

# Viewing Planet Images in ArcGIS Online (AGOL)

Mapping with high-resolution imagery

## Background

Planet Basemaps is the monthly mosaic web service. This service allows staff to view the Planet Mosaic catalogue in AGOL as a Web Map Tile Service (WMTS). You can access all your planet imagery directly in AGOL.

## Setup

There are two ways to use Planet imagery in AGOL:

1. Adding Planet Basemaps (WMTS)
2. Adding PlanetScope Individual Scenes (XYZ Tiles)

### Requirements:

- Internet access & web browser
- Planet account (for API Key and finding Scene ID)
- AGOL or ArcGIS Enterprise Portal account
- Ability to edit a URL (MS Word, notepad or notes will be sufficient)

## Adding Imagery

### 1. Web service URL format

- a. We will be using Planet's The Basemap Tile Service, which allows for visualization of Planet imagery Basemaps in desktop or web mapping applications that support either the XYZ or the WMTS protocols. There are two URLs to use to find the specific Basemap WMTS URLs:

- i. **Basemap WMTS Catalogue Webpage:**

[https://api.planet.com/basemaps/v1/services?api\\_key={api-key}](https://api.planet.com/basemaps/v1/services?api_key={api-key})

Navigate to this page in your browser to view all Basemap WMTS and XYZ available.

- ii. **Basemap WMTS Catalogue Access Request Structure:**

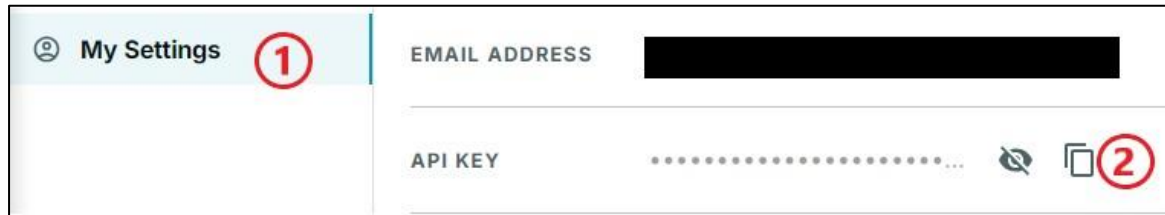
[https://api.planet.com/basemaps/v1/mosaics/wmts?api\\_key={api-key}](https://api.planet.com/basemaps/v1/mosaics/wmts?api_key={api-key})

This can be pasted into a Desktop GIS program (e.g., ArcMap or MapInfo) to display the entire WMTS Catalogue available with the current subscription.

### 2. API Key

- a. A valid Planet account is required to authenticate web services by providing a valid `api_key` as a query parameter. To find your `api_key` please login to <https://www.planet.com/account/> in a new web browser.

- b. Navigate to *My Settings* > Copy API key



- c. Replace {api-key} in the URL above (step 1 a. i.) with your copied API key. Then paste the URL into a browser.
- d. Use the list to find a basemap of your choice.

### Planet Basemap Services

Planet provides WMTS and XYZ map services for imagery mosaics.

The URLs provided below should be copy and pasted into the application or configuration.

For assistance, please contact [support@planet.com](mailto:support@planet.com).

#### Available Map Services

Entire WMTS Catalog: [Here](#)

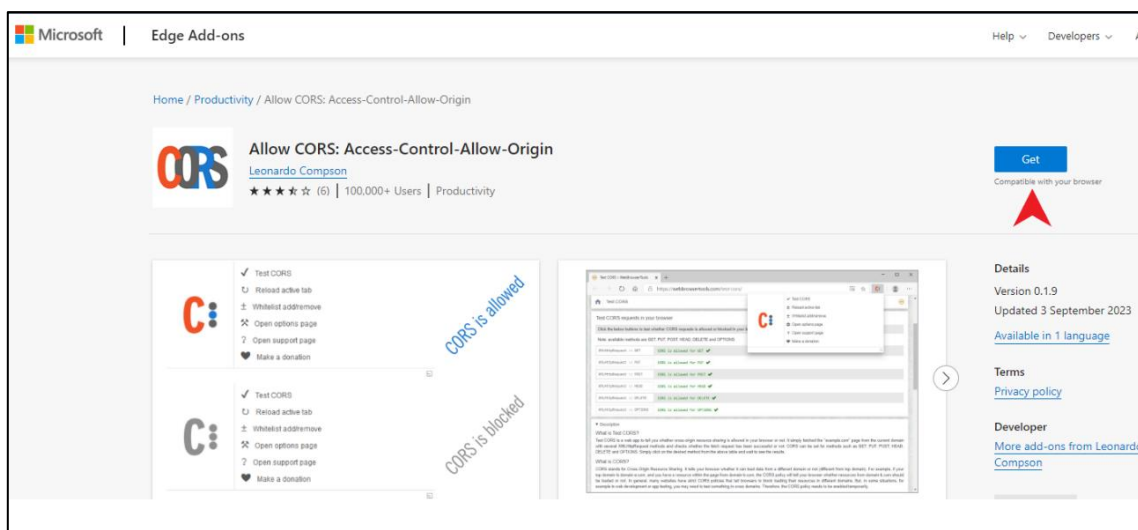
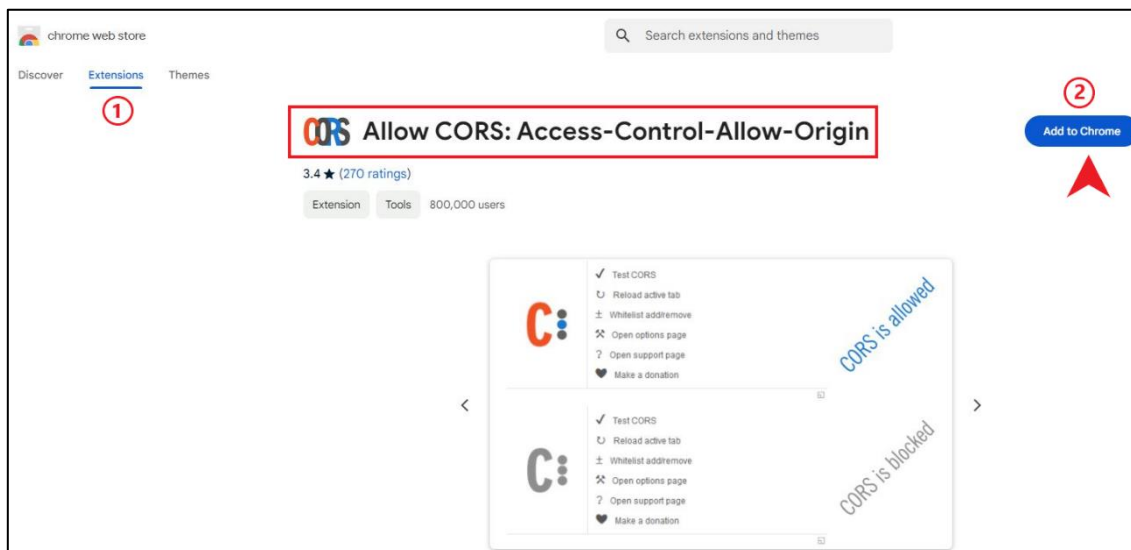
You have access to the following individual basemaps:

