ArcGIS for Developers: An Introduction

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Goals

• Cover all of ArcGIS, high pass, developer's angle

• *What is there?*
• *What can I do with it?*
• *What resources are available to get the most from it all?*
• *Where is the community?*

• How do I get started?
Who are you?

• Are you a GIS pro?
  - new to dev?

• Are you an experienced developer
  - new to ArcGIS?

• Are you a Project Lead?
  - what’s available?
Agenda

• ArcGIS as a developer's toolbox
  - Desktop applications
    - ArcGIS Explorer Desktop, ArcGIS Desktop, ArcGIS Engine
  - Geoprocessing
  - Geodatabase
  - Client-Server applications
    - ArcGIS Server
    - ArcGIS Online
    - Web APIs
    - ArcGIS Runtime for Devices

• Developer Resources
• Online
• Desktop
• Server
• Mobile
ArcGIS Explorer Desktop
ArcGIS Explorer Desktop

Free to use, develop against, and deploy

For Developers

1. Application Configuration
   - Customize UI and functions, no code necessary

2. ArcGIS Explorer SDK
   - Create Add-ins with Visual Studio

• Portable files, easy to share
ArcGIS Explorer Desktop SDK

ArcGIS Explorer SDK

Introduction
ArcGIS Explorer includes a Software Developer Kit (SDK). The aim of the API is to build add-ins which plug into the ArcGIS Explorer application.

An add-in can be used to add a wide variety of functions to the standard retrieve data or images from the Internet, query a remote database, and so on.

You can also use an add-in in order to interact with the other classes in existing layers and results, run other add-ins, add content to the map and so on.

ArcGIS Explorer API provides six types of add-ins: gallery. Each type of add-in is implemented.

The ArcGIS Explorer API and the Microsoft Visual Studio 2005 sample add-in for ArcGIS Explorer are open source and present an example of what can be done with the ArcGIS Explorer API.

Click here for the class diagram key.
Click on the class headers to go directly to the help page for the class.
ArcGIS Explorer Desktop

Creating Add-Ins

Templates
Find online resources, version information and check for updates

Get Updates
Get the latest updates available for ArcGIS Explorer.

Manage Add-Ins
Add and remove ArcGIS Explorer add-ins.

Test Connection and Settings
Test the downloaded add-in

Go to ArcGIS Online
Get ArcGIS Online add-ins

ArcGIS Explorer Help
Get available help for ArcGIS Explorer.

ArcGIS Explorer Add-ins
View and manage ArcGIS Explorer add-ins

Name: SPOD2DeviceMapper
Location: SPOD2DeviceMapper.exe

Add-in: SPOD Mapper

Contents
Banmap (Imagery)
namespace DriveTimeAnalysisCS
{
    public class DriveTimeAnalysis_Button : ESRI.ArcGISExplorer.Application.Button
    {
        private string mDriveTimes = "3 5"; //Drive times to be used with the sample

        public override void OnClick()
        {
            //Get the active map display
            MapDisplay mapDisp = ESRI.ArcGISExplorer.Application.Application.ActiveMapDisplay;

            //Get a point from the screen to start the analysis from
            ESRI.ArcGISExplorer.Geometry.Point startPt = mapDisp.TrackPoint();
            if (startPt == null) return;

            //Call the routine for generating the drive time polygons
            GFFeatureRecordSetLayer gpOutput = CreateBufferPolys(startPt);
            if (gpOutput == null)
            {
                MessageBox.Show("No results returned from geoprocessing service! Try location");
                return;
            }

            //Add a folder to the contents to hold the results
            Folder fold = new Folder("Drive Time Analysis");
            mapDisp.Map.ChildItems.Add(fold);
            DriveTimeAnalysisCS.DriveTime.RecordSet recs = gpOutput.RecordSet;

            //Figure out which field contains the shape (though it's probably always index 1)
            int shapeId = 0;
            for (int i = 0; i < recs.Fields.FieldArray.Length; i++)
            {
                Field f = recs.Fields.FieldArray[i];
                [...]
            }
        }
    }
}
Demo Theater

