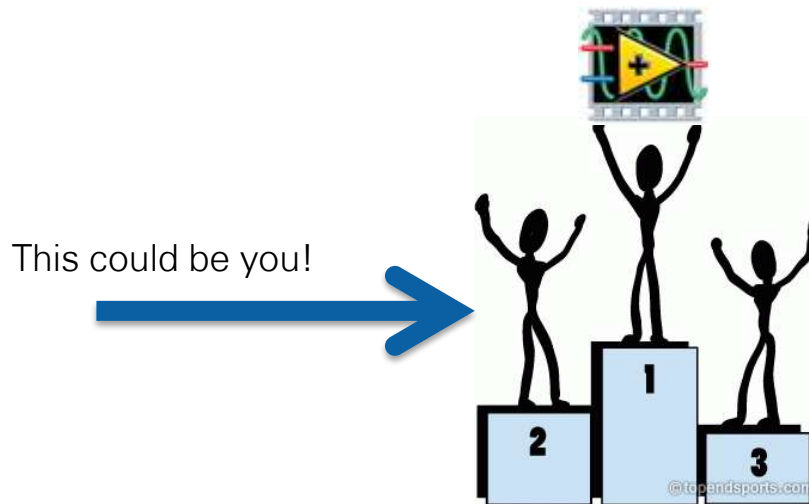


Tips and Tricks to Speed LabVIEW Development

...and become the World's 2nd Fastest LabVIEW Programmer!



Rik Prins

Applications Engineering Specialist
Certified LabVIEW Developer

With contributions from Darren Nattinger
Senior Software Engineer, CLA, LabVIEW R&D
and the World's Fastest LabVIEW Programmer

Outline

- Motivations for programming faster
- Tips for programming faster
 1. Quick Drop
 2. Avoiding right-click menus
 3. Avoiding repetitive tasks
 4. Block diagram cleanup
 5. LabVIEW projects
 6. Dealing with the connector pane
 7. Environmental suggestions
- New, lesser-known LabVIEW 2013 features

Before we begin...

Darren's Nuggets

Quick LabVIEW tips

(google 'darren's nuggets')



Image credit: fauxfooddiner.com

Darren's Blog

In-depth LabVIEW discussions

(google 'labview artisan')

LabVIEW Artisan

My experiences coding with National Instruments' LabVIEW programming language

Motivation



You can think faster than you can program.

Brain → Keyboard + Mouse → Diagram

If you think graphically, then anything that slows down the transfer of the mental image to the completed block diagram is a **bottleneck**. Let's remove those bottlenecks.

More Motivation

- The less time we spend on the mechanics of programming is more time we can spend innovating with LabVIEW.
- Your clients like it when you finish stuff early.
- Your boss *really* likes it when you finish stuff early. 😊

1. Use Quick Drop

Stop searching for familiar things!

If you know you want a *While Loop*, or an *Add* function, then why are you **searching** for one?

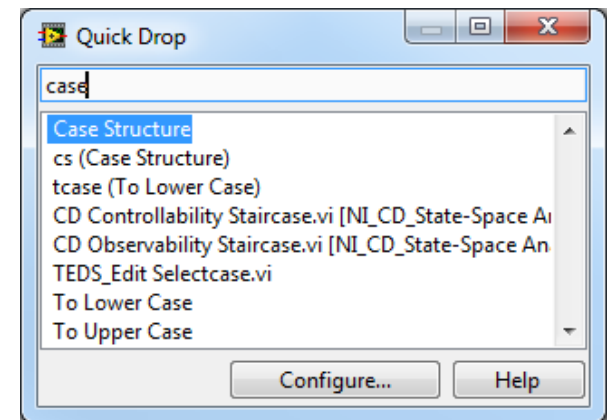
Navigating a geographical path to locate a familiar object is a **bottleneck**. Even with muscle memory.

