HP OpenView Smart Plug-In for OpenCall Service Controller

User's Guide

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Preface

This guide provides an overview of the HP OpenView Smart Plug-In for the OpenCall Service Controller. In addition to background information including an architecture overview, it gives usage guidelines and troubleshooting information.

About this Guide

Purpose

The purpose of this guide is to introduce the HP OpenView Smart Plug-In for OpenCall Service Controller. It also contains some guidelines on using and troubleshooting the HP OpenView Smart Plug-In.

Contents and Structure

The contents and structure of this guide are as follows:

Overview	Gives an overview of the OCSC SPI architecture and defines the different terminology used by HP OpenCall and HP OpenView.
Usage Guidelines for OCSC SPI	Gives instructions for operating the OCSC SPI.
Troubleshooting	Provides some troubleshooting hints for using HP OpenView in an HP OpenCall environment.
Reference Information	Contains reference information for the OCSC SPI.
Glossary and Acronyms	Defines some terms and acronyms.

Associated Documentation

The following documents are essential to complement the information given in this User's Guide:

- *HP OpenView Operations Concepts Guide*
- *HP OpenView Operations for UNIX Java GUI Operator's Guide*
- *HP OpenView Smart Plug-In for UNIX Operating Systems Installation Guide*
- *HP OpenView Smart Plug-In for UNIX Operating Systems Administrator's Reference*
- *HP OpenView Smart Plug-Ins for Databases User's Guide*
- *HP OpenCall IN Service Platform Monitoring with SNMP For Release 4.x*
- *HP OpenCall INP Event2Trap extensions User's Guide For SEP 4.x*
- *HP OpenCall Service Controller Monitoring with SNMP (For release 5.x)*

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1. Overview

The HP OpenCall Service Controller Platform (OCSC) provides the ability to create, execute, manage and support network elements and service types on a single platform. It is an integrated, standards-based platform, designed to ensure that services are available to reach the highest levels of subscriber satisfaction and revenue.

Platform Elements

The OCSC platform consists of the following elements:

- hardware for interfacing to the SS7 signaling network
- firmware
- software

They are used together to provide both full, highly available SS7 network connectivity and an environment for service development, execution and management.

The platform also contains software to manage and monitor the platform as an integrated telecommunications node.

OCSC components

The HP OpenCall Intelligent Network (IN) solution includes a Service Execution Platform (SEP) and a Service Management Platform (SMP).

SEP

Using the SEP, you can introduce, execute, control and manage customer-built voice and data services quickly, efficiently, and economically within an Intelligent Network (IN). The SEP consists of the following:

- an environment in which service applications run
- a customer information database used by the services
- an SS7 stack connected to the IN

In the SEP, High Availability is provided by the duplication of essential hardware and software components. An HA SEP consists of two computers, one active computer and one standby computer, that are connected by a duplex LAN. The standby computer is a copy of the active computer. All SEP software processes are duplicated on the standby system. The SEP stores subscriber and service-related information in its replicated, high-performance in-memory database. The services, which run on the SEP, can read and update this information. All changes are replicated in the standby processor. A published management Application Programming Interface (API) is used so that the SMP can access the SEP database. This API is also available for customers who want develop specialized service management.

The SEP is connected to the SS7 network by the Telecom Signaling Unit (TSU) and Telecom Signaling Cards (TSCs). The TSU is an external hardware unit with slots for TSCs. TSUs are connected to the SEP hosts via dedicated LAN connections. Each duplex SEP is locally managed by a Node Management workstation (NM). This provides the GUI for starting, stopping and monitoring the status of the SEP and the local SS7 stack.

SMP

A single, central Service Management Point can synchronize and manage subscriber data through an industry standard SQL-interface, even when the SEPs are geographically distributed. A centralized SMP allows user-developed subscriber management applications to access the subscriber information easily and cost-effectively. HP MC/ServiceGuard provides high availability protection, which also applies to any user developed service management or provisioning applications running on the platform.

The SMP maintains its subscriber and service related data in an Oracle database.

Every time the Oracle database is modified, the SMP automatically converts and propagates the modification to the SEP database. In the same way, a modification in an SEP database is automatically propagated and converted to the SMP database.

Fault Tolerant Controller (FTC)

The Fault Tolerant Controller (FTC) coordinates the high availability of various key components of the SEP. It starts and stops platform processes and handles switchovers. There is one FTC for each host in the SEP. The FTC uses heartbeat mechanisms to monitor and control the high availability duplicated processes running on the active and

standby hosts in the platform. In case of failure, it restores the service by switching to the standby processes.

The FTC object monitors the heartbeat process that exists between the active and standby hosts and manages the high availability processes of the SS7 platform. A single instance of the FTC runs on the platform. It manages its own cluster of processes, and is represented in the MIB by FTProcess objects. On a duplex platform, each instance of the FTC communicates with its equivalent instance on the peer host.

SLP Service Logic Program Objects

SLP objects reflect all services installed on the SEP. The SlpVersion object represents the service version. Only one version of a service can be active at one time. When a message is received from the SS7 stack by the SLEE, a specific instance of the appropriate version executes it.

