Industrial Protocols User's Guide

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Introduction

MODBUS TCP is a protocol commonly used for the integration of a SCADA system. It is also a vendorneutral communication protocol used to monitor and control industrial automation equipment such as PLCs, sensors, and meters. In order to be fully integrated into industrial systems, Moxa's switches support Modbus TCP/IP protocol for real-time monitoring in a SCADA system.

Data Format and Function Code

MODBUS TCP supports different types of data format for reading. The primary four types of them are:

Data Access T	уре	Function Code	Function Name	Note
Bit access Physical Discrete Inputs		2	Read Discrete Inputs	
	Internal Bits or Physical Coils	1	Read Coils	
Word access Physical Input Registers		4	Read Input Registers	Moxa Support
(16-bit access)	Physical Output Registers	3	Read Holding Registers	

Moxa switches support Function Code 4 with 16-bit (2-word) data access for read-only information.

MODBUS Data Map and Information Interpretation of Moxa Switches

The data map addresses of Moxa switches shown in the following table start from **MODBUS address 30001** for Function Code 4. For example, the address offset 0x0000 (hex) equals MODBUS address 30001, and the address offset 0x0010 (hex) equals MODBUS address 30017. Note that all the information read from Moxa switches are in hex mode. To interpret the information, refer to the ASCII table for the translation (e.g. 0x4D = M', 0x6F = o').

Address Offset	Data Type	Interpretation	Description				
System Information							
0x0000	1 word	HEX	Vendor ID = 0x1393				
0x0001	1 word		Unit ID (Ethernet = 1)				
0x0002	1 word	HEX	Product Code = $0x0003$				
0x0010	20 words	ASCII	Vendor Name = "Moxa"				
			Word 0 Hi byte = `M'				
			Word 0 Lo byte = `o'				
			Word 1 Hi byte = 'x'				
			Word 1 Lo byte = `a'				
			Word 2 Hi byte = $\sqrt{0'}$				
			Word 2 Lo byte = $\0'$				
0x0030	20 words	ASCII	Product Name = "EDS-408A"				
			Word 0 Hi byte = 'E'				
			Word 0 Lo byte = D'				
			Word 1 Hi byte = 'S'				
			Word 1 Lo byte = $-'$				
			Word 2 Hi byte = '4'				

			Word 2 Lo byte = $0'$
			Word 3 Hi byte = '8'
			Word 3 Lo byte = A'
			Word 4 Hi byte = $\0'$
			Word 4 Lo byte = $\0'$
0x0050	1 word		Product Serial Number
0x0051	2 words		Firmware Version
			Word 0 Hi byte = major (A)
			Word 0 Lo byte = minor (B)
			Word 1 Hi byte = release (C)
			Word 1 Lo byte = build (D)
0x0053	2 words	HEX	Firmware Release Date
			For example:
			Word $0 = 0 \times 0609$
			Word $1 = 0 \times 0705$
			Firmware was released on 2007-05-06 at 09
			o'clock
0x0055	3 words	HEX	Ethernet MAC Address
			Ex: MAC = 00-01-02-03-04-05
			Word 0 Hi byte = 0×00
			Word 0 Lo byte = 0×01
			Word 1 Hi byte = 0×02
			Word 1 Lo byte = 0×03
			Word 2 Hi byte = 0×04
			Word 2 Lo byte = 0×05
0x0058	1 word	HEX	Power 1
			0x0000: Off
			0x0001: On
0x0059	1 word	HEX	Power 2
			0x0000; Off
			0x0001: On
0x005A	1 word	HEX	Fault LED Status
0,000,0	1 11010		0x0000: No
			0x0001: Yes
0x0082	1 word	HEX	D01
0X0002	1 11010		0x0000: Off
			0x0001: On
Port Informatio	n		
0x1000 to	1 word	HEX	Port 1 to 8 Status
0x1000 to	1 Word		0x0000: Link down
UXIUII			0x0001: Link up
			0x0002: Disable
			0xFFFF: No port
0x1100 to	1 word	HEX	Port 1 to 8 Speed
0x1100 to	1 WORU		0x0000: 10M-Half
071111			0x0001: 10M-Full
			0x0002: 100M-Half
			0x0002: 100M-Full
0x1200 to	1 word	HEX	0xFFFF: No port Port 1 to 8 Flow Ctrl
0x1200 to 0x1211	1 WOLD		0x0000:Off
0X1211			0x0001:On
0x1200 to	1		0xFFFF:No port
0x1300 to	1 word	HEX	Port 1 to 8 MDI/MDIX
0x1311			0x0000: MDI
			0x0001: MDIX
0x1400 to	20 worde	ACCT	0xFFF: No port
0x1400 to	20 words	ASCII	Port 1 to 8 Description
0x1413 (Port 1)			Port Description = "100TX,RJ45."
0,1111			Word 0 Hi byte = $1'$
0x1414 to			Word 0 Lo byte = $0'$
0x1427 (Port 2)			Word 1 Hi byte = $0'$
			Word 1 Lo byte = T'
			Word 4 Hi byte = $4'$
			Word 4 Lo byte = $5'$
			Word 5 Hi byte = `.' Word 5 Lo byte = `\0'

Packets Infor	mation		
0x2000 to 0x2023	2 words	HEX	Port 1 to 8 Tx Packets Ex: port 1 Tx Packet Amount = 44332211
UX2U23			Received MODBUS response:
			0x44332211
			Word $0 = 4433$
			Word 1 = 2211
0x2100 to	2 words	HEX	Port 1 to 8 Rx Packets
0x2123			Ex: port 1 Rx Packet Amount = 44332211
			Received MODBUS response:
			0x44332211
			Word 0 = 4433 Word 1 = 2211
0x2200 to	2 words	HEX	port 1 to 8 Tx Error Packets
0x2223	2 00103		Ex: port 1 Tx Error Packet Amount = 44332211
0/12220			Received MODBUS response:
			0x44332211
			Word 0 = 4433
			Word 1 = 2211
0x2300 to	2 words	HEX	port 1 to 8 Rx Error Packets
0x2323			Ex: port 1 Rx Error Packet Amount = 44332211
			Received MODBUS response: 0x44332211
			0x44332211 Word 0 = 4433
			Word $1 = 2211$
Redundancy I	nformation		
0x3000	1 word	HEX	Redundancy Protocol
			0x0000: None
			0x0001: RSTP
			0x0002:Turbo Ring
			0x0003:Turbo Ring V2
0x3100	1		0x0004:Turbo Chain RSTP Root
0X3100	1 word	HEX	0x0000: Not Root
			0x0001: Root
			0xFFFF: RSTP Not Enable
0x3200 to	1 word	HEX	RSTP Port 1 to 8 Status
0x3211			0x0000: Port Disabled
			0x0001: Not RSTP Port
			0x0002: Link Down
			0x0003: Blocked
			0x0004: Learning 0x0005: Forwarding
			0xFFFF: RSTP Not Enable
0x3300	1 word	HEX	TurboRing Master/Slave
			0x0000: Slave
			0x0001: Master
			0xFFFF: Turbo Ring Not Enable
0x3301	1 word	HEX	TurboRing 1st Port status
			0x0000: Port Disabled
			0x0001: Not Redundant Port 0x0002: Link Down
			0x0002: Link Down 0x0003: Blocked
			0x0004: Learning
			0x0005: Forwarding
0x3302	1 word	HEX	TurboRing 2nd Port status
			0x0000: Port Disabled
			0x0001: Not Redundant Port
			0x0002: Link Down
			0x0003: Blocked
			0x0004: Learning
0x3303	1 word	HEX	0x0005:Forwarding TurboRing Coupling
07000	± woru		0x0000: Off
			0x0001: On
			0xFFFF: Turbo Ring is Not Enabled
0x3304	1 word	HEX	TurboRing Coupling Port Status
-			0x0000: Port Disabled
			0x0001: Not Coupling Port
			0x0002: Link Down
			0x0003: Blocked
			0x0005: Forwarding
			0xFFFF: Turbo Ring is Not Enabled

0x3305	1 word	HEX	TurboRing Coupling Control Port Status
			0x0000: Port Disabled
			0x0001: Not Coupling Port
			0x0002: Link Down
			0x0003: Blocked
			0x0005: Forwarding
			0x0006: Inactive
			0x0007:Active
0.2500	1	HEX	0xFFFF:Turbo Ring is Not Enabled
0x3500	1 word	HEX	TurboRing V2 Coupling Mode
			0x0000: None
			0x0001: Dual Homing 0x0002: Coupling Backup
			0x0002: Coupling Backup 0x0003: Coupling Primary
			0xFFFF:Turbo Ring V2 is Not Enabled
0x3501	1 word	HEX	TurboRing V2 Coupling Port Primary Status
0x3501	1 WORD	ILCX	
			(Used in Dual Homing, Coupling Backup, and
			Coupling Primary) 0x0000:Port Disabled
			0x0001: Not Coupling Port
			0x0002: Link Down
			0x0003: Blocked
			0x0004: Learning
			0x0005: Forwarding
0,2502	1		0xFFFF: Turbo Ring V2 is Not Enabled TurboRing V2 Coupling Port Backup Status
0x3502	1 word	HEX	
			(Only using in Dual Homing)
			0x0000: Port Disabled
			0x0001: Not Coupling Port 0x0002: Link Down
			0x0003: Blocked
			0x0004: Learning
			0x0005: Forwarding
0	1		0xFFFF: Turbo Ring V2 Not Enable
0x3600	1 word	HEX	TurboRing V2 Ring 1 status
			0x0000: Healthy
			0x0001: Break
0	1		0xFFFF:Turbo Ring V2 Not Enable
0x3601	1 word	HEX	TurboRing V2 Ring 1 Master/Slave
			0x0000: Slave
			0x0001: Master
0.000	4		0xFFFF: Turbo Ring V2 Ring 1 Not Enable
0x3602	1 word	HEX	TurboRing V2 Ring 1 1st Port Status
			0x0000: Port Disabled
			0x0001: Not Redundant Port
			0x0002: Link Down
			0x0003: Blocked
			0x0004:Learning
			0x0005:Forwarding
0.000			0xFFFF:Turbo Ring V2 Ring 1 is Not Enabled
0x3603	1 word	HEX	TurboRing V2 Ring 1's 2nd Port Status
			0x0000: Port Disabled
			0x0001: Not Redundant Port
			0x0002: Link Down
			0x0003: Blocked
			0x0004: Learning
			0x0005: Forwarding
			0xFFFF: Turbo Ring V2 Ring 1 is Not Enabled
0x3680	1 word	HEX	TurboRing V2 Ring 2 Status
			0x0000: Healthy
			0x0001: Break
			0xFFFF: Turbo Ring V2 Ring 2 is Not Enabled
0x3681	1 word	HEX	TurboRing V2 Ring 2 Master/Slave
072001			
0X5001			0x0000: Slave
0,5001			0x0000: Slave 0x0001: Master 0xFFFF: Turbo Ring V2 Ring 2 is Not Enabled

0x3682	1 word	HEX	TurboRing V2 Ring 2's 1st Port Status
			0x0000: Port Disabled
			0x0001: Not Redundant
			0x0002: Link Down
			0x0003: Blocked
			0x0004: Learning
			0x0005: Forwarding
			0xFFFF: Turbo Ring V2 Ring 2 is Not Enabled
0x3683	1 word	HEX	TurboRing V2 Ring 2's 2nd Port Status
			0x0000: Port Disabled
			0x0001: Not Redundant
			0x0002: Link Down
			0x0003: Blocked
			0x0004: Learning
			0x0005: Forwarding
			0xFFFF: Turbo Ring V2 Ring 2 is Not Enabled
0x3700	1 word	HEX	Turbo Chain Switch Roles
			0x0000: Head
			0x0001: Member
			0x0002: Tail
			0xFFFF: Turbo Chain is Not Enabled
0x3701	1 word	HEX	Turbo Chain 1st Port status
			0x0000: Link Down
			0x0001: Blocking
			0x0002: Blocked
			0x0003: Forwarding
			0xFFFF: Turbo Ring V2 Ring 2 Not Enable
0x3702	1 word	HEX	Turbo Chain 2nd Port status
			0x0000: Link Down
			0x0001: Blocking
			0x0002: Blocked
			0x0003: Forwarding
			0xFFFF: Turbo Ring V2 Ring 2 Not Enable

Introduction

EtherNet/IP is an Industrial Ethernet Protocol defined by the ODVA association. The protocol is open to the public and vendors can implement EtherNet/IP into their industrial devices without incurring a license fee. Many vendors have adopted this protocol as the standard communication protocol between devices. For example, Rockwell Automation uses EtherNet/IP as the standard protocol for their Logix controllers over Ethernet networks.

To allow complete integration with a Rockwell system, Moxa switches not only provide a full-functioning of industrial network infrastructure, but also enable the SCADA system to monitor the status of the switches as well as that of the PLCs, .making the switches part of a Rockwell system.

Messaging Types

EtherNet/IP supports two types of communication methods for EtherNet/IP devices: Explicit Messaging and Implicit Messaging. Explicit Messaging is unscheduled and is used for a request/response communication procedure (or client/server procedure). Explicit Messaging uses TCP/IP over Ethernet. Implicit Messaging is scheduled and is used for a producer/consumer communication with UDP over Ethernet. Implicit Messaging is also called I/O Messaging.

Configuring EtherNet/IP on Moxa Switches

Ethernet/IP	
○ Enable	(Enable IGMP Snooping automatically after activating)
 Disable 	(Disable IGMP Snooping after activating)
Activate	

Check the **Enable** checkbox to enable EtherNet/IP. With EtherNet/IP enabled, IGMP Snooping and IGMP Query functions will be enabled automatically to be properly integrated in Rockwell systems for multicast Implicit (I/O) Messaging.

