Note

Before using this information and the product it supports, read the information in “Notices” on page 27.

This edition applies to version 1.3.0.0 of IBM Network Performance Insight and to all subsequent releases and modifications until otherwise indicated in new editions.

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Upgrading

Upgrade your Network Performance Insight® V1.2.3 system to V1.3. This information does not cover the upgrade steps that are required for other supported components of Netcool® Operations Insight.

Intended audience

The audience who are network administrators or operations specialist responsible for installing the Network Performance Insight product suite on an enterprise network.

To install Network Performance Insight successfully, you must have a thorough understanding of the following subjects:

- Network Performance Insight 1.3 system
- Basic principles of network protocols and network management
- NetFlow concepts
- Administration of RHEL
- IBM® Netcool Operations Insight
- IBM Tivoli® Network Manager IP Edition
- Jazz™ for Service Management

Network Performance Insight architecture

IBM Network Performance Insight is a network performance monitoring system. It offers both real-time and historical trends in network performance and interactive view on the network data that helps in reduced network downtime and optimized network performance.

Network Performance Insight provides IBM Netcool Operations Insight with comprehensive IP network device performance monitoring and session traffic analysis.

The following diagram shows how data is flowing through the various components in Network Performance Insight:
Network Performance Insight services

Network Performance Insight services are running on microservice architecture that has the software application as a suite of independently deployable, small, modular services in which each service runs a unique process and communicates through a well-defined, lightweight mechanism. Currently, Network Performance Insight 1.3 consists of the following microservices:

**Foundation services**
- DNS
- Event
- Manager
- Storage
- UI

**Entity Metric services**
- Cacti Collector
- Exporter
- Formula Service
- Entity Analytics
- SNMP Collector
- Threshold
- Tivoli Network Manager Collector

**Flow Metric services**
- Flow Analytics
- Flow Collector
• SNMP Discovery

For more information about these services, see their respective sections in IBM Network Performance Insight: Product Overview.

**Network Performance Insight additional components**

Some of the additional components that are introduced in Network Performance Insight V1.3 for enhanced functions are described here:

**Technology Packs**

A set of ready-to-use Technology Packs is provided to perform second-level discovery and polling of resources to collect entity metric data. These Technology Packs can help to collect standard SNMP metrics, IP SLA metrics, and Performance Metric OOTB Device Support metrics.

For more information, see Installing the Technology Packs section in Installing and Configuring IBM Network Performance Insight.

**Network Performance Insight Dashboards**

These interactive dashboards are the built-in JSON-based dashboards suite that can display aggregated network data from Network Performance Insight database with the help of REST API calls. It supports a combination of data from multiple data sources.

This feature provides a wide variety of dashboards for Network Operators, Network Engineers, and Network Capacity Planners. These dashboards help in pinpointing the troubled resources and general resource performance. A number of web-based configuration options are available to control the data that is displayed on the dashboards.

For more information, see Network Performance Insight Dashboards section in IBM Network Performance Insight: Product Overview.

**Note:** Networks for Operations Insight is a solution extension of Netcool Operations Insight that includes the following components and products:

- Tivoli Network Manager
- Tivoli Netcool Configuration Manager
- Network Performance Insight
- Network Health Dashboard
- Device Dashboard
- Topology Search

**Hortonworks Data Platform components**

Hortonworks Data Platform (HDP®) can be used to help process and analyze the volume, variety, and velocity of data that continually enters your organization every day. Network Performance Insight is installed as a service extension to the installed HDP® stack.

The features of HDP® that are used in Network Performance Insight:

- HDP®
- Default support for rolling upgrades for Hadoop services
- Support for long-running applications within YARN for enhanced reliability
- Spark in-memory distributed compute engine for dramatic performance increase
• Apache Ambari operational framework. Apache Ambari is an open framework for provisioning, managing, and monitoring Apache Hadoop clusters. Ambari provides an intuitive and easy-to-use Hadoop management web UI backed by its collection of tools and APIs that simplify the operation of Hadoop clusters.

• Essentially includes the following open source technologies for working with Network Performance Insight:
  - Apache Hadoop
  - Apache Kafka
  - Apache Ambari
  - Apache Spark
  - Apache ZooKeeper

  **Note:** Because Zookeeper requires a majority, it is best to use an odd number of machines. For example, with four machines ZooKeeper can handle the failure of a single machine; if two machines fail, the remaining two machines do not constitute a majority. However, with five machines ZooKeeper can handle the failure of two machines.

**Integrated products**

Products that are integrated with Network Performance Insight 1.3:

**Jazz for Service Management**

Dashboard Application Services Hub provides visualization and dashboard services in Jazz for Service Management. It has a single console for administering IBM products and related applications. Visualization for Network Performance Insight is federated into Dashboard Application Services Hub.

**IBM Tivoli Network Manager IP Edition**

Tivoli Network Manager provides first-level device discovery and polling of some standard SNMP metrics.

**Tivoli Netcool/OMNIbus component of IBM Netcool Operations Insight**

Netcool Operations Insight is powered by the fault management capabilities of IBM Tivoli Netcool/OMNIbus. In Network Performance Insight, V1.3, Tivoli Netcool/OMNIbus is an important part of the solution for monitoring the network threshold violations.

