



# Administrator Guide

Windows Embedded Standard 7

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## User input syntax key

Text that you must enter into a user interface is indicated by `fixed-width font`.

Item	Description
Text without brackets or braces	Items you must type exactly as shown
<Text inside angle brackets>	A placeholder for a value you must provide; omit the brackets
[Text inside square brackets]	Optional items; omit the brackets
{Text inside braces}	A set of items from which you must choose only one; omit the braces
	A separator for items from which you must choose only one; omit the vertical bar
...	Items that can or must repeat; omit the ellipsis



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# Table of contents

<b>1 Getting started</b>	<b>1</b>
Logging on to Windows	1
Finding administrative apps in Control Panel	1
Local drives	1
<b>2 Write filter</b>	<b>2</b>
<b>3 Configuration</b>	<b>3</b>
Managing user accounts	3
Changing a password	3
Creating additional user accounts	3
Disabling wireless functionality	3
Configuring the system date and time settings	4
Installing apps	4
Configuring apps to cache on the RAM drive	4
<b>4 Remote desktop software</b>	<b>6</b>
Citrix Receiver	6
Enabling single sign-on for Citrix Receiver	6
Remote Desktop Connection	6
VMware Horizon View Client	6
HP RGS Receiver (select thin clients only)	7
HP TeamTalk (add-on, select thin clients only)	7
<b>5 Administrative apps</b>	<b>8</b>
HP Device Manager	8
HP Easy Shell	8
HP Function Key Filter (mobile thin clients only)	8
HP Hotkey Filter (add-on only)	8
HP Logon Manager	9
HP RAM Disk Manager	9
HP ThinUpdate	9
HP USB Port Manager	9
HP Velocity	9
HP Write Filter Configuration	10
HP Write Manager	10

Microsoft System Center 2012 Configuration Manager .....	10
<b>6 Finding software downloads .....</b>	<b>11</b>
<b>7 Finding more information .....</b>	<b>12</b>
<b>Appendix A Enhanced Write Filter and File-Based Write Filter .....</b>	<b>13</b>
EWF and FBWF management overview .....	14
Notification icon .....	14
HP Write Filter Configuration .....	15
Command-line tool .....	15
Making permanent system configurations .....	16
Disabling or enabling a write filter .....	16
Committing changes to the flash drive .....	16
Adding files and folders to the exclusion list (FBWF only) .....	17
Clearing the boot command .....	17
Restoring a file to its previous state (FBWF only) .....	17
<b>Index .....</b>	<b>18</b>

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# 1 Getting started

This guide is for administrators of HP thin clients based on the Windows® Embedded Standard 7 operating system. It is assumed you are using the latest Windows Embedded Standard 7E or Windows Embedded Standard 7P image provided by HP and that you will log on to Windows as an administrator when configuring the operating system or using administrative apps as discussed in this guide.

## Logging on to Windows


There are two user accounts by default:

- **Administrator**—Allows you to make permanent system configurations, such as user account management or app installations
- **User**—Cannot make permanent changes to the system and is for end-user operation

The User account logs on automatically when Windows starts, so you must switch to the Administrator account manually using the default password `Administrator`.

To switch back to the User account, use the default password `User`.

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 **NOTE:** User account passwords are case sensitive. HP recommends changing the passwords from their default values. For more information about user accounts, including how to change a password, see [Managing user accounts on page 3](#).

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## Finding administrative apps in Control Panel

Most of the administrative apps referenced in this guide can be found in Control Panel when viewed as icons (not as categories).

To open Control Panel:

- ▲ Select **Start**, and then select **Control Panel**.

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 **TIP:** For quick access to all Control Panel items, you can configure the Start menu to display Control Panel as a menu instead of a shortcut. To do this, select **Taskbar and Start Menu** in Control Panel, select the **Start Menu** tab, select **Customize**, and then set the **Control Panel** setting to **Display as a menu**.

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## Local drives

There are two local drives by default:

- **C:** (flash drive)—This is the physical drive where the operating system and apps are installed. This drive is protected by a write filter (see [Write filter on page 2](#)).

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 **CAUTION:** The system might become unstable if the free space on the flash drive drops below 10%.

