



Windows Embedded Standard 7 for HP Thin Clients

Administrator Guide

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Sixth Edition: December 2014

First Edition: November 2010

Document Part Number: 636584-006

About this guide

This guide might use one or more of the following styles to distinguish elements of text:

Style	Definition
<code><variable></code>	Variables or placeholders are enclosed in angle brackets. For example, replace <code><pathname></code> with the appropriate path, such as <code>C:\Windows\System</code> . When typing the actual value for the variable, omit the brackets.
<code>[optional parameters]</code>	Optional parameters are enclosed in square brackets. When specifying the parameters, omit the brackets.
<code>"literal value"</code>	Command line text that appears inside quotation marks should be typed exactly as shown, including the quotation marks.

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1 Getting started

This guide is intended for administrators of HP thin client models that are based on the Windows® Embedded Standard 7 operating system. It is assumed that you are using the latest Windows Embedded Standard 7E or Windows Embedded Standard 7P image provided by HP and that you will be logged on as an administrator when making configurations or accessing administration utilities.

Finding more resources

The information in this guide provides a basic overview of features specific to HP thin clients. See the following table to locate additional information, as well as image updates and add-ons.

Resource	Contents
HP Support Center http://www.hp.com/go/hpsc	Image updates and add-ons <ul style="list-style-type: none">▲ Search for the thin client model, and then see the Download options section of the support page for that model. Documentation for HP software and hardware <ul style="list-style-type: none">▲ Search for the thin client model, and then see the Manuals section of the support page for that model. <p>NOTE: HP Device Manager and HP Remote Graphics Software each have a dedicated support page, so search for the application name instead, and then see the Manuals section.</p>
Microsoft support website http://support.microsoft.com	Documentation for Microsoft software
Citrix support website http://www.citrix.com/support	Documentation for Citrix software
VMware support website http://www.vmware.com/support	Documentation for VMware software

Logging on to the default user and administrator accounts

By default, the thin client logs on as a user. An administrator must log on manually. Note the following information about logging on to Windows:

- The factory-default administrator account name and password are both `Administrator`
- The factory-default user account name and password are both `User`
- Passwords are case sensitive.
- For security purposes, HP recommends that you change the passwords from their default values. See [Changing an account's password on page 10](#) for more information.
- See [Creating additional user accounts on page 10](#) for information about creating additional user accounts.
- See [Configuring automatic logon on page 10](#) for information about configuring automatic logon to a specific user account.

Opening the Windows Control Panel

Most of the administration utilities referenced in this guide can be found in the Windows Control Panel.

To open the Control Panel:

- ▲ Select **Start > Control Panel**.

To find many of the utilities referenced in this guide, you need to view the Control Panel as large icons or small icons, not as categories.

 **TIP:** You can also configure the Control Panel item in the Start menu to display as a menu for quick access to all utilities. To do this, open the **Taskbar and Start Menu** utility in the Control Panel, click the **Start Menu** tab, click **Customize**, and then set the **Control Panel** setting to **Display as a menu**.

2 Write filters

A write filter provides a secure environment and can extend the life of a thin client by protecting it from unauthorized and excessive writes to the flash drive. Write data is intercepted by a write filter and cached in the RAM drive, and as a result, lost after the next thin client restart. There are two different write filters available:

- **Enhanced Write Filter (EWF)**—Protects an entire volume (C: by default) by caching all write data into an overlay
- **File-Based Write Filter (FBWF)**—Caches individual files, allowing you to specify files or folders to be excluding from protection (excluded files will always write to the underlying volume)



NOTE: EWF is enabled by default. Only one write filter can be used at a time.

For an overview of the different ways to manage the write filters, see [Write filter management overview on page 3](#).

For information about how to make permanent changes to the system, see [Configuring the write filters to allow permanent changes on page 6](#).

For information about how to cancel a write filter action previously assigned to take place on the next thin client restart, see [Clearing the boot command on page 8](#).



CAUTION: HP highly recommends proper write filter usage for standard thin client use cases. Proper usage includes making sure the write filter is enabled during standard user (non-administrator) operation and is only disabled by administrators temporarily to make necessary changes and updates to the system. Administrators should re-enable the filter as soon as updates are completed.

HP further recommends that the Windows Page File feature is never enabled unless the system is configured with a flash drive of sufficient capacity to support the high volume of writes this feature produces. The use of the Windows Page File feature with low-capacity drives will result in premature wearing of the drive, decreased performance, and a decrease in the lifecycle of the thin client.

