Do-more Designer Updates Rel 1.3, April 3, 2014

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 for Do-more Designer 1.3

1. DirectLOGIC Migration Utility

To assist existing DirectLOGIC users who want to take advantage of Do-more, the new migration utility takes a **DirectSOFT 05/06/205/350/405** project's .TXT export file, and brings it into Do-more Designer as a Designer project.

Although the Do-more architecture is different from DirectLOGIC (I/O is numbered in decimal not octal, no accumulator stack, separate code-block views instead of monolithic program, ...), most of the contacts and basic coils migrate well, along with many boxes. Any instructions that are now obsolete or are implemented differently, a *\$DL DirectLOGIC Stub* instruction is used as a place-holder within your Designer project to help you with the next step of migrating to Do-more.

Of course, all Element Documentation (Nickname, Wiring Info, Description), and Ladder Comments come across. If any element does not map directly to a Do-more element, it is mapped to an Unassigned Nickname so you can address it later. All original DirectSOFT element text is appended to the Do-more element's 6 line Description documentation field to assist with the migration process. Access the utility via the **File->Import->Migrate DirectSOFT Project** menu.

Below is an example using the tried and true DirectSOFT *RLL_Example.prj* project that has been shipping with DirectSOFT since the last millennium, next to its migrated Designer project.



Note that the contact and coil logic came across, but that the I/O IDs changed from octal to their equivalent decimal ID so that they stay mapped to the same I/O point in Do-more. The Output Window shows how DirectLOGIC's constant tenths-of-a-second TMR preset was changed to milliseconds in Do-more. The Migration Utility does not support 330/340 CPUs.

This utility is a helpful step in taking advantage of the features in Do-more.

2. Instructions

To utilize the new instructions and instruction changes, the CPU firmware requires at least **Do-more Technology Version 1.3** (see Help->Do-more Technology Versions when online). To upgrade your Do-more CPU firmware, select 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). The firmware files that shipped with this version support Do-more Technology Version 1.3: h2dm1x_1_2_0.os for the 205 Do-more CPUs and t1hdm1x 1 1 0.os for the Terminator Do-more CPUs. Note that newer firmware files may be available.

a. New Instructions

Added **TMRAG - Global Accumulating Timer** and **UDCG - Global Up/Down Counter** with no built-in reset mechanisms, so its Time or Counts can be measured independent of when a Program, Task, and/or Stage is terminated. Also, neither has a Reset Input Leg, so their referenced Timer or Counter structures must be reset using the RSTT - Reset Timer or RSTCT - Reset Counter box.

<u>√פ?</u>			0
TMRAG — Glo	bal Ac	cumu	lating Timer
Timer Struct	T10		•
Preset Constant	t		
00 h	1 m	00 s	000 ms •
C Variable			
D0			ms

✓X № ?	0
UDCG	Global Up/Down Counter
Reference	CT0 • 100 •

b. Instruction Changes

 To help customers who want to monitor or dynamically configure their SMTP EMail Server device configuration via ladder logic, the DEVREAD – Read Device Register and DEVWRITE - Write Device Register now support more SMTP Server STRING and numeric parameters.

	✓X ※ ?	0		✓ X № ?	0
Ĩ	DEVREAD	Read Device Register	-	DEVWRITE	Write Device Register
	Device	@MyMailServer • -		Device	@MyMailServer •
	Read Register	SMTP Server: "From" EMail Address (STRING)		Write Register	SMTP Server: "From" EMail Address (STRING)
	Output	Is Packet Available (bit) Number of Bytes in Input Queue (Numeric) Number of Bytes in Output Queue (Numeric) Serial Port: Baud Rate Serial Port: Data Bits (7 or 8) Serial Port: K-Sequence Slave Station ID Serial Port: Modbus/RTU Master Inter-Packet Delay (uSec) Serial Port: Modbus/RTU Master Retries Serial Port: Modbus/RTU Master Timeout (ms)		Value	Serial Port: Baud Rate Serial Port: Data Bits (7 or 8) Serial Port: K-Sequence Station ID Serial Port: Manual RTS Control Line Level (0 or 1) Serial Port: Modbus/RTU Master Inter-Packet Delay (uSec) Serial Port: Modbus/RTU Master Retries Serial Port: Modbus/RTU Master Timeout (ms) Serial Port: Modbus/RTU Slave Unit ID Serial Port: Parity (0:None, 1:Even, 2:Odd)
	ſ	Serial Port: Modbus/RIU Slave Unit ID Serial Port: Parity (0:None, 1:Even, 2:Odd) Serial Port: Status (Numeric 32 Bit of Word) Serial Port: Stop Bits (1 or 2) Ocided Port: Transmit/RTB Ocitoria SMTP Server: From "EMail Address (STRING) SMTP Server: Authentication Account User Name (STRING)		(Serial Port: Stop Bits (1 or 2) Control Port: Transmit/TRO Control SMTP Server: "From" EMail Address (STRING) SMTP Server: Authentication Account User Name (STRING) SMTP Server: Authentication Account User Name (STRING) SMTP Server: Authentication Mode (0:Dis 1:Lgn 2:Pln 3:Pb4S) OMTF Server: POP3 IP Port (WORD) SMTP Server: POP3 IP Port (WORD)
		SMTP Server: POP3 IP Port (WORD) SMTP Server: SMTP IP Port (WORD)	7		SMTP Server: SMTP IP Port (WORD)

The new Register types for the SMTP Server device include the "From" EMail Address STRING, Authentication Mode, Authentication Account User Name STRING, and Authentication Account Password STRING.

ii. Added new format type to STRPRINT – Print String and EMAIL – Send EMail Print Script's FmtInt() Format Integer function: ipaddr, IP Address. So STRPRINT "FmtInt(D42,ipaddr)" will generate "192.168.12.1" when D42 equals 0xC0A80C01.

3. OEM Utility: DMLoader.exe

OEMs need to easily replicate a PLC system, whether it is during manufacturing or in the field as part of a field upgrade. A utility that runs completely independent of Designer can download the "image" of a Do-more PLC into another Do-more PLC. Hence, Do-more PLCs can be "programmed" without the need to know the details of Do-more Designer.

The **first half** of this utility is the **Image Generator**, which runs within Do-more Designer. Easily replicate an online PLC from within Designer via the File->Export->Generate DMLoader Image menu. **Various options** include password protecting the image file itself, downloading the PLC firmware as part the image download, and customize the look of the DMLoader.exe utility with YOUR logo and YOUR detailed instructions.

nerate DMLoader Image
This utility creates an image file for use with DMLoader, the Do-more PLC update utility. DMLoader can update virtually everything in a Do-more controller for production environments or field upgrades, without requiring the use of Do-more Designer.
LOADER Choose what you wish to include in the image, generate the image, and use DMLoader.exe to apply the selected updates.
DMLoader Image Password Optionally password protect this DMLoader image file. Leave blank if not required.
Comm Session Password Password Required to establish a comm session if the PLC has a password configured.
\$ProductID Image: Constraint of the state of the s
ProductVersion Off C Set C Check O Set C Check O Set C Check D Set C Check Set C Check
-PLC Operating System
Update PLC OS Update the PLC's Operating System to this file. Select: File
Program, System Configuration, and Documentation
Download Program/SysConfig/Docs
Retentive Memory Image
Download Image Memory Image Manager
-Password Configuration
Download Passwords Password Configuration
User Provided Banner Bitmap
Use Banner This file will replace the banner bitmap displayed at the top of DMLoader. The preferred size is 690x65.
This file will replace the instructions displayed in the Welcome page of DMLoader.
Use Instruction File Select: File
Generate Image Cancel

Once the DMLoader Image File .DLI is generated, anyone can **install** the **DMLoader.exe utility** from the Internet and upgrade their Do-more PLC if they have this .DLI file, without the need of understanding Do-more Designer or without the original .DMD Designer project file.