SLEE Service Logic Execution Environment Instances

The SLEE instances is one of the core processes of the SEP. The SLEE processes provide the environment and resources for the execution of Service Logic Programs (SLPs). They execute service instances in response to service requests. Each SLEE instance allows an SLP to process and generate transaction messages, access the SEP database and communicate with external devices, such as intelligent peripherals or external database.

HP OpenView Operations

HP OpenView Operations (OVO) provides a central management console (integrated NOC) with a business-driven approach to achieving rapid control of services. It is a management solution that monitors, controls and reports the health of the infrastructure across boundaries, thereby improving the uptime of all layers that make up the service provider environment: the network, systems, databases, applications, services and the Internet.

Independent intelligent agents provide secure and reliable communication mechanisms, advanced local filtering and corrective actions for truly proactive management. Flexible management concepts allow the definition of sophisticated management hierarchies and a powerful role-based user concept supports scaling to any size. HP OpenView Operations manages mission-critical environments with tens of thousands of elements.

HP OpenView Service Navigator

With HP OpenView Service Navigator (SN), all components of today's complex IT environments, including network elements, computer systems, databases, applications and their dependencies, are brought into the context of the overall business and displayed in graphical service views. With these service views, critical business services are viewed first. Whenever a problem is detected, the user can drill down to the elements of the service causing the problem.

Views can be based on organization, geography, business application logic, or any other categorization. This allows the view of the environment to be tailored to the specific needs of executives, business managers, IT managers and operators.

Further information on both products is available on the HP web site:

http://www.openview.hp.com/products/operations

http://www.openview.hp.com/products/servicenavigator

Architecture of OCSC SPI

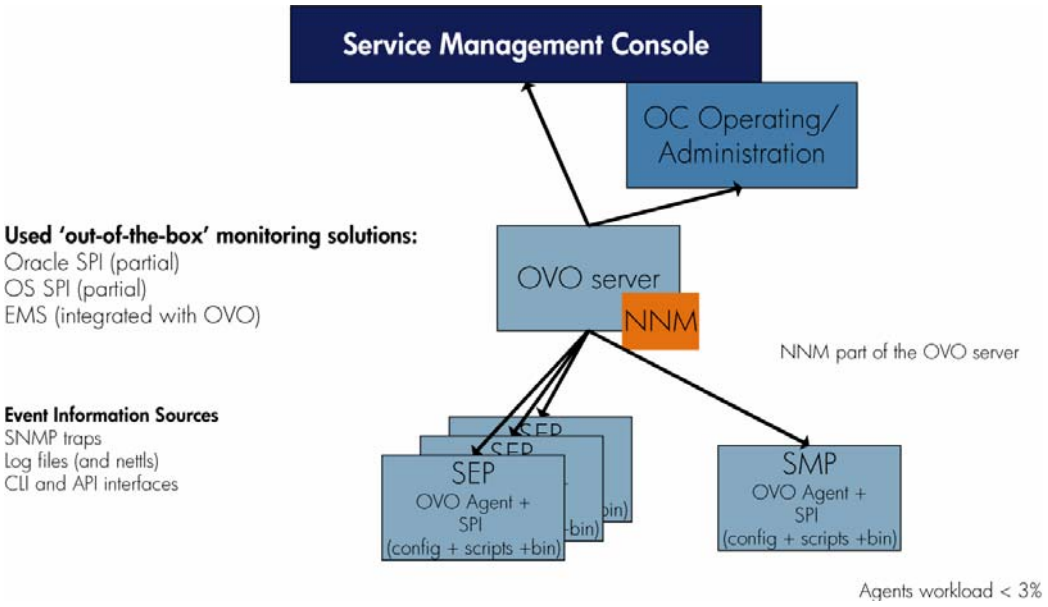
The key feature of the way in which OCSC integrates into OVO is that the OVO Agent is installed on all systems managed by OVO. HP OVO monitors the status of the systems of the HP OpenCall Service Controller infrastructure described below.

- Service Execution Platform (SEP)
- On the SEP, the OCSC SPI monitors three core areas: HP-UX, hardware and SEP specific metrics.
- Service Management Platform (SMP)
- On the SMP the OCSC SPI monitors four core areas: Oracle, HP-UX, Hardware and SMP specific metrics.

NOTE The Oracle SPI is a separate product that is NOT included in the OCSC SPI bundle

Figure 1 shows a high level view of the OCSC SPI architecture.

