DA-820E Series Win11 LTSC 24H2 User Manual

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DA-820E Series Win11 LTSC 24H2 User Manual

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1. Introduction

This Windows 11IoT Enterprise LTSC 2024(24H2) 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 the 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.

Moxa Computers and 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 combinations 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.
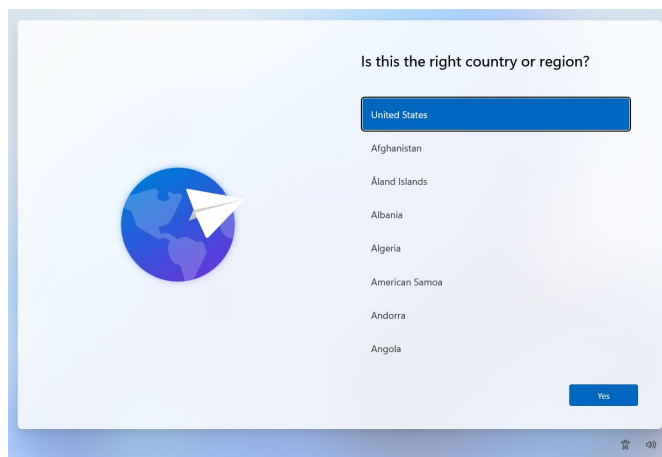
2. Select a keyboard.
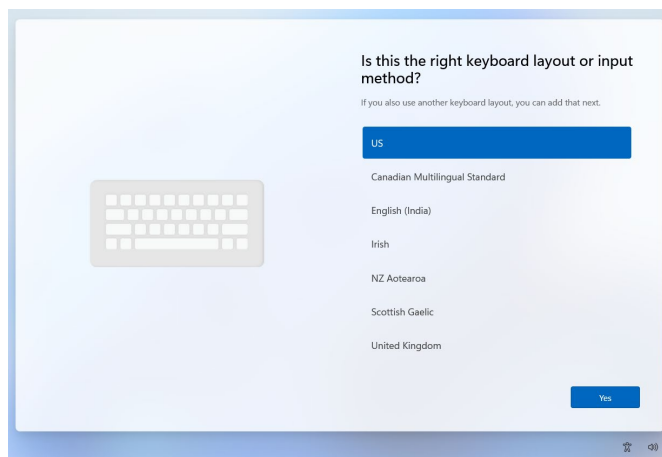
3. Select a second keyboard.
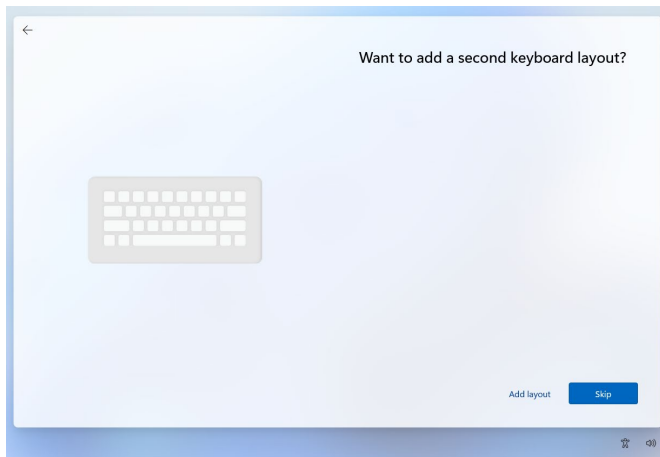
4. Connect to a network or continue with limited setup.
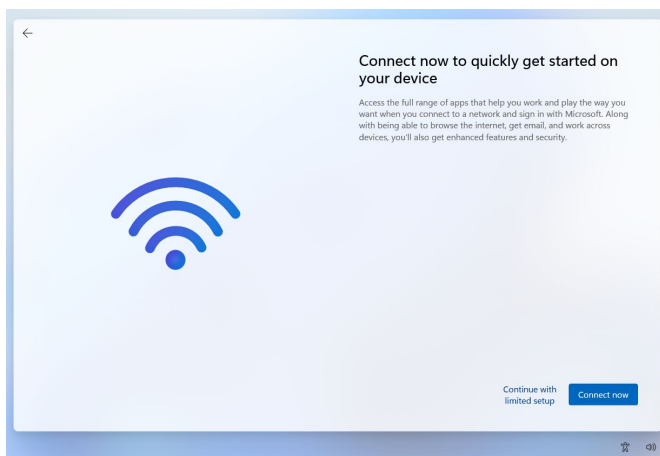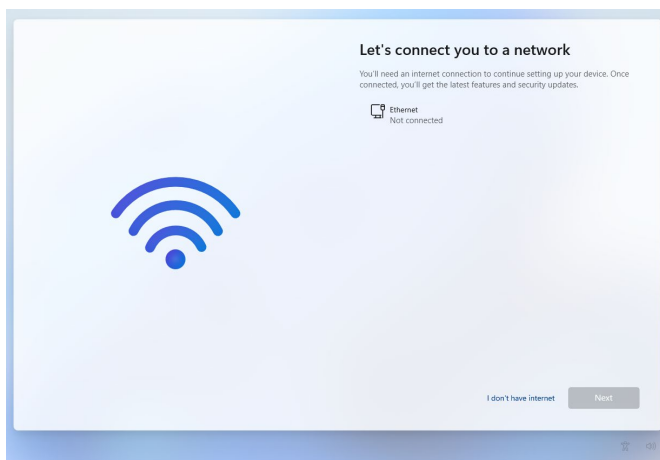
5. Sign in to or create a local account or a Microsoft account (MSA).
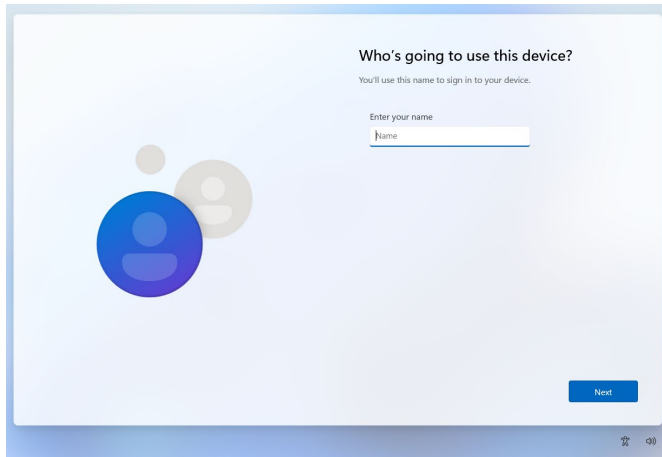
6. Set a password.
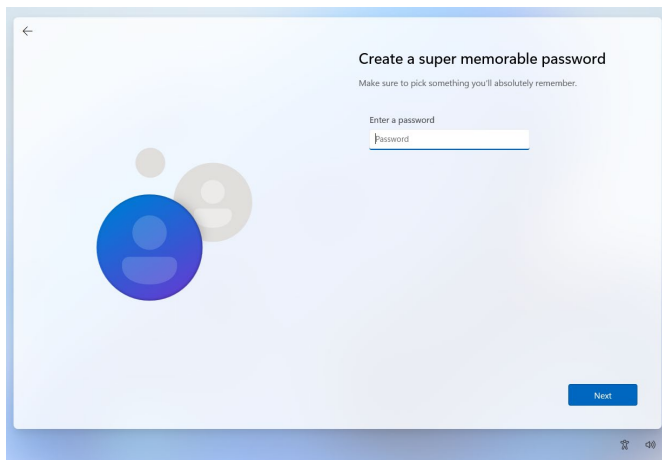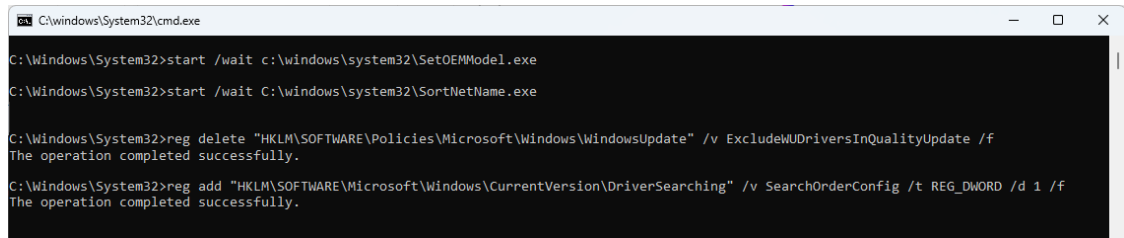
7. Choose your privacy settings.
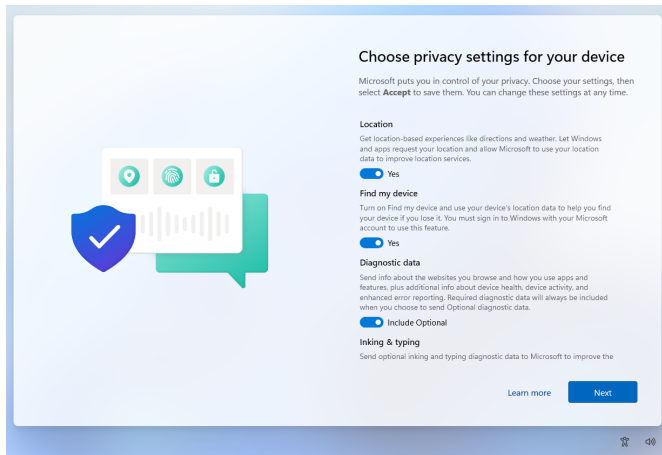
Initializing System

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

- The device will now reboot, and the new settings will take effect after the system restarts.

3. BitLocker

Bitlocker is a Windows disk encryption feature, designed to protect data by providing encryption for entire volumes. BitLocker addresses the threats of data theft or exposure from lost, stolen, or inappropriately decommissioned devices.

For more information about BitLocker :

https://learn.microsoft.com/en-us/windows/security/operating-system-security/data-protection/bitlocker/

This chapter describes the BitLocker setup process.

Enabling the BitLocker

In the **Windows Devices and drives**, right-click on the drive and select **Turn on BitLocker**.
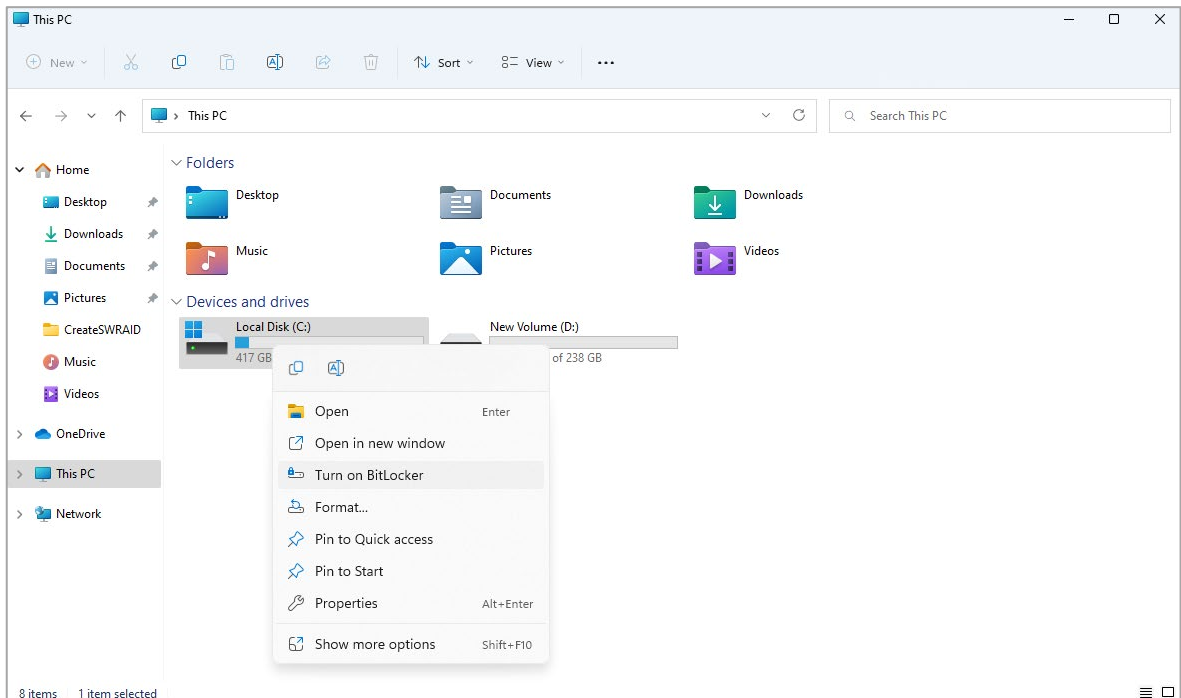
1. Select an option to back up the recovery key. For example, select **Save to a file**.
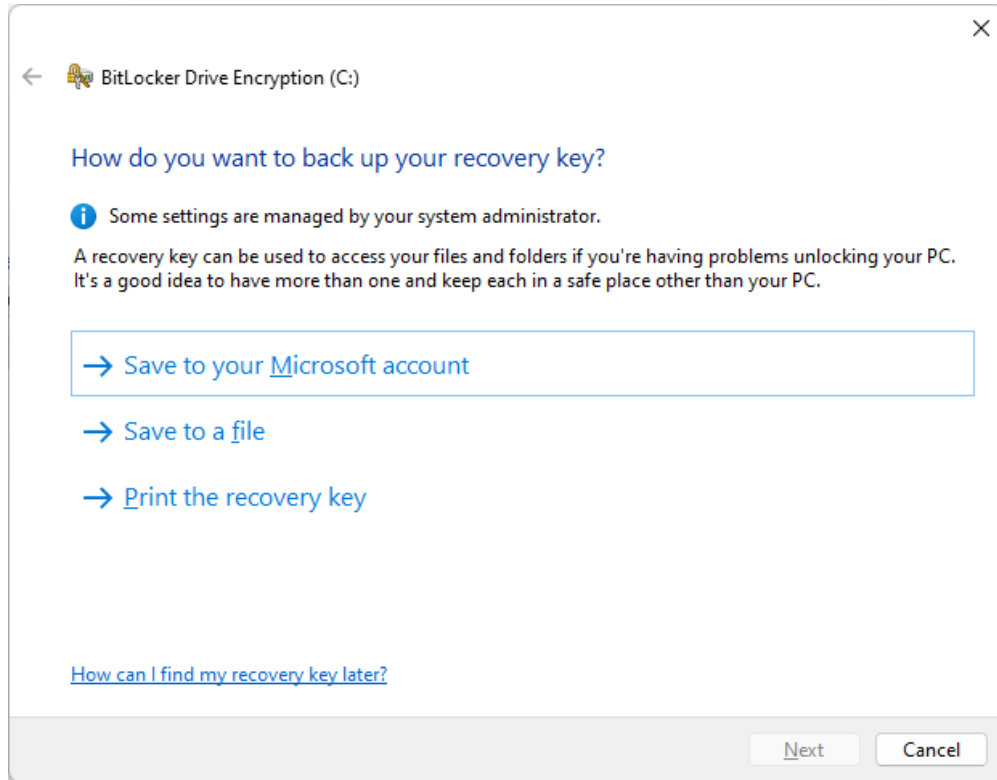
2. Select the path to store the file in.
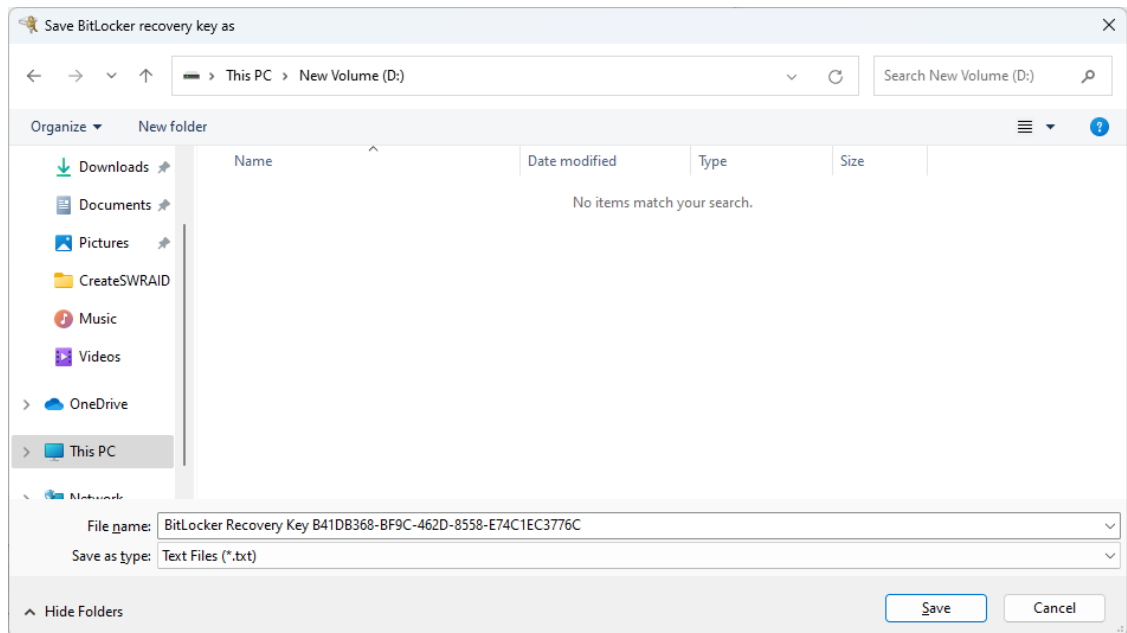
3. Follow the onscreen instructions to specify the drive encryption options.

← 🔐 BitLocker Drive Encryption (C:)

Choose how much of your drive to encrypt

If you're setting up BitLocker on a new drive or a new PC, you only need to encrypt the part of the drive that's currently being used. BitLocker encrypts new data automatically as you add it.

If you're enabling BitLocker on a PC or drive that's already in use, consider encrypting the entire drive. Encrypting the entire drive ensures that all data is protected–even data that you deleted but that might still contain retrievable info.

○ Encrypt used disk space only (faster and best for new PCs and drives)
○ Encrypt entire drive (slower but best for PCs and drives already in use)

[Next]   [Cancel]

← 🔐 BitLocker Drive Encryption (C:)

Choose which encryption mode to use

Windows 10 (Version 1511) introduces a new disk encryption mode (XTS-AES). This mode provides additional integrity support, but it is not compatible with older versions of Windows.

If this is a removable drive that you're going to use on older version of Windows, you should choose Compatible mode.

If this is a fixed drive or if this drive will only be used on devices running at least Windows 10 (Version 1511) or later, you should choose the new encryption mode

○ New encryption mode (best for fixed drives on this device)
○ Compatible mode (best for drives that can be moved from this device)

[Next]   [Cancel]

4. Click **Continue**.

5. Restart the computer.
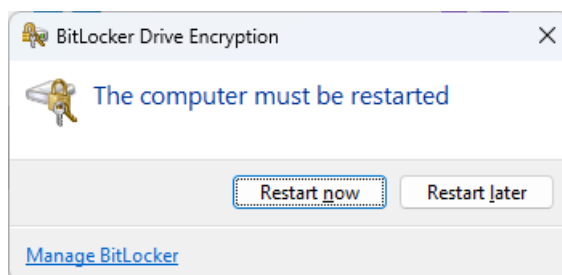
6. Wait for the encryption process to complete and then click Close.
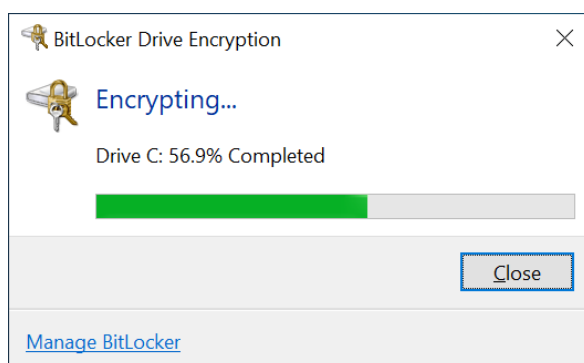
Disabling the BitLocker

1. In the **Windows Devices and drives**, right-click on the drive and select **Manage BitLocker**.
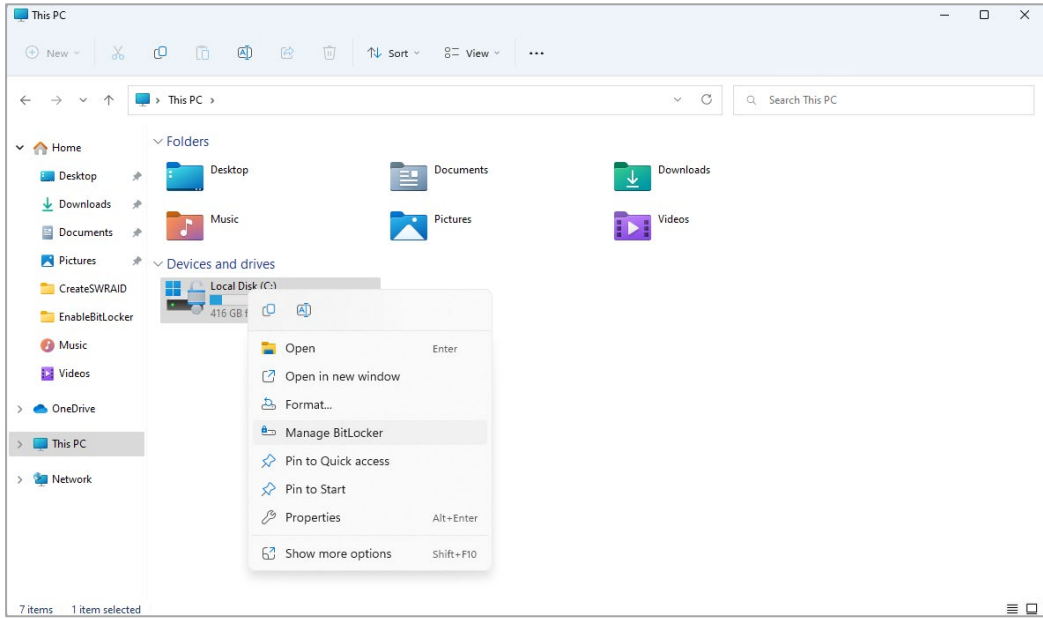
2. Click on **Turn off BitLocker**.
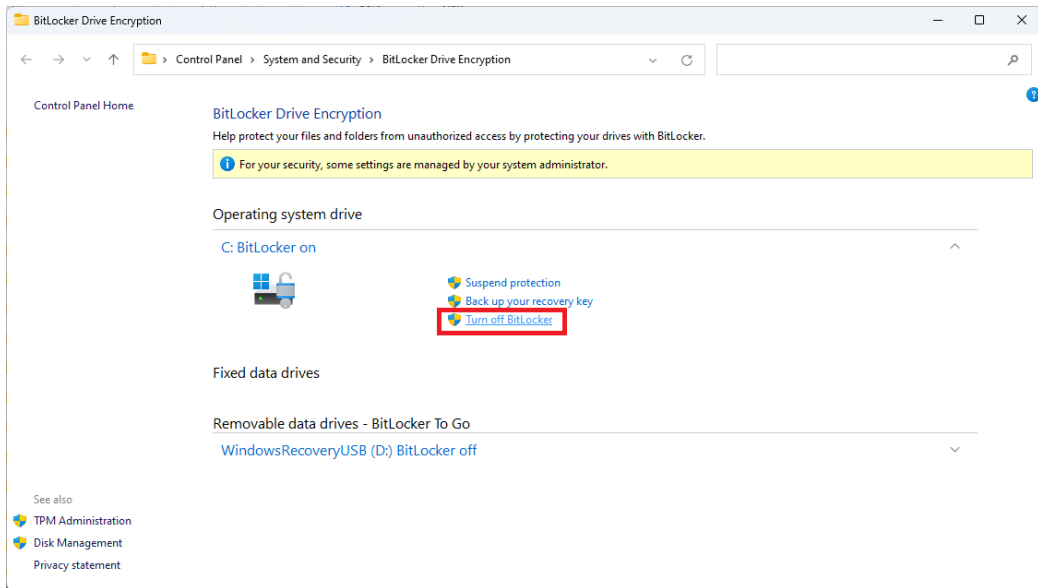
3. Wait for the decryption process to complete and click **Close** to exit the program.
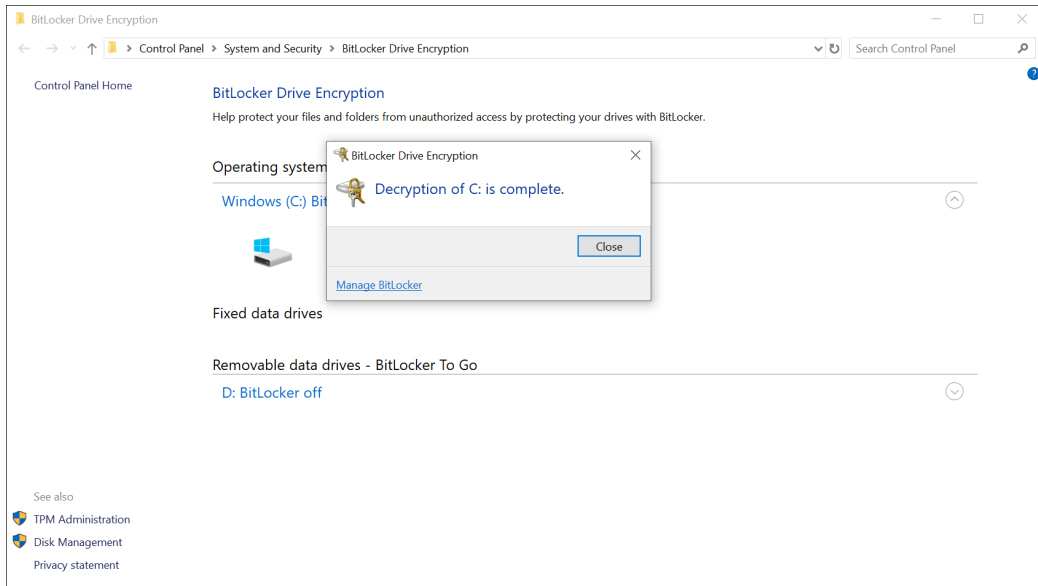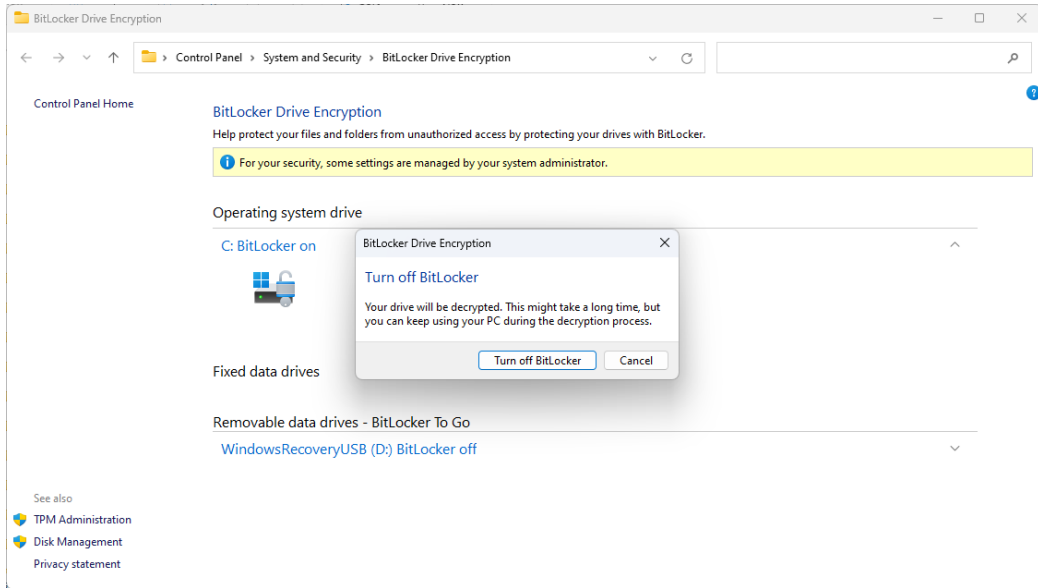
4. Check the disk status after the decryption process is completed.
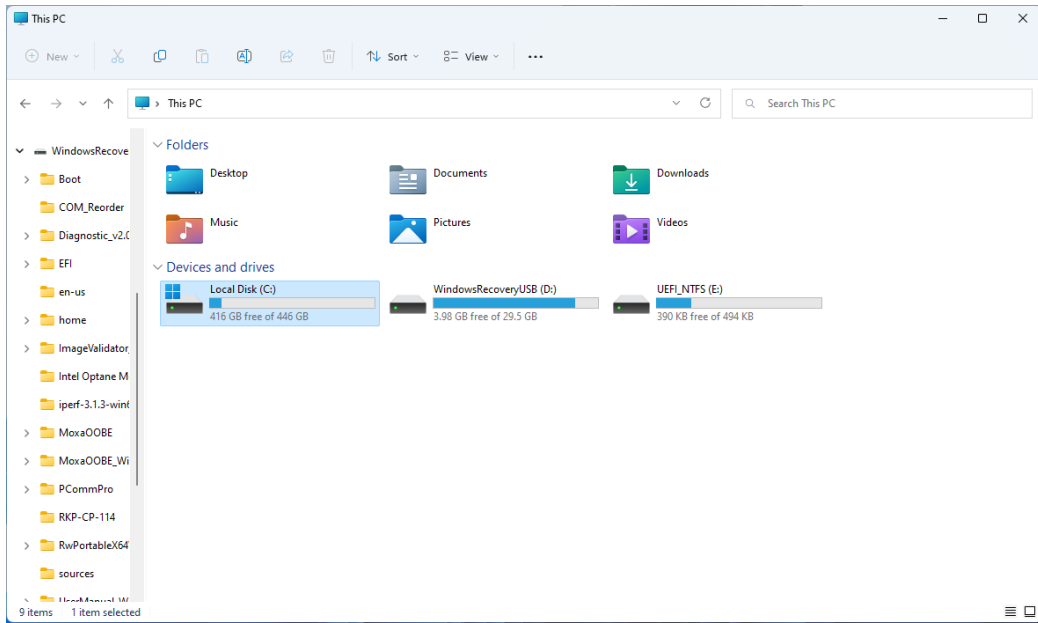
4. RAID

RAID is the acronym for **Redundant Array of Independent Disk** which indicates the use of combining multiple disks into one or more logical units for data redundancy, performance improvement, or both. This chapter describes the setup process for Intel® RAID (Intel® RST) and SW RAID.

✏️ **NOTE**

Use hard disks of the same brand, same model, and same capacity to create a RAID for best performance.

