

Esri Developer Summit

March 26–29, 2012 | Palm Springs, California

esri.com/events/devsummit



Software Configuration Management

Source Code & Build

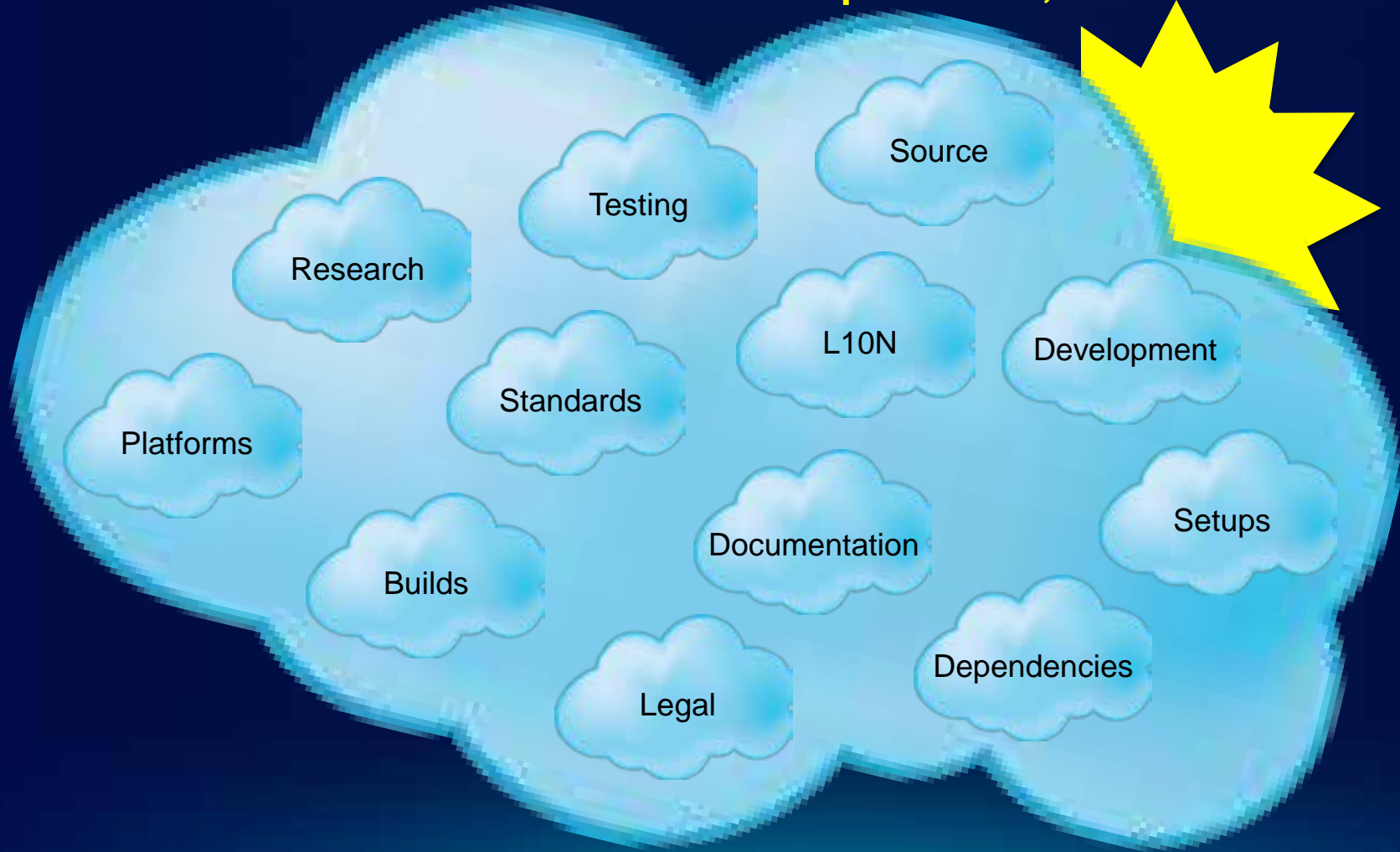
Dar Nielsen

4:30-5:15 Mesquite GH



Internal requirements for creating products

Normalize & automate the expectations, and needs



We started small, but have become large

ArcGIS Development

- **700 PEs and Devs have access to the codeline**
- **300 Working in the codeline daily**
- **86,000 Files in build process**
- **1100 Projects**
- **150 Solutions**
- **5 hour build process (Label codeline to create setups)**

...we have learned a lot about being efficient

Codebases always grow

ArcGIS from 2004 to Today

	Files	Source	Comment	Both	Blank	Total
9.0	23,048	4,497,987	1,164,112	136,043	1,134,811	6,932,953
9.1	25,302	5,272,188	1,395,981	198,109	1,748,184	8,614,462
9.2	39,262	7,679,735	1,964,784	186,978	1,877,027	11,708,524
9.3	44,381	8,851,827	2,239,888	255,160	2,137,263	13,484,138
10.0	49,429	10,725,328	2,383,965	296,514	2,564,839	15,970,646
10.1	50,171	11,015,699	2,505,831	331,992	2,597,983	16,451,505

Line count (C, CPP, CS, H, IDL, JAVA, JS, JSP, RC)

