

TileServer: Extremely fast, free and open-source OGC WMTS server for pre-rendered tiles

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Abstract. OpenGIS Web Map Tiling Service (WMTS) is becoming the standard used for distributing raster maps to the web and mobile applications, cell-phones, tablets as well as desktop software. Practically all popular desktop GIS products now support this standard as well, including ESRI ArcGIS for Desktop, open-source Quantum GIS (qgis) and uDig, etc.

The TileServer, a new open-source software project, is going to be demonstrated. It is able to serve maps from an ordinary web-hosting and provide an efficient OGC WMTS compliant map tile service for maps pre-rendered with MapTiler, MapTiler Cluster, GDAL2Tiles, TileMill or available in MBTiles format.

The presentation will demonstrate compatibility with ArcGIS client and other desktop GIS software, with popular web APIs (such as Google Maps, MapBox, OpenLayers, Leaflet) and with mobile SDKs. We will show a complete workflow from a GeoTIFF file with custom spatial reference coordinate system to the online service (OGC WMTS) provided from a standard web-hosting.

The software has been originally developed by Klokan Technologies GmbH (Switzerland) in cooperation with NOAA (The National Oceanic and Atmospheric Administration, USA) and it has been successfully used to expose detailed aerial photos during disaster relief actions, for example on the crisis response for Hurricane Sandy and Hurricane Isaac in 2012. The software was able to handle large demand from an ordinary in-house web server without any issues. The geodata were displayed in a web application for general public and provided to GIS clients for professional use - thanks to compatibility with ArcIMS.

It can easily serve base maps, aerial photos or any other raster geodata. It is very easy to apply - just copy the project files to a PHP-enabled directory

along with your map data containing metadata.json file. The online service can be also protected with password or burned-in watermarks made during the geodata rendering.

Tiles are served directly by Apache web server with mod_rewrite rules as static files and therefore are very fast and with correct HTTP caching headers. The web interface and XML metadata are delivered via PHP, because it allows deployment on large number of existing web servers including variety of free web hosting providers. There is no need to install any additional software on the webserver.

The mapping data can be available in the standardized format from in-house web servers, or from practically any standard web-hosting provider (the cheap unlimited tariffs are applicable too), and from a private cloud. The same principles can be applied on an external content distribution network (such as the Akamai's CDN with over 100.000 servers in 78 countries) to serve the geodata with higher speed and reliability by automatically caching it geographically closer to your online visitors, while still paying only a few cents per transferred gigabyte.

Keywords: ArcGIS Server, geospatial web services, Google Maps and Google Earth API, MapTiler, mobile devices, tile-based mapping

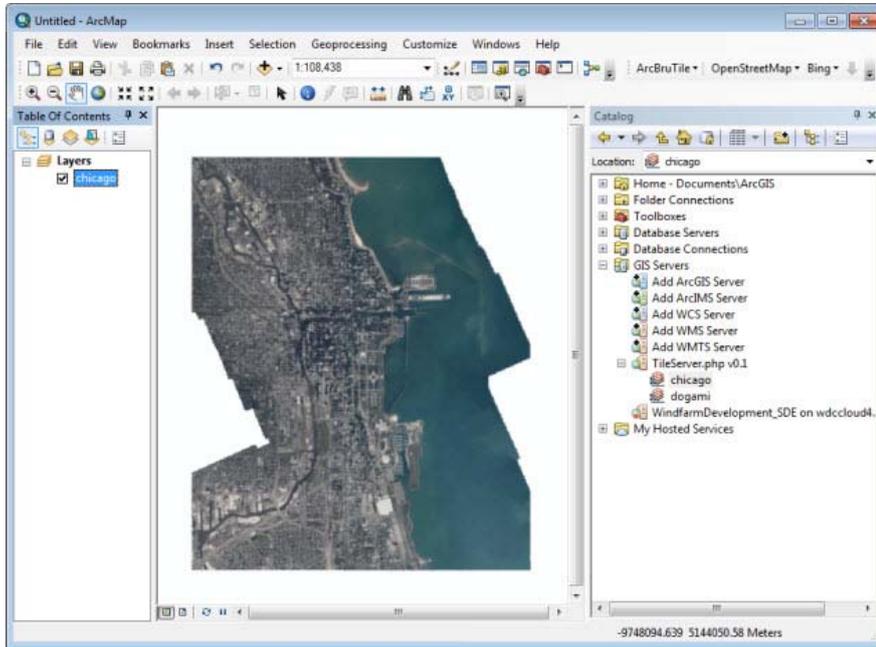


Figure 1. ArcGIS with WMTS Service: ArcGIS for Desktop loading maps from open-source TileServer project.

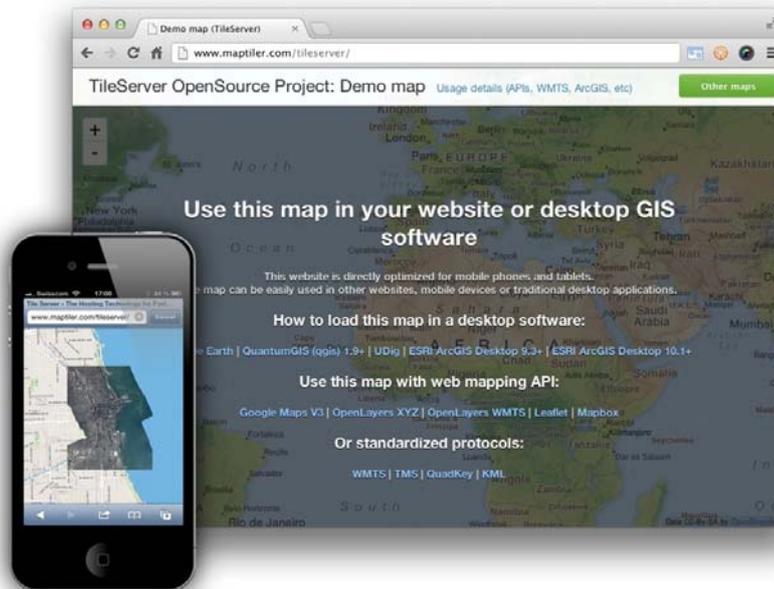


Figure 2. TileServer web interface with step-by-step tutorials for WMTS use and mobile ready preview.