Figure 1 OCSC SPI Architecture Overview

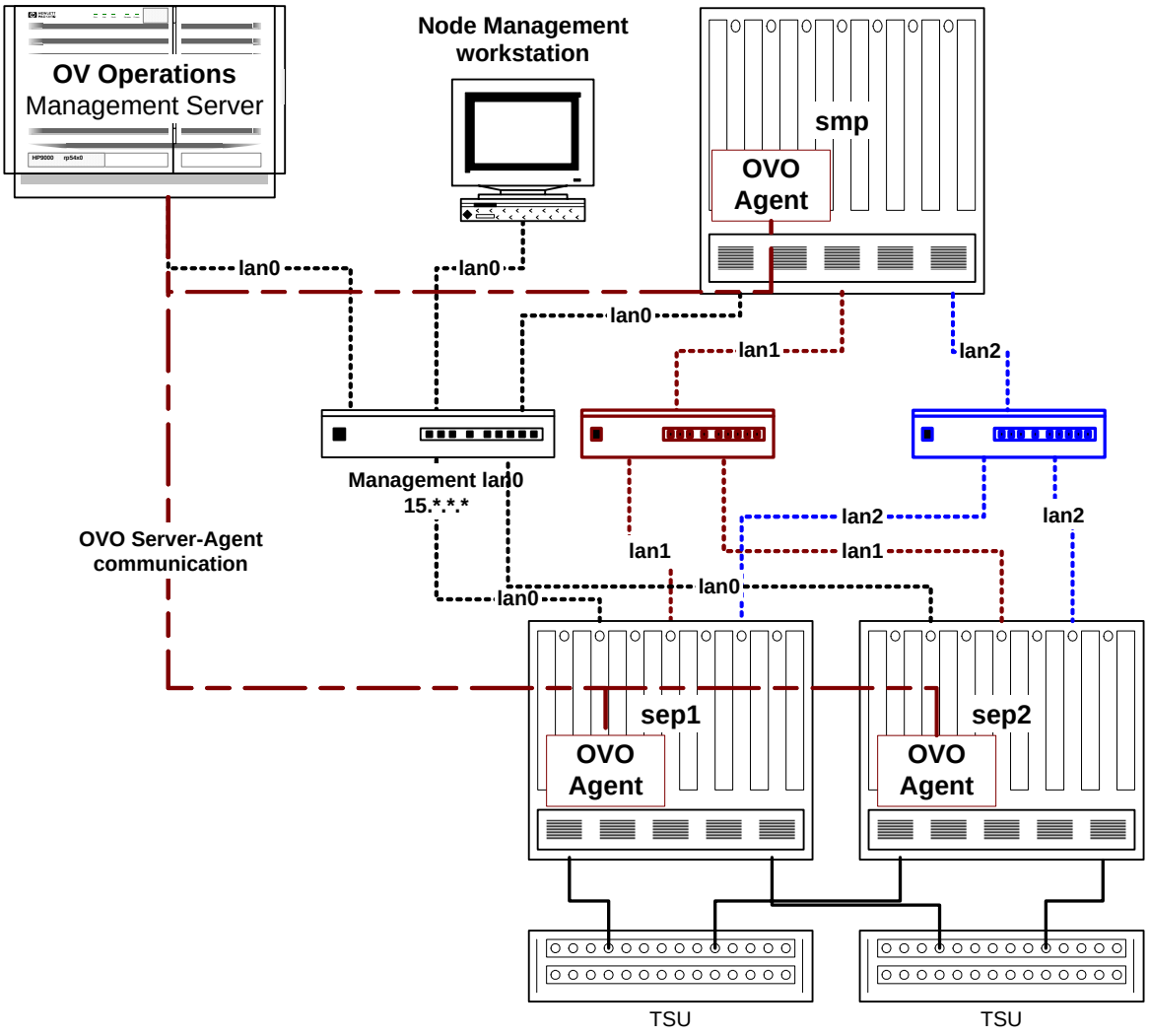


OVO Setup

The OVO Agent must be installed and configured on all OCSC related servers managed by HP OpenView Operations. The OVO Server must be connected to the OVO Agents so it can configure the agents and receive incidents. The network used for this is the OCSC Management Network, labeled as lan0 in Figure 2.

The HP OpenView Operations Management Server can be either a dedicated Server for the OCSC environment or a system already monitoring other HP-UX or NT servers.

Figure 2 OVO Setup



Severities

For the OCSC operation the OVO Severity is defined from a usage perspective.

Critical:
System is non-functional with high impact on operations. The operator must act immediately.

Major:
System partially usable with medium impact on operations, or a Priority 1 fault to which a temporary workaround has been applied. The operator must check within a specified time.

Minor:
Minor problem with very low impact on operations. System or Server is UP, but has problems. The operator must check within a long time period.

Warning:
System or Server is UP. The operator should check whether any problems exist, and pay attention to frequent warnings.

Normal:
System or Server is UP. These messages are only for information.

Unknown:
This type of message should not occur. The OVO Administrator should be informed in order to correct this behavior.

2. Usage Guidelines for OCSC SPI

In addition to the usage guidelines given here, which are specific to the OCSC SPI, you must observe the general usage guidelines for HP OpenView Operations. Refer to the *HP OpenView Operations Concepts Guide*.

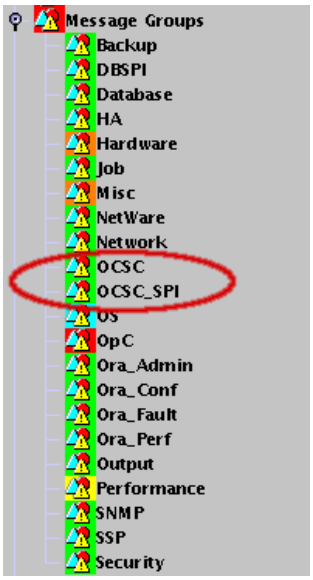
Message Groups

The OCSC SPI installs two additional OVO Message Groups:

- OCSC: This Message Group is used for OCSC related messages.
- OCSC_SPI: This Message Group is used for messages that relate to SPI internal messages. The main audience of this Message Group is the OVO Administrator.

