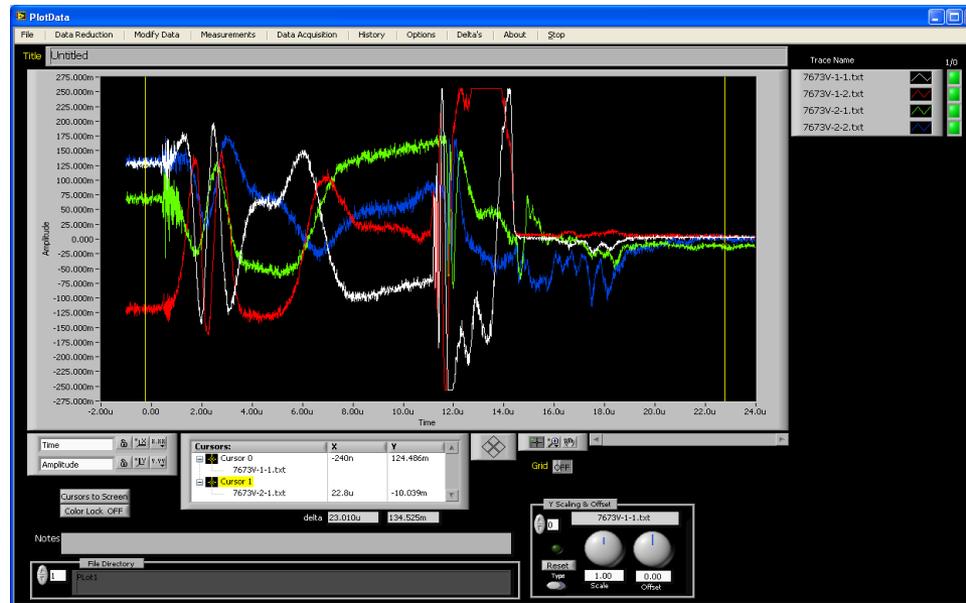


# PlotData software

## Data Acquisition and Waveform Manipulation System



David Wackerbarth (505) 844-6198 [dewacke@Sandia.gov](mailto:dewacke@Sandia.gov)

Weapon Controls Department

Sandia National Labs

P.O. Box 5800

Albuquerque New Mexico 87185-0348



# Back Ground

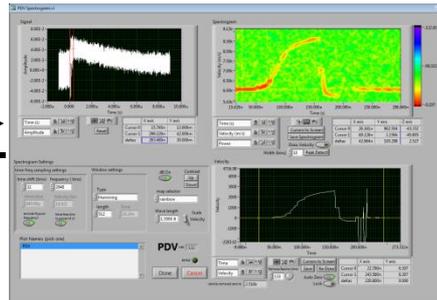
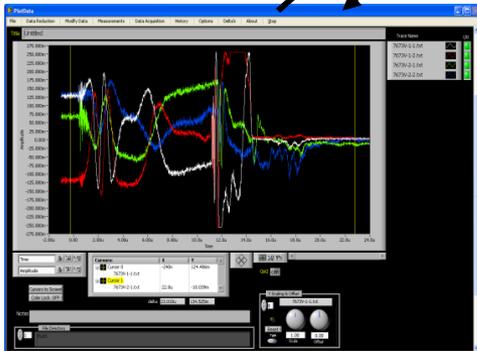
---

- **Electronics technician for Sandia for 30 years**
- **Gas Gun Facility, Operated & Maintained, Shock Wave Physics dept.**
- **VISAR, PVDF (Bauer) Gauge Characterization**
- **Programmed with Asyst, LabVIEW 3.0**
- **Explosive Components Facility (ECF) using Carbon and Manganun gauges**
- **PlotData was born**

# PlotData Overview



GPIB  
USB  
Ethernet



PlotData is designed for post-acquisition of waveform data and analysis. PlotData is an advanced interactive data analysis environment. PlotData operates on a National Instruments' LabVIEW™ software platform. Using PlotData, the user can capture waveform data from most digitizing oscilloscopes over a GPIB, USB and Ethernet interface. PlotData can both import and export several types of binary waveform files including, but not limited to, Tektronix .wfm, LeCroy .trc and ASCII xy pair files. Waveform manipulation includes numerous math functions, integration, differentiation, smoothing, truncation, and other specialized data reduction routines such as VISAR, PDV, PVDF (Bauer) piezoelectric gauges, and piezoresistive gauges such as carbon manganin pressure gauges. PlotData has a strip chart recording mode. PlotData retains trace history and can create presentation quality pictures and hard copies.

