OMi Management Pack

User Guide

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Preface

This guide explains how the OMi Management Pack (MP) can be used to replace the HP Operations Manager (HPOM) Smart Plug-in (SPI). It then provides detailed information for each MP, which will help you to understand differences between the SPI and MP and to retain customizations that you might have done in the SPI.

Audience

This guide is for HPE OMi Management Pack Implementers who want to replace an existing HPOM Smart Plug-in installation with the equivalent HPE OMi Management Pack.

Conventions

Following are the conventions used in this guide:

Acronym	Description
HPOM	HP Operations Manager
HPOM U	HP Operations Manager on HP-UX, Solaris, or Linux
HPOM W	HP Operations Manager on Windows
OMi	Operations Manager i / Operations Management in BSM
CI	Configuration Item
MA	Monitoring Automation
HI	Health Indicator
HA	High Availability
ETI	Event Type Indicator
RTSM	Run-time Service Model
SBEC	Stream-Based Event Correlation
TBEC	Topology-Based Event Correlation
SPI	Smart Plug-in
MP	Management Pack
MT	Management Template
SIS	HP SiteScope
HPR	HP Reporter
HPELN	HPE Live Network (https://hpln.hpe.com/)
SHR (OBR)	Service Health Reporter (Operations Bridge Reporter)
PM	Performance Manager
OMi PG	OMi Performance Grapher
OOTB	Out of the box
OO	Operations Orchestration
CP	Content Pack
AD	Active Directory
CAS	Client Access Server

Introduction

Overview

OMi Management Packs (MPs) offer out-of-the-box content for monitoring infrastructure and applications. MPs harness the power of HPE OMi such as the Topology-Based Event Correlation (TBEC) and Monitoring Automation features. MPs support advanced monitoring configuration concepts such as aspects and parameterized policies that are not available with Smart Plug-ins (SPIs) for HP Operations Manager (HPOM).

This guide helps you transition from HPOM SPIs to OMi MPs when moving responsibilities from an HPOM server to OMi. It explains the conceptual differences between SPIs and MPs, describes the MP licensing model, and provides an overview of the steps for replacing a SPI with the corresponding MP including how to retain customizations that you might have done in the SPI.

Prerequisites for Using OMi Management Packs

Operations Manager i	9.23 or later
Monitoring Automation	9.23 or later
Operations Agent	11.12 or later
Reporter	If you are using OV reporter for reporting, you need to switch to OBR for reporting. It is recommended to complete this migration before you proceed with SPI to MP migration. If you are already using OBR with HPOM and SPIs, the same OBR reports work with MPs. For more information about OBR, see section Establish Reporting Using SHR in the HPOM to OMi Evolution Guide.

Conceptual Differences between SPIs and MPs

Before moving to a management pack, you should be aware of the following conceptual differences to understand why some things are done differently in the OMi MPs:

HPOM Smart Plug-in	OMi Management Pack
In HPOM, SPIs use configuration files or configuration tools to configure credentials or monitoring parameters of the SPI that could not be easily configured through the monitoring policies themselves.	Since OMi Monitoring Automation supports parameterization, many of these configuration files or tools are no longer necessary. The Management Packs (MPs) expose those settings using parameters instead.
In HPOM, customizations for certain nodes are done by copying existing policies, changing the policy, and then deploying the new policy to the corresponding nodes. Some SPIs can be customized with nodeinfo polices to override policy thresholds.	In OMi, the parameterization feature makes many of these policy copies unnecessary. Parameter values can be overwritten in management templates and when assigning aspects, which enables the use of a single policy template for monitoring multiple application instances.
In an HPOM SPI, PM generates graphs based on performance and availability metrics. Each SPI has a separate installer for installing the default graphs on the PM server.	The graphing solution for OMi MPs is provided by the embedded OMi Performance Grapher. The default graphs for an MP are installed along with the MP.
Reporter	If you are using OV reporter for reporting, you need to switch to SHR for reporting. It is recommended to complete this migration before you proceed with SPI to MP migration. If you are already using SHR with HPOM and SPIs, the same SHR reports work with MPs. For more information about SHR, see section Establish Reporting Using SHR in the HPOM to OMi Evolution Guide.
In HPOM, the HP Reporter (HPR) helps you create reports based on the metrics collected by SPIs. Metrics collected by Management Packs can now be gathered in Service Health Reporter (SHR) for business-service centric reporting.	Corresponding SHR report packs are available for each MP. SHR reports are not shipped by MPs because they are included in the base SHR product. They are also available on HPLN. For more details about report packs, see How to Establish Reporting Using SHR in the Operations Bridge Evolution Guide.
Operations Bridge use case In HPOM, when HPOM and SPI are integrated with OMi for this use case, there are set of artifacts made available by OMi CPs. OMi CPs are installed as a part of OMi installation.	In OMi MP, corresponding CP artifacts are included as a part of MP, hence there are no separate CPs.

For the artifacts that are part of HPOM Smart Plug-ins, OMi Content Packs, and OMi Management Packs, see the following table:

HPOM Smart Plug-ins (SPIs)	OMi Content Packs (CPs)	OMi Management Packs (MPs)
• Policies • Tools • Instrumentation • PM graphs • HPR reports	• Indicators • TBEC rules • OMi PG graphs • Tools • OO Flows • CITs and relations • UCMDB views	• Indicators • TBEC rules • OMi PG graphs • Tools • Policy templates • Instrumentation • Aspects • Management Templates • OO Flows • CITs and relations • UCMDB views

Recommended Steps for Moving from a SPI to MP

For the end-to-end evolution process from HPOM to OMi, see the Operations Bridge Evolution Guide. Make sure that all required steps are addressed before proceeding with the following steps:

1. Understand the conceptual differences between SPIs and MPs. For more information about the conceptual differences, see the chapter Conceptual differences between SPIs and MPs in this document.
2. Plan for moving from a SPI to the corresponding MP.
   - **a.** For each installed SPI, see Smart Plug-ins (SPIs) and Corresponding Management Packs (MPs) in this document to identify the corresponding MP.
   - **b.** Identify the prerequisites before installing an MP. See Installation prerequisites in the MP installation guide for this information.
     If this MP has prerequisite MPs, it is recommended to move corresponding SPIs to MPs before moving the chosen SPI to MP.
   - **c.** Understand the detailed differences between a specific SPI and the corresponding MP. For more information about the detailed differences of a specific SPI and MP, see corresponding chapter in Smart Plug-ins and Management Packs in this document.
3. Install the OMi Management Pack.
   - **a.** For details about installation and how to get started with the MP, see the installation guide and online help of the corresponding OMi Management Pack.
   - **b.** Select an Out-of-The-Box (OOTB) Management Template (MT) that caters to your monitoring requirement.
     - Essential MTs monitor the key application metrics as recommended by the respective application vendors.
     - Extensive MTs monitor the broader set of metrics (in addition to the key metrics) with stringent thresholds.
     - Hybrid MTs provide both agent based and remote monitoring capability using
       For more information about the MTs shipped with a particular MP, see the MP's online help. If the default MTs do not meet your monitoring needs, you can create a new MT.
4. Customize the installed MP.
   For a specific SPI, review the existing customizations and identify the customizations to be reused in the corresponding MP. You can use the **Policy Statistics Tool for Operations Manager** available on HPE LN (https://hpln.hpe.com/contentoffering/policy-statistics-tool-operations-manager) to determine which policies are actively in use and focus on their customizations. You can find the tool under Operations Manager>Tools & Scripts>Scripts> OMU/L/W Policy Statistic.
   - **a.** Choose the suitable mechanism to prepare the Management Pack for receiving the identified SPI customizations. See Best Practices for Customizing Management Packs in this document.

b. Copy customizations manually from the SPI policies to the corresponding MP artifacts (parameters, policy templates or MTs). For more information about the SPI policy to MP policy template mapping, see the section Smart Plug-ins and Management Packs in this document.

c. Perform any additional customization required to the MP.
For example, you might need to perform additional customizations to the OOTB MTs, aspects, parameters list, and so on.
For the recommended approach, see the section Best Practices for Customizing Management Packs in this document.
For information on the supported platforms, see HPE Software Support Online.

5. Prepare nodes for deployment.

a. Identify the nodes to be monitored by the MP.

b. Disable topology synchronization on the OMi Server.

Note:
Removing SPI discovery policy from a node deletes services in HPOM and CIs in the OMi's RTSM. Therefore disabling topology synchronization on the OMi Server is essential to prevent CIs getting deleted. When you have identified a node that is monitored by any of the SPIs listed below, then topology synchronization should NOT be disabled. In these cases, due to changes in CI attribute values in the corresponding Management Packs, disabling topology synchronization may result in CI duplication on the OMi Server.

- HPOM Smart Plug-in for WebSphere
- HPOM Smart Plug-in for WebLogic
- HPOM Smart Plug-in for Apache

c. Undeploy the Discovery policy and all other policies deployed to the identified nodes from the HPOM Server.

d. Remove SPI artifacts from the nodes. For more information about the artifacts to be removed, see Node Cleanup for an MP for this SPI in Smart Plug-ins and Management Packs in this document.

e. Assign the node to the OMi Server. See *Manage Operations Agents from OMi step-by-step in the Operations Bridge Evolution Guide*.

f. If you have disabled the topology synchronization on the OMi Server in Step 5.b then enable it.

6. Start monitoring the application by deploying MTs. See the deployment information in the corresponding MP's Installation Guide.
7. Repeat steps 2 to 6 for each additional SPI.

License Entitlement and Licensing for OMi Management Packs

All the existing HP Operations Smart Plug-in customers are entitled to exchange their HPOM SPI licenses for the OMi Management Pack licenses. Contact your HP support renewal executive to receive this license entitlement. Infrastructure and the Apache Web Server MPs are free with OMi.

Licensing in SPIs and MPs:

HPOM Smart Plug-ins (SPIs)	OMi Management Packs (OMi MPs)
Instance based counting. Each application instance monitored by SPIs are counted for licensing. Example: On an OS instance, if two MSSQL Server instances and two Web server instances are monitored by corresponding SPIs, it would be counted as four.	OS instance based counting. On an OS instance, whether one or more instance of same or different applications are monitored by MPs, that would be counted as one. Example: On an OS instance, if two MSSQL Server instances and two Web server instances are monitored by corresponding MPs, it would be counted as one.

Smart Plug-ins (SPIs) and Corresponding Management Packs (MPs)

This chapter explains the detailed differences between a specific SPI and the corresponding MP.

The following table maps the HP owned SPIs to the corresponding MPs as of December 2015. For a current list of available Management packs, see the content HPE Live Network.

SPIs	MPs
HPOM Smart Plug-in for Oracle Database	HPE OMi Management Pack for Oracle Database
HPOM Smart Plug-in for System Infrastructure	HPE OMi Management Pack for Infrastructure
HPOM Smart Plug-in for Virtualization Infrastructure	HPE OMi Management Pack for Infrastructure
HPOM Smart Plug-in for Cluster Infrastructure	HPE OMi Management Pack for Infrastructure
HPOM Smart Plug-in for Microsoft SQL Server	HPE OMi Management Pack for Microsoft SQL Server
HPOM Smart Plug-in for Microsoft Exchange Server	HPE OMi Management Pack for Microsoft Exchange Server
HPOM Smart Plug-in for Microsoft Active Directory	HPE OMi Management Pack for Microsoft Active Directory
HPOM Smart Plug-in for SAP	HPE OMi Management Pack for SAP
HPOM Smart Plug-in for Sybase	HPE OMi Management Pack for SAP Sybase ASE
HPOM Smart Plug-in for WebSphere	HPE OMi Management Pack for IBM WebSphere Application Server
HPOM Smart Plug-in for WebLogic	HPE OMi Management Pack for Oracle WebLogic
HPOM Smart Plug-in for Apache	HPE OMi Management Pack for Apache Web Server
HPOM Smart Plug-in for Web Server SPI	HPE OMi Management Pack for Microsoft IIS Web Server
HPOM Smart Plug-in for Microsoft Enterprise Server	HPE OMi Management Pack for Microsoft SharePoint Server
HPOM Smart Plug-in for JBoss	HPE OMi Management Pack for JBoss Application Server

Best Practices for Customizing Management Packs

The following section provides a list of requirements and how each requirement is handled in SPI and how it is handled in MPs.

Requirement	How this requirement is addressed in SPIs?	Recommended way of addressing this requirement with MPs
New metric (Not monitored OOTB) need to be monitored	New custom policy added to existing policy group	Added additional policy templates to aspects.
Customize policy attributes such as thresholds, intervals, severity, and so on. For example, change a threshold value from 70% to 90% for a single policy.	Customize policy attributes in HPOM SPI policies.	Review the parameters provided for a given MT. If possible, change an existing policy template parameter's default value. If necessary, add a new parameter with its default value. Tip: If a policy template attribute is frequently customized during deployment, it is recommended to parameterize it. It is NOT recommended to duplicate policy templates.
Monitor the same set of metrics for different instances of an application, but with different attributes (thresholds, frequency, and so on). For example: The Table Space Utilization threshold is 90% for Oracle database instance-1 and 60% for instance- 2.	Copy and customize policies.	1. Choose an MT or an Aspect. If necessary create a new Aspect or MT. 2. Review and understand the monitoring capability. 3. Review the parameters. • If necessary, update default values of the parameters. • If necessary, add new parameters with their default values. • Override parameter values during assignment of the MT or aspect to different instances. It is not recommended to duplicate policy templates.
Monitor application instances with different business criticality. For critical instances, monitor elaborate metrics with stringent thresholds more frequently than non-critical instances. For example: One set of Oracle instances is critical (no downtime allowed) while a second set is used by a non-production application. For the first set, monitor 40 metrics with the disk utilization threshold at 75%. For the second set, monitor only the 10 key metrics disk utilization threshold at 95%. In this way, you can get early warnings about the critical Oracle instances.	1. Create two different policy sets by copying default policies. 2. Customize each set differently and then deploy each policy set to different sets of critical instances.	1. Choose from the default Essential and Extensive MTs. If OOTB MTs are not catering to your needs, consider, creating new MTs. 2. Tune the MTs according to the different monitoring needs. 3. Deploy the tuned MT to the corresponding set of critical instances. It is not recommended to duplicate policy templates.
The environment includes multiple instances of an application. Each instance runs on a different server and plays a different role. The metrics to be monitored depends on the application's role. For example: Microsoft Exchange servers can take the "Client Access role" (CAS) or the "Mail Box server role". Depending on the role, different metrics need to be monitored on each of these servers.	Use different policy groups for monitoring the specific instances of an application. For example, policies for monitoring a CAS server are grouped into one policy group and policies for monitoring a Mail-Box server are grouped into another policy group.	1. Choose from the existing aspects and the policy templates that are part of each aspect. If necessary, create new aspects and policy templates. 2. Use aspects to group policy templates.
Define a standard application monitoring solution that can be rolled out to multiple customers without exposing advanced configuration attributes to be configured by the implementation team. These advanced configurations could be configured by domain experts.	It is not possible to expose part of the configuration to only certain persons.	1. Review the parameters exposed for a given MT. If necessary, add new parameters. 2. Set the parameters reserved for configuration by Domain Experts as "Expert Parameter". For example, when the parameter for the query to select Oracle tablespaces is marked as an "Expert Parameter," by default, this parameter is not visible during deployment.

For example, a query to select Oracle tablespaces for monitoring can be only set by an Oracle SME or domain expert.		
Monitor different metrics of an application based on certain attributes of a CI. For example, between two SAP versions, provide different metrics. Some metrics are not provided in a particular version.	Create policies specific to application version, and then deploy those policies to the appropriate nodes.	Choose from the available policy templates. If necessary, create new policy templates and add them as part of an aspect pertaining to a particular application version. Use conditional deployment to automatically deploy this aspect to the CIs of a particular application version only.
Monitor a composite application	1. Use different SPIs. 2. Customize each SPI individually. 3. Deploy SPI policy groups to the appropriate node groups You must know the policy groups that need to be deployed to a given node group.	Choose from the default MTs, aspects, and policy templates. If necessary, create a new MT and add aspects for monitoring various components that are part of the composite application. MTs are assigned to a view with all components of an application topology. As a result, it is simple to assign, deploy and undeploy monitoring for the whole topology. When new CIs are added to the view or CIs are removed from a view, monitoring deployment and undeployment happens automatically

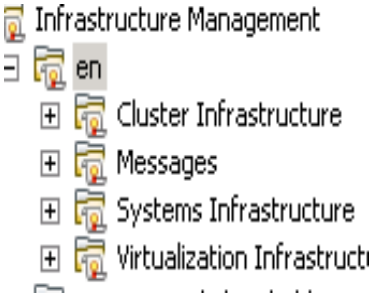
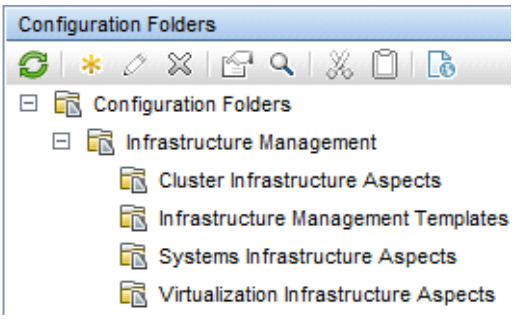
Infrastructure SPI and Management Pack

This section explains the evolution of the HPOM Smart Plug-in for System Infrastructure 11.11 or higher to HPE OMi Management Pack for Infrastructure 1.10.

SPI and MP Comparison

This section provides an overview of similarities and differences between HPOM Smart Plug-in for System Infrastructure (Infrastructure SPI) and OMi MP for Infrastructure (Infrastructure MP). For information about working with an OMi MP for Infrastructure (Infrastructure MP), see the *HPE OMi Management Pack for Infrastructure User Guide*.

Features	Infrastructure SPI 11.11 or higher	Infrastructure MP 1.10
Pre-requisites	• HPOM W 8.16, HPOM W 9.x, HPOM U/S/L 9.1 or higher • HP Operations Agent 11.0x or higher	• BSM/MA 9.22 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The Infrastructure SPI Is shipped as part of the Operations Agent media and updates are delivered through the Operations Agent patches.	The Infrastructure MP is shipped with OMi 10. It is also available for download from the OMi try now webpage. Updates can be downloaded from My Software updates (SUM) portal. For the links to the above mentioned locations, see the section Useful resources in this document.
Installation	Mount the ISO and use the OS specific installer: • HPOM UNIX and Linux: *oainstall.sh* • HPOM Windows: *oainstall.vbs* Separate graph and report packages are available for Infrastructure SPI. These can be installed separately on the appropriate PM or Reporter server systems.	1. The Infrastructure MP can be installed in any of the following methods: 2. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during OMi 10.x installation. Install using the command line interface. Use this option when you want to install the MP after installing OMi 10.x. For information about opr-mp-installer Command-Line Interface, see the OMi Administration Guide. 3. Download the MP bits from the OMi try now webpage. Then mount ISO and use the OS specific installer: • Linux: *mpinstall.sh-i* • Windows: *cscript mpinstall.vbs-i* Use this option, when the latest version of this MP is available on the OMi try now webpage.

		Infrastructure MP ships graphs that can be launched in OMi PG (OMi Performance Graph). For long-term reporting, it is recommended to use the HP Service Health Reporter (SHR). SHR ships several report packs as part of the standard media. For additional content and content pack updates, see HP Live Network.
Policy Groups	Policies are grouped into policy groups. 	Management Templates and Aspects are grouped into configuration folders. Policy templates are grouped into aspects relevant to the area and criticality of monitoring.  For more information about policy differences and other differences between the Infrastructure SPI and Infrastructure MP, see the section Policy Specific Changes in this document.
Policy Versioning	The Infrastructure SPI uses the <major version>.<minor version> (xxxx.yyyy) format for policy versioning. Infrastructure SPI follows a policy versioning consistent with the SPI package version. Example: If the version of the Infrastructure SPI is v11.13, the policies updated in this release are versioned as 1113.0000. In the HPOM console (or Admin UI), it is displayed as 1113.0. When the policy version is displayed on the managed node using ovpolicy listing, it is displayed as 1113.0000. When you update the above policy, only the minor version is updated. Example: When you update a policy with version 1113.0000 (in GUI: 1113.00), it will be changed to 1113.0001 (in GUI: 1113.1). Up to 9,999 distinct minor versions of an HPOM policy can be saved in the HPOM console. It is not recommended to save a policy with a higher or lower major version. Doing so can have negative consequences when the SPI is updated. Most customers create their own copy of HPOM policies and this is a procedure that is quite wide-spread.	The Infrastructure MP uses the support <major version>.<minor version> (xxxx.yyyy) format for policy versioning similar to HPOM. The policy versioning used in Infrastructure SPI is no longer available with the Infrastructure MP. All other points relating to policy versioning are similar to HPOM.
Message Groups	The Infrastructure SPI uses a message group for outgoing messages. OS is the default message group for all alerts from the policy. The other message groups are: • Virtualization • HA Cluster You can specify different message groups for different file systems.	The Infrastructure MP also uses the same message groups as that of the Infrastructure SPI.
Tools	The following tools are available in the Infrastructure SPI 11.1x.SystemInfrastructure: • Users Last Login • VirtualInfrastructure: • LinuxVirt Guest Info • LinuxVirt List Active VMs • LinuxVirt List Suspended VMs • VMware Host Info • VMware List Suspended VMs • VMware List VMs	Tools are not available.

	• VMware Resource Pool Info • VMware vMA OverAll Status	
Instrumentation	HPOM Server: SPI Instrumentation is copied to following locations on the HPOM server: UNIX: Instrumentation is copied first to: <OvInstallDir>/install/INFRASPI/C.utf8/instrumentation And later moved to the following directory: <OvDataDir>/share/databases/OpC/mgd_node/instrumentation Windows: %OvInstallDir%/Install Node: SPI Instrumentation will be deployed to node with respective policy deployment to the following directory: UNIX: <OvDataDir>/bin/instrumentation/ Windows: %OvDataDir%/bin/instrumentation SPI instrumentation provides the following categories updated with each version update: ClusterInfrastructure_v200 SystemsInfrastructure_v200 VirtualInfrastructure_v200 ClusterInfrastructure_v1110 SystemsInfrastructure_v1110 VirtualInfrastructure_v1110 ClusterInfrastructure_v1113 SystemsInfrastructure_v1113 VirtualInfrastructure_v1113 This structure supports the use of multiple versions of Infrastructure SPI policies and instrumentation in parallel for different nodes in their environment, depending on the Infrastructure SPI and Operations Agent support matrix and feature updates.	OMi Server: Instrumentation is uploaded into the OMi database. The instrumentation categories are: • SystemsInfrastructure • ClusterInfrastructure • VirtualInfrastructure This may change in future to accommodate customer needs to run multiple agents and Infrastructure MP policy versions in parallel. **Note**: There is no difference with the instrumentation locations on managed nodes. Instrumentation is deployed to the same directories on the managed node whether deployed from HPOM or OMi.
Discovery	Deploy policies from the following groups to each managed node: • Messages • Agent Settings • AutoDiscovery To discover an HPOM managed node and its components, deploy SI-SystemDiscovery. To discover HA clusters, deploy CI-ClusterDiscovery to one or more HA cluster nodes. Note: Do not deploy the discovery policy to the virtual (HARG) node of the cluster. Deploy to the actual nodes participating in the cluster. To discover virtual environments, deploy VI-Discovery. When the Discovery policy is removed from a node, the elements created in RTSM through Topology Sync / D-MoM by the discovery policy are removed. Re-deploying the aspect recreates the elements with different CI IDs. Removing a Discovery policy from a managed node or proxy provides a clean agent side repository and removes the corresponding CIs from RTSM (for an operations bridge (ops bridge) setup).	There is no difference in topology that is discovered by Infrastructure SPI and Infrastructure MP. Following aspects need to be deployed on the managed node. • To discover physical nodes, deploy the System Infrastructure Discovery aspect. • To discover HA clusters, deploy the Cluster Infrastructure Discovery aspect to one or more HA cluster nodes. Note: Do not deploy the Discovery policy to the virtual (HARG) node of the cluster. Deploy the Discovery policy to the actual nodes participating in the cluster. • To discover Virtual environments running on VMware vSphere, IBM AIX, Oracle Solaris, Linux-KVM and Linux-Xen infrastructure, deploy the Virtual Infrastructure Discovery aspect. Note: The VMware vMA is not supported as a monitoring proxy node with the Infrastructure MP. The method to monitor VMware VMs is by

		deploying MP policy templates to the OA-VA (Operations Agent virtual appliance). When the Discovery aspect is deployed to the node, appropriate CIs are published in the RTSM which are essential for CI based deployment. For more information about the created CIs, see the HPE OMi Management Pack for Infrastructure User Guide. When the Discovery aspect is removed from a managed node, the elements created in RTSM by the discovery policy are also removed. Re-deploying the aspect recreates the elements with different CI IDs.
Configuration	The Infrastructure SPI provides a feature to add the managed or monitored nodes into the appropriate node groups on the HPOM server. To add VMs, failover cluster nodes, RG (virtual nodes), and hypervisor host nodes to HPOM, configure the following settings accordingly in the xpl config on the HPOM managed node. [infraspi.autoaddition] AutoAdd_ClusterNode=true|false AutoAdd_Cluster_RG_IP=true|false AutoAdd_HypervisorNode=true|false AutoAdd_Guests=false|true This configuration can be achieved by deploying the AUTO_ADDITION_SETTINGS nodeinfo policy to the HPOM managed node. As needed, modify the settings before deploying them. The Infrastructure SPI provides an option to set thresholds for Measurement policies based on XPL config settings in the **eaagt** namespace. These threshold settings can be grouped together in a nodeinfo policy and deployed to sets of nodes running similar OS or workloads. For information about thresholds for Measurement policies, see the Infra SPI concepts and user guides. This functionality is the early version of parameterization feature present in the HPOM policies.	After the nodes are discovered, the nodes (including VMs) are created automatically as CIs of the type Computer. After the Virtualization Discovery aspect is deployed to a hypervisor host node or OA-VA, no configuration is required to add guest and host nodes. Thresholds and several other attributes or settings in an HPOM policy are parameterizable. These parameters must be tuned to suit sets of nodes running similar OS or workloads. This approach modernizes the implementation used in the Infrastructure SPI. Threshold customizations done in the SPI must be manually repeated in the parameters in OMi. For example: If the thresholds are customized as the following: [eaagt] MemPageOutRateMajorThreshold=50 MemPageOutRateMinorThreshold=20 MemPageOutRateWarningThreshold=10 Move these settings to the parameter Memory Page Out Rate in a set of comma-separated thresholds. Memory Page Out Rate (Pages swapped out / sec) = 50, 20, 10 For a list of the Infrastructure SPI threshold setting names, and their mapping to the Infrastructure MP parameters, see Appendix A – Mapping of Infrastructure SPI MT Policy Parameters to Infrastructure MP Parameters in this document.
Deployment	Deploy specific policies or policy groups based on monitoring needs to appropriate node(s) or node groups. If the monitored nodes are added into their appropriate Infrastructure SPI node groups (using the auto-addition feature within the SPI), then the policy assignments are automatically set for the managed nodes. On OM W the policies are auto-deployed. On HPOM UNIX, HPOM Solaris, and HPOM Linux, deploy policies manually in the admin UI.	Deploy the MT or Aspect: 1. MTs are targeted to the root element of a view. After you deploy an MT on a targeted CI, OMi automatically assigns aspects to the related CIs based on the view. 2. Aspects are targeted towards a specific CI Type and are instance-based. Therefore, aspects can be directly deployed on CIs. If the topology is not ready (because the customer does not have a complete run-time service model or is still new to OMi and doing only node-based monitoring rather than CI-based monitoring), there are ways to deploy the aspects directly to nodes.

The scheme of assignment or deployment of the Infrastructure SPI and Infrastructure MP policies is listed here:

Monitored Domain	Platform	Deployment Target
System	<all>	In HPOM: Managed Node. In HPE OMi: Computer CI, component CIs (Disk, Network card, and so
Failover Clusters	<all>	HPOM: All nodes participating in the cluster

Note:

		Do not deploy these policies to the virtual cluster node (RG). HPE OMi: Deploy the relevant aspects to the node CI.
Virtualization	VMware	HPOM: Deploy the VMware policies to either OA-VA or vMA depending on the ap HPE OMi: Deploy the relevant aspects to the VM or ESX/ESXi host or to a vCente Check where the OMi policy should get deployed eventually (the OA-VA node). Th with OMi. The key here is that VI-Discovery should have run and the VA_Infrastru right details. If Discovery has not been run, all aspects must be manually assigned
Virtualization	Hyper-V / XEN / KVM	HPOM: Deploy the policies to the host where the VMs are running. HPE OMi: Hyper-V is not supported with Infrastructure MP. For XEN and KVM, deploy the relevant aspects to the CI representing the Linux h The corresponding Management Templates (for XEN and KVM virtualization) hav appearing in the XEN_Infrastructure and KVM_Infrastructure views.
Virtualization	HP Integrity VM	HPOM: Deploy the policies to the host where the HP VMs are running. HPE OMi: HP Integrity Virtualization is not supported.
Virtualization	Solaris Containers	HPOM: Deploy the policies to the Solaris global zone. HPE OMi: OMi automatically assigns the aspects to CIs appearing in the Sol_Zon
Virtualization	IBM Power Virtualization (LPAR)	HPOM: Deploy the policies to the monitoring LPAR on the IBM frame (host). HPE OMi: OMi automatically assigns the aspects to CIs appearing in the IBMHMC aspects to the LPAR.

Note:
If you are using the HPOM Smart Plug-in for Virtualization Infrastructure (VISPI) to monitor HP Integrity Virtualization, it is recommended to wait for the next update to the Infrastructure Management Pack when this would be available.

For virtualization platforms such as Microsoft Hyper-V, and HP VM that are not supported with the Infrastructure MP, you can import the VISPI policies using the OMi config exchange tool. The deployment model need not rely on the topology view and direct node-based deployment, without automatic assignments, can be adopted (similar to HPOM).

Appearance of artifacts on node	Log and trace files: Infrastructure SPI policies provide runtime logs and trace which are logged in the %OvDataDir%\log\Infraspi.txt file. Instrumentation: %ovdatadir%/bin/instrumentation Policy list: ovpolicy -l Example: #ovpolicy -l "VI-VMwareVCEventMonitor" enabled 1113.0000	Log and trace files: Same as SPI. Instrumentation: Same as SPI. Policy list: ovpolicy –l In the policy list, every parameterized policy has an extra entry with “<policy type>tmpl” in the “Type” column as provided in the following example. This approach is similar for all MPs. Example: # ovpolicy –l monitor "Virt-VMwareVCEventMonitor" enabled 0001.0000 monitortmpl "Virt-VMwareVCEventMonitor" enabled 0001.0000
Monitoring capability	• Sys Infrastructure SPI (SISPI) • Virtualization SPI: vCenter and vMA based monitoring is supported.	• Linux Platforms – Ubuntu Linux: The SISPI does not provide any policies to support service monitoring specifically on this platform. • HA Cluster Monitoring: Several policies related to Microsoft Cluster, Sun Cluster, Veritas Cluster, and HP ServiceGuard are not present in the Infrastructure MP. • Virtualization MP: VMware monitoring is supported through the Operations Agent Virtual Appliance. VMware vMA based monitoring is not supported. Monitoring HP-UX Integrity Virtualization and Hyper-V Virtualization is not supported in Infrastructure MP – this is a difference from the Infrastructure SPI. To identify policy level differences, see the section SPI Policy to MP Policy Template Mapping in this document.

		For the list of policies not included in the MP, see the section Infrastructure SPI Policies removed from the Infrastructure MP in this document.
Tuning after Deployment	The majority of the Infrastructure SPI policies are MT policies and these can be tuned outside of the policy. The MT policies provide for threshold setting and message group settings through *nodeinfo* policies (xpl config settings on the HPOM nodes). These settings are called HPOM policy script parameters.	You can tune parameters during the deployment for a specific CI. It is also possible to tune parameter values after deployment for a specific CI using the Assignments & Tuning option. New parameters in the MA policy templates that are shipped with the Infrastructure MP replace the HPOM policy script parameters. For more information, see Appendix A – Mapping of Infrastructure SPI MT Policy Parameters to Infrastructure MP Parameters in this document.
End-to-End monitoring	Deploy the Infrastructure SPI policies based on physical, cluster or virtual nodes for monitoring. Quick start and Advanced policy groups lists essential and advanced policies.	Deploy essential or extensive MT to monitor metrics based on need. Essential MT has set of policies that monitors the key (Golden) health metrics. Extensive MT has a wider range of policies monitoring additional metrics. There is no mapping between the SPI policy groups and MTs present in MP.
Monitoring instances with different or same business criticality	The recommended approach is to use the Infrastructure SPI's threshold overrides. These overrides provide the HPOM MT policies to be deployed to all nodes with the thresholds set separately using the nodeinfo policies or *xpl config* setting on the node. For Filesystem Monitoring, the Infrastructure SPI provides a way to set individual thresholds for each file system, with different message groups for different file systems. This configuration can also be set outside the policy.	1. Deploy the essential MT to monitor less critical environment. 2. Use the extensive MT to monitor critical Infrastructure. 3. Use parameters in the Infrastructure MP template to set individual thresholds for the various nodes. Note: The Virt_ policies in the Infrastructure MP set only one threshold setting for a metric for all the VMs running on a host. For the OA-VA, this is only 1 threshold setting for a metric for all the entities monitored through the OA-VA.
Uninstallation	The uninstall procedure is specific to the OS.	Artifacts must be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • Instrumentation • ContentPack definitions
Graphs	Performance and availability metrics are graphed by PM.	Graphing solution for OMi MP is provided by OMi PG, which is an embedded component in the platform. The default PMi graphs for a MP are installed with the MP.
Reports	The default reports are available with HPR. Infrastructure SPI also has a Reports package that is shipped with the operations agent media.	It is recommended to migrate to SHR for enterprise reporting. For information on reports and feature comparison between HPR and SHR, see section *Establish Reporting Using SHR (OBR) in the Operations Bridge Evolution Guide*.
Data logging on node	Collected metrics are logged into CODA on the node.	There are no differences in terms of CODA or data that is being logged.
Event Type Indicators	Infrastructure content pack has 11 ETIs.	Infrastructure MP has the same set of ETIs as the SPI in addition to the ETI and DiskUsageLevel.
Heath Indicators	Infrastructure content pack has 68 HIs.	Infrastructure MP has the same set of HIs as the SPI in addition to the two new indicators: • DiskIO • KernelLatency

TBECs	There are 19 TBECs as part of Infrastructure content pack.	Infrastructure MP has the same set of TBECs as that of Infrastructure SPI.
I18N and L10N	Infrastructure SPI is I18N certified and is localized in the following languages: • Simplified Chinese • Japanese	Infrastructure MP is I18N certified and is localized in the following languages: • German • Spanish • French • Japanese • Korean • Russian • Simplified Chinese
OO Flows	Integration with the HP OO flows was shipped as a part of the Infra content.	Same set of OO flows are shipped with MP. However, OO flows are restricted to the ops-bridge usecase only. The OO flows work only in an environment where the HPOM and SPI are used for monitoring along with OMi and OO integration.

Common Policy Changes

This section captures changes (such as parameterization) commonly made to the HPOM Infrastructure SPI policies and describes how to convert them into the OMi Infrastructure MP policy templates.

Policy Template Naming Convention in MP

Infrastructure MP policy templates use the following nomenclature:

- System infrastructure policy templates use the prefix “Sys_” (instead of “SI-” in the SISPI policies).
- Cluster infrastructure policy templates use the prefix “Clus_” (instead of “CI” in the CISPI policies).
- Virtual infrastructure policy templates use the prefix “Virt_” (instead of “VI” in the VISPI policies).

Measurement Threshold Policy Templates

Most MP *Measurement Threshold* policy templates include parameters with configurable policy thresholds. Message Group is a default parameter. Other parameters are part of a policy data file. At an aspect level, the message group parameters for all policies in that aspect are combined as Message Classification – with a few exceptions.

Changes done to Threshold parameters:

Infrastructure SPI policies have separate parameters for each severity for a specific threshold:

- CpuUtilCriticalThreshold = 65535
- CpuUtilMajorThreshold = 90
- CpuUtilMinorThreshold = 85
- CpuUtilWarningThreshold = 80

Infrastructure MP policy templates are parameterized to have a single parameter to store threshold values for three severities (Major, Minor, and Warning). Critical thresholds are removed from MP policy templates.

Name: CPU Utilization Level (%)

Variable Name: CpuUtilThreshold

Default Value = 90,85,80

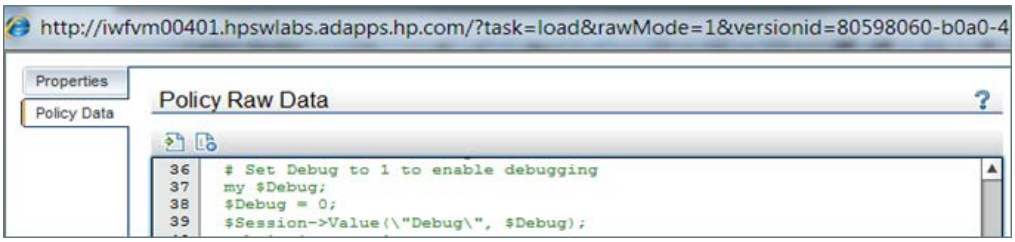
Example:

SI-CPUSpikeCheck HPOM version (Script parameters in HPOM)	Sys-CPUSpikeCheck MA version (Combined single parameter in MP)
CpuUtilCriticalThreshold = 65535 CpuUtilMajorThreshold = 90 CpuUtilMinorThreshold = 85 CpuUtilWarningThreshold = 80	Name: CPU Utilization Level (%) Variable Name: CpuUtilThreshold Default Value = 90,85,80
CpuUtilUsermodeCriticalThreshold = 65535 CpuUtilUsermodeMajorThreshold = 90 CpuUtilUsermodeMinorThreshold = 85 CpuUtilUsermodeWarningThreshold = 80	Name: CPU Utilization Level In User Mode (%) Variable Name: CpuUtilUsermodeThreshold Default Value = 90,85,80
CpuUtilSysmodeCriticalThreshold = 65535 CpuUtilSysmodeMajorThreshold = 35 CpuUtilSysmodeMinorThreshold = 30 CpuUtilSysmodeWarningThreshold = 25	Name: CPU Utilization Level In System Mode (%) Variable Name: CpuUtilSysmodeThreshold Default Value = 35,30,25
InterruptRateCriticalThreshold = 65535 InterruptRateMajorThreshold = 200 InterruptRateMinorThreshold = 180 InterruptRateWarningThreshold = 160	Name: Rate of Interrupts (%) Variable Name: InterruptRateThreshold Default Value = 200,180,160
MessageGroup = OS	Name: MessageGroup Variable Name: MessageGroup Default Value = OS
Debug	See below

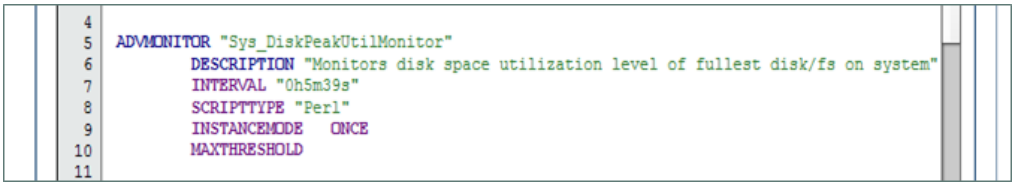
Changes done to Debug and Interval parameters

Infrastructure MP: *Debug* and *Interval* parameters can be modified by editing the policy template.

Example: The following screenshot shows the policy code. Set Debug to 1 to start tracing of messages on and save the policy.



To change the policy interval, modify the INTERVAL field and then save the policy. In the following example, the policy is configured to run every 5 minutes and 39 seconds.



For the complete details and how the Infrastructure SPI script parameters map to the OMi parameters, see Appendix A – Mapping of Infrastructure SPI MT Policy Parameters to Infrastructure MP Parameters in this document.

Service Auto-Discovery Templates

The SPI discovery policy working with the Infrastructure SPI – Messages policy auto-action creates node groups and regroups the discovered nodes on the HPOM Server. MP discovery creates node CIs in RTSM. The Infra SPI-Messages policy or its equivalent functionality is not available in the Infrastructure MP. For the suggested workaround, see section Infrastructure SPI Policies removed from the Infrastructure MP in this document.

Policy Specific Changes

This section maps the Infrastructure MP's aspects to the corresponding Infrastructure SPI policies. It includes information about policies that are dropped or are added and describes any differences.

The policy-specific changes described here are in addition to the common changes described in the previous section.

Infrastructure SPI Policies split (or) updated

The following table provides the policy specific changes between the Infrastructure SPIs and MPs.

SPI Policy	MP Policy Template
SI-NetworkUsageAndPerformance is split into two policy templates.	• Name: Sys-NetworkInterfaceErrorDiagnosis • Aspect: Resource Bottleneck Diagnosis • Description: Policy checks for the percentage of Network Card error packets (NicErrPktPct) and Network Card Collision (NicPktCollPct).
	• Name: Sys-NetworkUsageAndPerformance • Aspect: Bandwidth Utilization and Network IOPS • Description: Policy checks for Network Bytes Received Rate (NicBytesRxTxRate) and Network Bytes Sent Rate (NicBandwidthUtil).
SI-MemoryBottleneckDiagnosis is split into two policy templates	• Name: Sys-MemoryUsageAndPerformance • Aspect: • Description: Monitors memory availability and utilization.
	• Name: Sys-MemoryBottleneckDiagnosis • Aspect: • Description: Monitors MemPageOutRate, MemUtil, MemSwapoutByteRate, MemAvail, MemPageReqRate, MemCacheFlushRate, and MemPageScanRate depending on various platforms.
SI-DiskCapacityMonitor is renamed as Sys-FileSystemUtilizationMonitor in MP	By default, Sys-FileSystemUtilizationMonitor policy template monitors all disks. To monitor a specific disk instance, provide the disk and instance values in the following format: Format of Instance name FS_DEVNO:FS_DEVNAME:FS_DIRNAME Example: 2049:/dev/sda1:/boot These metric values can be obtained using the following command on the managed node: On Linux and UNIX: # export CODAMAGIC=0x05201993 On Windows: # set CODAMAGIC=0x05201993 On all operating systems: # ovcodautil -ds SCOPE -o FILESYSTEM -m FS_DEVNO,FS_DEVNAME,FS_DIRNAME –last Example ovcodautil output: 11/21/14 06:00:00 2051 /dev/sda3 / 11/21/14 06:00:00 2049 /dev/sda1 /boot If perfd (the Real-Time measurement daemon) is turned On, you can use the cpsh tool to get this information using the following command. Note that this command output separates with values with a comma (,). Replace each comma with a colon (:). On UNIX and Linux: /opt/perf/bin/cpsh -c filesystem -m "fs_devno fs_Devname fs_dirname" -h0 -s, On Windows: cpsh -c filesystem -m "fs_devno fs_Devname fs_dirname" -h0 -s,

Infrastructure SPI Policies removed from the Infrastructure MP

This section provides details on the policies present in Infrastructure SPI which are removed in MPs.

Policy Type	Policy Name	Comments
configfile	SI-ConfigureDiscovery	This policy helps define discovery level and provides filtering capabilities. This feature is not available with the MP.
configfile	VI-VMwareEventTypes	This is a policy that was required only for the vMA based monitoring approach for VMware. MP does not support vMA.

configsettings	OPC_OPCMON_OVERRIDE_THRESHOLD	The Operations agent has this setting on by default.
configsettings	ThresholdOverridesLinux	The threshold overrides policies drove the Infrastructure SPI's threshold parameterization capability. These policies are obsoleted in favor of the OMi-MA based advanced parameterization concepts.
configsettings	ThresholdOverridesWindows	
le	CI-MSWindowsClusterServer_AvailabilityWarnError	Microsoft Windows Cluster is currently not supported in Infrastructure MP.
le	CI-MSWindowsClusterServer_NetworkWarnError	
le	CI-MSWindowsClusterServer_NodeWarnError	
le	CI-MSWindowsClusterServer_StorageWarnError	
le	CI-SunClusterNetworkLogMonitor	Sun Cluster and Veritas Cluster monitoring are not supported in the Infrastructure MP.
le	CI-SunClusterNodeLogMonitor	
le	CI-SunClusterResourceLogMonitor	
le	CI-VCSUnixNetworkLogMonitor	
le	CI-VCSUnixNodeLogMonitor	
le	CI-VCSUnixResourceLogMonitor	
le	CI-VCSWindowsNetworkLogMonitor	
le	CI-VCSWindowsNodeLogMonitor	
le	CI-VCSWindowsResourceLogMonitor	
monitor	CI-SunClusterProcessMonitor	
monitor	CI-VCSUnixProcessMonitor	
monitor	CI-VCSWindowsProcessMonitor	
le	VI-MSHyperV_HyperVisorAdminWarnError	MS Windows Hyper-V virtualization platform is currently not supported in Infrastructure MP.
le	VI-MSHyperV_HyperVisorOperationalWarnError	
le	VI-MSHyperV_ImageAdminWarnError	
le	VI-MSHyperV_ImageOperationalWarnError	
le	VI-MSHyperV_VMMSAdminWarnError	
le	VI-MSHyperV_VMMSOperationalWarnError	
le	VI-MSHyperV_WorkerAdminWarnError	
le	VI-MSHyperV_WorkerOperationalWarnError	
monitor	VI-MSHyperVGuestCPUEntlUtilMonitor-AT	
monitor	VI-MSHyperVHostCPUUtilMonitor	
monitor	VI-MSHyperVHostServiceMonitor	
monitor	VI-MSHyperVStateMonitor	
monitor	CI-MCSGClusterProcessMonitor	HP ServiceGuard is currently not supported in Infrastructure MP.
monitor	CI-MSWindowsClusterServiceMonitor	Microsoft Windows Cluster is currently not supported in Infrastructure MP.
monitor	CI-RHClusterCCSDProcessMonitor	RH Clustering is currently not supported in Infrastructure MP.
monitor	CI-RHClusterRGManagerProcessMonitor	
monitor	SI-AIXInetdProcessMonitor	Several policies offering process and service monitoring are not available in Infrastructure MP. Use the config-exchange tool to bring these HPOM monitoring policies into OMi-MA for immediate use.
monitor	SI-HPUXInetdProcessMonitor	
monitor	SI-HPUXLpschedProcessMonitor	
monitor	SI-HPUXNamedProcessMonitor	
monitor	SI-HPUXSendmailProcessMonitor	
monitor	SI-HPUXSnmpdmProcessMonitor	
monitor	SI-HPUXWebserverProcessMonitor	

monitor	SI-JavaProcessCPUUsageTracker	
monitor	SI-JavaProcessMemoryUsageTracker	
monitor	SI-LinuxAtdProcessMonitor	
monitor	SI-LinuxCupsProcessMonitor	
monitor	SI-LinuxWebserverProcessMonitor	
monitor	SI-LinuxXinetdProcessMonitor	
monitor	SI-MSWindowsPerfMonCollector	
monitor	SI-MSWindowsRemoteDrivesSpaceUtilization	
monitor	SI-MSWindowsSvchostCPUUsageTracker	
monitor	SI-MSWindowsSvchostMemoryUsageTracker	
monitor	SI-SunSolarisInetdProcessMonitor	
monitor	SI-SunSolarisLpdProcessMonitor	
monitor	SI-SunSolarisWebserverProcessMonitor	
monitor	SI-UbuntuAtdProcessMonitor	
monitor	SI-UbuntuCronProcessMonitor	
monitor	SI-UbuntuInetdProcessMonitor	
monitor	SI-UbuntuNmbServerProcessMonitor	
monitor	SI-UbuntuSmbServerProcessMonitor	
monitor	SI-UbuntuSshdProcessMonitor	
monitor	SI-UbuntuUdevProcessMonitor	
monitor	VI-HPVMDaemonsMonitor	The HP Integrity VM virtualization platform is not supported in this release of Infrastructure MP.
monitor	VI-HPVMGuestCPUEntlUtilMonitor-AT	
monitor	VI-HPVMHostCPUUtilMonitor	
monitor	VI-HPVMStateMonitor	
monitor	VI-LinuxVirtVMMemoryPerformanceMonitor	Linux Virtualization platforms such as KVM and XEN do not return valid memory utilization rate for the guest instances (The value is always 100% utilization). This behavior is a limitation of the virtualization platform. These policies listed alongside rely on the accuracy of the memory utilization metric and therefore do not deliver any value when the metric is wrong. Until the issue is fixed the Infrastructure MP does not include the equivalent functionality policies.
monitor	VI-LinuxVirtVMMemoryUsage-AT	
monitor	VI-VMFSReadLatencyMonitor	These policies were required only for the vMA based monitoring approach for VMware, which is not supported by the MP.
monitor	VI-VMFSWriteLatencyMonitor	
monitor	VI-VMwareDCCPUUtilMonitor	
monitor	VI-VMwareDCDataStoreUtilMonitor	
monitor	VI-VMwareDCMemoryUtilMonitor	
monitor	VI-VMwareDiskErrorMonitor	
monitor	VI-VMwareDiskThroughputMonitor	
monitor	VI-VMwareEventMonitor	
monitor	VI-VMWareGuestCPUEntlUtilMonitor-AT	
monitor	VI-VMwareHostChassisHealthMonitor	
monitor	VI-VMwareHostDiskUtilization-AT	
monitor	VI-VMwareHostEthernetPortHealthMonitor	
monitor	VI-VMwareHostFanHealthMonitor	
monitor	VI-VMwareHostMemoryHealthMonitor	
monitor	VI-VMwareHostNICMonitor	

monitor	VI-VMwareHostPhysicalMemoryHealthMonitor	
monitor	VI-VMwareHostProcessorHealthMonitor	
monitor	VI-VMwareHostsCPUUtilMonitor	
monitor	VI-VMwareHostsCPUUtilMonitor-AT	
monitor	VI-VMwareHostSensorHealthMonitor	
monitor	VI-VMwareHostsMemoryUtilMonitor-AT	
monitor	VI-VMwareNetifInbyteBaseline-AT	
monitor	VI-VMwareNetifOutbyteBaseline-AT	
monitor	VI-VMWareStateMonitor	
monitor	VI-VMwareTotalVMCPUUtilMonitor	
monitor	VI-VMwareTotalVMMemoryUtilMonitor	
monitor	VI-VMwareVifpTargetCheck	
monitor	VI-VMwareVMCPUUtilMonitor	
monitor	VI-VMwareVMFSUtilizationMonitor	
monitor	VI-VMwareVMMemoryPerformanceMonitor	
monitor	VI-VMwareVMMemoryUsage-AT	
monitor	VI-VMwareVMMemoryUtilMonitor	
sched	VI-VMwareDCDataCollector	
sched	VI-VMwareHardwareHealthCollector	
sched	VI-VMwareVMFSDataCollector	
msgi	InfraSPI-Messages	This policy handles auto-addition of nodes to the HPOM node bank. This feature is not required in OMi-MA.
sched	VI-IBMHMCDataCollector	This policy is used for collecting data from IBM HMC before Operations agent 11.12 introduced the feature natively. The policy is not needed because Operations agent 11.12 is a prerequisite for OMi-MA.

Infrastructure SPI AT Policies

The majority of the SPI AT policy parameters that were not used by users have been removed from the MP. Change these values in the relevant policies.

The Infrastructure SPI AT policies provide auto-threshold capabilities by determining the baseline for a monitored node and then comparing the historical data in the Operations Agent metric store to the baseline.

Deviations from the normal baseline are reported. You may widen the deviation limits using the *Major Deviation, Minor Deviation* and *Warning Deviation* parameters in the Infrastructure SPI policies.

These policies are intended for systems with normal to high utilization. On systems with low resource utilization, the policy tends to be noisy because it reacts to minor deviations. For example, on a test/dev system where CPU utilization is really only 0.1% (that's 0.1/100 of total CPU processing power) a spike in CPU usage bringing it up to 10% appears to be a large change. This change in usage might be due to the fact that there's suddenly some activity on the system (most probably when the test harness starts running for the first time).

The Infrastructure SPI provides a cut-off threshold to ignore alerting on all systems on which the current value of the baseline metric is less than the cut-off setting. For example, on the system mentioned above, the baseline policy can be tuned to remain silent while the system CPU utilization is less than 75%.

The Infrastructure MP's AT policies do not support adjustment of the deviation and cut-off settings through parameters. These settings (and all other settings) can be modified in the policy template code. Look for the variable definitions in the code similar to this example.

```
my $BaselinePeriod;

$BaselinePeriod = 3600;
```

```
my $MinimumValue;
$MinimumValue = 0;

my $MaximumValue;
$MaximumValue = -1;

my $WarningDeviations;
$WarningDeviations = 2.5;

my $MinorDeviations;
$MinorDeviations = 3;

my $MajorDeviations;
$MajorDeviations = 3.5;
```

SPI Policy to MP Policy Template Mapping

The following table provides a mapping of the policies present in Infrastructure SPI with the corresponding policy templates present in the Infrastructure MP.

HPOM Smart Plug-in Policy	OMi Management Pack – Policy Template	OMi Management Pack – Aspects
SI-NetworkUsageAndPerformance	Sys-NetworkUsageAndPerformance	Bandwidth Utilization and Network IOPS
SI-PerNetifOutbyteBaseline-AT	Sys -PerNetifOutbyteBaseline-AT	
SI-PerNetifInbyteBaseline-AT	Sys -PerNetifInbyteBaseline-AT	
SI-CPUSpikeCheck	Sys -CPUSpikeCheck	CPU Performance
SI-GlobalCPUUtilization-AT	Sys -GlobalCPUUtilization-AT	
SI-PerCPUUtilization-AT	Sys -PerCPUUtilization-AT	
SI-RunQueueLengthMonitor-AT	Sys -RunQueueLengthMonitor-AT	
SI-AIXCronProcessMonitor	Sys -AIXCronProcessMonitor	General System Services Availability
SI-AIXDHCPProcessMonitor	Sys -AIXDHCPProcessMonitor	
SI-AIXNamedProcessMonitor	Sys -AIXNamedProcessMonitor	
SI-AIXNfsServerProcessMonitor	Sys -AIXNfsServerProcessMonitor	
SI-AIXPortmapProcessMonitor	Sys -AIXPortmapProcessMonitor	
SI-AIXQdaemonProcessMonitor	Sys -AIXQdaemonProcessMonitor	
SI-AIXSendmailProcessMonitor	Sys -AIXSendmailProcessMonitor	
SI-AIXWebserverProcessMonitor	Sys -AIXWebserverProcessMonitor	
SI-HPUXBootpdProcessMonitor	Sys -HPUXBootpdProcessMonitor	
SI-HPUXCronProcessMonitor	Sys -HPUXCronProcessMonitor	
SI-HPUXNfsServerProcessMonitor	Sys -HPUXNfsServerProcessMonitor	
SI-LinuxDHCPProcessMonitor	Sys -LinuxDHCPProcessMonitor	
SI-LinuxNamedProcessMonitor	Sys -LinuxNamedProcessMonitor	
SI-LinuxNfsServerProcessMonitor	Sys -LinuxNfsServerProcessMonitor	
SI-LinuxSendmailProcessMonitor	Sys -LinuxSendmailProcessMonitor	
SI-LinuxSmbServerProcessMonitor	Sys -LinuxSmbServerProcessMonitor	
SI-MSWindowsDFSRoleMonitor	Sys -MSWindowsDFSRoleMonitor	
SI- MSWindowsDHCPServerRoleMonitor	Sys - MSWindowsDHCPServerRoleMonitor	
SI-MSWindowsDNSServerRoleMonitor	Sys -MSWindowsDNSServerRoleMonitor	
SI-MSWindowsFTPServiceRoleMonitor	Sys -MSWindowsFTPServiceRoleMonitor	
SI-MSWindowsFaxServerRoleMonitor	Sys -MSWindowsFaxServerRoleMonitor	
SI-MSWindowsFirewallRoleMonitor	Sys -MSWindowsFirewallRoleMonitor	
SI-MSWindowsNFSRoleMonitor	Sys -MSWindowsNFSRoleMonitor	
SI-MSWindowsPrintServiceRoleMonitor	Sys -MSWindowsPrintServiceRoleMonitor	
SIMSWindowsRRAServicesRoleMonitor	Sys -MSWindowsRRAServicesRoleMonitor	

SI-MSWindowsRpcRoleMonitor	Sys -MSWindowsRpcRoleMonitor	
SI-MSWindowsSnmpProcessMonitor	Sys -MSWindowsSnmpProcessMonitor	
SI-MSWindowsTSGatewayRoleMonitor	Sys -MSWindowsTSGatewayRoleMonitor	
SI-MSWindowsTSLicensingRoleMonitor	Sys -MSWindowsTSLicensingRoleMonitor	
SI-MSWindowsTSWebAccessRoleMonitor	Sys -MSWindowsTSWebAccessRoleMonitor	
SI-MSWindowsTerminalServerRoleMonitor	Sys -MSWindowsTerminalServerRoleMonitor	
SI-MSWindowsWebMgmtToolsRoleMonitor	Sys -MSWindowsWebMgmtToolsRoleMonitor	
SI-MSWindowsWebServerRoleMonitor	Sys -MSWindowsWebServerRoleMonitor	
SI-OpenSshdProcessMonitor	Sys -OpenSshdProcessMonitor	
SI-RHELCronProcessMonitor	Sys -RHELCronProcessMonitor	
SI-SLESCronProcessMonitor	Sys -SLESCronProcessMonitor	
SI-SunSolarisCronProcessMonitor	Sys -SunSolarisCronProcessMonitor	
SI-SunSolarisDHCPProcessMonitor	Sys -SunSolarisDHCPProcessMonitor	
SI-SunSolarisNamedProcessMonitor	Sys -SunSolarisNamedProcessMonitor Sys -SunSolarisDHCPProcessMonitor	
SI-SunSolarisNfsProcessMonitor	Sys -SunSolarisNamedProcessMonitor	
SI-SunSolarisSendmailProcessMonitor	Sys -SunSolarisNfsProcessMonitor	
SI-UnixSnmpdProcessMonitor	Sys -SunSolarisSendmailProcessMonitor	
SI-AIXSyslogProcessMonitor	Sys -AIXSyslogProcessMonitor	Key System Services Availability
SI-HPUXSshdProcessMonitor	Sys -HPUXSshdProcessMonitor	
SI-HPUXSyslogProcessMonitor	Sys -HPUXSyslogProcessMonitor	
SI-LinuxSshdProcessMonitor	Sys -LinuxSshdProcessMonitor	
SI-MSWindowsEventLogRoleMonitor	Sys -MSWindowsEventLogRoleMonitor	
SI-MSWindowsFileServerRoleMonitor	Sys -MSWindowsFileServerRoleMonitor	
SI-MSWindowsNetworkPolicyServerRoleMonitor	Sys -MSWindowsNetworkPolicyServerRoleMonitor	
SI-MSWindowsTaskSchedulerRoleMonitor	Sys -MSWindowsTaskSchedulerRoleMonitor	
SI-MSWindowsWin2k3FileServicesRoleMonitor	Sys -MSWindowsWin2k3FileServicesRoleMonitor	
SI-RHELSyslogProcessMonitor	Sys -RHELSyslogProcessMonitor	
SI-SLESSyslogProcessMonitor	Sys -SLESSyslogProcessMonitor	
SI-SunSolarisSshdProcessMonitor	Sys -SunSolarisSshdProcessMonitor	
SI-SunSolarisSyslogProcessMonitor	Sys -SunSolarisSyslogProcessMonitor	
SI-MSWindowsNonPagedPoolUtilization-AT	Sys -MSWindowsNonPagedPoolUtilization-AT	Memory and Swap Utilization
SI-MSWindowsPagedPoolUtilization-AT	Sys -MSWindowsPagedPoolUtilization-AT	
SI-MemoryUsageAndPerformance	Sys -MemoryUsageAndPerformance	
SI-MemoryUtilization-AT	Sys -MemoryUtilization-AT	
SI-SwapCapacityMonitor	Sys -SwapCapacityMonitor	
SI-SwapUtilization-AT	Sys -SwapUtilization-AT	
SI-LinuxCifsUtilizationMonitor	Sys -LinuxCifsUtilizationMonitor	Remote Disk Space Utilization
SI-LinuxNfsUtilizationMonitor	Sys -LinuxNfsUtilizationMonitor	
SI-CPUBottleneckDiagnosis	Sys -CPUBottleneckDiagnosis	Resource Bottleneck Diagnosis
SI-DiskPeakUtilMonitor	Sys -DiskPeakUtilMonitor	
SI-MemoryBottleneckDiagnosis	Sys -MemoryBottleneckDiagnosis	
SI-NetworkInterfaceErrorDiagnosis	Sys -NetworkInterfaceErrorDiagnosis	
SI_HPProLiant_BladeType2Traps	Sys _HPProLiant_BladeType2Traps	Server Hardware Fault
SI_HPProLiant_CPQCLUSTraps	Sys _HPProLiant_CPQCLUSTraps	
SI_HPProLiant_CPQCMCTraps	Sys _HPProLiant_CPQCMCTraps	
SI_HPProLiant_CPQHLTHTraps	Sys _HPProLiant_CPQHLTHTraps	
SI_HPProLiant_CPQNICTraps	Sys _HPProLiant_CPQNICTraps	
SI_HPProLiant_CPQRackTraps	Sys _HPProLiant_CPQRackTraps	
SI_HPProLiant_CPQRCTraps	Sys _HPProLiant_CPQRCTraps	
SI_HPProLiant_CPQRPMTraps	Sys _HPProLiant_CPQRPMTraps	
SI_HPProLiant_CPQSSTraps	Sys _HPProLiant_CPQSSTraps	
SI_HPProLiant_CPQSIInfoTraps	Sys _HPProLiant_CPQSIInfoTraps	
SI_HPProLiant_CPQUPSTraps	Sys _HPProLiant_CPQUPSTraps	
SI_HPProLiant_FwdDriveArrayTraps	Sys _HPProLiant_FwdDriveArrayTraps	

SI_HPProLiant_VCDomainTraps	Sys _HPProLiant_VCDomainTraps	
SI_HPProLiant_VCModuleTraps	Sys _HPProLiant_VCModuleTraps	
SI-DiskCapacityMonitor	Sys -DiskCapacityMonitor	Space Availability and Disk IOPS
SI-PerDiskAvgServiceTime-AT	Sys -PerDiskAvgServiceTime-AT	
SI-PerDiskUtilization-AT	Sys -PerDiskUtilization-AT	
SI-SystemDiscovery	Sys -SystemDiscovery	System Infrastructure Discovery
SI-LinuxKernelLog	Sys -LinuxKernelLog	System Fault Analysis
SI-LinuxBootLog	Sys -LinuxBootLog	
SI-LinuxSecureLog	Sys -LinuxSecureLog	
SI-AIXErrptLog	Sys -AIXErrptLog	
SI-MSWindowsServer_DNSWarnError	Sys -MSWindowsServer_DNSWarnError	
SI-MSWindowsServer_DHCPWarnError	Sys -MSWindowsServer_DHCPWarnError	
SI-MSWindowsServer_NFSWarnError	Sys -MSWindowsServer_NFSWarnError	
SI-MSWindowsServer_TerminalServiceWarnError	Sys -MSWindowsServer_TerminalServiceWarnError	
SI-MSWindowsServer_WindowsLogonWarnError	Sys -MSWindowsServer_WindowsLogonWarnError	
SI_MSWindowsFailedLoginsCollector	Sys _MSWindowsFailedLoginsCollector	User Logins
SI_MSWindowsLastLogonsCollector	Sys _MSWindowsLastLogonsCollector	
SI_UNIXFailedLoginsCollector	Sys _UNIXFailedLoginsCollector	
SI_LinuxLastLogonsCollector	Sys _LinuxLastLogonsCollector	
CI-ClusterDiscovery	Clus-ClusterDiscovery	Cluster Infrastructure Discovery
CI-ClusterDataCollector	Clus -ClusterDataCollector	Cluster Strength and Status
CI-ClusterMonitor	Clus -ClusterMonitor	
CI-ClusterNodeMonitor	Clus -ClusterNodeMonitor	
CI-ClusterResGroupMonitor	Clus –ClusterResGroupMonitor	
VI_IBMFrameAndLPARStateMonitor	Virt_IBMFrameAndLPARStateMonitor	IBM Power Guest Health
VI_IBMWPARStateMonitor	Virt _IBMWPARStateMonitor	IBM Power Guest Performance
VI _IBMLPARCpuEntlUtilMonitor-AT	Virt _IBMLPARCpuEntlUtilMonitor-AT	
VI _IBMLPARMemoryEntlUtilMonitor-AT	Virt _IBMLPARMemoryEntlUtilMonitor-AT	
VI _IBMWPARCpuEntlUtilMonitor-AT	Virt _IBMWPARCpuEntlUtilMonitor-AT	
VI _IBMWPARMemoryEntlUtilMonitor-AT	Virt _IBMWPARMemoryEntlUtilMonitor-AT	
VI _IBMLPARFrameCPUUtilMonitor	Virt _IBMLPARFrameCPUUtilMonitor	IBM Power Host Health
VI _IBMLPARFrameCPUUtilMonitor-AT	Virt _IBMLPARFrameCPUUtilMonitor-AT	
VI _IBMLPARFrameMemoryUtilMonitor	Virt _IBMLPARFrameMemoryUtilMonitor	
VI-LinuxVirtGuestCPUUtilMonitor	Virt -LinuxVirtGuestCPUUtilMonitor	KVM Guest Health
VI-LinuxVirtStateMonitor	Virt -LinuxVirtStateMonitor	
VI-LinuxVirtDiskPhysByteRateBaseline-AT	Virt -LinuxVirtDiskPhysByteRateBaseline-AT	KVM Guest Performance
VI-LinuxVirtGuestCPUTotalUtilMonitor-AT	Virt -LinuxVirtGuestCPUTotalUtilMonitor-AT	
VI-LinuxVirtNetByteRateBaseline-AT	Virt -LinuxVirtNetByteRateBaseline-AT	
VI-LinuxVirtHostCPUUtilMonitor	Virt -LinuxVirtHostCPUUtilMonitor	KVM Host Health
VI-LinuxVirtHostMemoryUtilMonitor	Virt –LinuxVirtHostMemoryUtilMonitor	
VI_OracleSolarisStateMonitor	Virt _OracleSolarisStateMonitor	Oracle Solaris Guest Health
VI_OracleSolarisMemoryEntlUtilMonitor-AT	Virt_OracleSolarisMemoryEntlUtilMonitor-AT	Oracle Solaris Guest Performance
VI_OracleSolarisZoneCPUEntlUtilMonitor-AT	Virt_OracleSolarisZoneCPUEntlUtilMonitor-AT	
VI_OracleSolarisZoneSwapUtilMonitor-AT	Virt_OracleSolarisZoneSwapUtilMonitor-AT	
VI_OracleSolarisFmdProcessMonitor	Virt_OracleSolarisFmdProcessMonitor	Oracle Solaris Host Health
VI_OracleSolarisHostCPUUtilMonitor	Virt_OracleSolarisHostCPUUtilMonitor	
VI_OracleSolarisHostMemoryUtilMonitor	Virt_OracleSolarisHostMemoryUtilMonitor	
VI_OracleSolarisRcapdProcessMonitor	Virt _OracleSolarisRcapdProcessMonitor	
VI_PerfAgentProcessMonitor	Virt _PerfAgentProcessMonitor	
VI-VMwareVCClusterCPUPerformanceMonitor	Virt -VMwareVCClusterCPUPerformanceMonitor	VMware Cluster Performance
VI-MwareVCClusterMemoryPerformanceMonitor		

	Virt – MwareVCClusterMemoryPerformanceMonitor	
VI-VMwareVCDatastoreSpaceUtilizationMonitor	Virt – VMwareVCDatastoreSpaceUtilizationMonitor	VMware Datastore Performance
VI_VMWareVCGuestStateMonitor VI_VMwareVCGuestCPUPerformanceMonitor VI_VMwareVCGuestLatencyMonitor VI_VMwareVCGuestMemoryPerformanceMonitor	Virt _VMWareVCGuestStateMonitor Virt _VMwareVCGuestCPUPerformanceMonitor Virt _VMwareVCGuestLatencyMonitor Virt _VMwareVCGuestMemoryPerformanceMonitor	VMware Guest Health
VI-VMwareVCHostCPUSaturationMonitor VI-VMwareVCHostCPUUtilMonitor VI-VMwareVCHostMemUtilMonitor	Virt -VMwareVCHostCPUSaturationMonitor Virt -VMwareVCHostCPUUtilMonitor Virt –VMwareVCHostMemUtilMonitor	VMware Host Health
VI-VMwareVCRespoolCPUUtilMonitor	Virt –VMwareVCRespoolCPUUtilMonitor	VMware Resource Pool Monitor
VI-VMwareVCEventMonitor VI-VMwareVCEventTypes	Virt -VMwareVCEventMonitor Virt_VMwareVCEventTypes	VMware vSphere Events
VI-Discovery	Virt –Discovery	Virtual Infrastructure Discovery
VI-LinuxVirtGuestCPUUtilMonitor VI-LinuxVirtStateMonitor	Virt -LinuxVirtGuestCPUUtilMonitor Virt –LinuxVirtStateMonitor	Xen Guest Health
VI-LinuxVirtDiskPhysByteRateBaseline-AT VI-LinuxVirtGuestCPUTotalUtilMonitor-AT VI-LinuxVirtNetByteRateBaseline-AT	Virt -LinuxVirtDiskPhysByteRateBaseline-AT Virt -LinuxVirtGuestCPUTotalUtilMonitor-AT Virt -LinuxVirtNetByteRateBaseline-AT	Xen Guest Performance
VI-LinuxVirtHostCPUUtilMonitor VI-LinuxVirtHostMemoryUtilMonitor	Virt -LinuxVirtHostCPUUtilMonitor Virt –LinuxVirtHostMemoryUtilMonitor	Xen Host Health

Mapping Threshold Customizations with Infrastructure MP Parameters

Appendix A – Mapping of Infrastructure SPI MT Policy Parameters to Infrastructure MP Parameters provides the mapping of Infrastructure SPI script parameters with OMi parameters.

Tools Mapping

The current version of Infrastructure Management Packs do not have any tools.

Node Cleanup

Remove SPI artifacts from the node that you are going to monitor using MP. Following are the SPI artifacts that need to be removed in the given order.

1. Remove the HPOM policies from the nodes.

   When you remove the MP or SPI Discovery policy, the corresponding elements are removed from the RTSM. Deploying the Infrastructure MP Discovery aspect regenerates the elements in RTSM, but with new CIDs. This action affects SHR reporting because SHR relies on the CID as a key identifier. A workaround is to clean up *agtrep.xml* (ovagtrep –clearall), and then remove the discovery policies.

   You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove the SPI CODA data sources.

