

# Map feeds

Trap.NZ provides a range of map feeds in OGC (Open Geospatial Consortium) formats which can be linked directly into GIS tools such as ArcGIS, Google Earth and Google Maps, QuantumGIS etc.

To access the feeds you first need to generate an API key.

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# Generating an API key

In the **My account** section of Trap.NZ, you can generate an API key that's associated with your user account. It can only be used for map feeds (which are read-only), and it can be changed any time by generating a new key, which will disable any previously used keys.

## API key

Generate an API key to use with map feeds:

Key:

[Generate new key](#)

# Accessing map feeds

Map feed addresses are in the format:

```
https://io.trap.nz/geo/trapnz-projects/wfs/apikey/project_id
```

and

```
https://io.trap.nz/geo/trapnz-projects/wms/apikey/project_id
```

for WFS and WMS feeds respectively.

The Project ID is the last part of the URL when you select your project in Trap.NZ.

i.e. when you select the project after logging in, the URL will look something like `https://trap.nz/node/123456`, and in this case, the Project ID will be 123456.

**Note:** Some of the map feeds apply to all the projects you are a member of. If you are using those feeds, you still need to select a default project. It doesn't matter which one.

So for a test user and project the WFS feed looks like this:

```
https://io.trap.nz/geo/trapnz-projects/wfs/35GEIj7FEyGB-gpalO5ptgcEjxmNe7QzOijNbEPZmSU/123456
```

(you must [generate your own key](#) under the **My Account** section of the Trap.NZ website)

You can paste these URLs into your GIS system and it will show you the available layers.

## The layers currently available are:

- **my-projects**  
The project polygons and metadata from the Trap.NZ projects you have access to
- **my-projects-lines**  
All the lines from the Trap.NZ projects you have access to
- **my-projects-traps**  
All traps from the Trap.NZ projects you have access to
- **my-projects-traps-records**  
All trap records from the Trap.NZ projects you have access to
- **my-projects-bait-stations**  
All bait stations from the Trap.NZ projects you have access to
- **my-projects-bait-station-records**  
All bait station records from the Trap.NZ projects you have access to
- **my-projects-monitoring-stations**  
All monitoring stations from the Trap.NZ projects you have access to
- **my-projects-monitoring-station-records**  
All monitoring stations from the Trap.NZ projects you have access to (excluding 5 minute bird counts and camera trap records)
- **my-projects-pois**  
All points of interest from the Trap.NZ projects you have access to

- **default-project**  
The project polygon and metadata from the project specified in the URL
- **default-project-lines**  
All lines from the Trap.NZ project specified in the URL
- **default-project-traps**  
All traps from the Trap.NZ project specified in the URL
- **default-project-trap-records**  
All trap records from the Trap.NZ project specified in the URL
- **default-project-bait-stations**  
All bait stations from the Trap.NZ project specified in the URL
- **default-project-bait-station-records**  
All bait station records from the Trap.NZ project specified in the URL
- **default-project-monitoring-stations**  
All monitoring stations from the Trap.NZ project specified in the URL
- **default-project-monitoring-station-records**  
All monitoring station records from the Trap.NZ project specified in the URL (excluding 5 minute bird counts and camera trap records)
- **default-project-pois**  
All points of interest from the Trap.NZ project specified in the URL

## Notes

- More map feeds will be added over time (e.g. 5 min bird count and camera trap records)
- The WFS server is set to return a maximum of 10k features per page request. Therefore you must set a page size value smaller than that. We suggest 5k to begin with.
- Map feeds are updated overnight - they won't contain records or installations added today.

# Trap records map feed attributes

## Fields returned

Field	Description
record_id	the trap record UID
project_id	project number
project	project name
line	line name that the trap is associated with
trap_code	the trap code or name
trap_type	the trap type (e.g. DOC 200, A24, etc.)
trap_status	status of the trap when checked
trap_condition	condition of the trap
rebaited	whether the trap was rebaited or not
bait_at_arrival	bait from the previous record (comma delimited if multiple)
bait_details_at_arrival	any bait details from the previous record
bait_at_departure	bait set with the trap record (comma delimited if multiple)
bait_details_at_departure	any bait details set with the trap record
strikes	strike count - for self-resetting traps this would be the number of times it has gone off since the last check. For conventional traps, this would be 1 if sprung.
species_caught	species name
gender	species sex if recorded
maturity	species maturity if recorded (juvenile/mature)
record_date	date of record
recorded_by	name of person who made the record
record_notes	record notes
prev_record_date	date of the previous record
next_record_date	date of the next record
corrected_nights_from_prev_record	RTC calculation (number of trap nights) from the previous record date
corrected_nights_to_next_record	RTC calculation (number of trap nights) to the next record date



# Downloading shape files, CSV, linking into Google Earth etc

The map server allows access to WGS 84 and NZTM projections and can also output in many different formats with:

```
https://io.trap.nz/geo/trapnz-projects/wfs/apikey/project_id  
?service=WFS&version=1.0.0&request=GetFeature&typeName=layer&outputFormat=format
```

