PAC Project 9.2 Release Notes

Welcome to PAC Project 9.2

Welcome to version 9.2 of Opto 22's PAC Project™ software suite for industrial automation, remote monitoring, and data acquisition applications.

PAC Project comes in two forms: PAC Project Basic and PAC Project Professional.

PAC Project Basic

PAC Project Basic is included in your purchase of a SNAP PAC controller and can also be downloaded for free from our website, www.opto22.com. PAC Project Basic is all you need for most monitoring and control needs. It includes the following software applications:

- **PAC Control**™ for developing control programs (*strategies*) to automate processes, monitor equipment, and acquire data from processes and equipment
- **PAC Display**™ for creating HMIs (human-machine interfaces) for technicians and operators to use
- **PAC Manager**™ for configuring hardware and troubleshooting
- **EtherNet/IP Configurator** for setting up EtherNet/IP messaging between an Allen-Bradley® Logix™ controller and Opto 22's SNAP PAC I/O

PAC Project Professional

PAC Project Professional is designed for more complex projects, especially those requiring OLE for Process Control (OPC), database connectivity, multiple PAC Display seats, multiple protocols, multiple networks, controller redundancy, or legacy hardware support.

PAC Project Professional can be purchased as a suite or as individual applications to suit your needs. The suite includes the following software applications:

- **PAC Control Professional** for developing control programs
- **PAC Display Professional** for creating HMIs
- **PAC Manager** for configuration
- **OptoOPCServer**™, an OPC 2.0-compliant server for serving SNAP PAC System I/O and variable data to OPC clients, including PAC Display. OptoOPCServer is strongly recommended for multiple seats of PAC Display.
- **OptoDataLink**™ for exchanging SNAP PAC System data with databases (including Microsoft SQL Server, Microsoft Access, and MySQL), and text files
- **EtherNet/IP Configurator** for setting up EtherNet/IP messaging between an Allen-Bradley® Logix™ controller and Opto 22's SNAP PAC I/O

More Information on PAC Project Basic and Pro

Free product support is included with both PAC Project Basic and Professional. Free training and free pre-sales engineering help are also available. For product support, see "For Help" on page 7. For training, see our website under Support > Training or email training@opto22.com. For pre-sales engineering, call 1-800-321-6786 or 1-951-695-3000.

All PAC Project software runs on Microsoft® Windows® XP, Vista, and Windows 7 workstations. See "Installation Requirements" on page 5.

PAC Project works with all SNAP PAC controllers, SNAP PAC brains, SNAP PAC racks, and SNAP I/O modules.

For more information about PAC Project Basic and Professional, see the following documents. The easiest way to find a document on our website, www.opto22.com, is to search on its form number.

- *PAC Project Software Suite Data Sheet*, Opto 22 form 1699
- *PAC Project Basic and Professional Comparison Chart*, form 1681

Notes for Customers with Older Systems (ioProject and FactoryFloor)

PAC Project is very similar to older Opto 22 software, but there are important things to know **before you install** and use it. If you're moving to the SNAP PAC System from legacy systems, be sure to read these documents first:

- *PAC Project 8.0 Release Notes*, form 1680. See the section, "Notes for ioProject and FactoryFloor Customers."
- *SNAP PAC System Migration Technical Note*, form 1688
- (FactoryFloor customers only) *FactoryFloor to PAC Project Migration Technical Note*, form 1692

New Features and Enhancements

PAC Project now supports the following new devices from Opto 22:

- **G4EB2** brain board (also includes part numbers **G4D32EB2** and **G4D32EB2-UPG**). This brain replaces a 32-channel brain in a mistic serial or Pamux system with an Ethernet-based 32-channel digital brain. G4EB2 brains are Ethernet based and use the OptoMMP protocol, so you can use legacy I/O with the SNAP PAC System without changing I/O or field wiring. See "Notes on Upgrading from G4D32RS to G4D32EB2" on page 7.
- **SNAP-IDC-32D** digital input module, used to sense on/off status for 2.5 to 12 VDC inputs from sources such as proximity switches, limit switches, push buttons, and pilot switches (PNP or sourcing type)

- **SNAP-SCM-CAN2B**, a high-speed serial communications module that provides one input for acquiring data from a Controller Area Network (CAN)
- **SNAP-OMR6-C** and **SNAP-OMR6-A** mechanical relay output modules

As described below, PAC Control has a number of new commands, PAC Display has some useful enhancements, and PAC Manager now provides screens to inspect and configure G4EB2 brains and SNAP-SCM-CAN2B modules.

