HP OpenView Smart Plug-in for BEA WebLogic Server

for the HP-UX and Solaris OpenView Operations Management Servers

Release Notes

Software version: A.04.00 /February 2007

This document provides an overview of the changes made to HP OpenView Smart Plug-in for BEA WebLogic Server (WLS-SPI) for A.04.00. It contains important information not included in the manuals or in online help.

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In This Version

A.04.00

This release of WLS-SPI fixes a number of bugs and adds the following capability:

- Support of WebLogic Server version 9
- View WebLogic Servers application: displays the WebLogic domain configuration, cluster information, and physical machines
- View Applications application: displays the names and versions of all applications deployed on a WebLogic Server instance
- Metrics updated to support WebLogic Server version 9
 - metrics 10 12: WebLogic Server version 9 uses a single thread pool and only a single execute queue
 - metric 15: the MBean attribute ExpectedToRun no longer exists in WebLogic Server version 9
 - metric 240: the ASCII report now includes the URL and invocation rate
 - metric 251: the ASCII report now includes the health state for JMS servers, message pending count for JMS destinations, and bytes pending count for JMS destinations
 - metric 270: the ASCII report now includes the current status of inbound connections
- New XML cache and time service metrics for WebLogic Server version 9, including the number of deferred requests, thread request wait time, number of pending requests, percentage of pending requests, maximum time a request waits for a thread, and number of threads in the standby pool
- HTTPS agents on UNIX platforms (HP-UX, Solaris, Linux, and AIX) running as non-root to promote a more secure operating environment

Documentation Updates

The first page of this release notes document contains the following identifying information:

- Version number, which indicates the software version.
- Publish date, which changes each time the document is updated.

To check for recent updates or to verify that you are using the most recent edition, visit the following URL:

http://ovweb.external.hp.com/lpe/doc_serv/

- 1 In the Product list, click the product name.
- 2 In the Version list, click the version number.
- 3 In the OS list, click the OS type.
- 4 In the document list, click the document title.
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NOTE: To view files in PDF format (*.pdf), Adobe Acrobat Reader must be installed on your system. To download Adobe Acrobat Reader, go to the following URL:

http://www.adobe.com

Installation Instructions

Installation information for the HP OpenView Smart Plug-in for BEA WebLogic Server can be found in the HP OpenView Smart Plug-in for BEA WebLogic Server Configuration Guide.

Software Requirements

Service Navigator is not required to run the WLS-SPI. However, if you want to view service maps, Service Navigator must be installed.

NOTE: New platforms are shown in **bold and red**

Management Servers

Component	Supported Versions
HP OpenView Operations for UNIX	7.1, 8.1, 8.2

Managed Nodes

Component	Supported Versions
WebLogic Application Server 6.1 sp7+ ¹	HP-UX 11.00, 11.11 HP Tru64 5.1A, 5.1B Solaris 2.6, 7, 8, 9 Windows 2000, 2003 Suse Linux ES 7, 8 AIX 4.3.3, 5,1, 5,2
WebLogic Application Server 7.0	HP-UX 11.00, 11.11 HP Tru64 5.1A, 5.1B Solaris 7, 8, 9 Windows 2000, 2003 Red Hat Linux AS 2.1 Suse Linux ES 7, 8 AIX 4.3.3, 5,1, 5,2
WebLogic Application Server 8.1 sp1, sp2, sp3, sp4, sp5	HP-UX 11.00, 11.11, 11.23 HP Tru64 5.1A, 5.1B Solaris 8, 9 Windows 2000, 2003 Red Hat Linux AS 2.1, 3.0 Suse Linux ES 8, 9 AIX 5,1, 5,2, 5.3
WebLogic Application Server 9	HP-UX 11i, 11.23 Solaris 8, 9, 10 Windows 2000, 2003 Red Hat Linux AS 3.0, 4.0 ²
HP OpenView Performance Agent (UNIX or Windows)	C.03.00+
HP OpenView Reporter	A.03+
HP OpenView Performance Insight	5.0, 5.1
HP OpenView Performance Manager (HP-UX, Solaris, Windows)	4.x, 5.x

¹ Service pack sp7 or greater must be installed on WLS 6.1. WLS-SPI only supports WLS 6.1 with service pack 7 or greater installed.

² For managed nodes running Red Hat Linux AS 4.0, in order for discovery to successfully update the service maps, upgrade to the latest version of Red Hat's glibc library.