Output formats:

GML2	outputFormat=GML2
GML3	outputFormat=GML3
Shapefile	outputFormat=shape-zip
JSON	outputFormat=application/json
JSONP	outputFormat=text/javascript
CSV	outputFormat=csv

e.g. to get a **shapefile** of trap locations:

```
https://io.trap.nz/geo/trapnz-projects/wfs/apikey/project_id  
?service=WFS&version=1.0.0&request=GetFeature&typeName=trapnz-projects:my-projects-traps  
&outputFormat=shape-zip
```

**KML** (you can link this directly into Google Earth):

```
https://io.trap.nz/geo/trapnz-projects/wfs/apikey/project_id  
?service=WFS&version=2.0.0&request=GetFeature&typeName=trapnz-projects:my-projects-traps  
&outputFormat=application/vnd.google-earth.kml+xml
```

**CSV:**

```
https://io.trap.nz/geo/trapnz-projects/wfs/apikey/project_id  
?service=WFS&version=2.0.0&request=GetFeature&typeName=trapnz-projects:my-projects-traps  
&outputFormat=csv
```

You can also view features directly in **OpenLayers**:

```
https://io.trap.nz/geo/trapnz-projects/wfs/apikey/project_id?service=WMS&version=1.1.0&request=GetMap&layers=trapnz-projects:my-projects&bbox=174.94,-41.5,174.95,-41&width=708&height=768&srs=EPSG:4326&format=application/openlayers
```

## Notes:

The WFS server is set to return a maximum of 10k features per request. If you have more that, you will need to use software (e.g. ArcGIS Pro, or QuantumGIS) to page requests, or include `count` and `startindex` parameters .

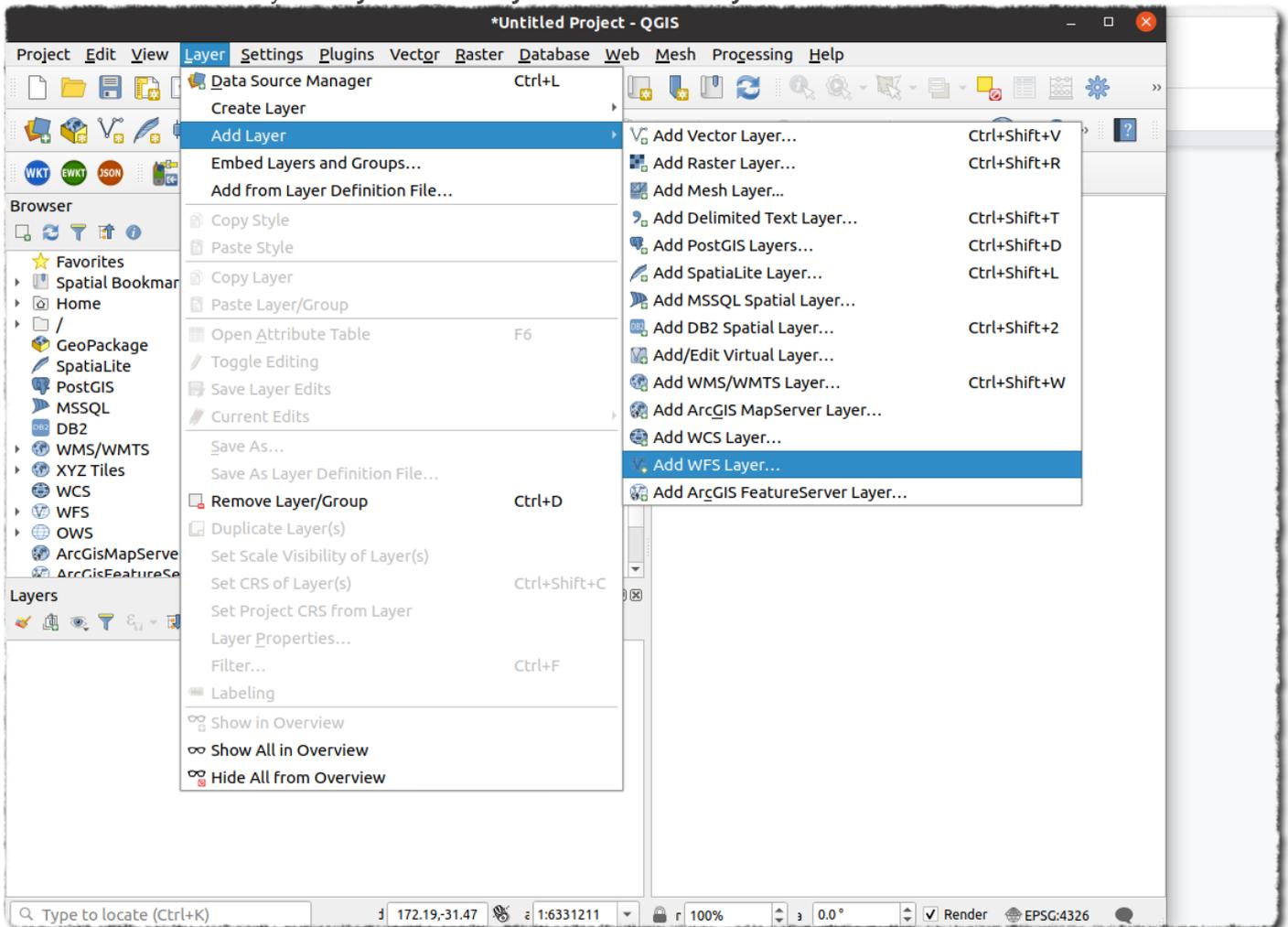
[See the WFS specification.](#)