   CODA datasources created by the SPI and MP collector policies cannot be cleaned unless the corresponding CODA data files are removed. However, there is no difference in the Infrastructure MP since the same metrics are logged and datasource names are the same.

3. Remove instrumentation.

   Configuration files are used to remove all infraspi policy related xpl config settings from the [eaagt] namespace.

   The instrumentation files on the node prefixed with *infraspi.** and *vispi.** *xpl config* namespaces can be removed.

Note:

Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

For more information on cleaning up nodes, see *Prepare nodes for deployment* under the Recommended steps for moving from a SPI to MP section in this document.

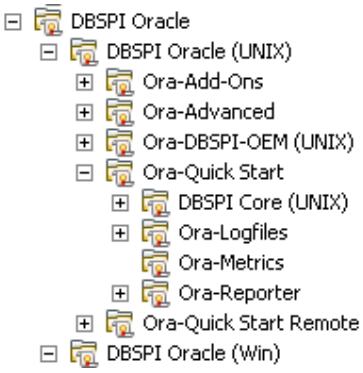
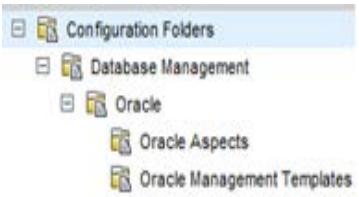
For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

Oracle Database SPI and Management Pack

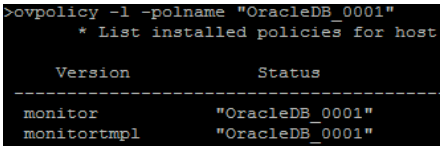
This section explains the evolution from the HPOM Smart Plug-in for Oracle Database 12.0x to the HPE OMi Management Pack for Oracle Database 1.10.

SPI and MP Comparison

This section provides an overview of similarities and differences between HPOM Smart Plug-in for Oracle Database (Oracle Database SPI) and OMi MP for Oracle Database (Oracle Database MP). For information about working with the Oracle Database MP, see the *OMi Management Pack for Oracle Database User Guide*.

Features	Oracle Database SPI 12.0x	Oracle Database MP 1.10
Pre-requisites	• HPOM W 8.16, HPOM W9, HPOM U/S/L 9 or higher • HP Operations Agent 11.05 or higher	• BSM or MA 9.22 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The Oracle Database SPI is shipped with the SPI DVD.	The Oracle Database MP is shipped with the OMi 10 installer. Oracle Database MP is also available to download from the e-media download center. See the section Useful resources for the e-media download center link.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	1. Oracle Database MP can be installed in any of the following methods: Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install MP after OMi 10.x is installed. For more information about `opr-mp-installer` Command-Line Interface, see the OMi Administration guide. 3. Download the MP bits from the e-media download center. Then mount the ISO and use the OS specific installer: • Linux: *mpinstall.sh-i* • Windows: *cscript* mpinstall.vbs-i Use this option when the latest version of this MP is available in the e-media download center.
Policy grouping	Policies are grouped into policy groups. 	Management Templates and aspects provide grouping of policy templates relevant to the area and criticality of monitoring. 
Policy Versioning	The Oracle Database SPI uses the <major version>.<minor version> (xxxx.yyyy) format for policy versioning. Example: If the version of the SPI is 12.03, policies updated in this release would be versioned as 12.0300. On the GUI, it is displayed as 12.300. When you update the above policy, minor version is updated. Example: When you update a policy with version 12.0300 (in GUI: 12.300), it will be changed to 12.0301 (in GUI 12.301).	The OracleDB MP uses the <major version>.<minor version> (xxxx.yyyy) format for policy versioning. Example: Server: 1.0 Node: 0001.0000 Example: In the Oracle Database MP 0001.0010 (in GUI 1.10), policies are versioned as 0001.0000. On the OMi GUI, it is displayed as 1.0. In the subsequent MP releases, policy version will be updated only if a particular policy is updated in that release.

		When you update a policy, only minor versions (last two digits) should be updated. Example: When you update a policy with version 0001.0000 (in GUI 1.0), it will be changed to 0001.0001 (in GUI 1.1).
Policy Types	The Oracle Database SPI has the following types of policies: • Measurement Threshold • Scheduled Task • Event Log • Logfile • Discovery	The Oracle Database MP has the same types of policies used in SPI. In addition, it has policy templates of the type ConfigFile. For more information, see the section Policy Types in SPI and MP in this document.
Message Groups	The Oracle Database SPI provides the following message groups: • *Ora_Admin* for Administrative messages • *Ora_Conf* for Configuration messages • *Ora_Perf* for Performance messages • *Ora_Fault* for error messages	The Oracle Database MP has exactly the same set of message groups as Oracle Database SPI.
Tools	The Oracle Database SPI provides tools for Database Configuration, Database Instance Management, and SPI operations.	In the Oracle Database MP, database configuration is done using parameters. Tools related to MP operations exist. For more information on tools, see the section Tools Mapping in this document.
Instrumentation	The Oracle Database SPI contains the following Instrumentation categories: • Databases_Discovery • Databases_Monitoring HPOM Server: SPI Instrumentation is copied into the filesystem. Node: SPI Instrumentation is deployed to the “Instrumentation” directory on the node.	The Oracle Database MP contains the following Instrumentation categories: • Databases_Discovery_MP • Databases_Monitoring_MP • Oracle_Monitoring_MP • SHS_Instrumentation OMi Server: Instrumentation is uploaded into the OMi database. Node: Instrumentation is deployed to the same directories as in the SPIs. There is no difference with the instrumentation location on nodes. Instrumentation file names remain the same.
Discovery	Not Available	Deploy the Oracle Discovery aspect on the managed node. When the Discovery aspect is deployed to the node, appropriate CIs are published in the RTSM which are essential for CI based deployment. For more information about the created CIs, see the *HPE OMi* Management *Pack* for *Oracle User Guide.* The Oracle Database MP does not support Deep discovery of tablespaces.
Configuration	Configuration of the Oracle database instance is done using the *Database Configuration* Manager tool from OMW or the Configure *DB Connection tool* from OMx.	Configuration of the Oracle database instance is done using parameters during the deployment. There are no specific tools for configuration. For more information about providing the username, password, and filters among other configurations, see the section Configuration and Customization Mapping in this document. Note It is recommended not to update configuration directly on the node as it will not synchronize the values with the parameters.
Deployment	Deploy specific policies or groups to the appropriate node or node group(s) based on your monitoring needs.	Deploy the MT or Aspect: 1. Assign Management Template or Aspects to Oracle CIs.

		2. Specify Oracle Configuration as the parameter. 3. Create Automatic Assignment Rules for Auto-deployment of Management Templates and Aspects.
Appearance of artifacts on node	On the Oracle Database SPI: Policy list: /opt/OV/bin/ovpolicy –l Example:  Configuration, log and error files are created under • UNIX: `/var/opt/OV/dbspi` • Windows: `<OvAgentDrive>\usr\OV\dbspi`	On the Oracle Database MP: Policy list: /opt/OV/bin/ovpolicy –l In the policy list, each parameterized policy has corresponding policy templates such as monitortmpl, schedtmpl, and so on. Example:  Folders and files remain same on the node.
Monitoring capability	For more information on the monitoring capability in SPI, see the *Smart Plug-in for Oracle Server Reference Guide*.	The Oracle Enterprise Manager (OEM) integration is not supported. It is recommended to use BSM Connector for OEM integration. Listener connection status is not supported. Listener process monitoring exists with the OracleDB_ListenerStatus template as part of the *Oracle Availability* aspect.
Tuning after Deployment	You can modify policies for customization. Customized versions must be deployed manually on the node for customizations to take effect.	You can tune parameters during deployment for a specific CI. You can also tune a parameter value after deployment for specific CI using the **Assignments & Tuning** option. After you tune the parameters, policy templates are automatically deployed. Threshold, severity and collection frequency are parameterized.
End-to-End monitoring	Deploy Oracle Database SPI and Infrastructure SPI policies to monitor the Oracle database and system infrastructure.	Deploy MT to monitor the Oracle database and system infrastructure.
Monitoring instances with different business criticality	Provide different parameter value for multiple instances on the same node using the instance filter or rule. Or Maintain multiple policies set based on business criticality. • User assigned policy versions • Policy Tagging	1. Deploy the Essential MT to monitor less critical environment. 2. Use the Extensive MT to monitor HA business environment. 3. Create an MT based on your needs. For information about Policy Tagging and User assigned Policy versioning, see section Policy Customizations in this document.
Agent and agent less monitoring	Agentless monitoring is not available.	Hybrid MT has two aspects for agentless monitoring using SIS and they are: • Oracle Database Response Time (Agentless) • Oracle Database Availability (Agentless)
Uninstallation	Native procedure is used to uninstall Oracle Database SPI.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • Instrumentation • ContentPack definitions
Graphs	PM generates reports using the performance and availability metrics.	Graphing solution for OMi MP is provided by OMi PG, which is an embedded component in the platform.

	SPIs have a separate installer for OOTB graphs that need to be installed on PM.	OOTB OMi PG graphs are installed with the Oracle Database MP. There is no difference between the graphs present in the Oracle Database SPI and MP.
Data logging on node	Collected metrics are logged into either CODA or OVPA on the node.	Uses only the CODA as the datastore. Datasources or class names and metrics logged remain the same. The following data sources are created automatically: • DBSPI_ORA_GRAPH • DBSPI_ORA_REPORT • DBSPI_ORA_UDM
Cluster Support	You can configure the Failover using the apminfo.xml as described in the *Oracle Database SPI reference guide*.	You can use the Agent's *apminfo.xml* for MP for Failover configurations. Similar to SPI, Oracle Database MP is not cluster aware in terms of Oracle CI, relations between CIs as well as metrics logging.
Remote Monitoring	Supports Remote Monitoring with a limited set of metrics.	Remote Monitoring is not supported. It is recommended to use SiteScope for remote monitoring.
Overriding Policy Thresholds	The *override.cfg* file helps a database administrator or an operator to monitor a system without having to use the HPOM console and introduce new policy versions or groups.	OMi Parameterization and CI based monitoring helps to avoid new policy versioning and groups. For more information on customizing Management Packs, see the Best Practices for Customizing Management Packs chapter in this document.
Indicators (ETIs and HIs)	Oracle content pack has 56 indicators.	The same set of indicators are present in the Oracle Database MP as well.
TBECs	There are 18 TBECs as part of Oracle content pack.	The same set of TBECs are present in the Oracle Database MP as well.
Events	Events are sent through Measurement Threshold Policy, Logfile Policy and Opcmsg Policy with appropriate message text.	Is I18N certified and is localized in the following languages: • French • German • Korean • Japanese • Russian • Simplified Chinese • Spanish
OO Flows	Integration with the HP OO flows were shipped part of the Oracle content.	Same set of OO flows are shipped with MP. However, OO flows are restricted to the ops-bridge usecase only. The OO flows work only in an environment where the HPOM and SPI are used for monitoring along with OMi and OO integration.

Common policy changes

This section captures changes (such as parameterization) commonly made to Oracle Database SPI policies and describes how to convert them into the Oracle Database MP Policy templates.

Policy Naming Convention in MP

All Oracle Database MP Policy templates use the following nomenclature:

- Scheduled task, discovery, config and opcmsg policies start with "OracleDB_".
- Oracle Database SPI policy names (Measurement threshold policies) start with "DBSPI-0" (example: DBSPI-0001) policy.
- Oracle Database MP has similar naming convention for the Measurement Threshold policy names which start with "OracleDB_0".

For information on mapping between SPI policies and MP policy templates, see SPI policy to MP policy template mapping in this document.

Policy Types in SPI and MP

SPI has OOTB policies such as Measurement Threshold, Scheduled Task, Logfile, Opcmsg, and discovery. Management Pack has the same policy types as SPI. In addition, Management Pack provides a set of ConfigFile policies and they are:

a. OracleDB_Configuration - This policy acts as a container to hold Oracle Instance User name, Oracle Instance Password, Options to enable collection and tracing. This information used to be provided as part of DBSPI configuration tools.

b. Non-Eventing Metrics – Is the list of metrics marked with * in the table in the section SPI policy to MP policy template mapping. For example, OracleDB_0037, OracleDB_0041, OracleDB_0201, and so on. These metrics are mentioned in the appropriate scheduler policies for collector to fetch and log the metric. There is no corresponding *Measurement Threshold* policy.

In the Oracle Database MP, there is a *ConfigFile* policy for each metric that is used for generating reports. The standard MP schedulers use the *ConfigFile* policies to collect and log corresponding metrics based on the frequency parameter of each policy. Each of these policies has a parameter such as TableSpace Size (Only Logging) Frequency. This parameter helps you to choose the required frequency for collecting metrics. The collected metric data is saved in CODA under DBSPI_ORA_REPORT or DBSPI_ORA_GRAPH.

c. User defined Metric (OracleDB_UDM) – You can create metrics by providing appropriate SQL statement for metric collection using tools in HPOM U. You can also create a *ConfigFile* policy in HPOM W but the same feature is available through the *ConfigFile* policy. For more information about UDM, see Oracle User Defined Metrics (UDM) in this document.

Measurement Threshold Policy

Most *MP Measurement Threshold* policy templates contain the customized threshold and severity attributes that are hard coded in the Oracle Database SPI policies. The Oracle Database MP has parameterized these policy attributes to simplify policy maintenance, policy versioning and instance specific parameters. These parameters can be changed during deployment or post-deployment. In Oracle Database SPI policies, you can create new instance filter rules for either each instance or a group of instances.

In OMi MP, the MT or Aspect deployment happens for each instance where the value can be adjusted without creating and managing new policy versions.

Schedule Task Policy

Oracle Database SPI has OOTB scheduled task policies which triggers the collector with a set of metrics at defined intervals. If you want to modify a metric from 05 mins scheduler to 15 mins scheduler, you need to edit 05 mins scheduled task policy to remove the metric number from command and to update in the 15 mins scheduled task policy.

In case of MP, there is a frequency parameter for each metric regardless of whether they are for generating events or logging metrics. The frequency parameter can be adjusted to schedule intervals such as VeryHigh, High, Medium, Low, and NORUN. The default polling intervals for VeryHigh, High, Medium and Low are 05 mins, 15 mins, 1 hour, and 1 day respectively. If any metric is marked for NORUN, it will not be picked by any scheduler. This schedule adjust for metrics can be done for each instance. For example, the metric *Tablespace status monitoring* has a frequency parameter called *Tablespace Status Frequency*. The *Tablespace status monitoring* metric is a part of *OracleDB_0007* policy with default value HIGH which can be seen in the corresponding Aspect and Management Template. The Aspect or Management Template can be modified to change the default value during deployment for the targeted CI.

There are four scheduled task policies for each of the four intervals. The time schedule for these policies is parameterized. Default polling intervals for the parameters VeryHigh, High, Medium, and Low are 05 mins, 15 mins, 1 hour, and 1 day respectively. You can modify parameters such as *Frequency of VeryHigh Scheduler, Frequency of High Scheduler, Frequency of Medium Scheduler*, and *Frequency of Low Scheduler*.

For example, the frequency of VeryHigh scheduler can be modified in the parameter Frequency of VeryHigh Scheduler from 05 to 10. This is applicable for all instances running on the given node. All the metrics marked under VeryHigh category will be executed every 10 mins. The following table presents the method of modifying a schedule metric between the Oracle Database SPI and Oracle Database MP:

Metric Schedule Case	SPI	MP
Move a metric from 5 mins to 15 mins	1. Edit 5 mins schedule task policy to remove the metric. 2. Edit 15 mins schedule task policy to add the metrics 3. Redeploy both of the above schedule task policies.	If a metric assignment exists, click **Assignments & Tunin**g and edit the *Frequency* parameter for a specific metric. Change the metric from VeryHigh to High. Note The same can be done by editing the metric's frequency parameter at the Aspect or MT level.
Remove metric from scheduling	1. Edit a schedule task policy and delete the metric number. 2. Redeploy the modified scheduled task policy.	If a metric assignment exists, then click **Assignments & Tuning** and edit the frequency parameter of a given metric. Change the metric from original to NORUN. Note The same can be done by editing a metric's frequency parameter at the Aspect or MT level.
Modify the lowest schedule of collection from 05 mins to 10 mins	Either copy and create new schedule task policy with the schedule of 10 mins Or Edit the 05 mins schedule task policy, change the interval and change it to 10 mins.	Modify the interval of scheduled task policy that is part of parameter either at the Aspect or MT level. In this case "Frequency of VeryHigh Scheduler".

Discovery Policy

The Oracle Database MP has the same Discovery policy as that of the SPI which runs the discovery script to generate an XML file. This XML file contains information about discovered Oracle DB and its relationship with other Infra elements. The discovered information by MP such as the CI type, attributes and relations remain the same as SPI. OMi MP makes use of Toposync rules to create appropriate CIs and relationships as it is created from SPI on HPOM to OMi. In case of the SPI, the tablespaces and datafiles are discovered and displayed in the HPOM service map but is not supported in MP. The tablespaces and datafiles are not created as CIs in RTSM.

Policy Customizations

There are several options to customize the SPI policies for different reasons. You can create new policy groups and copy specific policies to those groups to create your own DB SPI groups. You can also modify the thresholds set in individual policies. In many cases, the policy's defined threshold may involve a drill-down or roll-up metric. The widely used SPI policy customizations and corresponding MP approaches are:

Policy Tagging

What is Policy Tagging in SPI?

If you have database instances categorized into different groups and they need to be monitored differently, then DBSPI provides an option "-t" (tag) which allows the collector to use a different set of customized policies. Custom policy groupings can differentiate one group of policies from another. In such cases, you can:

1. Create copies of the policies.
2. Use the Tag feature to rename the Measurement Threshold and Scheduled Task polices.
3. Assign the policies to various groups. For example, you can create a SAP group of policies and tag those policies with “SAP-” or a PeopleSoft group, and tag those with “PS-.”

To use the Tag feature, make copies of the original DB SPI policies. The names you give to these new policies can contain a prefix, but they must also contain the original policy name.

For example, a copy of DBSPI-0016 can be called SAP-DBSPI-0016. Specify the tag option on the command line so that the Collector, Analyzer or Script uses this new policy rather than the original policy. New scheduled task policies can also be created in this way.

For example: dbspicao -m 16 -t SAP-

How is it achieved in MP?

This can be achieved by the OMi feature Management Templates. You can create different flavors of Management Templates from copying the OOTB MTs. This newly created Management Template can be customized to:

- Add or remove Aspects
- Enable or disable metrics within an aspect
- Modify parameters based on the criticality of database for which MT intends to be deployed.

For more information on customizing MPs, see the Best Practices for Customizing Management Packs chapter in this document.

User Assigned Policy Versioning

You can use the policy versioning approach to create customized policies for each group. HPOM automatically changes a modified policy version by incrementing the last digit by 1. This method suggests to override a policy version by using the Save option and inserting your own version. For example, 100-199 is for one group, 200-299 for another, and so on.

How to use policy versioning in MP?

Using a Management Template is the recommended approach. For more information about policy versioning, see the Best Practices for Customizing Management Packs chapter in this document.

SPI policy to MP policy template mapping

This section maps Oracle Database MP’s policies to corresponding Oracle Database SPI’s policies. Also, it captures the differences between them, if there are any.

In the table below, MP policy templates marked with “*” are for only logging metric data into CODA and are not meant for generating events. The type of the policy is mentioned in short form along with the policy name.

- MT: Measurement Threshold
- ST: Scheduled Task
- CF: Config File
- LE: Logfile Entry

Oracle Database SPI Policies	Oracle Database MP Policy Templates	Oracle Database MP Aspects
DBSPI-0028 (MT)	OracleDB_0028 (MT)	Basic Oracle Locks and Latches
DBSPI-0029 (MT)	OracleDB_0029 (MT)	
DBSPI-0043 (MT)	OracleDB_0043 (MT)	
DBSPI-0016 (MT)	OracleDB_0016 (MT)	Basic Oracle Segment Space
DBSPI-0216 (MT)	OracleDB_0216 (MT)	
DBSPI-Ora-1d-Reporter-NT (ST) Logs metric 215 as triggered by above scheduler	OracleDB_0215* (CF)	
DBSPI-0106 (MT)	OracleDB_0106 (MT)	Basic Oracle Query Performance
DBSPI-0107 (MT)	OracleDB_0107 (MT)	
DBSPI-0108 (MT)	OracleDB_0108 (MT)	
DBSPI-0119 (MT)	OracleDB_0119 (MT)	
DBSPI-0306 (MT)	OracleDB_0306 (MT)	
DBSPI-0307 (MT)	OracleDB_0307 (MT)	
DBSPI-0308 (MT)	OracleDB_0308 (MT)	
DBSPI-0017 (MT)	OracleDB_0017 (MT)	Oracle Segment Space
DBSPI-0018 (MT)	OracleDB_0018 (MT)	
DBSPI-0016 (MT)	OracleDB_0016 (MT)	
DBSPI-0216 (MT)	OracleDB_0216 (MT)	
DBSPI-Ora-1d-Reporter-NT (ST) Logs metric 215 as triggered by above scheduler	OracleDB_0215* (CF)	
DBSPI-0217 (MT)	OracleDB_0217 (MT)	
DBSPI-0218 (MT)	OracleDB_0218 (MT)	
DBSPI-0038 (MT)	OracleDB_0038 (MT)	Oracle Locks and Latches
DBSPI-0097 (MT)	OracleDB_0097 (MT)	
DBSPI-0028 (MT)	OracleDB_0028 (MT)	
DBSPI-0029 (MT)	OracleDB_0029 (MT)	
DBSPI-0043 (MT)	OracleDB_0043 (MT)	
DBSPI-0021 (MT)	OracleDB_0021 (MT)	Basic Oracle Memory Performance
DBSPI-0022 (MT)	OracleDB_0022 (MT)	
DBSPI-0023 (MT)	OracleDB_0023 (MT)	
DBSPI-0024 (MT)	OracleDB_0024 (MT)	
DBSPI-0026 (MT)	OracleDB_0026 (MT)	
DBSPI-0027 (MT)	OracleDB_0027 (MT)	
DBSPI-0032 (MT)	OracleDB_0032 (MT)	
DBSPI-0033 (MT)	OracleDB_0033 (MT)	
DBSPI-0034 (MT)	OracleDB_0034 (MT)	
DBSPI-0035 (MT)	OracleDB_0035 (MT)	
DBSPI-0045 (MT)	OracleDB_0045 (MT)	
DBSPI-0083 (MT)	OracleDB_0083 (MT)	
DBSPI-0019 (MT)	OracleDB_0019 (MT)	Oracle Memory Performance
DBSPI-0020 (MT)	OracleDB_0020 (MT)	
DBSPI-0039 (MT)	OracleDB_0039 (MT)	
DBSPI-0040 (MT)	OracleDB_0040 (MT)	

DBSPI-0052 (MT)	OracleDB_0052 (MT)	
DBSPI-0059 (MT)	OracleDB_0059 (MT)	
DBSPI-0075 (MT)	OracleDB_0075 (MT)	
DBSPI-0021 (MT)	OracleDB_0021 (MT)	
DBSPI-0022 (MT)	OracleDB_0022 (MT)	
DBSPI-0023 (MT)	OracleDB_0023 (MT)	
DBSPI-0024 (MT)	OracleDB_0024 (MT)	
DBSPI-0026 (MT)	OracleDB_0026 (MT)	
DBSPI-0027 (MT)	OracleDB_0027 (MT)	
DBSPI-0032 (MT)	OracleDB_0032 (MT)	
DBSPI-0033 (MT)	OracleDB_0033 (MT)	
DBSPI-0034 (MT)	OracleDB_0034 (MT)	
DBSPI-0035 (MT)	OracleDB_0035 (MT)	
DBSPI-0045 (MT)	OracleDB_0045 (MT)	
DBSPI-0083 (MT)	OracleDB_0083 (MT)	
Not part of any SPI OOTB Scheduler policies. Logs metric for 51.	OracleDB_0051* (CF)	
DBSPI-0101 (MT)	OracleDB_0101 (MT)	Oracle Query Performance
DBSPI-0102 (MT)	OracleDB_0102 (MT)	
DBSPI-0103 (MT)	OracleDB_0103 (MT)	
DBSPI-0104 (MT)	OracleDB_0104 (MT)	
DBSPI-0105 (MT)	OracleDB_0105 (MT)	
DBSPI-0106 (MT)	OracleDB_0106 (MT)	
DBSPI-0107 (MT)	OracleDB_0107 (MT)	
DBSPI-0108 (MT)	OracleDB_0108 (MT)	
DBSPI-0119 (MT)	OracleDB_0109 (MT)	
DBSPI-0306 (MT)	OracleDB_0306 (MT)	
DBSPI-0307 (MT)	OracleDB_0307 (MT)	
DBSPI-0301 (MT)	OracleDB_0301 (MT)	
DBSPI-0302 (MT)	OracleDB_0302 (MT)	
DBSPI-0303 (MT)	OracleDB_0303 (MT)	
DBSPI-0304 (MT)	OracleDB_0304 (MT)	
DBSPI-0305 (MT)	OracleDB_0305 (MT)	
DBSPI-0308 (MT)	OracleDB_0308 (MT)	
DBSPI-0086 (MT)	OracleDB_0086 (MT)	Oracle IO Performance
DBSPI-0088 (MT)	OracleDB_0088 (MT)	
DBSPI-Ora-1d-Reporter-NT (ST) Logs metric 213 as triggered by above scheduler	OracleDB_0213* (CF)	
DBSPI-0070 (MT)	OracleDB_0070 (MT)	Oracle Parallel Query Performance
DBSPI-0071 (MT)	OracleDB_0071 (MT)	
DBSPI-0074 (MT)	OracleDB_0074 (MT)	
DBSPI-0076 (MT)	OracleDB_0076 (MT)	
DBSPI-0126 (MT)	OracleDB_0126 (MT)	Oracle DataGuard Faults
DBSPI-0127 (MT)	OracleDB_0127 (MT)	
DBSPI-0128 (MT)	OracleDB_0128 (MT)	

DBSPI-0129 (MT)	OracleDB_0129 (MT)	
DBSPI-0130 (MT)	OracleDB_0130 (MT)	
DBSPI-0137 (MT)	OracleDB_0137 (MT)	
DBSPI-0001 (MT)	OracleDB_0001 (MT)	Oracle Database Availability
DBSPI-0002 (MT)	OracleDB_0002 (MT)	
DBSPI-0082 (MT)	OracleDB_0082 (MT)	
DBSPI-0087 (MT)	OracleDB_0087 (MT)	
DBSPI-Ora-05min-Reporter (ST) Logs metric 201 as triggered by above scheduler	OracleDB_0201* (CF)	
DBSPI-Ora-05min-Favorites (ST) Logs metric 37 as triggered by above scheduler	OracleDB_0037* (CF)	
DBSPI-Ora-Listener (ST)	OracleDB_ListenerStatus* (CF)	
DBSPI-0109 (MT)	OracleDB_0109 (MT)	Oracle Sessions Performance
DBSPI-0110 (MT)	OracleDB_0110 (MT)	
DBSPI-0111 (MT)	OracleDB_0111 (MT)	
DBSPI-0112 (MT)	OracleDB_0112 (MT)	
DBSPI-0309 (MT)	OracleDB_0309 (MT)	
DBSPI-0310 (MT)	OracleDB_0310 (MT)	
DBSPI-0311 (MT)	OracleDB_0311 (MT)	
DBSPI-0312 (MT)	OracleDB_0312 (MT)	
DBSPI-0004 (MT)	OracleDB_0004 (MT)	Oracle Object Faults
DBSPI-0005 (MT)	OracleDB_0005 (MT)	
DBSPI-0030 (MT)	OracleDB_0030 (MT)	
DBSPI-0042 (MT)	OracleDB_0042 (MT)	
DBSPI-0046 (MT)	OracleDB_0046 (MT)	
DBSPI-0048 (MT)	OracleDB_0048 (MT)	
DBSPI-0077 (MT)	OracleDB_0077 (MT)	
DBSPI-0078 (MT)	OracleDB_0078 (MT)	
DBSPI-0079 (MT)	OracleDB_0079 (MT)	
DBSPI-0080 (MT)	OracleDB_0080 (MT)	
DBSPI-0081 (MT)	OracleDB_0081 (MT)	
Not part of any SPI OOTB Scheduler policies. Logs metric for 41	OracleDB_0041* (CF)	
Not part of any SPI OOTB Scheduler policies. Logs metric for 47	OracleDB_0047* (CF)	
DBSPI-0003 (MT)	OracleDB_0003 (MT)	Oracle Tablespace Health
DBSPI-0006 (MT)	OracleDB_0006 (MT)	
DBSPI-0007 (MT)	OracleDB_0007 (MT)	
DBSPI-0008 (MT)	OracleDB_0008 (MT)	
DBSPI-0009 (MT)	OracleDB_0009 (MT)	
DBSPI-0011 (MT)	OracleDB_0011 (MT)	
DBSPI-0014 (MT)	OracleDB_0014 (MT)	
DBSPI-0203 (MT)	OracleDB_0203 (MT)	
DBSPI-0206 (MT)	OracleDB_0206 (MT)	
DBSPI-Ora-1d-Reporter-NT (ST)	OracleDB_0210* (CF)	

Logs metric 210 as triggered by above scheduler		
DBSPI-0031 (MT)	OracleDB_0031 (MT)	Oracle Transactions
DBSPI-0050 (MT)	OracleDB_0050 (MT)	
DBSPI-0054 (MT)	OracleDB_0054 (MT)	
DBSPI-0084 (MT)	OracleDB_0084 (MT)	
DBSPI-0085 (MT)	OracleDB_0085 (MT)	
DBSPI-Ora-05min-Favorites (ST) Logs metric 44 as triggered by above scheduler	OracleDB_0044* (CF)	
Not part of any SPI OOTB Scheduler policies. Logs metric for 49	OracleDB_0049* (CF)	
DBSPI-0056 (MT)	OracleDB_0056 (MT)	Oracle Archive Health
DBSPI-0057 (MT)	OracleDB_0057 (MT)	
DBSPI-0058 (MT)	OracleDB_0058 (MT)	
DBSPI-0060 (MT)	OracleDB_0060 (MT)	
DBSPI-0062 (MT)	OracleDB_0062 (MT)	Oracle Database Space Utilization
DBSPI-0064 (MT)	OracleDB_0064 (MT)	
DBSPI-0065 (MT)	OracleDB_0065 (MT)	
DBSPI-0066 (MT)	OracleDB_0066 (MT)	
DBSPI-0136 (MT)	OracleDB_0136 (MT)	
DBSPI-Ora-1d-Reporter-NT (ST) (Logs metric 212 as triggered by above scheduler)	OracleDB_0212* (CF)	
DBSPI-0121 (MT)	OracleDB_0121 (MT)	Oracle RAC Health
DBSPI-0122 (MT)	OracleDB_0122 (MT)	
DBSPI-0123 (MT)	OracleDB_0123 (MT)	
DBSPI-0131 (MT)	OracleDB_0131 (MT)	
DBSPI-0132 (MT)	OracleDB_0132 (MT)	
DBSPI-0146 (MT)	OracleDB_0146 (MT)	
DBSPI-0147 (MT)	OracleDB_0147 (MT)	
DBSPI-0148 (MT)	OracleDB_0148 (MT)	
DBSPI-0149 (MT)	OracleDB_0149 (MT)	
DBSPI-0150 (MT)	OracleDB_0150 (MT)	
Oracle CRS Alert Log Template (LE)	OracleDB_CRSAlertLog (LE)	
DBSPI-0140 (MT)	OracleDB_0140 (MT)	Oracle Streams
DBSPI-0141 (MT)	OracleDB_0141 (MT)	
DBSPI-0142 (MT)	OracleDB_0142 (MT)	
DBSPI-0143 (MT)	OracleDB_0143 (MT)	
DBSPI-0144 (MT)	OracleDB_0144 (MT)	
DBSPI-0145 (MT)	OracleDB_0145 (MT)	
DBSPI-0113 (MT)	OracleDB_0113 (MT)	Oracle Advanced Replication
DBSPI-0114 (MT)	OracleDB_0114 (MT)	
DBSPI-0115 (MT)	OracleDB_0115 (MT)	
DBSPI-0116 (MT)	OracleDB_0116 (MT)	
DBSPI-0117 (MT)	OracleDB_0117 (MT)	
DBSPI-0118 (MT)	OracleDB_0118 (MT)	

DBSPI-0090 (MT)	OracleDB_0090 (MT)	Oracle Shared Server Performance
DBSPI-0091 (MT)	OracleDB_0091 (MT)	
DBSPI-0092 (MT)	OracleDB_0092 (MT)	
DBSPI-0095 (MT)	OracleDB_0095 (MT)	
DBSPI-0096 (MT)	OracleDB_0096 (MT)	
DBSPI-0133 (MT)	OracleDB_0133 (MT)	Oracle ASM Health
DBSPI-0334 (MT)	OracleDB_0334 (MT)	
DBSPI-Ora-DeepDiscovery-1d (ST)	OracleDB_DeepDiscovery (ST) Note It is a dummy policy.	Oracle Discovery
DatabaseServiceDiscovery(DISC)	OracleDB_Discovery(DISC)	
DBSPI-Ora-Add-Ons-05min (ST)	OracleDB_VeryHigh (ST)	Oraspi Base
DBSPI-Ora-05min-Favorites (ST)		
DBSPI-Ora-05min-Reporter (ST)	Note For more details, see section Schedule Task Policy in this document.	
DBSPI-Ora-05min-SQLNet (ST)		
DBSPI-Ora-Add-Ons-15min (ST)	OracleDB_High (ST)	
DBSPI-Ora-StreamsMon-15Min (ST)		
DBSPI-Ora-15min-SQLNet (ST)		
DBSPI-Ora-Add-Ons-1h (ST)	OracleDB_Medium (ST)	
DBSPI-Ora-1h-Favorites (ST)		
DBSPI-Ora-1h-SQLNet (ST)		
DBSPI-Ora-1d-Favorites (ST)	OracleDB_Low (ST)	
DBSPI-Ora-1d-Reporter (ST)		
DBSPI-Ora-1d-SQLNet (ST)		
DBSPI-MeasureWare (ST)	OracleDB_Logger (ST)	
DBSPI-Messages(OPCMSG)	OracleDB_Messages (OPCMSG)	
NT Oracle Alert Log Template (LE)	OracleDB_AlertLog (LE)	
Oracle Alert Log Template (LE)	OracleDB_AlertLog (LE)	
NA	OracleDB_Configuration (CF)	
DBSPI-07XX (MT) DBSPI-Ora-UDM-YYmin (ST)	OracleDB_07XX (MT) OracleDB_UDM (CF) Note This *ConfigFile* policy contains the metric code equivalent to the one provided in the OMU tool Configure UDM or created *ConfigFile* policy in OMW.	Oracle UDA
NA	Oracle Database Response Time (SIS)	Oracle Database Response Time (Agentless)

NA	Oracle Database Availability (SIS)	Aspect description: Monitors Oracle database response time across network using SIS (agentless). Oracle Database Availability (Agentless) Aspect description: Monitors Oracle database connection status remotely using SIS (agentless).
DBSPI-Ora-Listener-Connect (ST)	NA	
DBSPI-OEM-Messages for UNIX (OPCMSG) DBSPI-OEM-Messages for Windows (OPCMSG)	NA	

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization Information in Oracle Database SPI	Equivalent Configuration in MP	More Information
Use the *Configure DB Connection on OMx* or Database *Configuration Manager on OMW* tool to update the Oracle database instance information.	Provide the following configuration parameters when you deploy an MT or aspect: *Username* and *Password* The above mentioned parameters are used to update Oracle database instance information.	The Oracle database instance name and credentials are updated into local configuration on the managed node.
Use the Configure *DB Connection on OMX* or *Database Configuration Manager on OMW* tool to update the Oracle database ASM instance information.	The *Oracle ASM Instance* parameter can be tuned during deployment.	Mark YES or NO based on Oracle DB ASM Instance type. YES indicates that configuration is for ASM instance. NO indicates that provided information is for normal instance.
Use *Configure DB Connection on OMX* (as part of credentials) to update Service information in OMU. Example: (hp_dbspi/hp_dbspi@listener1). In OMW, “Database Configuration Manager” on OMW tool has a field Alias for the service name.	The *Oracle Service Name* parameter can be tuned during deployment to provide the service name of a particular Oracle instance.	Service or Listener to connect Oracle database instance.
Use the *Enable/Disable* Trace tool to trace the Oracle instances.	The *Oracle Instance Tracing* parameter can be tuned during deployment.	Turn on or off tracing for Oracle Instance(s). The same can be achieved through a tool as explained in the section Tools Mapping in this document.
Use the Start/*Stop* Monitoring tool to start or stop monitoring.	The Oracle *Instance Collection* parameter can be tuned during deployment.	Start or Stop monitoring Oracle Instance(s). The same can be done using a tool as explained in the section Tools Mapping in this document.
Threshold is defined in policy and can be customized by editing a policy.	The *Threshold* parameter can be tuned during deployment.	You can maintain different threshold default values by creating different set of Aspects and MTs.
Severity is defined in policy and can be customized by editing policy.	The *Severity* parameter that can be tuned is provided to customize severity during the MT or Aspect deployment.	
Use *Configure DB Connection on OMX* or *Database* Configuration *Manager on the OMW* tool to customize the Metric filter.	The *Metric filter* parameter can be tuned during the MT or Aspect deployment.	Metric filter is part of expert parameters.

Collection interval is defined in schedule task policies and can be customized by editing the schedule task policy.	*Frequency* parameter can be tuned during the MT or Aspect deployment.	
Failover cluster configuration can be done with *apminfo.xml*.	A similar approach is possible with MP as well.	Oracle Database MP is not cluster aware in terms of CI creation or deletion for failover and relation to resource group CIs. Data logging is also always performed for individual instances without cluster data.

Tools Mapping

This section maps SPI tools to equivalent MP tools, if any.

HPOM SPI tools	Equivalent MP tools	Comments
SPI has the following tool groups: • DBSPI -> Admin • DBSPI -> Admin Windows • Oracle	MP has the following tool categories: • Oracle Database Management Pack Operational Tools • Database Operational Tools	• Oracle Database Management Pack Operational Tools category contains administrative tools such as Enable/Disable monitoring. • Database Operational Tools category contains Oracle database specific tools.
Display Error File	Display Oracle Database MP Error File	
Self-Healing Info	Run Self-Healing Collector for Oracle Database MP	
Start Monitoring	Enable Oracle Database MP Monitoring	Same functionality can be implemented using the *Oracle Instance Collection* parameter.
Stop Monitoring	Disable Oracle Database MP Monitoring	
Verify Deployment	Verify Oracle Database MP Deployment	
Trace On	Enable Oracle Database MP Trace	Same functionality can be implemented using the *Oracle Instance* Tracing parameter.
Trace Off	Disable Oracle Database MP Trace	
Configure DB Connections on OMX or Database Configuration Manager on OMW	Provide the following configuration parameters during MT or Aspect deployment to update Oracle database instance information: Username Password	
Enable Reports	This functionality is implemented by deploying any MT or Aspect on node.	Datasource creation is automated with MP
Enable Graphs	This functionality is implemented by deploying MT or Aspect on node.	Datasource creation is automated with MP
Configure UDM	This functionality is implemented by deploying Oracle UDA.	
Enable UDM Graphs	This functionality is implemented by deploying MT or Aspect on node.	
Oracle Reports	Oracle Reports available as Tools mapped to Oracle CIT.	These are text (ASCII) reports generated from the MP Collector.
Oracle Reports Windows	Dropped	Functionality similar to Oracle Reports tool.
Create SP/Oracle UDM	Oracle UDA Aspect can be used to define UDM.	
Configure Graphs	Dropped	In HPOM, PM needs to be configured. It is not needed in OMi, because OMi PG is used to configure graphs.
Create Node Groups	Dropped	This feature is not applicable on OMi. MP provides view as equivalent to Node groups. There are two OOTB views: “ORA_Deployment” and “ORA_Network_Deployment”.
Create Oracle User	Dropped	See Oracle Users creation for Monitoring in this document.
Cluster Config	Dropped	

Database Instance Manager (Windows)	Dropped	These tools are not available for the following reasons: • Not used by majority of the users. • Not relevant in the OMi and the MP's context. For example, while providing credentials using the parameter, encryptions are handled by the platform, hence the tool to enable or disable 3DES is not required.
Display Trace File	Dropped	
Enable 3DES Encryption	Dropped	
Disable 3DES Encryption	Dropped	
Set Path (Unix)	Dropped	
Cleanup (Unix)	Dropped	
Migrate Agent (Unix)	Dropped	
Disable Graphs & Reports	Dropped	
Oracle Reports	Dropped	
Drop Oracle User	Dropped	
RAC Global Metrics (Unix)	Dropped	
RAC Global Metrics (Windows)	Dropped	
SQL Net Status	Dropped	
Start all Inst.	Dropped	
Start Instance	Dropped	
Export	Dropped	
Import	Dropped	
LSNRCTL	Dropped	
Svr Mgr (Text)	Dropped	
Svr Mgr (X11)	Dropped	
Shutdown all Inst	Dropped	
Shutdown Inst	Dropped	
Shut. Inst. Abort	Dropped	
Shut. Inst. Immediate	Dropped	
SQL Net Start	Dropped	
SQL Net Stop	Dropped	
SQL*Plus	Dropped	

Oracle User Defined Metrics (UDM)

If you want to monitor additional metrics based on query, create an UDM. The Oracle Database SPI or MP helps you define additional metrics and mechanisms to collect metric values using SQL codes. UDMs can be associated with either measurement threshold or scheduled task policy.

Following are the steps used to define UDMs in the Oracle Database SPI:

1. Create UDM configuration file with query to collect additional metrics.
2. Create measurement threshold policy to compare metric data with provided threshold and send alert if it violates threshold.
3. Copy DBSPI-07XX policy and name it as DBSPI-07<UDM metric number> to define threshold and severity for UDM.
4. Edit any existing schedule task policy to add UDM metric or create new schedule task policy for UDM.

Following are the steps used to define UDMs in the Oracle Database MP:

1. Use OracleDB_UDM config policy to define UDM where new metrics can be added as a PL/SQL block.
2. Copy OracleDB_07XX policy and name it like OracleDB_07<UDM metric number> to define threshold, severity and frequency for UDM.

For more information on how to configure UDM, see OMi MP for Oracle Database MP online help.

Oracle Users creation for Monitoring

Oracle Database SPI provides tools to create Oracle database users with only a required set of privileges for monitoring. Oracle Database MP does not have any such tool but the below steps can be followed to create a user with MP required set of privileges for metric collection. The username and password can be given for monitoring during the deployment of a Management Template.

To create a user on the node, you can use the script *dbspiocr.sh* or *dbspiocr.bat* as mentioned in the following steps or you can create a user manually by referring to the *dbspiocr.sql*. This script also contains information about the required list of privileges. The script is available at the following location only after deploying the **Oracle Discovery** aspect.

Linux: `/var/opt/OV/bin/instrumentation`

Usage: `dbspiocr.sh -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -`

`sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example: `dbspiocr.sh -oracle_home /app/oracle/product/db_1 -oracle_sid orcl -`

`sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

Windows: `<ovagentdir>\bin\instrumentation`

Usage: `dbspiocr.bat -oracle_home <OracleHomeDir> -oracle_sid <InstanceName> -`

`sys_pass <SysPassword> -user <NewUserName> -user_pass <NewUserPassword> -def_ts <DefaultTableSpaceName> -tmp_ts <TempTableSpaceName>`

Example: `dbspiocr.bat -oracle_home C:\app\oracle\product\db_1 -oracle_sid`

`orcl -sys_pass manager -user hporamp -user_pass hporamp -def_ts users -tmp_ts temp`

In case of Oracle database 12.1 or higher, the user name should begin with c## as prefix. For example, c##hporamp.

Node Cleanup

Remove SPI artifacts from the node that you are going to monitor using MP. Following are the SPI artifacts that need to be removed in the given order:

1. Remove the Oracle Database SPI policies from the node.
   a. List policies using `ovpolicy -l`.

Note
All Oracle Database SPI policies start with DBSPI-0, DBSPI-ORA, Oracle or NT Oracle.

- By Name: `ovpolicy -remove -polname <Name>`
- By Type: ovpolicy –remove –poltype <Type>

Note
Before you move from OM to OMi, make sure you do not remove the flexible management policy of type "mgrconf" if it has already been deployed.

You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove the Oracle Database SPI CODA or OVPA data sources using the below commands under instrumentation:
   - On UNIX: `/var/opt/OV/bin/instrumentation/dbspi_mwclup`

- On Windows: `%OvAgentDir%\bin\instrumentation\dbspimwi –cleanup`

a. Restart CODA by running the following command:

```
ovc –restart coda
```

b. Verify if the datasources are removed by running the following command:

```
ovcodautil –showds
```

Note
There should not be any datasources listed as DBSPI_ORA_REPORT, DBSPI_ORA_UDM, ORADB_*, ORAOSM_* or ORAUDM_*. Management Pack creates datasources only on CODA.

---

3. Remove the Oracle Database SPI Instrumentation.

The instrumentation files on the node prefixed with “dbspi”, “DBSPI”, “spi_db”, and “ora_” can be deleted.

- On UNIX: `/var/opt/OV/bin/instrumentation`
- On Windows: %OvAgentDir%\bin\instrumentation

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

4. Remove the Oracle Database SPI configuration files.

The dbspi configuration/history/log files are located under the `<OvAgentDrive>\usr\OV\dbspi` folder on Windows and `/var/opt/OV/dbspi` folder on UNIX. You can back up the contents of the directory for later reference. After you have taken a backup, this directory can be removed before deploying an MP.

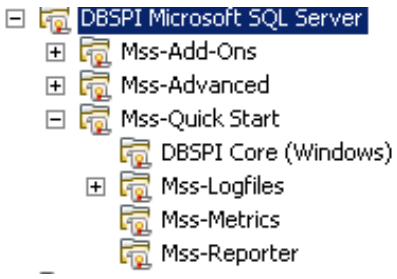
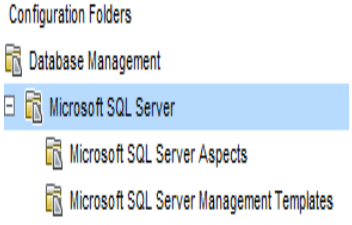
For more information on cleaning up nodes, see Prepare nodes for deployment under the Recommended steps for moving from a SPI to MP section in this document.

Microsoft SQL Server SPI and Management Pack

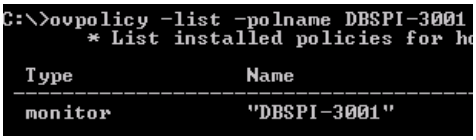
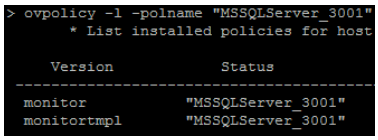
This section explains the evolution from the HPOM Smart Plug-in for Microsoft SQL Server 12.0x to HPE OMi Management Pack for Microsoft SQL Server 1.0.

SPI and MP comparison

This section provides an overview of similarities and differences between HPOM Smart Plug-in for Microsoft SQL Server (Microsoft SQL Server SPI) and OMi MP for Microsoft SQL Server (Microsoft SQL Server MP). For more information about working with the Microsoft SQL Server MP, see the *HPE OMi Management Pack for Microsoft SQL Server User Guide*.

Features	Microsoft SQL Server SPI 12.0x	Microsoft SQL Server MP 1.00
Pre-requisites	• HPOM W 8.16, HPOM W9, HPOM U/S/L 9 or higher • HP Operations Agent 11.05 or higher	• BSM/MA 9.23 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The Microsoft SQL Server SPI is shipped with the SPI DVD.	The Microsoft SQL Server MP is shipped with the OMi 10 installer. The Microsoft SQL Server MP is also available to download from the e-media download center. See the section Useful resources in this document for the e-media download center link.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	Can be installed in any of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during the OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install MP after OMI 10.x is installed. For more information about opr-mp-installer Command-Line Interface, see the *OMi Administration Guide*. 3. Download the MP bits from the e-media download center. Then mount ISO and use OS specific installer: • Linux: *mpinstall.sh-i* • Windows: *cscript mpinstall.vbs-i* Use this option, when a higher MP version is available in the e-media download center.
Policy Grouping	Policies are grouped into policy groups. 	Management Templates and Aspects provide grouping of policy templates relevant to the area and criticality of monitoring. 
Policy Versioning	The Microsoft SQL Server SPI uses the <major version>.<minor version> (xxxx.yyyy) format for policy versioning. Example: If the version of the SPI is 12.03, policies updated in this release would be versioned as 12.0300. On the GUI, it is displayed as 12.300. When you update such a policy, minor version is updated. Example: When you update a policy with version 12.0300 (in GUI: 12.300), it will be changed to 12.0301 (in GUI 12.301).	The Microsoft SQL Server MP uses the xxxx.yyyy format for policy versioning. Example: In the Microsoft SQL Server MP 0001.0000 (In GUI 1.00), policies are versioned as 0001.0000. On the OMi GUI, it is displayed as 1.0. In subsequent MP releases, policy version will be updated only if a particular policy is updated in that release. When you update a policy, only minor versions (last two digits) are updated.

		Example: When you update a policy with version 0001.0000 (in GUI 1.0), it will be changed to 0001.0001 (in GUI 1.1).
Policy Types	Provides the following types of policies: • Measurement Threshold • Scheduled Task • Windows Event Log • Logfile • Discovery	Has similar policies of the types used in SPI. In addition, it has ConfigFile policies. For more information about policy types, see section Policy Types in this document.
Message Groups	Has the following message groups to generate events: • MSS_Admin for Administrative messages • MSS_Conf for Configuration messages • MSS_Perf for Performance messages • MSS_Fault for error messages	Has the following message groups: • MSSQLServer_Admin for Administrative messages • MSSQLServer_Conf for Configuration messages • MSSQLServer_Perf for Performance messages • MSSQLServer_Fault for error messages
Tools	Provides tools for Database Configuration, Database Instance Management, and SPI operations.	Database configuration is done using parameters provided with Management Template or Aspect. Tools related to MP operations exist. For information about tools mapping, see Tools Mapping in this document.
Instrumentation	Contains the following Instrumentation categories: • Databases_Discovery • Databases_Monitoring • HPOM Server: SPI Instrumentation is copied into the filesystem. • Node: SPI Instrumentation is deployed to the "Instrumentation" directory on the node.	Contains the following Instrumentation categories: • MSSQLServer_Discovery • MSSQLServer_Monitoring • SHS_Instrumentation OMi Server: Instrumentation is uploaded into the OMi database. Node: There is no difference with the instrumentation location on nodes. Instrumentation is deployed to the same directories as in the SPI. Instrumentation file names remain the same.
Discovery	Deploy the "*DBSPI Discovery*" policy onto the managed node. When you successfully deploy the discovery policy, discovered instances are populated in the service map. In addition, the *DBSPI-Mss-DeepDiscovery-1d* policy discovers databases and services and populates them in the service map.	Deploy the **Microsoft SQL Server Discovery** aspect to the managed node. Successful deployment of **Discovery** aspect populates discovered Microsoft SQL Server instances as appropriate CIs in the RTSM. Databases and services are discovered as well.
Configuration	Configuration of the Microsoft SQL Server SPI is done using the Database *Configuration Manager* tool from OM W or *Configure DB Connection* tool from OMx.	Configuration of Microsoft SQL Server MP is done using parameters during the deployment. There are no specific tools for configuration. For more information about providing username, password, and filters among other configurations, see Configuration and Customization Mapping in this document. Note It is recommended not to update configuration directly on the node as it will not synchronize the values with the parameters.
Deployment	Deploy specific policies or groups based on monitoring needs to appropriate node or node group(s).	Deploy the MT or Aspect: 1. Assign Management Template or Aspects to MSSQL CIs. 2. Specify the parameter values as the configuration input. 3. Create Automatic Assignment Rules for Auto- deployment of MTs and Aspects.

Appearance of artifacts on node	Policy list: `ovpolicy -l` Example:  Configuration, log and error files are created under: Windows: `<OvAgentDrive>\usr\OV\dbspi`	Policy list: `ovpolicy -l` Every parameterized policy will have corresponding policy template such as monitortmpl, schedtmpl, and so on. Example:  Configuration, log and error files are created under: Windows: `<OvDataDir>\dbspi`
Monitoring Capability	For more information, see the *MSSQL SPI reference guide*.	All monitoring functionality that is supported for Microsoft SQL Server SPI is present in the Microsoft SQL Server MP.
Tuning after Deployment	You can modify policies for customization of Microsoft SQL Server SPI. Customized versions have to be deployed manually to the node for customizations to take effect.	You can tune parameters during deployment of a specific CI. You can also tune parameter values after deployment for specific CI using the **Assignments & Tuning** option. After you tune the parameters, the policy templates are automatically deployed. Threshold, severity and collection frequency are parameterized.
End-to-End monitoring	Deploy the Microsoft SQL Server SPI and Infrastructure SPI policies to monitor the Microsoft SQL Server and system infrastructure.	Deploy the Microsoft SQL Server MT to monitor the Microsoft SQL Server and system infrastructure.
Monitoring instances with different business criticality	1. Provide different parameter values for multiple instances on the same node using the instance filter or rule. 2. Maintain multiple policies set based on business criticality. **a.** User assigned policy versions. **b.** Policy Tagging.	1. Deploy Essential MT to monitor less critical environment. 2. Use Extensive MT to monitor HA business environment. 3. Create a new MT based on your needs. For details about 'Policy Tagging' and 'User assigned Policy Versioning', see section Policy Customizations in this document.
Agent and agentless monitoring	Agentless monitoring is not available.	Hybrid MT has two aspects for agentless monitoring using SIS and they are: • Microsoft SQL Server Availability (Agentless) • Microsoft SQL Server Response Time (Agentless)
Uninstallation	Native procedure is used to uninstall Microsoft SQL Server SPI.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • Instrumentation • Content Pack definitions
Graphs	PM generates reports using the performance and availability metrics. SPIs have a separate installer for OOTB graphs that need to be installed on PM.	• OMi PG Graphing solution for OMi MP is embedded as a component in the platform. • OOTB OMi PG graphs are installed along with the Microsoft SQL Server MP. There is no difference between the graphs present in the Microsoft SQL Server SPI and MP.
Data logging on node	Collected metrics are logged into either CODA or OVPA on the node.	Management Pack uses only the CODA as the datastore. Datasources, class names, and metric names remain same as the following: • DBSPI_MSS_GRAPH • DBSPI_MSS_REPORT • DBSPI_MSS_UDM

		These data sources are automatically created.
Cluster Support	You can configure the Failover using the *apminfo.xml* as described in the guide.	Microsoft SQL Server MP takes care of discovering cluster resource group and automatically configures cluster resource group appropriately in the *apminfo.xml*.
Remote Monitoring	Remote Monitoring is not supported.	Remote Monitoring is not supported. It is recommended to use SiteScope for remote monitoring.
Files and Folders on Node	The configuration, log and error files are created under `<OvAgentDrive>\usr\OV\dbspi`.	The files and folders are created under `%ovdatadir%\dbspi`.
Overriding Policy Thresholds	The *override.cfg* helps a database administrator or an operator to monitor a system without having to use the HPOM console and introduce new policy versions or groups.	OMi Parameterization and CI based monitoring helps to avoid new policy versioning and groups. For more information about customizing Management Packs, see Best Practices for Customizing Management Packs in this document.
Indicators (ETIs and HIs)	SPI events uses 27 indicators that are present in the MSSQL Content Pack.	MP has 39 indicators in addition to the following 12 new indicators: • MSSQL Database FileGroup Space Usage Level • MSSQL Database Mirroring Status • MSSQL Database Space Usage Level • MSSQL Database Status • MSSQL Database Transaction Log Usage Level • MSSQL Database Transaction State • MSSQL Server CPU Usage by SQL • MSSQL Server Replication Status • MSSQL Server SQL Query Performance • MSSQL Server Query Tuning • MSSQL Server Status • MSSQL Server Transaction Rate
TBECs	There are 10 TBECs part of MSSQL Content Pack.	The Microsoft SQL Server MP contains 5 TBECs and the following TBECs are removed: • Database::Computer:Memory Usage Level>>SQL Server Performance His • Database::Computer:Node Status>>SQL Server Status • Database::Computer:Ping Availability>>SQL Server Status • Databse::Computer:SQL Server CPU Usage by SQL>>CPU Load • Database::Interface:InterfaceUtilization>>SQL Server Database Replication Status
Events	Events are sent using the *Measurement Threshold* policy, *Logfile* policy and *Opcmsg* policy with appropriate message description.	Event text from the same set of policies remain the same. Event text carries new policy name part of it.
I18N & L10N	Is I18N certified and is localized in Japanese.	The Microsoft SQL Server MP is I18N certified and is localized in the following languages: • French • Simplified Chinese • Japanese • Korean • Deutsch • Spanish • Russian
OO Flows	Integration with the HP OO flows was shipped part of the MS SQL content.	Same set of OO flows are shipped with the Microsoft SQL Server MP. However, OO flows are restricted to the ops-bridge usecase only. The OO flows work only in an environment where the HPOM and SPI are used for monitoring along with OMi and OO integration.

Common Policy Changes

This section captures changes (such as parameterization) commonly made to Microsoft SQL Server SPI policies and describes how to convert them into Microsoft SQL Server MP policy templates.

Policy Naming Convention

All Microsoft SQL Server SPI and MP Policy Templates use the following nomenclature:

- Microsoft SQL Server SPI policies name start with “DBSPI. For example, DBSPI-3001.
- Microsoft SQL Server MP policy templates name starts with “MSSQLServer”. For example, MSSQLServer _3001.

For more information about mapping between SPI policies and MP policy templates, see section SPI policy to MP policy template mapping in this document.

Policy Types

Management Pack has same policy types as SPI. In addition, MP provides the policies of type Config File and they are used for:

a. MSSQLServer_Configuration - This policy acts as a container to hold MSSQL Server username, password, domain name, options to enable collection, and tracing. This information is included as a part of DBSPI configuration tools.

b. Non-Eventing Metrics (MSSQLServer_3240 to MSSQLServer_3244) – Is the list of policies marked with “*” in the section SPI policy to MP policy template mapping. These metrics are mentioned in the appropriate scheduler policies for collector to fetch and log the metric and there is no corresponding Measurement Threshold Policy.

In the Microsoft SQL Server MP, these policies are available for each reporting metrics. The standard MP schedulers use these policies to collect and log corresponding metrics based on the frequency parameter of each policy.

Each of these policies has parameter such as *MSSQL Server Database Size Frequency*. This parameter helps you choose the required frequency for metric collection. The collected metric data is stored in CODA under “DBSPI_MSS_REPORT”.

c. User defined Metric (MSSQLServer_UDM) - You can create metrics by providing appropriate SQL statement for metric collection using tools in HPOM U. You can also create a *ConfigFile* policy in HPOM W, but the same feature is available through *ConfigFile* policy. For more information about user defined metrics, see Microsoft SQL Server User Defined Metrics (UDM) in this document.

Measurement Threshold Policy

Most MP Measurement Threshold policy templates contain the customized threshold and severity attributes. The Microsoft SQL Server MP has parameterized these policy attributes to simplify policy maintenance, policy versioning and instance specific parameters. These parameters can be changed during deployment or post-deployment. In HPOM Microsoft SQL Server SPI, you can create new instance filter rules for either each instance or a group of instances.

In OMi MP, the MT or Aspect deployment happens for each instance where the value can be adjusted without changing the policy versions.

Schedule Task Policy

Microsoft SQL Server SPI has OOTB scheduled task policies which triggers the collector with a set of metrics at defined intervals. If you want to update a metric from 05 mins scheduler to 15 mins scheduler, edit the 05 mins scheduled task policy to remove the metric number from command and to update in the 15 mins scheduled task policy.

In Microsoft SQL Server MP, there is a frequency parameter for each metric regardless of whether they are for generating events or logging metrics. The frequency parameter can be adjusted to make the metric part of appropriate schedule intervals such as VeryHigh, High, Medium, Low and NORUN. The default polling intervals of VeryHigh, High, Medium and Low are 5 mins, 15 mins, 1 hour and 1 day respectively. If any metric is marked for NORUN, it will not be picked by any scheduler. This schedule adjust for metrics can be done for each instance.

For example, the metric Completed Jobs monitoring has a frequency parameter *Completed Jobs Frequency* which is part of the MSSQLServer_3277 policy with a default value of HIGH and this can be seen in the corresponding Aspect and Management Template. The Aspect or Management Template can be modified to change this parameter or the default value can be modified during deployment for the targeted CI.

There are four scheduled task policies for each of the four intervals. The time schedule for these policies is parameterized. Default polling intervals for the parameters VeryHigh, High, Medium and Low are 5 mins, 15 mins, 1 hour and 1 day respectively. You can modify the *Frequency of VeryHigh Scheduler, Frequency of High Scheduler, Frequency of Medium Scheduler* and *Frequency of Low Scheduler parameters*.

For example, the frequency of VeryHigh scheduler can be modified in the parameter *Frequency of VeryHigh Scheduler* from 5 mins to 10 mins. This is applicable for all instances running on the given node. All the metrics marked under VeryHigh category will be executed every 10 mins. The following table presents the method of modifying a schedule metric between the Oracle Database SPI and Oracle Database MP:

Metric Schedule Case	SPI	MP
Move a metric from 05mins to 15mins	1. Edit 05 mins schedule task policy to remove the metric. 2. Edit 15 mins schedule task policy to add the metrics 3. Redeploy both of the above schedule task policies.	If a metric assignment exists, click **Assignments & Tuning** and edit the frequency parameter for a specific metric. Modify the frequency parameter of a given metric change it from VeryHigh to High. **Note** The same can be done by editing a metric's frequency parameter in an aspect or MT.
Remove metric from scheduling	1. Edit a schedule task policy and remove the metric number. 2. Redeploy the modified scheduled task policy.	If a metric assignment exists, then click **Assignments & Tuning** and edit the frequency parameter of a given metric. Change the metric from original to NORUN. **Note** The same can be done by editing a metric's frequency parameter in an aspect or MT.
Modify the lowest schedule of collection from 05mins to 10mins	Either copy and create new schedule task policy with the schedule of 10 mins Or Edit the 05 mins schedule task policy, change the interval and rename it to 10 mins.	Modify the interval of scheduled task policy exposed as parameter either at the Aspect or MT level. In this case "Frequency of VeryHigh Scheduler".

Discovery Policy

The Microsoft SQL Server MP Discovery policy is a type of custom discovery policy which triggers discovery script to generate XML. The XML contains information about discovering Microsoft SQL Server Server as CI and its relationship with other Infra elements. The MP discovered information such as the CI type, attributes, and relations remain same as SPI.

Policy Customizations

There are multiple options to customize the SPI policies for different reasons. You can create new policy groups and copy specific policies to those groups to create your own DB SPI groups. You can also modify the thresholds set in individual policies. In many cases, the policy's defined threshold may involve a drill-down or roll-up metric. The widely used SPI policy customizations and corresponding MP approach are listed as following:

Policy Tagging

What is Policy Tagging in SPI?

If you have database instances categorized into different groups and they need to be monitored differently, then DBSPI provides an option "-t"(tag) which allows the collector to use different set of customized policies. Custom policy groupings can effectively differentiate one group of policies from another. In such cases, you can:

1. Create copies of the policies.
2. Use the Tag feature to rename the Measurement Threshold and Scheduled Task polices.
3. Assign them to the various groups. For example, you can create a SAP group of policies and tag those policies with “SAP-” or a PeopleSoft group, and tag those with “PS-.”

To use the Tag feature, make copies of the original DB SPI policies. The names you give to these new policies can contain a prefix, but they must also contain the original policy name.

For example, a copy of DBSPI-3216 can be called SAP-DBSPI-3216. Specify the tag option on the command line so that the Collector, Analyzer, or Script uses this new policy rather than the original policy. New scheduled task policies can also be created in this way:

For example: dbspicam -m 9 -t SAP-

How to achieve it in MP?

This can be achieved by using the OMi feature Management Templates. You can create different flavors of Management Template from copying the OOTB MTs. This newly created Management Templates can be customized to:

- Add or remove aspects
- Enable or disable metrics within an aspect
- Modify parameters based on the criticality of database for which MT intends to be deployed.

For more information about customizing management packs, see Best Practices for Customizing Management Packs chapter in this document.

User Assigned Policy Versioning

You can create customized policies for each group using the policy versioning approach. HPOM automatically changes a modified policy version by incrementing the last digit by 1. This method suggests to override a policy version by using the Save option and inserting your own version. For example, 100-199 is for one group, 200-299 for another, and so on.

How to achieve it in MP?

The OMi feature Management Template is the recommended approach as explained above for this case as well. For more information about customizing management packs, see Best Practices for Customizing Management Packs in this document.

SPI policy to MP policy template mapping

This section maps Microsoft SQL Server MP's policies to corresponding Microsoft SQL Server SPI's policies. Also, it captures the differences between them, if there are any.

In the table below, MP policy templates marked with "*" are for only logging metric data into CODA and are not meant for generating events. The type of the policy is mentioned in short form along with the policy name.

- MT: Measurement Threshold
- ST: Scheduled Task
- CF: Config File
- LE: Logfile Entry
- WE: Windows Event Log

Microsoft SQL Server SPI Policy	Microsoft SQL Server MP Policy Template	Microsoft SQL Server MP Aspects
DBSPI-3051 (MT)	MSSQLServer_3051 (MT)	Microsoft SQL Server Data Access Methods
DBSPI-3052 (MT)	MSSQLServer_3052 (MT)	
DBSPI-3053 (MT)	MSSQLServer_3053 (MT)	
DBSPI-3054 (MT)	MSSQLServer_3054 (MT)	
DBSPI-3055 (MT)	MSSQLServer_3055 (MT)	
DBSPI-3056 (MT)	MSSQLServer_3056 (MT)	
DBSPI-3233 (MT)	MSSQLServer_3233 (MT)	Microsoft SQL Server Backup
DBSPI-3234 (MT)	MSSQLServer_3234 (MT)	
DBSPI-3084 (MT)	MSSQLServer_3084 (MT)	Microsoft SQL Server Database Mirroring
DBSPI-3085 (MT)	MSSQLServer_3085 (MT)	
DBSPI-3086 (MT)	MSSQLServer_3086 (MT)	
DBSPI-3087 (MT)	MSSQLServer_3087 (MT)	
DBSPI-3088 (MT)	MSSQLServer_3088 (MT)	
DBSPI-3023 (MT)	MSSQLServer_3023 (MT)	Microsoft SQL Server Error
DBSPI-3024 (MT)	MSSQLServer_3024 (MT)	
MSSQL Logfile Template (LE)	MSSQLServer_AlertLog (LE)	
DBSPI-MSS-EventLog-Errors (WE)	MSSQLServer_EventLog_Errors (WE)	
DBSPI-MSS-EventLog-Warnings (WE)	MSSQLServer_EventLog_ Warnings (WE)	
DBSPI-MSS-EventLog-Information (WE)	N/A	
DBSPI-3007 (MT)	MSSQLServer_3007 (MT)	Microsoft SQL Server Input and Output Utilization
DBSPI-3227 (MT)	MSSQLServer_3227 (MT)	
DBSPI-Mss-1d-Reporter (ST)	MSSQLServer_3244* (CF)	
DBSPI-3008 (MT)	MSSQLServer_3008 (MT)	

DBSPI-3277 (MT)	MSSQLServer_3277 (MT)	Microsoft SQL Server Jobs
DBSPI-3068 (MT)	MSSQLServer_3068 (MT)	Microsoft SQL Server Latches
DBSPI-3069 (MT)	MSSQLServer_3069 (MT)	
DBSPI-3076 (MT)	MSSQLServer_3076 (MT)	
DBSPI-3070 (MT)	MSSQLServer_3070 (MT)	Microsoft SQL Server Locks
DBSPI-3071 (MT)	MSSQLServer_3071	
DBSPI-3072 (MT)	MSSQLServer_3072 (MT)	
DBSPI-3073 (MT)	MSSQLServer_3073 (MT)	
DBSPI-3270 (MT)	MSSQLServer_3270 (MT)	
DBSPI-3271 (MT)	MSSQLServer_3271 (MT)	
DBSPI-3272 (MT)	MSSQLServer_3272 (MT)	
DBSPI-3013 (MT)	MSSQLServer_3013 (MT)	
DBSPI-3075 (MT)	MSSQLServer_3075 (MT)	
DBSPI-3273 (MT)	MSSQLServer_3273 (MT)	
DBSPI-3291 (MT)	MSSQLServer_3291 (MT)	Microsoft SQL Server Logshipping
DBSPI-3292 (MT)	MSSQLServer_3292 (MT)	
DBSPI-3293 (MT)	MSSQLServer_3293 (MT)	
DBSPI-3403 (MT)	MSSQLServer_3403 (MT)	Microsoft SQL Server Replication
DBSPI-3404 (MT)	MSSQLServer_3404 (MT)	
DBSPI-3081 (MT)	MSSQLServer_3081 (MT)	
DBSPI-3082 (MT)	MSSQLServer_3082 (MT)	
DBSPI-3083 (MT)	MSSQLServer_3083 (MT)	
DBSPI-3411 (MT)	MSSQLServer_3411 (MT)	
DBSPI-3080 (MT)	MSSQLServer_3080 (MT)	Microsoft SQL Server Reports
DBSPI-3280 (MT)	MSSQLServer_3280 (MT)	
DBSPI-3215 (MT)	MSSQLServer_3215 (MT)	Microsoft SQL Server Space
DBSPI-3216 (MT)	MSSQLServer_3216 (MT)	
DBSPI-3218 (MT)	MSSQLServer_3218 (MT)	
DBSPI-3279 (MT)	MSSQLServer_3279 (MT)	
DBSPI-3278 (MT)	MSSQLServer_3278 (MT)	
DBSPI-Mss-1d-Reporter (ST)	MSSQLServer_3241* (CF)	
DBSPI-Mss-1d-Reporter (ST)	MSSQLServer_3242* (CF)	
DBSPI-Mss-1d-Reporter (ST)	MSSQLServer_3240* (CF)	
DBSPI-MSS-UDM-05min (ST)	MSSQLServer_UDM (CF)	Microsoft SQL Server User Defined Aspect
DBSPI-37XX (MT)	MSSQLServer_37XX (MT)	
DBSPI-3009 (MT)	MSSQLServer_3009 (MT)	Microsoft SQL Server Transactions
DBSPI-3209 (MT)	MSSQLServer_3209 (MT)	
DBSPI-3066 (MT)	MSSQLServer_3066 (MT)	
DBSPI-3264 (MT)	MSSQLServer_3264 (MT)	
DBSPI-3064 (MT)	MSSQLServer_3064 (MT)	
DBSPI-3266 (MT)	MSSQLServer_3266 (MT)	
DBSPI-3267 (MT)	MSSQLServer_3267 (MT)	
DBSPI-3067 (MT)	MSSQLServer_3067 (MT)	
DBSPI-3035 (MT)	MSSQLServer_3035 (MT)	
DBSPI-3014 (MT)	MSSQLServer_3014 (MT)	

DBSPI-3017 (MT)	MSSQLServer_3017 (MT)	Microsoft SQL Server Processes and Statistics
DBSPI-3032 (MT)	MSSQLServer_3032 (MT)	
DBSPI-3025 (MT)	MSSQLServer_3025 (MT)	
DBSPI-3011 (MT)	MSSQLServer_3011 (MT)	
DBSPI-3026 (MT)	MSSQLServer_3026 (MT)	
DBSPI-3001 (MT)	MSSQLServer_3001 (MT)	
DBSPI-3074 (MT)	MSSQLServer_3074 (MT)	
DBSPI-3030 (MT)	MSSQLServer_3030 (MT)	Microsoft SQL Server Availability
DBSPI-3057 (MT)	MSSQLServer_3057 (MT)	
DBSPI-3058 (MT)	MSSQLServer_3058 (MT)	
DBSPI-Mss-05min-Reporter (ST)	MSSQLServer_3243* (CF)	
DBSPI-3028 (MT)	MSSQLServer_3028 (MT)	
DBSPI-3230 (MT)	MSSQLServer_3230 (MT)	
DBSPI-DeepDiscovery (ST)	MSSQLServer_DeepDiscovery (ST)	Microsoft SQL Server Discovery
DBSPI-Discovery (SVCDISC)	MSSQLServer_Discovery (SVCDISC)	
NA	MSSQLServer_Availability (SiS)	Microsoft SQL Server Availability (Agentless)
NA	MSSQLServer_ResponseTime (SiS)	Microsoft SQL Server Response Time (Agentless)
DBSPI-MSS-05Min (ST) DBSPI-MSS-05Min-Reporter (ST)	MSSQLServer_VeryHigh (ST)	Microsoft SQL Server Base
DBSPI-MSS-15Min (ST)	MSSQLServer_High (ST)	
DBSPI-MSS-1h (ST)	MSSQLServer_Medium (ST)	
DBSPI-MSS-1d (ST) DBSPI-MSS-1d-Reporter (ST)	MSSQLServer_Low (ST)	
DBSPI-Messages (OPCMSG)	MSSQLServer_Messages (OPCMSG)	
DBSPI-Measureware (ST)	MSSQLServer_Logger (ST)	

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization Information in SPI	Equivalent Aspect Parameter(s)	More information
Use the *Configure DB Connection* tool on OMx or *Database Configuration Manager* tool on OMW to update the MSSQL Server instance information.	Specify the *username* and *password* as parameter values when deploying an aspect or MT.	Updating configuration on the node will not modify corresponding parameters in MP. It needs to be updated explicitly on the server.
Use the *Configure DB Connection* tool on OMX or *Database Configuration Manager* tool on OMW to update domain user information.	Specify the *MSSQL Server Domain name* as the parameter value.	
Tracing can be turned On or Off using the *Enable/Disable* Trace tool.	*MSSQL Server Instance Tracing* parameter can be tuned during deployment.	This parameter enables or disables tracing for the Microsoft SQL Server MP Collection.
Start or Stop monitoring using the *Start/Stop Monitoring* tool.	*MSSQL Server Instance Collection* parameter can be tuned during deployment.	This parameter starts or stops monitoring of Microsoft SQL Server instances.
Threshold is defined in policy and can be customized by editing a policy.	*Threshold* parameter can be updated during deployment.	
Severity is defined in policy and can be customized by editing policy.	*Severity* parameter can be updated while deploying an MT or Aspect.	
Metric filter can be customized using *Configure DB Connection* on OMX or *Database Configuration Manager on OMW* tool.	Metric filter parameter can be tuned during while deploying an MT or Aspect.	Metric filter is part of the expert parameter.

