Upgrading Network Performance Insight
Before using this information and the product it supports, read the information in “Notices” on page 9.

This edition applies to version 1.2.1.0 of IBM Network Performance Insight and to all subsequent releases and modifications until otherwise indicated in new editions.

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Preface

Use this information to upgrade to Network Performance Insight, v1.2.1.

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 1.2.1 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.

Network Performance Insight provides comprehensive, flexible, and scalable traffic data management with visualization and reporting to support complex, multi-vendor, multi-technology networks. It offers a range of dashboard views with robust security features that are designed to meet the needs of executive management and converging network and IT operations teams.

Network Performance Insight offers near real-time and interactive view on the traffic 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:
IBM Open Platform with Apache Spark and Apache Hadoop

IBM Open Platform with Apache Spark and Apache Hadoop (IOP) 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 IBM Open Platform with Apache Spark and Apache Hadoop stack.

The features of IOP that are used in installing Network Performance Insight:

- IBM Open Platform with Apache Spark and Apache Hadoop
- 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 increases
- 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:
  - HDFS
  - Kafka
  - Ambari
  - Spark
Note: Because Zookeeper requires a majority, it is best to use an odd number of machines. For example, with four machines ZooKeeper can only 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

The products that are needed to work with Network Performance Insight, V1.2.1 are as follows:

Jazz for Service Management 1.1.3.0
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.

Products that are integrated with Network Performance Insight 1.2.1:

IBM Tivoli Network Manager IP Edition 4.2.0.3
Tivoli Network Manager provides network discovery, device polling, including storage of polled SNMP data for reporting and analysis, and topology visualization. In addition, Network Manager can display network events, perform root-cause analysis of network events, and enrich network events with topology and other network data.

Tivoli Netcool/OMNIbus component of IBM Netcool Operations Insight 1.4.1
Netcool Operations Insight is powered by the fault management capabilities of IBM Tivoli Netcool/OMNIbus. In Network Performance Insight v1.2.1, Tivoli Netcool/OMNIbus 8.1.0.11 is an important part of the solution for monitoring the network threshold violations.

Network Performance Insight services

Network Performance Insight components 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.

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

Related information:

- IBM Network Performance Insight on IBM Knowledge Center
- IBM BigInsights 4.2 documentation
- HDFS Architecture
- Apache Hadoop YARN
- Apache Kafka
- Apache Zookeeper
Service Management Connect

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

Access Network and Service Assurance community at https://www.ibm.com/developerworks/servicemanagement/nsa/index.html Use Service Management Connect 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.

Related information:

IBM Network Performance Insight community on developerWorks

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

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 http://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. Upgrading

Upgrade your IBM Network Performance Insight system to the latest version. This information does not cover the upgrade steps that are required for other supported components of Netcool Operations Insight.

Before you begin

- Download Network Performance Insight 1.2.1 package from IBM Passport Advantage, and extract to a temporary directory. For example, `<DIST_DIR>`.
- Make sure that the Ambari server is running and the cluster nodes are all working correctly.
- Back up existing Network Performance Insight data.
  For more information, see Network Performance Insight backup and restore in Administering IBM Network Performance Insight.
- Back up your 1.2.0 stack from `/var/lib/ambari-server/resources/stacks/BigInsights/4.2/NPI` location to a location of your choice. For example, `<npi_stack_backup>`.

About this task

During this upgrade process, the following new services are installed and the rest of the services remain at 1.2.0 level:

- Kafka Schema Registry
- Formula Service
- SNMP Collector

Integration with Dashboard Application Services Hub is done automatically after the upgrade and when all the services are started.

Preparing Network Performance Insight 1.2.1 environment

Complete these tasks before you start the upgrade.

Procedure

1. Run the following command to clean all cached files from any enabled repository:
   ```
   # yum clean all
   ```
2. Run the following commands to install the rpm packages:
   ```
   # yum install -y <DIST_DIR>/NPI-1.2.1.0/npi-basecamp-repo-1.2.1.*.<timestamp>.rpm
   # createrepo /var/www/html/repos/npi
   # yum install -y <DIST_DIR>/NPI-1.2.1.0/npi-npi-repo-1.2.1.*.<timestamp>.rpm
   # createrepo /var/www/html/repos/npi
   # yum install -y <DIST_DIR>/NPI-1.2.1.0/npi-basecamp-httpd-1.2.1.*.<timestamp>.rpm
   # yum install -y <DIST_DIR>/NPI-1.2.1.0/npi-ambari-1.2.1.*.<timestamp>.rpm
   # yum install -y <DIST_DIR>/NPI-1.2.1.0/npi-installer-tools-1.2.1.*.<timestamp>.rpm
   ```

   Note: For issues related to this task, see Fixing the remaining unfinished transactions message during upgrade topic in Upgrading IBM Network Performance Insight.
Stopping Network Performance Insight and Kafka services

Stop all the Network Performance Insight and Kafka services before you proceed to upgrade to 1.2.1.

Procedure
1. Log in to 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.
Stopping Network Performance Insight services
2. Click Services > NPI.
3. Select Stop from the Service Actions list.
4. Click Confirm Stop in the Confirmation dialog box.
Stopping the Kafka Service
5. Click Services > Kafka.
6. Repeat steps 3 - 4.

