LabVIEW tips, tricks and lifehacks

Pascal Heinen

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VI TECHNOLOGIES

Who am I?

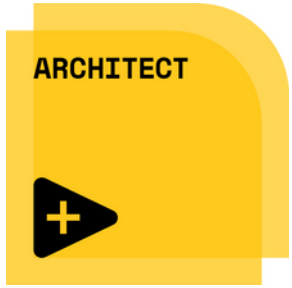
Pascal Heinen

LabVIEW user since LV 7.0

~15 years of LabVIEW experience

Consultancy Lead, System Architect and Technical Specialist @ VI TECHNOLOGIES

I've created the Tetris demo



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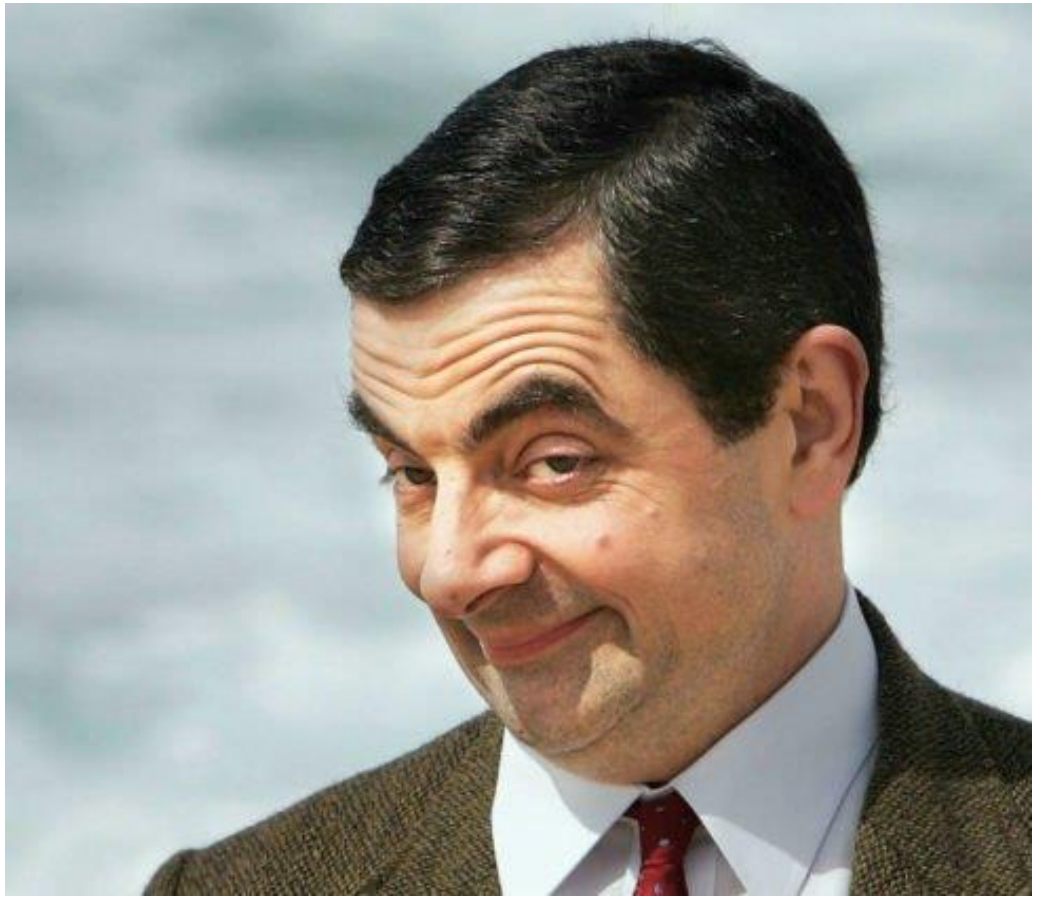

<sarcasm>

Everything in this presentation is the absolute truth, there is no better solution in any situation.

If you don't do what I say you are wrong and a bad programmer. I'm a LabVIEW champion, so please respect my authority.

</sarcasm>

This presentation will show you some tips and tricks that you could consider using during your projects.

One key take-away should be:

There are pros and cons to every decision, most of the times there is no 100% correct way!

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Whatever you do, join your community

- Online community
- Local User Groups
- Mastermind groups
- Community Events
- In general: Create as much value for other people as possible

One tip can save you a lot of valuable time and money!

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Join a LabVIEW User Group (LUG)

Find a user group in your area, just Google “LabVIEW User Groups”

Dutch LabVIEW User Group

www.dutlug.nl

Four meetings a year at the High-Tech Campus Eindhoven

Two LabVIEW related presentations by community members

Talk to other LabVIEW developers and exchange ideas

Free of charge, including food and drinks

Next meeting 16th of December 17:00 – 20:00 CEST

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GLA 2021

12:00 pm - 12:00 pm UTC

November 15, 2021 - November 16, 2021

In collaboration with the Certified LabVIEW Architect community and NI, we'd like to welcome all LabVIEW enthusiasts to join us in our second GLA Summit!

This is an exciting opportunity to learn from advanced LabVIEW developers from around the world, and to network and participate in a more inclusive, all-digital, free event.

Registration for tickets is open – please go ahead and book your place now!

glasummit.org

Learn from and network with over 1600 developers from across the globe. Recertification points available for attendees and presenters. 20 Points for attendees, 30 Points for presenters. Gain knowledge from the industry experts (including LabVIEW R&D) Industry specific tracks covering all things LabVIEW, Automated Test, and NI Innovations. Prize giveaways from community leaders.

Use Virtual Machines for LabVIEW development

- Workstation Player from VMware (Free basic version and paid premium version)
- VirtualBox from Oracle (Opensource)
- Hyper-V from Microsoft Parallels (for Mac machines)

Separate IDE configurations for each project/application

Store VMs after projects. Fast setup time if support questions come up.

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Use Source Code Control

Source code control (SCC) allows software developers to manage code for development and release. SCC tools generally allow for the management of additional files besides code.

Source Control Software:

- Apache Subversion (SVN)
- Git
- Mercurial SCM
- Perforce
- ….

Essential capabilities of source code control include:

- File Check-in/Check-out
- Revert to Previous
- File Comparison
- File Merge

PERFORCE

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Use a Project Management Tool

- Manage multiple projects and associated subprojects
- Issue tracking
- Time tracking
- Documentation
- Forums and wiki
- Interface for your customer
- Integration with Source Code Control

Examples of Project Management Tools are:

- Redmine
- GitLab
- …

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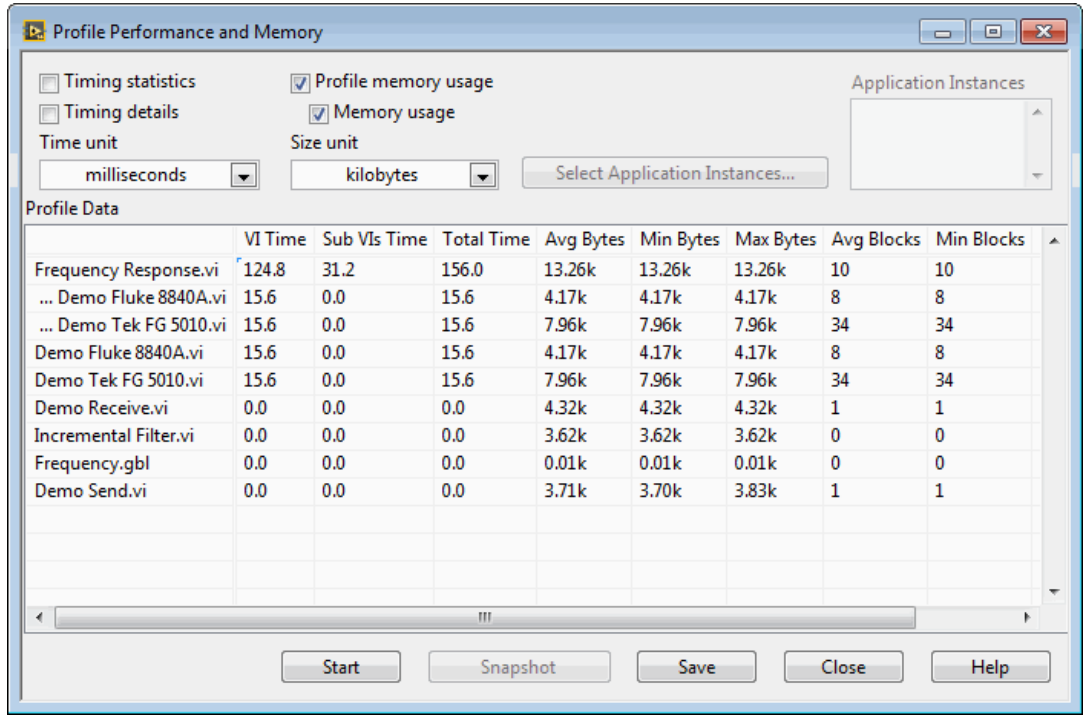
Use Dynamic Code Analysis

- **Profile Performance and Memory Tool**
  - Determines the use of memory and execution time per module
  - Native LabVIEW Tool
  - Can only be used in the IDE

- **LabVIEW Desktop Execution Trace Toolkit**
  - Stand-Alone application you must download from the NI Website
  - Can also debug a LabVIEW executable
  - Provides more debugging information like Errors, loaded VIs, etc.



