All-in-one PDV (APDV) Control, Analysis, and Reporting Software

PDV Workshop

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Outline

- Acknowledgements
- Purpose
- Previous LLNL PDV Control Software
- All-In-One PDV Control
- Summary

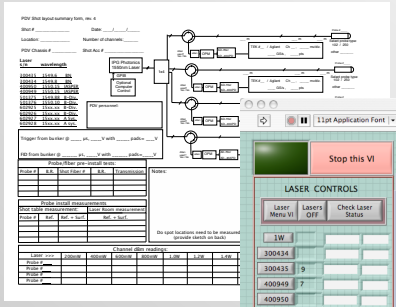
Acknowledgments

- Long Tran
- Randy Bonner
- Jose Sinibaldi

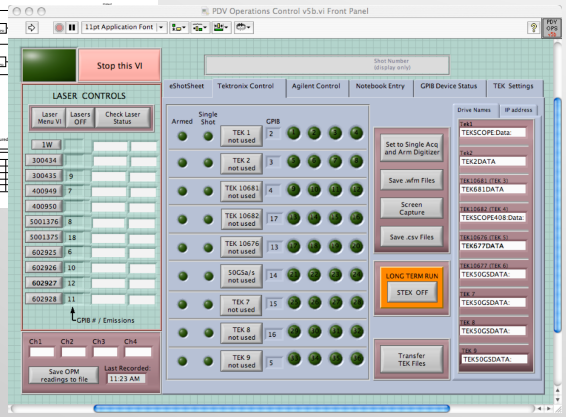
Purpose

- Simplify system controls
- Document system configuration
- Integrate control, analysis, and reporting into one executable

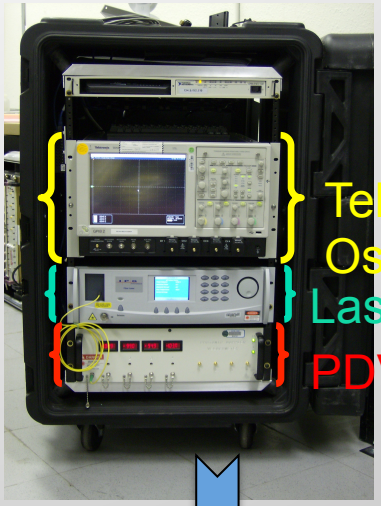
Software History

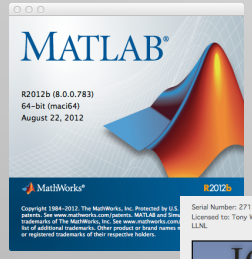


LabVIEW



Standard LLNL PDV, 4-Channels



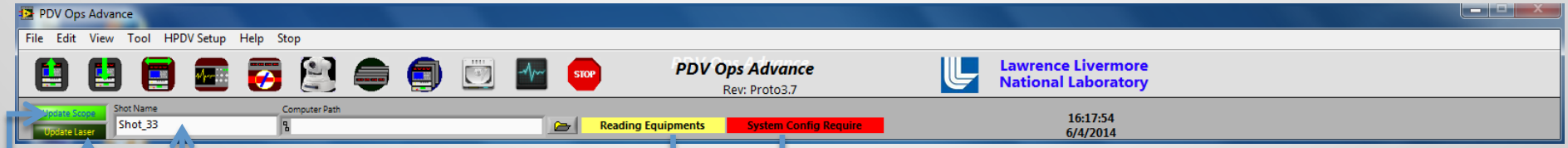


.wfm files
.csv files
.jpg files

Requirements For Software

- Control and monitor up to five PDV systems
  - IPG Photonics lasers, Tektronix oscilloscopes, RIO Orion laser modules, Variable attenuators, Optical power monitors
- Document system configurations
- Provide an easy data processing interface
- Generate a quick report

