

HP Operations Manager i Content Pack for Infrastructure

for Windows® operating system

Software Version: 8.11

Installation and Reference Guide

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1 Introducing the HP OMi Content Pack

This chapter provides an overview of the HP OMi and HP OMi content packs leading on to introducing HP OMi content pack for Infrastructure SPI.

What is HP OMi

HP Operations Manager i (HP OMi) is the latest among the successful management solutions from HP Software. HP OMi brings together Business-Service Management and Infrastructure Management to enable you to monitor and manage a wide variety of problems that occur in IT environments.

Introduction to Content Management

In HP OMi, “content” is the data that HP OMi uses to describe the objects in the monitored environment. Additionally, content can be any HP OMi extensions that provide access to configuration data, such as rules, filters, menus, and graphs. Content can include all (or any combination of) configuration-item types, mapping rules for topology synchronization, discovery sources, correlation rules, rules for HI-based key performance indicators, health indicators, graphing families categories or templates. You can upload different types of content to (and download from) the various databases; Universal Configuration-Management Database (UCMDB) and HP OMi, and exchange the same data (by exporting and importing) between instances of databases.

Outside the database, "content" is stored in files or archives whose format depends on the contents of the package, the package's intended use, and the tool you use to prepare it. Typical examples are XML files and ZIP archives.

You can use UCMDB packages to install new content or update existing content in the UCMDB. You can use "content packs" to install or update items in the HP OMi database. The same packages can be used to exchange data between instances of either the UCMDB or the HP OMi database. For more information about the different types of packages and their content, see UCMDB Packages and Content Pack documentation.

The type of package you are working with determines the tool you need to use. Typical examples are, HP OMi Content Manager, the UCMDB package manager, or standard Microsoft installation tools.

HP OMi Content Packs

HP OMi uses content packs to exchange customized HP OMi-related data between one or more instances of the HP OMi management server. A content pack can contain a complete snapshot of all (or any part of) the HP OMi rules, tools, mappings, assignments, and menu

options that you define and configure to help users manage your IT environment with HP OMi. The HP OMi content packs can contain any combination of the elements listed in the following table;

Table 1 Content Pack Contents

Content Type	Description
Event Type Indicators	A list of the definitions that are used to configure and calculate HP OMi <i>event-type</i> indicators (ETI) and the information about the configuration-item type the ETI is assigned to.
Health Indicators	A list of the definitions that are used to configure and calculate HP OMi <i>health</i> indicators (HI) and the information about the configuration-item type the HI is assigned to.
Indicator Values	A list of the <i>values</i> defined for HP OMi health indicators and event-type indicators including information about the indicator to which the value is assigned.
Mapping Rules	A list of the rules that define how HP OMi automatically sets event-type indicators and health indicators by mapping the attributes of HP Operations Manager for Windows messages or HP OMi events to indicator values.
KPI Rules Definitions	A list of the rules used to configure and calculate HP OMi key performance indicators (KPI).
HI to KPI Rule Assignments	A list of the health indicators assigned to the HP OMi key performance indicators, namely; Operations Availability or Operations Performance.
Correlation Rules	A list of the rules that users such as domain experts have configured to correlate similar or related events.
Tools Definitions	A list of the custom tools that the HP OMi software administrator or domain experts have configured for HP OMi users.
View Mappings	A list of rules that map configuration items to a particular UCMDB view. HP OMi filters the complete list of views in the UCMDB and displays only mapped views in the Selected View drop-down list in the Top View pane in the HP OMi Health Perspective tab.

Table 1 Content Pack Contents

Content Type	Description
Graph Family Mappings	A list of the configuration-item types to which domain experts have mapped graph families. HP OMi maps graph families to a particular configuration-item type so that graphs can be displayed from an instance of the mapped CI type.
Graph Families	A list of graph definitions grouped into similar types (or families) along with an indication of the configuration-item type to which the graph family is mapped. For example, a group of graphs showing different aspects of the performance of the Microsoft Exchange server can be linked to the Exchange Server configuration-item type. Note: The content pack only refers to the <i>names</i> of the graph families; it does not contain any graph templates or graph data.
Graph Categories	A list of the graph categories defined in HP OMi. Graph categories are logical groups of graphs that belong to a similar technical area, for example, different aspects of the performance of the Exchange server's Information Store. Note that you can map a graph category to a configuration-item type in the same way as you can map graph families. Note: The content pack only refers to the <i>names</i> of the graph categories; it does not contain any graph templates or graph data.

2 Installing the Infrastructure Content Pack

This chapter provides the information you need to install the Infrastructure SPIs Content Pack. You must install the Content Pack on the HPOM i management server version 8.10. The installation wizard guides you through the entire process of Content Pack installation.

Installation Prerequisite

- The Infrastructure Content Pack 8.11 must be installed on a machine that already has OMi 8.10 installed and running.
- The existing Infrastructure Content Pack 8.10 must be uninstalled before installing Infrastructure Content Pack 8.11.
- Infrastructure Content Pack 8.11 does not support an upgrade from Infrastructure Content Pack 8.10.