CIP Objects of EtherNet/IP

Several communication objects are defined in CIP (Common Industrial Protocol). Moxa switches support the following objects for PLCs and SCADA systems to monitor:

- Identity Object
- TCP/IP Interface Object
- Ethernet Link Object
- Assembly Object

- Message Router Object
- Connection Manager Object
- Port Object
- Moxa Networking Object (Vendor Specific)

The supported attributes and services of the above objects are introduced in the table below, including the access rules for each attribute. To understand the details of each attribute of the standard objects, refer to the official documents of CIP introduction (Vol. 1) and the EtherNet/IP Adaptation of CIP (Vol. 2).

Identity Object

The Class code of Identity object is **0x01** (Defined in CIP Vol1, 5-2).

There is **one** instance of this object in our product. It stores the information of the production and the device. The following tables summarize the class attributes and the instance attributes.

Attr ID	Access Rule	Name	Data Type	Description
1	Get	Revision	UINT (16)	Revision of this object
2	Get	Max Instance	UINT (16)	Maximum instance number of an object currently created in this class level of the device
3	Get	Number of Instances	UINT (16)	Number of object instances currently created in this class level of the device.
6	Get	Maximum ID Number Class Attributes	UINT (16)	The attribute ID number of the last class attribute of the class definition implemented in the device
7	Get	Maximum ID Number Instance Attributes	UINT (16)	The attribute ID number of the last instance attribute of the class definition implemented in the device

Class Attribute List

Instance Attribute List

Attr ID	Access Rule	Name	(Struct.)	Data Type	Description
1	Get	Vendor ID		UINT (16)	991, the vendor ID of Moxa.
2	Get	Device Type		UINT (16)	0 x 307, "Managed Ethernet Switch".
3	Get	Product Code		UINT (16)	Please refer to Product Code Table.
4	Get	Revision		(Struct.)	The version of the Identity object
			Major	USINT (8)	The structure member, major
			Minor	USINT (8)	The structure member, minor.
5	Get	Status		WORD (16)	Not used
6	Get	Serial Number		UDINT (32)	The serial number of each device
7	Get	Product Name		SHORT_ STRING	The product name in human-readable format
15	Get/Set	Assigned Name		STRINGI	The assigned switch name For example: "Managed Redundant Switch xxxxx". (xxxxx is series number.)
17	Get/Set	Geographic Location		STRINGI	The assigned switch location The default string is "Switch Location".

The Identity Object Instance supports the following CIP Common services:

Common Service List

Service	Implementation		Service Name	Description
Code	Class	Instance		
0x01	\checkmark	✓	Get_Attributes_All	Returns the contents of all attributes of the class
0x0E	✓	\checkmark	Get_Attribute_Single	Used to read an object instance attribute.
0x10		\checkmark	Set_Attribute_Single	Used to write an object instance attribute
0x05		\checkmark	Reset	Invokes the reset service for the device

Product Code	Model Name	Product Code	Model Name	Product Code	Model Name
0x0001	n/a	0x0019	EDS-616	0x0031	IKS-G7528
0x0002	n/a	0x001A	EDS-619	0x0032	n/a
0x0003	EDS-726	0x001B	TN-5518	0x0033	IPS-P408
0x0004	n/a	0x001C	TN-5516	0x0034	TN-5818
0x0005	EDS-518A	0x001D	TN-5510	0x0035	IKS-G6824
0x0006	EDS-405A	0x001E	TN-5508	0x0036	ICS-G7826
0x0007	EDS-408A	0x001F	EOM-104	0x0037	ICS-G7828
0x0008	EDS-505A	0x0020	PT-G7509	0x0038	ICS-G7748
0x0009	EDS-508A	0x0021	TN-5518-PoE	0x0039	ICS-G7750
0x000A	EDS-510A	0x0022	TN-5516-PoE	0x003A	ICS-G7752
0x000B	EDS-516A	0x0023	TN-5510-PoE	0x003B	ICS-G7848
0x000C	EDS-728	0x0024	TN-5508-PoE	0x003C	ICS-G7850
0x000D	PT-7728	0x0025	n/a	0x003D	ICS-G7852
0x000E	EDS-828	0x0026	IKS-6524	0x003E	IKS-6852
0x000F	PT-7828	0x0027	n/a	0x003F	IKS-6728
0x0010	PT-7710	0x0028	n/a	0x0040	PT-7528
0x0011	IKS-6726 or PT7728S_old	0x0029	EDS-P506A	0x0041	PT-7528-PTP
0x0012	EDS-G509	0x002A	PT-7728-PTP	0x0042	TN-5510-2DSL
0x0013	EDS-P510	0x002B	PT-510	0x0043	n/a
0x0014	EDS-516A-MM- M12	0x002C	PT-508	0x0044	n/a
0x0015	IKS6526SB	0x002D	n/a		
0x0016	EDS-608	0x002E	n/a		
0x0017	IKS-6726-PoE	0x002F	IKS-G6524		
0x0018	EDS-611	0x0030	IKS-G7526		

Product Code Table

TCP/IP Interface Object

The Class code of TCP/IP Interface object is **0xf5** (Defined in CIP Vol2, 5-3).

There is **one** instance of this object.

The following tables summarize the attributes of this object.

Class Attribute List

Attr ID	Access Rule	Name	Data Type	Description
1	Get	Revision	UINT (16)	Revision of this object.
2	Get	Max Instance	UINT (16)	Maximum instance number of an object currently created in this class level of the device
3	Get	Number of Instances	UINT (16)	Number of object instances currently created at this class level of the device
6	Get	Maximum ID Number Class Attributes	UINT (16)	The attribute ID number of the last class attribute of the class definition implemented in the device
7	Get	Maximum ID Number Instance Attributes	UINT (16)	The attribute ID number of the last instance attribute of the class definition implemented in the device

Instance Attribute List

Attr ID	Access Rule	Name	(Struct.)	Data Type	Description
1	Get	Status		DWORD (32)	Interface status 0 = The Interface Configuration attribute has not been configured. 1 = The Interface Configuration attribute contains valid configuration obtained from BOOTP, DHCP or non-volatile storage.
2	Get	Configuration Capability		DWORD (32)	Interface capability flags Bit map of capability flags: Bit 0: BOOTP Client Bit 1: DNS Client Bit 2: DHCP Client

	•				
					Bit 3: DHCP-DNS Update
					Bit 4: Configuration Settable
3	Get/Set	Configuration Control		DWORD (32)	Interface control flags Bit map of control flags: Bit 0 to 3: Startup Configuration 0 = The device shall use the interface configuration values previously stored (for example, in non-volatile memory or via hardware witches). 1 = The device shall obtain its interface configuration values via BOOTP. 2 = The device shall obtain its interface configuration values via DHCP upon start-up. 3 to15 = Reserved.
4	Get	Physical Link		(Struct.)	Path to physical link object
•	Get	Object	Path Size	UINT (16)	Size of Path
			Path	Padded EPATH	Logical segments identifying the physical link object
5	Get/Set	Interface Configuration		(Struct.)	TCP/IP network interface configuration
			IP Address	UDINT (32)	The device's IP address
			Network Mask	UDINT (32)	The device's network mask
			Gateway Address	UDINT (32)	Default gateway address
			Name Server	UDINT (32)	Primary name server
			Name Server2	UDINT (32)	Secondary name server
			Domain Name	STRING	Default domain name
6	Get/Set	Host Name		STRING	Host name

The TCP/IP Object Instance supports the following CIP Common services:

Common Service List

Service	Implementation		Service Name	Description
Code	Class	Instance		
0 x 01	\checkmark	\checkmark	Get_Attributes_All	Returns the contents of all attributes of the class
0 x 0E	✓	\checkmark	Get_Attribute_Single	Used to read an object instance attribute
0 x 10		\checkmark	Set_Attribute_Single	Used to modify an object instance attribute

Ethernet Link Object

The Class code of Ethernet Link object is **0xf6** (Defined in CIP Vol2, 5-4).

For each switch port, there is an instance of this class.

The following table shows the mapping of instance number and the switch port number.

Instance Number	Mapping to
0	Ethernet Link class
1	1st switch port
2	2nd switch port
3	3rd switch port

The following tables summarize the attributes of the Ethernet Link object.

There are some vendor specific attributes in the table (Starting from attribute Id 100).

Attr ID	Access Rule	Name	Data Type	Description			
1	Get	Revision	UINT (16)	Revision of this object			
2	Get	Max Instance	UINT (16)	Maximum instance number of an object currently created in this class level of the device			
3	Get	Number of Instances	UINT (16)	Number of object instances currently created in this class level of the device			
6	Get	Maximum ID Number Class Attributes	UINT (16)	The attribute ID number of the last class attribute of the class definition implemented in the device			
7	Get	Maximum ID Number Instance Attributes	UINT (16)	The attribute ID number of the last instance attribute of the class definition implemented in the device			
100	Get	Moxa-specific Revision	UINT (16)	Revision of Moxa specific attributes and services			

Class Attribute List

Instance attribute list

Attr ID	Access Rule	Name	(Struct.)	Data Type	Description
1	Get	Interface Speed		UDINT (32)	Interface speed currently in use (Speed in Mbps, e.g., 0, 10, 100, 1000, etc.)
2	Get	Interface Flags		DWORD (32)	Refer to the Interface Flags table.
3	Get	Physical Address		ARRAY of 6 USINT(8)	MAC layer address (The System MAC address).
4	Get	Interface Counters		(Struct.)	Counters relevant to the receipt of packets.
			In Octets	UDINT (32)	Octets received on the interface.
			In Ucast Packets	UDINT (32)	Unicast packets received on the interface.
			In NUcast Packets	UDINT (32)	Non-unicast packets received on the interface.
			In Discards	UDINT (32)	Inbound packets received on the interface but are discarded.
			In Errors	UDINT (32)	Inbound packets that contain Errors (does not include In Discards).
			Out Octets	UDINT (32)	Octets sent on the interface.
			Out Ucast Packets	UDINT (32)	Unicast packets sent on the interface.
			Out NUcast Packets	UDINT (32)	Non-unicast packets sent on the interface.
			Out Discards	UDINT (32)	Discarded outbound packets.
			Out Errors	UDINT (32)	Outbound packets that contain errors.
5	Get	Media Counters		(Struct.)	
			Alignment Errors	UDINT (32)	Received frames that are not an integral number of octets in length.
			FCS Errors	UDINT (32)	Received frames that do not pass the FCS check.
			Single Collisions	UDINT (32)	Successfully transmitted frames which experienced exactly one collision.
			Multiple Collisions	UDINT (32)	Successfully transmitted frames which experienced more than one collision.
			SQE Test Errors	UDINT (32)	Number of times the SQE test error message is generated.
			Deferred Transmissions	UDINT (32)	Frames for which first transmission attempt is delayed because the medium is busy.

			Late Collisions	UDINT (32)	Number of times a collision is detected later than 512 bit times into the transmission of a packet.
			Excessive Collisions	UDINT (32)	Frames for which transmission fails due to excessive collisions.
			MAC Transmit Errors	UDINT (32)	Frames for which transmission fails due to an internal MAC sublayer transmit error.
			Carrier Sense Errors	UDINT (32)	Times that the carrier sense condition was lost or never asserted when attempting to transmit a frame.
			Frame Too Long	UDINT (32)	Received frames that exceed the maximum permitted frame size.
			MAC Receive Errors	UDINT (32)	Frames for which reception on an interface fails due to an internal MAC sublayer receive error.
6	Get/Set	Interface Control		(Struct.)	Configuration for physical interface.
			Control Bits	WORD (16)	Bit 0: Auto-Negotiate Value 0: Force Value 1: Auto-Nego Bit 1: Half/Full Duplex Value 0: half duplex Value 1: full duplex Bit 2 to 15: Reserved, all zero
			Forced Interface Speed	UINT (16)	Speed at which the interface shall be forced to operate.
10	Get	Interface Label		SHORT_STRING	Human readable identification
100	Get	Interface Port Index		UDINT (32)	Port index.
101	Get	Interface Port Description		STRING	Port description.
102	Get/Set	Broadcast Storm Protection		USINT (8)	Value 0: Disabled Broadcast Storm Protection. Value 1: Enable Broadcast Storm Protection. (Only selected products support this function)
103	Get	Interface Utilization		USINT (8)	RX interface utilization in percentage
104	Get/Set	Utilization Alarm Upper Threshold		USINT (8)	RX interface utilization upper limit in percentage
105	Get/Set	Utilization Alarm Lower Threshold		USINT (8)	Not supported
106	Get/Set	Port Link Alarm		USINT (8)	Value 0: Ignore Value 1: On (Relay 1) Value 2: On (Relay 2) Value 3: Off (Relay 1) Value 4: Off (Relay 2)
107	Get/Set	Port Traffic- Overload Alarm		USINT (8)	Value 0: Disable Value 1: Enable(Relay 1) Value 2: Enable(Relay 2)
108	Get	Tx Unicast Packet Rate		UDINT(32)	Number of TX unicast packets per second
109	Get	Rx Unicast Packet Rate		UDINT(32)	Number of RX unicast packets per second
110	Get	Tx Multicast Packet Rate		UDINT(32)	Number of TX multicast packets per second
111	Get	Rx Multicast Packet Rate		UDINT(32)	Number of RX multicast packets per second
112	Get	Tx Broadcast		UDINT(32)	Number of TX broadcast packets
113	Get	Packet Rate Rx Broadcast Packet Rate		UDINT(32)	per second Number of RX broadcast packets
114	Get	Packet Rate Tx Multicast		UDINT(32)	per second Total number of TX multicast packets
		Packet			