Collection interval is defined in schedule task policies and can be customized by editing a policy.	Frequency parameter can be tuned during while deploying an MT or Aspect.	
Different thresholds and severities need to be set for different instances, using the instance filter in SPI.	Through Instance parameter, threshold or severity can be updated against an instance.	
Failover cluster configuration can be performed manually with apminfo.*xml*.	Microsoft SQL Server MP automatically creates the cluster configuration.	Microsoft SQL Server MP is cluster aware in terms of CI creation or deletion for failover and relation to resource group CIs. Datalogging is performed for individual instances without cluster data.

Tools Mapping

This section maps SPI tools to equivalent MP tools, if any.

HPOM SPI tools	Equivalent MP tools	Comments
SPI has the tool categories: • DBSPI -> Admin • DBSPI -> Admin Windows • MSSQL	MP has the following tool categories: • Microsoft SQL Server Management Pack Operational Tools • Database operational tools	• The Microsoft SQL Server Server Database Management Pack Operational Tools category contains administrative tools such as Enable or Disable monitoring. • The Database Operational Tools category contains Microsoft SQL Server database specific tools.
Display Error File	Display Microsoft SQL Server MP Error File	
Self-Healing Info	Run Self-Healing Collector for Microsoft SQL Server MP	
Start Monitoring	Enable Microsoft SQL Server MP Monitoring	Same functionality can be achieved through the *MSSQL* Server *Instance Collection* parameter.
Stop Monitoring	Disable Microsoft SQL Server MP Monitoring	
Verify Deployment	Verify Microsoft SQL Server MP Deployment	
Trace On	Enable Microsoft SQL Server Trace	Same functionality can be achieved through *MSSQL Server* Instance *Tracing* parameter.
Trace Off	Disable Microsoft SQL Server MP Trace	
Configure DB Connections on OMX or Database Configuration Manager on OMW	Below is the list of configuration parameters to be provided during MT or Aspect deployment to update MSSQL Server database instance information: Username Password Domain	
Enable Reports	This functionality is achieved in MP by deploying MT or Aspect on node.	Datasource creation is automated with MP.
Enable Graphs	This functionality is achieved in MP by deploying MT or Aspect on node.	Datasource creation is automated with MP.
Configure UDM	This functionality is achieved in MP by deploying Microsoft SQL Server User Defined Aspect.	
Enable UDM Graphs	This functionality is achieved in MP by deploying MT or Aspect on node.	
MSSQL Reports	Microsoft SQL Server reports are available targeted to CIT SQL Server: • Active Connections • Database Status • Filegroup Space Usage • Locks Wait Rate • Microsoft SQL Server Connection Check	These are text (ASCII) reports generated by the MP collector.

	• Microsoft SQL Server Documents • Mirroring Status • Network Statistics • Processes Blocked • Replication Agent Status • Replication Latency • Server Statistics • Server Status • Transaction Log Space Usage • Transactions Active • Users Connected • Virtual Device Space Usage
Cluster Config	Dropped
Configure Graphs	Dropped
Create Node Groups	Dropped
Database Instance Manager (Windows)	MSSQL Server user creation tools are available.
Display Trace File	Dropped
Enable 3DES Encryption	Dropped
Disable 3DES Encryption	Dropped
Set Path (Unix)	Dropped
Cleanup (Unix)	Dropped
Migrate Agent (Unix)	Dropped
Disable Graphs & Reports	Dropped
Trace	Dropped
Start/Stop/List_Instances	Tool to list instances of Microsoft SQL Server is available. Other tools are not available.
Active Jobs	Active Jobs of Microsoft SQL Server
NT Services	NT Services of Microsoft SQL Server
Create MSSQL User	1. Create Microsoft SQL Server User using Domain Login 2. Create Microsoft SQL Server User using Microsoft SQL Server Authentication 3. Create Microsoft SQL Server User using Microsoft SQL Server Windows Authentication
All Jobs	All jobs of Microsoft SQL Server

Microsoft SQL Server User Defined Metrics (UDM)

If you want to create additional metrics based on query, create an UDM. The Microsoft SQL Server SPI/MP enables you to define additional metrics and mechanisms to collect metric values using SQL queries. UDMs can be associated with measurement threshold and included in the scheduled task policy.

Following are the steps used in the HPOM SPI steps to define UDMs:

1. Create UDM configuration file using a query to collect additional metrics.
2. Create measurement threshold policy to compare metric data with provided threshold and send alert if it violates the threshold. Copy DBSPI-37XX policy and name it as DBSPI-37<UDM metric number> to define threshold and severity for UDM.
3. Edit any existing schedule task policy to add UDM metric or create new schedule task policy for UDM.

Following are the MP steps to define UDMs (See HPE OMi Management Pack for Microsoft SQL Server User Guide to configure UDM):

1. Use *MSSQLServer_UDM config* policy to define UDM where new metrics can be added as a SQL block.
2. Make a copy of MSSQLServer_37XX policy and name it as MSSQLServer_37<UDM metric number> to define threshold, severity, and frequency for UDM. Example: MSSQLServer_3701.

Node Cleanup

Remove SPI artifacts from the node that you are going to monitor using MP. Following are the SPI artifacts that need to be removed in the given order:

1. Remove policies from the node.
   a. List the policies using the command `ovpolicy -l`.

Note
All DB SPI policies start with DBSPI-3, DBSPI-MSS or MSSQL.

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   b. Execute one of the following commands to remove all policies from the node:
   - By Name: `ovpolicy -remove -polname <Name>`
   - By Type: `ovpolicy -remove -poltype <Type>`

Note
Before you move from OM to OMi, make sure you do not remove the flexible management policy of type "mgrconf" if it has already been deployed.

   You can also remove policies by deleting policy groups for a particular node on the server using the GUI.
2. Remove CODA or OVPA data sources from the node.

   Remove CODA or OVPA data sources using the following command under instrumentation:

   In Windows: `dbspimwi -cleanup`

   a. Restart CODA: `ovc -restart coda`

   b. Verify datasource removal: `ovcodautil -showds`

Note
There should not be any datasources listed as DBSPI_MSS_GRAPH, DBSPI_MSS_REPORT, DBSPI_MSS_UDM, datasource name starts with MSS. Management Pack creates datasources only on CODA.

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3. Remove SPI Instrumentation.

   The instrumentation files on the node that are prefixed with “dbspi”, “DBSPI” “spi_db”, and “mss_” can be deleted.

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

4. Remove configuration files.

The dbspi configuration, history or log files are located in the `<OvAgentDrive>\usr\OV\dbspi` folder. This directory needs to be removed after taking a backup.

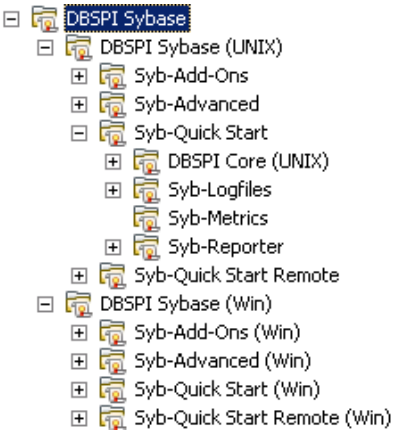
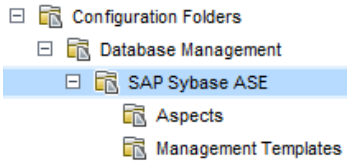
For more information on cleaning up nodes, see *Prepare nodes for deployment* under the Recommended steps for moving from a SPI to MP section in this document.

Sybase SPI and Management Pack

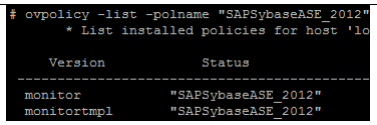
This section explains the evolution from the HPOM Smart Plug-in for Sybase 12.04x to the HPE OMi Management Pack for SAP Sybase ASE 1.0.

SPI and MP comparison

This section provides an overview of differences between HPOM Smart Plug-in for Sybase (Sybase SPI) and OMi MP for SAP Sybase ASE (SAP Sybase ASE MP). For information about working with the SAP Sybase ASE MP, see the *OMi Management Pack for SAP Sybase ASE User Guide*.

Features	Sybase SPI 12.04x	SAP Sybase ASE MP 1.0
Pre-requisites	• HPOM W 8.16, HPOM W9, HPOM U/S/L 9 or higher • HP Operations Agent 11.05 or higher	• BSM/MA 9.22 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The Sybase SPI is shipped with the SPI DVD.	The SAP Sybase ASE MP is shipped with OMi 10 installer. It is also available to download from the e-media download center. For more information about accessing the e-media download center link, see Useful resources in this document.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	The SAP Sybase ASE MP can be installed in one of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during the OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install MP after OMi 10.x is installed. For more information about opr-mp-installer Command-Line Interface, see the *OMi Administration Guide*. 3. Download the MP bits from the e-media download center. Then mount ISO and use OS specific installer: • Linux: *mpinstall.sh-i* • Windows: *cscript mpinstall.vbs-i* Use this option when a greater MP version is available in the e-media download center.
Policy Grouping	Policies are grouped into policy groups: 	Management Templates and Aspects provide grouping of policies relevant to the area and criticality of monitoring. 
Policy Versioning	The Sybase SPI uses the <major version>.<minor version> (xxxx.yyyy) format for policy versioning. Example: If the version of the Sybase SPI is 12.03, policies updated in this release would be versioned as 12.0300. On the GUI, it is displayed as 12.300. When you update such a policy, minor version is updated.	The Sybase ASE MP uses the xxxx.yyyy format for policy versioning. Example: Server: 1.0 Node: 0001.0000

	Example: When you update a policy with version 12.0300 (in GUI: 12.300), it will be changed to 12.0301 (in GUI 12.301).	Example: In SAP Sybase ASE MP 0001.0010 (In GUI 1.10), policies are versioned as 0001.0000. On the OMi GUI, it is displayed as 1.0. In subsequent MP releases, policy version is updated only if a particular policy is updated in that release. When you update a policy, only minor versions (last two digits) are updated. Example: When you update a policy with version 0001.0000 (in GUI 1.0), it will be changed to 0001.0001 (in GUI 1.1).
Policy Types	Provides the following types of policies: • Measurement Threshold • Scheduled Task • Logfile • Discovery	MP has policies of the types used in SPI. In addition, it has policies of type ConfigFile. For more information, see section Policy Types in this document.
Message Groups	Has the message groups to generate events as: • Syb_Admin for Administrative messages • Syb_Fault for error messages • Syb_Perf for Performance messages	Has the following message groups: • SAPSybaseASE_Admin for Administrative messages • SAPSybaseASE_Fault for error messages • SAPSybaseASE_Perf for Performance messages
Tools	Has the tools for Database Configuration, Database Instance Management, and SPI operations.	In the SAP Sybase ASE MP, database configuration is done using parameters provided with the Management Template or Aspect. For more information about Tools, see the section Tools Mapping in this document.
Instrumentation	Contains the following Instrumentation categories: • Databases_Discovery • Databases_Monitoring • HPOM Server: SPI Instrumentation is copied into the filesystem. Node: SPI Instrumentation is deployed to the “Instrumentation” directory on the node.	Contains the following Instrumentation categories: • SAPSybaseASE_Discovery • SAPSybaseASE _Monitoring OMi Server: Instrumentation is uploaded into OMi database. Node: There is no difference with the instrumentation location on nodes. Instrumentation is deployed to the same directories as in the SPI. Instrumentation files are prefixed with dbspisyb or MPSyb.
Discovery	Deploy the *DBSPI Discovery* policy to the managed node. When you successfully deploy the discovery policy, discovered instances are shown in the service map.	Deploy the **SAP Sybase ASE Discovery** aspect to the managed node. Successful deployment of the Discovery aspect shows discovered instances of data server and replication server as appropriate CIs in the RTSM.
Configuration	Configuration of the Sybase server instance is done using the *Database Configuration Manager* tool from OMW server or *Configure DB connection* tool from OMx servers.	Configuration is done using parameters during deployment. There are no specific tools for configuration. For more details about providing username, password, and filters among other configurations, see Configuration and Customization Mapping in this document. It is recommended not to update configuration directly on the node as it will not synchronize the values with the parameters.
Deployment	Deploy specific policies or groups based on monitoring needs to appropriate node or node group(s).	Deploy the MT or Aspect: 1. Assign MT or Aspects to the Sybase CIs. 2. Specify the parameter values as the Sybase Configuration input. 3. Automatic Assignment Rules can be created for Auto-deployment of MT and Aspects.
Appearance of artifacts on node	Policy list: `/opt/OV/bin/ovpolicy –l` Example:	Policy list: `/opt/OV/bin/ovpolicy –l` Every parameterized policy will have a corresponding policy templates such as monitortmpl, *schedtmpl* and so on. Example:

	 Configuration, Log, and Error files are created under: • UNIX: `/var/opt/OV/dbspi` • Windows: `<OvAgentDrive>\usr\OV\dbspi`	 Configuration, Log, and Error files are created under: • **UNIX** Logs: /var/opt/OV/log/SAPSybaseASE Conf: /var/opt/OV/conf/SAPSybaseASE Temp: /var/opt/OV/tmp/SAPSybaseASE • **Windows** Logs: %OvDataDir%\log\SAPSybaseASE Conf: %OvDataDir%\conf\SAPSybaseASE Temp: %OvDataDir%\tmp\SAPSybaseASE
Monitoring capability	For more information on monitoring functionality, see the *Sybase SPI reference guide*.	All monitoring functionality that is supported for Sybase SPI is present in SAP Sybase ASE MP as well.
Tuning after Deployment	You can modify policies for customization. Customized versions have to be deployed manually to the node for customizations to take effect.	You can tune parameters during deployment for a specific CI. You can also tune parameter values after deployment for specific CI using the **Assignments & Tuning** option. After you tune the parameters, the policy templates are automatically deployed. Threshold, *severity* and *collection frequency* are parameterized.
End-to-End monitoring	Deploy Sybase SPI and Infrastructure SPI policies to monitor the Sybase Server and system infrastructure.	Deploy Sybase MT to monitor the SAP Sybase ASE server and system infrastructure.
Monitoring instances with different business criticality	Provide different parameter values for multiple instances on the same node using the instance filter or rule. Or Maintain multiple policies set based on business criticality for the following: • User assigned policy versions • Policy Tagging	Deploy essential MT to monitor less critical environment. Use extensive MT to monitor HA business environment. Create new MT as per needs. For details about 'Policy Tagging' and 'User assigned Policy versioning', see section Policy Customizations in this document.
Uninstallation	Native procedure is used to uninstall Sybase SPI.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • Instrumentation • Remote ContentPack definitions
Graphs	PM generates reports using the performance and availability metrics. SPIs have a separate installer for OOTB graphs that need to be installed on PM.	Graphing solution for OMi MP is provided by PMi, which is an embedded component in the platform. OOTB PMi graphs for an MP are installed along with MP. There is no difference between the graphs present in the Sybase SPI and MP.
Data logging on node	Collected metrics are logged into either CODA or OVPA on the node.	Collected metrics are logged into CODA. Datasource, class names, and metric names remain same as the following: • DBSPI_SYB_GRAPH • DBSPI_SYB_REPORT • DBSPI_SYB_UDM These data sources are automatically created.
Cluster Support	You can configure the Failover configuration using *apminfo.xml* as described in the *SPI reference guide*.	The same set of configuration is applicable for SAP Sybase ASE MP as well.
Remote Monitoring	Supports Remote Monitoring with a limited set of metrics.	Remote Monitoring is not supported. It is recommended to use SiteScope for remote monitoring.
Overriding Policy Thresholds	The *override.cfg* helps a database administrator or operator to monitor a system without having to use the HPOM console and introduce new policy versions or groups.	OMi Parameterization and CI based monitoring helps to avoid new policy versioning and groups. For more information on customizing MPs, see Best Practices for Customizing Management Packs in this document.

Indicators (ETIs and HIs)	NA	There are 59 indicators added newly. For more information on indicators, see the *OMi MP for SAP Sybase ASE User Guide*.
TBECs	NA	No TBECs are added.
Events	Events are sent through the *Measurement Threshold* policy, Logfile policy and *Opcmsg* policy with the appropriate description.	No major changes are made to the Event description except a few error corrections. The policy names is included with the new policy.
I18N & L10N	Is I18N certified and is not localized.	Is I18N certified and is localized in the following languages: • Chinese Simplified • Japanese
OO Flows	Integration with the HP OO flows were shipped part of the Sybase content.	Same set of OO flows are shipped with MP. However, OO flows are restricted to the ops-bridge usecase only. The OO flows work only in an environment where the HPOM and SPI are used for monitoring along with OMi and OO integration.

Common Policy Changes

This section captures changes (such as parameterization) commonly made to HPOM SPI policies to adopt them to OMi MP.

Policy Naming Convention

All Sybase SPI and MP Policy Templates use the following nomenclature:

- Sybase SPI policy names start with “DBSPI-2”. For example: DBSPI-2001.
- SAP Sybase ASE MP Policies name starts with “SAPSybaseASE_”. For example: SAPSybaseASE_2001.

For more information about a mapping between SPI policies and MP policy templates, see SPI policy to MP policy template mapping in this document.

Policy Types

Sybase Management Pack has similar policy types as SPI. Sybase SPI has OOTB policies which are of types Measurement Threshold, Scheduled Task, and Discovery. In addition, Management Pack provides a set of policies of type ConfigFile and they are used for:

- SAPSybaseASE_Configuration – This policy is a container that has the SAP Sybase ASE username, password, options to enable collection, and tracing. This information is included as a part of the DBSPI configuration tools.
- Non-Eventing Metrics (Example: SAPSybaseASE_2005, SAPSybaseASE_2014, and so on) – Is a list of policies marked with * in the table SPI policy to MP policy template mapping. These metrics are mentioned in the appropriate scheduler policies for collector to fetch and log the metric and there is no corresponding Measurement Threshold policy.

  In the SAP Sybase ASE MP, these policies are available as *ConfigFile* policy for each reporting metric. The standard MP schedulers use these policies and collect and log corresponding metrics based on the frequency parameter of each policy.

  Each of these policies has a parameter such as *TableSpace Size (Only Logging) Frequency*. This parameter allows user to choose the requirement frequency for metric collection. The collected metric data is stored in CODA under “DBSPI_SYB_REPORT”.
- User defined Metric (SAPSybaseASE_UDM) – You can create your own metric by providing appropriate SQL statement for metric collection. You can use tools in HPOM U and you can also create a *ConfigFile* policy in HPOM W. The same feature is available through the *ConfigFile* policy. For more information about user defined metrics, see the chapter SAP Sybase ASE User Defined Metrics (UDM) in this document.

Measurement Threshold Policy

Threshold and severity are mostly customized attributes which are mentioned in the policy. The SAP Sybase ASE MP has parameterized these policy attributes to simplify policy maintenance, policy versioning and instance specific

parameters. These parameters can be changed during deployment or post-deployment. In HPOM SPI, you can create new instance filter rules for either each instance or a group of instances.

In OMi MP, the MT or Aspect deployment happens for each instance where the value can be adjusted without worrying about policy versions.

Schedule Task Policy

The Sybase SPI has OOTB scheduled task policies which triggers the collector with a set of metrics at defined interval. If you want to move a metric from 05 mins scheduler to 15 mins scheduler, edit 05 mins scheduled task policy to remove the metric number from command and update it in the 15 mins scheduled task policy.

In case of MP, there is a frequency parameter for each metrics regardless of whether they are for generating events or logging metrics. The frequency parameter can be adjusted to make the metric part of appropriate schedule intervals such as VeryHigh, High, Medium, Low and NORUN. Default polling intervals of VeryHigh, High, Medium and Low are 5 mins, 15 mins, 1hour and 1 day. If a metric is marked for NORUN, it will not be picked by any scheduler. This schedule adjust for metrics can be done for each instance.

For example, the metric Data Server Process status monitoring has a frequency parameter *Data Server Process Status Frequency* as a part of policy SAPSybaseASE_2011 with a default value HIGH that can be seen on the corresponding Aspect and Management Template. You can modify the MT or Aspect to change this parameter or you can modify the default value during deployment for the targeted CI.

There are four scheduled task policies for each of the four intervals. The time schedule for these policies is parameterized. Default polling intervals mentioned in the parameters VeryHigh, High, Medium and Low are 5 mins, 15 mins, 1 hour, and 1 day respectively. These parameters *Frequency of VeryHigh Scheduler, Frequency of High Scheduler, Frequency of Medium Scheduler* and *Frequency of Low Scheduler* can be modified.

For example, the frequency of VeryHigh scheduler can be modified in the parameter *Frequency of VeryHigh Scheduler* from 5 to 10. This is applicable for all instances running on the given node. All the metrics marked under VeryHigh category will be executed every 10 mins. The following table presents the method of modifying a schedule metric between the Sybase SPI and SAP Sybase ASE MP:

Metric Schedule Case	SPI	MP
Change a metric from 05 mins to 15 mins	1. Edit 05 mins schedule task policy to remove the metric. 2. Edit 15 mins schedule task policy to add the metrics. 3. Redeploy both of the above schedule task policies.	If a metric assignment exists, click **Assignments & Tuning** and modify the frequency parameter of a given metric. Change it from VeryHigh to High. Note The same can be done by editing a metric's frequency parameter in an aspect or MT.
Remove metric from scheduling.	1. Edit the corresponding schedule task policy and remove the metric number. 2. Redeploy the modified scheduled task policy.	If a metric assignment exists, click Assignments & Tuning and modify the frequency parameter of a given metric. Change it from original to NORUN. Note The same can be done by editing metric's frequency parameter at the Aspect or MT level.
Modify the lowest schedule of collection from 5 mins to 10 mins.	Copy and create new schedule task policy with the schedule of 10 mins. Or	Modify the interval of scheduled task policy exposed as parameter either at the Aspect or MT level. In this case "Frequency of VeryHigh Scheduler".

	Edit the 05 mins schedule task policy, change the interval and rename it to 10 mins.

Discovery Policy

The SAP Sybase ASE MP Discovery policy is a type of custom discovery policy which triggers discovery script to generate XML. This XML contains information about discovered SAP Sybase ASE as CI and its relationship with other Infra elements.

Policy Customizations

There are multiple options to customize the SPI policies for different reasons. You can create new policy groups and copy specific policies to those groups to create your own DB SPI groups. You can also modify the thresholds set in individual policies. In many cases, the policy's defined threshold may involve a drill-down or roll-up metric. The widely used SPI policy customizations and corresponding MP approach are listed below:

Policy Tagging:

What is Policy Tagging in SPI?

If you have database instances categorized into different groups and they need to be monitored differently, then DBSPI provides an option "-t" (tag) which allows the collector to use a different set of customized policies. Custom policy groupings can effectively differentiate one group of policies from another. In such cases, you can:

1. Create copies of the policies.
2. Use the Tag feature to rename the Measurement Threshold and Scheduled Task polices.
3. Assign the policies to the various groups. For example, you can create a SAP group of policies and tag those policies with "SAP-" or a PeopleSoft group, and tag those with "PS-."

To use the Tag feature, make copies of the original DB SPI policies. The names you give to these new policies can contain a prefix, but they must also contain the original policy name.

For example, a copy of DBSPI-2016 can be called SAP-DBSPI-2016. Specify the tag option on the command line so that the Collector, Analyzer, or Script uses this new policy rather than the original policy. New scheduled task policies can also be created in this way:

dbspicas -m 16 -t SAP-

How to achieve it in MP?

This can be achieved by using the OMi feature Management Templates. You can create different flavors of Management Template from copying the OOTB MTs. This newly created Management Templates can be customized to:

- Add or remove aspects.
- Enable or disable metrics within the aspect.
- Modifying parameters according the criticality of database for which MT intends to be deployed.

For more information on customization of MPs, see Best Practices for Customizing Management Packs chapter in this document.

User assigned policy versioning

You can create customized policies for each group using the policy versioning approach. HPOM automatically changes a modified policy version by incrementing the last digit by 1. This method suggests to override a policy version by using the Save option and inserting your own version. For example, 100-199 is for one group, 200-299 for another, and so on.

How to achieve it in MP?

The OMi feature Management Template is the recommended approach as explained above for this case as well. For more information on customization of MPs, see the Best Practices for Customizing Management Packs chapter in this document.

SPI policy to MP policy template mapping

This section maps SAP Sybase ASE MP's policies to corresponding Sybase SPI's policies. Also, it captures the differences between them, if there are any.

In the following table, MP policy templates marked with "*" are for only logging metric data into CODA and are not meant for generating events. This type of policy is mentioned in abbreviated form along with the policy name.

- MT: Measurement Threshold
- ST: Scheduled Task
- CF: Config File
- LE: Logfile Entry

Sybase SPI Policy	SAP Sybase ASE MP Policy Template	SAP Sybase ASE MP Aspects
DBSPI-2031 (MT)	SAPSybaseASE_2031 (MT)	SAP Sybase ASE Cache Performance
DBSPI-2032 (MT)	SAPSybaseASE_2032 (MT)	
DBSPI-2033 (MT)	SAPSybaseASE_2033 (MT)	
DBSPI-2035 (MT)	SAPSybaseASE_2035 (MT)	
DBSPI-2235 (MT)	SAPSybaseASE_2235 (MT)	
DBSPI-2036 (MT)	SAPSybaseASE_2036 (MT)	
DBSPI-2236 (MT)	SAPSybaseASE_2236 (MT)	
DBSPI-2037 (MT)	SAPSybaseASE_2037 (MT)	SAP Sybase ASE Memory Performance
DBSPI-2237 (MT)	SAPSybaseASE_2237 (MT)	
DBSPI-2038 (MT)	SAPSybaseASE_2038 (MT)	
DBSPI-2073 (MT)	SAPSybaseASE_2073 (MT)	
DBSPI-2273 (MT)	SAPSybaseASE_2273 (MT)	
DBSPI-2074 (MT)	SAPSybaseASE_2074 (MT)	
DBSPI-2274 (MT)	SAPSybaseASE_2274 (MT)	
DBSPI-2076 (MT)	SAPSybaseASE_2076 (MT)	
DBSPI-2276 (MT)	SAPSybaseASE_2276 (MT)	
DBSPI-2080 (MT)	SAPSybaseASE_2080 (MT)	
DBSPI-2280 (MT)	SAPSybaseASE_2280 (MT)	
DBSPI-2081 (MT)	SAPSybaseASE_2081 (MT)	
DBSPI-2281 (MT)	SAPSybaseASE_2281 (MT)	
DBSPI-2013 (MT)	SAPSybaseASE_2013 (MT)	SAP Sybase ASE Disk Health
DBSPI-2213 (MT)	SAPSybaseASE_2213 (MT)	
DBSPI-Syb-1d-Reporter (ST)	SAPSybaseASE_2226 *(CF)	
DBSPI-2075 (MT)	SAPSybaseASE_2075 (MT)	
DBSPI-2077 (MT)	SAPSybaseASE_2077 (MT)	
DBSPI-2078 (MT)	SAPSybaseASE_2078 (MT)	
DBSPI-2064 (MT)	SAPSybaseASE_2064 (MT)	SAP Sybase ASE Parallel Processing
DBSPI-2065 (MT)	SAPSybaseASE_2065 (MT)	
DBSPI-2066 (MT)	SAPSybaseASE_2066 (MT)	
DBSPI-2067 (MT)	SAPSybaseASE_2067 (MT)	
DBSPI-2068 (MT)	SAPSybaseASE_2068 (MT)	
DBSPI-2069 (MT)	SAPSybaseASE_2069 (MT)	
DBSPI-2046 (MT)	SAPSybaseASE_2046 (MT)	SAP Sybase ASE Application Performance
DBSPI-2047 (MT)	SAPSybaseASE_2047 (MT)	

DBSPI-2048 (MT)	SAPSybaseASE_2048 (MT)	
DBSPI-2050 (MT)	SAPSybaseASE_2050 (MT)	
DBSPI-2250 (MT)	SAPSybaseASE_2250 (MT)	
DBSPI-2051 (MT)	SAPSybaseASE_2051 (MT)	
DBSPI-2251 (MT)	SAPSybaseASE_2251 (MT)	
DBSPI-2001 (MT)	SAPSybaseASE_2001 (MT)	SAP Sybase ASE CPU Utilization
DBSPI-2003 (MT)	SAPSybaseASE_2003 (MT)	
DBSPI-2203 (MT)	SAPSybaseASE_2203 (MT)	
DBSPI-2015 (MT)	SAPSybaseASE_2015 (MT)	SAP Sybase ASE Index Performance
DBSPI-2070 (MT)	SAPSybaseASE_2070 (MT)	
DBSPI-2071 (MT)	SAPSybaseASE_2071 (MT)	
DBSPI-2072 (MT)	SAPSybaseASE_2072 (MT)	
DBSPI-2014 (MT)	SAPSybaseASE_2014 (MT)	SAP Sybase ASE Objects Performance
DBSPI-2049 (MT)	SAPSybaseASE_2049 (MT)	
DBSPI-2054 (MT)	SAPSybaseASE_2054 (MT)	
DBSPI-2004 (MT)	SAPSybaseASE_2004 (MT)	SAP Sybase ASE Database Space Utilization
DBSPI-2204 (MT)	SAPSybaseASE_2204 (MT)	
DBSPI-2005 (MT)	SAPSybaseASE_2005 (MT)	
DBSPI-2205 (MT)	SAPSybaseASE_2205 (MT)	
DBSPI-Syb-1d-Reporter (ST)	SAPSybaseASE_2222 *(CF)	
DBSPI-Syb-1d-Reporter (ST)	SAPSybaseASE_2223 *(CF)	
DBSPI-2044 (MT)	SAPSybaseASE_2044 (MT)	SAP Sybase ASE Network Packets
DBSPI-2045 (MT)	SAPSybaseASE_2045 (MT)	
DBSPI-2029 (MT)	SAPSybaseASE_2029 (MT)	SAP Sybase ASE Lock Performance
DBSPI-2053 (MT)	SAPSybaseASE_2053 (MT)	
DBSPI-2057 (MT)	SAPSybaseASE_2057 (MT)	
DBSPI-2027 (MT)	SAPSybaseASE_2027 (MT)	SAP Sybase ASE Query Performance
DBSPI-2043 (MT)	SAPSybaseASE_2043 (MT)	
DBSPI-2285 (MT)	SAPSybaseASE_2285 (MT)	SAP Sybase Replication Server Availability
DBSPI-2286 (MT)	SAPSybaseASE_2286 (MT)	
DBSPI-2016 (MT)	SAPSybaseASE_2016 (MT)	SAP Sybase ASE Device Performance
DBSPI-2216 (MT)	SAPSybaseASE_2216 (MT)	
DBSPI-2017 (MT)	SAPSybaseASE_2017 (MT)	
DBSPI-Syb-1d-Reporter (ST)	SAPSybaseASE_2224 *(CF)	
DBSPI-2039 (MT)	SAPSybaseASE_2039 (MT)	SAP Sybase ASE Process Activity
DBSPI-2055 (MT)	SAPSybaseASE_2055 (MT)	
DBSPI-2062 (MT)	SAPSybaseASE_2062 (MT)	
DBSPI-2079 (MT)	SAPSybaseASE_2079 (MT)	
DBSPI-2256 (MT)	SAPSybaseASE_2256 (MT)	
DBSPI-2002 (MT)	SAPSybaseASE_2002 (MT)	SAP Sybase ASE Availability
DBSPI-2007 (MT)	SAPSybaseASE_2007 (MT)	
DBSPI-2011 (MT)	SAPSybaseASE_2011 (MT)	
DBSPI-2012 (MT)	SAPSybaseASE_2012 (MT)	
DBSPI-2020 (MT)	SAPSybaseASE_2020 (MT)	
DBSPI-2061 (MT)	SAPSybaseASE_2061 (MT)	

DBSPI-2206 (MT)	SAPSybaseASE_2206 (MT)	
DBSPI-2306 (MT)	SAPSybaseASE_2306 (MT)	
DBSPI-Syb-05min-Reporter (ST)	SAPSybaseASE_2225 *(CF)	
DBSPI-Syb-UDM-YYmin (ST)	SAPSybaseASE_UDM (CF)	SAP Sybase ASE User Defined Aspect
DBSPI-27XX (MT)	SAPSybaseASE_27XX (MT)	
DBSPI-Discovery (SVCDISC)	SAPSybaseASE_Discovery (SVDISC)	SAP Sybase ASE Discovery
DBSPI-Messages (OPCMSG)	SAPSybaseASE_Messages (OPCMSG)	
DBSPI-Messages (OPCMSG)	SAPSybaseASE_Messages (OPCMSG)	SAP Sybase ASE Base
DBSPI-MeasureWare (ST)	SAPSybaseASE_Logger (ST)	
DBSPI-Syb-05min (ST) DBSPI-Syb-05min-Reporter-NT (ST) DBSPI-Syb-05min-Reporter (ST)	SAPSybaseASE_VeryHigh (ST)	
DBSPI-Syb-15min (ST)	SAPSybaseASE_High (ST)	
DBSPI-Syb-1hr (ST)	SAPSybaseASE_Medium (ST)	
DBSPI-Syb-1d (ST) DBSPI-Syb-1d-Reporter (ST) DBSPI-Syb-1d-Reporter-NT (ST)	SAPSybaseASE_Low (ST)	
NA	SAPSybaseASE_Configuration (CF)	
DBSPI-Messages (OPCMSG)	SAPSybaseASE_Messages (OPCMSG)	SAP Sybase Replication Base
DBSPI-MeasureWare (ST)	SAPSybaseASE_Logger (ST)	
DBSPI-Syb-Repserver-05min (ST)	SAPSybaseASE_VeryHigh (ST)	
NA	SAPSybaseASE_High (ST)	
NA	SAPSybaseASE_Medium (ST)	
NA	SAPSybaseASE_Low (ST)	
NA	SAPSybaseASE_RepConfiguration (CF)	

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization information in Sybase SPI	Equivalent configuration in SAP Sybase ASE MP	More information
Use *the Configure DB Connection on OMx* or *Database Configuration Manager on OMW* tool to update Sybase Server instance information.	Specify the *Username* and *Password* as parameter values when deploying an Aspect or MT to a SAP Sybase ASE CI and Replication Server instance CI.	Update SAP Sybase ASE database instance information into local configuration on the managed node.
You can enable or disable Tracing by using the Enable/*Disable Trace* tool.	The SAP Sybase ASE Server Instance Tracing parameter can be tuned during or after deployment.	Turn on/off tracing for SAP Sybase ASE Instance(s).
Start or Stop monitoring using the *Start/Stop Monitoring* tool.	SAP Sybase ASE Server Instance Collection parameter can be tuned during or after deployment.	Start/Stop monitoring for SAP Sybase ASE Instance(s).
Threshold is defined in policy and can be customized by editing the policy.	The *Threshold* parameter can be updated during or after MT or Aspect deployment.	
Severity is defined in policy and can be customized by editing policy.	The *Severity* parameter can be updated during or after MT or Aspect deployment.	
Metric filter can be customized using the Configure *DB Connection on OMX* or *Database Configuration Manager on OMW* tool.	The *Metric Filter* parameter can be tuned during deployment.	Metric filter is part of expert parameters.
Collection interval is defined in schedule task policies and can be customized by editing policy.	The *Frequency* parameter can be tuned during deployment.	

Threshold or Severity for multi Instance using instance filter while editing measurement threshold policy.	Through the *Instance* parameter, *threshold or* severity can be tuned for multiple instances during deployment.	Different threshold or severity default values can be maintained by creating a different set of Aspects and MTs.
Failover cluster configuration can be done with apminfo*.xml*.	The similar approach is possible with MP as well.	SAP Sybase ASE MP is not cluster aware in terms of CI creation or deletion for failover and relation to resource group CIs. Datalogging is also always performed for individual instances without cluster data.

Tools Mapping

This section maps SPI tools to equivalent MP tools, if any.

HPOM SPI tools	Equivalent MP tools	Comments
SPI has the tool categories: • DBSPI -> Admin: • DBSPI -> Admin Windows • Sybase	SAP Sybase ASE MP has the SAP Sybase ASE Management Pack Operational Tools tool category.	
Display Error File	Display SAP Sybase ASE MP Error File	
Self-Healing Info	Run Self-Healing Collector (DCT) for SAP Sybase ASE MP	
Start Monitoring	Enable SAP Sybase ASE MP Monitoring	Same functionality can be achieved through *SAP Sybase ASE* Server *Instance Collection* parameter.
Stop Monitoring	Disable SAP Sybase ASE MP Monitoring	
Verify Deployment	Verify SAP Sybase ASE MP Deployment	
Trace On	Enable SAP Sybase ASE Trace	Same functionality can be achieved through the *SAP* Sybase *ASE Server Instance Tracing* parameter.
Trace Off	Disable SAP Sybase ASE MP Trace	
Configure DB Connections on OMX or Database Configuration Manager on OMW	Following are a list of configuration parameters to be provided during MT or Aspect deployment to update SAP Sybase ASE Server database instance information: *Username, Password and Encryption*	
Enable Reports	To enable reports, deploy the MT or Aspect on the node.	
Enable Graphs	To enable graphs, deploy the MT or Aspect on the node.	
Configure UDM	Configure UDM by deploying the SAP Sybase ASE User Defined aspect.	
Enable UDM Graphs	To enable UDM graphs, deploy the MT or Aspect on the node.	
SAP Sybase ASE Reports	SAP Sybase ASE Reports are available for: • Transaction Log Full Percentage • Free Segment Space Percentage • Connected Maximum Users Percentage • Virtual Spaced Used Percentage • Active Cursors Count • Average Locks by Process Count • Data Cache Percentage • Procedure Cache Percentage • Data Cache Misses Percentage • Cache Utilization Percentage • Large Input Output Denied Percentage • Asynchronous Pre-Fetch (APF) Denied Percentage • Average Packet Size Sent • Average Packet Size Received • User Locks Percentage • Open Objects Used Percentage • Blocked Processes Count • Connections Per User Count	The reports marked “*” are newly introduced in the Sybase ASE MP.

	• Worker Process Requests Denied Percentage • Worker Process Memory Request Failed Percentage • Parallel Query Run Time Adjustment Percentage • Spin Lock Contention Percentage • Buffer Grabbed Dirty Percentage • Cache Hit Miss Percentage • Buffer Wash Input Output Percentage • Buffer Wash Dirty Percentage • Check Database Connection and Status • Free Checkpoints/Second Rate • *Offline Engines Count • *Inactive Mirror Device Count • *Victim Blocker • *Replication Server Thread Status	
Cluster Config	Dropped	Cluster configuration of *apminfo.*xml needs to be created on node.
Configure Graphs	Dropped	In the case of HPOM, PM needs to be configured. It is not needed in OMi, because OMi PG is present as a component.
Create Node Groups	Dropped	These tools are not available due to either one of the following reasons: • Not useful in operational scenarios. • Not relevant in the OMi or MP's context.
Database Instance Manager (Windows)	Dropped	
Display Trace File	Dropped	
Enable 3DES Encryption	Dropped	
Disable 3DES Encryption	Dropped	
Set Path (Unix)	Dropped	
Cleanup (Unix)	Dropped	
Migrate Agent (Unix)	Dropped	
Disable Graphs & Reports	Dropped	
Start/Stop Sybase DB Server	Dropped	
Trace	Dropped	
FreeSpace	SAP Sybase ASE Log Size Usage	Displays log size details for the server
Tables	SAP Sybase ASE List of Tables	Displays the list of tables in the server
AdminValues	SAP Sybase ASE SQL Server Administration	Displays general administration configuration details for the server.
Databases	SAP Sybase ASE List of Databases	Displays the list of databases in the server.
MemoryUse	SAP Sybase ASE Memory Usage	Displays the memory usage for the server.
Network	SAP Sybase ASE Network Communication	Displays Network Communication details for the server.
PhysRes	SAP Sybase ASE Physical Resources	Displays the Physical Resources usage for the server.
SAP Sybase ASE Connection Check	Check SAP Sybase ASE Connection	Checks the connections to configured databases.
Replication Server Connection Check	Check SAP Sybase Replication Server Connection	Checks the connections to configured databases.

SAP Sybase ASE User Defined Metrics (UDM)

If you want to create additional metrics based on query, create an UDM. SAP Sybase ASE SPI or MP enables you to define additional metrics and mechanisms to collect metric values with the help of SQL queries. UDMs can be associated with measurement threshold and included in the scheduled task policy.

Following are the HPOM SPI steps used to define UDMs:

1. Create UDM configuration file with a user-defined query to collect additional metrics.
2. Create measurement threshold policy to compare metric data with provided threshold and send alert if it violates the threshold. Copy DBSPI-27XX policy and name it as DBSPI-27<UDM metric number> to define threshold and severity for UDM.
3. Edit any existing schedule task policy to add UDM metric or create new schedule task policy for UDM.

Following are the MP steps to define UDMs (See the *OMi MP for SAP Sybase ASE User Guide* to configure UDM):

1. Use the *SAPSybaseASE_SampleUDM ConfigPolicy* to define UDM where new metrics can be added as a PL/SQL block.
2. Make a copy of SAPSybaseASE_27XX policy and name it as SAPSybaseASE_27<UDM metric number> to define threshold, severity and frequency for UDM. Example: SAPSybaseASE_2701.

Node Cleanup

Remove SPI artifacts from the node that you are going to monitor using MP. Following are the SPI artifacts that need to be removed in the given order:

1. Remove Sybase SPI policies from the node.
   a. List the policies using the `ovpolicy -l` command.

Note
All DB SPI policies start with DBSPI-2 or DBSPI-Syb.

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   b. Execute one of the following commands to remove all policies from the node:

   By Name: `ovpolicy -remove -polname <Name>`

   By Type: `ovpolicy -remove -poltype <Type>`

Note
Before you move from OM to OMi, make sure you do not remove the flexible management policy of type "mgrconf" if it has already been deployed.

   You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove Sybase SPI CODA / OVPA data sources.

Remove CODA or OVPA data sources using the command under instrumentation:

- On UNIX: `dbspi_mwclup`
- On Windows: `dbspimwi -cleanup`

a. Restart CODA: `ovc -restart coda`

b. Verify datasource removal: `ovcodautil -showds`

Note
There should not be any datasources listed as DBSPI_SYB_GRAPH, DBSPI_SYB_REPORT, DBSPI_SYB_UDM or datasource name starts with SYB. Management Pack creates datasources only on CODA.

For more information on how to back up the data if you need the data for future use, see the SHR documentation.

3. Remove Sybase SPI Instrumentation.

The instrumentation files on the node that are prefixed with “dbspi”, “DBSPI”, “spi_db”, and “syb_” can be deleted.

- On UNIX: `/var/opt/OV/bin/instrumentation`
- On Windows: `%OvAgentDir%\bin\instrumentation`

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

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4. Remove Sybase SPI configuration files.

The dbspi configuration/history/log files are located under `<OvAgentDrive>\usr\OV\dbspi` on Windows and `/var/opt/OV/dbspi` on UNIX. After you have taken a backup, this directory can be removed before deploying an MP.

See the chapter *Removing the DBSPI in the DBSPI Install and Config guide* for cleaning up assignments, policies, instrumentation and config files.

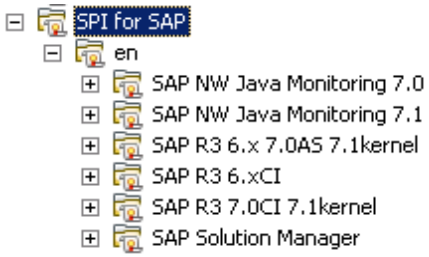
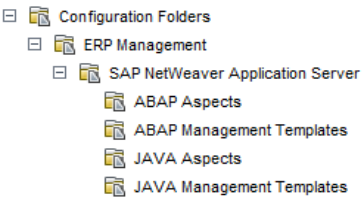
For more information on cleaning up nodes, see Prepare nodes for deployment under the Recommended steps for moving from a SPI to MP section in this document.

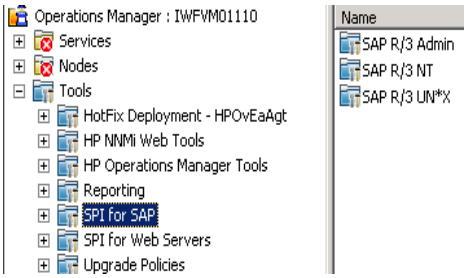
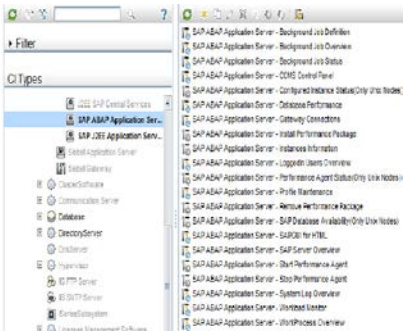
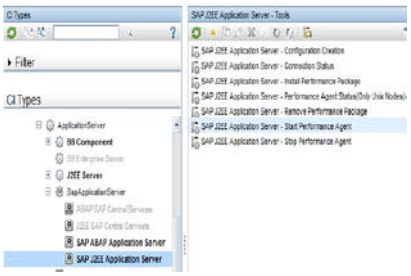
SAP SPI and Management Pack

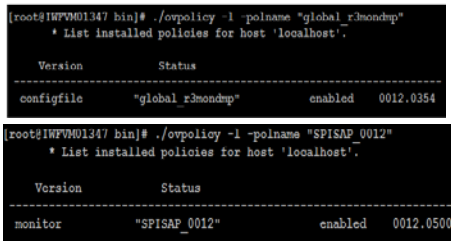
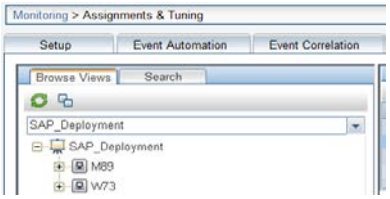
This section explains the evolution from the HPOM Smart Plug-in for SAP 12.05 to the HPE OMi Management Pack for SAP 1.0.

SPI and MP comparison

This section provides an overview of similarities and differences between HPOM Smart Plug-in for SAP (SAP SPI) and OMi MP for SAP (SAP MP). For information about working with the SAP MP, see the *HPE OMi Management Pack for SAP User Guide*.

Features	SAP SPI 12.05	SAP MP 1.0
Pre-requisites	• HPOM W 8.16, HPOM W9.x, HPOM U/S/L 9.1 • HP Operations Agent 11.05 or higher	• BSM/MA 9.23 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The SAP SPI is shipped with the Operations Agent media.	The SAP MP is shipped with the OMi 10 installer. The SAP MP is also available to download from the e-media download center. For more information on the e-media download center link, see the section Useful resources in this document.
Installation	Mount ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	The SAP MP can be installed in any of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during the OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install MP after the OMi 10.x is installed. For more information about opr-mp-installer Command-Line Interface, see the *OMi Administration Guide*. 3. Download the MP bits from e-media download center and follow the steps given below. Then mount ISO and use the OS specific installer: • Linux: *mpinstall.sh-i* • Windows: *mpinstall.vbs-i* Use this option, when a higher MP version is available in the e-media download center.
Policy Grouping	Policies are grouped into policy groups. 	Management Templates and Aspects are grouped into configuration folders. Policy templates are grouped into aspects. Aspects are in turn grouped into MTs. 
Policy Versioning	The SAP SPI uses the <major version>.<minor version> (xxxx.yyyy) format for policy versioning. Example: If the version of the SAP SPI version is 12.05, policies updated in this release would be versioned as 0012.0500. This is the version displayed in the GUI. When you update such a policy, minor version is updated. Example: When you update a policy with version 0012.0500, the version is changed to 0012.0501.	The SAP MP uses the xxxx.yyyy format for policy versioning. Example: SAP MP 1.0 policies are versioned as 0001.0000. It is displayed as 1.0 in the GUI. In subsequent MP releases, policy version will be updated only if a particular policy is updated in that release. When you update a policy, only minor versions should be updated. Example: When you update a policy with version 0001.0000 (in GUI 1.0), the version is changed to 0001.0001(in GUI 1.1).

Tools	The SAP SPI provides the following tools for monitoring SAP. Tools are grouped based on the functionality and the type of node either Windows or UNIX on which the tools are executed. 	The tools in SAP MP are grouped based on the Configuration Items - SAP ABAP application Server and SAP J2EE Application Server. Tools for SAP ABAP Application Server CI:  Tools for SAP J2EE Application Server CI: 
Instrumentation	Consists of the following instrumentation categories: • SAP_Instrumentation • SPIDataCollector	Uses the SAPMP_Instrumentation category.
Discovery	SAP ABAP Application Server: Deploy the Auto-Discovery of SAP R/3 system policy (r3sdisc) onto the managed node. SAP J2EE Application Server: Deploy the Auto-Discovery of SAP Java Systems (r3j2eesdisc) policy onto the managed node.	• SAP ABAP Application Server: Deploy the **SAP ABAP discovery** aspect onto the managed node The CIs discovered by SAP MP include the SAP systems, SAP ABAP Application Servers, and SAP Work Processes. • SAP J2EE Application Server: Deploy the **SAP J2EE discovery** aspect onto the managed node. The CI discovered by SAP MP for J2EE Application Server includes SAP J2EE Application Server configured on the node. • Remote instances discovery for SAP ABAP Application Server: Deploy the **SAP ABAP remote configuration** aspect to the managed node on which the Operations agent is installed.
Configuration	ABAP Application Server: • Configure SAP instances and the login credentials using the configuration file r3itosap.cfg. • Configure the individual monitoring areas using the configuration files such as r3mondmp.cfg, r3monrfc.cfg, r3monwpa.cfg, and so on. J2EE Application Server: • Configure the J2EE instances and the login credentials using the configuration file global_SiteConfig.cfg. • Configure the individual monitoring areas using the respective measurement threshold policies such as SPISAP_0001, SPISAP_0002, SPISAP_0204, SPISAP_0205, and so on.	ABAP Application Server: Configuration is part of deployment. For more information, see section SAP ABAP Application Server Monitoring. J2EE Application Server: Configuration is part of deployment. For more information, see section SAP J2EE Application Server Monitoring.
Deployment	Deploy specific policies or groups for the SAP ABAP application server and SAP J2EE application server based on monitoring needs to appropriate node(s).	Deploy the MT or Aspect: SAP ABAP Application Server:

		Deploy the required ABAP Management Templates onto the SAP System (SID) CIs. SAP J2EE Application Server: 1. Deploy the required JAVA Management Templates on to the SAP System (SID) CI. 2. Configure the parameters JAVA installation directory, SAP J2EE application server instance user name and password while deploying the Management Template.
Appearance of artifacts on the node	Policy list: `ovpolicy -l` Example:  Configuration and Error files are created under: • UNIX: `/var/opt/OV/dbspi` • Windows: `<OvAgentDrive>\usr\OV\dbspi` **Log files:** Log files are created under: • UNIX: `/var/opt/OV/log` • Windows: `%OvDataDir%/log`	Policy list: `ovpolicy -l` SAP ABAP Application Server: Every parameterized policy of type “sapconfigfile” will have an extra entry with polparm in the “Type” column.  SAP J2EE Application Server: Every parameterized measurement threshold policy will have an extra entry with “<policy type>tmpl” in the “Type” column.  **Log files:** Log files are created under the same folder and the log filenames remain the same as the SPI.
Monitoring capability	For more information about monitoring functionality in SPI, see the *SAP SPI online help documentation*.	All monitoring functionality which is supported by SAP SPI is supported except the following: • Integration of SAP Solution Manager 7.1 • Operation mode switch monitoring, which monitors the operations mode switch overdue time
Tuning after Deployment	You can modify the policies for customization of the SAP SPI. Customized versions have to be deployed manually to the node for customizations to take effect.	You can tune parameters during deployment for specific CI. You can also tune parameter values after deployment for specific CI using the **Monitoring > Assignments & Tuning** option. After you tune the parameters, the policy templates are deployed automatically. Threshold, Severity and collection frequency are parameterized. 
Monitoring multiple instances	Instances are configured as part of the configuration files. • SAP ABAP Application Server: *global_r3itosap.cfg* • SAP J2EE Application Server: *Global_SiteConfig*	SAP ABAP Application Server: Instances are configured as part of the SAPABAP_Configuration configuration file which is part of the **SAP ABAP Configuration** aspect. SAP J2EE Application Server: Instances are configured as part of the SAPJ2EE_Configuration instance parameter configuration file which is part of the **SAP J2EE Configuration** aspect.
End-to-End monitoring	Deploy SAP SPI and Infrastructure SPI policies to monitor the SAP environment and system infrastructure.	Deploy MT to monitor SAP environment and system infrastructure.

		There is no one-to-one mapping between the SPI policy groups and MTs present in MP. For more information on the mapping between the SPI policy and the corresponding MP policy template and Aspect, see SAP SPI policy to SAP MP Policy Template Mapping in this document.
Monitoring instances with different business criticality	Maintain multiple policies set based on the business criticality.	• Essential MT has a set of policies that monitors the key health metrics of the SAP Landscape. Deploy the essential MT to monitor less critical environment. • Extensive MT has a wider range of policies monitoring additional metrics. Use the extensive MT to monitor critical business environment.
Remote Monitoring for SAP ABAP Application Server	1. Specify the credentials of remote nodes and proxy node (on which agent is installed) in the configuration file *r3itosap.cfg*. 2. Specify the remote nodes and associated server nodes in the individual configuration files. For example, *r3mondmp.cfg, r3monrfc.cfg, r3monwpa.cfg* and so on. 3. Deploy them on the server nodes.	1. Provide configuration details about the remote host and the local host in the configuration file policy *SAPABAP_RemoteConfiguration* which is part of the SAP ABAP Remote Configuration Aspect. 2. Specify the remote nodes and associated server nodes in the individual configuration files. For example: SAPABAP_DmpMon, SAPABAP_RFCDestMon, SAPABAP_WPMon, and so on. The **SAPABAP_RemoteConfiguration** Aspect also includes the discovery policy *SAPABAP_RemoteDiscovery* that is used to discover SAP ABAP application server remote instances.
Transports	Import specific transports to monitor the SAP ABAP Application Server on the SAP node. Transports are available based on the SAP versions.	Import specific transports to monitor the SAP ABAP Application Server on the SAP node. Transport for SAP versions 6.20 or 6.40 and transports for the SAP solution Manager 7.1 integration are not available. Detailed mapping is available in the section Transports Mapping in this document.
Uninstallation	Native procedure is used to uninstall SAP SPI.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • Instrumentation • Content Pack definitions
Graphs	OOTB graphs are not available	OOTB graphs are not available
Data logging	Collected metrics gets logged into CODA or OVPA on the node.	SAP MP uses only CODA as datasource. There is no difference in the data logged with respect to datasource name or class names.
Indicators (ETIs and HIs)	Supports SAP Content Pack which ships HIs or ETIs. HIs or ETIs are included as part of the Custom Message Attributes in the events.	Has the following new ETIs in In addition to the HIs or ETIs available in SAP SPI, SAP MP provides the following: • CTSPerformance • SystemChangeOptionStatus • ABAPDispatcherStatus • TemSeFileInconsistency • SAPFileSystemUtilization • SAPSystemSecurityStatus • SAPSystemLogStatus • IDOCStatus
TBECs	Supports SAP Content Pack where Topology Based Event Correlation Rules are not available.	Topology Based Correlation Rules are available with SAP MP for both ABAP and J2EE Application Servers.

Events	The policy names form a part of the message text and they start with r3* for ABAP Application Server and SPISAP_* for J2EE Application Server.	The policy names form a part of the message text and they start with r3* for ABAP Application Server and SAPJ2EE_* for J2EE Application Server.
I18N & L10N	Is I18N certified and supports L10N.	Is I18N certified and is localized in the following languages: • Simplified Chinese • Japanese
OO Flows	Not available	Not available

SAP ABAP Application Server Monitoring

Common Policy Changes from SAP SPI to SAP MP

This section captures changes (such as parameterization) commonly done on SAP SPI policies to convert them into the SAP MP policy templates for monitoring the SAP ABAP Application Server.

The following out-of-the-box policy types available in SAP SPI is explained in the next few sections:

- Configuration File Policies
- Schedule Task Policies
- Service Auto Discovery Policy

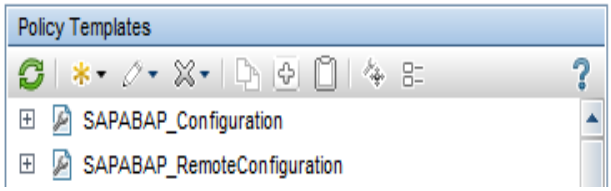
Configuration File Policies

As part of SAP ABAP Application server monitoring, all the input credentials and the configurations for monitoring the individual specific areas of SAP ABAP environment are available as configuration file policies. The below part lists the differences between the configuration in SAP MP against the SAP SPI.

Configurations File Policy for Login Credentials

You can classify the changes made to configuration file policies in SAP SPI into two parts:

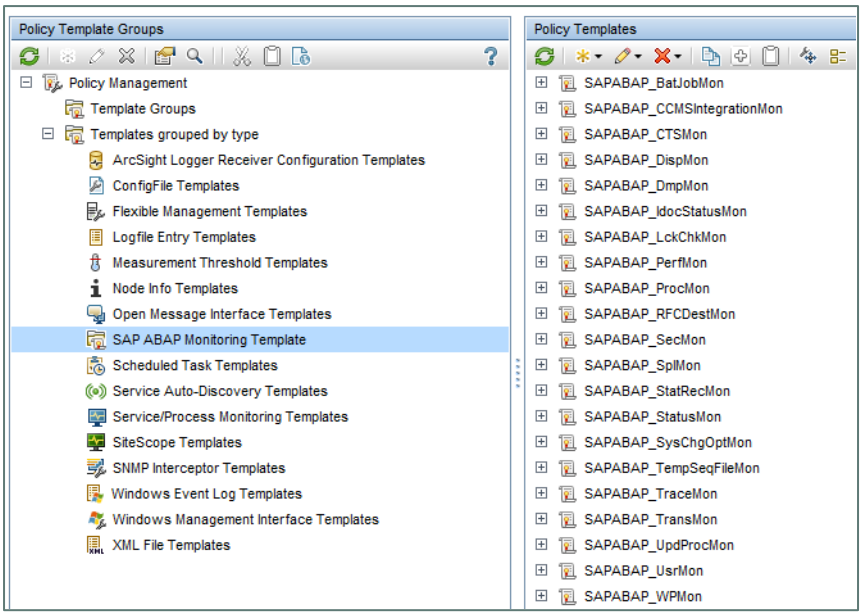
a. Changes to the configuration file templates for specifying the login credentials.

SAP SPI 12.05	SAP MP 1.0
Global_r3itosap This file is used to configure the SAP ABAP instances both for remote instances and instances on which the operations agent is running.	SAPABAP_Configuration This aspect is used to configure SAP ABAP instances on which the operations agent is running. SAPABAP_RemoteConfiguration This aspect is used to configure the SAP ABAP remote instances. 

b. Changes to the other configuration file templates for specifying the monitoring configurations to monitor the individual monitoring areas:

A new policy template type called SAP ABAP Monitoring Template is introduced in SAP MP. This is used to define the configurations required for monitoring the different areas of SAP ABAP Application Server such as the dump monitoring, rfc monitoring, job monitoring and so on. These policy templates map to the SAP SPI configuration files such as *global_r3monjob, global_r3monrfc*, and so on.

The following screenshot “Policy templates of type SAP ABAP Monitoring Template” lists the different policy templates available in SAP MP under SAP ABAP Monitoring Template.



The monitoring attributes available in the following configuration file policies such as threshold, severity, RFC timeout interval, trace level, trace file name, trace mode, trace period, remote monitoring attributes, and other application specific attributes are customized in the configuration file policy.

- Global_r3monjob
- Global_r3monal
- Global_r3moncts
- Global_r3mondisp
- Global_r3mondmp
- Global_r3monale
- Global_r3monlck
- Global_r3perfagent
- Global_r3monpro
- Global_r3monrfc
- Global_r3monsec
- Global_r3monspl
- Global_r3perfstat
- Global_r3monchg
- Global_r3monaco
- Global_r3mondev
- Global_r3montra
- Global_r3monupd
- Global_r3monusr
- Global_r3monwpa

Each of the policies mentioned above can be modified by editing the configuration file policy based on specific requirements. Every customization increases the policy version. Each configuration file policy is associated with a schedule file policy where you can configure the frequency attribute.

Each set of configuration file policy and schedule task policy in SAP SPI is replaced with one SAP ABAP monitoring template as listed in the following table:

SAP SPI		SAP MP
Configuration File Policy	Schedule Task Policy	SAP ABAP Monitoring Template
global_r3monaco	r3monaco	SAPABAP_TempSeqFileMon
global_r3monal	r3monal	SAPABAP_CCMSIntegrationMon
global_r3monale	r3monale	SAPABAP_IdocStatusMon
global_r3monchg	r3monchg	SAPABAP_SysChgOptMon
global_r3moncts	r3moncts	SAPABAP_CTSMon
global_r3mondev	r3mondev	SAPABAP_TraceMon
global_r3mondisp	r3mondisp	SAPABAP_DispMon
global_r3mondmp	r3mondmp	SAPABAP_DmpMon
global_r3monjob	r3monjob	SAPABAP_BatJobMon
global_r3monlck	r3monlck	SAPABAP_LckChkMon
global_r3monpro	r3monpro	SAPABAP_ProcMon
global_r3monrfc	r3monrfc	SAPABAP_RFCDestMon
global_r3monsec	r3monsec	SAPABAP_SecMon
global_r3monspl	r3monspl	SAPABAP_SplMon
global_r3montra	r3montra	SAPABAP_TransMon
global_r3monupd	r3monupd	SAPABAP_UpdProcMon
global_r3monusr	r3monusr	SAPABAP_UsrMon
global_r3monwpa	r3monwpa	SAPABAP_WPMon
global_r3status	r3status	SAPABAP_StatusMon
global_r3monoms	r3monoms	Not Available as SAP MP does not support the obsoleted SAP versions

Parameterized attributes in the SAP ABAP Monitoring Template

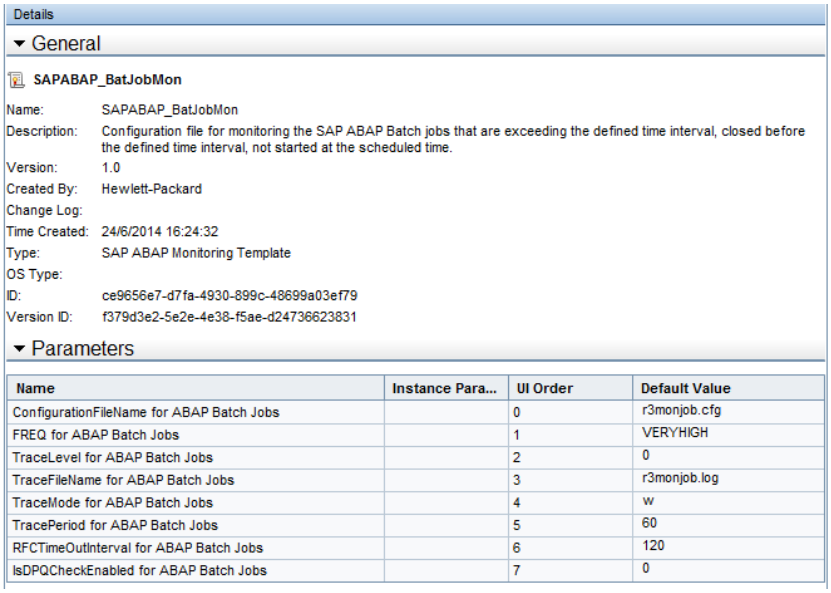
The following attributes are parameterized in all the SAP ABAP Monitoring templates.

- Frequency
- Trace levels
- Trace File name
- Trace Mode
- Trace period
- RFC timeout interval
- DPQ Cheque Enablement

Example: In the SAP MP, following are the parameterized attributes within the SAP ABAP monitoring template SAPABAP_BatJobMon for monitoring the SAP ABAP Batch jobs:

- FREQ for ABAP Batch Jobs
- TraceLevel for ABAP Batch Jobs
- TraceFileName for ABAP Batch Jobs
- TraceMode for ABAP Batch Jobs
- TracePeriod for ABAP Batch Jobs
- RFCTimeOutInterval for ABAP Batch Jobs
- IsDPQCheckEnabled for ABAP Batch Jobs

The following screenshot provides the details on the parameterized attributes for the SAPABAP_BatJobMon template.



Details

General

SAPABAP_BatJobMon

Name: SAPABAP_BatJobMon
Description: Configuration file for monitoring the SAP ABAP Batch jobs that are exceeding the defined time interval, closed before the defined time interval, not started at the scheduled time.
Version: 1.0
Created By: Hewlett-Packard
Change Log:
Time Created: 24/6/2014 16:24:32
Type: SAP ABAP Monitoring Template
OS Type:
ID: ce9656e7-d7fa-4930-899c-48699a03ef79
Version ID: f379d3e2-5e2e-4e38-f5ae-d24736623831

Parameters

Name	Instance Para...	UI Order	Default Value
ConfigurationFileName for ABAP Batch Jobs		0	r3monjob.cfg
FREQ for ABAP Batch Jobs		1	VERYHIGH
TraceLevel for ABAP Batch Jobs		2	0
TraceFileName for ABAP Batch Jobs		3	r3monjob.log
TraceMode for ABAP Batch Jobs		4	w
TracePeriod for ABAP Batch Jobs		5	60
RFCTimeOutInterval for ABAP Batch Jobs		6	120
IsDPQCheckEnabled for ABAP Batch Jobs		7	0

Application specific monitoring attributes in the SAP ABAP Monitoring template

Similar to SAP SPI, the application specific monitoring attributes have to be customized in the corresponding SAP ABAP monitoring templates.

Differences between configuring SAP SPI and SAP MP Using Examples

The following examples explain the difference in the configuration of SAP ABAP Batch Job monitoring between SAP SPI and SAP MP.

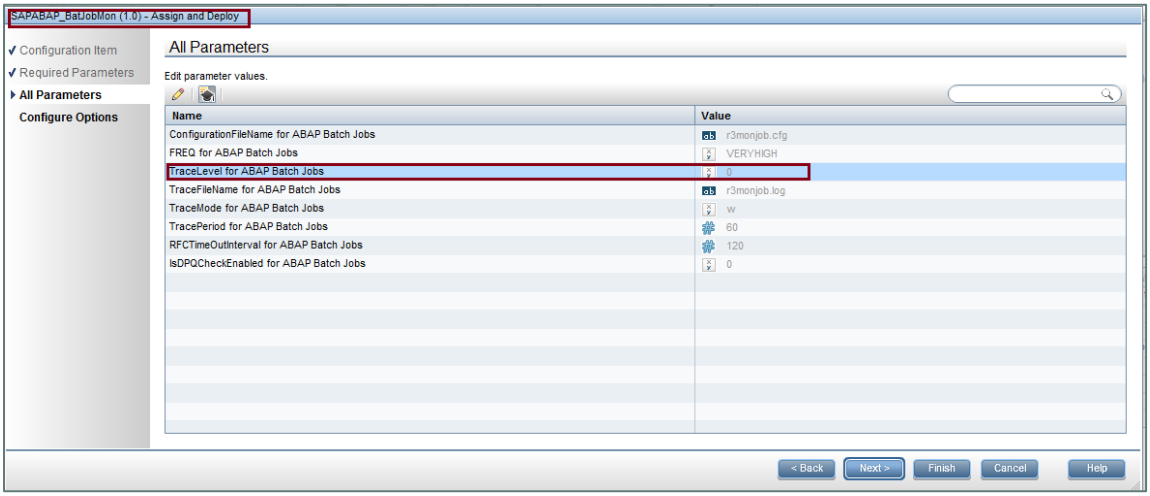
The SAP ABAP Job monitoring attributes such as the Jobname, maximum time of jobs, minimum time of jobs, and delay time of jobs are defined within the SAPABAP_BatJobMon template in SAP MP.

