

## Using MATLAB® with LeCroy Oscilloscopes

Engineers and scientists turn to LeCroy oscilloscopes when they need to make customized measurements. MATLAB extends the functionality of LeCroy oscilloscopes by allowing users to make customized measurements or perform data analysis that would not otherwise be possible.

### What is MATLAB?

MATLAB is a software environment used by over 1,000,000 users world-wide in various industries and at more than 3,500 colleges and universities. Its high-level language and interactive environment enable you to perform computationally intensive tasks faster than with traditional programming languages such as C, C++, and Fortran.

### How do I use MATLAB with LeCroy oscilloscopes?

1. *Instrument Control and Configuration* – Use MATLAB on the scope or on a remote computer to configure and control LeCroy oscilloscopes or other instruments. Acquire data into the MATLAB environment for building analysis routines. Requires MATLAB's Instrument Control Toolbox.
2. *Live Data Streaming* – Use MATLAB directly on Windows-based LeCroy oscilloscopes to stream data into and out of MATLAB on every trigger event. Define a Custom math channel using MATLAB and enter your analysis routine into the data stream of the scope. Requires LeCroy's XDEV option.

### Value of MATLAB to LeCroy oscilloscope users

1. Make customized measurements (such as a non-standard rise-time measurement or signal filtering) with MATLAB and show the results directly in the LeCroy user environment or in MATLAB.
2. Data acquired by a LeCroy scope is available in the MATLAB environment without writing a single line of code.
3. Quicker access to your data improves productivity and allows you to gain faster insight into your results.

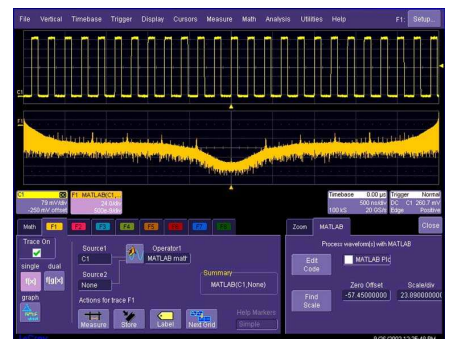
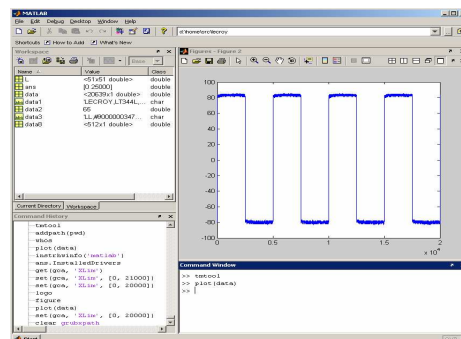
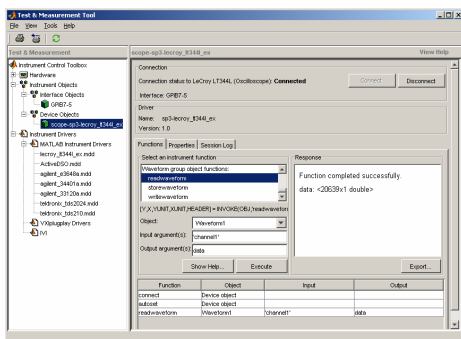
### On-line Resources

- MATLAB overview: [www.mathworks.com/products/matlab](http://www.mathworks.com/products/matlab)
- Instrument Control Toolbox: [www.mathworks.com/products/instrument](http://www.mathworks.com/products/instrument)
- XDEV: [www.lecroy.com/tm/Options/Software/XDEV](http://www.lecroy.com/tm/Options/Software/XDEV)
- Application Brief - Filter Signals using MATLAB: [www.lecroy.com/tm/library/LABs/PDF/LAB\\_WM760.pdf](http://www.lecroy.com/tm/library/LABs/PDF/LAB_WM760.pdf)
- Application Brief - Decoding NRZ Data using MATLAB: [www.lecroy.com/tm/Library/LABs/PDF/LAB766.pdf](http://www.lecroy.com/tm/Library/LABs/PDF/LAB766.pdf)
- On-Demand webinar – *Acquiring Live Data into MATLAB for Analysis*: [www.mathworks.com/wbnr11882](http://www.mathworks.com/wbnr11882)

### For More Information

To discuss how you can use MATLAB with LeCroy oscilloscopes or to arrange a product demo, contact:

- LeCroy: (800) 553-2769 or your local LeCroy representative
- The MathWorks: David Malenchini, (508) 647-7212, [david.malenchini@mathworks.com](mailto:david.malenchini@mathworks.com)



*Left: Configure and control oscilloscopes or other instruments using MATLAB and the Test & Measurement Tool provided with MATLAB's Instrument Control Toolbox.*

*Center: Acquire measurements from instruments directly into the MATLAB environment to develop analysis routines.*

*Right: Execute MATLAB analysis routines on the live data and show the results directly in the LeCroy user environment.*