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**Latest Software**
We recommend that you install the most recent software release to stay up-to-date with the latest functional improvements, stability fixes, security enhancements and protection against new and evolving attacks.

**Latest Documentation**
The latest version of this document is at:

For additional technical information, visit the Check Point Support Center ([http://supportcenter.checkpoint.com](http://supportcenter.checkpoint.com)).

For more about this release, see the R75.40 home page ([http://supportcontent.checkpoint.com/solutions?id=sk67581](http://supportcontent.checkpoint.com/solutions?id=sk67581)).

**Revision History**

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<th>Date</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>15 April 2012</td>
<td>First release of this document</td>
</tr>
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</table>

**Feedback**
Check Point is engaged in a continuous effort to improve its documentation.

Please help us by sending your comments ([mailto:cp_techpub_feedback@checkpoint.com?subject=Feedback on SecurePlatform R75.40 Administration Guide](mailto:cp_techpub_feedback@checkpoint.com?subject=Feedback on SecurePlatform R75.40 Administration Guide)).
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Chapter 1

Introduction to SecurePlatform

Thank you for using SecurePlatform. This document describes how to prepare a hardware platform for SecurePlatform, and how to configure and administer SecurePlatform.

SecurePlatform allows easy configuration of your computer and networking aspects, as well as the Check Point products installed. An easy-to-use shell provides a set of commands, required for easy configuration and routine administration of a security system, including: network settings, backup and restore utilities, upgrade utility, system log viewing, control, and much more. A Web GUI enables most of the administration configuration, as well as the first time installation setup, to be performed from an easy–to–use Web interface.

The SecurePlatform DVD can be installed on any PC with an Intel x86 compatible architecture. SecurePlatform includes a customized and hardened operating system, with no unnecessary components that could pose security risks. The system is pre-configured and optimized to perform its task as a network security device, requiring only minimal user configuration of basic elements, such as IP addresses, routes, etc.

On most systems, this installation process runs less than five minutes, resulting in a network security device ready to be deployed.

SecurePlatform is distributed on a bootable DVD which includes Check Point's product suite, that includes software blades for firewall, VPN, and many others

Chapter 2

Preparing to Install SecurePlatform

In This Chapter

- SecurePlatform Hardware Requirements
- Preparing the SecurePlatform Machine
- Hardware Compatibility Testing Tool
- BIOS Security Configuration Recommendations
- Installing Products on SecurePlatform

SecurePlatform Hardware Requirements


For details regarding SecurePlatform on specific hardware platforms, see the SecurePlatform Hardware Compatibility List (http://www.checkpoint.com/services/techsupport/hcl/).


Preparing the SecurePlatform Machine

SecurePlatform can be installed from an optical drive or from a network server. SecurePlatform can be installed on a computer without a keyboard or VGA display by using a serial console attached to a serial port.

Before you begin the SecurePlatform installation process, ensure that the following requirements are met:

- If the target computer has an optical drive, make sure that the system BIOS is set to reboot from this drive as the first boot option (this BIOS Setup Feature is usually named Boot Sequence).
- If your target computer cannot boot from DVD, or if you wish to install using a remote file server, refer to the instructions in the R75.40 Installation and Upgrade Guide (http://supportcontent.checkpoint.com/solutions?id=sk67581).

**Important** - The installation procedure erases all hard disks, so the former operating system cannot be recovered.

Hardware Compatibility Testing Tool

The Hardware Compatibility Testing Tool enables you to determine whether SecurePlatform is supported on a specific hardware platform.

The tool detects all hardware components on the platform, checks whether they are supported, and displays its conclusions.

It is possible to view detailed information on all the devices found on the machine. You can also save detailed information on a diskette, on TFTP server, or dump it via the serial port. This information can be submitted to Check Point Support in order to add support for unsupported devices.
SecurePlatform requires the following hardware:

- I/O Device (either Keyboard & Monitor, or Serial console).
- mass storage device
- at least one supported Ethernet Controller (If SecurePlatform is to be configured as a Check Point Security Gateway, more than one controller is needed)

The tool makes no modifications to the tested hardware platform, so it is safe to use.

**Before Using the Tool**

Before selecting hardware to be used with SecurePlatform, you should refer to the *Hardware Compatibility List* (http://www.checkpoint.com/products/supported_platforms/secureplatform.html), which lists Open Servers and Devices that are tested on a regular basis for compatibility by Check Point and are recommended for use with SecurePlatform.

**Obtaining the Hardware Compatibility Testing Tool**

The utility is available as an ISO image (*hw.iso*).

1. Download the relevant version of the Hardware Compatibility Testing Tool (http://www.checkpoint.com/services/techsupport/hcl/testing_tool.html).
2. Burn the ISO image on a blank CD-R or on CD-RW media, using a CD-burning tool.

   **Note** - You must specify that you are burning "CD image" and not single file.

**Running the Hardware Compatibility Testing Tool**

Run the Hardware Compatibility Testing Tool by booting from the CD that contains it.

If no keyboard and monitor are connected to the hardware platform, the serial console can be used to perform the hardware detection.

**To boot from the CD:**

1. Configure the BIOS of the machine to boot from the CD drive.
2. Insert the CD into the drive.
3. Boot the machine.

**Using the Hardware Compatibility Testing Tool**

The hardware tool automatically tests the hardware for compatibility.

**Note** - A simple, "naïve" detection tool is included on the boot diskette. If for some reason, the complete detection tool is unavailable (e.g., the CDR drive is not supported), you can still use the simple tool to get some information on your hardware. The simple tool is available from the 'Installation Method' screen, by pressing the **Probe Hardware** button.

When the tool has finished analyzing the hardware, a summary page is displayed with the following information:

- statement whether the Platform is suitable for installing SecurePlatform
- number of supported and unsupported mass storage devices found
- number of supported and unsupported Ethernet Controllers found

Additional information can be obtained by pressing the **Devices** button. The devices information window lists all the devices, found on the machine (grouped according to functionality).

Use the arrow keys to navigate through the list.

Pressing **Enter** on a specific device displays detailed information about that device.
The detailed information can be saved to a diskette, to a TFTP Server, or dumped through the Serial Console. This action can be required in cases where some of the devices are not supported.

**BIOS Security Configuration Recommendations**

The following are BIOS configuration recommendations:

- Disable the "boot from floppy" option in the system BIOS, to avoid unauthorized booting from a diskette and changing system configuration.
- Apply a BIOS password to avoid changing the BIOS configuration. Make sure you memorize the password, or keep it in a safe place.

**Installing Products on SecurePlatform**

For details of how to install Check Point products on SecurePlatform, refer to the *R75.40 Installation and Upgrade Guide* ([http://supportcontent.checkpoint.com/solutions?id=sk67581](http://supportcontent.checkpoint.com/solutions?id=sk67581)).
Chapter 3

Installing SecurePlatform on Computers without Optical Drives

To install SecurePlatform on computers without optical drives you must set up a server for network installation, and do some client setup on the host, on which SecurePlatform is being installed.

Note - We do not recommend that you use a system that was installed in a production environment. It should only be used as an Installation Server for SecurePlatform.

In This Chapter

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Client Setup 11
Server Setup 12

General Procedure

To perform the network installation:

1. The client boots from the network, using the PXE network loader.
2. The client sends a broadcast request, using the BOOTP protocol.
3. The server responds to the client, by providing the client's assigned IP address and a filename (pxelinux.0 by default), to which to download the PXE boot loader.
4. The client downloads the PXE Boot Loader, using TFTP, and executes it.
5. The PXE boot loader downloads a PXE configuration file from the server, containing the names of the kernel and the ramdisk that the client requires.
6. The PXE boot loader downloads the kernel and the ramdisk.
7. The kernel is run, using ramdisk as its environment.
8. The Installer is executed.
9. At this point the installation can be configured to load files from the FTP server.

The client's requirements are minimal. Only PXE is required.

The server requires the following items to be installed:

- DHCP daemon
- TFTP daemon
- PXE boot loader
- Kernel
- Ramdisk

Client Setup

On the client machine, enable the network boot, using PXE, from the BIOS setup. (It sometimes appears as DHCP.) The procedure differs from machine to machine. Consult specific machine documentation, if necessary.
Server Setup

The following setup details and instructions apply to a server running SecurePlatform, as its operating system. Setup on a server running a different OS may differ slightly.

Required Packages

The following packages are required for server setup:

- DHCP daemon (located on the Check Point DVD and installed, by default, on SecurePlatform)
- Xinetd (/SecurePlatform/RPMS/xinetd-2.3.11-4cp.i386.rpm on the Check Point DVD)
- TFTP daemon (/SecurePlatform/RPMS/tftp-server-0.32-5cp.i386.rpm)
- FTP server (/SecurePlatform/RPMS/ftpd-0.3.3-118.4cp.i386.rpm)
- TCP-Wrappers package (/SecurePlatform/RPMS/tcp_wrappers-7.6-34.4cp.i386.rpm)
- Kernel (can be found on the SecurePlatform DVD at /SecurePlatform/kernel)
- Ramdisk (can be found on the SecurePlatform DVD at /SecurePlatform/ramdisk-pxe)

PXELINUX Configuration Files

/SecurePlatform/RPMS/tftp-server-0.32-4cp.i386.rpm includes a default configuration file (located under /tftpboot/pxelinux.cfg) that will serve the kernel and ramdisk to any host. Because more than one system may be booted from the same server, the configuration file name depends on the IP address of the booting machine.

PXELINUX will search for its config file on the boot server in the following way:
1. PXELINUX will search for its config file, using its own IP address, in upper case hexadecimal, e.g. 192.0.2.91 -> C000025B.
2. If that file is not found, PXELINUX will remove one hex digit and try again. Ultimately, PXELINUX will try looking for a file named default (in lower case).

As an example, for 192.0.2.91, PXELINUX will try C000025B, C000025, C00002, C0000, C000, C00, C, and default, in that order.

Assuming the kernel and ramdisk files are named kernel and ramdisk, respectively, a default configuration file, which will serve these to all clients, will look like this:

default bootnet
label bootnet
kernel kernel
append initrd=ramdisk lang= devfs=nomount \
   ramdisk_size=80024 console=tty0

DHCP Daemon Setup

To setup the DHCP Daemon, perform the following procedure:
1. Enter the sysconfig utility and enable the DHCP server.
2. Edit the daemon's configuration file, found at /etc/dhcpd.conf.
   - The configuration file should include a subnet declaration, for each subnet that is connected to the DHCP server.
   - The configuration should include a host declaration, for each host that will use this server for remote installation.

A sample configuration file follows:
subnet 192.92.93.0 netmask 255.255.255.0 {
}host foo {
  # The client's MAC address
  # The IP address that will be assigned to the
  # client by this server
  fixed-address 192.92.93.32;
  # The file to upload
  filename "/pxelinux.0";
}

**TFTP and FTP Daemon Setup**

To setup the TFTP and FTP Daemons:

1. Install `/SecurePlatform/RPMS/tcp_wrappers-7.6-34.4cp.i386.rpm` (The TCP wrappers package)
2. Install `/SecurePlatform/RPMS/xinetd-2.3.11-4cp.i386.rpm`. (The `xinetd` package is a prerequisite for the tftp-server and ftPD.)
3. Install the TFTP Daemon RPM:
   
   # rpm -i /SecurePlatform/RPMS/tftp-server-0.32-5cp.i386.rpm

4. Install the FTP Daemon RPM:
   
   # rpm -i /SecurePlatform/RPMS/ftpd-0.3.3-118.4cp.i386.rpm

5. Force `xinetd` to reread its configuration:
   
   # service xinetd restart

**Hosting Installation Files**

The installation files are hosted on an FTP server installed on SecurePlatform. During the installation process, you are asked to provide the following information:

<table>
<thead>
<tr>
<th>Information Requested</th>
<th>Information Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP of the installation server</td>
<td>IP of the SecurePlatform installation server</td>
</tr>
<tr>
<td>Credentials on that server</td>
<td>Administrator's credentials</td>
</tr>
<tr>
<td>Path to the installation packages</td>
<td>Path to the SecurePlatform packages</td>
</tr>
</tbody>
</table>

You can also use different FTP servers, or HTTP servers, to host SecurePlatform installation files.
Chapter 4

Configuration Using the Web Interface

SecurePlatform enables easy configuration of your computer and networking setup, and the Check Point products installed on them.

This section describes the SecurePlatform Web Interface (also known as WebUI). Most of the common operations can be done by using the Web Interface on the SecurePlatform Administration Portal.

Note - The Web Interface is not accessible in the FIPS 140-2 compliant mode.

In This Chapter

First Time Setup Using the Web Interface 14
Connecting to the Web Interface 14
Status 17
Network 17
Device 19
Product Configuration 23

First Time Setup Using the Web Interface

After the installation from the DVD is completed, and the computer has been rebooted, a first time setup using the First-Time Configuration Wizard is required in order to:

- Configure the network settings
- Configure the time/date/time zone
- Configure the allowed IPs of SSH and administration Web UI clients
- Select which products will be installed
- Set the initial configuration of installed products

These settings can also be configured after completing the first time setup, using the SecurePlatform Web Interface

Connecting to the Web Interface

The initial configuration of SecurePlatform is performed using the First-Time Configuration Wizard. The SecurePlatform Web Interface lets you further configure SecurePlatform.

To connect to the SecurePlatform Administration Portal:

1. Initiate a connection from a browser to the administration IP address:
   - For appliances - https://<IP_address>:443.
   - For open servers - https://<IP_address>

   Note - Pop-ups must always be allowed on https://<IP_address>.
The login page appears.

2. Login with the system administrator login name/password and click Login.
   (To log out of the Web Interface, click Close, in the top right of the page.)

**Changing the Settings of the SecurePlatform Portal**

Configure the settings of the SecurePlatform administration portal in SmartDashboard from the properties of the gateway > SecurePlatform Settings. From there you can configure:

- The primary URL of the SecurePlatform administration portal.
- Aliases that automatically redirect to the administration portal.
- A p12 certificate that the portal uses for authentication.
- How the portal can be accessed.

