

Appliance Hardware Diagnostic Tool

Administration Guide

25 November 2014



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Important Information

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:

(http://supportcontent.checkpoint.com/documentation_download?ID=25298)

To learn more, visit the Check Point Support Center (<http://supportcenter.checkpoint.com>).

Revision History

Date	Description
25 November 2014	Updated USB Drive (on page 6). ISOmorphic is not included with the Diagnostic Tool package, it is downloaded separately.
15 December 2013	General formatting updates
26 November 2013	First release of this document

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 Appliance Hardware Diagnostic Tool Administration Guide).

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Overview of the Diagnostic Tool

Use the Diagnostic Tool (Appliance Hardware Diagnostic Tool) to make sure that the Check Point appliance hardware is working properly and complies with the appliance specifications.

The Diagnostic Tool is installed on Check Point appliances that are shipped with factory installed images of R76 and later. For more information about the tool and factory installed images, go to sk97251 (<http://supportcontent.checkpoint.com/solutions?id=sk97251>).

You can use a USB drive to run the Diagnostic Tool on a supported appliance with Gaia or SecurePlatform for any version.

Supported Check Point Appliances

The Diagnostic Tool is supported on most new Check Point appliances. For a complete list of supported appliances, go to sk97251 (<http://supportcontent.checkpoint.com/solutions?id=sk97251>). The tool is not supported on:

- Open Servers
- Small Office Appliances
- IP appliances
- UTM-1 Edge appliances

Using the Diagnostic Tool

The Diagnostic Tool is interactive. It runs in the console window and on the appliance LCD panel at the same time. The two user interfaces are always synchronized and you can change from one to the other during the tests.

If the Diagnostic Tool is not installed on an appliance, it is necessary to run the tool from a USB drive.

This guide shows tests that are included in the newest version of the Diagnostic Tool. To download the newest package for a USB drive, go to sk97251 (<http://supportcontent.checkpoint.com/solutions?id=sk97251>).

Starting the Diagnostic Tool

Before you start the Diagnostic Tool, disconnect all external hard drives, and network interfaces from the appliance. It is not necessary to disconnect the keyboard or the console port.

You can run a check to show if the Diagnostic Tool is installed on the appliance ("[Checking for the Diagnostic Tool](#)" on page 6).

Connecting with the Console Port

You can use a terminal emulation program to connect to an appliance and run the Diagnostic Tool.

To connect to the appliance with the console port:

1. Connect the supplied DB9 serial cable to the console port on the front of the appliance.
2. Connect to the appliance using a terminal emulation program such as Microsoft HyperTerminal or PuTTY.
 - a) Configure the terminal emulation program:
 - In the HyperTerminal **Connect To** window, select a port from the **Connect using** list.
 - In PuTTY select the **Serial** connection type.
 - b) Define the serial port settings: 9600 BPS, 8 bits, no parity, 1 stop bit.
3. From the **Flow control** list, select **None**.

Checking for the Diagnostic Tool

Run a command from the CLI to make sure that the Diagnostic Tool is installed on the appliance.

To make sure that the Diagnostic Tool is installed:

1. From the CLI, log in to Expert mode.
2. Run:

```
# lvs | egrep 'RMATool|hwdiag'
```

If the Diagnostic Tool is installed, a message is shown: RMATool vg_splat -wi-a- 1.00G or hwdiag vg_splat -wi-a- 1.00G

Running the Diagnostic Tool

Installed Appliance

To run the Diagnostic Tool that is installed on the appliance:

1. Reboot the appliance.
2. Enter the boot menu.
3. From the boot menu, select HW Diagnostics.

```
Select:      v / ^
HW diagnostics
```

You can select the option from the LCD panel or the console window.

The Diagnostic Tool starts after the appliance reboots.

USB Drive

Download the Diagnostic Tool package and the ISomorphic tool from the Support Center. The package uses ISomorphic to install the tool on a USB drive. Insert the USB drive in the appliance to run the tool.

To run the Diagnostic Tool from a USB drive:

1. Download the Diagnostic Tool package to a computer:
 - For UTM 270 and UTM 130 appliances
(https://supportcenter.checkpoint.com/supportcenter/portal?action=portlets.DCFileAction&eventSubmit_doGetdcdetails=&fileid=27631)
 - For all other appliances
(https://supportcenter.checkpoint.com/supportcenter/portal?action=portlets.DCFileAction&eventSubmit_doGetdcdetails=&fileid=25346)
2. Download the ISomorphic tool to a computer
(<http://supportcontent.checkpoint.com/solutions?id=sk65205>).
3. Connect the USB drive to the computer.

4. Extract these files: **ISOmorphic.exe** and **HWdiagnostics.iso**.
5. Open **ISOmorphic.exe**.
6. Select the Diagnostic Tool ISO.
 - a) From **Select source ISO file**, click **Browse**.
 - b) Select **HWdiagnostics.iso**.
7. In **Select destination drive**, select the USB drive.
8. Click **Go**.
ISOmorphic installs the Diagnostic Tool on the USB drive.
9. When the installation is finished, remove the USB drive from the computer.
10. Insert the USB drive in the appliance.
The appliance is ready to start the diagnostic tests ("[Starting the Diagnostic Tool](#)" on page 5).
11. Reboot the appliance.
The Diagnostic Tool starts after the appliance reboots.



