

Manual for OS Pre-installed Type

(Windows 10 IoT Enterprise 2019 LTSC)

19 inch rack mount type Solution-ePC series

MR4100

CONTENTS	
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Introduction.....	4
Notes Regarding Use.....	10
Setup procedures.....	16
System Information	21
Power Failure Protection.....	42
Recovery Method	46
Customer Support and Inquiry.....	53

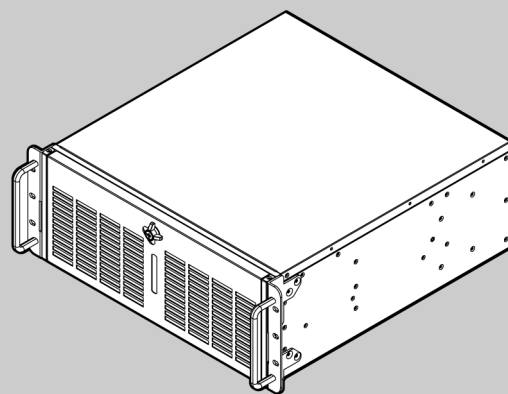


Table of Contents

Introduction 4

- 1. About the Product.....5
- 2. Related Manuals.....6
- 3. Manual composition7
- 4. CONTEC Software License.....8

Notes Regarding Use..... 10

- 1. Safety Information..... 11
- 2. Handling Precautions..... 12
- 3. About Unified Write Filter 13
- 4. Security Warning..... 15
 - 1. Information security risks..... 15
 - 2. Security measures – e.g..... 15

Setup procedures..... 16

- 1. Windows setup..... 17

System Information..... 21

- 1. Basic Information..... 22
- 2. Storage and Partition Configuration..... 23
- 3. Programs and Features 24
 - 1. Installed software..... 24
 - 2. Installed updates..... 24
 - 3. Enable or disable Windows functions..... 25
 - 4. UWF settings..... 27
- 4. Set to factory default values..... 30
 - 1. Panel..... 30
 - 2. Ethernet settings 31
 - 3. Optional power settings..... 33
- 5. Changing the language..... 34
- 6. Windows Update 38
- 7. CONTEC Solution Manager 39
 - 1. Overview..... 39
 - 2. How to start..... 39
 - 3. Properties screen..... 40
 - 4. UWF settings..... 41

Power Failure Protection 42

- 1. About Power Failure Protection..... 43
 - 1. When the Power Failure Protection is used..... 43

Table of Contents

2. When the Power Failure Protection is not used.....	44
---	----

Recovery Method 46

1. Preparations.....	47
2. Procedure	48
1. BIOS settings.....	48
2. OS installation	51
3. Start OS.....	52

Customer Support and Inquiry 53

1. Services.....	54
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Introduction

This will inform you of the information you need to know before using this product, such as an overview of the OS equipped with the preinstalled type, the overall configuration of this manual, the various manuals associated with this product, and so on.

1.About the Product

Windows 10 IoT Enterprise 2019 LTSC, equipped with the preinstalled type, is the OS for embedded applications. CONTEC's preinstalled types perform customization to build the OS based on a configuration determined in advance.

In this manual you will find basic information on the installed OS, as well as explanations of setup procedures and recovery procedures.

CAUTION

There are functional differences between Windows 10 IoT Enterprise 2019 LTSC and other Windows 10 versions.

Below are the main functions present in other Windows 10 versions but not in Windows 10 IoT Enterprise 2019 LTSC.

- System applications
Store, Cortana
 - Universal applications
E-mail, Calendar, OneNote, Weather, News, Sports, etc.
-

2.Related Manuals

The manuals related to the product are listed below.

Read them as necessary along with this document.

◆ Must Read the Followings.

Name	Purpose	Contents	How to get
Product Guide	Must read this after opening the package.	This lists the product configuration and describes the precautions.	Included in the package (Printed matter)
Reference Manual	Read this when operating the product.	This describes the hardware aspects such as functions and settings.	 Download from the Contec website (PDF)
IPC Precaution List	Read this before operating the product.	This describes the precautions when using the product.	 Download from the Contec website (PDF)
MICROSOFT SOFTWARE LICENSE TERMS *1	Must read this after opening the package.	This describes the rights and conditions of user when using Windows software.	 Download from the Contec website (PDF)
Manual for OS Pre-installed Type (This manual) *1	Must read this after opening the package.	This explains basic OS information, setup procedures and recovery procedures.	 Download from the Contec website (PDF)

*1 Reference for OS pre-installed types only.

◆ Download End-user License Agreements

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Download

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3. Manual composition

This manual is composed as follows:

Chapters

Descriptions

Introduction	 Provides you with the information you need to know before using the OS equipped with the preinstalled model. Refer to other related manuals as necessary.
Notes Regarding Use	 Gives notes/precautions regarding use.
Setup procedures	 Explains the procedures for setting up Windows after opening this product. Setup will be performed interactively.
System Information	 Explains the preinstalled model' s basic system information and main device driver versions, etc.
Power Failure Protection	 Explains the setting procedure when using the power failure protection function.
Recovery Method	 Explains how to recover the OS in the event that it is unable to start.
Customer Support and Inquiry	 Services and inquiry.

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Notes Regarding Use

This manual explains the precautions for using the product safely. Please make sure to read this before using this product.

1.Safety Information

This document provides safety information using the following symbols to prevent accidents resulting in injury or death and the destruction of equipment and resources.

Understand the meanings of these labels to operate the equipment safely.

 DANGER	Signal word used to indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Signal word used to indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Signal word used to indicate a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

2. Handling Precautions

CAUTION

- The specifications of the product are subject to change without notice for enhancement and quality improvement. Even when using the product continuously, be sure to read the manual in the CONTEC's website and understand the contents.
 - Do not modify the software. CONTEC will bear no responsibility for any problems, etc., resulting from modifying the software.
 - Regardless of the foregoing statement, CONTEC assumes no responsibility for any errors that may appear in this document or for results obtained by the user as a result of using the software.
-

3.About Unified Write Filter

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 you are updating software, adding data, or changing the settings, make sure to disable the UWF filter settings before doing so.
- Even if shut down, the contents written to the memory will not be written back to the disk. They will be deleted if you shut down or restart the system.

UWF of preinstalled type 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 2019 LTSC. Understand it completely for implementation.

CAUTION

- Removable media (USB memory etc.) cannot be set as the UWF candidate.
- 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.
- 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.
- 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.
- UWF cannot protect a Hidden partition.
- 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)
- In early stages, a UWF overlay region serves as maximum size of 1024 MB.
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 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.)
-

4.Security Warning

When connecting to the network, be aware of security-related problems. See the examples of Security measures below and set up the product properly along with the network devices.

1. Information security risks

- Unauthorized access from the outside through a network could cause the system halt, data damage, or exposure to malware. *1
- Invaded and used as a stepping stone, a device might attack the others through networks. (a victim becomes an assailant)
- Information might leak without realizing due to the connection to the network.
- Secondary damages such as harmful rumors, liability in damages, social credibility fall, and opportunity loss are expected led by the troubles described above.

*1: Malware (Malicious Software) is software that brings harm to a computer system and performs unintended operations.

2. Security measures – e.g.

- Do not keep using the default password. (Refer to the product manual for the password setting).
- Set a strong password.

Combined with upper and lowercase letters, and numbers so that it cannot be easily analogized by others.

- Change the password periodically.
- Disable unnecessary network services and functions.
- Restrict access to the network with network devices. *2
- Restrict ports to be released on the network with network devices. *2
- Create a closed network connection using such as dedicated network or VPN*3

*2: Inquire for setting procedure to manufacturers.

*3: VPN (Virtual Private Network) a secured network that wards off unauthorized access by protecting the communication path with authentication and encryption.

Unfortunately, there are no perfect ways to avert unauthorized access or close a security hole that are endlessly found day and night.

Please understand that risks are always involved with the Internet connection, and we strongly recommend a user should constantly update information security measures.

Setup procedures

This manual describes the setup procedure that a user needs to perform after unpacking the product with a pre-installed operation system.

The setup of Windows is performed interactively.

1. Windows setup

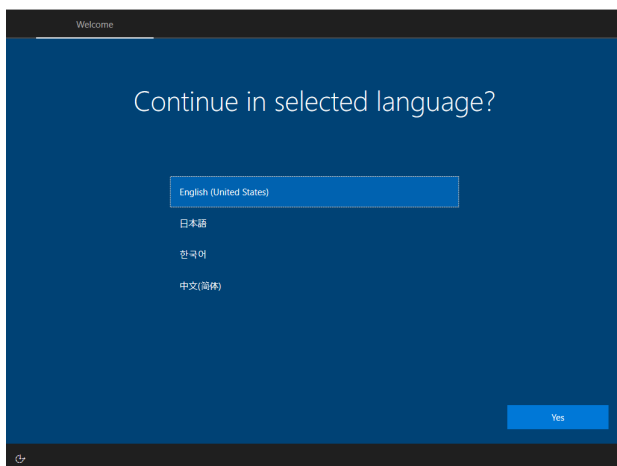
Check that the monitor, the keyboard and the mouse are connected with the PC. Do not connect other devices until a Windows setup is completed. After confirming the connections, turn on the PC power.

CAUTION

- The screen change during the setup operation may take time for a while.
- 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.
- The HDD/SSD built into the preinstalled type are GPT formatted. 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.
- It is not necessary to enter a Windows product key into this product.
- If you do not connect the PC to the Internet at all, activating Windows (license authorization) is unnecessary.

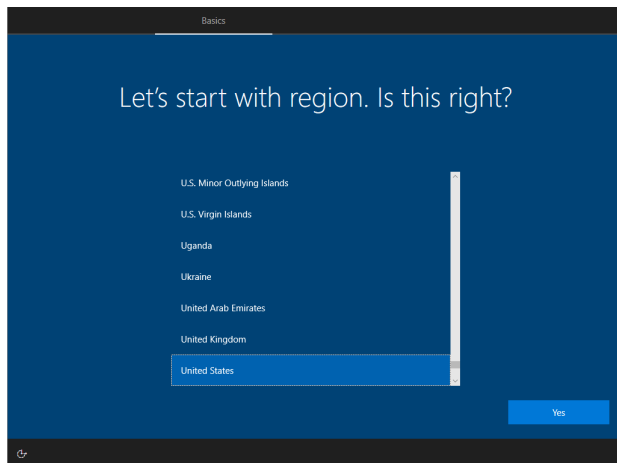
Please wait for the Windows setup starts.

