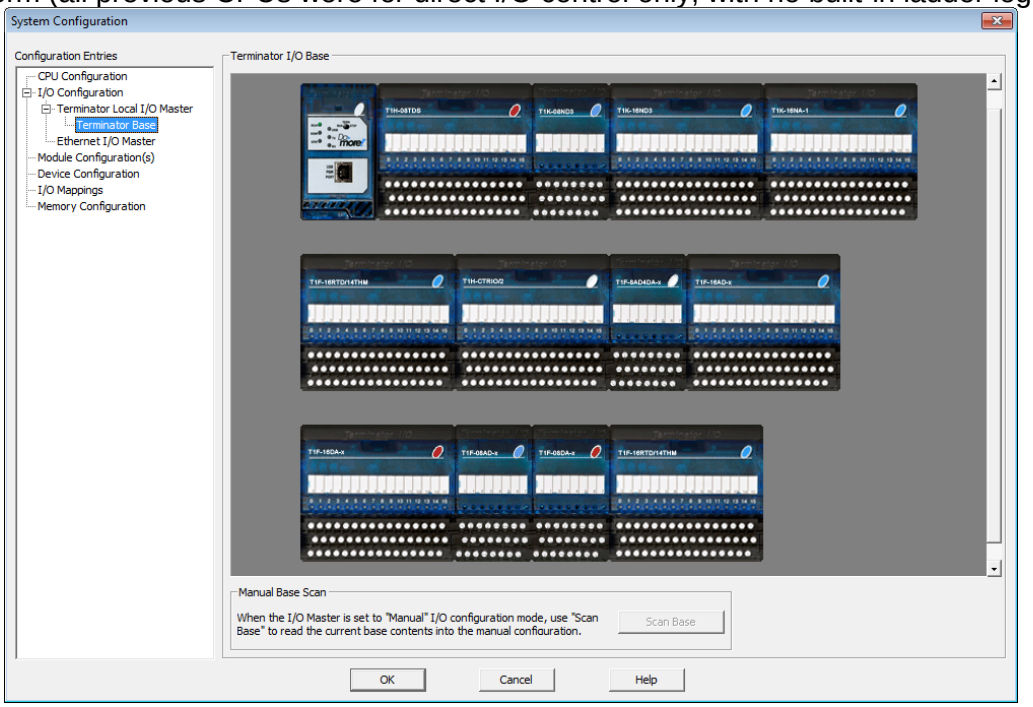
This file documents the list of new features, enhancements, and "adjusted anomalies", starting with the most recent version and finishing with the initial Rel 1.0 version. Each page's header shows the version for the current page.

Changes to Do-more Designer for 1.2

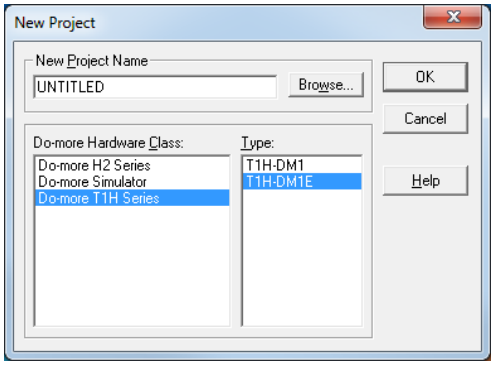
1. Added support for the **two newest Do-more CPUs**, the **T1H-DM1** and **T1H-DM1E** CPUs, which target the **Terminator I/O** platform. Both CPUs contain a USB programming port and an RJ-12 RS-232 serial port. The T1H-DM1E model also has a built-in Ethernet port. The serial port and optional Ethernet port are located on the bottom of the CPU module.

   Terminator is a well-established I/O platform, released in 2001. This is the first PLC CPU for this I/O platform (all previous CPUs were for direct I/O control only, with no built-in ladder logic support).

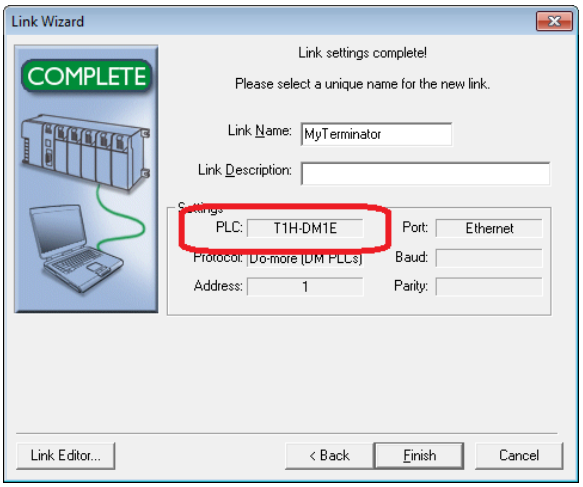


   The local Terminator Base can support **up to 16** I/O modules, including Terminator I/O's high density analog modules. At up to 16 channels per module, the local base can support up to 256 Analog points (the T1H-DM1E can also support 16 slaves of Ethernet I/O for up to 4,000 I/O points).

   a. Creating a new Terminator Do-more project from Designer offline is just as simple as creating a new H2 205 Do-more CPU via the *New Project* dialog. Creating a new online Communications Link via the *Link Wizard* automatically determines the Do-more CPU model.



(note the new *Do-more Hardware Class* list)

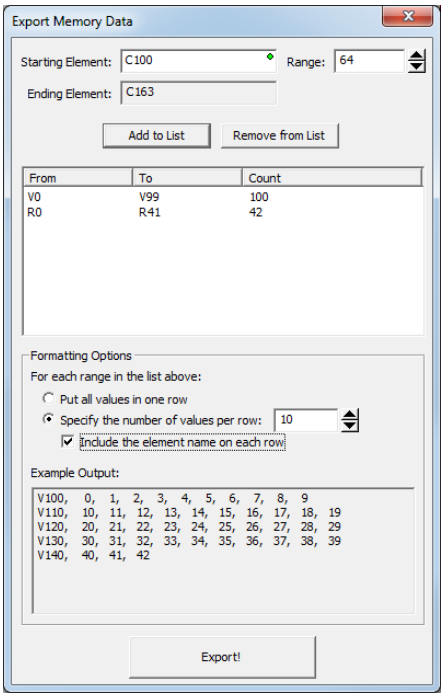


2. Online Memory Data Import/Export Utility

This is an online utility that can read data-block bit and numeric values from your Do-more PLC and dump them into a .CSV (comma separated variable) text file in readable form. This file can then be easily imported by your favorite spreadsheet program, text editor, or back into Designer and written back down into your Do-more PLC. You can also just use the Memory Data Import mechanism with a .CSV text file you created from scratch from your spreadsheet or text editor.

Import is only available online, and is accessed from the **File->*Import*->Memory Data** menu. Export is also only available online, but is accessed from the **File->*Export*->Memory Data** menu.

a. Export Memory Data (Do-more PLC to .CSV text file)



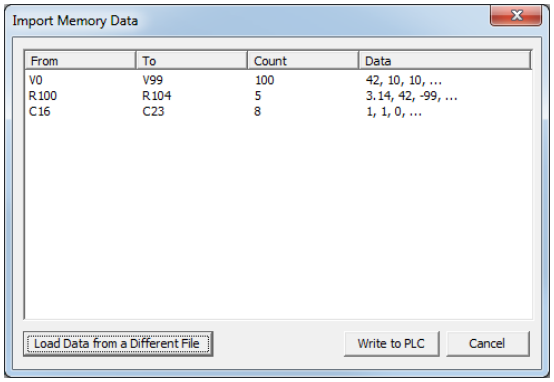
First, generate a list of element ranges you wish to read up from the PLC and export. Any built-in or user defined data-block of numeric or bit data can be exported. Simply specify the *Starting Element* and *Range*. The *Ending Element* is calculated. Hit the *Add to List* button, then define and add the next range.

Once all your element ranges are added to the list, decide how you wish to format the elements and values in your text export. There are multiple options, so an *Example Output* box shows you how the data would look in your text file based on the options currently selected. The example uses a dummy data set of 43 values from V100 thru V142 that have the values of 0 thru 42, respectively.

Next, hit the *Export!* button to bring up a *Save-As* dialog to choose the name of the .CSV file and folder the data will be exported to. Once you hit the *Save* button in the *Save-As* dialog, the data will be read from the Do-more PLC and written to the .CSV file.

After the data is read and written to the file, you are given the option to open the file to look at the data, or to open the folder where the file exists, or neither of these.

b. Import Memory Data (text file to Do-more PLC)



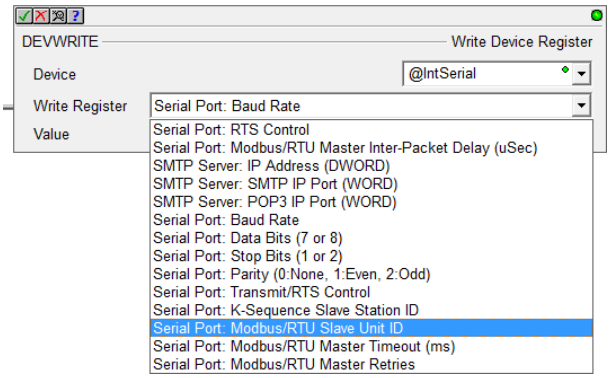
As long as the text in the file is formatted correctly, this tool will open the selected text file, read all of the element/values lists from the file, and show a confirmation dialog with the list of element ranges with the first few values of each range. If there are any issues with the format, the errors will be dumped to the *Output Window*.

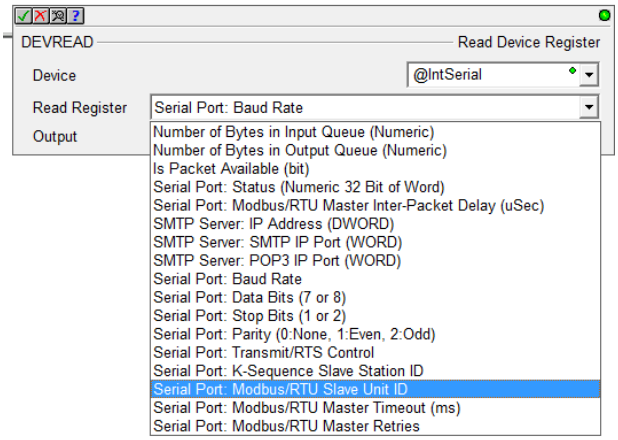
Once you are ready to write the various list of values to their element ranges, just hit the *Write to PLC* button.

The format of the Import file is based on the Export file format above. Each list of element and data values must start with an element at the beginning of the line (e.g. V0 or C16), followed by any number of values on that line and successive lines which contain only values. The end of the element range is implied by the number of values it finds. Always start a new range on a new line beginning with the starting element of the new range. For more examples of valid Import formats, look at the *Example Output* window mentioned in the *Export* dialog above.

3. **Instruction Changes**

   a. To help OEM and other customers who want to **monitor or dynamically configure any serial port via ladder logic** (built-in or SERIO/4 module), the DEVWRITE - Write Device Register and DEVREAD – Read Device Register now support multiple serial port parameters.



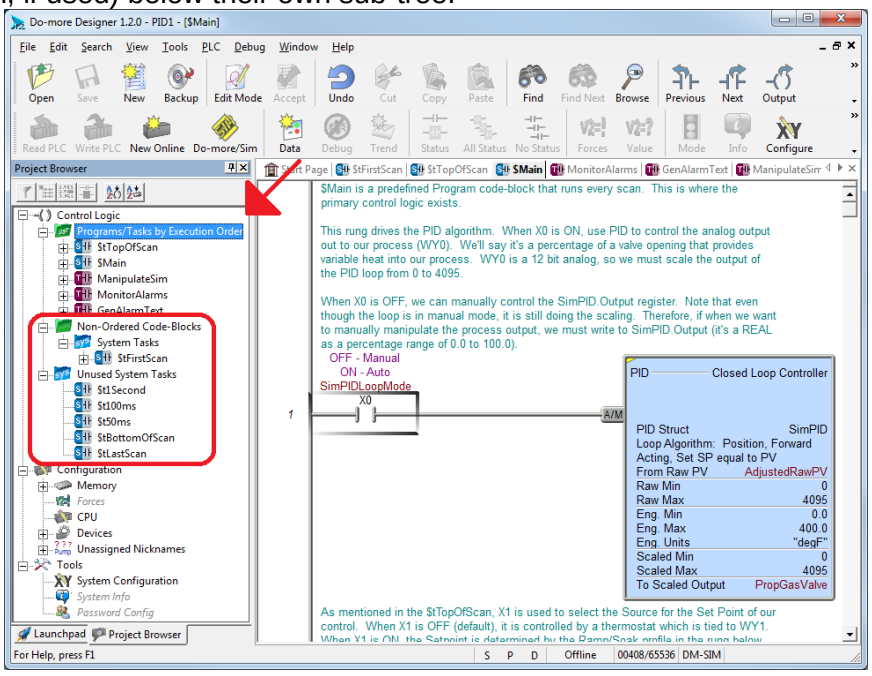


   The new Register types for serial ports include Baud Rate (must be one of 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200), Data Bits (7 or 8), Stop Bits (1 or 2), Parity (0: None, 1: Even, 2: Odd), Transmit/RTS Control (see Help topic DEVWRITE DMD0063 or DEVREAD DMD0062 for value encoding details), K-Sequence Slave Station ID, Modbus/RTU Slave Unit ID, Modbus/RTU Master Timeout, and Modbus/RTU Master Retries.