If your use case requires usage of thin clients in a non-standard manner, please contact HP support to ensure that your thin client assets are configured properly.

Write filter management overview

There are three different ways of managing the write filters:

- [Status icon](#)
- [HP Write Filter Configuration utility](#)
- [Command line](#)

Status icon

The write filter status icon is located in the Windows notification area and displays the current status of the write filter that is currently in use. The following commands can be executed by right-clicking the status icon and selecting the desired action:

- **Enable**—Enables the write filter on the next thin client restart.
- **Disable**—Disables the write filter on the next thin client restart.
- **Commit (EWF only)**—Cached write data in the volume overlay will be committed (made permanent) to the underlying volume on the next thin client restart.
- **Clear Command**—Clears the current boot command.



NOTE: You cannot switch write filters on a single thin client restart using the status icon. This can only be accomplished using the HP Write Filter Configuration utility or the command line.

The following table defines the different states of the status icon and which write filters they are applicable to.


Icon	EWF	FBWF	Definition
	✓	✓	The write filter is enabled.
	✓	✓	One of the following actions will take effect on the next thin client restart: <ul style="list-style-type: none">• The write filter will be disabled.• The volume overlay will be committed (EWF only).• The write filter will switch either from EWF to FBWF or from FBWF to EWF.
	✓	✓	The write filter is disabled.
	✓	✓	The write filter will be enabled on the next thin client restart.
		✓	The memory usage of the FBWF cache has reached a warning level.
		✓	The memory usage of the FBWF cache has reached a warning level, and one of the following actions will take effect on the next thin client restart: <ul style="list-style-type: none">• The write filter will be disabled.• The write filter will switch from FBWF to EWF.
		✓	The memory usage of the FBWF cache has reached a critical level.
		✓	The memory usage of the FBWF cache has reached a critical level, and one of the following actions will take effect on the next thin client restart: <ul style="list-style-type: none">• The write filter will be disabled.• The write filter will switch from FBWF to EWF.
	✓	✓	The write filter is corrupted and unusable.

HP Write Filter Configuration utility

The HP Write Filter Configuration utility is a GUI that allows you to view information about and perform common functions of EWF and FBWF.


To open the HP Write Filter Configuration utility:

- ▲ In the Control Panel, click **HP Write Filter Configuration**.

 **TIP:** You can alternatively double-click the write filter status icon in the notification area.

The tasks you can perform in this utility include the following:

- View information about the write filter currently in use
- Enable either EWF or FBWF, or disable both
- Commit cached write data from the volume overlay (EWF) or individual files (FBWF)
- Clear the current boot command

 **TIP:** This utility only provides this option for EWF, but the current boot command for FBWF can be cleared using the status icon.

- Set the amount of memory to allocate for the cache (FBWF only)
- Set the percentage of cache use at which warning and critical messages are displayed and the delay for an automatic thin client restart when the critical state is reached (FBWF only)
- Edit the exclusion list, which specifies files and folders that will be ignored (FBWF only)

Command line

The following table describes common commands that can be issued via the Command Prompt.

EWF syntax example	FBWF syntax example	Description
<code>ewfmgr -disable</code>	<code>fbwfmgr /disable</code>	Disables the write filter on the next thin client restart.
<code>ewfmgr -enable</code>	<code>fbwfmgr /enable</code>	Enables the write filter on the next thin client restart.
<code>ewfmgr c: -commit</code>	<code>fbwfmgr /commit c: \Folder\File.txt</code>	EWF: Commits the volume overlay on the next thin client restart. FBWF: Commits the specified file immediately.
<code>ewfmgr c: -nocmd</code>	<code>n/a</code>	Clears the current boot command.
<code>n/a</code>	<code>fbwfmgr /restore c: \Folder\File.txt</code>	Restores the specified file.
<code>n/a</code>	<code>fbwfmgr /addexclusion c: \Folder\File.txt</code>	Adds the specified file to the exclusion list.
<code>n/a</code>	<code>fbwfmgr /setthreshold <size></code>	Sets the maximum size of the cache threshold in MB after the next thin client 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)

Configuring the write filters to allow permanent changes

CAUTION: HP highly recommends proper write filter usage for standard thin client use cases. Proper usage includes making sure the write filter is enabled during standard user (non-administrator) operation and is only disabled by administrators temporarily to make necessary changes and updates to the system. Administrators should re-enable the filter as soon as updates are completed.

