

HP Universal CMDB

for the Windows and Solaris operating systems

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HP Universal CMDB-HP Network Node Manager i (NNMi) Integration Guide

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Network Node Manager (NNMi) Integration

This chapter includes the main concepts, tasks, and reference information for NNMi integration with HP Universal CMDB (UCMDB).

This chapter includes:

Concepts

- Overview on page 8

Tasks

- Deploying UCMDB/NNMi Discovery on page 8
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- NNMi Management Server Connection Protocol on page 16
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Overview

NNMi is an application that helps the network administrator to view and manage the conditions in a computer network. Using NNMi, an administrator can view the network in an easy-to-see graphical format. Discovery and Dependency Mapping (DDM) discovers the devices that are in the network and shows their relative location and their status. When a device fails, NNMi analyzes events associated with the failure and helps to recommend action. NNMi also provides some predictive information that helps identify potential failures before they occur.

The purpose of this chapter is to describe how to integrate NNMi with UCMDB. Integration involves synchronizing devices, topology, and hierarchy of a customer's storage infrastructure in the UCMDB database. This enables Change Management and Impact Analysis across all business services mapped in UCMDB.

Use Case

This document is based on the following use case:

- ▶ A UCMDB user wants to view the Layer 2 network topology supporting servers and applications. The requirement is to use NNMi as the authoritative source for that information with access via the UCMDB console.

Deploying UCMDB/NNMi Discovery

This task includes the steps to deploy the UCMDB – NNMi Integration Discovery package.

- 1 Set up UCMDB as follows:
 - a Copy the discovery package file – **NNM_Integration.zip** to the directory on the UCMDB server
`\hp\UCMDB\UCMDBServer\root\lib\customer_packages`

b access the JMX console, you must enter the JMX console authentication credentials, which by default are:

- Login name = **admin**
- Password = **admin**

See Chapter 5, “Logging in to the JMX Console”.

c Navigate to **MAM > service=MAM Packaging Services > deployPackages()** and invoke it with the following parameters:

- **customerID: 1**

dir: <Complete path to the customer_packages directory>

(such as C:\hp\UCMDB\UCMDBServer\root\lib\customer_packages)

- **packagesNames: NNM_Integration.zip**
- **overrideCustomChanges: true**

d Check **mam.packaging.log** for successful deployment of package for any errors

2 Set up the DDM probe as follows:

a Stop the probe service or process by either closing the probe console window or through Computer Management Services.

b Copy the following files below to folder:
 \hp\DDM\DiscoveryProbe\root\jars\

- **nnm_sdk.jar**
- **wrapper.jar**

c Edit the following file using a text editor:

\hp\DDM\DiscoveryProbe\scripts\install\conf\WrapperEnv.conf

- In the section **Environment Collectors Path** after the line beginning with **set.JMX_CLASSES=**

add the following line:

```
set.WS_CLIENT_CLASSES=%root%/jars/nnm_sdk.jar;%root%/jars/wrapper.jar
```

d Modify the three lines that begin with:

- ▶ `set.COMMON_CLASSPATH`
- ▶ `set.COLLECTORS_LOCAL_CLASSPATH`
- ▶ `set.COLLECTORS_PROBE_CLASSPATH`

and add text `%WS_CLIENT_CLASSES%`; immediately after the equal (=) sign.

Example:

```
set.COMMON_CLASSPATH=%WS_CLIENT_CLASSES%;%lib%...  
set.COLLECTORS_LOCAL_CLASSPATH=%WS_CLIENT_CLASSES%;%MAM_JARS%...  
set.COLLECTORS_PROBE_CLASSPATH=%WS_CLIENT_CLASSES%;%MAM_JARS%...
```

e Save and close the file.

3 Start the probe.

Running UCMDB/NNMi Integration

This task includes the steps to run the UCMDB NNMi integration jobs.

1 Set up the NNMi Protocol

For specific details, see *Discovery and Dependency Mapping Guide*.