Follow the instructions on the display after start-up.

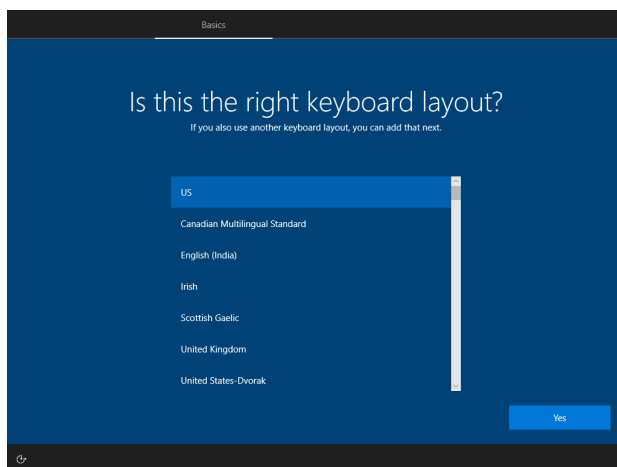


1. The language choice for Windows appears on the display. Select the language. Display language changes to the selected one. And, click the 

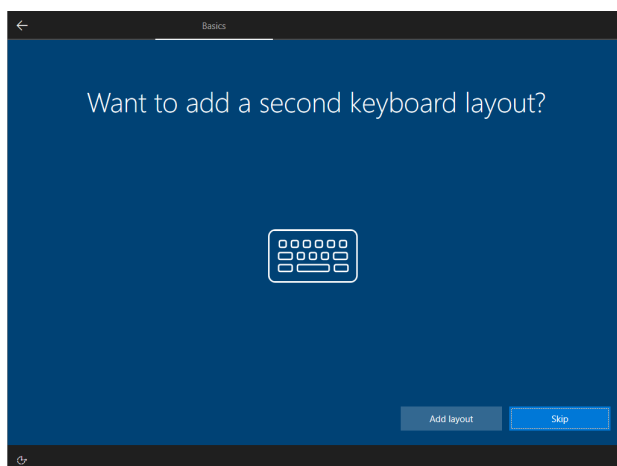
The example which selected English explains a step.



2. Select your home region.
And, click the



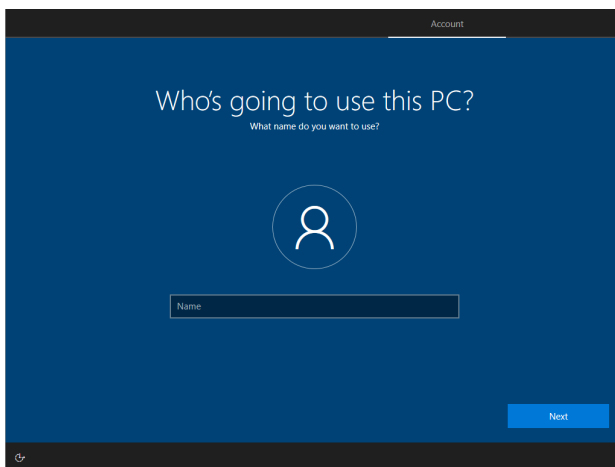
3. Select keyboard layout.
And, click the



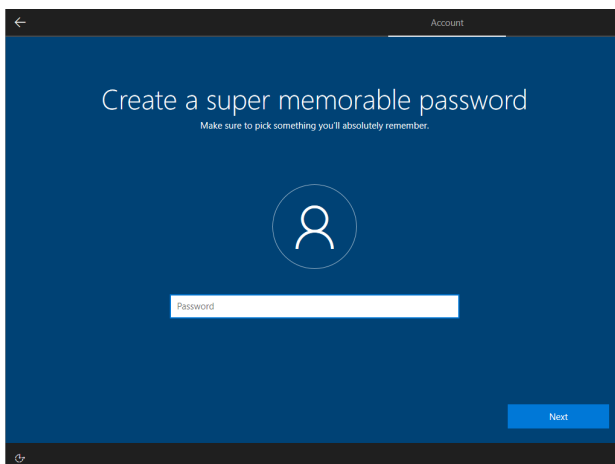
4. Select additional keyboard layout.
If not, click the



5. It is a document regarding License. Click the .

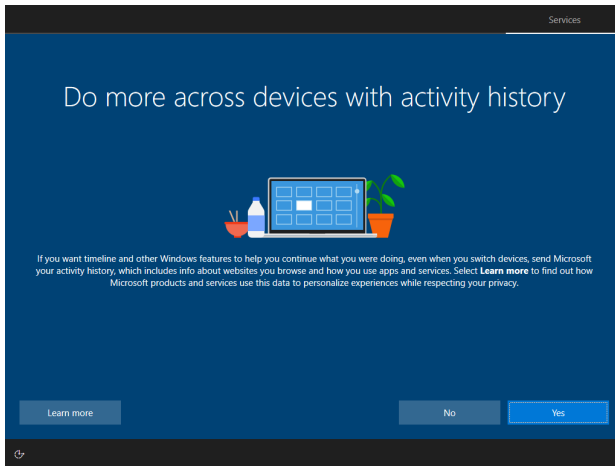


6. Then, the display of creating account can be viewed. Enter the account name to be used. Click the .

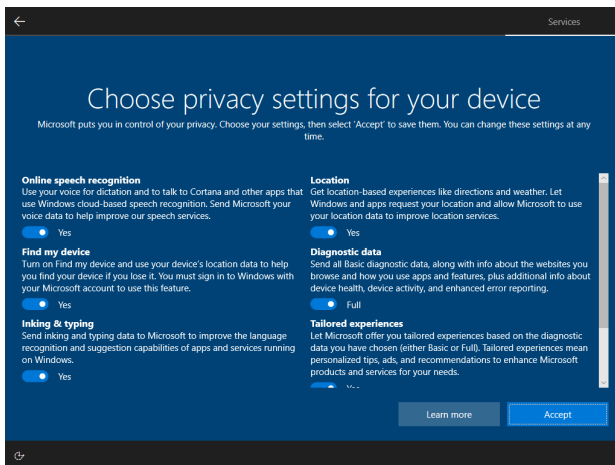


7. Then, the display of creating password can be viewed.

When a password is omitted, an automatic logon can be made by the created account. Click the .



8. It is a setup regarding OS operation.
Click the .



9. It is a setup regarding OS operation.
Click the .



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

System Information

Explains the preinstalled type's basic system information and main device driver versions, etc.

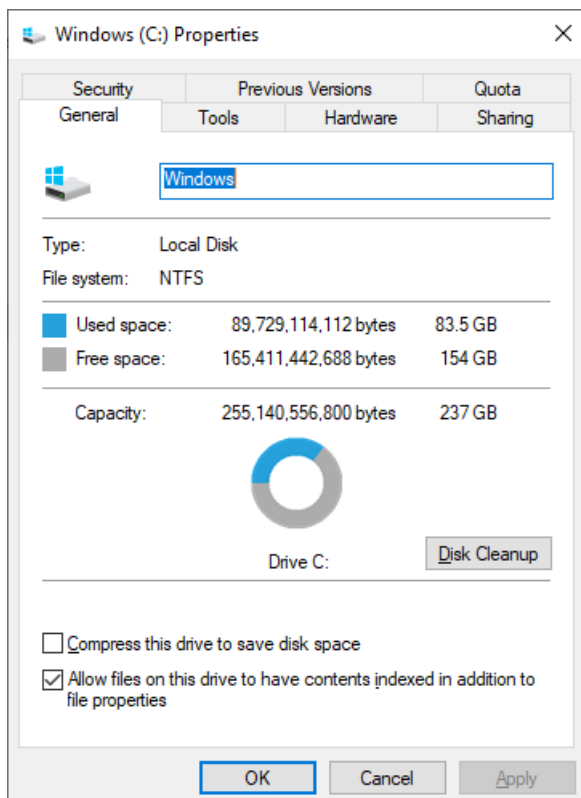
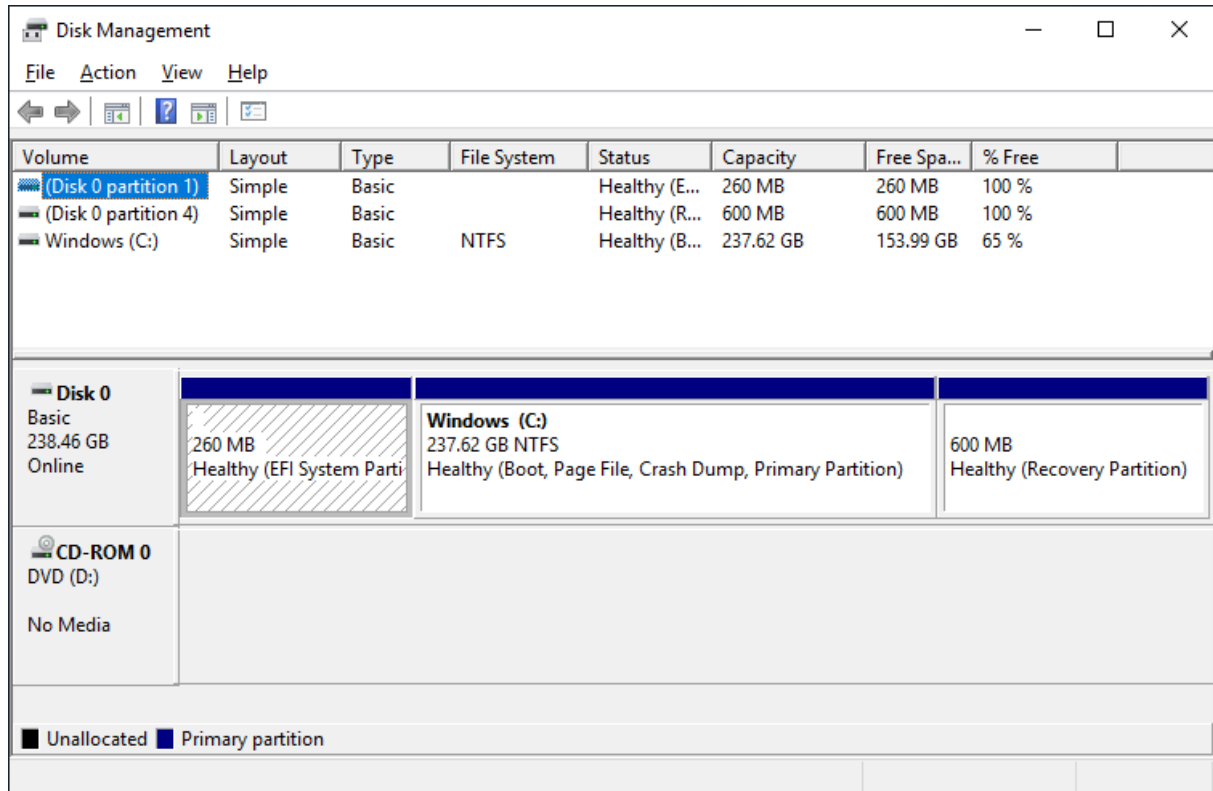
1.Basic Information