**Configure the settings on the page:**

- **Main URL** - The primary URL for the portal. You can use the same IP address for all of the portals with this variation:
  - SecurePlatform Web User interface - https://<main gateway IP address>/admin
  - Mobile Access Portal - https://<main gateway IP address>/sslvpn
  - DLP Portal - https://<main gateway IP address>/dlp
  You may choose to have the Mobile Access portal on an external IP address while others are on an internal IP address.
- **Aliases** - Click the Aliases button to Add URL aliases that are redirected to the main portal URL. Aliases can be in clear (http://) and will redirect users to the secure portal over HTTPS. For example, portal.example.com can send users to the portal. To make the alias work, it must be resolved to the main URL on your DNS server.
- **Certificate** - Click Import to import a p12 certificate for the portal website to use. If you do not import a certificate, the portal uses a Check Point auto-generated certificate. This might cause browser warnings if the browser does not recognize the gateway's management. All portals on the same IP address use the same certificate.
- **Accessibility** - Click Edit to select from where the portal can be accessed. The options are based on the topology configured for the gateway.

The portal is accessible through these interfaces:

- Through all interfaces
- Through internal interfaces
  - Including undefined internal interfaces
  - Including DMZ internal interfaces
  - Including VPN encrypted interfaces
- According to the Firewall policy - Select this if there is a rule that states who can access the portal.

**Obtaining and Installing a Trusted Server Certificate**

To be accepted by an endpoint computer without a warning, gateways must have a server certificate signed by a known certificate authority (such as Entrust, VeriSign or Thawte). This certificate can be issued directly to the gateway, or it can be a chained certificate that with a certification path to a trusted root certificate authority (CA).

**Generating the Certificate Signing Request**

First, generate a Certificate Signing Request (CSR). The CSR is for a server certificate, because the gateway acts as a server to the clients.
Note - This procedure creates private key files. If private key files with the same names already exist on the machine, they are overwritten without warning.

1. From the gateway command line, log in to expert mode.
2. Run:

```bash
cpopenssl req -new -out <CSR file> -keyout <private key file> -config $CPDIR/conf/openssl.cnf
```

This command generates a private key. You see this output:

```
Generating a 2048 bit RSA private key
...+++
writing new private key to 'server1.key'
Enter PEM pass phrase:
```

3. Enter a password and confirm. You see this message:

```
You are about to be asked to enter information that will be incorporated into your certificate request. What you are about to enter is what is called a Distinguished Name or a DN. There are quite a few fields but you can leave some blank. For some fields there will be a default value. If you enter '.', the field will be left blank.
```

Fill in the data.
- The **Common Name** field is mandatory. This field must have the Fully Qualified Domain Name (FQDN). This is the site that users access. For example: portal.example.com.
- All other fields are optional.

4. Send the CSR file to a trusted certificate authority. Make sure to request a **Signed Certificate** in PEM format. Keep the `.key` private key file.

### Generating the P12 File

After you get the Signed Certificate for the gateway from the CA, generate a P12 file that has the Signed Certificate and the private key.

1. Get the Signed Certificate for the gateway from the CA.
   - If the signed certificate is in P12 or P7B format, convert these files to a PEM (Base64 encoded) formatted file with a CRT extension.
2. Make sure that the CRT file has the full certificate chain up to a trusted root CA.
   - Usually you get the certificate chain from the signing CA. Sometimes it split into separate files. If the signed certificate and the trust chain are in separate files, use a text editor to combine them into one file.
   - Make sure the server certificate is at the top of the CRT file.
3. From the gateway command line, log in to expert mode.
4. Use the `*.crt` file to install the certificate with the `*.key` file that you generated.
   a) Run:

```bash
cpopenssl pkcs12 -export -out <output file> -in <signed cert chain file> -inkey <private key file>
```

For example:
```bash
cpopenssl pkcs12 -export -out server1.p12 -in server1.crt -inkey server1.key
```

b) Enter the certificate password when prompted.

### Installing the Signed Certificate

Install the Third Party signed certificate to create Trust between the Mobile Access Software Blade and the clients.
All portals on the same IP address use the same certificate. Define the IP address of the portal in the Portal Settings page for the blade/feature.

1. Import the new certificate to the gateway in SmartDashboard from a page that contains the Portal Settings for that blade/feature. For example:
   - Gateway Properties > Mobile Access > Portal Settings
   - Gateway Properties > SecurePlatform Settings
   - Gateway Properties > Data Loss Prevention
   - Gateway Properties > Identity Awareness > Browser-Based Authentication > Settings > Access Settings
   In the Certificate section, click Import or Replace.

2. Install the policy on the gateway.

   **Note** - The Repository of Certificates on the IPsec VPN page of the SmartDashboard gateway object is only for self-signed certificates. It does not affect the certificate installed manually using this procedure.

**Viewing the Certificate**

**To see the new certificate from a Web browser:**

The gateway uses the certificate when you connect with a browser to the portal. To see the certificate when you connect to the portal, click the lock icon that is next to the address bar in most browsers.

The certificate that users see depends on the actual IP address that they use to access the portal - not only the IP address configured for the portal in SmartDashboard.

**To see the new certificate from SmartDashboard:**

From a page that contains the portal settings for that blade/feature, click the View button in the Certificate section.

**Status**

Use the Status page to view device and network information about the SecurePlatform machine.

**Device Status**

This provides a summary of the device status, and displays information such as the machine Host Name, Version and Build, and Installation Type.

**Network**

This section allows you to configure the network interfaces, routing table, DNS and Host Name.

**Network Connections**

This page enables you to edit the properties of existing network connections (for example, xDSL connections using PPPoE or PPTP) and to add the following interface:

- VLAN
- Secondary IP
- PPPoE
- PPTP
- Bond
- Bridge
• ISDN
• Loopback

The **Network Connections** table displays all available network connections.

**To configure network connections:**

• To edit the properties of an interface, click the **Name** of the interface.
• To delete a connection, select the connection checkbox and click **Delete**.

  **Note** -
  
  • Loopback and Ethernet connection cannot be deleted.
  • When a Bridge or Bond is deleted, interfaces allocated for the specific connection are released.

• To disable a connection without deleting it, select the checkbox and click **Disable**.
• To configure a connection to work without an IP address, click **Remove IP**.
• To add a connection, click **New** and select the connection type from the drop-down list.
• If the connections were changed while on this page, click **Refresh**.

**Routing Table**

This page enables you to manage the routing table on your device. You can add or delete static and default routes.

  **Note** -
  
  • You cannot edit an existing route. To modify a specific route, delete it and create a new route in its place.
  
  • Be careful not to delete a route that allows you to connect to the device.

**To delete a route:**

• Select the checkbox of the specific route and click **Delete**.

**To add a new static route:**

1. On the **Routing Table** page, click **New** and select **Route**. The **Add New Route** page appears.
2. Supply the:
   • Destination IP Address
   • Destination Netmask
   • Interface (from the drop-down box)
   • Gateway
   • Metric
3. Click **Apply**.

**To add a default route:**

1. On the **Routing Table** page, click **New** and select **Default Route**. The **Add Default Route** page appears.
2. Supply the following:
   • Gateway
   • Metric
3. Click **Apply**.

**DNS Servers**

In the **DNS Servers** page, you can define up to three DNS servers.
Note - Changes in the DNS configuration will take effect only after restarting the device services. To restart device services, use the Device Control page.

Host and Domain Name

In the Host and Domain Name page:
1. Supply a Hostname.
2. Supply a Domain Name.
3. Select a Management Interface from the drop-down box. The Hostname will be associated with the IP of this interface.

Local Hosts Configuration

This page enables you to configure the host's local resolving configuration.

Note - Host entries cannot be edited. They must be deleted and recreated. The entry for the local machine is automatically generated, based on the Domain configuration information.

To add a Host:
1. Click New. The Add Host page is displayed.
2. Supply a Hostname.
3. Supply a Host IP Address.
4. Click Apply.

To delete a Host:
- Select the checkbox of the entry and click Delete.

Device

Use these pages to configure the SecurePlatform machine.

Device Control

This page provides diagnostics information about all the processes that are running on the machine. For each Process, the User, PID, Parent PID, %CPU, % Memory and Command are displayed. You can use the Device Control drop-down list to Start, Restart, or Stop all of the Check Point products. In addition, you can Shutdown the device, Reboot it, or download a diagnostic file (cpinfo output) useful for support.

To refresh the information displayed in the page click Refresh.

device Date and Time Setup

This page allows you to define the device date and time, optionally using NTP.

Manual device date and time configuration

Enter the current Date and Time, as well as setting the Time Zone. The date must be in the format: dd-Mon-yyyy (e.g. 31-Dec-2003). The time should be: HH:mm (e.g. 23:30).

Use Network Time Protocol (NTP) to synchronize the clock

NTP is used to synchronize clocks of computers on the network.

If the Primary NTP Server fails to respond, the Secondary NTP Server will be queried.
The **Shared Secret** field is optional.
Click **Apply** to set the date and time.

## Backup

This page allows you to configure backup settings.

You can choose to configure a scheduled backup, or you can choose to perform an immediate backup operation. The backup data can be stored on your desktop computer, locally (on the device), on a TFTP Server, an SCP Server or an FTP Server.

**Note** - If you use a stock TFTP Server with Unix/Linux flavors, you must create a world writable file having the same name as the proposed backup file before executing the backup. Otherwise, the backup will not succeed. It is strongly recommended that you refer to your TFTP server manual, or simply to the TFTP protocol, and verify that the usage of the utility is compliant with the environment that you are working in.

The SecurePlatform backup mechanism enables exporting snapshots of the user configurable configuration. Exported configurations can later be imported in order to restore a previous state in case of failure.

Two common use cases for backup are:

- When the current configuration stops working, a previous exported configuration may be used in order to revert to a previous system state.
- Upgrading to a new SecurePlatform version. The procedure would include:
  - Backing up the configuration of the current version
  - Installing the new version

To make a backup now, click the **Backup now** link.
To configure a backup schedule, click **Scheduled backup**.

The Backup page displays the **Current device date and time**. This may be different than the browser machine time.

To restore the backup, run the **restore** shell command from the device.

## Information Backed Up

The information backed up includes:

- All settings performed by the Admin GUI
- Network configuration data

## Viewing the Scheduling Status

The following information is displayed:

- **Status**: Scheduled backup is **enabled** or **disabled**.
- **Backup to**: The backup destination which can be one of the following: your desktop computer, locally (on the device), on a TFTP Server or a SCP Server.
- **Start at**: The time to start the backup. The current device date and time is displayed, which may be different than the browser machine time
- **Recur every**: recurrence interval.
Restoring the Backup

Description
To restore the backup, run the restore shell command from the device. When the restore command is executed by itself, without any additional flags, a menu of options is displayed. The options in the menu provide the same functionality, as the command line flags, for the restore command.

Syntax
```
```

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-h</td>
<td>obtain usage</td>
</tr>
<tr>
<td>-d</td>
<td>debug flag</td>
</tr>
<tr>
<td>--tftp &lt;ServerIP&gt; [&lt;Filename&gt;]</td>
<td>IP address of TFTP server, from which the configuration is restored, and the filename.</td>
</tr>
<tr>
<td>--scp &lt;ServerIP&gt; &lt;Username&gt; &lt;Password&gt; [&lt;Filename&gt;]</td>
<td>IP address of SCP server, from which the configuration is restored, the username and password used to access the SCP Server, and the filename.</td>
</tr>
<tr>
<td>--file &lt;Filename&gt;</td>
<td>Specify a filename for restore operation, performed locally.</td>
</tr>
</tbody>
</table>

Example
When the restore command is executed by itself, without any additional flags, the following menu is displayed:

```
Choose one of the following:
-----------------------------------------------
[L] Restore local backup package
[T] Restore backup package from TFTP server
[S] Restore backup package from SCP server
[R] Remove local backup package
[Q] Quit
-----------------------------------------------
```

Scheduling a Backup

To schedule a backup:
1. On the Backup page, click Scheduled backup. The Scheduled backup page appears.
2. Select Enable backup recurrence.
3. Set up the backup schedule.
4. Select a device to hold the backup. The options include the current SecurePlatform, a TFTP Server (Trivial File Transfer Protocol: A version of the TCP/IP FTP protocol that has no directory or password capability), or an SCP Server (SCP is a secure FTP protocol).
5. Click Apply.

To execute a backup:
- Click Backup now.

Viewing the Backup Log

To view the backup log:
- Click View backup log. The s page appears. You will see the Device Date and Time, Location (the device to which the backup has been sent), Location IP Address, Backup Status and Details.
Upgrade

To upgrade the device:
1. Download an upgrade package, as directed. If you already downloaded the file, you can skip this step.
2. Browse to the upgrade package file.
3. Click Upload package to device.
4. When you have finished uploading the package, you can click on the Package currently found on device link to see detailed information about the package, including version information and the MD5 checksum of the package. This checksum can be used to verify that the package is correct.
5. Click Start Upgrade.
   The Upgrade Status pane provides information such as Action, Start Time, Status and Details.

Device Administrators

This page lists the device Administrators, allows you to create or delete the device Administrator, and download a One Time Login Key.

To create a device Administrator:
2. For Check Point appliances only: It is recommended to select Secure Password Scheme, so that the password strength is validated when the Administrator is created.
3. Provide a name and a password for the device Administrator.
4. Click Apply.

To download a One Time Login Key:
1. Click Download.
   The Login Key Challenge page is displayed.
2. Supply a challenge-question and answer to protect your Login Key from unauthorized usage.
3. Click OK.

Note - The One Time Login Key will be required in case you forget your password. Save this file in a safe place.

Web and SSH Clients

In the Web/SSH Clients page, a list of configured client IPs is displayed. Only the configured client IPs are permitted to access SecurePlatform and SSH services. You can add or remove a Web/SSH client.

To remove a Web/SSH client:
- Select the specific Web/SSH client checkbox and click Remove.

To add a Web/SSH client:
1. In the Web/SSH Clients page, click Add. The Add Web/SSH Client page is displayed.
2. Define the host with any of the following list of options:
   - IP address
   - Resolvable name (resolved locally, not by DNS)
   - "Any" - Enables a connection from any Web/SSH Client.
   - Wildcards - Use in IP format only (Right: 192.168.10.* Wrong: *.company.com).
3. Click Apply.

Administrator Security Settings

In the Administrator Security page, you can configure session and login parameters for device administrators.
To configure Administrator Security parameters:
1. Set the Administrator Session Timeout value.
2. In the Administrator Login Restrictions section, enable and set the Lock Administrator’s account after <x> login failures.
3. Set the Unlock Administrator’s account after <y> minutes.
4. Click Apply.

