Operations Bridge Reporter

Software Version: 10.22
Windows® and Linux operating systems

Virtual Environment Performance Content Pack Reference

Hewlett Packard Enterprise

Legal Notices

Warranty

The only warranties for Seattle SpinCo, Inc and its subsidiaries ("Seattle") products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Seattle shall not be liable for technical or editorial errors or omissions contained herein. The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Except as specifically indicated, valid license from Seattle required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notice

© 2015 - 2017 EntIT Software LLC, a Micro Focus company

Trademark Notices

Adobe™ is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

Documentation Updates

To check for recent updates or to verify that you are using the most recent edition of a document, go to: https://softwaresupport.hpe.com/.

This site requires that you register for an HPE Passport and to sign in. To register for an HPE Passport ID, click **Register** on the HPE Software Support site or click **Create an Account** on the HPE Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HPE sales representative for details.

Support

Visit the HPE Software Support site at: https://softwaresupport.hpe.com/.

Most of the support areas require that you register as an HPE Passport user and to sign in. Many also require a support contract. To register for an HPE Passport ID, click **Register** on the HPE Support site or click **Create an Account** on the HPE Passport login page.

To find more information about access levels, go to: https://softwaresupport.hpe.com/web/softwaresupport/access-levels.

HPE Software Solutions Now accesses the HPE SW Solution and Integration Portal website. This site enables you to explore HPE Product Solutions to meet your business needs, includes a full list of Integrations between HPE Products, as well as a listing of ITIL Processes. The URL for this website is https://softwaresupport.hpe.com/km/KM01702731.

About this PDF Version of Online Help

This document is a PDF version of the online help. This PDF file is provided so you can easily print multiple topics from the help information or read the online help in PDF format. Because this content was originally created to be viewed as online help in a web browser, some topics may not be formatted properly. Some interactive topics may not be present in this PDF version. Those topics can be successfully printed from within the online help.

Contents

About This Document

This document provides an overview of OBR and Virtualized Environment Management Content Pack. The document introduces you to deployment scenarios. It also provides information on how to deploy topology views, install the Content Pack, and configure the data source for the installed Content Packs. It helps you to navigate reports in Virtualized Environment Management.

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, 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.

> **Note:** It is recommended to set the VMware stats logging level to 2. However, if the logging level is set to 1, then some of the metrics of logging level 2 may not be available in OBR reports. For information on logging levels and their corresponding metrics, use the following URL:
>
> https://communities.vmware.com/docs/DOC-5600

- **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:
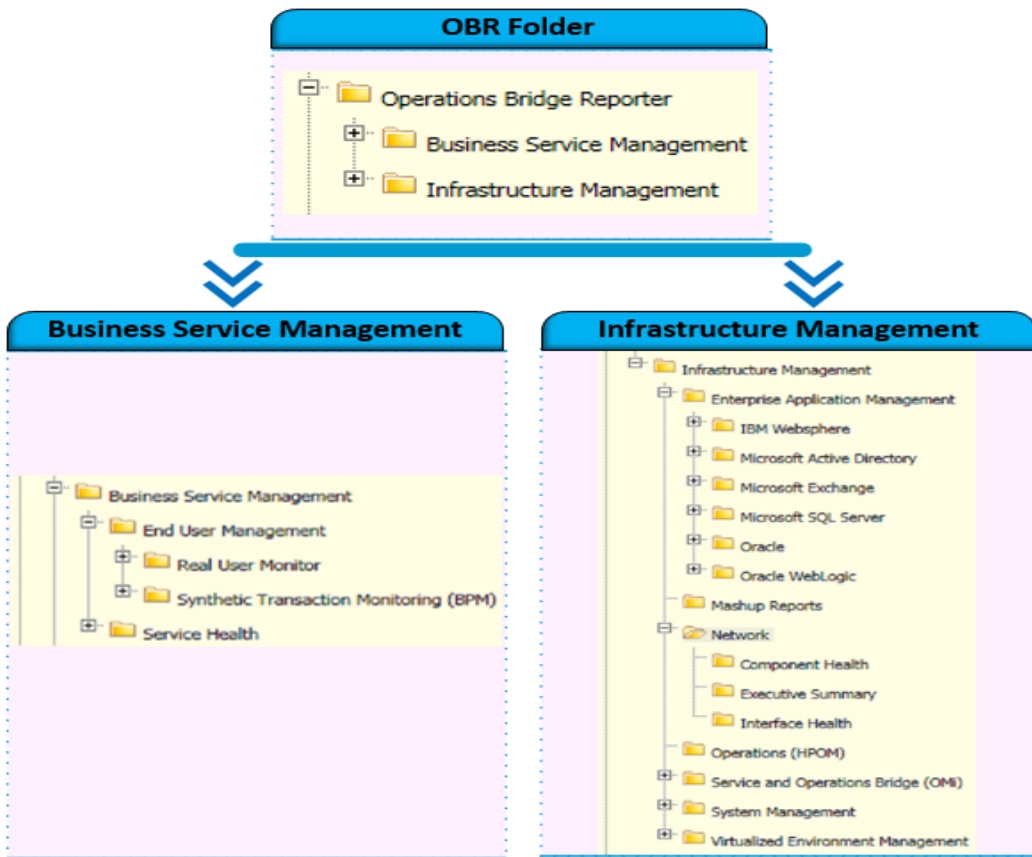
To view a map of all the reports available in the Virtualized Environment Management Content Pack, see Report Navigation.

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

Virtualized Environment Management Content Pack Overview

This section provides an overview of Virtualized Environment Management Content Pack, target audience, and supported data sources.

The 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 installed Content Packs depends on the type of deployment scenario used.

