# Windows Recovery Environment (Windows RE) Overview

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Applies To: Windows 8, Windows 8.1, Windows Server 2012, Windows Server 2012 R2

Windows Recovery Environment (Windows RE) is a recovery environment that can repair common causes of unbootable operating systems. Windows RE is based on Windows Preinstallation Environment (Windows PE), and can be customized with additional drivers, languages, Windows PE Optional Components, and other troubleshooting and diagnostic tools. By default, Windows RE is preloaded into the Windows 8.1 and Windows Server 2012 R2 installations.

Tools

Windows RE includes these tools:

- **Automatic repair and other troubleshooting tools**. For more info, see Windows RE Troubleshooting Features.

- **Push-button reset** (Windows 8.1 and Windows 8 only). This tool enables your users to repair their own PCs quickly while preserving their data and important customizations, without having to back up data in advance. For more info, see Push-Button Reset Overview.

- **System image recovery** (Windows Server 2012 R2 and Windows Server 2012 only). This tool restores the entire hard drive. For more info, see Recover the Operating System or Full Server.

In addition, in Windows 8.1, Windows 8, Windows Server 2012 R2, and Windows Server 2012, you can create your own custom recovery solution by using the Windows Imaging API, or by using the Deployment Image Servicing and Management (DISM) API.

Entry Points into Windows RE

Your users can access Windows RE features through the **Boot Options** menu, which can be launched from Windows in a few different ways:

- In Windows 8.1, Windows 8, Windows Server 2012 R2, and Windows Server 2012, select the **Settings** charm > **Power**, and then hold the Shift key while clicking **Restart**.

- In Windows 8.1 and Windows Server 2012 R2, select the **Settings** charm > **Change PC settings** > **Update & recovery** > **Recovery**. Under **Advanced startup**, click **Restart now**.

- In Windows 8 and Windows Server 2012, select the **Settings** charm > **Change PC settings** > **General**. Under **Advanced startup**, select **Restart now**

- At the command prompt, run the **Shutdown /r /o** command.

- Boot the PC by using recovery media. For more info, see Create Media to Run Push-Button Reset Features.

After any of these actions is performed, all user sessions are signed off and the **Boot Options** menu is displayed. If your users select a Windows RE feature from this menu, the PC restarts into Windows RE and the selected feature is launched.

In some situations, Windows RE automatically tries to repair the system. Also, these situations automatically cause a failover to Windows RE:

- Two consecutive failed attempts to start Windows.

- Two consecutive unexpected shutdowns that occur within two minutes of boot completion.

- A Secure Boot error (except for issues related to Bootmgr.efi).

- A BitLocker error on touch-only devices.

You can also configure a hardware recovery button (or button combination) to run a secondary boot path that includes Windows RE. This can help users get to the Windows RE menus more easily, and can help users recover their PCs when some early boot components, such as the boot configuration data, are corrupted. For more information, see Add a Hardware Recovery Button to Start Windows RE.

Boot Options menu

This menu enables your users to perform these actions:

- Start recovery, troubleshooting, and diagnostic tools.

- Boot from a device (UEFI only).

- Access the **Firmware** menu (UEFI only).

- Choose which operating system to boot, if multiple operating systems are installed on the PC.