April 8, 1999
GFK-1578B

IMPORTANT PRODUCT INFORMATION

READ THIS INFORMATION FIRST

Product: **Control Version 2.20**

IC641CTL970K	Control 90-70 Programmer w/CD Documentation
IC641CTL971K	Control 90-70 Programmer w/paper Documentation
IC641CTL170K	Control 90-70 Programmer Logicmaster 90 upgrade
IC641CTL171K	Control 90-70 Programmer Subscription upgrade
IC641CTL930H	Control 90-30 Programmer w/CD Documentation
IC641CTL931H	Control 90-30 and VersaMax Programmer w/paper Documentation
IC641CTL130H	Control 90-30 and VersaMax Programmer Logicmaster 90 upgrade
IC641CTL990H	Professional Developer Package 90-70, 90-30, VersaMax, SFC
IC641CTL991K	Distributor Demo 10 pack
IC641CTL993K	OEM Evaluation Kit – 30-day license
IC641CTL972H	Upgrade to add 90-70 target
IC641CTL932H	Upgrade to add 90-30 high-end and VersaMax target
IC641CTL937B	Programmer Toolkit
IC641CUG970K	Control 90-70 Programmer Upgrade
IC641CUG930K	Control 90-30 and VersaMax Programmer Upgrade
IC641CUG990K	Professional Developer Package 90-70, 90-30, VersaMax, SFC Upgrade

Control Version 2.20 provides configuration and programming support for GE Fanuc Series 90™-30 (Models 350 and higher), VersaMax™ and Series 90-70 controllers. Control runs under Windows® 95, Windows 98 and Windows NT® 4.0. Built on the latest Microsoft technology, Control is designed to adhere to industry standards including Microsoft Foundation Classes (MFC) 5.0, ODBC, and OLE 2.0, making Control easy to use and integrate with other applications.

This release fixes several problems and introduces several new features. Refer to the Problems Resolved and New Features sections in this IPI for detailed information.

Operational Notes

1. System Requirements

Control is compatible with Windows 95, Windows 98 and Windows NT 4.0. The following versions of Windows are recommended:

Windows 95	Service Pack 2 (4.00.950A) or OEM Service Release 2 (4.00.950B)
Windows 98	All versions supported
Windows NT 4.0	through Service Pack 3. Service Pack 4 is not supported.

Your system must meet the following minimum requirements* to successfully install and run Control. If free hard drive space requirements are not maintained, Control and the underlying operating system may not operate correctly.

	For Windows 95 and Windows 98		For Windows NT	
System Features	**Minimum**	**Recommended**	**Minimum**	**Recommended**
CPU	Pentium/60	Pentium/133	Pentium/75	Pentium/133
RAM	32 MB	64 MB	48 MB	96 MB
Free Hard Disk Space	75 MB	75 MB	100 MB	100 MB
CD-ROM Drive	Yes	Yes	Yes	Yes

2. Version 2.20 automatically upgrades the folder storage to a new version from the version used in previous releases. **This new folder storage version is not backward compatible**, so that after opening a folder with Version 2.20, the folder can no longer be opened by earlier releases.

3. Speed Disk (a defragmentation utility included in Symantec's Norton Utilities package) is configured to move the **Control license system files. The Control license files (wb.ent, wb.key, wb.rst, and wb.41s) are hidden system files which reside under the installed product directory. When Speed Disk moves these files, the Control license is disabled.**

To prevent this problem, open Speed Disk and use File|Options|Optimization|Customize|Unmovable Files to specify the *.ENT, *.KEY, and *.RST files. Use File|Options|Optimization|Save to save your changes. This will prevent the Control license files from being moved.

Other defrag utilities may exhibit the same behavior as Speed Disk and should be checked for excluding these files before running them.

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* These requirements are for Control running as a single application. Memory requirements to run applications simultaneously are additive. Acceptable performance is subjective and can be enhanced by employing more RAM memory and faster processors as they become available.

Save As Function: Premature termination of the product may occur if there is insufficient disk space available when you attempt to do a Save As function.

4. Installation

To install Control, insert the CD-ROM into the CD-ROM drive. To view the contents of the CD-ROM, click the drive letter configured for your CD-ROM, (typically D:\ ) from Explorer. Double-click the icon beside setup.exe. Review the following notes for technical information about Control installation:

- If you are installing on a computer that has dual boot into Windows 95, Windows 98 or Windows NT 4.0, you should un-install and then install on one operating system, then boot into the other operating system, repeating the procedure.
- In addition to program files, Control installs Microsoft support files in the Windows system directory. If these files exist, they will be replaced only if Control requires a later version than the one currently installed.
- If you attempt the installation when other Windows applications are open, you may see messages saying the install has attempted to update a read-only file. Answer NO to the prompt asking whether to update the file. You should exit the Install program (ALT+F3), close all Windows applications and restart the Control installation program. If the message persists, reboot your machine and repeat the process.
- Control uses the GEF_CFG.INI file that is placed in the Windows root directory to record communications device configurations. This file is also used by CIMPLICITY HMI and Motion, as well as other applications developed with the Host Communications Toolkit for communicating with GE Fanuc PLCs. If the file already exists, a prompt will display asking if the file should be overwritten.

  To keep your existing file, select NO. The new default file will be placed in GEF_CFG.SMP. An existing GEF_CFG.INI file may have invalid communications configuration parameters. These invalid settings can cause the automatic reconnection feature of Control to fail, or can cause communications timeouts. If you choose not to overwrite your existing GEF_CFG.INI file when installing, please make the following adjustments by selecting Comm -> Communication Setup, going to the Ports tab, and looking at the advanced parameters:

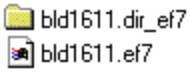
  The "RequestTimeout" must be 16000 or larger

  The "SNP_T3" timer must be at least 250 more than the "RequestTimeout"

  The "SNP_T3P" timer must be at least 250 more than "SNP_T3"

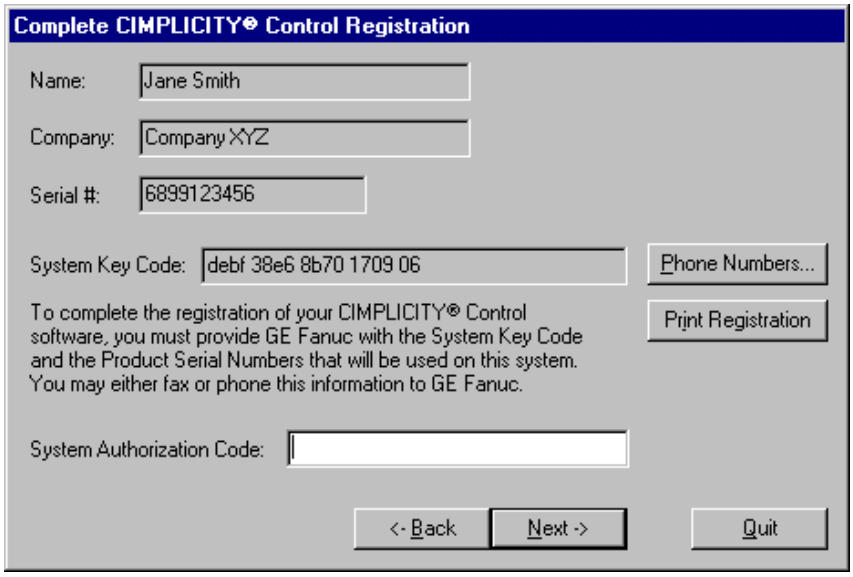
  The "SNP_T3PP" timer must be at least 250 more than "SNP_T3P"

- If Control and PC Control are installed on the same machine, un-installing CIMPLICITY PC Control will cause Control to lose the ability to communicate with PLCs. Do not un-install PC Control unless you plan to remove both packages from the machine.
- Folders created using previous versions of Control may need to be moved using Explorer if you change the path of the default folder directory, and wish to keep all folders in one directory. If you move folders using Explorer, you will need to copy both the directory and folder file, as shown in the example below:



Registering Control

At the end of the installation process, you have the option of registering your copy of Control. To license your copy of Control, enter the serial number, located on the back of the CD-ROM case, in the User Information dialog box which displays through Options Setup. Fax the Serial Number along with the System Key Code to the attention of the software registration coordinator at 804-978-5205.