The Virtualized Environment Management reports display information about the various virtualization technologies used in your environment such as VMware ESX Server, Microsoft Hyper-V, IBM AIX LPARs and WPARs, and Oracle Solaris Zones. These reports provide information about:

- Availability and resource utilization of the virtual machines (VMs) and the physical nodes that host these VMs

- CPU and memory entitlement to each of the VMs present on the nodes

- CPU and memory utilization of the VMs

- Physical memory of the nodes

- CPU and memory bottlenecks taking place in the VMs

- Inventory across virtualization technologies and based on guess operating systems

- Forecast summary predicts the outage of the VMs based on past data

- Top ten reports for the available logical systems. These reports are generated using the metrics used to measure the performance of the above mentioned resources

The Virtualized Environment Management reports help you analyze a VM's contribution to the performance of a Business Service or Business Application. Using these reports, you can analyze the performance of the VMs based on the utilization of the resources allocated to them. You can also analyze how the resource utilization of the VMs affects the host system's performance. Using these reports, you can identify potential optimization options to help improve overall performance and observe the results of optimization tasks performed.

> **Note:** Since OBR presents top and bottom N values (and not top or bottom N nodes) on the Top and Bottom N reports, you may see more than N nodes on the Top and Bottom N reports. You may see more than N nodes on the Top and Bottom N Logical Systems reports for the `Unavailability%` metric (it is likely for multiple logical systems to have an identical

`Unavailability%` value).

Target Audience

The target audience for the Virtualized Environment Management reports are:

- **System Administrators**: responsible for setting up, supporting, and maintaining the physical systems in the IT infrastructure of their organization.

- **Virtual Infrastructure Administrators**: responsible for the implementation and maintenance of the virtual infrastructure in their IT environment.

These administrators can use the Virtualized Environment Management reports to analyze the performance of the VMs and the associated host systems that support the Business Services or the Node Groups deployed on these VMs. By analyzing the performance, availability, and health information displayed in the reports, the administrators can ensure continuous improvement of these Business Services and Business Applications.

Data Sources for Virtualization Data

OBR integrates with and collects historical system and performance-related data for the VMs from the following data sources:

- **Performance Agent**: Performance Agent collects, summarizes, time stamps, and detects alarm conditions on current and historical resource data across your system. It provides performance, resource, and end-to-end transaction response time measurements, and supports network and database measurement information.

- **Operations agent**: The Operations agent helps you monitor a system by collecting metrics that indicate the health, performance, and availability of essential elements of the system. The embedded data collector of the Operations agent enables you to collect and log performance metrics of systems in your environment.

- **SiteScope**: SiteScope is an agentless monitoring solution designed to ensure the availability and performance of distributed IT infrastructures—for example, servers, operating systems, network devices, network services, applications, and application components. This Web-based infrastructure monitoring solution is lightweight, highly customizable, and does not require that data collection agents be installed on your production systems. SiteScope has over 90 types of monitors that can monitor utilization, response time, usage, and resource availability of a variety of host

types and application platforms. With SiteScope, you gain the real-time information to verify infrastructure operations, stay apprised of problems, and solve bottlenecks before they become critical.

The Virtualized Environment Management 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.

OBR collects data from different data sources at periodic intervals based on the collection policies predefined in the Virtualized Environment Management Content Pack. From each data source, summarized fact data is collected at a 5-minute interval. This fact data is called rate data and is stored in the database in rate tables as individual records. Therefore, for a 60-minute interval, there will be 12 such records in the tables. OBR then performs aggregation routines on these records and converts the data to hourly, weekly, monthly, and yearly data. This aggregated data is displayed in the reports.

Deploy Topology Views

To configure OBR to collect domain-specific data, you need to deploy the topology views for Virtualized Environment Management Content Pack.These topology views contain specific CI attributes that Content Packs use to collect the relevant data. However, these topology views can vary from one Content Pack to another.

List of Content Pack and Topology Views to Deploy

The following table lists the topology views to deploy for Virtualized Environment Management Content Pack:

Content Pack	View Name	Location
On Windows		
Virtual Environment Performance	SM_BSM9_Views.zip SM_SiS_Views.zip **(APM 9.40 only)**	%PMDB_ HOME%\packages\SystemManagement\ETL_ SystemManagement_PA.ap\source\cmdb_views %PMDB_ HOME%\packages\SystemManagement\ETL_SM_ VI_VMWare_SiS_API.ap\source\cmdb_views %PMDB_ HOME%\packages\SystemManagement\ETL_SM_ VI_VMWare_SiS_DB.ap\source\cmdb_views **Note:** If APM 9.40 is the deployment scenario, then deploy only SM_SiS_Views.zip view in the APM server.
On Linux		
Virtual Environment Performance	SM_BSM9_Views.zip SM_SiS_Views.zip **(APM 9.40 only)**	$PMDB_HOME/packages/SystemManagement/ETL_ SystemManagement_PA.ap/source/cmdb_views $PMDB_HOME/packages/SystemManagement/ETL_ SM_VI_VMWare_SiS_API.ap/source/cmdb_views $PMDB_HOME/packages/SystemManagement/ETL_ SM_VI_VMWare_SiS_DB.ap/source/cmdb_views

Content Pack	View Name	Location
		Note: If APM 9.40 is the deployment scenario, then deploy only `SM_SiS_Views.zip` view in the APM server.