Intel® RAID: Changing the RAID Mode

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

```
                                    Front Page
│ Front Page
 Continue                                          Go to Setup Utility.
▶Boot Manager
▶Device Management
▶Boot From File
▶Setup Utility
▶Intel(R) Management Engine BIOS Extension




                              Enter Select ▶ SubMenu
 F1  Help
 ↑/↓ Select Item
```
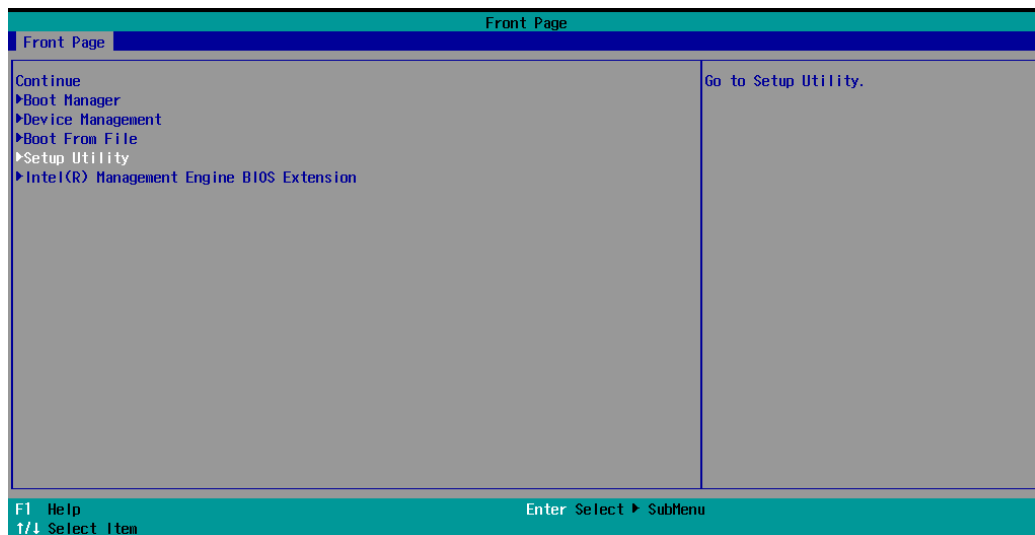
3. Select the **Chipset Configuration** option.
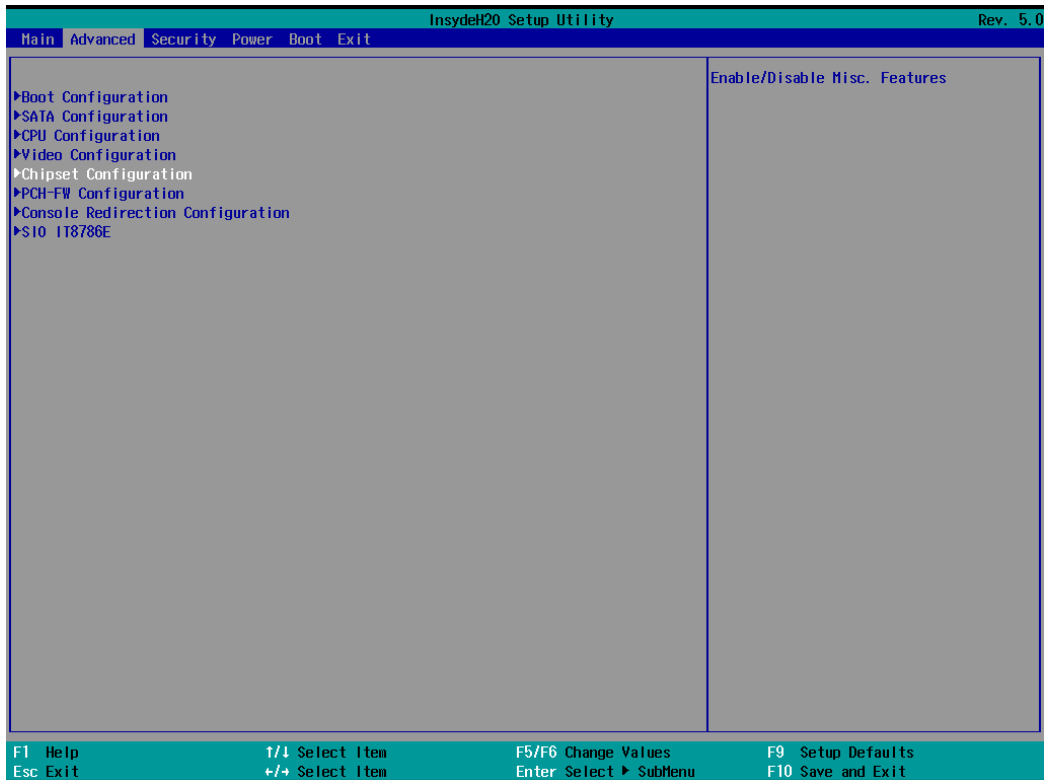
4. Select the **Map SATA Root Port under VMD** and **Enable** this option.
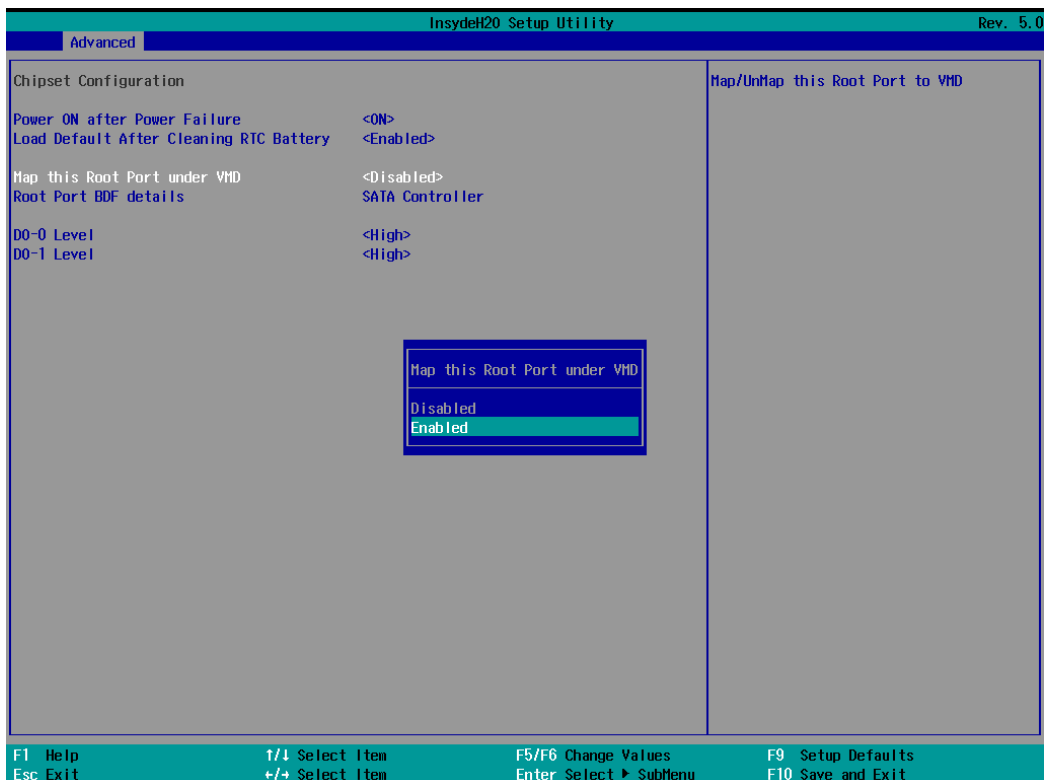
5. Press **F10** to save the settings and Exit, and then select **Yes** to save the settings.

Intel® RAID: Creating a RAID Disk in BIOS

> ✏ **NOTE**
>
> Only Disk storage 1 and storage 2 can create RAID in BIOS.

1. Power on the computer and press **F2** to enter the BIOS menu.
2. Select the **Device Management** option.
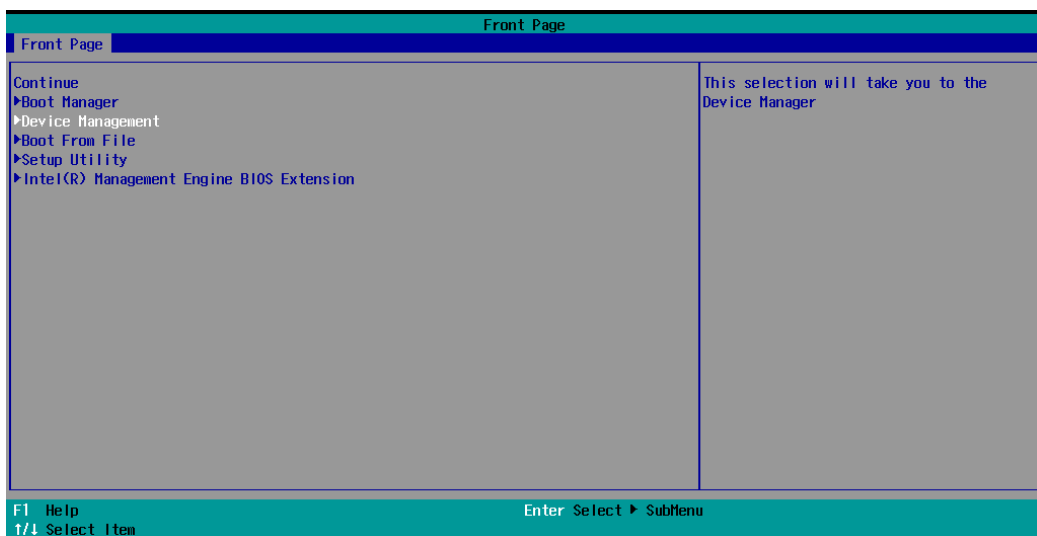
3. Select **Intel® Rapid Storage Technology**.
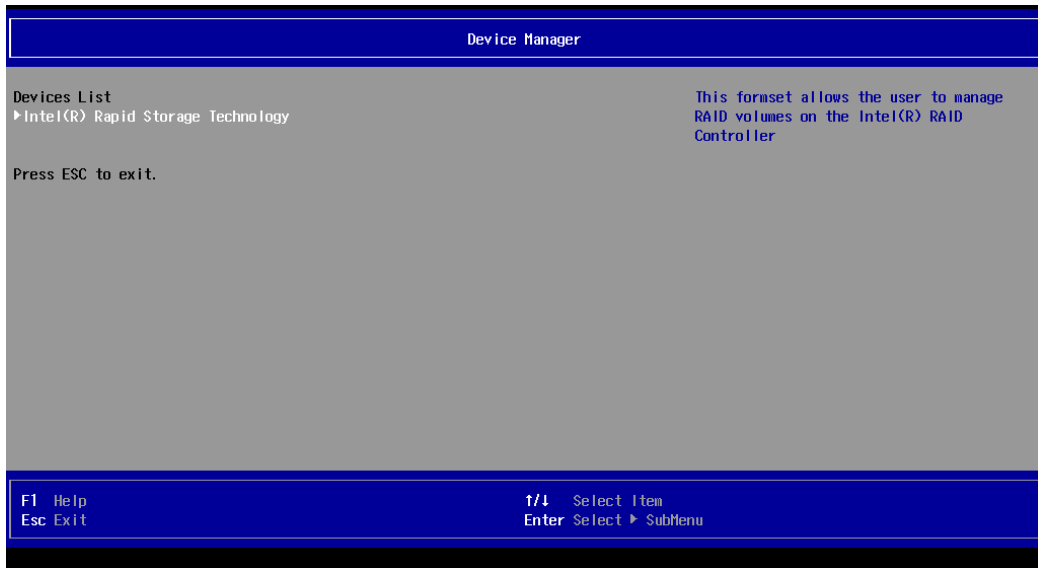
4. Select **Create RAID Volume**.
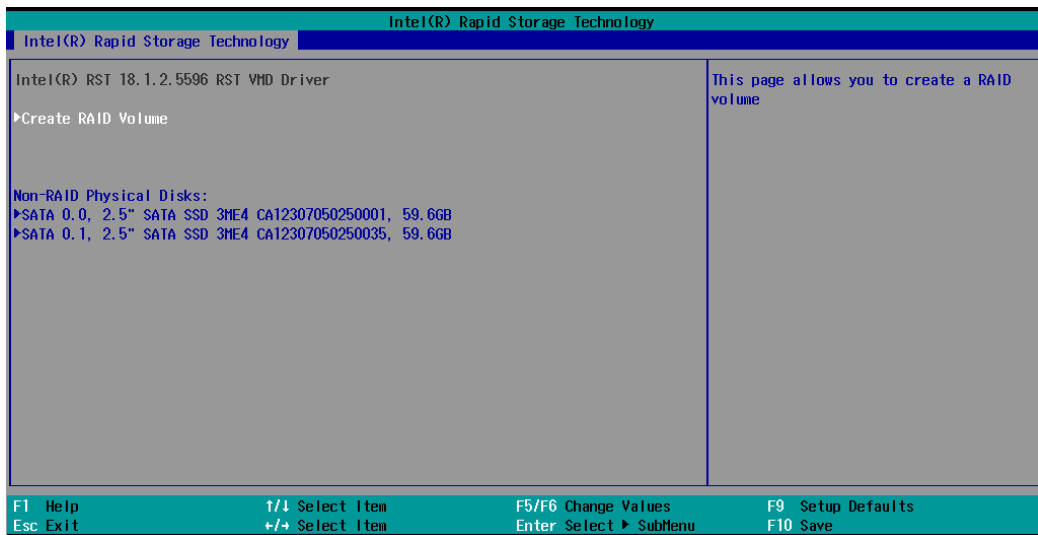
5. Select the **RAID Level** option and then press **Enter** to select the raid level; for example, **RAID1 (Mirror)**.
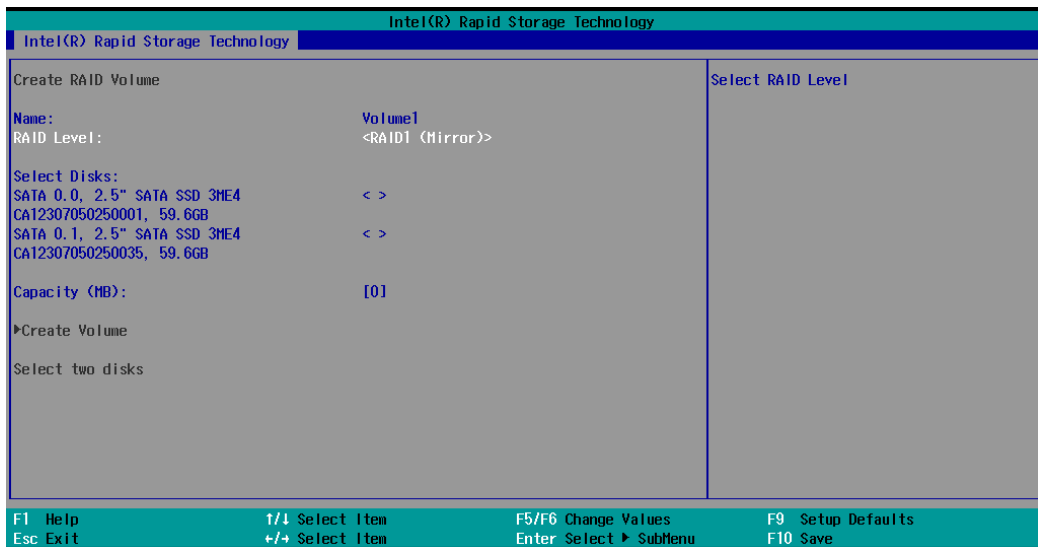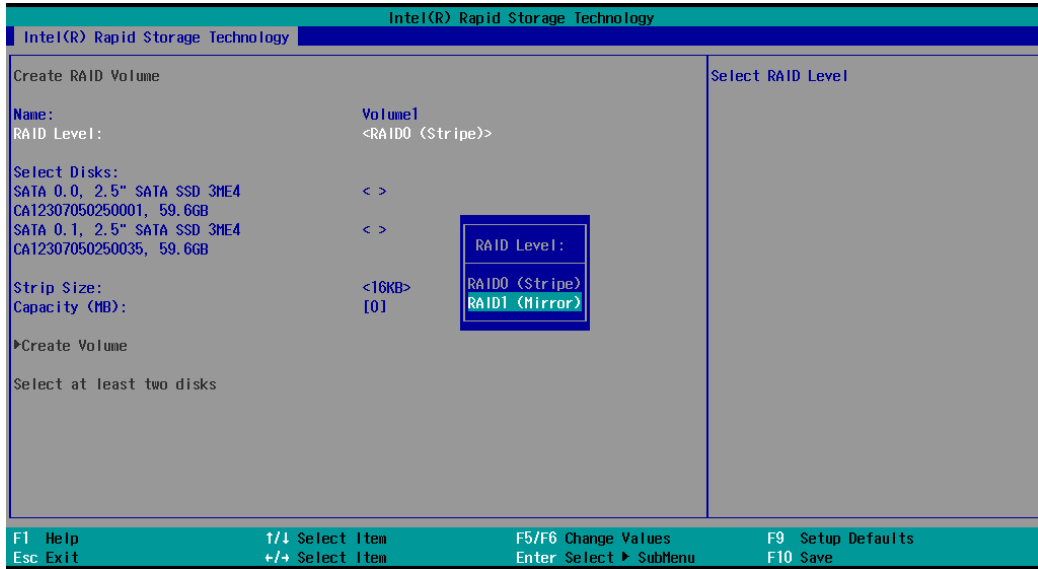
6. Select the target disk.
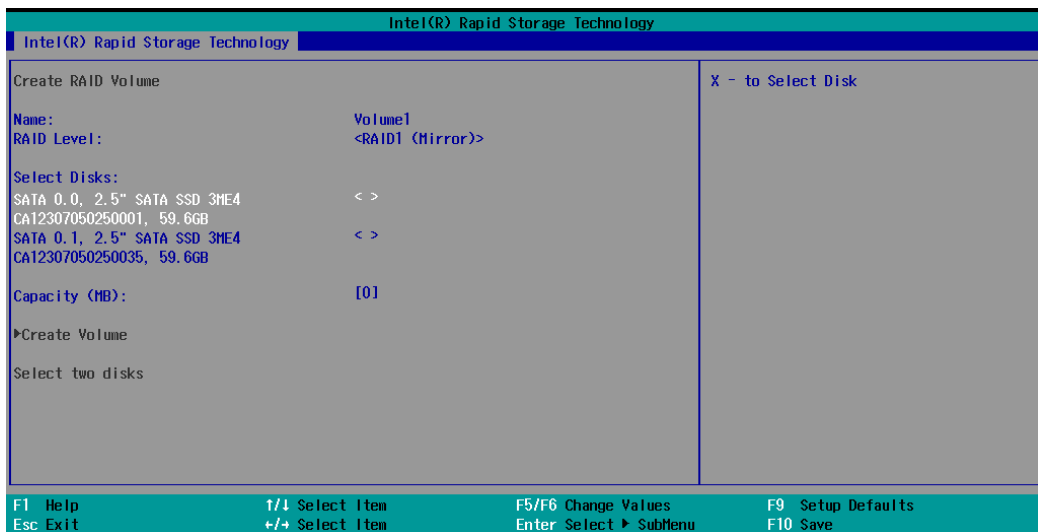
7. Enter **X** and then press **Enter**.

```
                            Intel(R) Rapid Storage Technology
  Intel(R) Rapid Storage Technology

 Create RAID Volume                                          X - to Select Disk

 Name:                          Volume1
 RAID Level:                    <RAID1 (Mirror)>

 Select Disks:
 SATA 0.0, 2.5" SATA SSD 3ME4          < >
 CA12307050250001, 59.6GB
 SATA 0.1, 2.5" SATA SSD 3ME4
 CA12307050250035, 59.6GB       ┌──────────────────────────────────────────┐
                                │ SATA 0.0, 2.5" SATA SSD 3ME4 CA12307050250001, 59.6GB │
 Capacity (MB):                 │                                            │
                                │                                            │
 ▶Create Volume                 │ X                                          │
                                └──────────────────────────────────────────┘
 Select two disks



 F1  Help                    ↑/↓ Select Item          F5/F6 Change Values       F9  Setup Defaults
 Esc Exit                    ←/→ Select Item          Enter Select ▶ SubMenu    F10 Save
```

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

```
                            Intel(R) Rapid Storage Technology
  Intel(R) Rapid Storage Technology

 Create RAID Volume                                          X - to Select Disk

 Name:                          Volume1
 RAID Level:                    <RAID1 (Mirror)>

 Select Disks:
 SATA 0.0, 2.5" SATA SSD 3ME4          <X>
 CA12307050250001, 59.6GB
 SATA 0.1, 2.5" SATA SSD 3ME4          <X>
 CA12307050250035, 59.6GB

 Capacity (MB):                 [61055]

 ▶Create Volume




 F1  Help                    ↑/↓ Select Item          F5/F6 Change Values       F9  Setup Defaults
 Esc Exit                    ←/→ Select Item          Enter Select ▶ SubMenu    F10 Save
```

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

```
                            Intel(R) Rapid Storage Technology
  Intel(R) Rapid Storage Technology

 Create RAID Volume                                          Create a volume with the settings
                                                             specified above
 Name:                          Volume1
 RAID Level:                    <RAID1 (Mirror)>

 Select Disks:
 SATA 0.0, 2.5" SATA SSD 3ME4          <X>
 CA12307050250001, 59.6GB
 SATA 0.1, 2.5" SATA SSD 3ME4          <X>
 CA12307050250035, 59.6GB

 Capacity (MB):                 [61055]

 ▶Create Volume




 F1  Help                    ↑/↓ Select Item          F5/F6 Change Values       F9  Setup Defaults
 Esc Exit                    ←/→ Select Item          Enter Select ▶ SubMenu    F10 Save
```

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

```
                         Intel(R) Rapid Storage Technology
 Intel(R) Rapid Storage Technology

 Intel(R) RST 18.1.2.5596 RST VMD Driver                Select to see more information about
                                                        the RAID Volume


 RAID Volumes:
 ▶Volume1, RAID1 (Mirror), 59.6GB, Normal






 F1  Help                 ↑/↓ Select Item      F5/F6 Change Values        F9  Setup Defaults
 Esc Exit                 ←/→ Select Item      Enter Select ▶ SubMenu     F10 Save
```
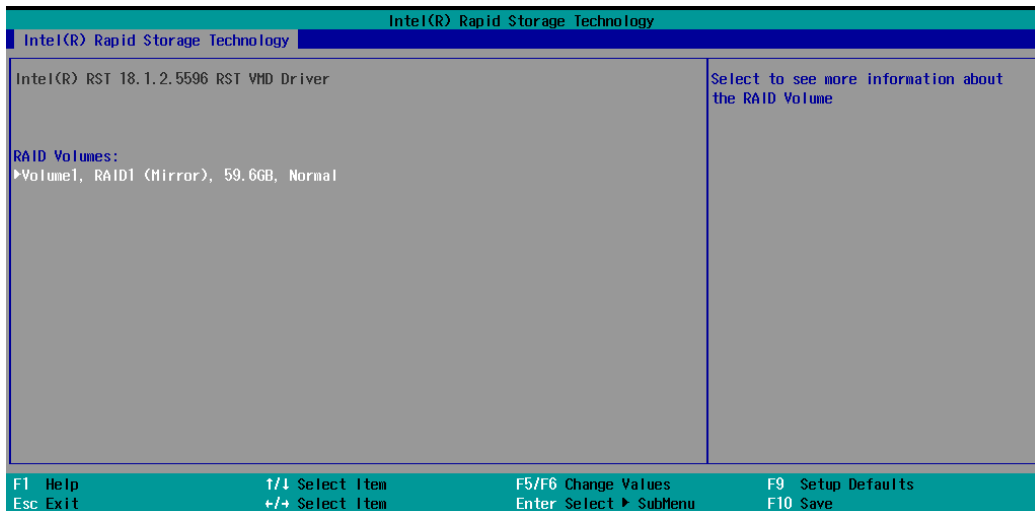
11. Press **F10** to save the settings.

Intel® RAID: Removing a RAID Volume From the BIOS

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

```
                                      Front Page
 Front Page

 Continue                                               This selection will take you to the
 ▶Boot Manager                                          Device Manager
 ▶Device Management
 ▶Boot From File
 ▶Administer Secure Boot
 ▶Setup Utility
 ▶Intel(R) Management Engine BIOS Extension








 F1  Help                                    Enter Select ▶ SubMenu
 ↑/↓ Select Item
```
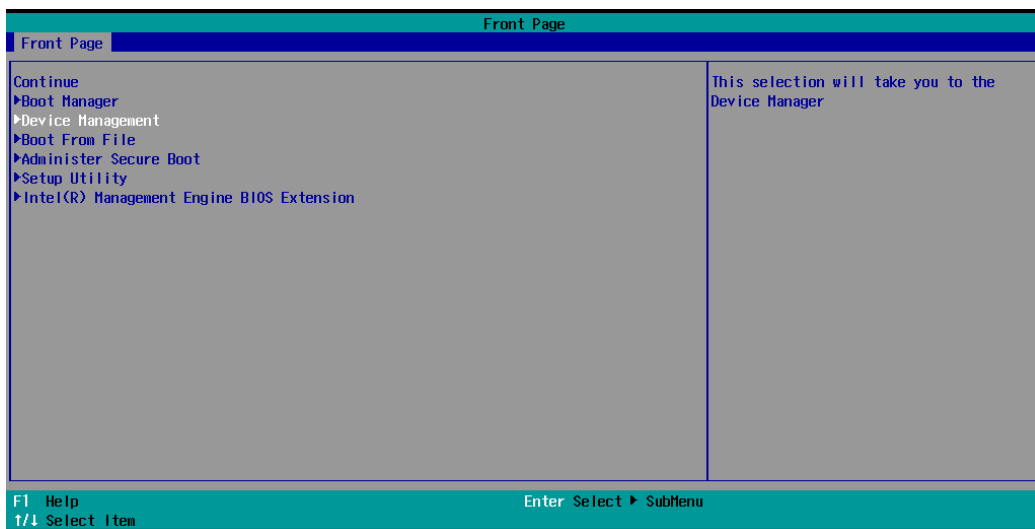
3. Select the **Intel® Rapid Storage Technology** option.

```
                              Device Manager

Devices List                                    This formset allows the user to manage
▶Intel(R) Rapid Storage Technology              RAID volumes on the Intel(R) RAID
                                                Controller

Press ESC to exit.




F1  Help                          ↑/↓   Select Item
Esc Exit                          Enter Select ▶ SubMenu
```

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

```
                    Intel(R) Rapid Storage Technology
 Intel(R) Rapid Storage Technology

Intel(R) RST 18.1.2.5596 RST VMD Driver          Select to see more information about
                                                 the RAID Volume

RAID Volumes:
▶Volume1, RAID1 (Mirror), 59.6GB, Normal






F1  Help              ↑/↓ Select Item      F5/F6 Change Values      F9  Setup Defaults
Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu   F10 Save
```

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

```
                    Intel(R) Rapid Storage Technology
 Intel(R) Rapid Storage Technology

RAID VOLUME INFO

Volume Actions
▶Delete


Name:                       Volume1
RAID Level:                 RAID1 (Mirror)
Strip Size:                 N/A
Size:                       59.6GB
Status:                     Normal
Bootable:                   Yes

▶SATA 0.0, 2.5" SATA SSD 3ME4 CA12307050250001, 59.6GB
▶SATA 0.1, 2.5" SATA SSD 3ME4 CA12307050250035, 59.6GB




F1  Help              ↑/↓ Select Item      F5/F6 Change Values      F9  Setup Defaults
Esc Exit              ←/→ Select Item      Enter Select ▶ SubMenu   F10 Save
```

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


```
                        Intel(R) Rapid Storage Technology
 Intel(R) Rapid Storage Technology

 Delete                                              Deleting a volume will reset the disks
                                                     to non-RAID.
 Delete the RAID volume?
 ALL DATA ON VOLUME WILL BE LOST!

 ▶Yes
 ▶No




 F1  Help                 ↑/↓ Select Item      F5/F6 Change Values      F9  Setup Defaults
 Esc Exit                 ←/→ Select Item      Enter Select ▶ SubMenu   F10 Save
```
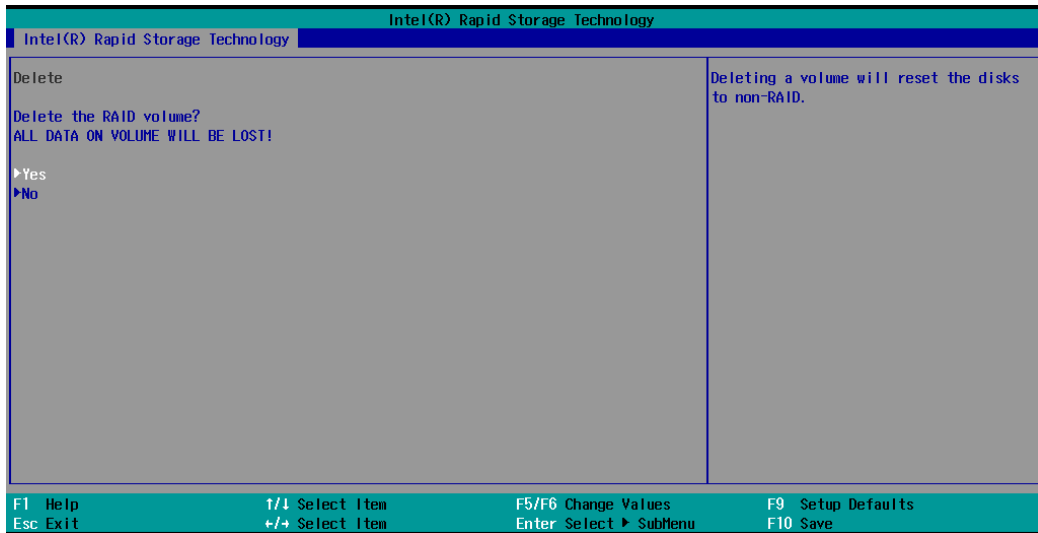
7. Press **F10** to save the settings.

# SW RAID: Creating the RAID 0 or RAID 1 From Disk Management

✎ **NOTE**

Use hard disks of the same brand, same model, and same capacity to create a RAID for best performance.

