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MassGIS Geospatial Web Mapping Services

The Office of Geographic Information ([MassGIS](#)) within the [Information Technology Division](#) of the [Commonwealth of Massachusetts](#) is a comprehensive, statewide database of spatial information for mapping and analysis supporting emergency response, environmental planning and management, transportation planning, economic development, and transparency in state government operations. On its web site MassGIS offers hundreds of spatial data layers for [download](#) in various file formats. However, the spatial data layers are also available as live streams (web mapping services) directly from the database. This wiki describes how to access these services from various type of client software. Services can be used by users with various levels of GIS or programming experience - from by casual GIS users to programmers. On this wiki MassGIS tries to provide examples for all levels of users.

What MassGIS Offers

The MassGIS services include mapping, data, geocoding and geoprocessing services on almost all of the hundreds of data layers in the MassGIS catalog, provided by three mapping "engines" GeoServer, ESRI ArcGIS Server. Anyone may use these services, however, certain types of geoprocessing may be better done on the GIS desktop. MassGIS can help you figure out how best to use the services, and help you construct your request syntax. MassGIS staff are also available to state agencies to design and build applications that incorporate the services. Applications range from a customized application based on the OLIVER (JavaScript), to simple OpenLayers applications to ArcGIS Server based Javascript applications. Applications can be made to view or edit data. Customized services (ArcGIS Server) can also be created which chain together simpler services.

Services Terms of Use

Questions about how to use the MassGIS web services can be directed to: [Aleda Freeman](#) 617-626-4530 (GeoServer) or [Gabriela Laird](#) 617-626-4587 (ESRI ArcGIS Server) or ITD-DL-MassGisAdmins@MassMail.State.MA.US (to reach a group of MassGIS admins). Questions about how to use MassGIS data or applications can be directed to Paul.Nutting@state.ma.us 617-619-5611.

How to Use this Wiki

To find information on the web mapping services, either browse the topic folder tree on the left hand side or enter a search term in the search box on the upper left hand side. To stay informed about changes to the services (anticipated downtime, etc) and to exchange information with other service users we urge you to join the public [MassGIS Web Mapping Services Google Group](#). You may also [watch any page](#) on this wiki to see changes to the page, or [watch the entire space](#). A good page to watch would be the [What's New With the MassGIS Web Services](#) page. Only registered users can edit pages in this wiki. Let us know if you'd like to be a contributor.

What is a web mapping service?

In a nutshell, a web mapping service listens for incoming questions (requests) in either URL or XML format and generates an answer (response) in image or text (JSON, XML, HTML, shapefile) format. The request can be made by a person (typing a URL into a web browser such as Internet Explorer) or an application running in a web browser (such as OLIVER) or running on a desktop (such as ArcMap or QGIS).