BSM Server

To deploy the topology model views for the Virtualized Environment Management Content Pack in the BSM server, follow these steps:

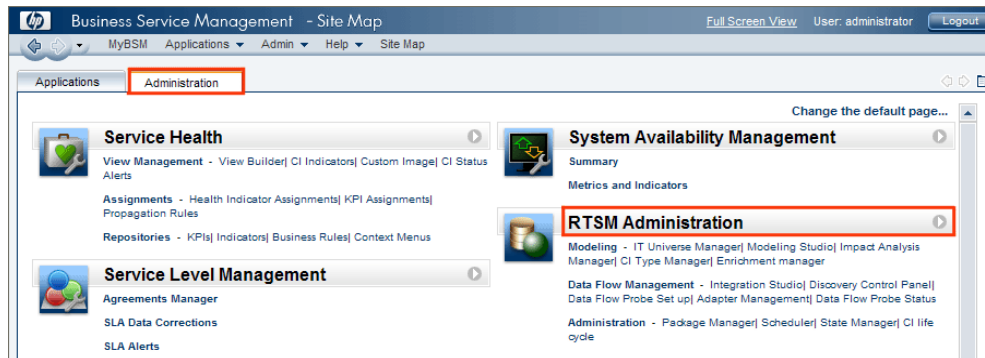1. In the web browser, type the following URL:

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

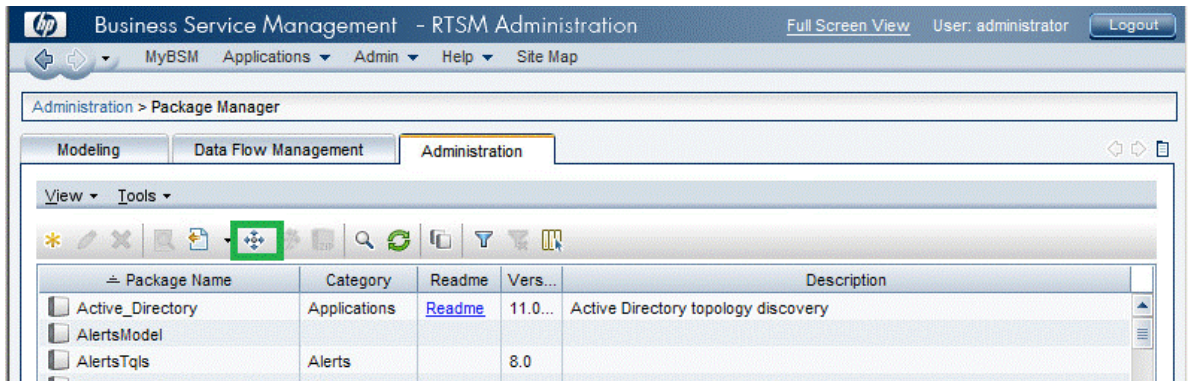   where, `<BSM system FQDN>` is the FQDN of the BSM server.

   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.
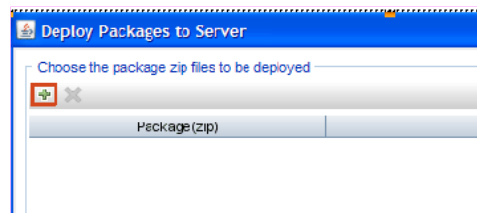

4. Click **Administration > Package Manager**. The Package Manager page appears.

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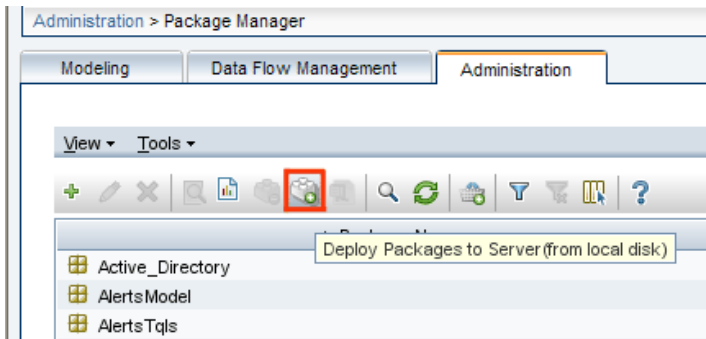
6. Click the **Add** icon.

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 Virtualized Environment Management 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**.
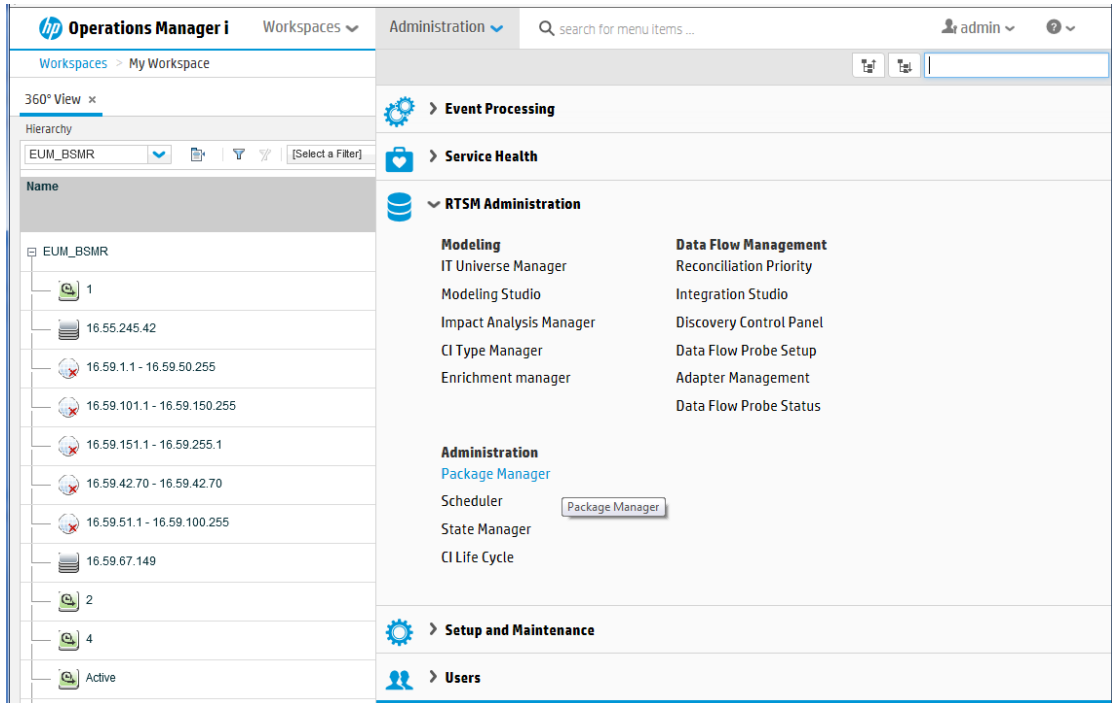
The Package Manager page appears.