1. Run **Disk Management**. Connecting the new disks and checking all the disk status are **Unallocated**. If the disk status is not **Unallocated**, you can right-click the target disk and select **Delete Volume**.
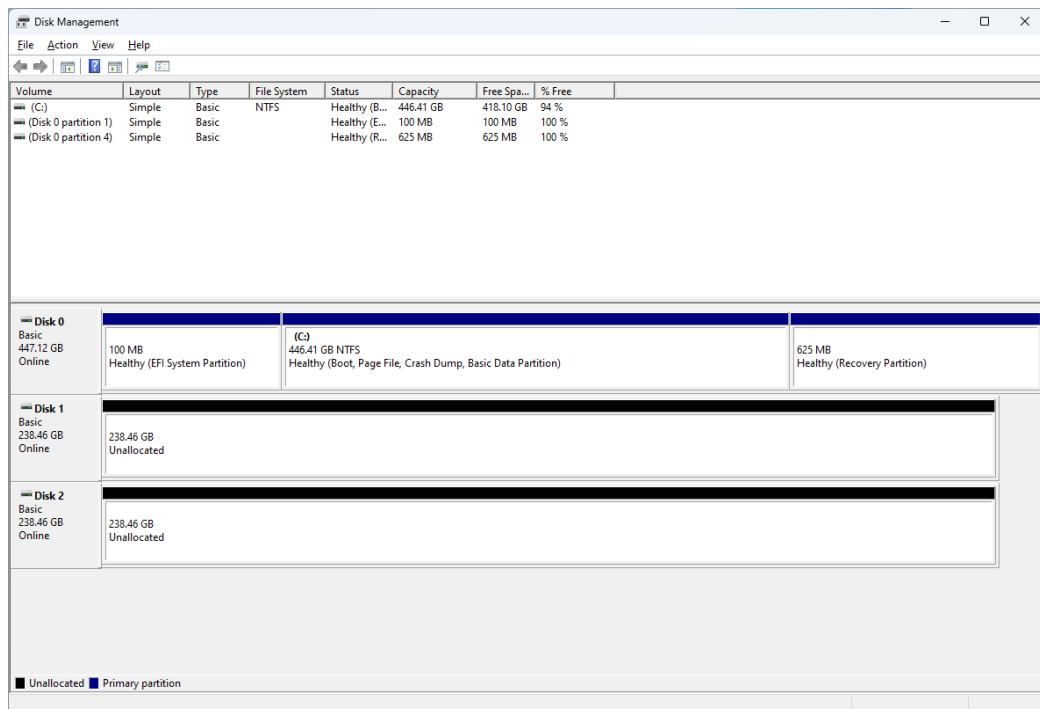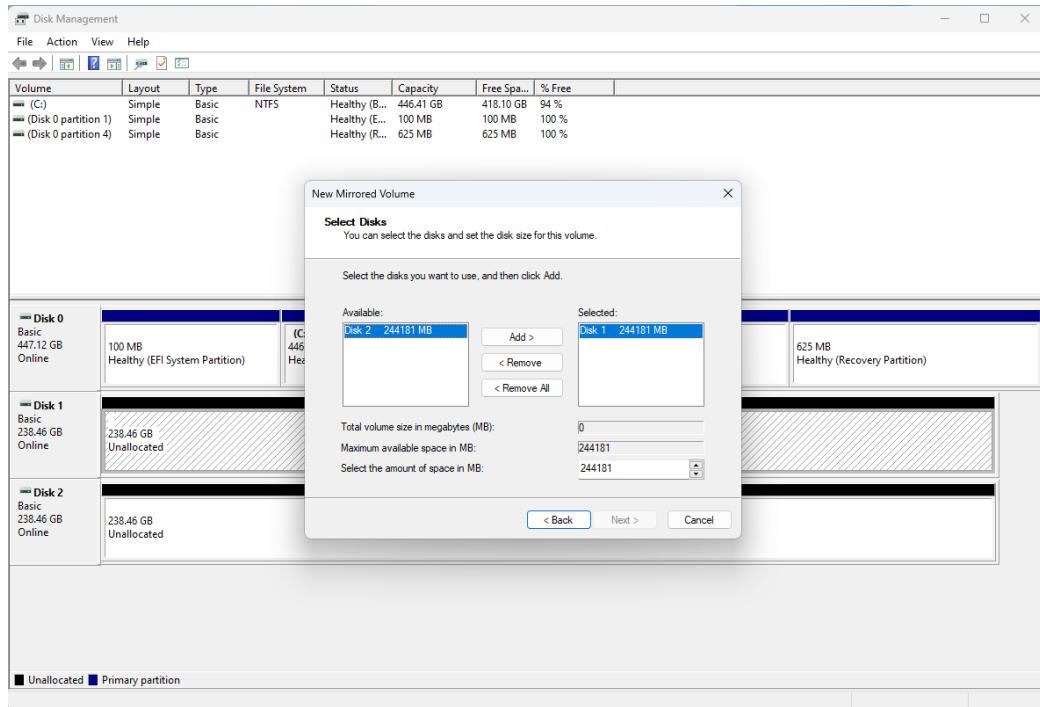
2. Right-click the target disk. Select the target volume type. For example: **RAID1(Mirror)**.
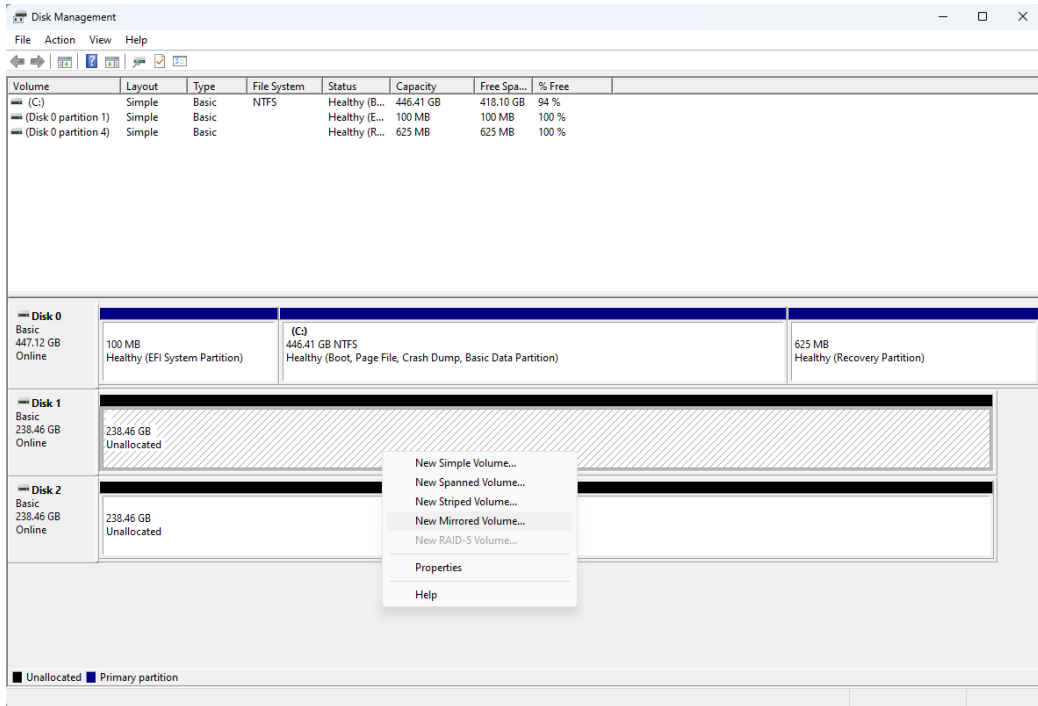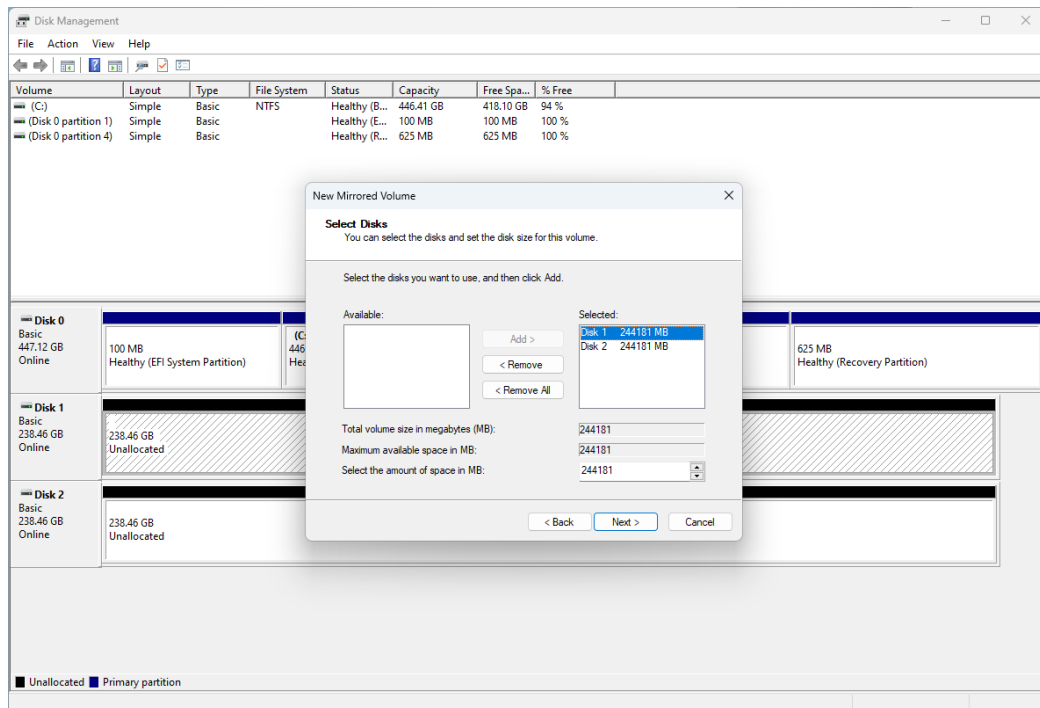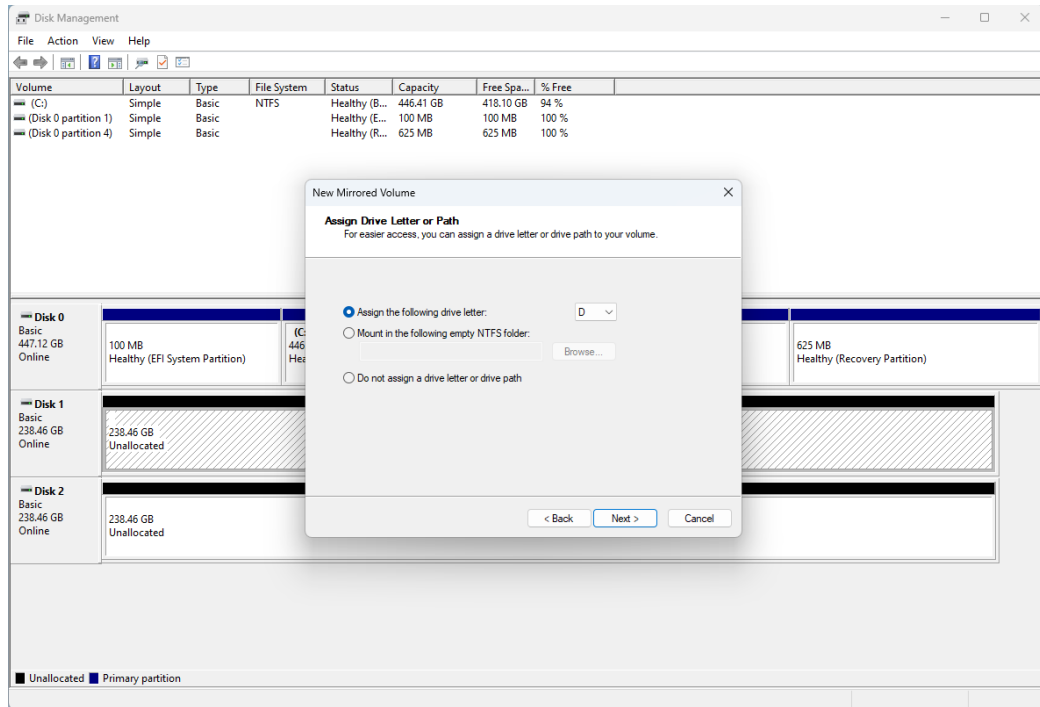

3. To continue, click **Next**
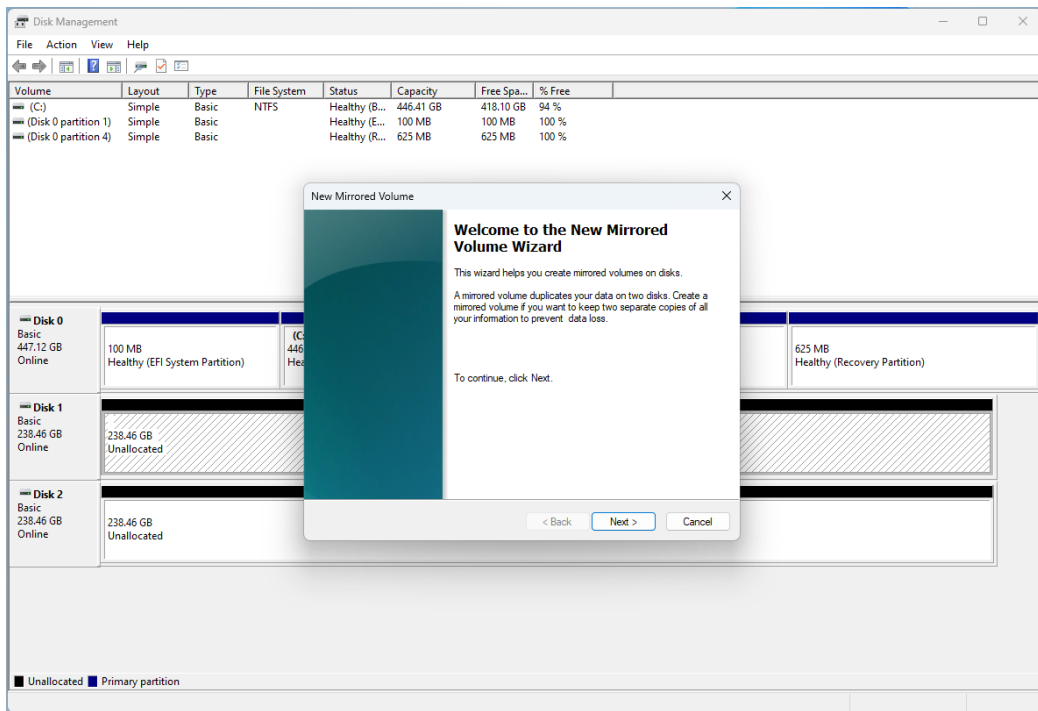
4. Select the disks you want to use, and then click **Add**.
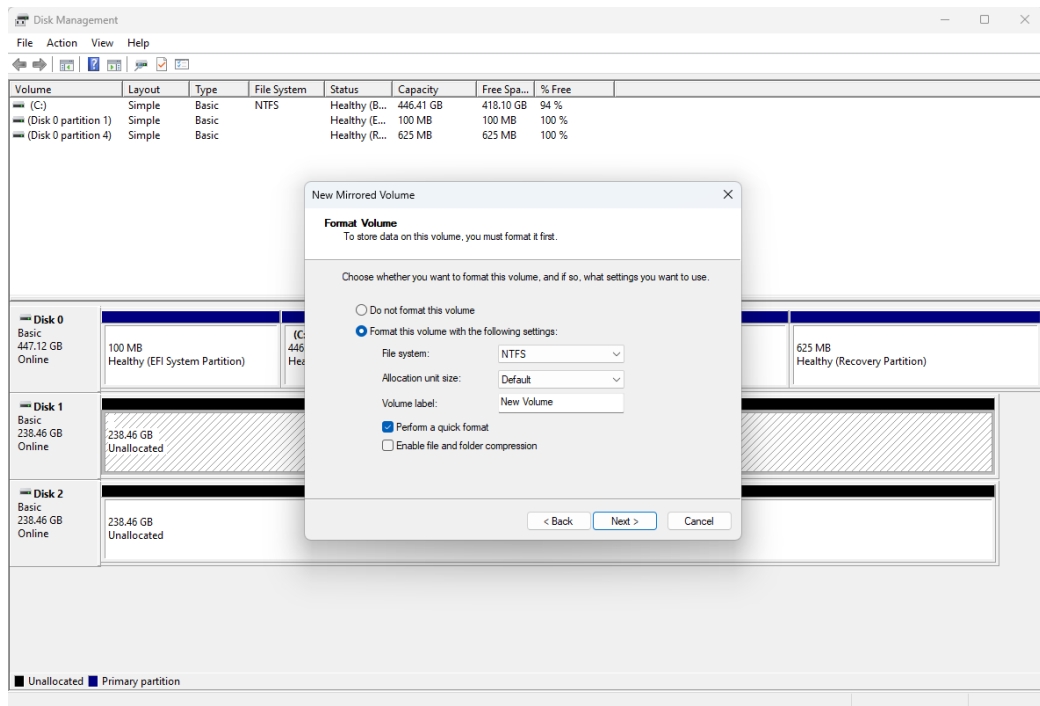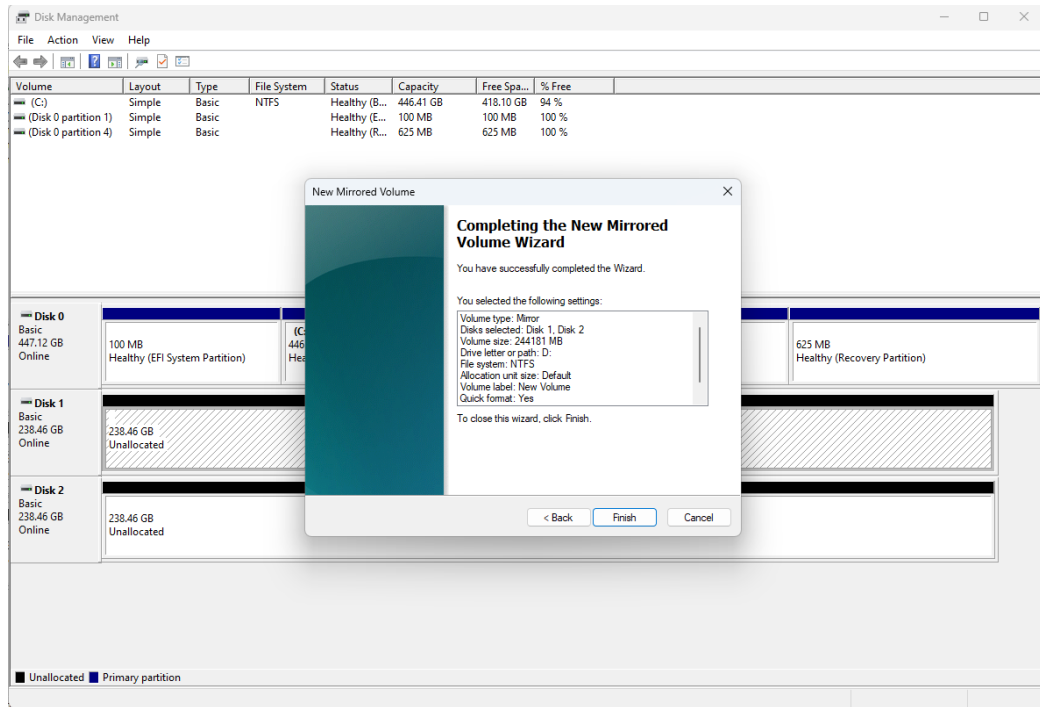

5. Click **Next**.

6. Assign the drive letter, click **Next**.

7. Format the volume using **Quick Format**, click **Next**.
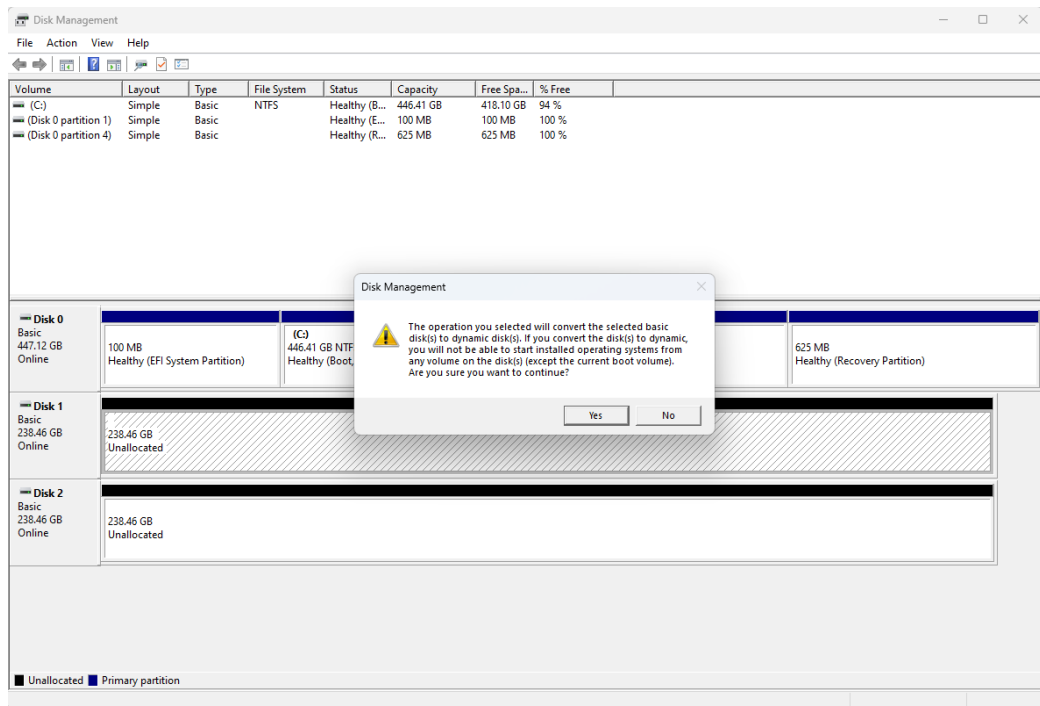
8. Checking the RAID1(Mirror) information. Click **Finish** to create the RAID1 volume.

9. System will show the warning message about SW RAID volume, click **Yes** to continue.

10. Checking the RAID1(Mirror) information from disk management.
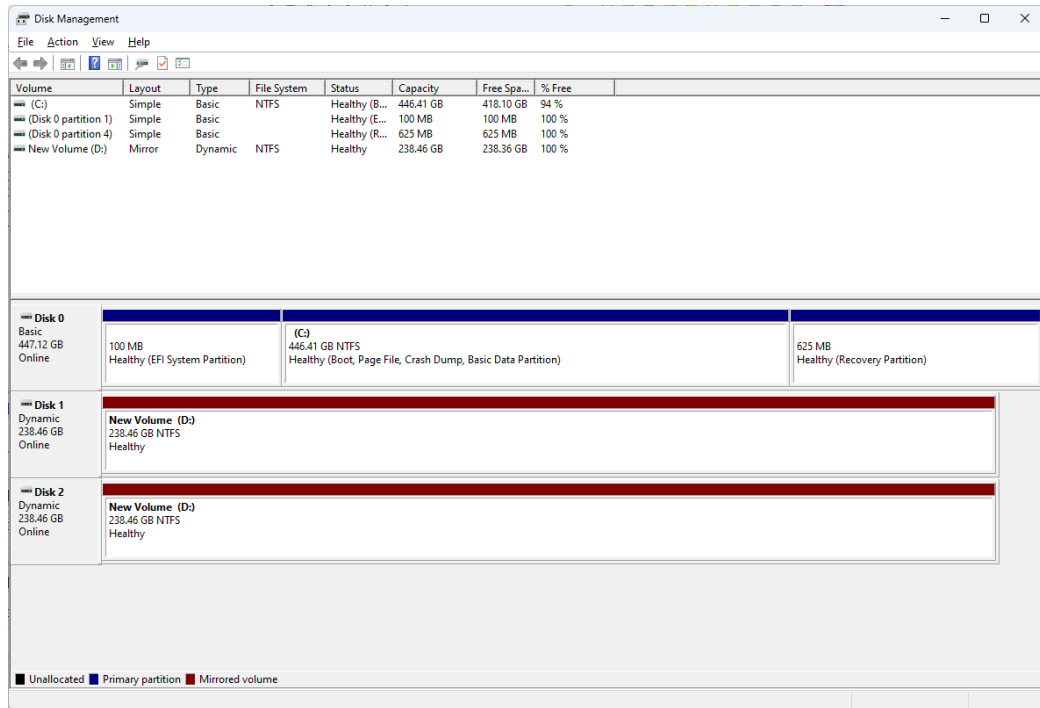
SW RAID: Creating the RAID 5 From Storage Spaces

1. Open **Control Panel > System and Security**, run **Storage Spaces**.
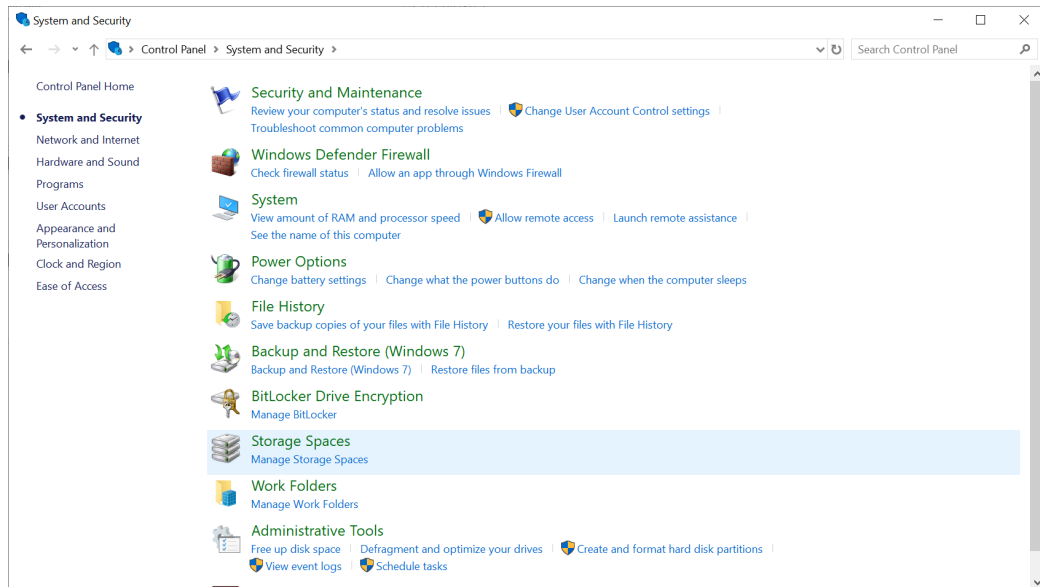
2. Click **Create a new pool and storage space**.
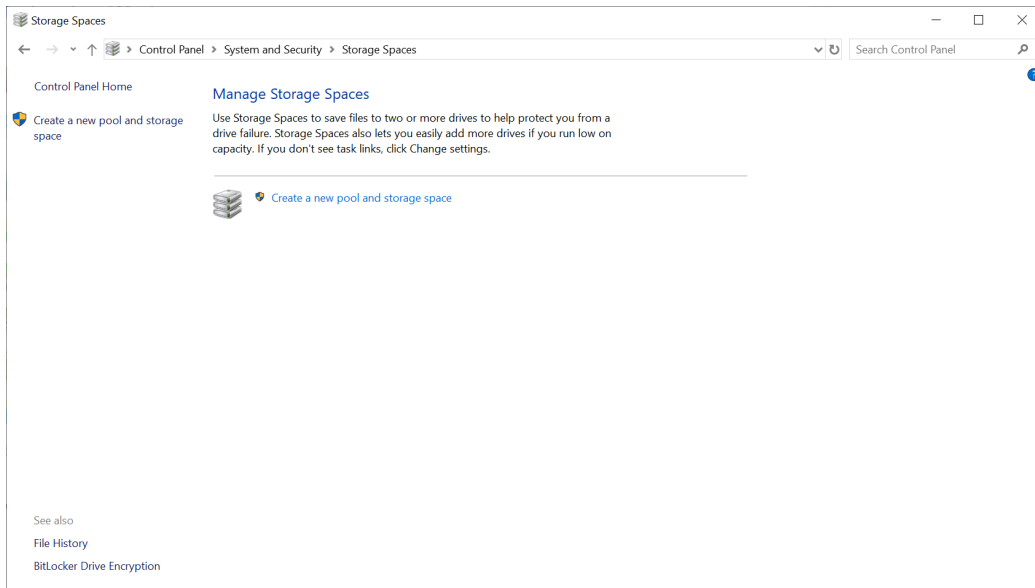
3. Select target drives to create a storage pool. RAID 5 requires at least three disks. Click **Create pool**.

4. Changing the **Resiliency type** to **Parity**. Click **Create storage space**.
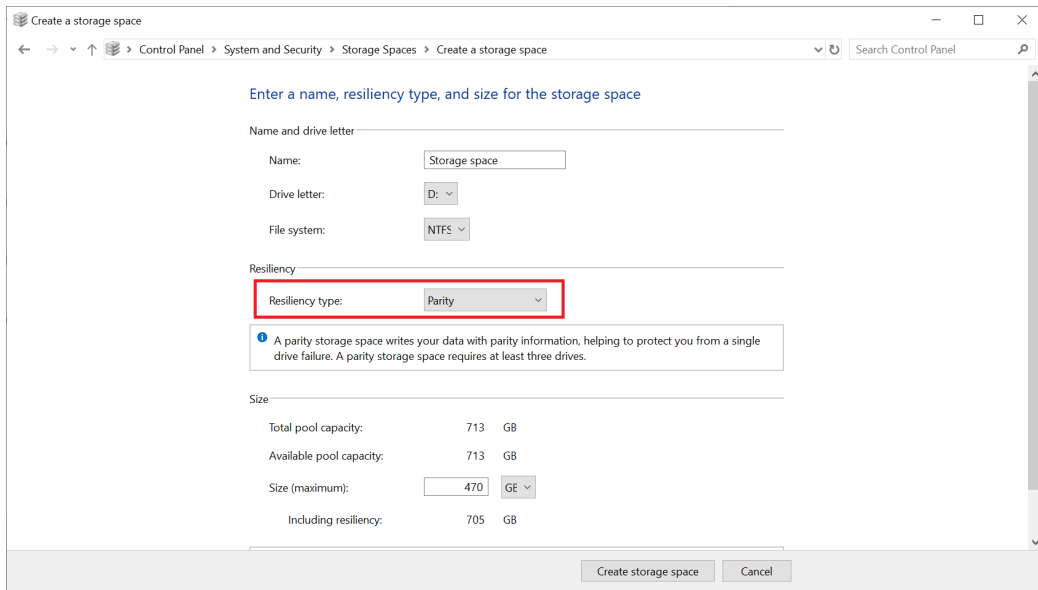
5. Checking the RAID 5 volume status.
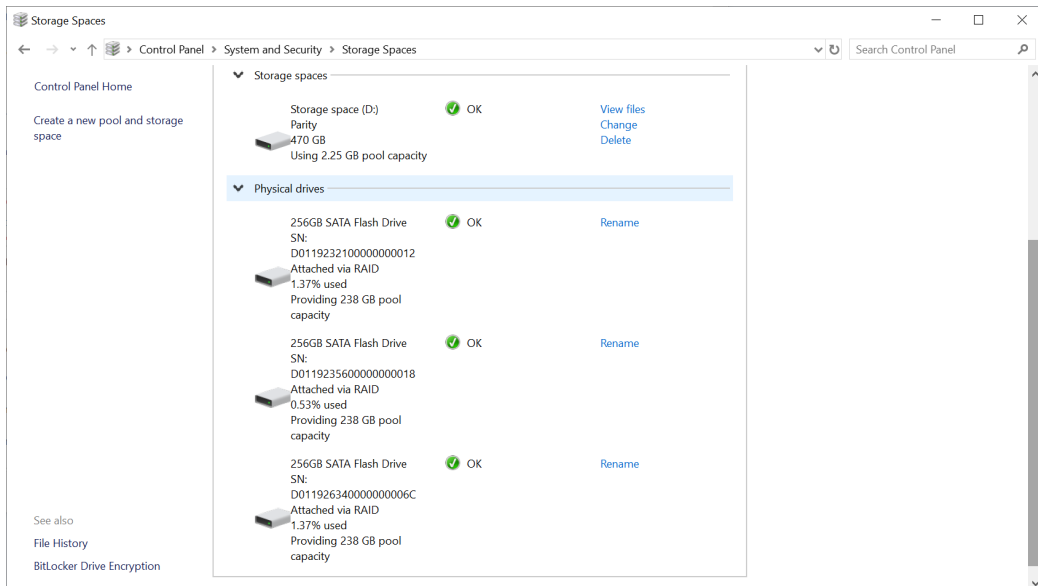
6. Checking the storage space from disk management.
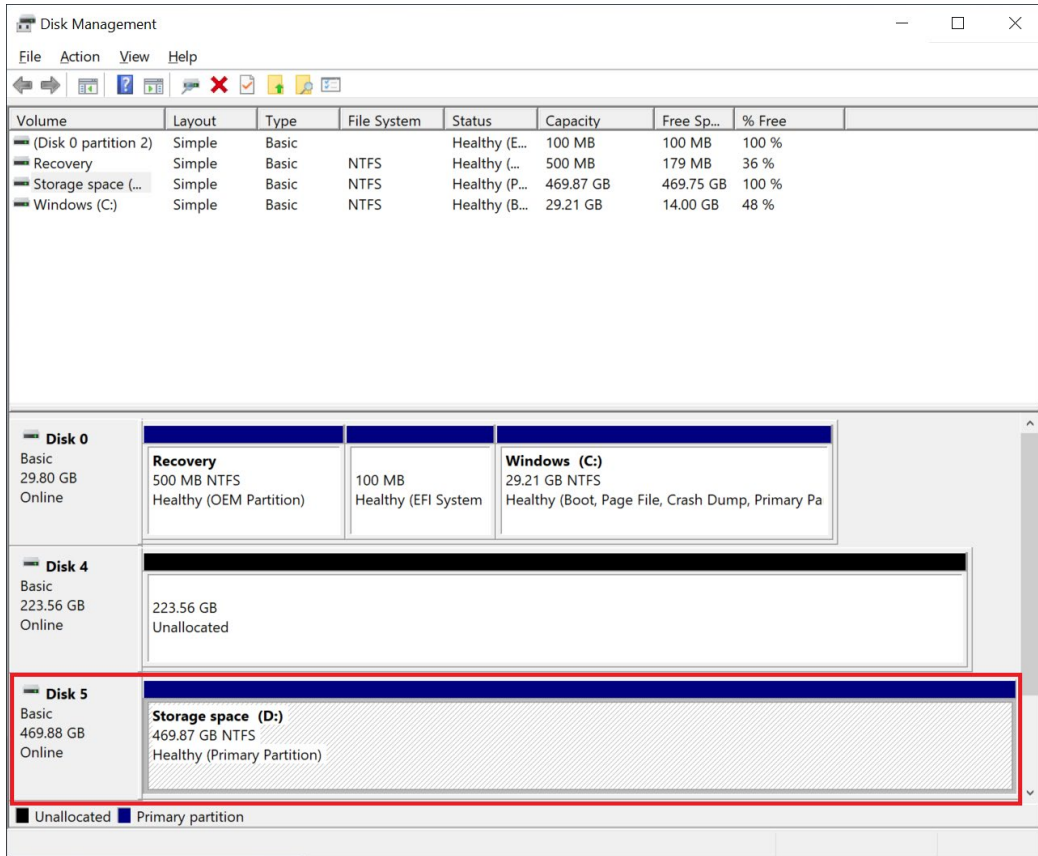
SW RAID: Creating the RAID 10 From Storage Spaces

1. Run the **Disk Management**. Connecting the new disks and checking all the disk status are **Unallocated**. If the disk status is not **Unallocated**, you can right-click the target disk and select **Delete Volume**.

