Industrial Automation Tech Note 12

Mapping to RSLogix 500 PLCs



Abstract:

This document describes how to map $\mathsf{Crimson}^{\texttt{®}}$ tags to RSLogix 500 based processors.

Products:

G3 Series HMI / G3 Kadet HMI / Graphite[®] HMI / Graphite[®] Controllers / Modular Controller / Data Station Plus / ProductVity Station

Problem Solved: Mapping tags to RSLogix 500 PLCs

One difference that can be applied to the majority of the available data types is the way that bit addressing is displayed. RSLogix 500 often uses a "/" to signify a bit within a word or long, Crimson uses a "." to signify a bit within a word or long. All RSLogix 500 based PLCs transfer data in increments of 16 bit words, in order to map a tag to a bit within a word or long, first map the tag to the word or long, and then set the Treat As property to Bit Array Little-Endian and then choose the bit from the Bit Number drop down selection. Refer to section 2.B. in the <u>Crimson 3.0 Quick Start Guide</u> for further instructions on accessing bits within words.

Required Software:

Crimson 2.0 or 3.0

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

RSLogix 500

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 below is displayed as C5:0/CU in RSLogix 500.

🔁 Data File	e C5	COU	NTER				
Offset	CU CI	D DN	OV UN	UA	PRE	ACC	(Symbol) Description
C5:0	0	0 0	0 0	0	0	0	
 ▲							
C5:	:0/CU						Radix:
Symbol:							Columns: 8 🖃
Desc:							
C5 ÷		Pro	operties			lsage	Help



Crimson mappings are slightly different that RSLogix 500. It uses 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 to *Bit Array Little-Endian* and choose Bit 15.

NOTE: The bit numbers are explained in the RSLogix 500 Instruction Set Help.

Navigation Pane X	Data Tags - Tag1		Tag 0 🕐 🌀
🗠 New 🗸 🛱 🖉	Data Format (Colors Alarms Triggers Security	
San Taga 🔁 😼 😼	Data Source		
	Source:	▼ PLC1 C005:0000.00 Pick	
	Extent:	v One Item	
	Treat As:	Bit Array Little-Endian	
	Bit Number:	Bit 15 🔹	
	Manipulation:	None	
	Access:	Read and Write	
	Write Mode:	From Cached Data	
	Read Mode:	Entire Array 💌	
	Storage:	Non-Retentive *	

Floating Point

RSLogix 500

Floating Point Data File addresses are in the following format:

• F(File):Element, ex. F8:3

Crimson

Crimson mappings are similar, but with leading 0s. ex. F008:0003



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 selected below is displayed as I:1.0/0 in RSLogix 500.

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
: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
: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
: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
: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
: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
: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
: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
: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
: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
: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
: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
: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
: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
																	Þ
1:1	1/0																Radix: Binary
Symbol:																	Columns: 16
Desc:																	



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Crimson mappings are slightly different than RSLogix 500, it uses 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 to Bit Array Little-Endian and choosing Bit 0.

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 💌	

Long

RSLogix 500

Long Data File addresses are in the following format:

• L(File):Element, ex. L9:7

Crimson

Crimson mappings are similar, but with leading 0s. ex. L009:0007

Integer

RSLogix 500

Integer Data File addresses are in the following format:

• N(File):Element, ex. N7:0

Crimson

Crimson mappings are similar, but with leading 0s. ex. N007:0000



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 selected below is displayed as O:9.2 in RSLogix 500.

对 Data Fil	🔀 Data File OO (bin) OUTPUT																
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																
Symbol:																	Columns: 16 💌
Desc:							1							1			
					Prop	erties						<u>U</u> sa	age				Eorces <u>H</u> elp



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Crimson's mapping is slightly different than RSLogix 500, it 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 input above (O:9.2 in RSLogix 500) in Crimson you would map a tag to O009:0002.

Navigation Pane X	Data Tags - Tag1	T	ag 0 🕐 🕜
🧠 New 🔹 🛱 🔀 🖉	Data Format C	Colors Alarms Triggers Plot Security	
Joata Tags	Data Source		
	Source:	PLC1 O009:0002 Pick	
	Extent:	v One Item	
	Manipulation:	None	
	Treat As:	Default Integer 🔹	
	Access:	Read and Write	
	Read Mode:	Entire Array 👻	
	Storage:	Non-Retentive *	

String

RSLogix 500

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.

Crimson

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

• After mapping the Crimson tag to the String register, the Length parameter MUST be set to 80 characters.

Navigation Pane	×	Data Tags - Tag1		Tag 0 🕐 🕢
🧠 New 🖌 🛱 🗙 🏭 🔎		Data Format	Colors Security	
Lags AB Tags		Data Source		
		Source:	▼ PLC1 R010:000 Pick	
		Extent:	v One Item	
		Length:	🔟 🔄 characters	
		Packing:	None	
		Access:	Read and Write	
		Read Mode:	Entire Array	
		Storage:	Non-Retentive 💌	

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. ex. S:0042



Timer

RSLogix 500

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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 selected below is displayed as T4:0/TT in RSLogix 500.

\overline 🖉 Data Fil	e T4 TIME	R				
Offset	EN TT DN	BASE	PRE	ACC	(Symbol)	Description
T4:0	0 0 0	.01 sec	0	0		
Í						<u> </u>
Symbol:	4:0/TT				Radix	Columns: 6 💌
Desc:	Pro	operties	L	<u>I</u> sage		Help



Crimson's mapping is slightly different that RSLogix 500, it uses 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 to Bit Array Little-Endian and choose Bit 14.

NOTE: The bit numbers are explained in the RSLogix 500 Instruction Set Help.

Navigation Pane X	Data Tags - Tag1	Tag	g 0 🕐 🕜
🤐 New 👻 🛱 🔀 🔑 🔎	Data Format (Colors Alarms Triggers Security	
🔩 Data Tags 🟴 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 💌	

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