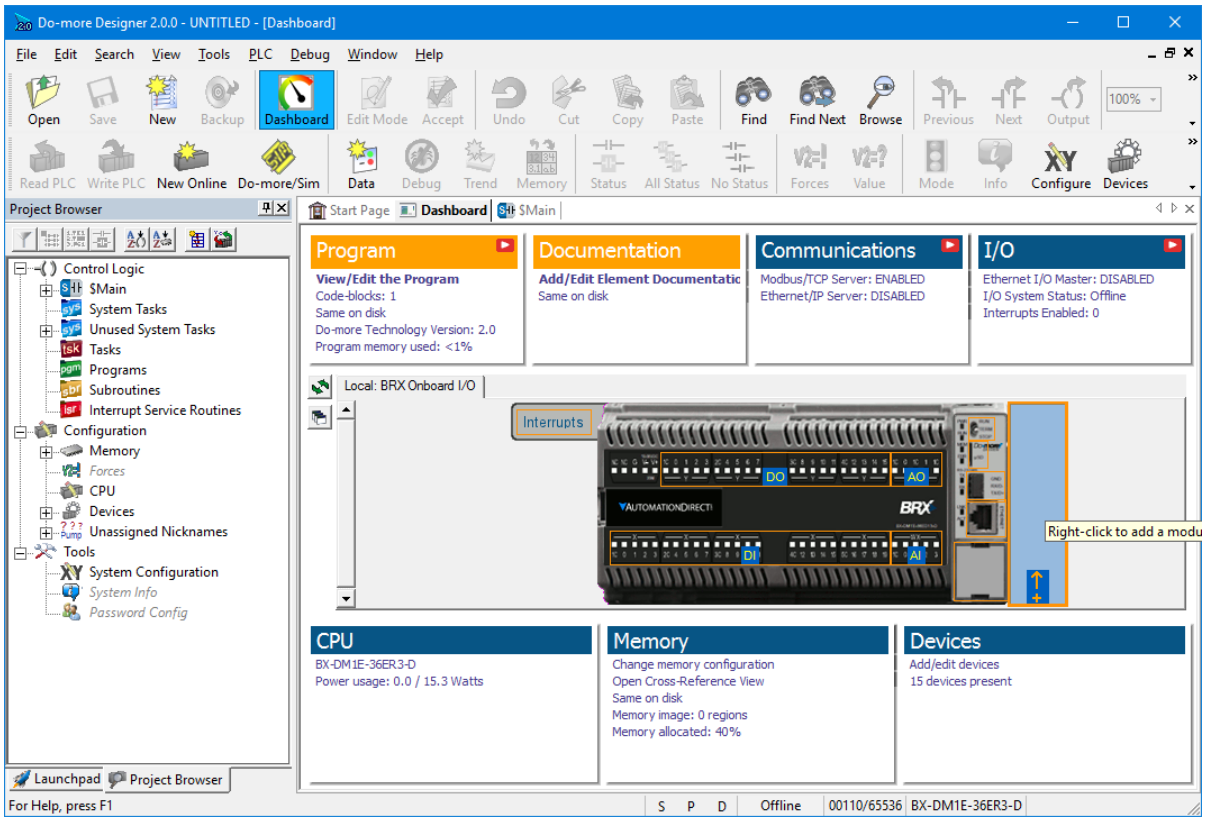


The significant new feature in Do-more 2.0 is the introduction of the new BRX line of Micro PLCs. However, there are many cool features in 2.0 that enhance the entire product line. The first part of this document will highlight the new BRX platform and features; the last part of this document will highlight the common features across all Do-more platforms (205, Terminator, Simulator, *and* BRX).

Before diving into the new BRX line of PLCs, there are some key user interface enhancements which will help you with your work flow.



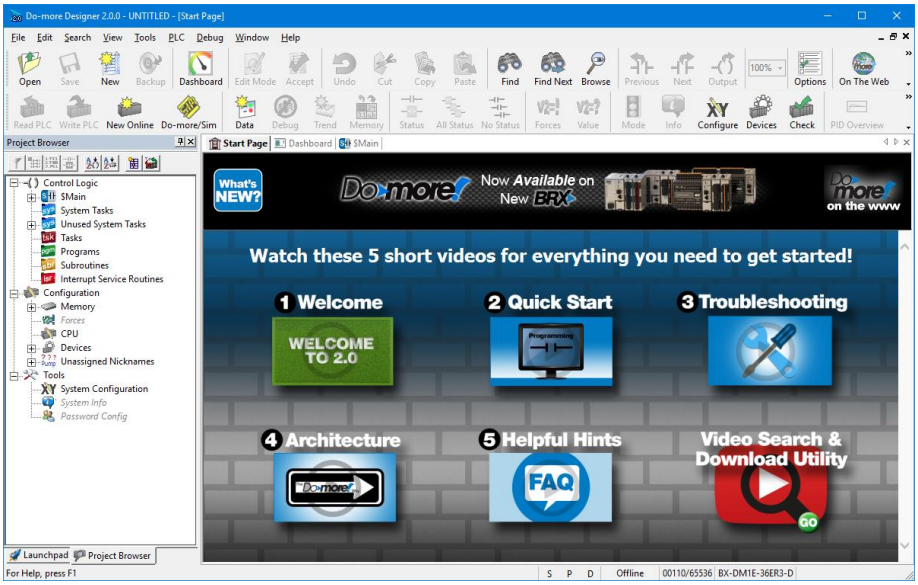
Dashboard View

The new Dashboard view is a *one-stop-shop* for getting status of your PLC, configuring the "screw-head" centric pieces of your project along with configuring many other areas, and as a general software navigation tool. All the existing Menus, Toolbars, and Hot Keys are also still around and still work, so continue to use those if you like (however, even some "experts" have admitted to liking this new user interface!) It's even more powerful if you have multi-monitors or a wide monitor and "tear it off" and access it outside the Designer window frame (see Float/Dock button on view's left-toolbar).

Float your mouse cursor over the picture of your PLC model and suddenly all the hot-spots are highlighted. Float over a hot spot to get general information about that specific area of the hardware. Right click on a hot spot to get a context specific menu. Left click on a hot spot and get a Pop-up Tip that will contain information and hot links to other areas of Designer related to that hot spot.

Each of the Panels that surround your PLC graphic relates to a specific area of your current project (Program, Documentation, Communications, I/O, CPU, Memory, Devices). Within each panel are project status information items, most of which are also hot links. Again, float your cursor over each one to get more detailed status information about that item. Click on the hot linked items and it will either show a Pop-Up Tip with more navigation options, or will take you directly to the configuration/status dialog related to that item.

Built-in Video Training has been integrated into Do-more Designer, whether it's learning how to configure an analog module, or learning the basics of Designer 2.0, video help is *just 1 or 2 mouse clicks away*.



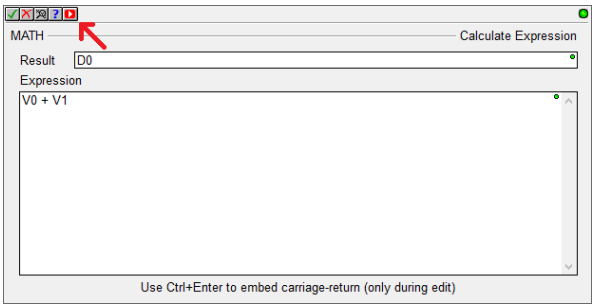
New Start Page Videos

The Start Page has been changed to provide hot link buttons to play 5 new videos that will help you get up and running with Designer 2.0.

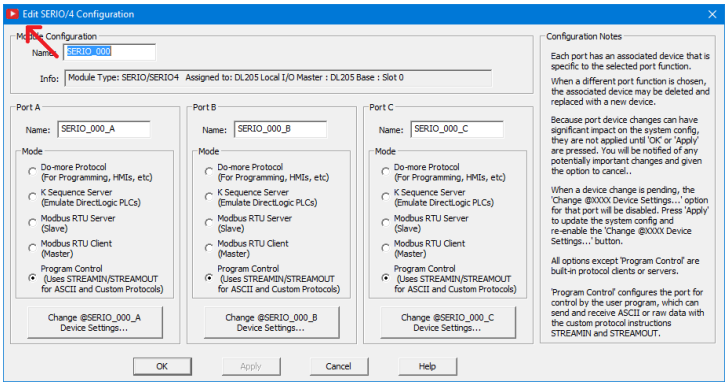
1. Welcome to Designer 2.0
2. How to Create a Simple Program
3. Troubleshooting Tips
4. Do-more PLC Architecture
5. Helpful Hints

The 6th button lets you navigate, play and optionally download any/all the hundreds of short videos (details below).

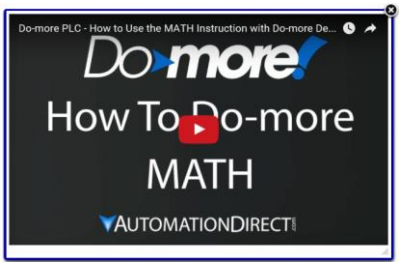
If you ever see the red Play button in the top toolbar of an instruction editor



or in the top left corner of a dialog box



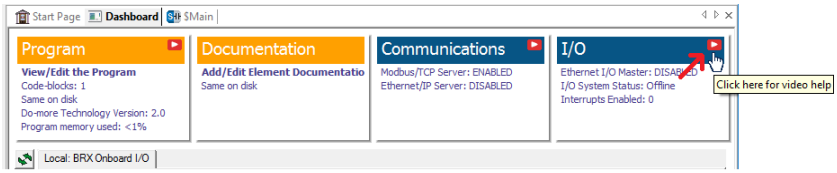
just click on it to play a short training video dealing with that specific instruction



or the dialog box topic



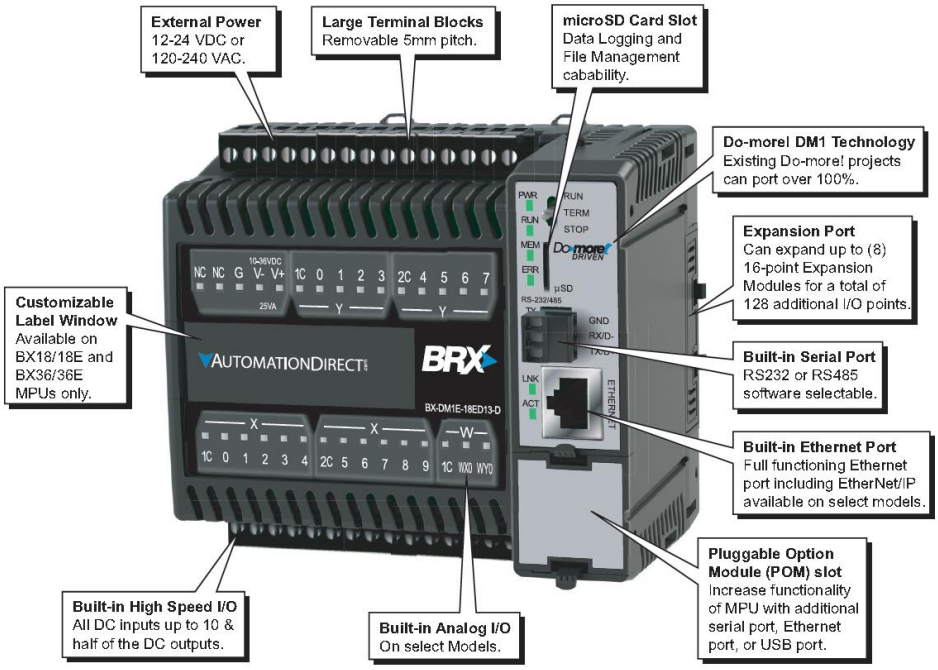
If you see the red Play button in the title of a Panel in the new Dashboard view…