5. Trial License Operation

If you do not register your version of Control or do not have a licensed copy of Control, the product will operate under a trial license for four days. The trial license mode provides access to all product features for four days. During the 4-day trial license period, you can create demo or product equipment folders. (Demo folders are not available when the product is licensed.) Each time you start Control, a message box will appear showing the amount of time remaining for the trial license. When your trial license expires, you will need to register your system or reinstall Control to continue using the product.

Product Compatibility

Control Version 2.20 provides programming and hardware configuration support for the Series 90-30 (Models 350 and higher), VersaMax and Series 90-70 CPUs. With restrictions described later in this section, this release provides the same feature set as Logicmaster™ 90-70, Version 7.02, and Logicmaster 90-30, Version 9.02, with the following exceptions: Single word changes on the 90-70, mixed reference tables, and Remote Rack Configuration (BEM733). Additional features beyond Logicmaster 90 for SFC programs include support for up to eight actions per step and the ability to program SFC in 90-30 and VersaMax subroutines.

1. Hardware Compatibility

This version of Control supports the following VersaMax modules:

VersaMax CPU	IC200CPU001
VersaMax Discrete Input	IC200MDL240, IC200MDL241, IC200MDL640, IC200MDL650, Generic I/O
VersaMax Discrete Output	IC200MDL330, IC200MDL331, IC200MDL730, IC200MDL740, IC200MDL741, IC200MDL750, IC200MDL930, IC200MDL940, Generic I/O
VersaMax Discrete Mixed	IC200MDL840, IC200MDL841, IC200MDL842, IC200MDL843, IC200MDL844, IC200MDL750, Generic I/O
VersaMax Analog Input	IC200ALG230, IC200ALG240, IC200ALG620, IC200ALG630, Generic I/O
VersaMax Analog Output	IC200ALG320, IC200ALG321, IC200ALG322, IC200ALG331, Generic I/O
VersaMax Analog Mixed	IC200ALG430, IC200ALG431, IC200ALG432, Generic I/O
VersaMax Carriers	IC200CHS001, IC200CHS002, IC200CHS003, IC200CHS005, IC200CHS006
VersaMax Power Supply	IC200PWB001, IC200PWR001, IC200PWR002, IC200PWR101, IC200PWR102
VersaMax Communication Modules	IC200BEM002 Profibus DP Slave Module Generic Comm Used to configure the IC200BEM003 (DeviceNet Communication Module
Intelligent Option Modules	IC693ADC311 Alphanumeric Display Coprocessor IC693PCM300 Programmable Coprocessor 160KB IC693PCM301 Programmable Coprocessor 192KB IC693PCM311 Programmable Coprocessor 640KB

The following VersaMax I/O modules should be configured using the Generic I/O configuration. As new modules are introduced, they may be configured in the system using Generic I/O configuration.

VersaMax Analog Input	IC200ALG260
VersaMax Discrete Mixed	IC200MDD845, IC200MDD846, IC200MDD847, IC200MDD848
VersaMax Discrete Input	IC200MDL140, IC200MDL141
VersaMax Discrete Output	IC200MDL329, IC200MDL742

This version of Control supports the following Series 90-30 modules:

Series 90-30 CPUs	IC693CPU350, IC693CPU351, IC693CPU352, IC693CPU360 and IC693CPU364
Series 90-30 Discrete I/O	All modules supported
Series 90-30 Analog I/O	IC693ALG220, IC693ALG221, IC693ALG222, IC693ALG223, IC693ALG390, IC693ALG391, IC693ALG392, IC693ALG442
Communications	IC693CMM301 Genius® Communications Module IC693CMM302 Enhanced Genius Communications Module HE693PBS105 Profibus Slave Module IC693CMM311 Communication Coprocessor IC693CMM321 Ethernet Interface HE693PBM100 Profibus Master Module HE693PBM101 Profibus Master Module – PTO Certified
Motion	IC693APU300 High Speed Counter Module IC693APU305 90-30 I/O Processor Module IC693APU301 Motion Mate APM 1-Axis IC693APU302 Motion Mate APM 2-Axis IC693APU305 90-30 I/O Processor Module IC693MCM001 Digital Servo Interface Unit IC693DSM302 Motion Mate Digital Servo Module
Bus Controller	IC693BEM321 90-30 I/O Link Master IC693BEM331 90-30 Genius Bus Controller
Intelligent Option Modules	IC693ADC311 Alphanumeric Display Coprocessor IC693PCM300 Programmable Coprocessor 160KB IC693PCM301 Programmable Coprocessor 192KB IC693PCM311 Programmable Coprocessor 640KB

This version of Control supports the following Series 90-70 and Genius modules:

Series 90-70 CPUs*	
IC697CPU731	IC697CPX772
IC697CPU732	IC697CPX782
IC697CPU771	IC697CPX928
IC697CPU772	IC708CPX935
IC697CPU780	IC697CGR935
IC697CPU781	IC697CGR772
IC697CPU782	
IC697CPU788	
IC697CPU789	
IC697CPU790	
IC697CPM914	
IC697CPM915	
IC697CPM924	
IC697CPM925	

90-70 Intelligent Option Modules	
IC697CMM711	Communications Coprocessor Module
IC697CMM721	GEnet MAP Carrierband (Single Slot)
IC697CMM731	GEnet MAP Broadband
IC697CMM741	Ethernet Controller Type 1
IC697CMM742	Ethernet Controller Type 2
IC697BEM763	DLAN Interface Module
IC697BEM713	Bus Transmitter Module
IC697BEM731**	Genius Bus Controller Module
IC697PCM711	Programmable Coprocessor Module
IC697HSC700	High Speed Counter Module
IC697ADC701	Alpha-numeric Display Module
IC697GDC701	Graphics Display Coprocessor Module

Series 90-70 I/O	All modules supported
Genius devices	All Phase B Genius I/O blocks are supported
Field Control I/O	Field Control I/O using the Genius BIU are configured as generic I/O on the Genius Bus

* Release 4 or later 90-70 CPU firmware

** Release 3 or later 90-70 GBC firmware required

2. Configuring Remote Racks with Control

Control does not support remote rack configuration (IC697BEM733). However, remote racks can be configured for use over the Genius Bus using the following procedure:

a) Configure the Genius Bus Controller

b) Expand the Genius Bus

c) Add a Generic I/O block at the System Bus Address of the remote 90-70 I/O rack.

d) Configure the remote rack using Logicmaster 90-70.

3. Communications and Online Monitoring

- Control supports SNP and Ethernet (TCP/IP) communication with the PLC. For SNP connections with 90-70 CPUs earlier than release 6.0, communication must be disconnected in the folder before a connection can be made to the fault tables
- When storing hardware configuration via Ethernet (where the configuration information for the Ethernet module has changed), PLC communication will disconnect and reconnect. At this time, the privilege level is always set at the lowest level.
- When storing hardware configuration to a 90-30 351 or 352 or 363 CPU using SNP connected to the ECSM port on the CPU module (not the port on the power supply), an error will be reported at the end of the store and Control will temporarily lose communications. This happens because the CPU resets the port at the end of the store. To determine if the store was truly successful, you should check the details of the stored items for failures.
- If you are online and equal with a 90-70 PLC, any changes in logic will cause that block to go to the Not Saved state. Only the folder copy of the block has been changed and there will not be any prompts before the change is made. If the change is intended, you can select Store Program Changes from the right mouse button menu (or press ALT-S) to compile and send the changes to the PLC. If the change is not intended, you must close the block without saving to abort the changes. If the PLC is a 90-30 and the change is a single word change, it will go through the Word-for-Word change process, allowing you to abort the change or send it directly to the PLC.

