IBM Network Performance Insight 1.2.1
Document Revision R2E1

Release summary

IBM
Note

Before using this information and the product it supports, read the information in "Notices" on page 15.

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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About this information

Describes issues of importance to users of IBM® Network Performance Insight, Version 1.2.1 system.

Get familiar with what’s new in the release and access valuable release resources.

Intended audience

The audience for this information is the network administrator or operations specialist. You must have a thorough understanding of the following subjects:

- Basic principles of networks and network management
- Administration of the Linux
- IBM Network Performance Insight
- IBM Netcool® Operations Insight
- IBM Tivoli® Network Manager IP Edition
- IBM Tivoli Netcool/OMNIbus
- 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
- **ZooKeeper**

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 8.1.0.1 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](#)
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
Access the IBM Software Support site at http://www.ibm.com/software/
support/probsub.html.

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. IBM Network Performance Insight release information

New product features, compatibility, known problems, installation, and other getting-started issues are addressed in this release summary.

Attention: Network Performance Insight is available for IBM Netcool Operations Insight entitled customers only.

Table 1. Release update

<table>
<thead>
<tr>
<th>Version</th>
<th>Type of Release</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.1</td>
<td>Availability of Network Performance Insight v1.2.1</td>
<td>June 2017</td>
</tr>
</tbody>
</table>

CAUTION: Before you attempt an installation of Network Performance Insight, you are advised to read these release notes. Failure to consult these release notes might result in a corrupted, incomplete, or failed installation.

Supported network technology and devices

Functions that are supported by Network Performance Insight.

Table 2. Supported Network Performance Insight functions.

<table>
<thead>
<tr>
<th>Functions</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supported flow formats</td>
<td>• Cisco NetFlow (V1, V5, and V9)</td>
</tr>
<tr>
<td></td>
<td>• Juniper J-Flow (V5 and V9)</td>
</tr>
<tr>
<td></td>
<td>• Huawei NetStream (V5 and V9)</td>
</tr>
<tr>
<td></td>
<td>• Alcatel CFlow (V9)</td>
</tr>
<tr>
<td></td>
<td>• IPFIX</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> Supports MIB-II data from these devices via Tivoli Network Manager.</td>
</tr>
<tr>
<td>IP SLA</td>
<td>Cisco IOS</td>
</tr>
<tr>
<td>Supported Internet Protocol versions</td>
<td>• IPv4</td>
</tr>
<tr>
<td></td>
<td>• IPv6</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> The open source Hadoop is not compliant with IPv6. Therefore, IPv6 is not supported on Network Performance Insight servers network. But IPv6 is supported on monitored devices.</td>
</tr>
<tr>
<td>Supported flow transport protocol</td>
<td>• UDP</td>
</tr>
</tbody>
</table>
Top features of **Network Performance Insight**

Some important features in IBM Network Performance Insight, Version 1.2.1.

**Some top features of Network Performance Insight:**

- **Supported on Red Hat Enterprise Linux 7.2.**
- **Shift to microservices architecture.** Network Performance Insight system contains the following microservices:
  - DNS
  - Entity Analytics
  - Event
  - Formula Service
  - Flow Collector
  - Flow Analytics
  - Manager
  - Storage
  - SNMP Collector
  - Tivoli Network Manager Collector
  - Threshold
  - UI
- **Installed along with IBM Open Platform with Apache Spark and Apache Hadoop for deploying and maintaining Hadoop clusters and scale by adding or removing nodes as needed.** The Hadoop Distributed File System (HDFS) comes with IBM Open Platform with Apache Spark and Apache Hadoop as your distributed file system. HDFS allows applications to run across multiple servers. HDFS is highly fault tolerant, runs on low-cost hardware, and provides high-throughput access to data.
- **Simple installation and web-based configurations.**
- **Interactive dashboards with drill-down support to device and interface level that can display near real-time data.** These dashboards are supported on Dashboard Application Services Hub portal on Jazz for Service Management.
- **New storage technology based on columnar database.** The in-house Network Performance Insight database supports standard SQL queries for analysis. The database has a built-in storage optimizer for I/O and query performance.
- **Flexible retention periods for raw and aggregated data.** Supports smaller storage capacity versus longer analysis period.
- **DNS lookup for inventory data.**
- **Traffic flow data that can be categorized by the domain observation points or interfaces and aggregated up to 1 min granularity.**
- **Efficient database backup and restore options.**
- **Integrated with IBM Tivoli Network Manager IP Edition and IBM Tivoli Netcool/OMNibus components of IBM Netcool Operations Insight for monitoring comprehensive network performance.** Metric level data is collected and stored from Tivoli Network Manager discovery and polling. Topology data from Tivoli Network Manager is also stored and advanced analytics of data is provided for comprehensive monitoring of session and device data.
- **SNMP metrics are collected from Cisco IP SLA enabled devices from Tivoli Network Manager.**
Compatibility with Netcool Operations Insight

