IBM Network Performance Insight 1.2.2
Document Revision R2E2

Release summary

IBM
Before using this information and the product it supports, read the information in "Notices" on page 9.

This edition applies to version 1.2.2.0 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 1.2.2 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. 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 1.2.2 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:

**Performance Metric OOTB Device Support**

Performance Metric OOTB Device Support provides some additional pre-loaded, vendor-specific device performance SNMP metrics that can be discovered and polled from Tivoli Network Manager system and the data can be displayed on Network Performance Insight dashboards.

For more information, see Performance Metric OOTB Device Support section in IBM Network Performance Insight: Product Overview.

**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
  – 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 1.2.2:

**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
Network Performance Insight technical training

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

Support information

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

Online

IBM Support Assistant
The IBM Support Assistant is a free local software serviceability workbench that helps you resolve questions and problems with IBM Software products. The Support Assistant provides quick access to support-related information and serviceability tools for problem determination. To install the Support Assistant software, go to 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, multicoloumn 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
Release summary

Release summary for IBM Network Performance Insight, Version 1.2.2.

Contents
- Description
- Top features of Network Performance Insight
- Supported network technology and devices
- Compatibility with Netcool Operations Insight
- What's new in Network Performance Insight
- System requirements
- Media
- Installing Network Performance Insight
- Known issues
- Service Management Connect
- Technical information PDF library
- Support

Description

New product features, compatibility, known problems, installation, and other getting-started issues are addressed in this release summary. IBM 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>1.2.2</td>
<td>Availability of Network Performance Insight V1.2.2</td>
<td>November 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.

Top features of Network Performance Insight

Some important features in IBM Network Performance Insight, Version 1.2.2 are as follows:
- Supports complex, multi-vendor, and multi-technology networks.
- Built on microservices architecture that can be configured and managed from Ambari.
- Displays consolidated real-time and historical NetFlow data with low granularity in Network Performance Insight Dashboards.
  Traffic flow data that can be categorized by the domain observation points or interfaces and aggregated up to 1-minute granularity.
• Supports Flexible NetFlow and Cisco Application Visibility and Control (AVC) that includes the following components:
  – Network-Based Application Recognition (NBAR)
  – Next Generation Network-Based Application Recognition (NBAR2) and Application Response Time (ART)
  – QoS to collect the Queue Drops to report the number of drops in the queue.
  – Type of Service to determine the packet delivery prioritization for low-delay, high-throughput, highly reliable service, or normal service for NetFlow traffic.
    On all Flow packets, Type of Service byte is represented as Differentiated Service Code Point (DSCP) and Explicit Congestion Notification.
• Supports configurable Autonomous systems and IP Grouping for enterprise network management with the help of new aggregation views.

![Interim Flex3](image)

• Provides some pre-loaded, vendor-specific device performance (SNMP) metrics from Performance Metric OOTB Device Support.
• Provides extensive web-based configurations, and user management for user-controlled Network Performance Insight environment.
• Renders Traffic performance data on all the ready-to-use dashboards with web-based APIs.
• Comes with interactive dashboards with drill-down support application, device, and interface level that can display real-time data. These dashboards are supported on Dashboard Application Services Hub portal on Jazz for Service Management.
• Built-in database with columnar technology and Hadoop-based big data architecture for scalability and performance optimization.
  The database has a built-in storage optimizer for I/O and query performance.
• Provides efficient database backup and restore options.
• Provides flexible retention periods for raw and aggregated data.
• Provides DNS lookup for inventory data.

### 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) and Flexible NetFlow&lt;br&gt;• Juniper J-Flow (V5 and V9)&lt;br&gt;• Huawei NetStream (V5 and V9)&lt;br&gt;• Alcatel CFlow (V9)&lt;br&gt;• IPFIX</td>
</tr>
<tr>
<td>IP SLA</td>
<td>• Cisco</td>
</tr>
<tr>
<td>Supported Internet Protocol versions</td>
<td>• IPv4&lt;br&gt;• IPv6&lt;br&gt;<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>
</tbody>
</table>
Table 2. Supported Network Performance Insight functions (continued)

<table>
<thead>
<tr>
<th>Functions</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supported flow transport protocols</td>
<td>• UDP</td>
</tr>
<tr>
<td></td>
<td>• SCTP</td>
</tr>
<tr>
<td></td>
<td>Note: You must configure your SELinux to support the SCTP protocol.</td>
</tr>
<tr>
<td>Application Visibility and Control (AVC)</td>
<td>• Cisco Aggregation Services Routers (ASR)</td>
</tr>
<tr>
<td>supported Cisco devices</td>
<td>• Cisco ISR 4000 Series</td>
</tr>
<tr>
<td></td>
<td>• Cisco Cloud Services Router (CSR) 1000V</td>
</tr>
<tr>
<td></td>
<td>• Cisco Integrated Service Routers Generation 2 (ISR G2)</td>
</tr>
</tbody>
</table>

Compatibility with Netcool Operations Insight

Integrated components and their supported versions in Netcool Operations Insight.