		Packet		packets
116	Get	Tx Broadcast	UDINT(32)	Total number of TX broadcast
		Packet		packets
117	Get	Rx Broadcast	UDINT(32)	Total number of RX broadcast
		Packet		packets
118	Get	Redundant Port	UDINT(32)	Bit 0 = Disable
		Status		Bit 1 = Not Redundant port
				Bit 2 = Link down
				Bit 3 = Blocking
				Bit 4 = Learning
				Bit $5 = Forwarding$

Interface Flags

Bit(s)	Called	Definition
0	Link Status	0 indicates an inactive link;
		1 indicates an active link.
1	Half/Full Duplex	0 indicates half duplex;
		1 indicates full duplex.
2-4	Negotiation Status	Indicates the status of link auto-negotiation
		0 = Auto-negotiation in progress.
		1 = Auto-negotiation and speed detection failed. Using default values
		for speed and duplex. Default values are product-dependent;
		recommended defaults are 10Mbps and half duplex.
		2 = Auto negotiation failed but detected speed. Duplex was defaulted.
		Default value is product-dependent; recommended default is half
		duplex.
		3 = Successfully negotiated speed and duplex.
		4 = Auto-negotiation not attempted. Forced speed and duplex.
5	Manual Setting Requires	0 indicates the interface can activate changes to link parameters
	Reset	(auto-negotiate, duplex mode, interface speed) automatically. 1
		indicates the device requires a Reset service be issued to its Identity
		Object in order for the changes to take effect.
6	Local Hardware	0 indicates the interface detects no local hardware fault; 1 indicates a
	Fault	local hardware fault is detected. The meaning of this is product-
		specific. For example, an AUI/MII interface might detect no
		transceiver attached, or a radio modem might detect no antenna
		attached. In contrast to the soft, possibly self-correcting nature of the
		Link Status being inactive, this is assumed a hard-fault requiring user
		intervention.
7~31	Reserved.	Shall be set to zero

The Ethernet Link Object Instance supports the following CIP common services:

Common Service List

Service	Implementation		Service Name	Description
Code	Class	Instance		
0x0E	✓	\checkmark	Get_Attribute_Single	Used to read an object instance attribute
0x10		\checkmark	Set_Attribute_Single	Used to modify an object instance attribute

Assembly Object

The Moxa switch support **static** assembly object for CIP I/O messaging.

The Class code is **0x04** (Defined in CIP Vol 1, 5-5).

There are three instances of this object as the following.

	Instance Number	Size (32 bit)
Input	2	5
Output	1	2
Configuration	3	0

The **Input** means the data is produced by switch which includes the information and status report to the originator for monitoring. The **Output** means the data is generated by the originator (remote host) and is consumed by switch.

Class Attribute List

Attr ID	Access Rule	Name	Data Type	Description
1	Get	Revision	UINT (16)	Revision of this object

Instance Attribute List

Attr ID	Access Rule	Name	(Struct.)	Data Type	Description
3	Get/Set	Data		Array of BYTE	The implicit messaging content
4	Get	Size		UINT (16)	Number of bytes in Attr. 3

Common Service List

Service	Implem	nentation	Service Name	Description
Code	Class	Instance		
0x0E	✓	\checkmark	Get_Attribute_Single	Used to read an object instance attribute
0x10		\checkmark	Set_Attribute_Single	Used to modify an object instance attribute

For the definition of the I/O messaging, see the following table for details.

I/O Messaging Content

Direction	I/O data	Size	Value & Description
Input	Switch Fault Status	UDINT (32)	Please refer to Moxa Networking Object Attr ID 2.
	Port Exist	ULINT (64)	Please refer to Moxa Networking Object Attr ID 4.
	Port Link Status	ULINT (64)	Please refer to Moxa Networking Object Attr ID 6.
Output	Port Enable	ULINT (64)	Please refer to Moxa Networking Object Attr ID 5.

Message Router Object

The object within a node that distributes messaging requests to the appropriate application objects.

The supported messaging connections are as the following:

- Explicit Messaging
- Unconnected Messaging
- Implicit messaging

When using the UCMM to establish an explicit messaging connection, the target application object is the Message Router object (Class Code **2**).

Class Attribute List

Attr ID	Access Rule	Name	Data Type	Descriptions
1	Get	Revision	UINT (16)	Revision of this object

Instance Attribute List

Attr ID	Access Rule	Name	(Struct.)	Data Type	Description
1	Get	Object_list		(Struct.)	A list of supported objects
			Number	UINT (16)	Number of supported classes in the classes array
			Classes	Array of UINT (16)	List of supported class codes
2	Get	Number Available		UINT (16)	Maximum number of connections supported
3	Get	Number Active		UINT (16)	Number of connections currently used by system components
4	Get	Active Connections		Array of UINT (16)	A list of the connection IDs of the currently active connections

Common Service List

Service	Implem	entation	Service Name	Description	
Code	Class	Instance			
0x0E		\checkmark	Get_Attribute_Single	Used to read an object instance attribute	

Connection Manager Object

The Connection Manager Class allocates and manages the internal resources associated with both I/O and Explicit Messaging connections.

The class code is **0x06**. There is one instance of this object.

The supported connection trigger type is *cyclic* and *change of state*.

The instance attribute list is introduced as the following.

Class Attribute List

Attr ID	Access Rule	Name	Data Type	Description
1	Get	Revision	UINT (16)	Revision of this object

Instance Attribute List

Attr ID	Access Rule	Name	Data Type	Description
1	Get/Set	Open Requests	UINT(16)	Number of Forward Open service requests received

Common Service List

Service	Implementation		Service Name	Description
Code	Class	Instance	1	
0x0e	✓	✓	Get_Attribute_Single	Returns the contents of the specified attribute
0x10		\checkmark	Set_Attribute_Single	Used to modify an object instance attribute
0x4E		\checkmark	Forward_Close	Closes a connection
0x54		✓	Forward_Open	Opens a connection

Port Object

The port object represents the underlying interface of CIP which is EtherNet/IP.

The class code is **0xf4**. There is one instance of this object.

The instance attribute ``Port Type'' identifies the CIP adaptation.

Attr ID	Access Rule	Name	(Struct.)	Data Type	Description
1	Get	Revision		UINT (16)	Revision of this object
2	Get	Max Instance		UINT (16)	Maximum instance number of an object currently created in this class level of the device
3	Get	Number of Instances		UINT (16)	Number of object instances currently created at this class level of the device.
8	Get	Entry Port		UINT (16)	The attribute ID number of the last class attribute of the class definition implemented in the device
9	Get	Port Instance Info		(Array of Struct.)	
			Port Type	UINT (16)	Enumerates the type of port
			Port Number	UINT (16)	CIP port number associated with this port

Class Attribute List

Instance Attribute List

Attr ID	Access Rule	Name	(Struct.)	Data Type	Description
1	Get	Port Type		UINT (16)	Enumerates the type of port. 4 = EtherNet/IP.
2	Get	Port Number		UINT (16)	CIP port number associated with this port. (Value 1 is reserved for internal product use)
3	Get	Link Object		(Struct.)	
			Path Length	UINT (16)	Number of 16 bit words in the following path.
			Link Path	Padded EPATH	Logical path segments that identify the object for this port.
4	Get	Port Name		SHORT_STR ING	String which names the physical network port. The maximum number of characters in the string is 64.
5	Get	Port Type Name		SHORT_STR ING	String which names the port type. The maximum number of characters in the string is 64.
6	Get/Set	Port Description		SHORT_STR ING	String which describes the port. The maximum number of characters in the string

				is 64.
7	Get	Node Address	Padded EPATH	Node number of this device on port. The range within this data type is restricted to a Port Segment.
9	Get	Port Key	Packed EPATH	Electronic key of network/chassis this port is attached to. This attribute shall be limited to format 4 of the Logical Electronic Key segment.

Common Service List

	Implementation		Service Name	Description
Code	Class	Instance		
0x0E	✓	✓	Get_Attribute_Single	Used to read an object instance attribute
0x10		✓	Set_Attribute_Single	Used to modify an object instance attribute

Moxa Networking Object (Vendor Specific)

The Moxa Networking object includes system information and status.

It can also be used to do the device diagnostic & configuration through explicit messaging.

The class code is **0x404**.

Class Attribute List

Attr ID	Access Rule	Name	Data Type	Description
1	Get	Revision	UINT (16)	Revision of this object

Instance Attribute List

Attr	Access	Name	Data Type	Description
ID	Rule			
1	Get	Firmware Version	UDINT (32)	Switch firmware version
2	Get	System Fault	UDINT (32)	Switch fault status
		Status		Bit 0: Reserved
				Value 0: Ok
				Value 1: Fail
				Bit 1: Reserved
				Value 0: Ok
				Value 1: Fail
				Bit 2: Port utilization alarm
				Value 0: No alarm
				Value 1: alarm
				Bit 3: Port link up
				Value 0: No alarm
				Value 1: Alarm
				Bit 4: Port link down
				Value 0: No alarm
				Value 1: Alarm
				Bit 5: Turbo ring break(Ring Master only)
				Value 0: No alarm
				Value 1: Alarm
				Bit 6: Power Input 1 fail
				Value 0: No alarm
				Value 1: Alarm
				Bit 7: Power Input 2 fail
				Value 0: No alarm
				Value 1: Alarm
				Bit 8:DI 1(off)
				Value 0: No alarm
				Value 1: Alarm
				Bit 9: DI 1(on)
				Value 0: No alarm
				Value 1: Alarm
				Bit 10: DI 2(off)
				Value 0: No alarm
				Value 1: Alarm
				Bit 11: DI 2(on)
				Value 0: No alarm
				Value 1: Alarm
				Bit 12: Reserved
				Value 0: Not support
				Value 1: Detected

				Bit 13: Power supply 1
				Value 0: Off
				Value 1:On
				Bit 14: Power supply 2 Value 0: Off
				Value 1:On
				Bit 15~31: Reserved.
3	Get	Switch Port	USINT (8)	Switch max port number
		Number		
4	Get	Port Exist	ULINT (64)	switch per port exist
				Bit mask, the LSB indicates the first port. Value 0: Not exist
				Value 1: Exist
5	Get/Set	Port Enable	ULINT (64)	Switch per port enable
				Bit mask, the LSB indicates the first port.
				Value 0: Enable
6	Cat	Daut Link Chatur		Value 1: Disable
6	Get	Port Link Status	ULINT (64)	Switch per port link status Bit mask, the LSB indicates the first port.
				Value 0: Link down
				Value 1: Link up
7	Get/Set	IGMP Snooping	USINT (8)	IGMP snooping enable:
		Enable		Value 0: Disable
0				Value 1: Enable
8 9	Get/Set	Query Interval IGMP Enhanced	UDINT (32)	Query interval range from 20 to 600 secs IGMP enhanced mode
9	Get/Set	IGMP Enhanced Mode	USINT (8)	IGMP enhanced mode 0: Disable(default)
		Mode		1: Enable
14	Get/Set	Relay 1	USINT (8)	Override relay warning setting
		,		0: Disable(default)
				1: Enable
15	Get/Set	Relay 2	USINT (8)	Override relay warning setting
				0: Disable (default)
16	Get/Set	Power 1 Relay	USINT (8)	1: Enable Power input 1 failure (on->off)
10	Get/Set	Warning	03111 (0)	0: Disable (default)
		training .		1: Enable (relay 1)
				2: Enable (relay 2)
17	Get/Set	Power 2 Relay	USINT (8)	Power input 2 failure (on->off)
		Warning		0: Disable (default)
				1: Enable (relay 1) 2: Enable (relay 2)
18	Get/Set	DI 1 (0ff)	USINT (8)	DI 1 (Off)
10	000,000	Relay Warning	001111 (0)	0: Disable (default)
		, 5		1: Enable (relay 1)
				2: Enable (relay 2)
19	Get/Set	DI 1 (on)	USINT (8)	DI 1 (0n)
		Relay Warning		0: Disable (default) 1: Enable (relay 1)
				2: Enable (relay 1)
20	Get/Set	DI 2 (0ff)	USINT (8)	DI 2 (Off)
-	,	Relay Warning		0: Disable (default)
		_		1: Enable (relay 1)
21				2: Enable (relay 2)
21	Get/Set	DI 2 (on)	USINT (8)	DI 2 (0n) 0: Disable (default)
		Relay Warning		1: Enable (default)
				2: Enable (relay 2)
22	Get/Set	Turbo Ring Break	USINT (8)	Turbo ring break (Ring Master only)
		Relay Warning		0: Disable (default)
				1: Enable (relay 1)
22	Cat	CDULUTET		2: Enable (relay 2)
23	Get	CPU Usage	USINT (8)	Percent of usage (0 to100)
24 25	Get Get/Set	Device Up Time Reset MIB Counts	UDINT (32) USINT (8)	Number of seconds since the device was powered up Reset port MIB counters.
25	Get	Redundant Device	UDINT (32)	Bit mask of device roles.
		Mode	52(52)	Bits 0= RSTP
				Bits 1= Turbo Ring
				Bits 2= Turbo Ring v2
				Bits 3= Turbo Chain
77	Co+/Co+	Recet Device		Bits 4= MSTP
27	Get/Set	Reset Device	USINT (8)	Reboot and reset to default 1: Reboot the device
	1	1	1	

2: Reset to default

Common Service List

Service	Implementation		Service Name	Description
Code	Class	Instance		
0x0E	✓	\checkmark	Get_Attribute_Single	Used to read an object instance attribute
0x10		✓	Set_Attribute_Single	Used to modify an object instance attribute

Electronic Data Sheet (EDS) File

The EDS (Electronic Data Sheet) file contains electronic descriptions of all relevant communication parameters and objects of an EtherNet/IP device. It is required for RSLogix 5000 to recognize Moxa switch and its CIP capability.