4. Enhancements

- a. The H2 and T1H Do-more **firmware** files that shipped with this release added support for **Modbus Function Code 22 Mask Write Register** on the **Slave side only**. This operates on both Modbus/RTU (serial) and Modbus/TCP (Ethernet). Update your firmware 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). We are planning to add support for this function code on the master side in the future by enhancing the MWX instruction.
- b. Utilizes 1.3 .INI file, DmDesigner1_3.ini.
- c. Added new **Ladder Option** to fill an instruction's Edit field with its Element text vs. its Nickname text when both fields are enabled and both exist (4395).
- d. Added new **Ladder Option**, While Editing a Rung to either 1. maintain an empty row at the bottom of the rung; or 2. do not automatically insert empty row at bottom of rung. With option 1, as you draw wires, contacts, coils, or boxes, rows will automagically be inserted at the bottom, so you will not need to stop your ladder flow editing to manually insert an empty row "below the block cursor".
- e. The **PID Tuning History** now logs the current PID Tuning Parameters before running Auto Tune for the first time (4432).
- f. Launch Pad's individual **Links** items support a **tooltip** that provides the link's Description, PLC Type, and Status (Failed, Good, Active, Paused, ...) (4070).
- g. **Documentation Editor's** *Add Documentation Record* dialog now supports adding a range of records. This way you can easily add blocks of empty records to the Documentation Editor, similar to what you would see in DirectSOFT.



h. Ladder View's **XRef Element tooltip** also provides **I/O module information** for any I/O element like X, Y, WX, WY, including the slot, point #, or channel #.



- i. Added support for **STRINGs** to the new **Online Memory Data Import/Export Utility**. Import's error reporting now provides the column number to help find/resolve any format/data issues.
- j. Updated the file format of the **Export Element Documentation** for the C-more, KepDirect, and Point of View software packages.
- k. DmLogger.exe utility now supports a file logging mechanism that you can initiate from a Do-more CPU. Typically, you use STREAMOUT to the @DmLogger device, with the ASCII STRING you want to send to DmLogger. If the STRING contains the prefix "#file:<filename>#", then DmLogger will append the remainder of that STRING to the specified file.

For example, STREAMOUT @DmLogger "D10 = " D10 will simply log something like "D10 = 42" to the DmLogger window. However, if the STREAMOUT looked like STREAMOUT @DmLogger "#file:c:\MyLog.txt#D10 = " D10, then not only would "D10 = 42" be written to the DmLogger window, but that text would also be appended to the end of the file c:\MyLog.txt.

I. **Trend View** and **PID View** support a second logging format. The original would log single values as individual elements' values changed. The new (default) format will **log all values at a specified time interval**, with all the values on a single line.

Options		×
Doc Editor Global	Ladder PID View Project Br	owser Trend 🛋
Apply options to: 🔽 Current View 🔲 All 0 p	en Views 🔲 New Views	
Export/Logging Options		۱
Specify decimal places for floating point	jata 3 🏯	
Delimiter Enclose in Quotes	Export/Logging Method	
C SPACE	Log values for all elements on a specified time interval	
C TAB Element	0 🍨 m 30 🌩 s 0 🌩 ms	
COMMA Value	C Log the value of each element only when it changes	
Historical Data		/
How much data do you want to retain (per	elment)?	
1 🚔 мв		
Prefer Nicknames to Element Names		
Show text on toolbar buttons		
	IK Cancel <u>H</u> elp	

The default is to Export/Log all element values at a specified time interval of 1.000 seconds (fastest interval is 100ms). Below are two example log files, one where data is logged for all values once every 30 seconds, the second where the data is logged whenever a value changes.

MyLog.txt - Notepad	- • •	🗍 MyLog.txt - Notepad	
<u>F</u> ile <u>E</u> dit F <u>o</u> rmat <u>V</u> iew <u>H</u> elp		<u>File Edit Format View H</u> elp	
Date, Time, SDT0.Minute, SDT0.Second 2014/2/25, 09:53:14.231, 53, 14 2014/2/25, 09:53:44.247, 53, 44 2014/2/25, 09:54:14.264, 54, 14 2014/2/25, 09:55:14.294, 55, 14 2014/2/25, 09:55:14.294, 55, 14 2014/2/25, 09:55:14.310, 55, 44 2014/2/25, 09:56:14.326, 56, 14 2014/2/25, 09:56:14.343, 56, 44 2014/2/25, 09:57:14.358, 57, 14	*	2014/2/25,10:07:57.000,SDT0.Second,57 2014/2/25,10:07:58.002,SDT0.Second,58 2014/2/25,10:07:59.005,SDT0.Second,59 2014/2/25,10:08:00.007,SDT0.Second,0 2014/2/25,10:08:00.007,SDT0.Minute,8 2014/2/25,10:08:01.009,SDT0.Second,1 2014/2/25,10:08:02.001,SDT0.Second,2 2014/2/25,10:08:03.003,SDT0.Second,3 2014/2/25,10:08:04.005,SDT0.Second,4 2014/2/25,10:08:05.007,SDT0.Second,5	E
	4	<	- F
	Ln 10, Col 32		Ln 1, Col 1

m. The Link Wizard Port page and the Configure Link's Port page Device list support plug and play with USB to Serial converter cables which generate COMx PC serial ports dynamically.

n. New Program Check Rules

i. For simple Counter instructions, Warning W461 when they are used in an edge-triggered TASK since Counter Input Legs require a Full OFF-to-ON Transition (4400).

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- Warning W424 when using a retentive bit in an OUT coil inside a non-retentive Stage (4703). Hence, after a power cycle, the Stage will be inactive, but the OUT coil could still be ON.
- iii. Warning W403 when HALTing a PROGRAM or TASK that contains fully-asynchronous instructions (4414). These instructions can be at any point in their execution when the containing code-block is HALTed.
- iv. For DEVREAD Read Device Register and DEVWRITE Write Device Register instructions, added Warning W708 when using an unsupported Register Type for the current PLC's Do-More Technology Version. At runtime, the DEVREAD will return a 0 for unsupported register types and DEVWRITE will be a NOP when writing to an unsupported register types (see 2.B.i above). Just upgrade the Do-more firmware to the latest and greatest and this will go away (4600).
- v. Error E707 when using the new *ipaddr* format inside the FmtInt() STRPRINT or EMAIL Print Script when online with a Do-more PLC that does not have the proper Do-more Technology Version (see 2.B.ii above). Just upgrade the Do-more firmware to the latest and greatest and this will go away, or format it the old fashioned way and cast the 4 tuples of the DWORD as Unsigned Bytes: D42:UB3 "." D42:UB2 "." D42:UB1 "." D42:UB0.

