

Oracle® Enterprise Manager

Application Management Pack for Oracle Utilities Network Management System

Administrative Guide

E70287-01

December 2015

Application Management Pack for Oracle Utilities Network Management System extends Oracle Enterprise Manager Cloud Control to allow monitoring and management of Oracle Utilities Network Management System on remote servers.

When Application Management Pack for Oracle Utilities Network Management System is deployed, the following features and capabilities are available:

- Product discovery
- Target monitoring of status, system load, and activity
- Alerts triggered on monitored thresholds
- Starting and stopping NMS Services
- Sending Action commands to enable/disable debug
- Isis Snapshots
- Associated targets

This document describes the various configuration and operational activities available to administrators of Application Management Pack for Oracle Utilities Network Management System.

Related Documentation and Resources

The **Help** menu provides links to **Enterprise Manager Help**, **Oracle Online Documentation**, **Oracle Online Forums**, and the **Oracle Technology Network (OTN)**, where the complete documentation for Oracle Enterprise Manager 12c is available.

This document and other Application Management Pack for Oracle Utilities Network Management System-specific documentation is available on the *Oracle Utilities* section of the **Oracle Technology Network (OTN)** documentation site (<http://www.oracle.com/technetwork/apps-tech/utilities/documentation/index.html>).

Additional information on Oracle Enterprise Manager-specific features and functionality relating to this product is available in the *Enterprise Manager Cloud Control Documentation* (<http://docs.oracle.com/en/enterprise-manager/>).

NOTE: The documentation that accompanies this product is subject to revision and updating. Additional information that may relate to the functionality and features in

this product may be found on My Oracle Support (MOS) at <https://support.oracle.com> (sign-in required). To find all articles relating to this product, enter the search term "Application Management Pack for Oracle Utilities Network Management System".

Plug-in Functionality

Product Discovery

Any manageable entity is of a *target type*. A specific instance of a target type is a target. For example, *sf-sunapp-00.us.oracle* would be a target of target type *host*; *sf-mydb-00:1521/CD0000SF* would be a target of target type *database*.

For extensibility purposes, Application Management Pack for Oracle Utilities Network Management System provides a discovery framework and the functionality to monitor an Oracle Utilities Network Management System (NMS) environment system target type with target members of type NMS Services, Database System, and WebLogic Server. This models an installation of the Oracle Utilities Network Management System containing the software binaries and runtime components.

High-Level View of the Discovery Process

- The discovery process finds Oracle Utilities Network Management System environments.
- The NMS Services target type models the Oracle Utilities Network Management System services.
- The Database System and WebLogic Server target types are standard target types in Enterprise Manager. They model the Oracle Database and the Oracle WebLogic Server, respectively.

In addition to these target types, a Network Management System environment is modeled as a system target. This system environment has as members the other target types.

Environment Discovery

In order for a target to be monitored, it must first be discovered and promoted. Discovery is the process of making a target instance known to OEM. Once this has been done, the target needs to be promoted from an unmanaged to a managed state.

To discover target environments:

1. Log in to Enterprise Manager.
2. Choose **Setup > Add target > Add Targets Manually**. Click **Add Targets Using Guided Process** and choose the **Oracle Utilities Network Management System** from **Target Types**