The list includes the sections which are described in our EDS file.

- [File]
- [Device]
- [Device Classification]
- [Port]

Icon should be 32 * 32 in pixel.

Rockwell RSLogix 5000 Add-On Instructions (AOI)

The Rockwell RSLogix 5000 Add-On Instructions (AOI) encapsulates Moxa switch supported EtherNet/IP functions in a common interface logic component. In RSLogix 5000 programming, users could use the AOI to communicate with Moxa switches and need not know the internal logic.

Our AOI would provide logic of Moxa switch configuration and monitoring by using EtherNet/IP in explicit messaging and implicit messaging. The AOI also provides some tags for RSLogix 5000/SCADA programming.

AOI Installation

To install the AOI, you must use Rockwell RSLogix 5000 version 18 or later and Moxa managed Ethernet switches with firmware version 3.0 or later.

The Five Major Stages of Installing the AOI

- 1. Add Moxa switch to the I/O configuration tree
- 2. Import the Add-On Instruction (AOI)
- 3. Add an instance of the AOI in your application
- 4. Create and configure tags for the AOI
- 5. Download the configured AOI to Rockwell PLC

Add Moxa switch to the I/O configuration tree

In order to import the AOI, the first step is to create a new Ethernet Module in RSLogix 5000.

Open RSLogix 5000 and create a new controller.
 Click **Type** and select the Rockwell PLC model of the PLC connected to the Moxa switch. Input a **Name**

and **Description** for this new controller.

Vendor:	Allen-Bradley		
Туре:	1769-L32E CompactLogix5332E Controller	~	ОК
Revision:	18 💌		Cancel
	Redundancy Enabled		Help
Name:	EDS_408A_A0I		
Description:		^	
		~	
Chassis Type:		~	
Slot	0 😂 Safety Partner Slot: <none></none>		
Create In:	C:\RSLogix 5000\Projects		Browse

2. Add an Ethernet Module to the I/O Configuration.

In the controller organizer window, select **I/O Configuration**, right click **Ethernet** under the PLC Ethernet port of the PLC connected to a Moxa switch, and select **New Module**.

Controller Organizer	→ ‡ X		
Controller EDS_408 Controller Tags Controller	3A_AOI : : Handler : : : : : : : : : : : : :	Select Module Module Communications Digital Drives HMI Specialky	Vendor
음 등 Troy-Care 	New Module	Find	Add Favorite
	Paste Ctrl+V Print •	By Category By Vendor Favorites	Help

3. Under the **Communications** group, select **Generic Ethernet Module** to represent Moxa Ethernet switches

Module		Description	Vendor
1783-E	TAP1F	3 Port Ethernet Tap, 1 Fiber/2 Twisted-Pair Media	Allen-Bradley
1783-E	TAP2F	3 Port Ethernet Tap, 2 Fiber/1 Twisted-Pair Media	Allen-Bradley
1788-E	N2DN/A	1788 Ethernet to DeviceNet Linking Device	Allen-Bradley
1788-E	NBT/A	1788 10/100 Mbps Ethernet Bridge, Twisted-Pair Media	Allen-Bradley
1788-E	WEB/A	1788 10/100 Mbps Ethernet Bridge w/Enhanced Web Serv.	. Allen-Bradley
1794-A	AENT .	1794 10/100 Mbps Ethernet Adapter, Twisted-Pair Media	Allen-Bradley
Drivelo	gix5730 Et	10/100 Mbps Ethernet Port on DriveLogix5730	Allen-Bradley
ETHER	NET-BRIDGE	Generic EtherNet/IP CIP Bridge	Allen-Bradley
ETHER	NET-MODU	Generic Ethernet Module	Allen-Bradley
EtherN	let/IP	SoftLogix5800 EtherNet/IP	Allen-Bradley
PSSCEI	NA	Ethernet Adapter, Twisted-Pair Media	Parker Hannif
- Stratix	8000	26 Port Managed Switch	Allen-Bradley
Stratix	8000	22 Port Managed Switch	Allen-Bradley
			>
		Find	Add Favorite
By Category	By Ve	endor Eavorites	

4. Configure the Ethernet module with the correct name, description, IP address and connection parameters and click OK.

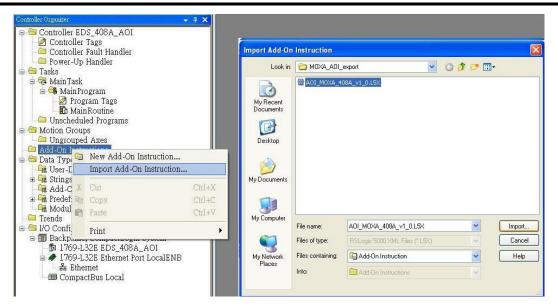
	ETHERNET-MODULE Generic Ethern Allen-Bradley LocalENB	et Module				Σ
Name:	EDS_408A	Connection Para	ameters Assembly			
Description:	The MOXA managed switch		Instance:	Size:		
		Input:	2	5	*	(32-bit)
	<u></u>	Output:	1	2	*	(32-bit)
Comm Format:	Data - DINT 🛛 💽	Configuration:	3	0	*	(8-bit)
Address / H	ost Name	coninguration.		100	¥	(o-Dit)
IP Addre:	ss: 192 . 168 . 34 . 253	Status Input:		_	2	
O Host Nar	ne:	Status Output:				
🗹 Open Modu	le Properties	ОК	Can	cel		Help

5. After finishing configuration, the new Ethernet module representing the Moxa Ethernet switch will appear under the **I/O Configuration** list in the controller organizer window.

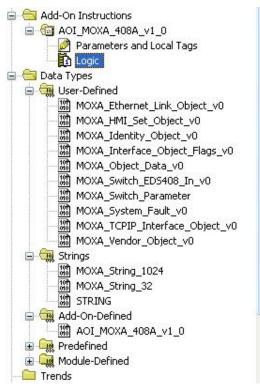
😑 😁 I/O Configuration
🖮 🎹 Backplane, CompactLogix System
- 🔁 1769-L32E EDS_408A_AOI
😑 🛷 1769-L32E Ethernet Port LocalENB
Ethernet
🛷 1769-L32E Ethernet Port LocalENB
ETHERNET-MODULE EDS_408A
CompactBus Local

Import the Add-On Instruction (AOI)

- In the controller organizer window, right click the Add-On Instructions folder, select Import Add-On Instructions and select the correct AOI file (xxx.L5X) to import.
- **NOTE** The AOI file is available from the Moxa website or in the software CD. Please make sure to use the latest switch firmware and AOI for programming.

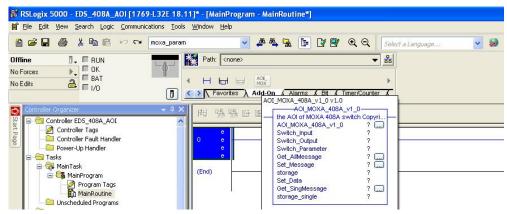


2. After importing, the controller organizer window shows all AOI for Moxa Ethernet switches under the **Add-On Instructions** folder.



Add an instance of the AOI in your application

1. Double click the **MainRoutine** in the Controller Organizer to start the ladder programming. Add the AOI for the specific Moxa Ethernet switch to create a new rung.

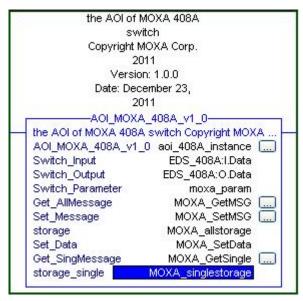


Create and configure tags for the AOI

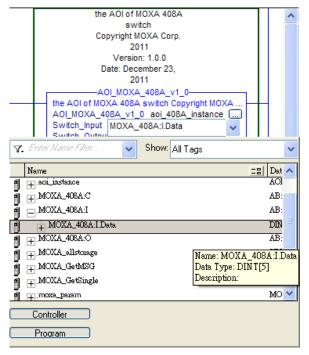
1. Right click on the ? in the field of each tag, select New Tag and input a Name for each new tag.

e e		1. 44		XA_408A_v1_0 XA 408A switch Copy
e e		New	Тад	?
ew Tag		E		Ctrl+X ?
Name:	aoi_408A_instance	ОК	nstruction	Ctrl+C ? Ctrl+V ?
Description:	<u> </u>	Cancel	Instruction	Del ?
		Help	dder Element	Alt+Ins ?
			in Operand Description	Ctrl+D
	Base Connection		struction Defaults	
Гуре:	Base		nstruction Defaults	
Alias For:	×		e Force	
Data Type:	A0I_M0XA_408A_v1_0			Ctrl+G
Scope:	🔁 EDS_408A_AOI 🛛 👻		tion <u>H</u> elp	F1
External	Read/Write		e Parameter	
Access:			e All Unknown Parameter	S
Style:	×		nstruction Logic	
Constant			nstruction Definition	
Open Con	figuration		ies	Alt+Enter

2. Add a **Name** for all AOI tags.



For "Switch_Input" and "Switch_Output", use the scrollbar to select the tag name



For all other tags, manually type the tag names:				
AOI Tag	Reference Tag Name			
AOI_MOXA_408A_v1_0	aoi_408A_instance			
Switch_Input	MOXA_408A:I.Data			
Switch_Output	MOXA_408A:O.Data			
Switch_Parameter	moxa_param			
Get_AllMessage	MOXA_GetMSG			
Set_Message	MOXA_SetMSG			
storage	MOXA_allstorage			
Set_Data	MOXA_SetData			
Get_SingMessage	MOXA_GetSingle			
storage_single	MOXA_singlestorage			

 Click the square button to the right of the **Get_AllMessage** tag and configure all parameters as follows: (Service Code: 1; Class: 1; Instance: 1; Attribute: 1; Destination: MOXA_allstorage[0])

Message C	onfiguration - MOXA_GetMSG		
Configuration Message Service Type: Service Code: Instance:	Type: CIP Generic Custom I (Hex) Class: 1 (Hex)	Source Element: Source Length: Destination	0 (Bytes) MOXA_allstorage[0] V New Tag
 Enable Error Co Error Path: Error Text: 	⊖ Enable Waiting ⊖ Start ode: Extended Error Code: □K	Done D	one Length: 0] Timed Out ← Apply Help

Click the **Communication** tab and set up the communication path to the Moxa Ethernet switch for **Get_AllMessage**

× Configuration Communication* Tag Browse... <u>Path:</u> Broadcas Message Path Browser Communicatio Path: MOXA_408A ● CIP M0XA_408A CIP Wath Source ID I/O Configuration Backplane, CompactLogix System Backplane, CompactLogix System If 17694.32E MOVA_switch_AOI If 7694.32E Ethernet Port LocalENB SEthernet If Ethernet If 7594.32E Thernet Port LocalENB If THERNET+MODULE MOVA_408A CompactBus Local Connecte ⊖ Enable ⊖ 🔾 Error Cc Error Path: Error Text: OK Cancel Help

4. Click the square button to the right of the **Set_Message** tag and configure all parameters as follows: (Service Code: 10; Class: f6; Instance: 1; Attribute: 1; Source Ethernet: MOXA_SetData)

Configuration	[*] Commu	nication T	ag		
Message T	уре:	CIP Gene	ric	~	
Type:		e Single ex) Class: Attribute	F6 (Hex) 1 (Hex)	Source Element: Source Length: Destination	MOXA_SetData (Bytes)
inableable irror Codeode irror Path: irror Text:	Enable W		Startitart ed Error Code:	Doneone [Done Length: 0]] Timed Out ←

Click the **Communication** tab and set up the communication path to the Moxa Ethernet switch for **Set_Message**

Configuration	Communication Tag	
💿 Path: 🗌	Brow	wse
() Broa	Message Path Browser	
	ath: EDS408A	
CIP	EDS408A	
O CIP \ Sour	E Configuration E Mackplane, CompactLogix System	(Octal)
Con	1769-L32E ED_408A_A0I	
	AF 1769-L32E Ethernet Port LocalENB	
) Enable	ETHERNET-MODULE EDS408A CompactBus Local	
C Error Cc		
rror Path:		

5. Click the square button to the right of the **Get_SingMessage** tag and configure all parameters as follows:

(Service Code: e; Class: f6; Instance: 1; Attribute: 1; Destination: MOXA_Singlestorage[0])

Message C Configurati		~	(A_GetSing	le		X
Message Service Type: Service Code: Instance:	Get Attribu	CIP Gene ute Single Hex) Class: Attribut	H) ai	Source Elen Source Len; ex) Destination ex)	gth: 0 OXA_9	(Bytes) Singlestorage[0] v Tag
 Enable Error Cc Error Path: Error Text: 		ole Waiting Extenc	◯ Start ded Error Code	Done	Done Len	- Out ←

Click the **Communication** tab and set up the communication path to the Moxa Ethernet switch for **Get_SingMessage**

Configuration	Message Path Browser	
⊙ Path:	Path: EDS408A EDS408A	
Broadi Communic Communic CIP CIP CIP CIP CONNE	EDS406A Configuration Backplane, CompactLogix System D 1769-L32E ED_4084_A01 T769-L32E Ethernet Port LocalENB T769-L32E Ethernet Port LocalENB D 3 CompactBus Local CompactBus Local	[Octal]
) Enable) Error Co Error Path: Error Text:	OK Cancel Help	

Download the configured AOI to the Rockwell PLC

1. Click the **Network** Icon, select the Rockwell PLC connected to the Moxa switch and click **Download** to install the AOI configuration to the PLC.