4. Software Compatibility

Control supports the creation of C program blocks and standalone C programs for both the Series 90-70 and 90-30 PLCs. This capability requires use of the C Programmer Toolkit (IC641SWP709 and IC641SWP719).

To use C programming on the 90-30 requires CPU Version 8.00 or higher. To use C programming on the 90-70 requires additional files for the toolkit. Call GE Fanuc PLC Technical Support for more information:

USA and Canada…… 1-800-GEFANUC (1-800-433-2682)
All other Nations…… 804-978-6036

5. Importing Logicmaster 90 Folders into Control

Control provides the capability to import Logicmaster 90-30 (models 350 or higher) folders using version 4.0 or higher, into Control. (Logicmaster 90-30 folders created prior to Version 4.0 must be updated to Version 4.0 before attempting to import.)

Control also provides the capability to import Logicmaster 90-70 folders, version 4.0 or higher, into Control. (Logicmaster 90-70 folders created prior to release 4.0 must be updated before attempting to import.)

Important Notes about Retentive Attributes for Variables when importing Logicmaster 90 Folders.

The Retentive attribute of data is associated with the Variable (IEC definition) in Control. Retentiveness in Logicmaster is associated with the Reference Table (%I, etc) or the instruction. This Version of Control has increased checking on Retentive to eliminate problems associated with the import of folders from Logicmaster to Control. Variables with conflicting retentive attributes, starting with Version 2.10 Service Pack 2B are treated as errors when the program is compiled or built. With this Version (2.20) the conflicts are treated as errors but an option at the Equipment Folder has been added to allow this error to be treated as a warning. IT IS STRONGLY SUGGESTED THAT YOU DO NOT TURN OFF THE ERROR FLAG, BUT INSTEAD UNDERSTAND AND FIX THE RETENTIVE CONFLICTS.

- As you create a program in Control retentive conflicts are flagged as you enter the program. These conflicts are resolved as you develop the program
- Importing programs from Logicmaster can result in retentive conflicts which will be flagged as errors on compile or build. The retentive conflicts result from the same Reference addresses being used on coils /contacts and on register type instructions. An example of this would be %M 1, and %M2 used on coils, %M1 being non-retentive and %M2 being retentive and %M1 also being used as the output of a MOVE instruction. The move instruction treats all 16 bits as either retentive or non-retentive.
- Previous versions of Control would set the retentive attribute on the variables based on the first usage of the variable. This could result in the variable being set as an INT and non-retentive. The individual bits, if used on coils, would each have its retentive attribute defined by the type of coil instruction used. Importing from Logicmaster could result in conflicting retentive values or coils could change from non-retentive to retentive.
- This release of Control has been changed to set all variables for Reference table %M or %Q to BOOL and to typecast the variable if it is used on a non-bool instruction. This allows each boolean bit to have its retentive state individually controlled.
- Retentive Errors on existing folders should be fixed by removing casts on individual booleans and adding casts to non-boolean variables with %M or %Q address which are reporting retentive conflict errors.

  An example If %M0001 is an INT on a MOVE and (bool)%M0001 appears on a contact or coil. Change the MOVE to be (int)%M0001 and the coil or contact to be %M0001 with the appropriate retentive state based on the type of coil () or (M).

Control's rules about variable, block and program names differ from those for Logicmaster 90. To minimize the time required to prepare the Logicmaster 90 folder and reduce the errors generated during the import operation, make sure the Logicmaster 90 block names and nicknames conform to the following rules:

- Variable names and block names cannot contain the following characters:

double underscore	**#**	**+**	**-**	**@**
<	**>**	**=**	**&**	**%**

A variable name (nickname) that contains any of the characters listed in the above table will be considered invalid. Application folders should be reviewed for accuracy prior to import. Any invalid variable names will be discarded, and the reference address will be used instead.

- Variable names may not be used as program or block names. All block names must also be changed to be compliant with the naming restrictions before being imported.
- The following set of reserved words may not be used as variable, program or block names. In addition to the reserved words, function block names are also reserved words, and may not be used as variable, program or block names.

ACTN1, ACTN2, ACTN3 ...	ACTION	AND
ARRAY	AT	ADD
BODY	BY	BWAND
ANALOG_STATE	BOOL	BOOL_STATE
BWOR	BWXOR	BYTE
CONN1, CONN2, CONN3 ...	CASE	COMMENT
CONFIGURATION	CONSTANT	
DATE_AND_TIME	DELAY	DESCRIPTION
DINT	DO	DWORD
EDGE	ELSE	ELSIF
EN	END (reserved word for Series 90-30 and VersaMax)	END_ACTION
END_CASE	END_CONFIGURATION	END_FB_INTERFACE
END_IF	END_PROGRAM	END_REPEAT
END_RESOURCE	END_SEL	END_SIM
END_STEP	END_STRUCT	END_TRANSITION
END_TYPE	END_VAR	ENO
EXIT		
FALSE	FB_INTERFACE	FOR
FROM	FUNCTION	FUNCTION_BLOCK
FUNC_INTERFACE	IF	INITIAL_STEP
INT	INTERVAL	JUMP
LANGUAGE	LREAL	MACRO_STEP
MCR	MOD	NOT
OF	ON	OR
PRG_INTERFACE	PRIORITY	PROGRAM
PTR	READ_ONLY	READ_WRITE
REAL	REPEAT	RESOURCE
RETAIN	RETURN	RPTR
SEL_BRANCH	SIM_BRANCH	SINGLE
SINT	STACK_SIZE	STATIC_DATA_SIZE
STEP	STRING	STRUCT

SUMMARY	SUB	STEP1, STEP2, STEP3, ...
TRANS1, TRANS2, TRANS3, ...	TASK	THEN
TIME	TO	TRANSITION
TRUE	TYPE	TYPE_EXTERNAL
UDINT	UINT	USINT
VAR	VAR_ACCESS	VAR_EXTERNAL
VAR_GLOBAL	VAR_INPUT	VAR_IN_OUT
VAR_OUTPUT	VOID	WHILE
WITH	WORD	

Note

The Logicmaster Import function has been extensively tested. However, there may be cases where the logic in very complex rungs does not import correctly. Error messages in the output log stating "Dangling Horizontal", "Illegal Rung Topology", "Dangling Vertical", or "Internal Error - Unable to Draw Rung Properly" should normally appear upon a compile of the folder if any problems were encountered. However, it is recommended that you print and review the logic after importing the folder.

Check the GE Fanuc Web Site or BBS for more detailed information on importing Logicmaster folders.

6. Temp Folder Differences from Logicmaster 90

Temp folders in Control behave differently than in Logicmaster 90 when doing a load to Temp. Logicmaster 90 clears everything in the Temp folder before doing the load. Control clears only the items that are selected to be loaded. It is recommended that the Temp folder be cleared or deleted before a load to Temp is done.

7. LD Compatibility with Logicmaster 90

Control has an option setting that facilitates sharing Ladder Logic PLC programs between Logicmaster 90-70 and Control. This option is not necessary for the 90-30 since programs created are compatible unless you create rungs that extend beyond 10 columns. When you use Control in LM90 Compatibility mode for a 90-70 folder, you can store a folder to the PLC and load it into either Logicmaster 90 or Control.

Using Logicmaster 90-70 Version 6 or later or Logicmaster 90-30 Version 4 or later, you can upload a Control-created RLD program from the PLC into the TEMP folder (or an equipment folder with a name that matches the program name in the PLC). Logicmaster will indicate an EQUAL status and be able to monitor activity in the PLC.

Likewise, Control will be able to upload a Logicmaster 90 created RLD program from the PLC and go ONLINE and EQUAL. You will be able to make changes to the program and update the program without having to STOP the PLC.

