

Before we begin

Scrollbar mode => ScrollBar Mode

Remove any guidelines

Visual Studio font => Lucida Console, 16pt

Open two copies of Visual Studio – one for VSGraph, one for VisualStudioTips

# VISUAL STUDIO 2010

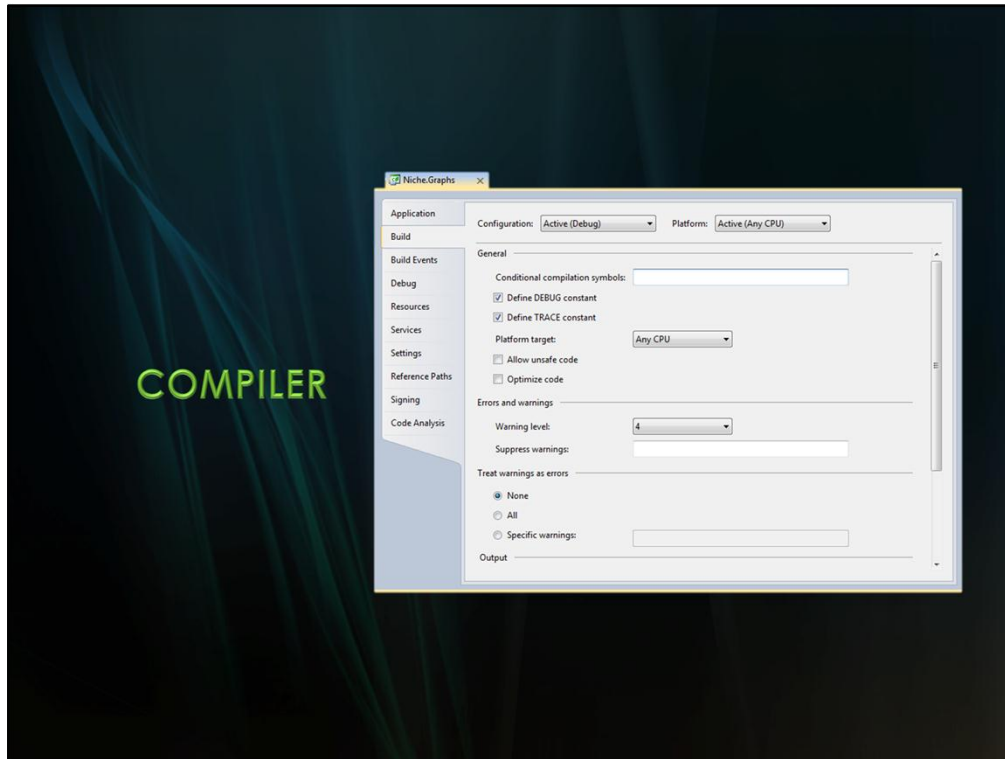
working smarter not harder



What we developers do can seem like magic to other users  
Yet we know there is no magic, just hard work – and a fanatical attention to detail

Those who are more effective developers aren't necessarily smarter  
But they know how to use the tools effectively

Image Source: [http://www.flickr.com/photos/xtream\\_i/316644980/in/photostream/](http://www.flickr.com/photos/xtream_i/316644980/in/photostream/)



Work the compiler

Compiler warnings are telling you useful information  
 Difficulty with leaving them in place is that the warnings you allow permit other warnings to creep into place

Turn the warning level up to 11, err 4

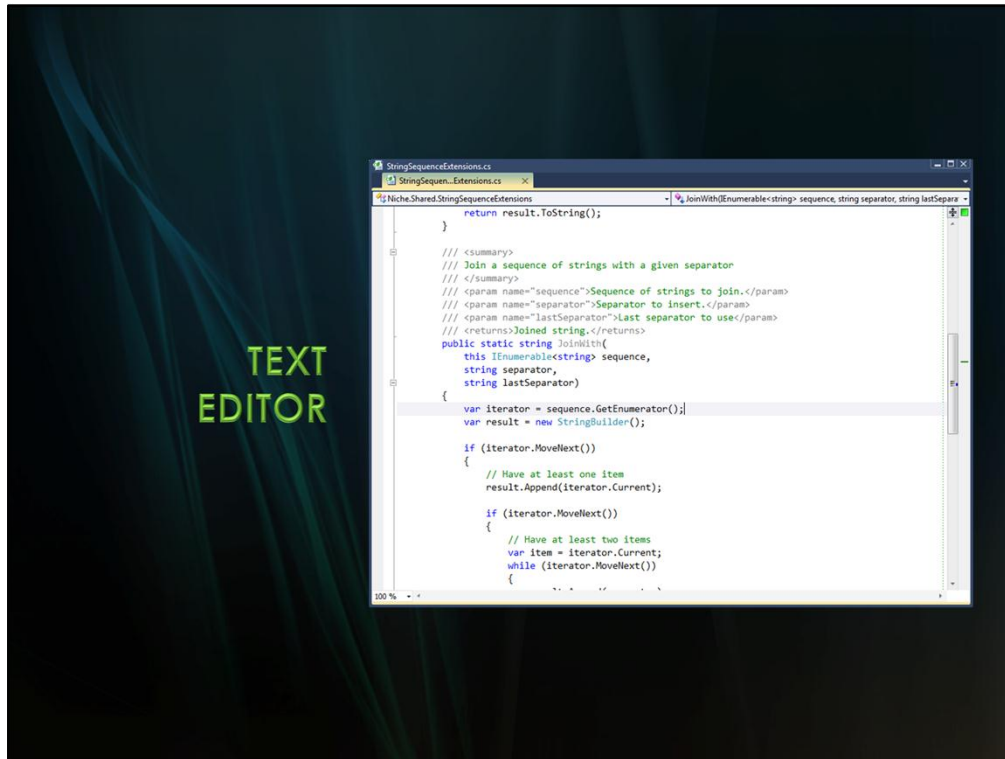
Target zero warnings – always check in with fewer warnings  
 Consider treating warnings as errors

