



Operations Bridge Reporter

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Windows® and Linux operating systems

Microsoft Exchange Server Content Pack Reference

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Contents

About This Document	5
Getting Started	6
HPE Operations Bridge Reporter (OBR) Overview	6
Deployment Scenarios	6
Types of Reports	7
Microsoft Exchange Content Pack Overview	9
Target Audience	9
Data Sources for Exchange Data	9
Integrating with Data Sources for Operations Smart Plug-ins	10
Prerequisite	10
Working of the Integration	10
Prerequisite Policies for Microsoft Exchange Server 2007 Reports	11
Prerequisite Policies for Microsoft Exchange Server 2010 Reports	14
Prerequisite Policies for Microsoft Exchange Server 2013 and 2016 Reports	16
Integrating with Data Sources for OMi Management Packs	18
Working of the Integration	19
Prerequisite Aspects and Policies for Microsoft Exchange Server 2010 Reports	19
Prerequisite Aspects and Policies for Microsoft Exchange Server 2013 and 2016 Reports	22
Deploy Topology Views	25
List of Content Pack and Topology Views to Deploy	25
BSM Server	25
OMi 10 Server	27
Install the Content Pack	30
Check Availability and Integrity of Data Sources	30
Selecting the Content Pack Components	32
Install the Content Pack	34
Uninstalling the Content Pack Components	36
Data Source Collection Configuration	38

Configuring the Operations Agent Data Source	38
Report Navigation	39
Use Cases	40
Appendix	42
Appendix A: Terminology	42
Appendix B: Calculating Microsoft Exchange Server Instance Availability	43
Appendix C: Metric Mapping for Reports	44
Send documentation feedback	46

About This Document

This document provides an overview of OBR and Microsoft Exchange Server Content Pack. This document provides the list of Microsoft Exchange Server reports available with the Microsoft Exchange Server Content Pack. The document also lists the prerequisite aspects and policies required for HPE Operations Bridge Reporter (OBR) to integrate with Operations Smart Plug-ins (SPIs) and OMi Management Packs.

This document helps you to deploy the topology views and install and configure the data source for the Microsoft Exchange Server Content Pack. It provides information on report navigation, metric mapping for report and calculate instance availability.

For information on HPE Operations Bridge Reporter tools and contents, go to [Marketplace](#).

Getting Started

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

HPE 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.

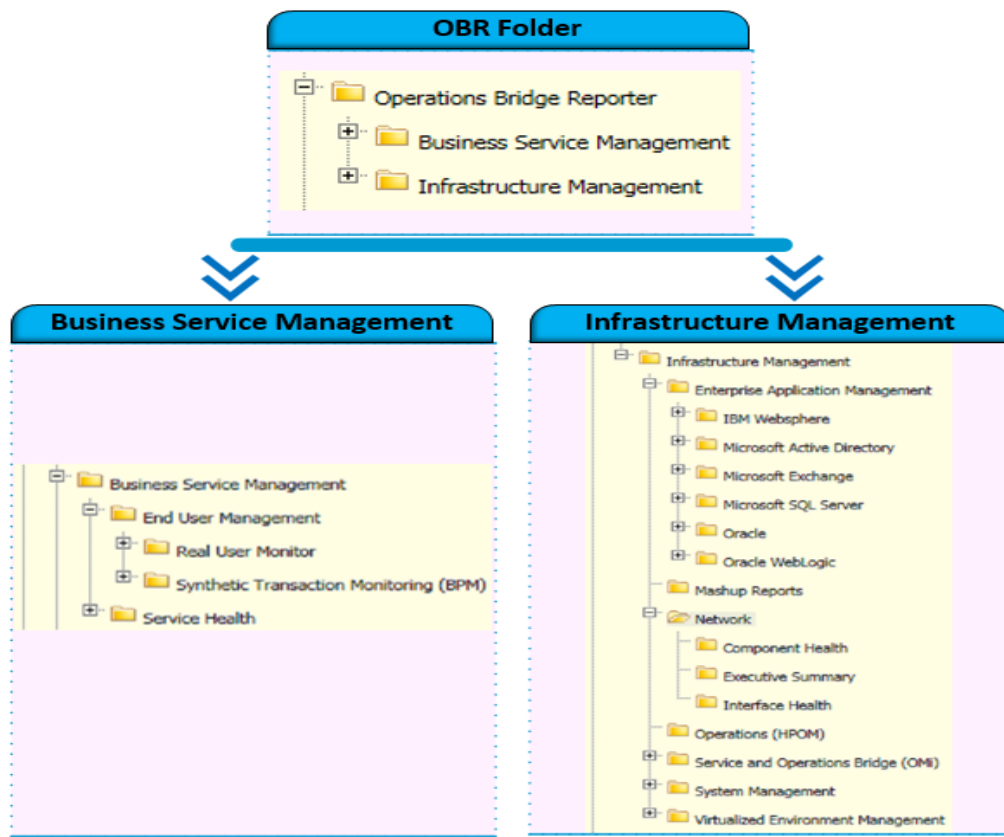
- **Deployment with VMware vCenter** - VMware vCenter is a distributed server-client software solution that provides a central and a flexible platform for managing the virtual infrastructure in business-critical enterprise systems. VMware vCenter centrally monitors performance and events, and provides 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 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 Microsoft Exchange Server Content Pack, see [Report Navigation](#).

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

Microsoft Exchange Content Pack Overview

This section provides an overview of Microsoft Exchange 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.

Target Audience

Target audience for Microsoft Exchange Server reports are Operations Center Managers and Application Administrators, who help to setup and maintain the Exchange Servers in the IT infrastructure. Microsoft Exchange Server reports help to assess the availability, resource utilization, and load (in terms of number of users and messages) of exchange servers that belong to various sites in the environment.

Data Sources for Exchange Data

OBR integrates and collects historical and ongoing database performance metrics from the Operations Smart Plug-In and OMi Management Pack for Microsoft Exchange Server data stores—for both Exchange Server 2007, Exchange Server 2010, and Exchange Server 2013 in the BSM Run-time Service Model (RTSM) and Operations Manager (OM) deployment scenarios.

The Microsoft Exchange Server 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 deployment scenario.

OBR collects data from different data sources at periodic intervals based on the collection policies predefined in the **Exchange Server ETL Content Packs**. 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. For a 60-minute interval, there are 12 records in the tables. OBR aggregates these records and converts the data to hourly and daily data. This aggregated data is displayed in the reports along with monthly and yearly aggregates that are derived by online aggregation.

Note: Exchange Server ETL Content Packs comprise the **MicrosoftExchange_ETL_ExchangeSPI2007** for Exchange Server 2007, **MicrosoftExchange_ETL_ExchangeSPI2010** for Exchange Server 2010 versions and **MicrosoftExchange_ETL_ExchangeSPI2013** for Exchange Server 2013.

To view accurate availability data of the Microsoft Exchange application in the reports, you must set the polling frequency of the "Availability" class in the Microsoft Exchange Smart Plug-in (SPI) to five minutes.