Basemap	Links
Global Monthly 2016 01 Mosaic	WMTS : <a href="https://api.planet.com/basemaps/v1/mosaics/48fff803-4104-49bc-b913-7467b7a5ffb5/wmts?api_key=PLAKd">https://api.planet.com/basemaps/v1/mosaics/48fff803-4104-49bc-b913-7467b7a5ffb5/wmts?api_key=PLAKd</a> XYZ : <a href="https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_01_mosaic/gmap/{z}/{x}/{y}.png?api_">https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_01_mosaic/gmap/{z}/{x}/{y}.png?api_</a>
Global Monthly 2016 02 Mosaic	WMTS : <a href="https://api.planet.com/basemaps/v1/mosaics/a97687cf-65db-4f34-ab2c-2ef7596a24ce/wmts?api_key=PLAKd">https://api.planet.com/basemaps/v1/mosaics/a97687cf-65db-4f34-ab2c-2ef7596a24ce/wmts?api_key=PLAKd</a> XYZ : <a href="https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_02_mosaic/gmap/{z}/{x}/{y}.png?api_">https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_02_mosaic/gmap/{z}/{x}/{y}.png?api_</a>
Global Monthly 2016 03 Mosaic	WMTS : <a href="https://api.planet.com/basemaps/v1/mosaics/cfd6a60f-ec1e-491d-a885-e06d43990bd5/wmts?api_key=PLAKd">https://api.planet.com/basemaps/v1/mosaics/cfd6a60f-ec1e-491d-a885-e06d43990bd5/wmts?api_key=PLAKd</a> XYZ : <a href="https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_03_mosaic/gmap/{z}/{x}/{y}.png?api_">https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_03_mosaic/gmap/{z}/{x}/{y}.png?api_</a>
Global Monthly 2016 04 Mosaic	WMTS : <a href="https://api.planet.com/basemaps/v1/mosaics/e6eaab79-7209-46cd-b187-1046c302e8bb/wmts?api_key=PLAKd">https://api.planet.com/basemaps/v1/mosaics/e6eaab79-7209-46cd-b187-1046c302e8bb/wmts?api_key=PLAKd</a> XYZ : <a href="https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_04_mosaic/gmap/{z}/{x}/{y}.png?api_">https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_04_mosaic/gmap/{z}/{x}/{y}.png?api_</a>
Global Monthly 2016 05 Mosaic	WMTS : <a href="https://api.planet.com/basemaps/v1/mosaics/ab910c9a-242f-47e2-8c3c-debbe256a724/wmts?api_key=PLAKd">https://api.planet.com/basemaps/v1/mosaics/ab910c9a-242f-47e2-8c3c-debbe256a724/wmts?api_key=PLAKd</a> XYZ : <a href="https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_05_mosaic/gmap/{z}/{x}/{y}.png?api_">https://tiles.planet.com/basemaps/v1/planet-tiles/global_monthly_2016_05_mosaic/gmap/{z}/{x}/{y}.png?api_</a>

