WMS - Introduction

Introduction

The OGC Web Map Service Interface Standard (WMS) defines a set of interfaces for requesting map images over the Internet. WMS makes it easy for a client to request images on demand changing parameters such as size and coordinate reference systems. A WMS server (i.e. a service that implements the WMS standard) provides information about what maps the service provides, and it produces a map and answers queries about content the content of a map.

History

WMS version 1.0.0 in April 2000, followed by version 1.1.0 in June 2001,and version 1.1.1 in January 2002. The OGC released WMS version 1.3.0 in January 2004.

Versions

1.3 is the current latest version

Test Suite

Test suites are available for:

- WMS 1.1.1
- WMS 1.3.0

Implementations

Implementations can be found at the OGC database. here

Usage

Through a highly configurable interface the WMS standard makes map images (but not source data) available in standard image formats. Government agencies publish all kinds of official map cartography using this standard. Other large organizations use this standard to enable independent departments to interact more easily internally. Anybody using this standard can use it to overlay map images from many different sources regardless of the underlying software.

WMS provides a standard interface for requesting a geospatial map image. The benefit of this is that WMS clients can request images from multiple WMS servers, and then combine them into a single view for the user. The standard guarantees that these images can all be overlaid on one another using a common geospatial coordinate reference system. Numerous servers and clients support WMS.

Relation to other OGC Standards

- OGC Web Map Tile Service Interface Standard (WMTS): The WMTS standard is a better fit For highly scalable systems (many simultaneous requests) that only need static maps. It complements the WMS standard with cachable static map

tiles. WMS servers can be used as data sources or rendering engines for WMTS services.

- OGC Web Feature Service (WFS): The WFS standard is a better fit for extended query functionality of spatial data. It provides programmatic access to the geographic feature data. WMS and WFS often go together. An organization publishing both WMS and WFS often use the same data source.
- OGC Styled Layer Descriptor Interface Standard (SLD): The SLD standard allows the user to modify the cartographic appearance of a map image. It is an optional feature of the OGC WMS standard.
- OGC Symbology Encoding (SE): The SE standard describes how to define map symbology. It is used to modify the cartographic appearance of map images. It is an optional feature of the OGC WMS and SLD standards.

Overview of WMS Operations

WMS specifies a number of different request types, two of which are required by any WMS server:

GetCapabilities

Returns metadata about a WMS server, including how to generate WMS requests and what parameters can be used. The metadata includes supported image formats and the availability of layers. Metadata for each layer include: bounding box, coordinate reference system, URI of the data and whether the layer is mostly opaque or not.

GetMap

Returns a map image. Parameters specified in the GetMap request include: width and height of the map, coordinate reference system, rendering style and image format.

Optional WMS operations include:

GetFeatureInfo

Returns information (e.g. data) associated to a coordinate of the map image. The layer supporting this operation is marked as 'queryable'.

DescribeLayer

Returns additional information about the requested layer.

GetLegendGraphic

Returns a legend, as an image, for the map image, providing a visual guide to the map elements.

Example

This OGC WMS Demo server publishes data from Great Britain provided by the Ordnance Survey.

The GetMap request queries the server with a set of parameters describing the map image. The values of the parameters are taken from the Capabilities document. A correctly formulated GetMap request will create the image shown below.

The URL of this link has been truncated for better readability.

```
http://metaspatial.net/cgi-bin/ogc-wms.xml?
VERSION=1.3.0&
REQUEST=GetMap&
SERVICE=WMS&
LAYERS=DTM,Overview,Raster_250K,Topography,nationalparks,Infrastructure,Places&
STYLES=,,,,,,&
CRS=EPSG:27700&
BBOX=424735.97883597884,96026.98412698413,467064.02116402116,127773.01587301587&
WIDTH=400&
HEIGHT=300&
FORMAT=image/png&
BGCOLOR=0xffffff&
TRANSPARENT=TRUE&
```

Get Map Link

http://metaspatial.net/cgi-bin/ogc-wms.xml?   VERSION=1.3.0&   REQUEST=GetMap&
SERVICE=WMS&
LAYERS=DTM,Overview,Raster_250K,Topography,nationalparks,Infrastructure,Places&
STYLES=,,,,,,&   CRS=EPSG:27700&
BBOX=424735.97883597884,96026.98412698413,467064.02116402116,127773.01587301587&
WIDTH=400& HEIGHT=300& FORMAT=image/png& BGCOLOR=0xffffff& TRANSPARENT=TRUE&

Use the link: GetMap to retrieve the map image form the Demo Server. It will be rendered dynamically each time you request the image (given that no proxy interferes and delivers an earlier graphic rendition of the map data).

Client Usage

To use a WMS service in a client you need the end point of the service. For example this GetCapabilities request: http://metaspatial.net/cgi-bin/ogc-wms.xml?REQUEST=GetCapabilities&SERVICE=WMS&VERSI

References

GeoServer WMS reference - Creative Commons 3.0