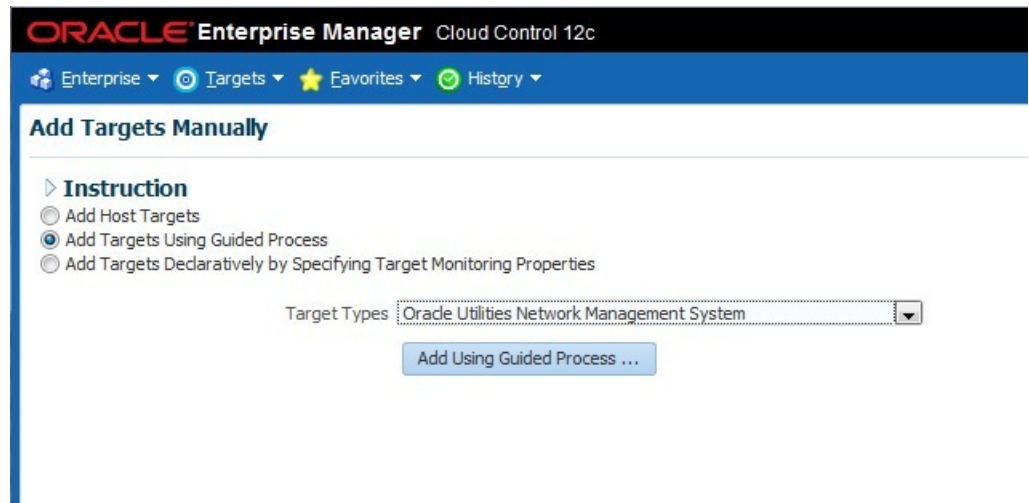


Figure 1: Selecting Add Targets Manually

3. Click **Add Using Guided Process...**
4. Select the agents on which to run discovery and click **Next**

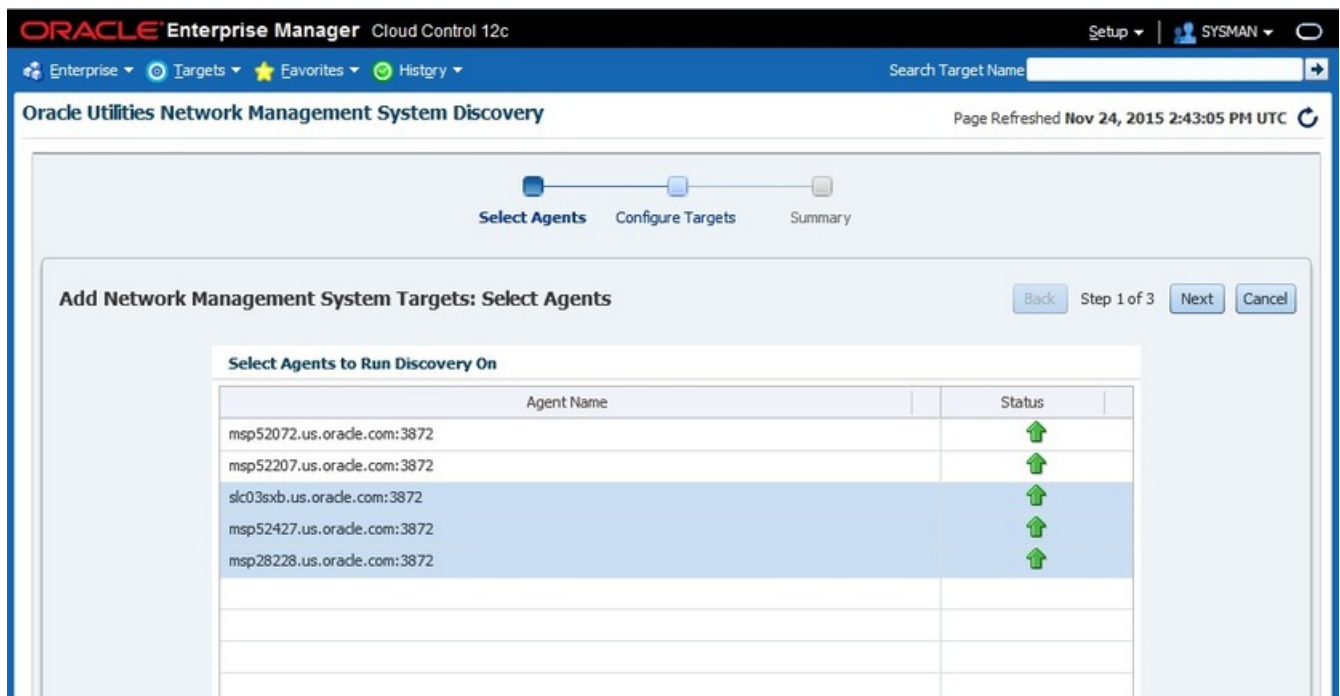


Figure 2: Selecting Agents

5. Select a target and click **Properties...**
6. Populate credentials for monitoring the NMS database and click **OK**.

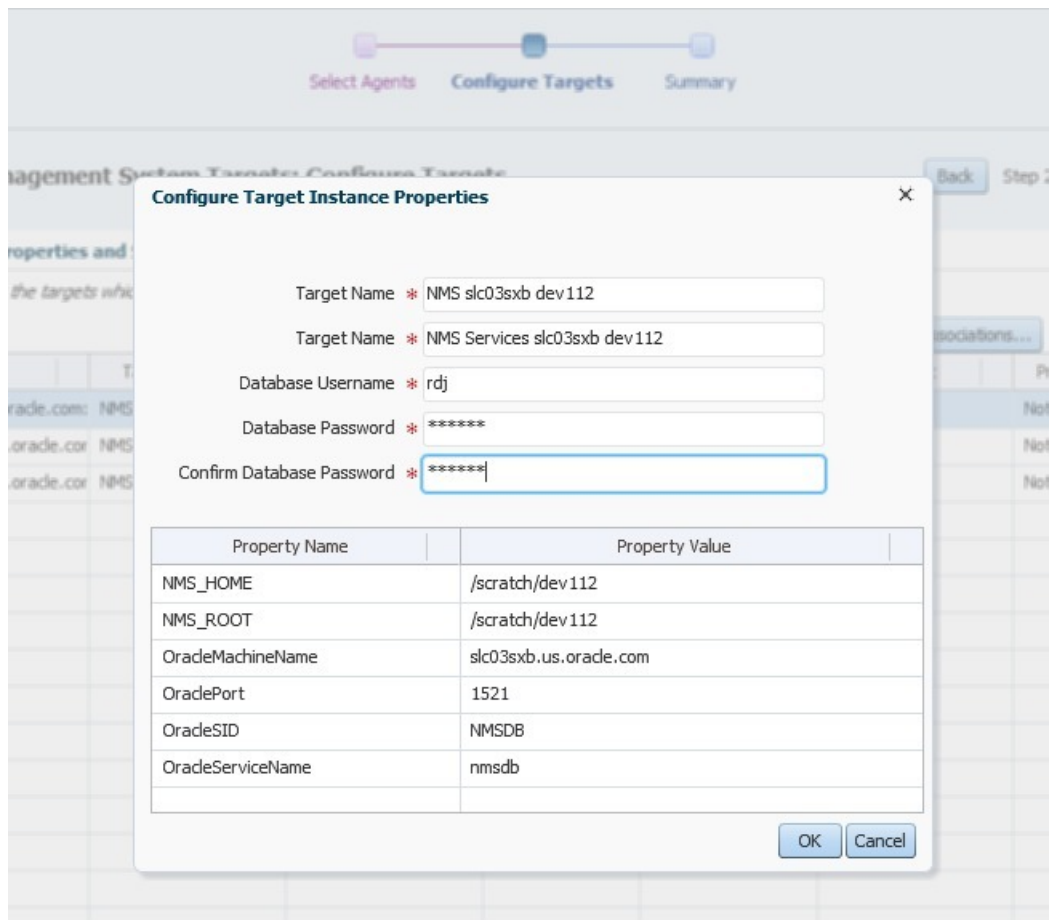


Figure 3: Configure Properties

7. Optional: Select a target and click **Associations....**

8. **NOTE:** Associations can only be added to database and/or WebLogic Server if it is already managed as a target in Enterprise Manager. These associations can be added, removed, or changed later on the **Configuration Associations** page.

Optional: Select the database and one or WebLogic Servers to be associated with this NMS Environment and click **OK**.

