Industrial AutomationCrimson®: Mapping to RSLogix 5/Tech Note 12500-Based Processors



Abstract:

This document describes how to map Crimson tags to RSLogix 5/500-based processors and Programmable Logic Controllers (PLCs).

Products:

Red Lion Controls CR1000 Human Machine Interface (HMI), CR3000 HMI, Data Station Plus (DSP), G3 HMI, G3 Kadet HMI, Graphite[®] Controller, Graphite HMI, Modular Controller, and ProducTVity Station™

Problem Solved: Mapping Tags to RSLogix 5/500-Based Processors

One difference between the majority of data types available for programming processors is the way that bit addressing is displayed. RSLogix 5/500-based processors/PLCs often use a "/" to signify a bit within a word or long; Crimson uses a "." to signify a bit within a word or long. Additionally, all RSLogix 5/500-based processors transfer data in increments of 16-bit words. To map a tag to a bit within a word or long, first map the tag to the word or long, set the Treat As parameter to Bit Array Little-Endian, and then choose the desired bit from the Bit Number drop down selection. Refer to section 2.B in the Crimson 3.0 Quick Start Guide for further instructions on accessing bits within words. Refer to the <u>RSLogix 5</u> section for RSLogix 5-specific information.

Required Software:

Crimson[®] 2.0, 3.0, or 3.1

Required Operating System:

Microsoft Windows 2000, or above

Introduction

This document describes how to map Crimson tags to RSLogix 5/500-based processors for the types of data files listed in Table 1.

Data Type	
Binary	
Counter	
Floating Point	
Input	
Long	
Integer	
Output	
String	
Timer	



NOTE: Crimson 2 or higher is required 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.

RSLogix 500

All of the information provided in this section applies to RSLogix 500-based processors/devices. All information, except for the descriptions of Input and Output Data types, also applies to RSLogix 5-based processors/devices.

Binary

RSLogix 500

Binary Data File addresses may be shown in one of two formats:

- 1. B(File):Element/Bit
- 2. B(File)/Bit.

<u>Crimson</u>

Crimson's mapping is similar to option 1 listed above. The Binary Data Files are transferred a word at a time, in order to access individual bits, a flag tag is required.



Counter

<u>RSLogix 500</u> Counter Data File addresses are shown in the following format:

- · C(File):Element
- · Counters are broken down into 8 pieces:
 - · CU
 - · CD
 - · DN
 - · OV
 - · UN
 - · UA
 - · PRE
 - · ACC.
- The item selected in Figure 1 is displayed as C5:0/CU in RSLogix 500.

🔀 Data File	C5	(cou	INTE	R				[
Offset	CU	CD	DN	OV	UN	UA	PRE	ACC	(Symbol)	Description
C5:0	0	0	0	0	0	0	0	0)	
	0/CL	J							Radix:)
Symbol:										Columns: 8 💌
Desc:										
C5 ÷			Pro	opert	ies		<u> </u>	<u>I</u> sage		<u>H</u> elp

Figure 1.

<u>Crimson</u>

Crimson mappings are slightly different than RSLogix 500 and use the following format:

- •C(File):Element, this is the same as RSLogix 500
- Counters are broken down into 3 pieces:
 - •0 STAT Status word
 - •1 PRS Counter Preset
 - •2 ACC Counter Accumulated Value.

• To map a tag to the count up enable bit above (C5:0/CU in RSLogix 500) in Crimson, you would map a Flag tag to C005:0000 0 - STAT. Set the Treat As: parameter to *Bit Array Little-Endian* and choose *Bit 15* for the Bit Number parameter, as shown in Figure 2.

NOTE: Bit numbers explanations are available via the RSLogix 500 Instruction Set Help function.