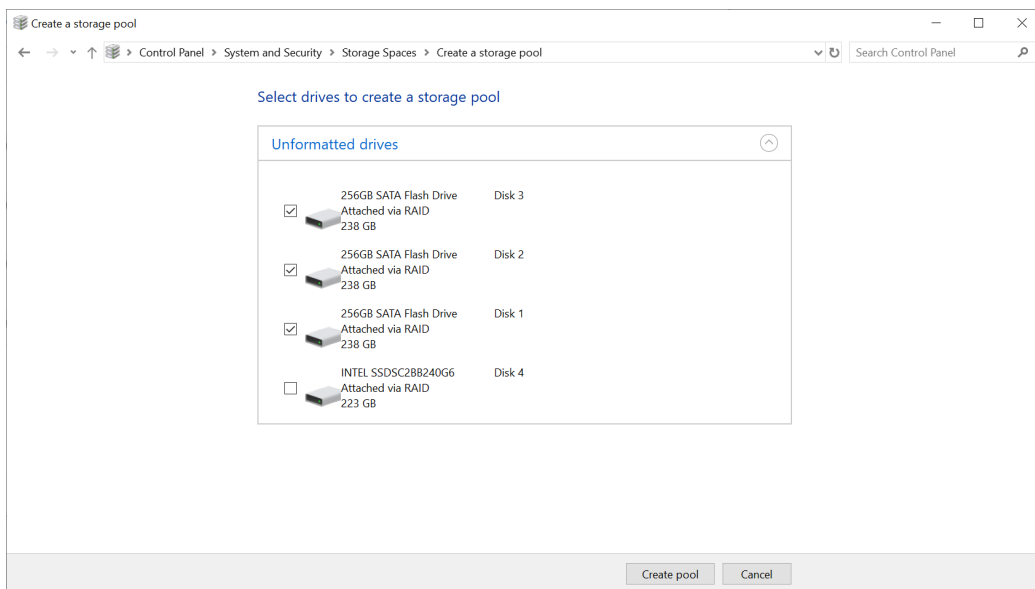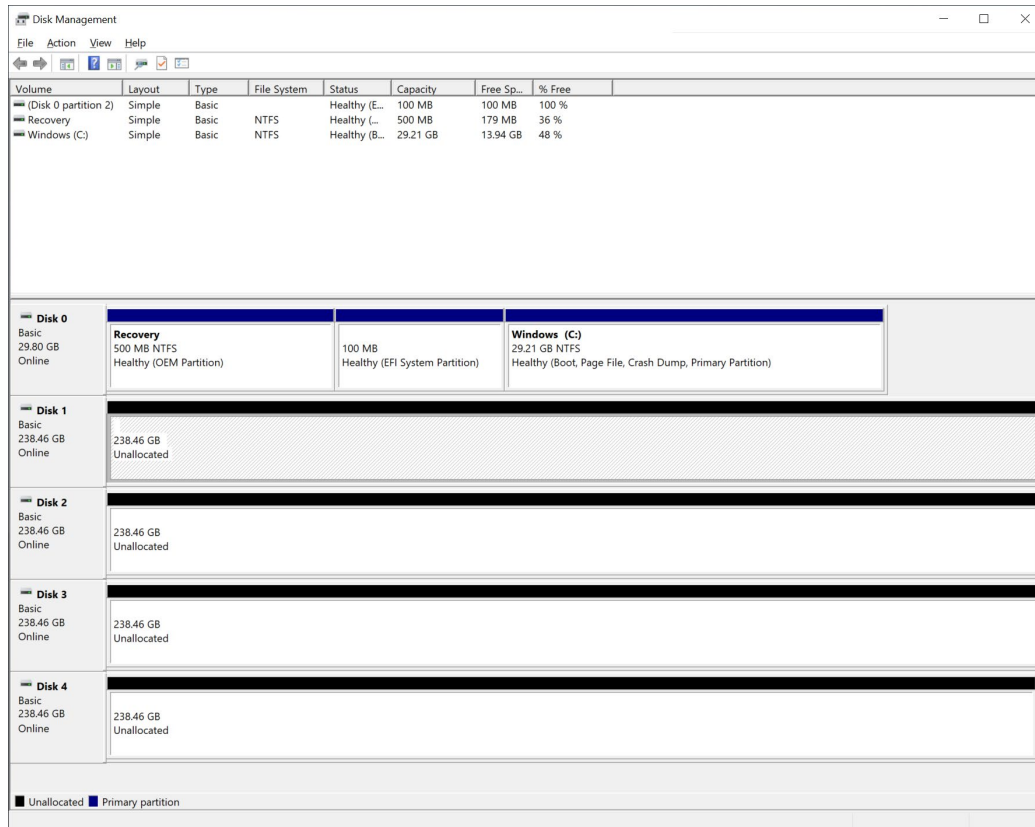2. Open **Control Panel > System and Security**, run **Storage Spaces**.
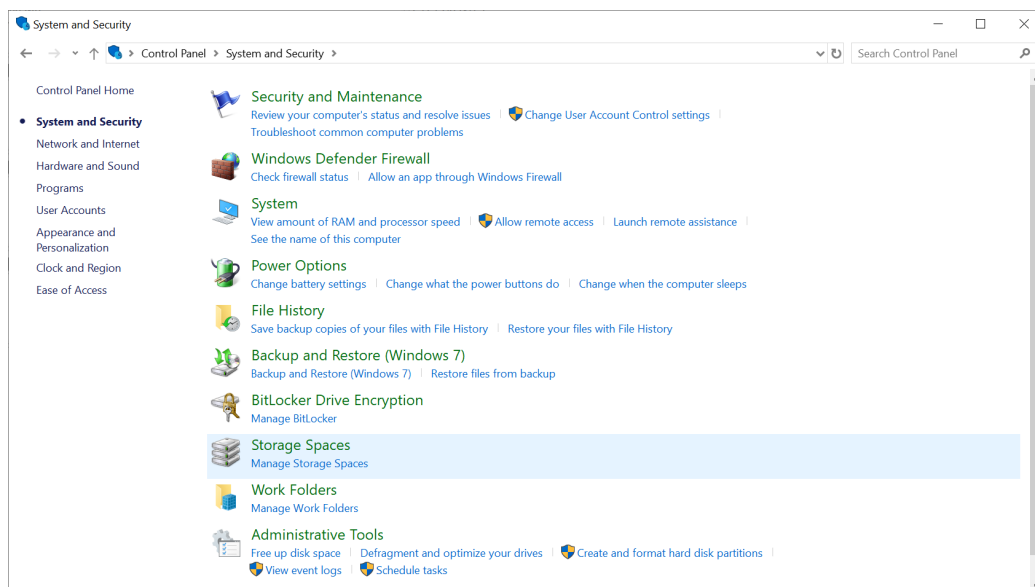
3. Click **Create a new pool and storage space**.
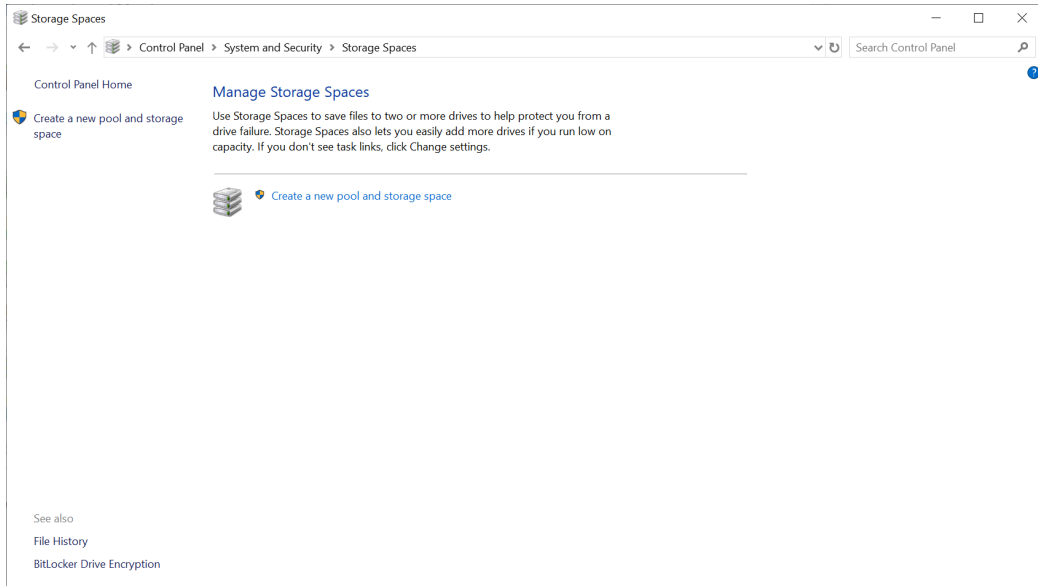
4. RAID 10 requires at least four disks. Select **Disk 1** and **Disk 2** to create a storage pool. Click **Create a pool**.
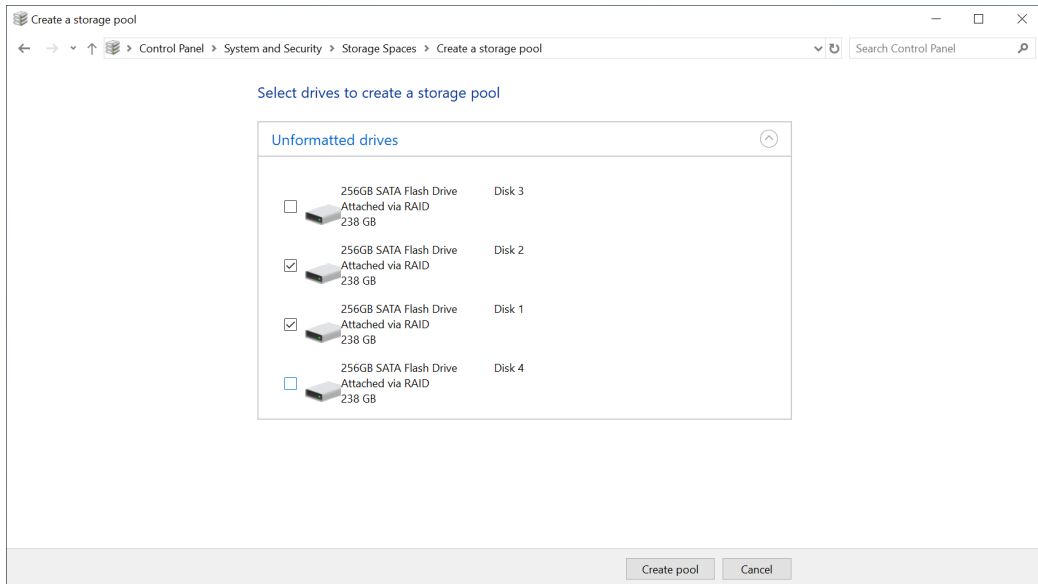
5. Changing the **Resiliency type** to **Two-way mirror**. Click **Create storage space**. Follow the step 4 to run the same steps on **Disk 3** and **Disk 4**.
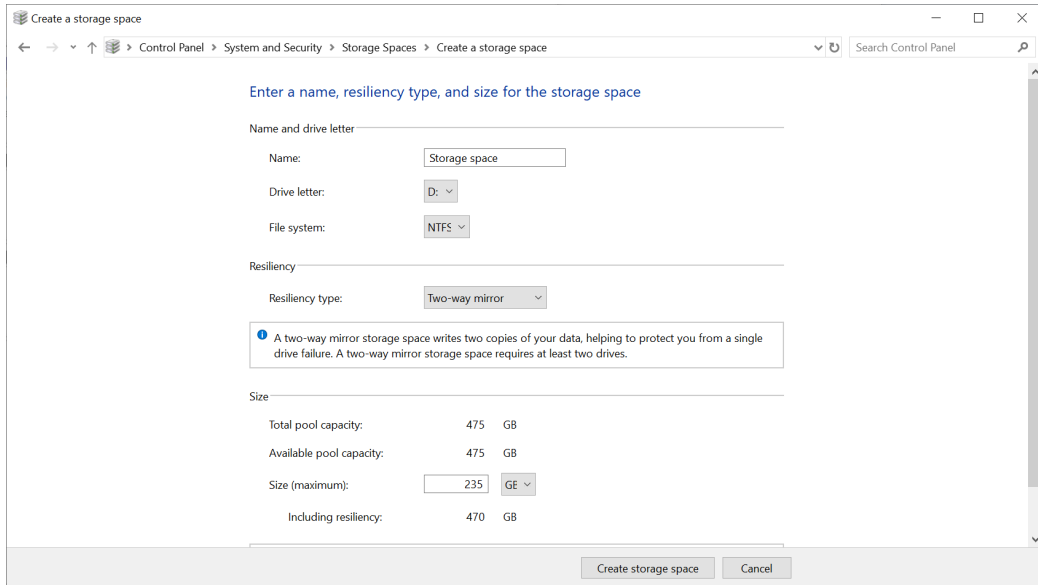
6. Checking the storage space status.
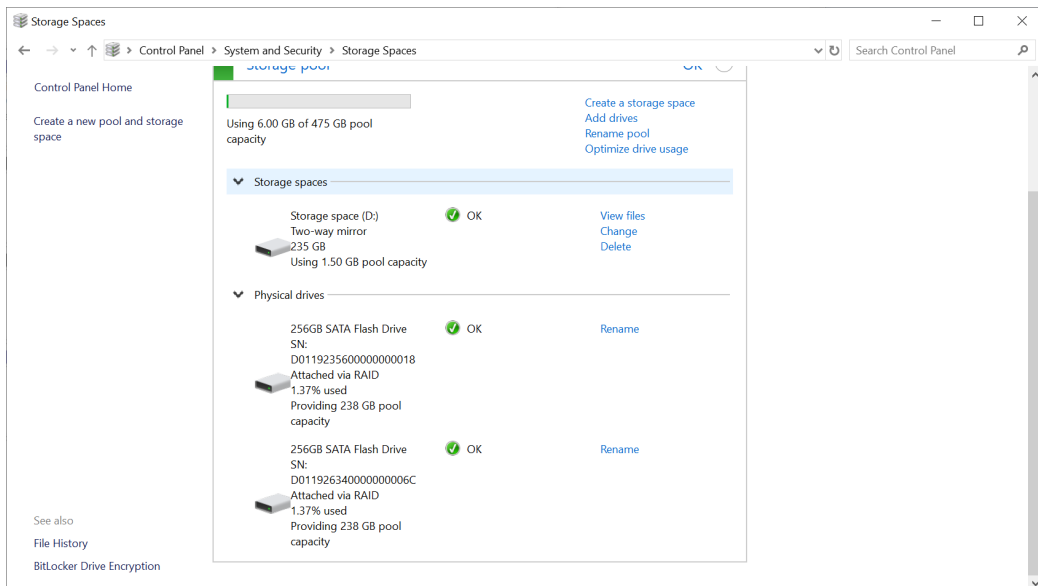
7. After the creating steps, the **Storage space (D:)** and **Storage space (E:)** will be shown on **Disk Management**.
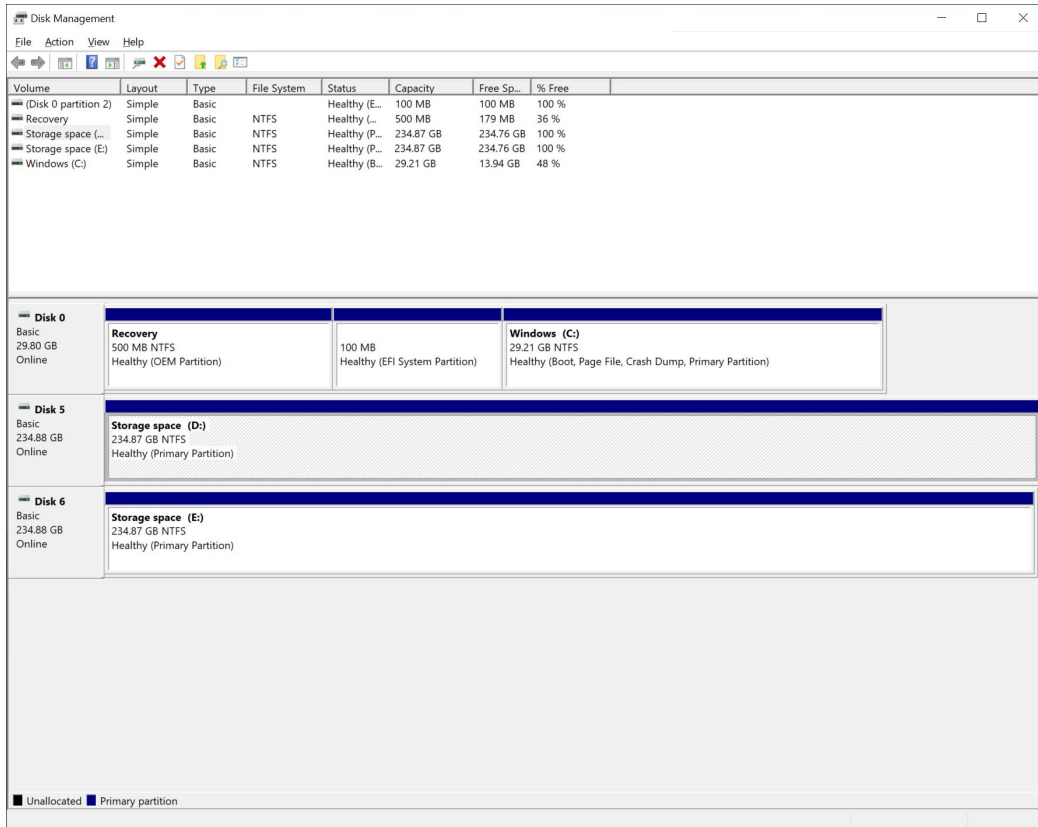
8. Right-click the **Storage space (D:)**, select **Delete Volume**.
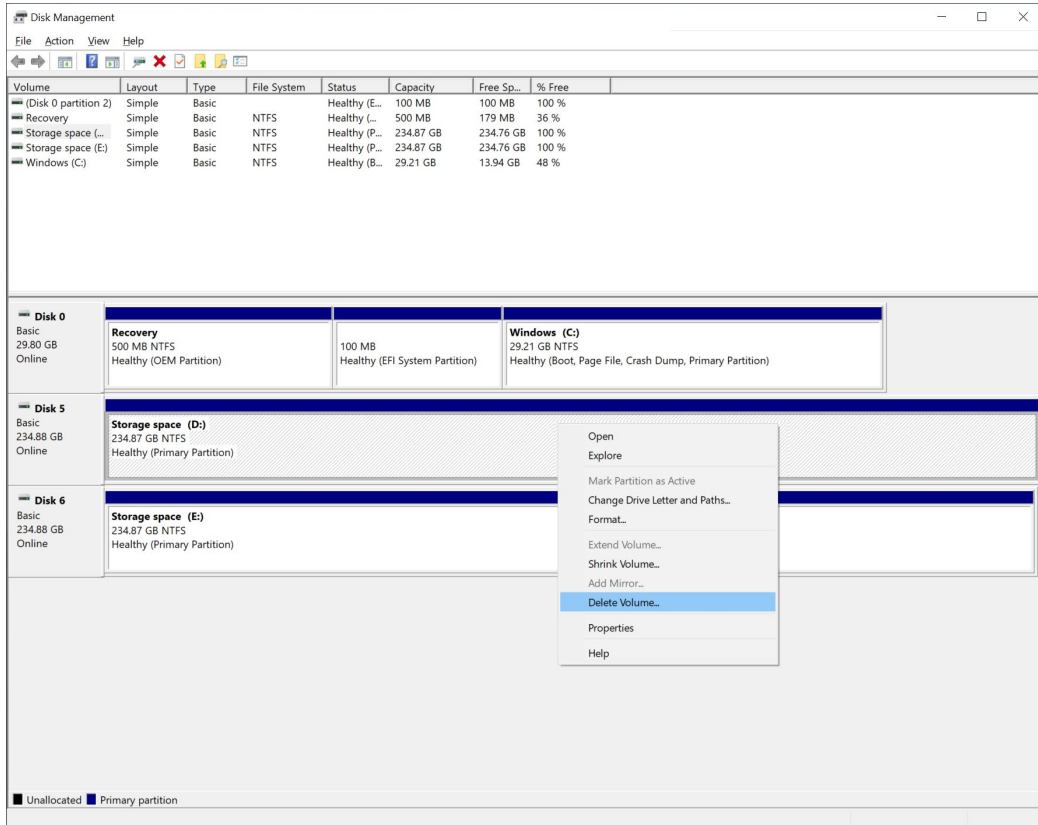
9. The warning messages will show on screen, click **Yes** to delete the volume.
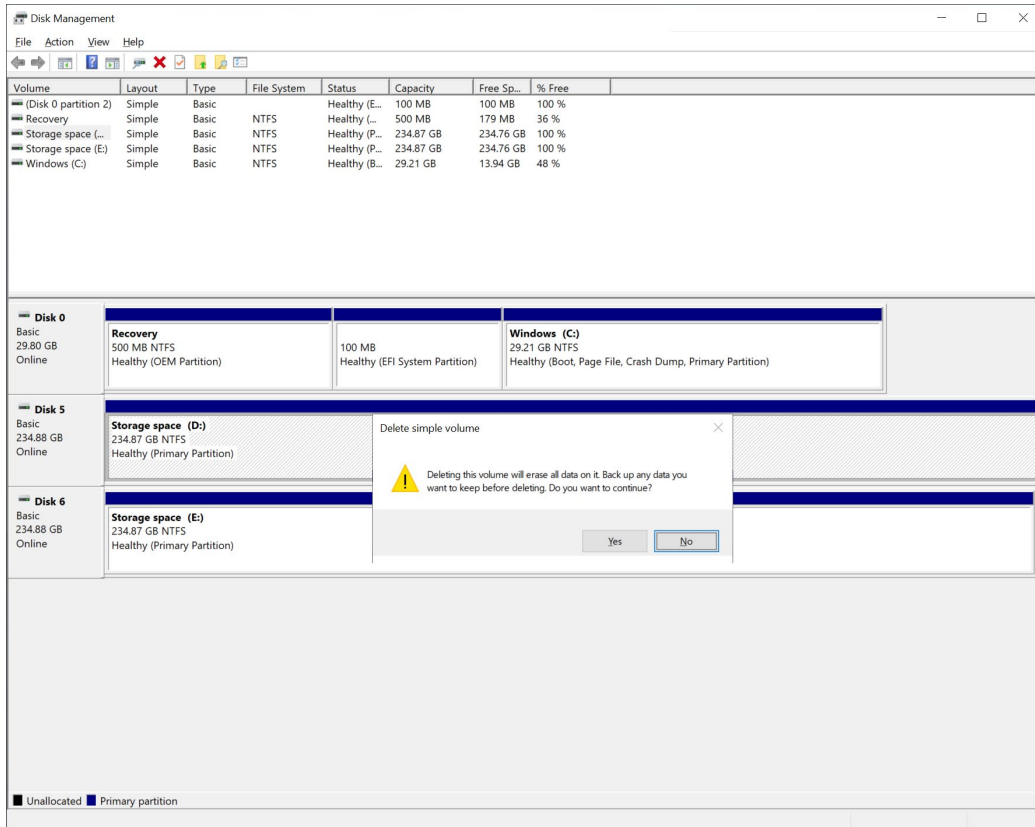