**Related information:**

- [IBM Network Performance Insight on IBM Knowledge Center](#)
- [Apache Hadoop YARN](#)
- [IBM Netcool Operations Insight](#)
- [IBM Tivoli Network Manager IP Edition](#)
developerWorks community

Connect, learn, and share with Service Management professionals and product support technical experts who provide their perspectives and expertise.

Access the [IBM Network Performance Insight community](https://tnpmsupport.persistentsys.com/updated_trainings) Use developerWorks community in the following ways:

- Become involved with transparent development, an ongoing, open engagement between other users and IBM developers of Tivoli products. You can access early designs, sprint demonstrations, product roadmaps, and prerelease code.
- Connect one-on-one with the experts to collaborate and network about Tivoli and the Network and Service Assurance community.
- Read blogs to benefit from the expertise and experience of others.
- Use wikis and forums to collaborate with the broader user community.

Network Performance Insight technical training

For Tivoli technical training information, see the following Network Performance Insight Training website at [https://tnpmsupport.persistentsys.com/updated_trainings](https://tnpmsupport.persistentsys.com/updated_trainings).

Support information

If you have a problem with your IBM Software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

**Online**


**IBM Support Assistant**

The IBM Support Assistant is a free local software serviceability workbench that helps you resolve questions and problems with IBM Software products. The Support Assistant provides quick access to support-related information and serviceability tools for problem determination. To install the Support Assistant software, go to [https://www.ibm.com/software/support/isa](https://www.ibm.com/software/support/isa).

**Troubleshooting Guide**

For more information about resolving problems, see the problem determination information for this product.

Conventions used in this publication

Several conventions are used in this publication for special terms, actions, commands, and paths that are dependent on your operating system.

**Typeface conventions**

This publication uses the following typeface conventions:

**Bold**

- Lowercase commands and mixed case commands that are otherwise difficult to distinguish from surrounding text
- Interface controls (check boxes, push buttons, radio buttons, spin buttons, fields, folders, icons, list boxes, items inside list boxes,
multicolumn lists, containers, menu choices, menu names, tabs, property sheets), labels (such as Tip:, and Operating system considerations):

- Keywords and parameters in text

*Italic*

- Citations (examples: titles of publications, diskettes, and CDs)
- Words defined in text (example: a nonswitched line is called a point-to-point line)
- Emphasis of words and letters (words as words example: "Use the word that to introduce a restrictive clause."); letters as letters example: "The LUN address must start with the letter L.")
- New terms in text (except in a definition list): a view is a frame in a workspace that contains data.
- Variables and values you must provide: ... where myname represents....

*Monospace*

- Examples and code examples
- File names, programming keywords, and other elements that are difficult to distinguish from surrounding text
- Message text and prompts addressed to the user
- Text that the user must type
- Values for arguments or command options

*Bold monospace*

- Command names, and names of macros and utilities that you can type as commands
- Environment variable names in text
- Keywords
- Parameter names in text: API structure parameters, command parameters and arguments, and configuration parameters
- Process names
- Registry variable names in text
- Script names
Chapter 1. Upgrade paths

You can upgrade from 1.2.3 to 1.3 based on your existing installation scenario, and then upgrade to an applicable scenario in 1.3.

Applicable upgrade paths are as follows:

Table 1. Upgradeable scenarios

<table>
<thead>
<tr>
<th>1.2.3</th>
<th>1.3</th>
<th>Upgradeable?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>Scenario 1</td>
<td>Yes</td>
</tr>
<tr>
<td>To collect NetFlow data from Network Performance Insight and Performance data from Tivoli Network Manager.</td>
<td>Discovery and polling of devices and their resources for performance data collection from these devices are spread between Tivoli Network Manager and Network Performance Insight. NetFlow data is always collected by Network Performance Insight.</td>
<td></td>
</tr>
<tr>
<td>Scenario 2</td>
<td>Scenario 2</td>
<td>Yes</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>Scenario 3</td>
<td>Yes</td>
</tr>
<tr>
<td>To collect NetFlow data only from Network Performance Insight.</td>
<td>To collect NetFlow data only from Network Performance Insight.</td>
<td></td>
</tr>
</tbody>
</table>

A diagrammatic representation of the tasks that are involved in Network Performance Management upgrade.
Want to rollback? No Yes

Pre-upgrade Tasks
- Backup NPI & IOP data
- Download and extract NPI media
- Tasks for Scenario 1 deployment

Upgrade Tasks
- Run upgrade script

Post-upgrade Tasks
- Verify upgrade success
- Run post upgrade script
- Tasks for Scenario 1 deployment
- Optional tasks

Rollback to previous version

Want to rollback? Yes No

Post-upgrade Tasks
Chapter 2. Preupgrade tasks

You must prepare the target systems before you begin the upgrade.

