if the storage type is not ASM.	Complex Type
<Type>ASM</Type>	Type of storage.	String (enumeration: "CFS" or "ASM." "RAW" is not supported.)
<Property/>	Properties for storage. See the corresponding table in this section for the storage properties.	Complex Type
</Storage>	End of Storage.	Complex Type

Table 2–1 (Cont.) setModel Request Elements

Path Type	Description	Data Type
<Target>	The number of targets in the rac_database aggregate target should be the same as the number of database instances in the cluster database. Each target element contains information about a database instance in the RAC database.	Complex Type
<Name>RAC30_ RAC301</Name>	Name of the target, which should be in the format of <rac_name>_<rac_instance_name>.	String
<Type>oracle_ database</Type>	Target type. In the rac_database aggregate target, it should be set to "oracle_database."	String
<Host>bjx30</Host>	Name of the host.	String
<Credential>	Credential of the host.	Complex Type
<Name>oracle</Name>	User name.	String
<Password>welcome1 </Password>	Password.	String
</Credential>	End of Credential.	Complex Type
<Property/>	Property of the target. See the corresponding table in this section for the properties of the "oracle_database" target type.	Complex Type
</Target>	End of Target.	Complex Type
<Property/>	Property of the rac_database aggregate target. See the corresponding table in this section for the properties of the "rac_database" aggregate target type.	Complex Type
</AggregateTarget>	End of AggregateTarget.	Complex Type
</EMModel>	End of EMModel.	Complex Type

Table 2–2 provides path types, descriptions, and data types for request header elements.

Table 2–2 Request Header Elements

Path Type	Description	Data Type
<RequestID/>	Uniquely identifies the request. This is mainly used by the client. Enterprise Manager currently does not track this ID.	String
<Source/>	The request source, which is the request operating system.	String
<Destination/>	The destination should be Enterprise Manager in this release.	String
<RequestProperty> <Type>Singleton</Type> <Property> <Name>Platform</Name> <Value>Linux</Value> </Property> </RequestProperty>	Platform is an optional property. Specify either Linux or Windows. If you do not specify a platform, the default is Linux. The platform is only relevant in provisioning use cases.	

Table 2–3 provides target types, properties, descriptions, and data types for CreateRAC.

Table 2–3 Create RAC Properties

Target Type	Property	Description	Data Type
<Target> <Type>host</Type> </Target>	CRS_HOME	Oracle Clusterware home directory. This property must be the same for all hosts in the cluster.	String
	ORACLE_HOME_NAME	Oracle Clusterware home name. This is an optional property. The default value is the cluster aggregate target name.	String
	publicNode	Public node name.	String
	privateNode	Private node name.	String
	vipNode	Virtual node name.	String
<Target> <Type>oracle_database</Type> </Target>	ORACLE_HOME	Database home directory. This property must be the same for all database instances in the RAC database.	String
	ORACLE_HOME_NAME	Database home name. This property is optional. The default value is the rac_database aggregate target name.	String
	db_username	Database user for setting monitoring credentials. It should always be SYS in this release.	String
	db_password	Password of the database user. It is the password for SYS and SYSTEM in this release.	String
	oms_username	Oracle Management Services host operating system user name.	String
	oms_password	Oracle Management Services host operating system password.	String
<Storage> <Type>ASM</Type> </Storage>	diskGroupName	ASM disk group name.	String
	diskList	Disk device list. Use a comma (,) as a separator.	String (no space allowed)
	diskString	Search paths for ASM disks.	String (no space allowed)
	redundancy	Redundancy level.	String (enumeration: NORMAL, HIGH, or EXTERNAL)
	asmPassword	ASM SYSDBA password.	String
<Storage> <Type>CFS</Type> </Storage>	datafileDestination	Data file directory.	String

