Airbus OneAtlas Data Publisher User Guide

September 19, 2021

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Overview

The Airbus OneAtlas Data Publisher is a custom Toolbox used in ArcGIS Pro. The toolbox automates download, decompression, and publishing of products ordered through OneAtlas Data. Decompression, and publishing steps are optional, supporting the creation of Hosted Imagery Layers using ArcGIS Image for ArcGIS Online. Hosted Imagery Layers provide a rich set of capabilities including streaming in support of 2D and 3D visualization, custom band composites, stretch, classification, and extensive support for analysis.

Getting Started

The toolbox is used in ArcGIS Pro, and makes use of an API key that you create using your OneAtlas Data Subscription. This enables to toolbox to display a list of products that have been ordered through OneAtlas Data and delivered to your 'My Data' workspace.

Install ArcGIS Pro

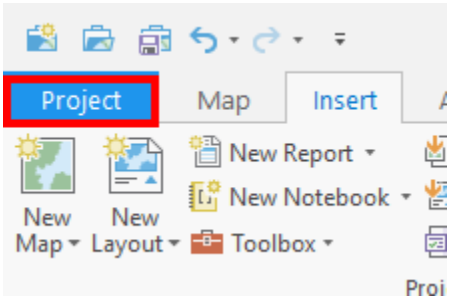
The Toolbox can be run using ArcGIS Pro version 2.7 or above. ArcGIS Pro installation software can be accessed by logging in to https://my.esri.com/

ArcGIS API for Python version

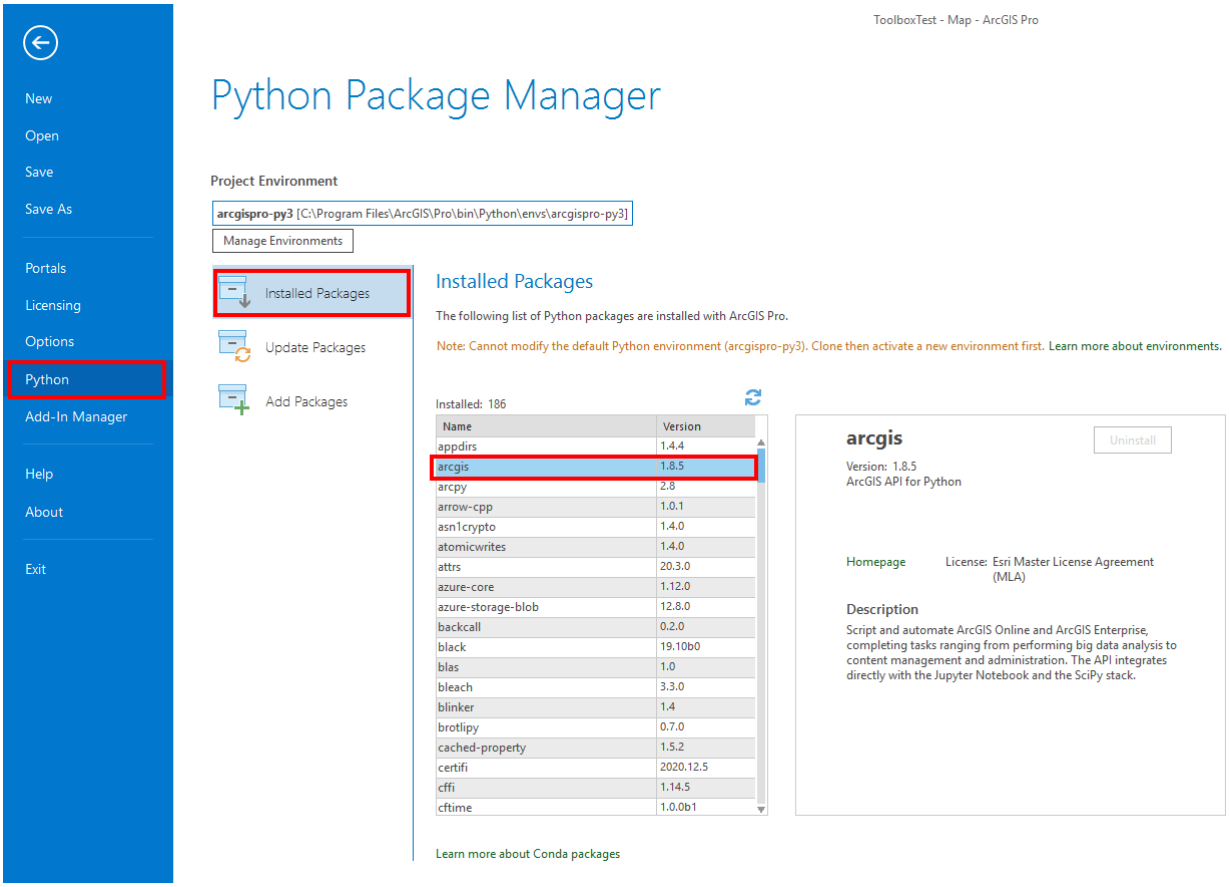
To enable authentication from the ArcGIS Pro active portal connection, version 1.9.0 (or greater) of the ArcGIS API for Python package is required. The installed version of each package is reported in the Python Package Manager.

To check version information for packages in your environment:

- Click the 'Project' tab in the main ribbon

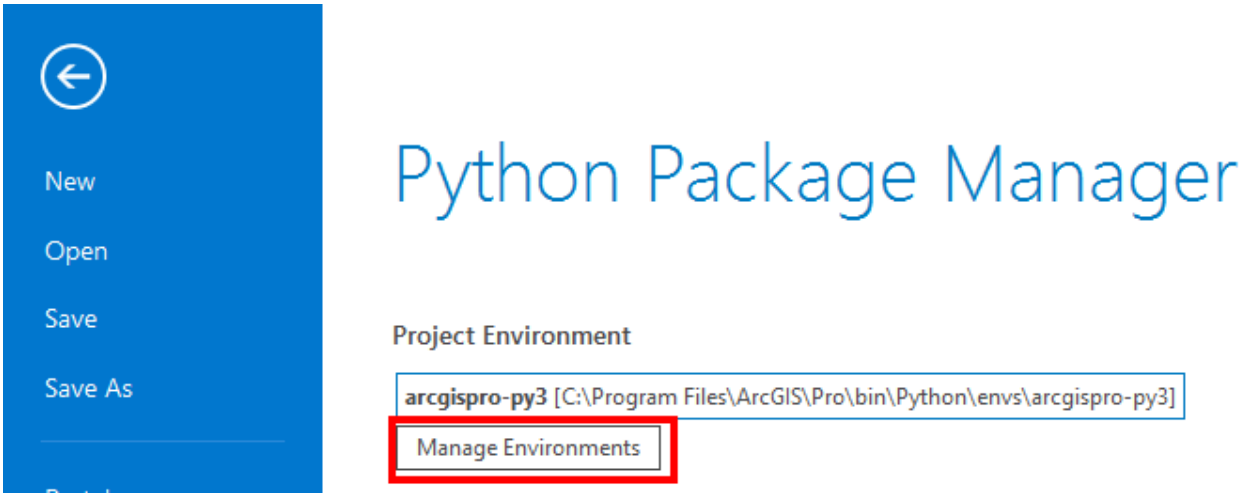


- Click the 'Python' tab to open the Python Package Manager
- In the list of Installed Packages select 'arcgis'
- If the installed version of arcgis is 1.9.0 or greater, then the toolbox requirement is already met
- If the installed version of arcgis is less than 1.9.0, it must be updated

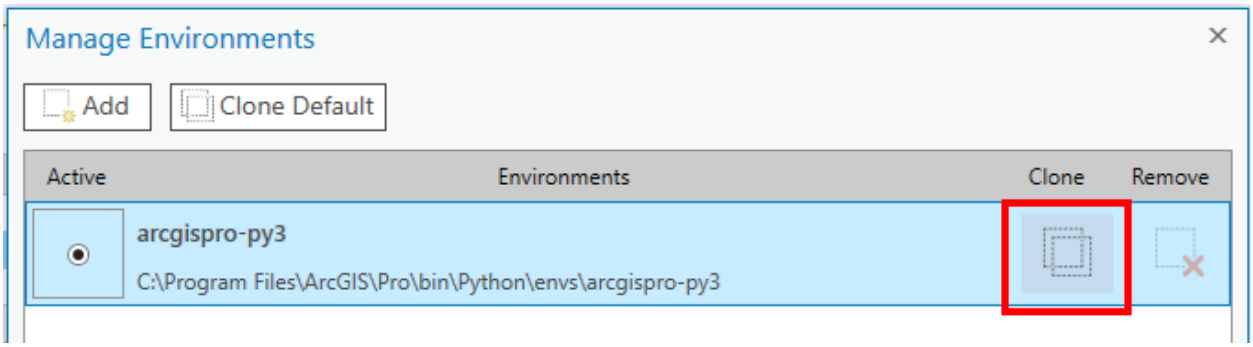


To update the arcgis version, first make a clone of your default ArcGIS Pro Python environment:

