Operations Bridge Reporter

Software Version: 10.22
Windows® and Linux operating systems

Network Performance Content Pack Reference

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Hewlett Packard Enterprise

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Contents

About This Document

This document provides an overview of OBR and Network Performance Content Pack. This document provides the list of Network Performance reports available with the Network Performance Content Pack.

This document helps you to deploy the topology views and install and configure the data source for the Network Performance Content Pack. It provides information on report navigation and metric mapping for report.

For information on Operations Bridge Reporter tools and contents, go to Marketplace.

Getting Started

This section provides OBR overview, deployment scenarios, and types of reports.

Operations Bridge Reporter (OBR) Overview

OBR is a cross-domain historical infrastructure performance reporting solution. It displays top-down reports from Business Service Management (BSM) Business Service and Business Application, Operations Manager (OM) Node Group or OMi10 perspective to the underlying infrastructure. It also displays bottoms-up reports from the infrastructure to the impacted Business Services and Business Applications or Node Groups. It leverages the topology information to show how the underlying infrastructure health, performance and availability affects your Business Services and Business Applications or Node Groups in the long term. You can navigate from higher level cross domain reports to detailed domain level reports.

Deployment Scenarios

Following are the deployment scenarios supported on OBR:

- **Deployment with BSM/OMi** - In this deployment, Run-time Service Model (RTSM) is the source of topology information. OBR discovers and synchronizes topology information from OMi. In a BSM environment with underlying OM servers, this synchronization technique receives discovered topology data from multiple OM systems and updates the Configuration Items (CIs) and CI relationships in the RTSM as soon as changes are discovered. However, you can also use the OM D-MoM dynamic topology synchronization technique to discover and synchronize the topology information in RTSM. In an environment with OMi 10.00, OBR uses RTSM to obtain topology information and metrics from Operations Agent or SiteScope systems that are configured with OMi.
- **Deployment with Operations Manager** - In this deployment, the topology information is a group of managed nodes defined in OM that are logically combined for operational monitoring. These logical node groups are created by OM users to classify the nodes as specific organizations or entities within their enterprise. For example, a group called `Exchange Servers` can be created in OM to organize the specific Exchange Servers and Active Directory nodes for reporting or monitoring purposes. OBR uses the node groups from OM for its topology computation.

- **Deployment with VMware vCenter** - VMware vCenter is a distributed server-client software solution that provides a central and a flexible platform for managing the virtual infrastructure in business-critical enterprise systems. VMware vCenter centrally monitors performance and events, and provides an enhanced level of visibility of the virtual environment, thus helping IT administrators to control the environment with ease.
- **Other deployments** - Apart from the basic deployment scenarios, you can collect data from the following sources independently:
  - Deployment with NNMi
  - Deployment with a generic database
  - Deployment with other applications using CSV

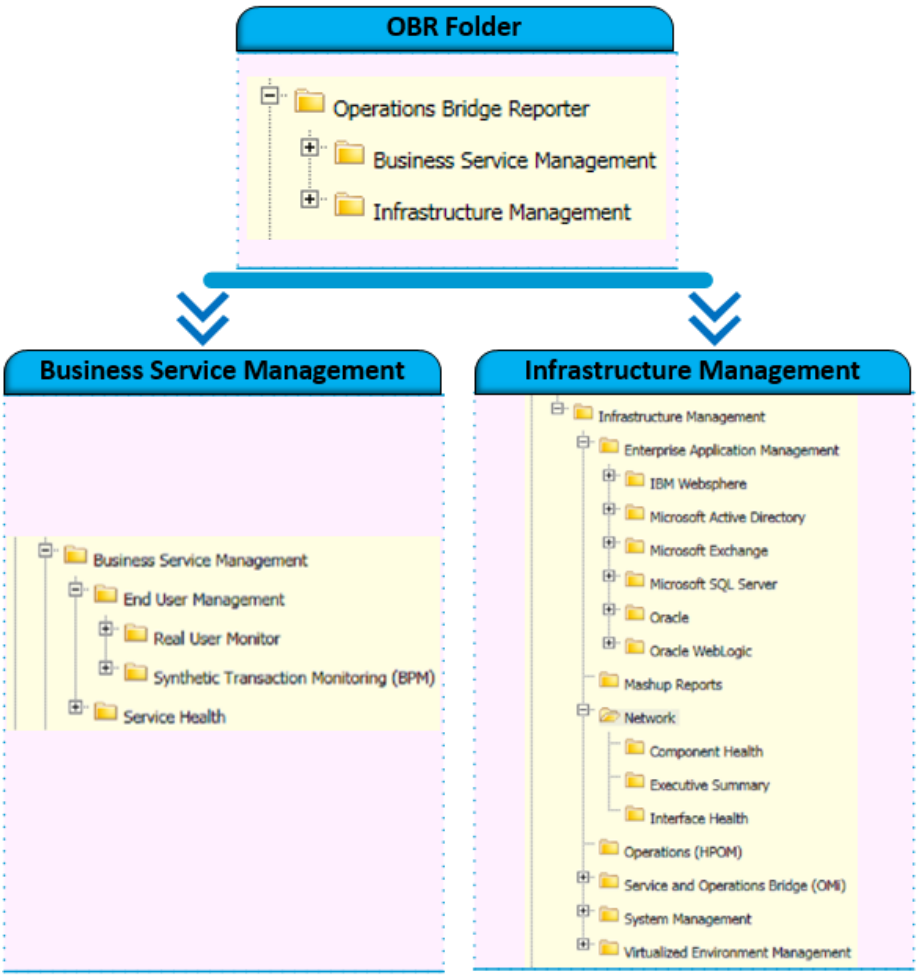
Types of Reports

The reports available in Operations Bridge Reporter (OBR) are divided into two broad categories:

• Business Service Management

• Infrastructure Management

The following image shows the supported list of reports folders under both these categories:



To view a map of all the reports available in the Network Performance Content Pack, see Report Navigation.

