Windows 10 IoT Enterprise LTSC 2021 (212H) User Manual for x86 Computers

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www.moxa.com/products

Windows 10 IoT Enterprise LTSC 2021 (212H) User Manual for x86 Computers

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1. Introduction

This Windows 10 IoT Enterprise LTSC 2021 (21H2) user manual is applicable to Moxa's x86-based computers listed below and covers the complete set of instructions for these series. Detailed instructions on configuring advanced settings are covered in following chapters of the manual. Before referring to sections in these chapters, confirm that the hardware specification of your computer model supports the functions/settings covered therein.

Applicable Series

- **DA-681C Series**
- **DA-682C Series**
- **DA-720 Series**
- **DA-820C Series**
- **V2201 Series**
- **V2403C Series**
- **V2406C Series**
- **MC-1100 Series**
- **MC-1200 Series**
- **MC-3201 Series**
- **MC-7400 Series**
- **MPC-2070 Series**
- **MPC-2101 Series**
- **MPC-2120 Series**
- **MPC-2121 Series**

Moxa Windows

Moxa computers are integrated with Windows drivers and I/O controller utilities based on the Microsoft Windows up-to-date version so that you can use the most compatible hardware-software combination in your application field.

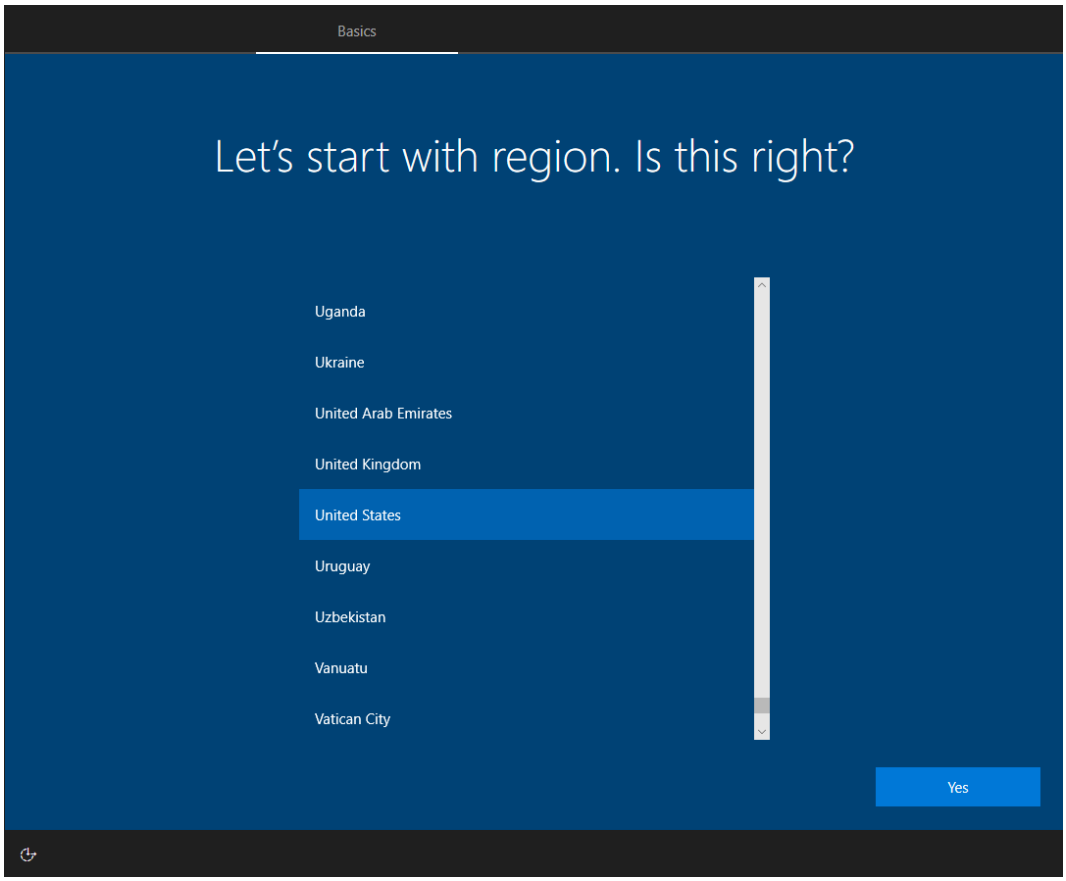
2. System Initialization

In this chapter, we describe how to initialize the system settings when you boot up the computer for the first time. When you turn on the computer, you will see the Windows Out of Box Experience (OOBE) wizard. OOBE consists of a series of screens that require customers to accept the license agreement, connect to the internet, log in with or sign up for a Microsoft Account, and share information with the OEM.

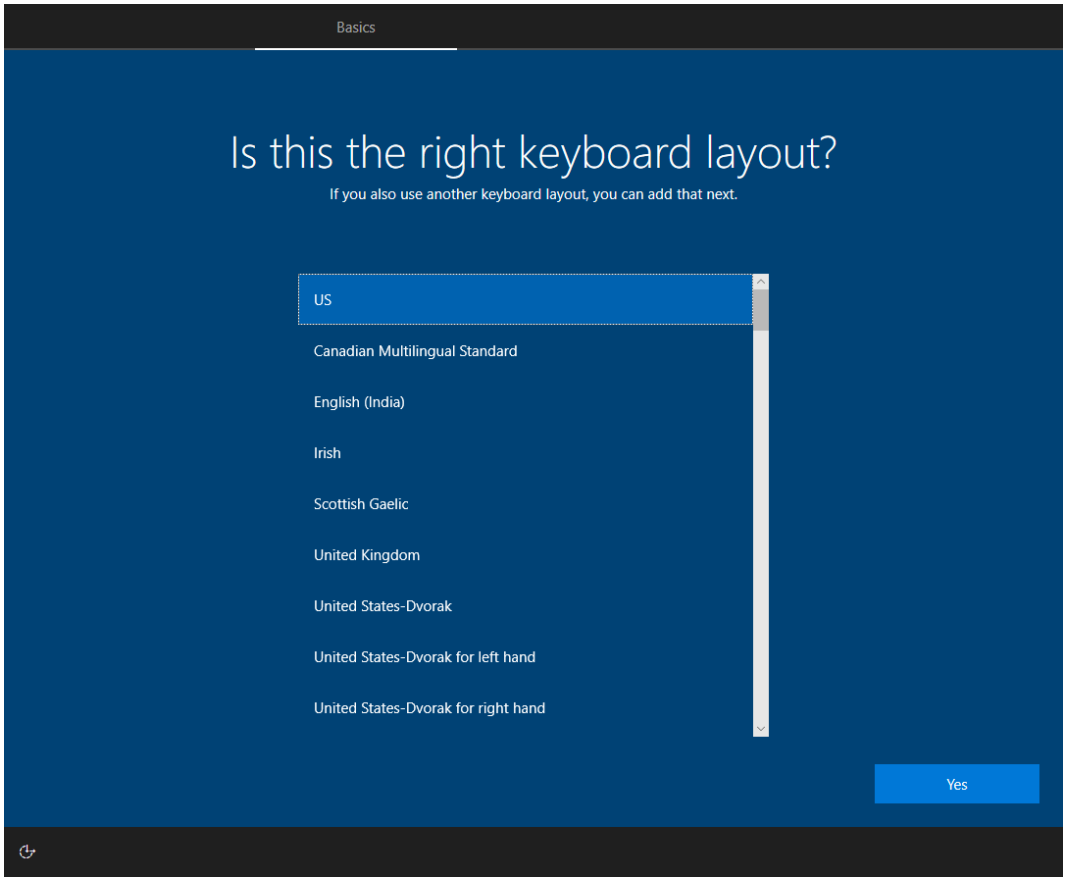
Initializing User Settings

The following is a non-exhaustive list of OOBE screens that you will see in the order that they are listed here:

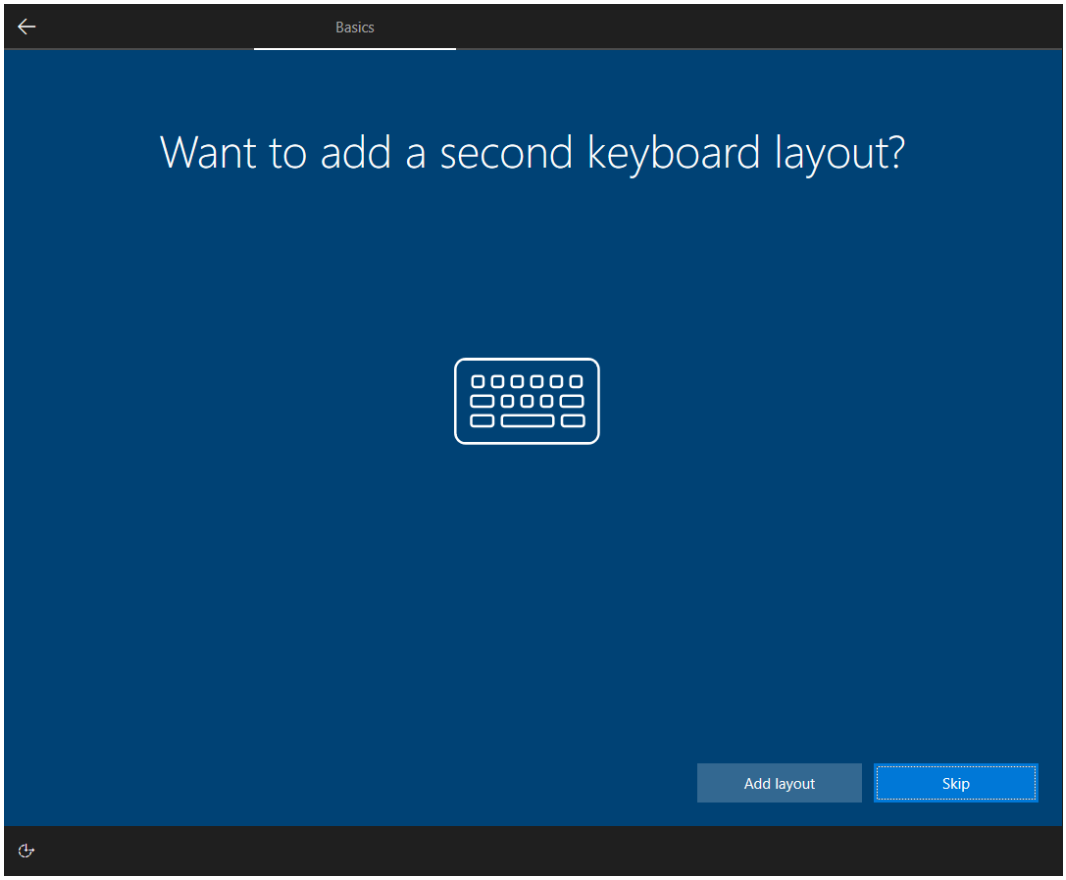
1. Select a region.



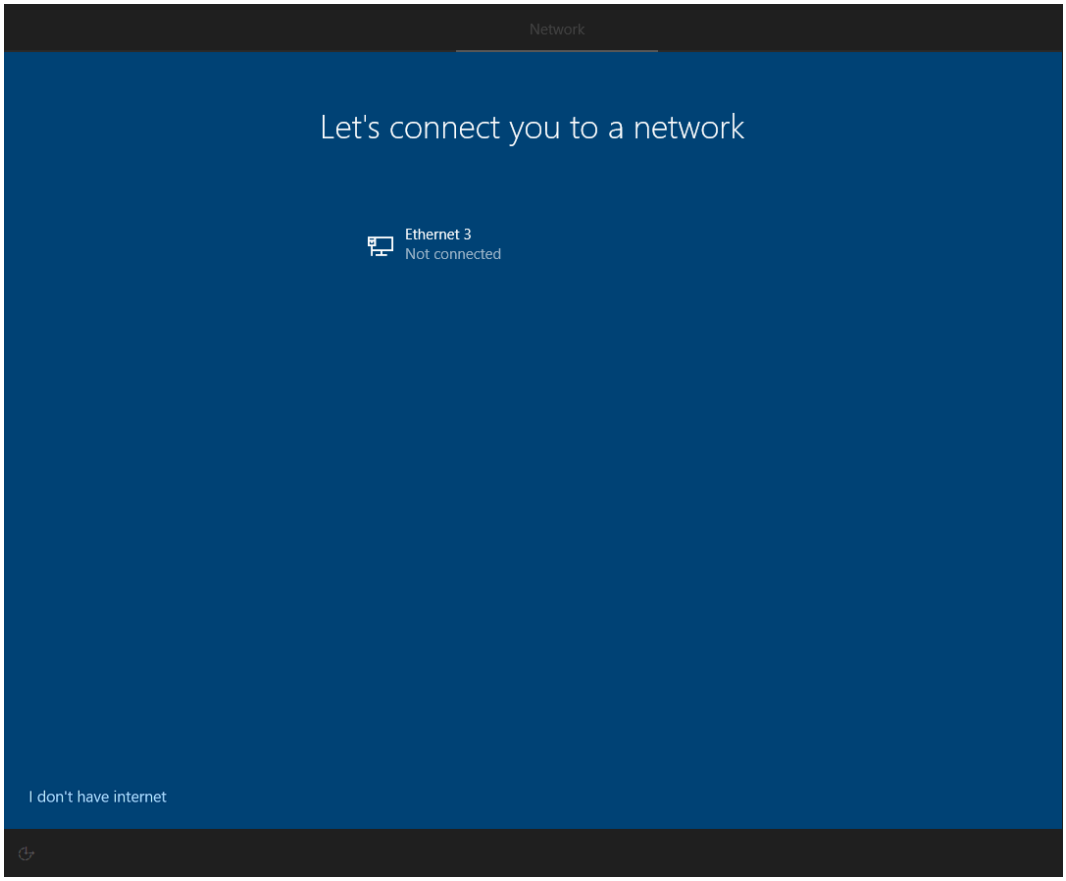
2. Select a keyboard.

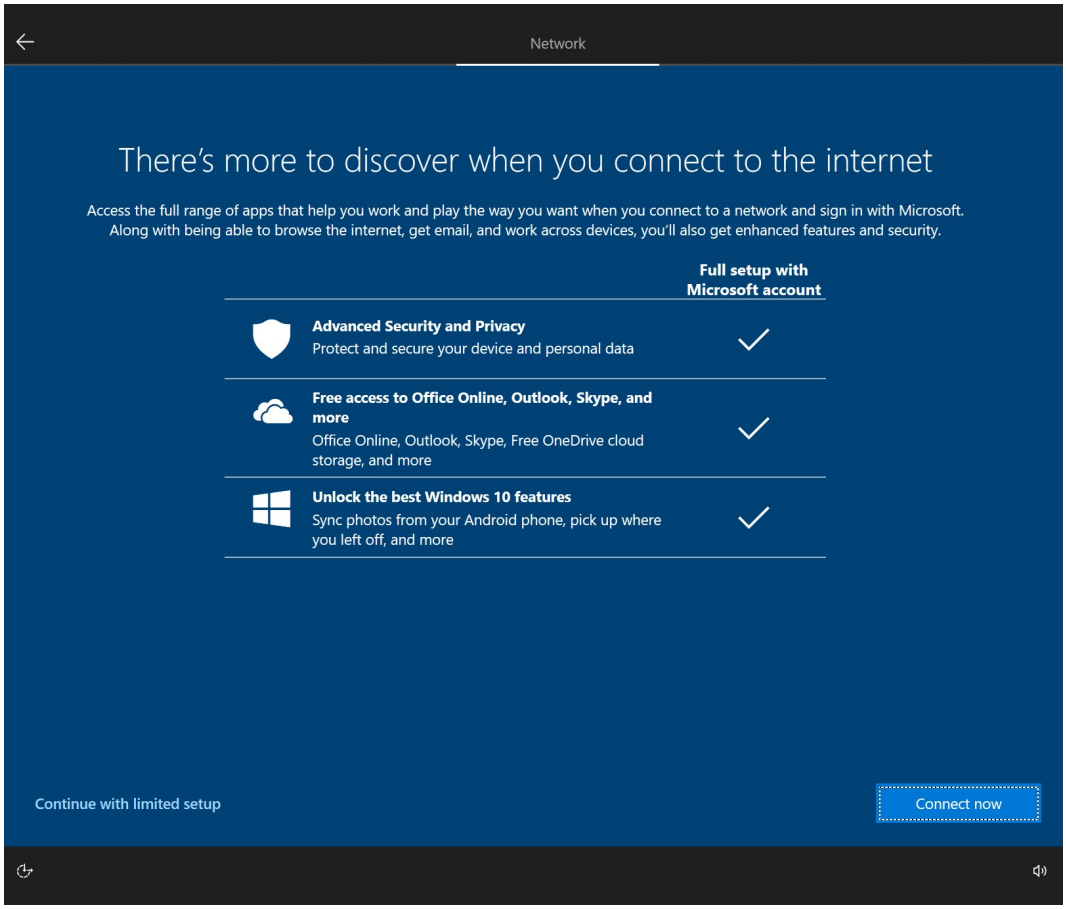


3. Select a second keyboard.

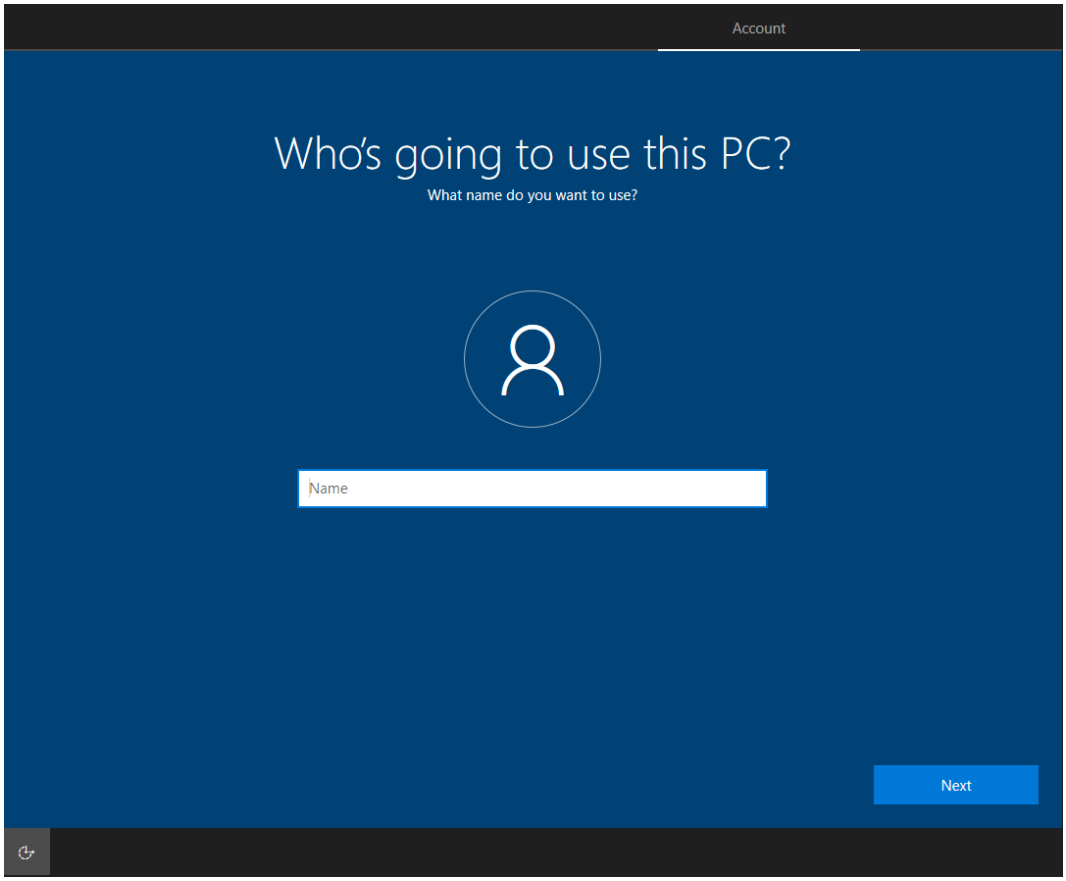


4. Connect to a network or continue with limited setup.

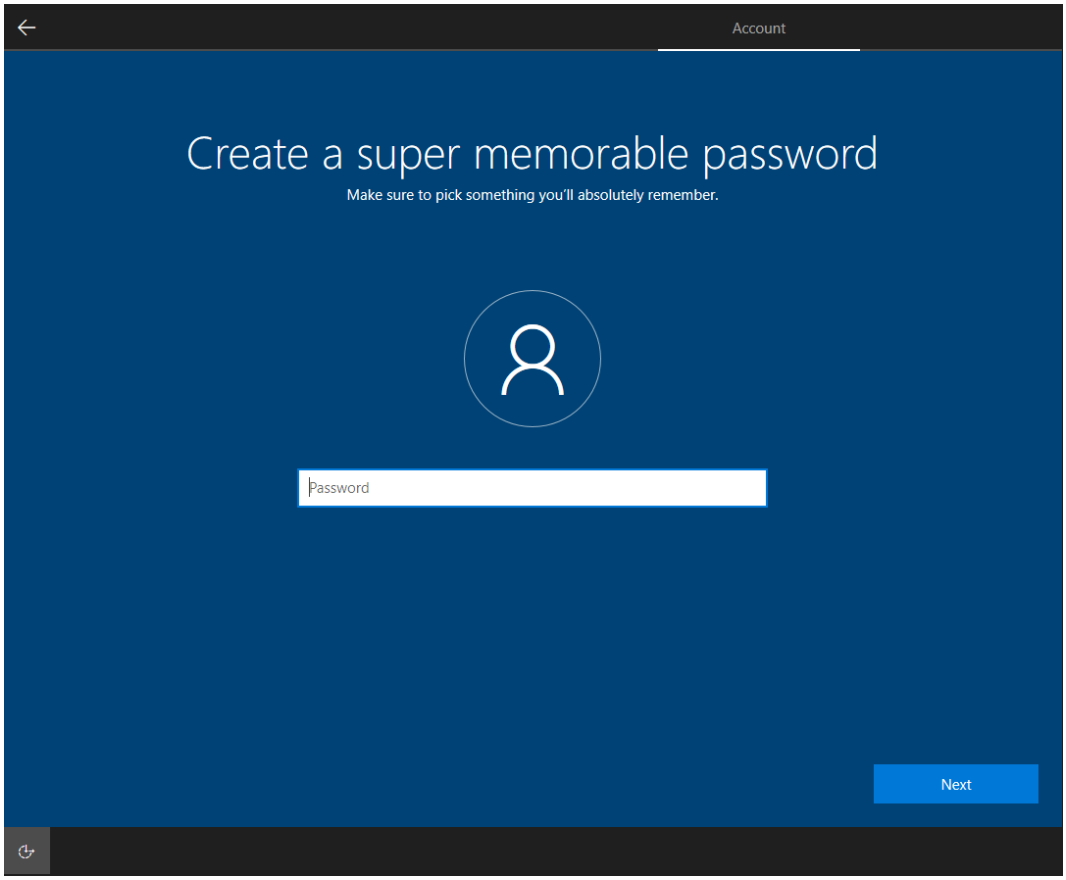




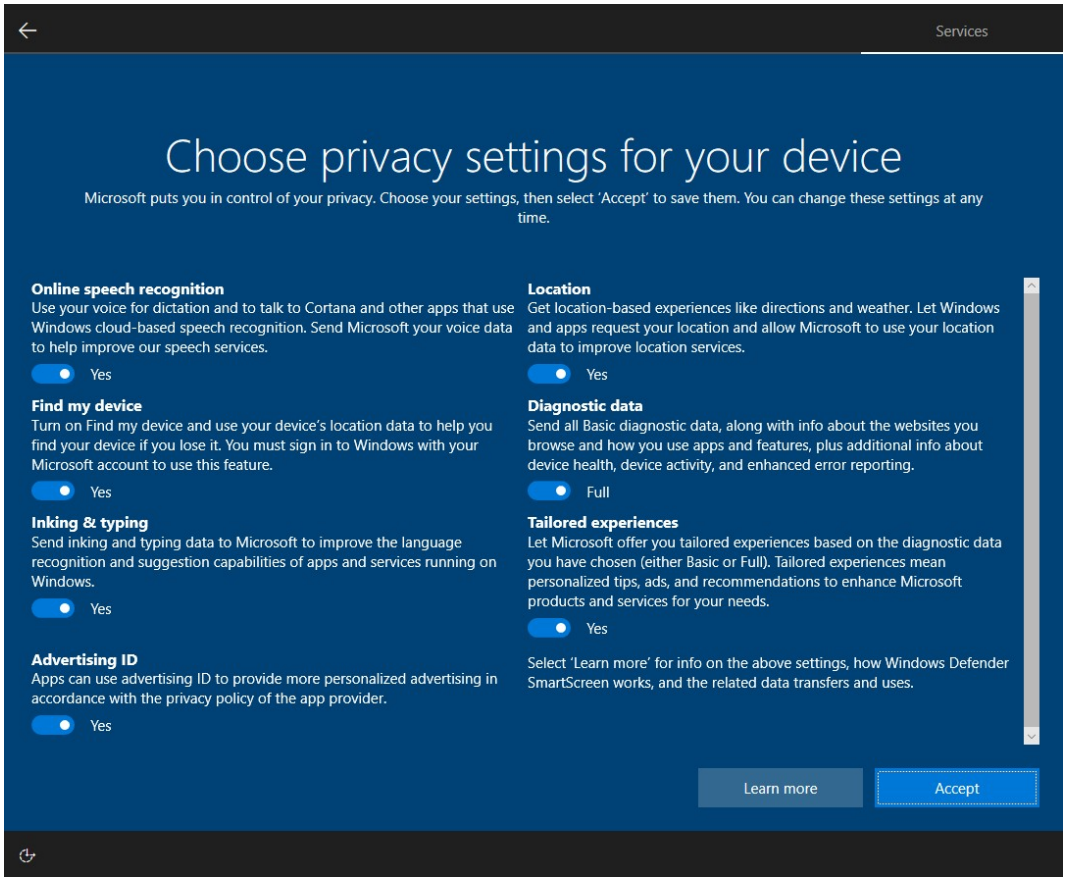
5. Sign in to or create a local account or a Microsoft account (MSA).



6. Set a password.

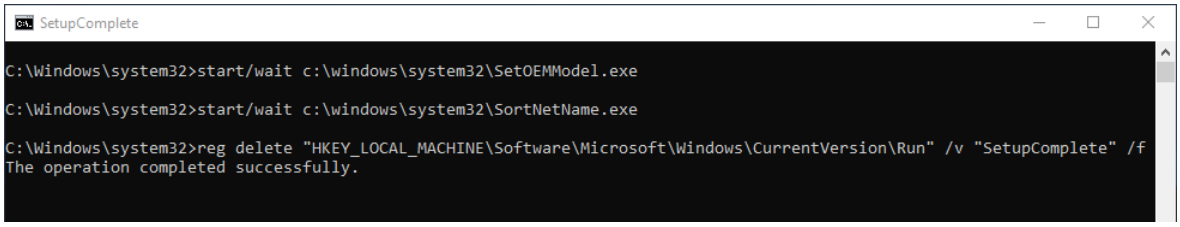


7. Choose your privacy settings.



Initializing the System

After the OOBE settings, you will be redirected to the device desktop of the device. Wait until the process is complete.



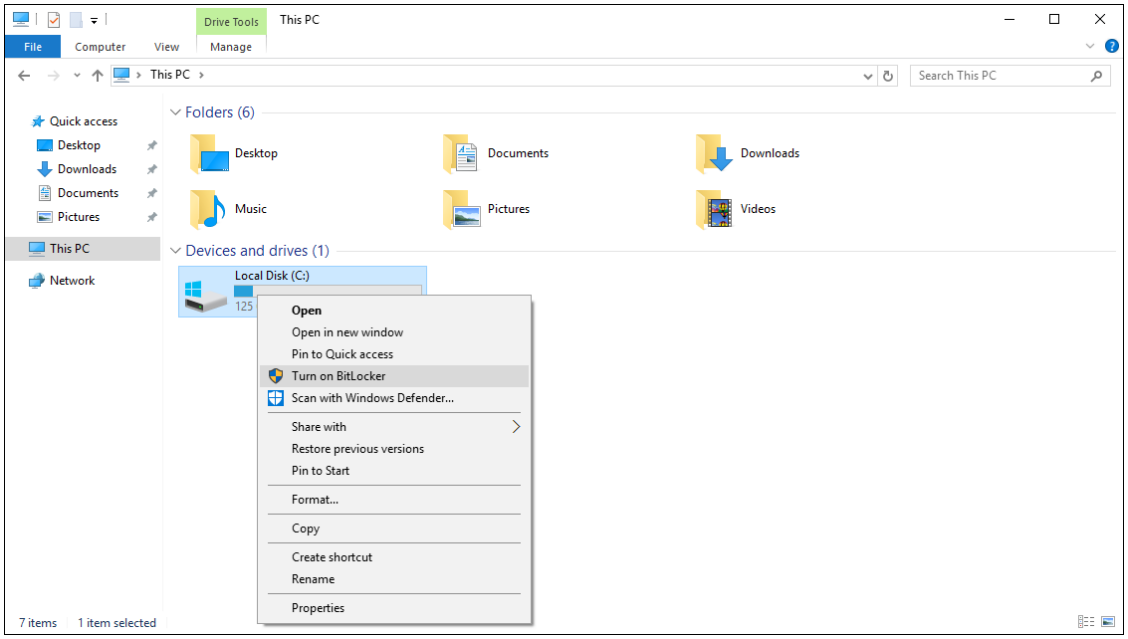
After the process is completed, the system initialization is done. The device will reboot, and the new settings will take effect after the system restarts.

3. BitLocker

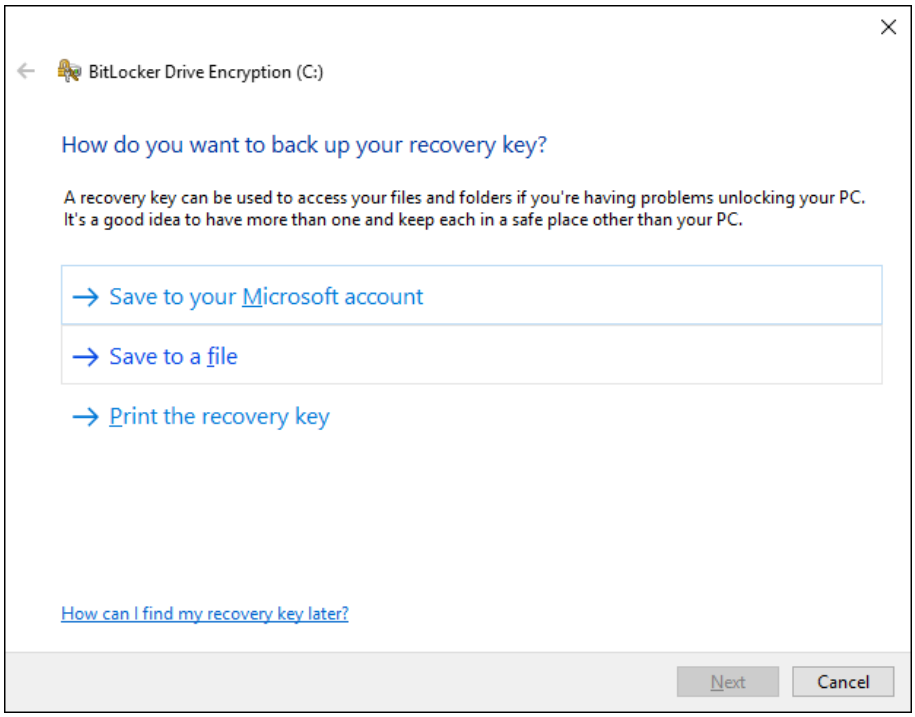
This chapter describes the BitLocker setup process.

Enabling the BitLocker

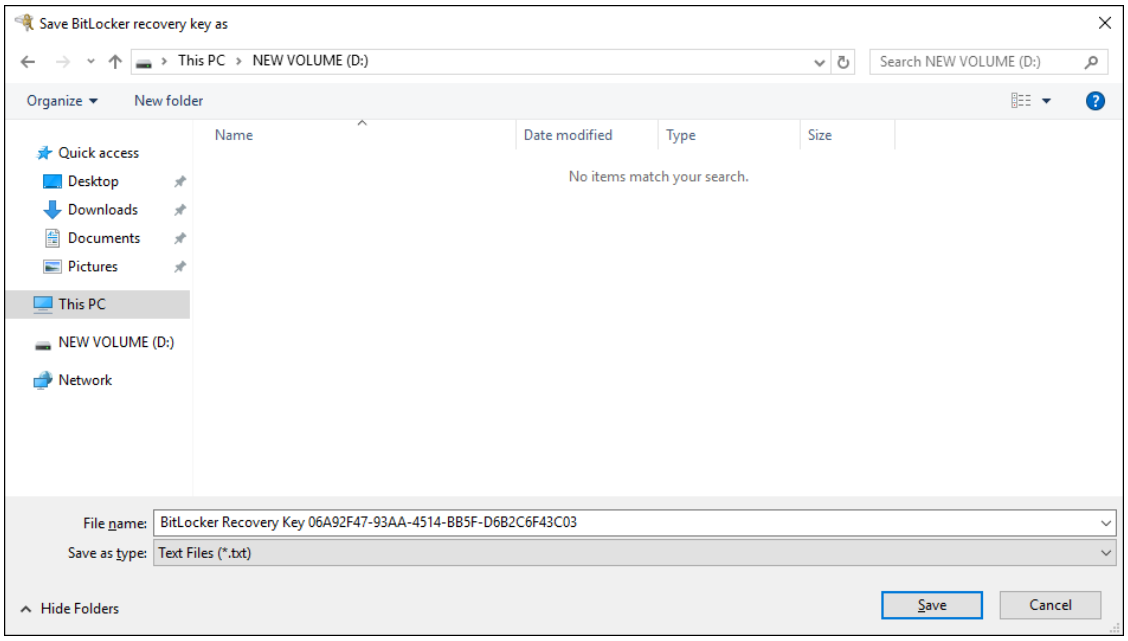
1. In the **Windows Devices and drives**, right-click on the drive and select **Turn on BitLocker**.



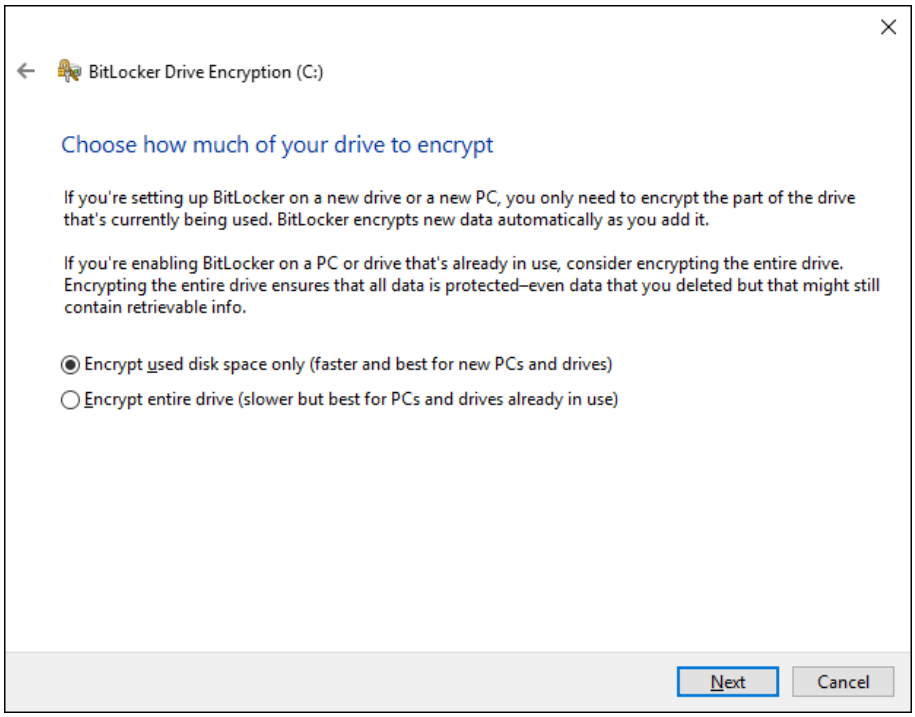
2. Select an option to back up the recovery key. For example, select **Save to a file**.

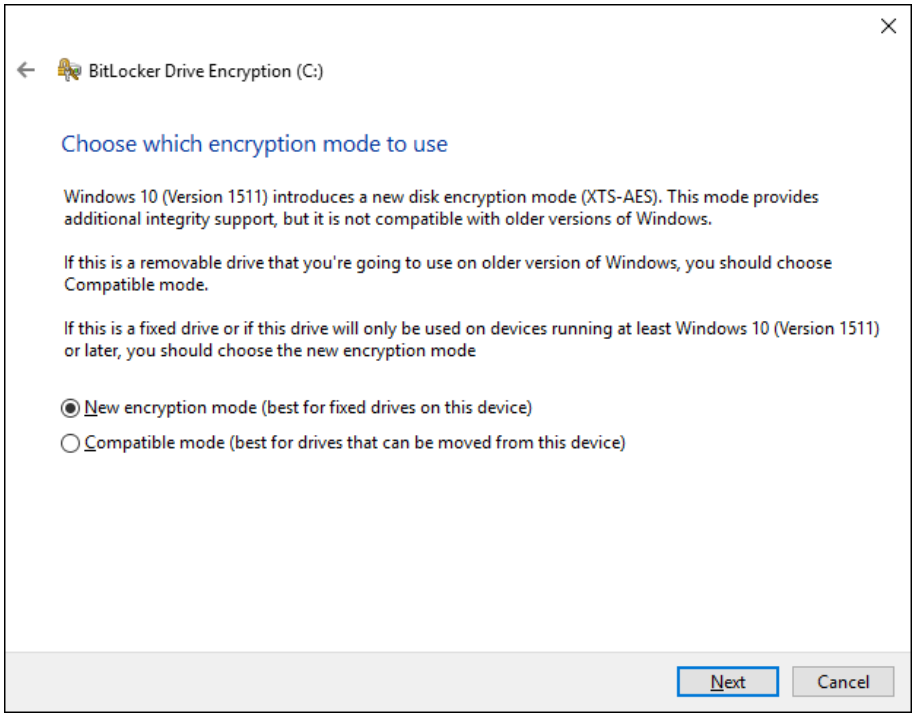


3. Select the path to store the file in.

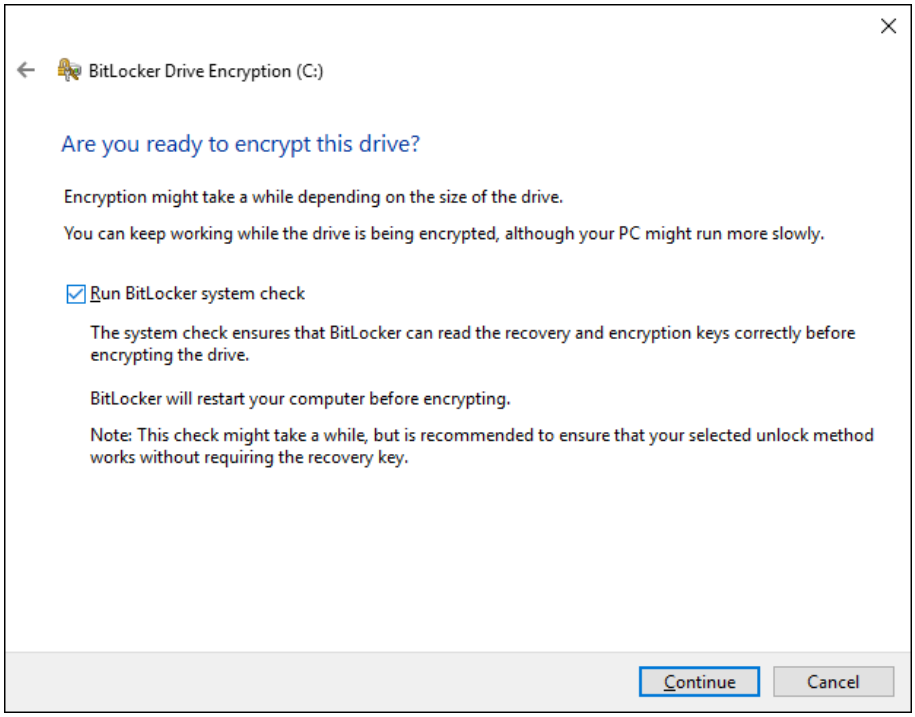


4. Follow the onscreen instructions to specify the drive encryption options.

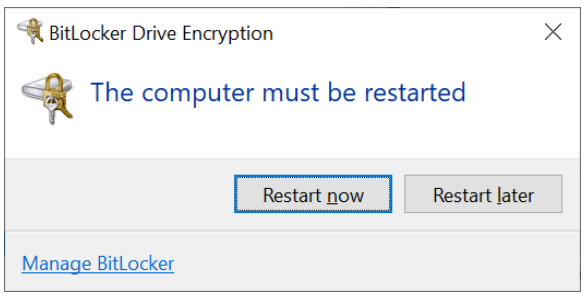




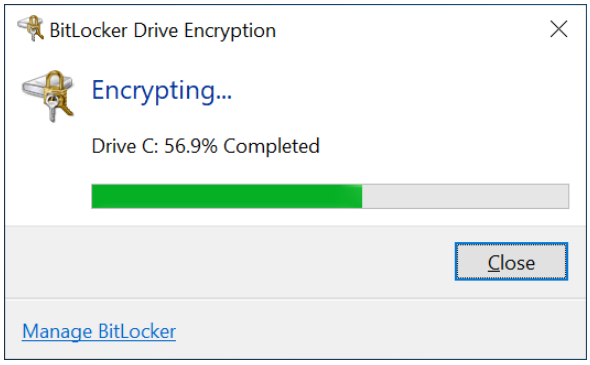
5. Click **Continue**.



6. Restart the computer.

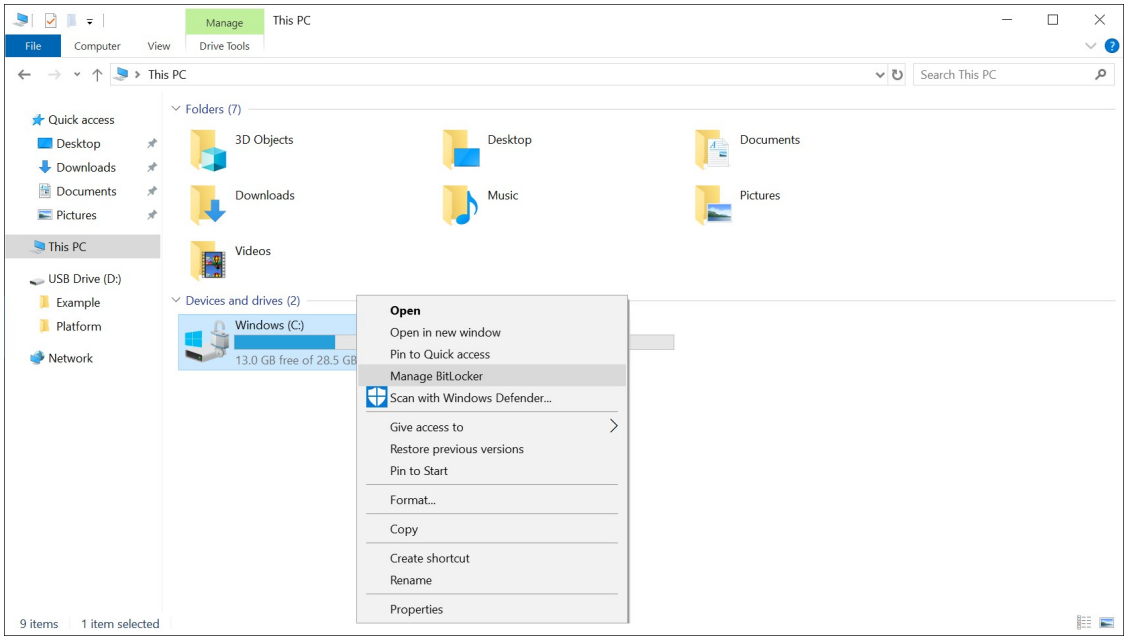


7. Wait for the encryption process to complete and then click **Close**.

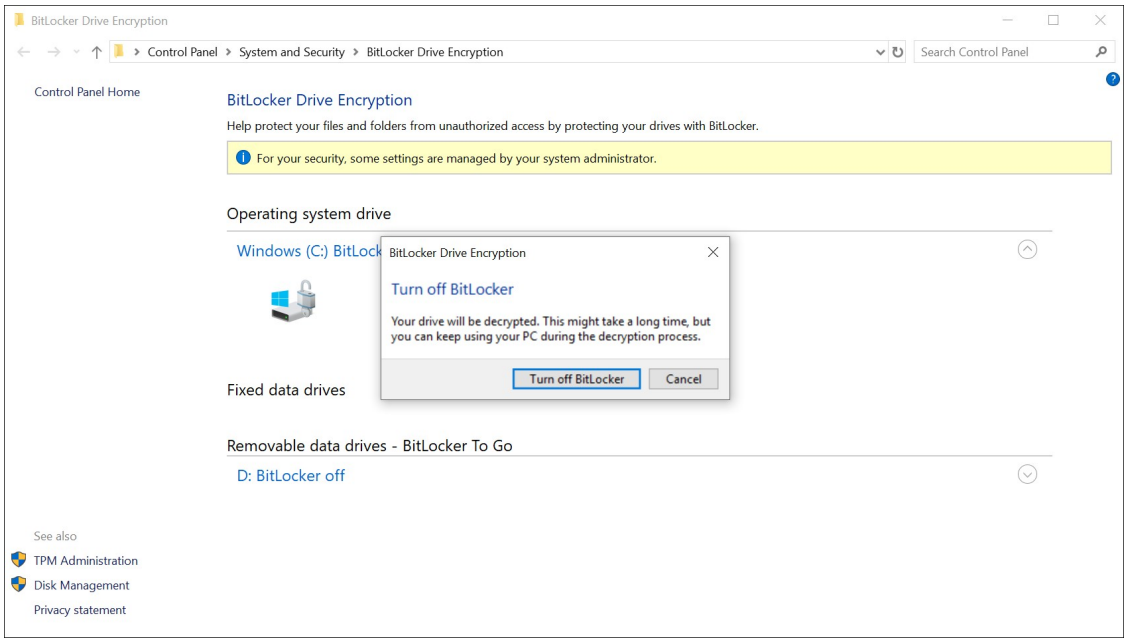


Disabling the BitLocker

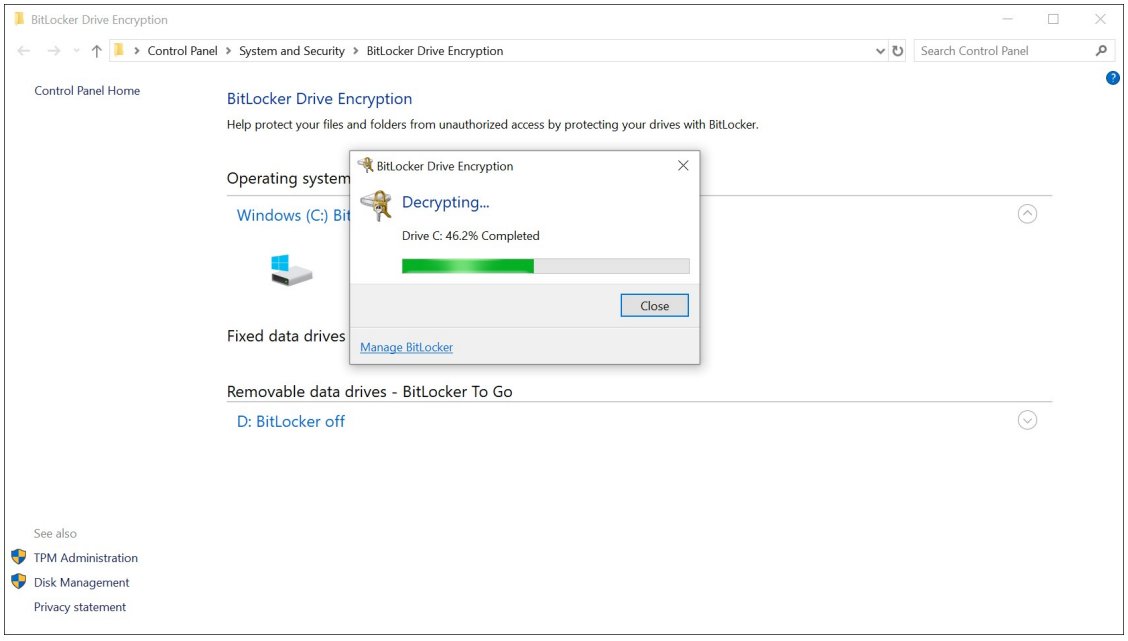
1. In the **Windows Devices and drives**, right-click on the drive and select **Manage BitLocker**.