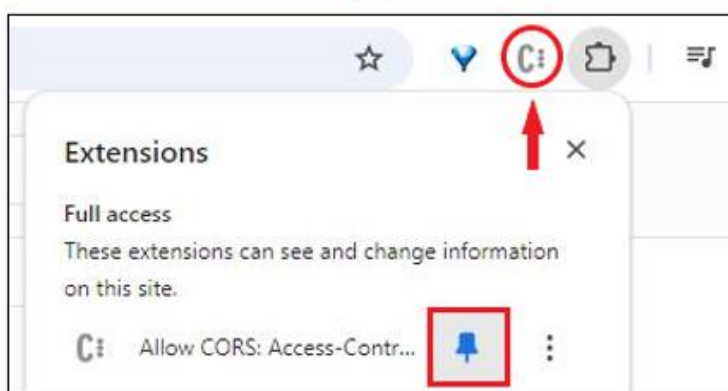
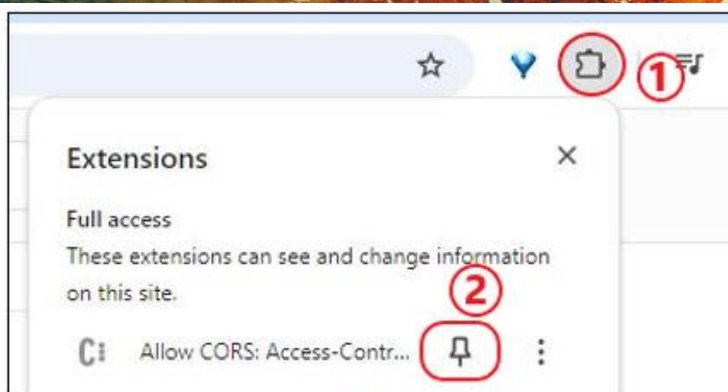
### 3. Installing CORS

- a. For Planet base maps to load in AGOL, we need to install an extension named CORS.  
Click on extensions → type 'CORS' → Add to Chrome/Edge

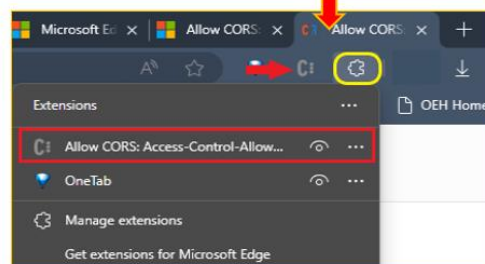
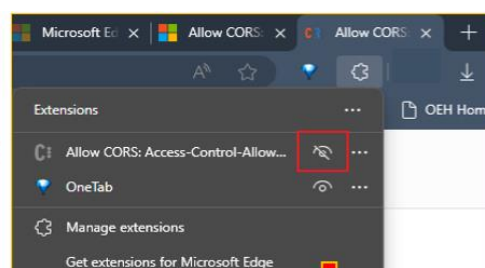
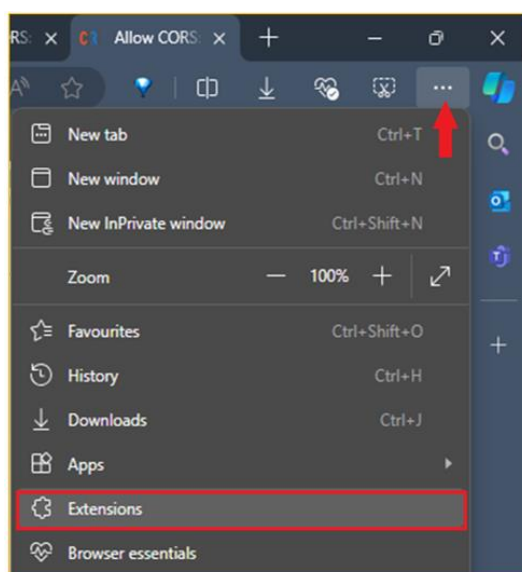
- For Chrome users: <https://chromewebstore.google.com/detail/allow-cors-access-control/lhobafahddgcelffkeicbaginjeejlf> Click on 'Add to Chrome'
- For Edge users: [Allow CORS: Access-Control-Allow-Origin - Microsoft Edge Addons](#). Click on 'Get'



- Find the newly installed CORS extension and pin it to the browser bar (Chrome and Edge)



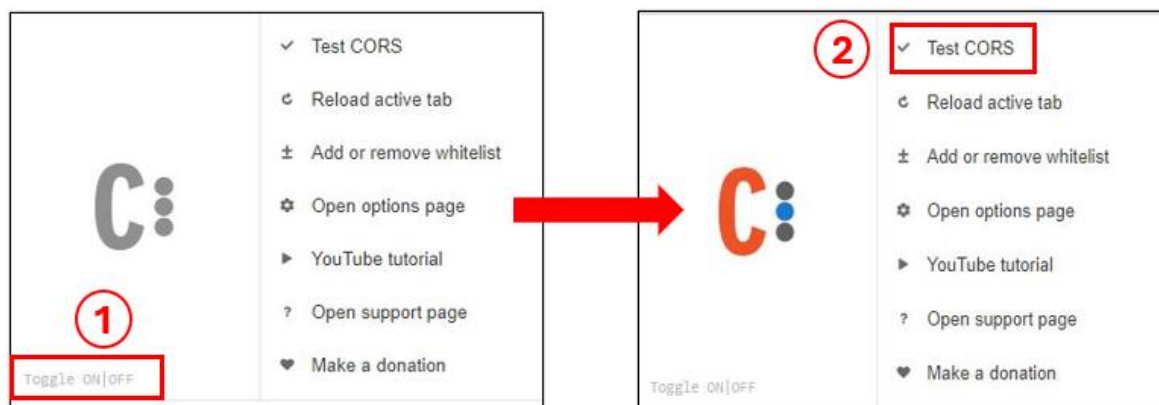
Chrome browser



Edge Browser



- c. Once you have pinned the CORS extension to the bar, click on it to toggle ON/OFF. For CORS to work, you need to turn it 'ON'. The greyed-out C is when CORS is blocked (see images above). Click on the 'C' icon and toggle ON in the lower left corner. The greyed-out 'C' will turn to an Orange colour showing it is allowed now.



