HP Operations Manager for UNIX

Security Advisory

Software Version: 9.00

Manufacturing Part Number: None

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Support

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Support

Please visit the HP Operations support web site at:

www.hp.com/go/hpsoftwaresupport

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

HP Operations 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 using the support site to:

- Search for knowledge documents of interest
- Submit enhancement requests online
- Download software patches
- Submit and track progress on support cases
- 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

Most of the support areas require that you register as an HP Passport user and log on. Many also require a support contract.

To find more information about access levels, go to:

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

To register for an HP Passport ID, go to:

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

1 Introduction

Document Overview

This document provides you with a summary of security information related to HP Operations Manager for UNIX (HPOM for UNIX).

To provide security, HPOM for UNIX strictly controls the functionality and information provided to users by the system.

The recommendations listed in this document are based on certifying HPOM for UNIX for the National Information Assurance Partnership (NIAP) Common Criteria Evidence Assurance Level 2 (EAL-2) in 2005. These recommendations are updated periodically.

NIAP is a program driven by the National Institute of Standards and Technology (NIST) and National Security Agency (NSA) in the U.S.A. to evaluate IT product conformance to international standards, especially with regards to security.

The Common Criteria are the result of many decades of effort to develop practical and measurable criteria for evaluating IT security that are broadly useful within the international community. Common Criteria predecessors are the Orange Book, ITSEC, and many country-specific security guidelines.

NIAP acts as the U.S. oversight body for the Common Criteria.

For more information about the Common Criteria, see the following web site:

http://niap.nist.gov

For detailed information about the HPOM for UNIX Common Criteria EAL-2 certification, see the following web site:

http://niap.nist.gov/cc-scheme/st/ST_VID10011.html

NOTE

There is a new utility, called `ovprotect`, that helps you to address several of the outlined security risks automatically. For more information about `ovprotect`, see Appendix B, “OvProtect,” on page 109.

Document Audience

This document is intended primarily for the following audience:

- HPOM for UNIX administrator
- Security expert in your company
- System and application administrators monitored by HPOM for UNIX

2 HPOM Security Overview

Security Risks

HP Operations Manager for UNIX (HPOM) is a powerful IT service management solution used to manage networks, systems, applications, and the Internet from a service-driven operations perspective.

For almost all software products, potential vulnerability risks need to be assessed carefully in your actual IT environment. This risk assessment is particularly important for applications like HPOM, a multiple-component, distributed software product to which many users can have access.

Depending on your software usage paradigm, your company security policies, and so on, some of the security risks of HPOMoutlined below may or may not apply.

The HPOM for UNIX 9.00 release contains many significant improvements to make the application as robust and secure as possible.

This document categorizes security risks to an HPOM implementation as follows:

- **HPOM for UNIX Components**
  - — HPOM for UNIX Java GUI
  - — HPOM for UNIX Service Navigator
  - — HPOM for UNIX management server
  - — HPOM HTTPS agent

  For details, see Chapter 3, “Protecting HPOM for UNIX Components,” on page 19.
- **Services Providing Remote Access/Query Capabilities**

  For details, see Chapter 6, “Protecting HPOM Services,” on page 81.
- **IT Environment**
  - — Operating system
    (for example, HP-UX, Solaris, and so on)
  - — Oracle Database
  - — Network Node Manager (NNM)[1]

  - Embedded APIs or hooks
    (for example, OpenSSL, Java API, PAM, and so on)
  - Specific run-time environments
    (for example, Java Virtual Machine, libc, and so on)
  - Other IT infrastructure components
    (for example, firewall, routers, and so on)

  For details, see Chapter 4, “Protecting the IT Environment,” on page 37.

- **HPOM for UNIX Configuration**
  - User configuration
  - Auditing
  - HPOM agent type and run level
  - Remote action execution
  - And so on

  For details, see Chapter 5, “Configuring HPOM in a Secure Way,” on page 61.

Some of these security risks are exposed in the entire IT infrastructure, and some only on the local system.

This document provides a comprehensive list of actual and potential security risks for each category, and the corresponding steps to minimize or eliminate them.

NOTE The impact, relevance, and risk level for the different security concerns have been determined by HP for typical customer environments. The actual risk, impact, and relevance may be different in your environment.

1. NNM is treated as an IT environment component.

Key to Table Values

This document contains many risk and service tables.

Key to Risk Table Values

Many sections in this document contain risk tables with the following levels:

Relevance High, Medium, or Low. Damage that could occur to your HPOM for UNIX installation, managed environment, or both if someone gained access to them.

Risk Level High, Medium, or Low. Likelihood that someone could access or misuse the outlined vulnerability.

These levels are just assessments by HP. The actual relevance and risk level may vary significantly for your environment.

Key to Service Table Values

“Services on HPOM” on page 86 contains two service tables with the following headings:

Port Port that is used by the service.

Service Name of the service. This name could be different for HP-UX, Solaris, AIX, and Linux.

Required Yes or No. Service is required to run HPOM for UNIX.

Comment Description and recommendation.

3 Protecting HPOM for UNIX Components

HP Operations Manager for UNIX (HPOM for UNIX) software components could be exposed to a wide variety of security risks.

HPOM for UNIX provides powerful mechanisms for service-driven operations management. System and network security requires reasonable usage (or even limitation) of optional HPOM for UNIX features, based on the least permissions paradigm.

Securing the HPOM Management Server

The standard installation of the HP Operations management server is suitable for most customers. Nevertheless, you should check carefully, on a regular basis, to make sure that none of the security risks listed in this section could potentially impact your managed environment.

HTTPS-based HPOM Server-to-Server Communication

HPOM for UNIX uses HTTPS-based communication for forwarding events to other HPOM for UNIX management servers. The HTTPS protocol establishes a higher level of security for the communication between management servers. HTTPS-based message forwarding between management servers is enabled by default.

To successfully use HTTPS-based forwarding, a trust relationship must be established between all HPOM management servers that communicate with each other. For more information about setting up trust relationships, see the *HPOM HTTPS Agent Concepts and Configuration Guide*.

Securing HPOM for UNIX and NNM Sockets

This section describes vulnerabilities in sockets used by the HPOM for UNIX management server or NNM.

Changing Permissions for the Sockets Directory

To prevent non-root users from removing socket files, you can change permissions for the sockets directory.

Vulnerability	The directory `/var/opt/OV/sockets` is world writable.
Impact	It is possible for a non-root user to remove socket files in the `/var/opt/OV/sockets` directory. These files are important for inter-process communication.
Relevance	High
Risk Level	High

Solution	Run `ovprotect` or follow these steps:
	1. Change the permissions for the `/var/opt/OV/sockets` directory to `0770`:
	`# chmod 0770 /var/opt/OV/sockets`
	2. Create an entry in `/etc/opt/OV/share/conf/ovperms.conf/files` to permanently change this file permission:
	`/var/opt/OV/sockets file bin bin 0770`
	For more information about `ovprotect`, see Appendix B, “OvProtect,” on page 109.

Securing the Java GUI

This section describes vulnerability risks in the HPOM Java GUI.

Running the Java GUI as a Web Applet

To prevent unauthorized persons from tampering with the Java GUI `shar` file, you can run the Java GUI as an applet in your web browser.

Vulnerability	If you run the Java GUI as an application, its digital signature is *not* verified.
Impact	An unauthorized person could tamper with the Java GUI `jar` file.
Relevance	Medium
Risk Level	Medium
Solution	Run the Java GUI as an applet in your web browser. In this case, its digital signature is verified.

Restricting Java GUI Privileges

To prevent unauthorized persons from reading or writing operator-specific Java GUI settings, you can give user preference files the lowest possible level of privileges.

Vulnerability	Java GUI users can store their preferences in local files, which could be tampered with by other users.
Impact	Depending on the default privileges, it is possible for unauthorized persons to read or write operator-specific Java GUI settings (for example, filter settings, refresh rate, and so on).
Relevance	Medium
Risk Level	Medium

Solution	Give user preference files the lowest possible level of privileges.
	
	To set the `SAME` preferences for all Java GUI sessions, you can also place the preferences files on the HP Operations management server.
	
	You move three files to a global location:
	
	• `Itoopbrw`
	
	Stores message browser settings (layout, position, size).
	
	• `Itooprc`
	
	Stores general Java GUI settings. Most of the properties can be configured in the Preferences dialog of the Java GUI.
	
	• `HP_OV_consoleSettings_`*`mgmtServerName_operator`*
	
	Stores all GUI layouts (for example, browser column layout).
	
	Example:
	
	`HP_OV_consoleSettings_chita.hermes.si_opc_op`
	
	The following files remain on the `user.home` directory:
	
	• `OV_JGUI_portRepository`
	
	Used for Java API discovery.
	
	To set up a global location for preference files, use the following variables:
	
	`OPC_JGUI_GLOBAL_SETTINGS_WIN`
	
	`OPC_JGUI_GLOBAL_SETTINGS_UNIX`
	
	Example:
	
	`# ovconfchg -ovrg server -ns opc -set \`
	`OPC_JGUI_GLOBAL_SETTINGS_WIN \`
	`X:\Shared\javaui\`

Solution (continued)	**To set up the share:** 1. Log on as the user who has write permission to this directory. 2. Set all defaults within the Java GUI as needed. 3. Save the session and log out. 4. Rename the `consoleSettings` file with a more global name. For example, you could change the `HP_OV_consoleSettings_ligety.bbn.hp.com_opc_op` file to `HP_OV_consoleSettings`. To do so, you would input the following: `f:\JGUI_share>` **`rename \`** **`HP_OV_consoleSettings_ligety.bbn.hp.com_opc_op \`** **`HP_OV_consoleSettings`** 5. Make the share read only.

Restricting Java GUI Communication

By default, the proprietary communication protocol (except for the log-on data) between the HP Operations management server and the Java GUI is unencrypted.

The communication protocol contains sensitive data. For this reason, it must be protected in the IT environment. The Java GUI communication can be switched to HTTPS, which provides authentication and encryption.

NOTE Only the HTTPS-based Java GUI has been evaluated as part of the Common Criteria EAL-2 evaluation.

Vulnerability	The `opcuiwww` socket on the HP Operations management server accepts incoming connection requests from any system. For each Java GUI session, a dedicated `opcuiwww` process is launched. The connection protocol requires a valid authentication process, and therefore provides reasonable protection against misuse. During the connection initiation and validation phase (that is, until the logon is granted or denied), `opcuiwww` already consumes system resources (for example, memory, CPU, and file handles).
Impact	Opening too many connections to the `opcuiwww` service may consume all available system resources.
Relevance	High
Risk Level	High

Solution	Run the `ovprotect` utility or do one of the following: • Switch on HTTPS communication between the Java GUI and the HP Operations management server. To find out how to configure the HP Operations management server and the Java GUI, refer to the corresponding documentation. Detailed configuration and usage instructions are available in the *HPOM Java GUI Operator's Guide*, available for download from the following web site: http://support.openview.hp.com/selfsolve/manuals Select **`Operations for UNIX`** and version **`9.x`**. • Do not allow all systems in the network to access the HP Operations management server, especially the `opcuiwww` port (for example, by protecting it with a firewall, by changing `/var/adm/inetd.sec` on HP-UX, or by changing the corresponding file on other OS platforms). For example, if you want to allow the local system and the system with IP address 15.1.2.3, you would use the following: **`ito-e-gui allow 127.0.0.1 15.1.2.3`** For details, refer to the *inetd.sec(4)* man page. Monitor the number of started `opcuiwww` processes to ensure that it is consistent with the maximum number of concurrent Java GUI operators you expect. For more information about `ovprotect`, see Appendix B, "OvProtect," on page 109.

Changing the Default Port of opcuiwww

Vulnerability	The default port number (2531) of the opcuiwww process is known and might therefore be a target of attack.
Impact	If opcuiwww is attacked through the default port, the system may stop responding.
Relevance	Medium
Risk Level	Medium
Solution	The configuration setting `OPCUIWWW_PORT` holds the opcuiwww port number as defined in `/etc/services` (`ito-e-gui` entry). It is used by opcuihttps to start opcuiwww processes. It is recommended to change the default port 2531 to another port: **`ovconfchg -ovrg server -ns opc.opcuihttps -set OPCUIWWW_PORT <new port>`** You can also use the ovprotect utility to change the default port. For more information, see Table 6-2, “Services and Ports Required by HPOM for UNIX,” on page 90. For more information about configuration variables for the management server, see the *HPOM Server Configuration Variables* guide.

Changing the Default Port of opcuihttps

Vulnerability	The default port number (35211) of the opcuihttps process is known and might therefore be a target of attack.
Impact	If opcuihttps is attacked through the default port, the system may stop responding.
Relevance	Medium
Risk Level	Medium
Solution	The default port number on which opcuihttps listens for incoming HTTPS connections from Java GUI clients is 35211. It is recommended to change the default port 35211 to another port: **`ovconfchg -ovrg server -ns opc.opcuihttps -set SERVER_PORT <new port>`** For more information about configuration variables for the management server, see the *HPOM Server Configuration Variables* guide.

Providing Certificates for Full Authentication Mode

Vulnerability	The opcuihttps server accepts anonymous connections from clients by default. Clients are usually HTTPS-based Java GUI consoles, but can also be web browsers.
Impact	If opcuihttps is attacked through anonymous connections, the system may stop responding.
Relevance	Medium
Risk Level	Medium

Solution	If `SSL_CLIENT_VERIFICATION_MODE` is set to `RequireCertificate`, clients require the certificate for (full) authentication. To provide the certificates for the full authentication mode, perform the following steps: 1. Enable full authentication mode for opcuihttps: a. Configure opcuihttps: **`ovconfchg -ovrg server -ns opc.opcuihttps -set SSL_CLIENT_VERIFICATION_MODE RequireCertificate`** b. Restart the opcuihttps process. For more information about configuring opcuihttps parameters, see the *HPOM Administrator's Reference*. 2. Ensure that the client certificate is installed on the client system. If an HP Operations agent is installed on the Java GUI client system, you can use its client certificate for authentication. If no agent is installed, install the client certificate manually as described in the *HPOM Java GUI Operator's Guide*. 3. Set the Java GUI startup parameter `lcore_defaults` to `yes`, so that Java GUI uses the default Core functionality. The Core functionality is installed with the HP Operations agent if it exists on the Java GUI client. If no agent is installed, install the Core functionality manually as described in the *HPOM Java GUI Operator's Guide*. For more information about configuration variables for the management server, see the *HPOM Server Configuration Variables* guide.

