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Bristol Babcock BSAP Extended Serial Master

Information Sheet for Crimson

Compatible Devices

- Control Wave Micro controllers using BSAP

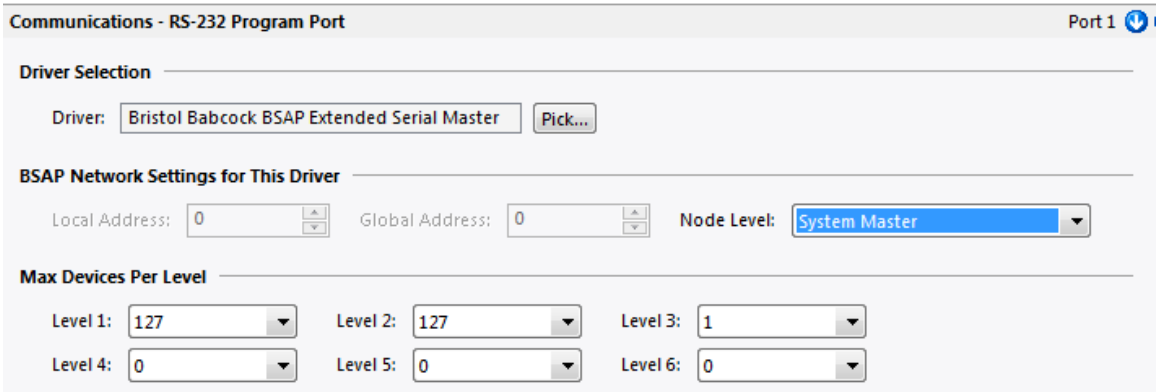
Verified Devices

- Control Wave Micro

NOTE: This document explains the features of the driver that are particular to it. Other configuration items are covered in the Help file.

Driver Options:

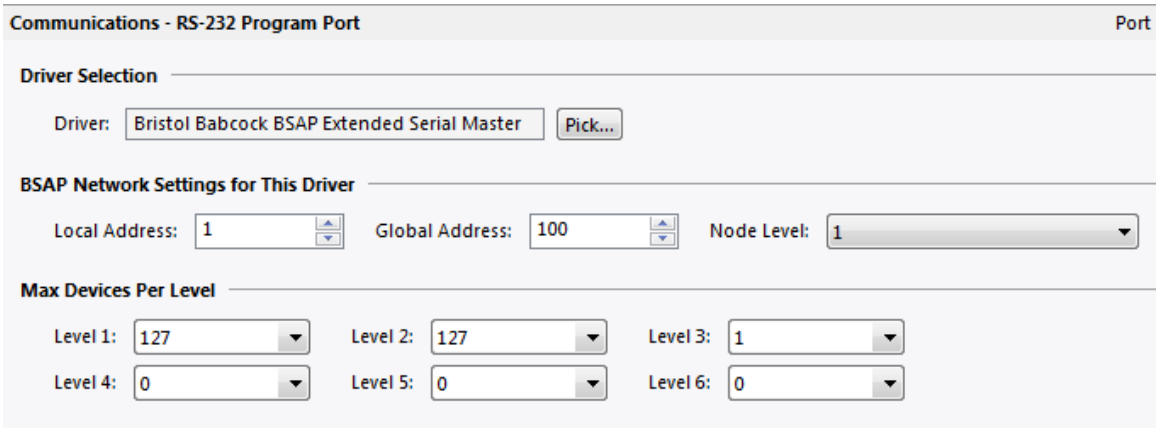
When the Crimson device is the Master Driver for the network:



Node Level:
Select “System Master” in the drop down dialog.

Max Devices Per Level:
Define the maximum number of devices to be connected on each level. The configuration software will limit the choices to a maximum of 15 devices, one device for each bit in the binary representation of the number selected. That is, 127 is for 7 devices, 63 is for 6, 31 is for 5, etc.

