Getting Started with MRC Quick Link

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About Moxa

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Moxa is a leading provider of edge connectivity, industrial networking, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things. With over 30 years of industry experience, Moxa has connected more than 50 million devices worldwide and has a distribution and service network that reaches customers in more than 70 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for industrial communications infrastructures. Information about Moxa's solutions is available at www.moxa.com.

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Getting Started with MRC Quick Link

Introduction

Moxa Remote Connect (MRC) Quick Link is a cloud-based management platform that allows you to set up a remote connection from any computer to the end devices connected to an MRC gateway from anywhere in the world through the MRC server. This makes it possible to use PC-based software applications to remotely interact with industrial equipment - just as if they are connected directly to the PC.

Setting up a remote connection with MRC Quick Link involves three separate processes carried out by different roles. The administrator is responsible for configuring the gateway and clients for remote access on the MRC server and generating the respective activation keys for the machine operator and support engineer. The machine operator installs the activation key on the physical gateway device on-site. Meanwhile, the support engineer uses the client key in the MRC Client Software to authorize the remote connection to the field device. When the tunnel is successfully established, the support engineer can remotely monitor and manage the equipment.

The following diagram illustrates a common usage scenario utilizing MRC Quick Link to remotely access industrial Ethernet equipment connected to the MRC gateway.



This technical note provides instructions on how to set up and configure a remote connection with MRC Quick Link, as well as two example applications for your reference.

How to Use MRC Quick Link to Connect to Remote Equipment

Step 1: [MRC Admin] Register Your MRC Quick Link Account and Gateway

The first step in setting up remote connections with MRC Quick Link is to create a MRC Quick Link account and register the MRC-1002 gateway serial number. This process is handled by the MRC server administrator.

1. Go to <u>www.moxa.com</u> and click **Sign In** in the upper-right corner.



If you already have a Moxa account, enter your login details, click SIGN IN, and skip to step 5.
 If you do not have a Moxa account, continue with step 3.

				Contac	t Us Partner Zone My Moxa		
MOXA	Products	Solutions	Support	How to Buy	About Us	9	
	Please sig	n in					
	Email*						
	Password*						
	Forgot your password?	,					
		s	IGN IN				
	Not a	member? Create	your Moxa member	account			
FOLLOW US							
	in						

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3. Click **Create your Moxa member account** to create a new account.

MOXA	Contact Us Parter Zee My Mera Spin Products Solutions Support How to Buy About Us	ĺ
	Please sign in Email Passond* Forgot your password? SIGN IN Not a member? Create your Moxa member account	
FOLLOW US	©	

- 4. Fill in the required information and click **SIGN UP**.
- 5. Go to <u>www.moxa.com</u> and sign in using your Moxa account.
- 6. Once logged in, go to Software License Management located under the Support tab.

MOXA	Products Solutions	Support How to I	Contacl Us Partner Zone My Moxa Buy About Us	Sign In
	Product Support Software & Documentation	Repair & Warranty Product Repair Service/RMA	Resources	
What If O&	Product FAQs Security Advisories	Warranty Policy	Case Studies	
No Longer Solar Energ	Software License Management	a product? CONTACT US >		
LEARN MORE		the second second	- TE	

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7. Log in to the Software License Management portal using your Moxa account.



8. Click Activate Your License.

	Legest ContextUs
Activate Your License	Query Your License
	© 2018 Mora Inc. Al rights reserved.

9. Select MRC Quick Link from the Software Package list.

MOXA	Software Licensing	
Home > Activate Your Software		
Software Packa MIC Guas Lini MIC Guas Lini MIC ADDC UA Server MIC ADDC UA Server MIC ADDC UA Server	Ige Software Function • id.oph.E1200 Etherkest9	
Conception in the local division of the loca		
	© 2018 Moxa Inc. All rights reserved.	

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- 10. Enter your MRC-1002 Gateway's serial number and create a MRC Quick Link ID. After completing the survey, click **Submit**.
- **Note:** The MRC Quick Link ID cannot be changed once created.



11. You will receive a confirmation email with your MRC Quick Link account information.

Dear and the second	
You have successfully registered your MRC Quick Link. Moxa will use this email address to contact you regarding your MRC Quick Link. Below are the or regarding your Quick Link service.	etails
MRC Quick Link portal: https://mrcus.moxa.com	
MRC Quick Link Login ID:	
Password:	
MRC Quick Link service period: (GMT-7) 2020-01-16 - 2025-01-16	
After you log in to your MRC Quick Link for the first time, please change the default password.	
If you did not register a MRC Quick Link, please contact Moxa and include the contents of this email.	
Note: This email was sent from an address that is not monitored. Please do not respond to this email.	

Getting Started with MRC Quick Link

12. Go to the MRC portal at <u>https://mrcus.moxa.com</u> and log in with your MRC Quick Link ID and the password provided in the confirmation email.



- 13. When prompted, update the default password and click **OK**.
- Since this is the first time logging in, the Wizard for adding clients and gateways will automatically open. Do not close the Wizard and continue with <u>Step 2: [MRC Admin] Configure Remote</u> <u>Access and Generate Activation Keys</u>.

Step 2: [MRC Admin] Configure Remote Access and Generate Activation Keys

Establishing a remote tunnel connection between the management station and the gateway requires the gateway and clients to be configured on the MRC server first. Once configured, activation keys for the client and gateway can be generated and distributed to the machine operator and support engineer to authorize and enable the remote connection. This process is handled by the MRC server administrator.

This section is further divided into three subsections for creating the client key, gateway key, and generating and distributing the keys. These should be followed in order.

1. Creating MRC Client Keys

In order to establish a remote connection to the gateway, clients need to be created and configured on the MRC server. These clients will be associated with the gateway and be authorized to access the gateway remotely.

1-1. In the Wizard, select **MRC_QuickLink** from the group list and click **Next**. If you accidentally closed the Wizard, or it unexpectedly closed, you can restart the Wizard by clicking the **Menu** icon (\blacksquare) in the top-left corner and select **Wizard**.

Note: Uncheck **Always start with wizard** in the bottom-left to prevent the wizard from automatically showing when logging in next time.

			😧 English 🔹 🍥 🛶 - (Oncep Administration) 🥜
Wizard			
Wizard	Select or search group:	MRC_QuickLink	- → Nox
	Always start with wizard		
1-2. C	lick Create Clie	nt.	
			😧 Ergish 🔹 🥥 🛶 (Group Administrator) 🧳
Wizard Wizard - Select Type			
wizaru - seleci rype		Device Group: MRC_QuickLink	B

1-3. Specify the login ID, email address, and password of the client and click **Next**.

Note: The login ID can be up to 32 characters long. Both the login ID and the email address should be unique. Users can use either the login ID or email address to sign in to the MRC portal.

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Note: You can also configure an optional service period time frame to limit when clients can connect to remote devices. For example, you can allow clients to only establish remote connections between 28/10/2020 14:00 and 30/10/2020 14:00.

	😧 English 🔹 🥥 🛶 🛶 (Brough Administratory 🧳
Wizard - Create Client	θ
Device Group Name:	MRC_QuickLink
Login ID:	
	This field is required.
Email:	
	This field is required.
New Password:	This field is required.
Confirm New Password:	This field is required.
Service Period:	Select service start date To Select service expire date
	→ Next
∉ Back	

1-4. Click **Save and Finish** to save the client configuration.