☒Embedded function ☐Unembedded function

Item	Details				
Version	1809				
Build version	17763.4131(KB5023702)				
Language components	☒ English ☒ Japanese ☒ Simplified Chinese ☒ Korean ☐ Other ()				
	Component	English	Japanese	Simplified Chinese	Korean
	Basic	☒	☒	☒	☒
	Font	-	☒	☒	☒
	Handwriting recognition	☒	☒	☒	☒
	Optical character recognition	☒	☒	☒	☒
	Speech synthesis	☒	☒	☒	☒
	Speech recognition	☒	☒	☒	-
Main functions and versions	Internet Explorer	11.1790.17763.0			
	Microsoft Edge	80.0.361.53			
	Windows Media Player	12.0.17763.4131			
	Microsoft .NET Framework	4.7.2			
	Remote Desktop Connection	10.0.17763			
	Remote Desktop Protocol	10.6			
CONTEC utilities	CONTEC Solution Manager	1.0.6			
Supply schedule	Mainstream support end date	2024/01/09			
	Extended support end date	2029/01/09			
	End of Life	2028/11/30			

2.Storage and Partition Configuration

The following is for a M.2 NVMe model with 256 GB

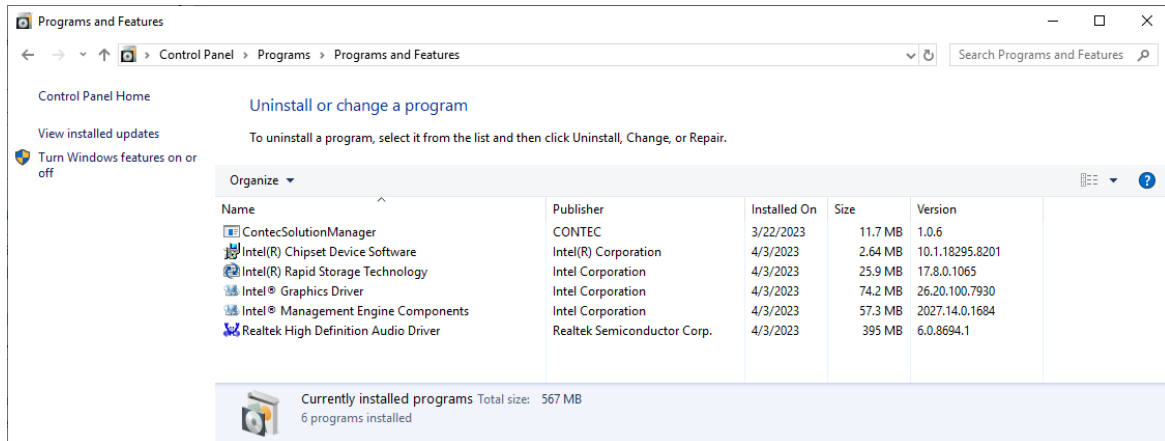


* The disk usage indicated is a reference value.

3. Programs and Features

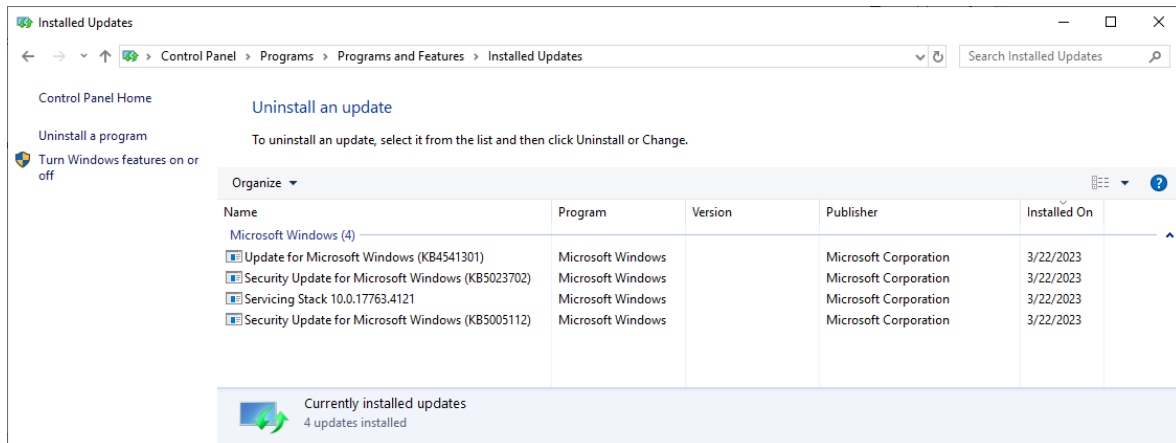
1. Installed software

View a list of installed software



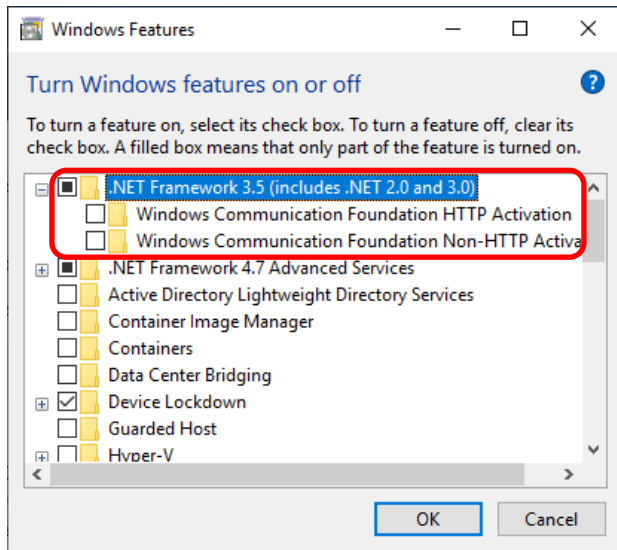
2. Installed updates

View a list of installed updates.

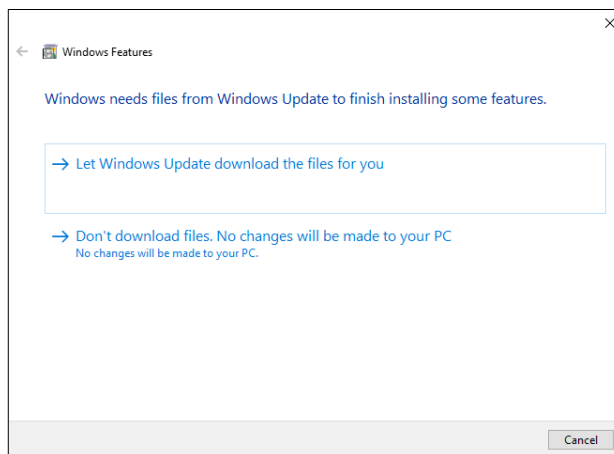


3. Enable or disable Windows functions

.NET Framework 3.5 is installed in the preinstalled type.

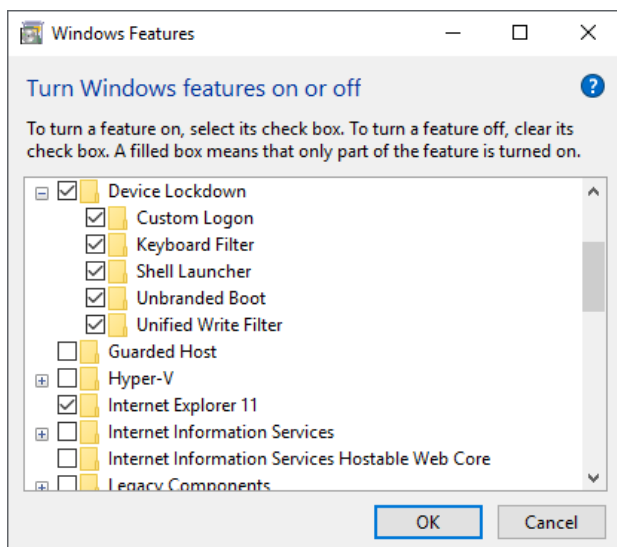


Selecting "Turn Windows features on or off" will allow you to check related items.



If you have used "Turn Windows features on or off" to disable a related item, when reenabling it a "File download" message will be displayed and you will not be able to enable it. In order to reenabling it, you will need to follow the instructions on the screen while connected to the Internet to perform setup, or recover the preinstalled type.

Under CONTEC preinstalled type factory default settings, Device Lockdown is enabled.



Using the lockdown function, you can restrict unintentional user operations or control information displayed on the screen.

