DA-820C Windows 10 Enterprise LTSC User's Manual

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www.moxa.com/product



DA-820C Windows 10 Enterprise LTSC User's Manual

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System Initialization

In this chapter, we describe how to initialize the system settings on the DA-820C computer when you boot up the computer for the first time. When you turn on the Windows PCs for the first time, you will see the Windows Out of Box Experience (OOBE) screen. 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.

The following topics are covered in this chapter:

- Initializing User Settings
- Initializing the System

Initializing User Settings

The following is a non-exhaustive list of screens the users may see during OOBE.

1. Select a region.

let's	s start with region. Is this r	riaht?
Lett	start with region. is this i	ignt.
	Uganda	
	Ukraine	
	United Arab Emirates	
	United Kingdom	
	United States	
	Uruguay	
	Uzbekistan	
	Vanuatu	
	Vatican City	<mark>∽</mark>

2. Select a keyboard.

Is this the right keyboard layout? If you also use another keyboard layout, you can add that next.	
us	
Canadian Multilingual Standard	
English (India)	
kish	
Scottish Gaelic	
United Kingdom	
United States-Dvonak	
United States-Dvorak for left hand	
United States-Dvorak for right hand	

3. Select a second keyboard.

Want to add a second keyboard layout?	÷	taks
		Want to add a second keyboard layout?
Add topot		
Add layout Stag		
стана с на селото на Ф		Add layout Stap

4. Connect to a network.



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

Account
Who's going to use this PC? With Toward to use?
Nime

6. Create a password.



7. Do more across devices with activity history.

								Sen	ices
	Do r	nore a	cross	devic	es witl	h acti	vity his [.]	tory	
			<u>\</u>						
lf yo activ	rou want timeline ar ivity history, which i	ncludes info abou	t websites you l	p you continue w browse and how s data to persona	you use apps an	d services. Selec	t Learn more to fin	send Microsol id out how Mis	t your rosoft
_								Ye	s

8. Choose privacy settings.

<section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header>	An exactly use you are careful of your privacy. Choose you settings, the wetlet "Accept" to sure them. You can charge these settings are any <u>received</u> . The operation of the difference of the operation of the difference of the	More the thy our a control of your "privacy. Howe shows settless, the the subcoder basis of the subcoder basi		
Continue speech transportion Continue speech transport Continue speech	Contrast speech recognition The speech	Contrast speech recognition. The proposed acceleration and to take to Contrast and there appendix and the proposed acceleration and the speech spe	Choose privacy se	ttings for your device
big you'reals for dictions and to the Dortman and other spip that use for discussional data and you wanted the Dortman and other spip that use to help improve our speech increases. The more our speech increases. The more indirection and other spin that the other out the prove backet markets and the other data to improve backet markets. The more indirection of the other out the prove backets markets and the other out the other o	be you case for of Education and to the Cortua and other space that use the two more now generic hearing first section and allow space that use the two more now generic hearing first section and allow space to the two more now generic hearing first works Find any generic hearing first section and allow space that use the first works were now first section and allow first section and the first section and the first section and allow first section and the section and the first section and the fir	bite you care for distance and to the Cortan and other age that use Get bacterio-based experiences its advections and advections of the Verdoes with the prove our agent incorporation. Since Microsoft prove results advections and advections advections and advections advecting advections advections advections advections advecti	Microsoft puts you in control of your privacy. Choose your setting	
Text any street Description Text any street Text any street str	The ang shows T	Table State	Use your voice for dictation and to talk to Cortana and other apps that us Windows cloud-based speech recognition. Send Microsoft your voice data	 Get location-based experiences like directions and weather. Let Windows and apps request your location and allow Microsoft to use your location
 Then on First of phone and use your derive's tooston data being your strategy on a most of your and your your with the about the methanism of your and your your with the about the methanism of your and your your with the about the methanism of your anyon your your your your your your your your	 Than of Fard yours and use your benevit solution data to have your benevity on the your benevity on the Your benevity with the solution in the solution is the solution is the solution in the solution is the solution is the solution in the solution is the solutis the solutis the solution is the solution is the solution i	 Than on First ony donce and use your deriver's location data is they want they donce that, along with the data the websets you how and you along of you have a first order and you have a set of the data they donce with your and they donce that have a set of they donce the data they donce with your and they donce the data they donce the data they donce the data they donce the data they donce t	ves Ves	Yes
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Seriel alway, and Types data to Microsoft to improve the lengal series of the first section of the sponsoft data section of the sponsoft data section and spectra comparison of space and section and spectra comparison of the sponsoft data section and spectra comparison of the spectra data section and spec	Send Biology and Typing data to Microsoft to improve the large and services survivage in the second to and services survivage in the second to	Send Sing's of yong data to Microsoft to improve the traggard recognition and suggestion capabilities of apps and services training on Windows. • Yes • Ves • Apps can use advertising ID Apps can use advertising ID to provide more personalized advertising • Apps can use advertising ID to provide more personalized advertising • Sect Latam more for info on the above stiftings, how Mindows Defender • SamatToreem works, and the related data trautients and uses.	💷 Yes	- Full
Advertising ID Apps can use advertising ID to provide more personalized advertising in Select 'Learn more' for info on the above settings, how Windows Defender SenartScreen works, and the related data transfers and uses.	Advertising ID Apps can use advertising ID to provide more personalized advertising in accordance with the privacy policy of the app provider. Setter Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Windows Defended Sector Learn more for info on the above settings, how Win	Advertising ID Apps can use advertising ID to provide more personalized advertising in accordance with the privacy poicy of the app provider.	Send inking and typing data to Microsoft to improve the language recognition and suggestion capabilities of apps and services running on Windows.	Let Microsoft offer you tailored experiences based on the diagnostic data you have chosen (either Basic or Full). Tailored experiences mean personalized tips, ads, and recommendations to enhance Microsoft
Apps can use advertising ID to provide more personalized advertising in SmartScreen works, and the related data transfers and uses.	Apps can use advertising ID to provide more personalized advertising in SmartScreen works, and the related data transfers and uses. accordance with the privacy policy of the app provider.	Apps can use advertising ID to provide more personalized advertising in SmartScreen works, and the related data transfers and uses. accordance with the privacy policy of the app provider.		💽 Yes
	CO Yes	Yes	Apps can use advertising ID to provide more personalized advertising in	

Initializing the System

 When users sign in into the system first time. Windows Command Processor will run and show the message "Do you want to allow this app to make changes to your device? Please click Yes.



2. Wait until the process is complete.

Recycle I	Bi and	
	C:\Windows\system32>start/wait c:\windows\system32\SetOEMModel.exe	
	C:\Windows\system32>start/wait c:\windows\system32\SortNetName.exe	
	C:\Windows\system32>reg delete "HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Run" /v "SetupComplete" /f The operation completed successfully.	
		✓

When the process completes, the system is initialized.

Configuring the Serial Interface

In this chapter, we describe how to use Moxa Serial Interface utility to set the UART mode in your DA-820C computer's serial interface.

The following topics are covered in this chapter:

- Overview
- Setting the UART Mode

Overview

The DA-820C has two serial ports, labeled COM1 and COM2. Each serial port can be configured to use any of the following serial interface modes: **RS-232**, **RS-485-2-wire** or **RS-422/RS-485-4-wire**.