When the Crimson device has a Slave driver installed that communicates to a Master resident on a higher level on the network:

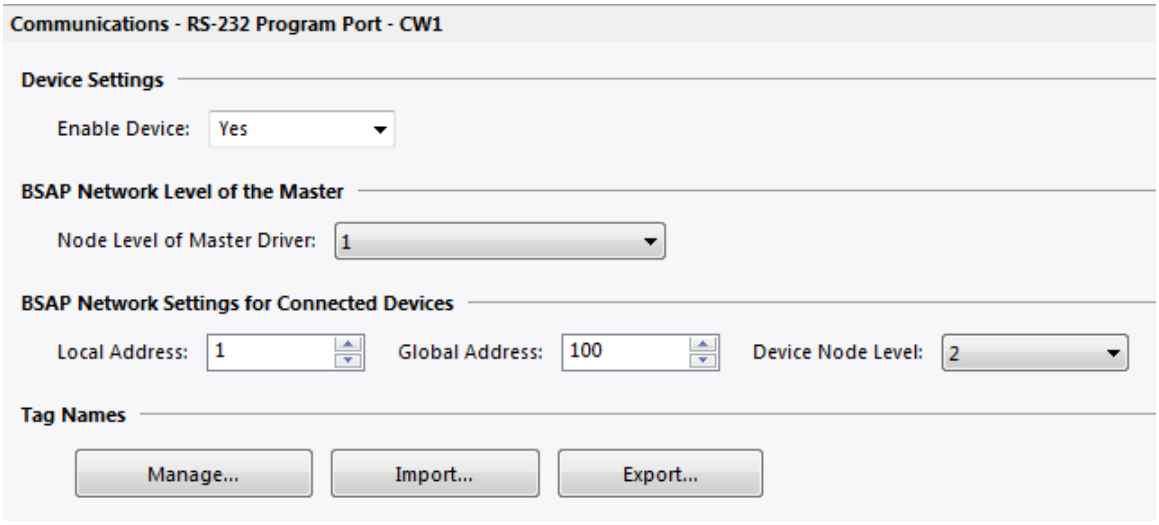


Local Address:
Global Address:
Enter the relevant addresses for this Crimson device.

Node Level:
Select the network Node Level for this Crimson device.

Max Devices Per Level:
Define the maximum number of devices to be connected on each level. The configuration software will limit the choices to a maximum of 15 devices, one device for each bit in the binary representation of the number selected. That is, select 127 for 7 devices, 63 for 6, 31 for 5, etc.

Device Options:



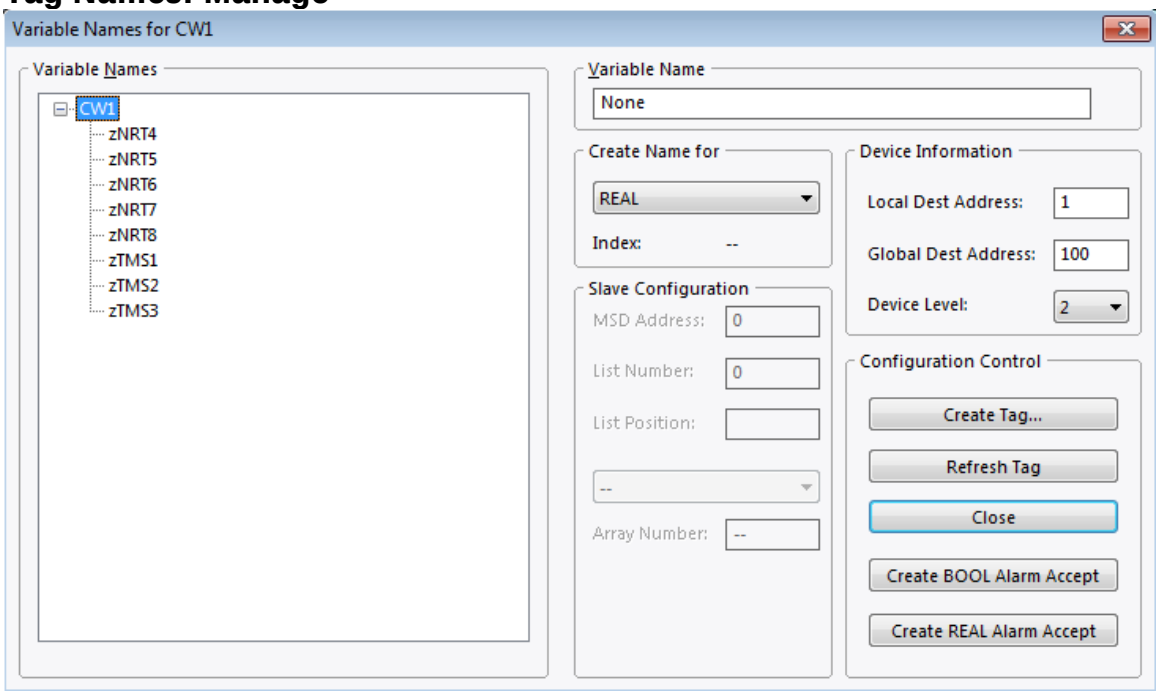
Node Level of Master Driver:
Repeat the selection made in Driver Options.
"Local Address that Master Connects to" is not enabled if the Device Node Level is the next one down from this selection. All other properties apply.

