

# Welcome to HP Customer Support

## HP PCs - Testing for Hardware Failures

**This document is for HP PCs.**

HP provides diagnostic software you can use to test hardware components on your computer and confirm hardware failures when you suspect something is wrong.

Start by using the Fast Test to quickly identify hardware issues. After running the Fast Test, if no errors are found but your computer is still exhibiting symptoms of a hardware problem, run the Extensive Test.

If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in **Test Logs** on the main menu.

**note:**

The graphics might be different, depending on which version of the utility you are using.

Run the Fast Test (about 4 minutes)

1. In Windows, search for and open the **HP PC Hardware Diagnostics Windows** app.

If the HP PC Hardware Diagnostics for Windows app is not available on your computer, download the latest version from the [HP Hardware Diagnostics](#) website.

2. On the main menu, click System Tests.
3. Click the System Fast Test tab.
4. Click Run once.

While the test is running, the time remaining and test result for each component are shown on the screen.

5. If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

If no system component failed, run the Extensive Test.

### [Run the Extensive Test \(2 hours or more\)](#)

If the HP PC Hardware Diagnostics for Windows app is not available on your computer, download the latest version from the [HP Hardware Diagnostics](#) website.

1. In Windows, search for and open the **HP PC Hardware Diagnostics Windows** app.
2. On the main menu, click System Tests.
3. Click the System Extensive Test tab.
4. Click Run once.

While the test is running, the time remaining and test result for each component are shown on the screen. The test can take 2 or more hours to complete.

5. If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

#### [Run tests when Windows doesn't start](#)

Video of testing your HP computer hardware

[View this video on YouTube.](#)

Run the Fast Test (about 4 minutes)

1. Hold the power button for at least five seconds to turn off the computer.
2. Turn on the computer and immediately press Esc repeatedly, about once every second. When the menu appears, press the F2 key.
3. On the HP PC Hardware Diagnostics (UEFI) main menu, click System Tests.
4. Click Fast Test.
5. Click Run once.

While the test is running, the time remaining and test result for each component are shown on the screen.

6. If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

If no system component failed, run the Quick Test.

If the diagnostics are not available when using the F2 menu, run the HP PC Hardware Diagnostics from a USB drive. To download the latest version of the diagnostics, go to the [HP Hardware Diagnostics](#) website. For instructions, see [Testing from an external USB device](#).  
[Run the Quick Test \(10 to 15 minutes\)](#)

1. Hold the power button for at least five seconds to turn off the computer.
2. Turn on the computer and immediately press Esc repeatedly, about once every second. When the menu appears, press the F2 key.
3. On the HP PC Hardware Diagnostics main menu, click System Tests.
4. Click Quick Test.
5. Click Run once.

While the test is running, the time remaining and test result for each component are shown on the screen.

6. If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

If no system component failed, run the Extensive Test.

### Run the Extensive Test (2 hours or more)

1. Hold the power button for at least five seconds to turn off the computer.
2. Turn on the computer and immediately press Esc repeatedly, about once every second. When the menu appears, press the F2 key.
3. On the HP PC Hardware Diagnostics (UEFI) main menu, click System Tests.
4. Click Extensive Test.
5. Click Run once, or Loop until error.

While the test is running, the time remaining and test result for each component are shown on the screen.

6. If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

### Running System Tests

The System Tests check the hardware sub-systems to ensure they are functioning properly. If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in **Test Logs** on the main menu.

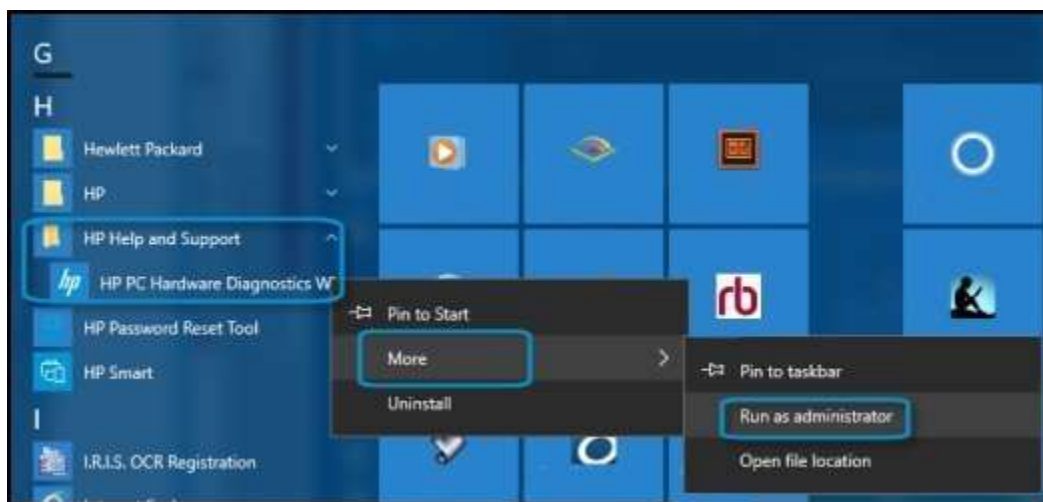
Use one of the following methods to open the System Tests menu.

#### Opening the System Tests menu in Windows

Use the following instructions to open the System Tests menu in the software.

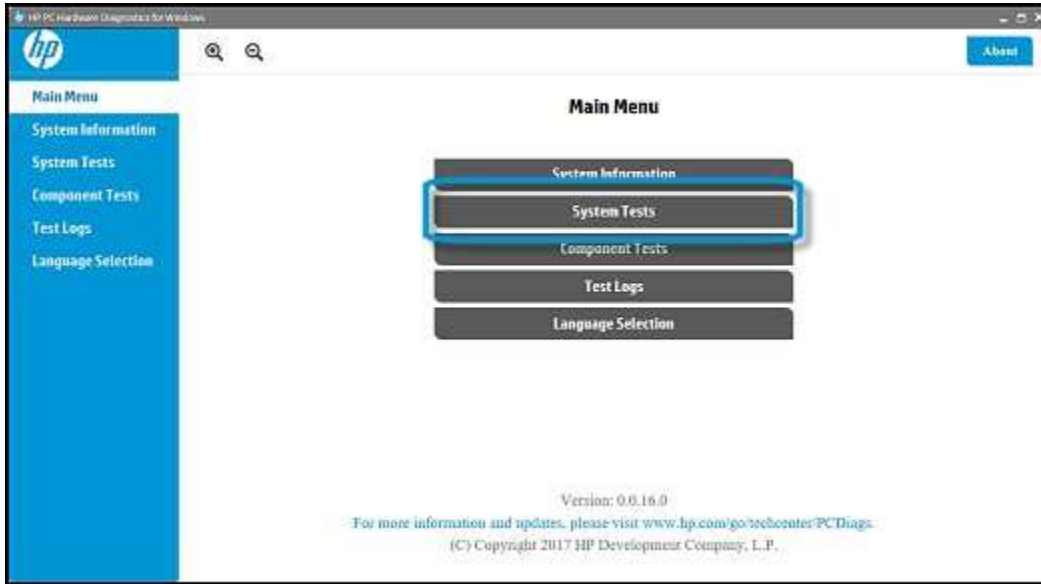
1. Select Start, and then select HP Help and Support. Right-click HP PC Hardware Diagnostics for Windows, select More, and then select Run as administrator.

**Figure : Opening HP PC Hardware Diagnostics for Windows**



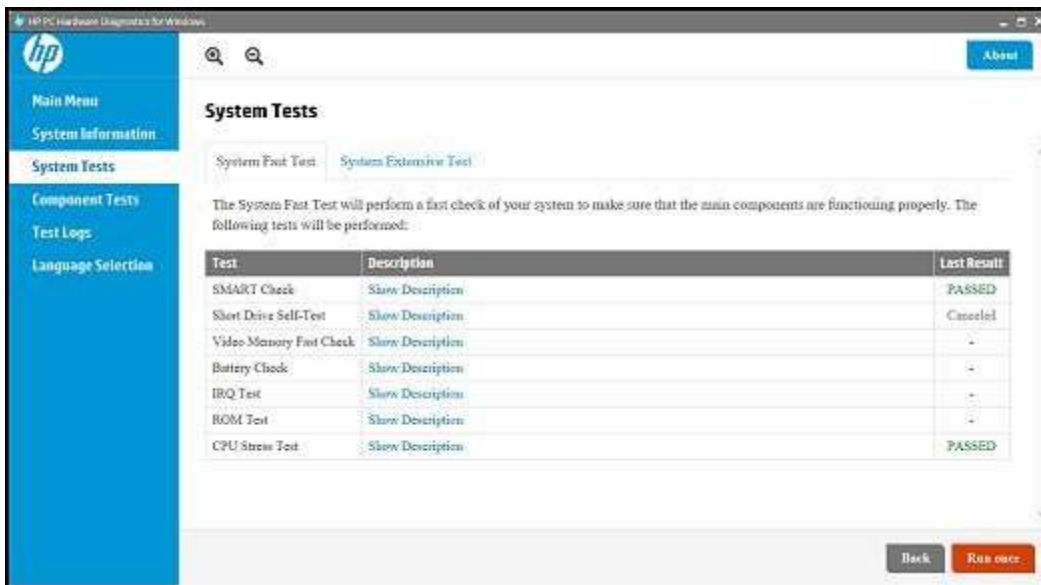
2. The app opens to the main menu. Click System Tests.

**Figure : Opening the System Tests menu**



3. The System Tests menu opens.

**Figure : System Tests menu in Windows**



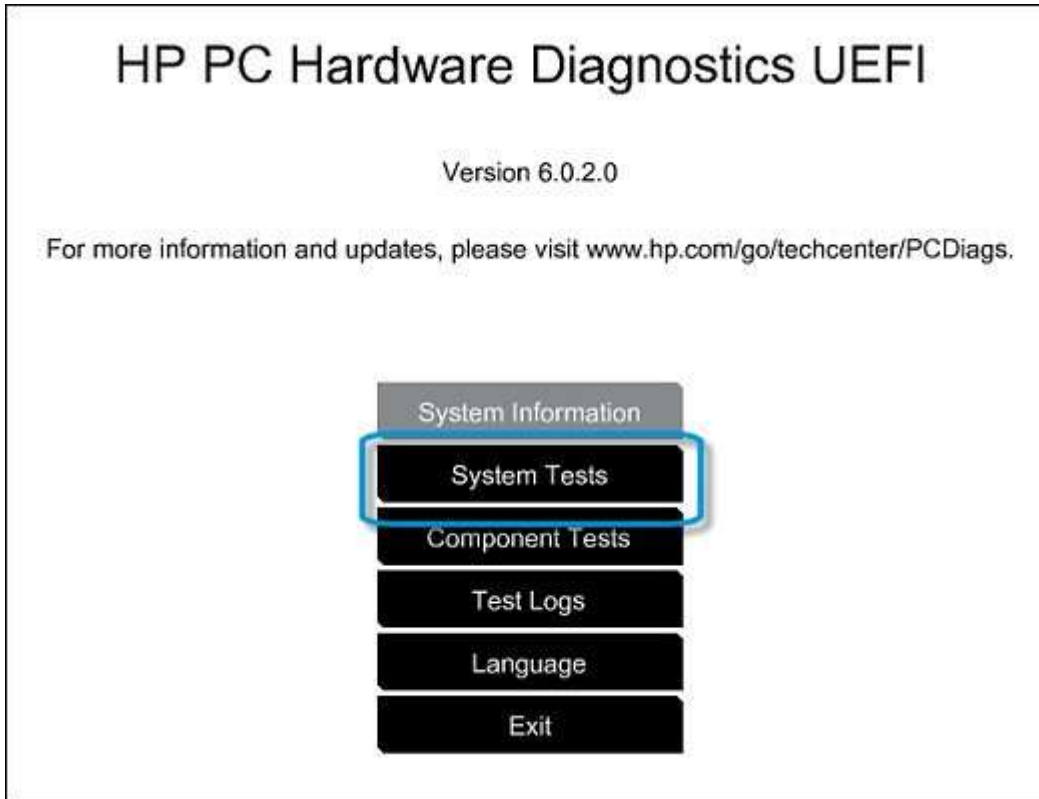
### [Opening the System Tests menu when Windows won't start](#)

Use the following steps to open the System Tests menu when Windows won't start.

1. Hold the power button for at least five seconds to turn off the computer.

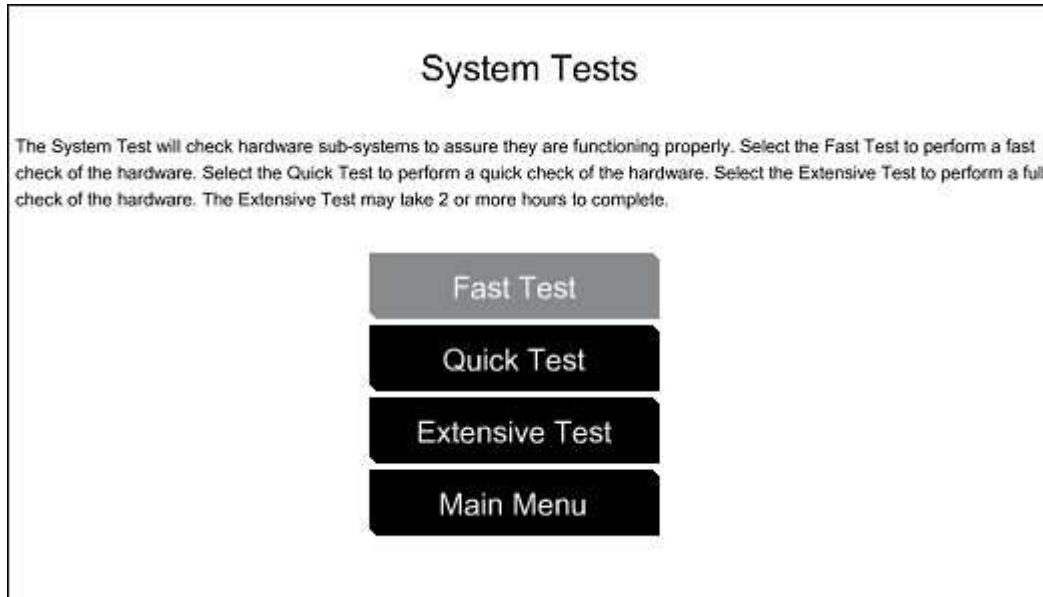
2. Turn on the computer and immediately press Esc repeatedly, about once every second. When the menu appears, press the F2 key.
3. On the main menu, click System Tests.

