



# Rapid Solution Development Using ArcWeb Services (Best Practices)

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# Presentation outline

- **Introduction to ArcWeb Explorer**
- **Mapping a webserver log with AJAX**
- **DevSummit 2007 Attendees Mash-Up**
- **Using ArcWeb Explorer to connect to ArcIMS**
- **ArcWeb Explorer and Thematic Mapping**
- **Tools for debugging**
- **The not too distant future...**

**Assume Familiar With**

**ArcWeb ServicesHTML / JavaScriptXML Format**

# Presentation materials

- PowerPoint presentation and code are posted on the conference web site
  - <http://www.esri.com/events/devsummit/index.html>
- EDN – downloads and videos
- Material for this session will be available after the conference

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# Quick Start and Quick Start Plus

- **Quick Start** (I'm new to AWX, where do I start?)
  - Basic map embedding
  - Adding markers and finding locations
  - Turning widgets on and off
  - Overlays
  
- **Quick Start Plus** (I want more!)
  - Customizing flash markers
  - Routing
  - Adding lines and polygons
  - GroupLayer control

# The “Hello World” of ArcWeb Explorer

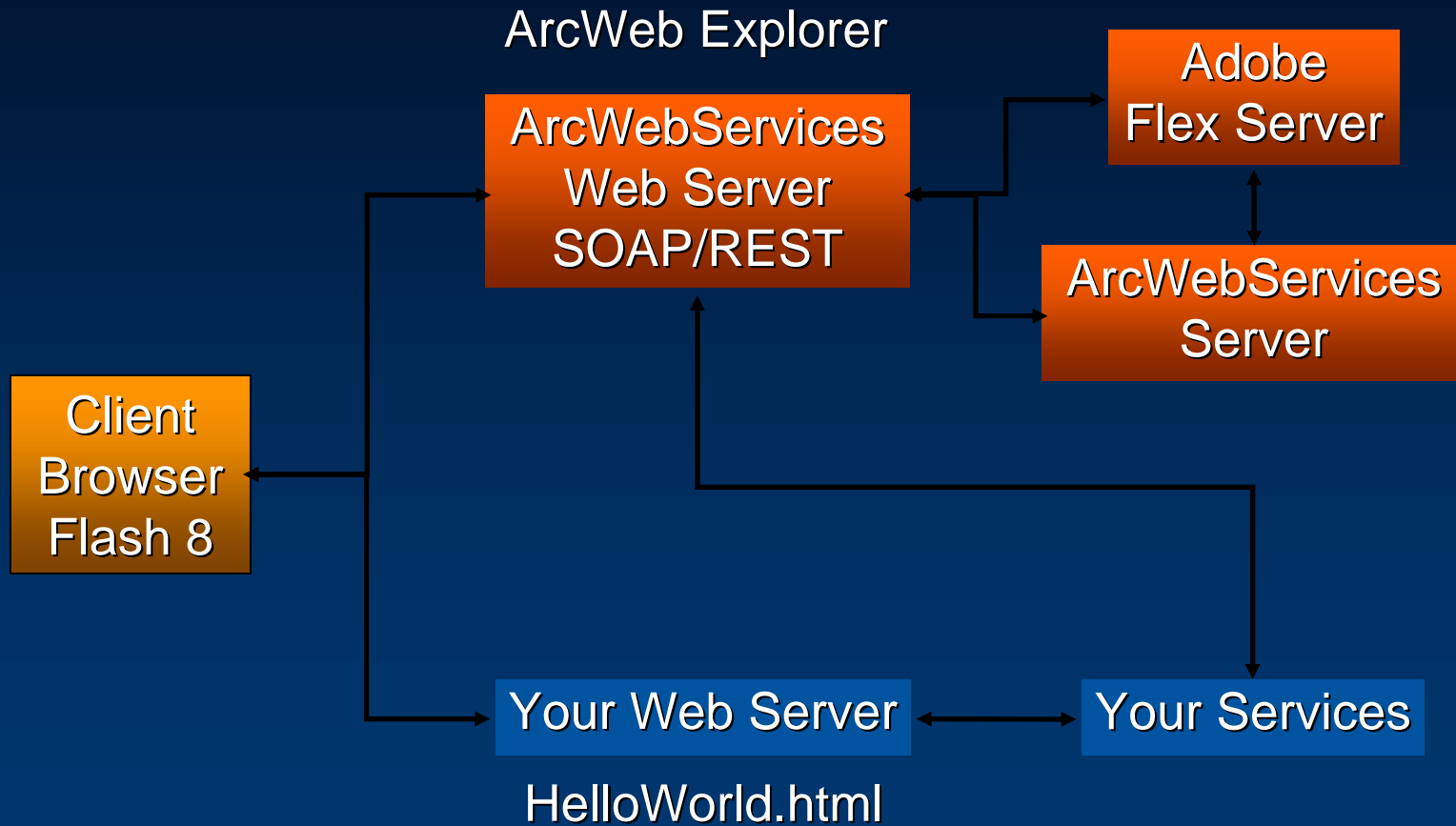
```
<html>
<head>
<title>ArcWeb Explorer</title>

<script src="http://www.arcwebservices.com/awx/awxapi-1.0.js" type="text/javascript"></script>

<script type="text/javascript">

function onBodyLoad()
{
  AWUtils.insertMap("explorer", "<ArcWeb Explorer API Key>");
}
function onCreationComplete()
{
  var myExplorer = new AWMMap("explorer");
  var myLatLon = new AWLatLon(42.367044, -71.052742);
  myExplorer.centerAndScale(myLatLon, 10000);
}
</script>
</head>
<body onload="onBodyLoad()">
<center>
<div id="explorer" style="width:800px; height:600px;">You need at least <a
href="http://www.adobe.com/shockwave/download/alternates/"> Flash 8 to view this page.</div>
</center>
</body>
</html>
```

