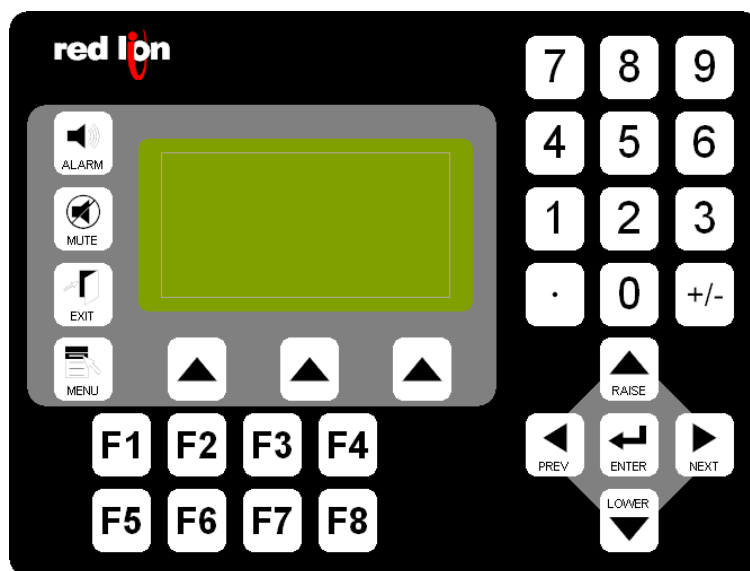




## 10/100 Mbps Industrial Ethernet I/O Modules

### APPLICATION NOTE

# Communicating To Acromag Series Ethernet Modules From Red Lion HMIs



**ACROMAG INCORPORATED**  
30765 South Wixom Road  
P.O. BOX 437  
Wixom, MI 48393-7037 U.S.A.

**Tel: (Process): (248) 295-0880**  
**Fax: (248) 624-9234**

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**OBJECTIVE**

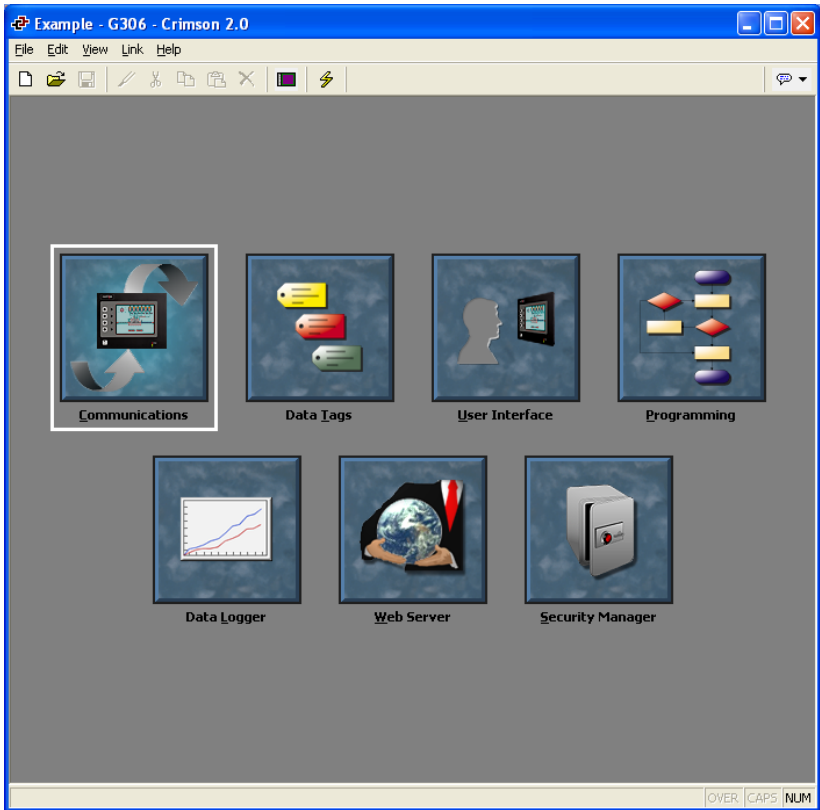
This document illustrates a procedure for configuring message commands for Acromag Ethernet modules using the Red Lion Crimson 2.0 Software. It is assumed that the user has a working knowledge of the Crimson 2.0 software, as well as a Red Lion HMI.

**TABLE OF CONTENTS****COMMUNICATING WITH CRIMSON 2.0**

<b>Setting up Communications.....</b>	<b>3</b>
<b>Setting up a Read-Only Variable.....</b>	<b>5</b>
<b>Setting up a Read-Write Variable.....</b>	<b>7</b>
<b>Setting up the User Interface.....</b>	<b>10</b>
<b>Notes.....</b>	<b>14</b>

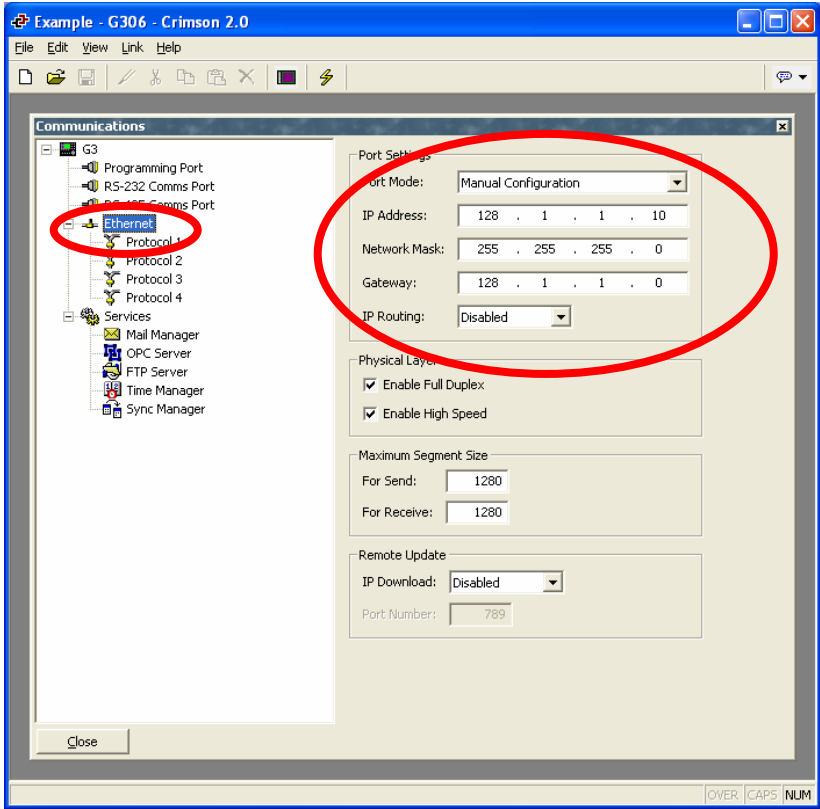
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## Setting up Communications