Function name	Overview
Shell Launcher	Turning on the power, the device will sign in to an environment in which only designated programs can be run.
Custom Logon	Suppresses Windows component display during Windows startup, restart and shutdown, as well as when signing in.
Keyboard Filter	Prevents undesirable keyboard operations.
Unbranded Boot	Suppresses the display for the Windows loading screen. https://docs.microsoft.com/ja-jp/windows-hardware/customize/enterprise/unbranded-boot
Unified Write Filter (UWF)	Restricts writing to the protected disk, preventing alterations and falsifications of the system.

4. UWF settings

For UWF settings, use either the Microsoft console application UWF manager (uwfmgr.exe) or CONTEC Manager, the GUI application installed in the preinstalled type.

The UWF function's filter is disabled by default. The following explains the procedure for checking the UWF settings using UWF manager (uwfmgr.exe).

□ indicates a space.

```

Administrator: Command Prompt
Microsoft Windows [Version 10.0.17763.292]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Windows\system32>uwfmgr get-config
Unified Write Filter Configuration
Copyright (C) Microsoft Corporation.

Current Session Settings

FILTER SETTINGS
  Filter state: OFF
  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
  Freespace Passthrough: OFF
  Persistent: OFF
  Reset Mode: N/A

VOLUME SETTINGS
  *** No volumes configured

REGISTRY EXCLUSIONS
  *** No exclusions
  
```

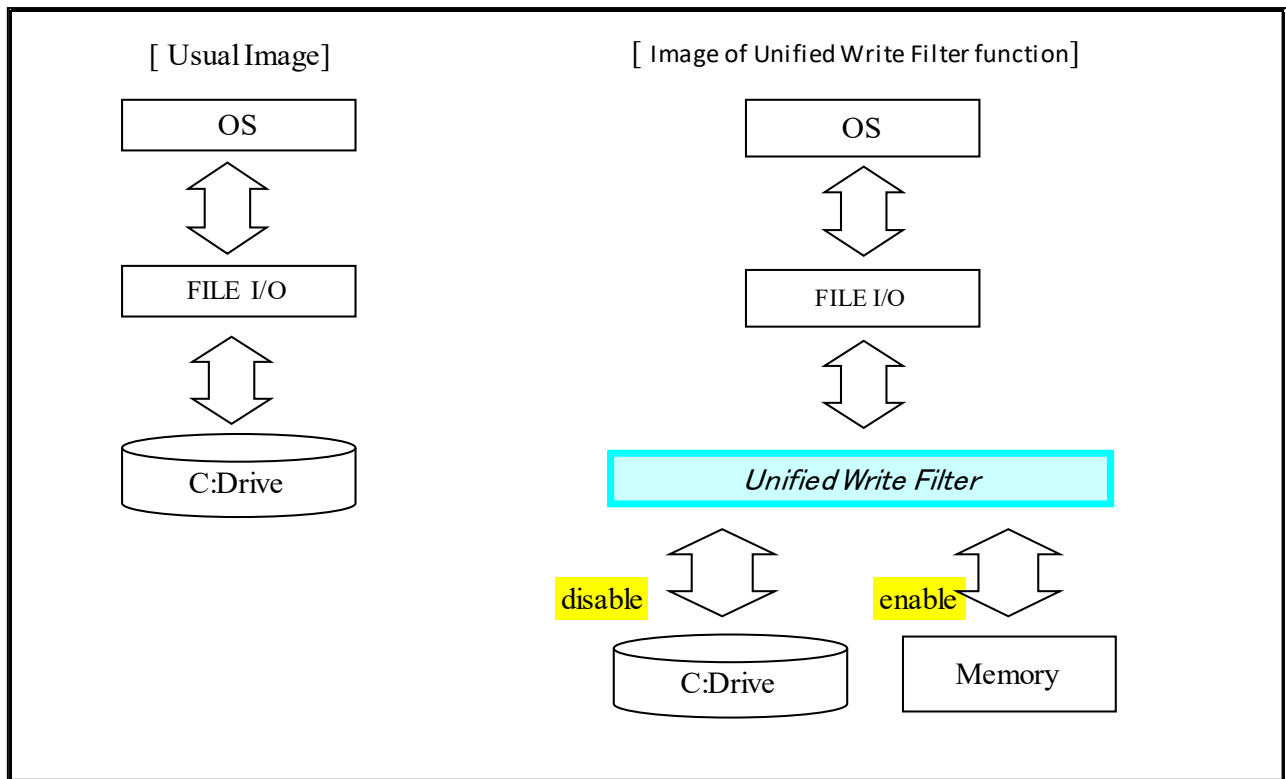
Start Command Prompt (with administrator authority).

Input "uwfmgr□get-config" and press the [Enter] key. View current settings status.

Item	Display	Meaning
Volume state	OFF	Enabling the UWF
	ON	Disabling the UWF
VOLUME SETTINGS	None/ Un-protected	Invalid Volume Protect
	Protected	Effective Volume Protect

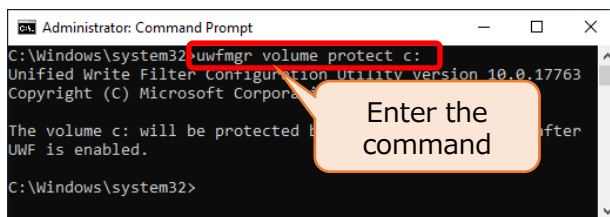
This is the CONTEC factory default settings status.

When UWF is enabled, writing to the disk will be restricted, allowing for the lifetime of disks with writing restrictions to be lengthened. It also allows you to prevent unintentional system alterations. Below is a configuration graph of the UWF functions.

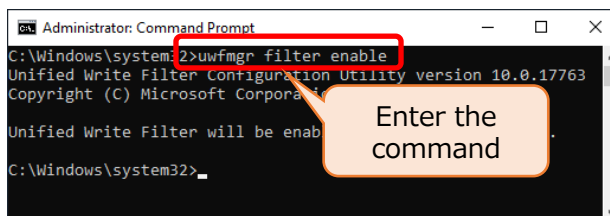


The following explains the method for setting write protection for the C drive using UWF manager (uwfmgr.exe).

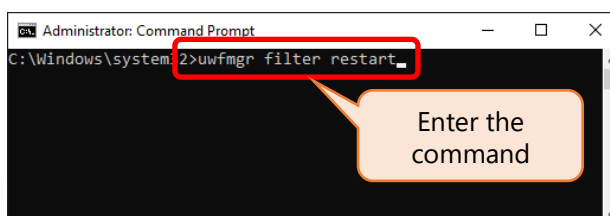
□ indicates a space.



1. Input "uwfmgr□volule□protect□c:" and press the [Enter] key.



2. Input "uwfmgr□filter□enable" and press the [Enter] key.



3. Input "uwfmgr□filter□restart" and press the [Enter] key. Restart Windows.

```

Administrator: Command Prompt
Microsoft Windows [Version 10.0.17763.292]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Windows\system32>uwfmgr get-config

Current Session Settings

FILE SERVICES
Filter state: ON
Pending request: No
Shutdown pending: No

SERVICING SETTINGS
Servicing State

OVERLAY SETTINGS
Type: RAM
Maximum size: 1024 MB
Warning Threshold: 512 MB
Critical Threshold: 1024 MB
Freospace Passthrough: OFF
Persistent: OFF
Reset Mode: N/A

VOLUME SETTINGS
Volume 14f78f91-327b-4dbe-802a-40e7c90444a0 [C:]
Volume state: Protected
Volume ID: 14f78f91-327b-4dbe-802a-40e7c90444a0

File Exclusions:
Current Session Exclusions for Volume 14f78f91-327b-4dbe-802a-40e7c90444a0 [C:]
*** No exclusions
  
```

4. Input "uwfmgr get-config" and press the [Enter] key. View current setting status.

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

4. Set to factory default values

This section explains the preinstalled type's various factory default settings. You can reset these settings unless their values are specially designated.

1. Panel

The initial screen resolution will be the recommended resolution for the connected display. To change screen settings (resolution, color, refresh rate, rotation, etc.), please use the Windows [Display settings].

2. Ethernet settings

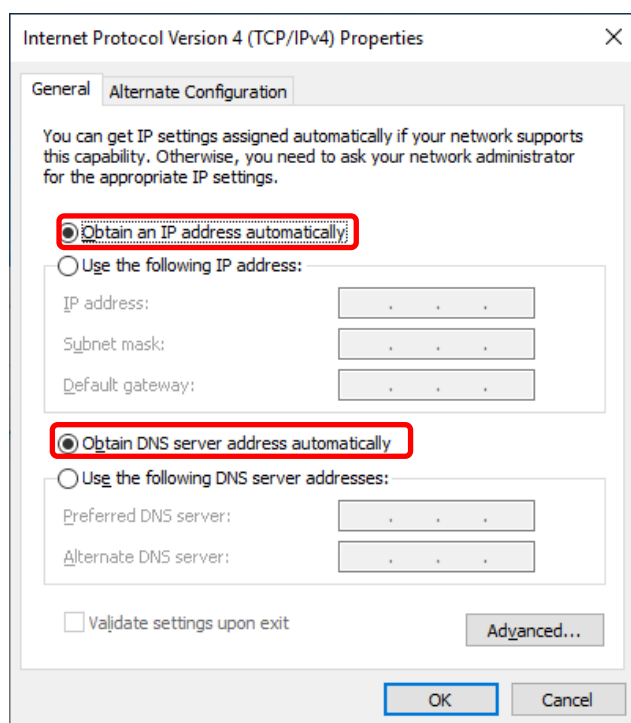
The preinstalled type's product Ethernet display and the OS Ethernet recognition status are shown below.