# You And ArcWeb Explorer



# The Basics

```
<script src="http://www.arcwebservices.com/awx/awxapi-1.0.js" type="text/javascript"></script>
```

```
function onBodyLoad()  
{  
  AWUtils.insertMap("explorer", "<ArcWeb Explorer API Key>");  
}
```

```
function onCreationComplete()  
{  
  var myExplorer = new AWMap("explorer");  
  var myLatLon = new AWLatLon(42.367044, -71.052742);  
  myExplorer.centerAndScale(myLatLon, 10000);  
}
```

# Get Center And Extent Info

```
function getLatLonCenter()
{
    var myExplorer = new AWMMap("explorer");
    var myLatLon = myExplorer.getLatLonCenter();
    var myLatDMS = AWUtils.deg2DMS(myLatLon.lat, "lat");
    var myLonDMS = AWUtils.deg2DMS(myLatLon.lon, "lon");
    alert(myLatDMS + "\n" + myLonDMS);
}
```

```
function getLatLonExtent()
{
    var myExplorer = new AWMMap("explorer");
    var myLatLonExtent = myExplorer.getLatLonExtent();
    var myMinLatDMS = AWUtils.deg2DMS(myLatLonExtent.minLat, "lat");
    var myMinLonDMS = AWUtils.deg2DMS(myLatLonExtent.minLon, "lon");
    var myMaxLatDMS = AWUtils.deg2DMS(myLatLonExtent.maxLat, "lat");
    var myMaxLonDMS = AWUtils.deg2DMS(myLatLonExtent.maxLon, "lon");
    alert(myMinLatDMS + "\n" + myMinLonDMS + "\n" + myMaxLatDMS + "\n" + myMaxLonDMS);
}
```

# Map Movements And Animation

```
var myExplorer = new AWMap("explorer");
var myLatLng = new AWLatLng(42.367044, -71.052742);
myExplorer.centerAndScale(myLatLng, 10000);window.setTimeout(function()
{
  myExplorer.recenterOrPanToLatLng( new AWLatLng(42.368044, -71.053742));
}, 2000);
```

# Adding Controls To The Map

```
var myExplorer = new AWMMap("explorer");  
  
myExplorer.hideAllWindows();  
  
myExplorer.showWidget(AWMMap.WIDGET_NAVIGATION);  
  
myExplorer.showWidget(AWMMap.WIDGET_FIND);
```

# Adding Markers To The Map

```
var myMarkerStyle = new AWImgMarkerStyle();  
myMarkerStyle.id = "myId";  
myMarkerStyle.source = "http://yourhost:yourport/yourimage.jpg";  
myMarkerStyle.width = 16;  
myMarkerStyle.height = 16;  
myMarkerStyle.anchorX = 8;  
myMarkerStyle.anchorY = 8;  
myExplorer.addMarkerStyle(myMarkerStyle);
```

```
var myMarker = new AWMarker();  
myMarker.latlon = myLatLon;  
myMarker.markerStyleId = myMarkerStyle.id;  
myExplorer.addMarker(myMarker);
```