Table 2–3 (Cont.) Create RAC Properties

Target Type	Property	Description	Data Type
<AggregateTarget> <Type>cluster</Type> </AggregateTarget>	softwareImageName	Name of the software library image for the CRS home. This property is optional. The default value is the latest active software library image of type "Oracle Clusterware Clone."	String
	s_ocrpartitionlocation	OCR location. Use the comma (,) as a separator. This property is only for the Linux platform.	String (no space allowed)
	s_votingdisklocation	Voting disk location. Use the comma (,) as a separator. This property is only for the Linux platform.	String (no space allowed)
	RESPONSEFILE_VERSION	Response file version. This property is optional. The default value is 2.2.1.0.0. This property is only for the Windows platform.	String
	sl_OHPartitionsAndSpace_valueFromDlg	This property specifies the split-up of disk partitions for OCR/Vdisk locations. This property is only for the Windows platform. See Section , "Response File Properties for the Windows Platform" for more information.	String
	ret_PrivIntrList	This property specifies the interconnects to use. This property is only for the Windows platform. See Section , "Response File Properties for the Windows Platform" for more information.	String

Table 2–3 (Cont.) Create RAC Properties

Target Type	Property	Description	Data Type
<AggregateTarget> <Type>rac_database</Type> </AggregateTarget>	templateName	Database template name. This property is optional. The default value is General_ Purpose.dbc	String (file name without path)
	gdbName	Global database name. This property is optional. The default value is the rac_database aggregate target name.	String (length <=8)
	sid	Database instance name. This should be the same as gdbName in this release. This property is optional. The default value is the rac_database aggregate target name.	String (length <=8)
	characterSet	Character set. See the Database Globalization Support guide for details. This property is optional. The default value is UTF8.	String
	nationalCharacterSet	National character set. See the Database Globalization Support guide for details. This property is optional. The default value is UTF8.	String
	initParams	Raw strings for additional input. For example: nls_territory=japan,nls_ language=japanese This property is optional. The default value is: nls_lang=american,nls_ territory=american	String (no space allowed)
	softwareImageName	Name of the software library image for the database home. This property is optional. The default value is the latest active software library image of type "Oracle Database Clone."	String

Table 2–4 provides target types, properties, descriptions, and data types for Add Node for a RAC aggregate target.

Table 2–4 Add Node Properties (Storage and Aggregate Target)

Target Type	Property	Description	Data Type
<Storage> <Type>ASM</Type> </Storage>	asmPassword	ASM SYSDBA password.	String
<AggregateTarget> <Type>cluster</Type> </AggregateTarget>	s_ocrpartitionlocation	OCR location. Use the comma (,) as a separator. This property is only for the Linux platform. Set this value to be the same as the Create RAC job.	String (no space allowed)
	s_votingdisklocation	Voting disk location. Use the comma (,) as a separator. This property is only for the Linux platform. Set this value to be the same as the Create RAC job.	String (no space allowed)
	RESPONSEFILE_VERSION	Response file version. This property is optional. The default value is 2.2.1.0.0. This property is only for the Windows platform. Set this value to be the same as the Create RAC job.	String
	sl_OHPartitionsAndSpace_valueFromDlg	This property specifies the split-up of disk partitions for OCR/Vdisk locations. This property is only for the Windows platform. Set this value to be the same as the Create RAC job.	String
	ret_PrivIntrList	This property specifies the interconnects to use. This property is only for the Windows platform. Set this value to be the same as the Create RAC job.	String

Table 2–5 provides target types, properties, descriptions, and data types for Add Node for a new node.

Table 2–5 Add Node Properties (New Node)

Target Type	Property	Description	Data Type
<Target> <Type>host</Type> </Target>	CRS_HOME	Oracle Clusterware home directory. This property must be the same for all hosts in the cluster.	String
	ORACLE_HOME_NAME	Oracle Clusterware home name. This property is optional. The default value is cluster aggregate target name.	String
	publicNode	Public node name.	String
	privateNode	Private node name.	String
	vipNode	Virtual node name.	String

Table 2–5 (Cont.) Add Node Properties (New Node)

Target Type	Property	Description	Data Type
<Target> <Type>oracle_database</Type> </Target>	ORACLE_HOME	Database home directory. This property must be the same for all database instances in the RAC database.	String
	ORACLE_HOME_NAME	Database home name. This property is optional. The default value is rac_database aggregate target name.	String
	db_username	Database user name that has a SYSDBA role.	String
	db_password	Password of the user above.	String
	oms_username	Oracle Management Services host operating system user name.	String
	oms_password	Oracle Management Services host operating system password.	String

Table 2–6 provides target types, properties, descriptions, and data types for Add Node for any existing node.