Protecting the Java GUI against Denial of Service Attacks

Denial of Service (DoS) functionality provides protection against attacks to the opcuiwww process. The protection includes:

- Limitation of the number of connections to the Java GUI
- Limitation of the number of connections from one system
- Limitation of input buffer size
- Time out of input stream inactivity before the first request is served

Vulnerability	Multiple Java GUIs may open too many sockets to opcuiwww and keep them open.
Impact	Such attack or situation may occupy all available memory after some time and the system may stop responding.
Relevance	Medium
Risk Level	Medium

Solution	1. Enable basic DoS protection for the opcuiwww process. Set the configuration variable `DOS_ENABLED` to `TRUE`: **`ovconfchg -ovrg server -ns opc -set DOS_ENABLED TRUE`** 2. *Optional.* Configure the following DoS settings according to your security needs: a. Set the size of the input buffer on the opcuiwww socket. If the size exceeds the buffer limit, an error is reported to `System.txt`, and the connection (opcuiwww process) is closed. The default value is 4096. Example: **`ovconfchg -ovrg server -ns opc -set OPCUIWWW_INPUT_BUFFER_LIMIT 512`** b. Set the maximum number of simultaneous connections to opcuiwww (Java GUIs). The default value is 100. Example: **`ovconfchg -ovrg server -ns opc -set OPCUIWWW_MAX_CONNECTION 5`** c. Set the number of connections to opcuiwww from a single system. The default value is 30. Example: **`ovconfchg -ovrg server -ns opc -set OPCUIWWW_ONE_CONNECTION 2`** d. Set the time out for inactivity on the opcuiwww socket. A valid request must arrive at the socket within the specified time (measured from the initial connection), otherwise opcuiwww logs an error and exits. The default value is 5 (seconds). Example: **`ovconfchg -ovrg server -ns opc -set OPCUIWWW_TIMEOUT 3`** For more information about configuration variables for the management server, see the *HPOM Server Configuration Variables* guide.

Restricting the Number of Simultaneous Connections to opcuihttps

Vulnerability	Multiple Java GUIs may open too many sockets to opcuihttps and keep them open.
Impact	Such attack or situation may occupy all available memory after some time and the system may stop responding.
Relevance	Medium
Risk Level	Medium
Solution	Limit the maximum number of simultaneous connections to opcuihttps. Clients are usually HTTPS-based Java GUI consoles, but can also be web browsers. The default value is 100. Example: `ovconfchg -ovrg server -ns opc.opcuihttps -set MAX_CONNECTIONS 10` For more information about configuration variables for the management server, see the *HPOM Server Configuration Variables* guide.

Changing Permissions for the Agent Installation Trace File

To prevent non-root users from reading the agent installation trace file, you can change permissions for the file.

Vulnerability	The file `/tmp/inst.sh.2` may be world readable when agent installation tracing is set up.
Impact	It is possible for a non-root user to read the agent installation trace file. This file may contain node passwords. The file is created when the agent installation tracing is set up. For details, see the man page for `inst_debug`.
Relevance	Medium
Risk Level	Medium
Solution	Change the permission of the trace file to `0600`: `# chmod 0600 /tmp/inst.sh.2` **NOTE:** The name of the file depends on the configuration of the variable `OPC_DEBUG_FILE` in the file `/var/opt/OV/share/tmp/OpC/mgmt_sv/inst_debug.conf`.

Securing APIs

HPOM provides a rich set of APIs on the management server and the HP Operations agents. This section describes only the APIs that expose security-related risks.

Problem	The HPOM API `opcapp_start()` on the management server has a potential security problem, which is fixed by `opcappl_start()`. For backward compatibility, `opcapp_start()` is still offered, but should *not* be used.
Impact	Some existing applications that use `opcapp_start()` may not run as expected.
Relevance	Low
Risk Level	Low

Solution	Do one of the following: • **Recommended** Replace the function call `opcapp_start()` with `opcappl_start()` in all of your applications. • **Workaround** If the recommended solution is not immediately possible, you can set the variable `OPC_OMIT_PWD_CHECK_FOR_APP_START` in the namespace `opc` and the resource group `server` to `TRUE`: 1. Stop your application: # ***<stop your application>*** 2. Enter the following: **# ovconfchg -ovrg server -ns opc \ OPC_OMIT_PWD_CHECK_FOR_APP_START \ TRUE** **CAUTION:** Setting the `OPC_OMIT_PWD_CHECK_FOR_APP_START` configuration variable partially re-introduces the security problem. 3. Start your application: # ***<start your application>***

4 Protecting the IT Environment

The HP Operations Manager for UNIX (HPOM) IT environment includes security for the operating system (OS), Oracle Database, and Network Node Manager (NNM).

Securing the Operating System

This section contains information about OS security. It outlines only a few of the currently known potential security risks. Review the security announcements of your OS vendors on a regular basis.

Reviewing OS Security Documents

For more information about OS security, refer to the following documents:

- *UNIX Security Checklist v2.0*

  http://www.cert.org/tech_tips/AUSCERT_checklist2.0.html

- *HP-UX 11i Security* (web site)

  http://www.hp.com/products1/unix/operating/security/

- *HP-UX 11i Security* (book by Chris Wong)

  http://www.hp.com/hpbooks/prentice/ptr_0130330620.html

For other operating systems, consult the corresponding web pages and announcements of their vendors on a regular basis.

Installing OS Security Patches

At all times, make sure that the latest available OS and product patches are installed on all systems. Regularly review OS vendor web sites for updates.

Preventing Stack Execution

The Stack Execution Prevention, also known as Non-Stack Execution (NX), is a feature of modern processors that prevents or at least limits the risk of the execution of code on the stack. This feature increases security by preventing some types of buffer overflows. It is safe to enable this feature. Newer applications do not execute any code on the stack.

HPOM has been tested to run with this feature switched on.

Overview of Stack Execution Prevention Support by platform:

- **Windows XP SP2**

  By default, NX is switched on for the following CPU types: AMD 64, AMD Opteron, Intel Itanium, and most recent Pentium and Xeon.

- **Windows Server 2003 SP1**

  By default, NX is switched on for the following CPU types: AMD 64, AMD Opteron, Intel Itanium, and most recent Pentium and Xeon.

- **Solaris 9 and higher (SPARC)**

  NX is available. By default, NX is switched *off*.

- **HP-UX 11i v3 on Integrity**

  NX is available. By default, NX is switched *on*.

- **Red Hat Enterprise Linux 3 and higher**

  NX is available. By default, NX is switched *on*.

- **SuSE Professional 9.2, SuSE Linux Enterprise Server and higher**

  NX is available. By default, NX is switched *off*.

CAUTION There may be some applications that require stack execution by design.

You can determine which applications require stack execution by reading technical application descriptions. If these descriptions do not contain the information you need, you can monitor the appropriate logfiles (for example, `syslog` on Solaris).

Preventing Stack Execution on HP-UX

To prevent stack execution, HP-UX 11i v3 provides a kernel parameter that can be set through the SMH tool:

`executable_stack = 0`

Default. Causes stacks to be non-executable. This setting is strongly preferred from a security perspective. If a program attempts to execute code from its stacks after this setting is chosen, the HP-UX 11.31 Itanium kernel immediately terminates the program (sends a `SIGKILL` signal), and logs the apparent stack buffer overflow attack.

`executable_stack = 1`

Causes all program stacks to be executable. This setting is *not* recommended. Change the setting in the SMH tool, and generate a new kernel.

`executable_stack = 2`

Same as a setting of `0`, except that it gives non-fatal warnings instead of terminating the process. Think of this setting as a kind of "trial mode."

Preventing Stack Execution on Sun Solaris

Solaris 9 and higher include a built-in feature that prevents stack execution. This feature can be enabled or disabled, as needed.

For details, see the following web sites:

http://www.sun.com/software/solaris/ds/ds-security/

http://www.sun.com/software/solaris/9/ds/ds-sol9oe/index.html

With Solaris 9 or higher, you can modify the `/etc/system` file to disable the stack execution.

To disable the stack execution, add the following two lines to `/etc/system`:

```
set noexec_user_stack=1
set noexec_user_stack_log=1
```

The second line adds an entry to `syslog` every time code is executed on the stack.

Securing the Oracle Database

This section contains information about Oracle Database security. For further details, check the appropriate Oracle security news regularly.

Changing Oracle Database Default Passwords

After the installation of the Oracle Database, the default database users are set up to accept default passwords. These default passwords could be used by intruders to access the database and change data.

CAUTION It is strongly recommended that you change the passwords of the default Oracle Database users immediately after installation of Oracle software.

To change Oracle Database user passwords:

1. Log on to the Oracle Database as the user `oracle`.
2. Enter the following:

```
# sqlplus /nolog
SQL# connect / as sysdba;
SQL# select username from dba_users;
USERNAME
------------------------------
SYS
SYSTEM
OUTLN
DBSNMP
SD
OPC_OP
OPC_REPORT
7 rows selected.
```

`SYS`, `SYSTEM`, `OUTLN`, and `DBSNMP` are the default users created by Oracle itself. `OPC_OP` and `OPC_REPORT` are additional default users created by HPOM during the `ovoinstall` phase. The SD user is added if you use the HP Service Desk (HPSD) products.

3. For each default user created by Oracle and `OPC_REPORT`, enter the following:

   ```
   SQL# alter user <username> identified by <newpasswd>;
   User altered.
   ```

   In this command, *<username>* is the name of the default user (for example, `sys`), and *<newpasswd>* is the new, unique password.

CAUTION During the HP Operations management server installation, the `ovoinstall` script requires that the Oracle user `SYSTEM` have its default password. Otherwise, the HPOM database table creation fails.

Changing the Oracle Database Password for OPC_OP

The only Oracle Database user for which you may *not* change the password using the SQL `alter` statement is `OPC_OP`.

This password is also stored (encrypted) by HPOM internally in the file:

`/etc/opt/OV/share/conf/OpC/mgmt_sv/.opcdbpwd.sec`.

To change the OPC_OP database user password:

1. Log on to the Oracle Database as the user `root`.
2. Enter the following:

   ```
   # opcdbpwd -s
   New password of database user opc_op: ******
   Please retype the password: ******
   ```

NOTE The OPC_REPORT password is used by applications such as HP Reporter. It needs to be adapted in HP Reporter accordingly in the **File→Configure→Databases** menu.

Vulnerability	A local user who is not authorized to access the database may run HPOM command-line tools with public execute permissions or from another system to access the database.
Impact	The local user could see and modify data in the database through HPOM command-line tools.
Relevance	Medium
Risk Level	Medium
Solution	To change the permission of the HPOM password file, enter the following: `# chmod 0440 /etc/opt/OV/share/conf/OpC/mgmt_sv/.opcdbpwd.sec`

Running the Oracle Database on HPOM

If the HP Operations management server and the Oracle Database are not running on the same system, communication between the two is more vulnerable to security threats.

The communication protocol is defined and implemented by the database API (using Oracle SQL*Net).

NOTE As part of the Common Criteria EAL-2 evaluation, the Oracle Database was running on the HP Operations management server.

If you need to use a remote database for HPOM, you should consider using optional Oracle products (for example, Oracle Advanced Security). For details, refer to the Oracle documentation.

Restricting Remote Access to the Oracle Database

If the Oracle Database is running on the same system as the HP Operations management server, remote access to the database is not needed for normal operation of the HP Operations management server (other than running database reports through Crystal reports).

Vulnerability	Remote access to the Oracle Database is possible by default.
Impact	An unauthorized person may be able to access the Oracle Database from a remote system, or access the operating system through the Oracle Database.
Relevance	High
Risk Level	High

Solution	1. Update the Oracle Database to the latest version.
	2. Limit remote access to the Oracle Database by applying a password.
	3. Disable remote access to the Oracle Database entirely, if not needed.
	To disable remote access, follow these steps:
	a. Stop HPOM and Oracle processes.
	# **opcsv -stop**
	# **/sbin/init.d/ovoracle stop**
	b. Edit the corresponding `tnslistener.ora` file.
	c. Remove the following lines from the Listener Address Sections:
	`(ADDRESS =`
	`(PROTOCOL = TCP)`
	`(HOST = <YOUR_HOSTNAME>)`
	`(PORT = 1521)`
	`)`
	d. Restart Oracle and HPOM for UNIX processes:
	# **/sbin/init.d/ovoracle start**
	# **opcsv -start**
	NOTE: If Oracle runs on a cluster system, you need to add the option `force` when starting and stopping the database.

Restricting Access to the Oracle Listener

To prevent unauthorized access to the Oracle listener, you can apply a password to it.

Vulnerability	Unauthorized access to the Oracle listener.
Impact	An unauthorized user may stop the listener.
Relevance	Medium
Risk Level	Medium
Solution	Apply a password to the listener: `$ lsnrctl next line: # set password` **NOTE:** This password also prevents the HPOM scripts (`opc_backup`, `/sbin/init.d/ovoracle`) from stopping the Oracle listener. Afterwards, when the scripts try to start the Oracle listener, they return an error because the listener is already running. These errors can be ignored.

Restricting Access to Oracle User Passwords

To prevent unauthorized access to Oracle user passwords, you can run `ovprotect` or change permissions for the `/opcdbsetup.log` logfile.

Vulnerability	The logfile `/opcdbsetup.log` on the HP Operations management server contains the password settings in clear text to access the Oracle database.
Impact	Unauthorized people could learn the Oracle user passwords.
Relevance	High
Risk Level	Medium
Solution	Run `ovprotect` or manually change the file permission for `/opcdbsetup.log` so that only root has read/write privileges: # **`chmod 400 /opcdbsetup.log`**:

Securing the Network Node Manager

Network Node Manager (NNM) software can be instlalled on the same system as an HP Operations agent, but not on the same system as the HP Operations management server.

This section describes a few aspects of NNM security. For further information, refer to the appropriate NNM documentation.

NOTE NNM is part of the IT environment from the HP Operations Common Criteria evaluation perspective.

Changing Permissions for the ECS Directory

To prevent non-root users from removing socket files, you can change permissions for the ECS directory.

