Western Reserve Controls
The Automation Electronics Experts

Software Quick Start Guide

W5-JEM1

EtherNet/IP to RS-232/485 Serial Device Gateway

Cost-optimized, multi-protocol, ASCII gateway perfect for RS-232/485 Serial Device Integration

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1 Software Quick Start

These instructions assume that the device is at its factory default IP address of 192.168.1.10. See section 2.7 “Setting the Device IP Address” for instructions on how to change the W5-JEM1’s IP address.

1.1 Installing the Device EDS file in RSLogix or Studio 5000

1. Go to the device’s webpage (192.168.1.10 by default) and click the EDS link on the webpage to download the EDS file for the device.
2. Open Studio 5000 and navigate to Tools->EDS Hardware Installation Tool in the main menu bar.
3. Navigate to the “Register an EDS File” option and click next
4. Click “Register a single file”
5. Select the EDS file that was downloaded from the device using the browse button and click next
6. Click next until the Finish button appears and click Finish

1.2 Loading the Example Program

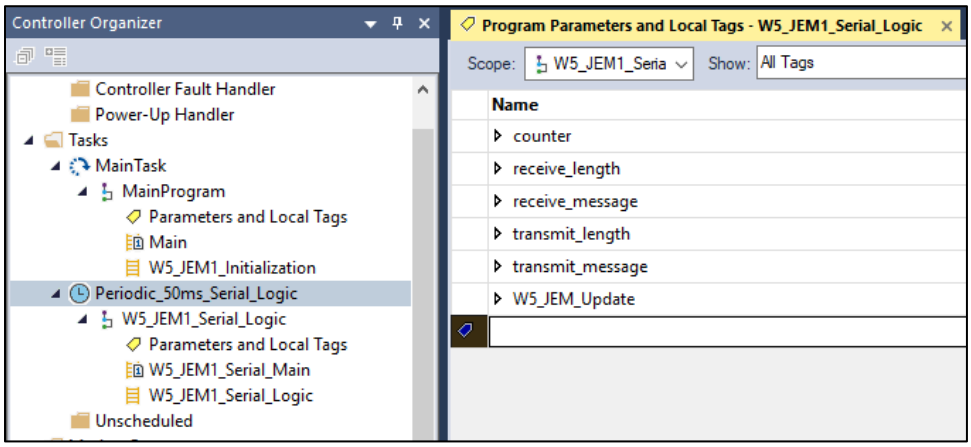
The example program transmits and receives the string “Hello World!” at 9600 baud 8N1 once per second when the RX and TX pins are connected together on the W5-JEM1.

1. Download the example program from the W5-JEM1 product page on wrcakron.com
2. Open the example program in Studio 5000 or RS Logix 5000
    a. The controller type and IP address may need changed.
3. Ensure the W5-JEM1 is connected to the PLC with an Ethernet cable (possibly through an ethernet switch if necessary)
    a. The program assumes the W5-JEM is at the default IP address of 192.168.1.10
4. Download the project to the PLC, go online, and set the PLC to Run Mode
5. The I/O LED in Studio 5000 should be solid green. If it is not then it will be necessary to verify that the W5-JEM1 is connected to the PLC with an Ethernet cable and that W5-JEM1’s IP address is 192.168.1.10.
    a. Quick tip: The Reset button can be used to reset the devices IP address to the default (See section 2.6 “Reset Button Operation”). It may be necessary to power cycle the device.
6. The TX LED on the W5-JEM1 should flicker once per second
7. Navigate to the Tasks->Periodic_50ms_Serial_Logic->W5_JEM1_Serial_Logic->Parameters and Local Tags window.
    a. The tag “transmit_data” and “transmit_length” contain the message to be transmitted

b. The tag “receive_data” and “receive_length” contain the message that was received

   i. Be aware that for production applications it is recommended to check the device’s status bits (Controller Tags->W5_JEM1_Object->Receive_Message_Status and Module_Status) prior to transmission and reception. This step has been omitted from the demo for simplicity.

Figure 1. Parameters and Local Tags section in the example program showing the transmit_* and receive_* tags



Note: The example program can easily be modified to serve as a starting point for applications using the W5-JEM1

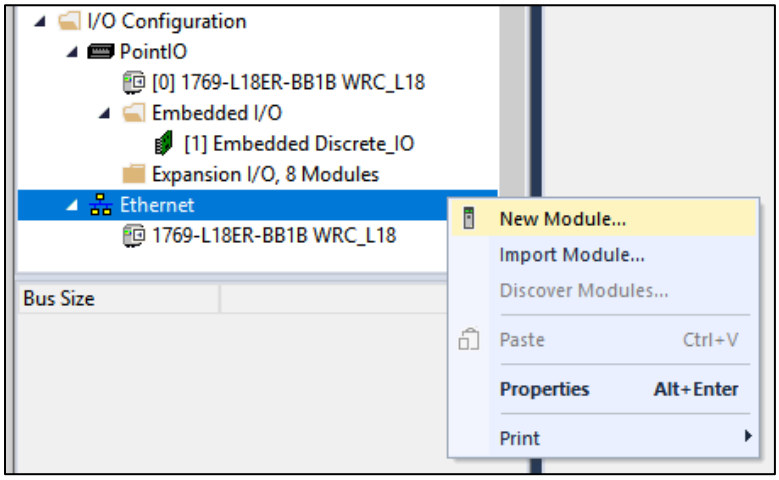
2 Software Configuration and Set-Up

2.1 Adding the Device to RSLogix or Studio 5000

Prior to adding the device to a project, it is necessary to install the device's EDS file in Studio 5000. See section 1.1 "Installing the Device EDS file in RSLogix or Studio 5000" for more details

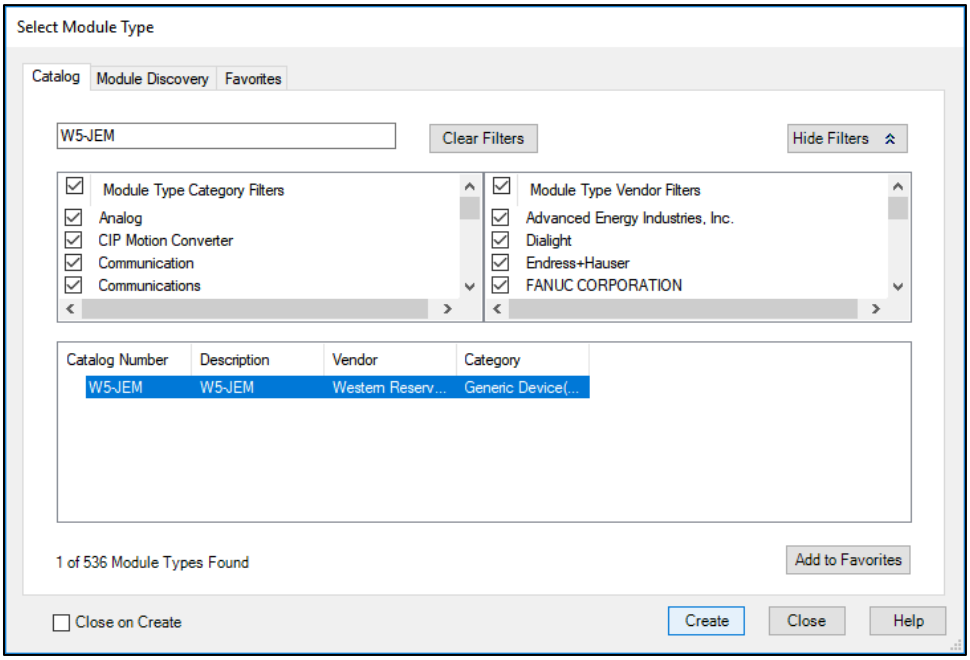
1. In the Controller Organizer Pane navigate to "I/O Configuration"
2. This part changes depending on your controller: typically, one can right-click under "Ethernet" and select "New Module". On some models of PLC that use an external ethernet adapter it may be necessary to navigate and right click on the Ethernet Adapter.