Table 2–6 Add Node Properties (Any Existing Node)

Target Type	Property	Description	Data Type
<Target> <Type>host</Type> </Target>	publicNode	Public node name.	String
	CRS_HOME	Oracle Clusterware home directory. This property must be the same for all hosts in the cluster.	String
<Target> <Type>oracle_database</Type> </Target>	ORACLE_HOME	Database home directories. This property must be the same for all database instances in the RAC database.	String

Table 2–7 provides target types, properties, descriptions, and data types for Delete Node for remaining nodes.

Table 2–7 Delete Node Properties (Remaining Nodes)

Target Type	Property	Description	Data Type
<Target> <Type>host</Type> </Target>	CRS_HOME (or ORACLE_HOME)	Oracle Clusterware home directory.	String

Table 2–7 (Cont.) Delete Node Properties (Remaining Nodes)

Target Type	Property	Description	Data Type
<Target> <Type>oracle_database</Type> </Target>	ORACLE_HOME	Database home directory.	String
	db_username	Database user name that has a SYSDBA role.	String
	db_password	Password of the user above.	String
	oms_username	Oracle Management Services host operating system user name.	String
	oms_password	Oracle Management Services host operating system password.	String
<AggregateTarget> <Type>rac_database</Type> </AggregateTarget>	oms_delete_all_targets	Removes all targets on the instance host, including the host and agent. This property is optional. The default value is False.	String (enumeration: True or False)

Response File Properties for the Windows Platform

The following properties are required to generate the response file for the Create RAC and Add Node jobs on the Windows platform:

- sl_OHPartitionsAndSpace_valueFromDlg
- ret_PrivIntrList

The following sections describe each response file property.

sl_OHPartitionsAndSpace_valueFromDlg Property

This property specifies the splitting up of disk partitions for OCR/Vdisk locations. It consists of the following six values for each location:

- Disk no.
- Partition no.
- Partition Size (MB)
- Format Type
  - 0: None/RAW
  - 1: CFS for data
  - 2: CFS for software
- Drive Letter
  - N/A: RAW
  - "Available" drive letter: CFS
- Usage Type
  - 0: Data/software use ONLY
  - 1: OCR primary ONLY

- 2: Voting disk ONLY
- 3: OCR primary and voting disk on the same CFS partition
- 4: OCR mirror only
- 5: OCR mirror and voting disk on the same CFS partition

Example 1

Given the following scenario:

- OCR and the Voting Disk are on Partition-2 of Disk-1 (Partition-2 has size 10002 MB).
- The partition is CFS-formatted.
- Both OCR and the Voting Disk reside on the same partition.
- The drive letter for the partition is G:.
- There is only data storage and no software storage.

You would specify sl_OHPartitionsAndSpace_valueFromDlg as follows:

```
<Property>
    <Name>sl_OHPartitionsAndSpace_valueFromDlg</Name>
    <Value>{"1","2","10002","1","G:","3"}</Value>
</Property>
```

Example 2

Given the following scenario:

- OCR and the Voting Disk reside on different partitions.
- OCR is on Partition-1 of Disk-3, which has a size of 486 MB and is RAW-formatted.
- The Voting Disk is on Partition-1 of Disk-4, which has a size of 486 MB and is RAW-formatted.

You would specify sl_OHPartitionsAndSpace_valueFromDlg as follows:

```
<Property>
    <Name>sl_OHPartitionsAndSpace_valueFromDlg</Name>
    <Value>{"3","1","486","0","N/A","1","4","1","486","0","N/A","2"}</Value>
</Property>
```

ret_PrivIntrList Property

This property specifies the interconnects to use. You should specify entries in ret_PrivIntrList as a comma-separated list of interfaces. Each entry should be a colon-separated string with three fields. You should specify the fields as follows:

- The first field should be the interface name.
- The second field should be the subnet IP of the interface.
- The third field should indicate how Oracle Clusterware should use the interface: as a public interface, private interface, or whether it should not be used at all by the clusterware. This field should be specified as a number — 1, 2, or 3. These numbers represent the following values:
  - 1: Public

- 2: Private
- 3: Do not use

Example

Given the following scenario:

- One "Local Area Connection" public interconnect is to be used.
- One "Local Area Connection2" private interconnect is to be used.