For more information on Operations Bridge Reporter concepts, see *Operations Bridge Reporter Concepts Guide* and *Operations Bridge Reporter Content Development Guide*.

Network Performance Content Pack Overview

This section provides an overview of Network Performance Content Pack, target audience, and supported data sources.

The Network Performance Content Packs determine the fact data that are to be collected from the various data sources, and the interval at which the data is collected. Configuration of the data source connections for the Network Performance Content Packs depends on the type of deployment scenario used.

Target Audience

The target audience for the Network reports is Network Administrators who are responsible for the maintenance of the network infrastructure of their organization.They can use the Network reports to survey the inventory of the network nodes and the allocated hardware resources to support the Business Services, Business Applications, or the Node Groups that are deployed on these nodes. By analyzing the performance, availability, and health information displayed in the reports, Network Administrators can help ensure continuous improvement of these business services and business applications.

Data Sources for Network Data

OBR integrates with and collects historical network-related data for the network nodes from Network Node Manager i (NNMi) Network Performance Server (NPS).

The NPS provides the infrastructure that is used in conjunction with NNMi to monitor the operational performance of the network infrastructure. With the performance data collected by different NNMi Software Smart Plug-ins (iSPIs) such as NNM iSPI for Performance, the NPS builds data tables, runs queries in response to user selections, and displays query results in web-based reports that help you diagnose and troubleshoot problems in your network environment. The NPS enables you to effectively store, access, and track performance data.

OBR supports the collection of network data from the NPS by extending the functionality of the database collector. The Network Content Pack identifies the list of metrics or facts that OBR must collect from each of these data sources. The corresponding dimension data is collected from the RTSM or OM topology source, depending on OBR's deployment scenario.

> **Note:** OBR computes Availability metrics based on initial samples received from NNMi/NPS. Updates to the metric values after the initial samples are received from NNMi/NPS is not supported.

OBR collects hourly data from the NPS based on the collection policies defined in the Network Content Pack. This data is stored in the database in hourly tables as individual records. OBR then performs aggregation routines on these records and converts the data to daily data. This aggregated data is displayed in the reports.

> **Note:** The Network data that is collected from NPS is enriched with the downtime information. OBR does not perform any additional downtime enrichment on this data when displaying it in the reports.

> **Note:** The Network Performance Content Pack collects data only from Type2 NodeGroups, that is, routers and switches.

Deploy Topology Views

To configure OBR to collect domain-specific data, you need to deploy the topology views for Network Performance Content Pack. These topology views contain specific CI attributes that Network Performance Content Pack uses to collect the relevant data.

List of Content Pack and Topology Views to Deploy

The following table lists the topology views to deploy for Network Performance Content Pack:

Content Pack	View Name	Location
On Windows		
Network	SHR_Network_Views.zip	%PMDB_HOME%\packages\Network\ETL_Network_NPS92_RTSM.ap\source\cmdb_views
On Linux		
Network	SHR_Network_Views.zip	$PMDB_HOME/packages/Network/ETL_Network_NPS92_RTSM.ap/source/cmdb_views

BSM Server

To deploy the topology model views for the Network Performance Content Pack in the BSM server, follow these steps:

1. In the web browser, type the following URL:

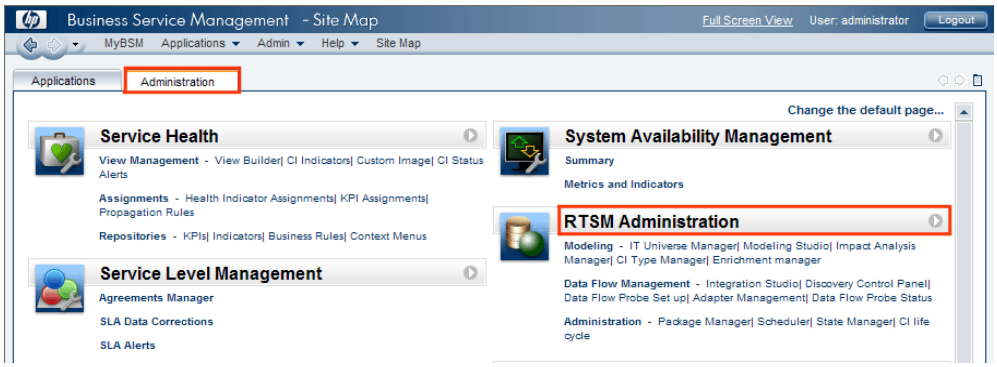
   `http://<BSM system FQDN>/bsm`

   where, *<BSM system FQDN>* is the FQDN of the BSM server.

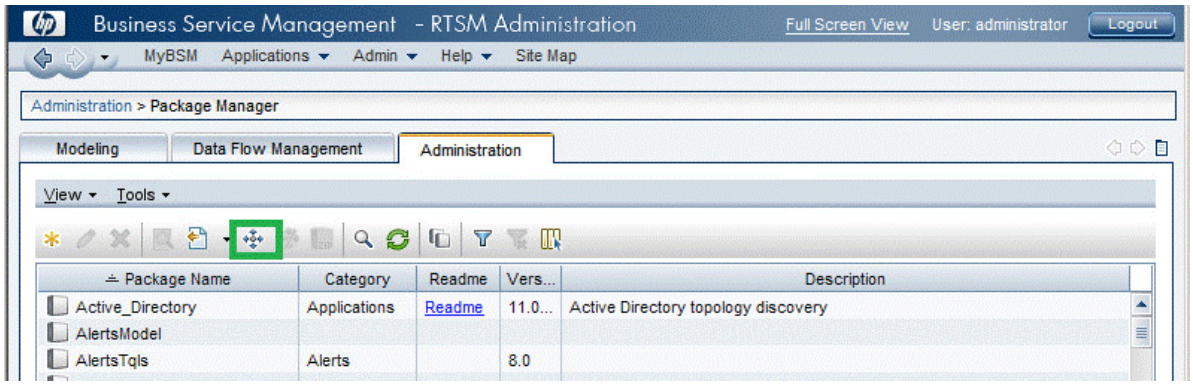
   > **Note:** You can launch the BSM server from a system where OBR is installed or any other local system. If you are launching from local system, ensure that you browse to the location mentioned in List of Content Pack and Topology Views to Deploy and copy the required views to your local system.