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- **Z:** (RAM drive)—This is a virtual drive created using RAM. This drive behaves like a physical drive, but it is created at system startup and destroyed at system shutdown. You can configure the size of this drive with HP RAM Disk Manager (see [HP RAM Disk Manager on page 9](#) for more information)

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## 2 Write filter


Newer HP thin clients are protected by the write filter included with HP Write Manager. For more information, see the administrator guide for HP Write Manager.

If HP Write Manager is not on or available for your thin client, see [Enhanced Write Filter and File-Based Write Filter on page 13](#)



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## 3 Configuration

 **IMPORTANT:** Be sure to disable the write filter prior to making configuration changes. Then after you have finished making changes, be sure to enable the write filter.

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### Managing user accounts

The User Accounts tool allows you to manage most aspects of the default User and Administrator accounts, as well as create additional user accounts.

 **IMPORTANT:** Due to space constraints on the flash drive, keep the number of user accounts to a minimum.

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To open the User Accounts tool:

- ▲ In Control Panel, select **User Accounts**.

### Changing a password

To change the password for a user account:

- ▲ Press **Ctrl+Alt+Delete**, select **Change a password**, and then follow the on-screen instructions to complete the procedure.

 **NOTE:** Passwords cannot be changed without administrator privileges.

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### Creating additional user accounts

Use the User Accounts utility to create new user accounts. A newly-created account is a member of the local Users group automatically, but to match the default User account, you must add the new account to the Power Users group. Otherwise, the new user will not be able to add a local printer.

 **NOTE:** For information about configuring a specific user account to log on automatically at system startup, see [HP Logon Manager on page 9](#).

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A new user account has a user profile based on a default template. A user profile contains configuration information for a user account, such as desktop settings, network connections, and program settings. A user profile can either be **local** (specific to a thin client) or **roaming** (server-based and accessible from multiple different thin clients).

 **NOTE:** Local copies of roaming profiles should be written to the flash drive (C:), which must have sufficient free space for them to work. Roaming profiles are not retained when the system restarts.

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### Disabling wireless functionality

If you need to disable wireless functionality on the system, follow these steps:

1. In Control Panel, select **Network and Sharing Center**.
2. In the Network and Sharing Center, select **Change adapter settings**.
3. In the list of network connections, right-click the item associated with the wireless adapter, and then select **Disable**.

## Configuring the system date and time settings

The **Date and Time** tool in Control Panel allows you to set the system date and time manually or to configure the system to synchronize the date and time with an Internet server periodically.

 **TIP:** You can access this tool also using the clock in the Windows notification area.


If you want to configure the system to synchronize the date and time with an Internet server, you must enable the **Windows Time** service, which is disabled by default. To do this, follow these steps:

1. In Control Panel, select **Administrative Tools**.
2. Double-click **Services**, and then double-click the **Windows Time** service to access its settings.
3. Start the service manually and configure it to start automatically at system startup.
  - a. Select **Start** to start the service manually.
  - b. Set the **Startup type** to **Automatic**.

## Installing apps

To install an app:

1. Disable the write filter (requires a system restart).
2. Perform the installation.

 **NOTE:** If the installation process requires a system restart, you should perform that restart before proceeding to the next step.

3. Enable the write filter (requires a system restart).

When installing apps, it might be necessary to temporarily change some environmental variables to point to the flash drive (C:) instead of the RAM drive (Z:). The RAM drive might be too small for the temporary files cached during the installation of some apps.

To change the environmental variables:

1. Select **Start**.
2. Right-click **Computer** and select **Properties**.
3. Select **Advanced system settings**, and then select **Environmental Variables**.
4. Change the value of the TEMP and TMP variables to C : \ Temp.

 **NOTE:** Create this folder ahead of time if necessary.

 **IMPORTANT:** Be sure to change the environmental variables back to their original values afterwards.

## Configuring apps to cache on the RAM drive

You should configure apps that cache temporary files to cache on the RAM drive (Z:) to reduce the amount of write operations to the flash drive (C:). By default, the following items are cached on the RAM drive:

- Temporary user, system, and print spooling files
- Temporary Internet files (copies of websites and media saved for faster viewing)

- Website cookies, caches, and databases (stored by websites to save preferences or improve website performance)
- Browsing history

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## 4 Remote desktop software

### Citrix Receiver

Citrix Receiver is used when Citrix Presentation Server, XenApp, or XenDesktop is deployed with Web Interface. Citrix Receiver enables icons to be placed on the Windows desktop for the seamless integration of published apps.

