

# **Field Testing F5 Hardware: iSeries Platforms**

MAN-0638-02





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# The End-User Diagnostic (EUD)

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## About the End-User Diagnostic (EUD)

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The End-User Diagnostic (EUD) is a compilation of tests for checking the integrity of F5® hardware. The EUD exists independently from the host software, and is available as a separate download. You should run the EUD only when you are advised to do so by your F5 Support representative.

**Important:** You must download and install the latest EUD software version for your platform before you run any tests.

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## End-User Diagnostic notes

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**Caution:** You should not run these test tools on a system that is actively processing traffic in a production environment. These tests stop the unit and prevent it from processing traffic. Run this tool only if you are verifying a hardware issue with a unit that is already removed from production, or if you are instructed to by an F5® Support representative.

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**Caution:** Before you run these tests, you should disconnect all network cables from the system. Any cables connected to the system during the tests could cause false-positive results.

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## Supported platforms

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This table lists the platforms supported by this version of the EUD.

Platform name	Platform ID
BIG-IP® i800 Series	C117
BIG-IP i2000 Series	C117
BIG-IP i4000 Series	C115
BIG-IP i5000 Series	C119
BIG-IP i7000 Series	C118
BIG-IP i10000 Series	C116
BIG-IP i11000 Series	C123
BIG-IP i15000 Series	D116
Herculon® i2800	C120
Herculon i5800	C121
Herculon i10800	C122



# Downloading the EUD Files

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## Deciding which files to download

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There are several file types available from the F5 download site <http://downloads.f5.com> for the EUD.

File Name	Description
ISO image	The ISO image is provided for burning a CD or DVD of the EUD. You can boot the CD/DVD from a powered USB CD/DVD drive plugged in to your F5 <sup>®</sup> system.
IM file	The IM file is a self-extracting installation file. You can <code>scp</code> this file directly to your F5 system and use it to upgrade the EUD on the system or load a USB flash drive.
MD5 file	There is a corresponding MD5 file for each ISO image and IM file that you download. Use the MD5 file to verify the integrity of the file you download.
Readme-EUD.txt	This file includes details about the release, such as supported platforms.

## Determining the EUD version installed on the system

Perform this task before you download update files to determine the EUD version installed on your system, or to verify that the installation of a new version was successful.

You can use the `eud_info` command to determine which EUD version is installed on your system:

1. Log in to the command line of the system using an account with root access.
2. Verify the EUD version installed on your system.

```
eud_info
```

The version number of the EUD installed on the system displays.

## Downloading the EUD IM file from F5

F5<sup>®</sup> recommends that you obtain the latest version of the EUD IM file that is supported on your platform from the F5 download site (<http://downloads.f5.com>) before you run these tests.

1. Log on to <http://downloads.f5.com/> and click **Find a Download**.
2. In the **Hardware-Specific** area, click **Platform / EUD**.
3. Select your platform from the list.
4. Click the name of the release with the most recent date.  
You must accept the software terms and conditions before you can proceed.
5. Click the file name `<file_name>.im` to start the download.

The `<file_name>` consists of the platform family and the build number.

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*Note:* You should copy the IM file to `/var/tmp` on the system you intend to update.

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6. Download the corresponding checksum file.  
The corresponding checksum file has the same name as the IM file, except that `.md5` is the file extension.

## Downloading the EUD Files

After the download completes, verify the integrity of the file by checking the MD5 checksum.

### Downloading the EUD ISO file from F5

F5® recommends that you obtain the latest version of the EUD ISO file that is supported on your platform from the F5 download site (<http://downloads.f5.com>) before you run these tests.

1. Log on to <http://downloads.f5.com/> and click **Find a Download**.
2. In the **Hardware-Specific** area, click **Platform / EUD**.
3. Select your platform from the list.
4. Click the name of the release with the most recent date.  
You have to accept the software terms and conditions before you can proceed.
5. Click the file name `<file_name>.iso` to start the download.  
The `<file_name>` consists of the platform family and the build number.
6. Download the corresponding checksum file.  
The corresponding checksum file has the same name as the ISO file, except that `.md5` is the file extension.

After the download completes, verify the integrity of the ISO file by checking the MD5 checksum.



# Verifying, Installing, and Loading the EUD Files

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## After you download the EUD files

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There are several actions you can take after you download the EUD files.

Task	Description
Use the MD5 checksum to verify the files	Use the MD5 file to verify the integrity of the file you download.
Install the EUD from the IM installation package	Use secure copy ( <code>scp</code> ) to copy the IM file directly to your F5® system, and use the IM file to upgrade the EUD on the system.
Load the EUD onto a USB flash drive	Load the EUD onto a USB flash drive, and run the EUD from the flash drive.

## Using MD5 checksum to check the integrity of the file

You can perform this task after you download update files and their corresponding `.md5` files from the F5® downloads site (<http://downloads.f5.com>).