Product Configuration
Use these pages to configure the installed Check Point products on the SecurePlatform machine.

Security Management Administrator
The Security Management Administrators page lists the configured administrators. If no Security Management administrator has been configured, you can add one. This Security Management Administrator has Read/Write Permissions to Security Management and is allowed to manage the Security Gateway objects and Administrator accounts.

Only one administrator can be added to this list. To add more administrators, use SmartDashboard.

To delete a Security Management Administrator:
- Select the specific Security Management Administrator checkbox and click Remove.

To add the first administrator:
1. In the Add Security Management Administrator page, enter an Administrator Name and a New Password.
2. Confirm the password.
3. Click Apply.

Security Management GUI Clients
The Security Management GUI Clients page specifies the remote computers from which administrators will be allowed to connect to the Security Management Server. It lists the type, hostname/IP address and netmask of the configured GUI Clients, and enables you to add additional GUI Clients or to remove them.

To delete a GUI Client:
- Select the checkbox and click Remove.

To add a new GUI client:
1. Click Add. The Add GUI Client page opens.
2. Enter either a Hostname/IP address, or a Network.
   - The Hostname can also contain a Wildcard, an IP address range, or the word ‘any’, which enables a connection from any GUI Client.
3. Click Apply.

Certificate Authority
The Certificate Authority page lists key parameters of the Security Management Certificate Authority. The certificate authority is the entity that issues certificates for the Security Management Server, Security Gateways, users and other trusted entities such as OPSEC applications used in the system.

To create a new root certificate for the CA, click Reset.

Download SmartConsole Applications
From this window you can download the SmartConsole applications package from the device.

Configuring a Security Policy requires SmartConsole. Use the SmartConsole applications to connect to the Security Management Server and manage your Check Point Security Gateways.
If you already have SmartConsole installed, verify that you have the proper version. If you wish to obtain the proper version, click **Start Download**.

**Licenses**

Use the **Licenses** page to apply a license for the products that you have installed.

**To apply a license:**
1. Click the **Check Point User Center** link to obtain a license from the User Center (http://usercenter.checkpoint.com), if you do not yet have the required license.
2. Click **New**.
3. Enter the **IP Address**, **Expiration Date**, **SKU/Features**, and **Signature Key**; or copy the license string into the clipboard, and click **Paste License** to copy all the information into the fields.
4. Click **Apply**.

   **Note** - The recommended way of applying licenses is by using SmartUpdate.

**Products**

Use this page to see which products and versions are installed on the device.

**Performance Optimization**

In this page you can download the **Performance Optimization Guide** which describes how to optimize the performance of Security Gateway for version R70 and later versions. The document also provides an overview of some of the firewall technologies in order to provide a basic understanding of how to configure the gateway parameters to best optimize network performance.

Click **Start Download** to get this document.
Chapter 5

Configuration Using the Command Line

SecurePlatform enables easy configuration of your computer and networking setup, and the Check Point products installed on them.

This section describes the *sysconfig* application, which provides an interactive menu system for all configuration aspects. Configuration can also be done using command line utilities provided by the SecurePlatform Shell.

In This Chapter

- First Time Setup Using the Command Line
- Using sysconfig
- Check Point Products Configuration

First Time Setup Using the Command Line

After the installation from the DVD has been completed, and the computer has been rebooted, a first time setup is required in order to:

- Configure the network settings
- Apply the license
- Select which products will be installed
- Perform the initial setup, if selected

These settings can also be configured after completing the first time setup, using *sysconfig*.

Using sysconfig

Once you have performed the first time setup, via the command line setup wizard, you can use *sysconfig* to modify your configuration.

To run *sysconfig*, login to SecurePlatform and enter *sysconfig* at the prompt.

The *sysconfig* main menu lists various configuration items, (note that *all configuration items must be defined*). We recommend step by step configuration, by addressing each menu item in sequence, one after the other.

Select a menu item by typing the relevant number and pressing Enter. Selecting a main menu option displays an additional menu for setting or viewing various configuration items. To return to the main menu, select the menu item Done. To quit, select Exit from the main menu.

When selecting a set option, *sysconfig* prompts you to enter all relevant configuration parameters. As soon as all the parameters are completed, the change is applied.

Note - Entering e at any point during *sysconfig* takes you one menu level up.
<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Host Name</td>
<td>Set or show host name.</td>
</tr>
<tr>
<td>2 Domain Name</td>
<td>Set or show domain name.</td>
</tr>
<tr>
<td>3 Domain Name Servers</td>
<td>Add or remove domain name servers, or show configured domain name servers.</td>
</tr>
<tr>
<td>4 Time &amp; Date</td>
<td>Set the time zone, date and local time, or show the date and time settings.</td>
</tr>
<tr>
<td>5 Network Connections</td>
<td>Add or remove connections, configure network connections, or show configuration of network connections.</td>
</tr>
<tr>
<td>6 Routing</td>
<td>Add network and route, add new host, set default gateway, delete route, or show routing configuration.</td>
</tr>
<tr>
<td>7 DHCP Server Configuration</td>
<td>Configure SecurePlatform DHCP Server.</td>
</tr>
<tr>
<td>8 DHCP Relay Configuration</td>
<td>Setup DHCP Relay.</td>
</tr>
<tr>
<td>9 Export Setup</td>
<td>Exports Check Point environment</td>
</tr>
<tr>
<td>10 Products Installation</td>
<td>Installs Check Point products.</td>
</tr>
<tr>
<td>11 Products Configuration</td>
<td>Configure Check Point products (cpconfig).</td>
</tr>
<tr>
<td>12 Enable / Disable hardware monitoring</td>
<td>Enable hardware sensors monitoring via SNMP (on supported Open Servers only)</td>
</tr>
</tbody>
</table>

### Check Point Products Configuration

- To configure installed Check Point products, run the **cpconfig** application from the SecurePlatform Shell. For more about configuring Check Point products, see the [R75.40 Installation and Upgrade Guide](http://supportcontent.checkpoint.com/solutions?id=sk67581).

  When you finish the Check Point products configuration procedure as part of the first time setup, you are asked to reboot your system. After reboot, your system is available for use.

  - **Note** - You must run the Check Point Products Configuration procedure (**cpconfig**) to activate the products.

- To learn how to connect to your Security Management Server using the Check Point SmartConsole, see the [R75.40 Installation and Upgrade Guide](http://supportcontent.checkpoint.com/solutions?id=sk67581).

- To learn how to set up a Firewall and Address Translation policy, see the [R75.40 Firewall Administration Guide](http://supportcontent.checkpoint.com/solutions?id=sk67581).
Chapter 6

Managing Your SecurePlatform System

This section provides information on how to manage your SecurePlatform system, using the SecurePlatform Command Shell.

The Command Shell provides a set of commands required for configuration, administration and diagnostics of various system aspects. To manage Firewall and Address Translation policies and QoS policies, use SmartConsole.

In This Chapter

Connecting to SecurePlatform by Using Secure Shell 27
User Management 28
SecurePlatform Administrators 28
FIPS 140-2 Compliant Systems 30
Using TFTP 30
Backup and Restore 31

Connecting to SecurePlatform by Using Secure Shell

SecurePlatform provides an SSH service, which allows secured, authenticated and encrypted access to the SecurePlatform system.

SSH (or Secure SHell) is a protocol for creating a secure connection between two systems. In the SSH protocol, the client machine initiates a connection with a server machine. The following safeguards are provided by SSH:

- After an initial connection, the client can verify that it is connecting to the same server during subsequent sessions.
- The client can transmit its authentication information to the server, such as a username and password, in an encrypted format.
- All data, sent and received, during the connection is transferred using strong encryption, making it extremely difficult to decrypt and read.

The SSH service runs, by default. In addition, access to the SSH service is limited to the same IPs that have been allowed access to the Web UI. Granular control of machines that are allowed access to the SecurePlatform system, using SSH, can be set, using the security policy.

SSH login is allowed using the Standard Mode account user name and password, only. SCP service and client files can be copied to and from SecurePlatform, using SCP client software. Access to SCP is controlled, by editing /etc/scpusers.

Important - When you add a user to the scpusers file, you give him expert privileges!
User Management

SecurePlatform Shell includes two permission levels (Modes): Standard and Expert.

**Standard Mode**

This is the default mode, when logging in to a SecurePlatform system. In Standard Mode, the SecurePlatform Shell provides a set of commands, required for easy configuration and routine administration of a SecurePlatform system. Most system commands are not supported in this Mode. Standard mode commands are listed in SecurePlatform Shell.

Standard Mode displays the following prompt: `[hostname]#`, where `hostname` is the host name of the machine.

**Expert Mode**

The Expert Mode provides full system root permissions and a full system shell. Switching from Standard Mode to Expert Mode requires a password. The first time you switch to Expert mode you will be asked to select a password. Until then, the password is the same as the one that you set for Standard Mode.

You need to enter the first replacement password that you used when logging in as the admin user. Any sequential administrator password change will not update the expert password that you must enter at the first-time expert user password change.

- To exit Expert Mode, run the command `exit`.

Expert Mode displays the following prompt: `[Expert@hostname]#`, where `hostname` is the host name of the machine.

**Important** - Expert Mode should be used with caution. The flexibility of an open shell, with a root permission, exposes the system to the possibility of administrative errors.

**Note** - An Expert user must first login as a Standard user, and only then enter the `expert` command to access Expert Mode. Until you change passwords, the Expert password is the same password that you set for Standard Mode, i.e. you need to enter the first replacement password that you used when logging in as the admin user. Any sequential admin password change will not update the expert password that you must enter at the first-time expert user password change.

SecurePlatform Administrators

SecurePlatform supports multiple administrator access to the regular shell. This can be used to audit configuration changes performed by administrators. Every such change is logged to the system's syslog mechanism, with the username of the administrator as a tag.

To configure another administrator from the cpshell:

Enter the following command:

```
adduser [-x EXTERNAL_AUTH] <user name>
```

You will be asked to enter and confirm a password for the administrator. The password must conform to the following complexity requirements:

- at least 6 characters, in length
• a mixture of alphabetic and numeric characters
• at least four different characters
• does not use simple dictionary words, or common strings such as "qwerty"

To delete an administrator from the cpshell:
Enter the following command:

deluser <name>

You can also define additional administrators through the Web GUI.

How to Authenticate Administrators via RADIUS

Note - Authentication of SecurePlatform Administrators via RADIUS is available only if the Advanced Networking Software Blade is enabled on the gateway.

All Administrators must be authenticated by one of the supported authentication methods. As well as being authenticated through the internal database, Administrators may also be authenticated via RADIUS. SecurePlatform administrators can be authenticated using the RADIUS server in two ways:

• By configuring the local user authentication via the RADIUS server. In this case it is necessary to define all users that will be authenticated by the RADIUS server on every SecurePlatform machine, and it is NOT required to define any RADIUS groups.
• By defining the list of RADIUS groups. All users that belong to the RADIUS groups defined on SecurePlatform will be able to authenticate and perform login.

The option utilizing RADIUS groups allows more flexibility, by eliminating the need to define all RADIUS users on each SecurePlatform machine.

There is a special RADIUS group called any. When this group is present in the group list, ALL users defined on the RADIUS server will be able to log into the SecurePlatform machine.

To authenticate an Administrator via RADIUS, you must:

1. Enter expert mode.
2. Type the command

   pro enable

3. Verify that a RADIUS server is configured. If a RADIUS server is not configured, add one by using the following command:

   radius servers add <server[:port]> <secret> <timeout><label>

4. Verify that at least one of the following is correct:
   • The user that you want to authenticate via the RADIUS server is configured on SecurePlatform, as using the RADIUS authentication method. You can define local users that authenticate via RADIUS by using the following command:

        radius users add <username>

   • At least one RADIUS group is configured, and the user defined on the RADIUS server belongs to that group. You can define RADIUS groups by using the following command line:

        radius groups add <groupname>

5. Define the Administrator as a RADIUS user, by using the following command:

        radius users add <username>

You can use the following commands to monitor and modify your RADIUS configuration.

To control RADIUS servers:

• radius servers show
• radius servers add <server[:port]> <secret> <timeout>
• radius servers del <server[:port]>

To control RADIUS user groups:
• radius groups show
• radius groups add <groupname>
• radius groups del <groupname>

To control local RADIUS users:
• radius users show
• radius users add <username>
• radius users del <username>

FIPS 140-2 Compliant Systems
The Federal Information Processing Standard (FIPS) 140-2 imposes certain restrictions on the operation of SecurePlatform. Administrators whose systems are FIPS 140-2 compliant, must configure their systems correctly.

To configure SecurePlatform to be FIPS 140-2 compliant:
• Run the following command from cpshell:
  fips on

This command does the following:
1. Adds an integrity check that verifies the integrity of all executables, scripts and configuration files, before connecting the system to the network.
2. Enforces the policy of locking accounts of administrators who have exceeded the threshold of unsuccessful login attempts (see Lockout of Administrator Accounts (on page 30)).
3. Removes the Web GUI daemon, thus disabling the Web GUI.
4. Removes the Check Point Remote Installation daemon, thus disabling SmartUpdate.
5. Configures the Check Point Security Gateway’s default filter to “drop all incoming”.

Lockout of Administrator Accounts
The account of an administrator, who attempts to logon unsuccessfully, three times in one minute, is locked for 60 minutes. This feature is configurable using the lockout command.

Using TFTP
The Trivial File Transfer Protocol (TFTP) provides an easy way for transferring files to and from SecurePlatform. SecurePlatform mechanisms that can utilize TFTP include:
• Backup / Restore Utilities
• Patch Utility – used for software updates
• Diag Utility – used for obtaining various diagnostics information

Note - Freeware and Shareware TFTP servers are readily available on the Internet.

Follow the vendor instructions on how to setup the TFTP server, and make sure that you configure the server to allow both reception and transmission of files.

Important - TFTP is not an encrypted, or authenticated protocol. Make sure that you only run the TFTP server on your internal network.
Backup and Restore

SecurePlatform provides both command line, or Web GUI, capability for conducting backups of your system settings and products configuration.

The `backup` utility can store backups either locally on the SecurePlatform machine hard drive or to an FTP server, TFTP server or SCP server. You can perform backups on request, or according to a predefined schedule.