Integrating with Data Sources for Operations Smart Plug-ins

To show reports on the data collected from Microsoft Exchange Server, OBR relies on the metrics collected by collectors of Operations Smart Plug-in for Microsoft Exchange Server (Exchange Server SPI). SPI collectors store the data into the data store provided by the Operations agent. OBR's integration with SPI data sources facilitate transfer of data from Operations agent's data store to OBR's database. This integration is established when you deploy OBR in the OM deployment scenario.

OBR provides performance reports for the Microsoft Exchange 2007, Microsoft Exchange 2010 and Microsoft Exchange 2013 enterprise applications.

Prerequisite

The following is the prerequisite to integrate with data source for Operations Smart Plug-ins:

- CODA logging is a prerequisite for OBR to be able to collect data from multiple instances.

Working of the Integration

1. Installation and configuration of the SPI ensures that necessary instrumentation, scripts, programs, and policies are transferred to a node where the application is running and the Operations agent is already installed.

Tip: For successful installation and configuration of the Exchange Server SPI, see the SPI documentation.

2. SPI collectors start collecting data on the node based on rules and specifications available with the policies deployed on the node.
3. SPI stores the collected data into Operations agent's data store. The SPI creates at least one *data source* in agent's data store.
4. After configuring OBR to collect data from a data source and installing the Microsoft Exchange Server, OBR starts collecting historical data from agent's data store.

Prerequisite Policies for Microsoft Exchange Server 2007

Reports

The following table lists the Microsoft Exchange SPI policies required by each Microsoft Exchange Server report.

Note: Not every policy should be deployed to every Microsoft Exchange Server node. See the SPI documentation to understand what each policy does and determine which policies are appropriate for the role played by each server. Deploying the policies indiscriminately will result in incorrect messages originating from the node.

In addition, see the SPI documentation for information on how the policies should be deployed and what additional configuration steps may be required.

Note: Policy Configuration Requirement is not required; deploy the policy with default settings.

Report Name	Data Source	Data Class	Required SPI Policy
Exchange Mail Server Summary	EX2007_DATA	EX2007_MBSUMMARY	EXSPI-8X Get Mailbox IS Sum Data
		EX2007_PFSUMMARY	EXSPI-8X Get Public IS Sum Data
Exchange Site Executive Summary	EX2007_DATA	EX2007_AVAILABILITY	EXSPI-8X Get Exchange Availability
		EX2007_HUBTRANSDSN	EXSPI-8X HUB Transport DSN
		EX2007_TRANSQ	EXSPI-8X Dc

Report Name	Data Source	Data Class	Required SPI Policy
			Transport Queues
		EX2007_MBSUMMARY	EXSPI-8X Get Mailbox IS Sum Data
		EX2007_POP3PERF	EXSPI-8X Dc-POP3 Performance
		EX2007_IMAP4PERF	EXSPI-8X Dc-IMAP4 Performance
Exchange Source and Destination Mails Comparison	EX2007_DATA	EX2007_DEST	EXSPI-8X Dc-Get Top Destination Details
		EX2007_SOURCE	EXSPI-8X Dc-Get Top Source Details
Exchange Top N Mail Senders and Recipients	EX2007_DATA	EX2007_RECIP	EXSPI-8X Dc-Get Top Recipient Details
		EX2007_SENDER	EXSPI-8X Dc-Get Top Sender Details
Exchange Top N MailBox	EX2007_DATA	EX2007_MBDETAIL	EXSPI-8X Get Mailbox Details
		EX2007_SENDER	EXSPI-8X Dc-Get Top Sender Details
		EX2007_RECIP	EXSPI-8X Dc-Get Top Recipient Details
Exchange Top N PubFolder	EX2007_DATA	EX2007_PFDETAIL	EXSPI-8X Get Public Folder Details
Exchange EdgeTransport Queue Details	EX2007_DATA	EX2007_TRANSQ	EXSPI-8X Dc Transport Queues
Exchange EdgeTransport SMTP Details	EX2007_DATA	EX2007_SMTPRECV	EXSPI-8X Edge Dc- SMTP Perf

Report Name	Data Source	Data Class	Required SPI Policy
			Inbound Cnn
		EX2007_ SMTPSEND	EXSPI-8X Edge Dc- SMTP Perf Outbound Cnn
Exchange HubTransport SMTP and DSN Details	EX2007_ DATA	EX2007_ SMTPRECV	EXSPI-8X Edge Dc- SMTP Perf Inbound Cnn
		EX2007_ SMTPSEND	EXSPI-8X Edge Dc- SMTP Perf Outbound Cnn
		EX2007_ HUBTRANSDSN	EXSPI-8X HUB Transport DSN
Exchange MailBox Details	EX2007_ DATA	EX2007_ MBDETAIL	EXSPI-8X Get Mailbox Details
		EX2007_ MBPERF	EXSPI-8X Dc-IS Mailbox Performance
Exchange MailBox Usage	EX2007_ DATA	EX2007_ PFDETAIL	EXSPI-8X Get Public Folder Details
		EX2007_ MBDETAIL	EXSPI-8X Get Mailbox Details
Exchange PubFolder Details	EX2007_ DATA	EX2007_ PFDETAIL	EXSPI-8X Get Public Folder Details
		EX2007_ PFPERF	EXSPI-8X Dc-IS Public Folder Performance
Exchange Server Availability	EX2007_ DATA	EX2007_ AVAILABILITY	EXSPI-8X Get Exchange Availability

Prerequisite Policies for Microsoft Exchange Server 2010

Reports

The following table lists the Microsoft Exchange SPI policies required by each Microsoft Exchange Server report.

Note: Not every policy should be deployed to every Microsoft Exchange Server node. See the SPI documentation to understand what each policy does and determine which policies are appropriate for the role played by each server. Deploying the policies indiscriminately will result in incorrect messages originating from the node.

In addition, see the SPI documentation for information on how the policies should be deployed and what additional configuration steps may be required.

Note: Policy Configuration Requirement is not required; deploy the policy with default settings.

Report Name	Data Source	Data Class	Required SPI Policy
Exchange Mail Server Summary	EXSPI_DATA	EXSPI_MBSUMMARY	EXSPI-14X Get Mailbox IS Sum Data
		EXSPI_PFSUMMARY	EXSPI-14X Get Public IS Sum Data
Exchange Site Executive Summary	EXSPI_DATA	EXSPI_AVAILABILITY	EXSPI-8X/14X Get Exchange Availability
		EXSPI_HUBTRANSDSN	EXSPI-14X HUB Transport DSN
		EXSPI_TRANSQ	EXSPI-14X Dc Transport Queues
		EXSPI_MBSUMMARY	EXSPI-14X Get Mailbox IS Sum Data
		EXSPI_POP3PERF	EXSPI-14X Dc-POP3 Performance
		EXSPI_IMAP4PERF	EXSPI-14X Dc-IMAP4