Uninstalling the Content Pack 8.10 Package

To uninstall the Content Pack 8.10 package, perform the following steps:

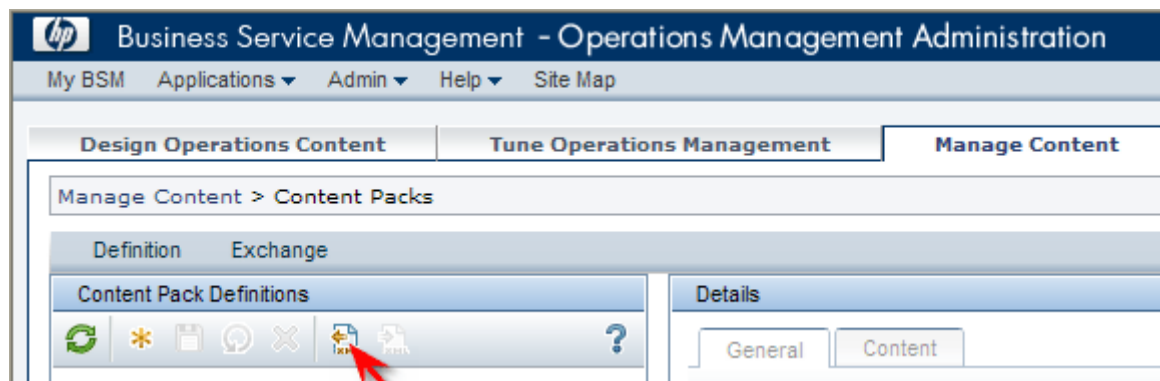
- 1 Delete the Content Pack from the Content Pack Manager
In the BSM platform management console, click the following
 - a **Admin** -> **Operations Management** -> **Manage Content** -> **Content Pack Information**
 - b On the left pane, Select **HPOprinif**.
 - c Select the **Delete** option.
 - d The system will ask you to confirm the delete operation, Click **Yes**.
- 2 Undeploy the UCMDB Packages for Infrastructure Content Pack
 - a Go to **Admin** -> **UCMDB**
 - b Go to **Settings** -> **Package Manager**
 - c Select the **HPOprinif** Package. Right-Click and select **Undeploy**.
 - d Select all the check boxes and click **Next**.
 - e Click **Finish**.

Installing the Infrastructure Content Pack 8.11

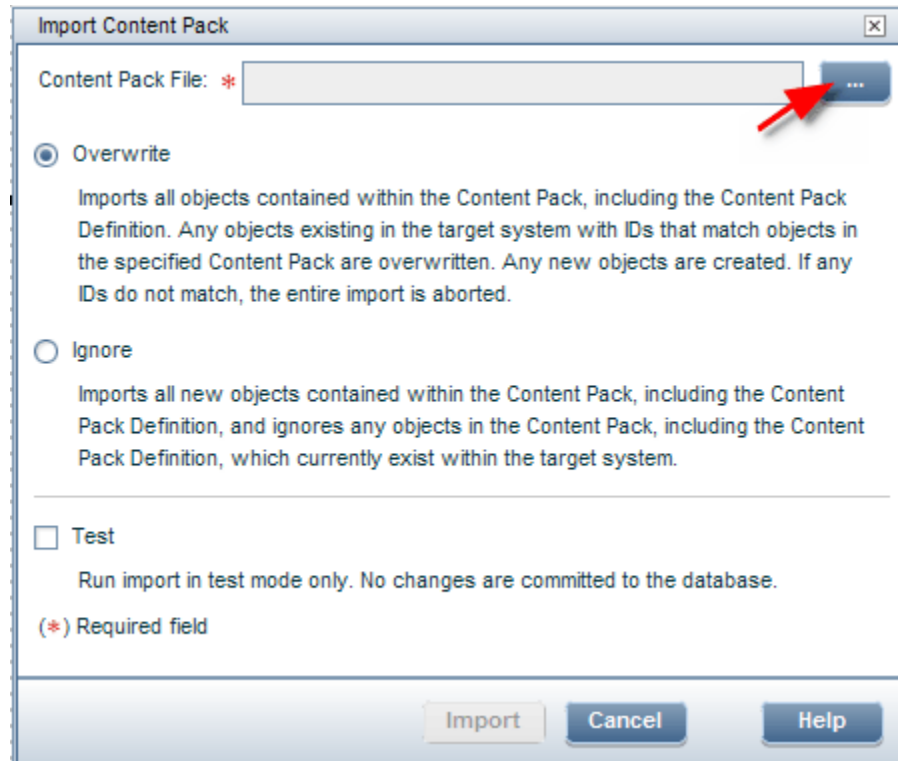
- 1 Installing the HPOprMMInf-08.11.000-WinNT4.0-release.msi.
 - a Copy the file HPOprMMInf-08.11.000-WinNT4.0-release.msi to a temporary folder on the OMi server.
 - b Double-Click file HPOprMMInf-08.11.000-WinNT4.0-release.msi.
 - c Read the terms of license agreement and select the 'I accept the terms of License Agreement' option and click Next.
 - d Follow the on-screen instructions and progress through the installation process using the Next and Install buttons.
 - e Click **Finish** to complete the installation.
- 2 To Import Content Pack complete the following steps:

In the BSM platform management console:

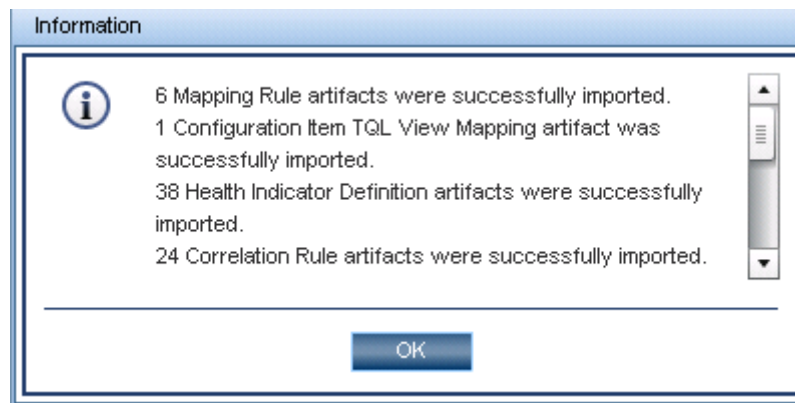
 - f Go to **Admin** → **Operations Management**
 - g Go to **Manage Content** → **Content Packs**
 - h In the **Content Pack Definitions** toolbar, click the **Import Content Pack Definitions and Content** button