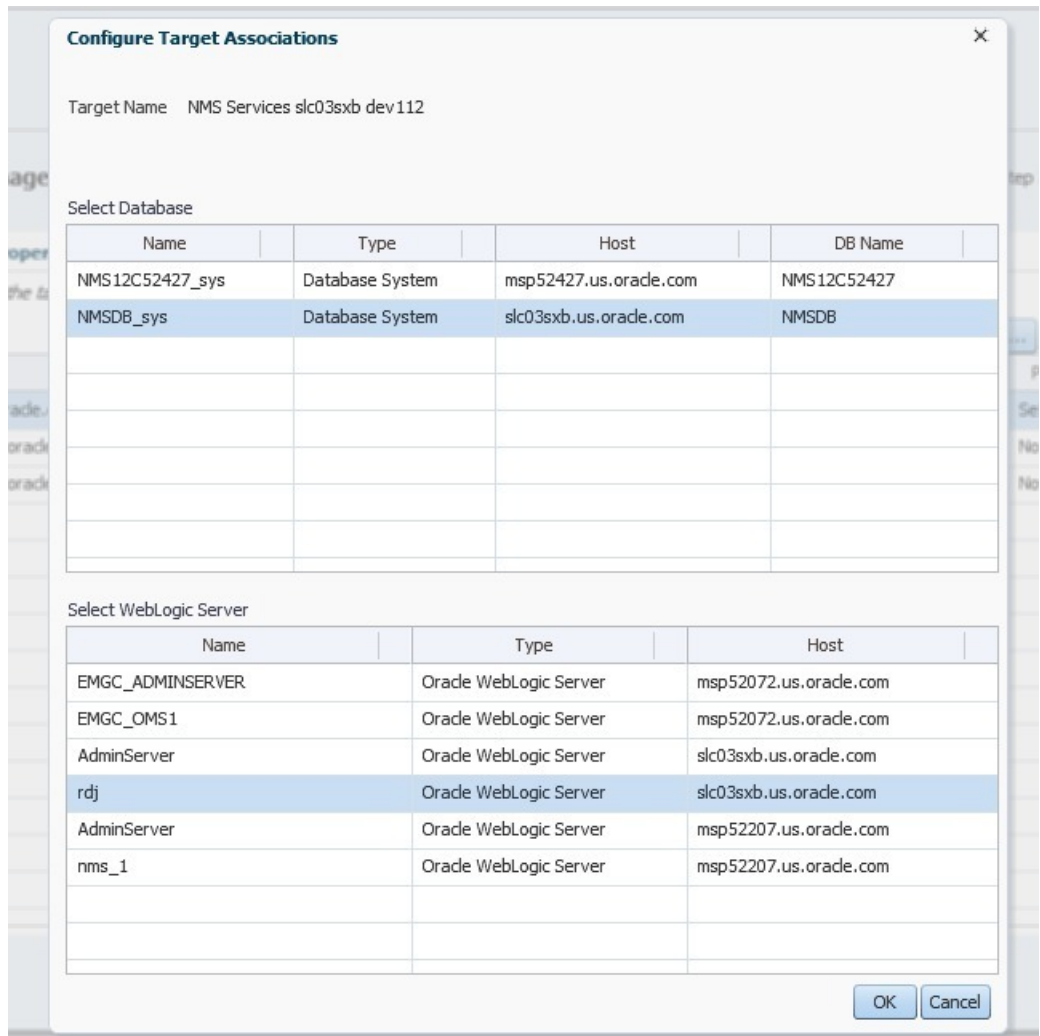


Figure 4: Configure Associations

9. Optional: Set Properties and Associations for any additional NMS Environments you wish to manage.
10. Select all of the targets to be managed and click **OK**.

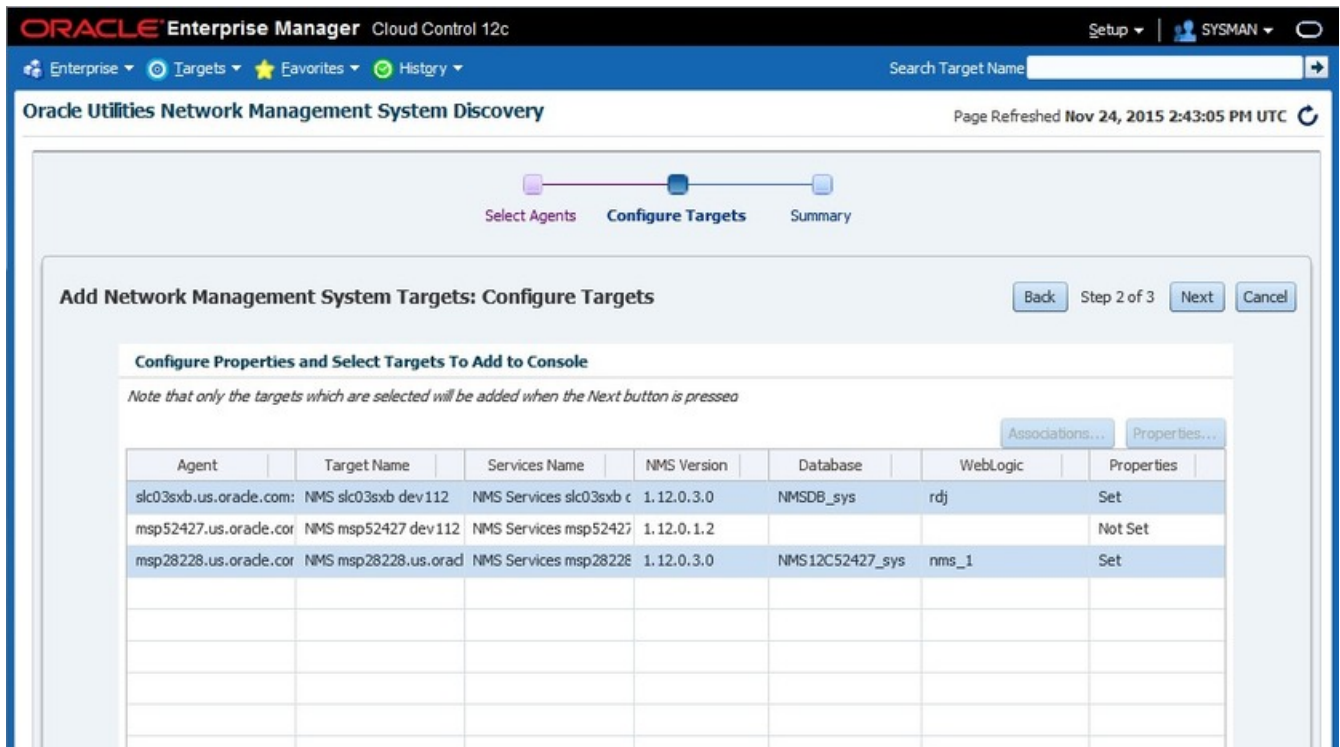


Figure 5: Selecting Targets to Manage

- Wait for added targets to appear in the summary. Each NMS Environment will have two targets: one of type Oracle Utilities NMS and one of type NMS Services.