		🛞 English 🔹 🥘 🛶 💿 (Group Administrator) 🦨
Wizard		
Wizard Result		8
Device Group	Client	Gateway
MRC_QuickLink	moxatest ×	
		x Cancel Continue Wizard RSave and Hinish
€ Back		

- 1-5. Repeat steps **1** to **4** to create additional clients.
- 1-6. When finished, continue to **<u>2. Creating the MRC Gateway Key</u>**.

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2. Creating the MRC Gateway Key

The gateway and connected end devices have to be configured in the MRC server for remote access. Depending on your network setup, the gateway can be configured using one of three available modes, WAN-LAN, Transparent-LAN, or Cellular-WAN.

Refer to the table below for a description of each mode. Choose a mode and follow the link in the mode description to continue with the gateway configuration.

Note: If you are uncertain of the type of application, or your application does not fit any of these scenarios, pick the mode most appropriate for your current network configuration. You can configure the gateway to meet your requirements afterwards using the local web console. Refer to the MRC Gateway User's Manual for more information.

Mode	Diagram	Description
WAN-LAN Mode	Internet Route Internet e.g. 192.168.1.x LAN Port Ethernet Switch Target Machine	The gateway's WAN port connects to an external Internet router to access the Internet. Target machines are connected either directly to the gateway's LAN port or via a switch. Refer to Using WAN-LAN Mode for setup instructions.
Transparent-LAN Mode	Internet Router Ethernet Switch Same Subnet: e.g. 192.165.1.x Target Machine	The gateway is configured to be in the same subnet as the existing office or factory network to access the Internet. Target machines keep their existing network information and connect directly to the gateway via the LAN port. Refer to Using Transparent-LAN Mode for setup instructions.
Cellular-WAN Mode	Internet	The gateway connects to the Internet using a cellular network. Target machines are connected either directly to the gateway's LAN port or via a switch. Refer to Using Cellular-WAN Mode for setup instructions.

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A. Using WAN-LAN Mode

In a WAN-LAN application, the MRC gateway's WAN port is directly connected to a router for Internet access, and the LAN port is either connected to the Ethernet device or to the local network where the machine's network is located via an Ethernet switch. In this mode, Internet access can be configured to use DHCP, static IP, or PPPoE.

A-1. Click the **Menu** icon (\equiv) in the top-left corner and select **Wizard**.

	ΜΟΧΛ	
Dev	ice Group Management	
	Start Date:	Select service start date
	End Date:	Select service expire date
De	vice Group List	
•	matipen	
¥.	Wizard	
**	Device Group	
#	Gateway Management	
4	Client Management	
	Log List	
٥	Basic Settings	
6	Version	

A-2. Click Create Gateway.

			😧 English 🔹 🧶	(Group Administrator)	1
Wizard					
Wizard - Select Type					8
	Device Group: MIRC_Quickuns Create Gateway	k Create Client			
€ Back					

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A-3. Specify the required information and click **Next**. Refer to the table below for more information about each setting.

			😧 English 🔹 🥘 🛶 -	(Group Administrator)
Wizard				
Wizard - Create Gateway				Θ
123456				
Device Group Name:	MRC_QuickLink			
Gateway Name:		Auto IP Mapping:	••	
	This field is required.	Gateway to Gateway:		
Location:		Broadcast Forwarding:	Disabled	
Latitude:	Latitude Format: 23.985001	Multicast Forwarding:	Disabled	
Longitude:	Longitude Format: 120.551838			
Lock to MAC Address:	MAC Format: 00:90:E8:12:34:56			
			→ Next	
€ Back				

Item	Description				
Gateway Name	Enter a name for the gateway. This name is how the device				
	will appear in the interface.				
Location	Enter a location keyword such as a city name or specific				
	address. The MRC Server will automatically populate the				
	latitude and longitude fields with the Google Maps				
	coordinates of the location closest to the keyword.				
Latitude	Enter the latitude coordinate of the gateway. If using a				
	location keyword, this will be automatically populated by				
	the system.				
Longitude	Enter the longitude coordinate of the gateway. If using a				
	location keyword, this will be automatically populated by				
	the system.				
Lock to MAC Address	The MRC gateway settings can be locked to the gateway's				
	MAC address. The activation key that has been generated				
	after locking the gateway will only be authorized for use on				
	the MRC gateway that matches the specified MAC address.				
Auto IP Mapping	Auto IP Mapping ensures that the MRC gateway and each of				
	the devices connected to the gateway will be assigned an				
	individual virtual IP address within the device group. This				
	virtual IP address represents the device and the MRC clients				
	can use the virtual IP addresses to access each machine				
	without causing an IP address conflict. It is recommended				
	to enable this feature.				

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Item	Description					
Gateway to Gateway	In some applications, machine-to-machine communication					
	is not necessary. Disabling the Gateway to Gateway					
	unction will block traffic coming from the machines that are					
	onnected to other MRC gateways and only allows the MRC					
	lient to access the machines behind the MRC gateway.					
	Enabling the function allows machine-to-machine					
	communications through the MRC gateways.					
Broadcast/Multicast	The MRC gateway and the MRC portal support different					
Forwarding	types of industrial communication. For example, an					
	EtherNet/IP application may require you to enable Multicast					
	Forwarding, while enabling Broadcast Forwarding may be					
	necessary for broadcast search applications.					

A-4. Select **WAN-LAN Mode** as the scenario and click **Next**. If your application requires transparent or cellular Internet access, go to the respective section listed below:

To configure Transparent-LAN mode, go to <u>Using Transparent-LAN Mode</u>. To configure Cellular-WAN mode, go to <u>Using Cellular-WAN mode</u>.



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A-5. Specify the connection settings. Available options vary depending on which IP Address Mode you select. Refer to the respective connection settings for more information about each option.

Item	Description			
IP Address	Enter the local IP address of the gateway.			
Subnet Mask	Enter the subnet mask of the gateway.			
Gateway	Enter the default gateway address.			
DNS 1/2/3	Enter the DNS server address for the gateway. If this is left blank,			
	the gateway will automatically default to the Google DNS			
	(8.8.8.8).			

If you selected **DHCP** as the IP Address Mode:

Item	Description
DNS 1/2/3	Enter the DNS server address for the gateway. If this is left blank,
	the gateway will automatically default to the Google DNS
	(8.8.8).

If you selected **PPPoE** as the IP Address Mode:

Item	Description				
Username	Enter your PPPoE account username.				
Password	Enter your PPPoE account password.				
Host Name	Enter the device name. If your ISP has not provided a device				
	name, leave this field blank.				
DNS 1/2/3	Enter the DNS server address for the gateway. If this is left blank,				
	the gateway will automatically default to the Google DNS				
	(8.8.8.8).				

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A-6. Assign a management LAN IP address and subnet mask for the MRC gateway and click
 Next. The LAN configuration and the subnet mask must match the network settings of the local machines connected to the gateway's LAN port.

			English	12345 🗸	(Group Administrator)	2
Wizard						
Wizard - Create Gateway: Local Network						Θ
123456						
	Management IP Address:	192.168.127.254				
•••	Subnet Mask:	255.255.255.0				
Internet ₩AN Port						
LAN Port						
Ethernet Switch						
Target Machine				→ Next		
← Back						

- A-7. Click the **Add** icon (+) to add devices to the list of remotely accessible devices. Up to 25 devices can be added to the list. If Auto IP Mapping is enabled, each added device will be assigned a virtual IP.
- **Note:** If you have disabled Auto IP Mapping in step **A-3** it is still recommended to manually add devices to this list for security reasons. Skipping adding devices while Auto IP Mapping is disabled will allow all devices in the local subnet based on the gateway's LAN configuration to be remotely accessed. For example, if the gateway is configured to be 192.168.127.254/24, all Ethernet devices or machines in the 192.168.127.x subnet will be available for remote access.

