SUPPORT NOTE

October 2023

Web map support in Spectra Geospatial Origin

Spectra Geospatial® Origin version 2023.10 supports Web Map Tile Services (WMTS) Web Map Services (WMS) and Web Feature Services (WFS).

Map backgrounds provide context for your data. If the controller is connected to the Internet, you can use an online map provided by a web map service (WMS or WMTS), instead of adding your own background images.

You can use online feature data (lines and points) provided by a web feature service (WFS).

Available web services depend on your location. Each service provides its own content, and we cannot guarantee Origin will work with each service – communicating with these services is complicated, and what is delivered is widely different from one service to another.

Using web maps in Origin

As a first step when using WMS, WMTS, or WFS services with Origin, refer to the Origin help, either on your device, or from the Spectra Geospatial Origin Help Portal.

Troubleshooting web maps in Origin

Because each web service is unique, there can be a number of factors that can impact on getting a WMTS, WMS map or WFS data to appear. If you experience issues, try the following:

- Make sure you are using a URL for a service, not a URL to a webpage that lists web map services.
- Whenever possible, you should select an EPSG code that matches the coordinate system and zone of the job.

  If Origin is able to detect a matching EPSG code, it will add "(default)" after that entry in the list, and will select that EPSG code by default. In some cases Origin cannot detect a matching EPSG code, and you may have to select one yourself. If you are not sure of the correct EPSG code for the coordinate system and zone you are using, visit the EPSG.io website: epsg.io/.

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Some WMS or WMTS services may include "EPSG:3857 - Web Mercator" or "EPSG:4326 - WGS 1984" in their list of supported coordinate systems. These are "universal" coordinate systems that can be used with any job, regardless of its coordinate system. It is still preferable to select an EPSG code that matches the job coordinate system when one is available, as the web map can be positioned more accurately and reliably when the coordinate systems are identical. However, Web Mercator and WGS 1984 will still produce accurate results in most cases. Note that Origin supports the use of both Web Mercator and WGS 1984 with WMS services, but only Web Mercator is supported with WMTS. WGS 1984 will not work with WMTS services.

- The map must be panned to an appropriate location, and zoomed to an appropriate scale.
  Key in a point with coordinates that match the coordinate system and that are in a location you would expect to see the map. Guessing coordinates is not a good idea, as it can lead to the problem where the point is in a lake or ocean and there is no map data to display.

  Try a few reasonable map scales - for example at 100m or 1000m, rather than 2m or 20,000km.

- Servers are smart about what they draw:
  - Some detailed layers (eg streets) may be absent (blank) until the map is zoomed in sufficiently.
  - Some layers work in reverse, and provide content when the map is more zoomed out but do not appear when the map is zoomed in.

  Making sure your job has at least one point in it usually helps, but also try different zoom levels to see content.

- To ensure you receive the latest web map data, do not include the version number in the URL.

  Sometimes the URL needs a version number added to the end of the URL, typically after a ?. If the URL you are using does not have a VERSION= parameter, try adding one of these to the end:
  - ?VERSION=1.1.1
  - ?VERSION=1.3.0

- For WFS services it is possible to request map data in a specific coordinate system. If the server you are using does not offer the coordinate system you need, try adding

  ?SRSNAME=EPSG:XXXX

  where the XXXX corresponds to your job's code to the URL.

  Note this does not work with WMTS or WMS services.

- Some services provide WMTS and WMS maps only in JPG format and you must select the **Request transparent PNGs** check box.

- If the URL you are using starts with http:// and it isn't working, try https://
  Similarly, if you are using https:// and it is not working, try http://

- Sometimes only certain layers need a password, and as long as you only enable layers that don't need a password then a URL without a password can work.

- To check a server response, you can enter the server URL directly into a web browser. Adding the parameter ?REQUEST=GETCAPABILITIES can be informative around server configuration.

- If Origin seems to connect to the web map service but shows no visible data, this may mean the server is unhappy with either the coordinate system or bounding box data.

- If the job does not yet contain data, you could try selecting a different coordinate system from the web map service.
- To change the bounding box parameters for a WMS, try using different settings in the **Bounding Box type** field. For more information, refer to the **Web maps** topic in the Spectra Geospatial Origin Help Portal.

WMTS tile requests in Origin

The WMTS standard states that servers can communicate using one of three possible encodings:

- SOAP
- REST (or RESTful)
- KVP (Key-Value Pairs).

Origin does not support SOAP encodings, as these are not widely used among WMTS servers, and the standard states that if a server supports SOAP, it must also support either REST or KVP.

When getting the capabilities of a WMTS server, Origin supports the use of either REST or KVP encodings. This is determined by the URL you enter when setting up a new WMTS service. If the URL includes a file name such as "Capabilities.xml", this a REST request. If the URL it ends with parameters such as "service=WMTS&request=GetCapabilities", this is a KVP request.

When getting image tiles from a WMTS server, Origin internally generates REST requests, and does not use KVP. Most WMTS servers support either REST only, or REST and KVP, so the lack of KVP support is not generally a problem. However, if a WMTS server supports only KVP, then Origin will report an error when setting up the service: "The server does not support REST tile requests".

For more information

For more information contact your local Spectra Geospatial Distribution Partner.