DRP/BXP/RKP Series Computers Windows 11 Pro 22H2 Manual

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www.moxa.com/products

DRP/BXP/RKP Series Computers Windows 11 Pro 22H2 Manual

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1. Introduction

This Windows 11 Professional 2022 (22H2) 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.

Applicable Series

- **BXP-A100 Series**
- **BXP-C100 Series**
- **DRP-A100 Series**
- **DRP-C100 Series**
- **RKP-A110 Series**
- **RKP-C110 Series**

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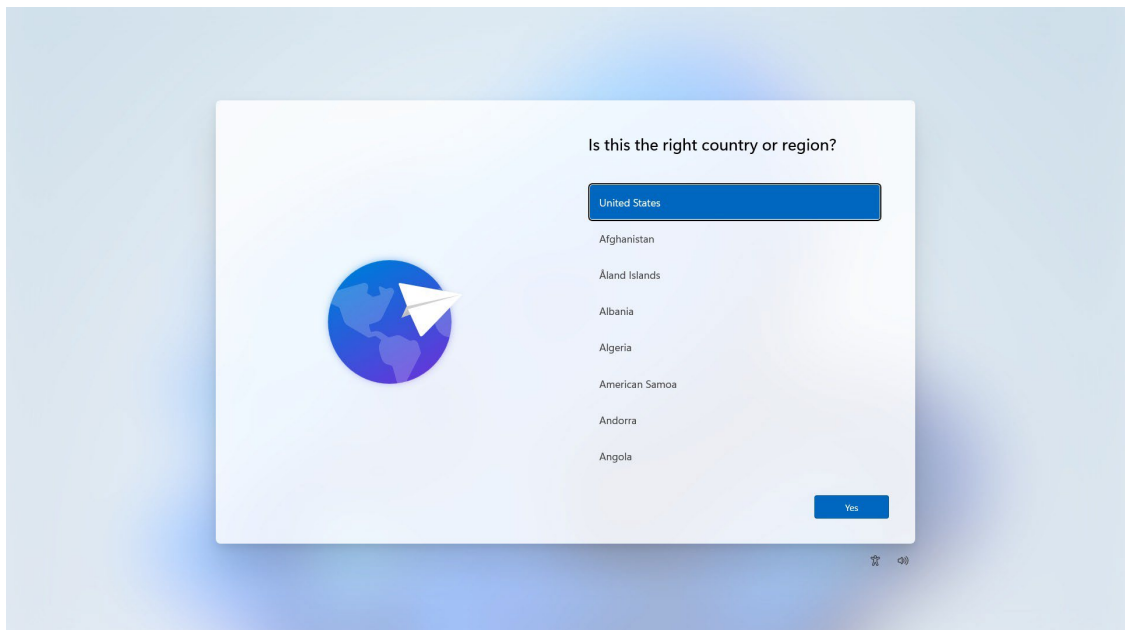
2. Select a keyboard.
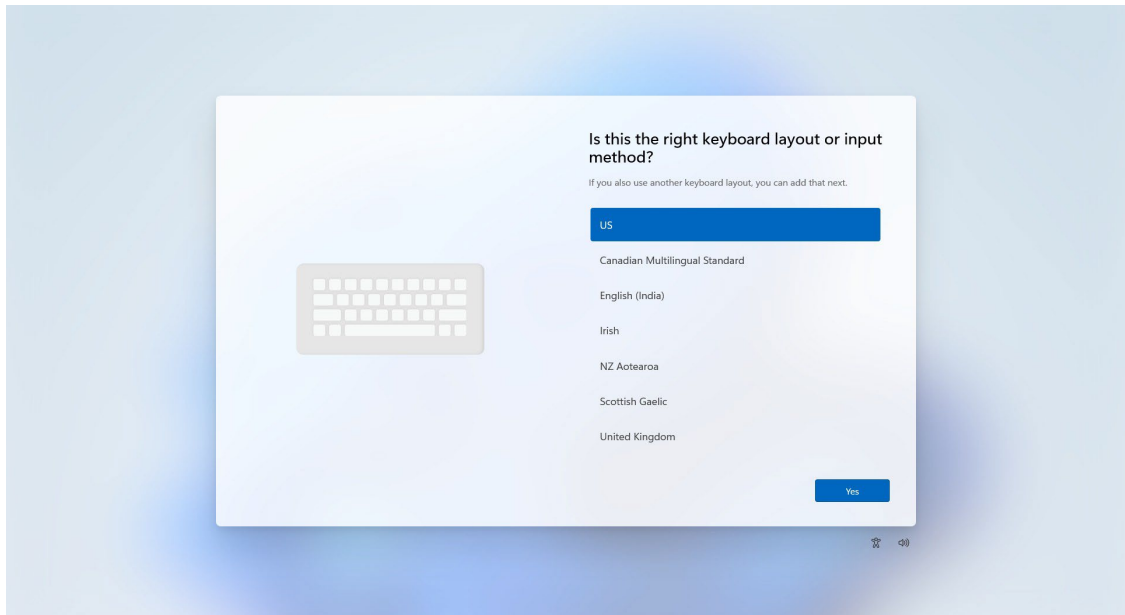
3. Select a second keyboard.
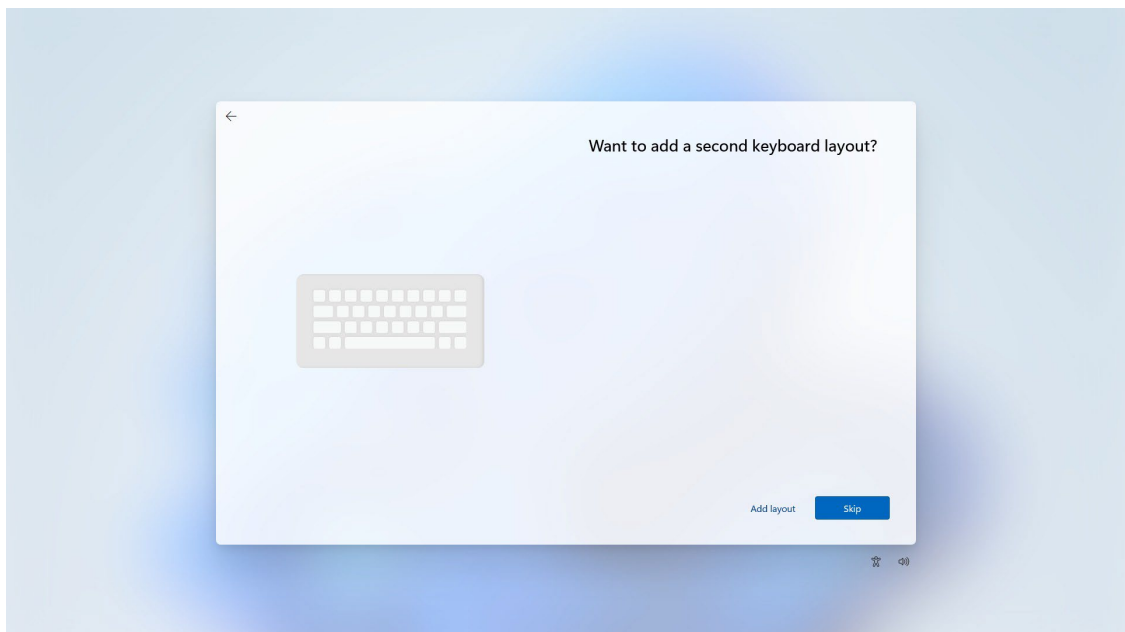
4.   Connect to a network or continue with limited setup.
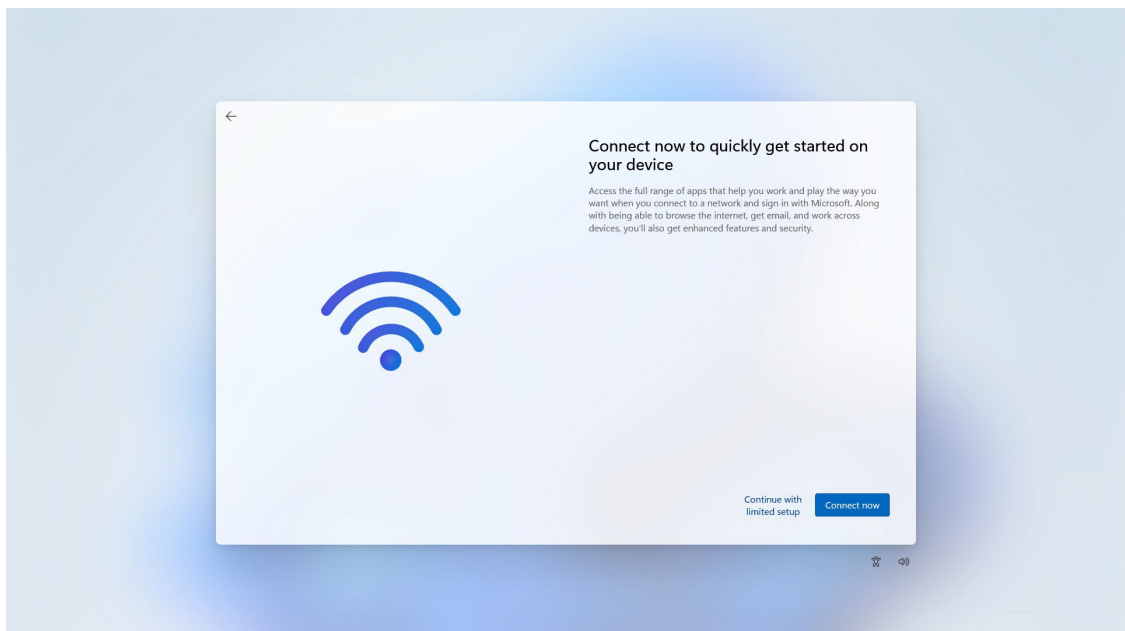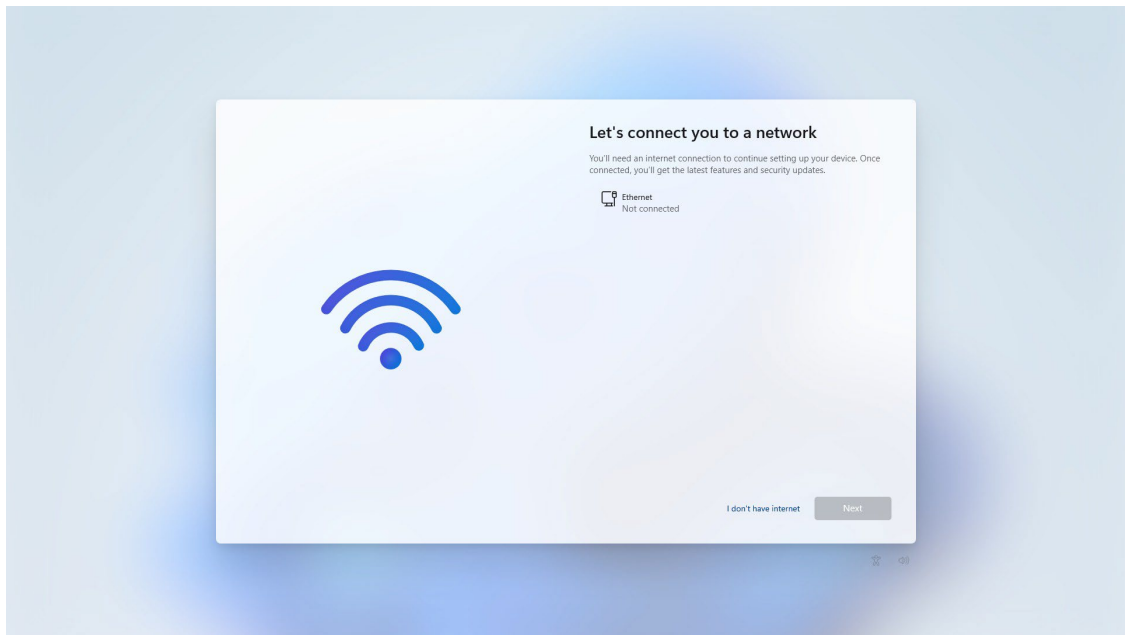
5. Sign in to or create a local account or a Microsoft account (MSA).
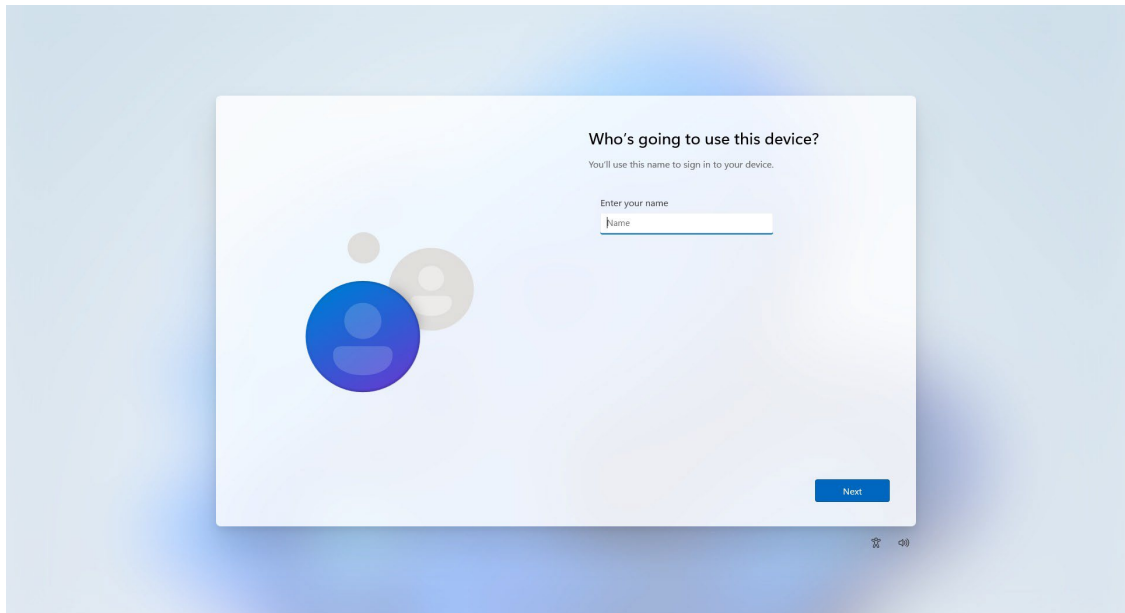
6. Set a password.
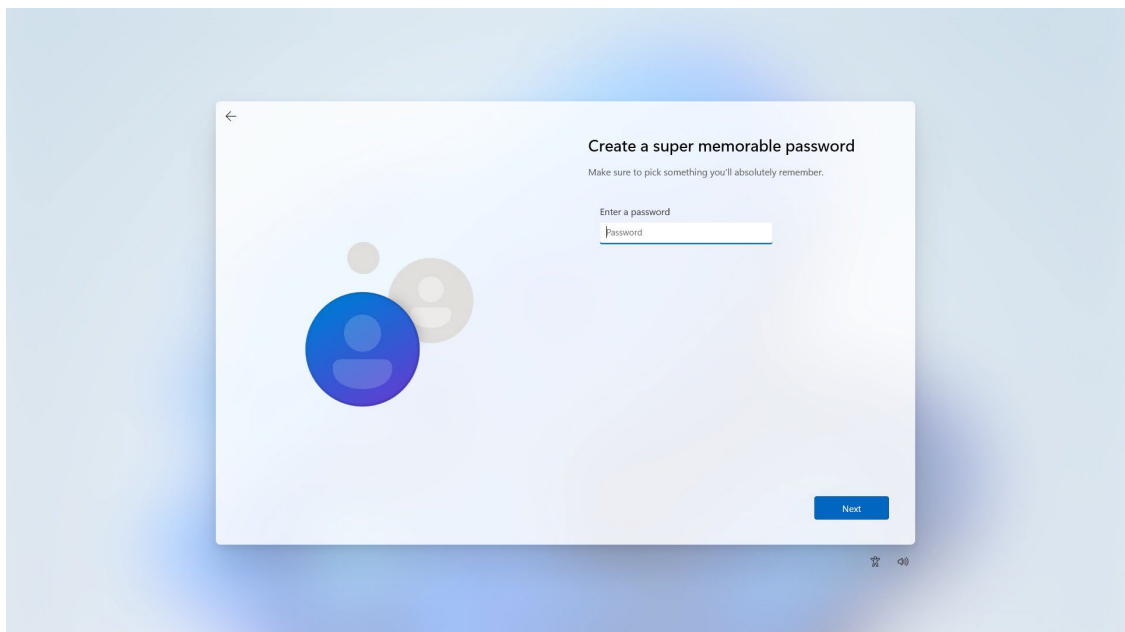
7. Choose your privacy settings.
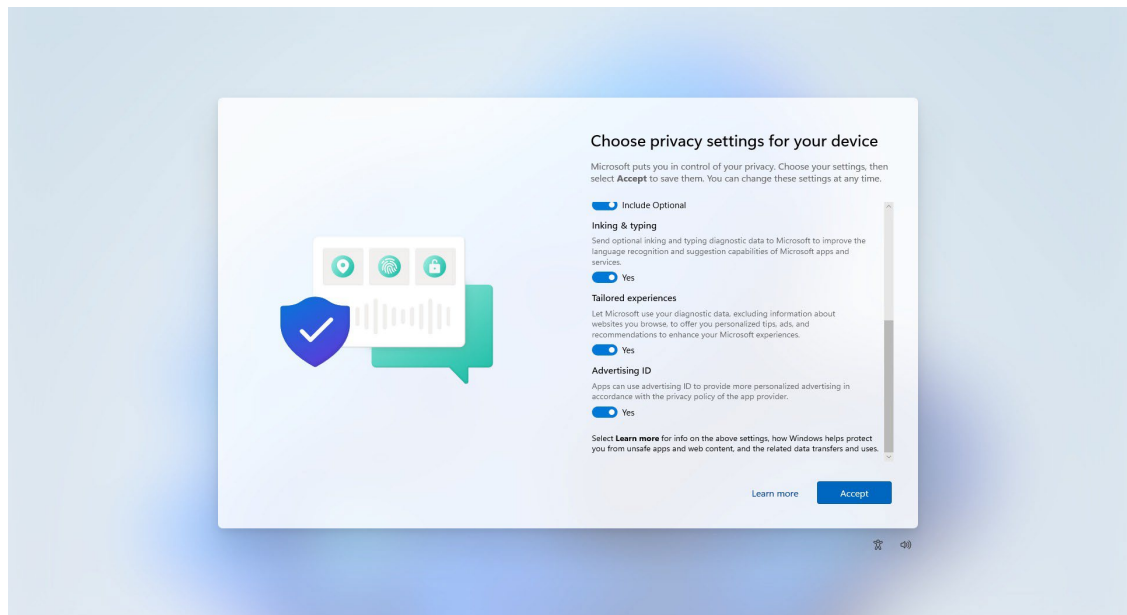
Initializing System

- 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

1. In the **Windows Devices and drives**, right-click on the drive and select **Turn on BitLocker**.
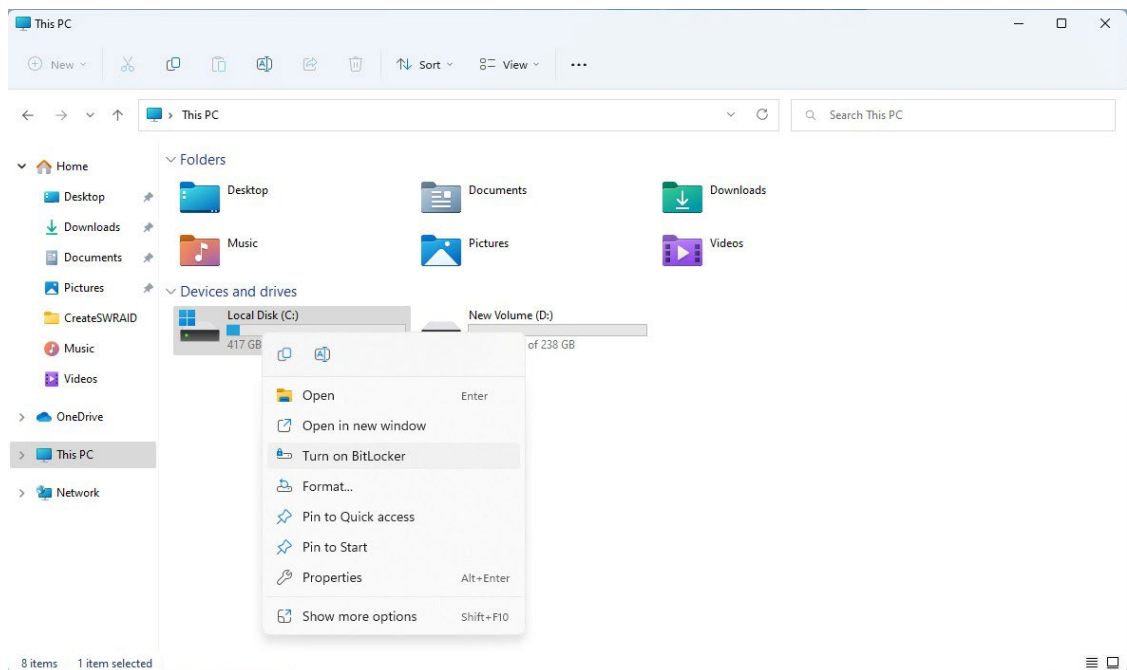
2. Select an option to back up the recovery key. For example, select **Save to a file**.
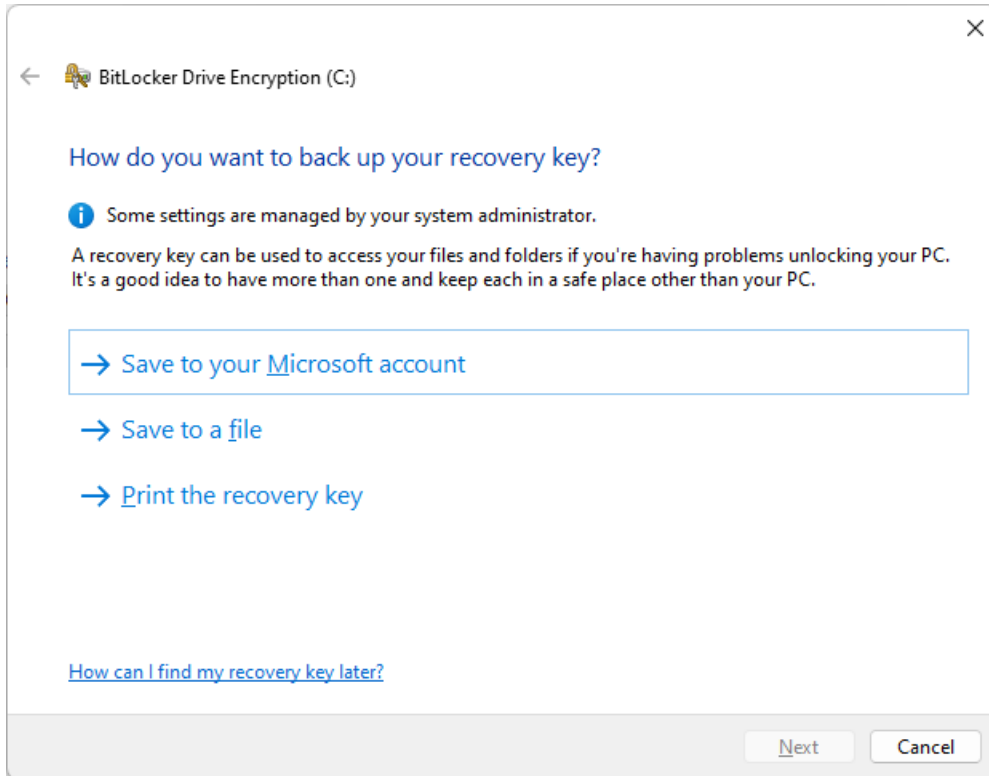
3. Select the path to store the file in.
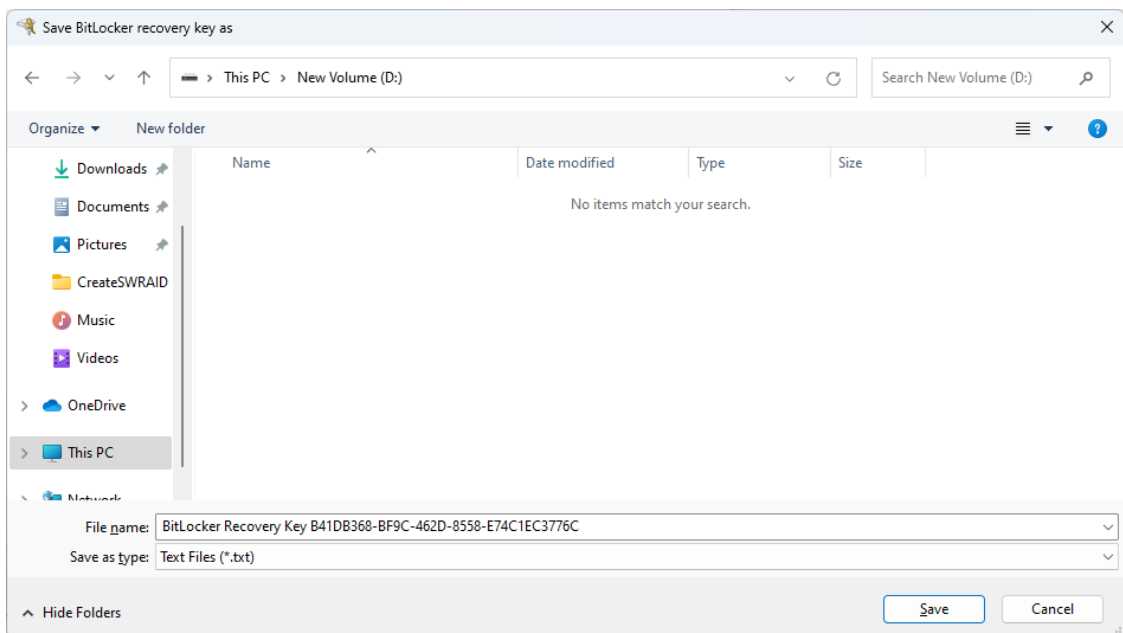
4. Follow the onscreen instructions to specify the drive encryption options.
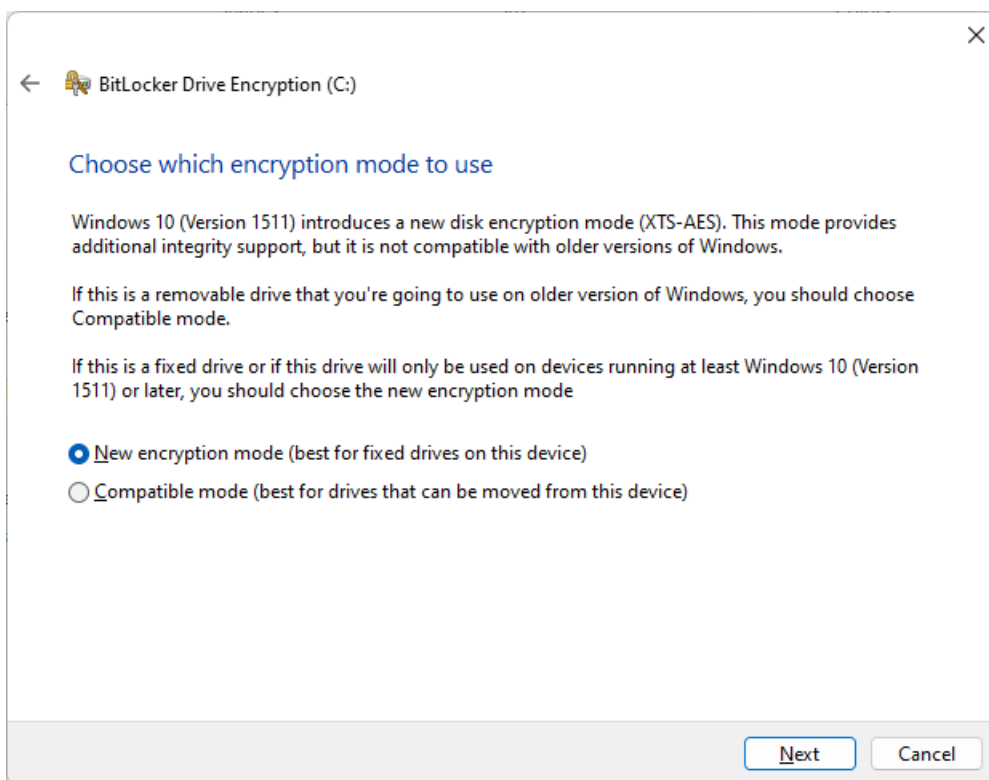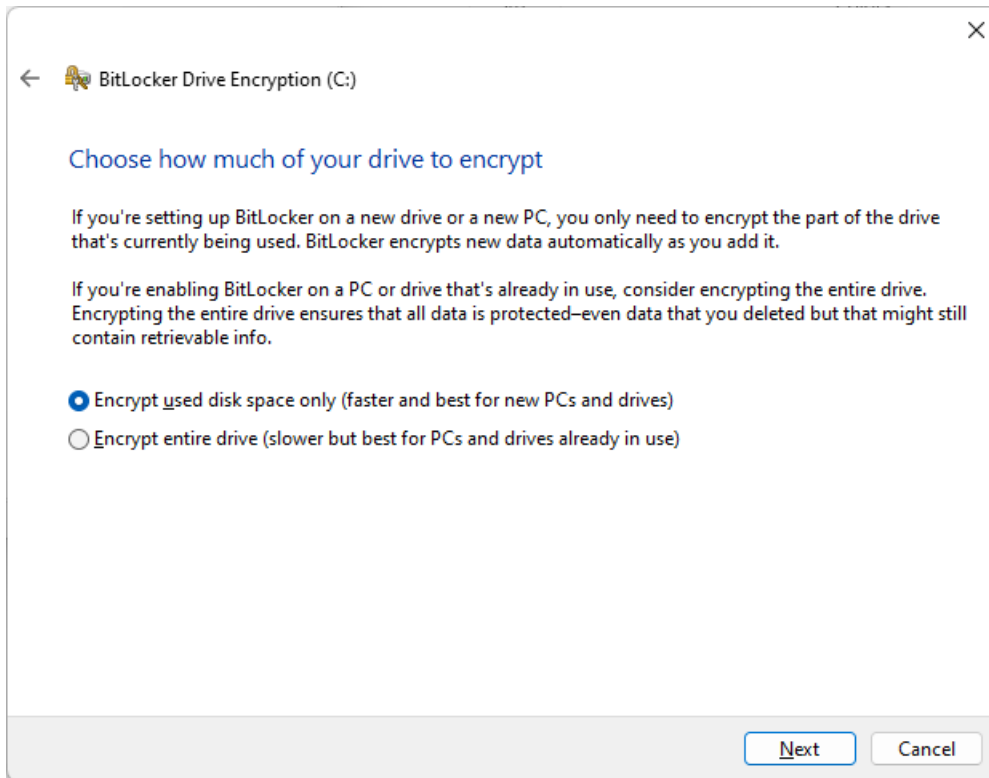
5. Click **Continue**.
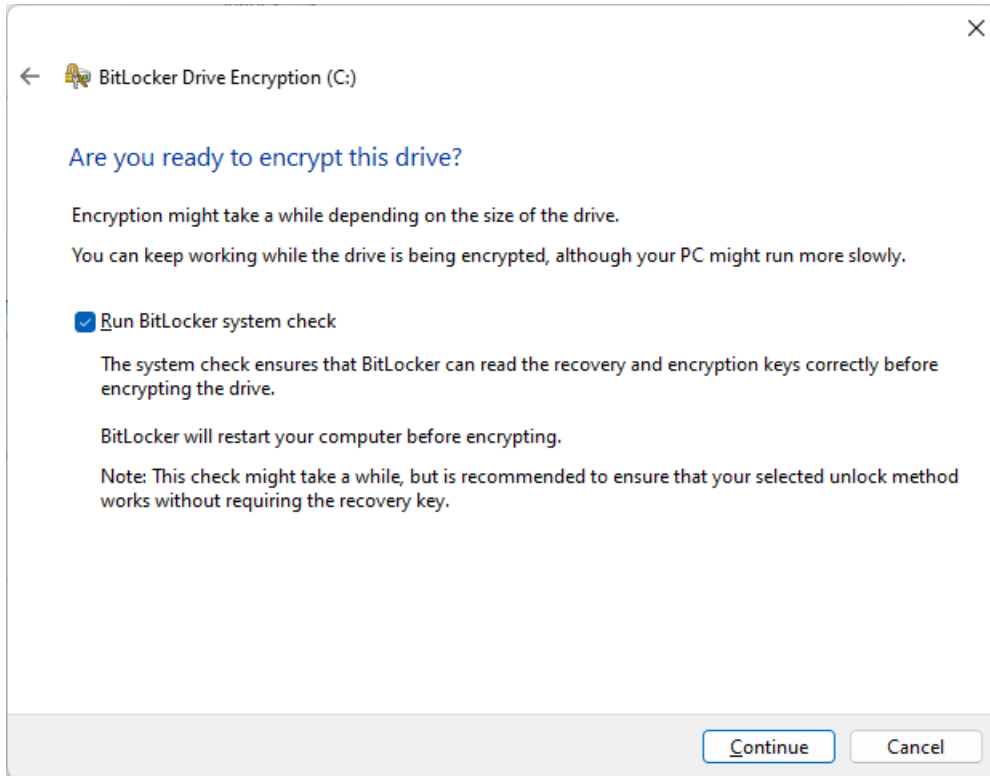
6. Restart the computer.
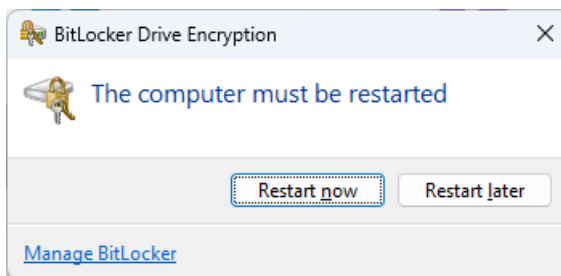
7. Wait for the encryption process to complete and then click **Close**.
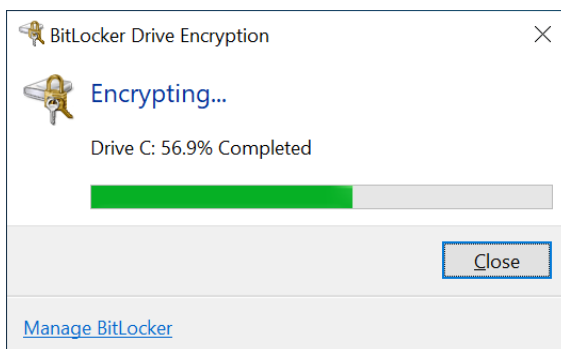
Disabling the BitLocker