				(English 🔻	12345 •	(Group Administrator)	2
Wizard								
Wizard - Create Gateway: Local Devices								Θ
123456								
						+ 🗈		
	Name	Туре	IP or MAC	NAT IP	Health Check	Service		
Ethernet			Any (s	ite-to-site)				
Same Subnet:								
e.g. 192.168.1.x								
Target Machine								
						→ Next		
d nut								
← Back								

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A-8. In the Add Device window, specify the following information and click **Save**.

Add Device		×
Local Device Name:		1
This field is required.		
Туре:		
IP Ethernet Device		v
Local IP:		
This field is required.		
NAT IP:		
Health Check:		
Disable		•
	Save	Cancel

Item	Description
Local Device	Enter a name for the remote device.
Name	
Туре	Select the type of device. If the device is IP-based, select IP
	Ethernet Device. If the device is an L2 device, select L2
	Ethernet Device.
	Depending on which type you choose, different options are
	available.
Local IP	If you selected IP Ethernet Device , specify the device's local IP
	address.
МАС	If you selected L2 Ethernet Device , specify the device's MAC
	address.
NAT IP	If you selected IP Ethernet Device , specify the NAT IP address.
	This should be in the same subnet as the WAN IP. The NAT IP
	allows the device to be managed when it is connected to the MRC
	gateway and allows it to connect to the Internet.
Health Check	If you selected IP Ethernet Device, disable or select a method
	for monitoring the health of the gateway.
	Select Ping Check to set up an interval to ping the gateway. It is
	recommended to set the interval to be within 60 seconds.
	Select Port Link to configure which port to monitor, for example
	port #1 (LAN/WAN) or port #2 (LAN). The gateway will update the
	status to the client accordingly.

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ΜΟΧΛ				Ø 🖪	nglish 🔻 🧶	12345 👻	(Group Administrator)
zard							
fizard - Create Gateway: Local Devices							
	Name	Туре	IP or MAC	NAT IP	Health Check	+ 🗎 Service	
Ethernet	Machine001	IP Ethernet Device	192.168.127.150		Ping Check (60 sec.)	C (2)	
Same Subnet: e.g. 192.165.t.x	Machine002	L2 Ethernet Device	00:90:E8:12:34:56		Disable	6 43 6	
- anger machine						Next	

A-9. In the device list, click the **Edit** icon (\square) of the device to edit.

A-10. In the Service window, select which device services will be available for remote access. By default, all services will be available. Multiple service rules can be added to the service whitelist.

In the example below there is a Modbus TCP device that allows client *moxatest* to access its services by adding *moxatest* to the Allowed Client List. Any client not in the list will not be able to access this service.





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A-11. When you are done editing the service rules, click (\times) to save the configuration and click **Next** to continue to the next step in the Wizard.



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- A-12. Select a Tunnel Control method and click **Next**. Refer to the table below for more information about each method.
- **Note:** For remote maintenance purposes, it is recommended to use Controlled by USB or Controlled by DI ON in order to save on data transportation cost and monthly MRC Quick Link data usage. Permanent Connection is recommended to keep the connection to pull data for remote data acquisition purposes.

Item	Description
Permanent	The gateway will maintain a permanent VPN connection to the
Connection	MRC portal.
Controlled by	The gateway will only create a VPN connection to the MRC portal
USB Key	when a USB containing the activation key is inserted. If the USB
	with the key is removed, the VPN will be terminated and all
	connected Ethernet devices and machines will no longer be
	reachable.
Controlled by DI	The gateway will only create a VPN connection to the MRC portal
ON	when the DI status is ON. When DI is set to OFF, the VPN will be
	terminated and all connected Ethernet devices and machines will
	no longer be reachable.
	Users can install a button to trigger the DI to open and close the
	tunnel. An input of $+13$ to $+30$ V enables the connection and -30
	to $+3$ V disables the connection. The maximum input current is 8
	mA.

- A-13. Click **Save and Finish** to complete the Wizard. Click **Continue Wizard** to repeat these steps to add additional gateways.
- A-14. Continue to 3. Generate and Distribute the Client and Gateway Keys.

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B. Using Transparent-LAN Mode

In some circumstances, the gateway needs to be integrated in an existing factory network while keeping the original network settings. In Transparent-LAN mode, the MRC gateway is installed in between the target Ethernet device and the original network. The MRC gateway's WAN port is connected to the original network using the factory network's ISP for accessing the Internet. The target Ethernet device is connected directly to the LAN port without needing to change the network configuration of the device.

B-1. Click the **Menu** icon (\equiv) in the top-left corner and select **Wizard**.

	ΜΟΧΛ	
Dev	ice Group Management	
	Start Date:	Select service start date
	End Date:	Select service expire date
Do	vice Group List	
De	wice Group List	
	martipen	
Ŷ	Wizard	
**	Device Group	
*	Gateway Management	
4	Client Management	
≣	Log List	
٥	Basic Settings	
0	Version	

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B-2. Click Create Gateway.

			😧 English 🔹 🕘 🛶 (Group Administrator) 🥜
Wizard			
Wizard - Select Type			8
	Device Group: MIN_QUICH. Create Gateway	mk Create Client	
€ Back			

B-3. Specify the required information and click **Next**. Refer to the table below for more information about each setting.

			😧 English 🔹 🕘	(Group Administrator) 🛛 🥜
Wizard				
Wizard - Create Gateway				8
123456				
Device Group Name:	MRC_QuickLink			
Gateway Name:		Auto IP Mapping:	01	
	This field is required.	Gateway to Gateway:	OX)	
Location:		Broadcast Forwarding:	Disabled	
Latitude:	Latitude Format: 23,985001	Multicast Forwarding:		
Longitude:	Longitude Format: 120.551838	Multicast Forwarding:	Disabled	
Lock to MAC Address:	MAC Format: 00:90:E8:12:34:56			
			⇒ Next	
← Back				

Item	Description
Gateway Name	Enter a name for the gateway. This name is how the device will
	appear in the interface.
Location	Enter a location keyword such as a city name or specific
	address. The MRC Server will automatically populate the
	latitude and longitude fields with the Google Maps coordinates
	of the location closest to the keyword.
Latitude	Enter the latitude coordinate of the gateway. If using a
	location keyword, this will be automatically populated by the
	system.
Longitude	Enter the longitude coordinate of the gateway. If using a
	location keyword, this will be automatically populated by the
	system.
Lock to MAC	The MRC gateway settings can be locked to the gateway's MAC
Address	address. The activation key that has been generated after
	locking the gateway will only be authorized for use on the MRC
	gateway that matches the specified MAC address.

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Item	Description
Auto IP Mapping	Auto IP Mapping ensures that the MRC gateway and each of
	the devices connected to the gateway will be assigned an
	individual virtual IP address within the device group. This
	virtual IP address represents the device and the MRC clients
	can use the virtual IP addresses to access each machine
	without causing an IP address conflict. It is recommended to
	enable this feature.
Gateway to	In some applications, machine-to-machine communication is
Gateway	not necessary. Disabling the Gateway to Gateway function will
	block traffic coming from the machines that are connected to
	other MRC gateways and only allows the MRC client to access
	the machines behind the MRC gateway. Enabling the function
	allows machine-to-machine communications through the MRC
	gateways.
Broadcast/Multicast	The MRC gateway and the MRC portal support different types
Forwarding	of industrial communication. For example, an EtherNet/IP
	application may require you to enable Multicast Forwarding,
	while enabling Broadcast Forwarding may be necessary for
	broadcast search applications.

