Integrate with ESRI

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An Oracle "How To" Paper

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Introduction

What do you think about ignorance and apathy in today's society?

I don't know and I don't care.

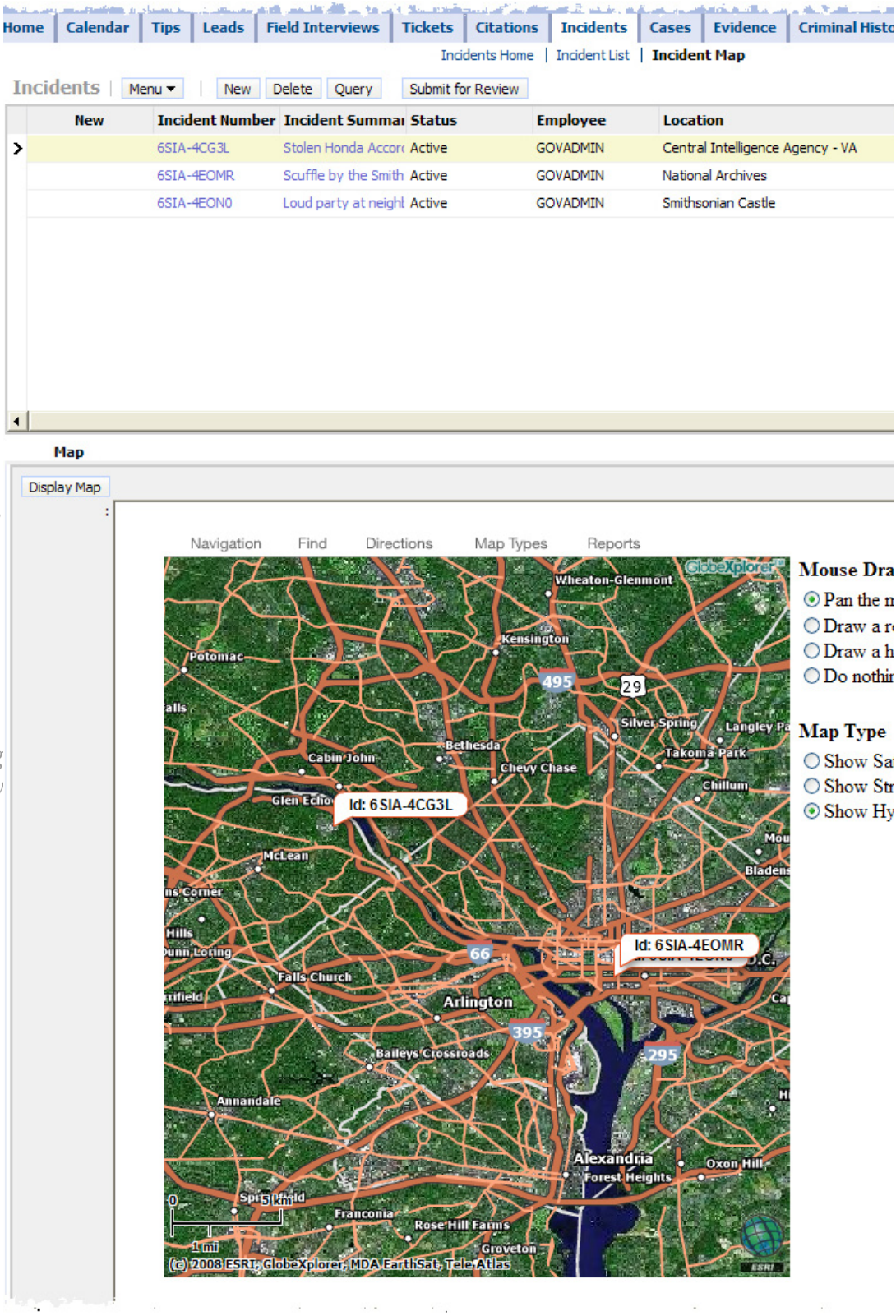
Web Survey

Integration with mapping software can be hard or easy. Here you will discover an easy way. In this paper we show you how to create an applet that integrates with ESRI and displays a map. ESRI stands for Environmental Systems Research Institute, Inc.
ESRI designs and develops the world's leading geographic information system (GIS) technology. GIS is an important tool—one that helps shape the world around us. Cute logo, huh?