Backup files are kept in tar gzipped format (.tgz). Backup files, saved locally, are kept in `/var/CPbackup/backups`.

The `restore` command line utility is used for restoring SecurePlatform settings, and/or Product configuration from backup files.

Note - Only administrators with Expert permission can directly access directories of a SecurePlatform system. You will need the Expert password to execute the restore command.

For more information about the `backup` and `restore` utilities, see backup (on page 37), and restore (on page 39).
Chapter 7

SecurePlatform Shell

This section includes a complete listing of SecurePlatform's shell commands. These commands are required for configuration, administration and diagnostics of various system aspects.

Note - All commands are case sensitive.

In This Chapter

Command Shell 32
Management Commands 33
Documentation Commands 34
Date and Time Commands 34
System Commands 36
Snapshot Image Management 41
System Diagnostic Commands 42
Check Point Commands 44
Network Diagnostics Commands 44
Network Configuration Commands 48
User and Administrator Commands 55

Command Shell

Command Set

To display a list of available commands, enter ? or help at the command prompt. Many commands provide short usage instructions by running the command with the parameter ' --help ', or with no parameters.

Command Line Editing

SecurePlatform Command Shell uses command line editing conventions. You can scroll through previously entered commands with the up or down arrow keys. When you reach a command you wish to use, you can edit it or click the Enter key to start it. The audit command is used to display history of commands entered at the command prompt (see audit (on page 36)):

Table 7-2 Command Line Editing Keys

<table>
<thead>
<tr>
<th>Key</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right Arrow/^f</td>
<td>Move cursor right</td>
</tr>
<tr>
<td>Left Arrow/^b</td>
<td>Move cursor left</td>
</tr>
<tr>
<td>Home/^a</td>
<td>Move cursor to beginning of line</td>
</tr>
<tr>
<td>End/^e</td>
<td>Move cursor to end of line</td>
</tr>
<tr>
<td>Key</td>
<td>Command</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Backspace/^h</td>
<td>Delete last char</td>
</tr>
<tr>
<td>^d</td>
<td>Delete char on cursor</td>
</tr>
<tr>
<td>^u</td>
<td>Delete line</td>
</tr>
<tr>
<td>^w</td>
<td>Delete word to the left</td>
</tr>
<tr>
<td>^k</td>
<td>Delete from cursor to end of line</td>
</tr>
<tr>
<td>Up arrow/^p</td>
<td>View previous command</td>
</tr>
<tr>
<td>Down arrow/^n</td>
<td>View next command</td>
</tr>
</tbody>
</table>

**Command Output**

Some command output may be displayed on more than one screen. By default, the Command Shell will display one screen, and prompt: **More**.

Click any key to continue to display the rest of the command output.

The More functionality can be turned on or off, using the scroll command.

**Management Commands**

**exit**

Exit the current Mode:

- In Standard Mode, exit the shell (logout of the SecurePlatform system)
- In Expert Mode, exit to Standard Mode

**Syntax**

```
exit
```

**Expert Mode**

Switch from Standard Mode to Expert Mode.

**Syntax**

```
expert
```
Description

After entering the `expert`, command supply the expert password. After password verification, you will be transferred into expert mode.

`passwd`

Changing the password can be performed in both modes. Changing the password in Standard Mode changes the login password. Changing the password in Expert Mode changes the Expert Mode and Boot Loader password. During the first transfer to Expert Mode, you will be required to enter your Standard Mode password, i.e. you need to enter the first replacement password that you used when logging in as the admin user. Any sequential admin password change will not update the expert password that you must enter at the first-time expert user password change. Change the Expert Mode password. After the Expert Mode password is changed, the new password must be used to obtain Expert Mode access.

Syntax

```
passwd
```

Documentation Commands

`help`

List the available commands and their respective descriptions.

Syntax

```
help
or
?
```

Date and Time Commands

`date`

Show or set the system's date. Changing the date or time affects the hardware clock.

Syntax

```
date [MM-DD-YYYY]
```
Parameters

Table 7-3  Date Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>MM-DD-YYYY</td>
<td>The date to be set, first two digits (MM) are the month [01..12], next</td>
</tr>
<tr>
<td></td>
<td>two digits (DD) are the day of month [01..31], and last four digits</td>
</tr>
<tr>
<td></td>
<td>(YYYY) are the year</td>
</tr>
</tbody>
</table>

**time**

Show or set the system's time. Changing the date or time affects the hardware clock.

Syntax

time [HH:MM]

Parameters

Table 7-4  Time Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH:MM</td>
<td>The time to be set, first two digits (HH) are the hour [00..23], last</td>
</tr>
<tr>
<td></td>
<td>two digits (MM) are the minute [00..59]</td>
</tr>
</tbody>
</table>

**timezone**

Set the system's time zone.

Syntax

timezone [-show | --help]

Parameters

Table 7-5  Time Zone Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>if no parameters are entered, an interactive mode of time zone selection</td>
</tr>
<tr>
<td></td>
<td>is displayed</td>
</tr>
<tr>
<td>-show</td>
<td>show currently selected time zone</td>
</tr>
<tr>
<td>--help</td>
<td>show usage message</td>
</tr>
</tbody>
</table>

**ntp**

Configure and start the Network Time Protocol polling client.
**Syntax**

```plaintext
ntp  <MD5_secret> <interval> <server1>  
     [<server2>[<server3>]]
ntp -n <interval> <server1>  
     [<server2>[<server3>]]
```

**Parameters**

*Table 7-6 ntp Parameters*

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD5_secret</td>
<td>pre-shared secret used to authenticate against the NTP server;</td>
</tr>
<tr>
<td></td>
<td>use &quot;-n&quot; when authentication is not required.</td>
</tr>
<tr>
<td>interval</td>
<td>polling interval, in seconds</td>
</tr>
<tr>
<td>server[1,2,3]</td>
<td>IP address or resolvable name of NTP server</td>
</tr>
</tbody>
</table>

**ntpstop**

Stop polling the NTP server.

**Syntax**

```plaintext
ntpstop
```

**ntpstart**

Start polling the NTP server.

**Syntax**

```plaintext
ntpstart
```

**System Commands**

**audit**

Display or edit commands, entered in the shell for a specific session. The audit is not kept between sessions.
Syntax

```plaintext
audit setlines <number_of_lines>
audit show <number_of_lines>
audit clear <number_of_lines>
```

Parameters

**Table 7-7 Audit Parameters**

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>lines&lt;number_of_lines&gt;</td>
<td>restrict the length of the command history that can be shown to &lt;number_of_lines&gt;</td>
</tr>
<tr>
<td>show &lt;number_of_lines&gt;</td>
<td>show &lt;number_of_lines&gt; recent commands entered</td>
</tr>
<tr>
<td>clear</td>
<td>clear command history</td>
</tr>
</tbody>
</table>

**backup**

Backup the system configuration. You can also copy backup files to a number of scp and tftp servers for improved robustness of backup. The backup command, run by itself, without any additional flags, will use default backup settings and will perform a local backup.

Syntax

```plaintext
backup -hbackup [-h] [-d] [-l] [--purge DAYS] [--sched [on hh:mm <-m DayOfMonth> | <-w DaysOfWeek> | off]]
--tftp <ServerIP> [-path <Path>] [<Filename>]
--scp <ServerIP> <Username> <Password> [-path <Path>] [<Filename>]
--ftp <ServerIP> <Username> <Password> [-path <Path>] [<Filename>]
--file [-path <Path>] [<Filename>]
```

Parameters

**Table 7-8 Backup Parameters**

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-h</td>
<td>Obtain usage</td>
</tr>
<tr>
<td>-d</td>
<td>Debug flag</td>
</tr>
<tr>
<td>-l</td>
<td>Flag enables backup of the Check Point Security Gateway log (By default, logs are not backed up.)</td>
</tr>
<tr>
<td>-p or --purge</td>
<td>Delete old backups from previous backup attempts</td>
</tr>
<tr>
<td>--sched [on hh:mm &lt;-m DayOfMonth&gt;</td>
<td>&lt;-w DaysOfWeek&gt;</td>
</tr>
<tr>
<td></td>
<td>• On - specify time and day of week, or day of month</td>
</tr>
<tr>
<td></td>
<td>• Off - disable schedule</td>
</tr>
<tr>
<td>parameter</td>
<td>meaning</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>--tftp &lt;ServerIP&gt; [-path &lt;Path&gt;] [&lt;Filename&gt;]</td>
<td>List of IP addresses of TFTP servers, to which the configuration will be backed up, and optionally the filename.</td>
</tr>
<tr>
<td>--scp &lt;ServerIP&gt; &lt;Username&gt; &lt;Password&gt; [-path &lt;Path&gt;] [&lt;Filename&gt;]</td>
<td>List of IP addresses of SCP servers, to which the configuration will be backed up, the username and password used to access the SCP Server, and optionally the filename.</td>
</tr>
<tr>
<td>--ftp &lt;ServerIP&gt; &lt;Username&gt; &lt;Password&gt; [-path &lt;Path&gt;] [&lt;Filename&gt;]</td>
<td>List of IP addresses of FTP servers, to which the configuration will be backed up, the username and password used to access the FTP Server, and optionally, the filename.</td>
</tr>
<tr>
<td>--file [-path &lt;Path&gt;] [&lt;Filename&gt;]</td>
<td>When the backup is performed locally, specify an optional filename</td>
</tr>
</tbody>
</table>

**Note** - If a Filename is not specified, a default name will be provided with the following format: `backup_hostname.domain-name_day_of_month_month_year_hour_minutes.tgz`

For example: `backup_gateway1.mydomain.com_13_11_2003_12_47.tgz`

**Examples**

```
backup -file -path /tmp filename
```

Puts the backup file in (local) `/tmp` and names it `filename`

```
backup
tftp <ip1> -path tmp
tftp <ip2> -path var file1
-scp <ip3> username1 password1 -path /bin file2
-file file3
--scp <ip4> username2 password2 file4
--scp <ip5> username3 password3 -path mybackup
```

The backup file is saved on:

1. tftp server with ip1, the backup file is saved in the `tmp` directory (under the tftp server default directory – usually `/tftproot`) with the default file name – `backup_SystemName_TimaStamp.tgz`
2. tftp server with ip2, the backup file is saved on `var` (under the tftp server default directory – usually `/tftproot`) as `file1`
3. scp server with ip3, the backup file is saved on `/bin` as `file2`
4. locally on the default directory (`/var/CPbackup/backups`) as `file3`
5. scp server with ip4 on the `username2` home directory as `file4`
6. scp server with ip5 on `~username3/mybackup/` with the default backup file name

**reboot**

Restart the system.
Syntax

reboot

patch

Apply an upgrade or hotfix file.

Note - See the Release Notes for information about when to replace the patch utility with a more recent version.

Syntax

patch add scp <ip_address> <patch_name> [password (in expert mode)]
patch add tftp <ip_address> <patch_name>
patch add cd <patch_name>
patch add <full_patch_path>
patch log

Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>add</td>
<td>install a new patch</td>
</tr>
<tr>
<td>log</td>
<td>list all patches installed</td>
</tr>
<tr>
<td>scp</td>
<td>install from SCP</td>
</tr>
<tr>
<td>cd</td>
<td>install from DVD</td>
</tr>
<tr>
<td>tftp</td>
<td>install from TFTP server</td>
</tr>
<tr>
<td>ip</td>
<td>IP address of the tftp server containing the patch</td>
</tr>
<tr>
<td>patch_name</td>
<td>the name of the patch to be installed</td>
</tr>
<tr>
<td>password</td>
<td>password, in expert mode</td>
</tr>
<tr>
<td>full_patch_path</td>
<td>the full path for the patch file (for example,</td>
</tr>
<tr>
<td></td>
<td>/var/tmp/mypatch.tgz)</td>
</tr>
</tbody>
</table>

restore

Restore the system configuration.
Syntax


Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-h</td>
<td>obtain usage</td>
</tr>
<tr>
<td>-d</td>
<td>debug flag</td>
</tr>
<tr>
<td>--tftp &lt;ServerIP&gt; [Filename]</td>
<td>IP address of TFTP server, from which the configuration is restored, and the filename.</td>
</tr>
<tr>
<td>--scp &lt;ServerIP&gt; &lt;Username&gt; &lt;Password&gt; [Filename]</td>
<td>IP address of SCP server, from which the configuration is restored, the username and password used to access the SCP Server, and the filename.</td>
</tr>
<tr>
<td>--ftp &lt;ServerIP&gt; &lt;Username&gt; &lt;Password&gt; [-path &lt;Path&gt;] [Filename]</td>
<td>List of IP addresses of FTP servers, to which the configuration will be backed up, the username and password used to access the FTP Server, and optionally, the filename.</td>
</tr>
<tr>
<td>--file &lt;Filename&gt;</td>
<td>Specify a filename for restore operation, performed locally.</td>
</tr>
</tbody>
</table>

When the restore command is executed by itself, without any additional flags, a menu of options is displayed. The options in the menu provide the same functionality, as the command line flags, for the restore command.

Choose one of the following:

---------------------------------------------
[L]    Restore local backup package
[T]    Restore backup package from TFTP server
[S]    Restore backup package from SCP server
[V]    Restore backup package from FTP server
[R]    Remove local backup package
[Q]    Quit
---------------------------------------------

Select the operation of your choice.

shutdown

Shut down the system.

Syntax

shutdown

ver

Display the SecurePlatform system's version.
Syntax

```
ver
```

Snapshot Image Management

Commands to take a snapshot of the entire system and to restore the system, from the snapshot, are available. The system can be restored at any time, and at boot time the administrator is given the option of booting from any of the available snapshots. This feature greatly reduces the risks of configuration changes.

The `snapshot` and `revert` commands can use an TFTP server, a SCP Server or and FTP server to store snapshots. Alternatively, snapshots can be stored locally.

**Note** - The amount of time it takes to perform a snapshot or revert depends on the amount of data (for example, logs) that is stored or restored. For example, it may take between 90 to 120 minutes to perform a snapshot or revert for Security Management Server, Log Server, Multi-Domain Security Management, etc.