- d. Now you need to test whether CORS requests are allowed or blocked by your browser CORS policy. In this test, you have to check the first six parameters- GET, PUT, POST, HEAD, DELETE, and OPTIONS request types. Click on each of these and they should turn green.

Test CORS requests in your browser

Click the below buttons to test whether CORS requests are allowed or blocked by your browser CORS policy. In this test you can check policies for GET, PUT, POST, HEAD, DELETE and OPTIONS request types.

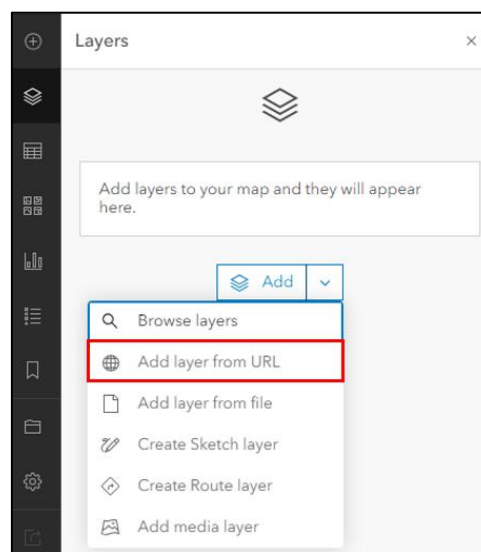
AJAX :: GET	...
AJAX :: PUT	...
AJAX :: POST	...
AJAX :: HEAD	...
AJAX :: DELETE	...
AJAX :: OPTIONS	...

AJAX :: GET	CORS is allowed for GET ✓
AJAX :: PUT	CORS is allowed for PUT ✓
AJAX :: POST	CORS is allowed for POST ✓
AJAX :: HEAD	CORS is allowed for HEAD ✓
AJAX :: DELETE	CORS is allowed for DELETE ✓
AJAX :: OPTIONS	CORS is allowed for OPTIONS ✓

- e. Once this is done, please wait up to 30 minutes to 1 hour for the changes to take effect and open imagery in AGOL.

## 4. Add to AGOL

- Open ArcGIS Online (<http://www.arcgis.com/home/index.html>) or ArcGIS Enterprise Portal and login.
- Open the Map Viewer window. You can use either the New Map Viewer or the Map Viewer Classic.
- If using the New Map Window, please select *Layers*, then *Add layer from URL*.
- Once added as items in your content, you can arrange into groups to display as custom basemaps (follow <https://www.esri.com/arcgisblog/products/arcgis-online/mapping/custom-Basemap-gallery/>).



- Add your Basemap URL copied in Step 2 d but only until '...wmts?'  
<https://api.planet.com/basemaps/v1/mosaics/wmts?>
- Expand "+ Add custom parameter."
- Enter the *Parameter* = *api\_key* and *Value* = Your {api\_key}
- Add another parameter '**zmax**' and set its value as '**10**'. This is done to be able to zoom into the level of individual houses/buildings when we load the basemap in AGOL.


Add Layer

URL

https://api.planet.com/basemaps/v1/mosaics/48ff803-4104-49bc-b913-7467b7a5ffb5/wmts?

Supported layer types are CSV, GeoJSON, OGC WFS web service, OGC WMS web service, OGC WMTS web service, OGC API - Features, ArcGIS Server web service, KML, GeoRSS, tile layer

Type



WMTS (OGC)

OGC Web Map Tile Service (WMTS) is a set of cached image tiles that follows the specifications of OGC.