Integrated components and their supported versions in Netcool Operations Insight.

Table 3. Compatibility between Network Performance Insight and Netcool Operations Insight solution

<table>
<thead>
<tr>
<th>Network Performance Insight versions</th>
<th>Netcool Operations Insight versions</th>
<th>Integrated components</th>
</tr>
</thead>
</table>
| 1.2.1                               | 1.4.1                              | • Tivoli Network Manager 4.2.0.3  
|                                     |                                    | • Tivoli Netcool/OMNIbus core 8.1.0.11  
|                                     |                                    | • Tivoli Netcool/OMNIbus Web GUI 8.1.0.9  
|                                     |                                    | • Device Dashboard 1.1.0.2  
|                                     |                                    | • Network Health Dashboard 4.2.0.3 |
| 1.2.0                               | 1.4.0.3                            | • Tivoli Network Manager 4.2.0.2  
|                                     |                                    | • Tivoli Netcool/OMNIbus core 8.1.0.9  
|                                     |                                    | • Tivoli Netcool/OMNIbus Web GUI 8.1.0.7  
|                                     |                                    | • Device Dashboard 1.1.0  
|                                     |                                    | • Network Health Dashboard 4.2.0.2 |
| 1.1.1                               | 1.4.0                              | • Tivoli Network Manager 4.2.0  
|                                     |                                    | • Tivoli Netcool/OMNIbus core 8.1.0.5  
|                                     |                                    | • Tivoli Netcool/OMNIbus Web GUI 8.1.0.4 |
| 1.1.0                               | 1.3.1                              | • Tivoli Netcool/OMNIbus core 8.1.0.5  
|                                     |                                    | • Tivoli Netcool/OMNIbus Web GUI 8.1.0.4 |

What’s new in Network Performance Insight

Learn about these new features and functions available with Network Performance Insight 1.2.1.

Functionality enhancements

• New microservices are introduced in 1.2.1 architecture to collect and process the SNMP metric data from Cisco IP SLA enabled devices and store the data in database.
  – SNMP Collector
  – Formula Service

For more information, see IBM Network Performance Insight: Product Overview.
Kafka Schema Registry Service is introduced to handle the versioned history of all schemas, provides multiple compatibility settings, and allows evolution of schemas according to the configured compatibility setting.

You can optionally install Remote Flow Collector where the collector can be co-located with the Flow exporters from which it is collecting data.

For more information, see Network Performance Insight architecture in Product overview.

Database schema changes

Inventory database schema is modified to store metadata and metrics that are collected from IP SLA enabled devices along with network interface information that is discovered by Tivoli® Network Manager and available in Network Connectivity and Inventory Model database.

For more information, see Data storage in IBM Network Performance Insight: Product Overview.

Installation enhancements

- Installation of Network Performance Insight and IBM Open Platform with Apache Spark and Apache Hadoop is simplified and handled with the help of an installation script.
  
  For more information, see Installing Network Performance Insight.

- Automated SSH passwordless login task
  
  For more information, see Setting SSH passwordless login section in Installing and Configuring IBM Network Performance Insight.

- Automated integration with Dashboard Application Services Hub
  
  For more information, see Setting up integration with Jazz for Service Management in Installing and Configuring IBM Network Performance Insight.

- Automated installation of remote Flow Collector
  
  For more information, see Installing and setting up remote Flow Collector section in Installing and Configuring IBM Network Performance Insight.

Upgrade support

You can upgrade Network Performance Insight 1.2.0 to 1.2.1.

