

Instructions for the EWF and UWF

Write protection for Windows

Windows XP, Windows 7 and Windows 8 embedded operating systems are delivered by default with EWF protection. This so-called Enhanced Write Filter prevents write accesses to a protected drive (SSD/HDD) and therefore unintentional system changes (blues screens, viruses, user errors, etc.). In Windows 10 IoT the name has changed to UWF Unified Write Filter.

- The "C" system partition is EWF/UWF protected by default
- The "D" data partition is not EWF/UWF protected by default
- Advantage: clean, fast system without viruses and blue screens

THE EWF FILTER

On the desktop of your touch panel you will find three icons for the Enhanced Write Filter control.



"C Filter Status": „double – click“

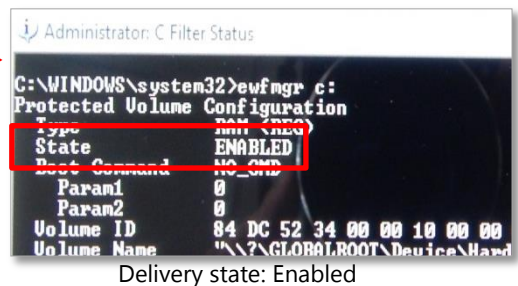
View information about the EWF drive

"C Filter On":

Write protection for partition C:
Turn on, effective only after restarting the touch panel

"Filter Off":

Write protection for partition C:
Turn off, changes are immediately accepted



Instructions for the EWF and UWF

Write protection for Windows

THE UWF FILTER OVERVIEW

On the desktop of your touch panel with Windows 10 IoT you will find four icons for the Unified Write Filter control.



“C Filter state”: „double – click” →

View information about the UWF drive

```
Administrator: C Filter state
C:\Windows\system32\uwfmgrr get-config
Unified Write Filter Configuration Utility version 10.0.14393
Copyright (C) Microsoft Corporation. All rights reserved.

Current Session Settings

FILTER_SETTINGS
Filter state: ON
Pending commit: N/A
Shutdown pending:No
```

“C Filter on”:

Write protection for partition C:
Turn on, effective only after restarting the touch panel

Delivery state: On

“Filter off”:

Write protection for partition C:
Turn off, effective only after restarting the touch panel

“Filter availablespace”:

Show how much space is available for writes to partition C:

```
Administrator: C Filter availablespace
C:\Windows\system32\uwfmgrr overlay get-availablespace
Unified Write Filter Configuration Utility version 10.0.14393
Copyright (C) Microsoft Corporation. All rights reserved.

The overlay has 1447 MB available space.
```

Instructions for the EWF and UWF

Write protection for Windows

THE UWF FILTER SETTINGS

UWF interrupts all write attempts to a protected volume and redirects it to a virtual overlay. After a reboot of the system all changes made to the protected partition are lost. The overlay is actually stored in RAM. But it can be also configure to store the overlay on disc.

The size of the overlay and type is shown when you double click on **C Filter state**.

```
OVERLAY SETTINGS
Type:                RAM
Maximum size:       1536 MB
Warning Threshold: 1400 MB
Critical Threshold: 1500 MB
```

When the warning threshold or critical threshold is reached an event log is written in the Windows logs.

If you want to exclude files, folders or registry keys from being filtered, it can be added to an exclusion list. With following commands:

```
uwfmgr file add-exclusion file path
uwfmgr registry add-exclusion registry key
```

Actually the winevt folder to save Windows logs and the timezone registry keys to allow daylight saving time changes are in the exclusion list.

It is displayed when you double click on **C Filter state**.

```
File Exclusions:
Current Session Exclusions for Volume ad50ba1f-3846-4ae9-9eb6-c75c7fac9038 [C:]
C:\Windows\System32\winevt

REGISTRY EXCLUSIONS
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Time Zones
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\TimeZoneInformation
```

Attention writes to the excluded files and folders will also decrease the available overlay space.

Instructions for the EWF and UWF

Write protection for Windows

USEFUL UWF LINKS

Unified Write Filter (UWF) feature

[https://msdn.microsoft.com/de-de/library/windows/hardware/mt572001\(v=vs.85\).aspx](https://msdn.microsoft.com/de-de/library/windows/hardware/mt572001(v=vs.85).aspx)

Overlay for Unified Write Filter (UWF)

[https://msdn.microsoft.com/de-de/library/windows/hardware/mt571992\(v=vs.85\).aspx](https://msdn.microsoft.com/de-de/library/windows/hardware/mt571992(v=vs.85).aspx)

Overview and Explanation over all UWF commands

[https://msdn.microsoft.com/de-de/library/windows/hardware/mt572002\(v=vs.85\).aspx](https://msdn.microsoft.com/de-de/library/windows/hardware/mt572002(v=vs.85).aspx)

To allow Windows Defender Updates you can follow these instructions:

[https://msdn.microsoft.com/de-de/library/windows/hardware/mt571986\(v=vs.85\).aspx](https://msdn.microsoft.com/de-de/library/windows/hardware/mt571986(v=vs.85).aspx)

DISCLAIMER

Technical data are subject to modification and delivery subject to availability. Any liability that the data and illustrations are complete, actual or correct is excluded. Designations may be trademarks and/or copyrights of the respective manufacturer, the use of which by third parties for their own purposes may infringe the rights of such owner.



CHRIST ELECTRONIC SYSTEMS GMBH

MANUFACTURE OF INDUSTRIAL ELECTRONICS

CONTACT

Christ Electronic Systems GmbH
Alpenstraße 34
87700 Memmingen
Phone: +49 8331/ 83710
www.christ-es.de

FROM IDEAS TO REALITY

We are a German developer and manufacture of innovative HMI-systems for demanding industrial applications. Christ offers an extensive range of

TOUCH PANEL PCs	x86 & ARM
TOUCH MONITORS	7" – 24"
SINGLE BOARD COMPUTER	Windows & Linux
VISUALISATION SYSTEMS	HMI & SCADA