

Map Many Inputs to One Output Using Action Rules

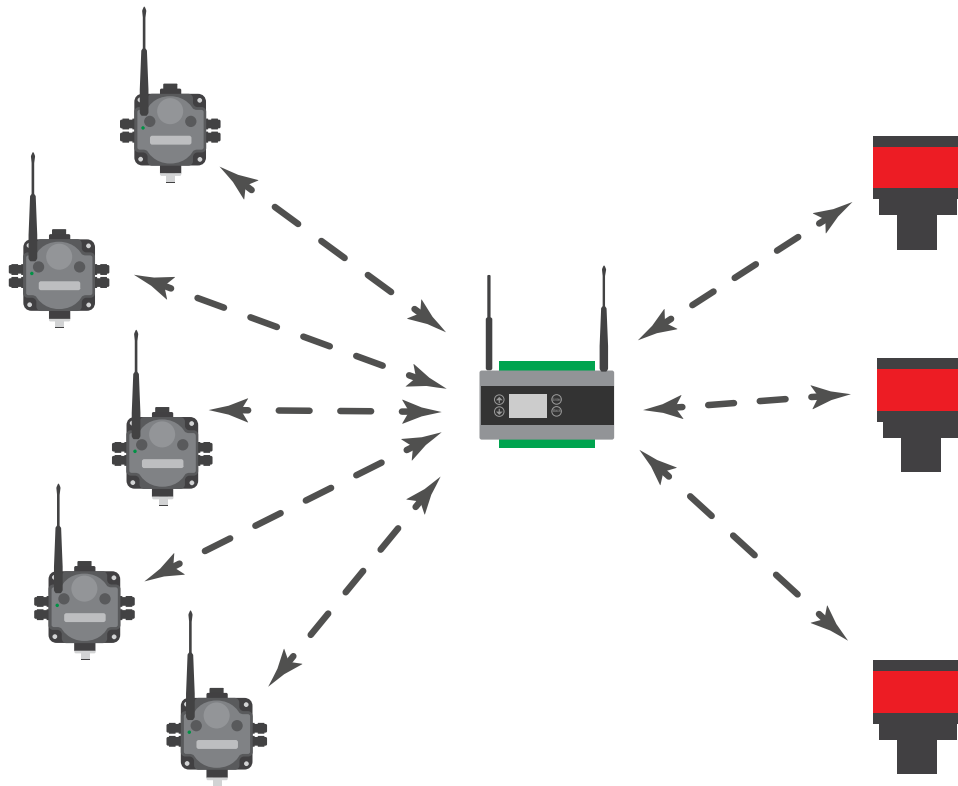


Map Many Inputs to One Output Using Action Rules

Use the DXM Controller and Action Rules to read multiple inputs, logically OR the values, then write the result to an output or outputs. There are unlimited variations that can be accomplished using Action Rules and Read/Write maps.

This example does not explain how to use the DXM Configuration Tool or discuss details of the DXM Controller configuration. For help using the DXM Configuration Tool, refer to the DXM Configuration Tool Instruction Manual (p/n [158447](#)). For help setting up the various operations of the DXM Controller, refer to the DXM100-Bx Wireless Controller Instruction Manual (p/n [190037](#)).

The example application is saved in the configuration file `ManytoOne.xml`. The application reads a single discrete input on five different DX80 Nodes. If any input is activated, three different TL70 wireless stack light outputs are turned on. The discrete input is connected to the wireless Nodes on input 1 and the output on the stack lights are on the first output (Modbus register 9 on the Wireless TL70 Node)



1. Define the DXM Controller Local Registers.
2. Define the DXM Controller's Action Rules.
3. Create the register Read and Write Rules.
4. Save the configuration file and upload the file to the DXM Controller.

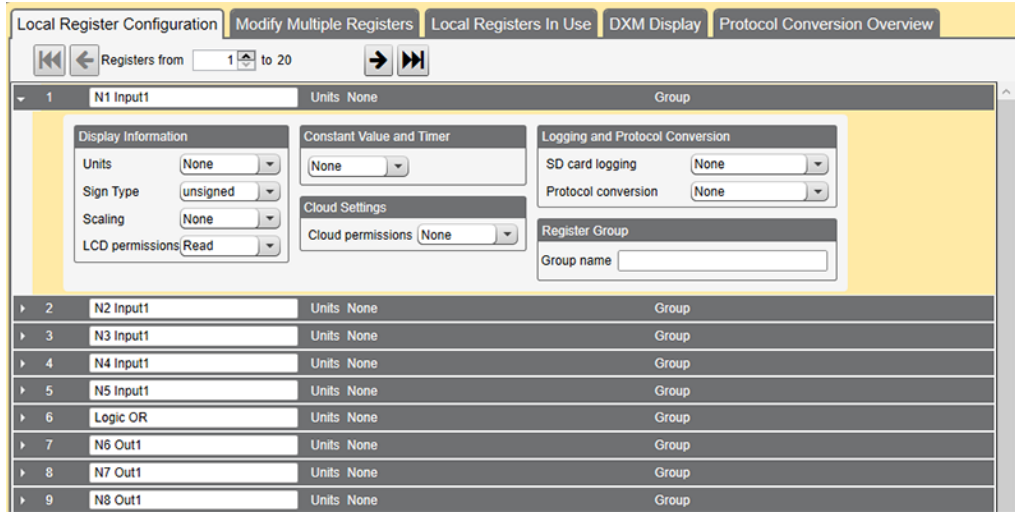
Define the Local Registers

The Local Registers are the global storage area. Data is read from or written to the Local Registers.