Report Name	Data Source	Data Class	Required SPI Policy
			Performance
Exchange Source and Destination Mails Comparison	EXSPI_DATA	EXSPI_DEST	EXSPI-14X Dc-Get Top Destination Details
		EXSPI_SOURCE	EXSPI-14X Dc-Get Top Source Details
Exchange Top N Mail Senders and Recipients	EXSPI_DATA	EXSPI_RECIP	EXSPI-14X Dc-Get Top Recipient Details
		EXSPI_SENDER	EXSPI-14X Dc-Get Top Sender Details
Exchange Top N MailBox	EXSPI_DATA	EXSPI_MBDetail	EXSPI-14X Get Mailbox Details
		EXSPI_SENDER	EXSPI-14X Dc-Get Top Sender Details
		EXSPI_RECIP	EXSPI-14X Dc-Get Top Recipient Details
Exchange Top N PubFolder	EXSPI_DATA	EXSPI_PFDetail	EXSPI-14X Get Public Folder Details
Exchange EdgeTransport Queue Details	EXSPI_DATA	EXSPI_TRANSQ	EXSPI-14X Dc Transport Queues
Exchange EdgeTransport SMTP Details	EXSPI_DATA	EXSPI_SMTPRECV	EXSPI-14X Edge Dc-SMTP Perf Inbound Cnn
		EXSPI_SMTSEND	EXSPI-14X Edge Dc-SMTP Perf Outbound Cnn
Exchange HubTransport SMTP and DSN Details	EXSPI_DATA	EXSPI_SMTPRECV	EXSPI-14X Edge Dc-SMTP Perf Inbound Cnn
		EXSPI_SMTSEND	EXSPI-14X Edge Dc-SMTP Perf

Report Name	Data Source	Data Class	Required SPI Policy
			Outbound Cnn
		EXSPI_HUBTRANSDSN	EXSPI-14X HUB Transport DSN
Exchange MailBox Details	EXSPI_DATA	EXSPI_MBDETAIL	EXSPI-14X Get Mailbox Details
		EXSPI_MBPERF	EXSPI-14X Dc- IS Mailbox Performance
Exchange MailBox Usage	EXSPI_DATA	EXSPI_PFDETAIL	EXSPI-14X Get Public Folder Details
		EXSPI_MBDETAIL	EXSPI-14X Get Mailbox Details
Exchange PubFolder Details	EXSPI_DATA	EXSPI_PFDETAIL	EXSPI-14X Get Public Folder Details
		EXSPI_PPERF	EXSPI-14X Dc- IS Public Folder Performance
Exchange Server Availability	EXSPI_DATA	EXSPI_AVAILABILITY	EXSPI-8X/14X Get Exchange Availability

Prerequisite Policies for Microsoft Exchange Server 2013 and 2016 Reports

The following table lists the Microsoft Exchange SPI policies required by each Microsoft Exchange Server report.

Note: Not every policy should be deployed to every Microsoft Exchange Server node. See the SPI documentation to understand what each policy does and determine which policies are appropriate for the role played by each server. Deploying the policies indiscriminately will result in incorrect messages originating from the node.

In addition, see the SPI documentation for information on how the policies should be deployed and what additional configuration steps may be required.

Note: Policy Configuration Requirement is not required; deploy the policy with default settings.

Report Name	Data Source	Data Class	Required SPI Policy
Exchange Mail Server Summary	EXSPI_DATA	EXSPI_MBSUMMARY	EXSPI_CollectMailboxSummaryData
		EXSPI_PFSUMMARY	EXSPI_CollectPublicFolderSummaryData
Exchange Site Executive Summary	EXSPI_DATA	EXSPI_AVAILABILITY	EXSPI_ChkExchangeAvailability
		EXSPI_HUBTRANSDSN	EXSPI_CollTransDsnPerf
		EXSPI_TRANSQ	EXSPI_ChkTransportQueue
		EXSPI_MBSUMMARY	EXSPI_CollectMailboxSummaryData
		EXSPI_POP3PERF	EXSPI_GetPop3Perf
		EXSPI_IMAP4PERF	EXSPI_GetImap4Perf
Exchange Source and Destination Mails Comparison	EXSPI_DATA	EXSPI_DEST	EXSPI_GetTopDestinationDetails
		EXSPI_SOURCE	EXSPI_GetTopSourceDetails
Exchange Top N Mail Senders and Recipients	EXSPI_DATA	EXSPI_RECP	EXSPI_GetTopRecipientDetails
		EXSPI_SENDER	EXSPI_GetTopSenderDetails
Exchange Top N MailBox	EXSPI_DATA	EXSPI_MBDETAIL	EXSPI_CollectMailboxDetails
		EXSPI_SENDER	EXSPI_GetTopSenderDetails
		EXSPI_RECP	EXSPI_GetTopRecipientDetails
Exchange Top N PubFolder	EXSPI_DATA	EXSPI_PFDETAIL	EXSPI_CollectPublicFolderDetails
Exchange EdgeTransport Queue Details	EXSPI_DATA	EXSPI_TRANSQ	EXSPI_ChkTransportQueue
Exchange EdgeTransport SMTP Details	EXSPI_DATA	EXSPI_SMTPRECV	EXSPI_CollTransSmtprcvPerf
		EXSPI_	EXSPI_CollTransSmtpsendPerf

Report Name	Data Source	Data Class	Required SPI Policy
		SMTPSEND	
Exchange HubTransport SMTP and DSN Details	EXSPI_DATA	EXSPI_SMTPRECV	EXSPI_CollTransSmtprcvPerf
		EXSPI_SMTPSEND	EXSPI_CollTransSmtpsendPerf
		EXSPI_HUBTRANSDSN	EXSPI_CollTransDsnPerf
Exchange MailBox Details	EXSPI_DATA	EXSPI_MBDETAIL	EXSPI_CollectMailboxDetails
		EXSPI_MBPERF	This is non-existent class and hence not expected to have data.
Exchange MailBox Usage	EXSPI_DATA	EXSPI_PFDDETAIL	EXSPI_CollectPublicFolderDetails
		EXSPI_MBDETAIL	EXSPI_CollectMailboxDetails
Exchange PubFolder Details	EXSPI_DATA	EXSPI_PFDDETAIL	EXSPI_CollectPublicFolderDetails
		EXSPI_PFPERF	This is non-existent class and hence not expected to have data.
Exchange Server Availability	EXSPI_DATA	EXSPI_AVAILABILITY	EXSPI_ChkExchangeAvailability

Integrating with Data Sources for OMi Management Packs

To show reports on the data collected from Microsoft Exchange Server, OBR relies on the metrics collected by OMi Management Pack. The OMi Management Pack collectors store the data into the data store provided by the Operations agent. OBR's integration with OMi Management Pack data sources facilitates transfer of data Operations agent's data store to OBR's database. This integration is established when you deploy OBR views in the RTSM deployment scenario.

OBR provides performance reports for the Microsoft Exchange 2010 and Microsoft Exchange 2013 enterprise applications.

Working of the Integration

1. Installation and configuration of OMi Management Pack ensures that necessary instrumentation, scripts, programs, and policies are transferred to a node where the application is running and the Operations agent is already installed.

Tip: For successful installation and configuration of OMi Management Packs, see the *Operations Manager i Management Pack* documentation.

2. OMi Management Pack collectors start collecting data on the node based on rules and specifications available with the policies deployed on the node.
3. OMi Management Pack stores the collected data into Operations agent's data store. OMi Management Pack creates at least one *data source* in agent's data store.
4. After configuring OBR to collect data from a data source and installing Content Packs, OBR starts collecting historical data from agent's data store.