# Adding Locations To The Map

```
var myLocation = new AWLocation("myLocationId", "www.esri.com");  
myLocation.markerStyleId = myMarkerStyle.id;
```

```
myExplorer.findLocation(myLocation, "onFindLocation");
```

```
function onFindLocation( event )  
{  
    myExplorer.recenterOrPanToLatLng(  
        new AWLatLng(event.lat, event.lon)  
    );  
}
```

# Over, Click, Out Handling

```
var myMarkerStyle = new AWImgMarkerStyle();
myMarkerStyle.id = "myStyleId";
myMarkerStyle.source = "http://yourhost/img-out.jpg";
myMarkerStyle.width = 16;
myMarkerStyle.height = 16;
myMarkerStyle.anchorX = 8;
myMarkerStyle.anchorY = 8;
myMarkerStyle.mouseClick = "onMarkerClick";
myMarkerStyle.mouseOverSource = "http://yourhost/img-ovr.jpg";
myExplorer.addMarkerStyle(myMarkerStyle);
```

```
function onMarkerClick( event )
{
    var s = "lat=" + AWUtils.deg2DMS(event.lat) + "\n";
    s += "lon=" + AWUtils.deg2DMS(event.lon) + "\n";
    s += "pixelX=" + event.pixelX + "\n";
    s += "pixelY=" + event.pixelY + "\n";
    s += "id=" + event.data.id + "\n";
    alert(s);
}
```

# Adding SWF Marker

```
var myMarker = new AWMarker();
myMarker.latlon = new AWLatLon(42.367044, -71.052742);
myMarker.id = "myMarkerId";
myMarker.data =
{
  label:{text: "myLabel"},
  title:{text: "myTitle"},
  elements:[
    {
      type: "image",
      src: "http://yourhost:yourport/yourimage.jpg"
    },
    {
      type: "text",
      text: "some marker description",
      multiline: "true",
      maxWidth:200
    }
  ]
}

markerDefaults:{ dropShadow: "true", color: "0x648bda" }
}
myExplorer.addMarker(myMarker);
```

# Adding Polygons/Polylines To The Map

```
var myPolygon = new AWPolygon("myPolygonId",  
[  
  new AWLatLon(37.4419, -122.1419),  
  new AWLatLon(37.4519, -122.1519),  
  new AWLatLon(37.4519, -122.1619)  
], myPolygonStyleId );
```

```
myExplorer.addPolygon(myPolygon);
```

```
var myLine = new AWPolyline("myPolylineId",  
[  
  new AWLatLon(37.4419, -122.1419),  
  new AWLatLon(37.4519, -122.1519)  
], myPolylineStyleId);
```

```
myExplorer.addPolyline(myLine);
```

# Moving Markers On The Map

```
var lat = 42.36704409;  
var lon = -71.05274248;
```

```
var myMarker = new AWMarker();  
myMarker.latlon = new AWLatLon( lat, lon);  
myMarker.markerStyleId = myMarkerStyle.id;  
myMarker.id = "myId";  
myExplorer.addMarker(myMarker);
```

```
function moveMarker()  
{  
    executer = new AWExecuter(moveMarkerInterval, 0.5);  
}
```

```
function moveMarkerInterval()  
{  
    lat += 0.001;  
    lon += 0.001;  
    myExplorer.setMarkerLatLon("myId", lat, lon);  
}
```

# XML And AJAX With ArcWeb Explorer

- Excellent Prototype.js library.
- DHTML Manipulation / AJAX library.
- <http://prototype.conio.net>
- Included in **awxapi-1.0.js**

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# Web Log Viewer Demo & Walkthrough