10. The storage space status will change to **Unallocated**, run the same steps on **Storage space (E:)**.
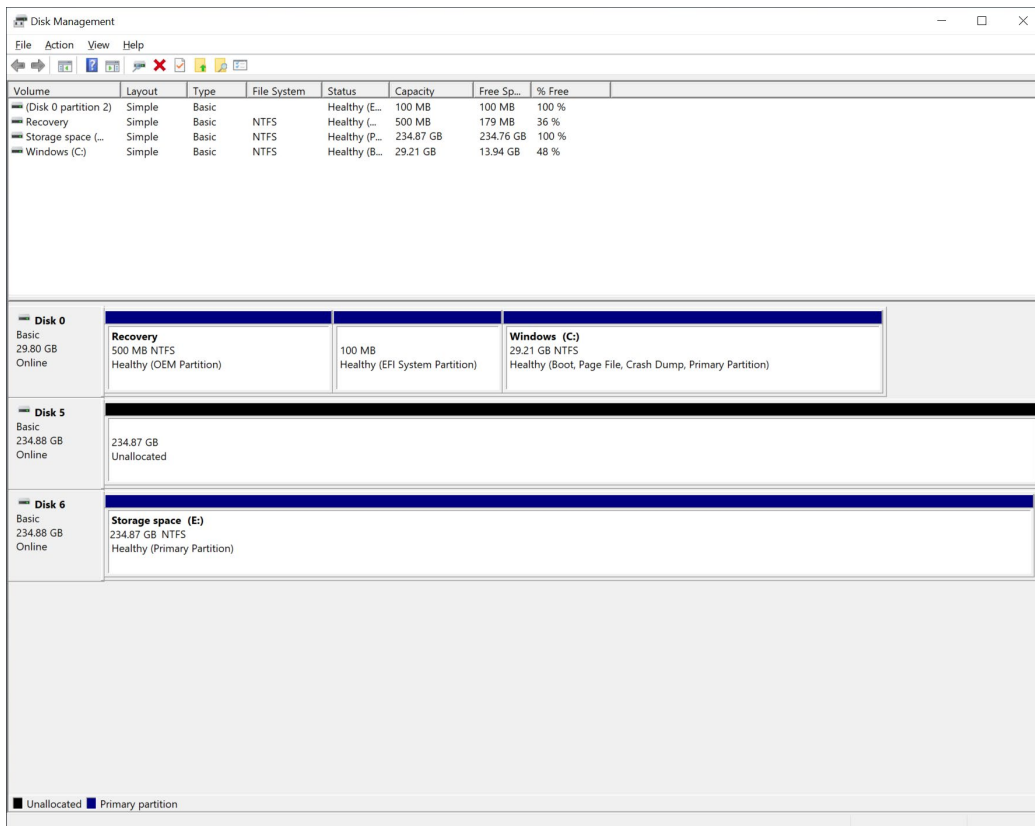
11. All the storage space status are **Unallocated**.
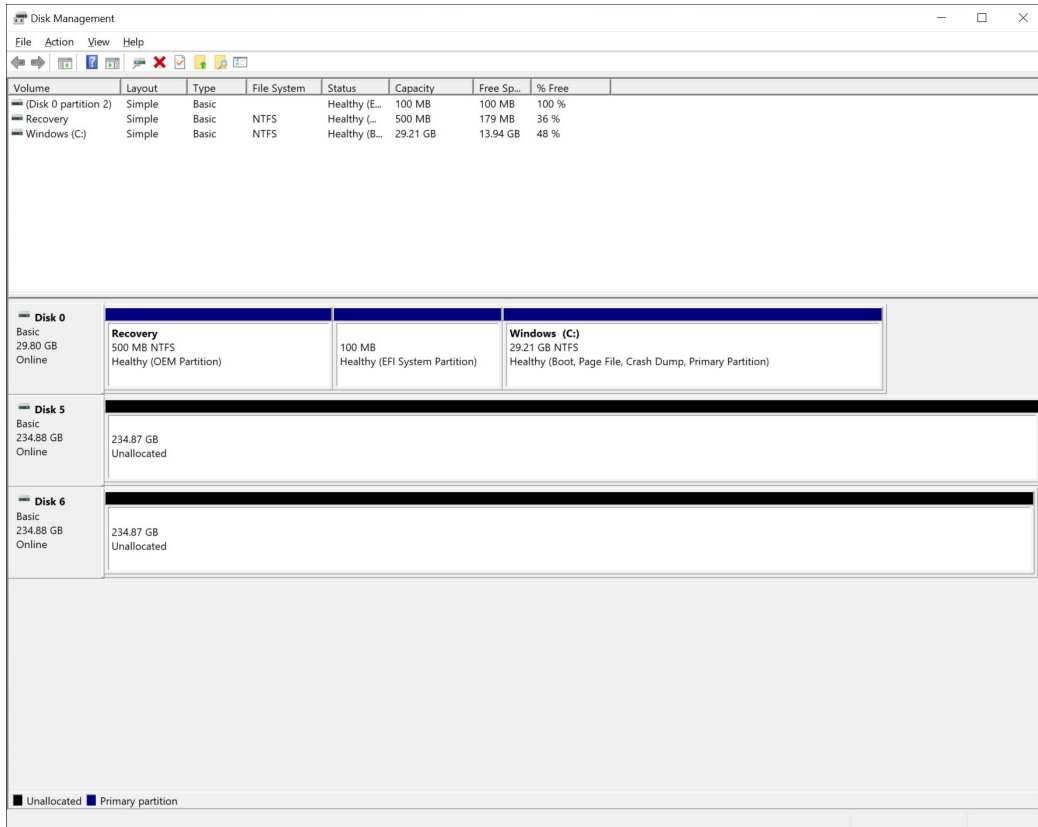
12. Right-click on the **Disk 5**, select **New Striped Volume**.
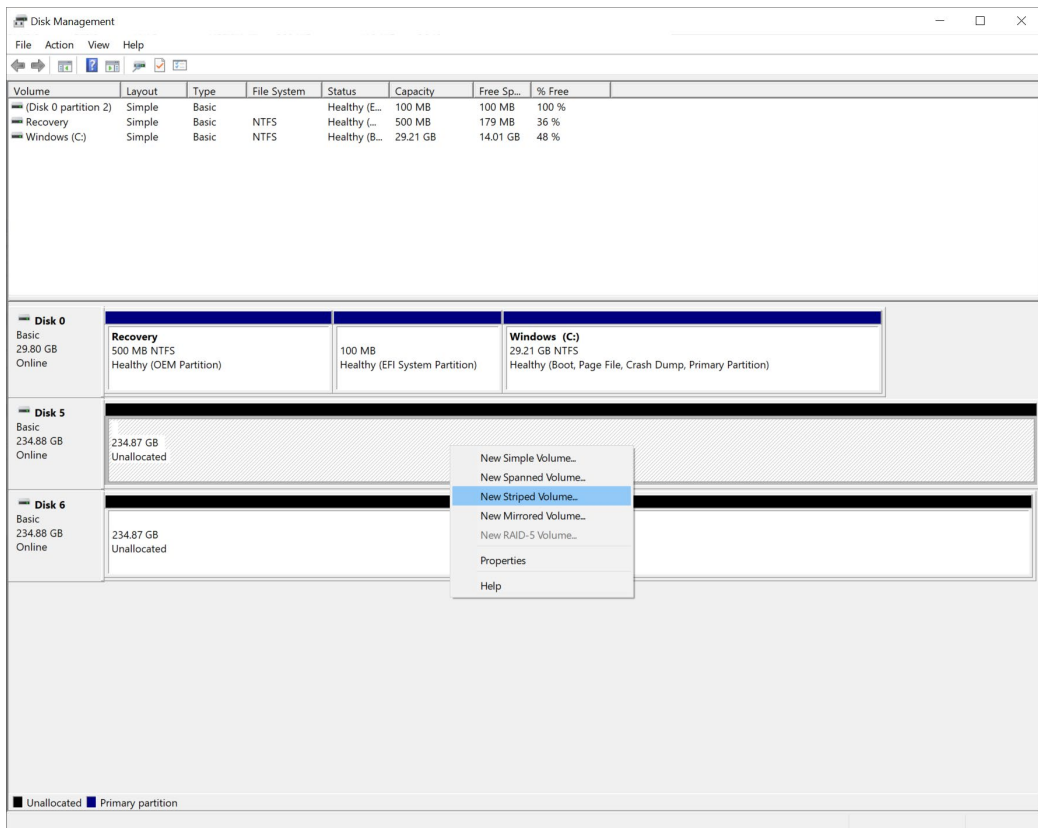
13. To continue, click **Next**.
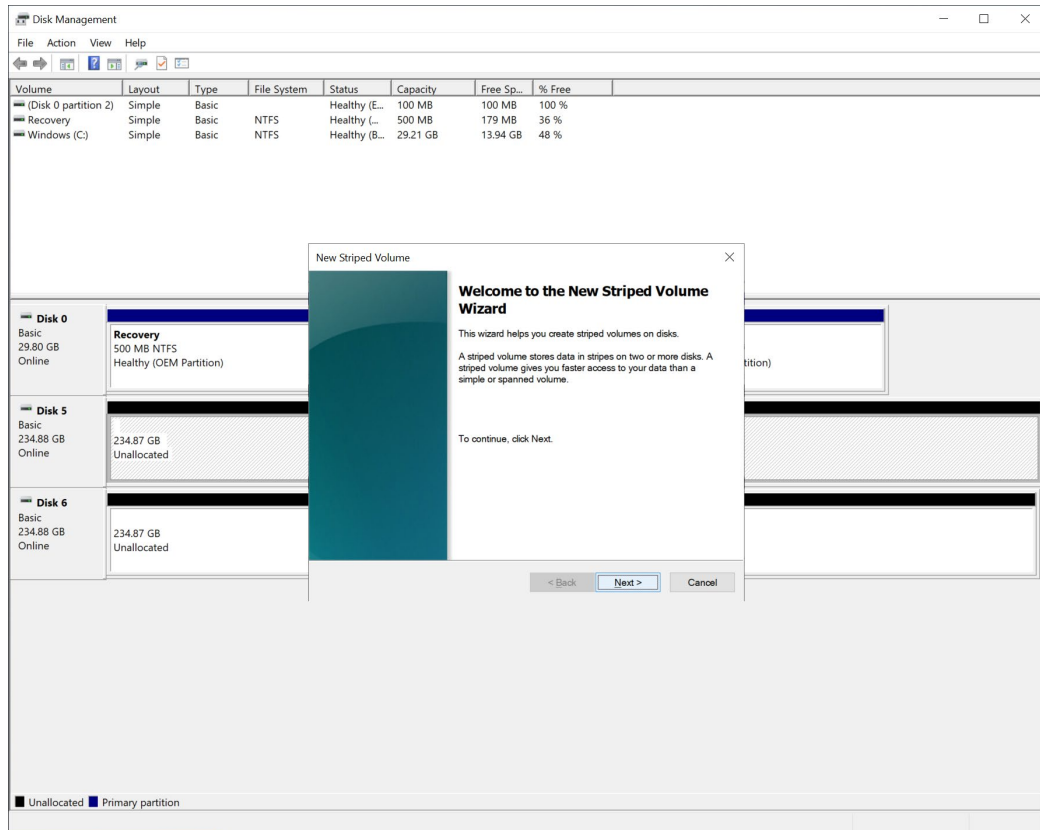
14. Select the disks you want to use, and then click **Add**.
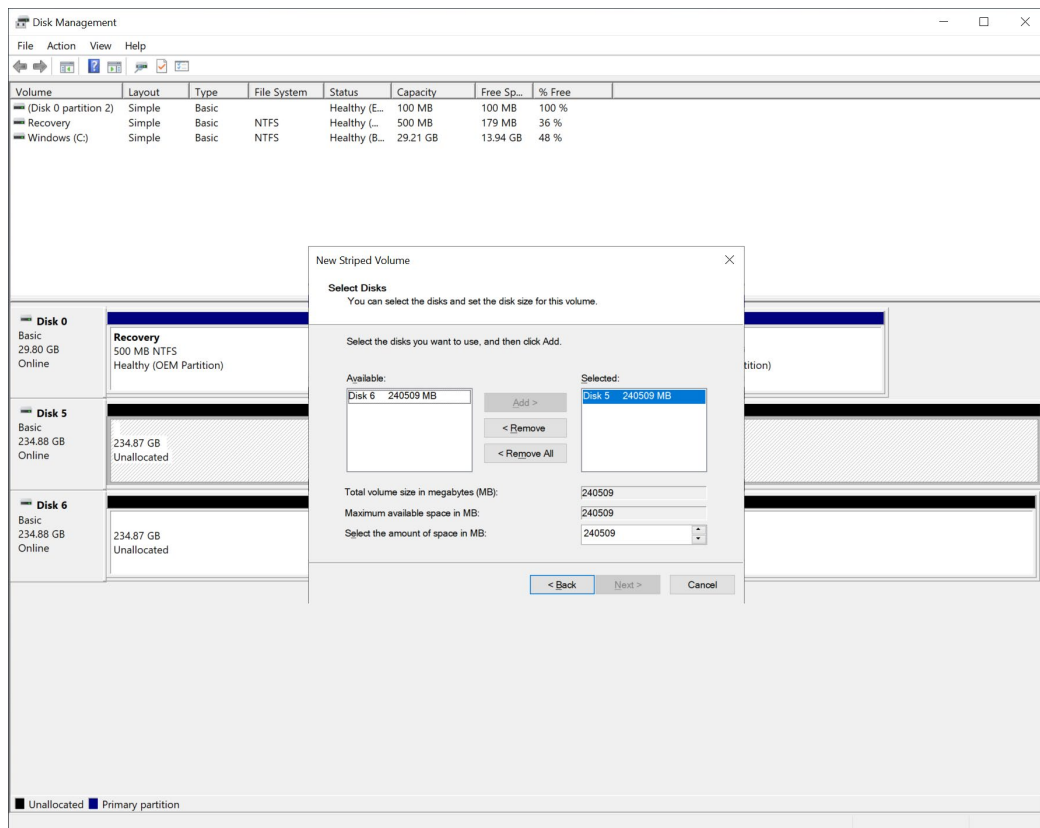
15. Click **Next**.
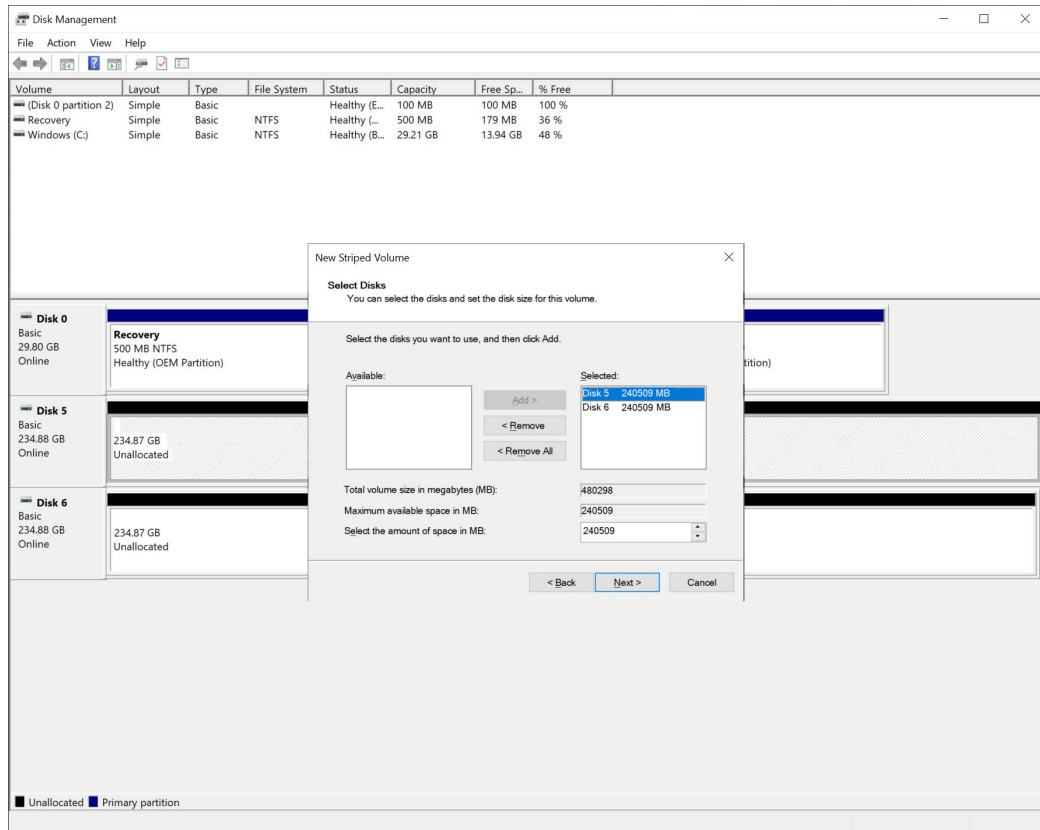
16. Assign the drive letter, click **Next**.
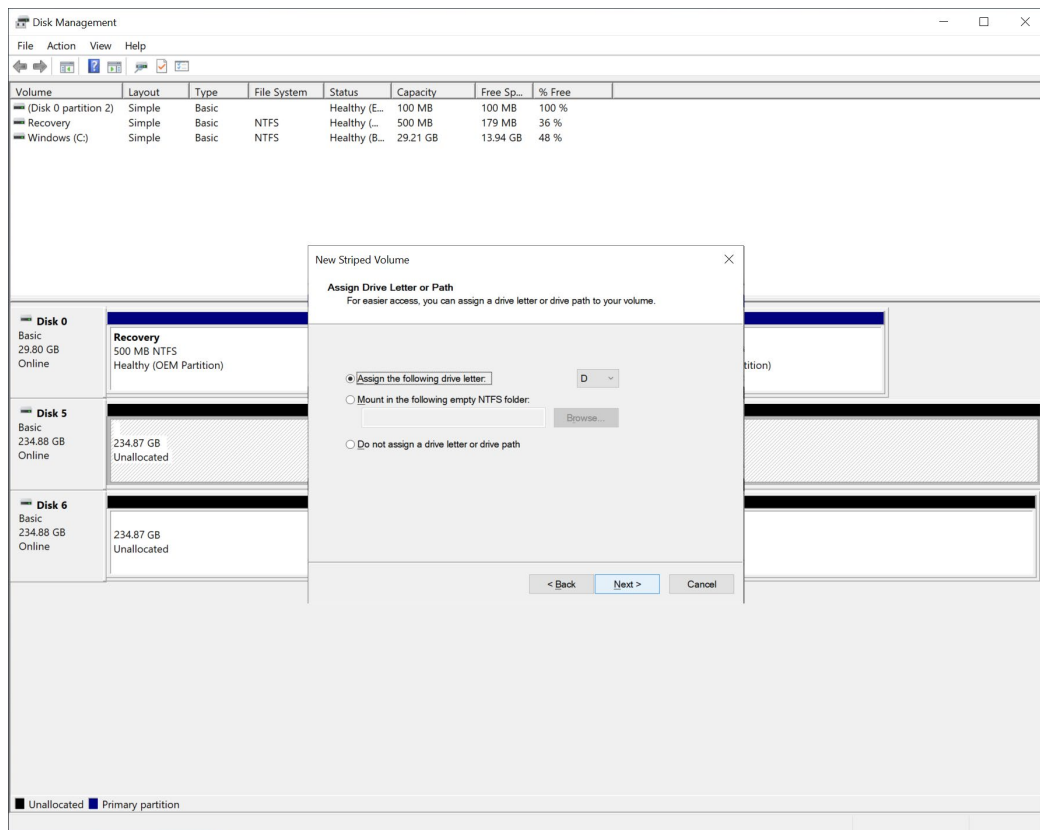
17. Format the volume using the **Quick Format**, click **Next**.
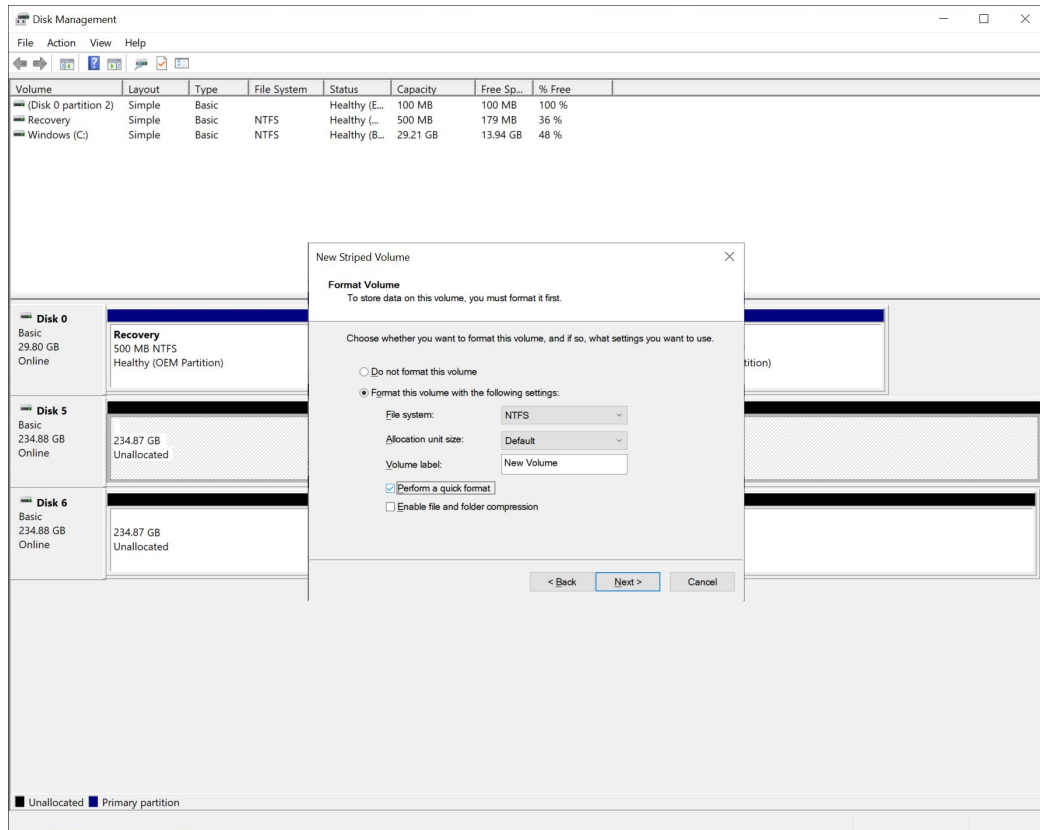
18. Checking the volume information. Click **Finish** to create the striped volume.
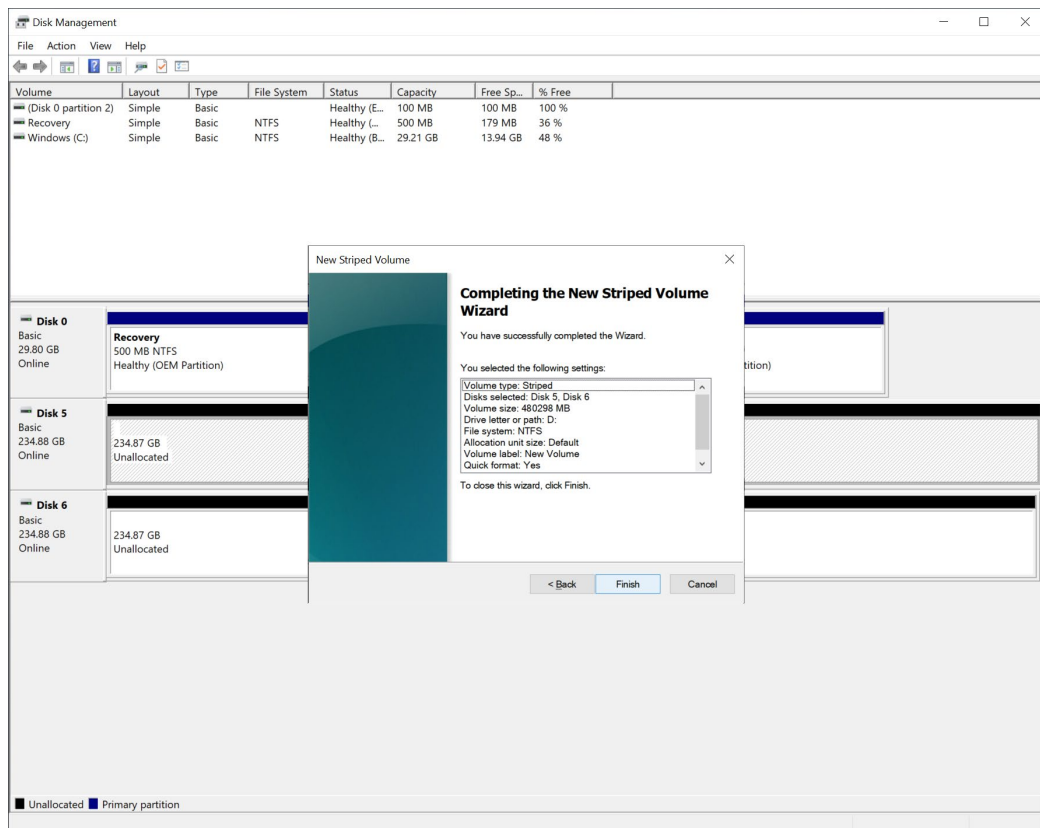
19. System will show the warning messages about SW RAID volume, click **Yes** to continue.
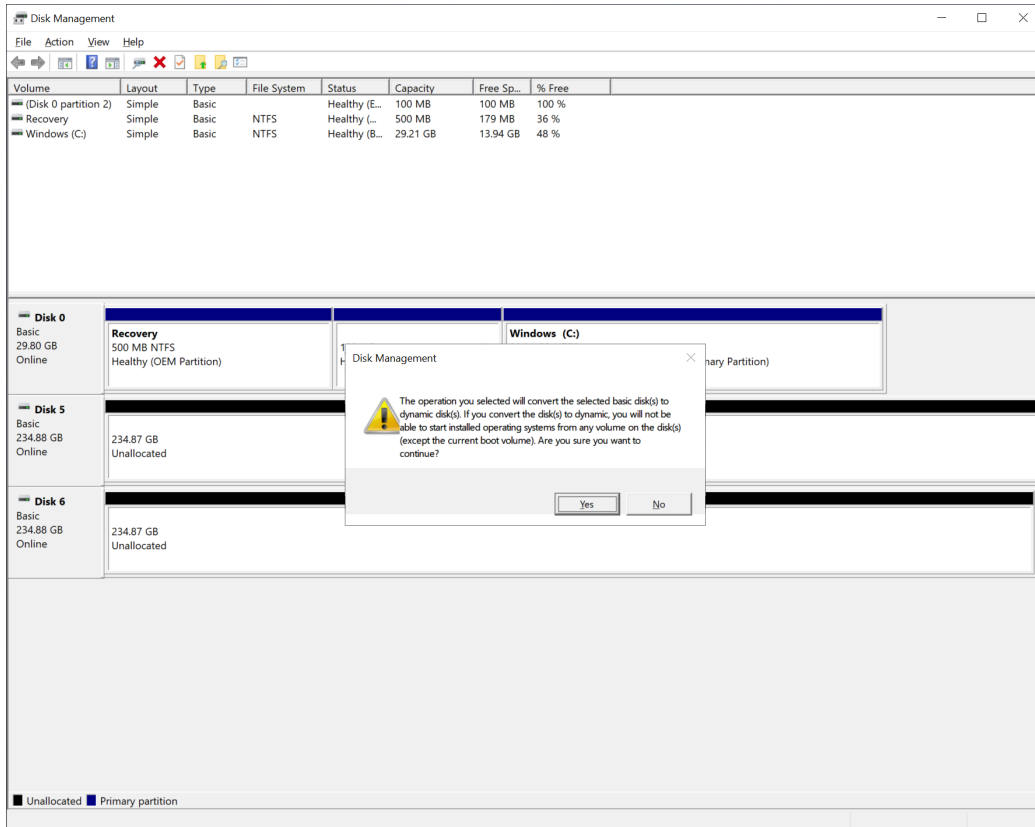
20. Checking the striped volume information from disk management.
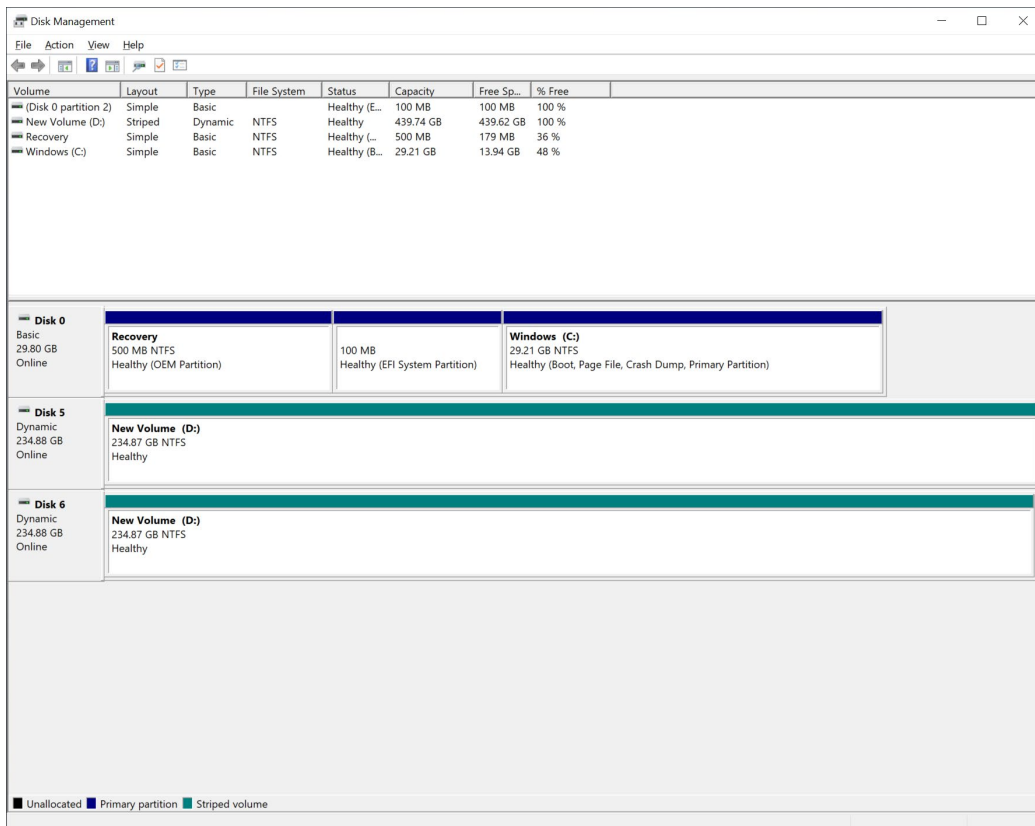
5. Intel® Active Management Technology

