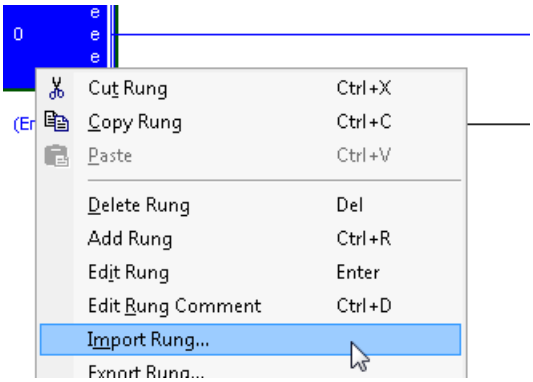
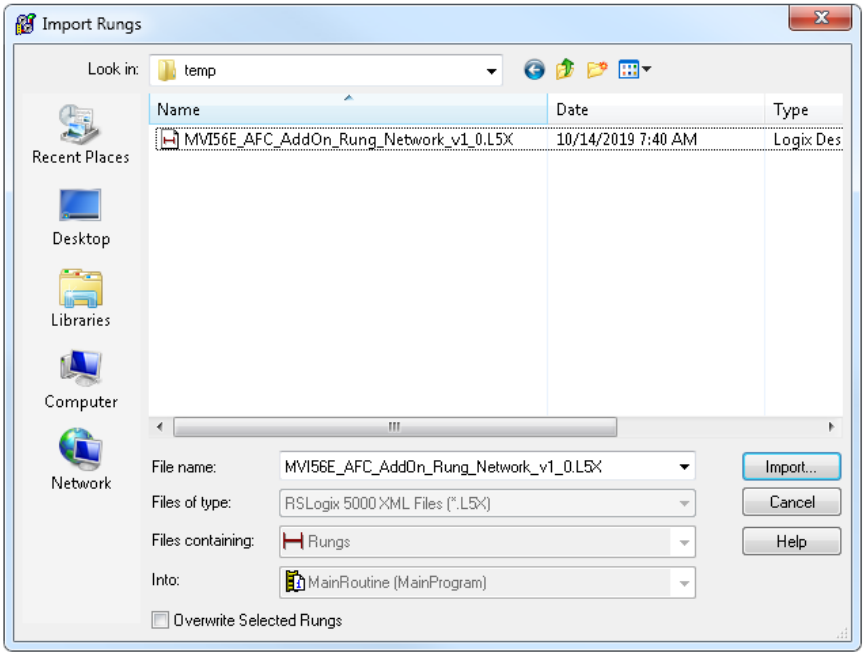
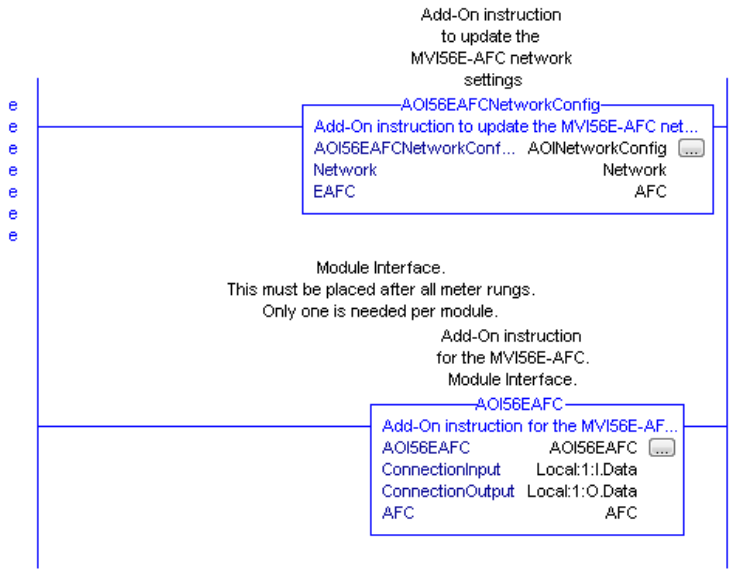
MVIxxE-AFC Technical Note
Configuration Using API