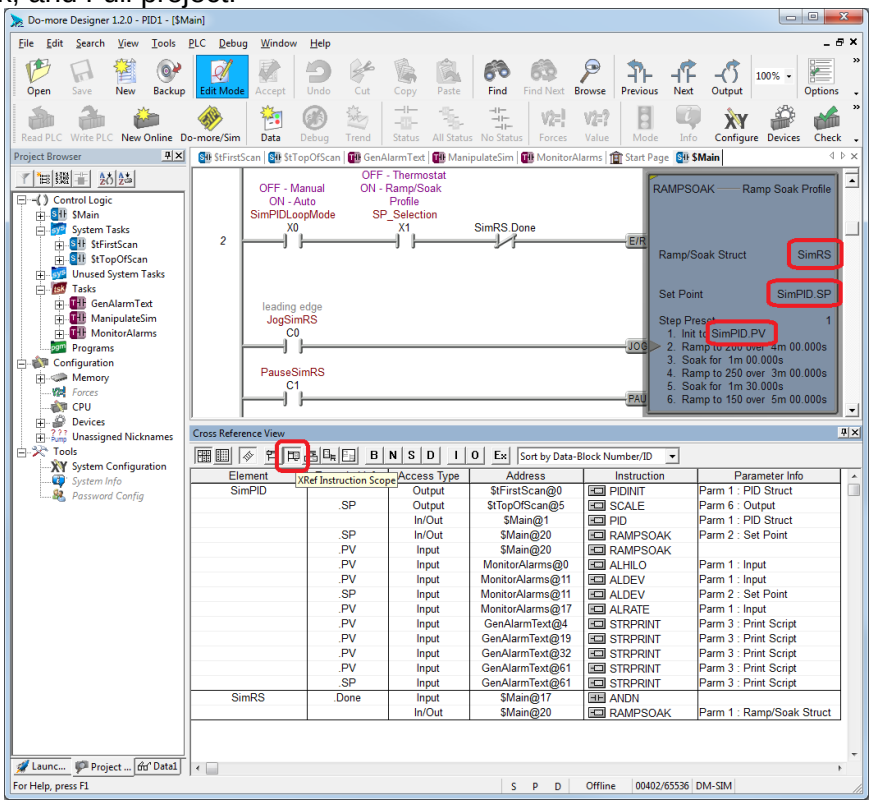
   This also requires an update to the H2 CPU OS firmware to at least 1.1.1 via the PLC->System Information menu (hit the Update button next to the Do-more/OS fields in the CPU Version Information group and follow the directions from there).

4. **Enhancements**

   a. **Project Browser's Control Logic** group, when sorted by execution order, will now show **Unused System Tasks** and any used **Non-ordered Code-Blocks** ($tFirstScan and $tLastScan, if used) below their own sub-tree.

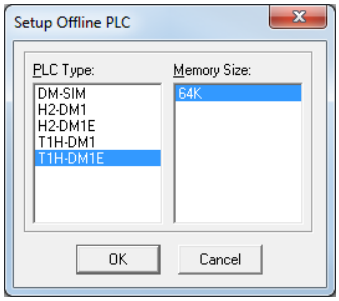


b. Added **Instruction scoping option** to **Cross Reference View**, which shows the XRef listing for all the parameters of the instruction under the current Ladder view's block cursor. Other scoping options include the Ladder view's current Point (parameter), current Rung, current Code-Block, and Full project:



c. Utilizes 1.2 .INI file, **DmDesigner1_2.ini**.

d. Added **PLC Offline Setup** dialog that lets you change the Project's PLC Type when offline. It is accessible from the **PLC->Offline PLC Setup** menu, or by clicking on the PLC designation pane in the **Status Bar** when offline.



e. Added support for new System Status DWORD DST that reflects the PLC type as a numeric value in register **DST29** (System Nickname **$PLCType**).

0: Unknown
1: Simulator
2: H2-DM1
3: H2-DM1E
4: T1H-DM1
5: T1H-DM1E

f. Added two new System Heap-Items
   STRING **PartNum** Part Number, like **`H2-DM1E`**
   STRING **SerialNum** Serial Number, like **`00:E0:62:90:00:FD`**
   These require H2 firmware 1.1.1 or later (see item 3a on how to update).

5. **Adjusted Anomalies**

   a. **Replace Dialog**: Widened to accommodate longer code-block names (4546). Added *Remember These Selections* checkbox to the *Where to Replace* group (4402). Constants can no longer be Replaced; this is to prevent internal constant flag parameters from being manipulated; use *Find* and manually edit the constant parameter; *With* field can still be a constant (4513). *Replace* and *With* element edit fields properly handle the auto-complete drop-down list.

   b. **I/O System View**: Maintains proper Z-order (4523). Shows slave's default I/O start address only when user sets it (4558).

   c. **Terminator I/O configuration** correctly showing proper bitmap for proper module.

   d. **XRef Tool Tip** properly includes element at end of a range for display and hot-key navigation (4514).

   e. **System Configuration Dialog**: Module Configuration entry dialog, renamed first column to *Module Config Name*. I/O Configuration/Ethernet I/O Master entry dialog's Rescan Slave's I/O button is disabled when offline.

   f. **Counter I/O Monitor utility**: Better handles CTRIO modules in Terminator. Correctly displays Capture Register format as 32 bit integer or real.

   g. **Ladder Editor/View**: IP Address sub-field and Constant Timer Preset sub-field editing improved. Displays a better error message when "no devices available" is the selected Device parameter (4482). Unsaved to Disk, Unsaved to PLC, and Uncompiled Change-Bars maintain state after compiling rungs with "dangling" instructions (4475). MRX/MWX editing of the Enable options no longer report false error conditions (4568). Status instruction layout now correct after doing a New Online Project in Run mode (4540). Parameter editors that take only a string literal or string element (like STRFIND's *Find/Text* field) properly handle F9 Element Browser selection of a string element (4601).

   h. **Import Project** properly sets Program Memory size to 65,536 instruction-words.

   i. **XRef View**: No longer blank when opening a project (4524). Expand-Ranges works better.

   j. **Change Value** dialog's Element edit field now supports Auto Complete (4457).

   k. **Program Check** now prompts if you want to Accept any uncompiled rungs before continuing (4470).

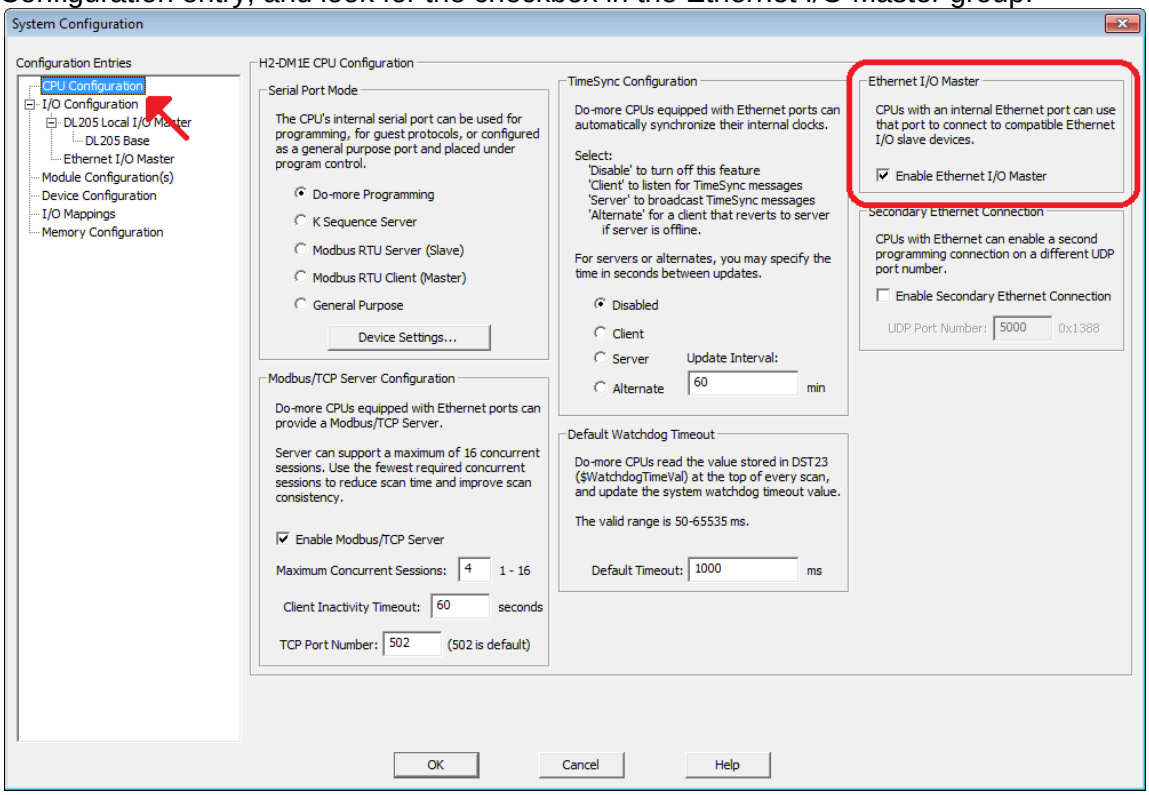
Changes to Do-more Designer for 1.1

1. **Ethernet I/O - Added built-in support for over 4,000 discrete or analog I/O points.** The built-in Ethernet port of the H2-DM1E model CPUs have the option to enable an Ethernet I/O Master for **up to 16 EBC100 bases** (H2 and/or T1H) **and/or GS-EDRV100** slaves. In addition to discrete and analog I/O modules, the CTRIO/2 modules will also be supported natively in an EBC100 slave.

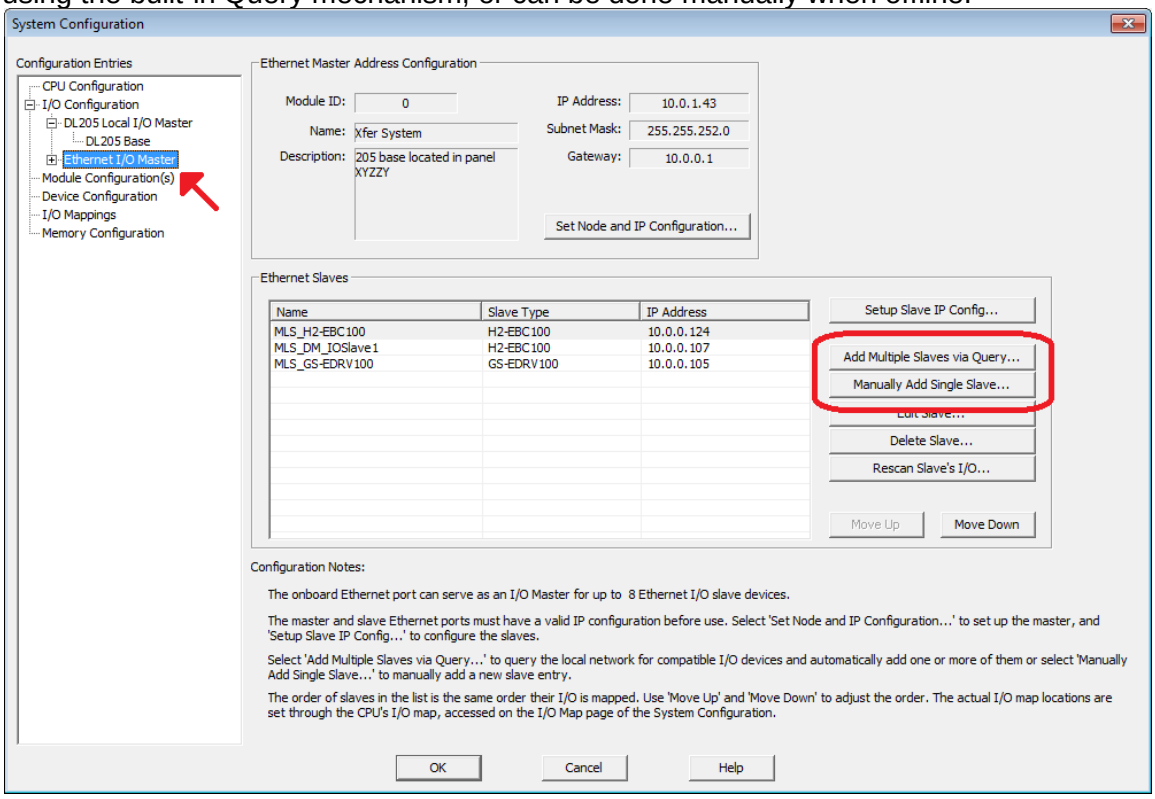
   a. Any existing Do-more CPUs with V1.0.x firmware will need to be upgraded to support Do-more Technology Version 1.1. In Designer, select menu Help->Check for Updates to download the most recent firmware files. Then select PLC->System Information when online to upgrade the firmware in your Do-more CPU. Hit the Help button for details on how to upgrade the firmware in your CPU.

   b. Any existing EBC100 and GS-EDRV100 modules will need to have their firmware upgraded to support Do-more Ethernet I/O. From NetEdit3, Run Live Update to download the latest firmware files off the Internet, then right-click on each module to Update Firmware. *Minimum* firmware support needed by each module is documented in I/O Configuration Help Topic, DMD0249, under the *Ethernet I/O Master* section.

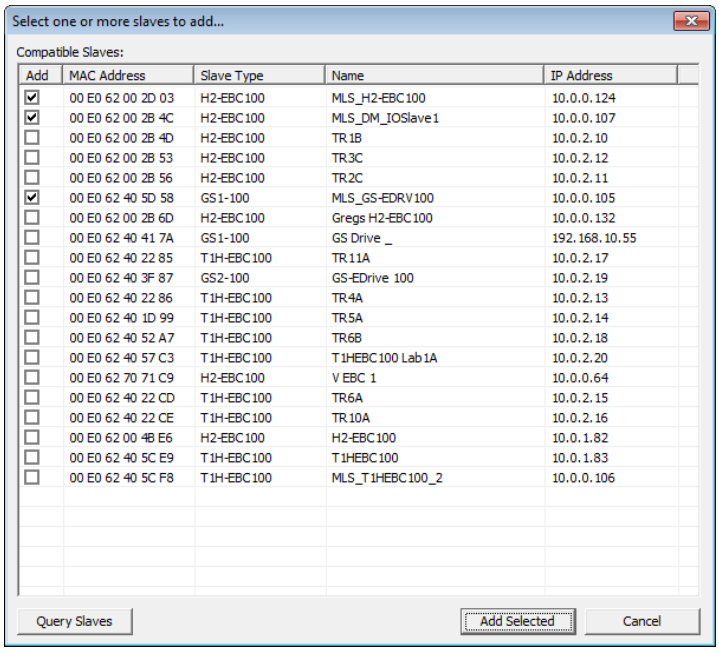
   c. Enable the Ethernet I/O Master using PLC->System Configuration menu, under the CPU Configuration entry, and look for the checkbox in the Ethernet I/O Master group.



d. Slave selection and configuration is also done in the System Configuration dialog, under the Ethernet I/O Master entry below the I/O Configuration node. Adding slaves is easy when online using the built-in Query mechanism, or can be done manually when offline.