Configuring and Customizing ArcGIS Explorer Desktop

• Tuesday @ 12:00 noon
• Thursday @ 11:00am

• SDK Demo Theater
ArcGIS Desktop
ArcGIS Desktop

The professional GIS workstation

For Developers

1. Customization of UI and functionality
2. ArcObjects SDK
   - .NET, VC++
3. Add-ins
   - .NET, Java (Eclipse)
4. Script Tools
   - Python
ArcGIS Desktop Customizing
ArcGIS Desktop

Creating add-ins

- Create or share - *.esriAddin
- Copy into well-known location - local or network
- Install wizard
- Use

- Key advantages over classic ArcObjects dev pattern
ArcGIS Desktop

Creating add-ins

[Diagram showing Visual Studio 2008 IDE with focus on templates for ArcGIS Desktop Add-ins]
ArcGIS Desktop

Creating add-ins

- Buttons
- Tools
- ComboBoxes
- Multi-items
- Menus
- Content Menus
- Toolbars
- Tool Palettes
- Dockable Windows
- Application Extensions
- Editor Extensions

Assemblies/JARs
XML Metadata
Resources

.esriAddIn File
(zipped folder)
ArcGIS Desktop  

Creating add-ins
ArcGIS Desktop

Creating add-ins
Finding, Using Add-ins

- www.arcgis.com
ArcGIS Engine
ArcGIS Engine

Embeddable and Extensible GIS Components

For Developers

- ArcObjects SDK
  - .NET, Java, VC++, Cross-platform C++
  - 1000s of classes, interfaces, methods
  - 10+ controls

- Compiled and deployed stand-alone applications
Geoprocessing

Interrogating, manipulating, managing map data

*For Developers*

Interactive scripting window
Use Modelbuilder then export as a script

Portable files, easy to share
- .py, .gpk, .esriAddIn
Quick Links

ArcGIS Python Code Recipes
- ArcGIS Python Recipes

Learning Python
- Python tutorial
- Python.org beginners guide
- Learn Python the Hard Way
- Dive into Python
- Popular Python recipes
- Python Module of the Week

Python for ArcGIS
- New at 10.1 for Python and ArcPy
- A quick tour of ArcPy
- Extending ArcGIS with Python Tutorials

ArcGIS Python Code Recipes
- ArcGIS Python Recipes

Learning Python
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Python for ArcGIS
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- Extending ArcGIS with Python Tutorials
Geodatabase

- Components
- ArcObjects
- File Geodatabase API
Geodatabase

- Components
Geodatabase

- ArcObjects
Geodatabase

- File Geodatabase API (v 1.2)
  - C++
  - .NET wrapper
  - Mac
Agenda

• ArcGIS as a developer's toolbox
  - Desktop applications
    - ArcGIS Explorer Desktop, ArcGIS Desktop, ArcGIS Engine
  - Geoprocessing
  - Geodatabase
  - Client-Server applications
    - ArcGIS Server
    - ArcGIS Online
    - Web APIs
    - ArcGIS Runtime for Devices

• Developer Resources
ArcGIS Server – An end-to-end GIS system

Developer architecture
Services
APIs
Demos
ArcGIS Server – Works with many different clients

Including...

- iPhone
- Android
- Windows Phone
- .Net
- Python
- Java
- Flex/Flash
- Silverlight
- Ruby
- PHP
- JavaScript
- ArcGIS Web APIs
- ArcGIS Explorer
- ArcGIS Runtime SDKs
- ArcGIS Online
- ArcGIS Desktop
- Google Earth
- Open Street Map
- OpenLayers
http://maps.bouldercounty.org/boco/emapping/
What is a GIS Service?

ArcGIS Server
Map Service

Map Service Endpoint

Edit
Use
Display
ArcGIS Server – GIS Services

Mapping

Geometry

Feature

Search

Geocode

Image

Globe

Geodata

OGC

Geoprocessing

KML

Network Analysis
How do I get my data into an app? Web Services!