We focus on the Public Sector application's PUB HLS Incident business component and show how to display a map when the Incident's latitude, and longitude coordinates are available. If you've read the authors' previous "How To" paper, *Create A Tag Cloud*, then you will recognize a similar design pattern.

We created a new view with a list applet on top and a form applet on the bottom to display an HTML page. The Business Component is called JPS MapUrl and is based on the class, CSSBCVExternalUrl. This BC doesn't do a lot. It has a calculated field for the URL, "<IFRAME SRC="" + GetProfileAttr("JPSMapURL") + "" height='700' width='800'></IFRAME>", that uses a profile attribute, JPSMapURL, that is created from the applet's eScript, ShowMap. The JPSMapURL is a string that invokes an ASP page. The ASP page is passed the list of latitudes and longitudes as well as the record Ids. It has a LinkField that is used only for the link. The link is between PUB HLS Incident and JPS MapUrl; and, we added the JPS MapUrl VBC to the Business Object.

Here's what the map view looks like:

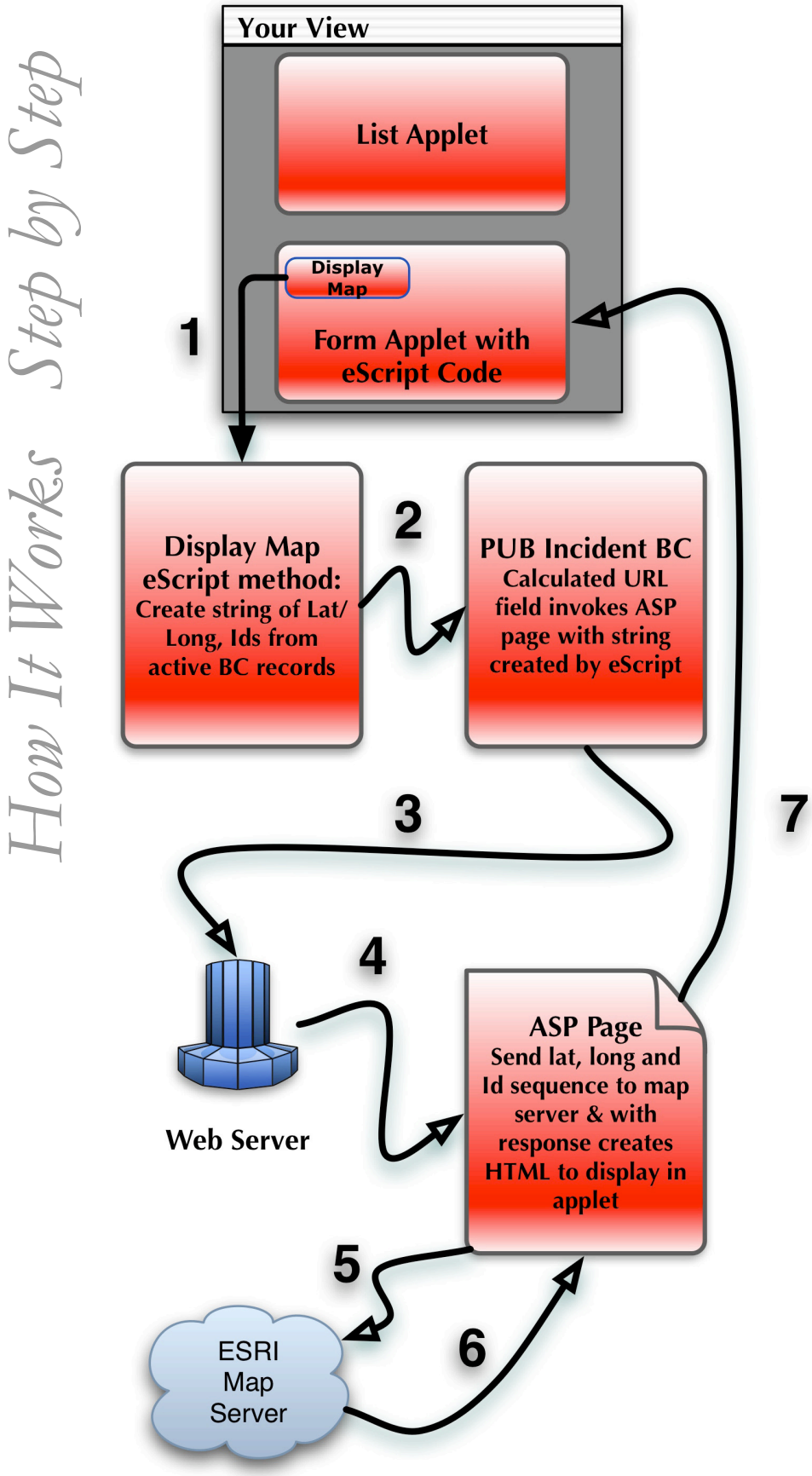


It suddenly struck me that that tiny pea, pretty and blue, was the Earth. I put up my thumb and shut one eye, and my thumb blotted out the planet Earth. I didn't feel like a giant. I felt very, very small.

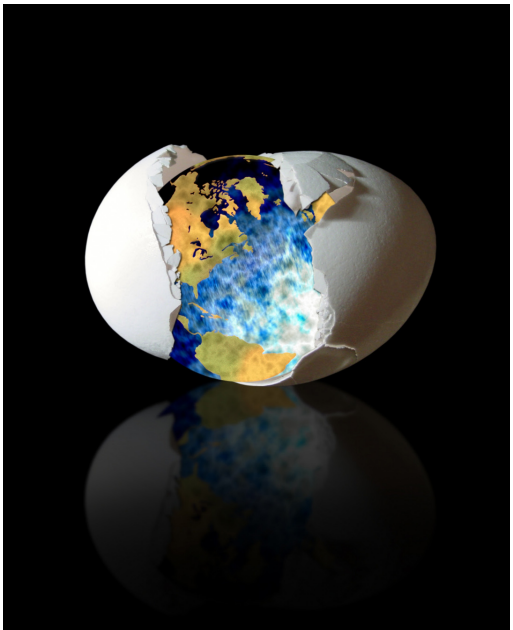
Neil Armstrong
Space Guy

The html source that generated the map may be found in the Appendix.

Here is an overview of the process:



Step 1 - Click the "Display Map" button, invoke the ShowMap eScript.



Step 2 - Iterate over all active records creating a string consisting of record ids, latitude and longitude.
Step 3 - The eScript sets the Profile Attribute and queries the Business Component which then makes a request via the URL calculated field which invokes the ASP page, passing the record ids, latitude/longitude pairs string as an argument to the ASP page.