Prerequisite Aspects and Policies for Microsoft Exchange Server 2010 Reports

The following table lists the OMi MP for Microsoft Exchange Server policies and aspects required for each Microsoft Exchange Server report.

Note: Not every policy should be deployed to every Microsoft Exchange Server node. See OMi MP for Microsoft Exchange Server Online Help to understand what each policy does and determine which policies are appropriate for the role played by each server. Deploying the policies indiscriminately will result in incorrect messages originating from the node.

In addition, see the OMi MP documentation for information on how the policies should be deployed and what additional configuration steps may be required.

Report Name	Aspect Name	Policy Templates in Aspect (Exchange Server 2010)	Operations agent	
			Data Source Name	Data Class Name
Exchange Mail Server Summary	Exchange Mailbox	MSEX_MailboxData_Conf_2010	EXSPI_DATA	EXSPI_MBSUMMARY

Report Name	Aspect Name	Policy Templates in Aspect (Exchange Server 2010)	Operations agent	
			Data Source Name	Data Class Name
	Exchange Public Folder	MSEX_PublicFolder_Conf_2010		EXSPI_PFSUMMARY
Exchange Site Executive Summary	Exchange Availability	MSEX_Availability_Conf_2010	EXSPI_DATA	EXSPI_AVAILABILITY
	Exchange Transport	MSEX_Transport_Conf_2010		EXSPI_HUBTRANSDSN
	Exchange Transport Queues	MSEX_TransportQueue_Conf_2010		EXSPI_TRANSQ
	Exchange Mailbox	MSEX_MailboxData_Conf_2010		EXSPI_MBSUMMARY
	Exchange POP3	MSEX_Pop3Perf_Conf_2010		EXSPI_POP3PERF
	Exchange IMAP4	MSEX_IMAP_Conf_2010		EXSPI_IMAP4PERF
Exchange Source and Destination Mails Comparison	Exchange Weekly Statistics	MSEX_SCH_TopDestination	EXSPI_DATA	EXSPI_DEST
	Exchange Weekly Statistics	MSEX_SCH_TopSource		EXSPI_SOURCE
Exchange Top N Mail Senders and Recipients	Exchange Weekly Statistics	MSEX_SCH_TopRecipien	EXSPI_DATA	EXSPI_RECIP
	Exchange Weekly Statistics	MSEX_SCH_TopSender		EXSPI_SENDER
Exchange Top N MailBox	Exchange Mailbox	MSEX_MailboxData_Conf_2010	EXSPI_DATA	EXSPI_MBDETAIL
	Exchange Weekly Statistics	MSEX_SCH_TopSender		EXSPI_SENDER
	Exchange Weekly	MSEX_SCH_TopRecipien		EXSPI_RECIP

Report Name	Aspect Name	Policy Templates in Aspect (Exchange Server 2010)	Operations agent	
			Data Source Name	Data Class Name
	Statistics			
Exchange Top N PubFolder	Exchange Public Folder	MSEX_PublicFolder_Conf_2010	EXSPI_DATA	EXSPI_PFDDETAIL
Exchange EdgeTransport Queue Details	Exchange Transport Queues	MSEX_TransportQueue_Conf_2010	EXSPI_DATA	EXSPI_TRANSQ
Exchange EdgeTransport SMTP Details	Exchange SMTP	MSEX_SMTPPerf_Conf_2010	EXSPI_DATA	EXSPI_SMTPRECV
	Exchange SMTP	MSEX_SMTPPerf_Conf_2010		EXSPI_SMTSEND
Exchange HubTransport SMTP and DSN Details	Exchange SMTP	MSEX_SMTPPerf_Conf_2010	EXSPI_DATA	EXSPI_SMTPRECV
	Exchange SMTP	MSEX_SMTPPerf_Conf_2010		EXSPI_SMTSEND
	Exchange Transport	MSEX_Transport_Conf_2010		EXSPI_HUBTRANSDSN
Exchange MailBox Details	Exchange Mailbox	MSEX_MailboxData_Conf_2010	EXSPI_DATA	EXSPI_MBDETAIL
	Exchange Information Store	MSEX_StorePerf_Conf_2010		EXSPI_MBPERF
Exchange MailBox Usage	Exchange Mailbox	MSEX_PublicFolder_Conf_2010	EXSPI_DATA	EXSPI_PFDDETAIL
	Exchange Mailbox	MSEX_MailboxData_Conf_2010		EXSPI_MBDETAIL
Exchange PubFolder Details	Exchange Mailbox	MSEX_PublicFolder_Conf_2010	EXSPI_DATA	EXSPI_PFDDETAIL
	Exchange Public Folder	MSEX_PublicFolderPerf_Conf_2010		EXSPI_PFPERF
Exchange Server Availability	Exchange Availability	MSEX_Availability_Conf_2010	EXSPI_DATA	EXSPI_AVAILABILITY

Prerequisite Aspects and Policies for Microsoft Exchange Server 2013 and 2016 Reports

The following table lists the OMi MP for Microsoft Exchange Server policies and aspects required for each Microsoft Exchange Server report.

Note: Not every policy should be deployed to every Microsoft Exchange Server node. See OMi MP for Microsoft Exchange Server Online Help to understand what each policy does and determine which policies are appropriate for the role played by each server. Deploying the policies indiscriminately will result in incorrect messages originating from the node.

In addition, see the OMi MP documentation for information on how the policies should be deployed and what additional configuration steps may be required.

Report Name	Aspect Name	Policy Templates in Aspect (Exchange Server 2013 and 2016)	Operations agent	
			Data Source Name	Data Class Name
Exchange Mail Server Summary	Exchange Mailbox	MSEX_MailboxData_Conf	EXSPI_DATA	EXSPI_MBSUMMARY
	Exchange Public Folder	MSEX_PublicFolder_Conf		EXSPI_PFSUMMARY
Exchange Site Executive Summary	Exchange Availability	MSEX_Availability_Conf	EXSPI_DATA	EXSPI_AVAILABILITY
	Exchange Transport	MSEX_Transport_Conf		EXSPI_HUBTRANSDSN
	Exchange Transport Queues	MSEX_TransportQueue_Conf		EXSPI_TRANSQ
	Exchange Mailbox	MSEX_MailboxData_Conf		EXSPI_MBSUMMARY
	Exchange POP3	MSEX_Pop3Perf_Conf		EXSPI_POP3PERF