You would specify ret_PrivIntrList as follows:

```
<Property>
    <Name>ret_PrivIntrList</Name>
    <Value>{"Local Area Connection:123.45.67.0:1","Local Area Connection
2:123.45.89.0:2"}</Value>
</Property>
```

Queryable Properties

The tables in this section provide property names, descriptions, and data types for the following types of queryable properties:

- General Target
- Oracle Database
- Oracle Listener
- Host Target
- Cluster
- Cluster Database
- Oracle Enterprise Manager Agent
- Oracle Enterprise Manager Repository Target
- Job

Table 2–8 provides property names, descriptions, and data types for general target queryable properties.

Table 2–8 General Target Properties

Query Path	Description	Data Type
Property(Name:status)	Integer status of the Enterprise Manager target instance. (See Table 2–20.)	Integer
Property(Name:monitoring agent)	Enterprise Manager target instance name (of type oracle_emd) of the Agent monitoring the Enterprise Manager target instance.	String
Property(Name:homepage)	Enterprise Manager Console home page URI (the path portion of the URL, as in /em/console?...) of the Enterprise Manager target instance.	URL
Property(Name:version)	Version of the Enterprise Manager target instance.	String
Property(Name:oracle home)	Oracle home of the Enterprise Manager target instance. The form of the directory path (path separator) is not further specified here.	String
Property(Name:critical alerts)	Number of critical alerts against the Enterprise Manager target instance.	Integer
Property(Name:warning alerts)	Number of warning alerts against the Enterprise Manager target instance.	Integer

Table 2–8 (Cont.) General Target Properties

Query Path	Description	Data Type
Property(Name:critical policy violations)	Number of critical policy violations against the Enterprise Manager target instance.	Integer
Property(Name:warning policy violations)	Number of warning policy violations against the Enterprise Manager target instance.	Integer
Property(Name:compliance score)	Compliance score as a real number between 0 and 1 (inclusive) of the Enterprise Manager target instance.	Number
Property(Name:last load time)	Last load time of the data for the target instance as the number of milliseconds since January 1, 1970, 00:00:00 GMT.	Number
Host	Enterprise Manager target instance name (of type host) of the host related to the Enterprise Manager target instance.	String

Table 2–9 provides property names, descriptions, and data types for Oracle database queryable properties. The target type for the Oracle database is oracle_database.

Table 2–9 Oracle Database Properties

Query Path	Description	Data Type
Property(Name:instance name)	Instance name of the database instance.	String
Property(Name:listener)	Listener Enterprise Manager target instance name (of type oracle_ listener) of the listener for the database instance.	String
Property(Name:is archiving)	Value is 1 if high availability archiving is on for the Oracle database instance. Otherwise, the value is 0.	Integer
Property(Name:is flashback logging)	Value is 1 if high availability flashback logging is on for the Oracle database instance. Otherwise, the value is 0.	Integer

Table 2–10 provides property names, descriptions, and data types for Oracle listener properties. The target type for the Oracle listener is oracle_listener.

Table 2–10 Oracle Listener Properties

Query Path	Description	Data Type
Property(Name:alias)	Alias of the Oracle Listener instance.	String
Property(Name:net address)	Net address of the Oracle Listener instance.	URI
Property(Name:listener.ora location)	File directory location of the listener.ora file of the Oracle Listener instance. The form of the directory path (path separator) is not further specified here.	String
Property(Name:start name)	Start time of the Oracle Listener instance. The form of this time stamp is not further specified here.	Time

Table 2–11 provides property names, descriptions, and data types for host target properties. The target type for the Host is host.

To get the targets within the domain of a cluster, first request the cluster hosts with the "Target" sub-element. Then get all the targets and filter the list by the hosts in the cluster hosts list.

Table 2–11 Host Target Properties

Query Path	Description	Data Type
Property(Name:cluster)	Enterprise Manager target instance name (of type cluster) of the cluster for this host instance.	String
Property(Name:cpu utilization)	CPU utilization as a real number between 0 and 1 (inclusive) of the host.	Number
Property(Name:memory utilization)	Memory utilization as a real number between 0 and 1 (inclusive) of the host.	Number
Property(Name:total io rate)	Total I/O per second.	Number

Table 2–12 provides property names, descriptions, and data types for cluster properties. The target type for Oracle Clusterware is cluster.