Product Ethernet display	OS Ethernet recognition
LAN A	Ethernet
LAN B	Ethernet 2

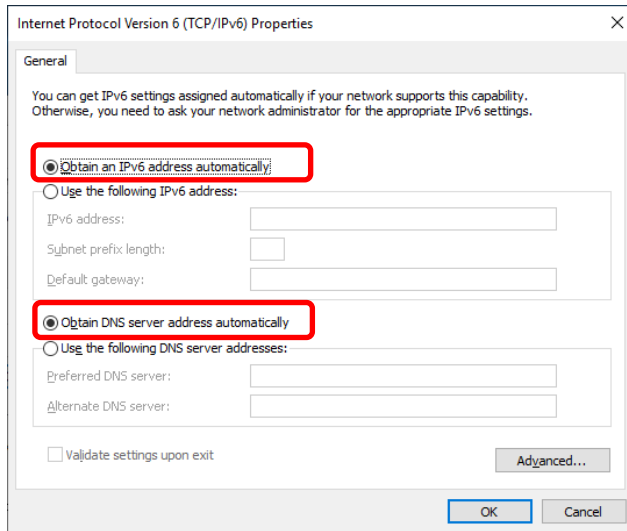
The LAN recognized names are set to match the language selected during initial Windows setup.

The above are the LAN recognized names when Japanese was selected during Windows setup. Even if you change the language in Windows later, the LAN recognized names will not change automatically. If you want to display the LAN recognized names to match the language, you need to change the settings manually.

If changing the network settings, select [Control Panel] → [All Control Panel Items] → [Network and Sharing Center], and you can set them in [Change adapter settings]. The preinstalled type's factory default network settings are shown below.



[Internet Protocol Version 4]
IP address : automatically
DNS : automatically



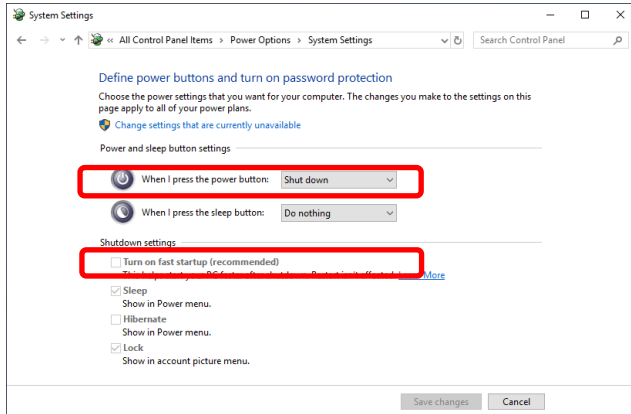
[Internet Protocol Version 6]

IP address : automatically

DNS : automatically

3. Optional power settings

This section explains the factory settings for power options.

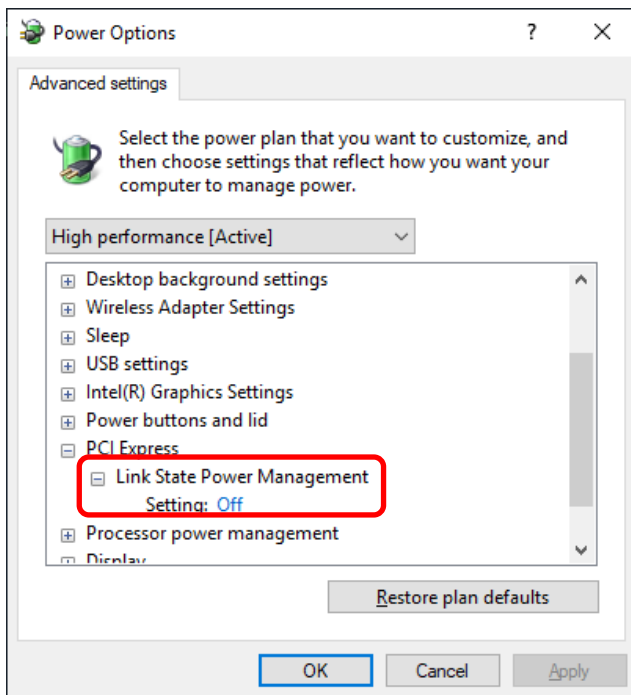


Power and sleep button settings

When I press the power button : Shut down

Shutdown settings

Turn on fast startup(recommended) : Off



Advanced settings

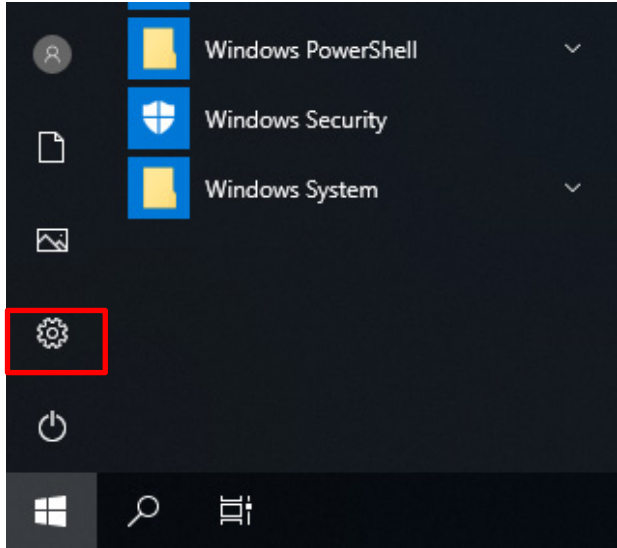
PCI Express-Link State Power Management

Setting : Off

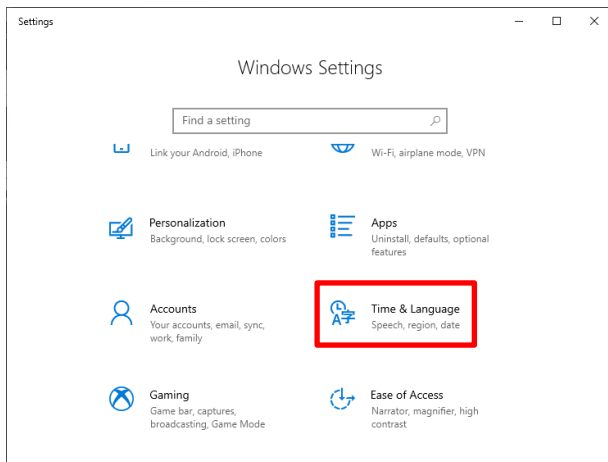
5.Changing the language

The preinstalled type supports English, Japanese, Korean and Simplified Chinese.

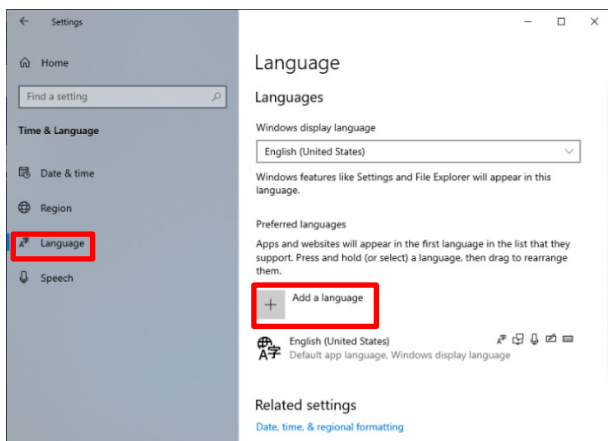
The following explains how to manually change the language settings. As an example we will explain the procedure for switching from English to Japanese.



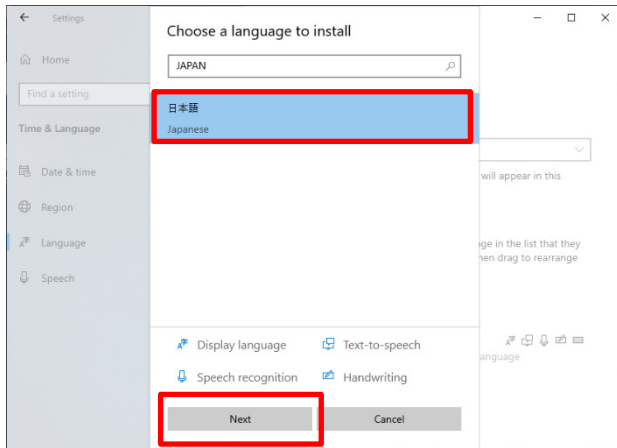
1. On the [Start] menu, click [Settings].



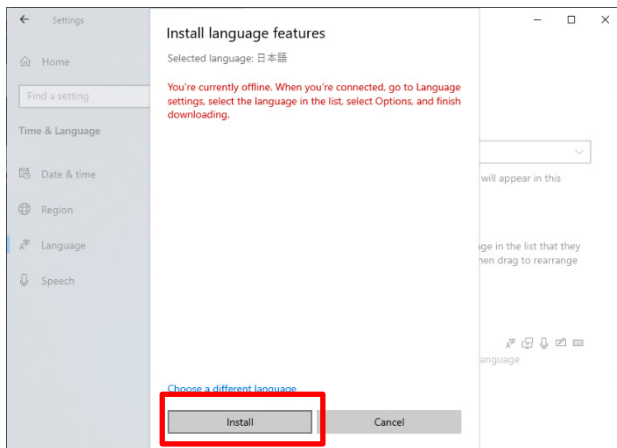
2. Click [Time & Language].



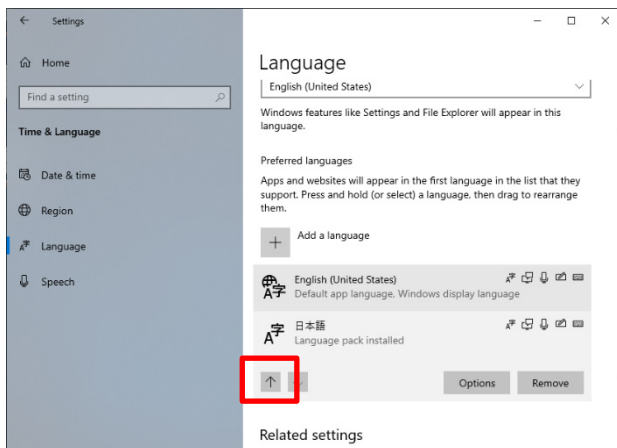
3. Click [Language], and then select [Add a language].