To open Citrix Receiver:

- ▲ Select **Start**, select **All Programs**, and then select **Citrix Receiver**.

### Enabling single sign-on for Citrix Receiver

1. Uninstall the Citrix Receiver app that is preinstalled on the thin client.
2. Download the latest Citrix Receiver (see [Finding software downloads on page 11](#)).
3. Run the SoftPaq to extract the installer to `C:\swsetup`.
4. Enter the following command on the command line to install Citrix Receiver:  


```
CitrixReceiver.exe /includeSSON ENABLE_SSON=Yes /silent
```
5. Configure the Group Policy settings as necessary.

### Remote Desktop Connection

Remote Desktop Connection allows you to establish a Microsoft® Remote Desktop Protocol (RDP) connection.

To open Remote Desktop Connection:

- ▲ Select **Start**, select **All Programs**, select **Accessories**, and then select **Remote Desktop Connection**.

 **NOTE:** If a Windows server is used, a Terminal Services Client Access Licenses (TSCAL) server must also reside somewhere on the network. A Client Access License (CAL) permits a client to use the services provided by the Windows server. The server grants temporary licenses (on an individual device basis) that are good for 90 days. Beyond that, TSCALs must be purchased and installed on the TSCAL server. A client cannot make a connection without a temporary or permanent license.


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### VMware Horizon View Client

VMware® Horizon™ View is software that establishes a connection between endpoint devices and Horizon View virtual desktops and apps.

To open VMware Horizon View Client:

- ▲ Select **Start**, select **All Programs**, select **VMware**, and then select **VMware Horizon View Client**.

 **NOTE:** VMware Horizon View Client might not be preinstalled on some HP thin clients. To install VMware Horizon View Client, select **Start**, select **All Programs**, select **Run VMware Horizon View Client Setup**, and then follow the on-screen instructions. Make sure you disable the write filter before performing the installation and enable the write filter after the installation is complete.

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## HP RGS Receiver (select thin clients only)


HP Remote Graphics Software (RGS) brings added security, performance, mobility, and collaboration to your workstation deployment. With RGS, you can use a lower-powered desktop, notebook, or thin client to remotely connect to a powerful workstation and use your graphics-intensive workstation programs wherever you go.

Your programs run natively on the remote workstation and take full advantage of its graphics resources. The desktop of the remote workstation is transmitted over a standard network to your local computer using advanced image compression technology specifically designed for digital imagery, text, and high frame rate video applications.


Use RGS Receiver to access the remote desktop being transmitted by RGS Sender. To open RGS Receiver:

- ▲ Select **Start**, select **All Programs**, select **Hewlett-Packard**, select **HP Remote Graphics Software**, and then select **HP RGS Receiver**.

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 **NOTE:** On some thin clients, the Hewlett-Packard folder in the above path might be named **HP** instead.

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 **NOTE:** RGS Receiver might not be preinstalled on some HP thin clients. To install RGS Receiver, select **Start**, select **All Programs**, and then select **Install HP Remote Graphics Receiver**. Make sure you disable the write filter before performing the installation and enable the write filter after the installation is complete.

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For more information, go to <http://www.hp.com/go/rgs> and see the user guide for RGS.

## HP TeemTalk (add-on, select thin clients only)

HP TeemTalk is terminal emulation software that uses the Telnet protocol to support computing on legacy platforms.

To open HP TeemTalk:

- ▲ Select **Start**, select **All Programs**, select **Hewlett-Packard**, select **HP TeemTalk Emulator**, and then select **Configure Session**.

For more information, see the user guide for HP TeemTalk.

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## 5 Administrative apps



**NOTE:** Some apps might not be preinstalled on some HP thin client image versions. If an app is not preinstalled, see [Finding software downloads on page 11](#).

