



Administrator Guide

HP Write Manager

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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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1 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. An overlay is a virtual storage space in RAM that tracks changes to a protected volume (that is, 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 temporarily disable the write filter.

 **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.

HP Write Manager allows you to exclude files from protection so that changes to them are always written directly to the flash drive.

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

- Ensure that the write filter is used properly for use cases similar to standard thin clients. Proper usage includes making sure the write filter is enabled during end-user (nonadministrator) 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.
- Use the purge feature to define rules to remove files from the overlay.

If your use case requires nonstandard write filter usage, please contact HP to ensure that your computers are configured properly.

HP Write Manager management overview










You can use two tools to manage HP Write Manager: a notification icon and a Control Panel app. Some commands can be performed using either of the tools, but other commands might be exclusive to one or the other.

Notification icon

The HP Write Manager notification icon 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 HPWF**—Enables HP Write Manager (requires a system restart)
- **Disable write filter**—Disables HP Write Manager (requires a system restart)

The following table describes the possible states of the HP Write Manager notification icon.

Icon	Description
	HP Write Manager is enabled, and no boot command is set.
	HP Write Manager will be disabled (requires a system restart).
	HP Write Manager is disabled, and no boot command is set.
	HP Write Manager will be enabled (requires a system restart).
	The memory usage of the HP Write Manager overlay cache has reached a warning level.
	The memory usage of the HP Write Manager overlay cache has reached a warning level, and HP Write Manager will be disabled (requires a system restart).
	The memory usage of the HP Write Manager overlay cache has reached a critical level.
	The memory usage of the HP Write Manager overlay cache has reached a critical level, and HP Write Manager will be disabled (requires a system restart).
	HP Write Manager is corrupted.

HP Write Manager Configuration

HP Write Manager Configuration is a Control Panel app for managing HP Write Manager. When used with a thin client operating system, HP Write Manager Configuration can also configure Enhanced Write Filter, File-Based Write Filter, and Unified Write Filter. To open this app:

- ▲ Double-click the notification icon.

– or –

In Control Panel, select **HP Write Manager Configuration**.

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

- Disable or enable HP Write Manager (requires a system restart)
- View information about HP Write Manager and the overlay cache
- Configure file and registry exclusion settings
- Enable or disable HP Disk Cache settings



NOTE: For more information about HP Disk Cache settings, go to [HP Disk Cache on page 8](#).

- Edit the exclusion list to add or remove files and folders (requires a system restart)
- Set the overlay cache size (requires a system restart)
- Set the cache usage in MB at which warning and critical messages each display

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
<ol style="list-style-type: none">1. Disable HP Write Manager (requires a system restart).2. Make the necessary configurations.3. Enable HP Write Manager (requires a system restart).	<ol style="list-style-type: none">1. Use the HP Write Manager Configuration app 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 tasks:

- [Disabling or enabling HP Write Manager on page 4](#)
- [Configuring a marker on page 4](#)
- [Adding a profile on page 5](#)
- [Adding files and folders to the file exclusion list on page 5](#)
- [Adding a registry key to the registry exclusion list on page 6](#)

Disabling or enabling HP Write Manager


The following table describes the possible methods for disabling or enabling HP Write Manager.

Method 1	Method 2
<ol style="list-style-type: none">1. Right-click the notification icon and select the desired state.2. Restart the thin client.	<ol style="list-style-type: none">1. Open the HP Write Manager Configuration app.2. Select an option to set the desired state.3. Restart the thin client.

TIP: Method 1 is the quickest way to disable or enable HP Write Manager.

Configuring a marker

Markers can be used to trigger a purge, which removes files from the overlay.

 **NOTE:** The event is triggered when the available overlay size is equal to or more than the specified marker size.

When the Warning marker is reached, a warning message is displayed. When the Critical marker is reached, a countdown to a Windows restart is displayed.

To configure the markers:

1. Open the HP Write Manager Configuration app, and select **More Settings**.
2. In the **Markers** tab, set the size (in MB) of the **Monitoring**, **Warning**, and **Critical** markers.
3. Select **OK**.
4. Restart the thin client.

Adding a profile

A profile is a set of file exclusions, registry exclusions, and options to purge files to ensure that there is available space in the overlay.


To add a profile:

1. Open the HP Write Manager Configuration app, and select **More Settings**.
2. In the **Profiles** tab, select **Add**.
3. Enter a name in the **Profile name** box.
4. In the **File Exclusion** tab, select the **Add folder** button or the **Add file** button to add an item to the exclusion list. Repeat as necessary.
5. In the **Registry Exclusion** tab, select the **Add** button to add an item to the exclusion list. Repeat as necessary.
6. In the **Purge on Marker** tab, select the **Add** button to add an item to be purged when a marker is reached. Repeat as necessary.
7. In the window that opens, do the following:
 - a. Enter the path to the file to be purged in the **File path** box.
 - b. Under **Start On**, select which marker determines when HP Write Manager starts to purge the files.
 - c. Under **Stop On**, select which marker must be reached to stop the purge.
 - d. Optionally, select the **Application path** to specify which application starts a purge when closed.
 - e. Select **OK**.
8. In the **Purge on App Exit** tab, select the **Add** button to add an item to be purged when an app is closed. Repeat as necessary.
9. In the window that opens, enter the **File path** for the file to be purged, select the **Application path** for application that starts a purge when closed, and then select **OK**.
10. In the **Purge Exclusion** tab, select the **Add** button to add an item to excluded from a purge. Repeat as necessary.
11. In the window that opens, enter the **File path**, and then select **OK**.
12. Select **OK**.
13. Restart the thin client.