SCM – Tools and Strategies for ArcGIS

For Small, Medium and Large Development Projects

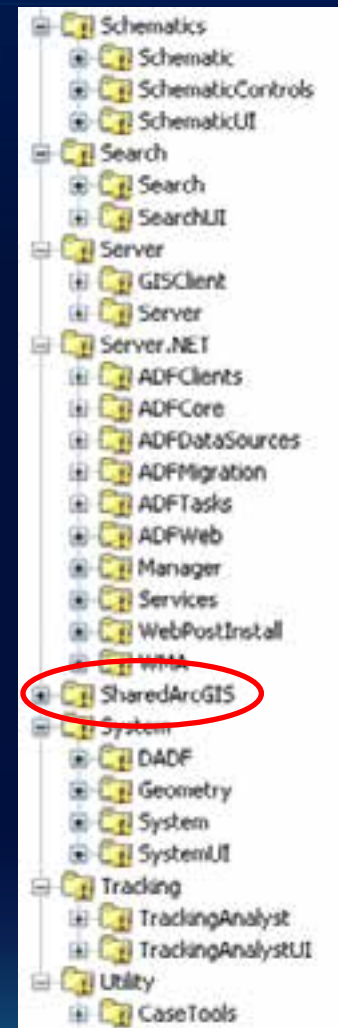
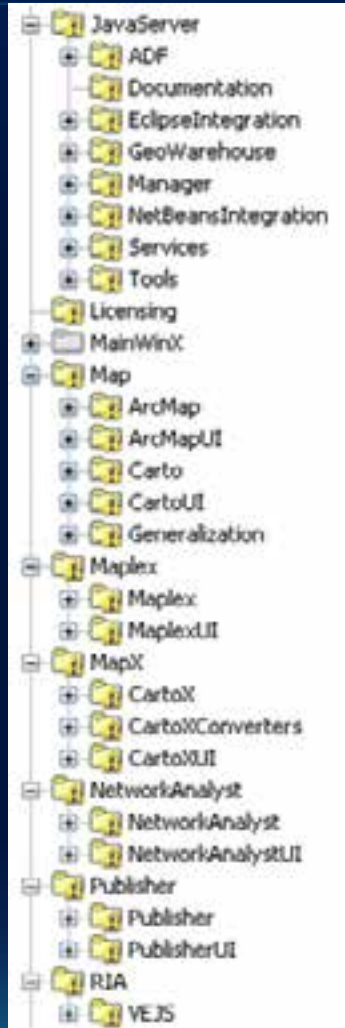
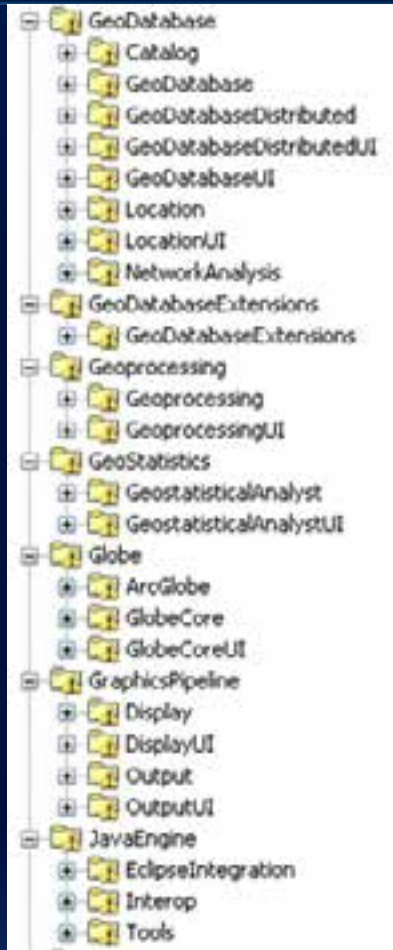
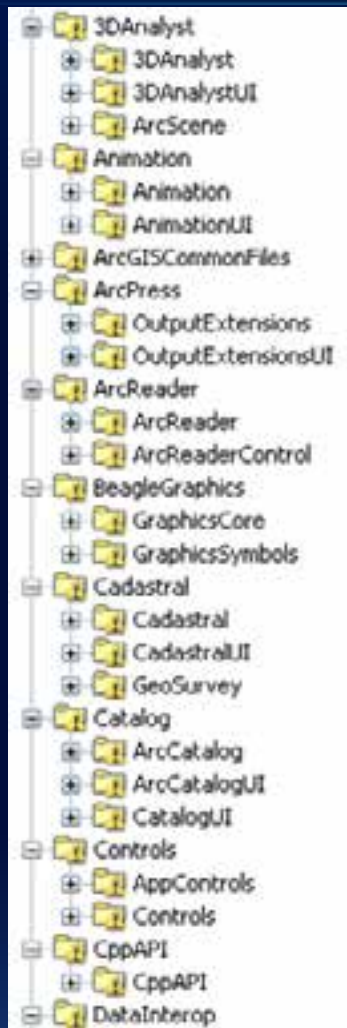
- **Source Code Organization & Coding**
- **Version Control**
- **Product Build Management**
 - **Build Scripting**
 - **Build Automation**
- **Managing and Maintaining Information**