To prepare for upgrade, perform the following tasks:

- Download and extract the Network Performance Insight software. See Downloading and extracting the Network Performance Insight software section in Installing and Configuring IBM Network Performance Insight.
- Make sure that the Ambari server is running and the cluster nodes are all working correctly.
- Back up the existing Network Performance Insight data.
  For more information, see Network Performance Insight backup and restore in Administering IBM Network Performance Insight.
- Make sure that you have the following operating system packages and their related repos are enabled:
  - libtirpc-devel
  - redhat-1sb

  Note: These packages are required for Hortonworks Data Platform.
- Update the kafka.properties file in Tivoli Network Manager system to comment out the reference to Performance Metric OOTB Device Support.
- Uninstall the Performance Metric OOTB Device Support component.

Updating the kafka.properties file

Comment out the Performance Metric OOTB Device Support configuration line that is available for in $NCHOME/precision/storm/conf/kafka.properties file.

About this task

Important: This task is required only if your existing Network Performance Insight deployment scenario has Tivoli Network Manager to collect performance metrics along with NetFlow metrics.

Performance Metric OOTB Device Support is installed from a separate package in Network Performance Insight V1.2.3.

The kafka.properties file might have a setting for Performance Metric OOTB Device Support configuration for NULL entity ID issue. This setting can now be removed as Performance Metric OOTB Device Support metrics are preinstalled from the Technology Pack content.

Procedure

1. Stop Tivoli Network Manager Storm Spout by using this command:
   cd $NCHOME/precision/bin
   source $NCHOME/env.sh
   itnm_stop storm

   By default, $NCHOME is /opt/IBM/netcool/core.
2. Remove or comment the following line in kafka.properties file as follows:
cd $NCHOME/precision/storm/conf/kafka.properties
###PODS fp4 NULL entity id issue
#kafka.table.monitoredinstance=monitoredinstance_vw

$NCHOME is the directory where Tivoli Network Manager is installed. By default, it is /opt/IBM/netcool/core.

3. Start Tivoli Network Manager Storm Spout by using this command:
   `itnm_start storm`

**Related information:**
- Installing the Performance Metric OOTB Device Support pack

---

**Uninstalling Performance Metric OOTB Device Support component**

Follow these steps to uninstall the Performance Metric OOTB Device Support component.

**Before you begin**

Disable the poll policies by using the following steps:

- Log in to the Dashboard Application Services Hub server that has Tivoli Network Manager server is installed as Dashboard Application Services Hub administrator user.
- Click the **Administration** icon and select **Network > Network Polling**.
- Select the policies to disable and click **Disable Selected Policies**.

**About this task**

This task is required only if your existing Network Performance Insight deployment scenario has Tivoli Network Manager to collect performance metrics along with NetFlow metrics.

**Procedure**

1. Clean up all the data from upsertEnt cron script as follows:

   **ORACLE**

   a. Log in to the server where Tivoli Network Manager server is installed as root user.
   b. Set the Tivoli Network Manager environment to display your changes after uninstallation as follows:
      ```
      cd $NCHOME
      source env.sh
      ```
   c. Run the following commands to delete the data from the cron script:
      ```
      cd $NCHOME/precision/scripts/pods/upsertEnt/ora
      ./cleanupEnt.sh
      ```
   d. Remove the following line in crontab based on your database:
      ```
      crontab -e*/5 * * * * (cd $NCHOME/precision/scripts/pods/upsertEnt/ora;
      ./run_upsertEnt.sh)
      ```

   **IBM DB2**

   a. Log in to the server where Tivoli Network Manager server is installed as root user.
   b. Run the following commands to delete the data from the cron script:
cd $NCHOME/precision/scripts/pods/upsertEnt/db2
./cleanupEnt.sh
c. Remove the following line in crontab:
	*/5 * * * * (cd <$NCHOME>/precision/scripts/pods/upsertEnt/db2;
	./run_upsertEnt.sh)

Where:
$NCHOME is Tivoli Network Manager installation directory. By default, it is,
/opt/IBM/netcool/core.

2. Uninstall the agents as follows:
   a. Log in to the server where Tivoli Network Manager server is installed as
      root user.
   b. Set the Tivoli Network Manager environment to display your changes after
      uninstallation as follows:
      cd $NCHOME
      source env.sh
c. Run the following command to uninstall the agents:
      cd $NCHOME/precision/scripts/pods/1.2.3
      ./uninst.sh <db_type> <domain> entity_dict

For example:

ORA

./uninst.sh ora NCOMS pods_1.2.3.dict

DB2

./uninst.sh db2 NCOMS pods_1.2.3.dict

Note: The MIB files aren’t removed with these commands.

3. Rerun the discovery to clean up.

4. Remove the poll definitions as follows:
   a. Log in to the Dashboard Application Services Hub server that has Tivoli
      Network Manager server is installed as Dashboard Application Services
      Hub administrator user.
   b. Click the Administration icon and select Network > Network Polling.
   c. Select the policies to delete and click Delete selected item (s).
   d. Delete all the Performance Metric OOTB Device Support metrics.
Chapter 3. Upgrading Network Performance Insight

Manually, run the upgrade script to update to Network Performance Insight V1.3.