REST

SOAP

OGC

*Image from Microsoft Clip Art*
Example ArcGIS REST API Architecture

ArcGIS Desktop → ArcGIS Server → Geodatabase → REST → JSON, XML etc. → ArcGIS Web API → Your App
Example REST API usage

**URL-based requests (GET or POST)**

Format works with all client-side application languages

```
http://sampleserver1.arcgisonline.com/ArcGIS/rest/services/Specialty/ESRI_StateCityHighway_USA/MapServer/export?bbox=-127.8,15.4,-63.5,60.5&f=pjson
```
**World_Topo_Map (MapServer)**

**View In:** ArcMap, ArcGIS Explorer, ArcGIS JavaScript, Google Earth, ArcGIS.com Map, Bing Maps (terms of use), Google Maps (terms of use)

**View Footprint In:** Google Earth

**Service Description:** This map is designed to be used as a basemap by GIS professionals and as a reference map by anyone. The map includes administrative boundaries, cities, water features, physiographic features, parks, landmarks, highways, roads, railways, and airports overlaid on land cover and shaded relief imagery for added context. The map provides coverage for the world down to a scale of ~1:72k. Coverage is provided down to ~1:4k for the following areas: Australia and New Zealand; Europe; Canada; Mexico; the continental United States and Hawaii; parts of southern Africa including Botswana, Lesotho, Namibia, South Africa, and Swaziland; and parts of South America including Argentina, Brazil, Chile, Colombia, and Venezuela. Coverage down to ~1:1k and ~1:2k is available in select urban areas. This basemap was compiled from a variety of best available sources from several data providers, including the U.S. Geological Survey (USGS), U.S. Environmental Protection Agency (EPA), U.S. National Park Service (NPS), Food and Agriculture Organization of the United Nations (FAO), Department of Natural Resources Canada (NRCan), GeoBase, Agriculture and Agri-Food Canada, DeLorme, NAVTEQ, TomTom (select countries in Eastern Europe and select European island nations), and Esri. For more information on this map, visit us [online](http://server.arcgisonline.com/ArcGIS/rest/services/World_Topo_Map/MapServer).
ArcGIS Online

- Viewer
- Templates
- ArcGIS Portal API
ArcGIS.com Map Viewer

Demo POI and Demographic Map

For demo only
Web Map by andygup
Last Modified: April 11, 2012
(0 ratings, 0 comments, 187 views)

More Details...

Open this map in:
ArcGIS Explorer Online

Make your own map
Add to this map
Make a new map

Cook County POI: Pink Palace of the Rainbow Motel

- **POI ID**: 33,114,286
- **Category**: 7011
- **Description**: HOTEL
- **Name**: Pink Palace of the Rainbow Motel
- **Address**: 7050 W Archer Ave
- **City**: Chicago
- **State**: Illinois
- **Zip**: 60638
- **County**: Cook
- **Country**: United States
- **Phone**: 773-586-7269

Zoom to Edit.
Configurable Templates

- ArcGIS.com Configurable Templates
- Create maps using online tools
- Download template to your web server
- Config files
- Modify code directly
function init() {

    // get the localization strings
    i18n = dojo.i18n.getLocalization("esriTemplate", "template");
    console.log(i18n);
    configOptions = {
        // The ID for the map from ArcGIS.com
        webmap: "dbd1c6d52f4e447f8c01d14a691a70fe",
    };
}
**ArcGIS Portal API**