5. Adjusted Anomalies

- a. *Auto-complete* properly includes the nicknames for all the valid elements for that specific element field (3448, 4573); shows up on first keystroke from outside Ladder Instruction editor (4572).
- b. During Paste of Ladder Logic, treat Documentation Import Errors as Warnings so that the logic still comes across, and log the "warnings" to the Output Window. Properly handle pasting of code-blocks that include instructions that have @device parameters. Properly handle nicknames of renamed PROGRAM/TASK code-block structure fields during Paste. For example, when pasting SG \$Main.S0 with nickname "RunMotor" to a new code-block MyProg, will become SG MyProg.S0 with MyProg.S0's nickname altered to "_RunMotor1" to maintain the uniqueness of the "RunMotor" nickname tied to \$Main.S0 (4403). When pasting a new TASK/PROGRAM code-block, make its *Initial Time Slice* be 100 uSec and make user aware that they may want to tweak it. Allow tall element documentation Description fields to be pasted (4539). Improved performance of paste of large Ladder Clips.
- c. Sped up the display of large number of items to the *Output Window*.
- d. *Restore Default Layout* now adjusts the position of modeless dialogs (like Change Value and the Instruction Palette) in addition to dockable/floatable views like Data View (4527).
- e. Data View no longer requires you to move off edit field to enable Write Current Value button (3350); better handling of multiple Data Views (4067); properly expands Date/Time structures (4502); properly displays status of high ASCII values in Quoted String format.
- f. Check for Updates now checking for Terminator CTRIO firmware.
- g. *Export Element Documentation* dialog now provides helpful information to choose the specific Output Format content.
- h. Parameter Range description for PUBLISH and SUBSCRIB working better (4497). PUBLISH and SUBSCRIBE now consistently decoding the original DmT 1.0 Reverse Bytes flag (4736).
- i. Applying all *Program Check Rules* to logic inside all *System Tasks*.
- j. During *Replace*, report instruction validation errors (4494); properly perform replace on complex instructions from an online project uploaded from a PLC.
- k. Include element text in Instruction Validation error messages.

- I. *New Online Project* supports launching the *Do-more Simulator* when attempting to open the *MySim* communication link.
- m. System Status dialog better handling of instruction addresses for instructions in error.
- n. Ladder Display now properly displaying MEMCOPY w/symbolic constant (4415); PEERLINK with status on (4612). MRX/MWX ranges with a range of 1 (4648). MRX/MWX properly reports end of range that is out of range (4649). MRX and MWX properly reporting bit vs. register parameter sizing issues (4646). ROTL/ROTR status shows Input/Output register in hexadecimal format. Disallow REAL format from the ROTL/ROTR instruction (use :SD cast). When Accepting an edited rung with dangling contacts, coils and/or boxes, make the default be to *keep* them, not delete them. Zoom level being maintained properly when Ladder View loses focus (4081). Fixed INIT table field editing (4667, 4668, 4669). Added Create Byte Buffer button to STRGETB and STRPUTB instruction editors (4666). Properly maintain Rung Selection state across multiple views of the same code-block (4679). GSREGRD and GSREGWR, removed reference to .StatusMonitor1 in description for parameter P6.31 (4672). When editing Stage instructions, the default Stage ID working better (4578). Flag instructions as being modified only when any of the actual parameters change (4522). MATH instruction editor no longer generates incorrect "math stack depth exceeded" error when entering expressions with functions that have at least 2 parameters like IF, MIN, STDEVR (4732).
- o. *Find* properly finds individual bit elements within a cast of a bit to a BYTE, WORD, DWORD, like finding C65 within the cast of C64:UW (4556); Find All better handles large number of results.
- p. *I/O System View* handles Local I/O Master Error Bits across all modules; better handling of reporting missing or inconsistent I/O modules.
- q. Added link to T1H-DM1 hardware manual in *Launch Pad's Applications* group.
- r. Properly classify devices and structure fields of structures tied to Specialty I/O modules as Specialty I/O.
- s. XRef View, better display of expanded ranges.
- t. Reported *Program Length* on the Status Bar is much more accurate (2124).
- u. Simulator better handles missing Ethernet port or Ethernet cable on the PC.
- v. When manually configuring a *Terminator I/O base* in the *System Configuration dialog*, widened the hot spot and enhanced the hot spot graphic that shows up between the modules for the right-click context menu that is used to insert a new module.
- w. Fixed column sorting for the various Navigation List windows like *Output Window*, *Find Results*, and others.
- x. Various windows (like Project Browser) now properly receiving System Configuration notifications after a *Paste* or *Insert Instructions From File* when a new data-block, heap-item or device may be added to the project.
- y. STREAMOUT and STREAMIN editors' Device selection drop-down box now supports Create Device (4174).
- z. Fixed broken web links to AutomationDirect.com's product specification pages in System Configuration's *I/O Configuration* page and in the *I/O System View*.
- aa. Fixed situation where Designer could lock-up during PC video configuration changes or other PC changes when online with status turned on.

Changes to Do-more Designer for 1.2

 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.

New Project Name		
UNTITLED	Bro <u>w</u> se	
		Cancel
Do-more Hardware Qlass: Do-more H2 Series Do-more Smulator Do-more T1H Series	 T1H-DM1 T1H-DM1E	<u>H</u> elp

(note the new Do-more Hardware Class list)

Link Wizard	
	Link settings complete! Please select a unique name for the new link. Link Name: MyTerminator Link Description: PlC: T1H-DM1E Protocot: UD-more (DM PLLS) Address: 1 Parity:
Link Editor	< Back <u>Finish</u> Cancel

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.

Starting Eleme	nt: C100	♦ F	Range: 64	ł
Ending Eleme	nt: C163			
	Add to List	Remove fro	om List	
From	То	Count		
V0 R0	V99 R41	100 42		
Formatting C For each ran C Put all Specify V Inc Example Out	ptions ge in the list above: values in one row the number of value lude the element nam put:	s per row: 10 e on each row		
Formatting C For each ran C Put all C Specify [♥ inc Example Out V100, 0, V10, 10, V100, 20, V140, 40, V140, 40,	bptions ge in the list above: values in one row the number of value ude the element nam put: 1, 2, 3, 4, 5 11, 12, 13, 14, 21, 22, 23, 24, 31, 32, 33, 34, 41, 42	s per row: 10 e on each row 5, 6, 7, 8, 15, 16, 17, 25, 26, 27, 35, 36, 37,	9 18, 19 28, 29 38, 39	

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.

From	To	Count	Data	
VO	V99	100	42, 10, 10,	
R 100	R104	5	3.14, 42, -99,	
C16	C23	8	1, 1, 0,	

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.

Do-more Designer 1.20 - PID1 - [SMain]



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:

Do-more Designer 1.2.0 - PID1 - [\$M	ain]					x
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Open Save New Backup	Edit Mode	Cut Copy Paste	Find Next Bro	Previous Next	-0 100% - Dotions	»
Read PLC Write PLC New Online D	🛷 🎦 🚳 🕯	rend Status All Status		Alue Mode Info	Configure Devices Check)
Project Browser	StEirstScan StEstTonOfScan	GenAlarmText Manin	ulateSim MonitorAlar	ms 100 Start Page 100	Main 4	Þ×
Image: Bioseer Image: StriptScan Image						
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System Configuration	Element VR of Instruct	Access Type	Address	Instruction	Parameter Info	
L. 🍇 Password Canfig	SimPilU SimPilU Si Si SimRS Do	Output POutput In/Out V Input V Input V Input V Input V Input V Input V Input V Input V Input PInput N Input	sttristscangu StroptScange5 SMain@1 SMain@20 SMain@20 SMain@20 MonitorAlarms@11 MonitorAlarms@11 MonitorAlarms@11 GenAlarmText@19 GenAlarmText@19 GenAlarmText@19 GenAlarmText@19 SMain@17 SMain@20	PUDNI SCALE SCALE PADPSOAK RAMPSOAK ALHILO ALHILO ALDEV ALDEV ALDEV ALRATE STRPRNIT STRPRNIT STRPRNIT STRPRNIT STRPRNIT STRPRNIT STRPRNIT STRPRNIT ANDN RAMPSOAK	Parm 1: PIU Struct Parm 6: Output Parm 1: PID Struct Parm 2: Set Point Parm 1: Input Parm 1: Input Parm 1: Input Parm 3: Print Script Parm 1: Ramp/Soak Struct	
🚀 Launc 🦃 Project 🕅 Data1	<					

- 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

- 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.