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NI Center of Excellence

Warning: Shameless Plug!

The Center of Excellence recognizes the world's elite LabVIEW software teams. Recipients are audited on three pillars of expertise:

Ensure Technical Leadership

- Software Deployment and Continuous Integration
- Architecture Mastery
- Development Environment & Core Concepts
- Designated Technical Lead
- Develop Mastery

Engage in Community Learning

- Internal Onboarding
- User Groups
- Learning and Development Plan

Engineer Good Software

- Requirements Gathering and Tracking
- Design and Code Reviews
- Standard Libraries and Templates
- Software Testing
- Code Management

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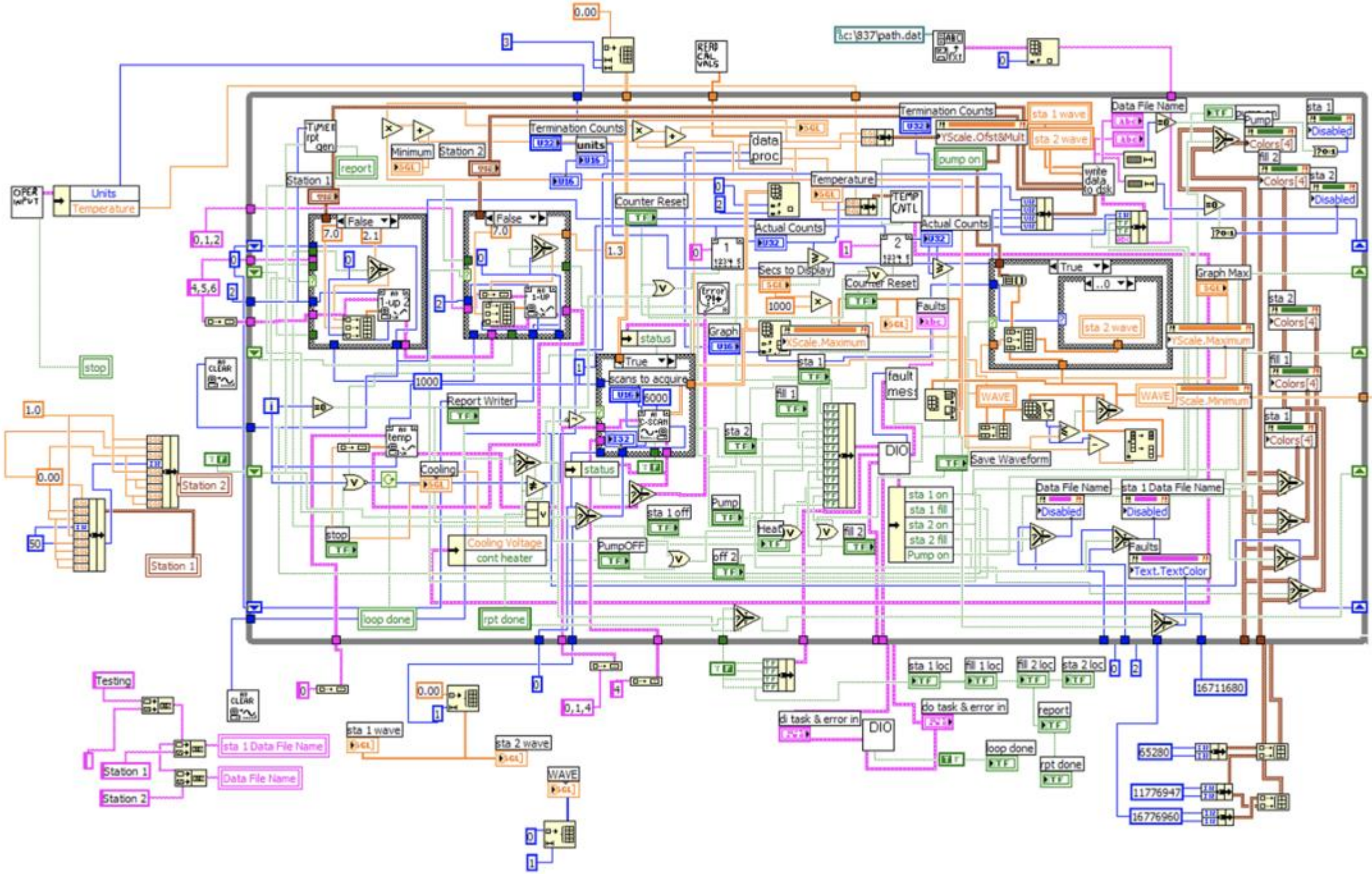
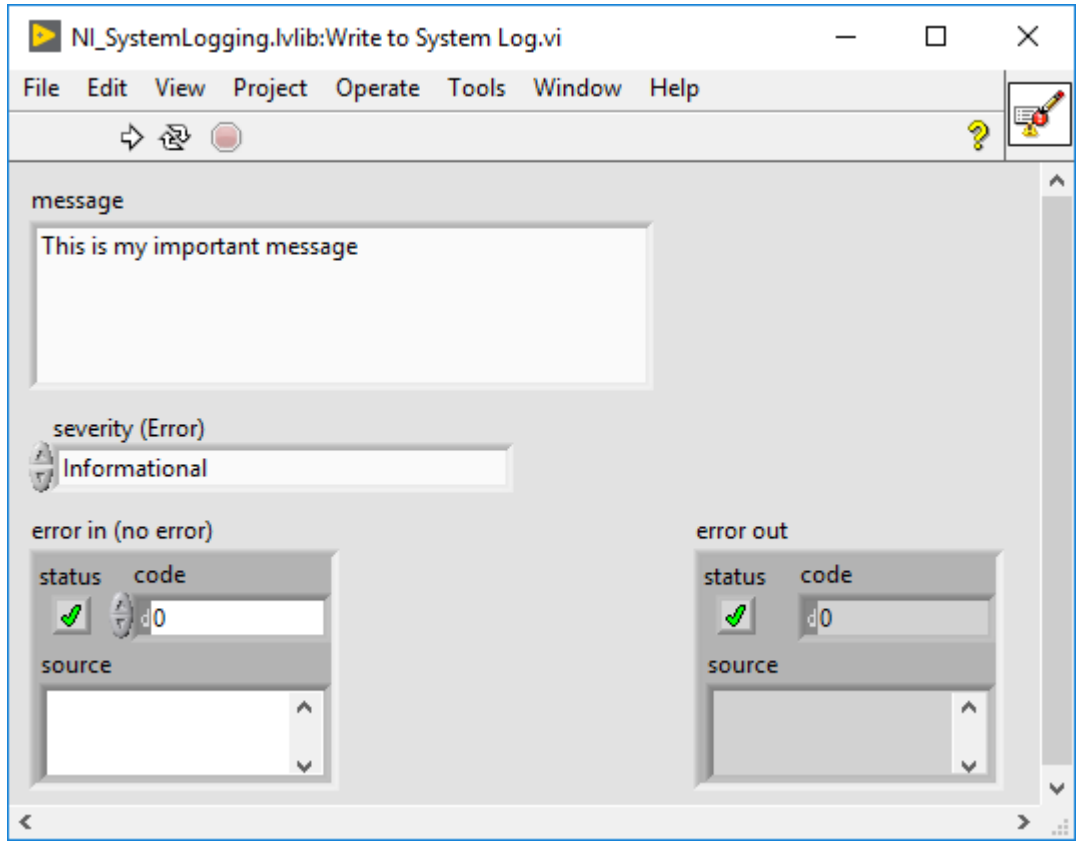