Verify the MD5 checksum on each file you download using the `md5sum` command. Use the output to verify the integrity of the downloaded file.

1. Log in to the command line of the system using an account with root access.
2. Verify the integrity of the downloaded file, where `<file_name>.md5` is the name of the `.md5` file you downloaded.

```
md5sum -c <file_name>.md5
```

If the output is OK, the download was successful. If not, you should download the file again and repeat the process.

## Installing the EUD from an IM installation package

You should copy the IM file to `/var/tmp` on the system you intend to update before you begin this procedure.

Installing the EUD from an IM file is one method that you can use to get the latest EUD installed on your hardware.

1. Log in to the command line of the system using an account with root access.
2. Install the EUD, where `<file_name>.im` is the name of the file you downloaded.

```
im <file_name>.im
```

The latest EUD is installed on your hardware.

## Loading the EUD onto a USB flash drive

You can run the EUD by booting the system from a USB flash drive loaded with the EUD software. Use this procedure to load the EUD onto a USB flash drive.

1. Log in to the command line of the system using an account with root access.
2. Download the IM file to `/tmp/eud`.

## Verifying, Installing, and Loading the EUD Files

3. Loopback mount the IM file, where *<file\_name>* is the name of the file you downloaded.  
`mkdir /tmp/eud; mount -o ro,loop <file_name>.im /tmp/eud`
4. Insert a USB flash drive into the platform on which you mounted the IM file.
5. Run the `mkdisk` utility.

```
cd /tmp/eud; ./mkdisk
```

Follow the prompts to load the EUD onto the USB flash drive.

After the installation is complete, remove the USB flash drive from the system.

# Running the EUD Tests

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## About running the EUD tests

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There are several options for running the EUD tests.

***Important:** Before you run any EUD tests, you must download and install the latest EUD software version for your platform.*

Task	Description
Boot the EUD from a USB flash drive	Plug your EUD USB flash drive into the system, and boot to the EUD.
Boot the EUD from a USB DVD drive	Plug your USB DVD drive into the system, and boot to the EUD.
Run the EUD from the system boot menu	As the system is booting, select the EUD option from the boot menu.

### Booting the EUD from a USB flash drive

You must load the EUD image onto the USB flash drive to run the EUD from the drive. You must have a console connected to the system to run the EUD.

You can boot the EUD from a USB flash drive.

1. If the system is powered on, turn it off.
2. Plug the USB flash drive that holds the EUD image into the USB port on the system.
3. Power on the system to boot the EUD.  
When the EUD starts, the EUD menu displays on the console.

### Booting the EUD from a USB CD/DVD drive

You must create a disk using the EUD ISO image before you can boot the EUD from a USB CD/DVD drive. You must have a console connected to the system to run the EUD.

You can boot the EUD from an externally-powered USB CD/DVD drive.

1. If the system is powered on, power it off.
2. Plug the USB CD/DVD drive into the USB port on the system, and insert the EUD disk.
3. Power on the system to boot the EUD.  
When the EUD starts, the EUD menu displays on the console.

### Starting the EUD from the boot menu

You should install the latest version of the EUD before you boot the EUD from the boot (grub) menu. You must have a console connected to the system to run the EUD.

You can boot the EUD installed on the system from the boot (grub) menu.

1. If the system is powered on, reboot it.

## Running the EUD Tests

2. As the unit boots, it pauses briefly on the boot menu. Use the arrow keys to highlight **End User Diagnostics**.

When the EUD starts, the EUD menu displays on the console.

# EUD Tests

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## 1 System Report

---

The System Report provides comprehensive details about all system hardware components, including:

- Serial number
- F5<sup>®</sup> part number
- Host information
- BIOS version
- Firmware version
- Bootloader version
- Processor, processor version
- Power supply firmware version
- Memory in each socket
- Total memory
- Storage drives

When you start the test, you see this message:

```
Test Begin: System Report
```

After the report completes successfully, a summary of information displays, and you see this message:

```
Test Complete: System Report: PASSED
```

## 2 Transceiver Report

---

This test checks for transceiver modules installed in the system and reports this information about those modules:

- Vendor name
- Part number
- Revision
- Media type

When you start the test, you see this message:

```
Test Begin: Transceiver Report
```

After the report completes successfully, you see this message:

```
Test Complete: Transceiver Report: PASSED
```

## 3 Sensor Test

---

This sensor test performs the hardware sensor test on both the motherboard and the switchboard, if applicable, and displays this information:

- Host temperatures
- Host voltages

## EUD Tests

- Mezzanine temperature
- Mezzanine voltages
- CPU temperature
- CPU fan speeds
- SuperIO temperatures

When you start the test, you see this message:

```
Test Begin: Sensor Test
```

After the report completes successfully, you see this message:

```
Test Complete: Sensor Test: PASSED
```