For more information, see Upgrading IBM Network Performance Insight.

What's new for developers

- Entity Metrics REST APIs can support IP SLA data that is collected by SNMP Collector and stored in Inventory database schema tables.
  
  For more information, see Metric APIs section in IBM Network Performance Insight: References.

- Thresholding and Anomalies REST API support is provided for IP SLA data.

- The following queries are supported on the Metric REST APIs:
  
  – Query a metric by its metric ID
  
  – Query an entity by entity_name
  
  – Query an entity by its properties

  For more information, see Metric APIs section in IBM Network Performance Insight: References.
Documentation addendum

Documentation updates that are handled between releases are documented in documentation addendum from here:

[Documentation addendum on IBM developerWorks]

The English documentation always contains the most up-to-date information.

Related concepts:

"Top features of Network Performance Insight” on page 2
Some important features in IBM Network Performance Insight, Version 1.2.1.

Product description

IBM Network Performance Insight is a network traffic performance monitoring system. It provides comprehensive and scalable visibility on network traffic with visualization. It also reports network performance data for complex, multivendor, multi-technology networks.

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

System requirements

The system requirements for the IBM Network Performance Insight, Version 1.2.1 installations.

For information about system requirements for the IBM Network Performance Insight, Version 1.2.1, see Requirements.

See the detailed system requirements for Netcool Operations Insight from Software Product Compatibility Reports (SPCR) from here:


Related information:

[Netcool Operations Insight - Supported products and components]

Media content

The IBM Network Performance Insight, Version 1.2.1 media listing.

Network Performance Insight consists of the following general media packages:

Important: IBM Network Performance Insight is referred to as IBM Netcool Operations Insight - Performance Management in the media and they both refer to the same product capability.

Table 4. Part numbers for Network Performance Insight 1.2.1.

<table>
<thead>
<tr>
<th>Component description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netcool Operations Insight - Performance Management V1.2.1 Linux Multilingual Base eAssembly</td>
<td>CJ1U3ML</td>
</tr>
<tr>
<td>Netcool Operations Insight - Performance Management V1.2.1 Linux Multilingual</td>
<td>CNK2QML</td>
</tr>
</tbody>
</table>
Table 4. Part numbers for Network Performance Insight 1.2.1 (continued).

Part numbers for Network Performance Insight 1.2.1

<table>
<thead>
<tr>
<th>Component description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netcool Operations Insight - Performance Management Quick</td>
<td>CNK2RML</td>
</tr>
<tr>
<td>Start Guide V1.2.1 Multilingual</td>
<td></td>
</tr>
</tbody>
</table>

For part numbers of other integrated IBM Netcool Operations Insight 1.4.1 components, see [Download IBM Netcool Operations Insight 1.4.1](#).
Chapter 2. Installing Network Performance Insight

Simplified installation with the help of some installation scripts.

For step-by-step installation instructions, see Installing and Configuring IBM Network Performance Insight.

Deployment scenarios

How to decide on the different installation scenarios and server setup recommendations.

For more information about the deployment scenarios in Network Performance Insight v1.2.1, see Suggested node and services layout in a multi-node cluster in Installing and Configuring IBM Network Performance Insight.
Chapter 3. Known problems

Provides the list of all current known problems with IBM Network Performance Insight, Version 1.2.1.

For a list of known issues and resolutions for IBM Network Performance Insight, Version 1.2.1, see Troubleshooting IBM Network Performance Insight.

Support

IBM Electronic Support offers a portfolio of online support tools and resources that provides comprehensive technical information to diagnose and resolve problems and maintain your IBM products.

IBM developed many smart online tools and proactive features that can help you prevent problems from occurring in the first place, or quickly and easily troubleshoot problems when they occur. IBM's improved personalization of support resources helps you focus on and be alerted to exactly the information and resources needed for efficient and effective problem prevention and resolution. For more information, see:

https://support.podc.sl.edst.ibm.com/support/home/
Chapter 4. Service Management Connect

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


- 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:

Chapter 5. Technical information PDF library

Provides link to the product documentation in PDF format for convenient printing.

Documentation in PDF format for Network Performance Insight is available from here:
[PDF documents for download]
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