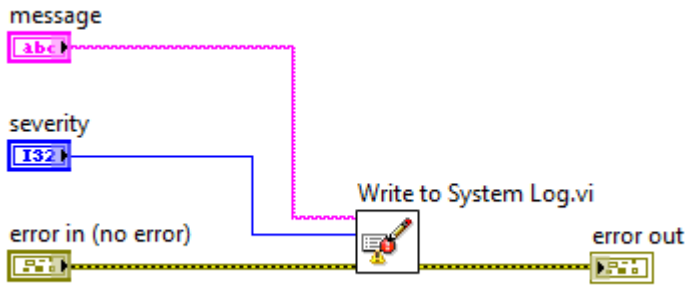
Units
Temperature
Station 1
Station 2
Minimum
Termination Counts
units
data proc
Temperature
Counter Reset
Actual Counts
Secs to Display
Faults
Graph
XScale.Maximum
True
scans to acquire
Report Writer
Cooling
Cooling Voltage
cont heater
PumpOFF
Heat
Pump
sta 1 off
off 2
fill 1
fill 2
sta 1
sta 2
DIO
Save Waveform
Data File Name
sta 1 Data File Name
Text.TextColor
YScale.Ofst&Mult
pump on
write data to dsk
Graph Max
YScale.Maximum
YScale.Minimum
WAVE
sta 1 wave
sta 2 wave
sta 1 on
sta 1 fill
sta 2 on
sta 2 fill
Pump on
sta 1 loc
fill 1 loc
fill 2 loc
sta 2 loc
do task & error in
di task & error in
report
loop done
rpt done
Testing
stop
Disabled
Colors
16711680
65280
11776947
16776960

Write to System Log.vi



LabVIEW 2015+

You can log errors, warnings and messages to the system log. This works on all supported platforms: Windows, OS X, Linux and RT targets.



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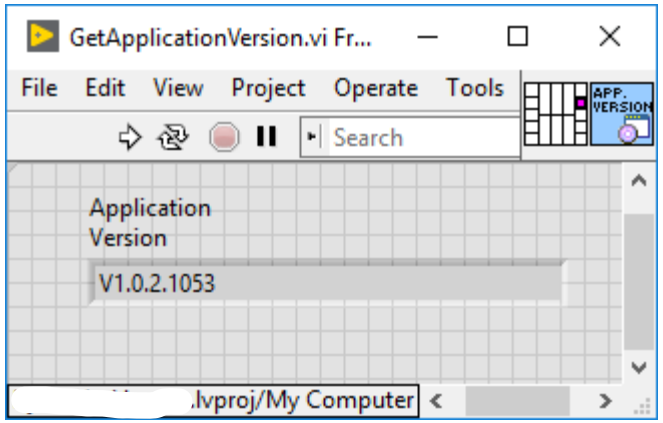
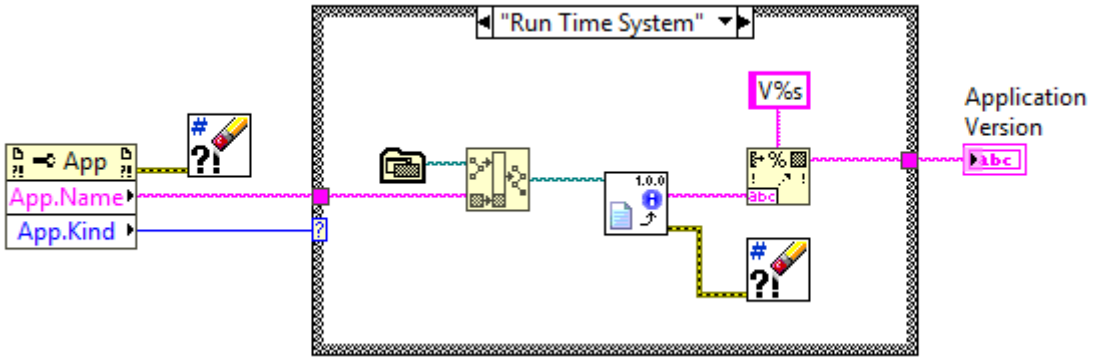
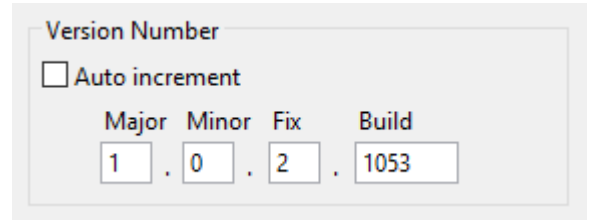
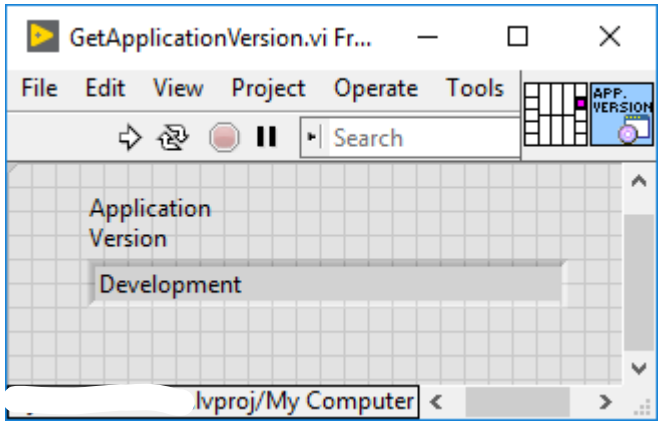
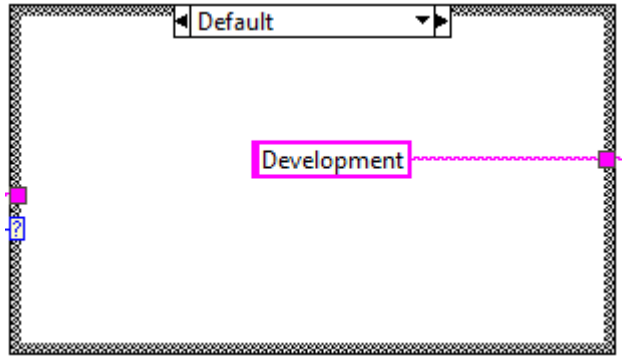
GetApplicationVersion.vi