# Scope Data Acquisition

Data Acquisition Dialog Box

Test Title  
WCU DO2 DC1 Current Surge test with 5.11Ohm current limit resistor

Channel Name	1/0	Color	Dig Type	Interface Type	Address/Equation	Dig Channel	Comments	[Cursors]	Status
CH1	<input checked="" type="checkbox"/>		LECROY.	Ethernet	192.168.2.2	C1	Info		
CH2	<input checked="" type="checkbox"/>		LECROY.	Ethernet	192.168.2.2	C2	Info		
CH3	<input checked="" type="checkbox"/>		LECROY.	Ethernet	192.168.2.2	C3	Info		
CH4	<input checked="" type="checkbox"/>		LECROY.	Ethernet	192.168.2.2	C4	Info		
CH5	<input checked="" type="checkbox"/>		AGILENT	Ethernet	192.168.2.26	CHAN1	Info		
CH6	<input checked="" type="checkbox"/>		AGILENT	Ethernet	192.168.2.26	CHAN2	Info		
CH7	<input checked="" type="checkbox"/>		AGILENT	Ethernet	192.168.2.26	CHAN3	Info		
CH8	<input checked="" type="checkbox"/>		AGILENT	Ethernet	192.168.2.26	CHAN4	Info		
	<input checked="" type="checkbox"/>			GPIB			Info		
	<input checked="" type="checkbox"/>			GPIB			Info		
	<input checked="" type="checkbox"/>			GPIB			Info		
	<input checked="" type="checkbox"/>			GPIB			Info		
	<input checked="" type="checkbox"/>			GPIB			Info		
	<input checked="" type="checkbox"/>			GPIB			Info		
	<input checked="" type="checkbox"/>			GPIB			Info		

Strip Chart Recorder

**Collect Data**

Delete Last Modified	Delete All	Print
Save Settings	Recall Settings	
Arm Scopes (single)	Force Trigger	
Lock Scopes	UnLock Scopes	

Done

**Data Acquisition Options**

- Display Data After Collection.
- Preview Data After Collection.
- Auto Save Data (.plt) After Collection.
- Load Digitizer Settings
- Arm/Trigger/Lock/Monitor All Scopes
- Collect Data After Trigger
  - With Dialog
  - Re-Arm
- Scope Arm Monitor
  - Computer Audio
  - Scope Audio

Find Available Scopes

Show Math Help | Delete Backup Files



# File Types

---

- **Import File Types**

Auto Detect

PlotData (.plt)

ASCII (.csv)

TDMS (.tdm)

Tektronix (.wfm, .csv, .isf, and .wfa)

LeCroy (.trc)

Sound (.wav)

- **Export File Types**

PlotData (.plt)