Vulnerability	The directories `/var/opt/OV/sockets/ecs/1` and `/var/opt/OV/sockets/ecs/1/socket` are world writable.
Impact	It is possible for a non-root user to remove socket files in the two ECS directories. The files are important for ECS inter-process communication.
Relevance	Medium
Risk Level	Medium

Solution	Change the permission of the directories to `0770`:
	`# chmod 0770 /var/opt/OV/sockets/ecs/1`
	`# chmod 0770 /var/opt/OV/sockets/ecs/1/socket`

Changing Permissions for the SNMP Trap Interceptor and Daemon

To prevent non-root users from removing or changing the NNM event specification and configuration, you can change permissions for the `trapd.conf` and `trapd.socket` files.

Vulnerability	The `/etc/opt/OV/share/conf/*/trapd.conf` file is world writable.
Impact	It is possible for a non-root user to remove or change the `trapd.conf` file. Removing or changing the file would remove or change the configuration of the SNMP trap daemon.
Relevance	Medium
Risk Level	Medium

Solution	Change the permission of the `trapd.conf` file to `0664`:
	• *HP-UX*
	`# chmod 664 \ /etc/opt/OV/share/conf/*/trapd.conf`
	`# addgroup ovnnm`
	`# chgrp ovnnm \ /etc/opt/OV/share/conf/*/trapd.conf`
	• *Solaris*
	`# chmod 664 \ /etc/opt/OV/share/conf/*/trapd.conf`
	`# groupadd ovnnm`
	`# chgrp ovnnm \ /etc/opt/OV/share/conf/*/trapd.conf`
	IMPORTANT: Other consumers (for example, your network administrator, HP integrations such as Network SPIs) need to be members of the group “ovnnm”.

To prevent non-root users from removing or changing the SNMP trap daemon, you can change permissions for the `trapd.socket` file.

Vulnerability	The socket file `/var/opt/OV/sockets/trapd.socket` is world writable.
Impact	It is possible for a non-privileged user to write into this socket, and cause non-predictable behavior of the SNMP trap daemon.
Relevance	Medium
Risk Level	Medium

Solution	Change the permission of the `trapd.socket` file to `0660`:
	`# chmod 0660 \`
	`/var/opt/OV/sockets/trapd.socket`

Changing Permissions for the OVsPMD_MGMT Socket

To prevent non-privileged users from causing non-predictable behavior in NNM and HPOM, you can change permissions for the `OVsPMD_MGMT` file.

Vulnerability	The socket file `/var/opt/OV/sockets/OVsPMD_MGMT` is world writable.
Impact	It is possible for a non-privileged user to write into this socket, and cause non-predictable behavior in NNM and HPOM.
Relevance	Medium
Risk Level	Medium

Solution	Change the permission of the `OVsPMD_MGMT` file to `0600`:
	`# chmod 0600 \`
	`/var/opt/OV/sockets/OVsPMD_MGMT`

Securing SNMP and NNM

This section describes SNMP community string and NNM shared memory usage.

Changing the SNMP Community String

Typically, when NNM is installed on a clean Solaris machine, the native Solaris `snmpdx` agent runs on port 161. NNM installs the `emanate` agent onto port 161, and moves the native `snmpx` agent to port 50161.

NNM sets up the emanate `snmpd.conf` file (`/etc/SnmpAgent.d/snmpd.conf`) with the community `get` string of `public`, regardless of what is in the native Solaris `snmpdx conf` file (`/etc/snmp/conf/snmpd.conf`). This setup does not allow change access, but does allow read access.

TIP

Change the community string to a non-default string, which may already be set in `/etc/snmp/conf/snmpd.conf`. Also, verify on *all* other systems that the SNMP community string is no longer set to its default value.

Because the community string is in clear text in the `snmpd.conf` file, you should make sure that the file is readable by the `root` user only. If the community string is changed in `snmpd.conf`, it must also be changed with `ovconfchg` for HTTPS agents. For details, see the `SNMP_COMMUNITY` variable.

CAUTION

The `SNMP_COMMUNITY` variable is stored in clear text. As a result, any user on that system could obtain its value via `ovconfget`.

Verifying Access to NNM Shared Memory

For its internal communication, NNM uses shared memory.

Access privileges should be verified with the `ipcs` tool.

Securing the HP Web Server

HPOM leverages a web server, which listens on port 3443, for the following tasks:

- Installing the Java operator GUI remotely
- Providing the online help for the Java operator GUI
- Starting Jovw (the Java version of ovw)

Alternately, you can omit the following from the web server:

- **Java Operator GUI**

  Install manually. For example, you can use SSH (scp).

- **Java Operator GUI Online Help**

  Find the same information in the corresponding PDF document:

  `/opt/OV/www/htdocs/ito_doc/C/manuals/JavaOperatorGuide.pdf`

There are a number of different ways to disable and enable the HP web server.

To disable the HP web server:

Do one of the following:

- **Perform Manual Steps**

  Perform the following manual steps:

  ```
  # ovc -stop ovtomcatB
  ```

  ```
  # ovcreg -del ovtomcatB
  ```

- **Run ovprotect**

  To automatically disable the HP web server, you can run the `ovprotect` utility. For details, see “Assessing Your System Vulnerability with ovprotect” on page 83. For more information about `ovprotect`, see Appendix B, “OvProtect,” on page 109.

- **Block Firewall Port**

  Block port 3443 with your firewall.

To re-enable the HP web server:

Enter the following:

```
# ovcreg -add
/opt/OV/newconfig/DataDir/conf/dma/ovtomcatB.xml
```

```
# ovc -start ovtomcatB
```

Make sure that port 3443 is *not* blocked by your firewall.

Securing the HPOM Agent

You can secure the HP Operations agent by doing the following:

- "Installing the HPOM Agent" on page 55
- "Switching to the HPOM HTTPS Agent" on page 57
- "Running Non-Root HPOM HTTPS Agents on UNIX Platforms" on page 58

Installing the HPOM Agent

The core functionality of HPOM depends to a significant degree on reliable and trustworthy communication between the HP Operations management server and the HP Operations agent. This communication requires high attention.

The communication between the HP Operations management server and the HP Operations agent can be categorized as follows:

- Software installation
- Standard operations (for example, sending HPOM messages, deploying configuration, and launching remote actions)
- Software de-installation

HPOM provides an `inst.sh` script for installing the HP Operations agent. For details on HP Operations agent installation, refer to the *HPOM Administrator's Reference*.

To install the HPOM agent:

1. Transfer the HPOM agent software to the target node.
2. Install and configure the HPOM agent software, and start its processes.

CAUTION

It is *strongly recommended* that you use only a secure IT infrastructure for installing the HPOM agent software. The installation process is *vulnerable* in insecure IT environments. It should *not* be used there.

3. *HTTPS agent only:*
   - Generate a certificate for the node.
   - Transfer the certificate to the node.

Each step can be performed manually using secure mechanisms (for example, using a CD to install the HPOM agent software or to transfer the certificate using a removable medium, such as a floppy disk, CD, or USB stick). For details, refer to the *HTTPS Agent Concepts and Configuration Guide*.

NOTE

If you use the installation debug functionality (see the *inst_debug(5)* man page), be aware that the passwords of the systems on which the software is installed appear in the debug file. Make sure that the debug output file is in a directory to which non-root users have no write access, and that it is read/write for root only.

For example, for the logfile location in `inst_debug.conf`, use this:

```
OPC_DEBUG_FILE=/var/opt/OV/tmp/OpC/inst.sh.log
```

Change the permissions:

```
# chmod 600 /var/opt/OV/tmp/OpC/inst.sh.log
```

If you do not need it anymore, empty the file after the agent installation:

```
# > /var/opt/OV/tmp/OpC/inst.sh.log
# chmod 600 /var/opt/OV/tmp/OpC/inst.sh.log
```

Switching to the HPOM HTTPS Agent

HPOM DCE agents are not supported since the HPOM 9.00. They use the DCE (or NCS) Remote Procedure Call mechanism to communicate with the HPOM for UNIX management server.

Switch the HPOM DCE agent to the HPOM HTTPS agent.

As a general rule, communication between the HPOM for UNIX management server and the HTTPS agent uses an HTTPS-based protocol. This protocol ensures authentication, authorization, and encryption of the communication. An HTTP-based protocol is used only for Heartbeat Polling, where few or none of these features are required.

OpenSSL is used for implementing the HTTPS protocol.

The HTTPS agent software upgrade (for example, patch installation) and de-installation uses the same security mechanisms as the standard operation (HTTPS and OpenSSL).

Although the HTTPS agent uses HTTPS as its means of communication, there are a few exceptions:

- At installation time, when no certificates are yet available, the certificate request is sent via HTTP.
- The HPOM heartbeat polling is based on HTTP and ICMP (normal ping). The ICMP part can be switched off. Typically, firewalls block ICMP packages. When “RPC only” is chosen for a managed node, only HTTP requests are sent to perform heartbeat polling. The usage of HTTP instead of HTTPS is not a security problem in this case.

Single-Port Communication

In addition to the HTTPS communication, HPOM provides a “single port” communication model.

By default, all HPOM-generated network traffic is sent to port 383 of the target node. Because there is no single-port model implemented for the source node, every communication partner (for example, the HPOM for UNIX management server as well as the HPOM HTTPS agents) opens its own source port. Typically, this is not seen as a security risk.

NOTE If you want, you can restrict the source port range in a granular manner.

For details, refer to the *Firewall Concepts and Configuration Guide*, which is available for download on the following web site:

http://support.openview.hp.com/selfsolve/manuals

Select “Operations for UNIX” and version 9.x.

The “outbound only” functionality opens all communication from the HPOM for UNIX management server and/or the HPOM HTTPS agent from the more secure side only. This will allow you to completely close firewalls from the less secure side for HP BTO Software-related network traffic. For that purpose, a new concept — called “Reverse Channel Proxy” — will be introduced.

Running Non-Root HPOM HTTPS Agents on UNIX Platforms

Whenever possible, run the HPOM agent under a non-administrative account (that is, as “non-root”). This non-administrative account limits the privileges of the HPOM agent, and increases system security.

The `ovswitchuser` command enables you to run HPOM processes under a non-administrative account.

NOTE The HPOM agent on the HPOM for UNIX management server must be an HTTPS agent.

The `ovswitchuser` command has the following limitations:

- **HPOM Agent**

  The HPOM agent must be always running as root on the HPOM for UNIX management server.

- **SPIs**

  Some SMART Plug-ins (SPIs) require you to run the HPOM agent as the user `root`. Verify that the SPIs you use do, in fact, require root privileges. If the SPIs do require root privileges, do *not* distribute them to such nodes.

- **Applications**

  Some applications in the HPOM for UNIX application bank require root privileges. Do not assign these applications to users who are responsible only for managed nodes, which run “non-root” HPOM HTTPS agents. At the very least, do not execute the applications on these nodes.

- **Microsoft Windows**

  The non-root agent feature is currently not supported on Microsoft Windows nodes. By default, the HPOM HTTPS Windows agents run on Microsoft Windows using the system account. The system user is an administrator user, but has limited network access (compared to a full administrator).

CAUTION

The network access rights may differ, based on the Microsoft Windows release.

Securing the IT Infrastructure

The security risks in your IT infrastructure are primarily related to communication between the HPOM for UNIX management server and the following:

- Oracle Database (if not installed locally)
- HTTPS agents
- Java GUI

In general, there are three major security risks for HPOM for UNIX communication:

- Analysis of the communication protocol
- Modification of the communication protocol
- Partial or complete interruption of communication

Other IT security risks are beyond the scope of this document.

5 Configuring HPOM in a Secure Way

HP Operations Manager for UNIX (HPOM for UNIX) offers a wide variety of powerful features. Decide which features to use, based on your company security policies. Decide which features to assign to different HPOM for UNIX users, based on their skills and responsibilities.

Assigning Rights to Users

HPOM users can have different capabilities and privileges, based on their skill sets, trust relationships, and responsibilities. To limit your security risk, assign these rights carefully.

When assigning rights to HPOM users, keep the following assumptions and guidelines in mind:

- **Guidelines**

  Make sure that the HPOM administrator and operators are not hostile, are trained appropriately, and follow all administrative guidance, including guidelines for setting passwords. Of course, the HPOM administrator and operators are capable of making errors.

- **Passwords**

  Make sure that the HPOM administrator regularly remind other HPOM users *not* to share their individual passwords or company-specific security guidelines.

- **Log-on Messages**

  Make sure that the HPOM GUI log-on message (see *opcuistartupmsg(1m)*) contains appropriate security guidelines.

- **Root System Administrator**

  Make sure that the HPOM administrator is a root system administrator on the operating system underlying the HP Operations management server. Normally the HP Operations management server is a dedicated management system used to manage your IT environment controlled by HP Software.

- **Super User**

  Make sure that the operating system super user on each HP Operations agent system is a trusted user who has the necessary administrative knowledge of local super users of HP Operations agent systems.

The users `root` and `opc_adm` can be used as synonyms. The `root` user can do everything that the `opc_adm` user can do. The `opc_adm` user can easily become `root` by using the local `mgmtsv` agent for that purpose.

Assigning Applications

The applications assigned to operators influence, to a high degree, the "power" of these users. Therefore, plan carefully, and assign only those applications that are actually required by operators.

Assigning Applications to Generic Users

TIP Provide a dedicated HPOM user logon for each employee.

If generic HPOM users (for example, `shift1_operator`, `weekend_op`) are required, make sure that a unique mapping table to the real users is available for your organization.

Assigning Applications to User Profiles

In the application bank, you can define applications to be executed, by default, with super user or administrator privileges on the target system. This definition allows a normal HPOM operator to execute selected applications on assigned nodes with super user permissions.

CAUTION Do *not* assign highly privileged applications to user profiles. Assign these applications directly to operators.

It is possible for highly privileged applications to be assigned implicitly to an operator through a user profile, even when this assignment is not intended. As a result, a non-privileged HPOM operator may get more rights than necessary.

NOTE Applications requiring root/administrator privileges cannot be executed on HPOM agents running as "non-root."

Assigning Broadcast and Virtual Terminal Applications

CAUTION Assign operators to “Broadcast” and “Virtual Terminal” applications with super user rights (root, administrator) very carefully. Super user rights provide full power over the assigned managed nodes.

Assigning URL Applications

CAUTION Do not use `$OPC_USER` and `$OPC_PASSWD` variables for URL application launch commands unless the commands are used (started) in a secure (intranet) environment. Variables are resolved on the GUI client and passed as URLs to the web browser.