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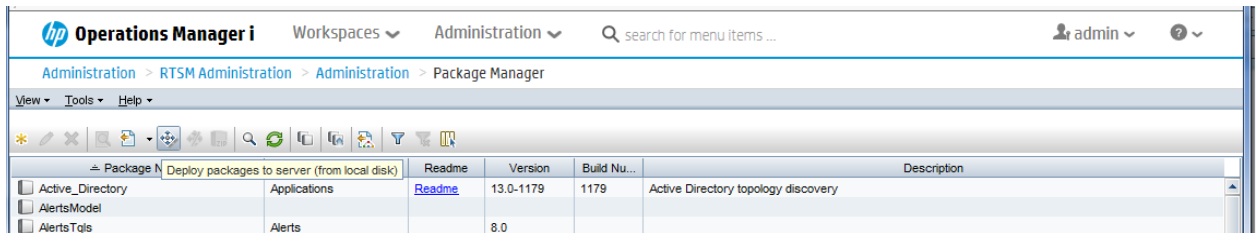

5. Click the **Add** icon.
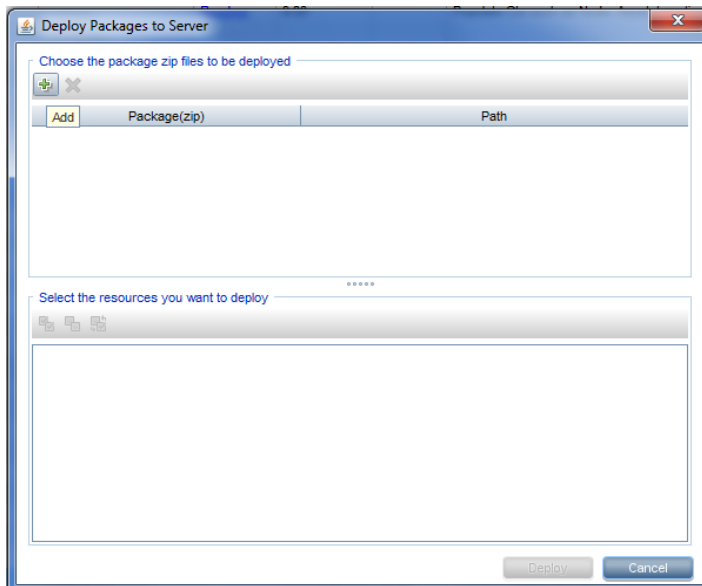
The **Deploy Package to Server (from local disk)** dialog box appears.

6. Browse tto 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

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.

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 Content Pack is a data mart—a repository of data collected from various sources—that pertains to a particular domain, such as system performance or virtual environment performance, and meets the

specific demands of a particular group of knowledge users in terms of analysis, content presentation, and ease of use. For example, the system performance content provides data related to the availability and performance of the systems in your IT infrastructure. Content Packs also include a relational data model, which defines the type of data to be collected for a particular domain, and a set of reports for displaying the collected data.

The following figure shows the typical data flow between the components of the Content Pack:
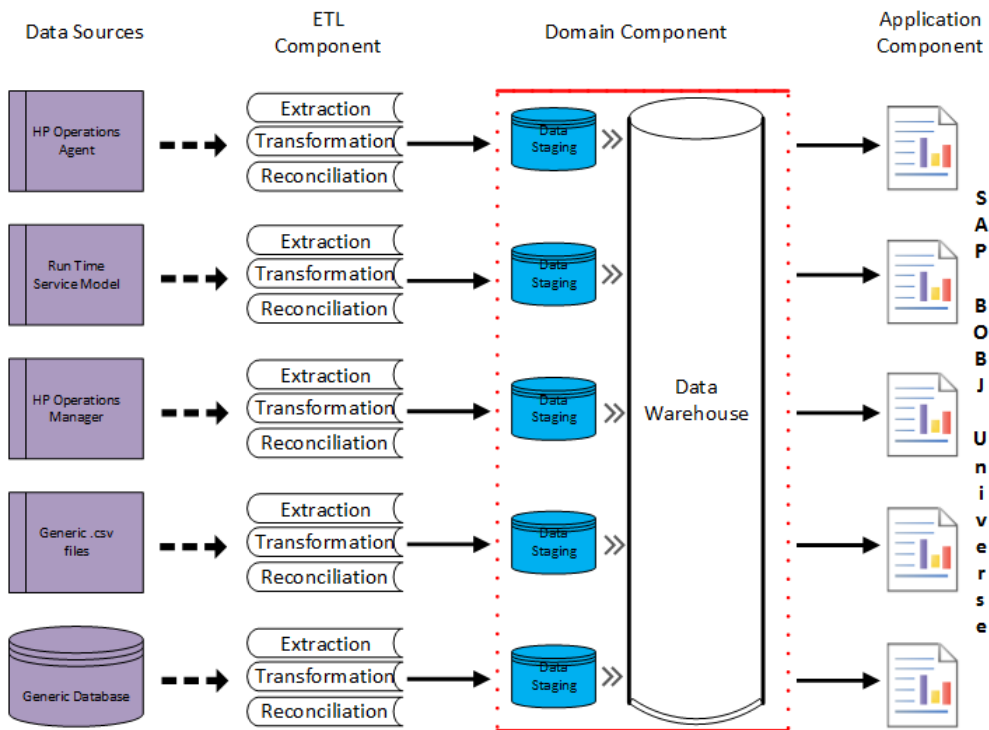
- **Domain component**: The Domain or Core Domain component defines the data model for a particular Content Pack. It contains the rules for generating the relational schema. It also contains the data processing rules, including a set of standard pre-aggregation rules, for processing data into the database. 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.