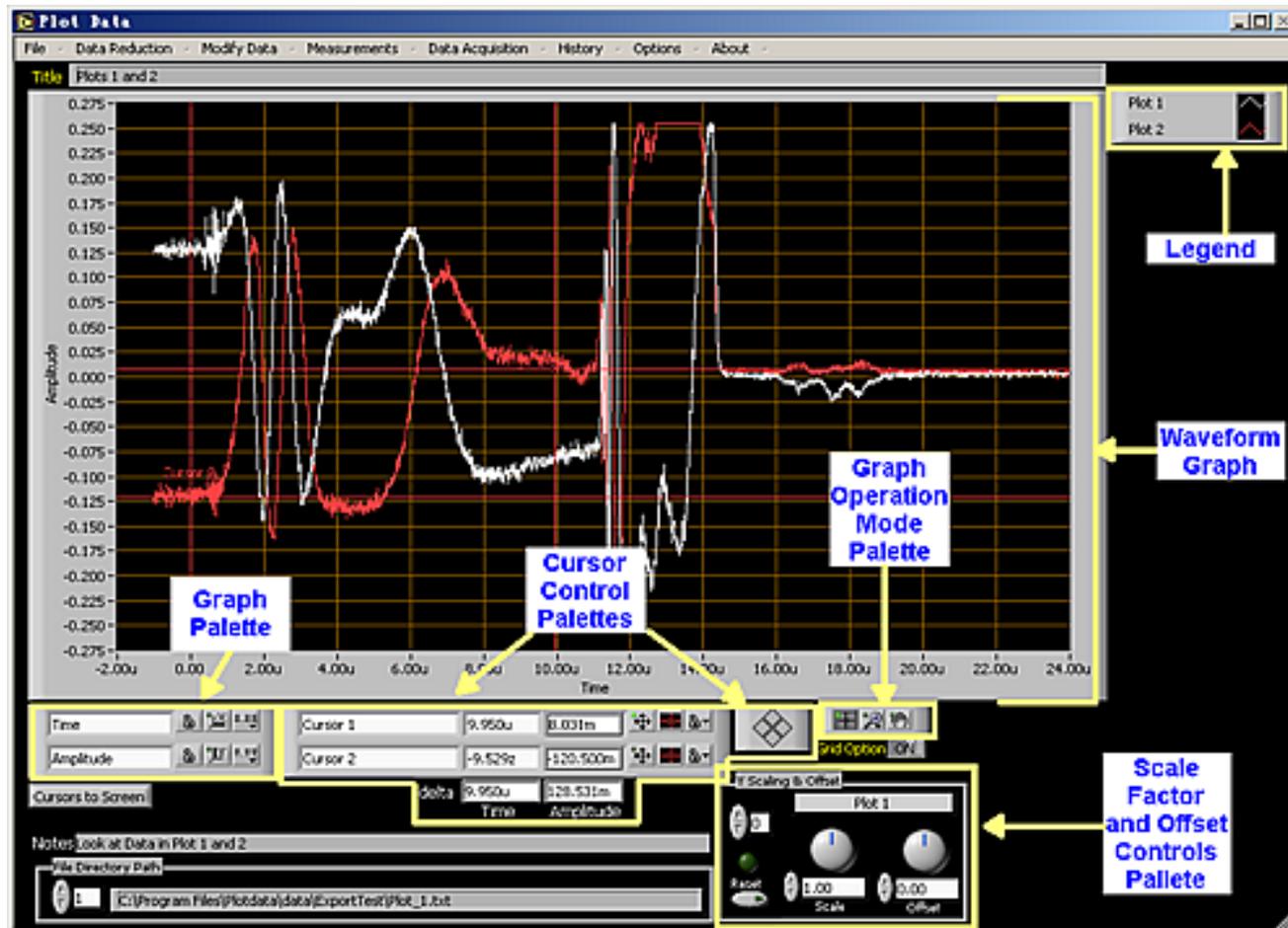
PlotData (.spn) Snap Shot

ASCII XY Pair (.csv)