1. In the **Windows Devices and drives**, right-click on the drive and select **Manage BitLocker**.
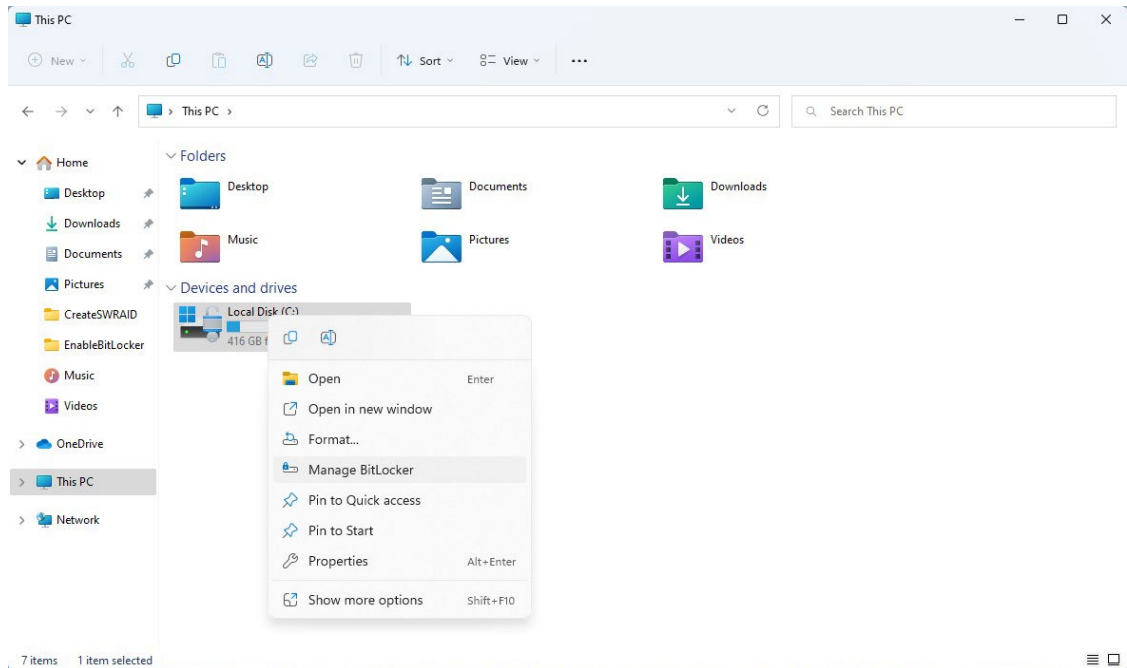
2. Click on **Turn off BitLocker**.
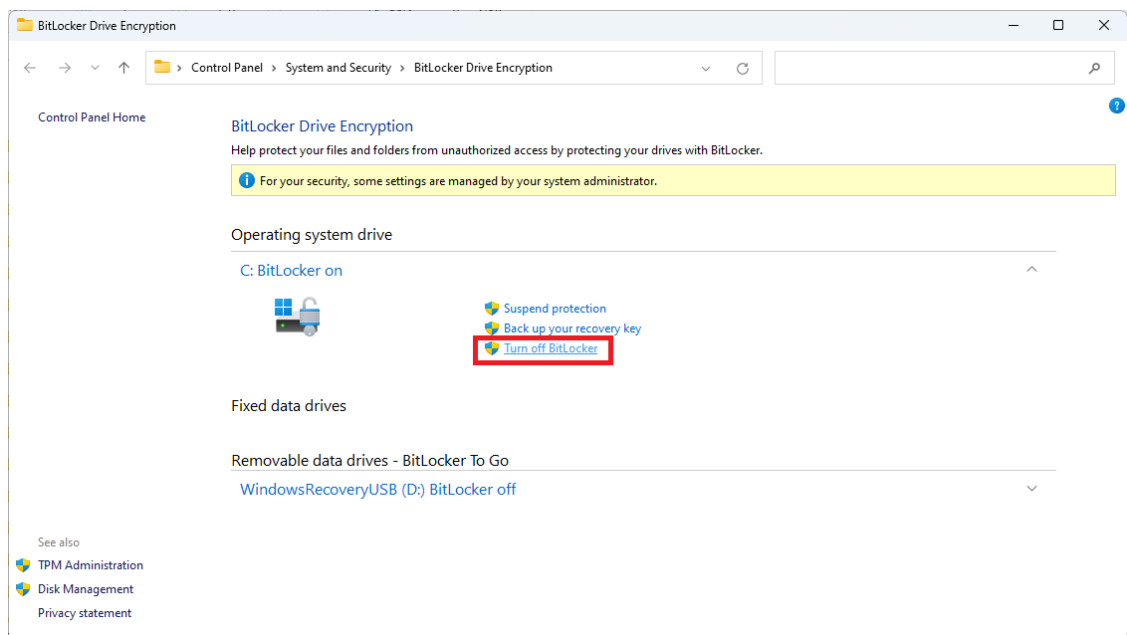
3. Wait for the decryption process to complete and click **Close** to exit the program.
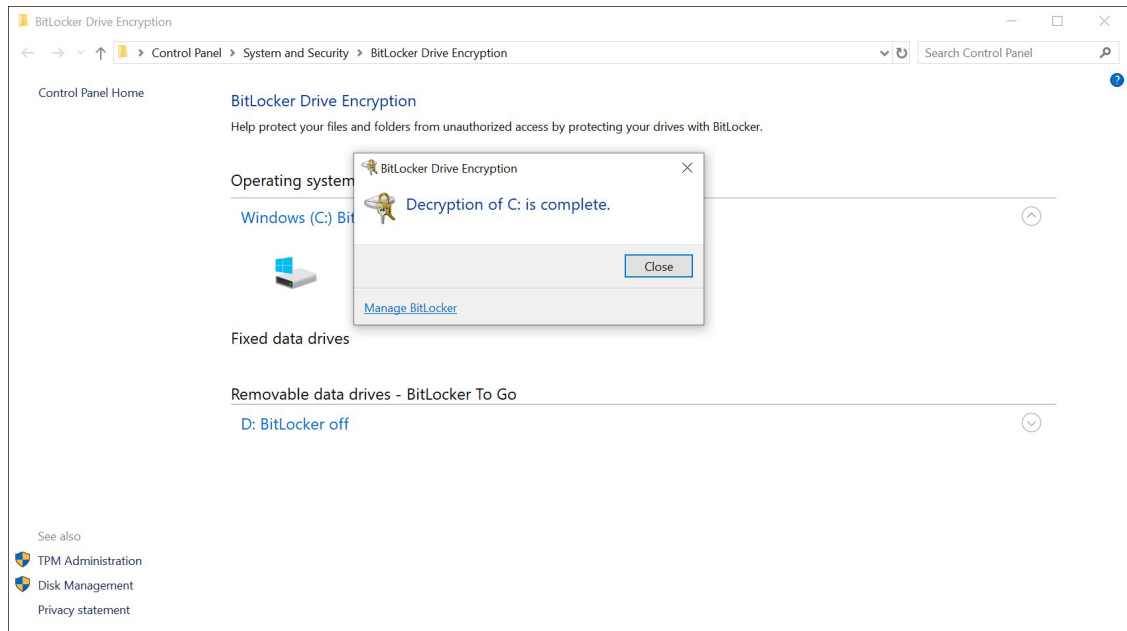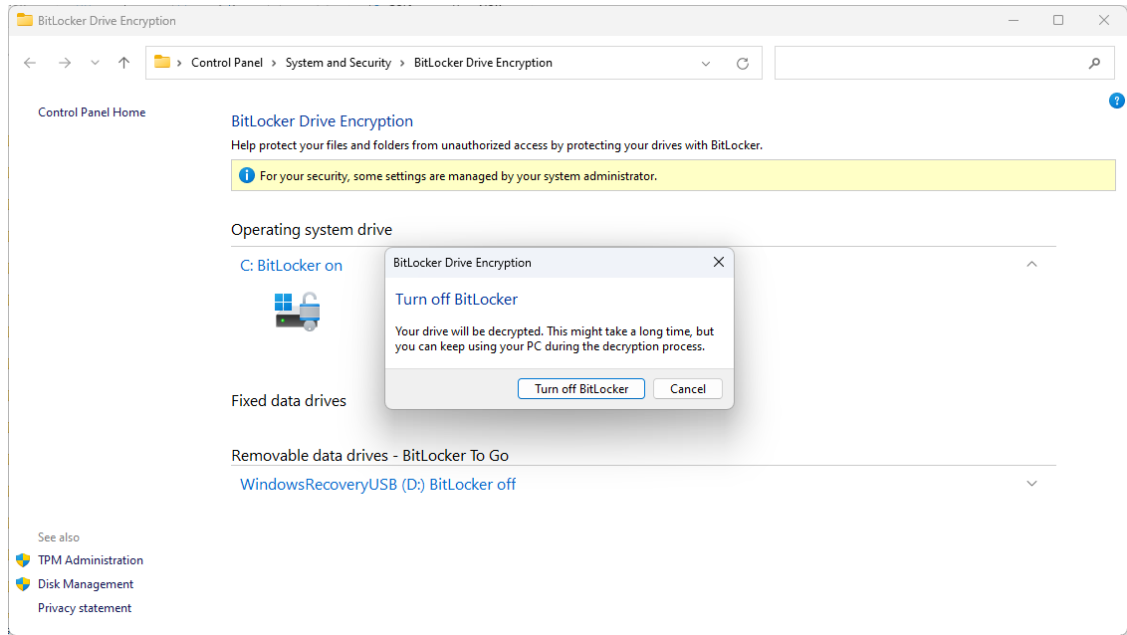
4. Check the disk status after the decryption process is completed.
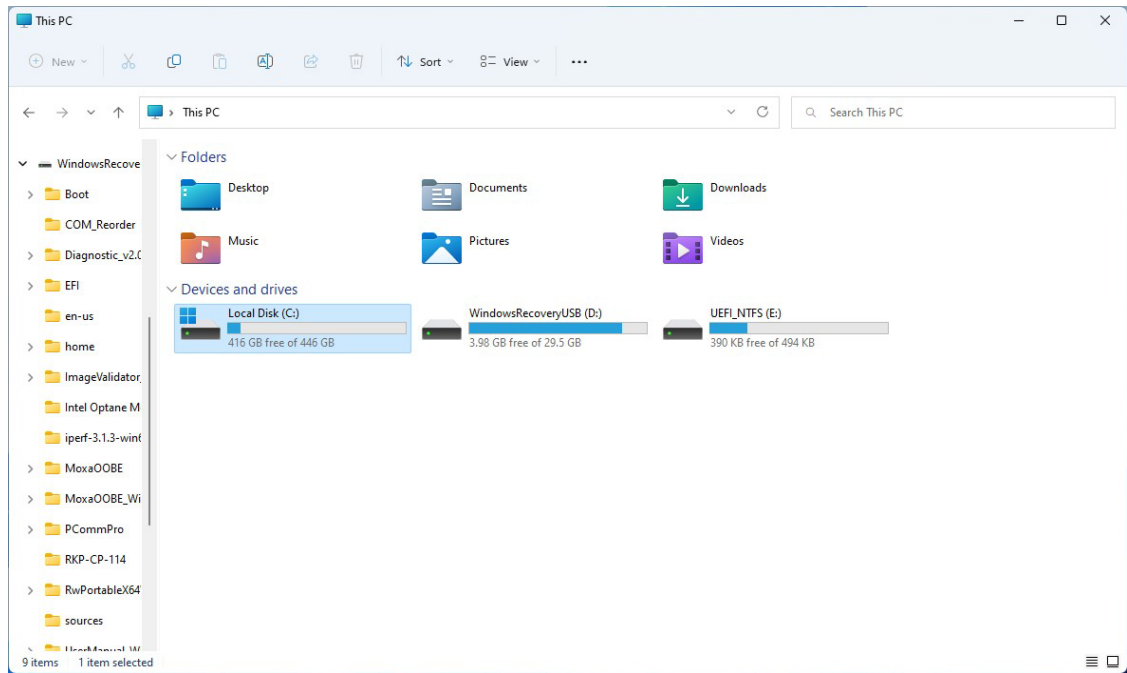
RAID is the acronym for **Redundant Array of Independent Disk** which indicates the use of combining a number of disks into one or more logical units for data redundancy, performance improvement, or both.

This chapter describes the setup process for FW RAID (Intel® RST or Intel® RAID) and SW RAID.

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.

✏️ **NOTE**

FW RAID is supported only in the RKP-A110 Series.

```
                                    Front Page
 Front Page
 Continue                                          Go to Setup Utility.
▶Boot 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 **SATA Configuration** option.

```
                                    InsydeH20 Setup Utility                         Rev. 5.0
     Main  Advanced  Security  Power  Boot  Exit

      ▶Boot Configuration                                    Select the SATA controller and hard
      ▶SATA Configuration                                    disk drive type installed in your system
      ▶CPU Configuration
      ▶Video Configuration
      ▶Chipset Configuration
      ▶PCH-FW Configuration
      ▶Console Redirection
      ▶SIO IT8786E




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

4. Select the **Map SATA Root Port under VMD** and **Enable** this option. Enable the **Hot Plug** function on all ports.

```
                                    InsydeH20 Setup Utility                         Rev. 5.0
           Advanced

      SATA Configuration                                     Map/UnMap SATA Root Port to VMD for
                                                             RAID mode
      SATA Speed Limited               <Auto>
      Map SATA Root Port under VMD     <Disabled>

      ▶Serial ATA Port 0    [2.5" SATA SSD 3ME4      ]
        Hot Plug                       <Enabled>
      ▶Serial ATA Port 1    [2.5" SATA SSD 3ME4      ]
        Hot Plug                       <Enabled>




                             ┌─────────────────────────────┐
                             │ Map SATA Root Port under VMD │
                             │                             │
                             │ Disabled                    │
                             │ Enabled                     │
                             └─────────────────────────────┘




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

```
InsydeH2O Setup Utility                                                      Rev. 5.0
    Advanced

 SATA Configuration                                           Map/UnMap SATA Root Port to VMD for
                                                              RAID mode
 SATA Speed Limited                        <Auto>
 Map SATA Root Port under VMD              <Enabled>

 ▶Serial ATA Port 0        [2.5" SATA SSD 3ME4          ]
   Hot Plug                                 <Enabled>
 ▶Serial ATA Port 1        [2.5" SATA SSD 3ME4          ]
   Hot Plug                                 <Enabled>


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

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

```
InsydeH2O Setup Utility                                                      Rev. 5.0
 Main  Advanced  Security  Power  Boot  Exit

                                                              Exit system setup and save your changes.
 Exit Saving Changes
 Save Change Without Exit
 Exit Discarding Changes
 Load Optimal Defaults
 Load Custom Defaults
 Save Custom Defaults
 Discard Changes


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

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

```
                         InsydeH20 Setup Utility                          Rev. 5.0
  Main  Advanced  Security  Power  Boot  Exit

 Exit Saving Changes                              Exit system setup and save your changes.
 Save Change Without Exit
 Exit Discarding Changes
 Load Optimal Defaults
 Load Custom Defaults
 Save Custom Defaults
 Discard Changes




                          Exit Saving Changes

                             [Yes] [No]