Example 1: If SAP ABAP Batch Jobs have to be monitored on two SAP ABAP Application Server instances with different Trace levels, the following attributes have to be set in SAP SPI and SAP MP.

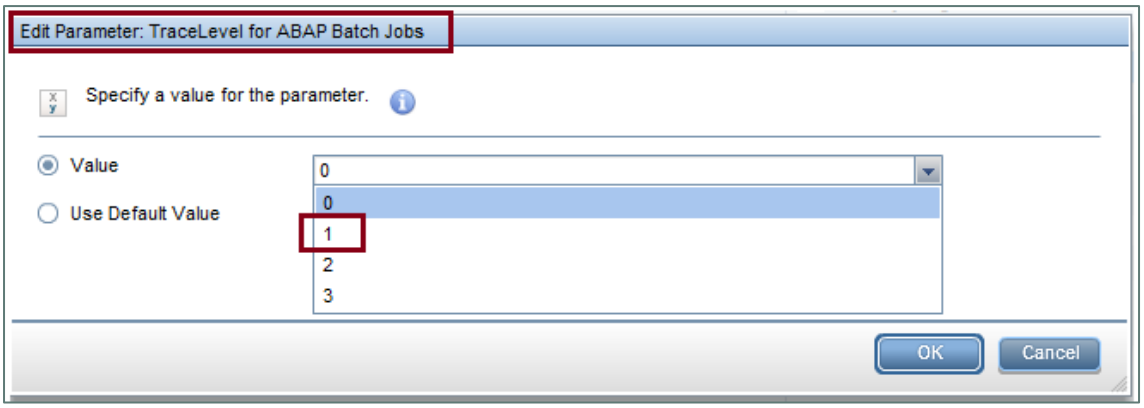
SAP SPI	SAP MP
On the first SAP ABAP Application Server instance: 1. Edit *global_r3monjob.cfg* file. 2. Change the trace level as 1. 3. Save the *global_r3monjob.cfg*. 4. Deploy the modified version of *global_r3monjob.cfg* on the first SAP ABAP Application Server instance inst1 along with the schedule task policy *r3monjob*. On the second SAP ABAP Application Server instance: 1. Edit *global_r3monjob.cfg* file. 2. Change the trace level as 3. 3. Save the *global_r3monjob.cfg*. 4. Deploy the modified version of *global_r3monjob.cfg* to the second SAP ABAP Application Server instance inst2 along with the schedule task policy *r3monjob*.	On both the SAP ABAP Application Server instances: 1. Tune the trace level parameter for SAPABAP_BatJobMon during the deployment of corresponding MT or Aspect on the SAP ABAP Application Server instances inst1 and inst2. 2. Default values are set as per the corresponding configuration file policies in SAP SPI.

The screenshots “Deployment of aspect SAP ABAP Batch Job Health” and “Editing of the parameter ‘Trace level’ for the SAP ABAP Batch Job Health aspect” indicate how to edit the trace level parameter while deploying the aspect.

The same parameter can also be modified while deploying the ABAP Management Templates.



Screenshot: Deploying the SAP ABAP Batch Job Health aspect



Screenshot: Editing the parameter “Trace level” for the SAP ABAP Batch Job Health aspect

Example 2: If the SAP ABAP Batch jobs have to be monitored on two different SAP ABAP Application Server instances for different Aborted Batch Jobs, the following attributes have to be set in SAP SPI and SAP MP:

SAP SPI	SAP MP
On the first SAP ABAP Application Server instance: 1. Edit the *global_r3monjob.cfg* file. 2. Change the value of the *Jobname* parameter as SAPJOB1 for the Aborted jobs configuration. 3. Save the *global_r3monjob.cfg*. 4. Deploy this version on the first SAP ABAP application Server instance inst1 along with the schedule task policy r3monjob. On the second SAP ABAP Application Server instance: 1. Edit the *global_r3monjob.cfg* file. 2. Change the value of the Jobname parameter as *SAPJOB2*. 3. Save the file. 4. Deploy the modified version of *global_r3monjob.cfg* to the second SAP ABAP Application Server instance inst2 along with the schedule task policy *r3monjob*.	On the first SAP ABAP Application Server instance: 1. Edit the *Jobname* parameter as SAPJOB1 for the aborted jobs configuration in template SAPABAP_BatJobMon. 2. Save the template. Update the corresponding MT or aspect with the latest version of the template and deploy to the first SAP ABAP Application Server instance inst1 CI. On the second SAP ABAP Application Server instance: 1. Edit the *Jobname* parameter as SAPJOB2 for the aborted jobs configuration in the template. This increments the version of the SAPABAP_BatJobMon template. 2. Update the MT or Aspect with the updated version of the template and deploy to the second SAP ABAP Application Server.

Schedule Task Policies

This section explains how the various frequencies are scheduled for monitoring the SAP ABAP Application Server in SAP SPI and SAP MP.

The frequencies for executing different monitors are available for monitoring the SAP ABAP Application Server. The frequencies are configured as a part of the Schedule Task policy in SAP SPI. Each configuration file policy is associated with a schedule task policy. The schedule task policy runs with the defined intervals of time such as every 5 minutes, 15 minutes, 1 hour, and so on. If you want to change the interval, modify the corresponding schedule task policy and change the interval. Every such customization increments the schedule task policy version.

In SAP MP, the frequency attribute is parameterized and included as part of the SAP ABAP monitoring templates. MP replaces the SAP SPI schedule task policies with four schedule task policies with the following values with the default schedule interval.

Very High	05 minutes
High	15 minutes

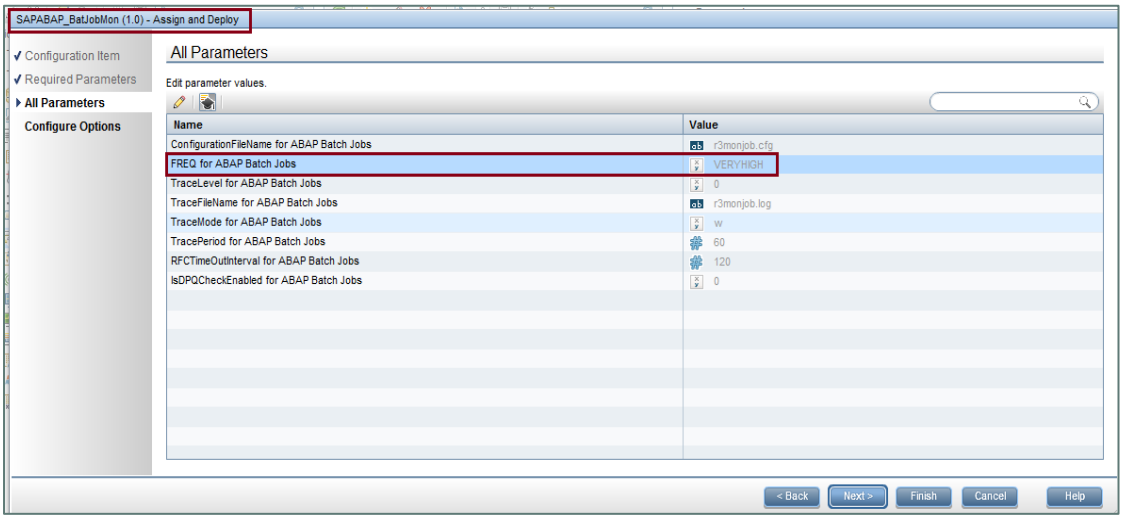
Medium	01 hour
Low	24 hours

Example: If SAP ABAP Jobs have to be monitored on two SAP ABAP Application Server instances for two different frequencies, the following attributes have to be set in SAP SPI and SAP MP:

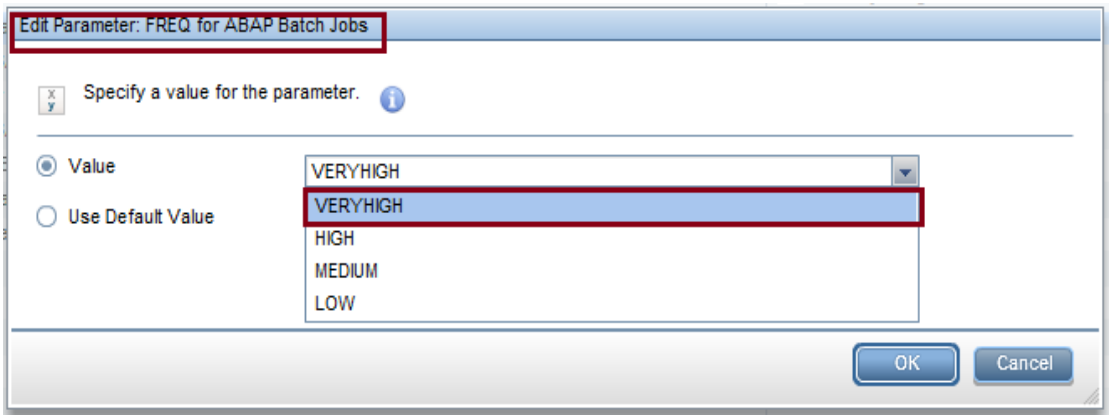
SAP SPI	SAP MP
On the first SAP ABAP Application Server instance: 1. Edit schedule task policy *r3monjob* to run every 5 minutes. 2. Save *r3monjob*. 3. Deploy it on the first SAP ABAP Application Server instance inst1 along with the *global_r3monjob.cfg* file. On the second SAP ABAP Application Server instance: 1. Edit *r3monjob* schedule task policy to run once in 30 minutes. 2. Save *r3monjob*. 3. Deploy the modified version of the policy on the second SAP ABAP Application Server instance inst2.	You can tune the *frequency* parameter for SAPABAP_BatJobMon can be tuned during the deployment of corresponding MT or Aspect on the SAP ABAP Application Server instances inst1 and inst2.

The screenshots “Frequency parameter of the Aspect SAP ABAP Batch Job Health” and “Editing the frequency parameter for the Aspect SAP ABAP Batch Job Health” shows how to edit the frequency parameter while deploying the Aspect.

The same parameter can also be edited during the deployment of ABAP Management Templates.



Screenshot: Frequency parameter of the SAP ABAP Batch Job Health aspect



Screenshot: Editing the frequency parameter for the SAP ABAP Batch Job Health aspect

Discovery Policy

The following SAP components are discovered as part of the discovery in the SAP SPI for the SAP ABAP Application Server:

- SAP System
- SAP ABAP Application Server
- SAP Workprocesses
- Environment
- Interface objects

The following SAP CITs are discovered as part of the discovery in the SAP MP for the SAP ABAP Application Server:

- SAP System
- SAP ABAP Application Server
- SAP Workprocesses

SAP SPI policy to SAP MP Policy Template Mapping

This section maps SAP MPs policies to corresponding SAP SPI policies for the SAP ABAP Application Server. This section also lists the differences between them.

In the following table, the MP policy template marked with "*" supports logging of metrics.

HPOM Smart Plug-in Policy	OMi Management Pack – Policy Template	OMi Management Pack – Aspects
R3monal R3monchg R3moncts R3status R3mondev R3monpro R3mondisp R3mondmp R3monjob R3monlck R3monrfc R3monupd R3monusr R3monwpa	SAPABAP_VeryHigh	SAP ABAP Base Note A set of SPI schedule task policies are replaced with the single schedule task policy template *SAPABAP_VeryHigh*. The schedule task policies *r3monale* and *r3monaco* is now replaced with *SAPABAP_High*.
R3monale R3monaco	SAPABAP_High	
R3monspl	SAPABAP_Medium	
R3monspl	SAPABAP_Low	
SAP R3 opcmsg	SAPABAP_Messages	
Global_r3monjob	SAPABAP_BatJobMon	SAP ABAP Batch Job Health
Global_r3itosap	SAPABAP_Configuration	SAP ABAP Configuration
Global_r3moncts	SAPABAP_CTSMon	SAP ABAP Correction and Transport System Status
R3sdisc	SAPABAP_Discovery	SAP ABAP Discovery
Global_r3mondmp	SAPABAP_DmpMon	SAP ABAP Dump Status
Global_r3monale	SAPABAP_IdocStatusMon	SAP ABAP Idoc Status
Global_r3monlck	SAPABAP_LckChkMon	SAP ABAP Lock Status
Global_r3perfagent Global_r3perfstat	SAPABAP_PerfMon SAPABAP_StatRecMon	SAP ABAP Performance Monitor(*)

Global_r3mondisp Global_r3monproc	SAPABAP_DispMon SAPABAP_ProcMon	SAP ABAP Processes and Dispatcher Status
Global_r3monrfc	SAPABAP_RFCDestMon	SAP ABAP RFC Destination Status
N/A	SAPABAP_RemoteConfiguration SAPABAP_RemoteDiscovery	SAP ABAP RemoteConfiguration
Global_r3monsec	SAPABAP_SecMon	SAP ABAP Security Status
Global_r3monspl	SAPABAP_SplMon	SAP ABAP Spool Health
Global_r3monchg	SAPABAP_SysChgOptMon	SAP ABAP System Change Option Status
Global_r3montra	SAPABAP_TransMon	SAP ABAP Transport Status
Global_r3monupd	SAPABAP_UpdProcMon	SAP ABAP Update Tasks Health
Global_r3monusr	SAPABAP_UsrMon	SAP ABAP User Health
Global_r3monwpa	SAPABAP_WPMon	SAP ABAP Work Process Health
Global_r3monal	SAPABAP_CCMSIntegrationMon	SAP CCMS Integration
Global_r3status Global_r3mondev	SAPABAP_StatusMon SAPABAP_TraceMon	SAP System Health
Global_r3monaco	SAPABAP_TempSeqFileMon	SAP Temporary Sequential File Monitoring
Global_r3monoms	Dropped	Not available as SAP MP does not support the obsoleted SAP versions

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration Type	Configuration and Customization Information in SAP SPI 12.05	Equivalent Configuration in SAP MP 1.0
Frequency parameter	Modify the corresponding schedule file policy.	Modify the corresponding frequency parameter in the management template.
Parameters related to trace file, RFC timeout interval and DP Queue check Enablement	Modify the corresponding configuration file policy.	Modify the corresponding parameters in management template.
Placement of RFC library files to the instrumentation directory on the managed node	Use the tool (Install the RFC library) under SAP R/3 Admin tool group.	Manually copy the RFC library to the instrumentation directory on the managed node.
Discovery of SAP ABAP application server instances	Specify all the details required for the discovery in the configuration file. This is a completely manual task.	The SAP ABAP instances are automatically discovered. No inputs required.
Discovery and monitoring of remote SAP ABAP application Server instances	SAP remote instances are not discovered automatically. Specify the details on the remote instances in the configuration file and monitor those remote instances based on the input details.	Discovery of remote instances is available as a part of the RTSM view. Configuration of remote instances is done using the Aspect and monitoring is based on the input values in the aspect.
SAP High Availability	Specify the input details required to monitor SAP High Availability environment in the configuration file.	All the inputs required to configure the SAP High availability systems are extracted automatically.
Discovery of SAP High Availability service tree	No support is available to discover the SAP High availability service view.	Separate view for SAP HA environment is available. The view shows the active SAP instances. Passive instances are not discovered.
Tools that invoke SAP GUI on the server	Install separate SAPGUI software on the HPOM server to run the tools that display the SAP GUI.	Use a web interface to access SAP GUI from the MA server.
Creation of data source	Data sources are created by executing the command manually on the managed node.	Data sources are created automatically as part of the background configuration.

Out of the box SAP ABAP Application Server monitoring	Manual configurations are required to start the monitoring of the SAP ABAP Application Server.	Basic out of the box monitoring is available for the SAP ABAP Application Server without manual configuration.

Tools Mapping

The SAP MP tools are available under the following tool categories:

- SAP Admin Tools
- SAP Information Tools

SAP SPI Tools	SAP MP Tools	Comments
Control Panel: RZ03 - Displays the CCMS control panel	SAP ABAP Application Server: CCMS Control Panel	
DB Performance: DB02 shows the database performance through tables and indexes	SAP ABAP Application Server: DB Performance	
Gateway: SMGW SAP R/3 Gateway monitor	SAP ABAP Application Server: Gateway connections	
Job Maintain: SM36 Defines background jobs	SAP ABAP Application Server: Background Job Definition	
Job Overview: SMX Status of background jobs	SAP ABAP Application Server: Background Job Status	
Job Performance: SM39 Displays Job performance by Job/Username ,time or status	SAP ABAP Application Server: Background Job Overview	
Java R/3 Frontend: Start the SAP R/3 java frontend	SAP ABAP Application Server: SAPGUI for HTML	
Performance: ST03 Workload analysis	SAP ABAP Application Server: Workload Monitor	
Profile Maintain: RZ10 Profile Maintain	SAP ABAP Application Server: Profile Maintenance	
Servers: SM51 R/3 Server overview	SAP ABAP Application Server: SAP Server Overview	
Syslog: SM21 Analysis of local system log	SAP ABAP Application Server: System Log Overview	
Users: AL08 Display current active users	SAP ABAP Application Server: LoggedIn Users Overview	
PerfAgent START: Start Performance Agent	SAP ABAP Application Server: Start Performance Agent	
PerfAgent STOP: Stop Performance Agent	SAP ABAP Application Server: Stop Performance Agent	
R/3 Info: Displays information about running SAP R/3 instances on the selected nodes.	SAP ABAP Application Server: Instances Information	
PerfAgt STATUS: Show status of Performance Agent (Only on Unix nodes)	SAP ABAP Application Server: Performance Agent Status(Only Unix nodes)	
Process: SM50 Process Overview	SAP ABAP Application Server: WorkProcess Overview	
Check R/3 database: Checks the SAP R/3 database availability (calls SAP tp program) – Only on UNIX nodes	SAP ABAP Application Server: SAP Database Availability (Only Unix nodes)	
Status R/3 Config: Displays details of the status of any installed SAP R/3 instances (Only on UNIX nodes)	SAP ABAP Application Server: Configured Instance Status (Only UNIX nodes)	
Install Performance Package (UNIX) Install Performance Package (WINDOWS)	SAP ABAP Application Server: Install Performance Package	
Remove Performance Package (UNIX) Remove Performance Package (WINDOWS)	SAP ABAP Application Server: Remove Performance Package	

Self-Healing Info: Manually triggers a SHS data collector in case no SHS client is installed	Run Self-Healing Collector for SAP MP	
Version Verify: Helps to identify if there is any difference between the SAP SPI based installed product version and the SAP SPI component version installed on the system.	Dropped	Data capture tool is provided for this functionality
Maintain Thresholds: RZ06 Maintain Alert Thresholds	Dropped	The transaction RZ06 is obsolete.
Operation Modes: RZ04 Maintain Operation Modes	Dropped	The operation mode monitor is obsolete for SAP versions supported by the SAP MP.
Operation sets: SM63 Displays/Maintains Operation Modes	Dropped	The operation mode monitor is obsolete for SAP versions supported by the SAP MP.
Install RFC Library: Install the RFC library to the appropriate directory	Dropped	For more information about copying the RFC library to the appropriate directory, see the *HPE OMi Management Pack for SAP User Guide*.
Write Statistical Records	Dropped	

Transports Mapping

SAP Version	SAP SPI 12.05	SAP MP 1.0
6.20, 6.40	• K900186.BA1 HP Operations SPI 12.00 for SAP 6.20, 6.40 main transport • K900165.BA1HP Operations SPI 12.00 for SAP 6.20, 6.40, 7.0 test prog • K900166.BA1 HP Operations SPI 12.00 for SAP 6.20, 6.40, 7.0 user roles	SAP version 6.20, 6.40 is not supported by SAP MP as they are obsoleted from SAP.
7.0, 7.1, 7.01, 7.02	• K900046.YHR HP Operations SPI 12.00 for SAP 7.0, 7.1 main transport • K900165.BA1 HP Operations SPI 12.00 for SAP 6.20, 6.40, 7.0 test prog. • K900166.BA1 HP Operations SPI 12.00 for SAP 6.20, 6.40, 7.0 user roles • K900026.LA1 patch transport on top of K900046.YHR	• K900002.L19 HP SAPMP - Main transport for SAP Versions 7.0x, 7.1x • K900021.W09 HP SAPMP - Test Programs for SAP Versions 7.x • K900024.W09 HP SAPMP - User Role Transport for SAP Versions 7.x
7.3, 7.4	• K900046.YHR HP Operations SPI 12.00 for SAP 7.0, 7.1 main transport • K900165.BA1 HP Operations SPI 12.00 for SAP 6.20, 6.40, 7.0 test prog. • K900166.BA1 HP Operations SPI 12.00 for SAP 6.20, 6.40, 7.0 user roles • K900011.W30 patch transport on top of K900046.YHR	• K900020.W09 HP SAPMP - Main transport for SAP Versions 7.3, 7.4 • K900021.W09 HP SAPMP - Test Programs for SAP Versions 7.x • K900024.W09 HP SAPMP - User Role Transport for SAP Versions 7.x
Deletion transports	• K900014.WBP - SAP version 6.20, 6.40, 7.0, 7.1 - For all versions supported by SAP SPI 12.05	• K900011.N79 - HP SAPMP - Deletion Transport for SAP Versions 7.0x, 7.1x • K900023.W09 - HP SAPMP - Deletion Transport for SAP Versions 7.3, 7.4
SAP Solution Manager Integration	• K900034.BWA Solution Manager 7.0 Integration • K900041.SM5 Solution Manager 7.1 Integration (SolutionManager71_Integration.car)	SAP Solution Manager integration is not supported by the SAP MP.
OOTB CCMS templates transport	• K900739.SP1 HP Operations SPI 10.50 for SAP • CCMS Alerts Monitors	The OOTB CCMS templates are modified and are no longer available with SAP CCMS. So this transport is not valid any more. Custom CCMS MTEs could be created. See *OMi Management Pack for SAP User Guide* for more information.
L10n transport	K900012.JP1 (Only Japanese text symbols)	K900002.JC9 - HP SAPMP - Japanese, Simplified Chinese text symbols

Node Cleanup

Remove SPI artifacts from the node that you are going to monitor using MP. Following are the SPI artifacts that need to be removed in the given order.

1. Remove the policies by executing one of the following commands:
   - By Name: `ovpolicy –remove –polname <Name>`
   - By Type: `ovpolicy –remove -poltype <Type>`

Note

In SAP SPI, the policy names are prefixed with “global_r3*", “r3*“, and “SAP R3*“.

You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

The configuration file policies are available under the following folders:

- UNIX: `/var/opt/OV/conf/sapspi/global`
- Windows: `%OvDataDir%\conf\sapspi\global`

2. Remove the log files. The log files are available under the following folders:
   - UNIX: `/var/opt/OV/log/<SAP ABAP Configuration file name>.log`
   - Windows: `%OvDataDir%\log\<SAP ABAP Configuration file name>.log`
3. Run the following tools on the selected managed node to delete the CODA/OVPA tables.
   - UNIX: Use the tool Remove Performance Package from the tool group SAP R/3 Admin.
   - Windows: Use the tool Remove Performance Package from the tool group SAP R/3 Admin.

Note

There should not be any datasources for the different SAP ABAP application servers that are named as R3_<SAP Hostname>_<SAP SID>_<SAP Instance Number>_DATA.

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4. Remove the instrumentation files on the node that are prefixed with r3*, sapspi*, spi_mysap* or sap_*.
   - UNIX: `/var/opt/OV/bin/instrumentation`
   - Windows: `%OvDataDir%\bin\instrumentation`

Note

Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

5. Use the removal transport to remove the SAP ABAP related objects.

Import the following transport to the SAP node to remove the SAP ABAP related objects of SAP SPI. K900014.WBP - SAP version 6.20, 6.40, 7.0, 7.1 - For all versions supported by SAP SPI 12.05.

SAP J2EE Application Server Monitoring

Common Policy Changes from SAP SPI to SAP MP

This section captures the changes (such as parameterization) commonly made to the SAP SPI policies to adopt them to SAP MP for monitoring the SAP J2EE Application Server. The following out-of-the-box policy types available in SAP SPI:

- Measurement Threshold Policies
- Schedule Task Policies
- Service Auto Discovery Policy

Measurement Threshold Policies

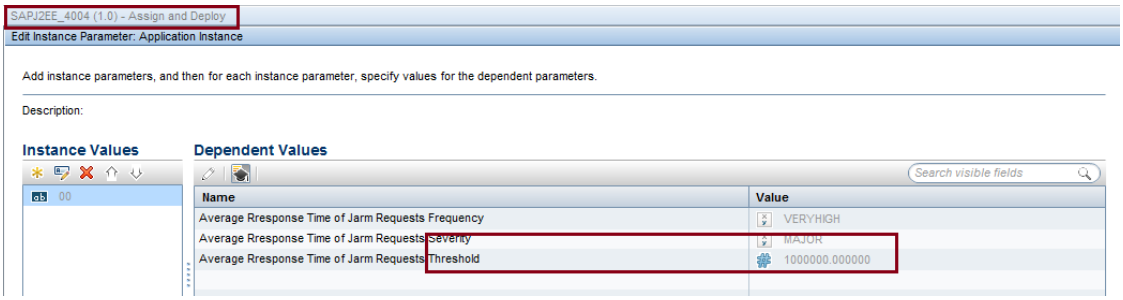
Threshold and Severity

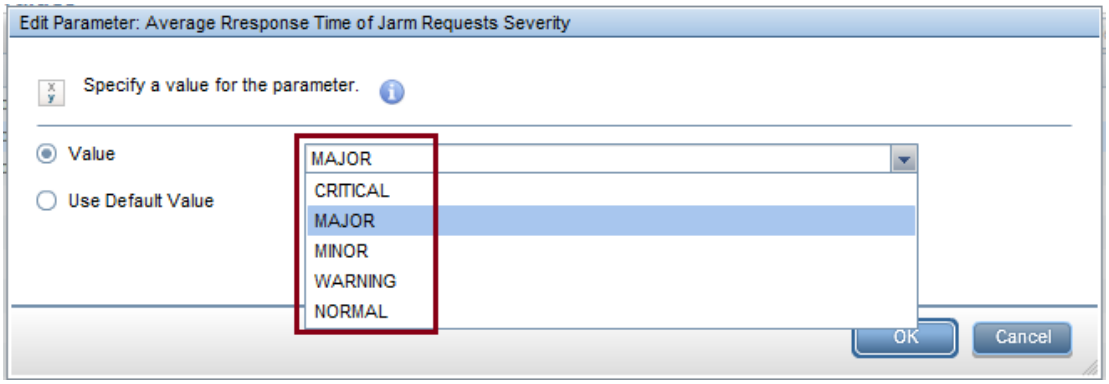
Threshold and severity are the most customized policy attributes for SAP J2EE Monitoring. In the SAP SPI, threshold and severity are defined in the measurement threshold policies. You can modify the threshold and severity by editing the policy based on your requirements. Each customization increments the policy version. With parameterization, you can define any attribute as a parameter and can modify the value during the deployment. With the SAP MP, threshold and severity are parameterized.

Example: There are two SAP J2EE Application Server instances 'inst1' and 'inst2' of SAP version 7.0 running on two different nodes. Both the instances have to be configured with different threshold and severity to monitor the average response time from the server.

SAP SPI	SAP MP
On the first SAP J2EE Application Server instance: 1. Edit policy SPISAP_4004 to change the threshold or severity for inst1. 2. Save the policy. 3. Deploy this version of the policy on inst1. On the second SAP J2EE Application Server instance: 1. Edit the SPISAP_4004 and change the threshold/severity for inst2. 2. Save the policy. 3. Deploy policy SPISAP_4004 on inst2.	On both SAP J2EE Application Server instances: Tune the values of threshold and severity for SAPJ2EE_4004 during the deployment of the corresponding MT/Aspect on inst1 and inst2. Default values are set as per the SPISAP_4004 policy.

The following screenshots "Editing the severity and threshold parameters for policy SAPJ2EE_4004" shows the method used to edit the severity and threshold parameters in the SAP MP.





Screenshots: Editing the severity and threshold parameters for policy SAPJ2EE_4004

The same parameters can also be edited while deploying the JAVA Management Templates.

Monitoring Frequency

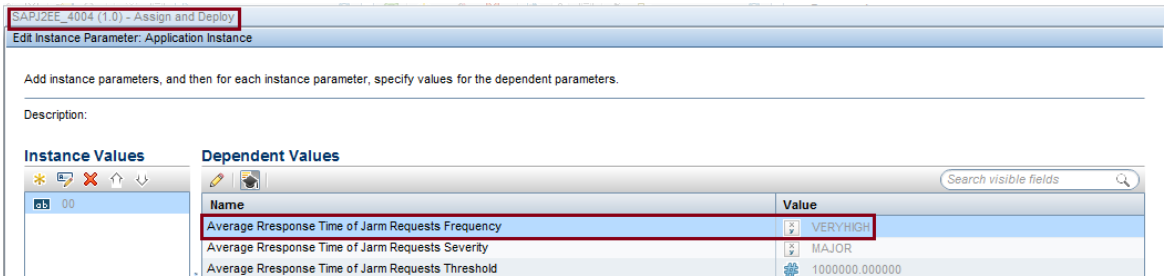
The SAP SPI schedule task policy collects a predefined set of metrics at defined intervals. If there is a need to collect metric data from 05 mins to 15 mins, edit two schedule task policies. Edit the 5m schedule task policy to remove metrics from the set and 15m schedule task policy to add the metric to the set. Every such change increments the version.

In the SAP MP, there are 4 schedule task policies with the interval Veryhigh, High, Medium and Low. In MP, policies that contain the frequency where the value is set to Veryhigh, High, Medium or Low. If there is a need to change collection interval for one metric, the value of frequency parameter has to be changed during deployment. If you do not want to monitor a particular metric, the frequency value can be set to NORUN.

Example: The average response time of the SAP J2EE Application Server has to monitor at every 1 hour interval for the first instance ‘inst1’.

SAP SPI	SAP MP
1. Edit SPISAP-70-High-30m schedule task policy and remove metric 4004. 2. Save it. 3. Edit SPISAP-70-High-1h schedule task policy again and add the metric 4004. 4. Save it. 5. Deploy both schedule task policies on ‘inst1’.	Tune the value of frequency for *SAPJ2EE_4004* can be tune during deployment of corresponding MT or Aspect on ‘inst1’. Default value is set to VERYHIGH.

The screenshot “Editing the frequency parameter” shows how to edit the frequency parameter during the deployment of the aspect.



Screenshot: Editing the frequency parameter

The same frequency parameter that is *JAVA Management Template* can also be edited during the deployment of the management template.

Schedule Task Policy

There are various schedule task policies to collect metric data at a given frequency interval.

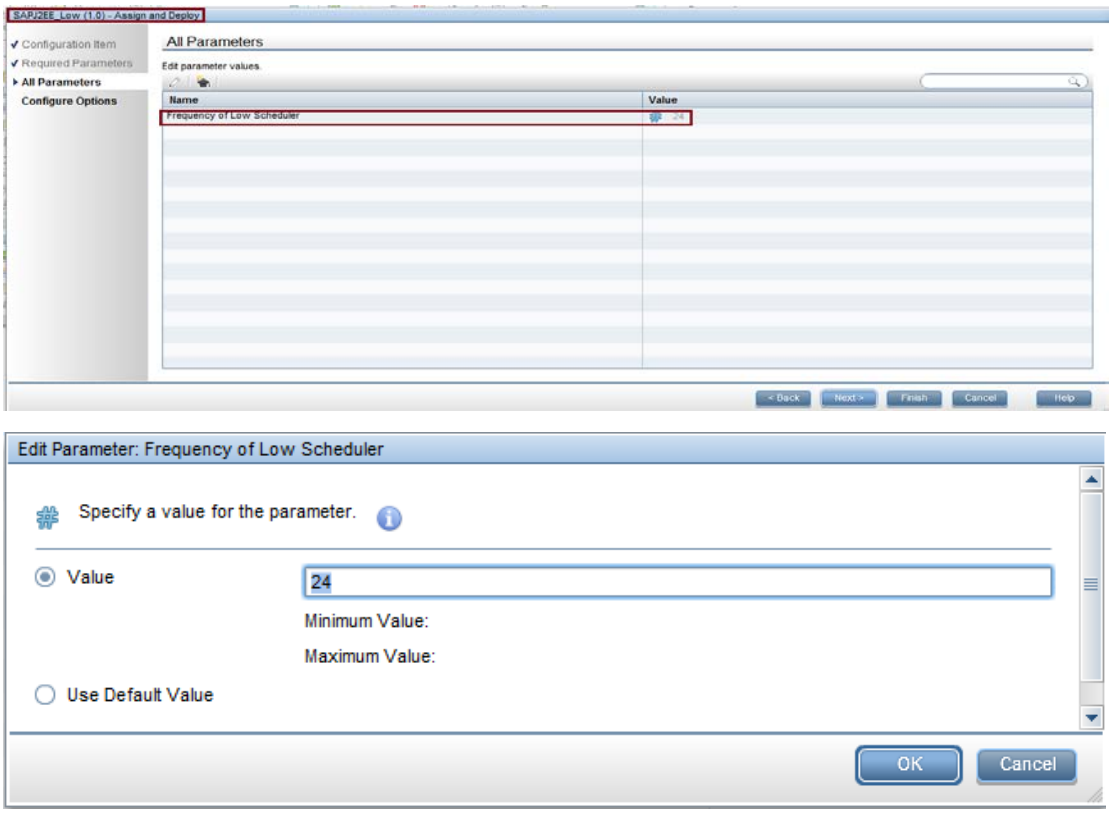
Each schedule task policy runs with a predefined interval. For example: 05 mins, 15 mins, 1 hour, and so on. The SAP SPI schedule task policies are based on different needs. For example, the schedule task policy for reporter and the schedule task policy for alerting. To set the metric data for every 30 minutes instead of every hour, edit the schedule task policy and change the interval. Every such customization increments the schedule task policy version.

In the SAP MP, the frequency interval is parameterized. You can use the MP schedule task policy to change the frequency interval during deployment. MP replaces SAP SPI schedule task polices with 4 schedule task policies VeryHigh, High, Medium and Low. The default value is set to 5m, 15m, 1h and 24h respectively.

Example: Change the collection interval from 1 hour to 30 minutes for ‘inst1’.

SAP SPI	SAP MP
1. Edit 1h schedule task policy. 2. Change collection interval from 1 hour to 30 minutes. 3. Save the schedule task policy. **4.** Deploy this version of policy on ‘inst1’.	1. Tune the scheduling frequency during deployment of corresponding MT or Aspect on ‘inst1’. 2. Set the default value as per the HPOM SPI out of the box policies.

The screenshot “Editing the scheduling frequency of the schedule task policy” shows how the scheduling frequency of the schedule task policy can be modified during the deployment of an aspect or management template.



Screenshot: Editing the scheduling frequency of the schedule task policy

Discovery Policy

There is no difference between the SAP SPI and SAP MP discovery for SAP J2EE Application Server.

The following SAP components are discovered as part of the discovery in the SAP SPI for SAP J2EE Application Server:

- SAP System
- SAP J2EE Application Server Instances

The following SAP CITs are discovered as part of the discovery in the SAP MP for SAP ABAP Application Server:

- SAP System
- SAP J2EE Application Server Instances

Policy Mapping

This section maps the SAP MP policies for SAP J2EE Application Server to corresponding SAP SPI policies. Also, it captures the differences between them, if there are any.

HPOM Smart Plug-in policy	OMi Management Pack – Policy Template	OMi Management Pack – Aspects
SPISAP-71-High-10m SPISAP-70-High-10m	SAPJ2EE_VeryHigh	SAP J2EE Base
SPISAP-71-High-30m SPISAP-70-High-30m SPISAP-71-perf-30m SPISAP-70-perf-30m	SAPJ2EE_High	
SPISAP-71-High-1h SPISAP-70-High-1h	SAPJ2EE_Medium	
SPISAP-NWSTATUS-02m	SAPJ2EE_NWStatus	
N/A	SAPJ2EE_Low SAPJ2EE_Messages	
SPISAP_0030 SPISAP_0031 SPISAP_0032 SPISAP_0033 SPISAP_0034 SPISAP_0035 SPISAP_0036 SPISAP_0037 SPISAP_0218 SPISAP_0219 SPISAP_0220 SPISAP_0221 SPISAP_0222 SPISAP_0223 SPISAP_0224 SPISAP_0225 SPISAP_0226 SPISAP_0227 SPISAP_0228 SPISAP_0229	SAPJ2EE_0030 SAPJ2EE_0031 SAPJ2EE_0032 SAPJ2EE_0033 SAPJ2EE_0034 SAPJ2EE_0035 SAPJ2EE_0036 SAPJ2EE_0037 SAPJ2EE_0218 SAPJ2EE_0219 SAPJ2EE_0220 SAPJ2EE_0221 SAPJ2EE_0222 SAPJ2EE_0223 SAPJ2EE_0224 SAPJ2EE_0225 SAPJ2EE_0226 SAPJ2EE_0227 SAPJ2EE_0228 SAPJ2EE_0229	SAP J2EE Application Thread Pool Performance
SPISAP_0038 to SPISAP_0091 SPISAP_0230	SAPJ2EE_0038 to SAPJ2EE_0091 SAPJ2EE_0230	SAP J2EE Cluster Manager - Message Server Communication Layer Performance
SPISAP_0092 to SPISAP_0113 SPISAP_0231	SAPJ2EE_0092 to SAPJ2EE_0113 SAPJ2EE_0231	SAP J2EE Cluster manager - Session Communication Layer Performance
Global_siteconfig	SAPJ2EE_Configuration	SAP J2EE Configuration
SPISAP_0001 SPISAP_0002	SAPJ2EE_0001 SAPJ2EE_0002	SAP J2EE Configuration Manager and Class Loader Performance

SPISAP_0012 SPISAP_0232 SPISAP_0233 SPISAP_0234	SAPJ2EE_0012 SAPJ2EE_0232 SAPJ2EE_0233 SAPJ2EE_0234	
SPISAP_0013 to SPISAP_0021	SAPJ2EE_0013 to SAPJ2EE_0021	SAP J2EE Connections Manipulator Performance
SPISAP_2019 to SPISAP_2138	SAPJ2EE_2019 to SAPJ2EE_2138	SAP J2EE Connector Service Performance
R3j2eesdisc	SAPJ2EE_Discovery	SAP J2EE Discovery
SPISAP_2139 to SPISAP_2170	SAPJ2EE_2139 to SAPJ2EE_2170	SAP J2EE EJB Performance
SPISAP_2011 to SPISAP_2018 SPISAP_2186 SPISAP_2215 to SPISAP_2217	SAPJ2EE_2011 to SAPJ2EE_2018 SAPJ2EE_2186 SAPJ2EE_2215 to SAPJ2EE_2217	SAP J2EE Http Provider Performance
SPISAP_2207 SPISAP_2208 SPISAP_2209	SAPJ2EE_2207 SAPJ2EE_2208 SAPJ2EE_2209	SAP J2EE JMS Performance
SPISAP_2001 to SPISAP_2006 SPISAP_2228 SPISAP_2229	SAPJ2EE_2001 to SAPJ2EE_2006 SAPJ2EE_2228 SAPJ2EE_2229	SAP J2EE JMX Adapter Performance
SPISAP_2230 SPISAP_2231	SAPJ2EE_2230 SAPJ2EE_2231	SAP J2EE JNDI Registry Status
SPISAP_2007 SPISAP_2210 to SAPJ2EE_2214	SAPJ2EE_2007 SAPJ2EE_2210 to SAPJ2EE_2214	SAP J2EE Log Configurator Performance
SPISAP_2008 SPISAP_2009 SPISAP_2010 SPISAP_2201 SPISAP_2202 SPISAP_2203 SPISAP_2204	SAPJ2EE_2008 SAPJ2EE_2009 SAPJ2EE_2010 SAPJ2EE_2201 SAPJ2EE_2202 SAPJ2EE_2203 SAPJ2EE_2204	SAP J2EE Memory Status
SPISAP_2185 SPISAP_2218 SPISAP_2219 SPISAP_2220 SPISAP_2227	SAPJ2EE_2185 SAPJ2EE_2218 SAPJ2EE_2219 SAPJ2EE_2220 SAPJ2EE_2227	SAP J2EE P4 and IIOP Provider Performance
SPISAP_0003 to SPISAP_0011	SAPJ2EE_0003 to SAPJ2EE_0011	SAP J2EE Ports Manager Performance
SPISAP_0201 to SPISAP_0205 SPISAP_2180 to SPISAP_2184 SAPJ2EE_2232	SAPJ2EE_0201 to SAPJ2EE_0205 SAPJ2EE_2180 to SAPJ2EE_2184 SAPJ2EE_2232	SAP J2EE Sessions Manager Performance
SPISAP_0022 to SPISAP_0029 SPISAP_0206 to SAPJ2EE_0217	SAPJ2EE_0022 to SAPJ2EE_0029 SAPJ2EE_0206 to SAPJ2EE_0217	SAP J2EE System Thread Pool Performance
SPISAP_2221 to SPISAP_2226	SAPJ2EE_2221 to SAPJ2EE_2226	SAP J2EE Transaction Status

SPISAP_2187 to SPISAP_2191 SPISAP_2205 SPISAP_2206	SAPJ2EE_2187 to SAPJ2EE_2191 SAPJ2EE_2205 SAPJ2EE_2206	SAP J2EE Web Container Performance
SPISAP_2171 to SPISAP_2179	SAPJ2EE_2171 to SAPJ2EE_2179	SAP J2EE Web Services Performance
SPISAP_4001 to SPISAP_4006 SPISAP_4201 to SPISAP_4206	SAPJ2EE_4001 to SAPJ2EE_4006 SAPJ2EE_4201 to SAPJ2EE_4206	SAP JARM Requests Performance

Data logging metrics for SAP J2EE Application Server

The following metrics are enabled in the SAP MP for data logging from the SAP J2EE Application Server similar to the SAP SPI:

SAP MP Policy Template Name	Description
SAPJ2EE_0003	Accepting threads usage rate of HTTP port
SAPJ2EE_0004	Accepting threads usage rate of HTTP (SSL) port
SAPJ2EE_0005	Accepting threads usage rate of IIOP port
SAPJ2EE_0006	Accepting threads usage rate of IIOP (SSL) port
SAPJ2EE_0007	Accepting threads usage rate of p4 port
SAPJ2EE_0008	Accepting threads usage rate of p4 (HTTP tunneling) port
SAPJ2EE_0009	Accepting threads usage rate of p4 (SSL) port
SAPJ2EE_0010	Accepting threads usage rate of Telnet
SAPJ2EE_0011	Accepting threads usage rate of jms_provider
SAPJ2EE_0014	HTTP connections count of connections manipulator (dispatcher)
SAPJ2EE_0015	P4 connections count of connections manipulator (dispatcher)
SAPJ2EE_0016	IIOP connections count of connections manipulator (dispatcher)
SAPJ2EE_0017	JMS connections count of connections manipulator (dispatcher)
SAPJ2EE_0018	Telnet connections count of connections manipulator (dispatcher)
SAPJ2EE_0019	Other connections count of connections manipulator (dispatcher)
SAPJ2EE_0020	Free connections count of connections manipulator (dispatcher)
SAPJ2EE_0021	Maximum possible connections in the connections manipulator (dispatcher)
SAPJ2EE_0022	Minimum System thread’s pool size
SAPJ2EE_0023	Maximum System thread’s pool size
SAPJ2EE_0024	Initial System thread’s pool size
SAPJ2EE_0025	Current System thread’s pool size
SAPJ2EE_0026	Active thread count in the System thread’s pool
SAPJ2EE_0027	Waiting tasks count in the System threads pool.
SAPJ2EE_0028	Waiting tasks queue size in the System threads pool
SAPJ2EE_0029	Waiting tasks queue overflow in the System threads pool
SAPJ2EE_0030	Minimum Application threads pool size
SAPJ2EE_0031	Maximum Application thread’s pool size
SAPJ2EE_0032	Initial Application threads pool size
SAPJ2EE_0033	Current Application thread’s pool size
SAPJ2EE_0034	Active Application thread’s pool size
SAPJ2EE_0035	Waiting tasks count in the Application thread’s pool

SAPJ2EE_0036	Waiting tasks queue size in the Application thread's pool
SAPJ2EE_0037	Waiting tasks queue overflow in the Application threads pool
SAPJ2EE_0201	Opened security sessions count
SAPJ2EE_0202	Opened Web Sessions Count
SAPJ2EE_0203	Opened EJB Sessions Count
SAPJ2EE_0209	Active Threads Count
SAPJ2EE_0210	Current Thread Pool Size
SAPJ2EE_0211	Initial Thread Pool Size
SAPJ2EE_0212	Max Thread Pool Size
SAPJ2EE_0213	Max Waiting Tasks Queue Size
SAPJ2EE_0214	Min Thread Pool Size
SAPJ2EE_0216	Waiting Tasks Count
SAPJ2EE_0217	Waiting Tasks Queue Overflow
SAPJ2EE_0221	Active Threads Count
SAPJ2EE_0222	Current Thread Pool Size
SAPJ2EE_0223	Initial Thread Pool Size
SAPJ2EE_0224	Max Thread Pool Size
SAPJ2EE_0225	Max Waiting Tasks Queue Size
SAPJ2EE_0226	Min Thread Pool Size
SAPJ2EE_0228	Waiting Tasks Count
SAPJ2EE_0229	Waiting Tasks Queue Overflow
SAPJ2EE_2008	Allocated Memory
SAPJ2EE_2009	Available Memory
SAPJ2EE_2010	Used Memory
SAPJ2EE_2017	Total count of requests in the HTTP provider
SAPJ2EE_2180	Number of active sessions in the security server
SAPJ2EE_2181	Total number of sessions in the security server
SAPJ2EE_2182	Number of timed out sessions in the security server
SAPJ2EE_2183	Number of invalid sessions in the security server
SAPJ2EE_2184	Number of logged off sessions in the security server
SAPJ2EE_2185	Number of requests in the p4 provider
SAPJ2EE_2186	Total number of all requests in the HTTP provider
SAPJ2EE_2191	Total number of all requests in the web container
SAPJ2EE_2201	Allocated Memory
SAPJ2EE_2202	Available memory
SAPJ2EE_2203	Used memory
SAPJ2EE_2206	AllRequestsCount
SAPJ2EE_2211	Number of all logged messages in the Log Configurator
SAPJ2EE_2212	Number of warning messages in the Log Configurator
SAPJ2EE_2213	Number of error messages in the Log Configurator
SAPJ2EE_2214	Number of fatal messages in the Log Configurator
SAPJ2EE_2215	AllRequestsCount
SAPJ2EE_2220	RequestsCount
SAPJ2EE_2221	CommittedTransactionsCount
SAPJ2EE_2222	Open Transactions Count

SAPJ2EE_2223	RolledBack Transactions Count
SAPJ2EE_2224	Suspended Transactions Count
SAPJ2EE_2225	TimeOut Transactions Count

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration Type	Configuration and Customization Information in SAP SPI 12.05	Equivalent Configuration in SAP MP 1.0
Configuration files required for SAP J2EE monitoring.	The Create *SPI SAP Netweaver Config* tool under the tool group *SAP R/3 Admin* is used to create the configuration files required for monitoring the SAP J2EE instance.	All the configuration files required for SAP J2EE instance monitoring are created automatically as part of the background configuration.
Discovery of SAP J2EE Application Server instances.	The details of all the SAP J2EE application server instances needs to be provided as part of the configuration file for discovery.	The discovery of SAP J2EE application server instances is automatic and no inputs are required.
Discovery of SAP J2EE Application Server instances running on different hosts.	SAP J2EE application Server instances running on one host is discovered and instances running on the other connected host is not discovered.	All the SAP J2EE Application Server instances running on the given host and all the other hosts are also discovered.

Tools Mapping

The SAP MP tools are available under the following tool categories:

- SAP Admin
- SAP Information

The following table provides a mapping between the SAP SPI tools for SAP J2EE Application Server to equivalent SAP MP Tools, if any.

HPOM SPI Tools	Equivalent MP Tools	Comments
Check the SAP NetWeaver Connection	SAP J2EE Application Server – Connection Status	
Create SPI SAP Netweaver Config	SAP J2EE Application Server – Configuration Creation	
Install Performance Package(UNIX) Install Performance Package(Windows)	SAP J2EE Application Server – Install Performance Package	The tools are common in SAP SPI for both SAP ABAP Application Server and SAP J2EE Application Servers. In SAP MP, as the tools are invoked from the CI, these tools are repeated for both SAP ABAP Application Server and SAP J2EE Application Server.
Remove Performance Package(UNIX) Remove Performance Package(Windows)	SAP J2EE Application Server – Remove Performance Package	
PerfAgt START	SAP J2EE Application Server – Start Performance Agent	
PerfAgt STOP	SAP J2EE Application Server – Stop Performance Agent	
PerfAgt STATUS(Only on Unix nodes	SAP J2EE Application Server – Performance Agent Status (Only UNIX Nodes)	

Node Cleanup

If a node that you are going to monitor using the SAP MP is being monitored by the SAP SPI, perform the following steps to remove SAP SPI artifacts from the node:

1. Remove the policies by executing one of the following commands:

- By Name: `ovpolicy -remove –polname <Name>`
- By Type: `ovpolicy -remove –poltype <Type>`

Note
All SAP SPI policies start with “SPISAP_*” and “SPISAP-*”.

You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

The *Global_Siteconfig configuration* file is available under the following folders:

- UNIX: `/var/opt/OV/conf/sapspi/global`
- Windows: `%OvDataDir%\conf\sapspi\global`

2. Remove the log files.

The log files would be available under the following folders:

- UNIX: `/var/opt/OV/log/`
- Windows: `%OvDataDir%\log\`

Run the following tools on the selected managed node to delete the CODA/OVPA tables:

- UNIX: Use the tool Remove Performance Package from the tool group SAP R/3 Admin.
- Windows: Use the tool Remove Performance Package from the tool group SAP R/3 Admin.

Note
There should not be any datasource names with SAPSPINW_RPT_METRICS.

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3. Remove the instrumentation files on the node that start with r3mon_* or r3*.

- UNIX: `/var/opt/OV/bin/instrumentation`
- Windows: `%OvDataDir%\bin\instrumentation`

For more information on cleaning up nodes, see Prepare nodes for deployment under the Recommended steps for moving from a SPI to MP section in this document.

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

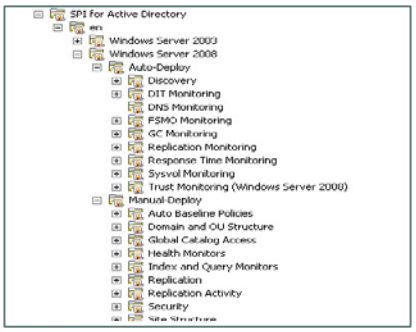
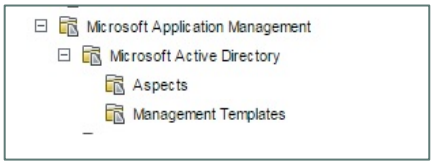
For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

Active Directory SPI and Management Pack

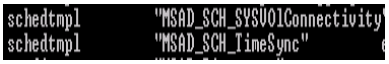
This section explains the evolution from the HPOM Smart Plug-in for Microsoft Active Directory 7.06 to the HPE OMi Management Pack for Microsoft Active Directory 1.0.

SPI and MP comparison

This section provides an overview of similarities and differences between the HPOM Smart Plug-in for Microsoft Active Directory (Microsoft Active Directory SPI) and OMi MP for Microsoft Active Directory MP (Microsoft Active Directory MP). For information about working with the Active Directory MP, see the *HPE OMi Management Pack for Active Directory User Guide*.

Features	Microsoft Active Directory SPI 7.06	Microsoft Active Directory MP 1.0
Pre-requisites	• HPOM W 8.16, HPOM W 9.x, HPOM U/S/L 9.1 or higher • HP Operations Agent 11.0 or higher	• BSM/MA 9.22 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The Active Directory SPI is shipped with the SPI DVD.	The Microsoft Active Directory MP is shipped with the OMi 10 installer. The Microsoft Active Directory MP is also available to download from the e-media download center. See Useful resources in this document for the e-media download center link.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	The Microsoft Active Directory MP can be installed using any of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during the OMi 10.x installation. 2. Use the command line interface. Use this option when you want to install the Microsoft Active Directory MP after OMi 10.x is installed. For more information on opr-mp-installer Command-Line Interface, see the *OMi Administration* guide. 3. Download the MP bits from the e-media download center. Then mount ISO and use the OS specific installer. • Linux: *mpinstall.sh-i* • Windows: *cscript mpinstall.vbs-i* Use this option, when a higher MP version is available in the e-media download center.
Policy Grouping	Policies are grouped into policy groups. 	Aspects and MTs are grouped into configuration folders. Policy templates are grouped into aspects. To understand more about aspects, see the *HPE OMi Management Pack for Active Directory User Guide.*  For more information regarding policies, see SPI policy to MP policy template mapping in this document.
Policy Versioning	Uses the xxxx.yyyy format. Example: Server: 7.650 Node: 7.0650	Uses the xxxx.yyyy format. Example: Server: 1.0 In Microsoft Active Directory MP 0001.0001 (In GUI 1.10), policy templates are versioned as

	When SPI version is 7.06, policies updated in this release would be versioned as 0007.0650. On the GUI, it is visible as 7.650. When you update such a policy, only minor versions (Last two digits) should be updated. Example: When you update a policy with version 0007.0650 (in GUI: 7.650), it will be changed to 7.650.0001 (in GUI 7.651).	0001.0000. On the OMi GUI, it is displayed as 1.0. In subsequent MP releases, policy template version is updated only if a particular policy is updated in that release. When you update a policy, only minor versions (last two digits) should be updated. Example: When you update a policy with version 0001.0000 (in GUI 1.0), it will be changed to 0001.0001 (in GUI 1.1).
Policy Types	Has policies of the following types: • Measurement Threshold • Scheduled Task • Windows Event Log • Windows Management Instrumentation • Discovery	Has policy templates of the following types: • Measurement Threshold • Scheduled Task • Windows Event Log • Windows Management Instrumentation • Discovery • Config File Template
Message Groups	SPI has Message Groups to generate events such as MICROSOFT ACTIVE DIRECTORY SPI.	The Microsoft Active Directory MP does not have Message Groups.
Tools	Following are the tools in Microsoft Active Directory SPI: • AD DC Demotion Preparation • AD Trust Relationships • Check ADS Service • Delete Older ADSPI Classes • Operations Topology Viewer • Self-Healing Info • Self-Healing Verification	The Microsoft Active Directory MP has lesser number of tools. Topology Viewer and Self-Healing Info tools are not available. For more information about the mapping of tools between SPI and MP, see Tools Mapping in this document.
Instrumentation	Following are the instrumentation categories: • ActiveDirectory_Core • ActiveDirectory_Discovery HPOM Server: SPI Instrumentation is copied into the filesystem. Node: SPI Instrumentation is deployed to the Instrumentation directory on the node.	Instrumentation categories in MP: MSAD-Core OMi Server: Instrumentation is uploaded into the OMi database. To know more on how to upload Instrumentation for MPs, see the *OMi Management Pack Development Guide*. Node: There is no difference with the instrumentation location on nodes. Instrumentation is deployed to the same directories as the SPIs. Most of the instrumentation filenames are retained. A few instrumentation files have been changed. The ADSPI prefix or suffix has been removed for a few instrumentation files and have been replaced with MSAD or ADMP. A new set of instrumentation files is introduced with this MP for monitoring, logging and alerting on performance counter and service status related metrics. These binaries start with prefix of **Ms**. For example, *MsCollectionManager.exe*.
Discovery	Deploy the *ADSPI_Discovery* policy to a managed node. When the deployment of the Discovery policy is successful, the discovered instances are shown in the service map.	Deploy the **Microsoft AD Discovery** aspect on the managed node. Successful deployment of **Discovery** aspect populates discovered instances as appropriate CIs in the RTSM. List of discovered CIs: • Active Directory Forest • Active Directory Site • Domain Controller Roles • Domain Controller • Windows Host
Configuration	Deploy the *ADSPI-CreateDatasources* to create ADSPI Data source.	Datasource creation is done as a part of the **Microsoft AD Discovery** aspect.

Deployment	Deploy specific policies or groups based on monitoring needs to appropriate node or node group(s).	Assign MT or aspects to Domain Controller CIs. Automatic Assignment Rules can be created for Auto-deployment of MT and aspects.
Appearance of artifacts on node	1. Instrumentation directory: %OvDataDir%/bin/instrumentation 2. Policy list: `ovpolicy -l` 	1. Instrumentation directory: %ovdatadir%/bin/instrumentations  2. Policy template list: `ovpolicy` 3. Parameterized policies will have extra entry with “<policy type>tmpl” in the “Type” column.
Monitoring Capability	For more information about monitoring capability, see the *ADSPI SPI reference* guide.	All monitoring functionality that is supported for Microsoft Active Directory SPI is present in the Microsoft Active Directory MP. New monitoring functionality is added for Federation Services and Distributed file system replication.
Tuning after Deployment	You can modify policies for customization. Customized version need to be deployed manually to the node for customizations to take effect.	You can tune parameters during the deployment of a specific CI. You can also tune a parameter value after deploying a specific CI using the **Assignments & Tuning** option. After the parameters are tuned, policy templates are automatically deployed. Threshold, Severity and collection frequency are parameterized.
End-to-End Monitoring	Deploy Microsoft Active Directory SPI and Infrastructure SPI policies to monitor Active Directory and system infrastructure.	Deploy any OOTB MT to monitor Active Directory domain controllers and key system infrastructure metrics.
Monitoring instances with different business criticality	Maintain multiple policies set based on business criticality.	Deploy the Essential MT to monitor non critical environment. Use the Extensive MT to monitor critical Infrastructure.
Agent and Agent less Monitoring	Agentless monitoring is not available.	Hybrid Microsoft Active Directory Management Template has agentless monitoring capabilities that uses Site scope for monitoring Active Directory Servers. Hybrid MT has an agentless monitoring **Microsoft AD Availability** aspect. Availability is monitored using the Site Scope monitor. This provides information about the availability of AD Servers on the network.
Uninstallation	Native procedure is used to uninstall Microsoft Active Directory SPI.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • instrumentation • ContentPack definitions
Graphs	PM generates reports using the performance and availability metrics. SPIs had a separate installer for OOTB graphs that need to be installed on PM.	OMi PG provides a graphing solution for OMi MP which is an embedded component in the platform. OOTB PMi graphs for the MP are installed along with the MP.
Data logging on node	Collected metrics gets logged into CODA or OVPA on the node.	There are no difference in tables and the collected metrics are logged into CODA. Datasource is the same as in the ADSPI.
Events	SPI sends events on threshold violations with valid message descriptions and instructions.	Certain message descriptions are changed or modified in the Microsoft Active Directory MP.
Indicators (ETIs or HIs)	SPI supports AD Content Pack which ships HIs or ETIs.	MP supports the existing HIs and ETIs.

		There are a few ETIs added to the Microsoft Active Directory MPs to support new monitoring scenarios and they are: • ADFS Proxy MEX Request Rate • ADFS Proxy Request Rate • ADFS Token Request Rate • DFSR Conflict Files • DFSR FIle Installs Retried
TBEC	Supports TBEC through AD content pack.	Contains TBEC and supports the existing TBEC rules.
I18N & L10N	Is I18N certified and is localized in Japanese.	Is I18N certified and is localized in Japanese.
OO Flows	Integration with the HP OO flows were shipped part of the Active Directory content.	Same set of OO flows are shipped with MP. However, OO flows are restricted to the ops-bridge usecase only. The OO flows work only in an environment where the HPOM and SPI are used for monitoring along with OMi and OO integration.

Common Policy Changes

The Microsoft Active Directory MP follows a hybrid approach. The performance counter and service status metrics follow the new collection mechanism that is followed in the Microsoft SPIs. Other functionality such as FSMO and DNS monitoring follow the legacy model.

Config File Policy

ConfigFile policy templates primarily contain the definitions of what type of data must be collected. Definitions instruct the collector on what to collect and when to collect. There are two types of Config File policy templates in Microsoft Active Directory MP and they are:

1. MSAD_Collection Definition

This policy template contains the Metric Definition XML file that contains the collection definition. The collector parses this XML file to find out the collection, data source class, and opcmon policy details.

2. MSAD_<Collection Name>_Schedule

This policy template contains the schedule of collections within an aspect. The schedule is defined as VERY_HIGH, HIGH, MEDIUM, or LOW. This policy template is deployed along with its corresponding aspect. Based on the schedules mentioned in this policy template, collection manager collects the corresponding metrics defined in the collection definition.

For example: MSAD_ADFS_Schedule

Measurement Threshold Policy

Threshold and severity are the most customizable attributes in a policy. The Microsoft Active Directory MP has parameterized these policy attributes to simplify the maintenance and avoid policy version increments. These parameters can be changed during deployment or post-deployment.

Most of the Measurement Threshold policy works with metric definition. The metric definition is a ConfigFile policy (MSAD_Collection Definition) which has an embedded XML file defining what to collect. You can configure collection by editing this XML file.

To add a new counter:

a. Add the counter within the Fields section.

b. Add an entry to Metric and set the alarm properties as alarm="true" if alert is required.

c. If there is an associated alert policy, specify it in the alarm tag as seen in following screenshot.

d. Modify the corresponding specification file if the data needs to be logged.

```
<Collections>
    <Collection name="MSAD_OutboundObjs" id="MSAD_C10001" source="PERFMON" application="Microsoft Active Directory" enabled="true" table=
    "ADSPI_OUTBOUNDS" database="ADSPI">
        <Definition>
            <Command>DirectoryServices(*)</Command>
            <Fields>
                <Field>Instance_Name</Field>
                <Field>DRA Outbound Objects/sec</Field>
            </Fields>
        </Definition>
        <Metric id="MSAD_M10301" name="MSAD_DirectoryInstance " alarm="false" formulae="value" position="1" category="KEY" />
        <Metric id="MSAD_M10302" name="MSAD_Rep_InboundObjs" alarm="false" formulae="value" position="2" category="METRIC" />
    </Collection>
```

Schedule of measurement threshold policy templates which do not follow the collector mechanism is not parameterized. These policy templates have to be modified to change the schedule.

List of the *Measurement Threshold policy* templates which are identical to SPI are:

- MSAD_Rep_GC_Check_and_Threshold
- MSAD_DITPercentFull
- MSAD_LogFilesPercentFull
- MSAD_DITQueueLength
- MSAD_LogFilesQueueLength
- MSAD_TotalDitSize
- MSAD_Sysvol_AD_Sync
- MSAD_SYSVOL_DiskQueueLength
- MSAD_SYSVOL_PercentFull
- MSAD_DNS_DC_A_Chk
- MSAD_DNS_DC_CNAME_Chk
- MSAD_DNS_DC_Response
- MSAD_DNS_Extra_GC_SRV_Chk
- MSAD_DNS_Extra_Kerberos_SRV_Chk
- MSAD_DNS_Extra_LDAP_SRV_Chk
- MSAD_DNS_GC_A_Chk
- MSAD_DNS_GC_SRV_Chk
- MSAD_DNS_GC_StrandedSite
- MSAD_DNS_Island_Server
- MSAD_DNS_Kerberos_SRV_Chk
- MSAD_DNS_LDAP_SRV_Chk
- MSAD_DNS_LogDNSPagesSec
- MSAD_DNS_Obsolete_GUIDs
- MSAD_DNS_Server_Response

Schedule Task Policy

Active Directory SPI has OOTB scheduled task policies which triggers the collector with a set of metrics at defined intervals. If you want to change a metric from 5 mins scheduler to 15 mins scheduler, edit 5 mins scheduled task policy to remove the metric number from command and update it in the 15 mins scheduled task policy.

In the case of MP, there are both the implementations. The policies that collect data from performance counters and status of services follow a defined set of collection schedule. The schedule is classified as Very_High, High, Medium

and Low which run the intervals 5 mins, 15 mins, 1 hour and 1 day. These frequencies can be changed by modifying the *Frequency* parameter.

For the policies which follow the legacy approach such as the DNS monitoring, FSMO monitoring and so on, frequency is parameterized. The frequency can be changed by editing the parameter. To change the frequency from 1 hour to 2 hours, modify the *Frequency* parameter and update the parameter.

There are four scheduled task policies for each of the four intervals. The time schedule for these policies is parameterized. Default polling intervals of mentioned in the parameters *VeryHigh, High, Medium* and *Low* are 5 mins, 15 mins, 1 hour and 1 day respectively. These parameters *Frequency of VeryHigh Scheduler, Frequency of High Scheduler, Frequency of Medium Scheduler* and *Frequency of Low Scheduler* can be modified.

For example, the frequency of *VeryHigh Scheduler* can be modified in the parameter *Frequency of VeryHigh Scheduler* from 5 to 10. This is applicable for all instances running on the particular node. All the metrics marked under VeryHigh category are executed every 10 mins.

Metric Schedule Case	SPI	MP
Modify a metric from 05 mins to 15mins.	1. Edit 05 mins schedule task policy to remove the metric. 2. Edit 15 mins schedule task policy to add the metrics. 3. Redeploy both the above schedule task policies.	If assignment is already done, then click **Assignments & Tuning** and change the *Frequency* parameter of given a particular metric from VeryHigh to High. For the legacy scheduled task policies change, the frequency parameter from 05 min to 15 min. **Note** The same can be done by editing the metric's frequency parameter at the Aspect or MT level.
Remove metric from scheduling.	Do not deploy the policy to the node	For performance counter and service status, edit the MSAD_Collection definition policy template and disable the collection. For the metrics that follow the legacy approach, it is the same as in SPI.
Modify the lowest schedule of collection from 05 mins to 10 mins.	Copy and create new schedule task policy with the schedule of 10 mins. Or Edit the 05 mins schedule task policy, change the interval and rename it to 10 mins.	Modify the interval of scheduled task policy exposed as parameter either at Aspect or MT. In this case "Frequency of VeryHigh Scheduler".

Windows Management Instrumentation Policies

There are WMI policies in SPI and the same set of WMI policy templates are available in MP. These policies are similar to the SPI policies. In MP, the **Severity** field is parameterized.

Windows Event Log Policies

Windows Event Log policies forwards Windows events to the server. These policies are similar in SPI and in MP.

Discovery Policy

The MP Discovery policy template is of the custom discovery policy type which triggers discovery script to generate XML. This XML directly contains information about discovered Active Directory CIs and its relationship with other Infra elements. In terms of elements that are getting discovered, they are similar to SPI.

Policy specific changes

This section maps Microsoft Active Directory MP's aspects to the corresponding Microsoft Active Directory SPI policies. This section also has information on policies that are dropped and any new policies that are added. It also explains the differences between them, if there are any.

Apart from the common changes that have been captured in the previous section, following are the policy specific changes. Some of the policies present in Microsoft Active Directory SPI have been split into multiple policies in Microsoft Active Directory MP. This has been done to have a higher level of control and granularity.

SPI Policy	MP Policy Template	Comments
ADSPI-GC_CheckStatus_2K8+	MSAD_GCMonitorStatus, MSAD_SCH_GCCheckStatus	Schedule and the alert functionality is split into two policies.
ADSPI-Rep_MonitorInterSiteReplication_2K8+	MSAD_Rep_MonitorIntraSiteReplication MSAD_SCH_IntraSiteReplication	
ADSPI-Rep_MonitorIntraSiteReplication_2K8+	MSAD_Rep_MonitorInterSiteReplication MSAD_SCH_InterSiteReplication	
ADSPI-Rep_TimeSync_2K8+	MSAD_SCH_TimeSync MSAD_Rep_TimeSync	
ADSPI_DNSServ_FwdAllWarnError_2K8+	MSAD_DNSServ_FwdAllWarn MSAD_DNSServ_FwdAllError	Split the events to different policies to avoid noise.
ADSPI_FwdAllWarnErrorDS_2K8+	MSAD_FwdAllWarnDS MSAD_FwdAllErrorDS	
ADSPI_FwdAllWarnErrorFRS_2K8+	MSAD_FwdAllWarnFRS MSAD_FwdAllErrorFRS	

Microsoft Active Directory SPI policies that are not present in Microsoft Active Directory MP

The following table lists policies that are not present in the Microsoft Active Directory MP:

Microsoft Active Directory SPI Policy Type	Active Directory SPI Policy Name	Comments
Windows Event Log	ADSPI_SMTPEventlogs_2K8+ ADSPI-Sysvol_FRS_2K8+	Removed to reduce noise.
Measurement Threshold	ADSPI_ADSRepNotifyQueueSize_2K8+ ADSPI-Rep_OutboundObjs_2K8+ ADSPI_HMThreadsInUse_2K8+	Removed to reduce noise. **Note** Outbound objects are collected and logged. Only the *Eventing* policy has been removed.
Windows Management Instrumentation	ADSPI-Rep_CheckObj_2K8+ ADSPI_Trust_Mon_Modify_2K8+ ADSPI_SiteChanges_2K8+ ADSPI_DirUserCreationDeletionModification_2K8+	Removed to reduce noise.

New Policies that are added in Microsoft Active Directory MP

Config File Policies

For aspects that monitors service availability or performance counters, there will be one config file policy present in that aspect. This has the collection ID and collection schedule to map collection to frequency. This information is used by the *Collection Manager*.

Config file policy is also used as a collection definition policy. In this case, it will contain a list of definitions on what to collect, where to log, and the associated *opcmon* policy for generating alerts.

