

# DataBC's Open Web Services

*For accessing geographic data via WMS/WFS*

*Services Provided by OCIO - Digital Platforms & Data - Data Systems & Services*



March 2020  
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# Agenda

1. What are Web Map Services and Web Feature Services?
2. WMS/WFS Request Types
3. WMS/WFS Request Examples
4. What does DataBC offer for WMS/WFS?
5. Resources for Developing Applications with WMS/WFS
6. Resources for Developing Offline Maps
7. Questions?

# What are WFS and WMS??



- Developed by the Open Geospatial Consortium (OGC), an international not for profit organization.
- [Web Map Services \(WMS\)](#)
  - is a standardized HTTP interface used to styling & render data into a map (image) and perform identify operations.
- [Web Feature Services \(WFS\)](#)
  - is a standardized HTTP interface used to access/query/analyze feature attributes.

# WMS/WFS Request Types

- Types of WMS Requests:

- <GetCapabilities>
  - <GetMap>
  - <GetFeatureInfo>
  - <GetLegendGraphic>

- Types of WFS Requests:

- <GetCapabilities>
  - <DescribeFeatureType>
  - <GetFeature>

- WMS/WFS requests can be made for all layers or as a separate service each layer/feature class:

<http://openmaps.gov.bc.ca/geo/pub/wms?request=GetCapabilities>

<http://openmaps.gov.bc.ca/geo/pub/wfs?request=GetCapabilities>

[http://openmaps.gov.bc.ca/geo/pub/WHSE\\_FOREST\\_VEGETATION.VEG\\_COMP\\_LYR\\_R1\\_POLY/wms?request=GetCapabilities](http://openmaps.gov.bc.ca/geo/pub/WHSE_FOREST_VEGETATION.VEG_COMP_LYR_R1_POLY/wms?request=GetCapabilities)

[http://openmaps.gov.bc.ca/geo/pub/WHSE\\_FOREST\\_VEGETATION.VEG\\_COMP\\_LYR\\_R1\\_POLY/wfs?request=GetCapabilities](http://openmaps.gov.bc.ca/geo/pub/WHSE_FOREST_VEGETATION.VEG_COMP_LYR_R1_POLY/wfs?request=GetCapabilities)

# WMS and WFS Output formats

## WMS Output Options

```
<Format>image/png</Format>
<Format>application/atom+xml</Format>
<Format>application/json;type=geojson</Format>
<Format>application/json;type=topojson</Format>
<Format>application/json;type=utfgrid</Format>
<Format>application/pdf</Format>
<Format>application/rss+xml</Format>
<Format>application/vnd.google-earth.kml+xml</Format>
<Format>application/vnd.google-earth.kmz</Format>
<Format>application/x-protobuf;type=mapbox-vector</Format>
<Format>image/geotiff</Format>
<Format>image/geotiff8</Format>
<Format>image/gif</Format>
<Format>image/jpeg</Format>
<Format>image/png; mode=8bit</Format>
<Format>image/svg+xml</Format>
<Format>image/tiff</Format>
<Format>image/tiff8</Format>
<Format>image/vnd.jpeg-png</Format>
<Format>text/html; subtype=openlayers</Format>
<Format>text/html; subtype=openlayers2</Format>
<Format>text/html; subtype=openlayers3</Format>
```

## WFS Output Options

```
<ows:Value>application/gml+xml; version=3.2</ows:Value>
<ows:Value>GML2</ows:Value>
<ows:Value>HTML</ows:Value>
<ows:Value>KML</ows:Value>
<ows:Value>SHAPE-ZIP</ows:Value>
<ows:Value>application/json</ows:Value>
<ows:Value>application/vnd.google-earth.kml xml</ows:Value>
<ows:Value>application/vnd.google-earth.kml+xml</ows:Value>
<ows:Value>csv</ows:Value>
<ows:Value>gml3</ows:Value>
<ows:Value>gml32</ows:Value>
<ows:Value>json</ows:Value>
<ows:Value>text/javascript</ows:Value>
<ows:Value>text/xml; subtype=gml/2.1.2</ows:Value>
<ows:Value>text/xml; subtype=gml/3.1.1</ows:Value>
<ows:Value>text/xml; subtype=gml/3.2</ows:Value>
```