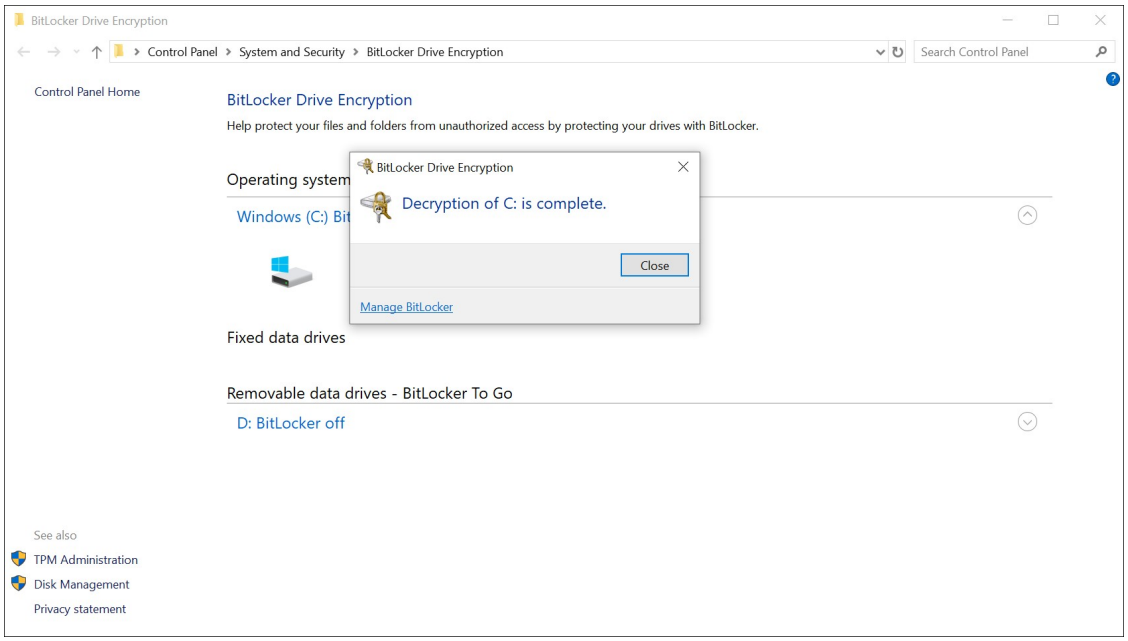


2. Click on **Turn off BitLocker**.

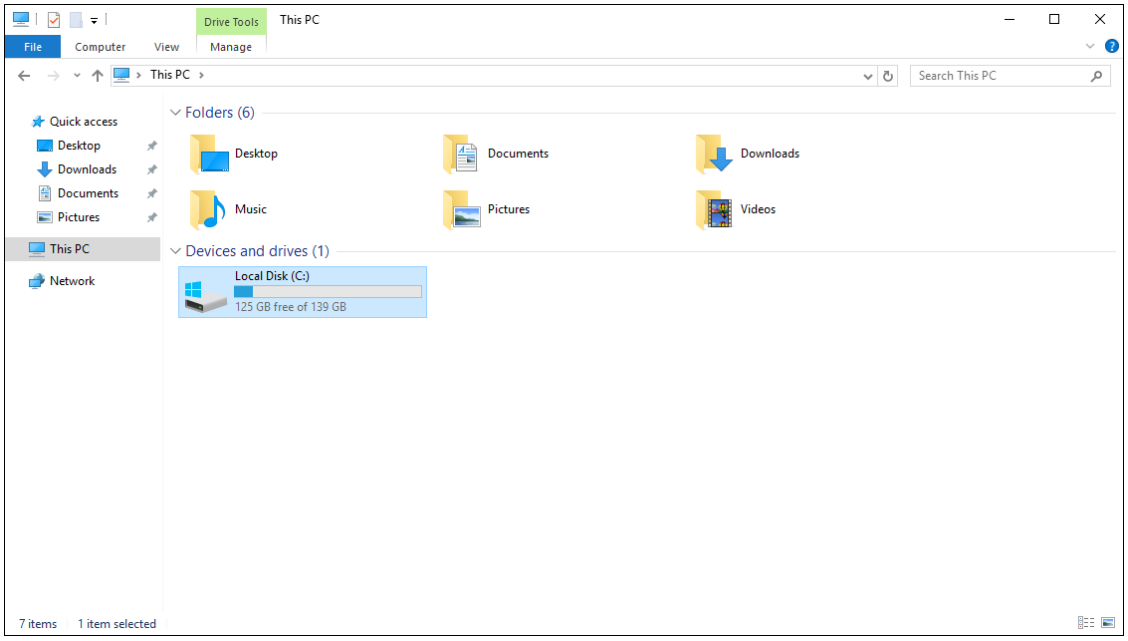


3. Wait for the decryption process to complete and click **Close** to exit the program.





4. Check the disk status after the decryption process is completed.

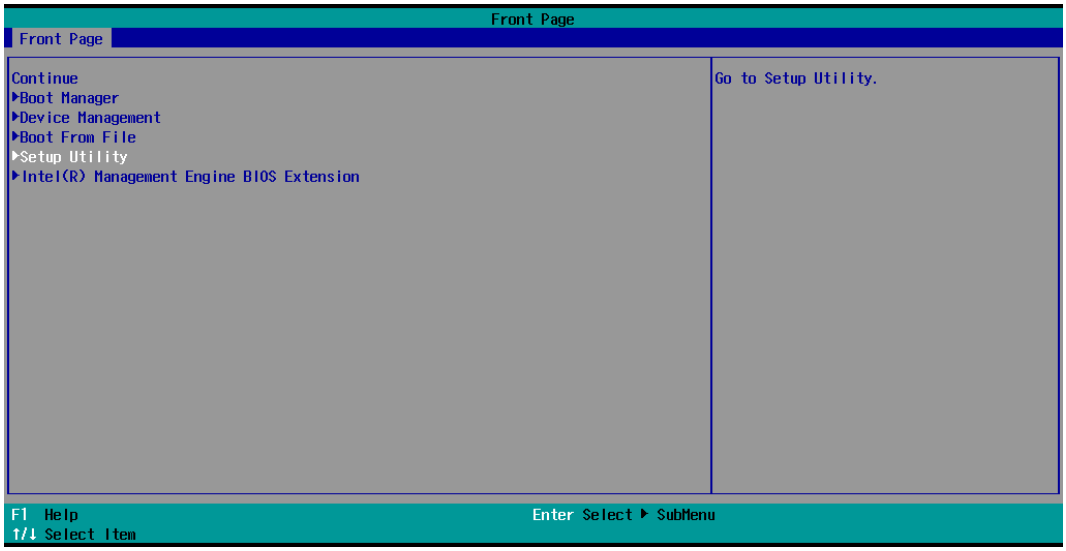


4. Configuring RAID

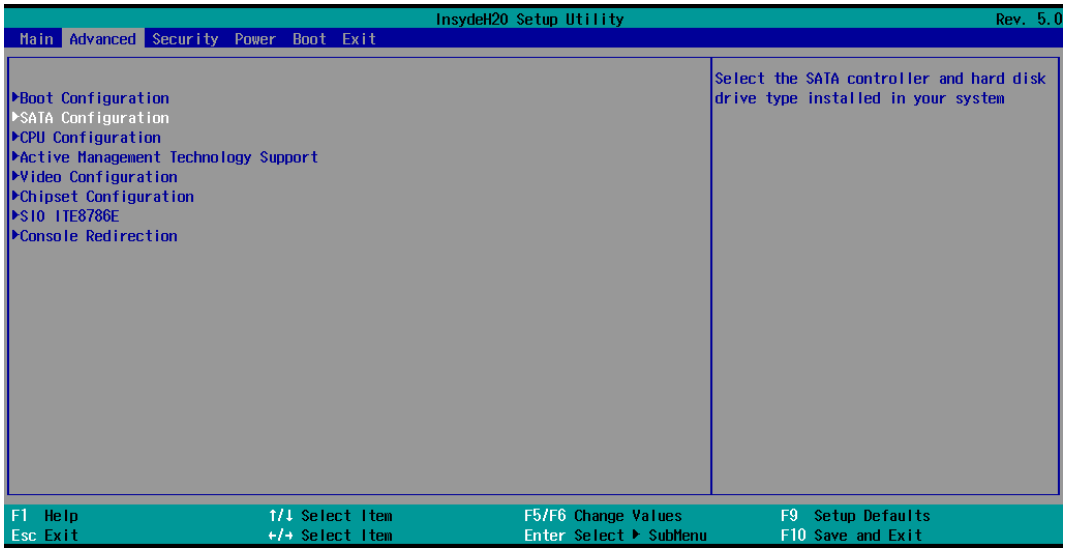
This chapter describes the setup process for RAID.

Changing the RAID Mode

1. Power on the computer and press **F2** to enter the BIOS menu.
2. Select the **Setup Utility** option.

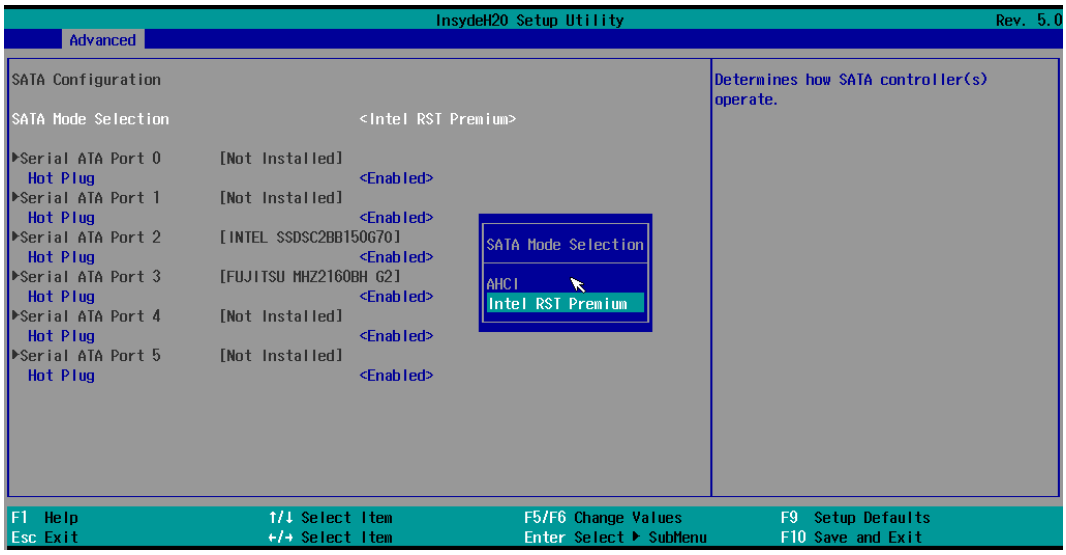


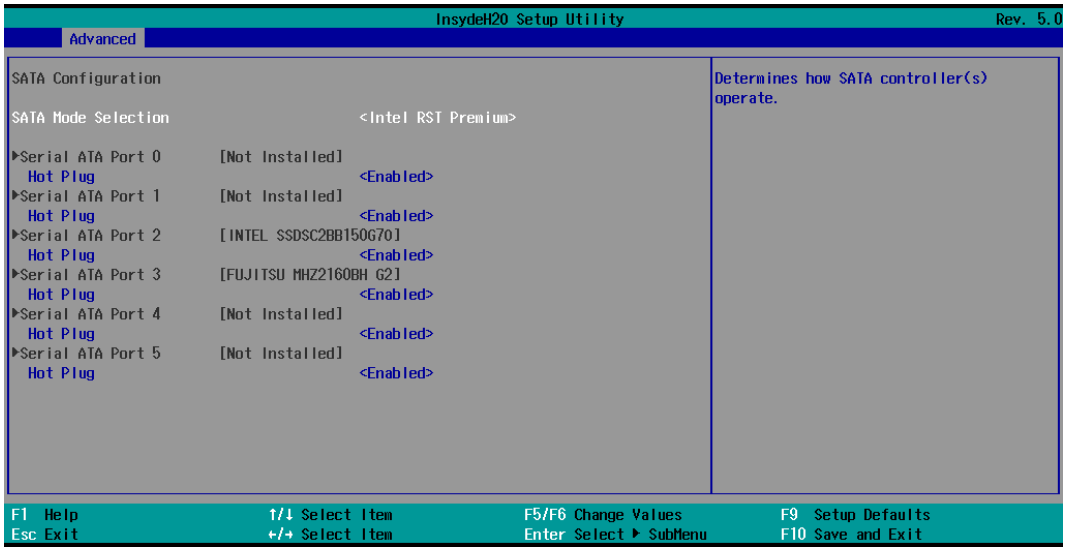
3. Select the **SATA Configuration** option.



4. If your device processor is older than **11th Gen Intel® Core™ Processor (Intel® Tiger-Lake)**, select the **SATA Mode Selection** followed by the **Intel RST Premium option**.

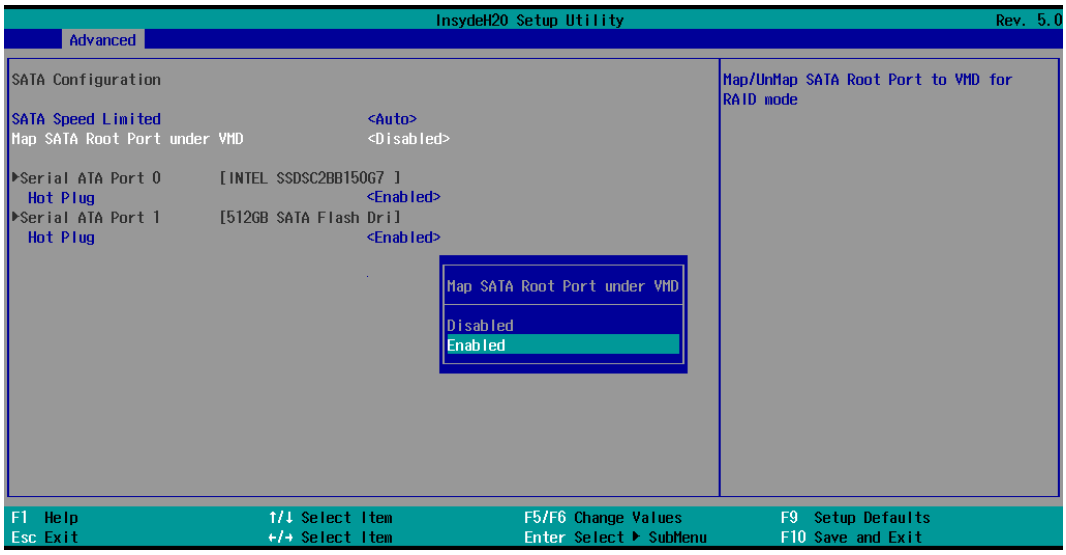
   Enable the **Hot Plug** function on all ports.

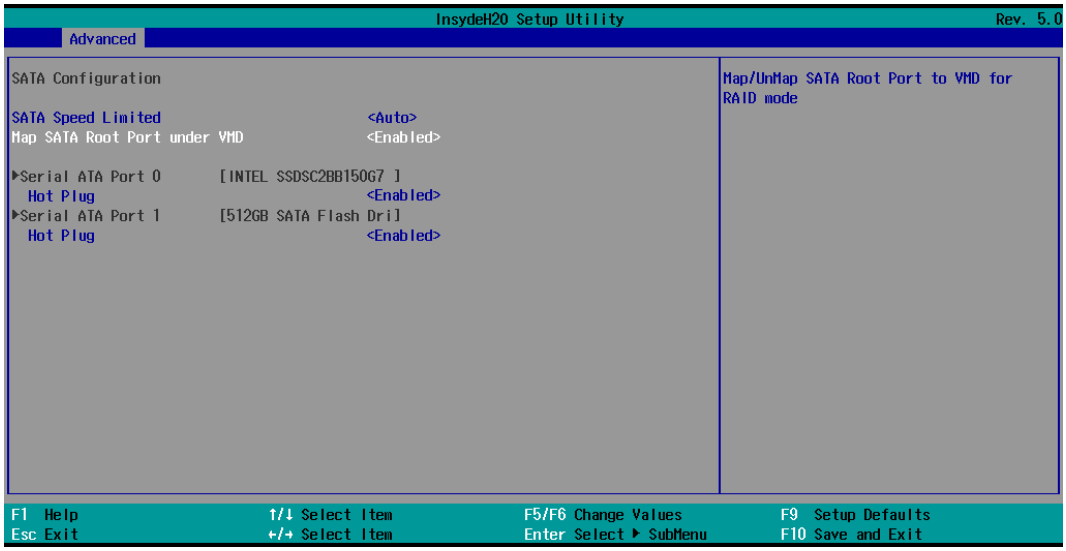




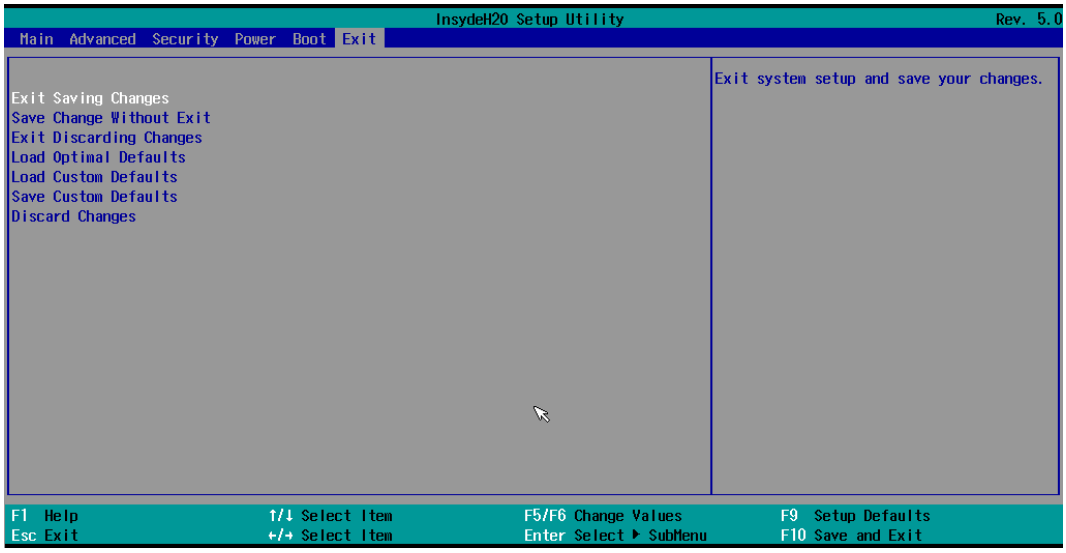
5. If your device CPU is **11th Gen Intel® Core™ Processors (Intel® Tiger-Lake)** or newer processor generation, select the **Map SATA Root Port under VMD** and **Enable** this option.

   Enable the **Hot Plug** function on all ports.

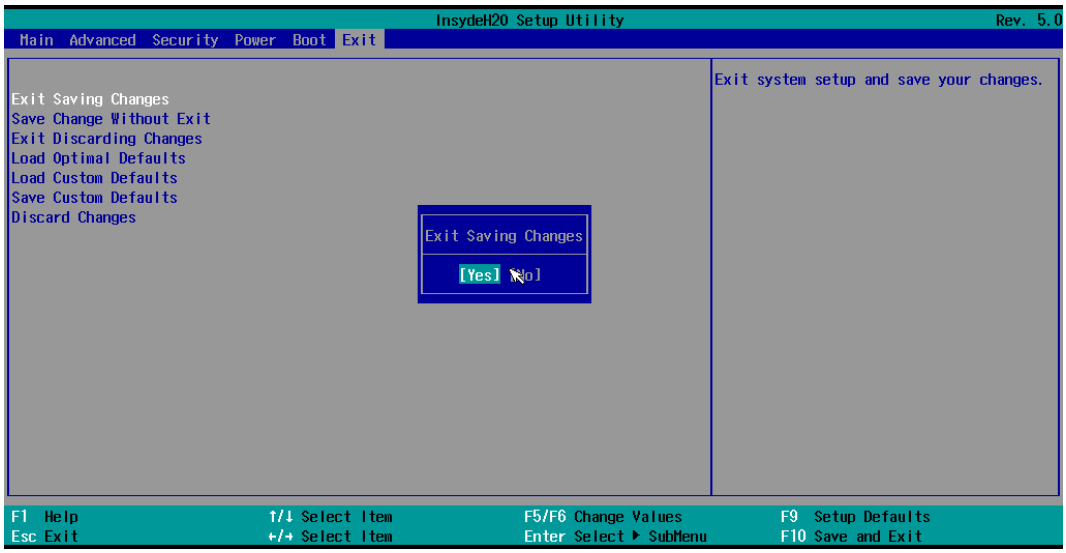




6. Press **F10** to save the settings and then press **ESC** to return to the main page.

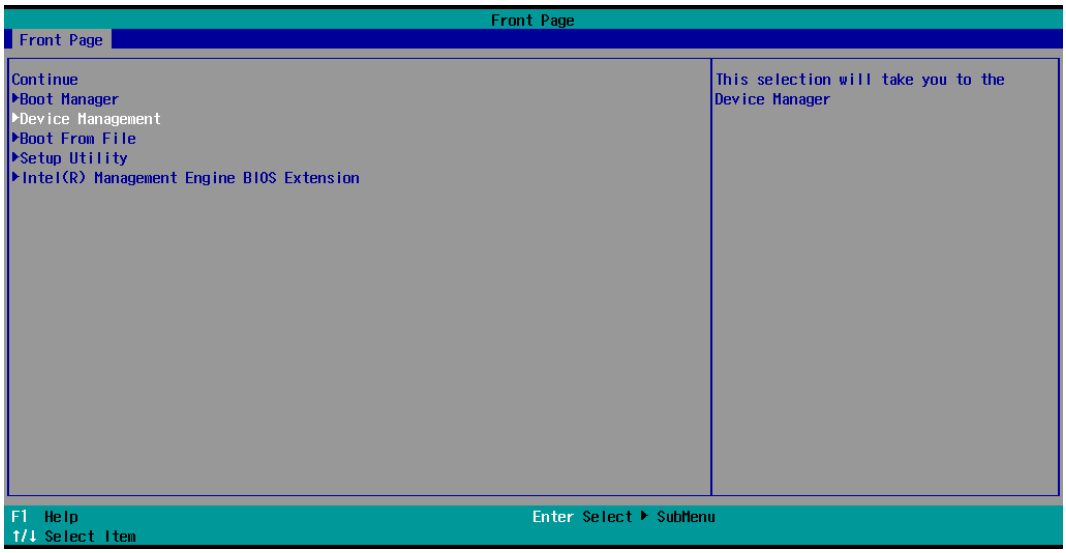


7. Select **Exit Saving Changes**, and then select **Yes** to save the settings.

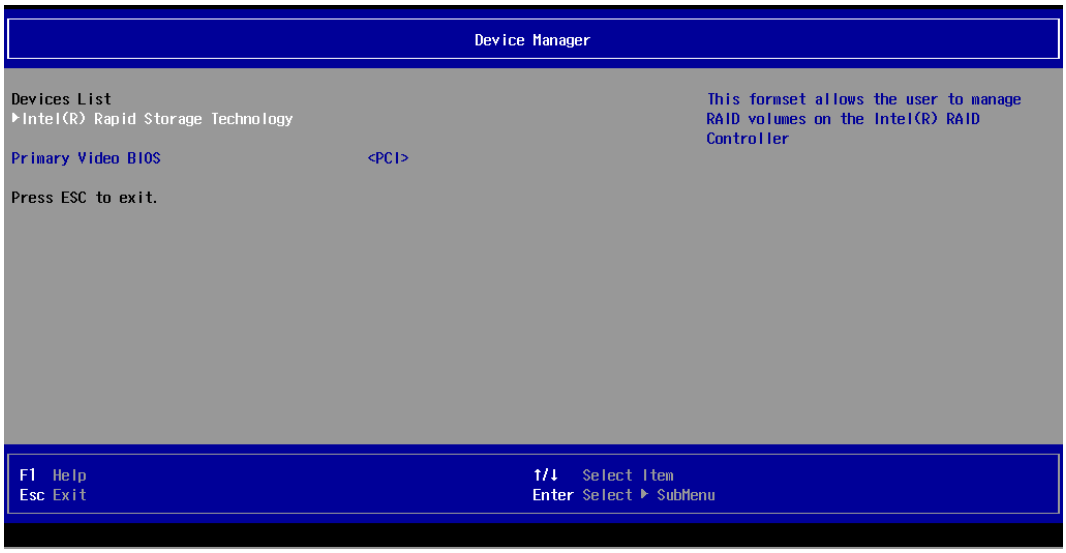


Creating a RAID Disk in BIOS

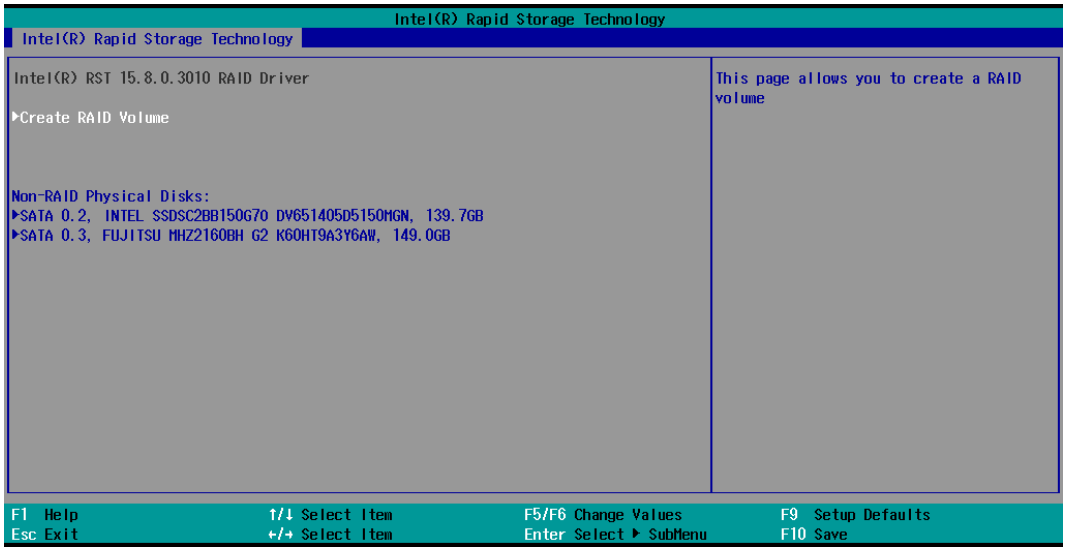
1. Power on the computer and press **F2** to enter the BIOS menu.
2. Select the **Device Management** option.



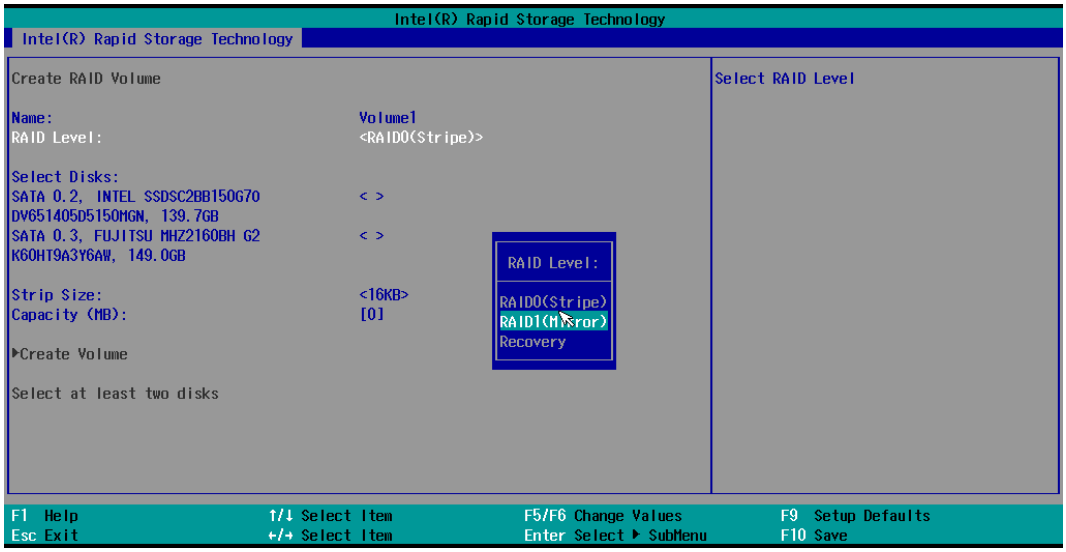
3. Select **Intel® Rapid Storage Technology**.

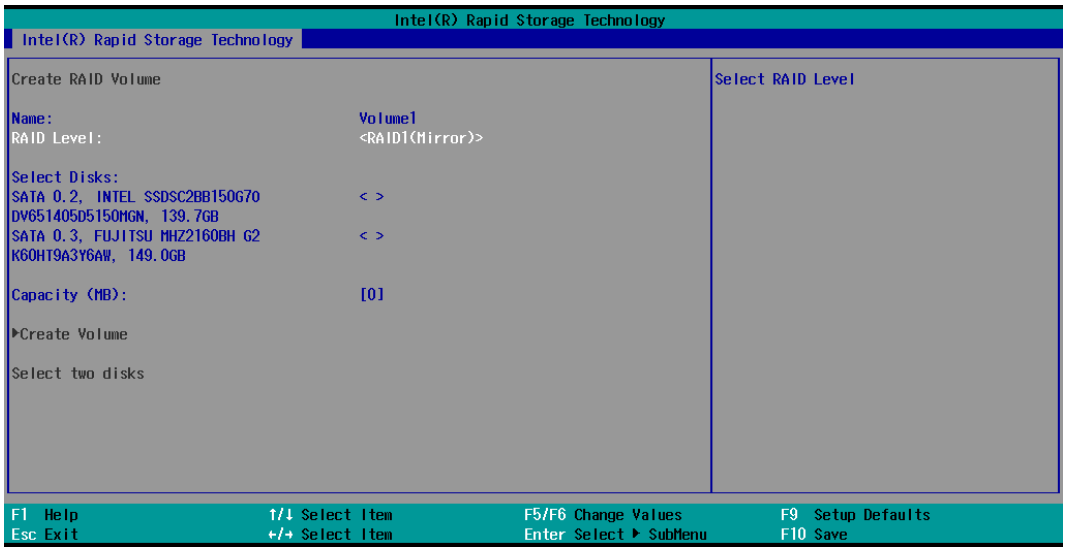


4. Select **Create RAID Volume**.

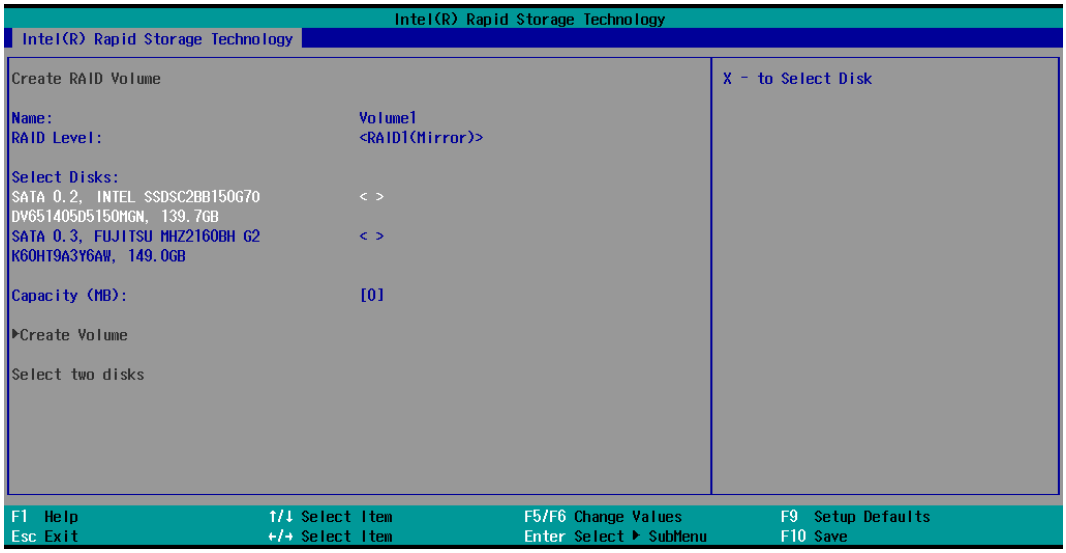


5. Select the **RAID Level** option and then press **Enter** to select the raid level; for example, **RAID1(Mirror)**.

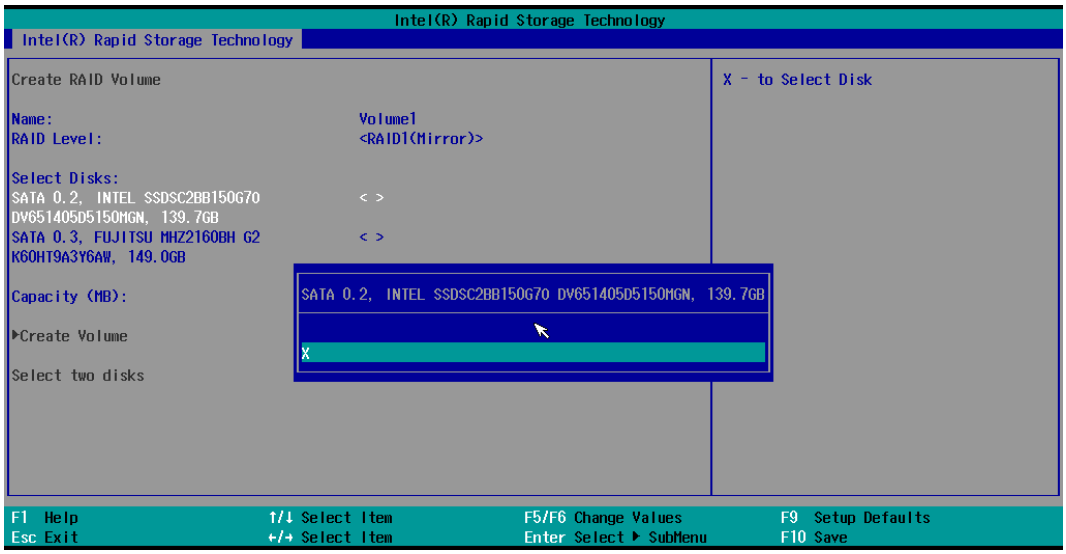




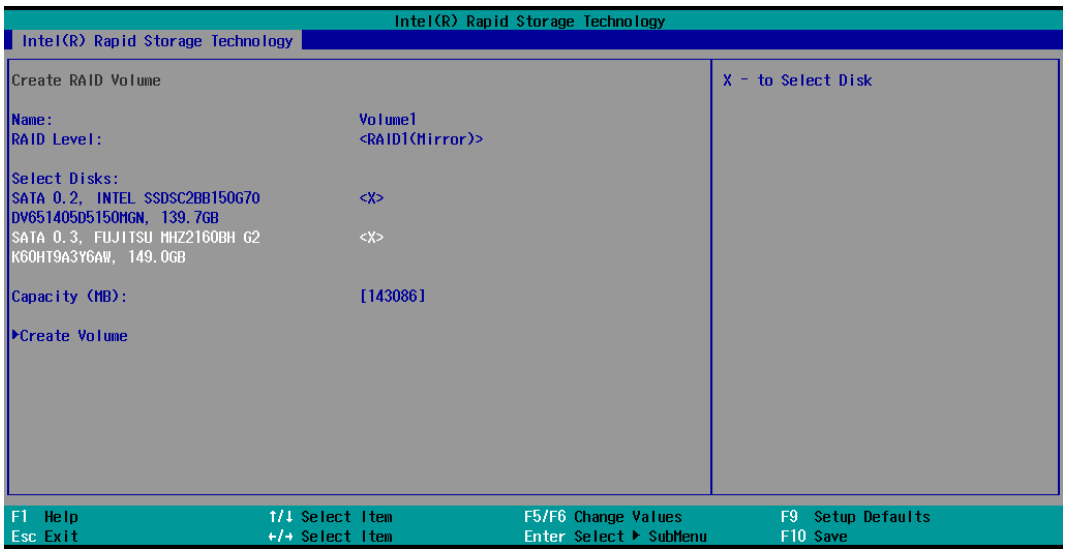
6. Select the target disk.



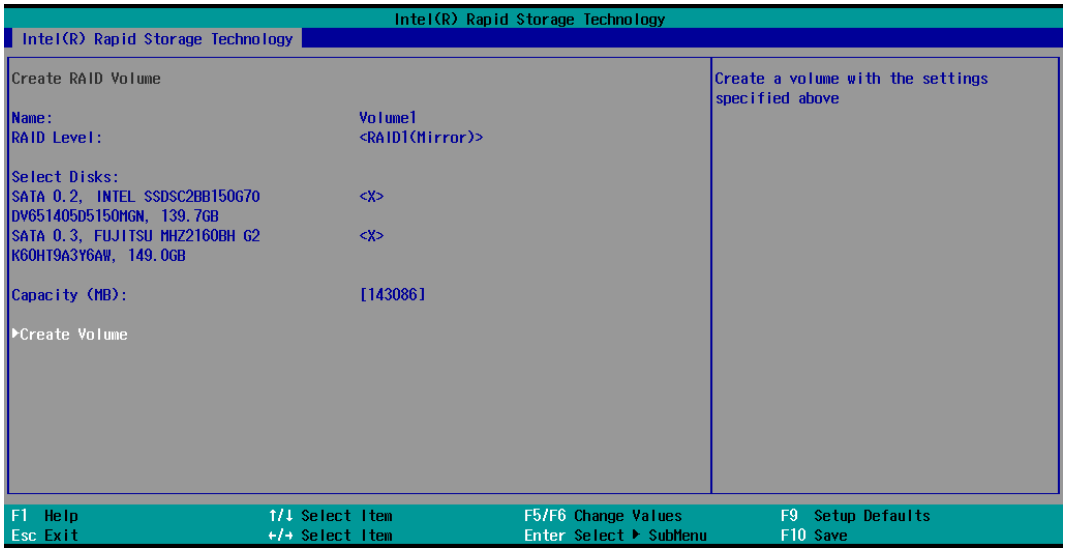
7. Enter **X** and then press **Enter**.



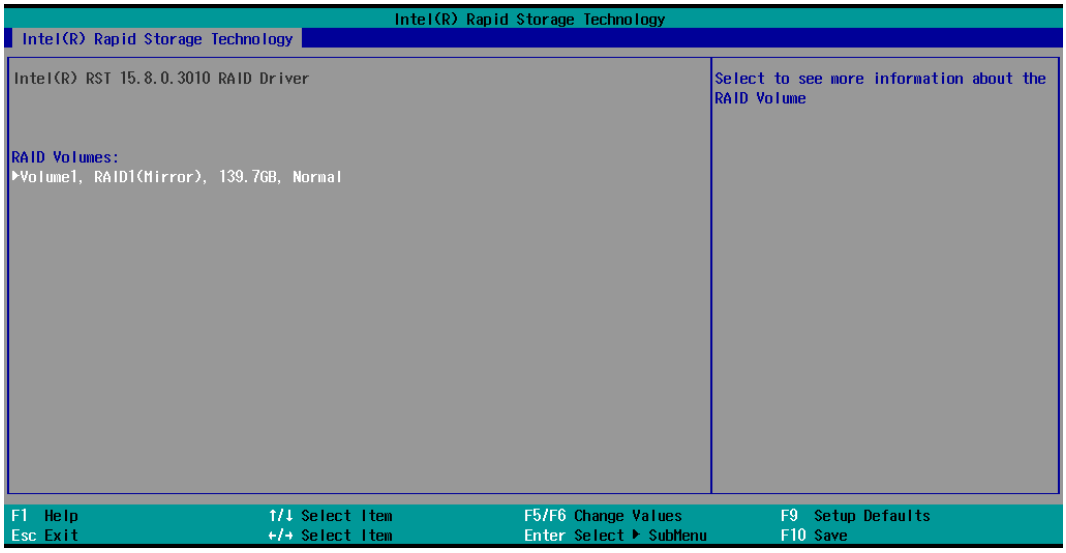
8. The disk is now marked with an **X** next to it to indicate the selection.



9. Select the **Create Volume** option.



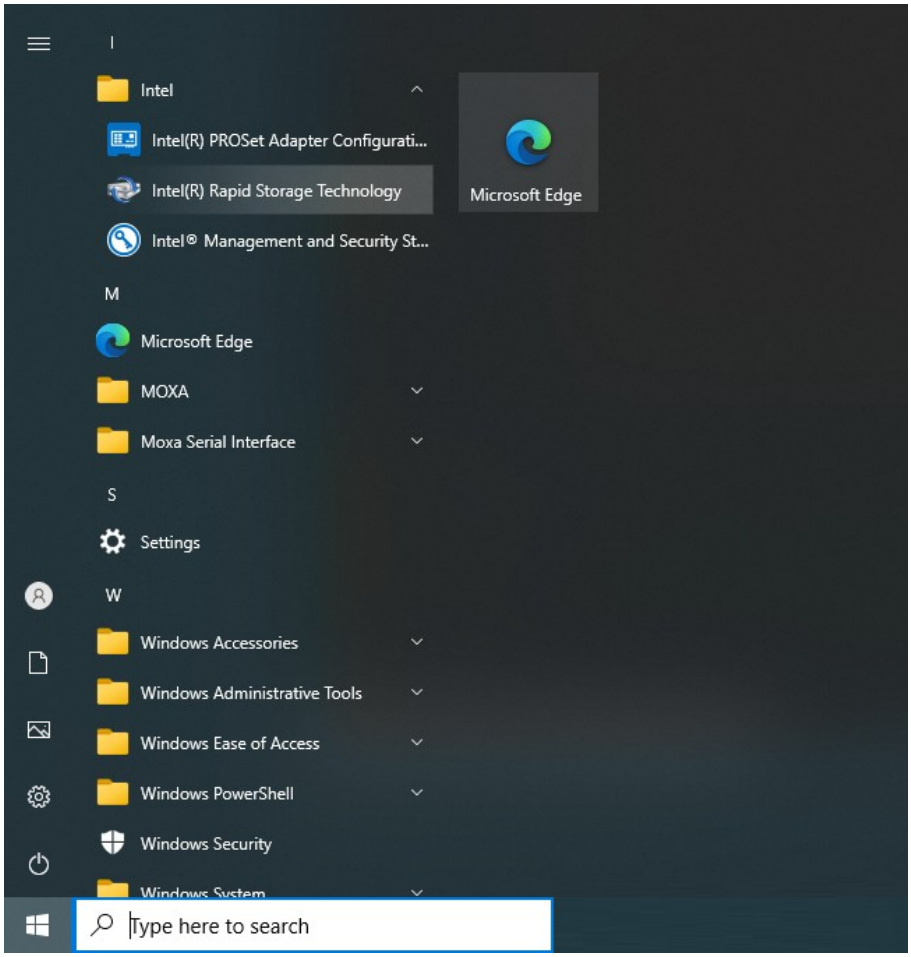
10. A RAID volume is created based on the settings specified.



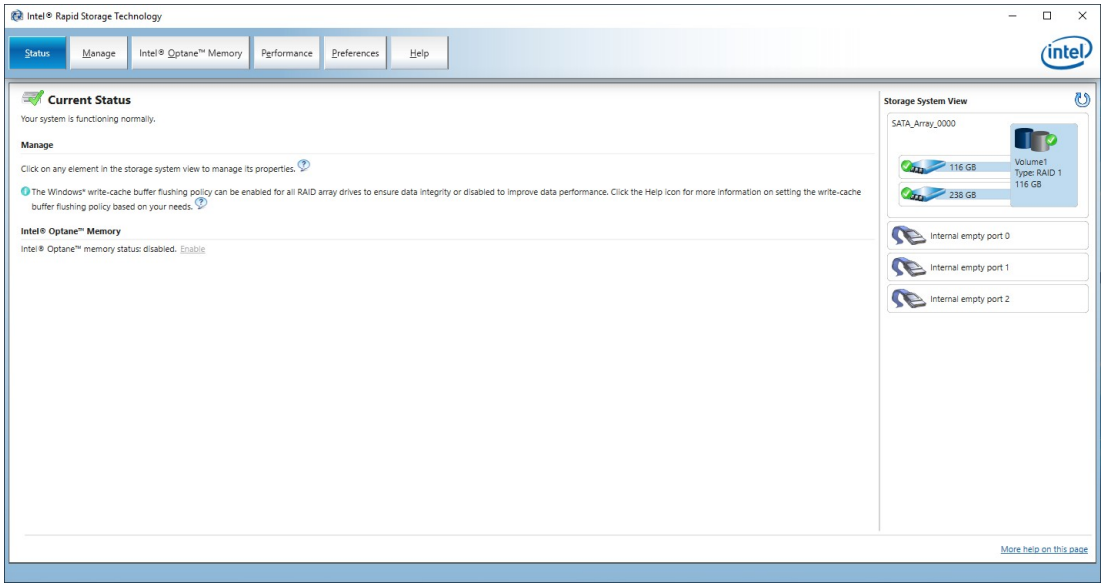
11. Press **F10** to save the settings.

Replacing a Disk

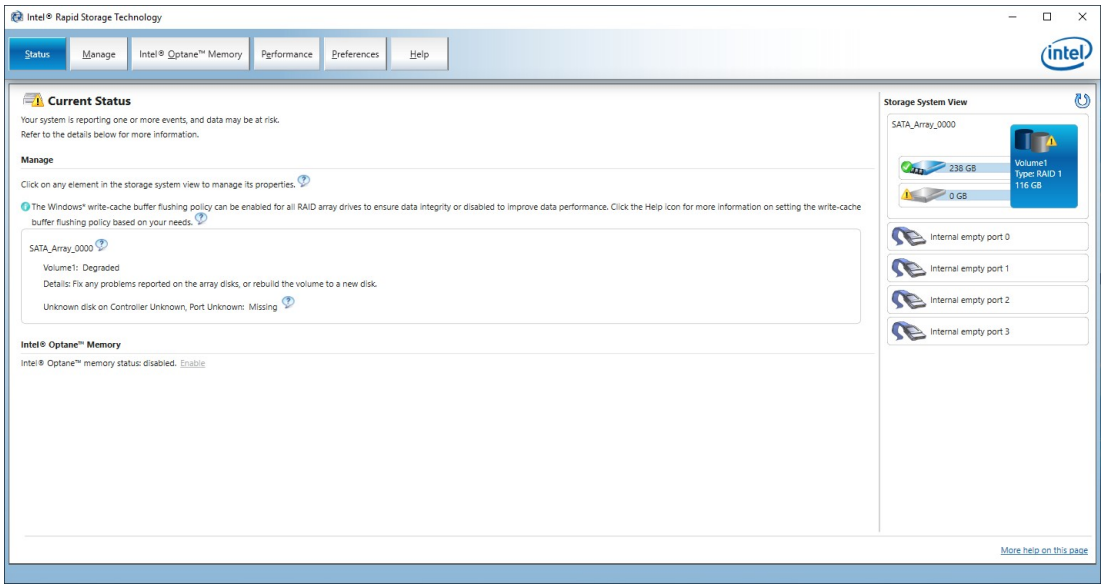
1. Run **Intel® Rapid Storage Technology** from the Windows Start menu.



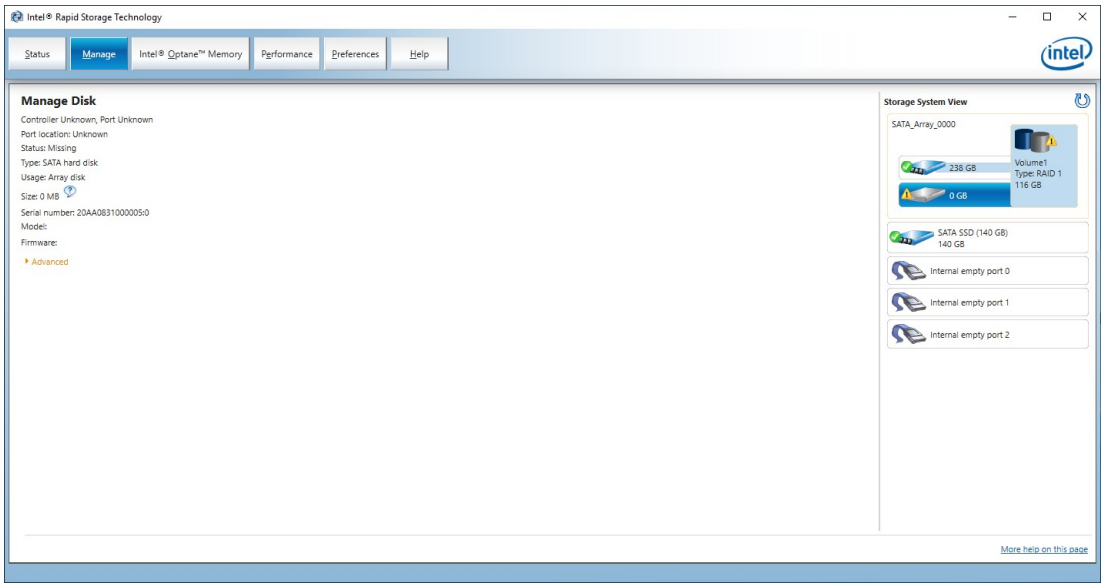
2. Physically unplug the target SSD.