**Figure : Selecting the System Tests from the main menu**



4. The System Tests menu displays.

**Figure : System Tests menu**



The steps in this section describe how to run the tests and view the test logs. Use the following tests to check for hardware failures.

#### [Run the Fast Test](#)

The Fast Test performs a fast check of your system to make sure that the main components are functioning properly. The following tests are performed.

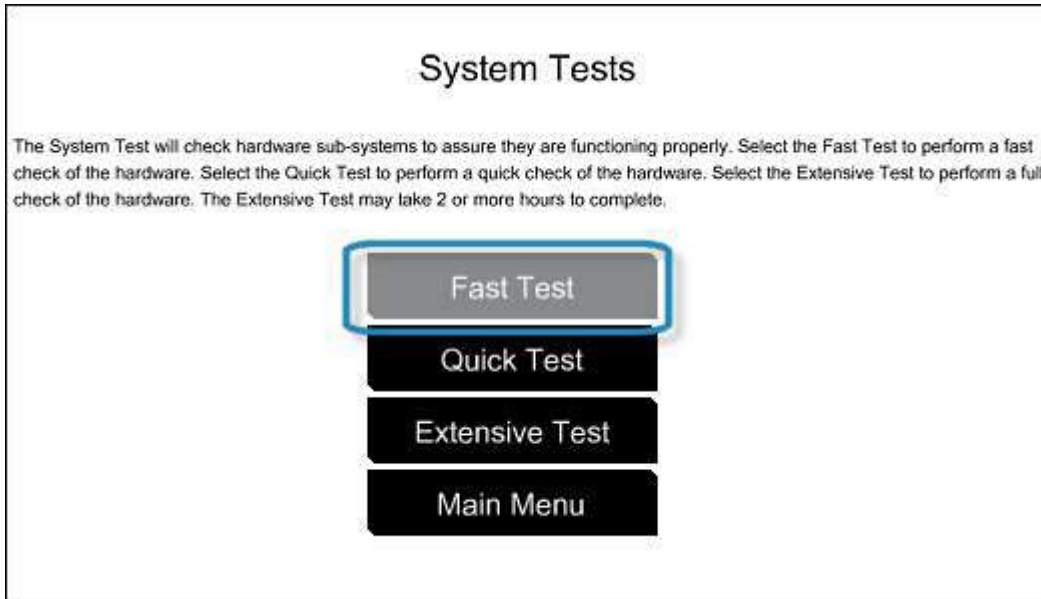
- Battery check
- Processor check
- System board check
- Hard drive SMART check
- Hard drive short DST check
- Memory fast check

You cannot use your computer during the test. This test takes 3 to 5 minutes or more to complete, depending on the system configuration. You can cancel at any time by pressing the Escape key (Esc).

Use the following steps to run the Fast Test.

1. From the main menu, click System Tests, then click Fast Test.

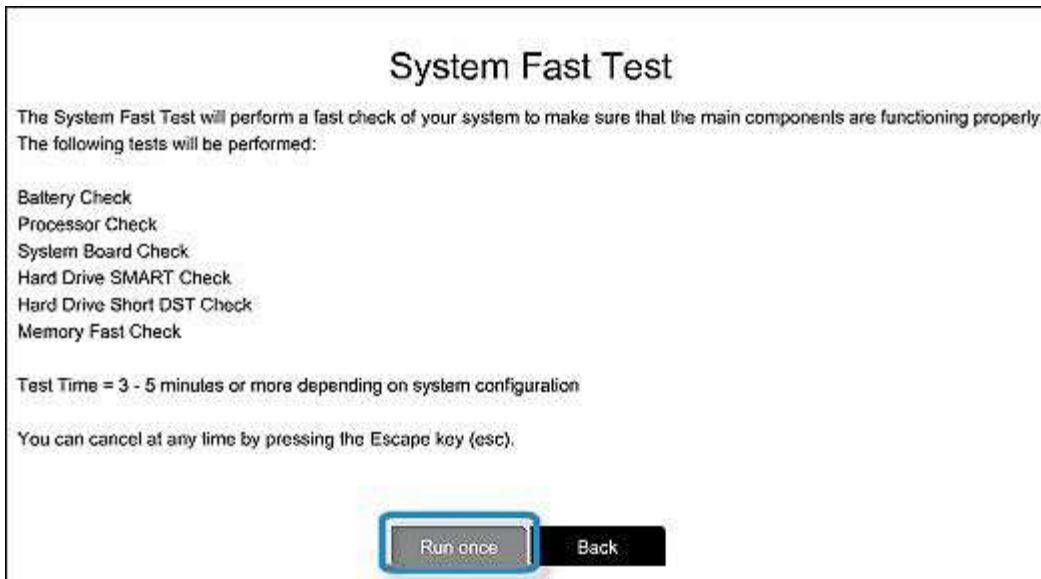
#### **Figure : Selecting the Fast Test**



2. Click Run once.

While the test is running, the time remaining and test result for each component are shown on the screen. The test can take up to 5 minutes.

**Figure : Running the Fast Test**



3. If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

If no system component failed, run the Quick Test.

## [Run the Quick Test](#)

The System Quick Test performs a quick check of your system to make sure that the main components are functioning properly.

**note:**

The Quick Test is not available in the Windows version of the diagnostic tests.

The following tests are performed.

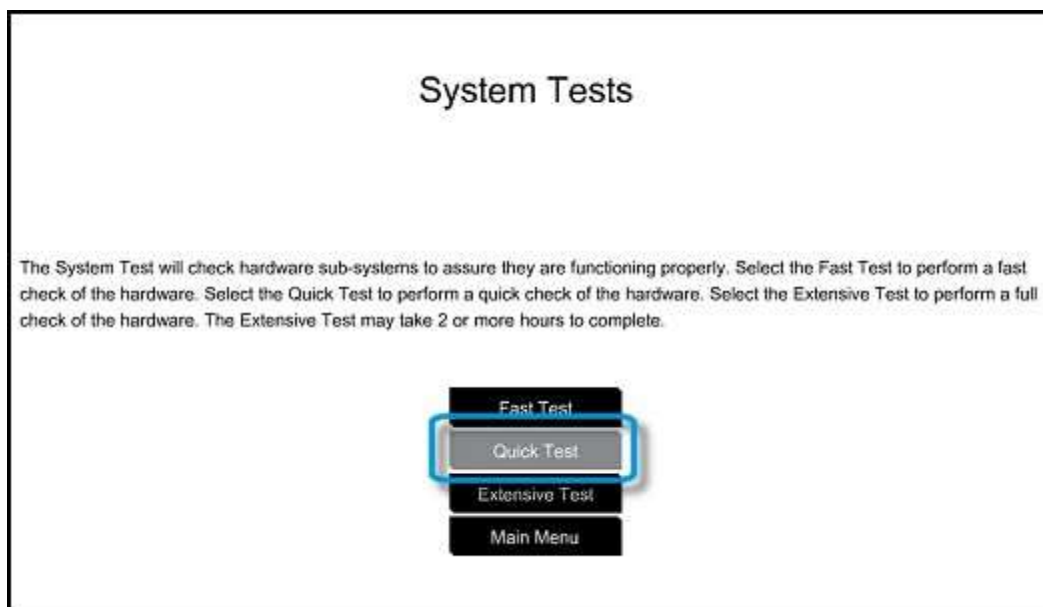
- Battery check
- Processor check
- System board check
- Hard drive SMART check
- Hard drive short DST check
- Memory quick check

You cannot use your computer during the test. This test takes 10 to 15 minutes or more to complete, depending on the system configuration. You can cancel at any time by pressing the Escape key (Esc).

Use the following steps to run the Quick Test.

1. From the main menu, click System Tests, and then click Quick Test.

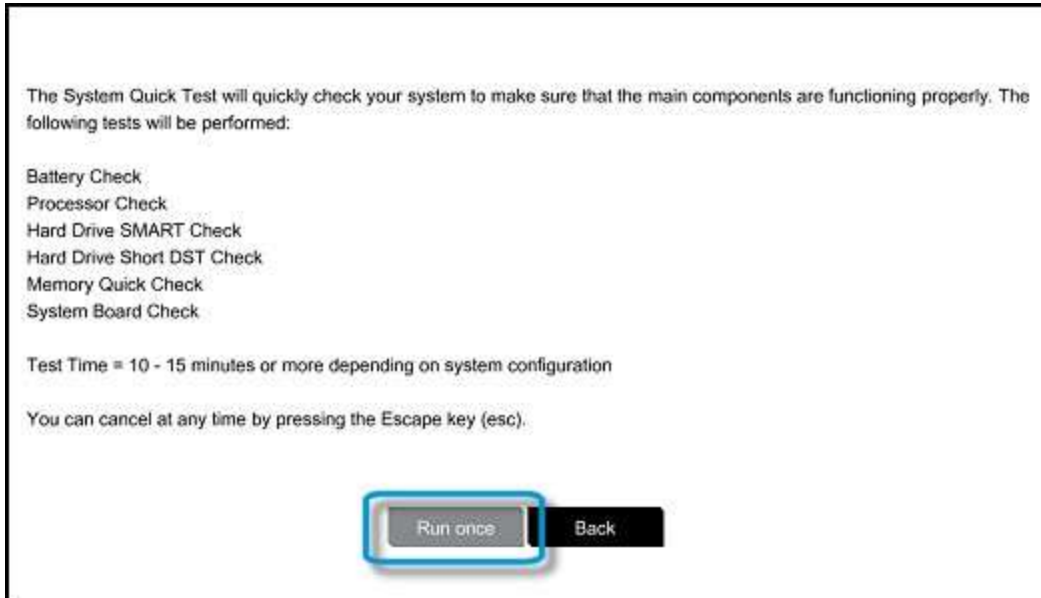
### **Figure : Selecting the Quick Test**



2. Click Run once.

While the test is running, the time remaining and test result for each component are shown on the screen. The test can take up to 15 minutes.

**Figure : Running the Quick Test**



3. If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

If no system component failed, run the Extensive Test.

### [Run the Extensive Test](#)

The Extensive Test checks your system to make sure that the main components are functioning properly. It provides a more comprehensive test than the Quick Test. These tests run consecutively through the listed components, and can take 2 or more hours to complete. The following tests are performed:

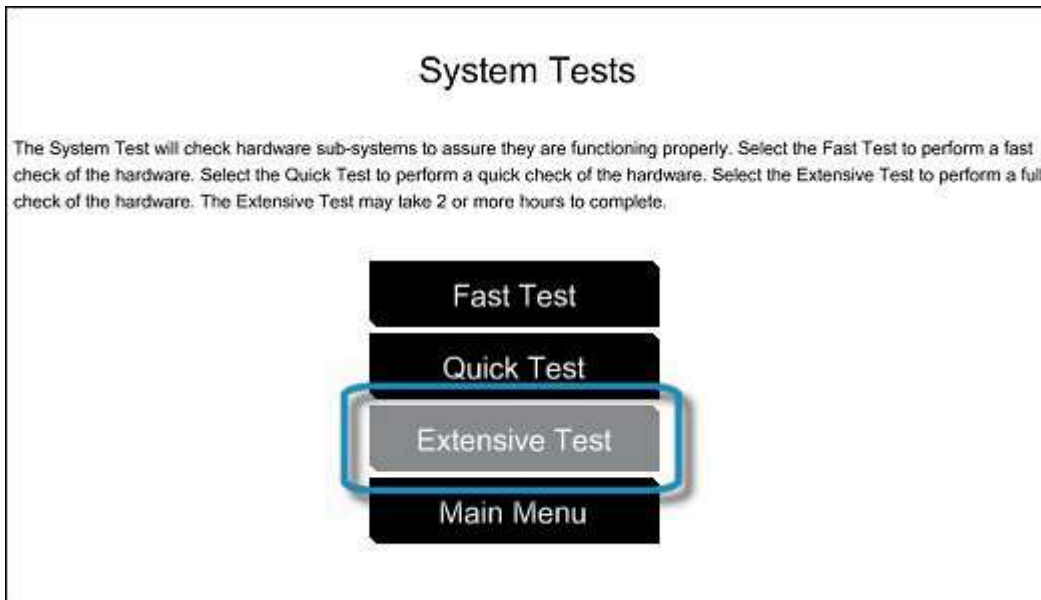
- Battery check
- Processor check
- System board check
- Hard drive SMART check
- Hard drive short DST check
- Hard drive optimized DST check
- Hard drive long DST check
- Memory extensive check
- Video memory check

You cannot use your computer during the test. The Extensive Test takes 2 or more hours to complete, depending on the system configuration. You can cancel at any time by pressing the Escape key (Esc).

Use the following steps to run the Extensive Test.