Controller D_408A_AO	Path ETHERNET\192.168.34.29\Backpl	Go Online
.D_4004_A0	ETHENNET (192, 160, 34, 29 (Backpi	Upload
		Download
		Close
		Help

2. After finishing configuration, go to the controller organizer window, right click **Controller Tags** and select **Monitor Tags** to check if each tag can display the correct value transferred from the Ethernet device.

🛛 Controller EDS_408A_AC	DI		EDS_408A_AOI		All Tags	2.2.5.5.		
- 🦉 Controller Tags	945	Name Name				/alue	12 12	Force
Controller Faul 🧖	New Tag Ctrl+		RA_instance				{}	
- Contraction Power-Up Hand	Monitor Tags	+ EDS_4					{}	_
🖶 🔂 MainTask		+ EDS_4					{}	
🖻 🚭 MainProgra	Edit Tags	+ EDS_4					{}	
- 🧖 Progra	Verify						{}	-
MainRd Unscheduled P	Export Tags	+ MOXA_ + MOXA					{}	
Motion Groups	Print	+ mox4_					{} {}	-
Ungrouped Axes		+ MOXA					{}	
🛛 🔄 Add-On Instructions		+ MOXA					()	
😑 🛅 AOI_MOXA_408A_v			singlestorage				{}	
Parameters and Cogic	Local lags		onigiootorago				(,	-
ET codic								
Scope: 🎁 EDS408A_Demc 🗸	Show: All Tags			V Enhar	Name Filter			
					1			
Name			Force Mask *	Style	Data Type	10		
moxa_param.Switch_Idne		{}	{}	D 1	MOXA_Ide	na		
to moxa_param.Switch_l	//////////////////////////////////////		i.	Decimal	INT	-0		
+ moxa_param.Switch_l		775	1	Decimal	INT			
+ moxa_param.Switch_l		7	1	Decimal	INT	-		
+ moxa_param.Switch_l		0	l.	Decimal	SINT	_		
tomoxa_param.Switch_l		0		Decimal	SINT	_		
+ moxa_param.Switch_l		16#0000_259d	572 233	Hex	DINT	_		
+ moxa_param.Switch_l		'EDS-408A'	{}		STRING	_		
+ moxa_param.Switch_h	dnetity.Assigned_Na		{}		MOXA_Str	ng		
+ moxa_param.Switch_l	dnetity.Geographic		{}		MOXA_Str	ng		
moxa_param.Switch_TCF	PIP	{}	{}		MOXA_TC	PI.		
moxa_param.Switch_Ver	ndor	{}	{}		MOXA_Ve	nd		
🛨 moxa_param.Switch_V	/endor.System_Firm	524291		Decimal	DINT			
🛨 moxa_param.Switch_V	/endor.System_Fault	8192		Decimal	DINT			
🗄 moxa_param.Switch_V	/endor.Switch_Port	0		Decimal	SINT			
🛨 moxa_param.Switch_V	/endor.Port_Exist	{}	{}	Decimal	DINT[2]			
+ moxa_param.Switch_V	/endor.Port_Enbale	{}	{}	Decimal	DINT[2]			
moxa_param.Switch_Vendor.Port_Link_St		{}	{}	Decimal	DINT[2]	3		
+ moxa_param.Switch_V	moxa_param.Switch_Vendor.IGMP_Snoop			Decimal	SINT			
	/endor.IGMP_Snoop	0				1		
	_	125		Decimal	DINT			
moxa_param.Switch_V moxa_param.Switch_V	/endor.Query_Interval		0	Decimal Decimal	DINT			
+ moxa_param.Switch_V	/endor.Query_Interval /endor.IGMP_Enhan	125	1	100 C 100 C 100		_		

NOTE Only Moxa pre-configured tags will display the correct values. Refer to the **CIP Tags** section below for detailed information.

Sample AOI Project

For easier AOI installation, Moxa has also provided a sample AOI project, in which all the parameters are configured with default values. The sample project is a (.ACD) file, which is available for download from the Moxa website or software CD. You may import the sample project in RSLogix 5000, and directly download this AOI to the PLC with minimal installation steps. But to use the sample project, you still must change or set up the parameters below.

- 1. Change the controller type used in the real environment.
- 2. Change the controller and Moxa switch's IP address.
- 3. Setup the Project path.

NOTE The sample AOI project only supports RSLogix 5000 version 18.

CIP Tags

There are tags for each CIP object. The tags correspond to the object's attributes.

Tags for Identity Object

Data Type: MOXA_Identity_Object_v0

Name	Data Type	Description
Vendor ID	INT	991, MOXA Vendor ID
Device Type	INT	0x307, "Managed Ethernet Switch"
Product Code	INT	EDS-405A=0x0006, EDS-408A=0x0007, EDS-505A=0x0008, EDS-508A=0x0009, EDS-510A=0x000A, EDS-516A=0x000B, EDS-G509=0x0012
Major Revision	SINT	The structure member, major
Minor Revision	SINT	The structure member, minor
Serial Number	DINT	Switch serial number
Product Name	STRING	Switch model name
Assigned Name	STRING	User assigned switch name
Geographic Location	STRING	User assigned switch location

Tags for TCPIP Object

Data Type: MOXA_TCPIP_Interface_Object_v0

Name	Data Type	Description
Status	DINT	Interface status
Configuration	DINT	Interface capability flags
Capability		
Configuration Control	DINT	Interface control flags
Path Size	INT	Size of Path
Object Path 1	INT	Logical segments identifying the physical link object
Object Path 2	INT	Logical segments identifying the physical link object
IP Address	DINT	The device's IP address
Network Mask	DINT	The device's network mask
Gateway Address	DINT	Default gateway address
Name Server 1	DINT	Primary name server
Name Server 2	DINT	Secondary name server
Domain Name	STRING	Default domain name
Host Name	STRING	Host name

Tags for Ethernet Link Object

Name	Data Type	Description
Interface Speed	DINT	Interface speed currently in use. Speed in Mbps (e.g., 0, 10, 100, 1000, etc.)
Interface Flags	MOXA_Interface_ Object_Flags_v0	Interface status flags
Physical Address	SINT[6]	MAC layer address
InOctets	DINT	Octets received on the interface
InUcastPackets	DINT	Unicast packets received on the interface
InNucastPackets	DINT	Non-unicast packets received on the interface
InDiscards	DINT	Inbound packets received on the interface but discarded
InErrors	DINT	Inbound packets that contain errors (does not include In Discards)
OutOctets	DINT	Octets sent on the interface
OutUcastPackets	DINT	Unicast packets sent on the interface
OutNucastPackets	DINT	Non-unicast packets sent on the interface
OutDiscards	DINT	Outbound packets discarded
OutErrors	DINT	Outbound packets that contain errors
Alignment Errors	DINT	Frames received that are not an integral number of octets in length
FCS Errors	DINT	Frames received that do not pass the FCS check
Single Collisions	DINT	Successfully transmitted frames which experienced exactly one collision
Multiple Collisions	DINT	Successfully transmitted frames which experienced more than one collision
SQE Test Errors	DINT	Number of times SQE test error message is generated

Deferred	DINT	Frames for which first transmission attempt is delayed because
Transmissions		the medium is busy
Late Collisions	DINT	Number of times a collision is detected later than 512 bit-times into the transmission of a packet
Excessive Collisions	DINT	Frames for which transmission fails due to excessive collisions
MAC Transmit Errors	DINT	Frames for which transmission fails due to an internal MAC sublayer transmit error
Carrier Sense Errors	DINT	Times that the carrier sense condition was lost or never asserted when attempting to transmit a frame
Frame Too Long	DINT	Frames received that exceed the maximum permitted frame size
MAC Receive Errors	DINT	Frames for which reception on an interface fails due to an internal MAC sublayer receive error
Control Bits	INT	0 Auto-negotiate 0 indicates 802.3 link auto-negotiation is disabled. 1 indicates auto-negotiation is enabled
Forced Interface Speed	INT	Speed at which the interface shall be forced to operate. Speed in Mbps (10, 100, 1000, etc.)
Interface Label	STRING	Label like "TX5"
Interface Port Index	DINT	Port index
Interface Port Description	STRING	Port description
Broadcast Storm Protection	SINT	Only on MOXA IKS, PT, EDS-516A/518A, and EDS-728/828 series
Interface Utilization	SINT	Percentage of entire interface bandwidth being used (0-100)
Utilization Alarm Upper Threshold		Upper percentage at which to declare an utilization alarm (0- 100)
Utilization Alarm Lower Threshold	SINT	Lower percentage at which to declare an utilization alarm (0- 100)
Port Link Alarm	SINT	0: Ignore, 1: On (Relay 1), 2: On (Relay 2), 3: Off (Relay1), 4: Off (Relay2)
Port TrafficOverload Alarm	SINT	0: Disable, 1: Enable(Relay 1), 2: Enable(Relay 2)
Tx Unicast Packet Rate	DINT	Number of TX unicast packets per second
Rx Unicast Packet Rate		Number of RX unicast packets per second
Tx Multicast Packet Rate	DINT	Number of TX multicast packets per second
Rx Multicast Packet Rate	DINT	Number of RX multicast packets per second
Tx Broadcast Packet Rate	DINT	Number of TX broadcast packets per second
Rx Broadcast Packet Rate	DINT	Number of RX broadcast packets per second
Tx Multicast Packet	DINT	Total number of TX multicast packets
Rx Multicast Packet	DINT	Total number of RX multicast packets
Tx Broadcast Packet	DINT	Total number of TX multicast packets
Rx Broadcast Packet	DINT	Total number of RX broadcast packets
Redundant Port Status	DINT	Bit 0 = Disable, Bit 1 = Not Redundant port, Bit 2 = Link down, Bit 3 = Blocking, Bit 4 = Learning,
		Bit 5 = Forwarding

Tags for Moxa Networking Object

Data Type: MOXA_Vendor_Object_v0

Name	Data Type	Description
System Firmware	DINT	Switch firmware version
Version		
System Fault Status	DINT	Switch fault status
Switch Port Number	SINT	Switch max port number
Port Exist	DINT[2]	Switch per port exist
Port Enable	DINT[2]	Switch per port exist
		0:Enable
		1:Disable
Port Link Status	DINT[2]	Switch per port link status
IGMP Snooping	SINT	IGMP snooping enable:

		0: Disable
		1: Enable
Query Interval	DINT	Query Interval range from 20~600 sec
IGMP Enhanced Mode	SINT	IGMP enhanced mode
	01111	0: Disable (default)
		1: Enable
Relay 1	SINT	Override relay warning setting
,		0: Disable (default)
		1: Enable
Relay 2	SINT	Override relay warning setting
,		0: Disable (default)
		1: Enable
Power 1 Relay Warning	SINT	Power input 1 failure (on \rightarrow off)
, _		0: Disable (default)
		1: Enable(relay 1)
		2: Enable(relay 2)
Power 2 Relay Warning	SINT	Power input 2 failure (on \rightarrow off)
		0: Disable (default)
		1: Enable(relay 1)
		2: Enable(relay 2)
DI 1 Off Relay Warning	SINT	DI 1 (off)
		0: disable (default)
		1: Enable(relay 1)
		2: Enable(relay 2)
DI 1 On Relay Warning	SINT	DI 1 (on)
		0: Disable (default)
		1: Enable(relay 1)
		2: Enable(relay 2)
DI 2 Off Relay Warning	SINT	DI 2 (off)
		0: Disable (default)
		1: Enable(relay 1)
		2: Enable(relay 2)
DI 2 On Relay Warning	SINT	DI 2 (on)
		0: Disable (default)
		1: Enable(relay 1)
Truch a Dia a Durada Dalara	CINT	2: Enable(relay 2)
Turbo Ring Break Relay	SINT	Turbo Ring Break (Ring Master Only) 0: Disable (default)
Warning		
		1: Enable (relay 1) 2: Enable (relay 2)
	SINT	
CPU Usage Device Up Time	DINT	Percent of usage (0-100) Number of seconds since device was powered up
Reset Mib Counter	SINT	Reset port MIB counters
Redundant Device Mode	DINT	Bit 0: RSTP,
		Bit 1: Turbo Ring,
		Bit 2: Turbo Rong v2,
		Bit 3: Turbo Chain,
		Bit 4: MSTP
Reset Device	SINT	1: restart the device
		2: reset to default

Pre-configured Tags in the Moxa AOI

The Moxa AOI supports all the CIP tags listed in the tables above. But in the AOI, we only pre-configure logic links between selected tags and Moxa switches. To monitor the non-configured tags, PLC programmers need to create the links manually. Otherwise, in RSLogix 5000, the value column of these tags will display as "0". If you experience problems creating new links, please contact Moxa technical support for assistance.

NOTE For pre-configured tags, Moxa has already created the logic links between the CIP tags and Moxa Ethernet switches so RSLogix 5000 can get/set the switch information correctly.

The table below specifies all the pre-configured tags in Moxa AOI with a % mark.