If the data source is Operations Agent or Performance Agent, select Performance Agent based Content Pack components.

If the data source is VMware vCenter, select VMWare_vCenter based Content Pack components.

Select either VirtualEnvPerf_ETL_VMware_SiteScope or VirtualEnvPerf_ETL_VMware_SiS_API Content Pack component.

The VirtualEnvPerf_ETL_VMware_SiteScope is for Profile DB integration. If the topology source is BSM 9.x and you have already installed the VirtualEnvPerf_ETL_VMware_SiteScope, you can continue to use the same. The VirtualEnvPerf_ETL_VMware_SiS_API is for OMi 10.0 integration. You can use this Content Pack component even in the absence of Profile DB. The list of metrics collected by VirtualEnvPerf_ETL_VMware_SiteScope and VirtualEnvPerf_ETL_VMware_SiS_API are same.

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

> **Note:** The Operations Bridge Reporter supports Cloud Optimizer (CO) (earlier Virtualization Performance Viewer (vPV)). OBR collects data for reporting on performance, configuration, and capacity problems in the virtual environments from CO. For more information on the integration of OBR with CO, see User Guide from the following URL:
>
> https://marketplace.saas.hpe.com/itom/content/hp-shr-vpv-integration-content

- **Application component**: The Report Content Pack component defines the application-specific aggregation rules, business views, SAP BusinessObjects universes, and the reports for a particular domain. Application 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.

For more information about each Content Pack and the reports provided by them, see the *Operations Bridge Reporter Online Help for Users*.

Install the Content Pack

To install the required Virtualized Environment Management 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.

   > **Note:** You have to install the Content Pack based on the topology source. You need not install all the Content Pack listed.

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

   - VirtualEnvPerf_ETL_HyperV_PerformanceAgent

   - VirtualEnvPerf_ETL_IBMLPAR_PerformanceAgent

   - VirtualEnvPerf_ETL_SolarisZones_PerformanceAgent

   - VirtualEnvPerf_ETL_VMWare_PerformanceAgent

   - VirtualEnvPerf_ETL_VMware_SiS_API

   - VirtualEnvPerf_ETL_VMware_SiteScope

   - VirtualEnvPerf_Domain

   - VirtualEnvPerf_Domain_VMWare

   - VirtualEnvPerf_Reports

   - VirtualEnvPerf_Reports_VMWare

   - VirtualEnvPerf_ETL_VMWare_vCenter

   > **Note:** The VirtualEnvPerf_ETL_VMware_SiteScope is for Profile DB integration. If the topology source is BSM 9.x and you have already installed the VirtualEnvPerf_ETL_ VMware_SiteScope, you can continue to use the same. The VirtualEnvPerf_ETL_VMware_ SiS_API is for OMi 10.0 integration. You can use this Content Pack component even in the absence of Profile DB. The list of metrics collected by VirtualEnvPerf_ETL_VMware_ SiteScope and VirtualEnvPerf_ETL_VMware_SiS_API are same. You need to deploy either

VirtualEnvPerf_ETL_VMware_SiteScope or VirtualEnvPerf_ETL_VMware_SiS_API in the OBR deployment scenario.

Note: The Content Pack components for 'VirtualEnvPerf_ETL_VMWare_vCenter' and 'VirtualEnvPerf_ETL_VMWare_PerformanceAgent' 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_Domain

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 Content Pack Deployment 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 11.

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.

In BSM/OMi deployment scenario, SiteScope and Operations Agent monitors the physical and virtual nodes. When you configure data source in this scenario, choose Operations Agent and/or SiteScope as the data source.

In OM deployment scenario Operations Agent monitors the physical and virtual nodes. When you configure data source in this scenario, choose Operations Agent as the data source.

Configuring the Operations Agent Data Source

In the RTSM deployment scenario, you do not have to create new Operations Agent data source connections. Because, by default, all the nodes on which Operations Agent is installed are automatically discovered when the topology information is collected. These data sources or nodes are listed in the Operations Agent Data Source page of the Administration Console.

To view the list of Operations Agent data sources, follow these steps:

1. In the **Administration Console**, click **Data Source Configuration > Operations Agent**. The **Operations Agent** page appears.

2. To view detailed information about the Operations Agent data sources, click the Domain name or the number in the **Host collection status summary** table. The **Hosts : <selected host name>** table appears.

3. To change the data collection schedule for one or more hosts, specify a polling time between 1 and 24 hours in the **Hrs** box in the **Collection frequency** column.

4. Click **Save** to save the changes. A `Saved Successfully` message appears in the Information message panel.

Configuring the SiteScope Data Source

You can use the SiteScope page to configure a SiteScope data source, which collects data from several SiteScope monitors in your environment. Using this page, you can enable or disable data collection and add or delete the data collection connection according to your requirements. If Profile database is selected as the channel for metrics in Configuration Wizard, you must create a collector for the SiteScope data source.

To create a new SiteScope data source connection, follow these steps:

1. In the **Administration Console**, click **Data Source Configuration > SiteScope**. The **SiteScope** page appears.

2. Click **Create New**. The **Connection Parameters** dialog box appears.

3. In the **Connection Parameters** dialog box, type the following values:

Field	Description
Connection Settings	
Host name	IP address or FQDN of the SiteScope server.
Port	Port number to query the SiteScope server. **Note:** The port number 8080 is the default port to connect to SiteScope server.
Use SSL	*(Optional).* If selected, you must enable the SiteScope server to support communication over Secure Sockets Layer (SSL).
User name	Name of the SiteScope user.
Password	Password of the SiteScope user.
Init String	Shared key used to establish a connection to SiteScope server. **Note**: To obtain the Init String, log in to SiteScope server with your credentials and click on **General Preferences > LW SSO**.
Collection Station	This option is use for a collector installed on a remote system.
General Data Integration Settings: These settings create a generic data integration between the SiteScope server and the OBR server. After the connection is successful, SiteScope servers push data to the OBR server.	

