
Windows® 10 IoT Enterprise LTSB 2016

Setup procedures manual

CONTEC CO., LTD.

Introduction

You can use a product, when it has agreed with the contents of "Windows license licensing (MICROSOFT SOFTWARE LICENSE TERM)" of product attachment.

This manual explains the setup of Windows which you do after unsealing of a product.

Explaining the following OS setup procedures.

✓ Windows 10 IoT Enterprise LTSB 2016

The setup of Windows

The setup of Windows is performed interactively.



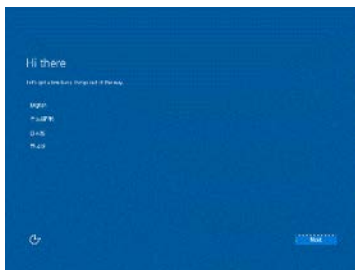
CAUTION

- The screen change under setup operations may take time for a while. This is because various setup is processed inside a personal computer. May be set up in the status that nothing is displayed on a screen. Please do not do operation of a keyboard and a mouse, or power off operation.
 - Please do not turn off the power supply of a personal computer during setup work. If the power supply of a personal computer is turned off before completing a setup, becoming a cause which a Windows system damages.
 - CFast mounted in OS pre-installation model is formatting in GPT form. And, OS area is formatted by NTFS.
 - The display driver, the LAN driver, the audio driver, etc. are already incorporated. However, since a network setup is needed separately, please consult with the system administrator of a connection place network.
 - The company name and product name which we are using in this manual are the trademark or registered trademark of each company.
-

Checking that the keyboard, the mouse, and the display are connected. Please do not connect other devices until a Windows setup is completed. If connection is completed for apparatus, please turn on the power supply of a display and the main part of PC.

Please wait for a while until the setup of Windows starts.
After starting sets up based on instructions of a display screen.

1.

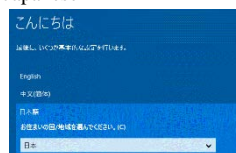


The language choice screen of Windows begins.
Select the language to be used.
A screen changes to the selected language.

English



Japanese

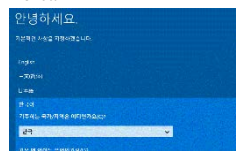


OS to supply is supporting four languages of English, Japanese Chinese (simplified characters) and Korean. You opt for the language to be used by the language choice at the time of a Windows setup. Change of the language to be used does OS recovery and sets it up by a language choice anew.

Chinese

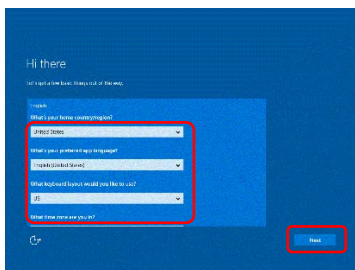


Korean



* The example which selected English explains a step.

2.

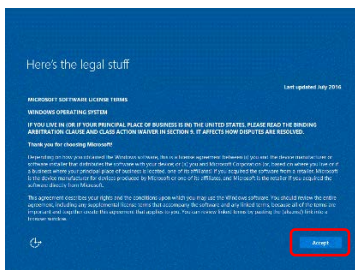


Please select the zone, a language, etc. to be used.
And, Click **Next**

* The default of a time zone has set UTC as Japan.

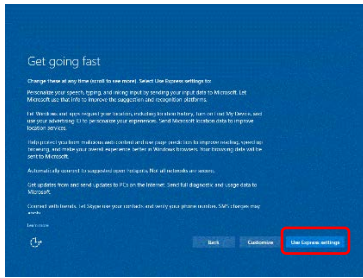


3.



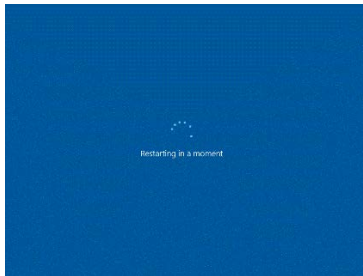
It is a document about a license.
Click **Accept**

4.



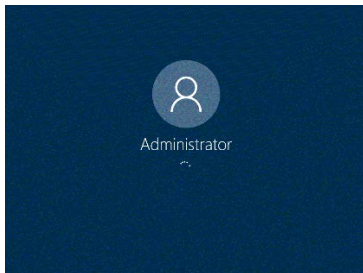
It is a setup about operation of OS.
Click Use Express setting

5.



