

A Beginner's Guide To The API

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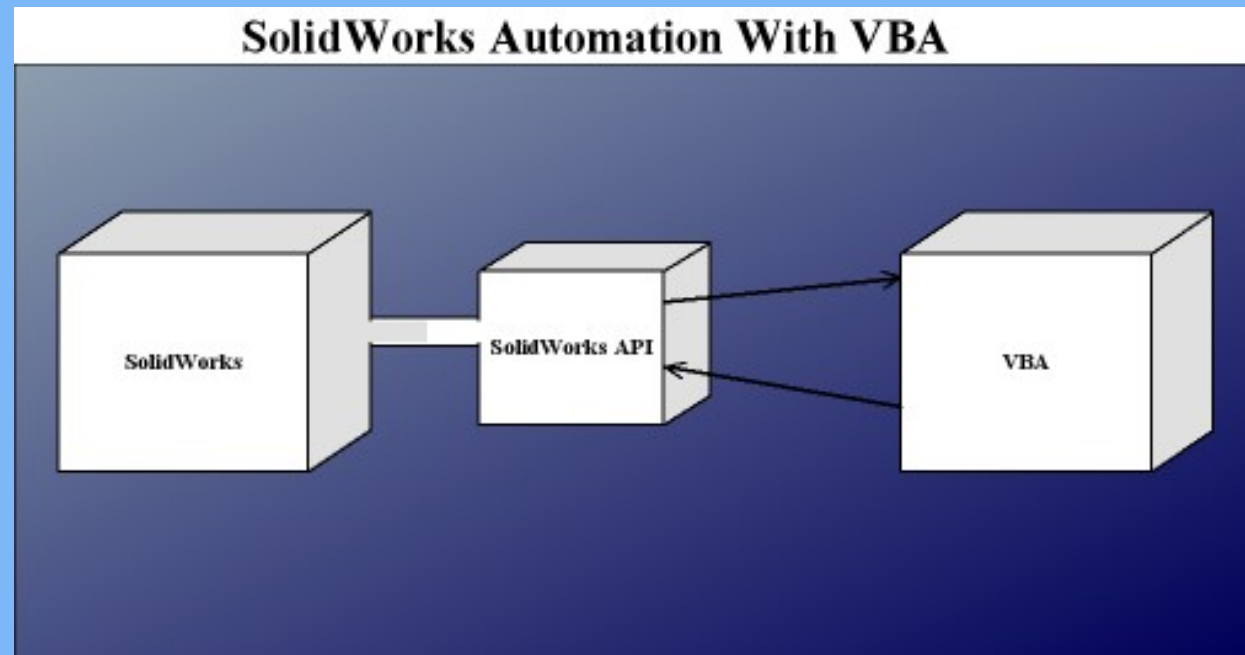
What Will We Cover?

- ▣ API Lingo
- ▣ Macro Creation Process
- ▣ Recording, Understanding and Editing a Macro
- ▣ Releasing A Macro Into The Wild
- ▣ Other Types of API Projects
 - ▣ Standalone Executables
 - ▣ Add-ins
 - ▣ Cross-application VBA



API Lingo - How to Talk Like/To A Geek

- ▣ API – Application Programming Interface
- ▣ VBA – Visual Basic for Applications
- ▣ Object – An Object is an entity that contains properties, functions, methods and/or other objects.

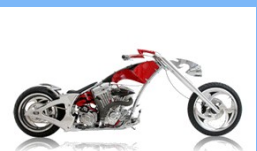


API Lingo (Continued)

