

User Guide for CanSIS OGC Services

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Context

The purpose of this user manual is to provide guidance on how to connect to and add content from the Canadian Soil Information Service (CanSIS) WCS (Web Coverage Service) and WMS (Web Mapping Service) servers. This user guide is separated into 3 sections: QGIS, ESRI ArcGIS Pro, and Python.

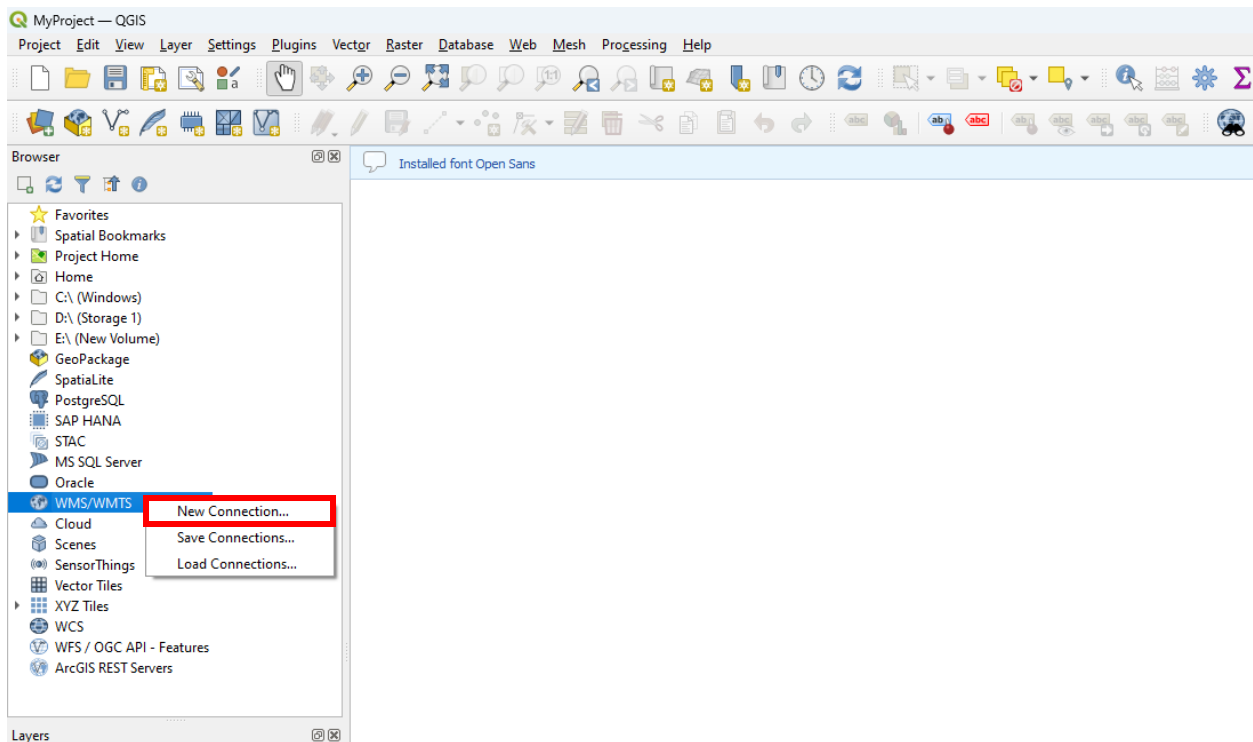
For more documentation, please see the links provided in the Resources section.

Adding Services in QGIS

Connect to WMS in QGIS

Below are the steps to connect WCS in an QGIS environment:

1. Navigate to the **Browser** panel
2. Right Click on **WMS** and click New Connection



3. Give your WMS server a name under the **Name** prompt

4. In the **URL** Prompt enter the following:

<https://sis.agr.gc.ca/geoserver/ows/?service=WMS&version=1.3.0&request=GetCapabilities>

