Troubleshooting Network Performance Insight
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Introduction

How to troubleshoot IBM® Network Performance 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 1.2.2 system
• Basic principles of network protocols and network management
• NetFlow concepts
• Administration of the Linux
• Jazz™ for Service Management

Organization

Read this summary to help you find the information that you need.

• Chapter 1, "Troubleshooting a problem,” on page 1
• Chapter 1, “Troubleshooting a problem,” on page 1
• Chapter 2, “Log files in Network Performance Insight,” on page 3
• Chapter 3, “Known problems and solutions,” on page 5

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 IBMNetcool® 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 1.2.2 consists of the following microservices:

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

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

**Flow Metric services**
- Flow Collector
- Flow Analytics
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 V1.2.2 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.
- Essentially includes the following open source technologies for working with Network Performance Insight:
  - HDFS
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 1.2.2:

**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 V1.2.2, 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
Service Management Connect

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


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:**

Network Performance Insight technical training

For Tivoli technical training [information](https://www-947.ibm.com/support/servicerequest/newServiceRequest.action), 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. Troubleshooting a problem

Troubleshooting is a systematic approach to solving a problem. The goal of troubleshooting is to determine why something does not work as expected and how to resolve the problem.

The first step in the troubleshooting process is to describe the problem completely. Problem descriptions help you and the IBM technical-support representative know where to identify the cause of the problem. This step includes asking yourself basic questions:

- What are the symptoms of the problem?
- Where does the problem occur?
- When does the problem occur?
- Under which conditions does the problem occur?
- Can the problem be reproduced?

The answers to these questions typically lead to a good description of the problem, which can then lead you a problem resolution.

What are the symptoms of the problem?

When starting to describe a problem, the most obvious question is “What is the problem?” This question might seem straightforward; however, you can break it down into several more-focused questions that create a more descriptive picture of the problem. These questions can include:

- Who, or what, is reporting the problem?
- What are the error codes and messages?
- How does the system fail? For example, is it a loop, hang, crash, performance degradation, or incorrect result?

Where does the problem occur?

Determining where the problem originates is not always easy, but it is one of the most important steps in resolving a problem. Many layers of technology can exist between the reporting and failing components. Networks, disks, and drivers are only a few of the components to consider when you are investigating problems.

The following questions help you to focus on where the problem occurs to isolate the problem layer:

- Is the problem specific to one platform or operating system, or is it common across multiple platforms or operating systems?
- Is the current environment and configuration supported?

If one layer reports the problem, the problem does not necessarily originate in that layer. Part of identifying where a problem originates is understanding the environment in which it exists. Take some time to completely describe the problem environment, including the operating system and version, all corresponding software and versions, and hardware information. Confirm that you are running within an environment that is a supported configuration; many problems can be
traced back to incompatible levels of software that are not intended to run together or have not been fully tested together.

**When does the problem occur?**

Develop a detailed timeline of events leading up to a failure, especially for those cases that are one-time occurrences. You can most easily develop a timeline by working backward: Start at the time an error was reported (as precisely as possible, even down to the millisecond), and work backward through the available logs and information. Typically, you need to look only as far as the first suspicious event that you find in a diagnostic log.

To develop a detailed timeline of events, answer these questions:

- Does the problem happen only at a certain time of day or night?
- How often does the problem happen?
- What sequence of events leads up to the time that the problem is reported?
- Does the problem happen after an environment change, such as upgrading or installing software or hardware?

Responding to these types of questions can give you a frame of reference in which to investigate the problem.

**Under which conditions does the problem occur?**

Knowing which systems and applications are running at the time that a problem occurs is an important part of troubleshooting. These questions about your environment can help you to identify the root cause of the problem:

- Does the problem always occur when the same task is being performed?
- Does a certain sequence of events need to occur for the problem to surface?
- Do any other applications fail at the same time?

Answering these types of questions can help you explain the environment in which the problem occurs and correlate any dependencies. Remember that just because multiple problems might have occurred around the same time, the problems are not necessarily related.