- i From the **Import Content Pack** dialog, browse to the location of the content pack on the OMi server. %TOPAZ_HOME%\conf\opr\content



- j Select the file `MM-INF.xml` and click **Open**.
- k Select **Overwrite** option and click **Import** to import the content pack. The Information dialog window appears showing you the number of artifacts (for example, health indicator definition artifacts) that you have imported



- l Click OK to close the Information dialog.
- 3 Deploy the UCMDB Packages
 - a Go to Admin -> Universal CMDB
 - b Go to Settings -> Package Manager
 In the UCMDB Management Console:
 - c Click the icon "Deploy Packages to Server" -> Click "+" ("Add")

- a From the Deploy Package dialog box, browse to the location of the package %TOPAZ_HOME%\mam_lib\opr\content on the OMI Server.
 - b Select the file HPOprInf.zip and click **Open**.
 - c Click the package **HPOprInf.zip**, and "select all" from the "select the resources you want to deploy" and then Click **OK**.
- 4 Rerun the toposynch.

3 Uninstalling the Infrastructure Content Pack

Uninstalling the Content Pack 8.11 Package

- 1 To uninstall Infrastructure Content Pack 8.11 using the uninstallation wizard, perform these steps:
 - a Go to **Start** -> **Settings** -> **Control Panel**
 - b Double-Click **Add or Remove Programs**.
 - c Select the HPOM Infrastructure Management Module and click **Remove** to uninstall.
- 2 Deleting the Content Pack from the Content Pack Manager

In the BSM platform management console, click the following

 - a **Admin** -> **Operations Management** -> **Manage Content** -> **Content Pack Information**
 - b On the left pane, Select **HPOprinf**.
 - c Select the **Delete** option.
 - d The system will ask you to confirm the delete operation, Click **Yes**.
- 3 Undeploying the UCMDB Packages for Infrastructure Content Pack
 - a Go to **Admin** -> **UCMDB**
 - b Go to **Settings** -> **Package Manager**
 - c Select the **HPOprinf** Package. Right-Click and select **Undeploy**.
 - d Select all the check boxes and click **Next**.

Click Finish.

4 Reference Information

Contents of Infrastructure Content Pack

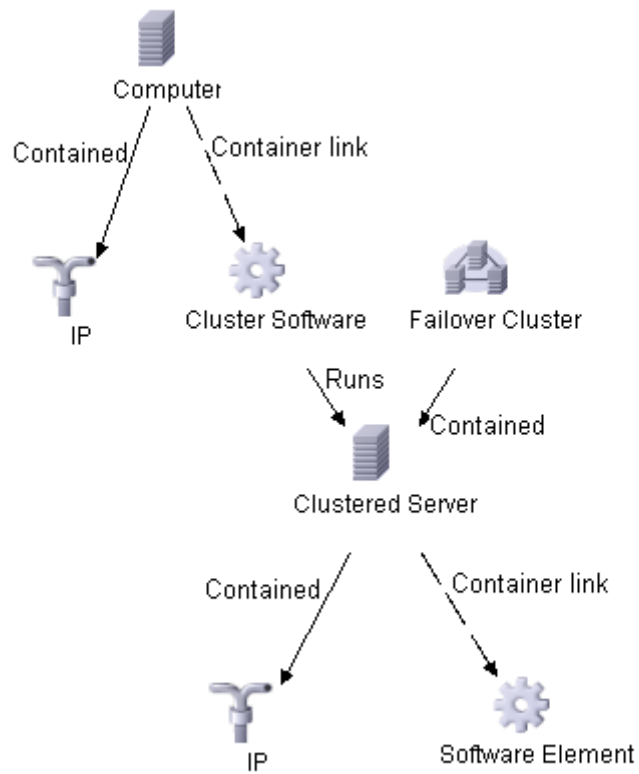
The Infrastructure Content Pack installation package contains the following artifacts;

CI Types and UCMDB Views

The UCMDB package in the Infrastructure installation package contains the following views:

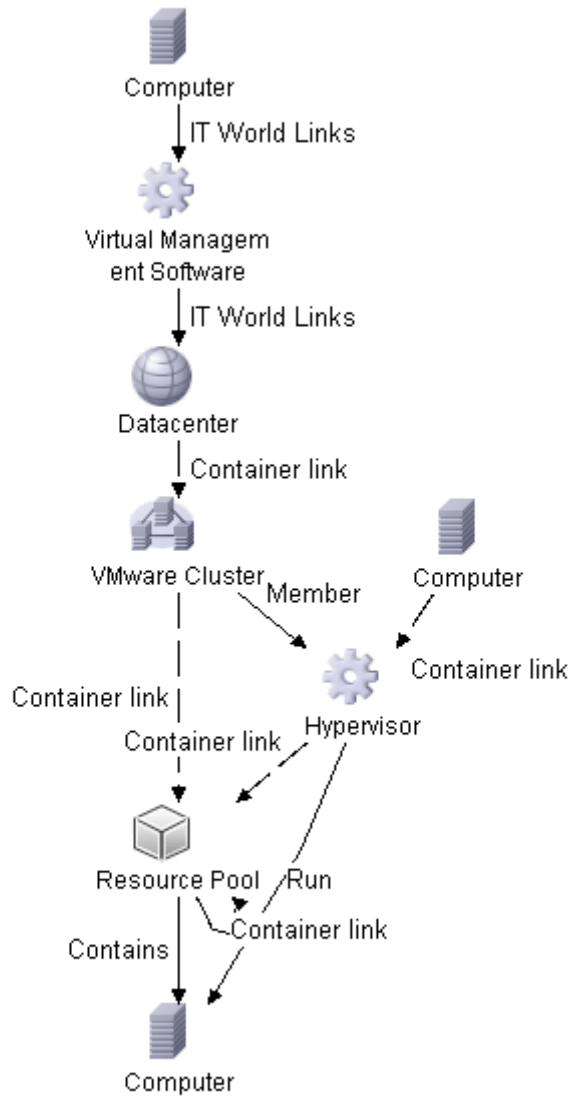
- **CPU_Infrastructure:** This view refers to the CPU and Computer CI types.
- **Filesystem_Infrastructure:** This view refers to the File System and Computer CI types.
- **NetworkInterface_Infrastructure:** This view refers to the Network Interface and Computer CI types.
- **HACluster_Infrastructure:** This view refers to the Computer (Windows or UNIX), Cluster Software, Clustered Server, Failover Cluster, Software Element, and IP Address CI types.

Figure 1 HA Cluster Infrastructure View



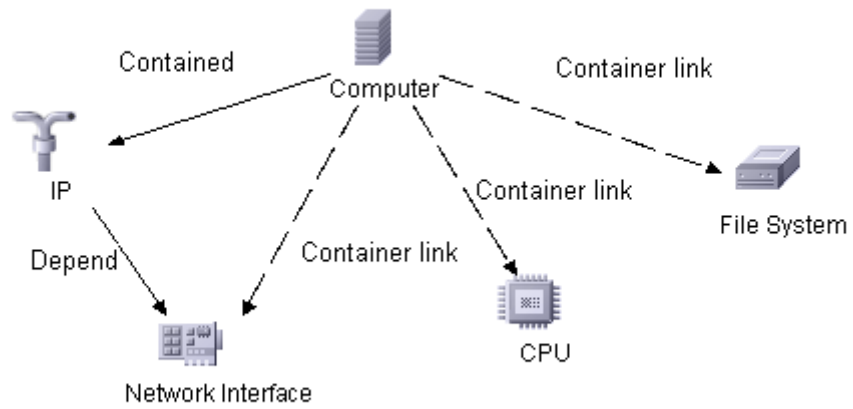
Virtualization Infrastructure: This view refers to the Computer and Hypervisor CI types. The following image shows the relationship between the CI types;

Figure 2 Virtualization Infrastructure View

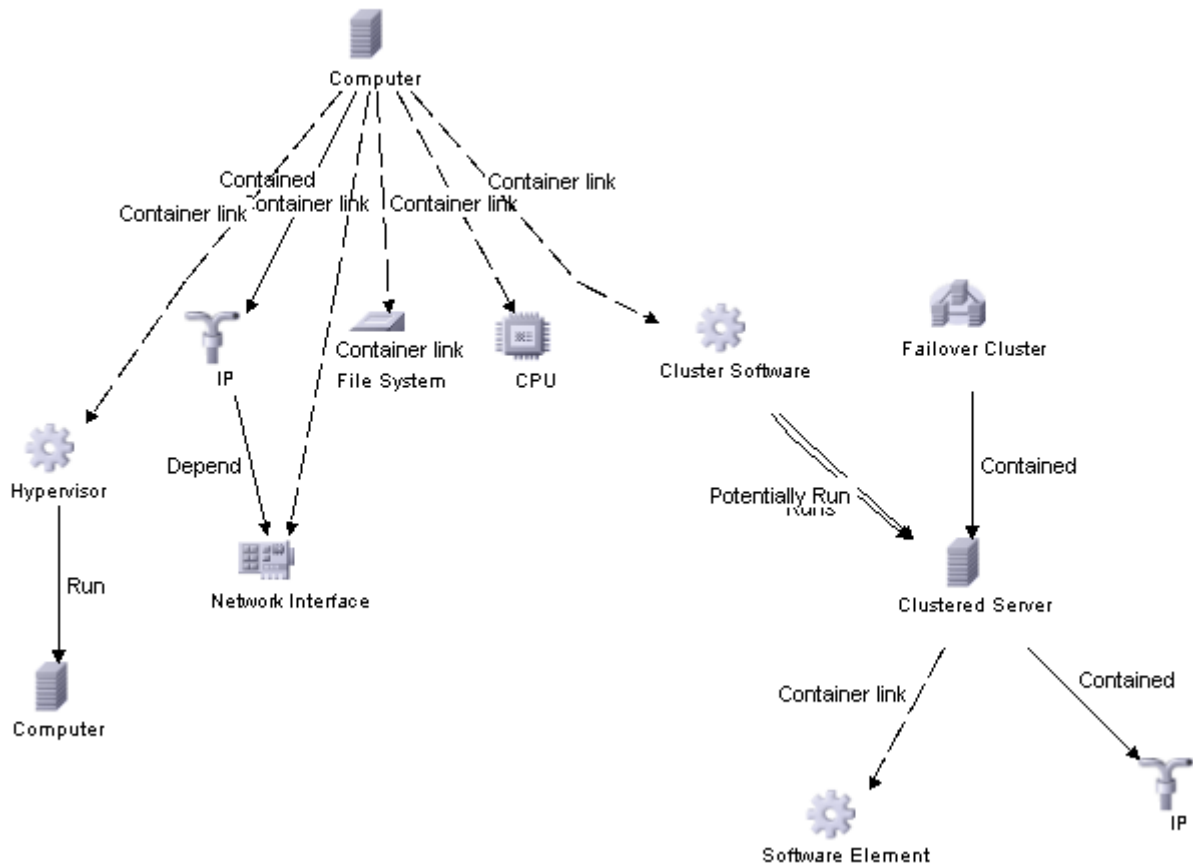


Systems Infrastructure: This view refers to the Computer (Windows or UNIX), CPU, File System, Network Interface, and IP Address CI types. The following image shows the relationship between the CI types;

Figure 3 System Infrastructure View



Infrastructure_Common: This view represents a combined view for the HACluster_Infrastructure, Systems_Infrastructure, and Virtualization_Infrastructure views.