PDV Ops Advance Menu Bar



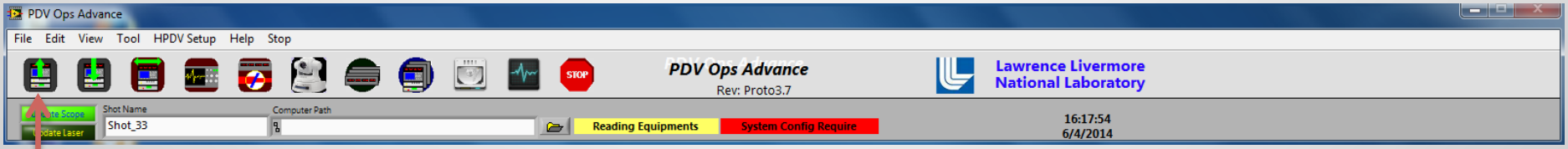
Multi-function Status Indicators

Shot Name control, appended to data folders and files

Heartbeat indicator for laser updates

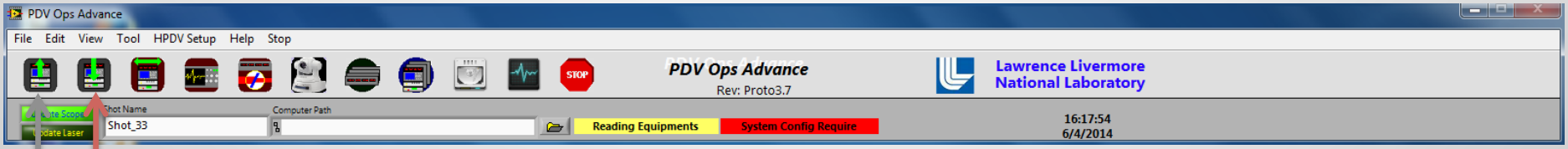
Heartbeat indicator for oscilloscope updates

