HP Universal CMDB

for the Windows and Solaris operating systems

Software Version: 8.02

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

Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notices

Trademark Notices

Adobe® and Acrobat® are trademarks of Adobe Systems Incorporated.

Intel®, Pentium®, and Intel® Xeon^{TM} are trademarks of Intel Corporation in the U.S. and other countries.

Java^{TM} is a US trademark of Sun Microsystems, Inc.

Microsoft®, Windows®, Windows NT®, and Windows® XP are U.S registered trademarks of Microsoft Corporation.

Oracle® is a registered US trademark of Oracle Corporation, Redwood City, California.

Unix® is a registered trademark of The Open Group.

Acknowledgements

For details, refer to the relevant product documentation.

Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.

- Document Release Date, which changes each time the document is updated.

- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates, or to verify that you are using the most recent edition of a document, go to:

http://h20230.www2.hp.com/selfsolve/manuals

This site requires that you register for an HP Passport and sign-in. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Support

Visit the HP Software Support web site at:

http://www.hp.com/go/hpsoftwaresupport

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

Table of Contents

Table of Contents

Network Node Manager i (NNMi) Integration with HP Universal CMDB

This document explains how to integrate Network Node Manager (NNMi) with HP Universal CMDB (UCMDB).

This document includes:

Concepts

Tasks

Reference

NNMi Integration – Overview

You integrate NNMi with UCMDB using the Discovery and Dependency Mapping (DDM) application.

When you activate the **Integration – NNM Layer2** module, DDM retrieves Layer 2 network topology data from NNMi and saves the data to the UCMDB database. Users can then perform change management and impact analysis through the UCMDB correlation engine.

Note:

➤ DDM version 8.00 or later includes a module for discovering NNMi. No additional deployment is necessary.

➤ You can run integration with NNMi 8.11 or later.

Use Cases

This document is based on the following use cases:

➤ 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 through the UCMDB application.

➤ An NNMi operator wants to view the impact of a network access switch infrastructure failure where the impact data is available in UCMDB. The NNMi operator selects an incident or a node in NNMi and then enters a request for impacted CIs.

🦴 Run NNMi Discovery

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

Important: To avoid conflict, do not run the DDM Layer 2 jobs when running NNMi Layer 2 integration discovery.

This task includes the following steps:

1 Prerequisites

➤ Verify that the following CI has been discovered before running NNMi discovery: The **IP** CI of the NNMi server (through the **ICMP** jobs).

For details on activating a job, see "Discovery Modules Pane" in *Discovery and Dependency Mapping Guide*. For an explanation of a discovery job, see "Jobs" in *Discovery and Dependency Mapping Guide*.

Note: If UCMDB is running on a Foundation License, the IP CI must be manually inserted into the UCMDB. For details, see "Manually Create an IP CI for the NNMi Server" on page 14.
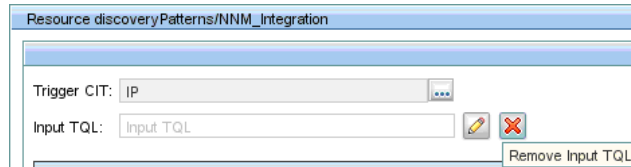
2 Add the NNMi Server IP to the Domain

You must manually define the IP address range of the NNMi server, needed by DDM: **DDM** > **Setup Discovery Probes** > **Domains and Probes** > **Default Domain** > **Probes**. Select the probe. Click the **Add IP** range button. Enter the range of the IP address.