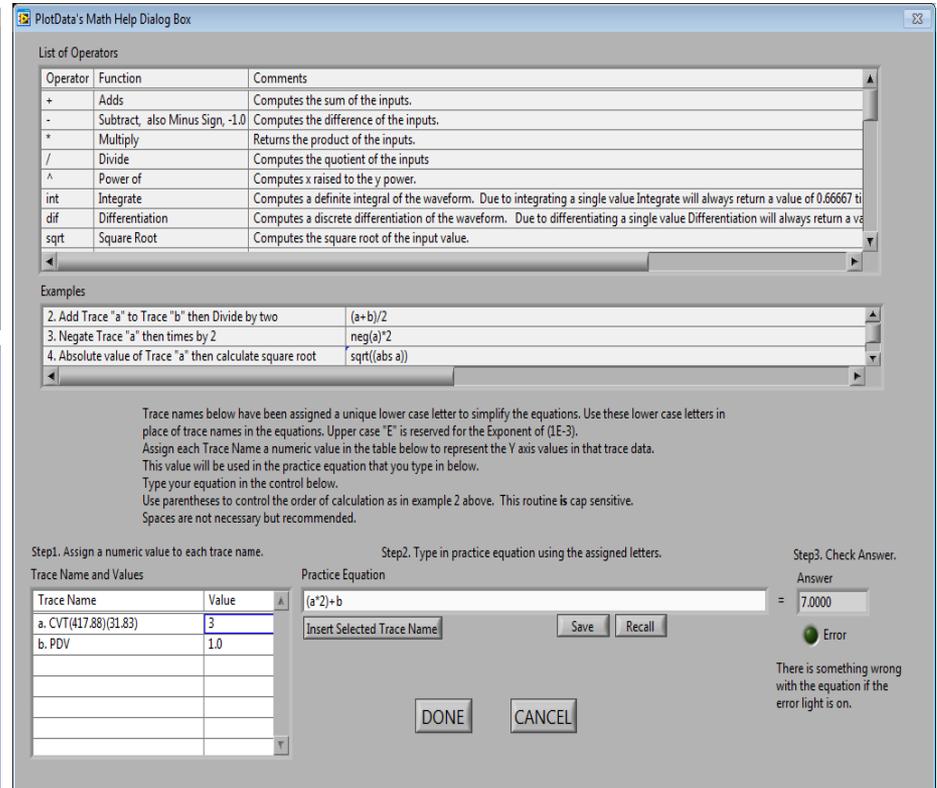
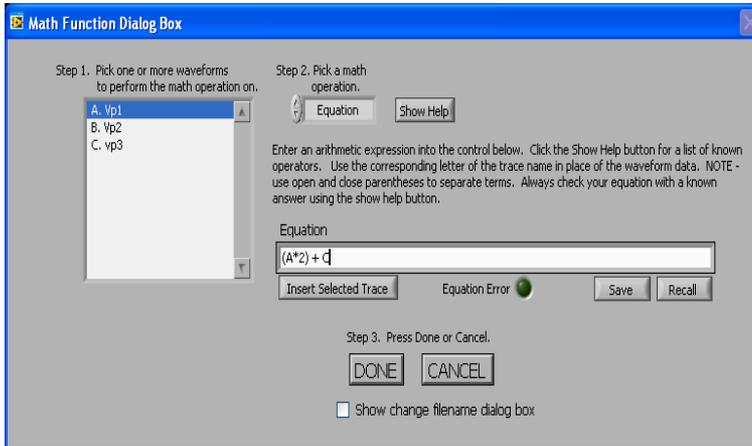
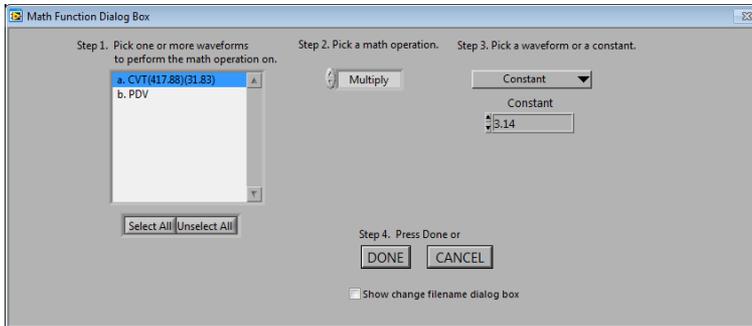
ASCII multi XY Pair (.csv)

Sound (.wav)