Load Previously Saved Setup Files



Load Setup – standard file dialogue

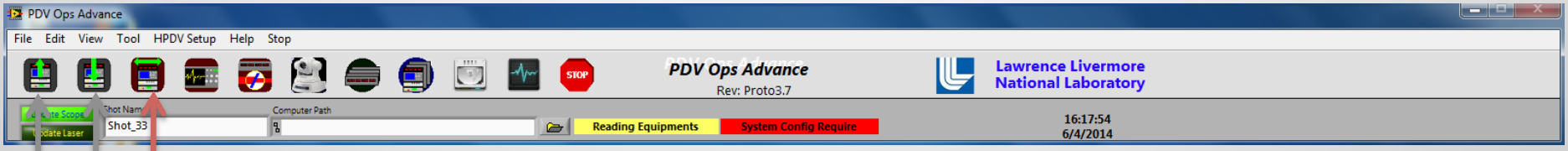
Save Setup Files

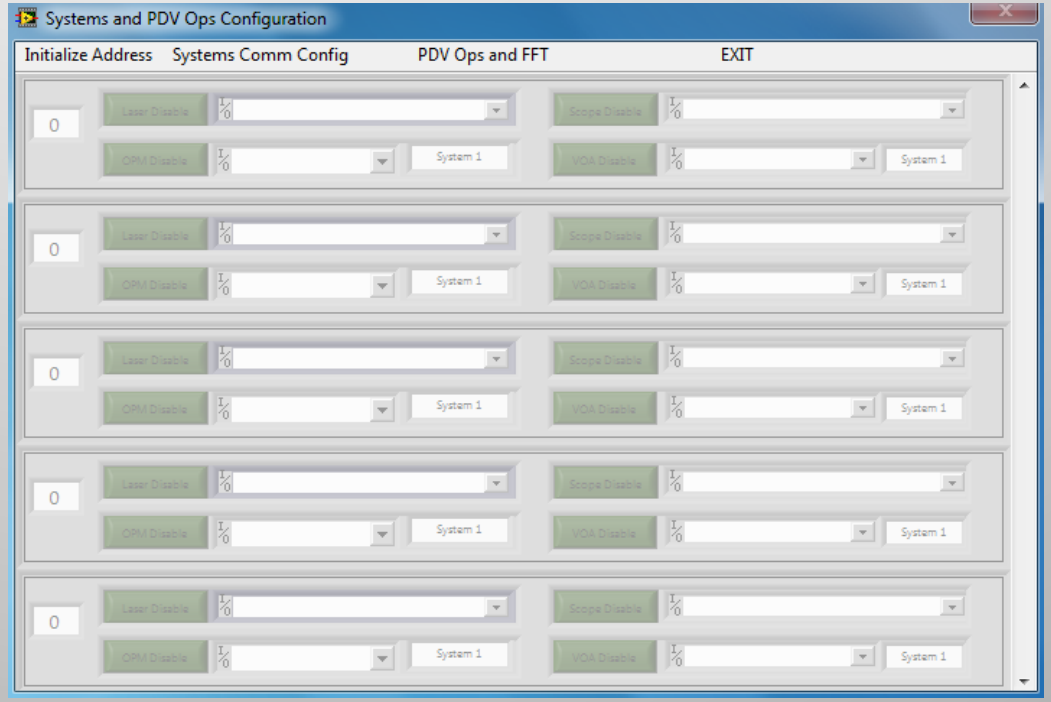


Save Setup – simple file dialogue

Load Setup

Specify System Components