**Can the problem be reproduced?**

From a troubleshooting standpoint, the ideal problem is one that can be reproduced. Typically, when a problem can be reproduced you have a larger set of tools or procedures at your disposal to help you investigate. Consequently, problems that you can reproduce are often easier to debug and solve. However, problems that you can reproduce can have a disadvantage: If the problem is of significant business impact, you do not want it to recur. If possible, re-create the problem in a test or development environment, which typically offers you more flexibility and control during your investigation.

- Can the problem be re-created on a test system?
- Are multiple users or applications encountering the same type of problem?
- Can the problem be re-created by running a single command, a set of commands, or a particular application?
Chapter 2. Log files in Network Performance Insight

Changes to log files in Network Performance Insight.

Log files for different services:

<table>
<thead>
<tr>
<th>Service</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambari server</td>
<td>/var/log/ambari-server</td>
</tr>
<tr>
<td>Ambari agent</td>
<td>/var/log/ambari-agent</td>
</tr>
<tr>
<td>Ambari Metric Collector</td>
<td>/var/log/ambari-metrics-collector</td>
</tr>
<tr>
<td>Ambari Metric Monitor</td>
<td>/var/log/ambari-metrics-monitor</td>
</tr>
<tr>
<td>MapReduce</td>
<td>/var/log/hadoop-mapreduce/mapred</td>
</tr>
<tr>
<td>Hadoop</td>
<td>/var/log/hadoop/hdfs</td>
</tr>
<tr>
<td>Kafka</td>
<td>/var/log/kafka</td>
</tr>
<tr>
<td>YARN components</td>
<td>/var/log/hadoop-yarn</td>
</tr>
<tr>
<td>• Node Manager</td>
<td></td>
</tr>
<tr>
<td>• Timeline server</td>
<td></td>
</tr>
<tr>
<td>• YARN</td>
<td></td>
</tr>
<tr>
<td>ZooKeeper</td>
<td>/var/log/zookeeper</td>
</tr>
<tr>
<td>Manager</td>
<td>/opt/IBM/npi/basecamp-manager/logs</td>
</tr>
<tr>
<td>Storage</td>
<td>/opt/IBM/npi/basecamp-storage/logs</td>
</tr>
<tr>
<td>UI</td>
<td>/opt/IBM/npi/basecamp-ui/logs</td>
</tr>
<tr>
<td>Entity Analytics</td>
<td>/opt/IBM/npi/basecamp-entity-analytics/logs</td>
</tr>
<tr>
<td>DNS</td>
<td>/opt/IBM/npi/npi-dns/logs</td>
</tr>
<tr>
<td>Event</td>
<td>/opt/IBM/npi/npi-event/logs</td>
</tr>
<tr>
<td>Network Manager Collector</td>
<td>/opt/IBM/npi/npi-itnm-collector/logs</td>
</tr>
<tr>
<td>Threshold</td>
<td>/opt/IBM/npi/npi-threshold/logs</td>
</tr>
<tr>
<td>Flow Analytics</td>
<td>/opt/IBM/npi/npi-flow-analytics/logs</td>
</tr>
<tr>
<td>Flow Collector</td>
<td>/opt/IBM/npi/npi-flow-collector/logs</td>
</tr>
<tr>
<td>SNMP Collector</td>
<td>/opt/IBM/npi/npi-snmp-collector/logs</td>
</tr>
<tr>
<td>Formula Service</td>
<td>/opt/IBM/npi/npi-formula/logs</td>
</tr>
<tr>
<td>Kafka Schema Registry</td>
<td>/var/log/kafka/schema-registry.log</td>
</tr>
</tbody>
</table>
System log files

Network Performance Insight uses Linux systemctl utility, which causes outputs logs to system logs as well. The systemctl is a systemd utility that is responsible for controlling the systemd system and service manager. The systemd is implemented on most of the standard Linux Distribution with a few exceptions.

The kernel or core system logs are generally stored in a common directory on a Linux system, for example /var/log/messages, which is handled by the syslog. These log messages might contain some of the Network Performance Insight services log.