HP further recommends that the Windows Page File feature is never enabled unless the system is configured with a flash drive of sufficient capacity to support the high volume of writes this feature produces. The use of the Windows Page File feature with low-capacity drives will result in premature wearing of the drive, decreased performance, and a decrease in the lifecycle of the thin client.

If your use case requires usage of thin clients in a non-standard manner, please contact HP support to ensure that your thin client assets are configured properly.

The following table describes the different methods for configuring the write filters to allow you to make permanent changes to the system.

CAUTION: HP strongly recommends using method 1. Using methods 2 or 3 can result in unwanted changes being committed to system and increased wear on the flash drive.

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

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

- [Disabling and enabling a write filter on page 6](#)
- [Committing cached write data on page 7](#)
- [Adding files and folders to the exclusion list \(FBWF only\) on page 7](#)

Disabling and enabling a write filter

The following table describes the different methods for disabling and enabling a write filter.

Method 1	Method 2	Method 3
<ol style="list-style-type: none">1. Right-click the write filter status icon in the notification area and select the desired state.2. Restart the thin client.	<ol style="list-style-type: none">1. Open the HP Write Filter Configuration utility.2. On the General tab, either select the write filter you want to enable or choose to disable both.3. Restart the thin client.	<ol style="list-style-type: none">1. Use the command line to set the desired state.2. Restart the thin client.

TIP: Method 1 is the quickest way to disable or enable a write filter, but only methods 2 and 3 will allow you to switch from one write filter to the other on a single thin client restart.

Committing cached write data

For EWF, committing the volume overlay will make all changes made since the last thin client restart become permanent after the next thin client restart.

For FBWF, individual files can be committed, and the action takes effect immediately.

CAUTION: Be sure to know what changes have been made since the last restart so that unwanted changes are not committed.

The following table describes the different methods for committing cached write data.

Method 1 (EWF only)	Method 2	Method 3
<ol style="list-style-type: none">Right-click the write filter status icon in the notification area and select Commit EWF.Restart the thin client.	<ol style="list-style-type: none">Open the HP Write Filter Configuration utility.EWF: On the EWF Main tab, click Commit Data to Volume, and then restart the thin client. FBWF: On the Cached File Commit/Restore tab, select the files you want to commit and click Commit. The action takes effect immediately.	<p>▲ EWF: Use the command line to commit the volume overlay, and then restart the thin client..</p> <p>FBWF: Use the command line to commit individual files. The action takes effect immediately.</p>
TIP: For FBWF, individual cached files can be restored to their previous state (from the underlying volume) using either the HP Write Filter Configuration utility or the command line.		

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


Writes to files and folders in the exclusion list will not be intercepted by FBWF, meaning that the changes are always permanent and do not require a thin client restart.



CAUTION: Keep this list to a minimum to decrease wear on the flash drive.

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

Method 1	Method 2
<ol style="list-style-type: none">Open the HP Write Filter Configuration utility.Click the Exclusion List tab.Click Add, and then specify the item to add to the exclusion list.Restart the thin client.	<ol style="list-style-type: none">Use the command line to add files and folders to the exclusion list.Restart the thin client.
TIP: Files and folders can also be removed from the exclusion list using either the HP Write Filter Configuration utility or the command line. A thin client restart is required for the removal to take effect.	

The following table defines the icons that are used when the exclusion list is viewed in the HP Write Filter Configuration utility.

Icon	Definition
	The item is excluded.

Icon	Definition
	The newly added item will become excluded after the next thin client restart.
	The item will be removed from the exclusion list after the next thin client restart.

Clearing the boot command

Clearing the boot command cancels a previously specified write filter action (such as **Enable**, **Disable**, or **Commit**) that would take place on the next thin client restart.

The following table describes the different methods for clearing the boot command.

Method 1	Method 2 (EWF only)	Method 3 (EWF only)
<ul style="list-style-type: none"> ▲ Right-click the write filter status icon in the notification area and select Clear Command. 	<ol style="list-style-type: none"> 1. Open the HP Write Filter Configuration utility. 2. On the EWF Main tab, click Clear Boot Command. 	<ul style="list-style-type: none"> ▲ Use the command line to clear the boot command.