1. From a new or existing project, double click on the **Communications** icon

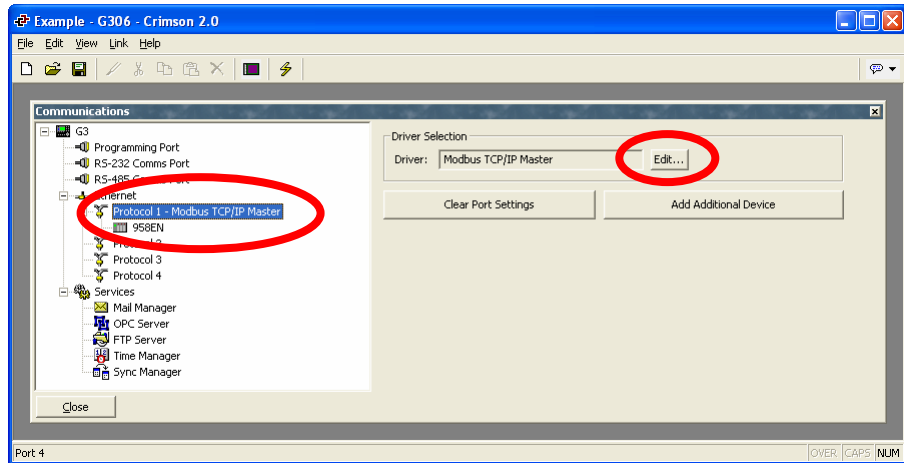


2. On the left hand side, select the **Ethernet** Port. For the **Port Mode**, select **Configured via DHCP or APIPA** for a DHCP server. For a fixed IP address, select **Manual Configuration**.

For Manual Configuration, enter the appropriate **IP Address, Network Mask, and Gateway**.

3. Click on **Protocol 1 – Modbus TCP/IP Master**. In the Driver Selection section, Click on the **Edit...** button. Select the Manufacturer **Modbus**. Select the Driver **Modbus TCP/IP Master**.

Right click on the **Protocol 1**. Select **Add Another Device**. To change the name of this device, right click on it, and select **Rename**.

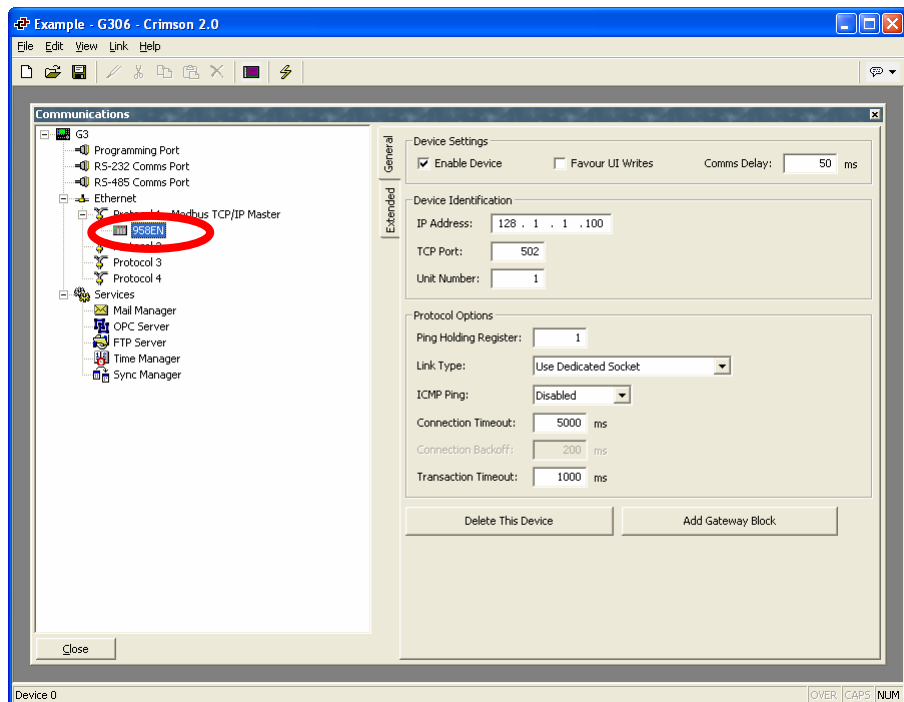
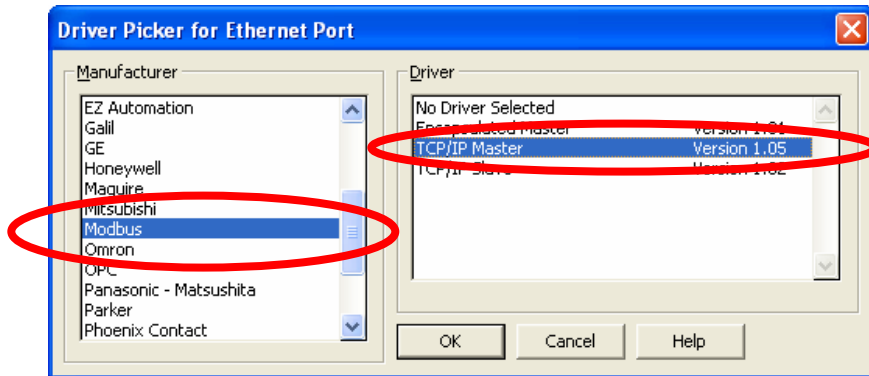