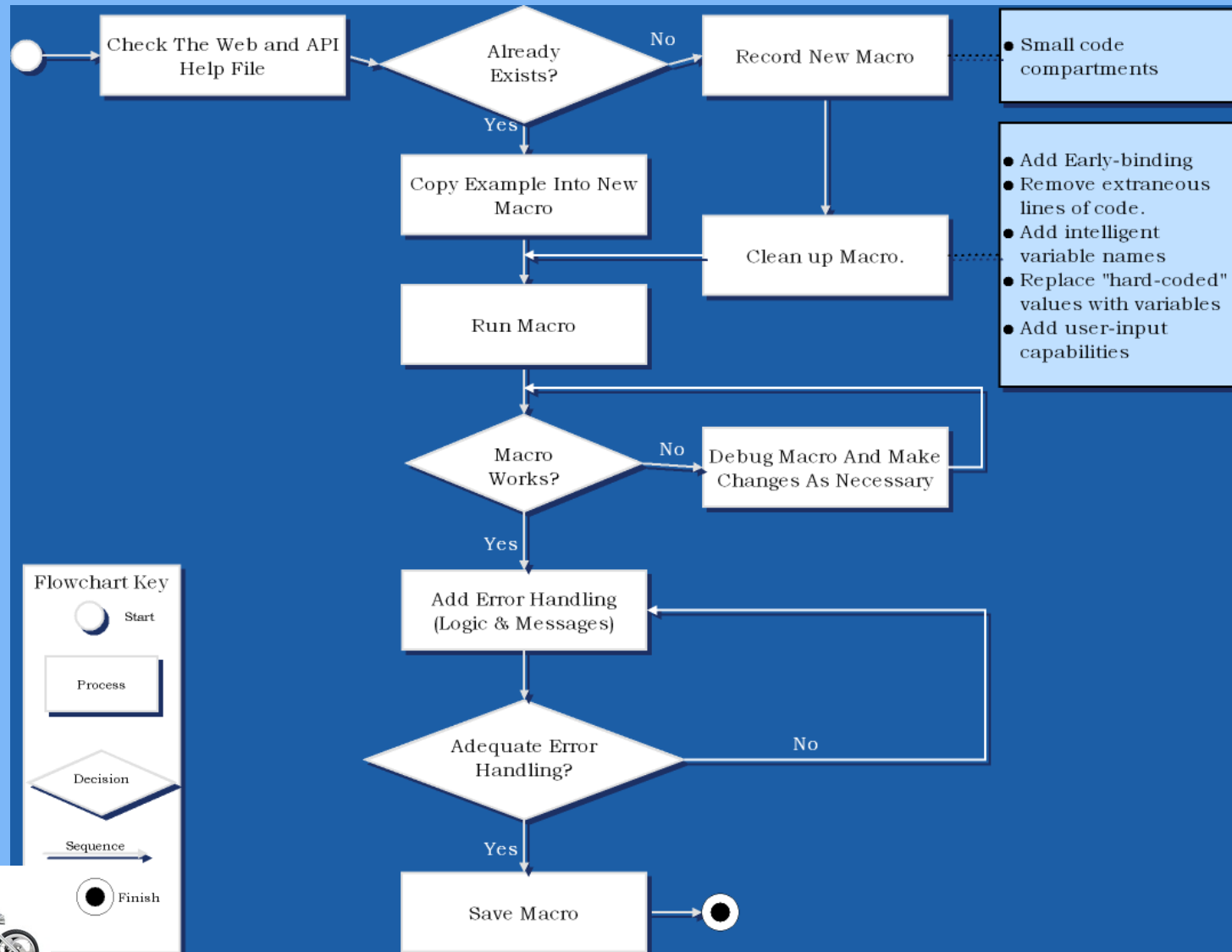
- Procedure – A set of instructions that execute but do not return a value.
- Function – A set of instructions that execute and return a value.
- Property – An attribute of an object.
- Variable – A chunk of memory used to store an object or value.



I speak
API...



Macro Creation Process

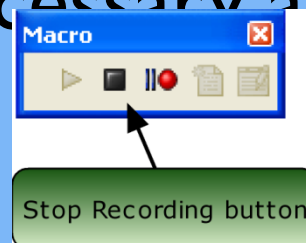


Recording A Macro

- Think about the required pre-conditions to run the Macro. Begin recording in that state.