Restricting Operator Access to Node and Message Groups

Carefully decide which node groups and message groups need to be assigned to operators. These assignments determine which HPOM messages operators can see and work on.

Restricting Operator Access to Services

Carefully decide which services need to be assigned to operators. These assignments determine which HPOM messages operators see and can work on.

Changing Default Operator Passwords

You can change default user passwords to prevent unauthorized persons from hijacking HPOM with default user passwords.

Vulnerability	The HP Operations management server installation automatically creates several HPOM users (`opc_adm`, `opc_op`, `netop`, and `itop`) with default passwords. The passwords must be changed by each of these users at the first logon. Some default HPOM users (operators), such as `netop` and `itop`, may not be used for quite some time. As a result, their default passwords may not get changed soon enough. The vulnerability exists between installation and the first logon for each of these users.
Impact	An unauthorized person with knowledge of the default passwords could log on and modify the default passwords to unknown passwords. The unauthorized person could access all default functionality of the contaminated HPOM users.
Relevance	High
Risk Level	High

Solution	Change the default passwords of all default HPOM users to private passwords immediately after the HP Operations management server installation. You can change the default passwords in two ways: • **Individually by User** Log on to the Java GUI as each of the default HPOM users, and change their passwords manually. • **Using opccfguser** As an HPOM administrator, you can change the passwords of HPOM users using the following command: **#opccfguser -modify *<user_name>* -password *<password>*** As a second step, you might consider using a PAM integration to get centralized user administration with special features (for example, password length and format checking, as well as password aging). Once you switch on the PAM integration, you can no longer change passwords through HPOM, but must change passwords directly in the currently used authentication system (for example, `/etc/passwd`, OpenLDAP, ADS, Kerberos).

PAM - Pluggable Authentication Module

You can get details about the PAM configuration in the *HPOM Administrator's Reference*.

NOTE

HPOM has been evaluated using the PAM integration for `local /etc/passwd` (`pam_unix`), as well as for OpenLDAP (`pam_ldap`) running on a remote Linux system. Other PAM integrations (for example, ADS) are possible as well.

Only the HPOM – PAM client interface was part of the Common Criteria evaluation. All other PAM components belong to the IT environment.

Auditing Users

You can configure HPOM to audit the activities of the HPOM administrator and HPOM operators.

Auditing Administrator Activities

You can configure HPOM to audit administrator activities.

Vulnerability	The default audit level is “Operator.”
Impact	Configuration activities of HPOM administrators are not audited.
Relevance	High
Risk Level	Medium
Solution	After the installation, do one of the following: • If strict auditing of administrator activities is required, run `opc_audit_secure`. **CAUTION:** If you use `opc_audit_secure`, there is no way to reset the audit level. Also, `opc_audit_secure` changes the audit and history download directories. After this change, it is impossible to change the directory locations in HPOM for UNIX. For details, see the *opc_audit_secure(1m)* man page. • If strict auditing of administrator activities is *not* required, change the audit level to **Administrator**. After this change, the administrator can easily change the audit level.

Protecting Audit and History Download Files

You can change download directories to prevent unauthorized persons from getting HPOM for UNIX information.

Vulnerability	Audit and history download files may be readable by unauthorized persons.
Impact	An unauthorized person could get HPOM for UNIX information.
Relevance	Medium
Risk Level	Medium
Solution	Change the download directories in the HPOM for UNIX administrator GUI to a dedicated path. Protect this path by setting strict access permissions. Calling `opc_audit_secure` locks the path definitions in the HPOM for UNIX administrator GUI. **CAUTION:** Once you lock directory path definitions, there is no way to change them. Also, `opc_audit_secure` changes the auditing level to "Administrator." For details, see the *opc_audit_secure(1m)* man page.

Locking Administrator Audit Levels

You can lock the audit level to ensure that the activities of HPOM administrators and HPOM template administrators are audited.

Vulnerability	The HPOM administrator can change the audit level.
Impact	If the audit level is not “Administrator,” the activities of HPOM administrators and HPOM template administrators are not audited.
Relevance	High
Risk Level	Medium
Solution	You can lock the audit level to the “Administrator” level by calling the command `opc_audit_secure`. **CAUTION:** The utility `opc_audit_secure` changes the audit and history download directories. After this change, it is impossible to change the directory locations in HPOM for UNIX. For details, see the *opc_audit_secure(1m)* man page.

Protecting Machine and Account Names

You must set up individual HPOM users because the audit event “Logon” does not yet indicate machine or local system account names.

Vulnerability	The audit event “Logon” does not include the machine name or the local system account name.
Impact	HPOM for UNIX tracks the activities of HPOM users on the user name level only. It does not indicate from which system or account the user comes.
Relevance	High
Risk Level	Medium
Solution	HPOM users may not share their HPOM accounts. You must set up individual HPOM users for each person. If you are running shift operations, or if you have special rotating HPOM user duties, make sure each HPOM user has a unique HPOM account. This is especially important if multiple HPOM users run Java GUI sessions with the same logon.

Securing Remote Actions

As part of the policy configuration, you can configure the system so that automatic actions, operator-initiated actions, or both are executed remotely. These actions are then executed on a different system from that on which the HPOM message has been intercepted. Carefully assign such policies to the HPOM HTTPS agents. The HP Operations management server provides a powerful configuration file to enable and disable such remote actions, depending on node names, node groups, agent types, and so on.

NOTE

It is a vital security requirement that the private keys and certificates of the HPOM certificate authority and management server are protected as well as possible.

For details, refer to the *HPOM HTTPS Agent Concepts and Configuration Guide*, which is available for download on the following web site:

http://support.openview.hp.com/selfsolve/manuals

Select “Operations for UNIX” and version 9.x.

Vulnerability	A malicious user could attack other systems through manipulated remote actions defined as parts of HPOM policies.
Impact	Action definitions and the target system could be manipulated.
Relevance	High
Risk Level	Medium

Solution	Use HPOM enhancements: • Action-definitions in policies are specially signed with the private key of the management server that deployed the policy to an HTTPS agent. Be aware that the signature refers only to the fix part of an action string, but not to the variable parts. (For example, <*$MSG_TEXT*> would be a variable part if used in an action string, but "abcd" would be a fix.) If you want to prevent the use of executable parts (for example, backticks) in the variable part of the action, you can prefix the action with "_NO_SHELL: " (the blank after the colon is necessary). That way, no shell is used, and backticks are not evaluated. • Remote action configuration file (remactconf.xml). In HPOM, the following is true by default: • Allows all remote actions from HTTPS nodes (certified nodes). • Always provides action string signature verification for remote actions for HTTPS agents. Example 5-1 shows the HPOM remote action configuration file: /etc/opt/OV/share/conf/OpC/mgmt_sv/remactconf.xml **NOTE:** You can switch off agent access capabilities remotely. As part of the Common Criteria evaluation, the default behavior for access control is fully supported by HPOM. However, if needed (for example, in an outsourcing environment), you can restrict remote access. **CAUTION:** Avoid variables in action strings. If you cannot avoid variables in action strings, use the "_NO_SHELL: " prefix before action strings.

Example 5-1 Remote Action Configuration File

```
<config xmlns="http://openview.hp.com/xmlns/Act/Config/2002/08">
<!-
*****************************************************************************
The following rule is active and allows all remote actions, if originating
from a HTTPS node.
*****************************************************************************
-->
<rule>
  <doc>Allow ALL certified actions</doc>
    <allow />
</rule>
<!-
*****************************************************************************
Here are some examples showing how to configure the various filter elements
*****************************************************************************
-->
<rule>
 <doc>Actions from Group2 to Group1 allowed for HTTPS nodes</doc>
 <if>
    <source> <nodegroup>Group2</nodegroup> </source>
    <target> <nodegroup>Group1</nodegroup> </target>
 </if>
 <allow/>
</rule>
<rule>
  <doc>Execution on MgmtSrv OK, if sender in Group 3 and certified.
       The certified tag is actually NOT needed, since it's default.</doc>
  <if>
     <target> <mgmtsrv/> </target>
     <source> <nodegroup>Group3</nodegroup> </source>
     <certified>true</certified>
   </if>
   <allow/>
</rule>
<rule>
  <doc>Actions from Group4 are okay - even if not certified</doc>
  <if>
     <source> <nodegroup>Group4</nodegroup> </source>
     <certified>false</certified>
   </if>
   <allow/>
</rule>
```

Securing the Certificate Server

Vulnerability	The private keys of the HP Operations management server and its corresponding certificate authority (CA) are the heart of the public key infrastructure. The key store is located in the following directory: `/var/opt/OV/shared/server/datafiles/sec` These keys could be lost or compromised.
Impact	Lost private keys, or even compromised CA or server private keys, can lead to enormous damage. The worst case is a stolen private key for the CA. With such a key, any type of certificate in your HPOM environment could be faked.
Relevance	High
Risk Level	High
Solution	Make sure that no unauthorized persons with root privileges have access to the management server. Make sure that no unauthorized persons have access to backup tapes from the management server. Make sure that the key store mentioned above can be restored easily in case of corruption of deletion. (Also, see the `/opt/OV/bin/OpC/opcsvcertbackup` utility, which can be used to generate a backup copy of the critical pieces.)

Securing Local Actions

By default, all actions executed on the node where the HPOM message has been generated are not signature-checked on the HP Operations management server.

You can enable this check by setting the variable `OPC_DO_ACTION_SIGNATURE_CHECK_FOR_ALL_NODES`:

- **Advantage**

  Enabling this check provides a higher security level (for example, against debugger attacks on managed nodes).

- **Disadvantage**

  Added/changed action strings by MSI-processed HPOM messages would always be cut off because signing is not possible for MSI applications.

To switch on the signature validation for local actions:

On the HP Operations management server, execute the following:

```
# ovconfchg -ovrg server -ns opc -set \
OPC_DO_ACTION_SIGNATURE_CHECK_FOR_ALL_NODES TRUE
```

Configuring the Managed Nodes as “Monitored Only”

If you do *not* want to allow operators to perform any kind of action on the managed node, configure the managed node as “monitored only” instead of “controlled.”

Avoiding Unattended Configuration Deployment

To avoid unattended configuration deployment, you can deny configuration deployment or digitally sign the configuration.

Denial of Configuration Deployment

To deny configuration deployment, you can do one of the following:

- **HTTPS Agent**

  To disallow policy and instrumentation deployment, use the following settings on the HTTPS agent:

  ```
  # ovconfchg -ns sec.core.auth.mapping.manager \
  -set conf 496 -set depl 2044

  # ovconfchg -ns sec.core.auth.mapping.secondary \
  -set conf 496 -set depl 2044
  ```

  Then restart the HTTPS agent:

  ```
  # ovc -kill

  # ovc -start
  ```

- **Management Server**

  You can implement these setting automatically at agent installation time by inserting them into the following file on the management server:

  `/etc/opt/OV/share/conf/OpC/mgmt_sv/bbc_inst_defaults`

TIP

If you add the settings to the `bbc_inst_defaults` file, you do not need to change settings on individual HTTPS agents. You can limit these settings to subnets, individual nodes, and so on within the `bbc_inst_defaults` file.

An error message is generated when a configuration distribution request is triggered accidentally (or without authorization) on the management server.

Digitally Signed Configuration

With a digitally signed configuration, policies (templates) deployed to managed nodes are no longer encrypted, but are signed by the HP Operations management server:

- Policies can be easily read in a text editor (but only by the local super user “root” or “administrator”).
- Agent verifies policy signature, and detects whether a policy was tampered with or signed by an untrusted management server.
- Manual policy installation (pre-stage/ignite setup) is supported.

6 Protecting HPOM Services

HP Operations Manager for UNIX (HPOM for UNIX) requires several services and daemons to be operational.

Nevertheless, many of the default services provided with the operating system are not required, and can be switched off if no other application is using them.

It is recommended that you disable all unused services and daemons to minimize the vulnerability risks.

Assessing Your System Vulnerability with ovprotect

HPOM provides a new utility, called `ovprotect`, that helps you to determine and minimize the vulnerability risks of your systems from the HPOM perspective. It tests and disables unused services on the HP Operations management server or on the HP Operations HTTPS agent platforms.

In addition, it checks local file permissions, and can perform some corrective actions on the local systems.

The `ovprotect` tool is modular. More extensions, as well as modules for other HP Operations products, are expected to be released on a regular basis.

You can always download the latest version of the `ovprotect` tool from the HPOM web site:

ftp://ovweb.external.hp.com/pub/ovprotect

For details and usage options, refer to the *ovprotect(1m)* man page. Also, see Appendix B, “OvProtect,” on page 109.

NOTE

The tool `ovprotect` is a self-extracting archive. You can run it without installing HPOM.

You can apply `ovprotect` on the HP Operations management server and on the following HTTPS agent platforms:

- HP-UX PA-RISC
- HP-UX Itanium
- RS/6000 AIX
- Solaris SPARC
- X86 Linux
- X86 MS Windows

Vulnerability	Unnecessary system services that are running on the HP Operations management server and HTTPS agent systems could be attacked remotely.
Impact	Several of the standard system services have at least one security risk because they expose ports to the public Internet. Attacking these services could result in performance degradation and limitation of available system resources (for example, memory, disk space, file handles, and so on). It could also result in someone with administrative privileges breaking into the system.
Relevance	High
Risk Level	High

Solution	Disable unused services, or protect them with a firewall. HPOM provides the tool `ovprotect`, which detects services that are unnecessary to HPOM. It is strongly recommended that you use `ovprotect` and other commercial vulnerability scanning tools on a regular basis. **CAUTION:** Running vulnerability scanning tools in your company might require a corresponding formal approval.

Services on HPOM

This section lists services that may run on an HP Operations management server system. Many of these services can be disabled to increase system security.

This list can be also applied for the HTTPS agents running on UNIX platforms (for example, HP-UX, Solaris, AIX, and Linux). The service names, port numbers, and so on may differ somewhat.

NOTE The table provides only an overview. It cannot list all possible services. Check each system to verify whether unnecessary services are running.

Services Not Required by HPOM

Table 6-1 lists the services and ports that are not provided and are *not* required by the HP Operations management server and HTTPS agent.

TIP To better understand this table, see “Key to Service Table Values” on page 18.