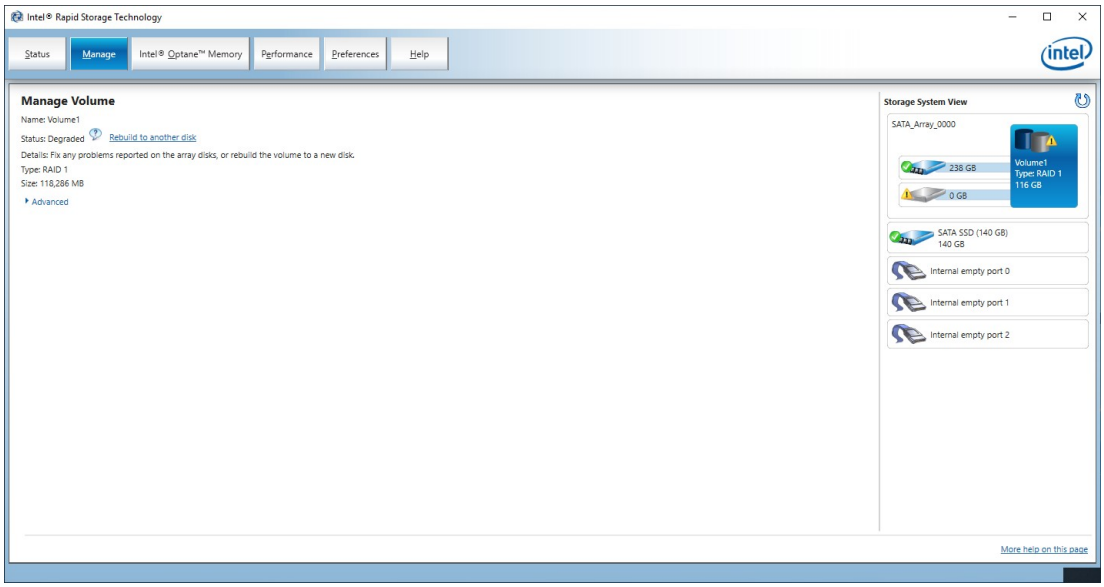
The status of the SSD that is unplugged will change from green (check mark) to yellow (exclamation mark) as shown below:

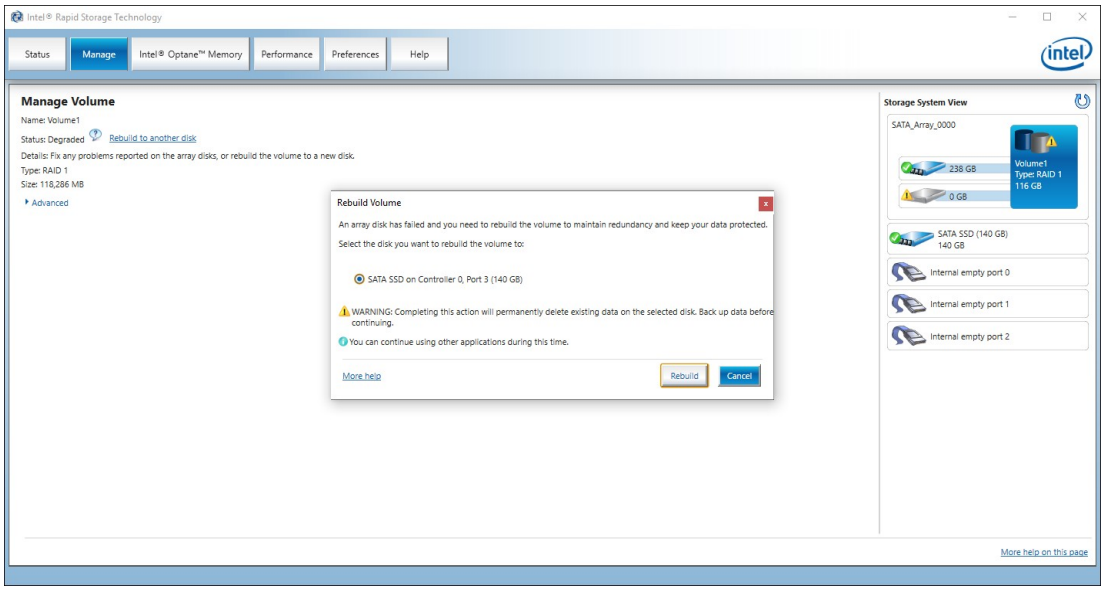


3. Install the new SSD.
4. Click on the **Manage** tab.

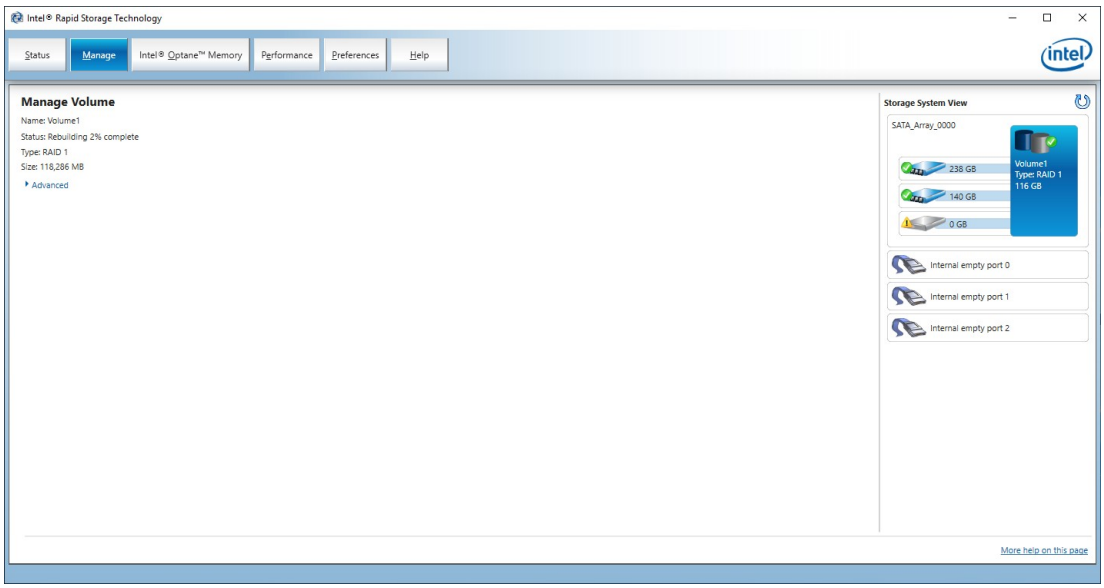


5. Select the new SSD and click **Rebuild**.



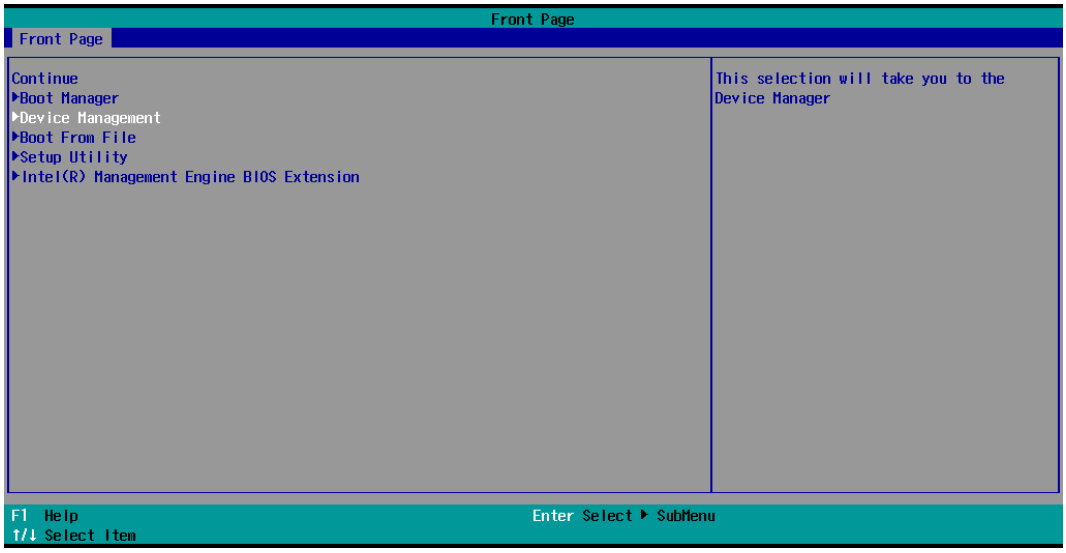


6. Wait for the rebuild process to complete.

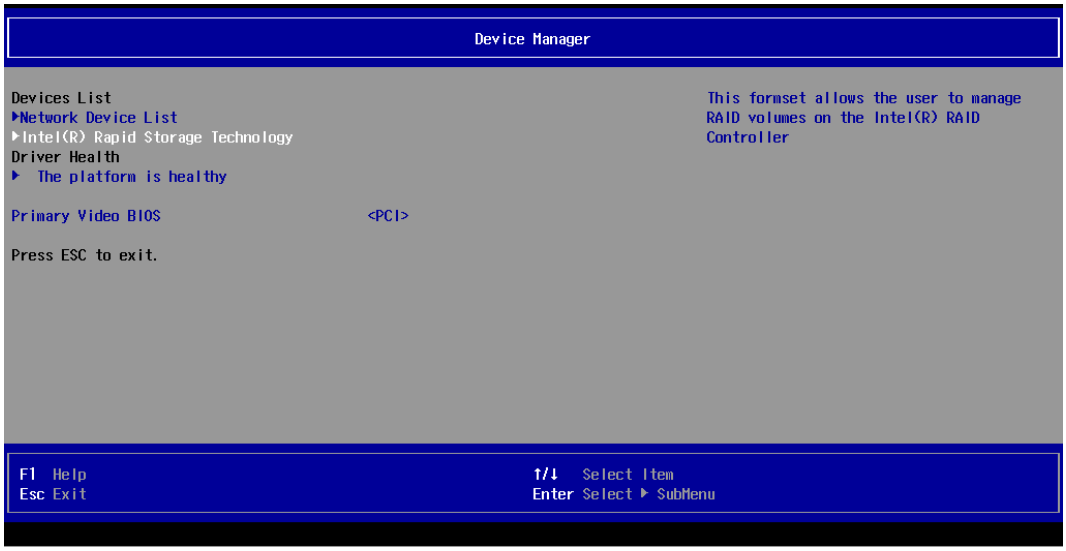


Removing a RAID Volume From the BIOS

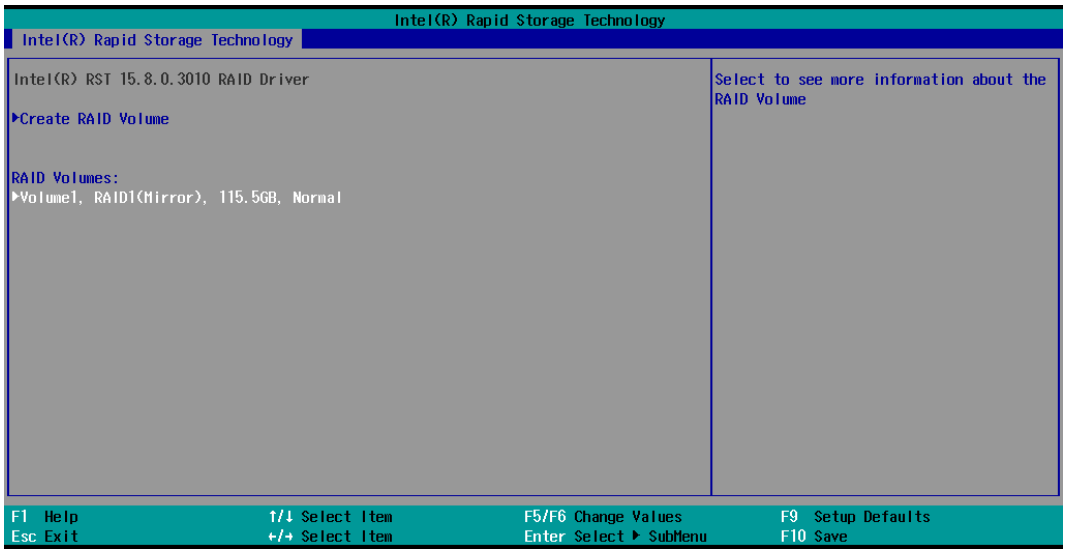
1. Power on the computer and press **F2** to enter the BIOS menu.
2. Select **Device Management**.



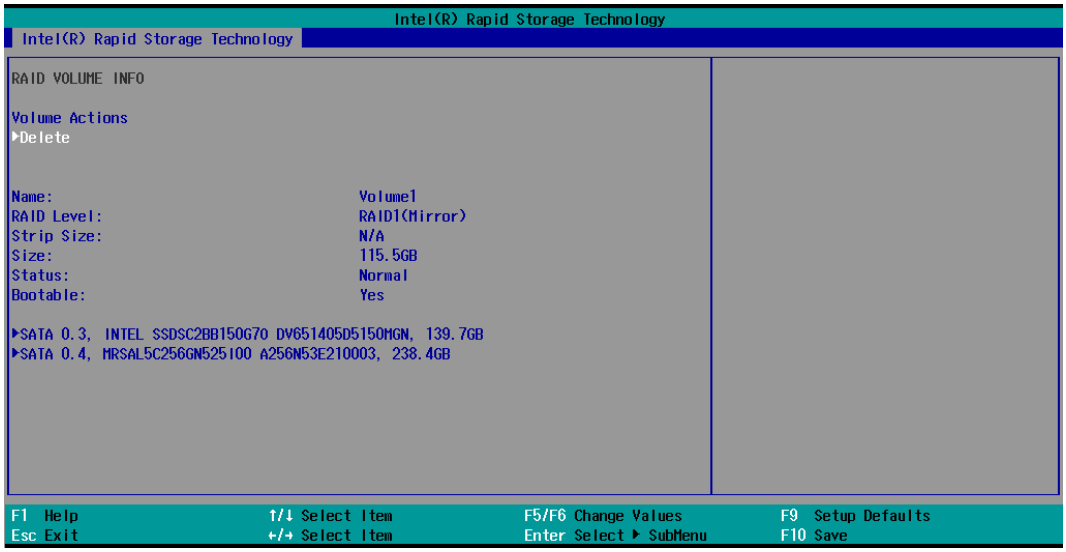
3. Select the **Intel® Rapid Storage Technology** option.



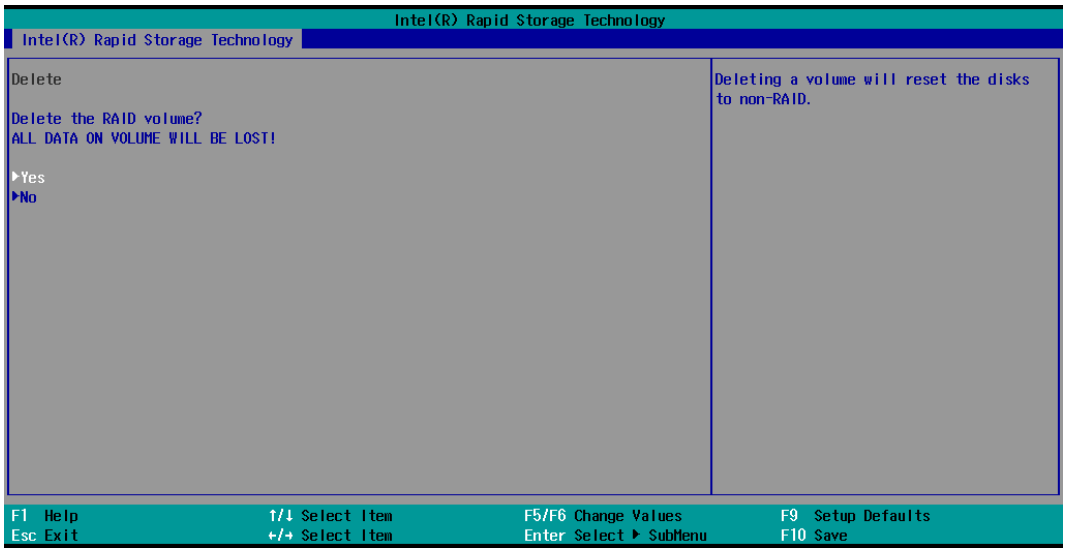
4. Select the RAID volume that you want to remove.



5. Select **Delete** and then press **Enter**.



6. Select **Yes** to confirm and then press **Enter**.



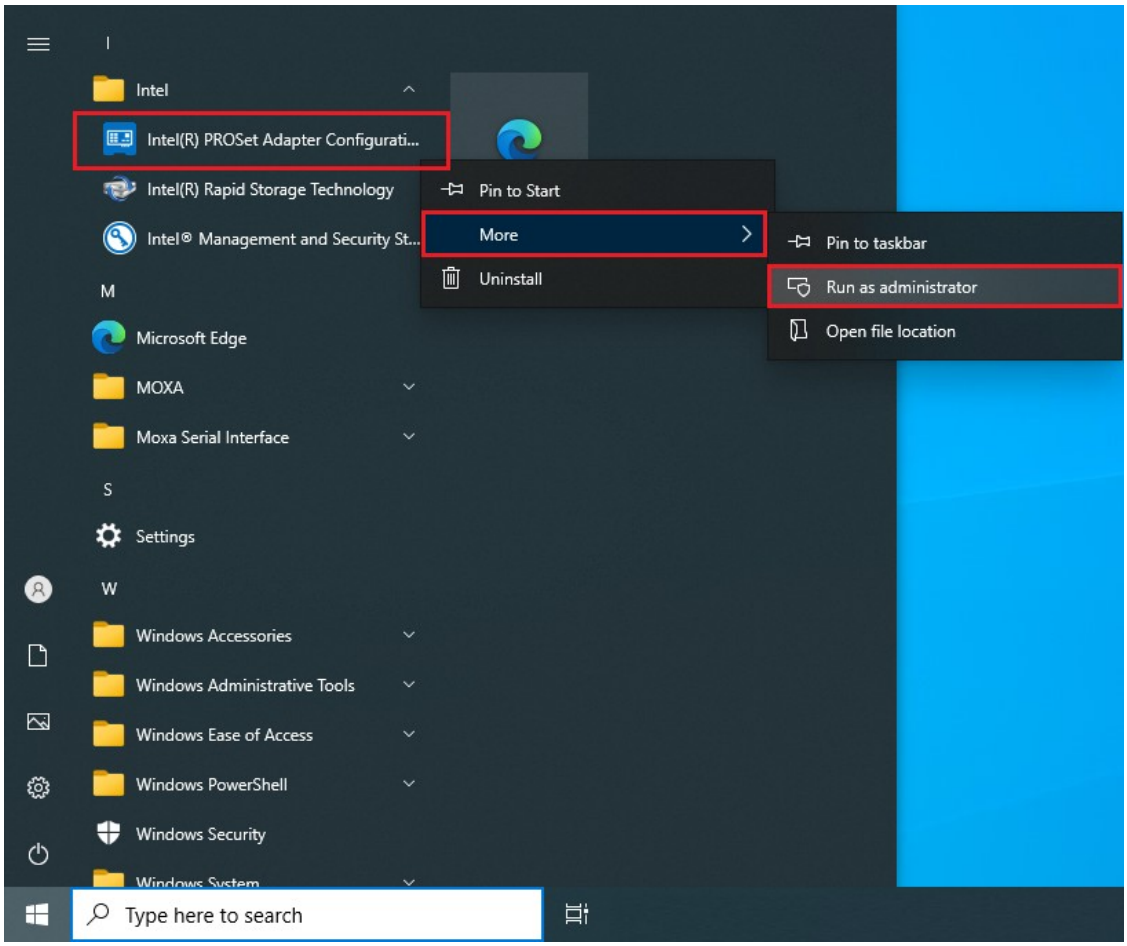
7. Press **F10** to save the settings.

Intel® Net Team

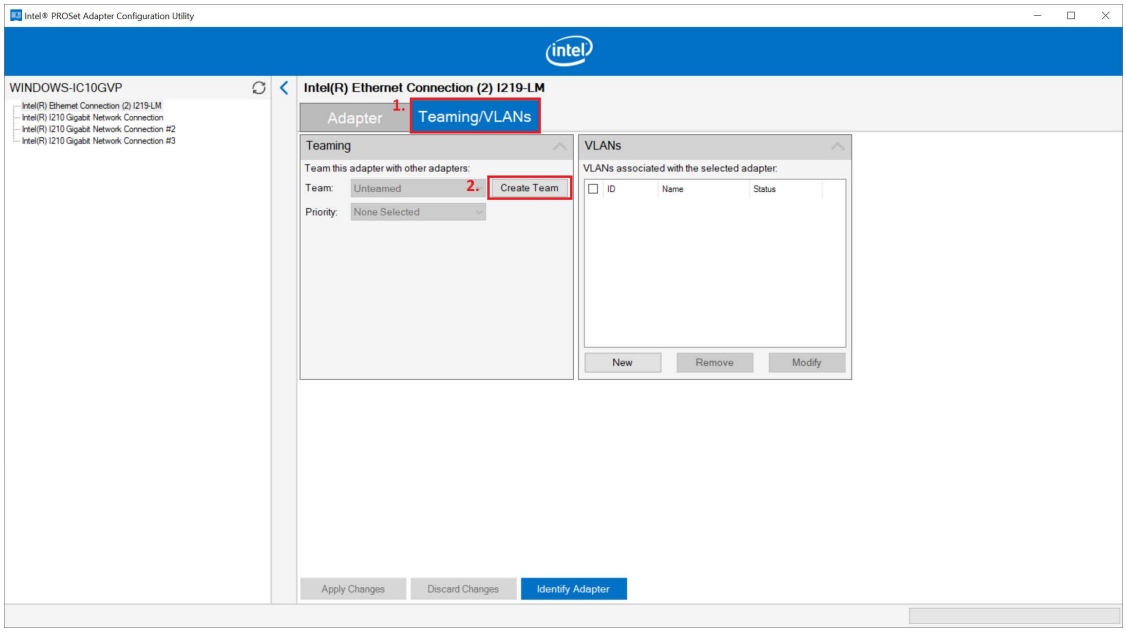
This chapter describes the setup process for the Intel® Teaming function.

Creating an Intel® Net Team

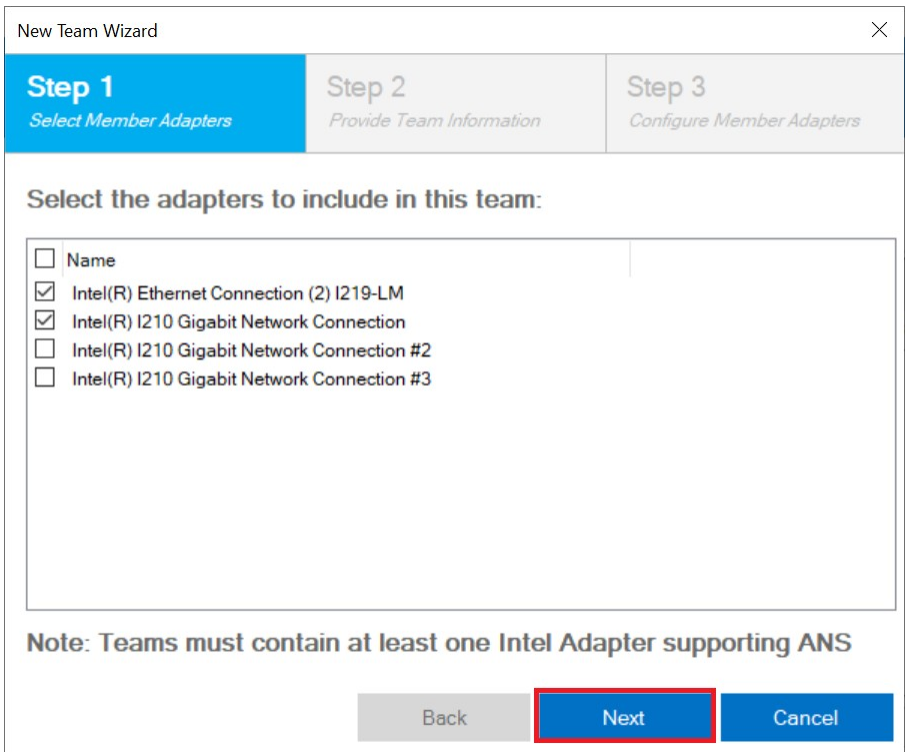
1. Run the **Intel® PROSet Adapter Configuration Utility** as administrator.



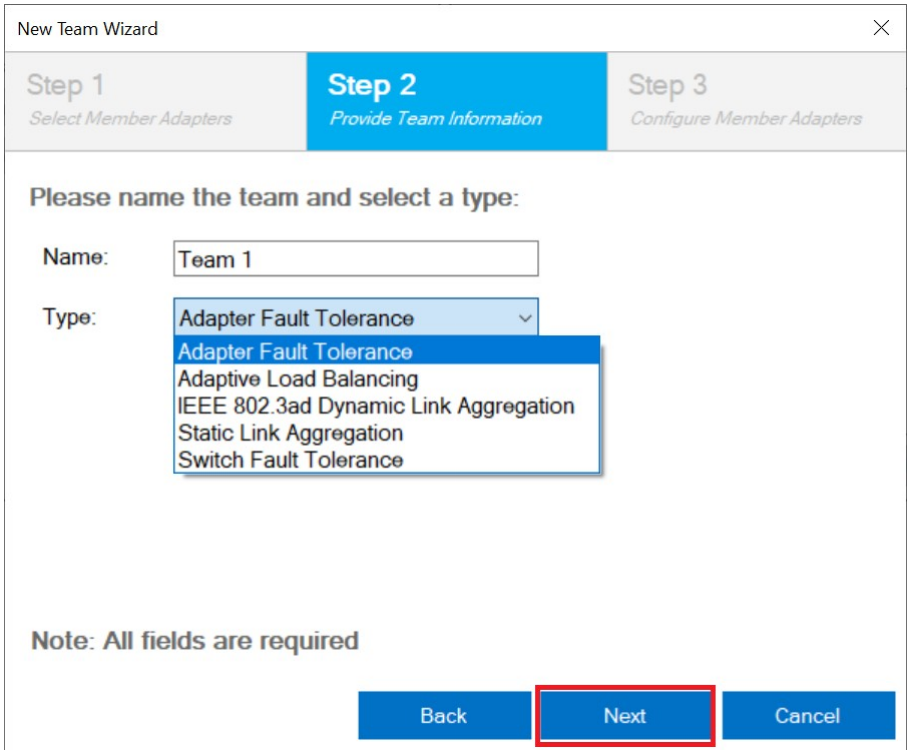
2. In the **Teaming/VLANs** tab, click **Create** Team.



3. Select the adapter to include in this team and click **Next**. An Intel ANS team can contain a maximum of eight members.



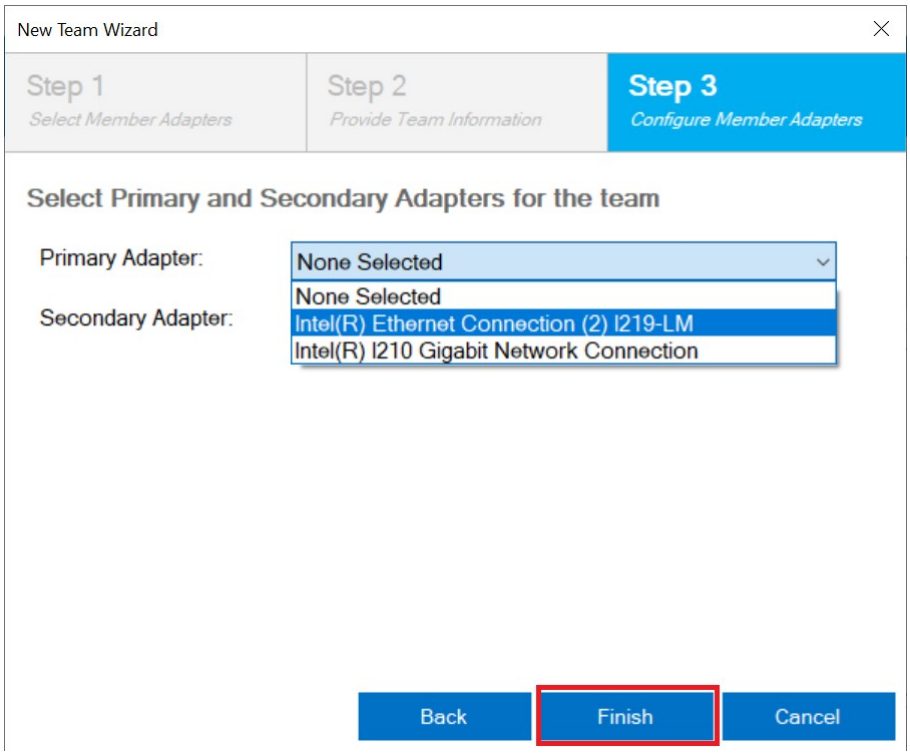
4. Name the team and select a team type. Click **Next** to continue.



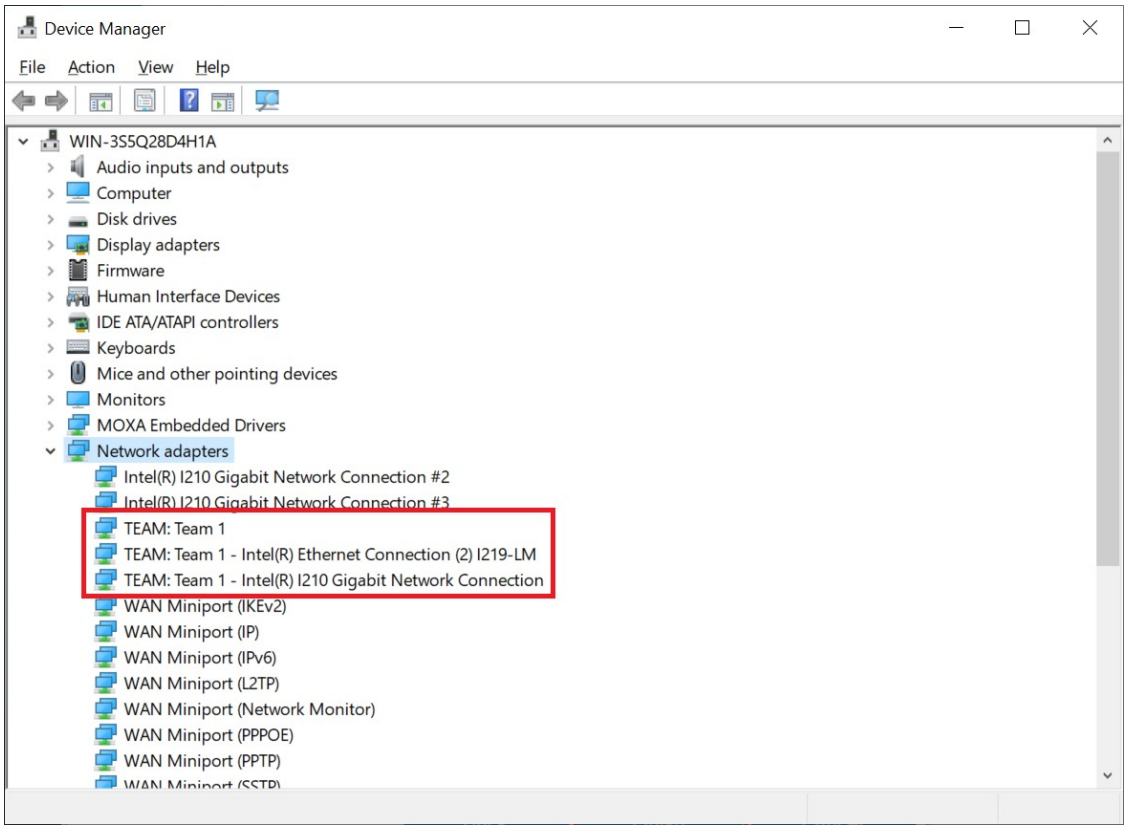
NOTE

You cannot use an Intel AMT enabled adapter in a Dynamic Link Aggregation (DLA) team. You cannot use an Intel AMT enabled adapter in a Static Link Aggregation (SLA) team.

5. Select the primary and secondary adapters for the team and click **Finish** to create an Intel net team.



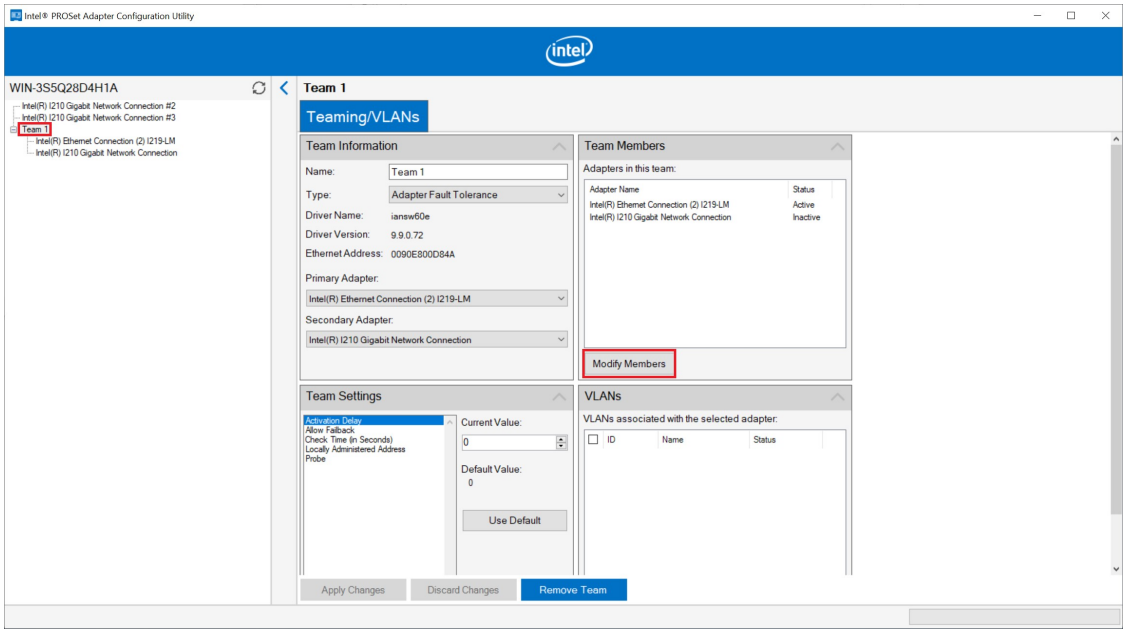
6. Check the **Network adapters** in the **Windows Device Manager**.



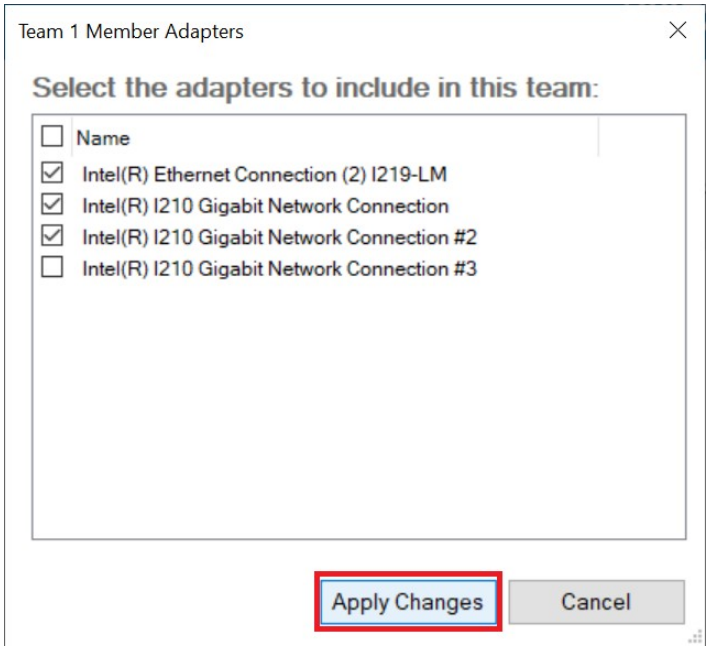
Modifying an Intel® Net Team Member

Adding an Intel® Net Team Member

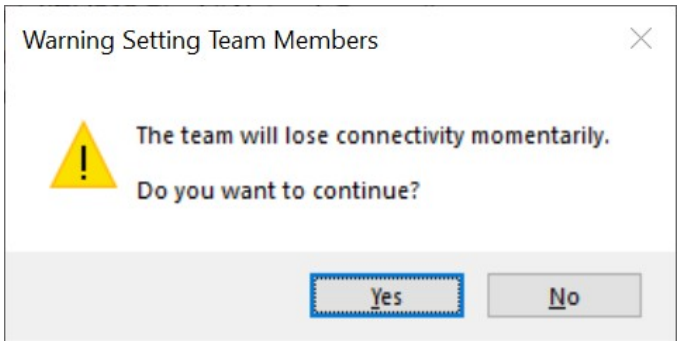
1. Select an Intel net team and click **Modify Members**.



2. Select the adapters to include in this team and click **Apply Changes**.



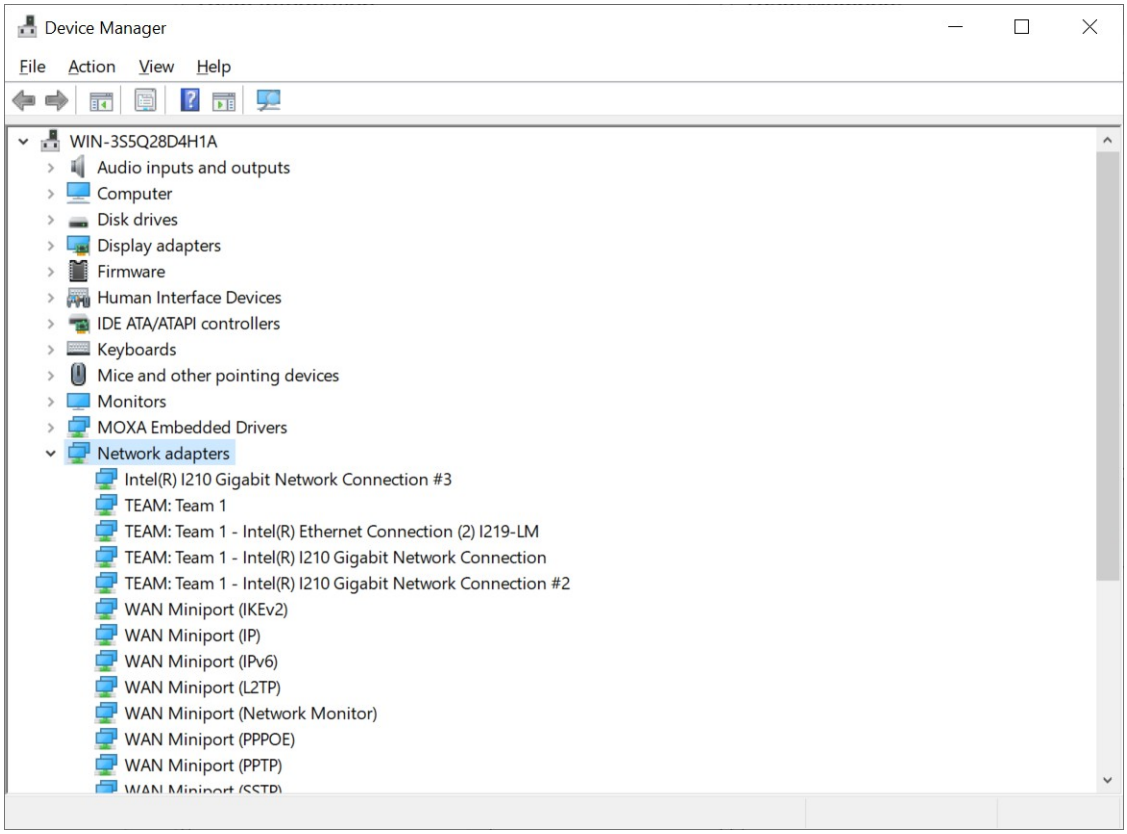
3. Click **Yes** to continue.



NOTE

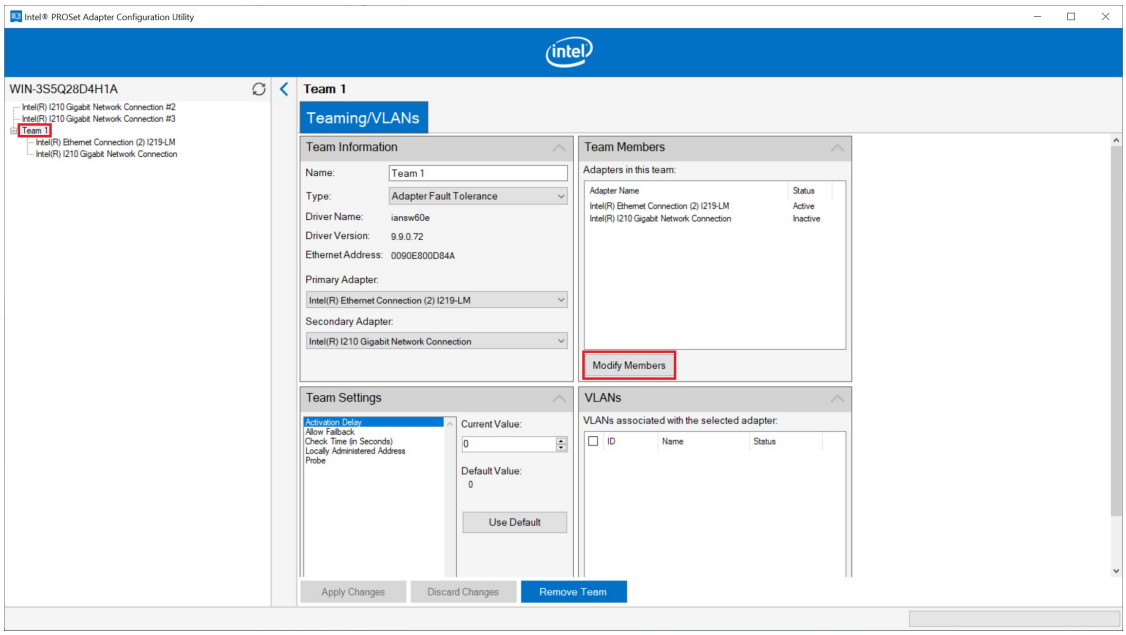
Modifying team members will cause the members to momentarily lose connectivity.

4. Check the **Network adapters** in the **Windows Device Manager**.

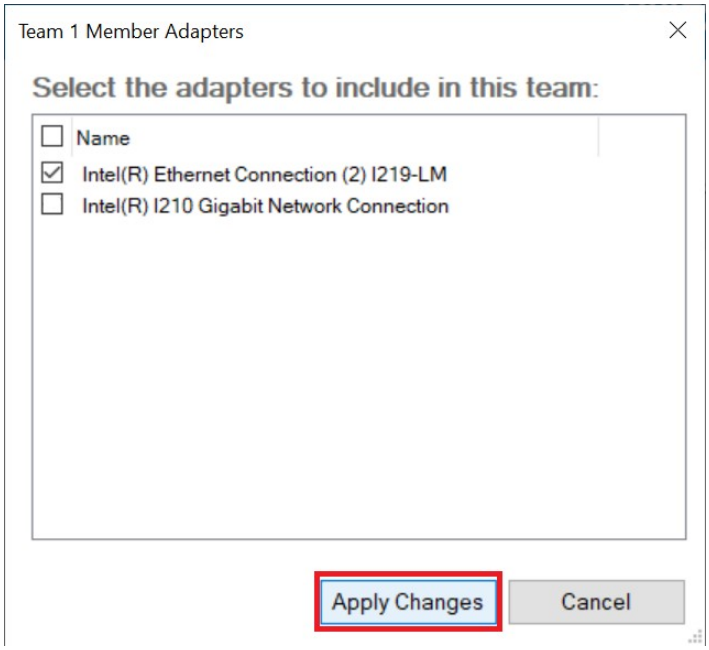


Removing an Intel® Net Team Member

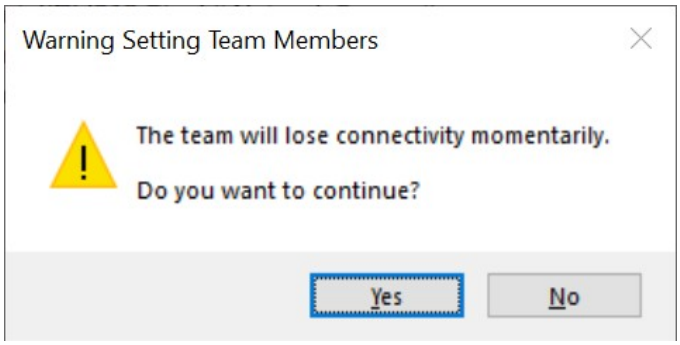
1. Select an Intel net team and click **Modify Members**.



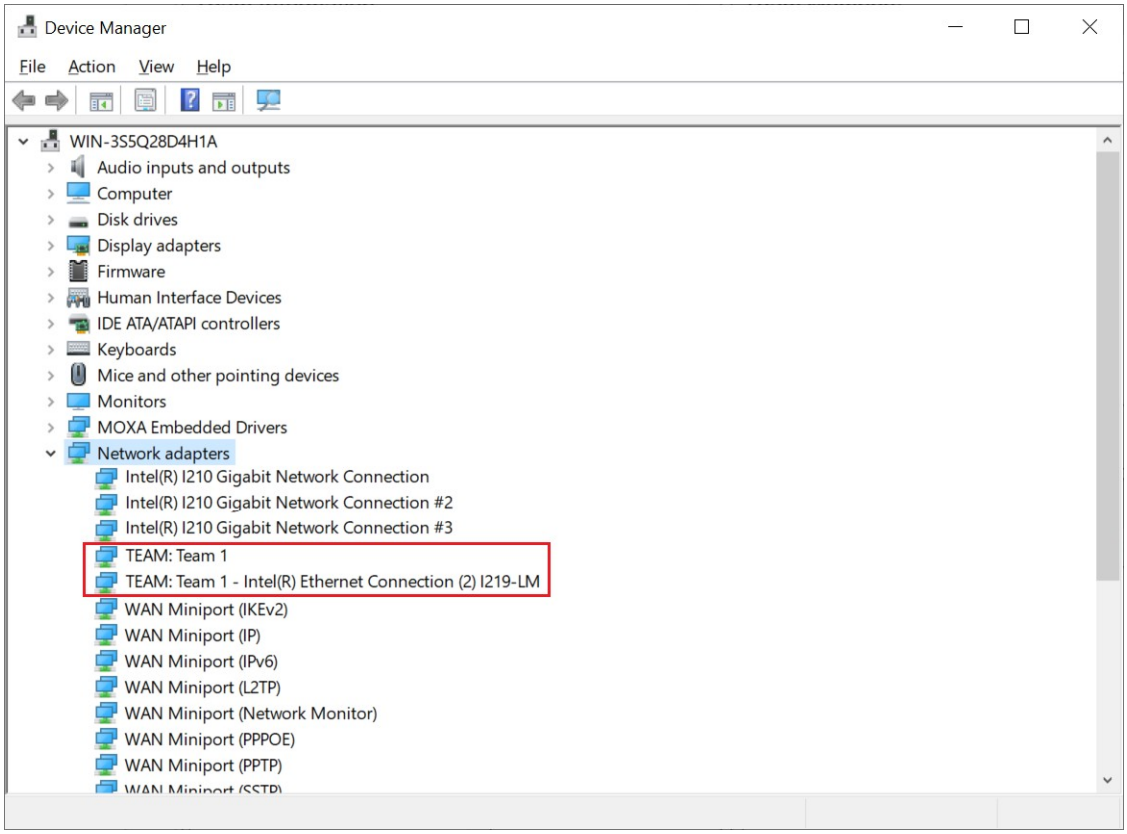
2. Uncheck the adapters you want to remove in this team and click **Apply Changes**.



3. Click **Yes** to continue.

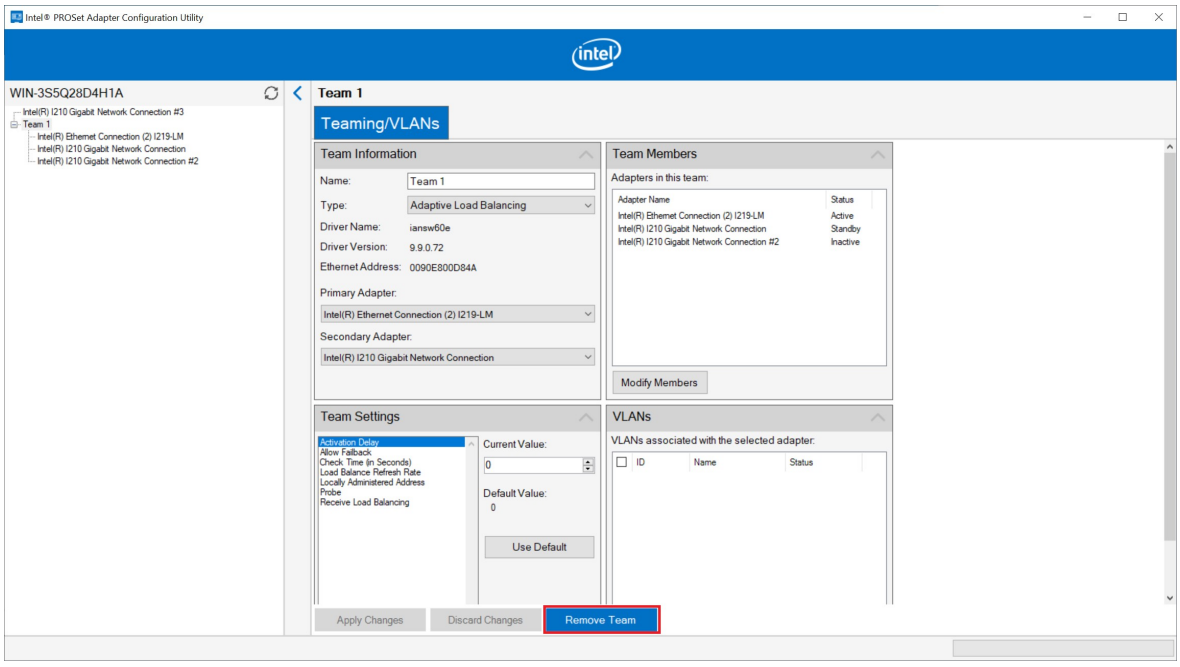


4. Check the **Network adapters** in the **Windows Device Manager**.



Removing an Intel® Net Team

Select an Intel net team and click **Remove Team** to remove the specified Intel ANS team.



Realtek Net Team

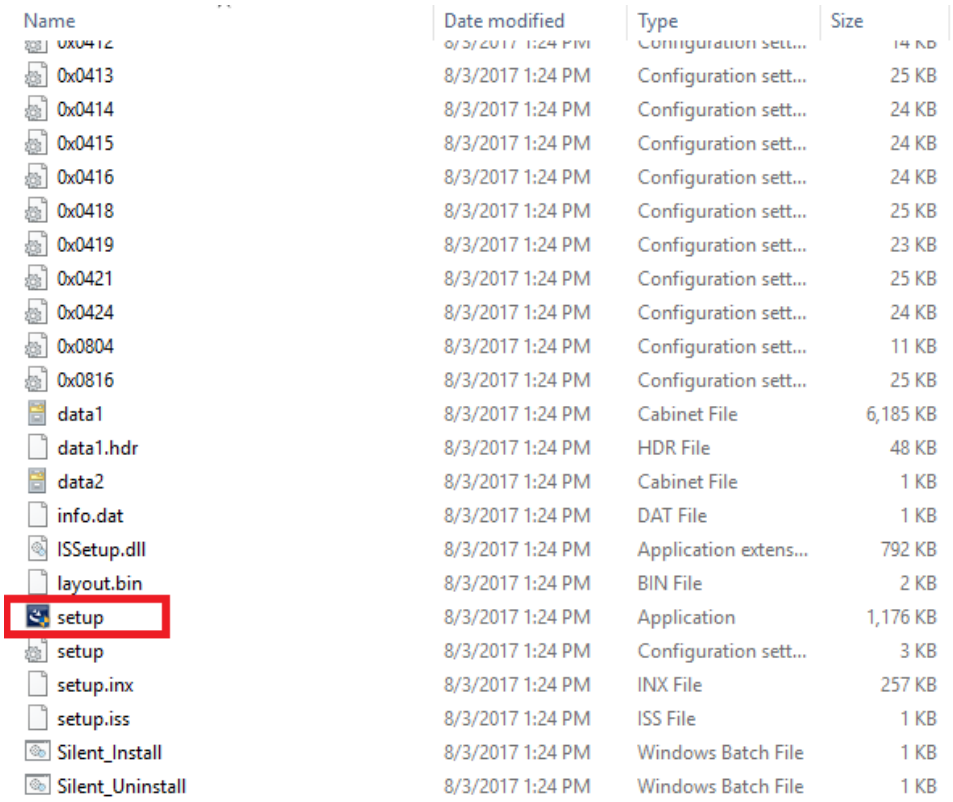
This section describes the setup process for the Realtek Teaming function.