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

Intel® RAID: Creating a RAID Disk in BIOS

✏ **NOTE**

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

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

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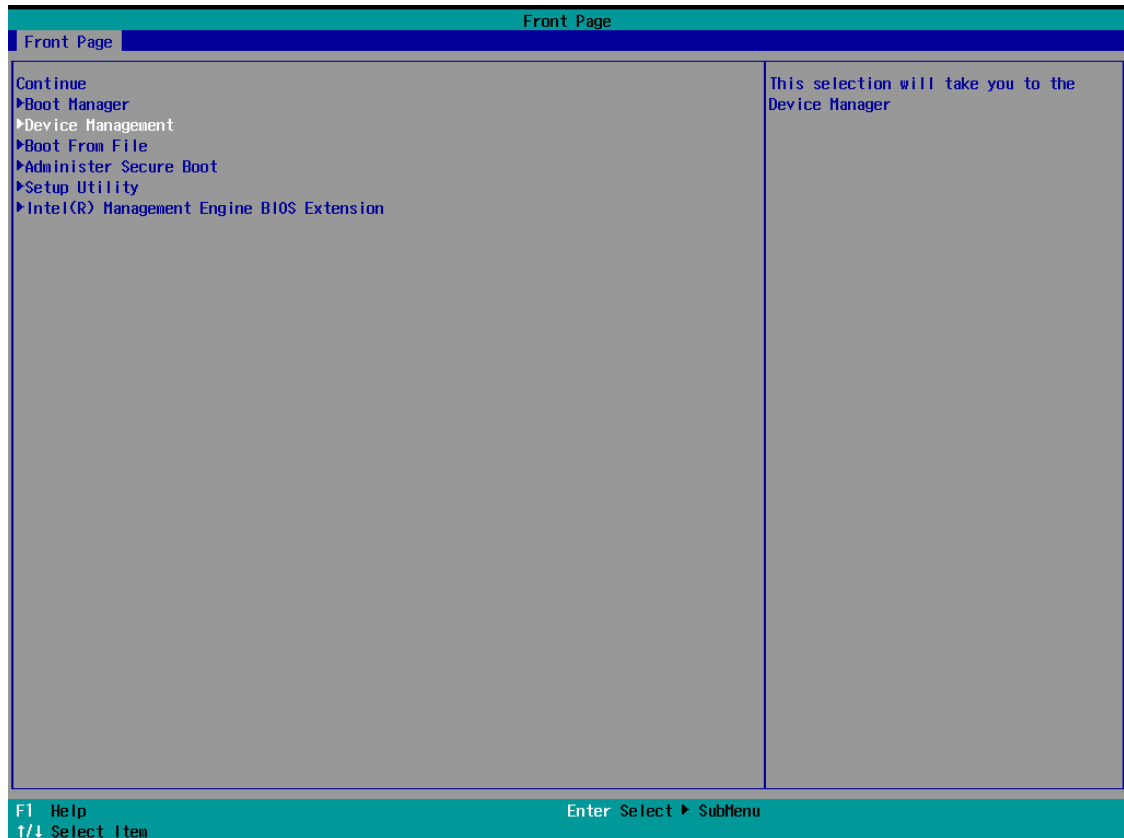
3. Select **Intel® Rapid Storage Technology**.

```
                                  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 **Create RAID Volume**.

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

Intel(R) RST 18.1.2.5596 RST VMD Driver           This page allows you to create a RAID
                                                  volume
▸Create RAID Volume


Non-RAID Physical Disks:
▸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
```
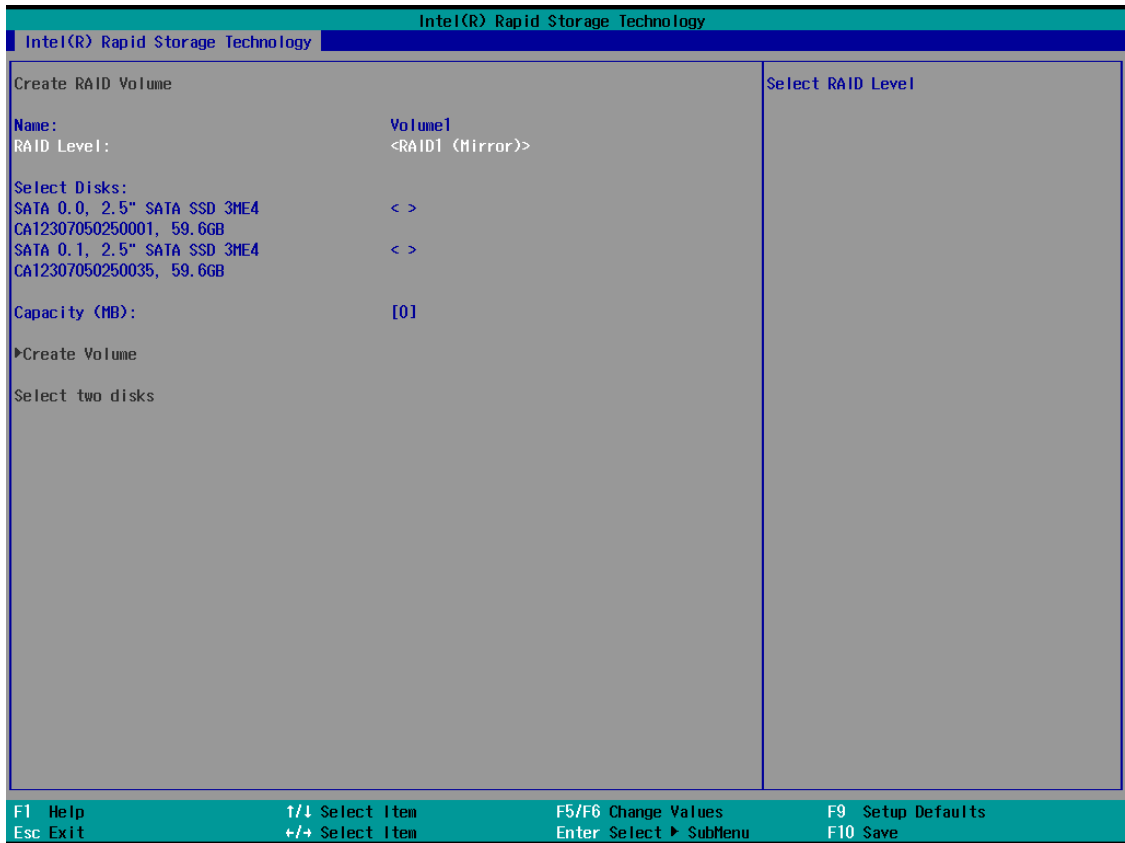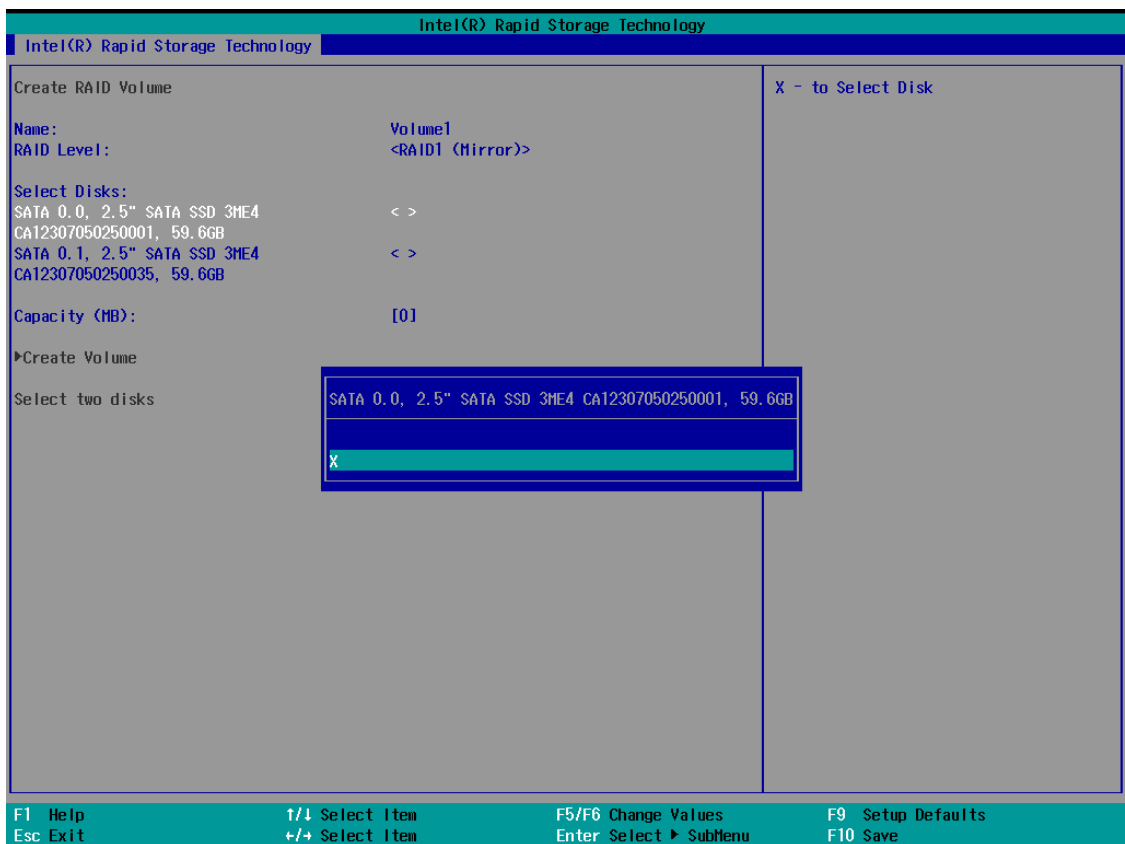
5. Select the **RAID Level** option and then press **Enter** to select the raid level; for example, **RAID1(Mirror)**.
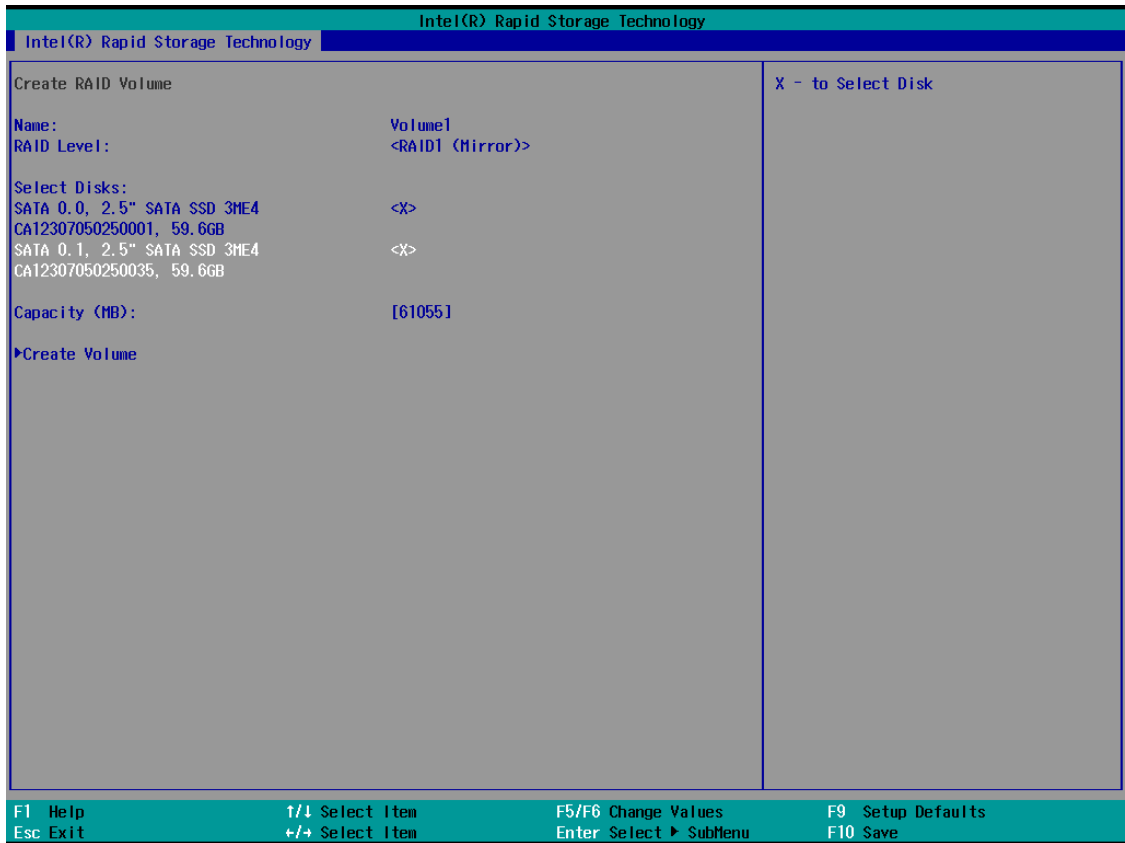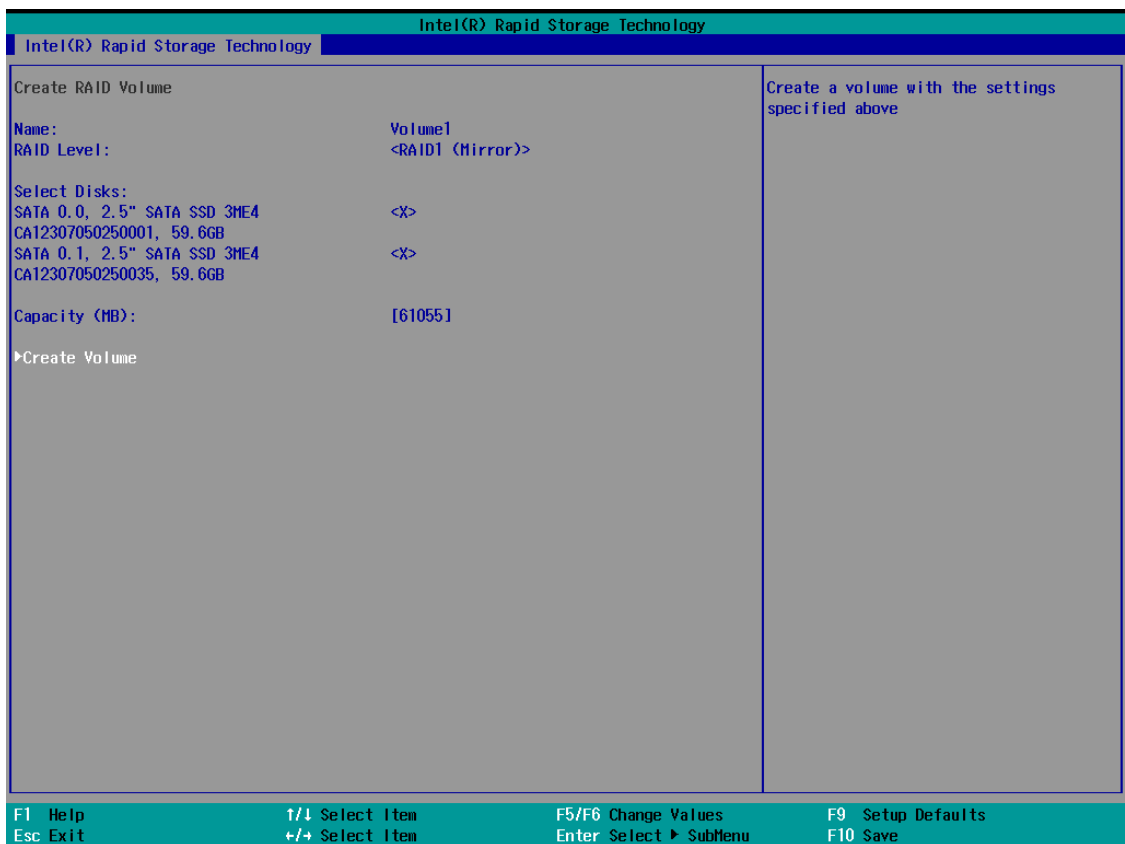
```
                            Intel(R) Rapid Storage Technology
  Intel(R) Rapid Storage Technology

 Create RAID Volume                                          Select RAID Level

 Name:                          Volume1
 RAID Level:                    <RAID0 (Stripe)>

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

 Strip Size:                    <16KB>
 Capacity (MB):                 [0]

 ▶Create Volume                        ┌──── RAID Level: ────┐
                                       │                     │
 Select at least two disks             │ RAID0 (Stripe)      │
                                       │ RAID1 (Mirror)      │
                                       └─────────────────────┘




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

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

 Create RAID Volume                                          Select RAID Level

 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

 Capacity (MB):                 [0]

 ▶Create Volume

 Select two disks




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

6. Select the target disk.

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

Create RAID Volume                                         Select RAID Level                25

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

Capacity (MB):                   [0]

►Create Volume

Select two disks


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

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

Capacity (MB):                   [0]

►Create Volume

Select two disks     SATA 0.0, 2.5" SATA SSD 3ME4 CA12307050250001, 59.6GB

                     X


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                26

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: Replacing a Disk

1. Run **Intel® Optane™ Memory and Storage Management** from the Windows Start menu.
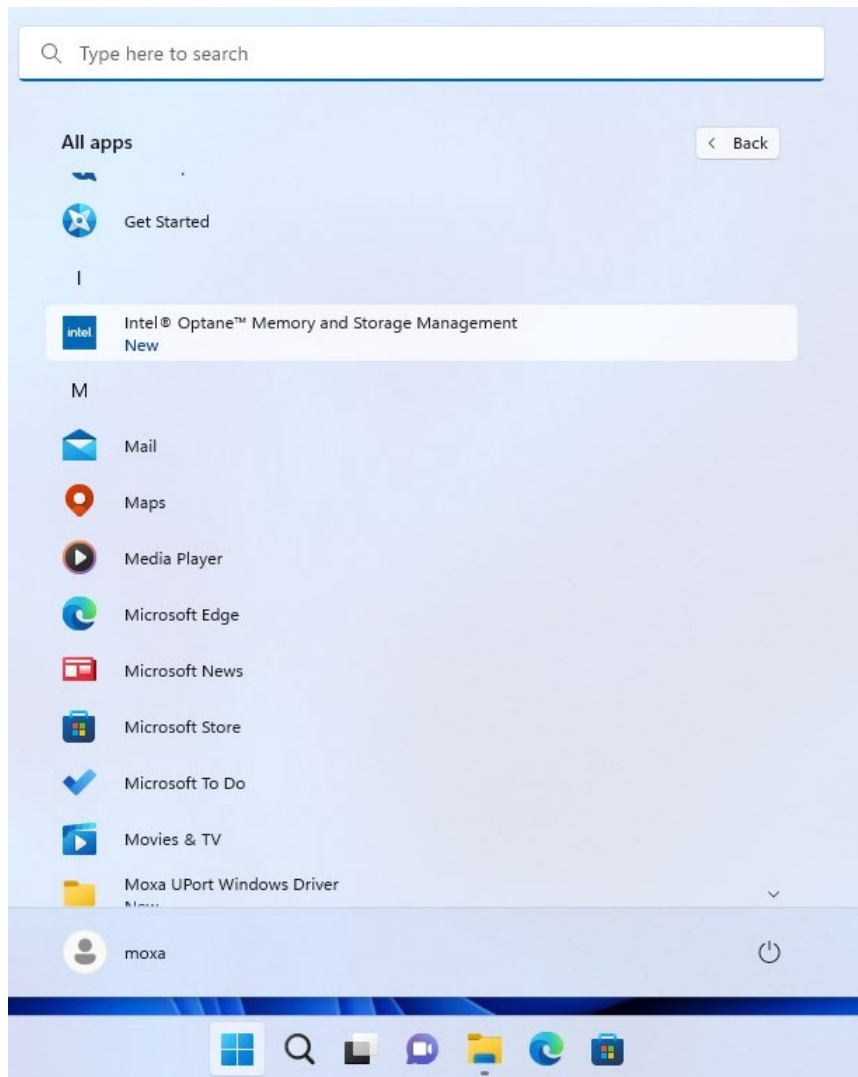
2. Physically unplug the target SSD.
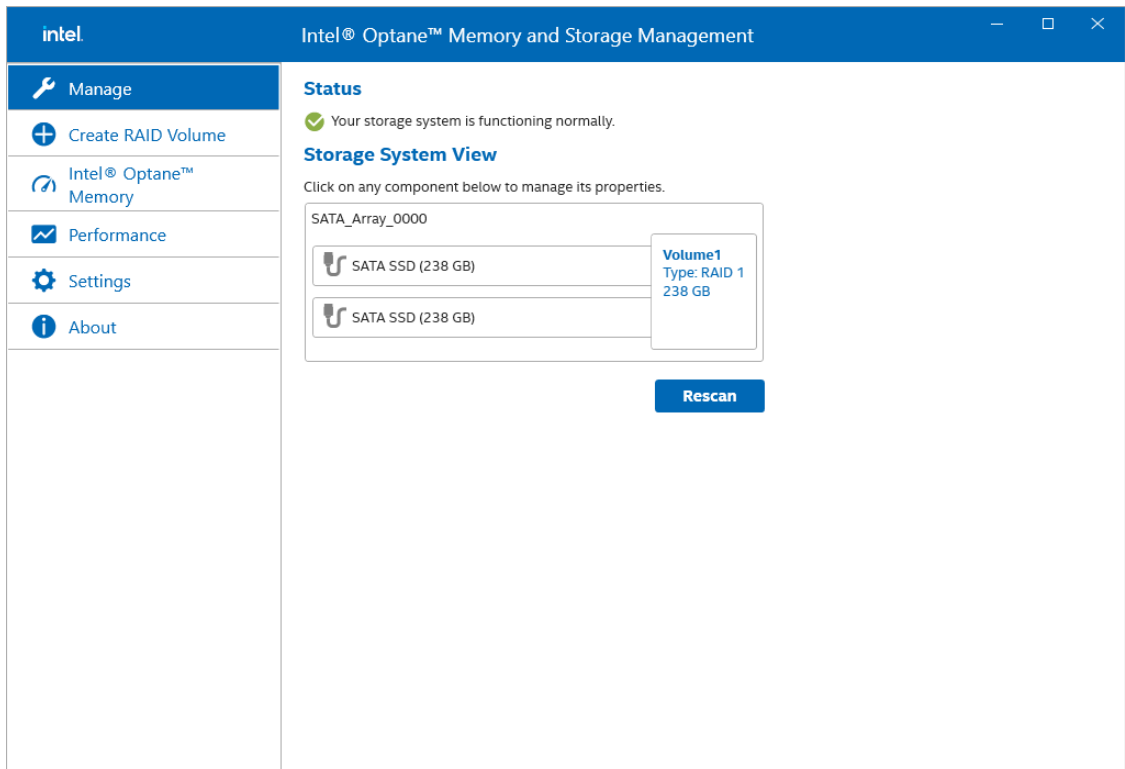
The status of the SSD that is unplugged will change to **Unknown hard disk (0 Bytes)** as shown below:
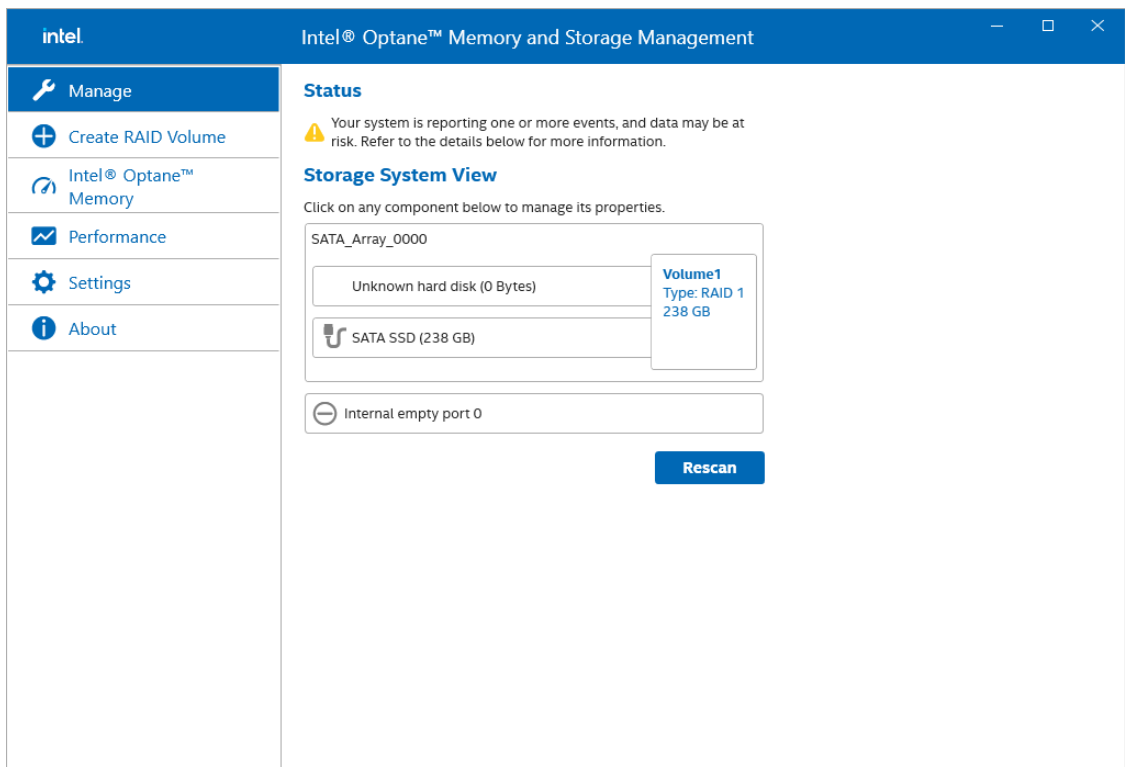
3. Install the new SSD in the same location.
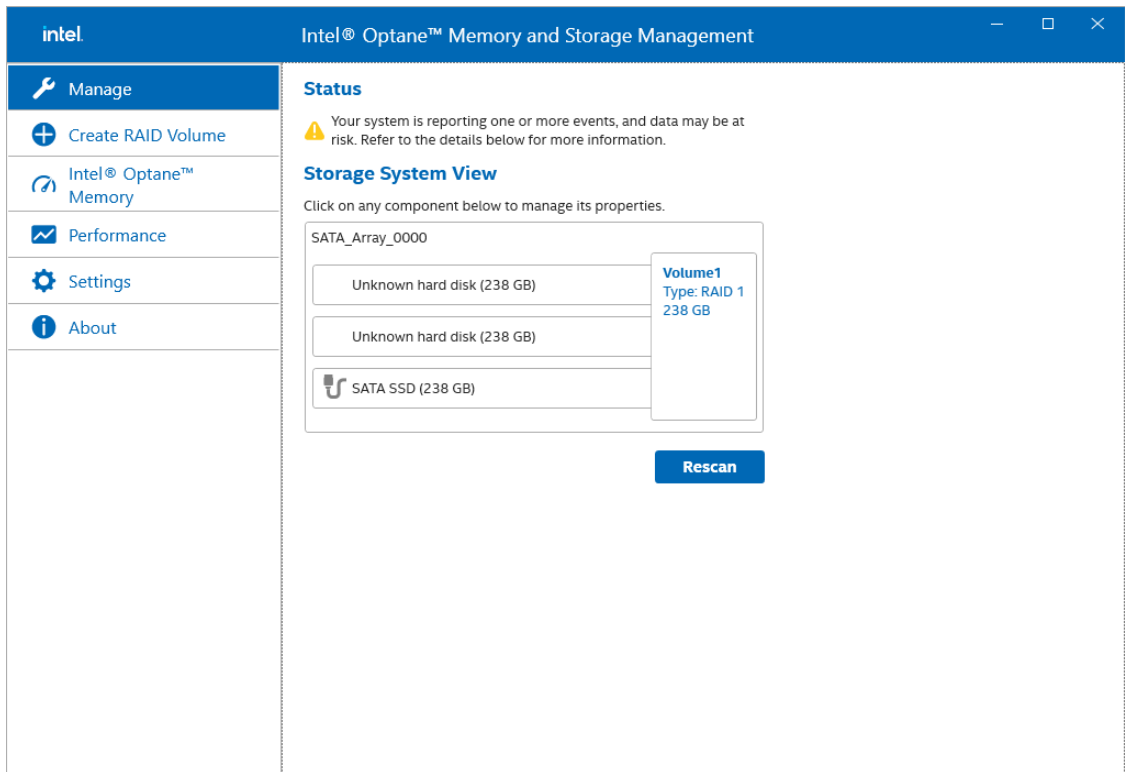
4. Click on the **Settings** tab. Enable **Automatic rebuild on hot plug**.