Table of Contents
- Overview
- ArcGIS Online
- Overview
- Concepts
- Table of Contents
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  - ArcGIS Online
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- Overview
  - ArcGIS Online
  - Overview
  - Concepts
- Concepts
  - Portals allow users and organizations to publish and share content over the web.
  - A Portal may have users who are unaffiliated with an organization or users who are part of an organization.
  - A Portal has Users, Groups, and Content.
  - Users sign into the portal and create and share content. The system supports different types of items including:
    - maps - web maps that can be displayed on all supported platforms (web, mobile, and desktop)
    - layers - feature, map and image services that can be added as layers in web maps
    - applications - web and mobile applications whose content is provided by web maps
    - tools - geocoding, routing, and other task based services that can be used by applications
    - datafiles - files that can be uploaded, stored and downloaded and in certain cases activated to create services (map layers)
  - Users can choose to keep content Private to themselves or Shared with other users via Groups or Public and accessible to everyone.
  - Users can create and join Groups. Users can share items with Groups. This makes the items visible to and accessible by the other members of the Group.
  - Users can create and join Groups. Users can share items with Groups. This makes the items visible to and accessible by the other members of the Group.
  - A Portal may contain multiple Organizations.
  - A user of the Portal (and of the REST API) sees the view of the Portal that applies to their organization. This view includes the users, groups and items that belong to the organization and have been shared with the accessing user. This view may also include users, groups and items that are external to the organization and have been shared with the accessing user.
  - An organization has users in different roles including administrators, publishers and information workers.
  - Administrators can add users to their organizations and have access to all content within the organization.

Web Map Viewer

Description

This sample demonstrates how to use the ArcGIS Portal API, added at version 2.8, to view web maps from the ArcGIS in this case ArcGIS.com, using the Portal class. Once the portal has loaded query for the 'Community Basemap' group the top rated maps.

```javascript
var params = {
    q: 'title:Community Basemaps AND owner:esri'
};
portal.queryGroups(params).then(function(response){
    var group = response.results[0];
    var queryParams = {;
        q: 'type:"Web Map" -type:"Web Mapping Application"',
        sortField: 'created',
        sortOrder: 'desc',
        num:5
    };;
    group.queryItems(queryParams).forEach(loadMap);
});
```

Note that when we query the group we can use the `forEach` function to loop through each of the items in the result.

Code

```html
<!DOCTYPE html>
<html>
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=utf-8">
    <meta http-equiv="X-UA-Compatible" content="IE=7,IE=9" />
    <!--The viewport meta tag is used to improve the presentation and behavior of the samples on iOS devices-->
    <meta name="viewport" content="initial-scale=1, maximum-scale=1,user-scalable=no" />
    <title>Web Map Viewer</title>
</head>
```
In the browser: ArcGIS Web APIs

- JavaScript
- JavaScript Compact (mobile)
- Apache Flex
- Microsoft Silverlight
ArcGIS Web API capabilities include:

- Editing
- Feature Layers
- Time-awareness
- Query
- Geoprocessing
- Graphics
- Graphics Layer
- Symbols
- Map
- Extents
- Geometries
- Routing
Why use the Web APIs?

Let’s you focus on rapid application development!

map.addLayer(basemap)

vs.

http://sampleserver1.arcgisonline.com/ArcGIS/rest/services/Specialty/ESRI_StateCityHighway_USA/MapServer/export?bbox=-127.8,15.4,-63.5,60.5&f=pjson
Why use the Web APIs?

```
<div id="mapDiv" style="width:800px;height:600px;border:1px solid #000;">
  
  vs.

```
API “Syntax”

**JavaScript (.js)**

```javascript
queryTask.execute(query, queryTaskComplete, queryTaskError);
```

**Silverlight (C#.NET)**

```csharp
queryTask.ExecuteCompleted += QueryTask_ExecuteCompleted;
```

**Flex (ActionScript)**

```actionscript
queryTask.execute(query, new AsyncResponder(onResult, onFault));
```
var queryTask = new esri.tasks.QueryTask("http://someserver/arcgis/..."神通);
dojo.connect(queryTask, "onComplete", doSomething);

query = new esri.tasks.Query();

query.spatialRelationship = esri.tasks.Query.SPATIAL_REL_INTERSECTS;

queryTask.execute(query);

function doSomething(event){
};...
Demo of Web APIs
Framework for Integrating Multiple Services

- Tax Parcel Boundaries Operational Layer
- Tax Parcel Data Operational Layer
- Tiled Imagery Layer Basemap

ArcGIS Server

ArcGIS Online
Want an out-of-the-box web solution?