The Compatibility mode can be activated from the Workbench. With the Browser window selected, go to the Tools menu, select Options, then select Equipment Folder. The Equipment Folder Options dialog box allows you to enable or disable LM90 Compatibility. The default is Disabled. (The setting will automatically default to Enabled during folder import conversion of an LM90 folder to Control).

The following notes also apply to Logicmaster 90 compatibility:

- Blocks must be less than 16K bytes. A compile error will be issued when in LM90 Compatibility mode if the block exceeds the limit.
- Warnings will be generated when double-wide precision instructions or Calls do not have adequate spacing for the Control display format.
- When loading a program from the PLC that was created with Logicmaster 90, you do not have to compile the program loaded into Control unless changes are made after the load into Control.

8 SFC Compatibility with Logicmaster 90

Folders that contain SFC blocks created with Control are not compatible with Logicmaster 90. You should not attempt to use Logicmaster 90 with a PLC that contains SFC blocks created with Control. For 90-70 folders, SFC blocks will not compile (an error will be placed in the log) if LM90 Compatibility mode is enabled.

Some simultaneous and selective constructs that were allowed in Logicmaster 90 are restricted in Control in order to maintain IEC Compliance. You will need to edit the Logicmaster 90 folder before importing it into Control.

Logicmaster 90 connectors will be changed into directed links during import into Control.

9 Compatibility between Control and VersaPro™

Series 90-30 folders developed with Control or Logicmaster 90 can be imported into VersaPro™. Refer to the VersaPro online help for detailed information on importing Control and Logicmaster 90 folders.

Note

Control supports development of SFC programs for the VersaMax PLC. Version 1.0 of VersaPro does not support SFC. Control programs which contain SFC programs or blocks cannot be imported into VersaPro.

Control will not prevent a user from attempting to upload folders stored to a PLC using VersaPro; however, this practice is not recommended and is not supported by GE Fanuc Automation.

New Features Introduced with Control Version 2.20

1. **Configuration support for the IC697CGR772 and HE693PBM101:** These modules may be configured and programmed with Control.
2. **Programming/Configuration of Series 90-70 CPU Release 7.92 features on CPX 772, 782, 928, 935 CPUs:** This release provides configuration and programming support for the following features: Calling an LD Block from a C program, Clock synchronization and SIO configuration. This version also provides support for bulk memory configuration, Ethernet Global Data import/export.
3. **Programming/Configuration of 90-30 CPUs 363 and 364:** This release adds programming and configuration of the Series 90-30 363, 364 CPUs. EGD on the CPU364 is supported with this release.
4. **Floating Point Programming for 90-30 CPUs 350, 351, 360, 363, 364**: Along with the 352 CPU, this version supports software floating point programming for the Series 90-30 350, 351, 360, 363 and 364 CPUs. 90-30 CPU Release 9 or later is also required.
5. **Increased User Memory to 240K for 90-30**: This version supports programming up to 240K with 90-30 CPU Release 9 firmware or later (351 or higher CPU).
6. **Configurable user memory for 90-30:** This version supports configurable memory with 90-30 CPU Release 9 firmware or later (351 or higher CPUs).
7. **Sequential Event Recorder for 90-30:** This version supports the sequential event recorder with 90-30 CPU Release 9 firmware or later (350 or higher CPUs)
8. **Print Preview:** This release supports print preview for logic and hardware configuration. Print Preview for Fault Tables is not supported.
9. **Purge variable:** This feature allows the user to remove all unused variables from the folder. The Purge Variable command is available from the Variables menu in the Variable Declaration Editor Window.
10. **Named Alias:** This features allows the user to create a new variable using the name of an existing variable as the reference address. The variable name used for the reference address must be declared at the same or higher scope than the defined variable.
11. **Variable Watch Window:** A new data monitoring tool is provided with this release which allows the user to select a variety of variables or reference addresses to be displayed in a single window for real-time monitoring and control. Multiple watch windows may be configured, and each watch window has the capability of containing multiple groups of variables (or watches). **Watch Window should not be used if you are connecting to the PLC using serial communications.**
12. **Active X Containment** – This feature allows the user to drop Active X controls within Control's browser.
13. **Fast Coil Search (Goto Coil)** – An option has been added to the Edit menu (F4 shortcut key) to perform a fast search for any coil matching the search criteria. The search criteria is the current operand that the user is on (highlighted) and is based on the variable's name and scope. If the scope of the variable is local, then the search is limited to a local block, otherwise the search starts in the current block then all other blocks and other blocks are opened as needed.
14. **VersaMax Config & Programming of CPU Version 1.0:** This version provides configuration and programming support for the modules listed on page 5. In addition, copy/paste of logic between the Series 90-30 to VersaMax is supported. Control Version 2.20 does not support the Drum Sequencer instruction and Scaling Function Block capability provided by Version 1.1 of the VersaMax CPU (IC200CPU001).

Problems Resolved in Version 2.20

1. **Incorrect operation of logic for optional bool flow input parameter on SHFTL and SHFTR has been fixed**. The behavior for these instructions when the optional boolean input parameter was left blank was inconsistent with LM90, and incorrect. The execution problem has been fixed in this release. **If you were using the SHFTL or SHFTR instructions in your program, behavior during program execution may change if the program is rebuilt with Version 2.20.**
2. **Error message on trying to connect to wrong CPU type does not indicate if the type (70 or 30) or the model (351, 352, etc.) is wrong .** The message only indicates that a mismatching CPU was detected. This has been corrected. The error messages are now more specific.
3. **Autolocated Variables should not be used when creating variables in the Point Reference Tab for I/O modules, or as part of Ethernet Global Data exchange definitions**. Hardware Configuration now requires reference addresses for all variables created for I/O modules, or as part of EGD exchanges
4. **Confusing error messages may be generated in the Ethernet Global Data dialog box.** This problem has been fixed with Version 2.20.
5. **Series 90-70 CPU diagnostic/fault categories go back to defaults when CPU type is changed.** This problem has been fixed in Version 2.20.
6. **APU301 allows range for EOT in follower mode**. Range is now fixed at +8388607 and –833608.
7. **Drag and drop in the browser will not scroll to allow drop on the part of the browser that needs to be scrolled to be seen.** This problem has been fixed in Version 2.20. Drag and Drop now works correctly.
8. **Fatal System Error may occur when opening another instance of Control with a library file**. This problem has been fixed in Version 2.20.
9. **Control produces a fatal system error if a rung containing the PID_IND instruction is copied and pasted in the program logic.** This problem has been fixed in Version 2.20.
10. **Seventy or more transitional contacts in same rung.** Control now handles rungs which use 70 to 80 transition contacts in the same rung in Accept or Normalize mode
11. **SNF Import will fail if there is an array subscript in the Name field of the SNF file.:** This problem has been fixed in Version 2.20.
12. **Printouts can display only 20 characters for variable names. :**This problem has been fixed in Version 2.20.
13. **It is possible for variables to become corrupted if variables are edited in Control and then the program exits before a Save is performed (due to a Fatal System Error, PC losing power or some other reason). :** Control now updates the LD Editor each time changes are made to variables in the Variable Declaration Editor window.
14. **Deleting the reference address on a variable causes the scope to change to local.** This problem has been fixed in Version 2.20. Scope is now correctly maintained.
15. **Default length of a new variable might be set to values other than 1 after inserting arrays. :**This problem has been fixed in Version 2.20.
16. **Find in Reference Table that jumps to end does not clear the bottom on the screen. :** This problem has been fixed in Version 2.20.
17. **Global Use Table Printout does not show overlaps in bit type Tables when 16 or 32 bit types overlap Bools.:** This problem has been fixed in Version 2.20.