Setting the UART Mode

- 1. Install the Moxa Serial Interface Utility.
- 2. From the Windows programs menu, run the Moxa Serial Interface utility.



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



This chapter describes the setup process of the Intel Teaming function.

The following topics are covered in this chapter:

- Creating an Intel Net Team
- Adding an Intel Net Team Member
- Removing an Intel Net Team Member
- Removing an Intel Net Team

Creating an Intel Net Team

- 1. Run the Windows PowerShell as administrator
- 2. Run the command:

```
Import-Module -Name "C:\Program Files\Intel\IntelNetCmdlets\IntelNetCmdlets
```



3. Run the **New-IntelNetTeam** command.

This command creates a new Intel ANS team consisting of one or more adapters. A team may consist of both Intel and non-Intel adapters. Adapter objects obtained using the **Get-IntelNetAdapter** command may be passed into this cmdlet using the TeamMembers parameter.

🔀 Administrator: V	Vindows PowerShell	-		×
	<pre>stem32> New-IntelNetTeam -TeamName "Team 0" -TeamMemberNames "Intel(R) Ethernet Connectio bit Network Connection" -TeamMode AdapterFaultTolerance</pre>	on I219	9-LM",	"In 🔨
TeamName TeamMembers TeamMode PrimaryAdapter SecondaryAdapter	: TEAM: Team 0 : {Intel(R) I210 Gigabit Network Connection, Intel(R) Ethernet Connection I219-LM} : AdapterFaultTolerance : Intel(R) Ethernet Connection I219-LM : NotSet			
PS C:∖Windows∖sy	stem32> _			v

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



Adding an Intel Net Team Member

1. Run the Add-IntelNetTeamMember command.

This command adds a new team member to an existing Intel® Advanced Network Services (Intel® ANS) Team. The new team member can be piped into the cmdlet or passed in using the adapter's name. An Intel ANS team can contain a maximum of eight members.

ዾ Administrator:	Vindows PowerShell	_		\times
PS C:\Windows\sy	<pre>stem32> Add-IntelNetTeamMember -TeamName "Team 0" -Name "Intel(R) I210 Gigabit Network</pre>	Connec	tion #2'	
TeamName	: TEAM: Team 0			
TeamMembers	: {Intel(R) I210 Gigabit Network Connection, Intel(R) Ethernet Connection I219-LM, Int Gigabit Network Connection #2}	tel(R)	1210	
TeamMode	: AdapterFaultTolerance			
PrimaryAdapter	: Intel(R) Ethernet Connection I219-LM			
SecondaryAdapter	: NotSet			
PS C:\Windows\sy	stem32>			

2. Check the Network adapters in the Windows Device Manager.



Removing an Intel Net Team Member

1. Run the **Remove-IntelNetTeamMember** command.

Allows users to remove a team member from an Intel ANS team. The team member can be piped into the cmdlet or passed in using the team member's name.

🔁 Administrator: \	Vindows PowerShell	-		\times
S C:\Windows\sy	<pre>Members : {Intel(R) I210 Gigabit Network Connection, Intel(R) Ethernet Connection I219-LM}</pre>			
	: {Intel(R) I210 Gigabit Network Connection, Intel(R) Ethernet Connection I219-LM} : AdapterFaultTolerance : Intel(R) Ethernet Connection I219-LM			
C:\Windows\sy	stem32>			

2. Check the Network Adapters in Device Manager.



Removing an Intel Net Team

1. Run the **Remove-IntelNetTeam** command. Removes the specified Intel ANS team.

27 Administrator: Windows PowerShell	_	×
PS C:\Windows\system32> Remove-IntelNetTeam -TeamName "Team 0" PS C:\Windows\system32>		^

4 BitLocker

This chapter describes the $\ensuremath{\mathsf{BitLocker}}$ setup process.

The following topics are covered in this chapter:

- Enabling the BitLocker
- Disabling the BitLocker

Enabling the BitLocker

1. Right-click the drive and select the **Turn on BitLocker** option.

Recycle Bin		
	Image: Computer View Denve Tools	- • × • •
	(a) → + ↑ ↓ > This PC > ↓ Ø Search	
	Contacts	
	This PC V Devices and drives (1)	
	Alternet Construction Constru	
= A 🛛 🧮		유 ^ 😱 46 🚧 PM 🖵

2. Select an option to back up the recovery key.

For example, Select Save to a file.

		\times
÷	RitLocker Drive Encryption (C:)	
	How do you want to back up your recovery key?	
	 Your recovery key has been saved. 	
	A recovery key can be used to access your files and folders if you're having problems unlocking your PC. It's a good idea to have more than one and keep each in a safe place other than your PC.	
	\rightarrow Save to your <u>M</u> icrosoft account	
	\rightarrow Save to a file	
	$\rightarrow \underline{P}$ rint the recovery key	
	How can I find my recovery key later?	
	<u>N</u> ext Cancel	

E.

3. Select the path to store the file in.

Rave BitLocker recovery key as									
\leftrightarrow \rightarrow \checkmark \bigstar	\leftarrow \rightarrow \checkmark \uparrow \blacksquare \rightarrow This PC \rightarrow NEW VOLUME (D:) \checkmark \bigcirc Search NEW VOLUME (D:) \checkmark								e) ,0
Organize 👻 Ne	w fold								- ()
 Quick access Desktop Downloads Documents Pictures This PC NEW VOLUME I Network 	* * * (D:)	Name		Date modified No items mat	Type ch your search.	Size			
File name:	BitLo	cker Recovery Key 06A92F47	-93AA-4514-BB5F-D6E	82C6F43C03					~
Save as <u>t</u> ype:	<u> </u>								~
 Hide Folders 							Save		Cancel

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

	×
←	
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.	I
Incrypt used disk space only (faster and best for new PCs and drives)	
\bigcirc Encrypt entire drive (slower but best for PCs and drives already in use)	
<u>N</u> ext Cancel	

		×
←	Note: Prive 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 19 or later, you should choose the new encryption mode	511)
	• New encryption mode (best for fixed drives on this device)	
	\bigcirc <u>C</u> ompatible mode (best for drives that can be moved from this device)	
	Next Can	cel

5. Click **Continue**.

		\times
÷	Real BitLocker Drive Encryption (C:)	
	Are you ready to encrypt this drive?	
	Encryption might take a while depending on the size of the drive.	
	You can keep working while the drive is being encrypted, although your PC might run more slowly.	
	✓ Run BitLocker system check	
	The system check ensures that BitLocker can read the recovery and encryption keys correctly before encrypting the drive.	
	BitLocker will restart your computer before encrypting.	
	Note: This check might take a while, but is recommended to ensure that your selected unlock method works without requiring the recovery key.	1
	<u>Continue</u> Cancel	

6. Restart the computer.

RitLocker Drive Encryption						
restarted The computer must be restarted						
Restart now Restart late	er					
Manage BitLocker						

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



Disabling the BitLocker

1. Right-click on the drive and select the Turn off BitLocker option



2. Click on the Turn off BitLocker button.



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



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

I I I File Computer	Vie	Drive Tools This PC			-	× ~ (?)
← → • ↑ 🖳	> Thi	s PC >		ٽ ×	Search This PC	P
🖈 Quick access		v Folders (6)				
💭 Desktop 🔶 Downloads	*	Desktop	Documents	Downloads		
Documents	*	Music	Pictures	Videos		
This PC		✓ Devices and drives (1)				
🥟 Network		Local Disk (C:) 125 GB free of 139 GB				

5 Configuring RAID

This chapter describes the setup process for RAID.