Policy Name	Comments

MSAD_Collection Definition	Contains collection definition
MSAD_ADFS_Schedule	Maps the collection ID to a frequency
MSAD_AuthenticationSchetule	
MSAD_DFS_Stats_Schedule	
MSAD_DFS_Throughput_Schedule	
MSAD_DFS_Volume_Schedule	
MSAD_DirectoryAccessSchedule	
MSAD_EssentialSvcSchedule	
MSAD_GCSchetule	
MSAD_ReplicationSchedule	
MSAD_Security	

Measurement Threshold Policies

DFS (Distributed File System) and ADFS (Active Directory Federation Services) monitoring functionality have been added to the Microsoft Active Directory MP. The following policy templates have been added to provide these monitoring functionality:

Policy Name	Comments
MSAD_DFS_Bandwith_Savings	New policy for DFS Monitoring
MSAD_DFS_Bytes_Received	
MSAD_DFS_Compresed_Size	
MSAD_DFS_Conflict_Files	
MSAD_DFS_Conflict_Space	
MSAD_DFS_Database_Commits	
MSAD_DFS_Database_Lookups	
MSAD_DFS_File_Installs_retired	
MSAD_DFS_File_Installs_succeeded	
MSAD_DFS_RDC_Number_recv	
MSAD_DFS_Total_Bytes_recev	
MSAD_DFS_Total_Files_recv	
MSAD_DFS_USN_Journal_Accepted	
MSAD_DFS_USN_Journal_Percentage	
MSAD_DFS_USN_Journal_Read	
MSAD_ADFS_Fed_Resolution_Req	New Policy for ADFS Monitoring
MSAD_ADFS_Proxy_MEX_Requests	
MSAD_ADFS_Proxy_Requests	
MSAD_ADFS_Token_Requests	

Windows Event Log Policies

The following table is the set of Windows event log policies that has been added to monitor ADFS and DFS events.

Policy Name	Comments
MSAD_DFS_FwdAllError	New policy for DFS Monitoring
MSAD_ADFS_FwdAllError	New policy for ADFS Monitoring
MSAD_ADFS_Security	

SPI policy to MP policy template mapping

This section provides a mapping between the Active Directory SPI's policies and Active Directory MP's policy templates.

Type of the policy mentioned in short form along with the policy or policy template name.

- MT: Measurement Threshold
- ST: Scheduled Task
- CF: Config File
- LE: Logfile Entry
- DISC: Service Discovery
- WEL: Windows Event Log
- WMI: Windows Management Instrumentation

HPOM Smart Plug-in Policy	OMi Management Pack – Policy Template	OMi Management Pack – Aspects
ADSPI_Discovery (DISC)	MSAD_Discovery(DISC)	Microsoft AD Discovery
ADSPI-CreateDatasources (ST)	MSAD_CreateDataSource (ST)	
ADSPI-DIT_DITPercentFull_2K8+ (MT)	MSAD_DITPercentFull (MT)	Microsoft AD DIT
ADSPI-DIT_DITQueueLength_2K8+ (MT)	MSAD_DITQueueLength (MT)	
ADSPI-DIT_LogFilesPercentFull_2K8+ (MT)	MSAD_LogFilesPercentFull (MT)	
ADSPI-DIT_LogFilesQueueLength_2K8+ (MT)	MSAD_LogFilesQueueLength (MT)	
ADSPI-DIT_TotalDitSize_2K8+ (MT)	MSAD_TotalDITSize (MT)	
ADSPI-DNS_DC_A_Chk_2K8+ (MT)	MSAD_DNS_DC_A_Chk (MT)	Microsoft AD DNS Records
ADSPI-DNS_DC_CNAME_Chk_2K8+ (MT)	MSAD_DNS_DC_CNAME_Chk (MT)	
ADSPI-DNS_Extra_GC_SRV_Chk_2K8+ (MT)	MSAD_DNS_Extra_GC_SRV_Chk (MT)	
ADSPI-DNS_Extra_Kerberos_SRV_Chk_2K8+ (MT)	MSAD_DNS_Extra_Kerberos_SRV_Chk (MT)	
ADSPI-DNS_Extra_LDAP_SRV_Chk_2K8+ (MT)	MSAD_DNS_LDAP_SRV_Chk (MT)	
ADSPI-DNS_GC_A_Chk_2K8+ (MT)	MSAD_DNS_GC_A_Chk (MT)	
ADSPI-DNS_GC_SRV_Chk_2K8+ (MT)	MSAD_DNS_GC_SRV_Chk (MT)	
ADSPI-DNS_Kerberos_SRV_Chk_2K8+ (MT)	MSAD_DNS_Kerberos_SRV_Chk (MT)	
ADSPI-DNS_LDAP_SRV_Chk_2K8+ (MT)	MSAD_DNS_LDAP_SRV_Chk (MT)	
ADSPI-DNS_GC_StrandedSite_2K8+ (MT)	MSAD_DNS_GC_StrandedSite (MT)	Microsoft AD DNS
ADSPI-DNS_Island_Server_2K8+ (MT)	MSAD_DNS_Island_Server (MT)	
ADSPI-DNS_LogDNSPagesSec_2K8+ (MT)	MSAD_DNS_LogDNSPagesSec (MT)	
ADSPI-DNS_Obsolete_GUIDs_2K8+ (MT)	MSAD_DNS_Obsolete_GUIDs (MT)	
ADSPI-DNS_DC_Response_2K8+ (MT)	MSAD_DNS_DC_Response (MT)	Microsoft AD DNS Response
ADSPI-DNS_Server_Response_2K8+ (MT)	MSAD_DNS_Server_Response (MT)	
ADSPI_DNSServ_FwdAllWarnError_2K8+ (WEL)	MSAD_DNSServ_FwdAllError (WEL)	Microsoft AD DNS Logs
ADSPI-FSMO_Consist_2K8+ (ST)	MSAD_SCH_FSMOConsist (ST)	Microsoft AD FSMO Consistency
ADSPI-FSMO_Consist_INFRA_2K8+ (MT)	MSAD_FSMO_Consist_INFRA (MT)	
ADSPI-FSMO_Consist_NAMING_2K8+ (MT)	MSAD_FSMO_Consist_NAMING (MT)	
ADSPI-FSMO_Consist_PDC_2K8+ (MT)	MSAD_FSMO_Consist_PDC (MT)	
ADSPI-FSMO_Consist_RID_2K8+ (MT)	MSAD_FSMO_Consist_RID	

	(MT)	
ADSPI-FSMO_Consist_SCHEMA_2K8+ (MT)	MSAD_FSMO_Consist_SCHEMA (MT)	
ADSPI-FSMO_INFRA_Bind_2K8+ (MT)	MSAD_FSMO_INFRA_Bind (MT)	Microsoft AD FSMO Response Time
ADSPI-FSMO_INFRA_Ping_2K8+ (MT)	MSAD_FSMO_INFRA_Ping (MT)	
ADSPI-FSMO_Logging_2K8+ (ST)	MSAD_SCH_FSMOLogging (MT)	
ADSPI-FSMO_NAMING_Bind_2K8+ (MT)	MSAD_FSMO_NAMING_Bind (MT)	
ADSPI-FSMO_NAMING_Ping_2K8+ (MT)	MSAD_FSMO_NAMING_Ping (MT)	
ADSPI-FSMO_PDC_Ping_2K8+ (MT)	MSAD_FSMO_PDC_Ping (MT)	
ADSPI-FSMO_PDC_Bind_2K8+ (MT)	MSAD_FSMO_PDC_Bind (MT)	
ADSPI-FSMO_RID_Bind_2K8+ (MT)	MSAD_FSMO_RID_Ping (MT)	
ADSPI-FSMO_RID_Ping_2K8+ (MT)	MSAD_FSMO_RID_Bind (MT)	
ADSPI-FSMO_SCHEMA_Bind_2K8+ (MT)	MSAD_FSMO_SCHEMA_Bind (MT)	
ADSPI-FSMO_SCHEMA_Ping_2K8+ (MT)	MSAD_FSMO_SCHEMA_Ping (MT)	
ADSPI-FSMO_RoleMvmt_2K8+ (ST)	MSAD_SCH_FSMORoleMovement (ST)	Microsoft AD FSMO Role Movement
ADSPI-FSMO_RoleMvmt_INFRA_2K8+ (MT)	MSAD_FSMO_RoleMvmt_INFRA (MT)	
ADSPI-FSMO_RoleMvmt_NAMING_2K8+ (MT)	MSAD_FSMO_RoleMvmt_NAMING (MT)	
ADSPI-FSMO_RoleMvmt_PDC_2K8+ (MT)	MSAD_FSMO_RoleMvmt_PDC (MT)	
ADSPI-FSMO_RoleMvmt_RID_2K8+ (MT)	MSAD_FSMO_RoleMvmt_RID (MT)	
ADSPI-FSMO_RoleMvmt_SCHEMA_2K8+ (MT)	MSAD_FSMO_RoleMvmt_SCHEMA (MT)	
ADSPI-Rep_GC_Check_and_Threshold_2K8+ (MT)	MSAD_Rep_GC_Check_and_Threshold (MT)	Microsoft AD Golobal Catalog
ADSPI-GC_CheckStatus_2K8+ (MT)	MSAD_GCMonitorStatus (MT)	
	MSAD_SCH_GCCheckStatus (ST)	
ADSPI-REP_ModifyObj_2K8+ (MT)	MSAD_SCH_RepModifyObj (MT)	Microsoft AD Replication
ADSPI-Rep_Delete_OvRep_Object_2K8+ (MT)	MSAD_SCH_DelOVRepObj (MT)	
ADSPI-Rep_Modify_User_Object_2K8+ (MT)	MSAD_SCH_RepModifyUserObj (MT)	
ADSPI-Rep_MonitorInterSiteReplication_2K8+ (MT)	MSAD_Rep_MonitorInterSiteReplication (MT)	
	MSAD_SCH_InterSiteReplication (ST)	
ADSPI-Rep_MonitorIntraSiteReplication_2K8+ (MT)	MSAD_Rep_MonitorIntraSiteReplication (MT)	
	MSAD_SCH_IntraSiteReplication (MT)	
ADSPI-Rep_TimeSync_2K8+ (MT)	MSAD_SCH_TimeSync (ST)	

	MSAD_Rep_TimeSync (MT)	
ADSPI_ADSRepInBoundObjectUpdatesRemaining_2K8+ (MT)	MSAD_ ADSRepInBoundObjectUpdatesRemaining (MT)	Microsoft AD Replication Statistics
	MSAD_ReplicationSchedule (ST)	
ADSPI_ADSPendingSynchronizations_2K8+ (MT)	MSAD_ADSPendingSynchronizations (MT)	
	MSAD_ReplicationSchedule (ST)	
ADSPI_ADSRepInBoundBytesBetweenSites_2K8+ (MT)	MSAD_ADSRepInBoundBytesBetweenSites (MT)	
	MSAD_ReplicationSchedule (ST)	
ADSPI-Rep_InboundObjs_2K8+ (MT)	MSAD_Rep_InboundObjs (MT)	
	MSAD_ReplicationSchedule (ST)	
ADSPI-Rep_OutboundObjs_2K8+ (MT)	MSAD_ReplicationSchedule (ST)	
ADSPI-LDAP_CheckStatus_2K8+ (MT)	MSAD_LDAPCheckStatus(MT)	Microsoft AD Response Time
	MSAD_SCH_LDAPStatus (ST)	
ADSPI-Response_Logging_2K8+ (ST)	MSAD_SCH_ResponseLogging (ST)	
ADSPI-ResponseTime_Bind_2K8+ (MT)	MSAD_SCH_ResponseLogging (ST)	
	MSAD_ResponseTimeBind (MT)	
ADSPI-ResponseTime_GCBind_2K8+ (MT)	MSAD_SCH_ResponseLogging (ST)	
	MSAD_ResponseTimeGCBind (MT)	
ADSPI-ResponseTime_GCQuery_2K8+ (MT)	MSAD_SCH_ResponseLogging (ST)	
	MSAD_ResponseTimeGCQuery (MT)	
ADSPI-ResponseTime_Query_2K8+ (MT)	MSAD_ResponseTimeQuery (MT)	
	MSAD_SCH_ResponseLogging (ST)	
ADSPI-Sysvol_AD_Sync_2K8+(MT)	MSAD_Sysvol_AD_Sync (MT)	Microsoft AD SYS VOL
ADSPI-Sysvol_Connectivity_2K8+ (MT)	MSAD_SCH_SYSVOlConnectivity (ST)	
	MSAD_MonitorsSYSVol (MT)	
ADSPI-SYSVOL_DiskQueueLength_2K8+ (MT)	MSAD_SYSVOL_DiskQueueLength (MT)	
ADSPI-Sysvol_PercentFull_2K8+ (MT)	MSAD_SYSVOL_PercentFull (MT)	
ADSPI-Trust_Mon_Add_Del_2K8+ (WMI)	MSAD_ Trust_Mon_Add_Del(WMI)	Microsoft AD Trust
ADSPI-Rep_GC_Check_and_Threshold_Monitor_AT_2K8+ (MT)	MSAD_Rep_GC_Check_and_Threshold_Monitor_AT (MT)	Microsoft AD Replication Auto baseline
ADSPI-Rep_InboundObjects_AT_2K8+ (MT)	MSAD_Rep_InboundObjects_AT (MT)	
ADSPI-Rep_TimeSync_Monitor_AT_2K8+ (MT)	MSAD_Rep_TimeSync_Monitor_AT (MT)	
ADSPI_DomainChanges_2K8+(WMI)	MSAD_ DomainChanges(WMI)	Microsoft AD Structure Changes
ADSPI_OUChanges_2K8+(WMI)	MSAD_OUChanges(WMI)	
ADSPI_GlobalCatalogReads_2K8+ (MT)	MSAD_GC_GlobalCatalogReads (MT)	Microsoft AD Global Catalog Access
	MSAD_GCSchetule (ST)	
ADSPI_GlobalCatalogSearches_2K8+ (MT)	MSAD_GC_GlobalCatalogSearches(MT)	
	MSAD_GCSchetule (ST)	
ADSPI_GlobalCatalogWrites_2K8+(MT)	MSAD_GC_GlobalCatalogWrites(MT)	
	MSAD_GCSchetule (ST)	
Active Directory Group Policy (ST)	MSAD_SCH_GroupPolicy (ST)	Microsoft AD Group Policy
Active Directory Group Policy Message Policy (WMI)	MSAD_GPO_MessagePolicy (WMI)	

ADSPI_DSReads_2K8+ (MT)	MSAD_GlobalCatalogReads (MT)	Microsoft AD Directory Access
	MSAD_DirectoryAccessSchedule (ST)	
ADSPI_DSSearches_2K8+ (MT)	MSAD_GlobalCatalogSearches (MT)	
	MSAD_DirectoryAccessSchedule (ST)	
ADSPI_DSWrites_2K8+ (MT)	MSAD_GlobalCatalogWrites (MT)	
	MSAD_DirectoryAccessSchedule (ST)	
ADSPI_IQLDAPActiveThreads_2K8+ (MT)	MSAD_IQLDAPActiveThreads (MT)	
	MSAD_DirectoryAccessSchedule (ST)	
ADSPI_IQLDAPBindTime_2K8+ (MT)	MSAD_IQLDAPBindTime (MT)	
	MSAD_DirectoryAccessSchedule (ST)	
ADSPI_IQLDAPClientSessions_2K8+ (MT)	MSAD_IQLDAPClientSessions (MT)	
	MSAD_DirectoryAccessSchedule (ST)	
ADSPI_ReplicationActivities_2K8+(WEL)	MSAD_ ReplicationActivities(WEL)	Microsoft AD Replication Logs
ADSPI_FwdAllWarnErrorFRS_2K8+(WEL)	MSAD_FwdAllIErrorFRS(WEL)	
ADSPI_KDCFailureGrantTicket_2K8+(WEL)	MSAD_ KDCFailureGrantTicket(WEL)	Microsoft AD Security Logs
ADSPI_PrivilegedAccounts_2K8+(WEL)	MSAD_PrivilagedAccount(WEL)	
ADSPI_SecAdminGroupChangeMon_2K8+(WEL)	MSAD_ SecAdminGroupChangeMon (WEL)	
ADSPI_SecDirectoryServiceAccess_2K8+ (WEL)	MSAD_ SecDirectoryServiceAccess (WEL)	
ADSPI_SecNonTransMembEval_2K8+ (MT)	MSAD_SecNonTransMembEval (MT)	Microsoft AD Security
	MSAD_Security (ST)	
ADSPI_SecSDPropagatorQueue_2K8+ (MT)	MSAD_SecSDPropagatorQueue (MT)	
	MSAD_Security (ST)	
ADSPI_SecTransMembEval_2K8+ (MT)	MSAD_SecTransMembEval (MT)	
	MSAD_Security (ST)	
ADSPI_DNSServ_FwdAllInformation_2K8+ (WEL)	MSAD_DNSServ_FwdAllInformation (WEL)	Microsoft AD Event Logs
ADSPI_DNSServ_FwdAllWarnError_2K8+ (WEL)	MSAD_DNSServ_FwdAllWarn (WEL)	
ADSPI_FwdAllInformationDS_2K8+ (WEL)	MSAD_FwdAllInformationDS (WEL)	
ADSPI_FwdAllInformationFRS_2K8+(WEL)	MSAD_FwdAllInformationFRS (WEL)	
ADSPI_FwdAllWarnErrorDS_2K8+ (WEL)	MSAD_FwdAllIWarnDS (WEL)	
ADSPI_FwdAllWarnErrorFRS_2K8+ (WEL)	MSAD_FwdAllIWarnFRS (WEL)	
ADSPI_HMLSASSPageFaults_2K8+ (MT)	MSAD_HMLSASSPageFaults (MT)	Microsoft AD Services
ADSPI_HMLSASSPrivateBytes_2K8+ (MT)	MSAD_HMLSASSPrivateBytes (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_HMLSASSProcessorTime_2K8+ (MT)	MSAD_HMLSASSProcessorTime(MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_HMLSASSWorkingSet_2K8+ (MT)	MSAD_HMNTFRSWorkingSet (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_HMNTFRSPageFaults_2K8+ (MT)	MSAD_HMNTFRSPageFaults (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_HMNTFRSPrivateBytes_2K8+ (MT)	MSAD_HMNTFRSPrivateBytes (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_HMNTFRSProcessorTime_2K8+ (MT)	MSAD_HMNTFRSProcessorTime (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_HMNTFRSWorkingSet_2K8+ (MT)	MSAD_HMNTFRSWorkingSet (MT)	
ADSPI_Logging_2K8+ (ST)	MSAD_EssentialSvcSchedule (ST)	

ADSPI_NetLogon_2K8+ (MT)	MSAD_NetLogon_Chk (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_NTDS_2K8+ (MT)	MSAD_NTDS_Chk (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_NTFRS_2K8+ (MT)	MSAD_NTFRS_Chk (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_SamSs_2K8+ (MT)	MSAD_SAMSS_Chk (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_DFSR_2K8+ (MT)	MSAD_DFSR_Chk (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_KDC_2K8+ (MT)	MSAD_KDC_Chk (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_SyncSchemaMissMatch_2K8+ (MT)	MSAD_SyncSchemaMisMatch (MT)	
	MSAD_EssentialSvcSchedule (ST)	
ADSPI_IQNTLMAuthentications_2K8+ (MT)	MSAD_NTLMAuthentications (MT) MSAD_AuthenticationSchetule (ST)	Microsoft AD Authentication
ADSPI_IQKerberosAuthentications_2K8+ (MT)	MSAD_IQKerberosAuthentications (MT)	
	MSAD_AuthenticationSchetule (ST)	
ADSPI_DirComputerModif_2K8+ (MT)	MSAD_DirComputerModif (MT)	
	MSAD_AuthenticationSchetule (ST)	
ADSPI_SecErrAccessPermissions_2K8+ (MT)	MSAD_SecErrAccessPermissions (MT)	
	MSAD_AuthenticationSchetule (ST)	
ADSPI_SecErrGrantedAccess_2K8+ (MT)	MSAD_SecErrGrantedAccess (MT)	
	MSAD_AuthenticationSchetule (ST)	
ADSPI_SecErrorsLogon_2K8+(MT)	MSAD_SecErrorsLogon (MT)	
	MSAD_AuthenticationSchetule (ST)	

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization Information in Microsoft Active Directory SPI	Equivalent Configuration in Microsoft Active Directory MP	More Information
How to configure Microsoft Active Directory SPI: • Deploy ADSPI_Discovery • Deploy ADSPI-CreateDatasources	How to configure Microsoft Active Directory MP: Deploy Microsoft AD Discovery aspect. Note This can also be done by configuring this aspect for Auto-assignments.	
To change the *Threshold,* edit the policy, modify the threshold, and deploy the policy.	Edit the *Threshold* parameter before or after deployment.	Different threshold default values can be maintained by creating different set of aspects and MTs.

Tools Mapping

This section maps SPI tools to equivalent MP tools, if any.

HPOM SPI Tools	Equivalent MP Tools	Comments
SPI has the following tool groups: SPI for Active Directory	MP has following tool categories: MSAD Operational Tools	MSAD Operational tools contains Active Directory specific and Active Directory Monitoring tools.
AD DC Demotion Preparation	MSAD AD DC Demotion Preparation	
AD Trust Relationships	MSAD AD Trust Relationships	
ADS Printer Information	MSAD ADS Printer Information	
Check ADS Service	MSAD Check ADS Service	
Delete Older ADSPI Classes	MSAD Delete Older ADSPI Classes	
Operations Topology Viewer	Dropped	
Self-Healing Info	Dropped	
Self-Healing Verification	Dropped	

Graphs Mapping

This section provides a mapping between the graphs present in the Microsoft Active Directory SPI and Microsoft Active Directory MP.

Microsoft Active Directory SPI	Microsoft Active Directory MP
Active Directory Replication Latency Graph	Same graphs are available in MP as well. There are no new graphs.
Active Directory Query Response Time	
Active Directory Bind Response Time	
Active Directory GC Availability	
Active Directory Replication Time by Global Catalog	

Node Cleanup

Remove SPI artifacts from the node that you are going to monitor using MP. Following are the SPI artifacts that need to be removed in the given order:

1. Remove policy templates from the node.
   a. List the policies using the ovpolicy –l command.

Note
All Microsoft Active Directory SPI policies start with ADSPI.

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   b. Execute one of the following commands to remove policies:
   - By Name: `ovpolicy –remove –polname <Name>`
   - By Type: `ovpolicy –remove -poltype <Type>`

Note
Before you move from OM to OMi, make sure you do not remove the flexible management policy of type "mgrconf" if it has already been deployed.

You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove the CODA / OVPA data sources.

Remove CODA or OVPA data sources using the command ADSPI_DeleteDS.bat under instrumentation or run the tool Delete Older ADSPI Classes from HPOM Server to remove the ADSPI data sources.

   a. Restart CODA: `ovc –restart coda`
   b. Verify Datasource removal: `ovcodautil –showds`

Note
There should not be any datasources listed as ADSPI. Management Pack automatically creates datasources only on CODA.

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3. Remove the Microsoft Active Directory SPI instrumentation.

Instrumentation folder on Windows: `%OvAgentDir%\bin\instrumentation`

The instrumentation files on the node that are prefixed or suffixed with “adspi”, “WINOSSPI”, and “ad_” can be deleted.

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

4. Remove the log files.

The ADSPI log files are created under the following folder `<OvAgentDrive>/log`. The log file names starts or ends with ADSPI.

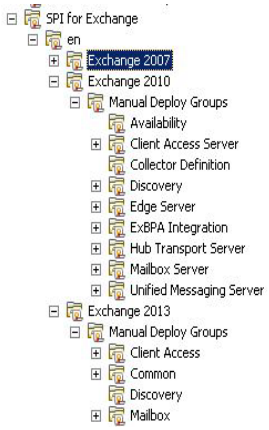
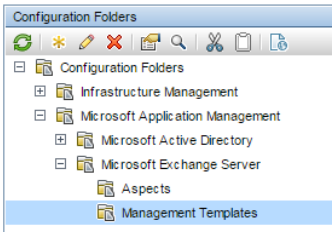
For more information on cleaning up nodes, see *Prepare nodes for deployment* under the Recommended steps for moving from a SPI to MP section in this document.

Microsoft Exchange Server SPI and Management Pack

This section explains the evolution from the HPOM Smart Plug-in for Microsoft Exchange Server 13.09 to the HPE OMi Management Pack for Microsoft Exchange Server 1.0.

SPI and MP comparison

This section provides an overview of similarities and differences between HPOM Smart-Plug-in for Microsoft Exchange Server (Microsoft Exchange Server SPI) and OMi MP for Microsoft Exchange Server (Microsoft Exchange Server MP). For information about working with the Microsoft Exchange Server MP, see the *HPE OMi Management Pack for Microsoft Exchange Server User Guide*.

Features	Microsoft Exchange Server SPI 13.09	Microsoft Exchange Server MP 1.0
Pre-requisites	HPOM W 8.16, HPOM W 9.x, HPOM U/S/L 9.1 or higher HP Operations Agent 11.0 or higher	BSM/MA 9.22 or higher HP Operations Agent 11.12 or higher
Product Delivery	The Microsoft Exchange Server SPI is shipped with SPI DVD.	The Microsoft Exchange Server MP is shipped with the OMi 10 installer. You can also download the Microsoft Exchange Server MP from the e-media download center. See Useful resources in this document for the e-media download center link.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	The Microsoft Exchange Server MP can be installed using any of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install the Microsoft Exchange Server MP after OMi 10.x is installed. For more information about opr-mp-installer Command-Line Interface, see the *OMi Administration Guide*. 3. You can download the MP bits from the e-media download center. Then mount the ISO and use the OS specific installer. • Linux: *mpinstall.sh-i* • Windows: *cscript mpinstall.vbs -i* Use this option when a higher MP version is available in the e-media download center.
Policy Grouping	The policies are grouped into policy groups. 	Aspects and MTs are grouped into configuration folders. Policy templates are grouped into aspects. For more information regarding policy templates, see SPI policy to MP policy template mapping section in this document. 
Policy versioning	HPOM policy version uses the xxxx.yyyy format. Example: Server: 13.890	OMi policy template version uses the xxxx.yyyy format. Example:

	Node: 13.0890 When SPI version is 13.09, policies updated in this release would be versioned as 0013.0890. On the GUI, it is visible as 13.890. When you update such a policy, only minor versions (Last two digits) should be updated. Example: When you update a policy with version 0013.0890 (in GUI: 13.890), it will be changed to 13.890.0001 (in GUI 13.890)	Server: 1.0 Example: In EX MP 0001.0001 (In GUI 1.10), policies are versioned as 0001.0000. On the OMi GUI, it is displayed as 1.0. In subsequent MP releases, policy version is updated only if a particular policy is updated in that release. When you update a policy, only minor versions (last two digits) are updated. Example: When you update a policy with version 0001.0000 (in GUI 1.0), it will be changed to 0001.0001(in GUI 1.1).
Message Groups	Microsoft Exchange Server SPI for Microsoft Exchange Server 2010 contains message groups to generate events such as EXSPI_2010. Microsoft Exchange Server SPI for Microsoft Exchange Server 2013 does not have message groups.	MP does not have message groups.
Policy Types	SPI has the following policy types: • Measurement Threshold • Scheduled Task • Windows Event Log • Discovery	MP has the following policy template types: • Measurement Threshold • Scheduled Task • Windows Event Log • Discovery • Config File Template
Tools	Following are the tools in Microsoft Exchange Server SPI • Exchange Topology Viewer • Create Data Sources • Delete EXSPI Classes • Delete Older EXSPI Artifacts • Edit XPL Configuration • Exchange Cluster Configuration • EXSPI Configuration Utility 2010 • EXSPI Trace • Register Data Collector • Self Healing Info • Self Healing Verification	MP has lesser number of tools. Topology Viewer and Self-Healing Info tools are not available in MP. For more information about tools in MP, see Tools mapping in this document.
Instrumentation	Instrumentation categories of SPI: • Exchange2k10_Core • Exchange2k13_Core • Exchange2k10_Discovery In HPOM, the SPI instrumentation is stored in file system.	Instrumentation category of MP: MSEX-Core OMi Server: Instrumentation is uploaded into OMi database. Node: There is no difference with the instrumentation location on nodes. Instrumentation is deployed to the same directories as in SPIs. In MPs, the new instrumentation binaries are prefixed with MSEX_ and the existing binaries use the same name. The names of the Spec files and datasources are retained to ensure backward compatibility with the existing reporting and graphing solutions.
Discovery	Deploy Exchange 2010 Discovery or *Exchange 2013 Discovery* policy to the managed node. After the Discovery policy is deployed successfully, the discovered instances are shown in the service map.	MP has two types of Discovery: a) Basic Discovery that does not require user credentials. b) Extensive Discovery that requires user credentials. Deploy the **Exchange Discovery** aspect for basic discovery. Deploy the **Exchange Discovery and Config** aspect for extensive discovery. If the discovery is successful, the discovered instances are shown as appropriate CIs in the RTSM. Basic Discovery populates the following CIs in RTSM: • Exchange Organization

		• Exchange Server • Exchange Server Roles Extensive **Discovery populates the following CIs in RTSM:** • Exchange Database • Exchange Database Availability Group • File_system of exchange database
Configuration	In the Microsoft Exchange Server SPI, use the following tools: • Create Data Sources • Register DataCollector • Configure User Credential	All configuration is done in the background by the **Exchange Discovery and Config** aspect. The following tasks are performed by the aspect on the node: • Data sources are created based on the Exchange version. • Command-let DLLs are registered based on the Exchange version. • Credentials are captured for monitoring.
Deployment	Deploy specific policies or groups based on monitoring needs to appropriate node or node group(s).	Assign Management Template to the Exchange Organization CI.

Appearance of artifacts on node	• Instrumentation can be found in:
	`%ovdatadir%/bin/instrumentation`
	• Policy list: Use the ovpolicy –l command to view a list of policies.
	`svcdisc "Exchange 2010 Discovery" e`
	`wbemi "EXSPI-14X Check Replication`
	Configuration, Log and Error files are created under Windows:
	`<OvAgentDir>\bin\instrumentation\exspi`
		• Instrumentation can be found in:
		`%ovdatadir%/bin/instrumentations`
		• Policy list: Use the `ovpolicy -l` command to view a list of policy templates.
		Every parameterized policy has an extra entry with *<policy type>tmpl* in the **Type** column.
		`svcdisc "MSEX_Discovery"`
		`svcdisc "MSEX_ExtensiveDiscovery"`
		`svcdisc "Sys_SystemDiscovery"`
		`svcdisctmpl "MSEX_ExtensiveDiscovery"`
		Configuration, Log and Error files are created under Windows:
		`<OvAgentDir>\bin\instrumentation\msex`

Monitoring capability	For more information about the monitoring capability in SPI, see the *EXSPI SPI* reference guide. There are different sets of policies for Exchange 2010 and Exchange 2013.	Microsoft Exchange Server MP supports monitoring for Exchange 2010 and Exchange 2013. The monitoring capabilities are similar as that of the SPI. MP has one set of policies which will monitor Exchange 2010 and Exchange 2013. For more information about policy mapping, see the section SPI policy to MP policy template mapping in this document.
Tuning after Deployment	You can modify policies for customization. Customized version need to be deployed manually to the node for customizations to take effect.	You can tune parameters during the deployment of a specific CI. You can also tune a parameter value after deploying a specific CI using the **Assignments & Tuning** section. After the parameters are tuned, policy templates are automatically deployed. Threshold, Severity and collection frequency are parameterized.
End-to-End monitoring	Deploy the Microsoft Exchange Server SPI, Microsoft Active Directory SPI and Infrastructure SPI policies to monitor Exchange, AD and system infrastructure.	Deploy any OOTB MT to monitor Exchange Server, Active Directory and key system infrastructure metrics.
Monitoring instances with different business criticality	Maintain multiple policies set based on business criticality.	Deploy the essential MT to monitor non critical environment. Use the extensive MT to monitor critical Infrastructure.
Uninstallation	Native procedure is used to uninstall Microsoft Exchange Server SPI.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • instrumentation • Content Pack definitions

Graphs	PM generates reports using the performance and availability metrics. SPIs had a separate installer for OOTB graphs that need to be installed on PM.	OMi PG provides a graphing solution for OMi MP, which is an embedded component in the platform. OOTB PMi graphs for the MP are installed along with MP.
Data logging on node	Collected metrics are logged into CODA or OVPA on the node.	There are no difference in terms of tables and the collected metric is logged into CODA. Datasource, class and metric names are the same as in SPI (EXSPI_DATA).
Events	Sends events on threshold violations with valid messages.	Sends events with corresponding messages. Certain messages have been modified for correctness and to bring commonality across versions.
HIs or ETIs	Supports the Exchange content pack which ships HIs or ETIs.	Supports the existing HIs and ETIs. No new indicators are added.
TBEC	Microsoft Exchange Server SPI supports the Exchange content pack which ships TBEC.	Existing TBEC rules are supported by Exchange Server Management Pack. No New TBEC rules are added.
I18N & L10N	Is I18N certified and is localized in the Japanese language.	Is I18N certified and is localized in the Japanese language.
OO Flows	Integration with the HP OO flows were shipped part of the Exchange content.	Same set of OO flows are shipped with MP. However, OO flows are restricted to the ops-bridge usecase only. The OO flows work only in an environment where the HPOM and SPI are used for monitoring along with OMi and OO integration.

Common Policy Changes

This section captures changes (such as parameterization) commonly made to HPOM SPI policies to adopt them to OMi MP policy templates.

The policy templates in Microsoft Exchange Server MP follows the approach similar to the Microsoft Exchange Server SPI 13.09.

Exchange Server SPI has different sets of policies for different versions of the Exchange Server. This duplication has been removed and the policies have been consolidated to a single set for both Exchange Server 2010 and Exchange Server 2013.

Policy Template Naming Convention in MP

- Microsoft Exchange Server MP policy templates have the following nomenclature:
- All policies start with a prefix of MSEX_.

All the policies shipped with Exchange 2013 SPI are available with Microsoft Exchange Server MP. The only difference is the name of the policy. Instead of EXSPI_ the policy, names start with MSEX_.

SPI has OOTB policies of the following types:

- Measurement Threshold
- Schedule Task
- Windows Management Instrumentation
- Windows Event Log
- Discovery

MP has policies of type as similar to SPI. In addition, MP also includes policies of type Config File.

Config File

Config File policy templates primarily contain the definitions of what type of data must be collected. Definitions instruct the collector on what to collect and when to collect. There are two types of *ConfigFile* policies in the Microsoft Exchange Server MP:

a. MSEX_CollectionDefinition_<Version>

This policy contains the Metric Definition XML file. The Collector requires a definition file which mentions what to collect. Metric definition XML is the file which contains the collection definition. The collector parses this xml file to find out what to collect, where to log the data and which *opcmon* policy to send alert to. The collection definition files are:

- Exchange 2010: MSEX_CollectionDefinition_2010
- Exchange 2013: MSEX_CollectionDefinition_2013

b. MSAD_<Collection Name>_Conf

This is a ConfigFile policy which contains the schedule of collections within an aspect. The schedule is defined as VERY_HIGH, HIGH, MEDIUM or LOW. This policy is deployed along with its corresponding aspect. Based on the schedules mentioned in this policy, collection manager will collect the corresponding metrics as defined in the collection definition.

There are separate configuration files for Exchange 2010 and for Exchange 2013.

For example:

- Exchange 2010: MSEX_ActiveSync_Conf_2010
- Exchange 2013: MSEX_ActiveSync_Conf

Measurement Threshold

The *Threshold, Reset Threshold* and *Severity* are the most customizable attributes in the *Measurement Threshold* policy. OMi MP has parameterized these policy attributes to simplify the maintenance and avoid policy version increments. These parameters can be modified during deployment or post-deployment. All the Measurement threshold policies work with the collector to monitor metrics.

Schedule Task Policy

Exchange Server SPI for exchange server 2010 has OOTB scheduled task policies which triggers the collector with a set of metrics at defined interval. If you want to modify a metric from 05mins scheduler to 15mins scheduler, you need to edit 05 mins scheduled task policy to remove the metric number from command and to update in the 15 mins scheduled task policy.

This is different for Exchange Server SPI for Exchange Server 2013 which has well defined sets of schedule task policies for various frequencies.

In case of MP, Microsoft Exchange Server MP follows the implementation of Exchange Server SPI for Exchange 2013. As in SPI for Exchange 2013, the policies follow a defined set of collection schedule. The schedule is classified as Very_High, High, Medium, Low and Daily which run in the following intervals 5 mins, 15 mins, 30 mins, 1 hour and 1 day. These frequencies can be changed by modifying the *Frequency* parameter. To change the frequency of monitoring for these metrics the frequency parameter can be changed.

There are five sets of scheduled task policies for five Exchange Server roles. All the schedule task policies for a role ends with a role suffix which signifies the role of the Exchange Server. For example, the schedule task policies for mailbox role has the suffix as _MB (MSEX_SCH_VERY_HIGH_MB).

The time schedule for the scheduled task policy is parameterized. Default polling intervals are parameterized, the intervals are defined as VeryHigh (5 mins), High (15 mins), Medium (30 mins) Low (1 hour) and Daily (24 hours) respectively.

For example, the frequency of VeryHigh scheduler for Mailbox can be modified in the parameter *Frequency of VeryHigh Scheduler for Mailbox Role* from 5 to 10. All the metrics marked under the VeryHigh category for Mailbox Role is executed every 10 mins.

Metric Schedule Case	SPI	MP
Modify a metric from 05 mins to 15 mins	**For Exchange 2010 SPI** 1. Edit 5 mins schedule task policy to remove the metric.	Microsoft Exchange Server MP is similar to Exchange 2013 SPI support If the assignment is already done then click **Assignments & Tuning**:

	2. Edit 15 mins schedule task policy to add the metrics. 3. Redeploy both of the above schedule task policies. **For Exchange 2013 SPI** Edit the schedule in the *Schedule task* policy from Very High to High and redeploy.	1. Edit the frequency parameter of given metric change it from VeryHigh to High. 2. For the legacy scheduled task policies change the frequency parameter from 5 mins to 15 mins. Note The same can be done by editing metric's frequency parameter at the aspect or MT level.
Remove metric from scheduling.	For Exchange 2010 SPI, do not deploy the policy to the node. For Exchange 2013 Node, disable the collection in collection definition policy of the SPI.	Edit the Collection definition policy and disable the collection. There are two collection definition policies one for Exchange 2010 and another for Exchange 2013. • MSEX_CollectionDefinition_2010 • MSEX_CollectionDefinition_2013
Modify the lowest schedule of collection from 5 mins to 10 mins.	Copy and create new schedule task policy with the schedule of 10 mins. Or Edit the 5 mins schedule task policy, change the interval and rename it to 10 mins.	Modify the interval of scheduled task policy exposed as parameter either at the Aspect or MT level. In this case *Frequency of VeryHigh Scheduler*.

Windows Event Log Policies

Windows Event Log policies forwards events to the server. These policies are similar in SPI and in MP.

Discovery Policy

This policy is a type of custom discovery policy which triggers discovery script to generate XML. This XML directly contains information about discovered Exchange Server CIs and its relationship with Active Directory and Infra elements.

There are two types of discovery policy, Basic discovery which does not take any credentials and the extensive discovery which is similar to SPI and takes username and password as parameters.

Policy specific changes

This section maps Microsoft Exchange Server MP's aspects to the corresponding Microsoft Exchange Server SPI policies. This section also has information on policies that are dropped and any new policies that are added. Also, it captures the differences between them, if there are any.

Apart from the common changes that have been captured in the previous section, following are the policy specific changes.

Microsoft Exchange Server SPI Policies Split

Some of the policies present in Microsoft Exchange Server SPI have been split into multiple policies in Exchange. This has been done to maintain a higher level of control and granularity.

In Exchange 2013 SPI, the EXSPI_CollectionSchedule is split into many *ConfigFile* policies. This was done to achieve scheduling at the aspect level.

SPI Policy	MP Policy Template	Comments
EXSPI_CollectionSchedule	MSEX_TransportQueue_Conf MSEX_Pop3Perf_Conf MSEX_StorePerf_Conf MSEX_SMTPPerf_Conf	In Exchange 2013, the SPI has one collection schedule policy for scheduling collection.

	MSEX_Transport_Conf MSEX_MailboxDB_Conf MSEX_MailboxData_Conf MSEX_MAPI_Conf	Due to the concept of aspect-based deployment, this policy has been split in to different conf policies as per the aspect definition.
	MSEX_IMAP_Conf MSEX_OWA_Conf MSEX_OWA_Perf_Conf MSEX_ActiveSync_Conf MSEX_ActiveSync_Perf_Conf MSEX_BlockedData_Conf MSEX_ContentFilter_Conf MSEX_UnifiedMessaging_Conf MSEX_MailFlow_Conf MSEX_Replication_Conf MSEX_PublicFolder_Conf MSEX_DBSTatus_Conf MSEX_RPCClients_Conf MSEX_Availability_Conf MSEX_Services_Conf	Similar policies are introduced for Exchange 2010 and they have the suffix of Conf_2010.

EXSPI policies that are not present in Microsoft Exchange Server MP

The following table provides a list of the policies that are not present in Microsoft Exchange Server MP:

Microsoft Exchange Server SPI Policy Name	Comments
• EXSPI-14X Error Messages • EXSPI-14X Messages • EXSPI-14X SPimetadataversioning	Removed as the monitoring architecture is adopted the latest Exchange 2013 method. These policies are now replaced with the following policies: • MSEX_CollectionDefinition_2010 • MSEX_CollectionDefinition_2013
• EXSPI-14X ExBPA Integration	Not a monitoring use case and hence removed since Microsoft Exchange Server SPI 13.09
• EXSPI-14X IMAP4 Connections • EXSPI-14X IMAP4 Failed Connection Rate • EXSPI-14X IMAP4 Rejected Connection Rate • EXSPI-14X Check Outlook Anywhere Enabled • EXSPI-14X Check Outlook Anywhere Not Enabled • EXSPI-14X POP3 Connections • EXSPI-14X POP3 Failed Connection Rate • EXSPI-14X POP3 Rejected Connection Rate • EXSPI-14X Hub Th-ActiveRemoteDelivery_QLength • EXSPI-14X Hub Th-AggDel_QLength-All_Queues • EXSPI-14X Hub Th-LargestDelivery_QLength • EXSPI-14X Hub Th-RetryRemoteDelivery_QLength • EXSPI-14X Outlook Client RPC Failure Rate • EXSPI-14X Information Store VM 16MB Blocks • EXSPI-14X Information Store VM Large Block Bytes	These are the list of policies in Microsoft Exchange Server SPI 13.08. The data for these policies are collected and logged but not alerted. Hence they do not have an equivalent measurement threshold policies in the MP. MP is aligned to the Microsoft Exchange Server SPI 13.09 (latest version)

SPI policy to MP policy template mapping

This section maps Exchange Server MP's policies to corresponding Exchange Server SPI's policies.

The policy type is mentioned in short form along with the policy name.

- MT: Measurement Threshold
- ST: Scheduled Task
- CF: Config File
- LE: Logfile Entry
- DISC: Service Discovery
- WEL: Windows Event Log
- WMI: Windows Management Instrumentation

Table for Exchange 2010

The only change for policies between the Exchange 2013 SPI and Exchange 2013 MP is the prefix. Exchange 2013 SPI policy names are prefixed with EXSPI_ whereas the MP policy templates are prefixed with MSEX_.

For example:

Equivalent policy template name in MP for EXSPI_PopLatency policy is MSEX_PopLatency.

The Microsoft Exchange Server MP follows the architecture of Microsoft Exchange Server SPI for Exchange 2013.

HPOM Smart Plug-in policy	OMi Management Pack – Policy Template	OMi Management Pack – Aspects
Exchange 2010 Discovery (DISC) Exchange 2013 Discovery (DISC)	MSEX_Extensive Discovery (DISC)	Exchange Discovery and Config
EXSPI-14X-Dc-HubAgentLogBlockedData (MT) EXSPI-14X-Dc-HubAgentLogBlockedRcpts (MT) EXSPI-14X-HubGetBlockedMailsCount (MT) EXSPI-14X-HubMonitorBlockedMails (MT)	MSEX_BlockedData_Conf_2010 (CF)	Exchange Blocked Data
EXSPI-14X Check If Mailbox Circular Logging Disabled (ST) EXSPI-14X Check Mailbox Circular Logging Enabled (ST)	MSEX_MBCircularLogging (MT) MSEX_CircularLogging_Conf_2010 (CF)	Exchange Database Circular Logging
EXSPI-14X Check If PF Circular Logging Disabled (ST) EXSPI-14X Check PF Circular Logging Enabled (ST)	MSEX_PFCircularLogging (MT) MSEX_CircularLogging_Conf_2010 (CF)	
	MSEX_ActiveSync_Conf_2010 (CF) MSEX_ActSyLatency (MT) MSEX_ActSyResult (MT)	Exchange Active Sync
EXSPI-14X Get Exchange Availability (ST)	MSEX_Availability_Conf_2010 (CF)	Exchange Availability
EXSPI-14X_Check_ActiveStatus (MT)	MSEX_ActDbSTatus Value (MT)	Exchange Database Cosistency
EXSPI-14X_Check_ContentIndexState (MT)	MSEX_ActDBContentIndexState (MT) MSEX_PassDBContentIndexState (MT)	
EXSPI-14X_Check_PassiveStatus (MT)	MSEX_PassDbStatusValue(MT)	
EXSPI-14X-Monitor Mailbox Database Status (ST)	MSEX_DBStatus_Conf_2010 (CF)	
EXSPI-14X Forward ExBPA Event Log Errors (WEL)	MSEX_Forward_ExBPA_Event_Log_Errors	Exchange Error Logs
EXSPI-14X Replication Errors in Application Event Log (WEL)	MSEX_Replication_Errors_in_Application_Event_Log (WEL)	
EXSPI-14X Forward MSExchangeAL Errors (WEL)	MSEX_Forward_MSExchangeAL_Errors (WEL)	
EXSPI-14X-ActiveSync-Errs (WEL)	MSEX_ActiveSync_Errors (WEL)	
EXSPI-14X-Autodiscover-Err (WEL)	MSEX_Autodiscover-Err (WEL)	
EXSPI-14X Exchange 2010 Application Errors (WEL)	MSEX_Exchange_2010_Application_Errors (WEL)	
EXSPI-14X-Autodiscover-Warn (WEL)	MSEX_Autodiscover_Warn (WEL) MSEX_Ed_MSExchange_Message_Security (WEL) MSEX_Exchange_2010_Application_Warnings(WEL)	Exchange Event Logs
EXSPI-14X-Mailbox-MailSubmission (WEL)	MSEX_Mailbox_MailSubmission (WEL)	
EXSPI-14X Exchange DatabaseCopy Status (WEL)	MSEX_Exchange_DatabaseCopy_Status (WEL)	
EXSPI-14X-InformationWorker (WEL)	MSEX_InformationWorker (WEL)	
EXSPI-14X-IMAP4 (WEL)	MSEX_IMAP4 (WEL)	
EXSPI-14X-ActiveSync-Warn (WEL)	MSEX_ActiveSync_Warn (WEL)	
EXSPI-14X-MSExchange Messaging Policies (WEL)	MSEX_MSExchange_Messaging_Policies_Events (WEL)	
EXSPI-14X-POP3 (WEL)	MSEX_POP3 (WEL)	
EXSPI-14X CAS Evt-MSExchange OWA (WEL)	MSEX_CAS_Evt_MSExchange_OWA (WEL)	

EXSPI-14X-MailboxServer-Assistants (WEL)	MSEX_MailboxServer_Assistants (WEL)	
EXSPI-14X MSExchange Store Driver Events (WEL)	MSEX_MSExchange_Store_Driver_Events (WEL)	
EXSPI-14X Exchange 2010 Application Info (WEL)	MSEX_Exchange_2010_Application_Info (WEL)	
EXSPI-14X Repl Warnings in Application Event Log (WEL)	MSEX_Repl_Warnings_in_Application_Event _Log (WEL)	
EXSPI-14X Dc-IMAP4 Performance (ST)	MSEX_ImapLatency (MT) MSEX_ImapResult (MT) MSEX_IMAP_Conf_2010 (CF)	Exchange IMAP4
EXSPI-14X Exchange 2010 Application Info (WEL)	MSEX_Exchange_2010_Application_Info (WEL)	Exchange Information Logs
EXSPI-14X-ActiveSync-Info (WEL)	MSEX_ActiveSync_Info (WEL)	
EXSPI-14X Dc-Information Store Performance (MT)	MSEX_StorePerf_Conf_2010 (CF)	Exchange Information Store
EXSPI-14X Information Store RPC Averaged Latency (MT)	MSEX_StoreRPCAvgLat (MT)	
EXSPI-14X Information Store RPC Operations (MT)	MSEX_StoreRPCOPPerSec (MT)	
EXSPI-14X Information Store RPC Requests (MT)	MSEX_StoreRPCReq (MT)	
EXSPI-14X IS Mailbox Average Delivery Time (MT)	MSEX_AvgDelTime (MT)	
EXSPI-14X Information Store Additional Heaps (MT)	MSEX_ExchmemAdditionalHeaps (MT)	
EXSPI-14X Information Store Heap Memory Errors (MT)	MSEX_ExchmemHeapsErrors (MT)	
EXSPI-14X Information Store Memory Errors	MSEX_ExchmemMemoryErrors (MT)	
EXSPI-14X Information Store User Count (MT)	MSEX_userCount (MT)	
EXSPI-14X Information Store VM Largest Block(MT)	MSEX_ISLargestVMBlock (MT)	
EXSPI-14X Test Mapi Connectivity (ST)	MSEX_MAPI_Conf_2010 (CF)	Exchange MAPI
EXSPI-14X Dc-GetMailFlowLatency (ST)	MSEX_MailFlow_Conf_2010 (CF)	Exchange Mailflow
EXSPI-14X Get Mailbox Details (ST) EXSPI-14X Get Mailbox IS Sum Data (ST)	MSEX_MailboxData_Conf_2010 (CF)	Exchange Mailbox
EXSPI-14X Dc-IS Mailbox Performance (MT)	MSEX_MailboxDB_Conf_2010 (CF)	Exchange Mailbox Database
EXSPI-14X Information Store Db Cache Size (MT)	MSEX_ISDBCacheSize(MT)	
EXSPI-14X Information Store Db Cache Size in MB (MT)	MSEX_ISDBCacheSizeMB (MT)	
EXSPI-14X Information Store Db Log Threads Waiting (MT)	MSEX_LogThreadsWaiting (MT)	
EXSPI-14X Information Store Db Log Writes per sec (MT)	MSEX_DatabaseLogWritesRate (MT)	
EXSPI-14X IS Db Log Record Stalls per sec (MT)	MSEX_MdbLgRecStalls (MT)	
EXSPI-14X-OwaConnectivity_Latency (MT)	MSEX_OwaLatency (MT)	Exchange OWA
EXSPI-14X-OwaConnectivity_Result (MT)	MSEX_OwaResult (MT)	
EXSPI-14X-DownloadTaskQueued-OAB-All (MT)	MSEX_DownloadTaskQueues(MT)	Exchange Online Address Book
EXSPI-14X-DownloadTaskQueued-OAB-Total (MT)	MSEX_TotalDownloadTaskQueued (MT)	
EXSPI-14X-DownloadTasksCompleted-OAB-All (MT)	MSEX_DownloadTaskCompleted (MT)	
EXSPI-14X CAS Collect FDS Metrics (MT)	MSEX_FDSOABPerf_Conf_2010 (CF)	
EXSPI-14X Dc-POP3 Performance (MT)	MSEX_Pop3Perf_Conf_2010 (CF)	Exchange POP3
EXSPI-14X Dc-IS Public Folder Performance(MT)	MSEX_PublicFolderPerf_Conf_2010 (CF)	Exchange Public Folder
EXSPI-14X Get Public Folder Details (ST)	MSEX_PublicFolder_Conf_2010 (CF)	
EXSPI-14X Get Public IS Sum Data (ST)	MSEX_PublicFolder_Conf_2010 (CF)	
EXSPI-14X IS Public Average Delivery Time (MT)	MSEX_PFAvgDeliveryTIme (MT)	

EXSPI-14X IS Public Replication Queue Length (MT)	MSEX_PFReplicationQueue (MT)	
EXSPI-14X Dc-Outlook Client (MT)	MSEX_RPCClients_Conf_2010 (CF)	Exchange RPC Performance
EXSPI-14X Outlook Client Latency (MT)	MSEX_RpcClientLatGt2 (MT) MSEX_RpcClientLatGt5 (MT) MSEX_RpcClientLatGt10 (MT)	
EXSPI-14X Edge DC-MSExchange Recipient Filter Agent (MT)	MSEX_RecpientPerf_Conf_2010 (CF)	Exchange Recipient Filtering
EXSPI-14X Dc Replication Summary (ST)	MSEX_Replication_Conf_2010 (CF)	Exchange Replication
EXSPI-14X_ReplicationCopyQueueLength (MT)	MSEX_CopyQueueLength (MT)	
EXSPI-14X_ReplicationReplayQueueLength (MT)	MSEX_ReplayQueueLength (MT)	
EXSPI-14X Edge DC-MSExchange Protocol Analysis Agent (MT)	MSEX_SMTPPerf_Conf_2010 (CF)	Exchange SMTP
EXSPI-14X-Dc-EdgeMonitorSPAMStatistics (MT)	MSEX_ContentFilter_Conf_2010 (CF)	Exchange SPAM Statistics
EXSPI-14X-Dc-HubMonitorSPAMStatistics (MT)		
EXSPI-14X Edge DC-MSExchange Sender Filter Agent (MT)	MSEX_SenderPerf_Conf_2010 (CF)	Exchange Sender ID Filtering
EXSPI-14X Edge DC-MSExchange Sender Id Agent (MT)		
EXSPI-14X_Check_ADTopologyServiceStatus(MT)	MSEX_ADTopologyServState (MT)	Exchange Service Availability
EXSPI-14X_Check_SytemAttendantStatus(MT)	MSEX_SAServState (MT)	
EXSPI-14X Check Replication Service (MT)	MSEX_ReplServState (MT)	
EXSPI-14X_Check_UnifiedMessagingStatus (MT)	MSEX_UMServState (MT)	
EXSPI-14X_Check_ReplicationServiceStatus (MT)	MSEX_MbReplicationServState (MT)	
EXSPI-14X_Check_CASFileDistributionServiceStatus (MT)	MSEX_FDSServState (MT)	
EXSPI-14X_Check_IMAP4ServiceStatus (MT)	MSEX_ImapServState (MT)	
EXSPI-14X_Check_POP3ServiceStatus (MT)	MSEX_PopServState (MT)	
EXSPI-14X_Check_ADAMServiceStatus (MT)	MSEX_ADAMServState (MT)	
EXSPI-14X_Check_EdgeCredentialServiceStatus (MT)	MSEX_EdgeCredServState (MT)	
EXSPI-14X_Check_EDGEExchangeTransportServiceStatus (MT)	MSEX_TransportServState (MT)	
EXSPI-14X_Check_HUBExchangeEdgeSyncServiceStatus (MT)	MSEX_EdgeSyncServState (MT)	
EXSPI-14X_Check_HUBExchangeTransportServiceStatus (MT)	MSEX_TransportServState (MT)	
EXSPI-14X_Check_InformationStoreServiceStatus (MT)	MSEX_StoreServState (MT)	
EXSPI-14X_Check_MailboxAssistantServiceStatus (MT)	MSEX_MbAssistantsServState (MT)	
EXSPI-14X_Check_MailSubmissionServiceStatus (MT)	MSEX_SubmissionServState (MT)	
EXSPI-14X_Check_MBExchangeServiceHostStatus (MT)	MSEX_ServiceHostServState (MT)	
EXSPI-14X Hub Transport DSN (MT)	MSEX_DsnDelay (MT)	Exchange Transport
EXSPI-14X Hub Th-FailureDSNsTotal (MT)	MSEX_DsnFailedTtl (MT)	
EXSPI-14X Edge DC-MSExchange Content Filter Agent (MT)	MSEX_TransportFilter_Conf_2010(CF)	Exchange Transport Filter

EXSPI-14X Edge DC-MSExchange Conn Filtering Agent		
EXSPI-14X Edge DC-MSExchange Attachment Filtering (MT)		
EXSPI-14X Edge Th-Active Remote Delivery Queue Length (MT)	MSEX_TransportQueue_Conf_2010 (CF)	Exchange Transport Queues
EXSPI-14X Edge Th-AggDelivery QLength-All_Queues	Collected and logged	
EXSPI-14X Edge Th-Largest Delivery Queue Length (MT)	Colected and logged	
EXSPI-14X Hub Th-ActiveNon-SmtpDelivery_QLength (MT)	MSEX_ActNonSmtpDeliveryQLen (MT)	
EXSPI-14X Edge Th-Active MB Delivery Queue Length (MT)	Collected and logged	
EXSPI-14X Hub Th-ActiveMailboxDelivery_QLength (MT)	MSEX_ActMailboxDeliveryQLen (MT)	
EXSPI-14X Hub Th-Unreachable_QLength (MT) EXSPI-14X Edge Th-Unreachable Queue Length (MT)	MSEX_UnReachableQLen (MT)	
EXSPI-14X Hub Th-Submission_QLength (MT) EXSPI-14X Edge Th-Submission Queue Length (MT)	MSEX_SubmissionQLen (MT)	
EXSPI-14X Hub Th-RetryNon-SmtpDelivery_Qlength (MT) EXSPI-14X Edge Th-Retry Non-SMTP Delivery Q Length (MT)	MSEX_RetryNonSmtpDelQLen (MT)	
EXSPI-14X Hub Th-RetryMailboxDelivery_QLength (MT)	MSEX_RetryMBDelQLen (MT)	
EXSPI-14X Hub Th-Poison_QLength (MT) EXSPI-14X Edge Th-Poison Queue Length (MT)	MSEX_PoisonQLen (MT)	
EXSPI-14X UM Th-MSExchangeUMAvailability (MT)	MSEX_TotMsgQueued (MT)	Exchange Unified Messaging
EXSPI-14X Get UMMailbox Pin Details (ST)	MSEX_UnifiedMessaging_Conf_2010 (CF)	
EXSPI-14X Get UMHuntGroup Details (ST)		
EXSPI-14X Get UMMailbox Pin Details (ST)		
EXSPI-14X Get UMServer Details (ST)		
EXSPI-14X Get Unified Messaging Mailbox Details (ST)		
EXSPI-14X GetUM IPGatewayDetails (ST)		
EXSPI-14X UM DC-MSExchangeUMAutoAttendant (MT)		
EXSPI-14X UM DC-MSExchangeUMAvailability (MT)		
EXSPI-14X UM DC-MSExchangeUMCallAnswer (MT)		
EXSPI-14X UM DC-MSExchangeUMFax (MT)		
EXSPI-14X UM DC-MSExchangeUMSubscriberAccess (MT)		
EXSPI-14X UM DC-MSExchangeUMGeneral (MT)		

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization information in Microsoft Exchange Server SPI	Equivalent Configuration in Microsoft Exchange Server MP	More Information

Getting started with monitoring using the Microsoft Exchange Server SPI: • Create Data Sources • Register DataCollector • Configure User Credential • Deploy Discovery Policy	Getting started with monitoring using the Microsoft Exchange Server MP: • Deploy Microsoft Exchange Discovery • Deploy the Management Template	
To change or to reset the threshold, edit the policy, modify the threshold and deploy.	Edit or reset the threshold before or after deployment using the **Assignments & Tuning** option.	
Use the EXSPI **Configuration Utility** tool to customize the Powershell collections on Microsoft Exchange Server SPI for Exchange Server 2010 in Microsoft Exchange Server SPI. To disable or enable powershell collection, launch the EXSPI Configuration Utility tool and select the corresponding collection and Enable or Disable the same.	In the Microsoft Exchange Server MP, all configurations such as adding or removing collection have to be performed in the following *Config File* policies: • MSEX_CollectionDefinition_2010 • MSEX_CollectionDefinition_2013 To enable or disable a powershell collection, modify the above mentioned *Config File* policies and set the Enabled as *true/false*.	Microsoft Exchange Server MP does not ship EXSPI Configuration Utility Tool as the implementation is similar to Exchange 2013 SPI.
To change the severity, edit the policy, modify the severity and deploy.	Edit the Severity parameter before or after deployment using the **Assignments & Tuning** option.	
Collection interval is defined in schedule task policies and can be customized by editing the policy.	The *Frequency* parameter can be tuned during deployment.	

Tools Mapping

In the Microsoft Exchange Server SPI, there were different sets of tools for different versions of Exchange. In the Microsoft Exchange Server MP since the monitoring functionality is merged into a single tool, the tools are also merged into a single set.

Most of the tools that were available with the SPI have been removed in MP as all these activities are automated in the Management Packs. Hence one to one mapping of tools is not possible for the Microsoft Exchange Server MP. However, the Microsoft Exchange Server MP has few tools for operational purpose.

HPOM SPI tools	Equivalent MP tools	Comments
The Microsoft Exchange Server SPI has the following tool groups: • Exchange 2010 • Exchange Topology • Exchange 2013	MP has MSEX Monitoring Tools category.	All the tools packaged under Microsoft Exchange Server MP is under the category MSEX Monitoring Tools.
Operations Topology Viewer	Dropped	Dropped due to change in the Server architecture.
Delete Older EXSPI artifacts	Dropped	
Configure User Credential	Configuring User Credential is now part of Exchange Discovery and Config Aspect	As a part of MP design, the configuration step is simplified and hence the need to execute the tool before the start of monitoring is removed. These details are collected as a part of MT deployment using the **Exchange Discovery and Config** aspect.
Create Data Sources	Create Data Sources is now part of Exchange Discovery and Config Aspect	As a part of MP design, the configuration step is simplified and hence the need to execute the tool before the start of monitoring is removed. These details are collected as a part of MT deployment using the **Exchange Discovery and Config** aspect.
Delete EXSPI Classes	MSEX Delete Data Source	
Edit XPL Configuration File	Dropped	Not widely used by most of the customer

Exchange Cluster Configuration	Dropped	Not required as Exchange Server has dropped cluster support.
EXSPI Configuration Utility	Dropped	Microsoft Exchange Server MP similar to Exchange 2013 SPI architecture. Hence this tool is not required.
EXSPI Trace	MSEX Enable Collection Manager Trace	
Register DataCollector	Registration is now part of Exchange Discovery and Config aspect	As a part of MP design, the configuration step is simplified and hence the need to execute the tool before the start of monitoring is removed. This information is collected as a part of MT deployment by the Exchange Discovery and Config aspect.
Self-Healing Info	Dropped	Not used
Self-Healing Verification	Dropped	Not used

Graphs Mapping

Microsoft Exchange Server SPI had two sets of graphs one set for Exchange 2010 and another for Exchange 2013. These graphs are merged into a single set with Management Packs. The list of graphs available in the MPs are the following:

HPOM SPI Graphs	Equivalent MP Graphs	Comments
Virtual Memory Largest Block Size	Virtual Memory Largest Block Size (Exchange Server 2010)	
Virtual Memory Large Free Block Megabytes Usage	Virtual Memory Large Free Block Megabytes Usage (Exchange Server 2010)	
Virtual Memory 16MB Free Block Trend	Virtual Memory 16MB Free Block Trend (Exchange Server 2010)	
Information Store Users and Connections	Information Store Users and Connections (Exchange Server 2010)	
MAPI RPC Performance	MAPI RPC Performance (Exchange Server 2010)	
MAPI RPC Latency Levels	MAPI RPC Latency Levels (Exchange Server 2010)	
Outlook Client RPC Performance	Outlook Client RPC Performance (Exchange Server 2010)	
Outlook Client Failures	Outlook Client Failures (Exchange Server 2010)	
Public Folder Store Queues	Dropped	Data is getting logged
Mailbox Store Queues	Dropped	Data is getting logged
Mailbox Store Delivery Time	Mailbox Store Delivery Time (Exchange Server 2010)	
Public Folder Store Delivery Time	Dropped	Data is getting logged
Mailbox Store Message Volume	Mailbox Store Message Volume	
Public Folder Store Message Volume	Dropped	Data is getting logged
IMAP4 Connections	IMAP4 Connections	
POP3 Performance	Dropped	Data is getting logged
POP3 Connections	POP3 Connections	
Exchange 2010 Mailbox Store EDB Database Statistics	Exchange Mailbox Store EDB Database Statistics	
Exchange 2010 Public Folder Store EDB Database Statistics	Dropped	Data is getting logged
Transport Server Queues	Transport Server Queues	

Node Cleanup

Remove SPI artifacts from the node that you are going to monitor using the Microsoft Exchange Server MP. Following are the SPI artifacts that need to be removed in the given order:

1. Remove policy templates from the node.

   a. Use the `ovpolicy -l` to view a list of policies.

Note
All EX SPI policies start with EXSPI.

---

   b. Execute one of the following commands to remove policies:

   - By Name: `ovpolicy -remove -polname <Name>`
   - By Type: `ovpolicy -remove -poltype <Type>`

Note
Before you move from OM to OMi, make sure you do not remove the flexible management policy of type "mgrconf" if it has already been deployed.

You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove the CODA / OVPA data sources.

Remove CODA or OVPA data sources using the command MSEX_DeleteDS.bat under instrumentation or run the tool Delete EXSPI Classes to remove the EXSPI data sources on the HPOM Server.

   a. Restart CODA: `ovc -restart coda`

   b. Verify Datasource removal: `ovcodautil -showds`

Note
There should not be any datasources listed as EXSPI_DATA. Management Pack automatically creates datasources only on CODA.

---

3. Remove Instrumentation.

The instrumentation files on the node that are prefixed or suffixed with “Exchange_”, “HP.OV.SPI.EX”, “EXSPI_”, and “remoteconfigutil” can be deleted.

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

Instrumentation folder:

On Windows: `%OvAgentDir%\bin\instrumentation`

4. Remove the log files.

Remove the EXSPI log files are created under the folder <OvAgentDrive>/log. The log file names starts or ends with “EXSPI” or “Exchange_”.

Remove the EXSPI temp files that are created under the folder:
`<OvAgentDrive>/bin/instrumentation/EXSPI`

For more information on cleaning up nodes, see Prepare nodes for deployment under the Recommended steps for moving from a SPI to MP section in this document.

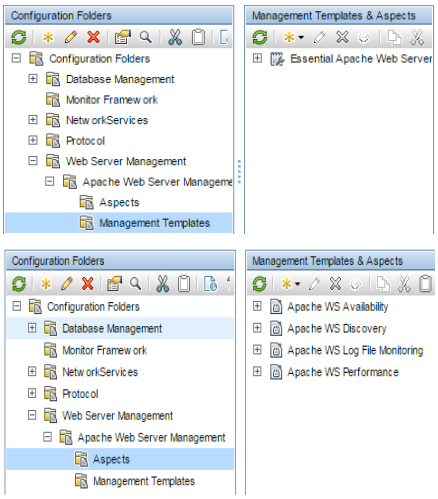
Apache Web Server SPI and Management Pack

This section explains the evolution of HPOM Smart Plug-in for Apache SPI 6.4.3 (Apache Web Server monitoring) to OMi Management Pack for Apache Web Server version 1.0.

SPI and MP Comparison

This section provides a comparison of the Apache Web Server monitoring functionality of HPOM Smart Plug-in for Apache SPI 6.4.3 (Web Server SPI) and OMi MP for Apache Web Server (Apache Web Server MP) version 1.0. For an in-depth understanding of the OMi MP for Apache Web Server, see the *HPE OMi Management Pack for Apache Web Server User Guide*.

Features	Web Server SPI version 6.4.3	Apache Web Server Version 1.0
Pre-requisites	• HPOM W 8.16, HPOM W 9.x, HPOM U/S/L 9.1 or higher • HP Operations Agent 11	• BSM/MA 9.22 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The Web Server SPI is shipped with the SPI DVD.	The Apache Web Server MP is shipped with the OMi 10 installer. It is also available to download from e-media download center. For more information on the e-media download center link, see Useful resources in this document.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	Can be installed in any of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during the OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install MP after OMi 10.x is installed. For more information about *opr-mp-installer Command-Line Interface*, see the *OMi Administration Guide*. 3. Download the MP bits from the e-media download center. Then mount ISO and use OS specific installer: • Linux: *mpinstall.sh-i* • Windows: *mpinstall.vbs-i* Use this option, when a higher MP version is available in the e-media download center.
Policy Grouping	Policies are grouped into policy groups.	Policy templates are logically grouped into aspects. Aspects are logically grouped into a Management Template.
Policy Groups	Contains one policy group and that is WebSPI Apache.	Contains the Essential Apache Web Server Management Template. The Essential Apache Web Server Management Template contains the following aspects: • Apache WS Performance • Apache WS Availability • Apache WS Discovery • Apache WS Log File Monitoring

SPI Policy Group/MP MT/Aspect Snapshots		
Policy Versioning	The Web Server SPI uses the <major version>.<minor version> in the xxxx.yyyy format for policy versioning. The latest policy version is 6.450.	The Apache Web Server MP uses the format xxxx.yyyy for policy versioning. The policy template versions are 0001.0000 and the version is displayed as 1.0 in the GUI.
Policy Types	The Web Server SPI has the following types of policies: • Measurement Threshold (mt) • Scheduled Task (st) • Logfile Entry (le) • Service Auto-Discovery (disc)	The Apache Web Server MP has the following types of policy templates (same as SPI): • Measurement Threshold (mt) • Scheduled Task (st) • Logfile Entry (le) • Service Auto-Discovery (disc)
Policies	The Web Server SPI has the following policies: • WebSPI-AP-BusyProcessRate (mt) • WebSPI-AP-BytesPerReq (mt) • WebSPI-AP-BytesPerSec (mt) • WebSPI-AP-MEMUsage (mt) • WebSPI-AP-NUMRequests (mt) • WebSPI-AP-ProcMon (mt) • WebSPI-AP-ResponseTime (mt) • WebSPI-AP-VHAvailability (mt) • WebSPI-AP-CPUUsage (mt) • WebSPI-AP-CODALOG (st) • WebSPI-AP-LogMon (le) • WebSPI-AP-Discovery (disc)	The Apache Web Server MP has the following policy templates: • ApacheWS-BusyProcessRate (mt) • ApacheWS-BytesPerReq (mt) • ApacheWS-BytesPerSec (mt) • ApacheWS-MEMUsage (mt) • ApacheWS-NUMRequests (mt) • ApacheWS-ProcMon (mt) • ApacheWS-ResponseTime (mt) • ApacheWS-VHAvailability (mt) • ApacheWS-CPUUsage (mt) • ApacheWS-CODALOG (st) • ApacheWS-LogMon (le) • ApacheWS-Discovery (disc)
Multi-Instance Monitoring	The Web Server SPI supports monitoring of multiple instances of the Apache Web Server running on the same node. The same threshold settings apply for all the instances running on the same node.	The Apache Web Server MP supports monitoring multiple instances of the Apache Web Server running on the same node. The same threshold settings apply for all the instances running on the same node.
Tools	The Web Server SPI has the following tools: • *Start Apache* • *Stop Apache* • *Restart Apache* • *Show Apache Access Log* • *Show Apache Error Log* • *Show Apache Configuration* • *Status of Apache*	The Apache Web Server MP has the following tools: • *Start Apache* • *Stop Apache* • *Restart Apache* • *Show Apache Access Log* • *Show Apache Error Log* • Show *Apache Configuration* • *Show Apache performance snapshot* For more information on tools, see the *OMi MP for Apache Web Server User Guide*.
Discovery	Deployment of **Discovery** policy populates discovered instances in the service map.	Deployment of the **Discovery** aspect populates discovered instances as appropriate CIs in the RTSM.

