HPE Operations Bridge Reporter

Software Version: 10.20

Network Component Health Content Pack Reference

Hewlett Packard Enterprise

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Contents

About This Document

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

This document helps you to install and configure the data source for the Network Component Health Content Pack. It provides information on report navigation and related terminology.

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

Getting Started

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

HPE Operations Bridge Reporter (OBR) Overview

HPE 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 HPE OBR:

- **Deployment with BSM/OMi** - In this deployment, Run-time Service Model (RTSM) is the source of topology information. HPE OBR discovers and synchronizes topology information from OMi. In a BSM environment with underlying HPOM 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, HPE 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. HPE 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 HPE 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:
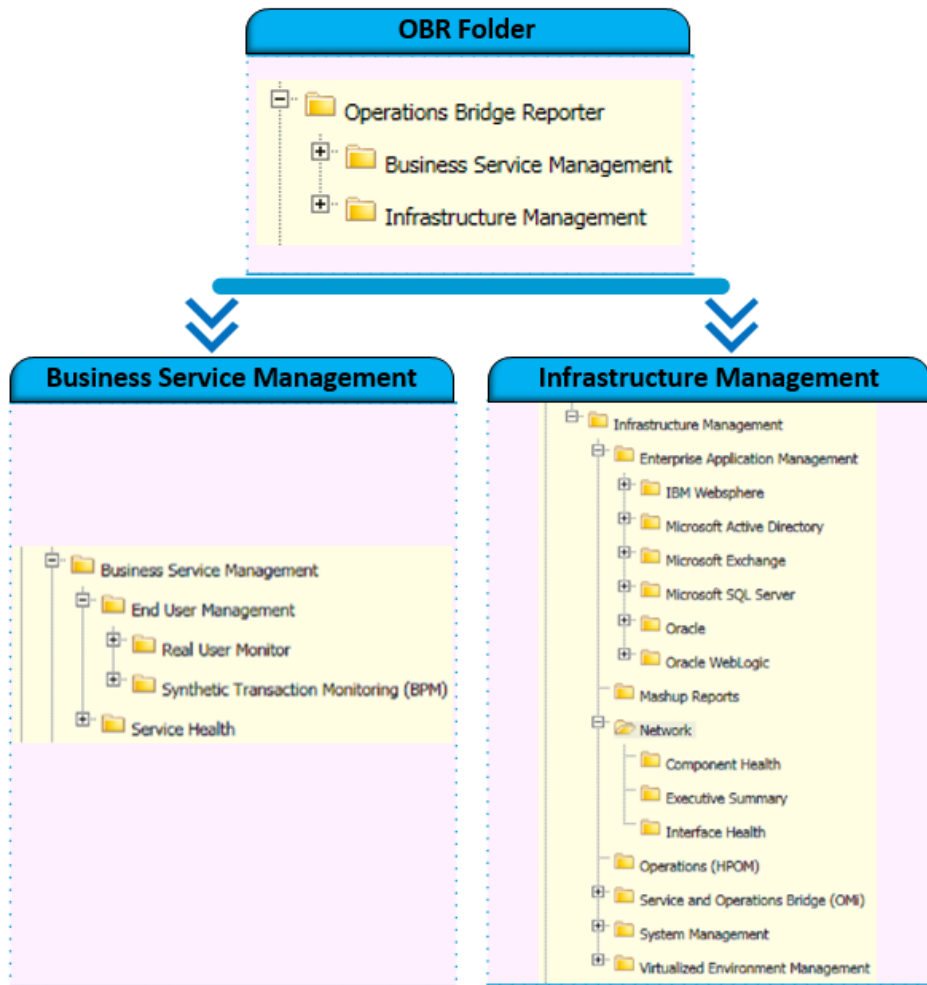
To view a map of all the reports available in the Network Component Health Content Pack, see Report Navigation.

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

Network Component Health Content Pack Overview

The Component Health reports provide performance data for the network nodes and components such as CPU, Memory, Buffer, SNMP response time as chart and/or table. These reports help you to monitor the CPU utilization, memory utilization, and also to identify the top and bottom nodes that are available and reachable. You can drill down the report from year to 5 minute data.

Target Audience

The target audience for the Network Component Health 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 Component Health Data

OBR collects network data directly from NNMi and NNM iSPI Performance for Metrics. The **ComponentHealth_Reports Content Pack** identifies the list of metrics that OBR must collect from each of these data sources. This data is stored in the database as individual records. HPE OBR then performs aggregation routines on these records and converts the data to daily data. This aggregated data is displayed in the reports.

