Note

Before using this information and the product it supports, read the information in “Notices” on page 17.

This edition applies to version 1.2.3.0 of IBM Network Performance Insight and to all subsequent releases and modifications until otherwise indicated in new editions.

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## Contents

**Upgrading** ........................................... v  
Intended audience ................................... vi  
Network Performance Insight architecture .......... vii  
developerWorks community .............................. x  
Network Performance Insight technical training ...... x  
Support information .................................... x  
Conventions used in this publication .................. xi  
   Typeface conventions ................................. xi

**Chapter 1. Upgrading Network Performance Insight** .............. 1

**Chapter 2. Adding the additional services** ....................... 3

**Chapter 3. Upgrading Performance Metric OOTB Device Support component** ...... 5

**Chapter 4. Post upgrade tasks** ................................ 7  
Verifying the upgrade ................................... 7

Starting Network Performance Insight and Kafka services .............. 8  
Optional: Creating dashboard user group and assigning users .......... 8  
Optional: Configuring Ambari agent hosts for non-root access ......... 9

**Chapter 5. Rolling back an upgrade** ................................ 11

**Chapter 6. Troubleshooting installation and upgrade** .............. 15

**Notices** ............................................. 17
Trademarks ............................................. 19  
Terms and conditions for product documentation .......... 20
Upgrading

Upgrade your Network Performance Insight® V1.2.2 system to 1.2.3 version. This information does not cover the upgrade steps that are required for other supported components of Netcool Operations Insight.

**Before you begin**

- 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.

  Make sure that you have installed the latest interim fixes that are available for 1.2.2. For example, Interim Fix3 that has the Performance Metric OOTB Device Support component.

- Back up existing Network Performance Insight data.

  For more information, see *Network Performance Insight backup and restore* in *Administering IBM Network Performance Insight*.

**About this task**

A diagrammatic representation of the tasks that are involved in Network Performance Management upgrade.
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 1.2.3 system
- Basic principles of network protocols and network management
- NetFlow concepts
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 1.2.3 consists of the following microservices:

Foundation services
• DNS
• Event
• Manager
• Storage
• UI

Entity Metric services
• Cacti Collector
• Formula Service
• Entity Analytics
• SNMP Collector
• SNMP Discovery
• Tivoli Network Manager Collector
• Threshold

Flow Metric services
• Flow Analytics
• Flow Collector

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 V1.2.3 for enhanced functions are described here:

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
IBM Open Platform with Apache Spark and Apache Hadoop components

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 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 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.
• Essentials includes the following open source technologies for working with Network Performance Insight:
  – HDFS
  – Kafka
  – Ambari
  – Spark
  – 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 1.2.3:

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 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
  Netcool Operations Insight is powered by the fault management capabilities of IBM Tivoli Netcool/OMNIbus. In Network Performance Insight V1.2.3, 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
- IBM BigInsights 4.2 documentation
- HDFS Architecture
- Apache Hadoop YARN
- Apache Kafka
- Apache Zookeeper
- IBM Networks for Operations Insight

**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. 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://tnpm support.persistentsys.com/updated_trainings](https://tnpm support.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, multicolon 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 Network Performance Insight

Manually, run the upgrade script to update to Network Performance Insight V1.2.3.

Before you begin

- Check the /etc/yum.repos.d directory in all Ambari agent hosts for any unnecessary files. For example, redhat.repo, rhel72.repo. Move the files to some other directory.
- Run the following command to disable the redhat.repo repository:

```
subscription-manager config --rhsm.manage_repos=0
```

About this task

Follow these steps to upgrade Network Performance Insight 1.2.2 cluster to 1.2.3:

Procedure

1. Run the following script at the Ambari server host:
   ```bash
   cd bin/upgrade/
   ./npi_upgrade.sh
   ```
2. Check the upgrade progress from the log files in /bin/upgrade/ directory.
   The following information is collected in the log file:
   - Intermediate processing files:
     - `prep_out/all_hosts.out`
       Cluster host names that are registered on Ambari server.
     - `prep_out/cluster_name.out`
       The name of the Network Performance Insight cluster to be upgraded.
     - `prep_out/comp_of_base_version_<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.