…click on it to see a list of videos related to that panel



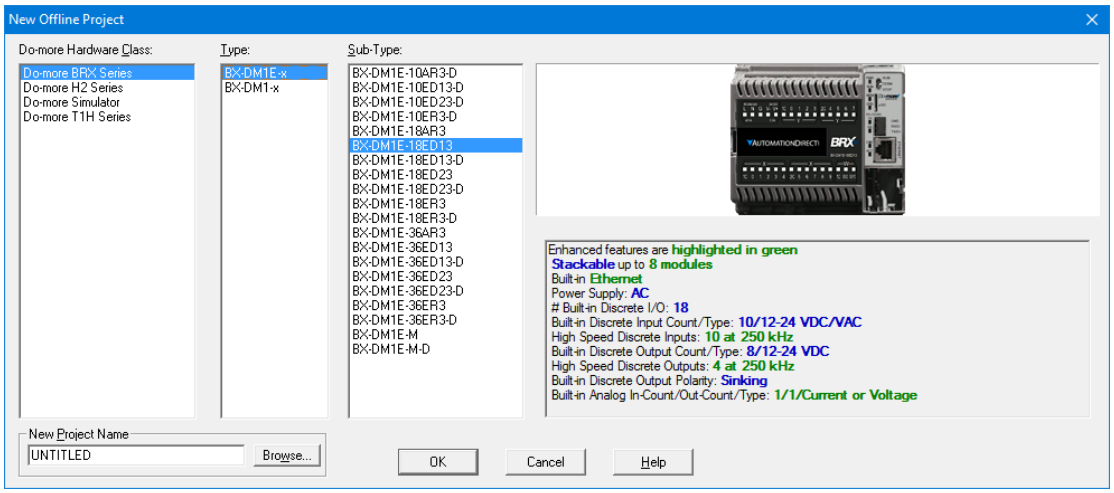
New BRX Micro line of PLCs



General BRX Micro PLC Features

All of the various **BRX Micro PLC Units** (MPUs) are stackable, with built-in Power Supply/CPU, varying in size from no onboard I/O, up thru 36 points of onboard I/O. Most MPUs support **up to 8 stackable modules, able to handle over 160 I/O locally** (Ethernet units can support ***thousands*** of I/O via Ethernet I/O). Many MPUs have *at least two **analog** I/O channels **onboard***.

The mix of Power-Supply/Input Types/Output Types/Ethernet in the BRX line result in 38 different MPU models (sub-types). The new File->New->Offline Project dialog highlights the key differences between MPU sub-types, helping to make the selection easier. After selecting the BRX Hardware Class, then Ethernet vs. non-Ethernet Type, you get a list of all the possible MPU sub-types, with key specification features listed below a picture of the selected sub-type MPU model:



BRX MPU Model Differentiation

The first differentiator in the BRX hardware class is onboard **Ethernet** vs. not (similar to the H2-DM1 and T1H-DM1 CPUs). All Ethernet models (BX-DM1E-x) are fully expandable up to 8 expansion modules, and most of them have at least 1 or 2 analog output channels and 1 to 4 analog input channels. The non-Ethernet models (BX-DM1-x) are value-priced, without the extra cost of the analog channels onboard and support for only 2 or 4 expansion modules.

The second differentiator is the **number of onboard Discrete I/O**.



None, 10, 18, and 36

The remaining differentiators are **Power-Supply** type (A/C vs. D/C) and **Onboard Discrete Input and Output** types (A/C, D/C, Voltage Level, Relay, Sinking vs. Sourcing).

BRX Micro-SD Slot

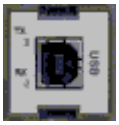
Every BRX MPU model has a micro-SD card slot for storing or accessing data files in standard disk format readable by PCs. New FILE**** instructions allow you to simply log data, or perform complete read/write file access. BRX also supports a second file system that is a RAM-drive (note: *all existing* H2 and T1H Do-more PLCs can also support a RAM-drive file system after a simple firmware upgrade to Do-more Technology Version 2.0 or later). The **EMAIL** instruction has been enhanced to allow you to add a **file attachment** from the BRX micro-SD card or a file from your existing H2-DM1E, T1H-DM1E, or new BRX RAM-drive file system.

BRX Pluggable Option Module (POM) Slot

Every BRX MPU model contains a Pluggable Option Module (POM) slot. This slot is hot-swappable with various POM modules, allowing you to have dynamic functionality when needed (like during commissioning or maintenance), or as a permanent option:



Ethernet



USB



RS-232 RJ-12



RS-232 3 Pin



RS-485

BRX Expansion Modules

Initially, the BRX line of PLCs supports 27 different I/O modules (more modules planned):

- 10 different Discrete Input modules
- 12 different Discrete Output modules
- 5 different Discrete Input/Output Combination modules

Coming soon:

- 8 different Analog Input modules
- 4 different Analog Output modules

Other expansion modules are in-work and are planned to be released soon.

BRX Onboard High Speed I/O

Most of the BRX models support some combination of High Speed Inputs and/or High Speed Outputs onboard (no extra cost). Both Input and Output frequencies support up to 250K Hz.

Specific Onboard **High Speed Input** features include

- High Speed **Counting** (Up, Down, Quad, Bi-directional, Up-Down)
- High Speed **Timing** (Single Edge, Dual Edge)
- **Interrupts** (Discrete Input Event of Rising/Falling/Either with optional Hi/Lo Level “permissives” of any/all other onboard inputs)

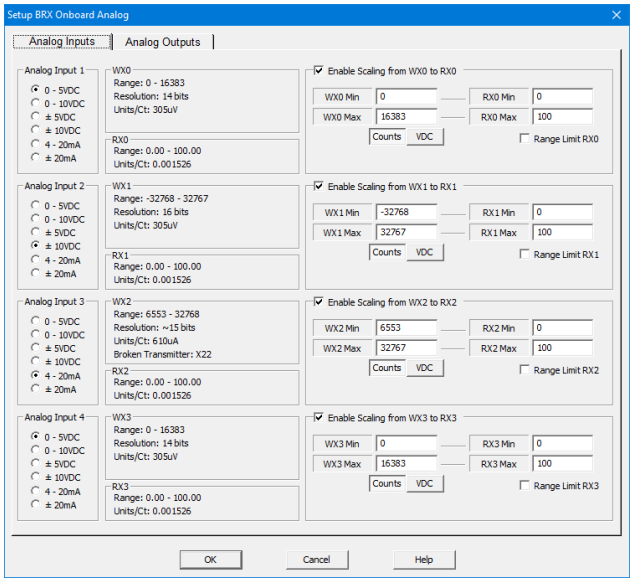
Specific Onboard **High Speed Output** features include

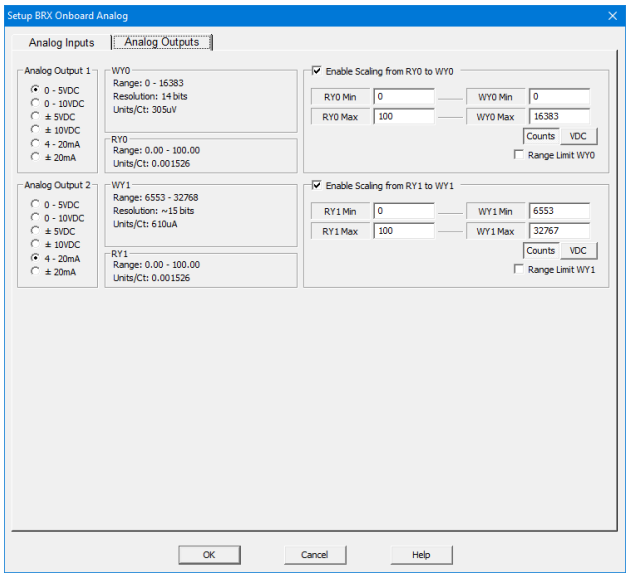
- **Axis Motion** (Step/Direction, Clock-wise/Counter-clock-wise, Quadrature emulation) using various AX* instructions (AXJOG, AXHOME, AXPOSTRAP, AXPOSSCRV, AXVEL, AXGEAR, AXFOLLOW, AXCAM, et.al.); up to 4 Axis (1 virtual Axis, up to 3 tied to actual outputs)
- **Pulse Width Modulation** configured via the PWM structure members .Period and .DutyCycle
- **Table Driven Output** using TDO* instructions (Programmable Limit Switch; Preset Table script of various Set, Reset, Toggle, Pulse On, Pulse Off after micro-second duration)

BRX Onboard Analog Configuration

The BRX MPU units that come with onboard Analog Inputs and Analog Outputs let you **fully and independently configure each analog channel’s electrical characteristics**, so there is no need to qualify these when purchasing, or buy multiple module types for different signal types!

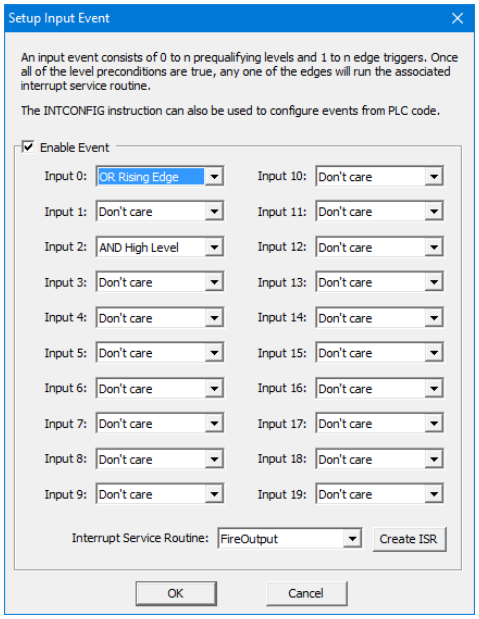
- current vs. voltage
- unipolar vs. bipolar
- voltage range
- resolution (14, 15, 16 bits)
- optionally scale WX analog input to new RX (Real Analog Input) data-block or from new RY (Real Analog Output) data-block to WY analog output, with or without clamping

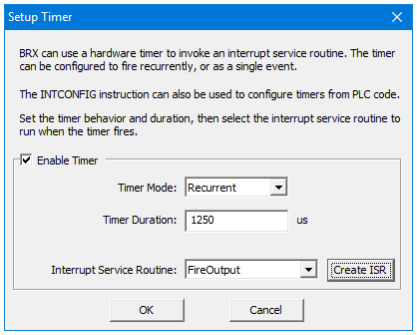


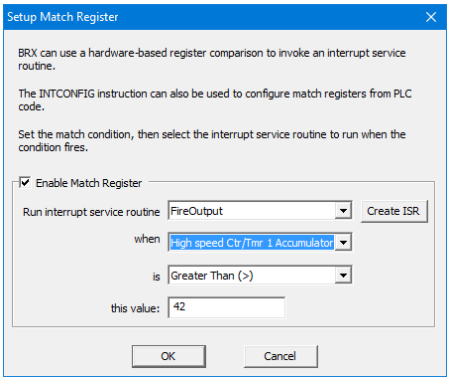


BRX Interrupt Support

There are three different types of Interrupt Triggers: Discrete Input Events, Time, Match Register:



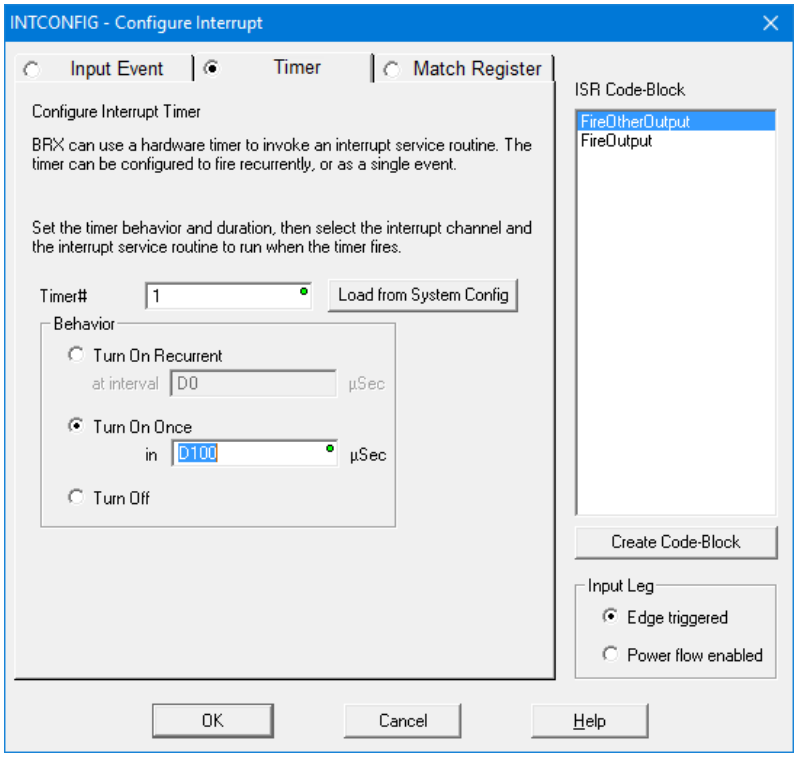




4 Input Event Triggers **4 Timed Triggers** **4 Match Register Triggers**

Interrupt Service Routines (ISRs) are a new kind of code-block that get associated to a specific Trigger. Up to 20 ISR code-blocks are supported.