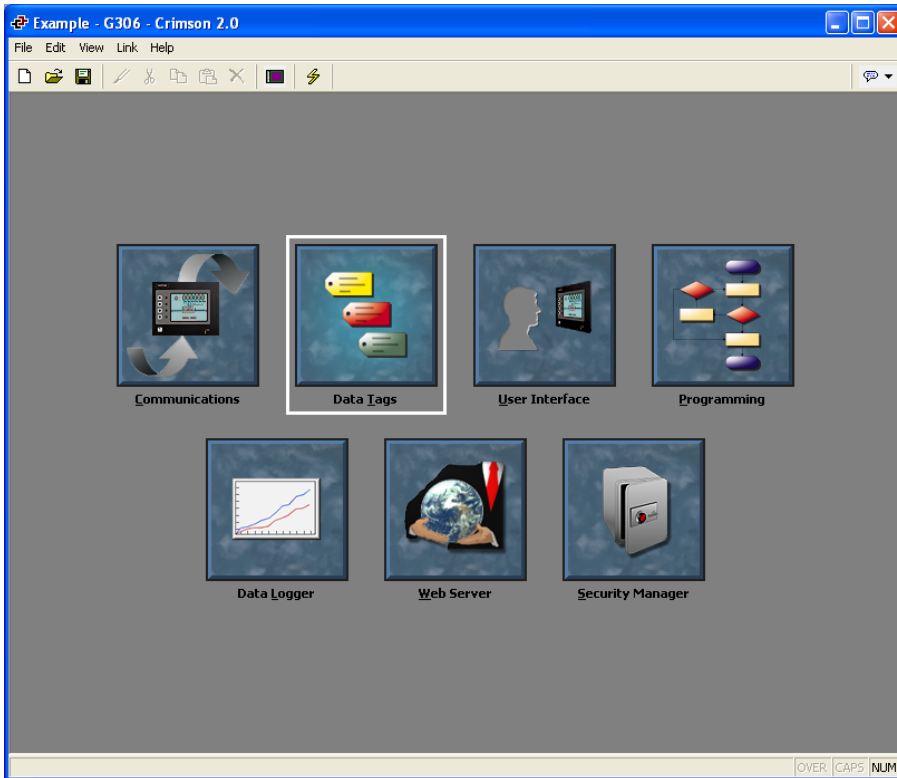
4. Click on the new device. Under the **Device Settings** section, check the **Enable Device** Box to enable the Module.

Set your desired poll rate in the **Comms Delay** Text box. The example shown is set to 50mS.

In the **Device Identification** section, type in the **IP Address** of the desired Acromag Ethernet Module. The default Address is 128.1.1.100 and **TCP Port** of 502.

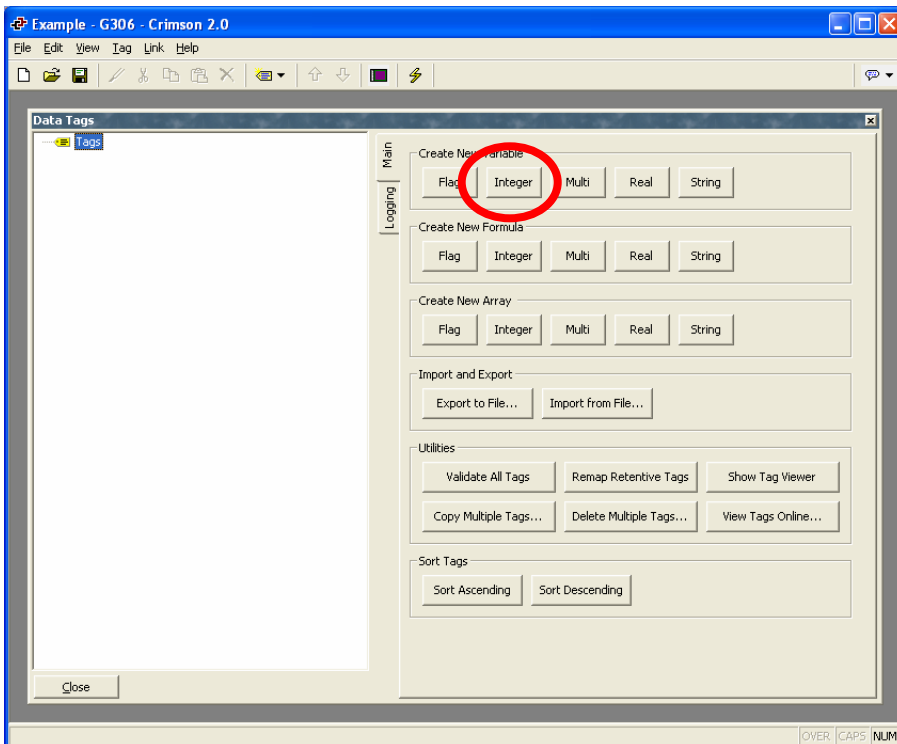
In the **Protocol Options** section, you can choose the **Link Type: Use Dedicated Socket**. This will allow a dedicated Modbus socket to the module. This configuration type is recommended for optimal speed. **Use Shared Socket** allows the Modbus socket to be used for other devices. When two or more modules are connected, the Modbus socket will switch between the two devices.





## Setting up a Read-Only Variable

1. On the Main Menu, double click the **Data Tags** Icon.



2. **Create a New Variable** by clicking the **Integer Button**.

2. Click on the new variable. In the **Variable Data** section, click on the **Mapping** button, and select the device you want to communicate with. A new window (see below) will pop up. Select the desired register in the **Data Item** section and type in the address in the **Element** section.