The following topics are covered in this chapter:

- Changing the RAID Mode
- Creating a RAID Disk From BIOS
- Replacing the Disk
- **C** Removing a RAID Volume From the BIOS

Changing the RAID Mode

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



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

	In	sydeH20 Setup Utility	Rev. 5
Main Advanced Securit	ty Power Boot Exit		
Boot Configuration SATA Configuration CPU Configuration Active Hanagement Techr Video Configuration Schipset Configuration Sto ITER786E Console Redirection	nology Support		Select the SATA controller and hard disk drive type installed in your system
		Ŕ	
F1 Help Esc Exit	1/↓ Select Item +/+ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

4. Select the **SATA Mode Selection** followed by the **Intel RST Premium** option and then enable **Hot Plug** function on each port.

		In	sydeH20 Setup Utility		Re	ev. 5.0
Advanced						
SATA Configuration				Dete	rnines how SATA controller(s) ate.	
SATA Mode Selection		<intel rst<="" td=""><td>Premium></td><td></td><td></td><td></td></intel>	Premium>			
PSerial ATA Port 0 Hot Plug PSerial ATA Port 1 Hot Plug PSerial ATA Port 2 Hot Plug PSerial ATA Port 3 Hot Plug PSerial ATA Port 4 Hot Plug PSerial ATA Port 5 Hot Plug	[Not Installed] [Not Installed] [INTEL SSDSC28813 [FUJITSU MHZ21600 [Not Installed] [Not Installed]	<enabled> 3H 621 <enabled> <enabled> <enabled></enabled></enabled></enabled></enabled>	SATA Hode Selection AHCI K Intel RST Prenium			
F1 Help Esc Exit	T/1 Select €/+ Select		F5/F6 Change Enter Select		F9 Setup Defaults F10 Save and Exit	

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

	InsydeH	20 Setup Utility	Rev. 5.0
Advanced			
SATA Configuration			eternines how SATA controller(s) perate.
SATA Hode Selection	<intel premi<="" rst="" th=""><th>um></th><th></th></intel>	um>	
▶Serial ATA Port 0 Hot Plug ▶Serial ATA Port 1 Hot Plug	[Not Installed] <enabled> [Not Installed] <enabled></enabled></enabled>		
PSerial ATA Port 2 Hot Plug PSerial ATA Port 3 Hot Plug PSerial ATA Port 4 Hot Plug PSerial ATA Port 5 Hot Plug	[INTEL SSDSC2001500701		
		×	
F1 Help For Evit	1/1 Select Iten	F5/F6 Change Values	F9 Setup Defaults

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

	lr.	isydeH20 Setup Utility	Rev. 5.0
Main Advanced Security Pow			
Hain Advanced Security Pow (x) Saving Changes Save Change Without Exit Exit Discarding Changes Load Optimal Defaults Load Custom Defaults Save Custom Defaults Discard Changes	er Boot Exit	×	Exit system setup and save your changes.
F1 Help Esc Exit	1/1 Select Item +/+ Select Item	F5/F6 Change Values Enter Select ► SubHenu	F9 Setup Defaults F10 Save and Exit

			InsydeH20 Setup Utility	Rev. 5.0
Nain Advanced	Security Power	Boot Exit		
Exit Saving Char Save Change Witt Exit Discarding Load Optimal Def Load Custon Defa Save Custon Defa Discard Changes	ges nout Exit Changes Faults nults		Exit Saving Changes [Yes] Nol	Exit system setup and save your changes.
F1 Help Esc Exit		/1 Select Iten /+ Select Iten	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

Creating a RAID Disk From the BIOS

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



3. Select the Intel(R) Rapid Storage Technology option.



4. Select the **Create RAID Volume** option.



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

		Rapid Storage Technology	
Intel(R) Rapid Storage Techno	logy		
Create RAID Volume			Select RAID Level
Name: RAID Level:	Volume1 <raido(stri< td=""><td>ipe)></td><td></td></raido(stri<>	ipe)>	
Select Disks: SATA 0. 2, INTEL SSDSC200150670 DV65140505150HGN, 139.760 SATA 0.3, FUJITSU HH221600H G2 K60HT9A3Y6AW, 149.060			
Strip Size: Capacity (HB):	<16KB> [0]		
⊧Create Volume Select at least two disks		RAID Level: RAIDO(Stripe) RAIDI(INFror) Recovery	
Fl Heip For Evit	1/1 Select Iten	F5/F6 Change Values	F9 Setup Defaults

intel(R) Rapid Storage Techno	intel(R) Rapid	Storage Technology	
Create RAID Volume			Select RAID Level
Name: RAID Level:	Volune1 <raid1(hirror)></raid1(hirror)>		
Select Disks: SATA 0.2, INTEL SSDSC288150670 DV65140505150H0N, 139.768 SATA 0.3, FUJITSU MH221600H G2 K60HT9A3Y6AW, 149.068			
Capacity (NB):	[0]		
▶Create Volume			
Select two disks			
		R	
F1 Help	1/1 Select Iten	F5/F6 Change Values	F9 Setup Defaults
Esc Exit	+/+ Select Iten	🔆 Enter Select 🕨 SubMenu	F10 Save

6. Select the disk and then press **Enter**.

Intel(R) Rapid Storage Technolo		id Storage Technology	
Create RAID Volune			X - to Select Disk
Name: RAID Level:	Volune1 <raid1(hirror)></raid1(hirror)>		
Select Disks: SATA 0.2, INTEL SSDSC2B8150G70 DV65140505150HGN, 139,768 SATA 0.3, FUJIISU HHZ2160DH G2 K60HT9A3Y6AW, 149.0GB	<>		
Capacity (NB):	[0]		
▶Create Volume			
Select two disks			
		R	
	1/1 Select Iten -/+ Select Iten	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save

7. Select **X** and then press **Enter** to select the disks.

Intel(R) Rapid Storage Technology			
Intel(R) Rapid Storage Technolog	IX		
Create RAID Volume			X - to Select Disk
Name: RAID Level:	Volune1 <raid1(hirror)></raid1(hirror)>		
Select Disks: SATA 0.2, INTEL SSDSC2BB150670 DV651405D5150HGN, 139.7GB SATA 0.3, FUJITSU HHZ2160BH G2 K60H19A3Y6AW, 149.0GB	<>		
Capacity (HB):	[01		
▶Create Volume			
Select two disks	SATA 0.2, INTEL SSDSC2001	50G70 DV65140505150MGN, 1	139.76B
	1 Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit +/	Select Iten	- Enter Select ► SubMenu	F10 Save

intel(R) Rapid Storage Technology	Intel(R) Rapid St	orage Technology	
Create RAID Volume			X - to Select Disk
Name: RAID Level:	Volune1 <raid1(hirror)></raid1(hirror)>		
Select Disks: SATA 0.2, INTEL SSDSC288150670 DV65140505150000, 139.768 SATA 0.3, FUJITSU MH221600H G2 K60HT9A3Y6AW, 149.068	< x>		
Capacity (MB):	[143086]		
▶Create Volume		×	
		w.	
		5/F6 Change Values nter Select ► SubMenu	F9 Setup Defaults F10 Save