PAC Control

The following new commands have been added to PAC Control:

- **Set Time Zone Configuration** sets the time zone information for the controller to the local time zone settings.
- **Get Time Zone Offset** gets the offset in minutes from UTC of one of the controller's currently-set time zones. It is used to convert between local time and UTC.
- **Get Time Zone Description** gets one of the controller's currently-set time zone descriptions as a string. It is used to display the name of the controller's time zone(s).
- **Synchronize Clock SNTP** synchronizes the controller's clock with an external Network Time Protocol (NTP) server. This makes sure the controller clock is accurate whenever the command is applied.
- **Convert Date & Time to NTP Timestamp** takes the date and time from an Int32 table and converts it to a 64-bit NTP time stamp, without applying any offset for the time zone.
- **Convert NTP Timestamp to Date & Time** takes a 64-bit NTP time stamp literal, converts it to the date and time without applying any offset for the time zone, and places it in an Int32 table.
- **Float to Int32 Bits** moves the internal bit pattern of a float into an integer 32. This helps parse or create binary data when communicating with other devices.
- **Int32 to Float Bits** moves the internal bit pattern of an integer 32 into a float. This command also helps parse or create binary data when communicating with other devices.
- **Receive Numeric Variable** moves a specific value from the device or file specified in the communication handle to an integer 32 variable.
- **Receive Numeric Table Ex** moves a specific number of elements from the device or file specified in the communication handle to an integer or float numeric table.
- **Bit Copy** atomically copies a bit from one variable or table element into another variable or table element.

PAC Display Configurator

The following new enhancements have been added to PAC Display Pro and Basic:

- You can now add a control engine-driven dynamic attribute to text on a button. Using this feature, a button could be configured with the text, "Begin # batch," where the # is tied to a string variable in the strategy that indicates what kind of cookie is supposed to be made. The # would be replaced by either "Peanut Butter" or "Chocolate Chip" so that the button displays either "Begin Peanut Butter batch" or "Begin Chocolate Chip batch."
- The new AutoCorrect Tags option in the Configurator Options dialog box allows AutoCorrect Tags to either include or exclude tags inside grouped graphics. By default tags inside grouped objects are excluded. Since these dynamic attributes inside a grouped object are not used, if they are included you may receive irrelevant errors when AutoCorrect Tags is run. However, you can choose to include them if you wish.
- In the Window Properties dialog box there is now an option to rescale the window graphics when the window size is changed in that dialog box.
- The new Change Font and Multiply Runtime Height By... configuration options allow you to change the font or spacing of text items listed in a combo box. The Change Font command opens the standard font dialog box. If you change the size of the text, the height of the combo box is changed to accomodate the new size. Using the Multiply Runtime Height By... command you can increase the space beneath each item in the list by a factor of 1, 2, 3, 4, or 5.
- A new option on the Runtime Setup dialog allows you to choose which PC to use to sync the control engine's clock. This option is useful if there are several PCs running the same PAC Display project gathering data from the same control engine because clocks may vary considerably from one PC to the next.
- State changes in alarm points and fill or line color dynamic attributes have been modified in name and behavior. These state changes are now affected by a Hysteresis value rather than a Deadband value. The hysteresis value is applied when the state goes toward normal; when going away from normal, the state changes immediately.

PAC Manager

PAC Manager can now discover a G4EB2 brain on an Ethernet network as a memory-mapped device and display its MAC address, IP address, firmware version, and unit type. In addition you can now use PAC Manager to configure a G4EB2's digital points.

PAC Manager also provides the ability to inspect and configure the new SNAP-SCM-CAN2B, SNAP-IDC-32D, SNAP-OMR6-A, and SNAP-OMR6-C modules.

Bug Fixes

Many bug fixes have been made in the 9.2 version of PAC Project. For a complete list, see the PAC Project Readme file or the Readme file for individual products (PAC Control, PAC Display, and so on).

In addition, see the readme file for your control engine or brain firmware, available on our website at www.opto22.com. To find firmware, click Support > Downloads and filter by Firmware. When you locate the firmware file for your device, in addition to downloading the firmware, click the Related Documents tab and download the readme file, too.

Here are some other useful sources of bug information on our website:

- **OptoKB Article Search**—Click the Support tab on our website and then click OptoKnowledgeBase to find articles by Article No, Title, Text, or Product.
- **OptoSubscriptions**—Use your my.opto22.com account to subscribe to updates on the Knowledgebase, products, downloads, and documents.

Installation

CAUTION: *If you are upgrading to version 9.2 from a version of ioProject older than 7.0, do NOT uninstall ioProject before running the PAC Project version 9.2 installation. If you uninstall first, you will lose all configured control engines.*

Installation Requirements

Here's what you need to install and run PAC Project 9.2 software:

- A computer with at least the minimum processor and memory required for your version of Microsoft Windows, and Ethernet capability. Additional memory may be required for some configurations.
- VGA or higher resolution monitor (Super VGA recommended). Minimum size: 800x600 with small fonts.
- Mouse or other pointing device
- Installed Windows printer (optional)
- Microsoft Windows 7 Professional (32-bit or 64-bit), Windows Vista® Business (32-bit), or Windows XP Professional (32-bit, with Service Pack 2 or higher)

  NOTE: Microsoft Windows server and embedded Windows operating systems are not supported.