		The CI Types discovered and populated are: • Apache • Webvirthost The RTSM topology view for Apache Web Server MP is called Apache_Deployment.
CODA Datasource, Class, or Metrics	CODA Datasource Name: WSSPI_CODA CODA Class Name: WSSPI_CODA Metrics that are logged are: • SERVER_NAME (key) • PORT • IP_ ADDRESS • PERC_CPU_USAGE • PERC_MEM_USAGE • KBYTES_PER_SEC • KBYTES_PER_REQ • REQS_PER_SEC • PROC_RATE	CODA Datasource Name: APACHE_DATA CODA Class Name: APACHE_PERF Metrics that are logged are: • SERVER_NAME (key) • PORT • IP_ADDRESS • PERC_CPU_USAGE • MEM_USAGE_MB • BYTES_PER_SEC • BYTES_PER_REQ • REQS_PER_SEC • PROC_RATE • RESP_TIME_MICROSEC • BUSY_WORKERS • IDLE_WORKERS • TOTAL_ACCESS • TOTAL_KBYTES
Deployment	Deploy specific policies or groups based on the monitoring requirements of the appropriate node groups.	Deploy the MT or Aspect: 1. **Deploy the Apache WS Discovery Aspect to the node where Apache Web Server is running. This will discover the Apache CI and make it available in the RTSM.** 2. **Deploy the Essential Apache Web Server Management Template to the Apache CI using the Apache_Deployment view for complete monitoring.**

Appearance of artifacts on node	Instrumentation folder:
	`/var/opt/OV/bin/instrumentation`
	Configuration folder:
	`/var/opt/OV/conf/wsspi`
	Log folder:
	`/var/opt/OV/log/wsspi`
		Instrumentation folder:
		`/var/opt/OV/bin/instrumentation`
		Configuration folders:
		`/var/opt/OV/conf/apachemp`
		`/var/opt/OV/conf/apachemp/lib`
		Log folder:
		`/var/opt/OV/log/apachemp`

Monitoring Capability	Monitors the performance and availability of Apache Web Server and Virtual Hosts configured on the Web Server.	The Apache Web Server MP has the same Apache monitoring capability as the Web Server SPI.
Health Indicators	HIs are a part of the OMi Content Pack for Apache Web Server and the available HIs are: • Process Availability • Memory Usage • ResponseTime • CPU Usage • Virtual Host Availability	The HIs are available as part of Apache Web Server MP and they are: • Process Availability • Memory Usage • ResponseTime • CPU Usage • Virtual Host Availability
Event Type Indicators	ETIs are a part of the OMi Content Pack for Apache Web Server and they are: • BytesPerSec • Request Rate • Processes Rate • BytesPerRequest	The ETIs that are available as a part of the Apache Web Server MP are: • BytesPerSec • Request Rate • Processes Rate • BytesPerRequest

TBEC Rules	TBEC rules are a part of the OMi Content Pack for Apache Web Server. *HI: Virtual Host Availability correlates below HI: Process Availability*	The following TBEC rule is available as part of the Apache Web Server MP. *HI: Virtual Host Availability correlates below HI: Process Availability*
Tuning after Deployment	You can modify policies for customization. Customized versions have to be deployed manually to the node for customizations to take effect.	You can tune the parameters during the deployment of a specific CI. You can also tune parameter values after deploying a specific CI using the **Assignments & Tuning** option. The policy templates are automatically deployed after the parameters are tuned. Threshold, Severity and collection frequency are parameterized.
Uninstallation	Native procedure is used to uninstall Web Server SPI.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • Instrumentation • Content Pack definitions
Graphs	No graphs are available as part of the Web Server SPI.	Provides four out-of-the-box graphs and they are: • Busy Process Rate vs Response Time • CPU Usage vs Response Time • Memory Usage vs Response Time • Apache Load Statistics
I18N & L10N	The Web Server SPI is I18N certified and is localized in the Japanese language.	The Apache Web Server MP is I18N certified and is localized in the Japanese and Simplified Chinese languages.
OO Flows	Not Available	Not Available

Common Policy Changes

The only change in the policies between the Apache Web Server compared to the Apache monitoring features in the Web Server SPI is the addition of parameters in the MP policy templates. For more information on parameters, see the OMi MP for Apache Web Server User Guide.

Policy Specific Changes

There are no policy specific changes in the Apache Web Server MP. The policy templates in the Apache Web Server MP provide the same functionality as the policies in the SPI. There is a 1-1 mapping between the policy templates of the Apache Web Server MP and Apache monitoring policies in Web Server SPI as mentioned in the next section.

SPI Policy to MP Policy Template Mapping

This section provides a mapping between the Web Server SPI and Apache Web Server MP:

Web Server SPI version 6.4.3	Apache Web Server MP Version 1.0	Apache Web Server Version 1.0 - Aspect
WebSPI-AP-BusyProcessRate (Measurement Threshold)	ApacheWS-BusyProcessRate (Measurement Threshold)	Apache WS Performance
WebSPI-AP-BytesPerReq (Measurement Threshold)	ApacheWS-BytesPerReq (Measurement Threshold)	Apache WS Performance
WebSPI-AP-BytesPerSec (Measurement Threshold)	ApacheWS-BytesPerSec (Measurement Threshold)	Apache WS Performance
WebSPI-AP-MEMUsage (Measurement Threshold)	ApacheWS-MEMUsage (Measurement Threshold)	Apache WS Performance
WebSPI-AP-NUMRequests (Measurement Threshold)	ApacheWS-NUMRequests (Measurement Threshold)	Apache WS Performance
WebSPI-AP-CPUUsage (Measurement Threshold)	ApacheWS-CPUUsage (Measurement Threshold)	Apache WS Performance

WebSPI-AP-CODALOG (Scheduled Task)	ApacheWS-CODALOG (Scheduled Task)	Apache WS Performance
WebSPI-AP-ResponseTime (Measurement Threshold)	ApacheWS-ResponseTime (Measurement Threshold)	Apache WS Performance
WebSPI-AP-ProcMon (Measurement Threshold)	ApacheWS-ProcMon (Measurement Threshold)	Apache WS Availability
WebSPI-AP-VHAvailability (Measurement Threshold)	ApacheWS-VHAvailability (Measurement Threshold)	Apache WS Availability
WebSPI-AP-LogMon (LogFile Entry)	ApacheWS-LogMon (LogFile Entry)	Apache WS Log File Monitoring
WebSPI-AP-Discovery (Service Auto-Discovery)	ApacheWS-Discovery (Service Auto-Discovery)	Apache WS Discovery

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization information in Web Server SPI 6.4.3	Equivalent Configuration in Apache Web Server MP 1.0
Apache server-status configuration in apache server configuration file (http.conf) requires allow permission for all IP Addresses. <Location /server-status> SetHandler server-status Allow from all </Location>	Apache server-status configuration in Apache server configuration (httpd.conf) requires allow permission for only loopback address for improved security. <Location /server-status> SetHandler server-status Order Deny, Allow Deny from all Allow from 127.0.0.1 </Location> ExtendedStatus On
Requires mandatory configuration of ServerName directive in Apache server configuration file *httpd.conf*.	ServerName is not mandatory for monitoring through the MP.
Does not use Apache Server logged information for computing the response time.	Depends on the Apache Server logged information to compute response time. This necessitates the need to configure the CustomLog with a desired pattern. To compute the Apache Web Server response-time, suffix the CustomLog file entry with ###%D### as depicted in the following example: <IfModule log_config_module> LogFormat "%h %l %u %t \"%r\" %>s %b ###%D###" common CustomLog "logs/access_log" common </IfModule>

Notes:

- Both SPI and MP use the `Port` information provided through the `Listen` directive and Error Log information provided through the `ErrorLog` directive for monitoring runtime.
- The threshold values for the policy templates in the OMi MP for Apache Web Server can be tuned to the desired value at the time of deployment of the aspect or at a later point post deployment through the Assignments and Tuning feature of OMi or MA.

Tools Mapping

For information on Tools, see the “Tools” row in the SPI and MP comparison section. For additional information on tools that are a part of the Apache Web Server MP, see the *OMi MP for Apache Web Server User Guide*.

Node Cleanup

Remove SPI artifacts from the node that you are going to monitor using the Apache Web Server MP. Following are the SPI that need to be removed in the given order.

1. Clean up the Apache artifacts policies the Web Server SPI.

a. Identify the list of policies installed using the command `ovpolicy –l`.

b. Remove all the policies prefixed with WebSPI-AP using the command `ovpolicy –remove –polname <policy name>`

You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove the CODA/OVPA datasources for Apache Web Serverusing the following command:

```
ddfutil "/var/opt/OV/wsspi/WSSPI-LOG-SET" –rm all
```

The datasource name for Apache Web Server is WSSPI_CODA.

Note
This will remove the complete set of datasources for WebServer SPI, which also includes IIS and iPlanet SPI datasources. You can skip this step if the IIS and iPlanet SPIs are in use.

Note
Removing the CODA datasource has no impact on the evolution from SPI to MP. This is only an optional clean up step.

---

3. Run the following commands in order:

a. `ovc –restart coda` - Re-starts the CODA server for the changes to take effect.

b. `ovc –showds` - Verifies the datasource named WSSPI_CODA has been removed.

4. Remove the instrumentation on the node. The instrumentation files are located at `/var/opt/OV/bin/instrumentation` folder. Remove files with name prefixed with “`wsspi_`”.

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

For more information on how to back up the data if you need the data for future use, see the SHR documentation.

5. Remove the configuration files located in the `/var/opt/OV/conf/wsspi` folder.

This will remove the complete set of cofiguration files for WebServer SPI, which also includes IIS and iPlanet SPI datasources.

Note
Removing the CODA datasource has no impact on the evolution from SPI to MP. This is only an optional clean up step.

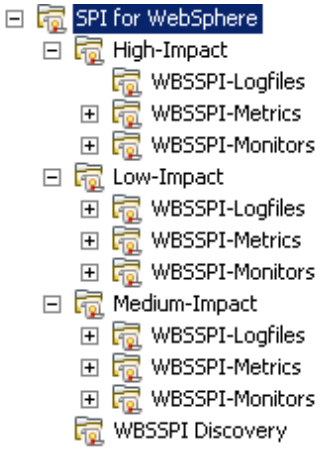
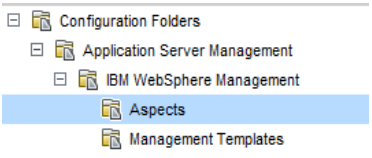
For more information on cleaning up nodes, see Prepare nodes for deployment under the Recommended steps for moving from a SPI to MP section in this document.

WebSphere SPI and OMi Management Pack for IBM WebSphere Application Server

This section explains the evolution from the HPOM Smart Plug-in for WebSphere 7.04 to the HPE OMi Management Pack for IBM WebSphere Application Server 1.0.

SPI and MP Comparison

This section provides an overview of similarities and differences between HPOM Smart Plug-in for WebSphere (WebSphere SPI) and OMi MP for IBM WebSphere Application Server (WebSphere MP). For information about working with the IBM WebSphere Application Server MP, see the *OMi Management Pack for IBM WebSphere Application Server User Guide*.

Features	WebSphere SPI 7.04	Websphere MP 1.0
Pre-requisites	• HPOM W 9.x, HPOM U/S/L 9.1 or higher • HP Operations Agent 11.1 or higher	• BSM/MA 9.22 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The WebSphere SPI is shipped with the SPI DVD.	The Websphere MP is shipped with the OMi 10 installer. You can also download the WebSphere MP from the e-media download center. See Useful resources in this document for the e-media download center link.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	The WebSphere MP can be installed using the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install the MP after the OMi 10.x is installed. For more information about the opr-mp-installer Command-Line Interface, see the *OMi Administration Guide*. 3. Download the MP bits from the e-media download center and then mount ISO and use the OS specific installer. • Linux: *mpinstall.sh-i* • Windows: *cscript mpinstall.vbs-i* Use this option, when a greater MP version is available in the e-media download center.
Policy Grouping	The policies are grouped into policy groups as shown in the following snapshot: 	The aspects and MTs are grouped into configuration folders. Policy templates are grouped into aspects. For more information about grouping of policies relevant to the area and criticality of monitoring, see the SPI Policy to MP Policy Template Mapping in this document. 
Policy versioning	The WebSphere SPI uses the <major version>.<minor version> in the xxxx.yyyy format for policy versioning. Example: When SPI version is 7.0, policies updated in this release would be versioned as 7.000. On the GUI, it is displayed as 7.000.	The WebSphere MP uses the xxxx.yyyy format for policy versioning. Example: Policies are versioned as 0001.0000. On the OMi GUI, it is visible as 1.0 In subsequent MP releases, policy version is updated only if a particular policy is updated in that release.

	When you update such a policy, only minor versions (last two digits) should be updated. Example: When you update a policy with version 7.000 (in GUI: 7.000), it will be changed to 7.0100 (in GUI 7.100).	When you update a policy, only minor versions (last two digits) are updated. Example: When you update a policy with version 0001.0000 (in GUI 1.0), it will be changed to 0001.0001 (in GUI 1.1).
Policy Types	The WebSphere SPI has the following types of policies: • Measurement Threshold • Scheduled Task • Logfile • Service Auto-Discovery • Message Interface	The WebSphere MP has similar type of policy templates as those used in SPI. In addition, it has policy templates of type *ConfigFile*. For more details about policy changes, see Common Policy Changes in this document.
Message Groups	The WebSphere SPI contains message groups to generate events such as WebSphere.	The WebSphere MP has exactly same set of message groups as in the SPI.
Node Groups	Has node groups called *SPI for WebSphere* and the group is created based on the discovered WebSphere version.	Node groups are not required in MP as the topology is based on CIs which is updated in the RTSM.
Tools	Following are the tools available in SPI: • SPI Admin tools group • WebSphere Admin tools group • Metric Reports	In the WebSphere MP, there are tools to start, stop, or restart monitoring. Few of the tools which exist in SPI are not available in MP. For more information about the tools that are dropped, see the Tools Mapping.
Instrumentation	The WebSphere SPI contains the WebSphere instrumentation category.	The WebSphere MP contains the Instrumentation category called WebSphere_Monitoring. OMi Server: Instrumentation is uploaded into the OMi database. Instrumentation deployment on the Node*:* There is no difference with the instrumentation location on nodes. Instrumentation is deployed to the same directories as in the SPIs. Instrumentation filenames have changed in MP.
Discovery	Deploy the following policies from the policy group **WBSSPI Discovery** to a managed node. **WBSSPI Discovery** • WBSSPI-Messages • WBSSPI Service Discovery After the *Discovery* policy is deployed successfully, the discovered instances are shown in the service map.	The WebSphere MP has two types of Discovery: When you deploy the *Discovery* aspect, all the J2EE domain and J2EE Server CIs are discovered. When you deploy an MT, the remaining J2EE application and JDBC DataSources CIs are discovered. To discover the WebSphere CIs: Deploy the **WebSphere Discovery** aspect to the node before deploying an aspect or an MT. When you deploy an aspect or an MT to the J2EE Domain, the extended discovery discovers the J2EE applications and JDBC datasources. There is no difference in topology that is discovered by WBSSPI and WebSphere MP.
Configuration	Run the Configure tool and in the Configuration Editor, specify the following required parameters: • Login • Password • JavaHome • WebSphere Home There are other optional parameters that you can provide. For more information about configuration file, priority, and parameters, see the *WebSphereSPI* online help.	All the configuration is done as a part of the deployment process using parameters. The required parameters are username and password. There are optional parameters such as JAVA_HOME, Passpharse and so on. For more information about *Parameters*, see the *OMi MP for IBM WebSphere Application Server User Guide.*
Deployment	Deploy specific policies or policy groups based on monitoring needs to appropriate node(s) or node group(s).	Deploy the MT or Aspect: • Deploy Discovery Aspect • Deploy Aspect or MT Assign Management Template to the J2EE domain CIs. Specify the configuration details such as username and password as parameters for successful deployment of MTs. Create Automatic Assignment Rules for Auto-deployment of MT and aspects.

		Note It is not recommended to update configuration directly on the node as it will make the values out-of-sync.

Appearance of artifacts on node	Instrumentation:
	`%ovdatadir%/bin/instrumentation`
	
	Policy list: Use the `ovpolicy -l` command to view a list of policies.
	Example: `#ovpolicy -l`
	"Websphere_Discovery" enabled 01.0000
	
	Policy names: The policy names are prefixed as WBSSPI_.
	
	Logfiles location: The SPI logfiles are located under *<OvAgentDir>.*
	• `wasspi/wbs/log/Discovery.log`
	• `wasspi/wbs/log/Collector.log`
	• `wasspi/wbs/log/wasspi_perl.log`
	• `wasspi/wbs/log/CollectorClient.log`
		Instrumentation:
		`%ovdatadir%/bin/instrumentation`
		Policy list: Use the `ovpolicy -l` command to view a list of policy templates.
		In the policy list, every parameterized policy template will have an extra entry with "<policy type>tmpl" in the "Type" column as provided in the following example:
		`# ovpolicy -l`
		configfile "Websphere_Configuration" enabled 0001.0000
		configfiletmpl "Websphere_Configuration" enabled 0001.0000
		Policy Template Names: The policy names are prefixed with Websphere_.
		MP Logfiles: Logfiles can be located under <OvDataDir>/log/Websphere
		• WebSphere_Perl.log
		• Collector.log
		• collectionManager/collector_Schedule.log
		Folders and files remain same on the node.

Monitoring Capability	Monitoring functionality in WBSSPI: • Availability of Websphere Application Server, Cluster, and Applications • Performance of WebSPhere Application Server components such as JDBC DataSource, Applications, and Servlets. For more information about the monitoring functionality, see the *WBSSPI* user guide.	All monitoring functionality which are supported for WebSphere SPI are present in WebSphere MP except the following: • User Defined Metrics • Remote Monitoring of WBS
Tuning after Deployment	You can customize threshold, message groups, and severity (any) can be done by editing the policies. Re-deploy the new version of policy which can later be deployed to the node.	You can tune parameters during deployment for a specific CI. You also can tune parameter values after deploying a specific CI from the Assignments & Tuning pane. After parameters are tuned, the policy templates are automatically deployed. The threshold, severity and collection frequency are parameterized.
Monitoring multiple instances	Supports monitoring of multiple instances of WBS with the limitation that the credentials are same across the WBS instances on a managed node that is the policy parameters are applicable for all instances of WBS on a node.	Parameters are applicable for all instances of WBS. However during deployment, the parameters can be tuned for particular instance of WBS. The *Instance* parameter (Server Name) is used to identify a particular instance of WBS.
End-to-End monitoring	Deploy the WBSSPI to monitor only the WBS environment. For the Cross Domain monitoring, deploy Infrastructure SPI policies to monitor system infrastructure such as the CPU, Memory, Disk, File System, and so on. Deploy Oracle policies to monitor Oracle	Deploy the essential or extensive MT for WebSphere to monitor the WebSphere components. The Essential MT has a set of aspects or policies that monitors the key health metrics of WBS. The Extensive MT has a wider range of policies to monitor additional metrics. For the cross domain monitoring, use the Extensive MT for WebSphere. Use the Extensive WebSphere and Oracle Database Management to monitor System Infrastructure, Oracle and WebSphere resources.
Monitoring instances with different business criticality	Maintain multiple policies set based on business criticality.	Deploy the essential MT to monitor less critical environment. Use the extensive MT to monitor critical Infrastructure.

Agent and agent less monitoring	Agentless monitoring is not available.	Agentless Monitoring is not supported.
Uninstallation	Native procedure is used to uninstall.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • Instrumentation • ContentPack Definitions
Graphs	Performance and availability metrics are graphed by PM. SPIs had a separate installer for OOTB graphs that need to be installed on PM	Graphing solution for OMi MP is provided by PMi, which is an embedded component in the platform. OOTB Graph templates are installed as a part of the MP. For more information about list of OOTB Graph Templates, see the *OMi MP for IBM WebSphere Application Server User Guide*.
Reports	OOTB reports (OVR) are available in a separate package.	All the OVR reports are available in SHR reports. There is a new ETL package available for WebSphere MP. The details are provided in section Service Health Reporter in this document.
Data logging on node	Collected metrics are logged into CODA or OVPA on the node into the WBSSPI_METRICS and WBSSPI_RPT_METRICS datasources.	There is a new CODA datasource WEBSPHERE_DATA. By default, all metrics are logged to CODA.
OS Cluster Support	Failover configuration can be done with *apminfo.xml* as described in the *Install and Config* guide of WBSSPI.	The same set of configuration is applicable for WebSphere MP as well.
Remote Monitoring	Supports Remote Monitoring with limited set of metrics.	Remote Monitoring is not supported. It is recommended to use SiteScope for remote monitoring.
UDM support	Supports adding user-defined metrics and generate appropriate policies using the *Metric Java Builder* tool provided in the SPIDVD.	UDM is not supported in the WebSphere MP.
I18N & L10N	Is I18N certified and is localized in Japanese.	Is I18N certified and is localized in the following languages: • Simplified Chinese • Japanese
HIs/ETIs	The list of indicators shipped with J2EE content pack are used to enrich the events using policies. The indicators are used to calculate KPIs.	The same set of indicators are used in the MP policy templates.
TBEC	Supports topology based correlating events on the OMi. OOTB TBEC rules are shipped as a part of the J2EE content.	The same set of rules are packaged and supported with the MP.
Events	Events are mapped to WBS Server CI, J2EE Application and JDBC Data Source CIs appropriately.	All events reaching OMi Event browser are mapped to the WebSphere Server CI *websphereas*.
OO Flows	Integration with the HP OO flows were shipped part of the J2EE content.	Same set of OO flows are shipped with MP. However, OO flows are restricted to the ops-bridge usecase only. The OO flows work only in an environment where the HPOM and SPI are used for monitoring along with OMi and OO integration.
Architecture	SPI supports both 32-bit and 64-bit Java architectures.	If the managed node is Solaris version 10 or 11, 32-bit java should be provided against the optional JAVA_HOME parameter. If the managed node is AIX version 6.1 or 7.1, 64-bit java should be provided against the optional JAVA_HOME parameter. For information about the JAVA_HOME parameter, see the *Parameters* section in the *OMi MP for IBM WebSphere User Guide*.

Common Policy Changes

This section captures changes (such as parameterization) commonly made to HPOM WBSSPI policies to convert them into the OMi WebSphere MP policy templates.

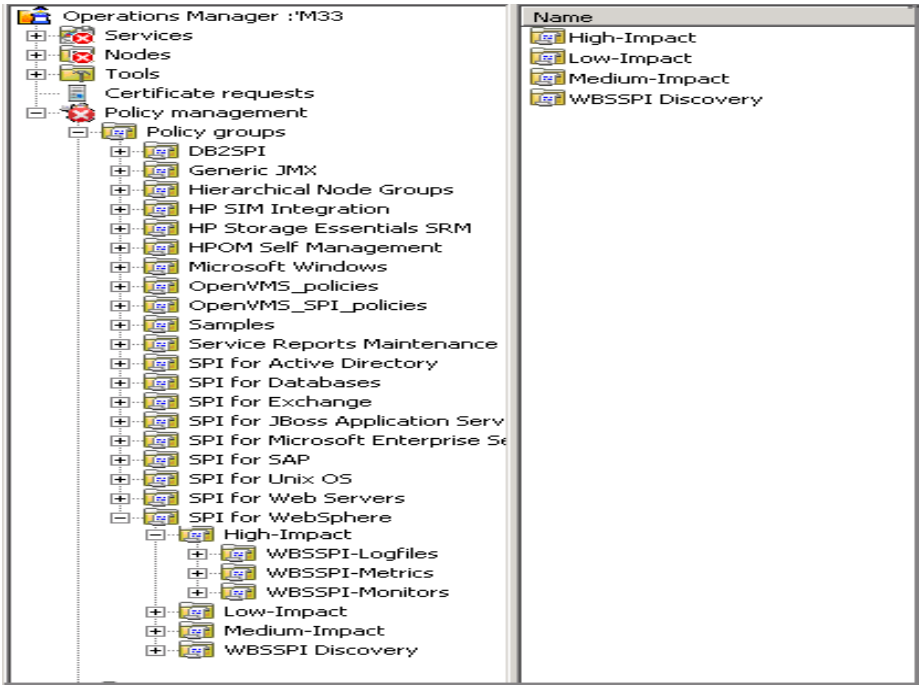
Policy Naming Convention

All WebSphere MP policies are prefixed with WebSphere_. For a mapping between SPI policies and MP policy templates, see the section SPI Policy to MP Policy Template Mapping in this document.

In WBSSPI, the policy names were prefixed with WBSSPI_.

Policy Types

The WebSphere SPI policies are organized under the policy group *SPI for WebSphere* as shown in the following screenshot.



The policy groups are aligned to PMi levels. When you deploy a policy group on a managed node, the PMi level of the node is automatically adjusted to that of the policy group. For example, deploying the High-Impact policy group on a node would result in a PMI setting of “high” for the node.

Note

PMi level is configured on the managed node as a part of the configuration. WebSphere Server supports multiple levels of monitoring based on which the required metrics are collected.

The High-Impact, Medium-Impact, and Low-Impact subgroups contain the following:

- metrics (Measurement Threshold)
- logfiles (Log file Policies)
- collector policies (Schedule Policies)

SPI has OOTB policies which are of the Measurement Threshold, Scheduled Task, Logfile, Message Interface, and Service discovery types.

MP has the same policy types as SPI. In addition to that, Management Pack provides a Config File WebSphere_Configuration policy template. The purpose of these policies is explained in the following sections:

a. WebSphere_Configuration – Is the main policy which acts as a container for *username, password, keystore, passphrase, java_home*, and the instance parameter *Server Instance name*. In WBSSPI, these details are provided part of the configuration using the Configuration Editor. See the WBSSPI online help for a set of configuration properties.

b. Non-Eventing Metrics - In WBSSPI, these metrics are mentioned in the *Schedule* policies for collecting data and logging metrics. These metrics are configured in the metric definition file for generating reports.

In case of MP, these policies are available as a part of the *ConfigFile* policy template for reporting metrics. The standard MP Schedulers pick these policies and collect and log corresponding metrics based on the frequency parameter for each policy. Each of these policies has a *Frequency* parameter. This parameter allows you to choose the requirement frequency for collecting metrics.

In MP, collected metric data is stored in CODA under data source WEBSPHERE_DATA.

c. Data logging - In MP, all the metrics are configured in the metric definition file that has corresponding policies. All the metrics are by default logged to CODA.

In WebSphere SPI, there are two classes for logging data to CODA and they are:

- WBSSPI_METRICS
- WBSSPI_RPT_METRICS (to use with OVR/SHR)

For each metric, the configuration to alarm, report, or graph data is done in the metric definition file.

In MP, use the WEBSPHERE_DATA class to log data to CODA. By default, all the metrics are logged to CODA.

Measurement Threshold Policy

In WebSphere SPI, you can set different threshold values for the same metric by adding a new policy condition using the Policy editor.

For example: If you want to set threshold for the application server SERVER_1, enter the command:
`SERVER1:<*.var2>:<*.var3>:<*.var4>:<*.var5>:<*.var6>`

`var1, var2, var3, var4, var5,` and `var6` are user defined variables.

In MP, the following policy arguments are parameterized:

- *Threshold*
- *Severity*

The MT or Aspect deployment happens for each instance where the value can be adjusted without creating and managing new policy versions.

Schedule Task Policy

In the WBSSPI Collector, policies control what metrics are collected by running the collector or analyzer at the specified polling interval and defining the metrics that are collected. These are OOTB scheduled task policies which triggers the collector with a set of metrics at defined intervals. If you want to change a metric from 05 mins scheduler to 15 mins scheduler, edit 05 mins scheduled task policy to remove the metric number from the command and update in the 15 mins scheduled task policy.

In case of MP, there is a frequency parameter for each metric regardless of whether they are for eventing or logging. This parameter can be adjusted to make the metric part of appropriate schedule interval namely VeryHigh, High, Medium, Low and NORUN.

Default polling intervals of VeryHigh, High, Medium and Low are 5 mins, 15 mins, 1 hour and 1 day respectively. If any metric marked for NORUN, it will not be picked by any scheduler. Aspect or Management Template can be edited to change this parameter or the default value can be modified during deployment for the targeted CI.

Metric Shcedule Case	SPI	MP
Modify a metric from 05 mins to 15 mins	Edit 05 mins schedule task policy to remove the metric. Edit 15 mins schedule task policy to add the metrics. Redeploy both of the above *Schedule Task* policies.	If an assignment is already done then click **Assignments & Tuning**. Edit the frequency parameter of a particular metric and change it from VeryHigh to High.

Note

		The same can be done by editing metric's frequency parameter at the Aspect or MT level.
Remove metric from scheduling	Edit the corresponding schedule task policy and remove the metric number. Redeploy the modified scheduled task policy.	If the assignment is already done, then click **Assignments & Tuning**. Edit the frequency parameter of a particular metric and change it from original to NORUN. Note The same can be done by editing metric's frequency parameter at the Aspect or MT level.
Modify the lowest schedule of collection from 05 mins to 10 mins.	Copy and create new schedule task policy with the schedule of 10 mins. Or Edit the 05 mins schedule task policy, change the interval and rename it to 10 mins.	Modify the interval of scheduled task policy exposed as parameter either at the Aspect or MT level. In this case Frequency of VeryHigh Scheduler.

WebSphere SPI Collector or Analyzer

The `wasspi_perl_su -S wasspi_ca -prod wbs` command is used in every collector policy in WebSphere SPI to do the following:

- Collect specific data on all configured servers. For example, `wasspi_perl -S wasspi_ca -prod wbs -m 10-14,25,26`
- Collect data from specific servers only. For example, `wasspi_perl -S wasspi_ca -m -prod wbs 245,246,260 -i server1,server2`
- To not collect data from specific servers. For example, `wasspi_perl -S wasspi_ca -m -prod wbs 220-225 -e server1,server2`

The same feature is achieved in WebSphere MP by deploying selected aspects for a particular WebSphere Server instance.

Discovery Policy

WebSphere MP has the Discovery policy template *WebSphere_Discovery* which is same as in the WBSSPI. This triggers the discovery script to generate XML as required by the Discovery agent. This XML contains information about discovered WBS instances and its relationship with other J2EE components such as JDBC, Java Application, and Infra elements. Optional elements may contain Oracle CIs and its relationships. Discovered information such as CI type, attributes and relations remain same as the SPI. MP uses the Toposync rules to create appropriate CIs and relationships and update RTSM whereas this data was represented in Service Map on HPOM.

Policy Customizations

There are multiple options to customize the SPI policies for different reasons. You can create new policy groups and copy specific policies to those groups to create your own WBSSPI groups. You can also modify the thresholds set in individual policies. In many cases, the policy's defined threshold may involve a drill-down or roll-up metric. The widely used SPI policy customizations and corresponding MP approach are listed in the next few sections.

Policy Tagging

What is Policy Tagging in SPI?

You can use multiple sets of policies to define conditions pertaining to specific installations of the WebSphere Application Server. WebSphere SPI provides the "-t" (tag) option which enables the collector or analyzer to recognize customized policies that have a tag attached to the name.

For example, you can create a group of policies and change each policy name to include CLIENT01 in it. A metric monitor policy might be named as CLIENT01-WBSSPI_0216 where the metric number must be retained. The collector policy should be named FIRST_CLIENT-05min. You could then set up another group for SECOND_CLIENT and change all those policies to include the CLIENT02 in the name.

How is it achieved in MP?

This can be achieved by the OMi feature, Management Templates. You can create different flavors of Management Templates by copying the OOTB MTs. This newly created Management Template can be customized to:

- Add or remove aspects
- Enable or disable metrics within an aspect
- Modify parameters for which an MT has to be deployed.

For more information about MP customizations, see Best Practices for Customizing Management Packs in this document.

User Assigned Policy Versioning

You can create customized policies for each group using the policy versioning approach. HPOM automatically changes a modified policy version by incrementing the last digit by 1. This method suggests to override a policy version by using the Save option and inserting your own version. For example, 100-199 is for one group, 200-299 for another, and so on.

How to achieve it in MP?

The OMi feature, Management Template is the recommended approach as explained above for this case as well. For more information about MP customizations, see Best Practices for Customizing Management Packs in this document.

SPI Policy to MP Policy Template Mapping

This section maps WebSphere MP Policies to the corresponding WBSSPI policies. It also captures the differences between them, if there are any.

In the following table, MP policy templates marked with "*" are for logging metric data into CODA and are not meant for generating events. The type of the policy is mentioned in short form along with the policy name.

- MT: Measurement Threshold
- ST: Scheduled Task
- CF: Config File
- LE: Logfile Entry
- MI: Message Interface

WebSphere SPI Policy	WebSphere MP Policy Template	Aspect Name
WBSSPI_0001(MT)	WebSphere_ServerStatus(MT)	WebSphere Server Status
WBSSPI_0003(MT)	*Dropped as it was duplicate metric*	
WBSSPI_0803(MT)	WebSphere_ThreadStartedCt(MT)	WebSphere_Thread Status
WBSSPI_0812(MT)	WebSphere_ThreadPoolHungRt(MT)	
WBSSPI_0212(MT)	WebSphere_ThreadPoolUtilPct(MT)	
NA	WebSphere_ThreadPoolPctMaxApp(MT)	
WBSSPI_0210(MT)	WebSphere_ThreadPoolActThreads(CF)	
WBSSPI_0211(MT)	WebSphere_ThreadPoolAveSize(CF)	
WBSSPI_0213(MT)	WebSphere_ThreadPoolPctMax(CF)	
WBSSPI_0014(MT)	WebSphere_ThreadPoolCrtRt(CF)	

WBSSPI_0813(MT)	WebSphere_CcrtThreadPlHngCt(CF)	
WBSSPI_0805(MT)	WebSphere_GarbageCollectionTime(MT)	WebSphere JVM Heap Memory
WBSSPI_0005(MT)	WebSphere_JVMMemUtilPct*(CF)	
WBSSPI_0807(MT)	WebSphere_JVMMemFreePct*(CF)	
WBSSPI_0808(MT)	WebSphere_JVMCpuUsagePct*(CF)	
NA	WebSphere_TotalHeapSize*(CF)	
WBSSPI_0806(MT)	WebSphere_JVMUpTime(CF)	
WBSSPI_0809(MT)	WebSphere_GCIntervalTime*(CF)	
WBSSPI_0804(MT)	WebSphere_GarbageCollectionCt(MT)	
WBSSPI_0801(MT)	WebSphere_ProcessCpuUsage(MT)	
WBSSPI_0006(MT)	WebSphere_ClusterStatus(MT)	WebSphere Cluster Status
WBSSPI_0020(MT)	WebSphere_EJBPoolUtil*(CF)	WebSphere EJB Performance
WBSSPI_0220(MT)	WebSphere_EJBPoolUtilApp(MT)	
WBSSPI_0221(MT)	WebSphere_EJBMethRespTime(MT)	
WBSSPI_0222(MT)	WebSphere_EJBMethCallsRtApp(MT)	
WBSSPI_0224(MT)	WebSphere_EJBEntDatLdStRtApp(MT)	
WBSSPI_0026(MT)	WebSphere_EJBConcLives*(CF)	
WBSSPI_0226(MT)	WebSphere_EJBConcLivesApp(MT)	
WBSSPI_0810(MT)	WebSphere_EJBMsgBackoutRate(MT)	
WBSSPI_0811(MT)	WebSphere_EJBReturnDiscrdRt(MT)	
WBSSPI_0022(MT)	WebSphere_EJBMethCallsRt*(CF)	
WBSSPI_0223(MT)	WebSphere_EJBPoolSize*(CF)	
WBSSPI_0024(MT)	WebSphere_EJBEntDatLdStRt*(CF)	
WBSSPI_0025(MT)	WebSphere_EJBPoolMissPct*(CF)	
WBSSPI_0225(MT)	WebSphere_EJBPoolMissPctApp*(CF)	
WBSSPI_0040(MT)	WebSphere_ServSessAveLife(MT)	WebSphere Servlet Performance
WBSSPI_0041(MT)	WebSphere_ServSessActSess(MT)	
WBSSPI_0042(MT)	WebSphere_ServInvSessRt(MT)	
WBSSPI_0245(MT)	WebSphere_WebAppServReqRtApp(MT)	
WBSSPI_0246(MT)	WebSphere_WebAppServletRespTime(MT)	
WBSSPI_0247(MT)	WebSphere_WebAppServErrRtApp(MT)	
WBSSPI_0048(MT)	WebSphere_WebAppServLoad(MT)	
WBSSPI_0045(MT)	WebSphere_WebAppServReqRt*(CF)	
WBSSPI_0047(MT)	WebSphere_WebAppServErrRt*(CF)	
WBSSPI_0049(MT)	WebSphere_WebAppServRelRt*(CF)	
WBSSPI_0260(MT)	WebSphere_JDBCConnPoolSize(MT)	WebSphere JDBCConnectionPool Status
WBSSPI_0261(MT)	WebSphere_JDBCConnPoolWaiters(MT)	
WBSSPI_0262(MT)	WebSphere_JDBCConnPoolWaitTime(MT)	
WBSSPI_0263(MT)	WebSphere_JDBCConnPoolUtil(MT)	
WBSSPI_0264(MT)	WebSphere_JDBCConnPoolMaxPct(MT)	
WBSSPI_0265(MT)	WebSphere_JDBCConnPoolTimeOutRts(MT)	
WBSSPI_0266(MT)	WebSphere_JDBCConPoolThroughput(MT)	
WBSSPI_0814(MT)	WebSphere_JDBCPreparedStDiscRt(MT)	
WBSSPI_0061(MT)	WebSphere_JDBCConPoolWait*(CF)	
WBSSPI_0062(MT)	WebSphere_JDBCConPoolWtTime*	

NA	WebSphere_JDBCConPoolTimeRt*(CF)	
WBSSPI_0066(MT)	WebSphere_JDBCConPoolThru*(CF)	
WBSSPI_0070(MT)	WebSphere_TranGlobDur(MT)	WebSphere Transaction Status
WBSSPI_0071(MT)	WebSphere_TranLocDur(MT)	
WBSSPI_0072 (MT)	WebSphere_TranGlobCommDur(MT)	
WBSSPI_0073 (MT)	WebSphere_TranLocCommDur(MT)	
WBSSPI_0074 (MT)	WebSphere_TranRollbackRt(MT)	
WBSSPI_0075 (MT)	WebSphere_TranTimeoutRte(MT)	
WBSSPI_0076 (MT)	WebSphere_TranCommitRt(MT)	
WBSSPI_0077 (MT)		
WBSSPI_0078 (MT)	WebSphere_TranStartRt(MT)	
NA	WebSphere_ListeningPort (Sis)	WebSphere Availability (Agentless) The **WebSphere Availability (Agentless)** aspect monitors the IBM WebSphere Application Server
NA	WebSphere_URL Monitoring (SiS)	Port and Application URL availability using Agentless monitoring capabilities.
WBSSPI_MPLog(LE)	WebSphere_MPLog(LE)	Base Aspect Discovery Aspect
WBSSPI_ TextLogs(LE)	WebSphere_TextLogs(LE)	Base Aspect
WBSSPI_ ActivityLog_JMXNotification(LE)	WebSphere_ActivityLog_JMXNotification(LE)	Base Aspect
WBSSPI-*X* 0-High-05min(ST)	WebSphere_VeryHigh(ST)	Base Aspect
WBSSPI-*X* 0-High-15m	WebSphere_High(ST)	Base Aspect
WBSSPI-*X* 0-High-1h	WebSphere_Medium(ST)	Base Aspect
WBSSPI-*X* 0-Medium-05m	WebSphere_VeryHigh(ST)	Base Aspect
WBSSPI-*X* 0-Medium-15m	WebSphere_High(ST)	Base Aspect
WBSSPI-*X* 0-Medium-1h	WebSphere_Medium(ST)	Base Aspect
WBSSPI-*X* 0-Low-05m	WebSphere_VeryHigh(ST)	Base Aspect
WBSSPI-*X* 0-Low-15m	WebSphere_High(ST)	Base Aspect
WBSSPI-*X* 0-Low-1h	WebSphere_Medium(ST)	Base Aspect
WBSSPI-ConfigCheck	Dropped	
WBSSPI-Performance	Dropped as all metrics	
WBSSPI-Messages(MI)	WebSphere_Messages(MI)	Base Aspect Discovery Aspect

In the above table “X“ stands for the WebSphere Server version.

Configuration and customization mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization information in WebSphere SPI	Equivalent Aspect and Parameters in MP	More Information
Discovery related information by *Discover or Configure WBSSPI* tool is saved in the *Siteconfig* file on the node. Configuration required for monitoring is done by the *Discover or Configure WBSSPI* tool	In MP, following are the steps 1. Deploy the **Discovery** aspect.	

and is saved in the *SPIConfig* file on the node.	2. Tune the parameters and provide the required parameters such as *username* and *password*. 3. Deploy the MT based on the need. Any instance specific configuration or customization is done using parameters. Aspects and MTs can be customized as per the monitoring needs.	
Use the *Discover and Configure WBSSPI* tool to configure the WebSphere instance. The tool launches an editor to update the information.	Parameters: *Username* and *Password* Use the *Username* and *Password* parameters while deploying an MT or an Aspect.	It updates WBS instance name and credentials into local configuration on managed node.
Tracing can be turned On or Off using the *Enable/Disable Trace* tool.	The tracing On or Off is done in the configuration files: • For enabling tracing related to Discovery log, use the *WebSphere_Discovery_Log4j.properties* file and set the Log Level=**TRACE**. • For enabling tracing related to monitoring and datalogging, use the *WebSphere_Collection_Log4j.properties* file and set the Log Level=**TRACE**.	
Start or Stop monitoring using the *Start/Stop Monitoring* tool.	Tools to start or stop monitoring are provided with an MP.	The same can be achieved using tools as explained in the section Tools mapping in this document.
Threshold is defined in policy and can be customized by editing a policy.	*Threshold* parameter can be tuned during deployment.	Different threshold default values can maintained with creation different set of Aspects and MTs.
Severity is defined in policy and can be customized by editing a policy.	*Severity* parameter can be tuned while deploying an MT or Aspect.	
Collection interval is defined in schedule task policies and can be customized by editing a policy.	*Frequency* parameter can be tuned during deployment.	
You can customize an instance or a Metric Filter using the collector command with appropriate parameters. For example, to collect data from specific servers use the following command: `wasspi_ca -prod wls -m 245,246,26 -i server1,server2`	*Metric filter* parameter can be tuned during deployment.	The metric filter is a part of the expert parameters.

Tools Mapping

This table lists the tools available in WebSphere SPI and WebSphere MP and the differences.

WebSphere SPI tools	Equivalent MP tools	Comments
WebSphere Admin This tools group enables the HPOM administrator to perform routine tasks related to WebSphere such as start, stop and verify WebSphere Servers.	Configuration of WebSphere is done using parameters.	
Check WebLogic	Dropped based on the user inputs	Admin tools used in SPI were not used widely.
Start/Stop WebLogic	Dropped based on the user inputs.	Admin tools used in SPI were not used widely.
View WebLogic Log	Dropped	Admin tools used in SPI were not used widely.
Start WLS console	Dropped	Admin tools used in SPI were not used widely.

View Application Activation Status	Dropped	Admin tools used in SPI were not used widely.
View Application Timeout	Dropped	Admin tools used in SPI were not used widely.
View Deployed Apps	Dropped	Admin tools used in SPI were not used widely.
View WebLogic Servers	Dropped	Admin tools used in SPI were not used widely.
Metric Reports This tool group contains reports that show information about WebSphere conditions in the server.	Tools for Metric reports are dropped in MP. The equivalent functionality is provided by adding new PMi Graphs in MP.	These reports are available in the form of graphs.
Metric I005_JVMMemUtilPct	NA	JVM Utilization
Metric I040_ServSessAverageLife	NA	Servlet Session Activity
Metric I041_ServSessActSess	NA	Servlet Session Activity
Metric I042_ServInvSessRt	NA	Servlet Session Invalidations
Metric I212_ThreadPoolUtilPct	Dropped	NA
Metric I213_ThreadPoolPctMax	NA	ThreadPool
Metric I220_EJBPoolUtil	NA	EJB Pool
Metric I221_EJBMethRespTime	Dropped	NA
Metric I222_EJBMethodCallsRt	NA	EJB Activity
Metric I224_EJBEntDataLdStRt	NA	EJB Activity
Metric I246_WebAppServletRespTime	NA	Servlet Session Invalidations
Metric I247_WebAppServletErrorRt	NA	Servlet Session Invalidations
Metric I261_JDBCConnPoolWaiters	NA	JDBC Pool Waits
Metric I262_JDBCConnPoolWaitTime	NA	JDBC Pool Waits
Metric I263_JDBCConnPoolUtil	NA	JDBC Pool Performance
Metric I264_JDBCConnPoolMaxPct	Dropped	NA
Metric I265_JDBCConnPoolTimeoutRt	NA	JDBC Pool Performance
SPI Admin This tool group consists of tools that enable you to configure, control, and troubleshoot the WBSSPI.	WebSphere Admin tools are dropped in MP based on the feedback from users.	
Configure WBSSPI	Dropped	The same feature is done in MP using MTs and Aspects using parameters.
Create WBSSPI Node Groups	Dropped	In MP, Node Groups are not requried as it is based ob CIs
Discover pr Configure WBSSPI	Dropped	Discovery is triggered using Discovery Aspect in MP
Self-Healing Info	This tool is replaced by Data Collector tool in MP.	There is new Data Collector tool shipped with MP
Start/Stop Monitoring		Start, Stop or Restart Monitor tools are available with MP.
Start/Stop Tracing	Dropped	Tracing ON or OFF is done using the configuration files in MP. The following are the configuration files to be used: • For enabling tracing related to Discovery log, use the *WebSphere_Discovery_Log4j.properties* file. • For enabling tracing related to monitoring and datalogging, use the *WebSphere_Collection_Log4j.properties* file.

Verify	Dropped	Verification of MP deployment can be done by checking the deployment jobs
View Error File	Dropped	
JMX Metric Builder This additional software provides user tools to create UDMs and monitor them.	Dropped	Currently UDM is not supported.

Service Health Reporter

SHR content packs are available on HPELN for both WBSSPI and MP.

There is new SHR ETL package available on HPELN to support WebSphere MP. The link below can be used to download the new ETL package and the file is IBMWebSphere_ETL_WebSphereMP. Follow the instructions provided by SHR on how to use the ETL package.

https://hpln.hpe.com/product/operations-bridge-reporter/content

To install a Content Pack, see the *Deployment Manager* section in the *HP Service Health Reporter Online Help for Administrators*.

You can also see the *HP Service Health Reporter Content Packs* Release Notes available on HP Live Network.

Automatic Command Reports

In WebSphere SPI, several metrics generate Automatic Command reports. These reports are generated as soon as an alarm is triggered in HPOM. Automatic Command reports are generated for a single WebSphere Application Server instance with the exceeded threshold. In contrast to Automatic Command reports that are generated for a single WebSphere Application Server instance, manually generated reports reflect the current state of all WebSphere Application Server instances on the managed node. For more information about manually generated reports, see the section Tools Mapping in this document.

In MP, the similar feature is available using Graphs. Graphs can be launched in the context of an event or a CI.

Node cleanup

Remove SPI artifacts from the node that you are going to monitor using an MP. Following are the SPI artifacts that need to be removed in the given order.

1. Remove policy templates from the node.
   a. List the policies using `ovpolicy -l`.

Note
All WBSSPI policies start with WBSSPI_.

   b. Execute one of the following commands to remove policies from the node:
   - By Name: `ovpolicy –remove –polname <Name>`
   - By Type: `ovpolicy –remove –poltype <Type>`

Note
You can also remove policies by deleting policy groups assigned for a particular node on the server using the GUI.

Note
Before you move from OM to OMi, make sure you do not remove the flexible management policy of type "mgrconf" if it has already been deployed.

You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove CODA or OVPA Datasources.

Do the following steps to remove the CODA or OVPA Datasources:

a. Remove CODA or OVPA data sources using the ddfutil command under the instrumentation folder:

- `ddfutil <OvDataDir>/wasspi/wbs/datalog/graph.log –rm all`
- `ddfutil <OvDataDir>/wasspi/wbs/datalog/reporter.log –rm all`

Example on Unix:

- `ddfutil /var/opt/OV/wasspi/wbs/datalog/graph.log –rm all`
- `ddfutil /var/opt/OV/wasspi/wbs/datalog/reporter.log –rm`

Example on Windows:

- `ddfutil C:\ProgramData\HP\HP BTO Software\wasspi\wbs\datalog\graph.log –rm all`
- `ddfutil C:\ProgramData\HP\HP BTO Software\wasspi\wbs\datalog\reporter.log –rm all`

b. Restart CODA: `ovc –restart coda`

c. Verify Datasource removal: ovcodautil –showds

Note
There should not be any datasources listed as WLSSPI_METRICS or WLSSPI_RPT_METRICS. Management Pack automatically creates datasources only on CODA.

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3. Remove SPI instrumentation.

The instrumentation files on the node prefixed with “wasspi” and “spi_websphere” can be deleted.

For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

Instrumentation folder:

- On UNIX: `/var/opt/OV/bin/instrumentation`
- On Windows: `%OvAgentDir%\bin\instrumentation`

4. Remove the configuration and log files.

The directory *<OvAgentDir>/wasspi* needs to be removed after taking a backup before deploying an MP.

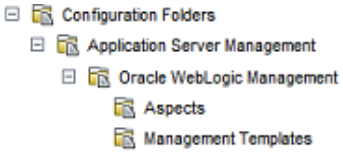
For more information on cleaning up nodes, see *Prepare nodes for deployment* under the Recommended steps for moving from a SPI to MP section in this document.

WebLogic SPI and OMi Management Pack for Oracle WebLogic Application Server

This section explains the evolution from the HPOM Smart Plug-in 7.04.003 for WebLogic to the HPE OMi Management Pack for Oracle WebLogic 1.01.

SPI and MP comparison

This section provides an overview of similarities and differences between HPOM Smart Plug-in for WebLogic (WebLogic SPI) and OMi MP for Oracle WebLogic (Oracle WebLogic MP). For information about working with the Oracle WebLogic MP, see the *OMi Management Pack for Oracle WebLogic User Guide*.

Features	WebLogic SPI 7.04.003	Oracle WebLogic MP 1.01
Pre-requisites	• HPOM W 9.x, HPOM U/S/L 9.1 or higher • HP Operations Agent 11.1 or higher	• BSM/MA 9.22 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The WebLogic SPI is shipped with the SPI DVD.	The Oracle WebLogic MP is shipped with the OMi 10 installer. You can also download the Oracle WebLogic MP from the e-media download center. See Useful resources in this document for the e-media download center link.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	The Oracle WebLogic MP can be installed using any of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install the MP after the OMi 10.x is installed. For more information about the opr-mp-installer Command-Line Interface, see the *OMi Administration Guide*. 3. You can download the MP bits from the e-media download center and then mount ISO and use the OS specific installer. • *Linux: mpinstall.sh-i* • *Windows: cscript mpinstall.vbs-i* Use this option when a higher MP version is available in the e-media download center.
Policy grouping	The policies are grouped into policy groups as shown in the following snapshot: 	The aspects and MTs are grouped into configuration folders. Policy templates are grouped into aspects. For more information about grouping of policies relevant to the area and criticality of monitoring, see the SPI Policy to MP Policy Template Mapping in this document. 
Policy versioning	Uses the xxxx.yyyy format. Example: If the SPI version is 7.0, policies updated in this release would be versioned as 7.000. On the GUI, it is visible as 7.000. When you update such a policy, only minor versions (Last two digits) are updated. For example: When you update a policy with version 7.000 (in GUI: 7.000), it will be changed to 7.0100 (in GUI 7.100).	Uses the xxxx.yyyy format. Example: Policies are versioned as 0001.0100. On the OMi GUI, it is displayed as 1.100. In MP releases, policy version is updated only if a particular policy is updated in that release. For example, with 1.01 release, only a few policies are updated to 1.0100. When you update a policy, only minor versions (last two digits) should be updated. Example: When you update a policy with version 0001.0100 (in GUI 1.100), it will be changed to 0001.0101 (in GUI 1.101).
Policy Types	The WebLogic SPI has the following policy types:	MP has similar types of policies of the types used in SPI.

	• Measurement Threshold • Scheduled Task • Logfile • Service Auto-Discovery • Message Interface	In addition, it has the ConfigFile type of policy template. For more details about policy changes, see Common policy changes in this document.
Message Groups	The WebLogic SPI has message groups to generate WebLogic events.	MP has exactly same set of message groups as in SPI.
Node Groups	The WebLogic SPI has node groups called *SPI for WebLogic* and the group is created based on the discovered WebLogic version.	Node groups are not required in MP as the topology is based on CIs.
Tools	Following are the tools available in WebLogic SPI: • SPI Admin tools group • WebLogic Admin tools group • Metric Reports	In MP, tools to start, stop and restart monitoring are available. Few of the tools which exist in SPI are dropped. For more information on tools, see section Tools Mapping in this document.
Instrumentation	The WebLogic SPI has the *WebLogic Instrumentation* category.	The Oracle WebLogic MP provides the WebLogic_Monitoring instrumentation category. OMi Server: Instrumentation is uploaded into the OMi database. Instrumentation deployment on the Node: There is no difference with respect to instrumentation location on nodes. Instrumentation is deployed to the same directories as in the SPIs. Instrumentation filenames have been changed in MP.
Discovery	Deploy the following policies from the policy group *WLSSPI Discovery* to the managed node. • WLSSPI-Messages • WLSSPI Auto-Service Discovery Successful deployment of the *Discovery* policy displays the discovered instances in the service map.	Discovery in the Oracle WebLogic MP is done in two stages: 1. When you deploy the Discovery aspect, all the J2EE domain and J2EE Server CIs are discovered. 2. When you deploy an MT, the remaining J2EE application and JDBC DataSources CIs are discovered. To discover WebLogic CIs: • Deploy the **WebLogic Discovery** aspect to the node before deploying an Aspect or MT. • When you deploy an aspect or MT to J2EE, extended discovery discovers J2EE apps and JDBC Data Sources. There is no difference in topology that is discovered by WebLogic SPI and Oracle WebLogic MP.
Configuration	Run the Configure tool and in the Configuration Editor and specify the following required parameters: • *Login* • *Password* • *JavaHome* • *WebLogic Home* There are other optional parameters that you can provide. For information on configuration, see the *WebLogic SPI Online Help*.	All the configuration is done as a part of the deployment process using parameters. The required parameters are *username* and *password*. There are optional parameters such as *JAVA_HOME*, *KeyStore*, and *Passpharse* that are required if the SSL is configured on the WLS server. For more information about the parameters that are to be provided during the deployment of an MT, see the *OMi MP for Oracle WebLogic User Guide.*
Deployment	Deploy specific policies based on monitoring needs to appropriate node(s) or node group(s).	Deploy the MT or Aspect: • Deploy Discovery Aspect • Deploy Aspect or MT 1. Assign Management Template to the J2EE Domain CIs. 2. Specify the *username* and *password* as parameters.

		3. Create Automatic Assignment Rules for Auto-deployment of MT and aspects. It is not recommended to update configuration directly on the node as it will make the values out-of-sync.

Appearance of artifacts on node	Instrumentation:
	`%ovdatadir%/bin/instrumentation`
	Policy list: Use the `ovpolicy -l` command to view a list of policies
	Example: #ovpolicy –l
	"WebLogic_Discovery" enabled 01.0000
	Policy names: The policy names are prefixed with WLSSPI_.
	Location of logfiles: The SPI logfiles are located under:
	`<OvAgentDir>/wasspi/wls/log`
	• *Discovery.log*
	• *Collector.log*
	• *wasspi_perl.log*
	• *CollectorClient.log*
		Instrumentation:
		`%ovdatadir%/bin/instrumentation`
		Policy list: Use the `ovpolicy -l` command to view a list of policies.
		In the policy list, each parameterized policy will have extra entry with "<policy type>tmpl" in the "Type" column" as provided in the following example:
		`# ovpolicy -l`
		`configfile "WebLogic_Configuration" enabled 0001.0000`
		`configfiletmpl "WebLogic_Configuration" enabled 0001.0000`
		Policy names: The policy names are prefixed with WebLogic_.
		MP Logfiles: Logfiles can be located under:
		`<OvAgentDir>/log/WebLogic`
		• WebLogic_*Perl.log*
		• Collector.*log*
		• collectionManager*/collector_Schedule.log*

Monitoring Capability	The WebLogic SPI monitors the following: • Availability of WebLogic Application Server, Cluster and Applications • Performance of WebLogic Application Server components such as JDBC DataSource, Applications and Servlets For more information about the monitoring functionality, see the *WLSSPI Reference Guide*.	All monitoring functionality which are supported by the WebLogic SPI are present in the Oracle WebLogic MP except for the following: • User Defined Metrics • Remote Monitoring of WLS
Tuning after Deployment	You can customize threshold, message groups, and severity (any) by editing the policies. Redeploy the new version of policy which can later be deployed to the node.	You can tune parameters during deployment for a specific CI. You can also tune parameter values after deploying a specific CI from the Assignments & Tuning window. After parameters are tuned, the policy templates are automatically deployed. The threshold, severity and collection frequency are parameterized.
Monitoring Multiple Instances	The WebLogic SPI supports monitoring of multiple instances of WLS with the limitation that the credentials are same across the WLS instances. Policy parameters are applicable for all instances of WLS on a particular node.	Parameters are applicable for all instances of WLS. However during deployment, the parameters can be tuned for a particular instance of WLS. The *Instance* parameter (Server Name) is used to identify a particular instance of WLS.
End-to-End monitoring	Deploy the WebLogic SPI to monitor only the WLS environment. For the Cross Domain monitoring, deploy Infrastructure SPI policies to monitor System infrastructure such as the CPU, Memory, Disk and File System. Deploy Oracle policies to monitor Oracle database.	Deploy essential or extensive MT for WebLogic to monitor WebLogic components. The Essential MT has a set of aspects or policies to monitor the key health metrics of WLS Server. The Extensive MT has a wider range of policies to monitor additional metrics. For the cross domain monitoring, use the Extensive WebLogic Management Template. Use the Extensive WebLogic and Oracle Database Management Template to monitor System Infrastructure, Oracle and WebLogic resources.
Monitoring instances with different business criticality	Maintain multiple policies set based on the business criticality.	Use the Essential WebLogic Management Template to monitor less critical environment. Use the Extensive WebLogic Management Template to monitor critical infrastructure.
Agent and agent less monitoring	Agentless monitoring is not available.	Hybrid MT has the **WebLogic Availability (Agentless)** aspect for agentless monitoring using SiS.

		The **WebLogic Availability (Agentless)** aspect monitors the WebLogic Application Server Port and Application URL availability using Agentless monitoring capabilities.
Uninstallation	Native procedure is used to uninstall InfraSPI.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • Instrumentation • ContentPack Definitions
Graphs	Performance and availability metrics are graphed by PM. SPIs had a separate installer for OOTB graphs that need to be installed on PM	Graphing solution for OMi MP is provided by PMi, which is an embedded component in the platform. OOTB Graph templates are installed as a part of the MP. For more information about a list of OOTB Graph Templates, see the *OMi MP for Oracle WebLogic User Guide*.
Reports	OOTB reports (OVR) are available as a separate package.	All the OVR reports are available in the SHR reports. There is a new ETL package available for Oracle WebLogic MP. The details are provided in section Service Health Reporter in this document.
Data logging on node	Collected metrics gets logged to CODA or OVPA on the node in the following datasources: • WLSSPI_METRICS • WLSSPI_RPT_METRICS	There is a new CODA datasource WEBLOGIC_DATA. All metrics are logged to CODA.
OS Cluster Support	Failover configuration can be done with *apminfo.xml* as described in the *Install and Config* guide of WLSSPI.	The same set of configuration is applicable for the Oracle WebLogic MP as well.
Remote Monitoring	Supports Remote Monitoring with limited set of metrics.	Remote Monitoring is not supported. It is recommended to use SiteScope for remote monitoring.
UDM support	The WebLogic SPI supports adding user defined metrics and generate appropriate policies using the Metric Java Builder Tool provided in the SPI DVD.	UDM is not supported in Oracle WebLogic MP.
I18N & L10N	The WebLogic SPI is I18N certified and is localized in Japanese.	The Oracle WebLogic MP is I18N certified and is localized in the following languages: • Simplified Chinese • Japanese
HIs/ETIs	The list of indicators shipped with J2EE content pack are used to enrich the events using policies. The indicators are used in the KPI calculation.	The same set of indicators are used in the MP policy templates.
TBEC	The WebLogic SPI supports topology based correlation event correlation on OMi. OOTB TBEC Rules are shipped as a part of J2EE content.	The same set of TBEC rules are supported in MP.
Events	Events are mapped to WLS Server CI, J2EE Application and JDBC Data Source CIs appropriately on OMi.	All events reaching OMi Event browser are mapped to the WebLogic as WebLogic Server CI. In the Event Title, the policy name is appended at the end of the text as shown in the sample event: *Average servlet session lifetime (2630451.25ms) too high (>=1000.00ms) [Policy: Weblogic_ServerStatus]* ***[Policy: WebLogic_ServerStatus]***
OO flows	Integration with the HP OO flows were shipped as a part of the J2EE content.	Same set of OO flows are shipped with MP. However, OO flows are restricted to the ops-bridge usecase only. The OO flows work only in an environment where the HPOM and SPI are used for monitoring along with OMi and OO integration.
Architecture	SPI supports both 32-bit and 64-bit Java architectures.	If the managed node is Solaris version 8, 9, 10 or 11, 32 bit java should be provided against the optional JAVA_HOME parameter. If the managed node is AIX version 5.3, 6.1 or 7.1, 64 bit java should be provided against the optional JAVA_HOME parameter.

	For information about the JAVA_HOME parameter, see the *Parameters* section in the *OMi MP for Oracle WebLogic User Guide*.

Common policy changes

This section captures changes (such as parameterization) commonly made to WebLogic SPI policies to convert them into the Oracle WebLogic MP policy templates.

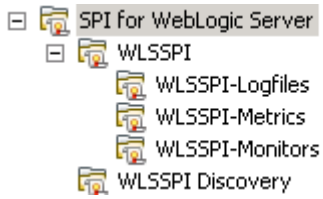
Policy Naming Convention

All Oracle WebLogic MP, policy template names are prefixed with Weblogic_. For more information about a mapping between SPI policies and MP policy templates, see SPI Policy to MP Policy Template Mapping in this document.

In WebLogic SPI, the policy names were prefixed with “WLSSPI_”.

Policy Types

The WebLogic SPI policies are organized under Policy Group *SPI for WebLogic* as shown in the following snapshot:



The WebLogic SPI has OOTB policies which are of the Measurement Threshold, Scheduled Task, Logfile, Message Interface, and Service Auto-discovery types.

MP has the same types of policies as that of SPI. In addition, MP provides a Config File policy template called *WebLogic_Configuration*. The purpose of this policy is explained in the following sections:

a. WebLogic_Configuration - Is the main policy which acts as a container for username, password, keystore, passphrase, java_home, and the instance parameter “Server Instance name“. In WebLogic SPI, these details are provided as a part of the configuration using the Confguration editor. See the *WebLogic SPI Online Help* for the set of configuration properties.

b. Non-Eventing Metrics - In WebLogic SPI, these metrics are mentioned in the schedule policies for collecting data and logging metrics. These metrics are configured in the metric definition file for generating reports.

In case of MP, these policies are available as a part of the *ConfigFile* policy for generating reports or graphs based on metrics. The standard MP Schedulers pick these policies and collect and log corresponding metrics based on the frequency parameter of each policy.

Each of these policies has the parameter Frequency. This parameter allows you to choose the requirement frequency for metric collection.

Collected metric data is stored in CODA under WEBLOGIC_DATA.

c. Data logging - In MP, all the metrics are configured in a metric defniton file that has corresponding policies. All the metrics are by default logged to CODA.

In the WebLogic SPI, there are two classes for logging data to CODA and they are:

- WLSSPI_METRICS
- WLSSPI_RPT_METRICS (to use with OVR/SHR)

For each metric, the configuration to log data or create a graph is done in the metric definition file.

In the Oracle WebLogic MP, WEBLOGIC_DATA is used to log data to CODA. By default, all the metrics are logged to CODA.

Measurement Threshold Policy

In the Oracle WebLogic MP, following policy template arguments are parameterized:

- Threshold

- Severity

The MT or Aspect deployment happens for each instance where the value can be adjusted without creating and managing new policy versions.

Schedule Task Policy

In the WLSSPI Collector, policies control what metrics are collected by running the collector or analyzer at the specified polling interval and defining the metrics that are collected. These are OOTB scheduled task policies which trigger the collector with a set of metrics at defined interval.

Collector Policy Name	Polling Interval	Metrics Collected
WLSSPI-05min	5m (Runs the WebLogic Server SPI collector/analyzer every 5 minutes)	1, 2, 61, 63, 70-81, 85, 245, 246, 260, 262-265, 270, 278, 281-282
WLSSPI-15min	14m (Runs the WebLogic Server SPI collector/analyzer every 15 minutes)	5, 10-17, 25, 26, 35, 36, 225, 226, 238,251-256
WLSSPI-1h	59m (Runs the WebLogic Server SPI collector/analyzer every one hour)	240-242

If you want to move a metric from 05 mins scheduler to 15 mins scheduler, edit 05mins scheduled task policy to remove the metric number from command and to update to 15 mins scheduled task policy.

In case of MP, there is a frequency parameter for each metrics regardless of whether they are for eventing or logging. This parameter can be adjusted to make the metric part of appropriate schedule interval namely VeryHigh, High, Medium, Low and NORUN.

Default polling intervals of VeryHigh, High, Medium and Low are 5 mins, 15 mins, 1 hour and 1 day respectively. If any metric is marked for NORUN, it will not be picked by any scheduler. An aspect or MT can be edited to change this parameter or the default value can be modified during deployment for the targeted CI.

Metric Schedule Case	SPI	MP
Modify a metric from 05 mins to 15 mins	1. Edit 05 mins schedule task policy to remove the metric. 2. Edit 15 mins schedule task policy to add the metrics. 3. Redeploy both of the above schedule task policies.	1. Click **Assignments & Tuning**, if an assignment is already done. 2. Edit the *frequency* parameter of a given metric change it from VeryHigh to High. Note The same can be done by editing metric's frequency parameter at the Aspect or MT level.
Remove metric from scheduling.	1. Edit the corresponding schedule task policy and remove the metric number. 2. Reploy the modified scheduled task policy.	1. Click **Assignments & Tuning** if an assignment is already done. 2. Edit the *frequency* parameter of a particular metric and change it from original to NORUN. Note The same can be done by editing metric's frequency parameter at the Aspect or MT level.
Modify the lowest schedule of collection from 05 mins to 10 mins.	Copy and create new schedule task policy with a schedule of 10 mins. Or	Modify the interval of scheduled task policy exposed as a parameter either at the Aspect or MT level. In this case *Frequency of VeryHigh Scheduler*.

	Edit the 05 mins schedule task policy, change the interval and rename it to 10 mins.

WebLogic SPI Collector/Analyzer

The `wasspi_perl_su -S wasspi_ca -prod wls` command is used in every collector policy in WLSSPI to do the following:

a. Collect specific data on all configured servers. For example, `wasspi_perl -S wasspi_ca -prod wls -m 10-14,25,26.`

b. Collect data from specific servers only. For example, `wasspi_perl -S wasspi_ca -m -prod wls 245,246,260 -i server1,server2.`

c. Collect data from specific servers. For example, `wasspi_perl -S wasspi_ca -m -prod wls 220-225 -e server1,server2.`

The same feature is achieved in the Oracle WebLogic MP by deploying selected aspects for a particular WebLogic Server Instance.

Discovery Policy

The Oracle WebLogic MP has the Discovery policy template *WebLogic_Discovery* which is same as in WebLogic SPI. This triggers discovery script to generate XML as expected by the *Discovery* agent. This XML contains information about discovered WLS instances and its relationship with other J2EE components such as JDBC, Java Application and Infra elements. Optional elements may contain Oracle CIs and its relationships.The discovered information such as the CI type, attributes and relations remain same as SPI. MP uses the Toposync rules to create appropriate CIs and relationships and update RTSM whereas this data was represented in the Service Map on HPOM.

Policy Customizations

There are multiple options to customize the SPI policies for different reasons. You can create new policy groups and copy specific policies to those groups to create your own WebLogic SPI groups. You can also modify the thresholds set in individual policies. In many cases, the policy's defined threshold may involve a drill-down or roll-up metric. The widely used SPI policy customizations and corresponding MP approach are listed in the next few sections.

Policy Tagging

What is Policy Tagging in SPI?

You can use multiple sets of policies to define conditions pertaining to specific installations of the WebLogic Server. WebLogic SPI provides the "-t" (tag) option which enables the collector or analyzer to recognize customized policies that have a tag attached to the name.

For example, you can create a group of policies and change each policy name to include CLIENT01 in it. A metric monitor policy might be named as CLIENT01-WLSSPI_0012 0216 where the metric number must be retained. The collector policy should be named as FIRST_CLIENT-05min. You could then set up another group for SECOND_CLIENT and change all those policies to include the CLIENT02 in the name.

How is it achieved in MP?

This can be achieved by the OMi feature Management Templates. You can create different flavors of Management Templates by copying the OOTB MTs. This newly created Management Template can be customized to:

- Add or remove aspects
- Enable or disable metrics within an aspect
- Modify parameters for which an MT has to be deployed

For more information about MP customizations, see the chapter Best Practices for Customizing Management Packs in this document.

User assigned policy versioning

You can create customized policies for each group using the policy versioning approach. HPOM automatically changes a modified policy version by incrementing the last digit by 1. This method suggests to override this policy

version by using the save option and inserting your own version. For example, 100-199 is for one group, 200-299 for another, and so on.

How is it achieved in MP?

The OMi feature Management Template is the recommended approach for user assigned policy versioning as explained above. For more information about MP customizations, see the chapter Best Practices for Customizing Management Packs in this document.

SPI Policy to MP Policy Template Mapping

This section maps the Oracle WebLogic MP policy templates to the corresponding WebLogic SPI policies. Also, it captures the differences between them, if there are any.

In the table below, MP policy templates marked with "*" are for only logging metric data into CODA and are not meant for generating events. The type of the policy is mentioned in short form along with the policy name.