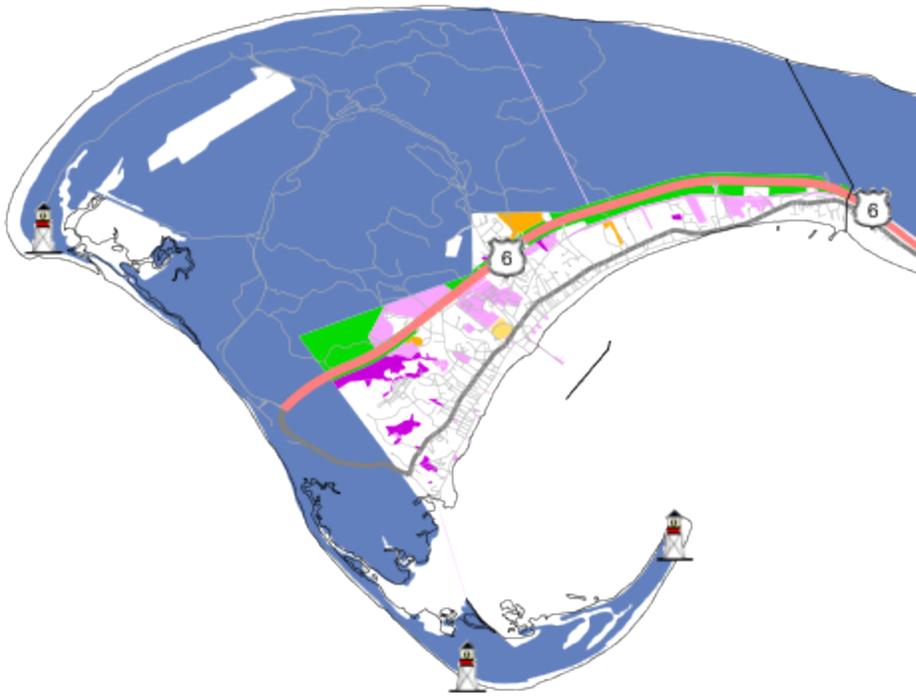
MassGIS provides several types of web mapping services for accessing spatial data about Massachusetts. Publicly available datasets include aerial photography, street maps, census data, environmental data and more. Most of this data is available for free download via the [MassGIS data download page](#). Some types of services are [OGC-compliant](#). Services can be accessed with either URL or XML requests. If, however, you are simply writing an application and want to use the data in your application, standard XML or URL requests can be made to publicly available web services to fetch maps of interesting areas, query datalayers for relevant information, or look up addresses locations. MassGIS can also provide custom services which involve chaining together several requests into one.

Some things that can be done with web mapping services (why would I want to use one?)

- Fetch maps and display them embedded in your website or application
- Perform database or spatial queries and display the results embedded in your website or application
- Build web-based applications which show maps and query them
- Connect these web mapping services into third party off the shelf applications
- Fetch information in various output formats or map projections

Web Mapping Services Samples

1) An image of Provincetown fetched from our GeoServer WMS mapping service showing four data layers - openspace, roads, town boundaries and lighthouses:



The URL that generated the above image:

```
http://giswebservices.massgis.state.ma.us/geoserver/wms?LAYERS=massgis:GISDATA.OPENSOURCE_POLY,massgis:GISDATA
```

2) A request to reproject a point from latitude and longitude to MA State Plane Mainland NAD 83 meters:

```
http://gisprpxy.itd.state.ma.us/ArcGISServer/rest/services/Utilities/Geometry/GeometryServer/project?inSR=4326&outSR=26986&geometries={"geometryType":"esriGeometryPoint","geometries":[{"x":-71.0624433120865,"y":42.3592254905827}]}&f=pjson
```

response:

```
{
  "geometries": [
    {
      "x": 236045.99999999721,
      "y": 901061.99999999534
    }
  ]
}
```

Getting Started

If you're looking for background information about the MassGIS geospatial web services, haven't heard of the OGC WMS or WFS specifications before, or just want to browse some introductory materials, take a look at our [Getting Started](#) page.

Quick Links

[What's New With the MassGIS Web Mapping Services](#)

[Access points:](#)

Overall MassGIS GeoServer: <http://giswebservices.massgis.state.ma.us/geoserver/ows>

If using the "ows" endpoint, make sure to specify the service wms, wfs, wcs or wps in a URL parameter or as part of the XML request otherwise GeoServer will not know which service to use.

MassGIS GeoServer WMS: <http://giswebservices.massgis.state.ma.us/geoserver/wms>

MassGIS GeoServer WFS: <http://giswebservices.massgis.state.ma.us/geoserver/wfs>

MassGIS GeoServer WCS: <http://giswebservices.massgis.state.ma.us/geoserver/wcs>

MassGIS GeoServer WPS: <http://giswebservices.massgis.state.ma.us/geoserver/wps>

MassGIS ESRI ArcGIS Server: <http://gisprpxy.itd.state.ma.us/arcgisserver/rest/services>

[MassGIS Online Mapping Applications](#)

[Glossary of Terms](#)

[GIS Web Services Current Status Report – Known Issues, Upcoming Downtime or Upgrades, etc.](#)