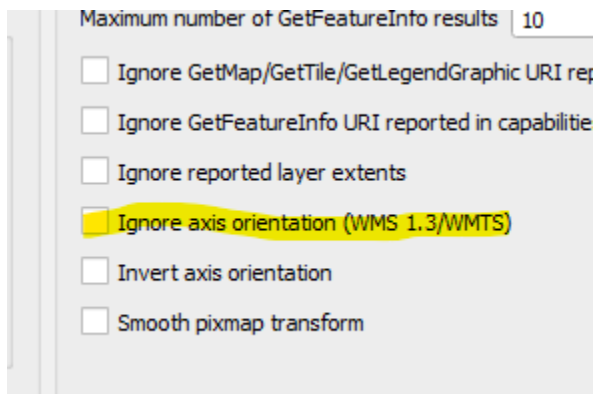
5. Press Ok

How to add content via WMS in QGIS

1. Navigate to the **Browser** panel
2. Click and expand the **WMS** section
3. Expand the WMS you just connected to and double click a layer

Troubleshooting issues

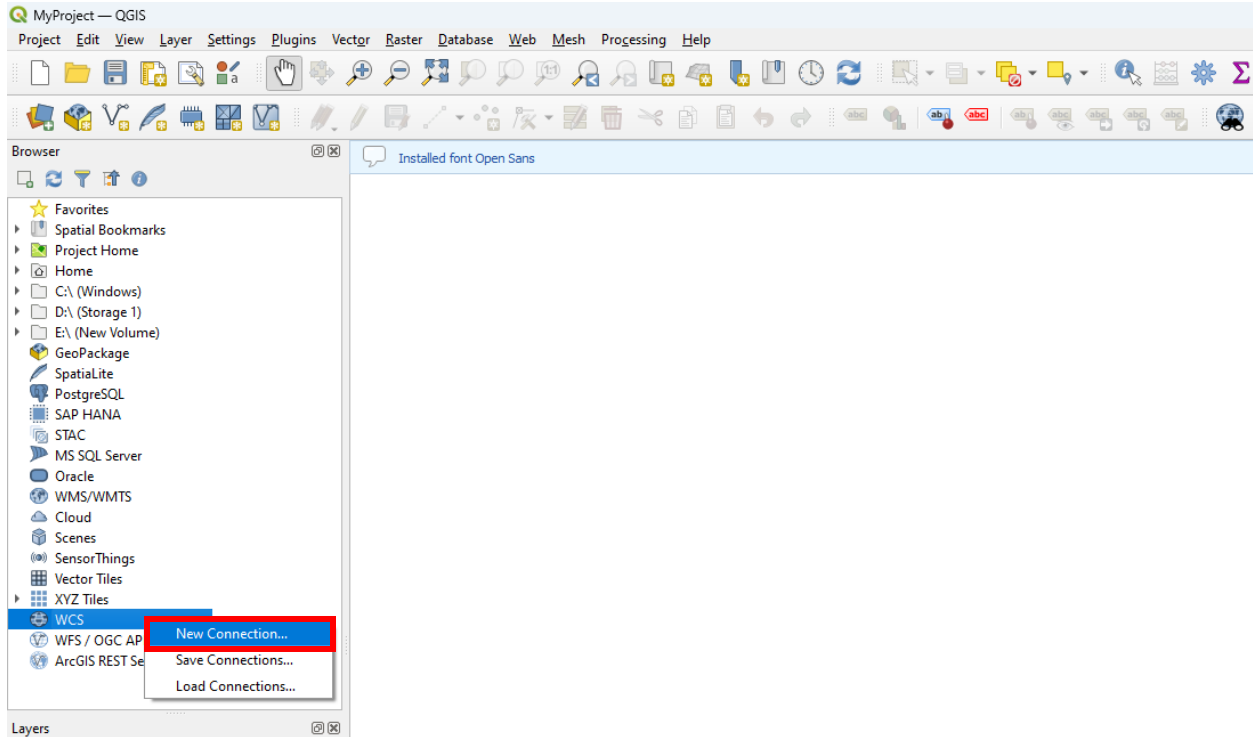
Sometimes there are issues with axis orientation and WMS 1.3.0 when making requests depending on the requested CRS. If data is not displaying try enabling '**Ignore axis orientation**' in the WMS server connection details:



Connect to WCS in QGIS

Below are the steps needed to connect WCS in a QGIS environment:

1. Navigate to the **Browser** panel
2. Right Click on **WCS** and click New Connection



3. Give your WCS server a name under the **Name** prompt

4. In the **URL** Prompt enter the following:

<https://sis.agr.gc.ca/geoserver/ows/?service=WCS&acceptversions=2.0.1&request=GetCapabilities>

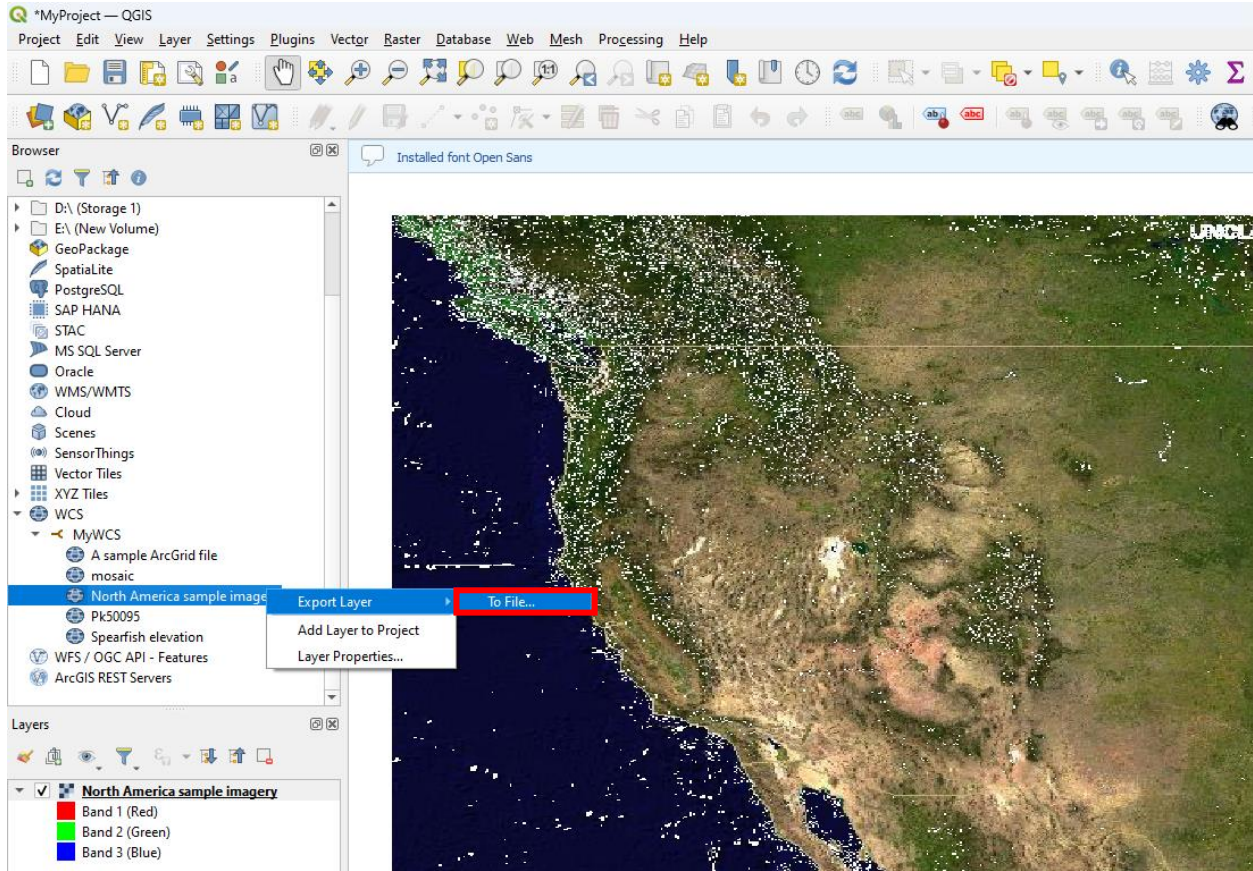
5. Press Ok

How to add content via WCS in QGIS

1. Navigate to the **Browser** panel
2. Click and expand the **WCS** section
3. Expand the WCS you just connected to and double click a layer