Note: The IP address range must take the following format:
start_ip_address – end_ip_address

3 Delete the Existing Input TQL

Delete the existing input TQL from the NNMi job (**Admin > Discovery > Run Discovery**. Select the **Integration – NNM Layer 2** module. Right-click the **Layer2 by NNM** job and select **Go To Pattern**. In the Pattern Signature tab, click the **Remove Input TQL** button next to the Input TQL field, click **Yes** in the confirmation dialog box. Click **Save** to save the pattern):

4 Create the Trigger TQL

a Delete the existing trigger TQL (**ip_of_nnm**) from the NNMi job (**Admin > Discovery > Run Discovery**. Select the **Integration – NNM Layer 2** module, select **Layer2 by NNM > Properties** tab > **Trigger TQLs** pane):

For details on adding a trigger CI, see "Choose CIs to Add Dialog Box" in *Discovery and Dependency Mapping Guide*.

b In the same Trigger TQLs pane, add the **ip** trigger TQL to the NNMi job and set it to disabled: Click **Add TQL** to open the Edit Probe Limitation for TQL Output dialog box. Clear the **All Discovery probes** check box and click **OK**:

Note: The trigger and input TQLs must be changed to enable the manual invocation of the integration job against the IP CI of the NNMi server only.

5 Set up the NNMi Protocol

In UCMDB, add an NNMi protocol entry. For details on the NNMi protocol, see "NNMi Protocol Connection Parameters" on page 15. For details on setting up a protocol, see "Domain Credential References" in *Discovery and Dependency Mapping Guide*.

6 Activate the NNMi Jobs

The NNMi jobs are included in the **Integration – NNM Layer 2** module.

a In UCMDB, activate the **Layer 2 by NNM** job. This 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 topology in UCMDB.

The job is activated against the **IP** CI of the NNMi server (discovered in the "Prerequisites" step above).

Note: Due to the large volume of data discovered by this discovery job, it may take a while for the Probe to send the data back to the server. If there are more than 20,000 CIs, the Probe returns data in chunks of 20,000 objects at a time.

   b Activate the **Update Ids in NNM** job. This job updates the nodes in the NNMi topology with the UCMDB IDs of the corresponding nodes in UCMDB.

   Note: This job retrieves the UCMDB IDs of the NNMi hosts from the UCMDB server using the UCMDB Web Services API. The job then updates the **CustomAttribute** attribute on the corresponding node object on the NNMi Server using the NNMi Web service. Because the NNMi Web service enables updating of only one node at a time, this process might take a while, depending on the number of nodes involved. Check **probeMgr-patternsDebug.log** for the update status.

   For details on activating a job, see "Discovery Modules Pane" in *Discovery and Dependency Mapping Guide*.

7 Check Messages for Successful Job Execution

The following example shows typical successful job execution messages for the **Layer 2 by NNM** job:

```
- 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.
```
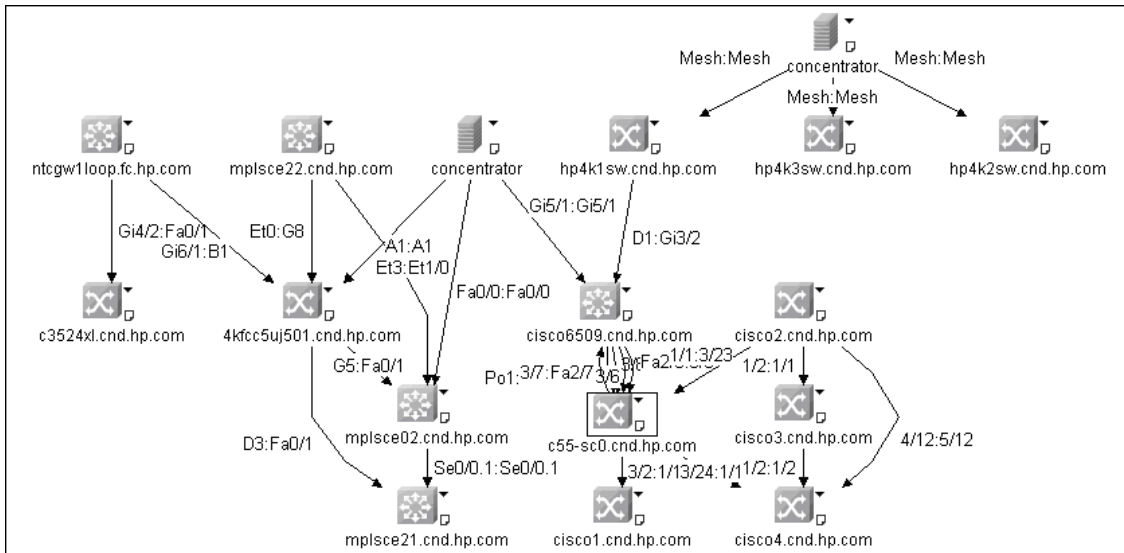
The following example shows typical successful job execution messages for the **Update Ids in NNM** job:

```
- 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.
```