Download Realtek Diagnostic Utility From Website

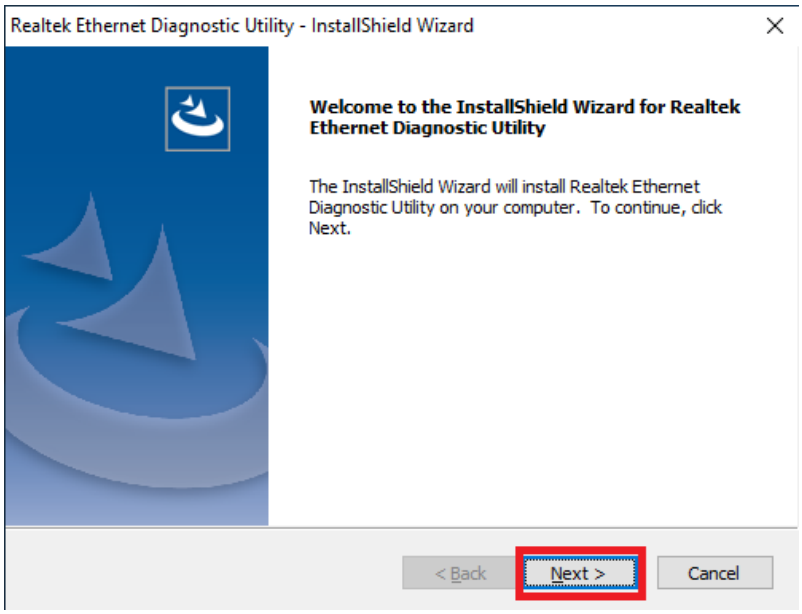
Download the **EthernetDiagnosticUtility_v2.0.7.3.zip**

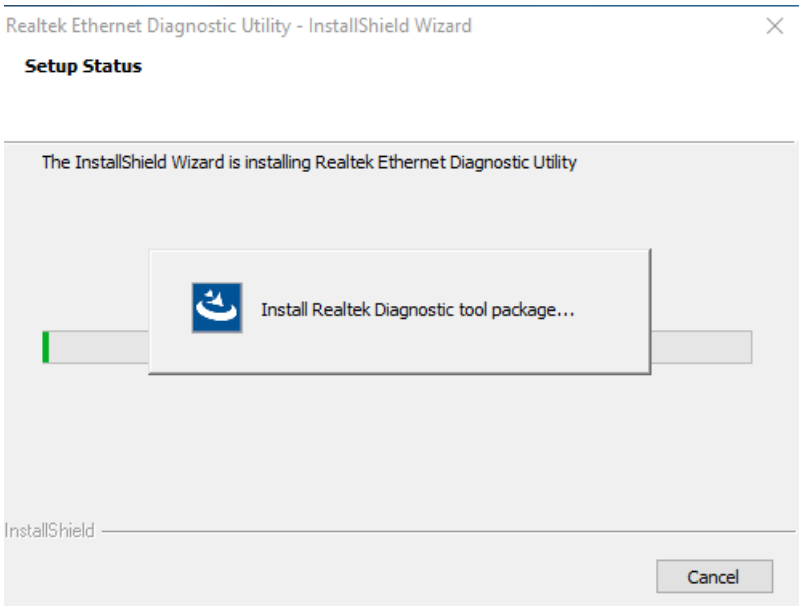
Install Realtek Diagnostic Utility

Execute the **setup.exe** to install diagnostic utility and diagnostic protocol



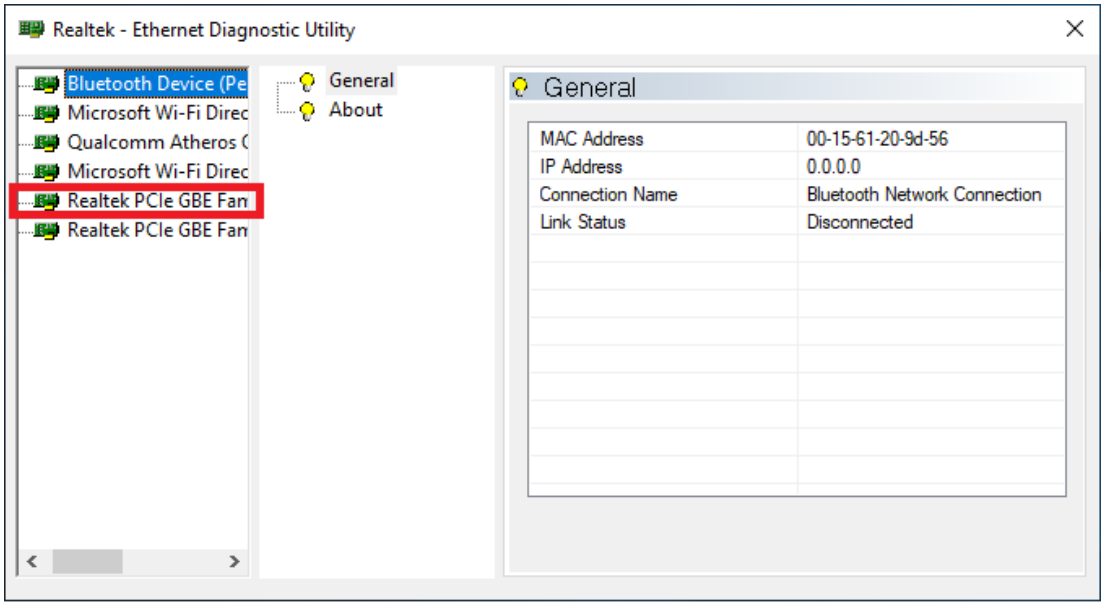
Name	Date modified	Type	Size
0x0413	8/3/2017 1:24 PM	Configuration sett...	25 KB
0x0414	8/3/2017 1:24 PM	Configuration sett...	24 KB
0x0415	8/3/2017 1:24 PM	Configuration sett...	24 KB
0x0416	8/3/2017 1:24 PM	Configuration sett...	24 KB
0x0418	8/3/2017 1:24 PM	Configuration sett...	25 KB
0x0419	8/3/2017 1:24 PM	Configuration sett...	23 KB
0x0421	8/3/2017 1:24 PM	Configuration sett...	25 KB
0x0424	8/3/2017 1:24 PM	Configuration sett...	24 KB
0x0804	8/3/2017 1:24 PM	Configuration sett...	11 KB
0x0816	8/3/2017 1:24 PM	Configuration sett...	25 KB
data1	8/3/2017 1:24 PM	Cabinet File	6,185 KB
data1.hdr	8/3/2017 1:24 PM	HDR File	48 KB
data2	8/3/2017 1:24 PM	Cabinet File	1 KB
info.dat	8/3/2017 1:24 PM	DAT File	1 KB
ISSetup.dll	8/3/2017 1:24 PM	Application extens...	792 KB
layout.bin	8/3/2017 1:24 PM	BIN File	2 KB
setup	8/3/2017 1:24 PM	Application	1,176 KB
setup	8/3/2017 1:24 PM	Configuration sett...	3 KB
setup.inx	8/3/2017 1:24 PM	INX File	257 KB
setup.iss	8/3/2017 1:24 PM	ISS File	1 KB
Silent_Install	8/3/2017 1:24 PM	Windows Batch File	1 KB
Silent_Uninstall	8/3/2017 1:24 PM	Windows Batch File	1 KB



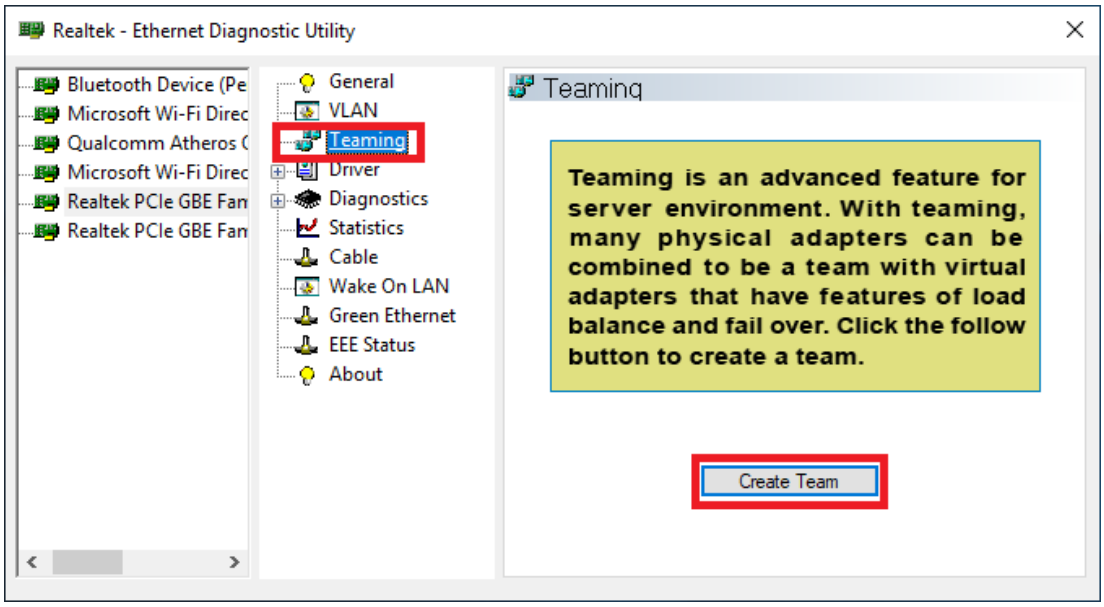


Creating an Realtek Net Team

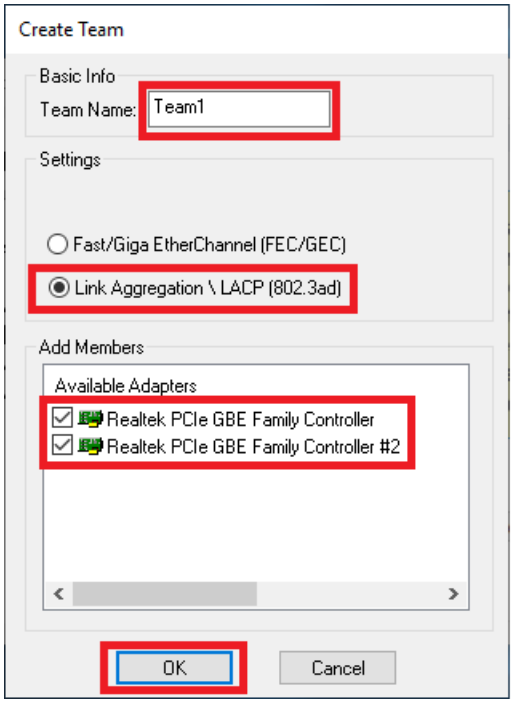
1. Run the **Realtek - Ethernet Diagnostic Utility** as administrator and then select a Realtek Ethernet adapter.



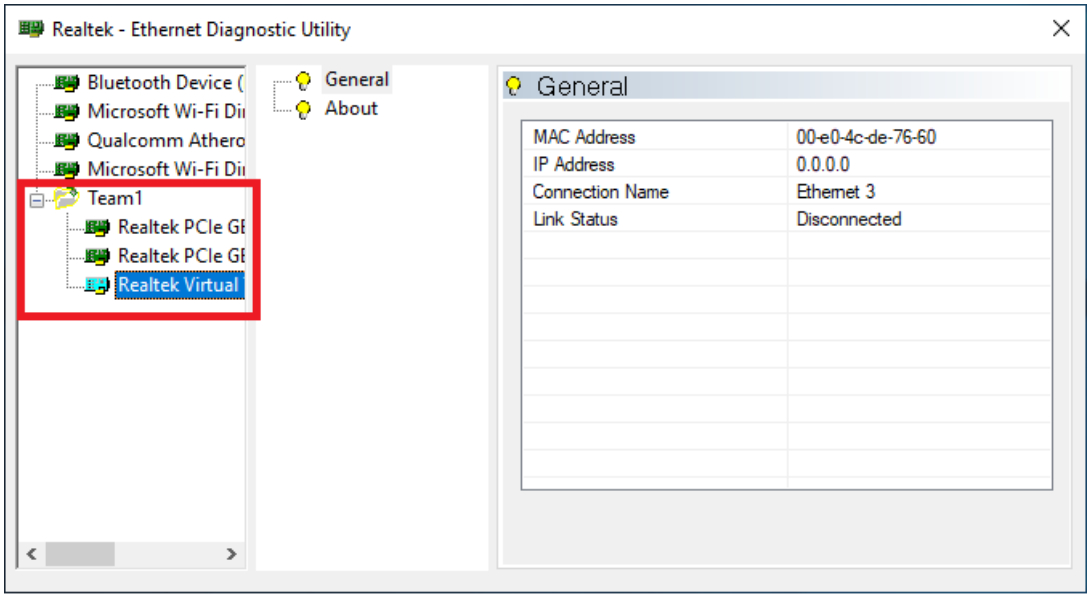
2. Select **Teaming** option, then click **Create Team**.

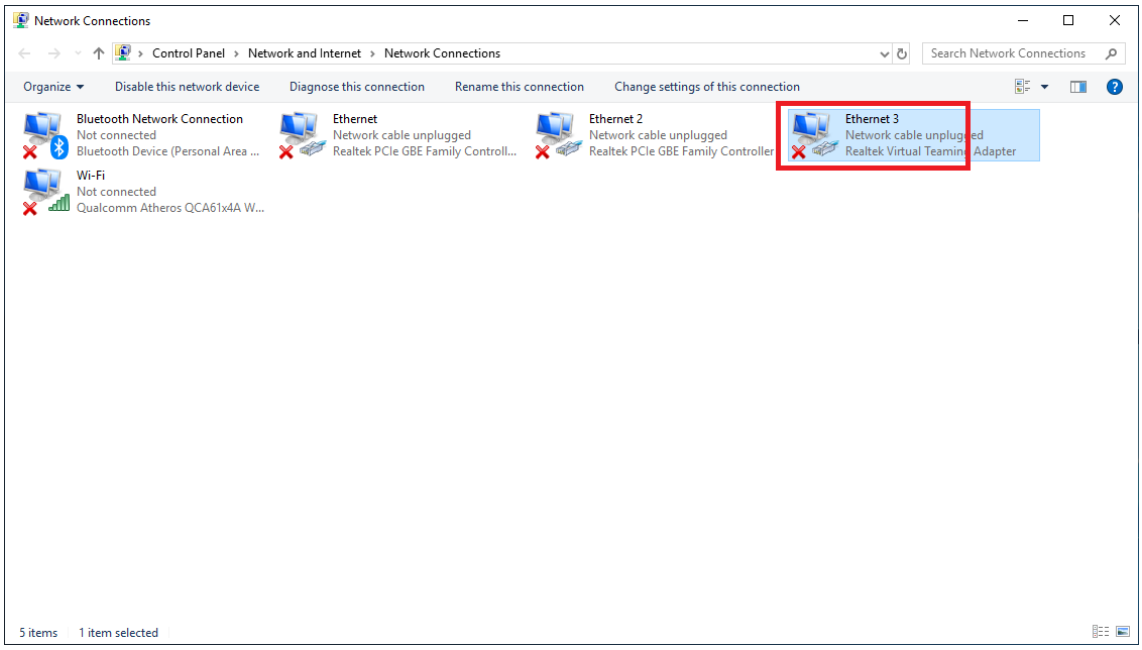


3. Select the adapter to include in this team, name the team and select a team type and then click **OK**.

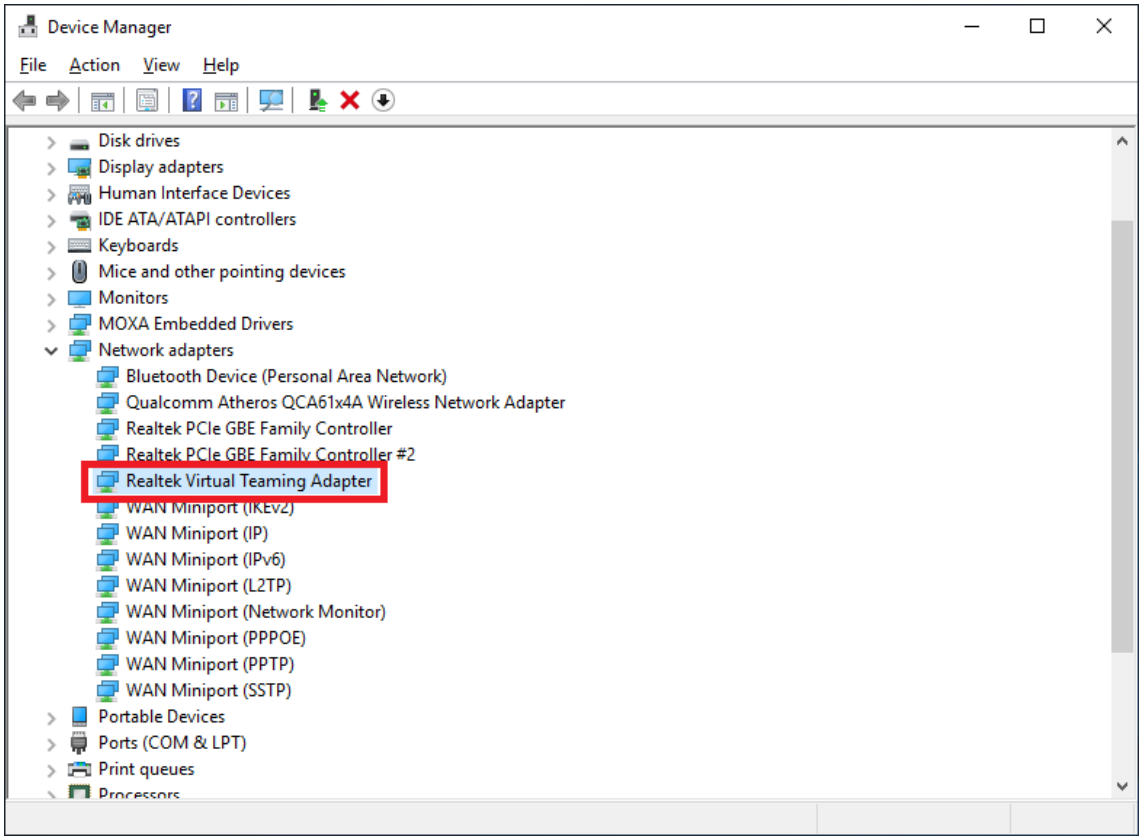


4. Waiting for the process to complete.



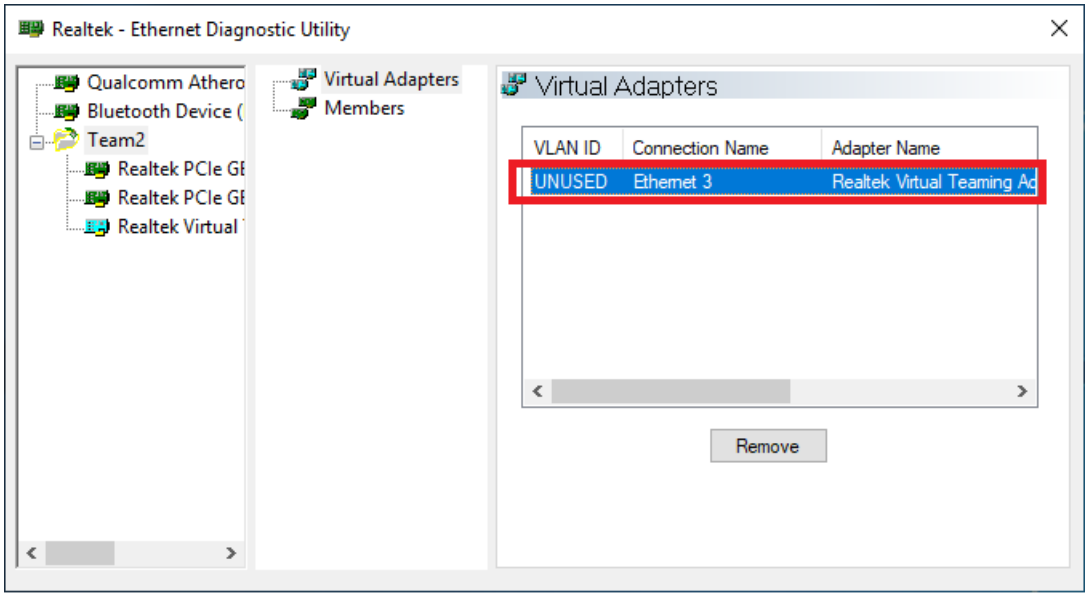


5. Check the **Network adapters** in the **Windows Device Manager**.

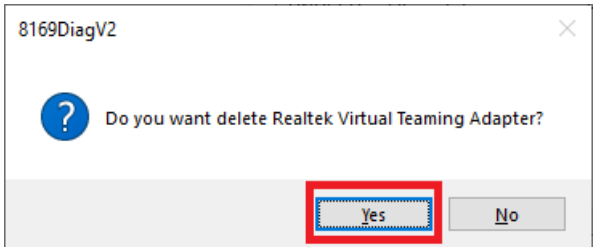


Removing an Realtek Net Team

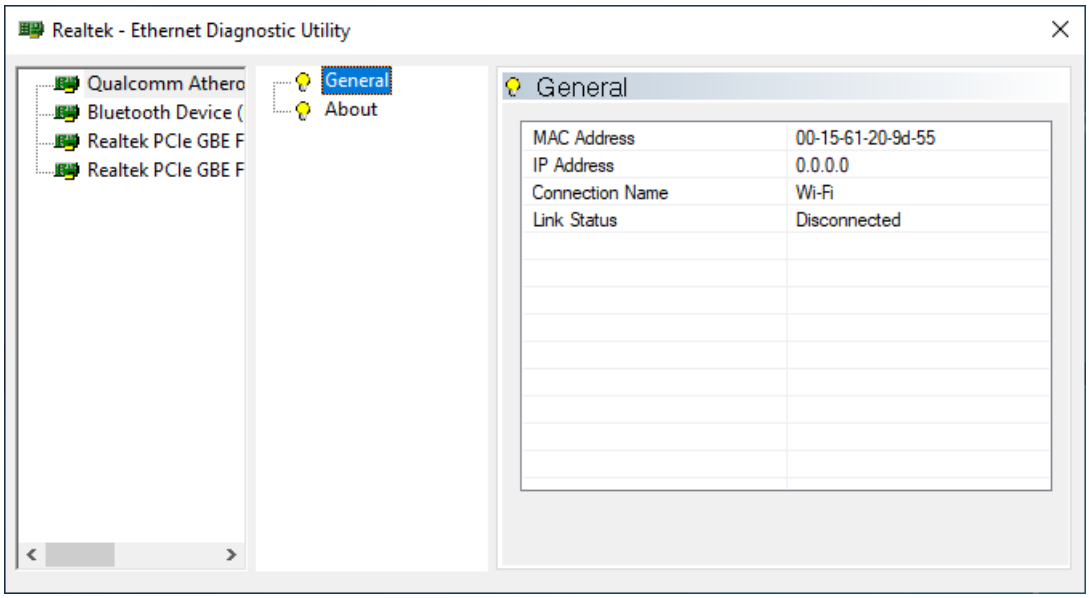
1. Select an Realtek net team and click **Remove** to remove the specified Realtek team.



2. Click **Yes** to remove the specified Realtek team.



3. Waiting for the process to complete.



6. Intel® Active Management Technology

This chapter describes the setup process for the Intel® Active Management Technology. For more information about Intel® Active Management Technology, visit:

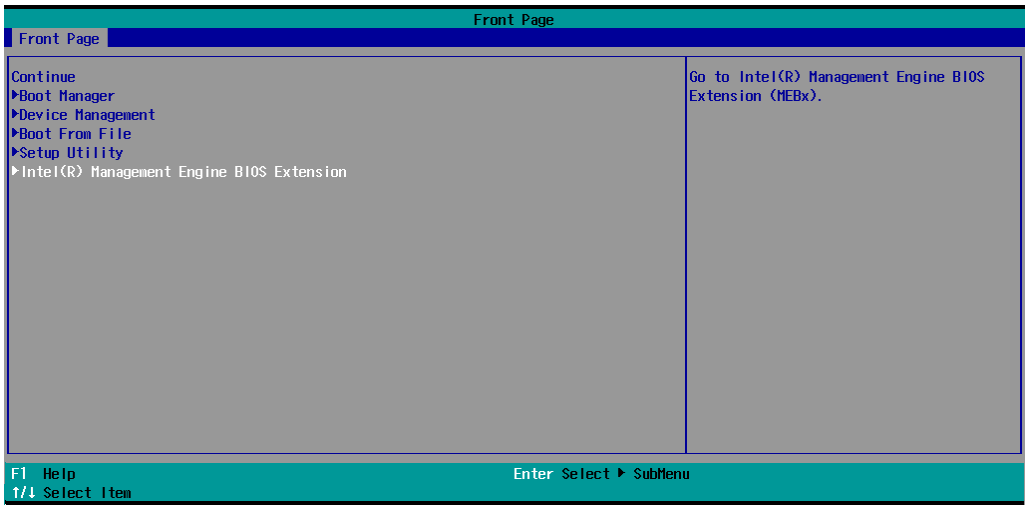
https://www.intel.com/content/www/us/en/architecture-and-technology/intel-active-management-technology.html

Applicable Series

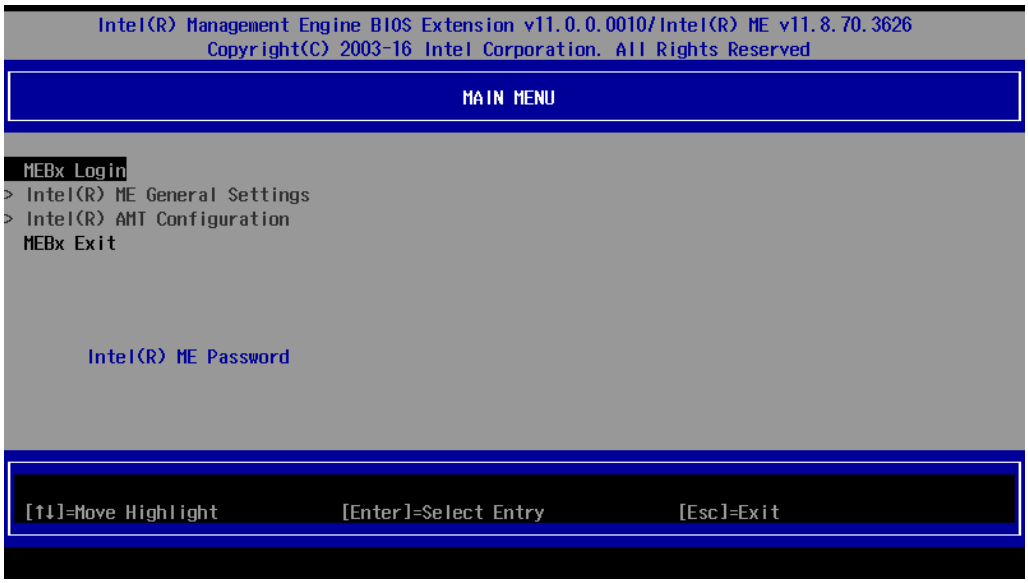
- DA-682C Series
- DA-820C Series
- MC-1200 Series
- MC-3201 Series
- MC-7400 Series
- V2403C Series
- V2406C Series

Turning On Intel® AMT on Your PC

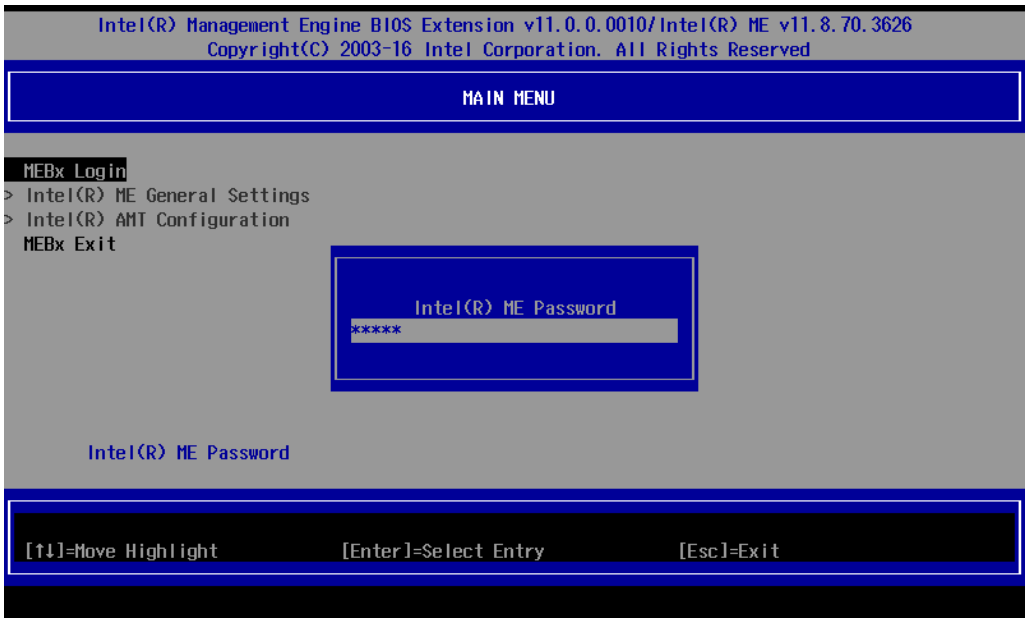
1. Power on the computer and press F2 to enter the BIOS menu.
2. Select Intel(R) Management Engine BIOS Extension.



3. Select MEBx Login.



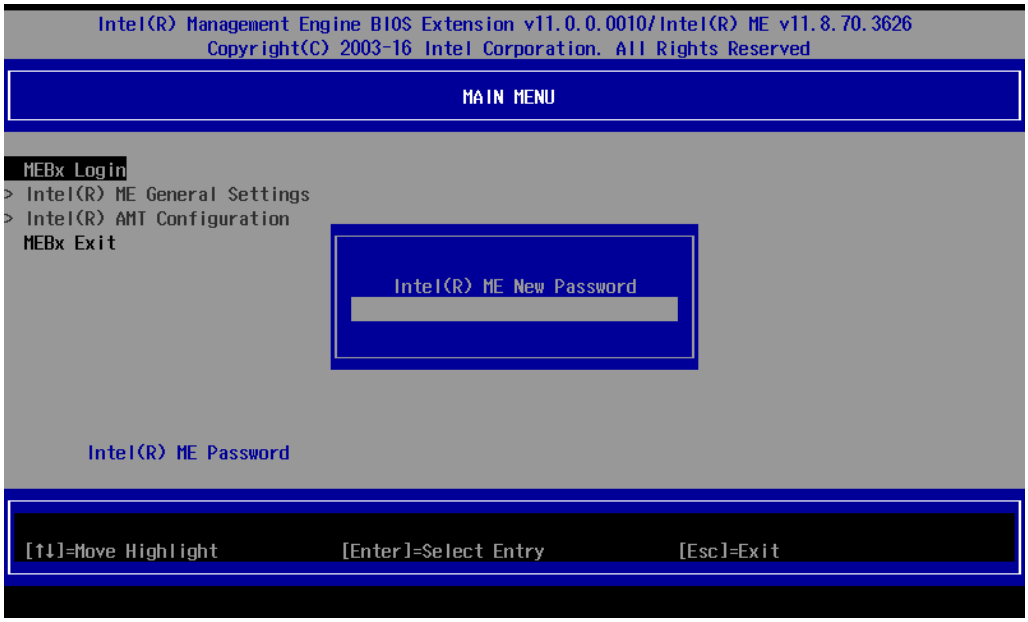
4. Type the Intel® ME default password : "admin".



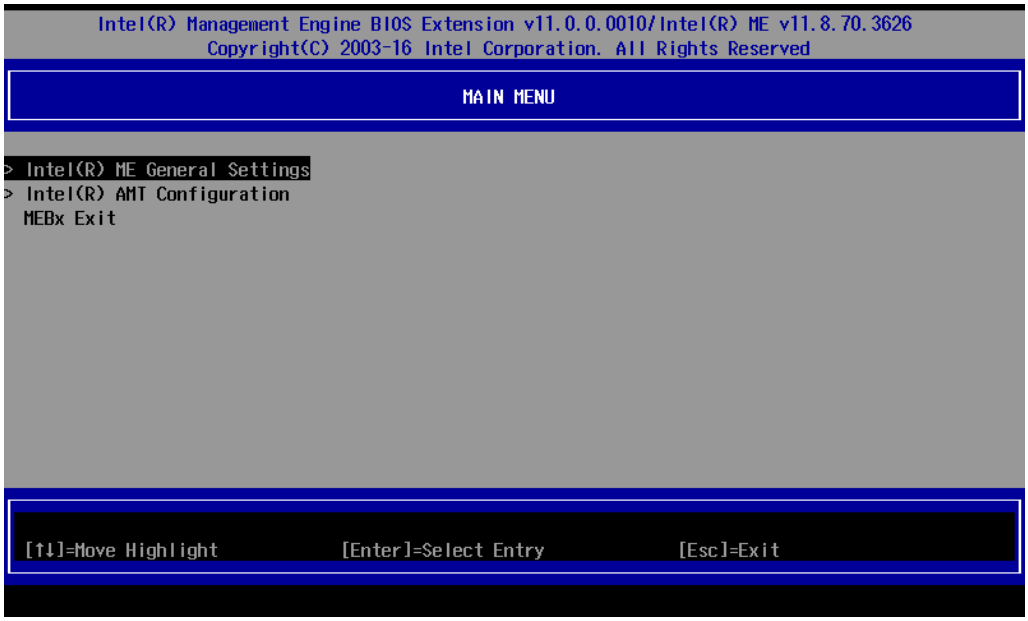
5. Type the new password.

   The new Intel® MEBX password must meet the following requirements for strong passwords:

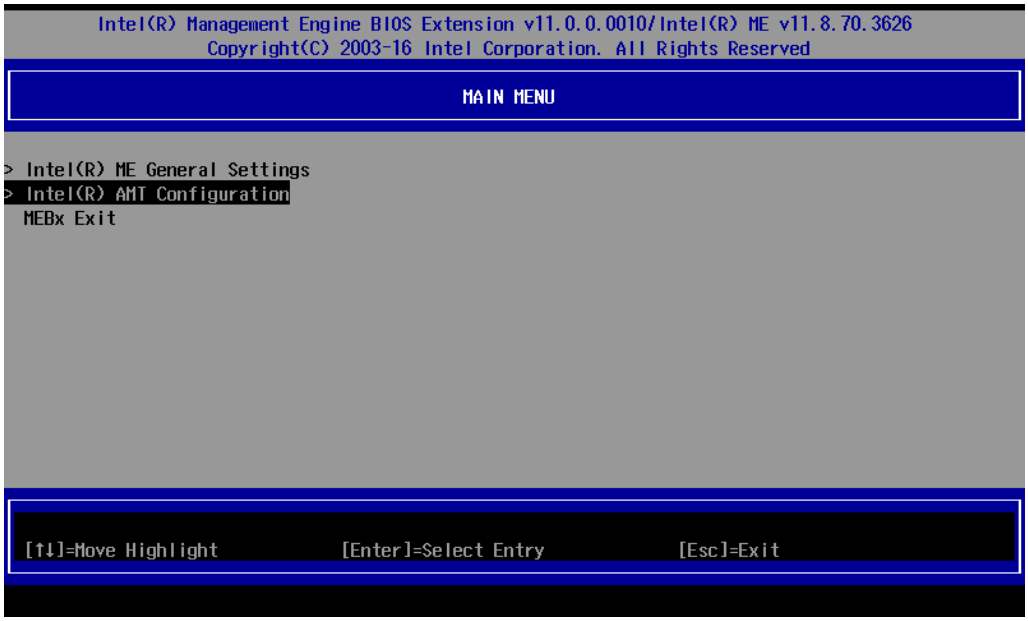
   - Password Length: At least 8 characters, and no more than 32.
   - Password Complexity: Password must include the following: At least one digit character ('0', '1', … '9')
   - At least one 7-bit ASCII non alpha-numeric character (e.g. '!', '$', ';'), but excluding ':', ',' and '"' characters.
   - At least one lower-case letter ('a', 'b'…'z') and at least one upper case letter ('A','B'…'Z').



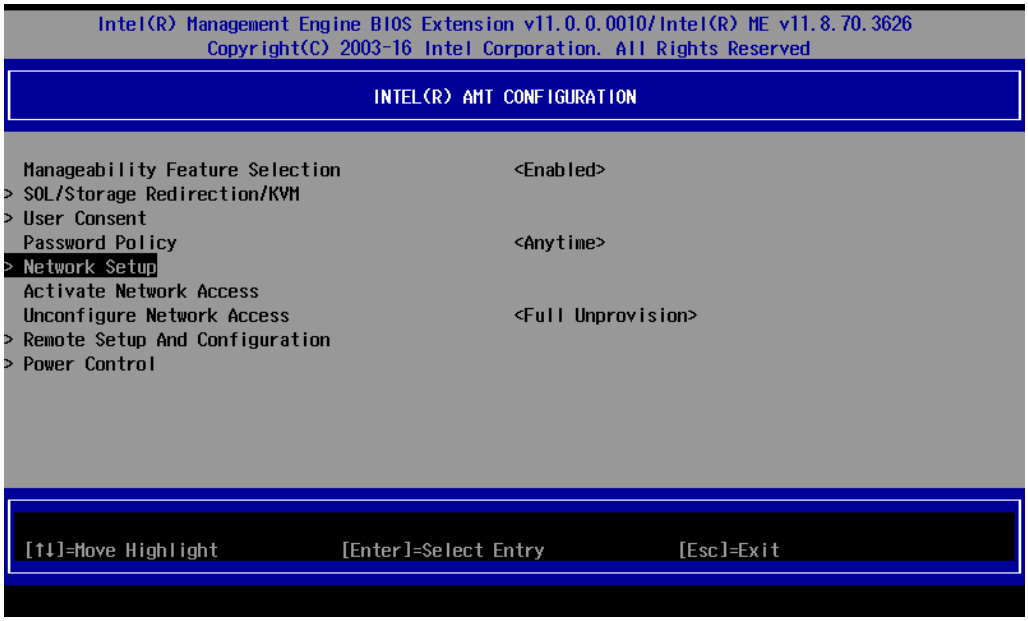
6. Verify password and login MEBx.



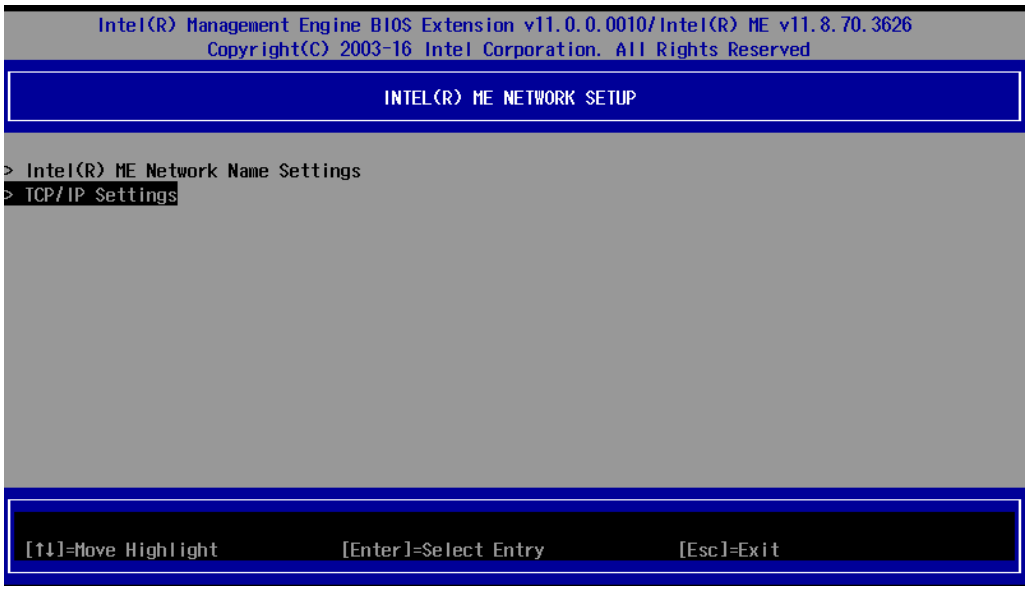
7. Select Intel(R) AMT Configuration.



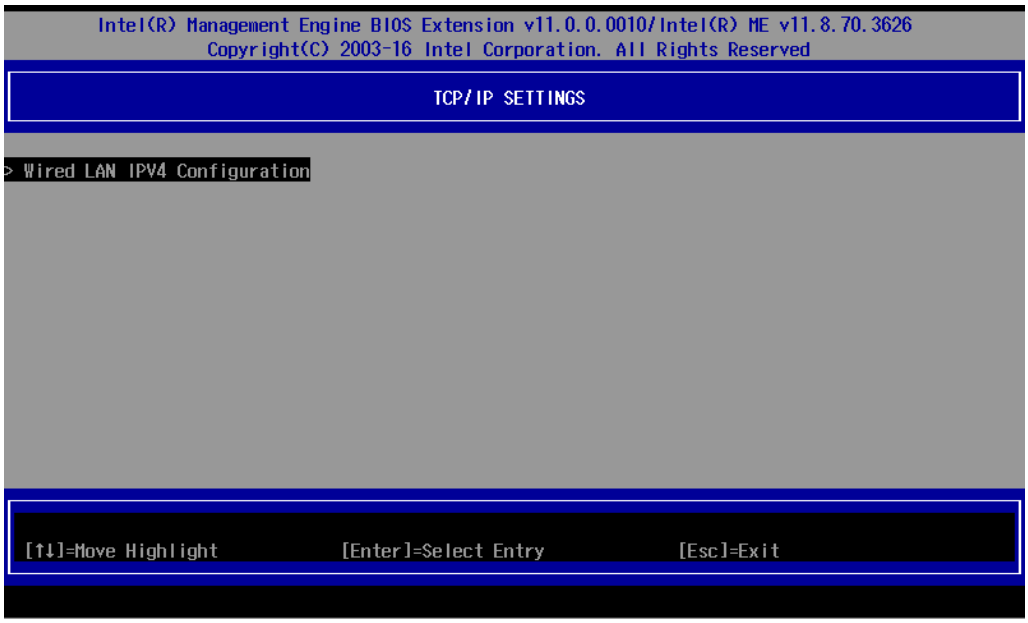
8. Select Network Setup.



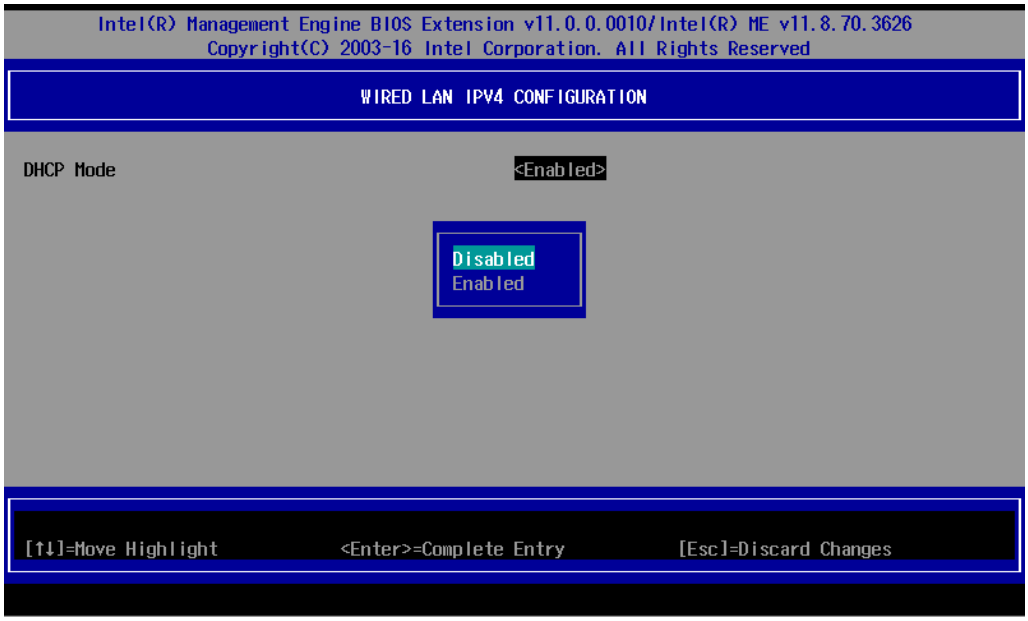
9. Select TCP/IP Settings.



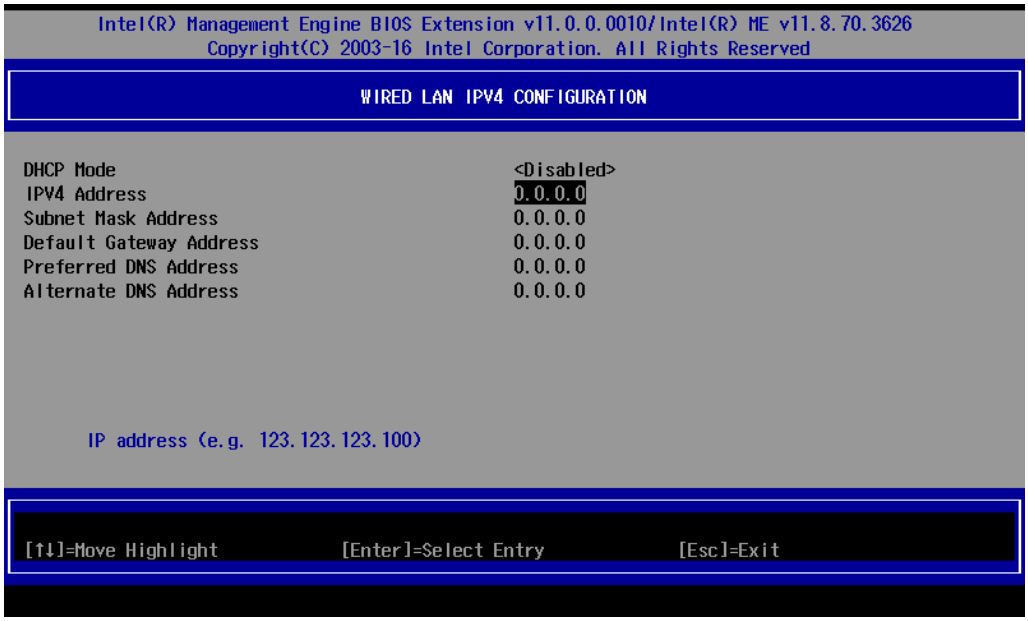
10. Select Wired LAN IPV4 Configuration.



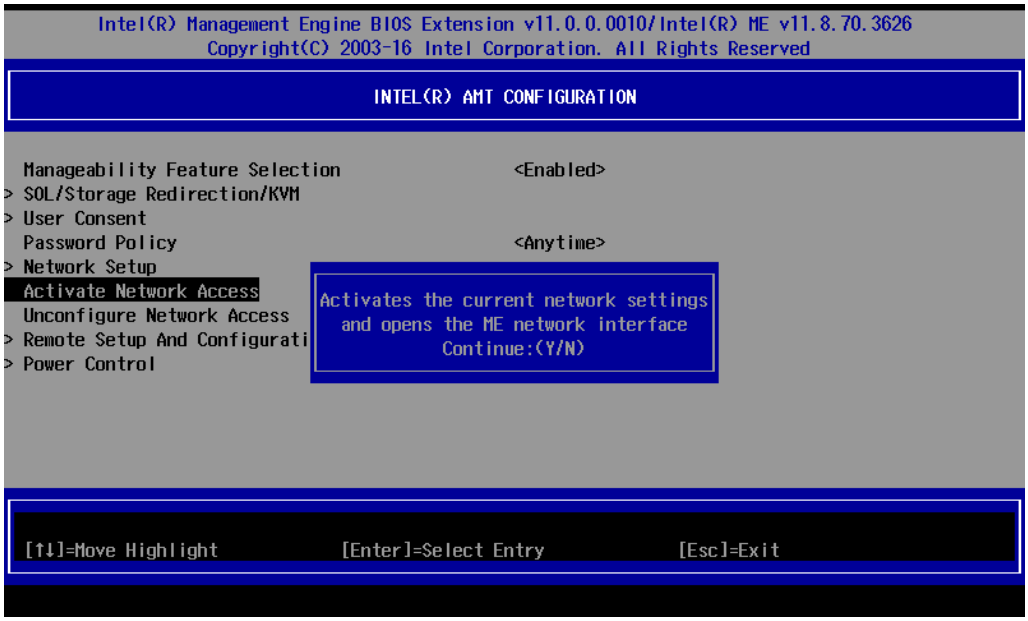
11. Select DHCP Mode and disable DHCP mode.



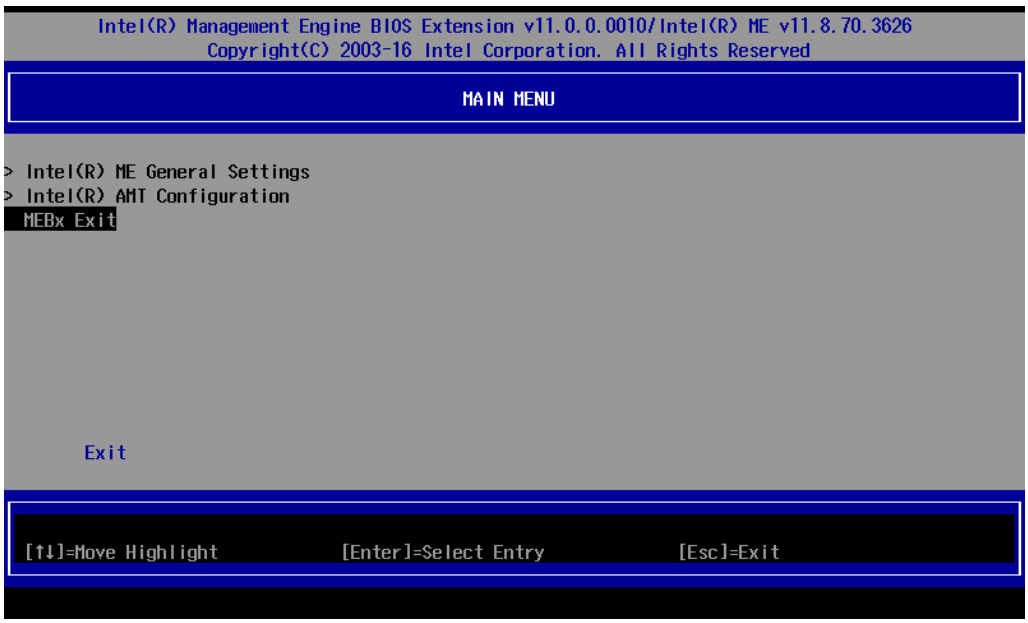
12. Type the network settings for Intel® Active Management Technology.