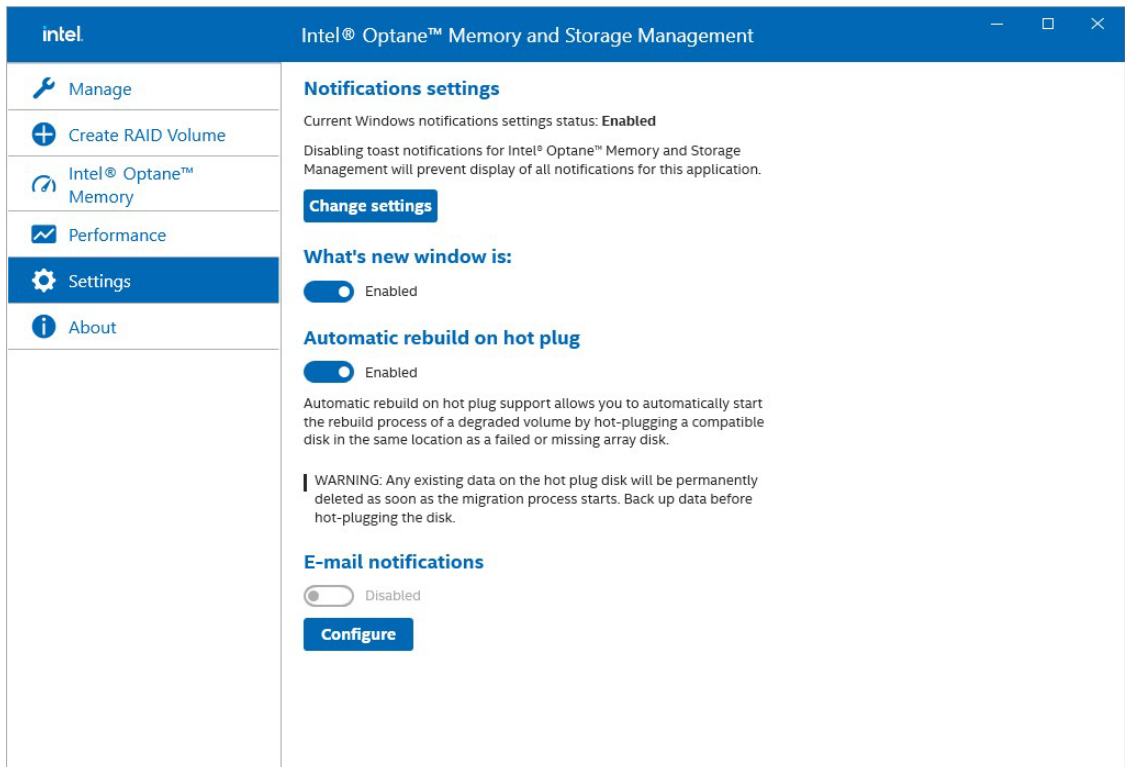
5. It will start rebuilding automatically. Wait for the rebuild process to complete.
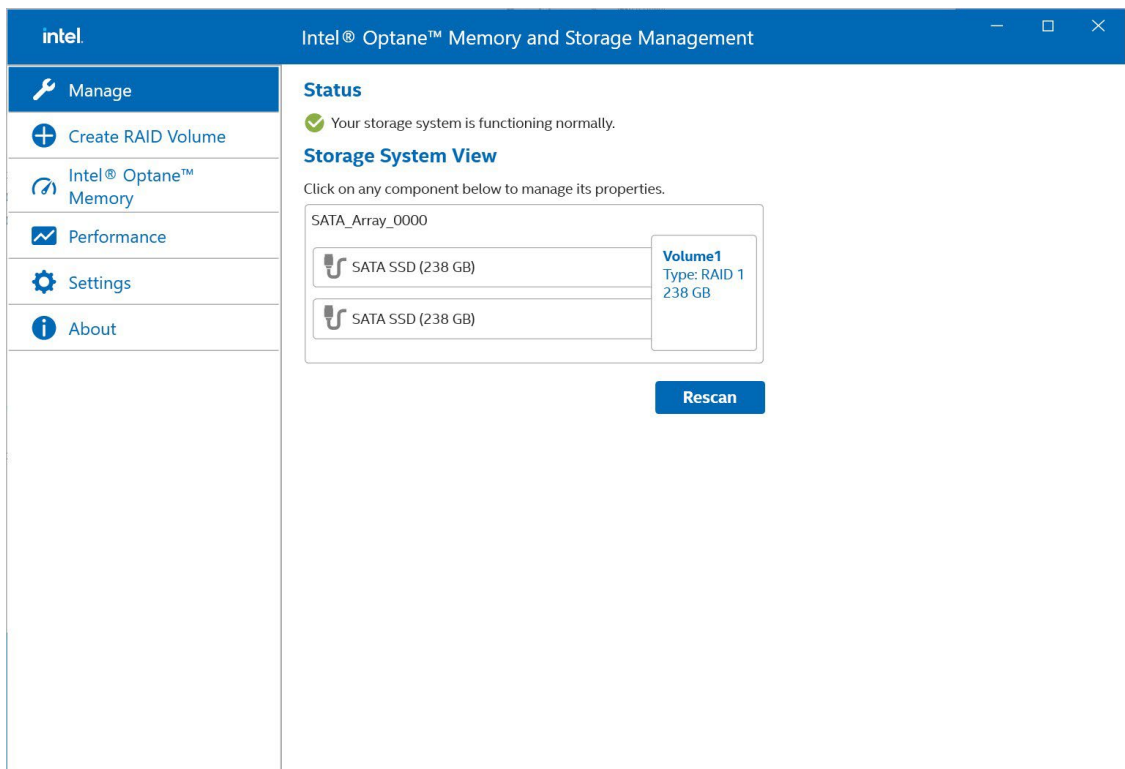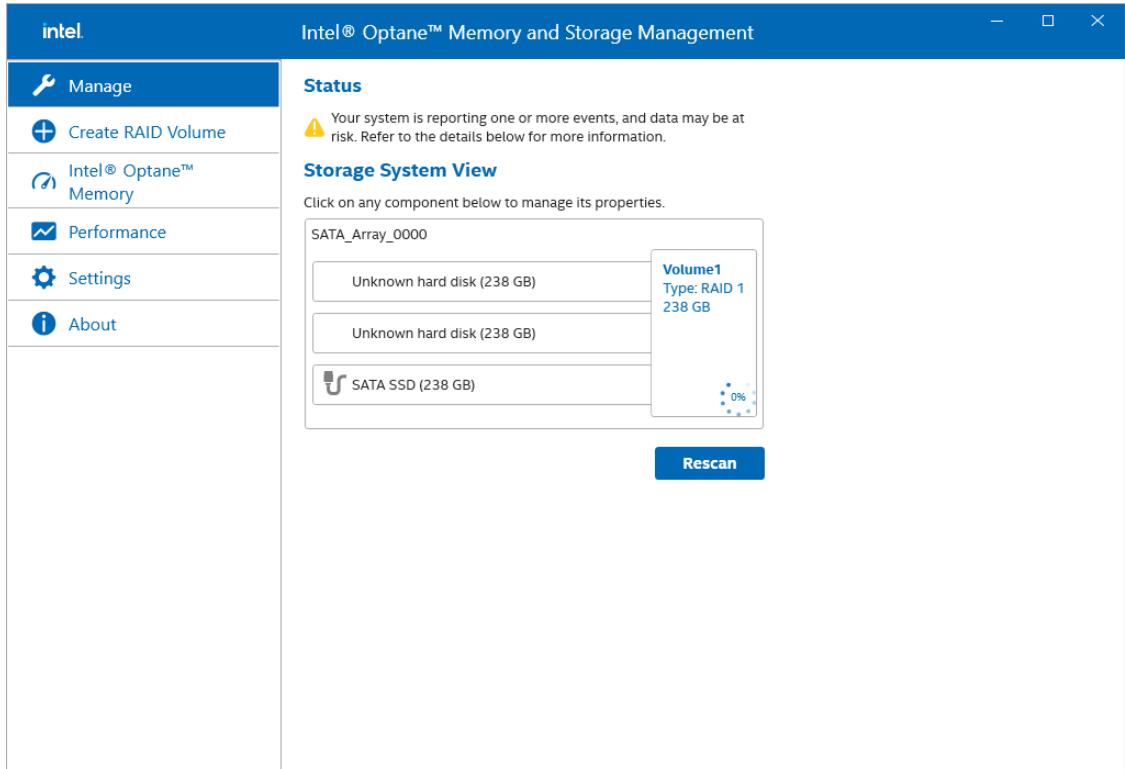
Intel® RAID: Removing a RAID Volume From the BIOS

1. Power on the computer and press **F2** to enter the BIOS menu.

2. Select **Device Management**.

✎ **NOTE**

FW RAID only supports RKP-A110 series.

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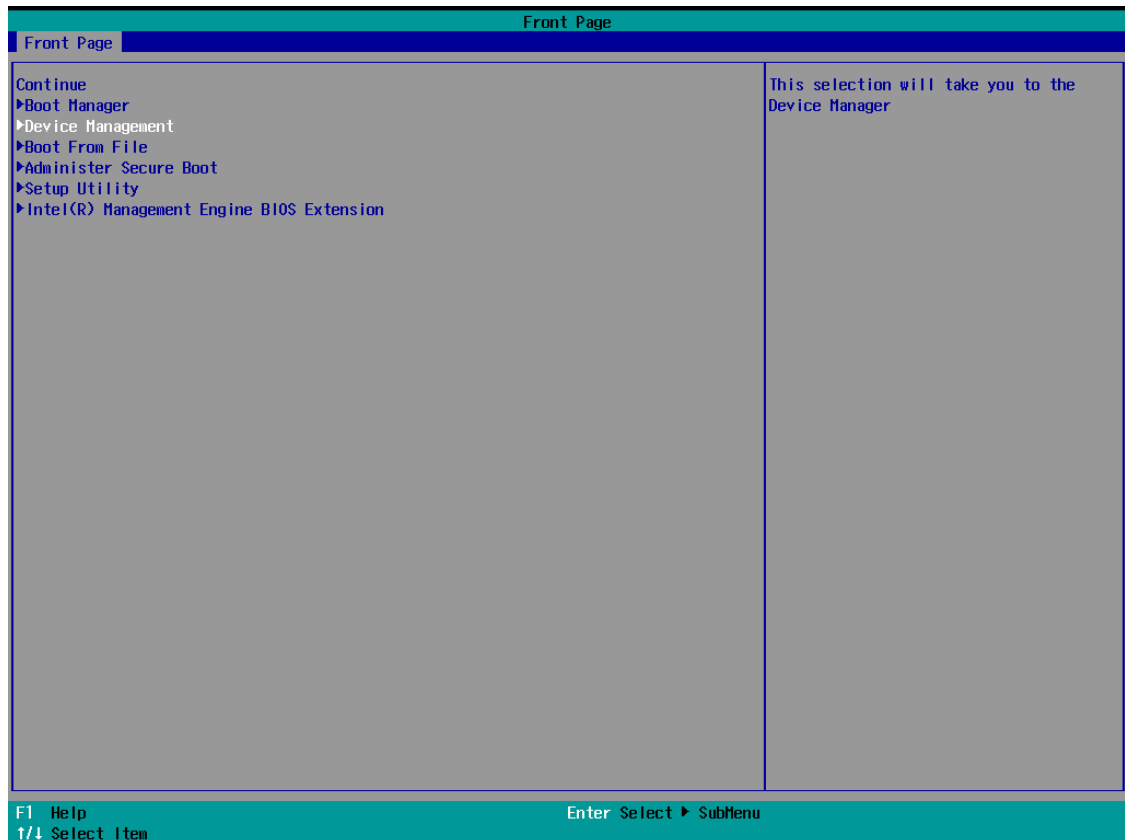
3. Select the **Intel® Rapid Storage Technology** option.

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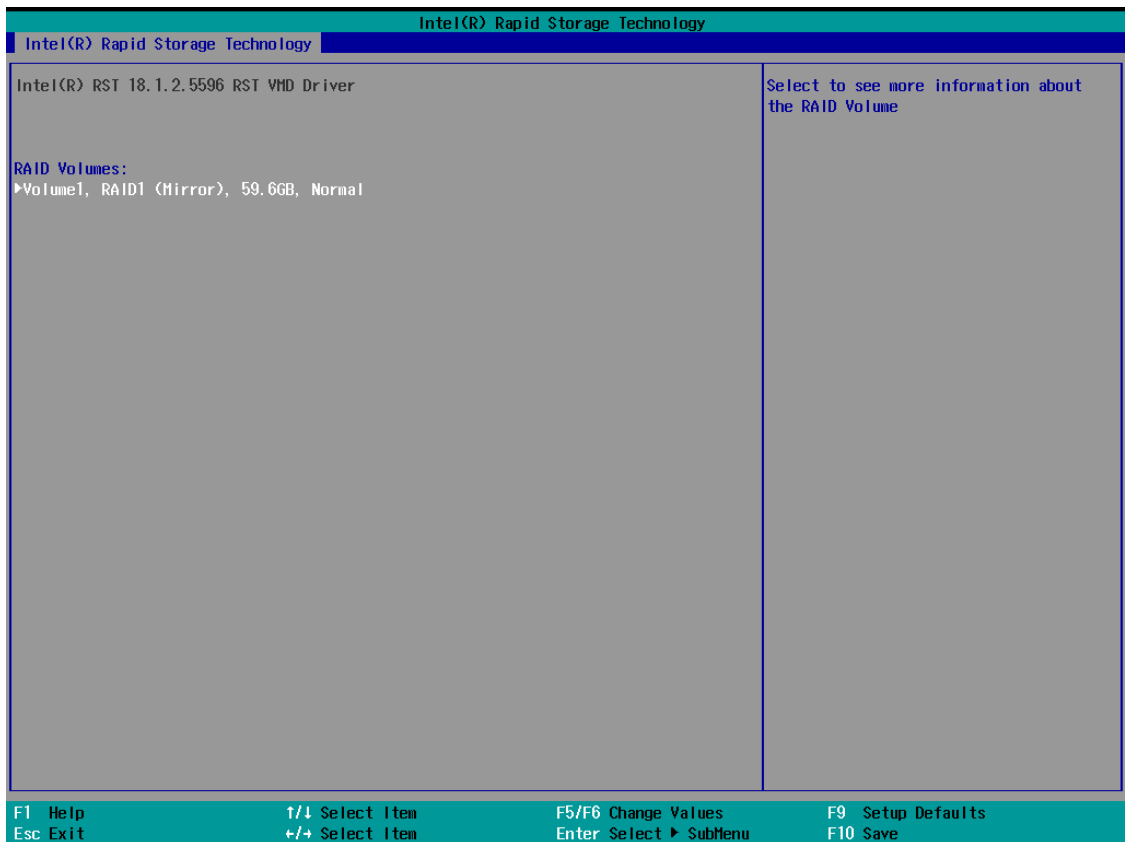
5. Select **Delete** and then press **Enter**.

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

 RAID VOLUME INFO                                                                        34

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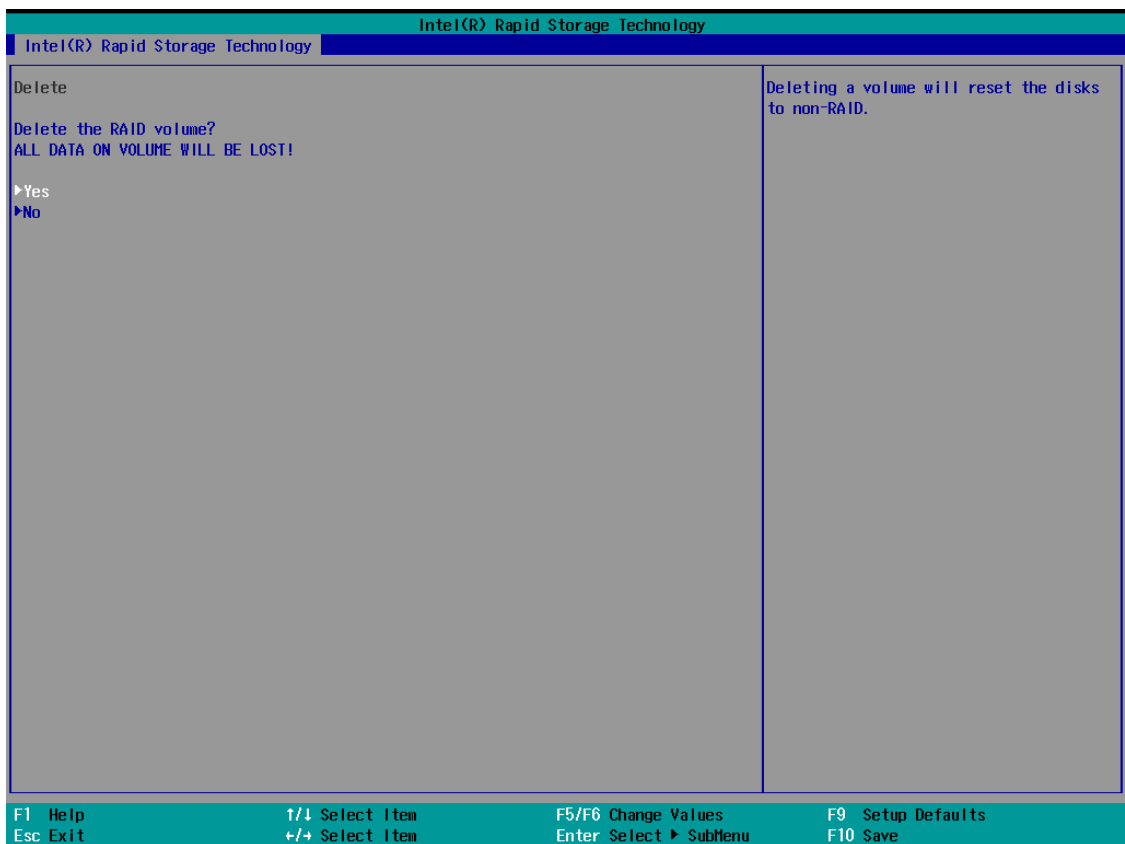
7. Press **F10** to save the settings.

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

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**.
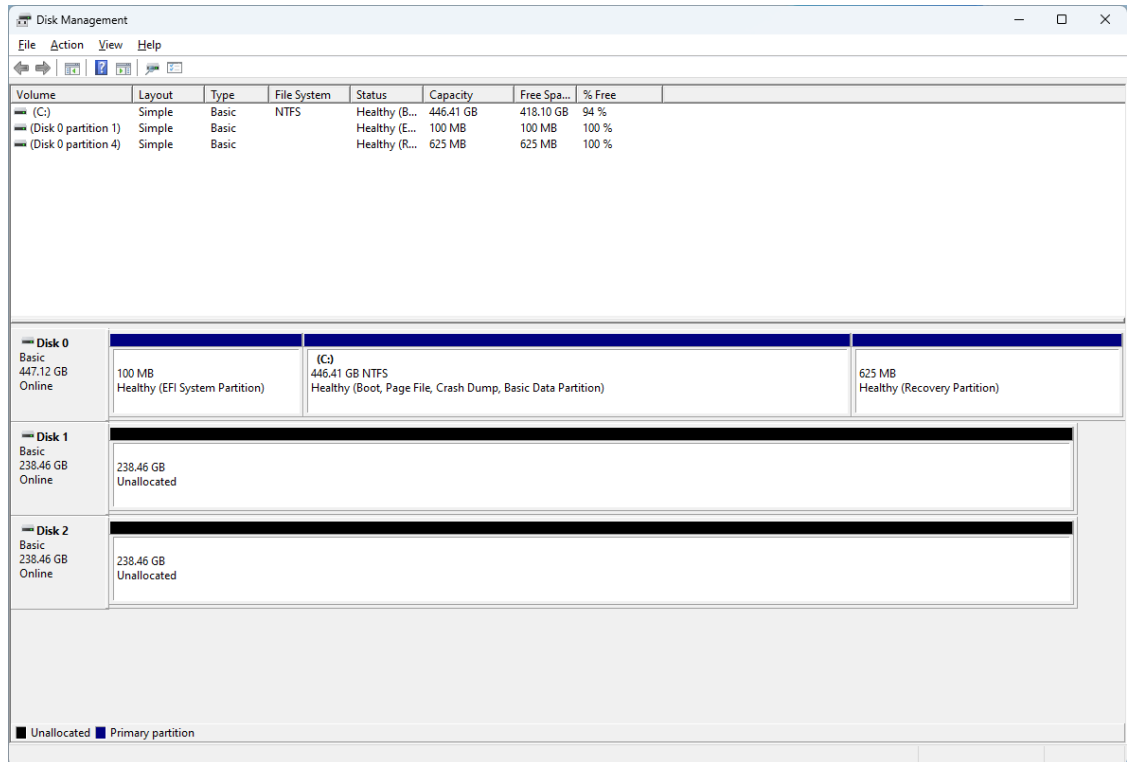
2. Right-click the target disk. Select the target volume type. For example: **RAID1(Mirror)**.
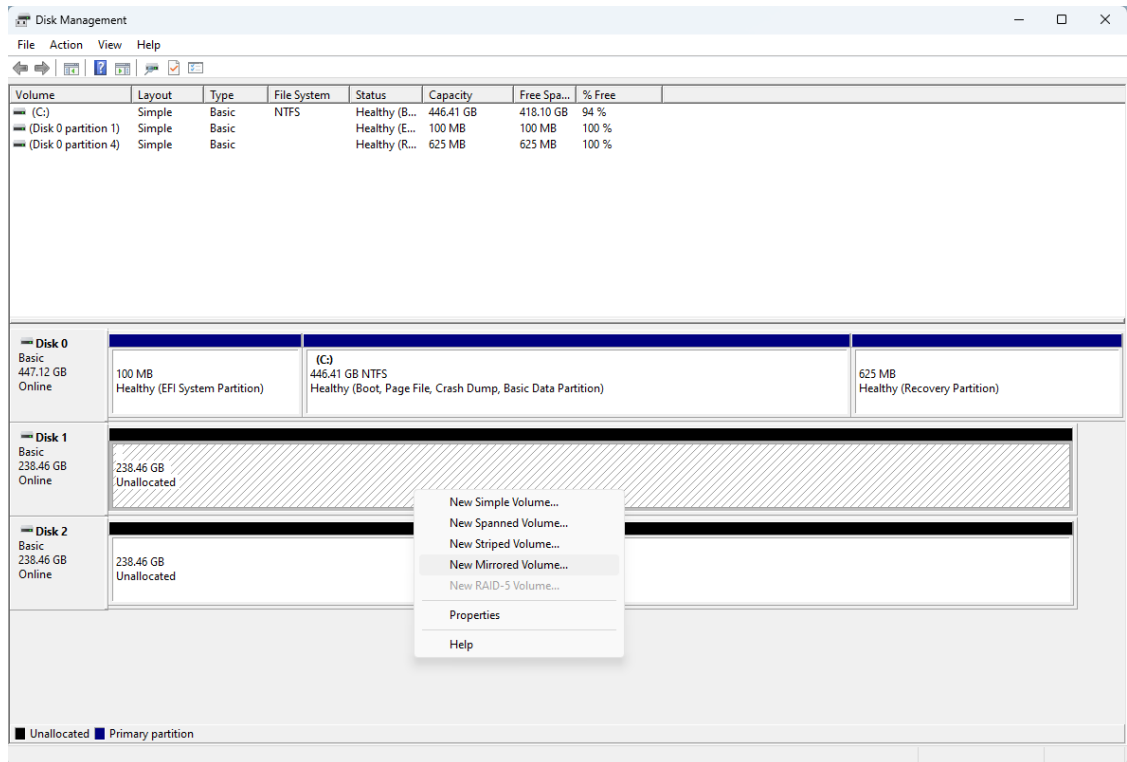
3. To continue, click **Next**.
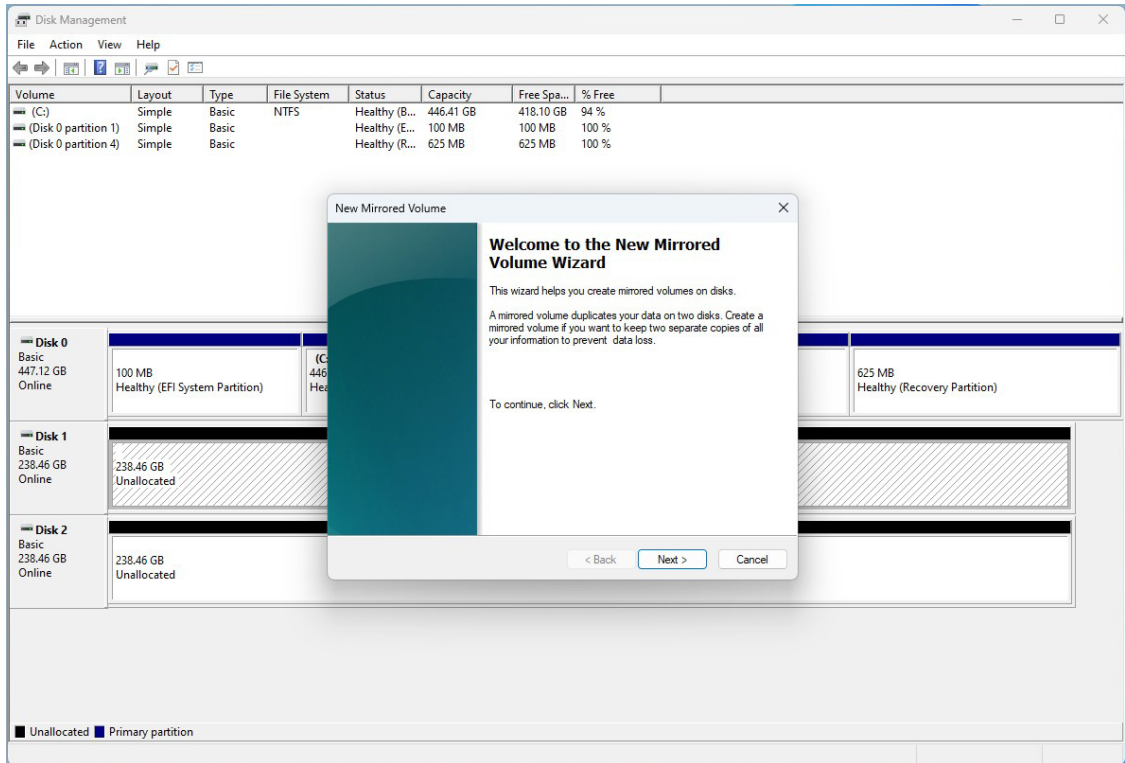
4. Select the disks you want to use, and then click **Add**.
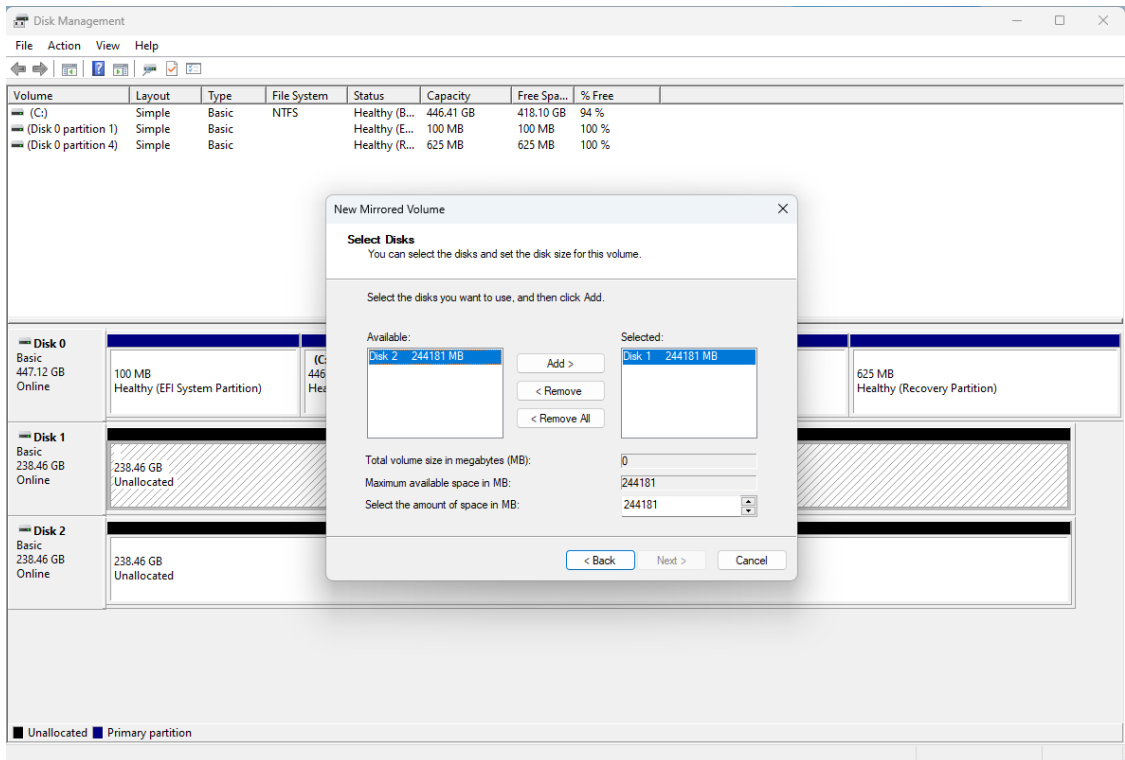
5. Click **Next**.
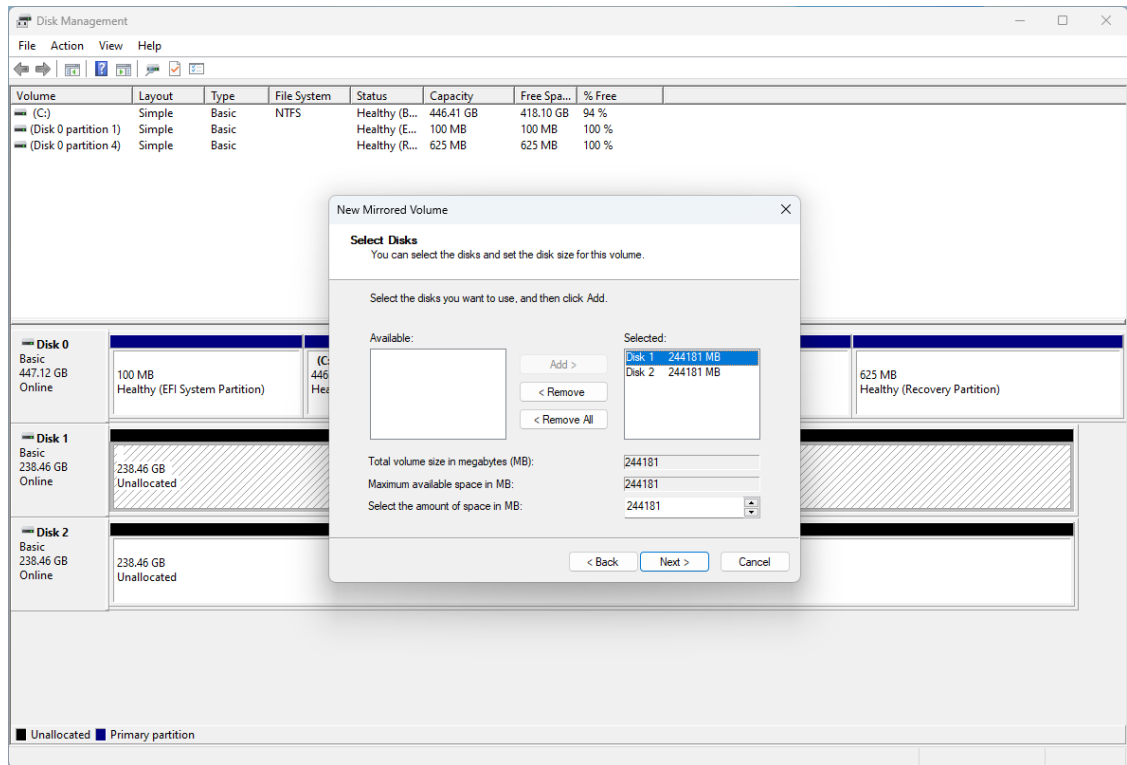
6. Assign the drive letter, click **Next**.
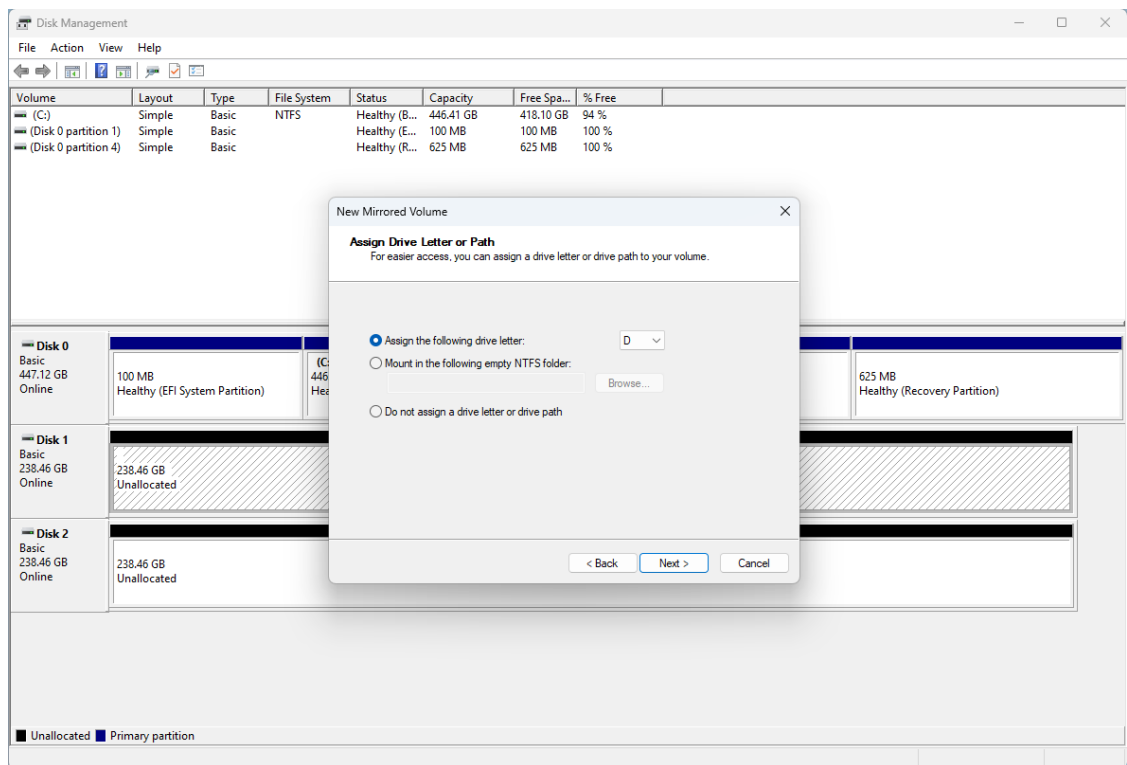
7. Format the volume using **Quick Format**, click **Next**.
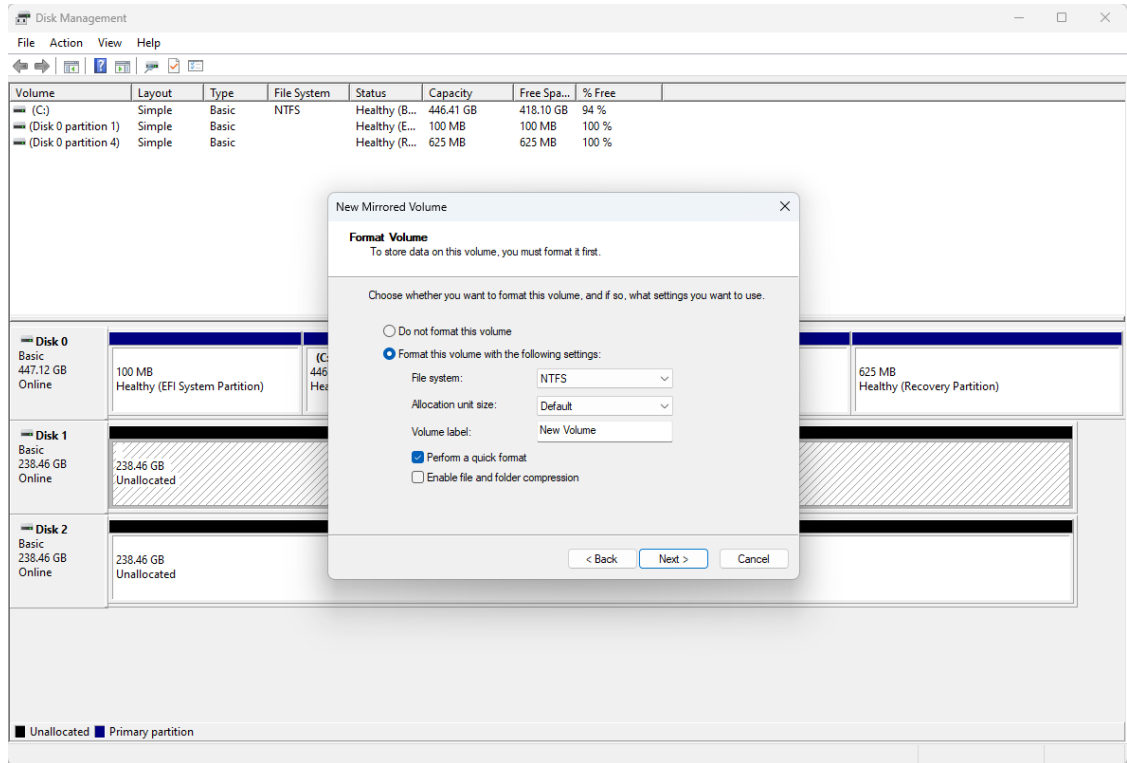
8. Checking the RAID1(Mirror) information. Click **Finish** to create the RAID1 volume.
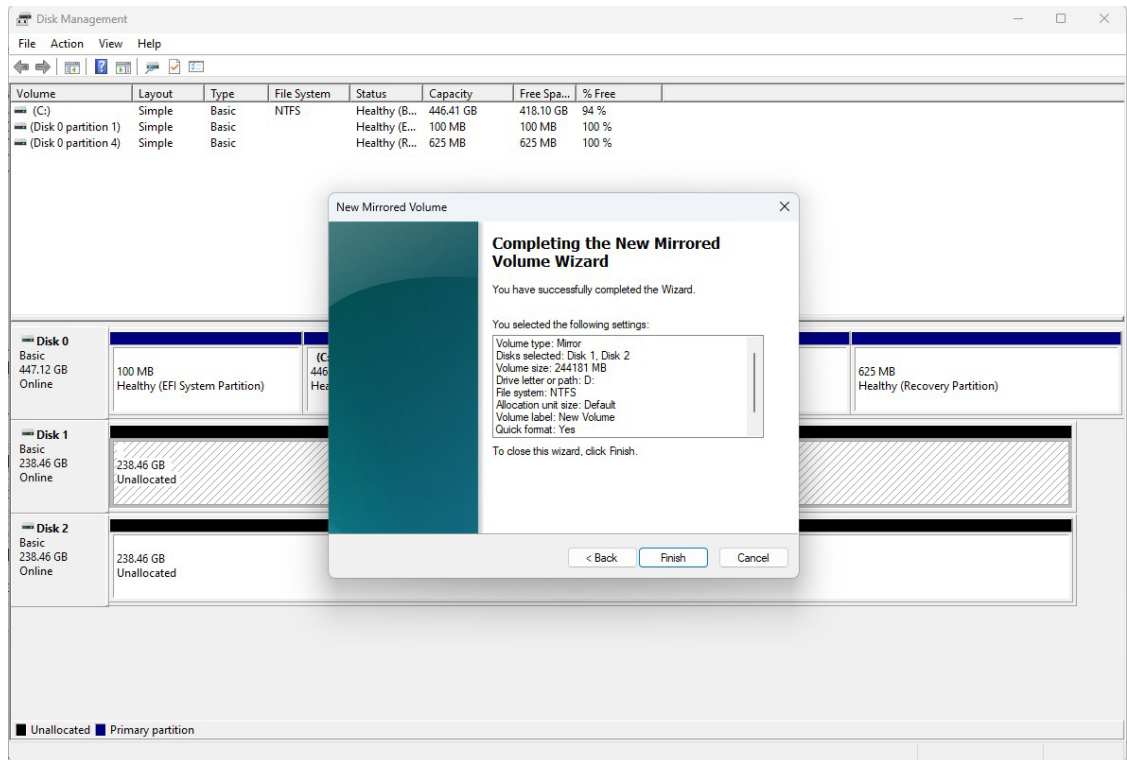
9. System will show the warning message about SW RAID volume, click **Yes** to continue.
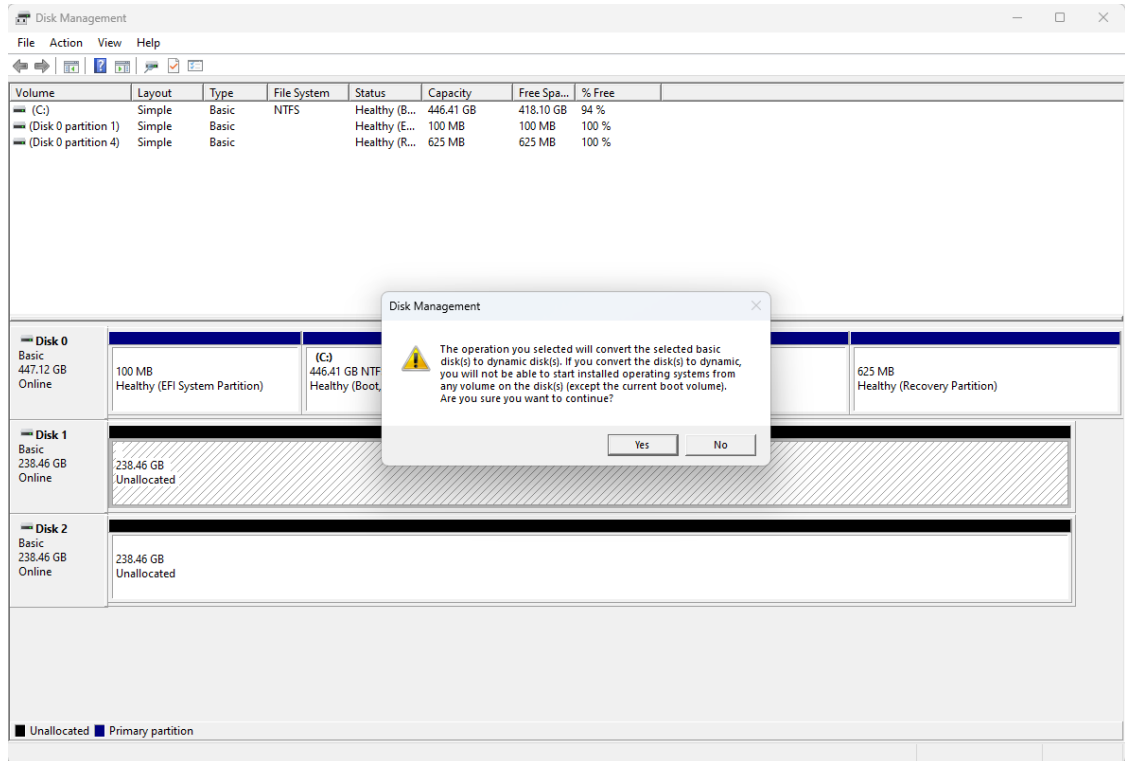
10. Checking the RAID1(Mirror) information from disk management.
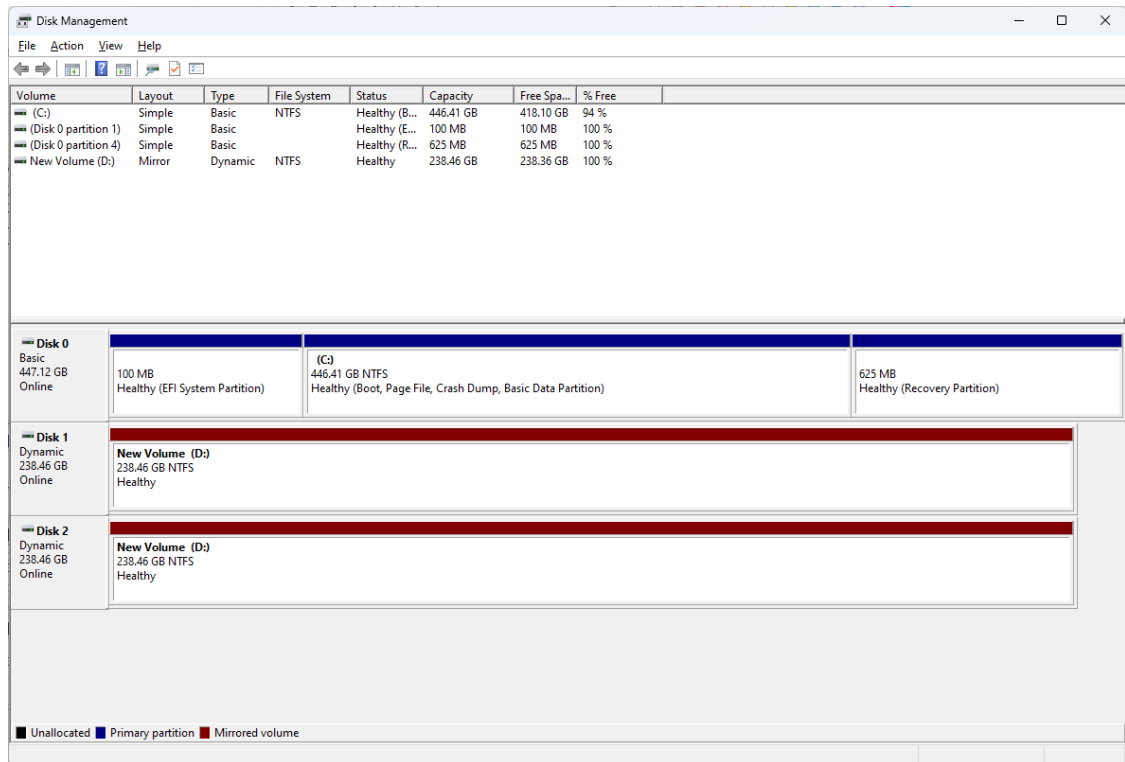
5. Intel® Active Management Technology

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-active-management-technology.html?wapkw=AMT

✏ **NOTE**

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

Applicable Series

- **BXP-C100 Series**
- **DRP-C100 Series**
- **RKP-C110 Series**

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**.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
Copyright(C) 2003-16 Intel Corporation. All Rights Reserved

MAIN MENU

MEBx Login
> Intel(R) ME General Settings
> Intel(R) AMT Configuration
  MEBx Exit

        Intel(R) ME Password

[↑↓]=Move Highlight   [Enter]=Select Entry   [Esc]=Exit

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

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
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MAIN MENU

MEBx Login
> Intel(R) ME General Settings
> Intel(R) AMT Configuration
  MEBx Exit

                        Intel(R) ME Password
                        *****

        Intel(R) ME Password

[↑↓]=Move Highlight   [Enter]=Select Entry   [Esc]=Exit
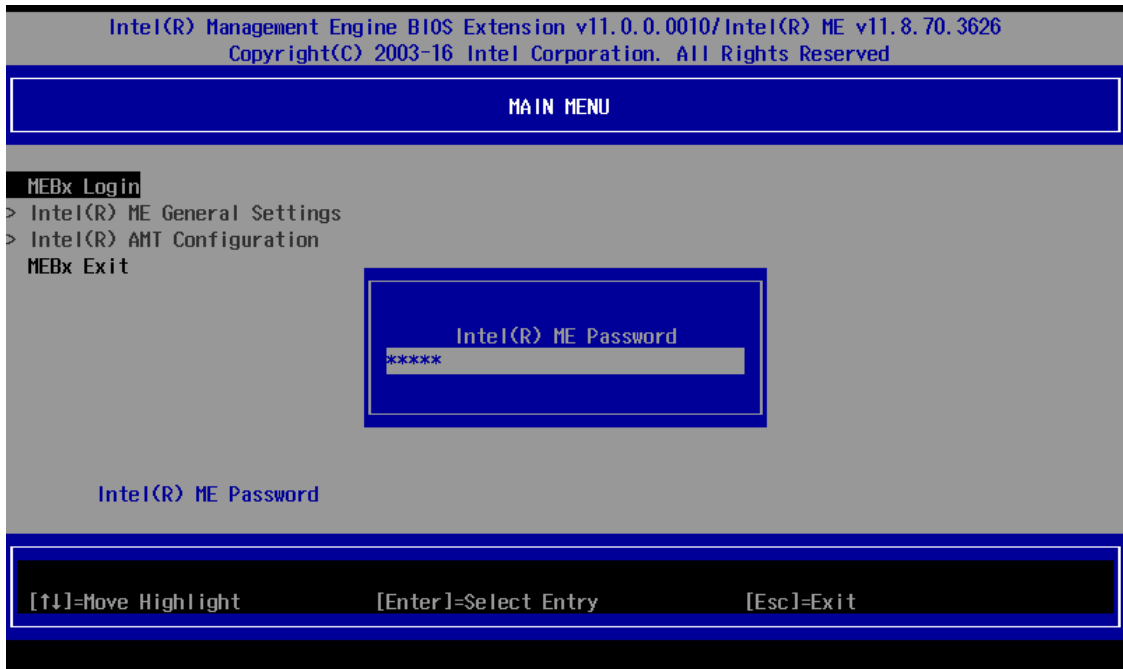
5. Type the new password. The new Intel® MEBX password must meet the following requirements for strong passwords:

➢ **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').