Table 6-1 Services and Ports Not Required by HPOM

Port	Service		Required	Comment
	HP-UX	Sun Solaris		
7	echo	echo	No	Echo
9	discard	discard	No	Discard
13	daytime	daytime	No	Daytime (RFC 867)
19	chargen	chargen	No	Character Generator

Table 6-1 Services and Ports Not Required by HPOM (Continued)

Port	Service		Required	Comment
	HP-UX	Sun Solaris		
21	ftp	ftp	No	FTP: If an FTP server is not required on the system, close the server. It is recommended that you to use sftp or scp, and disable ftp. HPOM can use telnet/ftp, remsh/rcp, or ssh/scp for HPOM agent software deployment.
23	telnet	telnet	No	Telnet: It is strongly recommended that you disable telnet, and use ssh (22) instead. HPOM can use telnet/ftp, remsh/rcp, or ssh/scp for HPOM agent software deployment.
25	smtp	smtp	No	Simple Mail Transfer Protocol: If the system does not act as a mail server, disable SMTP. Otherwise, configure SMTP carefully.
37	time	time	No	Time Server: Not required on the system to run HPOM.
42	nameserver	nameserver	No	Host Name Server: Not required to have a name server running on the HPOM management server system. Nevertheless, many customers have a name server or caching name server on the HPOM management server. In fact, if name resolution is bad, it is recommended that you have a caching name server on the HPOM management server.
113	auth/ident	auth	No	Authentication Service: Not required to run HPOM. It should be disabled.
123	ntp	ntp	No	Network Time Protocol: Not required to run HPOM.
512	exec	biff	No	Remote Process Execution

Table 6-1 Services and Ports Not Required by HPOM (Continued)

Port	Service		Required	Comment
	HP-UX	Sun Solaris		
514	shell(tcp) / syslog(udp)	syslog	No	Remote Command / Remote System Logging: Not required to run HPOM. **CAUTION:** The service shell(tcp) is used by remsh, and is as dangerous as rlogin. It is strongly recommended that you disable shell(tcp).
515	printer	printer	No	Printer: Not required. It is recommended that you disable this service.
517	talk	talk	No	Talk: Not required. It is recommended that you disable this service.
518	ntalk	ntalk	No	New Talk: Not required. It is recommended that you disable this service.
540	uucp	uucp	No	UNIX-to-UNIX Copy: Not required. It is recommended that you disable this service.
543	klogin	klogin	No	Kerberos Rlogin: Not required.
544	kshell	cmd	No	Kerberos Remote Shell: Not required.
587		submission	No	Submission: Not required.
600		pcserver	No	Sun IPC Server: Not required.
901	swat / (smpnameres)	swat / (smpnameres)	No	SWAT Samba Web Administration Tool: Not required to run HPOM.
1508	diagmond		No	Diagnostic System Manager
1712	registrar		No	Resource Monitoring Service

Table 6-1 Services and Ports Not Required by HPOM (Continued)

Port	Service		Required	Comment
	HP-UX	Sun Solaris		
2049	nfs		No	Network File System: Not required to run HPOM, but it might be required for the system. **NOTE:** NFS is temporarily needed to set up HPOM with a remote database (which is not recommended, from a security perspective). After the setup, NFS is not needed.
3275	samd		No	SAM Daemon: Not required to run HPOM. It can be disabled if remote administration through SAM is not required.
4045		lockd	No	NFS Lock Daemon/Manager: Not required.
5988		wbem-http	No	WBEM-HTTP: Not required.
5989	wbem-https / cimserver		No	WBEM-HTTPS / CIM Server: Not required.
6112	dtspc	dtspc	No	Subprocess Control
7100	font-service	font-service	No	Font Server: Not required.
7815	recserv		No	SharedX Receiver Service: Not required to run HPOM. It should be disabled, if possible.
22273		wnn6	No	Wnn6 Jserver: Not required.
34042		kcms	No	Kodak Color Management System: On systems lower than Solaris 5.6, this system can enable local users to get root access. For details, see the following: http://www.securityfocus.com/bid/2605 Not required to run HPOM. It should be disabled, if possible.

Services Required by HPOM

Table 6-2 lists the services and ports that are provided or required by the HP Operations management server and HTTPS agent. The service names on other UNIX platforms (for example, AIX, Linux, and Tru64) might be different. For details, refer to your OS vendor documentation.

TIP To better understand this table, see “Key to Service Table Values” on page 18.

Table 6-2 Services and Ports Required by HPOM for UNIX

Port	Services		Required by		Comment
	HP-UX	Sun Solaris	HPOM Server	HPOM Agent	
22	ssh	ssh	(Yes)	No*	Secure Shell: It is strongly recommended that you use ssh instead of telnet (23) on all systems. If possible, disable telnet and use ssh. * Although ssh is not required by the agent, we recommend using ssh instead of rlogin or telnet.
161	snmp	snmp	(Yes)	(Yes)*	Simple Network Management Protocol Agent * Yes in case the HPOM agent does SNMP trap interception or MIB monitoring.
383	ovbbccb	ovbbccb	Yes	Yes	HP BlackBox Communication Broker: This is the HTTPS communication broker. It is required to run HPOM. You may not block it, but you may change the ovbbcb port number with `ovconfchg`. For details, refer to the *HPOM HTTPS Agent Concepts and Configuration Guide*.

Table 6-2 Services and Ports Required by HPOM for UNIX (Continued)

Port	Services		Required by		Comment
	HP-UX	Sun Solaris	HPOM Server	HPOM Agent	
513	login(tcp)	login(tcp)	(Yes)	(Yes)	Remote Logon: It is strongly recommended that you disable this service, and use ssh (22) instead. HPOM for UNIX uses the log-on service for opening a Virtual Terminal application (through opcrlogin). If you do not use the HPOM Virtual Terminal application, you should disable this service
1521	oracle / listener	oracle / listener	(Yes)	No	Oracle Listener: Required if the database is accessed remotely (for example, by HP Reporter). This is the default port for the listener, but you can configure Oracle to use a different port.
2531	ito-e-gui	ito-e-gui	Yes	N/A	HP Operations Java Console: Required for the communication of the Java GUI clients to the HPOM for UNIX management server. If you are using the HTTPS-based Java GUI, the `opcuihttps` process uses `inetd` to start the corresponding `opcuiwww` processes. The port needs to be available only locally on the management server. In `/var/adm/inetd.sec`, you can restrict it as follows: **`ito-e-gui 2351/tcp \`** **`allow 127.0.0.1`** You can configure an alternative port as follows: **`ovconfchg -ovrg \`** **`server -ns \`** **`opc.opcuihttps -set \`** **`OPCUIWWW_PORT \ <port_value>`**

Table 6-2 Services and Ports Required by HPOM for UNIX (Continued)

Port	Services		Required by		Comment
	HP-UX	Sun Solaris	HPOM Server	HPOM Agent	
5053	ovtrcd	ovtrvd	(Yes)	(Yes)	HP Operations Trace Server: Required to get trace output. However, HPOM for UNIX also runs without a running trace server. NNM uses ovtrcd for the NNM extended topology pieces only. `# /sbin/init.d/OVTrcSrv \ stop` Edit the `/sbin/init.d/OVTrcSrv` script to disable startup (for example, put **`?exit 2?`** before the `?start_service?` entry). Port 5053 can be opened for local loopback only by using the command `ovtrcadm -disableremotetracing`. You can set `disable_remote_tracing` at install time for agents by adding an according statement to the `bbc_inst_defaults` agent profile template (on the management server). If set, no XPL remote tracing is possible. On the management server, the `ovtrcadm -disableremotetracing` should be performed manually.
8081, 8444	ovtomcatB	ovtomcatB	Yes	No	OV Tomcat(B) Servlet Container

Table 6-2 Services and Ports Required by HPOM for UNIX (Continued)

Port	Services		Required by		Comment
	HP-UX	Sun Solaris	HPOM Server	HPOM Agent	

35211	opcuihttps	opcuihttps	(Yes)	No	If you like to run the HPOM for UNIX Java GUI in HTTPS mode, this service is required.
					To changing the default port, enter the following command on the HPOM for UNIX management server:
					`# ovconfchg -ovrg \`
					`server -ns \`
					`opc.opcuihttps \`
					`-set SERVER_PORT \`
					`<port_value>`

Services for HPOM HTTPS Windows Agents

Microsoft Windows does not provide tools that display details about services, making it difficult, in some cases, to find out which service is listening on which port. These services may be required to run the system, and cannot be switched off. The Services are Security Accounts Manager, IPSEC Services, Kerberos Key Distribution Center, Net Logon, Protected Storage, and LM Security Support Provider.

Services Required by HPOM HTTPS Windows Agents

Table 6-3 lists the services and ports that are required by HPOM HTTPS Windows agents.

Table 6-3 Services and Ports Required by HPOM HTTPS Windows Agent

Service	Port	tcp/udp	Required by HPOM	Service Name
ftp	21	tcp	For automatic installation using the GUI only	FTP Publishing
smtp	25	tcp	No	Simple Mail Transport Protocol (SMTP)
domain	53	tcp, udp	No	DNS Client, DNS Server
kerberos	88	tcp	No (Yes)	Microsoft Windows does not provide tools that display details about this service, making it difficult, in some cases, to find out which service is listening on which port. This service may be required to run the system, and cannot be switched off.
ntp	123	udp	No	Unknown (time service)
loc-srv	135	tcp	Windows Service	Unknown
netbios-ns	137	udp	Windows Service	N/A
netbios-ssn	139	tcp	Windows Service	N/A
snmp	161	udp	No	SNMP Service
snmptrap	162	udp	No	SNMP Trap Service

Table 6-3 Services and Ports Required by HPOM HTTPS Windows Agent

Service	Port	tcp/udp	Required by HPOM	Service Name
ovbbccb	383	tcp	Yes	Not a service
ldap	389	tcp	No (Yes)	Microsoft Windows does not provide tools that display details about this service, making it difficult, in some cases, to find out which service is listening on which port. This service may be required to run the system, and cannot be switched off.
microsoft-ds	445	tcp	No	N/A
kpasswd	464	tcp	No (Yes)	Microsoft Windows does not provide tools that display details about this service, making it difficult, in some cases, to find out which service is listening on which port. This service may be required to run the system, and cannot be switched off.
http-rpc-epmap	593	tcp	No	Unknown
ldaps	636	tcp	No (Yes)	Microsoft Windows does not provide tools that display details about this service, making it difficult, in some cases, to find out which service is listening on which port. This service may be required to run the system, and cannot be switched off.
NFS or IIS (DCE)	1025	tcp	No	Unknown
COM+ Internet Service	1027	tcp	No (Yes)	Microsoft Windows does not provide tools that display details about this service, making it difficult, in some cases, to find out which service is listening on which port. This service may be required to run the system, and cannot be switched off.
ansyslmd	1055	tcp, udp	Yes	ANSYS - License Manager

Table 6-3 Services and Ports Required by HPOM HTTPS Windows Agent

Service	Port	tcp/udp	Required by HPOM	Service Name
DNS	1074	tcp	No	DNS Server
armi-server	3174	tcp, udp	Yes	ARMI Server
globalcatLDAP	3268	tcp	No (Yes)	Microsoft Windows does not provide tools that display details about this service, making it difficult, in some cases, to find out which service is listening on which port. This service may be required to run the system, and cannot be switched off.
globalcatLDAPssl	3269	tcp	No (Yes)	Microsoft Windows does not provide tools that display details about this service, making it difficult, in some cases, to find out which service is listening on which port. This service may be required to run the system, and cannot be switched off.
ms-term-serv	3389	tcp	No	Terminal Services
XPL Tracing	5053	tcp	No	HP Operations Shared Trace Service
vnc-http	5800	tcp	No	VNC Server
vnc	5900	tcp	No	VNC Server

Start or Stop Services on Microsoft Windows

On Microsoft Windows, you can start and stop services from the GUI or the command prompt.

To start or stop a service from the Windows GUI:

1. Select **Control Panel→Administrative Tools→Services**.
2. Start or stop the appropriate service.

To start or stop a service from the Windows command prompt:

- List all running services:

  ```
  # net start
  ```

- Start a service:

  ```
  # net start ?VNC Server?
  ```

- Stop a service:

  ```
  # net stop ?VNC Server?
  ```

A Checking HPOM Versions

HP Operations Manager for UNIX (HPOM for UNIX) consists of many different components, many of which have different versions and patch levels. As a result, it is sometimes hard to know which version of a particular component is installed.

This section provides tips that help you find the version of a specific component or part.

NOTE Most of the commands described in this appendix must be executed from a UNIX shell. The grep tool is different from system to system. While the default HP-UX grep tool works for the described tasks, it is necessary to use `/usr/xpg4/bin/grep` on Solaris for the extended searches.

Check the HP Operations Management Server

You can check the version of the HP Operations management server, as well as the version, the build date, and the source (patch level) of all installed HP Operations management server binaries and libraries.

You can run the `ovprotect` utility to automatically determine the installed HPOM versions and patch levels.

To check the HP Operations management server version:

Enter the following:

```
# ovconfget -ovrg server opc | grep OPC_INSTALLED_VERSION
OPC_INSTALLED_VERSION=A.09.00
# ovconfget -ovrg server opc.patches
PHSS_32820=Thu May 19 10:17:05 METDST 2005
PHSS_33196=Thu May 19 10:19:03 METDST 2005
```

To check HPOM binary versions, build dates, and patch levels:

Enter the following:

```
# what /opt/OV/bin/OpC/opc* | /usr/xpg4/bin/grep -e opc \
-e OpenView
# what /opt/OV/lib/libopc* | grep -e libopc -e OpenView
```

Check the Java Operator GUI Client

To check the version of the HPOM Java operator GUI client, select **Help→About** in the client.

Check the Command-Line Interface

To check the version, the build date, and the source (patch level) of all installed HPOM for UNIX management server binaries and libraries, enter the following from the command line:

```
# what /opt/OV/bin/OpC/utils/* | grep -e utils -e OpenView
HP OpenView EventAction Agent 08.54.001 (05/13/09)
HP OpenView EventAction Agent 08.54.001 (05/13/09)
HP OpenView EventAction Agent 08.54.001 (05/13/09)
HP OpenView EventAction Agent 08.54.001 (05/13/09)
```

Check Core Agent Components

Core Agent is the internal HP name for a subset of the components belonging to the Common Management Environment (CME).