**About this task**

Follow these steps to upgrade Network Performance Insight 1.2.3 cluster to 1.3:

**Procedure**

1. Run the `npi_upgrade.sh` script that is available in the `<DIST_DIR>/NPI-1.3.0.0/bin/upgrade` at Ambari server host:
   ```
   cd <DIST_DIR>/bin/upgrade/
   ./npi_upgrade.sh <DIST_DIR>
   ``

   `<DIST_DIR>` is the directory that contains Hortonworks Data Platform packages.

2. Check the upgrade progress from the log files in `/bin/upgrade/` directory.
   The following information is collected in the log file:
   - `cluster_name.out`
   - `all_hosts.out`
   - `temp_comps_of_<myserver.ibm.com>.out`
   - `comp_of_<myserver.ibm.com>.out`
   - `temp_comps_of_<myserver.ibm.com>.out`
   - `comp_of_<myserver.ibm.com>.out`
   - `npi_cfg.out`
   - `npi_auth.out`
   - `npi_state.out`
   - `kafka_state.out`
   - `am_state.out`
   - `zk_state.out`
   - `yarn_state.out`
   - `mr2_state.out`
   - `hdfs_state.out`
   - `npi_stopping_msg.out`
   - `kafka_stopping_msg.out`
   - `am_stopping_msg.out`
   - `zk_stopping_msg.out`
   - `yarn_stopping_msg.out`
   - `mr2_stopping_msg.out`
   - `hdfs_stopping_msg.out`
   - `npi_state_<timestamp>.out`
   - `kafka_state_<timestamp>.out`
   - `am_state_<timestamp>.out`
   - `zk_state_<timestamp>.out`
   - `yarn_state_<timestamp>.out`
Results

The following tasks are performed by the script:

- The following checks are done for availability and if the checks fail, the script exits:
  - Checks whether the Hortonworks Data Platform packages are available or not.
  - Checks whether the base version installed is 1.2.3.
  - Checks whether the repos for redhat-1sb and libtrpc-devel packages are enabled or not.

  Note: You can rerun the script after enabling the repos.

- Runs backup for the existing Network Performance Insight before updating to 1.3.
- Gets the cluster name and host components from the existing cluster deployment.
- Gets Ambari blue print for cluster configuration.
- Cleans up existing Network Performance Insight environment.
- Prepares the blue print with host mapping.
- Installs Network Performance Insight V1.3.
- Registers the blue print to automate the cluster creation.

Optional: Upgrading Remote Flow Collector Service

If you have installed the Remote Flow Collector, use these steps to upgrade to the latest version.

Procedure

1. Copy the following scripts from <DIST_DIR> to /temp directory on the host where the Remote Flow Collector must be upgraded:
   - <DIST_DIR>/CNVI6ML/NPI-1.3.0.0/bin/installRemoteFlowCollector.sh
   - <DIST_DIR>/CNVI6ML/NPI-1.3.0.0/bin/upgrade/remoteflowcollector-upgrade.sh

2. Run the remoteflowcollector-upgrade.sh script as follows:
   ```
   ./remoteflowcollector-upgrade.sh <yum-repo-server> <yum-repo-port>
   ```

   Where:
   - <yum-repo-server> is the server where the Ambari server is installed.
   - <yum-repo-port> is the HTTPD port 9091 that is used by Ambari server for components installation in the cluster.


   a. Open a browser and access the Ambari server dashboard.
      Use the following default URL:
      ```
      http://<myserver.ibm.com>:8080
      ```
The default user name is admin, and the default password is admin.
b. Click Service Actions > Restart Flow Collectors.
Chapter 4. Post upgrade tasks

A set of tasks that must be performed after you complete the upgrade.

About this task

Perform the following tasks according to your deployment scenario:

Procedure

- **Verify that the upgrade is complete and successful**
- **Run the post upgrade script**.

**Important**: These steps are required in *Scenario 1 - NetFlow data and performance data from Network Performance Insight*. For more information, see *Installing and Configuring IBM Network Performance Insight*

- **Install the built-in Technology Pack content**
- **Perform the discovery for Performance Metric OOTB Device Support metrics**. For more information, see *IBM Network Performance Insight: Network Operations*.
- **Perform the SNMP metric polling so that the data can be rendered on the dashboards**. For more information, see *IBM Network Performance Insight: Network Operations*.

Verifying the upgrade

Complete the steps that are listed here to verify that the upgrade to Network Performance Insight V1.3 is successful.

Procedure

1. Verify that all services are installed and started by using the following steps:
   a. Access the Ambari server dashboard.
      Use the following default URL:
      http://<myserver.ibm.com>:8080
      The default user name is admin, and the default password is admin.
   
   b. Click icon on the Ambari dashboard to check the status of the services installation.
   
   c. Wait till all the services are installed and started.

2. Run the following `yum` command to list all the installed packages in the current version:
   ```bash
   yum list installed | egrep "npi|basecamp"
   ```
   Sample output:
Running the post upgrade script

Run the post upgrade script that automates the tasks that are to be performed after the upgrade is complete.

Procedure

1. Edit the serverProperties.cfg file that is available in `<DIST_DIR>/NPI-1.3.0.0/bin/upgrade` and provide the values for the following parameters:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPI_HOST_NAME</td>
<td>Fully Qualified Domain Name of the server where Network Performance Insight is installed.</td>
<td>&lt;myserver.ibm.com&gt;</td>
</tr>
<tr>
<td>NPI_HOST_PORT</td>