Rules for organizing source files

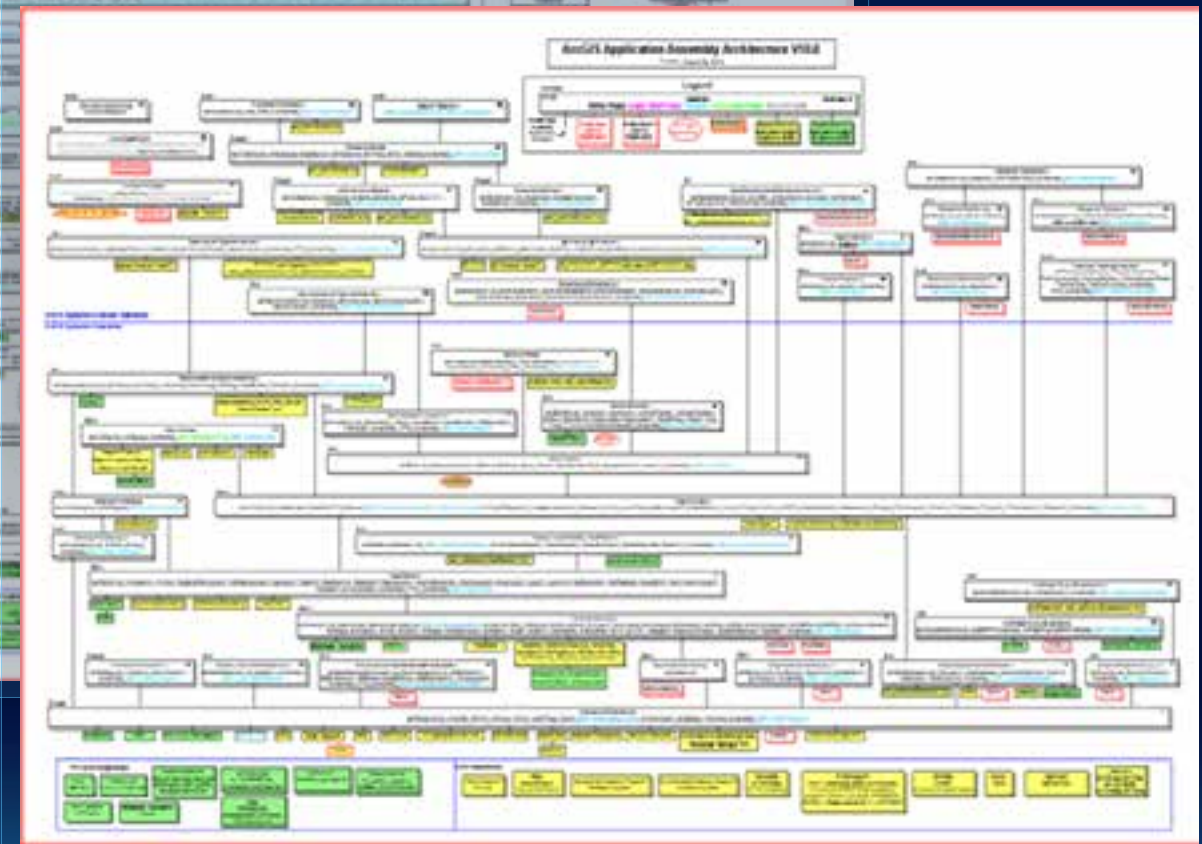
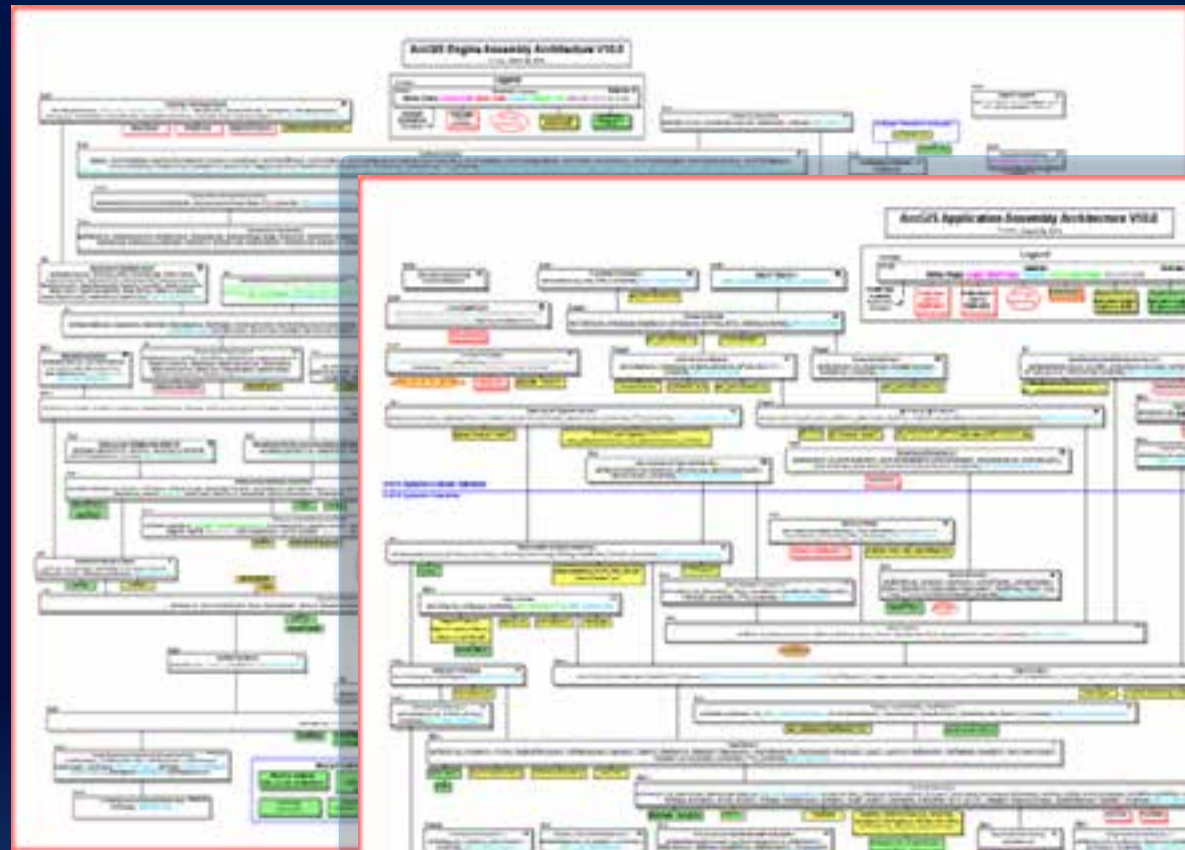
Divide it, normalize it, and “own” it

- **Highlevel team based container folders**
 - **Functional folders - .sln**
 - **Project folder - .vcproj & project specific source**
- **Place common resources in shared Highlevel folder**
 - **Cross functional dependencies [.h, build files, etc]**
 - **External dependencies**
- **Use the “real” name for items**
- **Use the “same” name for items and built resources**
- **Think about folder structure for non-build resources**