3 Configuration

- [Local drives](#)
- [Managing user accounts](#)
- [Configuring the system date and time settings](#)
- [Disabling wireless functionality](#)
- [Installing large applications](#)

Local drives

The following local drives are configured on the thin client by default:

- **C:** (flash drive)—This is where the operating system and software are installed. Writes to this drive can be limited or restricted entirely by using a write filter.


 **CAUTION:** HP recommends that you do not allow the available free space on the flash drive to drop below 10% of the flash size.

- **Z:** (RAM drive)—This is a virtual drive that is created from the system's physical RAM. This drive will look and behave like a standard fixed disk drive, but it is created at system startup and destroyed at system shutdown. Therefore, HP recommends that you do not store information or data on this virtual disk drive.

The following items are stored on the Z: drive:

- Browser web page cache
- Browser history
- Browser cookies
- Browser cache
- Temporary Internet files
- Print spooling
- User/system temporary files

You can use the HP RAMDisk Manager utility to configure the size of the Z: drive. For more information, see [HP RAMDisk Manager on page 15](#).

 **TIP:** HP recommends that you save files that you want to retain on a server rather than on the thin client. By default, many software programs write cache files to the C: drive on the local system. If you must write to a local drive, configure the software program's settings to use the Z: drive instead.

Managing user accounts


Use the User Accounts utility to manage existing user accounts. To open the User Accounts utility:

- ▲ In the Control Panel, click **User Accounts**.


Changing an account's password

To change an account's password:

- ▲ Press **Ctrl+Alt+Delete** and then click **Change a password**.

 **NOTE:** Passwords cannot be changed by a user account.

Creating additional user accounts


 **NOTE:** Due to flash drive space constraints, you should keep the number of user accounts to a minimum.

Use the User Accounts utility to create new user accounts or manage existing ones.

Use the User Accounts utility to create new user accounts. To open the User Accounts utility:

- ▲ In the Control Panel, click **User Accounts**.

A new user's profile is based on the Default User profile template, which includes policies similar to the factory-defined Administrator account. This new account will default to membership within the local Users group. If the Default User profile settings are changed from those set at the factory, the changed settings are automatically applied to any newly created user profile—local or domain. Any local accounts created or cached domain accounts logged into this device prior to changes made to the Default User profile are unaffected by these changes—only accounts logged in or cached after the changes are affected.

 **TIP:** Write roaming profiles to the C: drive. For roaming profiles to work and be downloaded, there must be sufficient flash space available. In some cases, it might be necessary to remove software components to free up space for roaming profiles. Roaming profiles will not be retained when the thin client is rebooted.


For a new user to match the characteristics of the predefined User account, you must add the new user to the Power Users group. Otherwise, the new user will not be able to add a local printer. The user's actions are still limited while the user is in the Power Users group. You might also want to apply specific Windows policies to the new account to restrict certain actions or behaviors.

Configuring automatic logon

See [HP Logon Manager on page 15](#).

Configuring the system date and time settings

You can use the **Date and Time** utility in the Control Panel 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 also access this utility by clicking the clock in the Windows notification area and then clicking **Change time and date settings** or by right-clicking the clock and selecting **Adjust date/time** from the menu.

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

1. In the Control Panel, click **Administrative Tools**.
2. Double-click **Services**.
3. Double-click the **Windows Time** service to access its settings. You can start the service manually and configure it start up automatically in the future.

Disabling wireless functionality

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


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


Installing large applications

When installing large applications, it might be necessary to temporarily change some environmental variables to point to the C: drive instead of the Z: drive. The Z: drive might be too small to install some large applications.

To change the environmental variables:

1. Click **Start**.
2. Right-click **Computer** and select **Properties**.
3. Select **Advanced system settings > 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 after installing the applications.

4 Remote desktop software

- [Citrix Receiver](#)
- [Microsoft Remote Desktop Protocol](#)
- [VMware Horizon View](#)
- [HP Remote Graphics Software \(select thin clients only\)](#)
- [HP TeemTalk \(add-on, select thin clients only\)](#)

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 applications.

To open Citrix Receiver:

- ▲ Click **Start > All Programs > Citrix Receiver**.

Microsoft Remote Desktop Protocol

Make Microsoft Remote Desktop Protocol (RDP) available on the network using Microsoft Terminal Services on a Windows server. Use the Remote Desktop Connection (RDC) utility to establish a connection to a Windows terminal server or to access remote applications using Microsoft RDP.