Health Indicators

The content pack includes the following Health Indicators (HIs) to monitor Infrastructure-related events:

Table 2 Health Indicators

CI Type	HI	Description	Value
Computer	Cluster Resource Group Status	Indicates the status of the resource group in a failover cluster. Down status implies that applications hosted on this resource group (IP) are no longer accessible.	Online, Failed, Offline, Reached SPOF Condition
	Batch Job Service	Indicates the availability of Batch Job Service (UNIX/Linux Cron, Windows Schedule Task Services)	Available, Unavailable
	CPU Load	CPU Load	Normal, Constrained, Busy, Overloaded, Bottlenecks
	CPU Entitlement Usage Level	Indicates the Percentage of entitlement (CPU cycles allotted) used by a virtual machine. May exceed 100%.	Normal, Higher/ Much higher than normal, Lower/ Much lower than normal
	Event Logging Service	Indicates the availability of (UNIX/Linux syslog, Windows Event Logger services)	Available, Unavailable
	Kernel Handles Usage	Indicates the Capacity utilization of kernel handles (file handles, process handles, semaphores, message queues)	Normal, Near Capacity
	Memory Load	Memory Load is an indicator of memory pressure on a computer - high memory utilization and pressure to obtain more memory by paging. If left unattended the system may reach a point of excessive paging and an unstable state.	Normal, Paging

CI Type	HI	Description	Value
Computer	Memory Usage Level	Indicates the memory usage level for the system. Near Capacity - most memory is used up Normal - enough memory is available for efficient functioning of system and applications Low - A lot of memory is free on system indicating wastage	Normal, Low, Higher/ Much higher than normal, Lower/ Much lower than normal, Near capacity
	Ping Availability	Indicates the Processing System is reachable by ping measured by SiteScope	Available, Unavailable
	Resource Usage	Resource usage done by processes/services running on the system.	Normal, High
	Root Disk Usage Level	Disk usage on primary (root) disk on system. It refers to space utilization on root (/) file system on UNIX and Linux systems and to C: or whatever is defined through System Drive setting on Windows systems.	Normal, High
	RPC Service	Availability of RPC Service	Available, Unavailable
	DHCP Server Service	Indicates the status of the DHCP Service on the DHCP Server System.	Available, Unavailable
	Disk Utilization	Indicates the disk utilization level.	Normal, Higher/ Much higher than normal, Lower/ Much lower than normal
	DNS Service	Indicates the status of DNS (Domain Nameserver) service on the system.	Available, Unavailable
	Email Service	Indicates the status of E-Mail service on the system such as SMTP service on MS Windows, and sendmail, delivermail services on UNIX/ Linux.	Available, Unavailable

CI Type	HI	Description	Value
Computer	Virtualization Overhead	<p>The amount of additional memory used by VMware ESX server to hold the virtual machine's runtime information.</p> <p>This depends on the size of virtual machine memory, operating system running thereon.</p> <p>This value is usually constant and does not vary much from the standard value.</p>	Normal, Higher/ Much higher than normal, Lower/ Much lower than normal
	Node Status	Indicates the current state of the managed node. The states Unknown, Hang, and Suspended apply only to virtual machines.	Up, Down, Unknown, Hang, Suspended, Maintenance
	File Server Service	Indicates the status of the file server services on the system such as FileServer role services on MS Windows, and NFS server and CIFS server services on UNIX/ Linux	Available, Unavailable
	Firewall Service	Indicates the status of firewall service on the system such as Windows Firewall service on MS Windows and iptables service on Linux.	Available, Unavailable
	Network File Share Usage	The usage levels for file sharing on network. MS Windows Network Drives (mounts) and NFS, CIFS mounts.	Available, Unavailable
	Page File Usage	Indicates how much of the paging file capacity is utilized on a Windows OS	Normal, High, Near Capacity

CI Type	HI	Description	Value
	Print Status	Indicates the status of print services on the system such as the print spooler service on MS Windows, print server role services on windows 2008, and lp and cupsd services on UNIX/Linux.	Available, Unavailable
	Secure Login Service	Indicates the availability of SSH (Secure Shell) service on the system.	Available, Unavailable
	Swap Usage Level	Indicates the swap space usage level on the system.	Normal, Higher/ Much higher than normal, Lower/ Much Lower than normal, High
	Web Server Service	Indicates the status of web server services on system such as IIS services on MS Windows, and Apache service on Linux/ UNIX.	Available, Unavailable
Windows	Logical Disk Free SpaceWIN	Indicates the degree of logical free disk space on the system.	Normal (default), Near Capacity
	Terminal Server Service	Indicates the status of services for Windows Terminal Server on the MS Windows system.	Available (default), Unavailable
CPU	CPU Usage Level	Indicates the CPU Usage Level	Normal, High, Higher/ Much higher than normal, Lower/Much lower than Spike, Busy, Idle
Failover Cluster	Cluster Strength	Indicates the cluster availability status based on node strength.	Normal, Major, Critical
File System	Disk Usage Level	Indicates the Disk Usage Level	Normal, Low, Near Capacity