18. **Changing a local variable in one VarDec splitter causes all open VarDec splitters to go "not Equal". :**Closing and reopening the editors for the other blocks will correct the problem.
19. **Using Online Edit Dialog on Structure Variables (e.g. Timer.CV) causes Control to crash. :**Use of the Online Edit Dialog on variables that reference fields inside of a structure, such as the CV of a timer, will cause Control to crash. If the direct in-place edit of the online value is used instead Control will operate correctly.
20. **Performing Cut/Paste or Delete/Undo operations on an empty comment could cause Control to crash.** You can now perform a Cut/Paste or Delete/Undo operation on an empty comment.
21. **Entering a comment instruction in the LD Editor, and then selecting CANCEL from inside the comment text dialog box leaves an empty rung, which will generate an error when the folder is saved or compiled.** The CANCEL operation now removes the empty rung in the LD block.
22. **Storing Central Rack System or Ethernet Global Data by itself eliminates Name Resolution.** You can no longer store EGD without storing the rack system, preventing this problem from occurring. Name Resolution information is now always stored with EGD/Rack System configuration.
23. **Descriptions of Variables do not wrap in a consistent manor when displayed in LD Editor.** Control now attempts to insert line breaks at the end of words, whenever possible.

Restrictions and Open Problems

Communications

1. **Time-outs may occur during a store using SNP.** It is possible to lose communications intermittently during a store operation over SNP. The problem may be experienced with very large programs, or if running Control on a PC with little available RAM. To reduce the likelihood of this problem occurring, limit active applications during the store, or add additional RAM. If you experience this problem, repeat the store operation.
2. **Saving folders to Novell drive.** Saving folders to Novell drives that require an 8.3 format is not supported. You must use the newer version of Novell which supports longer filename suffixes.
3. **Performance tip.** For best performance when using the "Store Program Changes" (ALT-S) or Word-for-Word changes feature, you should, upon opening a folder, perform a build using the Rebuild All command. This will allow subsequent Store Program Changes or Word-for-Word changes to occur faster.
4. **Method to expand Target Communications Window (right click on title bar) is not obvious.** To expand this window so that you can view detailed information, click the right mouse button in the title bar of the Target Communications window.
5. **Synchronizing CPU time to Host may cause Run and Stop buttons to display incorrectly for a few seconds.** To correct this problem, disconnect from the PLC and then reconnect.
6. **Fault table continues to show faults after connection with PLC is terminated.** It is not possible to clear the fault table screen when disconnected. To clear any messages logged in the fault table, you will have to reconnect to the PLC.
7. **Incorrect error message**. Disconnecting the communications cable from the PLC for an extended period of time can randomly make the message “Maximum number of users for requested port has been reached” appear. Exiting Control and re-entering may be required to reconnect to the PLC.
8. **Storing block and configuration information in same attempt through the Series 90-30 Serial Port #2 may fail**. Refer to Operational Notes at the front of this IPI for detailed information.
9. **Cannot connect to PLC if both Genius busses in a Dual Bus/Internal Configuration are open**. Close one of the busses to perform the connect.
10. **Wrong Error message on trying to Store Bulk Memory:** If a folder has BMA configured and you attempt to store the folder BEFORE connecting to the PLC, Control displays an error message that the CPU does not support BMA when the error message SHOULD inform the user the programmer is NOT connected to the PLC.
11. **Variable Declaration Table does not display Equality/RTU after Offline/Online transition:** If you go offline or disconnect from the PLC, then reconnect or go online in the Variable Declaration Editor, Real Time Updates and PLC status won't update. To restore Real Time Updates for the Variable Declaration Editor, click outside the Variable Declaration Editor window, then click back in the Variable Declaration Editor window.
12. **Store to PLC successful when the Compilation reports “Conflicting Retentive Attribute” errors for VersaMax folder:** Program will work correctly. Retentive Attribute errors should be corrected.
13. **Real Time Update Stops in Reference tables (Serial Communications):** If you disconnect and reconnect to the PLC from the Fault Table without closing the Fault Table, Real Time Updates in the Reference tables, Watch Windows, and LD Editor can stop updating with no indication of a problem. To restore Real Time Updates, resize the window.

14. **Control incorrectly reports "Not Connected to 90-30 PLC Error 82" message after a store to the PLC via Ethernet, when Ethernet board is not configured:** If the hardware configuration has missing Ethernet modules or is configured with an Ethernet module with inappropriate IP address in its parameters, the user will get the (82) Not Connected to PLC error after storing logic to the PLC via Ethernet. However, the logic is stored, and the PLC Status shows connected. If the user adds an Ethernet module with IP address, the store will be completed successfully without the error message.
15. **Replacing a non-retentive coil with a retentive coil causes a Series 90-30 PLC folder to lose equality with the attached PLC:** If you attempt to make an online change, replacing a non-retentive coil with a retentive coil, Control will allow you to process as a Word-for-Word change. However, the Var Dec Editor will lose equality with the PLC. To restore equality, verify Global Vars with the PLC.
16. **Name mismatch Error if Hardware Configuration is stored to a cleared PLC for folders with names longer than seven characters:** If hardware configuration is stored to a PLC which has previously been cleared, and the folder name is longer than seven characters, the PLC Program name is incorrectly set to the first seven characters of the folder name. The PLC program name recognized by software configuration is the last seven characters of the folder name. To prevent this problem from occurring, be sure to store both hardware and software configuration to PLCs which have been previously cleared.

Hardware

1. **Copying and pasting a Type 2 Ethernet module from one folder to another does not copy and paste EGD and Name Resolution entries.** After performing a paste, you will need to go to the Ethernet Global Data and Name Resolution menu items and enter the values manually.
2. **Storing HWCFG does not store Genius configuration to blocks and there is no message telling you block configurations are not being stored.** You should store the configuration from the Genius Configuration tool (accessed by choosing Expand Bus from the right mouse button popup menu). You will need to open the Genius Bus objects one at a time and store them.
3. **Reference Addresses on Hardware Modules - drag and drop changes them.** If you manually change the reference addresses of modules to overlap, and then dragged one of the overlapping modules, the module (on insert or drag) re-evaluates the reference address to make sure it is not conflicting. Since the module is overlapping, it resets the address to the next available location to remove the conflicting range.
4. **Can't set Constant Sweep higher than 2550 milliseconds**. The constant sweep time cannot be set higher than the Watchdog Timer, which has a limit of 2550 milliseconds.
5. **Pasting a Genius bus to the browser then double clicking on it causes Fatal System Error**.
6. **Configuration does not verify equal after storing a 350 or 360 configuration to a 351 / 352 CPU**. Storing a 350 or 360 configuration to a 351 CPU results in configuration not equal. Change HWCFG to 351 to fix.
7. **Browser focus can get confused on Genius Dual Bus**. Browser can get confused as to which bus the primary or the starred should have focus. Leave the browser and return to fix the focus
8. **Name Resolution and EGD files missing Type 2 Ethernet adapter name in redundancy mode.** The Type 2 Ethernet adapter should have separate names in the primary and backup. Only the last name entered appears. This does not cause operational problems.
9. **Aborting Clear of a large folder in 90-70 PLC may cause Fatal System Error on Windows 95.** After Storing to a 90-70 PLC a program of substantial size, containing name resolution and EGD, if the PLC is cleared using the Utilities Clear Dialog, a Fatal System Error may occur when running on Windows 95, if the clear operation is aborted prior to completion.