Step 4 - The ASP page chews on the string, creating the latitude and longitude pairs and the id sequence
Step 5 - The ASP page formulates and sends a request to the ESRI map server .
Step 6 - Map server returns an HTML page based upon input lat/longs.
Step 7 - The HTML page is displayed in the applet.

Configuration Notes

In lieu of an sif file we have decided to provide you with all of the information necessary to configure this example. All of the properties are shown below the skeletal instructions. First, create a BC, add it to the appropriate Business Object. Create a new applet then create a new view with an existing list applet and your new applet. (Remember to add the new view to the appropriate responsibility.)

The `blank.htm` and the `ShowMap1.asp` files should be placed in the directory: `D:\Inetpub\wwwroot\ESRI.`

The new applet, JPS MapURL Applet should excite you; this is where all the action happens. The web page with the tag field, URL, on the Business Component is displayed here and the button triggers the generation of the Profile Attribute that the BC uses to display the URL.

Here are the instructions on how to add an ADS server to ESRI:

1) Navigate to the ESRI page at
http://www.esri.com/software/arcwebservices/developer-portal.html.
2) Click on the Account Management link on the main page.
3) Login as PSFT/PSFTDEMO.
4) Click the Account Details link in the Account Summary section.
5) Click the Register URL link.
6) Enter the url into the field and click the Register button. For example, we added http://wp7049.oracleads.com/

Properties

We are here on Earth to do good to others. What the others are here for, I don't know.

W. H. Auden
Writer Guy

Here are the properties for the various components.

JPS Incident Map VBC Properties:

There are two fields for this VBC, a Linkfield to link the VBC to PUB HLS Incident and the MapURL field. Here are the properties of each.