The shapefile format has a number of limitations - see the [Geoserver documentation](#). Datetime fields are not supported - only the date will be included.

# Accessing the Trap.NZ map feeds with QGIS

## Accessing layers

You can add a WFS Layers **Layer > Add Layer > Add WFS Layer**



Create a new Server Connection and enter the WFS URL in the format [described here](#)

`https://io.trap.nz/geo/trapnz-projects/wfs/apikey/project_id`

The WFS server is set to return a maximum of 10k features per request. If you have more than this number of features you must enable paging and set a page size less than 10,000. We recommend 5000.

## Connection Details

Name

URL

## Authentication

Configurations **Basic**

Choose or create an authentication configuration

Configurations store encrypted credentials in the QGIS authentication database.

## WFS Options

Version

Max. number of features

Enable feature paging

Page size

Ignore axis orientation (WFS 1.1/WFS 2.0)

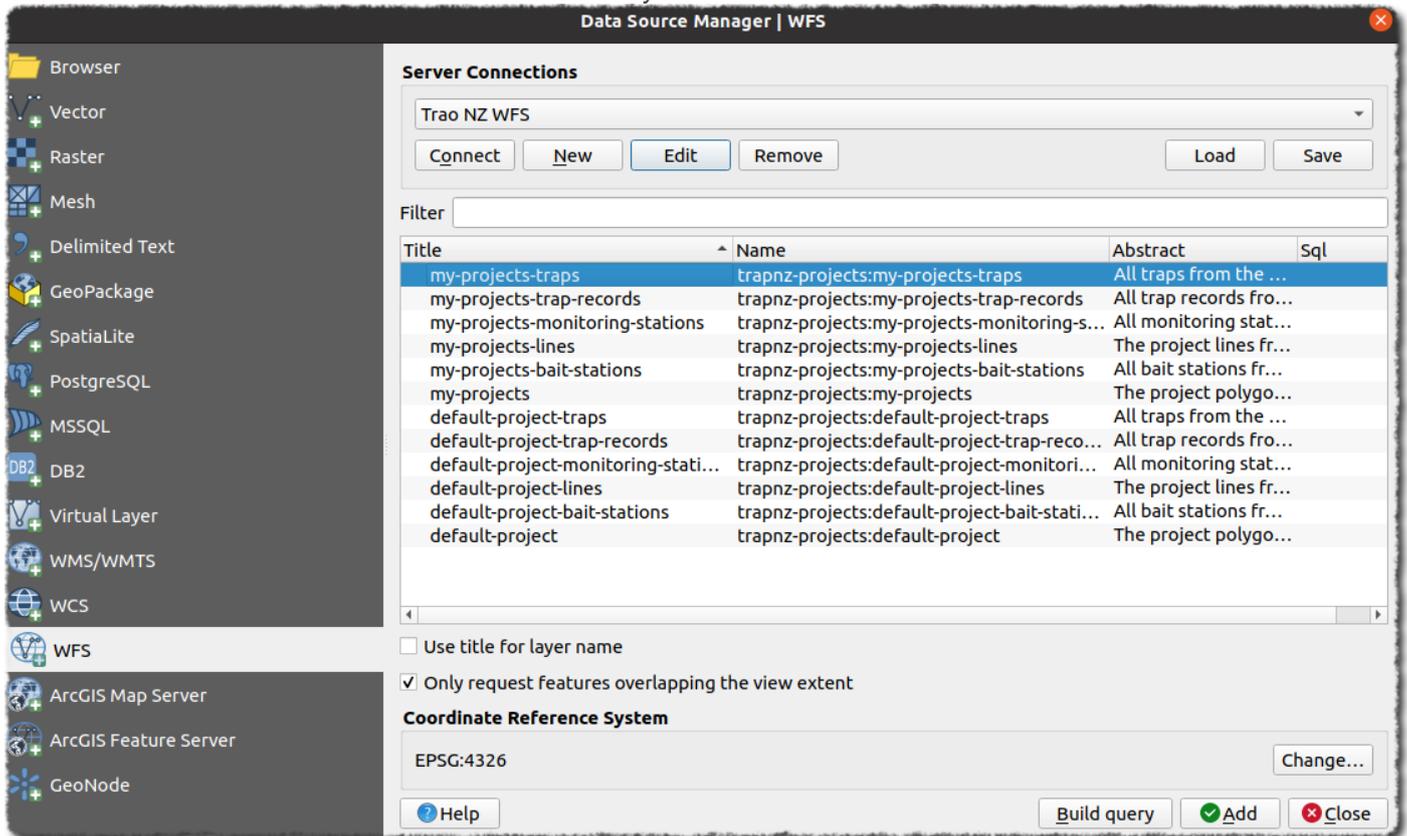
Invert axis orientation

 Help

 Cancel

 OK

Save and then click Connect to see the available layers:



You can then add individual or groups of layers to the map.

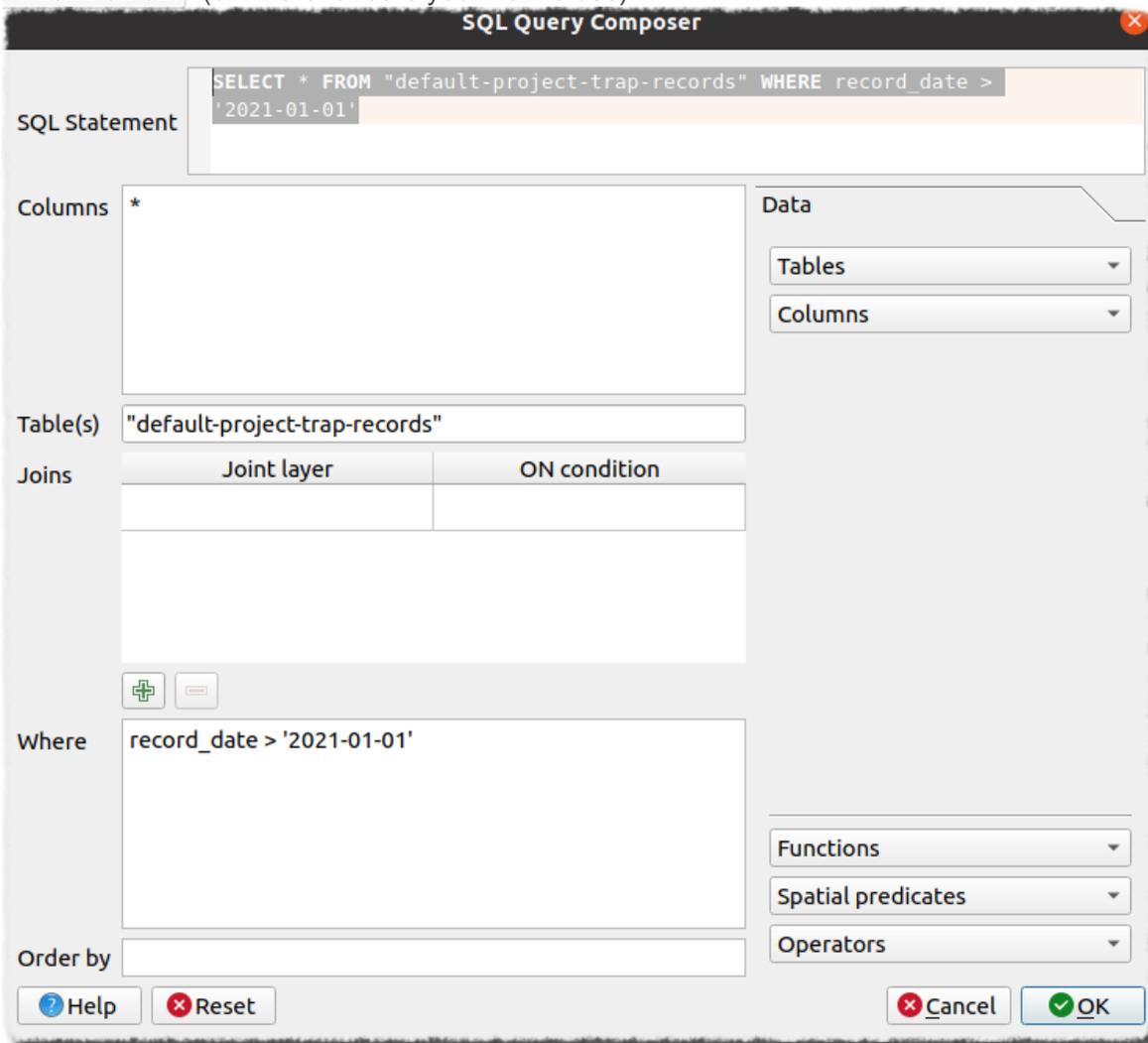
## Filtering records

You can add a CQL filter to a WFS connection to filter features from the WFS server. This can greatly reduce the amount of data retrieved (speeding up the transfer and improving performance).