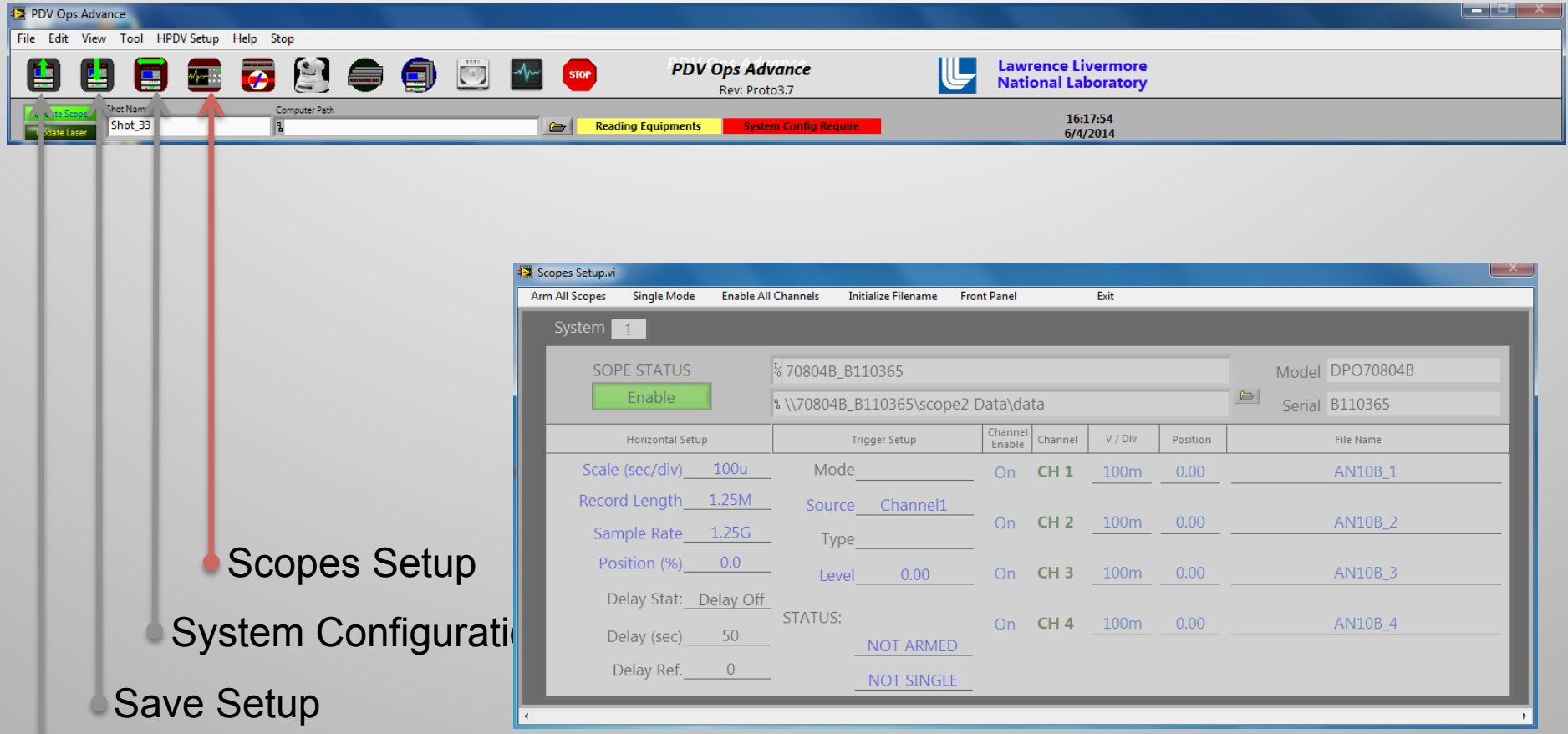


System Configuration

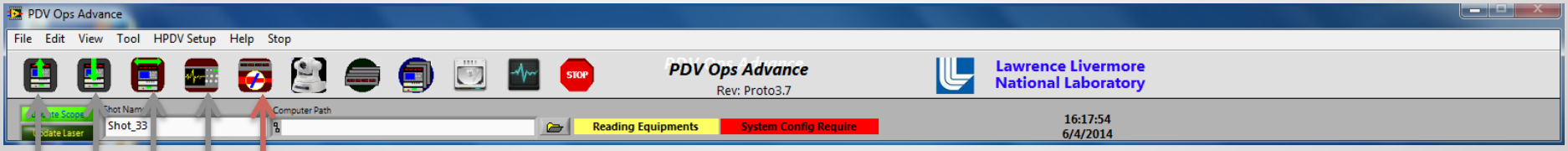
Save Setup

Load Setup

Configure Oscilloscopes



Laser Power / Attenuator Adjustment



Laser Power Setup

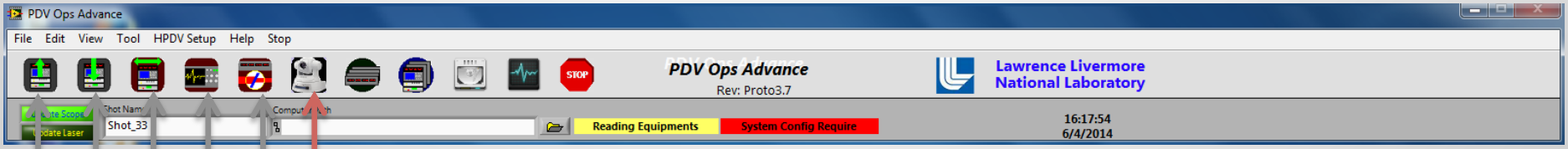