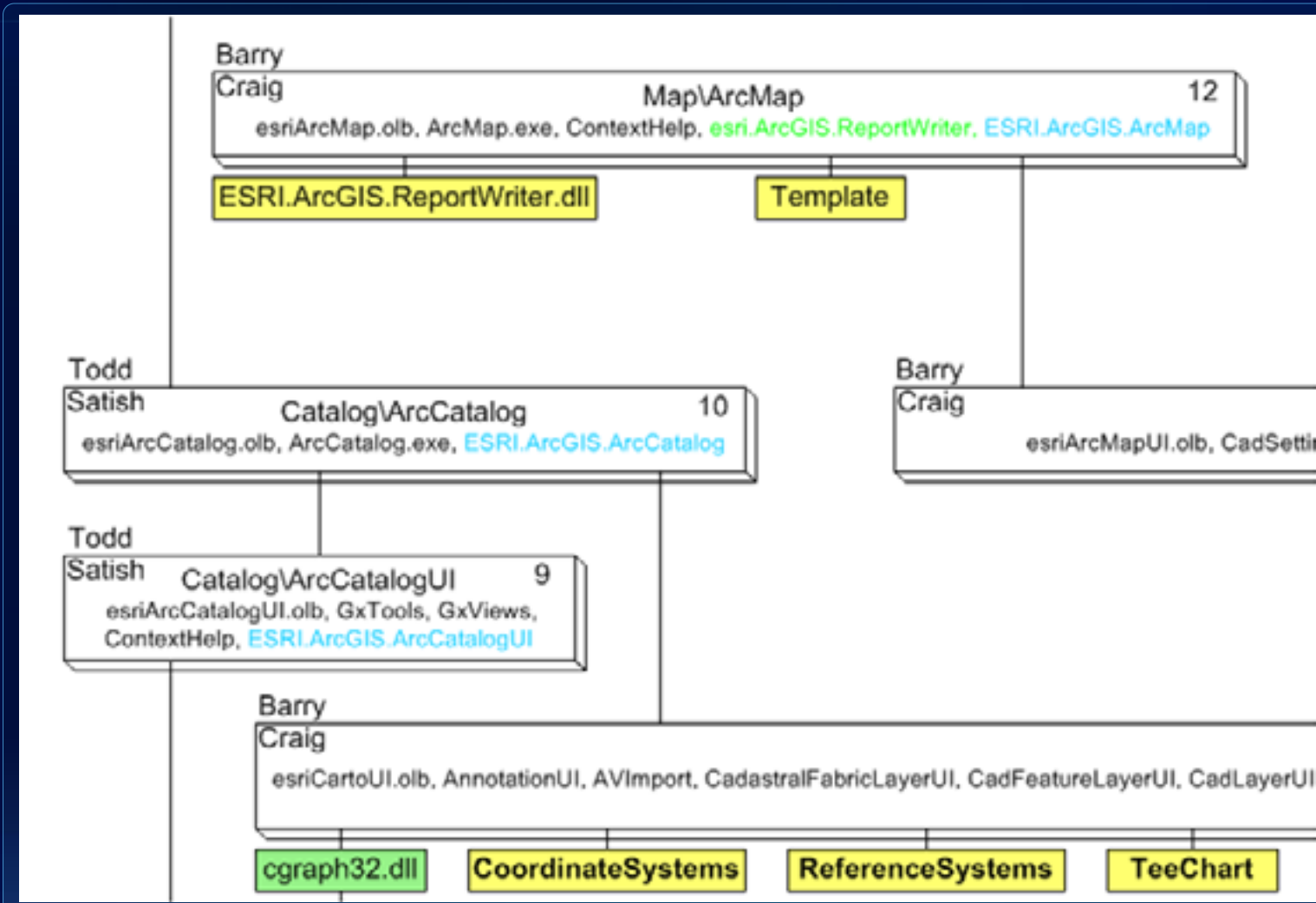
Source code Folder Structure



How does it fit together?



What is in it? Who owns it?



Normalize the build settings with .vsprop files

Settings for each type of output

- Output locations
 - \bin, \lib, \dotnet, \obj
- Preprocessor definitions
- Optimization
- Common .h file location for include paths

PrecompiledHeaderFile="\$(IntDir)\\$(ProjectName).pch"

OutputFile="\$(OutDir)\\$(ProjectName).exe"

For ant, use a common.properties file

Rules for Source Code

Make it easy to train devs and maintain source

- **Use industry standard language coding styles**
 - Search “Coding style guide”, “Coding conventions”
- **Verify source style**
 - StyleCop or “Lint”
- **Document your source**
 - Doxygen
- **Have a developer system setup document or script**

Source Code Management

The “heart” of product development

- **Version Control – many to choose from**
 - Manage work items along with the source files
 - Good merge ability
- **Manage build resources in a single codeline**
- **Separate codelines for non-build resources**
 - Runtime support files
 - Test
 - Third party source code
- **A source code database is a legal document**

Source Code Management

Alternatives to branching

- **Source code on a developers disk is a branch**
 - **Modify and checkin incrementally to main codeline**
- **New development in the main codeline**
 - **New functional areas**
- **Research managed independently of the codeline**
 - **Is not a branch from the mainline**

Source Code Management

Requirements for branches...


- **Projects require a well defined plan and timeline**
 - Shows team is invested in success of project
- **Create branches to protect stability**
 - Protect main codeline from development
 - Protect development from daily code churn
- **Branch to ship**
- **Always create a branch for Service Packs**
 - QFE fixes move from parent codeline to SP branches

Build Management

The “heartbeat” of product development

- Automating the build
- Build Scripting
- Expose build process to consumers
 - Report build status in real time
 - Maintain build results & history

Build Automation

- **Build a product every day**
 - Start at a specific time every day
 - Create daily build labels to sync code to products
 - Build errors happen... if so 
- **Development builds**
 - Start at intervals throughout the day
 - Start via source change trigger
- **Jenkins, TFS, or platform scheduler**

Build Scripting

Makes the build repeatable

- **Script the entire build processes**
 - FinalBuilder for MS Windows
 - Ant, Maven, Lua, etc.
- **Pull & Build & Test**
- **Stage resources**
 - For teams