- MT: Measurement Threshold
- ST: Scheduled Task
- CF: Config File
- LE: Logfile Entry
- MI: Message Interface

HPOM SPI Policy	WLS MP Policy Template	Aspect Name
WLSSPI_Messages	Weblogic_Messages(MI)	Weblogic Base, Weblogic Discovery
WebLogic Logs	Weblogic_LogTemplate(LE)	
WLSSPI-Logfile-Monitor	Weblogic_MPLog(LE)	
WLSSPI-05min	Weblogic_VeryHigh (ST)	
WLSSPI-15min	Weblogic_High(ST)	
WLSSPI-1h	Weblogic_Medium(ST)	Weblogic Base
NA	Weblogic_Low(ST)	
WLSSPI-ConfigCheck	Dropped	
WLSSPI-Performance	Dropped	
WLSSPI Java Discovery Error Log	Dropped	This feature of monitoring log is part of the MP log monitoring.
WLSSPI Java Collector Error Log	Dropped	This feature of monitoring log is part of the MP log monitoring.
WLSSPI_0085	Weblogic_InvalidLoginAttemptsCount(MT)	Weblogic Authentication
NA	Weblogic_Application_Server_Port_Availability (:Weblogic_Application_Server_Availability) (MT)	Weblogic Availability (Agentless)
NA	Weblogic_Application_URL_Availability (:Weblogic_Application_Server_Availability)(MT)	
WLSSPI_0285	Weblogic_PendingRequestCount(MT)	Weblogic Cache Usage
WLSSPI_0283	Weblogic_DeferredRequestsCount(MT)	
WLSSPI_0281	Weblogic_XMLCacheDiskSize(**CF)	
WLSSPI_0287	Weblogic_RequestMaxWaitTime(MT)	
WLSSPI_0282	Weblogic_XMLCacheMemorySize(**CF)	
WLSSPI_0288	Weblogic_StandbyThreadCount(MT)	
WLSSPI_0286	Weblogic_PendingRequestPercentage(MT)	

WLSSPI_0284	Weblogic_RequestWaitTimeforThread(MT)	
WLSSPI_0080	Weblogic_ ClusterOutMessageFailRate(MT)	Weblogic Cluster Status
WLSSPI_0081	Weblogic_ ClusterInMessageFailureRate(MT)	
WLSSPI_0082	Weblogic_ClusterHealthStatus(MT)	
NA	Weblogic_Configuration(CF)	Weblogic Discovery
WLSSPI_Discovery	Weblogic_Discovery(Service Discovery)	
WLSSPI_0025	Weblogic_EJBPoolWaitCount(MT)	Weblogic EJB Performance
WLSSPI_0225	Dropped	
WLSSPI_0036	Weblogic_EJBTransactionRollBackRate(MT)	
WLSSPI_0823	Dropped	
WLSSPI_0824	Weblogic_EJBMissedCountRate(MT)	
WLSSPI_0238	Weblogic_EJBCacheHitPercentage(MT)	
NA	Weblogic_EJBTimeoutCount(MT)	
WLSSPI_0236	Weblogic_NumberEJBTransactionRollBackRate	
WLSSPI_0822	Weblogic_EJBDestroyedTotalCount(MT)	
WLSSPI_0235	Weblogic_EJBTransactionsCount(MT)	
WLSSPI_0026	Weblogic_EJBTimeoutRate(MT)	
WLSSPI_0035	Weblogic_EJBTransactionThroughputRate(MT)	
WLSSPI_0225	Weblogic_EJBBeanUnavailableCount(MT)	
WLSSPI_0823	Weblogic_SumOfEJBMissedCountRate(MT)	
WLSSPI_0270	Weblogic_JCAConnectionsUtilizationPct(MT)	Weblogic JCA Statistics
NA	Weblogic_ConnectionsDestroyedByError TotalCount(MT)	
NA	Weblogic_WaitSecondsHighCount(MT)	
NA	Weblogic_ConnectionsRejectedTotalCount(MT)	
NA	Weblogic_NumWaitersCurrentCount(MT)	
WLSSPI_0278	Dropped	
WLSSPI_0078	Dropped	
WLSSPI_0061	Weblogic_RequestsWaitingForConnection(MT)	
WLSSPI_0264	Weblogic_FailuresToReconnectCount(MT)	Weblogic JDBC Connection Pool Status
WLSSPI_0063	Weblogic_SumJDBCConnectionLeak(**CF)) Rate(MT)	
WLSSPI_0262	Weblogic_JDBCConnectionPoolThro ughputRate(**CF)	
WLSSPI_0265	Weblogic_ConnectionDelayTime(MT)	
WLSSPI_0263	Weblogic_JDBCConnectionLeakRate(MT)	
WLSSPI_0260	Weblogic_JDBCConnectionPoolUtilization(MT)	
WLSSPI_0253	Weblogic_JMSMessagesThresholdTime(MT)	Weblogic JMS Performance
WLSSPI_0254	Weblogic_JMSBytesThresholdTimePercen Tage(MT)	
WLSSPI_0251	Weblogic_JMSUtilizationByMessagesPerc Entage(MT)	
WLSSPI_0252	Weblogic_JMSUtilizationByBytesPercenta Ge(MT)	
WLSSPI_0255	Weblogic_	

	JMSServerThruMessageRate(**CF)	
WLSSPI_0256	Weblogic_JMSServerThruByteRate(**CF)	
WLSSPI_0001	Weblogic_ServerStatus(MT)	Weblogic Server Status
WLSSPI_0005	Weblogic_JVMHeapUsage(MT)	Weblogic JVM Heap Memory
WLSSPI_0819	Weblogic_JVMHeapFreeMemorY(**CF)	
WLSSPI_0007	Weblogic_GarbageCollectionTime(MT)	
WLSSPI_0006	Weblogic_GarbageCollectionCount(MT)	
WLSSPI_0008	Weblogic_GarbageCollectionThread(MT)	
WLSSPI_0009	Weblogic_ProcessorsAverageLoad(MT)	
WLSSPI_0011	Weblogic_ExecuteQThreadsInUse	Weblogic Servlet Performance
WLSSPI_0014	actcount	
WLSSPI_0013	Weblogic_SocketTrafficRate(**CF)	
WLSSPI_0240	Weblogic_ServletAverageExecutionTi Me(MT)	
WLSSPI_0241	Dropped	
WLSSPI_0242	Weblogic_ServletRequestRate(MT)	
WLSSPI_0820	Dropped - svrreqrestreq	
WLSSPI_0012	Weblogic_ExecuteQMetricMonitors(MT)	
WLSSPI_0010	Weblogic_ExecutionQueueThroughputRate(**CF)	
NA	Weblogic_ThreadPoolOverloadCondition(MT)	Weblogic Thread Status
WLSSPI_0284	Weblogic_RequestWaitTimeforThread(MT)	
WLSSPI_0075	Weblogic_TransactionSystemErrorRollbac kPercentage(MT)	Weblogic Transactions
WLSSPI_0071	Weblogic_TransactionRollbackPercentage(MT)	
WLSSPI_0073	Weblogic_TransactionAppErrorRollbackPercentage(MT)	
WLSSPI_0070	Weblogic_TransactionAverageTime(MT)	
WLSSPI_0079	Weblogic_TransactionCapacityUtilizationPct(MT)	
WLSSPI_0077	Weblogic_TransactionHeuristicsTotalCount(MT)	
WLSSPI_0074	Weblogic_TransactionTimeErrorRollbackPercentage(MT)	
WLSSPI_0076	Weblogic_TranactionThroughputRate(**CF)	
WLSSPI_0072	Weblogic_TransactionResErrorRollbackPercentage(MT)	
WLSSPI_0815	Dropped	
WLSSPI_0245	Weblogic_WebApplicationSessionsCount	WebLogic Web Application Status
WLSSPI_0246	Weblogic_WebApplicationHitRate	
WLSSPI_0918	Dropped as the data is used for Title of Auto generated reports	
WLSSPI_0917	Dropped as the data is used for Title of Auto generated reports	
WLSSPI_0802 - 0811	Dropped as the data is used for Title of Auto generated reports	
WLSSPI_0818	Dropped as the data is used for Title of Auto generated reports	
WLSSPI_0817	Dropped as the data is used for Title of Auto generated reports	
WLSSPI_0816	Dropped as the data is used for Title of Auto generated reports	
WLSSPI_0813	Dropped as the data is used for Title of Auto generated reports	

WLSSPI_0812	Dropped as the data is used for Title of Auto generated reports
WLSSPI_0810	Dropped as the data is used for Title of Auto generated reports
WLSSPI_0814	Dropped as the data is used for Title of Auto generated reports
WLSSPI_0801	Dropped as the data is used for Title of Auto generated reports

Configuration and customization mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization information in WebLogic SPI	Equivalent Aspect and Parameters in the Oracle WebLogic MP	More information
Discovery related information by *Discover or Configure WLSSPI* tool is saved in the *Siteconfig* file on the node. Configuration required for monitoring is done by the *Discover or Configure WLSSPI* tool and is saved in the *SPIConfig* file on the node.	In the Oracle WebLogic MP, following are the steps: 1. Deploy the **Discovery** aspect. 2. Tune the parameters and provide the required parameters such as *username* and *password*. 3. Deploy the MT based on the need. Any instance specific configuration or customization is done using parameters. Aspects and MTs can be customized as per the monitoring needs.	
Use the *Discover and Configure WLSSPI* tool to configure WebLogic Instances. The tool launches an editor to update the information.	Parameters: *Username* and *Password* Specify *Username* and *Password* as the configuration parameters while deploying an MT or Aspect to update WebLogic instance information.	It updates WLS instance name and credentials into local configuration on the managed node.
Tracing can be turned On or Off using the *Enable/Disable Trace* tool.	The tracing ON/OFF is done in the configuration files: • For enabling tracing related to Discovery log, use the *WebLogic_Discovery_Log4j.properties* file and set the Log Level = **TRACE**. • For enabling tracing related to monitoring and datalogging, use the *Weblogic_Collection_Log4j.properties* file and set the Log Level = **TRACE**.	
Start or Stop monitoring using the *Start/Stop Monitoring* tool.	Tools to start or stop monitoring are provided with an MP.	The same can be achieved using tools as explained in the section Tools Mapping in this document.

Threshold is defined in policy and can be customized by editing a policy.
For example: Customize Threshold values for different Applications, EJB, Servlet or JDBC
`<ServerName>:<ServerPort>:<NodeName>:<ApplicationName>:<EJBName/`
`ServletName/JDBC DataSource>:<Instance Name>`
	The *Threshold* parameter can be tuned during deployment.	Different threshold default values can be maintained by creating different set of aspects and MTs.

Severity is defined in a policy and can be customized by editing a policy.	*Severity* parameter can be tuned while deploying an MT or Aspect.	
Collection interval is defined in schedule task policies and can be customized by editing a policy. Tuning can be done for all metrics or instances or a particular metric or instance	*Frequency* parameter can be tuned during deployment.	

You can customize an Instance or a Metric Filter using the `Collector` command with appropriate parameters. For example, to collect data from specific servers use the following command: `wasspi_ca -prod wls -m 245,246,26 -i server1,server2`	*Metric filter* parameter can be tuned during deployment.	Metric filter is a part of Expert parameters.

Tools Mapping

This table lists the tools available in the WebLogic SPI and Oracle WebLogic MP and the differences.

WebLogic SPI tools	Equivalent tools in Oracle WebLogic MP	Comments
The *WebLogic Admin* tools group helps the HPOM administrator to perform routine tasks related to WebLogic such as start, stop and verify the WebLogic Servers.		
Check WebLogic	Dropped	Admin tools used in SPI were not used widely.
Start/Stop WebLogic	Dropped	Admin tools used in SPI were not used widely.
View WebLogic Log	Dropped	Admin tools used in SPI were not used widely.
Start WLS console	Dropped	Admin tools used in SPI were not used widely.
View Application Activation Status	Dropped	Admin tools used in SPI were not used widely.
View Application Timeout	Dropped	Admin tools used in SPI were not used widely.
View Deployed Apps	Dropped	The Weblogic_Deployment view helps in viewing the deployed applications.
View WebLogic Servers	Dropped	
Metric Reports This tools group contains reports that show information about WebLogic conditions in the server.	Dropped but the same feature is available with PMi Graphs.	These reports are replaced by appropriate Graphs.
Metric B001_ServerStatus		WebLogic Server
Metric B005_JVMMemUtilPct		WebLogic JVM
Metric B011_ExQThrdUtilPct		WebLogic Threads
Metric B012_ExQueWaitCnt		WebLogic Threads
Metric B014_ActiveSocketCnt	Dropped	NA
Metric B025_EJBPoolWtRtSum		WebLogic EJB
Metric B026_EJBTimeoutRtSum		WebLogic EJB
Metric B061_JDBCConPlWtCnt		WebLogic JDBC
Metric B070_TranAveTime		WebLogic Transactions
Metric B071_TransRollbackPct		WebLogic Transactions
Metric B072_TranResErrRbPct	Dropped	NA
Metric B073_TranAppErrRbPct	Dropped	NA
Metric B074_TranTimErrRbPct	Dropped	NA
Metric B075_TranSysErrRbPct	Dropped	NA
Metric B077_TranHeurCnt		WebLogic Transactions
Metric B080_ClsOutMesFailRt		WebLogic Cluster
Metric B081_ClsInMesFailRt		WebLogic Cluster

Metric B085_InvLoginAttCnt	Dropped	NA
Metric B090_TimeSerExcepCnt	Dropped	NA
Metric B092_ExQueThroughput		WebLogic Threads
Metric B225_EJBFreePoolWaitRate		WebLogic EJB
Metric B226_EJBTimeoutRate		WebLogic EJB
Metric B238_EJBCacheHitPct		WebLogic Servlets
Metric B240_ServletAveExecTime		WebLogic Servlets
Metric B242_ServletReqRate		WebLogic Servlets
Metric B245_WebAppSessionCnt	Dropped	NA
Metric B251_JMSUtilByMessagePct		WebLogic JMS
Metric B252_JMSUtilByBytePct		WebLogic JMS
Metric B253_JMSThreshByMessagePct	Dropped	NA
Metric B254_JMSThreshByBytePct	Dropped	NA
Metric B260_JDBCConnectionPoolUtil		WebLogic JDBC
Metric B289_MDBProcMsgRate	Dropped	NA
Metric B812_DomainInfo	Dropped	NA
Metric B813_ApplicationInfo	Dropped	NA
Metric B815_TransactionInfo	Dropped	NA
Metric B085_InvLoginAttCnt	Dropped	NA
SPI Admin This tools group consists of tools that enable you to configure, control, and troubleshoot the WLSSPI.		
Configure WLSSPI	Dropped. In MP, configuration of aspects and MTs are done using parameters.	Configuration is done using parameters.
Create WLSSPI Node Groups	Dropped	In MP, Node Groups are not required as it is based on CIs.
Discover pr Configure WLSSPI	Dropped	Discovery is triggered using the **Discovery** aspect in MP.
Self-Healing Info	This tool is replaced by Data Collector tool in MP.	There is a new Data Collector tool shipped with MP.
Start/Stop Monitoring		Start, Stop or Restart Monitor tools are available with MP.
Start/Stop Tracing	Dropped	Tracing ON/OFF is done using the configuration files in MP. The following are the configuration files to be used. • For enabling tracing related to Discovery log, use the *Weblogic_Discovery_Log4j.properties* file. • For enabling tracing related to monitoring and datalogging, use the *Weblogic_Collection_Log4j.properties* file.
Verify	Dropped	Verification of MP deployment can be done by checking the deployment jobs
View Error File	Dropped	
JMX Metric Builder This additional software provides user tools to create UDMs and monitor them.	Dropped Currently UDM is not supported.	

Service Health Reporter

SHR content packs are available on HPLN for both WebLogic SPI and MP.

There is new SHR ETL package available on HPLN to support Oracle WebLogic MP. Use the https://hpln.hpe.com/product/operations-bridge-reporter/content link to download the new ETL package and the file is OracleWebLogic_ETL_WebLogic_MP. For information on how to use the ETL package, see the instructions provided by SHR.

To install a Content Pack, see the *Deployment Manager* section in the *HP Service Health Reporter Online Help* for Administrators.

You can also see the *HP Service Health Reporter Content Packs Release Notes* available on HP Live Network.

Automatic Command Reports

In WebLogic SPI, several metrics generate Automatic Command reports. These reports are generated as soon as an alarm is triggered in the HPOM. Automatic Command reports are generated for a single WebLogic Application Server instance with the exceeded threshold. In contrast to Automatic Command reports that are generated for a single WebLogic Application Server instance, manually generated reports reflect the current state of all WebLogic Application Server instances on the managed node. For more information about manually generated reports, see Tools Mapping in this document.

In MP the similar feature is available using Graphs. Graphs can be launched in the context of an event or a CI.

Node cleanup

Remove SPI artifacts from the node that you are going to monitor using an MP. Following are the SPI artifacts that need to be removed in the given order.

1. Remove policies from the node.
   a. List the policies using the command `ovpolicy -l`.

Note
All WebLogic SPI policies start with WLSSPI_.

---

   b. Execute one of the following commands to remove all policies from the node:
   - By Name: `ovpolicy -remove -polname <Name>`
   - By Type: `ovpolicy -remove -poltype <Type>`

   You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

Note
Before you move from OM to OMi, make sure you do not remove the flexible management policy of type "mgrconf" if it has already been deployed.

   You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove CODA / OVPA data sources.

For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

   a. Remove CODA or OVPA data sources using the `ddfutil` command that is present under the instrumentation folder:

   ```
   ddfutil <OvDataDir>/wasspi/wls/datalog/graph.log -rm all
   ```

   ```
   ddfutil <OvDataDir>/wasspi/wls/datalog/reporter.log -rm all
   ```

   Example on Unix:

   ```
   ddfutil /var/opt/OV/wasspi/wls/datalog/graph.log -rm all
   ```

```
ddfutil /var/opt/OV/wasspi/wls/datalog/reporter.log –rm
```

Example on Windows:

```
ddfutil “C:\ProgramData\HP\HP BTO Software\wasspi\wls\datalog\graph.log” –rm all

ddfutil “C:\ProgramData\HP\HP BTO Software\wasspi\wls\datalog\reporter.log” –rm all
```

b. Restart CODA: `ovc –restart coda`

c. Verify Datasource removal: `ovcodautil –showds`

Note
There should not be any datasources listed as WLSSPI_METRICS or WLSSPI_RPT_METRICS. Management Pack automatically creates datasources only on CODA.

---

3. Remove SPI Instrumentation.

The instrumentation files on the node prefixed with “wasspi” and “spi_WebLogic” can be deleted. The instrumentation files are located in the Instrumentation folder:

- On UNIX: `/var/opt/OV/bin/instrumentation`
- On Windows: `%OvAgentDir%\bin\instrumentation`

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

---

4. Remove the configuration and log files.

The directory *<OvAgentDir>/wasspi* needs to be removed after taking a backup before deploying an MP.

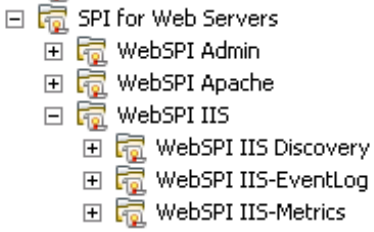
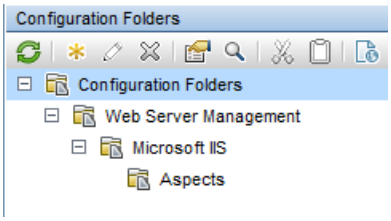
For more information on cleaning up nodes, see *Prepare nodes for deployment* under the Recommended steps for moving from a SPI to MP section in this document.

IIS SPI and Management Pack

This section explains the evolution from the HPOM Smart Plug-in version 6.05 for Web Server to the HPE OMi Management Pack for Microsoft IIS Web Server 1.0.

SPI and MP comparison

This section provides an overview of similarities and differences between the IIS Web Server monitoring capability of HPOM Smart Plug-in for Web Server SPI (Web Server SPI) and OMi Management Pack for Microsoft IIS Web Server (Microsoft IIS MP). For information about working with the IIS Web Server MP, see the *OMi Management Pack for IIS Web Server User Guide*.

Features	Web Server SPI version 6.05	OMi MP for Microsoft IIS Web Server 1.0
Prerequisites	• HPOM W 8.16, HPOM W 9, HPOM U/S/L 9 and above • HP Operations Agent 11.05 or higher	• BSM or MA 9.23 or above • HP Operations Agent 11.12 or higher
Product Delivery	The IIS SPI is available as a hotfix on the HPOM Web Server SPI 6.05. Web Server SPI is shipped with SPI DVD.	The Microsoft IIS MP can be downloaded as e-media from the HP Live Network location.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	The Microsoft IIS MP can be installed in any of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install MP after OMi 10.x installation. For more information about the opr-mp-installer Command-Line Interface, see the *OMi Administration Guide* for more details. 3. Download the MP bits from the e-media download center. Then mount the ISO and use the OS specific installer. • Linux: *mpinstall.sh –i* • Windows: *cscript mpinstall.vbs –i* Use this option when the latest version of this MP is available in the e-media download center.
Policy grouping	Policies are grouped into policy groups. 	Policies are logically grouped under Aspects. Aspects are available under Microsoft IIS in the Configuration Folders. 
Policy Versioning	The IIS SPI uses the <major version>.minor version> (xxxx.yyyy) format for policy versioning. Example: If the version of the SPI version is 6.05, policies updated in this release would be versioned as 6.0500. On the GUI it is displayed as 6.500. When you update a policy, minor version is updated. Example: When you update a policy with version 6.0500 (in GUI: 6.500), it will be changed to 6.0501 (in GUI 6.501).	The Microsoft IIS MP uses the xxxx.yyyy format for OMi policies. Example: In the Microsoft IIS MP 0001.0000 (in GUI 1.00), policies are versioned as 0001.0000. On the OMi GUI, it is displayed as 1.0. In the subsequent MP releases, the policy version is updated only if a given policy is updated in that release. When you update a policy, only minor versions (last two digits) are updated.

		Example: When you update a policy with version 0001.0000 (in GUI 1.0), it will be changed to 0001.0001 (in GUI 1.1).
Policy Types	The IIS SPI has the following types of policies: • Measurement Threshold • Scheduled Task • Windows Event Log • Service Auto-Discovery	The Microsoft IIS MP has the same policies used in SPI. In addition, it has the policy templates of the type ConfigFile.
Message Groups	The IIS SPI provides the Web SPI message group.	The Microsoft IIS MP provides the IIS MP message group.
Tools	Tools are grouped into tool groups for starting and stopping of various services running on IIS SPI and for creating the datasource.	Tools are available for starting and stopping the various services running on the IIS Web Server.
Instrumentation	IIS SPI has the WebServer instrumentation category. HPOM Server: SPI instrumentation is copied into the file system Node: Instrumentation is deployed to the “Instrumentation” directory on the node.	The Microsoft IIS MP has the IIS_WebServer_Monitoring instrumentation category. • OMi Server: Instrumentation is uploaded into the OMi database. • Node: Instrumentation is deployed to the Instrumentation directory on the node.
Discovery	Deploy the “WebSPI-IIS-Discovery” policy onto the managed node. When you successfully deploy the discovery policy, the IIS Web Server related objects are populated in the service map.	Deploy the IIS Web Server Discovery aspect onto the managed node. Successful deployment of discovery aspect populates discovered IIS Web Server related CIs in the RTSM.
Deployment	Deploy specific policies or groups based on monitoring needs to the appropriate node or node group(s).	Deploy the Aspect: 1. Assign and deploy IIS Web Server specific related aspects onto the managed node. 2. Specify the configuration input needs to be given as parameters values.
Appearance of artifacts on node	Instrumentation location: `<ovdatadir>/bin/instrumentation` Policy list: `ovpolicy -l` Example: 	Instrumentation location: `<ovdatadir>/bin/instrumentation` Policy list: `ovpolicy -l` In the policy template list, each parameterized policy has corresponding policy templates such as *monitortmpl*, *schedtmpl* and so on. Example: 
Monitoring Capability	For information about the monitoring capability in SPI, see the *Web Server SPI Reference Guide*.	All monitoring capability which are supported with IIS SPI is supported for the Microsoft IIS MP as well.
Tuning after Deployment	You can modify policies for customization. Customized versions must be deployed manually on the node for customizations to take effect. For example: Threshold, severity , or collection frequency	You can tune parameters during deployment for a specific CI. You can also tune a parameter value after deployment for specific CI using the Assignments & Tuning option. After you tune the parameters, policy templates are automatically deployed. Threshold, severity, and collection frequency are parameterized.
Uninstallation	Native procedure is used to uninstall the IIS SPI.	Artifacts can be removed manually in the following order: • Assignments • Aspects • Policy Templates • Instrumentation

		• Remote Content Pack definitions
Graphs	No OOTB graphs are available for the IIS SPI	Graphing solution for OMi MP is provided by OMi PG, which is an embedded component in the platform. OOTB PMi graphs for IIS MP would be installed along with the IIS MP.
Data logging on node	Collected metrics are logged into either CODA or OVPA on the node. Data source name – IISSPI	The Microsoft IIS MP uses only CODA as a data store. Data source name – IISMP
Events	The IIS SPI sends events on threshold violations with appropriate message text.	The Microsoft IIS MP sends events with corresponding message texts on threshold violations. Message texts have been modified for correctness.
Indicators (ETIs and HIs)	The IIS SPI supports the IIS Content Pack which ships HIs and ETIs.	The same set of HIs or ETIs that exist in the IIS SPI are supported by the Microsoft IIS MP. In addition, new indicators are added.
TBECs	There are no OOTB TBECs available for the IIS Content Pack that is supported by IIS SPI.	No OOTB TBECs available for the Microsoft IIS MP.
Reports	No OOTB reports are available for IISSPI	No OOTB reports available for the Microsoft IIS MP.

Common Policy Changes

This section provides an overview on the changes (such as parameterization) commonly made to IIS SPI policies and describes how to convert them into OMi Microsoft IIS Web Server MP policy templates.

Policy Naming Convention in SPI and MP

All the IIS SPI policy names are prefixed with `IISSPI_`. For example, IISSPI_0001. The Microsoft IIS MP policy template names are prefixed with `MSIIS_<xxxx>`. For example, MSIIS _Availability.

For more information about a mapping between SPI policies and MP policy templates, see SPI policy to MP Policy Template Mapping in this document.

Policy Types in SPI and MP

The Microsoft IIS MP has the same policy types as the IIS SPI and they are:

- Measurement Threshold Policy
- Schedule Task Policy
- Windows Event Log Policy
- Auto Service-Discovery Policy

In addition, Management Pack brings set policies of type Config File. There is a *ConfigFile* policy for each metric that is logged and used for generating the graphs.

Config File Policy Template

The Config File Policy Templates primarily contain the definition for the collector to collect data. It contains what to collect and when to collect.

All the config file policy templates follow the naming convention: `MSIIS_<Collection Name>_Conf`.

These Config File Policy Templates contains the schedule of collections within an aspect. The schedule is defined as VERY_HIGH, HIGH, MEDIUM or LOW. This policy is deployed along with their corresponding aspects. Based on the schedules mentioned in this policy, you can use the collection manager to collect the corresponding metrics defined in the collection definition.

Example: MSIIS_FTP_Conf

Measurement Threshold Policy

Most MP Measurement Threshold policy templates contain the customized threshold and severity attributes. OMi MP has parameterized these policy attributes to simplify policy maintenance and policy versioning. These parameters can be changed during deployment or post-deployment.

All the Measurement Threshold policies works with the collector.

Schedule Task Policy

The IIS SPI has OOTB scheduled task policies which triggers the collector with a set of metrics at defined intervals of 05 minutes. If you want to update the schedule, this schedule task policy needs to be appropriately edited. In case of MP, there is a frequency parameter for each metric regardless whether they are for eventing or logging. The frequency parameter can be adjusted to make the metric part of appropriate schedule intervals such as VeryHigh, High, Medium, and Low.

There are four scheduled task policies for each of the four intervals. The time schedule for these policies is parameterized which can be adjusted. For example, the frequency of VeryHigh parameter can be changed from 05mins to 10 mins. All the metrics marked under VeryHigh category is executed every 10mins.

In addition, the MSIIS_Availability schedule task policy is used for monitoring the availability metrics of the IIS Web Server. The default time intervals for the schedule task policies are as follows:

Schedule Task Policy Name	Default time Interval
MSIIS_Availability	5 mins
MSIIS_High	15 mins
MSIIS_Low	59 mins
MSIIS_Medium	30 mins
MSIIS_VeryHigh	5 mins

Windows Event Log Policy

Windows Event Log policies forwards Windows events to the server. These policies are similar between SPI and MP.

Discovery Policy

The OMi MP Discovery policy is a type of custom discovery policy which triggers discovery script to generate XML. This XML contains information about discovered Configuration Items.

There is no difference between the IIS SPI and IIS MP with respect to the discovered Configuration Items.

The following CIs are discovered:

- IIS Web Server
- IIS FTP Server
- IIS SMTP Server
- IIS Web Sites
- IIS Application Pools

SPI policy to MP Policy Template Mapping

This section maps the Microsoft IIS MP's policies to the corresponding IIS SPI's policies. Also, it captures the differences between them, if there are any.

In the below table, the type of policy is mentioned in short form along with the policy name. The abbreviations are as follows:

- MT: Measurement Threshold
- ST: Schedule Task
- CF: Configuration File
- WEL: Windows Event Log
- DISC: Discovery

IIS SPI Policy	Microsoft IIS MP Policy Template	Microsoft IIS MP Aspects
WebSPI-IIS-ASP-05min (ST) WebSPI-IIS-ASP-Datalog-05min (ST)	MSIIS_High (ST) MSIIS_Low (ST)	IIS Web Server Base

WebSPI-IIS-ASP.NET-05min (ST) WebSPI-IIS-ASP.NET-Datalog-05min (ST) WebSPI-IIS-Availability-05min (ST) WebSPI-IIS-Availability-Datalog-05min (ST) WebSPI-IIS-FTP-05min (ST) WebSPI-IIS-FTP-Datalog-05min (ST) WebSPI-IIS-Performance-05min (ST) WebSPI-IIS-Performance-Datalog-05min (ST) WebSPI-IIS-SMTP-05min (ST) WebSPI-IIS-SMTP-Datalog-05min (ST) WebSPI-IIS-WWW-05min (ST) WebSPI-IIS-WWW-Datalog-05min (ST)	MSIIS_Medium (ST) MSIIS_VeryHigh (ST) MSIIS_CollectionDefinition (CF)	Note The MSIIS_CollectionDefinition Config File policy contains the metric definitions.
IIS_0044(MT)	MSIIS_ApplicationRestarts(MT)	IIS Web Server ASP.NET Service Performance
IIS_0042(MT)	MSIIS_ASPNETReqQueued(MT)	
IIS_0041(MT)	MSIIS_ASPNETReqWaitTime(MT)	
IIS_0043(MT)	MSIIS_ASPReqRejected(MT)	
IIS_0040(MT)	MSIIS_WorkerProcRunning(MT)	
Unavailable	MSIIS_ASPNETErrPerSec(MT)	
	MSIIS_ReqAppQueue(MT)	
	MSIIS_ASPNet_Conf(CF)	
IIS_0007(MT)	MSIIS_AppPools(MT)	IIS Web Server Availability
IIS_0002(MT)	MSIIS_FTPService(MT)	
IIS_0005(MT)	MSIIS_IISAdmin(MT)	
IIS_0004(MT)	MSIIS_SMTPService(MT)	
IIS_0001(MT)	MSIIS_WebService(MT)	
IIS_0006(MT)	MSIIS_WebSites(MT)	
Not available	MSIIS_Availability(ST)	
IIS_0039(MT)	MSIIS_ASPErrorsPerSec(MT)	IIS Web Server ASP Service Performance
IIS_0034(MT)	MSIIS_ASPNETReqRejected(MT)	
IIS_0036(MT)	MSIIS_ASPPreProcErrors(MT)	
IIS_0037(MT)	MSIIS_ASPReqQueued(MT)	
IIS_0032(MT)	MSIIS_ASPReqWaitTime(MT)	
IIS_0038(MT)	MSIIS_ReqExecutionTime(MT)	
IIS_0031(MT)	MSIIS_RequestsExecuting(MT)	
IIS_0030(MT)	MSIIS_RequestsPerSecond(MT)	
IIS_0033(MT)	MSIIS_ScriptCompileErr(MT)	
IIS_0035(MT)	MSIIS_TotalReqFailed(MT)	
Not available	MSIIS_ASP_Conf(CF)	
WebSPI-IIS-Discovery(DISC)	MSIIS_Discovery(DISC)	IIS Web Server Discovery
IIS_0016(MT)	MSIIS_CurrAnonUsers(MT)	IIS Web Server FTP Service Performance
IIS_0018(MT)	MSIIS_CurrentConnections(MT)	
IIS_0017(MT)	MSIIS_CurrNonAnonUsers(MT)	
IIS_0019(MT)	MSIIS_FTPTotBytesPerSec(MT)	
Not Available	MSIIS_FTP_Conf(CF)	
IIS_0026(MT)	MSIIS_BytesTranmitted(MT)	IIS Web Server Performance

Not available	MSIIS_CurrQueueSize(MT)	
IIS_0029(MT)	MSIIS_FileCacheHits(MT)	
IIS_0028(MT)	MSIIS_InetInfoHandleCount(MT)	
IIS_0027(MT)	MSIIS_InetInfoProcessorTime(MT)	
Not available	MSIIS_RejectRate(MT)	
Not available	MSIIS_GlobalServices_Conf(CF)	
Not available	MSIIS_Process_Conf(CF)	
Not available	MSIIS_Server_Conf(CF)	
Not available	MSIIS_TCPv4_Conf(CF)	
Not available	MSIIS_TCPv6_Conf(CF)	
Not available	MSIIS_WebServiceCache_Conf(CF)	
IIS_0020(MT)	MSIIS_CurrInBoundConn(MT)	IIS Web Server SMTP Service Performance
IIS_0021(MT)	MSIIS_CurrOutBoundConn(MT)	
IIS_0023(MT)	MSIIS_MsgDeliveredPerSec(MT)	
IIS_0024(MT)	MSIIS_MsgReceivedPerSec(MT)	
IIS_0022(MT)	MSIIS_MsgSentPerSec(MT)	
Not available	MSIIS_ConnAttemptsPerSec(MT)	IIS Web Server WWW Service Performance
IIS_0011(MT)	MSIIS_CurrentConn(MT)	
Not available	MSIIS_CurrISAPIExtReq(MT)	
IIS_0013(MT)	MSIIS_FilesPerSecond(MT)	
IIS_0014(MT)	MSIIS_GblFileCacheHits(MT)	
IIS_0012(MT)	MSIIS_GetReqPerSec(MT)	
Not available	MSIIS_ISAPIExtReqPerSec(MT)	
IIS_0015(MT)	MSIIS_TotalBytesPerSec(MT)	
Not available	MSIIS_WebService_Conf(CF)	
IIS_FtpServerFwdAllSystemWarnError(WEL)	MSIIS_FtpServerFwdAllSystemWarnError(WEL)	IIS Web Server Error Logs
IIS_FwdAllApplicationWarnError(WEL)	MSIIS_FwdAllApplicationWarnError(WEL)	
IIS_FwdAllSystemWarnError(WEL)	MSIIS_FwdAllSystemWarnError(WEL)	
IIS_SmtpServerFwdAllSystemWarnError(WEL)	MSIIS_SmtpServerFwdAllSystemWarnError(WEL)	

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration/Customization information in SPI	Equivalent Aspect Parameter(s)	More information
Threshold is defined in policy and can be customized by editing policy.	You can update the *Threshold* parameter during deployment.	
Severity is defined in policy and can be customized by editing policy.	You can update the *Severity* parameter while deploying Aspects.	
Collection interval is defined in schedule task policies and can be customized by editing policy.	You can tune the *Frequency* parameter during deployment.	
Datasource creation is through the Create Datasource tool.	Datasources are created automatically during the deployment of the Discovery aspect.	

Graphs

The following graphs are introduced in IIS MP which are not available as part of the IIS SPI:

- ASP Failed Requests Vs ASP Rejected Requests Vs ASP Queued Requests
- ASP Requests Per Second Vs ASP Requests in Execution
- ASP Requests Wait Time
- ASP.NET Rejected Requests Vs ASP.NET Queued Requests
- Connections Vs Requests
- Current ISAPI Extension Requests Vs ISAPI Extension Requests Per Second
- Percentage of File Cache Hits
- TCPv4 Failed Connections Vs TCPv4 Active Connections
- TCPv6 Failed Connections Vs TCPv6 Active Connections
- Total Files Cached Vs File Cache Hits

Indicators

The following new HI or ETIs are added in the Microsoft IIS MP. These indicators are not part of IIS Content Pack which is supported by the IIS SPI.

- WebService_Availability
- FTPService_Availability
- SMTPService_Availability
- IISADMIN_Service_Availability
- WebSites_Availability
- ApplicationPools_Availability
- File_TransferRate
- SMTP_InboundConnections
- SMTP_OutboundConnections
- SMTP_SentMessagesRate
- SMTP_DeliveredMessagesRate
- SMTP_ReceivedMessagesRate
- Bytes_TransmitRate
- InetInfo_ProcessorTime
- InetInfo_WorkingSet
- Recent_Request_WaitTime_InQueue
- ScriptCompiler_Errors
- ASPRequests_Rejected
- PreProcessor_Errors
- ASPRequest_ExecutionTime
- Script_Errors
- .NET_WorkerProcesses
- .NET_Requests_WaitTime
- .NET_Requests_InQueue
- .NET_Requests_Rejected

- ISAPI_Extension_Requests
- ISAPI_Extension_RequestsRate
- .NET_ErrorRate
- Connection_Attempts_Rate
- HTTP_Queue_Size
- Requests_In_AppQueue
- HTTP_Rejection_Rate
- InetInfo_Handle_Count

Tools Mapping

This section maps SPI tools to equivalent MP tools, if any.

OM SPI tools	Equivalent MP tools	Comments
Start FTPSVC	IIS Web Server – Start FTPSVC Service	
Start IISADMIN	IIS Web Server – Start IISADMIN Service	
Start SMTPSVC	IIS Web Server – Start SMTPSVC Service	
Start W3SVC	IIS Web Server – Start W3SVC Service	
Stop FTPSVC	IIS Web Server – Stop FTPSVC Service	
Stop IISADMIN	IIS Web Server – Stop IISADMIN Service	
Stop SMTPSVC	IIS Web Server – Stop SMTPSVC Service	
Stop W3SVC	IIS Web Server – Stop W3SVC Service	
Create DataSource	This function is achieved by deploying the Discovery aspect.	Datasource creation is automated with MP.

Node Cleanup

You need to remove the SPI artifacts from the node before switching the monitoring of the node from the HPOM SPI to OMi MP. Following are the SPI artifacts that need to be removed in the given order:

1. Remove the IIS SPI policies of the Web Server SPI from the node.
   a. List the policies using the command: `ovpolicy -l`

Note

IIS SPI policy names are prefixed with the following:

- IIS_*
- WebSPI-IIS*

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   b. Execute one of the below commands to remove all policies from the node:
   - By Name: `ovpolicy -remove -polname <Name>`
   - By Type: `ovpolicy -remove -poltype <Type>`

You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove CODA / OVPA data sources from the node using the following command:
   c. `ddfutil "/var/opt/OV/wsspi/WSSPI-LOG-SET" -rm all`

The datasouce name for the IIS SPI is “IISSPI”.

3. Remove SPI Instrumentation.

The instrumentation files are located at `%OvDataDir%\bin\instrumentation`. The instrumentation on the node prefixed with IIS_* or Wsspi_* can be deleted.

For more information on how to back up the data if you need the data for future use, see the *SHR documentation*.

Note
wsspi_* is the common instrumentation for all the WebServer SPIs such as Apache, SunOne and IIS. Removal of wsspi_* instrumentation would remove all the Web Server SPIs from the node. You can skip this step if the SunOne and Apache WebServer SPIs are in use.

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

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4. Remove the configuration files.

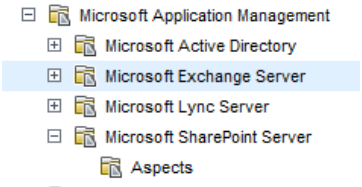
Remove the configuration files located in the `%OvDataDir%\conf\wsspi` folder.

Microsoft Enterprise Server SPI for SharePoint and Management Pack

This section explains the evolution from the HPOM Smart Plug-in version 8.05 for Microsoft Enterprise Server 8.05 for SharePoint Sever to the HPE OMi Management Pack for Microsoft SharePoint Server 1.0.

SPI and MP comparison

This section provides an overview of similarities and differences between HPOM Smart-Plug-in for Microsoft Enterprise Server (Microsoft SharePoint Server SPI) and OMi MP for Microsoft SharePoint Server (Microsoft SharePoint Server MP). For information about working with the Microsoft SharePoint Server MP, see the *HPE OMi Management Pack for Microsoft SharePoint Server User Guide*.

Features	Microsoft Enterprise Server SPI 8.05 (SharePoint)	Microsoft SharePoint Server MP 1.0
Prerequisites	• HPOM W 8.16, HPOM W 9.x, HPOM U/S/L 9.1 or higher • HP Operations Agent 11.0 or higher	• BSM/MA 9.22 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The Microsoft Enterprise Server SPI is shipped with SPI DVD.	The Microsoft SharePoint Server MP is shipped with the OMi 10 installer. You can also download the Microsoft SharePoint Server MP from the e-media download center. See Useful resources in this document for the e-media download center link.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	MP can be installed using any of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install the Microsoft SharePoint Server MP after OMi 10.x is installed. For more information about opr- mp-installer Command-Line Interface, see the *OMi Administration Guide*. 3. Download the MP bits from the e-media download center. Then mount the ISO and use the OS specific installer • Linux: *mpinstall.sh-i* • Windows: *cscript* mpinstall.*vbs-i* Use this option when a higher MP version is available in the e-media download center.
Policy Grouping	Policies are grouped into policy groups.	Policies are logically grouped under Aspects. Aspects are available under Microsoft SharePoint Server in the Configuration Folders.  For more information regarding policy templates, see the section SPI policy to MP policy template mapping in this document.
Policy Versioning	The Microsoft SharePoint Server SPI <major version>.<minor version> (xxxx.yyyy) format for policy versioning. Example: Server: 8.0500 Node: 8.0500	The Microsoft SharePoint Server MP uses the xxxx.yyyy format for OMi policy templates. Example: Server: 1.0 Example: In the Microsoft SharePoint MP 0001.0001 (In GUI 1.10), policies are versioned

	When the SPI version is 08.05, policies updated in this release would be versioned as 0008.0500. On the GUI, it is displayed as 8.0500. When you update a policy, only the minor version (Last two digits) should be updated. Example: When you update a policy with version 0008.0500 (in GUI: 8.500), it will be changed to 8.500.0001 (in GUI 8.500).	as 0001.0000. On the OMi GUI, it is displayed as 1.0. In the subsequent MP releases, policy version is updated only if a particular policy is updated in that release. When you update a policy, only the minor version (last two digits) is updated. Example: When you update a policy with version 0001.0000 (in GUI 1.0), it will be changed to 0001.0001(in GUI 1.1).
Policy Types	The Microsoft SharePoint Server SPI has the following policy types: • Measurement Threshold • Scheduled Task • Windows Event Log • Discovery	The Microsoft SharePoint Server MP has the following policy template types: • Measurement Threshold • Scheduled Task • Windows Event Log • Discovery • ConfigFile Template
Message Groups	Microsoft Enterprise Server SPI for Microsoft SharePoint Server 2010 contains message groups for events generated from SharePoint 2010. Microsoft Enterprise Server SPI for Microsoft SharePoint Server 2013 does not have message groups.	The Microsoft SharePoint Server MP does not have message groups.
Tools	Microsoft Enterprise Server SPI provides the following tools: • Create Datasource for Sharepoint Server • Enable SPTrace	The Microsoft SharePoint Server MP has more tools that are primarily used for managing the node. For more information about tools in MP, see Tools Mapping in this document.
Instrumentation	The Microsoft Enterprise Server SPI provides the following instrumentation categories: • SharePoint_Server • SP2013 • MSCore In HPOM, the SPI instrumentation is stored in file system.	Instrumentation category of MP: MSSP-Core OMi Server: Instrumentation is uploaded into the OMi database. Node: There is no difference with the instrumentation location on nodes. Instrumentation is deployed to the same directories as in the SPI. In MP, the new instrumentation binaries are prefixed with MPMS_ and the existing binaries use the same name. The names of the Spec files and datasources are retained to ensure backward compatibility with the existing reporting and graphing solutions.
Discovery	Deploy *Sharepoint_Discovery* or *SharePoint2013_Discovery* policy onto the managed node. When you successfully deploy the Discovery policy is deployed successfully, the discovered instances are shown in the service map.	The Microsoft SharePoint Server MP has two types of Discovery: **a.** Basic Discovery that does not require user credentials. **b.** Extensive Discovery that requires user credentials. Deploy the **SharePoint Discovery** aspect for basic discovery. Deploy the **SharePoint Extended Discovery** aspect for extensive discovery.
		If the discovery is successful, the discovered instances are shown as appropriate CIs in the RTSM. Basic Discovery populates the following CI in RTSM: • SharePoint Server Extensive Discovery populates the following CIs in RTSM: • SharePoint Server • SharePoint Server Roles • SQL Server

Deployment	Deploy specific policies or groups based on monitoring needs to appropriate node or node group(s).	Assign Management Template to the SharePoint Farm CI.
Configuration	The only configuration step is executing the tool to create datasource.	All configuration is done in the background by the **SharePoint Extended Discovery** aspect. The following tasks are performed automatically on the node: • Data sources are created based on the SharePoint version. • Credentials are captured for Discovery.

Appearance of artifacts on node	• Instrumentation can be found in:
	`%ovdatadir%/bin/inst rumentation`
	• Policy list: Use the `ovpolicy -l`command to view a list of policies.
	• Configuration, log and error files are created under Windows:
	`<OvAgentDir>\bin\instrumentation\SHAREPOINT`
		• Instrumentation can be found in:
		`%ovdatadir%/bin/in strumentation`
		• Policy list: Use the `ovpolicy -l`command to view a list of policy templates.
		Every parameterized policy has an extra entry with *<policy type>tmpl* in the **Type** column.
		• Configuration, log and error files are created under Windows:
		`<OvAgentDir>\bin\instrumentation\MSPS`

Monitoring Capability	For more information about the monitoring capability in SPI, see the *MSES SPI* reference guide. There are different sets of policies for SharePoint 2010 and SharePoint 2013.	The Microsoft SharePoint Server MP supports monitoring for SharePoint 2010 and SharePoint 2013. The monitoring capabilities are similar as that of the SPI. MP has a set of policies which can monitor both SharePoint 2010 and SharePoint 2013. For more information about policy mapping, see the section SPI policy to MP policy template mapping in this document.
Tuning after Deployment	You can modify policies for customization. Customized version must be deployed manually on the node for customizations to take effect.	You can tune parameters during the deployment of a specific CI. You can also tune a parameter value after deploying a specific CI using the **Assignments & Tuning** section. After the parameters are tuned, policy templates are automatically deployed. Threshold, Severity and collection frequency are parameterized.
End-to-End monitoring	Not Available	OOTB Management Template is not available. Based on deployment scenarios, you can create different management template with different metrics. NA
Monitoring instances with different business criticality	Not Available	OOTB Management Template is not available. Based on the business criticality, you can create different management template that uses different metrics.
Uninstallation	Native procedure is used to uninstall the Microsoft SharePoint Server SPI.	Artifacts can be removed manually in the following order: • Assignments • Aspects • Policy Templates • Instrumentation • Content Pack definitions
Graphs	PM generates reports using the performance and availability metrics. SPIs had a separate installer for OOTB graphs that need to be installed on PM.	OMi Performance Graphs provides a graphing solution for OMi MP, which is an embedded component in the platform. OOTB PMi graphs are installed along with the Microsoft SharePoint Server MP.

Data logging on node	Collected metrics are logged into CODA or OVPA on the node.	There are no differences in terms of tables. The collected metric is logged into CODA. The Microsoft SharePoint Server MP uses CODA as datastore. Datasource, class and metric names are the same as in SPI.
Events	Sends events on threshold violations with valid messages.	Sends events with corresponding messages. Certain messages have been modified for correctness and to bring consistency across versions.
HIs or ETIs	SPI does not have support for the SharePoint content pack.	Following are the new indicators that are added in the Microsoft SharePoint Server MP: • SharePoint Active Queue Length • SharePoint Admin Status • SharePoint Timer Status • SharePoint Search Host Control Status • SharePoint Server Search Status
TBEC	Not Available	Not Available
I18N & L10N	Is I18N certified and is localized in the Japanese language.	Is I18N certified and is localized in the Japanese language.
OO Flows	Not Available	Not Available

Common Policy Changes

This section provides an overview on the changes (such as parameterization) commonly made to Microsoft Enterprise SPI for SharePoint policies to adopt them to OMi Management Pack for Microsoft SharePoint policy templates.

The policy templates in Microsoft SharePoint Server MP follows the approach similar to the Microsoft Enterprise Server for SharePoint 8.05.

Microsoft Enterprise Server SPI (MSES SPI) has different sets of policies for different versions of the SharePoint Server and the policies have been consolidated to a single set for both SharePoint Server 2010 and SharePoint Server 2013.

Policy Template Naming Convention in MP

All policies are prefixed with MSPS_.

All the policies shipped with SharePoint 2013 SPI are available with the Microsoft SharePoint Server MP. The only difference is the name of the policy. Instead of SHAREPOINT_, the policy names are prefixed with MSPS_.

Policy Types in SPI and MP

The Microsoft Enterprise Server SPI has OOTB policies of the following types:

- Measurement Threshold
- Schedule Task
- Windows Management Instrumentation
- Windows Event Log
- Discovery

The Microsoft SharePoint Server MP has the same policy types as similar to the Microsoft Enterprise Server SPI. In addition, MP also includes policies of type Config File.

Config File Policy Template

The Config File policy templates primarily contain the definitions of what type of data must be collected. It contains on what to collect and when to collect. There are two types of ConfigFile policies in the Microsoft SharePoint Server MP:

a. MSPS_CollectionDefinition_<Version>

Config file Policy with this signature contains the Metric Definition XML file. The Collector requires a definition file which mentions what to collect. The Metric definition XML is a file which contains the collection definition. The collector parses this XML file to collect data, where to log the data and which opcmon policy to send the alert to. The collection definition files are:

- SharePoint 2010: MSPS_CollectionDefinition_2010
- SharePoint 2013: MSPS_CollectionDefinition_2013

b. MSPS_<Collection Name>_Conf

Config file Policy with this signature contains schedule of collections within an aspect. The schedule is defined as VERY_HIGH, HIGH, MEDIUM or LOW. This policy is deployed along with its corresponding aspect. Based on the schedules mentioned in this policy, the Collector manager collects the corresponding metrics as defined in the collection definition.

There are separate configuration files for SharePoint 2010 and SharePoint 2013. For example:

- SharePoint 2010: MSPS_ActiveSync_Conf_2010
- SharePoint 2013: MSPS_ActiveSync_Conf

Measurement Threshold Policy Template

The Threshold, Reset Threshold and Severity are the most customizable attributes in the Measurement Threshold policy. OMi MP has parameterized these policy attributes to simplify the maintenance and avoid policy version increments. These parameters can be modified during deployment or post-deployment. All the Measurement threshold policies work with the collector to monitor metrics.

Schedule Task Policy Template

The Microsoft Enterprise Server SPI (MSES SPI) for SharePoint Server 2010 has OOTB scheduled task policies which triggers the collector with a set of metrics at defined intervals. If you want to modify a metric from 05mins scheduler to 15mins scheduler, you need to edit 05 mins scheduled task policy to remove the metric number from command and to update in the 15 mins scheduled task policy.

This is different for Microsoft Enterprise Server SPI for SharePoint Server 2013 which has well defined sets of schedule task policies for various frequencies.

In case of MP, the Microsoft SharePoint Server MP follows the implementation of Microsoft Enterprise Server SPI for SharePoint 2013. As in SPI for SharePoint 2013, the policies follow a defined set of collection schedule. The schedule is classified as Very_High, High, Medium, Low and Daily which run in the following intervals: 5 mins, 15 mins, and 30 mins, 1 hour and 1 day. These frequencies can be changed by modifying the Frequency parameter. To change the frequency of monitoring for these metrics, the frequency parameter can be changed.

There are two sets of scheduled task policies for SharePoint Server (MSPS_SCH_VERY_HIGH). The time schedule for the scheduled task policy is parameterized. Default polling intervals are parameterized, the intervals are defined as VeryHigh (5 mins) and High (15 mins).

For example, the frequency of VeryHigh scheduler can be modified in the parameter Frequency of VeryHigh Scheduler from 5 to 10. All the metrics marked under the VeryHigh category is run every 10 mins.

The following table presents the method of modifying a schedule metric between SharePoint SPI and SharePoint MP.

Metric Schedule Case	SPI	MP
Modify a metric from 05 mins to 15 mins	**For the SharePoint 2010 SPI** 1. Edit 05 mins schedule task policy to remove the metric. 2. Edit 15 mins schedule task policy to add the metrics. 3. Redeploy both of the above schedule task policies. **For the SharePoint 2013 SPI** Edit the schedule in the *Schedule task* policy from Very High to High and redeploy.	The Microsoft SharePoint Server MP is similar to SharePoint 2013 SPI support. If the assignment is already done then click **Assignments & Tuning**: 1. Edit the frequency parameter of given metric change it from VeryHigh to High. 2. For the legacy scheduled task policies change the frequency parameter from 5 mins to 15 mins. Note

		The same can be done by editing the metric's frequency parameter at the aspect or MT level
Remove metric from scheduling	For SharePoint 2010 SPI, do not deploy the policy to the node. For SharePoint 2013 Node, disable the collection in collection definition policy of the SPI.	Edit the Collection definition policy and disable the collection. There are two collection definition policies one for SharePoint 2010 and another for SharePoint 2013. • MSPS_CollectionDefinition_ 2010 • MSPS_CollectionDefinition_ 2013
Modify the lowest schedule of collection from 5 mins to 10 mins.	Copy and create a new schedule task policy with the schedule of 10 mins. Or Edit the 5 mins schedule task policy, change the interval and rename it to 10 mins.	Modify the interval of scheduled task policy exposed as parameter either at the Aspect or MT level. In this case *Frequency of VeryHigh Scheduler*.

Windows Event Log Policies

Windows Event Log policies forwards events to the server. These policies are similar in SPI and in MP.

Discovery Policy

This policy is a type of custom discovery policy which triggers discovery script to generate XML. This XML directly contains information about discovered SharePoint Server CIs and its relationship with Infra elements.

There are two types of discovery policy: Basic discovery which does not take any credentials and the Extensive discovery which is similar to SPI and accepts username and password as parameters.

Policy specific changes

This section maps Microsoft SharePoint Server MP's aspects to the corresponding Microsoft Enterprise Server SPI policies. This section also provides information on policies that are deleted and any new policies that are added. Also, it captures the differences between them, if there are any.

Apart from the common changes that have been captured in the previous section, following are the policy specific changes.

Microsoft Enterprise Server SPI Policies Split

Some of the policies present in Microsoft Enterprise Server SPI for SharePoint have been split into multiple policies in the Microsoft SharePoint Server MP. This has been done to make the policies compliant to the new approach.

In the SharePoint 2013 SPI, the SHAREPOINT_CollectionSchedule is split into many ConfigFile policies. This was done to achieve scheduling at the aspect level.

SPI Policy	MP Policy Template	Comments
SHAREPOINT_CollectionSchedule	MSPS_Services_Conf MSPS_Services_Conf_2010 MSPS_Perf_Conf MSPS_Perf_Conf_2010	In SharePoint 2013, the SPI has one collection schedule policy for scheduling collection. Due to the concept of aspect-based deployment, this policy has been split in to different conf policies as per the aspect definition. Similar policies are introduced for SharePoint 2010 and they have the suffix of Conf_2010.

MSES for SharePoint SPI policies that are not present in Microsoft SharePoint Server MP

The following table provides a list of the policies that are not present in the Microsoft SharePoint Server MP:

Microsoft Enterprise Server SPI Policy Name	Comments
MSES_SPS_14_Document Conversions Launcher Service MSES_SPS_14_Document Conversions Load Balancer Service	Deleted as it is monitored as a part of monitoring the logical services.

SPI policy to MP policy template mapping

This section maps SharePoint Server MP's policies to corresponding SharePoint Server SPI's policies. The policy type is mentioned in short form along with the policy name.

- MT: Measurement Threshold
- ST: Scheduled Task
- CF: Config File
- LE: Logfile Entry
- DISC: Service Discovery
- WEL: Windows Event Log
- WMI: Windows Management Instrumentation

Table for SharePoint 2010

The only change for policies between the SharePoint 2013 SPI and SharePoint 2013 MP is the prefix. The SharePoint 2013 SPI policy names are prefixed with EXSPI_ whereas the MP policy templates are prefixed with MSPS_.

For example:

Equivalent policy template name in MP for SHAREPOINT_SharePointAdminServState policy is MSPS_SharePointAdminServState.

The Microsoft SharePoint Server MP follows the architecture of Microsoft Microsoft Enterprise Server SPI for SharePoint 2013.

HPOM Smart Plug-in policy	OMi Management Pack - Policy Template	OMi Management Pack - Aspects
SharePoint2013_Discovery (DISC)	MSPS_Extensive Discovery (DISC)	SharePoint Extensive Discovery
Sharepoint_Discovery (DISC)		
MSES_SPS_14_HeartBeats	MSPS_HeartBeats	SharePoint Performance
MSES_SPS_14_Active Queue Length	MSPS_Active_Queue_Length	
MSES_SPS_14_IndexerCatalogsNumofDocuments	MSPS_IndexerCatalogsNumofDocuments	
MSES_SPS_14_Documents Delayed Retry	MSPS_Documents_Delayed_Retry	
MSES_SPS_14_AdminService	MSPS_SharePointAdminServState	SharePoint Services
MSES_SPS_14_OfficeServerSearchService	MSPS_SharePointServerSearchServState	
MSES_SPS_14_SearchService	MSPS_SharePointTimerServState	
MSES_SPS_14_TimerService	MSPS_SharePointSearchServState	
MSES_SPS_14_Logging_Process_WSSADMIN MSES_SPS_14_Logging_Process_MSSEARCH MSES_SPS_14_Logging_Process_OWSTIMER MSES_SPS_14_Logging_Process_WSSTRACING MSES_SPS_14_Logging_Process_SPWRITER MSES_SPS_14_Logging_Process_SPS.Conversions.Launcher MSES_SPS_14_Logging_Process_SPS.Conversions.LoadBalancer MSES_SPS_14_Logging_Process_w3wp	MSPS_Perf_Conf_2010	SharePoint Performance
MSES_SPS_14_Logical Services_Monitoring	MSPS_SCH_Logical_SVC_Mon	SharePoint Logical Services
MSES_SPS_14_Database_Monitoring	MSPS_SCH_SharePoint_DB_Mon	SharePoint Database
MSES_SPS_14_FwdApplicationWarning	MSPS_FwdApplicationWarning	SharePoint EventLogs
MSES_SPS_14_FwdApplicationError	MSPS_FwdApplicationError	

Configuration and Customization Mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization information in Microsoft SharePoint Server SPI	Equivalent Configuration in Microsoft SharePoint Server MP	More Information
Getting started with monitoring using the Microsoft SharePoint Server SPI: • Create Data Sources • Deploy Discovery Policy	Getting started with monitoring using the Microsoft SharePoint Server MP: • Deploy Microsoft SharePoint Discovery • Deploy the Management Template	
To change or to reset the threshold, edit the policy, modify the threshold and deploy.	Edit or reset the threshold before or after deployment using the **Assignments & Tuning** option.	
In Microsoft Enterprise Server SPI to enable /disable a particular metric use the OM UI and to enable or disable the policy by selecting the policy	In Microsoft SharePoint Server MP, all configuration tasks such as adding or removing collection have to be performed in the following *Config File* policies:	

To add a new metric, a new policy needs to be created with the valid entries.	• MSPS_CollectionDefinition_2 010 • MSPS_CollectionDefinition_2 013 To enable or disable a collection, modify the above mentioned *Config File* policies and set Enabled as *true/false*.
Collection interval is defined in schedule task policies and can be customized by editing the policy.	The *Frequency* parameter can be tuned during deployment.

Tools Mapping

The tools that were available with the SPI have been removed in MP as all these activities are automated in the Management Packs. Hence, one to one mapping of tools is not possible for Microsoft SharePoint Server MP. However, Microsoft SharePoint Server MP has few tools for operational purpose.

HPOM SPI tools	Equivalent MP tools	Comments
SPI has the *Sharepoint Server Tools* tool groups.	MP has the *MSPS Monitoring Tools* category.	All the tools packaged under Microsoft SharePoint Server MP is under the category MSPS Monitoring Tools.
Create Datasource for Sharepoint Server	Create Data Sources is now part of SharePoint Extensive Discovery Aspect and the Data sources are created automatically.	
Enable SPTrace	MSPS Enable Collection Manager Trace	This tool is used to enable debug logs for debugging MP.

Graphs Mapping

Microsoft Enterprise Server SPI had two sets of graphs one set for SharePoint 2010 and another for SharePoint 2013. These graphs are merged into a single set with Management Packs. This will work for both SharePoint 2010 and SharePoint 20013. The list of graphs available in the MPs are the following:

HPOM SPI Graphs	Equivalent MP Graphs	Comments
SharePoint Search Service CPU	SharePoint Search Service CPU	
SharePoint Search Service Memory	SharePoint Search Service Memory	
SharePoint Search Service Page Faults/sec	SharePoint Search Service Page Faults/sec	
SharePoint Server Admin Service CPU	SharePoint Server Admin Service CPU	
SharePoint Server Admin Service Memory	SharePoint Server Admin Service Memory	
SharePoint Server SPTimer Service CPU	SharePoint Server SPTimer Service CPU	
SharePoint Server SPTimer Service Memory	SharePoint Server SPTimer Service Memory	
IIS Worker process CPU usage	Web Server Worker process CPU usage	
IIS Worker process Memory usage	Web Server Worker process Memory usage	
IIS Worker processes Page Faults	Web Server Worker processes Page Faults	

Node Cleanup

You need to remove the SPI artifacts from the node before switching the monitoring of the node from the HPOM SPI to OMi MP. Following are the SPI artifacts that need to be removed in the given order:

1. Remove the SharePoint policies of SharePoint SPI from the node.
   a. List the policies using the command: `ovpolicy -l`

Note
All SharePoint SPI policies are prefixed with MSES_SPS.

b. Execute one of the following commands to remove policies:

- By Name: `ovpolicy –remove –polname <Name>`
- By Type: `ovpolicy –remove –poltype <Type>`

2. Remove the CODA / OVPA data sources using the following command:

```
ddfutil "%OVAgentDir%bin\msesspi\dsi\log\SharePoint_Server.log" –rm all
```

3. Remove the SPI instrumentation.

The instrumentation files are located at `%OvAgentDir%\bin\instrumentation` in the following folders:

- Sharepoint_Server
- SP2013

The instrumentation files on the node that are prefixed or suffixed with “SP_” can be deleted.

On Windows: `%OvAgentDir%\bin\instrumentation`

4. Remove the log files.

Remove the MSES SPI log files that are created under the folder `<OvAgentDrive>/log.` The log file names starts or ends with “SP_”.

Remove the EXSPI temp files that are created under the folder:

`<OvAgentDrive>/bin/instrumentation/msesspi` or

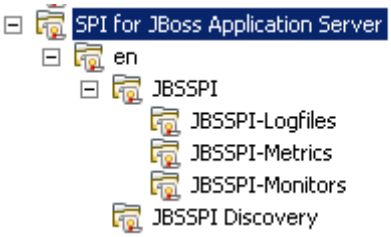
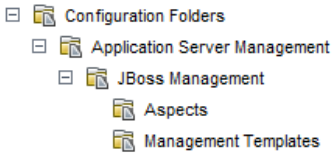
`<OvAgentDrive>/bin/instrumentation/SHAREPOINT`

JBoss SPI and OMi Management Pack for JBoss Application Server

This section explains the evolution from the HPOM Smart Plug-in 7.04 for JBoss Application Server to the HPE OMi Management Pack for JBoss Application Server 1.00.

SPI and MP comparison

This section provides an overview of similarities and differences between HPOM Smart Plug-in for JBoss Application Server (JBoss SPI) and OMi MP for JBoss Application Server (JBoss MP). For information about working with the JBoss MP, see the *OMi Management Pack for JBoss Application Server User Guide*.

Features	JBoss SPI 7.04.003	JBoss MP 1.00
Pre-requisites	• HPOM W 9.x, HPOM U/S/L 9.1 or higher • HP Operations Agent 11.1 or higher	• BSM/MA 9.23 or higher • HP Operations Agent 11.12 or higher
Product Delivery	The JBoss SPI is shipped with the SPI DVD.	The JBoss MP is shipped with the OMi 10 installer. You can also download the JBoss MP from the e-media download center. See Useful resources in this document for the e-media download center link.
Installation	Mount the ISO and use the OS specific installer: • HPUX: *HP_Operations_Smart_Plug-ins_HPUX.depot* • Linux: *HP_Operations_Smart_Plug-ins_Linux_setup.bin* • Solaris: *HP_Operations_Smart_Plug-ins_Solaris_setup.bin* • Windows: *setup.vbs*	The JBoss MP can be installed in any of the following methods: 1. Use the OMi ConfigWizard to install OMi 10.x. Use this option when you want to install the MP during OMi 10.x installation. 2. Install using the command line interface. Use this option when you want to install the MP after the OMi 10.x is installed. For more information about the opr-mp-installer Command-Line Interface, see the *OMi Administration Guide*. 3. You can download the MP bits from the e-media download center and then mount ISO and use the OS specific installer. • Linux*: mpinstall.sh-i* • Windows*: cscript mpinstall.vbs-i* Use this option when a higher MP version is available in the e-media download center.
Policy grouping	The policies are grouped into policy groups: 	The aspects and MTs are grouped into configuration folders. Policy templates are grouped into aspects. For more information about grouping of policies relevant to the area and criticality of monitoring, see the SPI Policy to MP Policy Template Mapping section in this document. 
Policy versioning	The JBoss SPI uses the <major version>.minor version> (xxxx.yyyy) format for policy versioning. Example: If the version of the SPI is 7.0, policies updated in this release would be versioned as 7.000. On the GUI, it is displayed as 7.000. When you update such a policy, only minor versions (last two digits) are updated. For example: When you update a policy with version 7.000 (in GUI: 7.000), it will be changed to 7.0100 (in GUI 7.100).	The JBoss MP uses the xxxx.yyyy format for OMi policies. Example: Policies are versioned as 0001.0100. On the OMi GUI, it is displayed as 1.100. In the subsequent MP releases, policy version is updated only if a particular policy is updated in that release. For example, with 1.01 release, only a few policies are updated to 1.0100. When you update a policy, only minor versions (last two digits) are updated. Example: When you update a policy with version 0001.0100 (in GUI 1.100), it will be changed to 0001.0101 (in GUI 1.101).
Policy Types	The JBoss SPI has the following policy types: • Measurement Threshold	MP has similar types of policies of the types used in SPI. In addition, it has the ConfigFile type of policy template.