Installation Requirements in a Non-Root HTTPS Agent Environment

If you are running or planning to run a non-root HTTPS agent on a UNIX managed node (OVO 8.x only), you must install the OS-dependent Sudo software package on that UNIX managed node. Sudo is free software available from http://www.sudo.ws. The OS-dependent software packages are available at the bottom of the download page (http://www.sudo.ws/sudo/download.html).

Enhancements and Fixes

The following items (identified by error tracking number) are fixed in the current software release. More detailed information about enhancements and fixes can be found online at the HP Online Software Support web site. The first time you visit this site, you must enter your HP passport information. To set up your passport profile, go to: <u>http://support.openview.hp.com/support.jsp?fromOV=true</u>.

CR NUMBER	DESCRIPTION
QXCR1000136510	Change OVPM integration to have graphs show up in GUI. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000136510
QXCR1000199942	WebLogic SPI support for AIX managed nodes. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000199942
QXCR1000135486	WebLogic and WebSphere collector runs are resource intensive, need to improve. <u>http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000135486</u>
QXCR1000217921	Add SSL support to discovery for WebLogic. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000217921
QXCR1000157743	WLSSPI-0011.1 execute threads too high critical message. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000157743
QXCR1000202161	Allow other metrics to work if UDM xml is incorrect. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000202161
QXCR1000283795	Don't log error if metric ID or version is missing. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000283795
QXCR1000239027	Disallow user to configure both GRAPH_SERVER and GRAPH_URL. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000239027
QXCR1000238523	Eliminate RMID stop/start browser message. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000238523

Enhancements with Version A.4.00

Fixes with Version A.4.00

CR NUMBER	DESCRIPTION
QXCR1000210529	Document WebLogic 6.1 SP1-SP6 JMX bug affecting servlet metrics. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000210529
QXCR1000223431	Document need to configure max values for metrics 251 ad 252. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000223431
QXCR1000212122	Missing PASSWORD causes NullPointerException. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000212122
QXCR1000215834	Discovery does not encode password. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000215834
QXCR1000214217	Add all available \$OPTION() variables to reference manual. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000214217

QXCR1000213844	wasspi_wls_perl.cmd fails on windows. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000213844
QXCR1000208609	Some WLSSPI reports reference "reporter.dbo." http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000208609
QXCR1000226129	JMX errors if consecutive collections span an app server restart. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000226129
QXCR1000216967	Intermittent collector hangs on hpux 11.00. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000216967
QXCR1000210784	TransformationException running servlet ascii reports (240,242,245). http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000210784
QXCR1000210300	WebLogic SPI does not load graph in browser when use OVPM 5.0. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000210300
QXCR1000137003	ddflog hang causes collector hang which causes template hang. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000137003
QXCR1000158547	Host name problem in service map. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000158547
QXCR1000158443	Login and password config properties should be required not conditional. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000158443
QXCR1000134785	Negative return value for WLS metric 251 and 252. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000134785
QXCR1000158620	status check uses name not alias so not all servers checked. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000158620
QXCR1000226129	JMX errors if consecutive collections span an app server restart. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000226129
QXCR1000236641	Collector trace broken on windows http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000236641
QXCR1000238519	Metrics - Server status value for reporting should not be 1 http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000238519
QXCR1000244041	AttributeFilter include types should be OR'd http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000244041
QXCR1000283927	Bug in wasspi_wls_discovery.pl cause Service Creation not to work http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000283927
QXCR1000243711	Discovery fails on Windows after 7.30 patch is installed. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000243711
QXCR1000282418	WLSSPI A.03.50 - wls.log growing very fast, causing filesystem full http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000282418
QXCR1000236250	Metric 270 has the wrong algorithm http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000236250
QXCR1000280751	Discovery not working if the domains is in a different directory http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000280751
QXCR1000282761	'C:\PROGRA~1\HP' is not recognized as an internal or external command http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000282761
QXCR1000281146	Trailing whitespace chars in server name breaks ascii reporting. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000281146