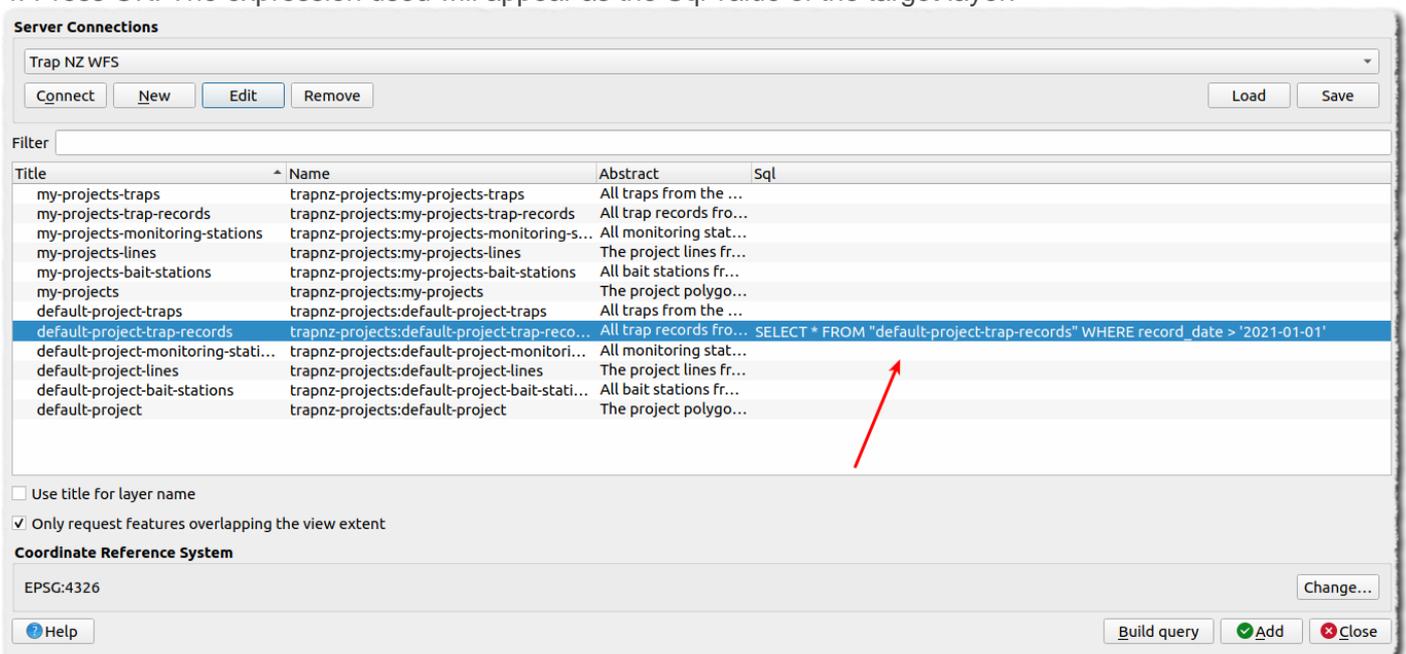
For example - if you are only interested in this year's records, you could add a CQL filter to build the query as a filter *before* loading the layer from the server.

1. Connect to the server as above to see the list of available layers.
2. Select the layer you want to query (e.g. default-project-trap-records) and click the Build query button

3. In the dialog that appears, enter the following `SELECT * FROM "default-project-trap-records" WHERE record_date > '2021-01-01'` (or whatever date you wish to use)