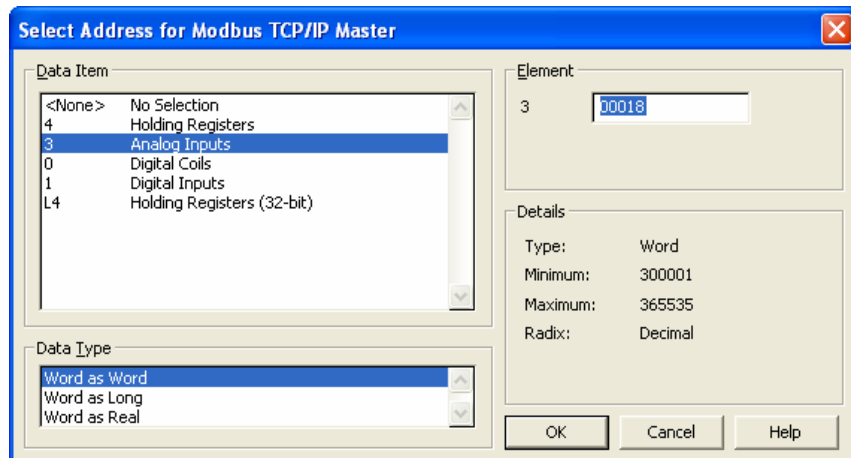
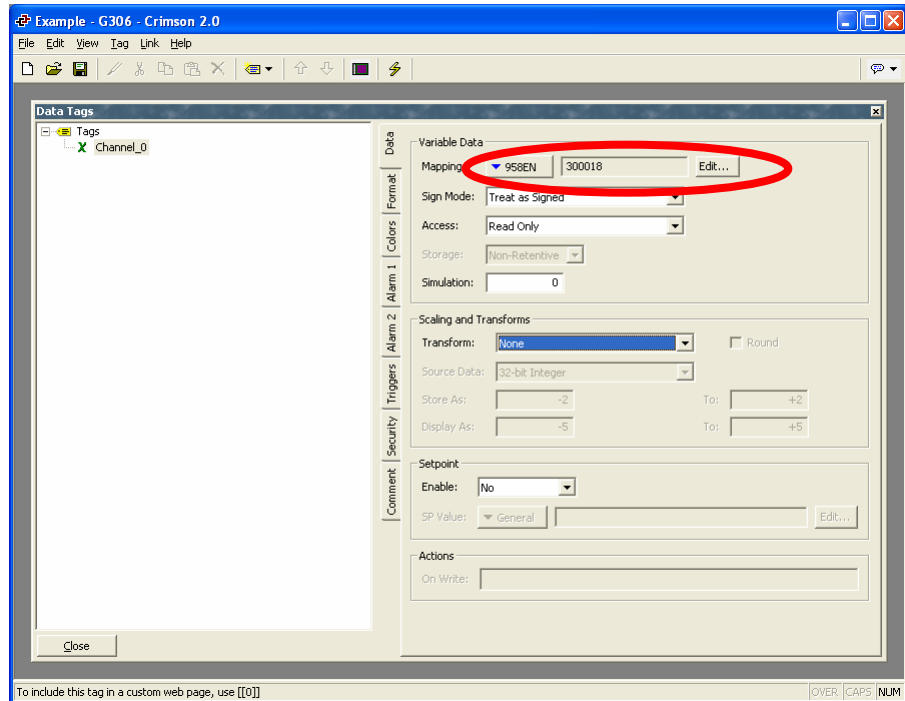
**Note:** In order to properly map modbus addresses, you **MUST** leave the first digit in the address as 0.

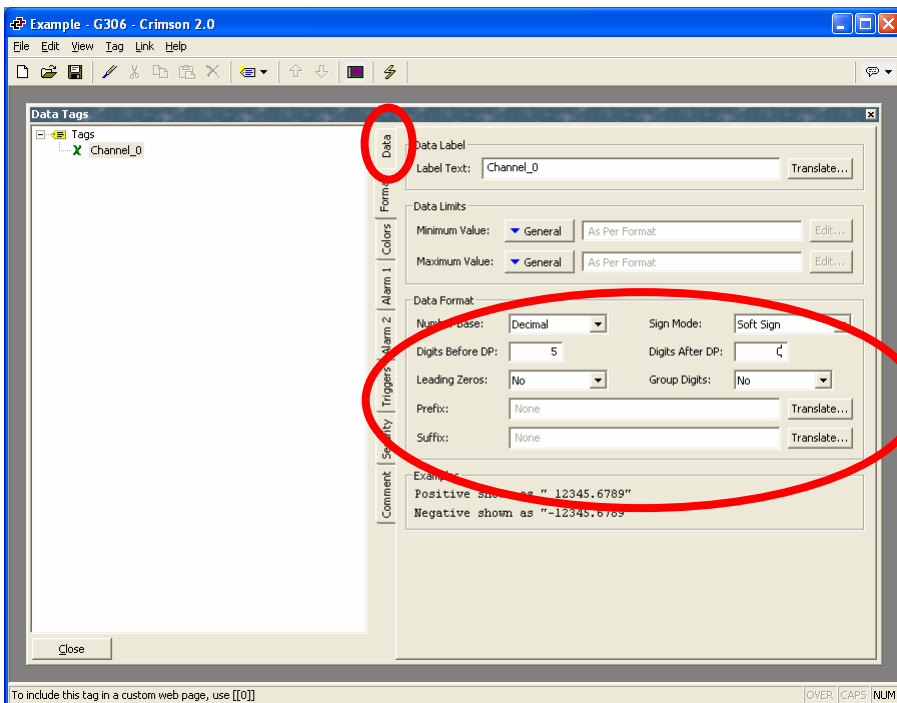
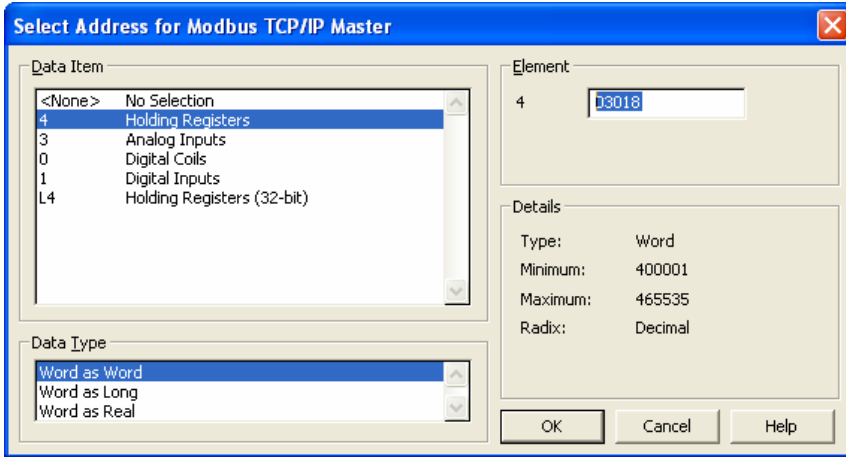
For Example: to read register 30018, after selecting the **Data Item 3 Analog Inputs**, in the **Element Section** type **00018**.