> **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.

Network Performance Server (NPS) extends NNMi's functionality by providing a platform for performance data storage, analysis and reporting. 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 Performance for Metrics, 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.

> **Note:** OBR does not perform any additional downtime enrichment on this data when displaying it in the reports.

Operating System Combination in Distributed Installation

The table below illustrates the combination of operating systems that are supported between NNMi and NPS in a distributed installation environment.

> **Note:** Ensure that you use the same version levels for both NNMi and NPS.

		NPS	
		Windows	**Linux**
NNMi	**Windows**	Supported	Not Supported
	Linux	Supported	Supported

Install the Content Pack

This section provides information on the components of Content Pack, select and install the Content Pack.

The Network Component_Health and Network Interface_Health Content Pack collects network performance data directly from NNMi. The data collection gives you detailed real time view of component or interface health in your network. You can view detailed health or utilization reports. You have to revisit the hardware requirements, if you choose to install these Content Packs. For more information, see HPE Operations Bridge Reporter*Performance, Sizing, and Tuning guide*.

Based on your requirement, HPE 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

HPE 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 HPE 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 HPE 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.

Node Status Summary				
Total	Not Reachable	Policy Missing	Data not logged for last 2 days	DSi/CODA Status
1	0	1	1	1

Select any

Node Name: [   ]   Domains: -- Select All -- ⌄

Node Status

| Node Name	ICMP ping	BBC ping	CODA ping	Agent Version	Last Log Time	Number of Missing Policies	Domain	DSi/CODA
IWFMVS017.HPSWLABS.HP.COM	✓	✗	✓	11.11.025	09/28/15 13:38:00	1		✗

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:
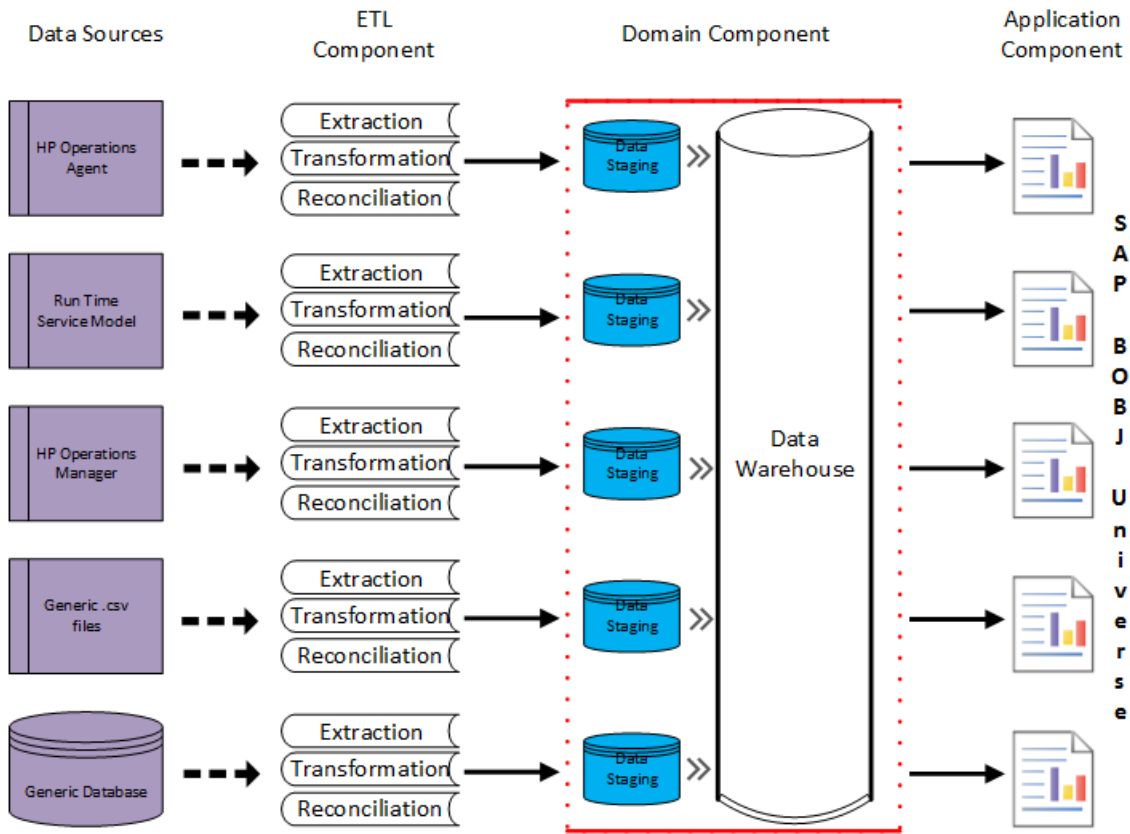
- **Domain component**: The Domain or Core Domain component defines the data model for a particular Content Pack. It contains the rules for generating the relational schema. It also contains the data processing rules, including a set of standard pre-aggregation rules, for processing data into the database. 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 application 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 HP Operations Agent, you must install the `SysPerf_ETL_PerformanceAgent` component. If you want to collect system performance data from HP 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).

