
Windows® 10 IoT Enterprise LTSB 2016

Setup procedures manual

CONTEC CO., LTD.

Introduction

This product can be used, provided that a user agrees with the contents of "MICROSOFT SOFTWARE LICENSE TERMS" that is attached to the product.

This manual describes the setup procedure that a user needs to perform after unpacking CPS-BXC200 Series with a pre-installed operation system, and precautions in using Windows 10 IoT Enterprise LTSB 2016.

The setup of Windows

The setup of Windows is performed interactively. Follow the instructions on the display.

CAUTION

- The screen change during the setup operation may take time for a while. This is because various setups are processed inside a personal computer. The setup state might not appear on the screen so that please do not perform any operations of a keyboard and a mouse, or turn off the power.
 - Do not turn off the power of the personal computer during the setup operation. Turning off the computer power before completing the setup will result in Windows system damages.
 - M.2 card mounted in OS pre-installation model is formatting in GPT form. And, OS area is formatted by NTFS.
 - The display driver, the LAN 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.
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Check that the monitor, the keyboard and the mouse are connected with the controller. Do not connect other devices until a Windows setup is completed. After confirming the connections, turn on the controller power.

Please wait for the Windows setup starts.
Follow the instructions on the display after start-up.

1.



The language choice for Windows appears on the display. Select the language. Display language changes to the selected one.

English



Japanese

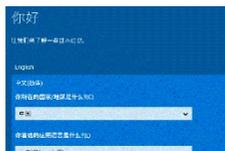


Supplied OS supports four languages of English, Japanese Chinese, (simplified characters) and Korean.

Display language is decided by the choice of language at the time of a Windows setup.

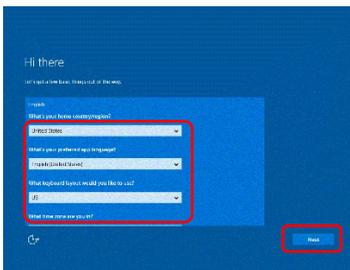
To change the language, perform OS recovery and select (change) the language anew.

Chinese



* The example which selected English explains a step.

2.



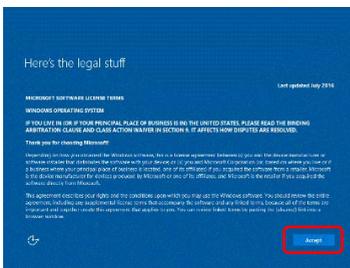
Select your home country/region, language, etc. to be displayed.

And, Click the

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



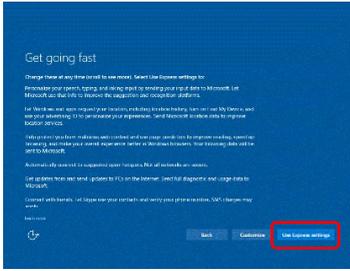
3.



It is a document about a license.

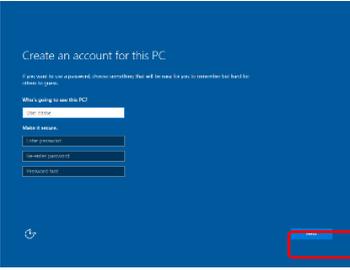
Click the

4.



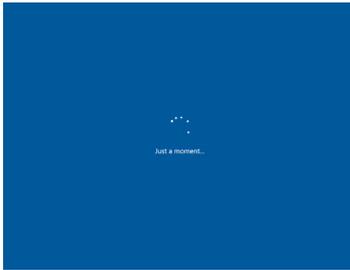
It is a setup regarding OS operation.
Click the **Use Express setting**

5.



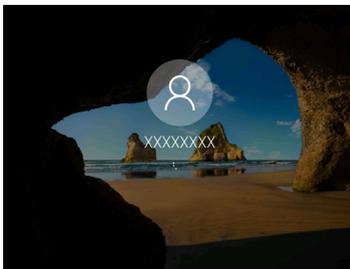
"Restarting in a moment" appears on the screen.
Then, the display of creating account can be viewed.
Enter the account name to be used.
When a password is omitted, an automatic logon can be made by the created account.
Click the **Next**

6.