Table 2–12 Cluster Properties

Query Path	Description	Data Type
Property(Name:version)	Clusterware version. Note that this property definition just redefines the same property defined for the general target mappings.	String
Property(Name:cluster database)	Cluster databases (of type rac_database).	String
Target	Cluster hosts (of type host).	String

Table 2–13 provides property names, descriptions, and data types for cluster database properties. The target type for the Oracle cluster database is rac_database.

Table 2–13 Cluster Database Properties

Query Path	Description	Data Type
Property(Name:cluster)	Enterprise Manager target instance name (of type cluster) of the cluster for this database instance.	String
Property(Name:database name)	Database instance name.	String
Property(Name:is archiving)	Value is 1 if high availability archiving is on for the cluster database. Otherwise, the value is 0.	Integer
Target	Cluster database instance of type oracle_database.	String

Table 2–14 provides property names, descriptions, and data types for Oracle Enterprise Manager Agent properties. The target type for the Oracle Management Agent is oracle_emd.

Table 2–14 Oracle Enterprise Manager Agent Properties

Query Path	Description	Data Type
Property(Name:management service)	OMS that the Enterprise Manager Agent instance uploads to.	String

Table 2–15 provides property names, descriptions, and data types for Oracle Enterprise Manager Repository target properties. The target type for the Oracle Management Repository is oracle_emrep.

Table 2–15 Oracle Enterprise Manager Repository Target Properties

Query Path	Description	Data Type
Property(Name:agent count)	Number of Agents for this repository instance.	Integer
Property(Name:target count)	Number of targets for this repository instance.	Integer
Property(Name: administrator count)	Number of administrators for this repository instance.	Integer
Property(Name:session count)	Number of active Oracle management services repository sessions for this repository instance.	Integer
Property(Name:Integer)	Enterprise Manager database target instance(s) of the database(s) for this repository instance. This property is expanded into complex property elements in the response as described in Table 2–18. They are keyed by the "name" and "value" sub-properties.	String
Property(Name:tablespace)	Expands to the tablespace(s) used in the database for this repository instance.	String
Property(Name:oms)	OMSs for this Enterprise Manager repository. This property is expanded into complex property elements in the response as described in Table 2–17. They are keyed by the "name" sub-properties.	String

Table 2–16 provides property names, descriptions, and data types for job properties.

Table 2–16 Job Properties

Query Path	Description	Data Type
JobStatus	Integer status (see Table 2–20) of the most recent execution of the job.	Integer
Property(Name:output)	Last 1024 characters of the job output for the last step of the most recent job execution.	String

Complex Response Properties

The tables in this section provide property names, descriptions, and data types for the following complex properties returned in the response model to the query requests:

- Oracle Management Service (OMS)
- Database instance

Table 2–17 provides property names, descriptions, and data types for the Oracle Management Service. The type of the complex property is OMS.

Table 2–17 Oracle Management Service (OMS) Complex Property

Query Path	Description	Data Type
ComplexProperty(Type:oms). Property(Name:name)	OMS name.	String
ComplexProperty(Type:oms). Property(Name:status)	OMS service status (1 for up or 0 for down) for the OMS given by the peer "name" property.	Integer
ComplexProperty(Type:oms). Property(Name:last error)	Time of the last OMS error as the number of milliseconds since January 1, 1970, 00:00:00 GMT, for the OMS given by the peer "name" property.	Number

Table 2–17 (Cont.) Oracle Management Service (OMS) Complex Property

Query Path	Description	Data Type
ComplexProperty(Type:oms) .Property(Name:files pending load)	Number of files pending loading into the OMS for the OMS given by the peer "name" property.	Integer
ComplexProperty(Type:oms). Property(Name:load directory)	Load directory of the OMS for the OMS given by the peer "name" property. The form of the directory path (path separator) is not specified further here.	String
ComplexProperty(Type:oms). Property(Name:oldest load file)	Oldest file to load (in minutes) of the OMS for the OMS given by the peer "name" property.	Number

Table 2–18 provides property names, descriptions, and data types for the database instance. The type of the complex property is OMS.

Table 2–18 Database Instance Complex Property

Response Path	Description	Data Type
ComplexProperty(Type:database). Property(Name:name)	Oracle database instance name.	String
ComplexProperty(Type:database). Property(Name:type)	Oracle database instance type (one of oracle_database or rac_ database).	String

Status Codes

The following tables provide status codes and descriptions for the following status types:

- Enterprise Manager
- Jobs

Table 2–19 describes the status codes for Enterprise Manager. You can use online help for a detailed description of Enterprise Manager target statuses. Enter **Target Status** as the keywords to search in online help, then select the topic **About the Status Icons**.

