

# Understanding ActiveDSO

## (and ActiveX Controls in General)

### What is ActiveDSO?

ActiveDSO is a LeCroy-designed software utility for ActiveX control of LeCroy embedded systems digitizers or digital scopes.

### What is ActiveDSO used for?

ActiveDSO can be used to control the Waverunner, 93xx or LC series LeCroy Oscilloscopes and the LSA series of embedded systems digitizers. It can exchange data with applications that support the ActiveX Standard.

### What Applications support the ActiveX controls?

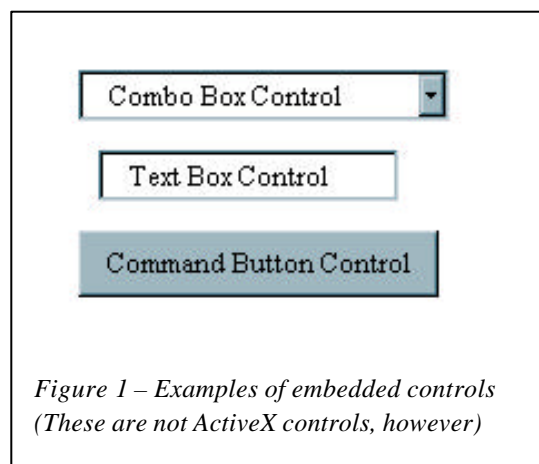
Many applications, such as Excel, PowerPoint, Internet Explorer, Visual Basic, Visual C++ and Labview allow users to incorporate ActiveX controls.

### In general, what is an ActiveX control?

ActiveX controls are often user-interface elements that can be as simple as a "push button" or as complex as a complete statistical analysis package. The "control" itself is a file with an ".ocx" extension that usually sits in the Windows directory path. Controls cannot be used alone, and need some type of "container" (such as a spreadsheet, a webpage, or a Microsoft Access Form) in which instances of the control can be embedded, or created in such a way that they are not visible.

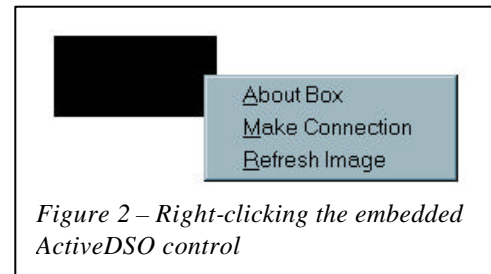
### What does it mean to "embed" an ActiveX object?

Embedding an ActiveX object is similar to including an image within a document. An embedded control (or more correctly, an embedded instance of a control) is usually a user-interface element, like the examples shown in figure 1.



## Embedding the ActiveDSO object

The embedded ActiveDSO object looks like a simple black rectangle. Right-clicking over the object opens the context menu shown in figure 2. With the embedded control it is possible to make a connection to a scope and import a screen image into your application.



## What does it mean to create an "invisible" ActiveDSO object?

ActiveX controls do not need to be visible objects; they can instead be created in software. For example, an ActiveDSO object that sits within an Excel workbook can be created in a Visual Basic for Applications (VBA) procedure. In VBA, the code needed to create the ActiveDSO is as follows:

```
Dim o As Object
Set o = CreateObject("LeCroy.ActiveDSOctrl.1")
```

where "o" is the name of the object that is created.

## Using "invisible" objects (an introduction to Methods and Properties)

ActiveX controls can be designed with Methods and Properties that users can access. Typical ActiveDSO users create an invisible ActiveDSO object, and use the methods to communicate with the scope and to transfer data.

**Methods** are essentially functions or subroutines. For example, here is the VBA code that uses the ActiveDSO method "MakeConnection" that attempts to establish a remote connection with a scope:

```
Call o.MakeConnection("GPIB: 5")
```

The MakeConnection method requires a parameter (in this case "GPIB: 5") that specifies the address of the scope. The ActiveDSO control has 27 methods to aid in oscilloscope communications.