1 In RSLogix 5000, execute the Add-On Rung before the main AFC AOI.



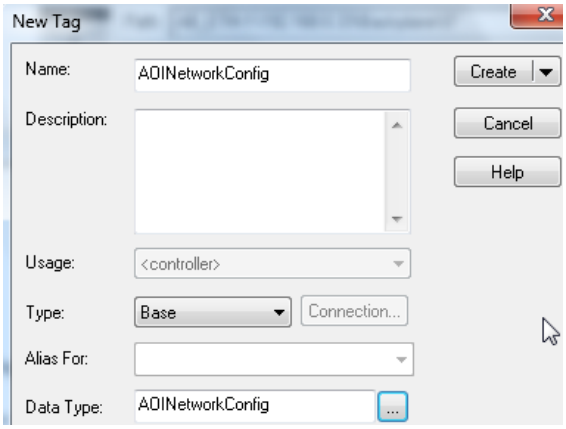
2 Select the **MVIxxE_AFC_AddOn_Rung_Network.L5X** file and click **IMPORT**.

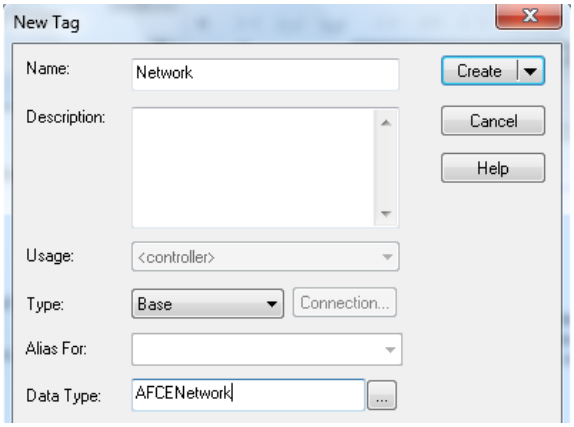




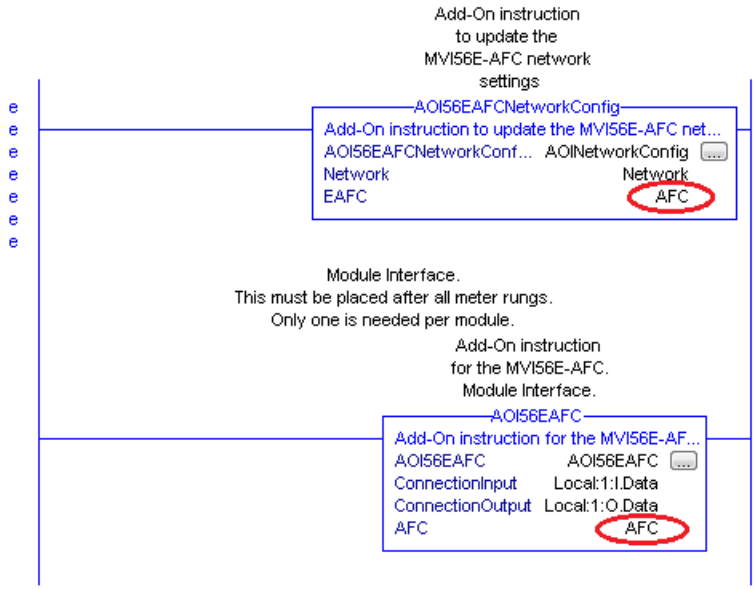
3 Create the instances for the parameters as follows:

- Parameter **AOINetworkConfig** (Data Type: *AOINetworkConfig*)
- Parameter **Network** (Data Type: *AFCENetwork*)





4 For the EAFC parameter, use the same tag already linked to the AFC parameter:



5 Download the project to the processor.

6 The *Network* controller tag contains the following tags:

Network	{...}
Network.Read	0
Network.Write	0
Network.Config	{...}
Network.Error	0
Network.Util	{...}

- **Network.Read** – Toggle this bit to read the network settings from the module to the **Network.Config** tags.

- **Network.Write –** Toggle this bit to write the network settings from the **Network.Config** tags to the module.
- **Network.Config** – Network settings to be transferred between the module and processor.