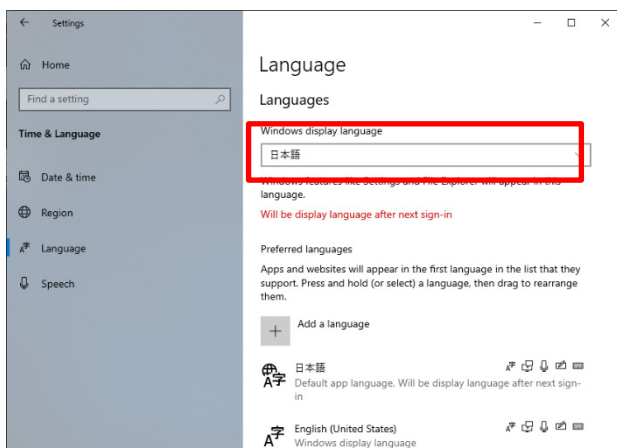
4. Input "JAPAN" in the textbox, and a list will appear below. Select [日本語 (Japanese)], and then click [Next].



5. The language function's installation screen will be displayed, but it is already installed. Click [Install].

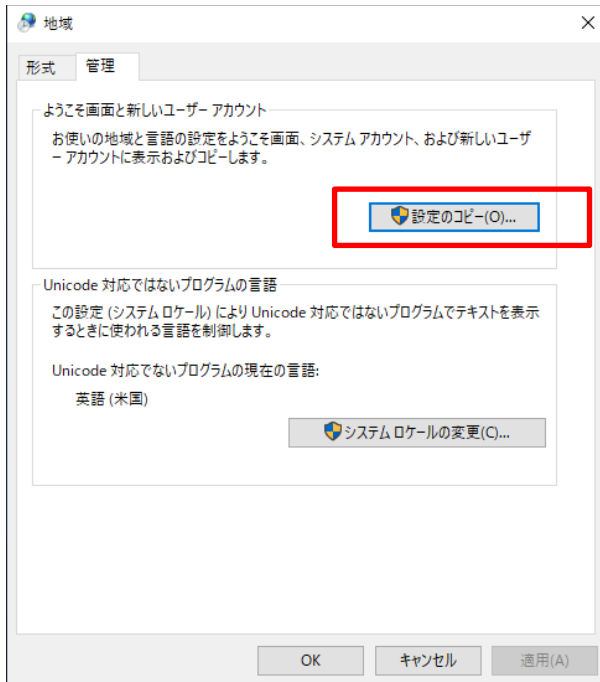


6. Japanese is added, so select that item. In order to change the current language from English (United States) to Japanese, click [↑].



7. The Windows display language will be set to Japanese. Restart Windows.

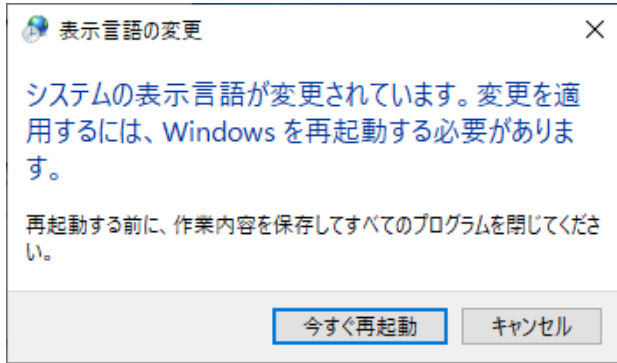
In order to change the display language during startup and shutdown to Japanese, you also need to perform the following settings.



8. In Control Panel, click [時計と地域 (Clock and Region)], then click [地域 (Region)]. The [地域 (Region)] properties screen appears. Select the [管理 (Administrative)] tab and click on [設定のコピー(O)…] (Copy settings…).



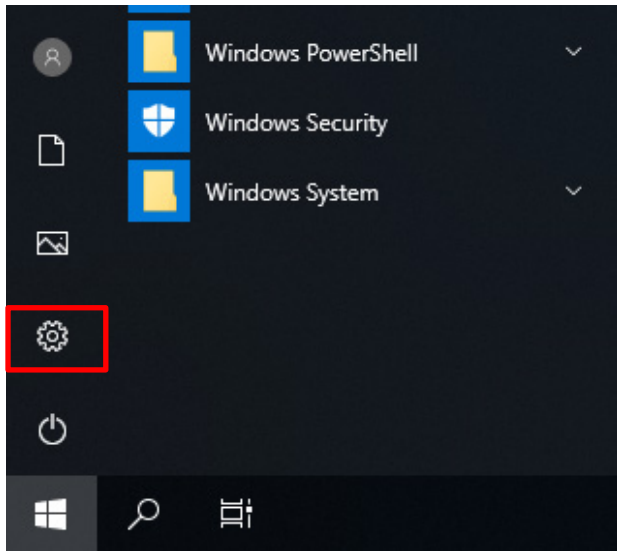
9. After checking both the [ようこそ画面とシステムアカウント (Welcome screen and system accounts)] and [新しいユーザーアカウント (New user accounts)] boxes, click [OK].



10. Confirm the contents, then click [今すぐ再起動 (Restart now)] to restart the system and complete the settings.

6.Windows Update

You can install the correction program (QFE) in [Update & Security].



1. On the [Start] menu, click [Settings].



Update & Security
Windows Update, recovery,
backup

2. Click [Update & Security].

7.CONTEC Solution Manager

1. Overview

CONTEC provides not only functions installed with this product such as the RAS function to secure reliability and the UWF function providing the OS, but also setting tools that allow you to use CONTEC products more smoothly and a library to control the functions listed below.

- Hardware monitor
- Hardware RAID monitor
- Watchdog timer
- UWF operations and status monitoring

For detailed instructions, see the help file. The following describes how to consult the help file.

[Start] menu → CONTEC Manager → Help

CONTEC Solution Manager updates without future notice through the new product's response, improvements, etc. For this reason, the version installed in the preinstalled version may be out of date in some cases. Confirm the latest version online.

Download it from the following URL.

Download

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

(*) Reliability Availability and Serviceability : Support functions for stable system operations

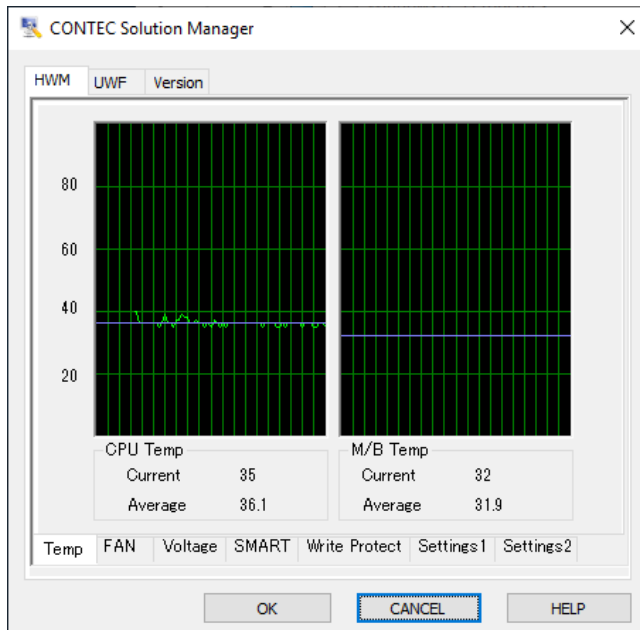
2. How to start

CONTEC Solution Manager is run from the service application (CoRasSvr.exe) when you sign in to Windows and remains in the task tray. The following icon will appear in the task tray. Move the cursor over the icon and double-click on it to display the properties screen. You can also show the properties screen by pressing <Alt> and <Esc> at the same time.

Task tray icon	Meaning
	UWF disabled status
	UWF enabled status
	UWF function disabled status (The hardware monitor, etc., with the exception of the UWF function, can be used)

3. Properties screen

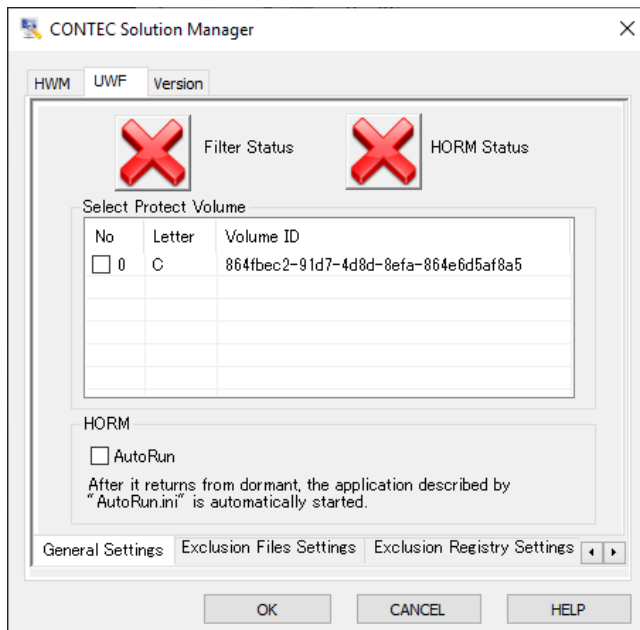
*The following images may differ from the actual product.



Monitor hardware status such as the CPU temperature, the M/B temperature and so on. If it exceeds the set threshold, the set alarm action will be activated.

Alarm actions that can be set :

- 1.None (Initial settings)
- 2.Popup Message
- 3.Reboot
- 4.Shutdown
- 5.Designated application



Change settings such as enabling/disabling UWF. Monitors the usage status of the overlay region when UWF is enabled.

If it exceeds the set threshold, the set alarm action will be activated.