Local Address:
Global Address:
Select the relevant addresses for the device.

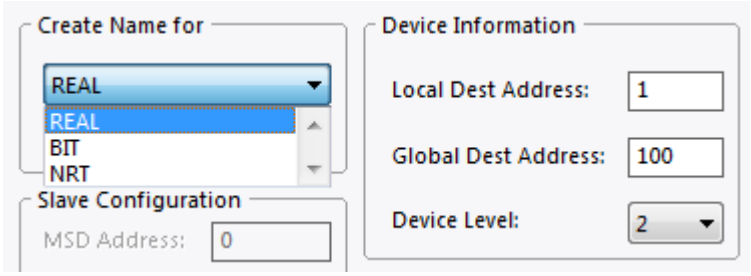
Device Node Level:
Set the node level upon which this device is resident.

Tag Names:
Manage – displays, and allows entry of Variable names and properties.
Import – allows the selection of a specifically formatted .csv file containing the names and properties of Tag Names to be defined.
Export – Saves existing Tag Names and properties to a .csv file.
See the relevant Appendix for the Import and Export format.

Tag Names: Manage

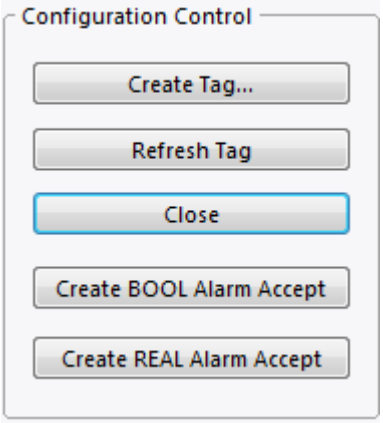


The initial selection appears as above. 8 tag names are automatically created for the master to accommodate the transfer of the Node Resource Table (NRT), and Time Synchronization. These tags must be used if multiple levels need to be accessed by the device.

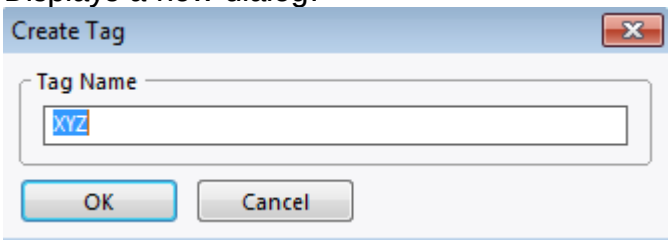


Create Name for:
For creating new Tag Names, REAL and BIT can be chosen. NRT is display only, to indicate one of the NRT or TMS tags has been selected.

Local Destination Address:
Global Destination Address:
Device Level:
Select as required. The Device Level can never be chosen to be on a Level the same as the Master, or above the Master in the network.



Create Tag:
Displays a new dialog:

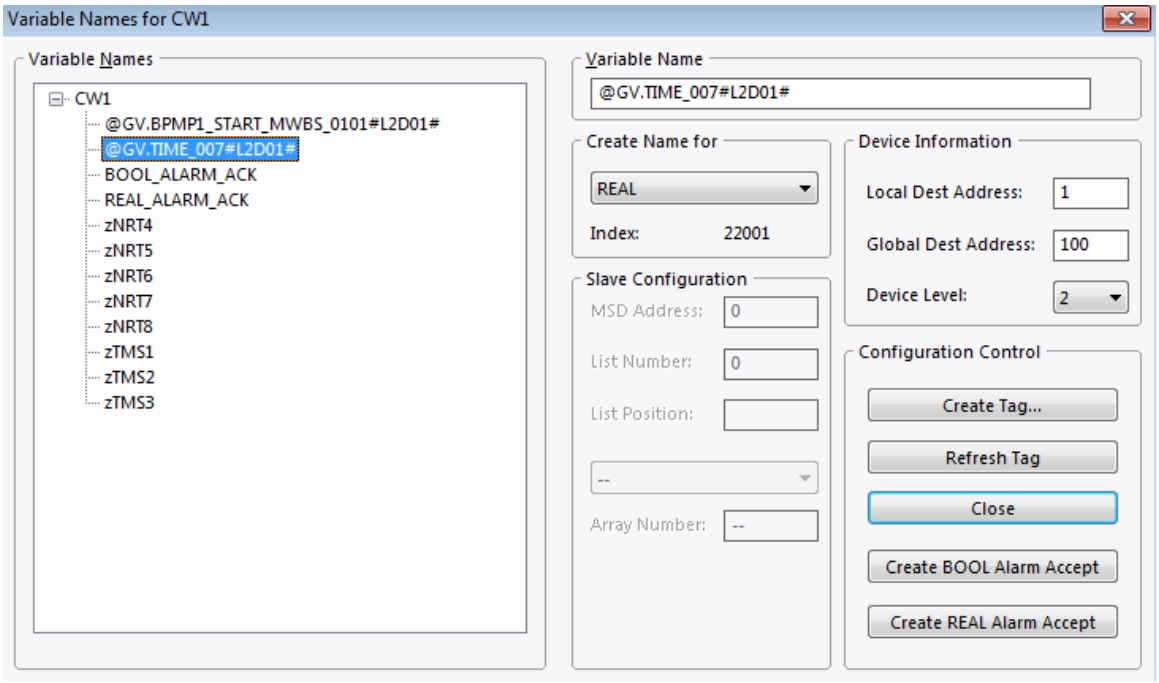


A new Tag Name may be entered here.
A default string is selected, generally based on the text that is in Variable Name at the top of the dialog box.
Enter the text, click OK, and the new name will be added to the tag list.

Refresh Tag:
Use to replace the selected tag when properties have changed.
This has no effect if an NRT/TMS tag is selected, or if the Variable Name field is empty.

Create BOOL Alarm Accept:
Create REAL Alarm Accept:
Use to add a pre-defined tag name to allow an ACK for an alarm reported when a device is polled. Only one of each is permitted.

Note: Eight tags are automatically generated, with fixed names, to enable the transfer of Node Routing Table information between devices. "zTMS1-zTMS3" contain the 12 bytes of the Time Synchronization, zNRT4-zNRT8 contain the Routing Table information. If the programmer desires to use that information, it must be parsed, as the 32 bytes are packed together in the 8 Long values.



The above picture shows the result of adding each of the Alarm Accepts, one tag of data type REAL (@GV.TIME_007), and one tag of data type BIT (@GV.BPM...).

Note the #L2D01# affixed to @GV.TIME_007. Because the same tag names may be duplicated in other devices, and/or on other levels, the configuration software appends "#LmDnn# to make unique tag names. 'm' is the value of the Level, "nn" is the address of the device. These suffixes are discarded for the Runtime.

Index: is a fixed, unique number assigned to each tag upon creation.

Adding Data Tags to the database:

The "Select Variable for xxx" dialog appears when a Data Tag is inserted into the list of Data Tags, however no properties can be changed. To change properties, it is necessary to return to the Device Options, and to select Manage.

Cable Information

Serial – RS232

G3	Signal	Control Wave
2	RxD <- TxD	2
5	TxD -> RxD	3
3 or 4	0V	5
6	RTS -> CTS	7
		1 – 4
		7 – 8

Serial – RS485

G3	Signal	Control Wave
1	Tx- -> RxD+	6
2	Tx+ -> RxD-	2
3	Rx+ <-TxD-	3
4	Rx- <- TxD+	4
6	0V	5

Appendix A – Crimson Device as Slave and Master

This section applies when a Crimson device (**CD**) is a Slave to a Master above it in the network, and is a Master to device(s) below.