CI Type	HI	Description	Value
Hypervisor	Virtualization Service	Indicates the status of virtualization service running on Host such as Hyper-V service running on MS Windows 2008 Server. The service is essential for running of virtual machines.	Available (default), Unavailable
Network Interface	Interface Error Rate	Indicates the input error rate based on the change in the number of input packets on the interface and the packet error count.	Normal (default), High
	Interface Utilization	Indicates the network utilization based on the interface speed, and the change in the number of output bytes on the interface. The queried MIB (Management Information Base) values vary based on the speed of the interface and whether the system supports high speed counters for interface.	Normal (default), LowerThanNormal, MuchLowerThanNormal, High, HigherThanNormal, MuchHigherThanNormal, Low, None
	Interface Discard Rate	Indicates the output discard rate based on the change in the number of output packets on the interface and the discarded packet count. Packets may be discarded due to reasons such as receive buffer overflows, congestion, or system specific issues.	Normal (default), High
VMware ESX Server	VMFS Usage Level	Indicates the usage level of the VMFS (Virtual Machine File System). VMFS is a clustered file system that is used by the VMware host systems to store virtual machines and virtual disk files.	Normal (default), Near Capacity

CI Type	HI	Description	Value
	Host Network Usage	Data on all network interfaces, received at or dispatched from the VMware ESX/ESXi Host. (in MBs)	Normal (default), Near Capacity
Unix	Swap Space	Swap device available in the system.	Normal, Higher than normal, Lower than normal
Cluster Software	Cluster Software Service	Indicates the up or down status of Cluster Service	Available (default), Unavailable
Clustered Server	Cluster Resource Group Status	Status of the resource group in a failover cluster. Offline status implies that applications hosted on this resource group (IP) are no longer accessible.	Available (default), Unavailable

Event Type Indicators

The installation package includes the following Event Type Indicators (ETIs) to monitor Infrastructure-related events;

Table 3 Event Type Indicators:

CI Type	ETI	Description	Value
Computer	Batch Jobs	One or more scheduled tasks/cron jobs failed on the system.	Failed
	VMCreation	Creation of a VM.	Occurred
	VMRemoval	Removing a VM.	Occurred
	VMMigration	Set when a VM is migrated.	Occurred
	VMRename	Renaming a VM.	Occurred

Correlation Rules

The content pack includes the following rules to correlate Infrastructure-related events.

For more information on how the correlation rules work, see *HP Operations Manager i Concepts Guide*.

Table 4 System::Computer:CPU Load >> CPU Usage Level

Description: CPU usage of one or more CPUs on the system is high as the system is in a CPU bottleneck.

Cause		
CIT: CPU	ETI: CPU Load	Value: Bottlenecked
Symptom		
CIT: CPU	ETI: CPU Usage Level	Value: High/ Much higher Than Normal/Spike

Table 5 System::Computer:Memory Load >> CPU Load

Description: CPU bottleneck caused by paging

Cause		
CIT: Computer	ETI: Memory Load	Value: Paging
Symptom		
CIT: Computer	ETI: CPU Load	Value: Bottlenecked

Table 6 System::Computer:Memory Load >> Memory Usage Level

Description: Memory usage on system is high as the system is in a memory bottleneck

Cause		
CIT: Computer	ETI: Memory Load	Value: Paging
Symptom		
CIT: Computer	ETI: Memory Usage	Value: Much Higher Than Normal/ Near Capacity

Table 7 System::Computer:Memory Usage Level >> Swap Usage Level

Description: High memory Usage results in swapping

Cause		
CIT: Computer	ETI: Memory Usage	Value: Near Capacity
Symptom		
CI: Computer	ETI: Swap Usage Level	Value: Much Higher Than Normal/ Near Capacity

Table 8 System::Computer:Resource Usage >> CPU Usage Level

Description: Process using high amount of CPU resulting in high CPU usage by the system.

Cause		
CIT: Computer	ETI: Resource Usage	Value: High
Symptom		
CIT: CPU	ETI: CPU Usage Level	Value: High/ Much Higher Than Normal/Spike

Table 9 System::Computer:Resource Usage >> Memory Usage Level

Description: Process using high amount of memory resulting in high memory usage by system.

Cause		
CIT: Computer	ETI: Resource Usage	Value: High
Symptom		
CIT: Computer	ETI: Memory Usage Level	Value: Much Higher Than Normal/ Near Capacity

Table 10 System::File System:Disk Usage Level >> Swap Usage Level

Description: Swap usage caused by the system drive being full

Cause		
CIT: File System	ETI: Disk Usage Level	Value: Near Capacity
Symptom		
CIT: Computer	ETI: Swap Usage Level	Value: Much Higher Than Normal/ Near Capacity

Table 11 System Down >> System Application Down

Description: All system applications are down.