Immediate Output Instructions include **OUTI, SETI,** and **RSTI**, which are powerful within ISR code-blocks. There is no need for an Immediate Input Contact because every ISR execution gets a copy of the immediate onboard Discrete Input X state values upon being fired. So just use the “immediate” X’s like you would any other X inside an ISR code-block.



INTCONFIG – Configure Interrupt Instruction

The configuration of any Interrupt Trigger can be changed dynamically at runtime using the INTCONFIG - Configure Interrupt instruction, including remapping the associated ISR code-block. The INTCONFIG instruction can be used within an ISR code-block for some pretty powerful program control. For example:

- Dynamically control a high resolution discrete output using calculated timing values to reconfigure the Timed Event Trigger within the current ISR.
- Follow-up a Discrete Input Event with a calculated Timed Event Trigger within the Input Event ISR.
- Tweak the Match Register condition to the “next” Match Register condition within the ISR.
- Any combination of Trigger settings and/or ISR code-block binding

Other Interrupt instructions include INTSUSPEND – Suspend Interrupts, INTRESUME – Resume Interrupts, and INTDECONFIG – Deconfigure Interrupt Trigger Resource.

High Speed I/O

CTRIO functionality for BRX platform has been replaced with the following onboard resources that come with nearly every BRX MPU model:

- Counter/Timer Functions
- Axis/Pulse Outputs
- Pulse Width Modulation
- Table Driven Output

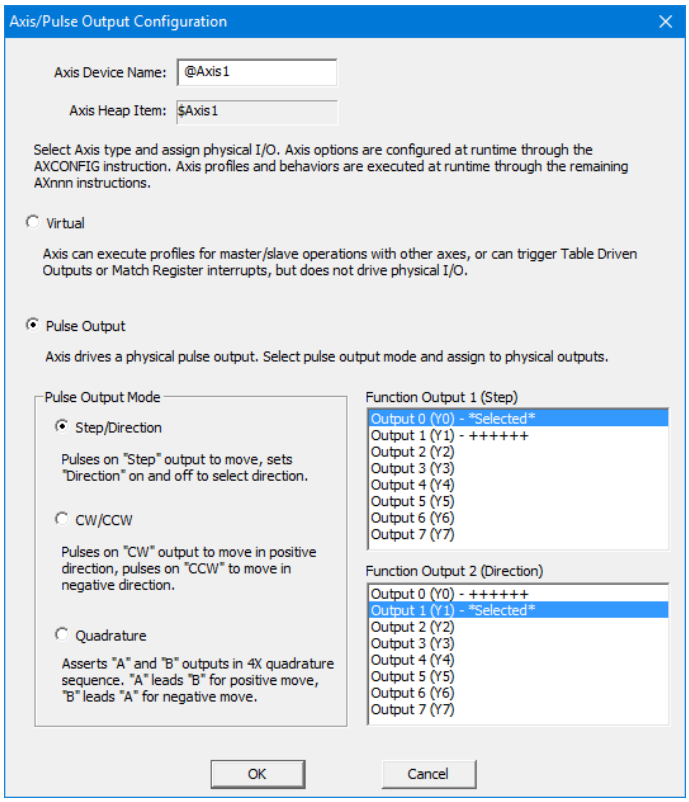
New Motion Control: Axis

Every BRX MPU model supports up to 3 Axis Pulse Output resources (a fourth Axis is permanently "Virtual", meaning it cannot be tied to any physical pulse outputs, but can still be used to generate logical pulse counts using any of the AXIS* instructions, just like the other "hard-wired" axis).

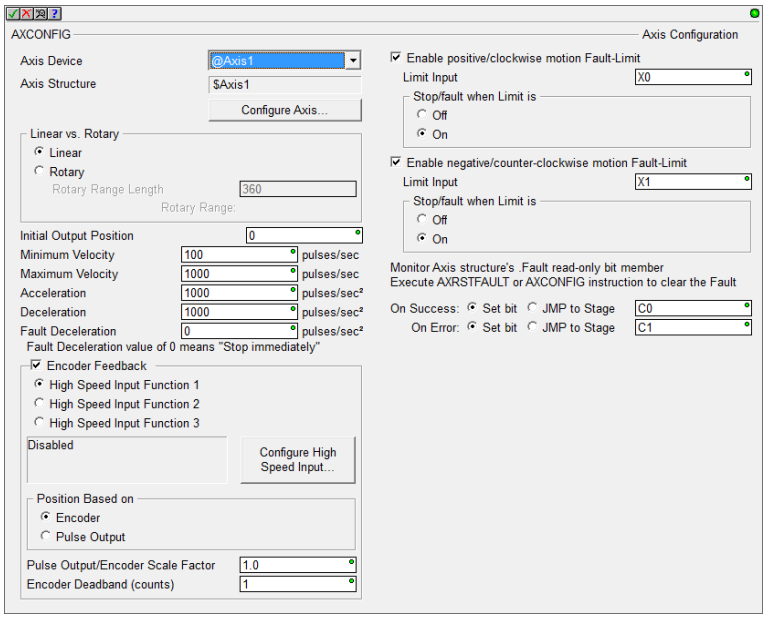
Each Axis can be configure as:

- Virtual (does not drive any physical I/O)
- Pulse Output **Step and Direction**
- Pulse Output **Clockwise/Counter Clockwise** Selection
- Pulse Output **Quadrature** (emulates a 4x quadrature sequence)

Except for Virtual, the other modes physically bind to two different onboard Discrete Y outputs.



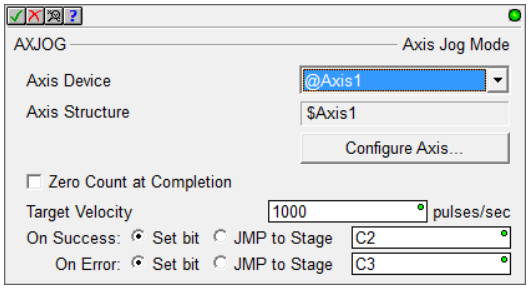
At runtime, the detailed configuration of an AXIS must be configured using the AXCONFIG – Configure Axis instruction.



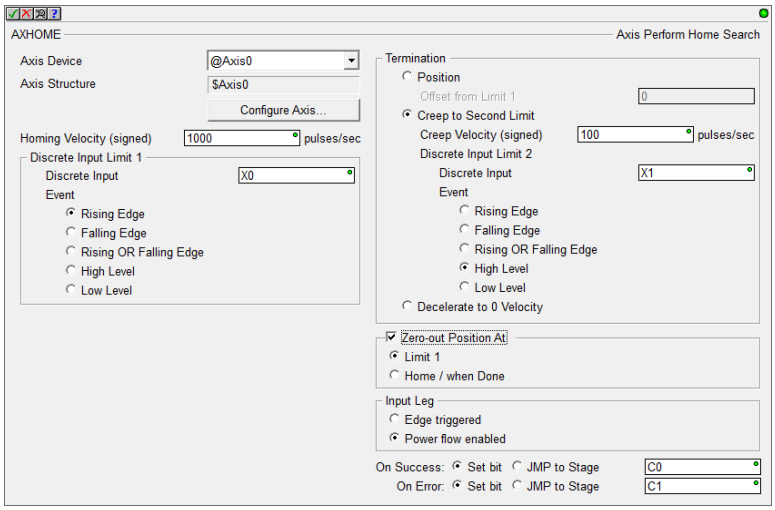
AXJOG – Axis Jog Mode

It is a 3-input leg instruction to perform a simple “jog”. The input legs are

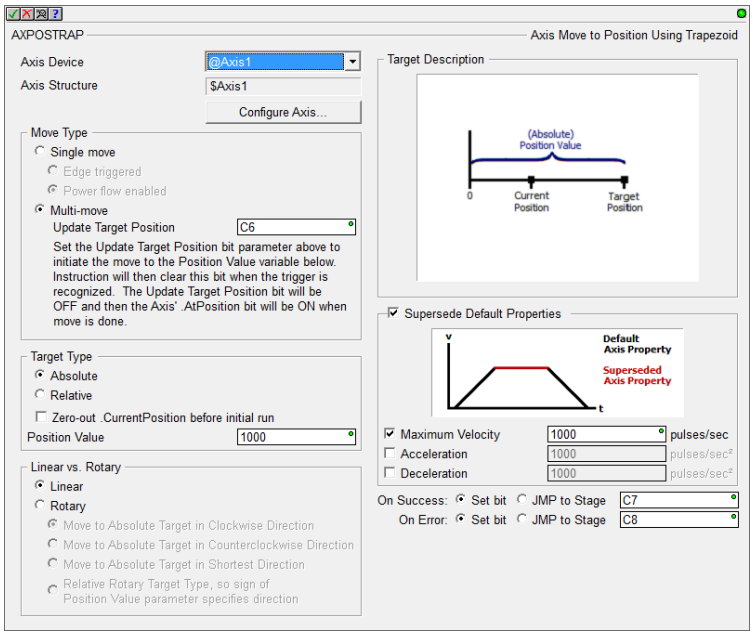
1. Enable/Reset
2. Forward
3. Reverse



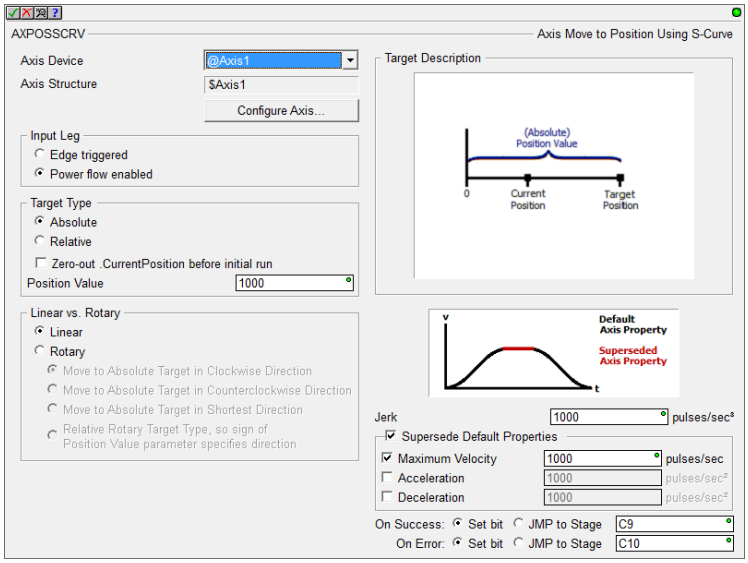
AXHOME – Axis Perform Home Search



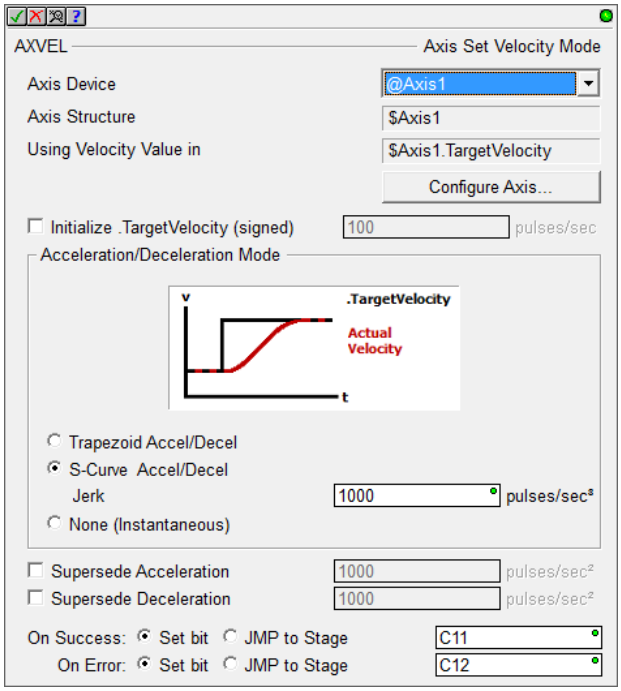
AXPOSTRAP – Axis Move to Position Using Trapezoid