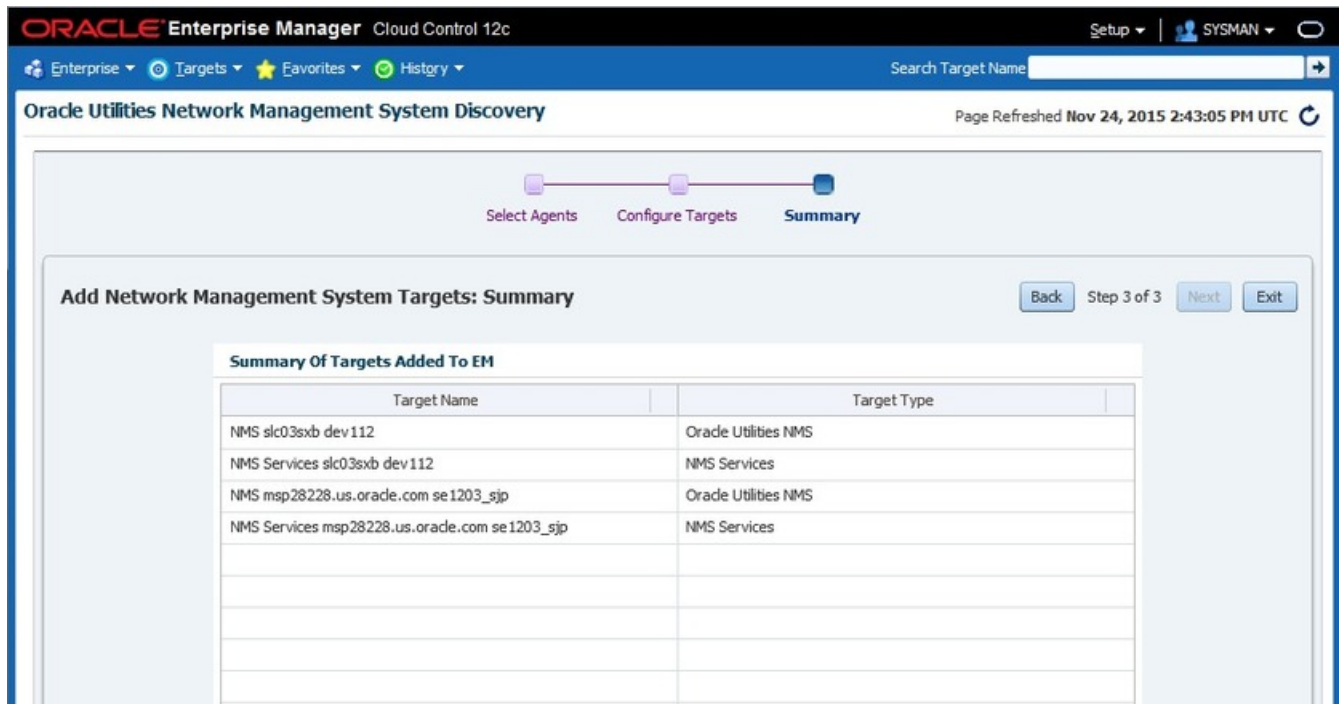


Figure 6: Targets Added to Summary

The **Target Discovery (Agent Based)** window opens.

Viewing a Target's Home Page

To view a target's home page:

1. Log in to Enterprise Manager.
2. Click **Targets > All Targets**.

The screenshot displays the Oracle Enterprise Manager Cloud Control 12c interface. The top navigation bar shows 'Enterprise', 'Targets', 'Favorites', and 'History'. The 'Targets' dropdown menu is open, highlighting 'All Targets' (Ctrl+Shift+T). The main content area shows a 'View: All Targets' dropdown and a large pie chart indicating 79% of targets are 'Up (85)' and 21% are 'Down (22)'. Below the chart is an 'Incidents' section with a table showing the breakdown of incidents updated in the last 7 days. The table has columns for Category, Availability, Performance, Security, and Others, with corresponding counts and icons. To the right, there are several monitoring panels: 'Inventory and Usage' with a pie chart (33%, 11%), 'Compliance Summary' with 'Frameworks' and 'Standards' tabs, and 'Least Compliant Targets' with a 'View Trends' button and a 'Target Type' dropdown set to 'Host'. A target name 'slc07jgi.us.oracle.com' is visible in the bottom right panel.

Category	Availability	Performance	Security	Others
Availability	22	-	-	-
Performance	-	-	-	-
Security	-	-	-	-
Others	-	-	-	-

Figure 7: Viewing all targets

3. To view its home page, locate and double-click a target from the sortable and searchable **All Targets** list.

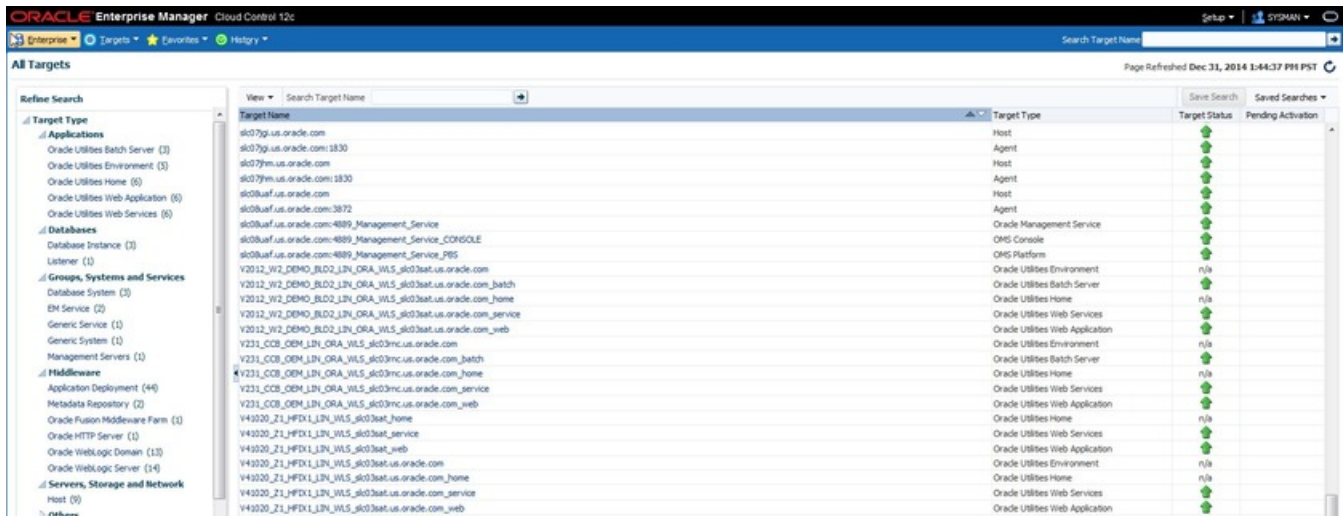


Figure 8: All Targets list

Oracle Utilities NMS Target

The **Oracle Utilities NMS** target is a system target that comprises

- one **NMS Services** target
- up to one **Database System** target
- any number of **Oracle WebLogic Server** targets

The **Database System** target is part of the **Oracle Database** plug-in. The **Oracle WebLogic Server** target is part of the **Oracle Fusion Middleware** plug-in. Both of these are standard plug-ins included in Enterprise Manager.