ArcGIS.com Web Map Viewer
ArcGIS Viewer for Flex (Source on Github)
ArcGIS Viewer for Flex Application Builder
ArcGIS API for Silverlight Toolkit (Source on Github)
ArcGIS API for Silverlight Template Gallery
Devices

• Intro
  - Trends
  - Overview

• ArcGIS Runtime for Smartphones and Tablets
  - iOS
  - Windows Phone
  - Android

• ArcGIS Runtime for Desktop Devices
  - WPF
  - Java

• Wrap up
  - Q and A
## Apps and SDKs

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<td>• Java</td>
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</tbody>
</table>

**Platform Specifics**
- **Windows Mobile**
  - Apps: ArcGIS, ArcGIS Explorer
  - Runtime SDK: .NET CF
- **Windows/**
  - Apps: ArcGIS
  - Runtime SDKs: WPF, Java
- **Windows Phone 7**
  - Apps: ArcGIS
  - Runtime SDK: Silverlight
- **iOS**
  - Apps: ArcGIS for iOS
- **Android**
  - Apps: ArcGIS
  - Runtime SDK: Java
- **Linux**
  - Runtime SDK: Java
Description

Use ArcGIS to discover a community of hosted maps from ArcGIS Online. ArcGIS is a great way to discover and use maps. Maps come to life in ArcGIS. Tap on the map or use your current location and discover information about what you see. You can query the map, search and find interesting information, measure distances and areas of interest and share maps with others.

Find community hosted maps from ArcGIS Online – Esri’s online GIS. Alternatively you can use the authoring tools on ArcGIS.com to create your own maps that can be used in ArcGIS.
Mobile Trends = Greater access to GIS

Source: The Nielson Company
ArcGIS Runtime SDKs
iOS, Android, Windows Phone

- Native developer toolkit
- Build focused mapping applications
- Embed ArcGIS into existing apps
- Leverage the ArcGIS system
- Designed for touch-screen phones
- One-handed use
ArcGIS API for iOS

Native Objective C/Cocoa API

REST–Based

Requires Mac

ArcGIS for iOS on iTunes
ArcGIS for Windows Phone

C#/Silverlight API

Visual Studio 2010 Integration

REST-based

ArcGIS for WindowsPhone on Marketplace
ArcGIS API for Android

Native Java API

Eclipse IDE - Windows, Mac OS X (Intel), Linux

Runs on many devices

REST-based

ArcGIS for Android on Google Play
ArcGIS on Rugged Devices

Windows and Windows Mobile Devices

- Designed for harsh field conditions
- One handed/vehicle-mounted use
- Occasionally connected workflows
- High accuracy data collection
  - GPS integration
  - Laser integration
- Replace Paper Surveys
  - Intelligent forms
  - Barcode integration

Water Facilities Mapping

Asset Maintenance/Inspection

First Responders

Land Management
ArcGIS Mobile SDK

.NET API (C#, VB.NET, WPF)

Windows Mobile (notebooks/tablets)

Pocket PC/.NET Compact Framework

Connected or Disconnected
ArcPad

.NET and XML based
Windows Mobile
High accuracy
Field data collection
Disconnected Use
Special considerations for mobile!

Different OS Versions

Touch-based workflows

Various Screens

Inconsistent internet

Battery life

Multiple form factors

Slower connections

Slower CPU

Memory constraints
# Apps and SDKs

## Windows Mobile
- **Apps**: ArcGIS, ArcGIS Explorer
- **Runtime SDK**: .NET CF

## Windows/Phone 7
- **Apps**: ArcGIS
- **Runtime SDK**: WPF, Java

## Windows Phone 7
- **Apps**: ArcGIS
- **Runtime SDK**: Silverlight

## iOS
- **Apps**: ArcGIS for iOS
- **Runtime SDK**: Objective C

## Android
- **Apps**: ArcGIS
- **Runtime SDK**: Java

## Linux
- **Apps**: ArcGIS
- **Runtime SDK**: Java
Adding MapTips

By adding MapTips to your ArcGIS API for Silverlight applications, you can display information about graphic features when you hover the pointer over them. With the ArcGIS API for Silverlight, you can easily data-bind MapTips so that the information displayed is always based on the attributes of the current graphic.