10. **After a Load of Hardware Configuration, if the Network Address Name field is edited before the Adapter Name has be redefined on the Ethernet Global Data dialog, it will be impossible to exit from the dialog.** This problem can be avoided by re-entering the Adapter Name after the load before editing any other fields in the EGD dialog. If the Network Address Name field is accidentally edited first then Control must be killed through the task manager.
11. **When configuring the HE693PBM101, the configuration of Manufacturing Specific Data in the fields Mfg 1, 2...15 is not taken into account.:** Thus, communication to Profibus slave devices that require Manufacturing Specific Data is not supported in this release.
12. **Genius Field Control BIU configuration does not recalculate the starting address when the length is changed:** When Genius Field Control BIU configurations are changed, the length and starting address need to be verified and corrected if necessary.
13. **Control generates illegal OFF/ON PRESETS for the type A counters on the VersaMax High Speed Counter:** Changing High and Low Limits can cause the Presets to change to incorrect values. To correct, check the Presets and Preload value and enter correct values.
14. **It is possible to create hardware configuration for the VersaMax ALG630 module which will not store to the PLC:** If you create configuration for the ALG630, store to the PLC and detect a “System config mismatch" error in the PLC fault table, you need to verify all parameter settings using the VersaMax hardware documentation and store hardware configuration with correct parameter settings.
15. **Help button does not work on Genius Bus "Device Catalog under Windows 98 and Windows NT 4.0.**
16. **Cannot type in path for Profibus *.GSD file.:** (NT only) To select Profibus GSD files, when running Control under Windows NT, browse to the file and the extension comes up as .gs? If the file is located on a network drive, you will need to Map the drive.
17. **Series 90-70 CGR772 and CGR935 CPUs do not support RTU protocol:** Control incorrectly allows serial port configuration for the RTU protocol, which is not supported by the CPU. Do not use this protocol configuration for the CPU serial ports.

Workbench

1. **Default Drive may be blank if previous work in Control referenced a network drive:** Dialog boxes which reference the default drive may contain blank fields if previous functions performed in Control (like OLE Containment) set the directory to a network drive which was not mapped. To correct, simply reselect the default drive and folder location in the dialog box.
2. **Save As function**. Premature termination of the product may occur if you attempt to do a “Save As” function to a disk (floppy disk or hard drive) that has insufficient space. Refer to Operational Notes at the front of this IPI for detailed information.
3. **Losing track of active windows from menu.** You may not be able to see all the active windows in the list displayed from the Window menu. Active windows can still be found on the screen.
4. **The Save Changes dialog only appears in the Equipment Folder when the folder is first created.** The Save Changes dialog box appears the first time you close an equipment folder after it has been created. Operations such as Delete and Cut will not cause the Save Changes dialog to be displayed. If you create a new folder and exit, you will be prompted to save the equipment folder. However, if you create a new folder, insert some blocks, and then delete a block, you will not be prompted to save, because the deletion saves the folder automatically.
5. **Save As does not work to server name for networked drives.** You should map the drive to a letter.

6. **Importing a block from the Librarian does not include the blocks that the imported block calls.** You will need to manually import blocks that are called, or create temporary blocks with the same names as those being called.
7. **Pasting a special object into the browser with same name as the program name generates a fatal system error:** If pasting a special object into the browser, make sure that the object name is different from the program name.
8. **%L variable cause Online updates to blank out in PSB and SUBR:** (Series 90-70 only) If a %L reference address variable is displayed on the screen in a PSB or SUBR block, all real time updates are blanked out. This is true for the LD Editor and Variable Declaration Editor view. To prevent this from occurring, do not use %L addresses, or be sure to scroll the %L address off the screen before attempting to enable RTU for the window.
9. **Cannot Insert Object by 'Create From File' if object is saved in Office 95 or Office 95/97 format (Control crashes).** Make sure all documents inserted as objects are saved in Office 97 format.
10. **SFC program goes Not Saved after import, and a rebuild all:** To correct, perform a Rebuild All two times.
11. **Wrong floppy count is displayed when restoring a folder from multiple floppies:** If a folder is backed up to multiple floppies and the user then attempts to restore the folder from backup, Control displays incorrect messages when prompting the user to insert a floppy. For example, "Please, Insert disk number 1 of 1" appears for inserting the first floppy instead of "1of 2", and "Please, Insert disk number 2" appears for inserting the second floppy instead "2of 2". Simply insert the disks in order, ignoring the count displayed in the prompt.
12. **Selecting Network button on Import Equipment Folder may cause Control to crash:** If the user selects the "Network" button on the "Import Equipment Folder" dialog, and network disks are displayed (which are not mapped to a drive), Control may crash. To reduce the likelihood of this occurring, make sure that all network drives are mapped.
13. **Save As does not function reliably after "LOAD" to "temp" folder:** If you need to load the contents of the PLC into the Temp folder and save Temp to another folder name, be sure to save the temp folder first, then use Save As to save Temp to another program name.
14. **"Save As" loses EGD variable definitions when Control is connected to PLC:** If you save an equipment folder containing EGD configuration to another folder name using the Save As function while Control is connect to the PLC, you may lose part of the EGD configuration. To keep this problem from occurring, disconnect from the PLC before performing the Save As function.
15. **Status Toolbar freezes after clicking "OK" to daylight savings window** If the beginning or the end of daylight savings time occurs while Control is running, and the user selects "Yes" from the Windows' message box that adjusts the PC's clock, then the status bar in Control will freeze. To return to normal operation, close and reopen the equipment folder.
16. **Selecting How To Use Help from the Help menu bar fails, reporting a missing wb.hlp file:** To view this topic, first select the Contents, then How to use Help will work once.

Logicmaster Compatibility

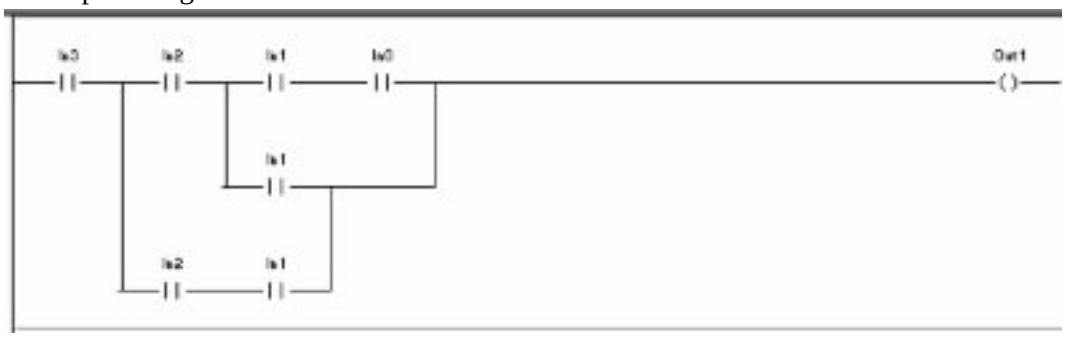
1. **If a Control folder is stored to a Series 90-70 PLC with LM90 Compatibility mode set, and then uploaded into a new folder (including "temp"), LM90 Compatibility mode is not set in the new folder.** This can cause Control to lose equality with the PLC. To maintain LM90 Compatibility mode in the new folder, select Tools menu, Options, Equipment Folder. Check the LM90-70 Compatibility box.

2. **Folder conversion of HEX constants.** Constants programmed as HEX and displayed as HEX in Logicmaster 90 will display in decimal format after importing or loading the folder into Control.
3. **Logicmaster 90 and Control using the same COM port.** After using Logicmaster 90, you must shut down Logicmaster 90 before attempting to use Control with a serial connection to the same port that Logicmaster 90 used. If you do not shut down Logicmaster 90, you will receive an error message stating that the requested COM port could not be opened.
4. **Folders created in Versions 1.0 and 1.1 will not compile Array Move instructions**. You must adjust the ***SNX, DNX***, and ***N*** operands because their data type has changed from INT to UINT.
5. **A type cast of a variable located in %P memory that specifies a length that extends beyond the last variable located in %P will cause the size of the %P table to be incorrect.** Execution of a folder that has this problem will cause the CPU to Stop/Fault with Error message of Program References exceed those configured in PLC. To correct this, a variable should be declared that is located at the end of the type-cast array variable.
6. **Hardware Configuration for 90-70 that contains Genius Global Data will not be able to be loaded by LM90.** The Hardware Configuration data downloaded to the PLC when Genius Global Data is configured is not compatible with Logicmaster 90-70 and therefore cannot be uploaded into a Logicmaster folder.
7. **LM90 program and block descriptions are not imported:** Descriptions need to be reentered after importing a Logicmaster 90 program.