The **NMS Services** target is included in Application Management Pack for Oracle Utilities Network Management System.

Oracle Utilities NMS Home Page

This is the home page for the **Oracle Utilities NMS** target

Summary

This section has key information about NMS and its associated targets.

NMS Version	The version of Network Management System being monitored.
Configuration Tag	The configuration tag of the currently built cesejb application. This is the same as the Configuration Tag in the About Web Workspace window in NMS.
Project Name	The project name of the currently built cesejb application. This is the same as the Project Name in the About Web Workspace window in NMS.
NMS URL	The URL of the Java Web Start page for Oracle Utilities Network Management System. This is a hyperlink that will open the URL in a new window

NMS Services	A link to the Enterprise Manager page for the NMS Services member target
Database	A link to the Enterprise Manager page for the Database System member target
WebLogic Server	A link to the Enterprise Manager page for the Oracle WebLogic Server member target

Status

This section shows the availability and current status of the system as well as the availability and current status of the most active members of the system. Availability is shown for the past 31 days.

Issues Overview

This shows the number of issues and problems for the member targets. More detailed issue information is available in **Incident Manager** (click **NMS > Monitoring > Incident Manager**) and **Member Dashboard** (click **NMS > Members > Dashboard**). For more information, see [Using Incident Management](#).

Job Activity

This shows a summary of the jobs submitted to the member targets. For more information, see [Utilizing the Job System](#).

Configure Associations Page

The Configure Associations page allows the user to change the **Database System** and **Oracle WebLogic Server** targets that are members of the **Oracle Utilities NMS** target. To update the members:

This page has the following fields.

Current Database	Displays the name of the Database System target associated with the Oracle Utilities NMS target.
Current WebLogic Application	Displays a list the names of the Oracle WebLogic Server targets associated with the Oracle Utilities NMS target.
Select Database table	Lists the Database System targets known by Enterprise Manager.
Select WebLogic Server table	Lists the Oracle WebLogic Server targets known by Enterprise Manager.

Changing Associations

1. Select the database in the **Select Database** table.
2. Select the WebLogic server(s) in the **Select WebLogic Server** table. Note that multiple rows can be selected in this table by holding down the Ctrl key.
3. Press the **Save Changes** button.
4. Press **OK** in the **Confirm Association Changes** dialog.

NMS Services Target

The **NMS Services** target monitors NMS services and collects metrics from NMS services and the NMS database.

NMS Services Home Page

This is the home page for the **Oracle Utilities NMS** target

Summary

This section has key information about NMS and its current state. Fields in this section will dynamically update.

NMS Version	The version of Network Management System being monitored.
Current Status	The current status of the NMS Services target. This target is considered Up if all critical services have a status of either RUNNING or FAILED_INTERFACE.
Up Since	The date NMS Services has been up since
Availability (31 days)	The availability percentage over the last 31 days. Clicking on this opens a dialog with more detailed availability information.
Services Status	The current status of services. The tooltip shown when hovering here gives more information. These are the possible values and tooltips: <ul style="list-style-type: none">• Up — Services are running• Critical Services Up — All Critical Services Ready - non-critical services have failed/stopped• Initializing — Services Initializing• Critical Services Down — Services NOT Ready - critical services have failed/stopped• Down — Services are stopped• Down — Services and Isis are stopped
Configuration Tag	The configuration tag of the currently built cesejb application. This is the same as the Configuration Tag in the About Web Workspace window in NMS.
Project Name	The project name of the currently built cesejb application. This is the same as the Project Name in the About Web Workspace window in NMS.
Model Build	Indicates whether the model build is currently running and the start time of the model build if it is running.
NMS URL	The URL of the Java Web Start page for Oracle Utilities Network Management System. This is a hyperlink that will open the URL in a new window

Services

This table lists the services recognized by SMSservice (System Monitor Service) and their current status. It dynamically updates and has the following columns:

Column Name	Description
Service	The name of the service.
Status	The current status of the service. This has the following possible values: <ul style="list-style-type: none">STARTING — The process has startedINITIALIZING — The process has registered and is initializingRUNNING — The process reports as initializedFAILED — The process has failedFAILED_INTERFACE — The process reports a failed interfaceSTOPPED — The process intentionally stops Note that the FAILED_INTERFACE status means that the service or adapter is running, but its connection to an external system is failed or lost.
Critical	Indicates whether this service is required for the system to be functional.

This table has the following buttons:

- Stop Service** — Stops the selected service. This opens a dialog where NMS host credentials are entered. When OK is pressed, the specified service will be stopped. This action is only valid for Isis-connected services (nms-naming-service and nms-lighttpd are examples of non-Isis services).
- Restart Service** — Stops and restarts the selected currently running service. This opens a dialog where NMS host credentials are entered. When OK is pressed, the specified service will be stopped and restarted. This action is valid for most Isis-connected services except SMSservice, DBService, and ODService.

Incidents and Problems

This shows a summary of the incidents and problems for the NMS Services target.

NMS Activity/Load Page

This page has charts of the load and activity on the NMS system. Clicking the expand icon on a chart will resize the chart to fill the whole page. Clicking again will restore the chart to its original size.

Time Period

Allows the user to select the time period displayed in the charts on this page. The values are

Name	Period	Data Interval	Dynamic Update
Real-Time	1 hour	5 minutes	Yes
Past Day	1 day	5 minutes	No
Past Week	7 days	1 hour	No

Name	Period	Data Interval	Dynamic Update
Past Month	31 days	1 day	No

Past Week and Past Month show values averaged over their respective data intervals.

Current Job Count

Shows the count of the current number of active jobs of different types.

- **Active Outages** — Outage jobs in an active state
- **Active Non-Outages** — Non-outage jobs in an active state
- **Active Fuzzy Jobs** — Fuzzy jobs in an active state
- **Active Momentary Outages** — Momentary outage jobs in an active state

Calls

Counts of the number of calls of different types entered and the number of unprocessed calls.