Field	Description
	Also, you must create a tag in OBR that you must manually apply to the SiteScope monitors that you want to report on. For more information on applying the tag, see documentation for SiteScope.
Integration name	Enter the name of the integration. **Note**: You cannot change it later.
Encoding	The encoding type for communication between OBR and SiteScope.
Use SSL	*(Optional)*. If selected, you must enable the SiteScope server to support communication over Secure Sockets Layer (SSL).
Reporting interval (seconds)	Frequency at which SiteScope pushes data to OBR. This is a configurable parameter.
Request timeout (seconds)	The time to wait before the connection times out. Value of zero (0) gives you infinite timeout period. This is a configurable parameter.
Connection timeout (seconds)	Timeout until connection is reestablished. Value of zero (0) means timeout is not used. This is a configurable parameter.
Number of retries	Number of retries that SiteScope server attempts during connection error with OBR.
Authentication when requested	*(Optional)*. If selected, authentication is performed using the Web server user name and password.
Authentication user name	If OBR is configured to use basic authentication, specify the user name to access the server.
Authentication password	If OBR is configured to use basic authentication, specify the password to access the server.
Proxy address	If proxy is enabled on SiteScope, enter the proxy address.
Proxy user name	Enter user name of the proxy server.
Proxy password	Enter password of the proxy server.
Create tag	Select it to create a tag for the SiteScope monitors that you must manually apply from the SiteScope server.
Tag name	User defined name of the tag.

4. Click **OK**.

5. Click **Save**. A `Saved Successfully` message appears in the Information message panel.

Data collection for the newly created SiteScope data source connection is enabled by default. In addition, the collection frequency is scheduled for every 15 minutes.

Configuring the VMware vCenter Data Source

You can configure VMware vCenter as the data collection source to collect virtualization metrics in the OM deployment scenario.

To configure VMware vCenter, follow these steps:

1. In the **Administration Console**, click **Data Source Configuration > VMware vCenter**. The **VMware vCenter Data Source** page appears.

2. Click **Create New** to test the connection. The **Connection Parameters** dialog box appears.

3. In the **Connection Parameters** dialog box, type the following values:

Field	Description
Host name	IP address or FQDN of the VMware vCenter database server.
User name	Name of the VMware vCenter database user.
Password	Password of the VMware vCenter database user.
Collection Station	To specify whether it is a Local / Remote Collector.

> **Note:** You can configure additional VMware vCenter data sources using Step 2 for each VMware vCenter connection that you wish to create.

4. To change the VMware vCenter data collection schedule for one or more hosts, in the **Schedule Frequency** column, specify a collection time between 5 and 60 minutes in the **Mins** box.

5. Click **Save** to save the changes. A `Saved Successfully` message appears in the Information message panel.

6. In the VMware vCenter server, grant the user the following permissions:

   ○ Set the datastore permission to Browse Datastore.

   ○ Set the datastore permission to Low Level File Operations.

   ○ Set the sessions permission to Validate session.

7. In the VMware vCenter server, set the Statistics Level:

   a. In the vSphere Client, click **Administration > vCenter Server Settings**.

b. In the **vCenter Server Settings** window, click **Statistics**. The **Statistics Interval** page is displayed. This page displays the time interval after which the vCenter Server statistics will be saved, the time duration for which the statistics will be saved and the statistics level.

c. Click **Edit.**

d. In the **Edit Statistics Interval** window, set the Statistics Interval from the drop-down list. For the statistics level that you select, the **Edit Statistics Interval** window appears. This displays the type of statistics which will be collected for that level. You must set the minimum statistic level as 2.