1. From the main menu, click System Tests, then click Extensive Test.

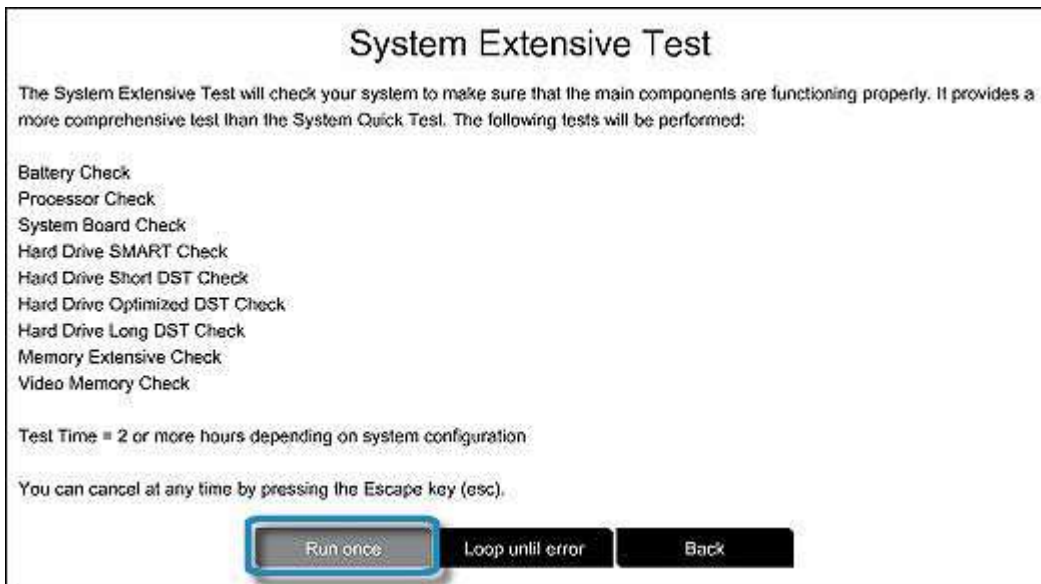
**Figure : Selecting the Extensive Test**



2. Click Run once, or Loop until error.

While the test is running, the time remaining and test result for each component are shown on the screen. The test can take 2 or more hours to complete.

**Figure : Running the Extensive Test**



3. If a component fails a test, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

If the System Test did not detect a hardware problem, continue with the Component Tests section.

### Running Component Tests

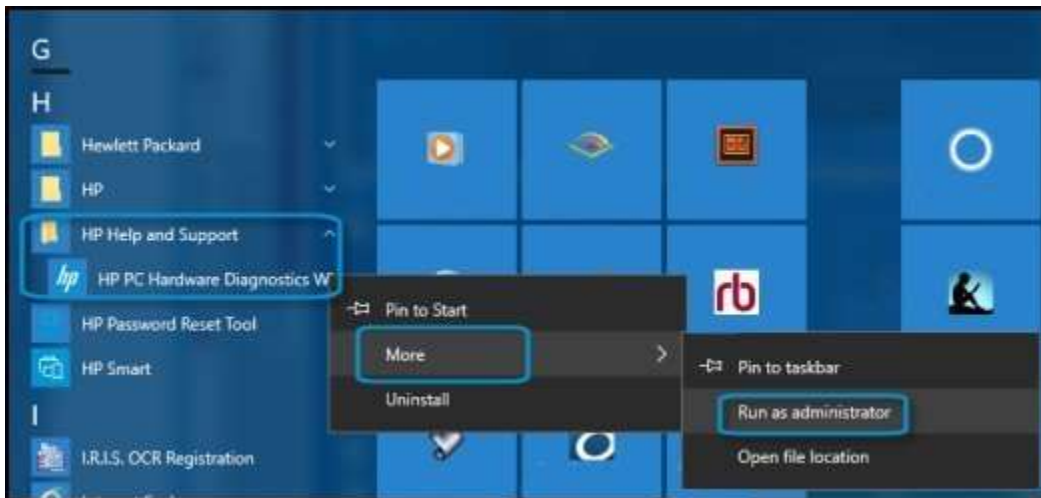
The component tests are used to manually select and test the individual computer components.

#### Opening the Component Tests menu in Windows

Use the following instructions to open the Component Tests menu in Windows.

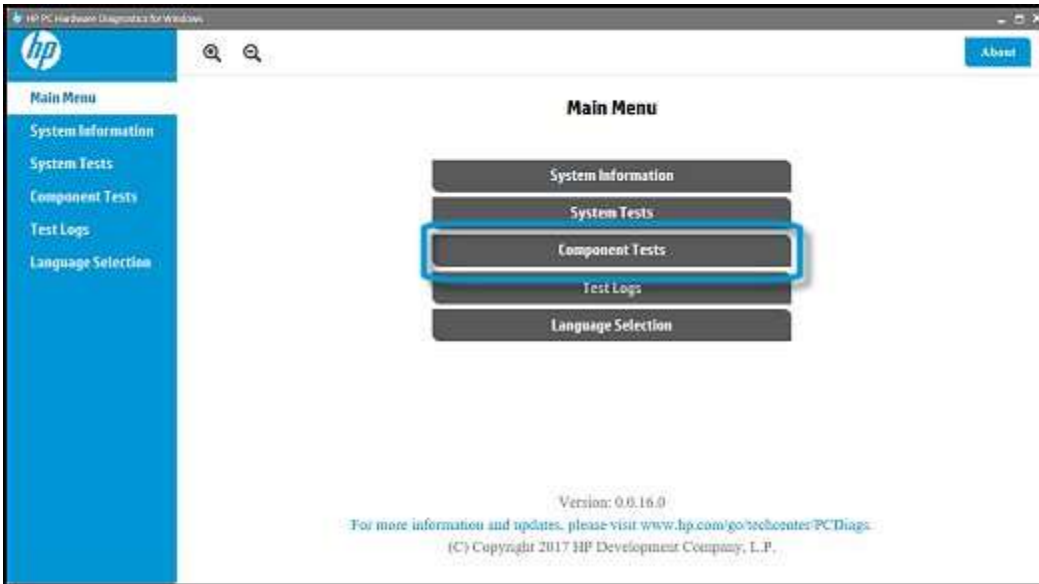
1. Select Start, and then select HP Help and Support. Right-click HP PC Hardware Diagnostics for Windows, select More, and then select Run as administrator.

**Figure : Opening HP PC Hardware Diagnostics for Windows**



2. The app opens to the main menu. Click Component Tests.

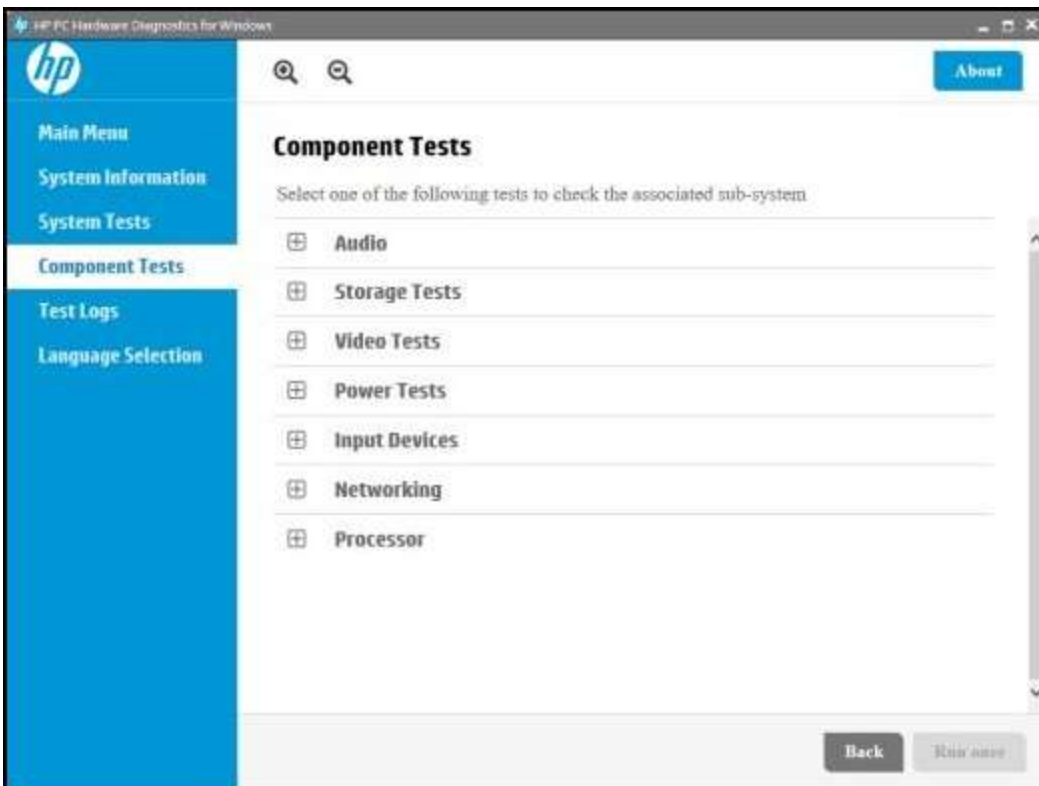
**Figure : Opening the Component Tests menu**



3. The Component Tests menu displays. Click the plus sign next to each component to expand the selection.

Your Component Tests menu might be different, depending on the components installed on your computer.

**Figure : Component Tests menu in the HP PC Diagnostics for Windows**

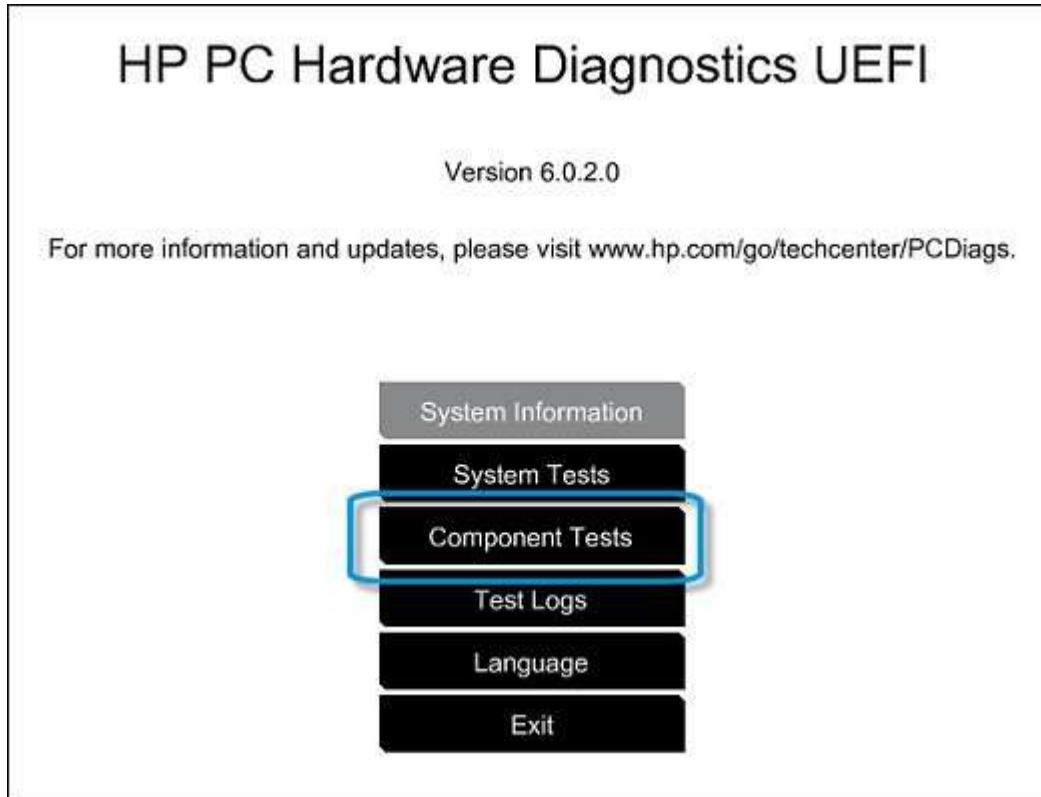


### Opening the Component Tests menu when Windows won't start

Use the following steps to open the Component Tests menu.

1. Hold the power button for at least five seconds to turn off the computer.
2. Turn on the computer and immediately press Esc repeatedly, about once every second. When the menu appears, press the F2 key.
3. On the main menu, click Component Tests.