<td>The http port on which Network Performance Insight application console can be accessed.</td>
<td>8081</td>
</tr>
<tr>
<td>DASH_FEDERATION</td>
<td>Flag to indicate whether Dashboard Application Services Hub is already integrated or not.</td>
<td>True of False</td>
</tr>
<tr>
<td>BOOTSTRAP_SERVER</td>
<td>Fully Qualified Domain Name of the server where Kafka broker host is available.</td>
<td>&lt;myserver.ibm.com&gt;</td>
</tr>
<tr>
<td>BOOTSTRAP_SERVER_PORT</td>
<td>Port number of the Kafka broker host.</td>
<td>6667</td>
</tr>
<tr>
<td>ZOOKEEPER_SERVER</td>
<td>Fully Qualified Domain Name of the server where ZooKeeper Service is available.</td>
<td>&lt;myserver.ibm.com&gt;</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
<td>Example</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>ZOOKEEPER_SERVER_PORT</td>
<td>Port number where ZooKeeper is running.</td>
<td>2182</td>
</tr>
<tr>
<td>ITNM_ENABLED</td>
<td>Flag to indicate whether Tivoli Network Manager is enabled or not.</td>
<td>True/FALSE</td>
</tr>
<tr>
<td>ITNM_SERVER</td>
<td>Fully Qualified Domain Name of the server where Tivoli Network Manager is installed.</td>
<td>&lt;myserver2.ibm.com&gt;</td>
</tr>
</tbody>
</table>

2. Run the `post_upgrade.sh` script that is available in `<DIST_DIR>/NPI-1.3.0.0/bin/upgrade` as follows:
   ```bash
   ./post_upgrade.sh
   ```

3. Optional: Restart the Network Performance Insight services from Ambari web interface.
   a. Click Services > NPI.
   b. Click Service Actions > Restart All.

## Installing the Technology Packs

Use this information to install the Technology Pack content that is available within Network Performance Insight installation media. The ready-to-use Technology Pack content includes predefined vendor-specific discovery formulas, collection formulas, metrics, and MIB files that you can use for discovery and polling the devices.

### Before you begin

Make sure that you have installed, set up your cluster, and configured your Network Performance Insight system successfully.

Make sure that you have Tivoli Network Manager V4.2.0.5 installed.

### About this task

The following ready-to-use Technology Packs are available from the build after installation in `/opt/IBM/basecamp/basecamp-installer-tools/ootb-packs` directory:

- `network-health-1.0.0.jar`
- `network-health-cisco-1.0.0.jar`
- `network-health-generic-1.0.0.jar`
- `network-health-huawei-1.0.0.jar`
- `network-health-juniper-1.0.0.jar`
- `network-health-extension-1.0.0.jar`

These Technology Packs can be installed in Network Performance Insight system by using the `pack-install.sh` script in `/opt/IBM/basecamp/basecamp-installer-tools/pack-installer`

### Note:

- Install the packs in this order:
  - `network-health-1.0.0.jar`
– network-health-generic-1.0.0.jar
– Vendor-specific packs
• Do not install the network-health-extension-1.0.0.jar pack if you are polling the following metrics from Tivoli Network Manager to avoid double-polling of these metrics:
  – cpuBusy
  – ifOutDiscards
  – ifInDiscards
  – snmpOutBandwidth
  – snmpInBandwidth
  – ifInErrors
  – ifOutErrors

Each Technology Pack contains the following content:
• Discovery formulas
• Metrics
• Collection formulas
• Vendor-specific and standard MIB files

Procedure

Install the Technology Pack contents by using the following commands: Run the command on Ambari server and the pack is installed on all Network Performance Insight hosts in your cluster.

cd /opt/IBM/basecamp/basecamp-installer-tools/pack-installer
./pack-install.sh install ../ootb-packs/<tech_pack>-1.0.0.jar

For example:
/opt/IBM/basecamp/basecamp-installer-tools/pack-installer/pack-install.sh
install ../ootb-packs/network-health-cisco-1.0.0.jar

At the prompt, provide the following information:
• NPI Username
  By default, it is npiadmin.
• NPI Password
  By default, it is netcool.
• Accept the default port number.

The Technology Pack is installed and the content within the pack is distributed to vendor-specific directories as follows:

Discovery formulas
/opt/IBM/npi/npi-itnm-collector/discovery/

The discovery directory has all the collection formulas and their related files.

Formulas
/opt/IBM/npi/npi-itnm-collector/discovery/content

Contains all the discovery formula files that are arranged in separate vendor-specific directories from the custom Technology Pack.
MIB files
   /opt/IBM/npi/npi-itnm-collector/discovery/content/mibs
Contains all the MIB files that are arranged in separate directories from the custom Technology Pack.

Metrics
   /opt/IBM/basecamp/basecamp-timeseries/content/metrics
The metrics directory has all the metric files.

Collection formulas
   /opt/IBM/npi/npi-formula/content/
The content directory has all the collection formulas and their related files.

Formulas
   /opt/IBM/npi/npi-formula/content/formulas
Contains all the collection formula files from the custom Technology Pack.

MIB files
   /opt/IBM/npi/npi-formula/content/mibs
Contains all the MIB files that are arranged in separate directories from the custom Technology Pack.

Bindings
   /opt/IBM/npi/npi-formula/content/bindings
Contains all the MIB object class files that are created when the polling is run. Class files are generated by the Formula Service during network polling.

What to do next

Check the log files that are available in /opt/IBM/basecamp/basecamp-installer-tools/pack-installer/logs. When installation of the pack is successful, you might find the output as follows in the log file:

```
Checking dependencies for pack network-health-juniper-1.0.0.jar
Fetch NPI hosts from Ambari
Found NPI in the <myserver.ibm.com>
Pushing pack file to the <myserver.ibm.com>
Starting network-health-juniper-1.0.0.jar installation process to <myserver.ibm.com>
<myserver.ibm.com> completed
Script completed
```

Optional: Creating dashboarduser group and assigning users

Create the dashboarduser group and add the group to the user registry. You can search for and display a list of existing users that match your search criteria. Then, add the required users to the dashboarduser group.

About this task

Skip this task if the dashboarduser is available after you upgrade.

Note: You may configure more than one console integration on different Network Performance Insight hosts. The dashboard users created on the host that is used to
configure the console integration will be migrated after an upgrade. The dashboard users are specific to each host that is configured for a console integration.

Procedure

1. Log in to the Dashboard Application Services Hub portal.
2. Expand Console Settings > WebSphere Administrative Console.
3. Click Launch WebSphere Administrative Console.
4. On the side pane, click Users and Groups > Manage Groups.
5. Click Create and specify the following details:
   - **Group name**
     Type a name that is used to identify the group. Enter dashboarduser.
   - **Description**
     Optional: Type a brief description for the group to distinguish this group from other groups. The description must be an alphanumeric, case-insensitive string with characters that are part of the local code set.
6. Click Create.
   If successful, a message is displayed to indicate that the group is created.
7. Click dashboarduser from the list of groups in Manage Groups page.
8. Click Members and click Add Users.
9. Click Search to display the available users.
10. Select npiadmin and npiuser from the search result and click Add.
11. Log out of Dashboard Application Services Hub portal and clear your browser cache.
12. Log in the Dashboard Application Services Hub portal again with npiadmin user and password. For example, netcool.
   Use the following URL format to access Dashboard Application Services Hub:
   https://<myserver.ibm.com>:16311/ibm/console
   You can now access all the Network Performance Insight Dashboards.

What to do next

Perform the following steps for working with Network Performance Insight Dashboards that are described in Administering IBM Network Performance Insight:
1. Grant permission to role to access the dashboards.
2. Add users to access the Network Performance Insight Dashboards.
3. Access the Network Performance Insight Dashboards from Dashboard Application Services Hub.
Optional: Configuring Ambari server for non-root access

Perform these steps on the Ambari server host.

Procedure

1. Log in to the Ambari server host as root user.
2. Create a user name by using the following command:
   For example, ambari
   useradd ambari
3. Stop the Ambari server by using the following command:
   service ambari-server stop
4. Run the ambari-server setup command to see the following output and prompts:
   ambari-server setup
   Using python /usr/bin/python2
   Setup ambari-server
   Checking SELinux...
   SELinux status is 'disabled'
   Ambari-server daemon is configured to run under user 'root'.
   Change this setting [y/n] (n)? y
   Enter user account for ambari-server daemon (root):ambari
   Adjusting ambari-server permissions and ownership...
   Checking firewall status...
   Redirecting to /bin/systemctl status iptables.service
   Checking JDK...
   Do you want to change the current JDK [y/n] (n)?
   Completing setup...
   Configuring database...
   Enter advanced database configuration [y/n] (n)?
   Configuring database...
   Default properties detected. Using built-in database.
   Configuring ambari database...
   Checking PostgreSQL...
   Configuring local database...
   Connecting to local database...done.
   Configuring PostgreSQL...
   Backup for pg_hba found, reconfiguration not required
   Extracting system views...
   ......
   Adjusting ambari-server permissions and ownership...
   Ambari Server 'setup' completed successfully.
5. Start the Ambari server with the following command:
   service ambari-server start

Optional: Configuring Ambari agent hosts for non-root access

This step is required only if you want to configure your Ambari agent hosts for non-root access. Perform these steps on all Ambari agent hosts in your cluster.

Before you begin

Copy the script /opt/IBM/basecamp/basecamp-installer-tools/ambari/agent_setup_nonRoot.sh from Ambari server host to each Ambari agent node in your cluster to a temporary location. For example, /tmp/agent_setup_nonRoot.sh.

Procedure

1. Log in to an Ambari agent node as root user.
2. Stop the Ambari agent by using the following command:
service ambari-agent stop

3. Run the agent_setup_nonRoot.sh script as follows:
   /tmp/agent_setup_nonRoot.sh
   The script performs the following functions:
   - Creates the ambari user.
   - Updates the /etc/sudoers file to add new sudo permissions for the Ambari non-root user, that is ambari.
   - Updates the /etc/ambari-agent/conf/ambari-agent.ini to run as user ambari.

4. Start the Ambari agent by using the following command:
   service ambari-agent start

5. Repeat these steps on all Ambari agent hosts.
Chapter 5. Rolling back an upgrade

Use these steps to roll back your Network Performance Insight 1.3 to 1.2.3.

Before you begin

Before you roll back the upgrade, do the following tasks:

- Make sure that Network Performance Insight 1.3 system is up and running.
- Make sure the Network Performance Insight V1.2.3 backup copy is ready.

About this task

Typically, rollback must be done in the following scenarios:

- If the installation fails during upgrade.
- If the services do not start after the installation due to cluster creation failures.

Follow these steps to roll back your upgrade to 1.2.3:

Procedure

1. Run the following command on Ambari server:

   ```
   cd <DIST_DIR>/NPI-1.3.0.0/bin/upgrade
   ./npi_rollback.sh <DIST_DIR>/NPI1.2.3/CNS1IML/NPI-1.2.3.0.tgz <DIST_DIR>
   