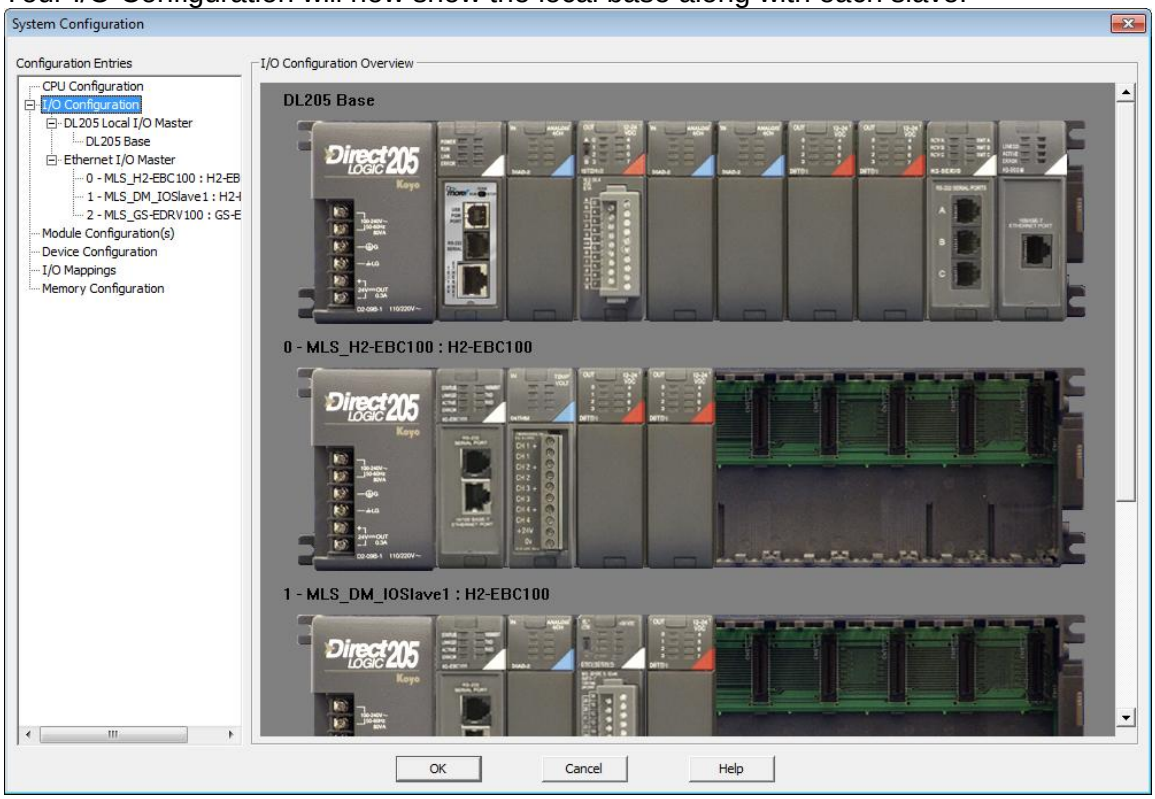


e. When you hit the Add Multiple Slaves via Query… button, a dialog appears that lets you select the specific Ethernet slaves.

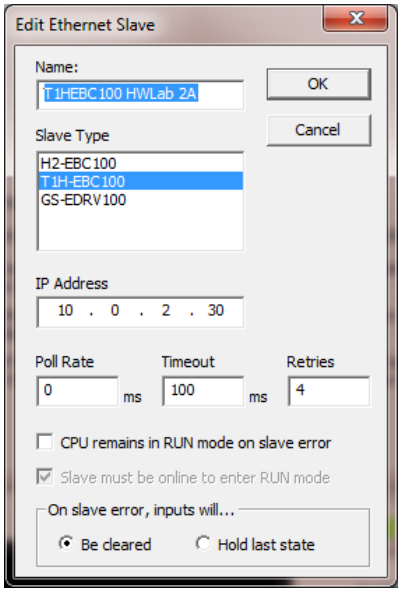


Just check which ones you wish to Add, and then hit the Add Selected button.

f. Your I/O Configuration will now show the local base along with each slave.

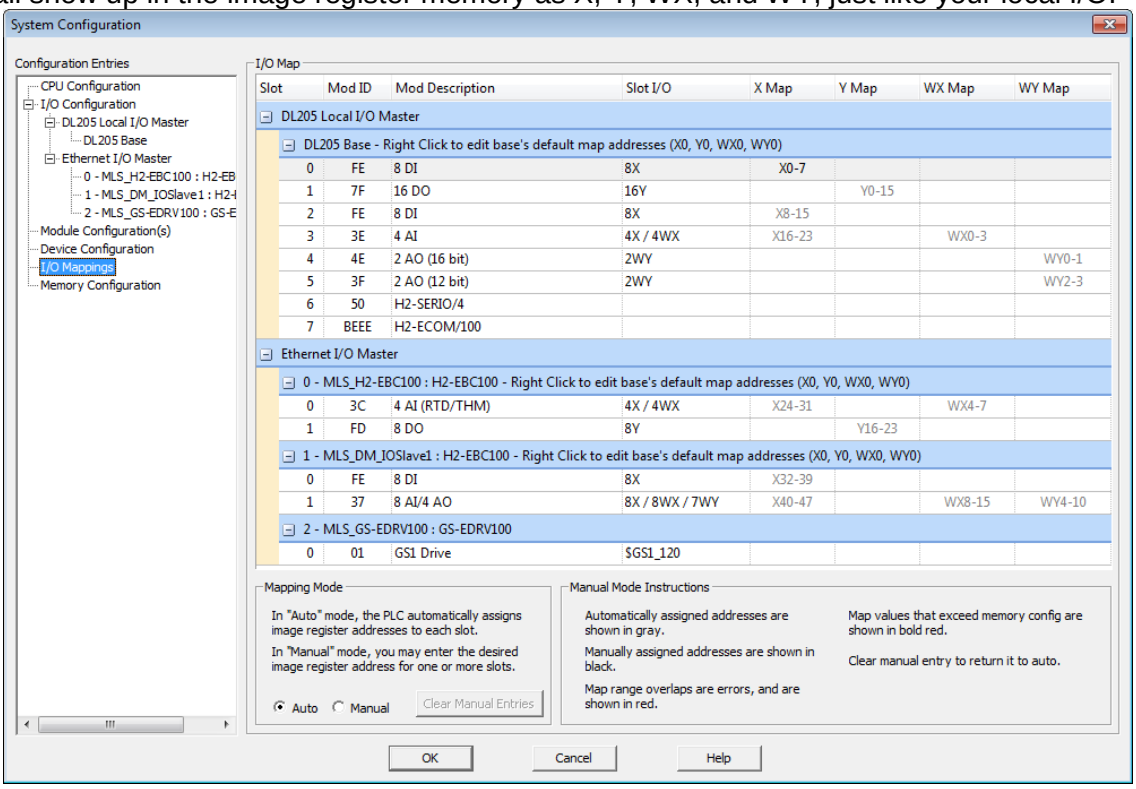


g. Each Ethernet Slave configuration allows you to adjust its Poll Rate, Timeout, and Retries. You can also choose whether any Slave Error for that specific slave will kick the PLC out of RUN mode vs. remain in RUN mode on Slave Error. If the PLC remains in RUN mode on slave error, you can also choose whether the slave must be online to enter RUN mode, either on power-up or on Program to Run transition. Lastly, you can define that slave's input values when an error occurs to either Be Cleared or to Hold Last State.

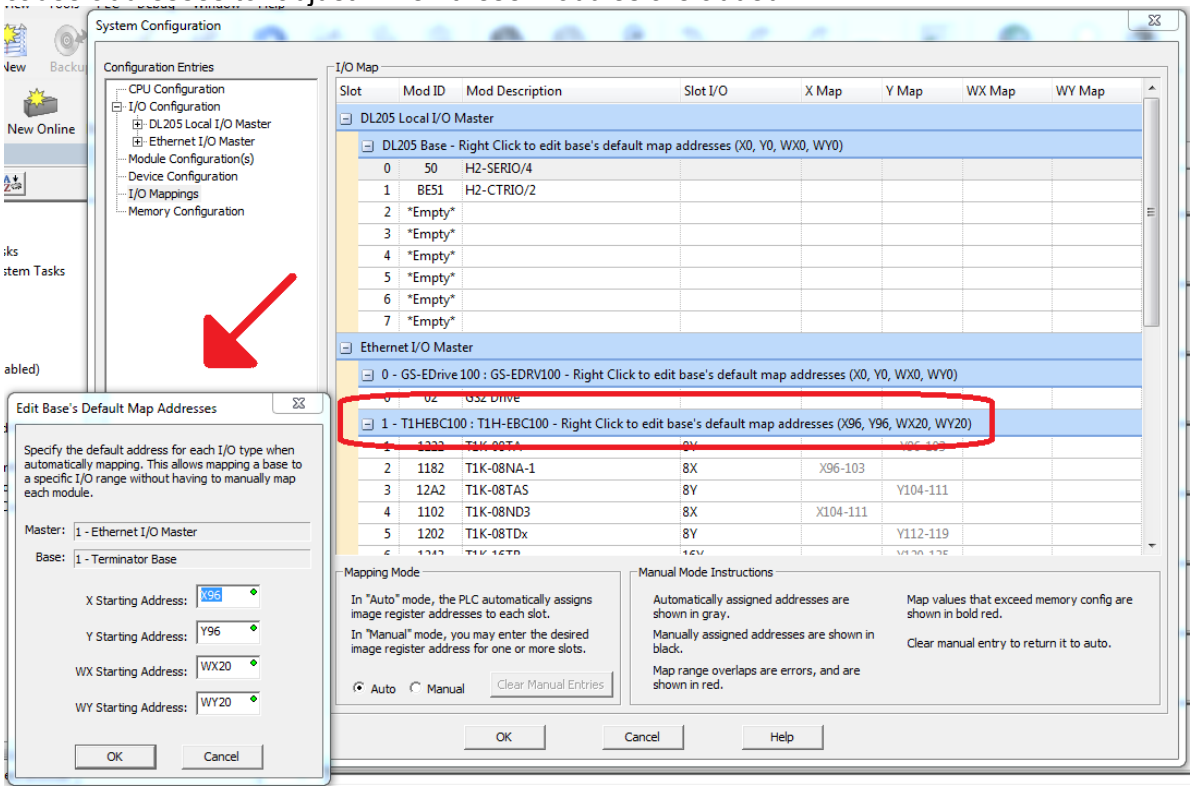


Hit the Edit Slave… button on the Ethernet I/O Master entry of the System Configuration dialog to configure the currently selected slave.

h. The Discrete Inputs, Discrete Outputs, Analog Inputs, and Analog Outputs of your Ethernet I/O all show up in the image register memory as X, Y, WX, and WY, just like your local I/O.



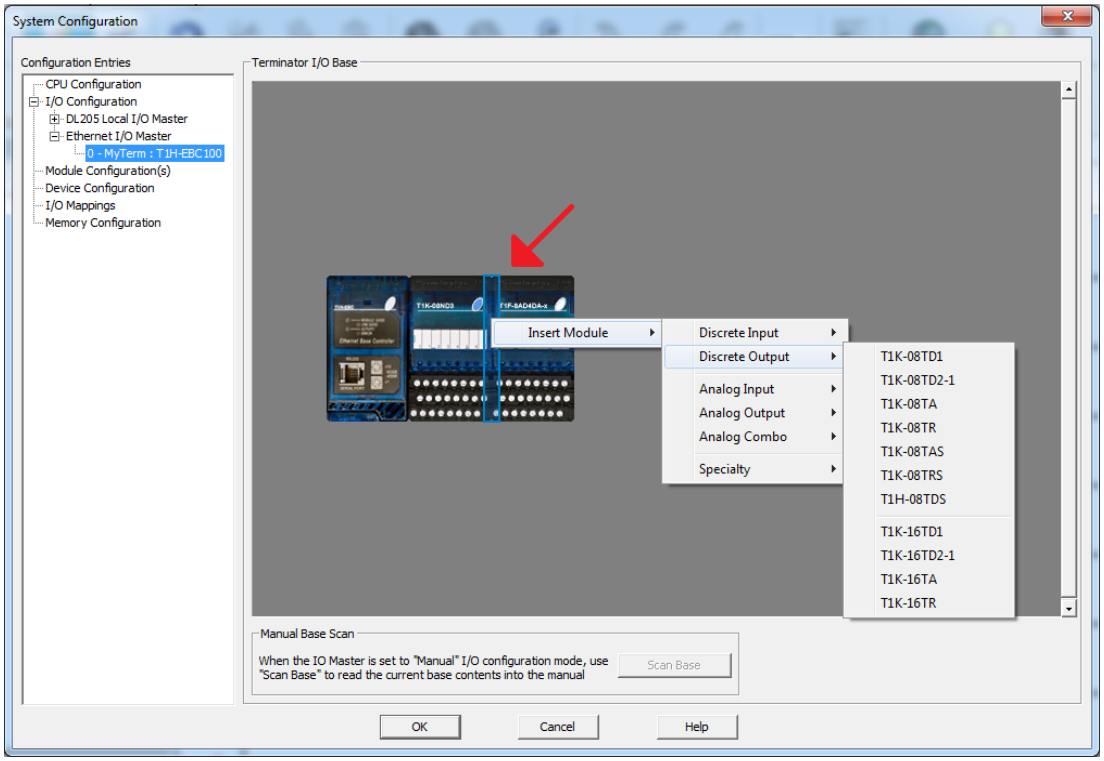
i. **User can optionally set each expansion bases' I/O addressing**. This might be used to help identify I/O base location by its address (e.g. expansion base starts at X200/Y200) or to allow padding for additional I/O modules in the "previous" base when I/O sequential numbering might cause addresses to "adjust" when these modules are added.