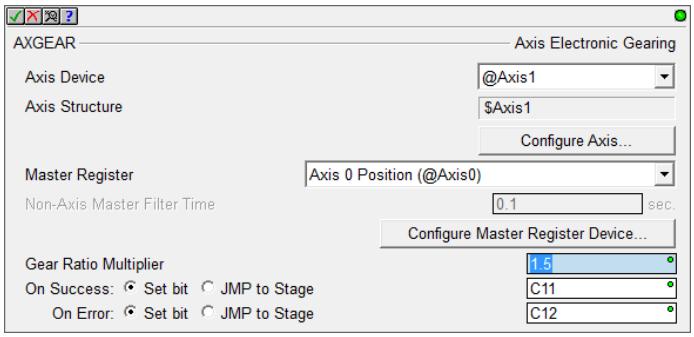
AXPOSSCRV – Axis Move to Position Using S-Curve



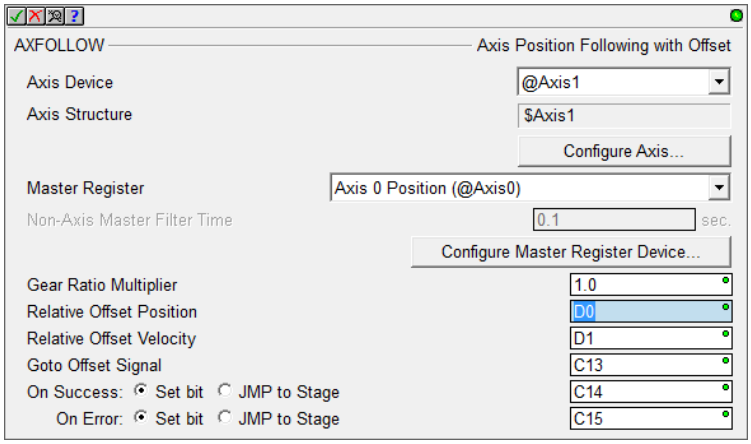
AXVEL – Axis Set Velocity Mode



AXGEAR – Axis Electronic Gearing

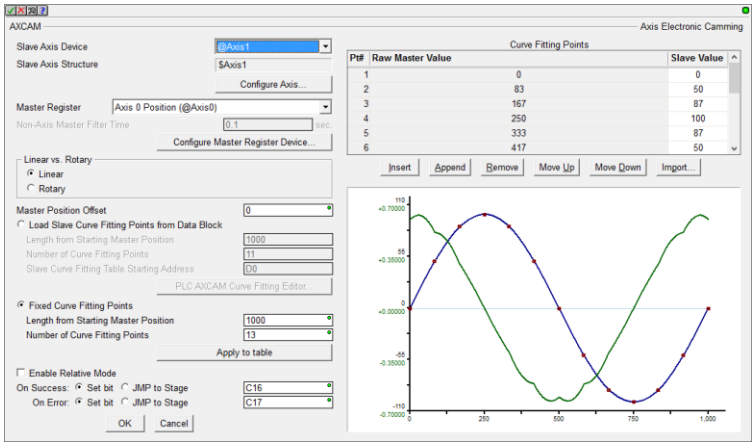


AXFOLLOW – Axis Position Following with Offset

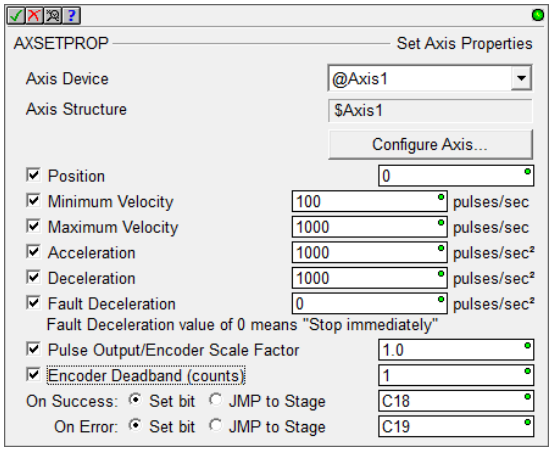


AXCAM – Axis Electronic Camming

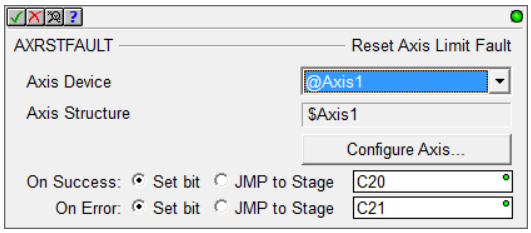
The AXCAM instruction also has an online tool for easily editing/graphing PLC Memory based Curve Fitting Points. Access it via the PLC->Axis Cam Table menu.



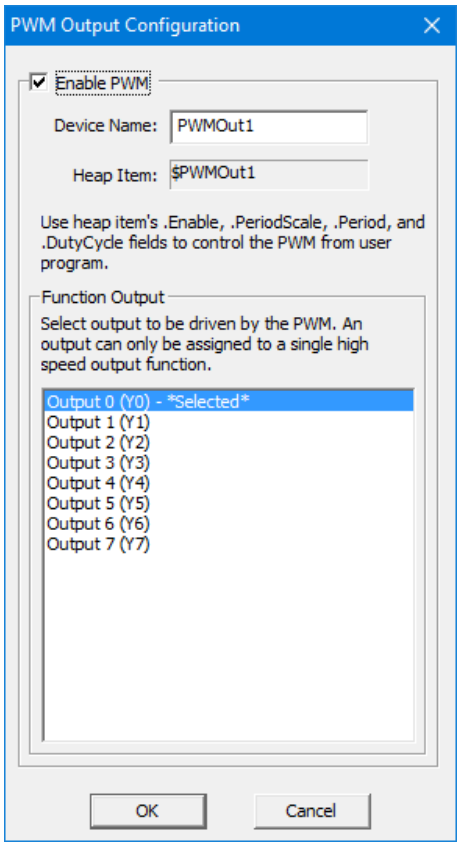
AXSETPROP – Set Axis Properties



AXRSTFAULT – Reset Axis Limit Fault



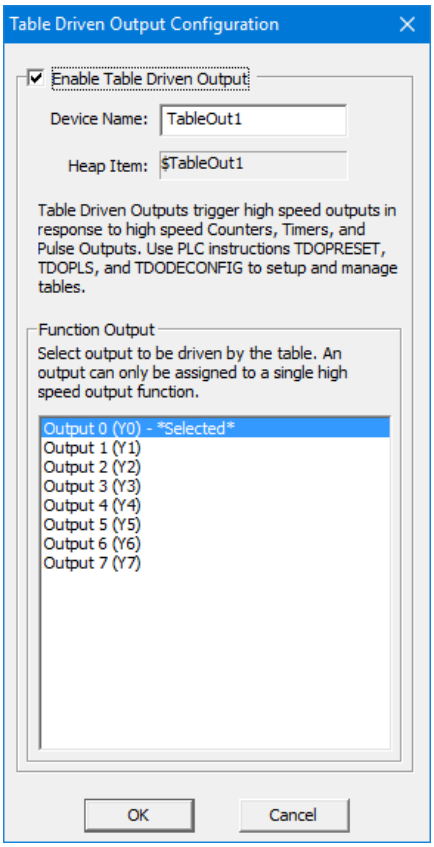
Pulse Width Modulation



Each BRX MPU supports up to 3 onboard Hardware Accelerated High Speed Output PWMs to precise microsecond or millisecond resolution. Once the PWM Output is configured, use the PWM's heap item's structure fields to control the PWM from your logic:

- .Enable
- .PeriodScale (bit 0: microsecond, 1: millisecond)
- .Period (time value 0 to 2,147,483,647)
- .DutyCycle (real percentage 0.0 to 100.0)

Table Driven Output (TDO)

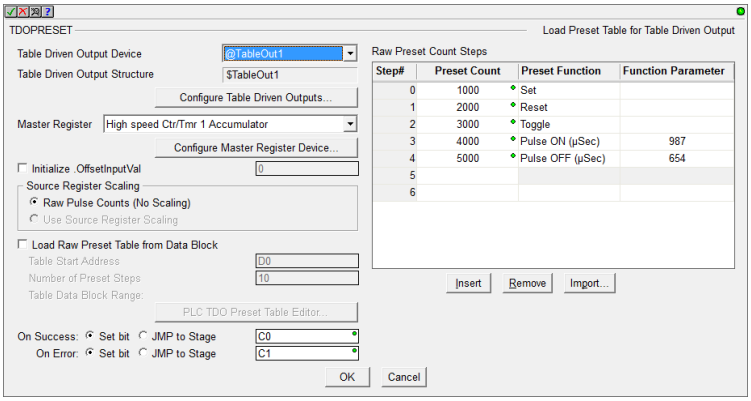


BRX supports up to 4 onboard Hardware Accelerated Table Driven High Speed Outputs in response to high speed Counters, Timers, and Pulse Outputs.

Use the TDOPRESET – Load Preset Table for Table Driven Output or the TDOPLS – Load Programmable Limit Switch Table for Table Driven Output instructions to drive the high speed discrete outputs.

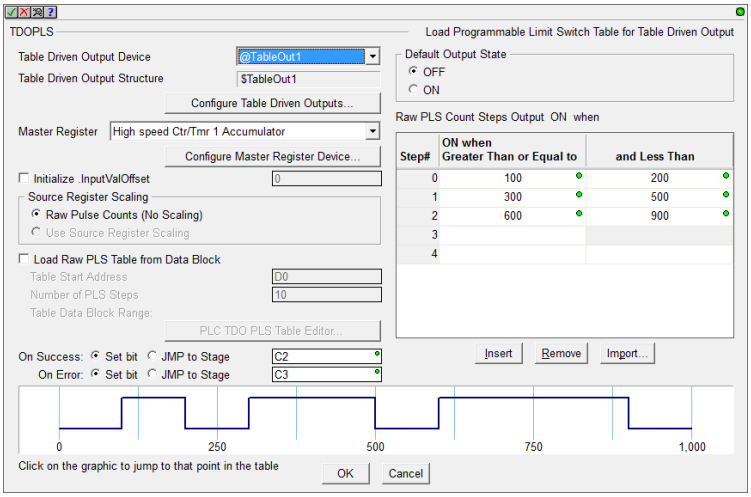
TDOPRESET – Table Driven Output Preset Table

The TDOPRESET instruction also has an online tool for easily editing PLC Memory based TDO Preset Table. Access it via PLC->TDO Preset Table menu.

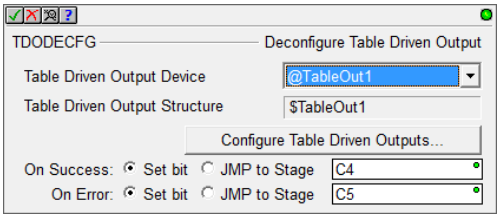


TDOPLS – Load Programmable Limit Switch Table for Table Driven Output

The TDOPLS instruction also has an online tool for easily editing and graphing PLC Memory based TDO PLS Table. Access it via PLC->TDO PLS Table menu.