B-4. Select **Transparent Mode** as the scenario and click **Next**. If your application requires WAN-LAN or cellular Internet access, go to the respective section listed below:

To configure WAN-LAN mode, go to <u>Using WAN-LAN Mode</u>. To configure Cellular-WAN mode, go to <u>Using Cellular-WAN Mode</u>.



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B-5. Specify the connection settings. Available options vary depending on which IP Address Mode you select. Refer to the respective connection settings for more information about each option.

Item	Description
IP Address	Enter the local IP address of the gateway.
Subnet Mask	Enter the subnet mask of the gateway.
Gateway	Enter the default gateway address.
DNS 1/2/3	Enter the DNS server address for the gateway. If this is left blank,
	the gateway will automatically default to the Google DNS
	(8.8.8.8).

If you selected **Static IP** as the IP Address Mode:

If you selected **DHCP** as the IP Address Mode:

Item	Description
DNS 1/2/3	Enter the DNS server address for the gateway. If this is left blank,
	the gateway will automatically default to the Google DNS
	(8.8.8).

- B-6. Click the **Add** icon + to add devices to the list of remotely accessible devices. Up to 25 devices can be added to the list. If Auto IP Mapping is enabled, each added device will be assigned a virtual IP.
- **Note:** If you have disabled Auto IP Mapping in step **B-3** it is still recommended to manually add devices to this list for security reasons. Skipping adding devices while Auto IP Mapping is disabled will allow all devices in the local subnet based on the gateway's LAN configuration to be remotely accessed. For example, if the gateway is configured to be 192.168.127.254/24, all Ethernet devices or machines in the 192.168.127.x subnet will be available for remote access.

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B-7. In the Add Device window, specify the following information and click **Save**.

Add Device		×
Local Device Name:		1
This field is required.		
Туре:		
IP Ethernet Device		•
Local IP:		
This field is required.		
NAT IP:		
Health Check:		
Disable		¥
	🖹 Save	Cancel

Item	Description
Local Device	Enter a name for the remote device.
Name	
Туре	Select the type of device. If the device is IP-based, select IP
	Ethernet Device. If the device is an L2 device, select L2
	Ethernet Device.
	Depending on which type you choose, different options are
	available.
Local IP	If you selected IP Ethernet Device , specify the device's local IP
	address.
МАС	If you selected L2 Ethernet Device , specify the device's MAC
	address.
NAT IP	If you selected IP Ethernet Device , specify the NAT IP address.
	This should be in the same subnet as the WAN IP. The NAT IP
	allows the device to be managed when it is connected to the MRC
	gateway and allows it to connect to the Internet.
Health Check	If you selected IP Ethernet Device , disable or select a method
	for monitoring the health of the gateway.
	Select Ping Check to set up an interval to ping the gateway. It is
	recommended to set the interval to be within 60 seconds.
	Select Port Link to configure which port to monitor, for example
	port #1 (LAN/WAN) or port #2 (LAN). The gateway will update the
	status to the client accordingly.

Getting Started with MRC Quick Link

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ard							
zard - Create Gateway: Local Devices							
123456							
	Name	Туре	IP or MAC	NAT IP	Health Check	+ 🗄	
Ethernet	Machine001	IP Ethernet Device	192.168.127.150		Ping Check (60 sec.)	C A	
Same Subnet: e.g. 192.168.1.X • LAN Port	Machine002	L2 Ethernet Device	00:90:E8:12:34:56		Disable	6 4 6	
Target Machine						Next	

B-8. In the device list, click the **Edit** icon (\square) of the device to edit.

B-9. In the Service window, select which device services will be available for remote access.By default, all services will be available. Multiple service rules can be added to the service whitelist.

In the example below there is a Modbus TCP device that allows client *moxatest* to access its services by adding *moxatest* to the Allowed Client List. Any client not in the list will not be able to access this service.





Getting Started with MRC Quick Link

B-10. When you are done editing the service rules, click (\times) to save the configuration and click **Next** to continue to the next step in the Wizard.



- B-11. Select a Tunnel Control method and click **Next**. Refer to the table below for more information about each method.
- **Note:** For remote maintenance purposes, it is recommended to use Controlled by USB or Controlled by DI ON in order to save on data transportation cost and monthly MRC Quick Link data usage. Permanent Connection is recommended keep the connection to pull data for remote data acquisition purposes.

Item	Description
Permanent	The gateway will maintain a permanent VPN connection to
Connection	the MRC portal.
Controlled by USB	The gateway will only create a VPN connection to the MRC
Key	portal when a USB containing the activation key is inserted. If
	the USB with the key is removed, the VPN will be terminated
	and all connected Ethernet devices and machines will no
	longer be reachable.
Controlled by DI ON	The gateway will only create a VPN connection to the MRC
	portal when the DI status is ON. When DI is set to OFF, the
	VPN will be terminated and all connected Ethernet devices
	and machines will no longer be reachable.
	Users can install a button to trigger the DI to open and close
	the tunnel. An input of $+13$ to $+30$ V enables the connection
	and -30 to $+3$ V disables the connection. The maximum input
	current is 8 mA.

Getting Started with MRC Quick Link

- B-12. Click **Save and Finish** to complete the Wizard. Click **Continue Wizard** to repeat these steps to add additional gateways.
- B-13. Continue to **3. Generate and Distribute the Client and Gateway Keys**.

Getting Started with MRC Quick Link

C. Using Cellular-WAN Mode

Cellular-WAN mode is used for situations where the gateway connects to the Internet using a cellular connection. In this scenario, a SIM card with an active subscription is installed in the gateway and the LAN port connects directly to the target Ethernet device, or to a switch if you need to connect multiple devices to the gateway.

C-1. Click the **Menu** icon \equiv in the top-left corner and select **Wizard**.

	ΜΟΧΛ	
Dev	ice Group Management	
	Start Date:	Select service start date
	End Date:	Select service expire date
De	vice Group List	
	natiyes	
¥.	Wizard	
썉	Device Group	
*	Gateway Management	
4	Client Management	
≣	Log List	
٥	Basic Settings	
0	Version	

Getting Started with MRC Quick Link

C-2. Click Create Gateway.

			🚱 English 🔹 🌑 🛶 (Group Administrator)	•
Wizard				
Wizard - Select Type			E	Э
	Device Group: MIC_QUICK	enk Create Client		
€ Back				

C-3. Specify the required information and click **Next**. Refer to the table below for more information about each setting.

			🔇 English 🔹 🥘	(Group Administrator) 🚽 🥜
Vizard				
Wizard - Create Gateway				8
123456				
Device Group Name:	MRC_QuickLink			
Gateway Name:		Auto IP Mapping:		
	This field is required.	Gateway to Gateway:	ON O	
Location:		Broadcast Forwarding:	Disabled	
Latitude:	Latitude Format: 23.985001	Multicast Forwarding:	Disabled	•
Longitude:	Longitude Format: 120.551838			
Lock to MAC Address:	MAC Format: 00:90:E8:12:34:56			
			→ Next	
← Back				

Item	Description
Gateway Name	Enter a name for the gateway. This name is how the device will
	appear in the interface.
Location	Enter a location keyword such as a city name or specific
	address. The MRC Server will automatically populate the
	latitude and longitude fields with the Google Maps coordinates
	of the location closest to the keyword.
Latitude	Enter the latitude coordinate of the gateway. If using a
	location keyword, this will be automatically populated by the
	system.
Longitude	Enter the longitude coordinate of the gateway. If using a
	location keyword, this will be automatically populated by the
	system.
Lock to MAC	The MRC gateway settings can be locked to the gateway's MAC
Address	address. The activation key that has been generated after
	locking the gateway will only be authorized for use on the MRC
	gateway that matches the specified MAC address.

