

Using the Enhanced Write Filter

HP Windows® XP Embedded-based thin clients:
t5630
t57x0



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Abstract

This paper contains instructions for using the Enhanced Write Filter console application command-line tool, the Enhanced Write Filter GUI and the Enhanced Write Filter status service.

Introduction

Windows XP Embedded includes the Enhanced Write Filter (EWF) console application command-line tool, Ewfmgr.exe. In addition to the DOS command-line tool, the Windows XP Embedded image includes an Enhanced Write Filter GUI. The EWF allows the operating system (OS) to boot from a disk volume residing on any read-only media or write-protected hard drive while appearing to have read/write access to the OS. The EWF saves all writes to another storage location called an overlay. Changes made to the overlay will not be committed to the flash memory unless the EWF has been disabled or the user performs an intentional commit.

The EWF manager console application can be used to issue a set of commands to the EWF driver, report the status of each protected volume overlay and report the format of the overall EWF configurations.

By including the EWF manager console application component in your configuration and building it into your run-time image, you enable the use of Ewfmgr.exe and the corresponding commands.

Benefits of the Enhanced Write Filter

The EWF provides a secure environment for thin client computing. It does this by protecting the thin client from undesired flash memory writes (flash memory is where the operating system and functional software components reside). The write filter also extends the life of the thin client by preventing excessive flash write activity. It gives the appearance of read-write access to the flash by employing a cache to intercept all flash writes and returning success to the process that requested the I/O.




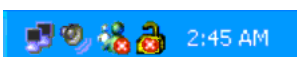
The intercepted flash writes stored in cache are available as long as the thin client remains active, but will be lost when the thin client is rebooted or shut down. To preserve the results of writes to the registry, favorites, cookies, and so forth, the contents of the cache can be transferred to the flash on demand by the Altiris Deployment Solution software or manually using the Enhanced Write Filter Manager.

After the write filter has been disabled, all future writes during the current boot session are written to the flash, with no further caching until a reboot occurs. The write filter may also be enabled/disabled through the command line. Always enable the writer filter after all of your permanent changes have been successfully made.

The EWF is a powerful tool for any thin client environment in which multiple users have access to the device. The EWF prevents unauthorized users from altering or damaging the image.

Enhanced Write Filter Status Service

This service creates an icon in the System Tray that shows the status of EWF. The EWF Status icon will appear as a red “lock” when disabled, a green “lock” when enabled, and a yellow “lock” when the state is set to change on the next boot.

Status	Description	Example
Red	Disabled	 4:25 AM
Green	Enabled	 2:43 AM
Yellow	Commit Mode	 2:45 AM
Yellow with Red “X”	Write Filter Corrupted	 2:45 AM

Important

In the event of a corrupted EWF state, you will need to re-flash the thin client unit with the standard shipping image provided on the web.

If you are logged-on as Administrator, you can change the status of EWF by right-clicking on the icon and selecting the desired EWF state.