Pre-Configured Tags	Name
Identity Object (0x01	.)
*	Vendeor ID
*	Device Type

*	Product Code
*	Revision
	Status
*	Serial Number
*	Product Name
	Assigned Name
	Geographic Location
TCP/IP Interface C	Dbject (0xf5)
	Status
	Configuration Capability
	Configuration Control
	Physical Link Object
	Interface Configuration
*	IP Address Network Mask
*	
	Gateway Address Name Server
	Name Server 2
	Domain Name
*	Host Name
Ethernet Link Obje	ect (0xf6)- by port
~	Interface Creed
*	Interface Speed
*	Interface Flags Link Status
	Half/Full Duplex
	Negotiation Status
	Manual Setting Requires Reset
	Local Hardware Fault
*	Physical Address
	Interface Counters
	In Octets
	In Ucast Packets
	In Nucast Packets
	In Discards
*	In Errors
	Out Octets Out Ucast Packets
	Out Nucast Packets
	Out Discards
*	Out Errors
	Media Counters
	Interface Control
*	Control Bits
*	Forced interface Speed
	Interface Lable
	Interface Description
	Interface Port Description Broadcast Storm Protection
*	Interface Utizatiion
<u>~</u>	Utilization Alarm Upper Threshold
	Utilization Alarm Lower Threshold
	Port Link Alarm
	Port Traffic-Overload Alarm
*	Tx Unicast Packet Rate
*	Rx Unicast Packet Rate
*	Tx Multicast Packet Rate
*	Rx Multicast Packet Rate
*	Tx Broadcast Packet Rate
*	Rx Broadcast Packet Rate
	Tx Multicast Packet
	Rx Multicast Packet
	Tx Broadcast Packet
*	Rx Broadcast Packet Redundant port status
Port Object (0xf4)	
	Port Type Port Number

	Link Object
	Port Name
	Port Type Name
	Port Description
	Node Address
	Port Key
MOXA Networking	g Object (0x404)
*	Firmware Version
*	System Fault Status
	Switch Port Number
*	Port Exist
*	Port Enable
*	Port Link Status
	IGMP Snooping Enable
*	Query Interval
*	IGMP Enhanced Mode
	Relay1
	Relay2
	Power 1 relay waring
	Power 2 relay waring
	DI 1(off) relay warning
	DI 1(on) relay warning
	DI 2(off) relay warngin
	DI 2(on) relay warngin
	Turbo Ring Break relay warning
*	CPU usage
	Device Up Time
*	Reset MIB Counts
*	Redundant device mode
	reset device
I/O message Obj	ect
*	Switch Fault Status
*	Port Exist
*	Port Link Status
*	Port Enable

Monitoring AOI Tags

In RSLogix 5000, you can monitor the values of all configured tags by selecting "Monitor Tags" in the controller organizer window. It can also be used to check that the AOI is installed correctly

NOTE Only Moxa pre-configured tags will display the correct values. Refer to the **CIP Tags** section above for detailed information.

Controller ED5_408A_		Name == △	Value Force M
Controller Faul	New Tag Ctrl+W	🛨 aoi_408A_instance	()
📄 Power-Up Han		+ EDS_408A:C	{}
🛛 🔄 Tasks	Monitor Tags	+ EDS_408A:I	{}
🖻 🤯 MainTask	Edit Tags	+ EDS_408A:0	{}
🖻 🥞 MainProgra	Verify	+ MOXA_allstorage	()
Progra	Export Tags	MOXA_GetMSG	{}
Unscheduled P		+ M0XA_GetSingle	()
Motion Groups	Print 🔸	+ moxa_param	{}
Add-On Instructions		+ MOXA_SetData	()
	v1 0	+ MOXA_SetMSG	{}
Parameters an		+-MOXA_singlestorage	{}

Monitor Tags for Identity Object

m Run 🚺 📮 Run Mode 🛛 🛄 🖽			Path: AB_I	THIP-1\192.16	3.34.29\Back	.plane\0×
Forces		⊣⊢ +/⊢ -()(U Add-On 【 Alarms 】		* <u>X</u>		
Controller Organizer 🚽 🗸 🗸	Scope: 🛐 EDS408A_De	emo 🔽 🤒 Sh <u>o</u> w: All Ta	ags		V 7.	Enter Name Filter
Controller EDS408A_Demo_20120711	Name	A	Value 🔶	Force Mask 🗲	Style	Data Type
Controller Fault Handler	± EDS408A:I		{}	{}		AB:ETHERN
🗀 Power-Up Handler	+ EDS408A:0		{}	{}		AB:ETHERN
Tasks	± MOXA allstorage		{}	{}	Decimal	SINT[200]
🔁 MainTask 着 🤧 MainProgram	+ MOXA GetMSG		()	()		MESSAGE
- 🖉 Program Tags	- moxa_param		{}	{}		MOXA_Swite
🚹 MainRoutine	🛨 moxa param.Switcl	a laput	{}	{}		MOXA Switc
in Unscheduled Programs Motion Groups	+ moxa_param.Switcl		0	()	Decimal	DINT
i Motion Groups i Ungrouped Axes	moxa_param.Switcl		{}	{}	Decima	MOXA Identi
Add-On Instructions			991	()	D 1	
aoi_moxa_408a_v1_0		itch_Idnetity.Vendor			Decimal	INT
Data Types	t moxa_param.Sw	itch_Idnetity.Device	775		Decimal	INT
wer-Defined	t moxa_param.Sw	itch_Idnetity.Produc	7		Decimal	INT
Add-On-Defined	🕂 moxa_param.Sw	itch_Idnetity.Major	0		Decimal	SINT
Predefined	🛨 moxa_param.Sw	itch_Idnetity.Minor	0		Decimal	SINT
Module-Defined	🛨 moxa param.Sw	itch Idnetity.Serial	16#0000 259d		Hex	DINT
Trends		itch Idnetity.Produc	'EDS-408A'	{}		STRING
I/O Configuration		itch Idnetity.Assign	11	{}		MOXA String
Backplane, CompactLogix System		itch_Idnetity.Geogra		{}		MOXA_String

Click moxa_param Switch_Identity and expand the list to check the values for Identity tags.

Monitor Tags for TCPIP Object

Click moxa_param Switch_TCPIP and expand the list to check the values for TCPIP tags.

orces			
Controller Organizer - 4 × Controller EDS408A Demo 201	Scope: 🛐 EDS408A_Demc 🛩 Show: All Tags	v 7 .	Enter Name Filter
Controller Tags	Name _=	🛆 Value 🔸	Force Mask + Style
🧰 Controller Fault Handler	+ EDS408A:0	()	{}
🗀 Power-Up Handler	⊞ MOXA_allstorage ■	()	{} Decimal
Tasks 🔁 MainTask	+ MOXA_GetMSG	()	{}
🖃 🕞 MainProgram	- moxa_param	()	{}
📝 Program Tags	+ moxa param.Switch Input	()	{}
MainRoutine	+ moxa param.Switch Output	0	Decimal
Unscheduled Programs Motion Groups	+ moxa_param.Switch_Idnetity	{}	{}
Digrouped Axes	E-moxa param.Switch TCPIP	{}	{}
Add-On Instructions	+ moxa_param.Switch_TCPIP.Status		
AOI_MOXA_408A_v1_0	mona_parametric references		
Data Types Der-Defined	+ moxa_param.Switch_TCPIP.Configuration_Contri		
Strings	moxa_param.Switch_TCPIP.Path_Size		
🙀 Add-On-Defined	moxa_param.switch_TCPIP.Patr_size temperatur_size temperatur_size		b cominar
Redefined Module-Defined	moxa_param.switch_rcrir.object_ratr_1 moxa_param.switch_rcrir.object_ratr_1		
Trends		~	Diccillia
I/O Configuration	+ moxa_param.Switch_TCPIP.IP_Address	-1062723062	D Collinal
🎹 Backplane, CompactLogix S	+ moxa_param.Switch_TCPIP.Network_Mask	-256	
☐ 1769-L32E EDS408A_D ☐	+ moxa_param.Switch_TCPIP.Gateway_Address	C	b connu
E & Ethemet	moxa_param.Switch_TCPIP.Name_Server_1	16#0000_0000	
1769-L32E Ethe	moxa_param.Switch_TCPIP.Name_Server_2	16#0000_0000	Hex
ETHERNET-MC	+ moxa_param.Switch_TCPIP.Domain_Name	30	{}
📶 CompactBus Local		'Managed Redundant Switch 09629	{}

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Monitor Tags for Ethernet Link Object

Click **moxa_param Switch_Ethernet_Link** and expand the list to check the values for per port Ethernet Link tags.