- **Customer Calls Per 5 Minutes** — Customer calls per 5 minutes
- **AMI Power-offs Per 5 Minutes** — AMI power-offs per 5 minutes
- **Total Calls Per 5 Minutes** — Total calls per 5 Minutes
- **Unprocessed Calls** — Total number of calls which still need to be processed

Current User Count

Shows the number of logged in users of various user types.

- **Web Workspace** — Web Workspace non-View-Only users
- **WW View Only** — Web Workspace View Only users
- **Storm Management** — Storm Management users
- **Service Alert** — Service Alert users
- **Web Call Entry** — Web Call Entry users
- **Configuration Assistant** — Configuration Assistant users
- **Web Callbacks** — Web Callbacks users
- **Model Management** — Model Management users

Device Operations

The number of device operations (open, close) performed.

- **Sustained Per 5 Minutes** — Sustained device operations per 5 minutes
- **Transient Per 5 Minutes** — Transient device operations per 5 minutes
- **Total Operations Per 5 Minutes** — Total device operations per 5 minutes

Study Session Count

Count of the number of open study sessions

- **Non-Powerflow Sessions** — Number of non-powerflow study sessions

- **Powerflow Sessions** — Number of powerflow study sessions
- **Total Sessions** — Total number of study sessions

Crew Actions

The number of crew actions performed (assign, en route, on-site, release, suspend, relocate, unarrive).

- **Crew Actions Per 5 Minutes** — Crew actions per 5 minutes

NMS Historical Activity Page

This page has charts historical activity on the NMS system. Clicking the expand icon on a chart will resize the chart to fill the whole page. Clicking again will restore the chart to its original size.

Time Period

Allows the user to select the time period displayed in the charts on this page. The values are

Name	Period	Data Interval	Dynamic Update
Past Week	7 days	1 hour	No
Past 2 Weeks	14 days	1 hour	No
Past Month	31 days	1 day	No
Past 90 Days	90 days	1 day	No
Past Year	365 days	1 day	No

Past Month, Past 90 Days, and Past Year show values averaged over their respective data intervals.

Calls

Counts of the number of calls of different types entered and the number of unprocessed calls.

- **AMI Power-offs Per Hour** — AMI power-offs per hour
- **Customer Calls Per Hour** — Customer calls per hour
- **Total Calls Per Hour** — Total calls per hour

Device Operations

The number of device operations (open, close) performed.

- **Total Operations Per Hour** — Total device operations per hour
- **Sustained Per Hour** — Sustained device operations per hour
- **Transient Per Hour** — Transient device operations per hour

Crew Actions

The number of crew actions performed (assign, en route, on-site, release, suspend, relocate, unarrive).

- **Crew Actions Per Hour** — Crew actions (assign, en route, on-site, release, etc.) per hour

Detailed Description of Target Operations

The buttons and menu items described here open a dialog in which the administrator enters the credentials to connect to the server for the purpose performing their operations.

Attribute	Value
UserName	bdjohnso
Password	*****
Privilege Type	SUDO
Run As	nmsadmin

Figure 9: Credentials Input

The credentials entered must either login as the nmsadmin user where NMS Services run or login as another user and sudo to the nmsadmin user. New credentials can be entered each time or either Preferred Credentials or Named Credentials can be saved and re-used. For more information, see [Preferred Credentials](#).

Start Up

The NMS system services need to be started.

This operation may be started from any page of the **NMS Services** target.

1. **NOTE:** Alternatively, this option is available from **NMS Services > Control > Start Up**

Press the **Start Up** button.

The **Start Up** NMS dialog appears.

Start Up NMS

Enter credentials to launch services

Host Credentials

Credential Preferred Credential Named Credential New Credential

Credential Name: NMSADMIN_SLC03SXB

Attribute	Value
UserName	bdjohnso
Password	*****
Privilege Type	SUDO
Run As	nmsadmin

Credential Details

[More Details](#)

OK Cancel

2. Select or enter host credentials.

3. Press the **OK** button.

The **Start Up NMS** dialog disappears.

The next two steps are only necessary to see the result of the Start Services job.

4. Optional: Select **NMS Services > Job Activity**.

The **Job Activity** page is loaded.

5. Optional: Click on the **START SERVICES** job.

The status of the **START SERVICES** job is shown.

Shut Down

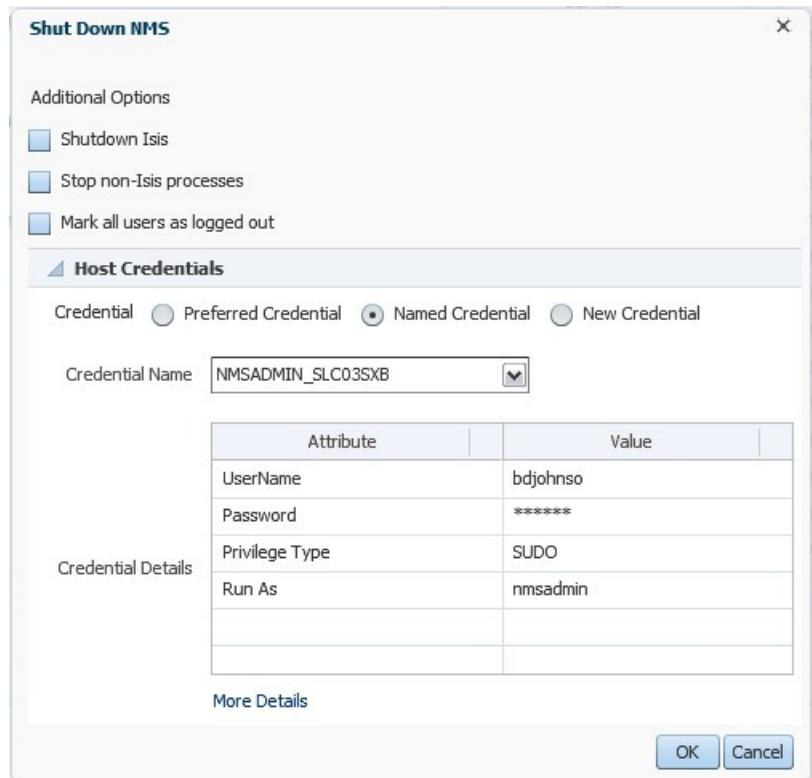
The NMS system services need to be stopped.