Figure 2. Adding a new Module to the I/O Configuration



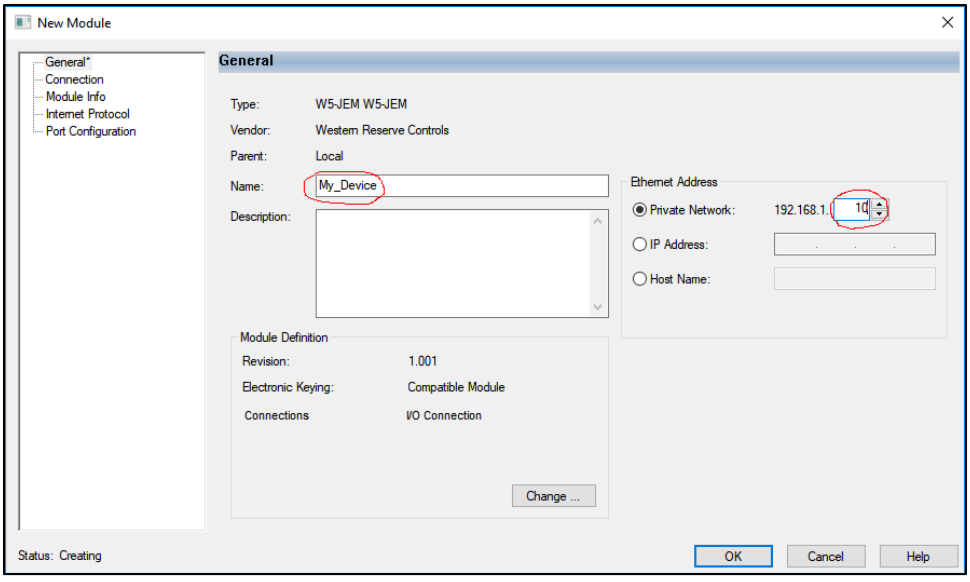
3. The "Select Module Type" dialog will open. Type in "W5-JEM" into the filter bar and select the W5-JEM1 from the list. Click Create.

Figure 3. Finding the W5-JEM1 in the Select Module Type Dialog



4. The “New Module” dialog will open.
   - Under the General Tab enter a device name such as “My_Device”
   - Select the “Private Network” radio button and enter “10” in to the private address textbox. This will tell the controller to look for the device at 192.168.1.10

Figure 4. Setting the device name and IP address

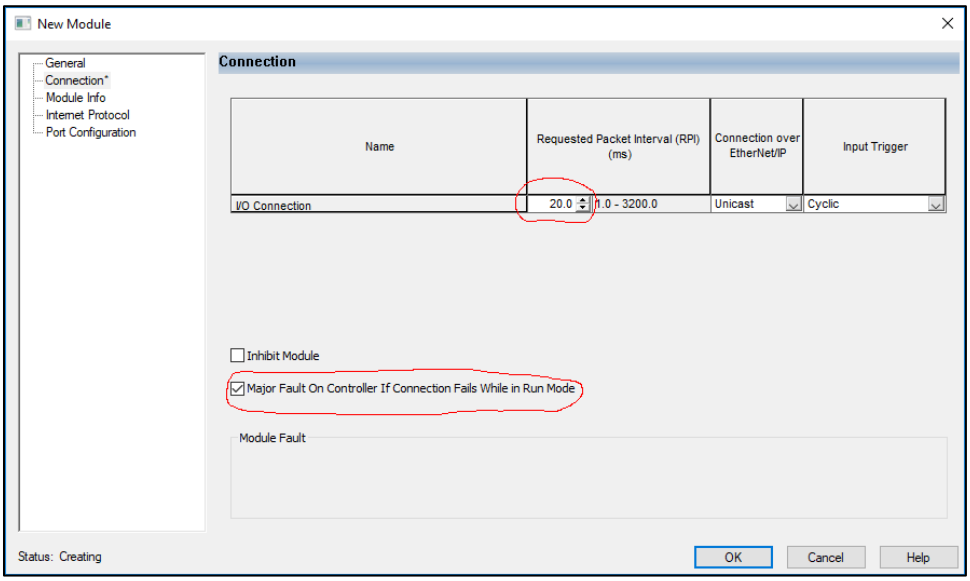


5. Under the Connection Tab inspect the Requested Packet Interval (RPI) field. The value of the field controls how fast the controller can communicate with the W5-JEM1. The default

value of 20ms is fine for most applications. See section 2.2 “Determining Module RPI” for more information about this field

6. Also under the Connection Tab (optionally) check the box “Major Fault On Controller If Connection Fails While in Run Mode.” Most applcations using the W5-JEM1 need to be aware if the EtherNet/IP link between the PLC and the device has been broken. A fault handler can be implemented if required by the applcation.

Figure 5. Setting the RPI and Enabling Fault Upon I/O Connection Failure



2.2 Determining Module RPI

The RPI (Requested Packet Interval) is that rate at which the PLC and the W5-JEM1 communicate.

As a rule of thumb, it takes up to two RPI intervals for the command to transmit to propagate from the PLC program to the W5-JEM1 over EtherNet/IP. When the W5-JEM1 receives a packet, it takes up to two RPI intervals for the packet to be transferred over EtherNet/IP and recognized by the PLC program.

Characterizing the maximum throughput of the connection is achieved by connecting the W5-JEM1 in loopback (ie. connect RX and TX pins). In this configuration the time T required to transmit and receive a packet (steady state, one at a time, not using the FIFO buffers) is roughly $T = 4 * RPI + S$ where RPI is the packet interval in seconds and S is the time it takes to transmit the serial packet on the serial bus.

The RPI required to send a packet and receive a packet every T seconds can be calculated via: $RPI = \frac{T-S}{4}$ where S is the time the packet occupies on the serial bus

The value of S can be calculated by the following formula $S = \frac{N*M}{B}$ where N is the number of bits per serial frame (either 10 or 11 bits), M is the number of bytes per serial packet (typically 1-255 bytes) and B is the baud rate (typically 1200-115200 baud).