     - `prep_out/npi_rpms.out`
   - `<YYYYMMDDHHmm>/` folder contains the following files:
     - `all_hosts.out`
     - `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.
     - `basecamp-installer-tools.update.log`
     - `basecamp-repo.update.log`
     - `cluster_name.out`
     - `comp_of_<host_name>.out`
     - `kafka_state_<timestamp>.out`
     - `kafka_state.out`
- kafka_stopping_msg.out
- npi-ambari.update.log
- npi_delta_rpms.out
- npi-repo.update.log
- npi_state_<timestamp>.out
- npi_state.out
- npi_stopping_msg.out
Chapter 2. Adding the additional services

Add the additional services that are specific to Network Performance Insight 1.2.3.

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:
   • SNMP Discovery Service
   • Cacti Collector
4. Start all the newly added services.
5. Repeat the steps 1 - 4 on all the hosts in your cluster.
Chapter 3. Upgrading Performance Metric OOTB Device Support component

Upgrade Performance Metric OOTB Device Support from V1.2.2 to V1.2.3. pods_1.2.3.zip file is available in the installation media.

Procedure
1. Extract the pods_1.2.3.zip file in the <DIST_DIR> directory by using the following command:
   
   `unzip pods_1.2.3.zip`

   The following files are available in the generated pods_1.2.3-<build_number> directory:
   - `pods_pack_1.2.3-<build_number>.tar.gz`
   - `pods_upsertent_1.2.3-<build_number>.tar.gz`

2. Log in to the server where Tivoli Network Manager server is installed as root user.

3. 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`.

4. 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 <itnm_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`

5. Run the upgrade script as follows:
   
   `./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.

6. Run the full discovery process on Tivoli Network Manager system.

7. Enable the Performance Metric OOTB Device Support poll definitions.

For more information see the following sections in Installing and Configuring IBM Network Performance Insight:

- Enabling the Performance Metric OOTB Device Support poll definitions
- Running the network discovery for vendor-specific device performance metrics
Chapter 4. Post upgrade tasks

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

Verifying the upgrade

Complete the steps that are listed here to verify that the upgrade to Network Performance Insight V1.2.3 is successful.

About this task

Procedure

Run the following `yum` command to list all the installed packages in the current version:

```
yum list installed | grep "npi|basecamp"
```

Sample output:

```
# yum list installed | egrep "npi|basecamp"
apr.x86_64 1.5.2-<build_signature> @npi
apr-util.x86_64 1.5.2-<build_signature> @npi
basecamp-connect.noarch 1.2.3-<build_signature> @npi-1.2.3
basecamp-entity-analytics.noarch 1.2.3-<build_signature> @npi-1.2.3
basecamp-installer-tools.noarch 1.2.3-<build_signature>
@/basecamp-installer-tools-1.2.3-.noarch
basecamp-jre.x86_64 1.2.3-<build_signature> @npi-1.2.3
basecamp-manager.noarch 1.2.3-<build_signature> @npi-1.2.3
basecamp-repo.noarch 1.2.3-<build_signature>
@/basecamp-repo-1.2.3-.noarch
basecamp-schema-registry.noarch 1.2.3-<build_signature> @npi-1.2.3
basecamp-spark.noarch 1.2.3-<build_signature> @npi-1.2.3
basecamp-storage.noarch 1.2.3-<build_signature> @npi-1.2.3
basecamp-tools.noarch 1.2.3-<build_signature> @npi-1.2.3
httpd.x86_64 2.4.18-<build_signature> @npi
mailcap.noarch 2.1.31-<build_signature> @npi
npi-ambari.noarch 1.2.3-<build_signature>
@/npi-ambari-1.2.3-.noarch
npi-dns.noarch 1.2.3-<build_signature> @npi-1.2.3
npi-event.1886 1.2.3-<build_signature> @npi-1.2.3
npi-flow-analytics.noarch 1.2.3-<build_signature> @npi-1.2.3
npi-flow-collector.noarch 1.2.3-<build_signature> @npi-1.2.3
npi-formula.noarch 1.2.3-<build_signature> @npi-1.2.3
npi-itm-collector.noarch 1.2.3-<build_signature> @npi-1.2.3
npi-repo.noarch 1.2.3-<build_signature>
@/npi-repo-1.2.3-.noarch
npi-snmp-collector.noarch 1.2.3-<build_signature> @npi-1.2.3
npi-threshold.noarch 1.2.3-<build_signature> @npi-1.2.3
postgresql.x86_64 9.2.14-<build_signature> @npi
postgresql-libs.x86_64 9.2.14-<build_signature> @npi
postgresql-server.x86_64 9.2.14-<build_signature> @npi
```
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.
2. Click Services > Kafka.
3. Select Start from the Service Actions list.
4. Click Services > NPI.
5. Select Start 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.