- a** In the UCMDB application, navigate to **Admin > Discovery > Setup Discovery Probes**.
- b** For the relevant domain select **NNM Protocol** and click on the + button to add a new NNM Protocol.

Protocol attributes

Connection Timeout	2000	
NNM Password		<input type="button" value="..."/>
NNM Server	changethis	<input type="button" value="..."/>
NNM Username	system	<input type="button" value="..."/>
NNM Webservice Port	80	
Note		<input type="button" value="..."/>
UCMDB Password		<input type="button" value="..."/>
UCMDB Server	changethis	<input type="button" value="..."/>
UCMDB Username	admin	<input type="button" value="..."/>
UCMDB Webservice Port	8080	
UCMDB Webservice Protocol	http	<input type="button" value="..."/>

- c** Enter the relevant values for:
- **NNM Server** (Hostname or IP of NNM server).
 - **NNM Webservice Port** (such as **80**).
 - **NNM Username** (with access to Web service such as **system**).
 - **NNM Password** (such as **openview**).
 - **UCMDB Server** (Hostname or IP of UCMDB server).
 - **UCMDB Webservice Port** (such as 8080).
 - **UCMDB Username** (such as **admin**).
 - **UCMDB Password** (such as **admin**).
 - **UCMDB Webservice Protocol** (such as **http** or **https**).
- d** Click **OK** to save the protocol instance.

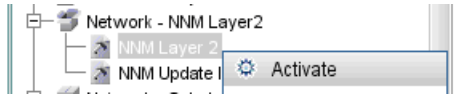
2 Set up Discovery Jobs

This task includes the steps to set up NNMi Layer 2. This Discovery job connects to the NNMi Web service and retrieves NNMi discovered nodes, IPs, networks, interfaces and Layer 2 connection information to create a Layer 2 CI in UCMDB.

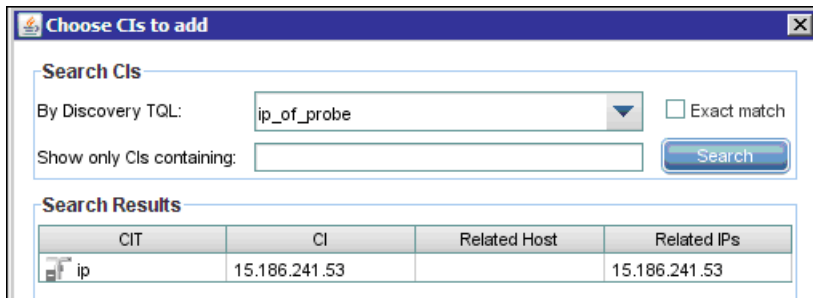
Note: It is recommended NOT to run the UCMDB Layer 2 discoveries when using NNMi Layer 2 integration discovery.

3 Job Setup

- a In the UCMDB GUI navigate to **Admin > Discovery > Run Discovery > Advanced Mode**.
- b Activate the Job **NNM Layer 2** (in module Network NNM Layer 2).



- c Click on the + sign in **Discovery Status** to add a trigger CI to this job.
- d Select the discovery TQL: **ip_of_probe** and click **Search** to list the IP CIs of the probe.



- e Select the IP of the probe to dispatch the job against and click **Add**.

4 Job Execution

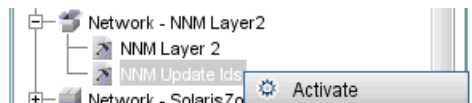
The following task includes the steps to configure NNMi Update IDs. This Discovery job updates the nodes in the NNM topology with the UCMDB IDs of the corresponding nodes in UCMDB.