Shown below is a table of time required to transmit and received a single packet versus baud rate at a 5ms RPI. This table assumes a 16 byte packet in loopback using the 8N1 frame format.

Table 1. Loopback performance for 16 byte packets, 8N1, and RPI=5ms

Baud Rate	Time for transmit command to transfer over EtherNet/IP (2x RPI)	Time it takes to transmit packet over serial bus	Time for received packet to transfer over EtherNet/IP (2x RPI)	Total Time to Transmit and Receive in Loopback
115200	10ms	2ms	10ms	22ms
19200	10ms	9ms	10ms	29ms
9600	10ms	17ms	10ms	37ms

Table 2. Loopback performance for 16 byte packets, 8N1, and RPI=20ms

Baud Rate	Time for transmit command to transfer over EtherNet/IP (2x RPI)	Time it takes to transmit packet over serial bus	Time for received packet to transfer over EtherNet/IP (2x RPI)	Total Time to Transmit and Receive in Loopback
115200	40ms	2ms	40ms	82ms
19200	40ms	9ms	40ms	89ms
9600	40ms	17ms	40ms	97ms

NOTE: The throughputs demonstrated here are more than sufficient for most applications. However, if faster times are required the W5-JEM1 supports RPIs as low as 1ms. Verify that your PLC controller supports low RPI values before using an RPI below 5ms.

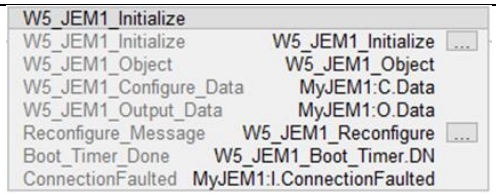
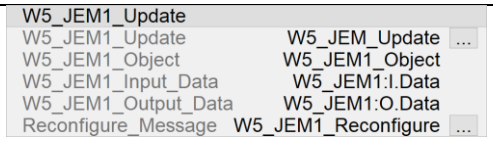
2.3 The AOI (Add-On-Instruction) for Rockwell PLCs

The following describes the structure and behavior of the provided Add-On-Instructions.

2.3.1 Provided Add-On Instructions

Two add on instructions are provided, see table below.

Table 3. Provided Add-On-Instructions

Instruction	Symbol	Description
W5_JEM1_Initialize		Used to initialize and configure the W5-JEM1. A startup delay should be implemented (i.e. via a Timer On Delay instruction that should precede this AOI). The timer's Done bit should be passed to this AOI. Should start timer only after EIP connection with W5-JEM1 is established (i.e. MyJEM1:I.ConnectionFaulted is FALSE). When initialization is complete, the Ready member of the W5_JEM1_Object structure tag will be set to TRUE, indicating PLC program may transmit/receive serial messages through the W5-JEM1.
W5_JEM1_Update		Used to transmit and receive serial data through the W5-JEM1 A startup delay of 2X the RPI must be observed before the first run of this instruction. Recommend startup delay of 200ms or 2X the RPI (whichever is greater). Also updates member tags Module_Status and Receive_Message_Status of W5_JEM1_Object, based on bits of Status field in Receive Assembly (see section Ethernet/IP Interface).

2.3.2 Provided Add-On Datatypes

The following datatypes are provided for use in conjunction with the add-on instructions

Table 4. Provided Add-On Datatypes

Datatype	Description
W5_JEM1_Object	Used to interact with the device
W5_JEM1_Configuration	Used to configure the device
W5_JEM1_Message_Status	Represents the status bits for the currently received message
W5_JEM1_Module_Status	Represents the current status of the module
W5_JEM1_Initialize	Datatype for the W5_JEM1_Initialize instruction
W5_JEM1_Update	Datatype for the W5_JEM1_Update instruction
BAUD_RATES	Used to create an "enumeration" of the available baud rates in the example program.
FRAME_FORMATS	Used to create an "enumeration" of the available frame formats in the example program.
SERIAL_MODES	Used to create an "enumeration" of the available serial modes for the W5-JEM1 in the example program.

2.3.2.1 W5_JEM1_Object Datatype

This datatype is used to configure, control, and monitor the W5-JEM1.

Table 5. W5_JEM1_Object Datatype

Member Tag	Type	Description
Receive_Message_Status	W5_JEM1_Message_Status	Status bits for the current message (parity error, framing error etc.)
Receive_Length	SINT	The length of the current message.
Receive_Data	SINT[255]	An array containing the current message.
Transmit_Length	SINT	The length of the message to be transmitted.
Transmit_Data	SINT[255]	The message to be transmitted.
Transmit_Acknowledged	BOOL	This bit is set to 1 when a the message to transmit has been successfully copied into the TX FIFO.
Command_Transmit	BOOL	When set to 1 the AOI will will command a transmission of data given by Transmit_Data and Transmit_Length..

		AOI will clear this bit when it has finished. It is recommended to wait for the Transmit_Acknowledged bit to be set before commanding another transmission.
Command_Receive	BOOL	When set to 1 the AOI will monitor the W5-JEM to see if there are any messages waiting to be received. If a message is in the receive buffer it will be copied to Receive_Data along with Receive_Length and Receive_Message_Status. When a message is received this bit is set to 0 as a signal to the user. The user must set the bit back to 1 when the user wishes to monitor for another receive message.
Module_Status	W5_JEM1_Module_Status	Status bits representing the overall status of the module. Important: the Configuration_Error status bit can be viewed here. The module will only function if it is properly configured.
Configuration	W5_JEM1_Configuration	This contains the configuration to be sent to the W5-JEM1.
Ready	BOOL	When set to 1 via the Initialize AOI, indicates PLC program may transmit/receive serial messages through the W5-JEM1. This flag is set to 0 in Initialize AOI during first scan of PLC program.

2.3.2.2 W5_JEM1_Configuration Datatype

See section **Error! Reference source not found.** "**Error! Reference source not found.**" for a more detailed explanation of each function.

Table 6. W5_JEM1_Configuration Datatype

Member Tag	Type	Description
Mode	SINT	0=Reset Mode. Resets module and triggers Configuration Error bit. 1=User Defined Mode. Utilizes all configuration parameters.

		2=Modbus ASCII Mode. Ignores most parameters, only certain frame formats are valid in this mode. 3=Modbus RTU Mode. Ignores most parameters, only certain frame formats are valid in this mode. Other Values =Reserved. Triggers Configuration Error bit.
Frame_Format	SINT	0=Mode Default (See **Error! Reference source not found.**) 1=7N2 2=7E1 (Modbus ASCII mode default) 3=7O1 4=8N1 (User defined mode default) 5=8N2 6=8E1 (Modbus RTU mode default) 7=8O1 8=7E2 9=7O2 Other Values =Reserved. Triggers Configuration Error bit.
Baud_Rate	SINT	0=Mode Default (See **Error! Reference source not found.**) 1=1200 2=2400 3=4800 4=9600 (User defined default) 5=19200 (Modbus RTU/ASCII default) 6=38400 7=57600 8=115200 Other Values =Reserved. Triggers Configuration Error bit.
Hardware_Flow_Control	BOOL	0=Flow Control Disabled 1=Flow Control Enabled
RX_Max_Length	INT	0=Use default value (255) Valid range: 1-255 Characters Value will be truncated to 1 byte before being sent to device.
RX_Timeout	DINT	Units: 50us/count. Values 1-60000 supported. (50us to 3 seconds) Value will be truncated to 2 bytes before being sent to device.
RX_Max_Intercharacter_Spacing	DINT	
TX_Delay	DINT	
TX_Start_Delimiter_Length	SINT	Lengths 0-2 supported.