TDODECFG – Deconfigure Table Driven Output

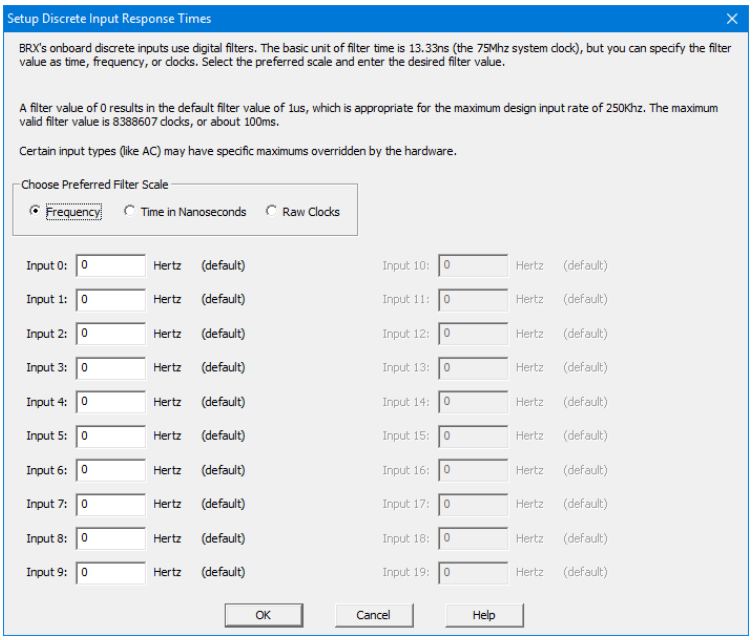


Configurable Discrete Input Filters

The onboard Discrete Inputs response times are configurable on every BRX MPU. Many of the MPU models' Discrete Inputs support very high frequency at the hardware level (up to 250K Hz). These response times can be configured through the System Configuration's **Setup Discrete Input Response Times** dialog.

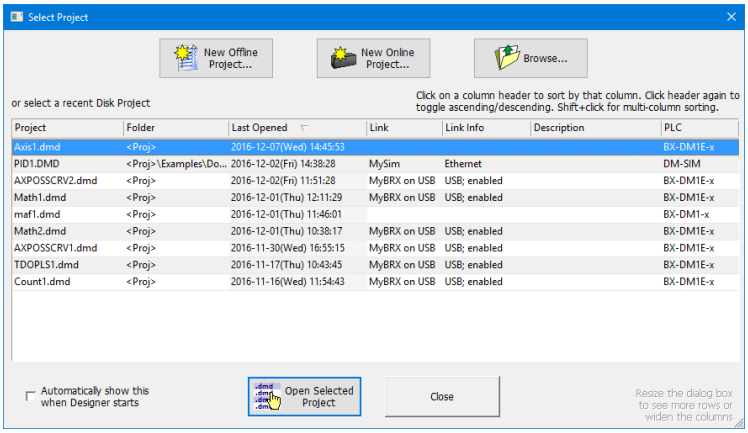
You can enter the filter in any of 3 different scales:

- Frequency
- Time in nanoseconds
- Raw Clocks



New Features in Designer 2.0 for All PLC Lines, including Do-more Technology Version 2.0

The new **Select Project** dialog is the *Launch Pad on steroids*. It lists all your recent projects sorted by the Last Opened date by default, so your most recent projects are near the top.



You can sort by any of the columns, not just Last Opened:

- Project name
- Folder
- Last Opened date/time stamp
- Link name
- Link Information
- Link Description
- PLC type

You can also create a New Offline Project, a New Online Project, or Browse to open up an unlisted project file.

The dialog box is resizeable, so if you have the screen real estate, feel free to enlarge the dialog and widen those columns. It remembers its location and sizes so that once you set it up, it will remember from launch to launch. It automatically shows up at start-up, but you can disable that functionality by UNchecking the checkbox in the lower left corner.

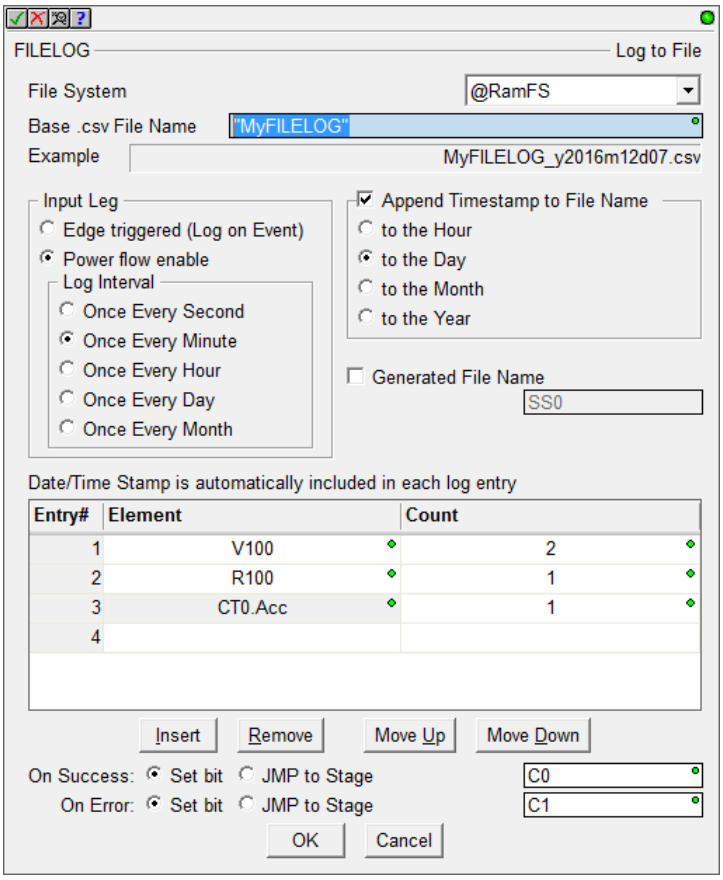
RAM Drive File System (DmT 2.0)

Do-more Technology Version 2.0 added a RAM Drive File System, so existing H2-DM1x, T1H-DM1x CPUs can support the new FILE* instructions with a simple firmware upgrade (BRX supports it out of the shoot; includes FILELOG, FILEOPEN, FILEREAD, FILEWRITE, FILECLOSE, FILEDEL, FILECOPY, FILENEWFLDR, FILEQUERY, FILESYSCMD, FILESEEK, FILETRUNC).

The **most useful** FILE instruction is the new **FILELOG – Log to File** instruction. It makes data logging very simple, but very configurable.

The most common requirement is that you need a specific set of data points to be logged at a specific interval (once a day, once an hour, once a minute, etc.). Each FILELOG instruction lets you specify the desired interval and set of data points.

You can mangle the name of the .csv file starting with a "Base" .csv (Comma Separated Variable text file) name, appending the Date/Time stamp to the nearest hour, day, month, or year (e.g. "MyFILELOG" to the nearest day: MyFILELOG_y2016m12d07.csv). This is optional.



After uploading the file using the Browse PLC File System dialog to your PC, the resulting file contains a header line showing the PLC variable names, but always starts with the current Date/Time stamp. Then it will have all the log entries for each day/hour/minute/whatever. The example to the right may look like:

```
"TimeStamp(sec,local)","V100","V101","R100","CT0.Acc"
2016/12/7 18:09:00,42,256,3.14,199
2016/12/7 18:10:00,43,301,3.14,211
2016/12/7 18:11:00,57,301,2.82,0
```

The .CSV text file can be easily opened by Excel or Notepad or imported by most database programs.

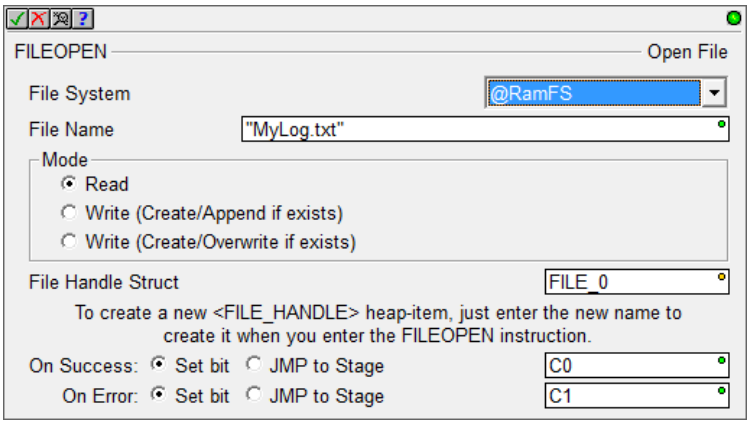
You can also just log data on an event, not a periodic time interval. Just change the Input Leg setting to Edge Triggered from Power Flow. Also, the Base .csv File Name can be a generating STRING element (e.g. SS42) in case you want to come up with your own naming convention. Just use STRPRINT to write to SS42.

Finally, if you want to attach these .CSV log files to an EMAIL, the Generate File Name checkbox will come in handy to plug the Attachment file name in the EMAIL instruction (e.g. SS5 for the Generate File Name parameter would contain `MyFILELOG_y2016m12d07.csv` from the first example above, then use SS5 in your EMAIL instruction's "Attach File Name" parameter.

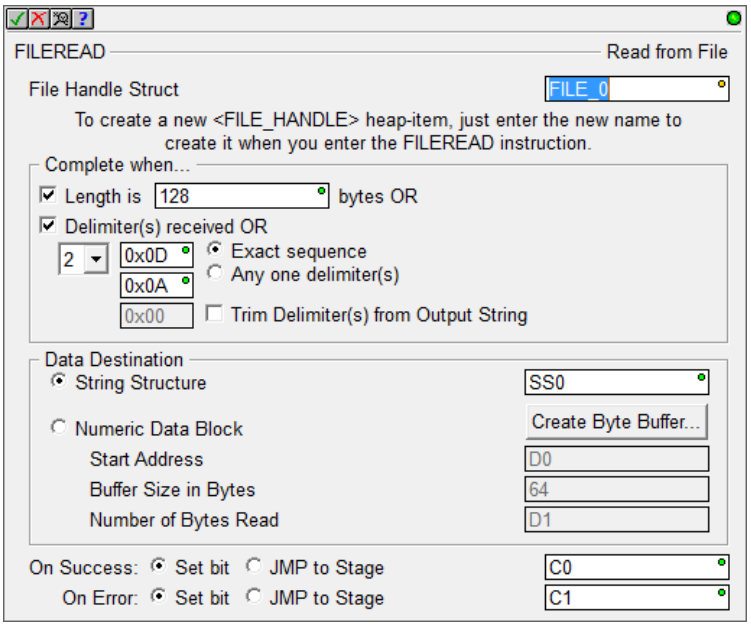
If you want to do your own FILE I/O calls, the breadth and depth is typical. Note that not every file system command is supported – this is a PLC not a PC, and some of those commands could take a LONG time, like removing a folder. Hence, Remove Folder is not supported by Do-more. But if it's

removable media, you can remove it from your PLC and put it on a PC and still do everything you want to do from your PC (remove folders, format the media, run diagnostics, etc.).