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### HP Device Manager

HP Device Manager (HPDM) provides the capability for centralized, server-based administration of HP thin clients. The client-side component is HPDM Agent.

To open HPDM Agent:

- ▲ In Control Panel, select **HPDM Agent**.

For more information, see the administrator guide for HP Device Manager.

### HP Easy Shell

HP Easy Shell allows you to configure connections, websites, and apps for kiosk-style deployments of HP thin clients based on Windows operating systems. You can also customize the kiosk interface that is presented to end-users and enable or disable user access to specific Control Panel settings. The configured environment can be deployed to multiple thin clients using HP Device Manager (HPDM).

To open HP Easy Shell (the kiosk interface for end users or administrator testing):

- ▲ Select **Start**, select **HP**, and then select **HP Easy Shell**.

To open HP Easy Shell Configuration (the configuration app for administrators):

- ▲ In Control Panel, select **HP Easy Shell Configuration**.

For more information, see the administrator guide for HP Easy Shell.

### HP Function Key Filter (mobile thin clients only)

HP Function Key Filter enables the use of **Fn+F5** and **Fn+F6** to change the display brightness while connected to remote sessions.

### HP Hotkey Filter (add-on only)


HP Hotkey Filter is a security tool that allows a user to lock and unlock their remote desktop session without affecting the local Windows instance. In many thin client deployments, access to the local Windows desktop and the local Windows file system is not necessary and might be undesirable.

For more information, see the administrator guide for HP Hotkey Filter.

## HP Logon Manager

To configure the thin client to log on to a specific user account automatically:

1. In Control Panel, select **HP Logon Manager**.
2. In the Windows Logon Configuration dialog box, check the **Enable Autologon** box, type the account credentials and domain name, and then select **OK**.

 **TIP:** To log on as a different user or as an administrator when automatic logon is enabled, simply log off the current account to return to the Windows logon screen.

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## HP RAM Disk Manager

HP RAM Disk Manager allows you to configure the size of the RAM drive (Z:).

To open HP RAM Disk Manager:

- ▲ In Control Panel, select **HP RAM Disk Manager**.

## HP ThinUpdate

HP ThinUpdate allows you to download apps and operating system images from HP, capture an HP thin client image, and use USB flash drives for image and add-on deployment

To open HP ThinUpdate:

- ▲ Select **Start**, select **HP**, and then select **HP ThinUpdate**.

– or –

In Control Panel, select **HP ThinUpdate**.

For more information about which apps can be downloaded via HP ThinUpdate, see [Finding software downloads on page 11](#).

For more information about using HP ThinUpdate, see the administrator guide for HP ThinUpdate.

## HP USB Port Manager

HP USB Port Manager allows you to manage USB device access on the thin client. Features include the ability to block all USB devices, allow only certain USB devices, and set access to USB mass storage devices as read-only.

To open HP USB Port Manager:

- ▲ In Control Panel, select **HP USB Port Manager**.

For more information, see the administrator guide for HP USB Port Manager.

## HP Velocity

HP Velocity is a quality of service (QoS) system that dramatically improves the user experience for real-time, networked applications by reducing packet loss on IP-based networks used to carry the application traffic. The HP Velocity client-side component is preinstalled on HP thin clients and works in conjunction with a server-side component.

For more information, see the administrator guide for HP Velocity.

## HP Write Filter Configuration

This app is replaced by HP Write Manager on newer thin clients. See the administrator guide for HP Write Manager for more information.

For older thin clients, see [Enhanced Write Filter and File-Based Write Filter on page 13](#).

## HP Write Manager

HP Write Manager protects the contents of and decreases wear on the flash drive of a thin client by redirecting and caching writes in an overlay.

For more information, see the administrator guide for HP Write Manager.

## Microsoft System Center 2012 Configuration Manager

Microsoft System Center 2012 Configuration Manager provides key management capabilities for app delivery, desktop virtualization, device management, and security.

To configure settings for the Configuration Manager client:

- ▲ In Control Panel, select **Configuration Manager**.

For more information, see the white paper *Using System Center 2012 R2 Configuration Manager SP1 to Manage Windows-based HP Thin Clients*.