TX_End_Delimiter_Length	SINT	Other Values trigger Configuration Error bit.
RX_Start_Delimiter_Length	SINT	
RX_End_Delimiter_Length	SINT	
TX_Start_Delimiter	SINT[2]	Any value
TX_End_Delimiter	SINT[2]	
RX_Start_Delimiter	SINT[2]	
RX_End_Delimiter	SINT[2]	

2.3.2.3 W5_JEM1_Message_Status Datatype

Each of these bits are updated each time a new message is received. They represent the status of the current message.

Table 7. W5_JEM1_Message_Status Datatype

Member Tag	Type	Description
RX_Parity_Error	BOOL	A parity error occurred in the current message.
RX_Framing_Error	BOOL	A framing error occurred in the current message.
RX_Character_Spacing_Error	BOOL	An intercharacter spacing error occurred immediately after the last character of the message.
RX_End_Delimiter_Not_Found	BOOL	The RX End delimiter was not present in the message.

2.3.2.4 W5_JEM1_Module_Status Datatype

Each of these bits are continuously updated.

Table 8. W5_JEM1_Module_Status Datatype

Member Tag	Type	Description
Configuration_Error	BOOL	This bit signals that an invalid (or no) configuration was sent to the unit over EtherNet/IP. A valid configuration must be sent before the unit can function.
RX_Buffer_Not_Empty	BOOL	If set the RX FIFO buffer is not empty.
RX_Buffer_Full	BOOL	If set the RX FIFO buffer is full.
RX_Buffer_Overflow	BOOL	If set the RX FIFO buffer has overflowed.

TX_Buffer_Empty	BOOL	If set the TX FIFO buffer is empty.
TX_Buffer_Full	BOOL	If set the TX FIFO buffer is full.
TX_Buffer_Overflow	BOOL	If set the TX FIFO buffer has overflowed.
Idle_Mode	BOOL	If set the unit has been put into idle mode by the controlling PLC. The unit cannot send and receive messages via the serial port in Idle mode and its buffers are reset.

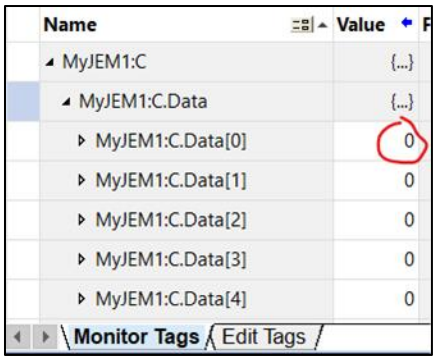
2.3.3 Configuration of the W5-JEM1 using the AOI

In the example program navigate to Controller Tags->W5_JEM1_Object.Configuration. Each of the member tags shown below represent a configuration parameter for the device.

Prior to this step, to avoid spurious TX or RX data upon device configuration, the byte in the device configuration assembly tags (Controller Tags->MyJem1:C.Data[0]) that corresponds to the Mode parameter (byte at index 0) must be set to zero. This must be done in the Monitor Tags window while the PLC is offline in LogixDesigner and before downloading the PLC program. The other bytes can be ignored, but it is recommended that they all be set to zero. Note that this is independent of the W5_JEM1_Object.Configuration tag discussed below.

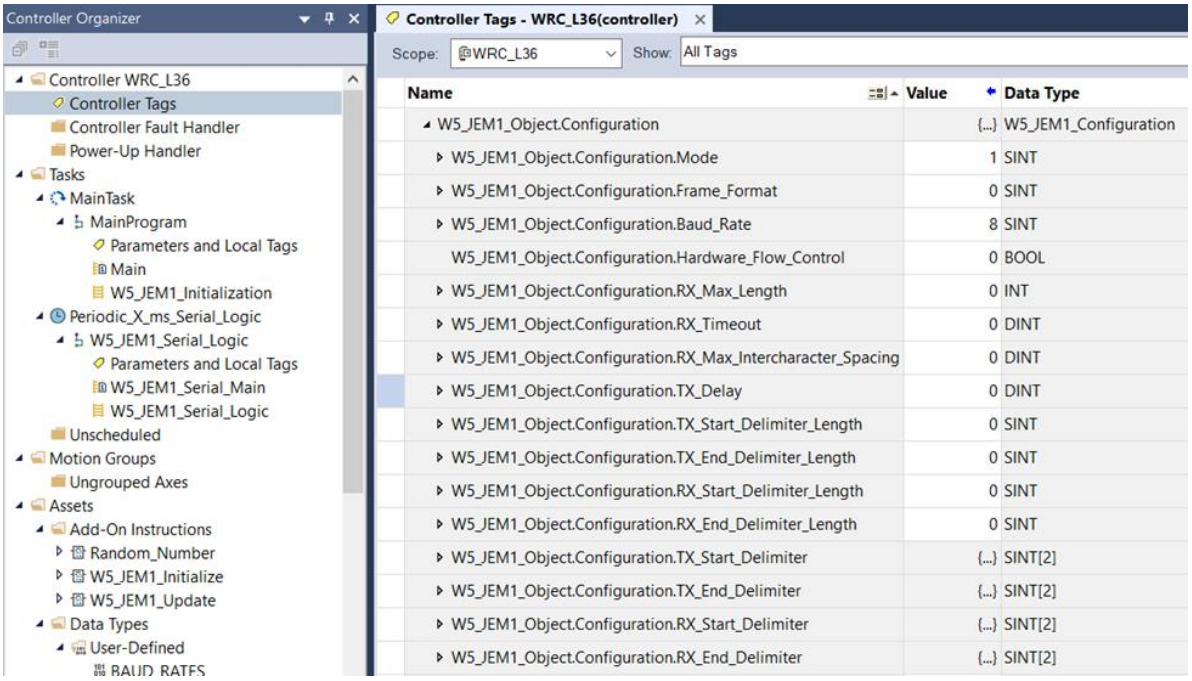
NOTE: Uploading a program from the PLC or uploading tag values will upload non-zero values for the configuration assembly tags. These should be cleared (per above) before downloading the PLC program again. In the case of running a PLC Program directly on power-up (as opposed to via LogixDesigner, etc.), there is a feature in the Initialize AOI that will clear the device's configuration assembly tags prior to configuring the device with the values specified in the W5_JEM1_Object.Configuration tag. This has no effect when downloading/running program via LogixDesigner.