 - For setups
- **Build setups & Test**
- **Deploy setups**

Build Paused

Start time: 07:01:21
Run time: 02:44:35

Estimated Progress: 100%

build D:\Ar_CDS\Exp7\VBJS\VBJS.sln

Action Statistics

Total	Fail
Successful: 4367	
Skipped: 1493	
Over: 29	
Ignored: 2	

Show Running Actions
No Running Actions

Description	Enabled	Ignore Failure	Status
Read Assembly to pull and build from %BuildProduct%\SubBuild\srcs.txt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
Keep track of the number of the Assembly we are using [1]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
Build each %SubBuildProduct% Assembly [%AssemblyCount% of %AssemblyTotalCount%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Run Action List [SetBuildStatus]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Keep track of the number of the Assembly we are using Increment []	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Run Action List [SetBuildStatus]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
set AssemblyTotalCount to [%AssemblyCount%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
Set Variable CurrentAction to [Build Solutions]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
Set Variable ErrorCount to [0]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
Set Variable ErrorProjects to []	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
Keep track of the number of the Assembly we are using Increment []	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
Delete all .slnlog file on %BuildProduct%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
Delete all File(s) [%SubBuildSrcs%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
If [%SubBuildSource%]=[%BuildProduct%] Write to Text File [%BuildProduct%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed
Build each %SubBuildProduct% Assembly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Keep track of the number of the Assembly we are using Increment []	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Path Manipulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Set Variable Solution to [%BuildProduct%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
String Replace	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Build %Solution%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Run Action List [SetBuildStatus]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Set Build Try/Catch, and Build %Solution%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
If [%SubBuildSrcs%]=[%BuildProduct%] Build Solution [%Solution%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
If [%SubBuildSrcs%]=[%BuildProduct%] Build Solution [%Solution%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Write to Text File [%Solution%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
If [%SubBuildSrcs%]=[%BuildProduct%] Delete File(s) [%SubBuildSrcs%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Write to Text File [%SubBuildSrcs%]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Run Action List [SetBuildStatus]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Catch Error	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
If [%ErrorCount%]=[%ErrorCount%] Send Email	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)
Set Variable [Increment va	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Completed (10)

Build VS.NET Solution

General Build Solution Fields Build .NET Version Win32 Resources Project Decision

Solution

Solution File: %Solution%

Configuration: %BuildConfiguration%\%SubBuildPlatform%

VS.NET Version: VS.NET 2000 Use MSBuild

Action

Action: Build

Apply to Project

All Enabled Projects

All Projects in Solution

Selected Projects

Build All

Build All

OK Cancel Help

Message

Message	Date	Start Time	End Time	Run Time	Status
[Live Log Disabled While Running. The full build hierarchy will be unavailable until the build ends]					
Build each Desktop Assembly (105 of 135)	3/22/2012	09:55:57.790			

Archiving Product Resources

Persist built resources

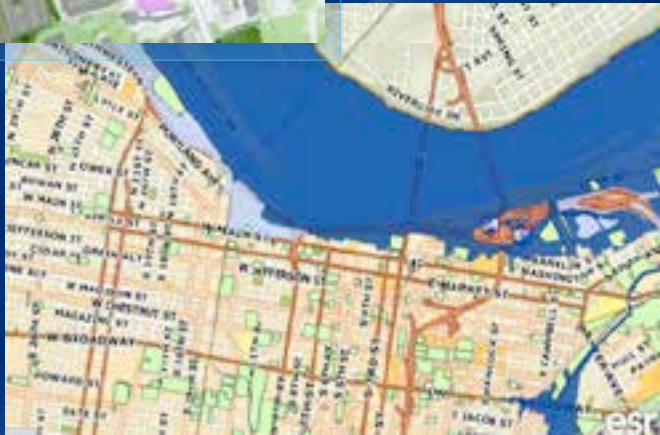
- **Maintain at least 30 daily builds:**
 - Built binaries including .pdb files for daily SymbolServer
 - Build log files
 - Setups
- **Final public builds are maintain permanently**
 - Built binaries, including .pdb files for SymbolServer
 - Setups
 - Build servers & staging locations

Managing and Maintaining Information

Master navigation page ties it all together

- **Links to all important information**
 - **Build status**
 - **Source search**
 - **Agile Scrum Information**
 - **Code analysis & verification**
 - **Coding guidelines**
 - **Projects with branched resources**
 - **Third Party resources**
 - **Discussions**
 - **Disk resources**
 - **Important aliases**

Demo: Developer Central




Developer Central

Home

This Site: Developer Central

Site Actions

View All Site Content

Documents

• Shared Documents

Pictures

Links

- Developer Tools
- 10 BuildErrors
- Internal Presentations
- Third Party Dependencies

Discussions

- General Discussion
- Visual Studio Discussion
- StarTeam Discussion
- Build Discussion
- StarTeam Change Request Discussion
- ArcGIS Developer tools
- Side-by-Side
- Source code Validation -SCV
- GetBuild Discussion
- Error Reports (Crash dumps)
- ArcGIS Server

Surveys

 Recycle Bin

ArcGIS Developer Information Site

If you have a questions related to any aspect of the ArcGIS Developer environment, use the appropriate Discussion on the Explorer bar on the left side of this page.