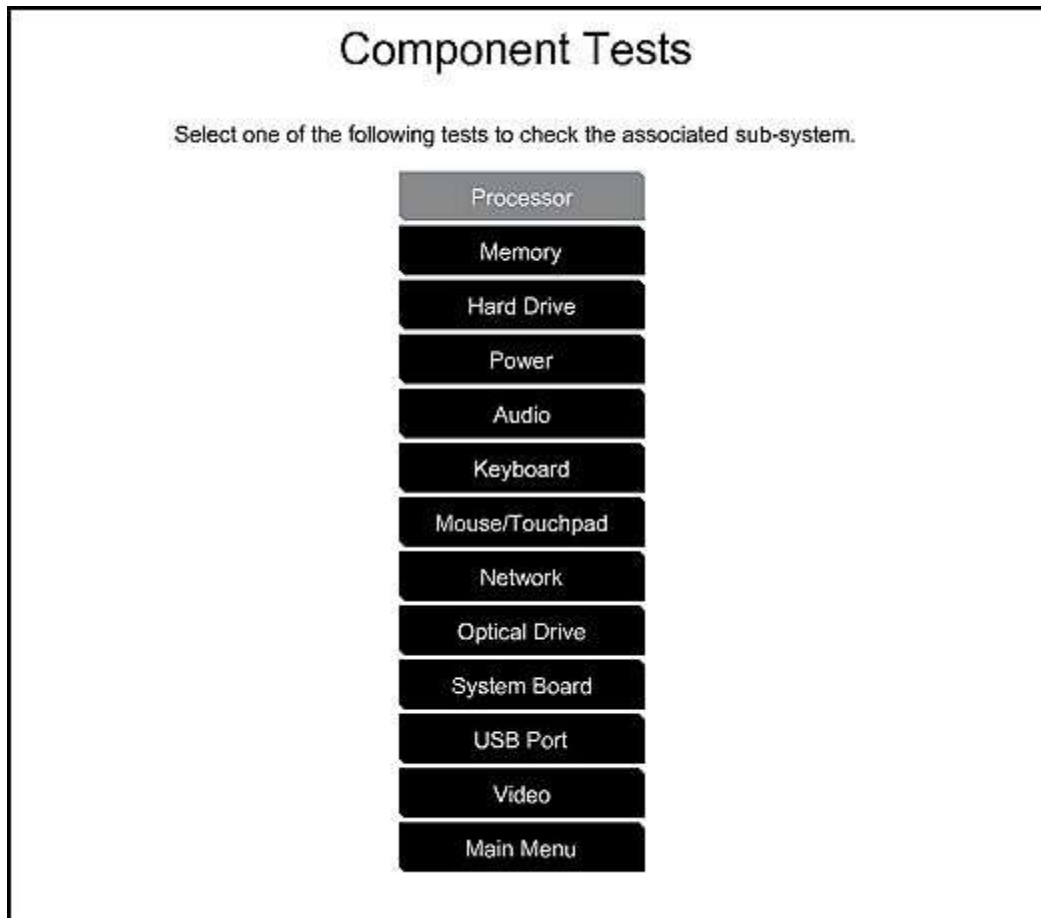
**Figure : Selecting Component Tests from the main menu**



4. The Component Tests menu displays.

Your Component Tests menu might be different, depending on the components installed on your computer.

**Figure : Sample list of Component Tests**



### [Complete list of Component Tests](#)

Highlighted Component Tests - Memory, Hard Drive, AC Adapter, and Battery Tests

The following sections show how to run the Memory, Hard Drive, AC Adapter, and Battery component tests.

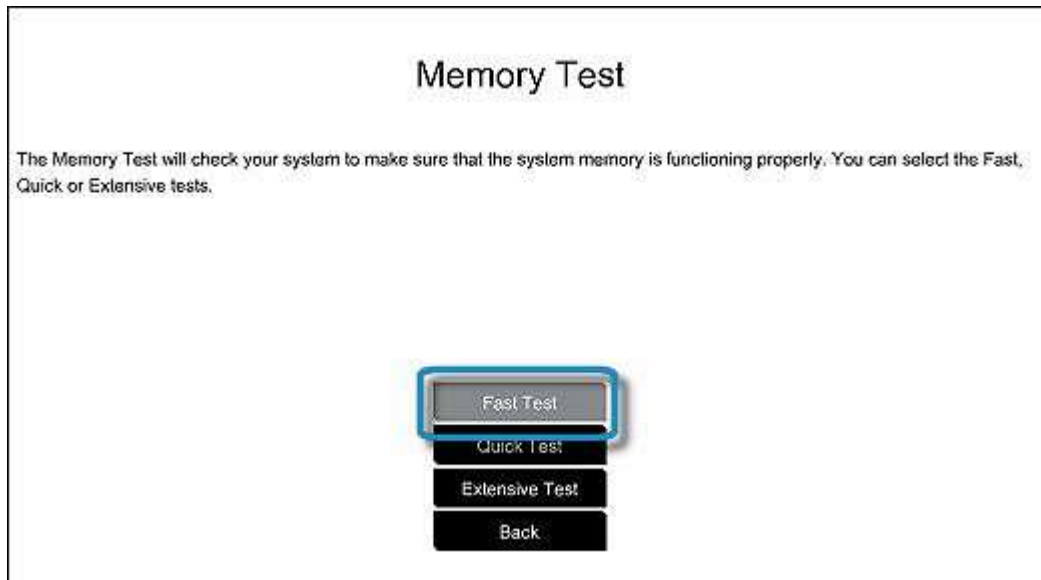
### [Memory Test](#)

The Memory Tests include a Fast Test, Quick Test, and an Extensive Test. If you think there is a problem with the memory, first try the Fast Test (3 to 5 minutes). If the Fast Test does not find a problem, run the Quick Test (about 10 minutes). If the Quick Test does not find a problem, run the Extensive Test (about 45 minutes) which also has a Loop Until Error option. (This test is not available in the Windows version of the hardware diagnostics at this time.)

Follow these steps to run the Fast Test:

1. On the Component Tests menu, click Memory.
2. Click Fast Test.

**Figure : Running the Fast Test**



3. Click Run once. The Fast Test begins.
4. When the Fast Test is complete, the results are displayed on the screen.

If the memory passes the Fast Test but there is still a problem with the computer memory, run the Quick Test.

If the memory passes the Quick Test but there is still a problem with the computer memory, run the Extensive Test. This test can take 45 minutes or longer.

If the memory fails one of the tests, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

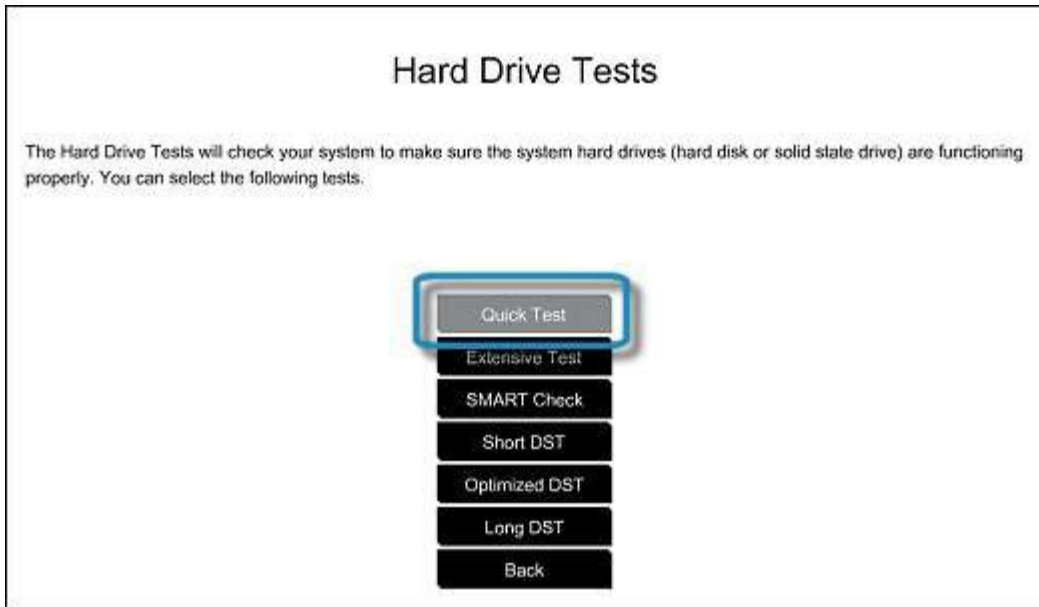
### Hard Drive Tests

There are six hard drive tests. If you think there is a problem with the hard drive, first try the Quick Test (2 to 3 minutes). If the Quick Test does not find a problem, run the Extensive Test (2 hours or more) which also has a Loop Until Error option.

Follow these steps to run the Hard Drive Quick Test:

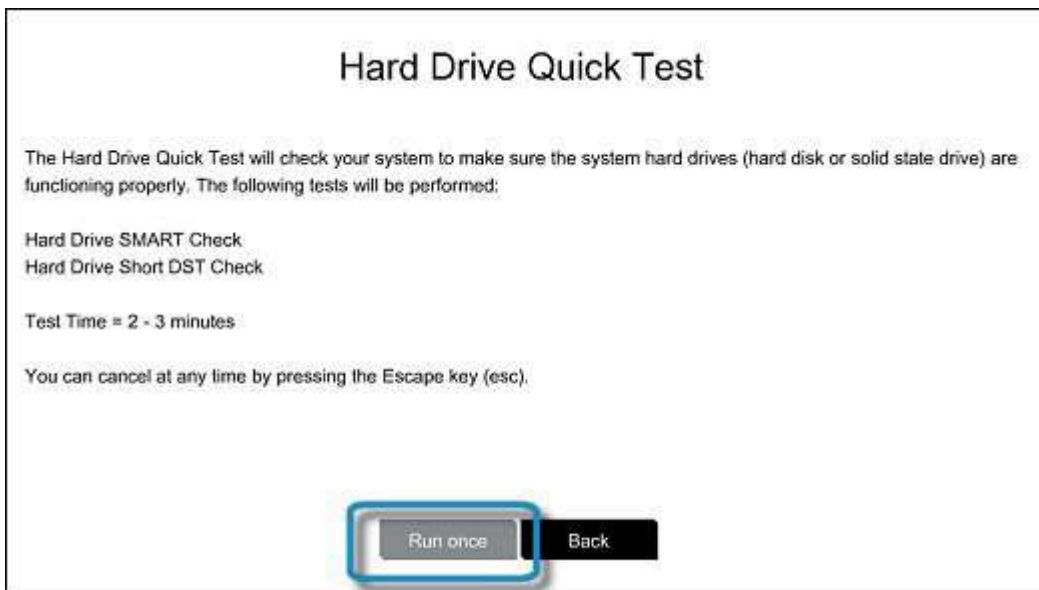
1. In the Component Tests menu, click Hard Drive, and then click Quick Test.

### **Figure : Selecting the Hard Drive Quick Test**



2. Click Run Once.

**Figure : Running the Hard Drive Quick Test**



3. The Hard Drive Quick Test begins. If the computer has more than one hard drive, select the drive you want to test. To test all the hard drives, select Test All Hard Drives.

When the test is complete, the results are displayed on the screen. Test results are also available in the **Test Logs** on the main menu.

4. If the hard drive passes the Quick Test, but there is still a problem with the hard drive, run the Extensive Test. This test includes the SMART Check, Short DST, Optimized

DST, and Long DST. To run these tests individually, select them from the Hard Drive Tests menu.

If the hard drive fails one of the tests, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in Test Logs on the main menu.

### Power Tests

There are two different power tests available, the AC Adapter Test and the Battery Test. To run both tests simultaneously, in the Component Tests menu, click Power Source, and then click Run once. Each component can also be tested individually.

#### AC Adapter Test

The AC Adapter test provides an interactive test to determine if the AC power adapter is functioning properly. A good battery is required for this test. Before running the AC Adapter Test, HP recommends verifying that your computer can receive power by connecting a known working AC adapter.

Follow these steps to perform the AC Adapter Test.

1. In the Component Tests menu, click Power, and then click AC Adapter Test.
2. Click Run once.

The AC Adapter Test begins.

3. When the test is complete, the results are displayed on the screen.

If the battery fails one of the tests, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in **Test Logs** on the main menu.

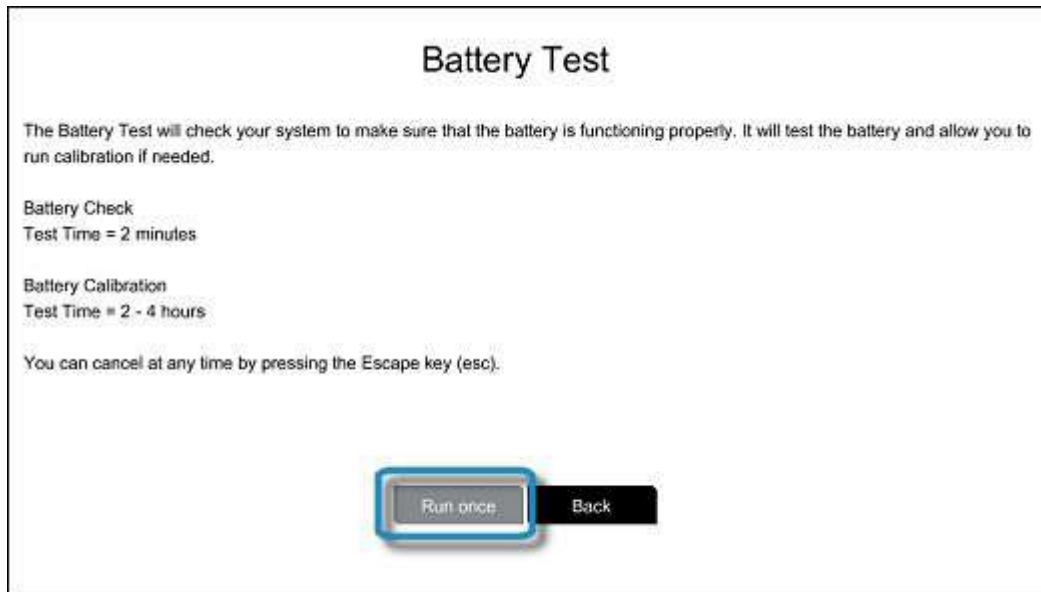
#### Battery Test

HP PC Hardware Diagnostics (UEFI) tests the functioning of the battery and can calibrate the battery if needed. The Battery Check takes about two minutes and the calibration can take two hours or longer.

Follow these steps to perform the Battery Test:

1. In the Component Tests menu, click Power, and then click Battery.
2. Click Run once.

**Figure : Battery Test - Run once**



The Battery Test begins.

3. When the battery test is complete, the results are displayed on the screen. For additional battery information, click Battery Details.

If the battery fails one of the tests, write down the failure ID (24-digit code) so you have it available when you contact HP Customer Support. The information is also available in **Test Logs** on the main menu.