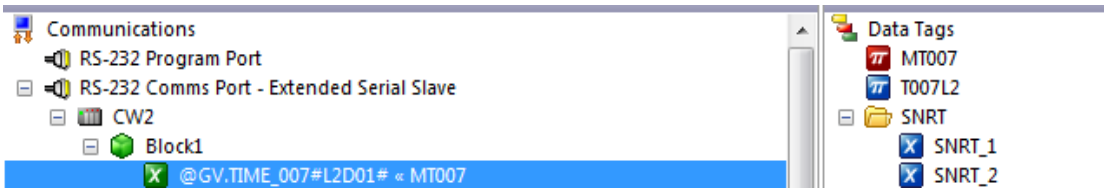
Gateway blocks are required to pass data between the Crimson Slave (**CS**) and the Crimson Master (**CM**).

Example:
The **CD** is on level 1. The Slave (Device Address 1 = **DA1**) is connected to the System Master (**SM**), and the Master is connected to a BSAP unit (Device Address 2 = **DA2**) that is on level 2.
The **CM** periodically reads "@GV.TIME_007".
The **SM** requests @GV.TIME_007 from **DA2**.

Assign @GV.TIME_007 as a Variable Name in the **CS**, so that it recognizes the request from the **SM**.

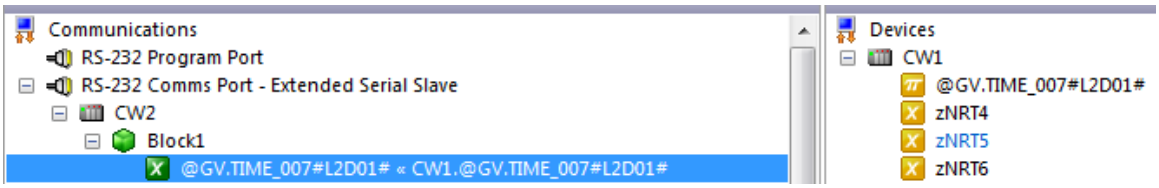
Case 1: The **CD** has need for the information from **DA2**.
Create a tag in the **CM** (MT007) assigned to **DA2**, @GV.TIME_007.

Create a gateway block assigned to the variable, selected from "Data Tags":



Map the **CM** tag to the **CS**.

Case 2: The **CD** does not need the information from **DA2**.
Create a gateway block assigned to the variable, selected from "Devices".



Appendix B – Importing variable names

The import of variable names requires a formatted csv file.
The first line must contain the phrase Bristol Babcock (not case sensitive).
The second line **MUST** contain the headers (also not case sensitive):

NAME INDEX MSD TYPE LEVEL LOCAL

And may optionally include:
GLOBAL LIST LITEM ARRAY COLUMNS

The typical first two lines of the .csv file may look similar to:

Bristol Babcock Variable Names for CW1

NAME	INDEX	MSD	TYPE	LEVEL	LOCAL	GLOBAL	LIST	LITEM	ARRAY	COLUMNS

This is the same format the Export uses, where CW1 is the device name.

NAME – Variable Name. E.g. @GV.TIME_007

INDEX – Unique number 1-999 for each entry of a data type. The lower 3 digits will be the same as the index shown in the dialog box.

MSD – Unique number required for each separate device used as a slave. The Master driver will assign 0, as it gets the MSD from the NAME.

TYPE – Data type. Valid values are BIT and REAL.

LEVEL – Device Level in Network.

LOCAL – Local address of Device.

Optional entries:
GLOBAL – Initial Global address of Device.

LIST – Slave only. The List number of the item. 0 is not assigned.

LITEM – Slave only. The position in the list, 1 – n.

ARRAY –Slave only. The Array number associated with the item.

COLUMNS – Slave only, and for only the first item in the array. This will indicate the number of columns to be used to access the array items.

The Master driver will set LIST, LITEM, ARRAY, COLUMNS to 0.

Node Routing and Time Synchronization variables are automatically generated and do not need to be included in the .csv. When they are, the columns NAME, INDEX, and TYPE will be formatted as this example shows:

NAME	INDEX	TYPE
zTMS1	32768	NRT
zTMS2	32769	NRT
zTMS3	32770	NRT
zNRT4	32771	NRT
zNRT5	32772	NRT
zNRT6	32773	NRT
zNRT7	32774	NRT
zNRT8	32775	NRT

NOTE: The Import and Export of Variable Names in the Communications section is not the same as the Import and Export of Tag Name in the Data Tags section.