**Note:** The syslog is a utility for tracking and logging system messages from informational to the critical level.

Configuring and fine-tuning your system-logging facilities is important for system security and general diagnostics.

It is recommended to manage the system log files to avoid any memory or space issues in your system. To ensure that your logs do not grow too large and fill up their file-system, you can configure the system log retention period by using any appropriate Linux system tools.

For example, you can use logrotate utility. The logrotate utility can be used to automate the log file rotation.

Log message format

Typically, each log message indicates the log level, time stamp, component, thread, error code, and event description.

An example log message:

```
[INFO] [2016-08-27 23:58:29.497]
[akka.tcp://npi@127.0.0.0:2553/user/storage singleton/collagen/storeopt/localhost.NPI.FLOW_Metric.AGG_001MIN_TOP_PROT_OCTET.MV001]
[npi-storage.optimizer.dispatcher-9123]
GYMSC3003I: Optimization complete on localhost.NPI.FLOW_Metric.AGG_001MIN_TOP_PROT_OCTET.MV001
```

Log message elements:
Chapter 3. Known problems and solutions

A list of known problems and their solutions are described here. Before you install and use Network Performance Insight, read these known issues.

These known issues are categorized as follows:
• Installation and configuration issues
• Troubleshooting Ambari server
• Integration with Tivoli Netcool/OMNibus issues
• Troubleshooting system configurations
• Traffic data visualization issues

Troubleshooting installation, upgrade, and Network Performance Insight services

Problems that might occur during installation, uninstallation, and upgrade. Information is provided to resolve the issues wherever applicable. You can also see issues that are related to some Network Performance Insight services.

About this task

Monitor the log files to examine the processing results and problems that are associated with installation, configuration, and functioning of Network Performance Insight microservices.

Related concepts:

Changes to log files in Network Performance Insight.

Some services do not start automatically on Ambari server restart

Symptoms
You might see the following message, when Ambari Server is restarted:
[root@c7201 ~]# systemctl status ambari-server ambari-server.service Loaded: not-found (Reason: No such file or directory) Active: inactive (dead)

Causes
This issue occurs because the systemd does not work on ambari-server on RHEL 7.2.

Resolving the problem
To resolve this issue, run the following command in a single line on the Ambari Server host:
unlink /etc/rc.d/init.d/ambari-server
cp -a /usr/sbin/ambari-server /etc/rc.d/init.d/ambari-server && systemctl daemon-reload

The basecamp-connect Service does not update to V1.2.2.0 during upgrade

Symptoms
You might notice that the basecamp-connect Service is not updated to the current version during the upgrade process. You can ignore this issue as it has no functional impact to the Network Performance Insight system.

**Ignore the error in some Network Performance Insight services log files**

**Symptoms**
When you see the following error in some Network Performance Insight services log files:

```
[ERROR] [2016-11-14 00:38:13.569] [akka://npi/user/StreamSupervisor-0/flow-14774-0-unknown-operation]
[npi-akka.actor.default-dispatcher-72] Error in stage
[One2OneBidi]: Inner stream finished before inputs completed.
Outputs might have been truncated.
```

Ignore the error as it does not have a functional impact.

**Snappy java.lang.UnsatisfiedLinkError error in the Storage Service log file**

**Symptoms**
You might encounter the following error in the Storage Service log file after the installation of Network Performance Insight:

```
java.lang.UnsatisfiedLinkError: /tmp/snappy-1.0.4.1-libsnappyjava.so
```

**Resolving the problem**
To resolve this issue, enable execution permission for /tmp folder by using the following command:

```
sudo mount -o remount,exec /tmp
```

**Ignore the unfinished transactions message during upgrade**

**Symptoms**
When you run the `yum` commands during upgrade, you might encounter the following message:

```
There are unfinished transactions remaining.
You might consider running `yum-complete-transaction` first to finish them.
The program `yum-complete-transaction` is found in the `yum-utils` package.
```

**Kafka Connect Service startup failure**

**Symptoms**
If you experience a startup failure with Kafka Connect Service any time you restart all the services from Ambari user interface, apply the resolution.