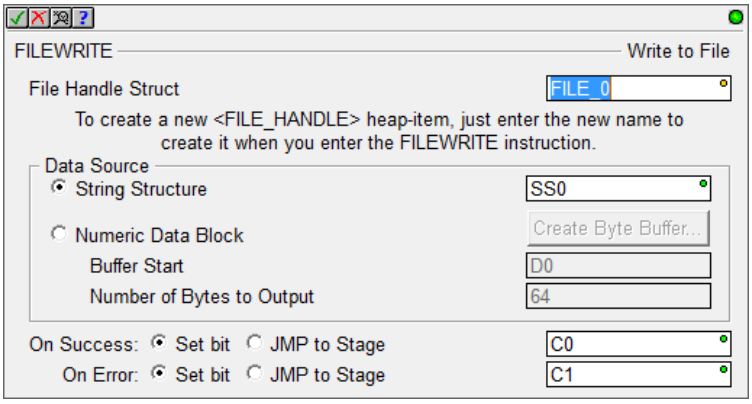
FILEOPEN – Open File



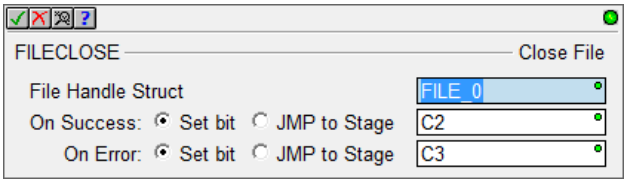
FILEREAD – Read from File



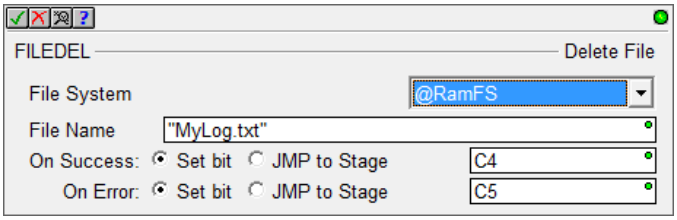
FILEWRITE – Write to File



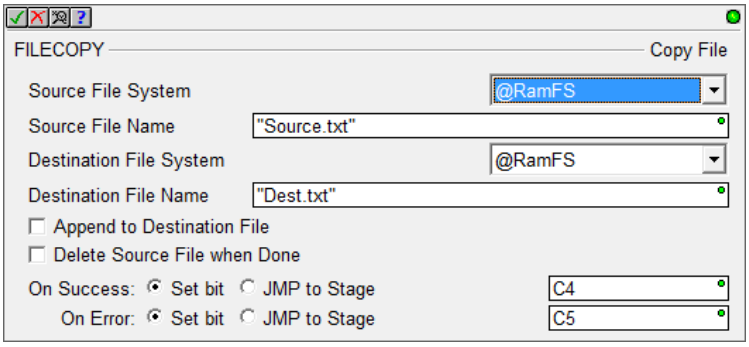
FILECLOSE – Close File



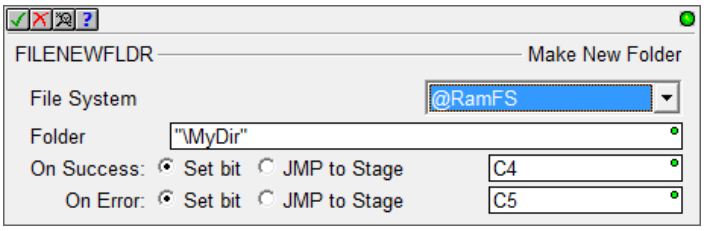
FILEDEL – Delete File



FILECOPY – Copy File

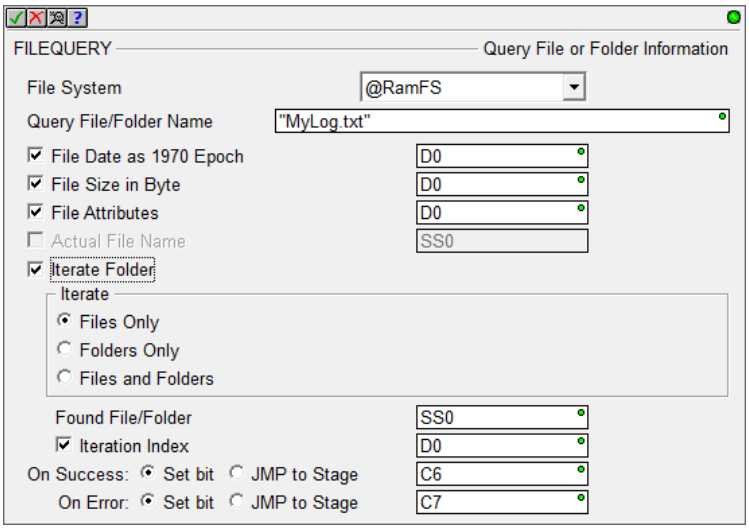


FILENEWFLDR – Make New Folder (note that there is no *Remove* Folder instruction)



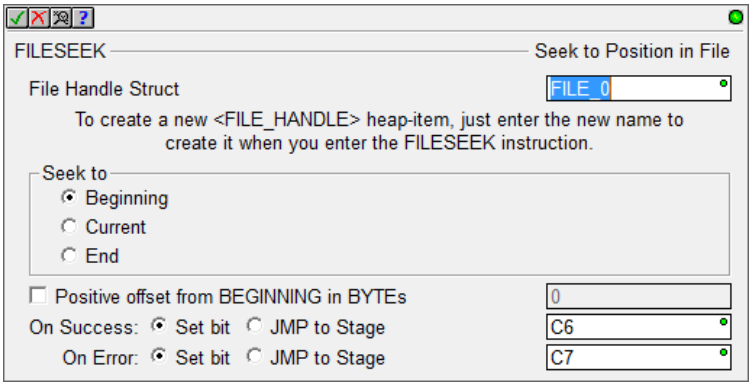
FILEQUERY – Query File or Folder Information

This instruction lets you get detailed information on any File or Folder. You can also use it to perform a “directory” operation to iterate all the files in a folder. The FILEQUERY Help Topic DMD0388 shows an example on how to iterate a folder.

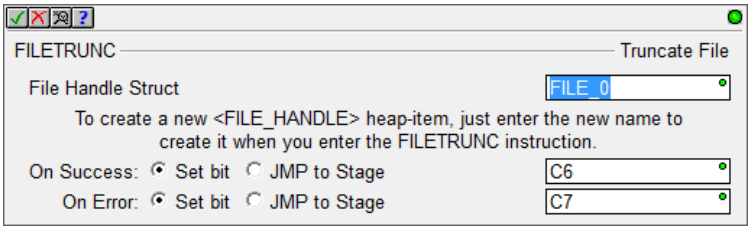


FILESEEK – Seek to Position in File

You can seek to specific positions (Beginning, Current, or End) or an offset from those positions.

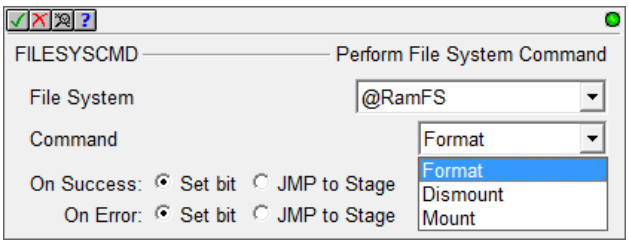


FILETRUNC – Truncate File



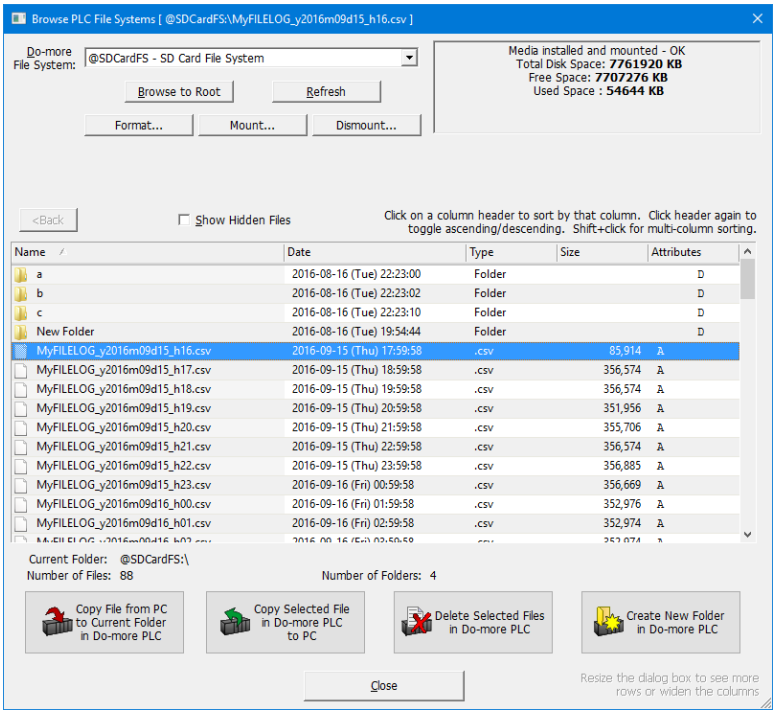
FILESYSCMD – Perform File System Command

- Format (RAM Drive Only)
- Dismount
- Mount



It is very useful to programmatically Dismount the SD Card before an operator tries to remove the media. The PLC's MEM LED will be RED when it is fully dismounted and safe to remove the media.

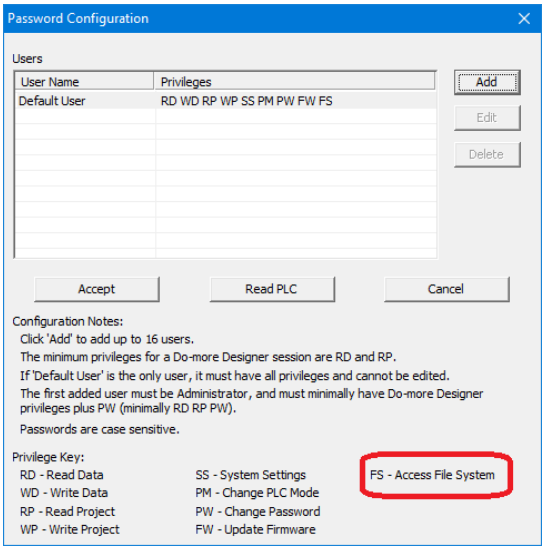
Browse PLC File Systems Dialog (DmT 2.0)



This dialog lets you explore the SD Card and RAM Drive file systems in your Do-more PLC. You can copy files between your PC and PLC in both directions.

(see PLC->Browse PLC File Systems)

New Designer Security Credential: Access to File System (FS)



The Browse PLC File Systems dialog cannot be used by a Designer user whose credentials does not include File System (FS).

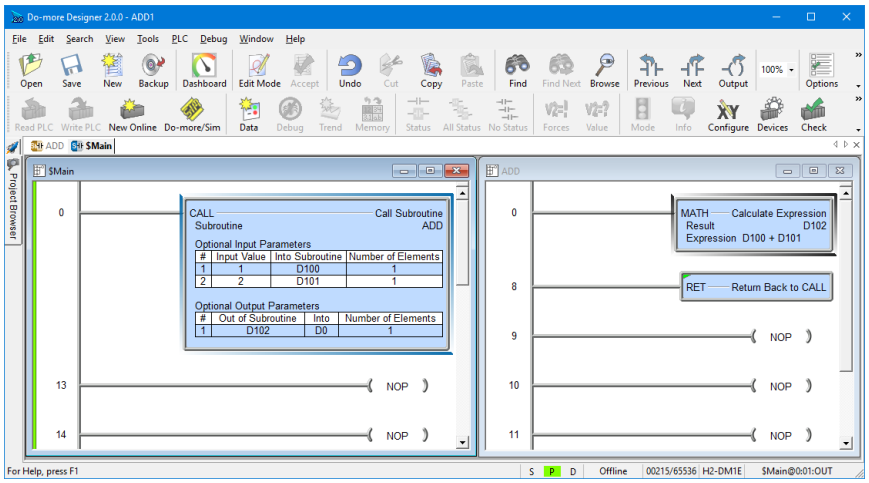
If any of your existing projects utilize Designer's Session Password facility that includes more than just the one Default User, you will have to manually add this privilege to any existing users that you wish to grant access to the File System.