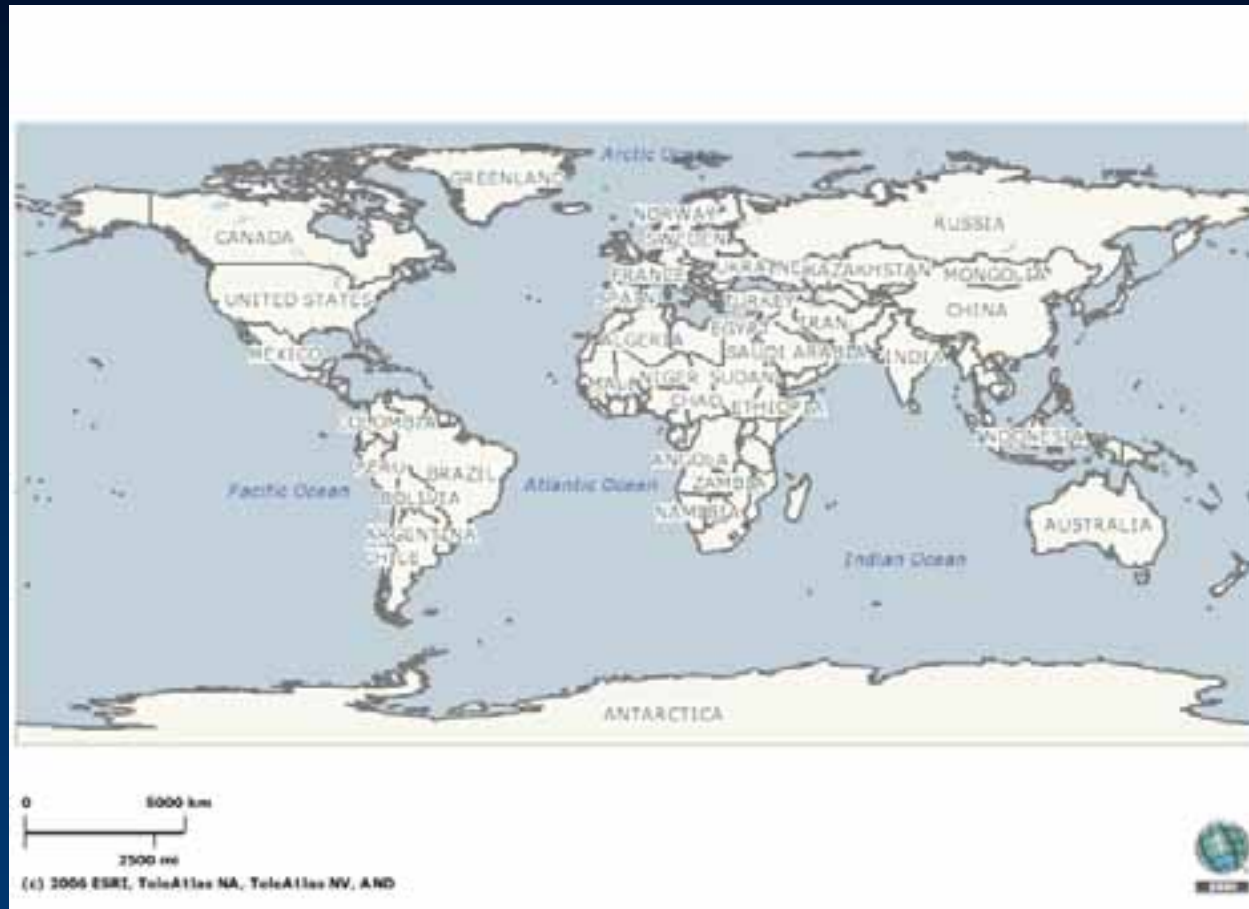
- A web server log viewer can easily be created using ArcWeb Explorer JavaScript API with the following items:
  - A log file from any web server (IIS, Apache, Tomcate, SunONE, etc)
  - A tool to parse the log file (bash, perl, ASP, C#, etc)
  - The XML produced by the log parsing tool
  - An AWX Mash-Up to show the IPs in the XML

# Web Log Viewer Demo & Walkthrough

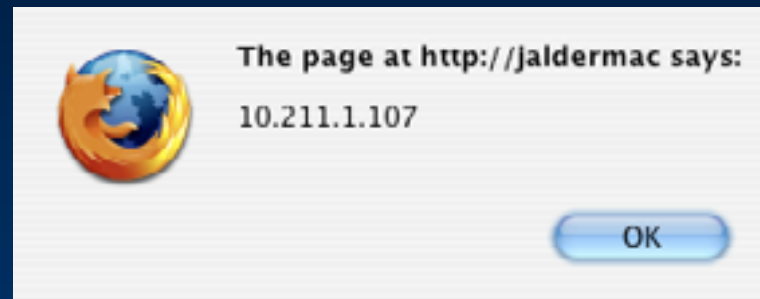
- **Step 1**
  - Copy the 'HelloWorld' sample
- **Step 2**
  - Load and parse the XML via AJAX
- **Step 3**
  - Geocode each IP address in the XML
- **Step 4**
  - Customize the marker style and basemap