The following components from Netcool Operations Insight are required to work with Network Performance Insight:
• Tivoli Network Manager
• Tivoli Netcool/OMNIbus
• Device Dashboard
• Network Health Dashboard

For all the latest compatible versions of these components, see [Version 1.4.1.1 on developerWorks community](#).

What's new in Network Performance Insight

New features and functions available with Network Performance Insight 1.2.2.

Functional changes

Some of the enhanced functions that are introduced in this release:

Support for comprehensive WAN network performance monitoring capability

Network Performance Insight V1.2.2 can now support the following NetFlow technologies:
• Flexible NetFlow
  Flexible NetFlow allows granular and accurate traffic measurements and high-level aggregated traffic collection.
• Cisco Application Visibility and Control (AVC)
  – Network-Based Application Recognition (NBAR)
  – Next Generation Network-Based Application Recognition (NBAR2) and Application Response Time
  – QoS Queue Drops are reported to understand the traffic prioritization.
  – Type of Service based on traffic classes.

Controlling your Network Performance Insight environment

You can fully customize your Network Performance Insight environment to work for as suitable. Many configuration options
available to control the collection, aggregation, and storage of Flow metrics. How long you want to store the data and log files. The configuration screens are located side by side of the data visualizations, which render the data as you configure the system.

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

New components

**Performance Metric OOTB Device Support**

**Note:** Install the Interim Fix 3 to use the Performance Metric OOTB Device Support component.

Performance Metric OOTB Device Support is a new component in V1.2.2 architecture to collect, process, and report some additional SNMP performance metrics from vendor-specific devices.

The SNMP data is supplied as ready-to-use performance packages for Cisco and Juniper, and Huawei, and uses a single discovery and SNMP polling stack from Tivoli Network Manager to Network Performance Insight.

This performance metric data along with other entity metrics, and IPSLA metrics are discovered and polled by Tivoli Network Manager and stored in Network Performance Insight with the help of Storm Spout and rendered on Network Performance Insight Dashboards.

For more information, see Performance Metric OOTB Device Support in IBM Network Performance Insight: Product Overview.

**Comprehensive Network Performance Insight Dashboards**

Currently, network traffic performance (Traffic Details dashboard) is visible from Networks for Operations Insight dashboards from the Device Dashboard, Network Health Dashboard, and Tivoli Netcool/OMNibus Event Viewer.

V1.2.2 comes with an exhaustive set of Network Performance Insight Dashboards that render performance monitoring data:

- Network performance and health with the help of V9, IPFIX, and Flexible NetFlow metrics.
- Device health with the help of additional built-in vendor-specific device performance metrics that are collected from Performance Metric OOTB Device Support.
- Application health with the AVC metrics.
- WAN routing with the help of metrics that are collected from Autonomous systems and IP Grouping.

Types of Network Performance Insight Dashboards are as follows:

- Network Performance Overview
- NetFlow dashboards
- On-demand filtering dashboards

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

- Installation of Network Performance Insight and its related components is simplified.
  Performance Metric OOTB Device Support installation is stand-alone. Network Performance Insight Dashboards are installed along with Network Performance Insight since these dashboards are a part of the UI Service.
  For more information, see *Installing Network Performance Insight*.

Upgrade support

Upgrade is possible from Network Performance Insight 1.2.1.1 to 1.2.2.
For more information, see *Upgrading IBM Network Performance Insight*.

What's new for developers

Existing REST APIs are modified to query and supply data to all the Network Performance Insight Dashboards Engine and additional REST APIs are introduced to handle the data for some dashboards. The new REST APIs are as follows:

Flow Metric API
- qossummary

Entity Metric API
- deviation
- entity
- lastValue

For more information, see *REST APIs 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®](http://www-969.ibm.com/software/developer/works/)

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

System requirements

The system requirements for the IBM Network Performance Insight installations.

For more information about system requirements for the IBM Network Performance Insight, Version 1.2.2, see *Requirements*.

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


Media content

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>
<thead>
<tr>
<th>Component description</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netcool Operations Insight - Performance Management V1.2.2 Linux Multilingual Base eAssembly</td>
<td>CJ2M4ML</td>
</tr>
<tr>
<td>Netcool Operations Insight - Performance Management V1.2.2 Linux Multilingual</td>
<td>CNPM2ML</td>
</tr>
<tr>
<td>Netcool Operations Insight - Performance Management Quick Start Guide V1.2.2 Multilingual</td>
<td>CNN8SML</td>
</tr>
</tbody>
</table>

For part numbers of other integrated IBM Netcool Operations Insight V1.4.1.1 components, see [Download IBM Netcool Operations Insight 1.4.1.x](#).

**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*.

**Known problems**

Provides the list of all current known problems with IBM Network Performance Insight, Version 1.2.2.

For a list of known issues and resolutions for IBM Network Performance Insight, Version 1.2.2, see *Troubleshooting IBM Network Performance 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.

**Technical information PDF library**

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

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 that are needed for efficient and effective problem prevention and resolution. For more information, see:

https://support.podc.sl.edst.ibm.com/support/home/
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