4. Press OK. The expression used will appear as the Sql value of the target layer:



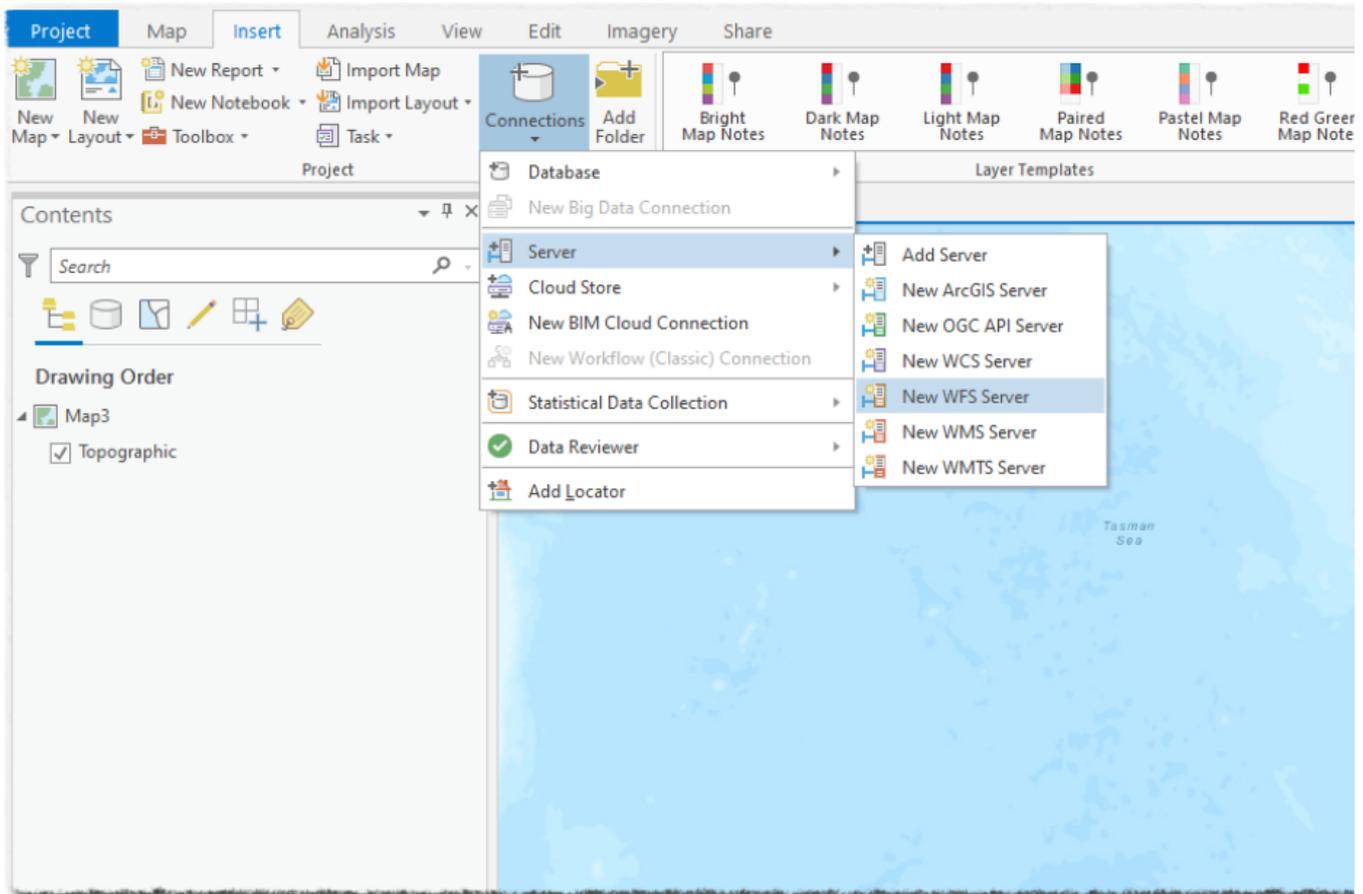
When you add the layer now, only the filtered records (features) will be loaded.



# Accessing the Trap.NZ map feeds with ArcGIS

## Accessing layers

1. You can add a new WFS Server via **Connections > Server > New WFS Server**:



2. Enter the WFS URL in the format as [described here](#)  
`https://io.trap.nz/geo/trapnz-projects/wfs/apikey/project_id`
3. The WFS server is set to return a maximum of 10k features per request. Therefore you must set a page size value smaller than that. We suggest 5k to begin with. Add a custom request parameter of PAGESIZE, with a value of 5000
4. Leave the Authentication options blank (we are using the API key to control access)

### Add WFS Server Connection

Server URL:

Examples: <http://gisserver.example.com/arcgis/services/SampleWorldCities/MapServer/WFSServer?>  
<http://gisserver.example.com:8080/geoserver/ows?>

Version:

▼ Custom request parameters

Parameter	Value
PAGESIZE	5000

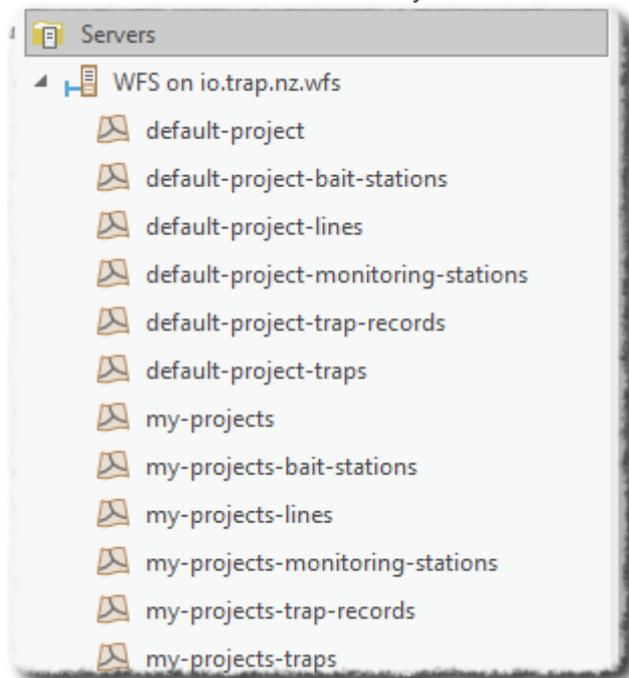
Authentication (Optional)