Consider generating Xml documentation for assemblies  
 Especially core logic and/or shared libraries

Write Documentation that's helpful!  
 Don't do the barest minimum to satisfy some arbitrary standard

Recommended Tags: <http://msdn.microsoft.com/en-us/library/5ast78ax.aspx>  
 Sandcastle: <http://blogs.msdn.com/b/sandcastle/>  
 Sandcastle Help File Builder: <http://shfb.codeplex.com/>  
 ImmDoc: <http://immdocnet.codeplex.com/>  
 Live Documenter: <http://theboxsoftware.com/products/live-documenter/>  
 DocU: <http://docu.jagregory.com/>

Doxygen: <http://www.stack.nl/~dimitri/doxygen/index.html>



Choose the font and size you use carefully – needs to be one that suits your situation

You can use a proportional font – it will work Ok

Be aware of the difference between screen and paper.

Generally, serif fonts are easier to read on paper, non-serif fonts on screen

Verdana/Tahoma – proportional fonts designed for on-screen readability

Consolas – purpose designed for coding

BUT: requires ClearType, which might turn itself off if you are remoting into other development machines

Courier New – classic that works well everywhere

Things to look for:

Vertical/Horizontal spacing should form into lines, not columns

Easy on the eye

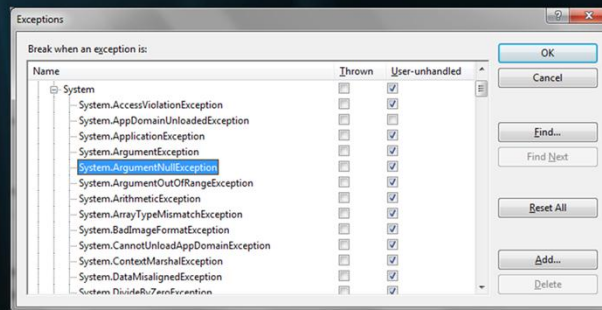
Don't ignore brightness and contrast

Hold up a piece of paper next to your screen – if the screen is brighter than the page, it's too bright.

As much as possible: maximize contrast, minimize brightness

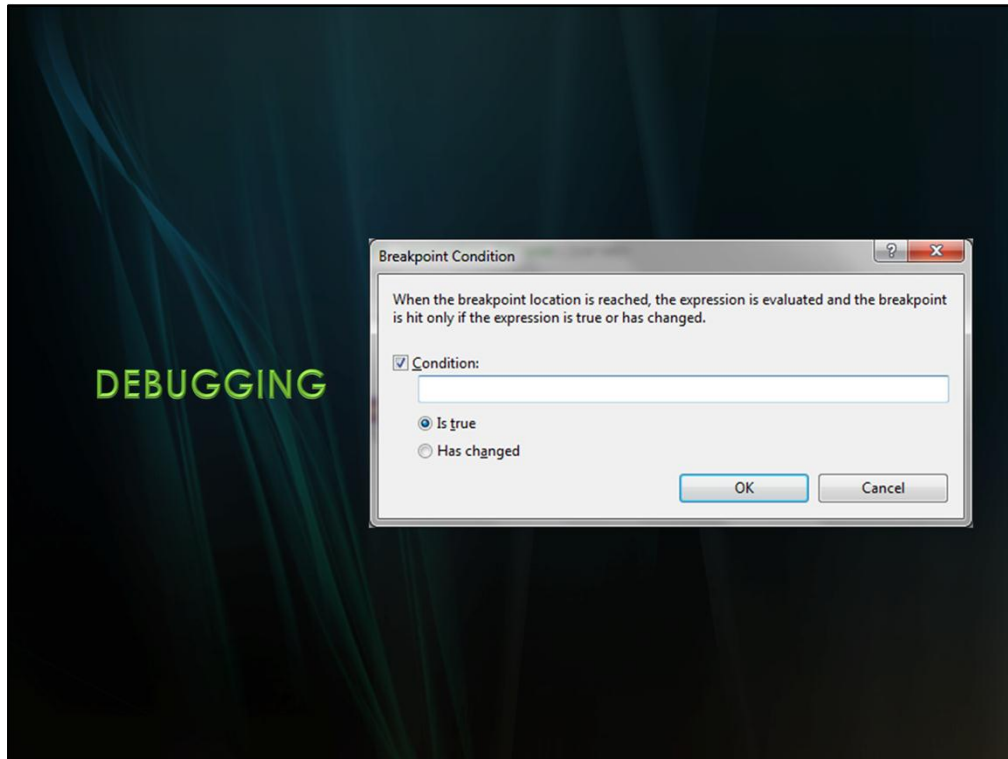
Don't spend all day looking into a bright light!

# DEBUGGING



## Debug | Exceptions

Turn on the option to automatically break on all exceptions,  
or on specific types of exceptions