If you choose to use the Mirrored Registers, for example, to read register 30018, you would need to read 43018. To enter this, select the **Data Item 4 Holding Registers**. In the **Element** section, type **03018**.

Next, in the **Sign Mode** dropdown menu, select **Treat as Signed**.

In the **Access** dropdown menu, select **Read Only**.



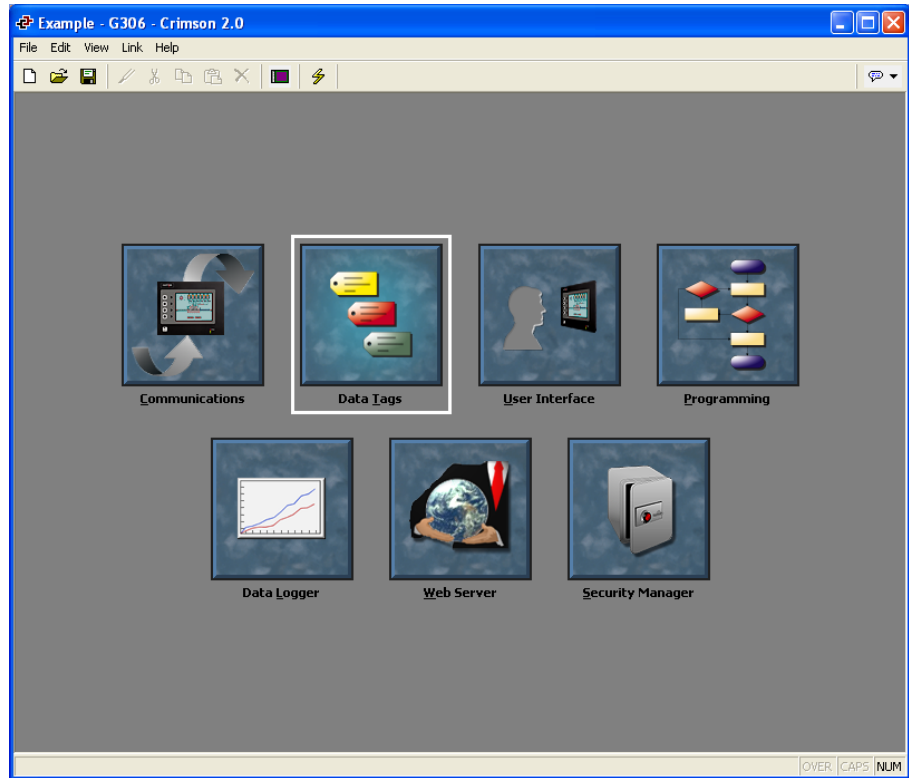


3. Click on the tab **Format**. In the **Label Text** box, type in desired label for the register.

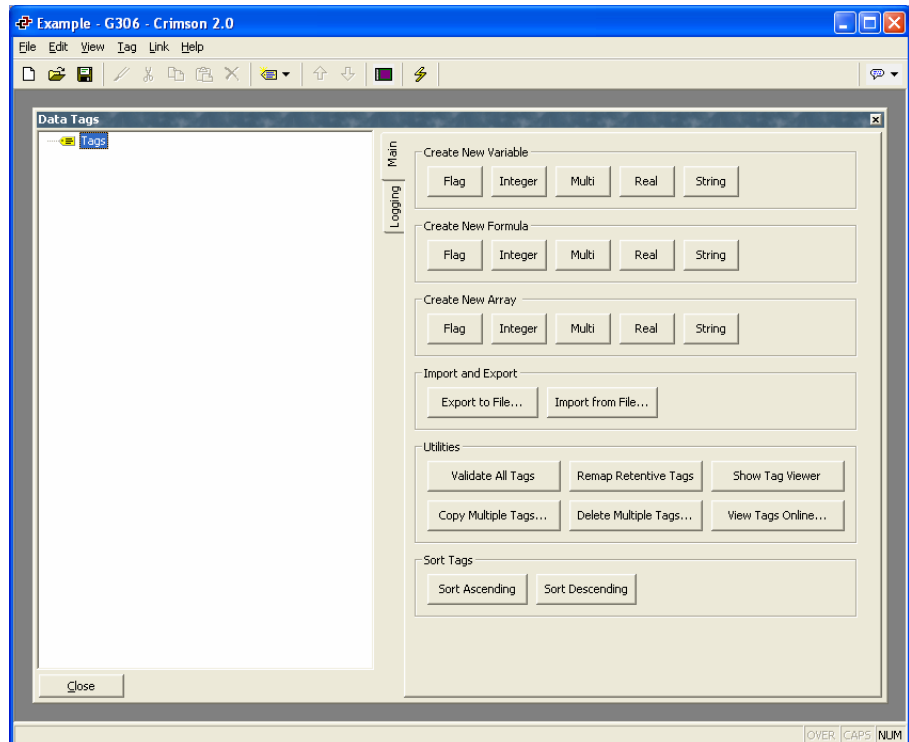
In the **Data Format** section, select the **Number Base: Decimal**, **Sign Mode: Signed**, **Digits Before DP: 5**, **Digits After DP: 0**, **Leading Zeros: No**, **Group Digits: No**.