Table 2–19 Enterprise Manager Status Codes

Status Code	Description
0	Target down
1	Target up
2	Metric error
3	Agent down
4	Unreachable
5	Blackout
6	Pending/unknown

Table 2–20 describes the status codes for jobs. You can use online help for a detailed description of Enterprise Manager job statuses. Enter **Job Status** as the keywords to search in online help, then select the topic **About Job Status**.

Table 2–20 Job Status Codes

Status Code	Description
1	SCHEDULED — The execution is in a scheduled state.
2	RUNNING — The execution is running.
3	INITIALIZATION ERROR — The execution encountered an error and the remote process did not run.
4	FAILED — The execution failed.
5	SUCCEEDED — The execution succeeded.
6	SUSPENDED BY USER — A user suspended the execution.
7	SUSPENDED ON AGENT UNREACHABLE — The execution was suspended because the Agent was unreachable.
8	STOPPED — A user stopped the execution.
9	SUSPENDED ON LOCK — The execution is waiting for a lock on a shared resource.
10	SUSPENDED ON EVENT — The execution is waiting for an event to occur (usually for an Agent to bounce).
11	SUSPENDED ON BLACKOUT — The execution is suspended on a blackout.
12	STOP PENDING — The execution is in Stop Pending status waiting for some running steps to finish.
13	SUSPEND PENDING — The execution is in Suspend Pending status waiting for some running steps to finish.
14	Inactive (internal state).
15	Queued (internal state).
16	Failed retried (internal state).
18	SKIPPED — The execution was skipped and could not run, because the previous run of the job required too much time, or the Agent was unavailable for too long a period of time.
20	REASSIGNED — The execution is suspended because the original owner of the job was deleted and the job is not assigned to a new owner. The new owner must explicitly resume the job from the console.
21	SUSPENDED ON MISSING CREDENTIALS — The execution is suspended because some of the credentials needed for the job are not set.

3

Error Messages and Debugging

This chapter provides all Connector Framework-specific error messages and debugging information. The errors are returned in the response model.

Error Messages

Table 3–1 provides error codes, descriptions, causes, and suggested actions for all Connector Framework error messages.

Table 3–1 Error Messages

Error Code	Description	Cause	Action
CNTR-0001	Authentication failed.	The credential to log in to Enterprise Manager is incorrect.	Correct the Enterprise Manager credential element in the request.
CNTR-0002	In setModel, the requested aggregate target list is of size 0. This operation is not supported.	There is no aggregate target in the setModel request.	Correct the request model to include two aggregate targets: one of type cluster, and the other of type rac_database.
CNTR-0003	The requested aggregate targets have a different number of targets.	The current cluster aggregate target and rac_database aggregate target have a different number of member targets.	Make sure the numbers of members of the current cluster aggregate target and the rac_database aggregate target are the same.
CNTR-0004	A target name or target type is null.	The target name or type element is NULL in the request model for getModel.	Correct the target name or target type in the request model.
CNTR-0005	Property unrecognized.	There is unrecognized property in the request model for getModel.	Remove the unrecognized property.
CNTR-0006	An aggregate target name or aggregate target type is null.	The name or type of element of an aggregate target is NULL.	Correct the name or type of the aggregate target in the request model.
CNTR-0007	An aggregate target type is unrecognized.	The aggregate target type is something other than cluster and rac_database.	Correct the aggregate target type. Only two types are supported in this release: cluster and rac_database.

