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INTEGRATING OPEN SOURCE AND COMMERCIAL SOFTWARE

TOPIC 7: USING QGIS WITH ARCGISSERVER

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Introduction

Open-source geospatial servers are similar to Esri ArcGIS Server in their functionality, but can have significant differences in how and what their services provide. For any server to be web-based requires a way to produce data that can be viewed in a browser, generally without the need for unique plugins. Typically, Microsoft Windows Server utilize Microsoft Internet Information Service (IIS) for internet communication, while other servers might utilize an open-source software such as Apache. In this module, the learner will explore the utilization of open-source software in conjunction with commercial products.

Most open-source geospatial desktop software will operate on multiple platforms (operating systems). Fundamental geospatial applications are normally part of these packages, but they may have different names and methodologies. For example, a clip still requires an input file, a boundary file and an output file, but the parameters might be different. The geospatial applications will utilize the same basic structure, but the user should not expect the software to be 100% compatible.

Examples of Open Source Usage

- OpenStreetMap is a platform that anyone can edit. OpenStreetMap provides a good basemap that the user can edit by adding local features to a sound cartographic map. This allows a level of customization that is not available in some other pre-determined cached vector basemap layers.
- Esri ArcGIS Server is a proprietary software and QGIS is an open source software that is free to use. These two products can be used together.
- Using an open-source service in QGIS.
- Creating a web map from an open-source service.

Open-Source

Servers

There are many different open-source geospatial servers and this list is not meant to be inclusive. Remember open-source does not always mean free, but some of those listed below are free to install and use.

- MapGuide Project <https://mapguide.osgeo.org/>
- GeoServer <http://geoserver.org/>
- Mapserver <http://www.mapserver.org/>
- OpenLayer <http://openlayers.org/>
- QGIS_ https://docs.qgis.org/1.8/en/docs/user_manual/working_with_ogc/ogc_server_support.html

Desktop

- There are many geospatial desktop applications, some will require a download and others are web-based that work in a compatible browser.
- For this module, QGIS will be used to show how an ArcGIS Server service can be used within open-source software. The learner will connect their ArcGIS Server to QGIS. QGIS will need to be downloaded and installed <http://www.qgis.org/en/site/>. The newest stable version should be installed. At the time of this writing, QGIS version 2.18 Las Palmas was the current version. Download the software and go through the installation process.

Connecting to an ArcGIS Server in QGIS

- Install the QGIS software and then run the software. QGIS will work on either a Windows or Mac operating system.
- Download the plugin, ArcGIS REST API Connector from the QGIS Python Plugins Repository <http://plugins.qgis.org/plugins/connector/>, See Figure 1.
- Go to Plugins in the Menu bar; select Manage and Install Plugins, then select Settings and then select Show also experimental plugins, see Figure 2.