Both Message Groups are shown in Figure 3.

Figure 3 **OCSC SPI Message Groups**



OCSC SPI users also use the following Message Groups from OS and Database SPI:

- Hardware
- HA (for High Availability)
- OS
- Performance
- Ora_Admin
- Ora:Conf
- Ora_Fault
- Ora_Perf

Applications

The OCSC SPI installs the following Application Groups and Applications:

- OCSC Oper: This Application Group is for OCSC Operators and Administrators.

  SEP Platform Monitor

  SEP Event Display

- OCSC Admin: This Application Group is for OCSC Administrators only.

  SEP scpmgr

  SEP Start

  SEP Stop

  SEP MIB Browser

  SS7 Monitor

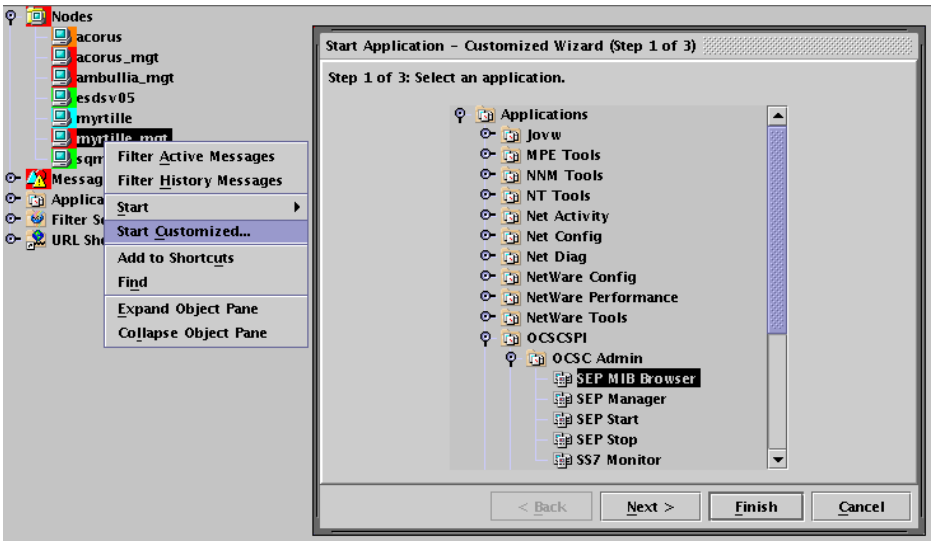
Each application starts the appropriated OCSC application. Both Application Groups are shown in Figure 4.

Figure 4 **OCSC SPI Application Groups**

NOTE To start an application, select the node and use the context sensitive menu of the right mouse button. Choose Start Customized to select the appropriate Application. Follow the instructions in the Application Wizard to launch the application.

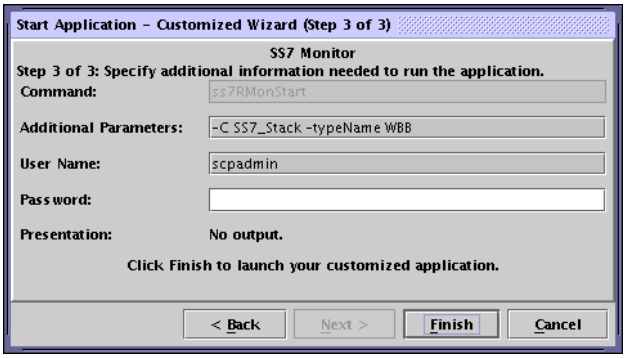
Figure 5 illustrates how to launch an OCSC application from the OVO Java GUI.

Figure 5 **OCSC SPI Application Call**



The application *Start SS7 Monitor must* be called with *Customized Startup*, because the platform dependent parameter *typeName* is missing. The following figure illustrates how to call the application with the *Customized Startup Wizard*. Enter the parameter –typeName WBB in the *Additional Parameters* field.

Figure 6 **OCSC SPI Customized Startup of *Start SS7 Monitor***



For further information on starting OVO Applications using the Java GUI, refer to the *HP OpenView Operations for UNIX Java GUI Operator's Guide*.

Changing the OCSC SPI configuration

NOTE Do not modify the OCSC SPI monitoring configuration. The configuration, defined by the OCSC SPI has been tested to ensure the stability of the Services running on the OCSC platform.

The configuration defined by the OCSC SPI has been tested to ensure the stability of the Services running on the OCSC Platform. Therefore it is only possible to make the following changes to the default configuration:

- Change message severity (OVO conditions).
- Add Oracle Monitors (External Monitors) to those collected by the default configuration.
- Add EMS metrics.
- Disable and enable OVO templates that are part of the default OCSC SPI (listed in this document).
- No other changes to the OCSC SPI are supported.
- The current OCSC SPI does not include the following functionality:
- Monitoring of the MC/ServiceGuard on SMP duplex platforms.
- SNMP trap integration of SMP.
- Monitoring disk mirroring status of SEP duplex platforms.