# WMS GetMap Example

[http://openmaps.gov.bc.ca/geo/pub/wms?SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap&FORMAT=application/openlayers&TRANSPARENT=true&STYLES=1748&LAYERS=pub%3AWHSE\\_FOREST\\_VEGETATION.VEG\\_COMP\\_LYR\\_R1\\_POLY&SRS=EPSG%3A3005&WIDTH=512&HEIGHT=440&BBOX=1069159.051186301%2C1050414.7675306%2C1074045.5446851396%2C1054614.0978811644](http://openmaps.gov.bc.ca/geo/pub/wms?SERVICE=WMS&VERSION=1.1.1&REQUEST=GetMap&FORMAT=application/openlayers&TRANSPARENT=true&STYLES=1748&LAYERS=pub%3AWHSE_FOREST_VEGETATION.VEG_COMP_LYR_R1_POLY&SRS=EPSG%3A3005&WIDTH=512&HEIGHT=440&BBOX=1069159.051186301%2C1050414.7675306%2C1074045.5446851396%2C1054614.0978811644)



Scale = 1 : 8521 1072513.74350, 1050686.76961

## WHSE\_FOREST\_VEGETATION.VEG\_COMP\_LYR\_R1\_POLY

Feature Id	13724355
Map Id	093K046
Polygon Id	11488434
Opening Ind	N
Opening Source	4
Opening Number	
Feature Class Skey	843
Inventory Standard Code	V
Area (ha)	5.8
Non Productive Descriptor Code	

# WFS GetFeature Example

[http://openmaps.gov.bc.ca/geo/pub/ows?service=WFS&version=2.0.0&request=GetFeature&typeName=pub:WHSE\\_CADASTRE.PMBC\\_PARCEL\\_FABRIC\\_POLY\\_SVW&count=1&outputFormat=json](http://openmaps.gov.bc.ca/geo/pub/ows?service=WFS&version=2.0.0&request=GetFeature&typeName=pub:WHSE_CADASTRE.PMBC_PARCEL_FABRIC_POLY_SVW&count=1&outputFormat=json)

## Response in JSON:

```
{ "type": "FeatureCollection", "features": [ { "type": "Feature", "id": "WHSE_CADASTRE.PMBC_PARCEL_FABRIC_POLY_SVW.fid--7b8e502a_1677cdee8cf_498b", "geometry": { "type": "Polygon", "coordinates": [ [ [ [ 1121268.689, 481286.634 ], [ 1121313.079, 481348.863 ], [ 1121288.326, 481374.623 ], [ 1121224.966, 481286.119 ], [ 1121268.689, 481286.634 ] ] ] ] }, "geometry_name": "SHAPE", "properties": { "PARCEL_FABRIC_POLY_ID": 27, "PARCEL_NAME": "006620256", "PLAN_NUMBER": "VIP1993", "PIN": null, "PID": "006620256", "PID_NUMBER": 6620256, "PARCEL_STATUS": "Active", "PARCEL_CLASS": "Subdivision", "OWNER_TYPE": "Private", "PARCEL_START_DATE": null, "MUNICIPALITY": "Parksville, City of", "REGIONAL_DISTRICT": "Regional District of Nanaimo", "WHEN_UPDATED": "2016-04-21Z", "FEATURE_AREA_SQM": 3260.4354, "FEATURE_LENGTH_M": 264.7362, "OBJECTID": 77398905, "SE_ANNO_CAD_DATA": null } } ], "totalFeatures": 1573818, "numberMatched": 1573818, "numberReturned": 1, "timeStamp": "2018-12-05T06:06:21.364Z", "crs": { "type": "name", "properties": { "name": "urn:ogc:def:crs:EPSG::3005" } } }
```

# More Complex WMS/WFS examples

Give me all the Dams in the Cariboo District, as KML points:

[https://openmaps.gov.bc.ca/geo/pub/wms?service=wms&request=GetMap&version=1.1.1&format=application/vnd.google-earth.kml+xml&layers=WHSE\\_WATER\\_MANAGEMENT.WRIS\\_DAMS\\_PUBLIC\\_SVW&styles=3959&height=2048&width=2048&transparent=false&srs=EPSG:4326&format\\_options=AUTOFIT:true;KMATTR:true;KMPacemark:true;KMSCORE:100;MODE:download;SUPEROVERLAY:false&CQL\\_FILTER=%22REGION\\_NAME%22=%27CARIBOO%27&bbox=-139.46653152270716.39.3982201780243,-110.0651303636062.68.79962133712526](https://openmaps.gov.bc.ca/geo/pub/wms?service=wms&request=GetMap&version=1.1.1&format=application/vnd.google-earth.kml+xml&layers=WHSE_WATER_MANAGEMENT.WRIS_DAMS_PUBLIC_SVW&styles=3959&height=2048&width=2048&transparent=false&srs=EPSG:4326&format_options=AUTOFIT:true;KMATTR:true;KMPacemark:true;KMSCORE:100;MODE:download;SUPEROVERLAY:false&CQL_FILTER=%22REGION_NAME%22=%27CARIBOO%27&bbox=-139.46653152270716.39.3982201780243,-110.0651303636062.68.79962133712526)

Give me the attributes and location of the Water Well with Well Tag # 65501 in JSON:

[http://openmaps.gov.bc.ca/geo/ows?service=WFS&version=2.0.0&request=GetFeature&typeName=WHSE\\_WATER\\_MANAGEMENT.GW\\_WATER\\_WELLS\\_WRBC\\_SVW&outputFormat=text%2Fjavascript&format\\_options=callback%3AgetJson&SrsName=EPSG%3A4326&PROPERTYNAME=WELL\\_TAG\\_NUMBER&CQL\\_FILTER=WELL\\_TAG\\_NUMBER%3D65501&callback=getJson&\\_=1525714041640](http://openmaps.gov.bc.ca/geo/ows?service=WFS&version=2.0.0&request=GetFeature&typeName=WHSE_WATER_MANAGEMENT.GW_WATER_WELLS_WRBC_SVW&outputFormat=text%2Fjavascript&format_options=callback%3AgetJson&SrsName=EPSG%3A4326&PROPERTYNAME=WELL_TAG_NUMBER&CQL_FILTER=WELL_TAG_NUMBER%3D65501&callback=getJson&_=1525714041640)

Give me Land Parcel Information at a specified location in HTML:

[https://openmaps.gov.bc.ca/geo/pub/WHSE\\_CADASTRE.PMBC\\_PARCEL\\_FABRIC\\_POLY\\_SVW/ows?SERVICE=WMS&VERSION=1.3.0&REQUEST=GetFeatureInfo&BBOX=48.40785014436799116,-123.36256681214997855.48.41958084268204487,-123.34925222208043749&CRS=EPSG:4326&WIDTH=538&HEIGHT=474&LAYERS=pub:WHSE\\_CADASTRE.PMBC\\_PARCEL\\_FABRIC\\_POLY\\_SVW&STYLES=&FORMAT=image/png&QUERY\\_LAYERS=pub:WHSE\\_CADASTRE.PMBC\\_PARCEL\\_FABRIC\\_POLY\\_SVW&INFO\\_FORMAT=text/html&I=109&J=187&FEATURE\\_COUNT=10](https://openmaps.gov.bc.ca/geo/pub/WHSE_CADASTRE.PMBC_PARCEL_FABRIC_POLY_SVW/ows?SERVICE=WMS&VERSION=1.3.0&REQUEST=GetFeatureInfo&BBOX=48.40785014436799116,-123.36256681214997855.48.41958084268204487,-123.34925222208043749&CRS=EPSG:4326&WIDTH=538&HEIGHT=474&LAYERS=pub:WHSE_CADASTRE.PMBC_PARCEL_FABRIC_POLY_SVW&STYLES=&FORMAT=image/png&QUERY_LAYERS=pub:WHSE_CADASTRE.PMBC_PARCEL_FABRIC_POLY_SVW&INFO_FORMAT=text/html&I=109&J=187&FEATURE_COUNT=10)