Intel® AMT is part of the Intel vPro technology offering. Platforms equipped with Intel® AMT can be managed remotely, regardless of its power state or if it has a functioning OS or not. The Intel® Converged Security and Management Engine (Intel® CSME) powers the Intel® AMT system. As a component of the Intel vPro platform, Intel® AMT uses a number of elements in the Intel vPro platform architecture.

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

https://www.intel.com/content/www/us/en/developer/articles/guide/getting-started-with-activemanagement-technology.html?wapkw=AMT

✏ **NOTE**

Intel® AMT is not supported in models with Intel® Celeron® and Intel® Core™ i3 processors.

Turning on Intel® AMT on PC

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

```
                              Front Page
 Front Page

Continue                                   Go to Intel(R) Management Engine BIOS
▶Boot Manager                              Extension (MEBx).
▶Device Management
▶Boot From File
▶Setup Utility
▶Intel(R) Management Engine BIOS Extension








F1  Help                          Enter Select ▶ SubMenu
↑/↓ Select Item
```

3. Select **MEBx Login**.

```
┌────────────────────────────────────────────────────────────────────────┐
│                                  MEBx                                   │
├────────────────────────────────────────────────────────────────────────┤
│                                                                        │
│  Intel(R) ME Password                                    MEBx Login    │
│                                                                        │
│                                                                        │
│                                                                        │
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│                                                                        │
│                                                                        │
├────────────────────────────────────────────────────────────────────────┤
│  F10 Save and Exit        Esc Exit              Enter Select ▶ SubMenu │
│  F1  Help                 ↑/↓ Select Item                             │
└────────────────────────────────────────────────────────────────────────┘
```
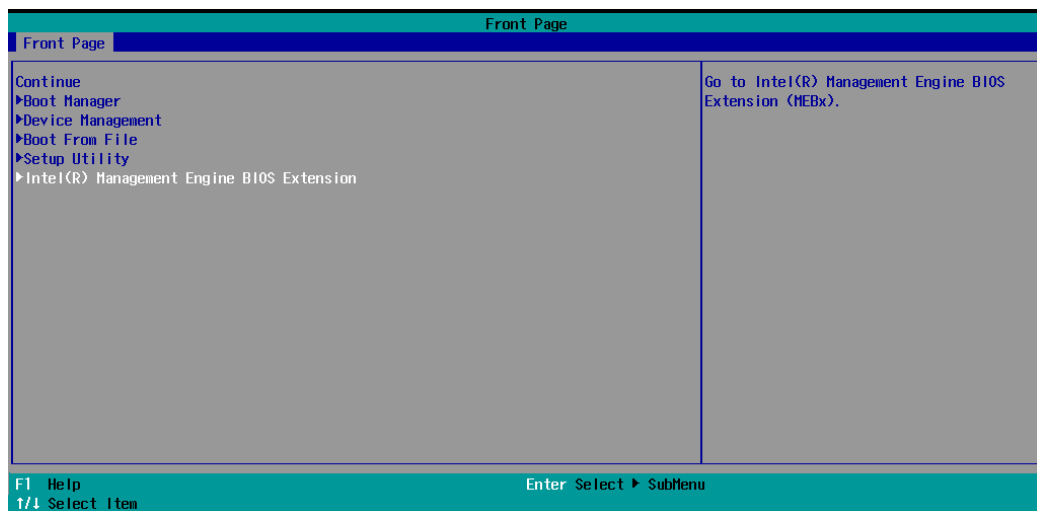
4. Type the Intel® ME default password: "**admin**".

```
┌────────────────────────────────────────────────────────────────────────┐
│                                  MEBx                                   │
├────────────────────────────────────────────────────────────────────────┤
│                                                                        │
│  Intel(R) ME Password                                    MEBx Login    │
│                                                                        │
│                                                                        │
│                                                                        │
│                                                                        │
│                                                                        │
│                       ┌──────────────────────────────┐                │
│                       │     Intel(R) ME Password      │                │
│                       │ Enter Old Password: *****     │                │
│                       └──────────────────────────────┘                │
│                                                                        │
│                                                                        │
│                                                                        │
│                                                                        │
│                                                                        │
├────────────────────────────────────────────────────────────────────────┤
│  F10 Save and Exit        Esc Exit              Enter Select ▶ SubMenu │
│  F1  Help                 ↑/↓ Select Item                             │
└────────────────────────────────────────────────────────────────────────┘
```
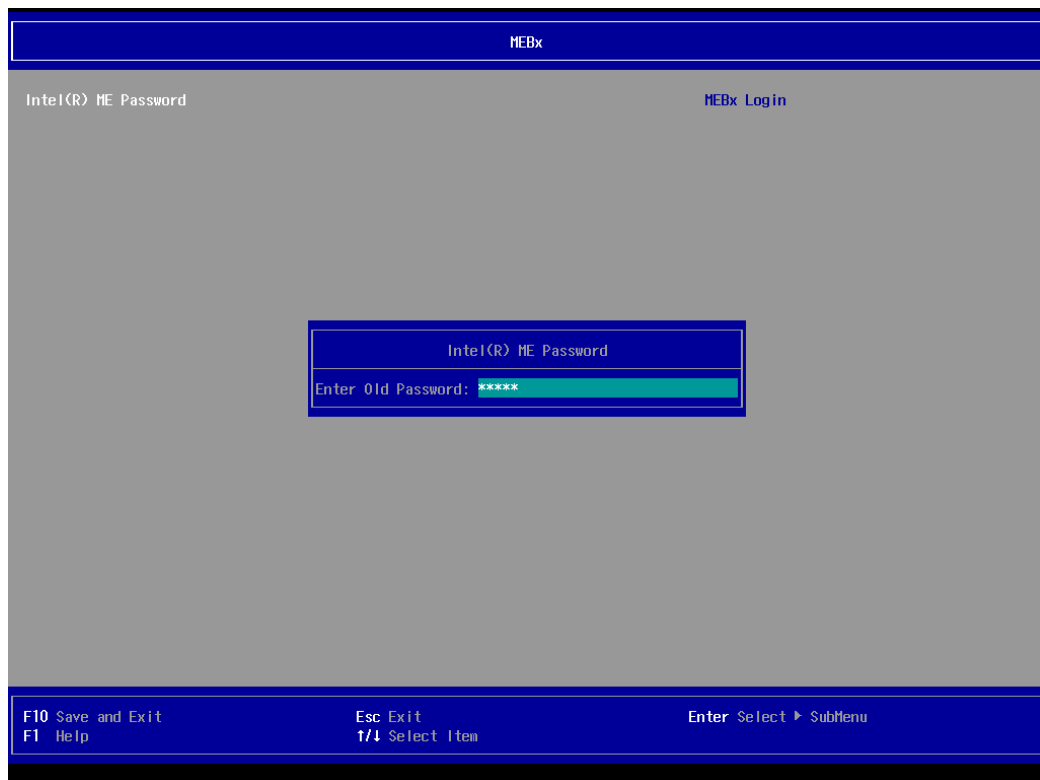
5. Type the new password. The new Intel® MEBX password must meet the following requirements for strong passwords:

   a. **Password Length:** At least 8 characters, and no more than 32.

   b. **Password Complexity:** Password must include the following:

      i. At least one digit character ('0', '1', … '9')

      ii. At least one 7-bit ASCII non alphanumeric character (e.g., '!', '$', ';'), but excluding ':', ',' and '"' characters.

      iii. At least one lower-case letter ('a', 'b'…'z') and at least one upper case letter ('A','B'…'Z').

```
                                    MEBx

   Intel(R) ME Password                              MEBx Login




                        Intel(R) ME Password
                   Enter New Password:
                   Enter New Password Again:



   F10 Save and Exit              Esc Exit                Enter Select ▶ SubMenu
   F1  Help                       ↑/↓ Select Item
```
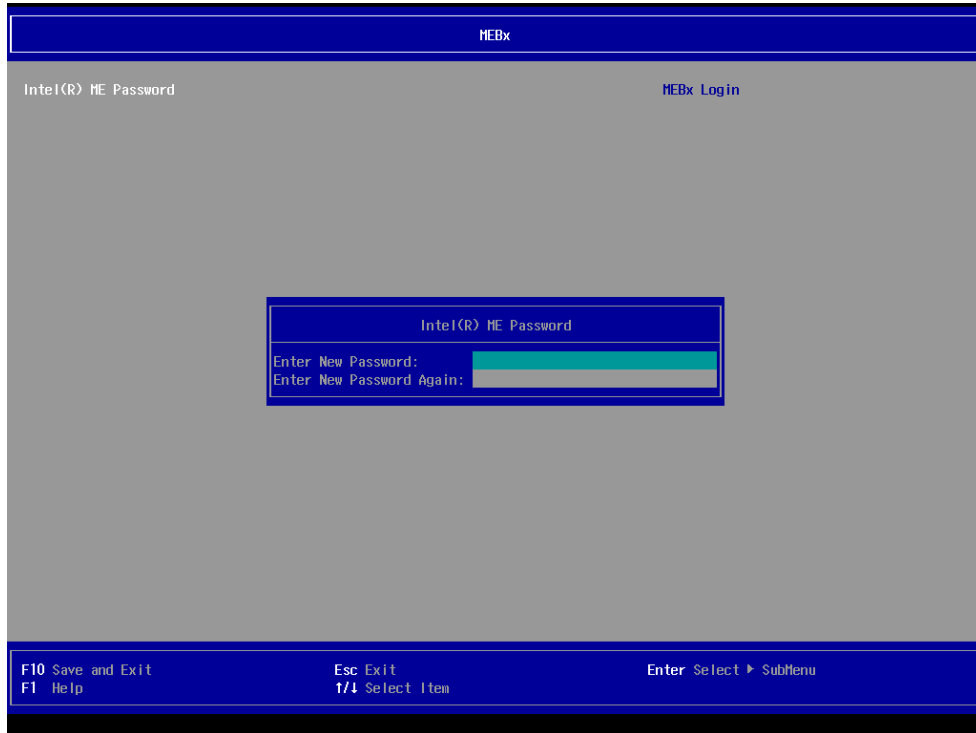
6. Select **OK** to save and exit.

```
                                    MEBx

   Intel(R) ME Password                              MEBx Login




                   Changes have been saved after press "Save and Exit"
                                    [0k]



   F10 Save and Exit              Esc Exit                Enter Select ▶ SubMenu
   F1  Help                       ↑/↓ Select Item
```
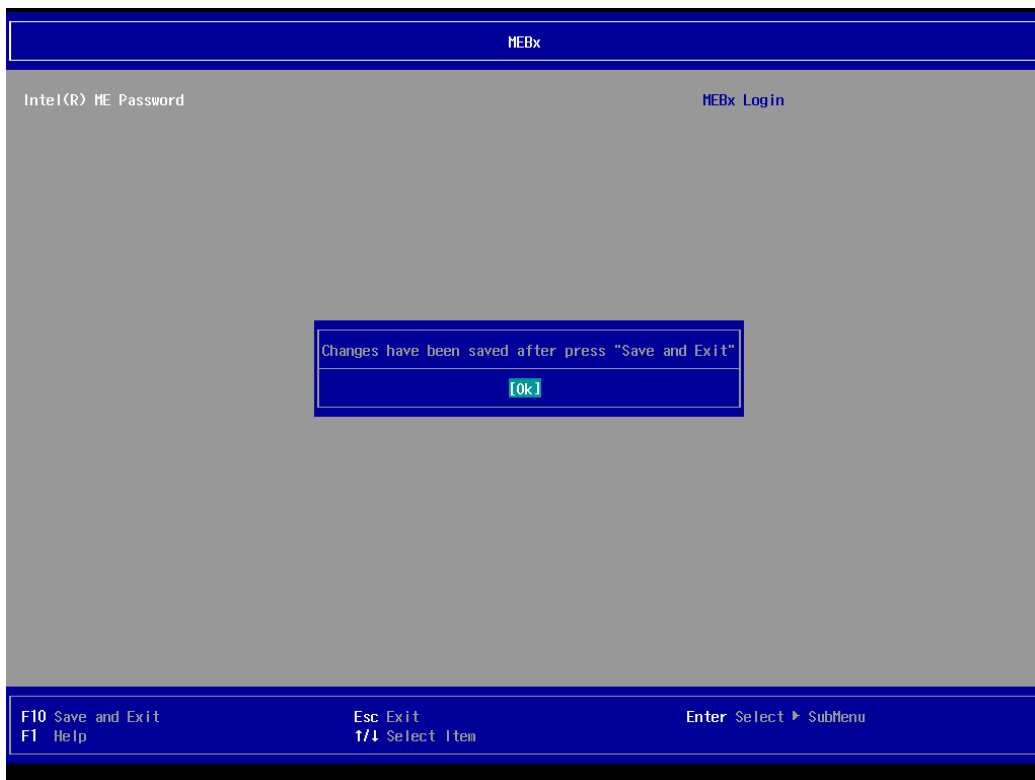
7. Select **Intel(R) AMT Configuration**.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│                                    MEBx                                      │
├─────────────────────────────────────────────────────────────────────────────┤
│  Intel(R) AMT                              <Enabled>                         │
│ ▶Intel(R) AMT Configuration                                                  │
│  Change ME Password                                                          │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
├─────────────────────────────────────────────────────────────────────────────┤
│ F10 Save and Exit           Esc Exit              Enter Select ▶ SubMenu    │
│ F1  Help                    ↑/↓ Select Item                                  │
└─────────────────────────────────────────────────────────────────────────────┘
```

8. Select **Network Setup**.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│                                    MEBx                                      │
├─────────────────────────────────────────────────────────────────────────────┤
│ ▶Redirection features                                                        │
│ ▶User Consent                                                                │
│  Password Policy                           <Anytime>                         │
│ ▶Network Setup                                                               │
│  Network Access State                      <Network Inactive>               │
│ ▶Remote Setup And Configuration                                              │
│ ▶Power Control                                                               │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
├─────────────────────────────────────────────────────────────────────────────┤
│ F10 Save and Exit           Esc Exit              Enter Select ▶ SubMenu    │
│ F1  Help                    ↑/↓ Select Item                                  │
└─────────────────────────────────────────────────────────────────────────────┘
```

9. Select **TCP/IP Settings**.

```
                              MEBx

  ▶Intel(R) ME Network Name Settings
  ▶TCP/IP Settings




















  F10 Save and Exit            Esc Exit              Enter Select ▶ SubMenu
  F1  Help                     ↑/↓ Select Item
```

10. Select **Wired LAN IPV4 Configuration**.

```
                              MEBx

  ▶Wired LAN IPV4 Configuration




















  F10 Save and Exit            Esc Exit              Enter Select ▶ SubMenu
  F1  Help                     ↑/↓ Select Item
```

11. Select **DHCP Mode** and **Disable** DHCP mode.

```
                                    MEBx

DHCP Mode                      <Enabled>             Enable/Disable IPV4 DHCP Mode




                                ┌──────────┐
                                │DHCP Mode │
                                ├──────────┤
                                │ Disabled │
                                │ Enabled  │
                                └──────────┘




F10 Save and Exit         Esc Exit              Enter Select ▶ SubMenu
F1  Help                  ↑/↓ Select Item
```

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

```
                                    MEBx

DHCP Mode                      <Disabled>            IP address (e.g. 123.123.123.100)
IPV4 Address                   0.0.0.0
Subnet Mask Address            255.255.255.0
Default Gateway Address        0.0.0.0
Preferred DNS Address          0.0.0.0
Alternate DNS Address          0.0.0.0













F10 Save and Exit         Esc Exit              Enter Select ▶ SubMenu
F1  Help                  ↑/↓ Select Item
```

13. Go back to the **Intel(R) AMT Configuration** page and select **Network Activate Access > Network Active**. Enter **Y** to continue.

14. Press **F10** to Save and Exit.

Access the Intel® AMT From Website

1. Open the web browser and type the URL: **Intel® AMT IP Address:16993** (ex: 192.168.111.10:16993)
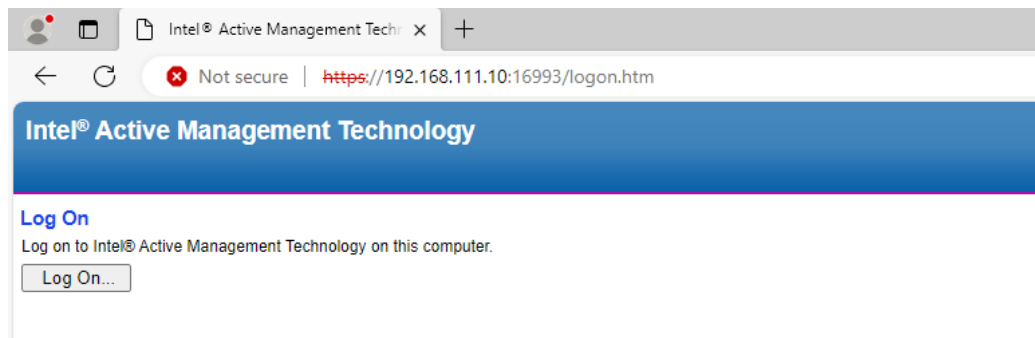
2. The browser would show the sign in message box. Type the **Username** and **Password** of Intel® AMT. The default username is **admin**.
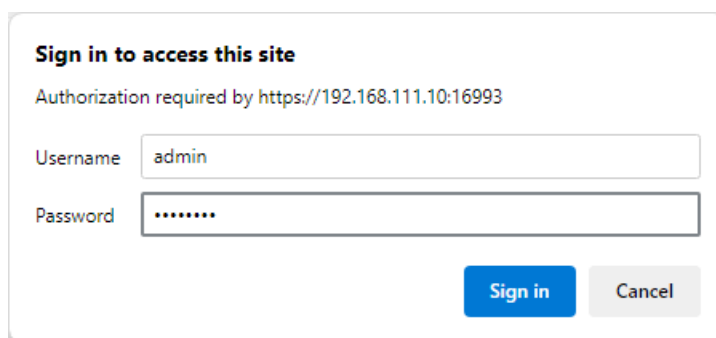
3. After signing in, you can check the system status and hardware information of your managed device.
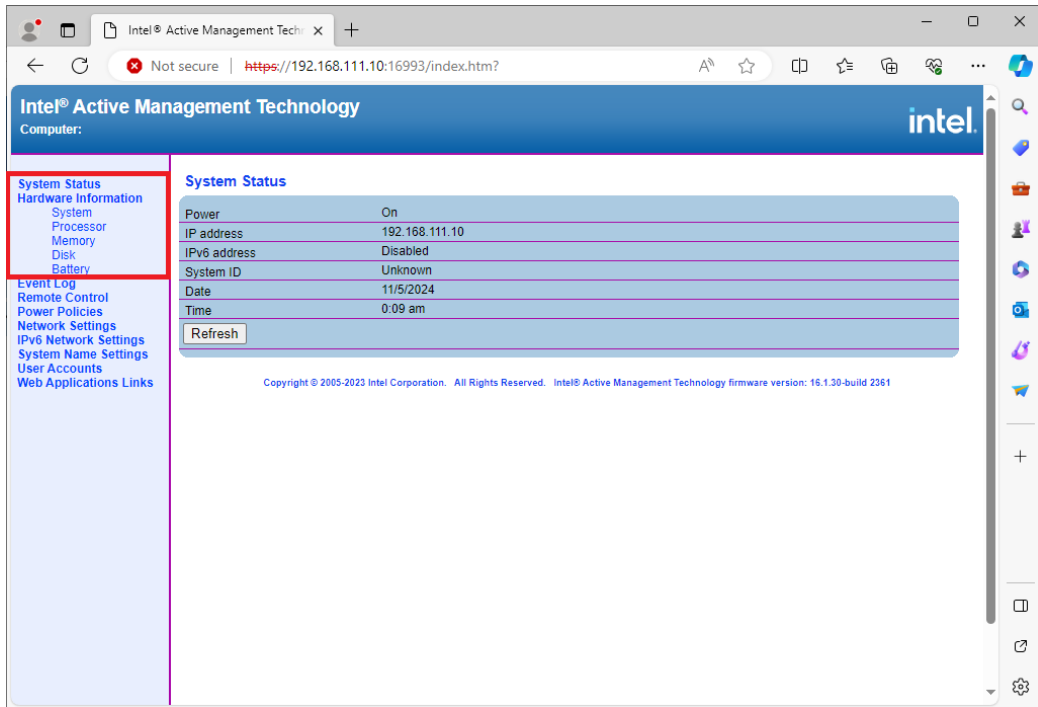
4. The Intel® AMT website provides the basic remote power control feature for the managed device. The advanced remote power control and the remote KVM feature please reference to next chapter.
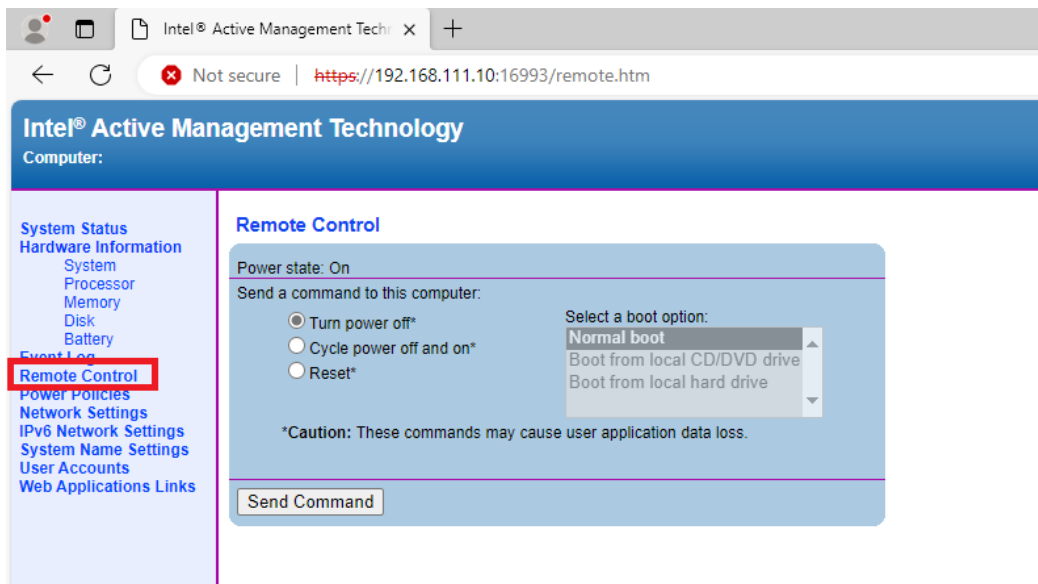
5. The Event Manager deals with internal alerts that occur in both the host platform and the Intel® AMT device, regardless of the power state.
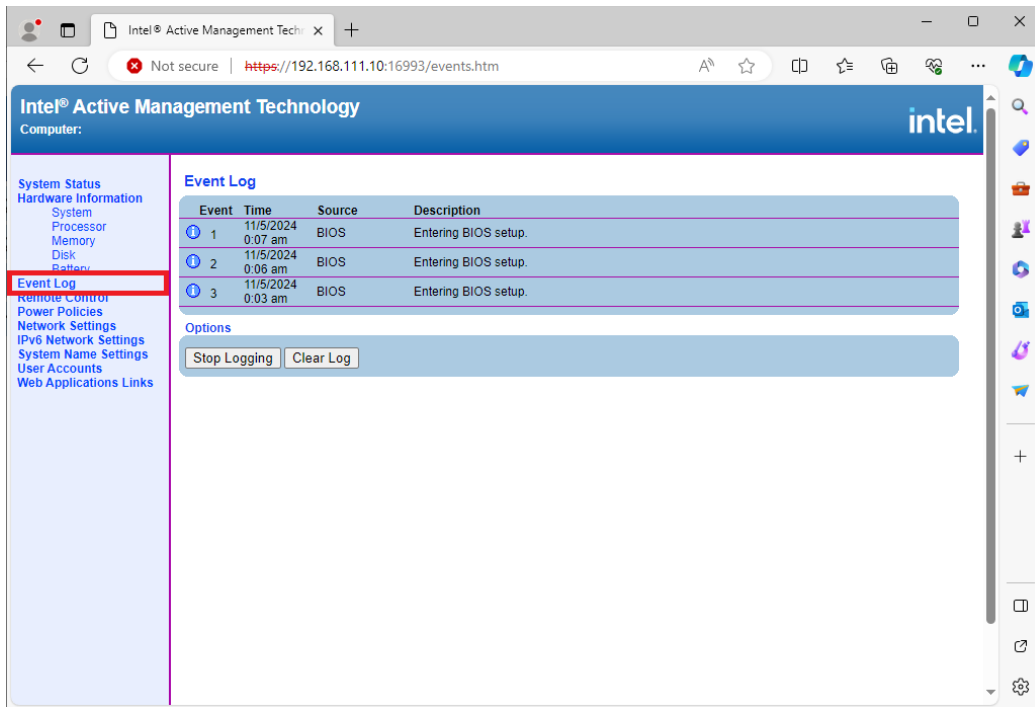
6. You can configure the managed device network settings from the website.
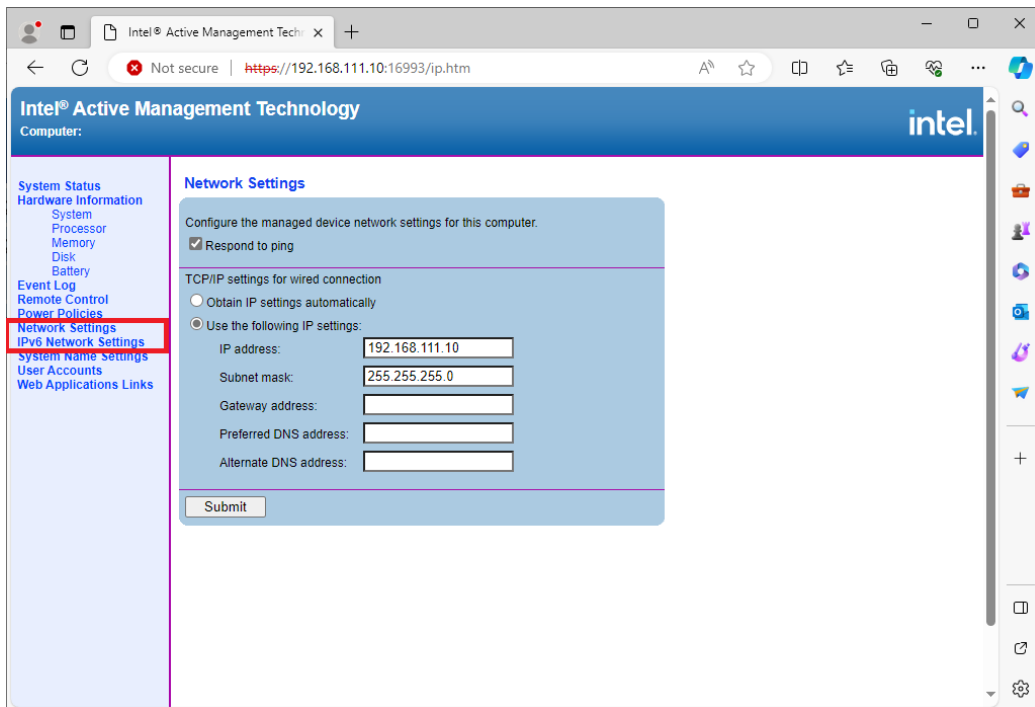
✏ **NOTE**

You can also use AMT management tool to remotely manage devices.

6. Unified Write Filter

Unified Write Filter (UWF) is an optional feature that helps to protect your drives by intercepting and redirecting any writes to the drive (app installations, settings changes, saved data) to a virtual overlay. The virtual overlay is a temporary location that is usually cleared during a reboot or when a guest user logs off.

UWF provides a clean experience for thin clients and workspaces that have frequent guests, like school, library, or hotel computers. Guests can work, change settings, and install software. After the device reboots, the next guest receives a clean experience. It increases security and reliability for kiosks, IoT-embedded devices, or other devices where new apps are not expected to be frequently added.

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
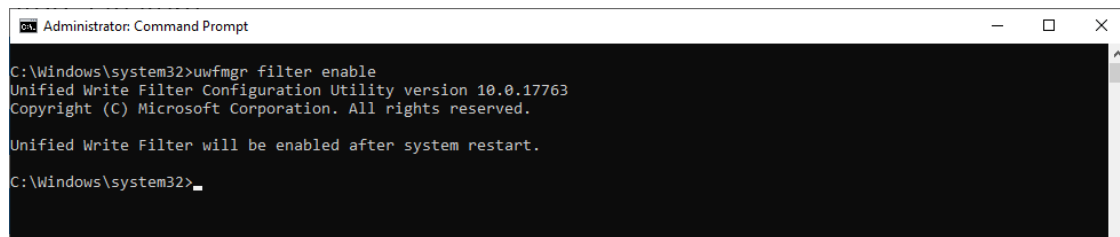
- Install UWF.
  a. In the Windows **Start** window, type **Turn Windows features on or off**.
  b. Open the **Windows Features** window and expand the **Device Lockdown** node.
  c. Select **Unified Write Filter** and click **OK**.
  d. Windows searches for the required files and displays a progress 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**.
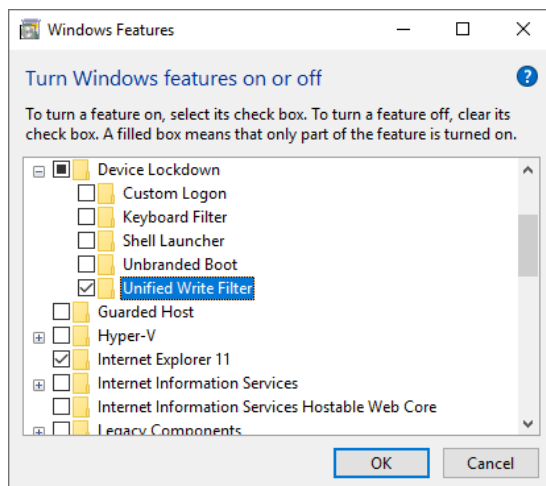
- Enable the following filter as an Administrator:

cmd uwfmgr filter enable
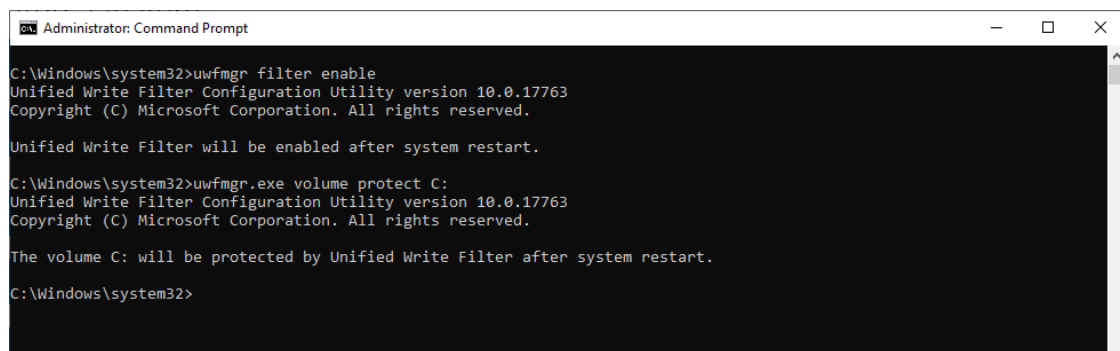
- Enable write protection for a drive:

cmd uwfmgr.exe volume protect C:

- Restart your computer.
- 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 restarts; the changes are saved in registry entries for use in the next session. Dynamic configuration changes occur immediately and persist after a device restarts.

---

7. Driver

Moxa provide verified drivers for each device on official website. Please access the Moxa support page(https://www.moxa.com/en/support) and search for the device from the searching window (For Example: DA-820C).

Form the **Software & Documentation** page filtered by **Driver** and download the driver package. The driver packages are categorized by OS version, with separate sections for **Peripheral** and **Expansion modules**.

This chapter describes the usage of the following:

- **Moxa IO Controller Utility**
- **Serial Interface Utility**
- **Moxa Sort Net Name Utility**
- **Moxa Power Temperature Detect Utility**

Where to Find Windows Utility

The utilities will be preinstalled on the device if Moxa provides the Windows 11 OS. However, if you install Windows 11 independently, visit Moxa's support page (https://www.moxa.com/en/support) to download the required utilities. Simply search for your device model (e.g., DA-820C) on the support page to find the appropriate files.
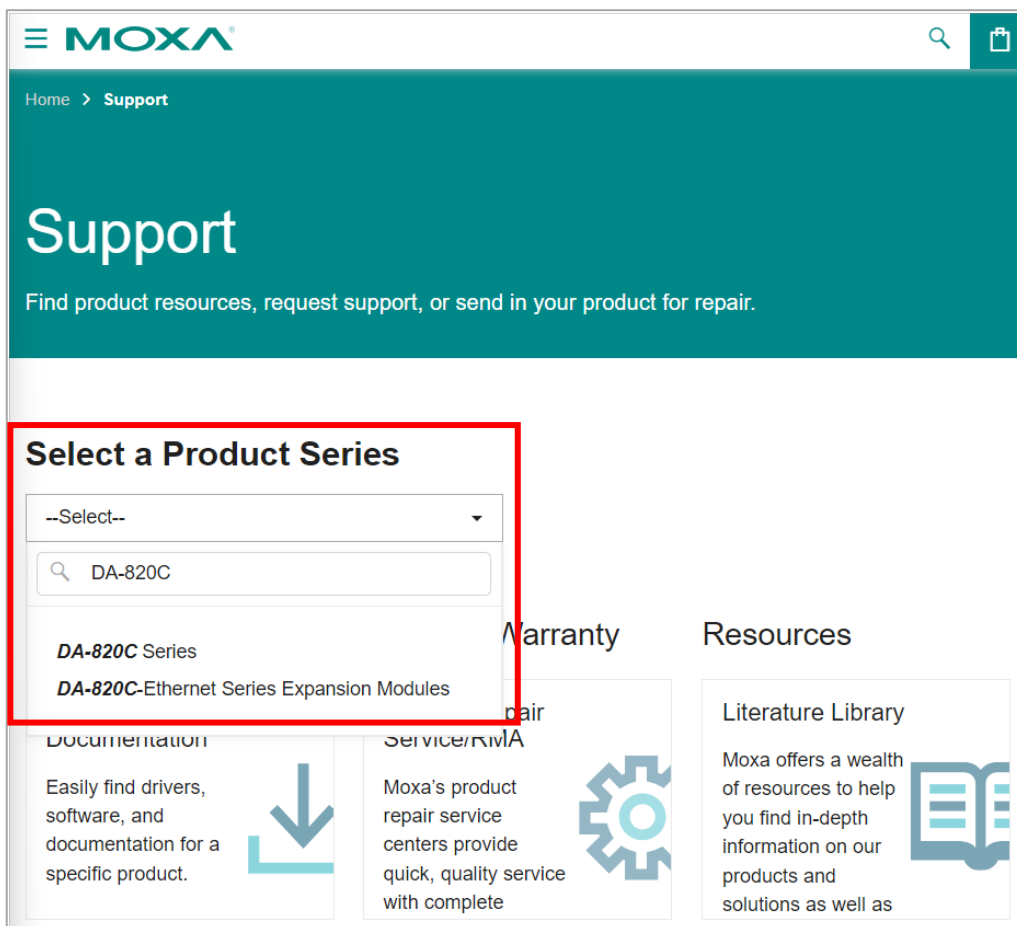
From the **Software & Documentation** page. filter by **Utility** and download the installation ***.zip** file.