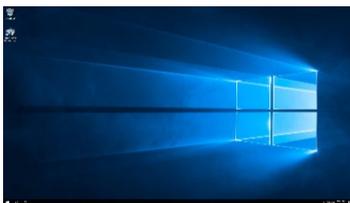
"Just a moment" appears on the screen, and restarting repeats a few times.

7.



When a password setting is skipped, an automatic logon can be made by the created account (user name).

8.



The desktop screen appears after the Windows setup has been completed.

⚠ CAUTION

- It is not necessary to enter a Windows product key into this product.
 - If you do not connect the controller to the Internet at all, activating Windows (license authorization) is unnecessary.
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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 controller are listed below.

LAN connector	LAN of OS “Windows 10 IoT Enterprise LTSB 2016”
A	Ethernet
B	Ethernet 2
C	Ethernet 3

(Note)

Name recognition of LAN is set in accordance with the language selected at the initial Windows setup. Above are the name recognition of LAN as in the case of the initial Windows setup in English. When the display language is changed on Windows, the name recognition cannot be switched automatically. If you wish to display the name recognition in accordance with the selected language, switching should be done manually.

Serial connector	Serial of OS “Windows 10 IoT Enterprise LTSB 2016”
Front of main unit	COM1

Display Setting

Screen resolution in the initial setting relies on the recommended resolution of the connected display.

Other than using "Display Settings" of Windows standard, use the dedicated graphic tool by the maker of the OS pre-installed. Start-up procedure of the graphic tool by the maker is described below.

Click the [Control Panel] – the [All Control Panel Items] – the [Intel® Graphics Settings] to activate [Intel® HD Graphics Control Panel] for setup.

Power Option Setting

Power and sleep button settings are as follows.

When I press the power button: Shut down

Press I press the sleep button: Do nothing



Notes on using Windows 10 IoT Enterprise LTSC 2016 preinstalled model

About add-on protocols and services after purchasing

Windows 10 IoT Enterprise LTSC 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 LTSC 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 LTSC 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 LTSC 2016.

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

A1 Examples of the functions not included are listed below. These functions cannot be added with Windows 10 IoT Enterprise LTSC 2016 specifications.

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

And, please prepare a separate 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 it all right to install the printer driver additionally?

A2 Yes.

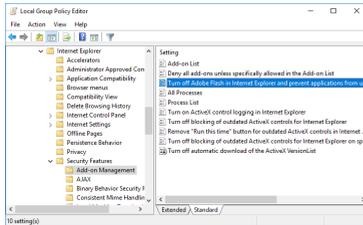
However, since this model does not include the printer driver, install the driver which a printer maker offers.

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

About Adobe Flash Player

Adobe Flash Player is disabled by default.

You may require a license from Adobe Systems Incorporated or the partner of Adobe to use the service.



After receiving the license, change a setting of group policy. Start [User Configuration] - [Administrative Templates] - [Windows Components] - [Internet Explorer] - [Security Features] - [Add-on Management].

Change Enabled state of [Turn off Adobe Flash in Internet Explorer and prevent applications...] into Not Configured.

About a Windows Update function



Update & security

Windows Update, recovery,
backup

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

About a Unified Write Filter function

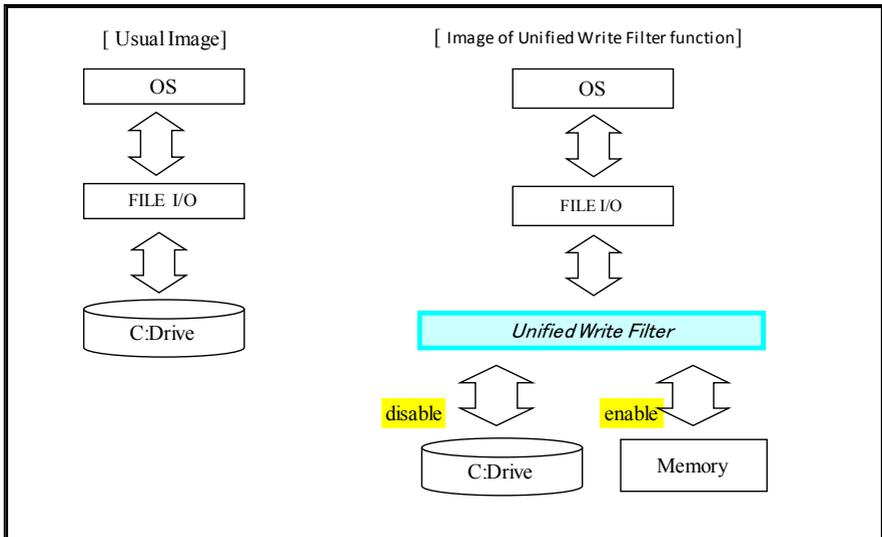
Unified Write Filter function (referred to as “UWF” in this document) is the new filtering which combined EWF, FBWF, and Registry filter.