### [How the components are tested](#)

#### Installing HP PC Hardware Diagnostics

The HP PC Hardware Diagnostics are available in two versions: use one version in Windows and use the other version when Windows won't start. Use the steps in the following sections to install the apps.

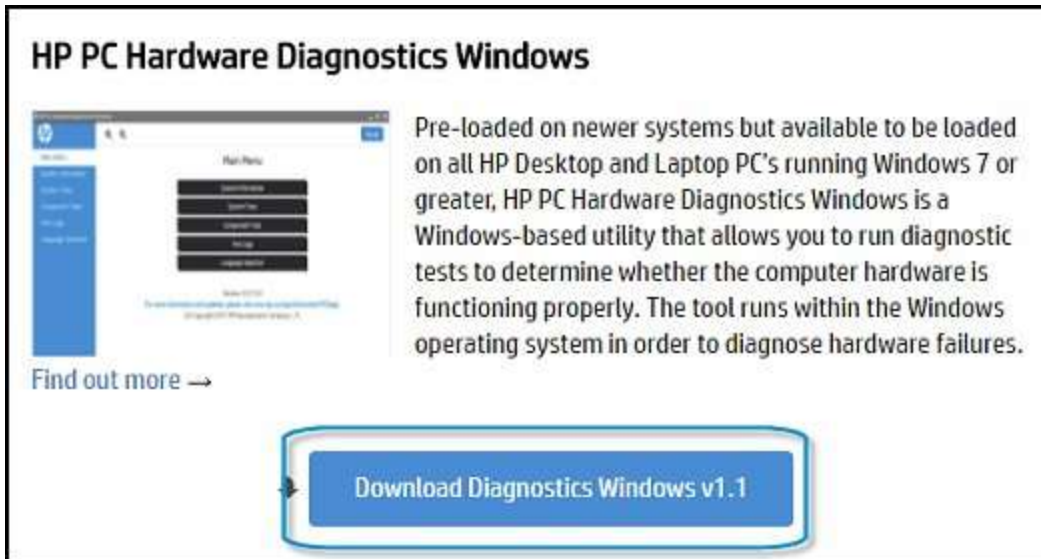
#### [Installing HP PC Hardware Diagnostics for Windows](#)

HP PC Hardware Diagnostics for Windows is a Windows -based utility that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs within the Windows operating system in order to diagnose hardware failures.

1. To download the latest version of the Hardware Diagnostics for Windows, go to the [HP Hardware Diagnostics](#) website.

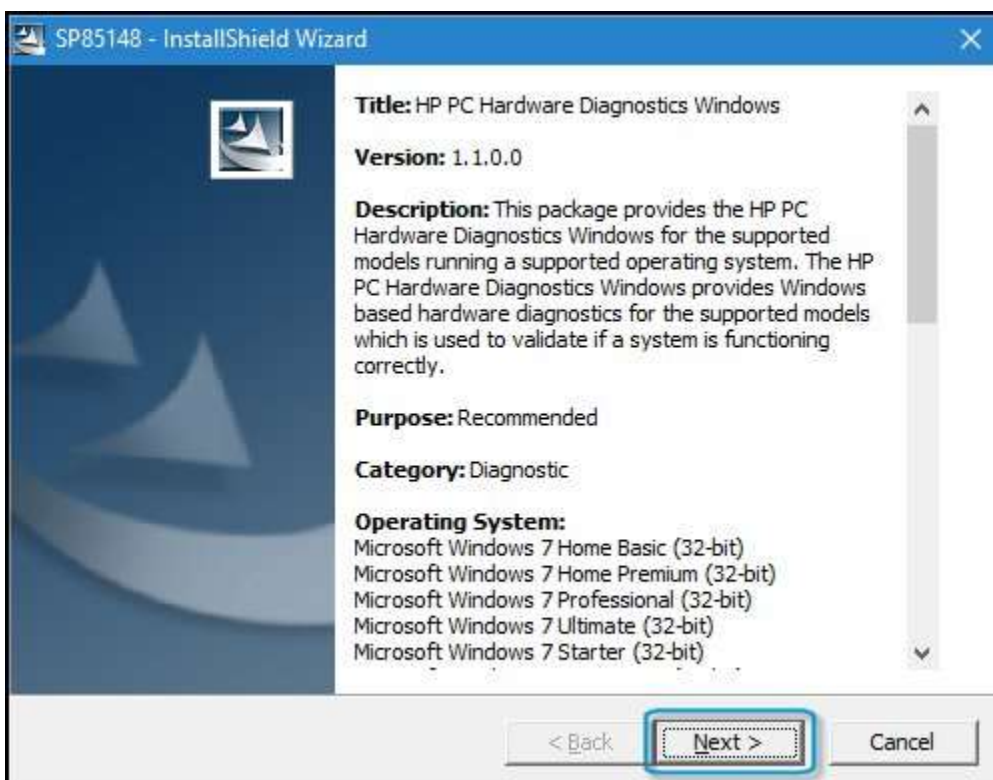
In the HP PC Hardware Diagnostics Windows section, click Download Diagnostics Windows.

### **Figure : Downloading Hardware Diagnostics for Windows**



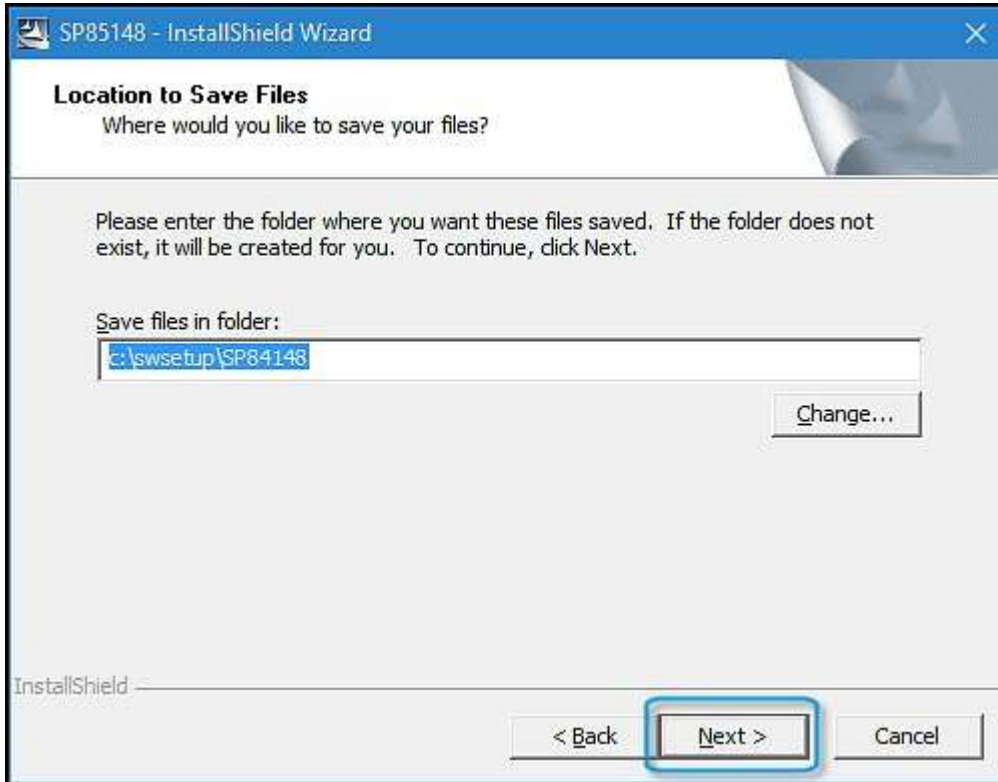
2. The InstallShield wizard opens. Click Next.

**Figure : Beginning the installation**



3. Navigate to the folder on your computer or the flash drive where the .exe file was downloaded and double-click the .exe file. Choose where to save the files and click Next.
  - o To run the software on your computer, download it to the computer desktop.
  - o To run the software from a USB flash drive, download it to a USB flash drive.

**Figure : Choosing the location to save the files**



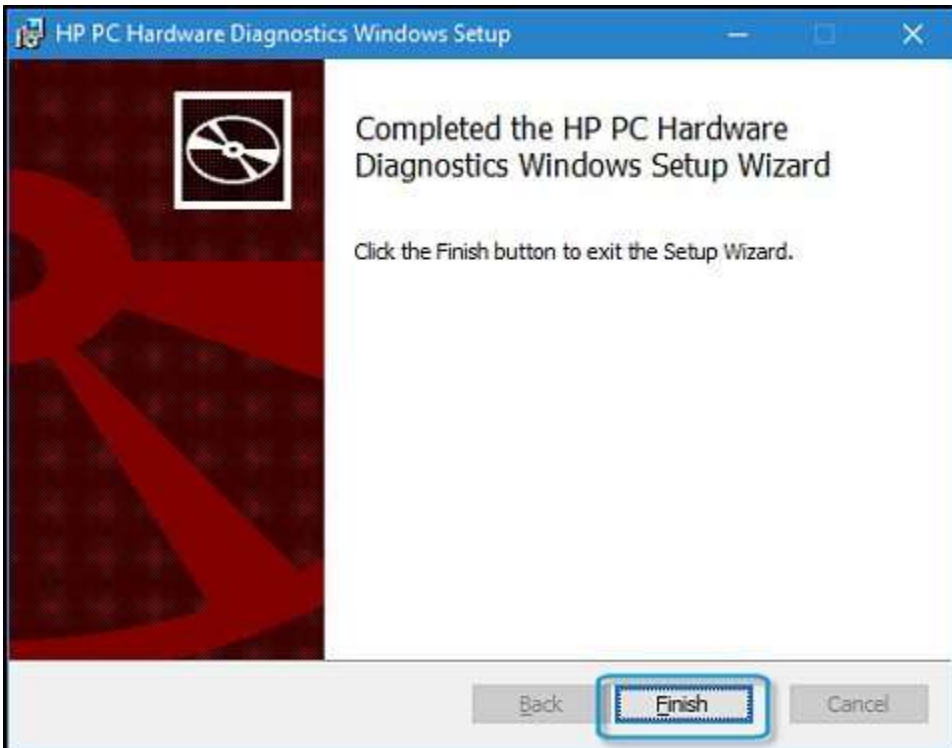
4. The Welcome screen displays. Click Next to install the software.

**Figure : Installing the software**



5. When the installation is complete, click Finish to close the Setup Wizard.

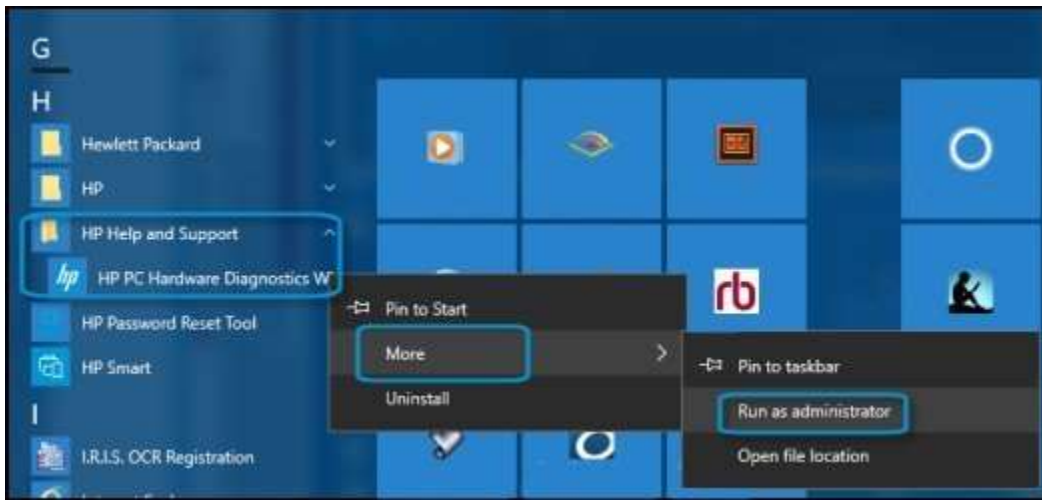
**Figure : Closing the Setup Wizard**



6. To open HP PC Hardware Diagnostics for Windows, select Start, select All Apps, and then select HP Help and Support.

Right-click HP PC Hardware Diagnostics for Windows, select More, and then select Run as administrator.