8. Select the **Create Volume** option.

	Intel(R) Rapid St	orage Technology	
Intel(R) Rapid Storage Technology			
Create RAID Volume			Create a volume with the settings specified above
Name: RAID Level:	Yolune1 <raid1(hirror)></raid1(hirror)>		
Select Disks: SATA 0.2, INTEL SSDSC2B8150670	<>>		
DV651405D5150MGN, 139.76B SATA 0.3, FUJITSU MHZ2160BH G2 K60HT9A3Y6AW, 149.06B	(b)		
Capacity (NB):	[143086]		
▶Create Volume			
		Ħ	
		~	
		5/F6 Change Values nter Select ► SubMenu	F9 Setup Defaults F10 Save

	Intel(R) Rapid Storage Technology	
Intel(R) Rapid Storage Technology		
Intel(R) RST 15.8.0.3010 RAID Driver		Select to see nore information about the RAID Volume
RAID Volumes: PVolume1, RAID1(Hirror), 139.76B, Normal		
	K	
F1 Help 1/4 Select Esc Exit 4/4 Select		F9 Setup Defaults F10 Save

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

Replacing the Disk

1. Unplug the current SSD.

	- 🗆 ×
Sulue Manage Intel® Optione® Memory Performance Breferences Heb	(intel)
Current Status Vor system is functioning normaly. Maage Click on any element in the slorger system view to manage its properties. The Windows' write-cache buffer furthing policy can be enabled for all 2AD array drives to ensure data integrity or disabled to improve data performance. Click the Help icon for more information on setting the write-cache Intel 40 polares'' Memory Listel 9 Optane*'' memory status: disabled. Introduct	Sta, Arry, 000 Sta, Arry, 000 Voiwe1 yoe had a henel empty port 0 Merel empty port 2
	More help on this page

Status Manage Intel® Optione® Memory Performance Breferences Heb	tel
Current Status Your yold in is reporting one or more certs, and data may be at risk. Refers the datability backs for more information. Manage Click on any dement in the storage system view to manage its properties. P The Wronds wint-Carbo buffer floating point: cas be enabled to all RAD array drives to ensure data integriny or disabled to improve cata performance. Click the Help con for more information on setting the write-carbo Status Array 2000 P Value out its condition to many disk, or result the volume to a new disk. Unknown disk on Carbo life Unknown, Port Unknown, Nort Unknown disk or Carbo life Volume to a new disk. Intel® Optione ^{een} Memory Intel® Optione ^{em} memory stabus disabled. End/dis	
More herp on this	is page

2. Install the new SSD.

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Sutus Manage Intel® Optane" Memory Performance References Help	(intel)
Current Status Yur rystem is reporting on or more events, and data may be at fisk. Before the datability back for more information. Minage Click on any element in the storage system view to manage to properties. If Image Click on any element in the storage system view to manage to properties. If Image StAC, Ariay, 5000 P StAC, Ariay, 5000 P StAC, Ariay, 5000 P Using in a properties of the animal point of the animation on setting the write-cashe Using in a properties of the animation of the animation on setting the write-cashe Using in a properties of the animation of the animation on setting the write-cashe Using in a properties of the animation of the animation on setting the write-cashe Using in a properties of the animation of the animation on setting the write-cashe Using in a properties of the animation of the animation on setting the write-cashe Using in a properties of the animation of the animation on setting the write-cashe Using in a properties of the animation of the animation of the animation on setting the write-cashe Using in a properties of the animation of the animation on setting the write-cashe Using in a properties of the animation of the animation of the animation on setting the write-cashe Using in a propering in a properties of the animation of the animation	SATA, Aray,000 SATA, Aray,000 23 GB Volumed Yack 0.1 Yack
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3. Click on the Manage tab.

🚷 Intel® Rapid Storage Technology	- 0	×
Status Manage Intel®Ωprane™ Memory Performance Ereferences Help	int	e
Manage Disk : Cortolic Unicoun, Port Unicoun : Satus Mishia : Model: : Primere: : * Advanced :	Storage system tiew SATL_Array_0000 238 GB 10 GS 10 GS	Names Status System Signer 1
	More help on this	page

4. Select the new SSD and then click **Rebuild**.

🏚 Intel® Rapid Storage Technology	×
State Advance Intel® Optime® Restr Restr	Surger from the Description the Descri
	More help on this searce

5. Wait for the rebuild process to complete.

🔞 Intel® Rapid Storage Technology	- 🗆 X
Status Manage Intel® Optione® Memory Performance Breferences Help	(intel)
Manage Volume Name Voluma1 Satur Elavillagi 25 congride Typer (AD) 1 Sae 113,285 MB ↑ Accessed	SICCAPE System View () SICL_VAMPL_2000 View 238 GB View 140 GB Vie
	More help on this page

🚱 Intel® Rapid Storage Technology	- 🗆 X
Status Manage Intel® Optane® Memory Performance Breferences Help	(intel)
Current Status "Your yaten is reporting one or more events, and data may be at risk. Beet to the datalisit become formation. Manage Citic on any element in the storage system view to manage to properties. The Window's write-cacte buffer fuscing noticy can be enabled for at RAO any drives to ensure data integrity or disabled to improve data performance. Citic the Help icon for more information on setting the write-cacte Stat A rank 2000 CP Volument: Resulting 4% complete Unknown disk on Certorian Unknown, Pert Unknown: Maxing Intel & Optane ^{ere} memory status disabled. <i>Enable</i>	SATA Arey,000 SATA Arey,000 29 CB 10 CC 10 CCC 10 CC 10 CCC 10 CC 10 CC 10 CC 10 CC 10 CC 10 CC 10 CC 10 CCC
	More help on this page

😣 Intel® Rapid Storage Technology	- 🗆 ×
Satus Create Manage Intel® Optime" Memory Performance Enferences Eelp	(intel)
Vour system is functioning normaly. Casta Vour system is functioning normaly. Casta Create a culture by combining available click to enhance your storage system. (Create a culture by combining available click to enhance your storage system. (Create a culture by combining available click to enhance your storage system. (Create a culture by combining available click to enhance your storage system. (Create a culture by combining available click to enhance your storage system. (Create a culture by combining available click to enhance your storage system. (Create a culture by combining available click to enhance your storage system. (Create a culture by combining available click to enhance your storage to properties. (Create a culture by the function of the storage system view to manage its properties. (Create a culture by the function of the storage system view to manage its properties. (Create a culture by the function of the storage system view to manage its properties. (Create a culture by the function of the storage system view to manage its properties. (Create a culture by the function of the storage system view to manage its properties. (Create a culture by the function of the storage system view to manage its properties. (Create a culture by the function of the storage system view to manage its properties. (Create a culture by the function of the storage system view to manage its properties. (Create a culture by the function of the storage system view to manage its properties. (Create a culture by the function of the storage system view to charace by the function of the storage system view to charace by the function of the storage system view to charace by the function of the storage system view to charace by the function of the storage system view to charace by the function of the storage system view to charace by the function of the storage system view to charace by the function of the storage system view to charace by the function of the storage system view to charace by the storage sy	Staylery System View
	More help on this page