Dependent Packages

After completing the installation of Windows 11 LTSC 24H2 and the necessary drivers, you must install the required dependency packages to ensure the utility functions correctly. Use the following link to download and install the packages:
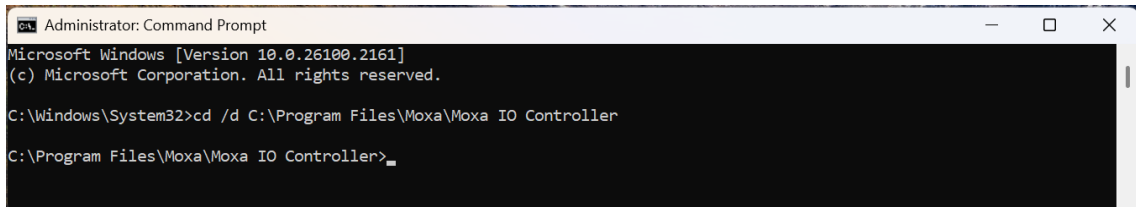
- Microsoft Visual C++ Redistributable:

  https://learn.microsoft.com/en-us/cpp/windows/latest-supported-vc-redist?view=msvc-170
- Microsoft .NET Framework 4.8:

  https://support.microsoft.com/en-us/topic/microsoft-net-framework-4-8-offline-installer-for-windows-9d23f658-3b97-68ab-d013-aa3c3e7495e0

Moxa IO Controller Utility

The Moxa IO Controller Utility is designed to manage the device's peripheral I/O and expansion module interfaces. This section provides an overview of how to use the utility, covering the following topics:

- **Setting the DIO Status**
- **Setting the UART Mode**
- **Setting the Relay Status**
- **Setting the LED Status**

Use the pre-installed utility or install the **MoxaIOControllerSetup utility** from the Moxa support page. To use the Moxa IO Controller utility, first install the utility and enable the utility to configure the DIO, UART, Relay and LED mode. After the installation process is complete, run the Windows command prompt as an Administrator and change the path to C:\Program Files\Moxa\Moxa IO Controller.

```
Administrator: Command Prompt                                    —    □    ×

Microsoft Windows [Version 10.0.26100.2161]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>cd /d C:\Program Files\Moxa\Moxa IO Controller

C:\Program Files\Moxa\Moxa IO Controller>_
```
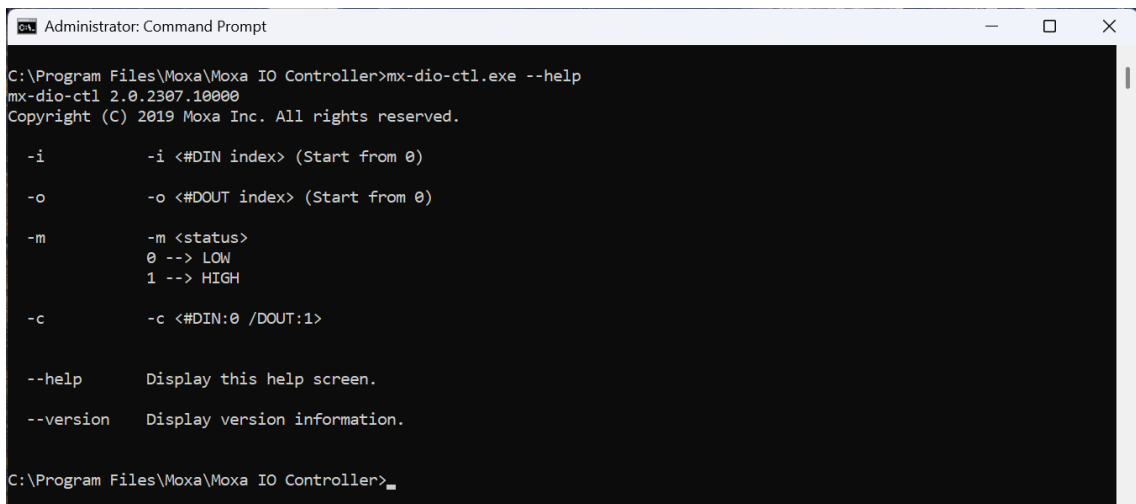
Setting the DIO Status

Run the **mx-dio-ctl --help** command to view instructions for using this utility. Follow the displayed guidelines 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.

```
Administrator: Command Prompt                                    —    □    ×

C:\Program Files\Moxa\Moxa IO Controller>mx-dio-ctl.exe --help
mx-dio-ctl 2.0.2307.10000
Copyright (C) 2019 Moxa Inc. All rights reserved.

  -i          -i <#DIN index> (Start from 0)

  -o          -o <#DOUT index> (Start from 0)

  -m          -m <status>
              0 --> LOW
              1 --> HIGH

  -c          -c <#DIN:0 /DOUT:1>

  --help      Display this help screen.

  --version   Display version information.


C:\Program Files\Moxa\Moxa IO Controller>_
```

Example:


```
Administrator: Command Prompt                                          —    □    ×

C:\Program Files\Moxa\Moxa IO Controller>mx-dio-ctl.exe -c 0
DIN port count: 6

C:\Program Files\Moxa\Moxa IO Controller>mx-dio-ctl.exe -c 1
DOUT port count: 2

C:\Program Files\Moxa\Moxa IO Controller>mx-dio-ctl.exe -i 0
DIN port 0 status: 1

C:\Program Files\Moxa\Moxa IO Controller>mx-dio-ctl.exe -o 0
DOUT port 0 status: 1

C:\Program Files\Moxa\Moxa IO Controller>mx-dio-ctl.exe -o 0 -m 0
DOUT port 0 status: 0

C:\Program Files\Moxa\Moxa IO Controller>mx-dio-ctl.exe -i 0
DIN port 0 status: 1

C:\Program Files\Moxa\Moxa IO Controller>_
```

Setting the UART Mode

Run the **mx-uart-ctl --help** command to view instructions for using this utility. Follow the displayed guidelines to get or set the UART status.

⚠️ **IMPORTANT!**

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


```
Administrator: Command Prompt                                          —    □    ×

C:\Program Files\Moxa\Moxa IO Controller>mx-uart-ctl.exe --help
mx-uart-ctl 2.1.2409.10000
Copyright (C) 2024 Moxa Inc. All rights reserved.

 -p          -p <#port index> (Start from 0)

 -m          -m <#uart mode>
             0 --> set to RS232 mode
             1 --> set to RS485-2W mode
             2 --> set to RS485-4W mode
             3 --> set to RS422 mode

 -c          -c

 --help      Display this help screen.

 --version   Display version information.

C:\Program Files\Moxa\Moxa IO Controller>
```

Example:


```
Administrator: Command Prompt                                          —    □    ×

C:\Program Files\Moxa\Moxa IO Controller>mx-uart-ctl.exe -c
COM port count: 2

C:\Program Files\Moxa\Moxa IO Controller>mx-uart-ctl.exe -p 0
Current uart mode is RS232 interface.

C:\Program Files\Moxa\Moxa IO Controller>mx-uart-ctl.exe -p 0 -m 1
Set OK.

Current uart mode is RS485-2W interface.

C:\Program Files\Moxa\Moxa IO Controller>
```

Setting the Relay Status

Run the **mx-relay-ctl --help** command to view instructions for using this utility. Follow the displayed guidelines 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.

```
Administrator: Command Prompt                                               —    □    ×

C:\Program Files\Moxa\Moxa IO Controller>mx-relay-ctl.exe --help
mx-relay-ctl 1.0.1905.0
Copyright (C) 2019 Moxa Inc. All rights reserved.
USAGE:
Get value from relay index 1:
  mx-relay-ctl -i 1
Turn on relay index 2:
  mx-relay-ctl -i 2 -m 1

  -i            Required. -i <#Relay index> (Start from 0)

  -m            -m <status>
                    0 --> turn off
                    1 --> turn on


  --help        Display this help screen.

  --version     Display version information.


C:\Program Files\Moxa\Moxa IO Controller>
```

Example:

```
Administrator: Command Prompt                                               —    □    ×

C:\Program Files\Moxa\Moxa IO Controller>mx-relay-ctl.exe -i 0
Relay index 0 data: 1

C:\Program Files\Moxa\Moxa IO Controller>mx-relay-ctl.exe -i 0 -m 0
Relay index 0 data: 0

C:\Program Files\Moxa\Moxa IO Controller>mx-relay-ctl.exe -i 0
Relay index 0 data: 0

C:\Program Files\Moxa\Moxa IO Controller>mx-relay-ctl.exe -i 0 -m 1
Relay index 0 data: 1

C:\Program Files\Moxa\Moxa IO Controller>
```
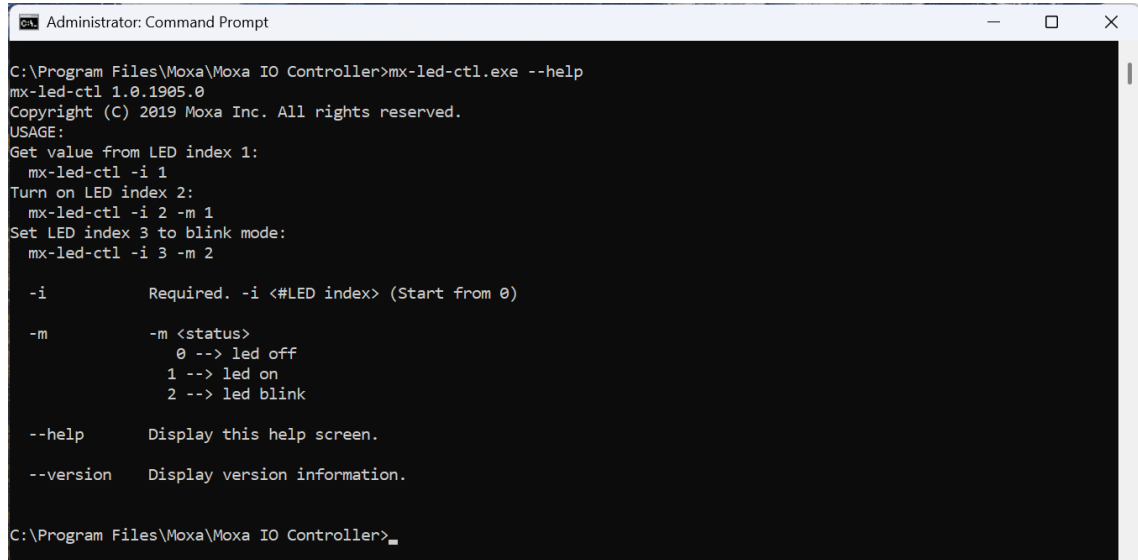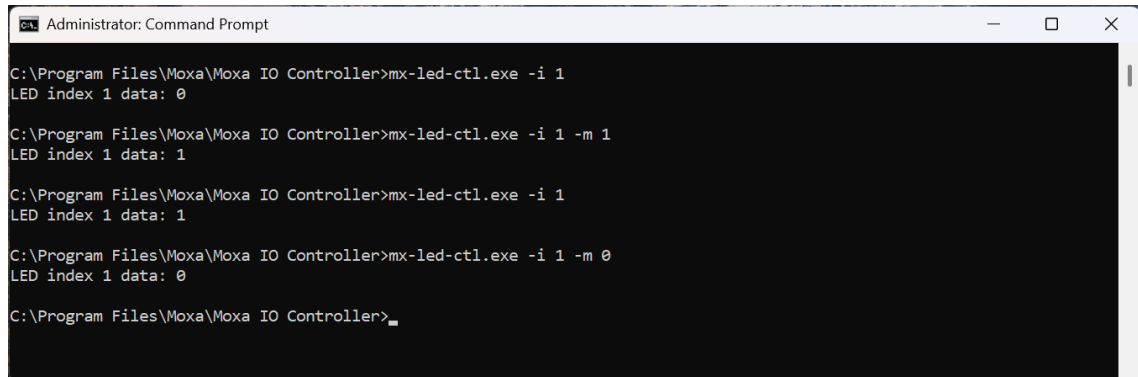
Setting the LED Status

Run the **mx-led-ctl --help** command to view instructions for using this utility. Follow the displayed guidelines to get or set the LED status.

⚠️ **IMPORTANT!**

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

```
Administrator: Command Prompt                                          —  □  ×

C:\Program Files\Moxa\Moxa IO Controller>mx-led-ctl.exe --help
mx-led-ctl 1.0.1905.0
Copyright (C) 2019 Moxa Inc. All rights reserved.
USAGE:
Get value from LED index 1:
  mx-led-ctl -i 1
Turn on LED index 2:
  mx-led-ctl -i 2 -m 1
Set LED index 3 to blink mode:
  mx-led-ctl -i 3 -m 2

  -i          Required. -i <#LED index> (Start from 0)

  -m          -m <status>
                0 --> led off
                1 --> led on
                2 --> led blink

  --help      Display this help screen.

  --version   Display version information.


C:\Program Files\Moxa\Moxa IO Controller>_
```

Example:

```
Administrator: Command Prompt                                          —  □  ×

C:\Program Files\Moxa\Moxa IO Controller>mx-led-ctl.exe -i 1
LED index 1 data: 0

C:\Program Files\Moxa\Moxa IO Controller>mx-led-ctl.exe -i 1 -m 1
LED index 1 data: 1

C:\Program Files\Moxa\Moxa IO Controller>mx-led-ctl.exe -i 1
LED index 1 data: 1

C:\Program Files\Moxa\Moxa IO Controller>mx-led-ctl.exe -i 1 -m 0
LED index 1 data: 0

C:\Program Files\Moxa\Moxa IO Controller>_
```
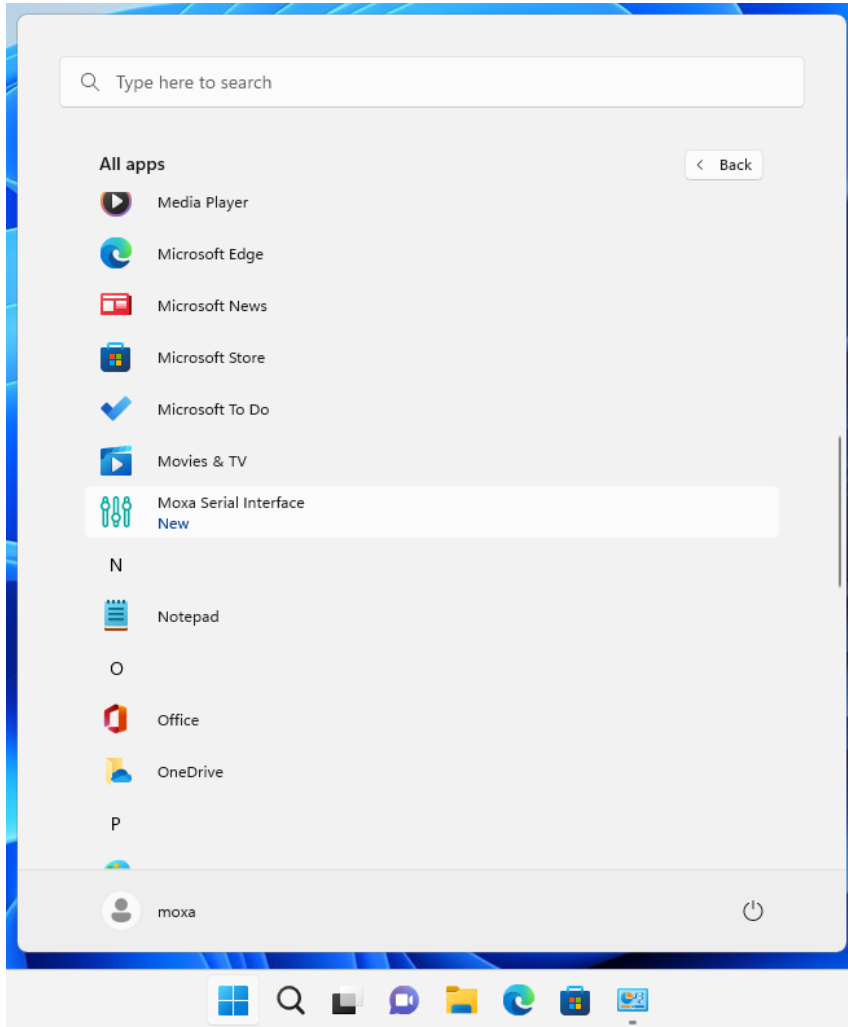
# Moxa Serial Interface Utility

This section explains how to use the Moxa Serial Interface Utility to configure the UART mode on your computer's serial interface.

Setting the Serial Port Mode

1. Use the preinstalled **SerialInterfaceSetup** utility or install it from the Moxa support page.
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.
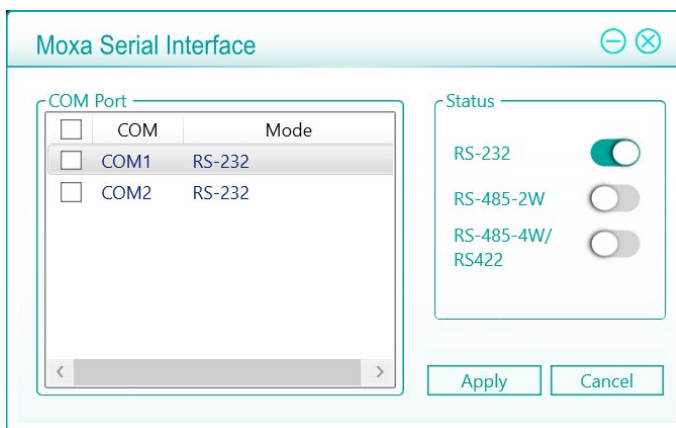
Moxa Sort Net Name Utility

This section explains how to use the **Moxa Sort Net Name** utility to rename Ethernet adapters. This utility helps map the physical LAN port order on the chassis to the corresponding adapter names in the system.
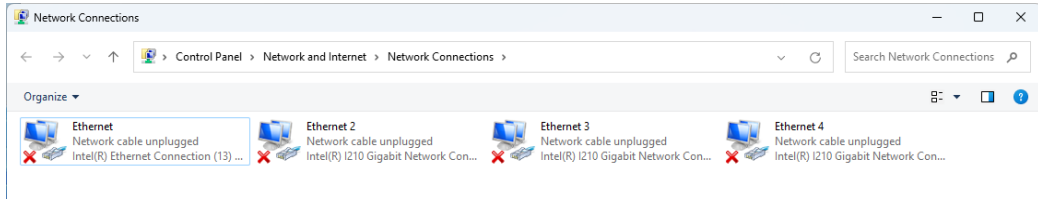
1. Use the pre-installed utility or install the **MoxaSortNetName** utility from the Moxa support page.
2. The initial order of network names may be random.
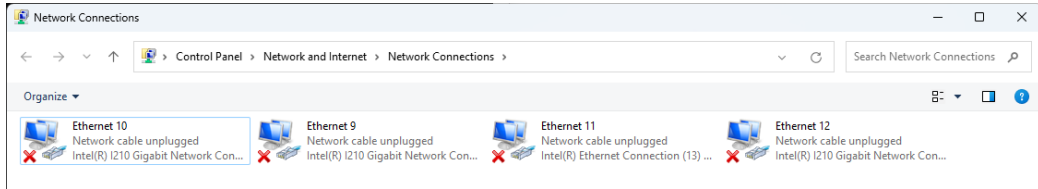
3. Run the **SortNetName.exe** from **C:\Program Files\Moxa\Moxa Sort Net Name** as an Administrator.
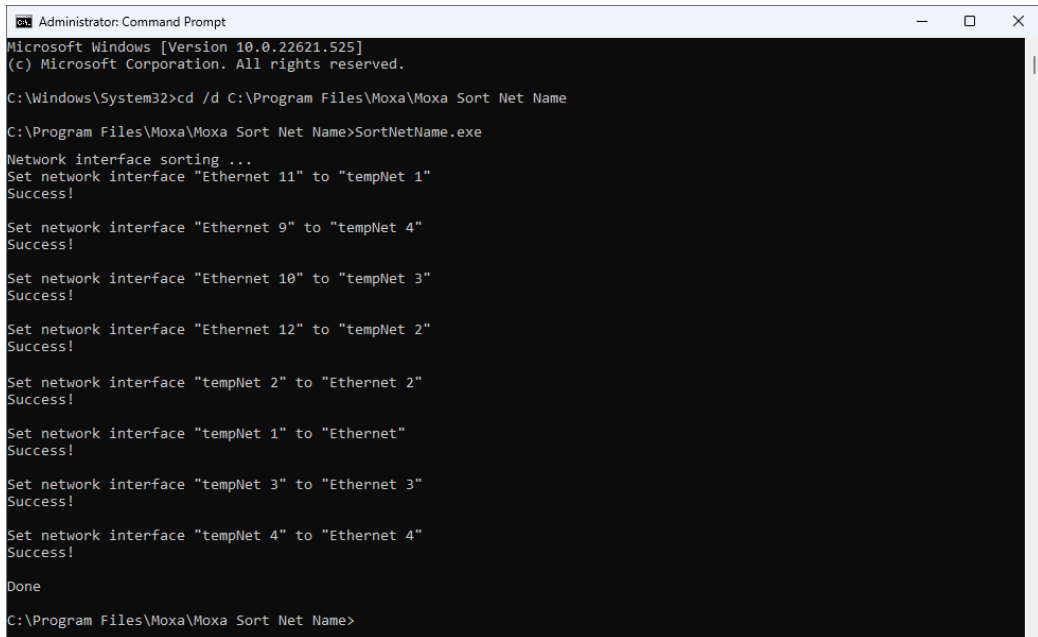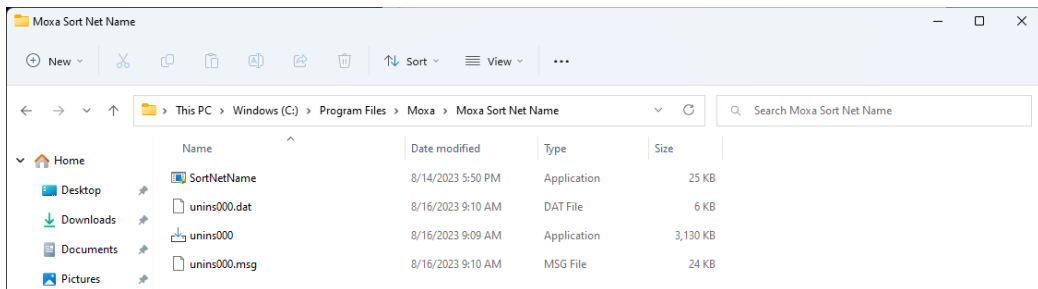
4. Wait for the process to complete to rename Ethernet adapter. The order of the Ethernet adapter will correspond to the order of label (e.g., LAN 2 on chassis is mapping to Ethernet 2 in Windows).


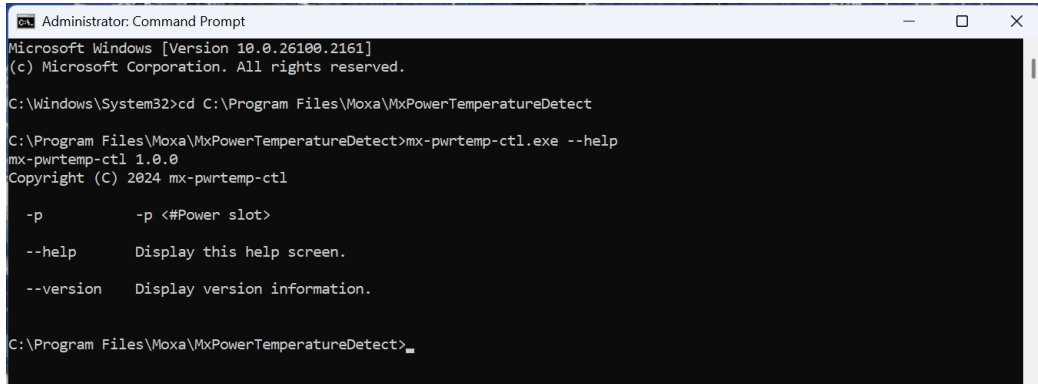

Moxa Power Temperature Detect Utility

Moxa Power Temperature Detect Utility is developed to detect power temperature as a monitoring tool.

This section describes how to use the Moxa Power Temperature Detect Utility

1. Use the pre-installed utility or install the **MxPowerTemperatureDetect** utility from the Moxa support page.
2. Run the **mx-pwrtemp-ctl.exe** from C:\Program Files\Moxa\MxPowerTemperatureDetect\ as an Administrator.
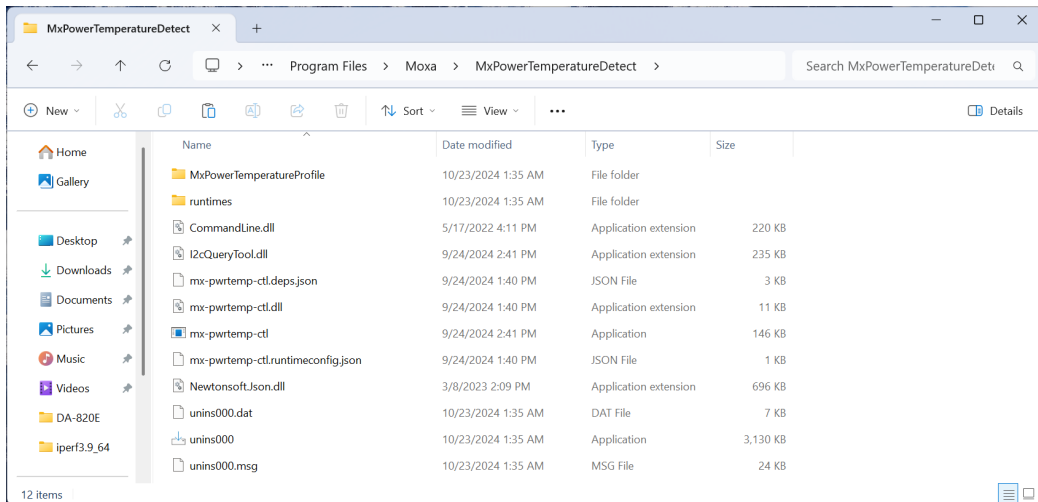
3. Type the **mx-pwrtemp-ctl.exe --help** command to see instructions on using this utility and follow the onscreen instructions to get the power temperature.

```
Administrator: Command Prompt                                                    —    □    ×
Microsoft Windows [Version 10.0.26100.2161]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>cd C:\Program Files\Moxa\MxPowerTemperatureDetect

C:\Program Files\Moxa\MxPowerTemperatureDetect>mx-pwrtemp-ctl.exe --help
mx-pwrtemp-ctl 1.0.0
Copyright (C) 2024 mx-pwrtemp-ctl

  -p           -p <#Power slot>

  --help       Display this help screen.

  --version    Display version information.


C:\Program Files\Moxa\MxPowerTemperatureDetect>_
```
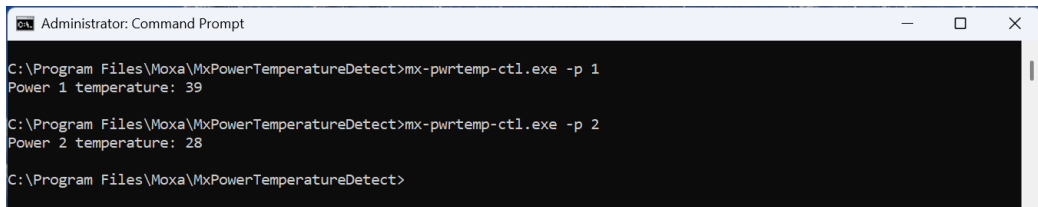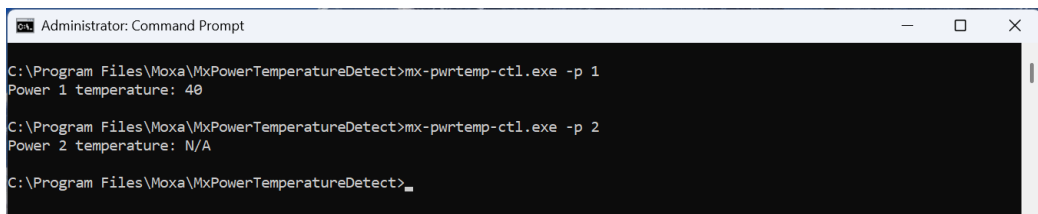
4. Example (two power installed):

```
Administrator: Command Prompt                                                    —    □    ×
C:\Program Files\Moxa\MxPowerTemperatureDetect>mx-pwrtemp-ctl.exe -p 1
Power 1 temperature: 39

C:\Program Files\Moxa\MxPowerTemperatureDetect>mx-pwrtemp-ctl.exe -p 2
Power 2 temperature: 28

C:\Program Files\Moxa\MxPowerTemperatureDetect>
```

Example (only one power installed, display N/A for empty power slot):

```
Administrator: Command Prompt                                                    —    □    ×
C:\Program Files\Moxa\MxPowerTemperatureDetect>mx-pwrtemp-ctl.exe -p 1
Power 1 temperature: 40

C:\Program Files\Moxa\MxPowerTemperatureDetect>mx-pwrtemp-ctl.exe -p 2
Power 2 temperature: N/A

C:\Program Files\Moxa\MxPowerTemperatureDetect>_
```
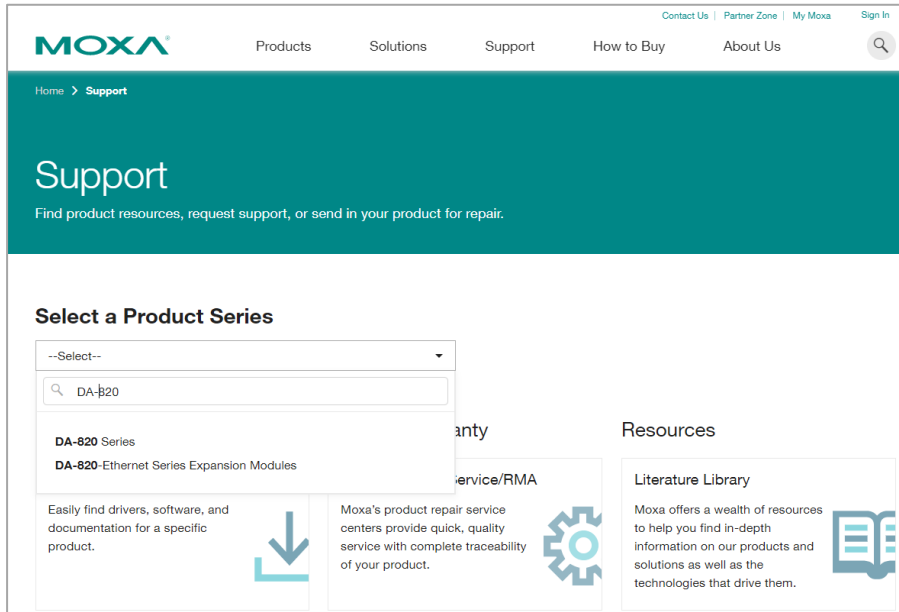
9. IO Control API

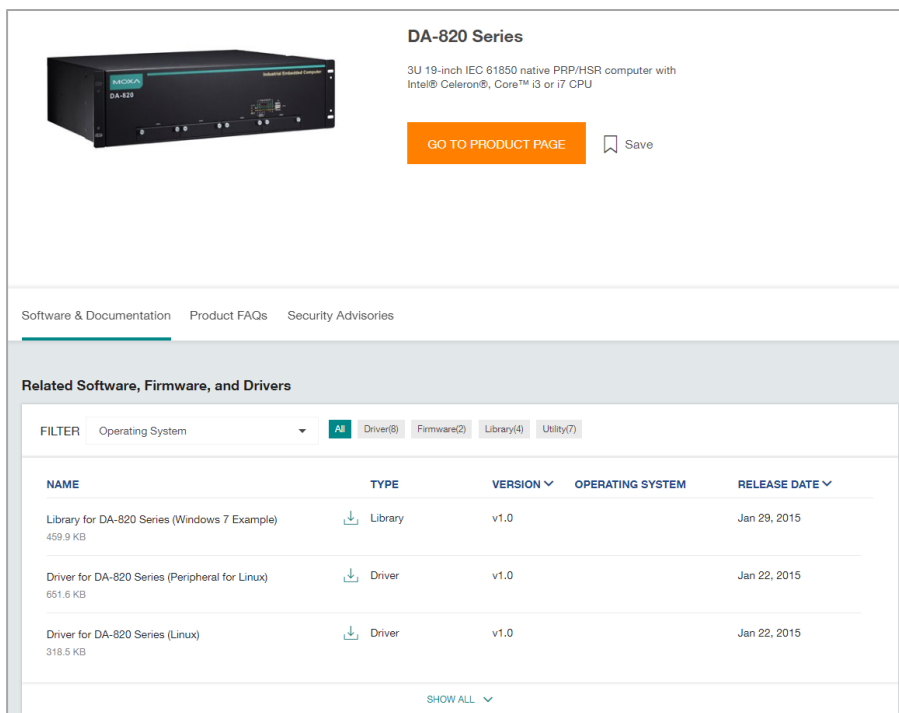This chapter describes how to use the IO Control API.