Report Name	Aspect Name	Policy Templates in Aspect (Exchange Server 2013 and 2016)	Operations agent	
			Data Source Name	Data Class Name
	Exchange IMAP4	MSEX_IMAP_Conf		EXSPI_IMAP4PERF
Exchange Source and Destination Mails Comparison	Exchange Weekly Statistics	MSEX_SCH_TopDestination	EXSPI_DATA	EXSPI_DEST
	Exchange Weekly Statistics	MSEX_SCH_TopSource		EXSPI_SOURCE
Exchange Top N Mail Senders and Recipients	Exchange Weekly Statistics	MSEX_RecipientPerf_Conf	EXSPI_DATA	EXSPI_RECIP
	Exchange Weekly Statistics	MSEX_SCH_TopSender		EXSPI_SENDER
Exchange Top N MailBox	Exchange Mailbox	MSEX_MailboxData_Conf	EXSPI_DATA	EXSPI_MBDETAIL
	Exchange Weekly Statistics	MSEX_SCH_TopSender		EXSPI_SENDER
	Exchange Weekly Statistics	MSEX_RecipientPerf_Conf		EXSPI_RECIP
Exchange Top N PubFolder	Exchange Public Folder	MSEX_PublicFolder_Conf	EXSPI_DATA	EXSPI_PFDETAIL
Exchange EdgeTransport Queue Details	Exchange Transport Queues	MSEX_TransportQueue_Conf	EXSPI_DATA	EXSPI_TRANSQ
Exchange EdgeTransport SMTP Details	Exchange SMTP	MSEX_SMTPerf_Conf	EXSPI_DATA	EXSPI_SMTPRECV
	Exchange SMTP	MSEX_SMTPerf_Conf		EXSPI_SMTSEND
Exchange HubTransport SMTP and DSN Details	Exchange SMTP	MSEX_SMTPerf_Conf	EXSPI_DATA	EXSPI_SMTPRECV
	Exchange SMTP	MSEX_		EXSPI_

Report Name	Aspect Name	Policy Templates in Aspect (Exchange Server 2013 and 2016)	Operations agent	
			Data Source Name	Data Class Name
		SMTPPerf_Conf		SMTPSEND
	Exchange Transport	MSEX_Transport_Conf		EXSPI_HUBTRANSDSN
Exchange MailBox Details	Exchange Mailbox	MSEX_MailboxData_Conf	EXSPI_DATA	EXSPI_MBDETAIL
	Exchange Information Store	This is non-existent class and hence not expected to have data.		EXSPI_MBPERF
Exchange MailBox Usage	Exchange Mailbox	MSEX_PublicFolder_Conf	EXSPI_DATA	EXSPI_PFDETAIL
	Exchange Mailbox	MSEX_MailboxData_Conf		EXSPI_MBDETAIL
Exchange PubFolder Details	Exchange Mailbox	MSEX_PublicFolder_Conf	EXSPI_DATA	EXSPI_PFDETAIL
	Exchange Public Folder	This is non-existent class and hence not expected to have data.		EXSPI_PFPERF
Exchange Server Availability	Exchange Availability	MSEX_Availability_Conf	EXSPI_DATA	EXSPI_AVAILABILITY

Deploy Topology Views

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

List of Content Pack and Topology Views to Deploy

Content Pack	View Name	Location
On Windows		
Microsoft Exchange Server	SHR_Exchange_Business_View.zip	%PMDB_HOME%\packages\ExchangeServer\ETL_Exchange_Server2007.ap\source\cldb_views
	SHR_Exchange_OM.zip	%PMDB_HOME%\packages\ExchangeServer\ETL_Exchange_Server2010.ap\source\cldb_views
		%PMDB_HOME%\packages\ExchangeServer\ETL_Exchange_Server2013.ap\source\cldb_views
On Linux		
Microsoft Exchange Server	SHR_Exchange_Business_View.zip	\$PMDB_HOME/packages/ExchangeServer/ETL_Exchange_Server2007.ap/source/cldb_views
	SHR_Exchange_OM.zip	\$PMDB_HOME/packages/ExchangeServer/ETL_Exchange_Server2010.ap/source/cldb_views
		\$PMDB_HOME/packages/ExchangeServer/ETL_Exchange_Server2013.ap/source/cldb_views

BSM Server

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

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

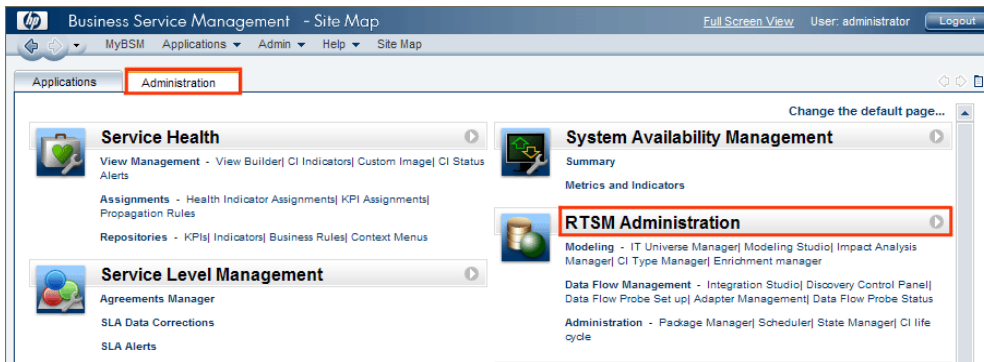
`http://<BSM system FQDN>/bsm`

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

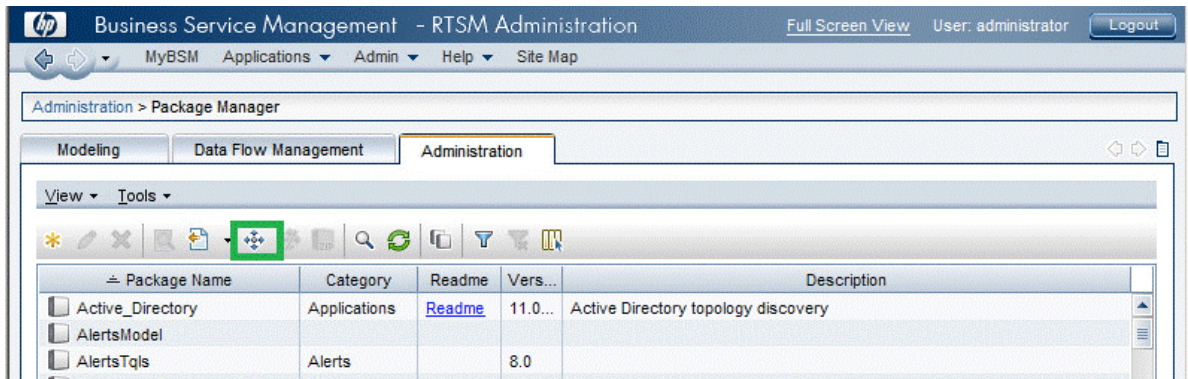
Note: You can launch the BSM server from a system where OBR is installed or any other local system. If you are launching from local system, ensure that you browse to the location mentioned in [List of Content Pack and Topology Views to Deploy](#) and copy the required views to your local system.

The Business Service Management Login page appears.

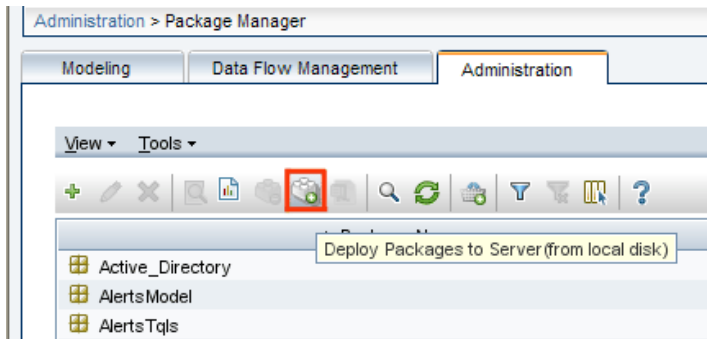
2. Type the login name and password and click **Log In**. The Business Service Management - Site Map appears.
3. Click **Administration > RTSM Administration**. The RTSM Administration page appears.