To enable or disable an existing profile, select the desired state next to the **Profile name**.

To edit an existing profile, select the **Edit** icon.

Adding files and folders to the file exclusion list

 **CAUTION:** Changes to items in the exclusion list are always written directly to the flash drive, so keep the exclusion list to a minimum.

1. Open the HP Write Manager Configuration app, and select **More Settings**.
2. On the **File Exclusion** tab, select the **Add folder** button or the **Add file** button to add an item to the exclusion list. Repeat as necessary.




NOTE: Items can be removed from the exclusion list using the **Delete** button.

3. Select **OK**.
4. Restart the thin client.

The following table describes the highlight colors used for the exclusion list in the HP Write Manager Configuration app.

Color	Description
None	The item is excluded.
Green	The item will be added to the exclusion list (requires a system restart).
Red	The item will be removed from the exclusion list (requires a system restart).

Adding a registry key to the registry exclusion list

 **CAUTION:** Changes to items in the exclusion list are always written directly to the flash drive, so keep the exclusion list to a minimum.

1. Open the HP Write Manager Configuration app, and select **More Settings**.
2. In the **Registry Exclusion** tab, select the **Add** button to add an item to the exclusion list. Repeat as necessary.



NOTE: Items can be removed from the exclusion list using the **Delete** button.

3. Select **OK**.
4. Restart the thin client.

The following table describes the highlight colors used for the exclusion list in the HP Write Manager Configuration app.

Color	Description
None	The item is excluded.
Green	The item will be added to the exclusion list (requires a system restart).
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Tips and limitations

Use the following tips for optimal performance of HP Write Manager.

- Do not add the disk C root directory (that is, C:\) to a file path in the file exclusion list.
- The following characters cannot be used in the file path for the file exclusion list:
~!@#\$\$%^&*()_+ = - ` [] ; , . / { } | : " < > ? "
 - If there is a space in the file path of a key to be added to a registry exclusion list, be sure to enclose the path in straight quotes (that is, ").
 - HKEY_LOCAL_MACHINE\HARDWARE cannot be added to the registry exclusion list.

- If you are adding registry keys to the registry exclusion list, HP Write Manager can translate some input to the proper form, such as - HKLM to \REGISTRY\MACHINE. If you are using WMI, the explicit name of the registry key must be used.
- The wildcard * is allowed in registry paths and represents any folder or no folder in the previous directory element in the path. It can only represent a single directory element.
- If the overlay cache reaches a critical level, the system might become unstable. You can change the critical level setting or create a profile to help limit the size of the cache by purging unnecessary files.

 **TIP:** If the Start menu is not responding properly, use Ctrl+Alt+Delete to restart the computer.

- If you switch between HP Write Manager and Unified Write Filter or File-Based Write Filter on a computer with an HP thin client image, the RAM drive is enabled. You can manually disable the RAM drive, if necessary.
- You must disable the write filter (which requires a system restart) before switching to a different write filter.
- If you enable the write filter and then enable Global Bypass Mode, the only created registry keys that persist are those created after Global Bypass Mode is enabled. If you rename a registry key created when only the write filter was enabled, it does not persist. You must create it again.

2 HP Disk Cache

HP Disk Cache consolidates the write requests from the operating system to reduce the number of writes made to the flash drive. This extends the usable life of the flash drive.

To enable HP Disk Cache:

1. In the HP Write Manager Configuration app, select **Advanced Cache Settings**.
2. Set **HP Disk Cache** to **On**.
3. Enter the desired values for the **Cache size**, **Flush count**, and **Flush interval**.

– or –

Select **Reset to Defaults**.



NOTE: HP has optimized these settings to provide the maximum benefit in terms of system performance and disk longevity.

- **Flush count**—Sets the number of disk write requests from the operating system to be consolidated by HP Disk Cache before completing the requests (unless the flush interval is reached first). This reduces the number of writes to the flash drive, but it might cause issues if a sudden power loss occurs when a high number of requests have been stored.
- **Flush interval**—Sets the amount of time during which HP Disk Cache consolidates disk write requests from the operating system before completing the requests (unless the flush count is reached first). This reduces the number of writes to the flash drive, but it might cause issues if a sudden power loss occurs when a high number of requests have been stored.