Table 3–1 (Cont.) Error Messages

Error Code	Description	Cause	Action
CNTR-0008	Invalid request model.	The request model is invalid.	Correct the request model. Make sure the request model has either zero or two aggregate targets (one of type cluster and one of type rac_database). If aggregate targets are included, make sure the numbers of targets in the two aggregate targets are the same with the same set of hosts. Make sure the name and host elements of each target in the cluster aggregate target are the same.
CNTR-0009	Oracle Clusterware or RAC aggregate target is not found in model.	Either the cluster aggregate target or the rac_database aggregate target is missing in the request model.	Add the missing aggregate target.
CNTR-0010	No software image found.	No software library image was found based on the description of the model.	Correct the name of the software library image, or make sure the image is available in the Enterprise Manager software library.
CNTR-0011	No existing node to run add node job.	No existing node can be found to run some steps of the add node job.	Correct the request model to make sure all existing nodes are specified correctly in the request model.
CNTR-0012	No host credential defined.	No credential was specified for the RAC nodes.	Add the credentials for the RAC nodes.
CNTR-0013	Invalid member database name. The member database target name should be <rac_name>_<instance_name>.	The name of the member target of the rac_database aggregate target does not follow the <rac_name>_<instance_name> naming rule.	Correct the name of the member target of the rac_database aggregate target.
CNTR-0014	No storage specified during the RAC creation.	The storage element is missing during the RAC creation request.	Add the storage element in the request model.
CNTR-0015	This action is not supported. Delete one node.	The number of nodes in the request model is less than the number of nodes in the current model minus one.	Correct the response model by deleting only one node.
CNTR-0016	Aggregate targets in the request model have different numbers of targets.	The cluster aggregate target and rac_database aggregate target have a different number of member targets.	Correct the request model with the correct member targets for both the cluster aggregate target and rac_database aggregate target.
CNTR-0017	Action not supported: to create RAC, only one node is allowed in the request model.	More than one node was specified in the request when the RAC database did not exist yet.	Correct the request model to use only one node for the new RAC database.
CNTR-0018	Error in request model: please check target names of the aggregate targets.	The member targets of the aggregate targets do not match those in the Enterprise Manager repository.	Correct the request model with the correct member target names.

Table 3–1 (Cont.) Error Messages

Error Code	Description	Cause	Action
CNTR-0019	Nothing to do: there are no member differences between the current and requested model.	The members of the current model inside Enterprise Manager are the same as the one in the request. The connector cannot infer any action.	Correct the request model to indicate a provisioning action.
CNTR-0020	Action not supported: please add one node at a time.	The number of nodes in the request model is more than the number of nodes in the current model plus one.	Correct the request model by adding only one node.
CNTR-0022	Error in host of RAC aggregate target of the request model.	The host attribute of the member targets does not match the host attribute in the Enterprise Manager repository.	Correct the host attribute of the member target of the rac_database aggregate target.
CNTR-0023	Error in host of Oracle Clusterware aggregate target of the request model.	The host attribute of the member targets does not match the host attribute in the Enterprise Manager repository.	Correct the host attribute of the member target of the cluster aggregate target.
CNTR-0024	Conflict in host of Oracle Clusterware and RAC aggregate target of the request model.	The host attribute of the member target of the cluster aggregate target does not match the host attribute for the corresponding member target of the rac_database aggregate target.	Correct the host attribute of the member target of the cluster and rac_database aggregate target.
CNTR-0025 (Windows only)	Property sl_ OHPartitionsAndSpace_ valueFromDlg is not found.	The sl_OHPartitionsAnd Space_valueFromDlg property is missing from the cluster aggregate target properties.	Add the sl_OHPartitionsAnd Space_valueFromDlg property to the cluster aggregate target properties in the request model.
CNTR-0026 (Windows only)	Property ret_PrivIntrList is not found.	The ret_PrivIntrList property is missing from the cluster aggregate target properties.	Add the ret_PrivIntrList property to the cluster aggregate target properties in the request model.

Debugging

The Connector Framework uses the log4j logging utility to log the types of messages shown in Table 3–2:

Table 3–2 Message Types and Corresponding Code Names

Message Type	Code Option
Warning	WARN
Error	ERROR
Debugging	DEBUG
Information	INFO

Specifying the Debug Option

The following example shows the insertion of DEBUG in the following lines of:

$ORACLE_HOME/sysman/config/emomslogging.properties

to receive debugging information:

```
log4j.appender.emlogAppender.Threshold = DEBUG
log4j.rootCategory=DEBUG, emlogAppender, emtrcAppender
```

Viewing Debug Messages

The debug messages from the Connector Framework are displayed in the following file:

```
$ORACLE_HOME/sysman/log/emoms.trc
```

The messages are prefixed with "connector.base".

The Connector Framework submits a job for each provisioning request. After you receive the job ID from your request, use the job ID to search Enterprise Manager jobs to obtain more job details. To look for a job in Enterprise Manager, select the Jobs tab on the Enterprise Manager console.