j. Added **built-in native support** for **GS-EDRV100** devices, similar to the mechanism of how CTRIO is natively supported by Do-more. When a user adds a GS-EDRV100 as an Ethernet I/O slave, a new GS-EDRV100 **device** gets created, along with a GS-EDRV100 **heap item**. In lieu of using raw X/Y/WX/WY bits and registers, an intelligent device driver in the Do-more DM1E CPU provides a nicer interface through the heap item's structure members, along with **two additional instructions** GSREGRD - GS EDrive Register Read and GSREGWR - GS EDrive Register Write. See below for more details.

k. To help with diagnosing I/O errors, see below for details on the new **I/O System View** and the new **Ethernet I/O Monitor** dialog.

l. **Offline/Manual Editing of Terminator Bases -** Since Terminator systems do NOT have a mechanical base with pre-defined "slot" positions like a 205 base, the offline/manual editing to insert/add modules from within Do-more Designer must be supported a different way. As you float your mouse cursor over the picture of your Terminator "base", a **blue hotspot block cursor** is revealed whenever the mouse cursor is in the area between two modules. This blue hotspot cursor lets the user know that they can right-click here to bring up the inter-module context menu (vs. the module-specific context menu when you right click the mouse cursor over the center of the module). Just follow along the sub-menus with your mouse cursor to insert the specific module.



m. To help with monitoring Ethernet I/O System Status programatically, a new Heap Item structure was created (`$EthIOMaster`) that contains the following struct fields:

Field Name	Data Type	Description
`.Warning`	Bit	On if ANY Ethernet I/O base issues a warning; see .SlaveWarnings bit mask.
`.Error`	Bit	On if ANY Ethernet I/O base issues an error; see .SlaveErrors bit mask.
`.SlaveWarnings`	Unsigned WORD	Bit packed WORD of each slave's Warning status (bit 0 is for Slave 0, bit 1 is for Slave 1, … bit 15 is for Slave 15)
`.SlaveErrors`	Unsigned WORD	Bit packed WORD of each slave's Error status (bit 0 is for Slave 0, bit 1 is for Slave 1, … bit 15 is for Slave 15)
`.Slave0RetryCnt` thru `.Slave15RetryCnt`	Unsigned BYTE	Count of the number of retries for that specific Ethernet I/O slave (writable).
`.Slave0UpdateCnt` thru `.Slave15UpdateCnt`	Unsigned WORD	Count of the number of successful communication updates for that specific Ethernet I/O slave (writable).
`.Slave0Error` thru `.Slave15Error`	Unsigned BYTE	Error code of the last error state of that specific Ethernet I/O slave (writable). See Help Topic Ethernet I/O Monitor, DMD0342.
`.Slave0ErrorInfo` thru `.Slave15ErrorInfo`	Unsigned BYTE	Extended error information dependent upon the .Slave<n>Error code value of that specific Ethernet I/O slave (writable). This is typically the module slot number (when applicable).

Fields are read-only except where noted; the writable fields can be reset via logic or by communications, like Designer's Data View or an HMI.

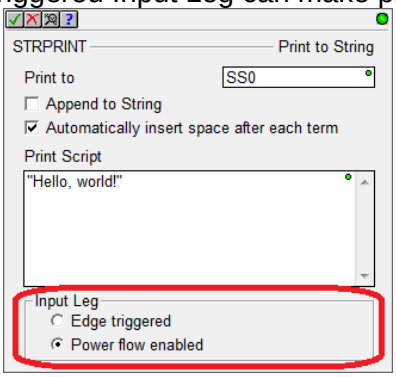
For detailed assistance on using Ethernet I/O, such as configuring I/O starting addresses per slave, configuring the slave's TCP/IP addresses, configuring Terminator analog, etc., look in the Do-more Designer Help System. In the Help System, just search for "Ethernet I/O" (include quotation marks).

2. Instructions

a. Instruction Changes

Note: use of these new features require firmware for Do-more Technology Version 1.1 or later. You will be notified at download time if CPU has older firmware that does not support the specific feature.

i. **STRPRINT, STRFIND, STRSUB, STRCMP,** and **DATAINFO** instructions have an option for the **Input Leg** to be **Power Flow Enabled** instead of only being Edge Triggered. Power Flow Enabled vs. Edge Triggered Input Leg can make processing easier in ladder logic.

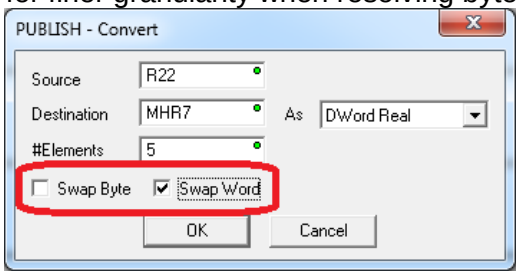


ii. **MRX** and **MWX** now accept a **variable** for the **Unit ID, Modbus/TCP IP Address, Port Number,** and **Modbus Offset Address**, allowing for indirect slave node and element address capabilities.

iii. **DLRX** and **DLWX** now accept a **variable** for the **Remote Address** (Slave ID or IP Address), allowing for indirect slave node address capabilities.

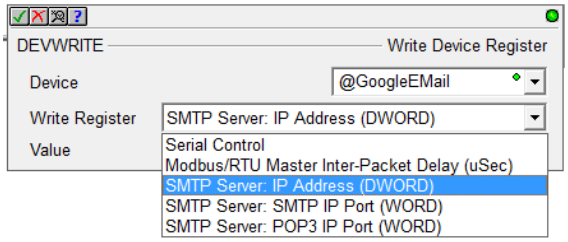
iv. **MEMCLEAR** now accepts a **range of BITs**.

v. Expanded the **PUBLISH and SUBSCRIBE byte swapping options**. Originally, the instructions only gave the option to "reverse bytes". This has been changed to allow one or both "swap bytes" or "swap words". This change actually ONLY affects DWORD sized elements, but allows for finer granularity when resolving byte-ordering issues.



vi. **NETTIME** now accepts a **variable** for the **SNTP Server IP Address, UDP Port Number,** and **Network Timeout parameters**, allowing for runtime configurable IP Address parameters (see new DNSLOOKUP instruction below).

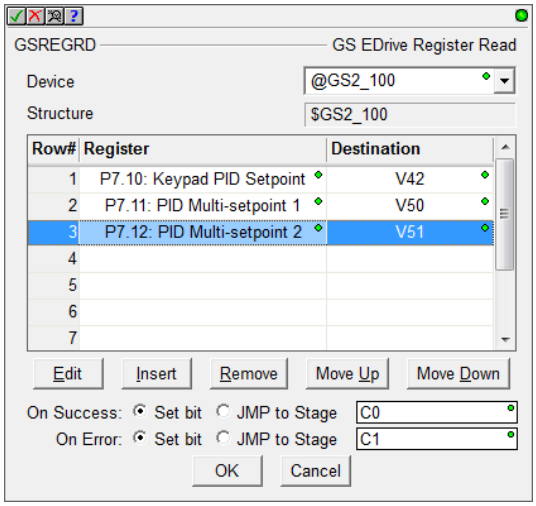
vii. **DEVREAD** and **DEVWRITE** now allow you to **read and modify a few SMTP Server (EMail) parameters at runtime**.

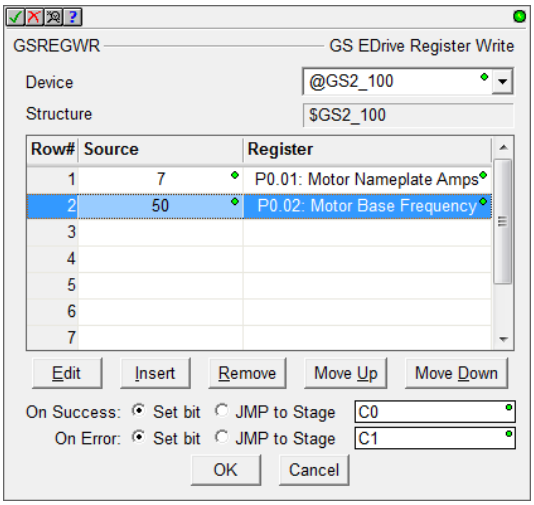


viii. The **SCALE** instruction now handles integer scaling that requires intermediate results larger than 32 bits. Affected CPU firmware only, not Designer software.

b. **New Instructions**

i. **GSREGRD - GS EDrive Register Read** and **GSREGWR - GS EDrive Register Write** instructions allow you to easily initialize the various configuration parameters, tweak runtime parameters, or monitor any/all drive parameters. Both are table entry instructions similar to the INIT and PUBLISH/SUBSCRIBE instructions.



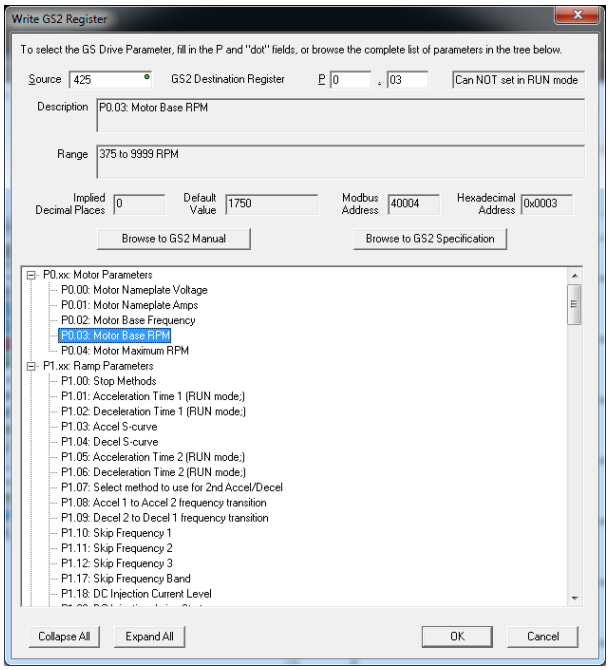


To help navigate all of the various GS P#.## drive parameters, the Source/Destination row entry is performed in a secondary dialog form, which is accessed by selecting the Edit or Insert button in the instruction editor or double clicking on a specific row.

This dialog form **caters to both the expert and the new GS Drive user**.

The expert who may know the specific drive parameter address can simply enter “P” “2” <dot> “8” (Pulse Width Modulation Carrier Frequency), and the desired GS parameter address is filled out.

The new user can navigate the tree in the bottom half of the dialog form, easily browse to determine which parameters are available, and just click on the desired parameter to select it. There are two buttons at the bottom to help with navigation: Collapse All which shows the 11 root “P” parameter groups, and Expand All which blows out all 11 groups (as seen here – note the scroll bar). The root nodes individually collapse and expand just like navigating folders in your file system.



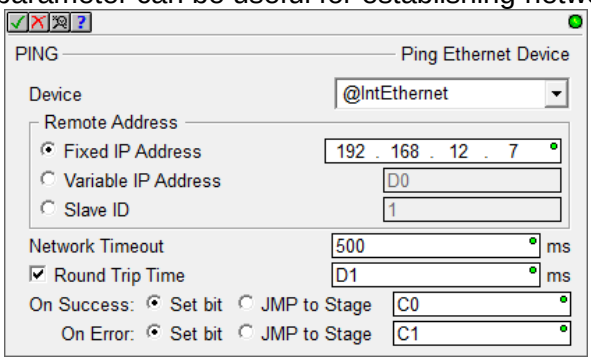
The form and instruction validation is drive-aware, meaning that the list of possible parameters is dependent upon the associated drive type: GS1, GS2, or GS3. For example, the set of PID Parameter Addresses (P7.##) will not be shown or be valid when dealing with a GS1 drive.

Both the expert and the novice will appreciate the **specification details** provided at the top of the form: parameter description, parameter range, the number of implied decimal places, the default value, and for the Modbus gurus, the Modbus Holding Register address and its

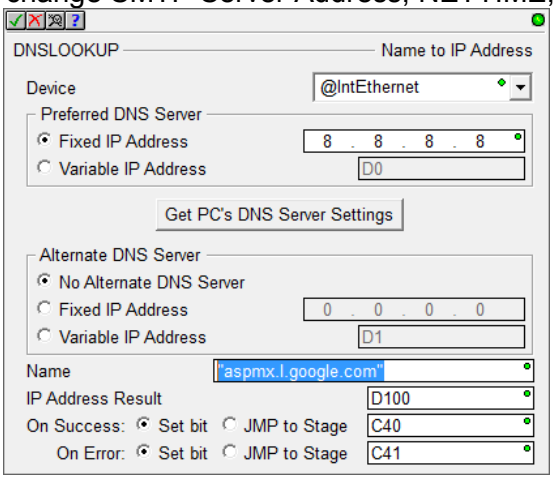
corresponding Modbus Hexadecimal Address. For those needing more detail, buttons are provided to browse to the ADC website and load the specific GSx drive's manual or specification. The Write Register instruction also lets the user know whether the parameter can be set in when the drive is in RUN mode. The Write Register version also disallows setting any read-only parameters (e.g. P21.##).

To help navigate all of the various GS P#.## drive parameters, the Source/Destination row entry is performed in a secondary dialog form, which is accessed by selecting the Edit or Insert button in the instruction editor or double clicking on a specific row.