## 6 Finding software downloads

To find operating system images, apps, drivers, and other downloads for update or recovery, use this table.



**NOTE:** If an item is located at <http://www.hp.com/support>, search for the thin client model, and then see the **Software and Drivers** section of the support page for that model.

Item	Download location
BIOS images	<a href="http://www.hp.com/support">http://www.hp.com/support</a>
Hardware drivers	<a href="http://www.hp.com/support">http://www.hp.com/support</a>
Operating system images (recovery images)	HP ThinUpdate
Citrix Client	HP ThinUpdate
VMware Horizon View Client	HP ThinUpdate
HP Device Manager	<a href="http://www.hp.com/support">http://www.hp.com/support</a> or <a href="ftp://ftp.hp.com/pub/hpdm">ftp://ftp.hp.com/pub/hpdm</a>
HP Easy Shell	HP ThinUpdate
HP Function Key Filter (mobile thin clients only)	HP ThinUpdate
HP Hotkey Filter	HP ThinUpdate
HP Hotkey Support (mobile thin clients only)	<a href="http://www.hp.com/support">http://www.hp.com/support</a>
HP ThinUpdate	HP ThinUpdate or <a href="http://www.hp.com/support">http://www.hp.com/support</a>
HP USB Port Manager	HP ThinUpdate
HP Velocity	HP ThinUpdate

The System Center Configuration Manager client is preinstalled on HP thin clients and cannot be downloaded from HP. For information about obtaining the Configuration Manager client, go to <http://www.microsoft.com>.

The following Control Panel tools are preinstalled on HP thin clients and cannot be downloaded individually:

- HP Logon Manager
- HP RAM Disk Manager

# 7 Finding more information

To find more information, use the following table.




**NOTE:** Information at websites listed in this table might be available in English only.

Resource	Contents
HP support website <a href="http://www.hp.com/support">http://www.hp.com/support</a>	Administrator guides, hardware reference guides, white papers, and other documentation  ▲ Go to <a href="http://www.hp.com/support">http://www.hp.com/support</a> , and follow the instructions to find your product. Then select <b>User Guides</b> .  <b>NOTE:</b> HP Remote Graphics Software has a dedicated support page, so search for the app name instead, and then see the <b>User Guides</b> section.
Microsoft support website <a href="http://support.microsoft.com">http://support.microsoft.com</a>	Documentation for Microsoft software
Citrix support website <a href="http://www.citrix.com/support">http://www.citrix.com/support</a>	Documentation for Citrix software
VMware support website <a href="http://www.vmware.com/support">http://www.vmware.com/support</a>	Documentation for VMware software

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# A Enhanced Write Filter and File-Based Write Filter


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 **IMPORTANT:** If your thin client has HP Write Manager, see the administrator guide for HP Write Manager for instructions. This appendix applies only to thin clients that do not have HP Write Manager.

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A write filter protects the contents of and decreases wear on the flash drive of a thin client by redirecting and caching writes in an overlay. An overlay is a virtual storage space in RAM that tracks changes to a protected volume (the flash drive). The user experience in Windows is unaffected because the operating system maintains the appearance of writing to the flash drive. When a system restart occurs, the overlay cache is cleared, and any changes made since the last system startup are lost permanently. If it is necessary to make permanent system configurations, an administrator can commit (persist by writing through to the protected volume) changes stored in the overlay cache prior to a system restart.

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 **NOTE:** The overlay cache is cleared only by a system restart, so users can log out or switch between user accounts without losing the cached information.

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You can choose between the following write filters:

- **Enhanced Write Filter (EWF)**—EWF allows you to commit the entire overlay cache in a single command. However, you cannot manage on a per-file basis, so you cannot commit files individually, restore files to their previous state from the underlying volume (unless you clear the entire overlay cache by restarting the system), or exclude files from protection.


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 **NOTE:** EWF is enabled by default. The EWF commit command requires a system restart.


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- **File-Based Write Filter (FBWF)**—FBWF allows you to manage on a per-file basis, so you can immediately (without a system restart) commit files individually or restore files to their previous state from the underlying volume by discarding the changes. You can also exclude files from protection so that changes to them are always written directly to the flash drive. However, you cannot commit the entire FBWF overlay cache in a single command.