The XAML view of the main Grid in an application with MapTips enabled on a feature layer (which is a type of graphics layer) is shown below. The application displays states with a population density of more than 150 people per square mile. For each state, a MapTip showing the state’s name and population density is displayed. This topic explains how the MapTips shown here are specified. It is assumed that you are familiar with how to create maps, feature layers, and symbols.

Note: No managed .NET code (that is, code-behind) is required other than what is automatically generated when you create a Silverlight project.

```xaml
<Grid x:Name="LayoutRoot" Background="White">
    <Grid.Resources>
        <esri:SimpleFillSymbol x:Key="MyFillSymbol" Fill="#66FF0000" BorderBrush="#AA0000" BorderThickness="2"/>
        <esri:SimpleRenderer x:Key="MySimpleRenderer" Symbol="(StaticResource MyFillSymbol)"/>
    </Grid.Resources>

    <esri:Map x:Name="MyMap" Extent="-130,10,-70,60">
        <esri:Map.Layers>
            <esri:ArcGISTiledMapServiceLayer ID="StreetMapLayer">
                Url="http://server.arcgis.com/arcgis/rest/services/ESRI_Streets/World_2D/MapServer"
            </esri:ArcGISTiledMapServiceLayer>
            <esri:FeatureLayer ID="MyFeatureLayer">
                Url="http://sampleserver1.arcgis.com/ArcGIS/rest/services/Examples/Demographics/ESRI_Census/

                Where="POP07_SQMI > 100" Renderer="(StaticResource MySimpleRenderer)"
            </esri:FeatureLayer>
            <esri:FeatureLayer OutFields="STATE_NAME,POP07_SQMI"/>
        </esri:Map.Layers>
    </esri:Map>
</Grid>
```
blogs.esri.com/esri/arcgis
Featured Maps and Apps from the ArcGIS Community

Maps  Web Apps  Mobile Apps

- Yakima Transit iBus Widget
- City of Yakima Postcard Public Notifications
- Changes: The Lower Columbia River Then and Now
- Environmental Justice (EJ) within the Greater Philadelphia
- Flood Watch Marlborough
- Save The Rain!

Search for more Web apps or click below to find the:
- Highest Rated
- Most Recent
- Most Viewed

What is a Web app?

Create your own app using the ArcGIS API for:
- JavaScript
- Flex
- Silverlight
Esri Developer Network (EDN)

• Annual Subscription
  - Standard or Advanced

• Developer license

• ArcGIS platform
  - products, extensions
  - desktop, server, web, mobile
  - full functionality - it's everything

• Design, prototype, test, build

• Defer production costs until deployment
Esri Developer Network

EDN Subscription
Esri Developer Network (EDN) is available through an annual subscription and provides a cost-effective way to license Esri ArcGIS products and tools.

- Learn more about EDN
- EDN License Activation and Renewal
- Manage my 9x EDN subscription
- Manage my 10x EDN subscription

Resource Center
The ArcGIS Resource Center contains the integrated support and community resources to help you be successful.

- ArcGIS Resource Center
- Developer resources for ArcGIS version 9.2 and prior

Developer Community
Interact and share resources with developers around the World.

- Esri Developer Summit
- Esri Dev Meet Ups

edn.esri.com
Web Workers

CORS and buffering polygons

- Cross-Origin Resource Sharing (CORS)
- Cross-Origin Resource Sharing (CORS)
- Cross-Origin Resource Sharing (CORS)

Web Storage

- Stores key/value pairs
- localStorage
- sessionStorage

CSS3 Transforms

- Change the position of an element

Geolocation API

- Provides user’s approximate location

```
function getLocation() {
  navigator.geolocation.getCurrentPosition(
    function(position) {
      console.log(position.coords.latitude, position.coords.longitude);
    },
    function(error) {
      console.error(error);
    }
  );
}
```

```
watchId = navigator.geolocation.watchPosition(
  function(position) {
    console.log(position.coords.latitude, position.coords.longitude);
  },
  function(error) {
    console.error(error);
  }
);
```
Welcome, jbarry
Logout | Edit Esri Global Account

Contribute
- ArcGIS Ideas
- Forums

My Support

Support Request Form

Chat with an Analyst

Contact Tech Support

Resource Centers
- ArcGIS Resource Center
- Esri Developer Network (EDN)

Known Issues
Visit the current list of known issues that may apply to your software product.