Custom parameters

Add parameters that need to be appended to requests to access this service. ⓘ

+ Add custom parameter

Parameter

Value

api\_key

PLAK

☐ Append only to requests that draw or query layers

Use as basemap

☐

Cancel

Next

Parameter

Value

api\_key

PLAK

☐ Append only to requests that draw or query layers

Parameter

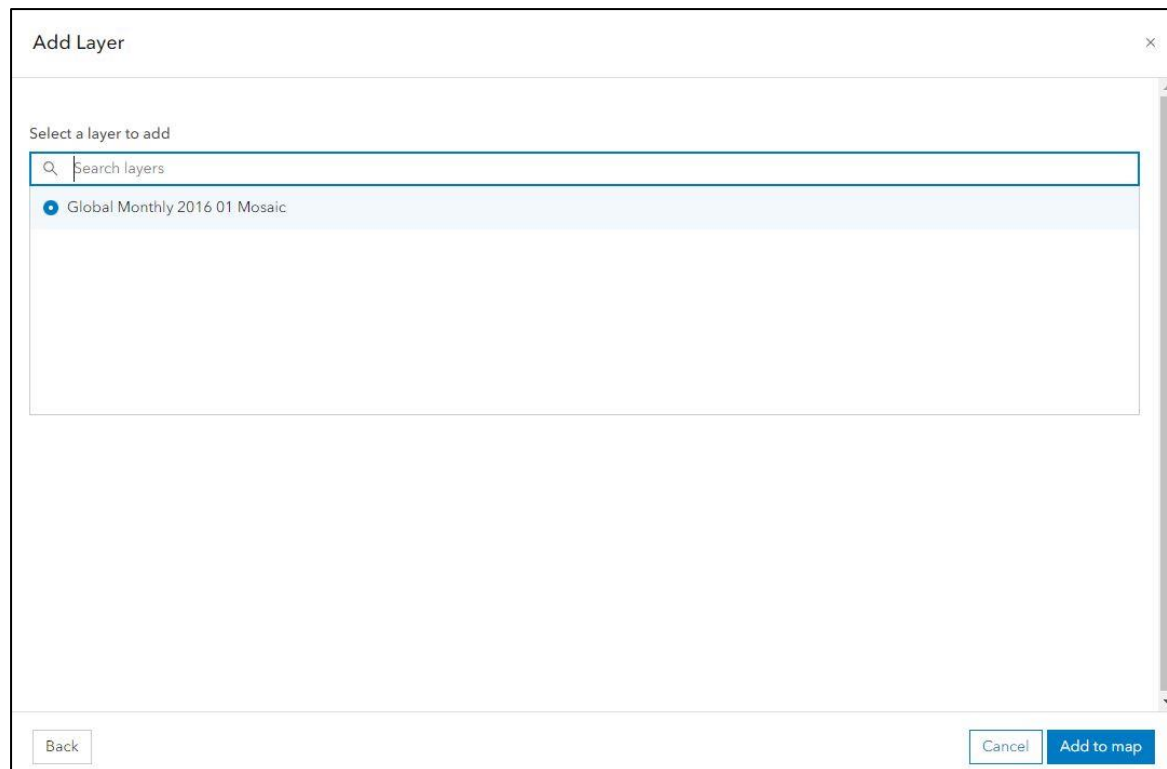
Value

zmax

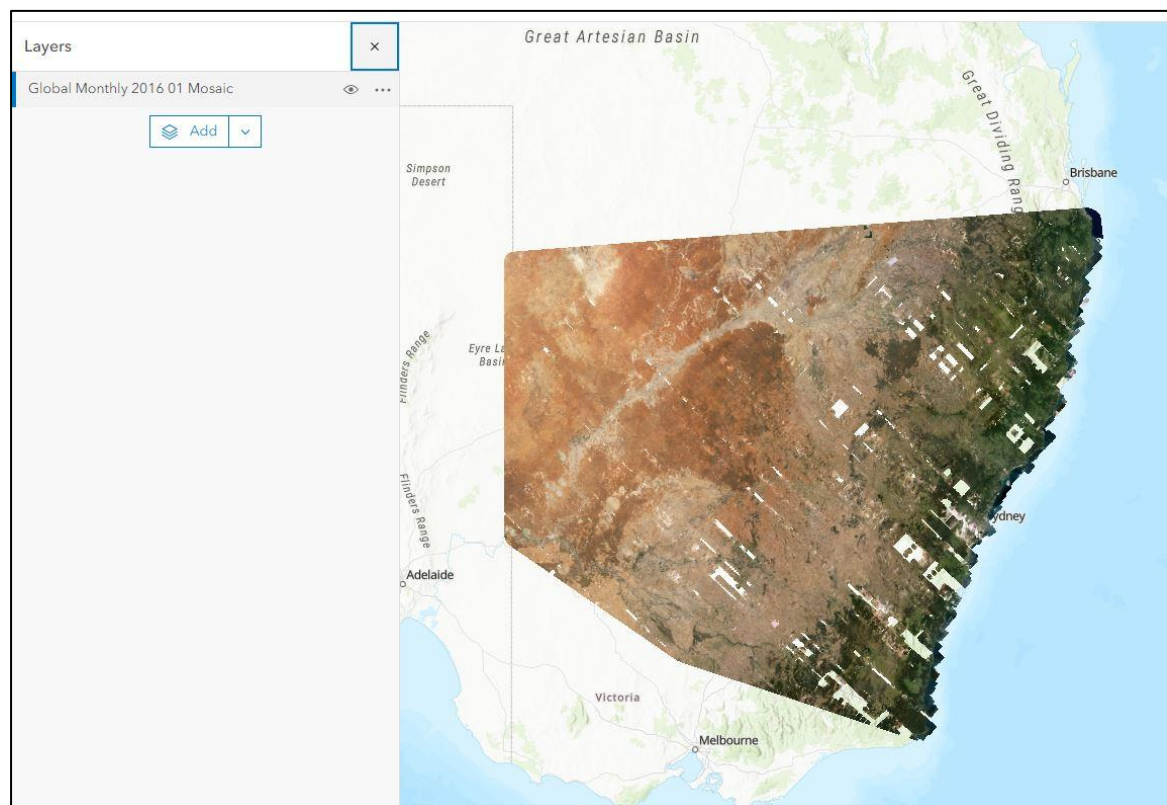
10

☐ Append only to requests that draw or query layers

- i. Click Next
- j. Now select the map that is shown there and click 'Add to map'. For example, in the image below Global monthly mosaic for January 2016 is being added.