   The Business Service Management Login page appears.

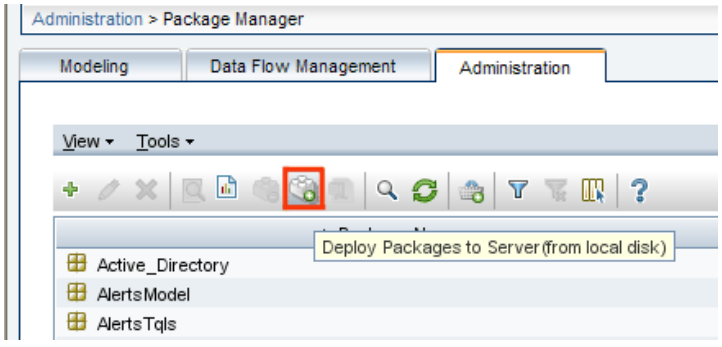
2. Type the login name and password and click **Log In**. The Business Service Management - Site Map appears.
3. Click **Administration > RTSM Administration**. The RTSM Administration page appears.



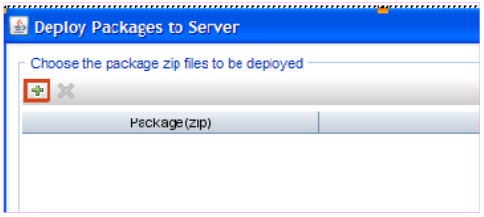
4. Click **Administration > Package Manager**. The Package Manager page appears.



5. Click the **Deploy Packages to Server (from local disk)** icon. The **Deploy Package to Server** dialog box appears.



6. Click the **Add** icon.



The **Deploy Package to Server (from local disk)** dialog box appears.

7. Browse to the location of the Content Pack zip files, select the required files, and then click **Open**.

   You can view and select the TQL and ODB views that you want to deploy under **Select the resources you want to deploy** in the **Deploy Package to Server (from local disk)** dialog box. Ensure that all the files are selected.

8. Click **Deploy** to deploy the Content Pack views.

You have successfully deployed the Content Packs views based on the type of deployment scenario selected for OBR.

OMi 10 Server

To deploy the topology model views for the Network Performance Content Pack in the OMi 10 server, follow these steps:

1. In the web browser, type the following URL:

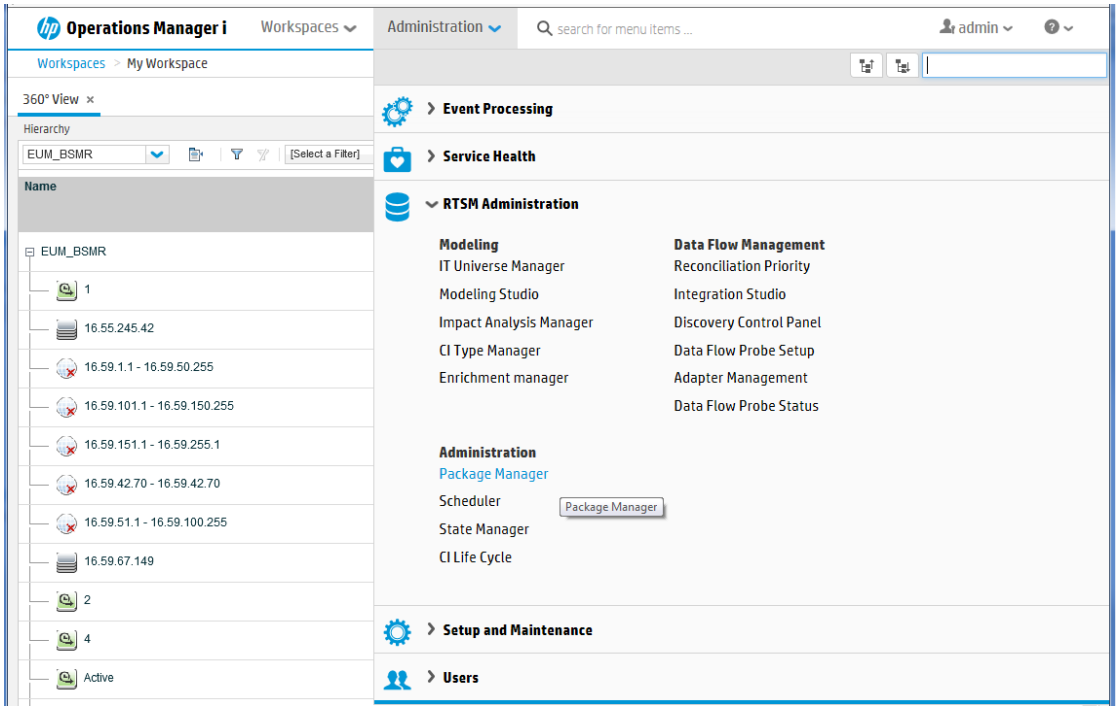
   `http://<OMi system FQDN>/omi`

   where, *<OMi system FQDN>* is the FQDN of the OMi server.

   > **Note:** You can launch the OMi server from a system where OBR is installed or any other local system. If you are launching from local system, ensure that you browse to the location mentioned in List of Content Pack and Topology Views to Deploy and copy the required views to your local system.