### **Conditional breakpoints**

Use predicates on the class – easier than writing a freeform condition

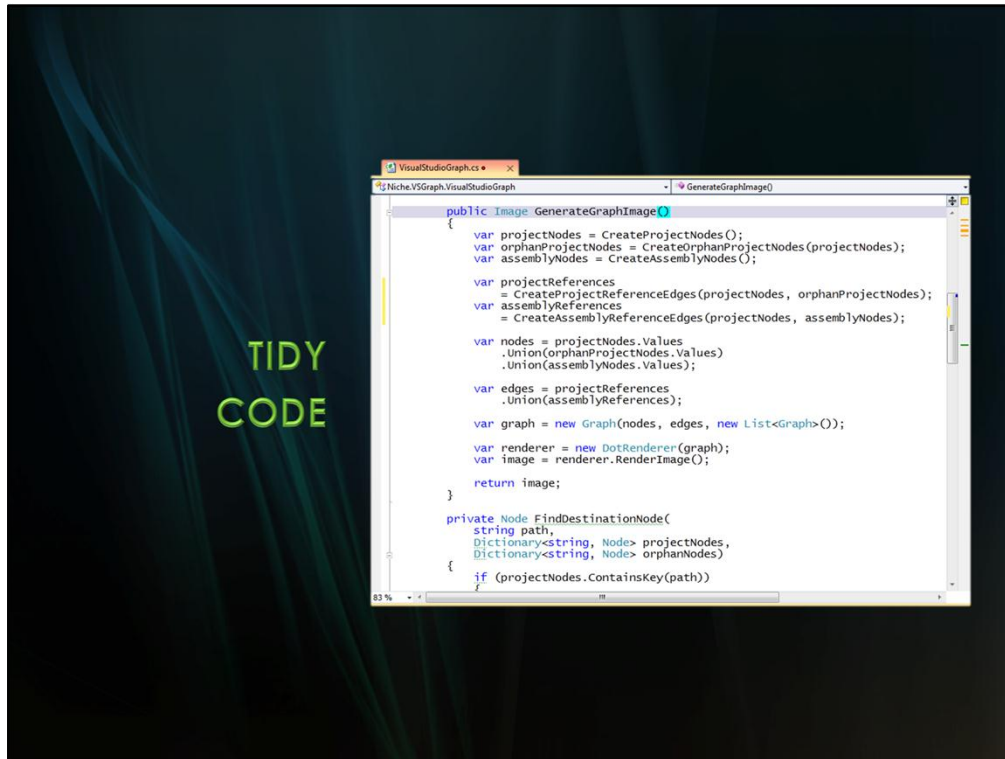
`VisualStudioGraph.FindProject`

Set Breakpoint to body of lambda – triggers a lot

Condition: `p.NameContains("vsgraph")`

Easier to set up a predicate than put a complicated condition in a dialog with no syntax highlighting





What practices do you follow as you code?

Code is read a lot more often than it is written  
 “ Debugging is often all about reading the code

Simple things you can do that will have immediate payback

### **Demo: FindImages/Program**

Code is difficult to read, but pretty typical

### **Reformat the code**

Punctuation goes at the start of the line

Because punctuation at the end of the line is more easily missed by readers  
 (Many readers rely on peripheral vision to read the end of the line  
 and are already sweeping their eyes left to find the start of the next line)

### **Extract predicates into named methods**

IsImageFile(string)

Spot the error – both comparisons should use OrdinalIgnoreCase

ImageIsSizeOfDesktop(string)

The query now starts to become much easier to read

It's also easier to make changes

Demo: Recognise bitmap files as well

**Extract sequence into variable**

imageFiles

Separates iteration from the query

**Extract myPicturesFolder variable**

Break before equals – gives priority to the name of the variable

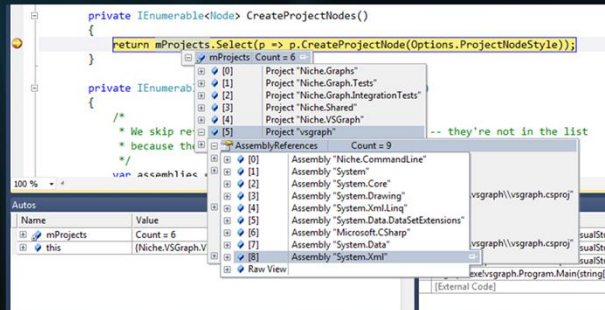
**Rename p to desktopsFolder**

Review the finished code – much easier to read and understand.

Good naming reveals intent

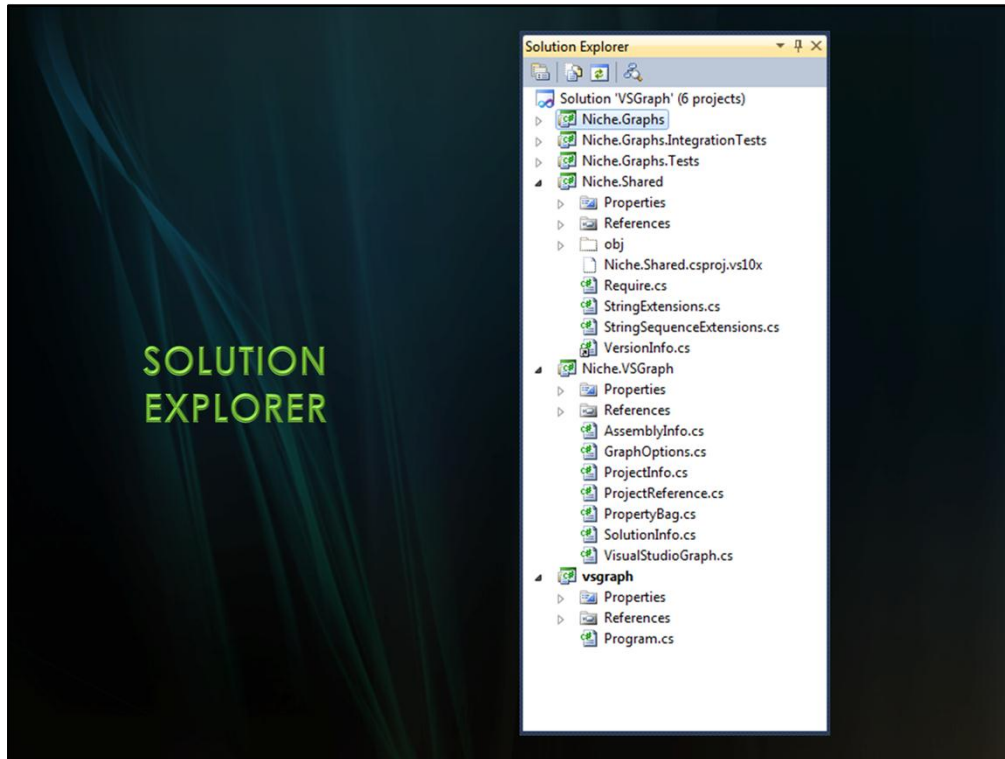
Use of predicate methods allows readers to understand each step in isolation