Quick Links - 10.1

Type	Icon	URL	Release	Modified
		10.1 Daily Build Status	10	3/9/2011 7:25 AM
		10.1 Source Search	10	11/2/2010 3:28 PM
		Scrumworks	10	3/26/2012 8:59 AM
		Source code Validation [Tryout Server]	10	5/20/2010 9:13 AM
		Crash dumps & Symbol Servers	10	6/14/2011 4:37 PM
		3rd Party Dependencies	10	2/11/2011 9:06 AM
		ArcSDE Build status	10	2/11/2011 9:11 AM
		ArcGIS 10.1 Gold Tree and the War Room Procedures (PPT file)	10	2/11/2011 8:06 AM
		Daily Setup Status	10	2/11/2011 3:52 PM
		Service Pack build & Release Information	10	1/18/2011 9:01 AM
		Coding Guidelines 10.1	10	1/18/2011 9:01 AM
		Development branched view site	10	1/26/2011 11:12 AM
		VMWare lab manager	10	1/26/2011 11:12 AM
		Change Request/Issue tracking SharePoint site	10	1/26/2011 11:12 AM
		Find a Change Request	10	1/26/2011 11:12 AM
		Assembly Architecture diagrams	10	1/26/2011 11:12 AM

 Add new link

Developer System Setup

Title
10.1 Server Developer System Setup to Build ArcGIS
10.1 Developer System Setup to Build Mobile
10.1 Developer System Setup to Build ArcGIS
10.0 Developer System Setup to Build ArcGIS
9.4 Server Developer System Setup to Build ArcGIS
9.4 Developer System Setup to Build ArcSDE
9.3 Developer System Setup to Build ArcGIS
9.2 Developer System Setup to Build ArcGIS



Contacts

Last Items

GetBuild

ArcGIS Builders

StarTeam Administration

Source code Validation - SCV

Error reports (Crash dumps)

Setup Builders

StarTeam Cheat Sheets

- StarTeam Installation Instructions
- StarTeam GUI Use Tips

Developer Disk Locations

URL

All Current 10.1 ArcGIS Resources

All Current ArcGISRuntime Resources

Current Daily Build 10.1 Debug

Current Daily Build 10.1 Release

Current SP - 10.0 SP Built Resources

Current SP - 9.3.1 SP1 Resources

Developer Only - Archived Final ArcGIS [with source]

Developer Only - Archived Final Explorer [with source]

Developer Only - Archived Final SP [with source]

Public - Archived Releases

Daily Build Status

- Build Processes
 - ArcGIS
 - ArcGIS 10.1 Release 32bit
 - ArcGIS 10.1 Debug 32bit
 - ArcGIS 10.1 Release 64bit
 - ArcGIS 10.1 Debug 64bit
 - ArcGIS Java 10.1 Release
 - Explorer
 - Explorer 1500 Release
 - DotNET
 - DotNET 2.0 Release
 - Mobile
 - Mobile 10.0 Release
 - Service Pack
 - ArcGIS 10.0 SP2 Release
 - ArcGIS 10.0 SP2 Debug

Details

Name	Value
Status Overview	Successful
Build	Complete
Build Number	10.1.0.2662
Build Date	Mon, Feb 21, 2011 12:08:34 PM

Status

Solution	Last Built	Status
Prebuild		
Pub Source	Mon, Feb 21, 2011 12:22:00 PM	Successful
Desktop		
System\System	Mon, Feb 21, 2011 12:24:00 PM	Successful
BeagleGraphics\GraphicsCore	Mon, Feb 21, 2011 12:27:03 PM	Successful
System\SystemUI	Mon, Feb 21, 2011 12:27:18 PM	Successful
System\Geometry	Mon, Feb 21, 2011 12:28:51 PM	Successful
BeagleGraphics\GraphicsSymbols	Mon, Feb 21, 2011 12:29:34 PM	Successful
BeagleGraphics\GraphicsPrint	Mon, Feb 21, 2011 12:30:07 PM	Successful
Graphics\Pipeline\Display	Mon, Feb 21, 2011 12:31:04 PM	Successful
Server\Server	Mon, Feb 21, 2011 12:31:54 PM	Successful
Graphics\Pipeline\Output	Mon, Feb 21, 2011 12:32:35 PM	Successful
Geodatabase\GeoDatabase	Mon, Feb 21, 2011 12:33:54 PM	Successful
Server\GGClient	Mon, Feb 21, 2011 12:36:32 PM	Successful
Server\ArcGISServerStartup	Mon, Feb 21, 2011 12:36:39 PM	Successful
DataSources\DataSourcesFile	Mon, Feb 21, 2011 12:39:16 PM	Successful
DataSources\DataSourcesGDB	Mon, Feb 21, 2011 12:40:24 PM	Successful
DataSources\DataSourcesOWB	Mon, Feb 21, 2011 12:40:51 PM	Successful
DataSources\DataSourcesRaster	Mon, Feb 21, 2011 12:43:34 PM	Successful
DataSources\DataSourcesNetCDF	Mon, Feb 21, 2011 12:46:07 PM	Successful
Geodatabase\GeoDatabaseDistributed	Mon, Feb 21, 2011 12:47:12 PM	Successful
GeoDatabaseExtensions\GeoDatabaseExtensions	Mon, Feb 21, 2011 12:48:23 PM	Successful
Map\Carto	Mon, Feb 21, 2011 12:52:33 PM	Successful
Maplex\Maplex	Mon, Feb 21, 2011 12:54:32 PM	Successful
Geodatabase\NetworkAnalysis	Mon, Feb 21, 2011 12:55:09 PM	Successful
Geodatabase\Location	Mon, Feb 21, 2011 12:57:31 PM	Successful
MapX\CartoX	Mon, Feb 21, 2011 01:01:05 PM	Successful
GeoAnalyst\GeoAnalyst	Mon, Feb 21, 2011 01:04:24 PM	Successful
Animator\Animator	Mon, Feb 21, 2011 01:05:00 PM	Successful
Map\Generalization	Mon, Feb 21, 2011 01:05:50 PM	Successful

ArcGIS Source Search

Interface

Advanced Search

Results 1-10 of about 7,168. Your search took 0.14 seconds.