13. Back to the Intel(R) AMT Configurtion page. Select Activate Network Access. Enter Y to continue.

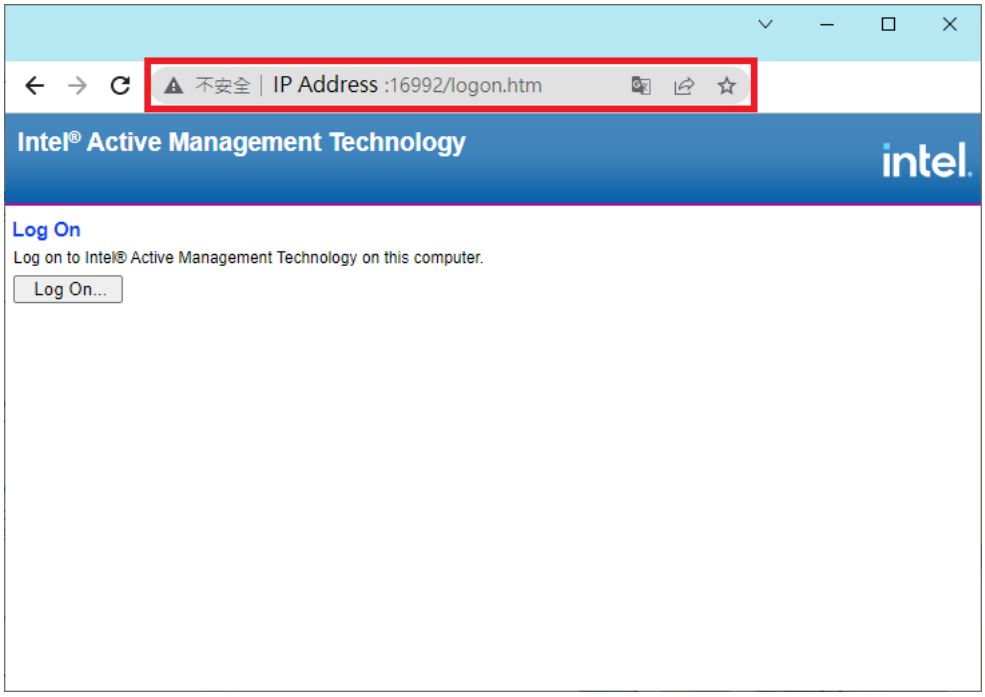


14. Back to the main menu. Select MEBx Exit to finish the Intel® Active Management Technology configuration.

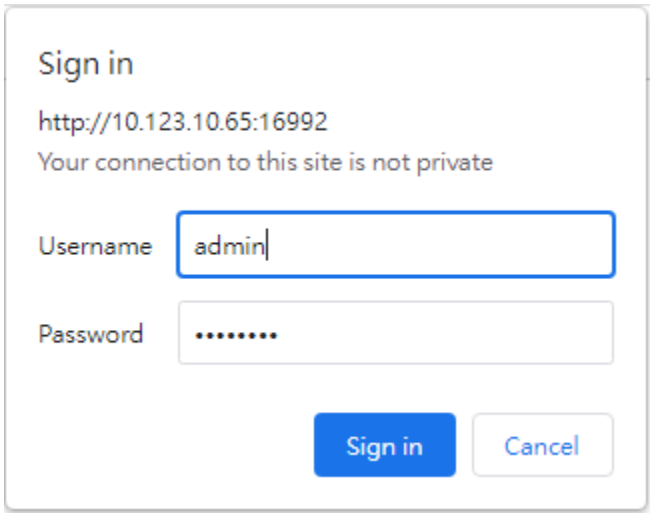


Access the Intel® AMT From Website

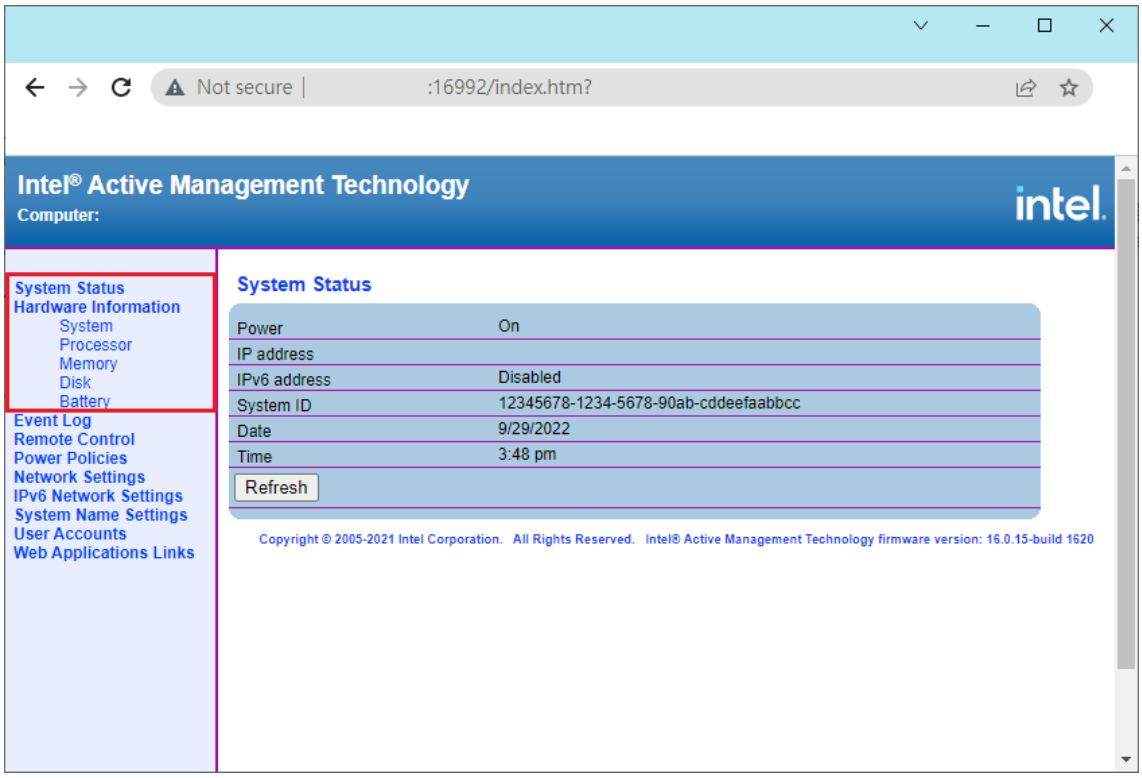
1. Open the web browser, tpye the URL : Intel® AMT IP Address:16992 (ex: 192.168.1.1:16992)



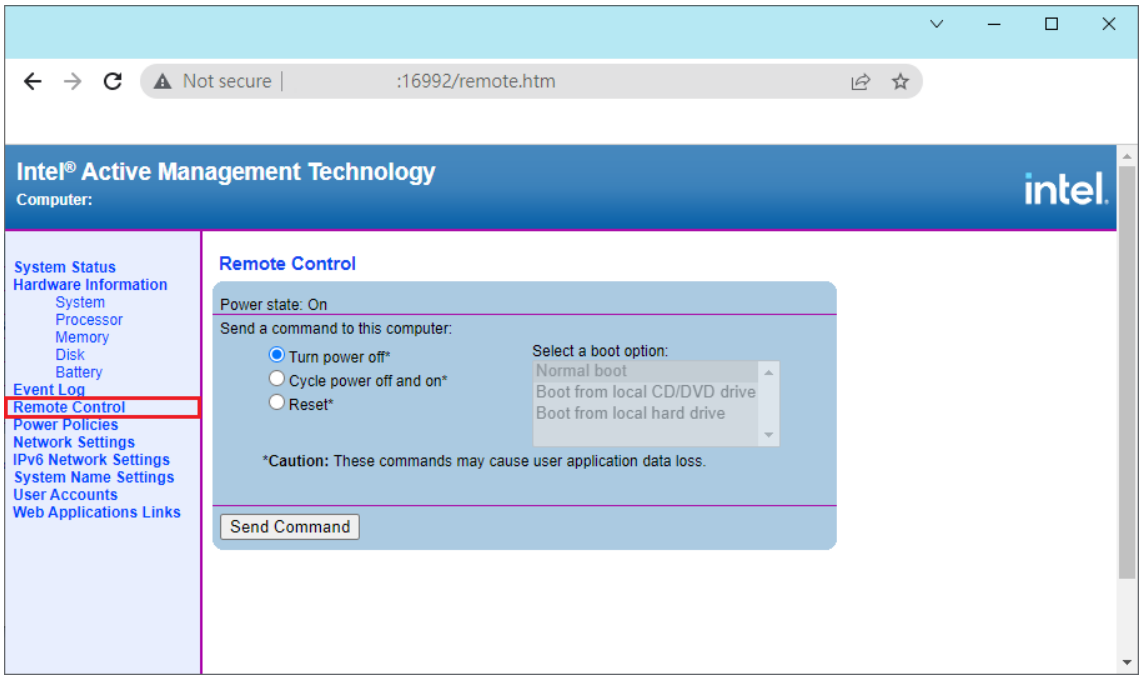
2. The browser would show the sign in message box. Type the Username and Password of Intel® AMT. The default username is admin.



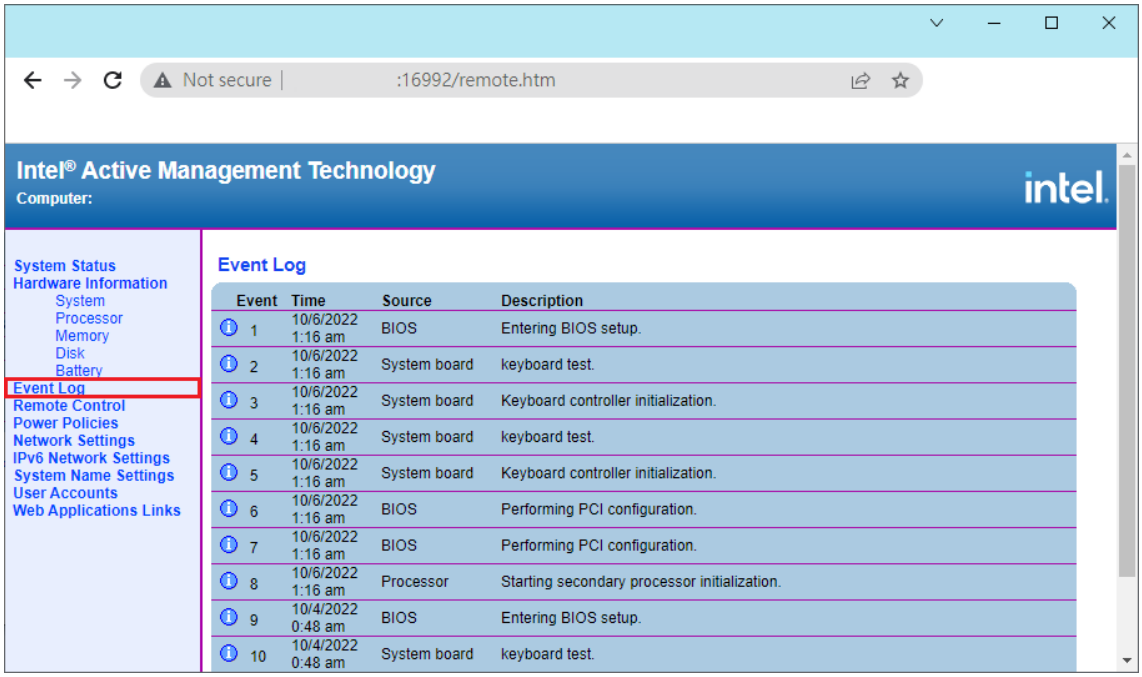
3. After sign in, user can check the system status and hardware information of managed device.



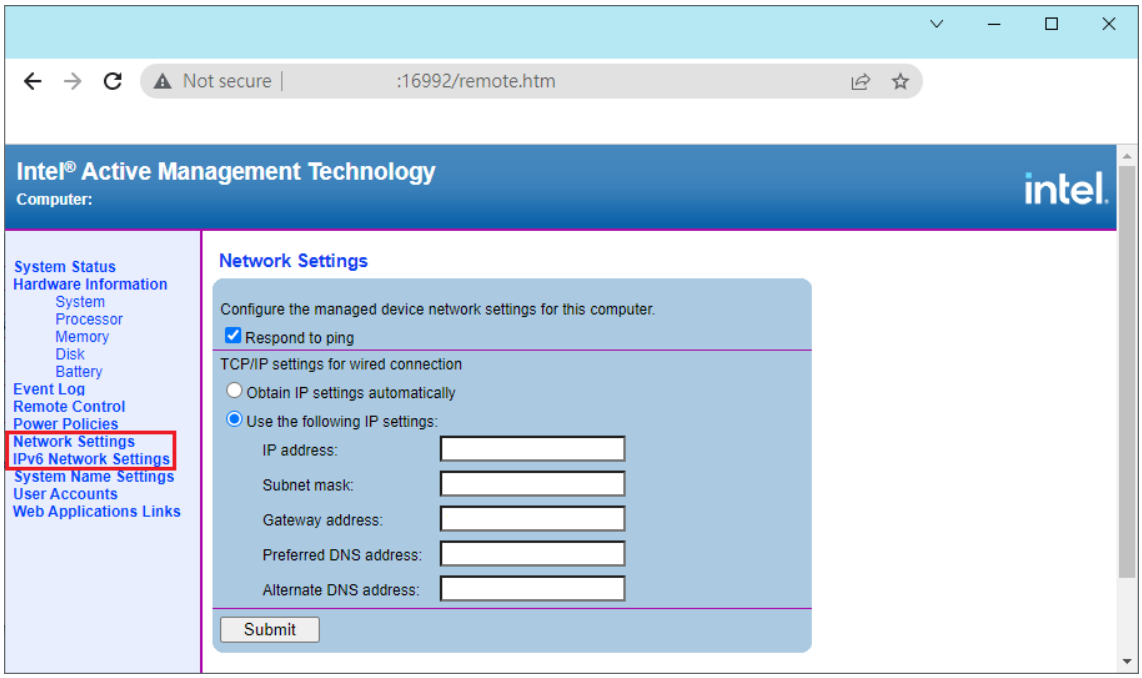
4. The Intel® AMT website provides the basic remote power control feature for the managed device. The advanced remote power control and the remote KVM feature please reference to next chapter.



5. The Event Manager feature is responsible for dealing with internal alerts that occur in both the host platform and the Intel AMT device, regardless of the power state.

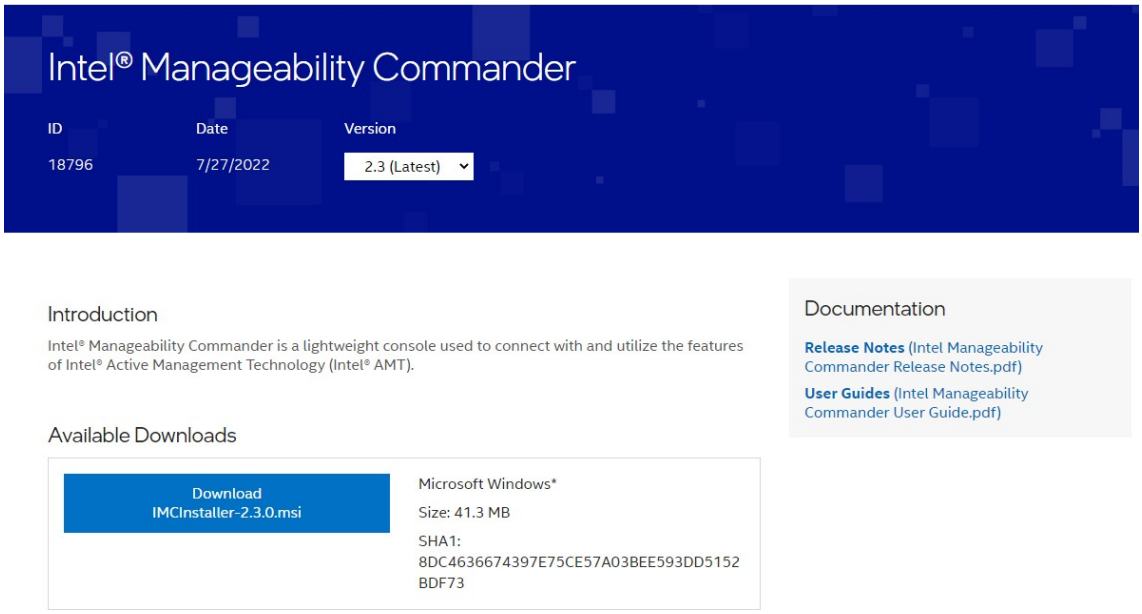


6. User can configure the managed device network settings from website.

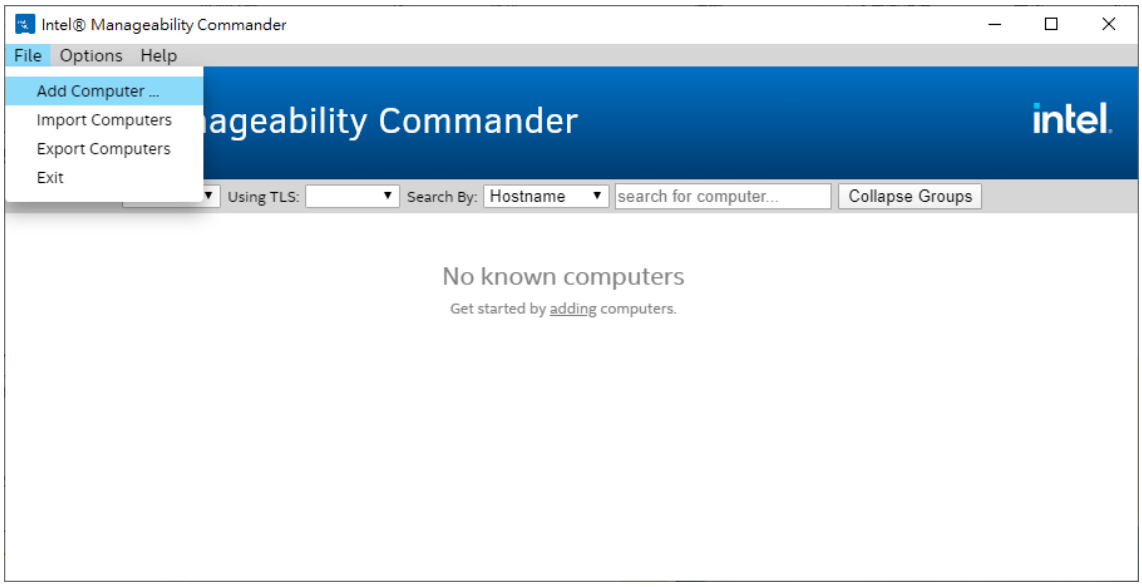


Access the Intel® AMT by Intel® Manageability Commander

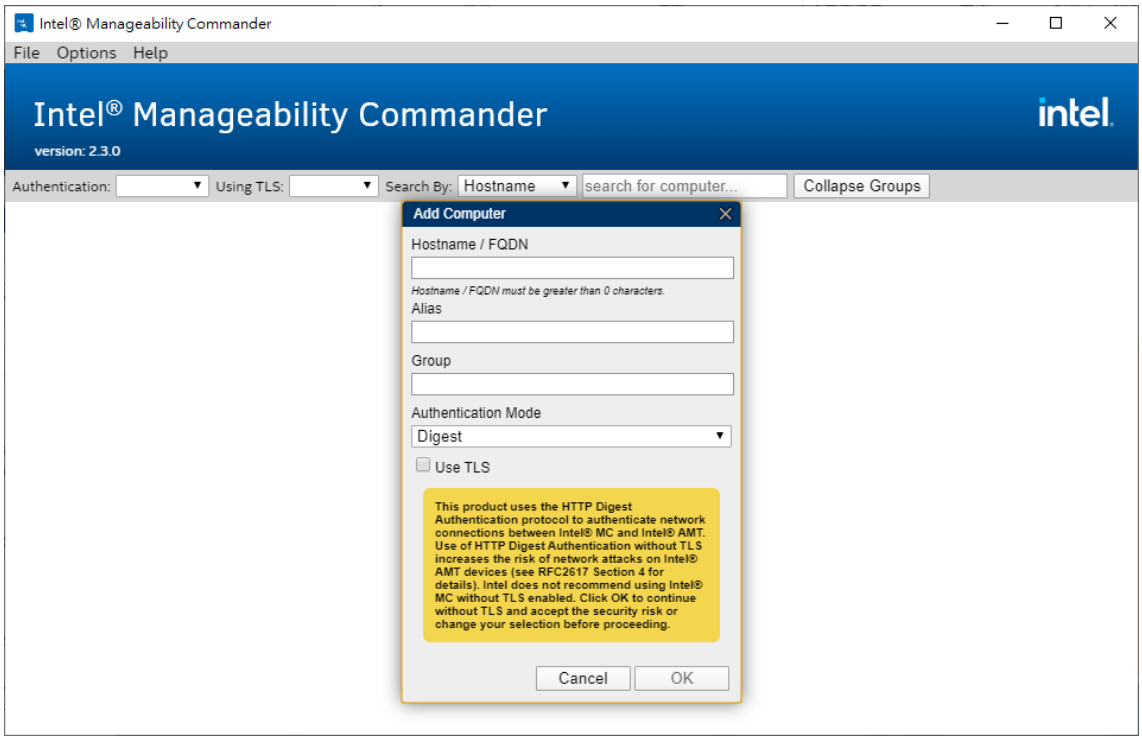
1. Download and install the latest version Intel® Manageability Commander from Intel.com.



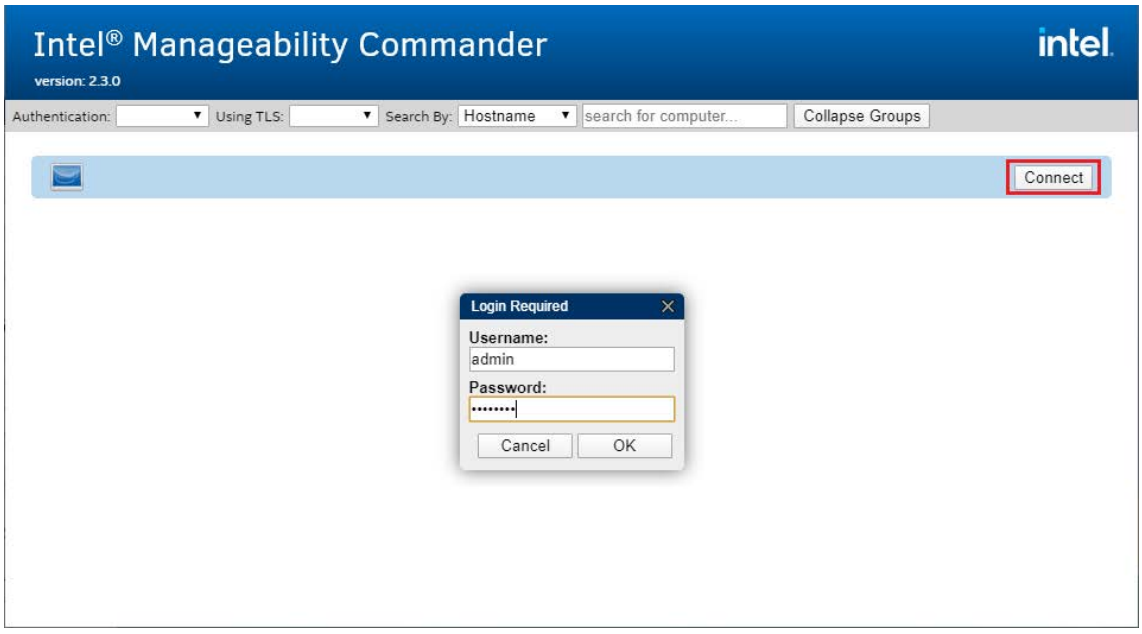
2. Execute the Intel® Manageability Commander as administrator. Select File > Add Computer

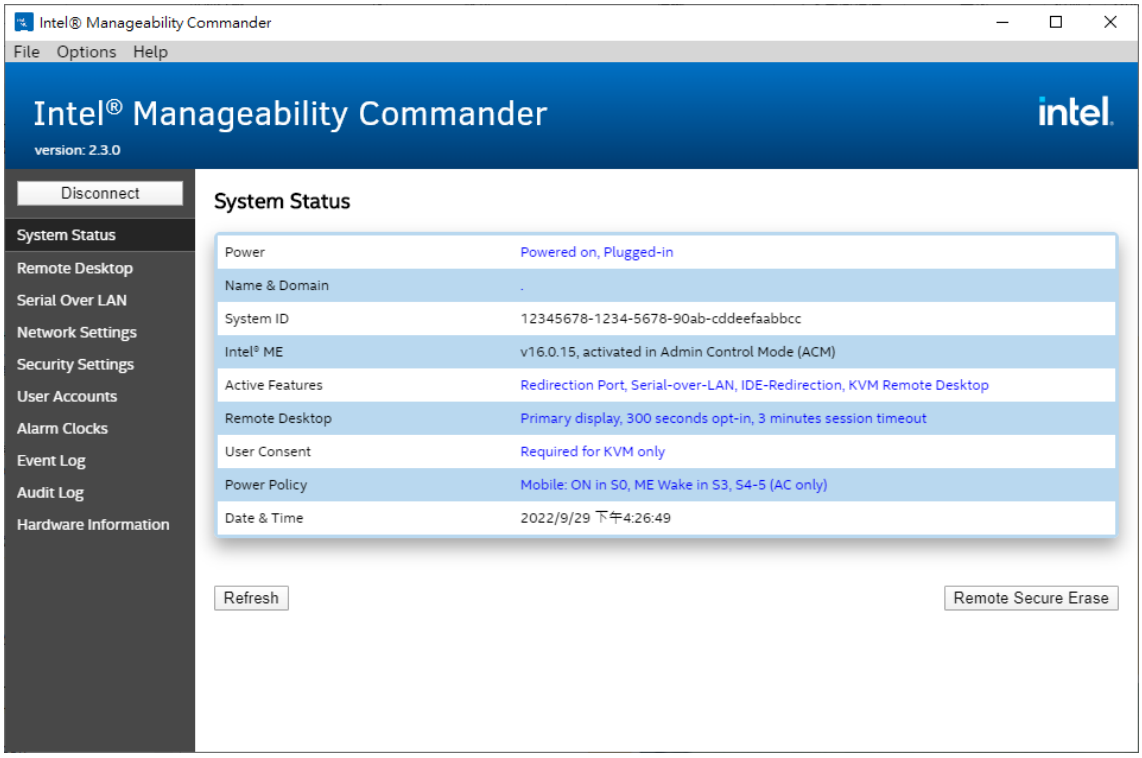


3. Type the hostname, alias and group. The hostname is the IP address of managed device Intel® AMT. The alias and group could keep empty value if not used. Click OK to apply settings.



4. Select Connect, type the Username and Password of Intel® AMT. The default user name is admin.

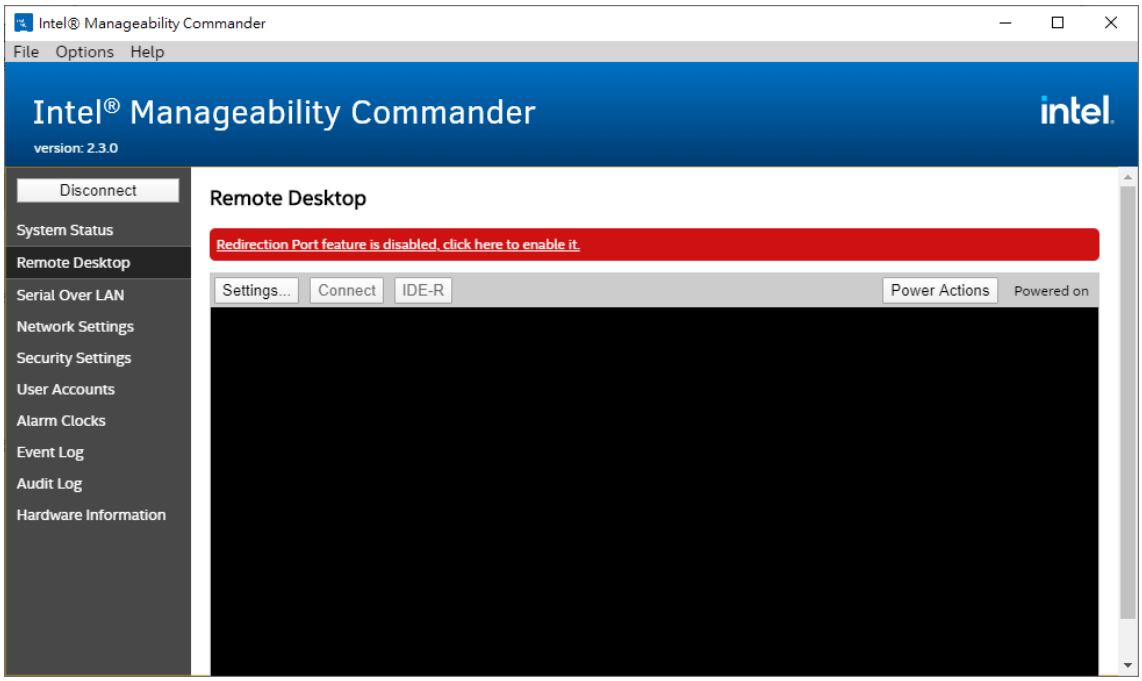




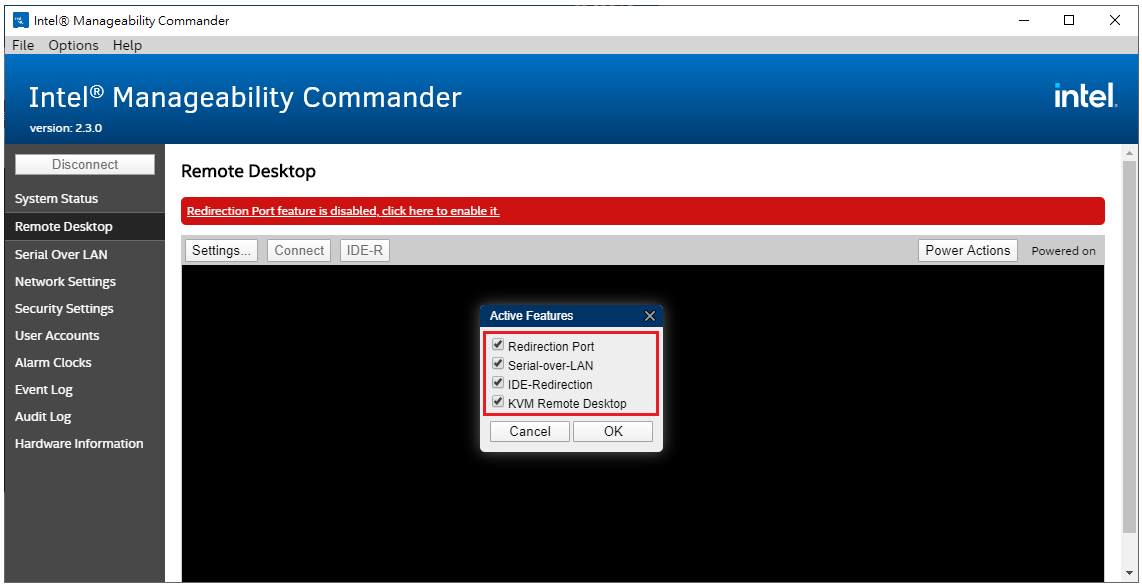
Remote Desktop

Intel® Manageability Commander provides the remote KVM feature. Following the steps to connect to managed device.

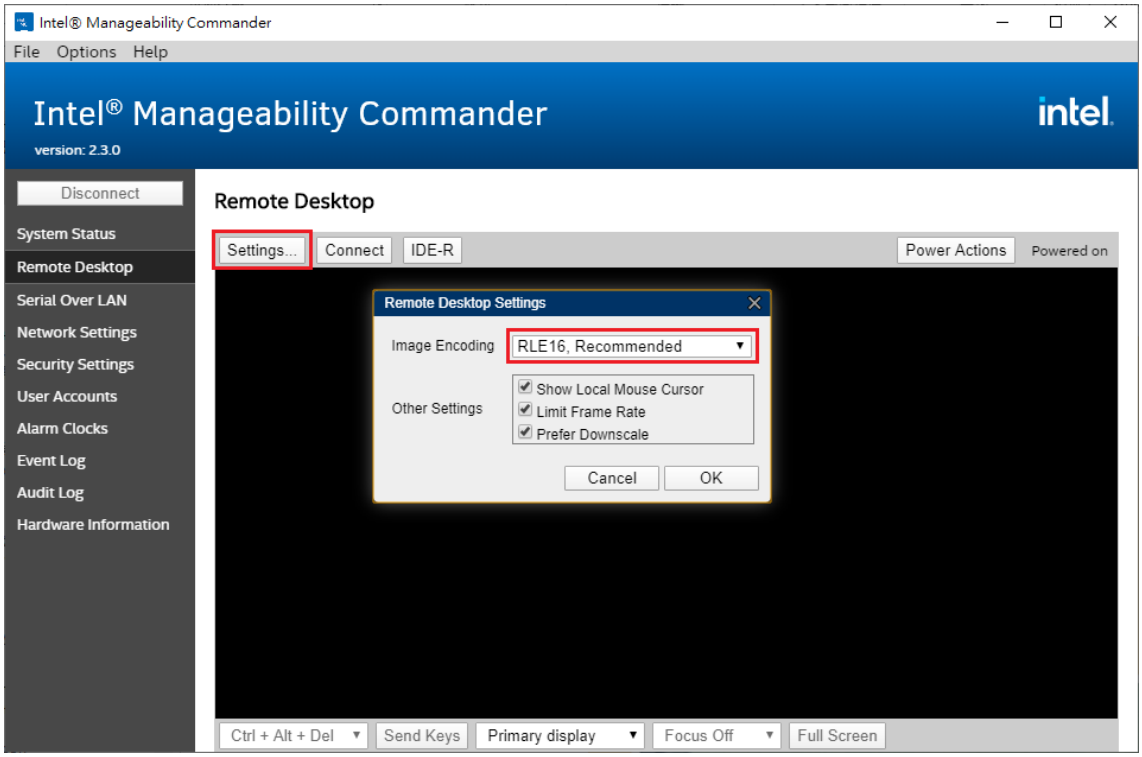
1. Select Remote Desktop. The redirection port feature is disabled when user activates the remote function first time. Click the warning message to enable it.



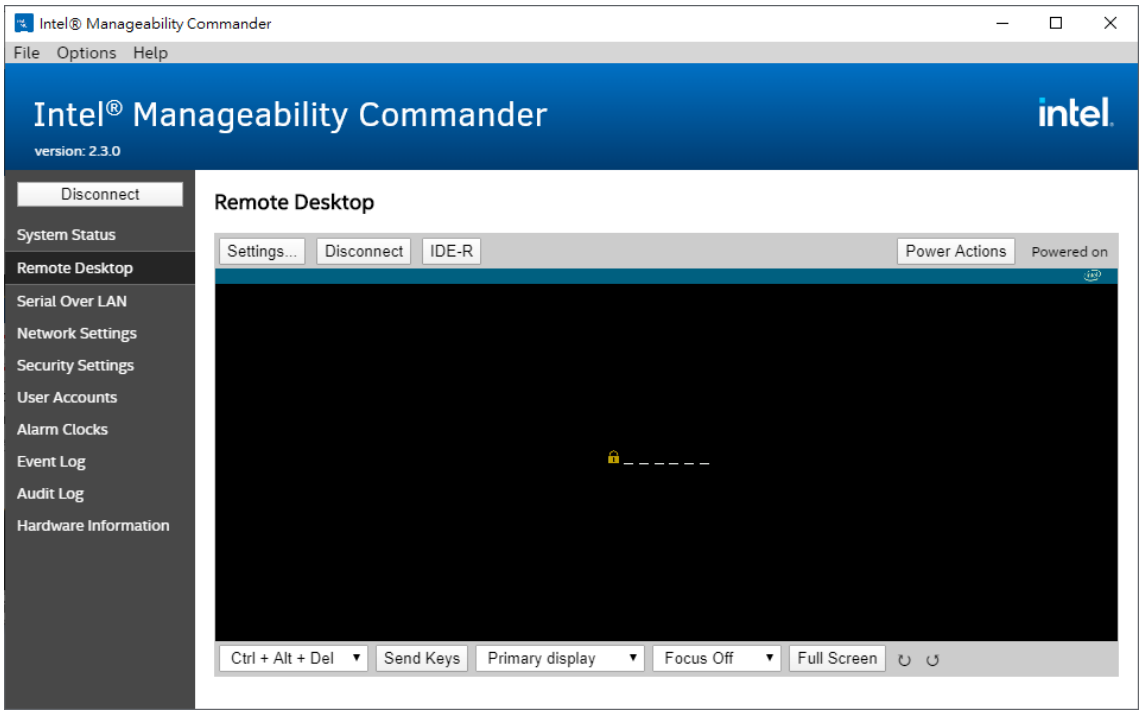
2. Enable all features. Click OK to apply settings.

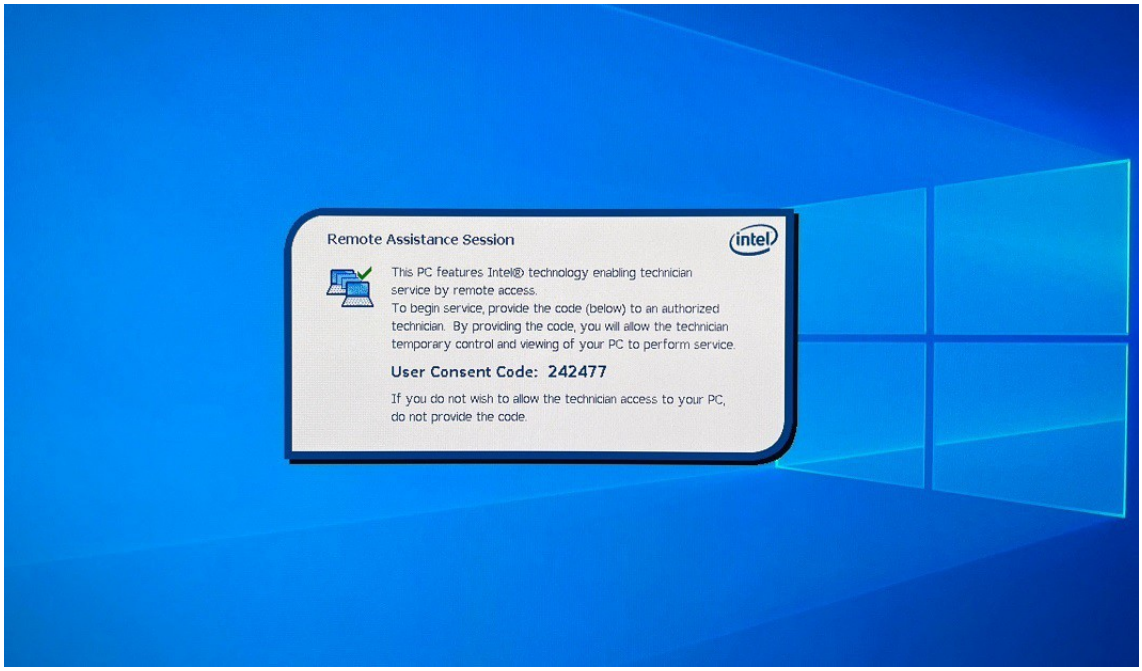


3. Click Settings..., Change the Image Encoding to RLE16, Recommended. Click OK to apply settings.

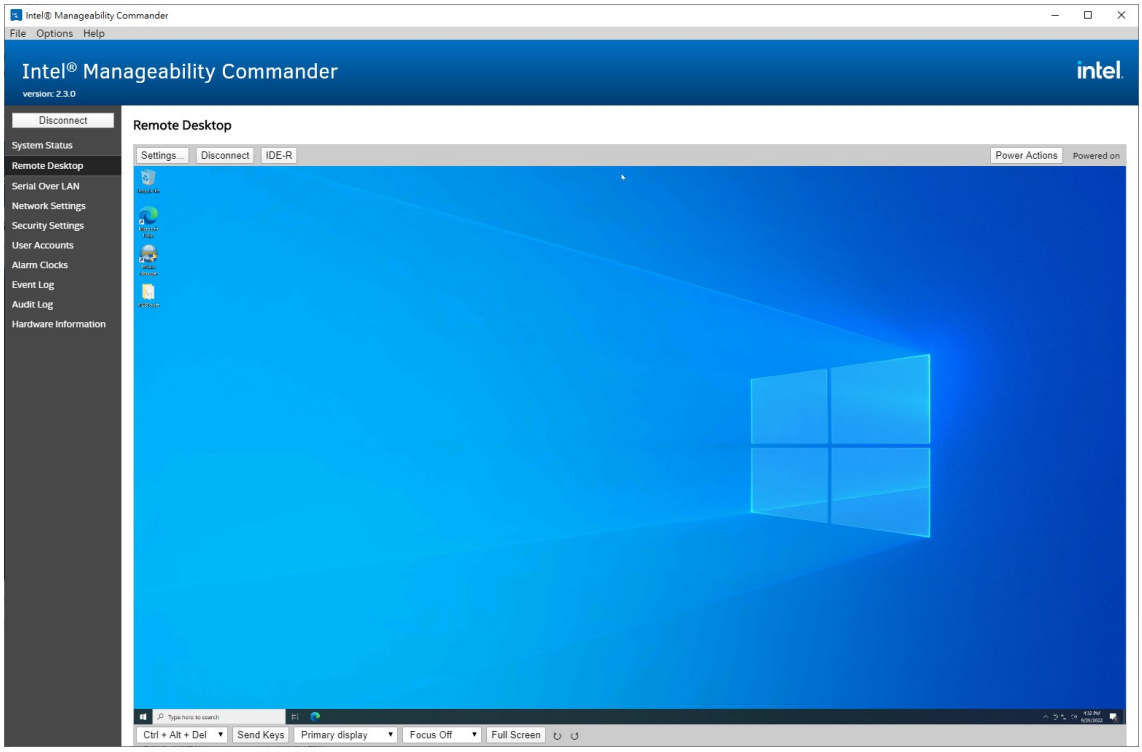


4. Click Connect and type the user consent code. The User Consent code is provided on the client- side as a sprite on the Intel® AMT device's display. This sprite is generated by the Intel® GPU and is not available to the OS. This is a 6-digit code that the technician will use when making the connection requiring the consent, such as an Intel KVM connection.



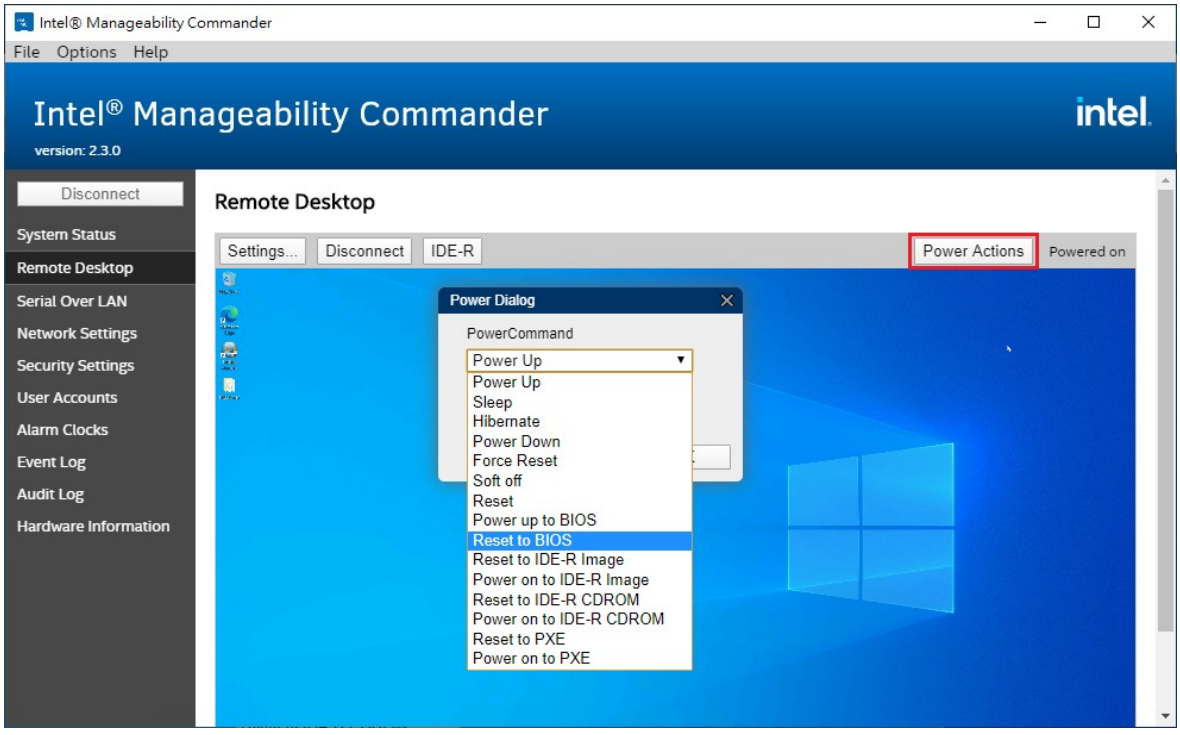


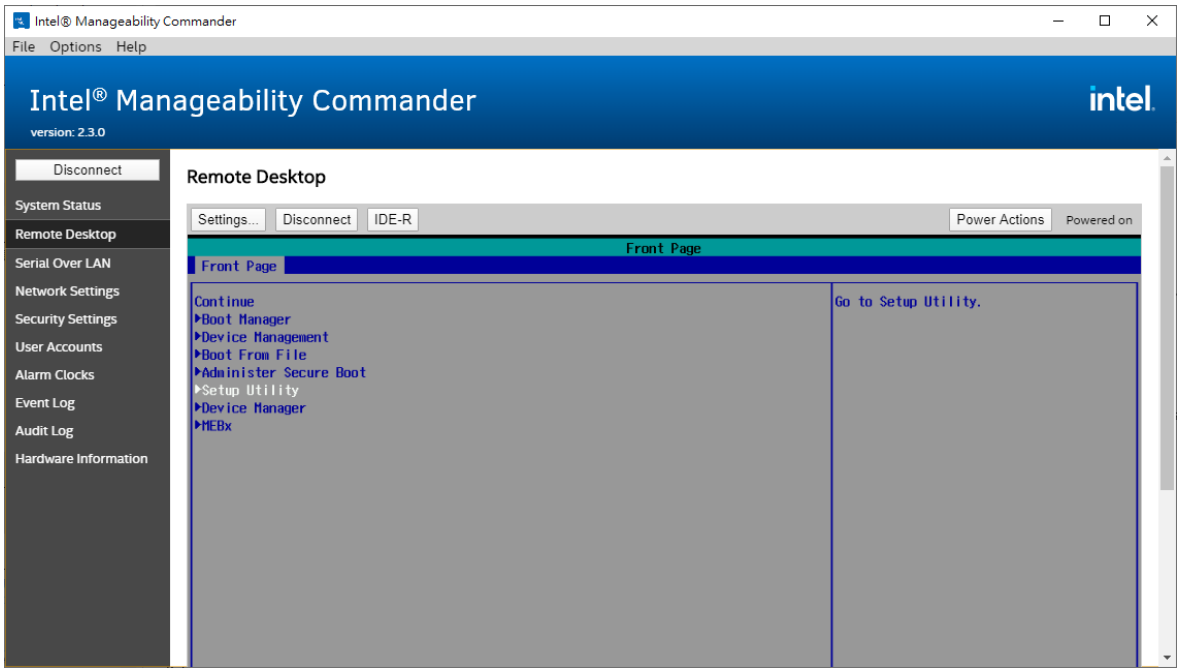
5. The Intel® AMT device authenticates the user consent code and then user can execute the remote desktop feature.



Advanced Power Control

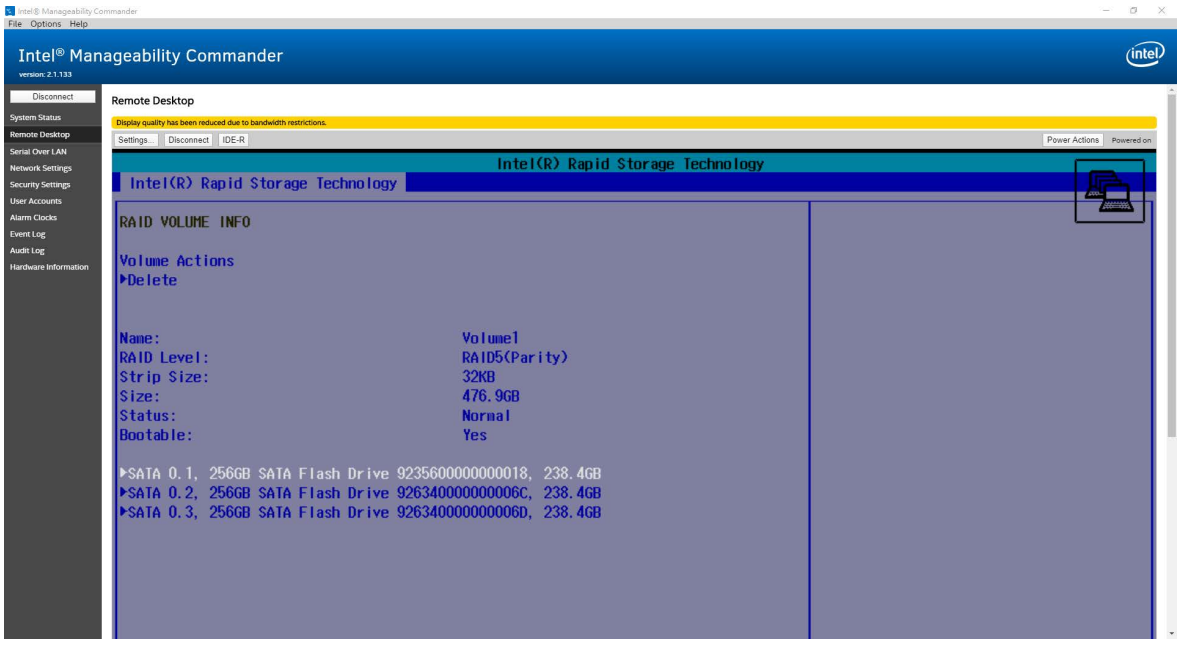
Intel® Manageability Commander provides the advanced power control features. Click Power Action to control managed device. For example, reset the device power and boot to the BIOS menu. With the advanced power control features, user can configures the BIOS settings and manages the device more easily. Such as RAID Configuration, Boot Manager and OS Recovery.





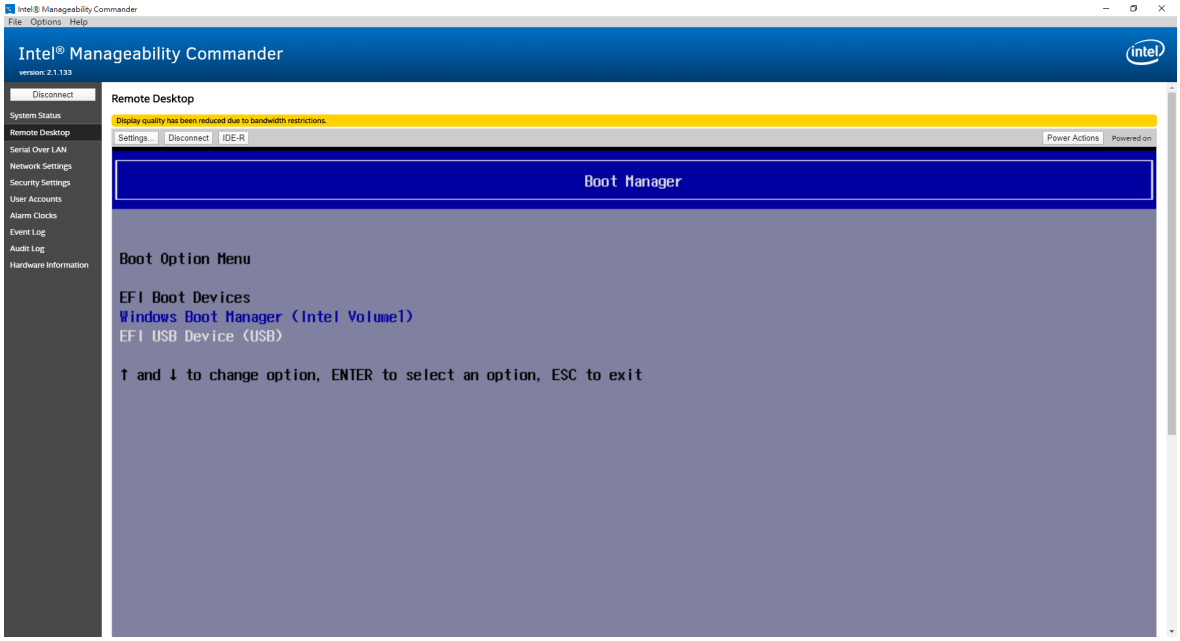
Remote RAID Configuration

Reset to BIOS menu and select Setup Utility option. Reference Chapter 4 Configuring RAID to configure the RAID settings.