Getting Started with MRC Quick Link

Item	Description
Auto IP Mapping	Auto IP Mapping ensures that the MRC gateway and each of
	the devices connected to the gateway will be assigned an
	individual virtual IP address within the device group. This
	virtual IP address represents the device and the MRC clients
	can use the virtual IP addresses to access each machine
	without causing an IP address conflict. It is recommended to
	enable this feature.
Gateway to	In some applications, machine-to-machine communication is
Gateway	not necessary. Disabling the Gateway to Gateway function will
	block traffic coming from the machines that are connected to
	other MRC gateways and only allows the MRC client to access
	the machines behind the MRC gateway. Enabling the function
	allows machine-to-machine communications through the MRC
	gateways.
Broadcast/Multicast	The MRC gateway and the MRC portal support different types
Forwarding	of industrial communication. For example, an EtherNet/IP
	application may require you to enable Multicast Forwarding,
	while enabling Broadcast Forwarding may be necessary for
	broadcast search applications.

C-4. Select **Transparent Mode** as the scenario and click **Next**. If your application requires WAN-LAN or cellular Internet access, go to the respective section listed below:

To configure WAN-LAN mode, go to <u>Using WAN-LAN Mode</u>. To configure Transparent-LAN mode, go to <u>Using Transparent-LAN Mode</u>.



Getting Started with MRC Quick Link

C-5. Specify the connection settings.

Item	Description
Carrier	Select the carrier of the SIM card installed in the MRC gateway.
	Select Generic if your SIM card is not provided by Verizon or AT&T.
APN	Enter the SIM card's APN. If you do not have this information,
	leave this field blank.
PIN	Enter the SIM card's PIN. If you do not have this information,
	leave this field blank.
Username	Enter the SIM card's user name. Some operators may not provide
	this. If you do not have this information, leave this field blank.
Password	Enter the SIM card's password. Some operators may not provide
	this. If you do not have this information, leave this field blank.
Cellular	Some carriers may stop cellular data services when there is no
Keep-Alive	active traffic for a certain period time. Enable Cellular Keep-Alive
	to prevent cellular data services from being stopped when idle.
Cellular	Cellular Watchdog automatically restarts the cellular module once
Watchdog	an unusual connection behavior to the carrier is detected.
DNS 1/2/3	Enter the DNS server address for the gateway. If this is left blank,
	the gateway will automatically default to the Google DNS
	(8.8.8.8).

- C-6. Click the **Add** icon (+) to add devices to the list of remotely accessible devices. Up to 25 devices can be added to the list. If Auto IP Mapping is enabled, each added device will be assigned a virtual IP.
- **Note:** If you have disabled Auto IP Mapping in step **C-3** it is still recommended to manually add devices to this list for security reasons. Skipping adding devices while Auto IP Mapping is disabled will allow all devices in the local subnet based on the gateway's LAN configuration to be remotely accessed. For example, if the gateway is configured to be 192.168.127.254/24, all Ethernet devices or machines in the 192.168.127.x subnet will be available for remote access.

Getting Started with MRC Quick Link

zard izard - Create Gateway: Local Devices	-	-	-	_	-	_	_	_
Ethernet				Any (s	ite-to-site)			
Same Subnet: e.g. 192:166.1.x								
Target Machine	te Galeway: Local Devices							

C-7. In the Add Device window, specify the following information and click **Save**.

Add Device	×
Local Device Name:	
This field is required.	
Туре:	
IP Ethernet Device	•
Local IP:	
This field is required.	
NAT IP:	
Health Check:	
Disable	¥
	🖺 Save Cancel

Item	Description
Local Device	Enter a name for the remote device.
Name	
Туре	Select the type of device. If the device is IP-based, select IP
	Ethernet Device. If the device is an L2 device, select L2
	Ethernet Device.
	Depending on which type you choose, different options are
	available.
Local IP	If you selected IP Ethernet Device , specify the device's local IP
	address.

Getting Started with MRC Quick Link

Item	Description
МАС	If you selected L2 Ethernet Device , specify the device's MAC
	address.
NAT IP	If you selected IP Ethernet Device , specify the NAT IP address.
	This should be in the same subnet as the WAN IP. The NAT IP
	allows the device to be managed when it is connected to the MRC
	gateway and allows it to connect to the Internet.
Health Check	If you selected IP Ethernet Device , disable or select a method
	for monitoring the health of the gateway.
	Select Ping Check to set up an interval to ping the gateway. It is
	recommended to set the interval to be within 60 seconds.
	Select Port Link to configure which port to monitor, for example
	port #1 (LAN/WAN) or port #2 (LAN). The gateway will update the
	status to the client accordingly.

C-8. In the device list, click the **Edit** icon of the device to edit.

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zard								
/izard - Create Gateway: Local Devices								l
	Name	Туре	IP or MAC	NAT IP	Health Check	+ 🗎		
Ethernet	Machine001	IP Ethernet Device	192.168.127.150		Ping Check (60 sec.)	C C		
Same Subnet: e.g.:192:165.tx	Machine002	L2 Ethernet Device	00:90:E8:12:34:56		Disable	6 43 6		
← Back						Next		

Getting Started with MRC Quick Link

C-9. In the Service window, select which device services will be available for remote access. By default, all services will be available. Multiple service rules can be added to the service whitelist.

In the example below there is a Modbus TCP device that allows client *moxatest* to access its services by adding *moxatest* to the Allowed Client List. Any client not in the list will not be able to access this service.



Getting Started with MRC Quick Link

C-10. When you are done editing the service rules, click (\times) to save the configuration and click **Next** to continue to the next step in the Wizard.

	NOXV				🔇 English 🔻	12345 -	(Group Administrator)	2
Wizard								
Wizaro	d - Create Gat 🕠						×	Θ
1	23(Service	Protocol	Port Range	Allowed Client List			
	(Modbus/TCP •	TCP	502	moxatest ×	ර ස		
Ethe								
Swit							_	
Sar e.g	ne Subnet: ; 192.168.1.x	► Add						
	Target Machine							
						→ Next		
€ B	ack							

- C-11. Select a Tunnel Control method and click **Next**. Refer to the table below for more information about each method.
- **Note:** For remote maintenance purposes, it is recommended to use Controlled by USB or Controlled by DI ON in order to save on data transportation cost and monthly MRC Quick Link data usage. Permanent Connection is recommended keep the connection to pull data for remote data acquisition purposes.

Item	Description
Permanent	The gateway will maintain a permanent VPN connection to the
Connection	MRC portal.
Controlled by	The gateway will only create a VPN connection to the MRC portal
USB Key	when a USB containing the activation key is inserted. If the USB
	with the key is removed, the VPN will be terminated and all
	connected Ethernet devices and machines will no longer be
	reachable.
Controlled by DI	The gateway will only create a VPN connection to the MRC portal
ON	when the DI status is ON. When DI is set to OFF, the VPN will be
	terminated and all connected Ethernet devices and machines will
	no longer be reachable.
	Users can install a button to trigger the DI to open and close the
	tunnel. An input of $+13$ to $+30$ V enables the connection and -30
	to $+3$ V disables the connection. The maximum input current is 8
	mA.

Getting Started with MRC Quick Link

- C-12. Click **Save and Finish** to complete the Wizard. Click **Continue Wizard** to repeat these steps to add additional gateways.
- C-13. Continue to **3. Generate and Distribute the Client and Gateway Keys**.
Getting Started with MRC Quick Link

3. Generate and Distribute the Client and Gateway Keys

Once the gateway and clients have been configured on the MRC server, the activation keys can be generated and distributed to the machine operator and support engineer respectively. These activation keys are required to be installed on the MRC Client software and the MRC gateway device in order to establish and authorize the remote connection.