Navigation Pane	×	Data	Tags	- Tag1													Tag	0 🕐 🖸
🧠 New 🗸 🕞 🗶 💑 🔎		Dat	a	Format	Colors	Alarm	s T	riggers	Securit	У								
San Tags 🔁 Tag1		Dat	ta Sou	irce —														
			Sour	ce:	▼ P	LC1		C005:00	00.00			Pick]					
			Exten	nt:	v 0	ne Item												
			Treat	As:	Bit A	rray Littl	e-En	dian		•								
			Bit N	umber:	Bit 1	5				•								
			Mani	ipulation	None	•				•								
			Acces	55:	Read	and W	rite			•								
			Write	e Mode:	From	Cacheo	Dat	a		•								
			Read	Mode:	Entir	e Array				r								
			Stora	ige:	Non-	Retenti	/e	-										

Figure 2.



Floating Point

RSLogix 500 Floating Point Data File addresses are in the following format:

•F(File):Element, ex. F8:3

<u>Crimson</u>

Crimson mappings are similar, but with leading 0s; F008:0003, for example.

Input

RSLogix 500

Input Point Data File addresses are in the following format:

- I:(Slot).Word/Bit
 - I is for Input
 - Slot is the backplane location of the input module
 - •Word is which word of the card contains the data.

NOTE: RSLogix 500 uses a "/" to signify a bit within a word or long.

• The item highlighted in Figure 3 is displayed as I:1.0/0 in RSLogix 500.

🔀 Data I	File I1 (bin)	1	ΙΝΡι	JT												
Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
I:1.0	0	1	0	0	1	1	0	1	0	1	1	1	1	1	1	1	1746-IM16 - 16-Input 200/240 VAC
1:2.0	0	0	1	0	0	1	0	1	1	0	0	0	1	1	1	1	1746-IM16 - 16-Input 200/240 VAC
1:3.0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1746-IM16 - 16-Input 200/240 VAC
1:5.0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
1:5.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
1:5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
I:5.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
1:5.4	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1746-NT4 - Analog 4 Ch Thermocouple Input
1:5.5	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	1	1746-NT4 - Analog 4 Ch Thermocouple Input
I:5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
1:5.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
1:8.0	1	1	1	1	1	1	1	1	0	0	0	1	1	1	0	0	1746-NI4 - Analog 4 Channel Input Module
I:8.1	0	0	1	0	1	0	1	0	1	1	1	0	1	1	0	0	1746-NI4 - Analog 4 Channel Input Module
1:8.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NI4 - Analog 4 Channel Input Module
I:8.3	0	0	1	0	0	1	0	0	1	0	0	0	1	0	1	0	1746-NI4 - Analog 4 Channel Input Module
Í I I																	- ا
	1·1/0				_	_	_	_	_	_			_	_		_	Badiy Binary
Symbol:																	Columns: 16 V
Desc:																	
	-				Pror	ertie	.						ane	1			Forces Help
<u>ا</u>	<u>.</u>			_		,ordo	<u> </u>					<u>0</u> ,	Jago				Город

Figure 3.



Crimson

Crimson mappings are slightly different than RSLogix 500 and use the following format:

- •I(Slot):Word.Bit
 - •I is for Input
 - Slot is the backplane location of the input module
 - •Word is which word of the card contains the data.

NOTE: Crimson uses a "." to signify a bit within a word or long.

• To map a tag to the input above (I:1.0/0 in RSLogix 500) in Crimson, you would map a tag to I001:0000. Then, set the Treat As parameter to *Bit Array Little-Endian* and choose *Bit 0* for the Bit Number parameter as shown in Figure 4.

Navigation Pane X	Data Tags - Tag1	Tag 0 🕐 🕢
🥶 New 👻 🛱 🔀 🖉	Data Format Colors Alarms Triggers Security	
🔩 Data Tags 🛡 Tag1	Data Source	
	Source: PLC2 I001:0000 Pick	
	Extent: One Item	
	Treat As: Bit Array Little-Endian	
	Bit Number: Bit 0	
	Manipulation: None	
	Access: Read and Write	
	Write Mode: From Cached Data 🔻	
	Read Mode: Entire Array 💌	
	Storage: Non-Retentive 🔻	

Figure 4.

Long

RSLogix 500

Long Data File addresses are in the following format:

•L(File):Element, ex. L9:7

<u>Crimson</u>

Crimson mappings are similar, but with leading 0s; L009:0007, for example.