Linkfield: type = DTYPE_TEXT

MapURL field:

Calculated	TRUE
Calculated Value	"<IFRAME SRC="" + GetProfileAttr("JPSMapURL") + "" height='700' width='800'></IFRAME>

Here are the properties for the link between the PUB HLS Incident BC and the VBC:

PUB HLS Incident/JPS Incident Map VBC Properties

Parent	PUB HLS Incident
Child	JPS Incident Map VBC
Destination Field	LinkField
Source Field	Id

JPS Incident Map Applet Properties:

Class	CSSFrame
Disable Dataloss Warning	FALSE
Height	4
Inactive	FALSE
No Delete	TRUE
No Insert	TRUE
No Merge	TRUE
No Update	TRUE
Scripted	TRUE
Type	Standard
Width	2

Applet Web Template: Applet Form 4 Column Basic

There are two controls on the applet:
Button control: ShowMap with the Caption: Display Map; and, the field control, MapURL, with the following properties:

Automatic Horizontal Scroll	TRUE
Automatic Vertical Scroll	FALSE

Default Button	FALSE
Field	MapURL
Field Type	BC Field
Group	FALSE
HTML Default Control	FALSE
HTML Display Mode	DontEncodeData
HTML Only	FALSE
HTML Row Sensitive	TRUE
HTML Type	URL
Height	24
Inactive	FALSE
Multi Line	FALSE
Name	MapURL
Owner Draw	FALSE
Parent Name	JPS Incident Map Applet
Popup Edit	FALSE
Prompt	FALSE
Read Only	FALSE
Runtime	FALSE
Show Popup	FALSE
Sort	TRUE

I want to put a dent in the universe.

Steve Jobs
Computer Guy

eScript

Tab Stop	TRUE
Text Alignment	Left
Text Alignment-Label	Right
Type	TextBox
Vertical Scroll	FALSE
Visible	TRUE
Want Return	False
Width	120

Here is the ShowMap eScript associated with the applet:

```
function WebApplet_PreInvokeMethod (MethodName)
{
 if (MethodName == "ShowMap")
 {
  var sURL;
  var counter = 1;
  var bcIncident = this.BusComp().ParentBusComp();
  with (bcIncident)
  {
   var isRecord = FirstRecord();

   if (isRecord)
   {
    sURL = "http://"+ Clib.getenv("COMPUTERNAME") + ".oracleads.com/esri/showmap1.asp?";
    while (isRecord)
    {
     var sLongitude = GetFieldValue("Longitude");
     var sLatitude = GetFieldValue("Latitude");
     var sId = GetFieldValue("Id");

     if (sLatitude != "" && sLongitude != "")
     {
      sURL = sURL + "lat" + counter + "=" + sLatitude ;
      sURL = sURL + "&lon" + counter + "=" + sLongitude;
      sURL = sURL + "&id" + counter + "=" + sId + "&";
      counter += 1;
     }

     isRecord = NextRecord();
    }
    FirstRecord();
   }
  }
  if (counter == 1)
  {
   sURL = "http://"+ Clib.getenv("COMPUTERNAME") + ".oracleads.com/esri/blank.htm";
  }
  TheApplication().SetProfileAttr("JPSMapURL",sURL);
  this.BusComp().ExecuteQuery();
  return (CancelOperation);
 }

 return (ContinueOperation);
}


function WebApplet_PreCanInvokeMethod (MethodName, &CanInvoke)
{
 if (MethodName == "ShowMap")
 {
  CanInvoke = "TRUE";
  return (CancelOperation);
 }
 return (ContinueOperation);
}
```

```
function WebApplet_Load ()
{
 TheApplication().SetProfileAttr("JPSMapURL","http://"+ Clib.getenv("COMPUTERNAME") + ".oracleads.com/esri/blank.htm");
}
```

One trick we used is setting and getting the user specified Profile Attribute via:

```
TheApplication().SetProfileAttr("JPSMapURL",sURL);
```

This helps communicate what is going on in one part of the application with another part. While global variables are a no-no there are times when the constraints of an application dictate the usage of a global variable to get it done. This is a good example of doing the right thing in the wrong way.

Everyone thinks of changing the world, but no one thinks of changing himself.

Leo Tolstoy
War and Peace Guy

While not a trick but a thoughtful design consideration is the creation of a generic ASP page for you to use independent of the business component for which you choose to create display a map. Even though the we use Incidents here if you pass the ASP a string with the string, Lat/long and id then you can reuse the ASP page for creating your very own maps.

