

# Qlarity Foundry 2.5 Release Notes

---

## Welcome to Qlarity Foundry Version 2.5

Welcome to version 2.5 of QSI's Qlarity Foundry™ for Opto 22. Qlarity Foundry is a Microsoft® Windows®-based design tool that uses the Qlarity™ programming language to help you design user applications for the OptoTerminal™-G70 and OptoTerminal-G75 operator interfaces. Version 2.5 of the software introduces new features and enhanced object libraries for easier programming.

### Qlarity Foundry

Qlarity Foundry software provides all the tools you need to work with user applications, including those used to do the following:

- Create a user application (basic to advanced level)
- Modify a user application
- Simulate an application
- Compile and download a user application to the terminal

Qlarity Foundry comes with your purchase of an OptoTerminal. The software can also be downloaded at no cost from our website, [www.opto22.com](http://www.opto22.com). Full printed documentation is provided when you purchase an OptoTerminal-G70 or OptoTerminal-G75, or is available on Opto 22's website in Adobe® Acrobat® PDF format.

### More Information on Qlarity Foundry

Free product support is included with the OptoTerminal-G70 and OptoTerminal-G75. Free training that includes an introduction to Qlarity Foundry is available. For product support, see [“For Help” on page 3](#). For training, see the Opto 22 website under Support → Training or email [training@opto22.com](mailto:training@opto22.com).

For more information about Qlarity Foundry, see the following documents. Some can be accessed from the Qlarity Foundry Help window, and all are available on the Opto 22 website. The easiest way to find a document on the website is to search on its form number.

- *OptoTerminal Quick Start Guide*, Opto 22 form #1338 (helpful information to get you started and troubleshoot simple problems.)
- *OptoTerminal Hardware User's Guide*, Opto 22 form #1343 (detailed hardware information)
- *OptoTerminal Qlarity Foundry User's Guide*, form #1344 (demonstrates some features of Qlarity Foundry)
- *OptoTerminal Programmer's Reference Manual*, form #1345 (explains objects and gives example code)

## Installation

### Installation Requirements

Here's what you need to install and run Qlarity Foundry 2.5 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 2) or Windows 2000® (with Service Pack 4) workstation operating system. Microsoft Windows server and 64-bit versions of Windows workstation operating systems are not supported.
- At least 256 MB RAM (512 MB RAM or more is recommended)
- 30 MB available hard disk space

### Obtaining Updated Firmware

**New firmware is strongly recommended for all Opto 22 controllers and brains that will be used with Qlarity Foundry 2.5.** To find new firmware, go to [www.opto22.com](http://www.opto22.com). Click the Support tab, click Downloads at the upper left, click Firmware, and enter the name of your OptoTerminal ("OptoTerminal-G70" or "OptoTerminal-G75") in the search field.

OptoTerminals are shipped with the most recent firmware, but you should check the Opto 22 website for additional updates that may be available. *Firmware should match the OptoTerminal and the Qlarity Foundry version.* Look for "2.5" in the firmware filename, and choose the firmware file for your OptoTerminal.

Detailed instructions on how to update the firmware on an OptoTerminal can be found in the *OptoTerminal Quick Start Guide*.

### Upgrading To Qlarity Foundry 2.5 for Opto 22

If you are currently using an older version of Qlarity Foundry software and would like to upgrade to Qlarity Foundry 2.5, you can download the new software from the Opto 22 website. To locate the software, click on the Support tab, click Downloads at the upper left, and then click Software. In the description field, enter "OptoTerminal". The latest version of Qlarity Foundry will appear ready to download.

When you upgrade to Qlarity Foundry 2.5, it is recommended that you upgrade firmware on your OptoTerminal as well. For more details, see [“Obtaining Updated Firmware” on page 2](#).

## 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](mailto:support@opto22.com)

**Opto 22 website:** [www.opto22.com](http://www.opto22.com)

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

In addition, the **Opto Support Blog** provides the latest information on support issues and workarounds. Visit [www.opto22.com](http://www.opto22.com) and click on the Support tab for more information.

## Check the Opto 22 Website for Product Updates

Opto 22 software, firmware, and documentation are continually updated and improved. Check the Support→Downloads section of the Opto 22 website at [www.opto22.com](http://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](http://my.opto22.com) to receive news about Opto 22 products.

## New Features and Enhancements

### Qlarity Foundry Software

Qlarity Foundry 2.5 for Opto 22 offers many new features, including:

- **Multi Select / Align / Space Evenly** - Select multiple objects in your workspace and move or align them.
- **Object Themes** - Select from a number of predefined themes (borders and colors) for the objects in your workspace or create your own theme.