### Setting up a Read-Write Variable

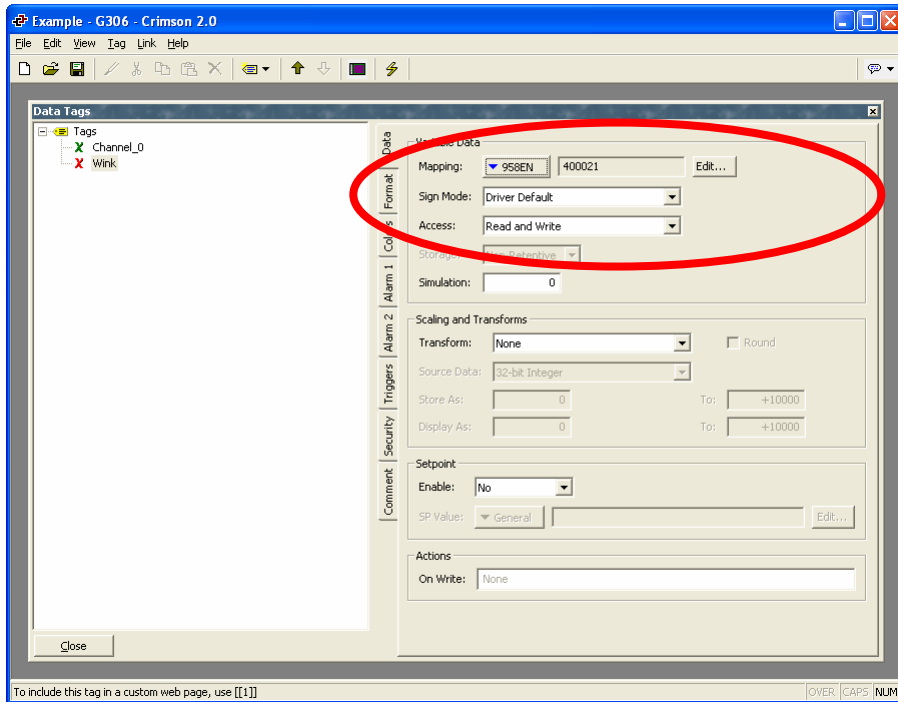
1. On the Main Menu, double click the **Data Tags** Icon.



2. **Create a New Variable** by clicking the **Integer Button**.





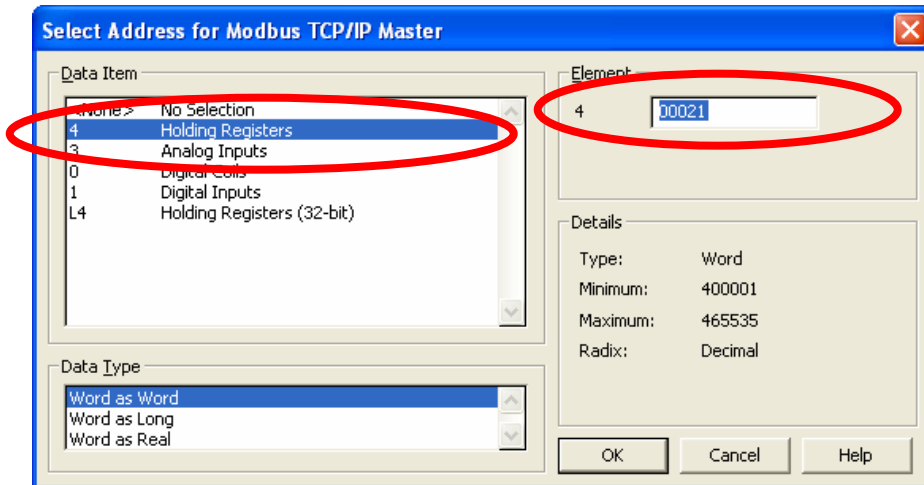


3. Click on the new variable. In the **Variable Data** section, click the **Mapping** button and select the device you want to communicate with. A new window (see on next page) will pop up. Select the desired register in the **Data Item** section and type in the address in the **Element** section.

**Note:** In order to properly map modbus addresses, you **MUST** leave the first digit in the address as 0.

Next, in the **Sign Mode** dropdown menu, select **Treat as Unsigned**.

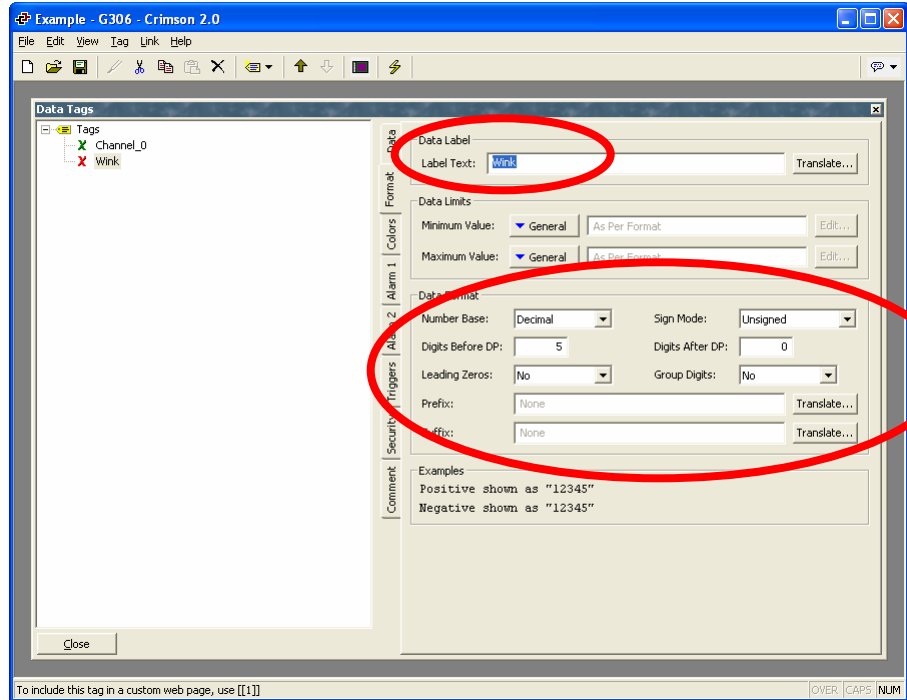
In the **Access** dropdown menu, select **Read and Write**.



3. For Example: to read register 40021 select the **Data Item 4 Holding Registers**, in the **Element** Section type 00021.