## 4 Memory Test

---

This test verifies the system memory, including this information:

- Error count
- Hardware incident count
- Memory copy rate

When you start the test, you see this message:

```
Test Begin: Memory Test
```

After the test completes successfully, you see this message:

```
Test Complete: Memory Test: PASSED
```

## 5 Drive Test

---

This test verifies the internal status of installed storage drives, including this information:

- Read error rate
- Start/Stop count
- Re-allocated sector count
- Power on hours count
- Spin-up retry count
- Drive calibration retry count
- Drive power cycle count
- Offline scan uncorrectable sector count
- Ultra ATA CRC error rate and multi-zone error rate

When you start the test, you see this message:

```
Test Begin: Drive Test
```

After the test completes successfully, you see this message:

```
Test Complete: Drive Test: PASSED
```

## 6 Packet Path Test

---

This test verifies the internal paths to test the Ethernet interfaces in the system, including between the front panel switch, HSBs, processors, and more.

When you start the test, you see this message:

```
Test Begin: Packet Path Test (excluding modules)
```

After the test completes successfully, you see this message:

```
Test Complete: Packet Path Test (excluding modules): PASSED
```

## 7 Power Supply Test

---

This test reports status about the power supplies installed in the system, including information about the supply manufacturer, voltage, and current and temperature measurements.

When you start the test, you see this message:

```
Test Begin: Power supply Test
```

After the test completes successfully, you see this message:

```
Test Complete: Power supply Test: PASSED
```

## 8 Fan Test

---

This test reports status about the fan trays installed in the system.

When you start the test, you see this message:

```
Test Begin: Fan Test
```

After the test completes successfully, you see this message:

```
Test Complete: Fan Test: PASSED
```

## 9 Config Module Test

---

This test verifies the internal paths to test the configuration modules installed in the system.

When you start the test, you see this message:

```
Test Begin: Config Module Test
```

After the test completes successfully, you see this message:

```
Test Begin: Config Module Test
```

## 20 LED Test

---

This test sets each of the possible LED status levels, and prompts you to verify the corresponding color and operation. You must perform this test from the LCD panel.

**Important:** After you start this interactive test, it times out after five minutes if you do not complete it.

When you start the test, you see this message:

```
Test Begin: Host LED test
```

After the test completes successfully, you see this message:

```
Test Complete: Front Port LED test: PASSED
```

## 21 LCD Keypad Test

---

The LCD Keypad Test verifies the functionality of the LCD panel, including LCD backlight, colors, pixels, and keys. To successfully perform these tests, you need physical access to the LCD panel on the unit that you want to test.

**Important:** After you start this interactive test, it times out after five minutes if you do not complete it.

When you start the test, you see this message:

```
Test Begin: LCD test
Flashing the F5 logo ball to assist with locating the chassis...
Please answer all questions on the DUT's LCD screen.
When the test is finished, the content of the log will be displayed below.
Test Start
Test Begin: LCD test
Flashing the F5 logo ball to assist with locating the chassis...
Please answer all questions on the DUT's LCD screen.
When the test is finished, the content of the log will be displayed below.
Test Start
```

After the test completes successfully, you see this message:

```
Test Complete: LCD Test: PASSED
```

## A Run All (Non-Interactive) Tests

---

This option runs all tests that are applicable to the system, excluding the interactive tests.

This process takes approximately a half hour.

## B Run tests in [A] but exclude test 4 (System Memory Test)

---

This option runs all tests that are applicable to the system, excluding the interactive tests and the System Memory test.



## D Display Test Report Log

---

This option displays a test report. A report log is stored as the text file `/shared/log/eud.log` in the host file system.

---

**Important:** You must run `eud_log` from the command line to create output for this report.

---

## S Display Test Summary

---

This option displays a test summary report that contains the results of all tests run during a test session.

## Q Quit EUD and Reboot the System

---

This option quits the EUD and reboots the system.

---

**Important:** Using other methods, such as the `reboot` command or the command menu option can destabilize the system.

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# Legal Notices

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## Legal Notices

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### **Publication Date**

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This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

### **FCC Compliance**

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This unit generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

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### **Brazil Compliance**

This product is homologated by ANATEL, in accordance with the procedures regulated by Resolution n. 242/2000 and meets the technical requirements applied.

This product is homologated by ANATEL, in accordance with the procedures regulated by Resolution n. 242/2000 and meets the technical requirements applied including the exposure limits of the Specific Absorption Rate for electric, magnetic and electromagnetic fields of radio frequency in accordance with Resolutions 303/2002 and 533/2009.

This equipment is not subject to the protection from harmful interference and may not cause interference with duly authorized systems.

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この製置は、クラス A 情報技術製置です。この製置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。VCCI-A

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