Results by Relevance | View by Modified Date | Alert Me | RSS

interface

file:///94testbuild4/searchserver/2008_arcgisgold/arcgis/server/net/manager/arcgsmanager/manager/app_code/servermanager/interface - 2/21/2011

interface

file:///94testbuild4/searchserver/2008_arcgisgold/arcgis/server/net/manager/arcgsmanager/manager/app_code/applicationmanager/interface - 2/21/2011

rastergraphicelements.idl[default] **interface** IUnknown; **interface** IElement; **interface** IElementProperties; **interfac**...

file:///94testbuild4/searchserver/2008_arcgisgold/arcgis/map/carto/apisupport/idl/rastergraphicelements.idl - 7/2 - 11/2/2009

tbusa.idl...**interface** for the modify edge task. }, hidden } **interface** IModifyEdgeTask : IEditTask { ...

file:///94testbuild4/searchserver/2008_arcgisgold/arcgis/editor/editorext/apisupport/idl/tbusa.idl - 10/8 - 11/2/2010

gmxtools.idl[default] **interface** IUnknown; **interface** IGDOToolboxEnvironment; [uuid{80F120E1-49B ...

file:///94testbuild4/searchserver/2008_arcgisgold/arcgis/globe/arcglobe/apisupport/idl/gmxtools.idl - 4/8 - 1/28/2011

sdtools.idl[default] **interface** IUnknown; **interface** ISDToolboxEnvironment; #ifndef _DLS_BUILD_ / ...

file:///94testbuild4/searchserver/2008_arcgisgold/arcgis/3danalyst/arcscene/apisupport/idl/sdtools.idl - 3/8 - 12/22/2009

cadannotationlayer.idl[default] **interface** IUnknown; **interface** ICoverageAnnotationLayer; **interface** ICoverageAnnota ...

file:///94testbuild4/searchserver/2008_arcgisgold/arcgis/map/carto/apisupport/idl/cadannotationlayer.idl - 3/8 - 4/19/2010

representationeffects.idl

/* COPYRIGHT © 2006 ESRI TRADE SECRETS: ESRI PROPRIETARY AND CONFIDENTIAL Unpublished material - all rights reserved under the Copyright Laws of the United States and applicable international ...

file:///94testbuild4/searchserver/2008_arcgisgold/arcgis/graphicpipeline/display/apisupport/idl/representationeffects.idl - 3/8 - 6/15/2010

representationtools.idl... **interface** IRepresentationWindow : IUnknown { { helpcontext(71394), helpstring("Shows t ...

file:///94testbuild4/searchserver/2008_arcgisgold/arcgis/editor/editor/apisupport/idl/representationtools.idl - 3/8 - 12/13/2009

Bing Suggestions:

- ▣ Interface Security Systems
- ▣ Interface Commercial Carpet
- ▣ Interface Electronics

Bing:**Interface Global**Interface, Inc. is the world's largest manufacturer of modular carpet, which it markets under the InterfaceFLOR, FLOR, and Bentley Prime Street brands. Bentley ...
<http://www.interfaceglobal.com/>**Interface (computing) - Wikipedia, the free encyclopedia**In the field of computer science, an interface refers to a point of interaction between components, and is applicable at the level of both hardware and software.
[http://en.wikipedia.org/wiki/Interface_\(computer_s...](http://en.wikipedia.org/wiki/Interface_(computer_s...)**Interface - Wikipedia, the free encyclopedia**Technical journals. *Interfaces* (operations research) *Journal of the Royal Society Interface: Science and technology*. *BioInterface: Interface (chemistry)*, boundary surface
<http://en.wikipedia.org/wiki/Interface>**More results ...**

ESRI Development Wiki

Welcome **AVWORLD\dar**

Concordia

Welcome to the Concordia Software Development Wiki

If you are new to Wiki, read [OneMinuteWiki](#) or [VisitorWelcome](#).

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- [Edit](#)
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Search

Go To

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- [ESRI Admin Tasks](#)

History

8/20/2008 2:54:16 PM
AVWORLD-nachiket
8/20/2008 12:27:37 PM
AVWORLD-nachiket
8/20/2008 12:27:22 PM
AVWORLD-nachiket

Coding Guidelines

Page Type: **Design**

Page Status: **Proposed**

Author: **Dar, Craig, Nachiket**

[Concordia Home](#) > [Concordia](#) > [Development Process](#) > [Coding Guidelines](#)



The purpose of this site is to coordinate and document coding guidelines. The coding guidelines are here to help you develop to the ArcGIS standards. These standards will change over time. The coding standards are written and maintained by many people who have a vested interest in these areas. If you have questions regarding the content of a page or if you feel that additions or changes should be made to a page, you should post your comments on [Coding Guidelines Discussion Forum](#) and you must coordinate those changes with the page's author.

Coding Guidelines Contents

ArcGIS Coding Guidelines

- [Introduction](#)
- [Coding Standards](#)
 - [Overview](#)
 - [C++](#)
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 - [IDL](#)
- [Cross Platform](#)
- [i18N \(Internationalization\)](#)
 - [Overview](#)
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 **Derived View**
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Documents

- Shared Documents

Pictures**Lists**

- Contacts
- Tasks

Discussions

- General Discussion

Surveys

- [Recycle Bin](#)

ArcGIS Derived View Information Site

Contains information about creating and working in a Derived View (Development Branch)

How to:

- Creating and Working in a Derived view
- Requesting a Development View
- Creating a build for the Development View
- Merging the Development view back to Gold

OffCycleRelease

Project Name	Project Documentation	Dev Lead	Builder	CR Owner	QA Lead
FileGDB_API	http://devinfo/Software%20Releases/ArcGIS94/GroupSites/GeoData/FileGDB_OpenAPI/Project%20Phases/File%20GDB%20API%20Project%20Plan.doc	David Sousa	David Sousa	Lance Shipman	Lance Shipman

[Add new item](#)

Current Development Projects derived from Gold (10.0)