To check the version of the installed Core Agent components, you can run `ovprotect` or enter the following:

```
# ovdeploy -inv

NAME      DESCRIPTION                                    VERSION
TYPE  OSTYPE

HPOvBbc    HP OpenView HTTP Communication
05.10.030  pkg   HP-UX

HPOvConf   HP OpenView Configuration
01.00.121  pkg   HP-UX

HPOvCtrl   HP OpenView Process Control
01.50.141  pkg   HP-UX

HPOvDepl   HP OpenView Deployment
02.10.031  pkg   HP-UX

HPOvEaAgt  HP OpenView E/A Agent
08.10.160  pkg   HP-UX

HPOvJxpl   HP OpenView Cross Platform Component Java
02.60.030  pkg   HP-UX

HPOvPCO    HP OpenView Performance Core
10.00.123  pkg   HP-UX

HPOvPacc   HP OpenView Performance Access
10.00.123  pkg   HP-UX

HPOvPerlA  HP OpenView Perl 5.6.1 Package
05.06.011  pkg   HP-UX

HPOvSecCC  HP OpenView Certificate Management Client
01.00.121  pkg   HP-UX

HPOvSecCo  HP OpenView Security Core
02.10.030  pkg   HP-UX

HPOvXpl    HP OpenView Cross Platform Component
02.60.030  pkg   HP-UX
```

Check OpenSSL

To determine the embedded version of OpenSSL, you can run the following on UNIX platforms:

```
# strings /opt/OV/lib/libOvSecCore.* | grep 'OpenSSL'
```

Check the EventAction Component of the HTTPS Agent

You can check the version of the HPOM agent from the configuration and from the installer on HP-UX, Solaris, and Linux.

To check the HP Operations agent version deployable from the HP Operations management server:

Enter the following:

```
# /opt/OV/bin/OpC/agtinstall/opcversion
```

To check the HP Operations agent version from the configuration:

Enter the following:

```
# ovconfget eaagt | grep OPC_INSTALLED_VERSION
OPC_INSTALLED_VERSION=08.50.160
```

To check the HP Operations agent version from the installer on HP-UX:

Enter the following:

```
# swlist -l fileset HPOvEa | grep HPOVEAAGT
HPOvEa.HPOVEAAGT       8.50.006     HP OpenView E/A Agent
HPOvEa.HPOVEAAGTCLTS 8.50.009     HP OpenView E/A Consolidated
Package
```

To check the HP Operations agent version from the installer on Solaris:

Enter the following:

```
# pkginfo -l HPOvEaAgt | grep VERSION
VERSION:  8.50.160
```

To check the HP Operations agent version from the installer on Linux:

Enter the following:

```
# rpm -q HPOvEaAgt
HPOvEaAgt-8.50.160-1
```

To check the HP Operations agent remotely from the management server:

Enter the following:

```
# opcragt -agent_version <node>
```

Check Non-HPOM Components

You can check the versions of non-HPOM components, such as the operating system and Oracle Database.

To check the OS version on HP-UX and Solaris:

Enter the following:

```
# uname -r
B.11.31
```

To check the Oracle version on HP-UX and Solaris:

Enter the following:

```
# su - oracle
$ sqlplus -v
SQL*Plus: Release 11.1.0.7 - Production
$ exit
```

B OvProtect

About this document

This document provides an overview of OvProtect for the software version V02_01.

This document is intended primarily for the following audience:

- HP Operations Manager administrators
- security experts
- system and application administrators

This OvProtect manual consists of three parts:

- Features and Benefits

This chapter gives a short overview about OvProtect.

- Installation

This chapter describes the system requirements and installation process of OvProtect as well as the process of uninstalling or upgrading OvProtect.

- Using OvProtect

This chapter provides a detailed description how to work with OvProtect using either the graphical user interface (GUI) or the command line interface (CLI).

Disclaimer

The system administrator *must* back up the system before modifying it with OvProtect.

OvProtect is not a general system administration tool. It does *not* supersede any of the other well-known security assessment tools! The administrator must still to follow the operating system vendor's security advisories, as well as other well-known sources of security information.

NOTE OvProtect is not a replacement for the *HP Operations Security Advisory* document, but a supplement. Not all relevant security aspects are covered by OvProtect.

Features and Benefits

OvProtect is an elegant and easy-to-use tool for assessing and reducing vulnerability risks for HP Operations Manager applications and it's IT environment (i.e. Oracle database, HP Network Node Manager (NNM), operating system, network) from the HP Operations Manager perspective.

OvProtect was originally developed as a contribution to the HPOM NIAP/Common Criteria EAL-2 certification program. It started as a command-line tool. Later enhancements included a graphical user interface and capabilities to support applications other than HPOM.

OvProtect is intended to protect the local host, as well as the HP Operations Manager applications running on that local host. It lists and categorizes the local services and daemon processes found by scanning the local system. The intuitive GUI enables in-depth analysis, and provides step-by-step guidance with platform-specific instructions. OvProtect's intention is to help system administrators to switch off superfluous services and daemon processes, to restrict access to mandatory services to the least permissions required, and to update HP software components to more secure versions. Some, but not all, of these instructions can also be performed automatically by OvProtect. In addition, a powerful command-line interface (CLI) allows you to perform recurring checks with OvProtect (for example, checks of the system security aspects on a weekly basis on all deployed HP Operations HTTPS agents).

OvProtect is written entirely in Perl, but it is available as one self-contained, platform-specific executable to facilitate the download and installation process. It can be installed anywhere in your file system, and it does *not* require any HP application to already be installed.

The OvProtect package contains its own *Release Notes* document.

The scan and corrective task functionality for each security item is implemented as a plug-in. Plug-ins are updated or supplemented on a regular basis, and are available on the Internet as free downloads. OvProtect can perform the update and a rescan of the system in one step!

Figure B-1 illustrates how OvProtect lists the security items found by a scan with the instructions to solve the issues. The instructions can be executed either manually by an administrator or automatically by simply pushing the Yes-button in the interaction frame. The instructions assume that OvProtect was started with super user privileges.

Figure B-1 Viewing Security Items Found by a Scan

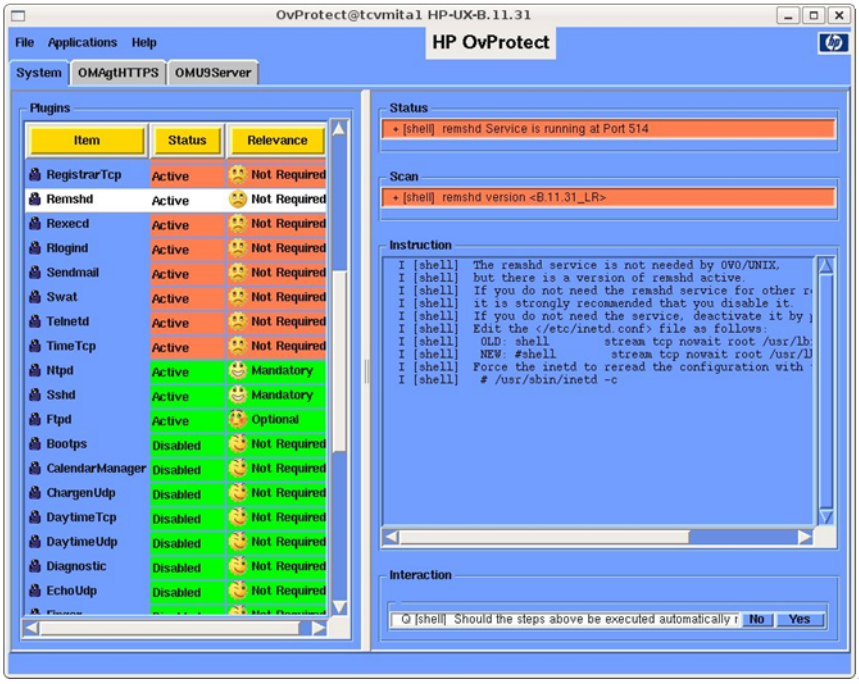
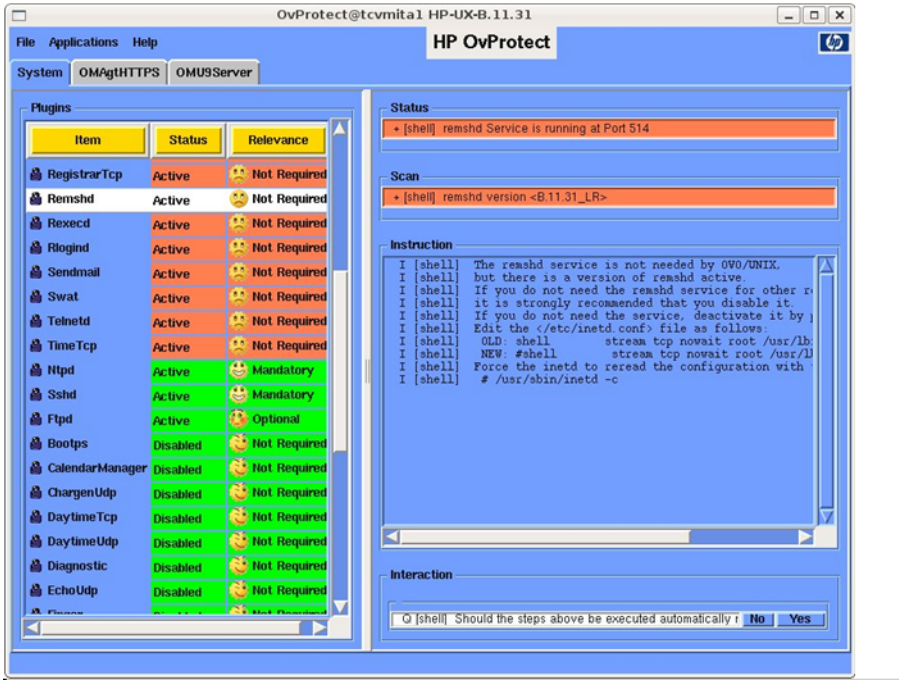


Figure B-2 illustrates how an item previously disabled by OvProtect can be enabled again (for example, when another application needs this specific service). The administrator can either perform the instruction steps listed in the instruction frame manually, or let OvProtect perform the steps automatically by pushing the Yes-button in the interaction frame.

Figure B-2 Enabling Security Items Found by a Scan



An audit trace file and backups of system files modified by OvProtect are generated for each execution of OvProtect.

OvProtect is implemented entirely in Perl. It is thus readable by experienced Perl developers. Since trust and security definitely belong together, nothing is hidden, nothing is magic. Anyone can see what OvProtect does.

OvProtect has a modular structure. The scan and corrective task functionality for each security item is implemented as a plug-in.

Customers can even write their own plug-ins in order to benefit from OvProtect's qualities.

OvProtect can also be used to run some basic pre-checks in advance BEFORE OM or HPOM management products are installed.

NOTE Since HPOM 9.00 the DCE agents are no longer supported, so OvProtect will not display and support them on HPOM 9.00 systems.

Installation

Supported Platforms

OvProtect is tested and runs on the following platforms:

- HP-UX PA-RISC
- HP-UX Itanium
- RS/6000 AIX
- Solaris Sparc
- Solaris x86
- X86 Linux
- X86 MS Windows

System Requirements

Before installing OvProtect, make sure that your system meets the following minimum requirements. These requirements depend upon whether you want to use OvProtect's graphical mode or the command-line interface.

- disk space
  - 15 MB in the `<USER_HOME>`-directory
  - 30 MB in the `/tmp` directory on UNIX or in the `%TEMP%` directory on MS Windows
  - log and backup directory: depending on activity

- hardware
  - for OvProtect's graphical user-interface: graphical resolution of 1024 x 768 pixels
- software
  - for OvProtect's graphical user-interface: X server on UNIX
  - optional: NNM B.07.50 or higher on Solaris or HP-UX
  - optional: HPOM management server A.08.10 or higher or HPOM 9.00 management server or higher on Solaris or HP-UX

Installing OvProtect

OvProtect is available as two platform-specific files: a self-extracting binary (PAR = Perl AR chive) and a file named `base-V02_01.zip` (HP plug-ins). OvProtect can be installed anywhere in your file system, and it does not require any HP Operations Manager application to be already installed.

In addition the `link base.zip` to `base-V02_01.zip` has to be in the same folder, too.

The size of the OvProtect binary is platform-dependant:

- HP-UX Itanium: about 9 MB
- HP-UX PA-RISC: about 5 MB
- RS/6000 AIX about 5 MB
- Solaris Sparc: about 9 MB
- Solaris x86: about 3.5 MB
- Linux: about 3 MB
- Windows: about 5 MB

NOTE Since OvProtect could modify the fundamental system configuration, you have to first back up your system before using OvProtect.

NOTE There is a link `base.zip` referring to `base-V02_01.zip` since OvProtect is designed to use the file `"base.zip" internally.ct`.

Each version of the prepacked OvProtect binary is unpacked to the temporary PAR-directory.

- UNIX: about 10 MB or greater (for each version)

`/tmp/par-UID` (UID=root or system)

- Windows (about 20 MB)

`%TEMP%/par-UID` (UID=Administrator)

Examples:

- Linux:

`/tmp/par-root/cache-decf75354ec6d3a10ded9aa4d876e151/`

- HP-UX or Solaris:

`/tmp/par-SYSTEM/cache-4a5b346f4311d5d75bb1d5bae1530078/`

- Windows:

`%TEMP%\par-Administrator\cache-042a96fb26c92945f7ad399e285a2f2d`

You will find the backup directory and the trace files (`ovprotect-V02_01.trc`) in `/var/tmp/ovprotect-V02_01`.

The file `base-02.01.zip` is unpacked to OvProtect's plug-ins directory `<USER_HOME>/.ovprotect`.

All Perl modules (`*.pm`) in OvProtect's plug-ins directory are provided with a `MODULE.md5` file. At program startup, before each plug-in is loaded, the actual md5 checksum is calculated and compared to the existing file. If the comparison is not successful, the module is skipped or the program is aborted.

Removing OvProtect

In case you need to remove OvProtect from a directory, first stop the execution of OvProtect. You can then delete the following files and folders:

- the file `ovprotect-V02_01(.exe)`
- the file `base-V02_01.zip`
- the link `base.zip`
- the folder `.ovprotect-V02_01` in your home-directory (if exists)
- the folder `par-UID` in the tmp-folder (UID = "root" or "system" or "administrator" depending upon the operating system)
- the tracefiles in `/var/tmp/ovprotect-V02_01`.