If you want to be the World's 2nd Fastest LabVIEW Programmer, **you have to stop using the palettes.**

1. Use Quick Drop

- **LabVIEW 8.6**
 - Feature introduced – Press *Ctrl-Space* to invoke
 - Drop items from Controls and Functions palettes by name
 - Create shortcuts for commonly-dropped items
 - i.e., 'cs' instead of 'Case Structure'
- **LabVIEW 2009**
 - Drop items from any open project
 - Quick Drop Keyboard Shortcuts (QDKS)
- **LabVIEW 2010**
 - More QDKS
- **LabVIEW 2011**
 - Instantly usable on first launch (sort of)
- **LabVIEW 2012 and 2013**
 - Miscellaneous minor features/improvements

DEMO



1. Use Quick Drop

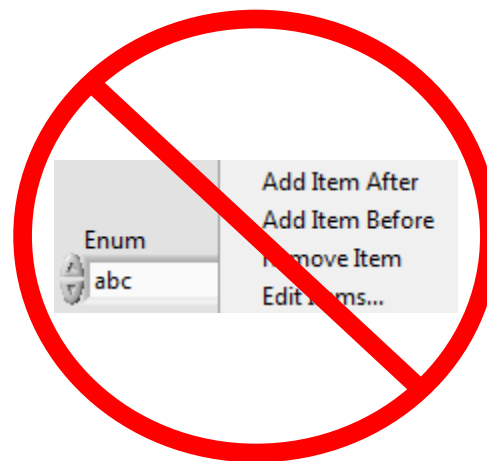
Extra Quick Drop tidbits

- **Super Quick Drop** – Click in the VI to dismiss Quick Drop, and the object is dropped where you clicked
- **Quick Drop Fast Search** – Add 'QuickDropFastSearch=True' to your INI file for more responsive typing in the Quick Drop window. If you find Quick Drop is taking too long to load or isn't responsive enough as you type, try this INI token.
 - This INI token is exposed in the QD configuration dialog in LabVIEW 2013.
- **Common shortcuts** – Google '*quick drop palette object shortcuts*' to download and use some common object shortcuts

2. Avoid right-click menus if possible

Adding items to enums and rings

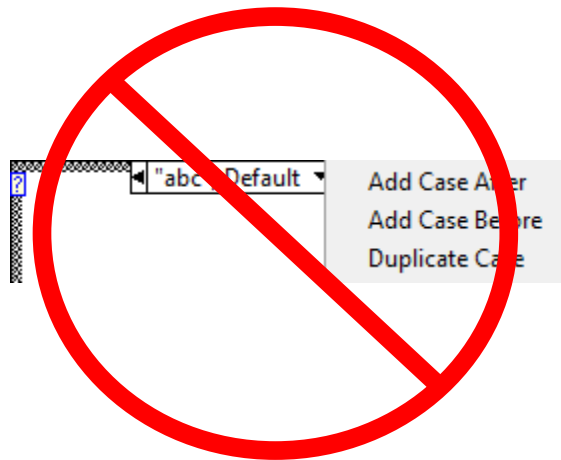
1. Hold the Ctrl key and click in the enum/ring to start editing text.
2. After typing the first enum/ring string, press **Shift-Enter** to create the second string.
3. Repeat until all items are added.



2. Avoid right-click menus if possible

Adding cases to case structures

1. Click in the selector ring of the case structure.
2. Press **Shift-Enter** to add a new case.
3. Press **Ctrl-Shift-Enter** to duplicate the current case.



3. Avoid repetitive tasks

- Use the unofficial Quick Drop **Ctrl-Shift-G** shortcut to add code snippets as droppable QD items
 - Google *quick drop place contents*
 - This allows you to drop frequently-used segments of code in a single operation
- Add your own QDKS (Quick Drop Keyboard Shortcuts)
 - Google *custom qdks getting started*
 - To see what the QD community has come up with, google *quick drop community shortcuts*
- Customize 'Create SubVI' behavior (LV 2011 and later)
 - Google *customize create subvi*
- Add your own project templates (LV 2012 and later)
 - Google *labview custom create project*

4. Diagram Cleanup

Code as fast as possible, then clean it up!

Use for:

- Small diagrams (less than 1024x768)
- Diagrams with minimal nesting
- Non-user-visible diagrams
- Most of your diagrams

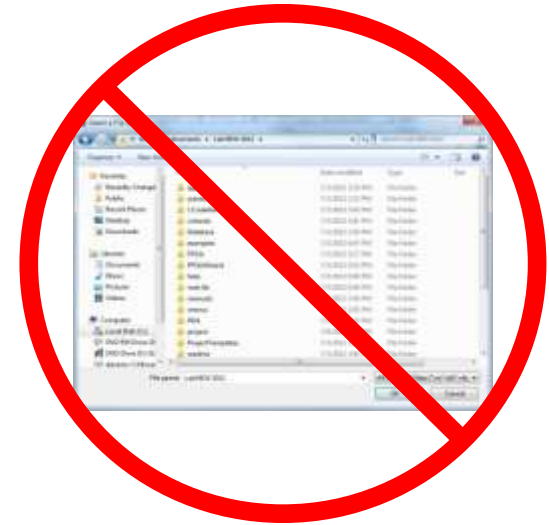
Do not use for:

- Top-level architecture diagrams
- Heavily-nested diagrams
- Diagrams users will see
- **Diagrams where the arrangement is critical to understanding the operation of the VI**

5. Develop with LabVIEW Projects

How does using the project make you faster?