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 **NOTE:** You cannot restore a file after it is committed or after the FBWF overlay cache is cleared. Any modification to the exclusion list requires a system restart.

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 **CAUTION:** HP highly recommends the following:

- Ensure that the write filter is used properly for standard thin client use cases. Proper usage includes making sure the write filter is enabled during end-user (non-administrator) operation and is disabled only temporarily by an administrator needing to make changes to the system. The write filter should be re-enabled as soon as the changes are completed.
- Never enable the Windows Page File feature.
- For use cases that require frequent writes, such as active system logging, call center phone and video recording, and industrial logging, you should configure the thin client to write to a server. If local writes are necessary, they should be done in the overlay cache. Please contact HP for help determining an appropriate interval schedule for committing the overlay cache, or preferably log the data from the overlay cache to a server.

If your use case requires non-standard write filter usage, please contact HP to ensure that your thin clients are configured properly.

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## EFW and FBWF management overview

There are three tools you can use to manage EFW and FBWF: a notification icon, a Control Panel app, and a command-line tool. Some commands can be performed using any of the tools, but other commands might be exclusive to one or two of the tools.










### Notification icon

The notification icon for EFW and FBWF is located in the Windows notification area. The following commands can be executed by right-clicking the notification icon and selecting the desired option:

- **Enable**—Enables the specified write filter (requires a system restart)
- **Disable**—Disables the specified write filter (requires a system restart)
- **Commit (EFW only)**—Commits the entire overlay cache (requires a system restart)
- **Clear Command**—Clears the previously-set boot command (such as Enable or Disable)

 **NOTE:** You cannot disable one write filter and enable the other write filter in a single boot command using the notification icon. To perform this action, use the HP Write Filter Configuration tool or the command line.

The following table describes the possible states of the notification icon for EFW and FBWF.

Icon	EFW	FBWF	Description
	✓	✓	Either EFW or FBWF is enabled, and no boot command is set.
	✓	✓	One or more boot commands have been set, and the required system restart will result in one of the following: <ul style="list-style-type: none"><li>• The write filter in use will be disabled.</li><li>• The write filter in use will be disabled, and the other write filter will be enabled.</li><li>• The entire overlay cache will be committed (EFW only).</li></ul>
	✓	✓	Both EFW and FBWF are disabled, and no boot command is set.
	✓	✓	Either EFW or FBWF will be enabled (requires a system restart).
		✓	The memory usage of the FBWF overlay cache has reached a warning level.
		✓	The memory usage of the FBWF overlay cache has reached a warning level, one or more boot commands have been set, and the required system restart will result in one of the following: <ul style="list-style-type: none"><li>• FBWF will be disabled.</li><li>• FBWF will be disabled and EFW will be enabled.</li></ul>
		✓	The memory usage of the FBWF overlay cache has reached a critical level.
		✓	The memory usage of the FBWF overlay cache has reached a critical level, one or more boot commands have been set, and the required system restart will result in one of the following: <ul style="list-style-type: none"><li>• FBWF will be disabled.</li><li>• FBWF will be disabled and EFW will be enabled.</li></ul>
	✓	✓	The write filter in use is corrupted.

## HP Write Filter Configuration

HP Write Filter Configuration is a GUI-based tool for managing EWF and FBWF. To open this tool:

- ▲ Double-click the notification icon.

– or –

In the Control Panel, select **HP Write Filter Configuration**.

The tasks you can perform in this tool that are common to both EWF and FBWF include the following:

- Disable or enable a write filter (requires a system restart)
- View information about the current write filter and overlay cache

The tasks you can perform in this tool that apply only to EWF include the following:

- Commit the entire overlay cache (requires a system restart)
- Clear the boot command

The tasks you can perform in this tool that apply only to FBWF include the following:

- Commit or restore individual files immediately
- Edit the exclusion list to add or remove files and folders (requires a system restart)
- Set the overlay cache threshold (requires a system restart)
- Set the percentage of cache usage at which warning and critical messages each display
- Set the delay for an automatic system restart that occurs when a critical state is reached



**NOTE:** The FBWF boot command can be cleared using the notification icon.

## Command-line tool

EWF and FBWF each have a command-line tool. The following table describes common commands.