   The npi_rollback.sh command takes two parameters; absolute path where 1.2.3 installation media is located and relative path where IBM Open Platform with Apache Spark and Apache Hadoop packages are located. <DIST_DIR> is the directory where Network Performance Insight 1.2.3 installation media and IBM Open Platform with Apache Spark and Apache Hadoop packages are available. The following tasks are done after the npi_rollback.sh is run:
   
   - Stops all services from Ambari.
   - Runs check base to see if 1.3 content can be rolled back.
   - Validates the IBM Open Platform with Apache Spark and Apache Hadoop packages in <DIST_DIR> path that is provided in the rollback script.
   - Restores the npi.repo configuration from 1.3 to V1.2.3.x.
   - Restores Ambari configuration from 1.3 to 1.2.3.x.
   - Restores the stack definition to 4.2.NPI.
   - Erases all the packages from Network Performance Insight V1.3 and install V1.2.3.x packages from backup directories.
   - Restarts Dashboard Application Services Hub integration certificates and settings.
   - Restarts the Ambari agent on each Network Performance Insight cluster hosts.
   - Restarts the Ambari Server.
   - Registers the blue print.

2. Verify that the rollback is successful with this command:

   ```
   yum list installed | egrep "basecamp|npi"
   ```
What to do next

After your upgrade is successful and you are able to log in to Ambari web interface, run the post_rollback.sh script.

Running the post rollback script

After the rollback is complete, run the post rollback script to clean up the environment.

Before you begin

- Make sure all the services are up and running.
- Make sure that the serverProperties.cfg file is configured correctly.

Procedure

Run the post rollback script as follows:

```
cd `<DIST_DIR>/NPI-1.3.0.0/bin/upgrade
./post_rollback.sh
```

Note: You can run this script as root or non-root user. If you run the script as non-root user, reconfigure the Ambari server and agents to the non-root user. This script performs the following tasks:

- Restores the oed.mv.db.
- Restores the backup that is done during preupgrade.
- Copies the $NCHOME/etc/security/keys/conf.key file from Tivoli Network Manager system.

For more information, see Postinstallation tasks in Installing and Configuring IBM Network Performance Insight.

Installing the Performance Metric OOTB Device Support pack

Use this information to install Performance Metric OOTB Device Support pack.

Before you begin

- The following MIB files are required for this solution. Most of them are available in a typical Tivoli Network Manager system and the missing MIB files are bundled in Performance Metric OOTB Device Support package:

<table>
<thead>
<tr>
<th>MIBs required for the solution</th>
<th>Bundled MIBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco</td>
<td>Cisco</td>
</tr>
<tr>
<td>Cisco-ENTITY-FRU-CONTROL-MIB.mib</td>
<td>CISCO-ENHANCED-MEMPOOL.mib</td>
</tr>
<tr>
<td>Cisco-ENTITY-SENSOR-MIB.mib</td>
<td></td>
</tr>
<tr>
<td>Cisco-ENVMON.mib</td>
<td></td>
</tr>
<tr>
<td>Cisco-MEMORY-POOL-MIB.mib</td>
<td></td>
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<tr>
<td>Cisco-PROCESS-MIB.mib</td>
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<tr>
<td>Cisco-SMI.mib</td>
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<tr>
<td>ENTITY.mib</td>
<td></td>
</tr>
<tr>
<td>Cisco-ENHANCED-MEMPOLL.mib</td>
<td></td>
</tr>
<tr>
<td>OLD-CISCO-SYS.mib</td>
<td></td>
</tr>
<tr>
<td>OLD-CISCO-INTERFACES-MIB.mib</td>
<td></td>
</tr>
</tbody>
</table>
**MIBs required for the solution**

<table>
<thead>
<tr>
<th>Juniper</th>
<th>Juniper ERX</th>
</tr>
</thead>
<tbody>
<tr>
<td>• juniMibs.mib</td>
<td>• juniSystem.mib</td>
</tr>
<tr>
<td>• juniSmi.mib</td>
<td></td>
</tr>
<tr>
<td>• juniTc.mib</td>
<td></td>
</tr>
<tr>
<td>• mib-jnx-chassis.mib</td>
<td></td>
</tr>
<tr>
<td>• juniSystem.mib</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Huawei</th>
<th>Huawei</th>
</tr>
</thead>
<tbody>
<tr>
<td>• huawei-entity-extent-mib.mib</td>
<td>• huawei-entity-extent-mib.mib</td>
</tr>
<tr>
<td>• huawei-mib.mib</td>
<td>• huawei-mib.mib</td>
</tr>
</tbody>
</table>

**Agent that discovers the containment information:**

- ENTITY-MIB.mib

  The Entity agent queries the MIB for each entity and retrieves containment information for that entity. Before you enable this agent, you must configure SNMP access and the SNMP Helper. For more information, see Discovering containment information.