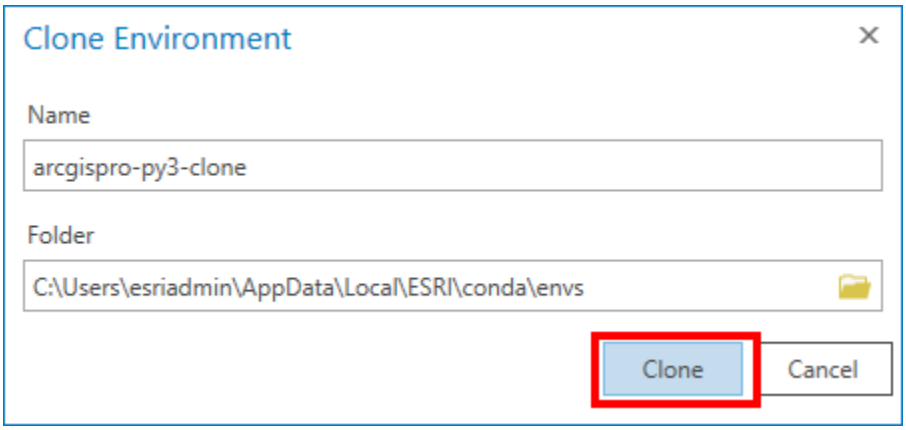
- Do not modify the default environment (arcgispro-py3). First, create a new environment to modify by clicking on the 'Manage Environments' button



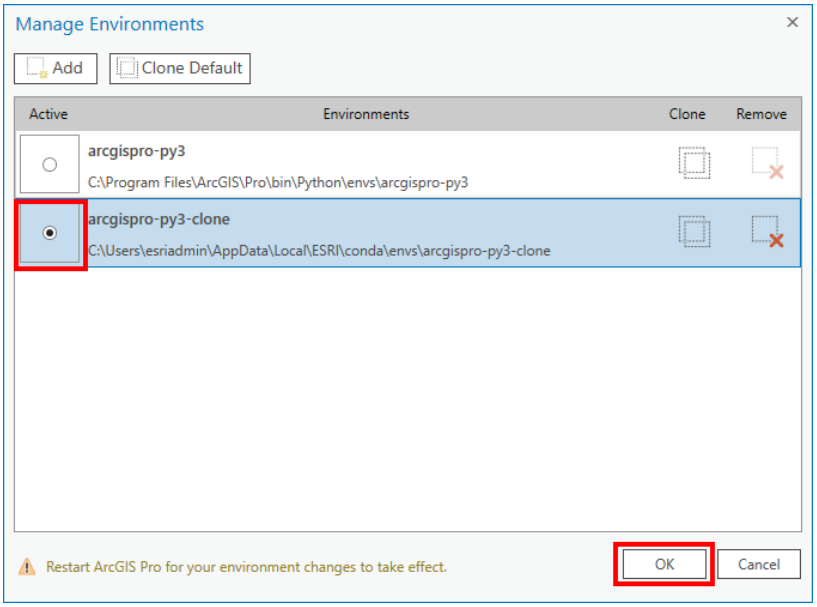
- Locate the default environment and click the 'Clone' button in that row



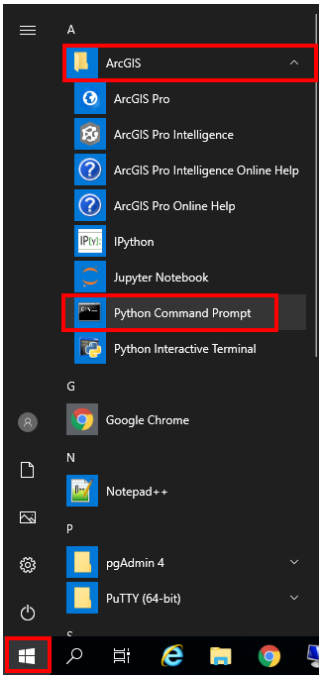
- Optionally, customize the environment name and folder
- Click the 'Clone' button. The clone process will take several minutes to complete



- The clone process will take several minutes to complete. When finished, make it the Active environment, and click the 'OK' button

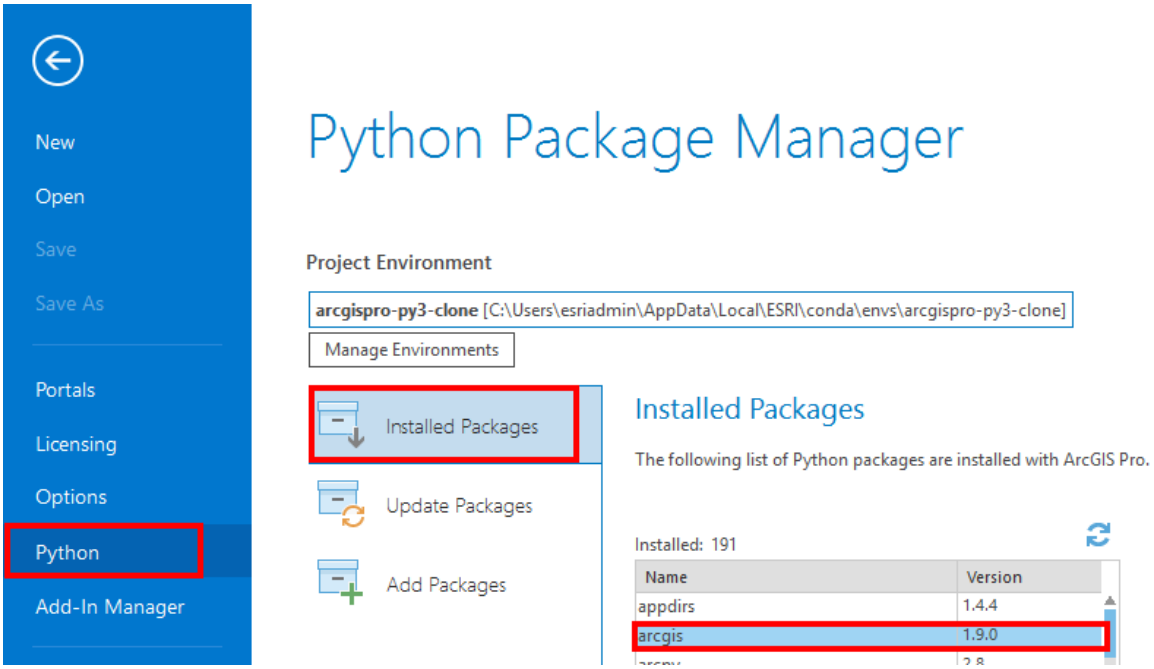


- Close all open instances of ArcGIS Pro on your machine
- Next open the Python Command Prompt. Start > ArcGIS > Python Command Prompt



- The environment name that was set as the Active environment in ArcGIS Pro will be shown in parenthesis

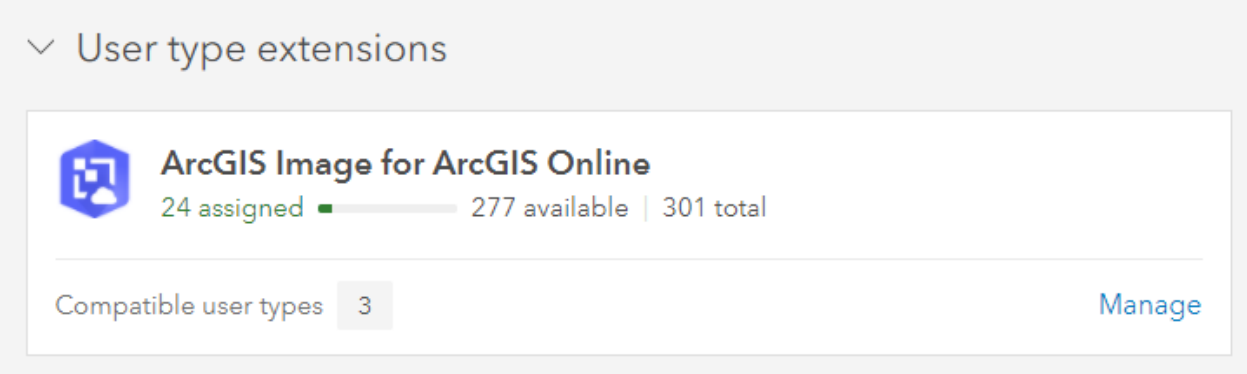
- Enter the command below and then press the 'Enter' key
  `pip install -U arcgis`
- When finished, inspect the output to ensure the update concluded normally
- Close the Python Command Prompt



ArcGIS Online Organization

Publishing Hosted Imagery Layers in your ArcGIS Online organization requires the ArcGIS Image for ArcGIS Online user type extension. A member with administrator role for the ArcGIS Online organization can check if it has been authorized using this URL pattern (be sure and replace YOURORG with the appropriate text) https://YOURORG.maps.arcgis.com/home/organization.html?#licenses

Scroll to the 'User type extensions' section and look for ArcGIS Image for ArcGIS Online extension.