Cause		
CIT: Computer	ETI: Node status	Value: Near Capacity
Symptom		
CIT: Computer	ETI: Batch Job Service	Value: Unavailable

Table 12 Virtual::Computer:CPU Usage Level >> Hypervisor System CPU Load

Description: Hypervisor is constrained due to the high CPU usage by VM

Cause		
CIT: Computer	ETI: CPU Load	Value: Bottlenecked, Busy, Overloaded
Symptom		
CIT: CPU	ETI: CPU Load	Value: Bottlenecked, Busy, Overloaded

Table 13 Virtual::Computer:Memory Usage Level >> Hypervisor Memory Usage Level

Description: Hypervisor is constrained due to the high memory usage by VM

Cause		
CIT: Computer	ETI: Memory Usage Level	Value: Much Higher Than Normal
Symptom		
CIT: Computer	ETI: Memory Usage Level	Value: Much Higher Than Normal/ Near Capacity

Table 14 Virtual::Computer:Ping Availability >> Ping Availability

Description: VMs are unavailable as the ESX host running the VMs is down.

Cause		
CIT: Computer	ETI: Ping Availability	Value: Unavailable
Symptom		
CIT: Computer	ETI: Ping Availability	Value: Unavailable

Table 15 Cluster member down >> Cluster Software Service Down

Description: One of the cluster members is down, the software service on that node is also down.

Cause		
CIT: Computer	ETI: Node Status	Value: Down
Symptom		
CIT: Cluster Software	ETI: Cluster Software Service	Value: Suspended/ Unavailable

Table 16 Cluster members down >> Impacts FailoverCluster (many symptoms)

Description: When a few Cluster members are unavailable, the cluster is down.

Cause		
CIT: Computer	ETI: Node Status	Value: Down/Hang/Suspend
Symptom		
CIT: Failover Cluster	ETI:Cluster Strength	Value: All Nodes down/Quorum not met/SPOF

Table 17 Cluster nodes down >> Impacts Cluster Resource Groups

Description: When one or more Cluster nodes are down, this impacts the clustered servers running in failover mode.

Cause		
CIT: Computer	ETI: Node Status	Value: Down/Hang/Suspend
Symptom		
CIT: Clustered Server	ETI:Cluster Resource Group Status	Value: Offline

Table 18 Cluster software service unavailable>> Clustered server offline

Description: Cluster software services fail to run, causes clustered servers to be inactive.

Cause		
CIT: Cluster Software	ETI: Cluster Software Service	Value: Unavailable
Symptom		
CIT: Cluster Software	ETI:Cluster Resource Group Status	Value: Offline

Graph Templates

The content pack includes the Systems Infrastructure graph family, which is mapped to the Computer CI type

Table 19 Graph Templates.

Graph Templates	Metric Name
CPU Comparison	GBL_CPU_TOTAL_UTIL
CPU Details	BYCPU_ID BYCPU_CPU_SYS_MODE_UTIL BYCPU_CPU_USER_MODE_UTIL BYCPU_CSWITCH_RATE BYCPU_INTERRUPT_RATE BYCPU_STATE BYCPU_CPU_CLOCK BYCPU_CPU_TOTAL_UTIL
CPU Details of Logical System	GBL_CPU_ENTL_UTIL GBL_CPU_PHYS_USER_MODE_UTIL GBL_CPU_PHYS_SYS_MODE_UTIL GBL_CPU_PHYS_TOTAL_UTIL GBL_CPU_SHARES_PRIO
CPU Gauges	GBL_CPU_TOTAL_UTIL
CPU Utilization Baseline	GBL_CPU_TOTAL_UTIL
CPU Summary	GBL_CPU_INTERRUPT_UTIL GBL_CPU_SYS_MODE_UTIL GBL_CPU_USER_MODE_UTIL
CPU Entitlement by Logical Systems	BYLS_CPU_ENTL_MIN BYLS_CPU_ENTL_MAX
CPU Summary by Logical Systems	BYLS_LS_ID BYLS_CPU_ENTL_UTIL BYLS_CPU_PHYS_TOTAL_UTIL BYLS_CPU_SHARES_PRIO

Graph Templates	Metric Name
Configuration Details	GBL_SYSTEM_ID GBL_OSNAME GBL_OSRELEASE GBL_MACHINE_MODEL GBL_COLLECTOR GBL_NUM_CPU GBL_NUM_DISK GBL_NUM_NETWORK GBL_MEM_PHYS GBL_SWAP_SPACE_AVAIL_KB TBL_PROC_TABLE_AVAIL GBL_LOGGING_TYPES GBL_THRESHOLD_CPU GBL_THRESHOLD_PROCMEM GBL_THRESHOLD_DISK GBL_LOGFILE_VERSION GBL_MACHINE GBL_OSKERNELTYPE_INT GBL_MEM_AVAIL TBL_BUFFER_CACHE_AVAIL GBL_OSVERSION
Disk Throughput	BYDSK_PHYS_BYTE_RATE
Disk Summary	GBL_DISK_UTIL_PEAK GBL_FS_SPACE_UTIL_PEAK GBL_DISK_PHYS_BYTE_RATE GBL_DISK_PHYS_IO_RATE GBL_DISK_LOGL_READ_RATE
Disk Space	FS_SPACE_UTIL
Disk Details	BYDSK_DEVNAME BYDSK_PHYS_READ_BYTE_RATE BYDSK_PHYS_READ_RATE BYDSK_PHYS_WRITE_BYTE_RATE BYDSK_PHYS_WRITE_RATE BYDSK_UTIL BYDSK_REQUEST_QUEUE BYDSK_AVG_SERVICE_TIME BYDSK_LOGL_READ_RATE BYDSK_LOGL_WRITE_RATE BYDSK_DIRNAME BYDSK_ID