SEP SNMP Trap Configuration

Before making any changes to the SNMP Trap configuration of the OCSC SEP consult the following documents:

- *HP OpenCall IN Service Platform Monitoring with SNMP For Release 4.x*
- *HP OpenCall INP Event2Trap extensions User Guide For SEP 4.x*
- *HP OpenCall Service Controller Monitoring with SNMP (For release 5.x)*

Testing SNMP Trap Configuration

To test SNMP integration, do the following:

- Start the SEP `mibbrower`. Change the variable *slpEnable* within the mib-path *Root.Systems.[sysId].Slee.Slps.[serviceId].[versionId]* to *SLP_DISNABLE* or *SLP_ENABLE*.
- Check whether the generated event occurs within the SEP Event Browser.
- Check whether the generated event is visible in the OVO Message Browser.

  If the event is not visible from the SEP Event Browser, enable the logging the Event2Trap Extensions:

- Add the necessary mask values to /etc/opt/HP-AIN/config/debug.conf. The correct values for the masks can be found in *HP OpenCall INP Event2Trap extensions User Guide For SEP 4.x*
- Start the *trace & logs* screen from the *SEP Manager* menu to check for events.

  If no events appear in the OVO Message Browser, enable local logging of OVO for the OCSC Trap template
- Enable local logging for the trap template *OCSC-SEP-Traps-4.2*. In the *Options* Menu, check all three items for *Local Logging*.
- Redistribute the OVO templates.
- Check the file `/var/opt/OV/log/OpC/opcmsgl` for incoming traps.
- If no traps are received by the OV, check the OVO Agent and OCSC SNMP configuration. See Common Problems.

3. Troubleshooting

This chapter provides information for HP OpenCall administrators using HP OpenView Operations.

Stopping OVO Agents

In some situations, you might want to stop all HP OpenView Operations Agent processes. To do so, execute the following statement on the relevant HP OpenCall system:

```
/opt/OV/bin/OpC/opcagt –kill
```

To check that all processes have stopped, run the following commands:

```
ps -ef | grep opc
ps -ef | grep coda
ps -ef | grep llbserver
```

If there are any processes left, kill them using the kill –9 command.

Starting OVO Agents

Before you start the OVO Agent, especially after an ungraceful shutdown, check that all processes are stopped using the following commands:

```
ps -ef | grep opc
ps -ef | grep coda
ps -ef | grep llbserver
```

If there are any processes left from previous sessions, kill them using the kill –9 command.

Start the Agent using:

```
/opt/OV/bin/OpC/opcagt –start
```

To check whether the agent is running, use the following command:

```
/opt/OV/bin/OpC/opcagt –status
```

After an ungraceful shutdown, the agent may not start properly. If this happens, stop all processes, and remove all files from the following directory:

```
/var/opt/OV/tmp/OpC/*
```

Start the agent as described above.

Testing OVO Communication

To test agent server communication, do the following steps:

Step 1. Send an OVO message from the command line using `opcmsg`. For example:

```
/opt/OV/bin/OpC/opcmsg a=a o=o msg_t="Test Message"
```

NOTE For this test you need an active template on the running node. You can assign and distribute the OVO default template '`opcmsg (1|3)`' to the node to test the communication.

Step 2. Launch any OVO application (for example, Broadcast) on the relevant node.

Common Problems

Problem	Symptom	Reasons	Solution
SLEE process monitoring contains errors	Process monitoring for SLEE instances fails	Switching between ITU and ANSI.	Change the local OS SPI process-monitoring configuration and change the name of the process to be monitored.
OVO Template distribution failed	Message browser indicates that the template has not been distributed	Control agent is not in the run state.	Restart the control agent using the command: /opt/OV/bin/OpC/opcagt –restart
Cannot start OCSC Applications through OVO Java GUI.	You cannot start OCSC applications from the OVO Java GUI running on a Windows platform.	Invalid DISPLAY variable during Java GUI startup. X Server not running on display client	Check the display variable has been set correctly, during the startup of the Java GUI. Make sure the SEP or SMP can resolve the hostname of the PC running the Java GUI. You must have an active X Server.
No SNMP Traps reaching OVO	No SNMP Traps reaching OVO Message Browser	OCSC SNMP Agent and Evt2Trap Extensions are active. OVO SNMP Sub-Agent not configured to intercept traps locally	Test SNMP integration: Start the SEP mibbrower. Close an SlpLog file path: Root.Systems.[sysId=<sys_id>].Slee.LogMgr.[LogId=1]. Select Action->CloseFile. Check whether the generated event occurs within the SEP Event Browser. Check whether the generated event (slpLogComplete) is visible in the OVO Message Browser

4. Reference Information

This section contains tables providing reference information for the OSCS SPI.

OS SPI Configuration

For the OCSC SPI, the OS SPI monitors certain OS metrics. This covers file systems, networks and important processes of the OCSC server. The list of these metrics is given in Table 1.

Table 1 Configuration of OS SPI for HP-UX – Supported Configuration

Template Type	Template Name	Polling Interval	Description
Message Templates	OSSPI-FilesystemMsg OSSPI-FilesystemMsg OSSPI-opcmsg OSSPI-procmonMsg OSSPI-procmonMsg OSSPI-xterm OSSPI-Discovery	n/a	Templates to intercept OS SPI messages. There is no action, scheduled or unscheduled, associated with any of these templates.
Monitor Templates	OSSPI-NP-Filesystem OSSPI-defect_long OSSPI-defect_short OSSPI-inetdproc OSSPI-mount OSSPI-swapmon OSSPI-vg	10 min 28 days 6 hours 1 min 1s 10 min 5 min 1 hour	Filesystem space/inode monitor Check defects on SCSI disks over a long term period Check defects on SCSI disks Inetd Processes Monitor access to mounted filesytems Swap utilization monitor Unallocated Volume Group Space

DB SPI Configuration

For the OCSC SPI the DB SPI monitors selected Oracle metrics. Clients can add Oracle Monitors (External Monitors) that are already collected by the used DB SPI default collectors (DBSPI-Ora-xxx-Favorites-smp-sg).

