OPTO 22

ioControl™ 6.1 Release Notes
ioManager™ 6.1 Release Notes

Welcome to ioControl and ioManager Version 6.1

Welcome to the latest version of Opto 22's ioControl and ioManager, part of the ioProject™ software suite. These release notes include information on ioControl and ioManager version 6.1.

- **ioControl** is the flowchart-based programming tool for creating control software for industrial automation, remote monitoring, and data acquisition applications using an Opto 22 SNAP-LCE controller or SNAP Ultimate I/O.

- **ioManager** is an easy-to-use configuration and inspection tool for working with SNAP-LCE controllers and with SNAP Ethernet-based I/O units (SNAP Ultimate I/O, SNAP Ethernet I/O, and SNAP Simple I/O).

The following additional software applications in the ioProject suite are not affected by this release:

- **ioDisplay,** a human-machine interface (HMI) package for building operator interfaces to communicate with a SNAP-LCE controller or SNAP Ultimate I/O controller/brain. ioDisplay offers a full-featured HMI including alarming, trending, and a built-in library of 3,000 industrial automation graphics.

- **OptoOPCServer,** a fast, efficient OLE for Process Control (OPC) 2.0-compliant server for communicating with systems running ioControl strategies. OptoOPCServer integrates these systems with other Ethernet-based Opto 22 systems (standalone I/O units and Opto 22 FactoryFloor® systems) as well as PCs on an Ethernet network running Microsoft® products, third-party packages, and custom applications you create with tools such as Visual C++®.

All ioProject software runs on Microsoft® Windows® XP and Windows 2000® workstations.

Obtaining Software, Documentation, and Firmware

Both ioControl and ioManager software (and Adobe Acrobat PDF versions of their documentation) are included on the CD that comes with any SNAP-LCE controller or SNAP Ultimate brain; ioManager is included on the CD that comes with SNAP Ethernet and SNAP Simple brains.

ioControl and ioManager are also available at no cost from our Web site, www.opto22.com.

The complete ioProject suite is sold as a download or on a CD. ioDisplay and OptoOPCServer can also be purchased separately.

Updated firmware is available on our Web site for the following hardware:

- SNAP-LCE controllers
- SNAP-UP1-ADS, SNAP-UP1-D64, and SNAP-UP1-M64 Ultimate controller/brains
- SNAP-B3000-ENET, SNAP-ENET-D64, and SNAP-ENET-RTC Ethernet brains
- SNAP-ENET-S64 Simple brains

New firmware is required for SNAP-LCE and SNAP Ultimate controller/brains to use ioControl 6.1. New firmware is also required for SNAP Ethernet and SNAP Simple brains if you are using the new high-density digital modules with them.

To find new firmware, go to http://www.opto22.com/support/downloads/Firmware.aspx and enter the part number for your controller or brain in the search field. *Firmware must match the hardware and the ioControl version.* Look for "6.1" in the firmware filename, and choose the firmware file for your control engine. For example, a SNAP-UP1-ADS Ultimate brain would take firmware file UioAD_R**6.1**x.uio (the x may be another letter).

NOTE: For complete information on changes and updates to firmware, see the README files available for download with the firmware on the Opto 22 Web site.

Installation Requirements

Here's what you need to install and run ioControl and ioManager 6.1 software:

- A computer with at least the minimum processor required for your version of Microsoft Windows (1 GHz Pentium®-class or better recommended) and Ethernet capability
- 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 XP (with service pack SP1) or Windows 2000® (with SP4) workstation operating system
- At least 128 MB RAM (256 MB recommended)
- Available hard disk space:
  - ioControl—15 MB
  - ioManager—3 MB

IMPORTANT: Memory Changes for ioControl 6.0 and Newer

For SNAP Ultimate brains running firmware version 6.0 or newer, the amount of battery-backed RAM available for control increased from 256 to 288 KB. SNAP-LCE controllers remained at 512 KB. Battery-backed RAM is used to store persistent variables, variables initialized on download, the autorun flag, and strategy archives.

Due to firmware requirements, the total amount of memory (RAM) available in a SNAP Ultimate brain for storing strategy and variables was reduced from 6 MB to 5 MB in version 6.0. In addition, all variables occupied slightly more space in memory. (SNAP-LCE controllers remained at 8 MB.)

If you are using a SNAP Ultimate brain and a pre-6.0 strategy that is very large, or if you have a large strategy with large tables and many variables defined, it may not fit in the available memory for firmware 6.0 or newer.

As a general rule, always back up your strategy before making any changes. Make sure you have installed the latest firmware. Then try downloading the strategy to the control engine. If you receive an out-of-memory message when you try to download it, try the following ideas for reducing strategy size.

To minimize the size of your strategy, reduce the number and size of tables and variables. You can also shrink your strategy by using subroutines to perform common tasks. (If you use subroutines, check the status code returned after each subroutine is called to make sure the subroutine ran successfully.) You can also contact Product Support for additional suggestions. Contact information is on page 3.

If you still don't have enough memory after making changes to your strategy, consider using a SNAP-LCE controller, which has 8 MB of memory, rather than a SNAP Ultimate brain.

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)
Fax:	951-695-3017
Email:	support@opto22.com
Opto 22 Web site:	support.opto22.com

NOTE: Email messages and phone calls to Opto 22 Product Support are grouped together and answered in the order received.