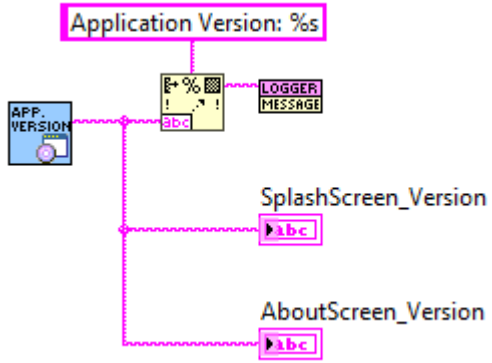












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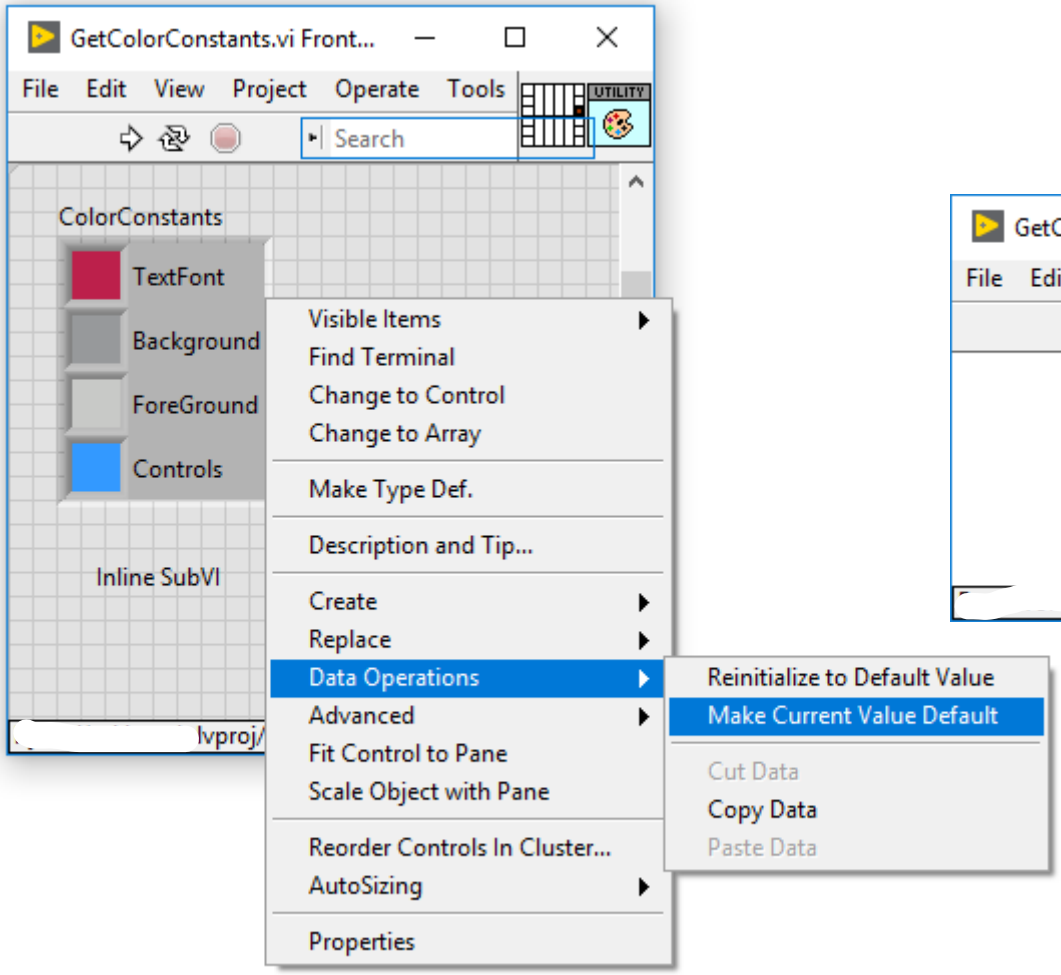
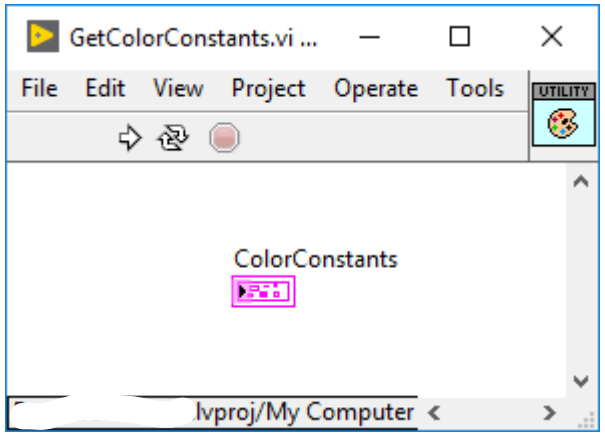
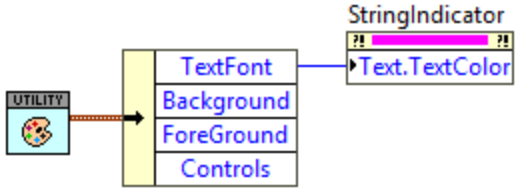
GetColorConstants.vi







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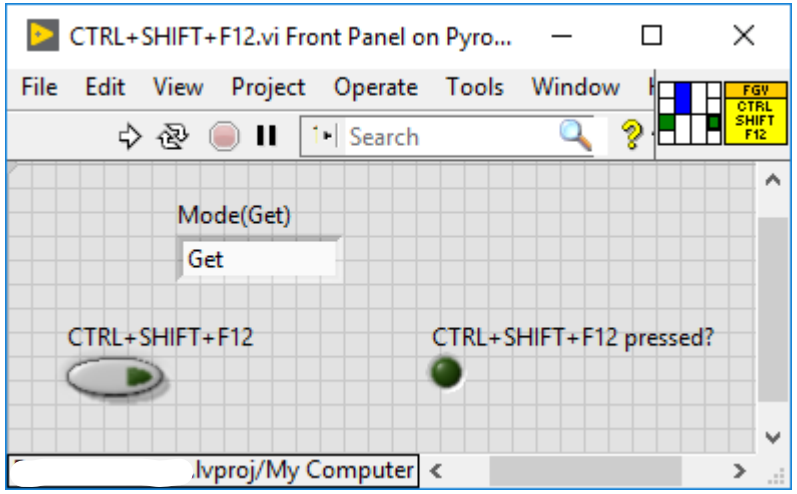
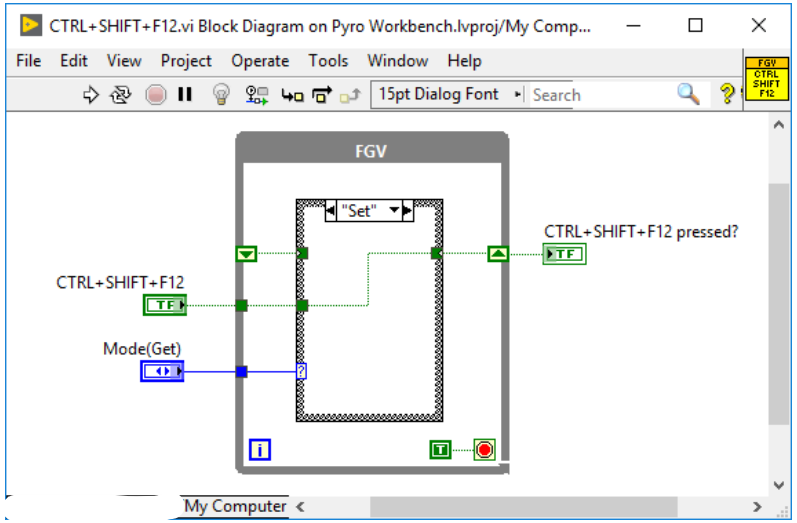
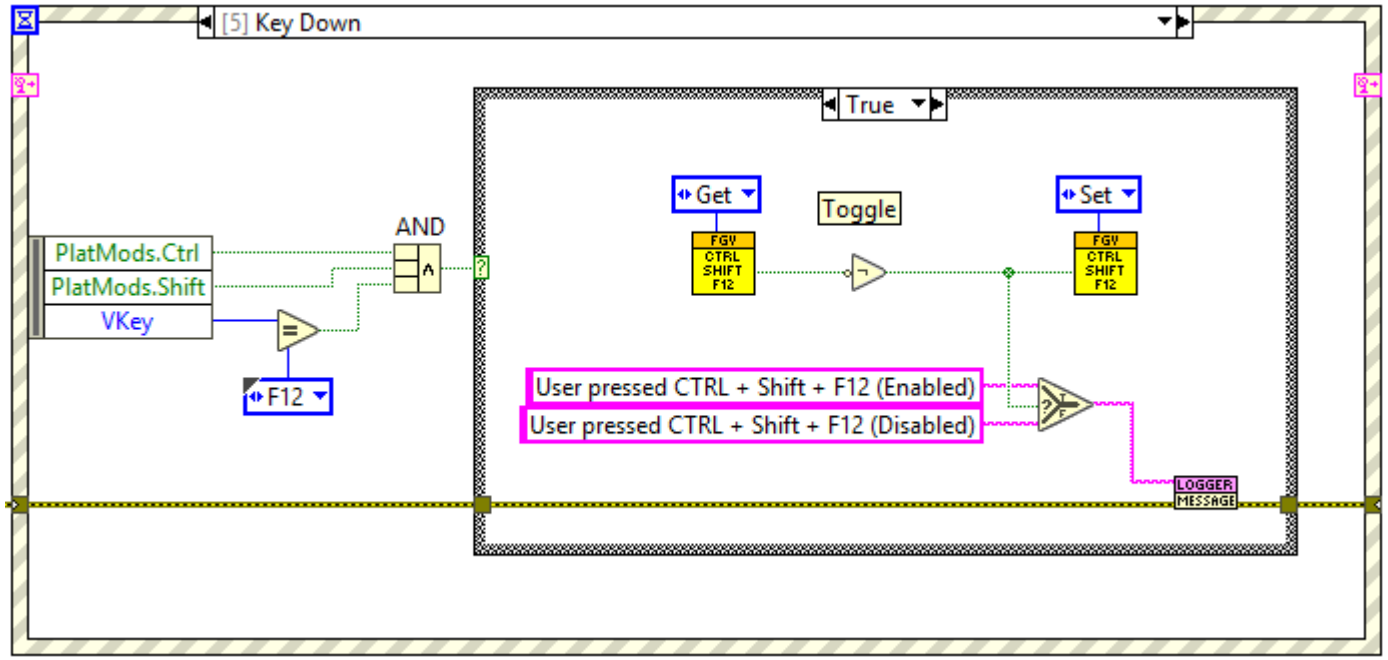
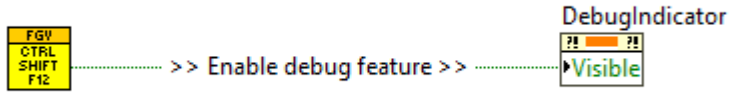
CTRL+SHIFT+F12.vi