Revert

Reboot the system from a snapshot file. The revert command, run by itself, without any additional flags, will use default backup settings, and will reboot the system from a local snapshot.

```
revert  [-h] [-d] [--tftp <ServerIP> <Filename>]
[--scp <ServerIP> <Username> <Password> <Filename>
[--ftp <ServerIP> <Username> <Password> <Filename>
[--file <Filename>]]
```

Parameters

*Table 7-9 Revert Parameters*

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-h</td>
<td>obtain usage</td>
</tr>
<tr>
<td>-d</td>
<td>debug flag</td>
</tr>
<tr>
<td>--tftp &lt;ServerIP&gt; &lt;Filename&gt;</td>
<td>IP address of the TFTP server, from which the snapshot is rebooted, as well as the filename of the snapshot.</td>
</tr>
<tr>
<td>--scp &lt;ServerIP&gt; &lt;Username&gt; &lt;Password&gt; &lt;Filename&gt;</td>
<td>IP address of the SCP server, from which the snapshot is rebooted, the username and password used to access the SCP Server, and the filename of the snapshot.</td>
</tr>
<tr>
<td>--ftp &lt;ServerIP&gt; &lt;Username&gt; &lt;Password&gt; [-path &lt;Pat&gt;] [&lt;Filename&gt;]</td>
<td>List of IP addresses of FTP servers, to which the configuration will be backed up, the username and password used to access the FTP Server, and optionally, the filename.</td>
</tr>
</tbody>
</table>
The revert command functionality can also be accessed from the `Snapshot image management boot` option.

**Snapshot**

This command creates a snapshot file. The snapshot command, run by itself, without any additional flags, will use default backup settings and will create a local snapshot.

**Syntax**

```
snapshot [-h] [-d] [--tftp <ServerIP> <Filename>]
[--scp <ServerIP> <Username> <Password> <Filename>]
[--ftp <ServerIP> <Username> <Password> <Filename>
[--file <Filename>]]
```

**Parameters**

*Table 7-10 Snapshot Parameters*

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-h</td>
<td>obtain usage</td>
</tr>
<tr>
<td>-d</td>
<td>debug flag</td>
</tr>
<tr>
<td>--tftp &lt;ServerIP&gt; &lt;Filename&gt;</td>
<td>IP address of the TFTP server, from which the snapshot is made, as well as the filename of the snapshot.</td>
</tr>
<tr>
<td>--scp &lt;ServerIP&gt; &lt;Username&gt; &lt;Password&gt; &lt;Filename&gt;</td>
<td>IP address of the SCP server, from which the snapshot is made, the username and password used to access the SCP Server, and the filename of the snapshot.</td>
</tr>
<tr>
<td>--ftp &lt;ServerIP&gt; &lt;Username&gt; &lt;Password&gt; [-path &lt;Pat&gt;] [&lt;Filename&gt;]</td>
<td>List of IP addresses of FTP servers, to which the configuration will be backed up, the username and password used to access the FTP Server, and optionally, the filename.</td>
</tr>
<tr>
<td>--file &lt;Filename&gt;</td>
<td>When the snapshot is made locally, specify a filename</td>
</tr>
</tbody>
</table>

**System Diagnostic Commands**

**diag**

Display or send the system's diagnostic information (`diag files`).

**Syntax**

```
diag <log_file_name> tftp <tftp_host_ip_address>
```
Parameters

Table 7-11  Diag Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>log_file_name</td>
<td>name of the logfile to be sent</td>
</tr>
<tr>
<td>tftp</td>
<td>use tftp to upload the diagnostic information (other upload methods can be added in the future)</td>
</tr>
<tr>
<td>tftp_host_ip_address</td>
<td>IP address of the host, that is to receive the diagnostic information</td>
</tr>
</tbody>
</table>

log

Shows the list of available log files, applies log rotation parameters, shows the index of the log file in the list, and selects the number of lines of the log to display.

Syntax

```
log --help
log list
log limit <log-index><max-size><backlog-copies>
log unlimit <log-index>
log show <log-index> [<lines>]
```

Parameters

Table 7-12  Log Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>list</td>
<td>show the list of available log files</td>
</tr>
<tr>
<td>limit</td>
<td>apply log rotation parameters</td>
</tr>
<tr>
<td>unlimit</td>
<td>remove log size limitations</td>
</tr>
<tr>
<td>log-index</td>
<td>show the index of the log file, in the list</td>
</tr>
<tr>
<td>max-size</td>
<td>show the size of the log file, in bytes</td>
</tr>
<tr>
<td>backlog-copies</td>
<td>list the number of backlog copies of the log file</td>
</tr>
<tr>
<td>lines</td>
<td>select the number of lines of the log to display</td>
</tr>
</tbody>
</table>

top

Display the top 15 processes on the system and periodically updates this information. Raw CPU percentage is used to rank the processes.
Syntax

top

Check Point Commands


Network Diagnostics Commands

ping

Send ICMP ECHO_REQUEST packets to network hosts.

Syntax


Parameters

Table 7-13 ping Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-c count</td>
<td>Stop after sending (and receiving) count ECHO_RESPONSE packets.</td>
</tr>
<tr>
<td>-d</td>
<td>Set the SO_DEBUG option for the socket being used.</td>
</tr>
<tr>
<td>-f</td>
<td>Flood ping. Outputs packets as fast as they come back, or one hundred times per second, whichever is greater. For every ECHO_REQUEST sent, a period &quot;.&quot; is printed, while for every ECHO_REPLY received, a backspace is printed. This provides a rapid display of how many packets are being dropped. Only the super-user may use this option. This can place a very heavy load on a network and should be used with caution.</td>
</tr>
<tr>
<td>-i wait</td>
<td>Wait: wait i seconds between sending each packet. The default is to wait for one second between each packet. This option is incompatible with the -f option.</td>
</tr>
<tr>
<td>-l</td>
<td>Preload: if preload is specified, ping sends that many packets as fast as possible before falling into its normal mode of behavior. Only the super-user may use this option.</td>
</tr>
<tr>
<td>-n</td>
<td>Numeric output only. No attempt will be made to lookup symbolic names for host addresses.</td>
</tr>
</tbody>
</table>
SecurePlatform Shell
SecurePlatform Administration Guide R75.40

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-p pattern</td>
<td>You may specify up to 16 &quot;pad&quot; bytes to fill out the packet you send. This is useful for diagnosing data-dependent problems in a network. For example, &quot;-p ff&quot; will direct the sent packet to be filled with a series of ones (&quot;1&quot;).</td>
</tr>
<tr>
<td>-q</td>
<td>Quiet output. Nothing is displayed except the summary lines at the time of startup and finish.</td>
</tr>
<tr>
<td>-R</td>
<td>Record route. Includes the RECORD_ROUTE option in the ECHO_REQUEST packet and displays the route buffer on returned packets. Note that the IP header is only large enough for nine such routes. Many hosts ignore or discard this option.</td>
</tr>
<tr>
<td>-r</td>
<td>Bypass the normal routing tables and send directly to a host on an attached network. If the host is not on a directly-attached network, an error is returned. This option can be used to ping a local host through an interface that has no route through it.</td>
</tr>
<tr>
<td>-s packetsize</td>
<td>Specifies the number of data bytes to be sent. The default is 56, which translates into 64 ICMP data bytes, when combined with the 8 bytes of ICMP header data.</td>
</tr>
<tr>
<td>-v</td>
<td>Verbose (detailed) output. Lists ICMP packets (other than ECHO_RESPONSE) that are received.</td>
</tr>
</tbody>
</table>

**traceroute**

Tracking the route a packet follows (or finding the miscreant gateway that is discarding your packets) can be difficult. Traceroute utilizes the IP protocol 'time to live' field and attempts to elicit an ICMP TIME_EXCEEDED response from each gateway along the path to a designated host.

**Syntax**

```
traceroute [ -d Finch ] [ -f first_ttl ] [ -g gateway ] [ -i iface ]
[ -m max_ttl ] [ -p port ] [ -q nqueries ] [ -s src_addr ]
[ -t tos ]
[ -w waittime ] host [ packetlen ]
```

**Parameters**

Table 7-14  traceroute Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-f first_ttl</td>
<td>Set the initial time-to-live, used in the first outgoing probe packet.</td>
</tr>
<tr>
<td>-F</td>
<td>Set the &quot;don't fragment&quot; bit.</td>
</tr>
<tr>
<td>-d</td>
<td>Enable socket level debugging.</td>
</tr>
<tr>
<td>-g</td>
<td>Gateway: specify a loose source route gateway (8 maximum).</td>
</tr>
<tr>
<td>parameter</td>
<td>meaning</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>-i</td>
<td>iface: specify a network interface, to obtain the source IP address for outgoing probe packets. This is normally only useful on a multi-homed host. (See the -s flag for another way to do this.)</td>
</tr>
<tr>
<td>-I</td>
<td>Use ICMP ECHO instead of UDP datagrams.</td>
</tr>
<tr>
<td>-m max_ttl</td>
<td>Set the max time-to-live (maximum number of hops) used in outgoing probe packets. The default is 30 hops (the same default used for TCP connections).</td>
</tr>
<tr>
<td>-n</td>
<td>Print hop addresses numerically, rather than symbolically and numerically (saves a name server address-to-name lookup, for each gateway found on the path).</td>
</tr>
<tr>
<td>-p port</td>
<td>Set the base UDP port number used in probes (default is 33434). Traceroute hopes that nothing is listening on UDP ports base to base + nhops - 1 at the destination host (so an ICMP PORT_UNREACHABLE message will be returned to terminate the route tracing). If something is listening on a port in the default range, this option can be used to pick an unused port range.</td>
</tr>
<tr>
<td>-q nqueries</td>
<td>Number of queries to run.</td>
</tr>
<tr>
<td>-r</td>
<td>Bypass the normal routing tables and send directly to a host on an attached network. If the host is not on a directly-connected network, an error is returned. This option can be used to ping a local host through an interface that has no route through it.</td>
</tr>
<tr>
<td>-s src_addr</td>
<td>Use the following IP address (which usually is given as an IP number, not a hostname) as the source address in outgoing probe packets. On multi-homed hosts (those with more than one IP address), this option can be used to force the source address to be something, other than the IP address of the interface that the probe packet is sent on. If the IP address is not one of this machine's interface addresses, an error is returned and nothing is sent. (See the -i flag for another way to do this.)</td>
</tr>
<tr>
<td>-t tos</td>
<td>Set the type-of-service in probe packets to the following value (default zero). The value must be a decimal integer in the range 0 to 255. This option can be used to see if different types-of-service result in different paths. (If you are not running 4.4bsd, this may be irrelevant, since the normal network services like telnet and ftp don't let you control the TOS. Not all values of TOS are legal or meaningful, see the IP spec for definitions. Useful values are probably &quot;-t 16&quot; (low delay) and &quot;-t 8&quot; (high throughput).</td>
</tr>
<tr>
<td>-v</td>
<td>Verbose (detailed) output. Received ICMP packets other than TIME_EXCEEDED and UNREACHABLEs are listed.</td>
</tr>
<tr>
<td>-w waittime</td>
<td>Set the time (in seconds) to wait for a response to a probe (default is 5 seconds).</td>
</tr>
<tr>
<td>-x</td>
<td>Toggle checksums. Normally, this prevents traceroute from calculating checksums. In some cases, the operating system can overwrite parts of the outgoing packet, but not recalculate the checksum (In some cases, the default is not to calculate checksums. Using -x causes checksums to be calculated). Checksums are usually required for the last hop, when using ICMP ECHO probes (-I).</td>
</tr>
</tbody>
</table>
**netstat**

Show network statistics.

**Syntax**

```
netstat [-veenCFC] [<Af>] -r
netstat [-V|--version|-h|--help]
netstat [-vnNcaeol] [<Socket> ...]
netstat { [-veenNac] -i | [-cnNe] -M | -s }
```

**Parameters**

*Table 7-15 netstat Parameters*

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
<th>extended meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-r</td>
<td>route</td>
<td>display routing table</td>
</tr>
<tr>
<td>-i</td>
<td>interfaces</td>
<td>display interface table</td>
</tr>
<tr>
<td>-g</td>
<td>groups</td>
<td>display multicast group memberships</td>
</tr>
<tr>
<td>-s</td>
<td>statistics</td>
<td>display networking statistics (like SNMP)</td>
</tr>
<tr>
<td>-M</td>
<td>masquerade</td>
<td>display masqueraded connections</td>
</tr>
<tr>
<td>-v</td>
<td>verbose</td>
<td>be verbose (detailed)</td>
</tr>
<tr>
<td>-n</td>
<td>numeric</td>
<td>do not resolve names</td>
</tr>
<tr>
<td>-N</td>
<td>symbolic</td>
<td>resolve hardware names</td>
</tr>
<tr>
<td>-e</td>
<td>extend</td>
<td>display other/more information</td>
</tr>
<tr>
<td>-p</td>
<td>programs</td>
<td>display PID/Program name for sockets</td>
</tr>
<tr>
<td>-c</td>
<td>continuous</td>
<td>continuous listing</td>
</tr>
<tr>
<td>-l</td>
<td>listening</td>
<td>display listening server sockets</td>
</tr>
<tr>
<td>-a</td>
<td>all, listening</td>
<td>display all sockets (default: connected)</td>
</tr>
<tr>
<td>-o</td>
<td>timers</td>
<td>display timers</td>
</tr>
<tr>
<td>-F</td>
<td>fib</td>
<td>display Forwarding Information Base (default)</td>
</tr>
<tr>
<td>-C</td>
<td>cache</td>
<td>display routing cache, instead of FIB</td>
</tr>
<tr>
<td>&lt;Socket&gt;</td>
<td></td>
<td>Type of socket, may be one of the following: {-t</td>
</tr>
<tr>
<td>-A &lt;AF&gt;,</td>
<td>af &lt;AF&gt;</td>
<td>Address family, may be one of the following: inet (DARPA Internet) inet6 (IPv6) ax25 (AMPR AX.25) netrom (AMPR NET/ROM) ipx (Novell IPX) ddp (Appletalk DDP)</td>
</tr>
</tbody>
</table>
Network Configuration Commands

**arp**

arp manipulates the kernel's ARP cache in various ways. The primary options are clearing an address mapping entry and manually setting one up. For debugging purposes, the ARP program also allows a complete dump of the ARP cache.

**Syntax**

```
arp [-vn] [-H type] [-i if] -a [hostname]
arp [-v] [-i if] -d hostname [pub]
arp [-v] [-H type] [-i if] -s hostname hw_addr [temp]
arp [-v] [-H type] [-i if] -s hostname hw_addr [netmask nm] pub
arp [-v] [-H type] [-i if] -Ds hostname ifa [netmask nm] pub
arp [-vnD] [-H type] [-i if] -f [filename]
```

**addarp**

addarp adds a persistent ARP entry (one that will survive re-boot).