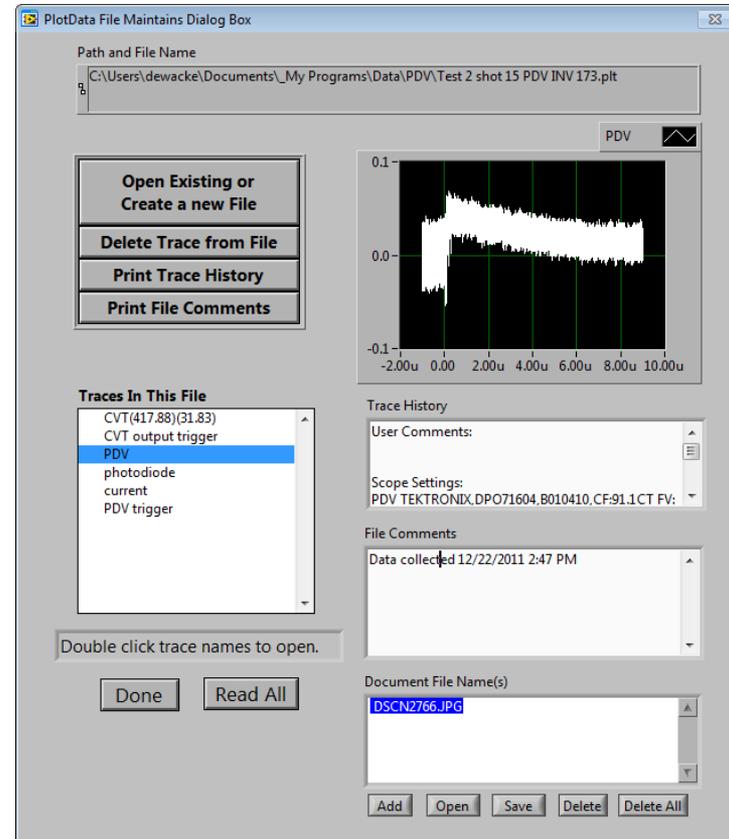
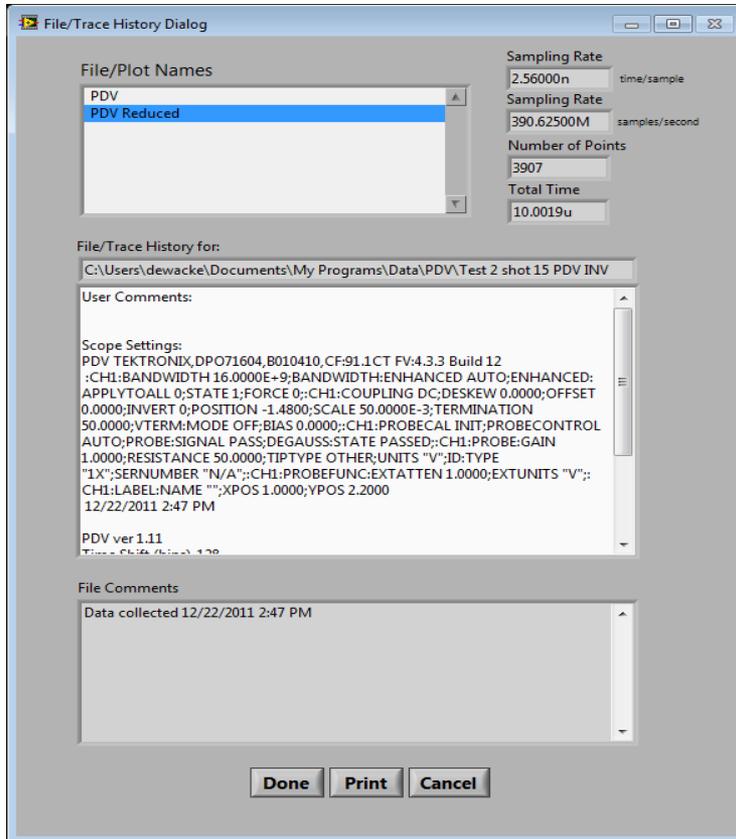
# PlotData Main Screen