**Figure : Opening HP PC Hardware Diagnostics for Windows**

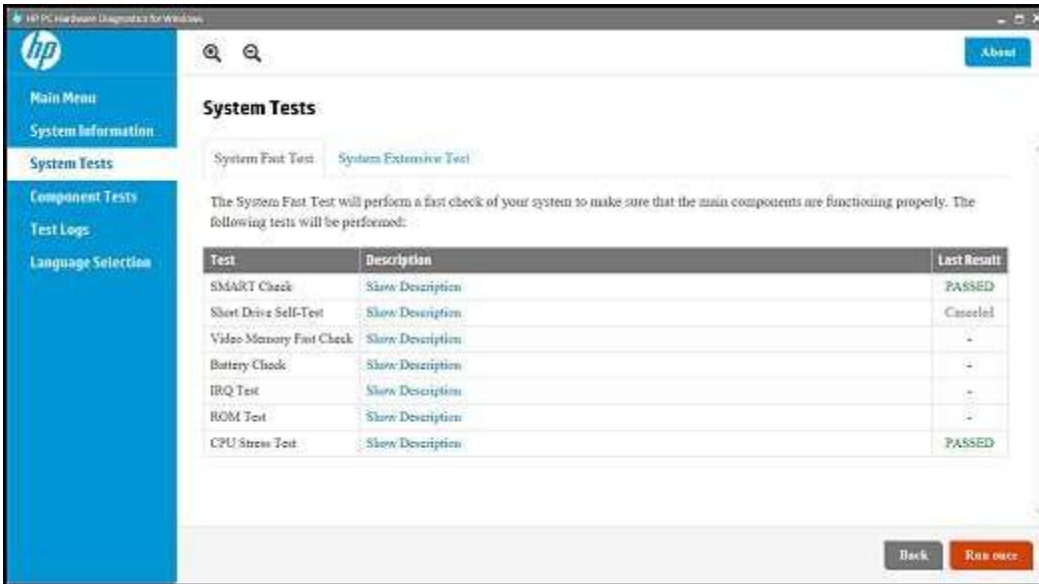


7. When the tool opens, select the type of diagnostic test you want to run, and then follow the on-screen instructions.

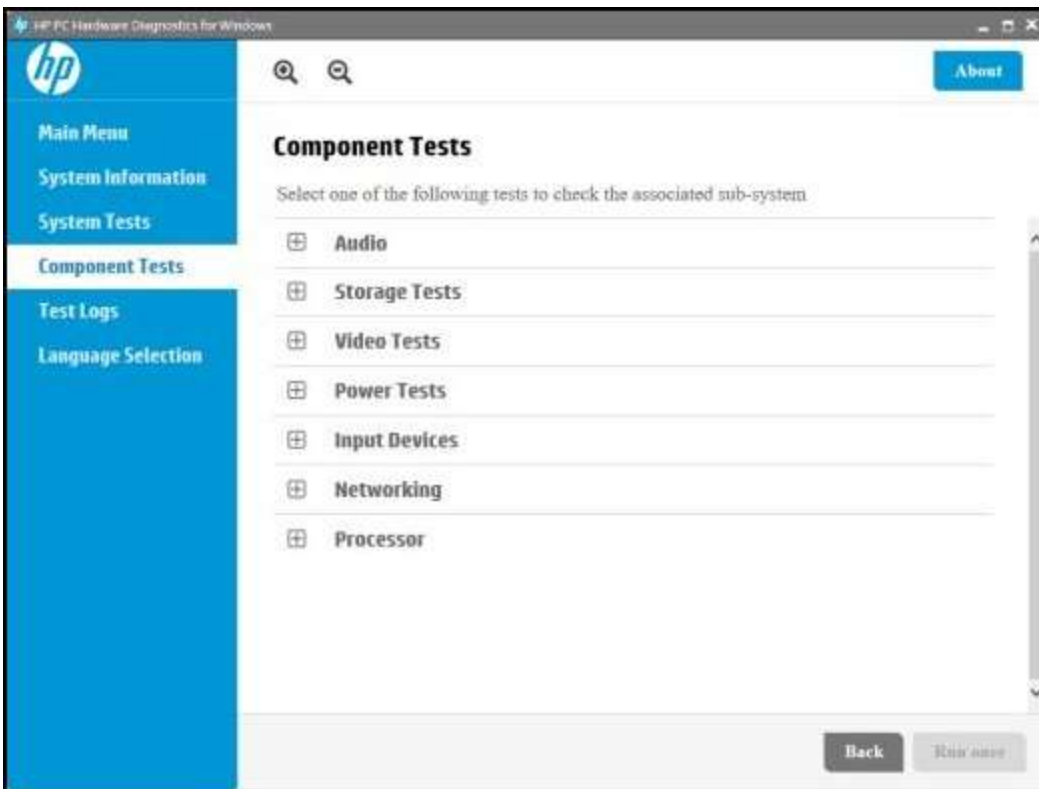
**note:**

If you need to stop a diagnostic test at any time, click Cancel.

**Figure : System Tests menu in the HP PC Diagnostics for Windows**



**Figure : Component Tests menu in the HP PC Diagnostics for Windows**



[Installing the latest version of HP PC Hardware Diagnostics](#)

HP occasionally makes updates to its HP PC Hardware Diagnostics environment. To download the latest version, go to the [HP Hardware Diagnostics](#) website.

You can also install the Hardware Diagnostics to a blank FAT or FAT32 formatted USB drive to use when the main storage device fails or when the UEFI files are corrupted.

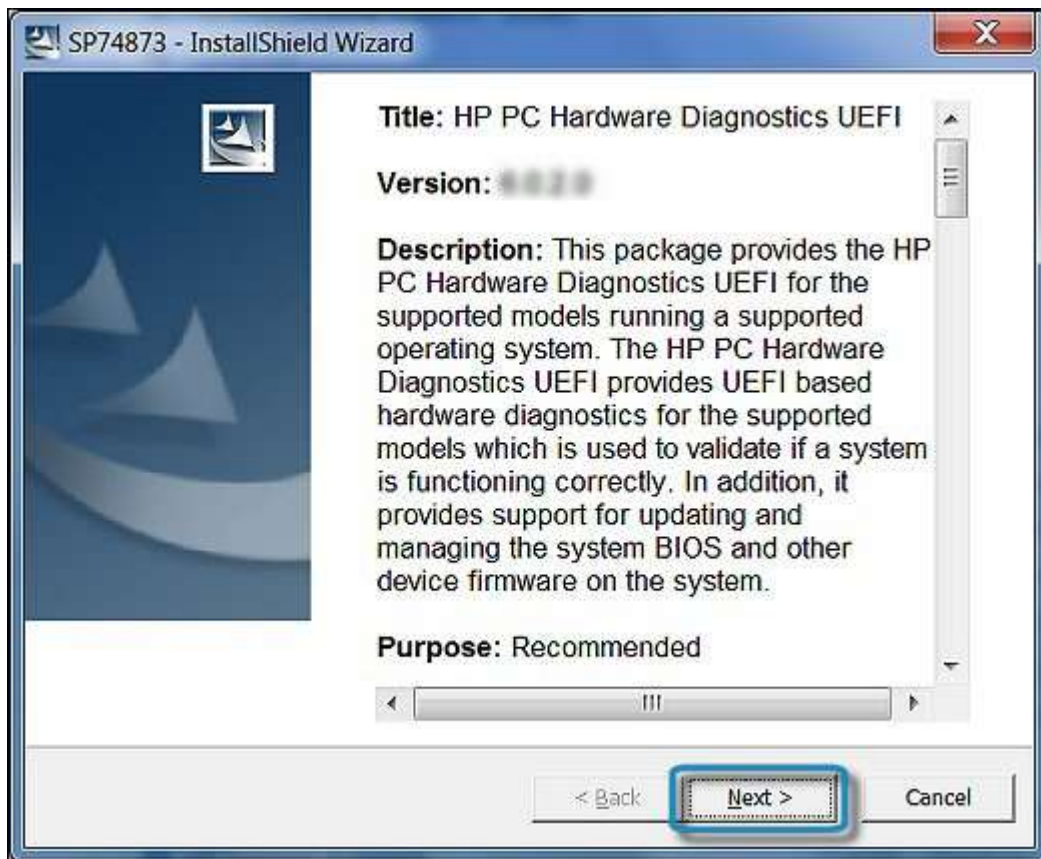
The Hardware Diagnostics can be accessed from a USB drive by disabling Secure Boot. For instructions to disable Secure Boot, see [Secure Boot \(Windows 10\)](#) or [Secure Boot \(Windows 8\)](#).

1. On the HP Hardware Diagnostics website in the HP PC Hardware Diagnostics section, click Download, then select Run.

The InstallShield Wizard opens.

2. Click Next.

**Figure : InstallShield Wizard**



3. Click Next to choose where to save the files.

**note:**

The InstallShield Wizard automatically saves the files on the computer hard drive.

**Figure : Choosing the location to save the files**



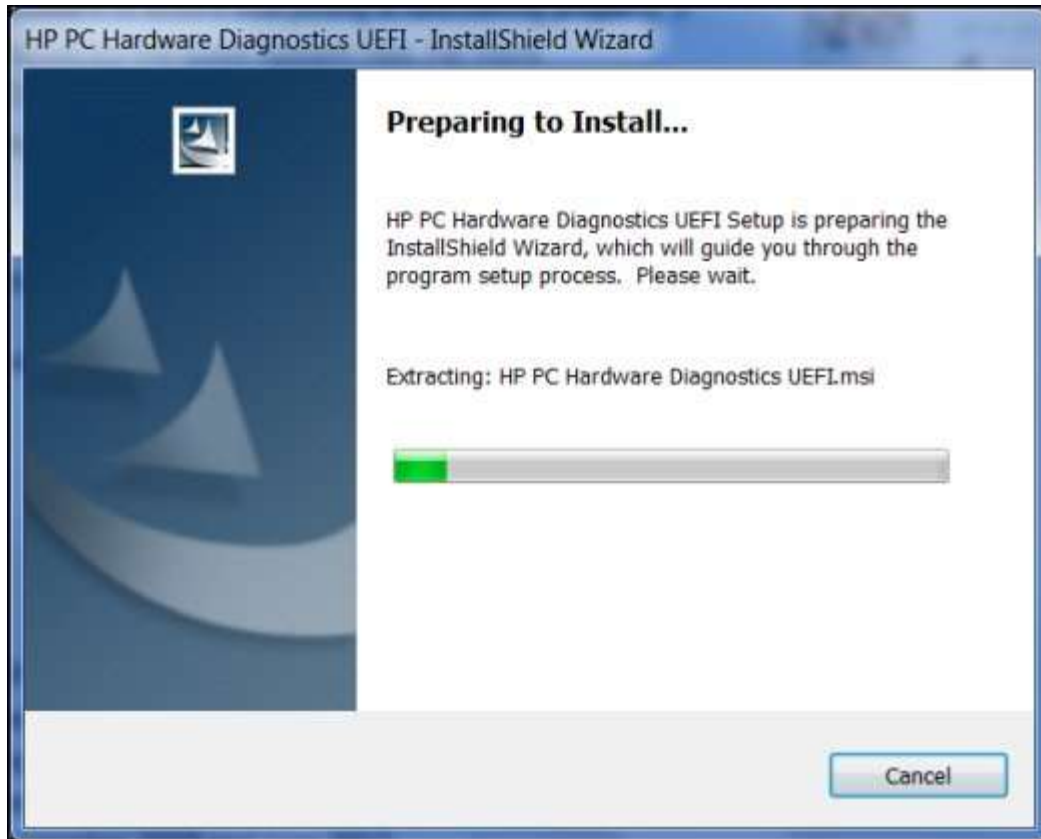
4. Select the language for the installation. Then click OK.

**Figure : Selecting the language**



The wizard begins to extract the files necessary to install the Hardware Diagnostics program.

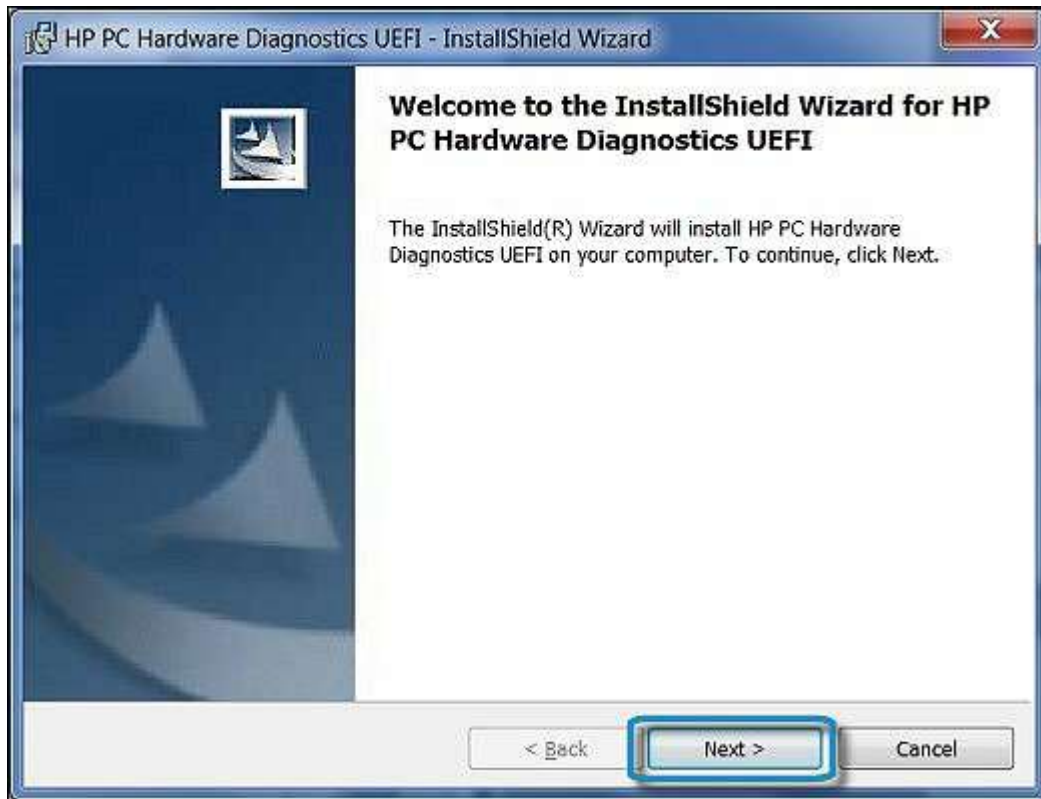
**Figure : Preparing to install**



5. Click Next.

The Setup Wizard opens.