Appendix

In this appendix we present the source code for two html files used in this configuration. Here is the asp code for showmap1.asp:

```
<html>
<head>
   <title>ADS - Widgets</title>


<%
  Dim latArray(101)
  Dim lonArray(101)
  Dim idArray(101)

  Dim showHighlight

  Dim centerLat
  Dim centerLon
  Dim maxLat
  Dim maxLon
  Dim minLat
  Dim minLon
  Dim height
  Dim width
  Dim debug

  height = 600
  width = 500
  debug = "false"
  showHighlight = "false"

  for i=1 to 100
    latArray(i) = Request.QueryString("lat" & i)
    lonArray(i) = Request.QueryString("lon" & i)
    idArray(i) = Request.QueryString("id" & i)
  next

  centerLat = 0
  centerLon = 0
  maxLat = 0
  maxLon = 0
  minLat = 0
  minLon = 0

  maxLat = latArray(1)
  minLat = latArray(1)
  maxLon = lonArray(1)
  minLon = lonArray(1)

  centerLat = latArray(1)
  centerLon = lonArray(1)

' Figure out the maximum and minimum lat and lon values
  for i = 2 to 100
    if latArray(i) <> "" then
      if latArray(i) > maxLat then
        maxLat = latArray(i)
      end if

      if latArray(i) < minLat then
              minLat = latArray(i)
      end if

      if lonArray(i) > maxLon then
              maxLon = lonArray(i)
      end if

      if lonArray(i) < minLon then
             minLon = lonArray(i)
      end if
    end if
  next

if latArray(2) <> "" then
```

```
   centerLat = (cDbl(minLat) + CDbl(maxLat)) / 2
   centerLon = (cDbl(minLon) + CDbl(maxLon)) / 2
end if


%>

  <!-- reference to the ArcWeb Explorer JavaScript library -->
  <script type="text/javascript" src="http://www.arcwebservices.com/awx/awxapi-1.0.js"></script>

  <script type="text/javascript">
              var myExplorer = new AWMap('explorer');
              var myPolylineStyle;
              var points;

    //loads the ArcWeb Explorer SWF map
    function onBodyLoad()
    {
     AWUtils.insertMap("explorer", "70e3017fa3814bf97e33fd2643caae87",{showMenu:"true",glt:"rasterTile
GroupLayer"});
    }

function onCreationComplete()
    {
     //creating an instance of AWMap
     myExplorer = new AWMap('explorer');

     //setting the center and scale of the map

              scale = 4500

              <% if latArray(2) <> "" then %>
              var ext = new AWLatLonExtent("<%= minLat %>", "<%= minLon %>", "<%= maxLat %>", "<%=
maxLon %>");
              scale = myExplorer.getScaleForLatLonExtent(ext) * 5;

       <% end if %>

     myExplorer.centerAndScale(new AWLatLon("<%= centerLat %>","<%= centerLon %>"), scale);

     myExplorer.showWidget(AWMap.WIDGET_WIDGETBAR, 0, 0);

     points = new Array();

     //myExplorer.addMouseUpCallBack("onMouseUp");

      <%for i = 1 to 100
       if latArray(i) <> "" then %>

      var myMarker = new AWMarker();
      myMarker.id = "marker<%= i %>";
      myMarker.latlon = new AWLatLon("<%= latArray(i) %>", "<%= lonArray(i) %>");
      myMarker.data = {label: "Id: <% = idArray(i) %>"};
      myExplorer.addMarker(myMarker);

              <% end if
       next %>
}

  function onMouseUp( event )
  {
     alert("MouseX: "+event.mouseX +"\nMouseY: "+event.mouseY+"\nLongitude: "+event.longitude+"\
nLatitude: "+event.latitude);

     //captures the clicked point in the points array
     var mouseLatLon = new AWLatLon(event.latitude, event.longitude);
     //alert("mouseLatLon.lat: " + mouseLatLon.lat + ", mouseLatLon.lon: " + mouseLatLon.lon);
     points.push(mouseLatLon);

     //building the polygon based on points clicked
     if(points.length ==1)
     {
      var myPolygon1 = new AWPolygon("polygon1",points[points.length-1],0x00FF00,50);
```

```
    myExplorer.addPolygon(myPolygon1);
  }
  else
  {
    myExplorer.addLatLonToPolygon("polygon1",points[points.length-1]);
  }