Support Options
- Standard Support
- Premium Support

Knowledge Base
- Web Based Help
- Technical Articles
- White Papers
- Product Documentation
- GIS Dictionary

Community
- Forums
- Archived Forums
- wiki.GIS.com
- ArcGIS Ideas
- Support Services Blogs
- Blogs Index:
  - Email Discussion

Downloads
- Patches and Service Packs
- ArcScripts
- Samples & Utilities
- Data Models
- Galleries

Software
- Licensing & Registration
  - Versions 9.x
  - Versions 10.x
- Product Life Cycles
- Previous Versions
- Evaluation/Student Edition

support.esri.com
The Esri Developer Summit (DevSummit) brings together developers and GIS over the globe. It's your chance to

Save the Date!

Next year's DevSummit will take place March 25-28, 2013.

esri.com/DevSummit
Esri Developer Summit in Europe

Main   About the Conference

ROTTERDAM  BERLIN  LONDON

September 6, 2012  September 11, 2012  September 14, 2012

The Esri Developer Summit (DevSummit) brings together developers and GIS professionals from all over Europe. It's your chance to:

- Become more effective at building web and mobile mapping applications
- Meet Esri development staff and network with local developers

esri.com/devsummit europe
JavaScript

Not to be confused with Java (programming language).

For the use of JavaScript on wiki.gis.com, see wiki.gis.com.JavaScript.

JavaScript is a scripting language used to enable programmatic access to objects within both the client application and other applications. It is primarily used in the form of client-side JavaScript, implemented as an integrated component of the web browser, allowing the development of enhanced user interfaces and dynamic websites. JavaScript is a dialect of the ECMAScript standard and is characterized as a dynamic, weakly typed, prototype-based language with first-class functions. JavaScript was influenced by many languages and was designed to look like Java, but to be easier for non-programmers to work with.\(^{[23]}\)

### Contents

1. History and naming
2. Features
   2.1 Imperative and structured
   2.2 Dynamic
   2.3 Functional
   2.4 Prototype-based
   2.5 Miscellaneous
   2.6 Vendor-specific extensions
3. Syntax and semantics
4. Use in web pages
   4.1 Compatibility considerations
   4.2 Security
     4.2.1 Cross-site vulnerabilities
     4.2.2 Misplaced trust in the client
     4.2.3 Browser and plugin coding errors
     4.2.4 Sandbox implementation flaws
   4.3 Grouping
Top Questions

1. MySQL query - Getting people out that aren't in another table?
   0 votes 0 answers 1 view
   24s ago Beginner 579
   tags: mysql sql

2. SIGABRT when cvReleaseImage
   0 votes 0 answers 2 views
   31s ago EnneKappa 27
   tags: c++ apiency ubuntu-10.10

3. Java Servlet questions
   0 votes 0 answers 9 views
   34s ago RMT 2,168
   tags: java homework servlets

4. CUDA: Max of array, how to prevent write collisions?
   0 votes 1 answer 6 views
   37s ago Eric 2,669
   tags: cuda

5. Re-running workflow state in wf 4.0 state machine
   0 votes 0 answers 2 views
   48s ago Hari KRK 32
   tags: activity workflow workflow-foundation-4 statemachine

6. How can I add an AppleScript menu to my menubar?
   0 votes 0 answers 2 views
   50s ago WTP 8,647
   tags: objective-c cocoa menu applescript

7. RMI usage of client policy file
   0 votes 0 answers 2 views
   54s ago WorstCase 5
   tags: java security rmi policy
GIS is the world leader in general-purpose GIS software, currently marketed under the ArcGIS name.

Implement IEditSketch interface for custom CAD tools.
I want to build CAD tools which will be used in municipality applications on ESRI. Let me tell the question. The user wants to edit on the map and does it by using IEditSketch. But I want to write a...