Report Navigation

The Virtualized Environment Management 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 virtual 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 Executive Summary or the VM Inventory report for an overall picture of the health of the virtualization infrastructure and then navigate to the detailed reports for specific information. Report navigation can vary depending on the use-cases around which these reports are designed.
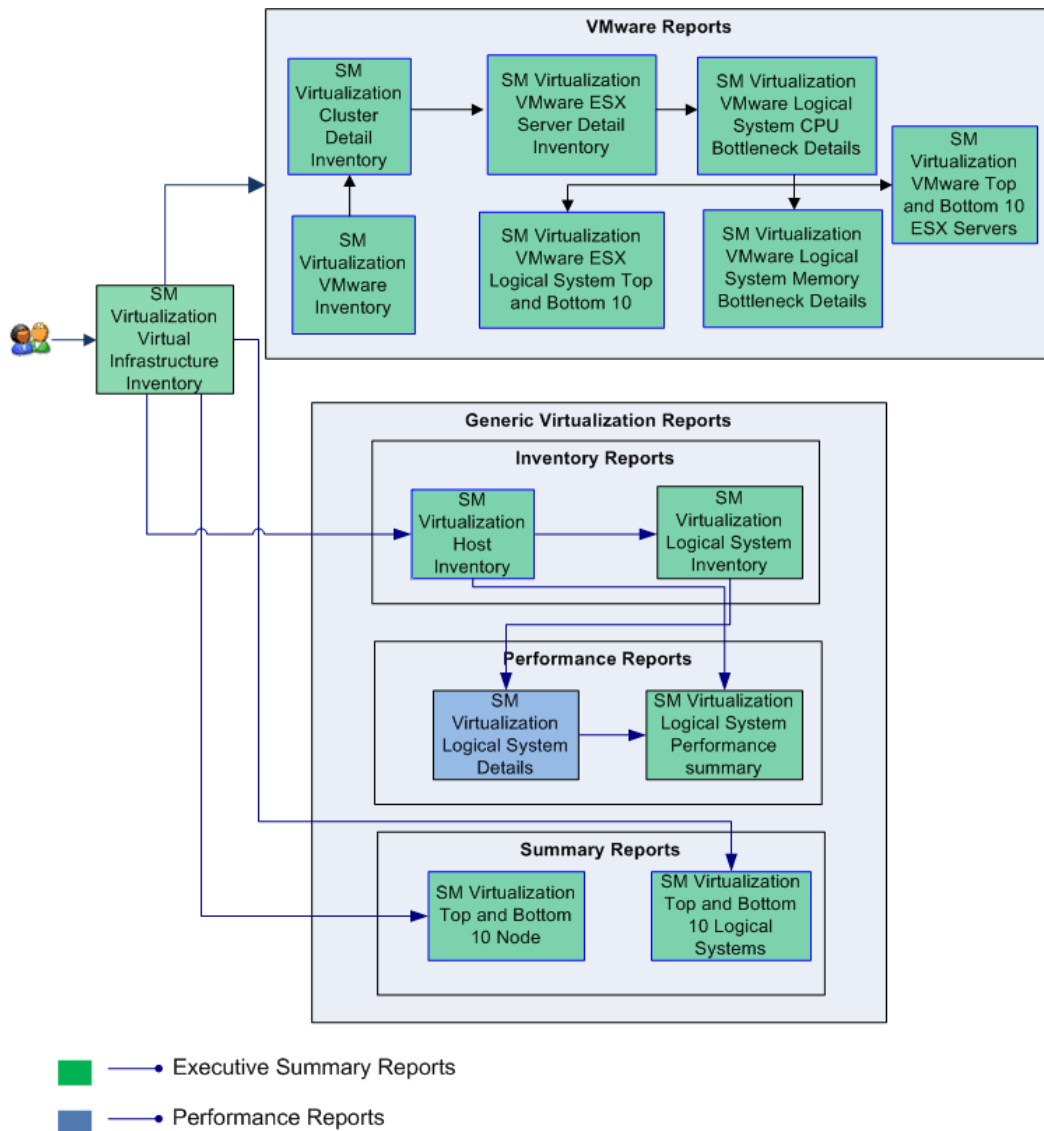
The Virtualized Environment Management folder provides the following types of reports:

- **Generic virtualization reports**: These reports provide historical information of the health and performance of the VMs across various supported virtualization technologies such as LPAR, Solaris Zones, and Hyper-V.

- **VMware-specific reports**: These reports provide historical information of the health and performance of the VMware nodes. These reports also provide inventory details of the different VMware elements, such as ESX clusters, resource pools, and virtual hosts in the VMware environment.

- **Executive Summary reports**: These reports provide a summarized view of the resource allocation details and the performance of each of the virtualization technologies and their corresponding host systems.

- **Inventory reports**: These reports display the inventory of all physical hosts and VMs across the various virtualization technologies in your environment and their configuration details. These reports also help you understand the distribution of the VMs across various operating systems.

- **Top N reports**: These reports help you identify the best and worst performing logical and physical nodes based on availability, performance, or the overall health over a period of time.

- **Performance reports**: These reports display the detailed historical performance data of key system resources such as CPU and memory utilization and availability of the logical systems over a specified period of time. After viewing the high-level Executive Summary reports, you can navigate to these detailed reports to analyze the performance and resource problems for individual logical systems.

- **Forecast reports**: These reports enable you to predict the outage of the VMs based on past data. You can use these reports to understand and take appropriate decisions of load balancing instead of investing in additional resources.

> **Note:** OBR allows you to customize the reports for better business analysis purposes. The Virtualized Environment Management reports include various Web Intelligence features such as prompts, context and time filters, and input controls, which you can use to customize the data that is displayed. When performing customizations, the same needs to be incorporated in a copy of the report and the out of the box reports should not be modified.

Report Navigation

The following diagram shows one way of navigating the reports:

Use Cases

This section provides information on use cases for Virtualized Environment Management reports. The following table provides description, user, and report name for the use cases:

Description	Report Category	Report Name
To view the inventory of hosts and VMs across the various virtualization technologies in my environment. Also to understand the distribution of VMs across various operating systems.	Executive Summary	SM Virtualization Inventory Report
To view the list of all physical hosts of various virtualization technologies and their configuration details	Performance	SM Virtualization Host Inventory
To view the physical systems that are projected to cross the threshold value for CPU and memory utilization within the next 30, 60 and 90 days, for a given Business Service or Business View/Node group. Also, to view the virtual machines that are hosted on the affected physical systems. It displays the affected virtual hosts and number of VMs hosted on each servers. A cross launch option to do more detailed analysis on affected VMs.	Executive Summary	SM Virtualization Resource Outage Forecast Summary
To view the list of all Logical Systems, associated with a give host for various virtualization technologies and their configuration details	Performance	SM Virtualization Logical System Inventory
To view the performance details of a logical system over a period of time	Performance	SM Virtualization Logical System Performance Details
To have a comparative view of the performance details of all logical systems, in a host, over a period of time	Performance	SM Virtualization Logical Systems Performance Summary

Description	Report Category	Report Name
To view the top and bottom 10 virtual hosts based on CPU, memory utilization. Also to view the same agnostic to virtualization technology and specific to each of the virtualization technology.	Executive Summary	SM Virtualization Top and Bottom 10 Virtual hosts
To view the top and bottom 10 Logical systems based on CPU, memory utilization.Also to view the same agnostic to virtualization technology and specific to each of the virtualization technology.	Executive Summary	SM Virtualization Top and Bottom 10 Logical Systems
To view the inventory of all the elements in the VMWare environment that I manage. Also to view of all the clusters and virtual hosts in my environment.	VMWare ESX Server	SM Virtualization VMWare Inventory
To view the inventory of all the elements in the VMWare cluster environment that I manage. Also to view the details of individual hosts and VMs that belong to the cluster.	VMWare ESX Server	SM Virtualization VMWare cluster detail inventory
To view the inventory of all the elements of a ESX Server	VMWare ESX Server	SM Virtualization VMWare ESX Server detail inventory
To view the CPU utilization details of a given virtual Machine	VMWare ESX Server	SM Virtualization VMWare Logical System CPU Bottleneck details
To view the Memory utilization details of a given virtual Machine	VMWare ESX Server	SM Virtualization VMWare Logical System Memory Bottleneck details