}

function showNavigation()
{
   var myExplorer = new AWMap('explorer');
   myExplorer.showWidget(AWMap.WIDGET_NAVIGATION);
}

function hideNavigation()
{
   var myExplorer = new AWMap('explorer');
   myExplorer.hideWidget(AWMap.WIDGET_NAVIGATION);
}

function showFind()
{
   var myExplorer = new AWMap('explorer');
   myExplorer.showWidget(AWMap.WIDGET_FIND);
}

function hideFind()
{
   var myExplorer = new AWMap('explorer');
   myExplorer.hideWidget(AWMap.WIDGET_FIND);
}

function showRoute()
{
   var myExplorer = new AWMap('explorer');
   myExplorer.showWidget(AWMap.WIDGET_DIRECTIONS);
}

function hideRoute()
{
   var myExplorer = new AWMap('explorer');
   myExplorer.hideWidget(AWMap.WIDGET_DIRECTIONS);
}

function showAllWidgets()
{
   var myExplorer = new AWMap('explorer');
   myExplorer.showAllWidgets();
}

function hideAllWidgets()
{
   var myExplorer = new AWMap('explorer');
   myExplorer.hideAllWidgets();
}

function showStreets()
{
  var myExplorer = new AWMap('explorer');
  myExplorer.removeAllGroupLayers();
  myExplorer.addGroupLayer("vectorGroupLayer");
}

function showHybrid()
{
  var myExplorer = new AWMap('explorer');
  myExplorer.removeAllGroupLayers();
  myExplorer.addGroupLayer("hybridGroupLayer");
}

function showSatellite()
{
  var myExplorer = new AWMap('explorer');
```

```
    myExplorer.removeAllGroupLayers();
    myExplorer.addGroupLayer("rasterTileGroupLayer");
  }

function changeMouseHandler(handler)
{
    var myExplorer = new AWMap("explorer");
    var properties;

    if(handler == "AddMarkerMouseHandler")
    {
     properties = {
      labelPrefix:"Map Click Marker (",
      labelSuffix:")",
      markerStyleId:"id-g",
      markerDefaults:{
       color:"0xBBBBFF",
       dropShadow:"true"
       }};
    }
    myExplorer.setMouseHandler(handler,properties);
 }

 </script>
</head>

<body onLoad="onBodyLoad()">
<table align="center" border="0">
 <tr>
  <td align="center" colspan="3">
  <!-- controls where the map will be loaded -->
   <div id="explorer" style="width:<%=width%>px; height:<%=height%>px;">You need at least <a
href="http://www.adobe.com/shockwave/download/alternates/">Flash 8</a> to view this page.</div>
  </td>
  <td valign="top">
       <table border="0">
        <tr><td> </td></tr>
        <tr><td><b>Mouse Drag Function</b></td></tr>
        <tr>
         <td>
          <input name="mouseMode" type="radio" value="SmoothPanMouseHandler" onClick="changeM
ouseHandler('SmoothPanMouseHandler')" checked>Pan the map</input><br/>
          <input name="mouseMode" type="radio" value="RubberBandMouseHandler" onClick="changeM
ouseHandler('RubberBandMouseHandler')">Draw a rectangle to zoom in</input><br/>
          <input name="mouseMode" type="radio" value="RedlineMouseHandler" onClick="changeMouse
Handler('RedlineMouseHandler')">Draw a highlight line</input><br/>
          <input name="mouseMode" type="radio" value="NoopMouseHandler" onClick="changeMouseH
andler('NoopMouseHandler')">Do nothing</input>
         </td>
        </tr>
       </table>
       <br/>

       <table border="0">
        <tr><td><b>Map Type</b></td></tr>
        <tr>
         <td>
          <input name="mapType" type="radio" value="Satellite" onClick="showSatellite()" checked>Show
Satellite</input><br/>
          <input name="mapType" type="radio" value="Streets" onClick="showStreets()">Show Streets</
input><br/>
          <input name="mapType" type="radio" value="Hybrid" onClick="showHybrid()">Show Hybrid</
input>
         </td>
        </tr>
       </table>
       <br/>


         </td>
 </tr>
</table>
```

```
</body>
</html>
```

Here is the html code for `blank.htm`:

```
<html>

</html>
```

EOF

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