1. Go to the **Local Registers > Local Register Configuration** screen.
2. Define the first five Local Registers as the Node 1 through 5 switch registers by naming them and setting **LCD permissions** to Read.
3. Define Local Register 6 to be the output data transmitted to the Wireless TL70 Nodes by naming it and setting **LCD permissions** to Read.
4. Define Local Registers 7 through 9 for the output data to be sent to the TL70 Nodes by naming them and setting **LCD permissions** to Read.

This example uses TL70 OUT A through OUT C.

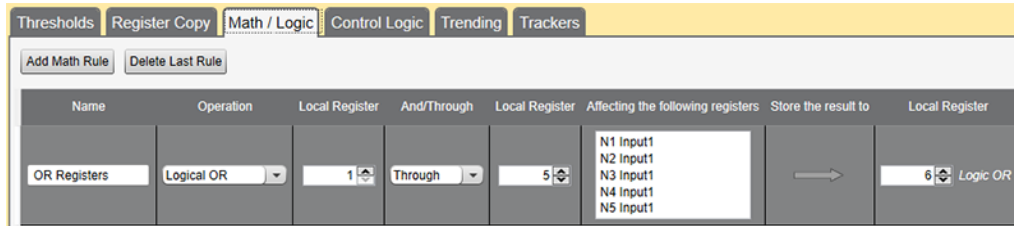
The local registers are set up for the Action Rules and Read/Write Rules.



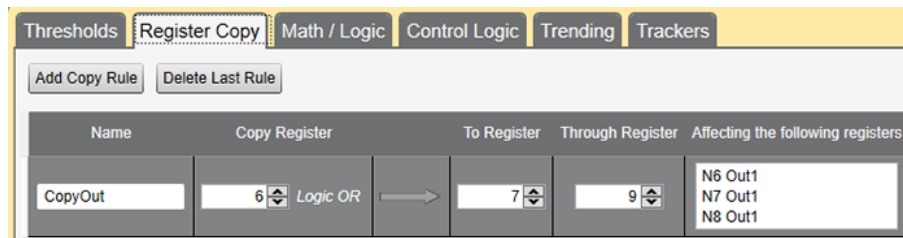
Create the Action Rule

Create an Action Rule that logically ORs Local Registers 1 through 5 and writes the ORed value to Local Register 6, the results register for the light outputs.

1. Go to the **Action Rules > Math/Logic** screen and click **Add Math Rule**.
2. Name the math rule.
3. From the drop-down lists, select Logical OR (**Operation**), Local Registers 1 through 5, and store the result in Local Register 6.



4. Go to the **Action Rules > Register Copy** screen and click **Add Copy Rule**.
5. Name the copy rule.
For this example, the copy rule is named CopyOut.
6. From the drop-down list, select the Local Register to out from.
Our example is copying from Local Register 6.
7. From the drop-down lists, select the Local Register(s) to copy to.



Our example is copying to Local Registers 7 through 9. The names of the target registers are listed.

Create the Read and Write Rules

Define the rules to read the switch input values from the internal DX80 Gateway (Modbus Slave 1) and write the values to Local Registers.

The DXM Controller's internal ISM radio is Modbus Slave ID 1.

The four DX80 Gateway registers to read for Nodes 1 through 5, input 1, are 6802 through 6806. This register location organizes the Modbus registers by each input. See *Alternate Modbus Register Organization in the DX80 Host Controller Systems Manual* (p/n 132114) for more information about alternate Modbus registers.

Define the Write Rule to write values to the Wireless TL70 Node registers. For this example application, the three Wireless TL70s are Nodes 5, 6, and 7. Because the DX80 Gateway handles all Modbus registers, write to the Gateway Modbus registers for Nodes 5 through 7, register 9, at addresses 8002–8004. See *Alternate Modbus Register Organization in the DX80 Host Controller Systems Manual* (p/n 132114) for more information about alternate Modbus registers.

1. Go to the **Register Mapping > Read Rules** screen and click **Add Read Rule**.
2. Click the arrow to display the read rule parameters.
3. Name your new rule.
4. From the drop-down lists, read **From slave ID 1, read 5 registers starting at 6802 to local registers starting at 1**.

5. Set the **Frequency** to 0.50 seconds.
6. Go to the **Register Mapping > Write Rules** screen and click **Add Write Rule**.
7. Click the arrow to display the write rule parameters.
8. Name the write rule and select the following parameters. Select a write **Frequency** of On change of local register data. 9

9. Create a second write rule, similar to the first one, that takes the logical OR value from Local Register 6 and writes it to DXM LED 1.

For more information on the user programmable indicator LEDs, see the DXM Instruction Manual (p/n [190037](#)).

Save and Upload the Configuration File

After making any changes to the DXM Controller configuration, you must save the configuration files to your computer, then upload it to the DXM Controller.

Changes to the XML file are not automatically saved. Any adjustments require that the file be manually saved before exiting the tool and/or before sending the XML file to the DXM Controller.

1. Save the XML configuration file to your hard drive by going to the **File > Save As** menu.
2. Upload the configuration file to your DXM Controller.
 - a) Verify your DXM Controller is connected to the Windows-based PC running the DXM Configuration Tool.
 - b) Go to the **Device > Send XML Configuration to DXM** menu.

The DXM Controller reboots and begins running the new configuration.