System Configuration			×
Configuration Entries	H2-DMIE CPU Configuration Serial Port Mode The CPU's internal serial port can be used for programming, for guest protocols, or configured as a general purpose port and placed under program control. © Do-more Programming © K Sequence Server © Modbus RTU Server (Slave) © Modbus RTU Client (Master) © General Purpose Device Settings Modbus/TCP Server Configuration Do-more CPUs equipped with Ethernet ports can provide a Modbus/TCP Server. Server can support a maximum of 16 concurrent sessions. Use the fewest required concurrent sessions to reduce scan time and improve scan consistency. © Enable Modbus/TCP Server Maximum Concurrent Sessions: 4 1 - 16 Client Inactivity Timeout: 60 seconds TCP Port Number: 502 (502 is default)	TimeSync Configuration Do-more CPUs equipped with Ethernet ports can automatically synchronize their internal docks. Select: 'Disable' to turn off this feature 'Clent' to broadcast TimeSync messages 'Server' to broadcast TimeSync messages 'Alternate' for a clent that reverts to server if server is offline. For servers or alternates, you may specify the time in seconds between updates. Clent Clent Server Update Interval: Alternate min Default Watchdog Timeout Do-more CPUs read the value stored in DST23 (\$WatchdogTimeVal) at the top of every scan, and update the system watchdog timeout value. The valid range is 50-65535 ms. Default Timeout: Default Timeout: 1000 ms	Ethernet I/O Master CPUs with an internal Ethernet port can use that port to connect to compatible Ethernet I/O slave devices. I I Enable Ethernet I/O Master Secondary Ethernet Connection CPUs with Ethernet can enable a second programming connection on a different UDP port number. Enable Secondary Ethernet Connection UDP Port Number: 5000 0x1388
	OK	Cancel Help	

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.

System Configuration				
Configuration Entries - CPU Configuration - I/O Configuration - DL205 Local I/O Master - DL205 Base - Ethernet I/O Master - Module Configuration(s) - Device Configuration - I/O Mappings - Memory Configuration	Ethernet Master Address Config Module ID: 0 Name: Xfer System Description: 205 base locate XYZZY	IP Add Subnet N ed in panel Gate Set No	ress: 10.0.1.43 lask: 255.255.252.0 way: 10.0.0.1 de and IP Configuration	
	Ethernet Slaves Name MLS_H2-EBC100 MLS_DM_JOSlave1 MLS_GS-EDRV100	Slave Type H2-EBC100 H2-EBC100 GS-EDRV100	IP Address 10.0.0.124 10.0.0.107 10.0.0.105	Setup Slave IP Config Add Multiple Slaves via Query Manually Add Single Slave Lott Slave Delete Slave Delete Slave' Rescan Slave's I/O Move Up Move Down
	Configuration Notes: The onboard Ethernet port can The master and slave Ethernet 'Setup Slave IP Config' to co Select 'Add Multiple Slaves via (Add Single Slaves' to manual) The order of slaves in the list is set through the CPU's I/O map	serve as an I/O Master for u ports must have a valid IP o nfigure the slaves. Query' to query the local n add a new slave entry. the same order their I/O is n , accessed on the I/O Map pr K Cance	up to 8 Ethernet I/O slave devices onfiguration before use. Select 'Se etwork for compatible I/O devices napped. Use 'Move Up' and 'Move I ge of the System Configuration.	t Node and IP Configuration' to set up the master, and and automatically add one or more of them or select 'Manually Down' to adjust the order. The actual I/O map locations are

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

MAC Address	Slave Type	Name	IP Address
00 E0 62 00 2D 03	H2-EBC100	MLS_H2-EBC100	10.0.0.124
00 E0 62 00 2B 4C	H2-EBC100	MLS_DM_IOSlave1	10.0.0.107
00 E0 62 00 2B 4D	H2-EBC100	TR 1B	10.0.2.10
00 E0 62 00 2B 53	H2-EBC100	TR3C	10.0.2.12
00 E0 62 00 2B 56	H2-EBC100	TR2C	10.0.2.11
00 E0 62 40 5D 58	GS1-100	MLS_GS-EDRV100	10.0.0.105
00 E0 62 00 2B 6D	H2-EBC100	Gregs H2-EBC100	10.0.0.132
00 E0 62 40 41 7A	GS1-100	GS Drive _	192.168.10.55
00 E0 62 40 22 85	T1H-EBC100	TR11A	10.0.2.17
00 E0 62 40 3F 87	GS2-100	GS-EDrive 100	10.0.2.19
00 E0 62 40 22 86	T1H-EBC100	TR4A	10.0.2.13
00 E0 62 40 1D 99	T1H-EBC100	TR5A	10.0.2.14
00 E0 62 40 52 A7	T1H-EBC100	TR6B	10.0.2.18
00 E0 62 40 57 C3	T1H-EBC100	T1HEBC100 Lab1A	10.0.2.20
00 E0 62 70 71 C9	H2-EBC100	V EBC 1	10.0.0.64
00 E0 62 40 22 CD	T1H-EBC100	TR6A	10.0.2.15
00 E0 62 40 22 CE	T1H-EBC100	TR 10A	10.0.2.16
00 E0 62 00 48 E6	H2-EBC100	H2-EBC100	10.0.1.82
00 E0 62 40 5C E9	T1H-EBC100	T1HEBC100	10.0.1.83
00 E0 62 40 5C F8	T1H-EBC100	MLS_T1HEBC100_2	10.0.0.106
	00 E0 62 00 2D 03 00 E0 62 00 2B 4C 00 E0 62 00 2B 4C 00 E0 62 00 2B 53 00 E0 62 00 2B 55 00 E0 62 00 2B 55 00 E0 62 00 2B 55 00 E0 62 40 5D 58 00 E0 62 40 40 22 85 00 E0 62 40 22 85 00 E0 62 40 22 85 00 E0 62 40 1D 99 00 E0 62 40 52 A7 00 E0 62 70 71 C9 00 E0 62 70 71 C3 00 E0 62 70 71 C3 00 E0 62 70 22 CE 00 E0 62 40 22 CE 00 E0 62 40 52 CE 00 E0 62 40 5C F8	00 E0 62 00 2D 03 H2-EBC 100 00 E0 62 00 2B 4C H2-EBC 100 00 E0 62 00 2B 53 H2-EBC 100 00 E0 62 00 2B 55 H1-EBC 100 00 E0 62 40 21 85 T1H-EBC 100 00 E0 62 40 22 85 T1H-EBC 100 00 E0 62 40 22 86 T1H-EBC 100 00 E0 62 40 22 86 T1H-EBC 100 00 E0 62 40 52 A7 T1H-EBC 100 00 E0 62 40 52 A7 T1H-EBC 100 00 E0 62 40 52 CD T1H-EBC 100 00 E0 62 40 22 CD T1H-EBC 100 00 E0 62 40 22 CD T1H-EBC 100 00 E0 62 40 22 CD T1H-EBC 100 00 E0 62 40 52 CO T1H-EBC 100 00 E0 62 40 52 CF T1H-E	DE DE 02 20 02 D 03 H2-EBC 100 MLS_H2-EBC 100 00 E 06 20 02 B 4C H2-EBC 100 MLS_DM_IOSlave 1 00 E 06 20 02 B 4D H2-EBC 100 TR IB 00 E 06 20 02 B 53 H2-EBC 100 TR IB 00 E 06 20 02 B 55 H2-EBC 100 TR 2C 00 E 06 20 02 B 55 H2-EBC 100 TR 2C 00 E 06 20 02 B 56 H2-EBC 100 TR 2C 00 E 06 20 02 B 56 H2-EBC 100 Gregs H2-EBC 100 00 E 06 20 02 B 60 H2-EBC 100 Gregs H2-EBC 100 00 E 06 24 02 16 T1H-EBC 100 TR 11A 00 E 06 24 02 28 5 T1H-EBC 100 TR 11A 00 E 06 24 02 28 6 T1H-EBC 100 TR 4A 00 E 06 24 03 52 A7 T1H-EBC 100 TR 6A 00 E 10 62 40 52 C T1H-EBC 100 TR 6A 00 E 10 62 40 52 C T1H-EBC 100 TR 6A 00 E 10 62 40 52 C T1H-EBC 100 TR 6A 00 E 10 62 40 52 C T1H-EBC 100 TR 6A 00 E 10 62 40 52 C T1H-EBC 100 TR 6A 00 E 10 62 40 52 C T1H-EBC 100 <

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.