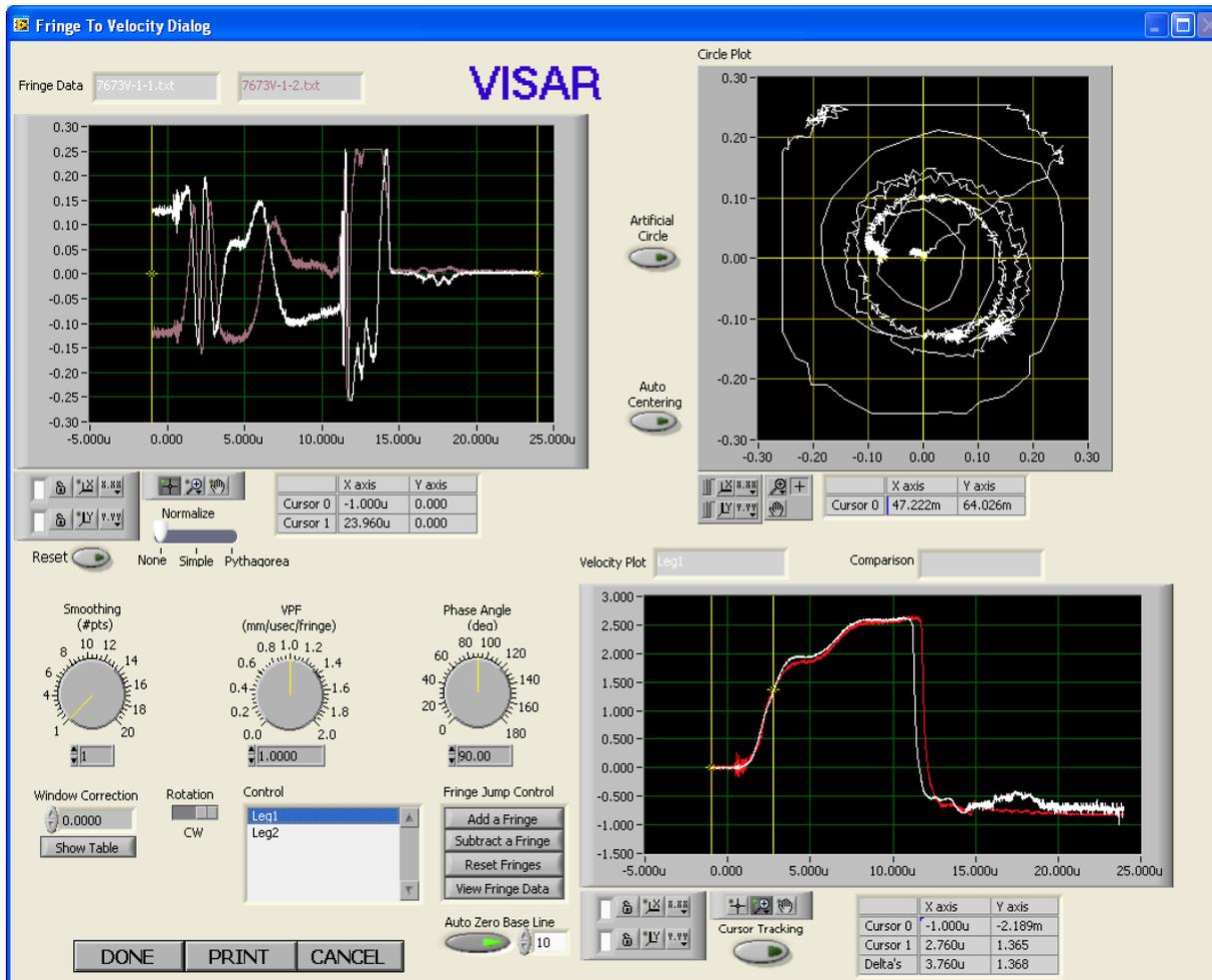
# PlotData's Math Function Dialog Box



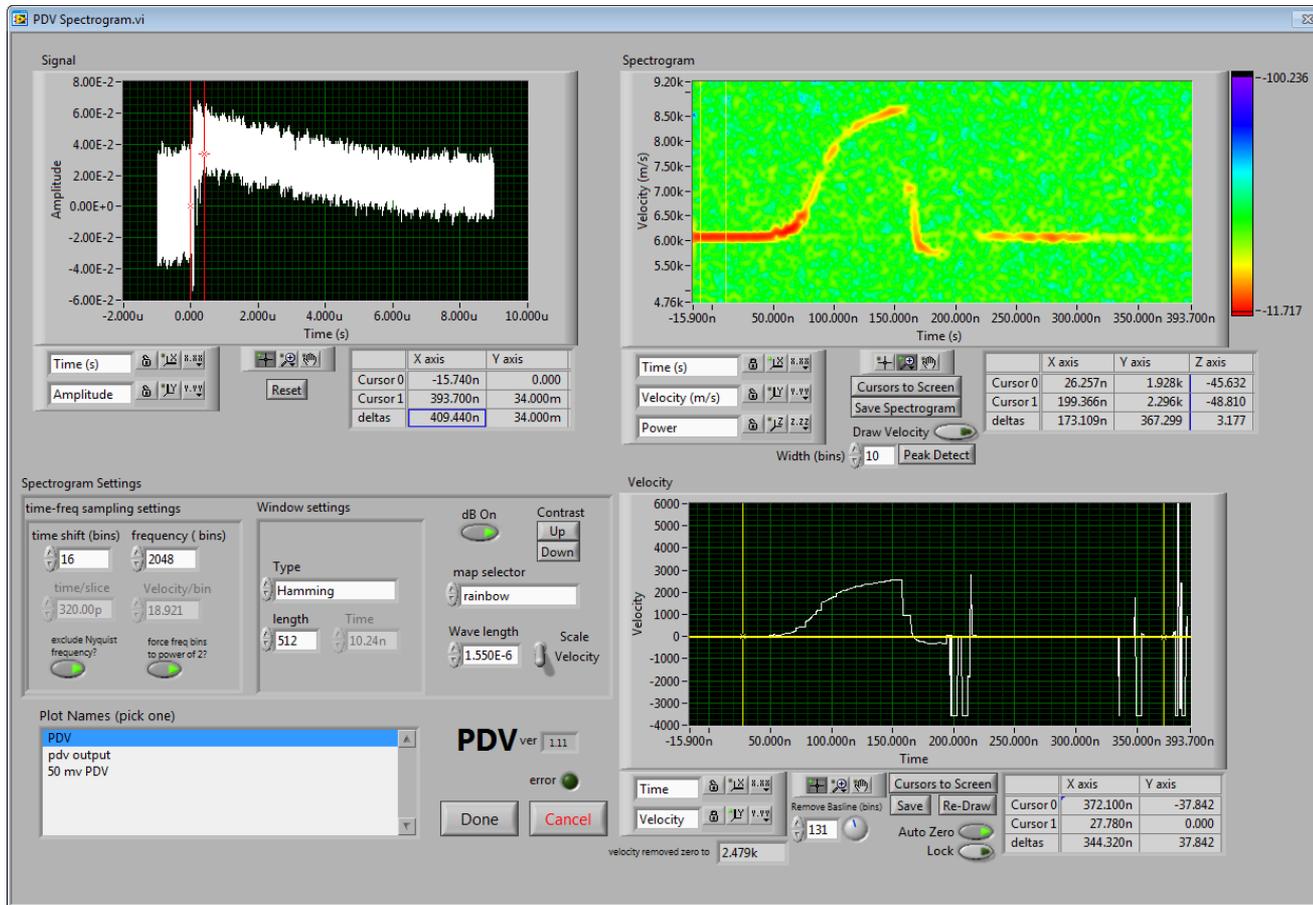
# PlotData's History and File Dialog Box



# VISAR Data Reduction



# PDV Data Reduction

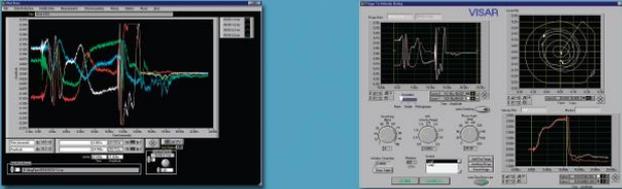


# Help Manual and Video Files

SAND2007-2688P  
Unlimited Release  
Printed May 2007

## PlotData Graph Plot Software User Manual: Version 2.5

David E. Wackerbarth



Prepared by  
Sandia National Laboratories  
Albuquerque, New Mexico 87185 and Livermore, California 94550

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Approved for public release further dissemination unlimited.