```
Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
          Copyright(C) 2003-16 Intel Corporation. All Rights Reserved

                              MAIN MENU


  MEBx Login
> Intel(R) ME General Settings
> Intel(R) AMT Configuration
  MEBx Exit

                          Intel(R) ME New Password




      Intel(R) ME Password



  [↑↓]=Move Highlight          [Enter]=Select Entry          [Esc]=Exit
```

6. Verify the password and login MEBx.

```
Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
          Copyright(C) 2003-16 Intel Corporation. All Rights Reserved

                              MAIN MENU


  MEBx Login
> Intel(R) ME General Settings
> Intel(R) AMT Configuration
  MEBx Exit

                            Verify password




      Intel(R) ME Password



  [↑↓]=Move Highlight          [Enter]=Select Entry          [Esc]=Exit
```

7. Select **Intel(R) AMT Configuration**.

```
Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
              Copyright(C) 2003-16 Intel Corporation. All Rights Reserved

                              MAIN MENU

> Intel(R) ME General Settings
> Intel(R) AMT Configuration
  MEBx Exit

  [↑↓]=Move Highlight          [Enter]=Select Entry          [Esc]=Exit
```

8. Select **Network Setup**.

```
Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
              Copyright(C) 2003-16 Intel Corporation. All Rights Reserved

                        INTEL(R) AMT CONFIGURATION

  Manageability Feature Selection              <Enabled>
> SOL/Storage Redirection/KVM
> User Consent
  Password Policy                              <Anytime>
> Network Setup
  Activate Network Access
  Unconfigure Network Access                   <Full Unprovision>
> Remote Setup And Configuration
> Power Control

  [↑↓]=Move Highlight          [Enter]=Select Entry          [Esc]=Exit
```

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

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
Copyright(C) 2003-16 Intel Corporation. All Rights Reserved

INTEL(R) ME NETWORK SETUP

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

[↑↓]=Move Highlight   [Enter]=Select Entry   [Esc]=Exit

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

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
Copyright(C) 2003-16 Intel Corporation. All Rights Reserved

TCP/IP SETTINGS

> Wired LAN IPV4 Configuration

[↑↓]=Move Highlight   [Enter]=Select Entry   [Esc]=Exit
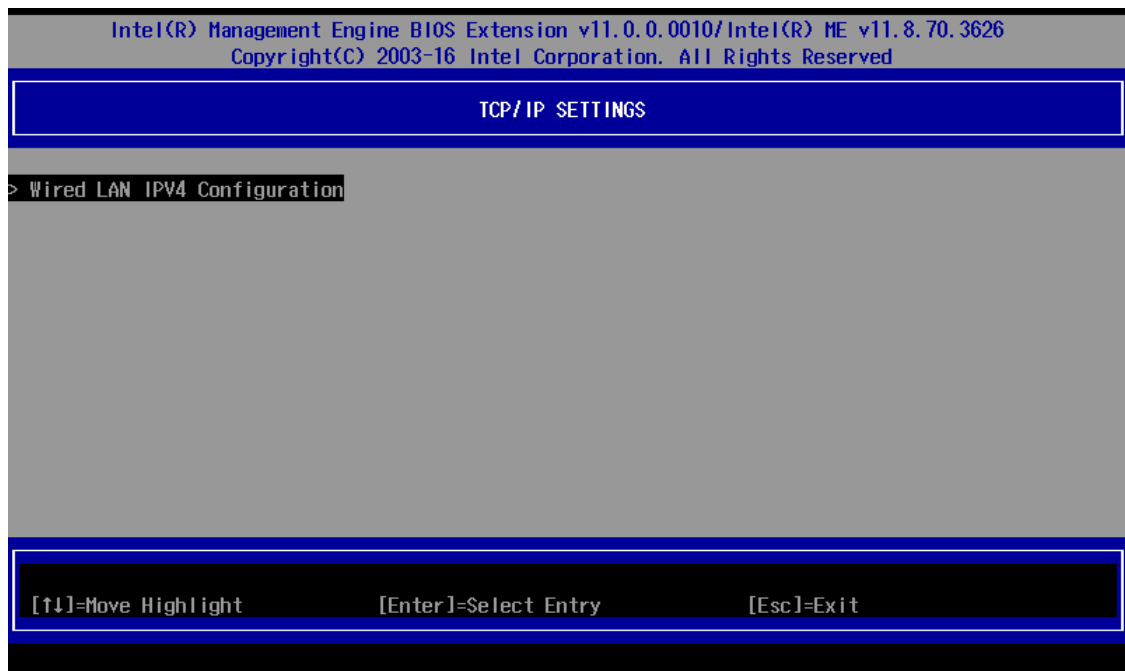
11. Select **DHCP Mode** and disable DHCP mode.

```
Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
                Copyright(C) 2003-16 Intel Corporation. All Rights Reserved

                           WIRED LAN IPV4 CONFIGURATION


DHCP Mode                                    <Enabled>


                                   ┌──────────────┐
                                   │ Disabled     │
                                   │ Enabled      │
                                   └──────────────┘




 [↑↓]=Move Highlight          <Enter>=Complete Entry        [Esc]=Discard Changes
```

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

```
Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.70.3626
                Copyright(C) 2003-16 Intel Corporation. All Rights Reserved

                           WIRED LAN IPV4 CONFIGURATION

DHCP Mode                                    <Disabled>
IPV4 Address                                 0.0.0.0
Subnet Mask Address                          0.0.0.0
Default Gateway Address                      0.0.0.0
Preferred DNS Address                        0.0.0.0
Alternate DNS Address                        0.0.0.0



        IP address (e.g. 123.123.123.100)