Project Name	Project Documentation	Dev Lead	Builder	CR Owner	QA Lead	Dev Alias	View Name	
ArcGISMobile		Frederic Aubry	Frederic Aubry	Jeff Shaner	Jeff Shaner		ArcGISMobile	M
Genome	http://devinfo/Software%20Releases/ArcGIS94/GroupSites/Core/3D/default.aspx	Dragan Petrovic	Ernest Moran	Nathan Shepard	Deepinder Deol		3XDevelopment	M
Aurora	http://devinfo/sites/dobnetadff/Aurora/Home.aspx	Art Haddad	Wilbur Hughes	Rex Hansen	Anne Reuland		Aurora	N
Discovery	http://devinfo/Software%20Releases/ArcGIS94/GroupSites/Server/JagsServer/Discovery/default.aspx	Peter D'Souza	Peter D'Souza	David Cordes	David Cordes		Discovery	V V V V V V
FileGDB_API	http://devinfo/Software%20Releases/ArcGIS94/GroupSites/GeoData/FileGDB_OpenAPI/Project%20Phases/File%20GDB%20API%20Project%20Plan.doc	David Sousa	David Sousa	Lance Shipman	Lance Shipman		FileGDB_API	
Explorer 1500		Paul Pilkington	Dar Nielsen	Dara Burlo	Dara Burlo		Explorer 1500	A
3XDevelopment	http://devinfo/Software%20Releases/ArcGIS94/GroupSites/Core/3D/default.aspx	Dragan Petrovic	Ernest Moran	Nathan Warmerdam	Nathan Warmerdam		3XDevelopment	A

Development Projects Merged and Closed (10.0)



Developer Central > Visual Studio Discussion

Visual Studio Discussion

View All Site Content

Documents

- Shared Documents

Pictures

Lists

- Developer Tools
- 10 Build Errors
- Internal Presentations
- Third Party Dependencies

Discussions

- General Discussion
- Visual Studio Discussion
- StarTeam Discussion
- Build Discussion
- StarTeam Change Request Discussion
- ArcGIS Developer tools
- Side-By-Side
- Source code Validation - SCV
- Getbuild Discussion
- Error Reports (Crash dumps)
- ArcGIS Server

Surveys

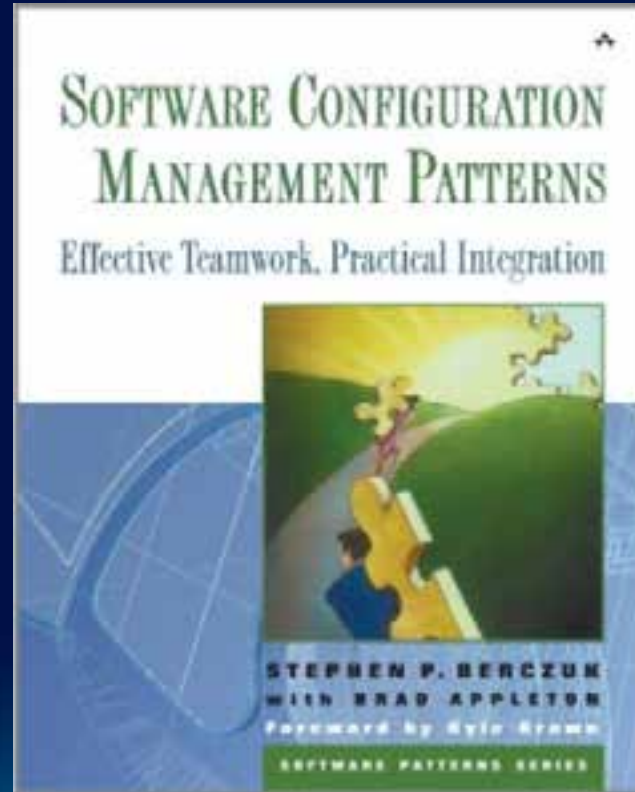
- Recycle Bin

[New](#) | [Actions](#) | [Settings](#)
View: **Subject**

Subject	Created By	Replies	Last Updated
Controlling intellisense	Julio Andrade	0	5/7/2010 4:29 PM
VS2010 breaks debugging MFC in VS2008	Dar Nielsen	0	4/26/2010 7:10 AM
unordered_map file missing after setting up a new developer system	Dar Nielsen	0	4/6/2010 8:37 AM
How can I avoid stepping into petty functions (such as smart pointer methods) while debugging?	Sergey Ivnerko	1	12/2/2008 5:33 AM
When solutions/projects take too long to load or appear to be hung ...	Sivabalan Muthukrishnan	0	9/9/2008 11:37 AM
Purify Integration with MS VS 2008	Sanjay Magal	0	9/2/2008 2:47 PM
Double clicking to open solution files on vista does not work	Sivabalan Muthukrishnan	0	8/1/2008 10:25 AM
Windows SDK Configuration tool	Sivabalan Muthukrishnan	0	6/30/2008 2:43 PM
What is the shortcut keys to build a solution?	Dar Nielsen	0	
What is the shortcut key to show breakpoints?	Dar Nielsen	0	
How can I get F7 to build the selected project?	Dar Nielsen	0	
Where is Class Wizard or how to added message handlers?	Dar Nielsen	0	
Where is a list of all the shortcut keys?	Dar Nielsen	0	
My custom build step is failing, is there a fix?	Dar Nielsen	1	
How do I fix an unknown error in hash.h?	Dar Nielsen	0	
What are the changes in ATL / MFC?	Dar Nielsen	0	
What is new in Visual Studio?	Dar Nielsen	0	
Where can I get information about WTL?	Dar Nielsen	0	
How do I setup a developer machine?	Dar Nielsen	0	
Where can I get Dependency walker?	Dar Nielsen	0	
Can I add TODO, HACK, or UNDONE to the task list window?	Dar Nielsen	0	
Can I add custom keywords to the task list window?	Dar Nielsen	0	
Can I store more than one item on the clipboard?	Dar Nielsen	0	
How can I get a summary view of code in a file?	Dar Nielsen	0	
Can I word wrap?	Dar Nielsen	0	

Recommended Reading

- **“Software Configuration Management Patterns”,
Stephen P. Berczuk with Brad Appleton**



Questions & Survey