# Demo: Web Log Viewer

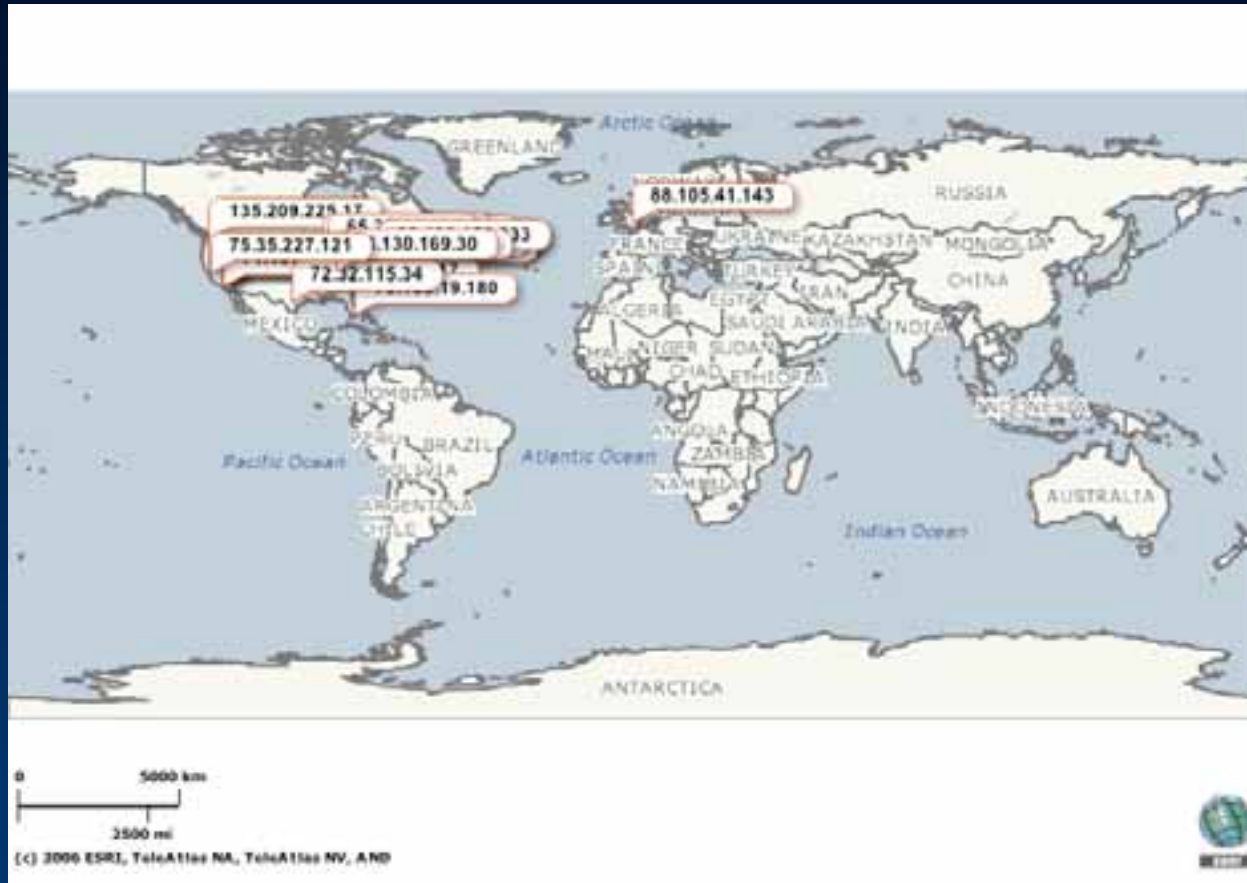
# Web Log Viewer Demo & Walkthrough (Step 1)



# Web Log Viewer Demo & Walkthrough (Step 2)



# Web Log Viewer Demo & Walkthrough (Step 3)



# Web Log Viewer Demo & Walkthrough (Step 4)



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# DevSummit 2007 Attendees Mash-Up

- **When you have too much data for AJAX, try QueryGroupLayer:**
  - Upload your data using the ArcWeb Services portal in .dbf or .zip format.
  - Create a custom SpatialQuery service with the uploaded data.
  - Add a queryGroupLayer to your map with your own custom data.

# Demo: Attendees Mash-Up

# DevSummit 2007 Attendees Mash-Up



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# Using ArcWeb Explorer to connect to ArcIMS

- **An ArcIMS map service can easily be viewed in ArcWeb Explorer by using the MapImageGroupLayer.**
  - Using the ArcWeb Services portal there is an option to Access an ArcIMS Map Service via the SOAP webservice MapImage
  - Once the service is created, a mapImageGroupLayer can then use that custom dataSource.