Table - Initializing Byte 0 in Device Configuration Assembly Tags



Edit the W5_JEM1_Object.Configuration tag values in offline mode and then download the program to the controller. If everything is setup correctly then the Configuration_Error bit will be set to 0 after the initialization via the Initialize AOI is finished, the Ready member of the W5_JEM1_Object structure tag will be set to TRUE.

Table 9. Configuring the device through the W5_JEM1_Object.Configuration tag



2.3.4 Transmitting using the AOI

To transmit perform the following steps:

1. (Optional) Check the following members of W5_JEM1_Object.Module_Status
   a. TX_Buffer_Empty, TX_Buffer_Full, TX_Buffer_Overflow, Configuration_Error
2. Set W5_JEM1_Object.Transmit_Length to the length of the message to be transmitted
3. Copy the message to be transmitted into W5_JEM1_Object.Transmit_Data
4. Set W5_JEM1_Object.Command_Transmit=1
5. (Optional) Wait for W5_JEM1_Object.Transmit_Acknowledged=1 after which it will be reset to zero when a new transmit message is commanded.

2.3.5 Receiving using the AOI

Do the following in W5_JEM1_Object

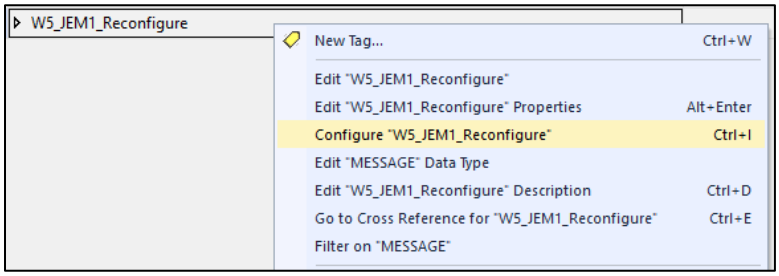
1. Set Command_Receive=1
2. Wait for Command_Receive=0
3. (Optional) Check the following members of Receive_Message_Status
   a. RX_Parity_Error, RX_Framing_Error, RX_Character_Spacing_Error, RX_End_Delimiter_Not_Found
4. (Optional) Check the following members of Module_Status
   a. RX_Buffer_Not_Empty, RX_Buffer_Full, RX_Buffer_Overflow, Configuration_Error
5. Read and act upon the values in Receive_Length and Receive_Data.

2.3.6 Setting up a PLC Project to use the W5-JEM1 AOIs and UDTs

It is recommended to use the example program as a starting point. However, if that is not possible the procedure below can be performed to add a W5-JEM1 and the corresponding Add-On-Instructions and datatypes to an existing project. This assumes the device's EDS file has already been installed.

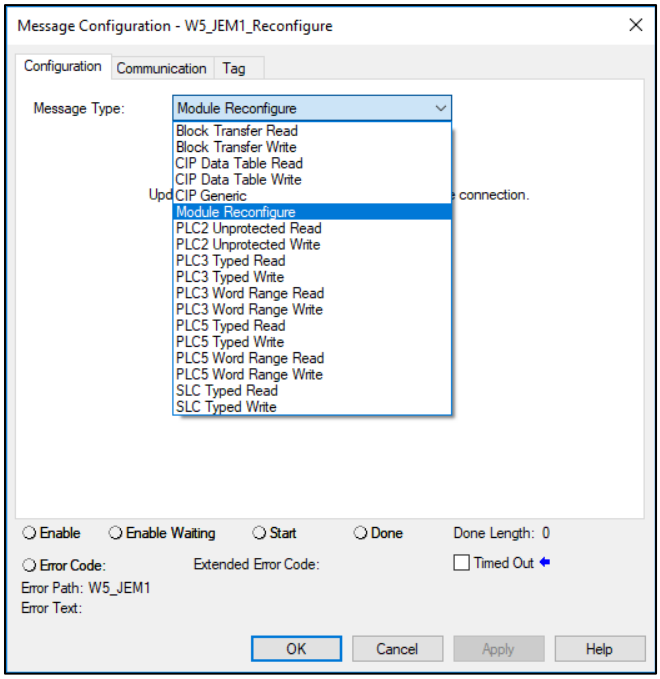
1. Add a W5-JEM1 unit named MyJEM1 to the PLC's I/O configuration
2. Create a controller tag named W5_JEM1_Reconfigure of type MESSAGE
3. Right click the tag and click Configure

Figure 6. configuring the W5_JEM1_Reconfigure tag



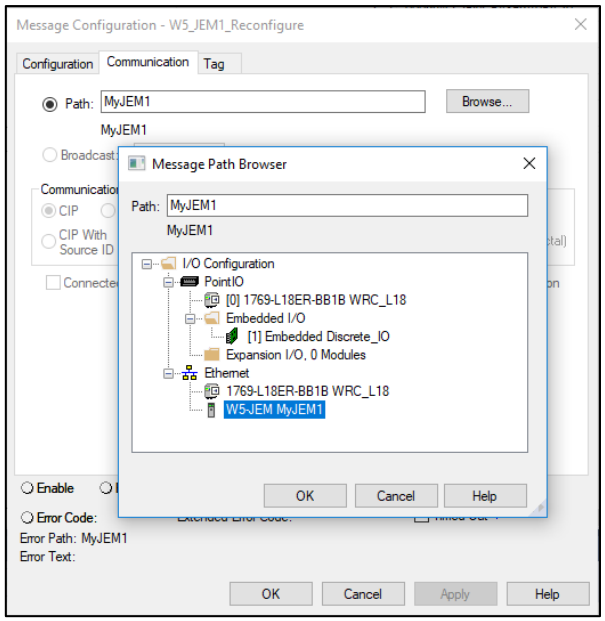
4. Select Module Reconfigure as the message type under the configuration tab