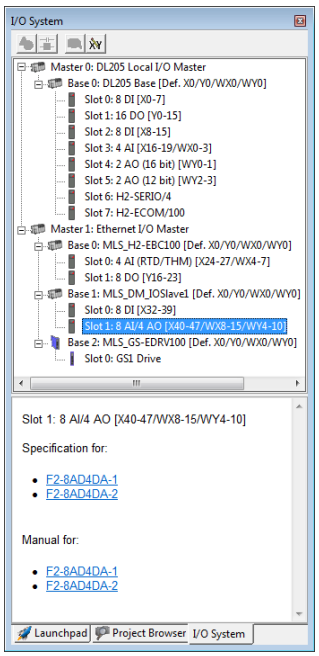
ii. **PING – Ping Ethernet Device** instruction lets you quickly verify the connection to an Ethernet device. For *IP Addressed* addressing, it utilizes the standard ICMP Echo request, allowing it to work on *any* IP Addressed device, like a Modbus/TCP device, another Do-more PLC, an ECOM/ECOM100 module, network gateway, mail server, network printer, etc.. For *Slave ID* addressing, it utilizes the HEI Directed Broadcast request, allowing it to work with any Host Engineering Ethernet device, like ECOM/100, EBC/100, Do-more, etc., using NetEdit's *Module ID* value when IP Addressing may not be defined. The optional *Round Trip Time* parameter can be useful for establishing network timing/timeout values.



iii. **DNSLOOKUP – Name to IP Address** instruction allows you to resolve a URL or computer name to its IP Address and stick it in a DWORD register, then utilize that DWORD register as a parameter in other Ethernet-based instructions that now accept a "variable" IP Address (like DEVWRITE to change SMTP Server Address, NETTIME, MRX/MWX, …).



3. **I/O System View**



This new view details your I/O Configuration as a dockable/floatable view (like Data View) containing two panes. The first pane is a Tree View that shows the hierarchy of your I/O sub-system. The root of the hierarchical tree shows the I/O Masters: the Local I/O and any Ethernet I/O masters. The nodes below each root Master node contain all of the Slaves/Bases controlled by that specific Master. The nodes below each Base node contain all of the Slot/Modules contained within that specific Base.

The Second pane is an Information pane that shows more detail of the currently selected node in the first pane's Tree View.

When ran **Offline**, I/O System View provides a **static hierarchical representation** of your I/O configuration. However when **Online**, it provides **detailed runtime Warning and Error information**, from Missing Module, to Bad Ethernet Communications, to Channel has Broken Transmitter, to Drive Tripped.

Below is a 7 step trouble-shooting procedure, followed by the corresponding screen shot, which shows the intuitive steps to addressing most I/O Warning or Error.

① - Designer **Status Bar** reveals some type of **Warning or Error** in the PLC. **Clicking** on the Warning panel brings up the…

② - **System Information** dialog box which **lists** all current PLC Errors and Warnings. Seeing that the warning states that *One or more I/O Masters are indicating a problem with a module - $IOError (ST152)*, the user just needs to **click** on the newly added **button** to Open the…

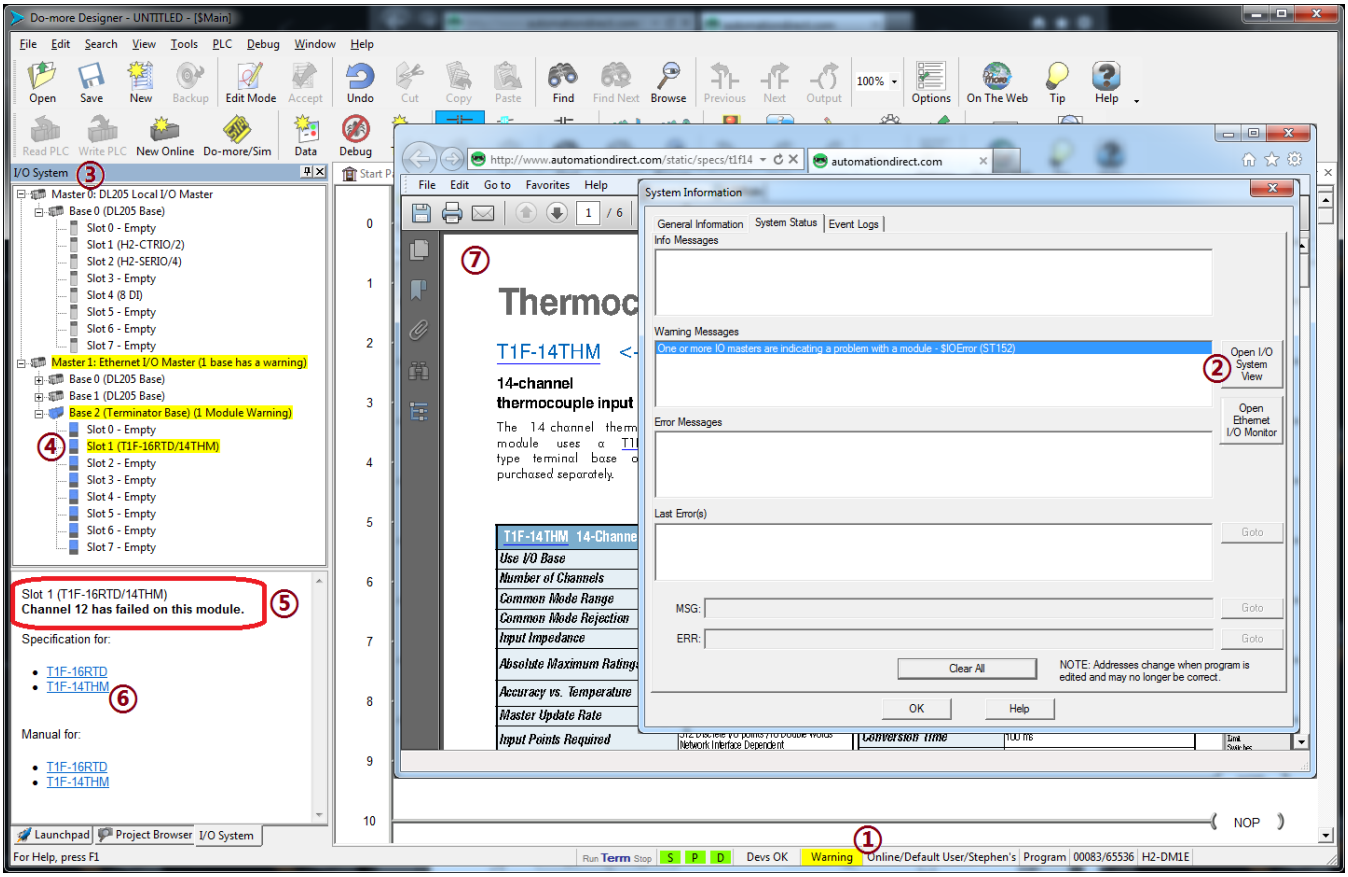
③ - **I/O System View**, which hierarchically details the **status** of every Master, Slave/Base, Slot/Module. In the example below, there is an issue below *Master 1: Ethernet I/O Master, 1 base has a warning*. Below that Master, it shows that there is an issue below *Base 2 (Terminator Base) (1 module warning)*. Finally, below that Base, it shows that there is an issue in…

④ - *Slot 1 (T1F-16RTD/14THM)* that has a **Warning, denoted by the Yellow background color (errors are denoted in Red)**. When the user clicks on any node in the tree, detailed information about that specific node shows up in the **second pane** of the I/O System view. In this example, when the user **clicks on the specific Slot that is in warning**…

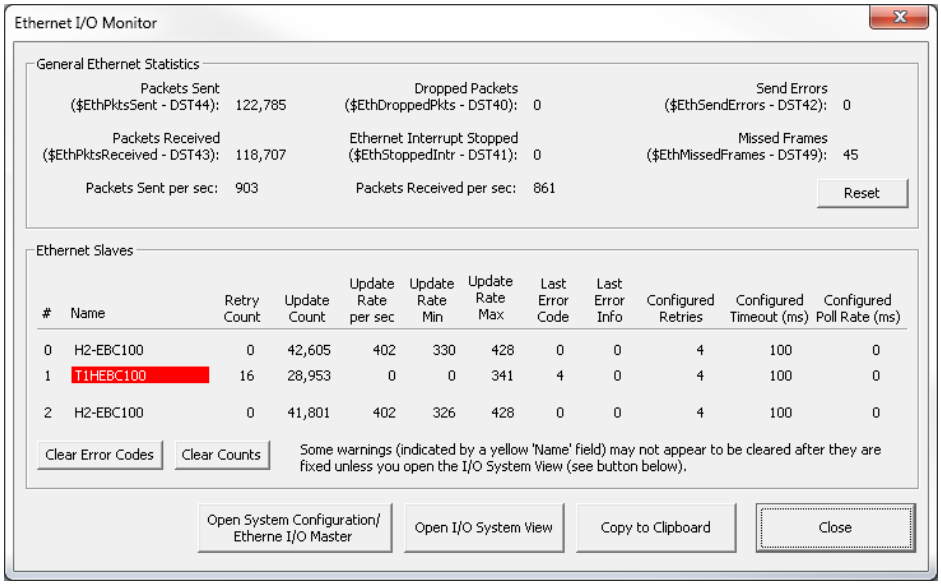
⑤ - the **bottom pane reveals** that specifically, ***Channel 12 has failed on this module***. In addition to the live online status, there are…

⑥ - **hot links** to both the **Specification and the Manual** for this (set of) part numbers. Clicking on any of those links will…

⑦ - launch the user's **web browser** to the particular Specification or .PDF Manual on **AutomationDirect.com's website**. From there, the user can get additional information on the possible causes and resolutions of the warning or error.

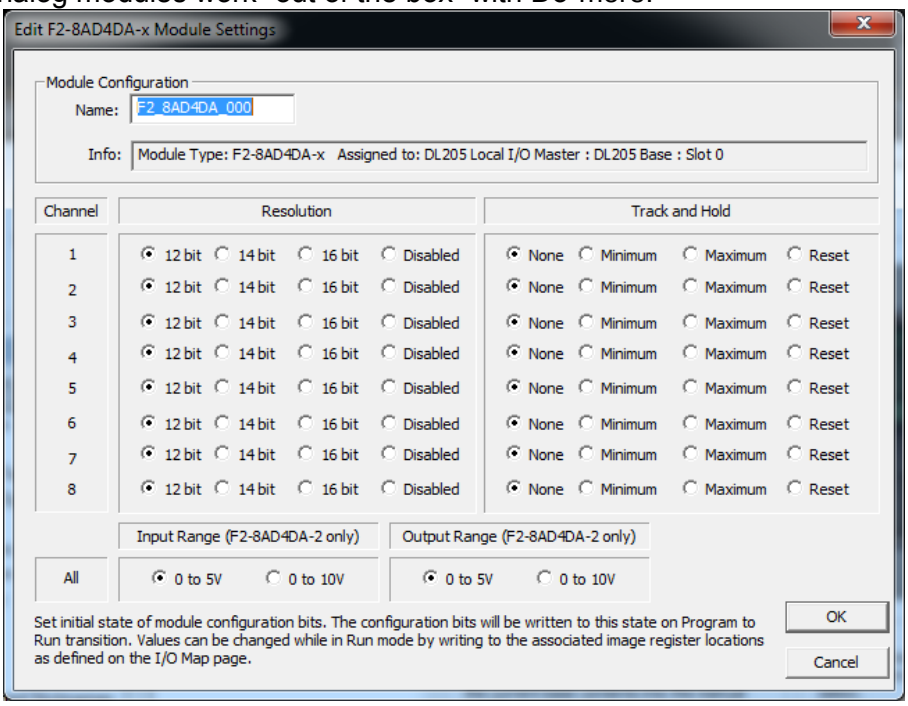


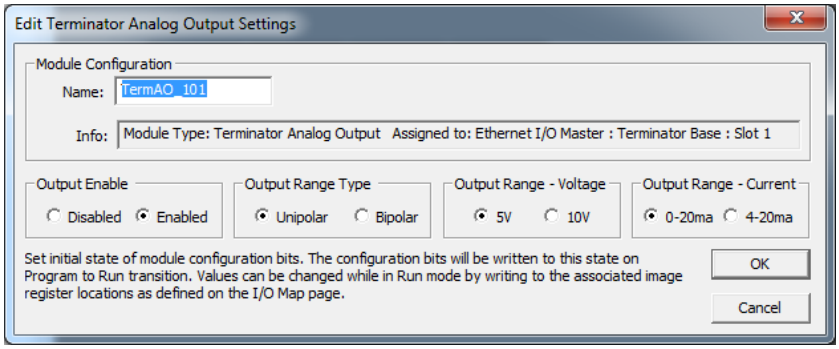
4. Added **Ethernet I/O Monitor utility** to provide live Ethernet I/O **communication quality statistics** for each slave, along with general local Ethernet port statistics. This is a modeless dialog, so a user is able to use other parts of Designer while it is open. A “Copy to Clipboard” button at the bottom will format the data in CSV format and copy it into the Windows Clipboard. This clip can then be pasted into a text file or email.



It is available via the Debug->Ethernet I/O Monitor menu, and as a button on the System Information’s System Status tab below the Open I/O System View button, and as a button on the I/O System View toolbar.