- Available hard disk space as shown in the following table:

Application	PAC Project Professional	PAC Project Basic
PAC Control	64.1 MB	63.2 MB
PAC Display	90.1 MB	84.9 MB
OptoOPCServer	17.0 MB	(not included)
OptoDataLink	9.0 MB	(not included)
PAC Manager	26.7 MB	26.8 MB

Application	PAC Project Professional	PAC Project Basic
PAC Utilities	9.4 MB	9.4 MB
EtherNet/IP Configurator	10.1	10.1
Total	226.4 MB*	194.4 MB*

* Installing both Pro and Basic requires a total of 265 MB of hard disk space.

Important Note for Windows XP Users

Due to a Microsoft bug involving how Themes are handled in Windows XP (either with Service Pack 2 or with no Service Pack), a resource leak may eventually cause PAC Project applications to crash.

To resolve this problem, install Windows XP Service Pack 3. Or, you can set the Windows XP Desktop Theme to Windows Classic. See Opto 22 KB49838 for details. KB49838 is an OptoKnowledgeBase article on our website. Either click on the link here or search in the OptoKnowledgeBase on the article number, KB49838, including the KB without any spaces.

Important Notes on Firmware

Use version R9.2a or newer firmware for your SNAP PAC controller, whether or not your system uses controller-level redundancy. (Previously, there was one version of firmware for systems with controller-level redundancy and another version for systems without redundancy.)

Firmware 9.2 is available from our website. To find new firmware, go to www.opto22.com. Click the Support tab, click Downloads, filter by Firmware, and enter the part number for your controller or brain in the search field. Look for "9.2" in the firmware filename, and choose the firmware file for your hardware. Opto 22 hardware is shipped with the most recent firmware, but you should check the website for additional updates that may be available.

For details on the features each firmware version includes, see the firmware README file for your device. To find the Readme, go to www.opto22.com and search on the PAC's or brain's part number. When you get to the product page, look under the Documents tab for the Readme. The Readme can also be found under the Related Documents tab on the firmware download page.

NOTE: If you are using a SNAP-LCE or Ultimate controller, do not upgrade to PAC Project 9.2. Instead, use either PAC Project 8.0 or ioProject. In order to use these controllers with PAC Project 8.0, use controller firmware version 7.2 and Ethernet brain firmware version 7.0 or newer. If you want to use PAC Project software version 8.1 or newer, you must use SNAP-PAC controllers instead.

For additional compatibility information, see form 1693, the Legacy and Current Product Comparison and Compatibility Charts. *To obtain this form, go to the Opto 22 website,* www.opto22.com, *and search on the form number, 1693.*

PAC Project Examples Location

Starting in PAC Project version 9.1, and in order to comply with Microsoft's rules regarding directory structure, we placed all PAC Project application examples in a new location on your hard drive. You'll find PAC Project 9.2 examples here:

- For Windows 7 or Vista—C:\Users\Public\Public Documents\Opto 22\PAC Project 9.2
- For Windows XP—C:\Documents and Settings\All Users\Shared Documents\Opto 22\PAC Project 9.2

Notes on Upgrading from G4D32RS to G4D32EB2

If you upgrade a G4D32RS mistic brick with a G4D32EB2-UPG brain and cover, you'll be able to access legacy G4 digital I/O through Ethernet using PAC Project.

No changes are required to I/O or field wiring. In PAC Project, however, you will need to reconfigure the I/O unit. That's because the legacy mistic brick was addressed as two 16-point I/O units, while the upgrade will be addressed as a single 32-point I/O unit.

In PAC Control, add a new I/O unit (choose G4EB2 as the I/O unit type). Then use the Move To button in the Configure I/O Points dialog to move each point over from the old I/O units to the new one.

For Help

If you have any difficulty using software, documents, or firmware, contact Opto 22 Product Support by email or phone:

Phone:	800-TEK-OPTO (835-6786) 951-695-3080 (Hours are Monday through Friday, 7 a.m. to 5 p.m. Pacific Time)	*NOTE: Email messages and phone calls to Opto 22 Product Support are grouped together and answered in the order received.*
Fax:	951-695-3017	
Email:	support@opto22.com	
Opto 22 website:	www.opto22.com	

In addition, the OptoKnowledgeBase (OptoKB) provides the latest information on support issues and workarounds. Visit www.opto22.com and click on the Support tab for more information.

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Checking for Updates Manually

To manually check for new releases or patches for your Opto 22 software, firmware, or documentation, go to the Support > Downloads section of the Opto 22 website.

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