**Operator Interface
Tech Note 40**

Barcode Scanner Support

Abstract

Crimson® provides barcode scanner support for Red Lion Controls CR1000 Human Machine Interface (HMI), CR3000 HMI, Data Station Plus (DSP) (excludes LE), G3 HMI, G3 Kadet HMI, Graphite® Controller, Graphite HMI, Modular Controller (excludes LE), and ProducTVity Station™ products.

Products:

CR1000 HMI,CR3000 HMI, DSP (excludes LE), G3 HMI, G3 Kadet HMI, Graphite Controller, Graphite HMI, Modular Controller (excludes LE) and ProducTVity Station™

Use Case

This document describes a simple application used to receive data from a barcode scanner. For the purpose of this application, the barcode scanner is configured to automatically transmit the ASCII string upon a successful read. A "trigger" command from the Red Lion device is **not** required to request that the barcode scanner send the string.

Required Software:

Crimson 3.1, Crimson, 3.0, or Crimson 2.0

Required Operating System:

Microsoft Windows 2000, or above

Introduction

This document describes how to set up a G310 to receive data from an RS-232 equipped barcode scanner. Figure 1 shows a representative connection diagram.The G310 receives an ASCII string from the scanner and stores that string in a tag. Crimson can then use the tag in the same manner as any other tag.

Figure 1.

The following steps describe how to set up a G310 to receive data from an RS-232 equipped barcode scanner. Setup consists of four primary elements:

- **Port configuration** - Defines the port used for communications with the barcode scanner
- **Creating the tag** - Creates the tag used to store barcode scanner data
- **Compiling the program** - Defines the syntax of the data string used to capture barcode scanner data
- **Defining the user interface** - Specifies where the barcode scanner's output is displayed

Once properly configured, the G310 will receive the ASCII string from the scanner and store that string in a tag. That tag is then available for use within Crimson. Crimson supports Red Lion Controls CR1000 HMI, CR3000 HMI, DSP (excludes LE), G3 HMI, G3 Kadet HMI, Graphite Controller, Graphite HMI, Modular Controller (excludes LE), and ProducTVity Station; set up is similar for all products.

> **NOTE**: Crimson barcode scanner support requires Crimson 2.0 or above and is only available to Windows 2000 or above users. Please update your version of Crimson to the latest; available online at www.redlion.net

Port Configuration

Start Crimson and go to the Communications window, shown in Figure 2. Configure the serial port to be used with the barcode scanner by performing the following:

1. Under Driver Selection, go to the Driver field and specify *Raw Serial Port.*

2. Under Driver Settings, specify the Mode (*Master* in this example), if not already selected.

3. Under Driver Settings, set the On Update property to *Program1()*. This will cause the G310 to call this program on every communications update.

4. Adjust the Port Settings (Baud Rate, Data Bits, Stop Bits, and Parity) to match those of the barcode scanner. In this example, Baud Rate = *9600*; Data Bits = *Eight*; Stop Bits = *One*; and Parity = *None*. Your settings must match those specified for your barcode scanner.