System Configuration		X
Configuration Entries	I/O Configuration Overview	_
CPU Configuration CPU Configuration COLOS Local I/O Master DL205 Base CDL205 Base CDL	DL205 Base	-
	0 - MLS_H2-EBC100 : H2-EBC100	
		_
	1 - MLS_DM_IOSlave1 : H2-EBC100	
с <u>ш</u> ,	Direct 205 Key Mark	-
	OK Cancel Help	

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.

Edit Ethernet Slave
Name: T1HEBC100 HWLab 2A OK
Slave Type Cancel
H2-EBC 100 T1H-EBC 100 GS-EDRV 100
IP Address 10 . 0 . 2 . 30
Poll Rate Timeout Retries 0 ms 100 ms 4
CPU remains in RUN mode on slave error
🔽 Slave must be online to enter RUN mode
On slave error, inputs will
Be deared G 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.

nfiguration Entries	I/O Map								
- CPU Configuration	Slot	Mod ID	Mod Description	Slot I/O	X Map	Y Map	WX Map	WY Map	
I/O Configuration	DL2	05 Local I/O	Master						
DL205 Base	IDL205 Base - Right Click to edit base's default man addresses (X0_V0_WX0_WV0)								
Ethernet I/O Master		0 55		2Y	X0-7				
0 - MLS_H2-EBC100 : H2-EB	_	1 75	16.00	16V	70-7	V0-15			
		2 FF	8 DI	87	¥8-15	10-15			
Module Configuration(s)		2 25	4 01		×16-23		WX0-3		
Device Configuration		J JE 4 4E	2 AO (16 bit)	2007	A10-25		1170-5	W/V0-1	
I/O Mappings		5 3E	2 AO (12 bit)	2007				W/V2-3	
Memory Configuration		6 50	H2-SERIO/4	2111				1112 3	
		7 BEEE	H2-ECOM/100						
	-	/ DELL							
	Ethernet I/O Master								
		0 - MLS_H2-I	EBC100 : H2-EBC100 - Right Cl	ick to edit base's default map	addresses (X0,	Y0, WX0, WY0)			
		0 3C	4 AI (RTD/THM)	4X / 4WX	X24-31		WX4-7		
		1 FD	8 DO	8Y		Y16-23			
		1 - MLS_DM_	IOSlave1 : H2-EBC100 - Right	Click to edit base's default ma	ap addresses (X0), YO, WXO, WY	0)		
		0 FE	8 DI	8X	X32-39				
		1 37	8 AI/4 AO	8X / 8WX / 7WY	X40-47		WX8-15	WY4-10	
		2 - MLS_GS-E	DRV100 : GS-EDRV100						
	_	0 01	GS1 Drive	\$GS1_120					
					1		1	i	
	Mapping	g Mode		Manual Mode Instructions					
	In "Au	to" mode, the	PLC automatically assigns	Automatically assigned add	resses are	Map values	that exceed men	ory config are	
	Image register au		esses to each slot.	snown in gray.		shown in bo	shown in bold red.		
	image	image register address for one or more slots.		black.	es are snown in	Clear manu	al entry to return	it to auto.	
		ito C Manu	al Clear Manual Entries	Map range overlaps are err shown in red.	ors, and are				

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.

3 System configuration			0.5.7		1		
ew Backy Configuration Entries	I/O Map						
CPU Configuration	Slot Mod I	D Mod Description	Slot I/O	X Map	Y Map	WX Map	WY Map
□· I/O Configuration	🖃 DL205 Local I/	/O Master					
Ethernet I/O Master	DL205 Bas	se - Right Click to edit base's def	ault map addresses (X0, Y0	, WX0, WY0)			
Module Configuration(s) Device Configuration	0 50	H2-SERIO/4					
* I/O Mappings	1 BE5	1 H2-CTRIO/2					
Memory Configuration	2 *Emp	ty*					
	4 *Emp	ity*					
m Tasks	5 *Emp	ty*					
	6 *Emp	ity*					
	7 *Emp	ty*					
	Ethernet I/O N	Master					
led)	🖃 0 - GS-ED	rive 100 : GS-EDRV100 - Right Cl	ck to edit base's default m	ap addresses (X0,	Y0, WX0, WY0)		
Edit Base's Default Map Addresses	0 02	032 Drive					
•	D 1. T1UCD	C100 T1ULEDC100 Dista CEST					
		CIUD : TIH-EBCIUD - Right Cilci	to edit base's default map	addresses (X96, Y	96, WX20, WY20	0)	
Specify the default address for each I/O type when automatically manning. This allows manning a base to	1 100	2 T1K 00TA	to edit base's default map	addresses (X96, Y	96, WX20, WY20	0)	
Specify the default address for each I/O type when automatically mapping. This allows mapping a base to a specific I/O range without having to manually map	2 118 3 124	2 TIK-08TA 2 TIK-08TA 2 TIK-08NA-1 2 TIK-08NA-1	to edit base's default map	addresses (X96, Y X96-103	/96, WX20, WY20	0)	
Specify the default address for each I/O type when automatically mapping. This allows mapping a base to a specific I/O range without having to manually map each module.	2 118 3 12A 4 110	2 T1K-08NA-1 2 T1K-08TAS 2 T1K-08TAS 2 T1K-08TAS 2 T1K-08ND3	t o edit base's default map OV 8X 8Y 8X	x96-103	/96, WX20, WY20 <u>V96 193</u> Y104-111		
Specify the default address for each I/O type when automatically mapping. This allows mapping a base to a specific I/O range without having to manually map each module. Master: 1 - Ethernet I/O Master	2 118 3 12A 4 110 5 120	2 Tak 90TA 2 Tak 90TA 2 Tik-08NA-1 2 Tik-08ND3 2 Tik-08ND3 2 Tik-08ND3	to edit base's default map 8X 8Y 8X 8X 8X 8X 8Y	x96-103 X104-111	Y104-111 Y112-119		
Specify the default address for each I/O type when automatically mapping. This allows mapping a base to a specific I/O range without having to manually map each module. Master: 1 - Ethernet I/O Master Base: 1 - Terminator Base	2 118 3 12A 4 110 5 120	2 TEK 0014 Kight Click 2 TEK 0014 Zitk-08NA-1 2 TEK-08NA-5 Zitk-08ND3 2 TEK-08ND3 Zitk-08TDx 2 TEK-08TDx Zitk-08TDx	to edit base's default map 01 8X 8Y 8X 8X 8Y 8X 8Y 15V	x96-103 X104-111	996, WX20, WY20 V20 103 1 V104-111 V112-119 V120 125		
Specify the default address for each I/O type when automatically mapping. This allows mapping a base to a specific I/O range without having to manually map each module. Master: 1 - Ethernet I/O Master Base: 1 - Terminator Base X Starting Address: 100 0	4 133 2 118 3 12A 4 110 5 120 6 134 Mapping Mode	2 TLK-08TLAD Kight Click 2 TLK-08TLAD Kight Click 2 TLK-08TLAD TLK-08TLAD 4 TLK-08TLAD TLK-08TLAD 5 TLK-08TLAD TLK-08TLAD	to edit base's default map	addresses (X96, Y X96-103 X104-111 addresses are	96, WX20, WY20 V0C 102 V104-111 V112-119 V120 125 Map values bout in b	b) s that exceed mem	nory config are
Specify the default address for each I/O type when automatically mapping. This allows mapping a base to a specific I/O range without having to manually map each module. Master: 1 - Ethernet I/O Master Base: 1 - Terminator Base X Starting Address: 105 0 Y Starting Address: 1996 0	A 123 2 118 3 12A 4 110 5 120 Mapping Mode In "Auto" mode, image register ac In "Manual" mode image register ac	the second	to edit base's default map 9V 8X 8V 8X 8Y 4C Manual Mode Instructions Automatically assigned shown in gray. Manually assigned add black.	Addresses (X96, Y X96-103 X104-111 Addresses are resses are shown in	Y104-111 Y112-119 Y112-119 Map values shown in b	o) s that exceed men old red. ual entry to return	nory config are it to auto.
Specify the default address for each I/O type when automatically mapping. This allows mapping a base to a specific I/O ange without having to manually map each module. Master: 1 - Ethernet I/O Master Base: 1 - Terminator Base X Starting Address: YStarting Address: WX20 • WX Starting Address: WX20 •	Auto C Ma	2 TLK-05L00 - Kight Click 2 TLK-08NA-1 2 TLK-08NA5 2 TLK-08ND3 2 TLK-08TDx 3 TLK-08TDx 4 Clear Manual Entries	to edit base's default map 8X 8Y 8X 8Y 4SY Manual Mode Instructions Automatically assigned shown in gray. Manually assigned add black. Map range overlaps an shown in red.	x96-103 X104-111 addresses are resses are shown in e errors, and are	966, WX20, WX20 V00 000 V104-111 V112-119 V120 125 Map values shown in b Clear manu	0) s that exceed men old red. ual entry to return	nory config are it to auto.
Specify the default address for each I/O type when automatically mapping. This allows mapping a base to a specific I/O range without having to manually map each module. Master: 1 - Ethernet I/O Master Base: 1 - Terminator Base X Starting Address: 100 Y Starting Address: 100 WX Starting Address: 100 WY Starting Address 100 WY Starting 100 WY Starting Address 100 WY Starting Address 100 WY Starting Address 100 WY Starting Address 100 WY Starting 10	Auto C M	Close TIP-EDCLID® - Kight Click Taik-08TA5 Taik-08TA5 Taik-08TA5 Taik-08TD3 Taik-08TD3 Taik-08TD3 Taik-08TD3 Taik-08TDx Taik-08TDx Taik-08TDx Taik-08TDx the PLC automatically assigns diresses to each slot. anual clear Manual Entries OK	to edit base's default map 9V 8X 8V 8X 8Y 4CV Manual Mode Instructions Automatically assigned shown in gray. Manually assigned add black. Map range overlaps an shown in red.	x96-103 X96-103 X104-111 addresses are resses are shown in e errors, and are	96, WX20, WY20 V104-111 V112-119 V122-125 Map values shown in b Clear manu	0) s that exceed mem old red. ual entry to return	nory config are it to auto.