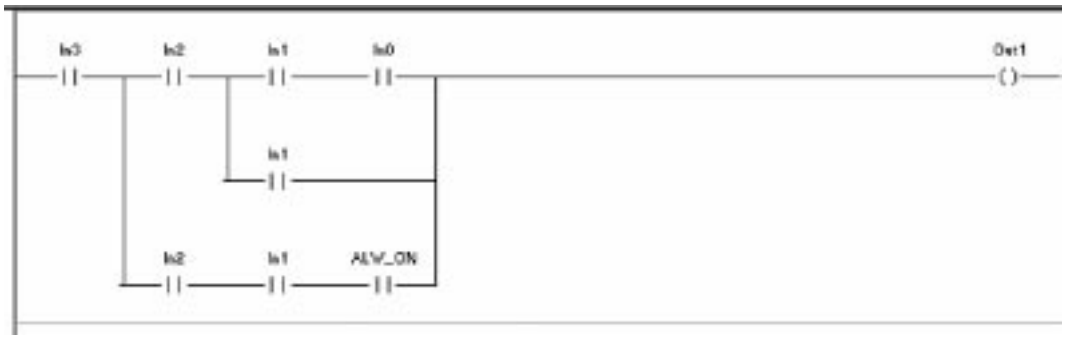
Software Resource and Programming

1. **The length for Data Init Comm instruction is incorrectly set if the user does not bring up the Data Init Comm dialog box.** If the information for the Data Init Comm instruction is set through the Insert Variable dialog box (instead of the Data Init Comm dialog box), the length is not correctly set. The incorrect length can then be stored to the PLC. To ensure that the length is correctly set, double-click the function block, enter data in the Data Init Comm dialog box and click OK.
2. **Control can lock up if an invalid data file (.DI file) is imported into a Data Init instruction.** If a data file is imported into a Data Init instruction, which is not appropriate for the function block type (for example: importing an ASCII file for the Data Init Comm function), Control can lock up. To reduce the likelihood of this problem occurring, verify the .DI file before doing the import.
3. **A Fatal System Error may occur if a contact is inserted in front of a series of three or more subroutine calls.** If LD Editor is in insert mode and a contact is placed into column one after having placed a Subroutine call in column one with additional subroutine calls in columns 2 and 3, a fatal system error will occur. If this error occurs, any changes in the active edit session (which have not been explicitly saved) will be lost.
4. **Floating-point instructions.** If the CPU is changed from a non-floating point to a floating point CPU while the LD Editor is open, instructions requiring a floating-point CPU will not display. To view these instructions, close and re-open the LD Editor.
5. **Parameter Edit dialog box.** The Parameter Edit dialog box allows 64 characters for the description field, but will display only 57 characters from the Header dialog box.
6. **Deleting all instructions in a rung does not delete the rung.** To delete a rung, you must select the rung by clicking to the left of the power rail and then delete the rung.

7. **Complex 90-30 Boolean rungs failing on compile.** Some 90-30 complex boolean rungs, such as the one in the following example, fail on compile. The error message “Logic sub-path cannot enter in the middle of another sub-path” is generated.



To work around this problem, insert an ALW_ON contact as a placeholder in the logic, as shown in the following example.



8. **Copying and pasting rungs from SFC to LD.** You cannot copy and paste rungs from an SFC block to an LD block or from the terminal LD editor in SFC to an LD block. However, you can copy from an LD block and paste into the terminal LD editor within an SFC block.
9. **Move instructions in 90-30 Equipment Folders.** In a 90-30 folder, inserting a Move instruction without enough space between it and the next Move results in data flow from output of first move to input of second move which is not allowed in a 90-30. To avoid this, add sufficient space between Move instructions to allow the operands to appear. To adjust the placement of the Move instruction, click once on the Move instruction, cut the instruction, and paste it farther away from the preceding Move instruction.
10. F**ooter problem when printing Use Table from a block.** Printing Use Table from a block results in the footer displaying a block name when it should not.
11. **Variables that are type cast to a larger data type are not found as implicit use in Search**. You must search directly for the reference address if it is type cast in an editor.
12. **Zoom size change does not work if Zoom is typed into LD Edit control**. Click the pull-down control for the combo box so that all the entries are displayed (75%, 100%, 150%, etc.). Now type the desired Zoom size into the box and press ENTER with the pull down list still open. The Zoom size should now be properly reset. An alternate way of setting the Zoom size is to choose Zoom from the View menu.
13. **In LD Editor, data entries which are not completed are lost if you click outside the LD Edit window**. Be sure to complete a data entry before clicking outside the LD Editor.

14. **The LD Editor gives an incorrect output message**. If you insert a named variable of local scope with an address and then use the same name in LD logic, but you give it Configuration scope and no address, you will receive an incorrect error message, “Variable and called block have the same name”. If you give a Data Init instruction a length that is too large, the error message given is “Invalid Array Operation”.
15. **PSB Bool Parameters are allowed as actual parameters.** PSB parameters of type BOOL are incorrectly allowed to be passed as actual parameters to other PSB or External Blocks. This should not be allowed since the PLC does not support this.
16. **Pasting a rung with a call to a “C” block into a folder where the type of the block is a PSB, does not correct the call instruction.** If a rung with a call to “C” block from one folder is pasted into a second folder where there is a PSB with the same name and same parameters, the rung will incorrectly continue to show the call as CALL EXT. To correct, delete and replace the call in the rung.
17. **Use of %S32 (continuation) directly as an operand may cause programs that compile correctly to not be able to be uploaded in the 90-30.** If the %S32 reference address is programmed on contacts directly, a program that has been compiled and downloaded to the PLC, will fail on the decompile after a load. Use of %S32 directly should be avoided. The continuation coil and continuation contacts should be used instead.
18. **Instructions with two word-long variables can generate “Connect 15” error message:** (Series 90-70 only). Equipment folders configured for LM90 compatibility mode require two columns for all variables which are two words in length (DINT,DWORD,REAL). If the column space is not available, the message “Cannot draw rung – connect 15 error” will appear. To correct, move the instructions further apart or move vertical shunts over to create additional an additional column next to the instruction.
19. **OR instruction gets wrong length when using array variables:** (Series 90-70) For the OR function, if you place an array variable on IN1 and the same array variable on Q with a Constant or Variable of length 1 on IN2, the instruction picks up the length of the array and treats the variable of length 1 as if it were the same length as the array. If you must use variables for the OR function, make sure each parameter variable is an array variable of the same length.
20. **Bit Sequencer length cannot be set without a variable on the ST input:** ST input should be optional. If using the Bit Sequencer function, always configure a variable for the ST input.
21. **Vertical Shunts between MAN,UP, and DOWN input on PID_IND instruction generates a Recoverable System Error on compile:** To correct, connect the inputs to the power rail, rather than connecting them together using shunts.
22. **Deleting a comment in SFC then doing an Undo causes text from another comment to replace original text:** If this occurs, the text will need to be reentered.
23. **SFC Run-Mode-Store resets the SFC network back to initial step:** Run-mode-store should not reset an SFC network back to the initial step. To keep this from occurring, do not use Run-Mode-Stores with Series 90-30 or VersaMax SFC programs, Instead, use Word-for-Word changes or Stop-Mode-Stores.
24. **90-30 SFC editor-"OVR" mode switches back to "INS" mode after overwriting 1 transition:**- In the 90-30 SFC editor, "OVR" mode switches back to "INS" mode after overwriting one transition even though the "Insert" key is not pressed.