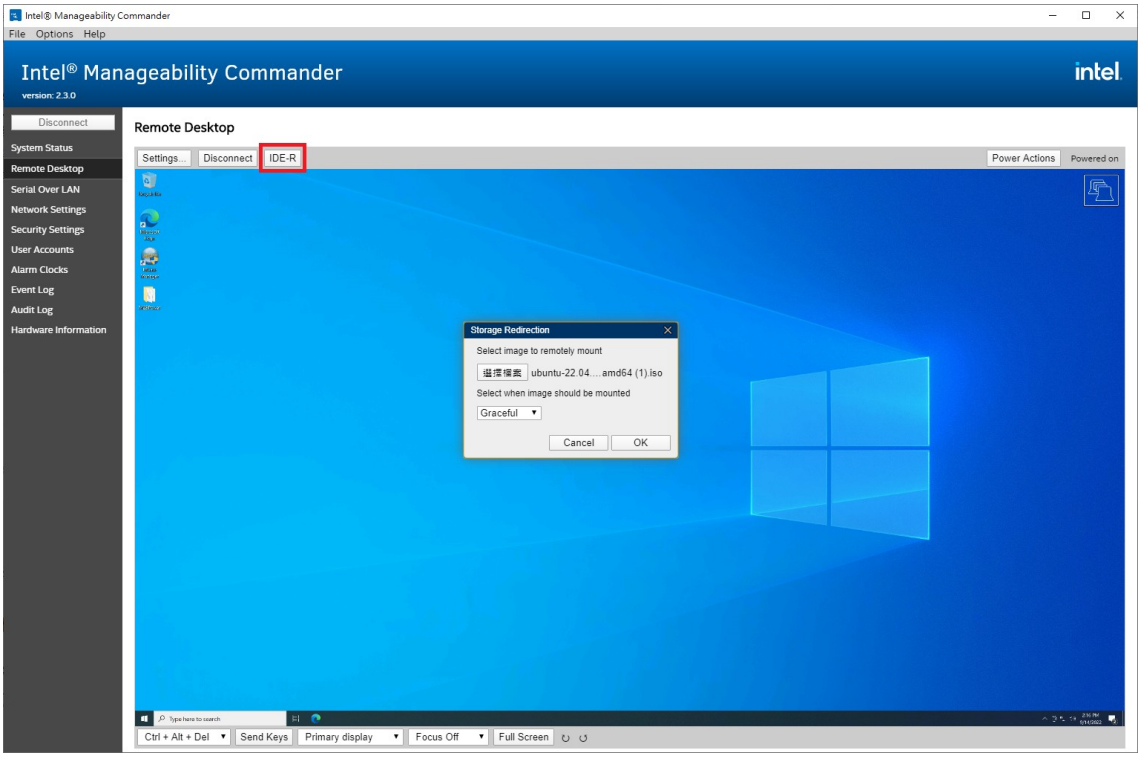
Remote Boot Manager

Reset to BIOS menu and select Boot Manager. User can select the bootable USB disk to backup the OS image or recovery OS with bootable disk which includes recovery image.

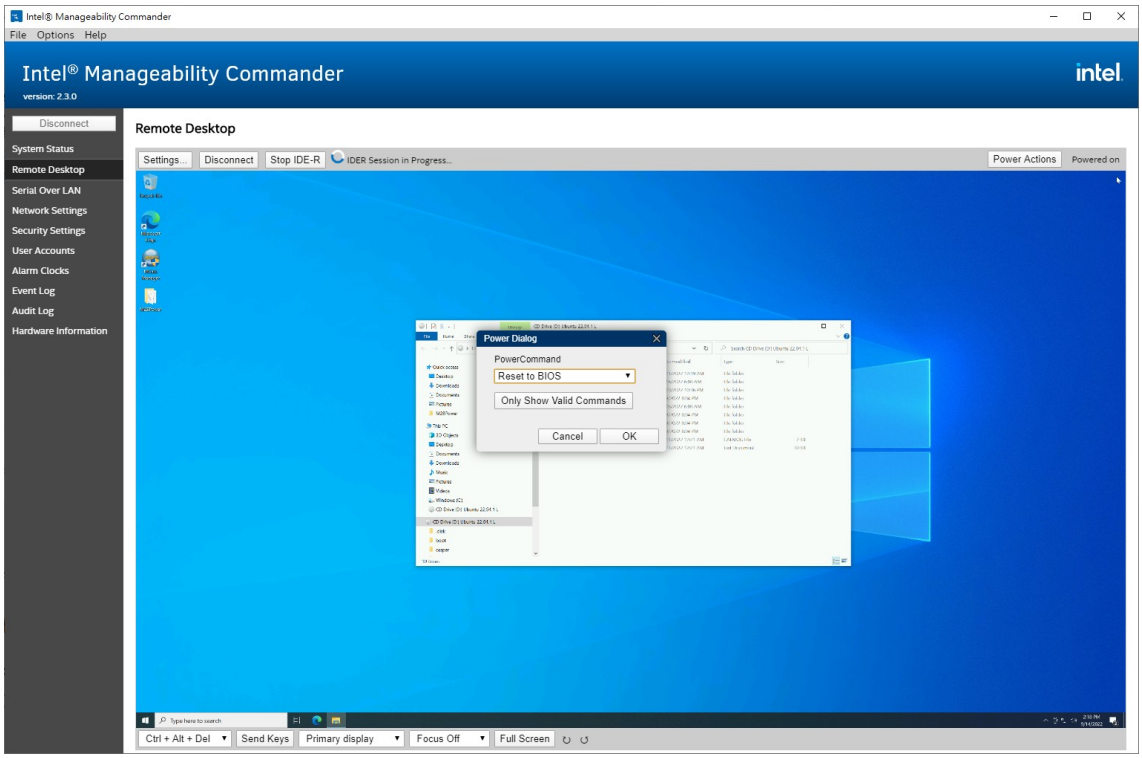


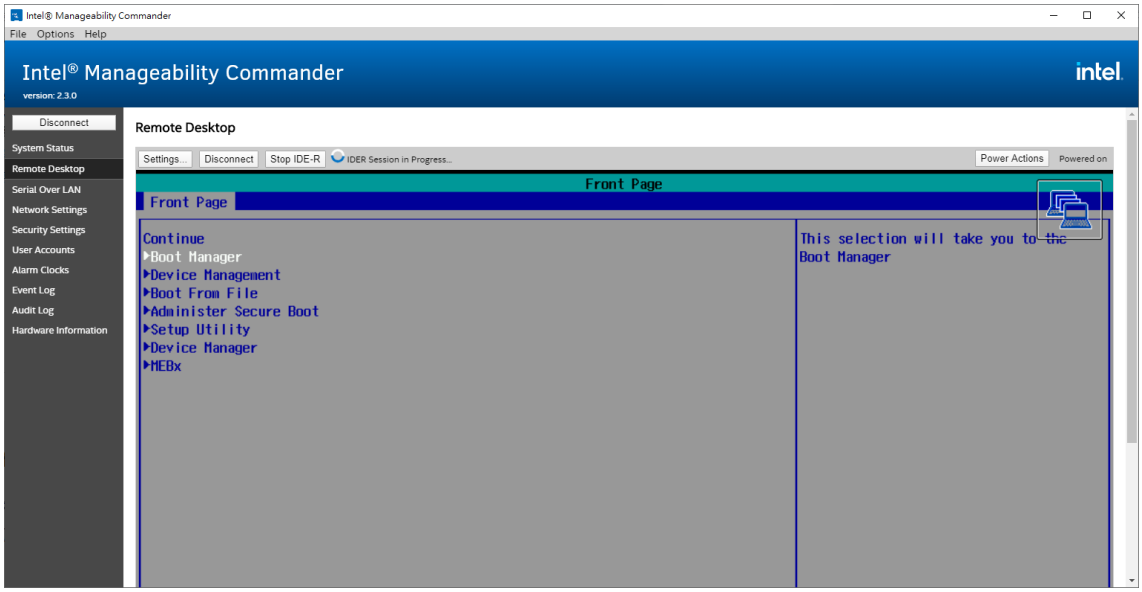
Remote Mount/Recovery Image

1. User can select recovery image to remotely mount. Click IDE-R option and select the target image.

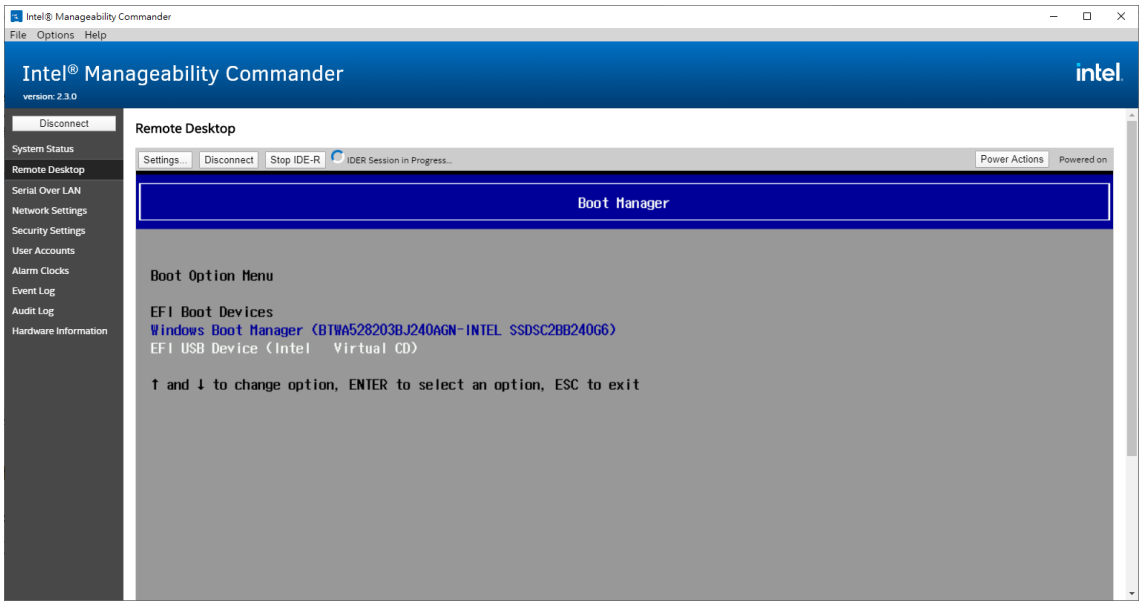


2. Reset to BIOS menu and select Boot Manager.

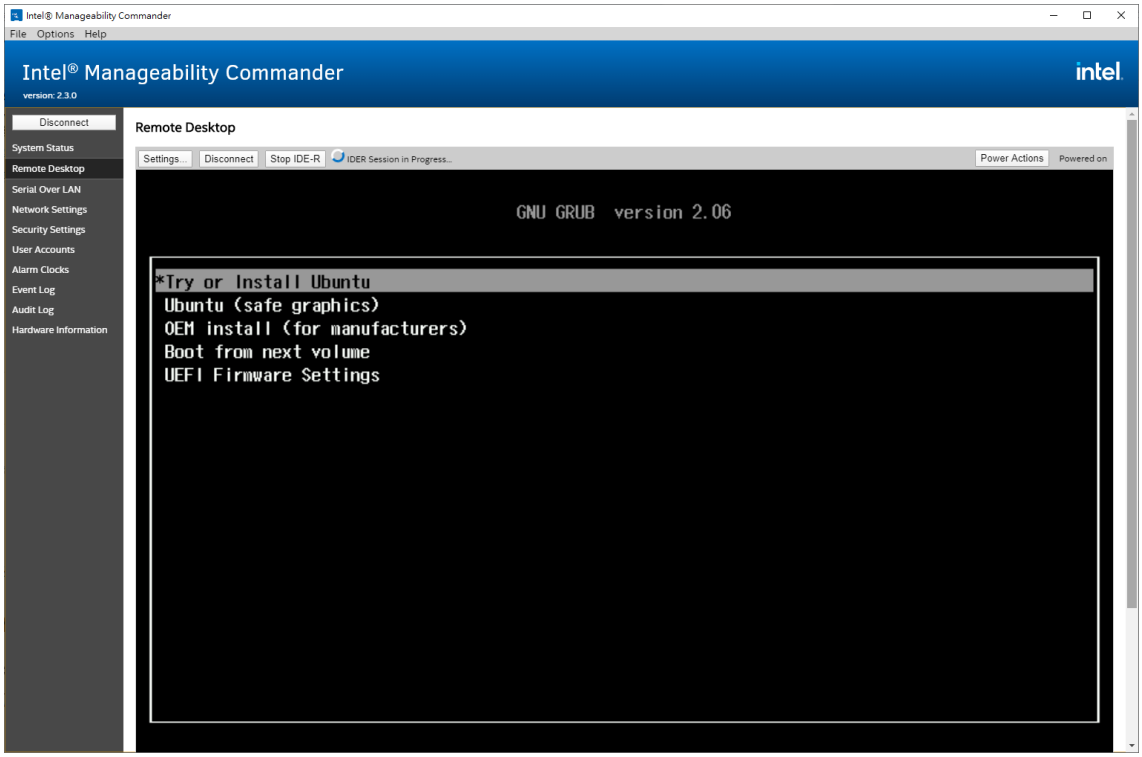




3. Select Intel Virtual CD to boot to mount image.

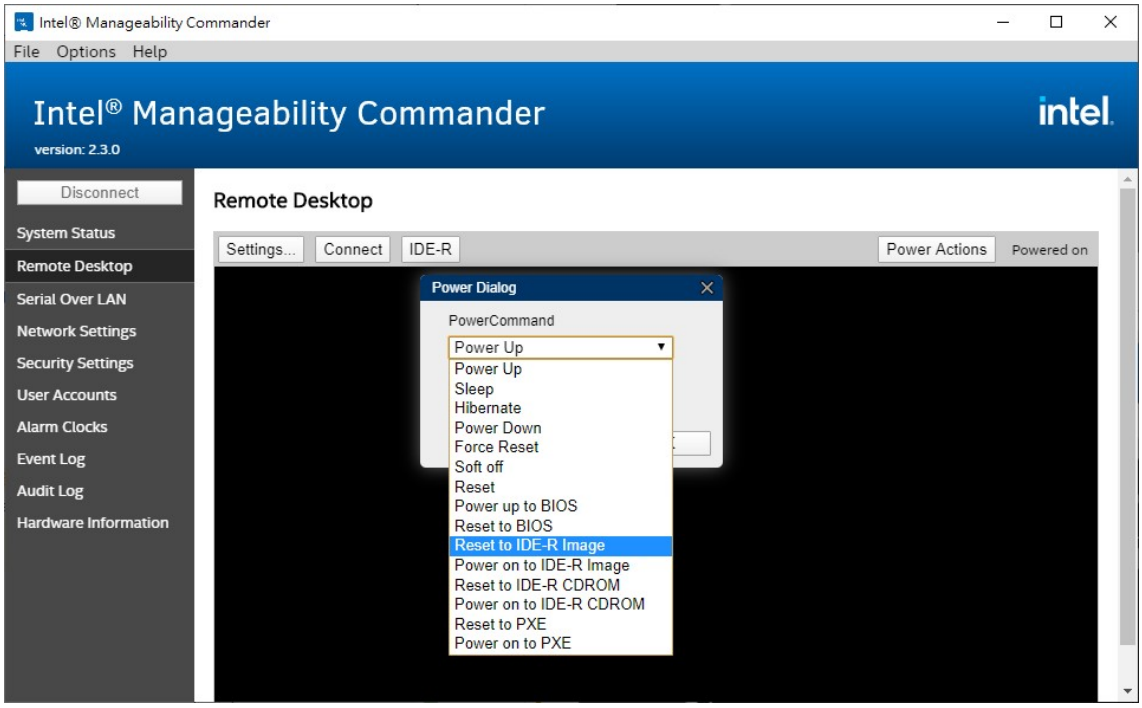


4. Following the steps to recovery image.



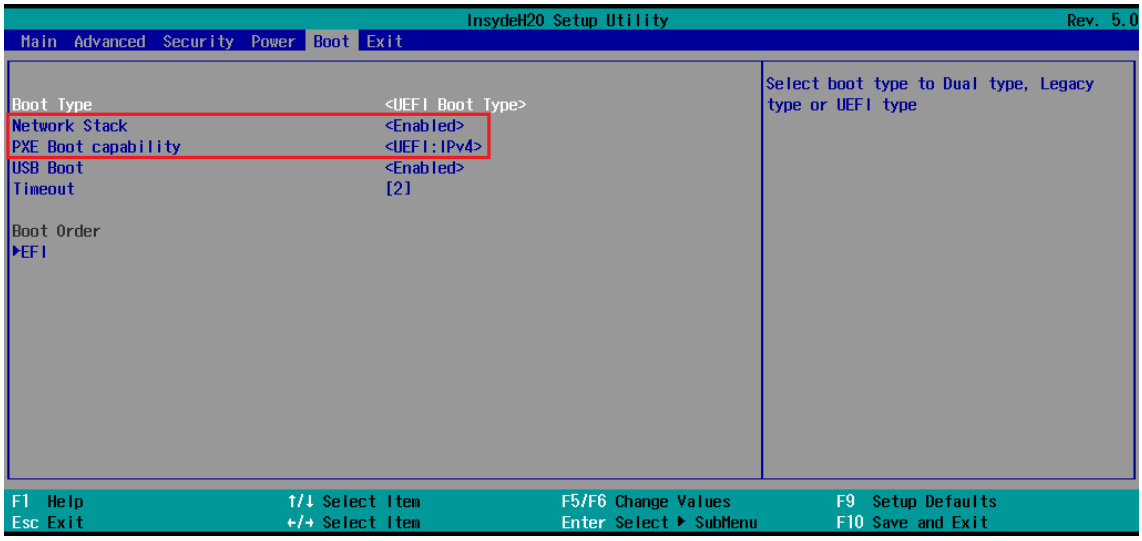
NOTE

User can using the power action to reset to IDE-R image directly.

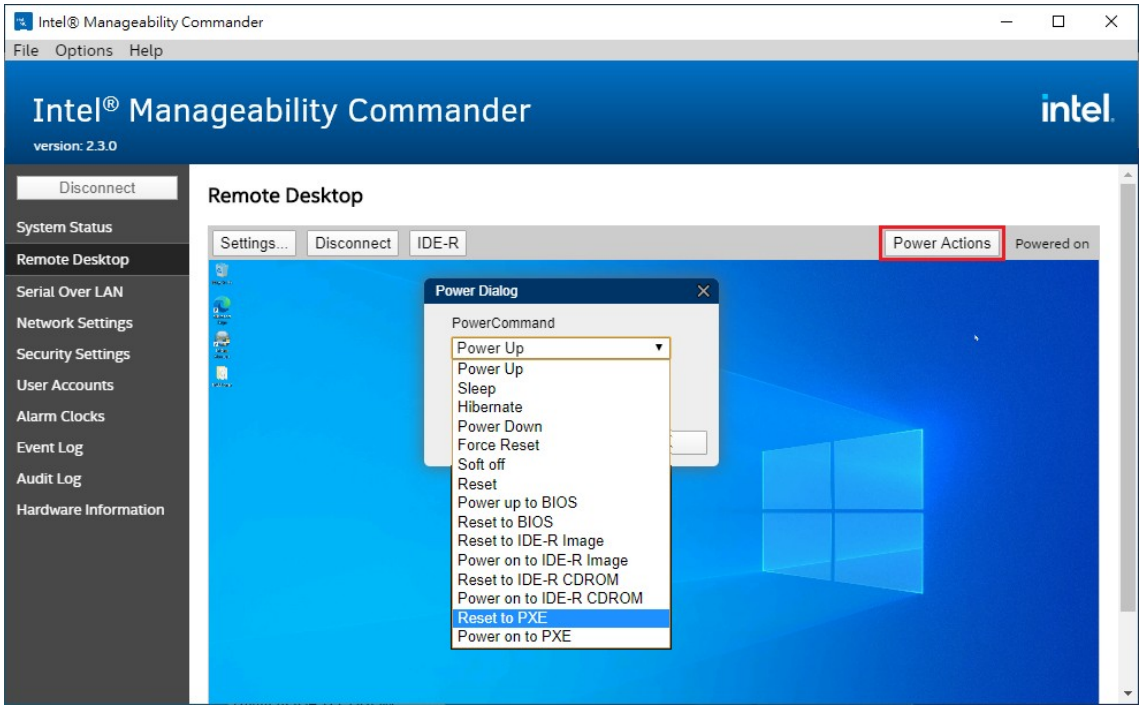


Reset to PXE

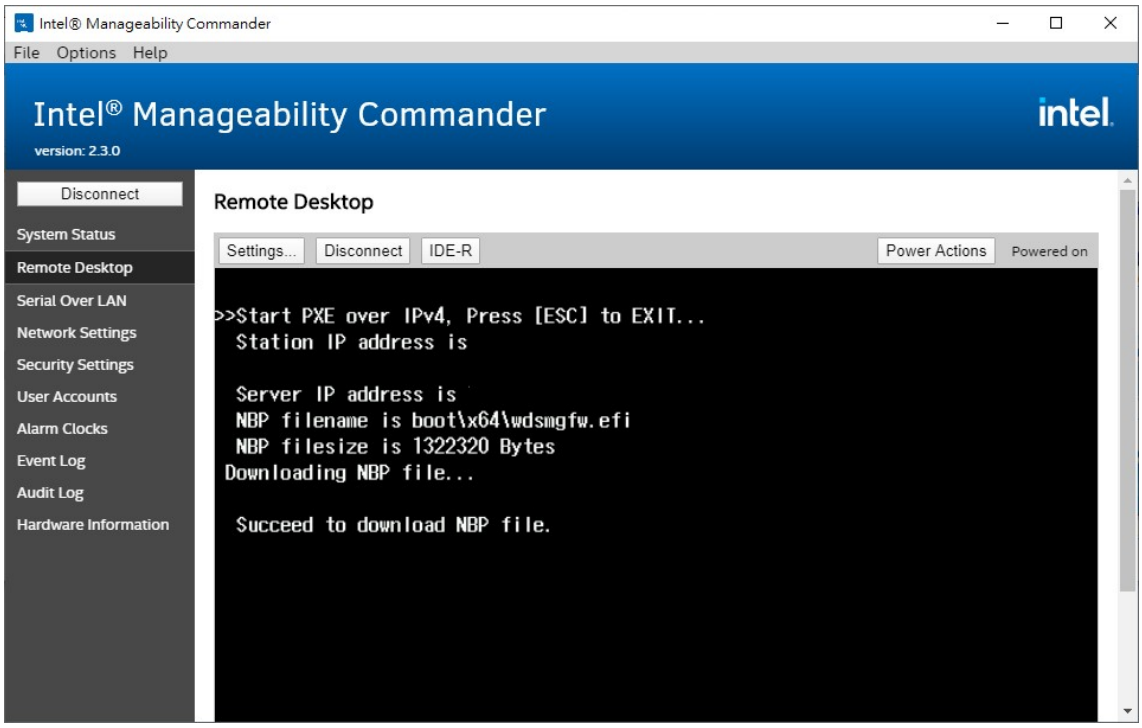
1. Enable the Network Stack and PXE Boot capability from BIOS menu of managed device.



2. Click Power Actions and select Reset to PXE.



3. The managed device will boot to PXE.



7. Unified Write Filter

This chapter describes how to use the Unified the Write Filter (UWF).

To use the UWF, you must first install the feature and enable it; the default is disable.

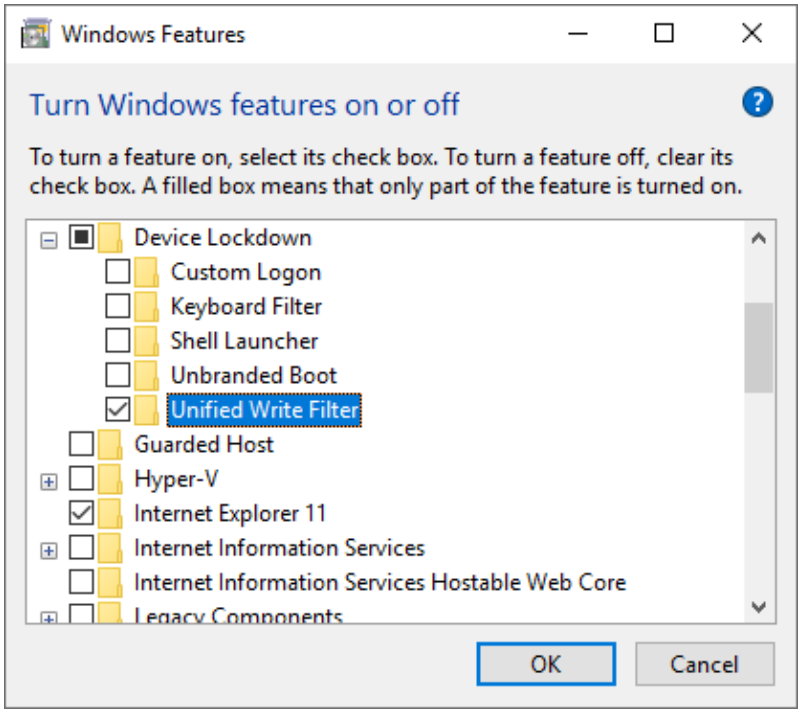
The first time you enable UWF on your device, UWF makes the following changes to your system to improve its performance:

- **Paging files are disabled.**
- **System restore is disabled.**
- **SuperFetch is disabled.**
- **File indexing service is turned off.**
- **Fast boot is disabled.**
- **Defragmentation service is turned off.**
- **BCD setting bootstatuspolicy is set to ignoreallfailures.**

After UWF is enabled, you can select a drive that you want to protect and start using UWF. UWF can help you manage PCs and devices remotely using WMI.

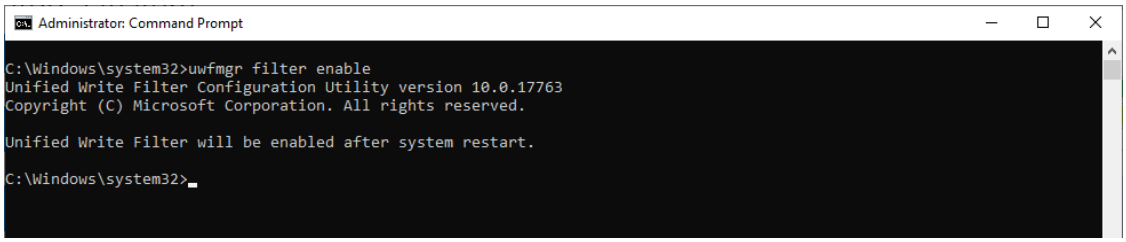
Turning on UWF on a Running PC

1. Install UWF.
   a. In the Windows **Start** window, type **Turn Windows features on or off**.
   b. Open the **Windows Features** window and expand the **Device Lockdown** node.
   c. Select **Unified Write Filter** and click **OK**.
   d. Windows searches for the required files and displays a progress bar. Once the files are found, Windows applies the changes. When the changes are complete, a message to this effect is displayed.
   e. Click **Close**.



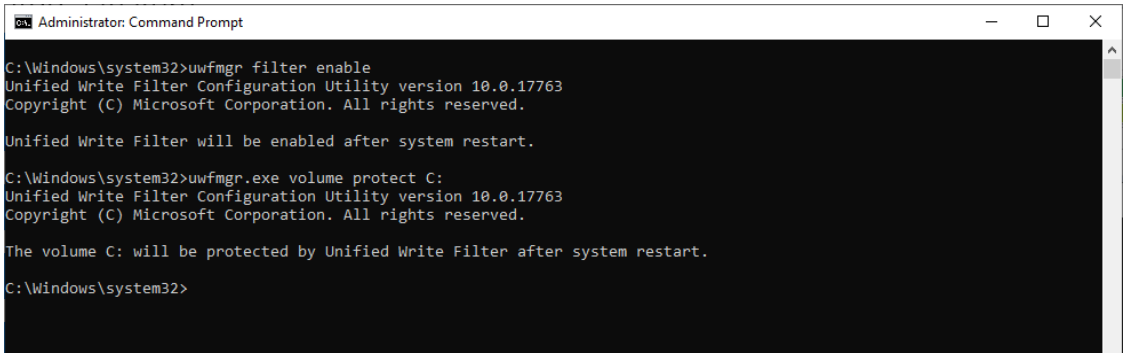
2. Enable the following filter as an Administrator:

   cmd uwfmgr filter enable



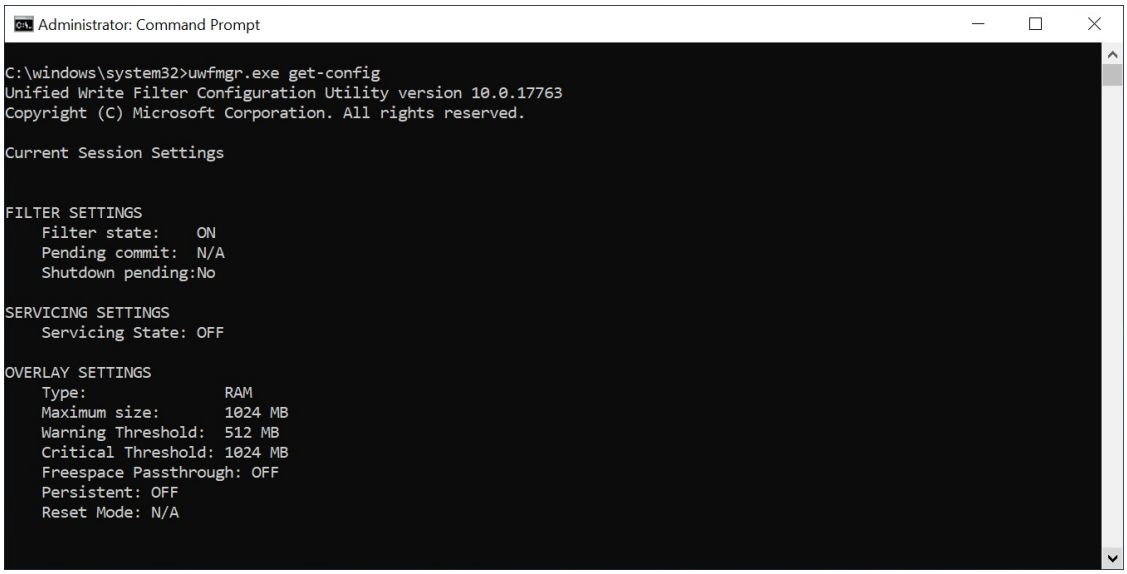
3. Enable write protection for a drive:

   cmd uwfmgr.exe volume protect C:



4. Restart your computer.
5. Confirm that UWF is running:

   cmd uwfmgr.exe get-config



Installing UWF Using WMI

If you have already installed Windows on your computer and you do not want to use a provisioning package, you can configure UWF by using Windows Management Instrumentation (WMI) providers. To turn on UWF using WMI, use the **UWF_Filter** function, specifically the **UWF_Filter.Enable** method in one of the following ways:

- Use the WMI providers directly in a PowerShell script
- Use the WMI providers directly in an application
- Use the command line tool, uwfmgr.exe

NOTE

You must restart your computer after you turn on or turn off UWF for the changes to take effect.

You can also change the settings after you turn on UWF. For example, you can move the page file location to an unprotected volume and re-enable paging files.

IMPORTANT!

If you add UWF to your image by using SMI settings in the unattend.xml file, turning on UWF only sets the bootstatuspolicy BCD setting and turns off the defragmentation service. You must manually turn off the other features and services if you want to increase the performance of UWF.

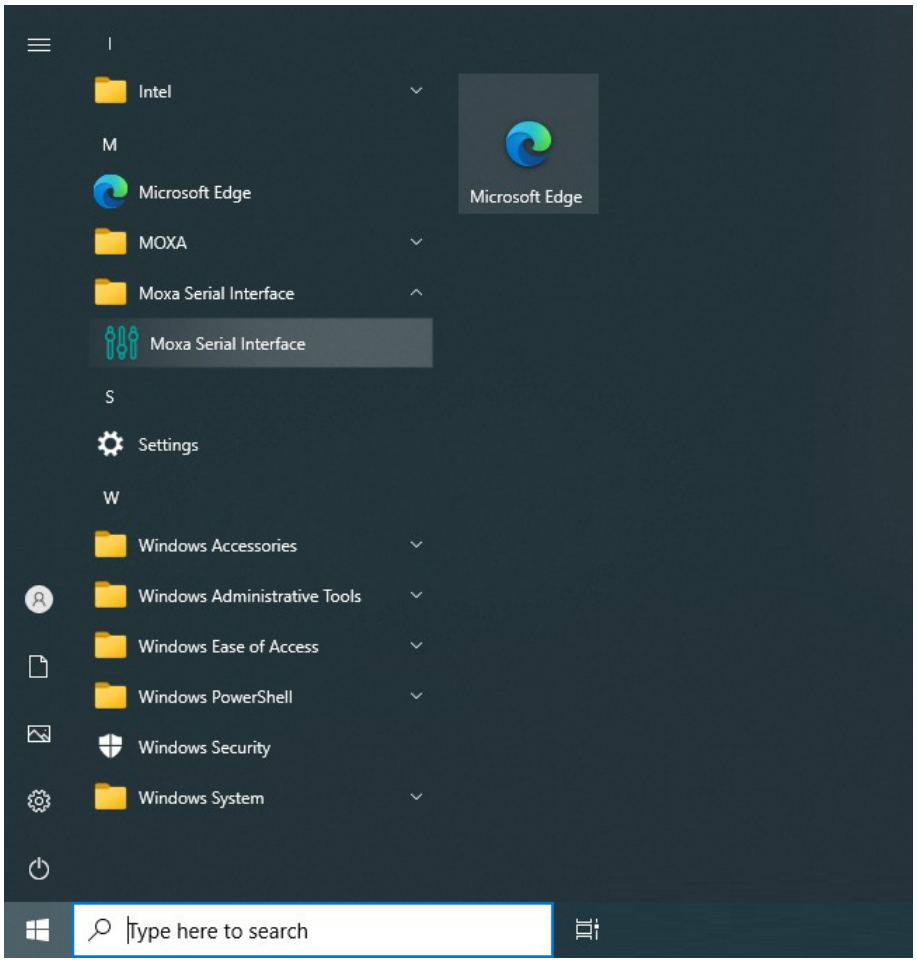
After the device is restarted, UWF maintains configuration settings for the current session in a registry. UWF automatically excludes these registry entries from its filter. Static configuration changes do not take effect until after a device restart; the changes are saved in registry entries for use in the next session. Dynamic configuration changes occur immediately and persist after a device restart.

8. Moxa Serial Interface Utility

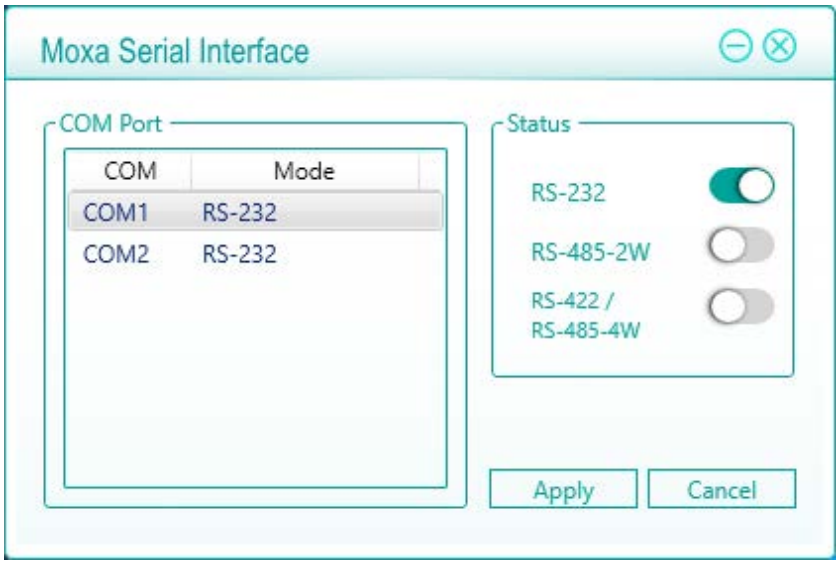
In this chapter, we describe how to use the Moxa Serial Interface utility to set the UART mode in your computer's serial interface.

Setting the Serial Port Mode

1. Install the Moxa Serial Interface utility.
2. From the Windows Start menu, run the **Moxa Serial Interface utility**.

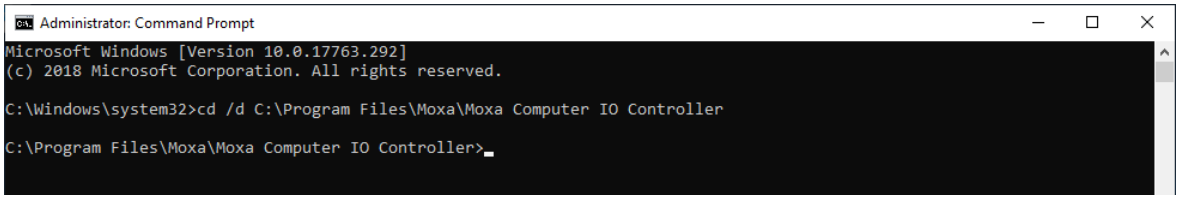


3. Select the target COM port and UART mode and click **Apply** to save the settings.



9. Moxa IO Controller Utility

This chapter describes how to use the Moxa IO Controller utility.



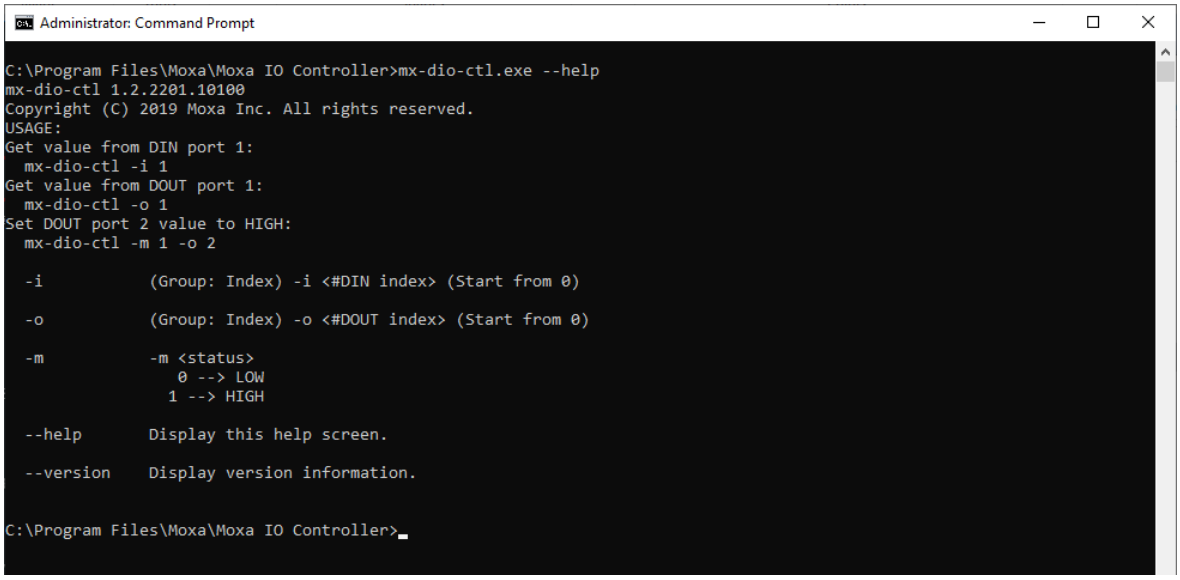
To use the Moxa IO Controller utility, first install the utility and enable the utility to configure the DIO, UART mode, and SIM settings. After the installation process is complete, run the Windows command prompt as an Administrator and change the path to C:\Program Files\Moxa\Moxa Computer IO Controller.

Setting the DIO Status

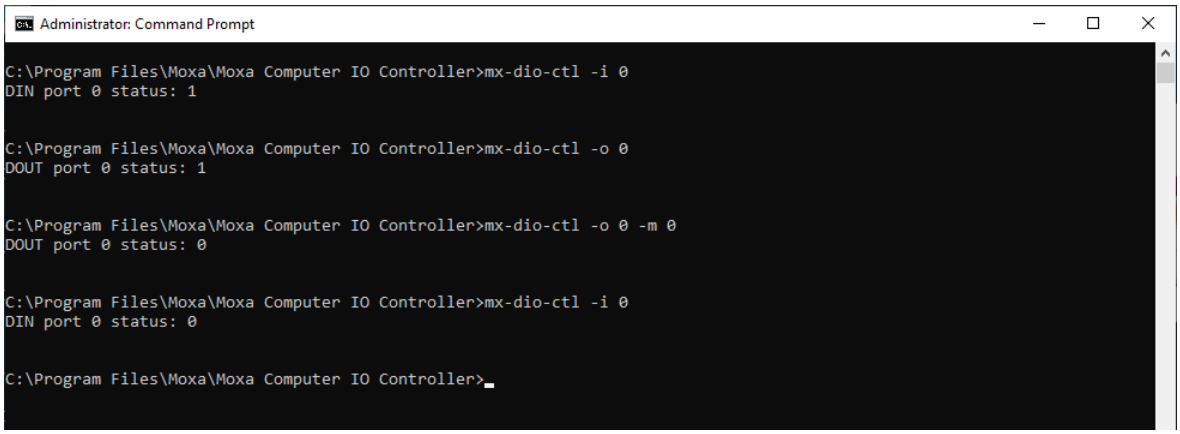
Type the **mx-dio-ctl --help** command to see the instructions on using this utility and follow them to get or set the DIO status.

IMPORTANT!

The DIN and DOUT indices start at 0. Even though the console output starts at 1, the indices still start at 0.



Example:

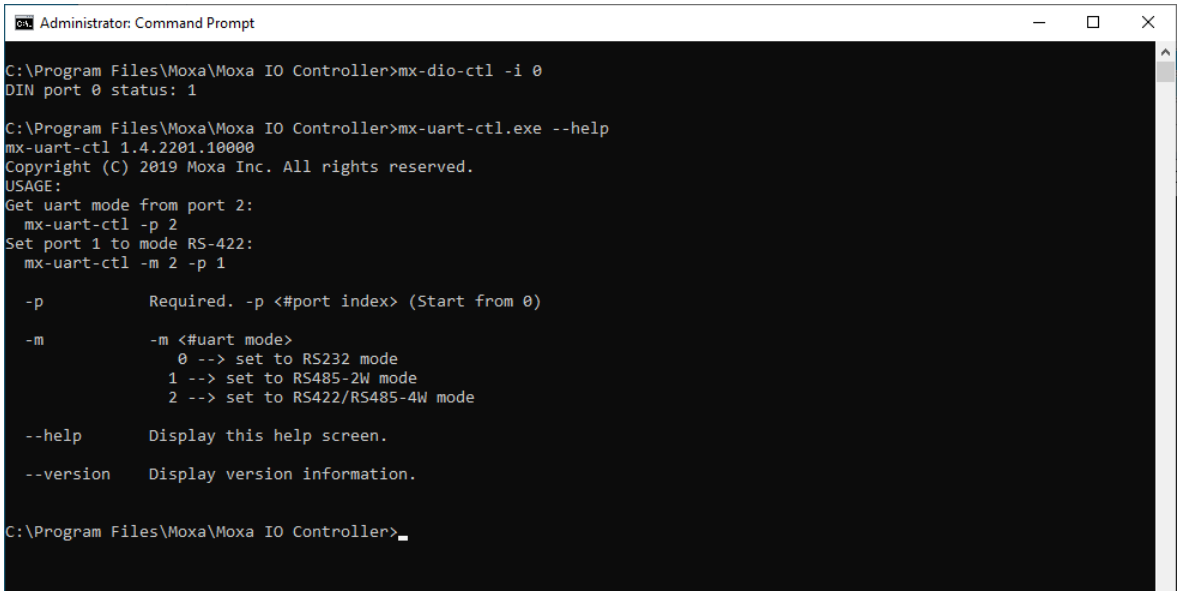


Setting the UART Mode

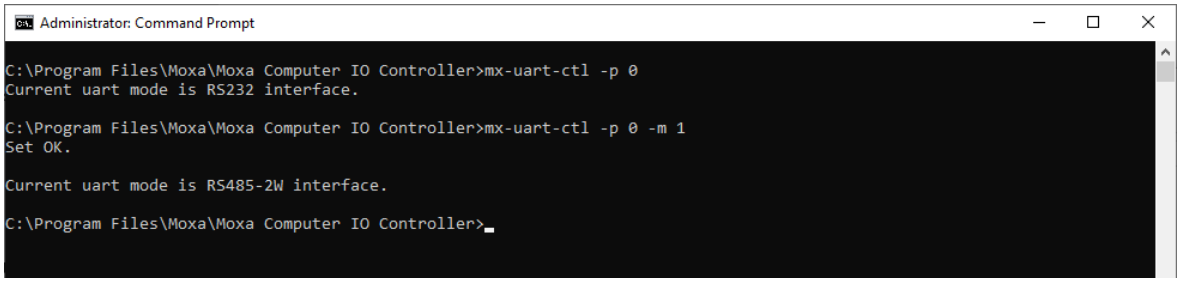
Type the **mx-uart-ctl --help** command to see instructions on using this utility and follow the onscreen instructions to get or set the UART mode.

IMPORTANT!

The UART index starts from **0**. Even though the console output starts at 1, the index still starts at 0.



Example:

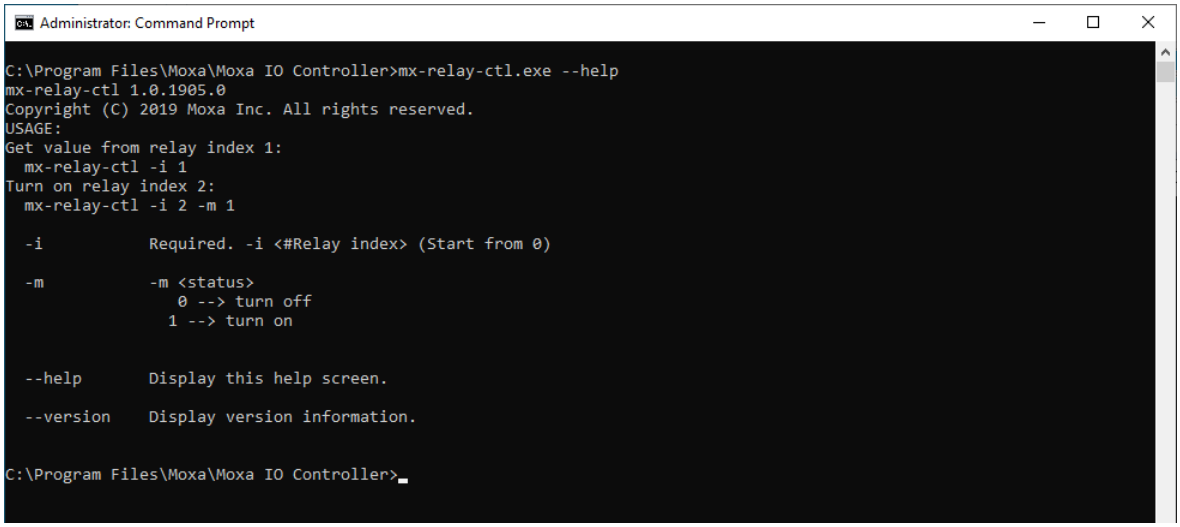


Setting the Relay Status

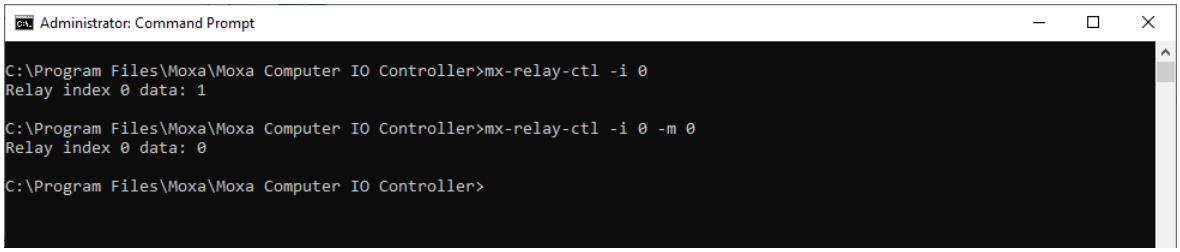
Type the **mx-relay-ctl --help** command to see instructions on using this utility and follow the onscreen instructions to get or set the relay status.

IMPORTANT!

The relay index starts from **0**. Even though the console output starts at 1, the index still starts at 0.



Example:

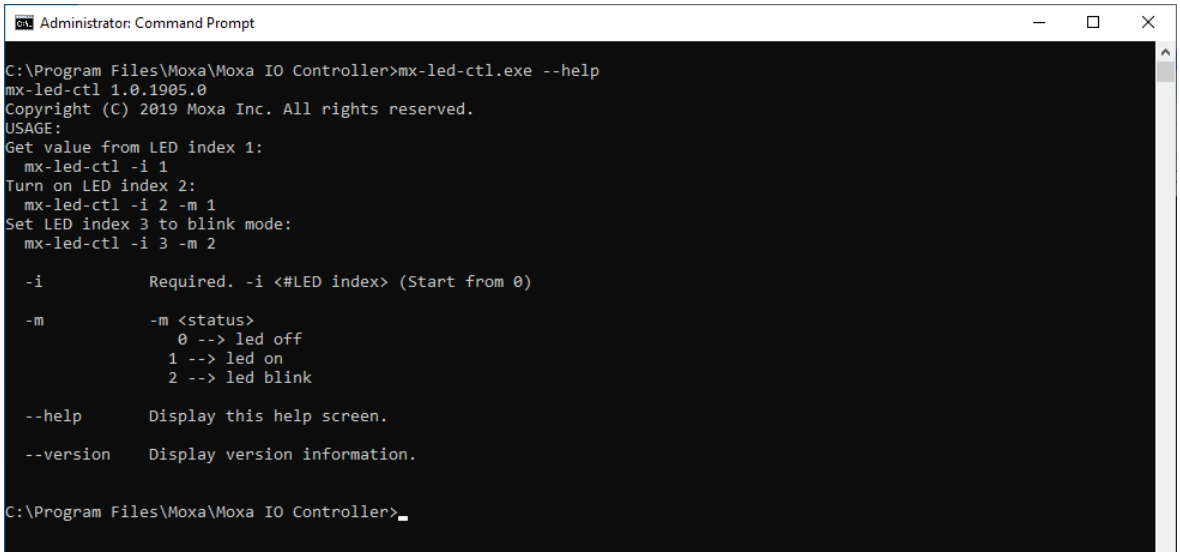


Setting the LED Status

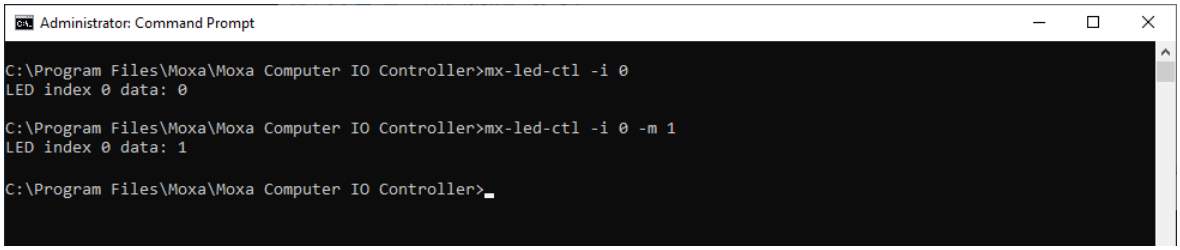
Type the **mx-led-ctl --help** command to see instructions on using this utility and follow the onscreen instructions to get or set the LED status.