QXCR1000298097	WebLogic Application Servers embedded in PeopleSoft Not Discovered http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000298097
QXCR1000237420	collector cmd-line cannot handle argvs with spaces http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000237420
QXCR1000281719	-S arg not needed in wasspi_xxx_DiscReg.txt http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000281719
QXCR1000291523	JMX ASCII reports formats all numbers as floats http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000291523
QXCR1000299107	Update SPI error message WASSPI-18 in docs. <u>http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000299107</u>
QXCR1000224237	Document rmid related properties. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000224237
QXCR1000219069	Update JBoss JMX connector registration instructions for 4.0.1 http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000219069
QXCR1000235586	logdata script logic error - does not remove lock http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000235586
QXCR1000285945	Need to workaround multiple registry Sun bug http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000285945
QXCR1000288197	Default templates collect from JMX Connector servers http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000288197
QXCR1000296585	Problem viewing OVPM graphs if there are spaces or special characters in the URL http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000296585
QXCR1000205496	UDM guide corrections http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000205496
QXCR1000243792	UDM graph disable is broken http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000243792
QXCR1000205134	Start Tracing app fails on Unix HTTPS node http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000205134
QXCR1000282756	Configure and Discovery Fails when Windows Short Path Name Creation is disabled http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000282756
QXCR1000281720	Filenames in message templates/policies must have double quotes http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000281720
QXCR1000247470	Collector not closing errorlog following write. http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000247470
QXCR1000237949	Discovery fails to update local SiteConfig if multiple srv have same name http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000237949
QXCR1000206584	UDM Graph Enable fails to create datasource on OVPA 4.0 http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000206584
QXCR1000233473	Using the Start/Stop Monitoring SPI application causes metrics collector to fail <u>http://openview.hp.com/sso/ecare/getsupportdoc?docid=QXCR1000233473</u>

Known Problems, Limitations, and Workarounds

• **<u>Problem</u>**: In a non-English environment, the message browser does not display error messages correctly.

Workaround: Change the character set of the WLSSPI Error Log template and redeploy the template. For example, change the character set from "Shift-JIS" to "Japanese EUC."

• **<u>Problem</u>**: When multiple managed nodes are selected when running the Discover WebLogic or Configure WebLogic applications, or if the Discover WebLogic and Configure WebLogic applications are run at the same time, the SPI may report errors for one or more selected managed nodes because the SPI configuration file (SiteConfig) for one or more managed nodes has been misplaced. (QXCR1000306403: Discover/Configure application may misplace the SPI configuration file on a managed node.)

Workaround: Run the Configure WebLogic application for each managed node that is reporting errors (run the application on each managed node one at a time).

• **<u>Problem</u>**: The perl installed with the OVO agent fails to find the OVO perl modules if another application (such as Oracle Application Server) sets the PERL5LIB environment variable to point at locations that do not include the OVO perl lib location. (QXCR1000306217: WLSSPI Discovery fails for WLS version 7.0 on Windows 2003 HTTPS node.)

Workaround 1: Set the PERL5LIB system environment variable:

- Prepend C:\Program Files\HP OpenView\nonOV\perl\a\lib(the OVO perl lib path) to the
 PERL5LIB system environment variable.
- 2 Kill the OVO agent: opcagt -kill
- 3 Restart the OVO agent: opcagt -start
- 4 Check the OVO environment: ovdeploy -cmd set
- 5 If the PERL5LIB variable is not set correctly in the OVO environment but the system variable is set correctly, reboot the system.

Workaround 2:

- 1 Delete the PERL5LIB system environment variable.
- 2 Reboot the system.
- 3 Run the Discover application.

Workaround 3: Run the discover script on the target node. Enter the following:

cd /var/opt/OV/bin/instrumentation

2 wasspi_wls_perl -S wasspi_wls_discovery.pl

NOTE: The service map is not generated when the discover script is run locally (is not run from the OVO management server).

• **Problem:** The wls.log file grows very large (QXCM1000304720: Growing wls.log file).

<u>Workaround</u>: Limit the size of the data saved to the log file each time the logfile encapsulator is run. In the SPIConfig file (located in /var/opt/OV/wasspi/wls/conf/ or /var/opt/OV/conf/wls/ on UNIX platforms and /usr/OV/wasspi/wls/conf/ on Windows platforms), add the following:

maximum number of lines to save to the log file / run LOG_LINE_LIMIT=16667 # maximum number of characters to save from each log file / run LOG_SIZE_PER_FILE_LIMIT=600000 • **Problem:** When using WebLogic Server 6.1, getAttributes returns a null value.

Workaround: Install WebLogic Server 6.1 sp7 (service pack 7).

• <u>**Problem:**</u> On managed nodes using the DCE agent, the /var/opt/OV/wasspi directory and SiteConfig file are not created when running the SPI Discovery or Configuration applications. The problem may be that the component opctranm may be hung.