To open the RDC utility:

- ▲ Click **Start > All Programs > Accessories > 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.

VMware Horizon View

VMware Horizon View is an enterprise-class desktop management solution that streamlines the management, provisioning, and deployment of virtual desktops.

To open the VMware Horizon View client:

- ▲ Click **Start > All Programs > VMware > VMware Horizon View Client**.

 **NOTE:** Select images might require you to install the VMware Horizon View client before you can use it. To do this, click **Start > All Programs > Run VMware Horizon View Client Setup**. Make sure that the write filter is disabled prior to installation and re-enabled after installation (see [Disabling and enabling a write filter on page 6](#)).

HP Remote Graphics Software (select thin clients only)

HP Remote Graphics Software (RGS) is the collaboration and remote desktop solution for serious users and their most demanding applications. All applications run natively on the remote computer and take full advantage of its graphics resources. The desktop of the remote computer is transmitted over a standard network to a window on a local computer using advanced image compression technology specifically designed for digital imagery, text, and high frame rate video applications. A local keyboard and mouse are supported, as well as redirection of most USB devices to provide an interactive, high-performance experience.

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

To open the RGS Receiver:

- ▲ Click **Start > All Programs > HP > HP Remote Graphics Software > HP RGS Receiver**.

 **NOTE:** Select images might require you to install the RGS Receiver before you can use it. To do this, click **Start > All Programs > Install HP Remote Graphics Receiver**. Be sure to commit the write filter cache before restarting the thin client after installation.

 **TIP:** For more information, go to <http://www.hp.com/go/rgs> and see the *HP Remote Graphics Software User Guide*.

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:

- ▲ Click **Start > All Programs > Hewlett-Packard > HP TeemTalk Emulator > Configure Session**.

 **TIP:** For more information, see the *HP TeemTalk Terminal Emulator User Manual*.

5 Administration tools

- [HP Cloud Connection Manager](#)
- [HP Device Manager](#)
- [HP Easy Tools \(add-on, select thin clients only\)](#)
- [HP Hotkey Filter \(add-on only\)](#)
- [HP Logon Manager](#)
- [HP RAMDisk Manager](#)
- [HP ThinShell](#)
- [HP ThinState](#)
- [HP ThinUpdate \(add-on only\)](#)
- [HP USB Storage Local Security Options](#)
- [HP Velocity](#)
- [HP Write Filter Configuration](#)
- [Microsoft System Center Configuration Manager](#)

HP Cloud Connection Manager

HP Cloud Connection Manager (HPCCM) is a client utility that allows administrators of HP thin clients to configure the automatic launch of virtual desktop clients and connections that initiate when standard users (non-administrators) log on to Windows.

To open HP Cloud Connection Manager:

- ▲ In the Control Panel, click **HP Cloud Connection Manager**.

 **TIP:** For more information, see the *HP Cloud Connection Manager Administrator Guide*.

HP Device Manager

HP Device Manager (HPDM) is a server-based application that provides centralized administration capabilities for HP thin clients. It accesses each thin client through the HPDM Agent embedded in the thin client image. Use HPDM to deploy software updates and add-ons.

To open the HPDM Agent:

- ▲ In the Control Panel, click **HPDM Agent**.


 **TIP:** For more information, go to <http://www.hp.com/go/hpdm> and see the *HP Device Manager Administrator Guide*.

HP Easy Tools (add-on, select thin clients only)

HP Easy Tools is a wizard that helps you create a complete configuration to use on HP thin clients. The wizard opens automatically during the initial setup of the system, unless the HP Device Manager or HP System Update infrastructure is found on the network.

To open HP Easy Tools manually:

- ▲ In the Control Panel, click **HP Easy Tools**.

 **TIP:** For more information, see the *HP Easy Tools Administrator Guide*.

HP Hotkey Filter (add-on only)

HP Hotkey Filter is a security utility 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.


See the *HP Hotkey Filter Administrator Guide* for instructions on obtaining, installing, and enabling HP Hotkey Filter.

HP Logon Manager

The thin client can be configured to log on to a specific user account automatically. To configure automatic logon:

1. In the Control Panel, click **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 click **OK**.

The configured account will be logged on to automatically during system startup.

 **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.

HP RAMDisk Manager

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

To open HP RAMDisk Manager:

- ▲ In the Control Panel, click **HP RAMDisk Manager**.