- a** Using the probe console, monitor the **wrapperProbeGw.log** for job invocation, execution and possible error messages. Alternatively you can check the wrapperProbeGw.log in `\hp\DDM\DiscoveryProbe\Discovery\logs`

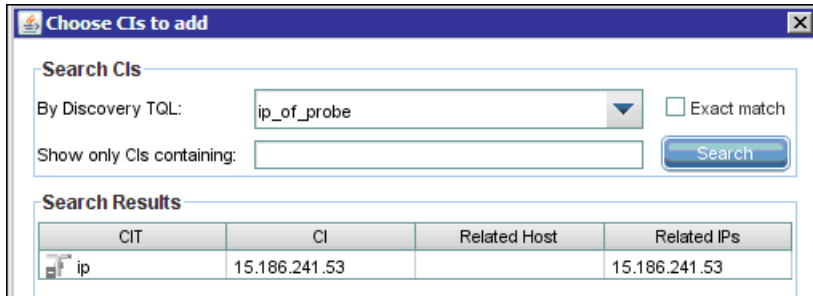
The following example shows successful job execution messages:

```
- The Job 'NNM Layer 2' started invocation (on 1 destinations)
- Starting NNM_Integration_Utils:mainFunction
- Server: it2tst10.cnd.hp.com, Port: 80, Username: system, MaxPerCall: 2500,
MaxObjects: 50000
- Service URL:
http://it2tst10.cnd.hp.com:80/IPv4AddressBeanService/IPv4AddressBean
- Service URL: http://it2tst10.cnd.hp.com:80/NodeBeanService/NodeBean
- Service URL: http://it2tst10.cnd.hp.com:80/IPv4SubnetBeanService/IPv4SubnetBean
- Service URL: http://it2tst10.cnd.hp.com:80/InterfaceBeanService/InterfaceBean
- Service URL:
http://it2tst10.cnd.hp.com:80/L2ConnectionBeanService/L2ConnectionBean
- OSHVector contains 45426 objects.
- The probe is now going to send back 45426 objects.
- This transfer may take more time than normal due to the large amount of data being
sent to the server.
```

- b** For further debugging information check **probeMgr-patternsDebug.log** in `\hp\DDM\DiscoveryProbe\Discovery\logs`.
- c** Due to the large volume of data discovered by this discovery job, it may take a while for the probe to send it back to the server. If the number of CIs is more than 20,000. the probe returns the data in chunks of 20,000 objects at a time.
- d** In the UCMDB GUI navigate to **Admin > Discovery > Run Discovery > Advanced Mode**.
- e** Activate the job **NNM Update Ids** (in module Network NNM Layer 2).



- f** Click on the + sign in **Discovery Status** to add a trigger CI to this job.
- g** Select the discovery TQL: **ip_of_probe** from the drop-down and click **Search** to list the IP CIs of the probe.



- h** Select the IP of the probe to dispatch the job against and click **Add**.
- i** Monitor the **wrapperProbeGw.log** for job invocation, execution and possible error messages.

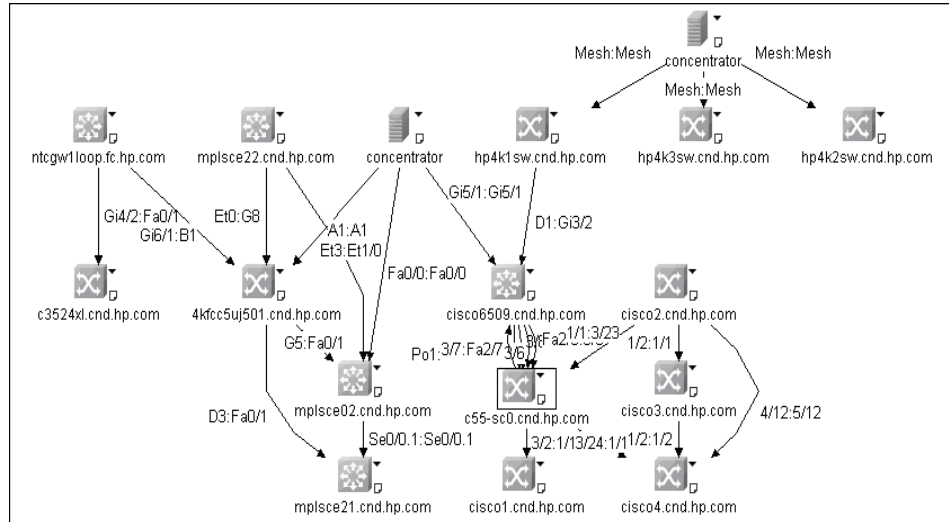
The following example shows successful job execution messages:

```
- The Job 'NNM Update Ids' started invocation (on 1 destinations)
- UCMDB Server: ucmdb75.fkam.cup.hp.com, UCMDB Port: 8080, UCMDB Username:
admin, UCMDB Protocol: http, UCMDB Context: /axis2/services/UcmdbService
- NNM Server: it2tst10.cnd.hp.com, NNM Port: 80, NNM Username: system
- Getting ready to update Custom Attribute UCMDB_ID on 8161 NNM nodes in NNM
- This process may take a while since the UCMDB_ID custom attribute in NNM can only
be updated one node at a time. Check probeMgr-patternsDebug.log for status update.
```