- Quicker access to your VIs (less file browsing)

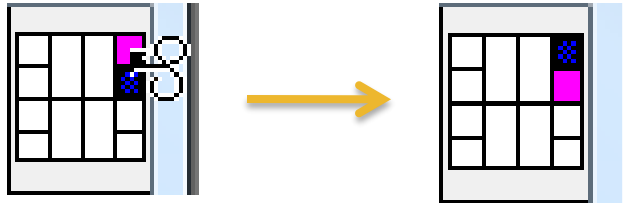


- Droppable project items in Quick Drop (LV 2009+)

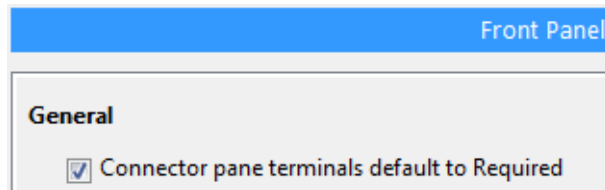


6. Connector Panes

- Fast Connector Pane Switching (LV 2010)



- Required terminals by default (LV 8.5)

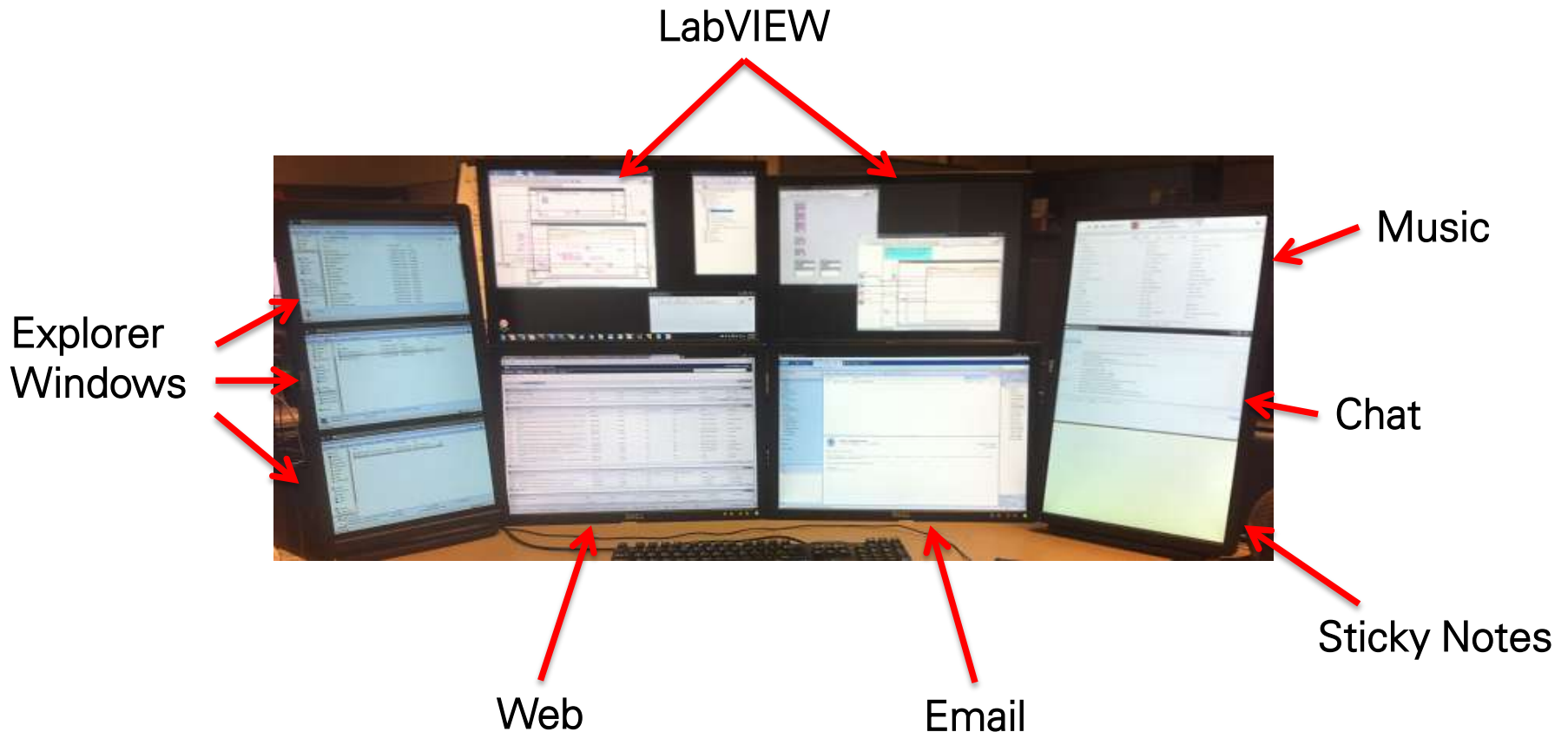


7. Environmental Suggestions

The following tips are changes I have made to my programming environment to help me be a faster LabVIEW programmer. Your mileage may vary.

7. Environmental Suggestions

Tell your boss that you need more monitors. Seriously.



7. Environmental Suggestions

More monitors help by:

- Leaving frequently-used apps (Windows Explorer, Web browser, a notepad of some sort) always available and in familiar locations
- Giving you lots of real estate for *debugging* LabVIEW
 - Paused VIs
 - Probe Window
- Providing space when diffing two (or more!) VIs