Removing a RAID Volume From the BIOS

- 1. Power on the computer and press $\mbox{\bf F2}$ to enter BIOS menu.
- 2. Select the Device Management option

	Front Page	
Front Page		
Continue >Boot Manager >Device Management		This selection will take you to the Device Manager
▶Boot From File ▶Setup Utility		
▶Intel(R) Hanagement Engine B10\$ Extension		
	R	
F1 Help	Enter Select J	SubMenu

3. Select the Intel(R) Rapid Storage Technology option.



4. Select the RAID volume to be removed.

		Rapid Storage Technology	
Intel(R) Rapid Stor	rage Technology		
Intel(R) RST 15.8.0.	3010 RAID Driver		elect to see nore information about the AlD Volume
▶Create RAID Volume			
RAID Volumes: ⊁Volume], RAIDICHirr	ror), 115.568, Nornal		
		×	
FI Help Esc Exit	1/1 Select Iten €/4 Select Iten	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults 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: RAID Level: Strip Size: Size: Status: Bootable: ►SATA 0.3, INTEL SSDSC288150670 DV651405 ►SATA 0.4, HRSAL5C2666N525100 A256N53E21			
		R	
		~	
F1 Help 1/4 Selec	t Iten	F5/F6 Change Values	F9 Setup Defaults
Esc Exit +/+ Selec	t Iten	Enter Select 🕨 SubMenu	F10 Save

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

Intel(R) Rapid Storage Technology			
Delete Delete the RAID volum			Deleting a volume will reset the disks to non-RAID.
ALL DATA ON VOLUHE VI ≻Yes ▶No	LL BE LOST!		
		R	
F1 Help Esc Exit	1/↓ Select Iten +/+ Select Iten	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save

7. Press **F10** to save the settings.
Unified Write Filters

You can install unified write filters (UWF) for running PCs and devices, and to manage them remotely using Windows Management Instrumentation (WMI). To use UWF, you'll need to install the feature and enable (and optionally configure) it. The first time you enable UWF on your device, UWF makes the following changes to your system to improve the performance of UWF:

- 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 finally select a drive to protect and start using UWF.

In this chapter, we describe how to use the unified write filters (UWF).

The following topics are covered in this chapter:

- **Turning ON the UWF on a Running PC**
- Installing the UWF Feature Using WMI

Turning ON the UWF on a Running PC

1. Install the UWF feature, do the following:

a. In the Windows start menu, type Turn Windows features on or off and press Enter.

b. In the **Windows Features** window, expand the **Device Lockdown** node, and select the **Unified Write Filter.**

c. Click OK.

The Windows Features window indicates Windows is searching for required files and displays a progress bar. Once found, the window indicates Windows is applying the changes. When completed, the window indicates the requested changes are completed.

d. Click **Close** to close the Windows Features window.



2. Enable the filter.

Use the cmd uwfmgr filter enable command.



Enable write protection for a drive. For example, the C: drive.
 Use the cmd uwfmgr.exe volume protect C: command.

```
Administrator: Command Prompt
C:\Windows\system32>uwfmgr filter enable
Unified Write Filter Configuration Utility version 10.0.17763
Copyright (C) Microsoft Corporation. All rights reserved.
Unified Write Filter will be enabled after system restart.
C:\Windows\system32>uwfmgr.exe volume protect C:
Unified Write Filter Configuration Utility version 10.0.17763
Copyright (C) Microsoft Corporation. All rights reserved.
The volume C: will be protected by Unified Write Filter after system restart.
C:\Windows\system32>
```

- 4. Restart your computer.
- 5. Confirm that UWF feature is running. Use the **cmd uwfmgr.exe get-config** command.

```
Administrator: Command Prompt
C:\Windows\system32>uwfmgr.exe get-config
Unified Write Filter Configuration Utility version 10.0.17763
Copyright (C) Microsoft Corporation. All rights reserved.
Current Session Settings
FILTER SETTINGS
    Filter state:
                     OFF
    Pending commit: N/A
    Shutdown pending:No
SERVICING SETTINGS
    Servicing State: OFF
OVERLAY SETTINGS
    Type:
                        RAM
   Maximum size:
                       1024 MB
   Warning Threshold: 512 MB
   Critical Threshold: 1024 MB
    Freespace Passthrough: OFF
    Persistent: OFF
    Reset Mode: N/A
```

Installing the UWF Feature Using WMI

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

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

You must restart your device after you turn on or turn off UWF before the change takes effect.

You can change these settings after you turn on UWF if you want to. 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 a unattend.xml file, turning on UWF only sets the bootstatuspolicy BCD setting and turns off the defragmentation service. In this case, you must manually turn off the other features and services if you want to increase the performance of UWF.

All configuration settings for UWF are stored in the registry. UWF automatically excludes these registry entries from filtering.

UWF maintains configuration settings in the registry for the current session and for the next session after a device restart. Static configuration changes do not take effect until after a device restart, and these changes are saved in the registry entries for the next session. Dynamic configuration changes occur immediately and persist after a device restart.

This chapter describes how to use Moxa IO Controller utility.

The following topics are covered in this chapter:

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

Overview

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

Administrator: Command Prompt
Microsoft Windows [Version 10.0.17763.292] (c) 2018 Microsoft Corporation. All rights reserved.
C:\Windows\system32>cd /d C:\Program Files\Moxa\Moxa Computer IO Controller
C:\Program Files\Moxa\Moxa Computer IO Controller>_

Setting the DIO Status

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



IMPORTANT!

The DIN and DOUT indices start at 0. If the printing starts from 1, the index still starts from 0 in this utility

🔤 Administrator: Command Prompt

```
C:\Program Files\Moxa\Moxa Computer IO Controller>mx-dio-ctl --help
mx-dio-ctl 1.0.1903.0
Copyright (C) 2019 Moxa Inc. All rights reserved.
USAGE:
Get value from DIN port 1:
 mx-dio-ctl -i 1
Get value from DOUT port 1:
 mx-dio-ctl -o 1
Set DOUT port 2 value to HIGH:
 mx-dio-ctl -m 1 -o 2
               -i <#DIN index> (Start from 0)
  -i
               -o <#DOUT index> (Start from 0)
  -0
               -m <status>
  – m
                0 --> LOW
                1 --> HIGH
  --help
               Display this help screen.
  --version
               Display version information.
C:\Program Files\Moxa\Moxa Computer IO Controller>
```

Example:



Setting the UART Mode

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



IMPORTANT!

The UART index start from 0. If the printing starts at 1, the index still starts from 0 in this utility.