Network.Config	{...}
Network.Config.GatewayIndex	0
Network.Config.Physical_Interface_IP	{...}
Network.Config.Physical_Interface_IP[0]	0
Network.Config.Physical_Interface_IP[1]	0
Network.Config.Physical_Interface_IP[2]	0
Network.Config.Physical_Interface_IP[3]	0
Network.Config.Physical_Interface_Network_Prefix	0
Network.Config.Default_Gateway_IP	{...}
Network.Config.Default_Gateway_IP[0]	0
Network.Config.Default_Gateway_IP[1]	0
Network.Config.Default_Gateway_IP[2]	0
Network.Config.Default_Gateway_IP[3]	0
Network.Config.Server1_Network_Prefix	0
Network.Config.Server1_MBAP_Port	0
Network.Config.Server1_Listener_IP	{...}
Network.Config.Server1_Listener_IP[0]	0
Network.Config.Server1_Listener_IP[1]	0
Network.Config.Server1_Listener_IP[2]	0
Network.Config.Server1_Listener_IP[3]	0

Network.Config.GatewayIndex – This tag corresponds to the **ModbusGateway** index from the main AFC tag. It is reserved for the read/write operations. Select a **ModbusGateway** index (0 to 9) corresponding to a command that is not being executed for other Modbus gateway transactions.

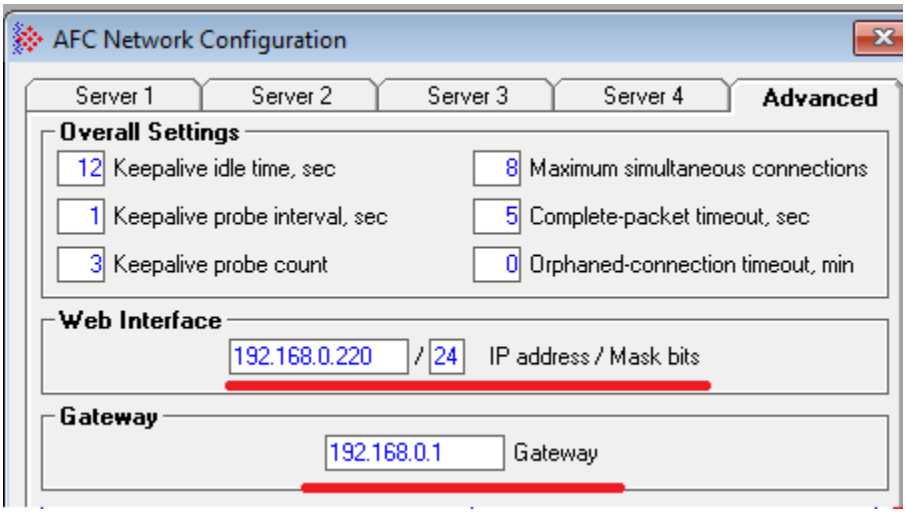
Name
AFC
AFC.ModbusGateway
AFC.ModbusGateway.Command
AFC.ModbusGateway.Command[0]
AFC.ModbusGateway.Command[1]
AFC.ModbusGateway.Command[2]
AFC.ModbusGateway.Command[3]
AFC.ModbusGateway.Command[4]
AFC.ModbusGateway.Command[5]
AFC.ModbusGateway.Command[6]
AFC.ModbusGateway.Command[7]
AFC.ModbusGateway.Command[8]
AFC.ModbusGateway.Command[9]

Trigger the **Network.Read** tag to update the **Network.Config** parameters from the module to the processor. Once the operation is concluded, the value will automatically return to 0:

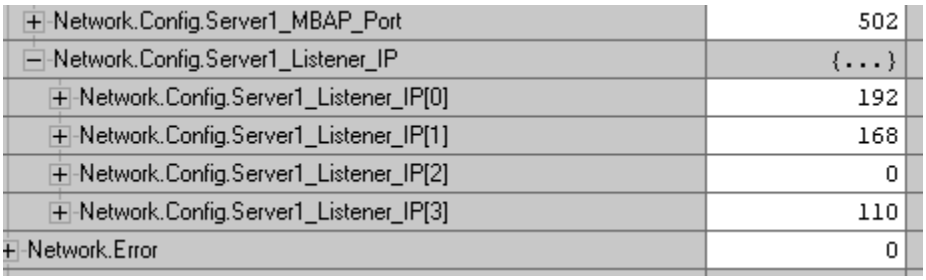
Network	{...}
Network.Read	1

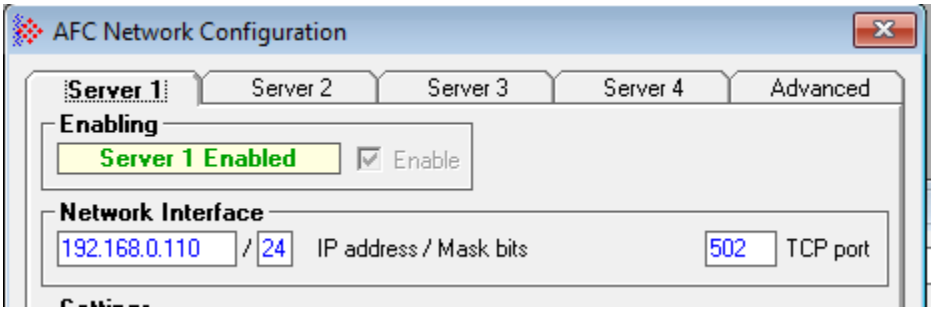
The following tags correspond to the IP, prefix, and gateway settings from the **AFC Manager: Site Configuration > Network > Advanced** tab.

Network.Config.Physical_Interface_IP	{...}
Network.Config.Physical_Interface_IP[0]	192
Network.Config.Physical_Interface_IP[1]	168
Network.Config.Physical_Interface_IP[2]	0
Network.Config.Physical_Interface_IP[3]	220
Network.Config.Physical_Interface_Network_Prefix	24
Network.Config.Default_Gateway_IP	{...}
Network.Config.Default_Gateway_IP[0]	192
Network.Config.Default_Gateway_IP[1]	168
Network.Config.Default_Gateway_IP[2]	0
Network.Config.Default_Gateway_IP[3]	1



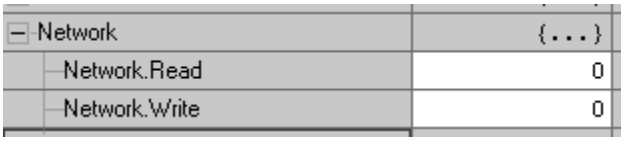
The following tags correspond to the IP, gateway and prefix settings from **AFC Manager: Site Configuration > Network > Server 1** tab.





Trigger the **Network.Write** tag to update the **Network.Config** parameters from the processor to the module. Once the operation is concluded, the value will automatically return to 0:

For troubleshooting purposes, refer to the following *Error* and *Util* tags:

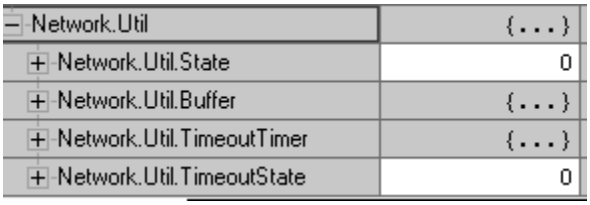


The *Network Error* codes are as follows:

- 0: Read/write operation performed successfully.
- -1: Operation timeout. Check the **Util.TimeoutState** tag for further information.
- -2: The **GatewayIndex** tag is out of range (must be between 0 and 9).

This tag only confirms that the data was transferred successfully. The module may still reject the operation in case it does not attend the validation criteria (Example: the MBAP port value must be set as 502, or between 1024 and 65535).

The **Network.Util** tag contains tags that can be used for further troubleshooting.



The **Network.Util.State** tag will be set to the following values according to the logic state machine code:

- 0: Operation has not started
- 1: Modbus gateway read command issued to the AFC module
- 2: Modbus gateway read command response received from the AFC module
- 3: Modbus gateway write command issued to the AFC module

In case of timeout (error = -1), refer to **Network.Util.TimeoutState** to check the state the operation was interrupted.

The **Network.Util.Buffer** tag contains the byte array transferred between the module and processor. The **Network.Util.TimeoutTimer** tag is set to 10 seconds to reset the trigger and state in case the operation is interrupted.