	• Scheduled Task • Logfile • Service Auto-Discovery • Message Interface	For more details about policy changes, see Common policy changes in this document.
Message Groups	The JBoss SPI provides message groups to generate JBoss events.	The JBoss MP has exactly the same set of message groups as used in the SPI.
Node Groups	The JBoss SPI provides node groups called *SPI for JBoss Application Server* and the group is created based on the discovered JBoss version.	Node groups are not required in MP as the topology is based on CIs.
Tools	The JBoss SPI provides the following tool groups: • SPI Admin tools group • JBoss Server Admin tools group	The JBoss MP provdes tools to start, stop and restart monitoring and check the monitoring status. Some of the tools used in SPI are dropped. For more information on tools, see section Tools Mapping in this document.
Instrumentation	The JBoss SPI provides the *JBoss* category.	The JBoss MP provides the JBoss_Monitoring_MP and JBoss_Discovery_MP instrumentation categories. OMi Server: Instrumentation is uploaded into the OMi database. Instrumentation deployment on the Node: There is no difference with respect to instrumentation location on nodes. Instrumentation is deployed to the same directories as in the SPIs. Instrumentation filenames have been changed in MP.
Discovery	Deploy the following policies from the policy group *JBSSPI Discovery* to the managed node. • JBSSPI-Messages • JBSSPI Auto-Service Discovery When you successfully deploy the discovery policy, the JBoss Application Server related objects are populated in the service map	Discovery in the JBoss MP is done in two stages: **a.** When you deploy the Discovery aspect, all the J2EE domain , server groups and J2EE Server CIs are discovered. **b.** When you deploy an MT, the remaining J2EE application and JDBC DataSources CIs are discovered. To discover JBoss CIs: Deploy the **JBoss Discovery** aspect onto the node before deploying any Aspect or MT. When you deploy an aspect or MT onto J2EE, the extended discovery discovers J2EE apps and JDBC DataSources.
Deployment	Deploy specific policies based on monitoring needs to appropriate node(s) or node group(s).	1. Deploy the MT or Aspect: • Deploy Discovery Aspect • Deploy Aspect or MT 2. Assign Management Template to the J2EE Domain CIs. 3. Specify the *jmx username* and *password* as parameters. 4. Create Automatic Assignment Rules for Auto-deployment of MT and aspects. **Note**: It is recommended not to update configuration directly on the node as it will make the values out-of-sync.
Configuration	In the JBoss SPI, you can run the Configure tool in the Configuration Editor and specify the following required parameters: • *Login* • *Password* • *JavaHome* • *JBoss Home* There are other optional parameters that you can provide. For more information on configuration, see the *JBoss SPI Online Help*.	In the JBoss MP, all the configuration is done as a part of the deployment process using parameters. The required parameters are *jmx username* and *password*. There are optional parameters such as *JAVA_HOME, KeyStore*, *Passpharse, JMX Port,* and *JAR File Path. These* parameters are required if the SSL is configured on the JBoss server. For more information about the parameters that are to be provided during the deployment of an MT, see the *OMi Management Pack for JBoss Application Server User Guide.*

Appearance of artifacts on node	Instrumentation:
	`%ovdatadir%/bin/instrumentation`
	
	Policy list: Use the `ovpolicy -l` command to view a list of policies
	Example: #ovpolicy –l
	"JBoss_Discovery" enabled 01.0000
	Policy names: The policy names are prefixed with JBSSPI_.
	Location of logfiles: The SPI logfiles are located under:
	`<OvAgentDir>/wasspi/jbs/log`
	• *Discovery.log*
	• *Collector.log*
	• *wasspi_perl.log*
	• *CollectorClient.log*
		Instrumentation:
		`%ovdatadir%/bin/instrumentation`
		Policy list: Use the `ovpolicy -l` command to view a list of policies.
		In the policy list, each parameterized policy will have extra entry with "<policy type>tmpl" in the "Type" column as provided in the following example:
		`# ovpolicy -l`
		`configfile "JBoss_Configuration" enabled 0001.0000`
		`configfiletmpl "JBoss_Configuration" enabled 0001.0000`
		Policy names: The policy names are prefixed with JBoss_.
		MP Logfiles: Logfiles can be located under:
		`<OvAgentDir>/log/JBoss`
		• *JBossPerl.log*
		• *Collector.log*
		• *JBossDiscovery.log*
		• *collectionManager/collection_schedule.log*
		• *collectionManager/ CollectionManager.log*

Monitoring Capability	The JBoss SPI monitors the following: • Availability of JBoss Application Server • Performance of JBoss Application Server components such as JDBC DataSource, Applications, and Servlets. For more information about the monitoring functionality, see the *JBSSPI Reference Guide*.	All monitoring functionality which are supported by the JBoss SPI are present in the JBoss MP except for the following: • User Defined Metrics • Remote Monitoring of JBoss
Tuning after Deployment	You can customize threshold, message groups, and severity (any) by editing the policies. Redeploy the new version of policy which can later be deployed to the node.	You can tune parameters during deployment for a specific CI. You can also tune parameter values after deploying a specific CI from the Assignments & Tuning window. After parameters are tuned, the policy templates are automatically deployed. The threshold, severity, and collection frequency are parameterized.
Monitoring Multiple Instances	The JBoss SPI provides monitoring of multiple instances of JBoss with the limitation that the credentials are same across the JBoss instances. Policy parameters are applicable for all instances of JBoss on a particular node.	Parameters are applicable for all instances of JBoss. However during deployment, the parameters can be tuned for a particular instance of JBoss. The *Instance* parameter (Server Name) is used to identify a particular instance of JBoss.
End-to-End monitoring	Deploy the JBoss SPI to monitor only the JBoss environment. For the Cross Domain monitoring, deploy the Infrastructure SPI policies to monitor system infrastructure such as the CPU, Memory, Disk, and File System. Deploy Oracle policies to monitor Oracle database.	Deploy *Essential JBoss Management Template* to monitor the JBoss components. Use the *Essential JBoss and Oracle Database Management Template* to monitor System Infrastructure, Oracle and JBoss resources.
Monitoring instances with different business criticality	In the JBoss SPI, multiple policy sets are maintained based on the business criticality.	The JBoss MP provides only the Essential JBoss Management Template.
Agent and agent less monitoring	Agentless monitoring is not available.	Agentless monitoring is not available.
Uninstallation	Native procedure is used to uninstall the JBossSPI.	Artifacts can be removed manually in the following order: • Assignments • MTs • Aspects • Policy Templates • Instrumentation • ContentPack Definitions

Graphs	Performance and availability metrics are graphed by PM. SPIs had a separate installer for OOTB graphs that need to be installed on PM. Following is a list of graphs in JBossSPI: • EJB Performance • Transaction Rollback Percent • JVM Utilization • JCA Performance • Servlet Session Activity • EJB MessageDrivenBean Activity • EJB StatefulSessionBean Activity • EJB StatelessSessionBean Activity • JMS Session Activity • JMS Producer Performance • JMS Consumer Performance	Graphing solution for OMi MP is provided by PMi, which is an embedded component in the platform. OOTB Graph templates are installed as a part of the MP. All SPI graphs are removed in JBoss MP. The list of new graphs in JBoss MP is as follows : • JVM Utilization • Garbage Collector Statistics • Transaction Rollback Statistics • JCA Performance • JCA Long and Short Thread Performance • Server Status • System Thread Performance For more information about a list of OOTB Graph Templates, see the *OMi Management Pack for JBoss Application Server User Guide*.
Reports	The OOTB reports (OVR) are available as a separate package.	There are no OOTB reports.
Data logging on node	Collected metrics are logged to CODA or OVPA on the node in the following datasources: • JBSSPI_METRICS • JBSSPI_RPT_METRICS	There is a new CODA datasource called JBOSS_DATA. All metrics are logged to CODA.
OS Cluster Support	Failover configuration can be done with *apminfo.xml* as described in the *Install and Config* guide of JBossSPI.	The same set of configuration is applicable for the JBoss MP as well.
Remote Monitoring	The JBossSPI provides Remote Monitoring with a limited set of metrics.	Remote Monitoring is not supported. It is recommended to use SiteScope for remote monitoring.
UDM support	The JBoss SPI uses the Metric Java Builder Tool provided in the SPI DVD to do the following: • Add user defined metrics • Generate appropriate policies	UDM is not supported in the JBoss MP.
I18N & L10N	The JBoss SPI is I18N certified and is localized in Japanese.	The JBoss MP is I18N certified.
HIs/ETIs	The list of indicators shipped with J2EE content pack are used to enrich the events using policies. The indicators are used in the KPI calculation.	The same set of indicators are used in the MP policy templates.
TBEC	The JBoss SPI supports topology based correlation event correlation on OMi. OOTB TBEC Rules are shipped as a part of J2EE content.	The same set of TBEC rules are supported in MP.
Events	Events are mapped to JBoss Server CI, J2EE Application and JDBC Data Source CIs appropriately on OMi.	All events reaching OMi Event browser are mapped to the JBoss Server CI , JVM CI, and JDBC Data Source CIs. In the Event Title, the policy name is appended at the end of the text as shown in the sample event: *JBoss Server server-one is not running [Policy: JBoss_ServerStatus]*
OO flows	Integration with the HP OO flows are shipped as a part of the J2EE content.	Not Applicable
Architecture	SPI supports both the 32-bit and 64-bit Java architectures.	If the managed node is Solaris version 8, 9, 10 or 11, 32 bit java should be provided against the optional JAVA_HOME parameter. For information about the JAVA_HOME parameter, see the *Parameters* section in the *OMi Management Pack for JBoss Application Server User Guide*.

Common policy changes

This section captures changes (such as parameterization) commonly made to JBoss SPI policies to convert them into the JBoss MP policy templates.

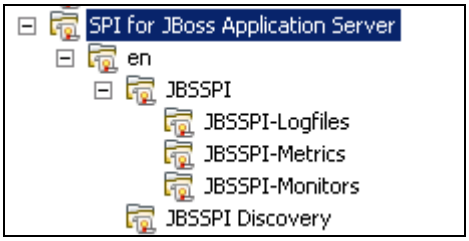
Policy Naming Convention

In the JBoss MP, policy template names are prefixed with JBoss_. For more information about a mapping between SPI policies and MP policy templates, see SPI Policy to MP Policy Template Mapping in this document.

In the JBoss SPI, the policy names are prefixed with *JBSSPI_*.

Policy Types

The JBoss SPI policies are organized under Policy Group *SPI for JBoss Application Server* as shown in the following snapshot:



The JBoss SPI has OOTB policies which are of the Measurement Threshold, Scheduled Task, Logfile, Message Interface, and Service Auto-discovery types.

The JBoss MP provides the same types of policies as that of the SPI. In addition, MP provides a Config File policy template called *JBoss_Configuration*. The purpose of this policy is explained in the following sections:

a. JBoss_Configuration - Is the main policy which acts as a container for `username, password, keystore, passphrase, java_home, jmx port, jar path` and the instance parameter `Server Instance name`. In the JBoss SPI, these details are provided as a part of the configuration using the Confguration editor. See the *JBoss SPI Online Help* for the set of configuration properties.

b. Non-Eventing Metrics - In JBoss SPI, these metrics are included in the schedule policies for collecting data and logging metrics. These metrics are configured in the metric definition file for generating reports.

In case of MP, these policies are available as a part of the ConfigFile policy for generating reports or graphs based on metrics. The standard MP Schedulers pick these policies and collect and log corresponding metrics based on the frequency parameter of each policy.

Each of these policies has the parameter *Frequency*. This parameter allows you to choose the requirement frequency for metric collection.

Collected metric data is stored in CODA under JBOSS_DATA.

c. Data logging - In MP, all the metrics are configured in a metric defniton file that has corresponding policies. All the metrics are by default logged to CODA.

In the JBoss SPI, there are two classes for logging data to CODA and they are:

- JBSSPI_METRICS
- JBSSPI_RPT_METRICS (to use with OVR/SHR)

For each metric, the configuration to log data or create a graph is done in the metric definition file.

In the JBoss MP, JBOSS_DATA is used to log data to CODA. By default, all the metrics are logged to CODA.

Measurement Threshold Policy Template

In the JBoss MP, the following policy template arguments are parameterized:

- Threshold
- Severity

The MT or Aspect deployment happens for each instance where the value can be adjusted without creating and managing new policy versions.

Schedule Task Policy Template

In the JBSSPI Collector, policies specify what metrics collected by running the collector or analyzer at the specified polling interval and also defining the metrics that are collected. These are OOTB scheduled task policies which trigger the collector with a set of metrics at defined intervals.

Collector Policy Name	Polling Interval	Metrics Collected
JBSSPI-05min	5m (Runs the JBoss SPI collector/analyzer every 5 minutes)	1-12, 15-42

In case of MP, there is a frequency parameter for each metric regardless of whether the metrics are for eventing or logging. This parameter can be adjusted to make the metric part of appropriate schedule intervals and they are: VeryHigh, High, Medium, Low, and NORUN.

The default polling intervals of VeryHigh, High, Medium, and Low are 5 mins, 15 mins, 1 hour, and 1 day respectively. If any metric is marked for NORUN, it will not be picked by any scheduler. An aspect or MT can be edited to change this parameter or the default value can be modified during the deployment for the targeted CI.

Metric Schedule Case	SPI	MP
Modify a metric from 05 mins to 15 mins	1. Edit 05 mins schedule task policy to remove the metric. 2. Edit 15 mins schedule task policy to add the metrics. 3. Redeploy both of the above schedule task policies.	1. Click **Assignments & Tuning**, if an assignment is already done. 2. Edit the *frequency* parameter of a given metric to change it from *VeryHigh* to *High*. **Note** The same can be done by editing the metric's frequency parameter at the Aspect or MT level.
Remove metric from scheduling.	1. Edit the corresponding schedule task policy and remove the metric number. 2. Redeploy the modified scheduled task policy.	1. Click **Assignments & Tuning** if an assignment is already done. 2. Edit the *frequency* parameter of a particular metric and change it from original to NORUN. **Note** The same can be done by editing the metric's frequency parameter at the Aspect or MT level.
Modify the lowest schedule of collection from 05 mins to 10 mins.	Copy and create new schedule task policy with a schedule of 10 mins. Or Edit the 05 mins schedule task policy, change the interval and rename it to 10 mins.	Modify the interval of scheduled task policy exposed as a parameter either at the Aspect or MT level. In this case *Frequency of VeryHigh Scheduler*.

JBoss SPI Collector/Analyzer

The `wasspi_perl_su -S wasspi_ca -prod jbs` command is used in every collector policy in JBSSPI to do the following:

a. Collect specific data on all the configured servers. For example, `wasspi_perl -S wasspi_ca -prod jvs -m 10-12,25,26.`

b. Collect data from specific servers only. For example, `wasspi_perl -S wasspi_ca -m -prod jbs 38,39,40 -i server1,server2.`

c. Collect data from specific servers. For example, `wasspi_perl -S wasspi_ca -m -prod jbs 20-25 -e server1,server2.`

The same feature is achieved in the JBoss MP by deploying selected aspects for a particular JBoss Server instance.

Discovery Policy Template

The JBoss MP has the Discovery policy template *JBoss_Discovery* which is same as in JBoss SPI. This triggers discovery script to generate an XML file as expected by the *Discovery* agent. This XML file contains information about discovered JBoss instances and its relationship with other J2EE components such as JDBC, Java Application, and Infra elements. Optional elements may contain Oracle CIs and its relationships. The discovered information such as the CI type, attributes, and relations remain same as SPI. MP uses the Toposync rules to create appropriate CIs and relationships and update RTSM whereas this data was represented in the Service Map on HPOM.

Policy Customizations

There are multiple options to customize the SPI policies for different reasons. You can create new policy groups and copy specific policies to those groups to create your own JBoss SPI groups. You can also modify the thresholds set in individual policies. In many cases, the policy's defined threshold may involve a drill-down or roll-up metric. The widely used SPI policy customizations and corresponding MP approach are listed in the next few sections.

Policy Tagging

What is Policy Tagging in SPI?

You can use multiple sets of policies to define conditions pertaining to specific installations of the JBoss Server. JBoss SPI provides the "-t" (tag) option which enables the collector or analyzer to recognize customized policies that have a tag attached to the name.

For example, you can create a group of policies and change each policy name to include CLIENT01 in it. A metric monitor policy can be named as CLIENT01-JBSSPI_0012 0216 where the metric number must be retained. The collector policy should be named as FIRST_CLIENT-05min. You could then set up another group for SECOND_CLIENT and change all those policies to include the CLIENT02 in the name.

How is it achieved in MP?

Policy Tagging in Management Packs is done using the OMi feature Management Templates. You can create different flavors of Management Templates by copying the OOTB MTs. These Management Templates can be customized to:

- Add or remove aspects
- Enable or disable metrics within an aspect
- Modify parameters for which an MT has to be deployed

For more information about MP customizations, see the chapter Best Practices for Customizing Management Packs in this document.

User assigned policy versioning

You can create customized policies for each group using the policy versioning approach. HPOM automatically changes a modified policy version by incrementing the last digit by 1. This method suggests to override this policy version by using the save option and inserting your own version. For example, 100-199 is for one group, 200-299 for another, and so on.

How is it achieved in MP?

The OMi feature Management Template is the recommended approach for user assigned policy versioning as explained above. For more information about MP customizations, see the chapter Best Practices for Customizing Management Packs in this document.

SPI Policy to MP Policy Template Mapping

This section maps the JBoss MP Policy templates to the corresponding JBoss SPI policies. Also, it captures the differences between them, if there are any.

In the table below, MP policy templates marked with "*" are for only logging metric data into CODA and are not meant for generating events. The type of the policy is mentioned in short form along with the policy name.

- MT: Measurement Threshold
- ST: Scheduled Task
- CF: Config File
- LE: Logfile Entry
- MI: Message Interface

HPOM SPI Policy	WLS MP Policy Template	Aspect Name
JBSSPI_Messages	JBoss_Messages(MI)	JBoss Base, JBoss Discovery
JBoss Server Log Monitor	JBoss_LogTemplate(LE)	
JBSSPI-Logfile-Monitor	JBoss_MPLog(LE)	
JBSSPI-05min	JBoss_VeryHigh (ST)	
NA	JBoss_High(ST)	
NA	JBoss_Medium(ST)	JBoss Base

NA	JBoss_Low(ST)	
	JBoss_Configuration(CF)	
JBSSPI-Performance	Dropped	
JBSSPI Java Discovery Error Log	Dropped	This feature of monitoring log is part of the MP log monitoring.
JBSSPI Java Collector Error Log	Dropped	This feature of monitoring log is part of the MP log monitoring.
JBSSPI Service Discovery	JBoss_Discovery(Service Discovery)	JBoss Discovery
JBSSPI_0001	JBoss_Availability(MT)	JBoss Availability
NA	JBoss_Availability_Check(ST)	
JBSSPI_0002	Dropped as Metric value not available	JBoss Transaction Status
	JBoss_TranApplicationRollbackPct(MT)	
	JBoss_TranResourceRollbackPct(MT)	
	JBoss_TransactionsAborted(**CF)	
	JBoss_TransactionsAppRollbacks(**CF)	
	JBoss_TransactionsCommitted(**CF)	
	JBoss_TransactionsHeuristics(**CF)	
	JBoss_TransactionsNested(**CF)	
	JBoss_TransactionsResouceRollbacks(**CF)	
	JBoss_TransactionsTimedOut(**CF)	
	JBoss_TransactionsTotal(**CF)	
	JBoss_TranTimeoutPct(MT)	
JBSSPI_0003	JBoss_SysThreadQueueUtilPct(MT)	JBoss System Thread Statistics
	JBoss_SysThreadQueueSize(**CF)	
	JBoss_SysThreadMaxQueueSize(**CF)	
JBSSPI_0004	JBoss_JCAWorkManagerQueueUtilPct(MT)	JBoss JCA Statistics
	JBoss_JCAQueueSize(**CF)	
	JBoss_JCAMaxQueueSize(**CF)	
JBSSPI_0005	JBoss_HeapMemUtilPct(MT)	JBoss JVM Memory
	JBoss_NonHeapMemUtilPct(MT)	
JBSSPI_0006	Dropped as Metric value not available	JBoss Servlet Statistics
	JBoss_WebServletloadTime	
	JBoss_WebServletmaxTime	
	JBoss_WebServletminTime	
	JBoss_WebServletProcessingTime	
	JBoss_WebServletrequestCount	
JBSSPI_0007	Dropped as Metric value not available	JBoss JCA Statistics
JBSSPI_0008	Dropped as Metric value not available	
JBSSPI_0009	Dropped as Metric value not available	
JBSSPI_0010	Dropped as Metric value not available	
JBSSPI_0011	Dropped as Metric value not available	
JBSSPI_0012	Dropped as Metric value not available	
	JBoss_JCALongThreadcoreThreads	
	JBoss_JCALongThreadcurrentThreadCount	
	JBoss_JCALongThreadcurrentThreadPct	
	JBoss_JCALongThreadlargestThreadCount	

	JBoss_JCALongThreadmaxThreads	
	JBoss_JCALongThreadqueueLength	
	JBoss_JCALongThreadrejectedCount	
	JBoss_JCAShortThreadcoreThreads	
	JBoss_JCAShortThreadcurrentThreadCount	
	JBoss_JCAShortThreadcurrentThreadPct	
	JBoss_JCAShortThreadlargestThreadCount	
	JBoss_JCAShortThreadmaxThreads	
	JBoss_JCAShortThreadqueueLength	
	JBoss_JCAShortThreadrejectedCount	
JBSSPI_0015	Dropped as Metric value not available	JBoss EJB Performance
JBSSPI_0016	Dropped as Metric value not available	
JBSSPI_0017	Dropped as Metric value not available	
JBSSPI_0018	Dropped as Metric value not available	
JBSSPI_0019	JBoss_EJBMessageDrivenBeanCreateCountRt	
JBSSPI_0020	Message Driven Beans removal rate monitor	
JBSSPI_0021	Dropped as Metric value not available	
	JBoss_EJBMessageDrivenBeanAvailableCount	
	JBoss_EJBMessageDrivenBeanPoolCurrentSize	
	JBoss_EJBMessageDrivenBeanPoolMaxSize	
JBSSPI_0022	JBoss_EJBStatefulBeanCreateCountRt	
JBSSPI_0023	JBoss_EJBStatefulBeanPassivatedCountRt	
	JBoss_EJBStatefulBeanAvailableCount	
	JBoss_EJBStatefulBeanPoolCurrentSize	
	JBoss_EJBStatefulBeanPoolMaxSize	
	JBoss_EJBStatefulBeanRemoveCountRt	
JBSSPI_0024	JBoss_EJBStatelessBeanCreateCountRt	
	JBoss_EJBStatelessBeanAvailableCount	
	JBoss_EJBStatelessBeanPoolCurrentSize	
	JBoss_EJBStatelessBeanPoolMaxSize	
	JBoss_EJBStatelessBeanRemoveCountRt	
JBSSPI_0025	Dropped as Metric value not available	JBoss JMS Performance
JBSSPI_0026	Dropped as Metric value not available	
JBSSPI_0027	Dropped as Metric value not available	
JBSSPI_0028	Dropped as Metric value not available	
JBSSPI_0029	Dropped as Metric value not available	
JBSSPI_0030	Dropped as Metric value not available	
JBSSPI_0031	Dropped as Metric value not available	
JBSSPI_0032	Dropped as Metric value not available	
JBSSPI_0033	Dropped as Metric value not available	
JBSSPI_0034	Dropped as Metric value not available	
JBSSPI_0035	Dropped as Metric value not available	
JBSSPI_0036	Dropped as Metric value not available	
JBSSPI_0037	Dropped as Metric value not available	
JBSSPI_0038	Dropped as Metric value not available	

JBSSPI_0039	Dropped as Metric value not available	
JBSSPI_0040	Dropped as Metric value not available	
JBSSPI_0041	Dropped as Metric value not available	
JBSSPI_0042	Dropped as Metric value not available	
	JBoss_JMSconsumerCount	
	JBoss_JMSdurableMessageCount	
	JBoss_JMSdurableMessagePct	
	JBoss_JMSdurableSubscriptionCount	
	JBoss_JMSnonDurableMessageCount	
	JBoss_JMSnonDurableMessagePct	
	JBoss_JMSnonDurableSubscriptionCount	
	JBoss_JMSqueueDeliveringCount	
	JBoss_JMSqueueMessageCount	
	JBoss_JMSqueueMessagesAdded	
	JBoss_JMSscheduledCount	
	JBoss_JMSsubscriptionCount	
	JBoss_JMStopicDeliveringCount	
	JBoss_JMStopicMessageCount	
	JBoss_JMStopicMessagesAdded	
	JBoss_ApplicationStatus	JBoss Application Status
	JBoss_Collector_Availability	JBoss MP Self-Monitoring
	JBoss_Collector_Availability_Check	
	JBoss_ClassLoadingLoadedClassCount	JBoss Classloading Statistics
	JBoss_ClassLoadingTotalLoadedClassCount	
	JBoss_ClassLoadingUnloadedClassCount	
	JBoss_GarbageCollectorCollectionCount	JBoss Garbage Collector Statistics
	JBoss_GarbageCollectorCollectionTime	
	JBoss_GarbageCollectorIntervalTime	
	JBoss_GarbageCollectorThreadCount	
	JBoss_JDBCConnectionPoolThruRt	JBoss JDBC Connection Pool Status
	JBoss_JDBCPreparedStatementCacheAccessCount	
	JBoss_JDBCPreparedStatementCacheCurrentSize	
	JBoss_JDBCPreparedStatementCacheDeleteCount	
	JBoss_JDBCPreparedStatementCacheHitCount	
	JBoss_JDBCPreparedStatementCacheMissCount	
	JBoss_PoolActiveCount	
	JBoss_PoolAvailableCount	
	JBoss_PoolCreatedCount	
	JBoss_PoolDestroyedCount	
	JBoss_PoolInUseCount	
	JBoss_PoolInUsePct	
	JBoss_PoolMaxWaitCount	
	JBoss_WebAppActiveSessions	JBoss Web Application Statistics
	JBoss_WebAppDuplicatedSessionIds	
	JBoss_WebAppExpiredSessions	

	JBoss_WebAppRejectedSessions	
	JBoss_WebAppSessionAvgAliveTime	
	JBoss_WebAppSessionMaxAliveTime	
	JBoss_WebAppSessionsCreated	
	JBoss_WebConnectorHTTPBytesReceived	JBoss Web HTTP Connector
	JBoss_WebConnectorHTTPBytesSent	
	JBoss_WebConnectorHTTPErrorCount	
	JBoss_WebConnectorHTTPProcessingTime	
	JBoss_WebConnectorHTTPRequestCount	

Configuration and customization mapping

This section provides the mapping of SPI configuration done outside of policies and equivalent parameters in MP aspects. Use this mapping to reuse configuration and customization from SPI to MP.

Configuration and Customization information in JBoss SPI	Equivalent Aspect and Parameters in the JBoss MP	More information
Discovery related information by *Discover or Configure JBSSPI* tool is saved in the *Siteconfig* file on the node. Configuration required for monitoring is done by the *Discover or Configure JBSSPI* tool and is saved in the *SPIConfig* file on the node.	In the JBoss MP, following are the steps: 1. Deploy the **Discovery** aspect. 2. Tune the parameters and provide the required parameters such as *JMX* u*sername* and *password*. 3. Deploy the MT based on the need. Any instance specific configuration or customization is done using parameters. Aspects and MTs can be customized as per the monitoring needs.	
Use the *Discover and Configure JBSSPI* tool to configure JBoss Instances. The tool launches an editor to update the information.	Parameters: *JMX Username* and *Password* Specify *JMX Username* and *Password* as the configuration parameters while deploying an MT or Aspect to update WebLogic instance information.	It updates JBoss instance name and credentials into local configuration on the managed node.
Tracing can be turned On or Off using the *Enable/Disable Trace* tool.	The tracing ON/OFF is done in the configuration files: • For enabling tracing related to Discovery log, use the *JBoss_Discovery_Log4j.properties* file and set the Log Level = **TRACE**. • For enabling tracing related to monitoring and datalogging, use the *JBoss_Collection_Log4j.properties* file and set the Log Level = **TRACE**.	
Start or Stop monitoring using the *Start/Stop Monitoring* tool.	Tools to start or stop monitoring are provided with an MP.	The same can be achieved using tools as explained in the section Tools Mapping in this document.

Threshold is defined in policy and can be customized by editing a policy.
For example: Customize Threshold values for different Applications, EJB, Servlet or JDBC.
`<ServerName>:<ServerPort>:<NodeName>:<ApplicationName>:<EJBName/`
`ServletName/JDBC DataSource>:<Instance Name>`
	The *Threshold* parameter can be tuned during deployment.	Different threshold default values can be maintained by creating different set of aspects and MTs.

Severity is defined in a policy and can be customized by editing a policy.	The *Severity* parameter can be tuned while deploying an MT or Aspect.	
Collection interval is defined in schedule task policies and can be customized by editing a policy. Tuning can	The *Frequency* parameter can be tuned during deployment.	

be done for all metrics or instances or a particular metric or instance.		
You can customize an Instance or a Metric Filter using the `Collector` command with appropriate parameters. For example, to collect data from specific servers use the following command: `wasspi_ca -prod jbs -m 40,41,42 -i server1,server2`	The *Metric filter* parameter can be tuned during deployment.	Metric filter is a part of Expert parameters.

Tools Mapping

This table lists the tools available in the JBoss SPI and JBoss MP and the differences between them.

JBoss SPI tools	Equivalent tools in JBoss MP	Comments
JBoss Server Admin The *JBoss Server Admin* tool group helps the HPOM administrator to perform routine tasks related to JBoss such as start, stop, and verify the JBoss Servers.		
JBoss Server Status	Dropped	Admin tools used in SPI were not used widely.
Start/Stop JBoss Server	Dropped	Admin tools used in SPI were not used widely.
View JBoss Logs	Dropped	Admin tools used in SPI were not used widely.
SPI Admin This tool group consists of tools that enable you to configure, control, and troubleshoot the JBSSPI.		
Create JBSSPI Node Groups	Dropped	In MP, Node Groups are not required as it is based on CIs.
Discover or Configure JBSSPI	Dropped	Discovery is triggered using the **Discovery** aspect in MP.
Self-Healing Info	This tool is replaced by Data Collector tool in MP.	There is a new Data Collector tool shipped with MP.
Start/Stop Monitoring		Start, Stop or Restart Monitor tools are available in MP.
Start/Stop Tracing	Dropped	Tracing ON/OFF is done using the configuration files in MP. The following are the configuration files to be used. • For enabling tracing related to Discovery log, use the *JBoss_Discovery_Log4j.properties* file. • For enabling tracing related to monitoring and datalogging, use the *JBoss_Collection_Log4j.properties* file.
Verify	Dropped	Verification of MP deployment can be done by checking the deployment jobs
View Error File	Dropped	

Node cleanup

Remove SPI artifacts from the node that you are going to monitor using an MP. Following are the SPI artifacts that need to be removed in the given order.

1. Remove policies from the node.
   a. List the policies using the command `ovpolicy -l`.

Note
All JBoss SPI policies start with JBSSPI_.

   b. Execute one of the following commands to remove all policies from the node:
   - By Name: `ovpolicy -remove -polname <Name>`
   - By Type: `ovpolicy -remove -poltype <Type>`

   You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

Note
Before you move from OM to OMi, make sure you do not remove the flexible management policy of type "mgrconf" if it has already been deployed.

You can also remove policies by deleting policy groups for a particular node on the server using the GUI.

2. Remove CODA / OVPA data sources.

For more information on how to back up the data if you need the data for future use, see the SHR documentation.

a. Remove CODA or OVPA data sources using the ddfutil command that is present under the instrumentation folder:

```
ddfutil <OvDataDir>/wasspi/jbs/datalog/graph.log –rm all

ddfutil <OvDataDir>/wasspi/jbs/datalog/reporter.log –rm all
```

Example on Unix:

```
ddfutil /var/opt/OV/wasspi/jbs/datalog/graph.log –rm all

ddfutil /var/opt/OV/wasspi/jbs/datalog/reporter.log –rm
```

Example on Windows:

```
ddfutil “C:\ProgramData\HP\HP BTO Software\wasspi\jbs\datalog\graph.log” –rm all

ddfutil “C:\ProgramData\HP\HP BTO Software\wasspi\jbs\datalog\reporter.log” –rm all
```

b. Restart CODA: ovc –restart coda

c. Verify Datasource removal: ovcodautil –showds

Note
There should not be any datasources listed as JBSSPI_METRICS or JBSSPI_RPT_METRICS. Management Pack automatically creates datasources only on CODA.

---

3. Remove SPI Instrumentation.

The instrumentation files on the node prefixed with “wasspi” and “spi_JBoss” can be deleted. The instrumentation files are located in the Instrumentation folder:

- On UNIX: `/var/opt/OV/bin/instrumentation`
- On Windows: `%OvAgentDir%\bin\instrumentation`

Note
Instrumentation removal may fail if any executable or script is running. Stop the corresponding process (es) and then delete the instrumentation files.

---

4. Remove the configuration and log files.

The directory <*OvAgentDir>/wasspi* needs to be removed after taking a backup before deploying an MP.

For more information on cleaning up nodes, see *Prepare nodes for deployment* under the Recommended steps for moving from a SPI to MP section in this document.

Appendix A – Mapping of Infrastructure SPI MT Policy Parameters to Infrastructure MP Parameters

This section provides the mapping of Infrastructure SPI script parameters with OMi parameters.

This worksheet does not list out the common script parameter Debug. Other than this all other script parameters are listed. The *debug script* parameter is not replaced by an equivalent OMi MA parameter, but it can be set or unset inside the policy rule code before the policy template is deployed.

For a script parameter associated with an HPOM policy, where an equivalent policy does not exist in the Infrastructure MP, the term 'Policy not in MP' is used in the worksheet.

For a script parameter associated with an HPOM policy, where the equivalent parameter is not available in the Infrastructure MP policy templates, the term 'Not available' is used in the worksheet.

Infrastructure SPI Policy Parameters

Infrastructure SPI Policy Name	Policy Script Parameter Name	Aspect	Parameter
CI-ClusterMonitor	Debug	<Not available>	<Not available>
CI-ClusterMonitor	MessageGroup	Cluster Strength and Status	Message Group
CI-ClusterNodeMonitor	Debug	<Not available>	<Not available>
CI-ClusterNodeMonitor	MessageGroup	Cluster Strength and Status	Message Group
CI-ClusterResGroupMonitor	Debug	<Not available>	<Not available>
CI-ClusterResGroupMonitor	MessageGroup	Cluster Strength and Status	Message Group
SI-CPUBottleneckDiagnosis	GlobalCpuUtilCriticalThreshold	Resource Bottleneck Diagnosis	Summarized Cpu Utilization (%)
SI-CPUBottleneckDiagnosis	GlobalCpuUtilMajorThreshold		
SI-CPUBottleneckDiagnosis	GlobalCpuUtilMinorThreshold		
SI-CPUBottleneckDiagnosis	GlobalCpuUtilWarningThreshold		
SI-CPUBottleneckDiagnosis	MessageGroup	Resource Bottleneck Diagnosis	Message group for outgoing messages
SI-CPUSpikeCheck	CpuUtilCriticalThreshold	CPU Performance	CPU Utilization Level (%)
SI-CPUSpikeCheck	CpuUtilMajorThreshold		
SI-CPUSpikeCheck	CpuUtilMinorThreshold		
SI-CPUSpikeCheck	CpuUtilWarningThreshold		
SI-CPUSpikeCheck	CpuUtilSysmodeCriticalThreshold	CPU Performance	CPU Utilization Level In System Mode (%)
SI-CPUSpikeCheck	CpuUtilSysmodeMajorThreshold		
SI-CPUSpikeCheck	CpuUtilSysmodeMinorThreshold		
SI-CPUSpikeCheck	CpuUtilSysmodeWarningThreshold		
SI-CPUSpikeCheck	CpuUtilUsermodeCriticalThreshold	CPU Performance	CPU Utilization Level In User Mode (%)
SI-CPUSpikeCheck	CpuUtilUsermodeMajorThreshold		
SI-CPUSpikeCheck	CpuUtilUsermodeMinorThreshold		
SI-CPUSpikeCheck	CpuUtilUsermodeWarningThreshold		
SI-CPUSpikeCheck	InterruptRateCriticalThreshold	CPU Performance	Rate of Interrupts (%)
SI-CPUSpikeCheck	InterruptRateMajorThreshold		
SI-CPUSpikeCheck	InterruptRateMinorThreshold		
SI-CPUSpikeCheck	InterruptRateWarningThreshold		

SI-CPUSpikeCheck	MessageGroup	CPU Performance	Message Group
SI-DiskCapacityMonitor	Debug	<Not available>	<Not available>
SI-DiskCapacityMonitor	ExcludeFilesystems	Space Availability and Disk lOPS	Exclude Filesystems
SI-DiskCapacityMonitor	FreeSpaceCriticalThreshold	Space Availability and Disk lOPS	Free Space Available (MB)
SI-DiskCapacityMonitor	FreeSpaceMajorThreshold		
SI-DiskCapacityMonitor	FreeSpaceMinorThreshold		
SI-DiskCapacityMonitor	FreeSpaceWarningThreshold		
SI-DiskCapacityMonitor	MessageGroup	Space Availability and Disk lOPS	Message group for outgoing messages
SI-DiskCapacityMonitor	SpaceUtilCriticalThreshold	Space Availability and Disk lOPS	Space Utilization (%)
SI-DiskCapacityMonitor	SpaceUtilMajorThreshold		
SI-DiskCapacityMonitor	SpaceUtilMinorThreshold		
SI-DiskCapacityMonitor	SpaceUtilWarningThreshold		
SI-DiskPeakUtilMonitor	DiskPeakUtilCriticalThreshold	Resource Bottleneck Diagnosis	Space Utilization for Busiest Disk (%)
SI-DiskPeakUtilMonitor	DiskPeakUtilMajorThreshold		
SI-DiskPeakUtilMonitor	DiskPeakUtilMinorThreshold		
SI-DiskPeakUtilMonitor	DiskPeakUtilWarningThreshold		
SI-DiskPeakUtilMonitor	MessageGroup	Resource Bottleneck Diagnosis	Message Group
SI-GlobalCPUUtilization-AT	DebugLevel	<Not available>	<Not available>
SI-GlobalCPUUtilization-AT	GlobalCPUUtilCutOff	<Not available>	<Not available>
SI-GlobalCPUUtilization-AT	MessageGroup	CPU Performance	Message Group
SI-JavaProcessCPUUsageTracker	CPUUsageHighWaterMark	<Policy not in MP>	<Policy not in MP>
SI-JavaProcessCPUUsageTracker	MessageGroup		
SI-JavaProcessMemoryUsageTracker	MemoryUsageHighWaterMark	<Policy not in MP>	<Policy not in MP>
SI-JavaProcessMemoryUsageTracker	MessageGroup		
SI-LinuxCifsUtilizationMonitor	CifsFileSystemType	Remote Disk Space Utilization	CIFS FileSystem Type
SI-LinuxCifsUtilizationMonitor_data	MessageGroup		
SI-LinuxCifsUtilizationMonitor	SpaceUtilCriticalThreshold	Remote Disk Space Utilization	CIFS Space Utilization (%)
SI-LinuxCifsUtilizationMonitor	SpaceUtilMajorThreshold		
SI-LinuxCifsUtilizationMonitor	SpaceUtilMinorThreshold		
SI-LinuxCifsUtilizationMonitor	SpaceUtilWarningThreshold		
SI-LinuxNfsUtilizationMonitor_data	MessageGroup		
SI-LinuxNfsUtilizationMonitor	NfsFileSystemType	Remote Disk Space Utilization	NFS FileSystem Type
SI-LinuxNfsUtilizationMonitor	SpaceUtilCriticalThreshold	Remote Disk Space Utilization	NFS Space Utilization (%)
SI-LinuxNfsUtilizationMonitor	SpaceUtilMajorThreshold		
SI-LinuxNfsUtilizationMonitor	SpaceUtilMinorThreshold		
SI-LinuxNfsUtilizationMonitor	SpaceUtilWarningThreshold		
SI-MemoryBottleneckDiagnosis_data	Debug	<Not available>	<Not available>
SI-MemoryBottleneckDiagnosis	FreeMemAvailCriticalThreshold	Resource Bottleneck Diagnosis	Free Memory Available (MB)
SI-MemoryBottleneckDiagnosis	FreeMemAvailMajorThreshold		

SI-MemoryBottleneckDiagnosis	FreeMemAvailMinorThreshold		
SI-MemoryBottleneckDiagnosis	FreeMemAvailWarningThreshold		
SI-MemoryBottleneckDiagnosis	FreePageTableCriticalThreshold	Memory and Swap Utilization	Free Page Table Entries
SI-MemoryBottleneckDiagnosis	FreePageTableMajorThreshold		
SI-MemoryBottleneckDiagnosis	FreePageTableMinorThreshold		
SI-MemoryBottleneckDiagnosis	FreePageTableWarningThreshold		
SI-MemoryBottleneckDiagnosis	MemCacheFlushRateHighThreshold	Resource Bottleneck Diagnosis	Memory Cache Flush Rate (Data Flushes/sec)
SI-MemoryBottleneckDiagnosis	MemPageOutRateCriticalThreshold	Resource Bottleneck Diagnosis	Memory Page Out Rate (Pages Swapped Out/sec)
SI-MemoryBottleneckDiagnosis	MemPageOutRateMajorThreshold		
SI-MemoryBottleneckDiagnosis	MemPageOutRateMinorThreshold		
SI-MemoryBottleneckDiagnosis	MemPageOutRateWarningThreshold		
SI-MemoryBottleneckDiagnosis	MemPageReqRateHighThreshold	Resource Bottleneck Diagnosis	Memory Page Request Rate (Page Requested/sec)
SI-MemoryBottleneckDiagnosis	MemPageScanRateCriticalThreshold	Resource Bottleneck Diagnosis	Memory Page Scan Rate (Pages Swapped In/sec)
SI-MemoryBottleneckDiagnosis	MemPageScanRateMajorThreshold		
SI-MemoryBottleneckDiagnosis	MemPageScanRateMinorThreshold		
SI-MemoryBottleneckDiagnosis	MemPageScanRateWarningThreshold		
SI-MemoryBottleneckDiagnosis	MemSwapoutByteRateCriticalThreshold	Resource Bottleneck Diagnosis	Memory Swap Out Byte Rate (MB)
SI-MemoryBottleneckDiagnosis	MemSwapoutByteRateMajorThreshold		
SI-MemoryBottleneckDiagnosis	MemSwapoutByteRateMinorThreshold		
SI-MemoryBottleneckDiagnosis	MemSwapoutByteRateWarningThreshold		
SI-MemoryBottleneckDiagnosis	MemUtilCriticalThreshold	Resource Bottleneck Diagnosis	Memory Utilization (%)
SI-MemoryBottleneckDiagnosis	MemUtilMajorThreshold		
SI-MemoryBottleneckDiagnosis	MemUtilMinorThreshold		
SI-MemoryBottleneckDiagnosis	MemUtilWarningThreshold		
SI-MemoryBottleneckDiagnosis	MessageGroup	Resource Bottleneck Diagnosis	Message group for outgoing messages
SI-MemoryUtilization-AT	DebugLevel	<Not available>	<Not available>
SI-MemoryUtilization-AT	MemUtilCutOff	<Not available>	<Not available>
SI-MemoryUtilization-AT	MessageGroup	Memory and Swap Utilization	Message Classification
SI-MSWindowsNonPagedPoolUtilization-AT	DebugLevel	<Not available>	<Not available>
SI-MSWindowsNonPagedPoolUtilization-AT	MessageGroup	Memory and Swap Utilization	Message Classification
SI-MSWindowsNonPagedPoolUtilization-AT	NonPagedPoolUtilCutOff	<Not available>	<Not available>
SI-MSWindowsPagedPoolUtilization-AT	DebugLevel	<Not available>	<Not available>
SI-MSWindowsPagedPoolUtilization-AT	MessageGroup	Memory and Swap Utilization	Message Classification
SI-MSWindowsPagedPoolUtilization-AT	PagedPoolUtilCutOff	<Not available>	<Not available>
SI-MSWindowsSvchostCPUUsageTracker	CPUUsageHighWaterMark	<Policy not in MP>	<Policy not in MP>

SI-MSWindowsSvchostCPUUsageTracker	MessageGroup	<Policy not in MP>	<Policy not in MP>
SI-MSWindowsSvchostMemoryUsageTracker	MemoryUsageHighWaterMark	<Policy not in MP>	<Policy not in MP>
SI-MSWindowsSvchostMemoryUsageTracker	MessageGroup	<Policy not in MP>	<Policy not in MP>
SI-NetworkUsageAndPerformance	MessageGroup	Bandwidth Utilization and Network lOPS	Message Classification
SI-NetworkUsageAndPerformance	NICBandwidthUtilMajorThreshold	Bandwidth Utilization and Network lOPS	Bandwidth Used (%)
SI-NetworkUsageAndPerformance	NICBandwidthUtilMinorThreshold		
SI-NetworkUsageAndPerformance	NICBandwidthUtilWarningThreshold		
SI-NetworkUsageAndPerformance	NICByteRateMajorThreshold	Bandwidth Utilization and Network lOPS	Avg Bytes Transferred Per Sec
SI-NetworkUsageAndPerformance	NICByteRateMinorThreshold		
SI-NetworkUsageAndPerformance	NICByteRateWarningThreshold		
SI-NetworkUsageAndPerformance	NICCollisionRatePctMajorThreshold	Resource Bottleneck Diagnosis	NIC Packet Collision Rate (%)
SI-NetworkUsageAndPerformance	NICCollisionRatePctMinorThreshold		
SI-NetworkUsageAndPerformance	NICCollisionRatePctWarningThreshold		
SI-NetworkUsageAndPerformance	NICErrPktRatePctMajorThreshold	Resource Bottleneck Diagnosis	NIC Packet Error Rate (%)
SI-NetworkUsageAndPerformance	NICErrPktRatePctMinorThreshold		
SI-NetworkUsageAndPerformance	NICErrPktRatePctWarningThreshold		
SI-NetworkUsageAndPerformance	NICOutBoundQueueLengthMajorThreshold	Bandwidth Utilization and Network lOPS	Outbound Queue Length
SI-NetworkUsageAndPerformance	NICOutBoundQueueLengthMinorThreshold		
SI-NetworkUsageAndPerformance	NICOutBoundQueueLengthWarningThreshold		
SI-PerCPUUtilization-AT_data	DebugLevel	<Not available>	<Not available>
SI-PerCPUUtilization-AT_data	MessageGroup	CPU Performance	Message Group
SI-PerDiskAvgServiceTime-AT	DebugLevel	<Not available>	<Not available>
SI-PerDiskAvgServiceTime-AT	MessageGroup	Resource Bottleneck Diagnosis	Message Group
SI-PerDiskUtilization-AT	DebugLevel	<Not available>	<Not available>
SI-PerDiskUtilization-AT	MessageGroup	Resource Bottleneck Diagnosis	Message Group
SI-PerNetifInbyteBaseline-AT	ByNetifInByteCutOff	<Not available>	<Not available>
SI-PerNetifInbyteBaseline-AT_data	DebugLevel	<Not available>	<Not available>
SI-PerNetifInbyteBaseline-AT_data	MessageGroup	Bandwidth Utilization and Network lOPS	Message Classification
SI-PerNetifOutbyteBaseline-AT_data	DebugLevel	<Not available>	<Not available>
SI-PerNetifOutbyteBaseline-AT_data	MessageGroup	Bandwidth Utilization and Network lOPS	Message Classification
SI-RunQueueLengthMonitor-AT_data	DebugLevel	<Not available>	<Not available>
SI-RunQueueLengthMonitor-AT_data	MessageGroup	CPU Performance	Message Group
SI-RunQueueLengthMonitor-AT	RunQueueLengthCutOff	<Not available>	<Not available>
SI-SIMAgentProcessMonitor_data	Debug	<Policy not in MP>	<Policy not in MP>
SI-SwapCapacityMonitor	FreeSwapSpaceAvailCriticalThreshold	Memory and Swap Utilization	Free Swap Space Available (in MBs)
SI-SwapCapacityMonitor	FreeSwapSpaceAvailMajorThreshold		
SI-SwapCapacityMonitor	FreeSwapSpaceAvailMinorThreshold		

SI-SwapCapacityMonitor	FreeSwapSpaceAvailWarningThreshold		
SI-SwapCapacityMonitor	SwapSpaceUtilCriticalThreshold	Memory and Swap Utilization	Swap Space Utilization (%)
SI-SwapCapacityMonitor	SwapSpaceUtilMajorThreshold		
SI-SwapCapacityMonitor	SwapSpaceUtilMinorThreshold		
SI-SwapCapacityMonitor	SwapSpaceUtilWarningThreshold		
SI-SwapUtilization-AT_data	DebugLevel	<Not available>	<Not available>
SI-SwapUtilization-AT_data	MessageGroup	Memory and Swap Utilization	Message Classification
SI-SwapUtilization-AT	SwapUtilCutOff	<Not available>	<Not available>

Virtualization SPI policy parameters

VISPI Policy Name	Policy Script parameter Name	Aspect	Parameter
VI-HPVMGuestCPUEntlUtilMonitor-AT	CPUEntlUtilCutOff	<Policy not in MP>	<Policy not in MP>
VI-HPVMGuestCPUEntlUtilMonitor-AT	Debug	<Policy not in MP>	<Policy not in MP>
VI-HPVMGuestCPUEntlUtilMonitor-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-HPVMHostCPUUtilMonitor	CPUUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-HPVMHostCPUUtilMonitor	CPUUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-HPVMHostCPUUtilMonitor	CPUUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-HPVMHostCPUUtilMonitor	CPUUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-HPVMHostCPUUtilMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-HPVMHostCPUUtilMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-HPVMStateMonitor	AlertOnPlannedOutage	<Policy not in MP>	<Policy not in MP>
VI-IBMFrameAndLPARStateMonitor	AlertOnPlannedOutage	IBM Power Guest Health	Alert On Planned Outage
VI-IBMFrameAndLPARStateMonitor	Debug	<Not available>	<Not available>
VI-IBMFrameAndLPARStateMonitor	MessageGroup	IBM Power Guest Health	Message Group
VI-IBMHMCDataCollector	Debug	<Policy not in MP>	<Policy not in MP>
VI-IBMHMCDataCollector	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-IBMLPARCpuEntlUtilMonitor-AT	CPUEntlUtilCutOff	<Not available>	<Not available>
VI-IBMLPARCpuEntlUtilMonitor-AT	Debug	<Not available>	<Not available>
VI-IBMLPARCpuEntlUtilMonitor-AT	MessageGroup	IBM Power Guest Performance	Message Group
VI-IBMLPARFrameCPUUtilMonitor	CPUUtilCriticalThreshold	IBM Power Host Health	Host CPU Utilization (%)
VI-IBMLPARFrameCPUUtilMonitor	CPUUtilMajorThreshold		
VI-IBMLPARFrameCPUUtilMonitor	CPUUtilMinorThreshold		
VI-IBMLPARFrameCPUUtilMonitor	CPUUtilWarningThreshold		
VI-IBMLPARFrameCPUUtilMonitor	Debug	<Not available>	<Not available>

VI-IBMLPARFrameCPUUtilMonitor	MessageGroup	IBM Power Host Health	
VI-IBMLPARFrameCPUUtilMonitor-AT	LPARFrameCPUUtilCutOff	<Not available>	<Not available>
VI-IBMLPARFrameCPUUtilMonitor-AT	Debug	<Not available>	<Not available>
VI-IBMLPARFrameCPUUtilMonitor-AT	MessageGroup	IBM Power Host Health	Message Group
VI-IBMLPARFrameMemoryUtilMonitor	MemUtilCriticalThreshold	IBM Power Host Health	Frame Memory Utilization (%)
VI-IBMLPARFrameMemoryUtilMonitor	MemUtilMajorThreshold		
VI-IBMLPARFrameMemoryUtilMonitor	MemUtilMinorThreshold		
VI-IBMLPARFrameMemoryUtilMonitor	MemUtilWarningThreshold		
VI-IBMLPARFrameMemoryUtilMonitor	Debug	<Not available>	<Not available>
VI-IBMLPARFrameMemoryUtilMonitor	MessageGroup	IBM Power Host Health	Message Group
VI-IBMLPARMemoryEntlUtilMonitor-AT	MEMEntlUtilCutOff	<Not available>	<Not available>
VI-IBMLPARMemoryEntlUtilMonitor-AT	Debug	<Not available>	<Not available>
VI-IBMLPARMemoryEntlUtilMonitor-AT	MessageGroup	IBM Power Guest Health	Message Group
VI-IBMWPARCpuEntlUtilMonitor-AT	CPUEntlUtilCutOff	<Policy not in MP>	<Policy not in MP>
VI-IBMWPARCpuEntlUtilMonitor-AT	Debug	<Not available>	<Not available>
VI-IBMWPARCpuEntlUtilMonitor-AT	MessageGroup	IBM Power Guest Performance	MessageGroup
VI-IBMWPARMemoryEntlUtilMonitor-AT	MEMEntlUtilCutOff	IBM Power Guest Performance	<Not available>
VI-IBMWPARMemoryEntlUtilMonitor-AT	Debug	<Not available>	<Not available>
VI-IBMWPARMemoryEntlUtilMonitor-AT	MessageGroup	IBM Power Guest Performance	Message Group
VI-IBMWPARStateMonitor	AlertOnPlannedOutage	IBM Power Guest Health	AlertOnPlannedOutage
VI-LinuxVirtDiskPhysByteRateBaseline-AT	DiskPhysbyteCutOff	KVM Guest Performance	<Not available>
VI-LinuxVirtDiskPhysByteRateBaseline-AT	DebugLevel	<Not available>	<Not available>
VI-LinuxVirtDiskPhysByteRateBaseline-AT	MessageGroup	KVM Guest Performance	Message Group
VI-LinuxVirtGuestCPUTotalUtilMonitor-AT	CPUTotUtilCutOff	KVM Guest Performance	<Not available>
VI-LinuxVirtGuestCPUTotalUtilMonitor-AT	Debug	<Not available>	<Not available>
VI-LinuxVirtGuestCPUTotalUtilMonitor-AT	MessageGroup	KVM Guest Performance	Message Group
VI-LinuxVirtGuestCPUUtilMonitor	VMCpuUtilMajorThreshold	KVM Guest Health	VM CPU Utilization (%)
VI-LinuxVirtGuestCPUUtilMonitor	VMCpuUtilMinorThreshold		
VI-LinuxVirtGuestCPUUtilMonitor	VMCpuUtilWarningThreshold		
VI-LinuxVirtGuestCPUUtilMonitor	Debuglevel	<Not available>	<Not available>
VI-LinuxVirtHostCPUUtilMonitor	CPUUtilCriticalThreshold	<Not available>	<Not available>
VI-LinuxVirtHostCPUUtilMonitor	CPUUtilMajorThreshold	KVM Host Health	Host CPU Utilization (%)
VI-LinuxVirtHostCPUUtilMonitor	CPUUtilMinorThreshold		
VI-LinuxVirtHostCPUUtilMonitor	CPUUtilWarningThreshold		
VI-LinuxVirtHostCPUUtilMonitor	Debug	<Not available>	<Not available>
VI-LinuxVirtHostCPUUtilMonitor	MessageGroup	KVM Host Health	Message Group
VI-LinuxVirtHostMemoryUtilMonitor	FreeMemAvailCriticalThreshold	<Not available>	<Not available>

VI-LinuxVirtHostMemoryUtilMonitor	FreeMemAvailMajorThreshold	KVM Host Health	Host Free Memory Available Thresholds (MB)
VI-LinuxVirtHostMemoryUtilMonitor	FreeMemAvailMinorThreshold		
VI-LinuxVirtHostMemoryUtilMonitor	FreeMemAvailWarningThreshold		
VI-LinuxVirtHostMemoryUtilMonitor	MemUtilCriticalThreshold	<Not available>	<Not available>
VI-LinuxVirtHostMemoryUtilMonitor	MemUtilMajorThreshold	KVM Host Health	Host Memory Utilzation (%)
VI-LinuxVirtHostMemoryUtilMonitor	MemUtilMinorThreshold		
VI-LinuxVirtHostMemoryUtilMonitor	MemUtilWarningThreshold		
VI-LinuxVirtHostMemoryUtilMonitor	Debug	<Not available>	<Not available>
VI-LinuxVirtHostMemoryUtilMonitor	MessageGroup	KVM Host Health	Message Group
VI-LinuxVirtNetByteRateBaseline-AT	NetbyteRateCutOff	KVM Guest Performance	UsePacketNumbers
VI-LinuxVirtNetByteRateBaseline-AT	DebugLevel	<Not available>	<Not available>
VI-LinuxVirtNetByteRateBaseline-AT	MessageGroup	KVM Guest Performance	Message Group
VI-LinuxVirtStateMonitor	AlertOnPlannedOutage	KVM Guest Health	AlertOnPlannedOutage
VI-LinuxVirtVMMemoryPerformanceMonitor	VMMemUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-LinuxVirtVMMemoryPerformanceMonitor	VMMemUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-LinuxVirtVMMemoryPerformanceMonitor	VMMemUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-LinuxVirtVMMemoryPerformanceMonitor	VMSwapOutMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-LinuxVirtVMMemoryPerformanceMonitor	VMSwapOutMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-LinuxVirtVMMemoryPerformanceMonitor	VMSwapOutWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-LinuxVirtVMMemoryPerformanceMonitor	Debuglevel	<Policy not in MP>	<Policy not in MP>
VI-LinuxVirtVMMemoryUsage-AT	DebugLevel	<Policy not in MP>	<Policy not in MP>
VI-LinuxVirtVMMemoryUsage-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-MSHyperVGuestCPUEntlUtilMonitor-AT	CPUEntlUtilCutOff	<Policy not in MP>	<Policy not in MP>
VI-MSHyperVGuestCPUEntlUtilMonitor-AT	Debug	<Policy not in MP>	<Policy not in MP>
VI-MSHyperVGuestCPUEntlUtilMonitor-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-MSHyperVHostCPUUtilMonitor	CPUUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-MSHyperVHostCPUUtilMonitor	CPUUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-MSHyperVHostCPUUtilMonitor	CPUUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-MSHyperVHostCPUUtilMonitor	CPUUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-MSHyperVHostCPUUtilMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-MSHyperVHostCPUUtilMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>

VI-MSHyperVStateMonitor	AlertOnPlannedOutage	<Policy not in MP>	<Policy not in MP>
VI-OracleSolarisHostCPUUtilMonitor	CPUUtilCriticalThreshold	<Not available>	<Not available>
VI-OracleSolarisHostCPUUtilMonitor	CPUUtilMajorThreshold	Oracle Solaris Host Health	Host CPU Utilization (%)
VI-OracleSolarisHostCPUUtilMonitor	CPUUtilMinorThreshold		
VI-OracleSolarisHostCPUUtilMonitor	CPUUtilWarningThreshold		
VI-OracleSolarisHostCPUUtilMonitor	Debug	<Not available>	<Not available>
VI-OracleSolarisHostCPUUtilMonitor	MessageGroup	Oracle Solaris Host Health	Message Group
VI-OracleSolarisHostMemoryUtilMonitor	FreeMemAvailCriticalThreshold	<Not available>	<Not available>
VI-OracleSolarisHostMemoryUtilMonitor	FreeMemAvailMajorThreshold	Oracle Solaris Host Health	Host Free Memory Available Thresholds (MB)
VI-OracleSolarisHostMemoryUtilMonitor	FreeMemAvailMinorThreshold		
VI-OracleSolarisHostMemoryUtilMonitor	FreeMemAvailWarningThreshold		
VI-OracleSolarisHostMemoryUtilMonitor	MemUtilCriticalThreshold	<Not available>	<Not available>
VI-OracleSolarisHostMemoryUtilMonitor	MemUtilMajorThreshold	Oracle Solaris Host Health	Host Memory Utilzation (%)
VI-OracleSolarisHostMemoryUtilMonitor	MemUtilMinorThreshold		
VI-OracleSolarisHostMemoryUtilMonitor	MemUtilWarningThreshold		
VI-OracleSolarisHostMemoryUtilMonitor	Debug	<Not available>	<Not available>
VI-OracleSolarisHostMemoryUtilMonitor	MessageGroup	Oracle Solaris Host Health	Message Group
VI-OracleSolarisMemoryEntlUtilMonitor-AT	MEMEntlUtilCutOff	<Not available>	<Not available>
VI-OracleSolarisMemoryEntlUtilMonitor-AT	Debug	<Not available>	<Not available>
VI-OracleSolarisMemoryEntlUtilMonitor-AT	MessageGroup	Oracle Solaris Guest Performance	Message Group
VI-OracleSolarisStateMonitor	AlertOnPlannedOutage	Oracle Solaris Guest Health	Alert On Planned Outage
VI-OracleSolarisZoneCPUEntlUtilMonitor-AT	CPUEntlUtilCutOff	<Not available>	<Not available>
VI-OracleSolarisZoneCPUEntlUtilMonitor-AT	Debug	<Not available>	<Not available>
VI-OracleSolarisZoneCPUEntlUtilMonitor-AT	MessageGroup	Oracle Solaris Guest Performance	Message Group
VI-OracleSolarisZoneSwapUtilMonitor-AT	BaselinePeriod	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	DataMetric	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	DataObject	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	DataSource	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	InstanceSource	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MajorDeviations	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MajorHighSeverity	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MajorLowSeverity	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MaximumValue	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MessageApplication	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MinimumValue	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MinorDeviations	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MinorHighSeverity	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MinorLowSeverity	<Not available>	<Not available>

VI-OracleSolarisZoneSwapUtilMonitor-AT	SwapUtilCutOff	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	WarningDeviations	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	WarningHighSeverity	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	WarningLowSeverity	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	DebugLevel	<Not available>	<Not available>
VI-OracleSolarisZoneSwapUtilMonitor-AT	MessageGroup	Oracle Solaris Guest Performance	Message Group
VI-PerfAgentProcessMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMFSReadLatencyMonitor	ReadLatencyCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMFSReadLatencyMonitor	ReadLatencyMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMFSReadLatencyMonitor	ReadLatencyMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMFSReadLatencyMonitor	ReadLatencyWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMFSReadLatencyMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMFSWriteLatencyMonitor	WriteLatencyCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMFSWriteLatencyMonitor	WriteLatencyMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMFSWriteLatencyMonitor	WriteLatencyMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMFSWriteLatencyMonitor	WriteLatencyWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMFSWriteLatencyMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCCPUUtilMonitor	DCCPUUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCCPUUtilMonitor	DCCPUUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCCPUUtilMonitor	DCCPUUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCCPUUtilMonitor	DCCPUUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCCPUUtilMonitor	Debuglevel	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCDataStoreUtilMonitor	DCDataStoreUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCDataStoreUtilMonitor	DCDataStoreUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCDataStoreUtilMonitor	DCDataStoreUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCDataStoreUtilMonitor	DCDataStoreUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCDataStoreUtilMonitor	Debuglevel	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCMemoryUtilMonitor	DCMemoryUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCMemoryUtilMonitor	DCMemoryUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCMemoryUtilMonitor	DCMemoryUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>

VI-VMwareDCMemoryUtilMonitor	DCMemoryUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDCMemoryUtilMonitor	Debuglevel	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskErrorMonitor	DiskBusResetCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskErrorMonitor	DiskBusResetMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskErrorMonitor	DiskBusResetMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskErrorMonitor	DiskBusResetWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskErrorMonitor	DiskCommandsAbortedCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskErrorMonitor	DiskCommandsAbortedMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskErrorMonitor	DiskCommandsAbortedMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskErrorMonitor	DiskCommandsAbortedWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskErrorMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskThroughputMonitor	DiskReadThroughputCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskThroughputMonitor	DiskReadThroughputMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskThroughputMonitor	DiskReadThroughputMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskThroughputMonitor	DiskReadThroughputWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskThroughputMonitor	DiskWriteThroughputCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskThroughputMonitor	DiskWriteThroughputMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskThroughputMonitor	DiskWriteThroughputMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskThroughputMonitor	DiskWriteThroughputWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareDiskThroughputMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareEventMonitor	EventSource	<Policy not in MP>	<Policy not in MP>
VI-VMwareEventMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareEventMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMWareGuestCPUEntlUtilMonitor-AT	CPUEntlUtilCutOff	<Policy not in MP>	<Policy not in MP>
VI-VMWareGuestCPUEntlUtilMonitor-AT	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMWareGuestCPUEntlUtilMonitor-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostChassisHealthMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostChassisHealthMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>

VI-VMwareHostDiskUtilization-AT	DebugLevel	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostDiskUtilization-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostEthernetPortHealthMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostEthernetPortHealthMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostFanHealthMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostFanHealthMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostMemoryHealthMonitor	HostMemUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostMemoryHealthMonitor	HostMemUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostMemoryHealthMonitor	HostMemUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostMemoryHealthMonitor	UseMemoryHealthMetric	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	NICByteRateCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	NICByteRateMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	NICByteRateMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	NICByteRateWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	NICPktRateCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	NICPktRateMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	NICPktRateMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	NICPktRateWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	UsePktInfo	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostNICMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostPhysicalMemoryHealthMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostPhysicalMemoryHealthMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostProcessorHealthMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostProcessorHealthMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsCPUUtilMonitor	HostsCpuUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsCPUUtilMonitor	HostsCpuUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsCPUUtilMonitor	HostsCpuUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsCPUUtilMonitor	HostsCpuUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>

VI-VMwareHostsCPUUtilMonitor	MessageApplication	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsCPUUtilMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsCPUUtilMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsCPUUtilMonitor-AT	HostCPUUtilCutOff	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsCPUUtilMonitor-AT	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsCPUUtilMonitor-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostSensorHealthMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostSensorHealthMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsMemoryUtilMonitor-AT	HostMemUtilCutOff	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsMemoryUtilMonitor-AT	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareHostsMemoryUtilMonitor-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareNetifInbyteBaseline-AT	NetifInbyteCutOff	<Policy not in MP>	<Policy not in MP>
VI-VMwareNetifInbyteBaseline-AT	DebugLevel	<Policy not in MP>	<Policy not in MP>
VI-VMwareNetifInbyteBaseline-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareNetifOutbyteBaseline-AT	NetifOutbyteCutOff	<Policy not in MP>	<Policy not in MP>
VI-VMwareNetifOutbyteBaseline-AT	DebugLevel	<Policy not in MP>	<Policy not in MP>
VI-VMwareNetifOutbyteBaseline-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMWareStateMonitor	AlertOnPlannedOutage	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	CPUReadyTimeCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	CPUReadyTimeMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	CPUReadyTimeMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	CPUReadyTimeWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	CPUUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	CPUUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	CPUUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	CPUUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMCPUUtilMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>

VI-VMwareTotalVMMemoryUtilMonitor	MemUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMMemoryUtilMonitor	MemUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMMemoryUtilMonitor	MemUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMMemoryUtilMonitor	MemUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMMemoryUtilMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareTotalVMMemoryUtilMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareVCDatastoreSpaceUtilizationMonitor	DatastoreUtilCriticalThreshold	<Not available>	<Not available>
VI-VMwareVCDatastoreSpaceUtilizationMonitor	DatastoreUtilMajorThreshold	Vmware DataStore Performance	Data Store Utilzation (%)
VI-VMwareVCDatastoreSpaceUtilizationMonitor	DatastoreUtilMinorThreshold		
VI-VMwareVCDatastoreSpaceUtilizationMonitor	DatastoreUtilWarningThreshold		
VI-VMwareVCDatastoreSpaceUtilizationMonitor	MessageApplication	<Not available>	<Not available>
VI-VMwareVCDatastoreSpaceUtilizationMonitor	Debug	<Not available>	<Not available>
VI-VMwareVCDatastoreSpaceUtilizationMonitor	MessageGroup	Vmware DataStore Performance	Message Group
VI-VMwareVCEventMonitor	EventSource	<Not available>	<Not available>
VI-VMwareVCEventMonitor	Debug	<Not available>	<Not available>
VI-VMwareVCEventMonitor	MessageGroup	Vmware vSphere Events	Message Group
VI-VMwareVCGuestLatencyMonitor	DiskReadLatencyCriticalThreshold	<Not available>	<Not available>
VI-VMwareVCGuestLatencyMonitor	DiskReadLatencyMajorThreshold	Vmware Guest Health	Disk Read Latency for a Guest
VI-VMwareVCGuestLatencyMonitor	DiskReadLatencyMinorThreshold		
VI-VMwareVCGuestLatencyMonitor	DiskReadLatencyWarningThreshold		
VI-VMwareVCGuestLatencyMonitor	DiskWriteLatencyCriticalThreshold	<Not available>	<Not available>
VI-VMwareVCGuestLatencyMonitor	DiskWriteLatencyMajorThreshold	Vmware Guest Health	Disk Write Latency for a Guest
VI-VMwareVCGuestLatencyMonitor	DiskWriteLatencyMinorThreshold		
VI-VMwareVCGuestLatencyMonitor	DiskWriteLatencyWarningThreshold		
VI-VMwareVCGuestLatencyMonitor	MessageApplication	<Not available>	<Not available>
VI-VMwareVCGuestLatencyMonitor	Debug	<Not available>	<Not available>
VI-VMwareVCGuestLatencyMonitor	MessageGroup	Vmware Guest Health	Message Group
VI-VMWareVCGuestStateMonitor	AlertOnPlannedOutage	Vmware Guest Health	Alert On Planned Outage
VI-VMwareVCHostCPUSaturationMonitor	HighCPUReadyVMCountPercentThreshold	<Not available>	<Not available>
VI-VMwareVCHostCPUSaturationMonitor	HighCPUUtilVMCountPercentThreshold	<Not available>	<Not available>
VI-VMwareVCHostCPUSaturationMonitor	HostCpuUtilCriticalThreshold	<Not available>	<Not available>
VI-VMwareVCHostCPUSaturationMonitor	HostCpuUtilMajorThreshold	Vmware Host Health	Host CPU Utilization (%)
VI-VMwareVCHostCPUSaturationMonitor	HostCpuUtilMinorThreshold		

VI-VMwareVCHostCPUSaturationMonitor	HostCpuUtilWarningThreshold		
VI-VMwareVCHostCPUSaturationMonitor	MessageApplication	<Not available>	<Not available>
VI-VMwareVCHostCPUSaturationMonitor	VMCPUReadyPercentThreshold	Vmware Host Health	VM CPU Ready Utilization (%)
VI-VMwareVCHostCPUSaturationMonitor	VMCPUUtilMaxThreshold	<Not available>	<Not available>
VI-VMwareVCHostCPUSaturationMonitor	VMCPUUtilMinThreshold	<Not available>	<Not available>
VI-VMwareVCHostCPUSaturationMonitor	Debug	<Not available>	<Not available>
VI-VMwareVCHostCPUSaturationMonitor	MessageGroup	Vmware Host Health	Message Group
VI-VMwareVCHostCPUUtilMonitor	HostCpuUtilCriticalThreshold	<Not available>	<Not available>
VI-VMwareVCHostCPUUtilMonitor	HostCpuUtilMajorThreshold	Vmware Host Health	Host CPU Utilization (%)
VI-VMwareVCHostCPUUtilMonitor	HostCpuUtilMinorThreshold		
VI-VMwareVCHostCPUUtilMonitor	HostCpuUtilWarningThreshold		
VI-VMwareVCHostCPUUtilMonitor	MessageApplication	<Not available>	<Not available>
VI-VMwareVCHostCPUUtilMonitor	Debug	<Not available>	<Not available>
VI-VMwareVCHostCPUUtilMonitor	MessageGroup	Vmware Host Health	Message Group
VI-VMwareVCHostMemUtilMonitor	BalloonUtilAndSwapUtilCheck	Vmware Host Health	Balloon and Swap Utilzation -Flag
VI-VMwareVCHostMemUtilMonitor	HighMemBalloonUtilVMCountPercentThreshold	<Not available>	<Not available>
VI-VMwareVCHostMemUtilMonitor	HighMemSwapUtilVMCountPercentThreshold	<Not available>	<Not available>
VI-VMwareVCHostMemUtilMonitor	HostMemUtilCriticalThreshold	<Not available>	<Not available>
VI-VMwareVCHostMemUtilMonitor	HostMemUtilMajorThreshold	Vmware Host Health	Host Memory Utilzation (%)
VI-VMwareVCHostMemUtilMonitor	HostMemUtilMinorThreshold		
VI-VMwareVCHostMemUtilMonitor	HostMemUtilWarningThreshold		
VI-VMwareVCHostMemUtilMonitor	MemOverCommitmentThreshold	<Not available>	<Not available>
VI-VMwareVCHostMemUtilMonitor	MessageApplication	<Not available>	<Not available>
VI-VMwareVCHostMemUtilMonitor	VMMemBalloonUtilThreshold	<Not available>	<Not available>
VI-VMwareVCHostMemUtilMonitor	VMMemSwapUtilThreshold	<Not available>	<Not available>
VI-VMwareVCHostMemUtilMonitor	Debug	<Not available>	<Not available>
VI-VMwareVCHostMemUtilMonitor	MessageGroup	Vmware Host Health	Message Group
VI-VMwareVifpTargetCheck	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareVifpTargetCheck	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMCPUUtilMonitor	VMCpuUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMCPUUtilMonitor	VMCpuUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMCPUUtilMonitor	VMCpuUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMCPUUtilMonitor	Debuglevel	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMFSDataCollector	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMFSDataCollector	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMFSUtilizationMonitor	SpaceUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>

VI-VMwareVMFSUtilizationMonitor	SpaceUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMFSUtilizationMonitor	SpaceUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMFSUtilizationMonitor	SpaceUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMFSUtilizationMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryPerformanceMonitor	VMMemUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryPerformanceMonitor	VMMemUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryPerformanceMonitor	VMMemUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryPerformanceMonitor	VMSwapOutMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryPerformanceMonitor	VMSwapOutMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryPerformanceMonitor	VMSwapOutWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryPerformanceMonitor	Debuglevel	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUsage-AT	DebugLevel	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUsage-AT	MessageGroup	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	MessageApplication	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	VMMemUtilCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	VMMemUtilMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	VMMemUtilMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	VMMemUtilWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	VMSwapOutCriticalThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	VMSwapOutMajorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	VMSwapOutMinorThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	VMSwapOutWarningThreshold	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	Debug	<Policy not in MP>	<Policy not in MP>
VI-VMwareVMMemoryUtilMonitor	MessageGroup	<Policy not in MP>	<Policy not in MP>

Useful resources

- OMi try-now webpage

  http://www8.hp.com/us/en/software-solutions/operations-manager-i-operations-management/try-now.html

- My software updates

  https://h20575.www2.hpe.com/usbportal/softwareupdate.do

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