Description	Report Category	Report Name
To view the top and bottom 10 virtual machines based on VMWare specific parameters	VMWare ESX Server	SM Virtualization VMWare Logical System Top and Bottom 10
To view the top and bottom 10 hosts based on VMWare specific parameters	VMWare ESX Server	SM Virtualization VMWare Top and Bottom 10 ESX Servers

Appendix

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

Appendix A: Terminology

Business Service: Any service that is 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.

VMware cluster: A VMware ESX cluster is where two or more physical systems provide the resources for the hosts or resource pools that are assigned to that cluster. Clustering is used to achieve high availability and load balancing of the VMs.

Resource pool: A VMware ESX Resource pool is a pool of CPU and memory resources, where the resources are allocated based on the CPU and memory shares that are defined.

CPU Reservation: The minimum CPU cycles allocated to the resource pool or logical system.

CPU Limit: The maximum CPU cycles allocated to the resource pool or logical system.

Memory Reservation: The minimum amount of memory allocated to the resource pool or logical system.

Memory Limit: The maximum amount of memory allocated to the resource pool or logical system.

CPU Shares: The number of shares determine which VM gets resources when there is competition for resources among VMs. This value determines the minimum share of unutilized processing units that this resource pool can utilize.

SR_VMware_VM.CPUCyclesUsed: SR_VMware_VM.CPUCyclesUsed is the average cpu utilization expressed in cpu cycles (MHz). (This is sourced from usagemhz counter in VCenter).

SR_VMware_VM.CPUCycleEntlMin and SR_VMware_VM.CPUCycleEntlMax: SR_VMware_ VM.CPUCycleEntlMin and SR_VMware_VM.CPUCycleEntlMax refer to the minimum and maximum processor capacity configured. (These are sourced from Reservation and Limit counters from VC).

SR_VI_VM.CPUUtil: SR_VI_VM.CPUUtil represents the Average CPU Utilization percentage. (This is sourced from usage counter in VC.)

SR_VI_VM.CPUEntlMin and SR_VI_VM.CPUEntlMax: SR_VI_VM.CPUEntlMin and SR_VI_ VM.CPUEntlMax refer to the guaranteed minimum and maximum CPU units configured for a VM.

> **Note:** Both for Memory and CPU entitlements, the default numeric value used in Max entitlements is -3 and it is interpreted as 'Unlimited Max entitlement' in the OOTB reports.

Appendix B: Calculating Availability

OBR collects five-minute summary data for the Virtualized Environment Management from the Performance Agent. This data is in the form of status values as follows:

- Downtime—0
- Uptime—1

The status values are stored in the rate table. The availability calculation procedure in OBR uses this information to calculate the actual uptime, downtime, availability and unknown time values for 5 minute interval. The possible scenarios are as follows:

- If the status value is 1, the procedure interprets it as uptime. The procedure updates the uptime value as 5, and downtime and unknown time values as 0 in the rate table.

- If the status value is 0, the procedure interprets it as downtime. The procedure updates the downtime value as 5, and uptime and unknown time value as 0 in the rate table.

- If, for some reason, OBR is unable to retrieve the status value for particular interval (12 records within an hour, that is, one record each for every five minutes), the procedure interprets it as unknown status. The procedure updates the uptime and downtime values as 0 and unknown time value as 5 in the rate table.

The availability calculation procedure for Virtualized Environment Management instances ensures that 12 records are available for every hour and each record would either represent uptime, downtime, or unknown time. Using this data, the actual uptime, actual downtime, availability and unknown times are calculated as follows:

- **Actual Uptime Percentage**

  Uptime/(Uptime + Downtime)*100

- **Actual Downtime Percentage**

  [(Downtime /(Uptime + Downtime)]*100

- **Availability Computation**

  [(Uptime + Planned Downtime + Excused Downtime)/(Uptime + Downtime)]*100

- **Unknown Time Percentage**

  [(Unknown Time)/(Uptime + Downtime + Unknown Time)]*100

The availability procedure computes the planned downtime and excused downtime based on the configuration provided in the downtime XML file.

For more information on how to configure downtime, see *Configuring downtime in reports* section in *HPEOperations Bridge Reporter Online Help for Administrators*.

Appendix C: 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\SystemManagement

   On Linux:

   $PMDB_HOME/bin/shr_utility -flow -dir $PMDB_HOME%/packages/SystemManagement

   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 check how a particular metric(s) is performing.

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

Model documentation

For information on model documentation for all out-of-the-box (OOTB) domain components, see the model document available as part of each domain component.

For OOTB content packs of HPE OBR, the model documentation is available in each content package. For example, in the Virtualized Management domain, the model documents are located at -

On Windows:

%PMDB_HOME%\packages\SystemManagement\CoreVirtualization.ap\doc

On Linux:

$PMDB_HOME/packages/SystemManagement/CoreVirtualization.ap/doc

> **Note:** For newly developed custom content, the model documentation is automatically created by the CDE.

Metrics covered in OBR reports

VMware metrics are collected from Operations Agent, Cloud Optimizer,and SiteScope for supported versions of the products. For known limitations with respect to SiteScope integration for OBR Virtualization reporting, see *Known Limitations in OBR Reports* section of the *OBR Troubleshooting Guide.*

Send documentation feedback

If you have comments about this document, you can contact the documentation team by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

Feedback on Virtual Environment 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!