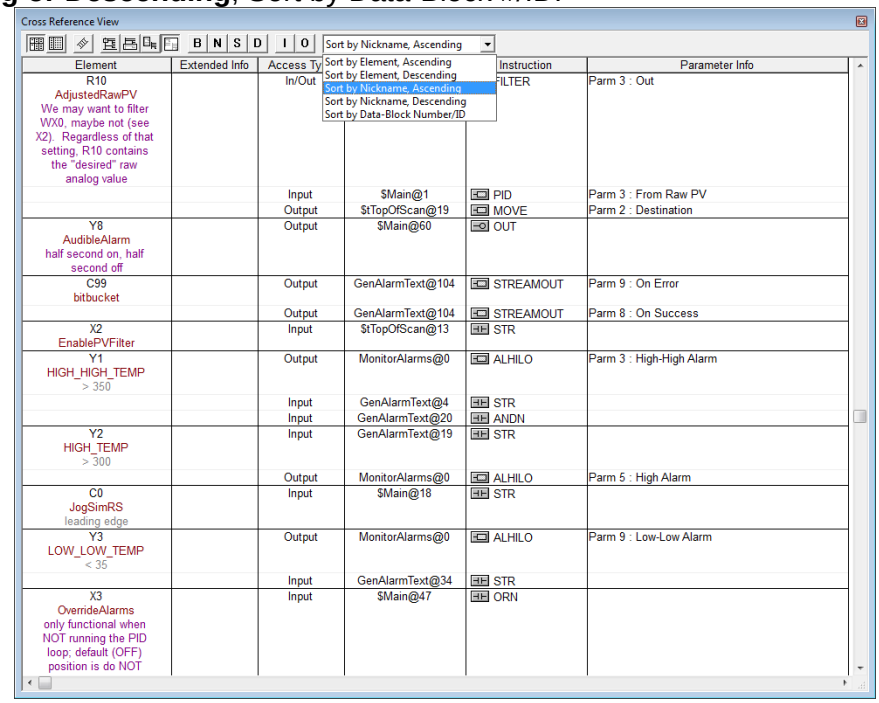
5. **Module configuration for the more-intelligent analog modules** (specifically F2-8AD4DA-1, F2-8AD4DA-2, and the Terminator Analog Output/Combo modules). The CPU will write the module's configuration to the module's Y/WY configuration bits/registers on Program->Run transition. Note that these Y/WY settings can still be manipulated in RUN mode. This "configuration" just allows the user to NOT have to create ladder logic in $tFirstScan to set the initial configuration. The analog outputs will be Enabled by default on Terminator, hence making the Terminator analog modules work "out of the box" with Do-more.



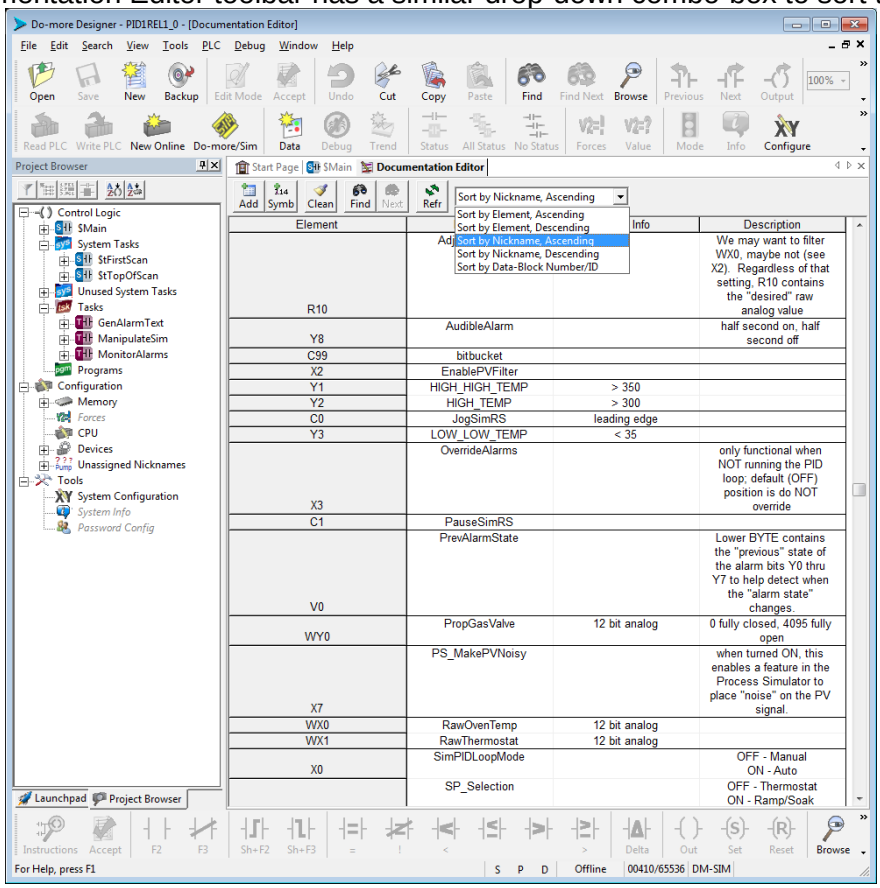


6. Better support for **tag-centric development** by supporting **Nickname sorting options** in the element-centric **Cross Reference** and **Documentation Editor** views, including their Print outs.

   a. The Cross Reference View toolbar has a drop-down combo-box to sort the cross-reference table one of five ways: Sort by Element Ascending or Descending, **Sort by Nickname Ascending or Descending**, Sort by Data-Block #/ID.



   b. The Documentation Editor toolbar has a similar drop-down combo-box to sort the table.

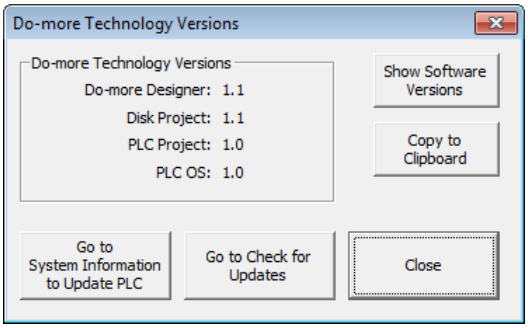


7. **Do-more Technology Version** represents **a specific level of functionality/set of features**.

   a. Added **Do-more Technology Version** to both the disk-based and PLC-based project files. Added PLC Project's Do-more Technology Version to System Information dialog (e.g. 1.0 vs. 1.1).

   b. Created the **Do-more Technology Version report dialog**.

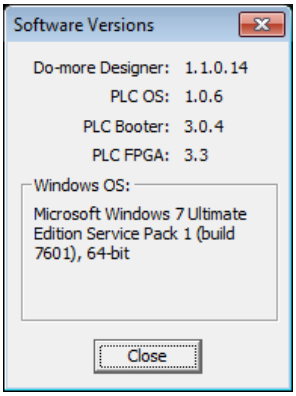
   Available via the Help->Do-more Technology Version menu, and as a button on the System Information dialog box. Four different components can each have its own Technology Version:
   1. the current instance of the Do-more Designer PLC Programming software
   2. the current project on disk
   3. the current project in the PLC (when online)
   4. the PLC Operating System (when online)

   The Do-more Technology Version is NOT a software build version, but is THE "feature set" definition.

   Click on the Show Software Versions button to see the various software-firmware-Windows build versions.

   All of this version information can easily be copied to the Windows Clipboard as text by hitting the Copy to Clipboard button.

   c. The Project's **File->Properties** dialog now also shows the Do-more Technology Version for the current project, which will also show up when you print the project's Title Page.

8. **Enhancements**

   a. **Smart Pasting of Code-Blocks** - Pasting an existing code-block within the same project now behaves like Windows File Manager when copying a file within the same folder. It creates a new copy of the code-block named COPY_*original-name* and shows you how to rename it with a better name. Cut/Copy/Paste of code-blocks are accessed from the Project Browser view by right clicking on a specific code-block under the Control Logic tree (note: you have to be in Edit mode Ctrl+E in order to cut or paste).

   Also, when pasting rungs that contain any "local" code-block variables (like Stage references), they will be replaced with the new code-block context. So copying a rung from $Main that contains **`JMP $Main.S3`** and pasting it into a different program code-block named RunBatch, will replace the JMP stage parameter: **`JMP RunBatch.S3`**.

   b. Added new Error Status bit **ST153 - $EthMasterError**. This bit signals when the built-in Ethernet I/O Master device detects an error.

   c. Added new Status DWord **DST49 - $EthMissedFrames** which count how many Ethernet packets had to be ignored during a data storm due to limits on packet queue lengths.

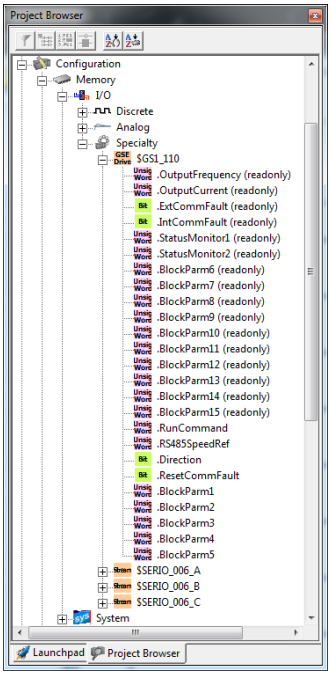
   d. **Easier Stage Flow Editing** - User can now easily enter stage flow with sequential stage numbering without having to enter a stage number or hit F8 Accept Rungs after each rung. For example, a sequence of 5 stages and 3 Jump instructions automagically default to the sequential Stage Bit simply by selecting the instruction (no parameter editing).

e. **Cross Reference** and **Documentation Options'** dialog lets the user select the **default sort order**: Sort by Element Ascending/Descending, Sort by Nickname Ascending/Descending, or Sort by Data-Block #/ID. The **Print** dialog boxes for these views have similar options.

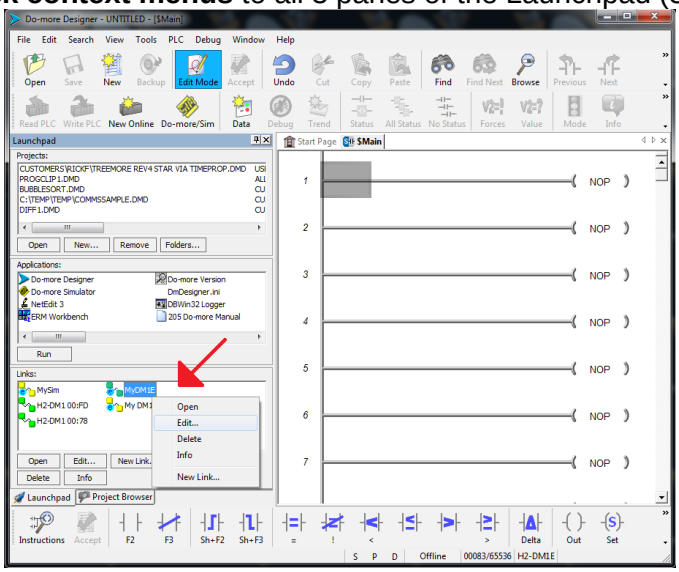
f. **GS-EDRV100 Structure**

Each GS-EDRV100 will have its **own heap-item** as the **primary mechanism for interfacing** to the drive from the Do-more PLC.

Key structure members include .OutputFrequency, .OutputCurrent, .Direction bit, and the internal and external communication fault bits, .IntCommFault, .ExtCommFault.



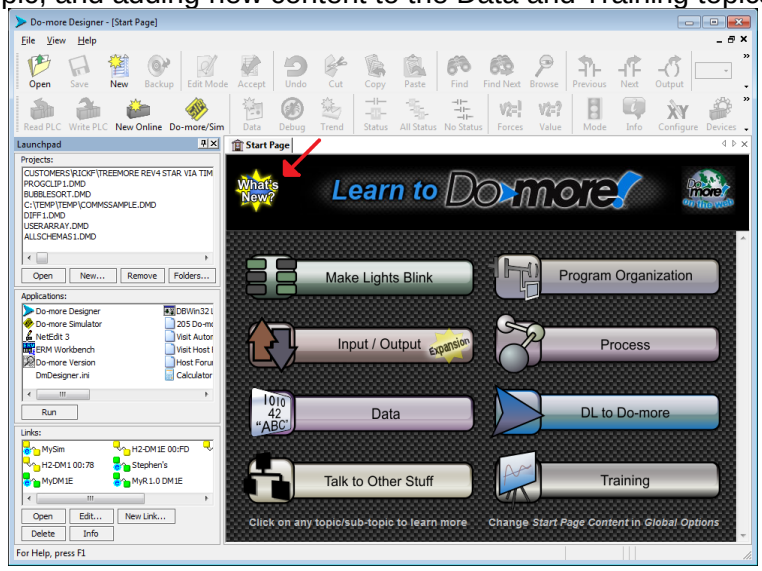
g. **Added Right-Click context menus** to all 3 panes of the Launchpad (3528).



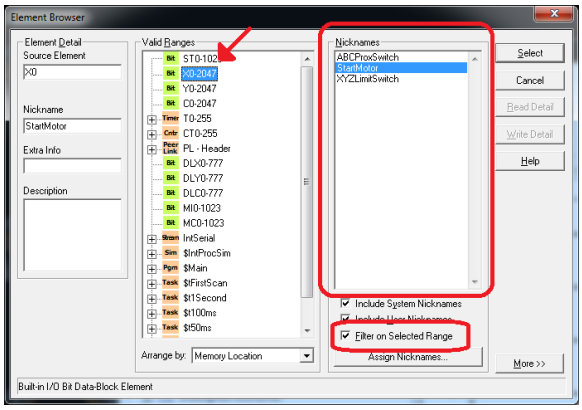
h. Allow DM1E and Simulator Ethernet ports to listen for the **Do-more protocol on a 2nd UDP Port Number**. The default port utilized by Do-more Designer and C-more is preconfigured 0x7070 (28784). Configure this 2nd port in the System Configuration's CPU dialog.

For the Do-more Designer's Communication Link Configuration, the UDP Port Number for that specific link can be set via the Ethernet Advanced Settings dialog, accessible from the Port tab of the Configure Link dialog (default 28784).

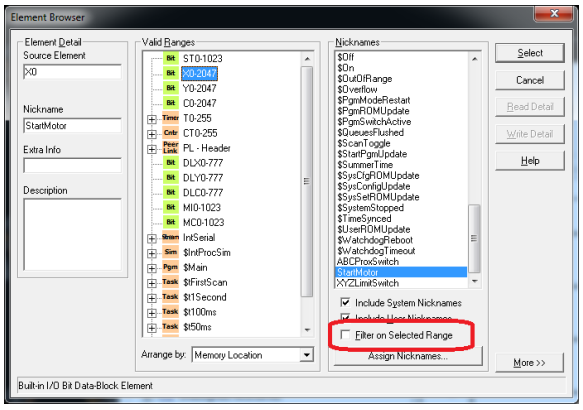
i. Added ***What's New*** **link** to the banner of the **Start Page** to bring up this document (Updates.pdf), along with highlighting the new Ethernet Expansion I/O feature in the Input/Output topic, and adding new content to the Data and Training topics.