The list of these metrics is given in Table 2.

Table 2 Configuration of DB SPI for Oracle – Supported Configuration

Template Name	Metric Name	Description
DBSPI-0001	DbInstanceStatus_001	Database Status
DBSPI-0002	ProcessStatus_002	Database process check (ProcessStatus)
DBSPI-0005	ObjctsForeignCnt_005	No. of foreign objects in SYSTEM tablespace (ObjectsForeignCnt)
DBSPI-0007	TblSpcStatusCnt_007	No. of tablespaces not ONLINE (TblSpaceStatusCnt)
DBSPI-0016	SegmentExtendCnt_016	No. of segments that cannot extend (SegmentCantExtendCnt)
DBSPI-0017	SegmntMaxExntCnt_017	No. of segments approaching max extent (ObjectsMaxExtentsCnt)
DBSPI-0018	SegmntExtRapdCnt_018	No. of segments adding extents rapidly (ObjectsExtRapidCnt)
DBSPI-0019	SortDiskRate_019	Disk sort rate (SortDiskRate)
DBSPI-0022	TotBufCachHitPct_022	Total buffer cache hit % (TotBuffCacheHitPct)
DBSPI-0026	DictCacheHitPct_026	% of dictionary cache hits (DictCacheHitPct)
DBSPI-0032	RedoLogSpcReqCnt_032	No. of waits for redo log buffer space (RedoLogSpceReqestCnt)
DBSPI-0056	ArchvFreeSpacCnt_056	No. of archive logs that fit in archive device (ArchiveFreeSpaceCnt)
DBSPI-0057	ArchiveFreqRate_057	Avg time in minutes between archive log writes (ArchiveFreqRate)
DBSPI-0058	ArchvFreeSpacPct_058	% of free space on archive device (ArchiveFreeSpacePct)
DBSPI-0060	RedoUnarchvedCnt_060	No. of redo logs not yet archived (RedoUnarchivedCnt)
DBSPI-0061	AutoArchveStatus_061	Status of auto archiving (AutoArchiveStatus)
DBSPI-0067	RBSegmntStatCnt_067	No. of rollback segments not online (RBSegmentStatusCnt)
DBSPI-0068	RBSegmntShrnkCnt_068	No. of rollback segment shrinks (RBSegmentShrinksCnt)
DBSPI-0069	RBSgmtWaitPctCnt_069	% of rollback segment waits to gets (RBSgmentWaitPctCnt)
DBSPI-0072	LogArchiveStartStatus_072	Status of log archive start
DBSPI-0077	DualExessRowStat_077	SYS.DUAL status (DualExcessRowStatus)
DBSPI-0078	ObjctsInvalidCnt_078	No. of invalid objects (ObjectsInvalidCnt)
DBSPI-0079	DisbldTrigersCnt_079	No. of disabled triggers (DisabledTriggersCnt)
DBSPI-0080	DisbldCnstrntCnt_080	No. of disabled constraints (DisabledConstraintsCnt)
DBSPI-0203	TablespaceFree_203	Table spaces with low free space; drill
DB SPI Collectors		
(DBSPI-Ora-05min-Favorites)[1]	The following metrics are collected by this collector monitor: 1, 2, 7, 22, 26, 32, 60, 67, 69	
(DBSPI-Ora-15min-Favorites)	The following metrics are collected by this collector monitor: 16, 17, 18, 58, 77, 78, 79, 80, 203	
(DBSPI-Ora-1d-Favorites)	The following metrics are collected by this collector monitor: 56, 61, 72	
(DBSPI-Ora-1h-Favorites)	The following metrics are collected by this collector monitor: 5, 19, 57, 68	

NOTE For the OCSC SPI, different DB SPI collectors are used. The collectors mentioned in are only for reference. See the used collectors in chapter Table 4.

[1] The original Monitor definition is copied to <Monitor>-smp-sg. This copy is modified to take care of the SMP SG configuration

EMS Configuration

To monitor the HP hardware stack Event Monitoring System (EMS) is used. Users can add further available EMS metrics. The default configuration for EMS is given in Table 3.