If you do not find this user type extension, you can learn more about it here: https://www.esri.com/en-us/arcgis/products/arcgis-image/options/arcgis-online

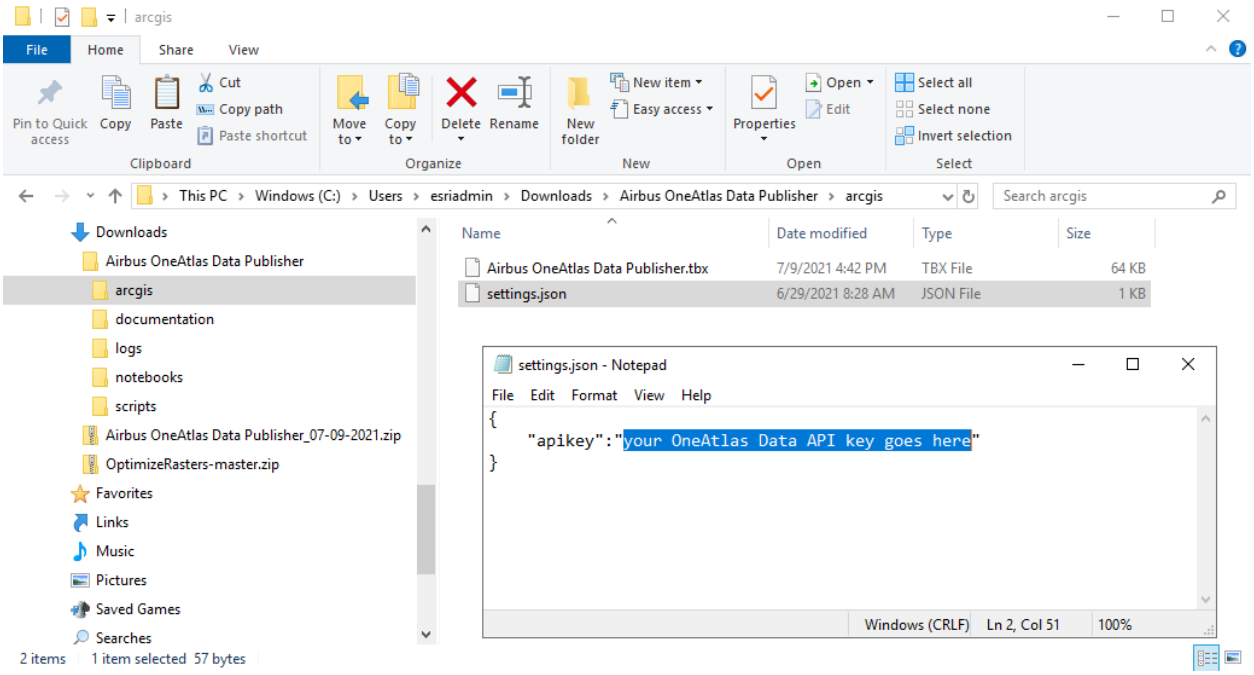
This page has a contact section at the bottom to connect with an Esri representative for licensing your ArcGIS Online organization with ArcGIS Image for ArcGIS Online.

Extract the Toolbox ZIP Archive to Local Disk

After obtaining a copy of the Airbus OneAtlas Data Publisher toolbox, extract it to a local folder in which you have **full permission** to read, write, and delete files.

Add Your OneAtlas Data API Key to the settings.json File

The settings.json file is located in the 'arcgis' subdirectory of the extracted toolbox archive. Open it in your favorite text editor and replace the text ***your OneAtlas Data API key goes here*** with your OneAtlas Data API key. Save the settings.json file after this change.

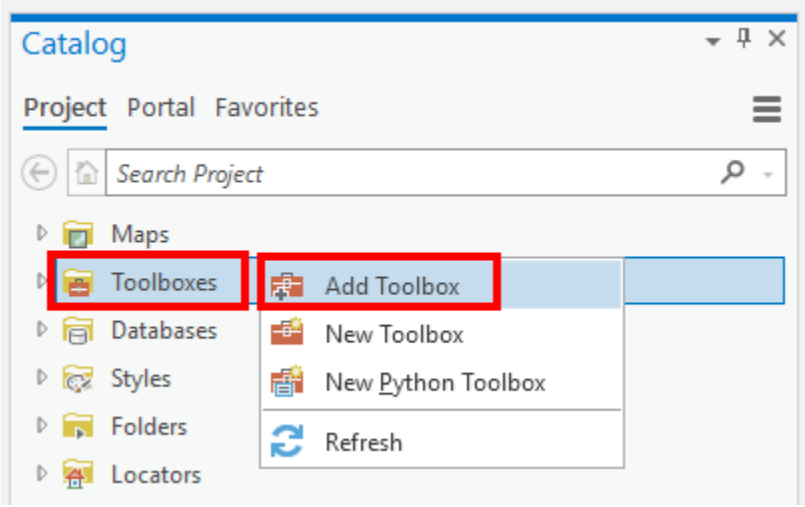


Using the Toolbox

With the arcgis version requirement met in your Python environment, and your OneAtlas Data API key entered into the settings.json file, the toolbox is now ready to be used.

To add the toolbox to your project:

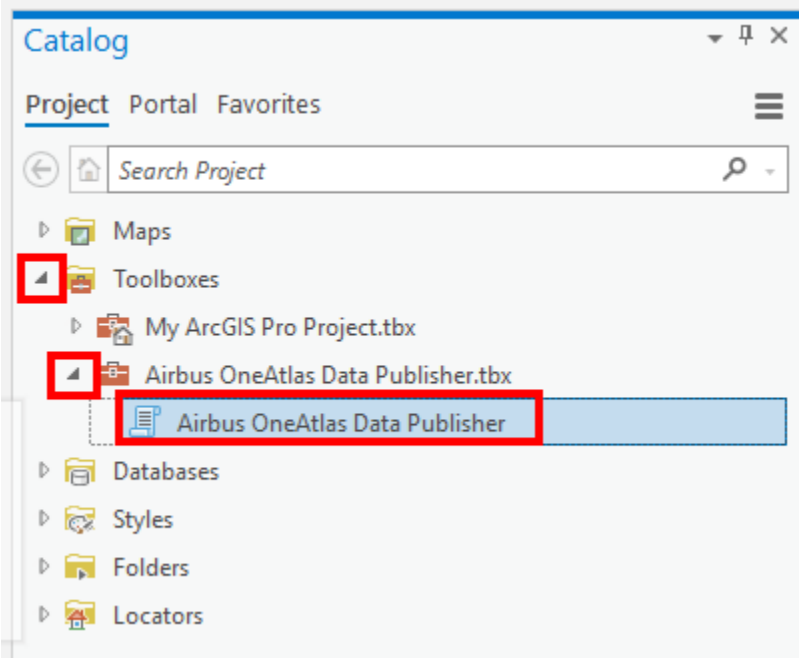
- In the 'Catalog' pane, right-click on the 'Toolboxes' item, and select 'Add Toolbox'



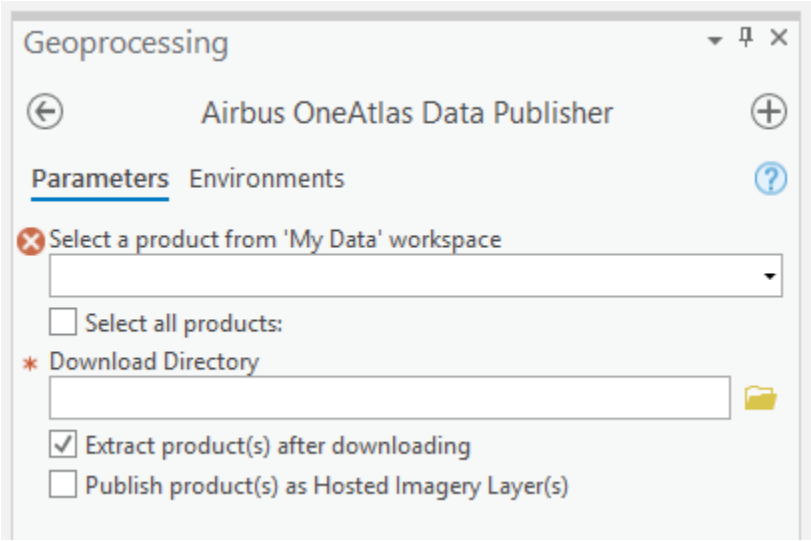
- Browse to the location on disk, and select the 'Airbus OneAtlas Data Publisher.tbx' file

To launch:

- Open a Project in ArcGIS Pro, and make sure there is an active Map
- In the 'Catalog' pane, expand the 'Toolboxes' item
- Locate the 'Airbus OneAtlas Data Publisher' toolbox and click to expand
- Double-click the 'Airbus OneAtlas Data Publisher' script



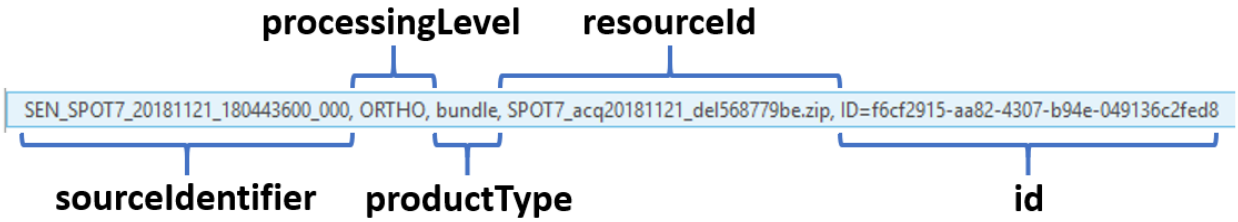
- The Airbus OneAtlas Data Publisher GeoProcessing Tool is opened