# Using ArcWeb Explorer to connect to ArcIMS

The screenshot shows the ArcWeb Services interface. At the top, there is a search bar and navigation tabs for Home, Learn, Use, Develop, and Build. The main content area is titled "Select a Type of Service" and offers three options: "Build a Map Service", "Access an ArcIMS Map Service", and "Build a Spatial Query Service". Each option includes a brief description and an icon. A sidebar on the left contains "Builder Tutorials" and "Frequently Asked Questions".

**Select a Type of Service**

You can create a map service or a spatial query service accessible by Internet applications.

- Build a Map Service**  
Create a map service using ArcWeb content or data you uploaded.
- Access an ArcIMS Map Service**  
Create a map service by referencing an ArcIMS URL.
- Build a Spatial Query Service**  
Create a spatial query service using data you have uploaded to ArcWeb.

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The screenshot shows the "Provide ArcIMS Service Information" form in the ArcWeb Services interface. The form is part of a multi-step process: UPLOAD DATA -> ADD DATA LAYER -> BUILD SERVICE -> SERVICE COMPLETE. The current step is "BUILD SERVICE". The form title is "Provide ArcIMS Service Information" and it asks for connection information to identify and add a remote ArcIMS service. It includes fields for "Map Service Name", "Service URL", "User Name", and "Password". A note states that fields marked with an asterisk are required. Navigation buttons for "< Back" and "Next >" are at the bottom.

**Provide ArcIMS Service Information**

Provide connection information to identify and add the remote ArcIMS service. Specify a user name and password if the ArcIMS service is set up for authentication. Note, the user name, password, and map service name are case sensitive.

Map Service Name: \*

Service URL: \*

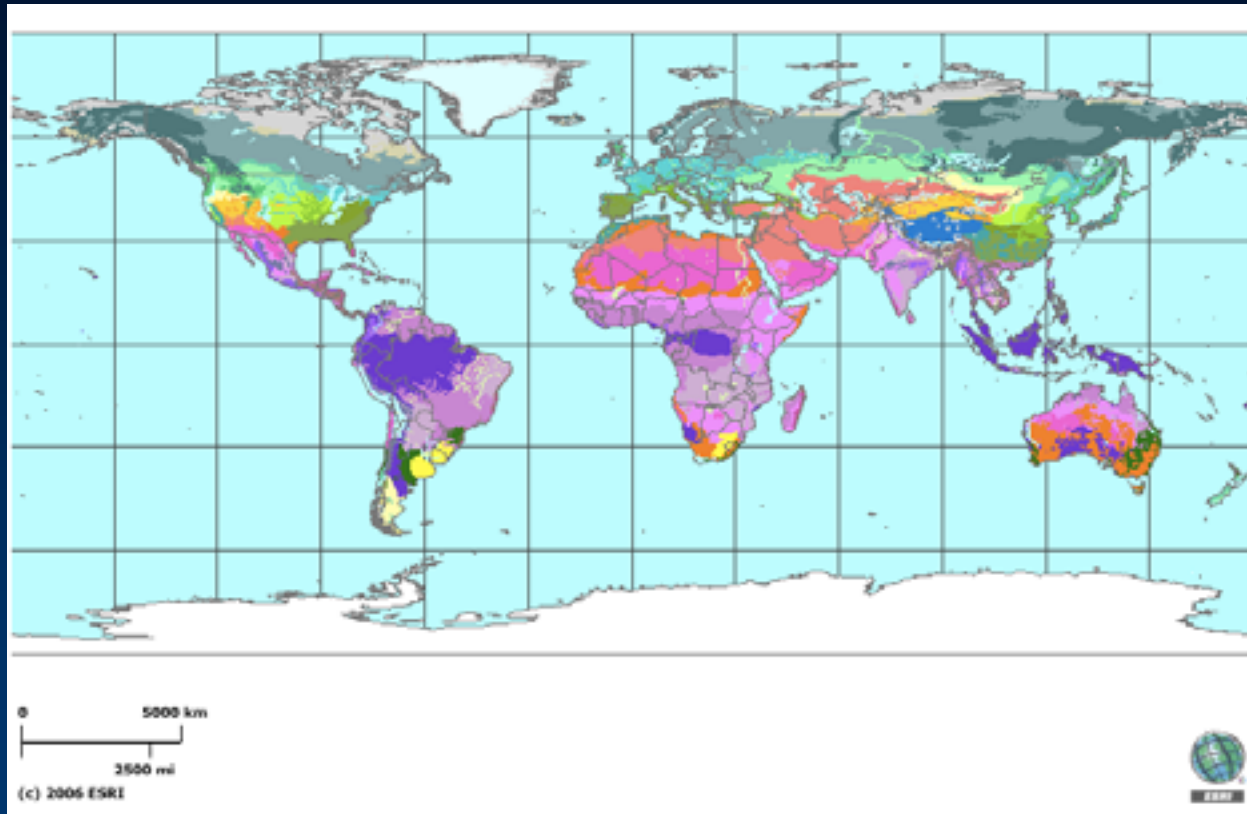
User Name:

Password:

*Fields marked with an \* are required*

# Demo: Using ArcWeb Explorer to connect to ArcIMS

# Using ArcWeb Explorer to connect to ArcIMS



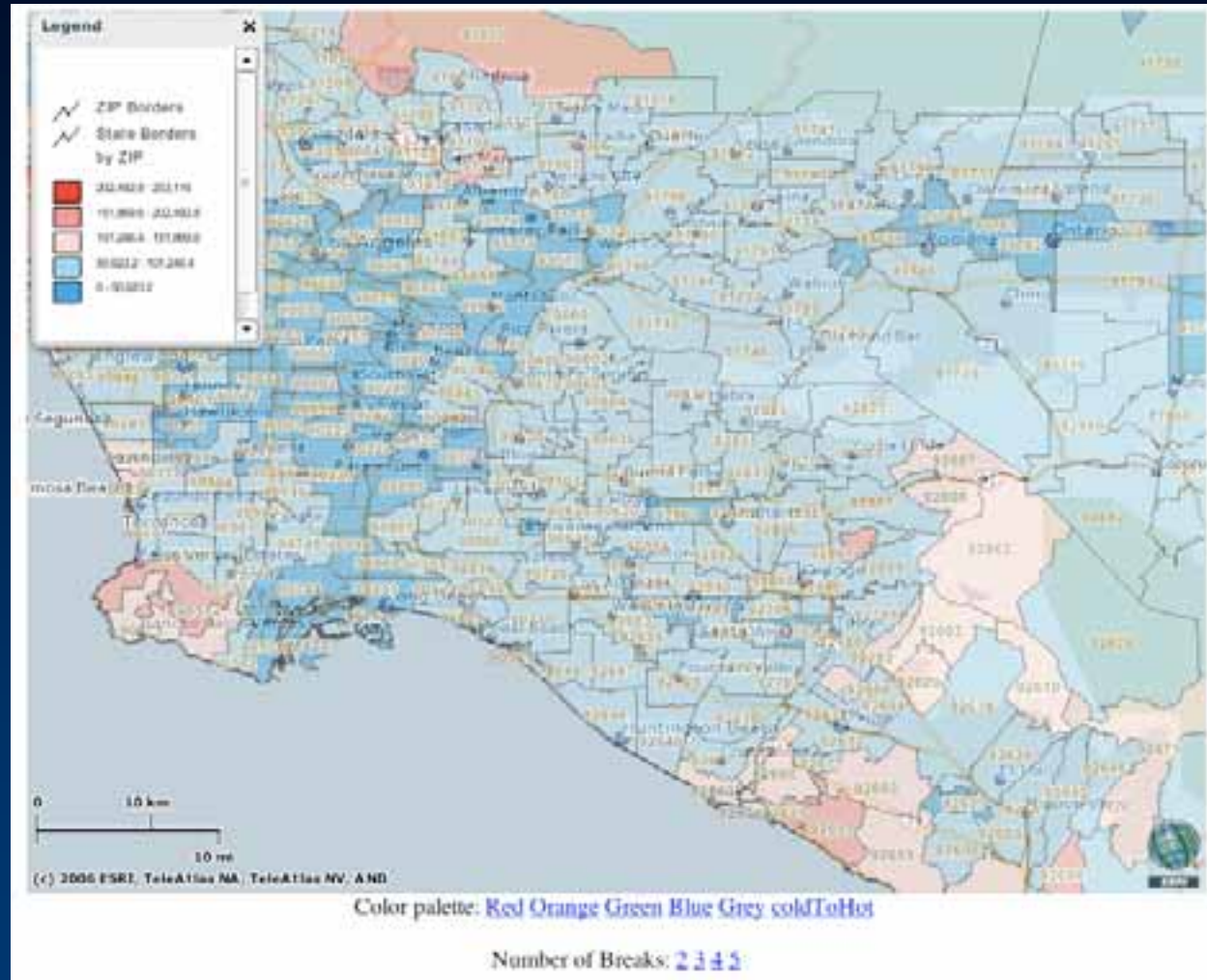
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# ArcWeb Explorer and Thematic Mapping