- Ensure that Korn Shell (ksh) is present in the /bin/ksh path. If ksh is not available, then create a softlink by using the following command:
  ```
  ln -s /bin/ksh /usr/bin/ksh
  ```

**Procedure**

1. Log in to the server where Tivoli Network Manager server is installed as root user.
2. Copy the pods_pack_1.2.3-<build_number>.tar.gz file from the <DIST_DIR> to the following directory:
   ```
   $NCHOME/precision/scripts
   ```
   By default, $NCHOME is /opt/IBM/netcool/core.
3. Extract the pods_pack_1.2.3-<build_number>.tar.gz file.
   ```
   gunzip -c pods_pack_1.2.3-<build_number>.tar.gz | tar -xvf -
   ```

   **Note:** Make sure that the /pods directory has correct Tivoli Network Manager owner. If it is not, change to the correct owner and group by using the following command:
   ```
   chown -R <itm_owner>:<group> pods
   ```
   For example:
   ```
   chown -R netcool:netcool pods
   ```

   The following directories and files are available in the /pods directory:
   - 1.2.3
     - agents
     - defs
     This folder contains the following folders:
     - mibs
       Contains the vendor-specific MIB files that are missing from Tivoli Network Manager system.
- polldef
  Contains the vendor-specific XML files and scripts.
- sql
  - Installation and uninstallation scripts
- tools

4. Set the Tivoli Network Manager environment to pick up your changes as follows:
   cd $NCHOME
   source env.sh

5. Create the .db_connect for fresh installation as follows:
   It is a one time task. Two sample files for Oracle and Db2 setup are provided in the following location:
   $NCHOME/precision/scripts/pods:
   - .db_connect.db2.sample
   - .db_connect.ora.sample
   The sample settings are as follows:
   ![Oracle](#)
   export pods_db_host=<DB_Host_IP_Address>
   export pods_db_port=1521
   export pods_db_user=ncim
   export pods_db_pwd=ncim
   ![Db2](#)
   export pods_db_host=<DB_Host_IP_Address>
   export pods_db_name=ncim
   export pods_db_port=50000
   export pods_db_user=db2inst1
   export pods_db_pwd=db2inst1

6. Run the following command based on your Tivoli Network Manager supported database:
   ![Oracle](#)
   cd $NCHOME/precision/scripts/pods/1.2.3
   ./inst.sh ora <domain_name> pods_1.2.3.dict default | tee /tmp/<pods>/inst_<domain_name>_pods_1.2.3.log
   ![Db2](#)
   cd $NCHOME/precision/scripts/pods/1.2.3
   ./inst.sh db2 <domain_name> pods_1.2.3.dict default | tee /tmp/<pods>/inst_<domain_name>_pods_1.2.3.log

   Where:
   - `<domain_name>` is the ObjectServer name. By default, it is NCOMS.

   **Note:** Ensure that `/tmp/<pods>` directory is existing in your environment.
   This command installs the agents, imports the bundled MIB files, and XML files. It also compiles the MIB files and imports all the poll definitions.
   If the existing MIB files are compiled previously, you might see the following message:
   ./inst_mib_db2 starting...
   Skipped existing MIB CISCO-ENHANCED-MEMPOOL.mib
   Skipped existing MIB huawei-entity-extent-mib.mib
WARNING: All mibs already exist. Do nothing

Use the force option to ensure that all the existing and new MIB files are compiled successfully by using the following command:

```
./inst.sh ora <domain_name> inst_pods_1.2.3.dict force | tee /tmp/inst_<domain_name>_pods_1.2.3.log
```

**What to do next**

- Update `kafka.properties` file by using the following steps:
  1. Stop Tivoli Network Manager Storm Spout by using this command:
     ```
itnm_stop storm
```
  2. Edit the `$NCHOME/precision/storm/conf/kafka.properties` file to add the following line:
     ```
kafka.table.monitoredinstance=monitoredinstance_vw
```
  3. Start Tivoli Network Manager Storm Spout by using this command:
     ```
itnm_start storm
```
- (Optional) If you do not see the descriptions for the newly installed agents that belong to Performance Metric OOTB Device Support application from**Network Discovery Configuration > Full Discovery Agents**, restart the Tivoli Network Manager system.
Chapter 6. Troubleshooting installation and upgrade

Problems that might occur during an installation and how to resolve them.

About this task

For all troubleshooting issues in installation of Network Performance Insight, see Troubleshooting installation, upgrade, and Network Performance Insight services section in Troubleshooting Network Performance Insight.

For all troubleshooting issues in deploying Ambari clusters, see Troubleshooting Ambari server section in Troubleshooting Network Performance Insight.

For all troubleshooting issues in integration of Network Performance Insight, see Troubleshooting integration with Tivoli Netcool/OMNIbus section in Troubleshooting Network Performance Insight.
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