IMPORTANT!

The relay index starts from **0**. Even though the console output starts at 1, the index still starts at 0.

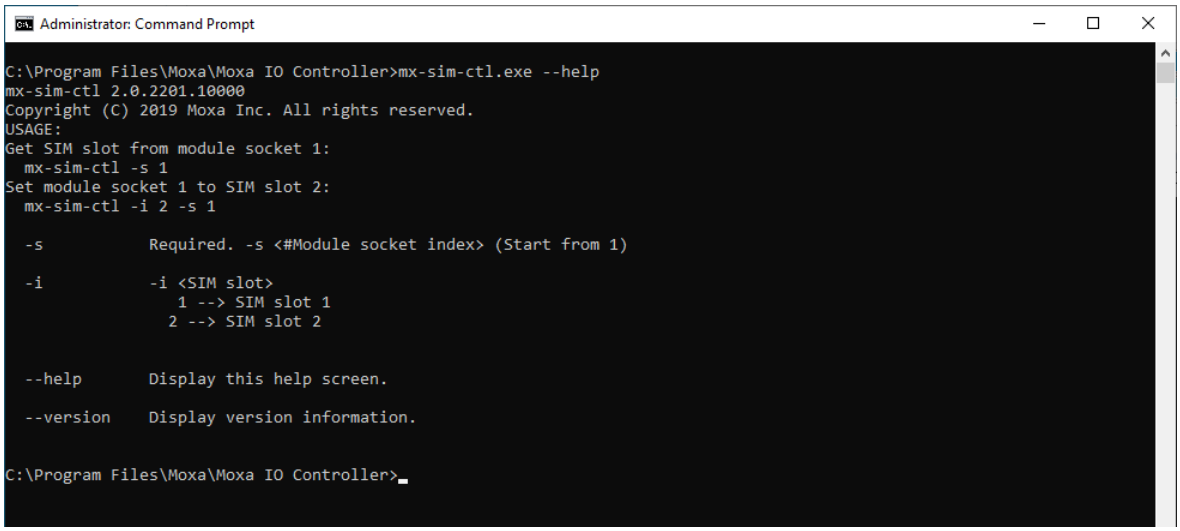


Example:

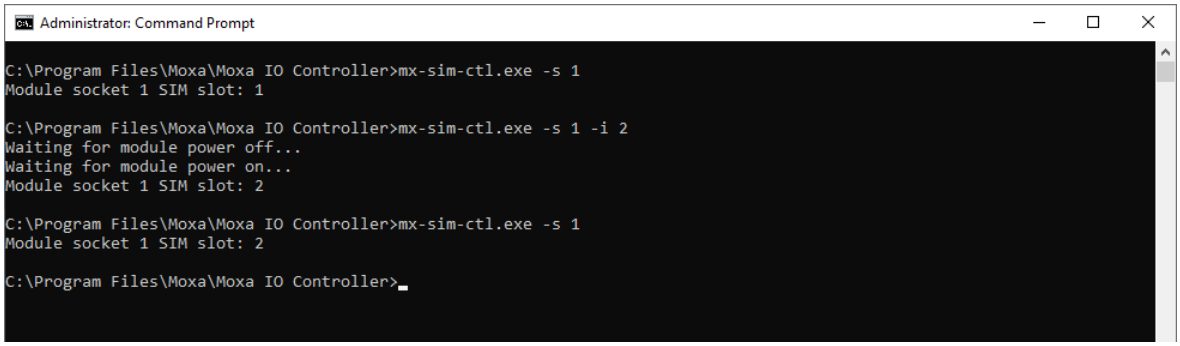


Setting the SIM Status

Type the **mx-sim-ctl --help** command to see instructions on using this utility and follow the onscreen instructions to get or set the status of the SIM card slot.



Example:

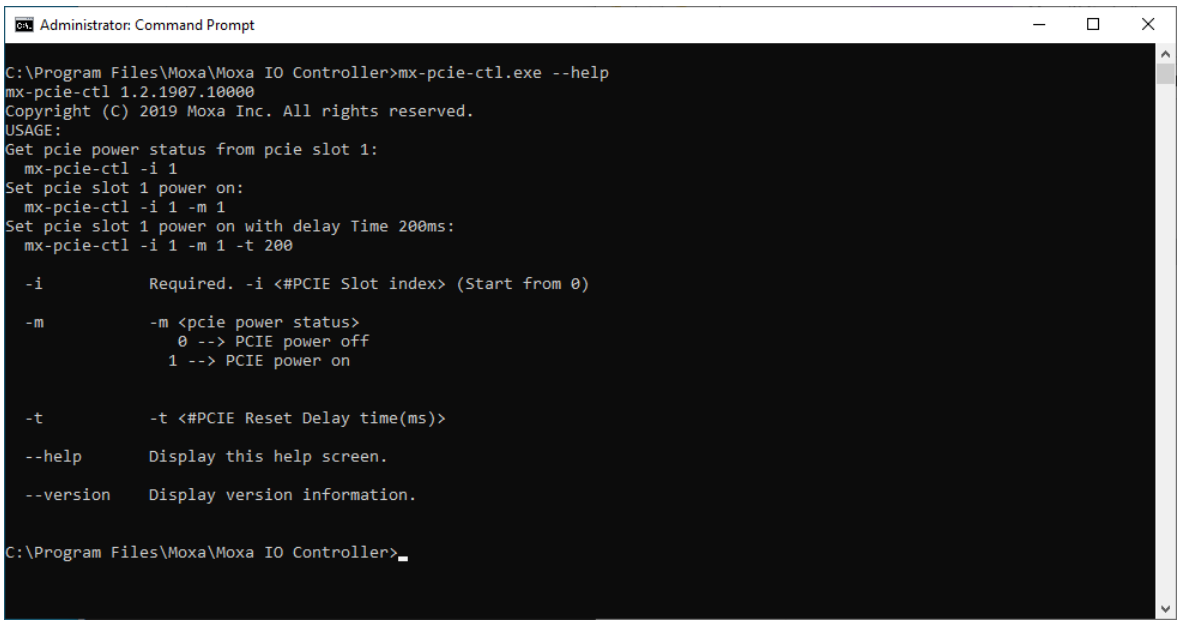


Setting PCIE Slot Power Status

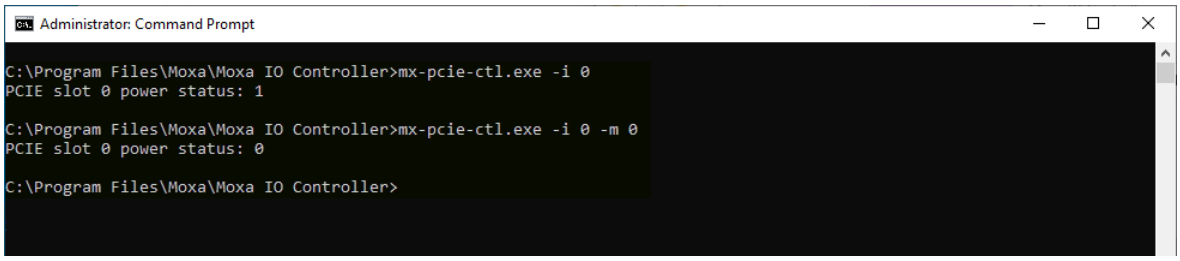
Type the **mx-pcie-ctl --help** command to see instructions on using this utility and follow the onscreen instructions to get or set the status of the PCIE slot power.

IMPORTANT!

The PCIE Slot index starts from **0**. Even though the console output starts at 1, the index still starts at 0.



Example:

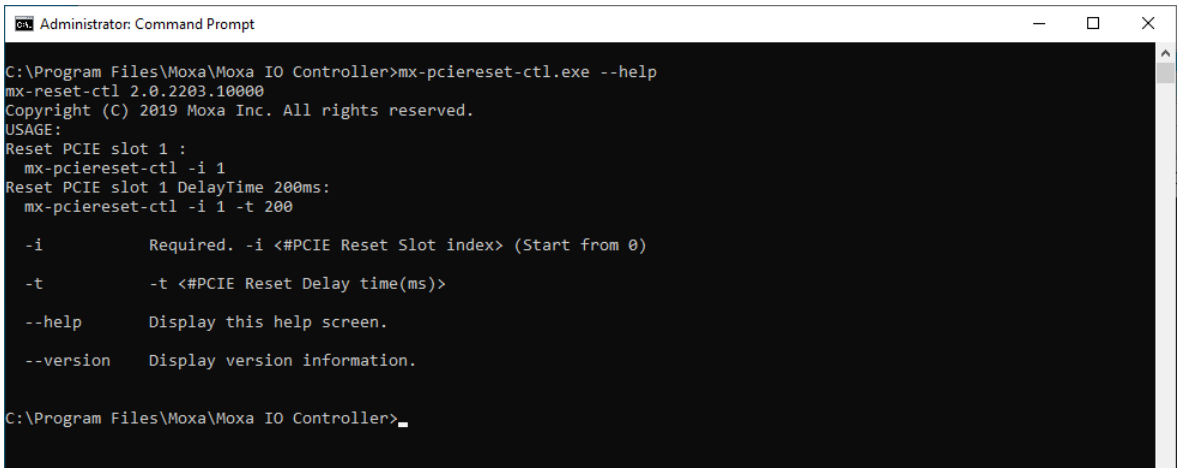


Setting PCIE Reset Pin Status

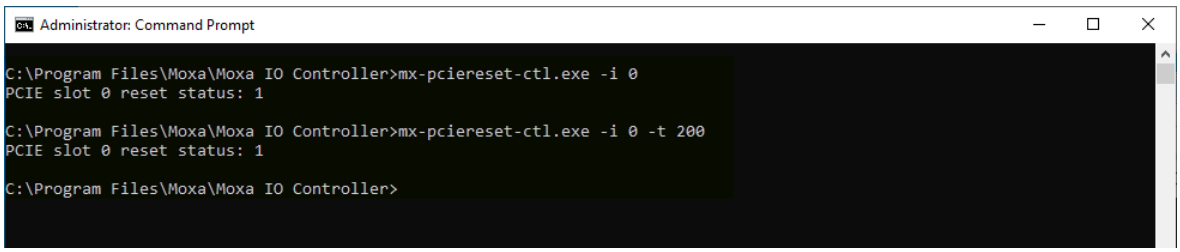
Type the **mx-pciereset-ctl --help** command to see instructions on using this utility and follow the onscreen instructions to get or set the PCIE reset pin status and delay time.

IMPORTANT!

The PCIE reset pin index starts from **0**. Even though the console output starts at 1, the index still starts at 0.

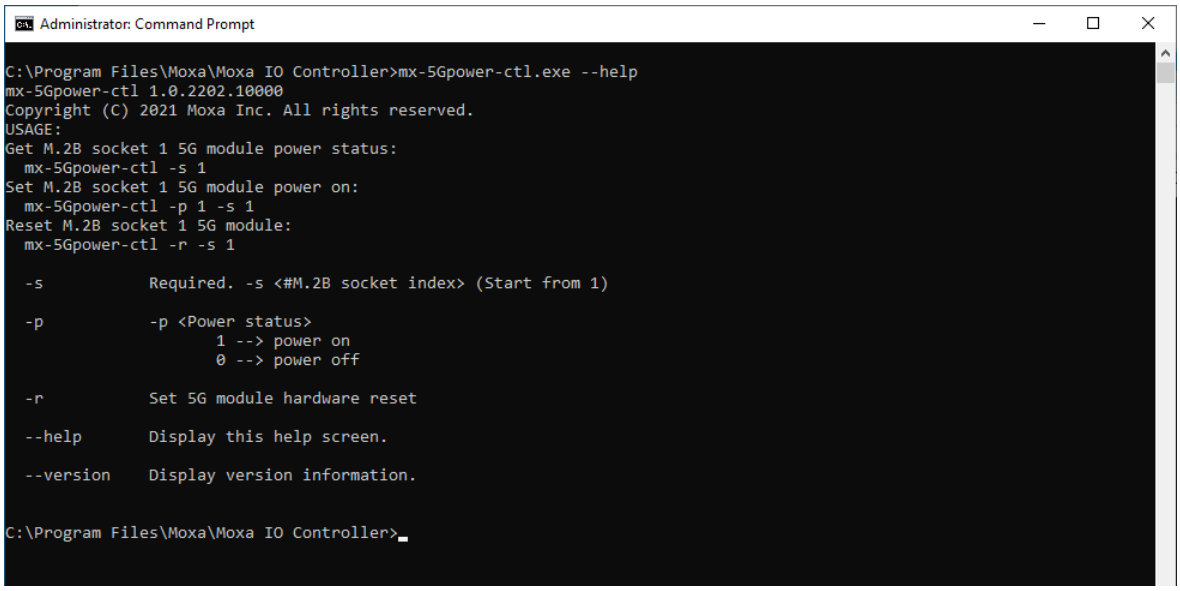


Example:

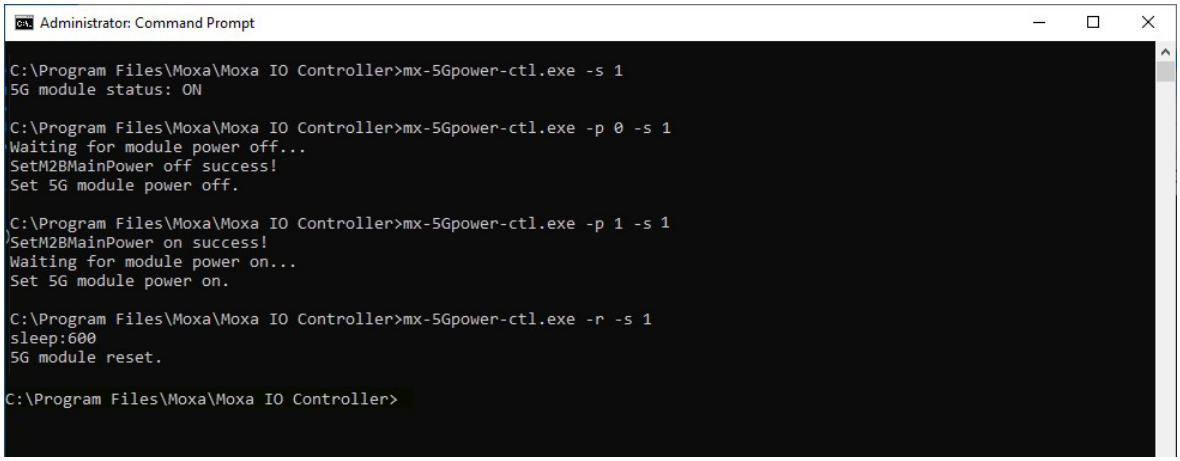


Setting M.2 B Key Socket 5G Module Power Status

Type the **mx-5Gpower-ctl --help** command to see instructions on using this utility and follow the onscreen instructions to get or set the status of the M.2 B Key socket power.



Example:

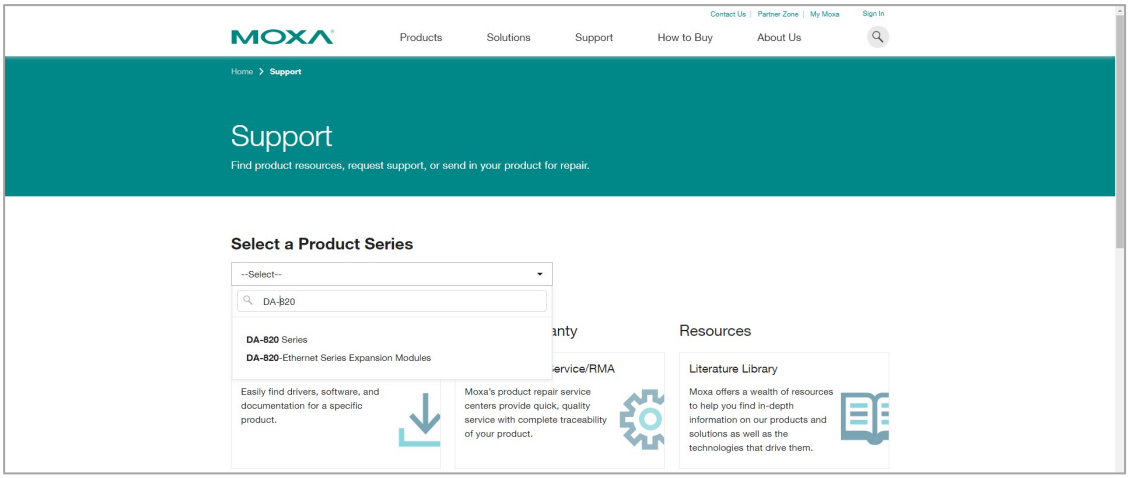


10. IO Control API

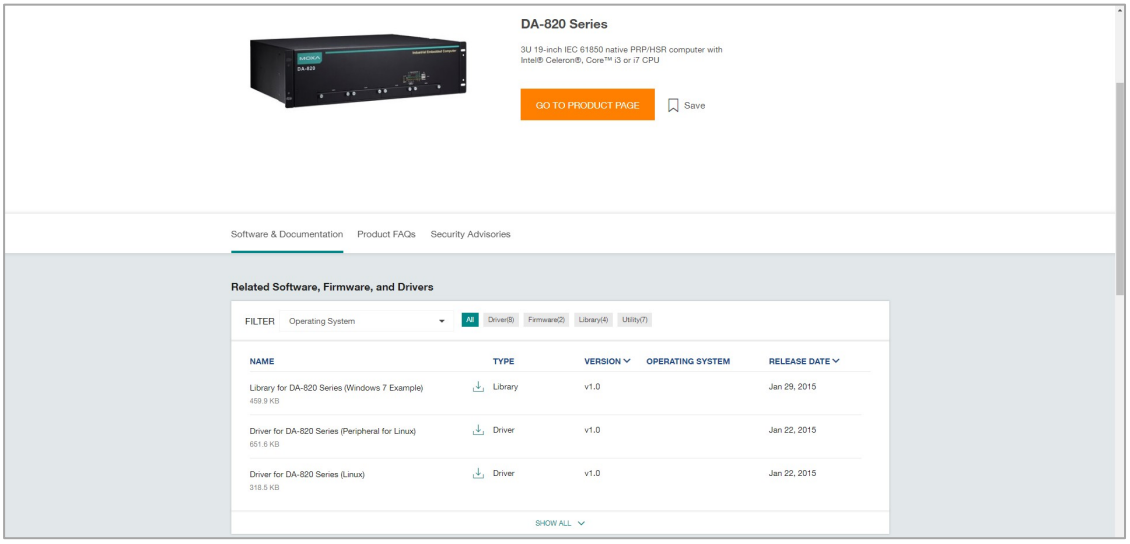
This chapter describes how to use the IO Control API.

Downloading the API

1. Access the Moxa support page: https://www.moxa.com/en/support
2. Select the product series (e.g., DA-820).



3. Download the related files.



Supported Series

mxdgio

- **DA-681C Series**
- **DA-682C Series**
- **DA-820C Series**
- **V2201 Series**
- **V2403C Series**
- **V2406C Series**
- **MC-1100 Series**
- **MC-3201 Series**
- **MC-7400 Series**
- **MPC-2070 Series**
- **MPC-2101 Series**
- **MPC-2120 Series**
- **MPC-2121 Series**

mxsp

- **DA-681C Series**
- **DA-682C Series**
- **DA-720 Series**
- **DA-820C Series**
- **V2201 Series**
- **V2403C Series**
- **V2406C Series**
- **MC-1100 Series**
- **MC-1200 Series**
- **MC-3201 Series**
- **MC-7400 Series**
- **MPC-2070 Series**
- **MPC-2101 Series**
- **MPC-2120 Series**
- **MPC-2121 Series**

mxrelay

- **DA-681C Series**
- **DA-682C Series**
- **DA-720 Series**
- **DA-820C Series**

mxled

- **DA-681C Series**
- **DA-682C Series**
- **DA-720 Series**
- **DA-820C Series**
- **V2201 Series**
- **V2403C Series**

mxsim

- **V2403C Series**
- **V2406C Series**
- **MC-1200 Series**
- **MC-3201 Series**

mxpcie

- **V2201 Series**
- **V2403C Series**
- **V2406C Series**
- **MC-1100 Series**
- **MC-1200 Series**
- **MC-3201 Series**

mxpciereset

- **MC-3201 Series**

mx5Gpower

- **MC-3201 Series**

mxwdg

- **DA-681C Series**
- **DA-682C Series**
- **DA-720 Series**
- **DA-820C Series**
- **V2201 Series**
- **V2403C Series**
- **V2406C Series**
- **MC-1100 Series**
- **MC-1200 Series**
- **MC-3201 Series**
- **MC-7400 Series**
- **MPC-2070 Series**
- **MPC-2101 Series**
- **MPC-2120 Series**
- **MPC-2121 Series**

mxdgio

The **mxdgio** library operates on the digital I/Os and consists of the following:

- **GetDinStatus**
- **GetDoutStatus**
- **SetDoutStatus**

GetDinStatus

Syntax

```
int GetDinStatus(int port);
```

Description

Gets the status of a digital input port.

Parameters

port: The index of the digital input port; starts at 0.

Return Value

The status of the digital input port; 0 for low and 1 for high.

Error codes

The following error codes can be retrieved by the **DIO_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxdgio library initialization failed. Cannot open the json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.

Requirements

Name	Items
Header	mxdgio.h
Library	mxdgio.lib
DLL	mxdgio.dll
Profile	MxdgioProfile [*ModelName*].json

GetDoutStatus

Syntax

```
int GetDoutStatus(int port);
```

Description

Gets the status of a digital output port.

Parameters

port: The index of the digital output port; starts at 0.

Return Value

The status of the digital output port; 0 for low and 1 for high.

Error codes

The following error codes can be retrieved by the **DIO_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxdgio library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.

Requirements

Name	Items
Header	mxdgio.h
Library	mxdgio.lib
DLL	mxdgio.dll
Profile	MxdgioProfile [*ModelName*].json

SetDoutStatus

Syntax

```
int SetDoutStatus(int port, int status);
```

Description

Sets the status of a digital output port.

Parameters

port: The index of the digital output port; starts at 0.

status: The status of the digital output port; 0 for low and 1 for high.

Return Value

Returns the value 0 if the digital output status is successfully set.

Error codes

The following error codes can be retrieved by the **DIO_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxdgio library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.
SET_STATUS_ERR	-3	Status setting failed or is defined with a bad format.

Requirements

Name	Items
Header	mxdgio.h
Library	mxdgio.lib
DLL	mxdgio.dll
Profile	MxdgioProfile [*ModelName*].json

mxsp

The **mxsp** library operates on the serial port and consists of the following:

- **GetUartMode**
- **SetUartMode**

GetUartMode

Syntax

```
int GetUartMode(int port);
```

Description

Gets the status of the UART port.

Parameters

port: The index of the UART port; starts at 0.

Return Value

The mode of a UART interface; 0 for RS-232, 1 for RS-485-2W, and 2 for RS-422/RS-485-4W.

Error codes

The following error codes can be retrieved by the **UART_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxsp library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.

Requirements

Name	Items
Header	mxsp.h
Library	mxsp.lib
DLL	mxsp.dll
Profile	MxspProfile [*ModelName*].json

SetUartMode

Syntax

```
int SetUartMode(int port, int mode);
```

Description

Sets the status of the UART port.

Parameters

port: The index of the UART port; starts at 0.

mode: The mode of a UART interface; 0 for RS-232, 1 for RS-485-2W, and 2 for RS-422/RS-485-4W.

Return Value

Returns 0 if the UART mode is successfully set.

Error codes

The following error codes can be retrieved by the **UART_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxsp library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.
SET_STATUS_ERR	-3	Status setting failed or is defined with a bad format.
NOT_SUPPORT_MODE	-4	Target mode is not supported for this port.

Requirements

Name	Items
Header	mxsp.h
Library	mxsp.lib
DLL	mxsp.dll
Profile	MxspProfile [*ModelName*].json

mxrelay

The **mxrelay** library operates on the relay output and consists of the following:

- **GetRelayData**
- **SetRelayData**

GetRelayData

Syntax

```
int GetRelayData(int port);
```

Description

Gets the status of the relay output port.

Parameters

port: The index of the relay output port; starts at 0.

Return Value

The status of a relay output port; 0 for OFF, 1 for ON.

Error codes

The following error codes can be retrieved by the **RELAY_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxrelay library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.

Requirements

Name	Items
Header	mxrelay.h
Library	mxrelay.lib
DLL	mxrelay.dll
Profile	MxrelayProfile [*ModelName*].json

SetRelayData

Syntax

```
int SetRelayData(int port, int status);
```

Description

Sets the status of the relay output port.

Parameters

port: The index of the relay output port; starts at 0. status: The status of a relay output; 0 for OFF, 1 for ON.

Return Value

Returns 0 if the status of the relay output is successfully set.

Error codes

The following error codes can be retrieved by the **RELAY_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxrelay library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.
SET_STATUS_ERR	-3	Status setting failed or is defined with a bad format.

Requirements

Name	Items
Header	mxrelay.h
Library	mxrelay.lib
DLL	mxrelay.dll
Profile	MxrelayProfile [*ModelName*].json

mxled

The **mxled** library operates on the relay output and consists of the following:

- **GetLedData**
- **SetLedData**

GetLedData

Syntax

```
int GetLedData(int port);
```

Description

Gets the status of the LED port.

Parameters

port: The index of the LED port; starts at 0.

Return Value

The status of a LED port; 0 for OFF, 1 for ON.

Error codes

The following error codes can be retrieved by the **LED_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxled library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.

Requirements

Name	Items
Header	mxled.h
Library	mxled.lib
DLL	mxled.dll
Profile	MxledProfile [*ModelName*].json

SetLedData

Syntax

```
int SetLedData(int port, int status);
```

Description

Sets the status of the LED port.

Parameters

port: The index of the LED port; starts at 0.

status: The status of the LED; 0 for OFF, 1 for ON, and 2 for blinking.

Return Value

Returns 0 if the LED status is set successfully.

Error codes

The following error codes can be retrieved by the **LED_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxled library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.
SET_STATUS_ERR	-3	Status setting failed or is defined with a bad format.

Requirements

Name	Items
Header	mxled.h
Library	mxled.lib
DLL	mxled.dll
Profile	MxledProfile [*ModelName*].json

mxsim

The **mxsim** library operates on the relay output and consists of the following:

- **GetSIMSlot**
- **SetSIMSlot**

GetSIMSlot

Syntax

```
int GetSIMSlot(int port);
```

Description

Gets the SIM card slot index number.

Parameters

port: The index of the SIM card slot; starts at 0.

Return Value

The SIM card slot number; 1 for SIM 1 slot, 2 for SIM 2 slot.

Error codes

The following error codes can be retrieved by the **SIM_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxsim library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.

Requirements

Name	Items
Header	mxsim.h
Library	mxsim.lib
DLL	mxsim.dll
Profile	MxsimProfile [*ModelName*].json

SetSIMSlot

Syntax

```
int SetSIMSlot(int port, int slot);
```

Description

Sets the SIM card slot.

Parameters

port: The index of the SIM card slot; starts at 0.

slot: The SIM card slot of a SIM number; 0 is SIM 1 slot, 1 is SIM 2 slot.

Return Value

Returns 0 if the SIM card slot of the SIM number is successfully set.

Error codes

The following error codes can be retrieved by the **SIM_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxsim library initialization failed. Cannot open the json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.
SET_STATUS_ERR	-3	Status setting failed or is defined with a bad format.

Requirements

Name	Items
Header	mxsim.h
Library	mxsim.lib
DLL	mxsimdll
Profile	MxsimProfile [*ModelName*].json

mxpcie

The **mxpcie** library operates on the relay output and consists of the following:

- **GetPCIESlotStatus**
- **SetPCIESlotStatus**
- **SetPCIESlotStatus**

GetPCIESlotStatus

Syntax

```
int GetPCIESlotStatus(int port);
```

Description

Gets the PCIE slot power status.

Parameters

port: The index of the PCIE slot; starts at 0.

Return Value

The status of a PCIE slot power; 0 for OFF, 1 for ON.

Error codes

The following error codes can be retrieved by the **PCIE_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxpcie library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.

Requirements

Name	Items
Header	mxpcie.h
Library	mxpcie.lib
DLL	mxpcie.dll
Profile	MxpcieProfile [*ModelName*].json

SetPCIESlotStatus

Syntax

```
int SetPCIESlotStatus(int port, int status);
```

Description

Sets the PCIE slot power status.

Parameters

port: The index of the PCIE slot; starts at 0.

status: The status of the PCIE slot power; 0 for OFF, 1 for ON.

Return Value

Returns 0 if the PCIE slot power is successfully set.

Error codes

The following error codes can be retrieved by the **PCIE_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxpcie library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.
SET_STATUS_ERR	-3	Status setting failed or is defined with a bad format.

Requirements

Name	Items
Header	mxpcie.h
Library	mxpcie.lib
DLL	mxpcie.dll
Profile	MxpcieProfile [*ModelName*].json

SetPCIESlotStatusWithReset

Syntax

```
int SetPCIESlotStatusWithReset(int port, int status, int time);
```

Description

Sets the PCIE slot power status and PCIE slot reset pin turn ON and OFF.

Parameters

port: The index of the PCIE slot; starts at 0.

status: The status of the PCIE slot power and PICE reset pin; 0 for OFF, 1 for ON.

time: The delay time between PCIE slot reset pin turn ON and OFF.

Return Value

Returns 0 if the PCIE slot power and PCIE reset pin are successfully set.

Error codes

The following error codes can be retrieved by the **PCIE_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxpcie library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.
SET_STATUS_ERR	-3	Status setting failed or is defined with a bad format.

Requirements

Name	Items
Header	mxpcie.h
Library	mxpcie.lib
DLL	mxpcie.dll
Profile	MxpcieProfile [*ModelName*].json

mxpciereset

The **mxpciereset** library operates on the relay output and consists of the following:

- **GetRESETSlotStatus**
- **SetRESETSlotStatus**

GetRESETSlotStatus

Syntax

Description

Gets the PCIE slot reset pin status.

Parameters

port: The index of the PCIE slot; starts at 0.

Return Value

The status of a PCIE slot reset pin; 0 for OFF, 1 for ON.

Error codes

The following error codes can be retrieved by the **RESET_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxpciereset library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.

Requirements

Name	Items
Header	mxpciereset.h
Library	mxpciereset.lib
DLL	mxpciereset.dll
Profile	MxpcieresetProfile [*ModelName*].json

SetRESETSlotStatus

Syntax

```
int SetRESETSlotStatus(int port, int time);
```

Description

Sets the PCIE slot reset pin ON/OFF cycle and delay time.

Parameters

port: The index of the PCIE slot; starts at 0.

time: The delay time between PCIE slot reset pin turn ON and OFF.

Return Value

Returns 0 if the PCIE slot reset pin is successfully set.

Error codes

The following error codes can be retrieved by the **RESET_STATUS** function.

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxpciereset library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-2	Target port index is out of range.
SET_STATUS_ERR	-3	Status setting failed or is defined with a bad format.

Requirements

Name	Items
Header	mxpciereset.h
Library	mxpciereset.lib
DLL	mxpciereset.dll
Profile	MxpcieresetProfile [*ModelName*].json

mx5Gpower

The **mx5Gpower** library operates on the relay output and consists of the following:

- **GetPowerStatus**
- **SetPowerStatus**
- **ResetModule**

GetPowerStatus

Syntax

```
int GetPowerStatus(int port);
```

Description

Gets the 5G module power status.

Parameters

port: The index of the M.2 B key slot; starts at 0.

Return Value

The status of a 5G module power; 0 for OFF, 1 for ON.

Error codes

The following error codes can be retrieved by the **RETURN_STATUS** function.

Name	Value	Meaning
ACTION_SUCCESS	0	Action success.
ACTION_ERROR	-1	Action error.
LIB_INITIALIZE_FAIL	-2	The mx5Gpower library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-3	Target port index is out of range.
SET_STATUS_ERR	-4	Status setting failed or is defined with a bad format.
INVALID_MODULE	-5	Invalid module.
ACTION_TIMEOUT	-6	Action timeout.

Requirements

Name	Items
Header	mx5Gpower.h
Library	mx5Gpower.lib
DLL	mx5Gpower.dll
Profile	Mx5GpowerProfile [*ModelName*].json

SetPowerStatus

Syntax

```
int SetPowerStatus(int port, int status);
```

Description

Sets the 5G module power status.

Parameters

port: The index of the M.2 B key; starts at 0.

status: The status of a 5G module power; 0 for OFF, 1 for ON.

Return Value

Returns 0 if the 5G module power status is successfully set.

Error codes

The following error codes can be retrieved by the **RETURN_STATUS** function.

Name	Value	Meaning
ACTION_SUCCESS	0	Action success.
ACTION_ERROR	-1	Action error.
LIB_INITIALIZE_FAIL	-2	The mx5Gpower library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-3	Target port index is out of range.
SET_STATUS_ERR	-4	Status setting failed or is defined with a bad format.
INVALID_MODULE	-5	Invalid module.
ACTION_TIMEOUT	-6	Action timeout.

Requirements

Name	Items
Header	mx5Gpower.h
Library	mx5Gpower.lib
DLL	mx5Gpower.dll
Profile	Mx5GpowerProfile [*ModelName*].json

ResetModule

Syntax

```
int ResetModule(int port);
```

Description

Resets the 5G module power status. Run the 5G module power cycle.

Parameters

port: The index of the M.2 B key; starts at 0.

Return Value

Returns 0 if the 5G module power status is successfully set.

Error codes

Name	Value	Meaning
ACTION_SUCCESS	0	Action success.
ACTION_ERROR	-1	Action error.
LIB_INITIALIZE_FAIL	-2	The mx5Gpower library initialization failed. Cannot open json profile.
PORT_OUTOF_INDEX	-3	Target port index is out of range.
SET_STATUS_ERR	-4	Status setting failed or is defined with a bad format.
INVALID_MODULE	-5	Invalid module.
ACTION_TIMEOUT	-6	Action timeout.

Requirements

Name	Items
Header	mx5Gpower.h
Library	mx5Gpower.lib
DLL	mx5Gpower.dll
Profile	Mx5GpowerProfile [*ModelName*].json

mxwdg

The **mxwdg** library operates on the relay output and consists of the following:

- **mxwdg_open**
- **mxwdg_refresh**
- **mxwdg_close**

mxwdg_open

Syntax

```
PVOID mxwdg_open(unsigned long time);
```

Description

Initializes the watchdog timer.

Parameters

time: The interval at which the watchdog timer is refreshed; the unit is seconds.

Return Value

Returns the pointer to the watchdog handle; returns -1 on failure to initialize the watchdog timer.

Requirements

Name	Items
Header	mxwdg.h
Library	mxwdg.lib
DLL	mxwdg.dll

mxwdg_refresh

Syntax

```
int mxwdg_refresh(PVOID fd);
```

Description

Refreshes the watchdog timer.

Parameters

fd: The handle of the watchdog timer.

Return Value

Returns 0 on success; otherwise, the function has failed.

Requirements

Name	Items
Header	mxwdg.h
Library	mxwdg.lib
DLL	mxwdg.dll

mxwdg_close

Syntax

```
void mxwdg_close(PVOID fd);
```

Description

Disables the watchdog timer.

Parameters

fd: The handle of the watchdog timer.

Return Value

This function does not return a value.

Requirements

Name	Items
Header	mxwdg.h
Library	mxwdg.lib
DLL	mxwdg.dll

11. Windows Recovery

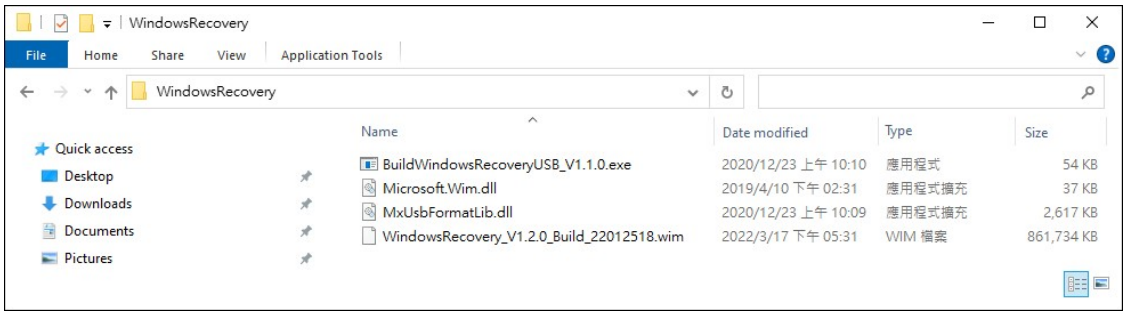
This chapter describes the setup process of the Windows Recovery function.

Applicable Series

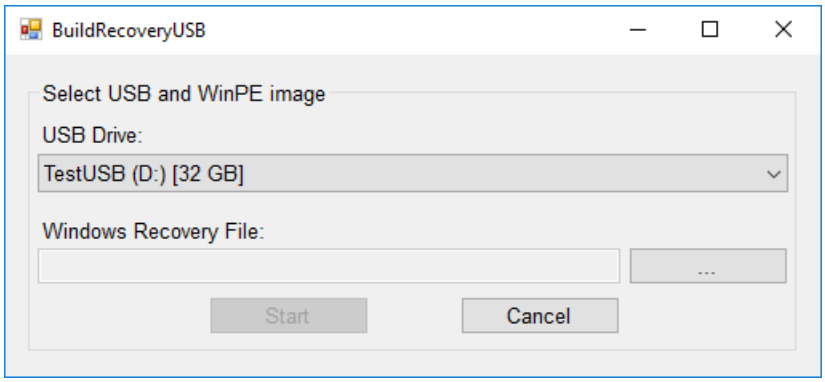
- **DA-681C Series**
- **DA-682C Series**
- **DA-820C Series**
- **V2403C Series**
- **V2406C Series**
- **MC-1200 Series**
- **MC-3201 Series**

Preparing the USB device

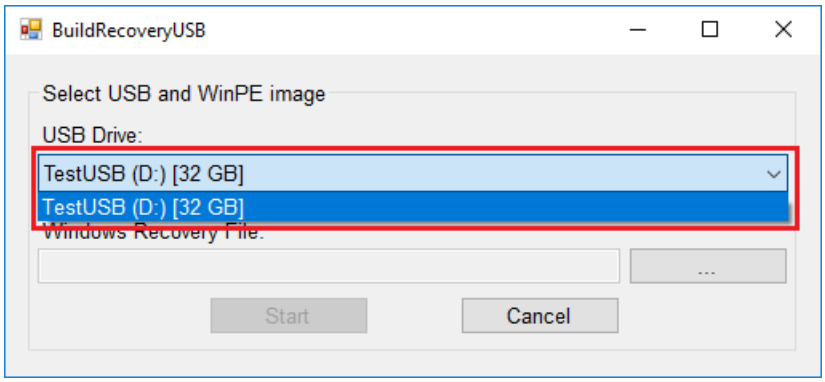
1. Contact a Moxa technical staff and get the required file.



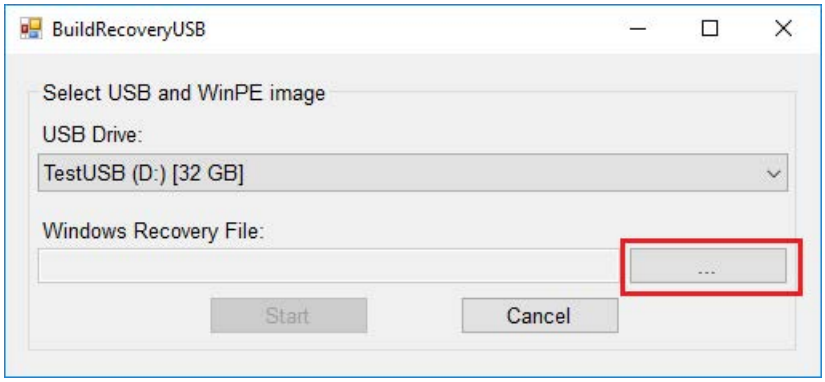
2. Run the **BuildWindowsRecoveryUSB_V1.1.0.exe**.

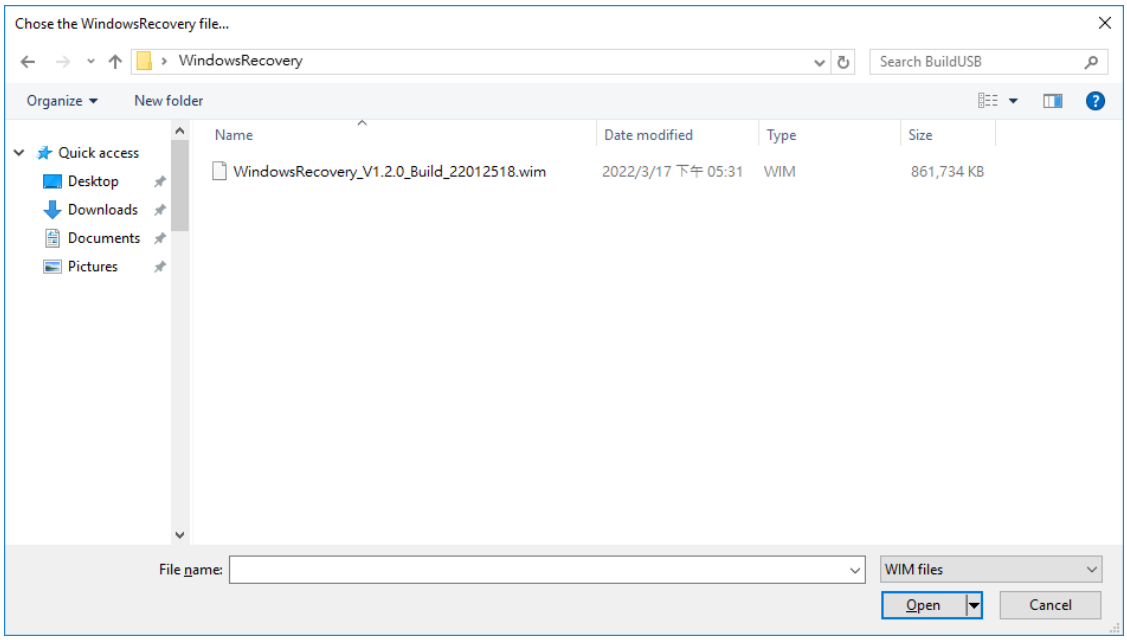


3. Select the USB drive to format.

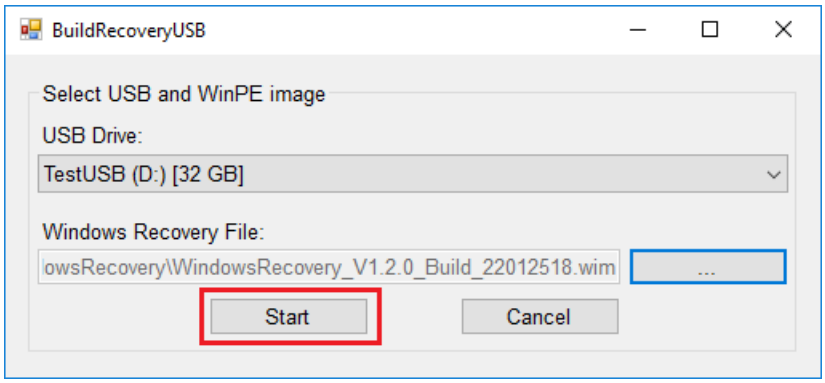


4. Click **...** to select **.wim** file from the folder.



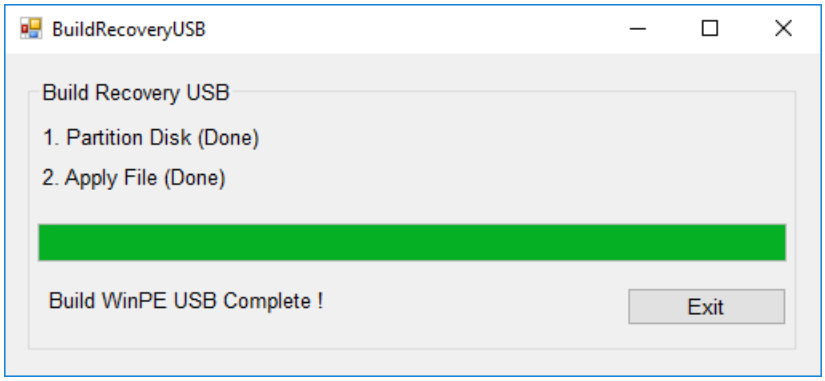


5. Click **Start** and make sure the selected USB can be formatted. Click **Yes** to start creating the recovery USB.

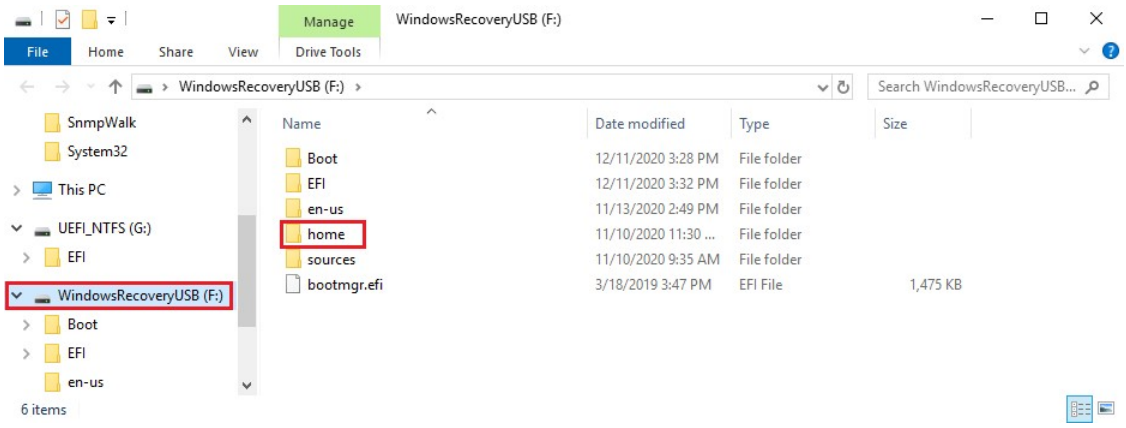


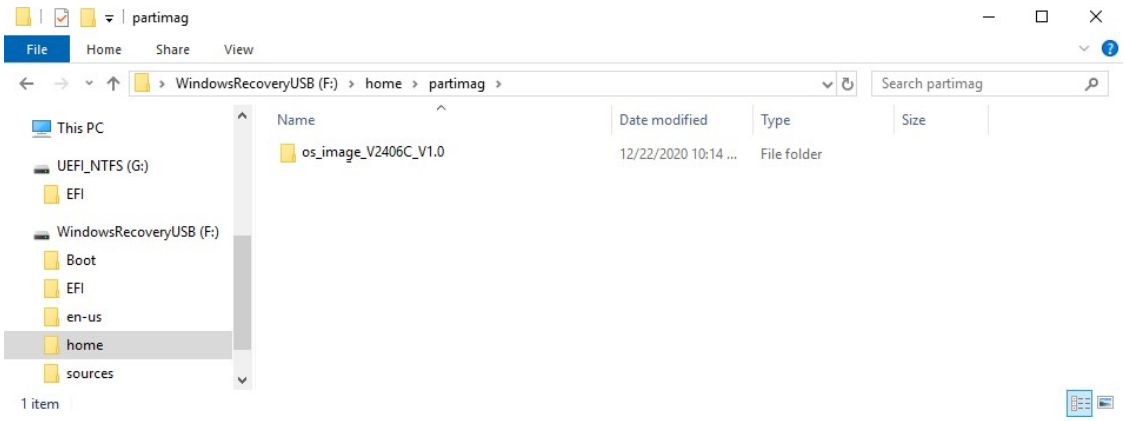
6. Wait for the process finished, the program will format the USB device and create a UEFI bootable volume and a WinPE volume.

   You may see some additional windows about folder information; do not close these. You can close the windows after the process finishes.

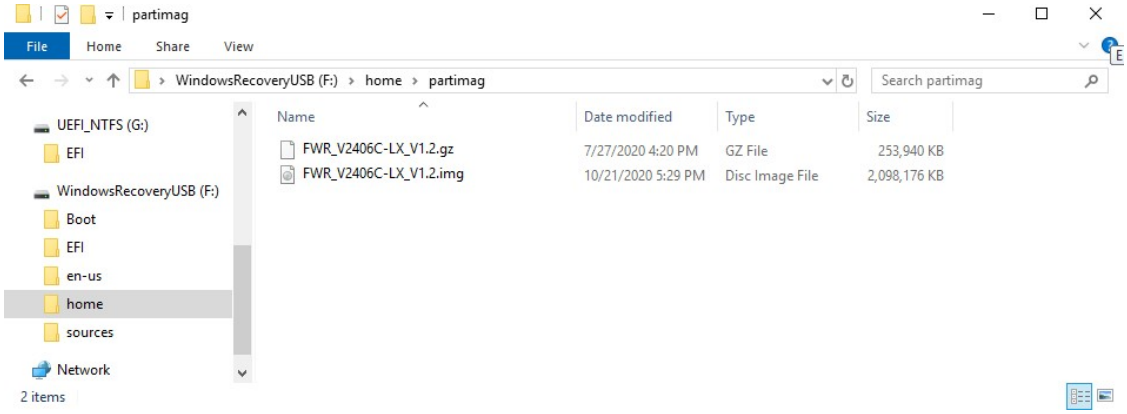


7. To create a recovery USB disk with the Windows 10 image, copy the **os_image_ModelName** directory to the **\home\partimag** folder in the USB drive.