Figure 7. Selecting Module Reconfigure in the Message Configuration dialog



5. Go to the Communication Tab and click Browse. Select MyJEM1 from the I/O configuration and click OK.

Figure 8. Selecting the W5-JEM1 module in the Message Path Browser Dialog

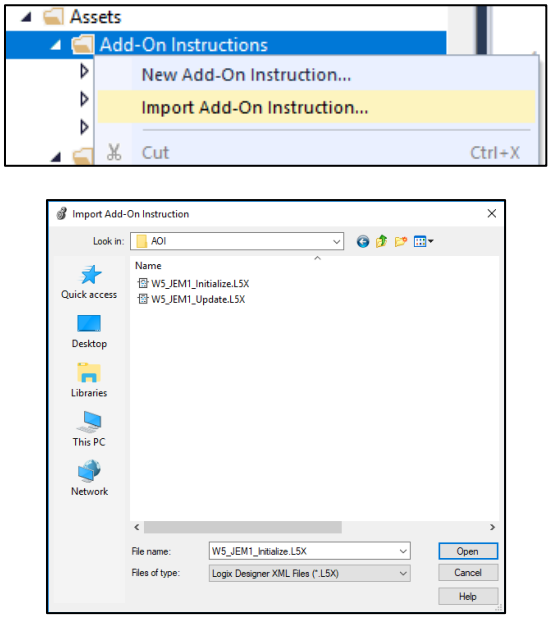


6. Click Apply and OK to exit the Message Configuration window.

7. Import the W5_JEM1_Initialize and W5_JEM1_Update Add-On-Instructions.

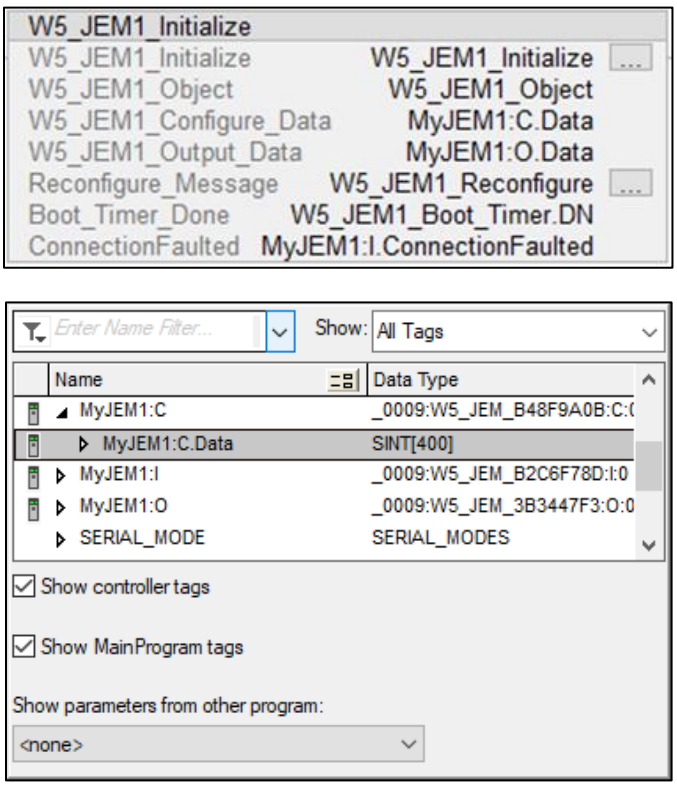
a. By default, this includes the W5_JEM1_Object, W5_JEM1_Configuration, W5_JEM1_Module_Status, and W5_JEM1_Message_Status datatypes

Figure 9. Importing the Add-On Instructions



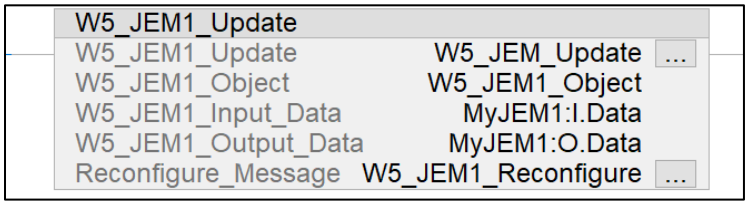
9. At the Controller Tag level create a tag named “W5_JEM1_Object” of type “W5_JEM1_Object”
    - Navigate to W5_JEM1_Object.Configuration and set the configuration
10. Create a tag named “W5_JEM1_Initialize” of type “W5_JEM1_Initialize”
11. In the main (continuously scanned) routine of the program insert a W5_JEM1_Initialize instruction.
    - Set the W5_JEM1_Initialize parameter to point to the W5_JEM1_Initialize tag
    - Set the W5_JEM1_Object parameter to point to the W5_JEM1_Object tag
    - Set the W5_JEM1_Configure_Data parameter to point to MyJEM1:C.Data
    - Set the W5_JEM1_Output_Data parameter to point to MyJEM1:O.Data
    - Set the Reconfigure_Message parameter to point to W5_JEM1_Reconfigure
    - Set the Boot_Timer_Done parameter to point to the .DN bit of the timer used for the boot delay.
    - Set the Connection_Faulted parameter to point to MyJEM1:I.ConnectionFaulted

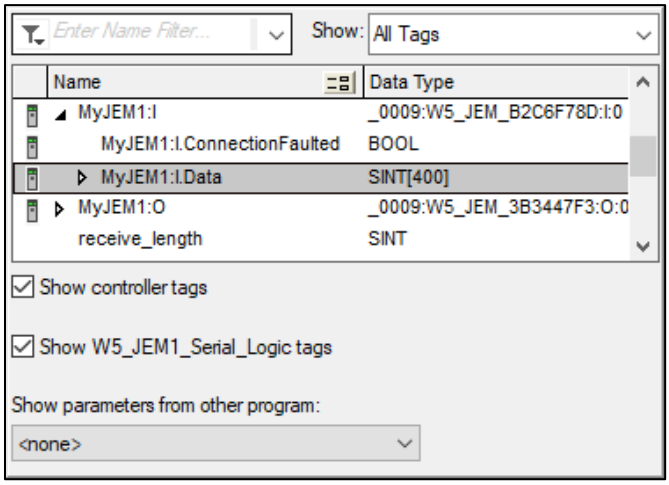
Figure 10. Setting the parameters for the W5_JEM1_Initialize Add-On Instruction



12. Create a tag named W5_JEM_Update of type W5_JEM_Update
13. In a periodic task insert a W5_JEM1_Update instruction. Important: be sure to observe the required startup delay before executing the instruction.
    - Set the W5_JEM_Update parameter to point to the W5_JEM_Update tag
    - Set the W5_JEM1_Object parameter to point to the W5_JEM1_Object tag
    - Set the W5_JEM1_Input_Data parameter to point to MyJEM1:I.Data
    - Set the W5_JEM1_Output_Data parameter to point to MyJEM1:O.Data
    - Set the Reconfigure_Message parameter to point to W5_JEM1_Reconfigure

Figure 11. Setting the parameters for the W5_JEM1_Update Add-On Instruction





14. The Add-On-Instructions have been successfully added to the program. See the example program for examples of receiving, transmitting, and on implementing the required startup delay.

2.3.7 Troubleshooting the Add-On Instruction provided with the Example Program

Table 10. Troubleshooting the AOI/Example Program

Issue	Possible Cause	Solution
PLC cannot connect to device	Device not powered	Check device LEDs, one or more LEDs should be illuminated or flashing. If not apply power to device.
	Device not connected to PLC via Ethernet	Connect PLC to Module with Ethernet Cable
	Device IP address does not match IP Address in Studio 5000 project	Open Module Properties->General Tab->IP Address and correct the IP Address
	Device IP Address matches configured value but IP address is on a different subnet than PLC	Configure IP address to be within same subnet as PLC. For example, the PLC is on 192.168.1.10 and the device is at 192.168.234.11. This is typically incorrect – the device would need to be moved into the PLCs subnet by changing its address to 192.168.1.11
	EtherNet/IP Connection Faulted	Open Module Properties->Connection tab->Module Fault Connection timeout typically indicates that one of the above problems are present and must be fixed.
Module does not transmit/receive or	PLC not connected to device	See section above.

transmit/receive is intermittent		
	Configuration Error Status Bit is set	See section below.
	User program is Ignoring Module and Message status bits and/or user program not performing error handling	Inspect and act upon device status bits. For each received message inspect the bits in W5_JEM1_Object.Receive_Message_Status Regularly inspect the bits in W5_JEM1_Object.Module_Status
	User program is attempting to transmit zero length messages	Set message length to a nonzero value
Configuration Error Bit is always set	Configuration is incorrect	Check each field in the W5_JEM1_Object.Configuration tag
	The W5_JEM1_Reconfigure tag points to the wrong device or IP address	Right click the tag and click configure. Navigate to the Communication Tab and verify that it points to the correct device.