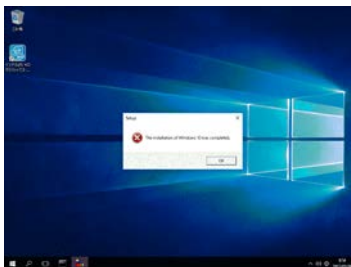
"Restarting in a moment" displays, and some reboots are done.

6.

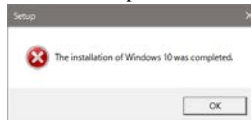


PC log in automatically by "User name: Administrator, Password: Administrator".

7.



Completion of a setup of Windows will display the following messages.
Please do no operations till then.



*In order to do a network set after a desktop wake-up, the command prompt operates and a reboot is done about some times.
Setting up takes about some minutes.

CAUTION

- It is not necessary to input a Windows product key with this product.
 - Activation is carried out when activation of a license of Windows is connected to the Internet. Even if it does not activate a license, the function restriction of OS does not occur.
-

Factory setting of Windows 10 IoT Enterprise LTSB 2016

Communication port layout

In a “Windows 10 IoT Enterprise LTSB 2016” pre-installation model, the notation and OS recognition state of the main part of PC become the following.

LAN connector	LAN of OS “Windows 10 IoT Enterprise LTSB 2016”
A	Ethernet
B	Ethernet 2

Serial connector	Serial of OS “Windows 10 IoT Enterprise LTSB 2016”
A	COM1
B	COM2

About a page file

Virtual memory

A paging file is an area on the hard disk that Windows uses as if it were RAM.

Total paging file size for all drives: 0 MB

Change...

The size of the page file which you use by virtual memory is set as zero by factory setting.

About a system failure

System failure

☐ Write an event to the system log

☒ Automatically restart

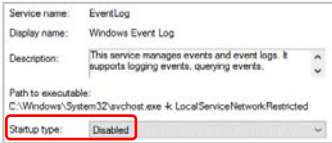
Write debugging information

(none) ▾

Factory setting is "Automatically restart" and “do not write debugging information” when a system failure occurs.

About Event Log service

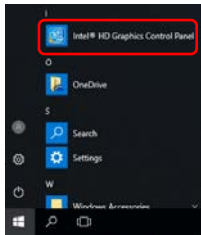
Event Log Service setup of factory setting is invalid.



You become the following procedures when making service start up.

1. Start [Windows Start] - [Control Panel] - [System and Security] - [Administrative tool] - [Service].
2. Double-click "Windows Event Log."
3. Change "the kind of start-up" into "Automatic" from "Disable", and reboot OS.

Screen setup



Other than using standard "resolution of screen" setting tool for Windows, you use the maker tool pre-installed in OS.

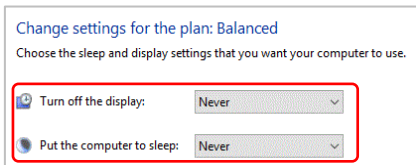
The starting method of a maker graphic tool becomes below.

Start [Windows Start] - [Intel® HD Graphics Control Panel].

Or operate the [Intel® HD Graphics Control Panel] on Desktop and set up.

Power supply option setup

A power supply setup has set up a factory setup by "Turn off the display: Never" and "Put the computer to sleep: Never", even if a definite period of time passes.



User name and Password

The factory setting of login is automatic logon. Setup of a user name and a password is the following contents.

User name: Administrator
Password: Administrator

Notes on using Windows 10 IoT Enterprise LTSB 2016 preinstalled model

About add-on protocols and services after purchasing

Windows 10 IoT Enterprise LTSB 2016 is Embedded OS.

In essence, the OS has been built up by customizing a standard system to meet customers' requirements for system configuration, services, devices, and various properties.

A preinstalled-model Windows 10 IoT Enterprise LTSB 2016, however, has not necessarily been customized to completely meet a customer's system requirements. Rather the OS is usually customized and built up on the basis of predefined system configuration. In addition, Windows 10 IoT Enterprise LTSB 2016 does not come with Windows 10 DVD-ROM under the given license agreement.

For the reasons described above, addition new of network services or protocols that require Windows 10 installation DVD-ROM is not allowed after purchasing preinstalled Windows 10 IoT Enterprise LTSB 2016.

Q1 What are the functions that are not included in this model?

A1 Examples of the functions that are not included is as follows

- Windows system application
 - Microsoft Edge, Store, Cortana
 - Defrag, System Restore
- Windows universal application
 - Mail, Calendar, OneNote, Weather, News
 - Sports, Money, Photos, Camera, Music, etc...

The HORM function currently supported by old Embedded system Windows is not supported by Windows 10 IoT Enterprise LTSB 2016.