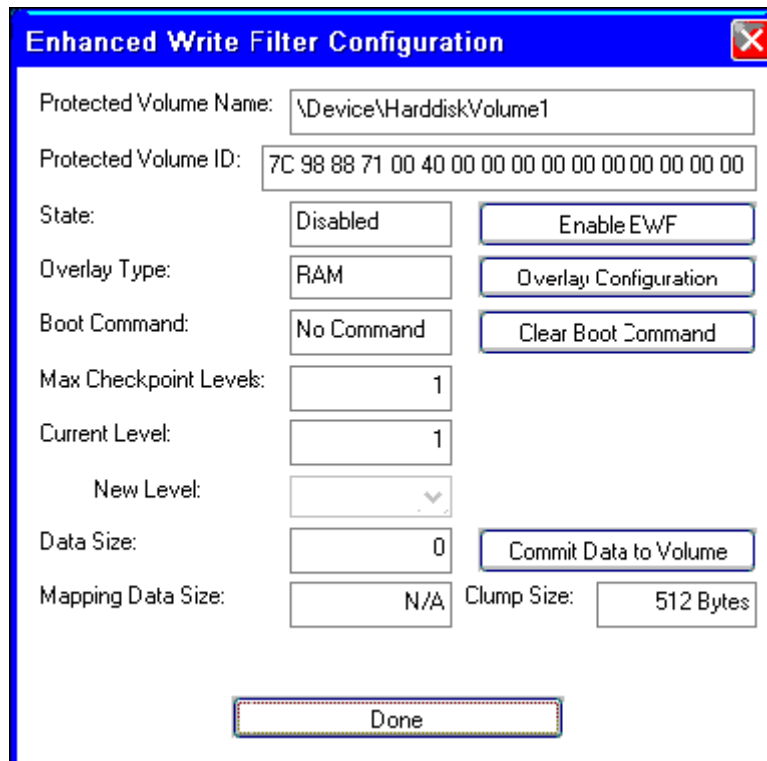
Important

Since EWF Manager console utility (ewfmgr.exe) and the EWF status service execute separate code, any status changes by ewfmgr.exe will not be automatically reflected by the EWF status icon.

To refresh the status icon after modifying EWF through ewfmgr.exe, you must right-click on the icon (you can then click anywhere on the screen to close the context menu). However, any operations made through the EWF status icon menu will be visible through the EWF Manager console application. Status and changes to the Enhanced Write Filter will be synchronized between the EWF status icon and the EWF Manager Control Panel applet.

Enhanced Write Filter GUI

The EWF GUI can be accessed through the Control Panel or the Administrative Tools option for the administrator.



To access the EWF GUI, perform the following steps:

1. Log in as an administrator.
2. Select **Start > Control Panel > Other Control Panel Options** or **Start > Control Panel > Performance and Maintenance > Administrative Tools**.
3. Click the **EWF Manager** icon.
4. Use the EWF GUI to select the Write Filter options.

EFW GUI Buttons

The current version of the EWF GUI includes the following buttons:

Button	Description
Enable EWF	This button is the same as executing ewfmgr.exe c: -Enable from the DOS prompt.
Disable EWF	This button is the same as executing ewfmgr.exe c: -Disable from the DOS prompt.
Overlay Configuration	This button simply displays the Overlay information and is a combination of the information supplied when executing ewfmgr.exe c: -Description and ewfmgr.exe c: -Gauge from the DOS prompt.
Clear Boot Command	This button is the same as executing ewfmgr.exe c: -NoCmd from the DOS prompt.
Commit Data to Volume	This button is the same as executing ewfmgr.exe c: -Commit from the DOS prompt.

Note

When using the Commit boot command, all the temporary contents will be permanently written to the flash memory. In addition, all content accessed (and changes made) after running Commit, but before rebooting the system, will be written to the flash memory as well. This includes changes made during any number of login/logout sessions before the next reboot.

DOS Command-line Tool Boot Commands

The following table lists the EWF boot commands that are supported.

Boot Command	Description
All	Displays information about all protected volumes and performs a command, such as disable , enable , and commit , on each volume if specified.
Commit	Commits all current level data in the overlay to the protected volume, and resets the current overlay level to 1 upon shutdown.
Disable	Allows user to write to the image after the next reboot.
Enable	Prevents the user from writing to the image after the next reboot.
Commitanddisable	Combination of the Commit and Disable commands. This command will commit data in the overlay upon shutdown. Additionally, EWF will be disabled after the system reboots.

Note

When using the Commit boot command, all the temporary contents will be permanently written to the flash memory. In addition, all content accessed (and changes made) after running Commit, but before rebooting the system, will be written to the flash memory as well. This includes changes made during any number of login/logout sessions before the next reboot.

Using Boot Commands

To use the EWF manager boot commands, type the following syntax in a command prompt:
`EWFMGR <drive-letter> -[boot command].`

Note

Because the EWF manager commands are executed on the next boot, you must reboot the system for the command to take effect.

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