Upgrading OvProtect

In case you want to install a newer OvProtect version, you first have to remove OvProtect (how to do this is described in the above chapter “Removing OvProtect” on page 117) before installing the new version (as described in the above chapter “Installing OvProtect” on page 115).

Using OvProtect

OvProtect is intended to protect the local host, as well as the HP Operations Manager applications running on that host. OvProtect lists and categorizes the local services (required e.g. by HP Operations Manager applications) found by scanning the local system. The intuitive GUI enables in-depth analysis, and provides step-by-step guidance with platform-specific instructions. Some of these instructions can also be performed automatically by OvProtect. Others should be carefully processed by an experienced administrator (for example, building a new kernel) while OvProtect offers guidance with detailed instructions for some platforms.

System administrators can use OvProtect intuitive GUI to gain detailed experience in the tool's security strategy or to perform individual scans. A powerful command-line interface is provided to support system administrators with recurring routines such as weekly checks of system security aspects on all deployed HPOM HTTPS agents.

Using OvProtect Interactively

NOTE Since OvProtect will modify the fundamental system configuration, you have to first back up your system before using OvProtect.

OvProtect needs to be executed with the privileges of an administrator's account. You start OvProtect's GUI-mode by simply executing it's binary without any options.

The following chapter describes the use of OvProtect's GUI in detail. It describes the information presented by the standard screens and the process of disabling and enabling security relevant services.

The Standard Screens

While OvProtect starts up loading all relevant plug-ins, creating necessary directories and performing an initial system scan, you will see this splash screen.

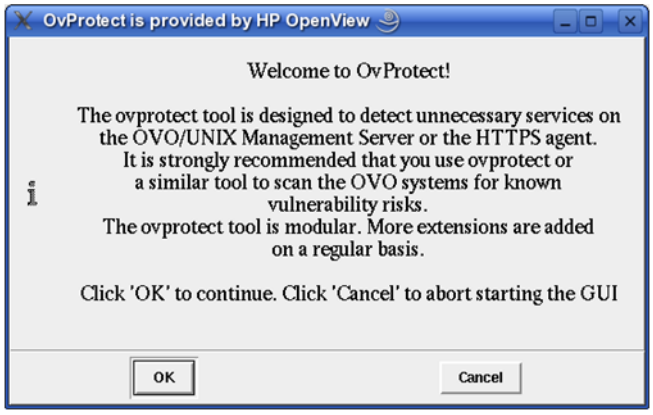
Figure B-3 Splash Screen

The following steps are performed upon OvProtect program start:

- The packed Perl binary is unpacked into the temporary directory.
- OvProtect unpacks plug-ins and additional libraries to `<USER_HOME>/.ovprotect-V02_01` creating directories for each plug-in.
- md5 checks are performed for all plug-ins.
- You will see the splash screen while OvProtect performs an initial system scan and loads all relevant plug-ins.

- Finally, the main window is displayed together with the intro screen.

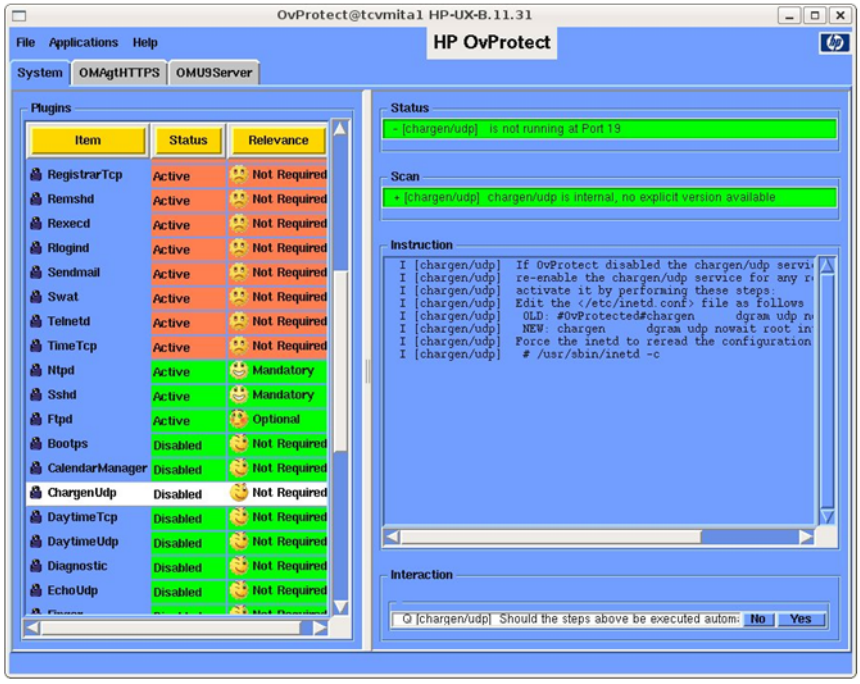
Figure B-4 Intro Screen



The intro screen is blocking which means you cannot use OvProtect before you've clicked the OK button. By clicking the Cancel button, you cancel the start of OvProtect.

The intro screen can be switched off by using the File->Preferences menu, which is explained further below in this document.

Figure B-5 Main Screen



OvProtect shows the hostname and the operating system in the title bar of the main screen.

There are three menu items: File, Applications, and Help, which will be explained further down.

Each tab below the menu bar reflects a separate plug-in area which corresponds to an available application on this machine. System is the general plug-in area available on all supported machines. NNM, OMU9Server (for HP Operations Manager Server for Unix) and OMAgtHTTPS (for HP Operations Manager HTTPS agents).

All available plug-ins of a plug-in area are listed on these notepad-pages. To execute a plug-in, select the respective item line. If the selected item provides an automated fix routine, you will be asked whether OvProtect shall perform the required action(s) automatically or not.

The Plug-ins list on the plug-in area's left side holds all available items, showing item name, status (active or disabled) and relevance (mandatory, optional, not required) from the HP software perspective.

Each item line is marked by an icon showing either a locked sign (for plug-ins provided by HP that passed a security check) or an unlocked sign (for plug-ins not provided by HP).

The combination of status and relevance values defines the color of the row. Red lines represent areas of concern, where action should be taken to either improve the security level or to start mandatory services. Different smileys help you identify the urgency of actions on first sight.

If all rows are green, the system is "OvProtected". This does not mean it is 100% secure. But it is optimally set up to run the registered HP Operations Manager applications and customer plug-ins.

You can sort the table entries either by item name, status or relevance.

- Clicking the Item button sorts the list alphabetically from A to Z by item name.
- Clicking the Status button sorts all items by their status "Active" or "Disabled". The list therefore starts with all active items sorted alphabetically, followed by all disabled items sorted alphabetically. Active means that an item (i.e. process or service) is currently running or activated.
- Clicking the Relevance button sorts the items by decreasing degree of concern. Missing mandatory items are of highest concern, as required functionality may not be available. Active services that are not required represent unnecessary security risks, while active items that are mandatory or optional along with disabled items that are optional or not required are of minor concern for the system's security. Each red line should be seen as a recommendation for action. Sorting the list by relevance returns the list to its initial state after OvProtect's last system scan.

The right side of a plug-in area is divided into four parts:

- The Status line lists the name of the service followed by status information text. The background color shows whether a selected item is active (red) or not (green).
- The Status line lists the name of the service followed by status information text. The background color shows whether a selected item is active (red) or not (green).

Example:

```
+ [ftp] ftpd Service is running at Port 21
```

- The Scan line lists the name of the service followed by the scan information text, e.g. the service's version. The background color represents the availability of required binaries or configurations.

Example:

```
+ [ftp] ftpd version <SunOS 5.10 Generic 120086-01 Jun 2005>
```

- If no item is selected, you see the OvProtect Assistant in the next text frame with a short explanation.
- As soon as an item is selected, this frame offers instructions with a description of recommended actions to improve your system.

Example:

```
 I [ftp] The ftpd service is not needed by HP Operations
Manager (OM),

 I [ftp] but there is a version of ftpd active.

 I [ftp] The ftpd Service is known to be at least vulnerable
against eavesdroping.

 I [ftp] If you do not need the ftpd service for other
reasons,

 I [ftp] it is strongly recommended that you disable it.

 I [ftp] If you do not need the service, deactivate it by
performing this step:

 I [ftp] Call the following command:

 I [ftp] # /usr/sbin/inetadm -d svc:/network/ftp:default
```

Each instruction line is preceded by an "I" for instruction and a short name of the selected item followed by the instruction text.

- The Interaction frame displays queries to be answered by using the Yes/No button in case OvProtect can process the instructions displayed in the instruction frame above automatically. Each query line is preceded by a "Q" for query, a short name of the selected item followed by a question to the user that he can answer by pressing the yes- or no-button. In case of "no" no action will be taken and the user's answer is recorded in the instruction frame. In case of "yes" the proposed action is performed automatically and all steps are recorded in the instruction frame:

Example:

```
Q [ftp] Should the steps above be executed automatically now
?

 A [ftp] Answer was 'Y'

 V [ftp] Running command /usr/sbin/inetadm-d
svc:/network/ftp:default ...

 X [ftp] Command /usr/sbin/inetadm-d
svc:/network/ftp:default returned RC <0>,Err <>

 V [ftp] Check Status of ftp again ...

 - [ftp] is not running at Port 21
```

OvProtect uses these tokens to mark the character of a text:

```
A Answer text

I Information text

V Activity announcement ("verbose")

X Execution

+ Positive condition

- Negative condition

* Error occurred
```

Getting Online Help

- Balloon help:

Some GUI elements are provided with balloon help to explain them.

The balloon help is activated by moving the mouse cursor over an item.

- Help screen:

The help screen can be accessed by choosing Help -> OvProtectHelp

Leave the Help screen by clicking the OK button (or the "x" in the window's upper right corner).

Your Preferences

You have the option of preventing the Intro page from appearing at every program start. In this case choose File -> Preferences and confirm the question "Disable intro page?" by selecting the "Yes"-button. You will have the intro page shown on program start, if you answer the query using the "No"-button.

Finally, click "OK" to save your settings or "Cancel" to reject your modifications.

How to Invoke A System Rescan

In case there are new HP Operations Manager applications installed or deinstalled while OvProtect is up, you should perform a rescan of the system by selecting File -> ReScan.

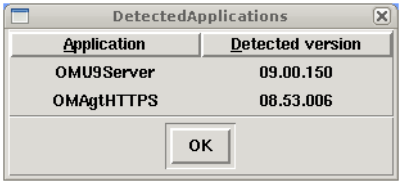
How to leave OvProtect

Chose Quit in the File-Menu, if you want to quit this application.

Applications

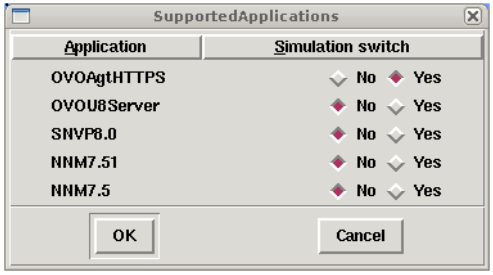
The Applications menu offers two submenus, which provide the required information in a separate window.

Figure B-6



`DetectedApplications` shows a table of supported HP Operations Manager applications and their version numbers, or "n/a". Each application in this table corresponds to a tab in the main window which is available there only if an application is detected.

Figure B-7



SupportedApplications lists all HP Operations Manager applications that are supported but not available. OvProtect can simulate these applications at plug-in dependency calculation. Such a simulated application is considered at plug-in dependency calculation along with all detected applications, while OvProtect ignores applications that are uninstalled or not simulated. This allows protection tasks to be performed before an application is installed. After clicking "OK" the dependency calculation will be restarted to incorporate your modifications. Click "Cancel" to close this window without restarting the dependency calculation. If all applications are already available, you do not get a list here, but the message: "All applications are already available!"

Disabling an Item

Disabling an item works in two ways, either automatically or manually:

- Automatically means OvProtect, initiated by the user, will process all steps automatically (as shown in the following example).
- Manually means OvProtect will show a description in the instruction frame, and the user has to execute all required steps himself. This occurs if a required step is either sensitive (e.g. StackExecution requires building a new kernel and rebooting the system), or interacting with a GUI, or shutting down connections to the administered OvProtect system (e.g. Sshd).

How-to

The following three steps are exemplary for the automated disabling of an item:

Start by selecting an active item in the plug-ins frame. Read the description in the instruction frame, and click Yes in the interaction frame.

You want to disable the chargen/tcp service, for example. Select the ChargenTcp-item in the plug-ins-list, read the instructions in the instructions frame and click "Yes", in order to proceed.

If the processing was successful, the background color of the scan and status frames change from red to green. The same is true for the item's background color in the plug-ins list.

If you prefer to execute all steps on your own, you can just follow the description without clicking Yes . (Note: To see if the status of an item changed after you performed a manual step, you have to update the GUI by selecting the item again!)

Enabling an Item

You can enable a plug-in - if supported - either automatically or manually. But enabling a plug-in can also be unsupported:

- Automatically means OvProtect executes all required steps after interaction with the user. OvProtect cannot estimate however, whether, for example, an inetd-service that has never been started before is properly installed on the machine. OvProtect therefore warns the user in the instructions frame that enabling may fail, if the service wasn't disabled by OvProtect itself.

  The instruction frame includes descriptive text, the interaction frame shows the question asking whether you want to process all steps automatically:

  The following three steps are exemplary for the automated enabling of an item.

  — Start by selecting a disabled item by selecting the corresponding line in the plug-ins list. Read the description in the instruction frame carefully. Then initiate automatical execution by clicking the yes-button in the Interaction frame. In most cases, enabling works only if OvProtect disabled that item before!

  - — Read additional information in the Instruction frame. Confirm all questions in the Interaction frame to proceed.
  - — If finished, the content of the Interaction frame changes. The question field and Yes/No buttons are gone. The item's status switches from disabled to active. The background color of the status and scan fields switches color from green to red if the processing was successful.

- Manually means OvProtect displays the description of required steps in the Instruction frame, which the user executes himself manually, for example, for sensitive administration steps like changing the configuration of Oracle.
- Unsupported means OvProtect does not show any description at all. This is the case if enabling makes no sense (for example for plug-ins checking the patch level) or enabling is not implemented because it requires installation steps (for example, if a service is not disabled by OvProtect, the availability of required programs has to be determined by the administrator).