By default, the size of the RAM drive is set to the optimal setting of 128 MB. The maximum size that can be set is 512 MB. The minimum is 16 MB. Temporarily increase the size to install software that requires more than 128 MB.

HP ThinShell

HP ThinShell is a client automation tool that enables Kiosk Mode (shell replacement) functionality for standard users (non-administrators).

To open HP ThinShell:

- ▲ In the Control Panel, click **HP ThinShell Configuration**.



TIP: For more information, see the *HP ThinShell Administrator Guide*.

HP ThinState

HP ThinState can be used to capture an HP thin client image that can then be deployed to another HP thin client of identical model and hardware.



CAUTION: HP only supports up to three HP ThinState capture and deployment cycles based off the same image. Going beyond three cycles could corrupt the image.

To perform an HP ThinState capture:

1. On the thin client you are capturing the image from, make sure the first boot device in the BIOS is set to USB.
2. Disable the write filter.
3. Insert a USB flash drive that is greater in size than the onboard flash drive.
4. In the Control Panel, click **HP ThinState Capture**.
5. Follow the on-screen instructions.



NOTE: Windows will detect the formatted USB flash drive as a 1 GB drive that uses the FAT32 file system. This is because the USB flash drive is formatted with two partitions. The FAT32 partition contains the boot instructions. A second partition, which uses the NTFS file system, contains the actual image but will not be detected by Windows when you are viewing the drive contents.

Use the USB flash drive to deploy the captured image to another HP thin client of the exact same model and hardware.



NOTE: With HP ThinState Capture, you might be able to capture the image from a larger flash and deploy it to a smaller flash, depending on the size of the captured image.

To perform an HP ThinState deployment:

1. On the thin client you are deploying the image to, make sure the first boot device in the BIOS is set to USB.
2. Insert the USB flash drive that contains the captured image, and then restart the computer.
3. Follow the on-screen instructions.

After you remove the USB flash drive and cycle power to the system, the image will unbundle. Do not interrupt or cycle power to the unit during this process.

HP ThinUpdate (add-on only)

HP ThinUpdate is an image update and recovery tool that quickly and easily downloads an image to a USB flash drive for deployment. The tool can either be installed on the thin client itself or on a standard desktop or notebook computer.

To use HP ThinUpdate:


1. In the Control Panel, click **HP ThinUpdate**.
2. Select the platform, operating system, and image version.



NOTE: You can view the release notes for the selected image by clicking **Release Notes**.

3. Insert a USB flash drive that is larger than the size specified in the Summary pane. The required size varies depending on the image.
4. Click **Create USB** and accept any End User License Agreement that is displayed. The USB flash drive is then formatted, and then the image is downloaded to it.

 **NOTE:** You cannot cancel the process while the USB flash drive is being formatted, but you can cancel at any other time during the process by clicking **Abort**.

 **NOTE:** Windows will detect the formatted USB flash drive as a 1 GB drive that uses the FAT32 file system. This is because the USB flash drive is formatted with two partitions. The FAT32 partition contains the boot instructions. A second partition, which uses the NTFS file system, contains the actual image but will not be detected by Windows when you are viewing the drive contents.

5. When the process is complete, do one of the following:
 - If you are running HP ThinUpdate on a thin client, you will be prompted to install the image on that thin client. Click either **Yes** or **No**.
 - If you are running HP ThinUpdate on a standard desktop or notebook computer, remove the USB flash drive, insert it into the thin client you want to re-image, and then restart the thin client.

HP USB Storage Local Security Options

HP provides a utility for enabling or disabling access to USB storage devices. To use this utility:

1. In the Control Panel, click **HP USB Storage Local Security Options**.
2. If you want to enable access to USB storage devices, select **Enable USB Storage Devices**. Optionally select **Read-Only Access to Devices** if you want to disallow writes to USB storage devices.
3. Click **OK**.

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.

 **TIP:** For more information, go to <http://www.hp.com/go/velocity> and see the HP Velocity documentation.

HP Write Filter Configuration

See [Write filters on page 3](#).

Microsoft System Center Configuration Manager

Microsoft System Center Configuration Manager (SCCM) helps maintain corporate compliance and control while enabling users to use the devices and applications they need. It provides key management capabilities for application delivery, desktop virtualization, device management, and security, which makes it possible to enable productivity amidst device proliferation.

 **TIP:** For more information, see the white paper *Managing HP Thin Clients with SCCM 2012 SP1*.

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