

ArcXML Overlay Example

What is ArcXML?

ArcXML is an XML style interface developed by ESRI for its ArcIMS servers. This has become a de facto industry standard due to the large number of installations of the ArcIMS systems. This protocol allows a client application to communicate with the server in ASCII XML over standard HTTP connections to:

- Request catalog information for layers of information on the server
- Request a map file be created for a provided area defined by the x,y, coordinates of a bounding box.
- Query the server for information.

How does ArcXML integrate with ECWP?

Earth Resource Mapping provides easy integration of the streaming ECWP protocol imagery and the 'on demand' PNG or JPEG images ordered via the ArcXML protocol using the LayeredView Control of the ECW plug-ins. The plug-ins are available for Internet Explorer and Netscape/Mozilla style browsers. Usually the ECWP raster image (airphoto or satellite imagery) will form the base layer in the 'image stack', with the ArcXML image as a second GISOverlay type layer. The various layers in the view are georeferenced such that any changes to extents in the view will cause both of the layers to update to reflect the new map area. Imagery delivered through ECWP is updated in real time since it uses a streaming protocol with a persistent connection to the server.

As image blocks are received by the client application, they are cached on the local machine for the duration of that session. This reduces the need to request and transfer the same image information for previously viewed areas of the image. After a short time the ECWP imagery is updated instantly as it all comes from the cached files.

The ArcXML layer does not use streaming and does not maintain the connection between map requests. Rather, when the application detects a change to the map extents, it structures a request in ArcXML format to the server and does a POST via the Control which is fully HTTP enabled. The server receives this request and, if successful, returns an image URL which is embedded in the ArcXML message. This information is parsed out and the image retrieved and substituted into its relevant layer in the image stack.

The LayeredView Control can accommodate a number of image layers combining various ECWP images with one or more GISOverlay images, while other optional layers allow users to add borders, logos or draw over the imagery using SimpleVector layers.

Can the Image Web Server support ArcXML?

Yes. Version 2.0 of the Image Web Server has full support for the ArcXML protocol, which is implemented as an ISAPI application that installs to IIS. This will intercept ArcXML requests to the HTTP web server and respond to them by extracting from the compressed ECW image files the information requested and returning it to the client application in either JPEG or PNG formats. This powerful feature makes the Image Web Server plug compatible with the ESRI ArcIMS server for delivery of raster imagery.

What ECW Imagery does this sample access?

This sample page has been designed to access an ECW image from Earth Resource Mapping's public Image Web Server. The image - **landsat742.ecw** - has been compressed from an amazing 2 Terabytes of imagery down to about 50 Gbytes using ECW compression and is a complete mosaic of Landsat images for the entire world. The ECWP path for this image is as follows and can be viewed in any application that supports the ECW format.

ecwp://www.earthetc.com/images/geodetic/world/landsat742.ecw

Of course you will need to be connected to the Internet to run this sample page to get access to this image and to ESRI's public ArcIMS server.

What ArcXML servers does this page access?

This example page can access two ArcXML servers as follows:

Local Image Web Server ArcXML Service

The page is designed to access a USA geodetic image supplied as part of your Image Web Server installation. You will need to use your Image Web Server Console to enable access to this image in ArcXML/OGC WMS protocols in order to see this as an overlay in your page.

(See the set up instructions in your Image Web Server User Guide to complete this process).

ESRI Public ArcIMS Server

ESRI operates a public ArcIMS Server as part of their Geographic Network. This server is accessed by the tutorial page to overlay GIS Vector imagery on the landsat742.ecw.

Setting Overlay Transparency

A powerful feature of the LayeredView Control is that it supports transparency on each layer allowing for sophisticated blending of image layers in the viewing stack. Transparency can be set on each layer from 0% (fully transparent) to 100% (fully opaque) using the SetTransparency() method of the control.

Transparency can also be set by RGB color which provides a powerful tool for removing fill colors from the GIS Vector overlay images so that the ECW raster imagery is visible underneath. This sample page shows you how to use these transparency features.

Source Code Notes

To help you understand the code for this page, a number of Notes have been added to the bottom of the code itself, referenced by one line comments within the body of the code. Additionally these notes have been added as a separate HTML file which allows you to view or print them as you work with the code itself.