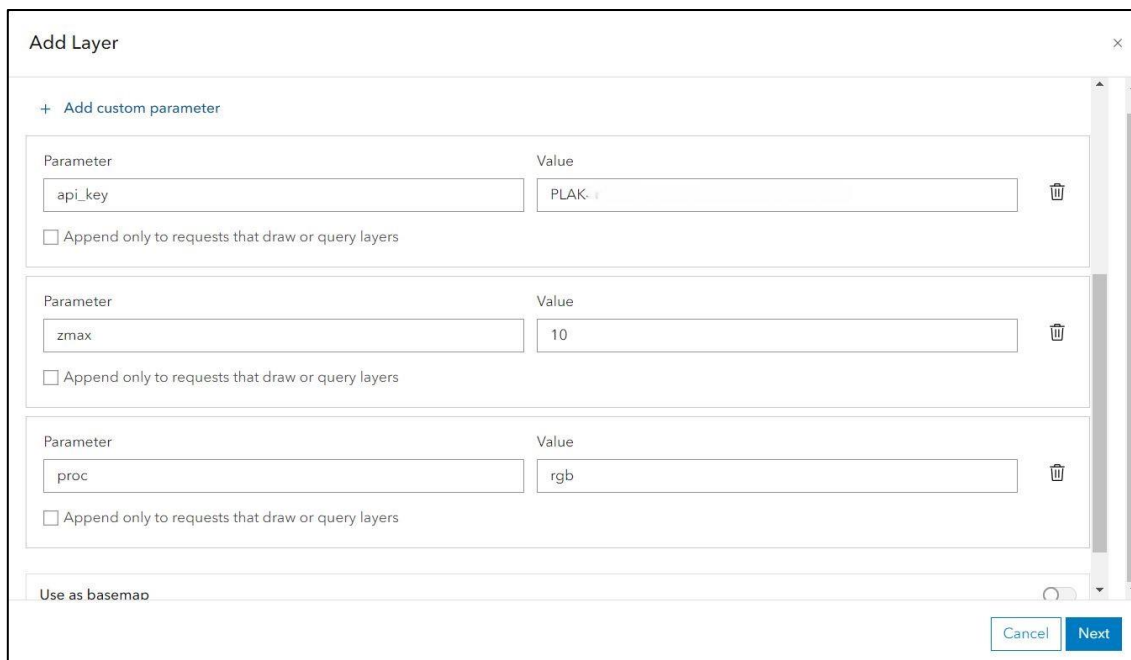
k. The map successfully loads into AGOL.



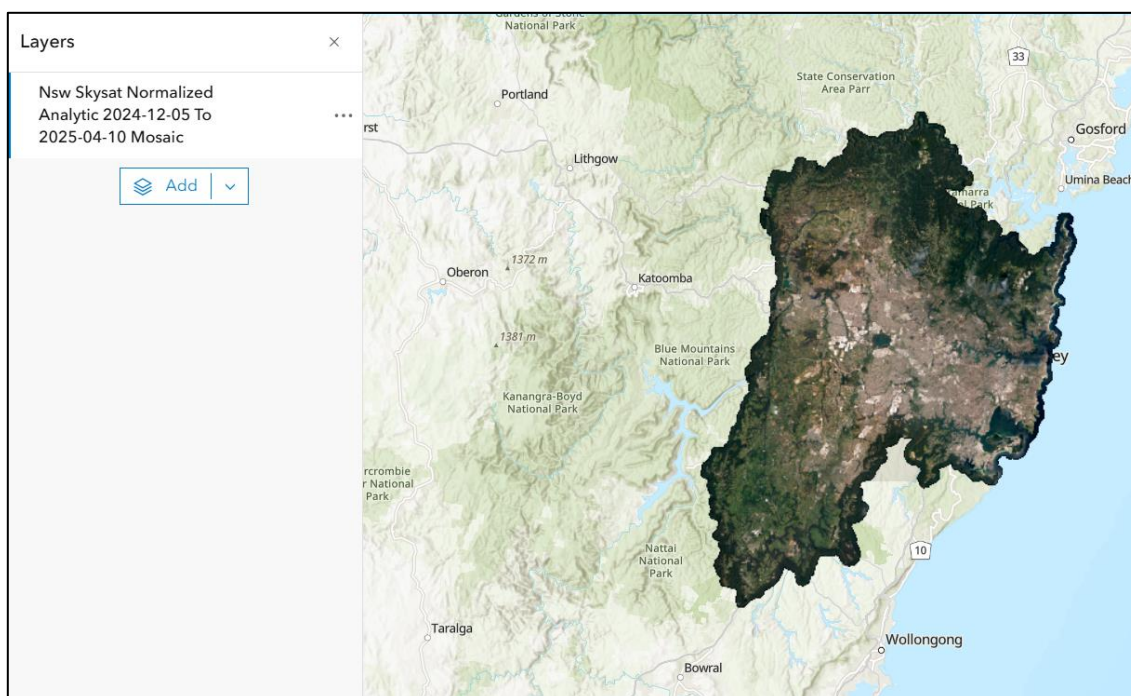


## 5. Adding Greater Sydney Skysat basemap to AGOL

The Greater Sydney Skysat basemap is available as '*Nsw Skysat Normalized Analytic 2024-12-05 To 2025-04-10 Mosaic*'. This basemap has a higher resolution than the Planet monthly mosaics and could be added to AGOL using the above steps. By default, this basemap loads as a false colour composite. However, if you wish to load this basemap as a true colour then add another custom parameter '**proc**' and set its value as '**rgb**'.



The basemap will load in true colour.