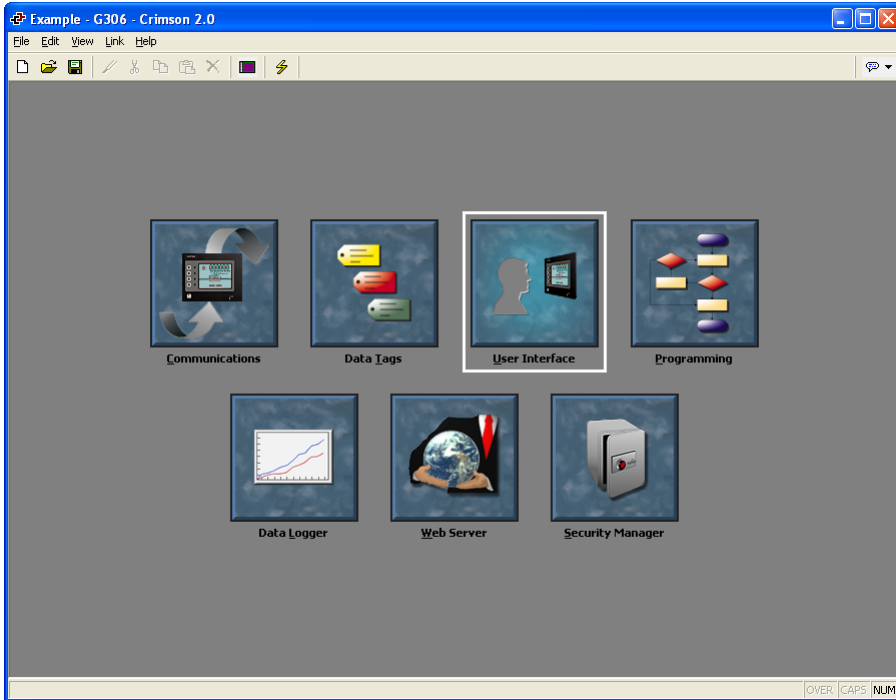
- Click on the tab **Format**. In the **Label Text** box, type in desired label for the register.

In the **Data Format** section, select the **Number Base: Decimal**, **Sign Mode: Unsigned**, **Digits Before DP: 5**, **Digits After DP: 0**, **Leading Zeros: No**, **Group Digits: No**.



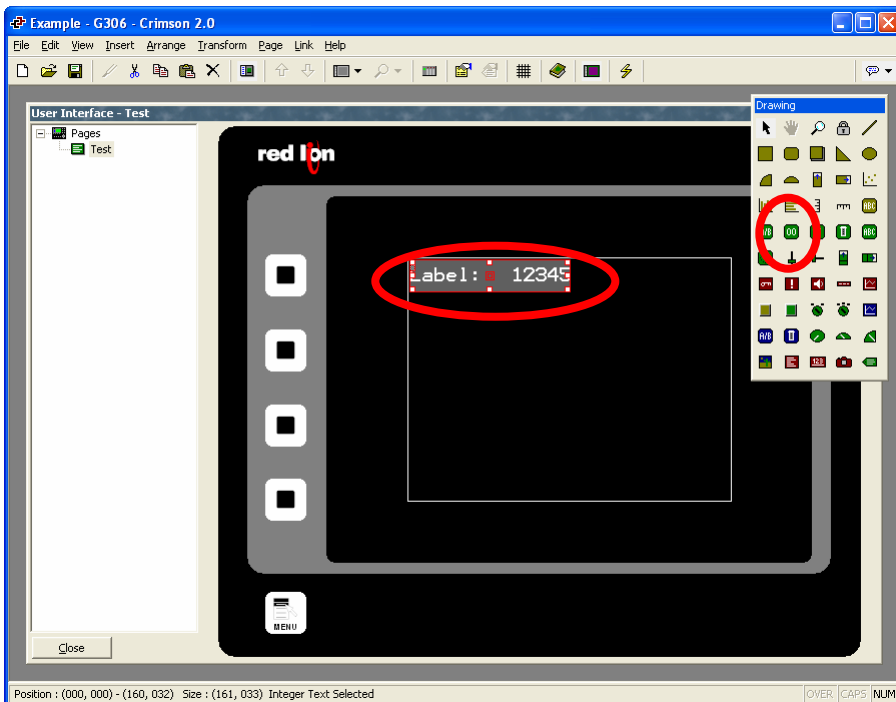
## Setting up the User Interface

- On the Main Menu, double click the **User Interface** Icon.



- 2. In the **Drawing** Window, click on the **Integer Text** Icon (the Green box with two zeros) Size the label to the appropriate size.