Scopes Setup

System Configuration

Save Setup

Load Setup

View From IP Camera



Camera view

Laser Power Setup

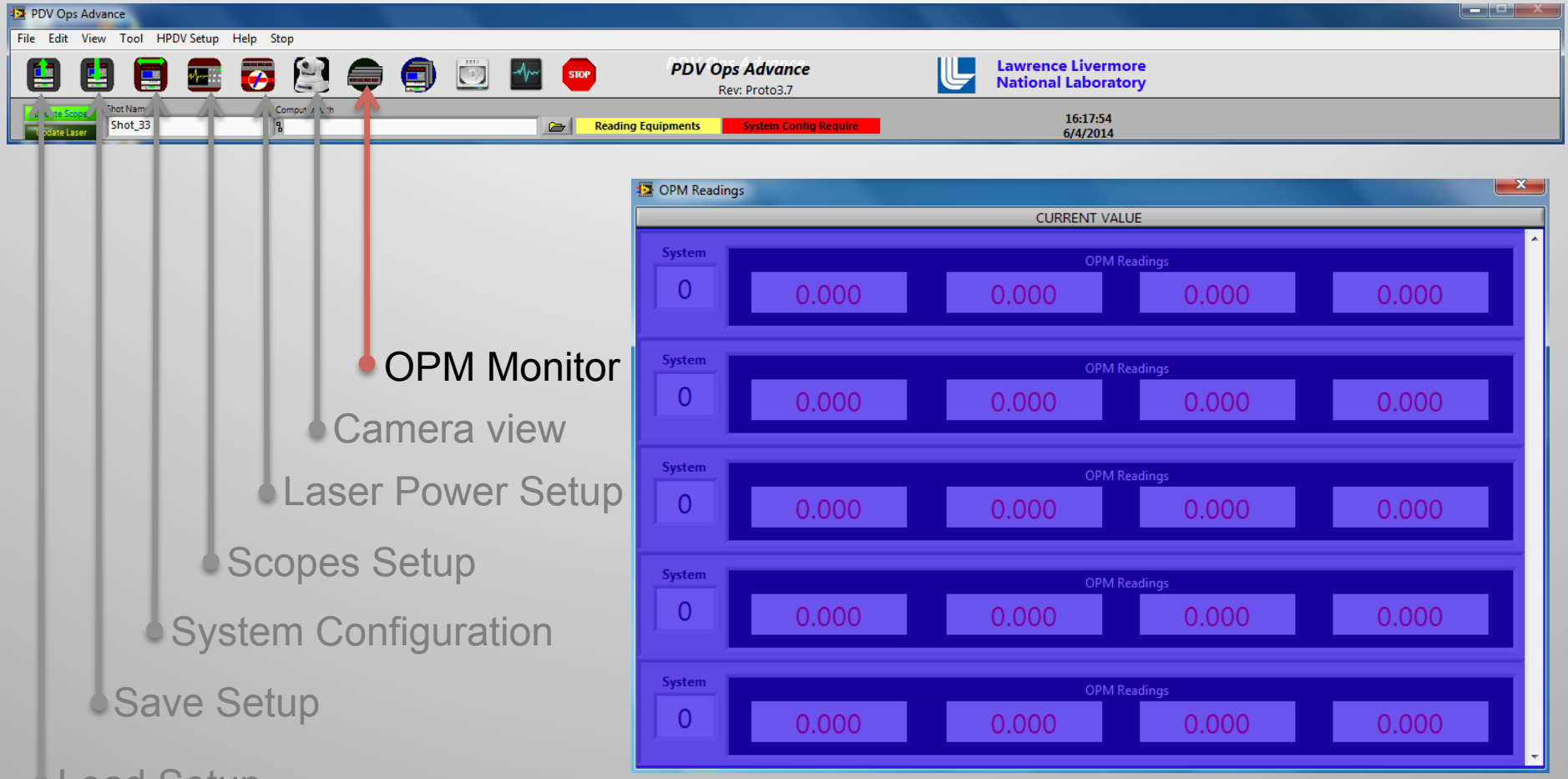
Scopes Setup

System Configuration

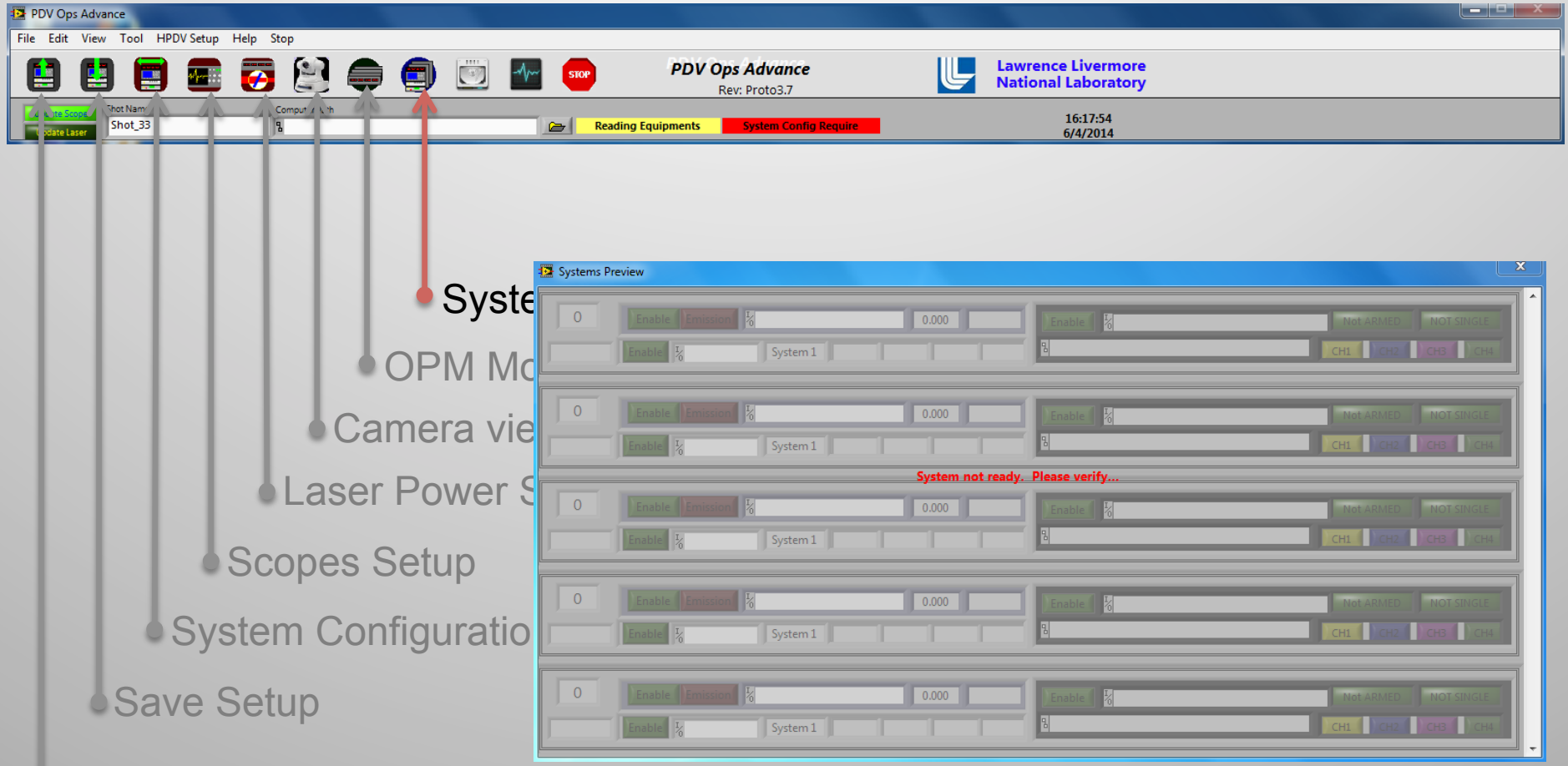
Save Setup

Load Setup

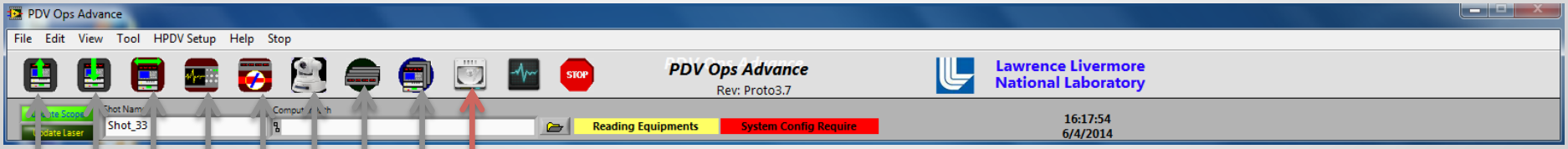
Optical Power Monitor Displays



Overview Of Systems



Main Menu Bar



Save Data – simple file dialogue. Saves data for all Systems as specified in the System Configuration and Scopes Setup GUI's.