- **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:

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 network performance data, make the following selections:

   - ComponentHealth_Reports

   - ComponentHealth_Domain

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

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 .

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

> **Note:** You have to perform the following configuration steps only if you have installed Component Health and/or Interface Health Content Pack.

HPE OBR is integrated with NNMi to collect network performance data. NNMi passes the network performance data as `.csv` files to both HPE OBR and Network Performance Server (NPS). HPE OBR stores these `.csv` files from NNMi to data ware house to generate reports.
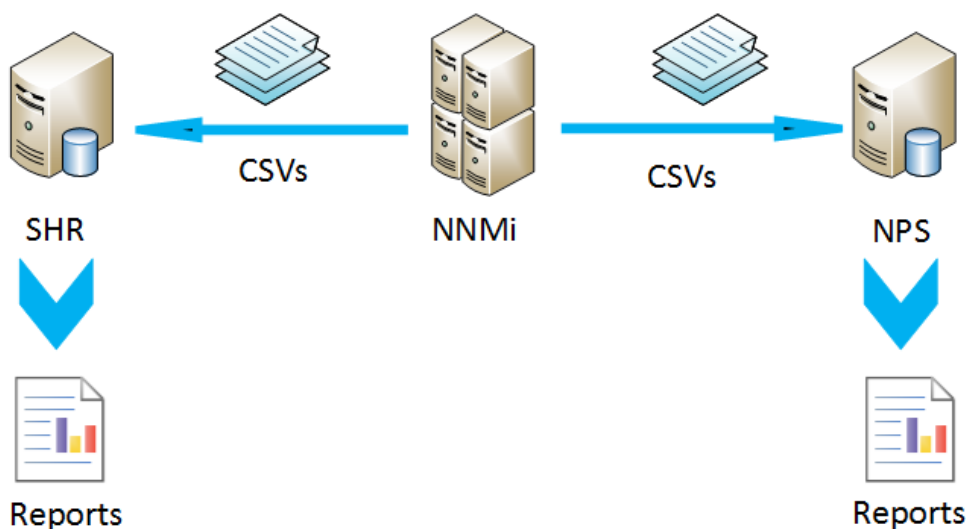
Prerequisite

You have to ensure that the following prerequisites are met before you go ahead with the configuration procedure:

- NNMi and NPS are installed and configured correctly.

- HPE OBR is installed with Component Health and/or Interface Health Content Pack.

- The HPE_PMDB_Platform_NRT_ETL service is up and running.

To configure HPE OBR and NNMi to collect network data, follow these steps:

Task 1: On the NNMi system

To configure HPE OBR with NNMi, ensure the following:

1. NNMi and NPS are up and running.

2. You must have the shared drive details.

   You may get the details from your system administrator or check the recent output of the nnmenableperfspi.ovpl script in `/opt/OV/newconfig` folder (**On Linux**) and `C:\Program Files (x86)\HP\HP BTO Software\newconfig` folder (**On Windows**).

   Check for the most recently written file name with `nnmEnableNps.20xxxxxxxxxxx.cfg`.

   where, `xxx` is the most recent time stamp.

3. Set the exportToSHR property to TRUE in `$OvDataDir/shared/perfSpi/conf/nmsAdapter.conf` and restart NNMi.

Task 2: On the HPE OBR system

To configure HPE OBR to retrieve the collected network performance data from NNMi, follow these steps:

On Windows:

1. Edit the **HPE_PMDB_Platform_NRT_ETL** property. To edit the property, follow these steps:

   a. Click **Start > Run**. The **Run** dialog box appears.

   b. Type `services.msc` in the **Open** field, and then press **Enter**. The **Services** window appears.

   c. On the right pane, right-click **HPE_PMDB_Platform_NRT_ETL**, and then click **Stop**.

   d. Right-click **HPE_PMDB_Platform_NRT_ETL** and then click **Properties**. The **HPE_PMDB_Platform_NRT_ETL Service Properties** dialog box appears.

   e. On the **Log on** tab, select **This account**.

   f. Type **DOMAIN\Administrator** in the field (where Administrator is the local user having administrator privileges).

   g. Type the user password in the **Password** field.

   h. Retype the password in the **Confirm password** field.

   i. Click **Apply** and then click **OK**.