And, OS license which I use by this model is an object for Embedded. Please prepare another development machine for application development.

However, addition of customers' applications and I/F board device drivers is allowed because such cases do not require Windows 10 installation DVD-ROM.

Q2 Is installation of additional printer driver allowed?

A2 Yes, it is allowed.

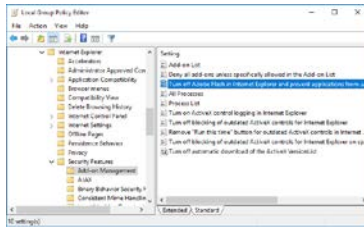
However, the printer driver is not included. Please install using the driver which a printer maker prepares.

In addition, modification of properties is also allowed to meet requirements of a customer's environment.

About Adobe Flash Player

Factory setting, Adobe Flash Player is making it the set which cannot be used.

When used, please be licensed from the partner of Adobe or Adobe Systems Incorporated.



You make a group policy set change which is after licence acceptance.

Start [User Configuration] - [Administrative Templates] - [Windows Components] - [Internet Explorer] - [Security Features] - [[Add-on Management](#)].

You change a Disabled set of [Turn off Adobe Flash in Internet Explorer and prevent applications...] into Not Configured.

About a Windows Update function

In Windows 10 IoT Enterprise LTSB 2016, an update program (QFE) is installable from service of updating and security.



Update & security
Windows Update, recovery,
backup

About a Unified Write Filter function

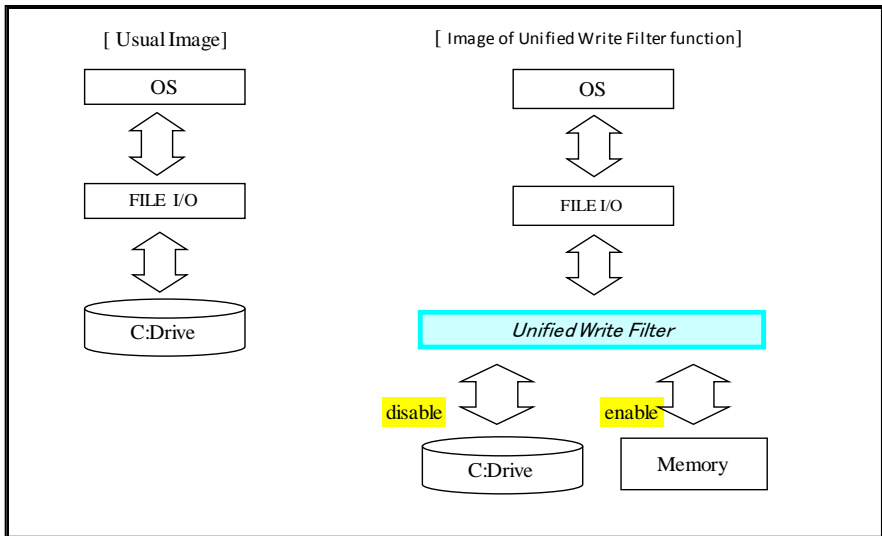
Unified Write Filter function (referred to as “UWF” in this document) is the new filtering which combined EWF, FBWF, and Registry filter.

UWF has deterred the write to DISK by redirecting the write to DISK from operating system or application to overlay.

- If the power is turned off without performing a shutdown process, the data being written is not ensured on drives that do not enable the UWF.
- Because all data written onto drives with the enabled UWF is filtered, the disk does not save any applications or device drivers installed or property settings modified after startup of OS.
In addition, a shutdown process does not write the on-memory data back to disk. Upon the next startup process, the system is started up under the status without any additions or modifications.
- All Data information is lost when you shut down or restart the target computer.

When UWF is effective


By controlling the write to a drive, UWF can prolong the lifetime of a drive.



■About operation

- CONTEC Manager (CONTECManager.exe)

The GUI application of our supply is pre-installed.

I can perform a set varying of the UWF facility simply from the property menu of the “” icon registered into the task tray. And, you can also start application in the following process. Please confirm a help file about other facilities.

Execute [Windows Start] - [CONTEC] - [CONTEC Manager]

Supplementary information

The color of an icon changes according to the set status of the UWF function.



: "Red markup" UWF function is invalid. (factory default)



: "Blue markup" UWF function is effective.

- UWF manager (uwfmgr.exe)

The console application of the Microsoft Corporation supply is installed.

Input and operate command "uwfmgr" to a command prompt (Admin).