**Resolving the problem**
To resolve this issue, you must make sure that the Tivoli Network Manager database is up and running since Kafka Connect Service tries to connect to Tivoli Network Manager database at the time of startup.

**Kafka Connect is unable to recover from a closed connection**

**Symptoms**
Kafka Connect is unable to recover after the connection is closed and restarted. You might see the following error is logged repeatedly in `/usr/iop/current/kafka-broker/logs/connect.log` file.
To resolve this issue, restart the Kafka Connect Service from Ambari.

Important: If you restart the Network Performance Insight database for any reason, monitor the logs and make sure to restart the Kafka Connect as well.

Ignore the Kafka topic warning messages during database restore operation

Symptoms
Ignore the following warning message during the database restore operation:

```
[WARN] Error while fetching metadata with correlation id 0:
{kafka_topic_name}-1.2.2-{timestamp}=LEADER_NOT_AVAILABLE
```

Timeout messages in SNMP Collector log

Symptoms
You might see the following error messages in SNMP Collector Service log files:

```
[ERROR] [2017-06-01 11:59:01.616] [akka.actor.ActorSystemImpl(npi)] [npi-akka.actor.default-dispatcher-23] Failed to poll from snmpTarget: SnmpTarget(SnmpRemoteAgent(2,10.55.239.201,161,161,4000,2), SnmpCommunityCredentials(uVzzQ0IeVpAGwmLTwT7wvA==,vcekcd6VyKU=)) persistent.npm.snmp.SnmpTimeoutException timeout
```

Causes
You might notice this issue if any of the following conditions are met:

- If the connection or device is not available.
- Wrong conf.key file is copied into your Network Performance Insight systems. Therefore, wrong credentials are used.
- Non unique engine ID is used in for some snmpv3 devices.
- If the port number is changed on the SNMP device, while Network Performance Insight system is retrieving the credentials and at the same time Formula Service is restarting for some reason. You might notice two polling definitions with new and old credentials.

Determine the absolute time for the Flows in a NetFlow IPFIX data packet

Symptoms
For NetFlow v5 and v9, it is possible to calculate the absolute time via the UNIX Seconds in SysUptime fields in the packet header:

```
UnixSeconds = SysUptime + FlowStartSysUptime
```

In IPFIX (v10), the header contains only the system time when the packet is created and not the system uptime.

Resolving the problem
In this scenario, include systemInitTimeMilliseconds field with element ID 160 in your template payload. The field, systemInitTimeMilliseconds gives the absolute timestamp of the last initialization or reinitialization of the IPFIX device.
Troubleshooting Dashboard Application Services Hub with Tivoli Common Reporting and Network Performance Insight integration

Symptoms
If the Dashboard Application Services Hub that you are integrating with Network Performance Insight has Tivoli Common Reporting for your existing Cognos-based reports, the integration might fail.

Causes
When Tivoli Common Reporting is installed along with Dashboard Application Services Hub, the installer overwrites the JAVA_HOME in setTCRenv.sh file and Java 1.6 is called instead of the original Java 1.7.

Resolving the problem
To resolve this issue, follow these steps:

1. Make sure that Java 1.7 is existing in your WebSphere Application Server environment by using the following steps:
   a. Navigate to bin directory in the AppServer directory on the server. The default location is /opt/IBM/WebSphere/AppServer/bin.
   b. View the available SDKs with the following command:
      ./managesdk.sh -listAvailable -verbose

2. Ascertain whether Java 7 SDK is present, and perform one of the following steps:
   If Java 7 SDK is not present
   a. Install Java 7 SDK by using the IBM Installation Manager.
   b. Run the following command to set Java 7 as the default SDK:
      ./managesdk.sh -setNewProfileDefault -sdkName 1.7_64
   If Java 7 SDK is present
   a. Run the following command to set Java 7 as the default SDK:
      ./managesdk.sh -setNewProfileDefault -sdkName 1.7_64

3. Manually, update the setTCRenv.sh file to point to Java 1.7 with the following command:
   
   Note: This step is required to be done only once.