2. Run the following script on the command line interface:

   `perl %PMDB_HOME%\bin\mountSharedDirectory.ovpl -n <host name>`

   where, `<host name>` is the host name of the NNMi system.

> **Note:** The *<host name>* must be in uppercase only.

The remotely shared directory is mounted on the HPE OBR system.

3. Edit the `%PMDB_HOME%\config\NRT_ETL\rconfig\NNMPerformanceSPI.cfg` file.

   In the `PRSPI_NNMDIR //NNMHOSTNAME/PerfSpi` parameter, replace the `NNMHOSTNAME` with the actual host name of the NNMi system.

   For example, `PRSPI_NNMDIR //IWFtest.hpswlabs.adapps.hp.com/PerfSpi`

4. In the **Services** window, on the right pane, right-click the **HPE_PMDB_Platform_NRT_ETL**, and then click **Start** to start the service.

On Linux:

1. Run the following script on the command line interface:

   `perl $PMDB_HOME/bin/mountSharedDirectory.ovpl -n <host name>`

   where, *<host name>* is the host name of the NNMi system.

   > **Note:** The *<host name>* must be in uppercase only.

   The remotely shared directory is mounted on the HPE OBR system.

2. Edit the `$PMDB_HOME/config/NRT_ETL/rconfig/NNMPerformanceSPI.cfg` file.

   In the `PRSPI_NNMDIR /mnt/NNMHOSTNAME/PerfSpi` parameter, replace the `NNMHOSTNAME` with the actual host name of the NNMi system.

   For example, `PRSPI_NNMDIR /mnt/IWFtest.hpswlabs.adapps.hp.com/PerfSpi`

3. Run the following script to start the ETL:

   `perl $PMDB_HOME/bin/startETL.ovpl`

   > **Note:** To check the status of the ETL, run `perl $PMDB_HOME/bin/statusETL.ovpl` script. To start and stop the ETL service, run `perl $PMDB_HOME/bin/startETL.ovpl` and `perl $PMDB_HOME/bin/stopETL.ovpl`, respectively.
   >
   > If the status of the service is returned as `DEAD`, then stop and start the ETL service.
   >
   > For more information you can check the `$PMDB_HOME/log/NRT_ETL.log` file.

> **Note:** If the collection has not yet started, you have to restart the service manually.

You have now successfully completed the configuration of HPE OBR with NNMi system.

Report Navigation

The Network Component Health reports provide the following information:

- Performance data of components you selected such as disk space free, disk space total, Backplane utilization and SNMP response time as a health chart for a selected report period.

- Identify the best and worst performing network node groups and their associated physical systems

- Top N node name as a chart with low availability, CPU utilization, and memory utilization

- Graphical representation of backplane, buffer, CPU, and memory utilization

The following diagram consolidates the reports in the Network Component Health domain and depicts one possible way of navigating the reports:
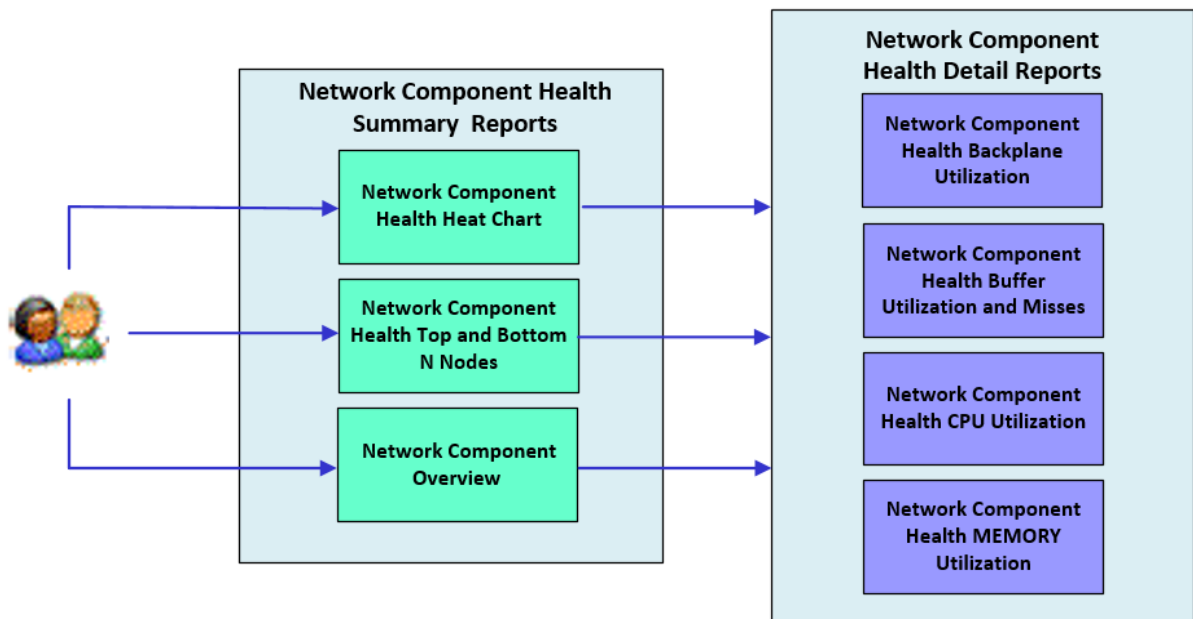
Availability