Administrator: Command Prompt

```
C:\Program Files\Moxa\Moxa Computer IO Controller>mx-uart-ctl --help
mx-uart-ctl 1.0.1903.0
Copyright (C) 2019 Moxa Inc. All rights reserved.
USAGE:
Get uart mode from port 2:
 mx-uart-ctl -p 2
Set port 1 to mode RS-422:
 mx-uart-ctl -m 2 -p 1
  -p
               Required. -p <#port index> (Start from 0)
               -m <#uart mode>
  - m
                0 --> set to RS232 mode
                1 --> set to RS485-2W mode
                2 --> set to RS422 mode
  --help
               Display this help screen.
               Display version information.
  --version
C:\Program Files\Moxa\Moxa Computer IO Controller>
```

Example:

Administrator: Command Prompt C:\Program Files\Moxa\Moxa Computer IO Controller>mx-uart-ctl -p 0 Current uart mode is RS232 interface. C:\Program Files\Moxa\Moxa Computer IO Controller>mx-uart-ctl -p 0 -m 1 Set OK. Current uart mode is RS485-2W interface. C:\Program Files\Moxa\Moxa Computer IO Controller>_

Setting the Relay Status

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



IMPORTANT!

The relay output index starts at 0. If the printing starts at 1, the index still starts at 0.

Administrator: Command Prompt

```
C:\Program Files\Moxa\Moxa Computer IO Controller>mx-relay-ctl --help
mx-relay-ctl 1.0.1903.0
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
               Required. -i <#Relay index> (Start from 0)
 -i
               -m <status>
  - m
                0 --> turn off
                1 --> turn on
               Display this help screen.
  --help
  --version
               Display version information.
C:\Program Files\Moxa\Moxa Computer IO Controller>_
```

Example:

Administrator: Command Prompt
C:\Program Files\Moxa\Moxa Computer IO Controller>mx-relay-ctl -i 0
Relay index 0 data: 1
C:\Program Files\Moxa\Moxa Computer IO Controller>mx-relay-ctl -i 0 -m 0
Relay index 0 data: 0
C:\Program Files\Moxa\Moxa Computer IO Controller>

Setting the LED Status

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



IMPORTANT!

All the LED indices start at 0. If the printing starts from 1, the index still starts from 0 in this utility.

Administrator: Command Prompt

```
C:\Program Files\Moxa\Moxa Computer IO Controller>mx-led-ctl --help
mx-led-ctl 1.0.1903.0
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 \rightarrow led on
                2 --> led blink
               Display this help screen.
  --help
               Display version information.
  --version
C:\Program Files\Moxa\Moxa Computer IO Controller>_
```

Example:

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

8 IO Control API

This chapter describes how to use IO Control API.

The following topics are covered in this chapter:

Downloading the API

🛛 mxdgio

- > GetDinStatus
- GetDoutStatus
- SetDoutStatus

mxled

- > GetLedData
- SetLedData

mxrelay

- > GetRelayData
- SetRelayData

🛛 mxsp

- GetUartMode
- SetUartMode

🛛 mxwdg

- mxwdg_open
- mxwdg_refresh
- mxwdg_close

Downloading the API

- 1. Access the Moxa support page: <u>https://www.moxa.com/en/support</u>
- 2. Select the product series DA-820C.

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	MOXA [®] Pro	oducts Solutions	Support He	ow to Buy About Us	9
	Home > Support				
	Support				
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	Driver for DA-820 Series (Peripheral for Linux) 651.6 KB) Driver	v1.0	Jan 22, 2015	
	Driver for DA-820 Series (Linux)	↓ Driver	v1.0	Jan 22, 2015	
	318.5 KB				
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mxdgio

The **mxdgio** library operates on the digital I/O.

GetDinStatus

Syntax:

int GetDinStatus(int port);

Description:

Gets the status of a digital input port.

Parameters:

Parameter	Description	
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. Can't open json profile.	
PORT_OUTOF_INDEX	-2	Target port index is out of range.	

Requirements:

Item/Name	File
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:

Parameter	Description	
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. Can't open json profile.	
PORT_OUTOF_INDEX	-2	Target port index is out of range.	

Requirements:

Item/Name	File
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:

Parameter Description		
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. Can't open json profile.	
PORT_OUTOF_INDEX	-2	The target port index is out of range.	
SET_STATUS_ERR	-3	Sets the status to fail.	

Requirements:

Item/Name	File
Header	mxdgio.h
Library	mxdgio.lib
DLL	mxdgio.dll
Profile	MxdgioProfile[ModelName].json

mxled

The **mxled** library operates on the programmable LEDs.

GetLedData

Syntax:

int GetLedData(int port);

Description:

Gets the status of the LED port.

Parameters:

Parameter	Description	
port	The index of the LED port; starts at 0.	

Return Value:

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

Error Codes:

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

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxled library initialization failed. Can't open json profile.
PORT_OUTOF_INDEX	-2	The target port index is out of range.

Requirements:

Item/Name	File
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:

Parameter	Description	
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. Can't open json profile.
PORT_OUTOF_INDEX	-2	The target port index is out of range.
SET_STATUS_ERR	-3	Sets the status to fail.

Requirements:

Item/Name	File
Header	mxled.h
Library	mxled.lib
DLL	mxled.dll
Profile	MxledProfile[ModelName].json

mxrelay

The **mxrelay** library operates on the relay output.

GetRelayData

Syntax:

int GetRelayData(int port);

Description:

Gets the status of the relay output port.

Parameters:

Parameter	Description
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. Can't open json profile.
PORT_OUTOF_INDEX	-2	The target port index is out of range.

Requirements:

Item/Name	File
Header	mxrelay.h
Library	mxrelay.lib
DLL	mxrelay.dll
Profile	MxrelayProfile[ModelName].json

SetRelayData

Syntax:

int SetRelayData(int port, int status);

Description:

Sets the status of the relay output port.

Parameters:

Parameter	Description	
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. Can't open json profile.
PORT_OUTOF_INDEX	-2	The target port index is out of range.
SET_STATUS_ERR	-3	Sets the status to fail.

Requirements:

Item/Name	File
Header	mxrelay.h
Library	mxrelay.lib
DLL	mxrelay.dll
Profile	MxrelayProfile[ModelName].json

mxsp

The mxsp library operates on the serial port.

GetUartMode

Syntax:

int GetUartMode(int port);

Description:

Gets the status of the UART port.

Parameters:

Parameter	Description
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.

Error Codes:

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

Name	Value	Meaning
LIB_INITIALIZE_FAIL	-1	The mxsp library initialization failed. Can't open json profile.
PORT_OUTOF_INDEX	-2	The target port index is out of range.

Requirements:

Item/Name	File
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:

Parameter	Description		
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.		

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. Can't open json profile.	
PORT_OUTOF_INDEX	-2	The target port index is out of range.	
SET_STATUS_ERR	-3	Sets the status to fail.	

Requirements:

Item/Name	File
Header	mxsp.h
Library	mxsp.lib
DLL	mxsp.dll
Profile	MxspProfile[ModelName].json

mxwdg

The **mxwdg** library operates on the watchdog timer.

mxwdg_open

Syntax:

int mxwdg_open(unsigned long time);

Description:

Initializes the watchdog timer.