## ATTRIBUTES



[DebuggerDisplay]

[Conditional]



To see files in the same folder as your project, **Show All Files**

Right-click on file, **Include in Project** to add into your project

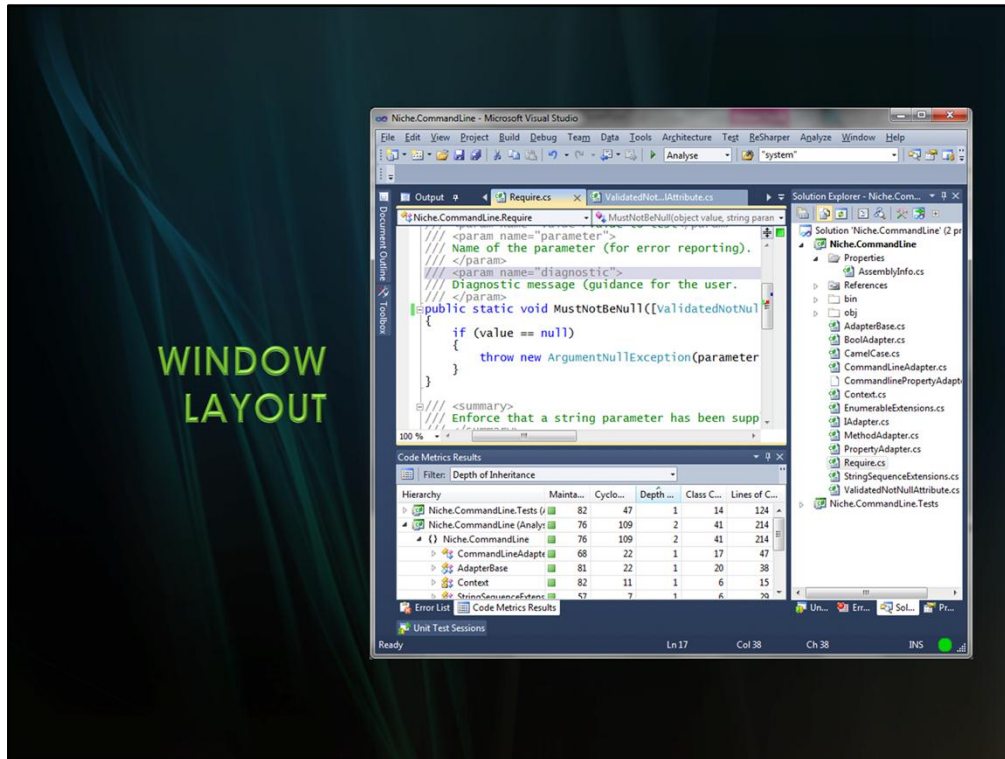
Right-click on References to **Add Reference** from a simpler menu

Right-click on Project, Add -> Existing Item to bring in existing resource  
Files outside of the project directory are copied  
Unless you link (Dropdown menu from dialog Add button)

**Unified versioning:** update all your assembly versions in one place  
For each project: Edit AssemblyInfo.cs to comment out version number  
(leave comment behind about where versioning is managed)  
Add-link to existing VersionInfo.cs file

**Strong Naming:** link to .snk file  
Open Project Properties, turn on signing, select file

**Solution Items:** Add existing files directly to the solution  
Example: the NAnt build file.  
Great way to keep those “extra” files to hand.



You don't have to stick with the standard window layout – tinker with the way things are laid out.