Related information
- Why is global.lock file generated in /profile/config/cells/JazzSMNode01Cell/applications/isc.ear/deployments/isc/isclite.war/WEB-INF directory ?
- SSO failed to configure ObjectServer repository

Manually, remove httpd.x86_64 file during cleanup

Symptoms
If you find the httpd.x86_64 file in your environment after the uninstallation of Network Performance Insight, you must manually remove it.

Resolving the problem
Use the following command to remove the file:

# yum --setopt=tsflags=noscripts remove httpd.x86_64
Troubleshooting Ambari server

Use this information to troubleshoot problems when you use Ambari server.

Problem in decommissioning DataNodes

When you decommission some nodes from the cluster, HDFS replicates the blocks that belong to decommissioning DataNodes to other live DataNodes to reach the replication factor that you specified in the dfs.replication setting. You have the same setting in Ambari HDFS configuration as Block replication.

Before you begin

If you encounter the following error:

Identify the files that are under replicated by using these steps:
1. Log in to the host where the HDFS NameNode is installed as hdfs user.
   Or, set the HADOOP_USER_NAME environment variable as follows:
   ```bash
   export HADOOP_USER_NAME=hdfs
   ```

About this task

The dfs.replication is an HDFS global setting in hdfs-site.xml.

If you do not have enough live DataNodes to reach the replication factor, decommission process might hang until more DataNodes become available. For example, if you have 3 DataNodes in your cluster with dfs.replication is set to 3 and you are trying to decommission 1 DataNode out of 3, decommission process hangs until you add another DataNode to the cluster.

Procedure

1. Log in to the host where the HDFS NameNode is installed as hdfs user.
   Or, set the HADOOP_USER_NAME environment variable as follows:
   ```bash
   export HADOOP_USER_NAME=hdfs
   ```
2. Run the hadoop fs -setrep command as follows:
   ```bash
   hadoop fs -setrep [-R] [-w] <numReplicas> <path>
   ```
   Where:
   - -w flag requests that the command wait for the replication to complete. This step can potentially take a long time.
   - -R flag is accepted for backwards compatibility. It has no effect.
   - <numReplicas>
   - <path>
   For example, hadoop fs -setrep -w 2 /
   This command changes the replication factor of a file. If path is a directory, then the command recursively changes the replication factor of all files under the directory tree rooted at path.
**Important:** By default, the HDFS number of replication (numReplicas) is 3. If you have less than 3 live HDFS DataNodes, set numReplicas to total remaining number of live HDFS DataNodes in your cluster.

**Related information:**

[https://hadoop.apache.org/docs/r2.7.2/hadoop-project-dist/hadoop-common/FileSystemShell.html#setrep](https://hadoop.apache.org/docs/r2.7.2/hadoop-project-dist/hadoop-common/FileSystemShell.html#setrep)

### Ambari HDFS Metric showing huge value for Under Replicated Blocks in a single node environment

#### Symptoms

Ambari Network Performance Insight HDFS metrics value is highlighted as red and showing a huge value for under replicated blocks in the Ambari server web interface in a single node environment.

#### Causes

The HDFS status summary in Ambari server web interface shows the missing and under replicated blocks.

Some files in your HDFS file system are corrupted either by losing its last block replica or just being under replicated.

When a new datanode is added, HDFS replicates these blocks. Even if the replication factor is set to 1, the HDFS still reports these blocks as under-replicated, as it is not fault tolerant.

This behavior is expected.

#### Resolving the problem

To work around this behavior, you can opt to follow the suggestions that are provided:

1. Use the following steps to clear the threshold values from the Ambari server UI:
   a. Select *Edit* from the HDFS metrics *Under Replicated Block* widget.
   b. Select *Edit Shared* from the Warning screen.
   c. Clear the thresholds values. For example, empty the *Thresholds* fields, *WARNING* and *CRITICAL*.
   d. Click *Next > Save*

2. The following are some suggestions to avoid this problem depending on your data blocks.
   a. To get the full details of the files, which are causing the problem, run the following command by using root user.
      