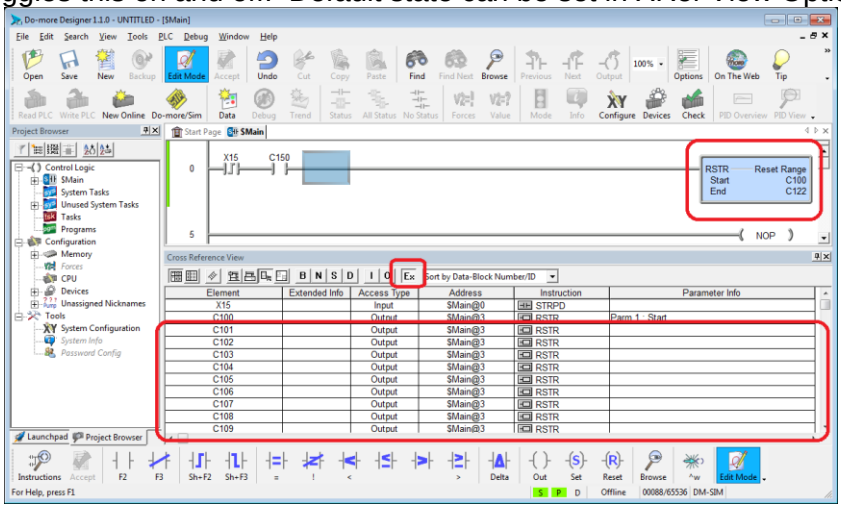
j. Added a **Filter on Selected Range** checkbox for the Nicknames list in the **Element Browser dialog** (F9 in any element field). This way, you can see all the Nicknames for the currently selected data-block. For example, list just the nicknames for the X (Discrete Input) data-block. The checkbox is enabled by default.



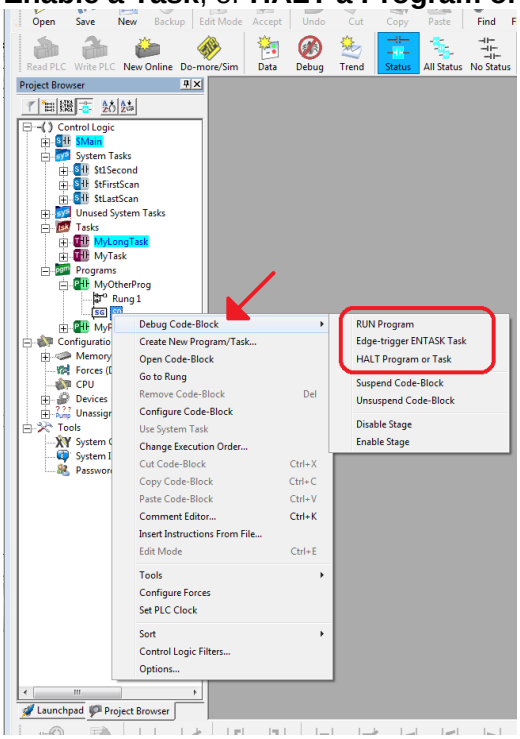
vs.



k. **Cross-Reference View** has option to **expand simple ranges** (on by default). Sticky toolbar button *Ex* toggles this on and off. Default state can be set in XRef View Options page.

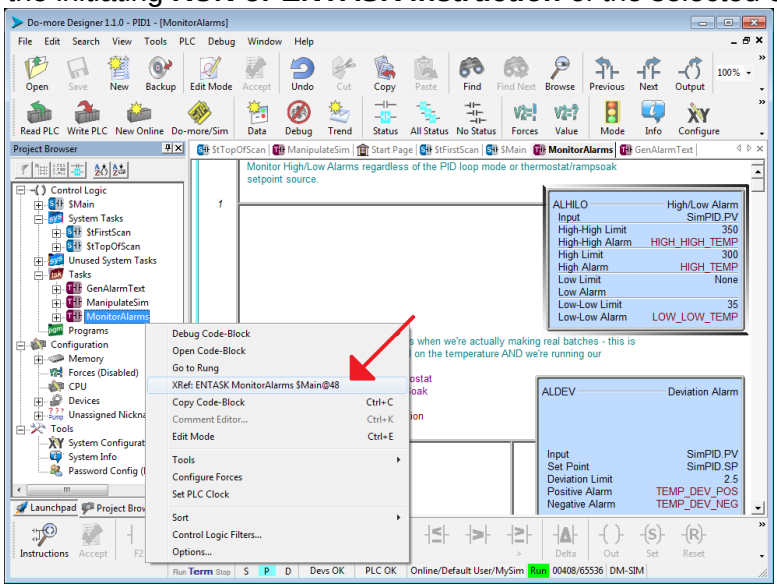


l. Project Browser's Control Logic context menu's **Debug Code-Block** menu lets user **RUN a Program**, **Edge-trigger Enable a Task**, or **HALT a Program or Task** from within Designer.

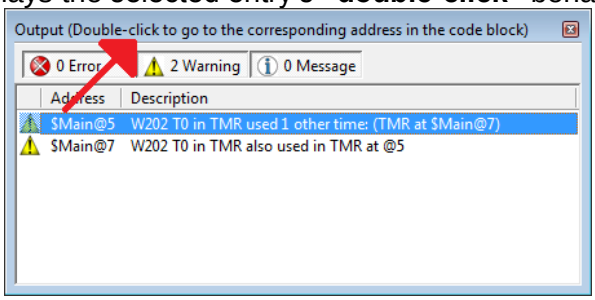


m. Added two new Ladder Options to the Options dialog: Default Zoom Level for New Views, and Ctrl+Mouse Wheel Zoom behavior.

n. Added **dynamic Cross-Reference navigation** to Project Browser's Control Logic tree's context menu to **go to** the initiating **RUN or ENTASK instruction** of the selected code-block.



o. **Output Window** displays the selected entry's **"double-click"** behavior in the **title bar**.



p. **New Program Check Rules**

i. Attempting to download enhanced Dm 1.1 version instruction features into an older Dm 1.0 version CPU (see instruction enhancements) will generate an error. User is warned when editing the instructions offline, and possibly again during Program Check when an error could occur at download time. Example: selecting the new power-flow enabled STRPRINT into a CPU running the old V1.0 firmware that does not support that feature. To fix this error, user would need to upgrade the CPU's firmware or modify the specific STRPRINT instruction back to being enabled by edge-trigger.

ii. Invalid CTRIO file types when utilized in the various CTRIO instructions will generate an error. Example: inhibit a CTDYNVEL Dynamic Velocity instruction from using a Programmable Limit Switch (PLS) Table file.

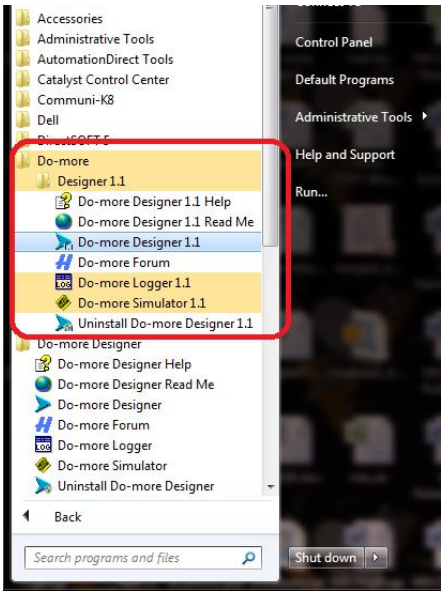
iii. "Disconnected" module configurations will generate a message (info). A module configuration becomes disconnected when a complex module that has some type of configuration (e.g. CTRIO module) is deleted or becomes missing from the system. Rather than also blindly deleting the configuration attached to the module, the configuration is maintained in "disconnected" module, just in case the user wants to later add back that module and "connect" the new module to this configuration.

However, in a prototyping or test system, these "disconnected" module configurations can easily build-up over time. This Program Check Message rule provides a reminder to the user that they still exist. Double-clicking on this rule in the Output Window brings up the Module Configuration section of the System Configuration dialog. The Module Configuration dialog contains the new Delete Disconnected button to delete ALL of the "disconnected" module configurations.

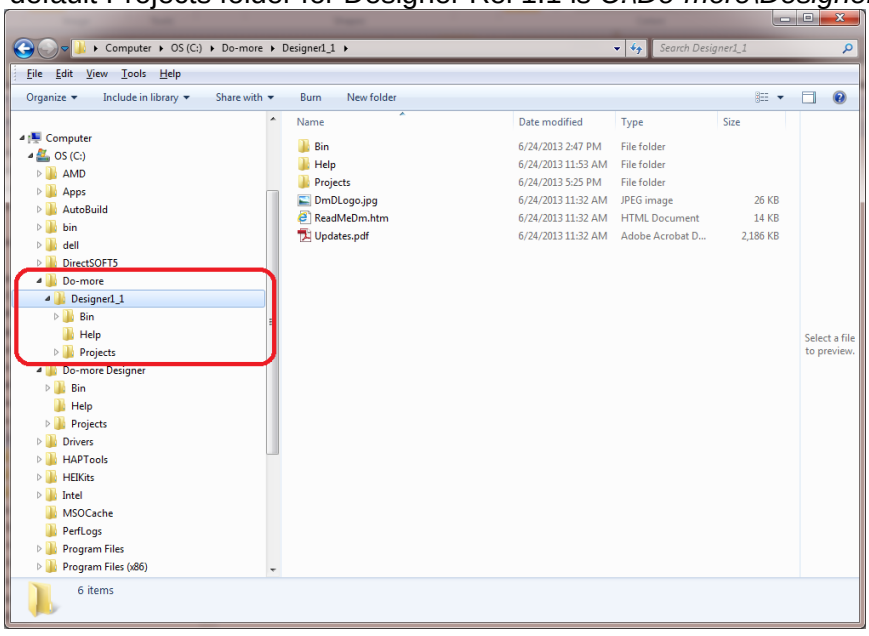
iv. Added three general rules related to incompatible Do-more Technology features in the project being downloaded compared to the PLC being downloaded to. 1. Report an *error* when *attempting to download a new instruction* added at a specific Technology Version, but the CPU's operating system's Technology version does not support it. 2. Report a *warning* when downloading a project with a *new feature* enabled that is not available in the CPU, where the PLC can still function, but the *new feature will be ignored* by the old firmware. 3. Similar to #2, except report an *error* when the specific feature *cannot be ignored* and would confuse the older firmware.

9. **New Installation Paths**

   a. **Windows Start Menu** contains a root *Do-more* folder, with a *Designer 1.1* subfolder that contains shortcuts to the Designer 1.1 executables, Help, Read Me, etc. If you also have Rel 1.0 Designer installed, that will remain below a root *Do-more Designer* folder in the Start Menu.



   b. **Installation Drive Folder Path** defaults to a similar structure. At the root is the *C:\Do-more* folder, with a *Designer1_1* subfolder that contains the *Bin*, *Help*, and *Projects* subfolders. Hence, the default Projects folder for Designer Rel 1.1 is *C:\Do-more\Designer1_1\Projects*.



c. **Uninstall of Rel 1.0** may be desired after you have performed an upgrade to Rel 1.1. This is completely optional. You may want to keep Rel 1.0 installed in case you have any existing systems that you do not want to upgrade. However, both Do-more Designer and CPU firmware upgrades are free, so you can get all the benefits of Rel 1.1 in any existing systems. Note that Designer Rel 1.1 supports older .dmd project files and older Rel 1.0.x firmware CPUs, but the original Designer Rel 1.0 does not support newer .dmd project files and newer CPUs with Rel 1.1 firmware.

   To uninstall Rel 1.0, there is a shortcut to *Uninstall Do-more Designer* under its *Do-more Designer* Windows Start menu, or under Windows Control Panel's Programs group. When uninstalling Rel 1.0, make sure you select "Do-more Designer", not "Do-more Designer 1.1".