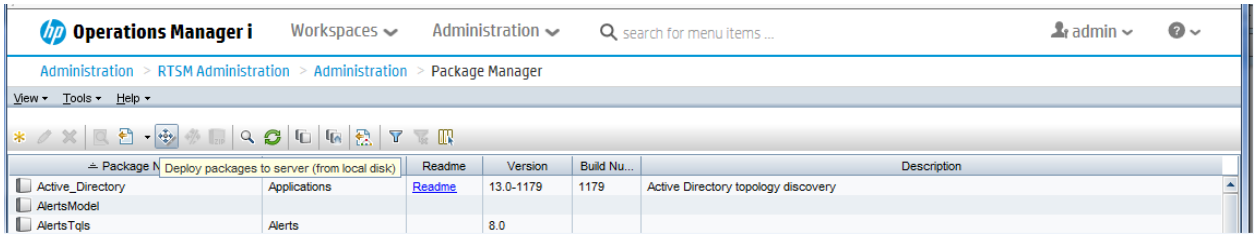
   The Operations Manager i Login page appears.

2. Type the login name and password and click **Log In**. The Operations Manager i Workspace page appears.
3. Click **Administration > RTSM Administration > Package Manager**.

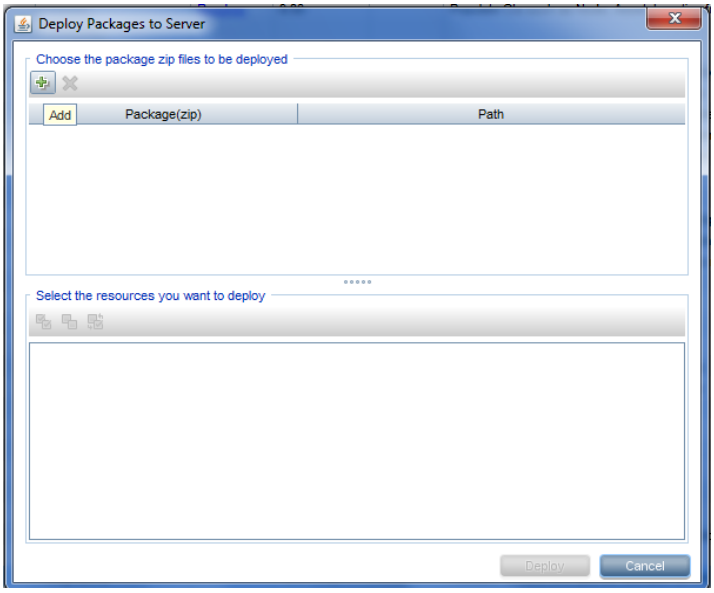


The Package Manager page appears.

4. Click the **Deploy Packages to Server (from local disk)** icon. The **Deploy Package to Server** dialog box appears.



5. Click the **Add** icon.



The **Deploy Package to Server (from local disk)** dialog box appears.

6. Browse to the location of the Content Pack zip files, select the required files, and then click **Open**.

   You can view and select the TQL and ODB views that you want to deploy under **Select the resources you want to deploy** in the **Deploy Package to Server (from local disk)** dialog box. Ensure that all the files are selected.

7. Click **Deploy** to deploy the Content Pack views.

You have successfully deployed the Content Packs views based on the type of deployment scenario selected for OBR.

Install the Content Pack

The Network Performance Content Pack collects performance data at hourly granular from NPS source. So executive summary reports display hourly/daily /monthly summarized view of Network devices collected from NPS. OBR collects performance data of only 'Switches and Routers' devices from NPS source.

Based on your requirement, OBR recommends you to install either the Network Performance Content Pack or Network Component_Health/Network Interface_Health Content Packs. Installing both Network Performance Content Pack and Network Component_Health/Network Interface_Health Content Packs may lead to performance issues due to redundant data.

Before you begin to install the Content Packs, check the availability and integrity of the data sources:

Check Availability and Integrity of Data Sources

OBR has Data Source Readiness Check tool that enables you to check the availability and integrity of RTSM and PA data sources before installing Content Packs. The tool is available on Windows and Linux operating systems. You can check the data source readiness using the property file or by database.

Check Data Source Related to RTSM

To check the availability and integrity of data source related to RTSM, follow these steps:

1. Log on to the OBR system.
2. Before you check the data source readiness, ensure the following:
   a. The **dscheck** folder is available in `PMDB_HOME`.
   b. The `dscheckRTSM.sh` script is available in `%PMDB_HOME%\dscheck\bin` (**On Windows**) and `$PMDB_HOME/dscheck/bin` (**On Linux**).
   c. Property file is created with the following entries:

      ```
      ## RTSM DB connection properties
      rtsm.hostname=<hostname>
      rtsm.username=<username>
      ```

`rtsm.password=<password>`

`rtsm.port=<port>`

3. To check the data source readiness, run the following command in the command prompt:
   a. `cd {PMDB_HOME}/dscheck/bin`
   b. Check the data source readiness using:
      i. **Property file**:

      `dscheckRTSM.sh -propFile <File_Path>/<property_file>`

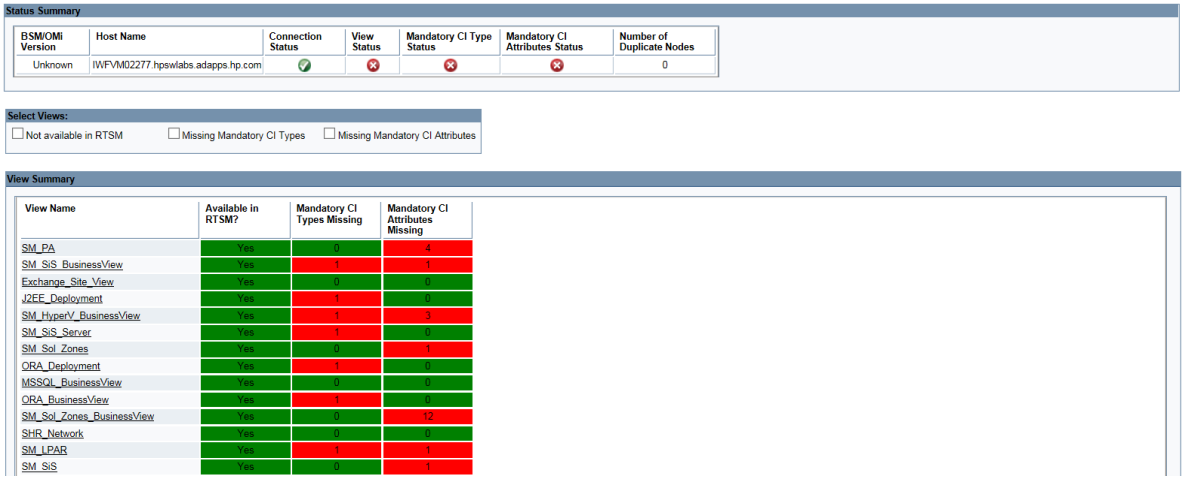
      where, `<File_Path>` is the path where property file is created.

      `<property_file>` is the name of the RTSM property file. For example, `rtsm.prp`.

      ii. **Database**:

      `./dscheckRTSM.sh`

   You can open the `.html` file created in **dscheck** folder to check the availability and integrity of the RTSM data source.



The file displays the following information:

i. Server status

ii. Configuration details

iii. Views available in RTSM

iv. Mandatory CI types missing in the view

v. Mandatory CI attributes missing with the CI type

Check Data Source Related to PA

To check the availability and integrity of data source related to PA, follow these steps:

1. Log on to the OBR system.
2. Before you check the data source readiness, ensure the following:
   a. The **dscheck** folder is available in `PMDB_HOME`.
   b. The `dscheckPA.sh` script is available in `%PMDB_HOME%\dscheck\bin` (**On Windows**) and `$PMDB_HOME/dscheck/bin` (**On Linux**).
   c. Property file with the entries of PA nodes is created.
3. To check the data source readiness, run the following command in the command prompt:
   a. `cd {PMDB_HOME}/dscheck/bin`
   b. Check the data source readiness using:
      i. **Property file**:

      `dscheckPA.sh -propFile <File_Path>/<property_file>`

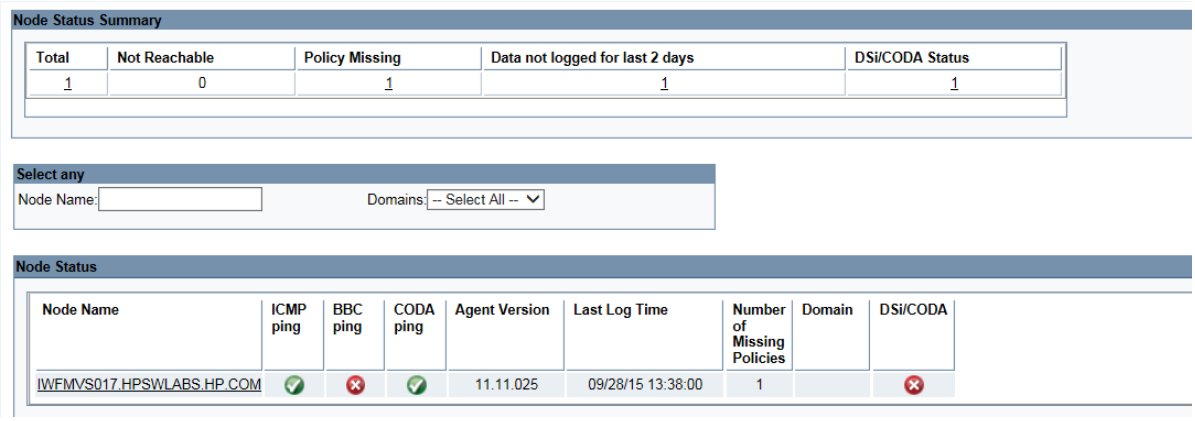
      where, `<File_Path>` is the path where property files is created.

      `<property_file>` is the name of the PA property file. For example, `pa.prp`.

      ii. **Database**:

      `./dscheckPA.sh`

   You can open the `.html` file created in **dscheck** folder to check the availability and integrity of the PA data source.



The file displays the following information:

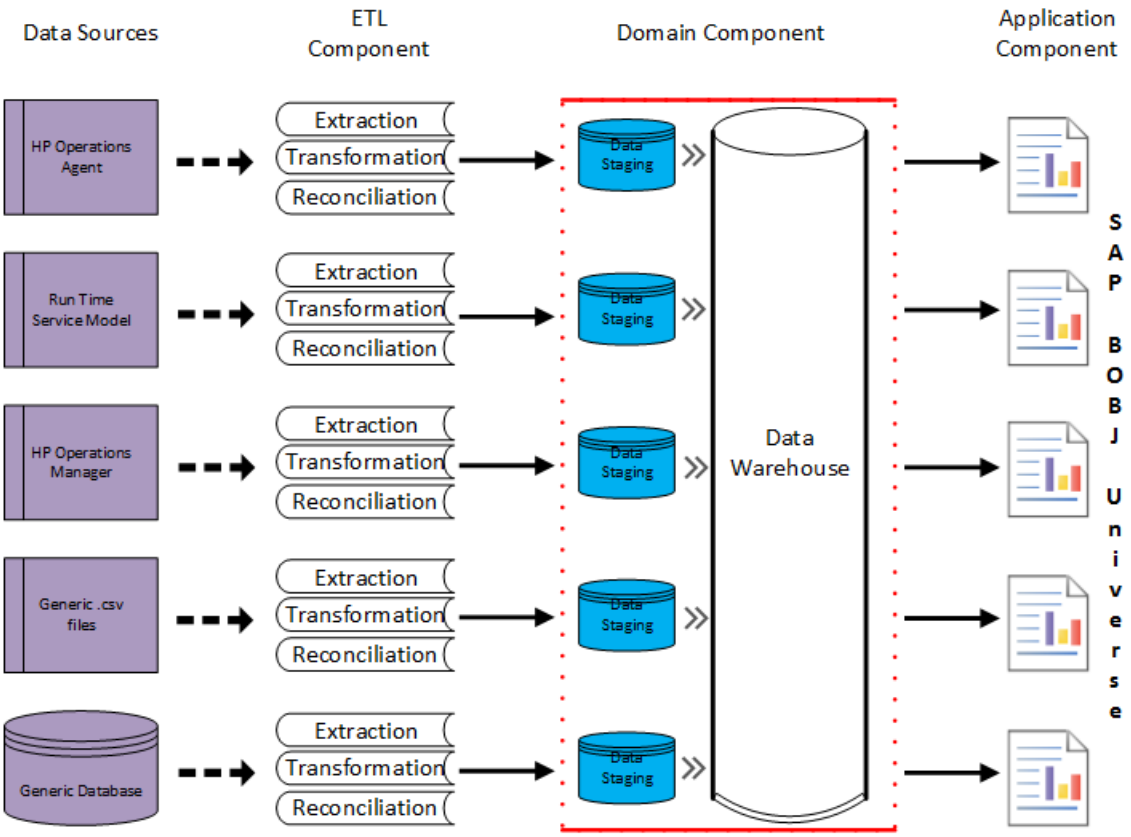
i. Node status summary

ii. Node status

Selecting the Content Pack Components

A typical Content Pack consists of three components - the Domain, Extraction Transformation Loading (ETL), and Application components.

The following figure shows the typical data flow between the components of the Content Pack:



- **Domain component**: The Domain or Core Domain component defines the data model for a particular Content Pack. It contains the rules for generating the relational schema. It also contains the data processing rules, including a set of standard pre-aggregation rules, for processing data into the database. The Domain component can include the commonly-used dimensions and cubes, which can be leveraged by one or more Report Content Pack components. The Domain Content Pack component does not depend on the configured topology source or the data source from where

you want to collect data.

- **ETL (Extract, Transform, and Load) component**: The ETL Content Pack component defines the collection policies and the transformation, reconciliation, and staging rules. It also provides the data processing rules that define the order of execution of the data processing steps.

  A single data source app.lication can have multiple ETL components. For example, you can have one ETL component for each virtualization technology supported in Performance Agent such as Oracle Solaris Zones, VMware, IBM LPAR, and Microsoft HyperV. The ETL component can be dependent on one or more Domain components. In addition, you can have multiple ETL components feeding data into the same Domain component.

  The ETL Content Pack component is data source dependent. Therefore, for a particular domain, each data source application has a separate ETL Content Pack component. For example, if you want to collect system performance data from the Operations Agent, you must install the `SysPerf_ETL_PerformanceAgent` component. If you want to collect system performance data from SiteScope, you must install either `SysPerf_ETL_SiS_API` (sourcing data logged in API) or `SysPerf_ETL_SiS_DB` (sourcing data logged in BSM Profile database).

  The Content Pack components 'NetworkPerf_ETL_PerfiSPI_NonRTSM' and 'NetworkPerf_ETL_PerfiSPI_RTSM' are mutually exclusive. Ensure that only one of them is selected.

  > **Note:** If the NNMi topology is integrated to BSM/OMi RTSM, select NetworkPerf_ETL_PerfiSPI_RTSM Content Pack component. If else, select NetworkPerf_ETL_PerfiSPI_NonRTSM Content Pack component.

- **Application component**: The Application Content Pack component defines the application-specific aggregation rules, business views, SAP BOBJ universes, and the reports for a particular domain. Report components can be dependent on one or more Domain components. This component also provides the flexibility to extend the data model that is defined in one or more Domain components.

The list of Content Pack components that you can install depends on the topology source that you configured during the post-install configuration phase of the installation. Once the topology source is configured, the Content Pack Deployment page filters the list of Content Pack components to display only those components that can be installed in the supported deployment scenario. For example, if RTSM is the configured topology source, the Content Pack Deployment page only displays those components that can be installed in the SaOB and APM deployment scenarios.

Install the Content Pack

To install the required Network Performance Content Pack, follow these steps:

> **Note:** Before starting the Network Performance content pack upgrade, stop the `HPE_PMDB_Platform_Collection` service. Restart the `HPE_PMDB_Platform_Collection` service after the content pack upgrade.

1. Launch the Administration Console in a web browser using the following URL:

   `http://<OBR_Server_FQDN>:21411`

2. In the Administration Console, click **Content Pack Deployment**.
   The Content Pack Deployment page is displayed.

   To install this content pack and to generate reports on data from OM, BSM, or OMi, make the following selections:

   - NetworkPerf_ETL_PerfiSPI_NonRTSM
   - NetworkPerf_ETL_PerfiSPI_RTSM
   - NetworkPerf_Domain
   - NetworkPerf_Reports

   > **Note:** The Content Pack components for RTSM and non RTSM topology source are mutually exclusive. Ensure that only one of them is selected.

   > **Tip:** Install the following dependent content packs (and their components) along with this content pack for it to function:
   >
   > - Core
   >   - Core_Domain
   > - System Performance
   >   - SysPerf_Reports

   > **Note:** The dependent domain content pack get selected automatically, you have to select only the ETLs based on the topology source.

3. Click **Install / Upgrade** to install the Content Packs.
   An `Installation Started` status appears in the **Status** column for Content Pack that is

currently being installed. The Content Pack Deployment page automatically refreshes itself to display the updated status. Once the installation completes, an `Installation Successful` status appears. If the installation fails, an `Installation Failed` status appears.

> **Note:** The timer service will be stopped automatically during install/uninstall/upgrade operation and will be started once operation is complete.