      ```bash
      $ hdfs fsck / -files -blocks -locations
      ```
      
      The output identifies the replication factor set on your corrupted files.
   b. The following list some methods to fix the missing and under-replicated blocks.
      
      - This condition might be temporal; if you have a data under-replicated it should automatically replicate the blocks to other data nodes to match the replication factor.
      - If it is not replicating on its own, run a balancer manually.

**Important:** Do not run the HDFS balancer if you are using HBase.
• If it is not replicating on its own, you can manually set replication on a specific file that is under replicated to a value higher than it currently set to. This setting makes the cluster to create more replicas.
  – The recommended default replication factor is to set at 3. If you then add a datanode, the block is replicated.
• If it is just a temporary file, which is created when running the job and your speculative execution tasks are high, set the speculative execution tasks to match the replication factor.

  c. CAUTION:
  Run the following command only when you are sure about the corrupted files.
  If you are sure that these files are not needed and would like to eliminate the error, you can run the following command to automatically delete the corrupted files:

        hdfs fsck /-delete

**Ambari Metrics configurations warning keeps appearing**

*Symptoms*
The Ambari Metrics service configurations warning at times keeps appearing despite having the correct recommended value.

*Resolving the problem*
Ensure that your configurations value is according to the requirements or the recommended value. From the Ambari Metrics Warning UI, click Proceed Anyway to proceed.

It is a known limitation.

**Related information**

- Recommended Ambari Metric configurations warning keeps appearing

**Ambari Metrics shows negative value for the Flow Collector available interfaces**

*Symptoms*
Ambari Network Performance Insight Flow Collector metrics at times show negative value from the Ambari web interface.

*Causes*
The Network Performance Insight Flow Collector is designed to run in multiple nodes. This issue is seen when many new interfaces are being discovered at a fast rate.

The negative value that is shown in Ambari metrics is indicating that the interfaces exceeded the maximum number of flow interfaces configured.

*Resolving the problem*
When the interfaces are disabled or when the maximum number of flow interfaces configuration value is increased, the Ambari Flow Collector metrics value is adjusted.

You can disable the interfaces, which are not needed to be collected.
To disable the interfaces, see Configuring flow thresholds in Installing and Configuring IBM Network Performance Insight.

**Timezone changes are not reflected for monitoring Network Performance Insight metrics on Ambari by using Firefox ESR**

**Symptoms**
When you use Firefox ESR to monitor Network Performance Insight metrics on Ambari, the time zone changes are not reflected correctly.

**Resolving the problem**
It is a known limitation.

**Related information**

[Unable to change timezone when using Firefox ESR 31.8.0](#)

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**Troubleshooting system configurations**

Problems that might occur during Network Performance Insight system configuration and how to resolve them.

**About this task**

For more information about system configurations, see Configuring Network Performance Insight system environment section in Installing and Configuring IBM Network Performance Insight.

**Inconsistency between NBAR and NBAR2 data on the configuration page**

**Symptoms**
If a particular device is set up only for sending NBAR2 data without NBAR setup, you might not see the device details in NBAR configuration page.

For more information, see Configuring NBAR section in Installing and Configuring IBM Network Performance Insight.

**Resolving the problem**
To resolve this issue, make sure that you set up both NBAR and NBAR2 on all your devices.

**Related information**

[QoS: NBAR Configuration Guide](#)

**You can open only one page at a time for system configurations on Dashboard Application Services Hub**

**Symptoms**
When you try to configure Network Performance Insight system from Console Integrations on Dashboard Application Services Hub, you cannot open multiple pages at time. If you try to open another page, the current page is replaced by the new page.

**Missing console integration icon**

**Symptoms**
The console integration was successful but the table that lists the available tasks is empty, hence the console integration icon (●) is missing in Dashboard Application Services Hub.