- Checking the present status. "uwfmgr get-config"

```
Administrator: Command Prompt

C:\Users\Administrator>uwfmgr 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:  OFF
  Pending commit:  N/A
  Shutdown pending:No
```

- Setting the drive which sets up a filter protect. "uwfmgr volume protect c:"

```
Administrator: Command Prompt

C:\Users\Administrator>uwfmgr volume protect c:
Unified Write Filter Configuration Utility version 10.0.14393
Copyright (C) Microsoft Corporation. All rights reserved.

The volume c: will be protected by Unified Write Filter after UWF is enabled.
```

- Setting the UWF function to a protect drive effectively. "uwfmgr filter enable"

```
Administrator: Command Prompt

C:\Users\Administrator>uwfmgr filter enable
Unified Write Filter Configuration Utility version 10.0.14393
Copyright (C) Microsoft Corporation. All rights reserved.

Unified Write Filter will be enabled after system restart.
```

After reboot, the UWF function is applied to C drive of a system.

```

Administrator: Command Prompt

C:\Users\Administrator>uwfmgr 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

SERVICING SETTINGS
Servicing State: OFF

OVERLAY SETTINGS
Type: RAM
Maximum size: 1024 MB
Warning Threshold: 512 MB
Critical Threshold: 1024 MB

VOLUME SETTINGS
Volume 25a45996-fc55-4504-9abb-aa7c1e09fcf6 [C:]
Volume state: Protected
Volume ID: 25a45996-fc55-4504-9abb-aa7c1e09fcf6
  
```

Item	Display	Meaning
Volume state	Protected	Effective Volume Protect
	Un-protected	Invalid Volume Protect
Filter state	ON	Enabling the UWF
	OFF	Disabling the UWF

The UWF function works by “Volume state: Protected” and “Filter state: ON” set.

Usage:

- | | | |
|-------------------------------------------------|-----------------------------|-----------------|
| Assign the drive to protect. | >uwfmgr volume protect c: | □shows a space. |
| Make UWF functional ON at the protected drive. | >uwfmgr filter enable | |
| Make UWF functional OFF at the protected drive. | >uwfmgr filter disable | |
| Remove a specification of the drive to protect. | >uwfmgr volume unprotect c: | |
| Checking the present status. | >uwfmgr get-config | |

Common usage (setting the UWF function to C drive)

1. uwfmgr volume protect c:
2. uwfmgr filter enable
3. After PC reboot, a set becomes effective.

A set of an assign reset (volume unprotect) of the drive to protect is unnecessary.
By doing “filter enable” or “filter disable” set, I can set a UWF function to the protected drive. A set becomes effective after a reboot.

■Note

UWF of this model is not suitable for all configurations.

In particular, it is unsuitable for "the configuration which a lot of write requests generate from operating system or application to protected DISK." Under such an environment, the reboot of Windows is frequently needed.

The content explains at the following becomes a limitation in the specification of the UWF function in Windows 10 IoT Enterprise LTSC 2016, and use it, please after it understands enough.

1. Removable medias (USB memory etc.) cannot be set as the UWF candidate.
2. It cannot move to the fill area of the folder of protect exclusion, and the candidate of protect of a file. When a "Recycle Bin" is an object for protect, an Explorer serves as an error by delete in order to once move an object file to "Recycle Bin". In this case, do the delete which does not go via "Recycle Bin" using Shift+Del.
3. The function of File Exclusion and Registry Exclusion is available only in a FAT/NTFS volume. Volumes, such as exFAT, can be protected at UWF. However, the function of protect exclusion cannot be used.
4. UWF is supporting NTFS. However, since the journal file of NTFS is recorded until a services of UWF begins, the write to DISK occurs in a during starting.
5. UWF cannot protect a Hidden partition.
6. If UWF is set to Enable and started first, a set of the Windows function of some for the performance improvement of UWF will be changed.
Check the technical information of a link place below for details.

Please refer to the Microsoft technical information for details about UWF.

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

7. In early stages, a UWF overlay region serves as maximum size of 1024 MB.
8. The present operating condition of a UWF overlay region can be checked by the following command.
`>uwfmgr.exe overlay get-consumption`

Systems operation is required so that a UWF overlay region may not be made drained to maximum size. Since not only the application software to be used but a Windows operation is affected, it is necessary to do a Windows reboot in accordance with a system intended use, and to release a UWF overlay region.

The following measures are effective though there are no complete measures.

- ☐ It writes and it doesn't write it in the protected volume.
- ☐ When writing in a log file, you change into another volume by which a write protection is not made.
(Another drive: USB memory and network storage, etc)

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