4. Click icon  in the **Status** column for more information about the installation process.
The Content Pack Component Status History window is displayed. It displays the details of the current and historical status of that Content Pack component's installation.

> **Note:** During install/uninstall process, Content Pack Deployment page does not allow you to interrupt the process. Instead, you must wait till the current process is complete before you can perform any other operations on the Deployment Manager page.

Uninstalling the Content Pack Components

To uninstall the Content Packs, follow these steps:

1. Launch the Administration Console in a web browser:
   a. Launch the following URL:

      `https://<OBR_Server_FQDN>:21412/`

   b. Type **administrator** in the **Login Name** field and password in the **Password** field. Click **Log In** to continue. The Administration Console page appears.

      > **Note:** If you use any other user account to access the Administration Console, make sure that the user account has administrator privileges.

2. On the left pane, click **Content Pack Deployment**. The **Content Pack Deployment** page appears.

   The **Content Pack Deployment** displays the Content Pack components that are installed in the supported deployment scenario. For the list of Content Pack, see, "List of Content Pack and Topology Views to Deploy" on page 10.

3. Click  icon for the required Content Pack to be uninstalled. A summary message is displayed.

> **Note:** At a time, only one Content Pack and its dependent Content Packs are uninstalled.

4. Click **OK** to uninstall the Content Pack. The uninstall status is displayed in the **Status** column.

Data Source Collection Configuration

After installing Content Packs, you must configure OBR to collect required data from various data collectors. The data collectors work internally within the OBR infrastructure to collect the data. Therefore, you cannot directly interface with these collectors. Instead, you can specify the data sources from where the collectors can collect the data through the Administration Console.

> **Note:** You must have the NNM iSPI Performance for Metrics installed. Do not select this option if you do not have NNMi and the NNM iSPI Performance for metrics available in your environment.

Configuring the Network Data Source (using Generic Database)

This page allows you to configure connections to generic databases that use Vertica, Oracle, Sybase IQ or SQL Server as the database system.

If you have installed the Network Content Pack, you must configure OBR to collect network-related data from NNMi. NNMi uses the NPS as the repository for network performance data. Using the Generic Database page in the Administration Console, you can configure OBR to collect the required data from the NPS.

Sybase IQ as Data Source

If Sybase IQ is the database in your system, you have to manually copy the `jconn4.jar` file to the OBR system and then continue with the generic database configuration.

To copy the `jconn4.jar` file, follow these steps:

1. Copy the `jconn4.jar` from `%SYBASE%/jConnect-7_0/classes` (**On Windows**) and `$SYBASE\jConnect-7_0\classes` (**On Linux**) on Sybase IQ server to `$PMDB_HOME/lib` directory on OBR system.
2. Restart the collection service.

Configure Network Data Source

To configure the Network data source connection, follow these steps:

1. In the **Administration Console**, click **Data Source Configuration > Generic Database**. The **Generic Database** page appears.
2. Click **Create New** to create the NPS data source connection. The **Connection Parameters** dialog box appears.
3. Specify or type the following values in the **Connection Parameters** dialog box:

Field	Description
Host name	Address (IP or FQDN) of the NPS database server.
Port	Port number to query the NPS database server.
TimeZone	The time zone in which the database instance is configured.
Database type	The type of database engine that is used to create the NPS database.
Domain	Select the domain(s) for which you want OBR to collect data from the selected database type.
URL	The URL of the database instance.
User name	Name of the NPS database user.
Password	Password of the NPS database user.
Collection Station	To specify whether it is a Local / Remote Collector.

   The Domain name Network_Core appears for selection only after the installation of NetworkPerf_ETL_PerfiSPI_RTSM or NetworkPerf_ETL_PerfSPI9.20 Content Pack or NetworkPerf_ETL_PerfiSPI_NonRTSM.

4. Click **OK**.
5. Click **Test Connection** to test the connection.
6. Click **Save** to save the changes. A Saved Successfully message appears in the Information message panel.
7. To change the data collection schedule for one or more hosts, in the **Schedule Frequency** column, specify a collection time between 1 and 24 hours in the **Hrs** box.
8. Click **Save** to save the changes. A **Saved Successfully** message appears in the Information message panel.

Data collection for all the newly created data source connections is enabled by default. For more information about configuring network data source connections, see the *Operations Bridge Reporter Administration Guide*.

Report Navigation

The Network reports are categorized into the high-level Executive Summary and the detailed Performance reports to help you easily analyze and identify performance problems with the network nodes in your IT environment. You can navigate from the higher-level reports to the detailed reports through the various cross launch and hyperlink features. For example, you may start with the Network Node Health by Group report for an overall picture of the health of the network infrastructure and then navigate to the detailed Quick View or Exception reports to identify specific nodes that breached the utilization thresholds.

Certain Network reports also provide cross-domain functionality where you can cross-launch to the related System Management reports for further investigation. However, report navigation can vary depending on the use-cases around which these reports are designed.

The Network reports provide the following information:

- Historical information about the performance of the different network nodes
- Analyze the health of the monitored network devices
- Single pane of view of consolidated information of both the physical systems and the network nodes for the same business service
- Verify the outcome of network optimization tasks that were performed based on reports from other real-time monitoring tools