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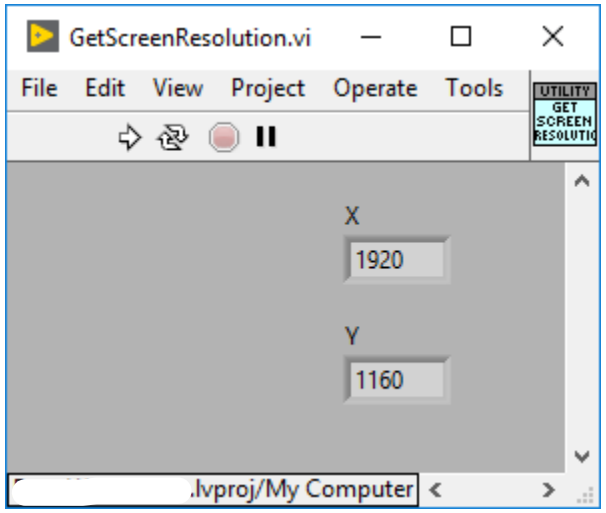
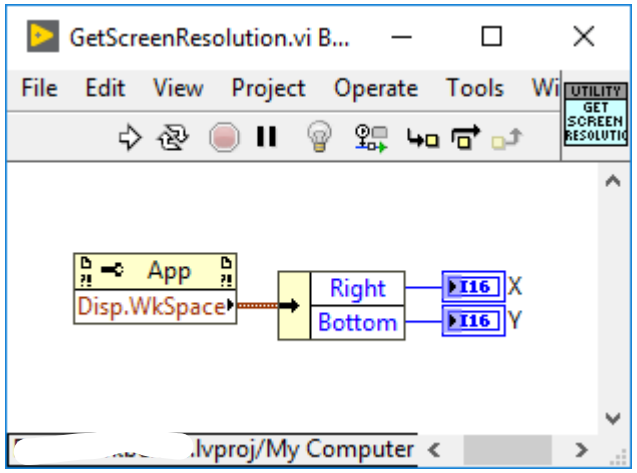
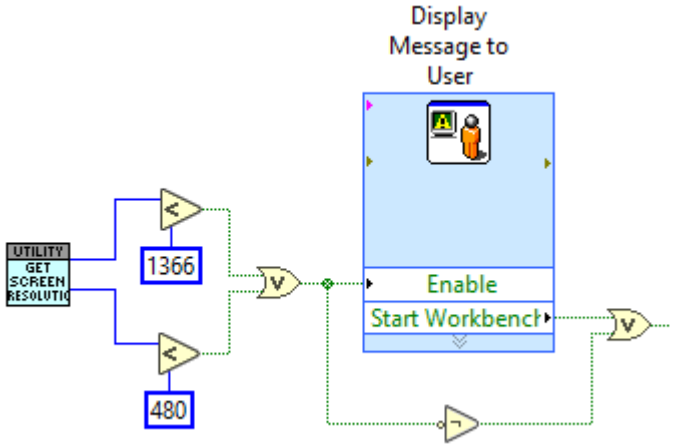
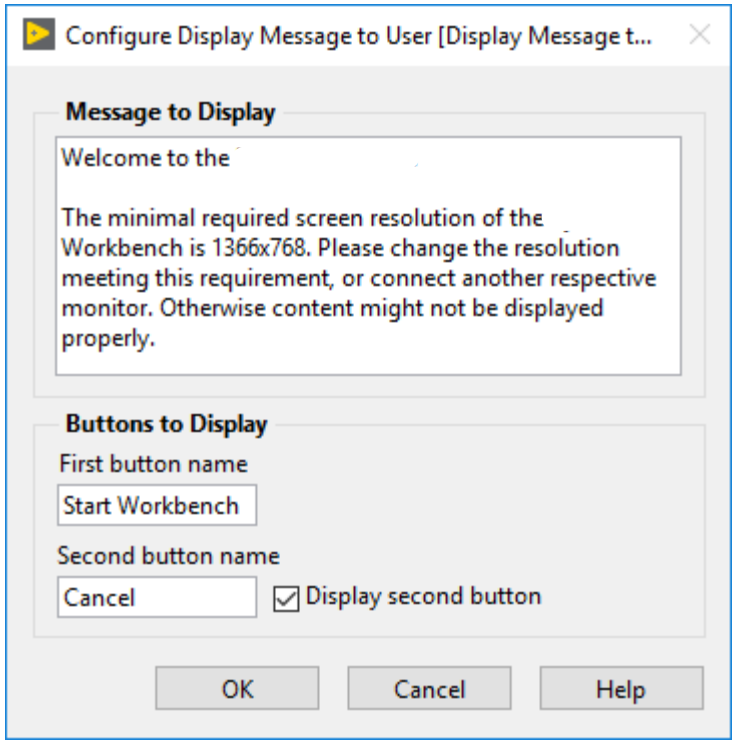
GetScreenResolution.vi









Note:
The Windows taskbar is never included in the Y resolution (1160 instead of 1200).

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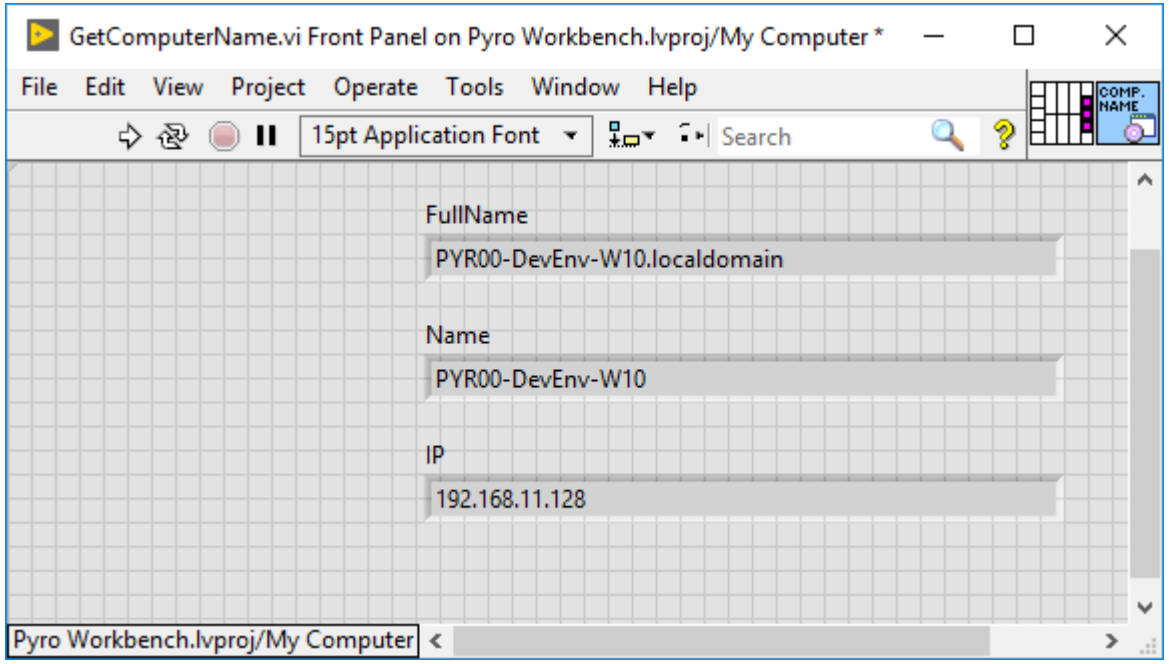
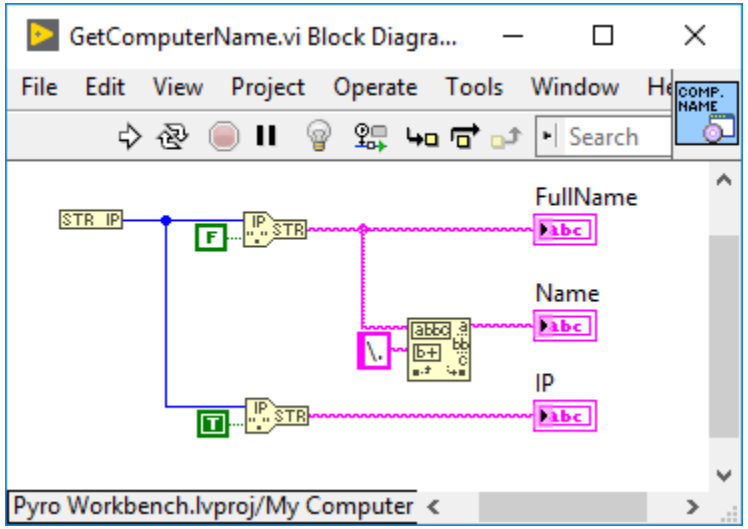
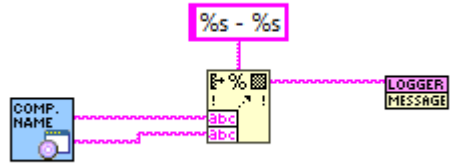
GetComputerName.vi