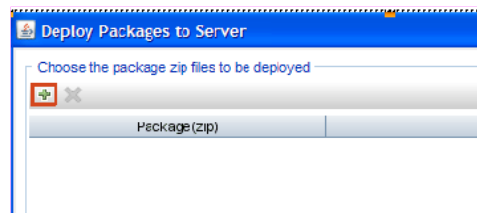
4. Click **Administration > Package Manager**. The Package Manager page appears.



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 System Management Content Pack in the OMi 10 server, follow these steps:

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

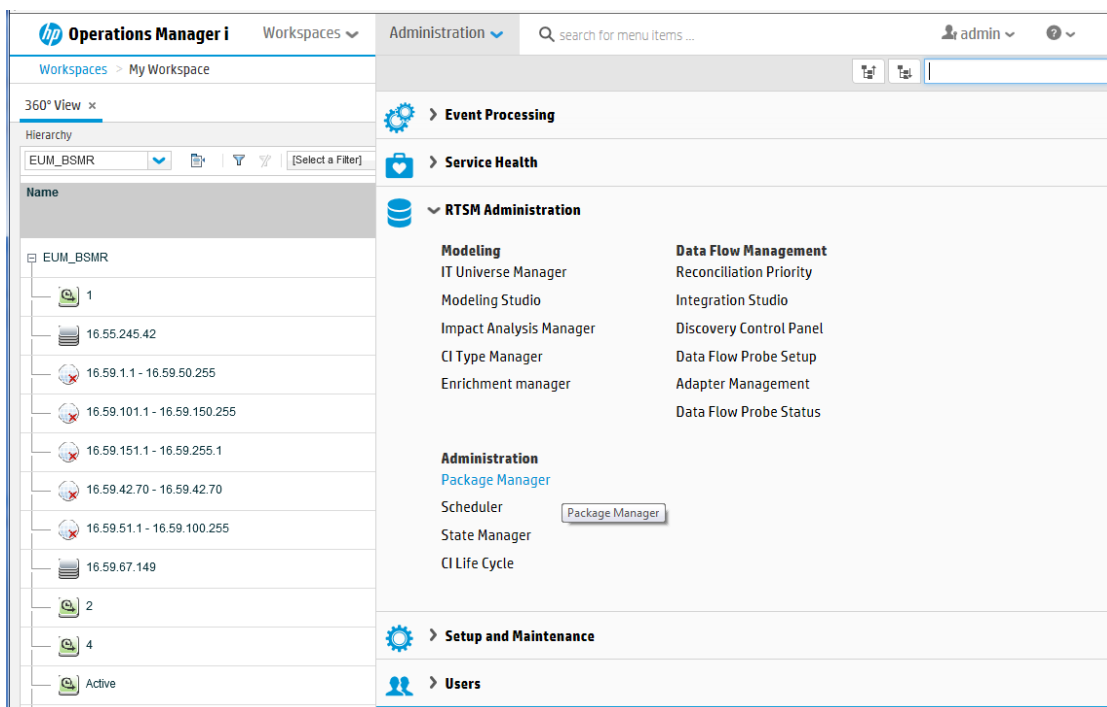
`http://<OMi system FQDN>/omi`

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.

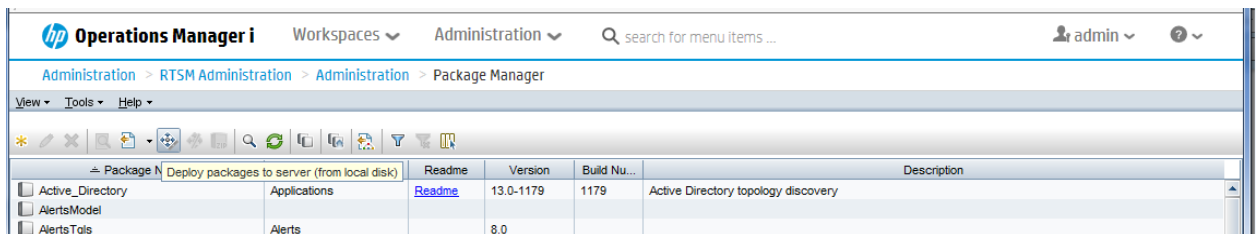
The Operations Manager i Login page appears.

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**.

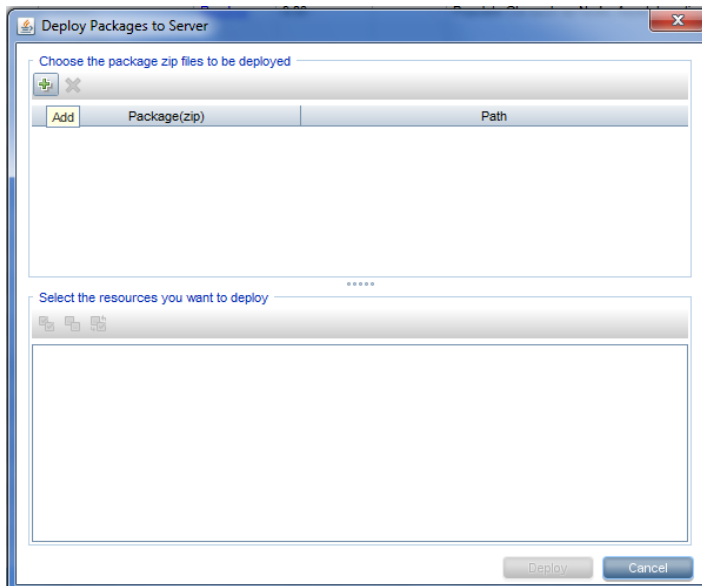


The Package Manager page appears.

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 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

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.

Status Summary						
BSMOMI Version	Host Name	Connection Status	View Status	Mandatory CI Type Status	Mandatory CI Attributes Status	Number of Duplicate Nodes
Unknown	IWFV02277.hpswlab.adapps.hp.com					0

Select Views:

Not available in RTSM Missing Mandatory CI Types Missing Mandatory CI Attributes

View Summary			
View Name	Available in RTSM?	Mandatory CI Types Missing	Mandatory CI Attributes Missing
SM_PA	Yes	0	4
SM_SIS_BusinessView	Yes	1	1
Exchange_Site_View	Yes	0	0
J2EE_Deployment	Yes	1	0
SM_HyperV_BusinessView	Yes	1	3
SM_SIS_Server	Yes	1	3
SM_Sol_Zones	Yes	4	1
ORA_Deployment	Yes	1	0
MSSQL_BusinessView	Yes	0	0
ORA_BusinessView	Yes	1	0
SM_Sol_Zones_BusinessView	Yes	0	12
SHR_Network	Yes	0	0
SM_LPAR	Yes	1	1
SM_SIS	Yes	0	1

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 screenshot shows a web interface for monitoring node status. It includes a summary table, a filter section, and a detailed table of node status.