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.

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 to 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 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:
   ```bash
   service ambari-agent stop
   ```
3. Run the agent_setup_nonRoot.sh script as follows:
   ```bash
   /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:
   ```bash
   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 1.2.3 to 1.2.2.

Before you begin

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

- Make sure that Network Performance Insight 1.2.3 system is up and running.
- Make sure the Network Performance Insight V1.2.2 backup copy is ready.

About this task

Follow these steps to roll back your upgrade to 1.2.2:

Procedure

1. Run the following command on Ambari server:
   
   ```bash
   cd /opt/IBM/basecamp/basecamp-installer-tools/upgrade
   ./npi_rollback.sh <baseInstaller_location>
   ```
   
   For example:
   
   ```bash
   ./npi_rollback.sh /<DIST_DIR>/NPI1.2.2/CNPM2ML/NPI-1.2.2.0.tgz
   ```

   The following tasks are done:
   
   - Stop Kafka services from Ambari.
   - Stop Network Performance Insight services from Ambari.
   - Restore the npi.repo configuration from 1.2.3 to V1.2.2.x.
   - Restore Ambari configuration from 1.2.3 to 1.2.2.x.
   - Restore the stack definition to 4.2.NPI.
   - Erase packages from Network Performance Insight V1.2.3 and install V1.2.2.x packages from backup directories.
   - Restore Dashboard Application Services Hub integration certificates and settings.
   - Restart the Ambari agent on each Network Performance Insight cluster hosts.
   - Restart the Ambari Server.

   Check the Ambari Server log file from this location for any issues:
   
   ```bash
   /var/log/ambari-server/ambari-server.log
   ```

   You might notice the following error messages in the /var/log/ambari-server/ambari-server.log file:

   ```bash
   org.apache.ambari.server.StackAccessException: Stack data, stackName=BigInsights, stackVersion=4.2.NPI, serviceName=NPI, componentName=NPI_SNMP_DISCOVERY
   ```
   
   ```bash
   org.apache.ambari.server.StackAccessException: Stack data, stackName=BigInsights, stackVersion=4.2.NPI, serviceName=NPI, componentName=NPI_CACTI_COLLECTOR
   ```

   Then perform the following tasks:

   a. Log in to Ambari database by using the command:

   ```bash
   psql -U <AMBARI_USER> -d <AMBARI_DATABASE>
   ```

   For example:
psql -U ambari -d ambari

You see the prompt as:

```
psql (9.2.14)
Type help
```

b. Give the following commands to delete all the additional services that are not available in V1.2.2:

```sql
ambari=> delete from hostcomponentstate where component_name='NPI_CACTI_COLLECTOR';
DELETE 1
ambari=> delete from hostcomponentdesiredstate where component_name='NPI_CACTI_COLLECTOR';
DELETE 1
ambari=> delete from servicecomponentdesiredstate where component_name='NPI_CACTI_COLLECTOR';
DELETE 1
ambari=> delete from hostcomponentstate where component_name='NPI_SNMP_DISCOVERY';
DELETE 1
ambari=> delete from hostcomponentdesiredstate where component_name='NPI_SNMP_DISCOVERY';
DELETE 1
ambari=> delete from servicecomponentdesiredstate where component_name='NPI_SNMP_DISCOVERY';
DELETE 1
ambari=> commit;
WARNING: there is no transaction in progress
COMMIT
ambari=> \q
```

```
psql
```

c. Restart the Ambari Server with the following command:

```
service ambari-server restart
```

2. 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.