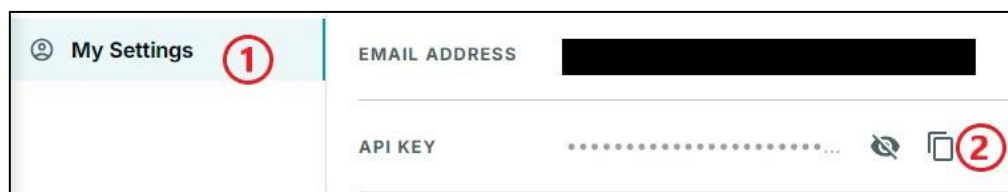
## Adding PlanetScope Individual Scenes (XYZ Tiles)

### 1. Web service URL format

- We will be using Planet's [API Tile Service](#). Open a Microsoft Word document or notepad and copy or note down the following URL:  
`https://tiles1.planet.com/data/v1/{item_type}/{item_id}/{z}/{x}/{y}.png?api_key={api-key}`

### 2. API Key

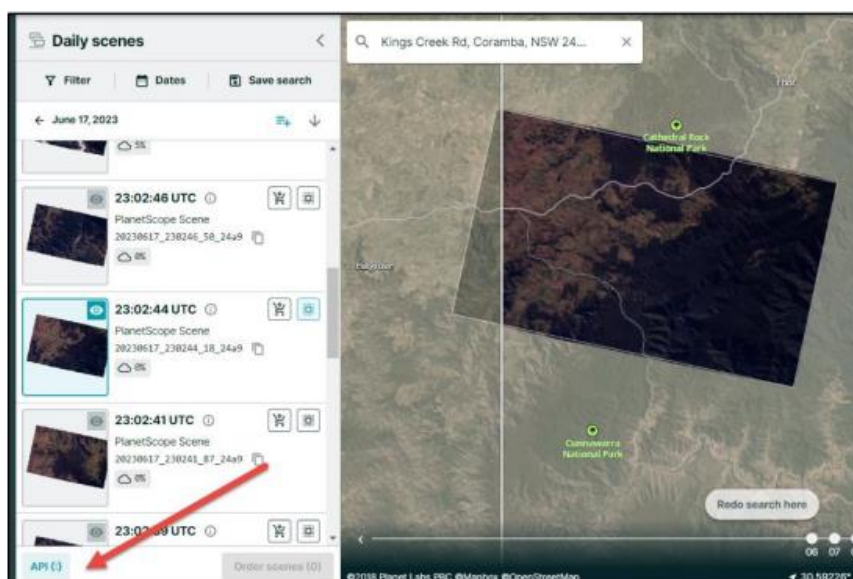
- A valid Planet account is required to authenticate web services by providing a valid api\_key as a query parameter. To find your api\_key please login to <https://www.planet.com/account/> in a new web browser.
- Navigate to *My Settings* > Copy API key



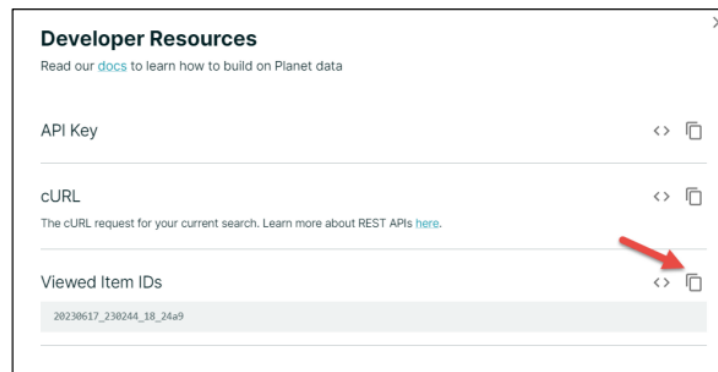
- Replace {api-key} in the URL above (step 1) with your copied API key.

### 3. Scene ID

- Next find your Scene ID for the image you wish to add into AGOL. You can use Planet Explorer, the ArcGIS Pro Add-in or QGIS Plug-in (if applicable) to find the IDs for the selected imagery items. Today we suggest using Planet Explorer by logging into: <https://www.planet.com/explorer/>
- Search the Explorer interface for a Scene. For more information please see: <https://developers.planet.com/docs/apps/explorer/how-to-searchimagery/>
- Select the image in the window and click on "API".



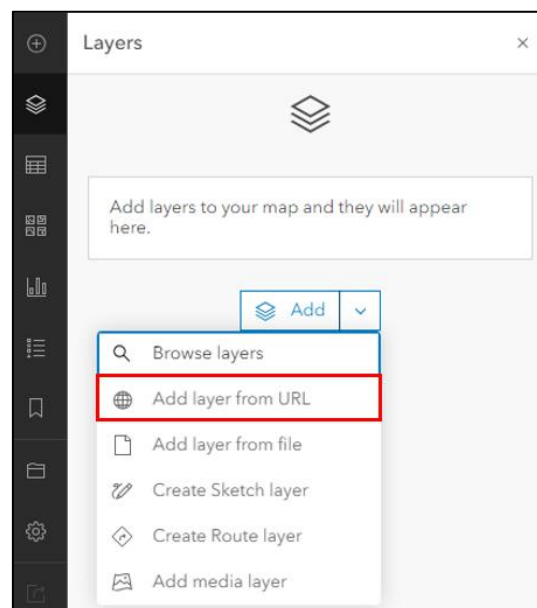
- d. Copy the Selected Scene IDs



- e. Replace {item\_id} in the URL (step 1) above with your copied scene ID.
- f. Next, update the {item\_type} with the item name i.e. “SkySatCollect” for the mosaic, or “SkySatScene” for single items. For PlanetScope use "PSScene". For example:  
[https://tiles1.planet.com/data/v1/PSScene/20230617\\_230244\\_18\\_24a9/{z}/{x}/{y}.png?api\\_key={api-key}](https://tiles1.planet.com/data/v1/PSScene/20230617_230244_18_24a9/{z}/{x}/{y}.png?api_key={api-key})