Subroutine Code-Blocks (DmT 2.0)

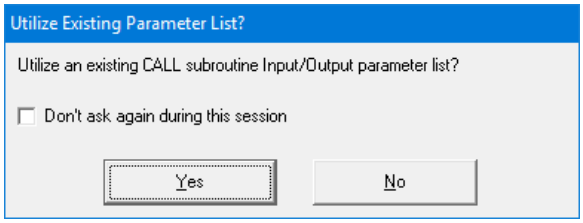
All Do-more PLCs can support callable Subroutine code-blocks once their firmware has been updated to at least Do-more Technology Version 2.0. The CALL instruction supports passing input parameters and returning output parameters "by value" through the global image register memory. There is no actual "stack" for the parameter passing, just the CALL client side values are copied into the Subroutine's Input parameters before calling the subroutine. Then after returning from the called subroutine, the Subroutine's Output parameters are copied into the client side CALL elements. The stack DOES handle pushing the current CALL instruction address on the stack, and the Subroutine's

Return/Conditional Return instructions does the clean-up, so nesting CALLs IS supported (up to 82 levels of nested CALLs), but the parameters are NOT placed on the stack.

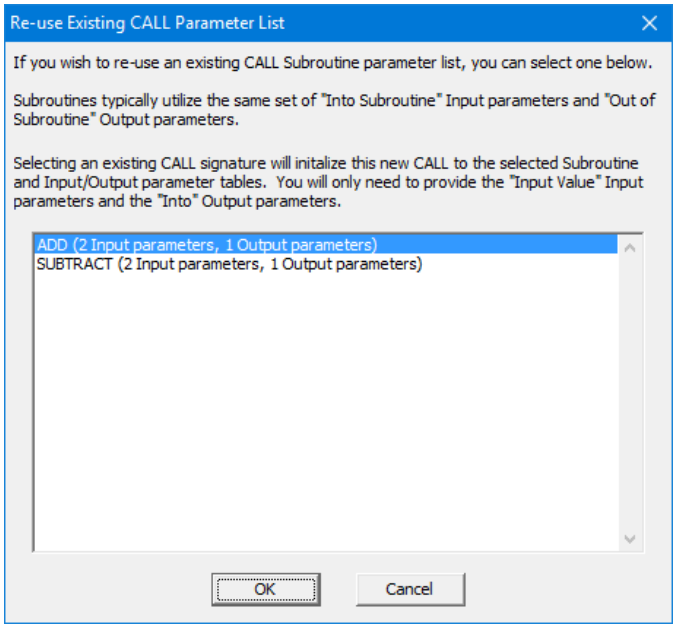
For example, you can create an ADD subroutine that takes 2 input parameters and 1 output parameter. The Subroutine reserves and uses the D100 and D101 registers for the two Addends, and D102 for the Add Result. You can then CALL the ADD subroutine with 1, 2 and D0 to get the result of 3 in D0.



Now say you want to add 4 and 5 together and store that in D1, you probably want to re-use your nifty new “ADD box” that you just created,. Normally, you would need to remember that ADD uses D100 and D101 for the two input parameters, and D102 for the one output parameter.



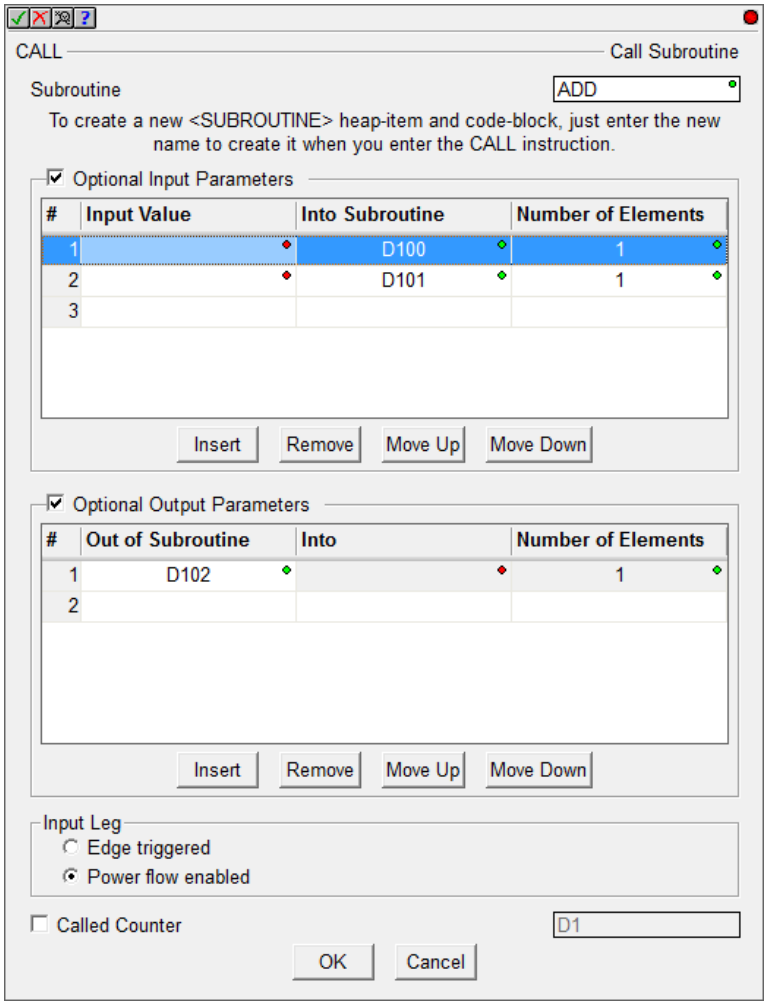
So after you pick a new CALL instruction, Designer knows that Subroutines are meant to be re-used, so it asks you if you want to re-use an existing CALL signature for the Subroutine-side parameters for this new CALL box, and let you fill out the CALL-side parameters:



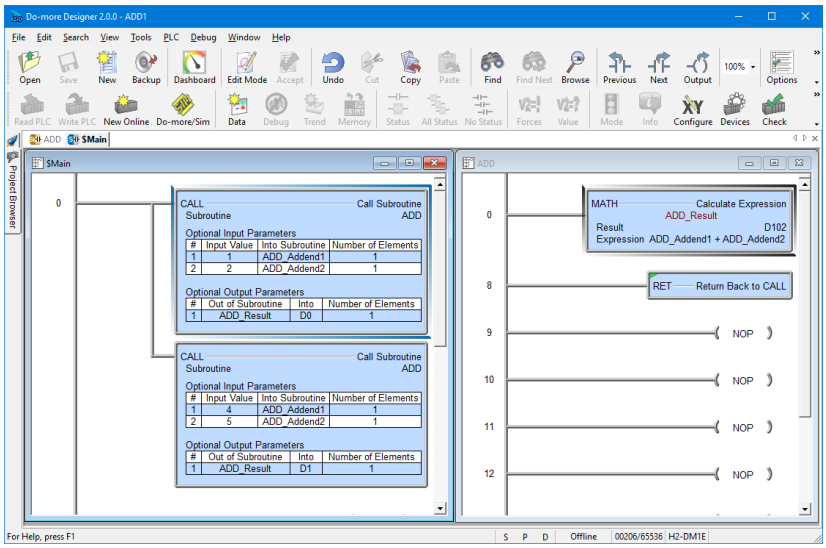
After hitting OK, you are given a more-than-half-filled-out CALL instruction.

The Subroutine name, the Subroutine's side Input and Output parameters are all filled out.

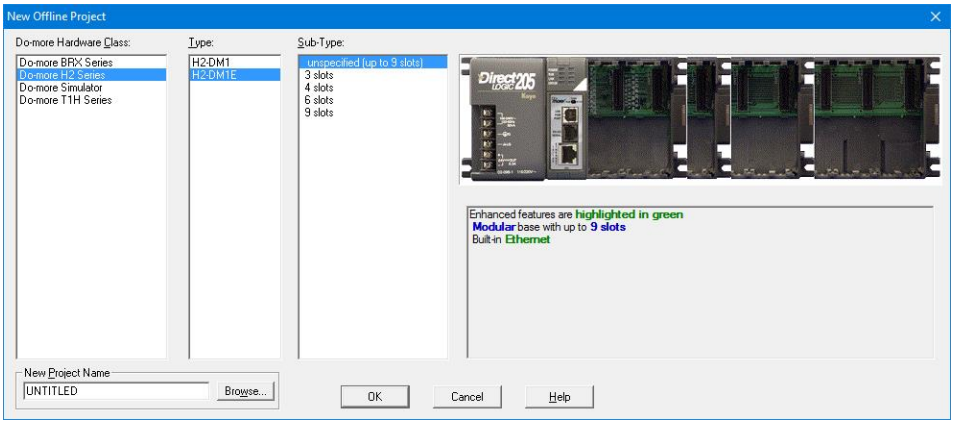
All that's left to do is fill out the three "red dot" empty parameters that are the "caller side" parameters (in this case, they will be 4, 5, and D1)



It's also good design to assign Nicknames to the global Subroutine input/output parameters, then your CALL instruction signature and Subroutine logic looks even better (e.g. ADD_Addend1, ADD_Addend2, ADD_Result for D100, D101, and D102, respectively):



Enhanced New Offline Project Dialog



There is now a third selection level, PLC Sub-Type, which became necessary when the BRX was added due to the model/feature breadth of that new line. By adding PLC Sub-Type, this also allows for 205 Base Type selection, including an option of “unspecified”.

The dialog also reports on general features of the specific sub-type selected, highlighting key features in green (like built-in Ethernet, or onboard analog I/O or …; see other example in the BRX section above).

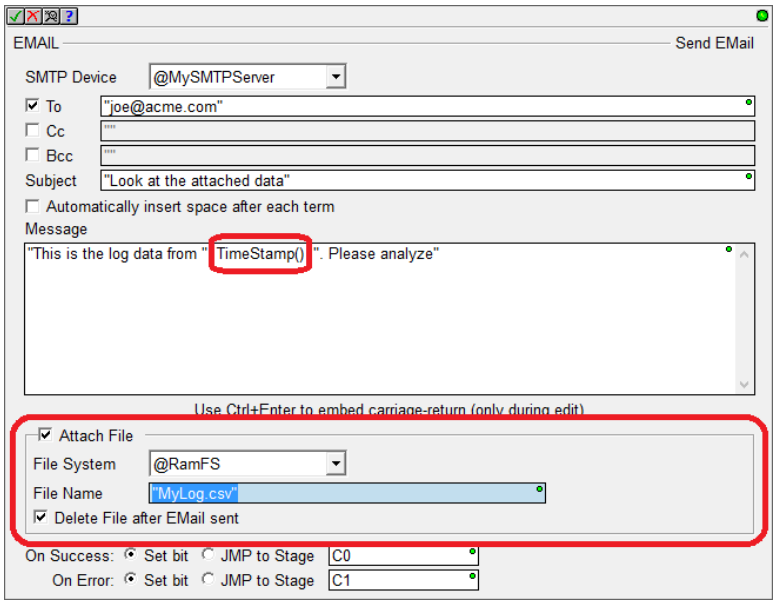
New Instructions and Instruction Enhancements

With the addition of a RAM Drive File System to all existing Do-more PLCs with just a simple firmware upgrade, the existing **EMAIL** instruction was enhanced to add some optional parameters for **sending attachments**.

A new **STRPRINT/EMAIL** Print Script command was created called **TimeStamp()** that optionally takes two parameters.

Resolution: min or sec (default) or tenths or hundredths or thousandths.

Clock-Time-Type: local (default) or utc



The format of the date portion is always YYYY/MM/DD. The format of the time portion is 24-hour, down to the specified resolution. So the default is local time to seconds resolution, for example:

```
2016/12/31 23:59:59
```

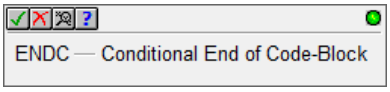
If you need more detailed formatting capabilities, use the existing FmtDate() and FmtTime() script commands.

There is another STRPRINT/EMAIL Print Script command called **Fill()** that repeats the same character multiple times. It takes 2 parameters:

Fill-character/byte as hexadecimal constant 0x00..0xFF
Fill-length (integer element or constant)

So, `Fill(0x20, 80)` would generate 80 spaces (0x20 is the ASCII hexadecimal constant for a space).