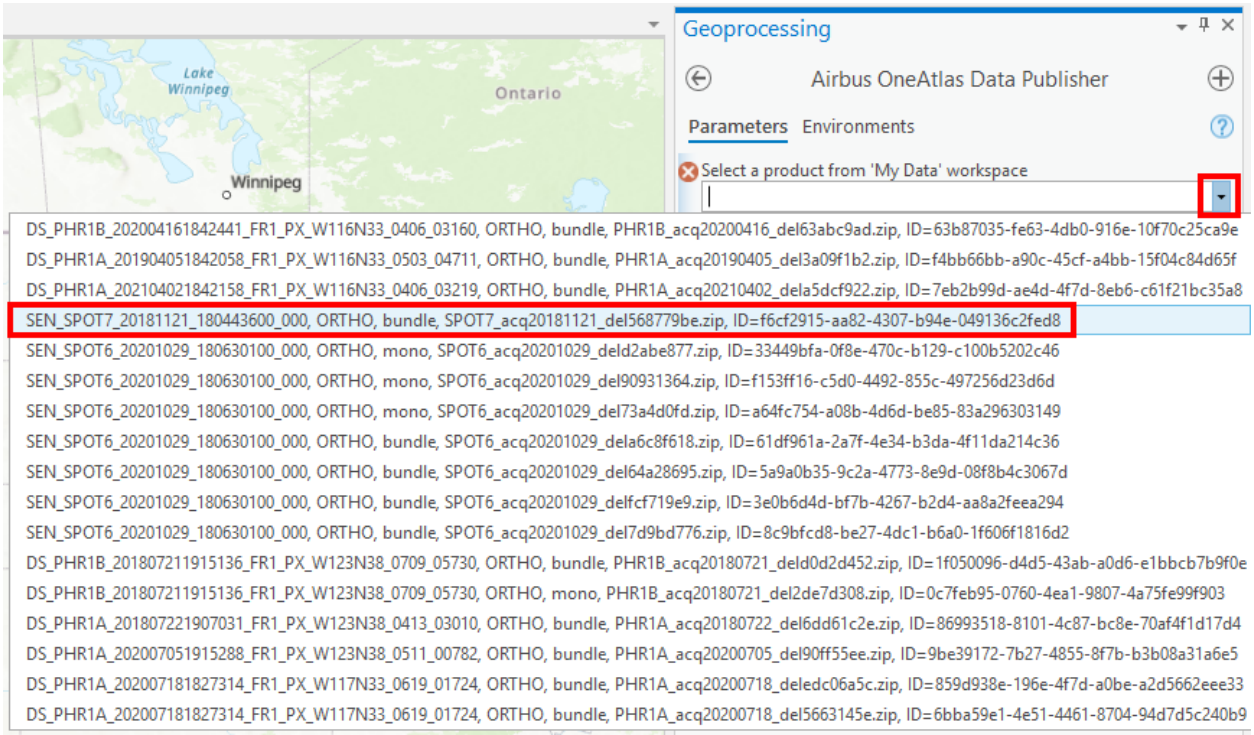
At this point, a feature class (Airbus_Results) is added to the Project's default geodatabase, and loaded into the 'Contents' pane. This layer will be used to show the selected product geometry on the map.

Selecting a Product

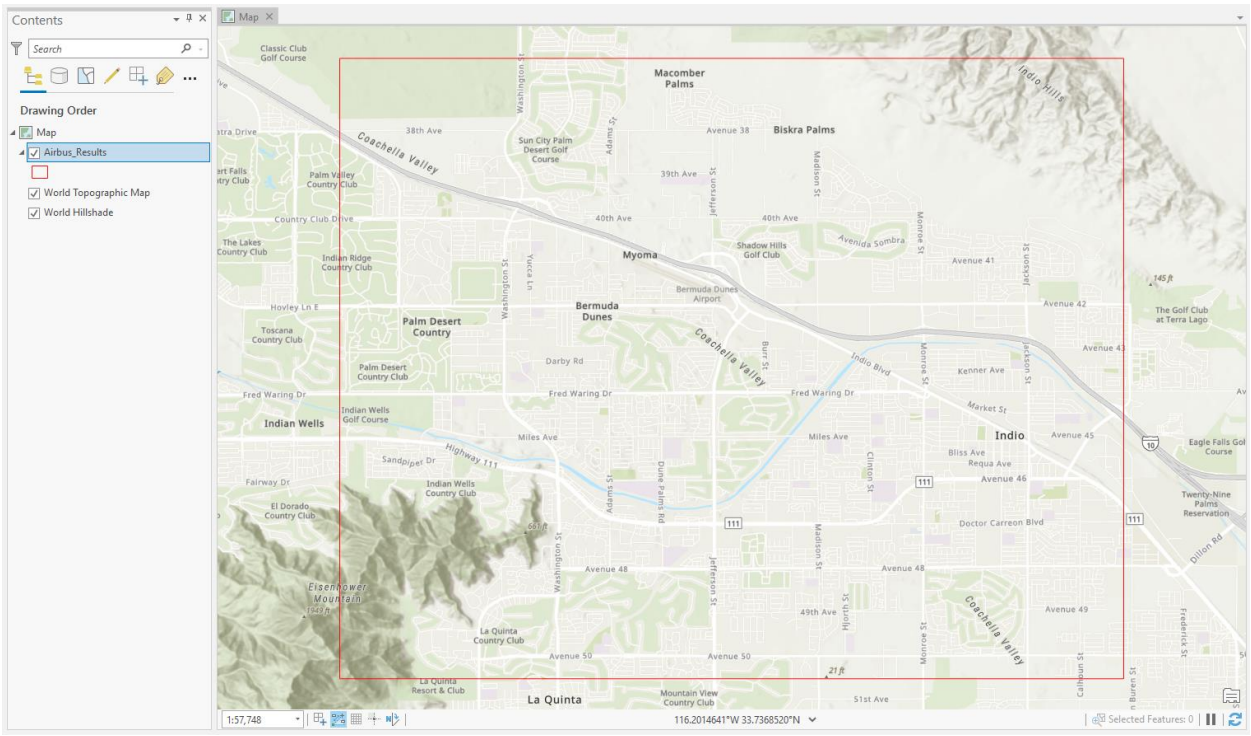
The Select a product from 'My Data' workspace control contains a list of the products available for download. It lists key information about each product including 'sourceIdentifier', 'processingLevel', 'productType', 'resourceId', and 'id'.



- Click the control and select one of the available products



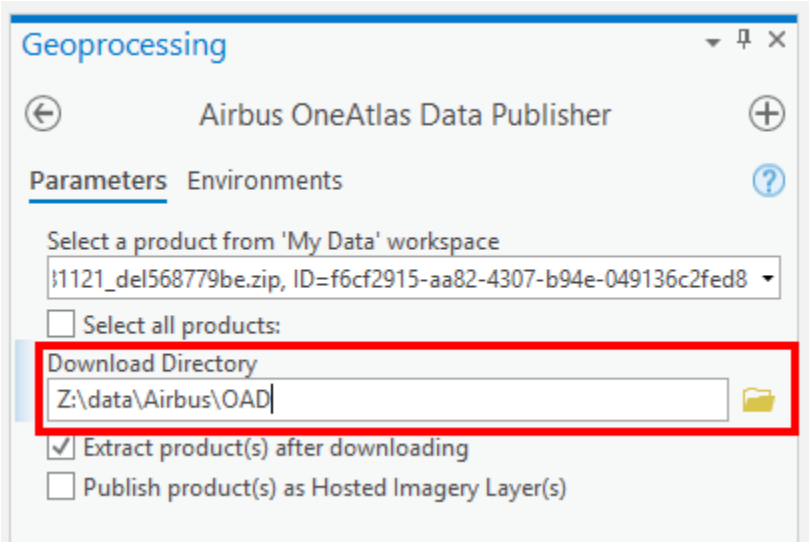
After a selection is made, additional information is accessed from OneAtlas Data API including the product geometry (also known as the footprint). This geometry is loaded into the Airbus_Results feature class, and the active Map automatically zooms to the selected product's extent. Any new product selection will flush the previous geometry, load the new one, and zoom to its extent on the map. This can be helpful in deciding which product you need to work with.



Downloading

Before downloading, the 'Download Directory' parameter must first be set.