**Properties** of an ActiveX control give users information. For example the ActiveDSO "ConnectionType" property can be called to determine if the scope is a GPIB, Network, or RS232 device. One of the more useful ActiveDSO properties is the "ErrorString" property. The following VBA code would display a message box with the description of an error that occurred:

```
MsgBox o.ErrorString
```

## Using buttons to call VBA procedures

The Microsoft Excel spreadsheet example that is included in the ActiveDSO installation uses command buttons to call VBA code.

This document (when viewed in its original Microsoft Word format) contains such a procedure. The code that is executed when clicking the button below is shown in Figure 3.



The "Click me" button itself has nothing to do with ActiveDSO, but is simply a means to facilitate the execution of a subroutine that uses an "invisible" ActiveDSO object

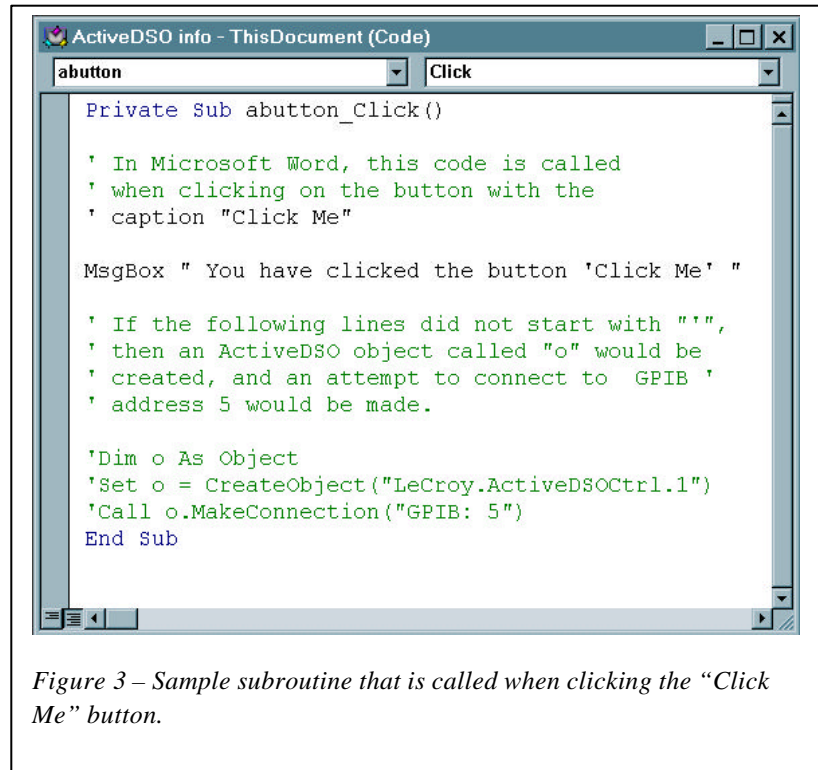


Figure 3 – Sample subroutine that is called when clicking the “Click Me” button.

## What ActiveDSO examples are available?

The ActiveDSO installation software comes with Excel examples that use the Visual Basic for Applications language to create an instance of the ActiveDSO object, communicate with the oscilloscope, and download data. The Excel examples also use command buttons described above to execute the subroutines that contain the VBA code. The ActiveDSO installation also includes C++ and HTML examples. Other examples may become available from the LeCroy website.

## Where can I get the ActiveDSO software?

ActiveDSO is available at the LeCroy website, at:

<http://www.lecroy.com/Software/ActiveDSO/Default.asp>

Filename: LAB808.doc  
Directory: \\Apini\work\LAB808  
Template: C:\Documents and Settings\kpazmino\Application  
Data\Microsoft\Templates\Normal.dot  
Title: Understanding ActiveDSO  
Subject:  
Author: LeCroy Corporation  
Keywords:  
Comments:  
Creation Date: 4/7/1999 1:29 PM  
Change Number: 3  
Last Saved On: 4/8/1999 2:33 PM  
Last Saved By: LeCroy Corporation  
Total Editing Time: 2 Minutes  
Last Printed On: 8/22/2001 2:58 PM  
As of Last Complete Printing  
Number of Pages: 3  
Number of Words: 652 (approx.)  
Number of Characters: 3,721 (approx.)