Important - After you finish the Diagnostic Tool, the appliance automatically reboots. While the appliance is rebooting, make sure that before you remove the USB drive before the tool starts again.

Diagnostic Tool Menu

```

+-----+
|               HW  Diagnostics               |
+-----+
| * 1. Diagnostics                             |
|    2. Custom                                 |
|    3. Save Logs                             |
|    4. Exit                                  |
|                                             |
|                                             |
+-----+
  
```

Running Diagnostic Tests

To run Diagnostic tests:

1. Run all the tests or choose the tests that you want to run.
 - To run all the tests, select `Diagnostics` from the menu and press Enter.
 - To choose the tests that you want to run, select `Custom` from the menu and press Enter.

When the process is complete, the test results show in the console and on the appliance LCD screen.
2. Select `Save logs` and press Enter.
3. Select `Exit` and press Enter.

Description of the Tests

This section describes the appliance hardware tests that are available.

Spec Test

A check for compliance with specifications published by Check Point. This test looks at:

- Manufacturer and model of the appliance.
- Number of processors.
- Processors speed.
- Amount of physical memory.
- Size of the hard disks.

Memory Test

A test on the physical memory by doing read and write operations to memory locations.

Networking Test

A check on all the network ports for connectivity. The Networking test includes a self-test on the port and a connectivity test using a loopback plug.

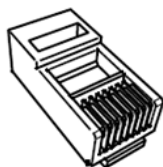
The driver for the port runs the self-test. The connectivity test cycles through each port and does a check for:

- A link on the port
- The ability to send and receive network traffic through the port

Preparing for the connectivity network test

Make sure that you have the loopback plug of the correct type for your interfaces.

- Copper RJ-45 loopback plug (Not supplied):



- Fiber optic loopback plug for fiber optic ports (Supplied with the fiber line card kit):



To run the network tests:

1. Disconnect all network cables.
2. To run only the self-test, in the **Network Test** window press **Q**.

```

+-----+
|               Custom               |
+-----+
|               Network Test         |
|                                   |
|      Use external loopback device? |
|      <ENTER> - yes                 |
|      <q> - no [default 60]         |
|                                   |
+-----+

```

3. To run the connectivity test and the self-test, connect the appropriate loopback plug to the port number. This example shows `eth3`:

```

3/4 Network  75%
Connect eth3

```



Note - When each port is tested, press **S** to skip the test and continue with the next port.

Within 10 seconds, the port is tested for link state, and traffic is sent and received. After the port test is successful, the LCD screen or console show the name of the next port to be tested.

Sensors Test

Run a test on each of the appliance hardware sensors. Each test is run multiple times on the same sensor. The test only passes if the sensors are within the allowed thresholds. The logs show the details and results of each test.

Disk Test, Long Disk Test

Do a test of the hard drives for failures. The information is primarily from the SMART attributes (Self-Monitoring, Analysis and Reporting Technology. A monitoring system for computer hard disk drives).

The Long Disk Test is an in-depth disk test that may take longer than the other tests. It is available as a Custom test only.

Stopping a Test

To stop a test that is in progress, press the **Esc** button on the LCD panel or the `q` key in the console window while the test is running. The Test status shows as `Skipped` and the next test starts automatically.

Status of the Appliance

After all tests have completed successfully, the message `System OK` shows on the LCD panel and on the console. Reboot the system and continue working normally.

If a test fails, the name of the test shows with the reason for the failure. If a test fails, contact Check Point Support and provide the logs of the diagnostic tests. See *Saving Logs* ("[Saving Logs to an External USB Device](#)" on page 10).

The status of the latest full test is logged.

Logging

The status of the latest full test is logged in the file `diagnostics_summary.log`

When the Diagnostic Tool is installed on an appliance, all logs are stored in the directory `/var/log/diagnostics`. When you run the tool from a USB drive, logs are saved only on the USB drive.

There are two kinds of log files:

- Logs that contain debugging messages related to running the Diagnostic tool, infrastructure messages and general messages that relate to the diagnostic test process. The log file name is `diagnostics_general.log`. Look at this log if the tool does not function as expected. If you contact Check Point Support, send them this log file.
- Per-test logs. The name of every file has the pattern: `TEST_NAME_DATE.log`. These files contain the messages of one run of one test.

The directory `/var/log/diagnostics` has up to five of the latest log files. The general logs created with each launch of Diagnostic tool and test logs are created at start of each test.

Saving Logs to an External USB Device

You can save logs to an external USB device:

- After finishing a full test.
- In the main menu `Save Logs` option.

After you connect the device the logs are saved to the device in `diagnostics_summary_SN.tar` format.