3-1. Click the **Menu** icon (\equiv) in the top-left corner and select **Gateway Management**.



3-2. Click **Settings** and then click the **Download** button ($\stackrel{l}{\sim}$) to download the activation key file for the MRC gateway.

=	ΜΟΧΛ				English	• 🥥 12345 •	(Group Administrator)
Ga	teway Management						
	Device Group:	MRC_QuickLink	Tot	al monthly data quota	Total data usage	Inbound Data	Outbound Data
	Start Date:	Select service start date		5 GB Online Gateway	0 bytes Connected Devices	0 bytes	0 bytes
	End Date:	Select service expire da	e	0	0		
G	ateway List						Θ
Γ	Status	Settings			Q Search Gateway	+	
[Nar	ne Activated	Service \$	Activation Key	Replacement	Auto IP Mapping 🗘	Location
[🖉 mox	xatest N	ON	*	11	ON	

Getting Started with MRC Quick Link

3-3. Click the **Menu** icon (\equiv) in the top-left corner and select **Client Management**.



3-4. Click **Settings** and then click the **Download** button (\checkmark) to download the activation key file for all configured clients.

Device Group: MRC_QuickLink Total monthly data quota Total data usage Inbound Data Outbound Data Start Date: Select service start date 5 GB 0 bytes 0 bytes 0 bytes 0 bytes End Date: Select service expire date 0 1 0 1 itent List Status Settings Q Search Client + • • • • Login ID • Email Service Activation Key Last Modify Service Period	nt Management			🄇 Engli	sh 🔻 🧶 12345 🗸	(Group Administrator)
Device Group: MRC_QuickLink Start Date: Select service start date End Date: Select service expire date 0 1 ient List Status Settings Login ID © Email Service Activation Key Last Modify Service Period	it management					
Start Date: Select service start date End Date: Select service expire date 0 1 ient List Status Status Settings Login ID © Email Service Activation Key Last Modify Service Period	Device Group:	MRC_QuickLink •	Total monthly data quota	Total data usage	Inbound Data	Outbound Data
ient List Status Settings Login ID © Email Service Activation Key Last Modify Service Period	Start Date:	Select service start date			0 bytes	0 bytes
Login ID ÷ Email Service Activation Key Last Modify Service Period	End Date:	Select service expire date	0	1		
Login ID ÷ Email Service Activation Key Last Modify Service Period	ent List					
				٩	Search Client	+ •
	Status	Settings				
🗌 🕼 moxatest moxatest@moxa.com 💽 🛓 2019-10-27 16:27:55 2019-10-27 22:50 ~ 2019-10-27 23:55	l l		Service Activation Key	Last Modify	Service Period	

- 3-5. Distribute the gateway key to the machine operator and the client key to the support engineer.
- 3-6. Continue with **Step 3: [Machine Operator] Set up and Pair the Gateway**.

Step 3: [Machine Operator] Set up and Pair the Gateway

Before the gateway can be accessed remotely, the activation key provided by the MRC server admin has to be installed onto the gateway device. This process is handled on-site by the machine operator.

Note: Before continuing this process, please make sure your MRC-1002 gateway is updated to firmware version 2.4 or higher.

- 1. Connect the WAN port of the gateway to the Internet, and the LAN port to the Ethernet device or switch. If the gateway was configured to use a cellular connection, insert the SIM card.
- 2. Download the gateway key received from the MRC server admin and put it onto a USB drive. Ensure that the activation key is in the root folder of the USB drive.
- 3. Insert the USB drive with the activation key into the MRC-1002 gateway and power it on.
- 4. When all LEDs are lit, the MRC gateway is connected to the MRC server and is ready for remote access.
- 5. Continue with Step 4: [Support Engineer] Set up and Pair the Clients.



Step 4: [Support Engineer] Set up and Pair the Clients

The MRC Client Software and the client key need to be installed on the PC that is used to remotely connect and interact with the field equipment. This part of the process is handled by the support engineer.

 Download the MRC Client Software from <u>our website</u> to the target computer. The MRC-Client software can be installed on systems running Windows 7 or Windows 10. Before installing the software, please make sure the system environment is equipped with **Microsoft .NET** Framework version 4.0 or higher.

Note: Before continuing this process, please make sure that the MRC Client Software is version 2.4 or higher.

- Note: Windows 7 and Windows 10 already have .NET Framework v4.5 installed. To double-check which version of Microsoft .NET Framework is installed, go to the Control Panel >
 Programs > Programs and Features. The .NET Framework version is shown in the program name.
- Right-click the MRC Client Software installation package and select **Run as administrator**.
 Follow the on-screen instructions to complete the installation.



3. Once installed, run the MRC Client Software.

Getting Started with MRC Quick Link

- 4. Download the MRC client key received from the MRC server admin.
- 5. Select **Import activation file**, click the browse icon (....) and locate the MRC client key, and click **Apply**. Next, click **Sign In**.

C 'shere'de	anchyc_huang	(Downloads blan	chdefaul@gmail.	com key		Apply
Input acco	unt informati	ion				
Remote Con	nect Server	12 199 37 201				
Device Grou	p Code					
Client ID or	E-mail					
Login Passw	ord					
Remember	er account	Remember pa	assword			
			Te	est Connection	Sign In	Sign Out

6. On the Device Pool tab, click the Tunnel icon of the device(s) you want to access remotely. If the icon is green, the tunnel is active. If the icon is red, the tunnel is disabled.

Device Name	Status	Tunnel	Virtual IP	Local IP / MAC
1.000				
Transmission (1999)				
and the second sec				
The second second			and the second sec	
Table .			a second	
- Blanchtest	8	O	10.4.1.65	-
Blanchtest1022	8	9	10.4.1.161	192.168.127.254

7. The gateway and clients are now configured and the devices can be remotely accessed.

Example Application 1

Case 1: Siemens PLC with TIA portal and no Auto IP mapping

In the following example application, we are using MRC Quick Link to remotely turn on a motor through a Powerflex drive connected to a Siemens PLC with TIA portal. In this example, Auto IP Mapping is disabled.

Network Diagram



Step 1: Set up MRC and Enable Remote Connections

Note: It is highly recommended to create a new Siemens TIA Portal project first and add all the devices to the project before continuing with the MRC configuration.

1. Configure the clients, gateway, and gateway devices on the MRC server. In this example, we named the gateway *MRC_demo* and added the Siemens PLC and Powerflex drive as devices.

		🔇 English 🔻 🥘 12345 👻 (Group Administrator	. e
Wizard			
Wizard - Select Type			Θ
	Device Group: MRC_QuickLink		
			
	Create Gateway	Create Client	
← Back			

2. Download and distribute the gateway and MRC client keys.

Getting Started with MRC Quick Link

 Install and right-click the MRC Client Software shortcut and click **Run as administrator**. Sign in using the activation key file. The MRC gateway's (*MRC_demo*) status will be green, indicating the MRC gateway is ready for remote access.