Check the Opto 22 Web Site for Product Updates

Opto 22 software, firmware, and documentation are continually updated and improved. Check the Software Downloads section of the Opto 22 Web site at www.opto22.com regularly to see if new releases or patches are available for your system.

Also, we recommend signing up at my.opto22.com to receive news about Opto 22 products.

New Features

ioControl

Support for New High–Density Digital Modules

ioControl 6.1 adds support for the new high-density digital input and output modules:

- SNAP-IDC-32
- SNAP-ODC-32-SRC
- SNAP-ODC-32-SNK

Each of these modules provides 32 digital input or 32 digital output points, for a total of up to 512 digital points on a 16-module mounting rack. Features differ from those in standard digital modules; for details, see Opto 22 form #1556, the *SNAP High-Density Digital Module Data Sheet.*

In ioControl, high-density digital modules and points do not require configuration, and individual points do not have point names. Instead, points are usually read from or written to in banks, using a bitmask or a table. The modules are ideal for applications requiring a large number of points in a small physical space, where a strategy can easily loop through all points on the I/O unit or several I/O units. See the *SNAP High-Density Digital Module User's Guide* (form #1547) for more information.

New Commands

ioControl 6.1 includes new commands for use with the new high-density digital modules. Because addressing and communicating with these modules is very different from standard digital modules, we created an entirely new group of commands. See "High-Density Digital Module Commands" in Chapter 10 of the *ioControl User's Guide.*

ioControl commands in the new **High Density Digital Module command group** are:

Turn On HDD Module Point	Get HDD Module Off-Latches
Turn Off HDD Module Point	Get All HDD Module On-Latches
Get HDD Module States	Get All HDD Module Off-Latches
Get All HDD Module States	Clear HDD Module On-Latches
Set HDD Module from MOMO Masks	Clear HDD Module Off-Latches
Get HDD Module Counters	Get & Clear HDD Module On-Latches
Get & Clear HDD Module Counter	Get & Clear HDD Module Off-Latches
Get & Clear HDD Module Counters	Get & Clear All HDD Module On-Latches
Get HDD Module On-Latches	Get & Clear All HDD Module Off-Latches

CAUTION: Remember that standard digital modules require Digital Point commands, and high-density digital modules require High Density Digital Module commands. When you work with digital point states, latches, and counters, make sure you're using commands from the correct group.

As always, be sure to read the details for each command in the *ioControl Command Reference* or in ioControl Help.

New Bill of Materials Printing Option

ioControl 6.1 offers an easy way to view or print a bill of materials (BOM) for the brains and modules required for the strategy, based on the I/O units and points you've configured. The BOM does not include controllers, racks, power supplies, or special-purpose modules (serial and high-density digital), but does include brains as well as analog and standard digital modules. To see the BOM, open the strategy and choose File→View/Print→Bill of Materials.

Easy Method of Copying Points

The new **Copy To** button in ioControl makes it easy to copy configured analog or standard digital points on the same or a different I/O unit. This feature is especially helpful for applications monitoring or controlling banks of similar inputs or outputs. A single configured point can be duplicated to another point on the same or a different I/O unit, to the rest of a module, or to an entire I/O unit in one step. See "Copying a Configured I/O Point" in Chapter 5 of the *ioControl User's Guide* for more information.

ioManager

ioManager adds support for SNAP high-density digital input and output modules. Note that these modules do not require configuration and therefore, like serial modules, they do not appear in the configuration file.

In Inspect mode, you can read and write to high-density digital modules using the new High Density button and dialog boxes. For help in working with these modules, see the *SNAP High-Density Digital Module User's Guide*, Opto 22 form #1547.

ioManager 6.1 also adds an "Is Event Occurring?" flag to the memory map for Digital Events.

Bug Fixes

ioControl and ioManager 6.1 include bug fixes in the areas listed below and others. For a complete list of bug fixes, see the README file for each product (ioControl, ioManager). Readme files are installed in each application's directory.

In addition, see the README file for your control engine or brain firmware, available on our Web site at http://www.opto22.com/support/downloads/Firmware.aspx.

ioControl and Control Engine Firmware

In the ioControl debugger, you can now change the IVAL when an analog point's XVAL is out of range. In binary view mode, you can change the bits of an integer 64 variable.

When adding or editing analog temperature points, the dialog box now correctly shows units as being Celsius or Fahrenheit. (This was a display problem that did not affect the compiler or debugger.)

The following commands now work correctly with points on a Mixed 64 I/O unit:

Calculate & Set Analog Gain	IVAL Set Analog Point
Calculate & Set Analog Offset	Set Analog Filter Weight
Get & Clear Analog Maximum Value	Set Analog Gain
Get & Clear Analog Minimum Value	Set Analog Offset
Get Analog Maximum Value	Set Analog TPO Period
Get Analog Minimum Value	

The following OptoScript for/next loop used to loop once in error:

```
x = 0;
a = 0;
b = -1;
for n = a to b step 1
  x = x + 1;
next
```

The same error occured if *a* was less than *b* and you were stepping in a negative direction. In these situations it now will not loop. If you are using this type of loop, check your code to make sure it still works.

Bug fixes also were made to brain firmware for brains used with Modbus/TCP.

ioManager

Two bug fixes were made for Point-to-Point Protocol (PPP):

• The PPP Incoming Password string in Configuration Mode is now being written to the correct memory map address.

• PPP Modem Initialization strings can have embedded commas.