- **ArcWeb Services provide an extensive selection of demographic reports and maps of the United States.**
- **Data is available for**
  - **State**
  - **Zip code**
  - **Tract**
  - **Block Group**
- **Demographics can be used in ArcWeb Explorer**
  - **MapImageGroupLayer**
  - **QueryGroupLayer**
  - **Report Widget**

# ArcWeb Explorer and Thematic Mapping



# Demo: Thematic Mapping

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# Tools to help you debug ArcWeb Explorer pages

- **Mozilla Firefox Error Console / Fiddler**
  - An easy to use JavaScript debugger.
- **Mozilla Firefox Live HTTP Headers / Fiddler**
  - These tools let you see a lot of the incoming and outgoing traffic ArcWeb Explorer is sending.
- **soapUI**
  - soapUI is a great tool that allows you to format and send SOAP requests to ArcWeb Services.
- **Ethereal**
  - When you're really stuck, try a packet sniffer.

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# The Future of ArcWeb Explorer

- DevSummit launches **ArcWeb Explorer 2.0 alpha!**
- AWX2 is build on Adobe Flex 2.0
- AWX2 has both a JavaScript API and an ActionScript/MXML API
- AWX2 will have more mapTypes (new tiled streets, topo and shaded relief basemaps)
- AWX2 will support 13 different projections

# The Future of ArcWeb Explorer

- **Developers will be able to create their own Widgets.**
- **Using the ActionScript API the map can be completely customized.**
- **Connectors will be used so that developers can add and share new functionality.**
  - **Direct ArcIMS Connector**
  - **ArcGIS Server Connector**
  - **GeoRSS Connector**
  - **WMS Connector**



### What do you want to do?

#### Basic Functionality

- Skew Map
- Skew MapImage
- Show Raster Tiles
- Show Graticules
- Add Marker
- Simple Marker with tooltip
- Control the map scale
- Right-click menu

#### Advanced Functionality

- Acrobat Sample
- Polyline Mouse Sample
- Map vs MapComponent
- Adding Lines and Polygon
- Overlay with layer visibilities
- Two Maps
- Marker Sample
- Map Type
- Marker Sample 2
- Marker Mouse Handler
- Overlay Projection Sample
- Overlay Projection

#### Projection Sample

#### Expert Functionality

#### Explorer

#### API Reference

#### Terms & Conditions

### Live Sample

[View Sample Fullscreen](#)

### Show Source

[View Source Full Screen](#)

```
<?xml version="1.0" encoding="utf-8"?>
<!-- 'Projection Sample' sample for ArcWeb Services Flex API : A sample that demonstrates projection on different group layers.-->
<mx:Application
  xmlns:mx="http://www.adobe.com/2006/mxml"
  xmlns:asw="http://www.adobe.com/2007/asw"
  layout="absolute">

  <mx:Script>
    <![CDATA[
      import com.esri.ams.asw.AWXConstants;

      private function labelFunction(item:Object):String
      {
        return AWXConstants.GetProjectionStyleName(int(item));
      }
    ]]>
  </mx:Script>
</mx:Application>
```

# Further questions?

- **TECH-TALK AREAS**

- **What:** Further opportunity to discuss questions and concerns with presenters and subject matter experts
- **Where:** Tech-Talk area #4
- **When:** during the next 30 minutes

- **ESRI Showcase**

- **Meet the teams**

- **ESRI Developers Network (EDN) website**

- <http://edn.esri.com>

## ***Come see us!***

- **Monday, March 19**

- 11:30am – 7:00pm ESRI Showcase – ArcWeb Services Island

- **Tuesday, March 20**

- 1:00pm – 2:15pm Leveraging ArcWeb Services in GIS Solutions (Best Practices)

*Location: Primrose A*

- 1:30pm – 6:00pm ESRI Showcase – ArcWeb Services Island
- 6:00pm – 7:00pm **Special Interest Group Meeting – ArcWeb Services**

*Location: Primrose A*

- **Wednesday, March 21**

- 10:00am – 6:00pm ESRI Showcase – ArcWeb Services Island
- 10:30am – 11:45am Rapid Solution Development Using ArcWeb Services (Best Practices)

*Location: Primrose A*

- 5:00pm – 6:00pm **Meet the Development Team – ArcWeb Services**

*Location: Oasis 4*

- **Thursday, March 22**

- 10:15am – 11:30am ArcWeb Services SOAP API (Deep Dive)

- *Location: Primrose C/D*