User Name:

Password:

Save Username / Password to Windows Credential Manager  
 Save Username / Password to connection file

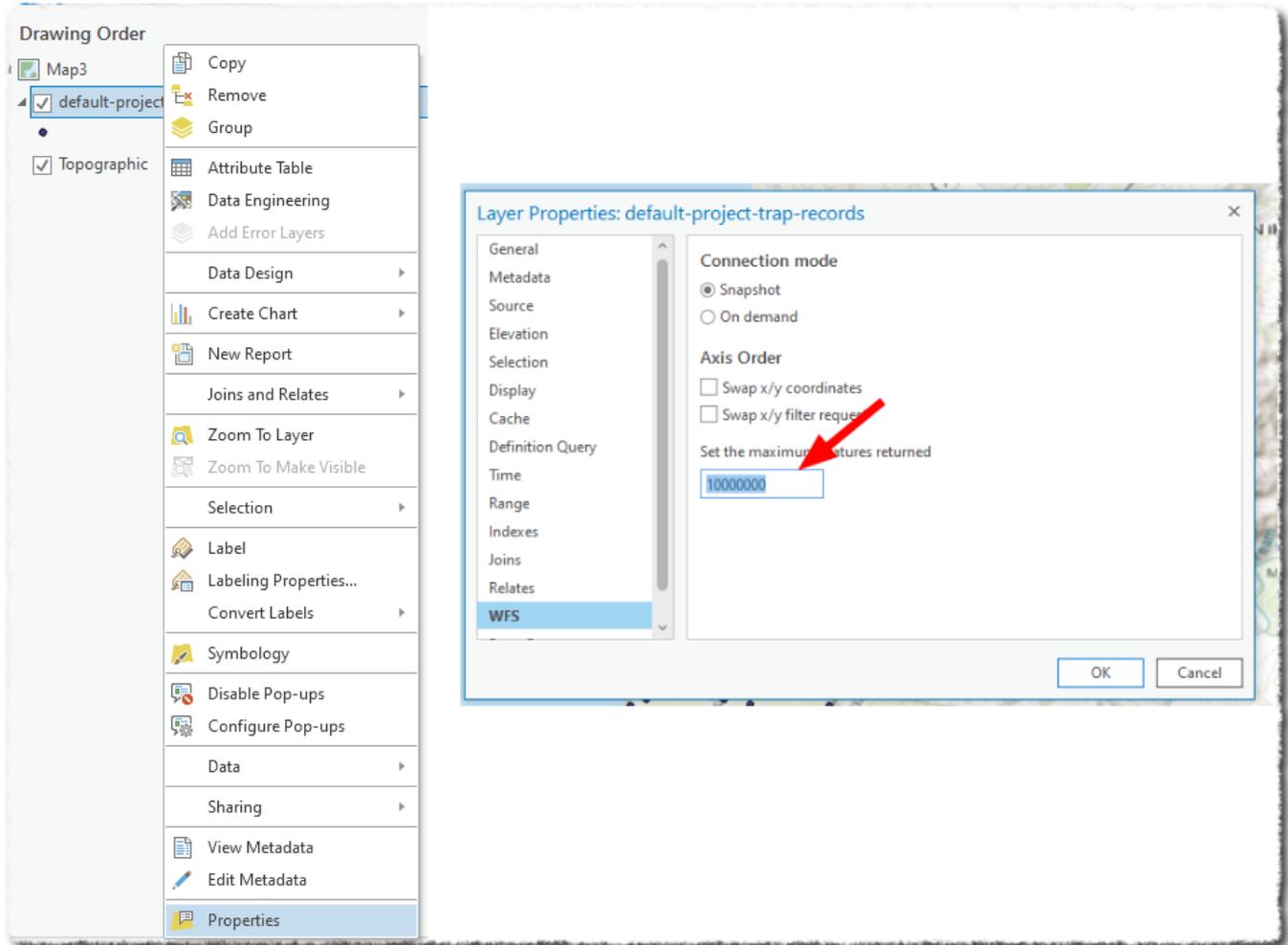
You will now see the available layers:



## Working with the layers

Right-click or drag the layer to the map to see the features.

Note that, by default, ArcGIS only shows a maximum of 3000 features in the WFS layer. To change this, right-click the layers, select properties and then set the maximum features to something well above what you expect should be returned.



## Filtering records

You can add a [CQL filter](#) to a WFS connection to filter features from the WFS server. This can be achieved by adding this parameter to the Custom request parameters - which can greatly reduce the amount of data retrieved (speeding up the transfer and improving performance).