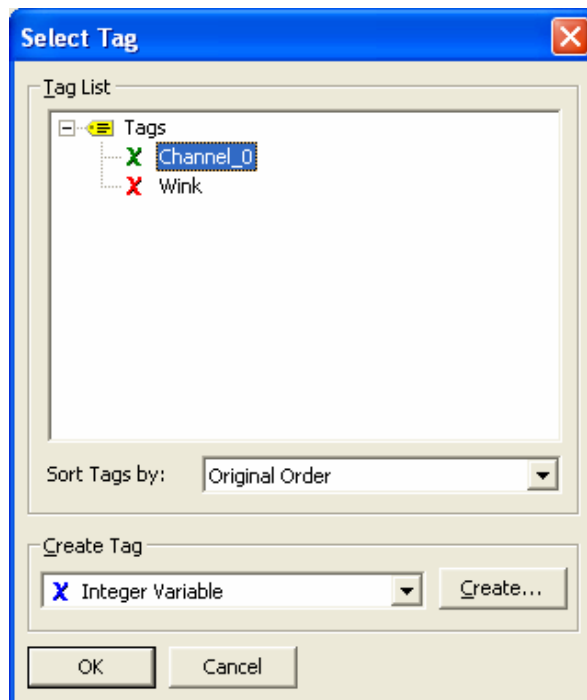
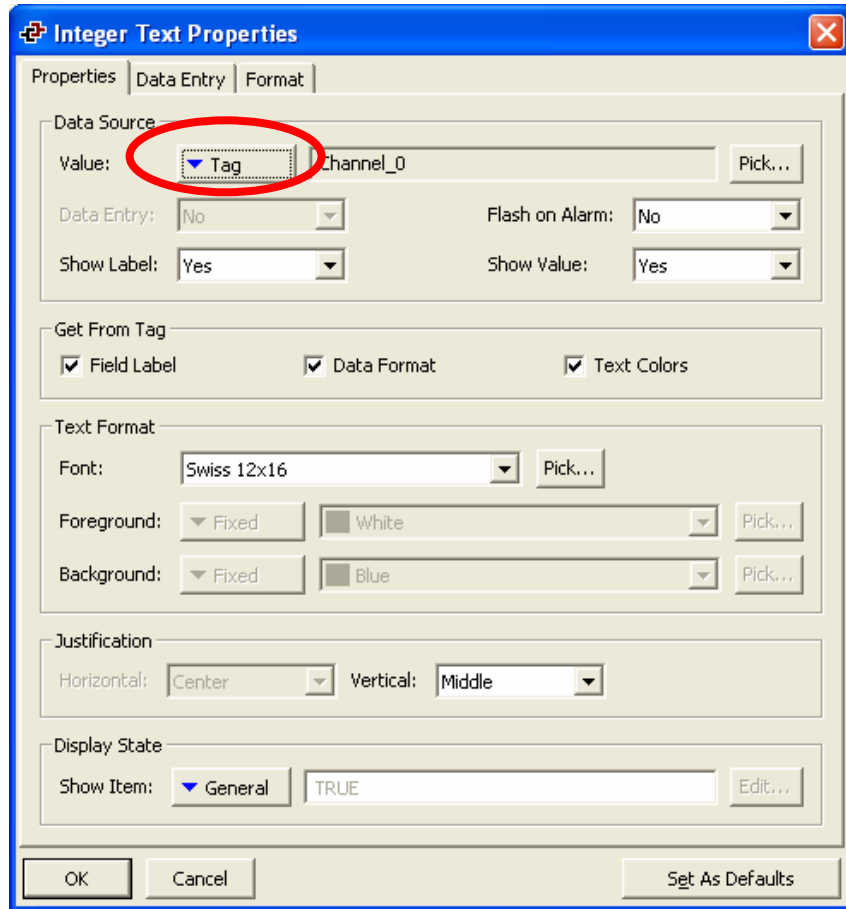
Double click on the text.

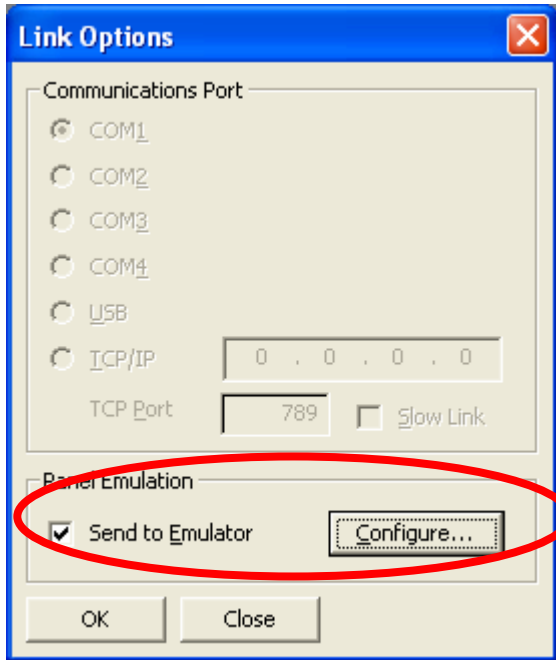


- Click on the **Value Button** and select **Tag**.

In the pop-up window, select the desired Variable and click **OK**.

**Note:** If your variable is writable, the **Data Entry** must be set to **Yes**.





4. To verify proper operation, close the **User Interface Window**, then on the **Menu bar**, click on **Link -> Options...**

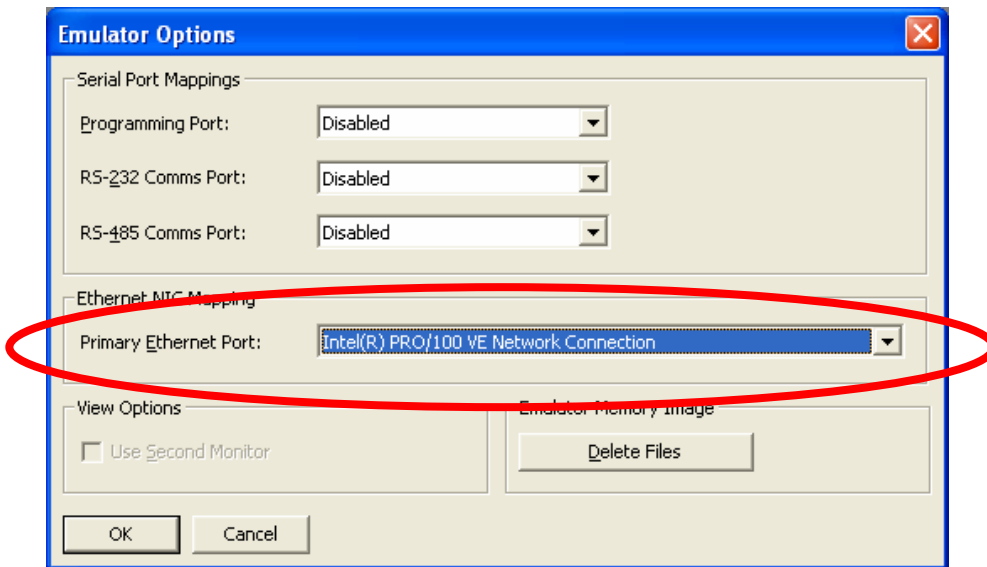
In the **Panel Emulation** section, check the **Send to Emulator** Box.

Click on the **Configure...** Button.

In the **Emulator Options** pop-up box, Select the appropriate NIC card in the **Primary Ethernet Port** dropdown menu.

Click the **OK** button in the **Link Options** box.

Click the **OK** button in the **Emulator Options** box.



4. To run the Emulator, press **F9**.