lame	: _::::::::::::::::::::::::::::::::::::	Value			+	Force M	/lask 🗲	Style	
E	moxa_param.Switch_Ethernet_Link[1]			{	}		{}		
	+ moxa_param.Switch_Ethernet_Link[1].Interfac				100			Decima	l.
	moxa_param.Switch_Ethernet_Link[1].Interfac			(}		{}		
	moxa_param.Switch_Ethernet_Link[1].Interf				1			Decima	I I
	moxa_param.Switch_Ethernet_Link[1].Interf				1			Decima	l.
	moxa_param.Switch_Ethernet_Link[1].Interf				0			Decima	L.
	moxa_param.Switch_Ethernet_Link[1].Interf				1			Decima	L
	moxa_param.Switch_Ethernet_Link[1].Interf				0			Decima	C.
	moxa_param.Switch_Ethernet_Link[1].Interf				0			Decima	1
	moxa_param.Switch_Ethernet_Link[1].Interf				0			Decima	Ê
	moxa_param.Switch_Ethernet_Link[1].Physical			{	}		{}	Decima	R.
	The moxa_param.Switch_Ethernet_Link[1].Physi				0			Decima	1
	+ moxa_param.Switch_Ethernet_Link[1].Physi	-			-112			Decima	
	t moxa_param.Switch_Ethernet_Link[1].Physi				-24			Decima	17
	+ moxa_param.Switch_Ethernet_Link[1].Physi				21			Decima	83
	+ moxa param.Switch Ethernet Link[1].Physi				-87			Decima	
	+ moxa param.Switch Ethernet Link[1].Physi				-104			Decima	
	+ moxa_param.Switch_Ethernet_Link[1].InOctets				0			Decima	
	+ moxa_param.Switch_Ethernet_Link[1].InUcast				0			Decima	
	to moxa_param.Switch_Ethernet_Link[1].InNucas				0			Decima))
	moxa_param.Switch_Ethernet_Link[1].InDiscards				0			Decima	
	+ moxa_param.Switch_Ethernet_Link[1].InErrors				0			Decima	
10	moxa param.Switch Ethernet Link[1].OutOctets		18		0			Decima	8
	Monitor Tags / Edit Tags /		<		0			Decima	
	Monitor Tags / Edit Tags /	-8 4	K Value	Ш	0		Force	Decima Mask ←)
e	Monitor Tags / Edit Tags /	드립스		iiii	0	+ 0	Force		Style
ie [+	Monitor Tags (Edit Tags /	<u>=8</u> 4			0		Force		Style Deci
ie [+	Monitor Tags / Edit Tags /				0	0	Force		Style Deci Deci
	Monitor Tags (Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutOctets	:kets			0	0	Force		Style Deci Deci Deci
	Monitor Tags (Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutUctets moxa_param.Switch_Ethernet_Link[1].OutUcastPac	:kets			0	0 0 0	Force		Style Deci Deci Deci Deci
	Monitor Tags (Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutOctets moxa_param.Switch_Ethernet_Link[1].OutNucastPac moxa_param.Switch_Ethernet_Link[1].OutNucastPac	:kets			0	0 0 0	Force		Style Deci Deci Deci Deci Deci
ie [+ [+ [+ [+ [+	Monitor Tags (Edit Tags / ⁺ moxa_param.Switch_Ethernet_Link[1].InErrors ⁺ moxa_param.Switch_Ethernet_Link[1].OutOctets ⁺ moxa_param.Switch_Ethernet_Link[1].OutUcastPac ⁺ moxa_param.Switch_Ethernet_Link[1].OutUcastPac	:kets ackets				0 0 0 0	Force		Style Decii Decii Decii Decii Decii
	Monitor Tags (Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutDctets moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors	:kets ackets				0 0 0 0 0	Force		Style Deci Deci Deci Deci Deci Deci
	Monitor Tags (Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutUcatstPac moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].Alignment_Er	skets ackets rors				0 0 0 0 0 0	Force		Style Deci Deci Deci Deci Deci Deci Deci
	Monitor Tags / Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutOctets moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutNucastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].PCS_Errors	kets ackets rors				0 0 0 0 0 0 0	Force		Style Deci Deci Deci Deci Deci Deci Deci
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	Monitor Tags (Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutOctets moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].Alignment_Err moxa_param.Switch_Ethernet_Link[1].FCS_Errors moxa_param.Switch_Ethernet_Link[1].Single_Collisi moxa_param.Switch_Ethernet_Link[1].Single_Collisi moxa_param.Switch_Ethernet_Link[1].Suge_Test_E moxa_param.Switch_Ethernet_Link[1].Deferred_Tra moxa_param.Switch_Ethernet_Link[1].Deferred_Tra moxa_param.Switch_Ethernet_Link[1].Late_Collision	skets ackets rors ons sions rrors insmi	Value				Force		3 Style Deci Deci Deci Deci Deci Deci Deci Dec
	Monitor Tags (Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutOctets moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].Alignment_Err moxa_param.Switch_Ethernet_Link[1].FCS_Errors moxa_param.Switch_Ethernet_Link[1].Single_Collisi moxa_param.Switch_Ethernet_Link[1].Suge_Test_E moxa_param.Switch_Ethernet_Link[1].Deferred_Tra moxa_param.Switch_Ethernet_Link[1].Deferred_Tra moxa_param.Switch_Ethernet_Link[1].Late_Collisior moxa_param.Switch_Ethernet_Link[1].Late_Collisior	kets ackets rors sions rrors insmi rs ollisio	Value				Force		Style Deci Deci Deci Deci Deci Deci Deci Dec
	Monitor Tags (Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutOctets moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].Alignment_Err moxa_param.Switch_Ethernet_Link[1].FCS_Errors moxa_param.Switch_Ethernet_Link[1].Single_Collisi moxa_param.Switch_Ethernet_Link[1].Suge_Test_E moxa_param.Switch_Ethernet_Link[1].Deferred_Tra moxa_param.Switch_Ethernet_Link[1].Deferred_Tra moxa_param.Switch_Ethernet_Link[1].Late_Collisior moxa_param.Switch_Ethernet_Link[1].Excessive_Cr moxa_param.Switch_Ethernet_Link[1].MAC_Transm	skets ackets rors sions rrors insmi rs ollisio	Value				Force		Style Deci Deci Deci Deci Deci Deci Deci Dec
	Monitor Tags (Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutDotets moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutUcastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].FCS_Errors moxa_param.Switch_Ethernet_Link[1].Single_Collisi moxa_param.Switch_Ethernet_Link[1].SugE_Test_E moxa_param.Switch_Ethernet_Link[1].Deferred_Trag moxa_param.Switch_Ethernet_Link[1].Deferred_Trag moxa_param.Switch_Ethernet_Link[1].Excessive_C moxa_param.Switch_Ethernet_Link[1].Excessive_C moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].Carrier_Sense	skets ackets rors sions rrors insmi ns ollisio it_Er	Value			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Force		Style Decir Decir Decir Decir Decir Decir Decir Decir Decir Decir Decir Decir Decir Decir Decir
	Monitor Tags / Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutDotets moxa_param.Switch_Ethernet_Link[1].OutDucastPac moxa_param.Switch_Ethernet_Link[1].OutNucastPac moxa_param.Switch_Ethernet_Link[1].OutNucastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].FCS_Errors moxa_param.Switch_Ethernet_Link[1].Single_Collisi moxa_param.Switch_Ethernet_Link[1].Sugle_Collisi moxa_param.Switch_Ethernet_Link[1].Sugle_Test_E moxa_param.Switch_Ethernet_Link[1].Deferred_Trat moxa_param.Switch_Ethernet_Link[1].Late_Collision moxa_param.Switch_Ethernet_Link[1].Late_Collision moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].Frame_Too_I	skets rors ons sions rrors unsmi ns ollisio e_Er Long	Value			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Force		Style Deci Deci Deci Deci Deci Deci Deci Dec
	Monitor Tags / Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutDotets moxa_param.Switch_Ethernet_Link[1].OutDotets moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].FCS_Errors moxa_param.Switch_Ethernet_Link[1].SugE_Collisi moxa_param.Switch_Ethernet_Link[1].SugE_Collisi moxa_param.Switch_Ethernet_Link[1].SugE_Test_E moxa_param.Switch_Ethernet_Link[1].Excessive_Collision moxa_param.Switch_Ethernet_Link[1].Excessive_Collision moxa_param.Switch_Ethernet_Link[1].Excessive_Collision moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].MAC_Transm	skets rors ons sions rrors unsmi ns ollisio e_Er Long	Value			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Force		Style Deci Deci Deci Deci Deci Deci Deci Dec
	Monitor Tags / Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutDotets moxa_param.Switch_Ethernet_Link[1].OutDucastPac moxa_param.Switch_Ethernet_Link[1].OutDucastPac moxa_param.Switch_Ethernet_Link[1].OutDucastPac moxa_param.Switch_Ethernet_Link[1].OutDucastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].Single_Collisi moxa_param.Switch_Ethernet_Link[1].SQE_Test_E moxa_param.Switch_Ethernet_Link[1].Deferred_Tra moxa_param.Switch_Ethernet_Link[1].Late_Collision moxa_param.Switch_Ethernet_Link[1].Late_Collision moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].Cransm moxa_param.Switch_Ethernet_Link[1].Cransm moxa_param.Switch_Ethernet_Link[1].Cransm moxa_param.Switch_Ethernet_Link[1].Cransm moxa_param.Switch_Ethernet_Link[1].MAC_Receivy moxa_param.Switch_Ethernet_Link[1].Control_Bits	skets rors ons sions rrors insmi ns ollisio te_Er Long re_Er	Value			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Force		Style Deci Deci Deci Deci Deci Deci Deci Dec
	Monitor Tags / Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutDotets moxa_param.Switch_Ethernet_Link[1].OutDotets moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].Single_Collisi moxa_param.Switch_Ethernet_Link[1].SuBe_Tost_E moxa_param.Switch_Ethernet_Link[1].SuBe_Tost_E moxa_param.Switch_Ethernet_Link[1].Deferred_Tra moxa_param.Switch_Ethernet_Link[1].Late_Collision moxa_param.Switch_Ethernet_Link[1].Excessive_C0 moxa_param.Switch_Ethernet_Link[1].Carrier_Sensu moxa_param.Switch_Ethernet_Link[1].Carrier_Sensu moxa_param.Switch_Ethernet_Link[1].Carrier_Sensu moxa_param.Switch_Ethernet_Link[1].Carrier_Sensu moxa_param.Switch_Ethernet_Link[1].Carrier_Sensu moxa_param.Switch_Ethernet_Link[1].Frame_Too_l moxa_param.Switch_Ethernet_Link[1].Frame_Too_l moxa_param.Switch_Ethernet_Link[1].Frame_Too_l	skets rors ons sions rrors insmi s ollisio Long re_Er face	Value			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Force	Mask	Style Deci Deci Deci Deci Deci Deci Deci Dec
	Monitor Tags / Edit Tags / moxa_param.Switch_Ethernet_Link[1].InErrors moxa_param.Switch_Ethernet_Link[1].OutDotets moxa_param.Switch_Ethernet_Link[1].OutDucastPac moxa_param.Switch_Ethernet_Link[1].OutDucastPac moxa_param.Switch_Ethernet_Link[1].OutDucastPac moxa_param.Switch_Ethernet_Link[1].OutDucastPac moxa_param.Switch_Ethernet_Link[1].OutDiscards moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].OutErrors moxa_param.Switch_Ethernet_Link[1].Single_Collisi moxa_param.Switch_Ethernet_Link[1].SQE_Test_E moxa_param.Switch_Ethernet_Link[1].Deferred_Tra moxa_param.Switch_Ethernet_Link[1].Late_Collision moxa_param.Switch_Ethernet_Link[1].Late_Collision moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].MAC_Transm moxa_param.Switch_Ethernet_Link[1].Cransm moxa_param.Switch_Ethernet_Link[1].Cransm moxa_param.Switch_Ethernet_Link[1].Cransm moxa_param.Switch_Ethernet_Link[1].Cransm moxa_param.Switch_Ethernet_Link[1].MAC_Receivy moxa_param.Switch_Ethernet_Link[1].Control_Bits	skets rors ons sions rrors insmi ns ollisio cong re_Er face bel	Value			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Force		Style Deci Deci Deci Deci Deci Deci Deci Dec

Name		Value 🗲	Force Mask *
	Toxa_param.Switch_Ethernet_Link[1].Interface_Port_Descript	E.	{}
	Tomoxa_param.Switch_Ethernet_Link[1].Broascast_Storm_Prote	0	
	🖭 moxa_param.Switch_Ethernet_Link[1].Interface_Utilization	0	
	moxa_param.Switch_Ethernet_Link[1].Utilization_Alarm_Upper	0	
	😟 moxa_param.Switch_Ethernet_Link[1].Utilization_Alarm_Lower	0	
	moxa_param.Switch_Ethernet_Link[1].Port_Link_Alarm	0	
	moxa_param.Switch_Ethernet_Link[1].Port_TrafficOverload_Al	0	
	moxa_param.Switch_Ethernet_Link[1].Tx_Unicast_Packet_Rate	9	
	moxa_param.Switch_Ethernet_Link[1].Rx_Unicast_Packet_R	10	
	+ moxa_param.Switch_Ethernet_Link[1].Tx_Multicast_Packet	0	
	🛨 moxa_param.Switch_Ethernet_Link[1].Rx_Multicast_Packet	0	
	+ moxa_param.Switch_Ethernet_Link[1].Tx_Broadcast_Packet	0	
	moxa_param.Switch_Ethernet_Link[1].Rx_Broadcast_Packet	0	
	moxa_param.Switch_Ethernet_Link[1].Tx_Multicast_Packet	0	
	+ moxa_param.Switch_Ethernet_Link[1].Rx_Multicast_Packet	0	
	moxa_param.Switch_Ethernet_Link[1].Tx_Broadcast_Packet	0	
	moxa_param.Switch_Ethernet_Link[1].Rx_Broadcast_Packet	0	
	🗄 moxa_param.Switch_Ethernet_Link[1].Redundant_Port_Status	2	
Ŧ	moxa_param.Switch_Ethernet_Link[2]	{}	{}
+	moxa_param.Switch_Ethernet_Link[3]	{}	{}
+	moxa_param.Switch_Ethernet_Link[4]	{}	{}
(moxa_param.Switch_Ethernet_Link[5]	{}	{}
(H	moxa param.Switch Ethernet Link[6] fonitor Tags / Edit Tags /	{}	{}

Monitor Tags for Moxa Networking Object

Click **moxa_param Switch_Vendor** and expand the list to check the values for Moxa custom tags.

Name	: <u>-8 </u> 4	Value	+	Force Mask *	Style	
	moxa_param.Switch_Vendor.Port_Enbale		{}	{}	Decimal	
	+ moxa_param.Switch_Vendor.Port_Enbale[0]		0		Decimal	
	🗄 moxa_param.Switch_Vendor.Port_Enbale[1]		0		Decimal	
	moxa_param.Switch_Vendor.Port_Link_Status		{}	{}	Decimal	
	+ moxa_param.Switch_Vendor.Port_Link_Status[0]		3		Decimal	
	+ moxa_param.Switch_Vendor.Port_Link_Status[1]		0		Decimal	
ł	[±] moxa_param.Switch_Vendor.IGMP_Snooping		0		Decimal	
	+ moxa_param.Switch_Vendor.Query_Interval		125		Decimal	
	+ moxa_param.Switch_Vendor.IGMP_Enhanced_M		0		Decimal	
	+ moxa_param.Switch_Vendor.Relay_1		0		Decimal	
1	+ moxa_param.Switch_Vendor.Relay_2		0		Decimal	
	+ moxa_param.Switch_Vendor.Power_1_Relay_W		0		Decimal	
	+ moxa_param.Switch_Vendor.Power_2_Relay_W		0		Decimal	
	+ moxa_param.Switch_Vendor.DI_1_Off_Relay_W		0		Decimal	
E	+ moxa_param.Switch_Vendor.DI_1_0n_Relay_W	-	0		Decimal	
	+ moxa_param.Switch_Vendor.DI_2_Off_Relay_W		0		Decimal	
	+ moxa_param.Switch_Vendor.DI_2_On_Relay_W		0		Decimal	
	+ moxa_param.Switch_Vendor.Turbo_Ring_Break		0		Decimal	
1	⁺ moxa_param.Switch_Vendor.CPU_Usage		1		Decimal	
	+ moxa_param.Switch_Vendor.Device_Up_Time		0		Decimal	
	+ moxa_param.Switch_Vendor.Reset_Mib_Counter		0		Decimal	
	+ moxa_param.Switch_Vendor.Redundant_Device		2		Decimal	

Rockwell FactoryTalk® View Faceplate

FactoryTalk® View Faceplate Installation

To install the faceplate, you must have Rockwell FactoryTalk® View Studio SE (Site Edition) version 5 or later and a Moxa managed Ethernet switch with firmware version 3.0 or later.

Create a FactoryTalk® View Shortcut to the PLC

1. Start the FactoryTalk $\ensuremath{\mathbb{R}}$ View Studio software and select Site Edition (Local).

		Factor	Y Talk' View Studio	B
lect the type	of application yo	u would like to Machine Edition	configure:	
			Continue	Exit

2. Add a new Site Edition (Local) and enter the Application name.

New/Open Site Edit	ion (Local) Application	
New Existing		
Application name:	EDS_408A_Platform	
Description:		
Language:	English (United States), en-US	▼ Import
	Create	Cancel

3. Configure a shortcut to the PLC that is running the Moxa AOI.

In the Explorer window, right click the newly-added application, select **Add New Server** and **Rockwell Automation Device Server (RSLinx Enterprise)**, and click OK.

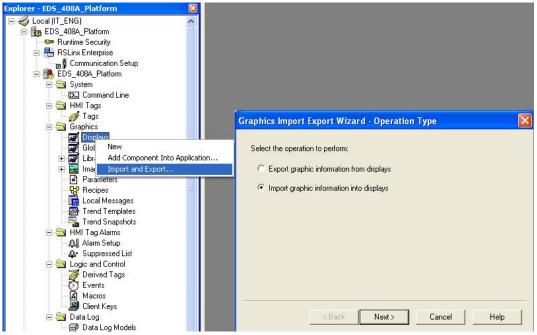
🖃 🎻 Local (IT_ENG)		
E EDS_408A_Platform	17 I	
🕞 🖙 Runtime Secu 🛛 Delete		
EDS_408A_P Add New Server	Rockwell Automation Device Server (RSLinx Enterprise)	
🖃 🔄 System	OPC Data Server	
Comm Security	Tag Alarm and Event Server	
HMI Tags		-
jays	RSLinx Enterprise Server Properties	×
🖃 🔄 Graphics		
Global Objects	General Alarms and Events	
	Name	
	RSLinx Enterprise	
		6
Local Messages	Description	
- 🐼 Trend Templates		
🔤 🏧 Trend Snapshots		
🖻 🚍 HMI Tag Alarms		
_A ∬ Alarm Setup		
Ar Suppressed List		
🖻 🔄 Logic and Control		
Derived Tags	Computer hosting the RSLinx Enterprise server:	
Events	localhost	
Macros	Jucanos	
🖂 🔐 Client Keys E 🔄 Data Log		
Data Log Models		
Bala Log Models		
	OK Cancel Apply	Help
	OK Cancel Apply	neip

4. The shortcut is named PLC. Click "Yes" to apply the configuration.

Add Remove Apply	Primary
RSLinx Enterprise	CompactLogix System, CompactLogix System ⊕ ┃ 0, 1769-L32E/A, ED_408A_AOI □ 3, Local Adapter, VA1769/A □ 92.168.34.253, , ED5-408A
Primary path edited - Old: - New: CompactLogix System.ED_408A_AOI	
Press Yes to apply changes. Press No to discard chang	Mode: Online Not Browsing

Import FactoryTalk® View Faceplate Graphics

1. Right click Display in the FactoryTalk® View Explorer window, select **Import and Export** and choose **Import graphic information into displays**.