- Click the folder icon on the 'Download Directory' control and select a location to store your OneAtlas Data product downloads. The selected directory will be stored in the settings.json file for future recall when using this toolbox

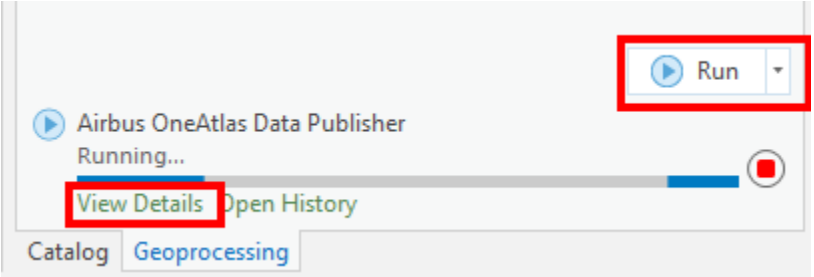


- By default, the 'Extract product(s) after downloading' parameter will be checked. If you do not wish for the product ZIP archive(s) to be extracted automatically by the toolbox, uncheck this option

Download a single product

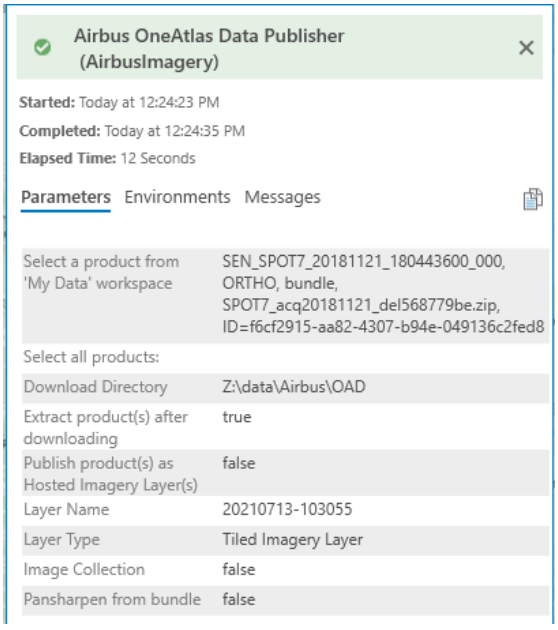
To download the selected product:

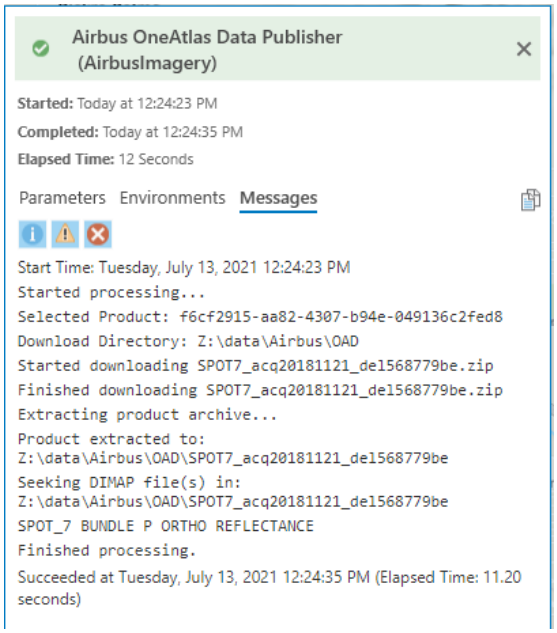
- Click the ‘Run’ button



While the process is running (and also when complete), messages are available to view by clicking on the ‘View Details’ text link. This opens process details panel including information for:

- ‘Parameters’ used
- ‘Messages’ from the processing

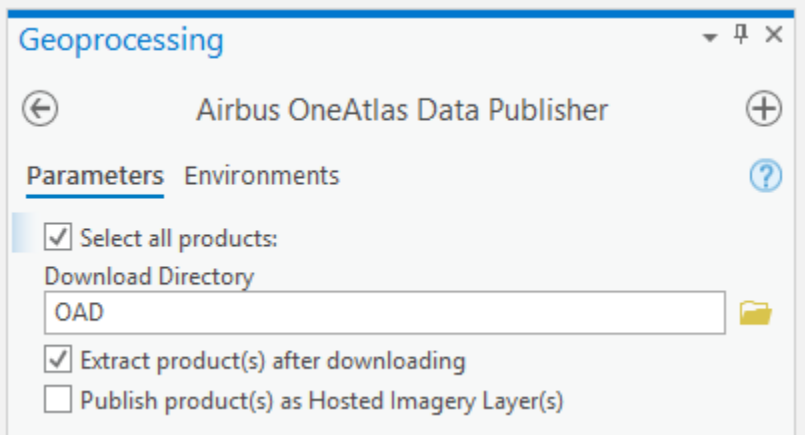




Downloading all products

To download all products from the ‘MyData’ workspace:

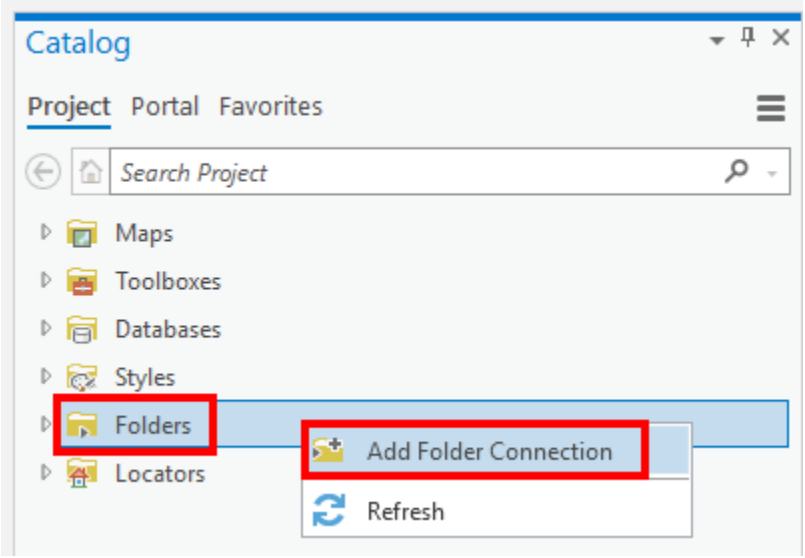
- Check the ‘Select all products’ Parameter. *NOTE: While checked, the ‘Select a product from MyData workspace’ control is disabled. To return to single product selection, just uncheck the ‘Select all products’ control.*
- Click the ‘Run’ button



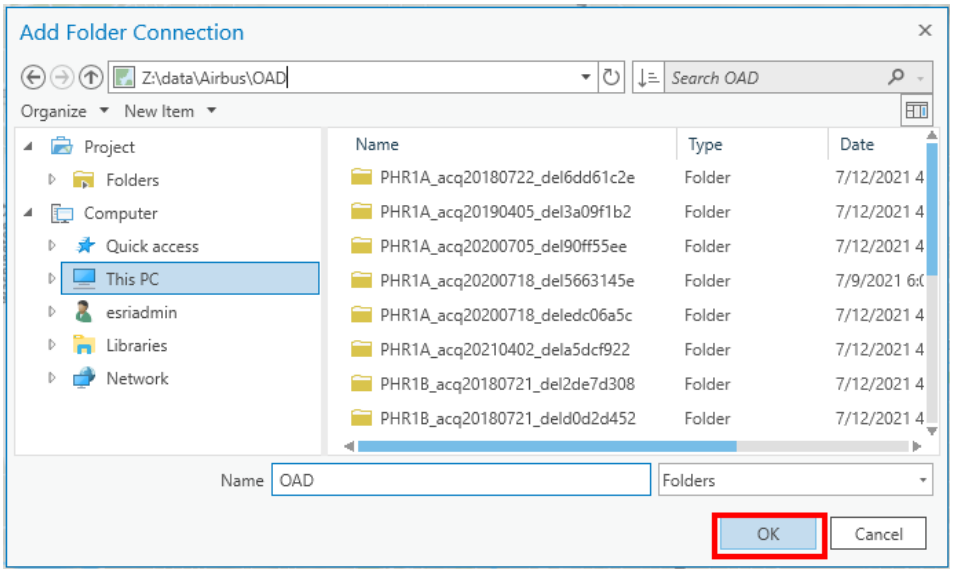
Making a Folder Connection to the Download Directory

After downloading, ArcGIS Pro can most effectively exploit OneAtlas Data products by making a Folder Connection.