How to create a Esri Context Menu on desktop development.
How can I create a context menu on ESRI ArcGIS Desktop. And after creating it, how can I use it while a base command is open and active? I use C# but I can understand Visual Basic. Thanks for your...

ESRI Desktop Zoom to the feature.
I find a feature by using IFeatureClass. Search then I want to show the feature on the screen. How can I do that? Is there a zoom interface or else?

What Questions should attendees of the Esri UC be asking? [migrated]
If you won't be able to attend the UC this year, but have a question for ESRI, post your question as an answer in this thread. If you see a good question please upvote it. Hopefully the good...
Welcome to the Esri User Conference!

- **Developer Track**
  - 30 sessions, meetings
- **Product Islands**
  - Meet the engineers and developers
  - Demo Theaters
- **Tech Support Island**
  - Discuss good ideas, solve tough problems
New Developer Activities at the UC

• Hackers’ Sandbox
  - Tuesday – Thursday 8:30am – 12pm (Hall F)

• UX Design Summit
  - Tuesday 1:00pm – 5pm (Ballroom 20)

• Speed Geeking
  - Tuesday 6:30pm – 8:30pm (Ballroom 20)

• Dev Meet Up
  - Wednesday 5:30pm – 9pm
  - Registration Required

sold out, find one near you: esri.com/devmeetup
How to get started with Microsoft Visual Studio

• Express editions are free
  - VB, C#, substantial capabilities
  - online training, beginner's books

• MS site
  - tutorials, videos, sample code
Visual Studio Community

vbforums.com

xtremevbtalk.com
The Python Wiki

Python is a great object-oriented, interpreted, and interactive programming language. It is often compared (favorably of course :) to Lisp, Tcl, Perl, Ruby, C#, Visual Basic, Visual Fox Pro, Scheme or Java... and it's much more fun.

Python combines remarkable power with very clear syntax. It has modules, classes, exceptions, very high level dynamic data types, and dynamic typing. There are interfaces to many system calls and libraries, as well as to various windowing systems. New built-in modules are easily written in C or C++ (or other languages, depending on the chosen implementation). Python is also usable as an extension language for applications written in other languages that need easy-to-use scripting or automation interfaces.

Getting Started

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See also the documentation category for all known documentation-related pages.

Events, Courses, Conferences, Community

- Python Conferences - information about the Python conference scene
- Python Events - covers conferences, training courses and more
- Local User Groups - find a Python group near you
- Participating in the Community - where people using and producing Python get together

Python Software
Getting Started With Adobe Flex

IDE: Flash Builder
ArcGIS API for Flex: resources.arcgis.com
Flash Player (debug): Flash Player Support Center
Online Resources: help.adobe.com
Training: Flex.org, Adobe Video Training
Community: actionscript.org
Getting Started with JavaScript

IDE (free!): Notepad++, Aptana
ArcGIS API for JavaScript: resources.arcgis.com
Online Resources: dojotoolkit.org
Tutorials: w3schools.com
Community: dojotoolkit.org/community
Getting Started with Silverlight (Web)

IDE: Visual Studio Express (free!)
ArcGIS API for Microsoft Silverlight: help.arcgis.com
Silverlight SDK: silverlight.net/getting started
Online Resources: MSDN.microsoft.com
Community: silverlight.net/community
Getting Started with Android

IDE: Eclipse
ArcGIS API for Android: resources.arcgis.com
Online Resources: developer.android.com
Community: developer.android.com
Misc: Mobile device for testing!
Getting Started with iOS

IDE, SDK: Xcode 4 + iOS 6 SDK
ArcGIS API for iOS: resources.arcgis.com
Online Resources: iOS Developer Library
Community: developer.apple.com
Misc: Mobile device for testing
Getting Started with Windows Phone

IDE: Visual Studio Express (free!)
ArcGIS for Windows Phone: resources.arcgis.com
Online Resources/Community: App Hub
Misc: Mobile device for testing
Open Source Initiatives –
Session Survey

- esri.com/ucsessionsurveys
- Session ID: Tue 625; Wed 747