- **Border Designer** - Modify or create borders around your objects to affect their look, shape, and 3D effect.
- **Source-level Debugging** - Add break points in your source code and use familiar options to aid in debugging. Current values of variables can be viewed from a watch window in the Simulation view.
- **New Variable / Property Window** - A quick way to add new variables or speed up validation function creation.
- **Categorized Property Window** - An object's properties have been categorized which allows you to selectively show/hide them.
- **New Library Source Code** - Advanced users can now access source code from the object tree for display and editing in the Code window.
- **Object Inheritance** - Maintain a single code base while adding unique code to new objects related to the base object.
- **AutoHelp** - Displays function parameters and descriptions and makes suggestions for possible completeness for object properties and methods.
- **AutoDoc** - Improved documentation provides links to related items, sample code, keyword searching, and installed tutorials.
- **Workspace Resizing** - Applications can be resized. However, some objects (e.g. bitmaps) can not be automatically resized.
- **Multi-Object Edit** - When multiple objects are selected, the properties window now shows the properties that are common among the selected objects.
- **Error Stepping and Parenthesis Matching** - A hot key can now be used to step through errors in programming code and parenthesis are now underlined to aid in matching.
- **Win32 Command Line Compiler** - Compile BFF files without launching Qlarity Foundry and exporting the workspace.
- **Workspace Locking** - Prohibits workspaces from being overwritten if the same workspace is open in multiple instances of Qlarity Foundry on the same machine.

## OptoTerminal Firmware

Firmware changes for OptoTerminals include:

- **Multicast IP** - Multicast allows communication between a single sender and multiple receivers on a network. The Qlarity-based terminals can now send and receive data on a multicast network.

## Qlarity Programming Language

Numerous new APIs have been added to enhance the capabilities of the Qlarity programming language. The APIs aid in drawing complex borders, using arrays, controlling the terminals draw cache settings, compressing and decompressing data in the zlib library. New or enhanced APIs include:

- AllocateArrayHandle
- ArrayOperation
- DrawBorder
- DrawSysText
- DrawSysTextFit
- FreeArrayHandle
- GetHardwareInfo
- GetObjPixmapRegion
- GetScreenPixmap
- GetSysFontCharacters
- GetSysFontMetrics
- SetSystemSetting
- GetSysTextFit
- GetSysTextSize
- IgnoreDrawCache
- PlayNoteNotify
- PlaySoundNotify
- ReadArrayHandle
- RenameFile
- Replace
- ReverseFind
- SetPalette
- ZLibCompress
- ZLibDecompress

## Libraries

**Library 2** - Three new object libraries have been created to take advantage of the new features listed above. These new libraries have the "V2" suffix added to the object name.

Objects from older libraries and these new objects can reside in the same application without a problem.

In addition to supporting themes (colors and borders), these new objects will support both TTF and BDF fonts in one object rather than having two separate objects. Unicode text is also supported to take advantage of U.S. and international characters. Other properties like "inactive" and "DropShadowDistance" have been added to enhance the look and usability of the objects.

**Opto22\_PAC** - The Opto22\_PAC library has been created in order to take advantage of all the features of the SNAP PAC controllers and I/O units. Objects in the Opto22\_PAC library have the prefix "PAC" added to the object name.

## Objects

Enhanced Objects:

- **Gauge** - The Gauge object now has an optional Show Value property that displays the current value of the gauge in a text box. This value can be displayed in numerous positions on the gauge.
- **ListBox** - The ListBox object can now be populated by a wizard available from the InitialListContent property.
- **Tab** and **Tachometer** - The Tab and Tachometer objects have been rewritten and now provide new features and functionality.
- **FTP** - The FTP object now allows multiple connections.
- **Slider** - The Slider object has a new "increment" property that allows you to navigate through various defined states.
- **Spinner** - The Spinner object has two new properties ("ButtonPosition" and "Arrow Position") for complete freedom in modifying the look of this object.
- **Filebrowser** - The Filebrowser object can now be controlled using a keypad or keyboard.
- **DigitalGrid** - The DigitalGrid object can now read a 32-bit or 64-bit mask from the Opto 22 controller or brain and displays each bit value in the grid as on or off.

New Objects:

- Angle Text
- Bitmap Button
- Clock Display
- Color Picker
- Delimited Comm
- Direction Pad
- DNS Client

- Edit Box
- Ellipse
- Ethernet Client
- Ethernet Server
- Group Box V2
- Hot Key
- Icon Button
- IP Address Entry
- Key Translation
- Keypad Settings
- Keypad Spinner
- Popup Screen V2
- QEmulator
- Soft Keybar
- Symbol Grid
- Text Entry Pad V2
- Translucent Label
- Vertical Text

### **Included Examples and Tutorials**

The Qlarity Foundry 2.5 for Opto 22 install includes helpful examples and tutorials.

Included Examples:

- In-depth Demo
- HVAC Sample
- Event Builder
- Communication Example
- Interactive Games

Included Tutorials:

- Introduction to Qlarity
- Using the Even Builder
- More Objects and Tools
- Programming with Qlarity

To find the examples or tutorials, navigate to C:/Program Files/Opto 22/Qlarity Foundry.