Warning:
The IP To String function can become slow (5+ seconds) due to a LabVIEW bug.

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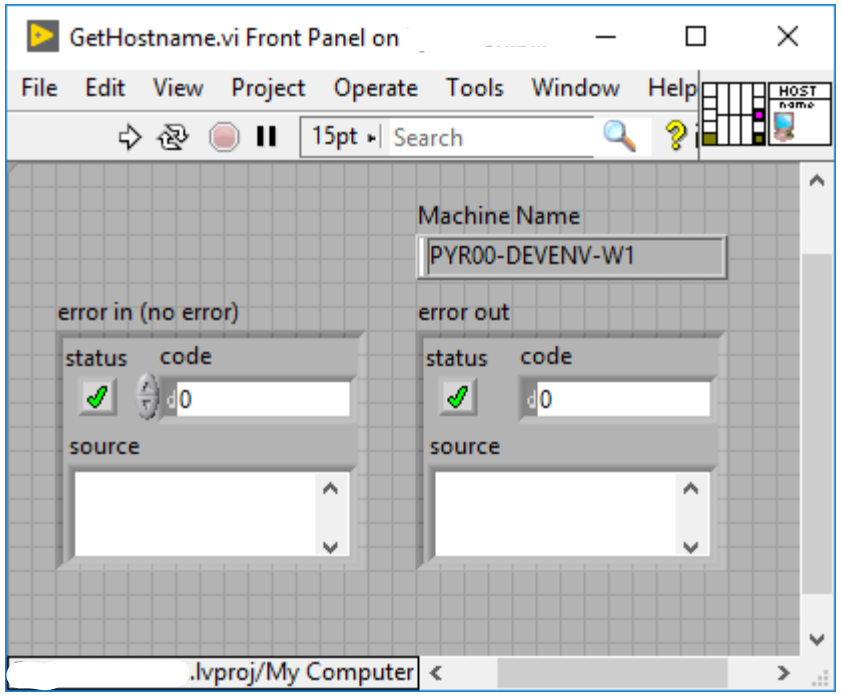
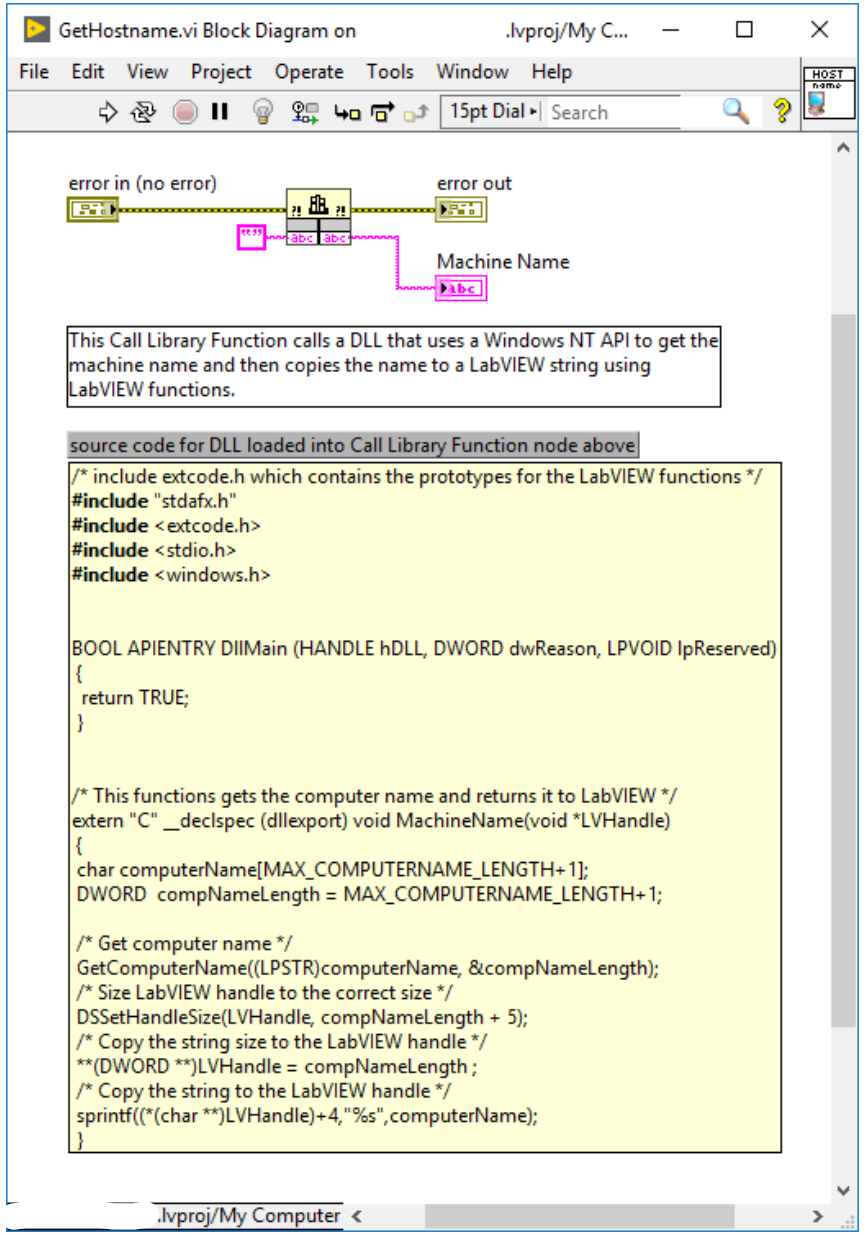
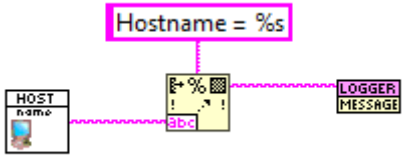
GetHostName.vi