 [↑↓]=Move Highlight          [Enter]=Select Entry          [Esc]=Exit
```

13. Go back to the **Intel(R) AMT Configuration** page and 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.
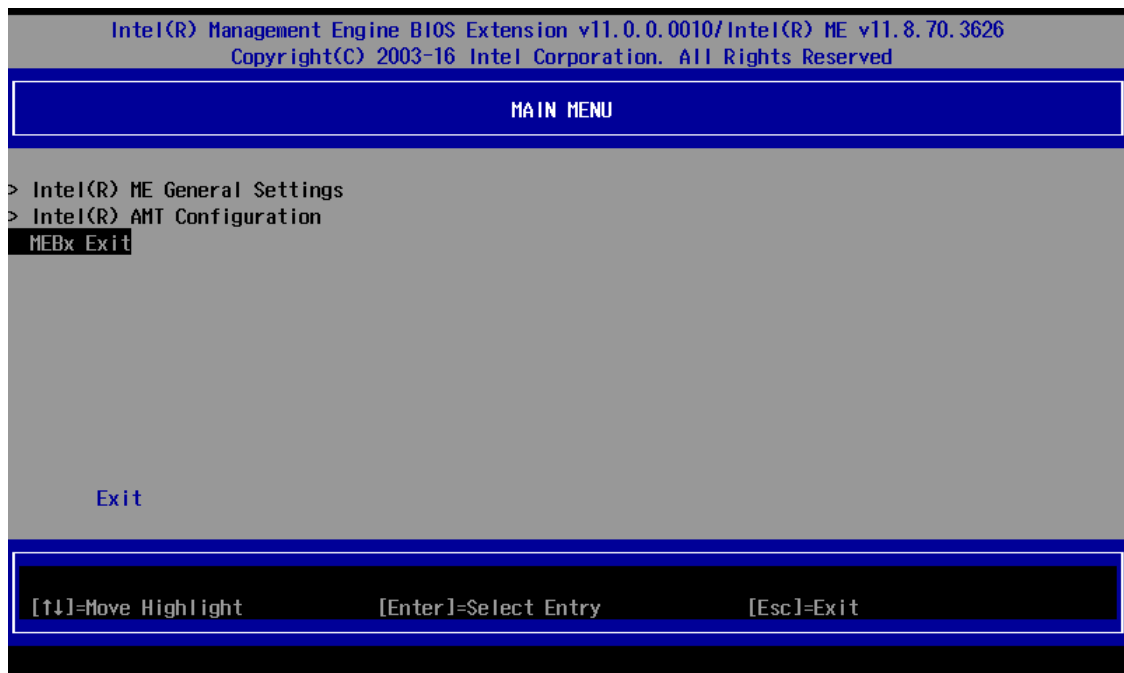
Access the Intel® AMT From Website

1. Open the web browser and type **Intel® AMT IP Address:16992** (ex: 192.168.1.1:16992)
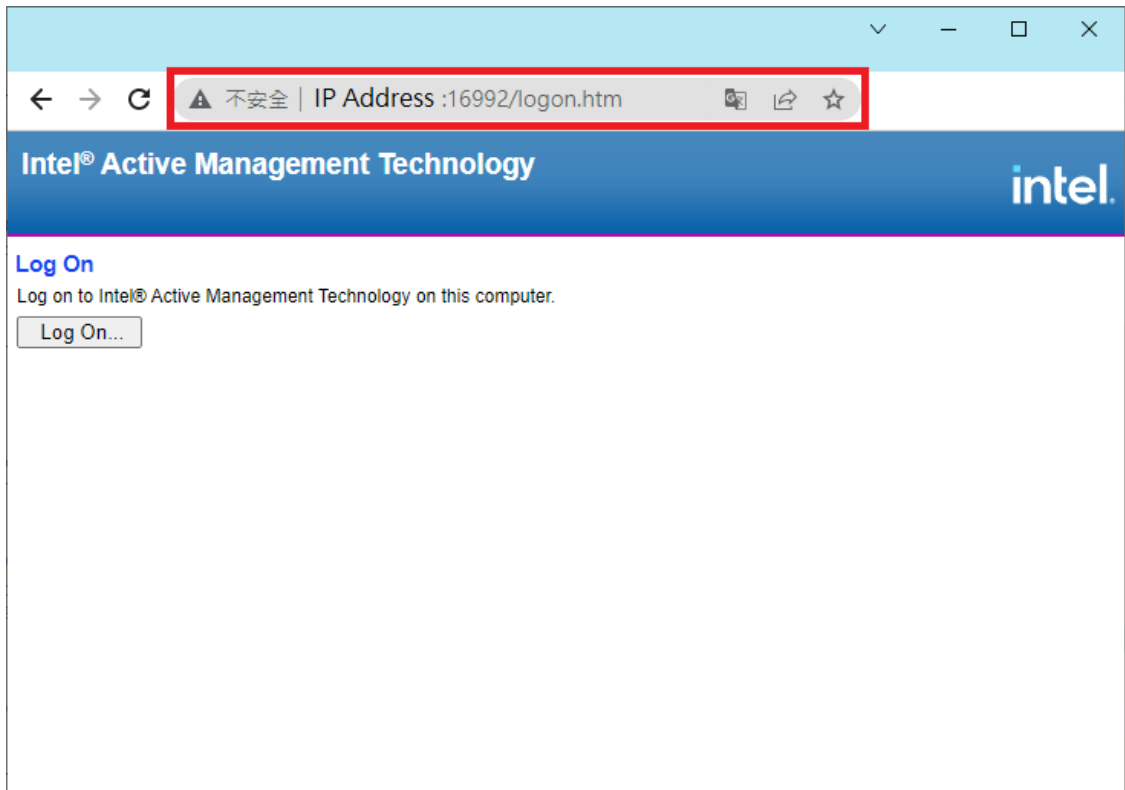
2. The browser would show the sign in message box. Type the **Username** and **Password** of Intel® AMT. The default username is **admin**.
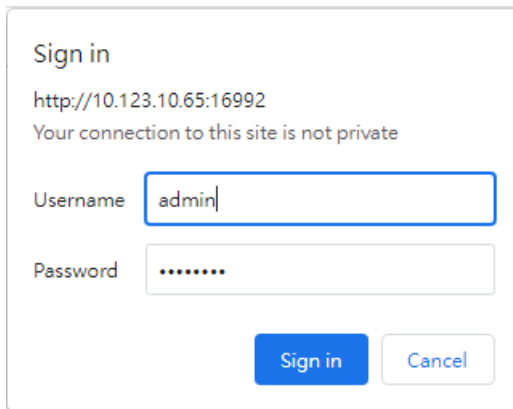
3. After signing in, you can check the system status and hardware information of the managed device.
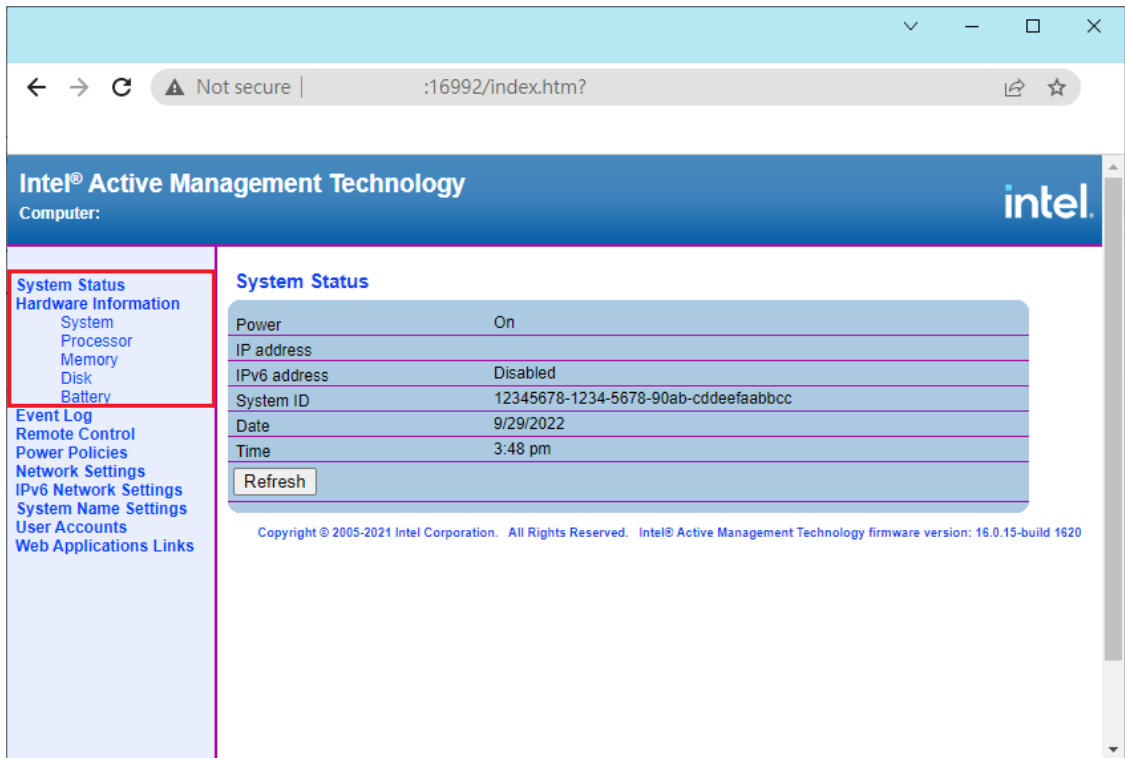
4. The Intel® AMT website provides the basic remote power control feature for the managed device. The advanced remote power control and the remote KVM feature please reference to next chapter.
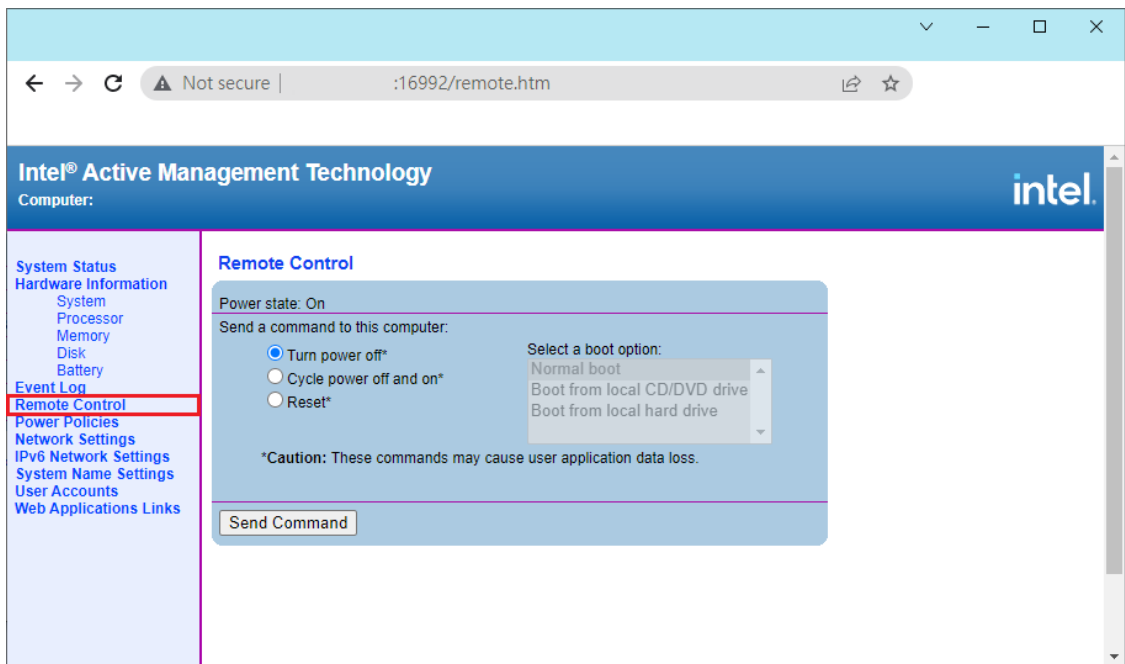
5. The Event Manager feature is responsible for dealing with internal alerts that occur in both the host platform and the Intel® AMT device, regardless of the power state.
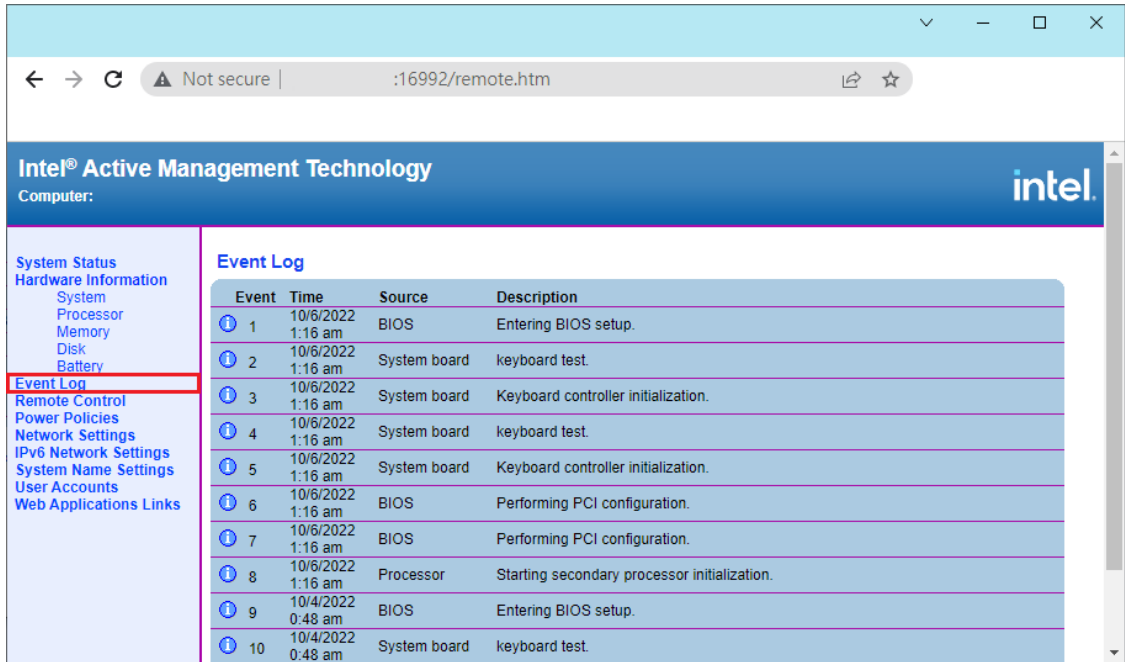
6. You can configure the managed device network settings from the website.
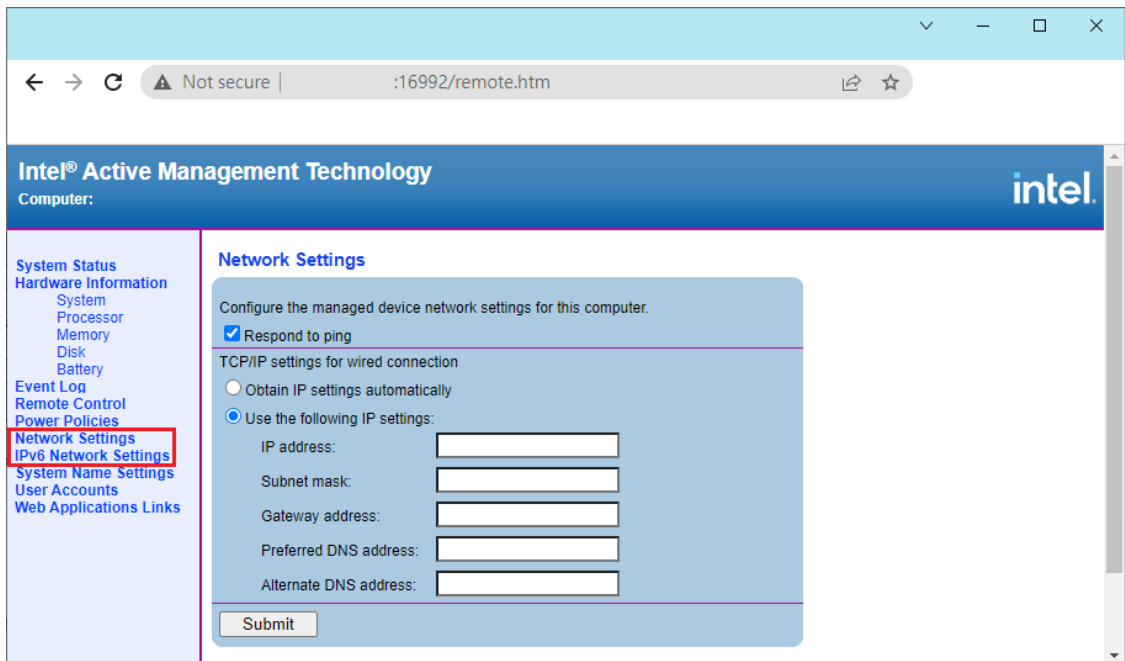
Access the Intel® AMT by Intel® Manageability Commander

1. Download and install the latest version of **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.
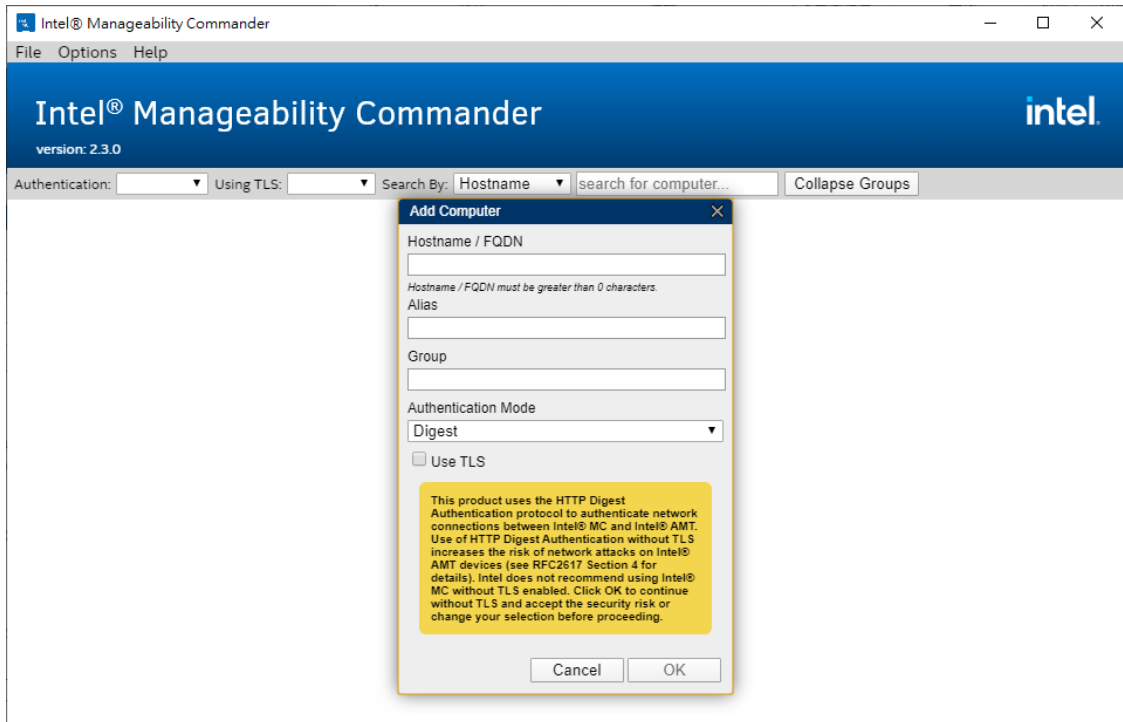
4. Select **Connect**, type the **Username** and **Password** of Intel® AMT. The default username is **admin**.
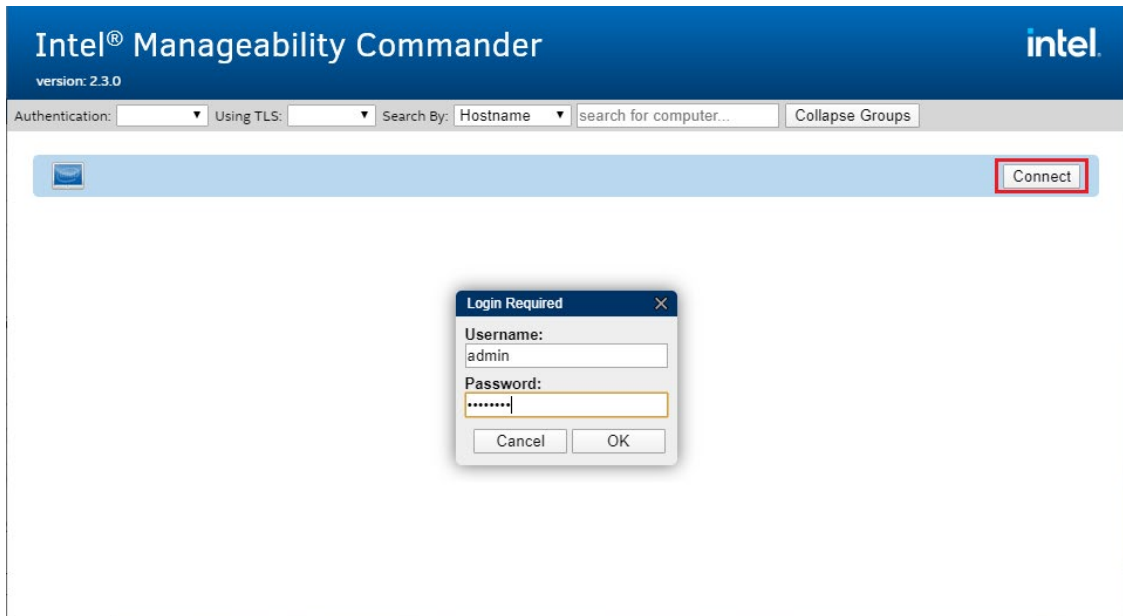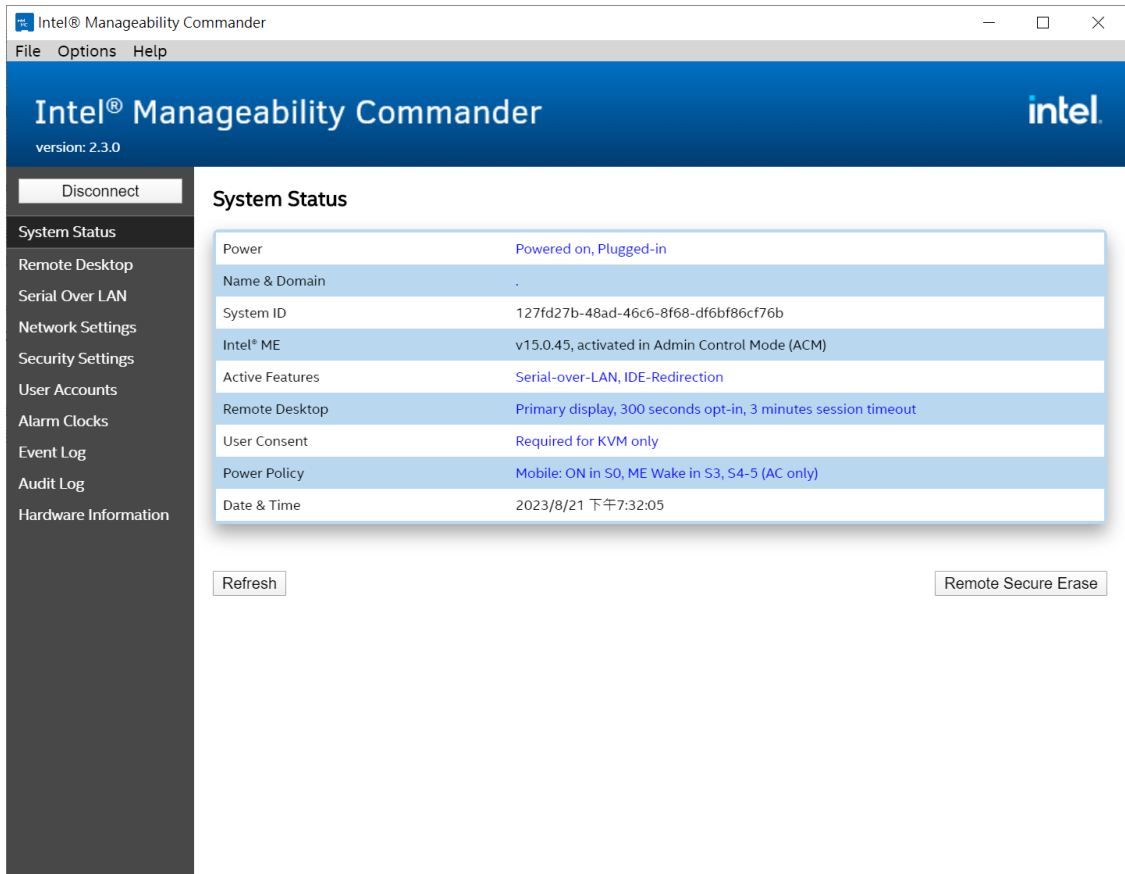
Remote Desktop

Intel® Manageability Commander provides the remote KVM feature to connect to devices remotely.

To connect to a device using Remote Desktop, do the following:

1. Select **Remote Desktop**.
   The redirection port feature is disabled when the remote function is activated for the first time. Click the warning message to enable it.
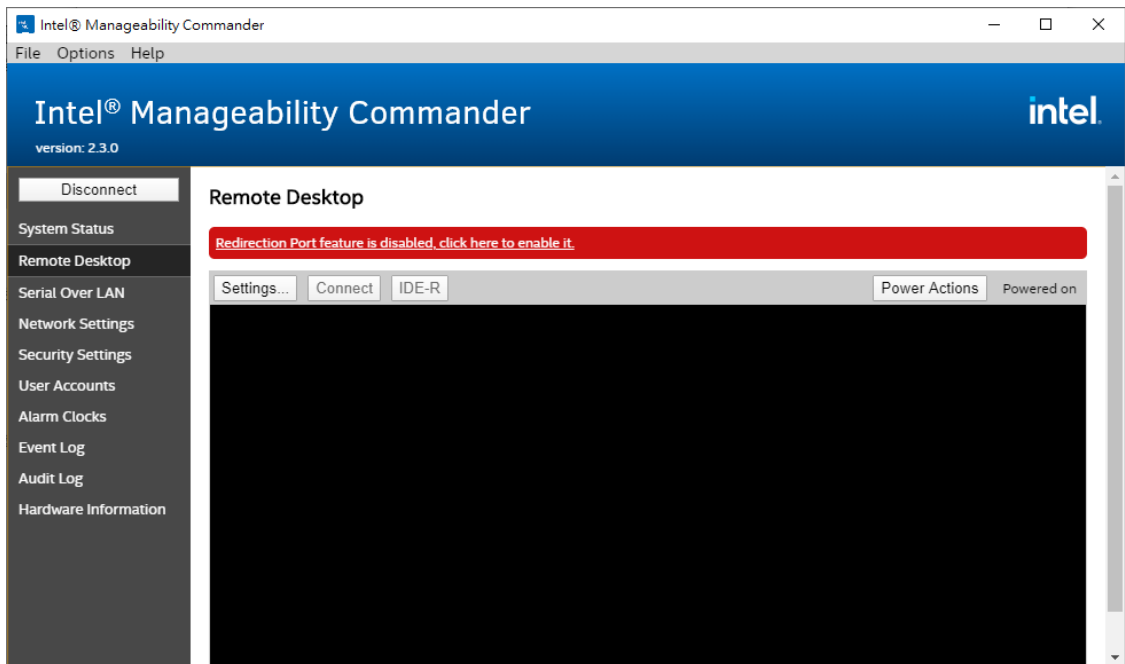
2. Enable all features. Click **OK** to apply settings.
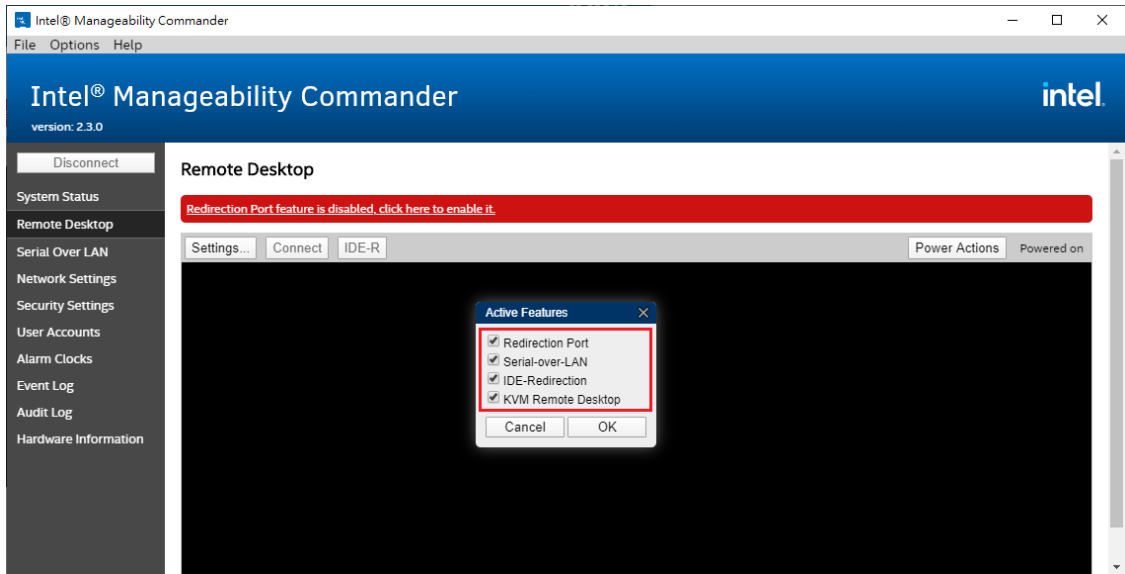
3. Click **Settings...**, Change the **Image Encoding** to **RLE16, Recommended**. Click **OK** to apply settings.
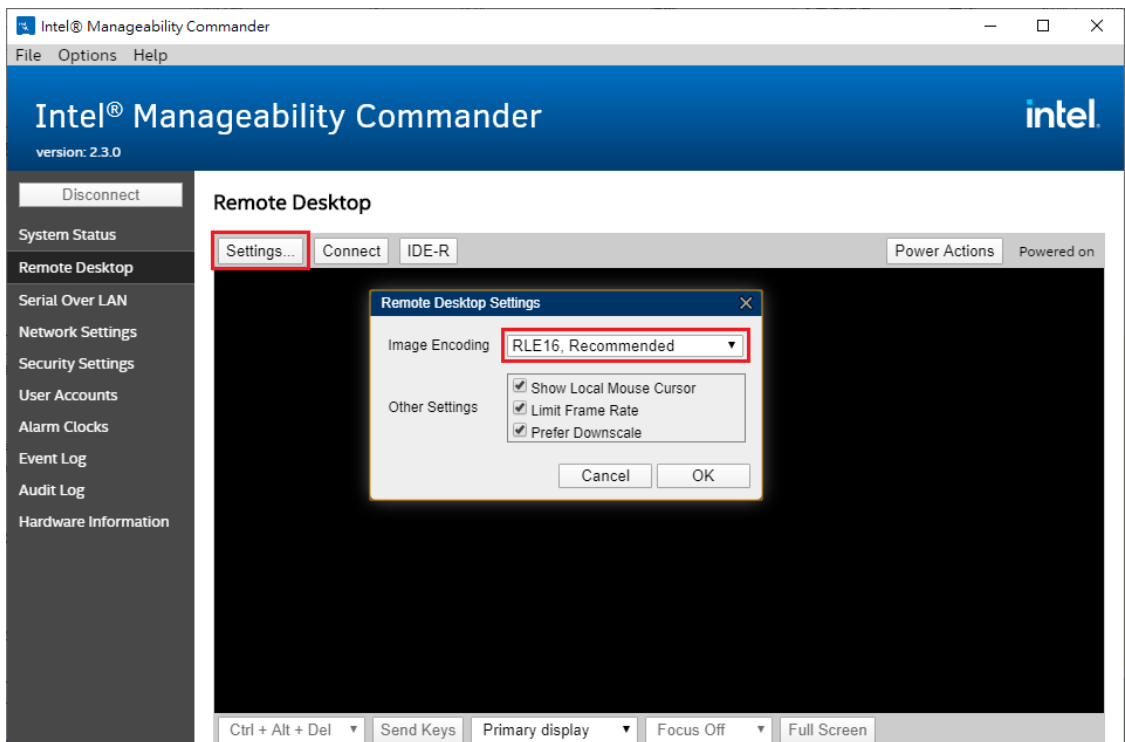
4. Click **Connect** and type the user consent code.
The User Consent code is provided on the client-side as a sprite on the Intel® AMT device's display.
This sprite is generated by the Intel® GPU and is not available to the OS. This is a 6-digit code that the
technician will use when making the connection requiring the consent, such as an Intel KVM connection.
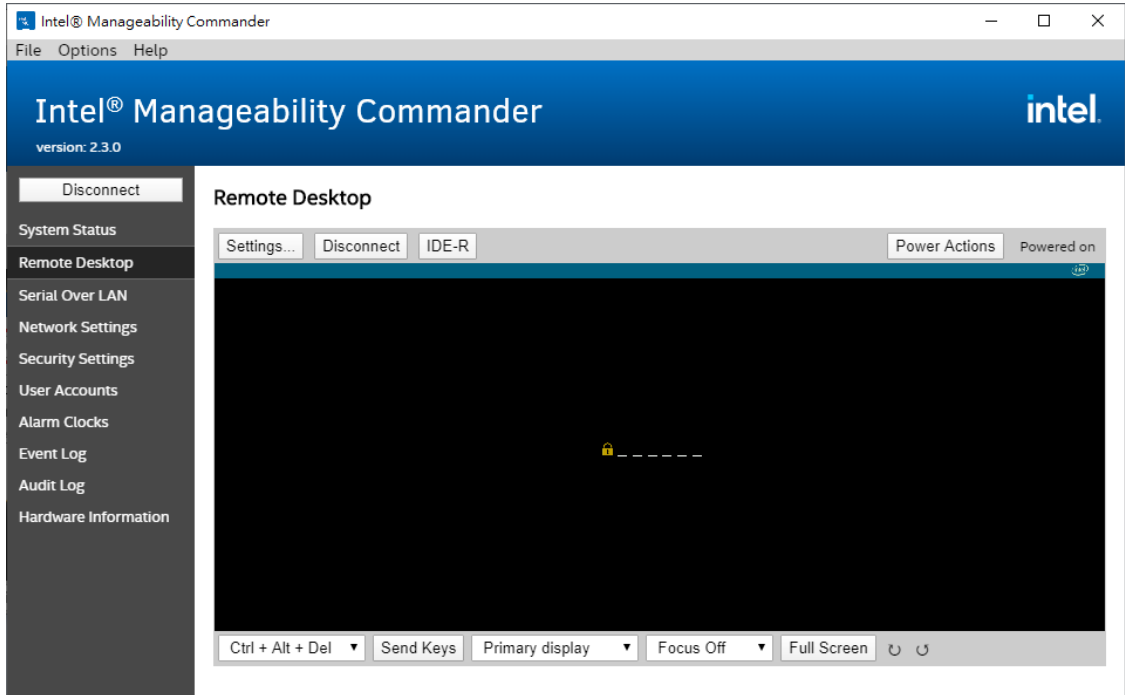
5. The Intel® AMT device authenticates the user consent code and then user can execute the remote desktop feature.
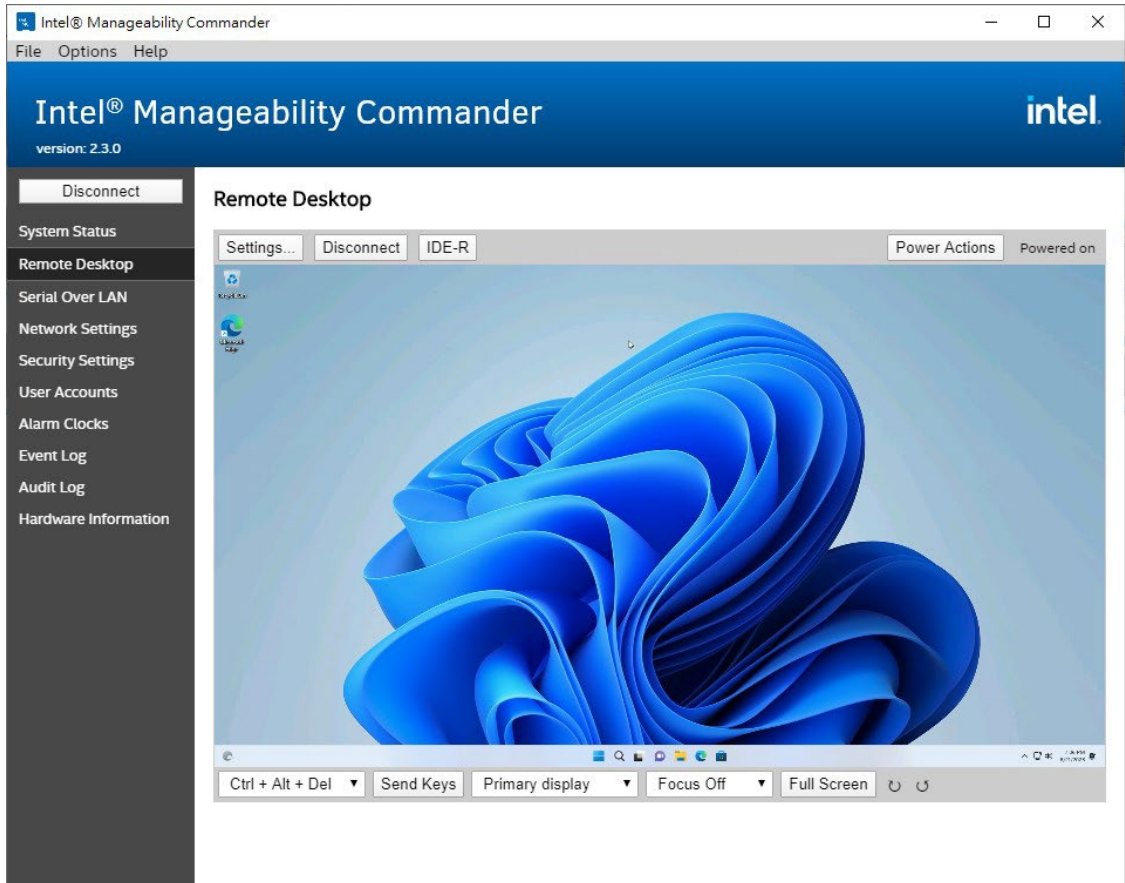
Advanced Power Control

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, you can configure the BIOS settings and manage the device more easily. Such as **RAID Configuration**, **Boot Manager** and **OS Recovery**.
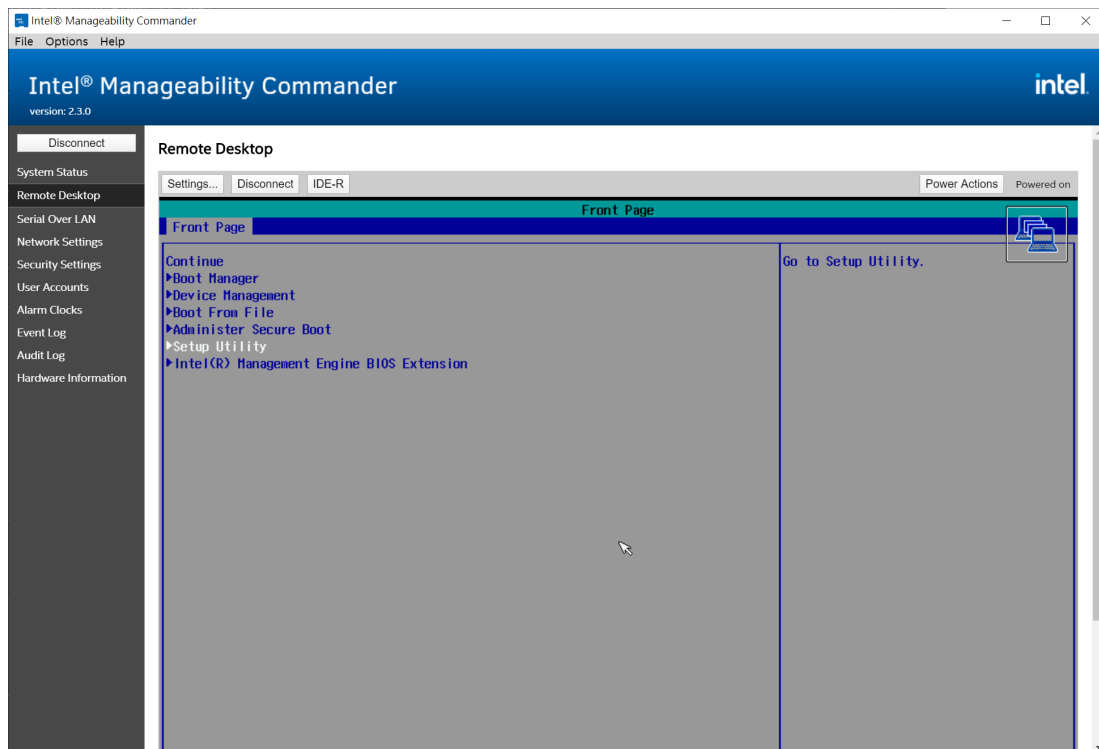
Remote RAID Configuration

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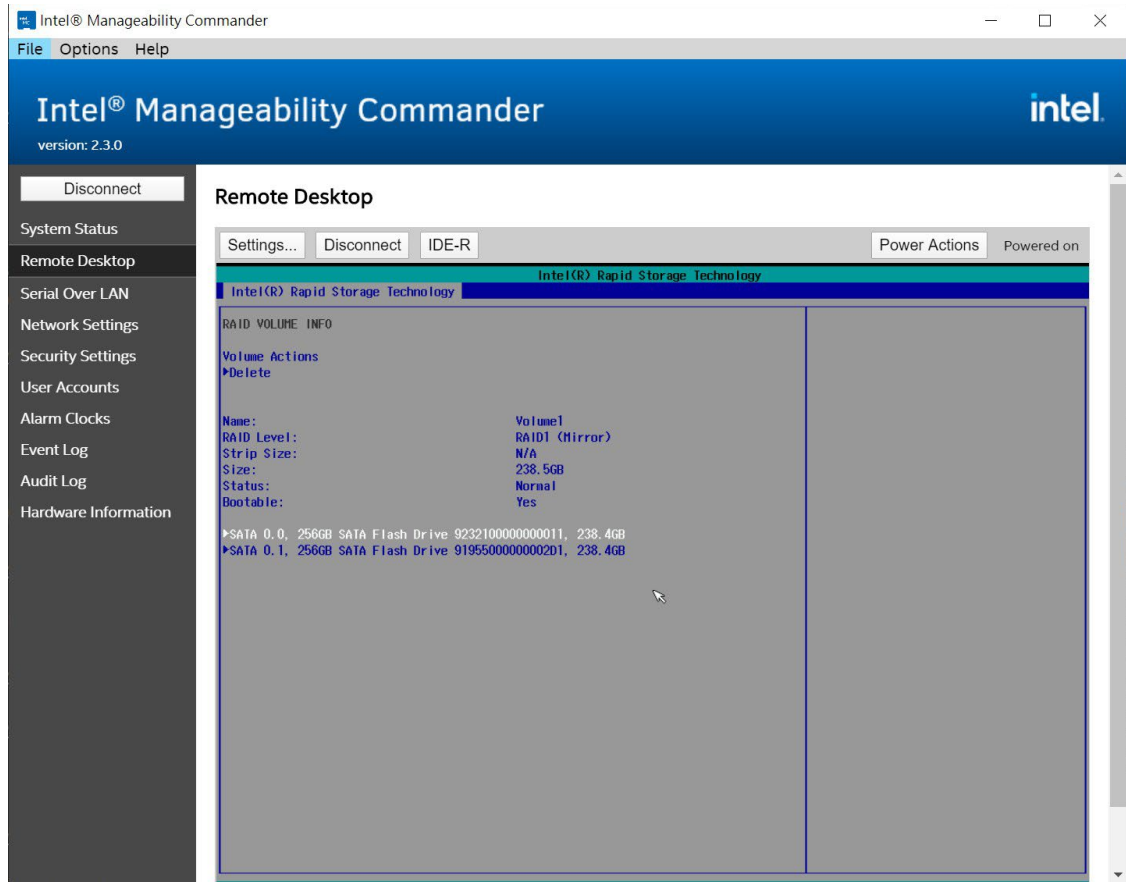
Remote Boot Manager

Reset to BIOS menu and select **Boot Manager**. You can select a bootable USB disk to back up the OS image or recovery the OS with a bootable disk which includes the recovery image.

Remote Mount/Recovery Image

1. User can select recovery image to remotely mount. Click **IDE-R** option and select the target image.
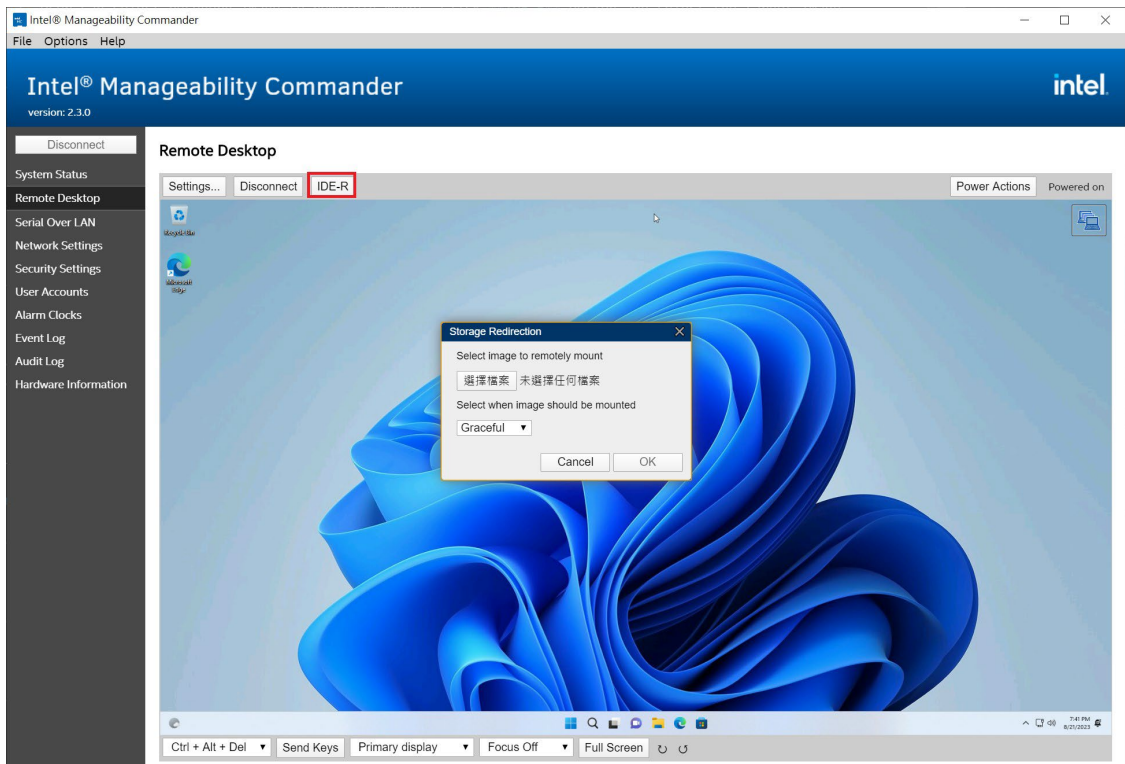
2. Reset to BIOS menu and select **Boot Manager**.
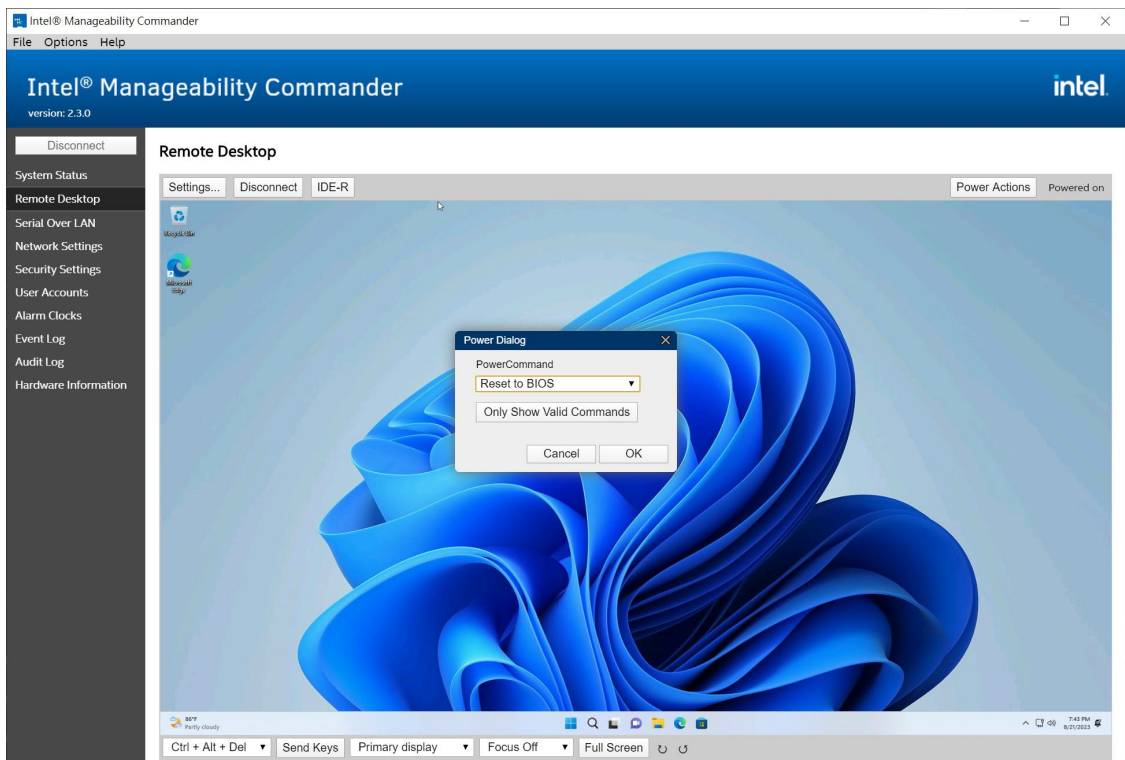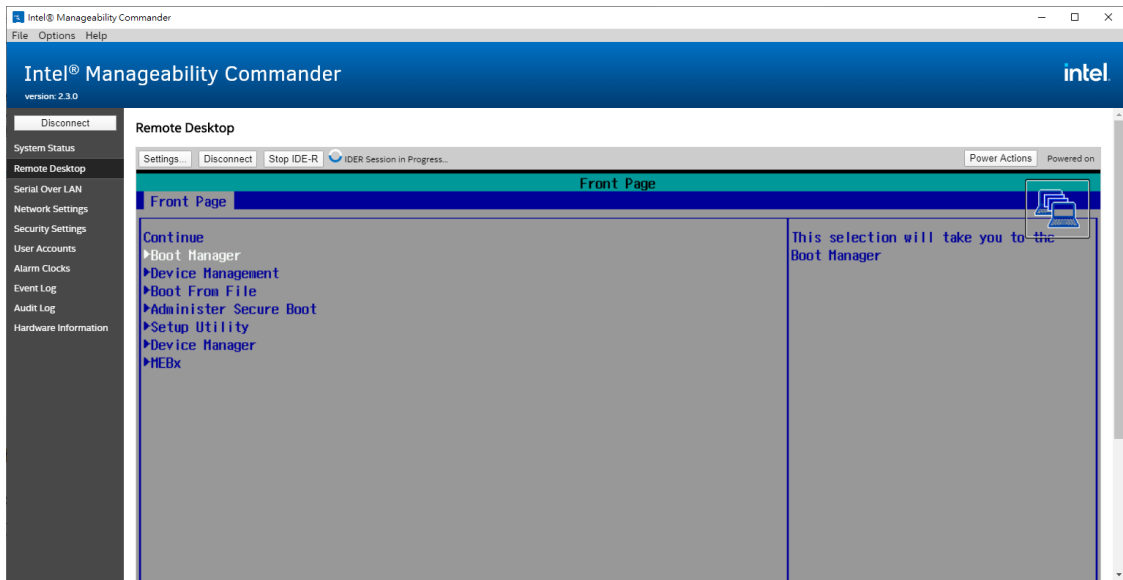
3. Select **Intel Virtual CD** to boot to mount image.
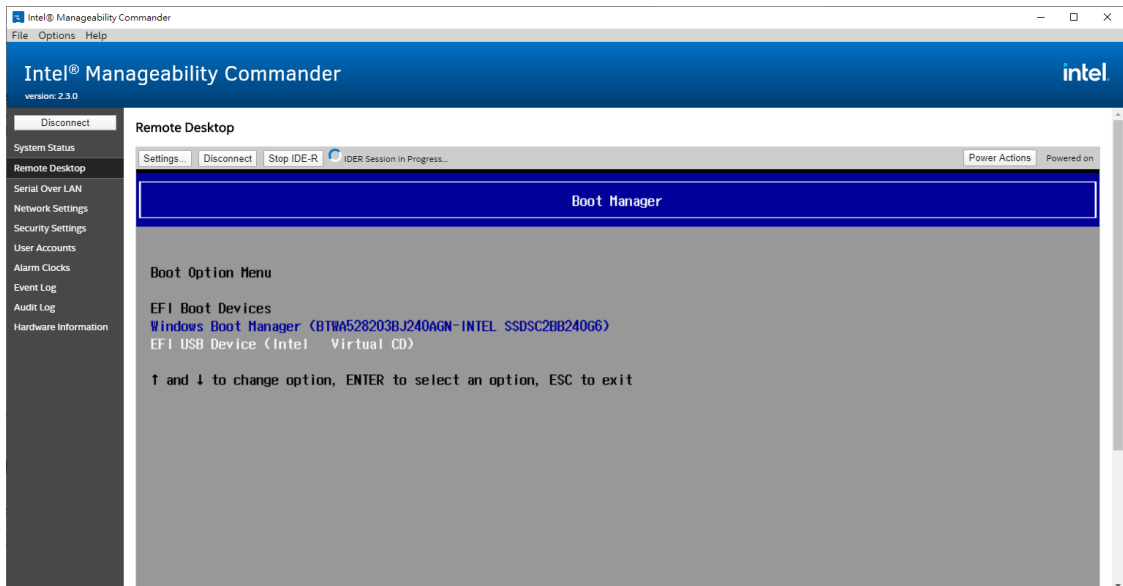
4. Following the steps to recovery image.
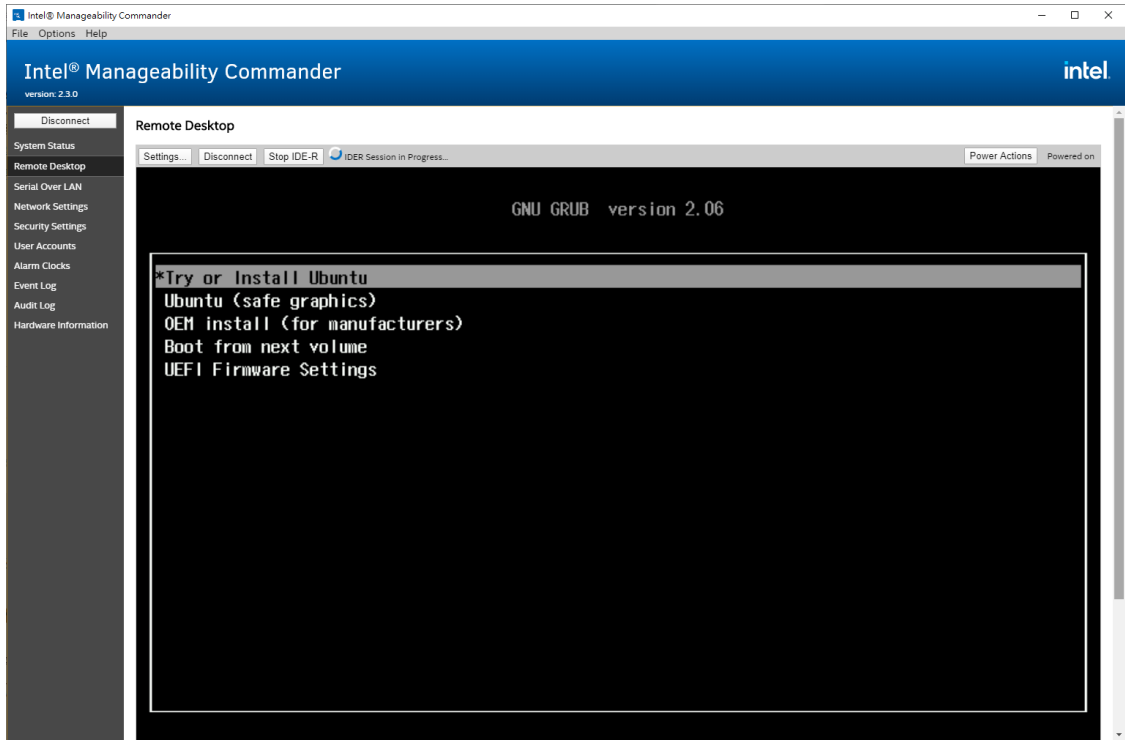
✏️ **NOTE**

You can reset to IDE-R image using the power action.
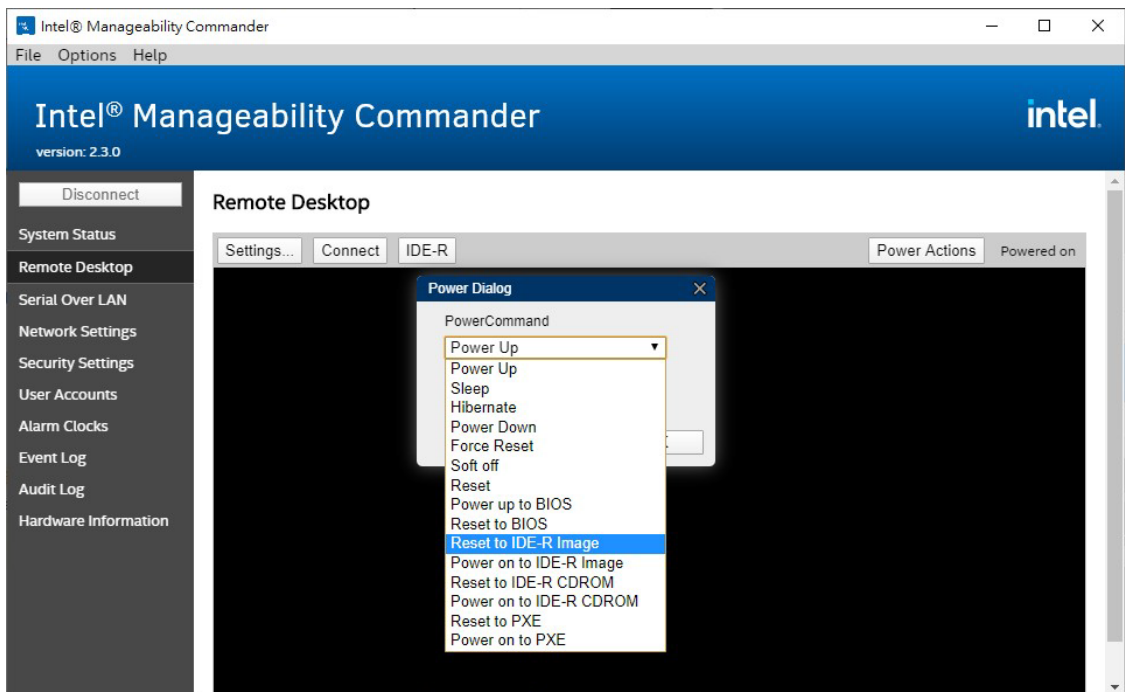
Reset to PXE

1. Enable the **Network Stack** and **PXE Boot capability** from BIOS menu of managed device.
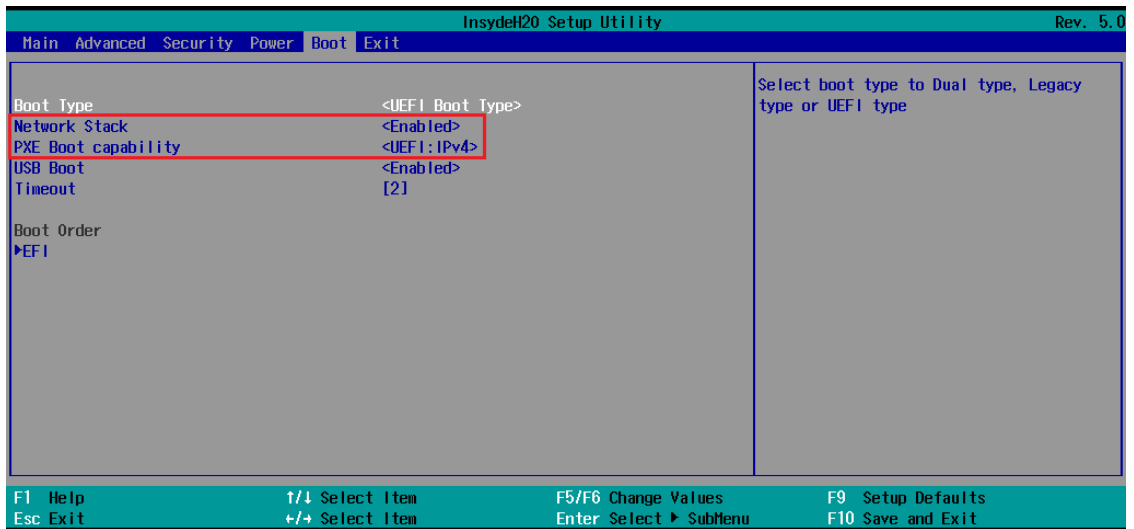
2. Click **Power Actions** and select **Reset to PXE**.
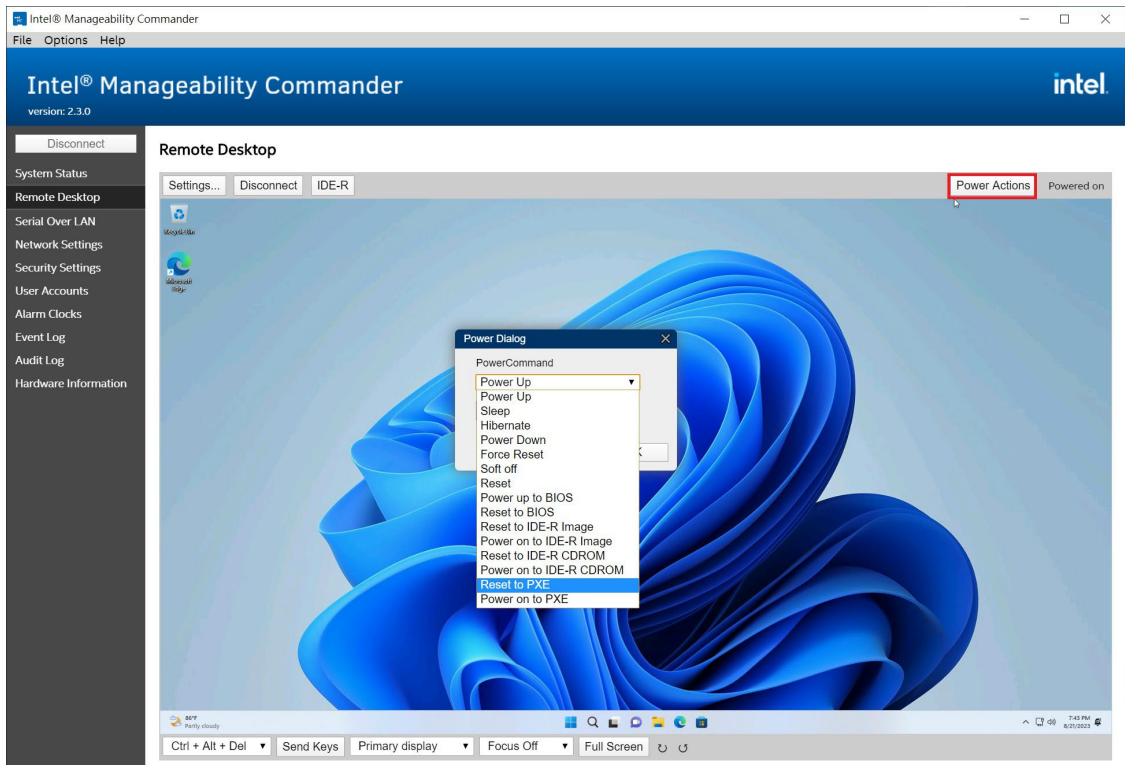
3. The managed device will boot to PXE.
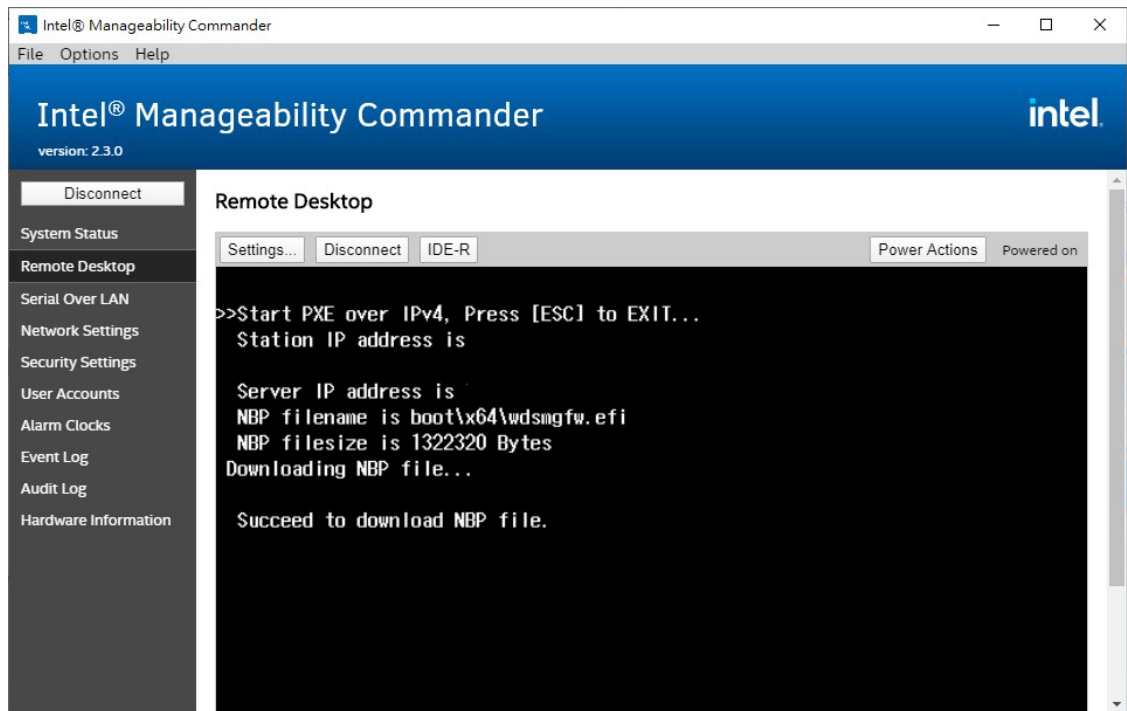
6. Driver

Moxa provides verified drivers for each device on our 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: MC-3201).
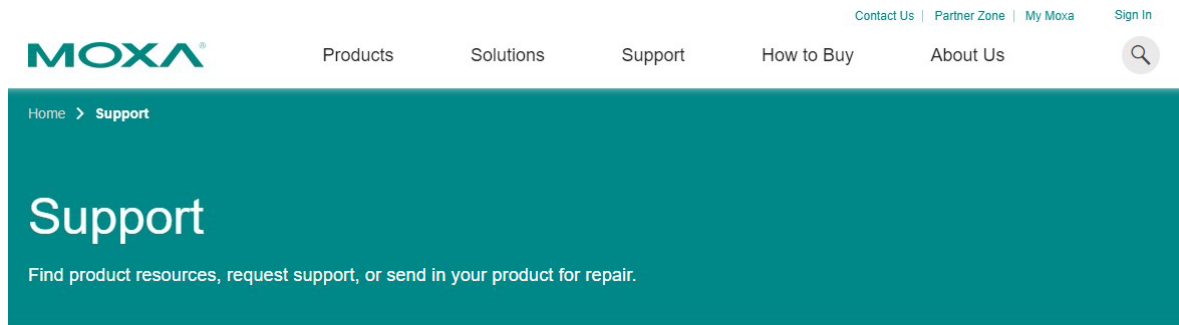
From the **Software & Documentation** page, filter by **Driver** and download the driver package. The driver packages are categorized by OS version, with separate sections for **Peripheral** and **Expansion modules**.

Software & Documentation   Product FAQs   Security Advisories

Related Software, Firmware, and Drivers

FILTER   Operating System   ▼   All   Driver(4)   Software Package(3)   Utility(2)

NAME		TYPE	CHECKSUM	VERSION ⌄	OPERATING SYSTEM	RELEASE DATE ⌄
Driver for MC-3201 Series (wireless for Windows 10 IoT Enterprise LTSC 2021) 143.6 MB	⬇	Driver	SHA-512 ▤	v1.0	- Windows 10 IoT Enterprise LTSC 2021	May 11, 2023 Release notes
Driver for MC-3201 Series (Peripherals for Windows 10 Enterprise LTSC 21H2) -1.0 bytes	⬇	Driver	SHA-512 ▤	v1.0	- Windows 10 IoT Enterprise LTSC 2019	May 11, 2023 Release notes
Driver for MC-3201 Series (Peripherals for Windows 10 IoT Enterprise LTSC 2019) 1.2 GB	⬇	Driver	SHA-512 ▤	v1.0	- Windows 10 IoT Enterprise LTSC 2019	May 11, 2023 Release notes
Driver for MC-3201 Series (Expansion modules for Windows 10 IoT Enterprise LTSC 2019) 157.9 MB	⬇	Driver	SHA-512 ▤	v1.0	- Windows 10 IoT Enterprise LTSC 2019	May 11, 2023 Release notes

7. Utility

This chapter describes the usage of the following utilities:

- **Moxa IO Controller Utility**
- **Moxa Serial Interface Utility**
- **Moxa Sort Net Name Utility**

Where to Find the Windows Utility

The utilities are preinstalled on your device if the Windows 11 OS is provided by Moxa. If you install Windows 11 on your own, go to the Moxa support page (https://www.moxa.com/en/support) to download the utility.

1. Search for the device from the searching window (example: MC-3201).

2. Go to the **Software & Documentation** page, filter by **Utility** and download the required file. The installation file for the device is in a *.zip file.

3. After extracting the files, you will obtain the following setup files.
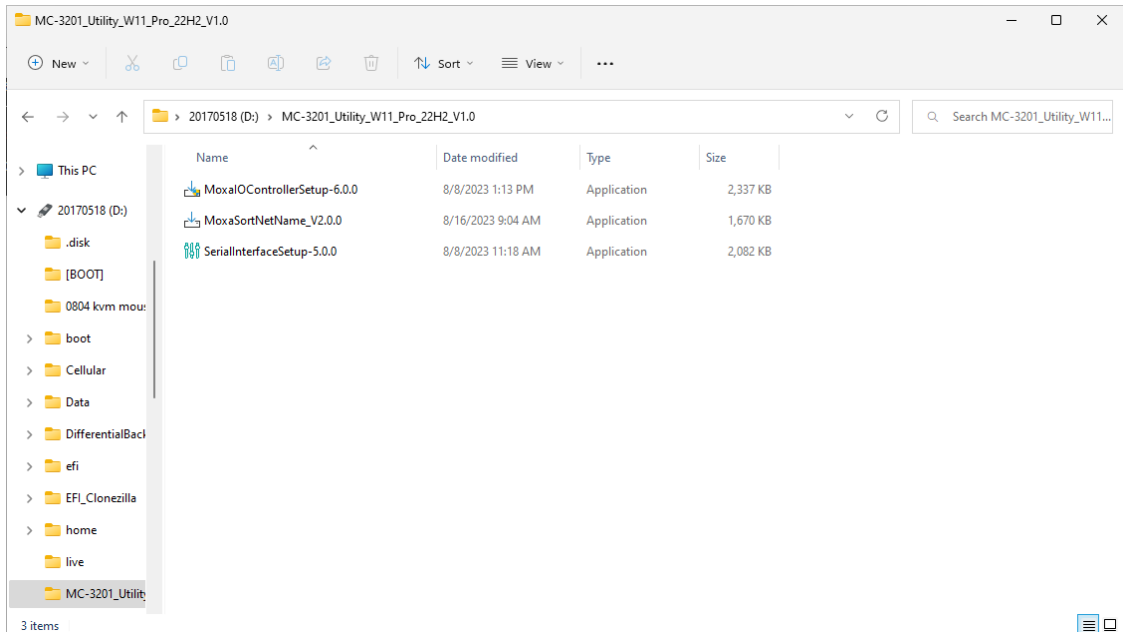
Dependent Packages

- After the installation of Windows 11 pro and drivers are completed, you will need to install **dependent packages** to ensure the smooth operation of the utility. Please attach 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
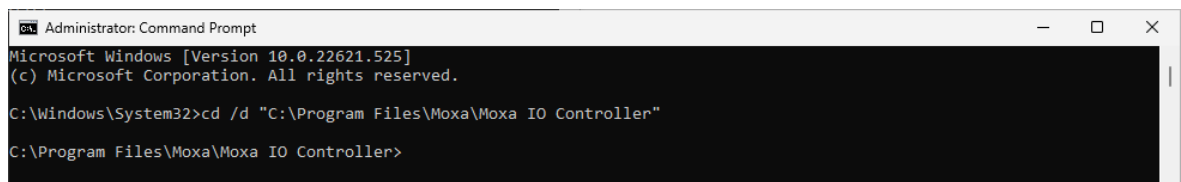
Moxa IO Controller Utility is developed to control the peripherals' IO as well as expansion modules interface of the device.

This section describes how to use the Moxa IO Controller utility and the following content will be included.

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

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 and UART 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.
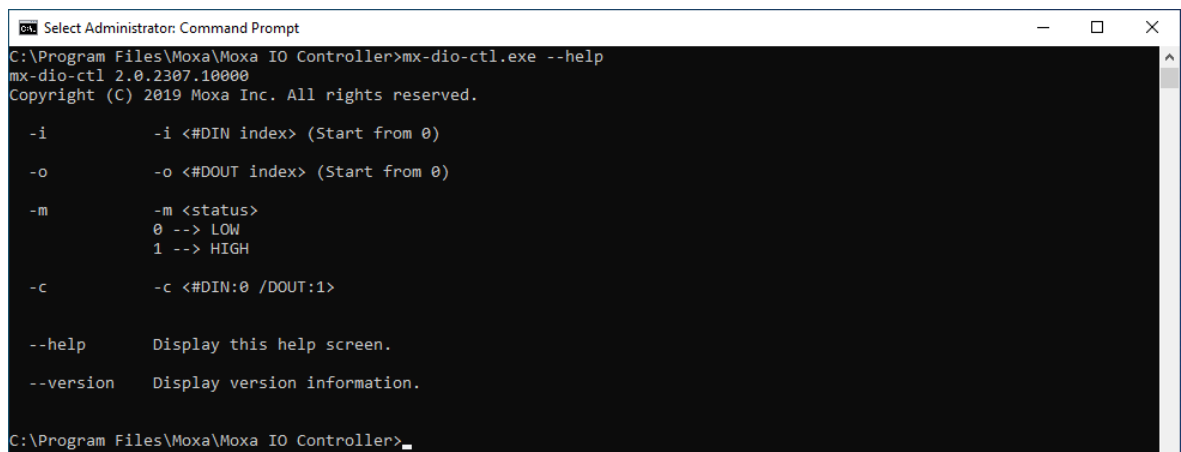
Setting the DIO Status

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:

```
Administrator: Command Prompt                                        —  □  ×
C:\Program Files\Moxa\Moxa IO Controller>mx-dio-ctl.exe -c 0
DIN port count: 4

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

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.

```
Administrator: Command Prompt                                        —  □  ×
C:\Program Files\Moxa\Moxa IO Controller>mx-uart-ctl.exe --help
mx-uart-ctl 2.0.2307.10000
Copyright (C) 2019 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>_
```

Moxa Serial Interface Utility

In this section, 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. Use the preinstalled **SerialInterfaceSetup** utility or install it from the Moxa support page.
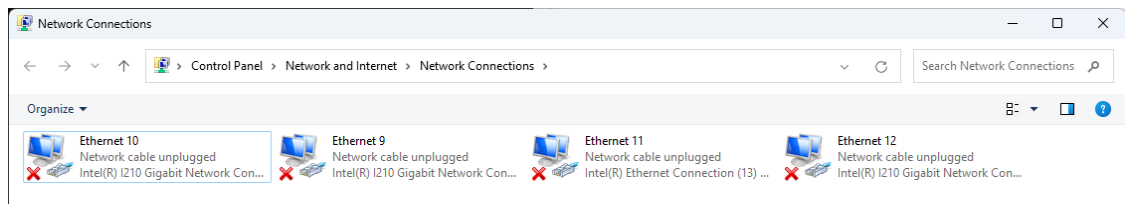2. From the Windows Start menu, run the **Moxa Serial Interface utility**.
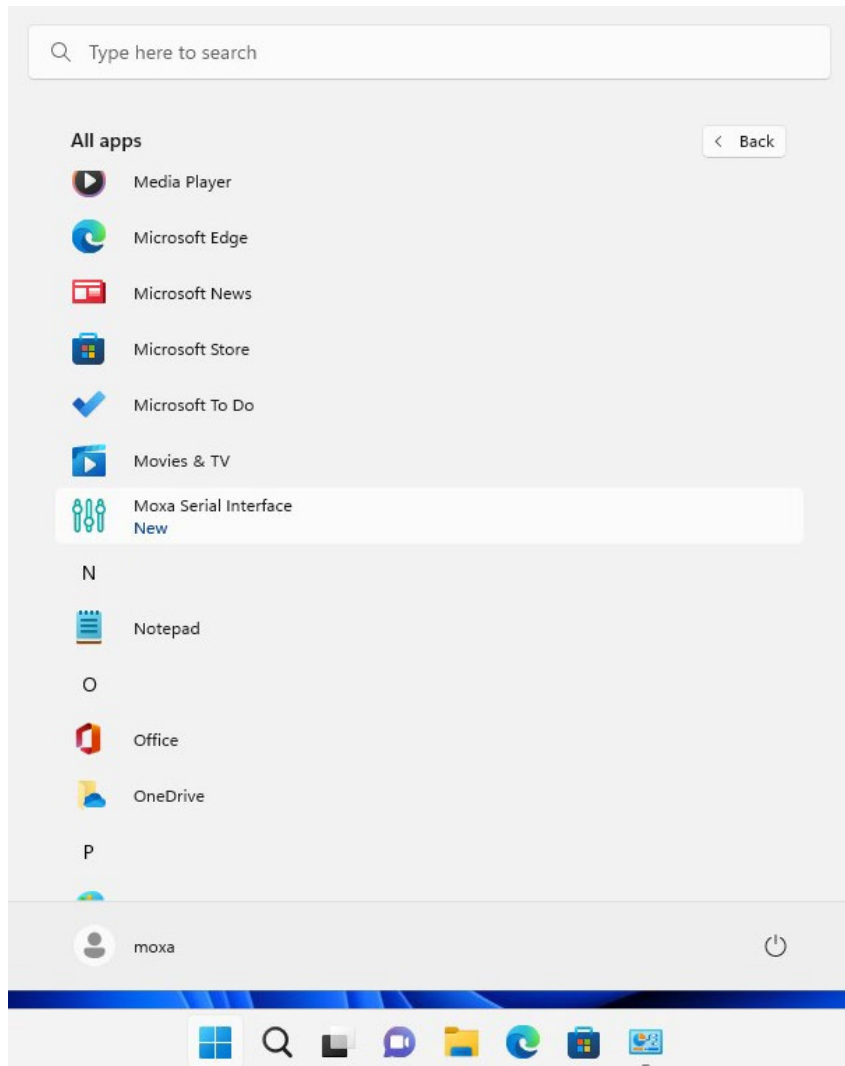
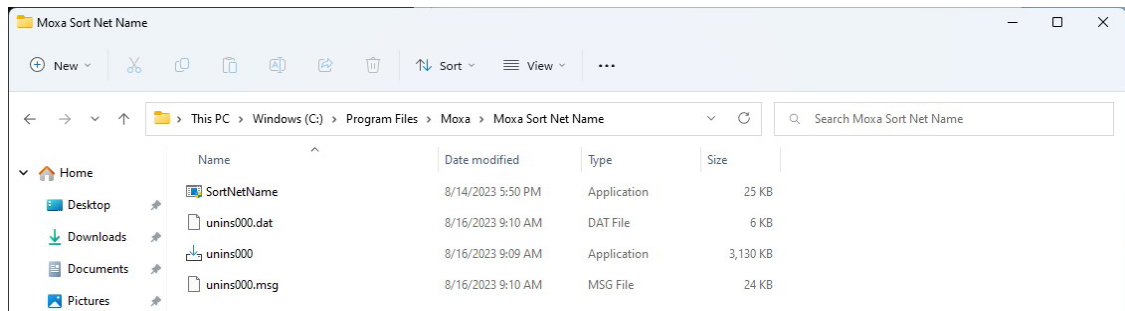3. Select the target COM port and UART mode and click **Apply** to save the settings.
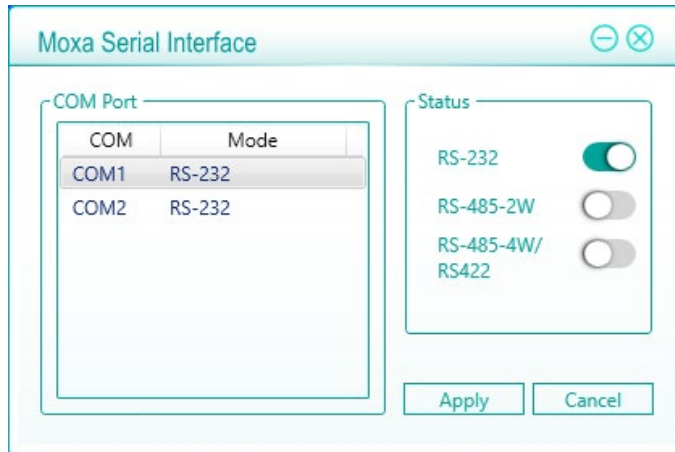
Moxa Sort Net Name Utility

In this section, we describe how to use the Moxa Sort Net Name utility to rename Ethernet adapter for mapping physical LAN port order on chassis.

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\SortNetName.exe 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).
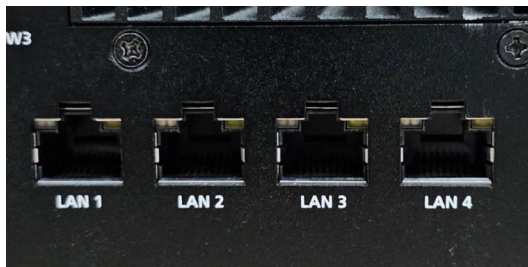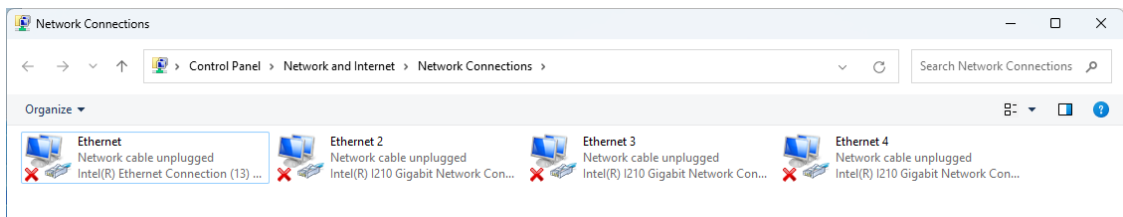
8. IO Control API

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.

List of APIs and Supported Series

mxdgio

- **BXP-A100 Series**
- **BXP-C100 Series**
- **RKP-A110 Series**
- **RKP-C110 Series**

mxsp

- **BXP-A100 Series**
- **BXP-C100 Series**
- **DRP-A100 Series**
- **DRP-C100 Series**
- **RKP-A110 Series**
- **RKP-C110 Series**

mxwdg

- **BXP-A100 Series**
- **BXP-C100 Series**
- **DRP-A100 Series**
- **DRP-C100 Series**
- **RKP-A110 Series**
- **RKP-C110 Series**

mxdgio

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

- **GetDinCount**
- **GetOutCount**
- **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 by 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

Syntax

```
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 by 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 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

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:

- **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 by 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

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

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 for success; otherwise, the function has failed.

Requirements

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

mxwdg_close

```
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

9. System Backup Restore

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

- **WindowsRecovery**

WindowsRecovery

WindowsRecovery is a disk imaging backup/restore program for system deployment, backup, and recovery. You will need to create a WindowsRecovery USB to perform these actions. WindowsRecovery can only be booted on a **UEFI BIOS** machine. This chapter describes the Windows Recovery setup process.