7. Environmental Suggestions

Input devices

(Note: I realize most people are already firmly entrenched on this topic.)

- Keyboard that you're comfortable with
 - Split keyboards hinder "cheating"
- Mouse
 - Very difficult to get precision of motion required for speedy LabVIEW programming with a touchpad or a trackball
- Microphone?
 - Google *LV Speak*

New LabVIEW 2013 features

Here are some of the features you've probably heard about:

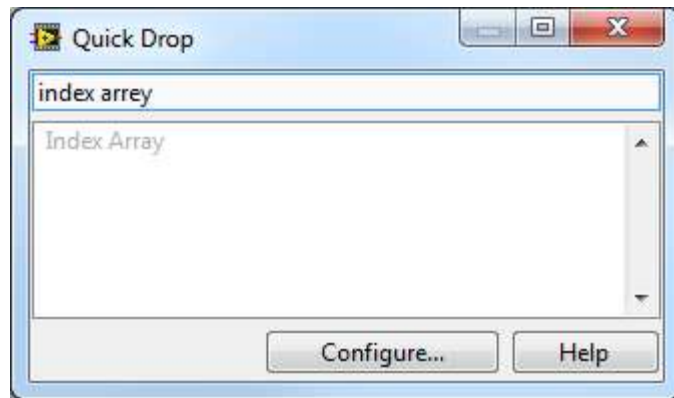
- Event Structure and API Improvements
- Improved Excel Integration
- Mouse Wheel Enhancements
- Bookmark Manager
- Attached Comments
- Overhaul of Shipping Examples
- ...

Now here are some lesser-known goodies in LabVIEW 2013.

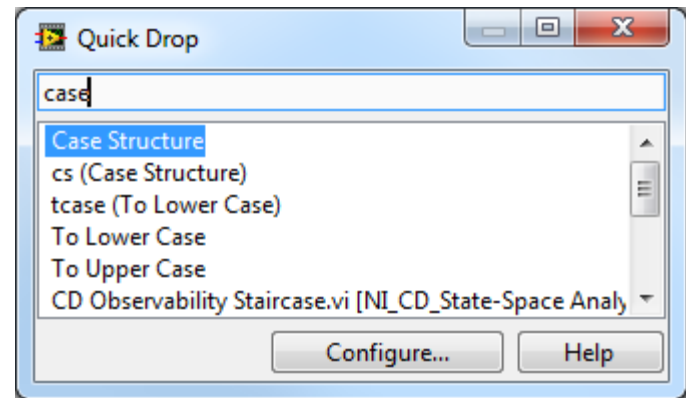
LabVIEW 2013 goodies

Quick Drop Enhancements

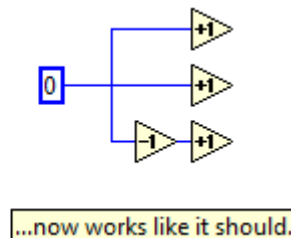
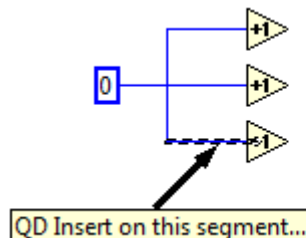
- Typo Help