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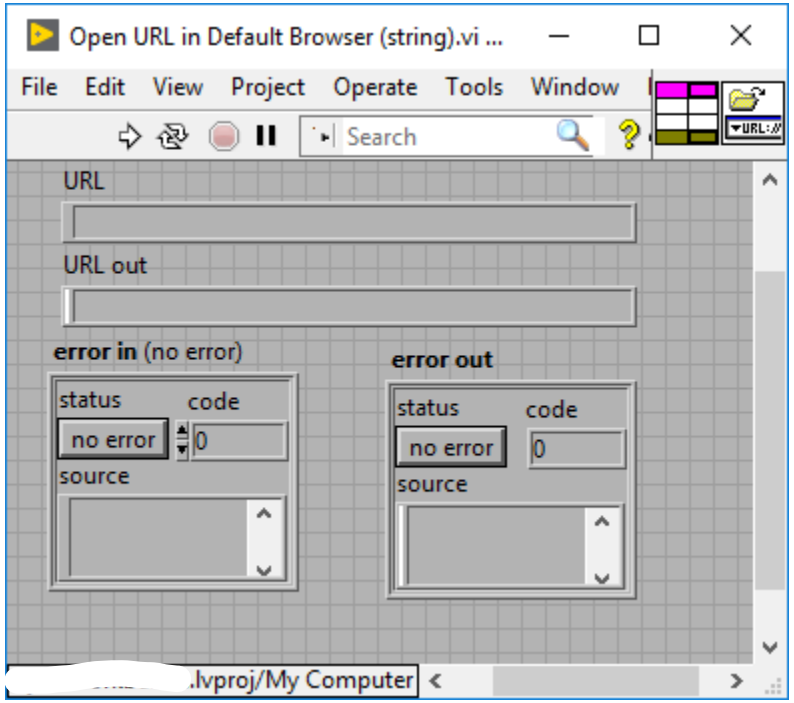
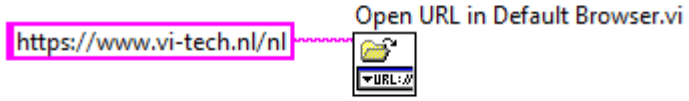
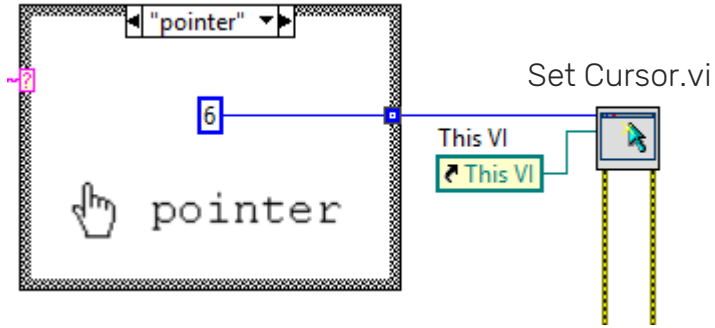
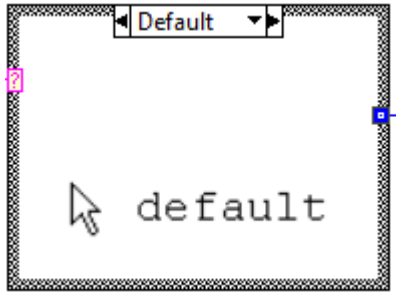
Open URL in Default Browser.vi

LabVIEW native function:
Owning Palette: [Help VI and Functions]









More info

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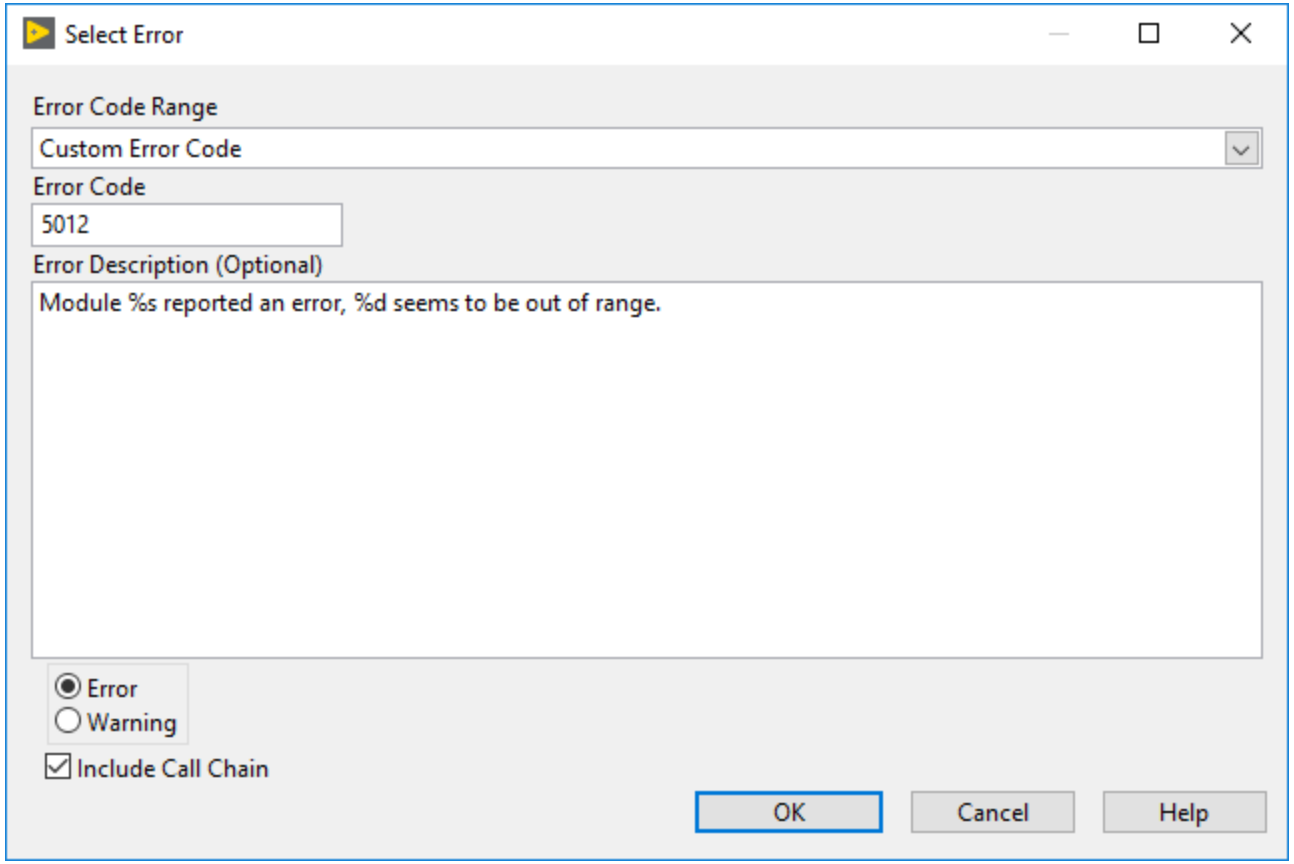
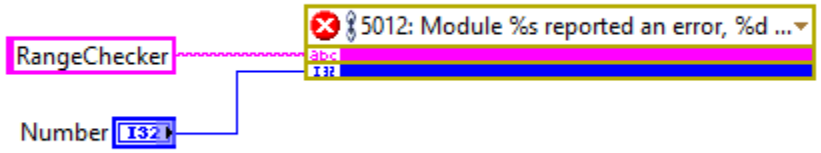
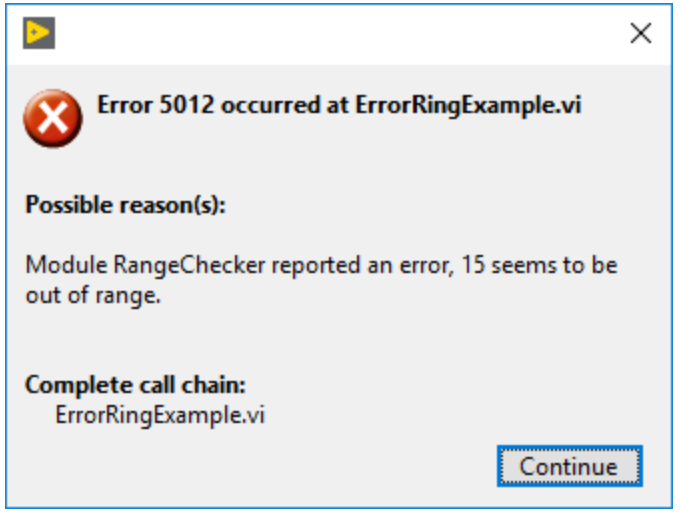
Error Ring with custom format string