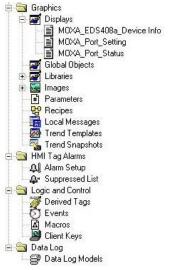
2. Select No and Multiple displays batch import file

Graphics Import Export Wizard - Backup	Graphics Import Export Wizard - Import File Type
Do you want to backup the displays that will be modified by the import?	Select the type of file to import: Single display import file Multiple displays batch import file
< Back Next > Cancel Help	<back next=""> Cancel Help</back>

- 3. Import all graphics files for FactoryTalk® View faceplate display.
- **NOTE** Moxa provides sample graphics files for selected switches, which are available for download at the Moxa website or from the software CD.

Graphics Import Export Select the multiple display b		port File		
Whet	Displays Batch Impo	SA_Platform.xml ice Info.xml ml	xml <u></u>	Open Cancel

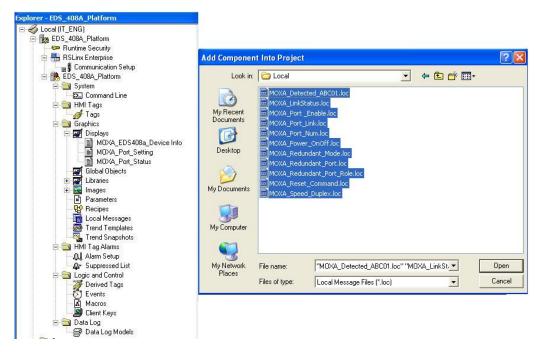
4. After import, these objects will appear under **Displays** in the Explorer window.



Import FactoryTalk® View Faceplate Local Message

1. Right click Local Message in the FactoryTalk® View Explorer window, select Add Component Into Application and import all the local message files (.loc)

NOTE Moxa provides sample local message files for selected switches, which are available for download at the Moxa website or from the software CD..

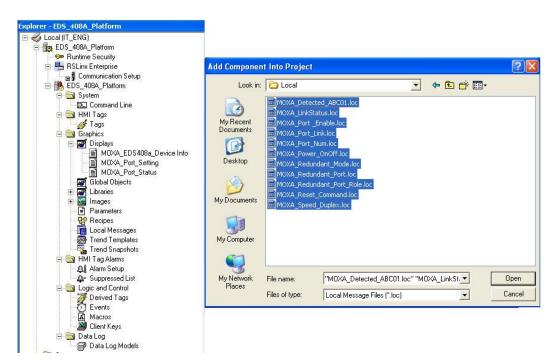


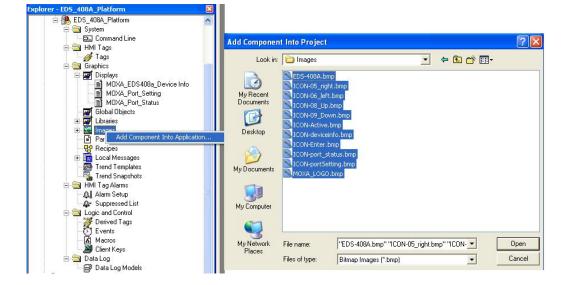
- 2. After import, these objects will appear under "Local Message" in the Explorer window.
 - 🖃 📑 Local Messages MOXA_Detected_ABC01 Ē MOXA_LinkStatus MOXA_Port_Enable Ē Ē MOXA_Port_Link Ē MOXA_Port_Num Ē MOXA_Power_OnOff MOXA_Redundant_Mode Ē MOXA_Redundant_Port j. MOXA_Redundant_Port_Role Ē MOXA_Reset_Command Ē MOXA_Speed_Duplex

Import FactoryTalk® View Faceplate Images

 Right click Images in the FactoryTalk® View Explorer window, select Add Component Into Application and import all the image files (.bmp)

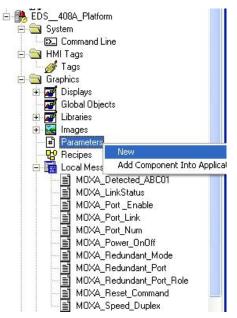
NOTE Moxa provides sample image files for selected switches, which are available for download at the Moxa website or from the software CD.



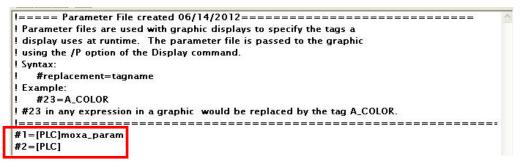


Create a New Parameter

1. Right click **Parameters** in the FactoryTalk® View Explorer window, and select **New**



- 2. Create a parameter file that will be associated with the display.
 - Manually input "#1=[PLC]moxa_param", and "#2=PLC" in the file.



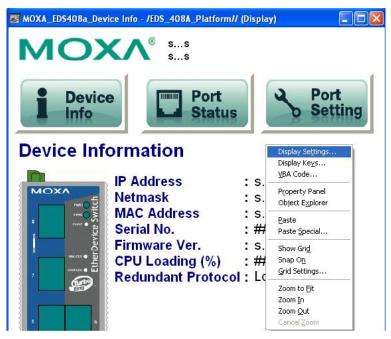
In the parameter definition, the shortcut PLC was created earlier. (Refer to Create a FactoryTalk® View Shortcut to PLC)

Another important piece is **moxa_param**, which is the name of the Switch_Parameters tag created for the MOXA_SWITCH_AOI in your RSLogix project. (Refer to **Create and configure tags for the AOI**)



Configure FactoryTalk® View Faceplate Display

1. Right click all parameter tabs under **Displays** in the FactoryTalk® View Explorer window, and select **Display Setting**.



 Configure Display Type and Size as shown.
 For the Moxa custom faceplate, you need to configure three parameters: MOXA_Device Info; MOXA_Port_Setting; MOXA_Port_Status.

perties Behavior	
Display Type C Replace C Overlay Keep at Rack C On Top	Size C Use Current Size Specify Size in Pixels Width: 567 Height: 623
Allow Multiple Running Copies Cache After Displaying	Resize Allow Display to be Resized When Resized Pan © Scale
✓ Title Bar Insert Variable	Position © Use Current Position © Specify Position in Pixels X 0 Y 0
 System Menu Minimize Button Maximize Button Size to Main Window at Runtime Show Last Acquired Value Maximum Tag Update Rate: seconds 	Security Code: 🔹 💌

Sample FactoryTalk® View Faceplate Project

For easier FactoryTalk® View Faceplate installation, Moxa also provides a sample project, in which all the parameters are configured with default values. The sample project is a (.APA) file, which is available for download from the Moxa website or software CD. You may import the sample project in FactoryTalk® View Faceplate Site Edition (SE).

Setting Up a FactoryTalk® View SE Client

1. Launch FactoryTalk® SE client

💋 Facto	ryTalk	View S	tudio - S	ite Editi	on (Local)					
<u>File E</u> dit	<u>V</u> iew	<u>5</u> ettings	Objects	Arrange	Animation	Tools	<u>W</u> indow	Help			
	😂 🛛 🖸) 🖻 🛛									
▶ ■	X Pe		R 📰 🗖	aunch SE (lient 🖽	1 2 (1)	Q Q	÷	4	s'	5
	a configu		View SI		unch an Fa	ctoryT all	< < T				
	IK	Ca	ncel	Browse	a	New					

2. Set up the new configuration file name and path.

actoryTalk Viev	v SE Client Cor	ifiguration Nan	ne	Đ
Type the name of	a new configuratio	n file:		
EDS-408A				
_				
		re this configuration	1:	
C:\FactoryTalk Vi	ew			<u> </u>
-	7		7	
Help	About	Cancel	< Back	Next>

3. Select the application type **Local**

FactoryTalk Vie	w SE Client App	olication Type		
Select the type o	f SE application the	client will connect t	C.	
Help	About	Cancel	< Back	Next >

4. Enter the name of the application and select the language

EDS_408A_Platform	_	
Open FactoryTalk View SE Client a	s view-only	
Enable on-screen keyboard		
Allow display code debugging		
Select the initial runtime language:		
Select the initial runtime language: English (United States), en-US	•	

5. Configure the FactoryTalk® View SE Client Components and set **Initial Display** to **MOXA_Device_Info**

Select components.				
Components				
Initial display:	M	10XA_EDS408a_D	evice Info	•
Display parameter	-			•
Startup macro:	Γ			
Shutdown macro:	Г			•

7.

6. Configure the FactoryTalk® View SE Window Properties and input **Title bar text** with the text you would like to appear in the title bar.

Fitle bar text:	EDS408A Face	plates	
	m menu and close but /in/Max buttons	ton	

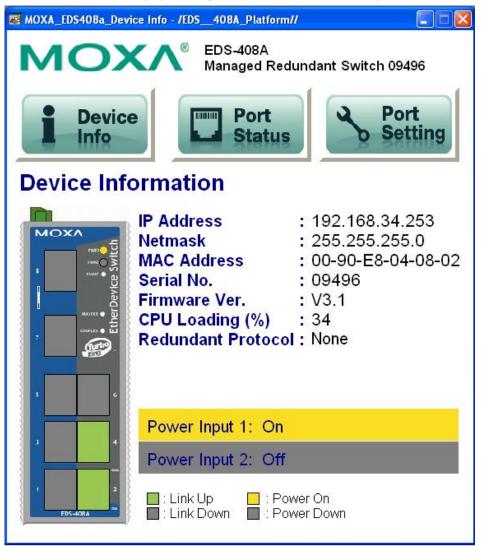
The FactoryTalk V	iew SE Client is nov	v configured.		
To save, click an o	option below, and th	nen click Finish.		
Fo discard, click C	ancel.			
Save configura	ation and open Fact	oryTalk View SE C	lient now	
Save configura	ation and exit			

Introduction to the Moxa Custom Faceplate

The Moxa custom Faceplate consists of three main displays: Device Information, Port Status, and Port Setting. Click the tabs at the top of the screen to change between different displays.

Device Information

The device information display shows general switch information and power and link status.



The following table describes fields and values.

Field	Values	Description
IP Address	192.168.192.253 (factory default)	Switch IP address
Netmask	255.255.255.0	Switch subnet mask
MAC Address	00:90:E8:xx:xx:xx	MAC address of switch
Serial No.	Max. 5 characters	Switch serial number
Firmware Ver.	V3.1	Software version of switch
CPU Loading (%)	0-100%	CPU loading percentage
Redundant Protocol	RSTP Turbo Ring Turbo Ring v2 Turbo Chain MSTP	Redundant protocol setting
Power Input 1	On Off	Power supply 1 status
Power Input 2	On Off	Power supply 2 status
Model name	EDS-XXX	Switch model name
Switch name	Max. 30 characters	User assigned switch name

Field	Color	State	Description
Link Status	Green	Link Up	Current port link state
	Grey	Link Down	
Power Status	Amber	Power On	Current power link state
	Grey	Power Off	

Port Status

The port status display shows information for a selected switch port. Use the right/left buttons to select a switch port.

KOXA_Port_Status - /EDS408A_Platform//	
Device Po	d Redundant Switch 09496
Port 2	
Link Status	: Link Up
Speed	: 100/Half
Redundant Port Status	: Forwarding
Tx Unicast (Packet/sec)	: 119
Rx Unicast (Packet/sec)	: 148
Tx Multicast (Packet/sec)	: 0
Rx Multicast (Packet/sec)	: 0
Tx Broadcast (Packet/sec)	: 0
Rx Broadcast (Packet/sec)	: 0
Tx Packet Error	: 0
Rx Packet Error	: 3084

Field	Values	Description
Port Index	Port 3	Selected port number
Link status	Link up	Selected port link status
	Link down	
Speed	10/Half	Selected port speed and mode
	10/Full	
	100/Half	
	100/Full	
	1000/Half	
	Unknown	
Redundant Port Status	Disable	Selected port redundancy status
	Not Redundant Port	
	Link Down	
	Blocking	
	Learning	
	Forwarding	
Tx Unicast (Packet/sec)		The Tx unicast packets per second
Rx Unicast (Packet/sec)		The Rx unicast packets per second
Tx Multicast (Packet/sec)		The Tx multicast packets per second
Rx Multicast (Packet/sec)		The Rx multicast packets per second
Tx Broadcast (Packet/sec)		The Tx broadcast packets per second
Rx Broadcast (Packet/sec)		The Rx broadcast packets per second
Tx Packet Error		The number of Tx packet error
Rx Packet Error		The number of Rx packet error

Port Setting

The Port Setting allows some switch port settings to be changed. Use the right/left buttons to select a switch port and click the **Activate** button to save the change.

MOXA_Port_Setting - /EDS4	08A_Platform//	
ΜΟΧΛ	EDS-408A Managed Redund	dant Switch 09496
Device Info	Port Status	Port Setting
Port Setting		
	Port 2	-
Enable : Enable Speed : Auto		
Set Speed:	Set Enable:	
Auto	Disable	
10/Half	Enable	Activate
10/Full		
100/Half 100/Full		
100/Fuil		
9		

Field	Values	Description
Port Index	Port 3	Selected port number
Speed	10/Half	Selected port speed and
	10/Full	mode
	100/Half	
	100/Full	
	1000/Half	
	Unknown	
Enable	Enable	Selected port enable or
	Disable	disable