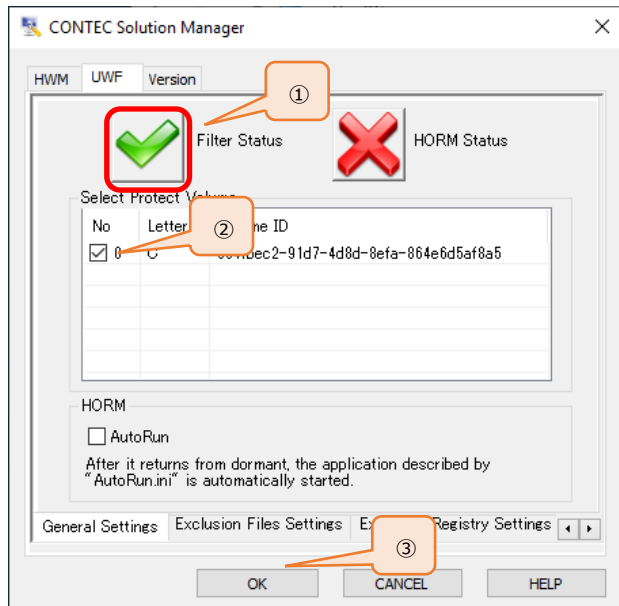
Alarm actions that can be set:

- 1.None (Initial settings)
- 2.Popup Message
- 3.Reboot
- 4.Shutdown
- 5.Designated application

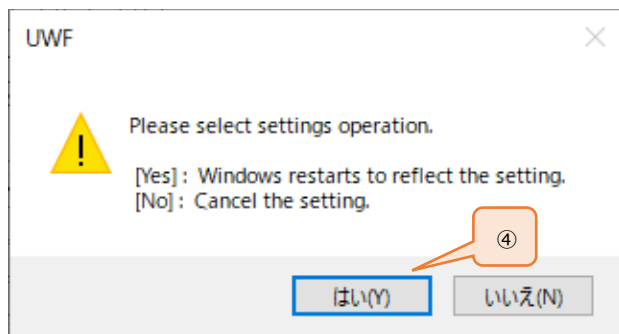
Icon	Settings
	Disabled status
	Enabled status
	Unable to set

4. UWF settings

The following explains the method for setting write protection for the C drive.



- ① Click [] and set to [].
- ② Tick the volume [C] targeted for protection.
- ③ Click the [OK] button.



- ④ Click the [OK] button.
The settings will be enabled once you restart Windows.

Power Failure Protection

This product is equipped with "Power Failure Protection" function that prohibits writing onto storage in the event of a power failure. Along with the UWF functions, file system damage caused by sudden power failure can be avoided.

1. About Power Failure Protection

The Power Failure Protection needs to be used along with the UWF function. For this reason, the following tables include enabling the UWF functions. Use them as a reference to check the general flow when using the Power Failure Protection.

1. When the Power Failure Protection is used

1	Factory default	UWF functions: Disabled Write Protect functions: Disabled
2	Windows initial setup	Follow the procedure described in [1. Windows setup (page17)] for the initial setup of Windows (the language choice etc.). UWF functions: Disabled Write Protect functions: Disabled
3	User environment setup	Change the settings of Windows or set up applications. UWF functions: Disabled Write Protect functions: Disabled
4	Enabling the UWF function	Follow the procedure described in [7. CONTEC Solution Manager (Page39)] and set the UWF. UWF functions: Disabled Write Protect functions: Disabled
5	Restarting Windows	The UWF function will be enabled once you restart Windows. UWF functions: Enabled Write Protect functions: Disabled
6	Shutting down Windows	Shut down Windows. UWF functions: Enabled Write Protect functions: Disabled
7	Enabling the Write Protect function	Enable the Write Protect function. *1 WF functions: Enabled Write Protect functions: Enabled
8	Starting Windows.	Start Windows operation. UWF functions: Enabled Write Protect functions: Enabled

2. When the Power Failure Protection is not used

1	Disabling Write Protect function	Disable the Write Protect functions. *1 UWF functions: Enabled Write Protect functions: Disabled
2	Disabling the UWF function	Start Windows and follow the procedure described in [7. CONTEC Solution Manager (Page39)] to set the UWF. UWF functions: Enabled Write Protect functions: Disabled
3	Restarting Windows	The UWF function will be disabled once you restart Windows. UWF functions: Disabled Write Protect functions: Disabled

*1 Follow the steps listed below to change the Write Protect function settings of storage.

1	Turn on the power supply of PC, and immediately press [DEL] key or [ESC] key to activate BIOS settings screen (Aptio Setup Utility). Select [Chipset] - [PCH-IO Configuration] - [SATA And RST Configuration] in that order. Select the target SSD and change the "Write Protect" settings.		
	Item	Option	Description
	Write Protect	Disabled / Enabled	The Hardware Write Protect can be enabled.
2	Press [F4] key, select [Save & Exit Setup]. Please select [Yes] and press [ENTER] key.		

Please check the following points listed in CAUTION beforehand, then, use the Power Failure Protection. For further caution or warning details, see the Reference Manual.

CAUTION

- The following UWF functions will no longer be available once you enable the Write Protect for a drive.
 - Commit function
 - Exclude writing function (file, folder, and registry)
 - Filter setting function for each drive

(Supplemental explanations)

Write Protect function is set on a per-storage basis.

When using one storage for several partitions (for C drive and D drive, etc.),

set the UWF protect for all partitions first, then, enable the Write Protect function.

- To keep the log file information of the drive with Write Protect enabled, change the setting to write the information onto a different storage.

An example)

Disable both Write Protect function and UWF, then, change the settings by following the instruction.

Run "eventvwr.exe" on the command prompt to start the event viewer.

Change the log output path from the System property to as listed below:

From [%SystemRoot%\System32\winevt\Logs\System.evtx] to
[d:\winevt\Logs\System.evtx]

Recovery Method

This chapter explains how to recover the OS in the event that it is unable to start in the preinstalled type.

1.Preparations

This document describes the recovery procedures in a case where OS becomes unable to start up on a preinstalled-OS system.

The Recovery uses USB connection's DVD-ROM Drive. Please prepare a necessary equipment according to DVD-ROM used.

- The product itself
- Monitor
- USB Keyboard
- USB Mouse
- USB DVD-ROM Drive (For PCs with no optical drive)
- Provided Recovery Media (You require recovery media, contact your retailer.)

Please check the following points and connect the device.

CAUTION

- Before using a recovery media, be sure to read the license agreements (END USER LICENSE AGREEMENT about respective OS and Easy Restore license agreement). You can use this recovery media only if you agree to the license descriptions.
 - Use of the recovery media is allowed only for the purpose of restoring preinstalled OS. Using the media for other purposes than OS recovery is prohibited.
 - The content of the silicon disk returns to the state when our company is shipped by restoring it by recovery media. Take the backup in important data beforehand.
 - Remove the connected disks if that are not composed in the pre-installed type from the body.
 - Remove the USB storage device if it is connected to the body.
-

2.Procedure

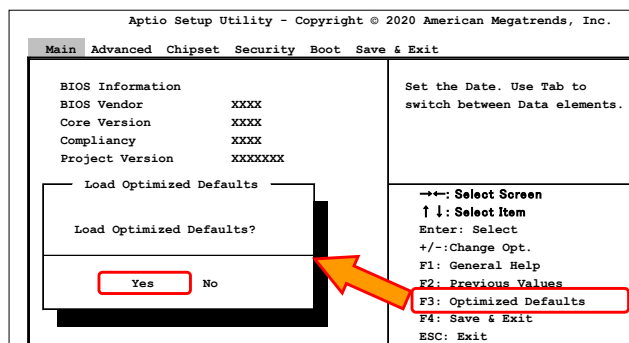
Before performing the operation, connect the monitor, the USB keyboard, USB mouse and USB DVD-ROM drive to the product.

1. BIOS settings

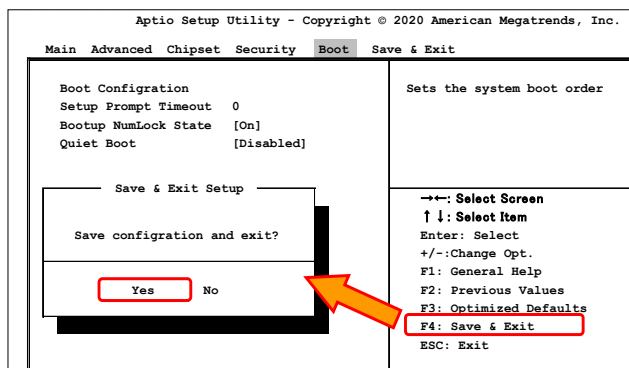
Please set recovery media to a DVD-ROM drive, and connect with PC.

Turn on the power supply of PC and Press [DEL] key or [ESC] key immediately after turning on the power, activating Aptio Setup Utility. Recovery Procedures.

For models with no software RAID

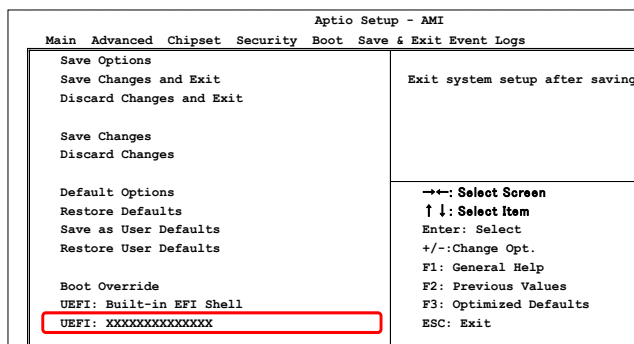


1. Press [F3] key, select [Load Optimized Defaults]. Please select [Yes] and press [ENTER] key.



2. Press [F4] key, and select [Save & Exit Setup]. Please select [Yes] and press [ENTER] key. The system will automatically reboot.

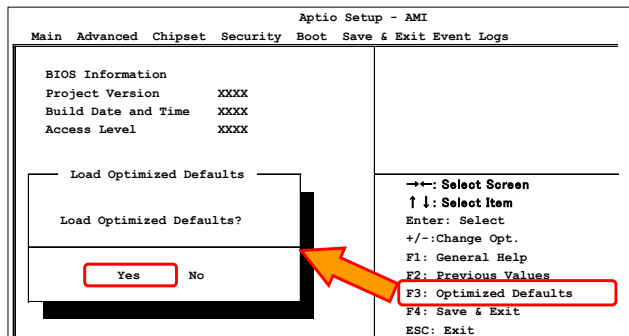
Press the [DEL] or [ESC] key on the BIOS startup screen immediately after the system reboots.