Can choose to have any window docked or shown as a tab

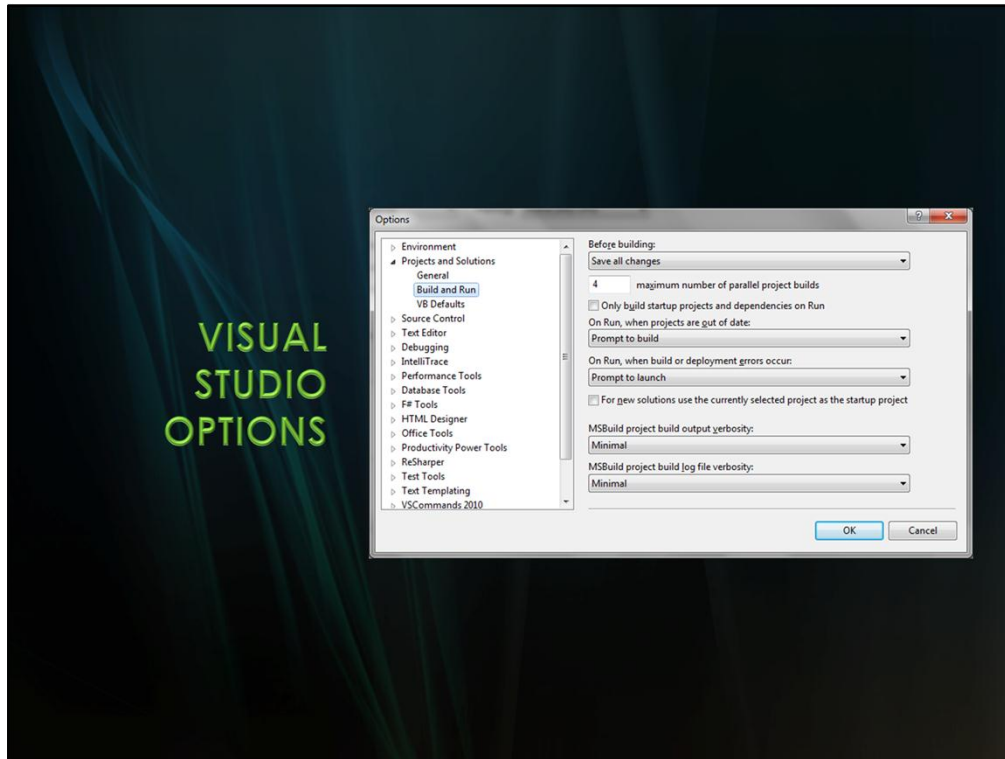
### Convert Output window to a tab

Properties pane next to solution explorer

New in Visual Studio 2010: Pinned tabs - Pin the Output Window

Sometimes useful to have two sidebars next to each other

Solution Explorer | Properties

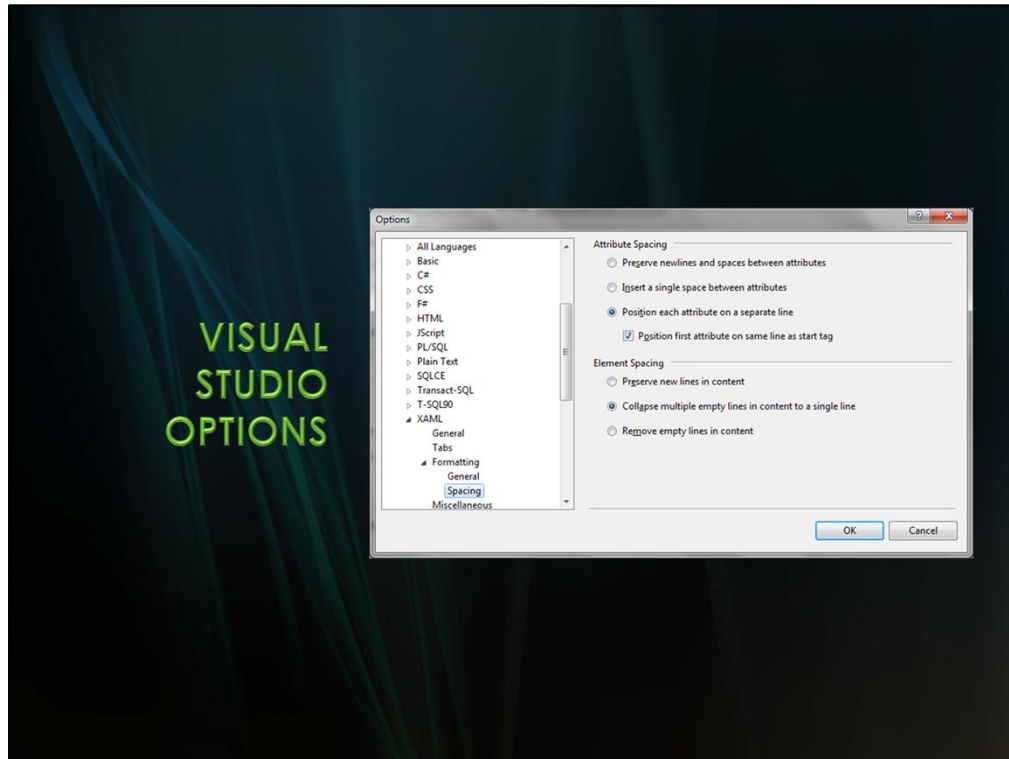


## VISUAL STUDIO OPTIONS

Useful options to set

Projects & Options | Build and Run

Turn on “Only build startup projects and dependencies on run”



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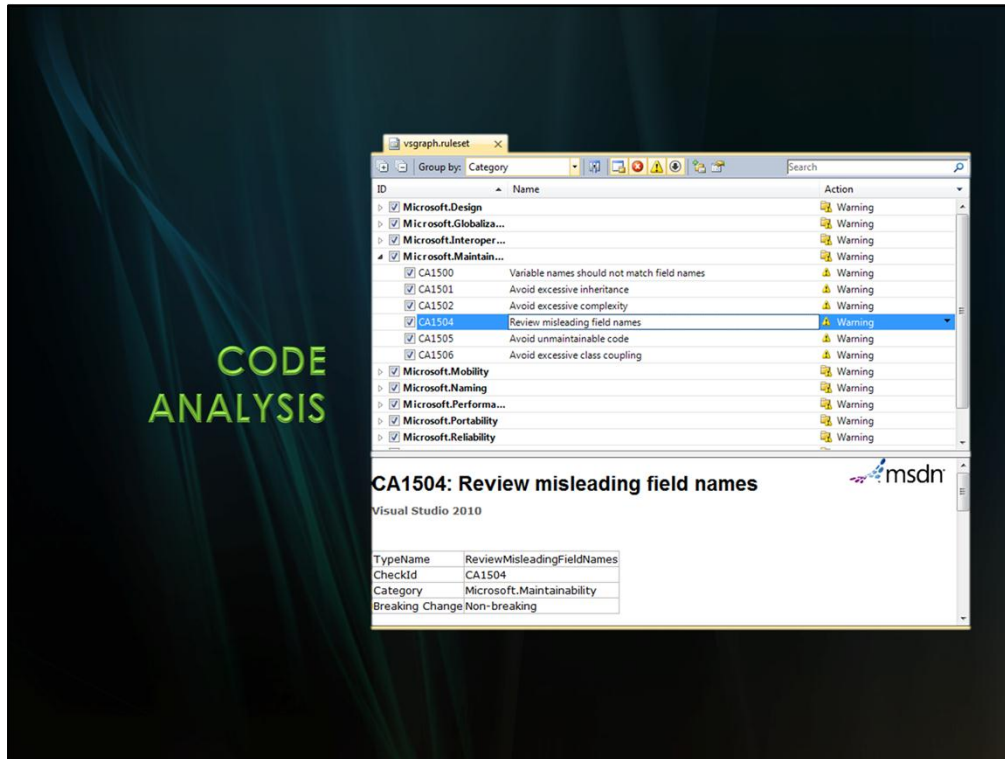
Text Editor | XML | Formatting