- j** For further debugging information check **probeMgr-patternsDebug.log**.

Note: This job retrieves the UCMDB IDs of the NNM Hosts from the UCMDB server using the UCMDB Web Services API. It then updates a **CustomAttribute** on the corresponding Node object in the NNM Server using the NNM Web Service. Since the NNM Web Service allows only updating one node at a time, this process might take a long time depending on the number of nodes involved. Check the **probeMgr-patternsDebug.log** for update status.

The following diagram illustrates a typical NNMi Layer 2 view.



Troubleshooting and Recommendations

- ▶ If DDM responds with AXIS error messages or is unable to connect to the remote Web services, make sure that the NNMi Web service, UCMDB Web service and AXIS JARs are placed in the DDM resources directory on the probe.
- ▶ If the NNMi Web service responds with a cannot interrogate model message, this usually means that the Web service request made to the NNMi server was incorrect or was too complicated for the NNMi server to process. If this message is encountered, check the NNMi JBoss logs for detailed information.
- ▶ The volume of data retrieved from the NNMi server may be large. The recommended memory configuration for the DDM probe process is 1024 MB of RAM.
- ▶ NNMi Web service allows for updating of the individual nodes, that is one at a time. If an excessive number of nodes are to be updated with the UCMDB_ID, it may take a while for the update pattern to complete.

NNMi Management Server Connection Protocol

The NNMi Management Server Connection Protocol Parameters appear in the NNMi protocol under **Setup Discovery Probes** in the Main menu.

The following table lists the parameters that are used for connecting NNMi to UCMDB. Coordinate with the NNMi administrator to determine the appropriate values for this section of the configuration file.

Field	Description
Host	The fully-qualified domain name of the NNMi management server. This field is returned by the nnmofficialqdn.ovpl -t command run on the NNMi management server.
Port	The port for connecting to the NNMi console. This is the port that the JBoss application server uses for communicating with the NNMi console. Set the NNMi port equal to the value of <port>. If the URL for accessing the NNMi console does not include a port specification, then use either port 80 (for non-SSL connections) or port 443 (for SSL connections).
User	The user name for connecting to the NNMi console. This user must have the NNMi Administrator or Web Service Client role.
Password	The password for the specified NNMi user.

UCMDB Server Connection

The following table lists the protocol parameters that are used for connecting UCMDB to the NNMi management server. These parameters appear in the NNM protocol in “Setup discovery probes” in the main menu. Coordinate with the UCMDB administrator to determine the appropriate values for this section of the configuration form.

Field	Description
Protocol	Either http or https.
Host	The host name of the HP UCMDB server.
Port	The port for connecting to the UCMDB Web service. If you are using the default UCMDB configuration, use either port 443 for SSL connections to UCMDB for Windows.
User	A valid HP UCMDB user account name with the HP UCMDB Administrator role. HP UCMDB works through Microsoft Internet Information Services (IIS) to authenticate user credentials. Specify a fully qualified Windows user in the format <fully_qualified_domain_name>\<username>.
Password	The password for the specified UCMDB user.