Table 3 EMS Metrics for SEP and SMP

System Type	Resource Path	Expected Value	Polling Interval	Severity	Description
SMP, SEP	/storage/status/disks/default/*	UP	5 minutes	Major	Disk Event Monitor for stand-alone disk drives
SMP, SEP	/system/status/core_hw	UP	5 minutes	Major	Core Hardware Monitor
SMP, SEP	/system/status/memory/*	UP	5 minutes	Major	System Memory Monitor
SMP, SEP	/system/status/cpu/lpmc/*	UP	5 minutes	Major	LPMC Event Monitor
SMP, SEP	/system/status/system_status/*	UP	5 minutes	Major	System Status Monitor
SMP, SEP	/net/interfaces/lan/status/*	UP	5 minutes	Major	Status of lan interfaces
SEP only	/ss7/tsu/tsu_*/status	UP	5 minutes	Major	SS7 TSU status monitor
SEP only	/ss7/tsu/tsu_*/tsc/*	UP	5 minutes	Major	SS7 TSC status monitor
SMP only	/cluster/status/*	UP	30 seconds	Critical	Status of the cluster
SMP only	/cluster/localNode/status/*	UP	30 seconds	Critical	Status of the node relative to the cluster
SMP only	/cluster/package/package_status/*	< DOWN (3)	30 seconds	Critical	Status of MC/Service Guard package

Depending on the Hardware (PA-RISC and TSU), some metrics are not relevant.

OCSC Configuration

This section defines all OCSC Platform specific monitoring items.

SMP Metrics

For the SMP, the following monitoring items are available within the OCSC SPI:

- SMP status using smsstatus
- UX process monitoring for the SMP using OS SPI
- MC/SG aware DB SPI collector templates.

Table 4 SMP 4.x / 5.x Templates

Template	Polling Interval	Script	Description
OCSC-SMP-Status-sg[51]	5 minutes	ocsc_smstatus.ksh	For the list of conditions / metrics, see Table.
OCSC-SMP-Processes-sg[51]	10 minutes	osspi_procmon.sh	This template is similar to the process monitor templates available through OS SPI.
DBSPI-Ora-05min-Favorites-smp-sg[51]	5 minutes	n/a - DB SPI	These monitors are copied from DB SPI. The called command line is unchanged. This variant of the Monitor takes care of the SMP Service Guard configuration.
DBSPI-Ora-15min-Favorites-smp-sg[51]	15 minutes	n/a - DB SPI	
DBSPI-Ora-1d-Favorites-smp-sg[51]	1 day	n/a - DB SPI	
DBSPI-Ora-1h-Favorites-smp-sg[51]	1 hour	n/a - DB SPI	

SMP Status

The following table lists all values that are monitored by the OCSC SPI using smsstatus.

Table 5 Template OCSC-SMP-Status-sg[51]

Metric	Expected Value	Threshold	Description
Node_Management:Active	True	False (Major)	The monitor script sets the monitor value according to the thresholds.
Node_Management:FTC_Status	Active	Down(Major)	
Node_Management:Dbp_Status	Active	Down(Major)	
SCP_xx:Up_Status	Started	Stopped (Critical)	
SCP_xx:Down_Status	Started	Stopped (Critical)	
SCP_xx:OverloadStatus / SCP_xx:Notification_Level	ENABLE	n/a 2	In case the OverloadStatus is enabled, the value of Notification_Level is reported

SEP Metrics

The OCSC SPI monitors the following SEP related items:

- SEP status using mibget
- HP-UX process monitoring for the SEP using OS SPI
- Event 2 Trap Extensions to convert OCSC events into OVO messages.

Table 6 SEP Templates

Template	Polling Interval	Description
OCSC-SEP-Status	5 minutes	List of conditions / metrics.
OCSC-SEP-Processes	10 minutes	This template is similar to the process monitor templates available through OS SPI.
OCSC-SS7-Processes	10 minutes	This template is similar to the process monitor templates available through OS SPI.
OCSC-SEP-Traps-4.2	n/a	See Table 10 for the list of conditions / metrics.

SEP Status

For SEP status, the SLEE and the FT Controller are monitored as well as the FT Process state. The expected values for FT Controller and FT Process states are listed in Table 8 and Table 9.

Table 7 Template OCSC-SEP-Status

MIB Path	Variable	Threshold	Description
Root.Systems.[SysId].Slee.Slps.[Slp].[SlpVersion]	state	Down (Critical)	Monitors the service state for each Slee instance
Root.Systems.[SysId].Machine.FTC	systemState	See Table 8	Monitors the state of the FTC.
	peerSystemState		
Root.Systems.[SysId].Machine.FTC.[FTProcess]	processState	See Table 9	Monitors the state of each FTC process.
	peerProcessState		

Table 8 Template OCSC-SEP-Status: FT Controller Severity Mapping

systemState	peerSystemState	Severity
Active	Standby	Normal
Active	Down	Major
Down	Down	Critical

Table 9 Template OCSC-SEP-Status: FT Process Severity Mapping

processState	peerProcessState	Severity
Active	Standby	Normal
Active	Down (or MIXED)	Major
Down (or MIXED)	Down (or MIXED)	Critical

OCSC Events

Table Table 10 lists all OCSC events that are forwarded to OVO with their respective severity. Users can change the severities according to their needs of the daily operations.