Give me All objects from the major cities object that fall within a Vancouver Island bounding box

[https://openmaps.gov.bc.ca/geo/pub/wfs?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&outputFormat=json&typeName=WHSE\\_BASEMAPPING.BC\\_MAJOR\\_CITIES\\_POINTS\\_500M&SRSNAME=EPSG%3A3005&CQL\\_FILTER=WITHIN%28GEOMETRY%2C%20POLYGON%20%28%28830772.7%20367537.4%2C%201202463%20367537.4%2C%201202463%20651616.7%2C%20830772.7%20651616.7%2C%20830772.7%20367537.4%29%29%29](https://openmaps.gov.bc.ca/geo/pub/wfs?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&outputFormat=json&typeName=WHSE_BASEMAPPING.BC_MAJOR_CITIES_POINTS_500M&SRSNAME=EPSG%3A3005&CQL_FILTER=WITHIN%28GEOMETRY%2C%20POLYGON%20%28%28830772.7%20367537.4%2C%201202463%20367537.4%2C%201202463%20651616.7%2C%20830772.7%20651616.7%2C%20830772.7%20367537.4%29%29%29)



# Maximum number of features limit - pagination and work \-arounds

If you use WFS version 2.0.0 it tells you what the limit is. This is new.

```
<ows:Constraint name="CountDefault">
<ows:NoValues/>
<ows:DefaultValue>10000</ows:DefaultValue>
</ows:Constraint>
</ows:Operation>
```

Using this constraint and a query of the hits in a wfs request allows the developer to page and get all the features they are after, if they are over the constraint.

[https://openmaps.gov.bc.ca/geo/pub/wfs?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&typeName=WHSE\\_WATER\\_MANAGEMENT.GW\\_WATER\\_WELLS\\_WRBC\\_SVW&CQL\\_FILTER=DWITHIN\(GEOMETRY.POINT\(1161815%20452123\),1000.meters\)&resulttype=hits](https://openmaps.gov.bc.ca/geo/pub/wfs?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&typeName=WHSE_WATER_MANAGEMENT.GW_WATER_WELLS_WRBC_SVW&CQL_FILTER=DWITHIN(GEOMETRY.POINT(1161815%20452123),1000.meters)&resulttype=hits)

Taking from geoserver docs.. "Maximum number of features" — Maximum number of features that a WFS GetFeature operation should generate, regardless of the actual number of query hits. A WFS request can potentially contain a large dataset that is impractical to download to a client, and/or too large for a client's renderer. Maximum feature limits are also available for feature types.

Some examples for developers -

1. If I request a count of more than the 10,000 max feature limit.. like this in csv output:  
[https://openmaps.gov.bc.ca/geo/pub/wfs?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&outputFormat=csv&typeNames=WHSE\\_ENVIRONMENTAL\\_MONITORING.EMS\\_MONITORING\\_LOCN\\_GROUPS\\_SVW&propertyName=OBJECTID&count=100000](https://openmaps.gov.bc.ca/geo/pub/wfs?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&outputFormat=csv&typeNames=WHSE_ENVIRONMENTAL_MONITORING.EMS_MONITORING_LOCN_GROUPS_SVW&propertyName=OBJECTID&count=100000)

I will get 10,0001 features returned.. a warning that perhaps there are more features in the object (greater than the WFS max feature limit) – but this isn't really obvious to the untrained eye.

2. JSON Output with geometry, using a AOI polygon filter request, with a max of 10,000 feature returned if found in the AOI for two layers:

[https://openmaps.gov.bc.ca/geo/pub/wfs?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&outputFormat=json&typeName=WHSE\\_BASEMAPPING.GRID\\_HEX\\_CDN\\_25\\_SQ\\_M\\_SP.WHSE\\_ADMIN\\_BOUNDARIES.ADM\\_NR\\_REGIONS\\_SPG&propertyName=\(SHAPE\)\(SHAPE\)&SRSNAME=EPSG%3A3005&CQL\\_FILTER=WITHIN%28SHAPE%2C%20POLYGON%20%28%28830772.7%20367537.4%2C%201202463%20367537.4%2C%201202463%20651616.7%2C%20830772.7%20651616.7%2C%20830772.7%20367537.4%29%29%29&count=10000](https://openmaps.gov.bc.ca/geo/pub/wfs?SERVICE=WFS&VERSION=2.0.0&REQUEST=GetFeature&outputFormat=json&typeName=WHSE_BASEMAPPING.GRID_HEX_CDN_25_SQ_M_SP.WHSE_ADMIN_BOUNDARIES.ADM_NR_REGIONS_SPG&propertyName=(SHAPE)(SHAPE)&SRSNAME=EPSG%3A3005&CQL_FILTER=WITHIN%28SHAPE%2C%20POLYGON%20%28%28830772.7%20367537.4%2C%201202463%20367537.4%2C%201202463%20651616.7%2C%20830772.7%20651616.7%2C%20830772.7%20367537.4%29%29%29&count=10000)

3. And an example of pagination: 10,000 features returned in two requests.. to do this requires knowledge of the primary key index of the object. (hopefully there is an ObjectID attribute in the object – which isn't always the case.)

count of 5000, starting at index 0, sorting by Objectid:

[https://openmaps.gov.bc.ca/geo/pub/wfs?service=WFS&version=1.0.0&request=GetFeature&typeName=WHSE\\_ENVIRONMENTAL\\_MONITORING.EMS\\_MONITORING\\_LOCN\\_GROUP\\_S\\_SVW&outputFormat=csv&propertyName=OBJECTID&maxFeatures=5000&sortBy=OBJECTID&startIndex=0](https://openmaps.gov.bc.ca/geo/pub/wfs?service=WFS&version=1.0.0&request=GetFeature&typeName=WHSE_ENVIRONMENTAL_MONITORING.EMS_MONITORING_LOCN_GROUP_S_SVW&outputFormat=csv&propertyName=OBJECTID&maxFeatures=5000&sortBy=OBJECTID&startIndex=0)

count of 5000, starting at index 5001, sorting by Objectid:

[https://openmaps.gov.bc.ca/geo/pub/wfs?service=WFS&version=1.0.0&request=GetFeature&typeName=WHSE\\_ENVIRONMENTAL\\_MONITORING.EMS\\_MONITORING\\_LOCN\\_GROUP\\_S\\_SVW&outputFormat=csv&propertyName=OBJECTID&maxFeatures=5000&sortBy=OBJECTID&startIndex=5001](https://openmaps.gov.bc.ca/geo/pub/wfs?service=WFS&version=1.0.0&request=GetFeature&typeName=WHSE_ENVIRONMENTAL_MONITORING.EMS_MONITORING_LOCN_GROUP_S_SVW&outputFormat=csv&propertyName=OBJECTID&maxFeatures=5000&sortBy=OBJECTID&startIndex=5001)

# What does DataBC offer for WMS?

Search results of all [B.C. Data Catalogue records with Public WMS available](#).

Information on the Web Map Services offered by [DataBC](#)

The screenshot displays the DataBC search interface. On the left, a sidebar contains filters for 'Access Only (225)', 'Open Government Lic... (11)', 'Elections BC Open D... (8)', and 'Open Government Lic... (4)'. Below these are expandable sections for 'Sectors' (Natural Resources (542), Service (37), Transportation (21), Economy (18), Health and Safety (7)), 'Dataset types' (Geographic Dataset (630), Web Service / API (7)), and 'Format' (wms (637), kml (624), shp (571), fgb (554)). The 'wms (637)' filter is selected and highlighted. The main content area shows search results for '637 datasets found' (circled in red), ordered by 'Published Date'. Three results are visible, all from 'Natural Resources' (circled in orange). Each result includes a title, description, and a 'Record Published' date. The 'wms' format option is circled in red for each result. The first result is 'Water Rights Licences - Public' (Record Published: 2018-11-09). The second is 'Water Rights Applications - Public' (Record Published: 2018-11-09). The third is 'Recreation Sites, Reserves, and Interpretive Forests Details and Closures' (Record Published: 2018-08-03). The fourth result is 'Fire Burn Severity - Historical' (Record Published: 2018-06-13).