Workaround: On the management server, run the following commands:

ovstop ovoacomm
rm -f /var/opt/OV/share/tmp/OpC/mgmt_sv/magmgr*
ovstart opc

• **Problem:** When the WebLogic Server is started, multiple WLSSPI-0011.1: % of execute threads used (<VALUE>%) too high messages are displayed in the message browser.

Workaround: These messages can be safely ignored when the WebLogic Server is being started.

• **Problem:** When the Self-Healing Info application is run on a Windows managed node, the output file may be hidden.

Workaround: If you do not see the file, do the following on the managed node:

- 1 Open Windows Explorer.
- 2 From the Tools menu, select Folder Options.
- 3 Click on the View tab.
- 4 Under Hidden files and folders, select Show hidden files and folders.
- <u>Problem:</u> On a Solaris managed node, the ddflog and dsilog processes hang. The error message WASSPI-1: Unable to create the lock file /var/opt/OV/wasspi/wls/datalog/ddflog.lck. File already exists. is reported and running the command ps -1 shows that the ddflog_coda and ddflog or dsilog processes are hung.

Workaround: On each Solaris managed node on which the problem occurs, do the following:

In the /var/opt/OV/wasspi/wls/conf/SPIConfig file, set the DATA_LOGGING_EXECUTABLE_NAME property after the "#------ Dynamic definitions -------" entry. DATA_LOGGING_EXECUTABLE_NAME explicitly sets the data logging program that is used (normally, the collector automatically determines the data logging program to use).

If you are running OVPA, set the property to the following value:

DATA_LOGGING_EXECUTABLE_NAME=/opt/perf/bin/dsilog

If you are running CODA, set the property to the following value:

DATA_LOGGING_EXECUTABLE_NAME=/opt/OV/bin/OpC/monitor/ddflog_coda

2 Kill the hung ddflog_coda and ddflog or dsilog processes.

Example excerpt from the SPIConfig file after setting the property:

```
UDM_GRAPH_CAPACITY=50000
UDM_PERF_CAPACITY=50000
#----- Dynamic definitions -----
DATA_LOGGING_ENABLED=TRUE
DATA_LOGGING_EXECUTABLE_NAME=/opt/perf/bin/dsilog
```

• **Problem:** The "View Graphs" application does not work.

Workaround: On the OVPM Windows system, copy the file:

\Program Files\HP Openview\newconfig\WLSSPI_Graphs.txt

to:

\Program Files\HP Openview\newconfig\VPI_GraphsWLSSPI.txt

• **Problem:** On Linux nodes, the "Configure SPI" or "Discovery" application can fail without configuring the SPI on the managed Linux node. This happens because some of the configuration processes require uudecode to be present on the local node.

Workaround: Ensure that uudecode is installed on the target managed node. It is available in the SHARUTILS package.

• **<u>Problem</u>**: The "Start WebLogic" and "Stop WebLogic" applications fail on Windows nodes if the USER or SERVER<n>_USER configuration property is set. The application is trying to run the "su" command, which is only available on UNIX.

Workaround: Do not set the USER or SERVER<n>_USER property when configuring the SERVER<n>_START_CMD or SERVER<n>_STOP_CMD properties for Windows nodes.

• **Problem:** The SPI's configuration log .../wls/log/config.log on a managed node grows without being managed for size. This file is appended to whenever the SPI's configuration is run, either manually or when the discovery process finds a change that requires configure to run (such as a WebLogic server being added or removed). Unless there are frequent changes to the environment requiring reconfiguration, this should not be a problem.

Workaround: Manually delete the file if it gets too large.

• <u>Problem</u>: WebLogic Server SPI cannot locate and therefore is unable to monitor the WebLogic log file when WebLogic Server is not started from the HOME directory. This is only a problem in WebLogic Server 6.0 and 6.1.

The location and name of the WebLogic Server log file is specified in the WebLogic Administration Console in the "Logging" tab on the server configuration page. If this log file is specified with a relative path, this path is relative to the directory in which the WebLogic Server is started. The default is the WebLogic home (WL_HOME) directory specified when the WebLogic SPI is configured. The startup scripts installed by BEA start WebLogic Server from its home directory.

No means currently exists for querying the server for its startup directory. So, if the WebLogic Server is started up in a directory other than WL_HOME and the log file is specified as a relative path, the WLSSPI may not be able to locate and monitor the WebLogic Server log file.