Select “Align Attributes each on a separate line”

Text Editor | XAML | Formatting | Spacing

Select “Position Each Attribute on a separate line”

and check “Position First Attribute on same line as start tag”



Go to the Code Analysis page of Project Properties

Select **Microsoft All Rules**, press **Open**

**Save** the ruleset in a custom file

Enable/Disable rules as you see fit – customise to your environment

Fix or flag every warning

Just like regular compiler warnings, target zero, reduce the count at every checkin/commit

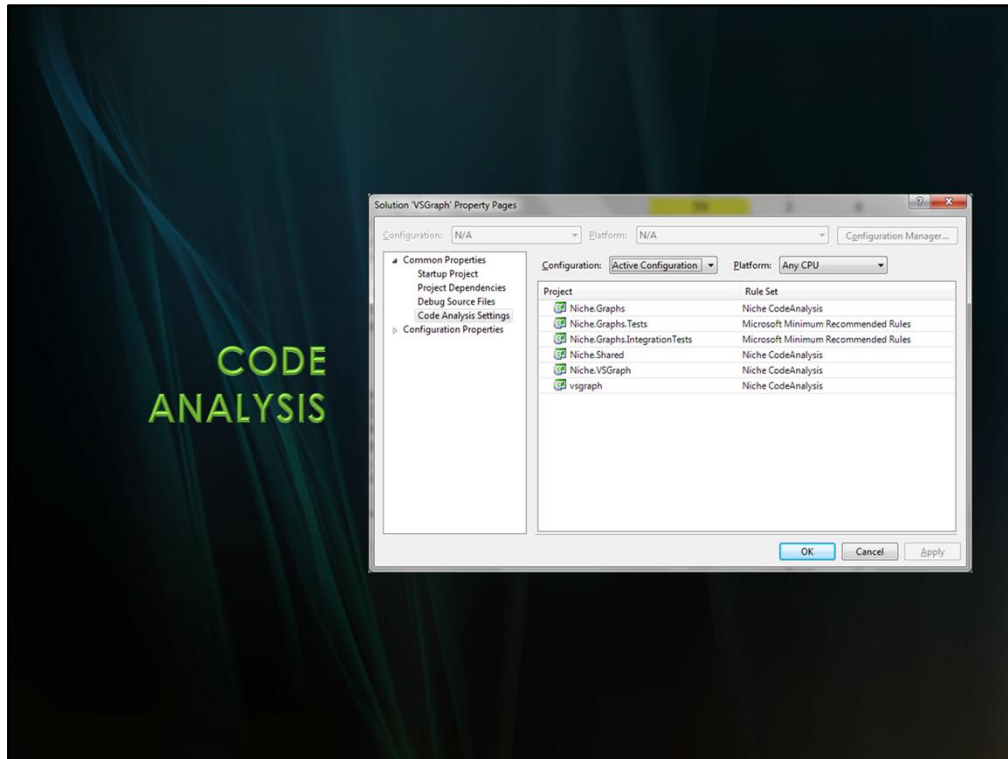
Rules I disable

CA1006 – Avoiding nesting generic types

CA1020 – Avoid namespaces with few types

Pay attention to the messages – treat CodeAnalysis as a trainer, teaching you to write better code.

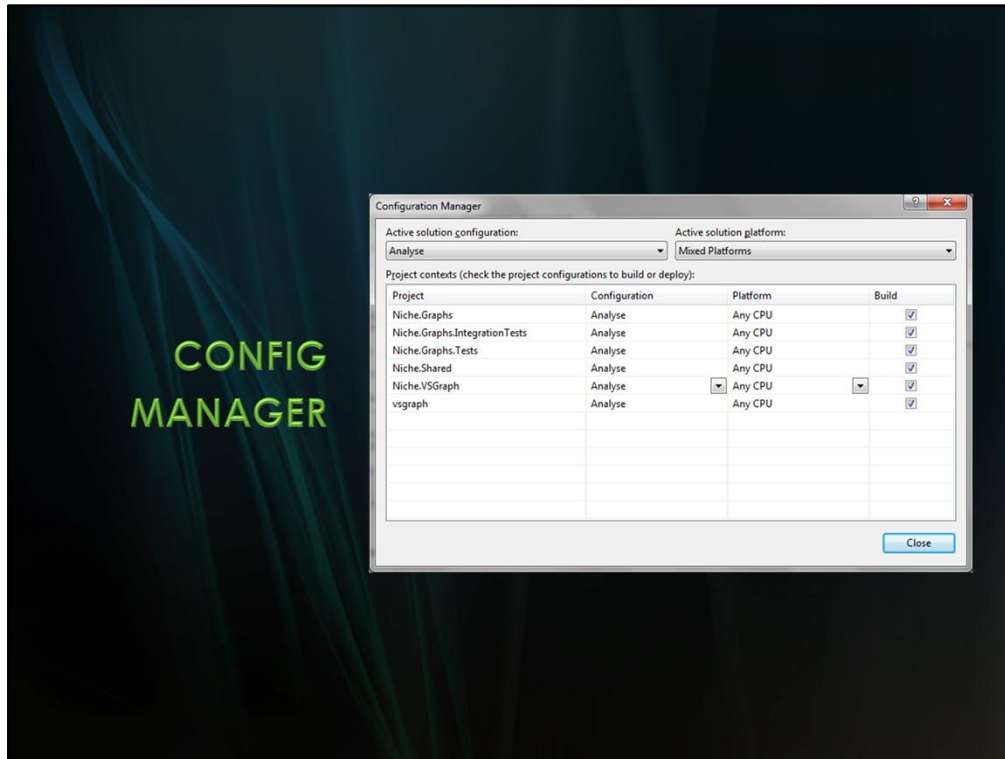




Analyse | Configure Code Analysis for Solution

Easy way to check which rulesets are in use across the solution

Suggest using “Microsoft Minimum Recommended Rules” for Testing assemblies



Argument against:

Code Analysis takes time – do we really want to slow down compilation?