**Syntax**

```
addarp <hostname> <hwaddr>
```

**delarp**

delarp removes ARP entries created by addarp.

**Syntax**

```
delarp <hostname> <MAC>
```

**Parameters**

*Table 7-16  arp Parameters*

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
<th>extended meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-v</td>
<td>verbose</td>
<td>Tell the user the details of what is going on.</td>
</tr>
<tr>
<td>-n</td>
<td>numeric</td>
<td>shows numerical addresses instead of trying to determine symbolic host, port or user names.</td>
</tr>
<tr>
<td>parameter</td>
<td>meaning</td>
<td>extended meaning</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>------------------</td>
</tr>
<tr>
<td>-H type,</td>
<td>hw-type</td>
<td>When setting, or reading the ARP cache, this optional parameter</td>
</tr>
<tr>
<td></td>
<td>type</td>
<td>tells arp which class of entries it should check for. The default</td>
</tr>
<tr>
<td></td>
<td></td>
<td>value of this parameter is ether (i.e. hardware code 0x01 for IEEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>802.3 10Mbps Ethernet). Other values might include network</td>
</tr>
<tr>
<td></td>
<td></td>
<td>technologies such as ARCnet (arcnet), PROnet (pronet), AX.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ax25) and NET/ROM (netrom).</td>
</tr>
<tr>
<td>-a [hostname]</td>
<td>display [hostname]</td>
<td>Shows the entries of the specified hosts. If the hostname parameter is not used, all entries will be displayed.</td>
</tr>
<tr>
<td>-d hostname</td>
<td>delete hostname</td>
<td>Remove any entry for the specified host. This can be used if the indicated host is brought down, for example.</td>
</tr>
<tr>
<td>-D</td>
<td>use-device</td>
<td>Use the interface ifa's hardware address.</td>
</tr>
<tr>
<td>-i If</td>
<td>device If</td>
<td>Select an interface. When dumping the ARP cache, only entries matching the specified interface will be printed. When setting a permanent, or temp ARP, entry this interface will be associated with the entry. If this option is not used, the kernel will guess, based on the routing table. For public entries, the specified interface is the interface, on which ARP requests will be answered.</td>
</tr>
<tr>
<td>-f filename</td>
<td>file filename</td>
<td>Similar to the -s option, only this time the address info is taken from file filename set up. The name of the data file is very often /etc/ethers. If no filename is specified /etc/ethers is used as default.</td>
</tr>
</tbody>
</table>

**hosts**

Show, set or remove hostname to IP-address mappings.

**Syntax**

```
hosts add <IP-ADDRESS> <host1> [host2> ...]
hosts remove <IP_ADDRESS> <host1> [host2> ...]
```

**Parameters**

*Table 7-17  hosts Parameters*

<table>
<thead>
<tr>
<th>hosts</th>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Running hosts, with no parameters, displays the current host names to IP mappings.</td>
<td></td>
</tr>
<tr>
<td>add</td>
<td>IP-ADDRESS</td>
<td>IP address, to which hosts will be added.</td>
</tr>
<tr>
<td></td>
<td>host1, host2...</td>
<td>Hosts to be added.</td>
</tr>
<tr>
<td>remove</td>
<td>IP-ADDRESS</td>
<td>IP address, to which hosts will be removed.</td>
</tr>
<tr>
<td></td>
<td>host1, host2...</td>
<td>The name of the hosts to be removed.</td>
</tr>
</tbody>
</table>
**ifconfig**

Show, configure or store network interfaces settings.

**Syntax**

```bash
ifconfig [-a] [-i] [-v] [-s] <interface> [[<AF>] <address>]
[add <address>[/<prefixlen>]]
[del <address>[/<prefixlen>]]
[[-]broadcast <address>]] [[[-]pointopoint [address>]]
[netmask <address>] [dstaddr <address>] [tunnel <address>]
[outfill <NN>] [keepalive <NN>]
[hw <HW> <address>] [metric <NN>] [mtu <NN>]
[[-]trailers] [[-]arp] [[-]allmulti]
[multicast] [[-]promisc]
[mem_start <NN>] [io_addr <NN>] [irq <NN>] [media <type>]
[txqueuelen <NN>]
[[-]dynamic]
[up|down]
[--save]
```

**ifConfig Parameters**

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>interface</td>
<td>The name of the interface. This is usually a driver name, followed by a unit number, for example <strong>eth0</strong> for the first Ethernet interface.</td>
</tr>
<tr>
<td>up</td>
<td>Causes the interface to be activated. It is implicitly specified if an address is assigned to the interface.</td>
</tr>
<tr>
<td>down</td>
<td>Causes the driver for this interface, to be shut down.</td>
</tr>
<tr>
<td>[-]arp</td>
<td>Enable or disable the use of the ARP protocol, on this interface.</td>
</tr>
<tr>
<td>[-]promisc</td>
<td>Enable or disable the promiscuous mode of the interface. If selected, all packets on the network will be received by the interface.</td>
</tr>
<tr>
<td>[-]allmulti</td>
<td>Enable or disable all-multicast mode. If selected, all multicast packets on the network will be received by the interface.</td>
</tr>
<tr>
<td>metric N</td>
<td>Sets the interface metric.</td>
</tr>
<tr>
<td>mtu N</td>
<td>Sets the Maximum Transfer Unit (MTU) of an interface.</td>
</tr>
<tr>
<td>dstaddr addr</td>
<td>Set the remote IP address for a point-to-point link (such as PPP). This keyword is now obsolete; use the point-to-point keyword instead.</td>
</tr>
<tr>
<td>netmask addr</td>
<td>Set the IP network mask, for this interface. This value defaults to the usual class A, B or C network mask (as derived from the interface IP address), but it can be set to any value.</td>
</tr>
</tbody>
</table>
### SecurePlatform Shell

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<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>irq addr</td>
<td>Set the interrupt line used by this device. Not all devices can dynamically change their IRQ setting.</td>
</tr>
<tr>
<td>io_addr addr</td>
<td>Set the start address in I/O space for this device.</td>
</tr>
<tr>
<td>mem_start addr</td>
<td>Set the start address for shared memory used by this device. Only a few devices need this parameter set.</td>
</tr>
<tr>
<td>media type</td>
<td>Set the physical port, or medium type, to be used by the device. Not all devices can change this setting, and those that can vary in what values they support. Typical values for type are 10base2 (thin Ethernet), 10baseT (twisted-pair 10Mbps Ethernet), AUI (external transceiver) and so on. The special, medium type of auto can be used to tell the driver to auto-sense the media. Not all drivers support this feature.</td>
</tr>
<tr>
<td>[-]broadcast [addr]</td>
<td>If the address argument is given, set the protocol broadcast address for this interface. Otherwise, set (or clear) the IFF_BROADCAST flag for the interface.</td>
</tr>
<tr>
<td>[-]pointopoint [addr]</td>
<td>This keyword enables the point-to-point mode of an interface, meaning that it is a direct link between two machines, with nobody else listening on it. If the address argument is also given, set the protocol address of the other side of the link, just like the obsolete dstaddr keyword does. Otherwise, set or clear the IFF_POINTOPOINT flag for the interface.</td>
</tr>
<tr>
<td>hw class address</td>
<td>Set the hardware address of this interface, if the device driver supports this operation. The keyword must be followed by the name of the hardware class and the printable ASCII equivalent of the hardware address. Hardware classes currently supported include: ether (Ethernet), ax25 (AMPR AX.25), ARCnet and netrom (AMPR NET/ROM).</td>
</tr>
<tr>
<td>multicast</td>
<td>Set the multicast flag on the interface. This should not normally be needed, as the drivers set the flag correctly themselves.</td>
</tr>
<tr>
<td>Address</td>
<td>The IP address to be assigned to this interface.</td>
</tr>
<tr>
<td>txqueuelen length</td>
<td>Set the length of the transmit queue of the device. It is useful to set this to small values, for slower devices with a high latency (modem links, ISDN), to prevent fast bulk transfers from disturbing interactive traffic, like telnet, too much.</td>
</tr>
<tr>
<td>--save</td>
<td>Saves the interface IP configuration. Not available when UTM-1 is installed.</td>
</tr>
</tbody>
</table>

**vconfig**

Configure virtual LAN interfaces.

**Syntax**

```bash
vconfig add [interface-name] [vlan_id]
vconfig rem [vlan-name]
```
Parameters

Table 7-18  vconfig Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>interface-name</td>
<td>The name of the Ethernet card that hosts the VLAN.</td>
</tr>
<tr>
<td>vlan_id</td>
<td>The identifier (0-4095) of the VLAN.</td>
</tr>
<tr>
<td>skb_priority</td>
<td>The priority in the socket buffer (sk_buff).</td>
</tr>
<tr>
<td>vlan_qos</td>
<td>The 3 bit priority field in the VLAN header.</td>
</tr>
<tr>
<td>name-type</td>
<td>One of:</td>
</tr>
<tr>
<td></td>
<td>• VLAN_PLUS_VID (e.g. vlan0005),</td>
</tr>
<tr>
<td></td>
<td>• VLAN_PLUS_VID_NO_PAD (e.g. vlan5),</td>
</tr>
<tr>
<td></td>
<td>• DEV_PLUS_VID (e.g. eth0.0005),</td>
</tr>
<tr>
<td></td>
<td>• DEV_PLUS_VID_NO_PAD (e.g. eth0.5)</td>
</tr>
<tr>
<td>bind-type</td>
<td>One of:</td>
</tr>
<tr>
<td></td>
<td>• PER_DEVICE  # Allows vlan 5 on eth0 and eth1 to be unique</td>
</tr>
<tr>
<td></td>
<td>• PER_KERNEL  # Forces vlan 5 to be unique across all devices</td>
</tr>
<tr>
<td>flag-num</td>
<td>Either 0 or 1 (REORDER_HDR). If set, the VLAN device will move the</td>
</tr>
<tr>
<td></td>
<td>Ethernet header around to make it look exactly like a real Ethernet</td>
</tr>
<tr>
<td></td>
<td>device.</td>
</tr>
</tbody>
</table>

route

Show, configure or save the routing entries.

Syntax

route [-nNvee] [-FC] [<AF>] List kernel routing tables
route [-v] [-FC] {add|del|flush} ... Modify routing table for AF.
route {-h|--help} [<AF>] Detailed usage syntax for specified AF.
route (-V|--version) Display version/author and exit.
route --save

Parameters

Table 7-19  route Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
<th>extended meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-v</td>
<td>verbose</td>
<td>be verbose (detailed)</td>
</tr>
<tr>
<td>-n</td>
<td>numeric</td>
<td>do not resolve names</td>
</tr>
<tr>
<td>-N</td>
<td>symbolic</td>
<td>resolve hardware names</td>
</tr>
<tr>
<td>parameter</td>
<td>meaning</td>
<td>extended meaning</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>-e</td>
<td>extend</td>
<td>display other or more information</td>
</tr>
<tr>
<td>-F</td>
<td>fib</td>
<td>display Forwarding Information Base (default)</td>
</tr>
<tr>
<td>-C</td>
<td>cache</td>
<td>display routing cache, instead of FIB</td>
</tr>
<tr>
<td>-A &lt;AF&gt;</td>
<td>af &lt;AF&gt;</td>
<td>Address family, may be one of the following: inet (DARPA Internet) inet6 (IPv6) ax25 (AMPR AX.25)</td>
</tr>
<tr>
<td></td>
<td>netrom (AMPR NET/ROM) ipx</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Novell IPX) ddp</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Appletalk DDP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>save</td>
<td>Save the routing configuration</td>
</tr>
</tbody>
</table>

**hostname**

Show or set the system's host name.

**Syntax**

hostname [--help]
hostname <host>
hostname <host> <external_ip_address>

**Parameters**

*Table 7-20  hostname Parameters*

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>show_host_name</td>
<td>show host name</td>
</tr>
<tr>
<td>host</td>
<td>new host name</td>
</tr>
<tr>
<td>external_ip_address</td>
<td>IP address of the interface to be assigned</td>
</tr>
<tr>
<td>help</td>
<td>show usage message</td>
</tr>
</tbody>
</table>

**domainname**

Show or set the system's domain name.

**Syntax**

domainname [<domain>]
Parameters

Table 7-21  *domainname Parameters*

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show domainname</td>
<td></td>
</tr>
<tr>
<td>Set domainname to domain</td>
<td></td>
</tr>
</tbody>
</table>

**dns**
Add, remove, or show the Domain Name resolving servers.

**Syntax**

dns [add|del <ip_of_nameserver>]

Parameters

Table 7-22  *dns Parameters*

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>show DNS servers configured</td>
<td></td>
</tr>
<tr>
<td>add new nameserver</td>
<td></td>
</tr>
<tr>
<td>delete existing nameserver</td>
<td></td>
</tr>
<tr>
<td>IP address of the nameserver</td>
<td></td>
</tr>
</tbody>
</table>

**sysconfig**
Interactive script to set networking and security of the system.

**Syntax**

sysconfig

**webui**

`webui` configures the port the SecurePlatform HTTPS web server uses for the management interface.

**Syntax**

`webui enable [https_port]`
`webui disable`
Parameters

Table 7-23  webui parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>enable [https_port]</td>
<td>enable the Web GUI on port https_port</td>
</tr>
<tr>
<td>disable</td>
<td>disable the Web GUI</td>
</tr>
</tbody>
</table>

User and Administrator Commands

**adduser**

adduser adds a SecurePlatform administrator. (SecurePlatform supports RADIUS authentication for SecurePlatform administrators.)

**Syntax**

```
adduser [-x EXTERNAL_AUTH] <user name>
```

**deluser**

deluser deletes a SecurePlatform administrator.

**Syntax**

```
deluser <user name>
```

**showusers**

showusers displays all SecurePlatform administrators.

**Syntax**

```
showusers
```

**lockout**

Lock out a SecurePlatform administrator.