> **Note:** The task bar, located in the lower-left corner of the Navigation Pane, shows the port number for the chosen serial port. This value (Port Number 3 in this example) will be used within the program Reader.
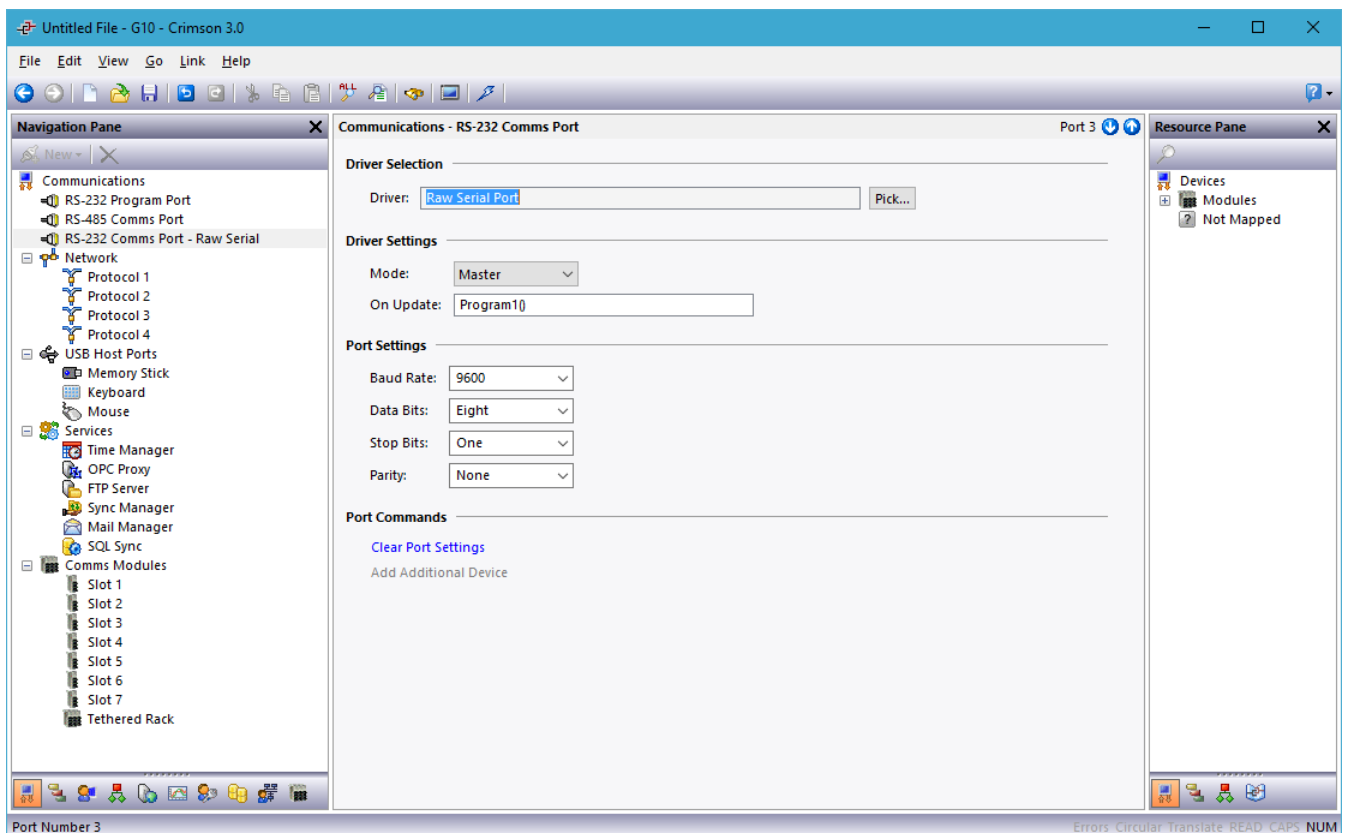

Figure 2.

Tags

Now the tag must be created. Go to the Data Tags section of Crimson, shown in Figure 3, and perform the following:

1. Create a string tag by selecting the *String Tag* option under the Navigation Pane; notice that the lower-left corner of the Navigation Pane reflects this option: *Create a new tag capable of representing a string value*
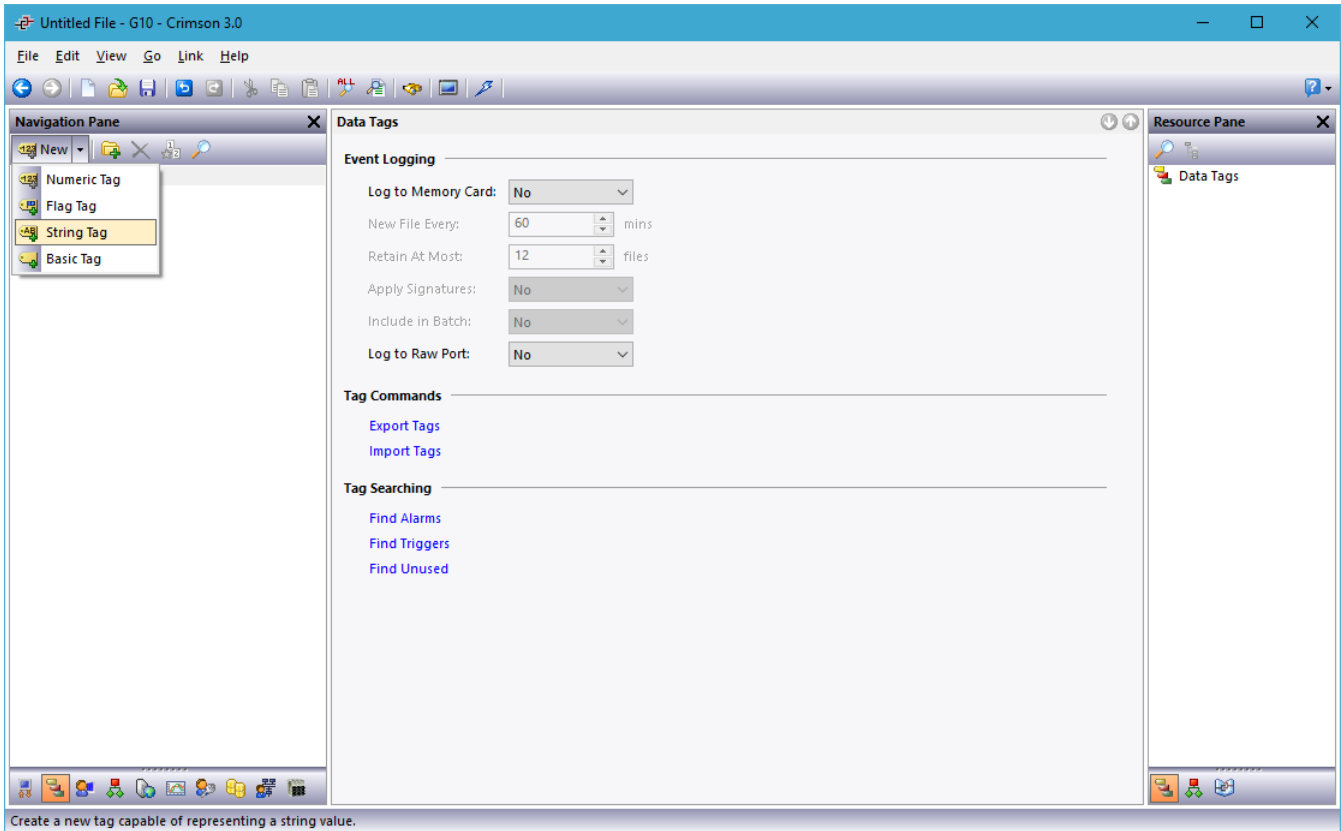

Figure 3.

The popup window Data Tags - Tag 1 will be displayed, as shown in Figure 4. In this example, the default name *Tag1* is used. However, the newly created tag may be renamed, as desired. The Field Width of the tag may also be adjusted by selecting the Format Tab, if desired.

> **NOTE:** If the Field Width is changed, specify a value large enough to capture the entire string from the barcode scanner.
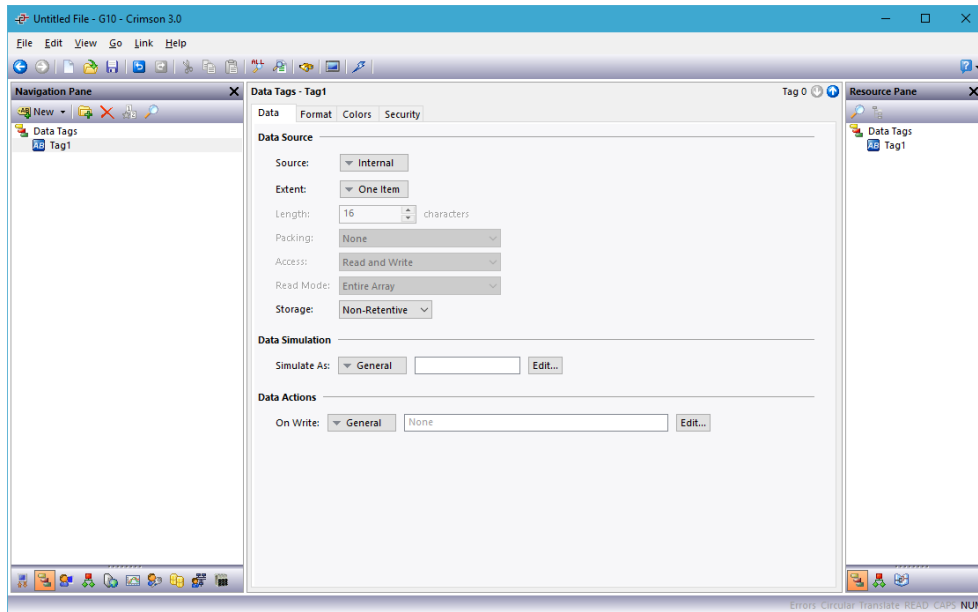

Figure 4.