Graph Templates	Metric Name
File System Details	FS_DIRNAME FS_SPACE_UTIL FS_MAX_SIZE FS_SPACE_USED FS_SPACE_RESERVED FS_TYPE FS_DEVNAME FS_DEVNO FS_INODE_UTIL FS_MAX_INODES FS_BLOCK_SIZE FS_FRAG_SIZE
Global CPU Forecast	GBL_CPU_TOTAL_UTIL
Global History	GBL_CPU_TOTAL_UTIL GBL_DISK_UTIL_PEAK GBL_SWAP_SPACE_UTIL GBL_MEM_UTIL GBL_ACTIVE_PROC
Global Run Queue Baseline	GBL_RUN_QUEUE
Global Details	GBL_CPU_TOTAL_UTIL GBL_ACTIVE_PROC GBL_DISK_UTIL_PEAK GBL_PRI_QUEUE GBL_RUN_QUEUE GBL_DISK_PHYS_IO_RATE GBL_DISK_PHYS_BYTE_RATE GBL_DISK_LOGL_IO_RATE GBL_MEM_CACHE_HIT_PCT GBL_MEM_PAGEOUT_RATE GBL_MEM_SWAPOUT_RATE GBL_MEM_UTIL GBL_MEM_USER_UTIL GBL_MEM_SYS_AND_CACHE_UTIL GBL_SWAP_SPACE_UTIL GBL_FS_SPACE_UTIL_PEAK GBL_NET_PACKET_RATE GBL_NET_IN_PACKET_RATE GBL_NET_OUT_PACKET_RATE GBL_NFS_CALL_RATE GBL_NET_COLLISION_1_MIN_RATE GBL_NET_ERROR_1_MIN_RATE GBL_SYSCALL_RATE GBL_CPU_SYS_MODE_UTIL GBL_CPU_USER_MODE_UTIL GBL_NUM_USER GBL_ALIVE_PROC GBL_STARTED_PROC_RATE

Graph Templates	Metric Name
Individual CPUs	BYCPU_CPU_TOTAL_UTIL
Individual Networks	BYNETIF_IN_BYTE_RATE BYNETIF_OUT_BYTE_RATE BYNETIF_IN_PACKET_RATE BYNETIF_OUT_PACKET_RATE
Memory Summary	GBL_MEM_UTIL GBL_MEM_USER_UTIL GBL_MEM_SYS_AND_CACHE_UTIL GBL_MEM_CACHE_HIT_PCT GBL_MEM_QUEUE GBL_MEM_SWAPOUT_RATE GBL_MEM_PAGEOUT_RATE GBL_MEM_PG_SCAN_RATE
Multiple Global Forecasts	GBL_CPU_TOTAL_UTIL GBL_DISK_UTIL_PEAK GBL_SWAP_SPACE_UTIL GBL_RUN_QUEUE GBL_MEM_PAGEOUT_RATE GBL_NET_IN_PACKET_RATE GBL_NET_OUT_PACKET_RATE GBL_ACTIVE_PROC
Memory Summary by Logical Systems	BYLS_LS_ID BYLS_MEM_ENTL_UTIL BYLS_MEM_PHYS_UTIL BYLS_MEM_SWAPPED BYLS_MEM_OVERHEAD BYLS_MEM_SHARES_PRIO
Network Summary	GBL_NET_OUT_PACKET_RATE GBL_NET_IN_PACKET_RATE GBL_NET_ERROR_RATE
Percentage Utilization of CPU Entitlement by Logical Systems	BYLS_CPU_ENTL_UTIL
Percentage Utilization of Memory Entitlement by Logical Systems	BYLS_MEM_ENTL_UTIL
Percentage Utilization of Total Physical CPU by Logical Systems	BYLS_CPU_PHYS_TOTAL_UTIL

Graph Templates	Metric Name
Process Details	PROC_PROC_NAME PROC_PROC_CMD PROC_PROC_ID PROC_CPU_TOTAL_UTIL PROC_DISK_PHYS_IO_RATE PROC_INTEREST PROC_STOP_REASON PROC_APP_ID PROC_PRI PROC_MEM_RES PROC_MEM_VIRT PROC_CPU_USER_UTIL PROC_CPU_SYS_MODE_UTIL PROC_PARENT_PROC_ID PROC_USER_NAME PROC_RUN_TIME PROC_INTERVAL_ALIVE
Seasonal CPU Forecast	GBL_CPU_TOTAL_UTIL

Graph Templates	Metric Name
System Configuration	GBL_SYSTEM_ID GBL_MACHINE GBL_MACHINE_MODEL GBL_CPU_CLOCK GBL_OSNAME GBL_OSVERSION GBL_OSRELEASE GBL_MEM_PHYS GBL_ACTIVE_CPU GBL_NUM_CPU GBL_NUM_DISK GBL_NUM_NETWORK GBL_COLLECTOR GBL_SWAP_SPACE_AVAIL GBL_LOGGING_TYPES GBL_THRESHOLD_CPU GBL_GMTOFFSET
Network Interface Details	BYNETIF_NAME BYNETIF_IN_BYTE_RATE BYNETIF_IN_PACKET_RATE BYNETIF_OUT_BYTE_RATE BYNETIF_OUT_PACKET_RATE BYNETIF_QUEUE BYNETIF_COLLISION_RATE BYNETIF_ERROR_RATE
Virtualization Configuration	GBL_SYSTEM_ID GBL_OSNAME GBL_OSVERSION GBL_OSRELEASE GBL_LS_TYPE GBL_LS_ROLE GBL_NUM_L GBL_NUM_CPU BYLS_LS_ID BYLS_LS_NAME BYLS_NUM_CPU BYLS_NUM_NETIF BYLS_NUM_DISK BYLS_LS_OSTYPE BYLS_CPU_ENTL_MIN BYLS_CPU_ENTL_MAX BYLS_MEM_ENTL_MIN BYLS_MEM_ENTL_MAX

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