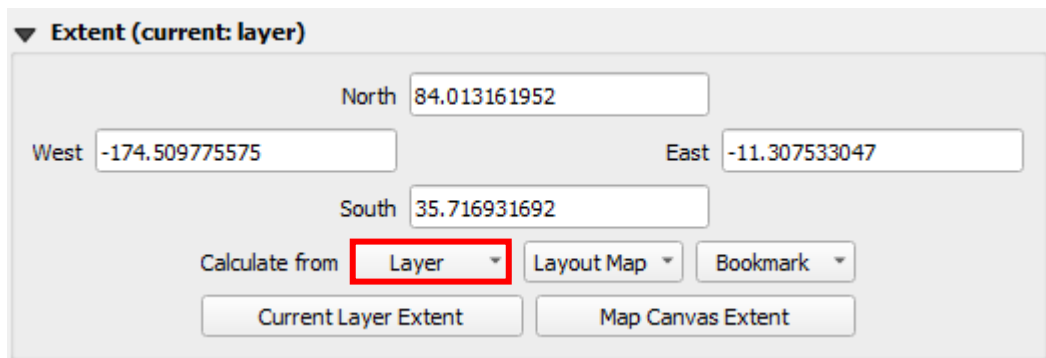
How to export data via WCS in QGIS

1. Navigate to the **Browser** panel
2. Click and expand the **WCS** section
3. Right click a raster layer, hover over **Export Layer** and Click **To File...**



4. Select the output mode, format, extent, and any other settings you wish to apply.

5. You can also optionally use a Shapefile to clip a smaller extent or just use your viewport via **Map Canvas Extent** Button

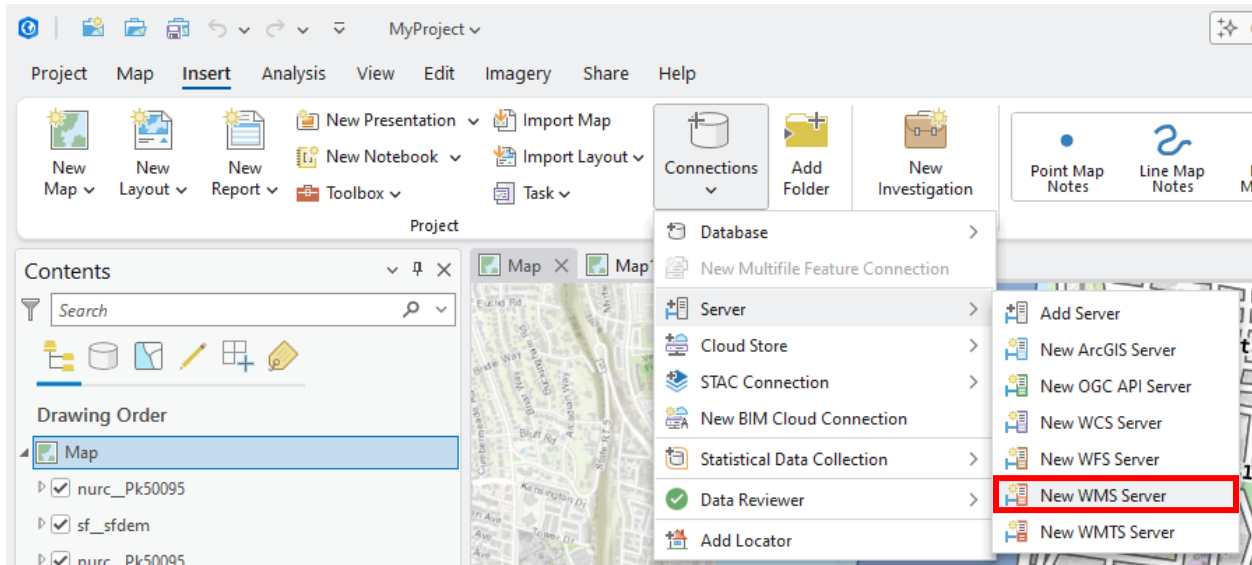


Adding Services in ArcGIS Pro

Connect to WMS in ArcGIS Pro

Below are the steps to connect to a WMS server in an ArcGIS Pro environment:

1. In ArcGIS Pro Navigate to **Insert > Connections > Server**
2. Click **New WMS Server**



3. In the **Server URL** enter:

<https://sis.agr.gc.ca/geoserver/ows/?service=WMS&version=1.3.0&request=GetCapabilities>

4. Press Ok

How to add content via WMS in ArcGIS Pro

1. Navigate to the **Catalog Panel > Servers**
2. Locate the server you just connected to and right click a layer and click **Add To Current Project** or **Add to New**

Accessing Services with Python

How to export data via WCS with Python

1. First install owslib using pip:

```
pip3 install owslib
```

2. Use the following python template to use WCS get coverage operation programmatically, code is also provided at WCS.py

```
from owslib.wcs import WebCoverageService

# Setup
url =
"https://sis.agr.gc.ca/geoserver/ows/?service=WCS&acceptversions=2.0.1&request=Ge
tCapabilities"

ver = "2.0.1"
wcs = WebCoverageService(url, version=ver)

# Prints out a list of coverages for you to choose from
listOfCoverages = list(wcs.contents.keys())
# print(listOfCoverages)

# Prints out Info for a coverage
layerName = "CanSIS__BD_X15_30_cm_100m1980-2000_epsg4326"
layer = wcs[layerName]
# print("Layer Name:", layer.id)
# print("Full Extent:", layer.boundingBoxWGS84)
# print("Available Formats:", layer.supportedFormats)

# Configs
outputFileName = "Ontario" + layerName + ".tiff"
outputFormat = "image/tiff"
customBbox = [
    ('Long', -95.153668, -74.319519),
    ('Lat', 41.676556, 56.859365),
]
projection = "EPSG:4326"

# Download Single Coverage
```

```

print(f"Downloading {outputFileName}...")

mapData = wcs.getCoverage(
    identifier = [layerName],
    format = outputFormat,
    crs = projection,
    subsets = customBbox
)

out = open(outputFileName, 'wb')
out.write(mapData.read())
out.close()

print(f"Successfully Downloaded {outputFileName}")

# # Download Coverages in Bulk
# bulkCoverage = ['CanSIS__BD_X0_5_cm_100m1980-2000_epsg4326',
# 'CanSIS__BD_X15_30_cm_100m1980-2000_epsg4326', 'CanSIS__BD_X5_15_cm_100m1980-
# 2000_epsg4326'] # add coverages into list to download in bulk
# outputFormat = "image/tiff"
# customBbox = [
#     ('Long', -95.153668, -74.319519),
#     ('Lat', 41.676556, 56.859365),
# ]
# projection = "EPSG:4326"

# for coverage in bulkCoverage:
#     layerName = coverage
#     layer = wcs[layerName]
#     outputFileName = coverage + ".tiff"
#     print()
#     print(f"Downloading {outputFileName}...")

#     mapData = wcs.getCoverage(
#         identifier = [layerName],
#         format = outputFormat,
#         crs = projection,
#         subsets = customBbox
#     )

#     out = open(outputFileName, 'wb')
#     out.write(mapData.read())
#     out.close()

```

```
#     print(f"Successfully Downloaded {outputFileName}")  
  
# print()  
# print("Batch Download Complete")
```

Resources

GeoServer WCS Documentation: [Web Coverage Service \(WCS\) — GeoServer 2.28.x User Manual](#)

ArcGIS WCS Documentation: [Use WCS service layers—ArcGIS Pro | Documentation](#)

ArcGIS WMS Documentation: [Add WMS services—ArcGIS Pro | Documentation](#)

QGIS WCS Documentation: [3.4. Web Coverage Service \(WCS\) — QGIS Documentation documentation](#)

QGIS WMS Documentation: [10.1. Lesson: Web Mapping Services — QGIS Documentation documentation](#)