Supported Devices

- **BXP-A100 Series**
- **BXP-C100 Series**
- **DRP-A100 Series**
- **DRP-C100 Series**
- **RKP-A110 Series**
- **RKP-C110 Series**

Preparing the USB device

1. Contact a Moxa technical staff and get the required file.
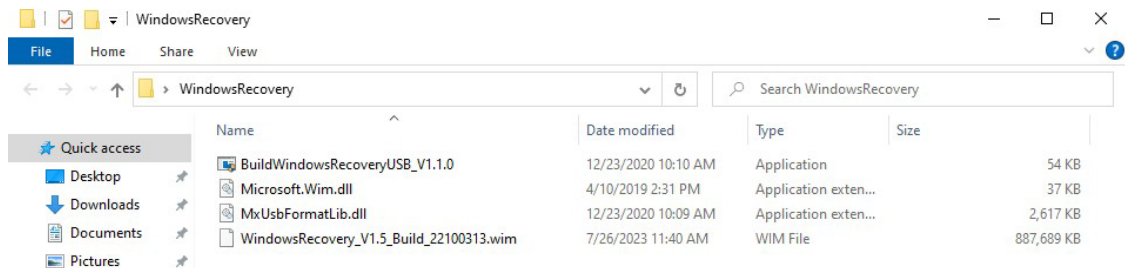
2. Run the **BuildWindowsRecoveryUSB_V1.1.0.exe**.
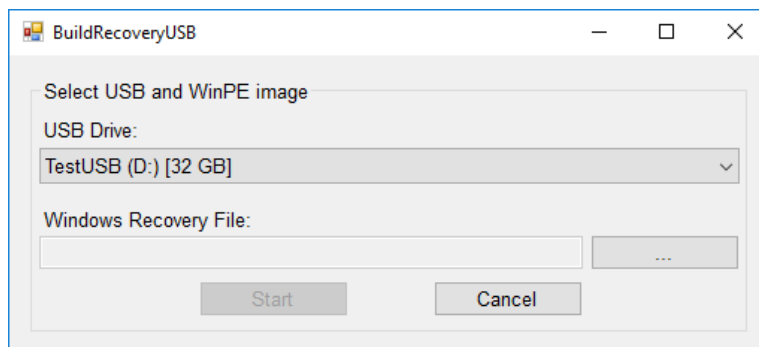
3. Select the USB drive to format.
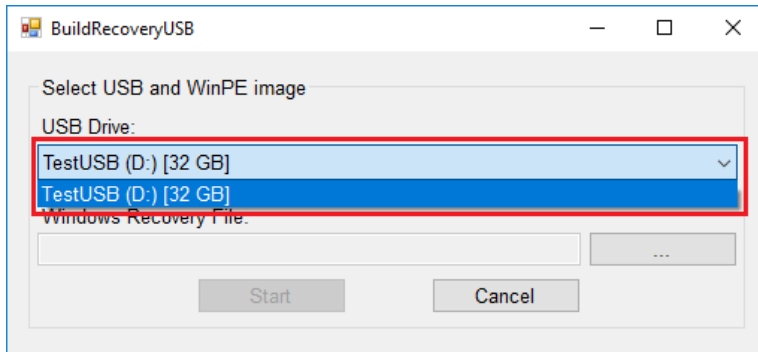
4. Click **...** to select **.wim** file from the folder.
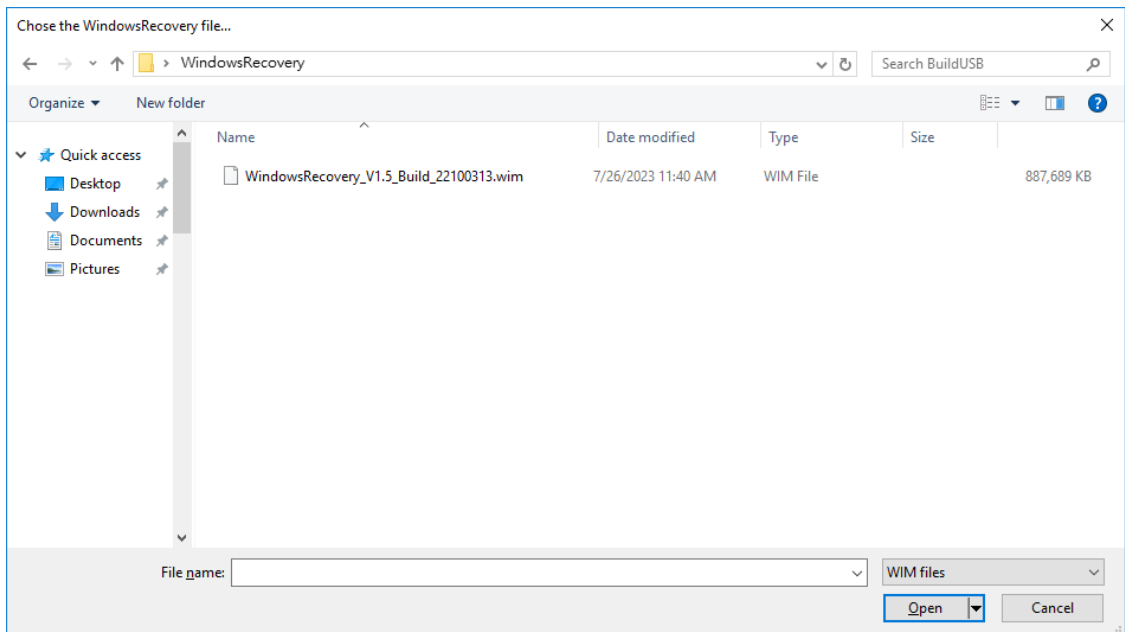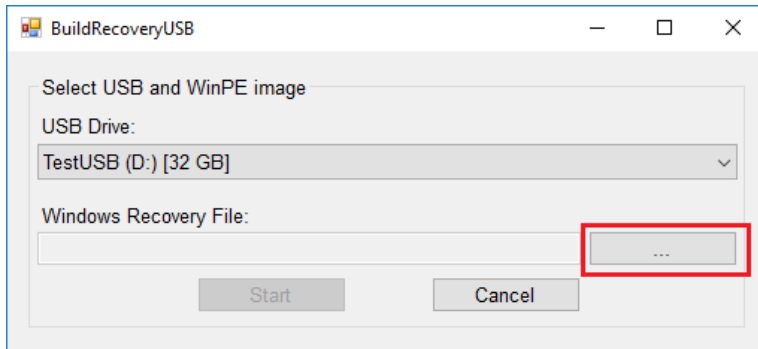
5. Click **Start** and make sure the selected USB can be formatted. Click **Yes** to start creating the recovery USB.
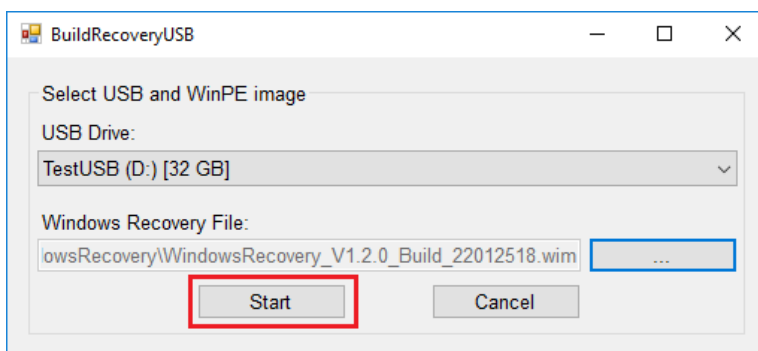
6. Wait for the process to complete.
   The program will format the USB device and create a UEFI bootable volume and a WinPE volume. You may see additional windows for folder information; do not close these. You can close the windows after the process finishes.
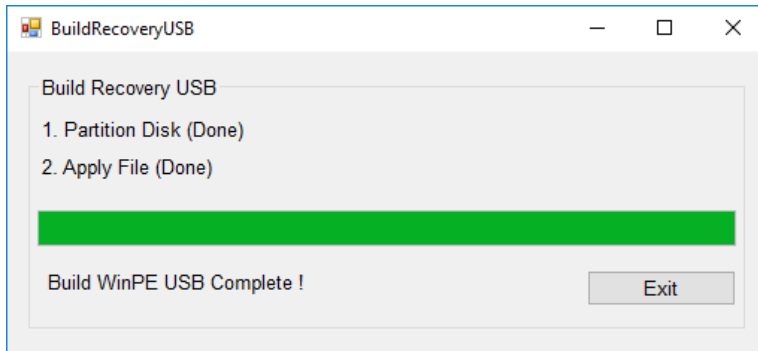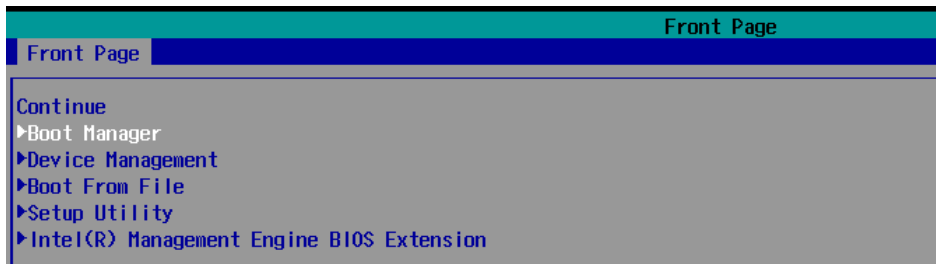

7. To create a recovery USB disk with the Windows 11 image, copy the **os_image_ModelName** directory to the **\home\partimag** folder in the USB drive.
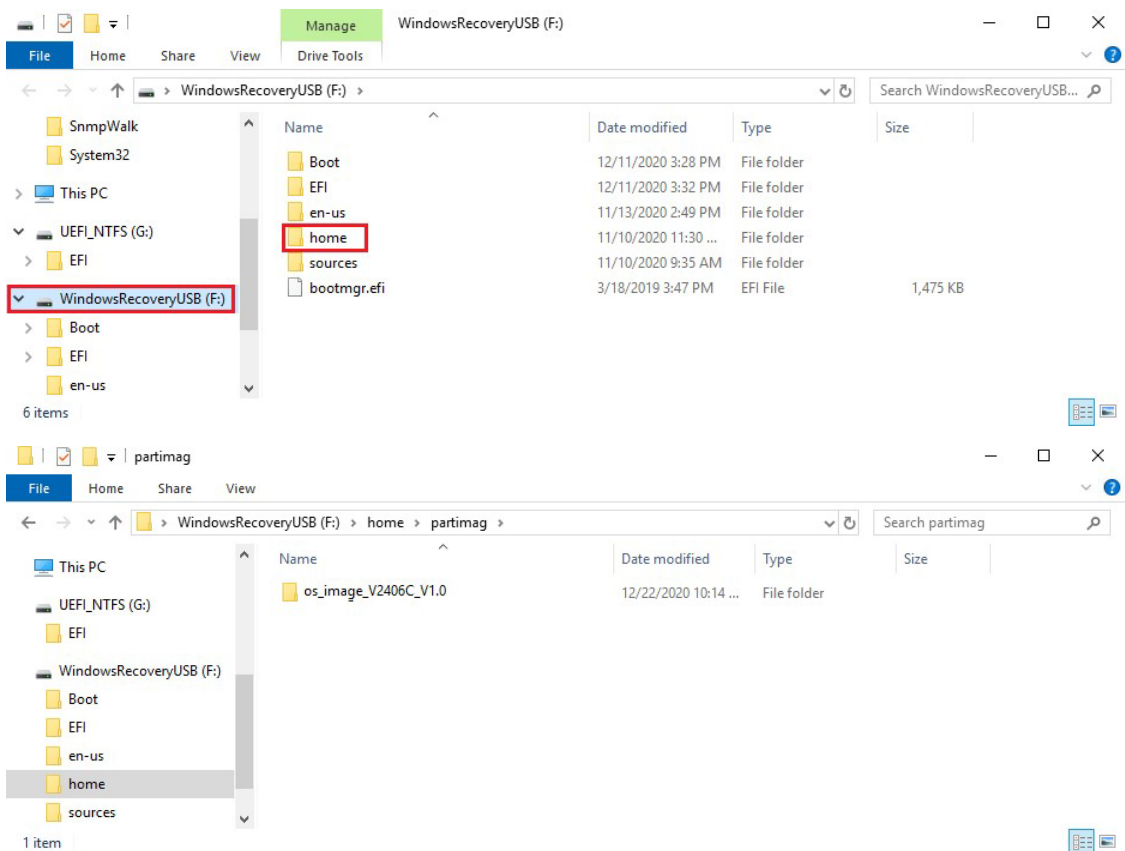
Booting From the USB Disk

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.
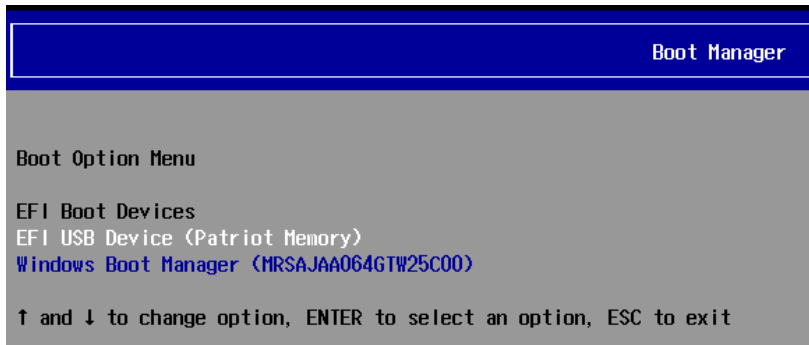
System Image Backup

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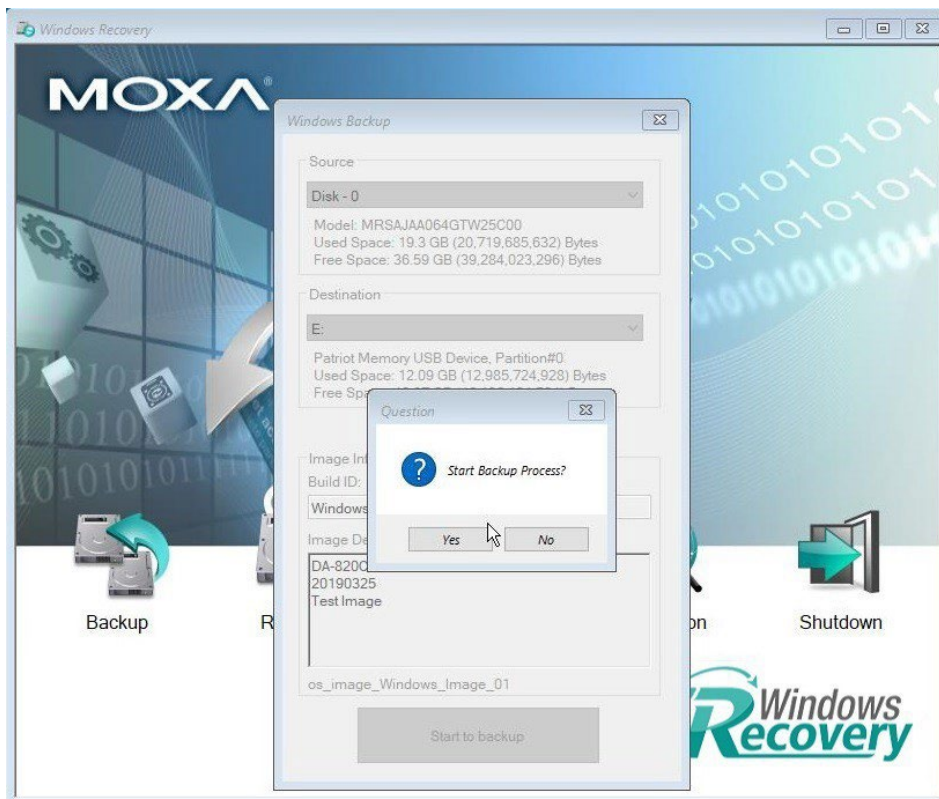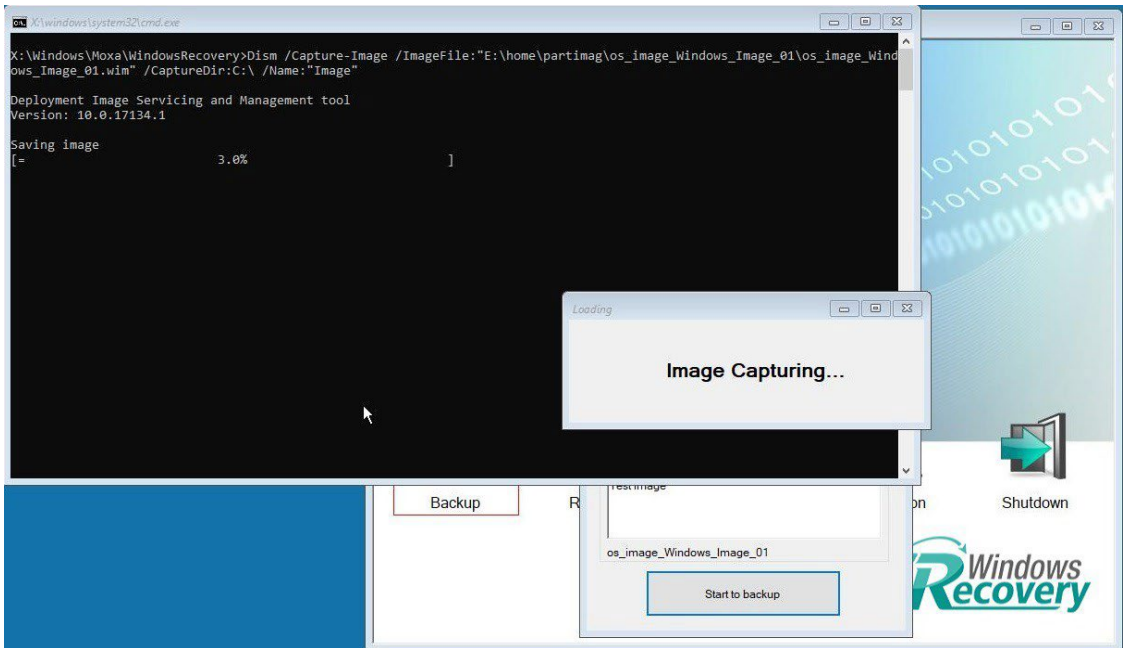
Windows Recovery utility will display. Follow these steps.

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**.
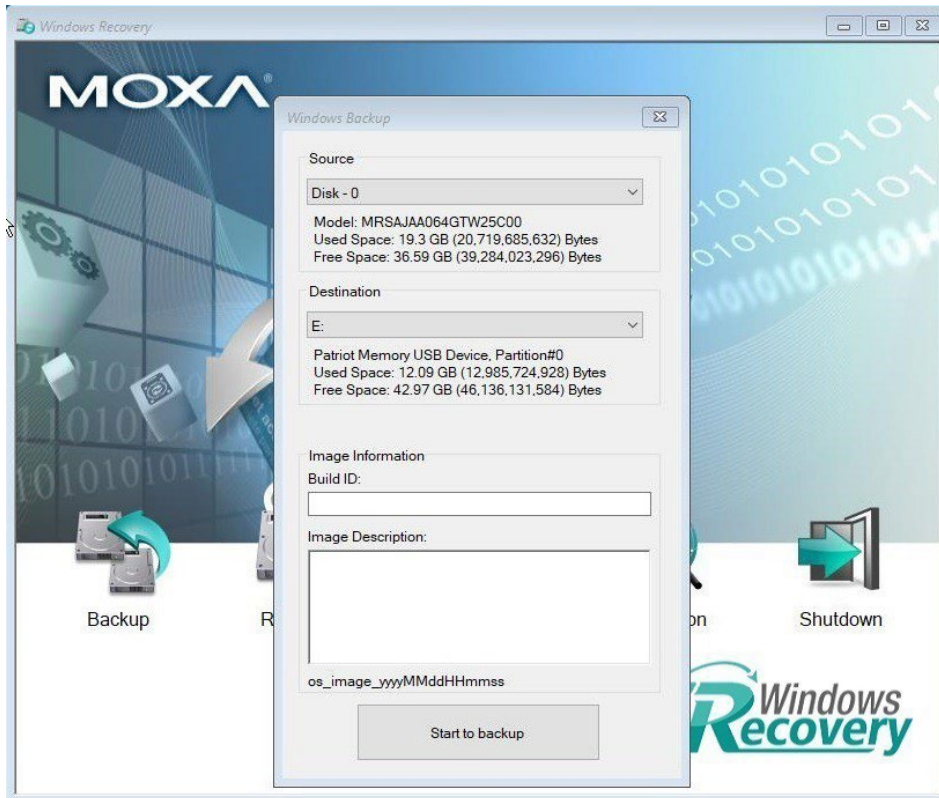
3. Click **Yes** to continue.

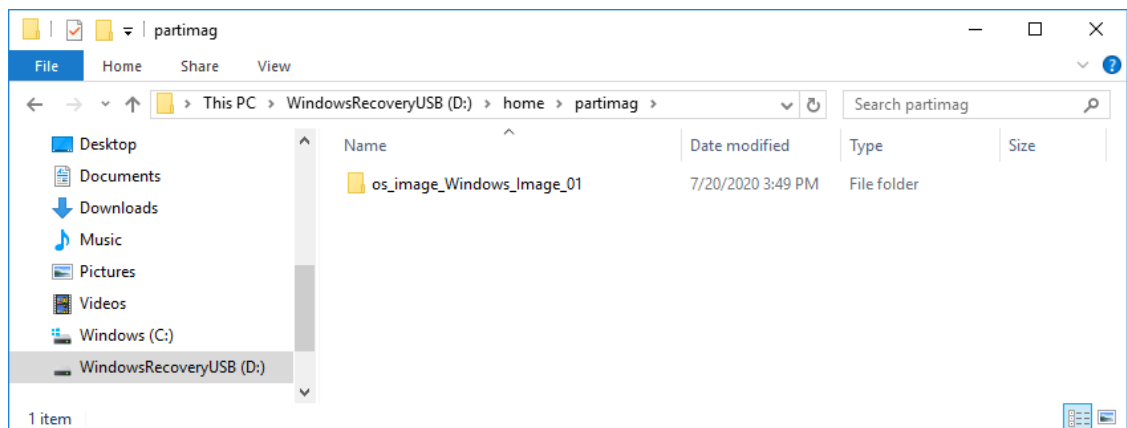4. Wait for the backup process to complete.
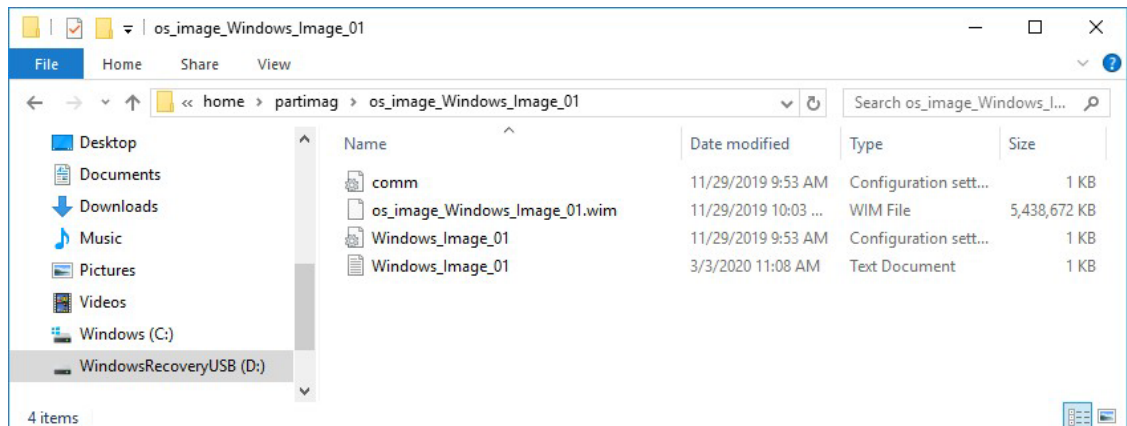

5. When the process is done, click **OK**.

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

7. The OS image will be saved in USB disk **home\partimag**.

8. In the **os_image** folder you can view the backup information and the image files.
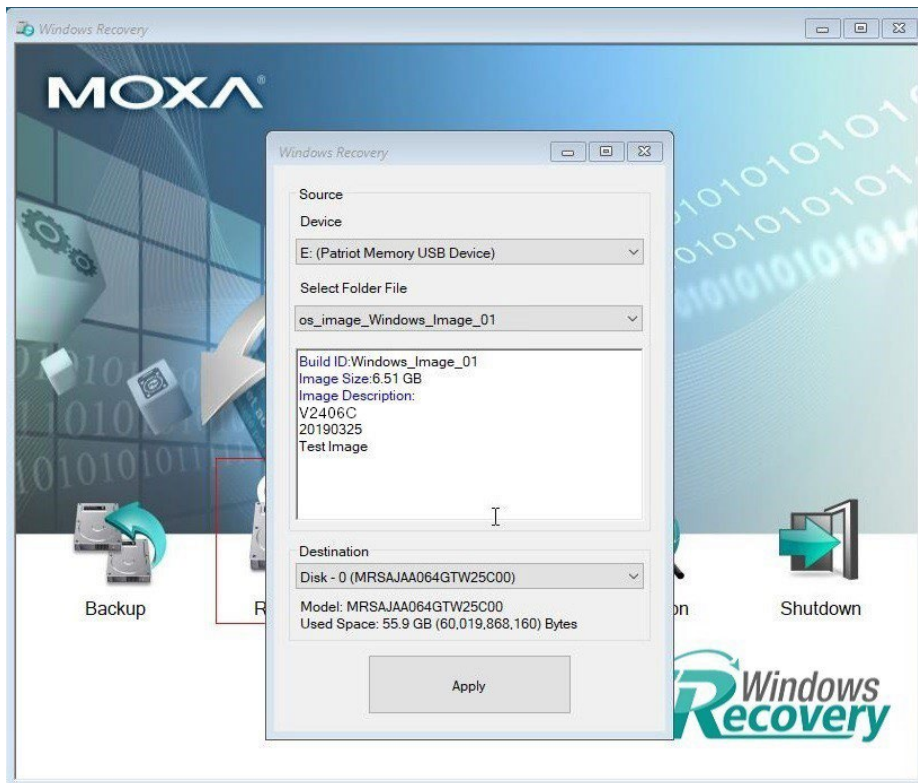
Restoring the System From a Backup

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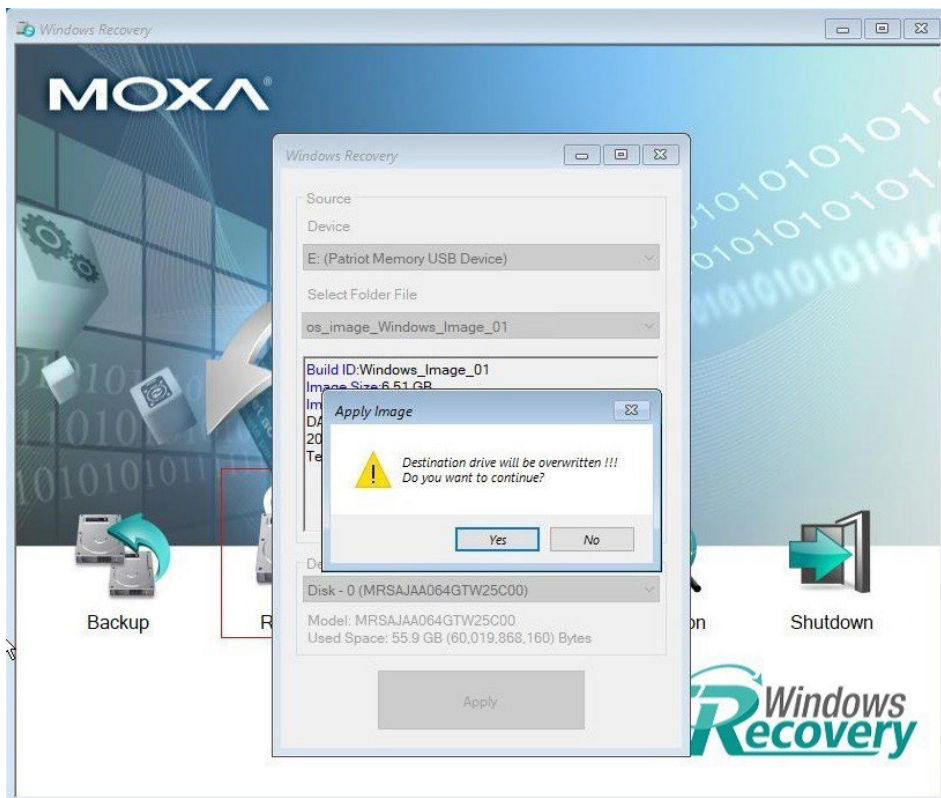
1. Click **Recovery**.

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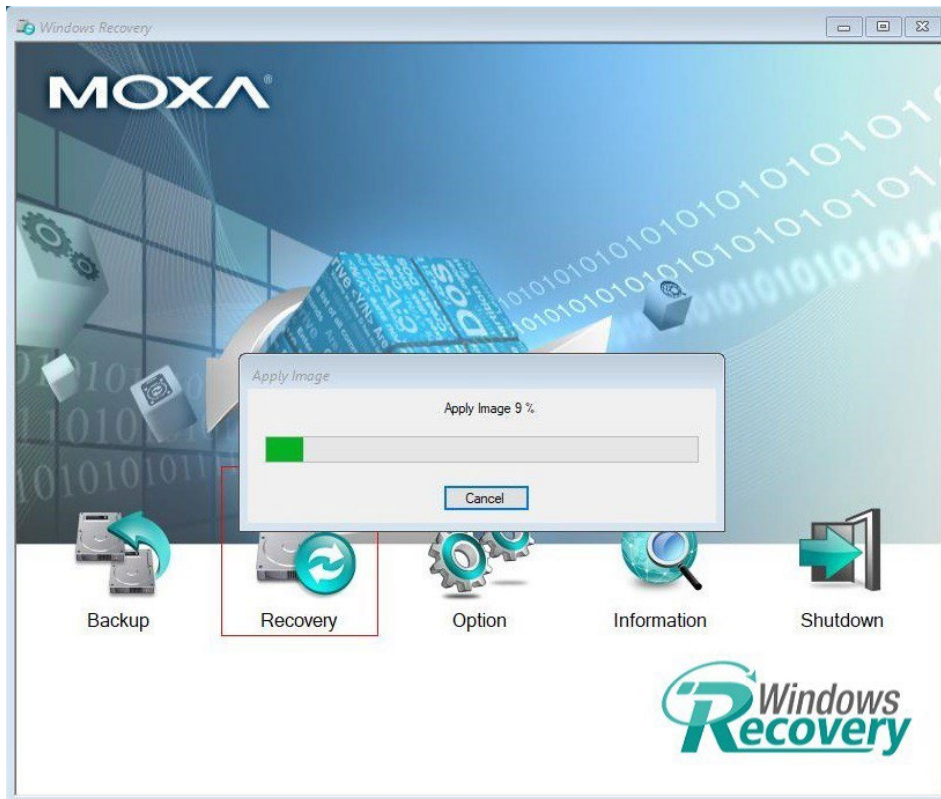
3. Click **Yes** to continue the process.

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

5. Wait for the process to complete.

6. Click **OK**.

7. Click **OK**, the system will shut down.

✎   **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.