Access Only (225)  
Open Government Lic... (11)  
Elections BC Open D... (8)  
Open Government Lic... (4)  
Show more

Sectors

- Natural Resources (542)
- Service (37)
- Transportation (21)
- Economy (18)
- Health and Safety (7)

Show more

Dataset types

- Geographic Dataset (630)
- Web Service / API (7)

Format

- wms (637)
- kml (624)
- shp (571)
- fgb (554)

637 datasets found

Order by Published Date

Download permission: Public Format: wms

**Water Rights Licences - Public**  
This is a province-wide SDE spatial layer displaying water rights licence data administrated under the Water Sustainability Act which includes data for both surface water and...  
Record Published: 2018-11-09

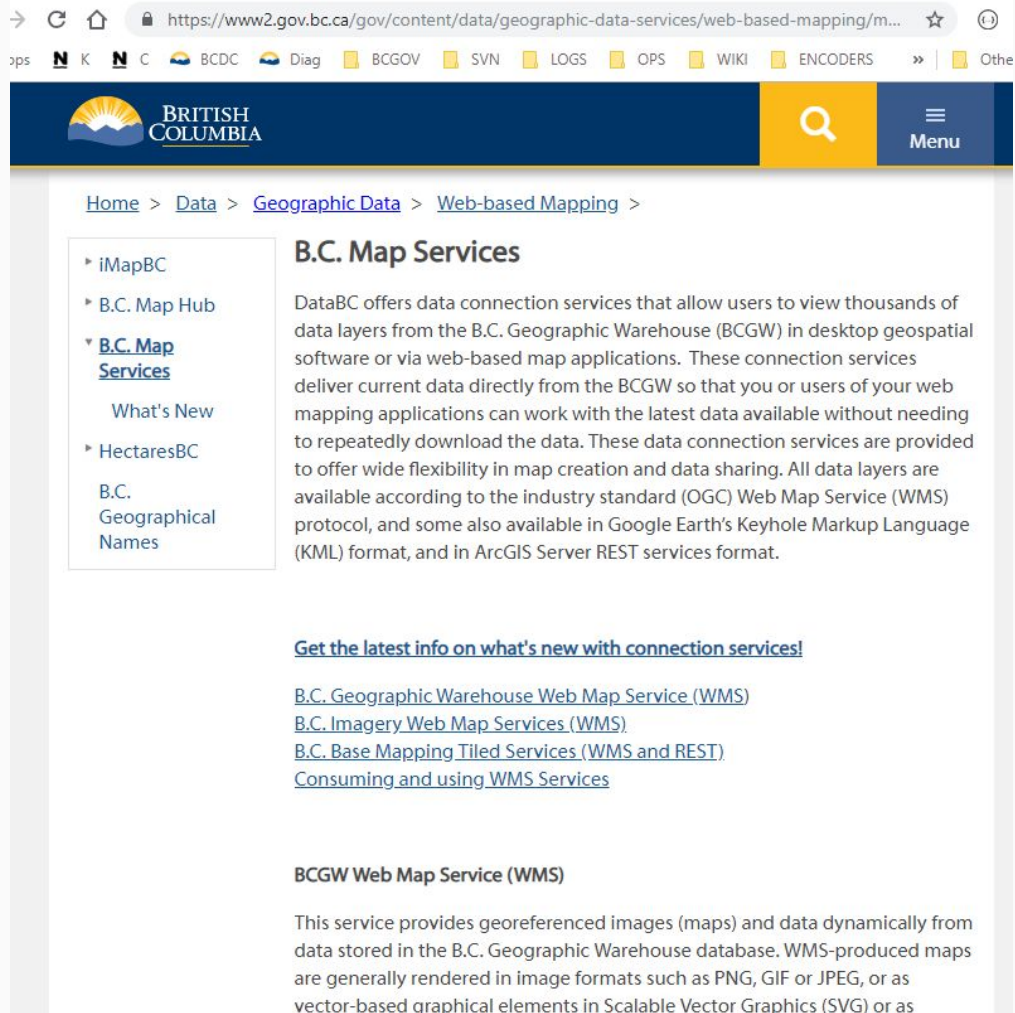
**Water Rights Applications - Public**  
This is a province-wide SDE spatial layer displaying water rights licence application data, administrated under the Water Sustainability Act which includes application data for...  
Record Published: 2018-11-09