Parameters:

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

Return Value:

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

Requirements:

Item/Name	File
Header	mxwdg.h
Library	mxwdg.lib
DLL	mxwdg.dll

mxwdg_refresh

Syntax:

int mxwdg_refresh(PVOID fd);

Description:

Refreshes the watchdog timer.

Parameters:

Parameter	Description		
fd	The handle of the watchdog timer.		

Return Value:

Returns o on success; otherwise the function has failed.

Requirements:

Item/Name	File
Header	mxwdg.h
Library	mxwdg.lib
DLL	mxwdg.dll

mxwdg_close

Syntax:

int mxwdg_close(PVOID fd);

Description:

Disables the watchdog timer.

Parameters:

Parameter	Description		
fd	The handle of the watchdog timer.		

Return Value:

This function does not return a value.

Requirements:

Item/Name	File		
Header	mxwdg.h		
Library	mxwdg.lib		
DLL	mxwdg.dll		

Windows Recovery

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

The following topics are covered in this chapter:

- **Preparing the USB Device**
- Booting From the USB Recovery Disk
- System Image Backup
- Restoring the System Image

Preparing the USB Device

1. Ensure that your computer has the Diskpart version 10.0.17134.0 or higher installed. There have two ways to check the version of the Diskpart tool.

a. In the Windows start menu, type **winver** to check OS Build, the OS version must have 1803 or later version and the specific OS Build will be 17763 or later.

≡	All	Apps	Documents	Settings	Photos	More V Fee	edback	
ŵ	Best n	natch						
		winver Run com	mand		\rightarrow			
	Settin	gs (1)				winver Run command		
						□ [*] Open		
						🕞 Run as administrator		
						Den file location		
ŝ								
	νN	rinver						
	Q	Ħ	i					

About Windows	Х
Windows 10	
Microsoft Windows Version 1809 (OS Build 17763.379) © 2018 Microsoft Corporation. All rights reserved.	
The Windows 10 Enterprise LTSC operating system and its user interface are protected by trademark and other pending or existing intellectual property rights in the United States and other countries/regions.	
This product is licensed under the <u>Microsoft Software License</u> <u>Terms</u> to: moxa	
ОК	

b. Run the command line as an **Administrator** and type diskpart to run diskpart and check the diskpart version.



2. Run the **BuildWindowsRecoveryUSB.exe** program from the <Software DVD>\recovery folder.

📙 🛃 🚽 = BuildUSE	3			_	□ ×
File Home Share	e View				~ 🕐
	uildUSB		ٽ ~	Search BuildUSB	Q
1.0.11	Name	Date modified	Туре	Size	
📌 Quick access	BuildWindowsRecoveryUSB	4/2/2019 8:53 AM	Application	39 KB	
🔜 Desktop 🖈	Microsoft.Wim.dll	10/21/2016 10:44	Application extens	49 KB	
🕂 Downloads 🖈	WindowsRecovery_V1.0.wim	4/2/2019 8:47 AM	WIM File	748,537 KB	
🔮 Documents 🖈					
📰 Pictures 🛛 🖈					
BuildUSB 🗸					
3 items					

3. Click "..." to select the .wim file from the <Software DVD>\recovery folder.

💀 BuildRecoveryUSB	_		×
Select USB and file			
Windows Recovery File:			
USB Drive:			
Y: - Patriot Memory USB Device V OK		Cancel	

Chose the WindowsRecovery	y file						×
	his PC → Desktop → BuildUSB			√ Č S	earch BuildUSB		P
Organize 🔻 New fold	er				== -		?
PackageCounter ^	Name	Date modified	Туре	Size			
PRP_HSR	WindowsRecovery_V1.0.wim	4/2/2019 8:47 AM	WIM File	748,537 KB			
WindowsRecove							
This PC							
3D Objects							
E Desktop							
🔮 Documents							
🖶 Downloads							
👌 Music							
Pictures							
Videos							
🏪 Windows (C:)							
WINPE (W:)							
👝 Data (Y:)							
×							
File <u>n</u>	ame: WindowsRecovery_V1.0.wim			~	WIM files		\sim
				[<u>O</u> pen	Cancel	

4. Select the USB drive option and click **OK**.

The USB disk will be formatted.

💀 BuildRecoveryUSB	_		×
Select USB and file			
Windows Recovery File:			
\Users\moxa\Desktop\BuildUSB\WindowsRecovery_V1.0.wi	m		
USB Drive:			
Y: - Patriot Memory USB Device V OK		Cancel	
Y: - Patriot Memory USB Device			

The program will create two volumes on the USB disk and the boot file will be copied to your USB.

Some additional windows may appear during this process. You can close these windows after the process is completed.

		BuildRecoveryUSB Build Recovery USB 1. Partition Disk (Done) 2. Apply File (Current)		- 0	×	
		49 %				
	🛶 │ 🛃 📑 〒 │ File Home Share	Manage WINPE (W:) View Drive Tools			_	~ 0
🕳 🗹 📙 🖛	$\leftarrow \rightarrow \checkmark \uparrow \blacksquare \rightarrow WINP$			ٽ ~	Search WINPE (W:)	م
File Home Share View ← → ✓ ↑ 🚍 → Data (Y:)		Name	Date modified	Туре	Size	^
	This PC	bg-bg	6/13/2018 10:01 AM	File folder		
	3D Objects	Boot	6/13/2018 10:01 AM	File folder		
WindowsRecove	Desktop	cs-cz	6/13/2018 10:01 AM	File folder		
💻 This PC	Documents	📙 da-dk	6/13/2018 10:01 AM	File folder		
🧊 3D Objects	Downloads	de-de	6/13/2018 10:01 AM	File folder		
Desktop	Music	EFI	6/13/2018 10:01 AM	File folder		
Documents	Pictures	el-gr	6/13/2018 10:01 AM	File folder		
🖶 Downloads		en-gb en-us	6/13/2018 10:01 AM 6/13/2018 10:01 AM	File folder File folder		
h Music	Videos	es-es	6/13/2018 10:01 AM	File folder		
Pictures	L Windows (C:)	es-mx	6/13/2018 10:01 AM	File folder		
📕 Videos	WINPE (W:)	et-ee	6/13/2018 10:01 AM	File folder		
Windows (C:)	👝 Data (Y:)	fi-fi	6/13/2018 10:01 AM	File folder		
WINPE (W:)	👝 Data (Y:)	fr-ca	6/13/2018 10:01 AM	File folder		
Data (Y:)	WINPE (W:)	📙 fr-fr	6/13/2018 10:01 AM	File folder		
Data (Y:)	40 items	hr-hr	6/13/2018 10:01 AM	File folder		-
0 items						

5. Click **Exit** to close the program.

💀 BuildRecoveryUSB	-		Х
Build Recovery USB 1. Partition Disk (Done) 2. Apply File (Done)			
100 % Process Complete !		Exit	

After the process is completed, two volumes are created on the USB disk.

a. One volume has a "home" folder, which can be used to store the OS image.