			Virtual IP	Local IP / MAC
-AWS127_WL1	8	•	10.255.1.1	192.168.127.1
-AWS127_WL2	8	•	10.255.1.33	192.168.127.2
AWS127_WL3	8		10.255.1.65	192.168.127.3
₽- MRC_demo	8	9	10.255.1.97	192.168.127.4
-AWS127_WL5	8.0	•	10.255.1.129	192.168.127.5
₽-AWS127_WL6	0.0	•	10.255.1.161	192.168.127.6
-AWS127_WL7	0.0	•	10.255.1.193	192.168.127.7
₽-AWS127_WL8	8	•	10.255.1.225	192.168.127.8
-AWS127_WL9	8	•	10.255.2.1	192.168.127.9
-AWS127_WL10	0	•	10.255.2.33	192.168.127.10
-AWS127_WL11	0	•	10.255.2.65	192.168.127.11
↓				•

4. Expand *MRC demo* in the device list to show all devices under the gateway and switch on the tunnel of each device. This allows the MRC client to establish connections to the Siemens PLC and Powerflex drive.

Device Name	Status	Tunnel	Virtual IP	Local IP / MAC
MRC demo		ŏ	10.255.1.97	-
-SDS-3008		ð	-	192.168.127.70
-PN-XC208		•	-	192.168.127.57
-PN-PLC		•	-	192.168.127.56
-IPCAM1		•••	-	192.168.127.2
PowerFlex		••	-	192.168.127.65
- IPCAM3		•	-	192.168.127.4
-PN-G120_CU250S		•	-	192.168.127.55
-PLC-1769		•••	-	192.168.127.66
EDS-408A		•	-	192.168.127.69
<				>

Getting Started with MRC Quick Link

Step 2: Set up the Powerflex Drive and PLC in TIA Portal Configure Go Online for the Powerflex Drive

1. Start Siemens TIA portal and open the previously created project. Confirm the PLC and Powerflex drive are shown in the device list on the left-hand side.



- 2. Perform the following actions to start scanning for the drive:
 - 2-1. Select the Powerflex drive from the device list.
 - 2-2. Double-click Go Online.
 - 2-3. Confirm that the IP address of the drive in TIA portal is the same as the IP defined in the MRC Client Software. In this example, the drive IP address should be 192.168.127.55.
 - 2-4. From the PG/PC interface drop-down menu, select TAP-Windows Adapter V9.
 - 2-5. Click Start search.

Stemens - C:\Users\Moxa\Documents\Automation\ Project Edit View Insert Online Options Tools	Window Help					in project> 📲		Totally Integr	ated Automation PORTAL
Project tree	o online	n 4	Project1 > PLC 1	1/2011-1	512.1 DNT		>	= = = ×	Hardw 🗊 🗉 🕨
Devices	o online	Configured access po	des of *CU250S-2 PN V	actor.		2-3	P	w 🕅 Device view	Options 🛤
B		Device	Device type	Slot	Interface type	Address	Subnet	Device overview	Catalog
▼ Project1		CU250S-2 PN Vector	CU2505-2 PN Vec	0 X150	PNIE S7USB	192.168.127.55 Not configured	PN/IE_1	Module	✓ Catalog Search> MI MT
Add new device								▼ PLC 1	Filter 💌 💕 🖥
THE PLC 1 [CPU 1513-1 PN] THE CU2505-2 PN Vector [G120 CU2505-2 PN Vector]	2-1							PRO	→ [m] PM 45
Switch_1 [SCALANCE XC208]] 2-1		Type of the PG/PC inter	face:	PN/IE		•		
Generation of the second			PG/PC inter		TAP-Window		• •		Image: CPU I
Common data		Conr	nection to interface/sul		Direct at slot '0	x150 ⁻ 2-4	• •		
Ci Documentation settings Languages & resources			1st gate			2-4	V	-	AQ 9
Gontine access Gard Reader/USB memory		Select target device:				Show devices with th	e same addresses 💌		
Card Reader/USB memory		Device	Device type	Interfac	e type Ad	dress	Target device	-	Communic
	<u>i</u>	-	-	PN/IE	Ac	cess address	-		🕨 🧊 Interface mo តិ
	11								
									Libraries
	Flash LED								aries
Details view							<u>S</u> tart search		
Module	Online status information	n -				Display only error r	nessages 2-5	<pre></pre>	
								lagnostics	
Name									
Device configuration									
😰 Parameter						GoOnli	ne <u>C</u> ancel		
Traces				_	_			Go to 7	< 11 >
									✓ Information
			<			Ш		>	< II >
Portal view 🗄 Overview 📩 PU	C_1							💙 Project Project1 opened.	

Getting Started with MRC Quick Link

3. Wait for TIA Portal to finish the scan. A pop-up window will appear prompting you to assign an IP address to the PG/PC. Click **Yes**.

₩ Siemens - C:\Users\Moxa\Documents\Automation\Proje							_ # X
Project Edit View Insert Online Options Tools W		offline 🏭 🖪 🖉 🗶	earch in	n project>		Totally Integr	ated Automation PORTAL
Project tree		Project1 & DLC 1 [CDLL :	1512 1 DN1			X	Hardw 🗊 🗉 🕨
Devices	line				×	w Device view	Options 📴
18	Configured access no	des of "CU250S-2 PN Vector"				Device overview	Options Hardware catalog
	Device	Device type Slot	Interface type		Subnet		✓ Catalog
Project1	CU250S-2 PN Vector	CU250S-2 PN Vec 0 X150	PN/IE	192.168.127.55	PN/IE_1	Module	
Add new device			S7USB	Not configured		Ê Î	<search> Mil Mit g</search>
🗧 🚠 Devices & networks						▼ PLC 1	Filter 💽 💕
Digital PLC_1 [CPU 1513-1 PN]						PRO	· • • • • • • • • • • • • • • • • • • •
CU250S-2 PN Vector [G120 CU250S-2 PN Ve							PS PS PC PC CPU C
Switch_1 [SCALANCE XC208]		Type of the PG/PC interface:	PN/IE		-	=) (CPU ()
Getain the second		PG/PC interface:	TAP-Windows A	Adapter V9	- 🖲 💽		GPU G
Common data	Con	nection to interface/subnet:	Direct at slot '0 X	150'	.		> DIDQ
Documentation settings	Go online (0130:00	00011)		×	- 0		▶ 🗽 AI
Languages & resources						•	7 41 / W
Online access	Assign I	P address			same addresses 💌		🕨 🚰 Al/AQ
Card Reader/USB memory							🕨 🛅 Communic
	To execute	e this function the PG/PC require net as the device	es an additional IP	address in the	Target device		Communic Communic Technology Interface mo
	same sub	necas die device.					• contenace mo I o
	1 A A A A A A A A A A A A A A A A A A A		Tes	No			
			1 ver				5
							Libraries
	Flash LED						ies
					Start search		
✓ Details view			_				
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4. A confirmation will appear that the IP address was successfully assigned. Click **OK**.

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Getting Started with MRC Quick Link

5. The status of the Powerflex drive in the device list should now have a green checkmark, indicating the TIA Portal successfully connected to the drive. Continue to <u>Configure Go Online for the PLC</u>.



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Getting Started with MRC Quick Link

Configure Go Online for the PLC

1. Open the Siemens TIA portal and make sure the Powerflex drive and PLC are shown in the list on the left-hand side.

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Switch_1 [SCALANCE XC208]	~

- 2. Perform the following actions to start scanning for the PLC:
 - 2-1. Select the PLC from the device list.
 - 2-2. Double-click **Go Online**. The system will automatically search and connect to the PLC based on the previous controller settings.

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Getting Started with MRC Quick Link

 The status of the PLC in the device list should now have a green checkmark, indicating the TIA Portal successfully connected to the PLC. Continue with <u>Step 3: Control the Powerflex Drive</u> and Turn on the Motor.