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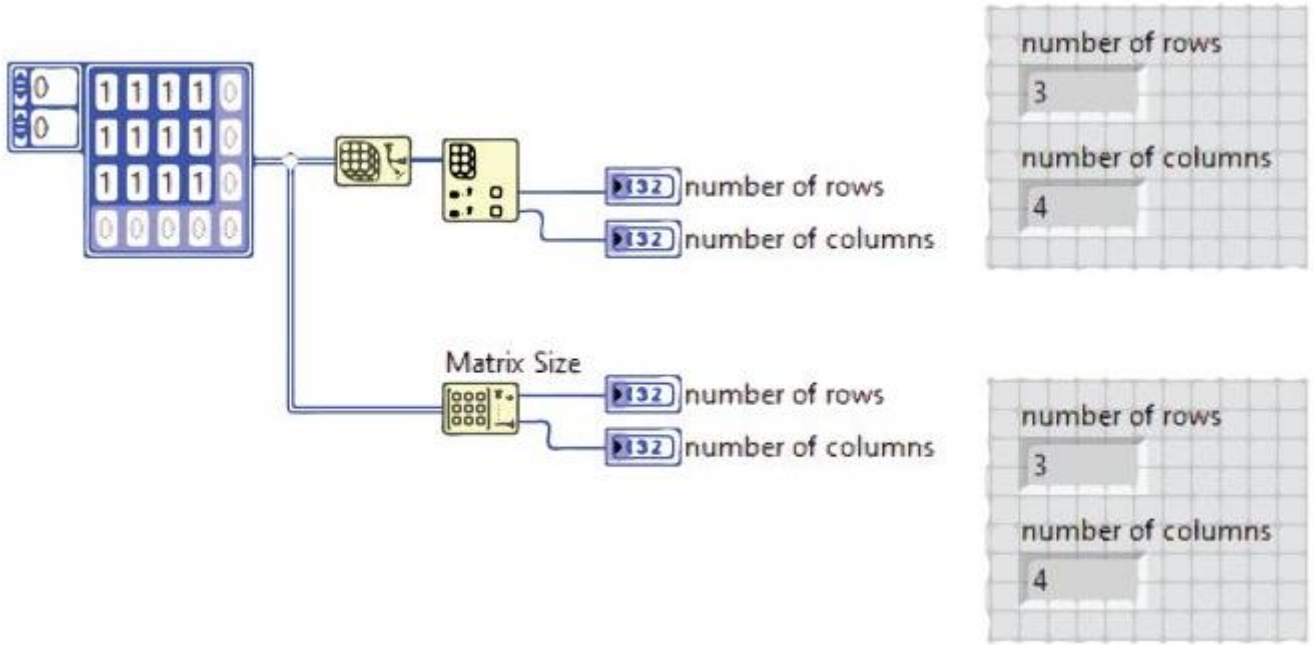
Matrix Size.vi

More efficient way to get the number of rows and columns of a 2d array.



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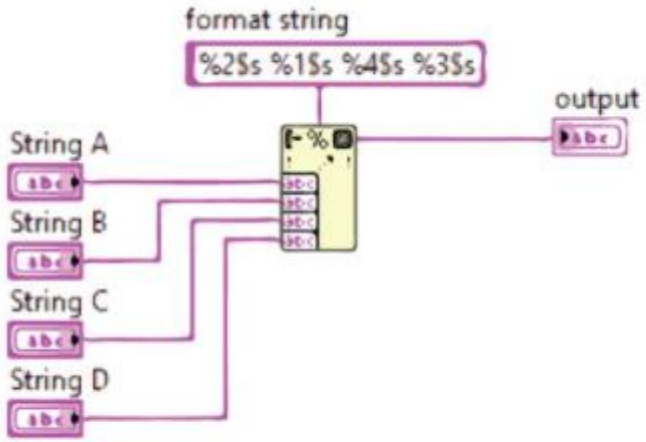
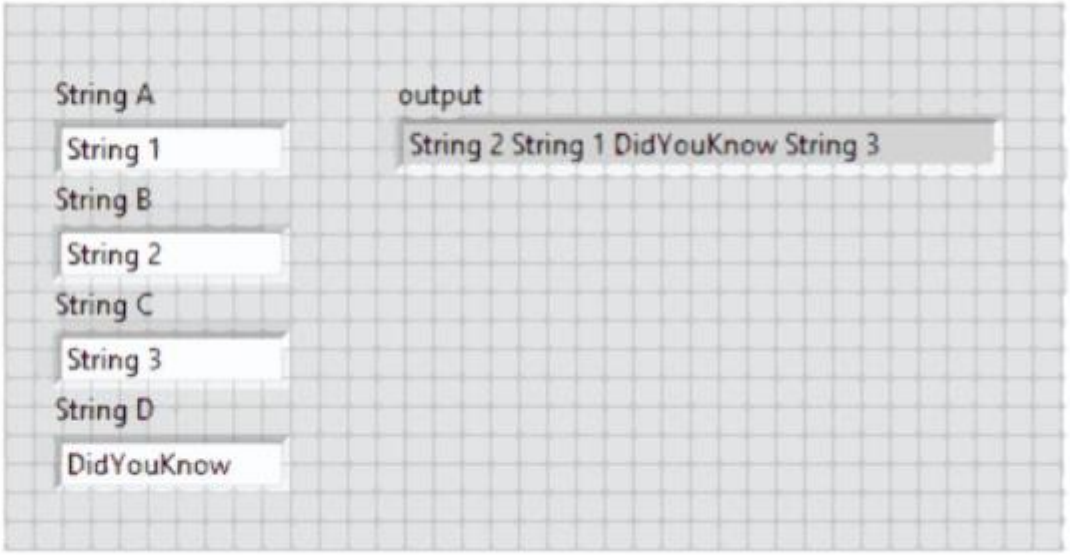
Reordering “Format into String” items

Use the “N$” specifier in the format string, to set the order of inputs for the “Format into string” output.





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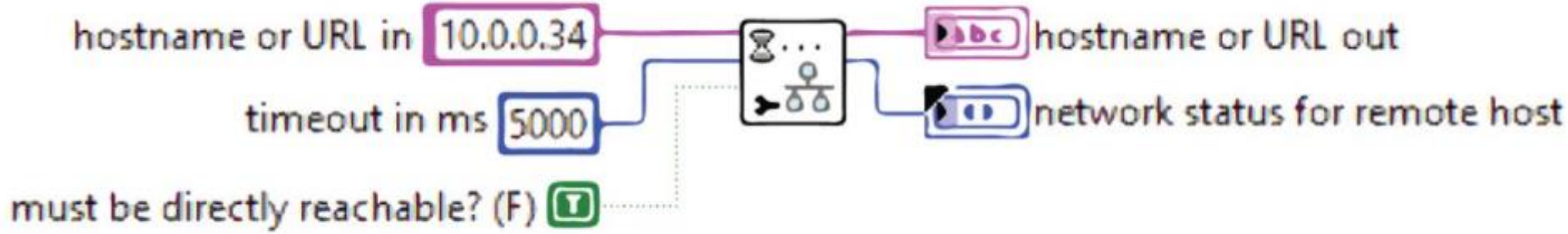
Wait for Configured Network.vi

The “wait for configured network” VI was introduced with 2019.

You can use it instead of manually programming connection retry mechanism.



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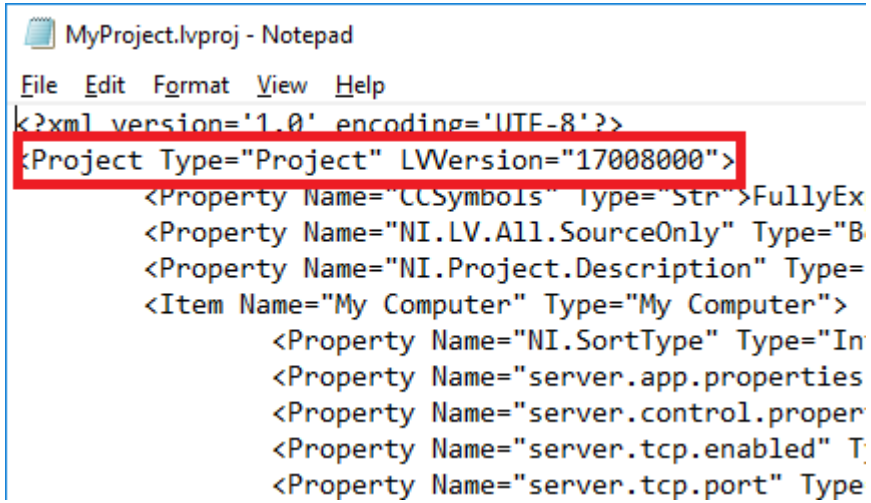
What LabVIEW version is my project?

A LabVIEW project file (*.lvproj) uses the XML file format. By opening it in a text editor you can quickly determine the LabVIEW version it was created in.

Open in Notepad



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