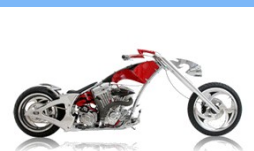
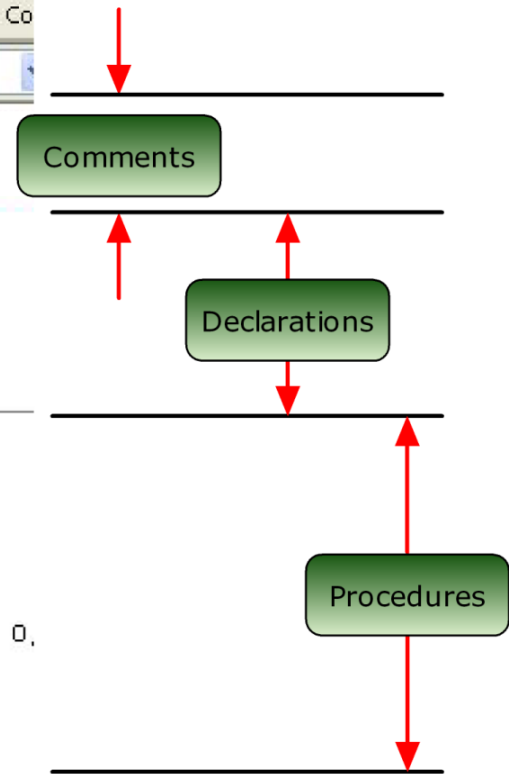


- Record small and compartmentalized Macros. Combine them as necessary as you go.



The Anatomy Of A Macro

```
Microsoft Visual Basic - ConcentricMate - [ConcentricMate1 (Code)]
File Edit View Insert Format Debug Run Tools Add-Ins Window Help
(General)
' *****
' C:\DOCUME~1\JEFFCO~1\LOCALS~1\Temp\swx2368\Macro1.swb - r
' *****
Dim swApp As Object
Dim Part As Object
Dim SelMgr As Object
Dim boolstatus As Boolean
Dim longstatus As Long, longwarnings As Long
Dim Feature As Object
Sub main()
Set swApp = Application.SldWorks
Set Part = swApp.ActiveDoc
Set SelMgr = Part.SelectionManager
Set Feature = Part.AddMate2(1, 1, False, 0.01205094986575, 0, 0,
Part.ClearSelection2 True
Set Feature = Part.FeatureManager.InsertFeatureTreeFolder2(2)
End Sub
```



Editing A Macro

- ▣ Add Early-binding
- ▣ Remove the extraneous lines of code
- ▣ Add intelligent variable names
- ▣ Add branching (e.g. decision logic)
- ▣ Add user-input capabilities



Releasing A Macro Into The Wild

- Provide some documentation on the Macro
 - Things to convey
 - What should it do?
 - What shouldn't it do?
 - What assumptions does it make?
 - Readme.txt file is okay but a help file is better.
- Find someone to test it for you
 - Don't let them use your machine to do it
 - Make them use the documentation for support (i.e. test it too)
 - Give them due credit for assisting so you can throw them under the bus if it breaks



Other Types of API Projects

- ▣ Standalone EXEs
- ▣ Add-ins
- ▣ .NET Controls

Visual Basic Feature Comparison Chart

	Visual Basic 2005 Express	Visual Studio 2005 Standard	Visual Basic.NET Standard 2003	Visual Studio Professional (2003 & 2005)	Visual Studio 6.0 Professional
Approximate Price *	Free	\$300	\$120	\$600	\$500
Create ActiveX Control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Create "COM-aware" .NET User Control	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
Create "COM-aware" .NET Class Library	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>
Create SolidWorks Add-in	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Create Standalone EXE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

* Prices found by internet search on 1/23/2007.

- May cause erratic behavior with graphics.

- Not supported out-of-the-box but can be done through a workaround.

- Use the SolidWorks SDK for best results.

Free Resources On The Web

▣ My API Blog

- ▣ <http://www.extensiblecad.com/words/>

▣ Microsoft Visual Basic Express

- ▣ <http://msdn2.microsoft.com/en-us/express/aa718406.aspx>

▣ Microsoft HTMLHelp for compiling HTML help

- ▣ <http://msdn2.microsoft.com/en-us/library/ms669985.aspx>

▣ How Do I" Videos — Visual Basic.NET

- ▣ <http://msdn2.microsoft.com/en-us/vbasic/bb466226.aspx>

• TriMech API Downloads

- ▣ http://trimechsolutions.com/tech_resources.html

▣ SolidWorks API Downloads

- ▣ <http://www.solidworks.com/pages/services/APIDownloads.html>

▣ Lenny's Macros

- ▣ <http://www.lennyworks.com/solidworks/default.asp?ID=20>



Thank You