- 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.
- I. 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)
.SlaveORetryCnt thru .Slave15RetryCnt	Unsigned BYTE	Count of the number of retries for that specific Ethernet I/O slave (writable).
.SlaveOUpdateCnt thru .Slave15UpdateCnt	Unsigned WORD	Count of the number of successful communication updates for that specific Ethernet I/O slave (writable).
.SlaveOError 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.
.SlaveOErrorInfo 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).</n>

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.

<u>√X¤?</u>		0
STRPRINT	Print to S	tring
Print to	SS0	۰
Append to String		
Automatically insert space	ace after each term	
Print Script		
"Hello, world!"		•
		Ŧ
Input Leg		7
C Eage triggered		
. Power flow enabled		

- 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.

_				<u> </u>
	PUBLISH - Conv	vert		x
	Source	R22 •		
	Destination	MHR7 •	As DWord Real	•
	#Elements	5 •	_	
	🗖 Swap Byte	🔽 Swap Word]	
		OK	Cancel	

- 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.

✓X № ?	C
DEVWRITE	Write Device Register
Device	@GoogleEMail • -
Write Register	SMTP Server: IP Address (DWORD)
Value	Serial Control Modbus/RTU Master Inter-Packet Delay (uSec)
	SMTP Server: IP Address (DWORD)
	SMTP Server: SMTP IP Port (WORD)
	SMTP Server: POP3 IP Port (WORD)

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.

	•	✓X [∞] ?]	0
GSREGRD	— GS EDrive Register Read	GSREG	WR	GS EDrive Register Write
Device	@GS2_100 • -	Device		@GS2_100 • -
Structure	\$GS2_100	Structu	re	\$GS2_100
Row# Register	Destination	Row#	Source	Register
1 P7.10: Keypad PID Setpoint	t • V42 •	1	7 •	P0.01: Motor Nameplate Amps*
2 P7.11: PID Multi-setpoint 1	 V50 Image: Example of the second s	2	50 🔷	P0.02: Motor Base Frequency
3 P7.12: PID Multi-setpoint 2	 V51 	3		E
4		4		
5		5		
6		6		
7	-	7		-
<u>E</u> dit <u>I</u> nsert <u>R</u> emove	Move Up Move Down	Edi	t <u>I</u> nsert <u>R</u> e	move Move Up Move Down
On Success: 🖲 Set bit 🗢 JMP to S	On Suc	cess: 🖲 Set bit 🔍	JMP to Stage C0 •	
On Error: Set bit JMP to S 	Stage C1 •	On	Error: Set bit .	JMP to Stage C1 •
ок с	ancel		OK	Cancel

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.

Write GS2 Regi	iter					×	
To select the G	5 Drive Paramet	er, fill in the P and "dot" fields,	or browse the	e complete list of p	arameters in the tr	ee below.	
Source 425	•	GS2 Destination Register	<u>P</u> 0	. 03	Can NOT set i	n RUN mode	
Description P0.03: Motor Base RPM							
Range	375 to 9999 R	РМ					
Imp Decimal Pla	ied 0 ces 0	Default Value 1750	Moo Ada	lbus 40004 Iress	Hexadecimal Address	0x0003	
	Browse to	GS2 Manual		Browse to GS2 S	pecification		
 P0.xx: Mol P0.xx: P1000 P0.001 P0.001 P0.021 P0.021 P0.024 P1.021 P1.024 P1.031 P1.044 P1.055 P1.066 P1.076 P1.078 P1.089 P1.101 P1.112 P1.112 P1.112 P1.188 	or Parameters Motor Namepla Motor Namepla Motor Namepla Motor Base Free Motor Base Free Motor Maximum per Parameters Stop Methods Acceleration Ti Deceleration Sty Skip Frequency Skip Frequency Skip Frequency	e Voltage e Amps gency RPM ne 1 (RUN mode.) ne 1 (RUN mode.) ne 2 (RUN mode.)				E	
Collapse All	Expand	All			ОК	Cancel	

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, …).

X 2 ?	C
DNSLOOKUP	Name to IP Address
Device	@IntEthernet • -
Preferred DNS Server	
Fixed IP Address	8.8.8.8
O Variable IP Address	D0
Get PC's DNS Serv	ver Settings
Alternate DNS Server	
No Alternate DNS Server	
C Fixed IP Address	0.0.0.0
O Variable IP Address	D1
Name aspmx.l.goo	ogle.com"
IP Address Result	D100 •
On Success: 🖲 Set bit 🛛 JMP to S	Stage C40 •
On Error: 🤨 Set bit 🔿 JMP to S	Stage C41 •

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...

I aunch 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.