For example - if you are only interested in this year's records, you could add a CQL filter as a Custom request parameter

WFS Server Connection Properties: WFS on io.trap.nz.wfs

**General**

Name: WFS on io.trap.nz.wfs

Server URL: https://io.trap.nz/geo/trapnz-projects/

Examples: http://gisserver.example.com/arcgis/services/SampleWorldCities/MapServer/WFSServer?  
http://gisserver.example.com:8080/geoserver/ows?

Version: 2.0.0

Custom request parameters

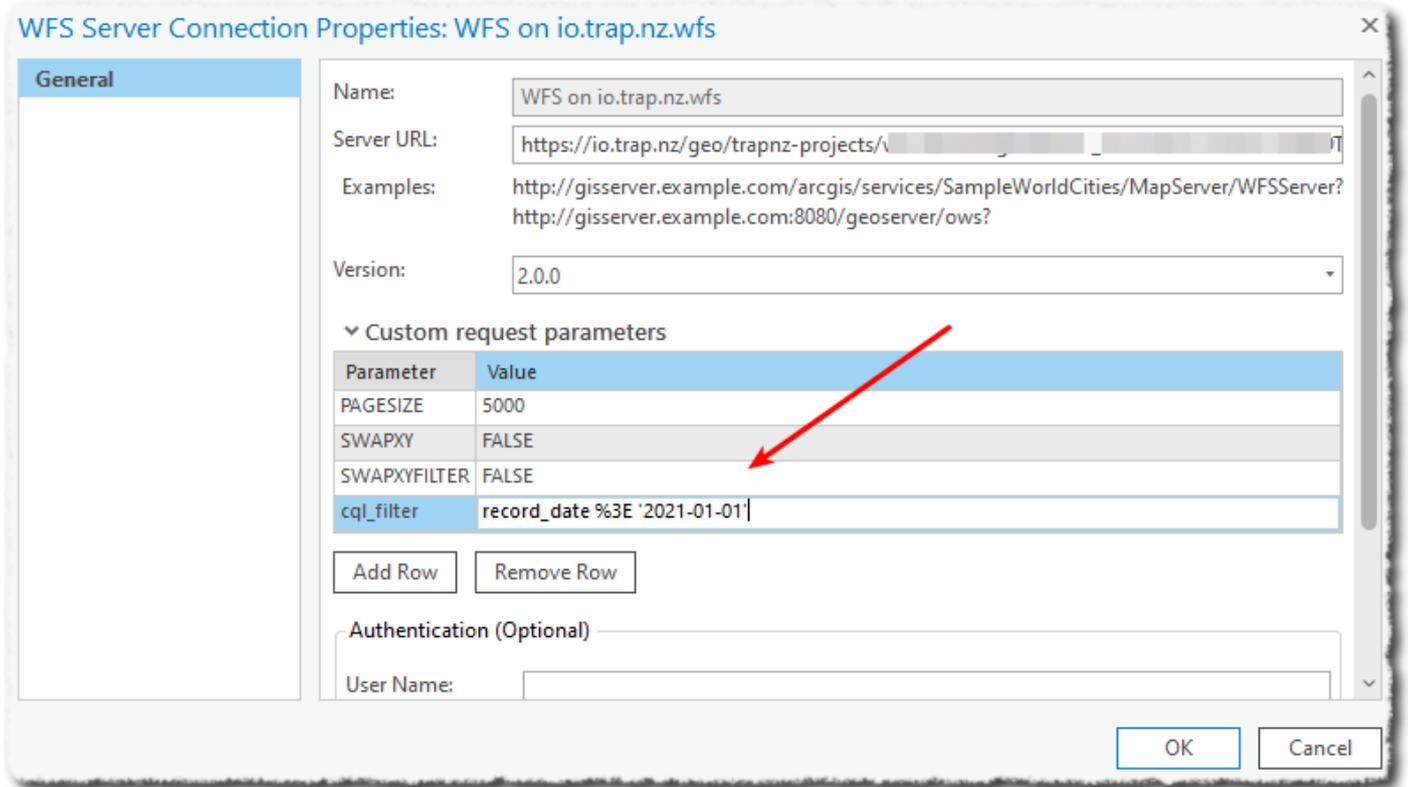
Parameter	Value
PAGESIZE	5000
SWAPXY	FALSE
SWAPXYFILTER	FALSE
cql_filter	record_date %3E '2021-01-01'

Add Row Remove Row

Authentication (Optional)

User Name:

OK Cancel



Add **cql\_filter** as Parameter, and **record\_date %3E '2021-01-01'** as Value.

**Note:** symbols such as '<' and '>' need to be URL encoded, hence the **%3E** in place of >

# Attributions

The trap.nz map feeds and APIs are provided on the condition that you provide a data source attribution in any maps or material that uses these feeds, or data from these feeds.

E.g.:

*"Sourced from **trap.nz**".*

or

*"Data sourced from **trap.nz**".*

(if including the attribution on a web page, please link to <https://trap.nz>)