Integer

<u>RSLogix 500</u>

Integer Data File addresses are in the following format:

•N(File):Element, ex. N7:0

<u>Crimson</u>

Crimson mappings are similar, but with leading 0s; N007:0000, for example.

Output

RSLogix 500

Output Point Data File addresses are in the following format:

- •O:(Slot):Word/Bit
 - O is for Output
 - Slot is the backplane location of the input module
 - •Word is which word of the card contains the data.

NOTE: RSLogix 500 uses a "/" to signify a bit within a word or long.

• The item highlighted in Figure 5 is displayed as O:9.2 in RSLogix 500.

🖉 Data Fi	le O0	(bin)	ou	TPU	л											
Offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
0:4.0	1	1	0	1	1	0	1	0	0	0	0	0	1	0	1	1	1746-OW16 - 16-Output (RLY) 240 VAC
0:5.0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1746-NT4 - Analog 4 Ch Thermocouple Input
0:5.1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1746-NT4 - Analog 4 Ch Thermocouple Input
0:5.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
0:5.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
0:5.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
0:5.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
0:5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
0:5.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NT4 - Analog 4 Ch Thermocouple Input
0:6.0	1	0	0	0	1	1	0	1	1	0	0	0	0	0	1	0	1746-OW16 - 16-Output (RLY) 240 VAC
0:7.0									1	0	1	1	1	0	0	0	1746-OX8 - 8-Output Isolated Relay
0:9.0	0	1	0	0	1	1	0	0	1	1	0	0	0	1	1	0	1746-NO4I - Analog 4 Ch. Current Output
0:9.1	0	0	0	1	1	0	0	0	0	1	1	0	0	0	1	0	1746-NO4I - Analog 4 Ch. Current Output
0:9.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NO4I - Analog 4 Ch. Current Output
0:9.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1746-NO4I - Analog 4 Ch. Current Output
 •																	• [-
(:9.2																Badix: Binary
Symbol:																	Columns: 16 💌
Desc:		_			_			_	_				_		_		
				ŀ	Prop	erties	:					<u>U</u> sa	ige				<u>F</u> orces <u>H</u> elp

Figure 5.

<u>Crimson</u>

Crimson's mapping is slightly different than RSLogix 500 and uses the following format:

- •O(Slot):Word.Bit
 - O is for Output
 - Slot is the backplane location of the input module
 - •Word is which word of the card contains the data.

NOTE: Crimson uses a "." to signify a bit within a word or long.

• To map a tag to the output above (O:9.2 in RSLogix 500) in Crimson, you would map a tag to O009:0002 as shown in Figure 6.

Navigation Pane X	Data Tags - Tag1	Tag 0 🕐 🕜
🗠 New 🔹 🕞 🗙 🍰 🔎	Data Format	Colors Alarms Triggers Plot Security
Data Tags	Data Source	
	Source:	▼ PLC1 0009:0002 Pick
	Extent:	▼ One Item
	Manipulation:	None
	Treat As:	Default Integer 💌
	Access:	Read and Write 🔻
	Read Mode:	Entire Array
	Storage:	Non-Retentive v





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String

<u>RSLogix 500</u> String Point Data File addresses are in the following format:

- •ST(File):Element ex. ST10:0
- Strings are broken down into 2 pieces
 - •LEN
 - String Text.

<u>Crimson</u>

Crimson only has a single character space available, so strings are referred to as R registers in Crimson; the File and Element values also have leading zeros; ex. R010:0000, for example.

• After mapping the Crimson tag to the String register, the Length parameter MUST be set to 80 characters, as shown in Figure 7.

Navigation Pane X	Data Tags - Tag1	Tag 0 🕐 🕥
🧠 New 🝷 🛱 🔀 🔑 🔎	Data Format	Colors Security
Jota Tags	Data Source	
AB Tagl	Source:	PIC1 R010.000 Pick
	Extent:	v One Item
	Length:	30 Arranters
	Packing:	None
	Access:	Read and Write
	Read Mode:	Entire Array
	Storage:	Non-Retentive v

Figure 7.