**Figure : Starting the Setup Wizard**

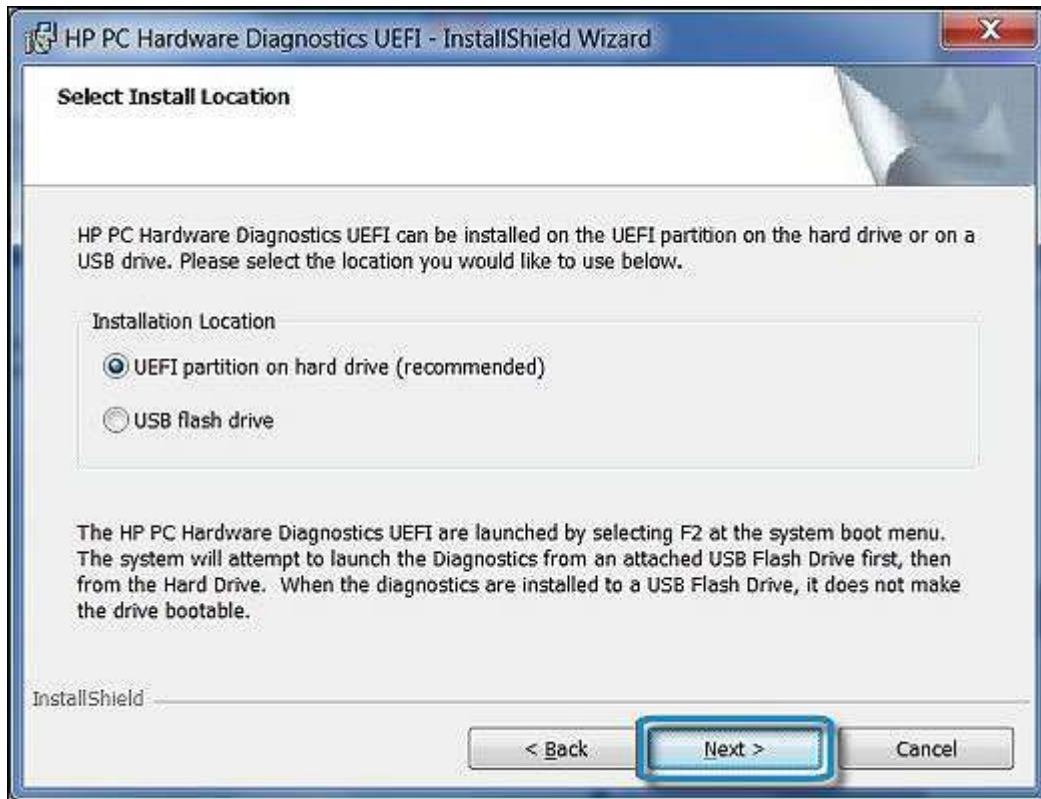


6. Select the installation location for the Hardware Diagnostics program, then click Next.

If you are downloading onto the computer being tested, select UEFI Partition on Hard Drive.

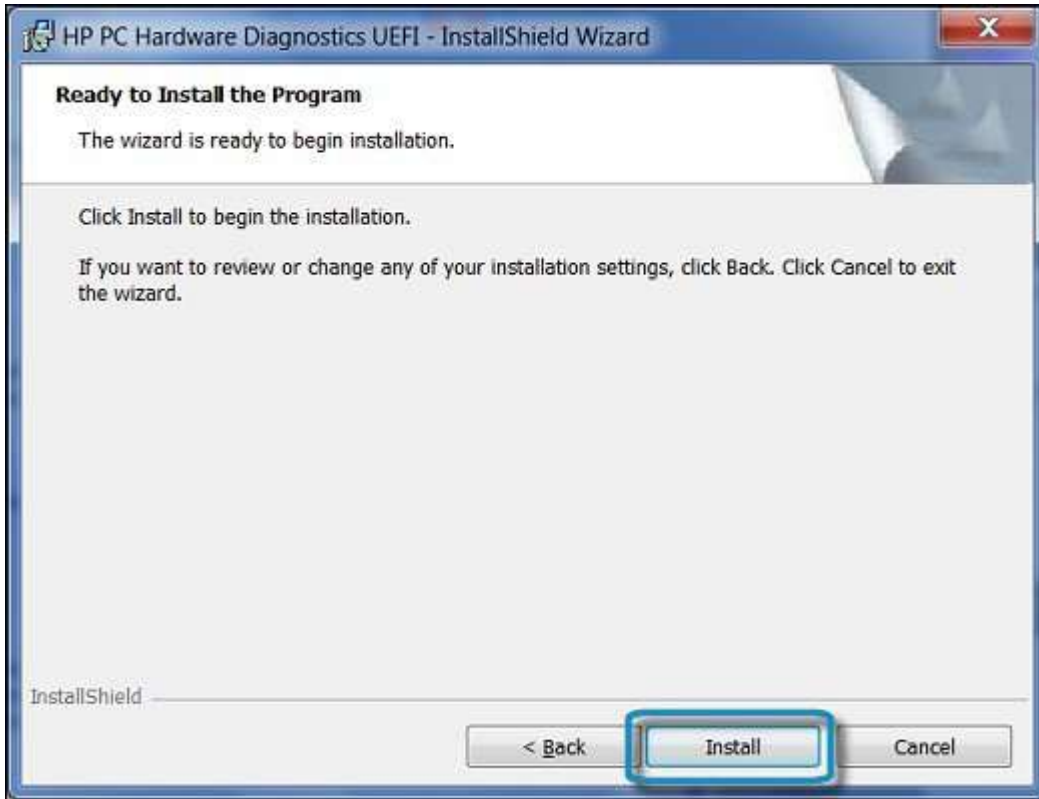
If you are installing onto a USB drive, select USB Flash Drive.

**Figure : Choosing the install location**



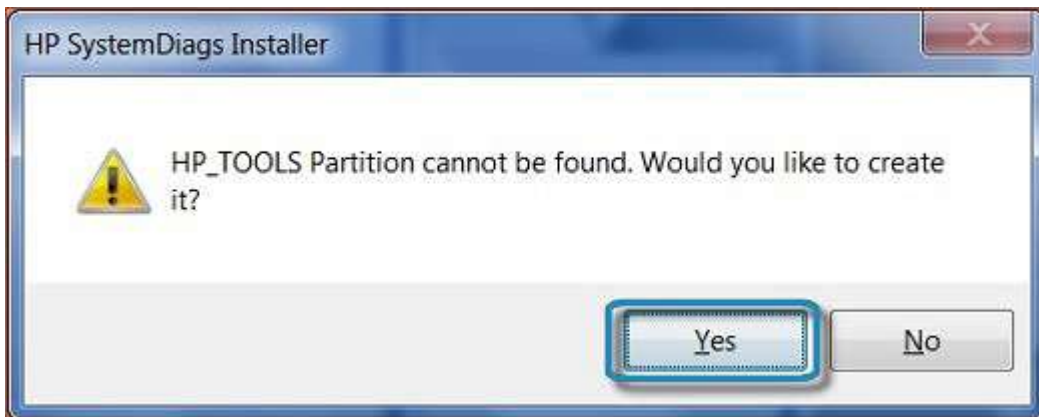
7. Click Install.

**Figure : Ready to Install**



8. Click Yes to create the HP\_TOOLS partition.

**Figure : Creating the HP\_TOOLS Partition**



9. Wait while the software is installed. Click Finish to close the wizard.

#### [Testing with HP PC Hardware Diagnostics from an external USB device](#)

If the HP PC Hardware Diagnostics cannot load the extended tests from the hard drive, a properly prepared USB device can be used to boot the PC into an extended testing environment. To prepare a USB device, download and [install the latest version of HP PC Hardware Diagnostics \(UEFI\)](#) on a USB device.

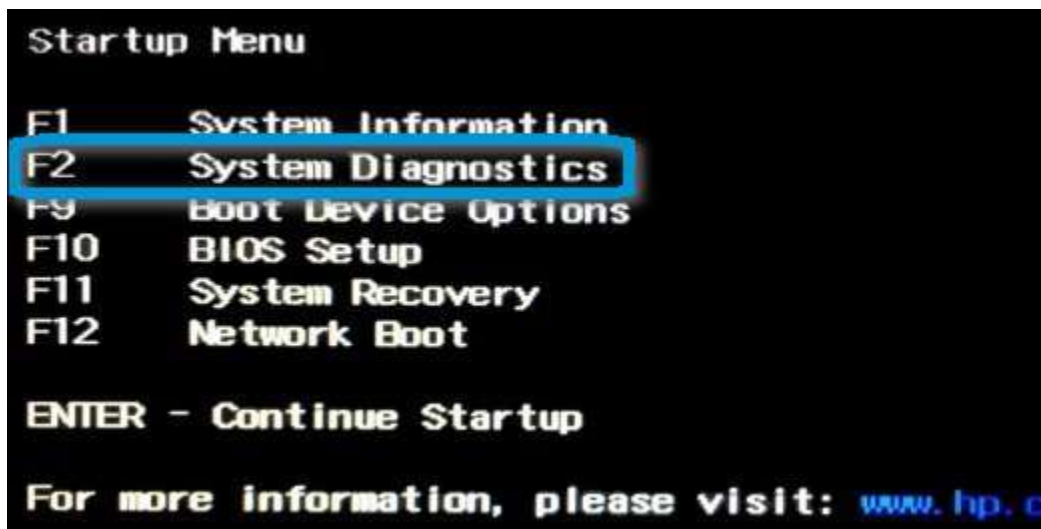
1. Turn off the computer.
2. Insert the USB device containing the latest version of the PC Hardware Diagnostics into a USB port on the computer.
3. Turn on the computer, then press the Esc key repeatedly until the Startup menu screen is displayed.

**note:**

If you cannot start the computer from the USB storage device, temporarily disable Secure Boot from the BIOS. For instructions to disable Secure Boot, see [Secure Boot \(Windows 10\)](#) or [Secure Boot \(Windows 8\)](#).

4. Press F2 to select System Diagnostics.

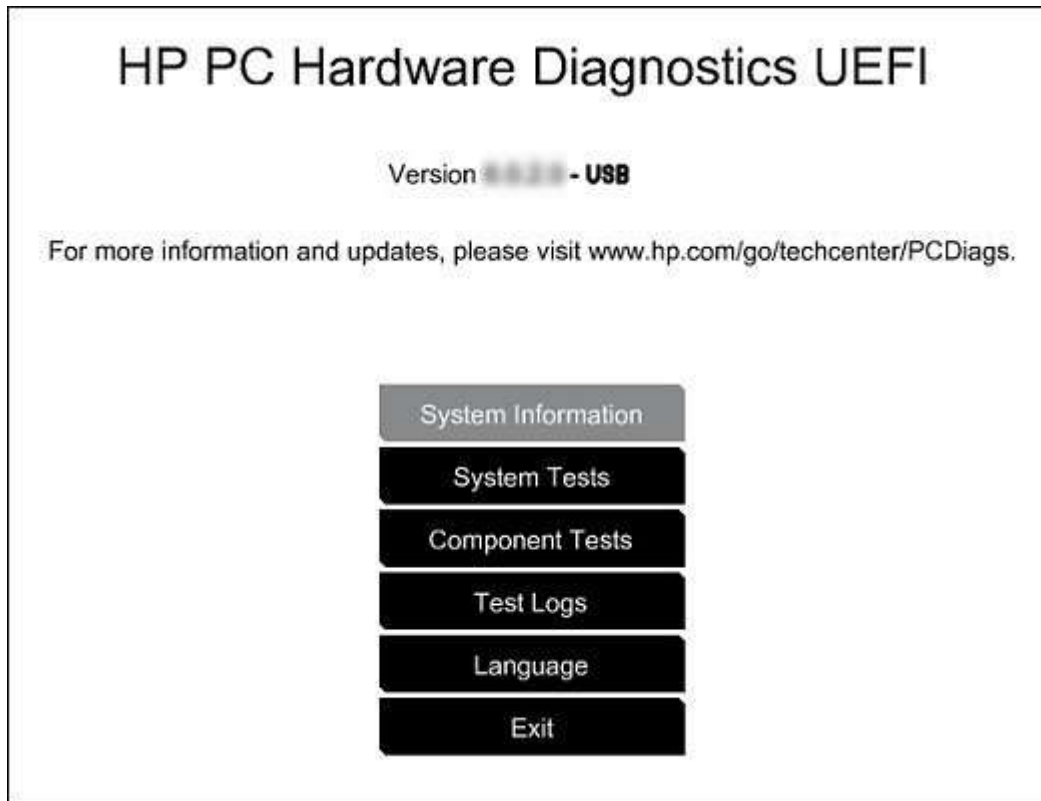
**Figure : Startup Menu**



5. Select your preferred language from the list.

The HP PC Hardware Diagnostics home page opens, showing the version number and USB.

**Figure : HP PC Hardware Diagnostics main menu**



The system is ready to begin testing.

### [Testing using HP Support Assistant](#)

HP Support Assistant provides easy access to several hardware diagnostic tests. This section describes how to test for hardware problems with HP Support Assistant Diagnostics.

**note:**

HP Support Assistant can be used only if the computer boots into Windows.