User Program

Now the user program must be entered and compiled. Referring to Figure 5, perform the following:

1. From the Navigation Pane, select Program 1; the Programs - Program 1 popup is displayed. Select the Source tab if not already active.

2. Enter the following text into the area below Program Code:

```
Cstring input = PortInput (3, 0, 13, 500, 0);

if (input != "")

    Tag1 = input;
```

3. Click the yellow *!* button on the toolbar, or press CRTL+T on your keyboard to translate, e.g. compile the code you've just entered.
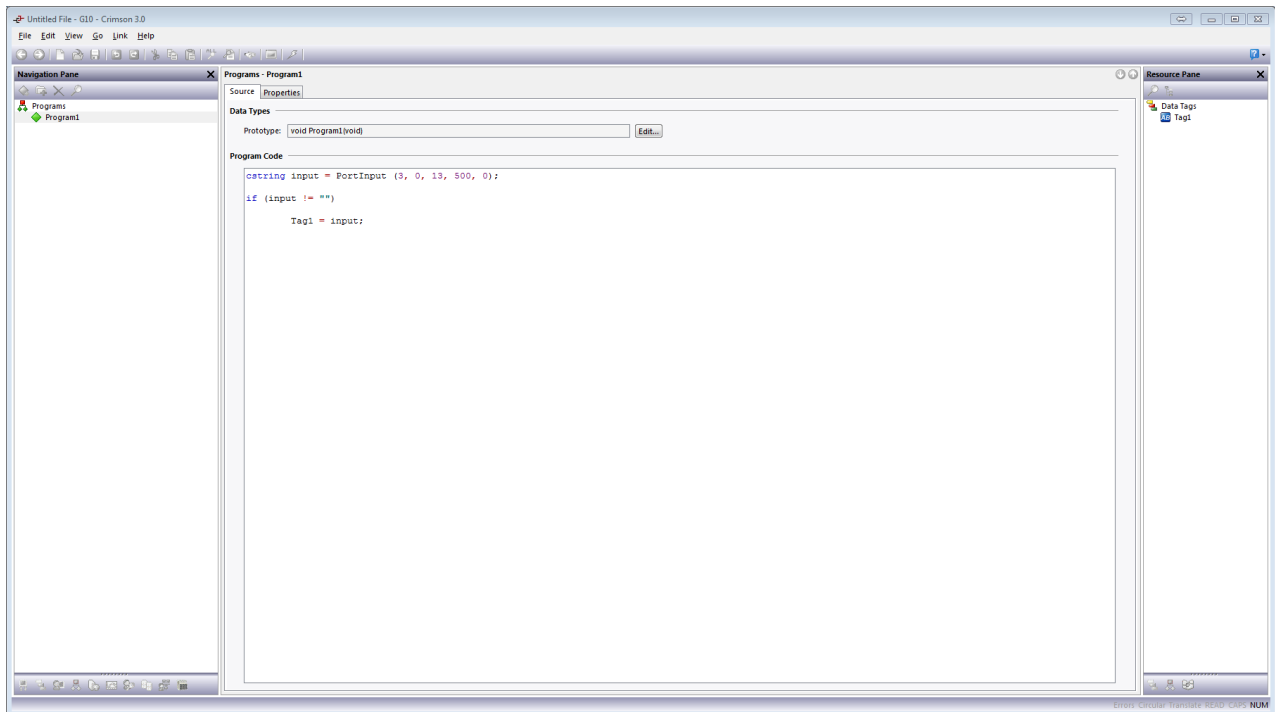

Figure 5.

EXPLANATION

```
cstring input = PortInput(3, 0, 13, 500, 0);
```

Cstring input creates a local variable called "Input", and sets it equal to the contents of PortInput, which is the serial input buffer. The arguments, contained in parentheses, are as follows:

`3` - The port from which the data is being received. This number is found on the task bar when configuring the port as mentioned previously.