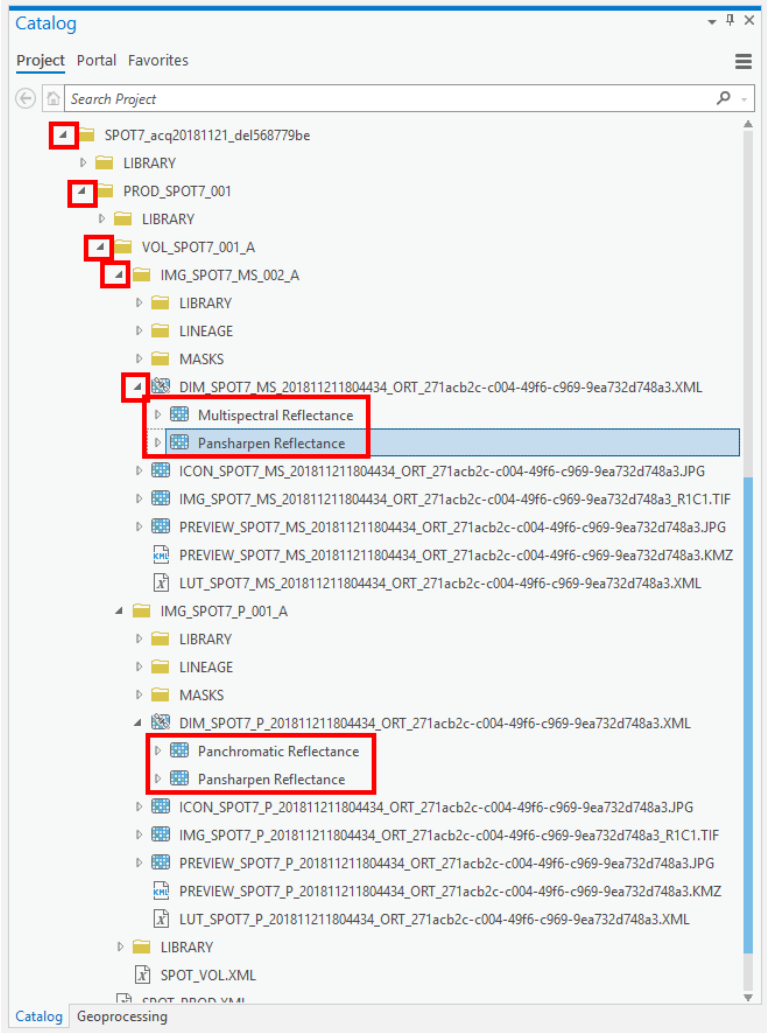
- In the 'Catalog' pane right-click on the 'Folders' item
- Select 'Add Folder Connection'



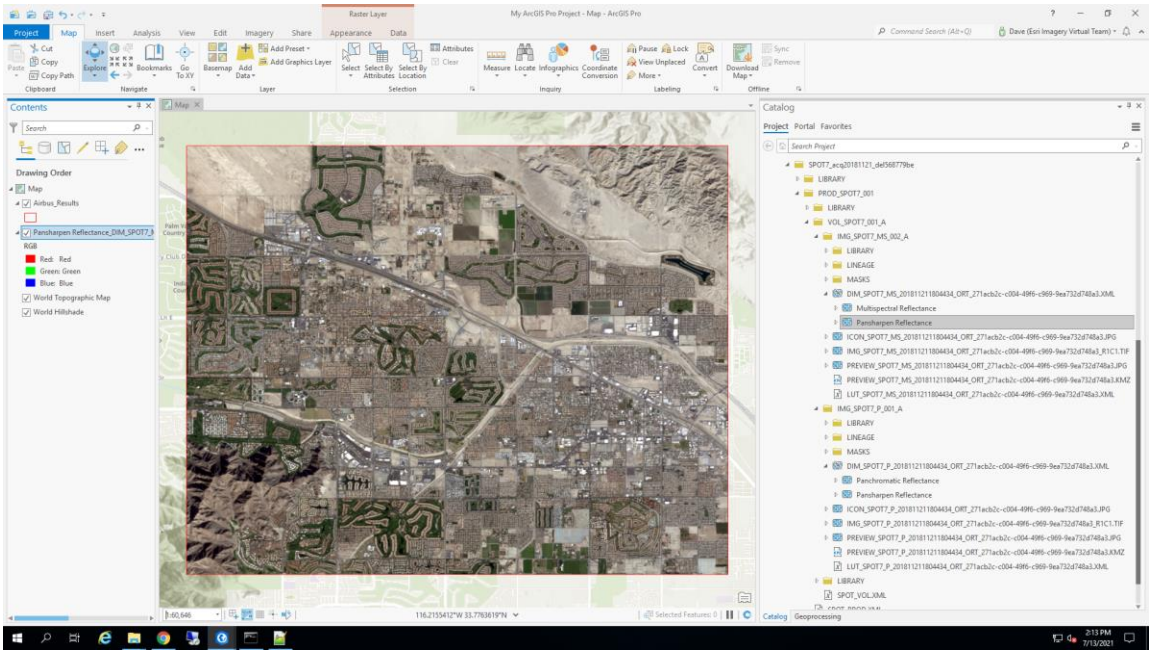
- Browse to, and select the same directory that was specified in the 'Download Directory' Parameter
- Click the 'OK' button



- In the 'Contents' pane, expand this new folder connection to reveal all of the downloaded products
- Expand one of the products until the DIM_* file(s) are exposed
- Expand the DIM_ * file to reveal the processing templates that are available for that product



- Click, then drag-and-drop the processing template onto your map
- The product will be loaded for visualization and analysis

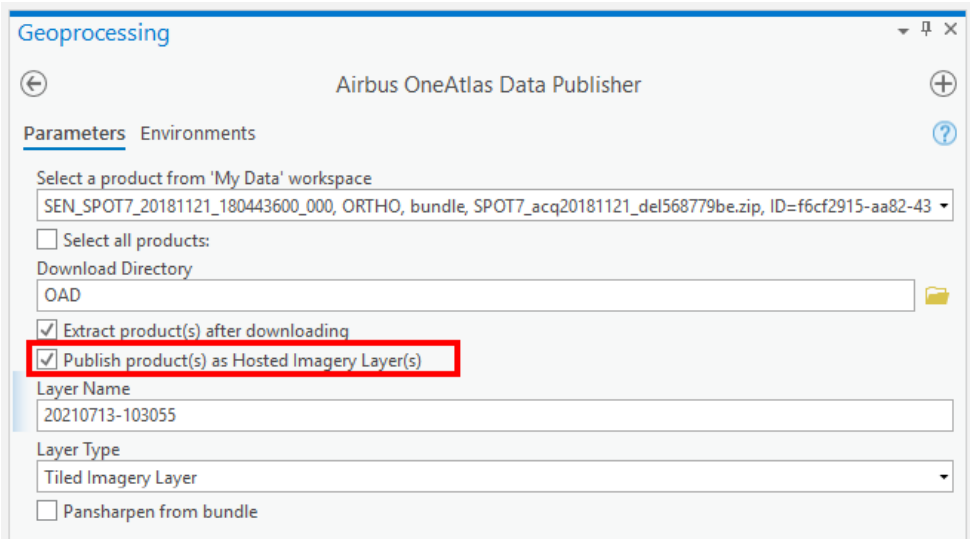


Publishing Hosted Imagery Layers

Downloading is a requirement for publishing. However, if you've already downloaded a product in a previous step, the toolbox will recognize this and skip the download step, moving on to publishing.

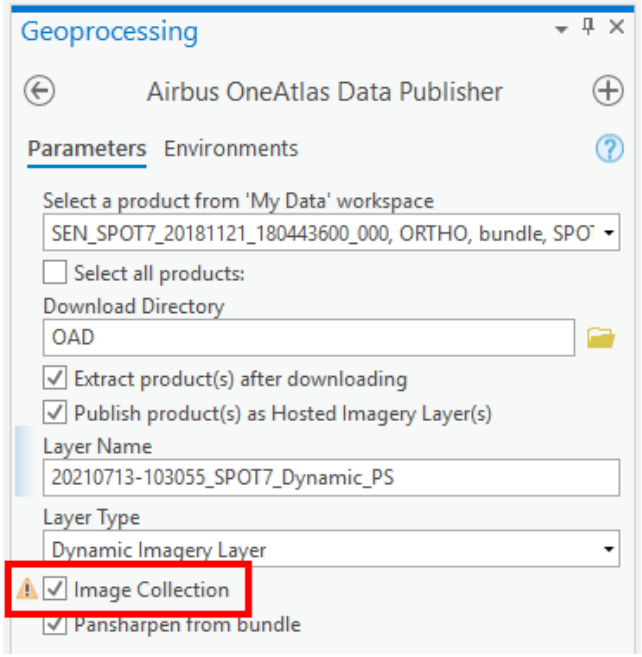
To publish a Hosted Imagery Layer:

- Using the 'Select product from 'My Data' workspace' control, make a product selection
- Check the box next to the 'Publish product as Hosted Imagery Layer' parameter. Some new parameters will be enabled



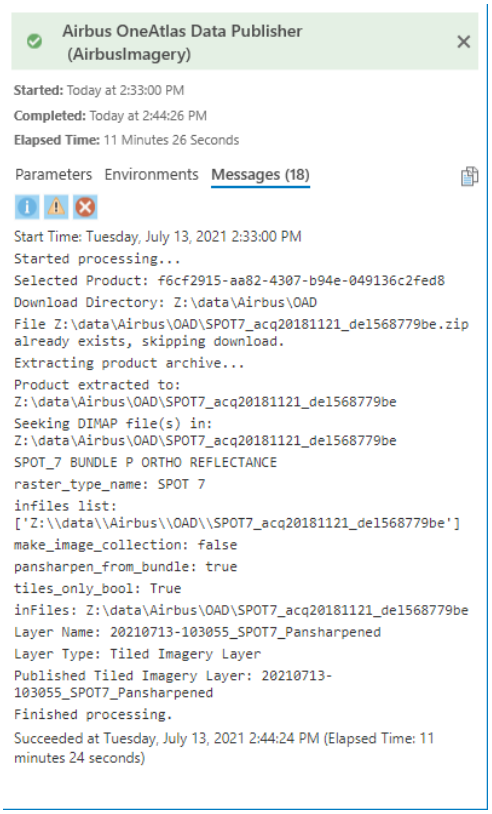
- A Layer Name prefix is offered based on the current datetime stamp. This can be replaced, or modified with additional characters
- A Layer Type selector is also presented. 'Tiled Imagery Layer' is the default. This can be changed to 'Dynamic Imagery Layer'.