This operation may be started from any page of the **NMS Services** target.

1. **NOTE:** Alternatively, this option is available from **NMS Services > Control > Shut Down**

Press the **Shut Down** button.

The **Shut Down NMS** dialog appears.



2. Optional: Choose additional options.

The additional options are

Shutdown Isis	This will shutdown the Isis message bus.
Stop non-Isis processes	This will shutdown non-Isis processes that are controlled by SMSservice such as nms-naming-service and nms-lighttpd
Mark all users as logged out	This will mark any users that are currently logged in as logged out in the NMS database.

3. Select or enter host credentials.

4. Press the **OK button.**

The **Shut Down NMS** dialog disappears.

The next two steps are only necessary to see the result of the Stop Services job.

5. Optional: Select **NMS Services > Job Activity.**

The **Job Activity** page is loaded.

6. Optional: Click on the **STOP SERVICES job.**

The status of the **STOP SERVICES** job is shown.

Stop Service

An individual service needs to be stopped.

This operation must be started from the Home page of the **NMS Services** target.

1. Select a service in the **Services table.**

2. Press the **Stop Service** button.

The **Stop Service** dialog appears.

Stopping service_alert

Host Credentials

Credential Preferred Credential Named Credential New Credential

Credential Name: NMSADMIN_SLC03SXB

Attribute	Value
UserName	bdjohnso
Password	*****
Privilege Type	SUDO
Run As	nmsadmin

More Details

OK Cancel

3. Select or enter host credentials.

4. Press the **OK** button.

The **Stop Service** dialog disappears.

Restart Service

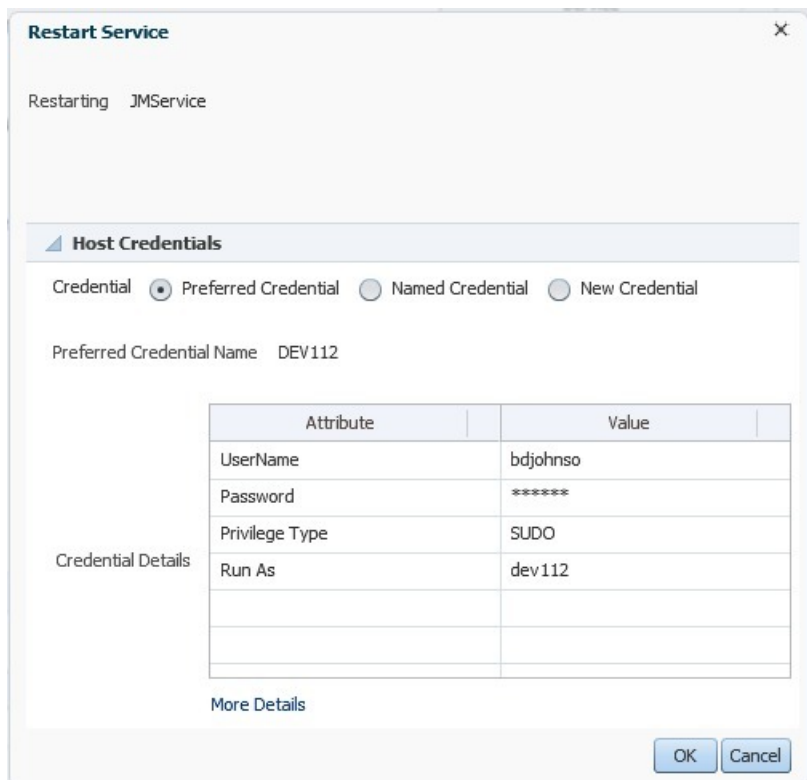
An individual service needs to be stopped and restarted.

This operation must be started from the Home page of the **NMS Services** target.

1. Select a service in the **Services** table.

2. Press the **Restart Service** button.

The **Restart Service** dialog appears.



3. Select or enter host credentials.

4. Press the **OK** button.

The **Restart Service** dialog disappears.

Action Command

An Action command needs to be performed. See [Oracle Utilities Network Management System Configuration Guide](#) for a variety of use cases.

This operation may be started from any page of the **NMS Services** target.

1. Press **NMS Services > Action Command**.

The **Action Command** dialog appears.

The screenshot shows the 'Action Command' dialog box at 'Step 1 of 3: Command Info'. At the top, there are three steps: 'Command Info' (active), 'Credentials', and 'Confirmation'. Below the steps are 'Back', 'Next', and 'Cancel' buttons. The 'Command Info' section has five tabs: 'Command', 'Service Debug', 'EJB Debug', 'Client Debug', and 'Recache'. The 'Command' tab is selected. The form contains the following fields:

- Scope: any
- Process: SMSERVICE
- Command: (empty)
- Arguments: (empty)
- Send to Java:

A 'Close' button is located at the bottom right of the dialog.

2. Select the desired tab for type of Action command to be performed
 - Command — allows for freeform entry of any Action command
 - Service Debug — allows setting of debug in services
 - EJB Debug — allows setting of debug in the EJB application
 - Client Debug — allows setting of debug in user clients
 - Recache — common recache/reload operations
3. Populate the fields in the Command Info step.
4. Press the **Next** button.
The **Action Command** dialog changes to the Credentials step
5. Select or enter host credentials and press the **Next** button.
The **Action Command** dialog changes to the Confirmation step
6. **NOTE:** The specific command-line to be executed appears in the **Command Line** field.

Verify action to be performed.

7. Optional: Uncheck the **Wait for result** checkbox if you do not want to wait for the Action command result.
 8. Press the **Finish** button.
- If **Wait for result** was selected, a dialog appears displaying the return value of the command. This indicates the number of processes which processed the command. Note that action commands using the **Send to Java** will always have a result of "0".

Action Command Tabs

Command

This tab allows for freeform entry of any Action command

Figure 10: Command options

Field	Description
Scope	The server scope of the message. This will typically be "any". Alternatively, if Send to Java is checked, this will be the user's login id.
Process	The process to send the Action command to. This combo box contains all of the services currently recognized by SMSservice, but also allows user-entered values. A value of "any" will send to all processes. If Send to Java is checked, this will instead be the application name within the client.
Command	The command to send
Arguments	The command arguments
Send to Java	If checked, the message will be sent to java clients rather than Isis-connected processes. This typically requires custom configuration for clients to handle these messages. See the Invoking Commands from an External System section of the Oracle Utilities Network Management System Configuration Guide .