**Syntax**

```
lockout enable <attempts> <lock_period>
lockout disable
```
lockout show

**Parameters**

*Table 7-24  lockout Parameters*

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>enable attempts lock_period</td>
<td>Activate lockout after a specified number of unsuccessful attempts to login, and lock the account for <code>lock_period</code> minutes.</td>
</tr>
<tr>
<td>disable</td>
<td>Disable the lockout feature.</td>
</tr>
<tr>
<td>show</td>
<td>Display the current settings of the lockout feature.</td>
</tr>
</tbody>
</table>

**unlockuser**

Unlock a locked administrator. (See `lockout` (on page 55) for more information about a locked administrator.)

**Syntax**

`unlockuser <username>`

**checkuserlock**

Display the lockout status of a SecurePlatform administrator (whether or not the administrator is locked out).

**Syntax**

`checkuserlock <username>`
Chapter 8

SNMP Support

SNMP support is based on the Net-SNMP open source package, and provides the following features:

- Support for full OS-MIB-II.
- Monitoring of Check Point status Information (AMON) through SNMP.

SNMP V.2 and V.3 Support.

In This Chapter

- Configuring the SNMP Agent
- SNMP Monitoring
- SNMP Monitoring Thresholds

Configuring the SNMP Agent

For basic SNMP configuration use the `snmp` command in the restricted shell, as follows:

```
snmp service enable [<portnumber>]
snmp service stat
snmp service disable
snmp user add noauthuser <username> [oidbase <OID>]
snmp user add authuser <username> pass <passphrase> [priv <privacyphrase>] [oidbase <OID>]
snmp user del [<username>]
snmp user show [<username>]
```

Parameters

Table 8-25 `snmp` Parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>snmp service enable</td>
<td>starts SNMP agent daemon listening on the specified UDP port.</td>
</tr>
<tr>
<td>snmp service disable</td>
<td>stops the SNMP agent daemon.</td>
</tr>
<tr>
<td>snmp service stat</td>
<td>displays service status.</td>
</tr>
<tr>
<td>snmp user</td>
<td>adds an SNMP v3 user to the agent. Authentication and encryption passwords can be specified for the user. Additionally, the user's access can be restricted to the specified OID sub-tree.</td>
</tr>
<tr>
<td>snmp user del</td>
<td>deletes a user. SNMP v1 and v2 users can also be deleted using this command.</td>
</tr>
</tbody>
</table>
### SNMP Support

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>snmp user show</td>
<td>displays a list of existing users.</td>
</tr>
<tr>
<td>snmp user show [username]</td>
<td>displays the specified user's (or all users') details: access level</td>
</tr>
<tr>
<td></td>
<td>information and OID subtree restriction.</td>
</tr>
</tbody>
</table>

## SNMP Monitoring

### Introduction to SNMP Monitor

Hardware health sensors and RAID disks can be monitored using the SecurePlatform SNMP monitoring daemon. SNMP traps can be set to fire once an OID value is in breach of a configurable threshold. When the OID value is back within threshold boundaries a "clear" trap is sent.

The SNMP monitoring daemon `snmpmonitor` integrates with the default SecurePlatform net-snmp / Agentx components that are part of the standard SecurePlatform installation.

### SNMP Monitor Configuration Guidelines

For each OID that you wish to monitor, a monitoring rule must be defined in the `/etc/snmp/snmpd.conf` file. The following parameters are required for each monitoring rule:

- The OID to monitor.
- A comparison operator: one of: `!=, <, >, ==`.
- A threshold value: either an integer (not enclosed within double quotes "") or a string (enclosed within double quotes ").
- A polling interval (in seconds).
- A message (e.g. "HA sync link 1 down", "Internet VLAN down", "Low REAL memory", etc.).

General configuration guidelines are:

- All configuration is performed in the `/etc/snmp/snmpd.conf` file.
- Double quotes are required for enclosing string values.
- Single quotes are not supported for enclosing string values but may be used inside string values.
- Lines that start with `#` are ignored.
- All lines that do not start with `snmp monitor` daemon commands are ignored.

### Commands used by SNMP Monitor

#### cp_monitor

The `cp_monitor` command defines a single monitoring rule.

```bash
cp_monitor <OID> <Operator> <Threshold> <Frequency> <Message>
```

Once the expression `<oid> <operator> <threshold>` evaluates to true, traps are sent until the expression evaluates back to false. At that point one or more clear traps are sent to indicate that the OID value has fallen back within acceptable boundaries.
Table 8-26 *cp_monitor* parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>OID</td>
<td>Use standard OID notation. OID types supported are: Integer, String.</td>
</tr>
</tbody>
</table>
| Operator  | For OIDs of type Integer: Use one of: !=, <, >, ==
|           | For OIDs of type String: Use one of: !=, == |
| Threshold | For OIDs of type Integer: an integer value
|           | For OIDs of type String: a string enclosed within double quotes "" |
| Frequency | Integer value representing polling interval in seconds. The daemon polls each monitored OID at the given interval. If a trap should fire it is then fired. |
| Message   | A textual message to describe the trap (sent as part of the trap), must be enclosed within double quotes "". |

Example:

```
 cp_monitor 1.3.6.1.4.1.2021.4.6.0 < 2000 5 "memAvailReal"
 cp_monitor 1.3.6.1.4.1.2620.1.5.6.0 != "active" 5 "Cluster State"
```

To verify correctness of OID used in a *cp_monitor* line make sure the equivalent *snmpget* command returns a value. For example, if attempting to configure the above example *cp_monitor* "memAvailReal" line, then the following *snmpget* command should return a value:

```
 "snmpget -v 2c -c public localhost 1.3.6.1.4.1.2021.4.6.0"
```

**cp_cleartrap**

The optional *cp_cleartrap* command can instruct the daemon about the number of clear traps to send and the interval between each. That is, once a rule's OID value falls back to being within configured threshold.

```
 cp_cleartrap <interval> <retries>
```

Default values are: 3 packets at 10 seconds intervals.

Table 8-27 *cp_cleartrap* parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval</td>
<td>A number indicating time between clear trap packets, in seconds.</td>
</tr>
<tr>
<td>Retries</td>
<td>A number indicating number of clear trap packets to send.</td>
</tr>
</tbody>
</table>

**trap2sink**

The *trap2sink* command designates a host that receives traps.

```
 trap2sink <sink-server>[:<port>] <community>
```

The *snmpmonitor* daemon requires a *trap2sink* command to exist inside the */etc/snmp/snmpd.conf* file. The *trap2sink* command is required (as opposed to the *trapsink* command) because the *snmpmonitor* daemon sends SNMP version 2c traps. Note this command is part of the net-snmp syntax.
Table 8-28 trap_2_sink parameters

<table>
<thead>
<tr>
<th>parameter</th>
<th>meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>sink-server</td>
<td>A sink server for which traps are sent.</td>
</tr>
<tr>
<td>port</td>
<td>An optional (UDP) port number on which the server listens. The default is port 162.</td>
</tr>
<tr>
<td>community</td>
<td>An SNMP community</td>
</tr>
</tbody>
</table>

Example:

```
trap2sink 10.10.10.10 public
```

Configuring SNMP Monitoring and Traps

To configure SNMP monitoring and traps:

1. Edit the `/etc/snmp/snmpd.conf` configuration file and define the SNMP monitoring rules and the trap server.

   The following is an example configuration file:

   ```
   trap2sink 10.10.10.10 public
   cp_cleartrap 10 2
   proc syslogd 1 1
   disk /var 20%
   cp_monitor 1.3.6.1.2.1.2.1.8.1 == 2 60 "link 1 down"
   cp_monitor prErrorFlag.1 != "0" 60 "process monitor"
   cp_monitor dskErrorFlag.1 != 0 60 "disk monitor"
   cp_monitor 1.3.6.1.4.1.2021.10.1.5.1 > 100 60 "CPU load 1 min"
   cp_monitor 1.3.6.1.4.1.2021.10.1.5.2 > 90 60 "CPU load 5 min"
   cp_monitor 1.3.6.1.4.1.2021.4.4.0 < 2000 60 "memAvailSwap"
   cp_monitor 1.3.6.1.4.1.2021.4.6.0 < 2000 60 "memAvailReal"
   cp_monitor 1.3.6.1.4.1.2620.1.5.6.0 != "active" 20 "Cluster State"
   cp_monitor 1.3.6.1.4.1.2620.1.1.25.3.0 > 50000 20 "Firewall connections"
   cp_monitor 1.3.6.1.2.1.25.2.3.1.6.6 > 60000 60 "/opt hrStorageUsed"
   
2. At the SecurePlatform command prompt, start the snmp service. Run:

   ```
   snmp service enable
   ```

SNMP Monitoring Thresholds

This release lets you configure a variety of SNMP Thresholds that generate SNMP traps, or alerts. You can use the thresholds to monitor many system components automatically without requesting information from each object or device. The categories of thresholds that you can configure include:

- Hardware
- High Availability
- Networking
- Resources
- Log Server Connectivity

Some categories apply only to some machines or deployments.
In each category are many individual thresholds that you can set. For example, the hardware category includes alerts for the state of the RAID disk, the state of the temperature sensor, the state of the fan speed sensor, and others. For each individual threshold, you can configure:

- If it is enabled or disabled
- How frequently alerts are sent
- The severity of the alert
- The threshold point (if necessary)
- Where the alerts are sent to

You can also configure some settings globally, such as how often alerts are send and where they are sent to.

**Types of Alerts**

There are two different types of alerts:

- **Active alerts** are sent when a threshold point is passed or the status of a monitored component is problematic.
- **Clear alerts** are sent when the problem is resolved and the component has returned to its normal value. Clear alerts look like active alerts but the severity is set to 0.

**Configuring SNMP Monitoring**

Configure the SNMP monitoring thresholds in the command line of the Security Management server. When you install the policy on the gateways the SNMP monitoring thresholds are applied globally to all gateways.

**Configuring in Multi-Domain Security Management**

In a Multi-Domain Security Management environment, you can configure thresholds on the Multi-Domain Server and on each individual Domain Management Server. Thresholds that you configure on the Multi-Domain Server are for the Multi-Domain Server only. Thresholds that you configure for a Domain Management Server are for that Domain Management Server and its gateways. If a threshold applies to the Multi-Domain Server and the Domain Management Server gateways, set it on the Multi-Domain Server and Domain Management Server. However, in this situation you might only get alerts from the Multi-Domain Server if the threshold is passed.

For example, because the Multi-Domain Server and Domain Management Server are on the same machine, if the CPU threshold is passed, it applies to both of them. However, only the Multi-Domain Server generates alerts.

You can see the Multi-Domain Security Management level for each threshold with the threshold_config utility.

- If the Multi-Domain Security Management level for a threshold is **Multi-Domain Server**, alerts are generated for the Multi-Domain Server when the threshold point is passed.
- If the Multi-Domain Security Management level for a threshold is **Multi-Domain Server, Domain Management Server**, alerts are generated for the Multi-Domain Server and Domain Management Servers separately when the threshold point is passed.

**Configuring a Local Gateway Policy**

You can configure SNMP thresholds locally on a gateway with the same procedure that you do on a Security Management server. However, each time you install a policy on the gateway, the local settings are erased and it reverts to the global SNMP threshold settings.

You can use the threshold_config utility to save the configuration file and load it again later. Or you can manually back up the configuration file so that you can copy the configuration to the gateway again after you install the policy.

The configuration file that you can back up is: $FWDIR/conf/thresholds.conf
Configuration Procedures

There is one primary command to configure the thresholds in the command line, `threshold_config`. You must be in expert mode to run it. After you run `threshold_config`, follow the on-screen instructions to make selections and configure the global settings and each threshold.

When you run `threshold_config`, you get these options:

- **Show policy name** - Shows you the name configured for the threshold policy.
- **Set policy name** - Lets you set a name for the threshold policy.
- **Save policy** - Lets you save the policy.
- **Save policy to file** - Lets you export the policy to a file.
- **Load policy from file** - Lets you import a threshold policy from a file.
- **Configure global alert settings** - Lets you configure global settings for how frequently alerts are sent and how many alerts are sent.
- **Configure alert destinations** - Lets you configure a location or locations where the SNMP alerts are sent.
- **View thresholds overview** - Shows a list of all thresholds that you can set including: The category of the threshold, if it is active or disabled, the threshold point (if relevant), and a short description of what it monitors.
- **Configure thresholds** - Open the list of threshold categories to let you select thresholds to configure.

Configure Global Alert Settings

If you select **Configure global alert settings**, you can configure global settings for how frequently alerts are sent and how many alerts are sent. You can also configure these settings for each threshold. If a threshold does not have its own alert settings, it uses the global settings by default.

You can configure these options:

- **Enter Alert Repetitions** - How many alerts will be sent when an active alert is triggered. If you enter 0, alerts will be sent until the problem is fixed.
- **Enter Alert Repetitions Delay** - How long the system waits between sending active alerts.
- **Enter Clear Alert Repetitions** - How many clear alerts will be sent after a threshold returns to a normal value.
- **Enter Clear Alert Repetitions Delay** - How long the system waits between sending clear alerts.

Configure Alert Destinations

If you select **Configure Alert Destinations**, you can add and remove destinations for where the alerts are sent. You can also see a list of the configured destinations. A destination is usually an NMS (Network Management System) or a Check Point log server.

After entering the details for a destination, the CLI asks if the destination should apply to all thresholds.

- If you enter **yes**, alerts for all thresholds are sent to that destination, unless you remove the destination from an individual threshold.
- If you enter **no**, no alerts are sent to that destination by default. However, for each individual threshold, you can configure the destinations and you can add destinations that were not applied to all thresholds.

For each threshold, you can choose to which of the alert destinations its alerts are sent. If you do not define alert destination settings for a threshold, it sends alerts to all of the destinations that you applied to all thresholds.

For each alert destination enter:

- **Name** - An identifying name.
- **IP** - The IP address of the destination.
- **Port** - Through which port it is accessed.
• **Ver** - the version on SNMP that it uses

• **Other data** - Some versions of SNMP require more data. Enter the data that is supplied for that SNMP version.

**Configure Thresholds**

If you select Configure thresholds, you see a list of the categories of thresholds, including:

- Hardware
- High Availability
- Networking
- Resources
- Log Server Connectivity

Some categories apply only to some machines or deployments. For example, Hardware applies only to Check Point appliances and High Availability applies only to clusters or high availability deployments.

Select a category to see the thresholds in it. Each threshold can have these options:

• **Enable/Disable Threshold** - If the threshold is enabled, the system sends alerts when there is a problem. If it is disabled it does not generate alerts.

• **Set Severity** - You can give each threshold a severity setting. The options are: Low, Medium, High, and Critical. The severity level shows in the alerts and in SmartView Monitor and lets you know quickly how important the alert is.

• **Set Repetitions** - Set how frequently and how many alerts will be sent when the threshold is passed. If you do not configure this, it uses the global alert settings.

• **Set Threshold Point** - Enter the value that will cause active alerts when it is passed. Enter the number only, without a unit of measurement.

• **Configure Alert Destinations** - See all of the configured alert destinations. By default, active alerts and clear alerts are sent to the destinations. You can change this for each destination. Select the destination and you see these options:
  - **Remove from destinations** - If you select this, alerts for this threshold are not sent to the selected destination.
  - **Add a destination** - If you configured a destination in the global alert destinations but did not apply it to all thresholds, you can add it to the threshold.
  - **Disable clear alerts** - If you select this, clear alerts for this threshold are not sent to the selected destination. Active alerts are sent.

**Completing the Configuration**

To complete threshold configuration and activate the settings:

• On the Security Management server, install the policy on all gateways.

• For a local gateway threshold policy or a Multi-Domain Security Management Multi-Domain Server environment, restart the CPD process using the `cpwd_admin` utility:
  a) Run: `cpwd_admin stop -name CPD -path "$CPDIR/bin/cpd_admin" -command "cpd_admin stop"
  b) Run: `cpwd_admin start -name CPD -path "$CPDIR/bin/cpd" -command "cpd"

**Monitoring SNMP Thresholds**

You can see an overview of the SNMP thresholds that you configure in SmartView Monitor.

To see an overview of the SNMP thresholds:

1. Open SmartView Monitor and select a gateway.
2. In the summary of the gateway data that open in the bottom pane, click **System Information**.
3. In the new pane that opens, click **Thresholds**.
4. In the pane that opens, you can see these details:

- **General Info** - A summary of the total SNMP Threshold policy.
  - **Policy name** - The name that you set for the policy in the CLI.
  - **State** - If the policy is enabled or disabled.
  - **Thresholds** - How many thresholds are enabled.
  - **Active events** - How many thresholds are currently sending alerts.
  - **Generated Events** - How many thresholds went from not active to active since the policy was installed.

- **Active Events** - Details for the thresholds that are currently sending alerts.
  - **Name** - The name of the alert (given in the CLI)
  - **Category** - The category of the alert (given in the CLI), for example, Hardware or Resources.
  - **MIB object** - The name of the object as recorded in the .mib file.
  - **MIB object's value** - The value of the object when the threshold became active, as recorded in the .mib file.
  - **State** - The current state of the object, either active or clearing (passed the threshold but is returning to normal value).
  - **Severity** - The severity of that threshold, as you configured for it in the CLI.
  - **Activation time** - When the alert was first sent.

- **Alert Destinations** - A list of the destinations that alerts are sent to.
  - **Name** - The name of the location.
  - **Type** - The type of location, for example, a log server or NMS.
  - **State** - If logs are being sent from the gateway or Security Management server to the destination machine.
  - **Alert Count** - How many alerts were sent to the destination from when the policy was started.

- **Errors** - Shows thresholds that cannot be monitored. For example, the gateway cannot monitor RAID sensors on a machine that does not have RAID sensors. Therefore it will show an error for the RAID Sensor Threshold.
  - **Threshold Name** - The name of the threshold with an error.
  - **Error** - A description of the error.
  - **Time of Error** - When the error first occurred.
Chapter 9

Hardware Health Monitoring

SecurePlatform enables a number of hardware health monitoring capabilities for Check Point appliances and for open servers.

In This Chapter

- Introduction to Hardware Health Monitoring
- RAID Monitoring with SNMP
- Sensors Monitoring with SNMP
- Sensors Monitoring Using the Web Interface

Introduction to Hardware Health Monitoring

SecurePlatform supports these Hardware Health Monitoring features:

- **RAID health**: Monitor the health of the disks in the RAID array, and be notified of the states of the volumes and disks. The information is available via SNMP.
- **Sensors**: Monitor fan speed, motherboard voltages and temperatures on the hardware. The information is available via SNMP and, for Check Point appliances, also via the SecurePlatform Web interface.

For more information about Hardware Health Monitoring features for specific appliances, see R75.40 Release Notes ([http://supportcontent.checkpoint.com/solutions?id=sk67581](http://supportcontent.checkpoint.com/solutions?id=sk67581)).

RAID Monitoring with SNMP

The health of disks' RAID array can be monitored using the SecurePlatform SNMP monitoring daemon. SNMP traps can be set to fire once an OID value is in breach of a configurable threshold.

The raidInfo MIB branch is 1.3.6.1.4.1.2620.1.6.7.7. The information it contains is detailed below.

Data is available in the form of two SNMP tables:

<table>
<thead>
<tr>
<th>SNMP Table</th>
<th>OID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volumes</td>
<td>1.3.6.1.4.1.2620.1.6.7.7.1.1</td>
</tr>
<tr>
<td>Disks</td>
<td>1.3.6.1.4.1.2620.1.6.7.7.2.1</td>
</tr>
</tbody>
</table>

Each volume in the RAID configuration has an entry in the Volumes table. Each volume's entry in the Volumes table contains the following OID values:

<table>
<thead>
<tr>
<th>Disk Volume Information</th>
<th>OID</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index</td>
<td>.1</td>
<td></td>
</tr>
<tr>
<td>Volume ID</td>
<td>.2</td>
<td></td>
</tr>
<tr>
<td>Volume Type (RAID level)</td>
<td>.3</td>
<td>For check Point appliances, will normally be RAID_1</td>
</tr>
<tr>
<td>Number Of Disks in the RAID</td>
<td>.4</td>
<td></td>
</tr>
</tbody>
</table>
## Disk Volume Information

<table>
<thead>
<tr>
<th>OID</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>.5</td>
<td>Maximum supported LBA (Logical Block Addressing)</td>
</tr>
</tbody>
</table>

### Volume state

- One of:
  - OPTIMAL
  - DEGRADED
  - FAILED

### Volume state

- One or more of:
  - ENABLED
  - QUIESCED
  - RESYNC_IN_PROGRESS
  - VOLUME_INACTIVE

Each disk participating in the RAID configuration has an entry in the disks table. Each disk's entry in the table contains the following OID values:

## Physical Disks information

<table>
<thead>
<tr>
<th>OID</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>.1</td>
<td></td>
</tr>
<tr>
<td>.2</td>
<td></td>
</tr>
<tr>
<td>.3</td>
<td></td>
</tr>
<tr>
<td>.4</td>
<td>On Check Point Power-1 9070 appliance: 0 - upper disk, 1 - lower disk</td>
</tr>
<tr>
<td>.5</td>
<td></td>
</tr>
<tr>
<td>.6</td>
<td></td>
</tr>
<tr>
<td>.7</td>
<td></td>
</tr>
<tr>
<td>.8</td>
<td>Maximum supported LBA (Logical Block Addressing)</td>
</tr>
</tbody>
</table>
| .9  | One of the following:
  - ONLINE
  - MISSING
  - NOT_COMPATIBLE
  - FAILED
  - INITIALIZING
  - OFFLINE_REQUESTED
  - FAILED_REQUESTED
  - OTHER_OFFLINE |
| .10 | One of:
  - OUT_OF_SYNC
  - QUIESCED |
Physical Disks information | OID | Comment
--- | --- | ---
Sync state | .11 | A percentage. Shows how much of the backup disk is synchronized with the primary disk

**Example RAID Monitoring OIDs**

<table>
<thead>
<tr>
<th>OID</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.6.1.4.1.2620.1.6.7.7.1.1.3.1.0</td>
<td>RAID type field of entry #1 from the volumes table</td>
</tr>
<tr>
<td>1.3.6.1.4.1.2620.1.6.7.7.1.1.4.1.0</td>
<td>Number of disks field of entry #1 from the volumes table</td>
</tr>
<tr>
<td>1.3.6.1.4.1.2620.1.6.7.2.1.4.2.0</td>
<td>Disk number field of entry #2 from the disks table</td>
</tr>
</tbody>
</table>

SNMP monitoring rules are defined in the `snmpd.conf` configuration file. For full details see SNMP Monitoring (on page 58).

**Sensors Monitoring with SNMP**

Hardware health sensors can be monitored using the SecurePlatform SNMP monitoring daemon. SNMP traps can be set to fire once an OID value is in breach of a configurable threshold.

The sensorInfo MIB branch is 1.3.6.1.4.1.2620.1.6.7.8. The information it contains is detailed below. Data is available in the form of 3 SNMP tables:

<table>
<thead>
<tr>
<th>SNMP Table</th>
<th>OID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperatures</td>
<td>1.3.6.1.4.1.2620.1.6.7.8.1.1</td>
</tr>
<tr>
<td>Fan speeds</td>
<td>1.3.6.1.4.1.2620.1.6.7.8.2.1</td>
</tr>
<tr>
<td>Voltages</td>
<td>1.3.6.1.4.1.2620.1.6.7.8.3.1</td>
</tr>
</tbody>
</table>

Each sensor in the system has an entry in one of the 3 tables. Each sensor’s entry contains the following OID values:

<table>
<thead>
<tr>
<th>Sensors Table Entry</th>
<th>OID</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index</td>
<td>.1</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>.2</td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>.3</td>
<td></td>
</tr>
<tr>
<td>Unit of measurement</td>
<td>.4</td>
<td>One of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Degrees C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- RPM (Revolutions per Minute)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Volts</td>
</tr>
</tbody>
</table>
### Sensors Table Entry

<table>
<thead>
<tr>
<th>Type</th>
<th>OID</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.5</td>
<td>One of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Temperature</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Fan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Voltage</td>
</tr>
<tr>
<td>Status</td>
<td>.6</td>
<td>One of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 0 - In normal range</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1 - Out of normal range</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2 - Reading error</td>
</tr>
</tbody>
</table>

### Example Sensors Monitoring OIDs

<table>
<thead>
<tr>
<th>OID</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.6.1.4.1.2620.1.6.7.8.1.1.2.1.0</td>
<td>Name of sensor #1 from the Temperatures table</td>
</tr>
<tr>
<td>1.3.6.1.4.1.2620.1.6.7.8.2.1.3.4.0</td>
<td>Value of sensor #4 from the Fan Speeds table</td>
</tr>
<tr>
<td>1.3.6.1.4.1.2620.1.6..7.8.3.1.6.5.0</td>
<td>Status of sensor #5 from the Voltages table</td>
</tr>
</tbody>
</table>

SNMP monitoring rules are defined in the `snmpd.conf` configuration file. For full details see SNMP Monitoring (on page 58).

### Sensors Monitoring with SNMP on Check Point Appliances

On Check Point appliances the hardware status can be monitored using the Web interface and SNMP polling, or by defining the SNMP trap using the `cp_monitor` mechanism. SNMP monitoring rules are defined in the `snmpd.conf` configuration file. For full details see SNMP Monitoring (on page 58).

Examples of `cp_monitor` for the different Check Point Appliances are described in SecureKnowledge solution sk42426 (http://supportcontent.checkpoint.com/solutions?id=sk42426).
Sensors Monitoring Using the Web Interface

Use the Web interface (WebUI) to monitor the hardware sensors on all the Check Point appliances. The Hardware Sensors page provides information about temperature, voltage and fan speed of the appliance. A warning is displayed if one of the values exceeds the threshold’s values. The thresholds are hard-coded in the hardware.

![Image of Hardware Sensors page]

<table>
<thead>
<tr>
<th>Sensors</th>
<th>Value</th>
<th>Unit</th>
<th>Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Fan Speed</td>
<td>4440</td>
<td>RPM</td>
<td>Fan</td>
<td>LOW</td>
</tr>
<tr>
<td>Core Voltage</td>
<td>1.17</td>
<td>Vols</td>
<td>Voltage</td>
<td>OK</td>
</tr>
<tr>
<td>VCC+ Voltage</td>
<td>11.98</td>
<td>Vols</td>
<td>Voltage</td>
<td>OK</td>
</tr>
<tr>
<td>1.8 Voltage</td>
<td>1.79</td>
<td>Vols</td>
<td>Voltage</td>
<td>OK</td>
</tr>
<tr>
<td>SV Power Supply In</td>
<td>4.93</td>
<td>Vols</td>
<td>Voltage</td>
<td>OK</td>
</tr>
<tr>
<td>SV Standby Voltage</td>
<td>5.03</td>
<td>Vols</td>
<td>Voltage</td>
<td>OK</td>
</tr>
<tr>
<td>Battery Voltage</td>
<td>3.04</td>
<td>Vols</td>
<td>Voltage</td>
<td>OK</td>
</tr>
<tr>
<td>CPU Fan Speed</td>
<td>6556</td>
<td>RPM</td>
<td>Fan</td>
<td>OK</td>
</tr>
<tr>
<td>CPU Temperature</td>
<td>35</td>
<td>degrees C</td>
<td>Temperature</td>
<td>OK</td>
</tr>
<tr>
<td>Motherboard Temperature</td>
<td>44.50</td>
<td>degrees C</td>
<td>Temperature</td>
<td>OK</td>
</tr>
</tbody>
</table>
Chapter 10

SecurePlatform Boot Loader

In This Chapter

- Booting in Maintenance Mode 70
- Customizing the Boot Process 70
- Snapshot Image Management 70

**Booting in Maintenance Mode**

Maintenance Mode should be used in rare system emergencies, such as when there is a problem rebooting the system, or the Standard admin password is lost. To reboot in this mode, position the selection bar on "SecurePlatform with Application Intelligence [Maintenance Mode]" and click Enter. You will be asked to enter a password.

Selecting the Maintenance Mode boot option will boot your SecurePlatform in a special mode, known on Unix systems as "single-user mode". In this mode, your computer boots to runlevel 1. Your local file systems will be mounted, but your network will not be activated. You will have a usable system maintenance shell.

**Customizing the Boot Process**

To customize the boot process, click p in order to enter a password and unlock the next set of features. The password is the Expert password that you set for your system. The following options are available:

- Click e to edit any of the boot options (position the selection bar on the relevant boot option).
- Click c to perform root level system operations.

**Snapshot Image Management**

At boot time, the user is given the option of switching to any of the available snapshots. For more information, see Snapshot Image Management (on page 41).
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