- When selecting ‘Dynamic Imagery Layer’, a new ‘Image Collection’ parameter is enabled. This is a special configuration of Dynamic Imagery Layer that provides the most options of any Hosted Imagery Layer. The Image Collection configuration will build

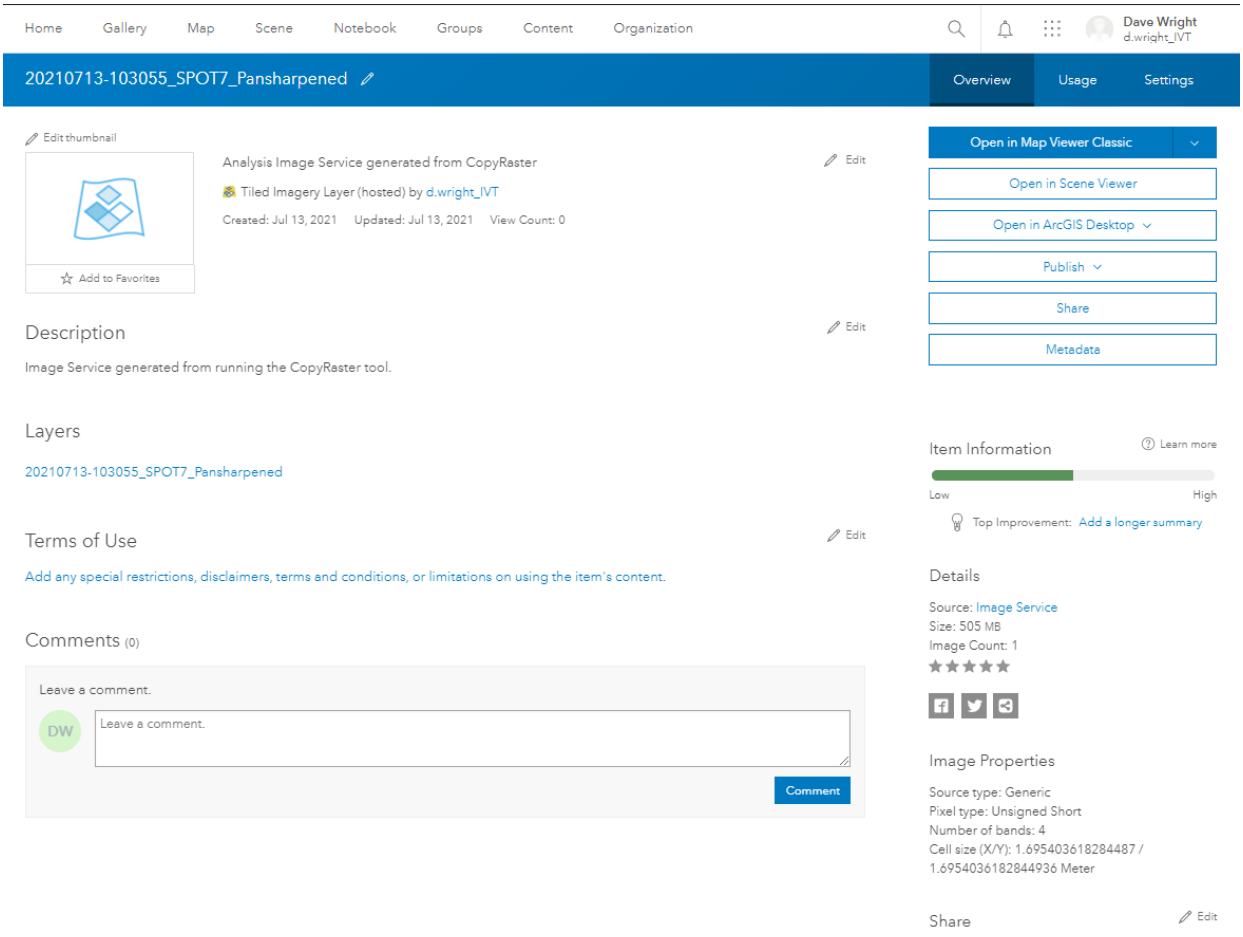


  - *NOTE: Unlike all other configurations of Hosted Imagery Layers, uploaded images will **not** be converted to Cloud Raster Format*
- If the selected ‘productType’ is ‘bundle’, then it was delivered with separate bands for the multispectral, and panchromatic imagery. In this case, another parameter is enabled that will apply pansharpening when publishing the product. To enable pansharpening of the selected bundle product, check the box next to the ‘Pansharpen from bundle’ parameter
- Click the ‘Run’ button

Monitor the messages by clicking ‘View Details’ at the bottom of the Geoprocessing tool.

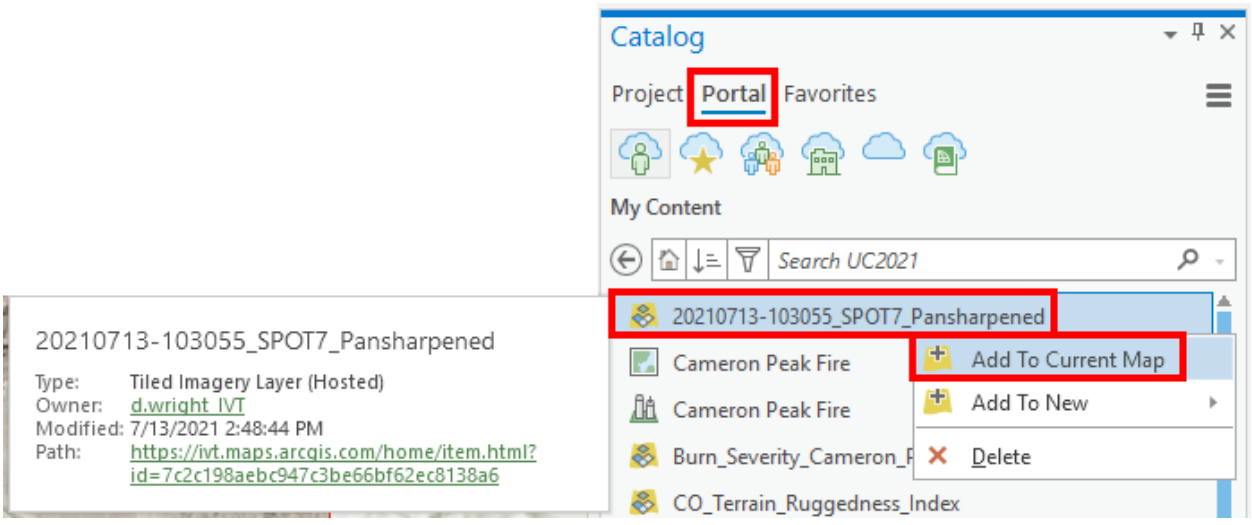


When complete, you can view your new Hosted Imagery Layer in ArcGIS Online by logging into your organization's portal, and clicking the 'Content' tab. The new layer will be listed here and made available for use in web maps, web apps, and sharing with others.



Hosted Imagery Layers can also be discovered, and consumed in ArcGIS Pro.

- In the 'Catalog' pane, click the 'Portal' tab



- Navigate folders or filter content using the tool buttons
- Hover on an item to see the layer type and other information
- To add the Hosted Imagery Layer to a map, right-click it and select 'Add to Current Map'. You can also 'Add to New' (Map or Scene)

Logfiles

When the toolbox is used, a logfile is generated in the same directory structure as your *.tbx file providing output on the toolbox operations. The 'logs' folder will get created at the same directory level as the arcgis folder level. The log file will be created as a *.txt file using a current datetime stamp as the base file name. The logfile can be a useful resource for understanding the workflows, and for technical support.

Example: ..\logs\log-20210709-163006.txt

Python Notebooks

Key API methods used in this toolbox are also available as a learning resource. The Notebooks can be found in the same directory structure as your *.tbx file. The 'notebooks' folder is at the same directory level as the arcgis folder level.