`0` - The character that the unit will look for to signify the start of the incoming string. Using 0 indicates no start character is defined.

`13` - The character that the unit will look for to signify the end of the incoming string. In this case the string will end with a carriage return, which is 13 decimal.

`500` - Delay in milliseconds that the unit will wait with no activity before processing the input buffer.

`0` - The maximum number of characters to return. This, along with the end character, is what is used to signify that we have all of the string. Which ever happens first has priority. Leaving this at zero will return all characters received before the end character.

```
if(input != "")
```

If statement, which checks to see if, Input contains anything. "If the input is "not equal" to "" (empty), perform the action.

```
Tag1 = input;
```

If Input is not empty, set Tag1 equal to the contents of Input. This stores the barcode scanner's string in the tag Tag1.

User Interface

The final set up action required after assigning the port, creating the tag, and compiling the user program is creating the user interface where the barcode scanner's output will be displayed. To create the user interface, perform the following:

> **1)** Click on *Data Tags* in the Resource Pane.
>
> **2)** Click and drag *Tag1* on to the page.
>
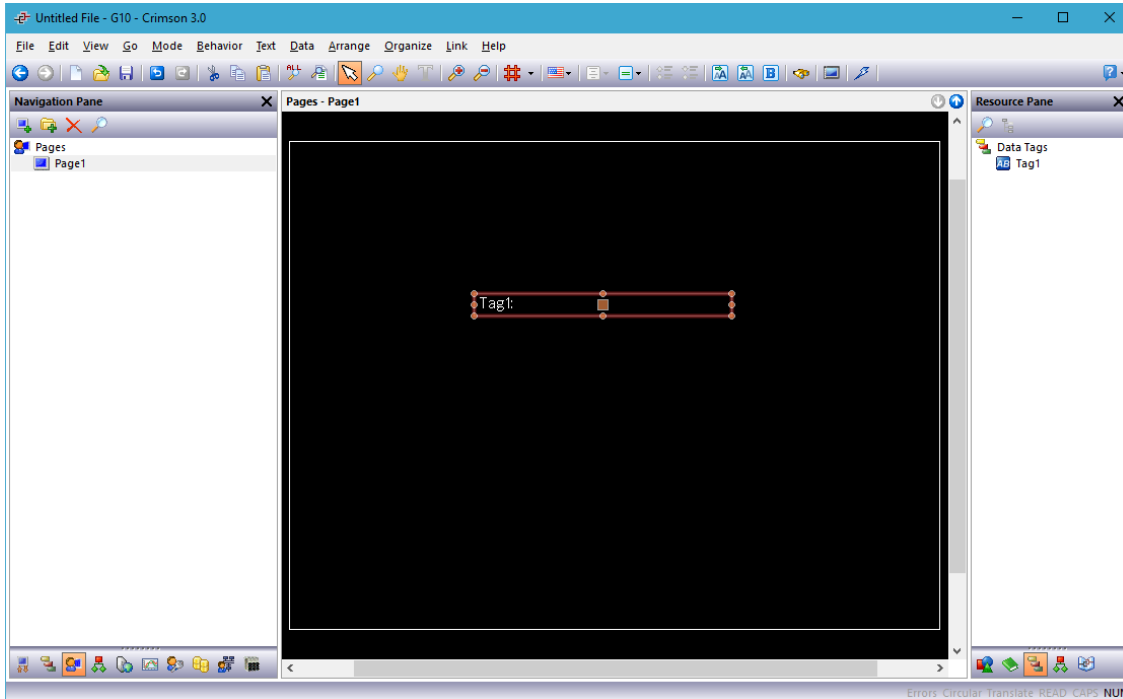> **3)** Resize the data box (Tag1), as needed.

Figure 6.

Disclaimer

It is the customer's responsibility to review the advice provided herein and its applicability to the system. Red Lion makes no representation about specific knowledge of the customer's system or the specific performance of the system. Red Lion is not responsible for any damage to equipment or connected systems. The use of this document is at your own risk. Red Lion standard product warranty applies.

Red Lion Technical Support

If you have any questions or trouble contact Red Lion Technical Support by emailing support@redlion.net or calling 1-877-432-9908**.**

For more information: http://www.redlion.net/support/policies-statements/warranty-statement