10. Designer Adjusted Anomalies

a. Corrected some instructions' Parameter Input/Output Type specifications.
b. Pasting ladder rungs across projects is more permissive when dealing with elements that are in-range from the clip source project but out-of-range in the clip destination project.
c. Corrected CTAXTRAP Instruction Browser Help content (4222).
d. Display Unassigned Nicknames & Symbolic Constants in Element field (4221).
e. MRX/MWX Do-more Range parameter now being displayed properly (4245).
f. Make Replace dialog's "specific code-block" field default to the current Ladder view (4219).
g. Replace range of elements with documentation works properly.
h. Stage instruction editors like JMP and SG now partially support the Create Nickname dialog by setting the "…assign to specified element" field to the first unused Stage bit (4158).
i. "Resolving online and offline differences" properly handles hidden Edge Bit and Instruction ID parameters that cause the differences (2358, 3358). Also added this as an option in the Compare Programs dialog box.
j. Changes to the Execution Order dialog box: added $tTopOfScan and $tBottomOfScan code-blocks (4291); nickname for any code-block is shown in parentheses; the dialog box is resizable.
k. Print-All's Ladder code-block print-order now matches Execution-Order (4175).
l. Contact Browser (F4) keyboard focus is set to list of contact tokens (4332).
m. Replace <TAB> character in imported Ladder Comment with <SPACE> since <TAB> is not supported in the Comment Editor (3861).
n. Ladder Clipboard Pasting or Import of Rung Comments no longer trims off the first line if it is blank (4082).
o. Trend View draws static data better.
p. Data View Export no longer truncates Real values at 4 decimal places (1829).
q. Data View Increment ID functions properly with all element types (4218)
r. Data View's clipboard and archive file (Do-more Designer Data View Document *.ddt) properly handle differing memory configurations across multiple projects/PLCs (4317).
s. Data View Element column editor now allows you to enter element text wider than the column (3286).
t. System Configuration tables' sorting is now case-insensitive (4220)
u. Better handling of online status after a change to the Memory Configuration.
v. Added hint to the title of the Output window when any of the entries perform an action if you double click on them, such as "go to the corresponding address in the code block" (3588).
w. Edit History Details dialog now shows the current set of Pending Changes that will be in the next Revert point.
x. Rearranged Launchpad's Application's group entries and added web link to the Do-more hardware .PDF manual.
y. Export Project dialog's option to export Built-In Memory Ranges will initially be checked if the any of the built-in memory ranges are different than the default memory configuration (4110).
z. Clear the disk project's associated communication link when user actively chooses the *Disconnect from PLC* menu command (4087).
aa. Nickname edits are no longer lost after scrolling Documentation Editor (2254).
bb. Numeric Edit fields now select entire field when control gains focus, for easier editing (4247).
cc. Alert the user when attempting to download an "older" firmware version into the Do-more CPU. Also alert when the firmware's Do-More Technology Version happens to be older than the PLC's Project's Technology Version (4154).
dd. Properly set focus to the correct MDI child after the Assign Nicknames dialog is dismissed (4172).

ee. Data View STRING editing handles ASCII character entry better (2200).

ff. Output Window title bar displays the optional double-click behavior for the currently selected item in the list (e.g. *Double-click to go to the corresponding address in the code block*).

gg. Properly handle communication status of large 1K STRING elements.

hh. Find dialog's keyboard focus now always defaults to the Element/Mnemonic/Instruction edit field whenever the Find tool is brought up (Ctrl+F).

ii. Auto-complete edit fields now behave consistently when user hits the ENTER key when the mouse cursor happens to lie within the auto-complete drop down list vs. outside the list (4074).

jj. DmLogger utility better handles file write errors when exporting log entries.

kk. No longer lose Modified Rungs during Assign Nickname changes or any other Replace operation (3913), along with stable handling when Assigning Nicknames during edit of an instruction (4373).

ll. Replace operation now iterates through all Accepted instructions, then also all Modified instructions within any Modified rungs (3913, 4373).

mm. Smarter when closing a specific code-block's Ladder View with modified rungs and let you either 1. Accept All rungs in All Code-Blocks, 2. Discard modified rungs in just the one view you are closing, or 3. Go out of Edit Mode and discard All Code-Blocks' modified rungs (4358).

nn. Properly activate and set focus to the new code-block view when the new code-block was created via ENTASK or RUN instruction in another code-block view (4344).

oo. Properly export Data View data values when view is floating (4386).

pp. Properly flag Documentation Database project file component as being changed on a System Configuration change.

qq. Data View behaves better when attempting to add new entries via Ctrl+Enter beyond the bottom of the view (4408).

rr. MEMCOPY properly displays ranges, and for Cross Reference (4316, 4325, 4416).

ss. During Replace operation, properly copy/move documentation for casts of base "replace" elements.

tt. Allow System Nicknames to be imported/pasted.

uu. In the middle of downloading a project to a PLC, if an error occurred (e.g. communications lost), recommend users CLEAR their PLC since their PLC could now contain parts of two different projects, like the new System Configuration but the old Program based off the old System Configuration.

vv. When cutting or copying a code-block into the Window's clipboard from the Project Browser, if the code-block has any modified rungs, then prompt the user to Accept Rungs before performing the operation (4411).

ww. Give the PLC time to mount devices when downloading a new project to the PLC.

xx. Properly disallow periods in project file names (4410).

yy. Failed, partial project download encourages user to perform Clear PLC (4097).

zz. Copy/Cut of rungs, or Close of specific code-block's Ladder View prompt user on what to do with modified/un-accepted rungs (4411).

aaa. System Information dialog, Events Log tab, log maintains sort order after Refresh List button is hit (4433).

bbb. Program Check Warning Rule *W201 Program XYZZY in RUN does not exist*, now also flags missing code-block in TCPLISTEN instruction, not just RUN (4131).

ccc. Project Browser/Control Logic tree better responds to element-documentation changes (4292).

ddd. System Configuration dialog, Configuration Entries tree, I/O Configuration sub-tree are all initially expanded out.

eee. Refined flagging "critical" System Configuration changes when online, but before downloading, when Designer and PLC's Memory Configurations are "incompatible".

fff. Better handling of Wait Cursor (spinning cursor) during "blocked" lengthy communication operations.

ggg. System Configuration, Module Configuration, added Master/Base in addition to the Slot number in Location column.

hhh. Better handling of online status views after PLC->Disconnect, along with better handling of inconsistent System Configurations between Designer and PLC (4443).

iii. Print Cross-Reference works better (4119).

jjj. Do not allow duplicate Device names (4309).

kkk. Simulator Example Projects take advantage of new power-flow enabled STRPRINT feature (4263).

lll. Do not allow System Nicknames to be changed (4422).

mmm. Do not allow Heap-Item names to match existing element names (4448).

nnn. Element Browser nickname validation now matches Documentation Editor nickname validation (4375).

ooo. Trend View and PID View data-snapshot now occurs on Left-Mouse-Up event, not on Down event.

ppp. Better handling of a range of array-indexed parameter in Cross Reference view.

qqq. Project Browser's Memory tree hierarchy better organizes tree nodes (3998).

rrr. Corrected window title in System Configuration's New/Edit UDP Connection Device dialog box (4458).

sss. Corrected DLRX/DLWX editor's Variable Continuous Interval field's "red/green valid bulb" painting.

ttt. Fixed an MFC *Encountered an improper argument* error message in Ladder Display (4471).

uuu. STRCLEAR now properly reports ranges.

vvv. Adjusted XRef Ladder Cursor tracking behavior.

www. Project Browser's Control Logic sub-tree better maintains its expansion state as changes are made.

xxx. Eliminated memory leak during Print.

yyy. Fixed display of parameter ranges in various ranged instructions.

zzz. Fixed status display of BCD parameters in TOBCD and BCDTO instructions.

aaaa. Adjusted status display of RAMPSOAK instruction.

bbbb. Adjusted XRef tooltip text when dealing with uncompiled elements.

cccc. Better handling of Unassigned Nicknames of Devices.

dddd. Comment Editor's Forward 5 Comment >> button works properly (4441).

eeee. Properly reverse generate STRPRINT/EMAIL print script's Lookup() command (also addresses Program Compare issues).

ffff. Addressed Program Compare issues.

11. Do-more Firmware Adjusted Anomalies

a. Better handling of Guest Protocol memory ranges with DL and Modbus slave/server protocols.

b. K-Sequence serial protocol supports Slave IDs other than 1.

c. ALRATE – Rate of Change Alarm better handles initial update.

d. Better handling of "Termination Scan" between ENTASK instruction and corresponding TASK code-block.

e. Consistent handling of edge-triggered instructions.

f. Better handling of network and print buffers.

g. Added <NUL> character removal to STRTRIM – Trim Whitespace (in addition to <CR>, <LF>, <TAB>, etc.).

h. Made hard low limit of Down Timer accumulators 0; high limit of Up Timer accumulators to 2,147,483,647 (int max).

i. MEMCOPY validation works better.

j. Bumped up pre-allocated Documentation sector storage from 512K to 1M.

k. Properly erase various flash sectors.

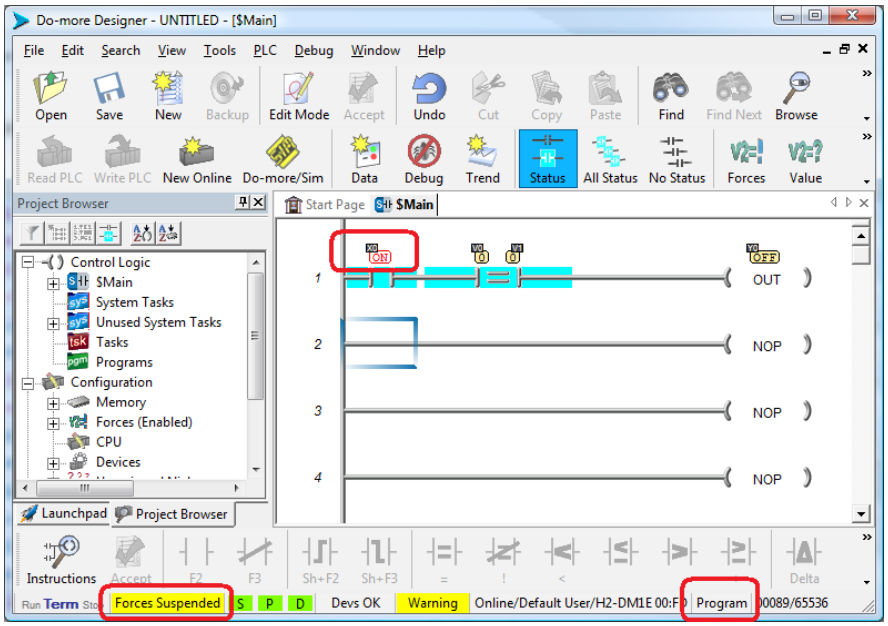
l. Better handling of writing Real values to Integer registers in Gate Array.

m. Better handling of Modbus/TCP responses.

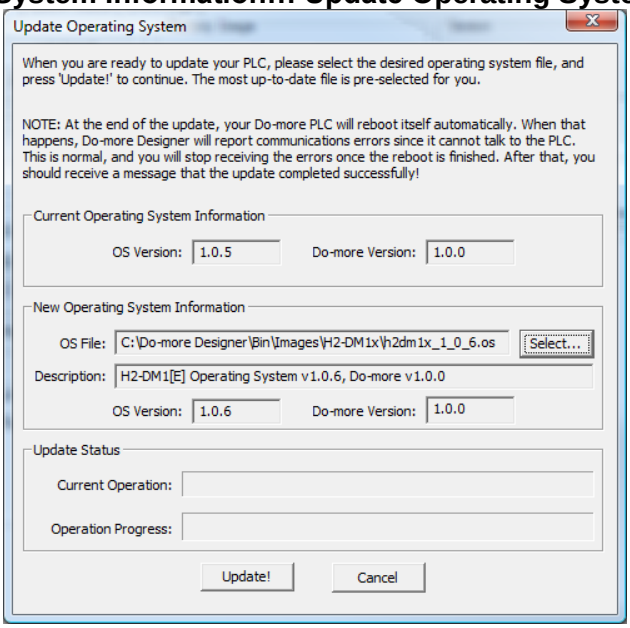
Changes to Do-more Designer for 1.0.2

1. **Enhancements**

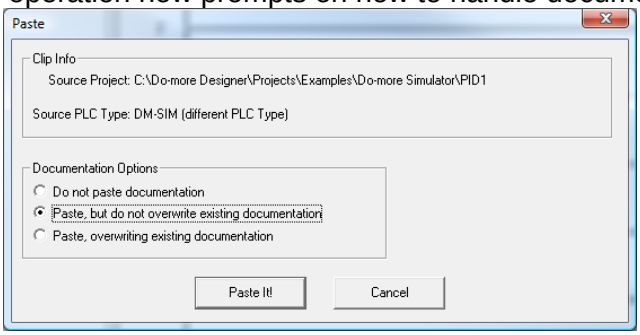
   a. Display **Forces Suspended** on Status Bar and in Ladder View element status when **Force Table exists in PROGRAM mode.**



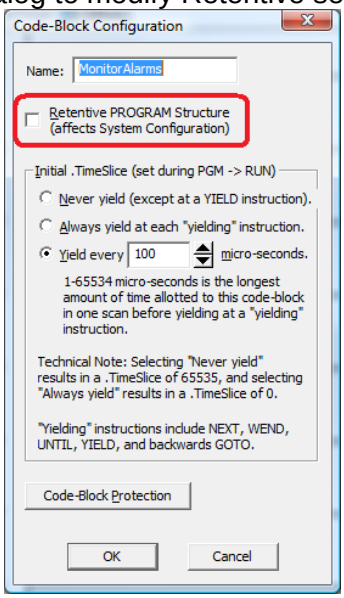
   b. Updated the **PLC->System Information… Update Operating System** dialog.



   c. **Inter-project paste** operation now prompts on how to handle documentation differences (3734).



d. Make **user PROGRAMs and TASKs non-retentive** by default. **Added checkbox** in **Code-Block Configuration** dialog to modify Retentive setting for heap-item based structures.



e. Added support for **$PgmModeRestart (ST15)** available in Do-more firmware version 1.0.6.

2. **Adjusted Anomalies**

a. Delete key works in Trend View Options dialog for deleting elements and panes (3581).
b. TCPLISTEN instruction editor invokes the Create Program dialog when you enter a new heap name (4115).
c. Launch Pad as the Default View works (4101).
d. MRX instruction's *To Do-more Memory Address* parameter description no longer being clipped (4102).
e. A few dialogs/forms display properly when DPI setting not 100% (4042, 4046).
f. Print Ladder of large instructions working better (4053).
g. TCP Client Device description reworded in Create Device dialog (4116).
h. System Configuration's Device list Heap Item display working better.
i. Data View's F9-Element Browser supports element selection (2704).
j. Changed default option in Ladder View to display element status in simple contacts/coils (4127).
k. Display new Modbus Address Type description in display of MRX/MWX instructions in addition to the editor.
l. FREQTMR/FREQCNT Output parameter element range working better.
m. Provide better error messages with invalid Stage Bit with Stage only parameters (SG, JMP, etc.) (4051).
n. RUN/ENTASK/TCPLISTEN auto-code-block generation no longer leaves other view's instruction editor displayed (4132).
o. Now displaying ladder status for clipped relational contacts and multiple input box instructions (4123).
p. Element Documentation display optimization in Ladder View working better.
q. Import Project error message corrected (4152).
r. Added helpful notes to password dialog.
s. Memory Configuration, Retentive Range editing corrected (4151).
t. Communication Server now flushing Force Table state after a Clear System RAM (4139).
u. Properly flushing newly-unreferenced documentation record from element-doc-database when Memory Configuration no longer contains associated PLC element.

Do-more Designer Updates 1.0.1, September 6, 2012

This is the **first release** of Do-more, so there are no updates to report.

The **Start Page introduces** the new Do-more PLC and Do-more Designer, the new programming software. Just click on the various topics and sub-topics.

The Readme file may contain additional information.