🕳 🕑 📙 🖛	М	lanage Data (D:)			_	×
File Home	Share View Driv	ve Tools				~ 🕐
\leftarrow \rightarrow \checkmark \uparrow \blacksquare	> Data (D:)			~ Ū	Search Data (D:)	Q
 Quick access Desktop Downloads Documents Pictures This PC 	Name home *	^	Date modified 5/9/2019 4:50 PM	Type File folder	Size	
 Data (D:) WINPE (E:) Network 						
1 item						:::: >

b. The second volume has many folders, which contains data for booting into WinPE to run the recovery program. This volume may not be visible in systems running Windows 7 or Windows 10 versions prior to 1803.

🕳 🗹 📙 🖛	Manage WINPE (E:)	– 🗆 ×
File Home	Share View Drive Tools		~ 📀
\leftarrow \rightarrow \checkmark \bigstar \blacksquare	> WINPE (E:)	ٽ \	Search WINPE (E:)
	Name	Date modified Type	Size
V A Quick access	📙 bg-bg	6/13/2018 10:01 AM File folder	
Desktop	Boot	6/13/2018 10:01 AM File folder	
🖊 Downloads	x cs-cz	6/13/2018 10:01 AM File folder	
🖆 Documents	🖈 🔄 da-dk	6/13/2018 10:01 AM File folder	
Pictures	🖈 🔄 de-de	6/13/2018 10:01 AM File folder	
This DC	EFI	6/13/2018 10:01 AM File folder	
> 💻 This PC	el-gr	6/13/2018 10:01 AM File folder	
> 👝 Data (D:)	en-gb	6/13/2018 10:01 AM File folder	
	en-us	6/13/2018 10:01 AM File folder	
> 👝 WINPE (E:)	es-es	6/13/2018 10:01 AM File folder	
> 💣 Network	es-mx	6/13/2018 10:01 AM File folder	
	et-ee	6/13/2018 10:01 AM File folder	~
40 items	_		

 Copy the os_image_ModelName directory from the <Software DVD>\recovery folder to the \home\partimag\ folder on the USB drive.

📙 🛃 📙 🖛 partir	mag			_	
File Home SI	hare View				~ 🕐
← → × ↑ 📙 >	> Data (D:) > home > partimag >		√ Č	Search partimag	Q,
📌 Quick access	Name	Date modified	Туре	Size	
Desktop	os_image_DA820C_V1.0	5/10/2019 9:20 AM	File folder		
Downloads	*				
Documents Pictures	A A				
💻 This PC					
🔜 Data (D:)					
WINPE (E:)					
💣 Network					
1 item 1 item selecte	ed				

The USB disk is now ready for use in the recover process.

Booting From the USB Recovery Disk

To boot up from the USB recovery disk, do the following:

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

	Front Page
Front Page	
Continue	
▶Boot Manager	
▶Device Management	
▶Boot From File	
▶Setup Utility	
▶Intel(R) Management Engine BlOS Extension	

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

	Boot Manager
Boot Option Menu	
EFI Boot Devices EFI USB Device (Patriot Memory) Windows Boot Manager (MRSAJAA064GTW25C00)	
↑ and ↓ to change option, ENTER to select an option, E	SC to exit
Windows Boot Manager (MRSAJAA064GTW25C00)	SC to exit

System Image Backup

To back up a system image on to a USB disk, do the following:

- 1. Boot the system from the USB disk. The Windows Preinstallation Environment (WinPE) and the WindowsRecovery utility will be displayed.
- 2. Click Backup.



 Select the Source disk to backup and the Destination USB to store the OS image in, and specify a Build ID and an Image Description for the image file. 4. Click Start to backup.



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

D Windows Recovery		
MOXA	Vindows Backup	
	Source	
	Disk - 0	× 0101 00
10 0	Model: MRSAJAA064GTW25C00 Used Space: 19.3 GB (20,719,685,632) Bytes Free Space: 36.59 GB (39,284,023,296) Bytes	× 101010101
	Destination	x1010101
	E:	~
Backup R	Patriot Memory USB Device, Partition#0 Used Space: 12.09 GB (12,985,724,928) Bytes Free Sp Question SS Image In Build ID: Windows Image De DA-8200 20190325 Test Image	n Exit Program
	os_image_Windows_Image_01 Start to backup	Recovery

6. Wait for the backup process to finish.



7. After the backup process is completed, click **OK**.



8. Click Exit Program and click OK.

The program will shut down the computer automatically.



9. The OS image will be save in the USB disk at **home\partimag**.

ightarrow 🔺 📥 > Dat	a (D:) > home > partimag > os_image_Wi	ndows_Image_01			~
MxPrpSetup	Name	Date modified	Туре	Size	
PRP_HSR	🔊 comm	3/26/2019 7:52 AM	Configuration sett	1 KB	
SoftwareInstallai	os_image_Windows_Image_01.wim	3/26/2019 8:07 AM	WIM File	6,827,545 KB	
Startup	Windows_Image_01	3/26/2019 7:52 AM	Configuration sett	1 KB	
This PC	Windows_Image_01	3/26/2019 7:52 AM	Text Document	1 KB	

The **os_image** folder will have the backup information and the image file.

Restoring the System Image

To restore the system image from a USB disk, do the following:

- Boot the system from the USB disk. The Windows Preinstallation Environment (WinPE) and the WindowsRecovery utility will displayed.
- 2. Click **Recovery**.



3. Select the **Source** USB Device and the folder for the image file and check the image information. Select the **Destination** Disk to restore. Click **Apply**.

i Windows Recovery		
ΜΟΧΛ		101
	Windows Recovery	
	Source	
10	Device	
No.	E: (Patriot Memory USB Device)	
	Select Folder File	
	os_image_Windows_Image_01 V Delete	
	Build ID:Windows_Image_01 Image Size:6.51 GB Image Description: DA-820C 20190325 Test Image	
	I	
	Destination	
	Disk - 0 (MRSAJAA064GTW25C00)	
Backup R	Model: MRSAJAA064GTW25C00 DN Used Space: 55.9 GB (60,019,868,160) Bytes	Exit Program
		lindows Overy
		<u>, si ci j</u>

4. Click **Yes** to start the recovery process.

MOX	Windows Recovery		
	Source		
	Device		
8	E: (Patriot Memory USB Device)		
0	Select Folder File	210	
	os_image_Windows_Image_01	Delete	
	Build ID:Windows_Image_01		
	In Question	X	
1010	20 Te ? Recovery the system now?		
	Yes No	Cancel	
in my	Disk - 0 (MRSAJAA064GTW25C00)		
	Model: MRSAJAA064GTW25C00		
Backup	Used Space: 55.9 GB (60,019,868,16	ation	Exit Program
	Apply		-
			Windows ecovery

5. Click Yes to confirm.

	Windows Recovery	
	Build ID:Windows_Image_01 Image_Size(6.51.GR Im D4 20 Te Destination drive will be overwritten !!! Do you want to continue?	-1
Backup R	Yes No Disk - 0 (MRSAJAA064GTW25C00) Model: MRSAJAA064GTW25C00 Used Space: 55.9 GB (60,019.868,160) Bytes >n	Exit Program
	Apply	Windows covery

6. Wait for the restore process to complete.



7. Click **OK**.



8. Click **Exit Program** and click **OK**, the program will shut down the computer automatically.



9. Reboot the computer.



IMPORTANT!

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