System Overview

OPM Monitor

Camera view

Laser Power Setup

Scopes Setup

System Configuration

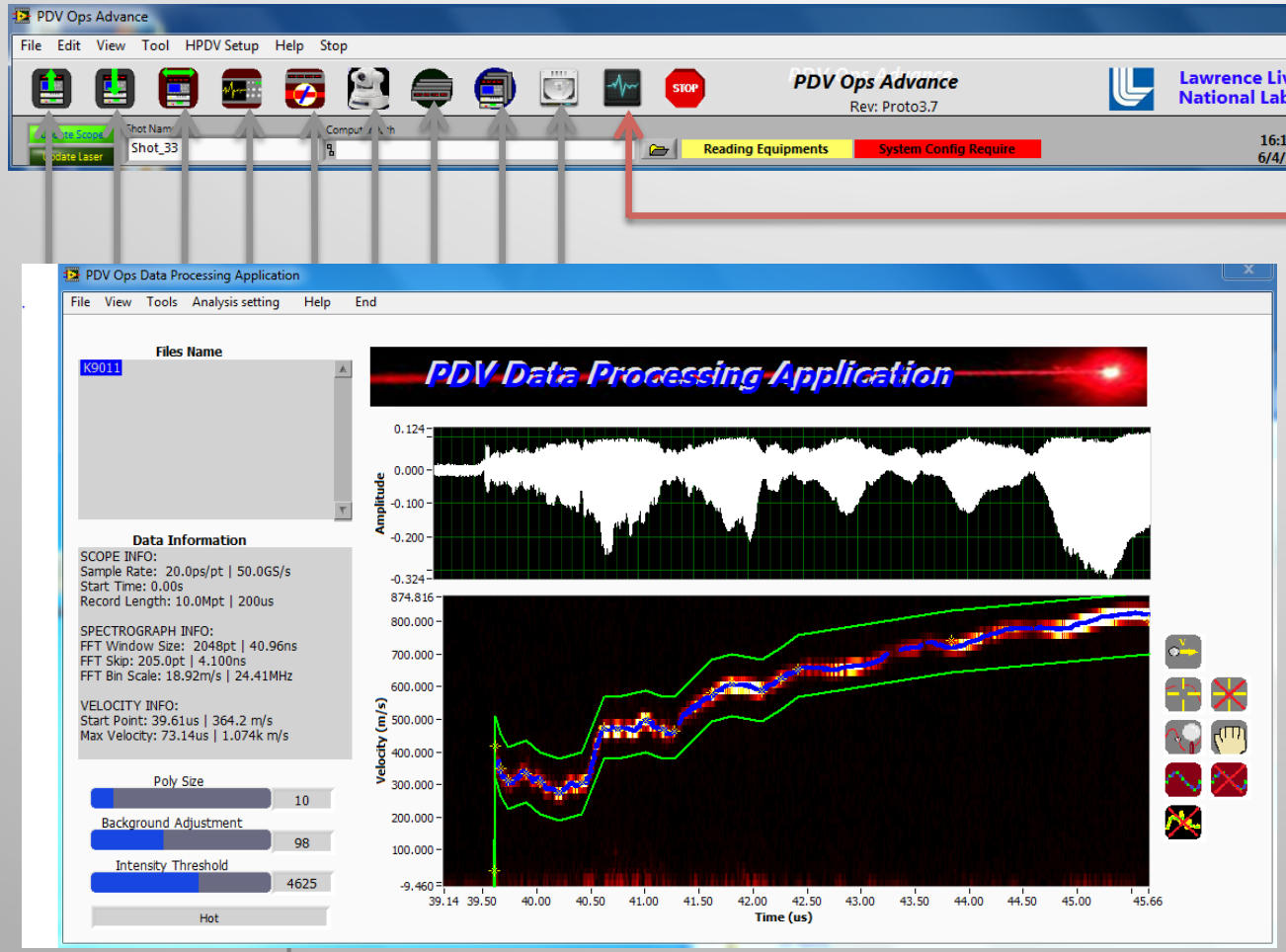
Save Setup

Load Setup

User can select to save:
.wfm
.csv
Screen shots

Auto Save Enable/Disable
Auto Process Data
Auto Arm Systems

Data Processing Application



Process Data

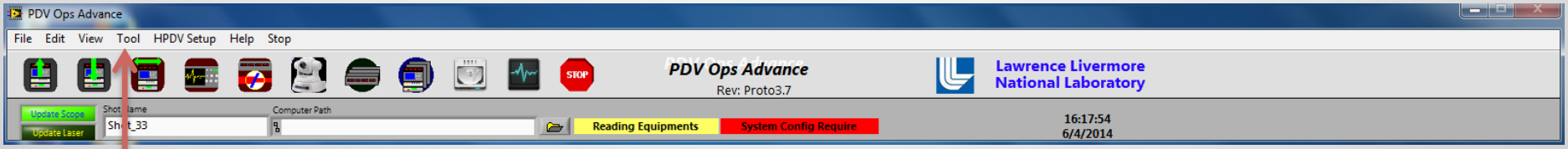
Sliding FFT

Extract Method:
Polynomial, Spline, Peak, or Gaussian

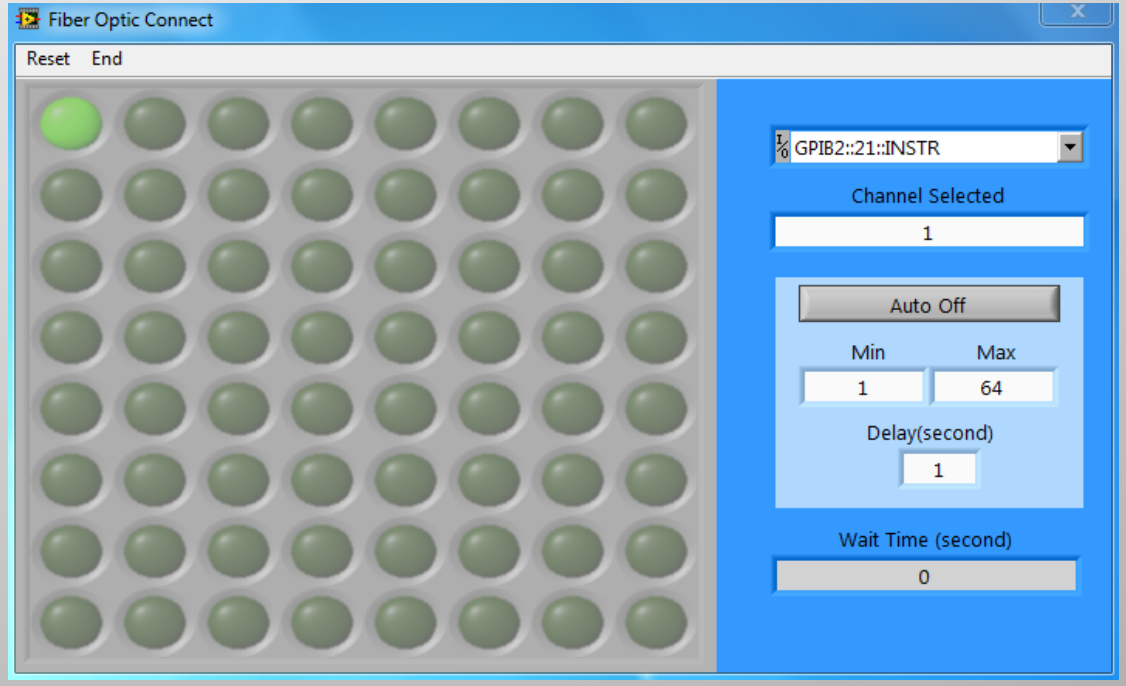
Window Type:
Hann, Hamming, and others

Variable overlap (Skip %)