Do-more Designer Updates 1.1, August 19, 2013

> Do-more Designer - UNTITLED - [\$Main]	A CONTRACTOR OF	
<u>File Edit Search View Tools PLC Debug Window</u>	Help	
Image: Open Save Mage: New Backup Image: Edit Mode Accept	Undo Cut Copy Paste Find Find Next Br	Previous Next -CT 100% Image: Comparison of the second seco
Read PLC Write PLC New Online Do-more/Sim	Debug	vistatic/specs/tifi4 - C × ● automationdirect.com × 0 0 ☆ 0
1/0 System	File Edit Go to Favorites Help	
		Seneral Information System Status Event Logs for Messages
Slot > Empty Slot > Empty Slot 7 - Empty Slot 7 - Empty Slot 8 - Empty Slot 9 - Em	2 T <u>1F-14THM</u> <- 14-channel	Vaming Messages Dree or more 10 masters are indicating a problem with a module - \$10 Enter (ST152) Open I/0 System View I
Base 2 (Terminator Base) (1 Module Warning) Slot 0 : Empty Slot 2 : Empty Slot 2 : Empty Slot 3 : Empty	The 14 channel them 5 module uses a 111 type terminal base o purchased separately.	mor Messages Den Ethernet U/O Monitor
Slot 4 - Empty Slot 5 - Empty Slot 6 - Empty Slot 7 - Empty	5 T1F-14THM 14-Channe Use V0 Base	ast Error(b)
Slot 1 (T1F-16RTD/14THM) Channel 12 has failed on this module.	6 Rumber of Islames 1 Common Node Range Common Node Rejection Rubul Impedance	MSG:
• <u>TIF-16RID</u> • <u>TIF-14THM</u>	Absolute Maximum Ratings Accuracy vs. Temperature Master Update Rate	Clear All NOTE: Addresses change when program is edited and may no longer be correct. OK Help
Manual for: • <u>T1F-16RTD</u> • <u>T1F-14THM</u>	9	Disc van wer to parties no bounder visional Log INVPT SKOTT TITTING TWU TIS Source and S
Launchpad Project Browser VO System For Help, press F1	10 Run Term Stop	(NOP)

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.

herne	et I/O Monitor										×
Gene	eral Ethernet Statistics -										
	Packets Sei (\$EthPktsSent - DST44	nt): 122,70	35	(\$EthDro	Droppe ppedPkts	d Packets - DST40):	0		(\$EthSen	Send Erro dErrors - DST4	ors 2): 0
(\$E	Packets Receive ThPktsReceived - DST43	d): 118,7)7	Ethernet (\$EthSto	: Interrup ppedIntr	t Stopped - DST41):	0		(\$EthMissed	Missed Fram Frames - DST4	nes 9): 45
	Packets Sent per se	: 903		Packets	Received	d per sec:	861				Reset
Ethe	ernet Slaves	Retry Count	Update Count	Update Rate per sec	Update Rate Min	Update Rate Max	Last Error Code	Last Error Info	Configured Retries	Configured Timeout (ms)	Configured Poll Rate (ms)
0	H2-EBC100	0	42,605	402	330	428	0	0	4	100	0
1	T1HEBC100	16	28,953	0	0	341	4	0	4	100	0
2	H2-EBC100	0	41,801	402	326	428	0	0	4	100	0
Clear Error Codes Clear Counts Some warnings (indicated by a yellow 'Name' field) may not appear to be cleared after they are fixed unless you open the I/O System View (see button below).											
	-	Open Systi Ethern	em Configu e I/O Masi	iration/ :er	Open I/	/O System	View	Сору	to Clipboard		Close

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.

Edit F2-8AD4	DA-x Module Settings				 ×
- Module Co Name: Info	nfiguration F2_8AD4DA_000 Module Type: F2-8AD4DA-x_Assig	ned to: DL205 Lo	ocal I/O Master : DL205 Base	e : Slot 0	
Channel	Resolution		Track	and Hold	
1	⊙ 12 bit ○ 14 bit ○ 16 bit	C Disabled	⊙ None ◯ Minimum	C Maximum	C Reset
2		C Disabled	None C Minimum	C Maximum	C Reset
3	⊙ 12 bit ◯ 14 bit ◯ 16 bit	C Disabled	• None C Minimum	C Maximum	C Reset
4	⊙ 12 bit C 14 bit C 16 bit	C Disabled	• None C Minimum	C Maximum	C Reset
5		C Disabled	• None • Minimum	C Maximum	C Reset
6		C Disabled		C Maximum	C Reset
7	⊙ 12 bit C 14 bit C 16 bit	C Disabled	• None C Minimum	C Maximum	C Reset
8		C Disabled	• None C Minimum	C Maximum	C Reset
	Input Range (F2-8AD4DA-2 only)	Output Ran	ge (F2-8AD4DA-2 only)		
All	⊙ 0 to 5V ○ 0 to 10V	• 0 to 5	5V C 0 to 10V		
Set initial sta Run transitio as defined o	ate of module configuration bits. The c on. Values can be changed while in Rur n the I/O Map page.	onfiguration bits n mode by writing	will be written to this state o to the associated image reg	n Program to jister locations	OK Cancel

Edit Terminator Analog Outpu	t Settings		X
Module Configuration Name: TermAO_101			
Info: Module Type: Te	rminator Analog Output Assigne	d to: Ethernet I/O Master : Te	erminator Base : Slot 1
Output Enable	Output Range Type	Output Range - Voltage	Output Range - Current
C Disabled 💿 Enabled	O Unipolar C Bipolar		⊙ 0-20ma ○ 4-20ma
Set initial state of module config Program to Run transition. Value register locations as defined on	uration bits. The configuration bit is can be changed while in Run mo the I/O Map page.	s will be written to this state o ode by writing to the associate	ed image OK Cancel

- 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.

	BNSI		by Nickname, Ascending	<u> </u>		
Element	Extended Info	Access Ty Sort	by Element, Ascending	Instruction	Parameter Info	-
R10		In/Out Son	by Nickname, Ascending	FILTER	Parm 3 : Out	
AdjustedRawPV		Sort	by Nickname, Descending	9		
We may want to filter		Sort	by Data-Block Number/II	5		
V2) Degardloss of that						
setting R10 contains						
the "desired" raw						
analog value						
		Input	\$Main@1	E PID	Parm 3 : From Raw PV	
		Output	\$tTopOfScan@19	MOVE	Parm 2 : Destination	
Y8		Output	\$Main@60	EO OUT		
AudibleAlarm						
half second on, half						
Second on		Output	ConAlerenText@104		Darm 0 : On Error	-
bitbucket		Output	GenAlamitex(@104	STREAMOUT	Faill 9 . Of Ellor	
bibbonot		Output	GenAlarmText@104	STREAMOUT	Parm 8 : On Success	
X2		Input	\$tTopOfScan@13	III STR		
EnablePVFilter						
Y1		Output	MonitorAlarms@0	ALHILO	Parm 3 : High-High Alarm	
HIGH_HIGH_TEMP						
> 350			0 N T 101	and and		
		Input	GenAlarmText@4			10
2/0		Input	GenAlarmText@20			- 1
TZ HICH TEMP		Input	GenAlarmText@19			
> 300						
2.000		Output	MonitorAlarms@0		Parm 5 : High Alarm	
CO		Input	\$Main@18	IE STR		1
JogSimRS						
leading edge						
Y3		Output	MonitorAlarms@0	ALHILO	Parm 9 : Low-Low Alarm	
LOW_LOW_TEMP						
< 35		land.	Our Alexa Test @24			-
¥2		Input	Main@47			-
OverrideAlarms		mput	ទាមដោយ <u>យ</u> ុម។			
only functional when						
NOT running the PID						
loop; default (OFF)						1
position is do NOT						
e 📃						•