- No More Autocomplete



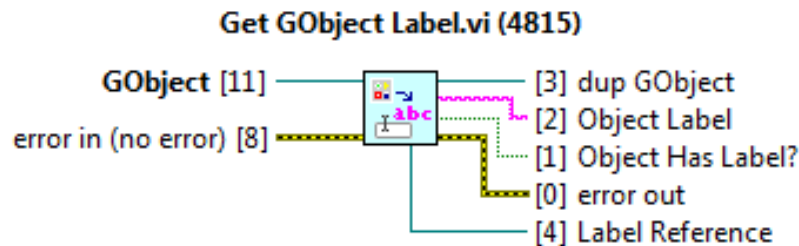
- Insert Respects Selected Segment



LabVIEW 2013 goodies

VI Server/VI Scripting

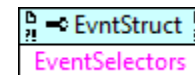
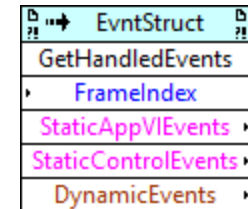
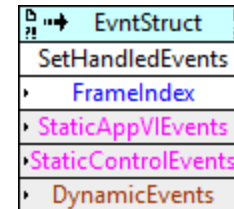
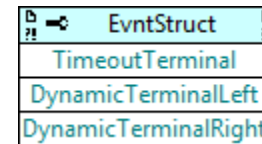
- Get GObject Label.vi



Returns a string containing the label text of the object you specify and a reference to that label. This VI returns the same value as the Label.Text property.

- New properties/methods
 - Application class
 - Refresh Menus
 - Get Active VI Reference
 - VI class
 - Library:Version
 - Get Conpane Image
 - ...

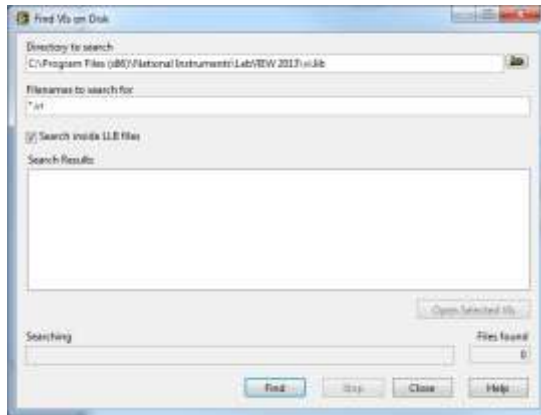
- Event Structure scripting



LabVIEW 2013 goodies

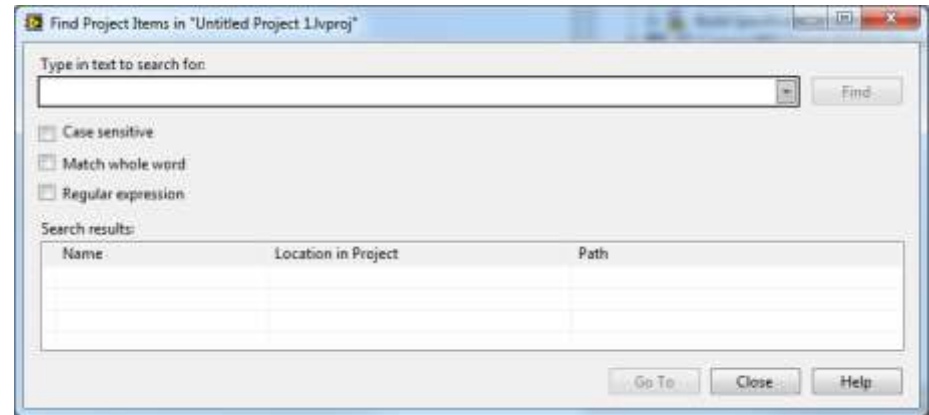
Dialog Improvements

Find VIs on Disk



- Remembers size and position
- Remembers last searched dir
- Better Key Navigation

Project Find



- Sort results by clicking column header (this request originated in the LabVIEW Idea Exchange)

Questions?