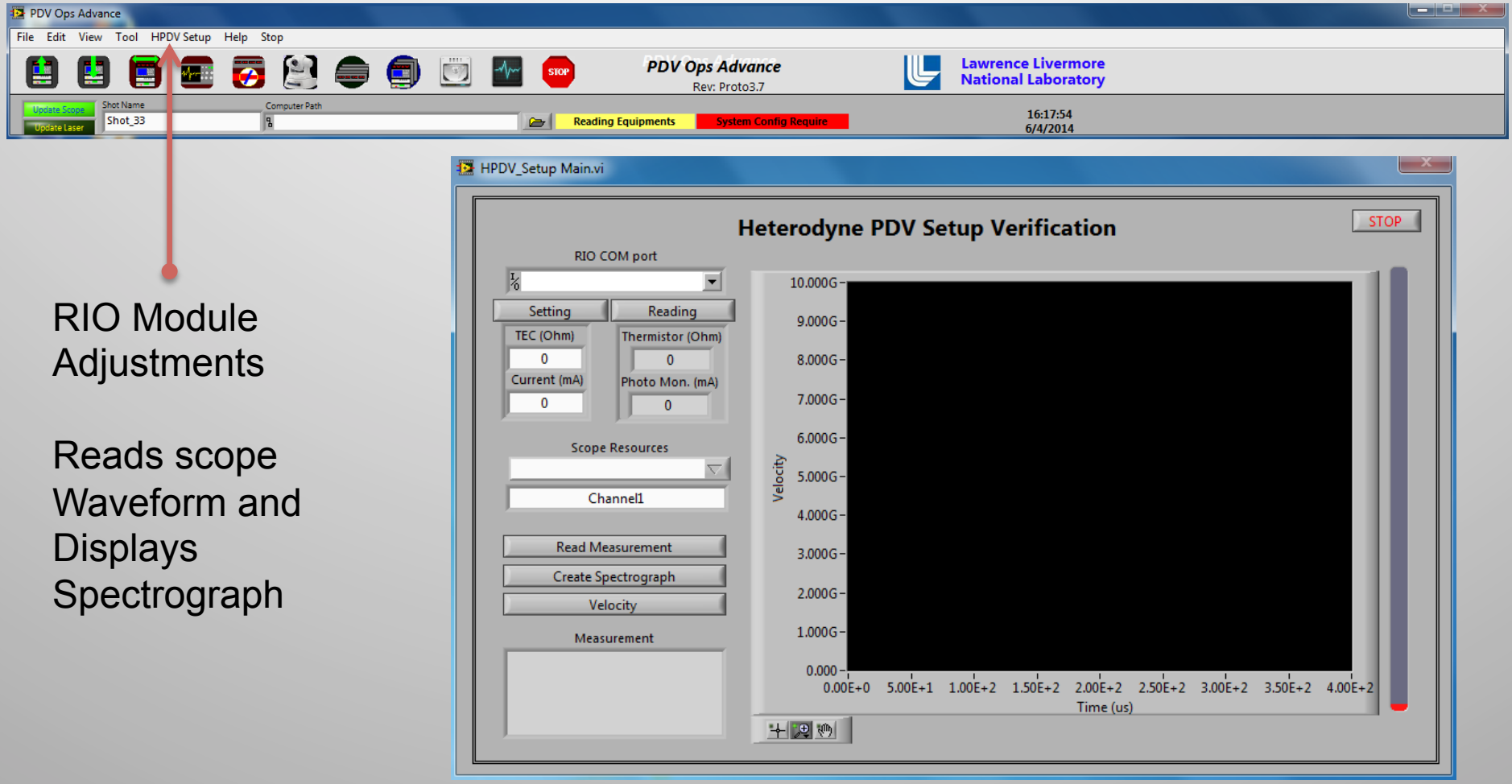
DiCon 1x64 Switch Integration



Tool Menu also contains the Fiber Optic Connect test panel And Report Generation menu



Heterodyne Tuning



RIO Module Adjustments

Reads scope Waveform and Displays Spectrograph

Summary

- Multi-Use PDV Control, Analysis, and Report generation.
- Can handle up to 5 systems
- LabVIEW executable
- Windows compatible
- Still want to implement Luna OBR measurements with the DiCon switch

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