## 4. Add to AGOL

- a. Open ArcGIS Online (<https://www.arcgis.com/home/index.html>) or ArcGIS Enterprise Portal and login.
- b. Open the Map Viewer window. You can use either the New Map Viewer or the Map Viewer Classic.
- c. If using the New Map Window, please select *Layers*, then *Add layer from URL*.



- d. Add your newly created URL and select the type as “Tile Layer”.





The 'Add Layer' dialog box is shown. It has a title bar with a close button. Below the title bar is a 'URL' field containing a Planet API URL. Underneath the URL field, it lists supported layer types: CSV, GeoJSON, OGC WFS web service, OGC WMS web service, OGC WMTS web service, OGC API - Features, ArcGIS Server web service, KML, GeoRSS, and tile layer. Below this is a 'Type' dropdown menu currently set to 'Tile layer'. A description for 'Tile layer' is provided, explaining that it uses a formatted URL with placeholders for level, column, and row. At the bottom right are 'Cancel' and 'Next' buttons.


**Add Layer**

URL

[https://tiles1.planet.com/data/v1/SkySatCollect/20230811\\_033056\\_ssc6\\_u0001/{z}/{x}/{y}.png?api\\_key=PLA...](https://tiles1.planet.com/data/v1/SkySatCollect/20230811_033056_ssc6_u0001/{z}/{x}/{y}.png?api_key=PLA...)

Supported layer types are CSV, GeoJSON, OGC WFS web service, OGC WMS web service, OGC WMTS web service, OGC API - Features, ArcGIS Server web service, KML, GeoRSS, tile layer

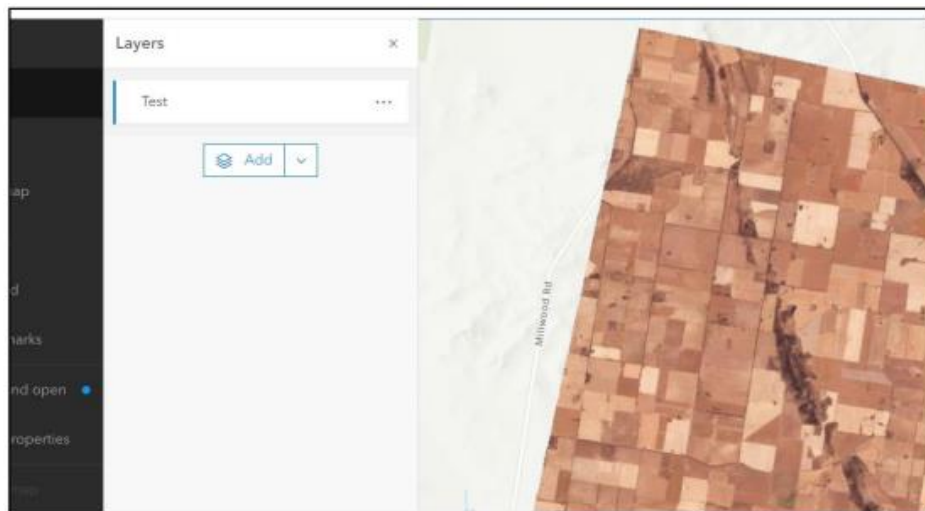
Type

 **Tile layer**

A set of map image tiles, where the formatted URL provides the level, column and row placeholders and optional subdomain:  
<https://domain.com/<path>/{z}/{x}/{y}.png> and <https://{subDomain}.domain.com/<path>/{level}/{col}/{row}.png>.

Cancel Next

- e. Fill in the Name, Attribution, and other options.
- f. Once added to the map, zoom in to the image.



- g. If using the Map Viewer Classic, please select “Add Layer from Web” and then select “A Tile Layer” from the drop-down.



## Add Layer from Web

What type of data are you referencing?

A Tile Layer ▼

The tile layer URL must contain the level, column and row placeholders. The subdomain placeholder is optional.

(e.g., <https://{subDomain}.domain.com/<path>/{level}/{col}/{row}.jpg>)

URL:

☐ Use as Basemap

Title:

Credits:

Extent:

Having trouble displaying your Tile layer? Help us improve this site by sending us the URL via the Contact Esri link.



## Notes

- Please note that Esri has limited functionality for saving XYZ tile layers into the Catalog for sharing with other groups and requires users to add XYZ services into maps directly.
- Further information on adding XYZ tile layers can be found here: <https://esribelux.com/2021/04/16/xyz-tile-layers-in-arcgis-platform/>
- We recommend this Tile Service approach over exporting the service from the Esri ArcGIS Pro Add-in or QGIS Plugin, as those services contain a token that expires. The option above will not expire as no token is required.

## Further Information

For more information about loading imagery in AGOL, please email [spatial.imagery@environment.nsw.gov.au](mailto:spatial.imagery@environment.nsw.gov.au)