Downloading the API

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

3. Download the related files.

mxdgio

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

- **GetDinCount**
- **GetDoutCount**
- **GetDinStatus**
- **GetDoutStatus**
- **SetDoutStatus**

GetDinCount

Syntax

```
int GetDinCount();
```

Description

Get the numbers of a digital input port.

Parameters

N/A.

Return Value

The numbers of the digital input port.

Error codes

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

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxdgio library initialization failed. Cannot open json profile.

Requirements

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

GetDoutCount

```
int GetDoutCount();
```

Description

Get the numbers of a digital output port.

Parameters

N/A.

Return Value

The numbers of the digital output port.

Error codes

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

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxdgio library initialization failed. Cannot open json profile.

Requirements

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

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 using 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

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 using 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 using 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:

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

GetUartCount

Syntax

```
int GetUartCount();
```

Description

Gets the numbers of the UART port.

Parameters

N/A

Return Value

The numbers of the UART port.

Error codes

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

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxsp library initialization failed. Cannot open json profile.

Requirements

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

GetUartMode

<u>**Syntax**</u>

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

<u>**Description**</u>

Gets the status of the UART port.

<u>**Parameters**</u>

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

<u>**Return Value**</u>

The mode of a UART interface; 0 for RS-232, 1 for RS-485-2W, 2 for RS-485-4W and 3 for RS-422.

<u>**Error codes**</u>

The following error codes can be retrieved using 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.

<u>**Requirements**</u>

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

SetUartMode

<u>**Syntax**</u>

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

<u>**Description**</u>

Sets the status of the UART port.

<u>**Parameters**</u>

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, 2 for RS-485-4W and 3 for RS-422.

<u>**Return Value**</u>

Returns 0 if the UART mode is successfully set.

<u>**Error codes**</u>

The following error codes can be retrieved using 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.

<u>**Requirements**</u>

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

```
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

```
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

<u>**Syntax**</u>

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

<u>**Description**</u>

Gets the status of the LED port.

<u>**Parameters**</u>

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

<u>**Return Value**</u>

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

<u>**Error codes**</u>

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.

<u>**Requirements**</u>

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

mxwdg

The mxwdg library operates on the watchdog 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

<u>**Syntax**</u>

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

<u>**Description**</u>

Disables the watchdog timer.

<u>**Parameters**</u>

fd: The handle of the watchdog timer.

<u>**Return Value**</u>

This function does not return a value.

<u>**Requirements**</u>

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

10. System Backup Restore

This chapter describes the usage of the following for system backup and restoration.

- **WindowsRecovery**

WindowsRecovery

WindowsRecovery is an OS image backup and restore program for system deployment, backup, and recovery. You will first need to create a WindowsRecovery USB disk. This WindowsRecovery disk can only be used to boot a **UEFI BIOS** machine. This chapter describes the setup process of the Windows Recovery function.

Preparing the USB device

1. Contact a Moxa technical staff and get the required file.
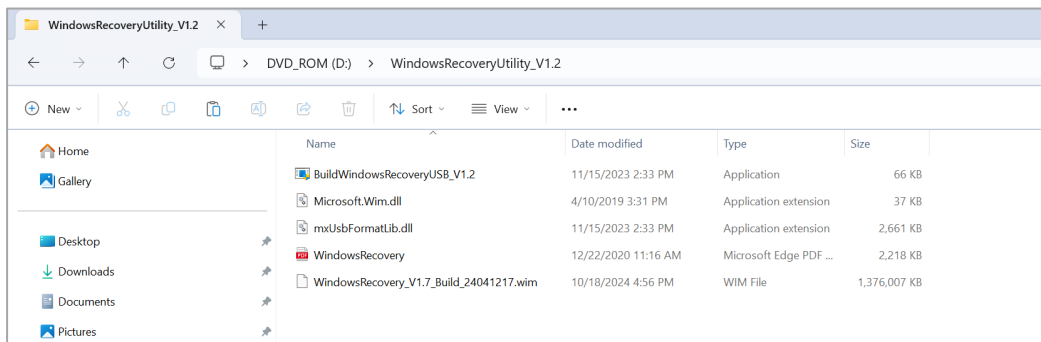
2. Run the **BuildWindowsRecoveryUSB_V1.2.0.exe**.
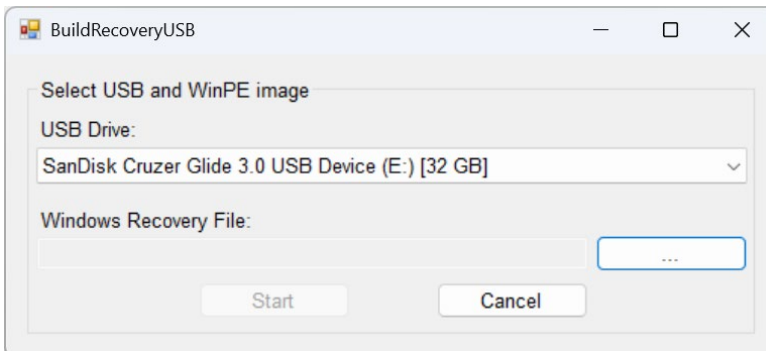
3. Select the USB drive to format.
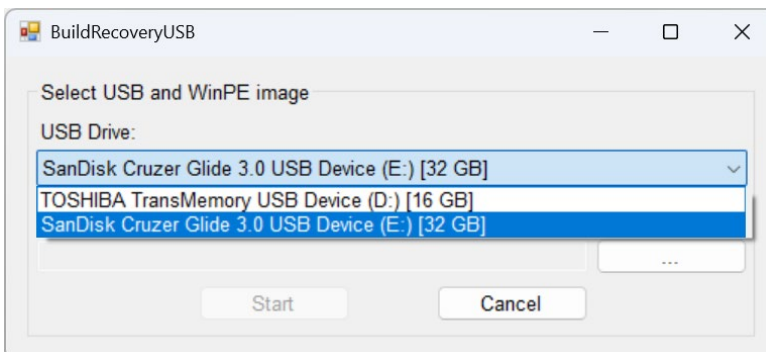
4. Click **...** to select **.wim** file from the folder.
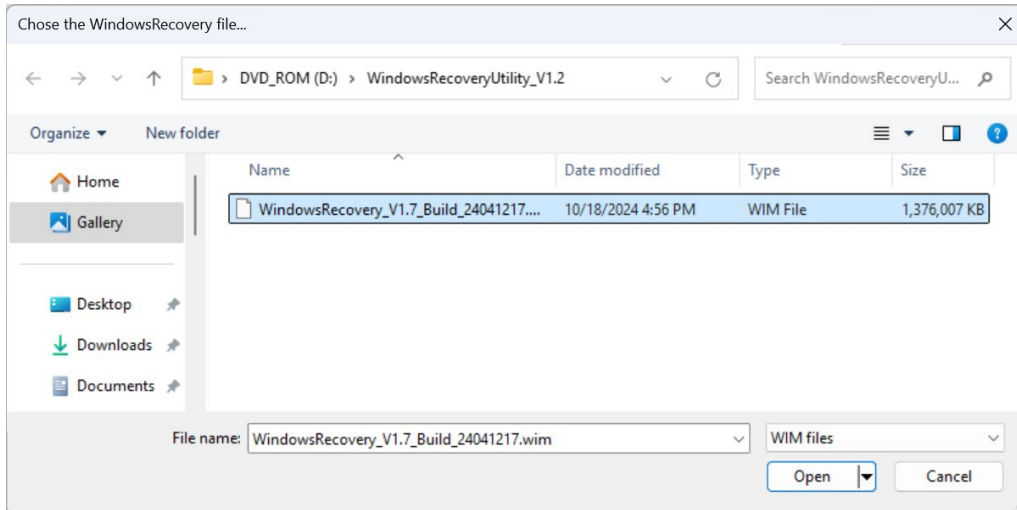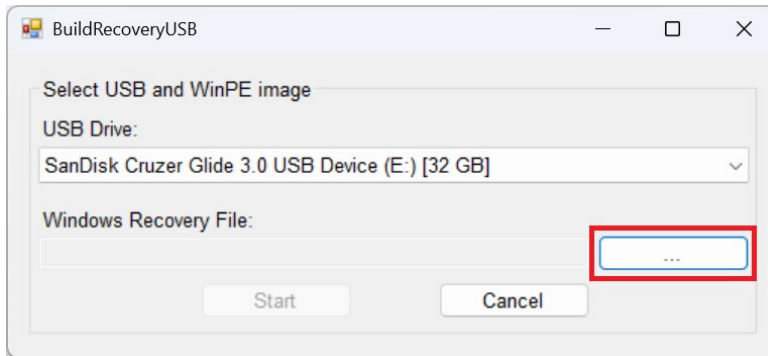
5. Click **Start** and make sure the selected USB can be formatted. Click **Yes** to start creating the recovery USB.
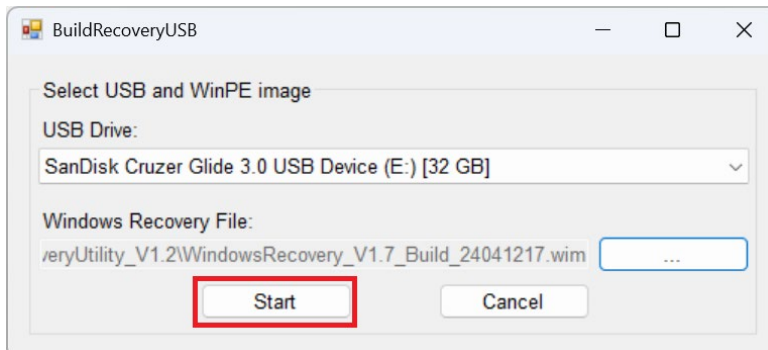
6. Wait for the process to finish. The program will format the USB device and create a UEFI bootable volume and a WinPE volume. You may see additional windows about folder information; do not close these. You can close the windows after the process finishes.
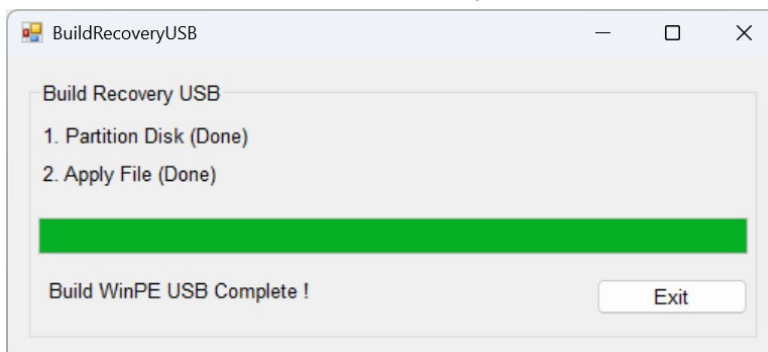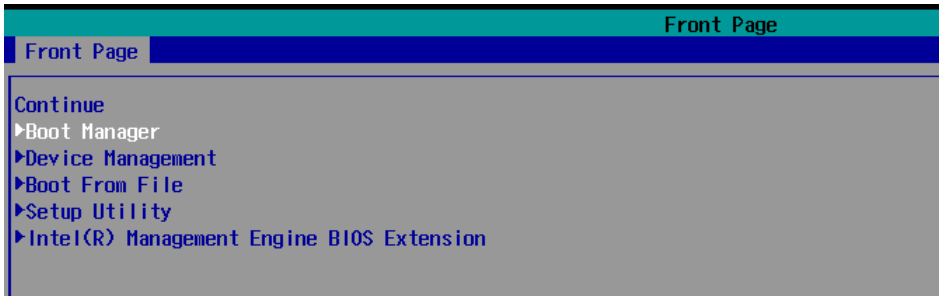
7. To create a recovery USB disk with the Windows 11 image, copy the **os_image_ModelName** directory to the **\home\partimag** folder in the USB drive.
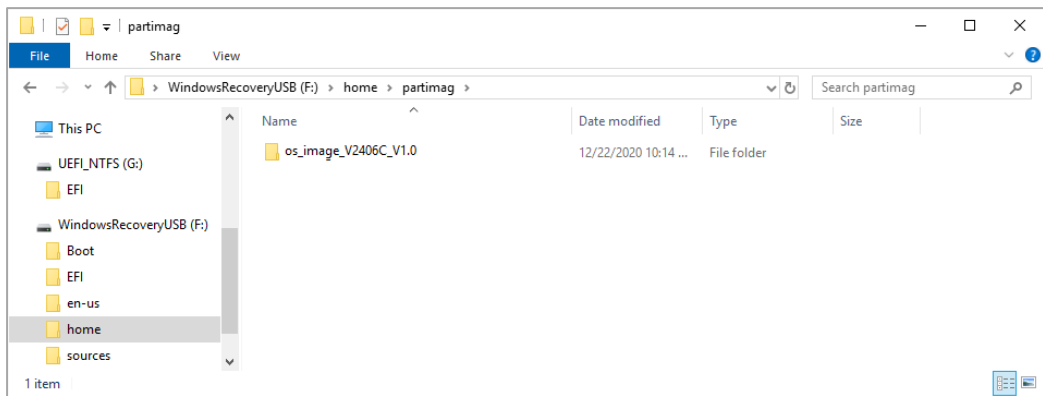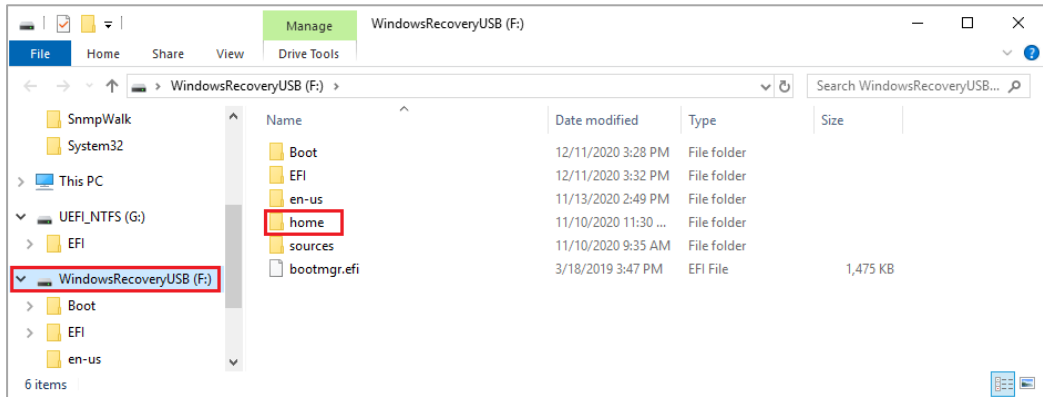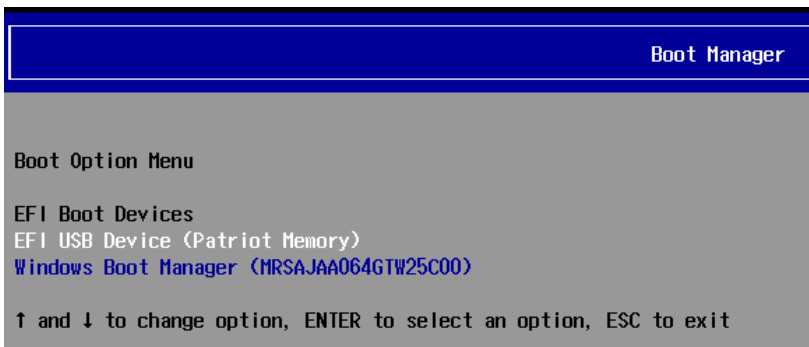

Booting From the USB Disk

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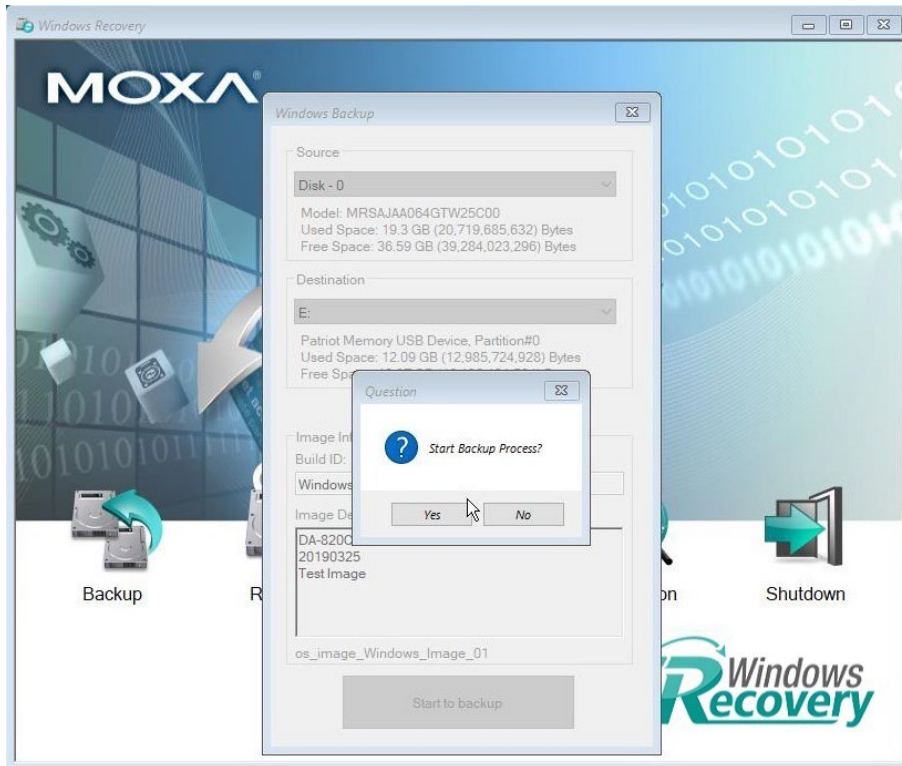

2. Select the **EFI USB Device** on the computer and press **Enter** to continue to boot from the USB device.
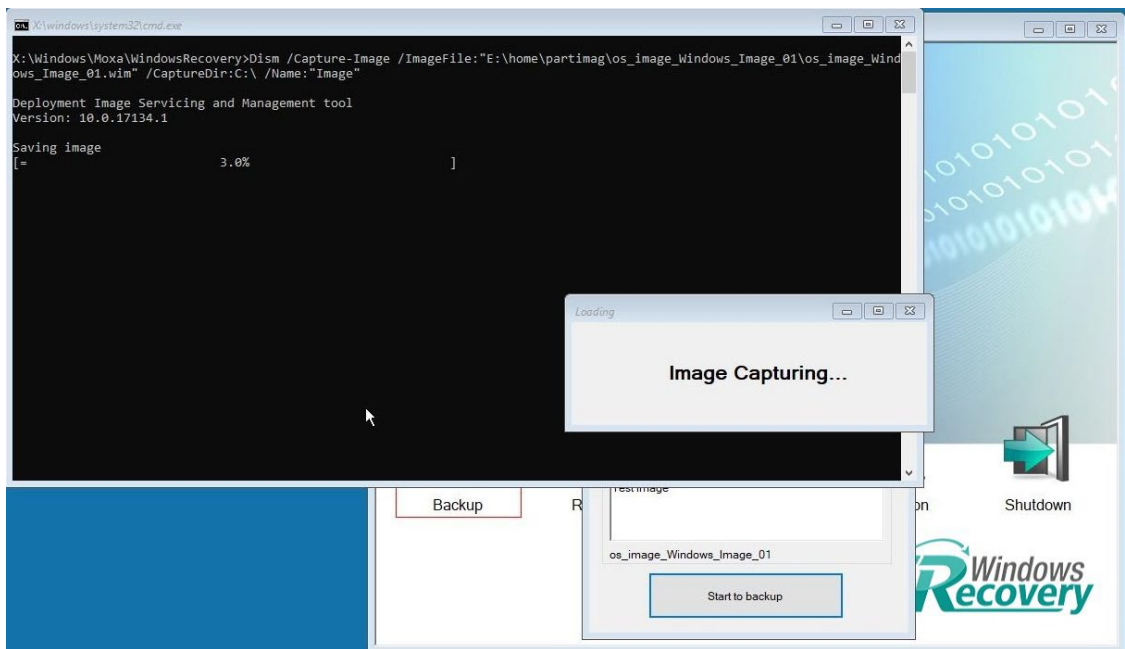
System Image Backup

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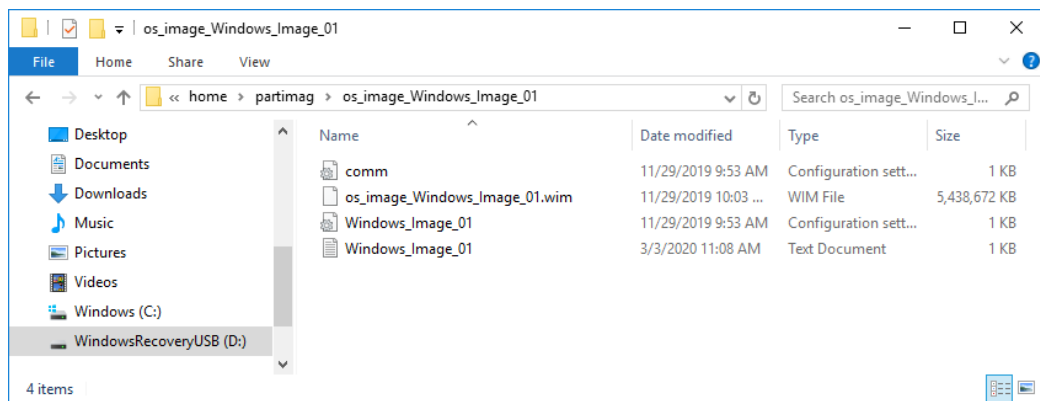
5. When the process is done, click **OK**.

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

7. The OS image will be saved in USB disk at **home\partimag**.
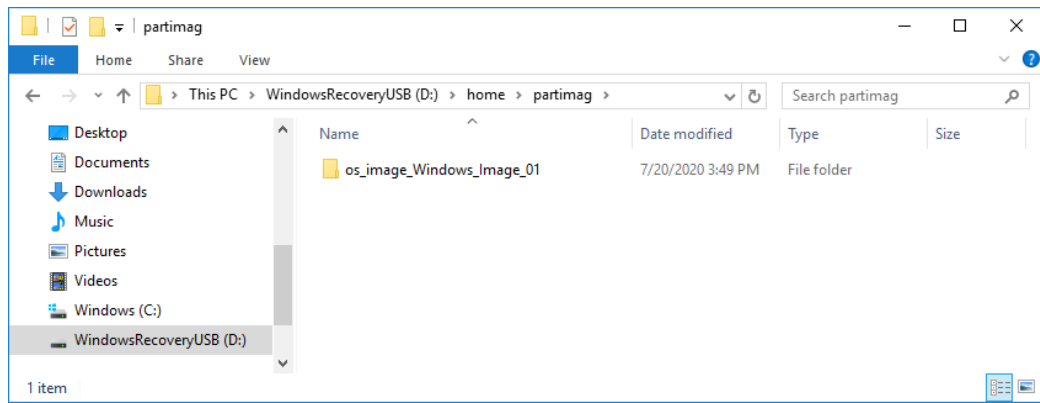
8. In the **os_image** folder you can view the backup information and the image files.

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.
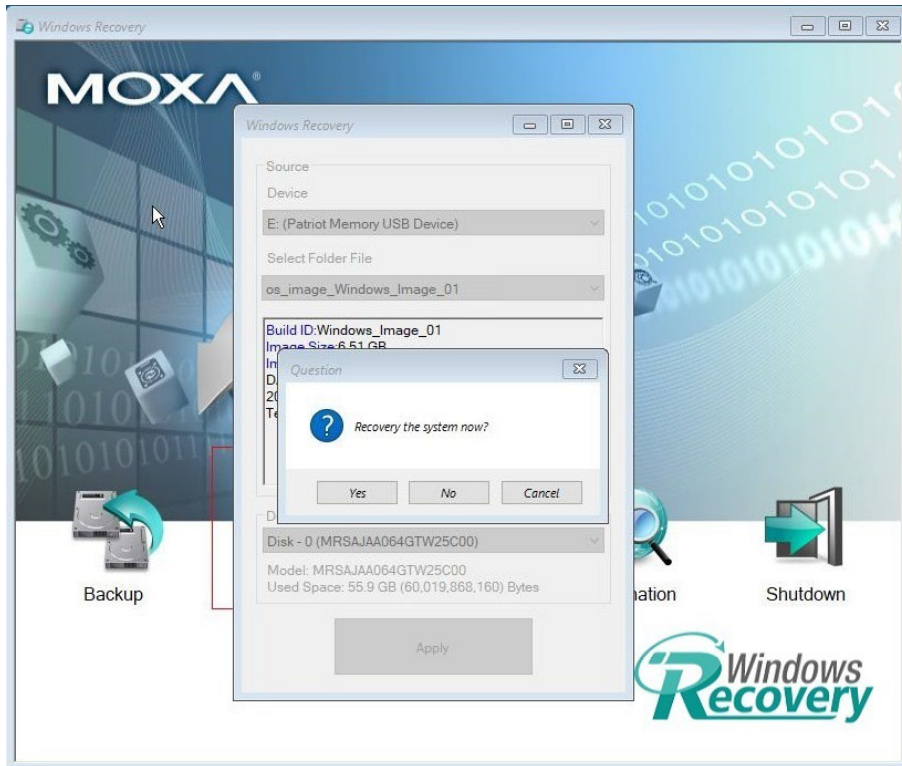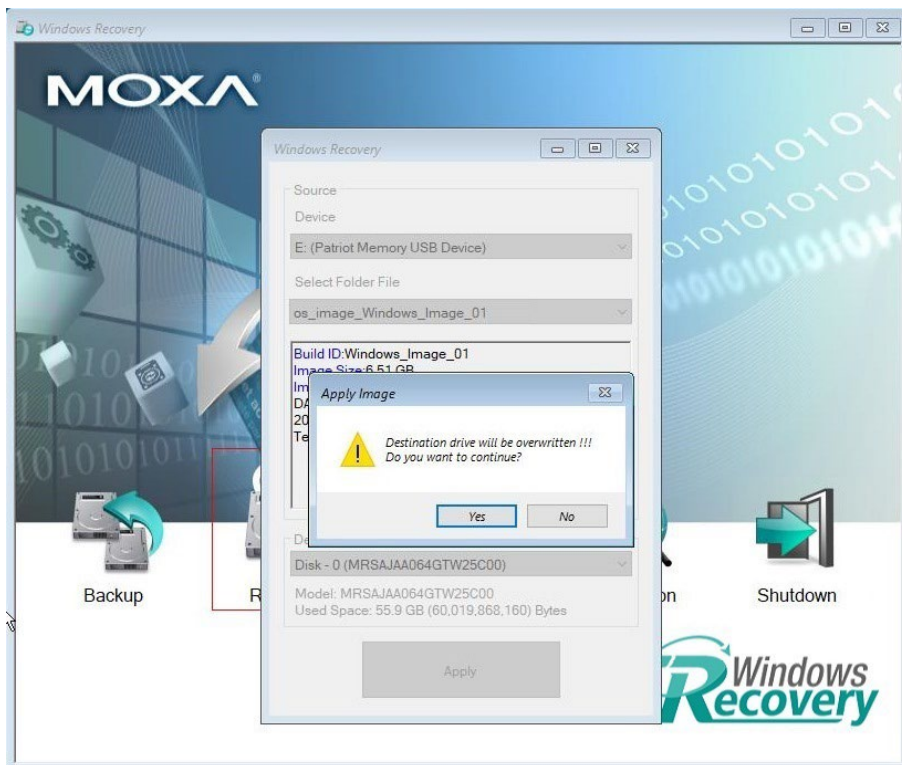
1. Click **Recovery**.

2. Select the **Source USB Device**, Image Folder File and check the image information, select the **Destination Drive** to restore. Click **Apply**.
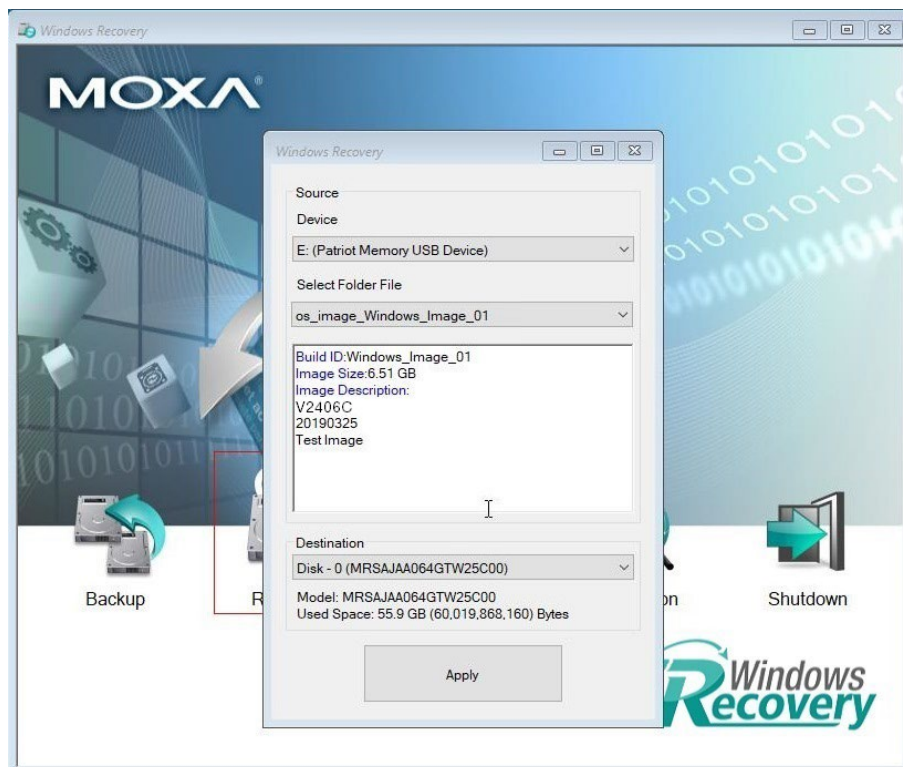
3. Click **Yes** to continue the process.

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

5. Wait for the process to complete.

6. Click **OK**.

✏️ **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.