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

Do-more Designer - PIDIRELI_0 - [Docum	entation Editor]				<u> </u>
<u>File Edit Search View Tools P</u> LC	<u>D</u> ebug <u>W</u> indow <u>H</u> elp			-	ēΧ
Open Save New Backup Ed	it Mode Accept	Copy Paste Find	Find Next Browse	Is Next Output	-
Read PLC Write PLC New Online Do-mo	re/Sim Data Debug Trend	Status All Status No Statu	s Forces Value Mod	e Info Configure	
Project Browser 🔄 🕂	🏦 Start Page 🗿 SMain 📓 Docum	entation Editor			Þ
▲ 新聞書 2024	114 ✓ 60 ∞ Add Symb Clean Find Next	Sort by Nickname, A	scending 💌		
A Stan	Element	Sort by Element, Asc	cending Info	Description	1
Grief System Tasks Grief StrintScan Grief StropOfScan Grief Unused System Tasks Grief Tasks	R10	Adj Sort by Nickname, A Sort by Nickname, D Sort by Data-Block N	scending escending lumber/ID	We may want to filter WX0, maybe not (see X2). Regardless of that setting, R10 contains the "desired" raw analog value	
GenAlarmText	Y8	AudibleAlarm		half second on, half second off	1
H MonitorAlarms	C99	bitbucket		occond on	1
Programs	X2	EnablePVFilter			1
Configuration	Y1	HIGH_HIGH_TEMP	> 350		
H Memory	Y2	HIGH_TEMP	> 300		-
CPU	CU	JOBSIMKS	leading edge		-
Devices Devices Consigned Nicknames Tools System Configuration Sustance Info	Х3	OverrideAlarms		only functional when NOT running the PID loop; default (OFF) position is do NOT override	
Password Config	C1	PauseSimRS			1
	V0	PrevAlarmState		Lower BYTE contains the "previous" state of the alarm bits Y0 thru Y7 to help detect when the "alarm state" changes	
	10/20	PropGasValve	12 bit analog	0 fully closed, 4095 fully	1
		PS_MakePVNoisy		when turned ON, this enables a feature in the Process Simulator to place "noise" on the PV	
	X7			signal.	
	WX0	RawOvenTemp	12 bit analog		1
	WX1	RawThermostat	12 bit analog	055 14	-
	XO	SimPIDLoopMode		OFF - Manual ON - Auto	
Aunchpad Project Browser		SP_Selection		OFF - Thermostat ON - Ramp/Soak	
Instructions Accept F2 F3	- J - I	≤ ≥ - <	- ≥ ∆ () > Delta Out	(S)(R)- Set Reset Brow) ise
For Help, press F1		S P D	Offline 00410/65536 D	M-SIM	

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

 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.

Do-more Techr	nology Versions	×
Do-more Tech	nology Versions pre Designer: 1.1	Show Software Versions
	Disk Project: 1.1 PLC Project: 1.0 PLC OS: 1.0	Copy to Clipboard
Go to System Inform to Update P	Go to Check for LC Updates	Close
	Software Versions	×
	Do-more Designer: 1.1.0 PLC OS: 1.0.6 PLC Booter: 3.0.4 PLC FPGA: 3.3	.14
	Windows OS: Microsoft Windows 7 Ultim Edition Service Pack 1 (bui 7601), 64-bit	ate Id

Close

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).



 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.

Element Browser	×	Element Browser	×
Element Detail Vaid Barget Nickname Source Element Image Strate ABCProcewich Nickname Image Strate ABCProcewich State Info Image Strate Nickname Image Strate Image Strate Image Strate Image Strate Image Strate Image Strate Arrange Strate Image Strate Image Strate	Select Cancel Eced Datai Write Datai Help VS.	Element Detail Souce Element PO Nickname StartMotor Extra Info Description D	Select Cancel Bread Datai Write Datail Help
Date in the bit bate block Liener k		Dar Hind Dr. Dar Dar Dear Lemon	

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.

> Do-more Designer 1.1.0 - UNTITLED -	[SMain]			
Eile Edit Search View Tools E	LC Debug Window Help			_ 8 ×
Ven Save New Backup	Edit Mode	Cut Copy Paste	Find Next Browse	(T) 100% • E Options On The Web Tip *
Read PLC Write PLC New Online Do	e-more/Sim Data Debug	Trend Status All Status No	tatus Forces Value Mode Info	Configure Devices Check PID Overview PID View .
Project Browser Project Browser	1 Start Page Start SMain			4 Þ 🗙
Control Logic Gystem Tasks Gystem Tasks	Cross Reference View	150		Ratter Reset Range Start C122 End C122 (NOP)
			Sort by Data-Block Number/ID	
E Devices	Flement	Extended Info	Address Instruction	Parameter Info
H 201 Unassigned Nicknames	X15	Input	\$Main@0 IE STRPD	
E-X Tools	C100	Output	SMain@3 ICI RSTR	Parm 1 : Start
-XY System Configuration	C101	Output	\$Main@3 RSTR	
System Info	C102	Output	\$Main@3 ESTR	
I 8 Password Config	C103	Output	\$Main@3 ED RSTR	
	C104	Output	SMain@3	
	C105	Output	SMain@3 ERSTR	
	C100	Output	SMain@3	
	C108	Output	SMain@3 ICI PSTR	
	C109	Output	SMain@3	
🖉 Launchpad 🥬 Project Browser			The second	
Instructions Accept F2 F3		₽ ₩ ₩ ₩ ₩	→ +≥+ +▲+ -(.)(.5) → Delta Out Set)(R)- P t Reset Browse ^w Edit Mode - Offline 00088/65536 DM-SIM

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I. 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.

Open	Save	New	Backup	Edit Mode	Accept	Undo	Čut	Сору	Paste	Find F
Read PLC	Write PLC	New O	nline Do	-more/Sim	2 Data	Ø Debug	Sector Se	⊣⊢ -∎- Status	All Status	⊣⊢ ⊣⊢ No Status
Project Brow	/ser		4	×						
Y 18 28	20	2:								
[⊟() Co	ntrol Logic									
🕀 👥	SMain									
	System T	asks								
Ш (П)	SHE StFire	tScan								
Ē	StLas	tScan								
🕀 📴	Unused S	ystem Ta	sks							
	Tasks	ongTack								
ц. Ц	MyT.	ask								
	Program	5			1					
P.	MyO	therProg								
	SG SG	Rung 1								
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- 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*.

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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).
- I. 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).
- II. 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/unaccepted 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).
- III. 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.
- I. 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.

Update Operating System
When you are ready to update your PLC, please select the desired operating system file, and press 'Update!' to continue. The most up-to-date file is pre-selected for you.
NOTE: At the end of the update, your Do-more PLC will reboot itself automatically. When that happens, Do-more Designer will report communications errors since it cannot talk to the PLC. This is normal, and you will stop receiving the errors once the reboot is finished. After that, you should receive a message that the update completed successfully!
Current Operating System Information
OS Version: 1.0.5 Do-more Version: 1.0.0
New Operating System Information
OS File: C:\Do-more Designer\Bin\Images\H2-DM1x\h2dm1x_1_0_6.os
Description: H2-DM1[E] Operating System v1.0.6, Do-more v1.0.0
OS Version: 1.0.6 Do-more Version: 1.0.0
Update Status
Current Operation:
Operation Progress:
Update! Cancel

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

Paste	-
Clip Info Source Project: C:\Do-more Designer\Projects\Examples\Do-more Simulator\PID1 Source PLC Type: DM-SIM (different PLC Type)	
Documentation Options C Do not paste documentation Paste, but do not overwrite existing documentation C Paste, overwriting existing documentation Paste, overwriting existing documentation Paste, overwriting existing documentation	

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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.
- I. 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.