Service Debug

This tab allows for setting of debug in services

Command Service Debug EJB Debug Client Debug Recache

Service * DDService

Debug Arguments messages 1

Figure 11: Service Debug options

Field	Description
Service	The service for which debug will be set.
Debug Arguments	The arguments can either be a number to set all debug facilities to the same level or a space separate list of debug facilities and their desired debug levels. Examples: <ul style="list-style-type: none"> • 1 — set all debug facilities to level 1 • 0 — set all debug facilities to level 0 (disabled) • messages 0 — set the messages debug facility to level 0 • api 1 timing 2 — set the api debug facility to level 1 and the timing debug facility to level 2.

EJB Debug

This tab allows setting of debug in the EJB application

Command Service Debug EJB Debug Client Debug Recache

Service * publisher*

Debug Facility * com.splwg.oms.ejb.session.Agent

Debug Level * DEBUG

Figure 12: EJB Debug options

Field	Description
Service	The publisher service to send the message through. This defaults to "publisher*", which will send through all publisher processes
Debug Facility	The name of the debug facility to set. These debug facility names are case-sensitive.
Debug Level	The desired debug level <ul style="list-style-type: none"> • DEBUG — enables debug and info messages

Field	Description
	<ul style="list-style-type: none"> INFO — disables debug messages and enables info messages WARN — disables debug and info messages

Client Debug

This tab allows setting of debug in user clients

The screenshot shows a management console interface with five tabs: Command, Service Debug, EJB Debug, Client Debug (selected), and Recache. Below the tabs, there are four configuration fields, each with a red asterisk icon:

- Service**: A text input field containing "publisher*" with a dropdown arrow on the right.
- User**: A text input field containing "nms2".
- Debug Facility**: A text input field containing "JBOT.COMMAND".
- Debug Level**: A dropdown menu with "DEBUG" selected.

Figure 13: Client Debug options

Field	Description
Service	The publisher service to send the message through. This defaults to "publisher*", which will send through all publisher processes
User	The login id of the user to set debug for.
Debug Facility	The name of the debug facility to set. These debug facility names are case-sensitive.
Debug Level	The desired debug level <ul style="list-style-type: none"> DEBUG — enables debug and info messages INFO — disables debug messages and enables info messages WARN — disables debug and info messages

Recache

This tab has common recache/reload operations

The screenshot shows a management console interface with five tabs: Command, Service Debug, EJB Debug, Client Debug, and Recache (selected). Below the tabs, there are four configuration options, each with a radio button:

- Recache Zones
- Recache Rules
- EJB Resync
- EJB Refresh

Figure 14: Recache options

Option	Description
Recache Zones	This tells DDSerive to update its internal control zone memory structures. It is the equivalent of the following command: <code>UpdateDDS -recacheZones</code>
Recache Rules	This reloads configuration rules from the srs_rules table. It is the equivalent of the following command: <code>Action any.any reload_rules</code>
EJB Resync	This command causes the application running in the WebLogic server to reload the event cache. It is the equivalent of the following command: <code>Action any.publisher* ejb resync</code>
EJB Refresh	This command causes the application running in the WebLogic server to reload the configuration and forces the client to re-request all data that it is currently displaying. This puts significant load on the system, so it should only be done when necessary in a production environment. It is the equivalent of the following command: <code>Action any.publisher* ejb refresh</code>

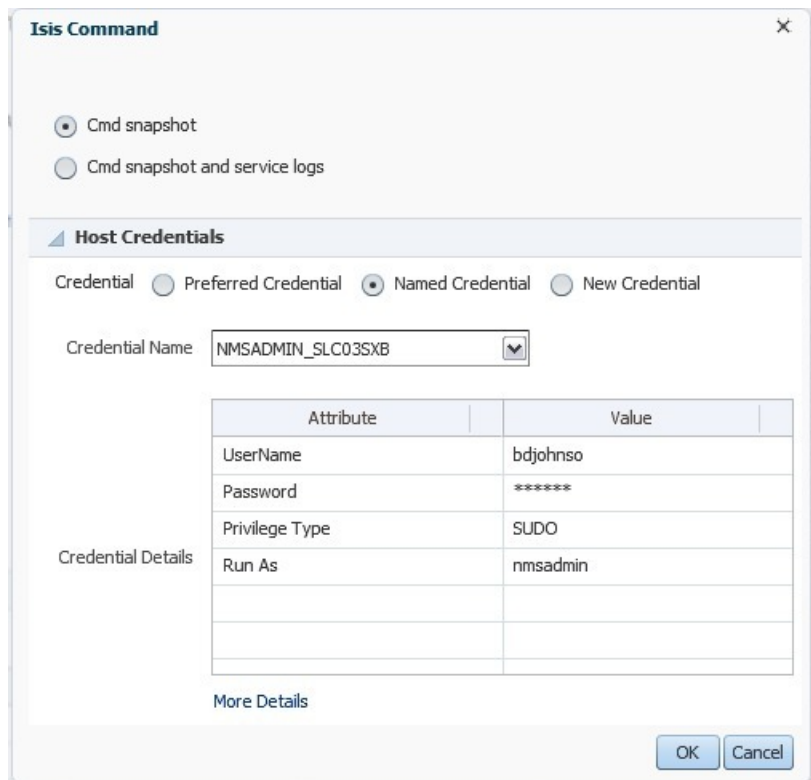
Isis Command

A Cmd snapshot is needed to capture the state of services. This is typically for support or diagnostic purposes.

This operation may be started from any page of the **NMS Services** target.

1. Press **NMS Services > Isis Command**.

The **Isis Command** dialog appears.



2. Select either **Cmd snapshot** or **Cmd snapshot and service logs** option.

The **Cmd snapshot** option performs a Cmd snapshot to capture the current state of all Isis-connected processes and creates a zip file with the snapshot results. The **Cmd snapshot and service logs** option does the same as the **Cmd snapshot** option, but also includes the service log files in the resulting zip file.

3. Select or enter host credentials.
4. Press the **OK** button.

The **Isis Command** dialog disappears and the **Doing snapshot** dialog appears indicating the name and location of the zip file being created.

Tips and Troubleshooting

- Discovery and metric configuration collection log information can be found in the agent perl trace file (`.../agent_inst/sysman/log/emagent_perl.trc`).

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Application Management Pack for Oracle Utilities Network Management System

Administrative Guide

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