**Recreation Sites, Reserves, and Interpretive Forests Details and Closures**  
The data contained within this spatial layer is an amalgamation of information for trails, Sites, Reserves, and Interpretive Forests derived from Forest Tenure Administration...  
Record Published: 2018-08-03

**Fire Burn Severity - Historical**  
A spatial representation of the burn severity of historical wildfires starting in 2015. The previous year's wildfires are updated after a year delay in order for the proper...  
Record Published: 2018-06-13

# What does DataBC offer for WMS?

<http://openmaps.gov.bc.ca>  
the root of this url/domain  
will redirect to this page.



The screenshot shows a web browser displaying the DataBC website. The browser's address bar shows the URL: <https://www2.gov.bc.ca/gov/content/data/geographic-data-services/web-based-mapping/m...>. The website header includes the British Columbia logo and navigation links for various services like BCDC, Diag, BCGOV, SVN, LOGS, OPS, WIKI, ENCODERS, and Othe. The main content area features a breadcrumb trail: Home > Data > Geographic Data > Web-based Mapping >. A left-hand navigation menu lists: iMapBC, B.C. Map Hub, B.C. Map Services (highlighted), What's New, HectaresBC, B.C. Geographical Names, and B.C. Geographical Names. The main heading is "B.C. Map Services". The text explains that DataBC offers data connection services for viewing thousands of data layers from the B.C. Geographic Warehouse (BCGW) in desktop geospatial software or via web-based map applications. It notes that these services deliver current data directly from the BCGW, allowing users to work with the latest data without repeatedly downloading it. The services are provided to offer wide flexibility in map creation and data sharing, with all data layers available according to the industry standard (OGC) Web Map Service (WMS) protocol, and some also available in Google Earth's Keyhole Markup Language (KML) format, and in ArcGIS Server REST services format. Below the text are three links: "Get the latest info on what's new with connection services!", "B.C. Geographic Warehouse Web Map Service (WMS)", "B.C. Imagery Web Map Services (WMS)", "B.C. Base Mapping Tiled Services (WMS and REST)", and "Consuming and using WMS Services". At the bottom, there is a section titled "BCGW Web Map Service (WMS)" which states that this service provides georeferenced images (maps) and data dynamically from data stored in the B.C. Geographic Warehouse database. WMS-produced maps are generally rendered in image formats such as PNG, GIF or JPEG, or as vector-based graphical elements in Scalable Vector Graphics (SVG) or as

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Search results of all [B.C. Data Catalogue records with Public WMS available.](#)

## Data and Resources



**ArcView Shape** (from Geographic Warehouse)



**CSV** (from Geographic Warehouse)



**ESRI File Geodatabase** (from Geographic Warehouse)



**GeoJSON** (from Geographic Warehouse)



**WMS getCapabilities request**

For use in viewers such as ESRI tools Click here for information on how to...



**KML Network Link**

For use in viewers such as Google Earth Click here for information on how...

## WMS getCapabilities request

[Access / Download](#)