Getting Started with MRC Quick Link

Step 3: Control the Powerflex Drive and Turn on the Motor

1. Select and expand **PLC_1** in the device list.



 In the expanded tree, click the Watch and force tables folder and double-click Watch table. The main window will display the watch table. Rows 18 and 19 are the tags for the motor. Row 18 is used for turning the motor on or off, row 19 controls the speed of the motor.



Getting Started with MRC Quick Link

- 3. Perform the following actions to power on the motor:
 - 3-1. Double-click the **Modify value** field of row 18 and change the value to either **TRUE** or **1**. The Monitor Value column will be highlighted in orange, indicating all tags can be modified.
 - 3-2. Double-click the **Power** icon (2) to execute the command.

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Watch table		15	"G120 n act >= 0"	54256.6	Bool	TRUE				
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4. The Powerflex drive will now power on the motor.

Example Application 2

Case 2: Rockwell PLC with RSLinux portal and Auto IP mapping

In this example, we are using MRC Quick Link to remotely turn on a motor through a Powerflex drive connected to a Rockwell PLC with RSLinx portal. In this example, Auto IP Mapping is enabled.

Network diagram



Step 1: Set up MRC and Enable Remote Connections

Note: It is highly recommended to create a new Rockwell Studio 5000 project first with Run Mode enabled and add all the devices to the project before continuing with the MRC configuration.

Configure the clients, gateway, and gateway devices on the MRC server. In this example, we
named the gateway *MRC Rockwell* and added the Rockwell PLC, Powerflex drive, and an optional
Stratix5400 switch as devices.

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Device Group: MRC_QuickLink	
Create Gateway	Create Client
← Back	

2. Download and distribute the gateway and MRC client keys.

Getting Started with MRC Quick Link

- Install and right-click the MRC Client Software shortcut and click Run as administrator. Sign in using the activation key file. The MRC gateway's (*MRC_Rockwell*) status will be green, indicating the MRC gateway is ready for remote access.
- 4. Expand *MRC_Rockwell* in the device list to show all devices under the gateway and switch on the tunnel of each device. This allows the MRC client to establish a remote connection to the drive and PLC.

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-PLC_L33ERM	•	10.0.1.35	107.10.50.136
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Getting Started with MRC Quick Link

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Step 2: Browse Devices with RSLinx Classic

1. Open RSLinx Classic. Right-click **AB_ETHP-1 Ethernet** and click **Configure Driver**.

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Getting Started with MRC Quick Link

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2. Select TAP-Windows Adapter V9 and click Confirm.

- 3. Perform the following actions to add the virtual IP addresses of devices to the browse scope. In this example, we are adding the PLC and drive.
 - 3-1. Double-click **AB_PCL**, Ethernet.
 - 3-2. Click **Add New** to create a new line. Add one line for the PLC and one line for the drive.
 - 3-3. Double click the Host Name field of each line and enter the virtual IP address of the PLC (10.0.1.35) and the drive (10.0.1.36). In this example, we also added the optional Stratix switch (10.0.1.34).
 - 3-4. Click Apply.
 - 3-5. Click **OK**.

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Getting Started with MRC Quick Link

 Check the Autobrowse checkbox in the top-left and RSLinx will start to browse for the devices. The devices will appear under AB, PLC_Ethernet in the table on the left-hand side. When all devices are discovered, continue to <u>Step 3: Go Online and configure PLC and Powerflex</u> <u>Drive with Studio 5000</u>.



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Step 3: Go Online and Configure the PLC and Powerflex Drive with Studio 5000

1. Run Studio 5000 and open the previously created user project containing all the devices.



2. If you have not enabled Run Mode when creating the project, click **1** and select **Run Mode**.



Getting Started with MRC Quick Link

3. Click the **Path** icon () to open the communication path list and select **AB_PLC\10.0.1.35** from the list, then click **Go Online**.

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4. Wait for Studio 5000 to connect to the device. Going online with the controller may take up to 10 minutes. When the event log at the bottom indicates the search is complete, continue to the next step.



Getting Started with MRC Quick Link

5. Double-click the Powerflex drive in the Controller Organizer list and confirm the status is **Running**.

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Getting Started with MRC Quick Link

6. Double-click **Controller Tags** from the Controller Organizer list.



7. Expand the **Powerflex_1:O** table and search for **PowerFlex_1:O.start**. Click the Value field and change **0** to **1** to instruct the Powerflex drive to power on the motor.

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Controller Project_Wanya	Scope: DProject Warya - Show	Al Taos	• ·	7. Enter Name Filter.		
Controller Fault Handler			un eles	In		
- Power-Up Handler			ce Mask * Style	Data Type BOOL	Properties A	
E-Galaska	PowerRex_1:I.ParmsLocked	0	Decimal		🔠 24 🗔 🗲 💽	
A Ga MainTask	PowerRex_1:1.DigIn1Active	0	Decimal	BOOL	General	
HainProgram	PowerRex_1:1.DigIn2Active	0	Decimal	BOOL	🗆 Data	
- Unscheduled	PowerRex_1:1.DigIn3Active	0	Decimal	BOOL	Vabae 0	
E- Motion Groups	PowerRex_1:1.DigIn4Active	0	Decimal	BOOL	Fore	
Ungrouped Axes	PowerFlex_1:I.OutputFreq	0	Decimal	INT	Consumed Connect	
Add-On Instructions	- PowerRex_1:0	{}	{}	AB:PowerRex5	Parameter Connec	
AOLMOXA_SWITCH_16P_v1_3_0	+ PowerHex_1.0.LogicCommand	2#0000_00	Binary	INT	Now Coss	
AOL MOXA SWITCH 28P v1 3 0	PowerRex 1.0.Stop	0	Decimal	BOOL		
P. C Data Types	PowerRex_1.0.Start	10 10	Decimal	BOOL		
. User-Defined	PowerRex 1:0.Jog	0	Decimal	BOOL		
E Strings	PowerRex 1.0.ClearFaults	0	Decimal	BOOL		
Add-On-Defined	PowerRex 1.0.Forward	0	Decimal	BOOL		
Predefined	PowerRex 1:0.Reverse	0	Decimal	BOOL		
A Module-Defined	PowerRex_1:0.ForceKeypadCtrl	0	Decimal	BOOL		
- 🖨 Trends	-PowerRex 1.0.MOPIncrement	0	Decimal	BOOL		
- 🎠 Logical Model	PowerRex 1.0 AccelRate1	0	Decimal	BOOL		
P- Call VO Configuration	PowerRex_10_AccelRate2	0	Decimal	BOOL		
	PowerRex_1.0.DecelRate1	0	Decimal	BOOL	1	
. 8 [0] 1769-L33ERM Project_Wanya	PowerRex_10.DecelRate2	0	Decimal	BOOL		
Ethernet	PowerRex_1:0.FreqSel01	0	Decimal	BOOL		
1769-L33ERM Project_Wanya	PowerRex 1:0.FreqSel02	0	Decimal	BOOL		
EDS series EDS_G500E_1	PowerRex_10.FreqSel03		Decimal	BOOL		
EDS series EDS_G500E_2		0				
EDS series EDS_G500E_3	PowerRex_1:0.MOPDecrement	0	Decimal	BOOL		
	PowerRex_1:0.FreqCommand	0	Decimal	INT	Ŧ	
PowerFlex 525-EENET PowerFlex,	Monitor Tags Edit Tags	/	ш	÷.	ai	
	Errors					- 9 X
	Going online with controller					
	Complete - 0 error(s), 0 warnin					i i i i i i i i i i i i i i i i i i i
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Controller Organizer Logical Organizer	Errors 🐼 Search Results 🐼 Wate	-h				
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