Table 10 Template OCSC-SEP-Traps-4.2: SEP Events

Event Name	Objects Supplying Event	Description	Severity
eunCongestionOver	EunStream	The current buffer usage exceeds eunCongestionDetectionThreshold level.	Normal
eunCongestionDetected	EunStream	The current buffer usage exceeds eunCongestionDetectionThreshold level.	Normal
tooManyGts	Dgts	The SLEE cannot create any more gt stats.	Warning
ssnStateChanged	TcUser	The SSN state has changed.	Normal
overloadLevel	OvlIndCpuSystem		Normal
overloadLevel	OvlIndInBufferSize		Normal
overloadLevel	OvlIndIncomingQTime		Normal
overloadLevel	OvlIndSmltTrans		Normal
overloadLevel	OvlIndThroughput		Normal
connectionStateChanged	LocalSsn	The connection state has changed.	Major for CNX_DEAD Minor for CNX_CLOSED Normal for any other state
dropInTransactions	LocalSsn	Sent when the dropInTransactions flag is set or cleared.	Normal
localSsnStateChanged	LocalSsn	Sent when the LocalSsn state changes.	Normal for OPER_AVAILABLE Warning for OPER_UNAVAILABLE
dpcStateChanged	Dpc	Sent when the point code state changes.	Minor
generalError	EventHandler; FTC; FTProcess; eventAction; DiskLog; PrintLog; UserObject; BulkOperation; CurrentEunLog; CurrentSmsLog	-	Warning
generalError	CurrentEunLog		Normal
installDataModelStarting	Database	-	Minor
installDataModelComplete	Database	-	Minor
installDataModelFailed	Database	-	Critical
ckPointComplete	CkPoints	-	Minor
ckPointFailed	CkPoints	-	Major
minDiskSpaceReached	CurrentEunLog	Warning 'filename' will be deleted next time	Warning
eunLogError	CurrentEunLog	EUNs are being lost	Critical
eunFileError	CurrentEunLog	Unsuccessful file open or file close operation	Critical
maxLogsReached	CompletedSmsLogs	Warning 'filename' will be deleted next time	Warning
smsLogError	CurrentSmsLog	EUNs are being lost	Major
smsFileError	CurrentSmsLog	Unsuccessful file open or file close operation	Critical
databaseMemUsageThre	DatabaseStatistics	Threshold is exceeded	Minor

Event Name	Objects Supplying Event	Description	Severity
sholdExceeded			
namescopeMemUsageThresholdExceeded	NamescopeStatistics	Threshold is exceeded	Minor
tableMemUsageThresholdExceeded	TableStatistics	Threshold is exceeded	Minor
slpInstalled	SlpVersion	Object is installed.	Normal
slpEnabled	SlpVersion	Object is enabled	Normal
slpDisabled	SlpVersion	Object is disabled	Normal
slpRemoved	SlpVersion	Object is removed	Normal
slpLogComplete	LogClient	Current SLP log file has been closed	Normal
slpLoggingError	LogClient	An error happened while logging OSLP/SLP output	Major
thresholdExceeded	ServiceCounter	Value exceeds upper limit.	Normal
manualSystemSwitch	FTC	A manual switchover of the entire system has taken place.	Warning
automaticSystemSwitch	FTC	An automatic switchover to this system occurred due to peer being DOWN	Critical
manualSwitch	FTProcess	A manual switchover has taken place for this process.	Warning
automaticSwitch	FTProcess	An automatic switchover took place, this process becoming active.	Major
pluginStateChanged	PlugIns	Event generated when the plugin changes state	Warning
pluginConnectionStateChanged	PlugIns	Event generated when the plugin connection with the SLEE changes state	Major, Minor or Normal depending on connection state change
dgtOverloadLevel	DgtOvlIndSmltTrans	Event generated when the overload level changes on number of dialogs opened	Warning
dgtOverloadLevel	DgtOvlIndThroughput	Event generated when the overload level changes on number of sent/receive messages	Warning

5. Glossary and Acronyms

This section defines some key words used in relation to HP OVO.

Managed Node

A managed node is a system or intelligent device (for example, a network printer, router), monitored and controlled by OVO. Each OVO operator is responsible for and sees a specific set of managed nodes on the Managed Nodes window. The operator can select nodes and perform various tasks - for example, start an application, broadcast a command, open a terminal session - and set the Message Browser view. Messages displayed in the Message Browser windows come from the managed nodes that the administrator has assigned to the particular operator. OVO agent programs collect, filter, and prepare information from each managed node and send it to the OVO management server.

Management Server

The management server is the central system of the OVO domain.

All managed nodes forward their messages here. The relational database and all OVO software reside on the management server. The management server is also an HP-UX cluster server. The OVO graphical user interfaces for operators and administrators also run on the respective management server.

Message

A message is a structured, readable piece of information about a certain status, event, or problem related to a managed node. It is displayed in the message browser, history message browser, or view message browser window, depending on its status. Messages displayed in the message browser window come only from the operator's managed nodes. The operator can quickly identify incoming messages in terms of their severity level, date, time, and generating node. Automatic actions can be set up to respond to messages without any operator interaction.

Message Groups

The message management features of OVO can combine messages into logically related groups. A message group combines messages from related sources, providing status information about a class of managed objects or services.

The following acronyms are commonly used in relation to this product.

FTC	Fault Tolerant Controller
NOC	Network Operations Center
OCSC	OpenCall Service Controller
OV SN	HP OpenView Service Navigator
OVO	HP OpenView Operations
SCE	Service Creation Environment
SEP	Service Execution Platform
SLEE	Service Logic Execution Environment
SLP	Service Logic Program
SMP	Service Management Platform
TSC	Telecom Signaling Card
TSU	Telecom Signaling Unit