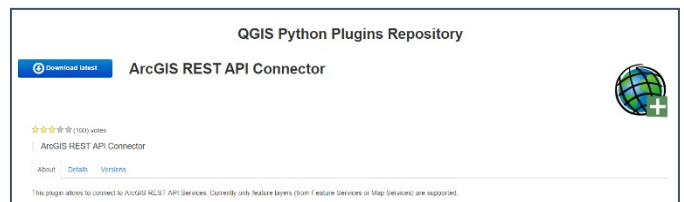


Figure 1: ArcGIS Rest API

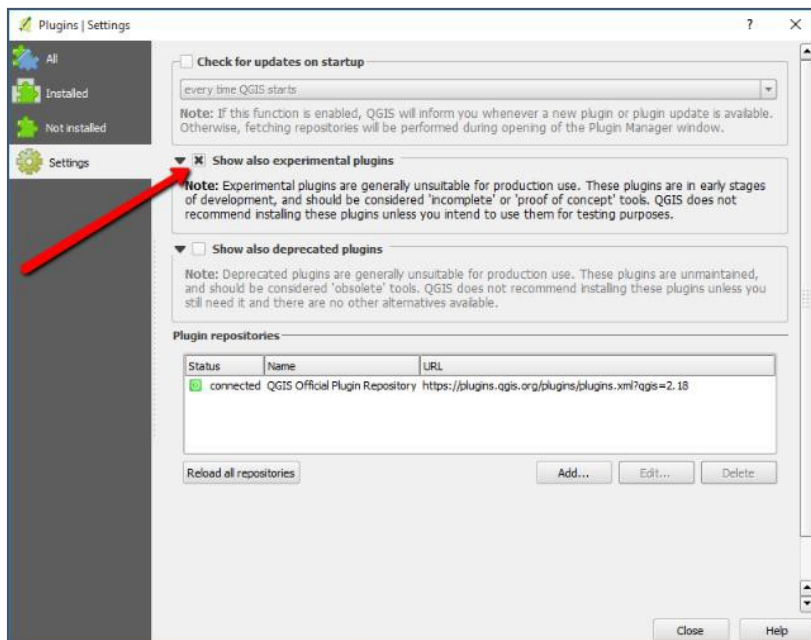


Figure 2: Experimental Plugins

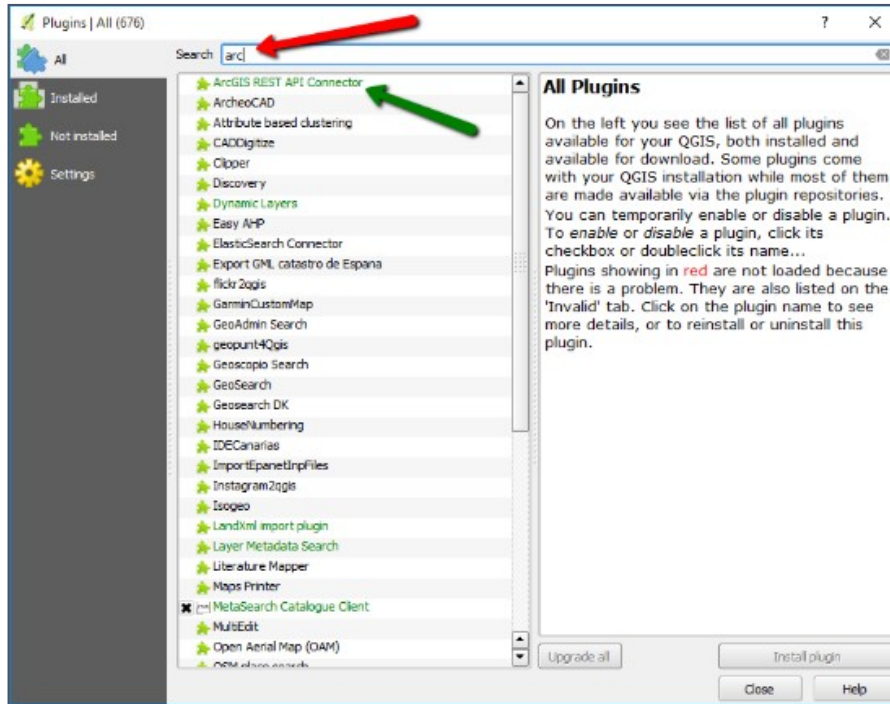


Figure 3: Getting Plugin

- Go to All, search for ArcGIS and install the plugin, see Figure 3.
- ArcGIS REST API Connector icon will appear on the Manage Layers Toolbar.

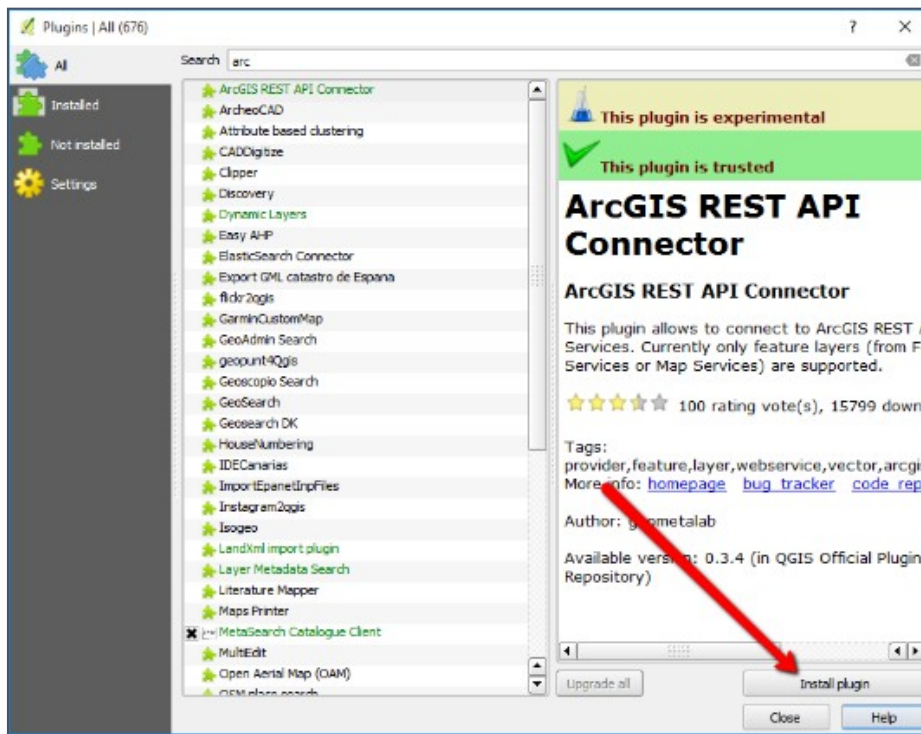


Figure 4: Installing Plugin

- Click on the ArcGIS REST API Connector, then click Install Plugin, and close the window, see Figure 4.
- The next step is connecting to the ArcGIS Server.
- Go to Layer in the Menu bar, select Add Layer, Add ArcGIS FeatureServer Layer.
- Click on New to input information about the ArcGIS Server, see Figure 5.
- Another dialogue box will appear, see Figure 6.
 - Provide a descriptive name, top blue arrow.
 - Enter the complete pathway, middle blue arrow.