**PlotData Software  
Real-Time Reduction and  
Manipulation of Waveform Data**

**Unique features include:**

- Simple operations
- Real-time data manipulations
- Data changes are displayed instantly
- Control knob appears when smoothing operation is invoked
- Smoothing operation is applied to the waveform continuously
- Operators can perform multiple operation on multiple waveforms
- Results displayed in real-time
- Data acquisition and processing routines are easily added

 Sandia National Laboratories

http://info.sandia.gov/PlotData/help/%20videos/help\_videos.html

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## PlotData Graph Plot Software

Introduction Down Load Manual **Help Videos** Questions & Answers Trouble Shooting

Help Videos

Name	Date modified	Type
<a href="#">Chapter 1-1-0 Main Dialog Box.mp4</a>	11/10/2009 8:34 PM	Video Clip
<a href="#">Chapter 1-1-1 Legend Palette.mp4</a>	11/10/2009 9:34 PM	Video Clip
<a href="#">Chapter 1-1-2 Graph Palette.mp4</a>	11/11/2009 7:37 PM	Video Clip
<a href="#">Chapter 1-1-3 Cursor Control Palette.mp4</a>	11/11/2009 9:59 PM	Video Clip
<a href="#">Chapter 1-1-4 Graph Operation Mode Palette.mp4</a>	11/17/2009 9:06 PM	Video Clip
<a href="#">Chapter 1-1-5 Scale &amp; Offset Control Palette.mp4</a>	11/18/2009 7:46 PM	Video Clip
<a href="#">Chapter 1-1-7 Notes &amp; File Path Palette.mp4</a>	11/29/2009 3:28 PM	Video Clip
<a href="#">Chapter 1-1-7-1 Dual Y Axis Switch.mp4</a>	11/18/2009 8:47 PM	Video Clip
<a href="#">Chapter 1-1-9 PlotData's Main Toolbar.mp4</a>	11/30/2009 4:51 PM	Video Clip
<a href="#">Chapter 1-2 File.mp4</a>	11/30/2009 4:21 PM	Video Clip
<a href="#">Chapter 1-3 History.mp4</a>	12/1/2009 7:41 PM	Video Clip
<a href="#">Chapter 1-4 Delta's.mp4</a>	12/1/2009 8:19 PM	Video Clip
<a href="#">Chapter 2-1 Options.mp4</a>	12/5/2009 10:57 AM	Video Clip
<a href="#">Chapter 2-3-1 Importing ASCII File.mp4</a>	12/6/2009 11:38 AM	Video Clip
<a href="#">Chapter 2-3-1 Importing PlotData File.mp4</a>	12/6/2009 12:47 AM	Video Clip
<a href="#">Chapter 2-3-2 Importing Other Files.mp4</a>	12/6/2009 1:18 PM	Video Clip
<a href="#">Chapter 2-4 Exporting Data.mp4</a>	12/9/2009 4:25 PM	Video Clip
<a href="#">Chapter 2-5-1 Data Acquisition Part 1.mp4</a>	12/9/2009 9:23 AM	Video Clip
<a href="#">Chapter 2-5-1 Data Acquisition Part 2.mp4</a>	11/5/2009 2:51 PM	Video Clip
<a href="#">Chapter 2-5-1 Data Acquisition Part 3.mp4</a>	11/5/2009 4:20 PM	Video Clip
<a href="#">Chapter 2-5-1 Data Acquisition Part 4.mp4</a>	11/2010 7:06 PM	Video Clip



# Obtaining PlotData

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- **Sandia-** go to Sandia's home page and search for PlotData, down load
- **Other government agencies-** contact David Wackerbarth, fill out form.
- **Contract with Sandia-** contact David Wackerbarth, fill out form.
- **All others-** purchase from Valyn V.I.P Inc.

David Wackerbarth (505) 844-6198 [dewacke@Sandia.gov](mailto:dewacke@Sandia.gov)

Weapon Controls Department

Sandia National Labs

P.O. Box 5800

Albuquerque New Mexico 87185-0348