3. Click Services > NPI > Configs > Advanced > Advanced npi-env and put a comment in the npi-env template field.

For example, #Rollback to previous version.

4. Click Save to save the configuration settings.

5. Start Kafka Service as follows:
   a. Click Hosts and select the host on which the Kafka Service must be started on Ambari server.
   b. Select Services > Kafka from Service Actions list.
   c. Click Start from the Stopped list.

6. Restore the backup data from Network Performance Insight V1.2.2.

For more information, see Network Performance Insight backup and restore section in Administering IBM Network Performance Insight.

7. Stop Kafka Service as follows:
   a. Click Hosts and select the host on which the Kafka Service must be started on Ambari server.
   b. Select Services > Kafka from Service Actions list.
   c. Click Stop from the Started list.

8. Delete the following Kafka topics:
   ```
   /usr/iop/4.2.0.0/kafka/bin/kafka-topics.sh --zookeeper <zookeeper_host>:2182 --delete --topic snapshot.npi.agg.win-mgr
   /usr/iop/4.2.0.0/kafka/bin/kafka-topics.sh --zookeeper <zookeeper_host>:2182 --delete --topic npi.agg.win-mgr
   /usr/iop/4.2.0.0/kafka/bin/kafka-topics.sh --zookeeper <zookeeper_host>:2182 --delete --topic _schemas
   ```
9. Start the Kafka Service as follows:
   a. Click Hosts and select the host on which the Kafka Service must be started on Ambari server.
   b. Select Services > Kafka from Service Actions list.
   c. Click Start from the Stopped list.

10. Start Network Performance Insight services.
   a. Click Services > NPI.
   b. Select Start from the Service Actions list.

   Console Integration icon is now available on your Dashboard Application Services Hub portal.

11. Verify that the rollback is successful with this command:
    
    ```bash
    yum list installed | egrep "basecamp|npi"
    ```

    | Package Name                  | Version                     | Action |
    |-------------------------------|----------------------------|--------|
    | basecamp-connect.noarch       | 1.2.2.0                     | @mpi   |
    | basecamp-entity-analytics.noarch | 1.2.2.0                   | @mpi   |
    | basecamp-jre.x86_64          | 1.2.2.0                     | @mpi   |
    | basecamp-manager.noarch      | 1.2.2.0                     | @mpi   |
    | basecamp-schema-registry.noarch | 1.2.2.0               | @mpi   |
    | basecamp-spark.noarch        | 1.2.2.0                     | @mpi   |
    | basecamp-storage.noarch      | 1.2.2.0                     | @mpi   |
    | basecamp-tools.noarch        | 1.2.2.0                     | @mpi   |
    | basecamp-ui.noarch           | 1.2.2.0                     | @mpi   |
    | npi-cacti-collector.noarch   | 1.2.2.0                     | @mpi-1.2.2.0 |
    | npi-dns.noarch               | 1.2.2.0                     | @mpi   |
    | npi-event.i386               | 1.2.2.0                     | @mpi   |
    | npi-flow-analytics.noarch    | 1.2.2.0                     | @mpi   |
    | npi-flow-collector.noarch    | 1.2.2.0                     | @mpi   |
    | npi-formula.noarch           | 1.2.2.0                     | @mpi   |
    | npi-itnm-collector.noarch    | 1.2.2.0                     | @mpi   |
    | npi-snmp-collector.noarch    | 1.2.2.0                     | @mpi   |
    | npi-snmp-discovery.noarch    | 1.2.2.0                     | @mpi-1.2.2.0 |
    | npi-threshold.noarch         | 1.2.2.0                     | @mpi   |

Chapter 5. Rolling back an upgrade  13
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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