EWF command	FBWF command	Description
<code>ewfmgr -disable</code>	<code>fbwfmgr /disable</code>	Disables the write filter (requires a system restart)
<code>ewfmgr -enable</code>	<code>fbwfmgr /enable</code>	Enables the write filter (requires a system restart)
<code>ewfmgr c: -commit</code>	<code>fbwfmgr /commit c: &lt;file&gt;</code>	EWF: Commits the entire overlay cache (requires a system restart) FBWF: Commits the specified file immediately
<code>ewfmgr c: -nocmd</code>	<code>n/a</code>	Clears the boot command
<code>n/a</code>	<code>fbwfmgr /restore c: &lt;file&gt;</code>	Restores the specified file immediately
<code>n/a</code>	<code>fbwfmgr /addexclusion c: &lt;file&gt;</code>	Adds the specified file to the exclusion list (requires a system restart)
<code>n/a</code>	<code>fbwfmgr /setthreshold &lt;size&gt;</code>	Sets the overlay cache threshold in MB (requires a system restart)

For more information and a full list of commands, go to the following:

- ▲ EWF: [http://msdn.microsoft.com/en-US/library/ff794092\(v=winembedded.60\).aspx](http://msdn.microsoft.com/en-US/library/ff794092(v=winembedded.60).aspx)

FBWF: [http://msdn.microsoft.com/en-US/library/ff794500\(v=winembedded.60\).aspx](http://msdn.microsoft.com/en-US/library/ff794500(v=winembedded.60).aspx)

## Making permanent system configurations

The following table describes the possible methods for making permanent system configurations.

 **CAUTION:** HP strongly recommends using method 1 in most situations.

Method 1	Method 2	Method 3 (FBWF only)
<ol style="list-style-type: none"><li>1. Disable the write filter.</li><li>2. Restart the thin client.</li><li>3. Make the necessary configurations.</li><li>4. Enable the write filter.</li><li>5. Restart the thin client.</li></ol>	<ol style="list-style-type: none"><li>1. Make the necessary configurations.</li><li>2. EWF: Commit the overlay cache and restart the thin client.  FBWF: Commit individual cached files. The action takes effect immediately.</li></ol>	<p>▲ Use the HP Write Filter Configuration tool or the command line to add files or folders to the exclusion list, and then restart the thin client.</p>

See the following sections for more information about performing these various tasks:

- [Disabling or enabling a write filter on page 16](#)
- [Committing changes to the flash drive on page 16](#)
- [Adding files and folders to the exclusion list \(FBWF only\) on page 17](#)

## Disabling or enabling a write filter

The following table describes the possible methods for disabling or enabling a write filter.

Method 1	Method 2	Method 3
<ol style="list-style-type: none"><li>1. Right-click the notification icon and select the desired state.</li><li>2. Restart the thin client.</li></ol>	<ol style="list-style-type: none"><li>1. Open the HP Write Filter Configuration tool.</li><li>2. On the <b>General</b> panel, select an option to set the desired state.</li><li>3. Restart the thin client.</li></ol>	<ol style="list-style-type: none"><li>1. Use the command line to set the desired state.</li><li>2. Restart the thin client.</li></ol>

**TIP:** Method 1 is the quickest way to disable or enable a write filter, but only methods 2 and 3 allow you to switch between EWF and FBWF in a single boot command.

## Committing changes to the flash drive

The following table describes the possible methods for committing changes to the flash drive.




Method 1 (EWF only)	Method 2	Method 3
<ol style="list-style-type: none"><li>1. Right-click the notification icon and select <b>Commit EWF</b>.</li><li>2. Restart the thin client.</li></ol>	<ol style="list-style-type: none"><li>1. Open the HP Write Filter Configuration tool.</li><li>2. EWF: Select the <b>EWF Main</b> tab, select <b>Commit Data to Volume</b>, and then restart the thin client.  FBWF: Select the <b>Cached File Commit/Restore</b> tab, select the file you want to commit, and then select <b>Commit</b>. The action takes effect immediately.</li></ol>	<p>▲ EWF: Use the command line to commit the overlay cache, and then restart the thin client.</p> <p>FBWF: Use the command line to commit individual files. The action takes effect immediately.</p>

## Adding files and folders to the exclusion list (FBWF only)

The following table describes the possible methods for adding files and folders to the exclusion list.