Mitigation: Create a new project build configuration – **Analyse**

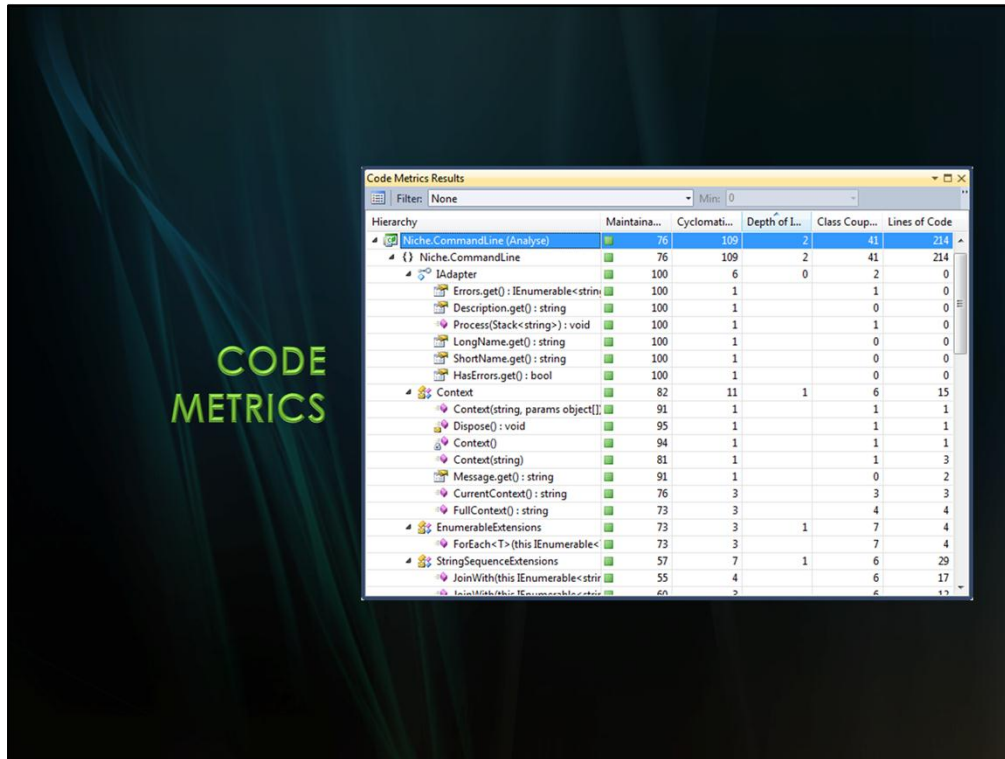
### Build | Configuration Manager

<New> from Active solution configuration, copy from Debug

Use **Debug** for normal work – quick to compile, quick feedback cycle

Switch to **Analyse** for a compile just before checkin/commit

Use Analyse for your Continuous Integration builds



## CODE METRICS

Useful ranges to filter

Maintainability index: <60 Warning <40 Error

Cyclomatic Complexity: >10 Warning >15 Error

Class Coupling: >20 Error

### References

<http://geekswithblogs.net/terje/archive/2008/11/25/code-metrics---suggestions-for-appropriate-limits.aspx>

<http://blogs.msdn.com/b/codeanalysis/archive/2007/11/20/maintainability-index-range-and-meaning.aspx>

Want to integrate into Continuous Integration?

Visual Studio Code Metrics PowerTool 10.0

<http://www.microsoft.com/downloads/en/details.aspx?FamilyID=edd1dfb0-b9fe-4e90-b6a6-5ed6f6f6e615>

Convert the Xml into Html

<http://csut017.wordpress.com/2011/02/01/visual-studio-code-metrics-in-cruisecontrol-net/>

## XML SUPPORT

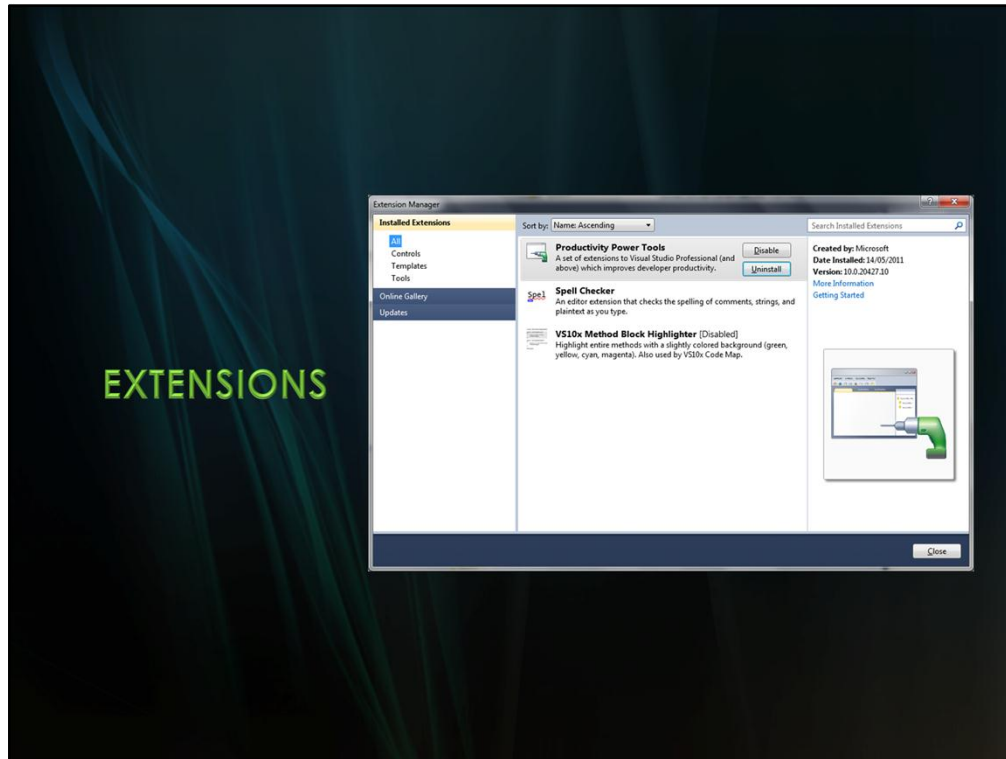
```
<?xml version="1.0" encoding="utf-8"?>
<CodeMetricsReport Version="10.0">
  <Targets>
    <Target Name="C:\Projects\VSGraph\build\Release\vsgraph\vsgraph.exe">
      <Module Name="vsgraph.exe" AssemblyVersion="1.0.0.0" FileVersion="1.0.0.0">
        <Metrics>
          <Metric Name="MaintainabilityIndex" Value="77" />
          <Metric Name="CyclomaticComplexity" Value="5" />
          <Metric Name="ClassCoupling" Value="4" />
          <Metric Name="DepthOfInheritance" Value="1" />
          <Metric Name="LinesOfCode" Value="7" />
        </Metrics>
        <Namespaces>
          <Namespace Name="vsgraph">
            <Metrics>
              <Metric Name="MaintainabilityIndex" Value="77" />
              <Metric Name="CyclomaticComplexity" Value="5" />
              <Metric Name="ClassCoupling" Value="4" />
              <Metric Name="DepthOfInheritance" Value="1" />
              <Metric Name="LinesOfCode" Value="7" />
            </Metrics>
          </Namespace>
        </Namespaces>
        <Types>
          <Type Name="Program">