What to do next

Run the following command from Ambari server to stop the Ambari agents:

```
service ambari-agent stop
```

Updating Network Performance Insight

Manually, run the upgrade script to update to Network Performance Insight V1.2.1.

About this task

Follow these steps to upgrade Network Performance Insight 1.2.0 cluster to 1.2.1:

Procedure
1. Run the following script at the Ambari server host:

   ```
   # cd /opt/IBM/npi/npi-installer-tools/upgrade
   # ./start_upgrade.sh
   ```

2. Check the upgrade progress from the log files in /tmp/ directory.
   The following information is collected in the log file: /opt/IBM/npi/npi-installer-tools/upgrade/out_<timestamp>
   - cluster_name.out
     The name of the Network Performance Insight cluster to be upgraded.
   - all_hosts.out
     Cluster host names that are registered on Ambari server.
   - comp_of_<host_name>.out
     Network Performance Insight and Kafka services and components that are installed on <host_name>.

   **Note:** A separate comp_of_<host_name>.out file is generated for every host in your cluster.
   - auto_upgrade_<host_name>.sh
     Script that is used to erase or install Network Performance Insight and Kafka services on <host_name>.
Note: A separate auto_upgrade_<host_name>.sh file is generated for every host in your cluster.

Results

After the upgrade script is run NPI.repo in /etc/yum.repos.d file is renamed to NPI.repo.bck.

Configuring the new version of Network Performance Insight and Kafka

Save a new version of configuration for Network Performance Insight and Kafka on Ambari. Do not update any other configuration, unless it is required.

Procedure

1. Log in to 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.
   Adding the new version to Kafka configuration files.
2. Click Services > Kafka > Configs.
3. Expand the Advanced kafka-env pane and add the following lines in kafka-env template text area for the new version of Network Performance Insight:
   
   # For NPI 1.2.1.0

   4. Click Save.
   Adding the new version to Network Performance Insight configuration files.
5. Click Services > NPI > Configs > Advanced.
6. Expand the Advanced npi-env pane and add the following lines in npi-env template text area for the new version of Network Performance Insight:
   
   # For NPI 1.2.1.0

   7. Click Save.

Starting Network Performance Insight and Kafka services

Start all the Network Performance Insight and Kafka services.

Procedure

1. Log in to 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.
   Starting Network Performance Insight services
2. Click Services > NPI.
3. Select Restart All from the Service Actions list.
   Starting the Kafka Services.
4. Click Services > Kafka.
5. Select Restart All from the Service Actions list.

What to do next

Stop Ambari agents on all cluster hosts.
For more information, see Controlling the Ambari server and Ambari agent services in Administering IBM Network Performance Insight.

Adding the additional services

Add the additional services that are specific to Network Performance Insight 1.2.1.

Procedure

1. Click Hosts and select a host in your cluster.
2. Click the + Add button on the Summary tab of the selected host.
3. Add the following services one by one:
   - Kafka Schema Registry
   - Formula Service
   - SNMP Collector
4. Start all the newly added services.
5. Repeat the steps 1 - 4 on all the hosts in your cluster.

Note: Kafka Schema Registry Service can start only after the Kafka Service starts.
Chapter 2. Configuring 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/npi/npi-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 3. Rolling back an upgrade

The rollback reverts your Network Performance Insight 1.2.1 to 1.2.0 if upgrade fails.

Before you begin

Before you roll back the upgrade, do the following:

- Back up your 1.2.0 stack from /var/lib/ambari-server/resources/stacks/BigInsights/4.2.NPI location to a location of your choice. For example, <npi_stack_backup>.
- Make sure that Network Performance Insight 1.2.0 system is up and running.
- Make sure you can access the following URL and it has all the 1.2.0 RPM packages available:
  http://<ambari-server>:<port>/repos/NPI/RHEL7/x86_64/1.2.0.0/
  This URL corresponds to the following physical directory: /var/www/html/repos/NPI/RHEL7/x86_64/1.2.0.0

About this task

Follow these steps to roll back your failed upgrade back to 1.2.0:

Procedure

1. Rename the NPI.repo.bck file to NPI.repo.
2. Ensure that the following content in /etc/yum.repos.d/NPI.repo file is pointing to Network Performance Insight version 1.2.0.0 repository RPM packages:

   [NPI-1.2]
   name=NPI-1.2
   baseurl=http://<ambari-host>:<port>/repos/NPI/RHEL7/x86_64/1.2.0.0/
   path=/
   enabled=1
   gpgcheck=0

3. Ensure that all cluster hosts have the updated NPI.repo file for later use.
4. Overwrite the contents of Ambari resource stack folder /var/lib/ambari-server/resources/stacks/BigInsights/ with the Network Performance Insight version 1.2.0 stack from the <npi_stack_backup> directory by using this command:

   # cp –rf <npi_stack_backup>/4.2.NPI /var/lib/ambari-server/resources/stacks/BigInsights/

5. Check version of the packages that are installed on the cluster hosts by using the following command:

   # yum list installed | grep npi

6. If the package version is updated to 1.2.1.0, run the following commands to erase it and roll back to v1.2.0:

   # yum erase –y <1.2.1.0_component>
   # yum install –y <1.2.0.0_component>

7. Restart Ambari agents and Ambari server by using these commands:

   # service ambari-agent restart
   # service ambari-server restart
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