New Network Performance Reports

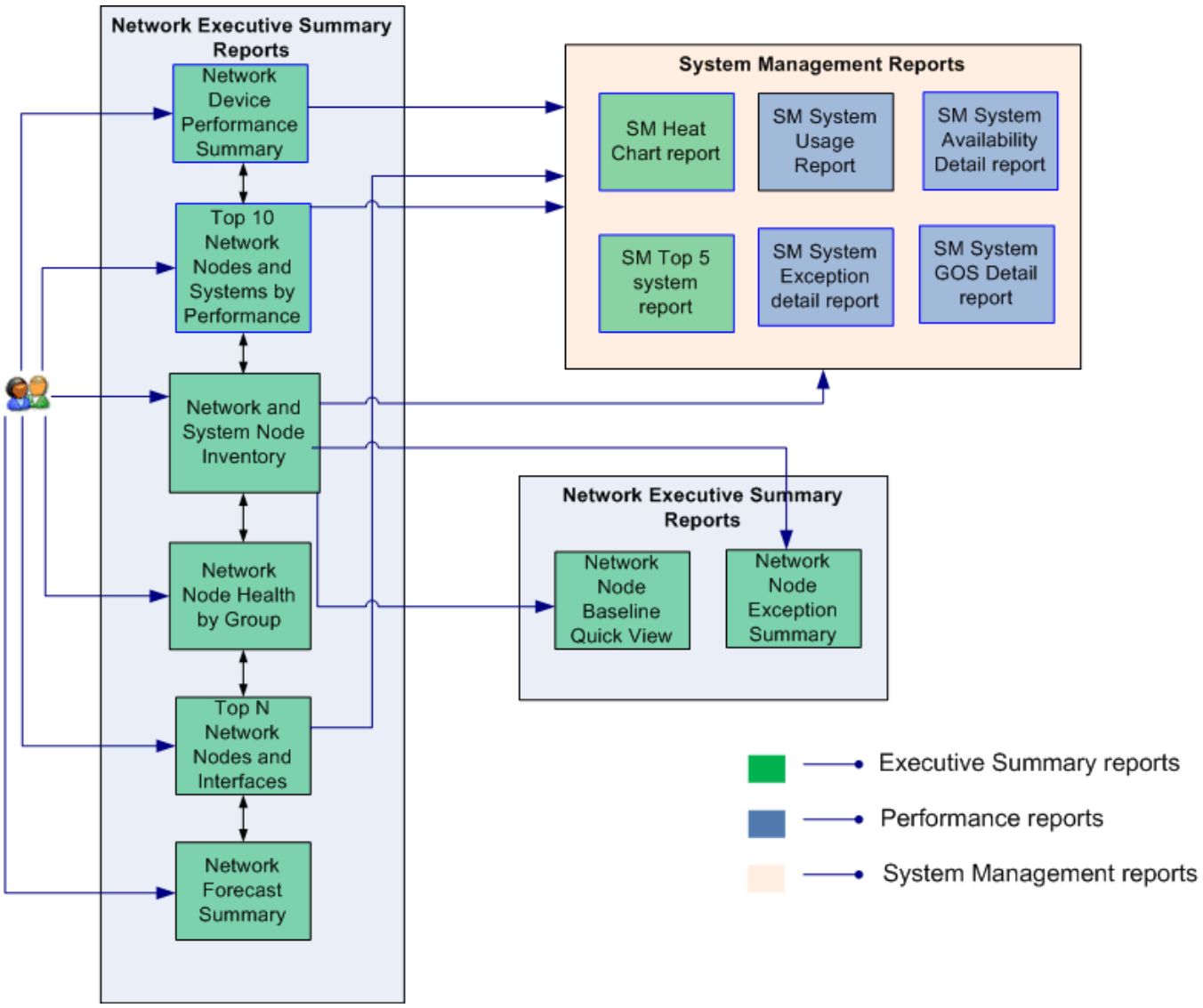
The following is the new Network Performance report:

- **Network Node Availability** - Displays the availability details of the monitored network nodes, as a heat-map based on predetermined thresholds, for every hour across the selected time period.

Availability	Color
< 90	
> 90 and < 95	
> 95	

Report Navigation

The following diagram consolidates the reports in the Network domain and depicts one possible way of navigating the reports.



Appendix

This section provides information on Terminology and Metric Mapping for Reports.

Appendix A: Terminology

Business Service: Any service created in BSM Run-time Service Model (RTSM) and is part of your business, such as the online banking service or email service.

Business View: A view deployed on BSM RTSM that provides the topology information of the configuration items in your IT environment.

Node Groups:: Group of managed nodes defined by users or available by default in Operations Manager (OM) to classify as specific organizations or entities within the enterprise. OBR uses the node groups from OM for its topology information.

Baseline metrics: The Network Performance Server (NPS) provides you the baseline metrics for network-related data to define the normal (expected) range of values for any given metric. The baselines metrics enable you to forecast the future value for a given metric based on the historical data.

Baseline: The value that presents the normal (expected) range of utilization for the selected topology filter based on the historical data.

Baseline sleeve: The upper and lower limit of the baseline range of utilization.

Baseline deviation: Deviation of the samples spread over a specific time range. This value represents the extent of the range of values normally seen for the selected time range in the seasonal cycle, based on historical data.

Baseline slope: Indicates the increase or decrease in the average utilization in one day. Negative slope indicates a declining trend.

Exception count: The total number of sample counts that are marked for an exception. NPS raises an exception for the metric if the a certain number of samples within a sample window are out of normal range.

Exception rate: The percentage of samples that has the exception flag set.

Appendix B: Metric Mapping for Reports

OBR provides a utility to generate metric flow documents. The utility has strong filtering capabilities and generates the metric flow documents in HTML format. These HTML output files can then be saved in Excel for further filtering and metric tracking.

To generate the metric flow documents, follow these steps:

1. Run the utility using the following command:

   On Windows:

   ```
   %PMDB_HOME%\bin\shr_utility -flow -dir %PMDB_HOME%\packages\Network
   ```

   On Linux:

   ```
   $PMDB_HOME/bin/shr_utility -flow -dir $PMDB_HOME/packages/Network
   ```

   The command generates multiple HTML output files in the current directory.

2. Open the HTML output file in Excel.

   You can apply combination of filters to compare and track a particular metric(s).

> **Note:** The output file in Excel format is published for some of the Content Packs. You can download the files from the Marketplace.

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Feedback on Network Performance Content Pack Reference (Operations Bridge Reporter 10.22)

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to docfeedback@hpe.com.

We appreciate your feedback!