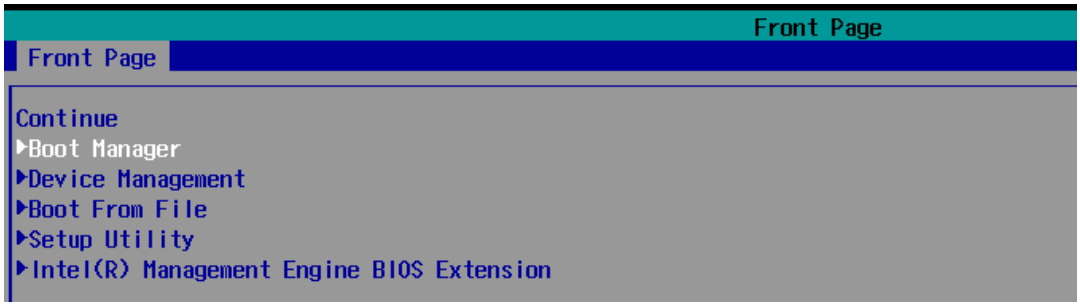


8. To create a recovery USB disk with a Linux image, copy the **ModelName.gz** or **ModelName.img** image file to the **\home\partimag** folder in the USB drive.

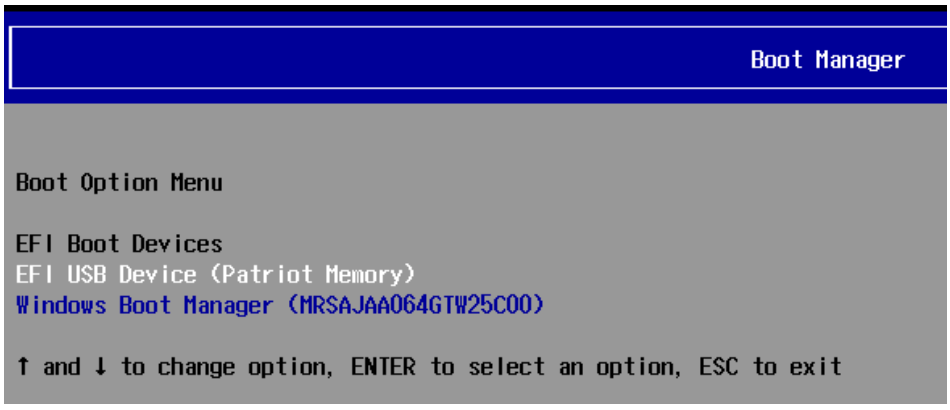


Booting From the USB Disk

1. Turn on the computer and press **F2** when you hear the beep sound to enter the BIOS setup menu.
2. Select **Boot Manager** and press **Enter** to continue.



3. Select the **EFI USB Device** on the computer and press **Enter** to continue to boot from the USB device.

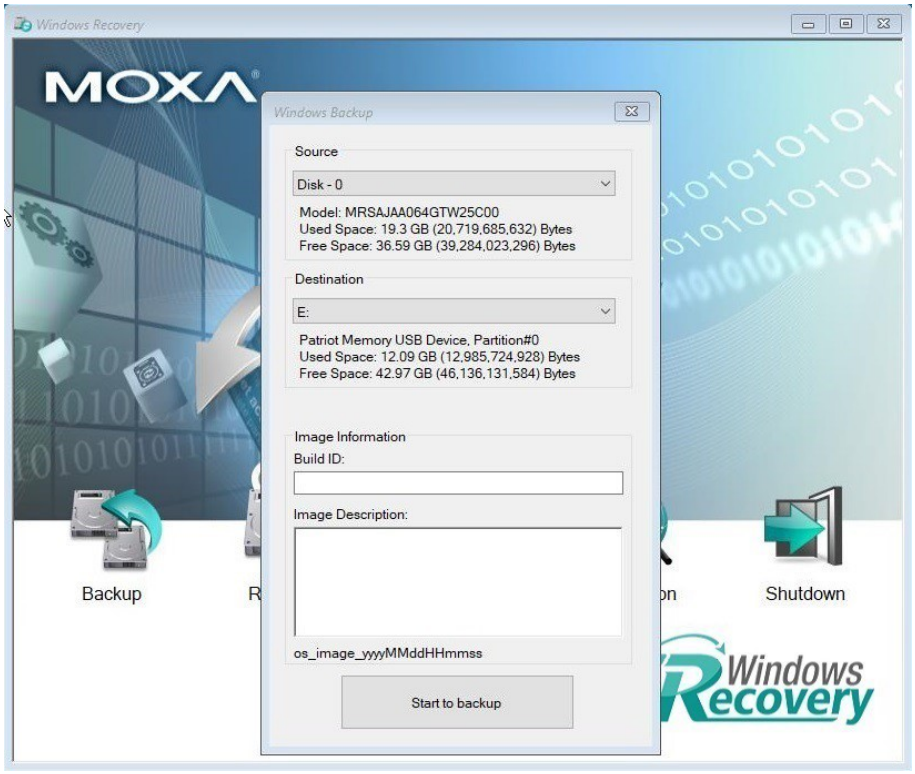


System Image Backup

To back up the image from the USB disk, run **Windows Preinstallation Environment(WinPE)** and the **Windows Recovery utility** will display. Follow these steps.

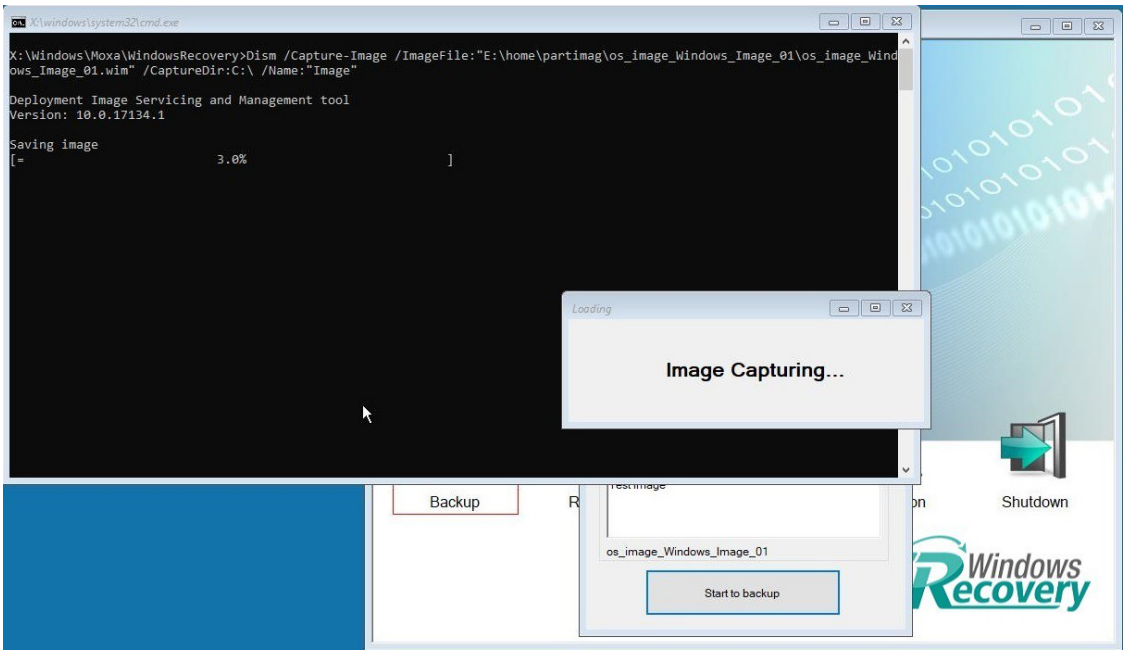
1. Click **Backup**.

2. Select the **Source disk** to backup and **Destination USB** to store the OS image, also give an image name and description. Click **Start to backup**.



3. Click **Yes** to continue.

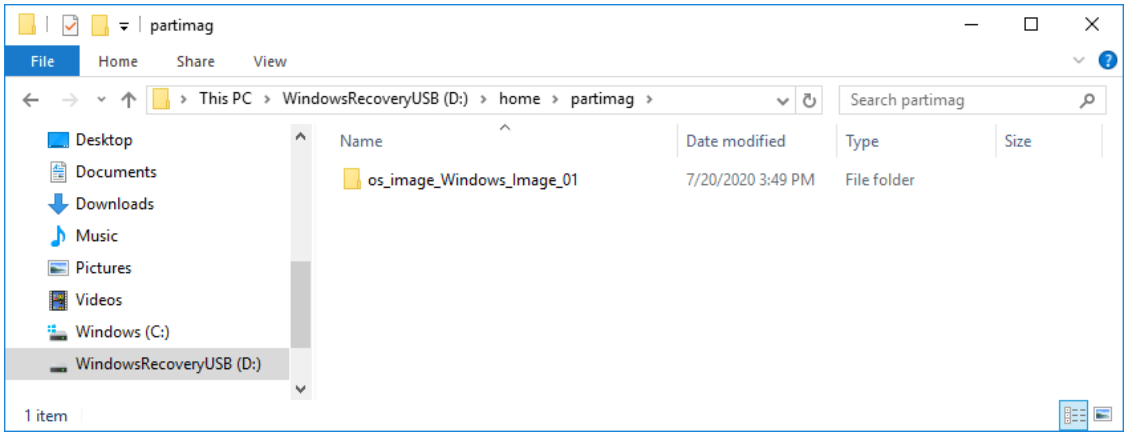
4. Wait for the backup process to complete.



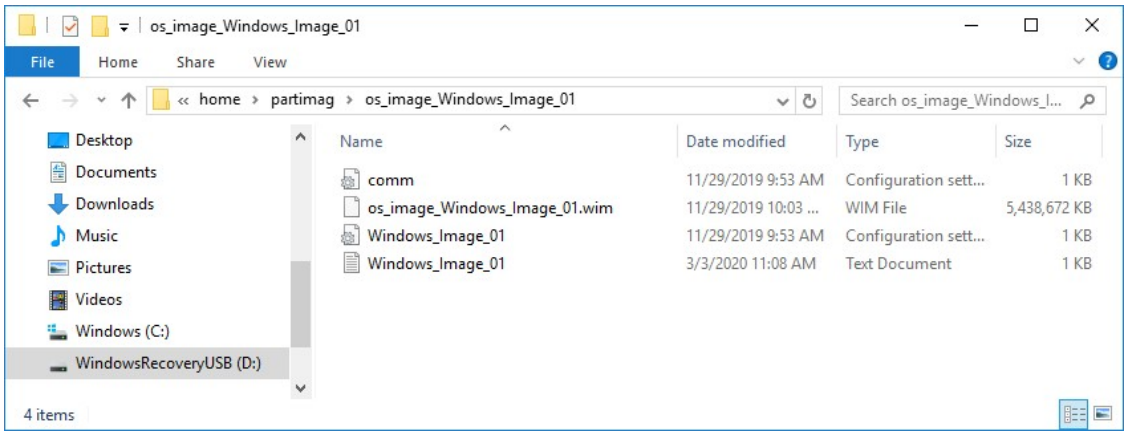
5. When the process is completed, click **OK**.

6. Click **OK**, the computer will shut down.

7. The OS image will be saved to the USB disk at **home\partimag**.



8. In the **os_image** folder you can view the backup information and the image files.



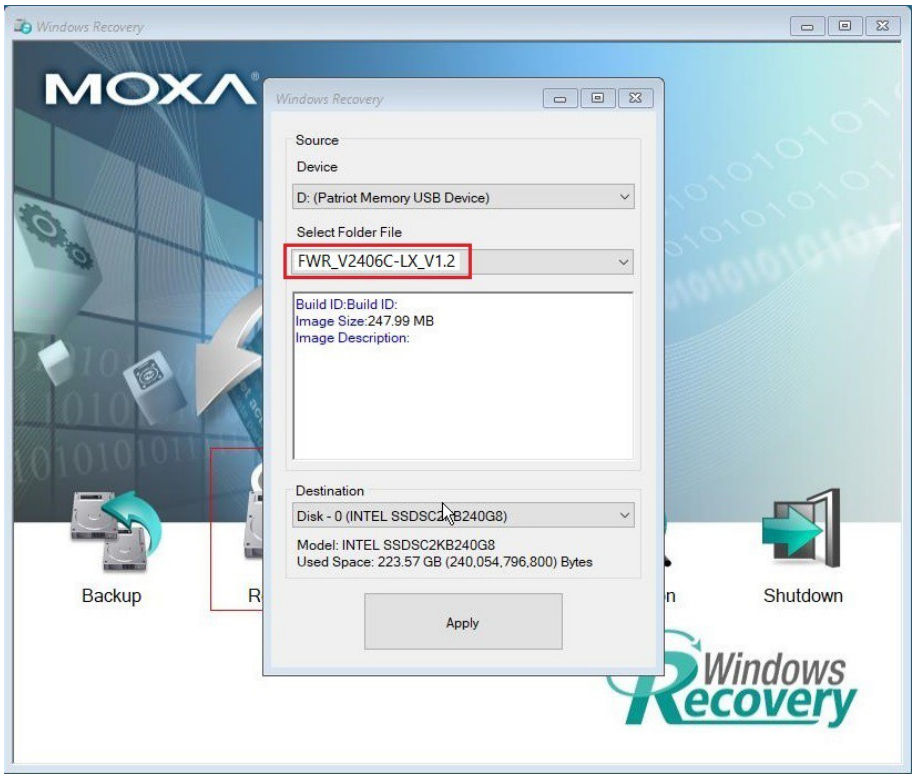
Restoring the System From a Backup

To restore the image, run the **Windows Preinstallation Environment(WinPE)** and the **Windows Recovery utility** will display. Follow these steps.

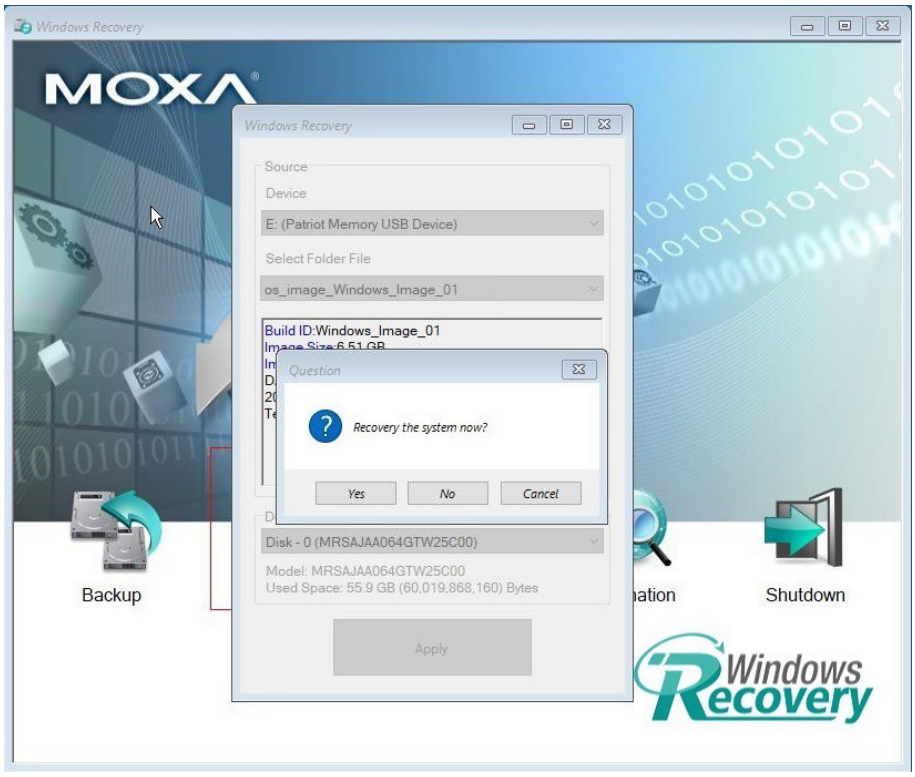
1. Click **Recovery**.

2. Select the **Source USB Device, Image Folder File** and check the image information, select the **Destination Disk** to restore. Click **Apply**.

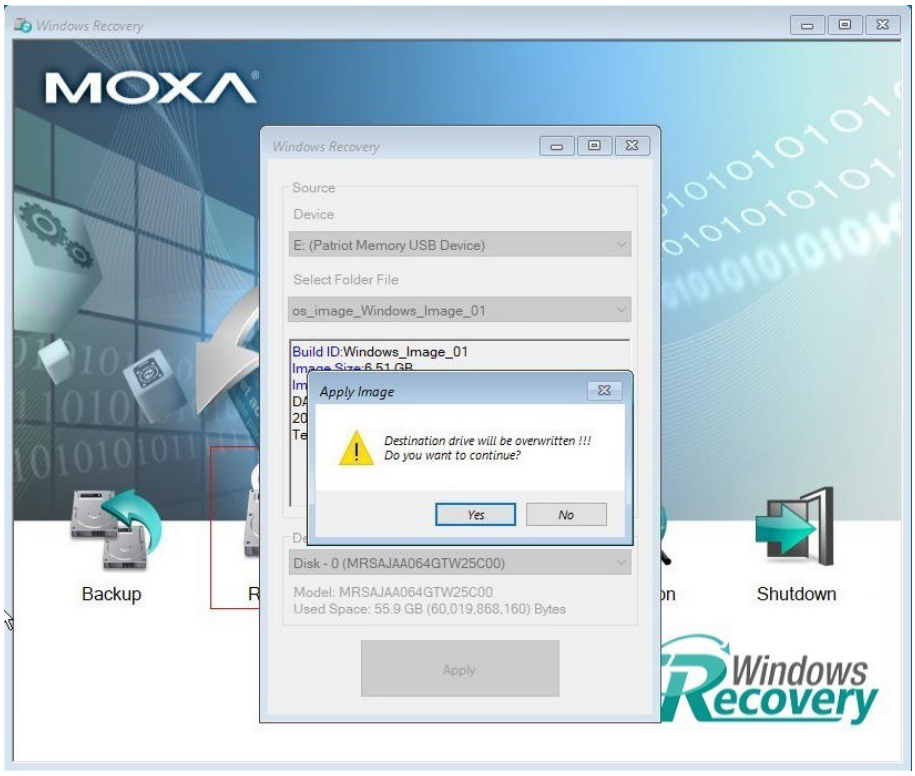
3. If you are using Linux image, select Linux image to restore.



4. Click **Yes** to continue the process.

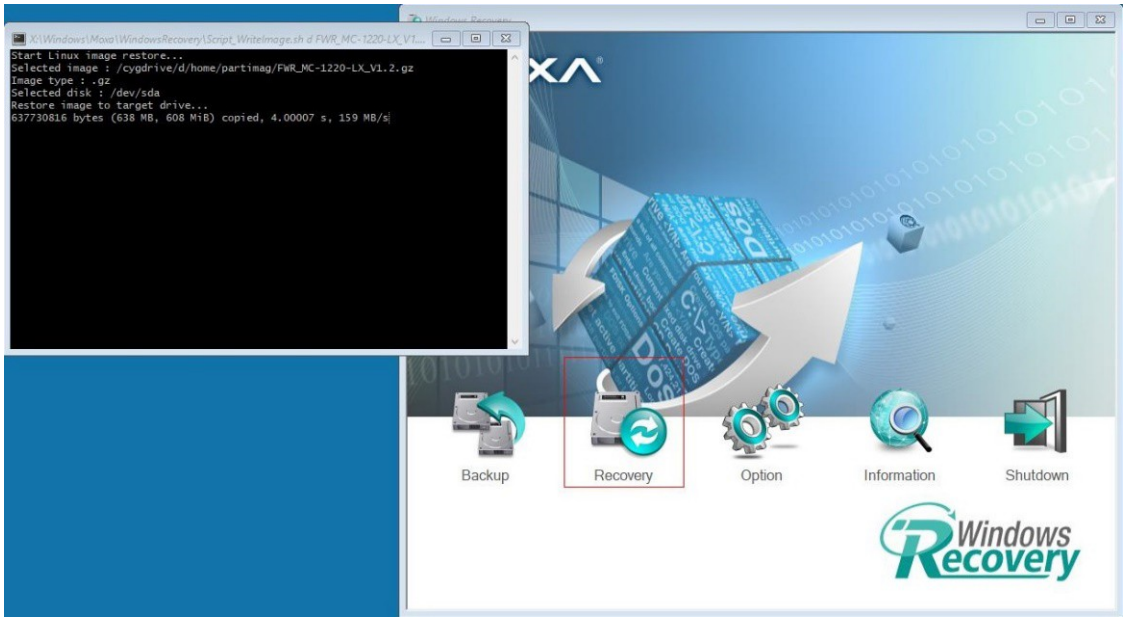


5. Click **Yes** to overwrite the destination drive.



6. Wait for the process to complete.

7. If you restore the Linux image, a new window will appear. Wait for the process to complete.



8. Click **OK**.

9. Click **OK**, the system will shut down and restart.

NOTE

When you restart the computer, you will need to wait about 5 minutes for the computer to go through two cycles of the reboot process. The system configuration files will be initiated during the first boot-up process. Do not turn off or shut down the computer while the system is restarting.

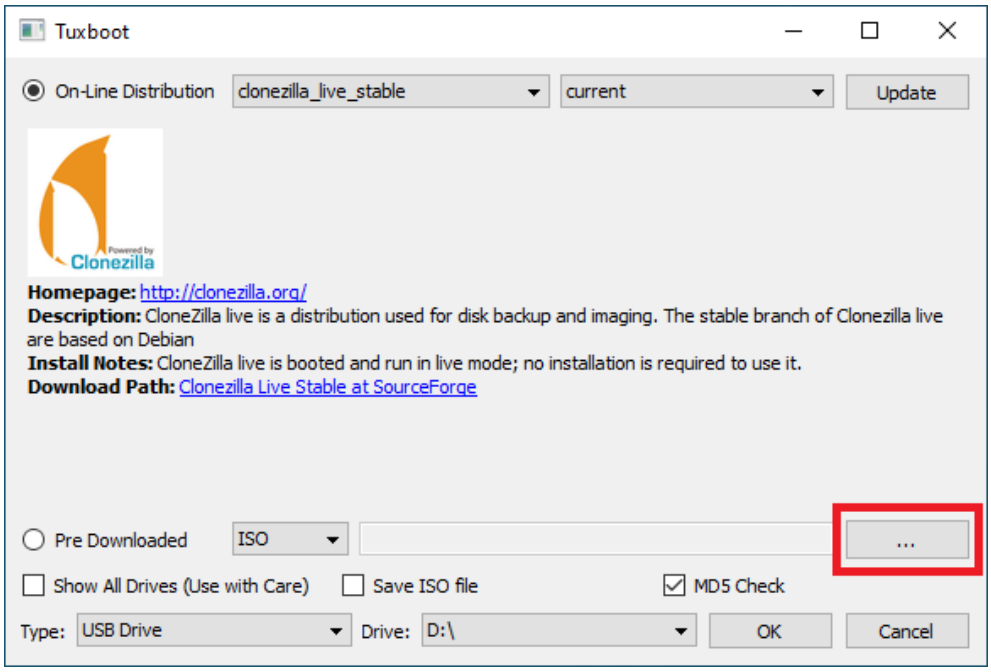
12. Clonezilla

Supported Devices

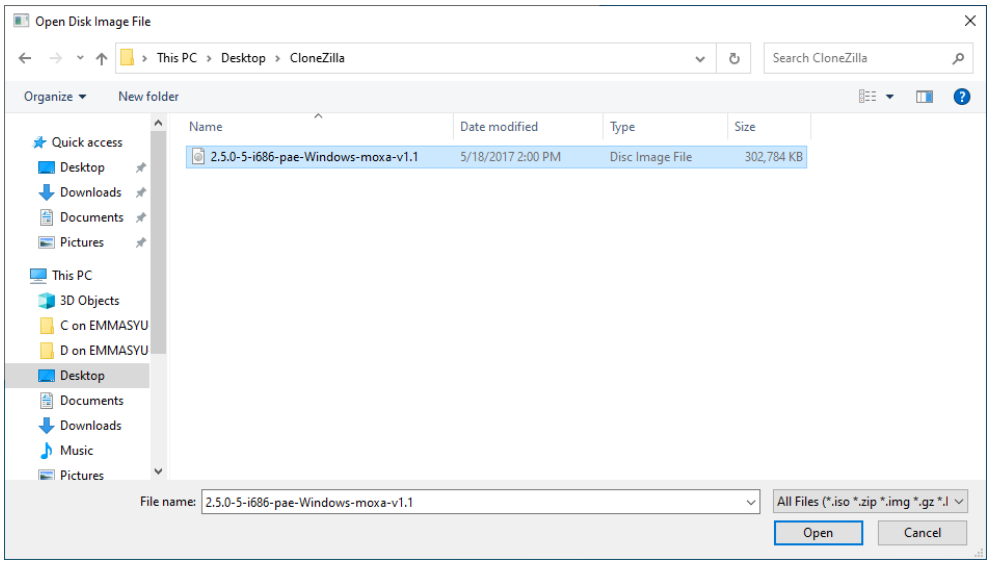
- **DA-720 Series**
- **MC-1100 Series**
- **MC-7400 Series**
- **MPC-2070 Series**
- **MPC-2101 Series**
- **MPC-2120 Series**
- **MPC-2121 Series**
- **V2201 Series**

Preparing the USB Device

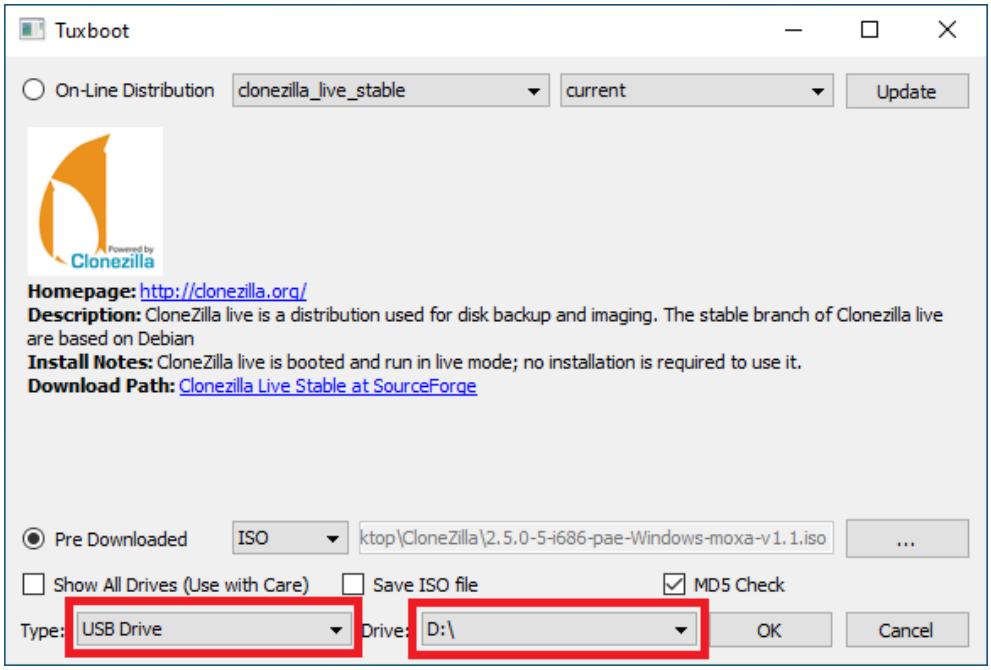
1. Run **tuxboot-windows-23.exe** from the **\recovery** folder, select **Pre Downloaded**, and click **...**



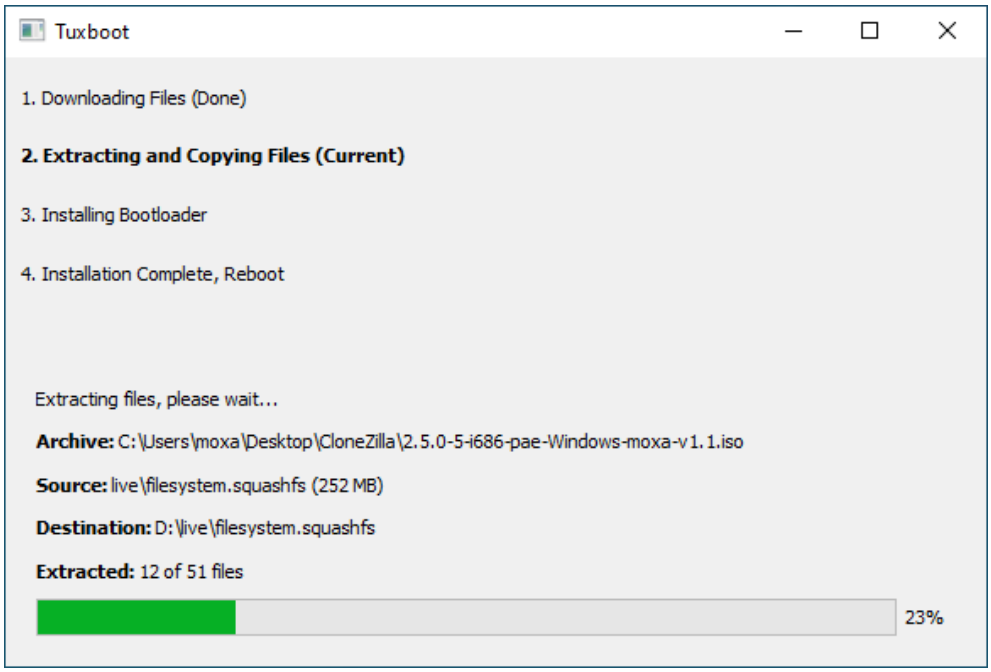
2. Select the ISO file from the **\recovery** folder.



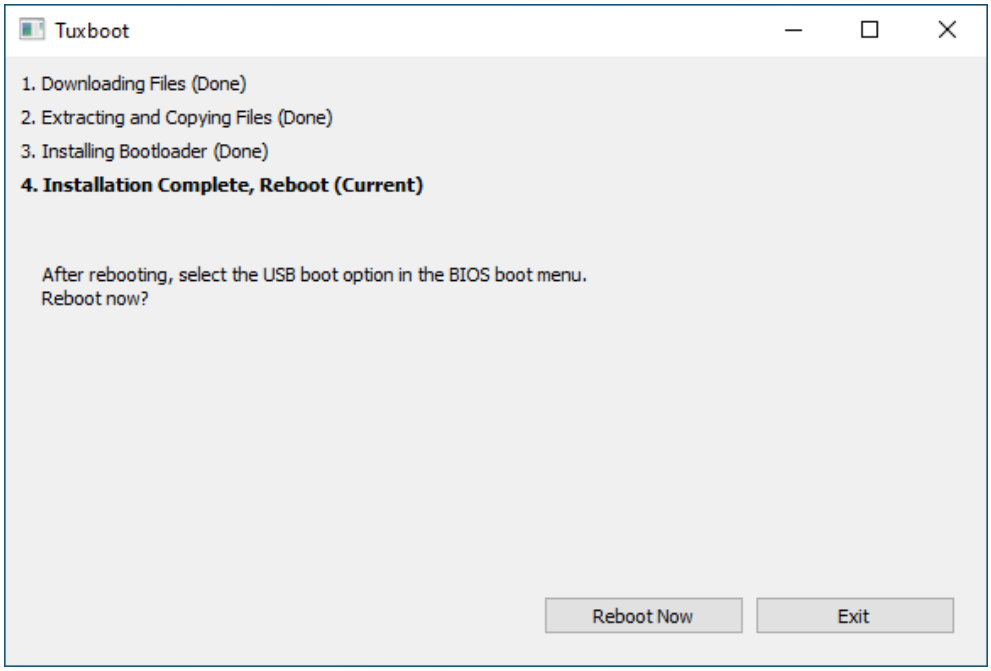
3. Select the USB Drive type, select a Drive, and click OK to continue.



The boot files will be copied to your USB drive.



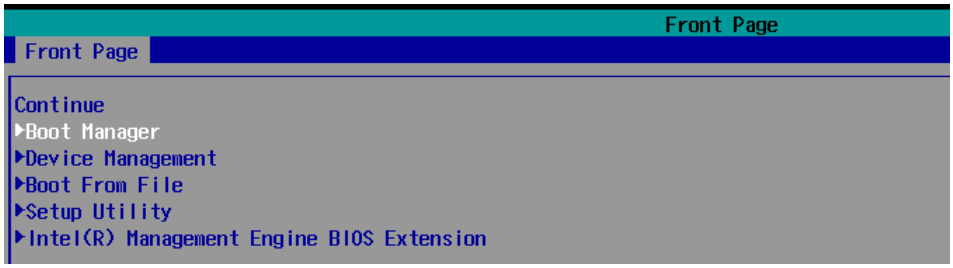
4. When finished, click **Exit** to stop the program.



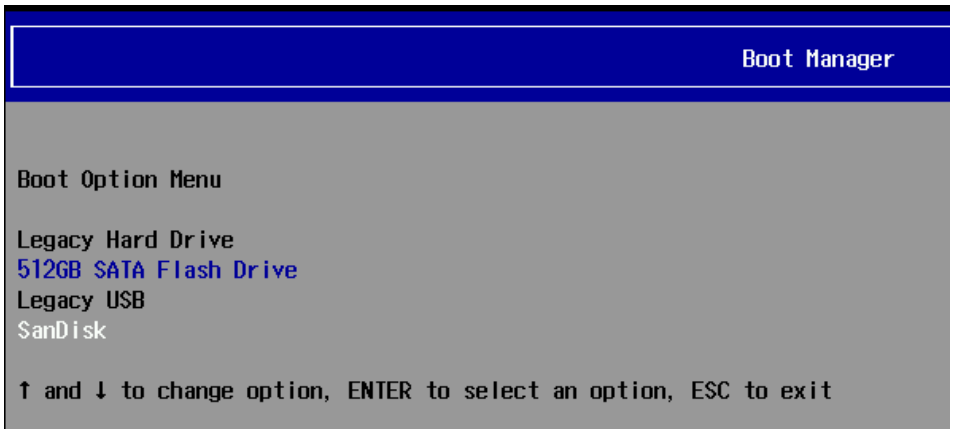
5. Manually copy the **os_image** directory from the **\recovery** folder to **\home\partimag** on the USB drive.

Booting From a USB Disk

1. Turn on the computer and press F2 when you hear the beep sound to enter the BIOS setup menu.
2. Select **Boot Manager** and press **Enter** to continue.



3. Select a legacy USB and press **Enter** to continue to boot from the USB device.



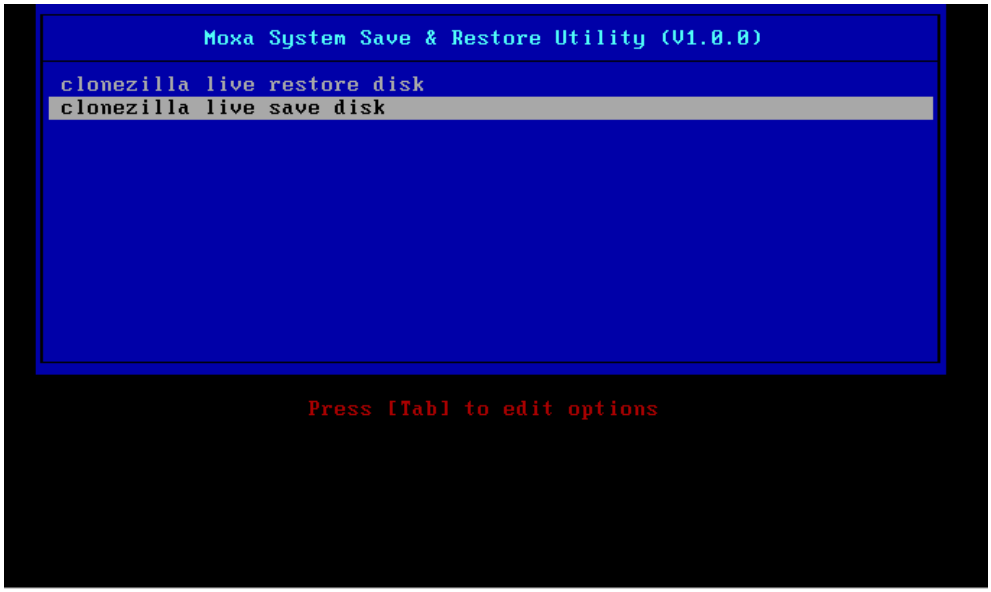
Backing Up the System Image

You can save the current system to the USB drive for recovering the system in case there is a system crash.

Before saving the system to the USB drive, we suggest removing all files under **\home\partimag** on the USB drive.

To create a backup, do the following when the system boots up.

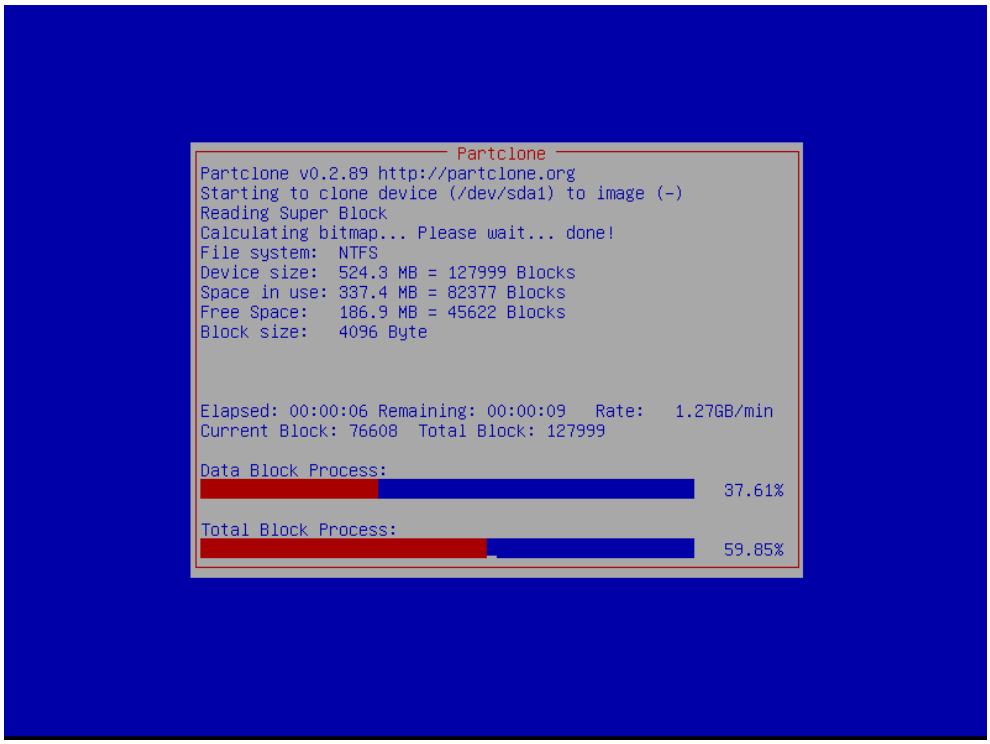
1. Select **clonezilla live save disk**.



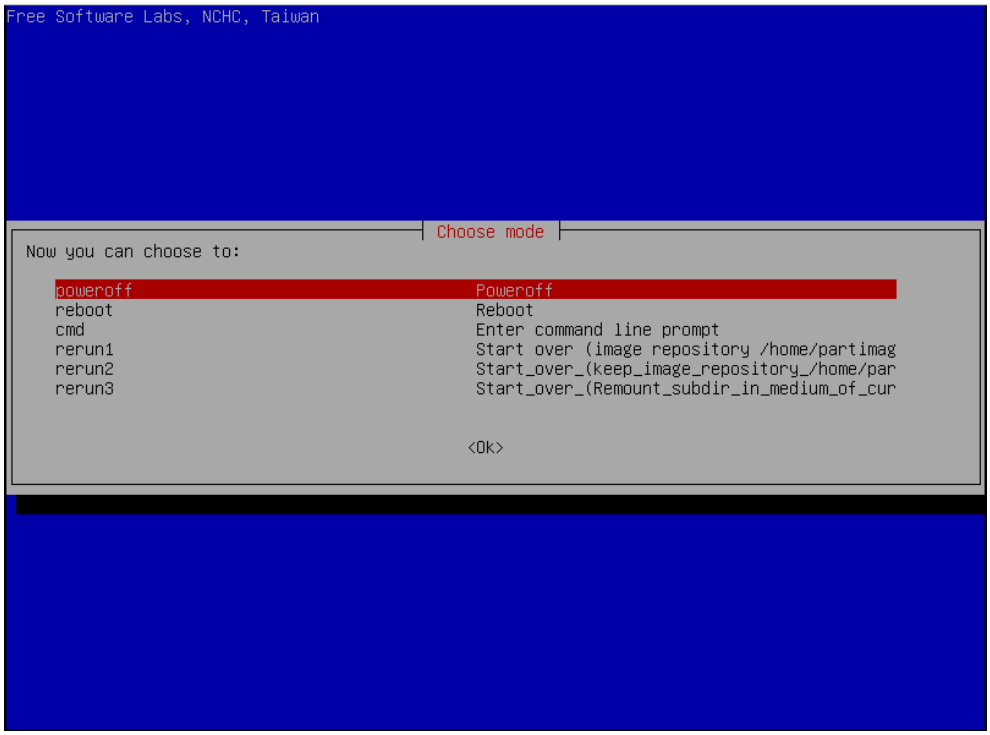
2. Wait for the USB drive boot process to complete and enter **y** to continue.

```
perl: warning: Falling back to a fallback locale ("en_US.UTF-8").
Selected device [sda] found!
/usr/share/drbl/sbin/ocs-functions: line 2184: warning: setlocale: LC_ALL: cannot change locale (en)
The selected devices: sda
**********************************************************.
/bin/bash: warning: setlocale: LC_ALL: cannot change locale (en)
Activating the partition info in /proc... done!
Selected device [sda] found!
/usr/share/drbl/sbin/ocs-functions: line 2184: warning: setlocale: LC_ALL: cannot change locale (en)
The selected devices: sda
Searching for data/swap/extended partition(s)...
/usr/share/drbl/sbin/ocs-functions: line 4146: warning: setlocale: LC_ALL: cannot change locale (en)
Excluding busy partition or disk...
Unmounted partitions (including extended or swap): sda1 sda2
Collecting info... done!
The data partition to be saved: sda1 sda2
Activating the partition info in /proc... done!
Selected device [sda1] found!
Selected device [sda2] found!
/usr/share/drbl/sbin/ocs-functions: line 2184: warning: setlocale: LC_ALL: cannot change locale (en)
The selected devices: sda1 sda2
Getting /dev/sda1 info...
/usr/share/drbl/sbin/ocs-functions: line 4010: warning: setlocale: LC_ALL: cannot change locale (en)
/usr/share/drbl/sbin/ocs-functions: line 4027: warning: setlocale: LC_ALL: cannot change locale (en)
Getting /dev/sda2 info...
/usr/share/drbl/sbin/ocs-functions: line 4010: warning: setlocale: LC_ALL: cannot change locale (en)
/usr/share/drbl/sbin/ocs-functions: line 4027: warning: setlocale: LC_ALL: cannot change locale (en)
**********************************************************.
The following step is to save the hard disk/partition(s) on this machine as an image:
**********************************************************.
Machine: KabyLake-H
sda (512GB_512GB_SATA_Flash_512GB_SATA_Flash_Drive_B07174089000000004EA)
sda1 (500M_ntfs_System(In_512GB_SATA_Flash)_512GB_SATA_Flash_Drive_B07174089000000004EA)
sda2 (476.5G_ntfs_Windows(In_512GB_SATA_Flash)_512GB_SATA_Flash_Drive_B07174089000000004EA)
**********************************************************.
-> "/home/partimag/os_image".
Are you sure you want to continue? (y/n) y
```

3. Wait for the process to complete.



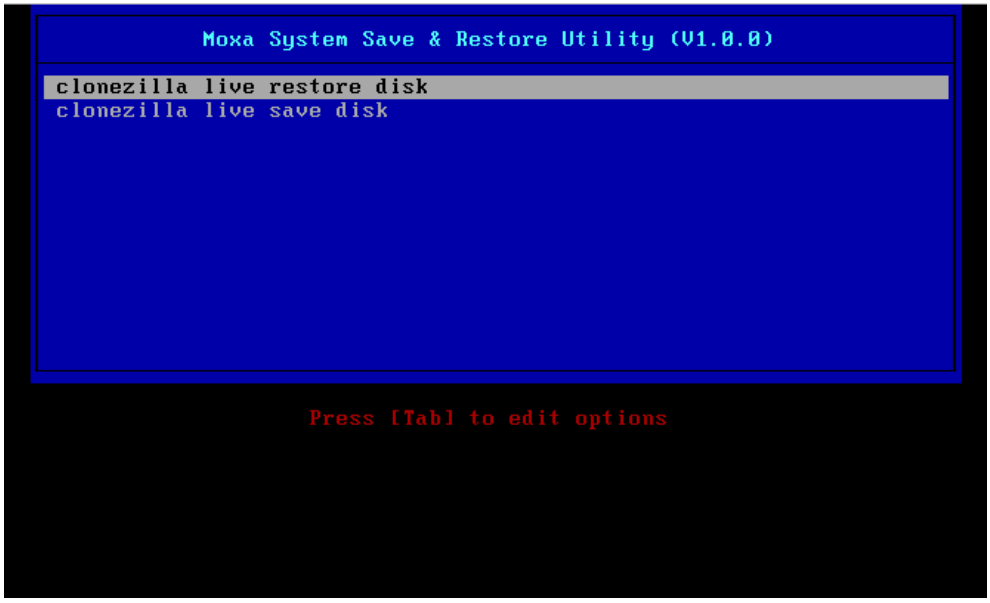
4. Select the Poweroff option so that the computer will power off when the process is complete.



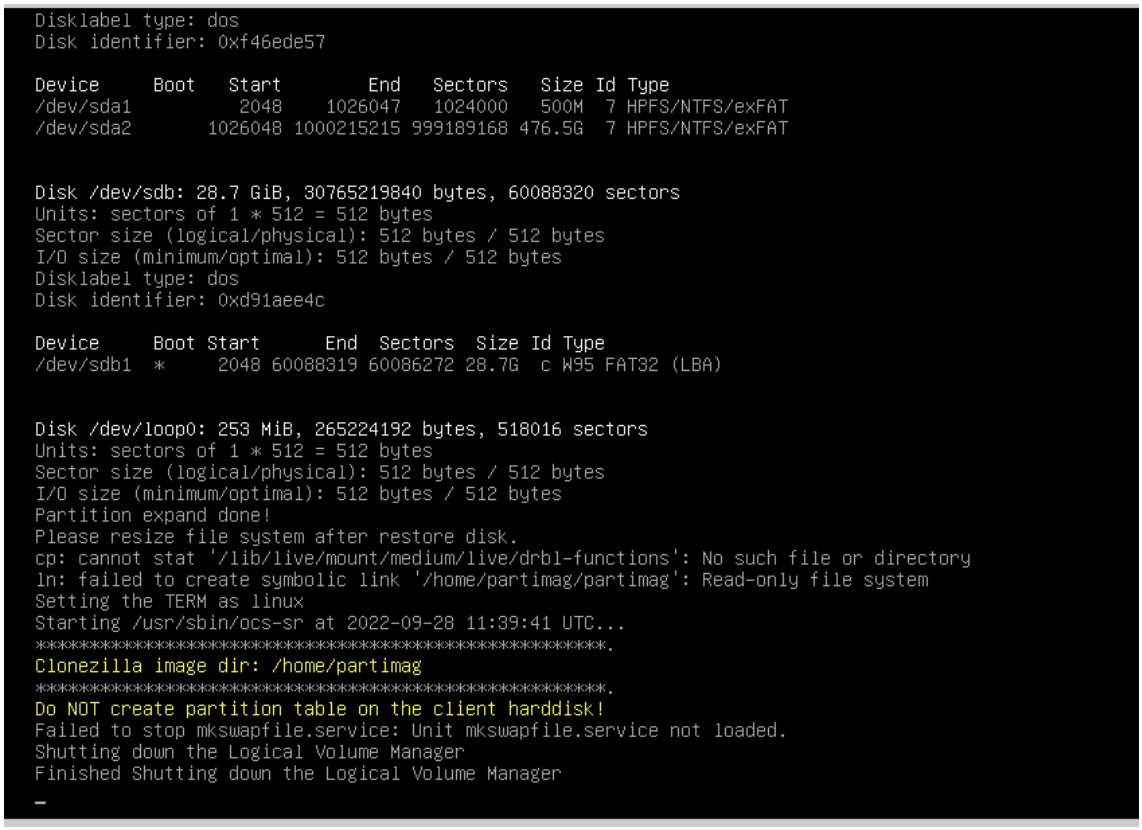
Restoring the System From a Backup

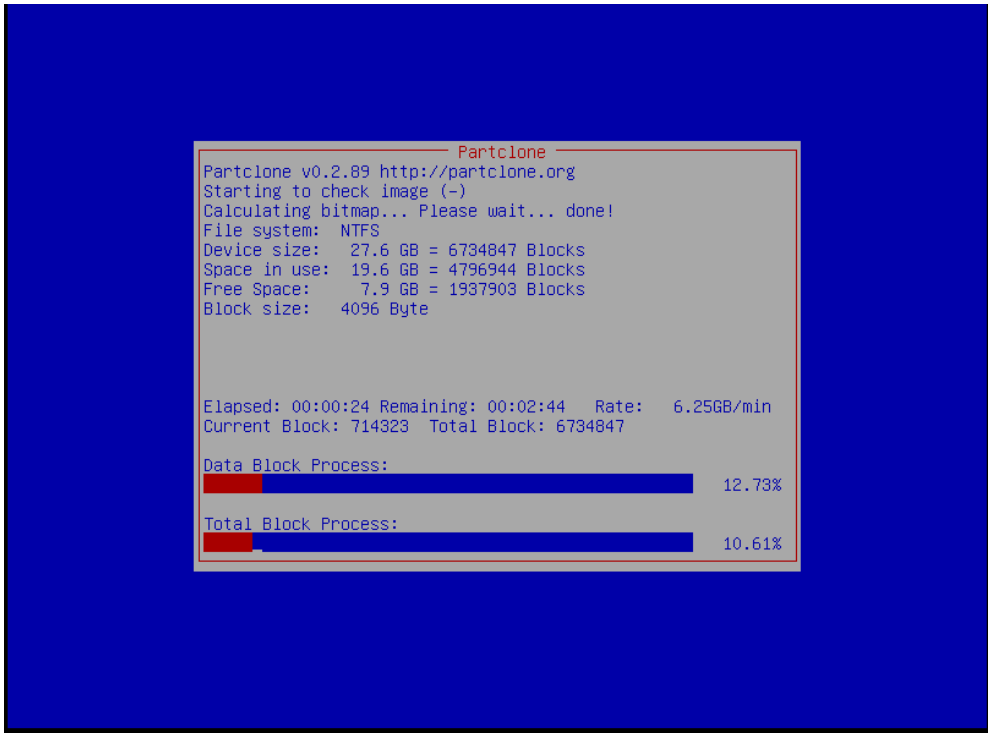
Connect the USB disk to any of the USB ports and then reboot the computer. The system will boot from the USB disk, and the Pre-installation Environment and the recovery utility will open.

1. Select **clonezilla live restore disk** option.



2. Wait for the USB drive boot process to complete.





3. Select the Poweroff option so that the computer will power off when the process is completed.