25. **If you type cast an array index to use as a variable for function parameters which require structures, Control can crash when the logic is compiled.** Example: Create the following variable (Name: RA_VAR, Reference Address: %R500, Length: 5, Type: INT, Scope: default). Insert a PID_IND function and use RA_VAR[2] as the PID instance name (Control will cast the variable to type PID_INT). To avoid the crash, do not use an array element on the instance parameter for a function block.
26. **Inconsistent warnings concerning ALW_ON contacts in a Series 90-30 compile with unnormalized logic:** A warning is issued during a compile when the user has a rung with a vertical shunt before the first contact stating “Short circuits will be replaced by ALW_ON contacts” which is expected. However in some cases, particularly rung #1, ALW_ON contacts may be added for this same case without warning the user. Be aware that all rungs require a contact in location 1,1.
27. **LD Editor option "Accept Rungs" is set after creation of every new block or load of a block:** Whenever a new block is created (either in the Editor or by a load), the LD Editor "Accept" option is turned on (even if it had been explicitly turned off). If you want the Accept Rungs checkbox turned off, go to the LD Editor Options dialog box and deselect the option after creating a new block.
28. **Error pasting blocks that contain the SER instruction from Series 90-30 folders to VersaMax folders.:** Control does not correctly copy logic containing the SER function between Series 90-30 and VersaMax folders. Blocks copied and pasted, which contain this function, may become corrupt and should be deleted. Users should not attempt to paste blocks with SER instructions into VersaMax™ folders.
29. **WIN98-Print Preview Page breaks do not match actual printouts:**
30. **External EXM “C “ program creation is sequence dependent:** EXM programs should have an LD block with the same name as the program. When incorporating EXM programs into your equipment folder, create the EXM program before creating the associated block.
31. **Print Range "Rung Range" does not work**: If you set a rung range from the Print Range dialog box, the range is ignored. The entire block or program is printed.

Variables

1. **Error message during Auto-Variable Location.** When an error occurs using auto-variable locate, the error message is general. The conditions are that the configured references have been exceeded or that the range for auto-variable location has been exceeded. To view the range used for auto-variable location, expand the Browser until the Resource is displaying in the left side of the Browser window, then double-click Resource to open the Resource Editor. From within the Resource Editor window, select Program from the Control menu and choose Auto Variable Locate.
2. **Selecting multiple items in Variable Declaration editor.** You must use the keyboard to select multiple variables in the editor.
3. **Deleting variables at the Local Scope.** If the same variable name exists at Local and Config scopes and the local scope one is used, the Config Scope one can not be deleted from the Block Editor window. You can, however, open the Config Scope editor and delete the variable name from there.
4. **All stored values after a blank stored value in a structure are lost:** In order to avoid this problem, the user must enter explicit stored values for all fields preceding any field for which an explicit stored value is desired.
5. **AVL fails to byte-align %M references:** The starting address for the Bit Sequencer must be byte aligned. If you assign a variable which is to be Auto-located, Autolocate may not assign a byte-aligned reference, generating errors when the program is compiled. To prevent this from occurring, assign a variable with a byte-aligned address to the Bit Sequencer function.

6. **REAL variable's stored value cannot be entered without decimal point and tenths digit:** Integer values are not accepted for Stored values for variables with a type of REAL. Workaround is to enter the decimal point and a 0 in the tenths position
7. **Search and replace of Variable reports error with no explanation:** If the replace string is the same as another variable at a different scope, the Search and Replace will generate an error with no explanation. If this occurs, search for the replace string to find the usage of the variable before replacing.
8. **Logic paste causes variable scope to change from Program to Config if duplicate variable names with different addresses are involved in the paste:** Any program-scope variables which are being pasted and have the same name as variables in the target folder and have different addresses will have their scope changed to config. To verify that the variable scope is correct, inspect variables after pasting.
9. **Copy paste of logic causes non-retentive variables to change to Retentive after paste.:** New variables default to retentive variables. If logic selected for copy/paste contains variables which are new to the program or block, the default state will be set to retentive. Be sure to verify default state for variables contained in logic which has been inserted via copy/paste.
10. **Purge variables affects variables marked as "show external" :**Variables marked "show external" are often intended for use by the HMI and may include inputs or outputs not directly used in the PLC program. The Purge variable operation deletes all variables not used in the PLC program. Be aware of this operation when selecting Purge Variables if variables are used by HMI applications.
11. **Sort by description does not function properly after changing descriptions**
    Setting OVR while sorting variables by description causes the variable to appear at the end of the list. To work around these problems, sort twice when sorting variables by description.

Redundancy

1. **Genius Output transfer check not performed.** CPU redundancy is supposed to check that all Genius outputs and being transferred and warn if they are not. This check is not done. The check needs to be done manually.
2. **Fatal System Error closing objects in browser.** In Dual Bus/ External mode if an object is inserted in the browser, changing views or closing the object causes a Fatal System Error.
3. **Equality not displayed correctly with CPU Redundancy.** When using CPU redundancy in “Single View” mode, even though both CPUs are configured identically, only the view of the Hardware configuration for the CPU to which one is attached will show equal. If the programmer is attached to the Primary CPU then the view of the Secondary configuration will show “NOT EQUAL” and visa versa.
4. **Genius Bus must be expanded before proper configuration can be created for Redundant Controller and Dual Bus.** After a GBC has been created, the bus must be expanded at least once, even if there are no blocks to be configured in order for the redundant Bus Controllers to be properly configured.

Installation

1. **Copy Protection/NT CHKDSK Conflict:** Control uses a version of CrypKey Software Licensing System. Once installed, this software prevents NT's CHKDSK tool from checking the drive during startup. The user will get the error message:

   Checking File System on C: The type of the file system is NTFS (or FAT) Can not open the volume for direct access.
   Microsoft references this problem in Knowledge Base article, Q176504. They recommend disabling the NetworkX device (used by CrypKey) in the control panel and restarting the system. Only then can CHKDSK be used on the Boot partition. Before using Control again, the NetworkX device needs to be re-enabled.
2. **Install to c:\cimplicity\control leaves CIMPLICITY group in program files:** To correct, first uninstall a previous version of the programmer. Then install Version 2.20 to c:\cimplicity\control rather than the default directory. The new program group under GE Fanuc software (from the start menu->programs) was created as expected. However, there is still a CIMPLICITY group with sub-group "Other" and CCU and Fault Table as separate executables that should have been removed by the uninstall. Workaround is to use Windows tools to move the icons to the new group or remove them if they are not needed.

Watch Window Control

The Watch Window Control is a new feature in Control that allows you to construct a window containing variables and reference addresses which can be viewed online. This section describes several problems which have been identified relating to online monitoring of watch window variables. **NOTE: Do not use watch window control if you are using serial communications with the PLC.**

1. If the cable connecting the programmer to the PLC (serial or Ethernet) is disconnected, or a remote disconnection occurs for any other reason, the watch window will not automatically reconnect when the connection between the programmer and the PLC is re-established. The online values will show "????" in this case. This also can occur during an Alt-S operation. To restore online monitoring of watch window variables, you must disconnect and reconnect to the PLC.
2. If a watch window is present in the folder, any changes in protection access level (privilege level) for the PLC will not become effective until a disconnect and reconnect to the PLC is performed. (serial or Ethernet connection).
3. If the user has one instance of Control open with a watch window which is also online and connected to a PLC (via serial connection) and the user then subsequently opens a second instance of Control under the same conditions, the watch window will lose connection with the PLC and the online values will show "????". This works OK if the connection is made via Ethernet.
4. Do not add variables located in %L reference space to the watch window.
5. If the user tries to transfer more than 10 variables from the Online column to the Saved column while the PLC is in Run mode, Control may take several minutes to perform the operation – and in some cases may lock up. If Control locks up while attempting to perform the transfer, the user must close Control through Window's Close Program dialog box. This dialog box can be accessed by entering CTRL-ALT-DEL from Control. To prevent this problem from occurring, select fewer than 10 variables when transferring data from the Online column to the Saved column in the Watch Window.
6. The default override color is white which does not show up against the white background. The user should change the override background color to another color in order to see if properly. This can be done through the watch window menu->edit->properties dialog