**Note:** For a successful connection:

- A table lists the tasks available from stand-alone console and attributes for each task.
- The specified stand-alone console content is available in the navigation bar of the Dashboard Application Services Hub console through the Console Integration icon (●).

**Resolving the problem**

- Verify that your login user has all the required groups set from WebSphere Administrative Console and user roles set from Console Settings in Dashboard Application Services Hub.
- Click Save from the Console Integration page in Dashboard Application Services Hub for NPI.
- Restart the Network Performance Insight UI and Storage Services from Ambari server.

**You might notice an oversized payload when you query with parent ID**

**Symptoms**

When a static threshold is configured with a huge upper limit value and you try to query the database by using the anomalies API by parent ID, you might see the following error message:

```
[ERROR] [2016-09-06 22:38:46.039] [akka.tcp://npi@<IP_address>/system/endpointManager/reliableEndpointWriter-akka.tcp://npi@10.212.6.203:2552-27/endpointWriter] [npi-akka.remote.default-remote-dispatcher-5] Transient association error (association remains live)
akka.remote.OversizedPayloadException: Discarding oversized payload sent to Actor [akka.tcp://npi@10.212.6.203:2552/temp/$e]: max allowed size 128000 bytes, actual size of encoded class persistent.npm.storage.spark.SparkQueryMessages$TableScanResults was 133408 bytes.
```

**Resolving the problem**

To resolve this issue, follow these steps:

1. Open a browser and access the Ambari server dashboard. admin.
   
   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 > NPI > Configs > Advanced.
3. Expand Advanced npi-env pane and add the following lines in npi-env template text area:

   ```
   ui.entity.anomalies.batchsize = <value>
   ```
   
   The default value is 900. If you want to reduce the payload size, enter a lower value.

For more information, see anomalies in IBM Network Performance Insight: References.
Troubleshooting visualizations from Traffic Details dashboard

Use this troubleshooting information when you view the Traffic Details dashboard and its views.

Traffic Details dashboard cannot be launched from Network Health Dashboard

**Symptoms**
Traffic Details dashboard cannot be launched from Network Health Dashboard.

**Resolving the problem**
To resolve this issue, contact IBM Support and request test fix IV96400.

Traffic Details page is unresponsive when you refresh the browser

Do not refresh the Traffic Details page from the browser.

**Symptoms**
Traffic Details page becomes unresponsive after you click the Refresh button on the browser.

**Resolving the problem**
To work around this issue, click the Refresh button on the dashboard instead of refreshing from the browser.

Troubleshooting the Network Health Dashboard

Troubleshooting issues with Network Health Dashboard.

**Procedure**

- Monitor the log files.
  The Network Health Dashboard log files are available in the following locations:

<table>
<thead>
<tr>
<th>File</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log file</td>
<td>$NMGUI_HOME/profile/logs/tnm/ncp_nethealth.0.log</td>
</tr>
<tr>
<td>Trace file</td>
<td>$NMGUI_HOME/profile/logs/tnm/ncp_nethealth.0.trace</td>
</tr>
</tbody>
</table>

- See this information for other troubleshooting issues with Network Health Dashboard.

- Check the data sources for Network Health Dashboard widgets.
  Understand from where the Network Health Dashboard widgets retrieve data. This information might be useful for troubleshooting data presentation issues in the Network Health Dashboard. The Traffic Details dashboard that displays the data that is collected and processed from Network Performance Insight is retrieved from NCIM database schema that contains views from Network Manager NCIM topology data and Network Performance Insight data.
Troubleshooting Network Performance Insight Dashboards

Use this troubleshooting information when you view Network Performance Insight Dashboards.

Issues in the exported formats of the dashboards
When you export the dashboards to PDF, CSV, or Excel formats, you might see the following issues:

- If a number has a comma delimiter in it, the exported CSV file displays the number in two different columns instead of one column.
- The user preferences configuration settings are not functioning correctly. For example, if you specify the same alignment and position for UserID, PageNo, and ReportTime options, the exported PDF shows insufficient information. If you select different alignments for the options, all the information is shown correctly.