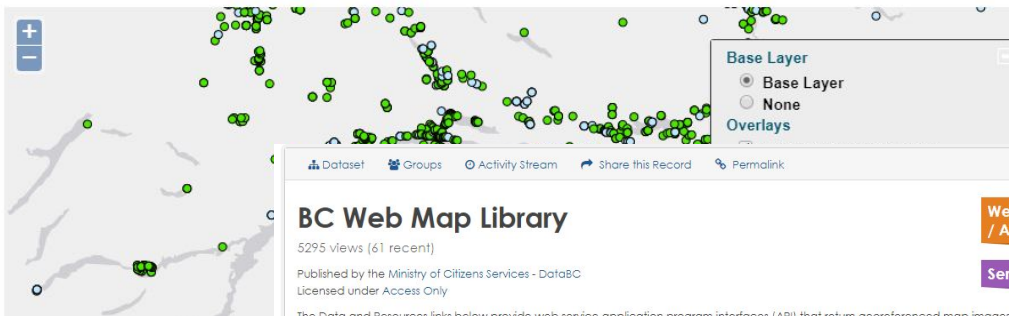
URL: [https://openmaps.gov.bc.ca/geo/pub/WHSE\\_WATER\\_MANAGEMENT.WLS\\_WATER\\_RIGHTS\\_LICENCES\\_SV/ows?service=WMS&request=Get...](https://openmaps.gov.bc.ca/geo/pub/WHSE_WATER_MANAGEMENT.WLS_WATER_RIGHTS_LICENCES_SV/ows?service=WMS&request=Get...)

For use in viewers such as ESRI tools

[Click here for information on how to connect](#)

Map viewer

Embed Open in new tab



## BC Web Map Library

5295 views (61 recent)

Published by the Ministry of Citizens Services - DataBC  
Licensed under Access Only

The Data and Resources links below provide web service application program interfaces (API) that return georeferenced map images and services per the Open Geospatial Consortium Web Mapping Service (WMS) Protocol based on a variety of geographic data sources.

See this web page for more information on B.C. Map Services and how they can be used.

[KML](#) [WMS](#) [google earth](#) [map](#)

Web Service / API

Service

## Data and Resources



**KML with GroundOverlays for use in Google Earth**

Explore



**WMS Get Capabilities**

Explore



**WMS URL for use in viewers such as ESRI tools**

Explore

<https://catalogue.data.gov.bc.ca/dataset/6164a2af-d3ac-4e92-8dbe-51a93bb5e24b>

# Resources for Developing Applications with WMS/WFS

<http://www.opengeospatial.org/standards/wms>

<http://www.opengeospatial.org/standards/wfs>

<http://docs.geoserver.org/stable/en/user/services/wms/reference.html>

<http://docs.geoserver.org/stable/en/user/services/wfs/reference.html>

- Geoserver WFS Outputformat types are JSON, JSONP, GML(s), CSV, and Shapefile  
<https://docs.geoserver.org/latest/en/user/services/wfs/outputformats.html>
- Geoserver CQL Filter  
[https://docs.geoserver.org/stable/en/user/tutorials/cql/cql\\_tutorial.html#cql-tutorial](https://docs.geoserver.org/stable/en/user/tutorials/cql/cql_tutorial.html#cql-tutorial)
- WMS/WFS can be accessed through existing application programming interfaces (API) such as [Leaflet](#), [ArcGIS API for Javascript](#), and [Openlayers](#).
- WMS/WFS can be accessed via client applications such as [ArcGIS Desktop/Pro](#) and [QGIS](#).
- Don't forget curl and wget!

# Offline Maps Resources

Map Creator Tool and OSMAnd

<https://osmand.net/features/online-maps-plugin>

<https://github.com/osmandapp>

MapProxy and WhooTS is a WMS to Google/OSM Tiles proxy -

<https://github.com/timwaters/whoots>

<http://whoots.mapwarper.net/>

[https://live.osgeo.org/en/overview/mapproxy\\_overview.html](https://live.osgeo.org/en/overview/mapproxy_overview.html)

The MapBox SDK for iOS:

<https://docs.mapbox.com/ios/maps/overview/>

Frameworks for using OSM, if that is in the cards, are listed here

[https://wiki.openstreetmap.org/wiki/Using\\_OpenStreetMap\\_offline](https://wiki.openstreetmap.org/wiki/Using_OpenStreetMap_offline)

[https://wiki.openstreetmap.org/wiki/Comparison\\_of\\_iOS\\_applications](https://wiki.openstreetmap.org/wiki/Comparison_of_iOS_applications)

Another OSGeo project to check out <https://www.osgeo.org/projects/geopaparazzi/>

ArcGIS Offline Maps

<https://doc.arcgis.com/en/arcgis-online/manage-data/take-maps-offline.htm>



# Thanks!

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