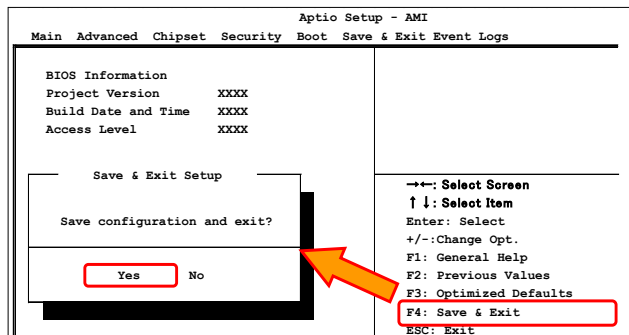
3. Press the [←] key twice to select the "Save & Exit" menu. Press the [↓] key to select "UEFI: DVD-ROM Drive" under Boot Override, and then press the [Enter] key. The system will reboot, and UEFI boot will be performed from the selected DVD-ROM drive.

Continue to **"2. OS installation."**

For models with software RAID (RAID1)

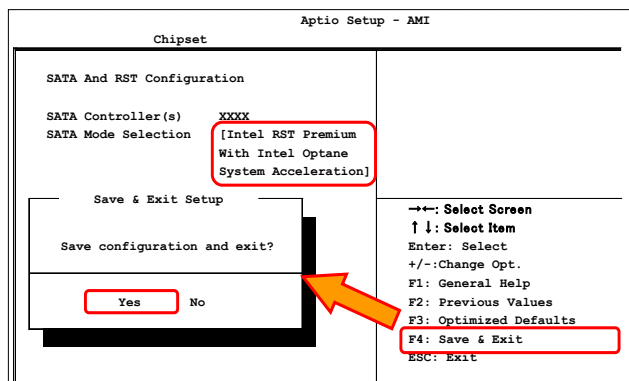


1. Press [F3] key, select [Load Optimized Defaults]. Please select [Yes] and press [ENTER] key.



2. Press the [F4] key, select [Yes] under [Save & Exit Setup], and then press the [ENTER] key to reboot.

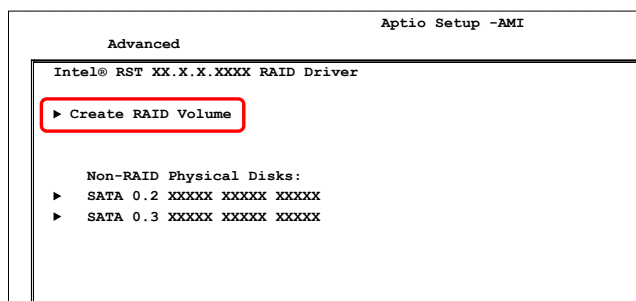
Press the [DEL] or [ESC] key on the BIOS startup screen immediately after the system reboots.



3. Press the [→] key twice to select the [Chipset] menu. Press the [↓] key to select the "PCH-IO Configuration" submenu, and then select "SATA and RST Configuration." Change the "SATA Mode Selection" setting from [SATA] to [Intel RST Premium With Intel Optane System Acceleration], as shown on the screen to the left.

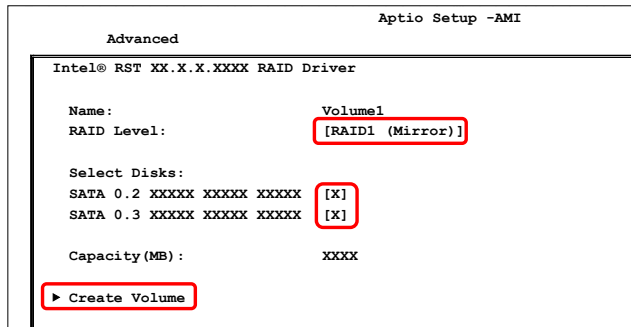
Press the [F4] key, select [Yes] under "Save & Exit Setup," and then press the [ENTER] key.

Press the [DEL] or [ESC] key on the BIOS startup screen immediately after the system reboots.



4. Press the [→] key to select the "Advanced" menu. Press the [↓] key to select the "Intel(R) Rapid Storage Technology" submenu.

Select "Create RAID Volume" and press the [Enter] key.



5. Set "RAID Level" to [RAID1 (Mirror)]. Under "Select Disks," configure the two SATA disks to be configured for RAID as shown below.

* Press the space key to change the setting to "X."

SATA 0.2, XXXXX XXXXX [X]
SATA 0.3, XXXXX XXXXX [X]

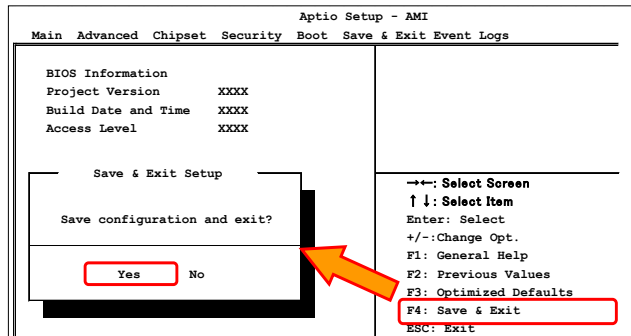
Select "Create Volume" and press the [ENTER] key.

6. The following RAID volume will be created.

RAID Volume

"Volume1, RAID1 (Mirror), X.XX Normal"

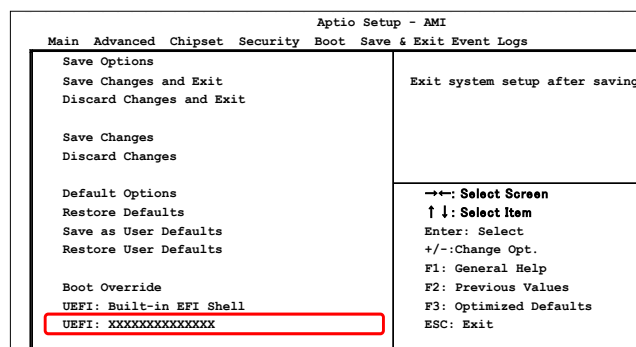
Press the [ESC] key to return to the "Advanced" menu.



7. Press the [→] key to select the "Save & Exit" menu.

Select "Save changes and Reset" to save the changes and reboot.

Press the [DEL] or [ESC] key on the BIOS startup screen immediately after the system reboots.



8. Press the [←] key twice to select the "Save & Exit" menu. Press the [↓] key to select "UEFI: DVD-ROM Drive" under Boot Override, and then press the [Enter] key. The system will reboot, and UEFI boot will be performed from the selected DVD-ROM drive. Continue to **"2. OS installation."**

2. OS installation

The DVD-ROM Drive will run UEFI boot, and after a short while Windows PE will start up.

```
[!!! WARNING !!!]
Initialize Storage.
Are you Sure? [Y/N]
```

1. Press the [Y] key, and then press the [Enter] key.

```
[!!! WARNING !!!]
The other storage was found.
Initialize the storage in NTFS format.

---* Disk Info *---

Disk (x) : xxxxxxxx [MB],yyyyyyyyy
Disk (x) : xxxxxxxx [MB],yyyyyyyyy

Are you sure? [Y/N] > _
```

2. If multiple storage devices are connected, the confirmation screen shown to the left will be displayed.

Press the [Y] key and then the [ENTER] key to format the target storage.

Press the [N] key and then the [ENTER] key to continue the installation process without formatting the target storage.

```
CImage Tool for Windows
Copyright<C> 2020 CONTEC CO., LTD.
Version X.X.X.X

[xxx%] Apply progress. xx:xx remaning.
```

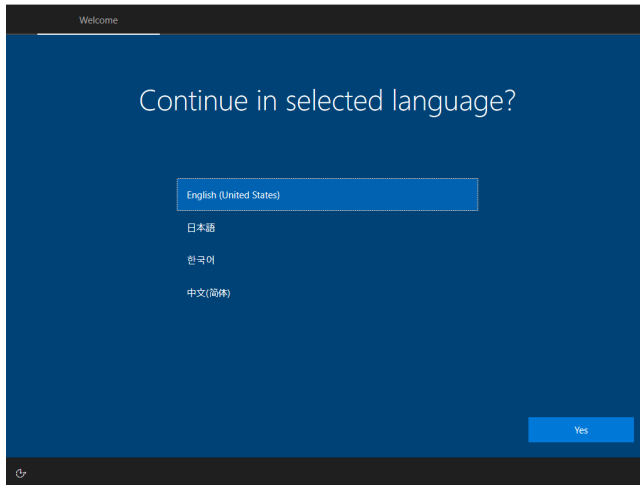
3. The OS will be installed.

```
*****
Remove the System Restoration Disk
Press any key to shutdown
*****
```

4. After the recovery process is complete, the screen shown on the left will be displayed. Remove the recovery media from the DVD-ROM drive, and then press the [Enter] key. Windows PE will shut down automatically.

3. Start OS

Turn the PC on. The screen of the left figure is displayed after several times reboot.



Perform Windows setup following the setup procedure in this manual.

Customer Support and Inquiry

CONTEC provides the following support services for you to use CONTEC products more efficiently and comfortably.

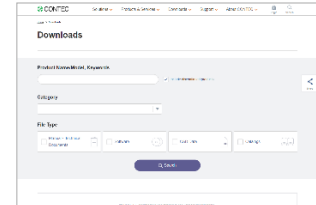
1.Services

CONTEC offers the useful information including product manuals that can be downloaded through the CONTEC website.

Download

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

You can download updated device driver, firmware, and differential manuals in several languages. Membership registration (myCONTEC) is required to use the services.



Revision History

MONTH YEAR	Summary of Changes
April 2023	The First Edition

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MR4100 Manual for OS Pre-installed Type (Windows 10 IoT Enterprise 2019 LTSC)

NA09474 (LXCK781) [04142023]

April 2023 Edition