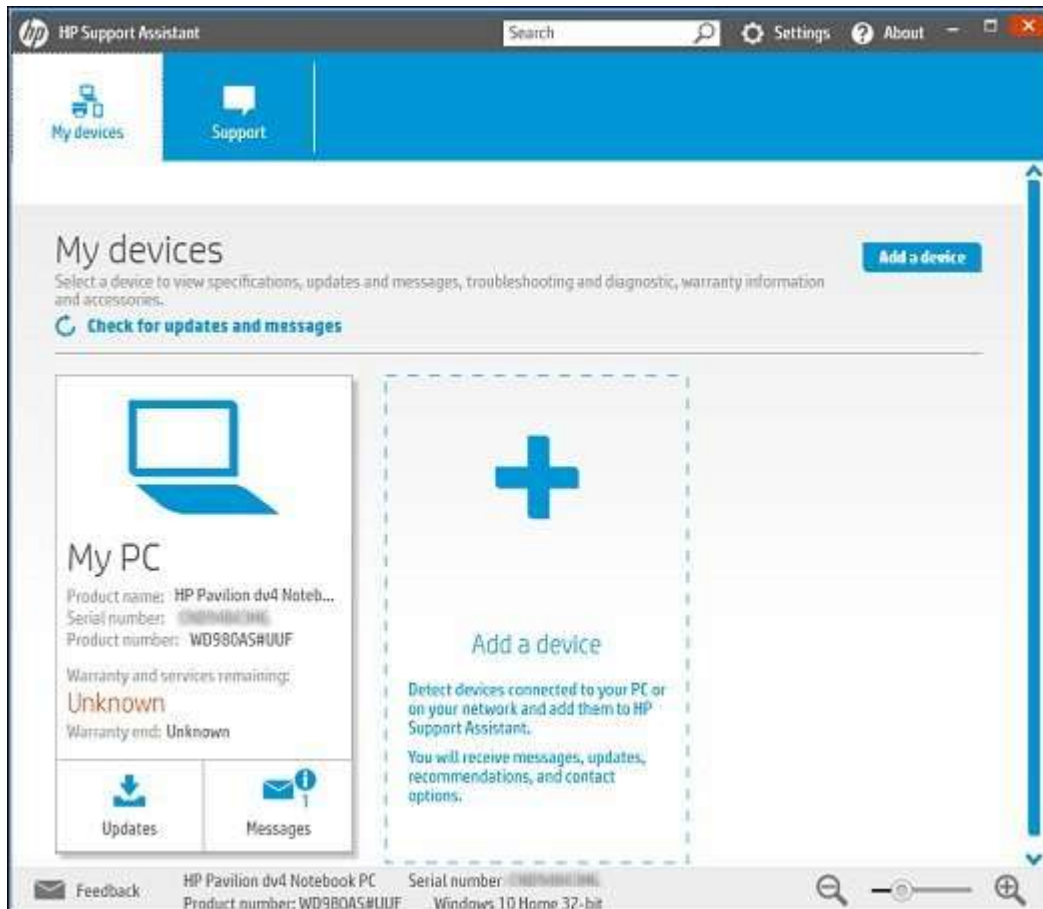
### [Opening the HP Support Assistant Diagnostics](#)

**note:**

If your graphics do not match those in the examples below, download and install the latest version of [HP Support Assistant](#).

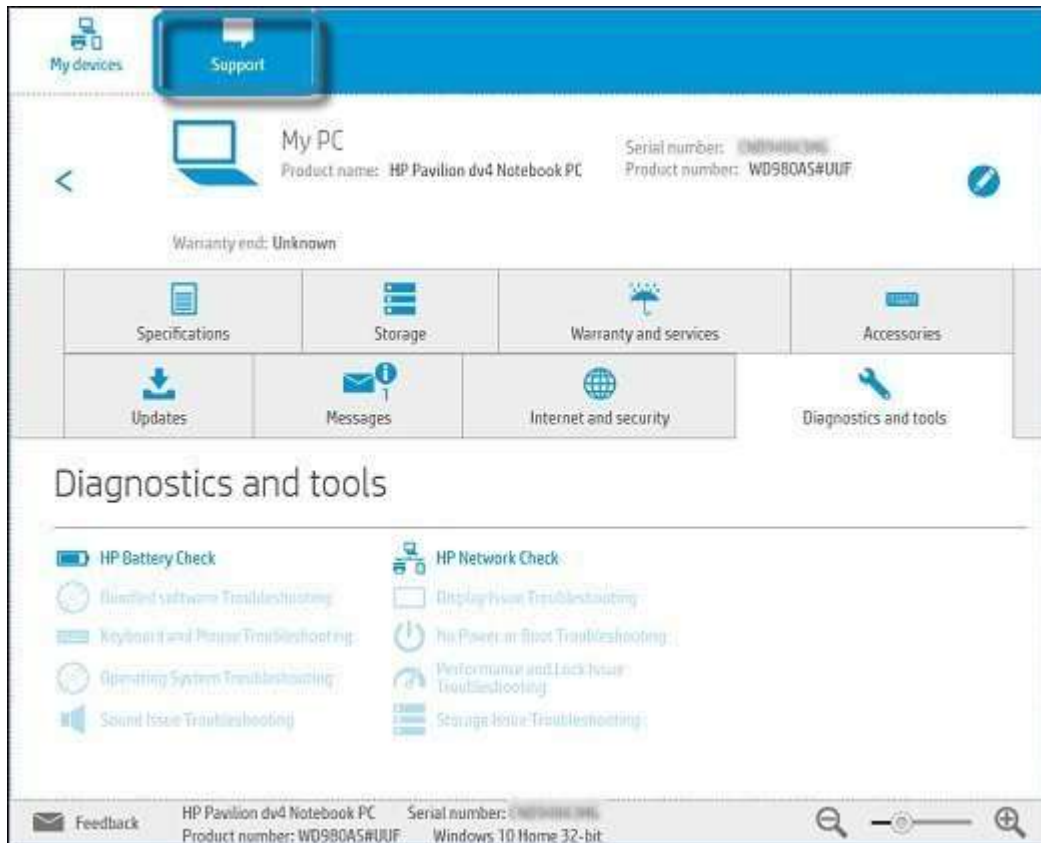
1. In Windows, type HP Support Assistant into Search, then select HP Support Assistant in the Search results.
2. Select the My devices tab, then select your PC from the device list.

### **Figure : HP Support Assistant**



3. To access the HP diagnostic tools using HP Support Assistant, select the Support tab. Then select Diagnostics and tools. A test example is explained in the following section.

**Figure : Diagnostics and tools**



4. Proceed to the section for the problem you want to troubleshoot and follow the on-screen instructions.

### [Running HP Support Assistant Diagnostic Tests](#)

To run any HP diagnostic test, select it from the Diagnostics and tools tab and follow the on-screen instructions. This section provides examples of the HP Battery Check and the HP Network Check tests.

#### [HP Battery Check](#)

#### [HP Network Check](#)

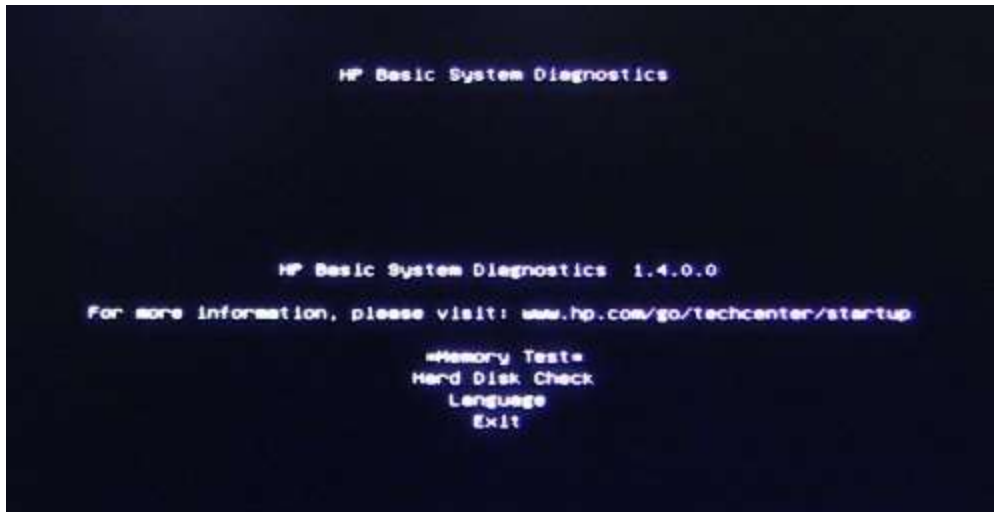
#### [Testing using HP Basic System Diagnostics](#)

**note:**

When using HP Basic System Diagnostics (black screen), you cannot navigate using the mouse or touchpad. In addition, you can test only the Memory and Hard Drive components. No other component tests are available.

If the hard drive is not detected or is reporting problems, the following screen displays with two testing options only: Memory Test and Hard Disk Check.

**Figure : Basic HP System Diagnostics**



To enter **HP Basic System Diagnostics**, hold the power button for at least five seconds to turn off the computer. Turn on the computer and immediately press the F2 key repeatedly, about once every second until the HP Basic System Diagnostics screen is displayed.

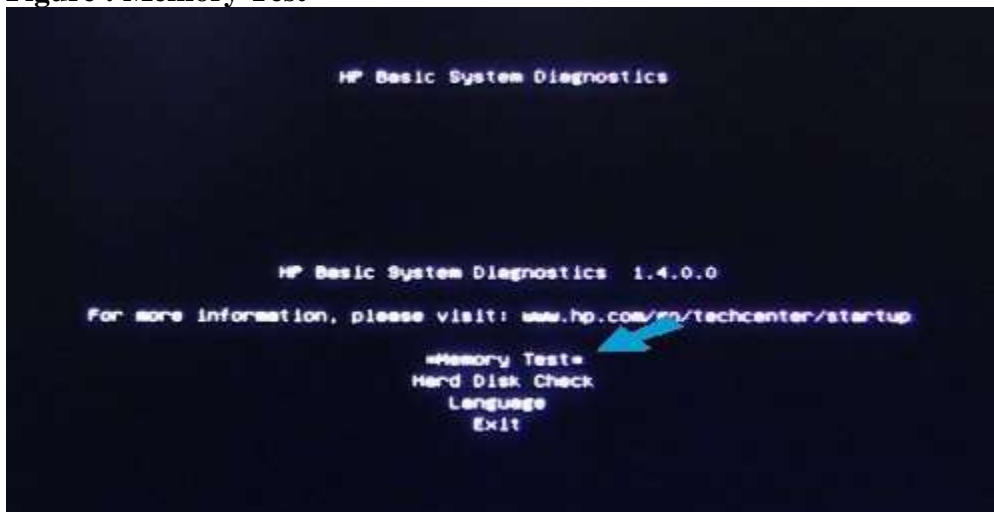
**note:**

If the **HP PC Hardware Diagnostic UEFI** screen is displayed, go to [Testing using HP PC Hardware Diagnostics \(UEFI\)](#).

#### [Running the Memory Test in HP Basic System Diagnostics](#)

To run the Memory Test, use the arrow keys on the keyboard to select Memory Test and then press Enter.

**Figure : Memory Test**

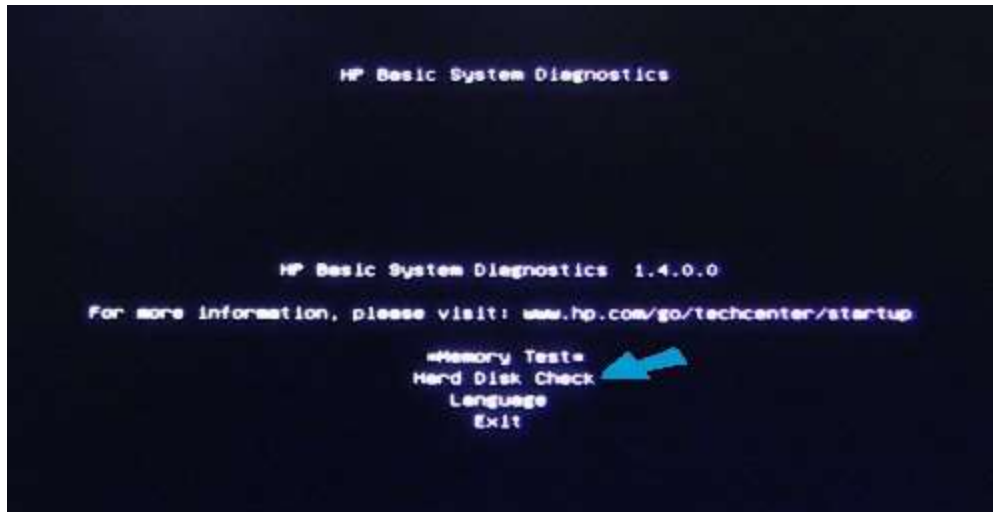


After starting the test, there are two screens displayed: test in progress, and after the test, a pass or fail screen.

#### [Running the Hard Disk Check in HP Basic System Diagnostics](#)

To run the Hard Disk test, use the arrow keys in the keyboard to select Hard Disk Check and then press Enter.

**Figure : Hard Disk Check**



After starting the test, there are two screens displayed: test in progress, and after the test, a pass or fail screen.

## HP PCs - Computer is Slow

**This document applies to HP desktop and HP notebook computers.**

The computer is not performing as expected:

- Performance issues with a program or application
- Issues trying to start Windows
- Issues trying to shutdown Windows
- Windows Update freezes or hangs
- Performance issues with games
- Programs stop responding

**To resolve these issues and optimize your PC for faster performance, try HP Performance Tune-up**

Powered by **HP Support Assistant**



HP Performance Tune-up

Recommended

HP Performance Tune-up analyzes and optimizes your PC to resolve system freeze issues and improve performance.

[LAUNCH NOW](#)

HP Performance Tune-up requires HP Support Assistant version 8.5 and later.

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# HP PCs - No Power or No Boot Troubleshooting

**This document applies to HP desktop and notebook computers.**

The computer won't turn on because it has no power, or it turns on but does not boot into Windows. Other problems might include:

- Nothing happens when you press the power button.
- Computer lights turn on, but the monitor remains blank.
- Computer stops at the HP or Compaq logo screen.
- Computer shows a black screen or a blue screen with an error message.
- An error message displays after Windows loads.