2.4 Using the MSG Instruction on Rockwell PLCs

For low bandwidth applications an alternative to using the EDS and AOI is to use the MSG instruction. This instruction provides low level access to the W5-JEM1 and offers a way to potentially reduce system CPU usage at the expense of additional latency and software complexity in the PLC.

This method is only recommended for experienced programmers.

See W5-JEM1 User Manual Section 6 “EtherNet/IP Interface” and Rockwell’s document titled “Logix 5000 Controllers Messages” for additional details.

2.5 Interfacing the device with Other PLCs

Users with non-Rockwell PLCs will be unable to use the Add-On-Instruction we provide for Studio 5000 (although they may be able to duplicate its logic by inspecting the structured text inside the AOI). As a result, they will have to directly interface with the device using EtherNet/IP. Two types of connections are supported: I/O Connections, and Explicit Messaging. I/O connections are preferred because they are capable of lower overhead and higher transfer speeds than explicit messaging. The device can be configured by writing to the Configuration Assembly. Serial data can be transmitted and received by reading and writing the Transmit, and Receive assemblies from the PLC program.

This method is only recommended for experienced programmers. See W5-JEM1 User Manual Section 6 “EtherNet/IP Interface” for details about the interface.

Wester Reserve Controls may be able to provide assistance interfacing the W5-JEM1 to other PLCs.

2.6 Reset Button Operation

Warning: Pressing the reset button while the device is connected to I/O can cause unintended operation.

When the reset button is held the MS LED turns amber and the NS LED turns off. The MS LED will flash

once every three seconds. Different operations are selected by releasing the button on the appropriate flash number. The button must be released within approximately 1.5 seconds of the flash to select the function associated with it. Holding the button for longer than three flashes will result in no special operation being performed.

Table 11. Reset Button Functions

Flash Number	Function Performed
1	Reboot Device
2	Reset Device to Factory Defaults (IP address to 192.168.1.10)
3	Enter Bootloader Mode
>3	MS LED Turns Off, No Operation Performed

2.7 Setting the Device IP Address

The device's IP address is set through its webpage (192.168.1.10 by default). In order to connect directly to the device, on many computers, it is necessary to configure the network adapter to have a static IP address with the same IP prefix as the device. The following is an example of configuring an ethernet adapter under Windows 10.

2.7.1 Configuring your PC with a Static IP Address

1. Open Network Connections. Right-click on ethernet adapter. Select Properties.

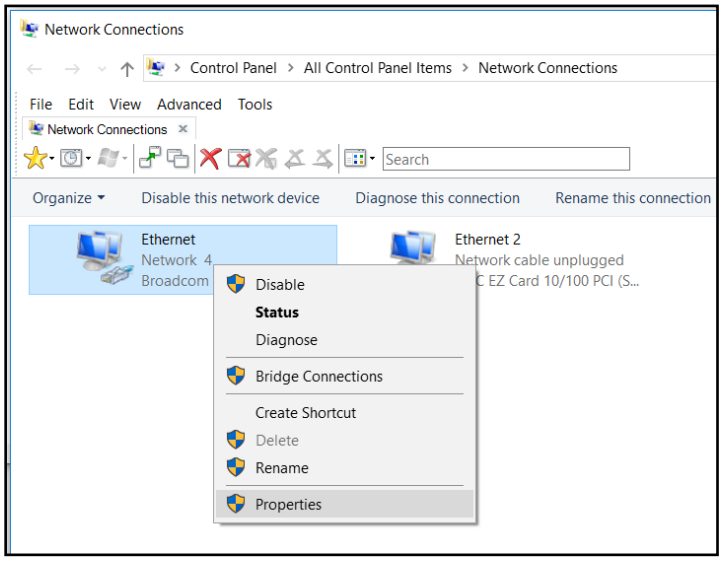


Figure 12. Open Network Connections

2. In dialog box, select item "Internet Protocol Version 4 (TCP/IP v4)", do not "uncheck" item. Then select button "Properties".

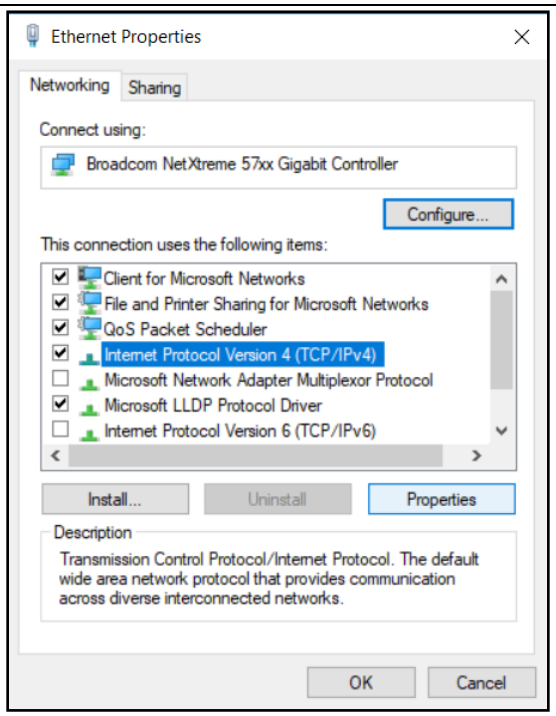


Figure 13. Select Internet Protocol Version 4 in Ethernet Properties

3. In Properties dialog, select “Use following IP address”. Then enter an IP address with prefix (first three numbers must match): 192.168.1.x. Choose ‘x’ to be a value from 2 to 254. Example in Figure 3 shows a value of “32”.

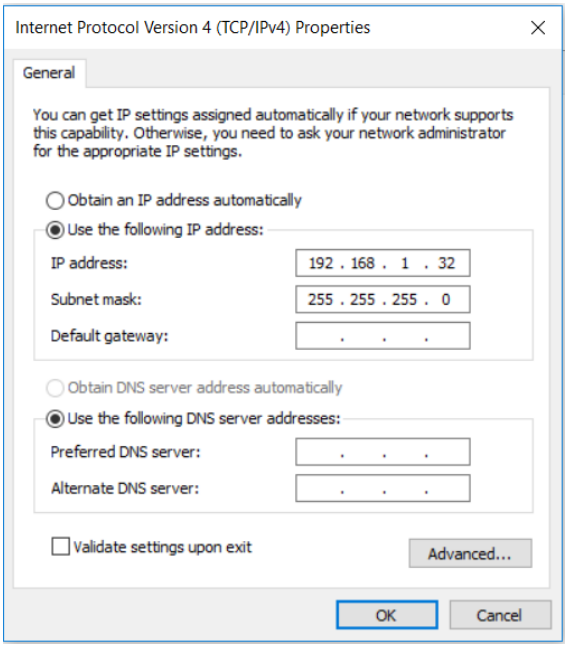


Figure 14. Select and Specify Static IP Address

4. Also, select “Use the following DNS server addresses”, and clear the values in the associated box.

5. Click “OK” and exit all dialogs.
6. Done.

2.7.2 Setting Device IP Address Using Webpage

Out of the box the W5-JEM1 IP address is set to its factory default of 192.168.1.10. It’s important to remember that no other Ethernet node on the same network can have the same IP address. To avoid this conflict, connect your PC directly to the W5-JEM1 being configured.