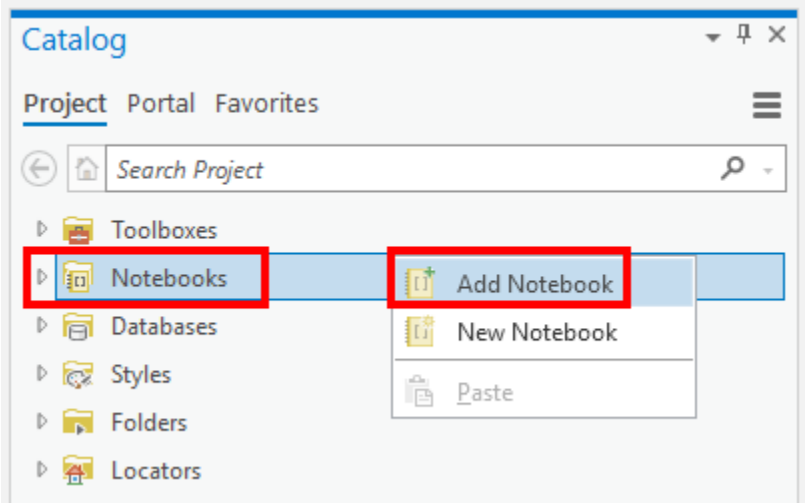
Notebooks included:

- ..\notebooks\OneAtlas Data methods.ipynb
- ..\notebooks\Publish Airbus Imagery Layers.ipynb

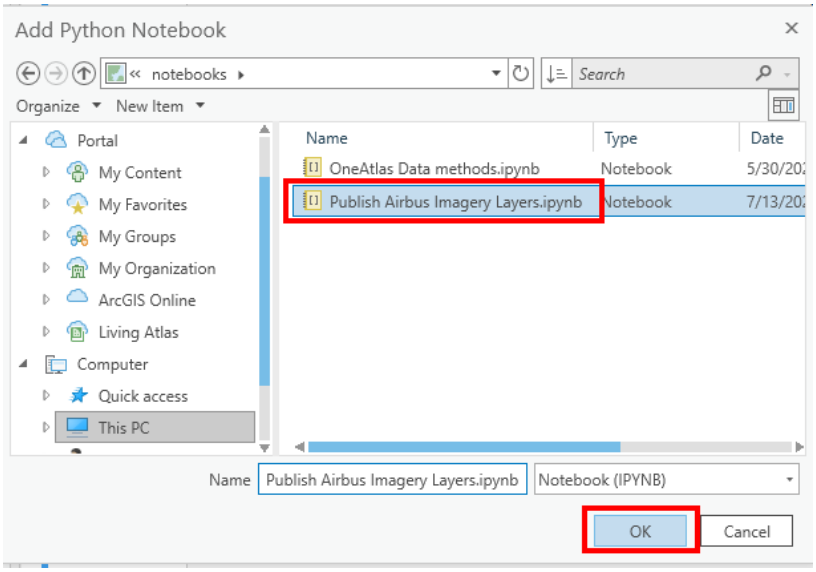
These notebooks can be loaded in ArcGIS Pro and executed cell by cell to better understand the respective Airbus and Esri APIs and the bridge that this toolbox builds between them.

To load a notebook in ArcGIS Pro:

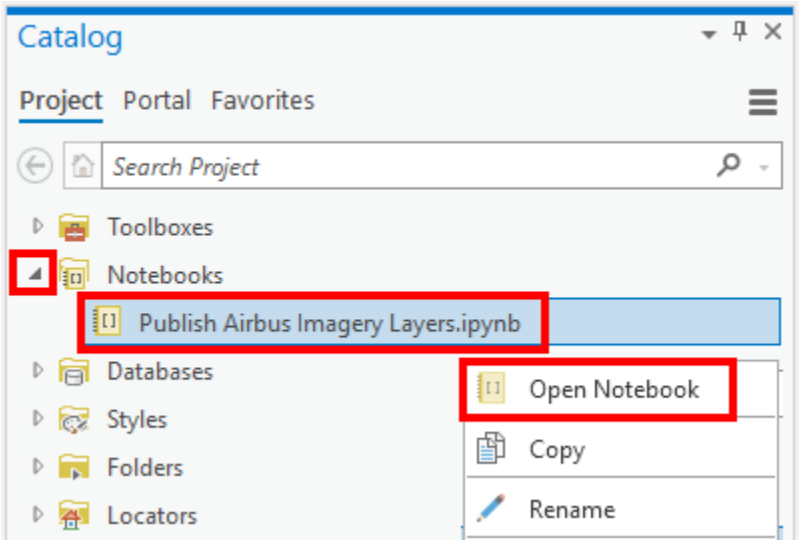
- In the 'Catalog' pane right-click on the 'Notebooks' item
- Select 'Add Notebook'



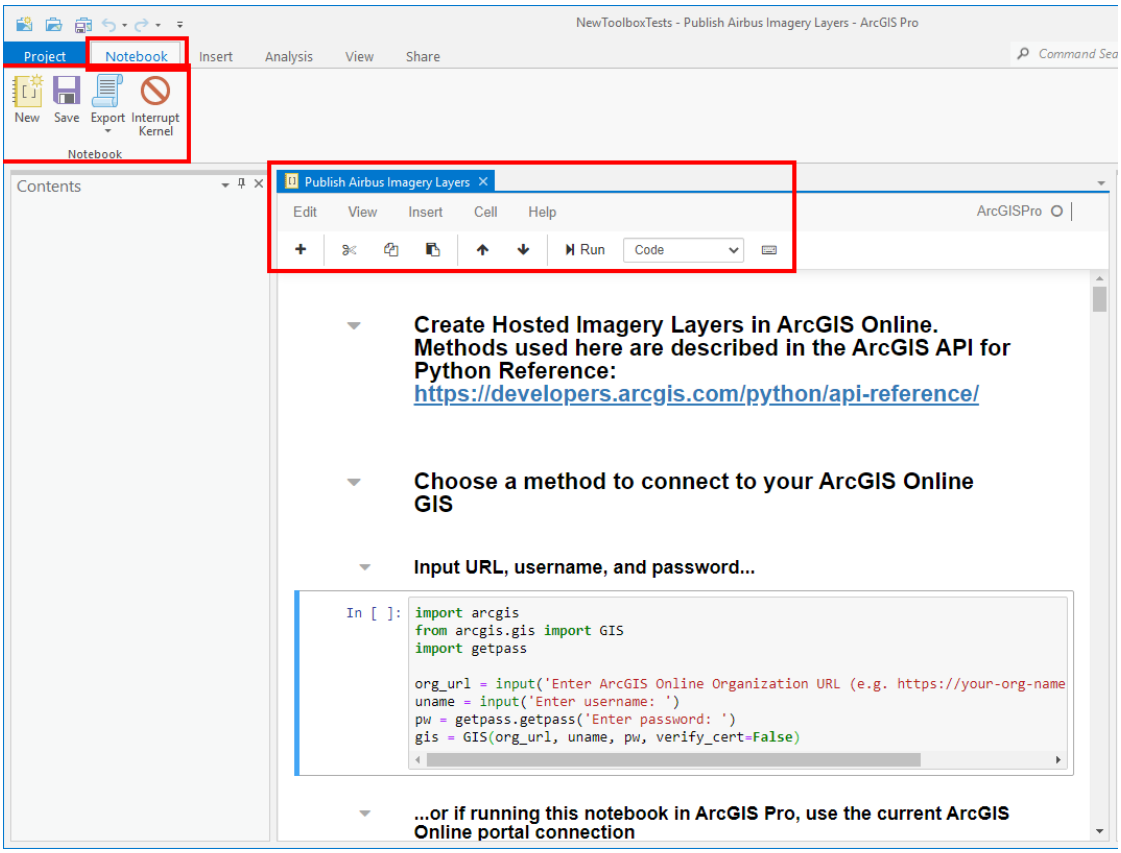
- Browse to, and select the one of the *.ipynb files in the dialog



- Click the 'OK' button
- Expand the 'Notebooks' item to reveal the new notebook
- Right-click the notebook and select 'OpenNotebook'



- The Notebook is opened in a new tab in ArcGIS Pro, along with text menu items for help including keyboard shortcuts. Also, a new 'Notebook' tab is enabled in the main ribbon toolbar to save edits, export, and interrupt the kernel



Toolbox Workflow Dependencies

The Airbus OneAtlas Data Publisher Toolbox supports automation of multiple workflows, which have various requirements listed in the table below.

Toolbox Workflow	Requirement(s)	Notes
Connect to the OneAtlas Data 'MyData' workspace for a list of delivered products	• ArcGIS Pro • Subscription for OneAtlas Data + API key	
Download all products from the OneAtlas Data 'MyData' workspace	• Subscription for OneAtlas Data • OneAtlas Data API key	Download and extract products to local storage for direct use in ArcGIS Pro
Publishing Hosted Imagery Layers using the Airbus OneAtlas Data Publisher Toolbox	• ArcGIS Pro • ArcGIS API for Python minimum version 1.9	Update the ArcGIS Pro Python Environment with this arcgis package version requirement, described on p.6 of this guide
Publishing Hosted Imagery Layers using the Python Notebooks	• ArcGIS API for Python minimum version 1.8.3	Python Notebooks can be run using ArcGIS Pro, ArcGIS Online, or Jupyter

References

Item	Reference
OneAtlas Data API Reference	https://api.oneatlas.airbus.com/api-catalog/oneatlas-data/index.html
ArcGIS API for Python	https://developers.arcgis.com/python/api-reference/
ArcGIS Image for ArcGIS Online	https://www.esri.com/en-us/arcgis/products/arcgis-image/options/arcgis-online
Blog: Introducing ArcGIS Image for ArcGIS Online	https://www.esri.com/arcgis-blog/products/arcgis-online/imagery/introducing-arcgis-image-for-arcgis-online/