Displays average node availability , average node reachability, average SNMP response time, and average ICMP response time for top and bottom N selected nodes based on availability and reachability.

Availability	Color
< 90	
> 90 and < 95	
> 95	

Use Cases

This section provides information on use cases for Network Component Health reports. The following table provides description, user, and report name for the use cases.

Description	Report Category	Report Name
To view availability and reachability for all the selected nodes as a chart.	Summary Report	Network Component Health Heat Chart
To view average node availability , average node reachability, average SNMP response time, and average ICMP response time for top and bottom N selected nodes based on availability and reachability.	Summary Report	Network Component Health Top and Bottom N Nodes
To view top N node name as a chart with low availability, CPU utilization, and memory utilization for all selected nodes.	Summary Report	Network Component Overview
To view maximum and minimum backplane utilization for a node as table and as a chart. Also to view average backplane utilization for selected component(s) of a node as a chart.	Detail Report	Network Component Health Backplane Utilization
To view average, maximum, and minimum buffer utilization and buffer miss rate for a node as table and as a chart. Also to view average buffer utilization for selected component(s) of a node as a chart.	Detail Report	Network Component Health Buffer Utilization and Misses
To view average, maximum, and minimum CPU 5min utilization and CPU 1min utilization for a node as table and as a chart. Also to view average CPU 5min utilization for selected component(s) of a node as a chart.	Detail Report	Network Component Health CPU Utilization

Description	Report Category	Report Name
To view average, maximum, and minimum memory Utilization for a node as table and as a chart. Also to view average memory utilization for selected component(s) of a node as a chart.	Detail Report	Network Component Health MEMORY Utilization

Appendix

This section provides information on Terminology.

Appendix A: Terminology

Backplane Utilization: Percentage of backplane usage.

Buffer Utilization: Percentage of buffer in use.

Buffer Miss Rate: A counter measures the number of buffers available in the buffer pool. An exception is recorded when the number of buffers drops below a minimum number. The miss rate percentage shows how the number of below-minimum samples compares to total samples.

Component Name: Hostname of the component.

Component Type: Type of the component.

CPU 1min Utilization: Average CPU utilization over a 1-minute period, providing a snapshot of the previous minute at the time of polling. Available from Cisco and Nortel Passport devices among others.

CPU 5min Utilization: Average CPU utilization over a 5-minute period, providing a snapshot of the previous 5 minutes at the time of polling. Available from Cisco devices only.

Disk Space Utilization: Percentage of disk space usage.

ICMP ResponseTime: ICMP response time in milliseconds. If NNMi poll does not receive any responses from the node's management address, a NULL value is shown.

Memory Utilization: Percentage of memory in use compared to the total amount of memory available.

Node Name: Hostname of the node that hosts of the component.

Node Availability: The amount of time the node was available for polling. Node availability depends on the sysUpTime of the node. NNMi polls the SNMP sysUpTime value for each managed node and passes the sysUpTime value to NPS. Availability is the effective availability percentage received from NNMi.

Node Reachability: Amount of time the node's management address was available to the ICMP polls performed by NNMi.

SNMP Response Time: Time (in milliseconds) for the SNMP agent to respond to polling request.

Note: The Baseline/Threshold columns are placeholders and they are not currently available.

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