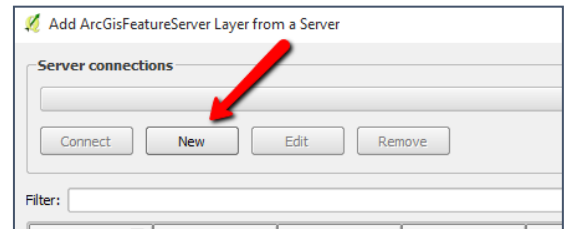


Figure 5: ArcGIS Feature Layer from Server

- Provide a descriptive name, top blue arrow.
 - Enter the complete pathway, middle blue arrow.
- The name selected is 43 Server (related to the IP address).
- The pathway to the server is the URL or IP address, where the service is located. If the defaults were used when the server was installed the pathway should be similar to that shown in Figure 6.

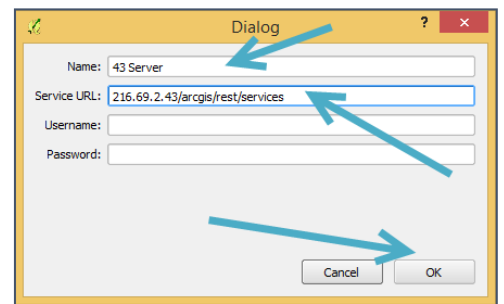


Figure 6: Mapping to the Service

- A username and password should not be required to view a map services, but might be required for a feature service.
- Click OK to complete the operation.
- Next, press Connect, if the connection has a problem edit the connection and put http:// before the pathway.
- The server name should appear in the dialog box.
- To add a layer from the same dialogue box, highlight the layer you wish to add and click on Import Layer on the bottom right corner.
- Depending on the complexity and size of the layers being added it may take a few minutes to add to the map.
- Once the layer(s) has been added, you can click on the layer and edit the symbology, etc.
- The symbol classification is not imported with the connection to the service.
- The purpose of this connection is to show how different data services can be integrated together. In this example, a commercial product and an open source produce were used in a single application.
- Additional functionality of QGIS is not part of this course.

- In Figure 7, the information from the ArcGIS Server is shown in QGIS. The properties have been modified for display purposes, but have not effected the service.

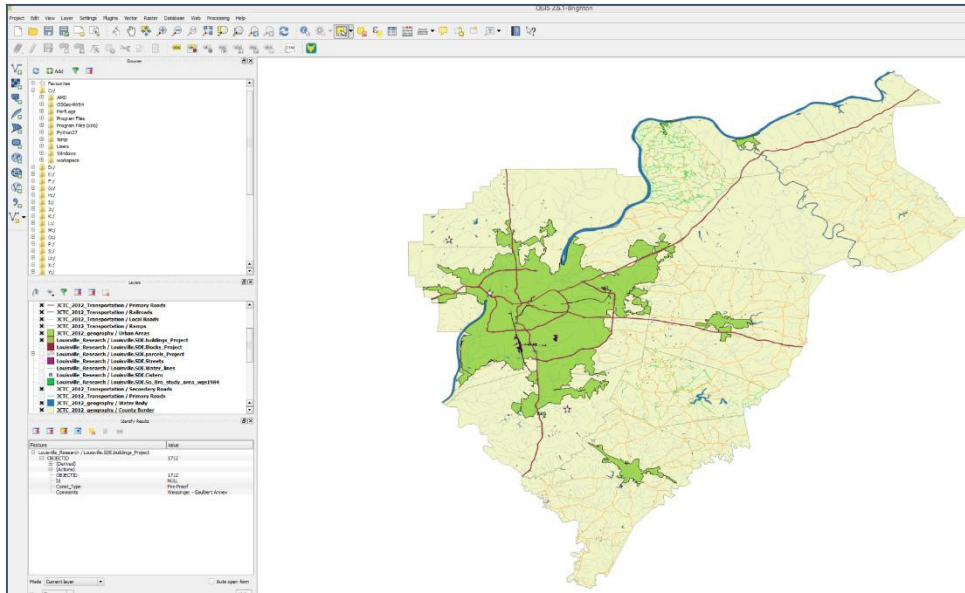


Figure 7: Connection to ArcGIS Server

Assignment: Loading a Service in QGIS

Create a series of images that show the process of connecting a geospatial desktop with a geospatial server from two different producers (i.e. like QGIS and Esri). The learner may use the one discussed in this lesson or two of their own choice.

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