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:

Node Name	ICMP ping	BBC ping	CODA ping	Agent Version	Last Log Time	Number of Missing Policies	Domain	DSi/CODA
WFMVS017.HPSWLABS.HP.COM	✓	✗	✓	11.11.025	09/28/15 13:38:00	1		✗

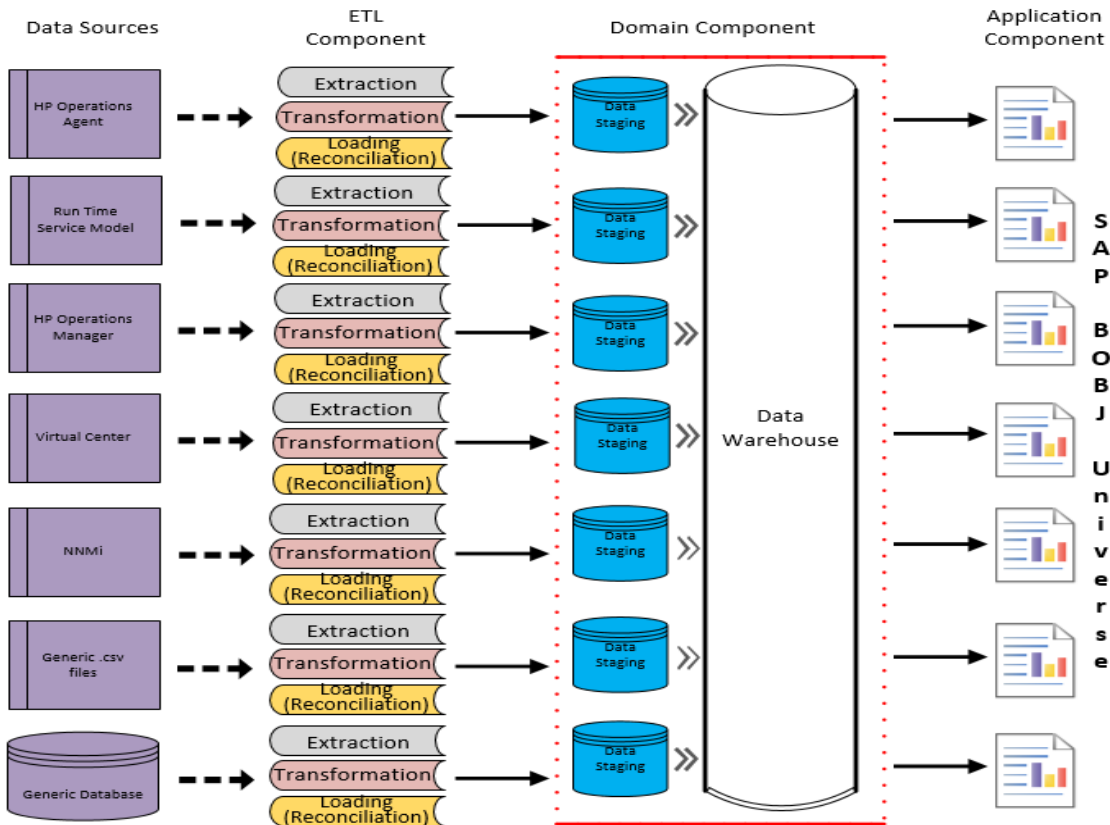
The file displays the following information:

- 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 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 MicrosoftExchange_ETL_ExchangeSPI2007 collects data from Operations SPI for Exchange Server 2007.

The MicrosoftExchange_ETL_ExchangeSPI2010 collects data from Operations SPI and OMi management pack for Exchange Server 2010.

The MicrosoftExchange_ETL_ExchangeSPI2013 collects data from Operations SPI and OMi management pack for Exchange Server 2013.

- **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 Microsoft Exchange Server 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.

If you are installing this Content Pack to generate reports on data from OM, BSM, or OMi, select the following and click Install/Upgrade:

For Microsoft Exchange 2007

- Operations Smart Plug-in for Microsoft Exchange 2007
 - MicrosoftExchange_ETL_ExchangeSPI2007
 - MicrosoftExchange_Domain
 - MicrosoftExchange_Reports

For Microsoft Exchange 2010

- Operations Smart Plug-in for Microsoft Exchange 2010, OMi Management Pack for Microsoft Exchange Server
 - MicrosoftExchange_ETL_ExchangeSPI2010
 - MicrosoftExchange_Domain
 - MicrosoftExchange_Reports

For Microsoft Exchange 2013

- Operations Smart Plug-in for Microsoft Exchange 2013, OMi Management Pack for Microsoft Exchange Server
 - MicrosoftExchange_ETL_ExchangeSPI2013
 - MicrosoftExchange_Domain
 - MicrosoftExchange_Reports

Tip: Install the following dependent Content Packs (and their components) along with this Content Pack for it to function:


- Core
 - Core_Domain
 - MSAppCore
- System Performance
 - SysPerf_Domain
 - 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 25.

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.

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.

Report Navigation

The Microsoft Exchange Server reports are categorized into high-level Executive Summary and detailed Performance reports. 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 Exchange Site Summary which provides the availability, resource utilization and load (in terms of number of users and messages) of exchange servers belonging to various sites in the environment and then navigate to the detailed reports for specific information.

The Microsoft Exchange Server reports in OBR display performance metrics and capacity details for the following:

- Edge Transport Server
- Hub Transport Server
- Mailboxes
- Public Folders
- The Active Directory sites on which the Edge Transport and Hub Transport servers are running.
- Exchange Site Servers

These reports help you analyze the performance of the basic building blocks of the Exchange server and enable you to improve the overall performance of the server.

New reports In Microsoft Exchange Server Content Pack

The following is the new Microsoft Exchange Server report:

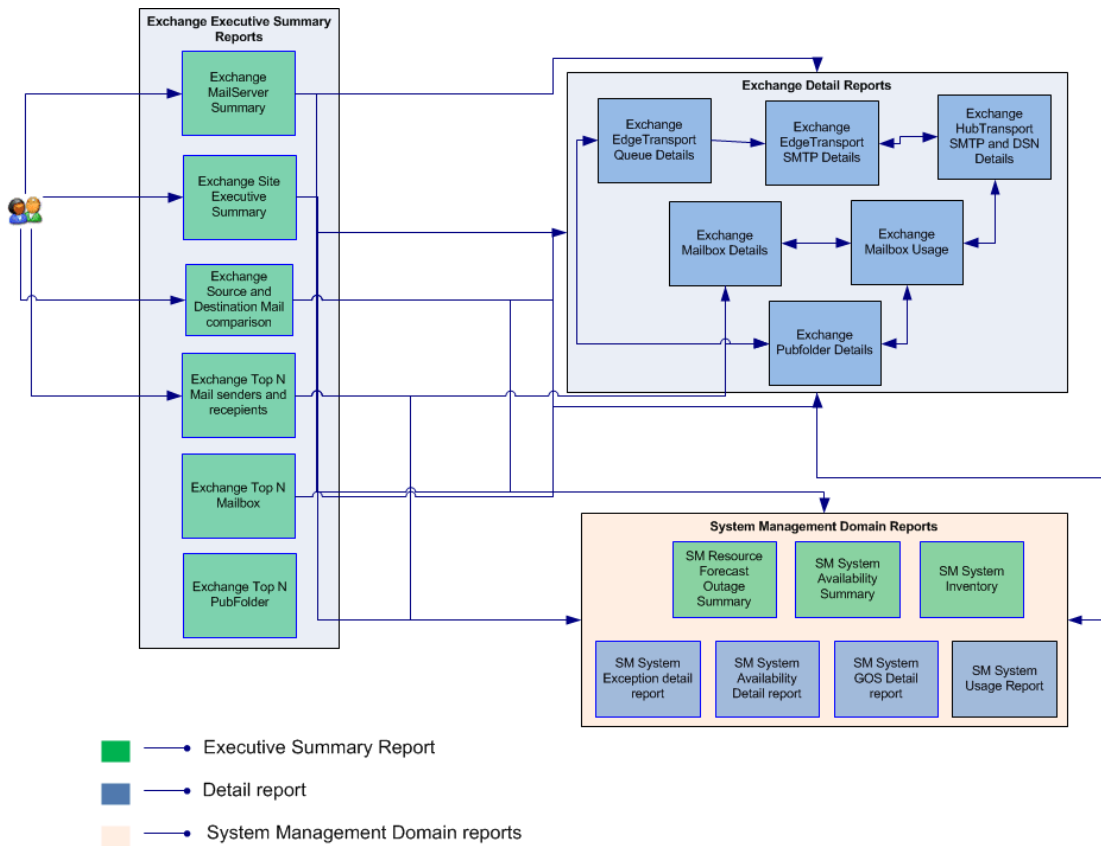
- **Exchange Server Availability** - Displays the availability details of the exchange mail server, as a heat-map based on predetermined thresholds, for every hour across the selected time period.

Note: This availability report presents the instance availability information for the application. This report should not to be used for uptime calculation.

Availability	Color
< 90	Red
> 90 and < 95	Yellow
> 95	Green

Report Navigation

Report navigation can vary depending on the use-cases around which these reports are designed. The following diagram shows one way of navigating the reports:



Use Cases

This section provides information on use cases for Microsoft Exchange Server reports. The following table provides description, user, and report name for the use cases:

Description	Report Category	Report Name
To view the availability, resource utilization, and load (in terms of number of users and messages) of exchange servers belonging to various sites in my environment	Executive Summary	Exchange Site Executive Summary
To compare the traffic in terms of received and sent messages across each of exchange servers that belong to a particular site over a period of time	Executive Summary	Exchange Source and Destination Mails Comparison

Description	Report Category	Report Name
To get list of top N senders and receivers of mail based on the number of messages and size of messages for a selected list of sites and mailbox servers	Executive Summary	Exchange Top N Mail Senders and Recipients
As an administrator, I want to view the top N mailboxes based on their size across a list of selected sites	Executive Summary	Exchange Top N Mailbox
To view the top N public folders based on their size across a list of selected sites	Executive Summary	Exchange Top N Pub Folder
To compare multiple servers based on the mailbox and public folders hosted on Mail server	Executive Summary	Exchange Mail Server Summary
To view the details as graph, in terms of messages sent/received, bytes sent/received, size, number of users of a mail box over a period of time	Performance	Exchange Mail Box Details
To view the usage statistics of all mail boxes and public folders for a given Mail server over a period of time	Performance	Exchange Mail Box Usage
To view the details as graph, in terms of messages sent/received, performance trend of public folders over a period of time	Performance	Exchange Pub Folder Details
To view the details of traffic as graph, in terms of message and bytes transmitted, in my transport server, over a period of time	Performance	Exchange HubTransport SMTP and DSN Details
To view the details of SMTP traffic as graph, in terms of message and bytes transmitted, in my transport server, over a period of time	Performance	Exchange EdgeTransport SMTP Details
To view the details of SMTP queue as graph, in terms of time taken to delivery, aggregate queue length, total number of poison and submission queue lengths, in my transport server, over a period of time	Performance	Exchange EdgeTransport Queue Details

Appendix

This section provides information on [Terminology](#), [Calculating Microsoft Exchange Server Availability](#) 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.

Role: An Exchange Server role is the functionality that each server follows. For example, Mailbox Server role is one of the roles that an Exchange server follows. In this role, an Exchange server holds the databases in which the user mailboxes are contained. Similarly, some of the other roles that an Exchange server may follow are Edge Transport Server role, Hub Transport Server role, Client Access Server role, and so on.

EDB File: The Exchange Database (EDB) file acts as the main repository for mailbox data

Poison Queue: The poison queue contains messages that are detected as being potentially harmful to the Exchange Server.

Submission Queue: The submission queue contains the messages that were put in retry state, resolved, routed, and processed by the transport agent in the server.

Retry non-SMTP delivery queue: The retry non-SMTP delivery queue contains messages that could not be sent because of some issues and therefore, the server tries to resend them.

Aggregate delivery queue: The aggregate delivery queue shows the total number of items queued for delivery in all the available queues.

Unreachable queue: The unreachable queue contains messages that have no known route to their destination.

Hub Transport Server: The Hub Transport server is deployed inside the Active Directory service forest. It handles the mail flow inside any organization, applies transport rules, applies journaling policies, and delivers messages to a recipient's mailbox.

Edge Transport Server: The Edge Transport server is deployed on the perimeter of any network. It acts either as a stand-alone server or as a member of a perimeter-based Active Directory domain. The Edge Transport server handles all the mail flow between the Hub Transport server and the Internet. It also contains all the message transport rules and provides protection against viruses and spam.

Delivery Status Notification (DSN): Delivery Status Notifications (DSN) is an automated message system informing the sender about a delivery problem in the mail that they have just sent. The server sends a sending failure mail in such a situation. A DSN may be a failed DSN, which occurs when the sent message cannot be delivered to the recipient, or it may be a delay DSN, in case there is a delay in sending the message across to the recipient. Note that there is no surety that the recipient may get the delayed message that was sent by the server to the sender.

Average Failed/Delay DSN Count: This graph shows the average number of DSN messages that were received for message delivery failure and message delivery delay.

Appendix B: Calculating Microsoft Exchange Server Instance Availability

OBR collects five-minute summary data for the Microsoft Exchange Server 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 Microsoft Exchange Server 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**

$$\text{Uptime}/(\text{Uptime} + \text{Downtime}) * 100$$

- **Actual Downtime Percentage**

$$[(\text{Downtime} / (\text{Uptime} + \text{Downtime})) * 100]$$

- **Availability Computation**

$$[(\text{Uptime} + \text{Planned Downtime} + \text{Excused Downtime}) / (\text{Uptime} + \text{Downtime})] * 100$$

- **Unknown Time Percentage**

$$[(\text{Unknown Time}) / (\text{Uptime} + \text{Downtime} + \text{Unknown Time})] * 100$$

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 *HPE Operations 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\ExchangeServer
```

On Linux:

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

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](#).

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 Microsoft Exchange Server 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!