ENDC – Conditional End of Code-Block



ENDC can be utilized in any PROGRAM, TASK or ISR code-block type. Although END coils are not required by Do-more PLCs, the Conditional End within an Interrupt Service Routine is commonly needed to help keep the ISR running as fast as possible.

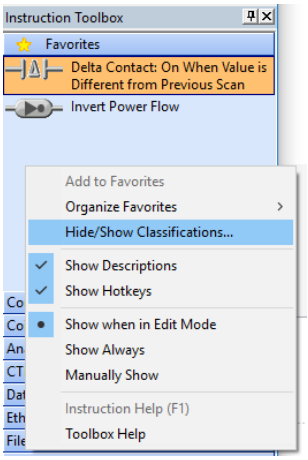
Also, it is sometimes helpful to use END/ENDC for debug purposes to block out code execution in a PROGRAM or a TASK. The ENDC box lets you do perform the End conditionally based on the input contact power flow state of the rung.

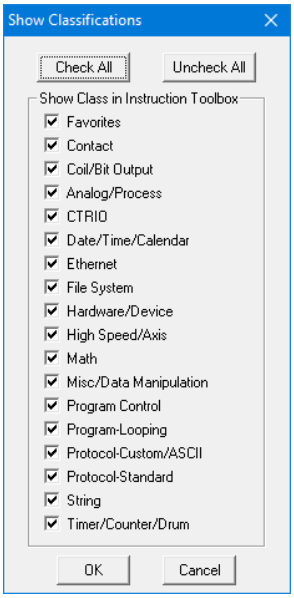
Note that ENDC is different than the EXIT instruction in that ENDC can only end the current logic scan of that code-block, it does NOT end the execution of that code-block for subsequent scans, like EXIT does.

Instruction Toolbox

You can now hide any set of instruction classifications that you don't ever use, freeing up more screen space in the Toolbox for the instructions that you do use.

Just right click on the Instruction Toolbox and select Hide/Show Classifications, then UNcheck the classes you don't ever use in the Show Classifications dialog box.





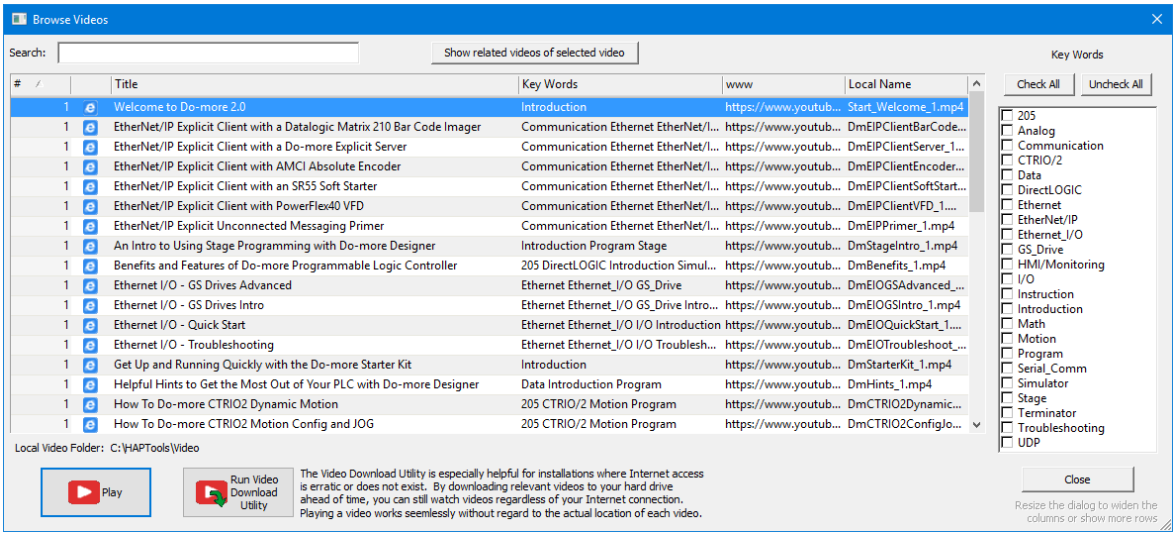
Moved CTRIO set of instructions to its own Instruction Class.

Added a higher level **Download Firmware dialog** accessed via the PLC menu, PLC toolbar, and Dashboard view. You can still download firmware from the System Information dialog.

New System Words (DSTs)

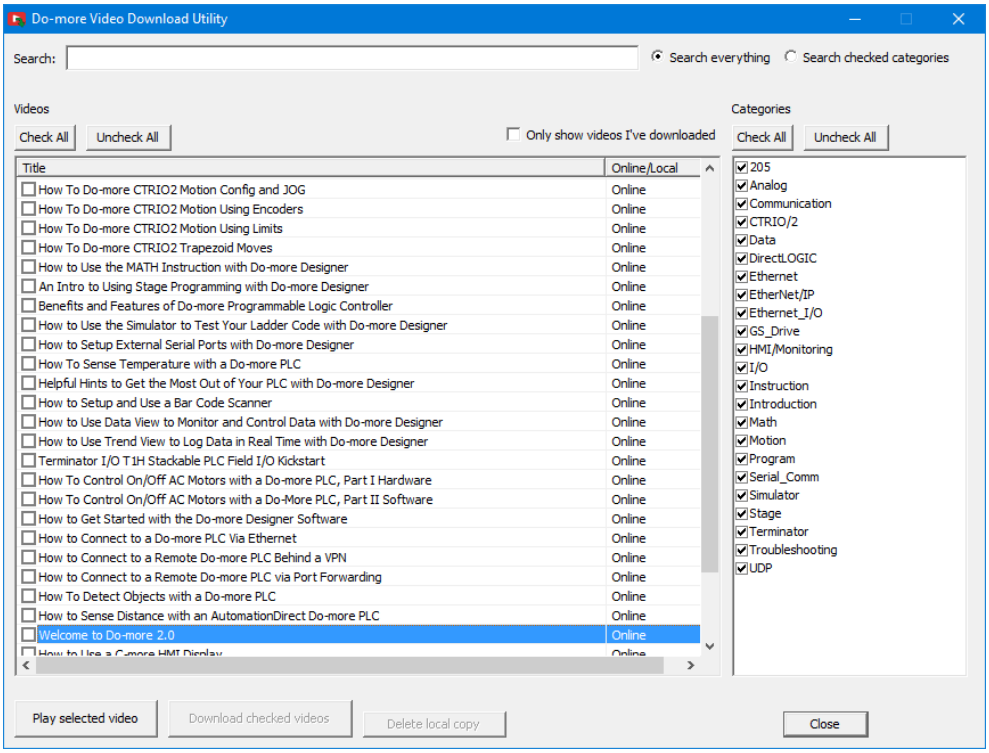
DST50	$InstalledPOM	
DST53	$PLCSubType	
DST54	$POMIpSetupSrc	see Help Topic DMD0208 *System Nickname Locations* for details
DST55	$POMIpAddress	
DST56	$POMIpNetmask	
DST57	$POMIpGateway	

Ladder View – **added Ctrl+/ (control-slash)** hot key to **toggle documentation on/off quickly**. Great when online and needing more logic status real estate, Ctrl+/ turns off documentation temporarily to give you more contacts/coils/boxes on your screen. Hit Ctrl+/ to bring it back to “normal”, Ctrl+/ to turn it back off. Very handy when you just need to temporarily turn off documentation in your Ladder View.



Browse Videos Dialog

The new Browse Videos dialog box lets you navigate all the videos, and it supports keyword filtering and title text search to watch any/all videos (see Help->Browse Videos).

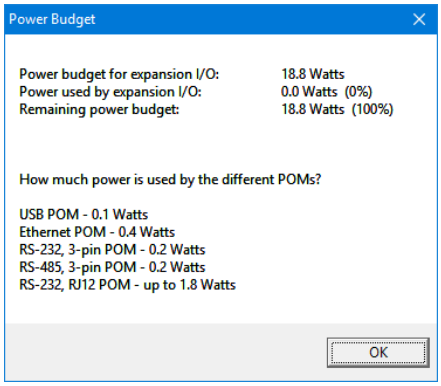


Video Download Utility

The new Video Download utility can be especially helpful for installations where Internet access is erratic or does not exist. By downloading relevant videos to your hard drive ahead of time, you can still play these videos regardless of your Internet connection at those critical moments! (see Help->Download Videos).

2.0.2 Modifications

1. Dashboard
   a. Currently installed BRX POM included in Power Budget calculation when online; offline and online Power Budget dialog lists power usage for the various POMs since they are hot-swappable making the Power Budget dynamic:



   b. reload button properly refreshes at the current scrolled position
   c. CPU panel shows Mode Switch position next to actual PLC mode
   d. clicking on Ethernet port lets you Edit IP Configuration
   e. adjusted behavior of Ethernet panel items on non-Ethernet PLCs
   f. smarter display of SD Card and Mode Switch when offline

   g. made aware of adding/removing data-blocks
   h. added High Speed I/O tab (HSIO)
   i. added confirmation message box when disabling Ethernet I/O Master or disabling EtherNet/IP Server
   j. added Monitor Ethernet I/O to Ethernet I/O Master panel item's pop-up menu
2. System Configuration dialogs
   a. BRX Discrete Input Filter – changed default filter time to 10ms; so then the BRX High Speed Input dialogs will notify user if a high speed input is configured to use that slow default filter time
   b. BRX Discrete Input Filter – changed "response times" to "filter values"
   c. BRX Analog Input Configuration – correctly displays analog current units 0.61 uA
   d. BRX Analog Output Configuration properly displaying electrical units
   e. BRX Analog Output Configuration shows max 16 bit signed raw value as 32767
   f. BRX Analog Input and Output Configuration – replaced "Range Limit" phrase with "Clamp"
   g. BRX Setup Interrupt Timer clamps on max value entry and also displays microsecond entry values in their seconds/millisecond equivalent
   h. BRX Setup Interrupt Event Configuration dialog has a "Clear" button
   i. BRX Table Driven Output dialog has correct TDODECFG mnemonic
   j. Memory Configuration dialog no longer initially has Hide Built-in Blocks checkbox CHECKED
   k. SMTP Configuration dialog and Ethernet I/O Monitor dialog misspellings fixed
   l. Reduced multiple "nag" dialogs when making System Configuration changes when online
   m. Help button now works on Setup BRX POM dialog, BRX Setup Discrete Input Filter dialog, BRX Setup Analog dialog, Edit User Password dialog
3. GSREGRD/GSREGWR correctly labeled as Fully Asynchronous (5649)
4. RX/WX instruction From/To Local/Remote editors no longer initially clearing Local field (this may have been an issue in other element editor fields in 2.0.1)
5. AXHOME editor is 2 columns
6. Changed wording of AXCONFIG's "motion fault limit" parameters to "overtravel fault limit"
7. AXCAM editor reminds users to hit the "Apply to table" button when making changes to the table configuration parameters
8. Made Do-more serial protocol more robust
9. Ladder View properly displays long Unassigned Nicknames and Symbolic Constants in contacts and coils (5658)
10. Element Editor Auto Complete now shows Structure level nicknames which have valid structure fields for that parameter (5659)
11. Browse PLC File System – bumped application timeout to 10 seconds (5655)
12. Select Project dialog's PLC Subtype Specification list shows voltage range next to power-supply type
13. Do-more Technology version takes you to the new Download Firmware/Gate Array dialog instead of the System Information dialog when looking to update your PLC
14. Project Browser shows the *Sort By* settings for the *Control Logic* and the *Configuration/Memory* nodes of the browser tree (5281)
15. Fixed some modality issues with various dialog boxes
16. Browse Videos dialog can sort based on Location column (Disk vs. Internet)
17. Video Download Utility reports error messages in addition to the error codes

For details about updates for version 1.4 and earlier, see this online document:

http://forum.hosteng.com/wndm/Updates_1_4.pdf