You can monitor the **wrapperProbeGw.log** file for job invocation, execution (and possible error) messages. For further debugging information, check the **probeMgr-patternsDebug.log** file.
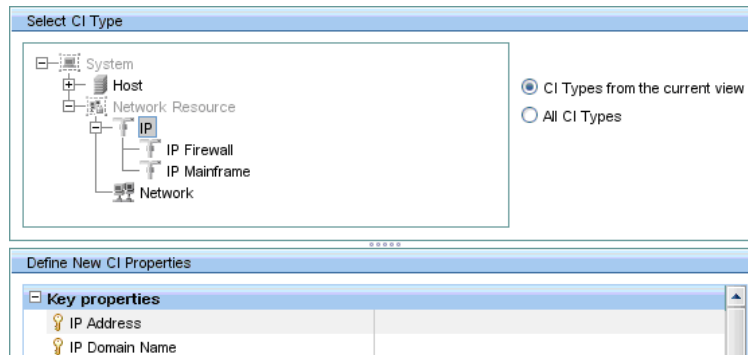
8 Topology Map

The following diagram illustrates a typical NNMi Layer 2 view:

Manually Create an IP CI for the NNMi Server

If UCMDB is running on a Foundation License, the IP CI must be manually inserted into the UCMDB:

a Create a new CI of type IP. For details, see "Define a New Non-related CI" in *Model Management*.

b Select IP as the CI Type, populate the Key properties fields and click the **Save** button to insert the new IP CI into the UCMDB.

Key properties for IP CI:

➤ **IP Address**. IP address of the NNMi server (for details, see step 2 on page 9).

➤ **IP Domain**. IP Domain name (for example, DefaultDomain) to which the IP is added.

Perform Change Management and Impact Analysis

You run impact analysis on a node in NNMi. Use the UCMDB Web Services API to call the NNMi correlations in the **NNM_Integration.zip** package:

➤ NNM_Application_impacts_Application

➤ NNM_Host_impacts_Application

➤ NNM_Switch_Router_impacts_Host

For details on running impact analysis, refer to the NNMi documentation. For details on the UCMDB Web Services API, see "The HP Universal CMDB Web Service API" in *HP Universal CMDB Integrations*. For details on correlation, see "Correlation Manager" in *Model Management.*

NNMi Protocol Connection Parameters

The following table lists the connection parameters from UCMDB to NNMi:

Parameter	Description
Connection Timeout	Time-out in milliseconds after which the Probe stops trying to connect to the NNM server.
NNM Password	The password for the NNM Web service (for example, **Openview**).
NNM User name	The user name of the NNM Web service (for example, **system**).
NNM Webservice Port	The Web service port number of the NNM server (for example, **80**).
NNM Webservice Protocol	The protocol for the NNMi Web service (the default is **http**).
UMCBD Password	The password for the UCMDB Web service (the default is **admin**).
UCMDB Username	The user name of the UCMDB Web service (the default is **admin**).
UCMDB Webservice Port	The UCMDB Web service port number (the default is **8080**).
UCMDB Webservice Protocol	The protocol for the UCMDB Web service (the default is **http**).

⚛ Troubleshooting and Recommendations

➤ If the NNMi Web service responds with a **cannot interrogate model** message, this usually indicates that the Web service request made to the NNMi server is incorrect or too complex to process. Check the NNMi JBoss logs for details.

➤ The volume of data retrieved from the NNMi server might be large. The recommended memory requirements for the DDM Probe process is 1024 MB. The NNMi Web service enables updating the individual nodes, one at a time. If an excessive number of nodes are to be updated with the same UCMDB ID, it may take a while for the update pattern to complete.