> ***NOTE**: If a device configuration webpage fails to appear in about 30 seconds, stopping the update in the browser and re-entering the webpage address in the browser URL box will usually result in the initial/updated webpage being displayed, assuming the IP address is valid.*

To change the Static IP address, follow the steps below.

1. Connect to the webpage of the W5-JEM1 using address: http://192.168.1.10
2. Enter the desired new IP address (for example, 192.168.1.39) in the ‘Static IP Address’ text box and click the ‘Submit’ button. The webpage will update to show a reminder that the new IP address will not take effect until the device is reset/re-booted.

   To verify the new IP address was programmed correctly, click the ‘Reboot’ link on the webpage, and the updated webpage should appear in about 10 seconds. Again, you can confirm the new IP address was correctly programmed into the device by entering the new IP address into your browser’s URL text box and pressing the ‘enter’ key.

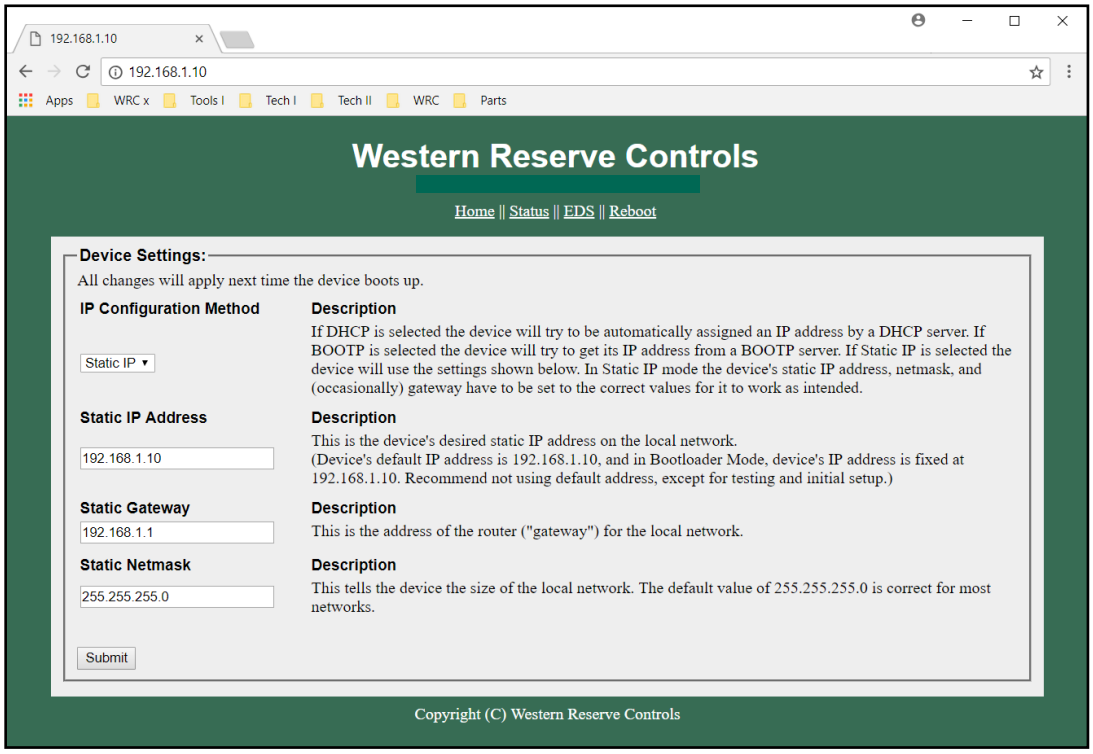


Figure 15. Device Home Page

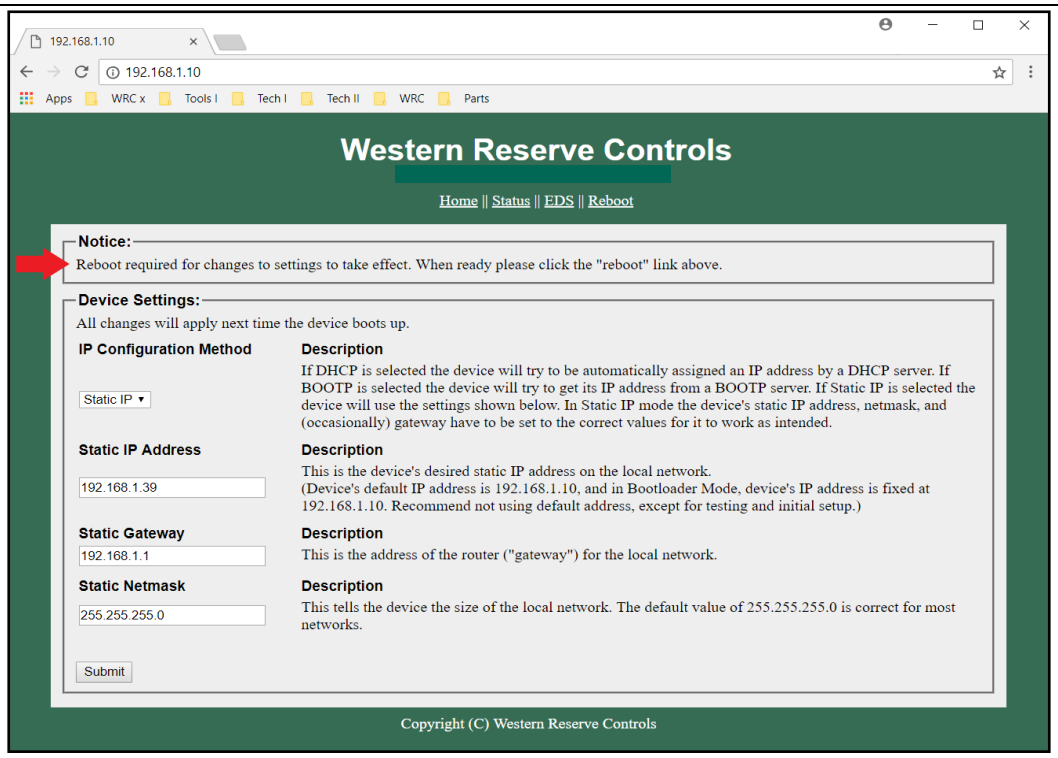


Figure 16. Reboot after Clicking Submit

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