Status

RSLogix 500

Status Data File addresses are in the following format:

•S:Element, ex. S:42 (Clock Calendar Seconds)

<u>Crimson</u>

Crimson mappings are similar, but with leading 0s; S:0042, for example.

Timer

RSLogix 500

Timer Data File addresses are in the following format:

- •T(File):Element ex. T4:0
- Timers are broken down into 6 pieces:
 - ●EN
 - •TT
 - •DN
 - •BASE
 - •PRE
 - •ACC.
- The item highlighted in Figure 8 displayed as T4:0/TT in RSLogix 500.

🔀 Data Fil	e T4	1	IME	R				
Offset	EN	TT	DN	BASE	PRE	ACC	(Symbol)	Description
T4:0	0	0	0	.01 sec	0	0		
•								► -
T	4:0/T	T					Radix	
Symbol:								Columns: 6 🖃
Desc:								
T4 -			Pro	operties	L	Isage		<u>H</u> elp

Figure 8.



<u>Crimson</u>

Crimson's mapping is slightly different than RSLogix 500, using the following format:

- •T(File):Element, this is the same as RSLogix 500
- Timers are broken down into 3 pieces:
 - •0 STAT Status word
 - •1 PRS Timer Preset
- •2 ACC Timer Accumulated Value. To map a tag to the count up enable bit above (T4:0/TT in RSLogix 500) in Crimson you would map a Flag tag to T004:0000 0 STAT. Set the Treat As: parameter to *Bit Array Little-Endian* and choose Bit 14 for the Bit Number, as shown in Figure 9.

NOTE: Bit numbers explanations are available via the RSLogix 500 Instruction Set Help function.

Navigation Pane X	Data Tags - Tag1	Tag 0 🔇) 🕜
🤐 New 👻 🛱 🗙 🏭 🔎	Data Format (Colors Alarms Triggers Security	
Sector Tags 10 Tag1	Data Source		
	Source:	PLC1 T004:0000.00 Pick	
	Extent:	v One Item	
	Treat As:	Bit Array Big-Endian	
	Bit Number:	Bit 14	
	Manipulation:	None	
	Access:	Read and Write	
	Write Mode:	From Cached Data	
	Read Mode:	Entire Array	
	Storage:	Non-Retentive 💌	





RSLogix 5

Previously described mapping, with the exception of the Input and Output data types, holds true for PLC 5 devices. The information in this section applies to RSLogix 5-based processors/devices, only.

RSLogix 5

Input and Output Point Data File addresses are in the following format:

- •O:Word/Bit
 - O is for Output
 - Word is in OCTAL

NOTE: RSLogix 5 uses a "/" to signify a bit within a word or long.

• The item highlighted in the following screen capture is displayed as O:103 in RSLogix 5:

🔀 File O0	(bin)	1	ουτ	PUT	г												
Offset	17	16	15	14	13	12	11	10	7	6	5	4	3	2	1	0	(Symbol) Description
0:070	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	A
0:071	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0:072	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0:073	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0:074	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0:075	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0:076	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0:077	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0:100	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	=
0:101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0:102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	PLC CONTROLLED PANELVIE
0:103	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	
0:104	1	0	0	1	0	1	0	1	0	0	1	1	1	0	0	1	
0:105	0	0	1	0	0	1	0	0	0	0	1	0	0	1	0	0	
0:106	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	
0:107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0:110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
) –
	0:1	03															Radix: Binary
Symbol:																	Columns: 16 💌
Desc:																	
00	•		E	rop	ertie	es			1	<u>U</u> sa	ige				E	orc	es <u>H</u> elp

Crimson®: Mapping to RSLogix 5/500-Based Processors

Crimson

Crimson's mapping is slightly different than RSLogix 5, it uses the following format:

- •O(Slot):Word.Bit
 - •O is for Output
 - •Word is which word of the card contains the data, in DECIMAL

NOTE: Crimson uses a "." to signify a bit within a word or long.

To map a tag to the previous output (O:103 in RSLogix 5) in Crimson, you would map a tag to O00:0067.

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 <u>support@redlion.net</u> or calling 1-877-432-9908.

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