Using OvProtect Non-Interactively

In this section options for the OvProtect program startup are introduced.

Options are classified as:

- general options for the graphical user interface and the command-line interface
- options valid for the command-line interface only
- special, mutually exclusive command-line interface options

OvProtect allows the options to be abbreviated to uniqueness! There is only one option beginning with "`t`". It is therefore sufficient to call "`-t`" to generate a trace file.

Options for CLI and GUI

-help oder -?

This option prints the explanations for OvProtect's options.

```
usage:ovprotect-02.01 [-help|-?]|[-version]|[-verbose]
[-trace] [-scan] [-nographical
```

```
[-protect|-autoprotect|-unprotect|-autounprotect|-info][[-pl
ugin <PLUGINA> -plug

nn <PLUGINB> ...|-file FILENAME]]][-nographical -createfile
FILENAME]|[-graphical

[-simulate <APPLICATION-A> -simulate <APPLICATION-B>]]

[-autoprotect]                    ... protect system
automatically (commandline only!! USE CAREFULLY!!)

[-autounprotect]                  ... unprotect system
automatically (commandline only!! USE CAREFULLY!!)
[-createfile]                    ... create file (including
all vailable plugins) to be used with option -file to
preselect plugins (commandline only!!)

[-file]                           ... preselect plugins
(default line: 'PLUGIN=yes', deselect plugins by commenting
line with '#' or changing 'yes' to 'no') (commandline
only!!)

[-graphical]                      ... start graphical user
interface (default, disable with-nographical)

[-help|-?]                        ... this page

[-info]                         ... plugin based information
(commandline only!!)

[-plugin PLUGIN]                  ... use this option
(multiple) if only selected PLUGINs should be executed, e.g.
Swat or Ftpd (commandline only!!)

[-protect]                        ... query user to protect
system (commandline only!!)

[-scan]                         ... scan system for security
issues (default option)

[-simulate APPLICATION]          ... calculate dependencies
as if APPLICATION is installed, e.g. NNM7.5 or OVOU8Server
(OVOAgtHTTPS is default!)

[-trace]                          ... generate a tracefile
(default, disable with -notrace)

[-unprotect]                    ... query user to unprotect
system (commandline only!!)
```

```
[-verbose]                          ... more verbose output
[-version]                          ... version information
```

```
-version
```

This option prints out the version information: "This is OvProtect version: V002_01"

```
-graphical or -nographical
```

The option -graphical starts the graphical user interface of OvProtect, while -nographical starts OvProtect in nongraphical mode using the command-line interface.

If neither option is specified, OvProtect is started in graphical mode.

```
-simulate APPLICATION
```

This option calculates all dependencies simulating the application APPLICATION just as if it were installed.

By default, dependencies are only calculated for installed applications, which are then displayed in the plug-in areas. As an exception, OVOAgtHTTPS is simulated by default, because this is the minimum use case for OvProtect. Using this option causes OvProtect to even incorporate all dependencies of a specific uninstalled APPLICATION while its plug-in area is still skipped.

Valid APPLICATION values are the names of integrated applications:

- NNM7.5
- OVOAgtHTTPS (simulated by default)
- OMAgtHTTPS
- OVOU8Server (on supported platforms only)
- OMU9Server (on supported platforms only)

```
-trace
```

This option generates a trace file ovprotect-02.01.trc in /var/tmp/ovprotect-02.01/YYYYMMDDhhmmss

This trace file protocols all processed steps along with a timestamp.

Each line of the tracefile holds the following information:

1. Date in YYYYMMDDhhmmss

2. Origin of the line (debug information or routine output)
3. Log information

Example:

```
20080425105855   - [comsat] is not running at Port 512

20080425105855   + [comsat]  comsat version <5>

20080425105855  I [comsat]  If OvProtect disabled the comsat
service, and you want to

20080425105855  I [comsat]  re-enable the comsat service for
any reason,

20080425105855   I [comsat]  activate it by performing this
step:

20080425105855   I [comsat]  Call the following command:

20080425105855   I [comsat]   # /usr/sbin/inetadm -e
svc:/network/comsat:default

20080425105855   I [comsat]  Note: If not OvProtect disabled
the comsat service,

20080425105855   I [comsat]  enabling may fail!

20080425105855   Q [comsat]  Should the steps above be
executed automatically now  ?

20080425105907   A [comsat]  Answer was 'Y'

20080425105907   V [comsat]  Running command
/usr/sbin/inetadm-e svc:/network/comsat:default ...

20080425105907   X [comsat]  Command /usr/sbin/inetadm-e
svc:/network/comsat:default returned RC <0>,Err <>

20080425105909   V [comsat]  Check Status of comsat again ...

20080425105909   + [comsat]  comsat Service is running at
Port 512
```

The log information uses these tokens:

```
A Answer text

I Information text

Q Question text
```

```
V Activity announcement ("verbose")

X Execution step

+ Positive condition

- Negative condition

* Error occurred
```

```
-verbose
```

More verbose output. Additional information about program execution is shown in the terminal.

Options for CLI only

The following options can only be specified in combination with the option -nographical.

```
-createfile FILE
```

This option creates a file FILE dumping all available plug-ins into the specified file. This file is to be used to preselect plug-ins.

The file content looks like this:

```
Plugins::System::V01_00::solx86::ToolTalkDB=yes

Plugins::System::V01_00::solx86::Uucpd=yes

Plugins::System::V01_00::solx86::Walld=yes

Plugins::System::V01_00::solx86::Wnn8=yes

Plugins::OVOAgtHTTPS::V08_51::solx86::OvPatches=yes

Plugins::User::V01_00::solx86::Logfile=yes
```

All available plug-ins are listed with their complete namespace followed by an equal sign (=) and "yes".

You can modify this list in order to deselect plugins by deleting lines, by commenting lines with "#" or changing "yes" to "no".

```
-scan
```

This option scans the system for security issues (default option). This option is set automatically and can be unset only if the option -info is specified. No protection step takes place!

```
-info
```

This option prints all available information for all or preselected plug-ins. No protection step takes place! Not even a scan.

Mutually Exclusive CLI Options

The following options are mutually exclusive. You can choose one item only!

`-[un]protect`

These options scan the system and generate a user query for each security relevant service to either protect or unprotect the system. Choose one item only. The options have to be preceded by the option `-nographical` on the command line, since they are for CLI-use only.

`-protect`: Use this option to perform a scan. For each relevant service the user can decide whether to perform an automated action to increase system security.

`-unprotect`: The user must decide whether an automated action shall take place which will decrease system security.

`-auto[un]protect`

These options automatically perform [un]protection steps. No user queries are generated.

Choose one item only. The options have to be preceded by the option `-nographical` on the command line, since they are for CLI-use only.

`-autoprotect`: After executing the scan, all steps to secure the system take place automatically, i.e. without user queries.

`-autounprotect`: No questions will be asked. After executing the scan, only the automated steps to activate plug-ins are executed.

`-file FILE` or `-plugin PLUGIN`

Preselect plug-ins via file or command line.

Choose one item only:

- -plugin PLUGIN:

Select the plug-ins you want. You can specify multiple plug-ins, using only the last part of the namespace (if plug-ins exist with identical module names, this leads to a multiple selection) or use the complete namespace (unique selection).

- -file FILE:

Use this plug-in selection option if you want to select plugins as listed in FILE. You can create this file with the option -createfile FILE and edit the lines to modify the selection.

Examples

The following examples should give an impression of how to work with the options.

- Task: Show all information about the plug-in TimeTcp:

Command:

```
#./ovprotect-V02_01 -nographical -info -plugin TimeTcp
```

Output:

```
info of Plugins::System::V01_00::solx86::::timetcp general
info:

I [time/tcp]  This simple protocol is now used by only about
1% of ITS custome rs.

I [time/tcp]  It returns a 32-bit unformatted binary number
that represents

I [time/tcp]  the time, in UTC seconds, since January 1,
1900.

I [time/tcp]  The server listens for Time Protocol requests
on port 37,

I [time/tcp]  and responds in either tcp/ip or udp/ip
formats.

    instruction info:

I [time/tcp]  The time/tcp service is not needed by OVO/UNIX,

I [time/tcp]  but there is a version of time/tcp active.

I [time/tcp]  If you do not need the time/tcp service for
other reasons,

I [time/tcp]  it is strongly recommended that you disable it.

I [time/tcp]  If you do not need the service, deactivate it
by performing this step:

I [time/tcp]  Call the following command:
```

```
I [time/tcp]   # /usr/sbin/inetadm -d
svc:/network/time:stream reconstruction info:

I [time/tcp]  If OvProtect disabled the time/tcp service,
and you want to

I [time/tcp]  re-enable the time/tcp service for any reason,

I [time/tcp]  activate it by performing this step:

I [time/tcp]  Call the following command:

I [time/tcp]   # /usr/sbin/inetadm -e
svc:/network/time:stream

I [time/tcp]  Note: If not OvProtect disabled the time/tcp
service,

I [time/tcp]  enabling may fail!
```

- Task: Use graphical mode and prepare the system for the installation of an HPOM HTTPS-Agent. Create a trace file:

Command:

```
#./ovprotect-V02_01 -simulate OVOU8AgtHTTPS -trace
```

- Task: Automatically deactivate all active items:

Command:

```
#./ovprotect-V02_01 -nographical -autoprotect
```

Plug-ins for OvProtect

Each security item, i.e. each service or daemon process surveyed by OvProtect is implemented as a plug-in. These plug-ins are listed as "items" in the GUI on tabbed notepad-pages called plug-in areas.

There is one plug-in area available for each application OvProtect supports in its system scans. Customers may even provide their own plug-ins which are listed in an additional plug-in area called "User".

This section provides insight into OvProtect's standard plug-in areas:

1. System plug-ins

   System is the general area, available on all supported platforms, whether there are HP software applications installed or not.

2. OMAgtHTTPS and OVOAgtHTTPS plug-ins

OMAgtHTTPS is provided if OvProtect detects an installed OM HTTPS agent on a system, OVOAgtHTTPS is provided if OvProtect detects an installed HPOM HTTPS agent on a system.

3. OMU9Server and OVOU8Server plug-ins

   OMU9Server is provided if OvProtect detects an installed OMU server version 9; OVOU8Server is provided if OvProtect detects an installed OVO server version 8.

4. NNM7.5 plug-ins

   NNM7.5 is provided if OvProtect detects an installed NNM version 7.5 or higher.

System Plug-ins

There are several plug-ins for the supported platforms.

Generally, we can classify them in three categories:

- inetd services such as telnet, ftp, rexec, ...

  OvProtect comments out the corresponding line in inetd.conf, or moves the corresponding xinetd service file in the backup directory and forces the inetd process to reread its configuration. It stops a service using inetadm on Solaris 10, or using the Registry on Windows. In general, these plug-ins are provided with automated disabling and enabling methods.

- other daemons such as ntpd, sshd, nfsd, ...

  OvProtect stops the daemon and, if required, modifies config files to prevent a restart of the daemon. In general, these plug-ins are provided with automated disabling steps, as well as a description of enabling steps.

- file permissions with rhosts

  OvProtect changes file permissions. No enabling description is available.

OMAgtHTTPS

- OvPatches

OvPatches inspects the inventory of the HTTPS agent and compares it to a list of required components and versions.

OVOAgtHTTPS Plug-ins

- OvPatches

OvPatches inspects the inventory of the HTTPS agent and compares it to a list of required components and versions.

OMU9Server Plug-ins

- OmuPatches

OvoPatches inspects the inventory of the HPOM management server, and compares it to a list of required patches.

All other plug-ins follow the instructions included in the Security Advisory document.

- OmuSockets
- Oracle
- JavaGuiAccess

OVOU8Server Plug-ins

- OvoPatches

OvoPatches inspects the inventory of the HPOM management server, and compares it to a list of required patches.

- OvoPermissions

All other plug-ins follow the instructions included in the Security Advisory document.

- OvoSockets

See "Securing HPOM and NNM Sockets" in the "Security Advisory Guide".

- OvoDceDaemonless

See "Activate HP Operations Manager in DCE RPC Daemon-less Mode" in the "Security Advisory Guide".

- OvoDceDistmMsgrd

See "Disable Distribution Manager and DCE Message Receiver" in the "Security Advisory Guide".

- Oracle

See "Restricting Remote Access to the Oracle Database" in the "Security Advisory Guide".

- JavaGuiAccess

See "Restricting Java GUI Communication" in the "Security Advisory Guide".

NNM7.5 Plug-ins

- Nnmweb

Nnmweb checks the Apache version used by NNM.

- RemoteOvwAccess

RemoteOvwAccess checks security settings in configuration files.

- RegisteredTomcat

RegisteredTomcat offers a way to deregister the HP Operations Manager application server component.

Tips and Troubleshooting

This section provides basic information about known troubleshooting issues.

- Enhancements and Fixes
  - — OvProtect Version V02_00 and higher works with a new concept of the plug-ins loading process. For this a complete upgrade to at least version V02_00 is required. Versions prior to V02_00 are not updated and supported any more!
  - — Customers can implement their own plug-ins. Original OvProtect plug-ins are shown with a locked sign in the GUI while Plug-ins not shipped by Hewlett-Packard, are marked in the OvProtect GUI with an unlocked sign.
- Known Problems, Limitations, and Workarounds
  - — Inetd/xinetd on Linux

OvProtect does not support Linux systems running inetd and xinetd at the same time. Further on, OvProtect supports Linux systems running xinetd on typical installations with individual configuration files for each service in directory /etc/xinetd.

License

OvProtect is free of charge for customers who have a valid HP Operations Manager for UNIX (OMU) license to use (LTU). OvProtect is independent of any specific HP software and of any specific HP software contract.

The support is offered on a "best effort basis." In case of service or enhancement requests, use your typical HP support chain to log your request.

The underlying Perl and Perl modules follow the Perl "Artistic license." Because Perl is Open Source software, the used public Perl modules and Perl code underlies the Perl license (Artistic), which is shipped with OvProtect in:`./OVProtect/Plugins/Base/license-agreement/*`

Download

OvProtect and the plug-ins are available for download at the following location:

ftp://ovweb.external.hp.com/pub/ovprotect

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