Workarounds (choose either A, B, or C):

(A) Configure the LAUNCH_DIR variable in the WebLogic Server SPI configuration file to define the location of the WebLogic Server startup directory. Please see Chapter 2 of the User's Guide for details.

(B) Ensure that WebLogic Server is started from the WL_HOME directory, which is the default if you use the startup scripts provided by BEA. Also, note that the WLSSPI will not recognize a fully qualified path name for the log file. You must use a relative path for the WebLogic Server log file in order for it to be located and monitored by the WLSSPI.

(C) In the WLS-SPI configuration file, include the fully qualified name(s) of the WebLogic Server logfile(s) you want to monitor. For multiple logfile entries, separate each logfile name with a comma.

To edit the file:

- Run the WLSSPI→WLSSPI Admin→Config WLSSPI application to edit the file.
- 2 Insert an additional line beginning with keyword SERVER<*n*>_LOGFILE as shown below, followed by the fully qualified file name:

SERVER<n>_LOGFILE = <path>/<file_name_1>,</<path>/<file_name_2>

3 Save the file and deploy to the node.

NOTE: This workaround is an enhancement to the syntax as documented in the *HP OpenView Operations Smart Plug-in for BEA WebLogic Server Configuration Guide*.

• **Problem:** Two Netscape Navigator browser windows are launched when running the View Graphs application. The top window obscures the OVPM function buttons in the lower window.

Workaround: This problem only occurs with Netscape Navigator version 4.79. Use Netscape Navigator version 6.0 or higher.

• **<u>Problem</u>**: The Web browser cannot be launched from an operator action after you have correctly configured the WLS-SPI as instructed in the "Configure the Management Server to Launch your Web Browser" task in chapter 2 of the *HP OpenView Operations Smart Plug-in for BEA WebLogic Server Configuration Guide*.

Workaround:

1 Stop and restart the agent from a user other than root by entering the following commands on the managed node:

opcagt -kill opcagt -start

- 2 Run the operator action.
- **Problem:** Netscape fails to refresh graphing data. Specifically, when you use Netscape as the browser to graph your data (graphing capability included with Reporter 3.0 or higher), the browser fails to refresh when new selections are made.

For example, in the OVO console after you drag and drop a managed node onto the WLSSPI Admin application *View Graphs*, Netscape appears and displays a blank WLS-SPI graphing page where you can accept or change the following default selections:

Server: MyServer_1 Graph Name: Serverstat Data Range: 7 Days (ending now)

By clicking Draw, you successfully generate the graph.

However, when you select a different server, let's say *MyServer_2*, you see that the graph that appears after you click the Draw button is the same graph/data as the one you just viewed (for *MyServer_1*).

Workaround:

- 1 In Netscape from the Edit menu select **Preferences→Advanced→Cache**.
- 2 In the segment labeled Document in cache is compared to document on network, select radio button **Never**.
- 3 After successfully generating the first WLS-SPI graph, for any subsequent graphs, always change a minimum of two selections to refresh the data; for example select a different server and a different graph; or select a different graph and a different date range. Any two differing selections work to clear the current graph data from the browser cache.
- 4 Note: The underlined text <u>Refresh Graph Now</u> at the bottom of the Web page does not work; when clicked, it may return the error: the parameter is incorrect.
- **Problem:** For a managed node running Red Hat Linux 4 or Suse Linux 9.1 or 9.2, discovery and/or metric threshold monitor alarming is not functioning AND the following error message is found in the SPI error log:

*** glibc detected *** double free or corruption: 0x0937d008 ***

Workaround: On the OVO agent, set the MALLOC_CHECK_ environment variable to 0 (zero) and restart the agent.

Support

Please visit the HP OpenView support web site at:

http://www.hp.com/managementsoftware/support

This web site provides contact information and details about the products, services, and support that HP OpenView offers.

HP OpenView online software support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valuable support customer, you can benefit by being able to:

- Search for knowledge documents of interest
- Submit and track progress on support cases
- Submit enhancement requests online
- Download software patches
- Manage a support contract
- Look up HP support contacts
- Review information about available services
- Enter discussions with other software customers
- Research and register for software training

NOTE: Most of the support areas require that you register as an HP Passport user and sign in. Many also require an active support contract.

To find more information about support access levels, go to the following URL:

http://www.hp.com/managementsoftware/access level

To register for an HP Passport ID, go to the following URL:

http://www.managementsoftware.hp.com/passport-registration.html

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