```

Build in suport for Xml

Demo: Load sample vsgraphMetrics.xml file  
Syntax highlighting – schema support if namespace present  
Show Properties sidebar – Stylesheet property  
XML|Start Stylesheet Debugging  
Select lib\Metrics\Metrics.xsl

Tools|Options|Text Editor|XML|Formatting  
Align attributes each on a separate line  
Makes it easier to diff XML files – great for source control



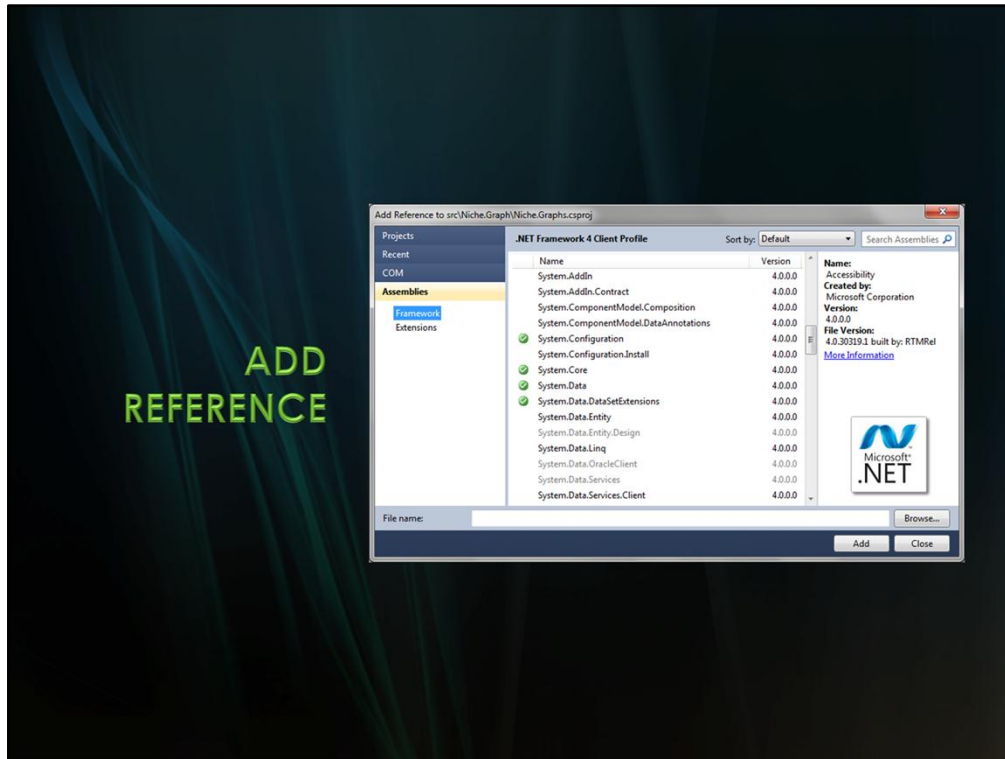
## Productivity Power Tools

Includes easy setting of guidelines, useful for limiting width of code

Recommendation: 100 columns

Why?

- “ Side by side code views
- “ Printing code for manual review



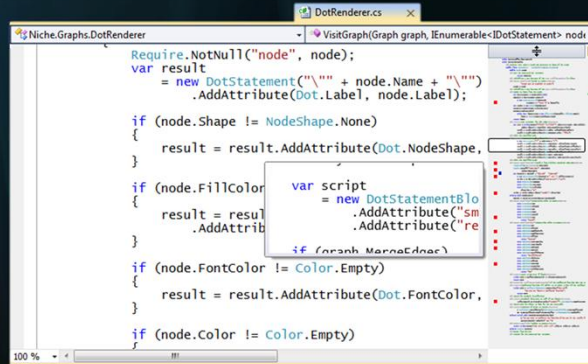
New Add Reference dialog

Cached details – fast to load

Breaks things down by category

Shows ticks for items already referenced

## ENHANCED SCROLLBAR



New scrollbar – a thumbnail of your file

Navigate by the shape of your code  
Collapsed blocks are shaded



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**BLOG**  
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