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.

A setting of the UWF function can be simply changed from the property menu of the “” icon registered in the task tray. Moreover, the application can be started as described below. Please refer to Help File regarding other functions.

Execute [Windows Start] - [CONTEC] - [CONTECManager]

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.

Enter the command "uwfmgr" to a command prompt (Administrator) to operate.

Procedure to make C drive write protected:

□ shows a space.

Setting the drive which sets up a filter protect.

Setting the UWF function to a protect drive effectively.

Restart

After reboot, confirm setting state.

> **uwfmgr volume protect c:**

> **uwfmgr filter enable**

> **uwfmgr filter restart**

> **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: 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

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, restarting Windows is frequently needed.

The following describes a limitation for the specification of the UWF function in Windows 10 IoT Enterprise LTSC 2016. Understand it completely for implementation.

1. Removable medias (USB memory etc.) cannot be set as the UWF candidate.
2. Folders or files that are excluded from protection cannot be moved into the protection area.
If a "Recycle Bin" is an object for protection, it becomes as a deleting error since Explorer once moves the file to "Recycle Bin". In this case, delete the object without going through "Recycle Bin" by using Shift+Del keys on the keyboard.
3. The function of File Exclusion and Registry Exclusion are available only in a FAT/NTFS volume. Volumes, such as exFAT, can be protected by UWF. However, the function of protect exclusion cannot be used.

4. UWF supports NTFS. However, since the journal file of NTFS is recorded until a services of UWF begins, writing to DISK occurs upon starting up.
5. UWF cannot protect a Hidden partition.
6. If UWF is set to Enabled and starts up, some functions in Windows are changed for the performance improvement of UWF.
Check the technical information for details from the link listed below.

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.
>uwfmggr.exe overlay get-consumption

Systems operation is required so that a UWF overlay region may not be used to maximum size. As the application software used by a user or Windows operation can be affected, it is necessary to restart Windows in accordance with a system application, and to release a UWF overlay region.

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

- Avoid writing in the protected volume as much as possible.
- When writing in a log file, change to other volume that are excluded from protection write.
(Drives: USB memory and network storage, etc.)

About McAfee Security for CONTEC

McAfee's whitelist security software is installed in this product. Register only applications that may be activated in the list and control application launch based on that list. In the general blacklist method, definition files increase over time, whilst with the whitelist method, you can operate without increasing the number of lists or updating the definition file.

About the command

It is used at the command prompt (administrator).

1. Confirm system protection status

When confirming the state of the operation mode (Enable / Disable / Update / Observe) and the state of the whitelist, confirm with the following command:

sadmin status

2. Create a whitelist

It is also possible to register specific volumes individually in the whitelist. For example, to register all program files on volume C to the whitelist, use the following command:

sadmin so c:

- "so" is an abbreviation of "solidify"

- When "c:" is omitted, the entire system is targeted.

3. Enable system protection

Just by registering a file on the system in the whitelist, it is not yet valid, so activate it using the following command.

sadmin enable

- It is enabled by the service restart (McAfee Solidifier Service), but the memory protection function will be effective after restarting the system.

4. Disable system protection

To disable it, use the following command.

sadmin disable

- Disable is actually effective after restarting the system.

5. Manual update start (Update mode)

Enter the Update mode from the Enable mode with the following command.

sadmin bu

6. Manual update end (Update mode)

The following command returns from the Update mode to the Enable mode.

sadmin eu

For details of how to use, please refer to the PDF file in the "Manual" folder of the recovery media (Disc 1 of 2) attached to the product.

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CONTEC CO., LTD.

3-9-31, Himesato, Nishiyodogawa-ku, Osaka 555-0025, Japan

<https://www.contec.com/>

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