Method 1	Method 2
<ol style="list-style-type: none"><li>1. Open the HP Write Filter Configuration tool and select the <b>Exclusion List</b> tab.</li><li>2. Select the <b>Add</b> button to add an item to the exclusion list (repeat as necessary).</li><li>3. Restart the thin client.</li></ol>	<ol style="list-style-type: none"><li>1. Use the command line to add an item to the exclusion list (repeat as necessary).</li><li>2. Restart the thin client.</li></ol>
<b>CAUTION:</b> Changes to items in the exclusion list are always written directly to the flash drive, so keep the exclusion list to a minimum.	
<b>NOTE:</b> Items can be removed from the exclusion list using either the HP Write Filter Configuration tool or the command-line option (requires a system restart).	

The following table describes the icons used for the exclusion list in the HP Write Filter Configuration tool.

Icon	Description
	The item is excluded.
	The item will be added to the exclusion list (requires a system restart).
	The item will be removed from the exclusion list (requires a system restart).

## Clearing the boot command

The following table describes the possible methods for clearing the boot command (such as Enable or Disable).

Method 1	Method 2 (EWF only)	Method 3 (EWF only)
<ol style="list-style-type: none"><li>▲ Right-click the notification icon and select <b>Clear commands</b>.</li></ol>	<ol style="list-style-type: none"><li>1. Open the HP Write Filter Configuration tool and select the <b>EWF Main</b> tab.</li><li>2. Select <b>Clear Boot Command</b>.</li></ol>	<ol style="list-style-type: none"><li>▲ Use the command-line option to clear the boot command.</li></ol>

## Restoring a file to its previous state (FBWF only)

The following table describes the possible methods for restoring a file to its previous state from the underlying volume.

Method 1	Method 2
<ol style="list-style-type: none"><li>1. Open the HP Write Filter Configuration tool.</li><li>2. Select the <b>Cached File Commit/Restore</b> tab, select the file you want to restore, and then select <b>Restore</b>. The action takes effect immediately.</li></ol>	<ol style="list-style-type: none"><li>▲ Use the command-line option to restore a file. The action takes effect immediately.</li></ol>
<b>NOTE:</b> You cannot restore a file after it is committed or after the FBWF overlay cache is cleared.	

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# Index

## A

- administration tools 8
- apps
  - configuring to cache on the RAM drive 4
  - installing 4

## C

- Citrix Receiver 6
- Control Panel, using 1

## D

- Drive C: 1
- Drive Z: 1

## E

- Enhanced Write Filter. *See* write filters

## F

- File-Based Write Filter. *See* write filters

## H

- HP Device Manager 8
- HP Easy Shell 8
- HP Function Key Filter 8
- HP Hotkey Filter 8
- HP Logon Manager 9
- HP RAM Disk Manager 9
- HP Remote Graphics Software 7
- HP TeemTalk 7
- HP ThinUpdate 9
  - downloading apps 11
- HP USB Port Manager 9
- HP Velocity 9
- HP Write Filter Configuration 10

## L

- local drives 1
- logon
  - administrator 1
  - automatic 9
  - manual 1
  - user 1

## M

- Microsoft RDP 6
- Microsoft System Center
  - Configuration Manager 10

## R

- remote desktop software 6

## S

- SCCM. *See* Microsoft System Center
  - Configuration Manager
  - system date and time 4

## U

- user accounts
  - default 1
  - managing 3

## V

- VMware Horizon View 6

## W

- wireless, disabling 3
- write filters
  - boot command, clearing 17
  - command-line tool 15
  - committing changes to the flash drive 16
  - disabling 16
  - enabling 16
  - exclusion list (FBWF) 17
  - HP Write Filter Configuration 15
  - making permanent system configurations 16
  - managing 14
  - notification icon 14
  - overview 13