For more information, see Optional: Setting User Preferences section in Administering IBM Network Performance Insight.

Expand and collapse functions are not working correctly
After you collapse any widget on the Flow aggregation dashboards, for example, Top Applications dashboard, you cannot expand later. This issue is seen in Firefox ESR 45 only.

Data display is incorrect on the widgets that can show data for a time period more than 7 days
If the time period is more than 7 days, 1-day aggregation is used for the data display. You might see that the start time of the data in the display is not 00:00. Instead, it shows the data based on your browser timezone. This issue is seen if you are viewing the dashboards from a different timezone from GMT.

Inconsistent legends in maximized and restored widgets
You can see all the legends in a maximized widget and all of them are not visible in a restored widget.

Vertical scrollbar does not function correctly in maximized widgets
This issue is seen in Chrome only.

Troubleshooting integration with Tivoli Netcool/OMNibus
Use this troubleshooting information to troubleshoot problems with the integration.

Cannot view the Event List from AEL if the list of events is large

Symptoms
Sometimes the Event list is not visible on AEL and you might encounter the following error:
W0025 HEMCDW0025

Causes
Typically, you encounter this issue if the Event list is large.
Resolving the problem
To work around this issue, see the Technical Note:
WebGUI AEL displays W0025 error when viewing a very large list of events.

Do not use Google Chrome to view Tivoli Netcool/OMNIbus Web GUI events on Dashboard Application Services Hub
Do not use Google Chrome to view the AEL or Event Viewer on Dashboard Application Services Hub.

Note: Tivoli Netcool/OMNIbus Web GUI v8.1.x versions on Dashboard Application Services Hub do not fully support the Chrome browser.
For more information, see:

Timezone settings on Event Viewer and Network Performance Insight dashboards on Dashboard Application Services Hub are not the same
The time that is displayed in the Last Occurrence column in Event Viewer is different from Network Performance Insight dashboards. AEL and Network Performance Insight dashboards use the same timezone setting as the local web browser. Event Viewer always displays the time based on the timezone settings on the OMNIbus ObjectServer. Currently, this setting on Event Viewer cannot be changed.

Troubleshooting integration with Tivoli Network Manager
Use this information to troubleshoot problems with Tivoli Network Manager integration.

Unable to set a new threshold definition if metric is not enabled
Symptoms
You cannot set a new threshold definition if a metric is not enabled on Tivoli Network Manager network polling. The NPI Anomaly Threshold page might not load completely.

Related information
Defining performance thresholds for anomaly detection

IPv6 addresses is not stored correctly in NCIM database
Symptoms
You can’t use the address property for filtering on REST API because the NCIM probe target and source columns in the Tivoli Network Manager database is not reflecting the IPv6 addresses correctly.

Resolving the problem
Provide the IPv6 address as a string.

Interface name change for an entity might create a new entity ID for it
Symptoms
When you change the interface name for an entity, you might notice that a new entity ID is created for that entity.

**Resolving the problem**
This behavior is by design.

**Potential data loss from Tivoli Network Manager discovery**

**Symptoms**
By default, the probe discovery polling interval is set to 60 minutes. During the polling time, Network Performance Insight detects if there are any changes in the discovery on the Tivoli Network Manager system.

If there are any configuration changes, Tivoli Network Manager might remove an entity and re-create it. If Network Performance Insight retrieves the inventory list after the removal and before the recreation, it results in the probe deactivation until the next polling time.

It results in loss of IP SLA metric collection from the time the probe is removed from Network Performance Insight until the next discovery.

**Resolving the problem**
To work around this issue, reduce the probe polling time in the `collector.itnm.probe.import-interval` setting on Ambari web UI.

For more information, see *Setting up communication with Tivoli Network Manager* in *Installing and Configuring IBM Network Performance Insight*.

**Note:** Do not set a narrow polling interval to avoid load on Tivoli Network Manager database.
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