ArcGIS Image for ArcGIS Online Implementation Guide

Essential tasks and best practices for setting up ArcGIS Image for ArcGIS Online

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Task checklist

TASK	COMPLETE
1. Get to know ArcGIS Image for ArcGIS Online	☐
2. Purchase ArcGIS Image Online	☐
3. Enable ArcGIS Image Online	☐
4. Get started using ArcGIS Image Online	☐
5. FAQ	☐

1. Get to know ArcGIS Image for ArcGIS Online

Welcome to ArcGIS Image for ArcGIS Online. This user type extension uses imagery on the web to fit the needs of your organization. Even if you have not worked with imagery in other GIS platforms, you can get started today.

ArcGIS Image for ArcGIS Online, also known as ArcGIS Image Online, extends the capabilities of a user in ArcGIS Online to publish hosted imagery and analyze imagery and raster data in your organization. Assigning this extension to a user allows them to share, stream, and analyze imagery and raster data in ArcGIS Online.

Capabilities include the following:

- Publishing hosted imagery data as tiled or dynamic image services

- Using raster analysis tools to perform analysis

- Customizing workflows with raster functions and the Raster Function Editor

- Sharing your analysis to the web

For more information, see the Get to know ArcGIS Image for ArcGIS Online Guide.

2. Purchase ArcGIS Image Online

To get started, you can purchase the ArcGIS Image for ArcGIS Online extension from the Esri Store.

Learn more about purchasing ArcGIS Image Online

For more information and assistance with purchasing, contact Esri Customer Service.

4

3. Enable ArcGIS Image Online

Before members of your organization can create and analyze imagery layers, they must be granted the necessary user type, role, and license. An ArcGIS Online administrator can manage the user types and roles and assign licenses for an organization.

An ArcGIS Image Online user with full privileges to create and analyze imagery must have the following:

- User type—Creator, GIS Basic, GIS Standard, or GIS Advanced

- Role—Publisher, Facilitator, or Administrator

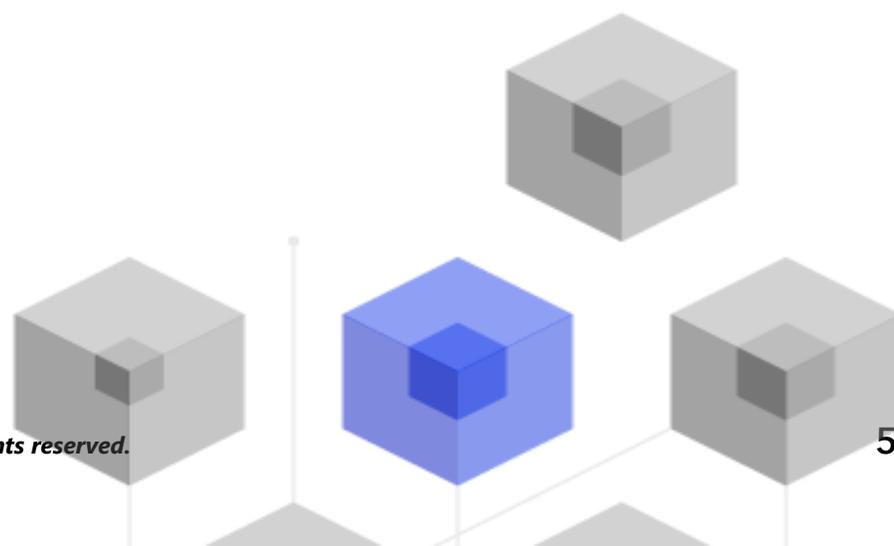- License—ArcGIS Image for ArcGIS Online

The required privileges are turned on automatically when the license is assigned to a user with one of the compatible user types and roles, or an administrator can create a custom role and assign the associated privileges.

Assign the ArcGIS Image Online extension to users

To assign the extension license to a user that has the required user type and default role, follow the steps outlined in the documentation.

You can also create a custom role and assign a subset of privileges.

Learn how to set up a custom role for imagery creation or analysis

4. Get started using ArcGIS Image Online

Now that you have assigned licenses for other users or for yourself, you can get started publishing your own imagery to your account and performing analysis.

Publish imagery layers

Two types of hosted imagery layers are supported in ArcGIS Online:

- Tiled imagery layers—Analysis and rendering are done on the client machine, and imagery is processed as static tiles for faster rendering.

- Dynamic imagery layers—Analysis and rendering are done on the ArcGIS Online server machines, and image collections are supported, maintaining the original image file formats.

Learn about the various imagery layer types

Next, learn how to publish hosted imagery layers

Analyze imagery in Map Viewer Classic

Once you have your imagery published to your organization, it's time to start your analysis.

First, learn about the raster analysis tools and raster functions that are readily available. Then, find out how to create custom workflows using the Raster Function Editor.

FAQ

What is the difference between tiled imagery layers and dynamic imagery layers?

Both tiled and dynamic imagery layers fully support the imagery information model and provide access to both imagery pixel data (in full pixel depth and all bands) and auxiliary metadata such as raster attribute tables, statistics, histograms, and so on. The difference is how the pixel data is accessed:

- Dynamic imagery layers provide server-side dynamic image access, including projection, rendering, band subsetting, and on-the-fly processing. Dynamic imagery layers also support image collections.

- Tiled imagery layers access pixels in static tiles. The client does the heavy lifting, including decoding imagery tiles, extracting bands, projecting, and rendering imagery.

What is the difference between raster tile layers and tiled imagery layers?

Raster tile layers are cached one- or three-band prerendered Red Green Blue (RGB) layers, and they are stored on the server and displayed as JPG or PNG files by the client. Raster tile layers are not supported for analysis but are suitable for visualization and as basemaps. Tiled imagery layers are also cached for fast display and processing, but they also allow access to pixels, bands, and image metadata, and support analysis.

Can I use ArcGIS Living Atlas of the World imagery layers with analysis tools or raster functions?

Yes, many of the ArcGIS Living Atlas imagery layers can be used with raster functions for on-the-fly processing.

However, imagery layers in ArcGIS Living Atlas should not be used as direct inputs to analysis tools because they do not support downloading large amounts of data, which is required for analysis. ArcGIS Living Atlas imagery layers also may not support pixel-level data access, or the data has been resampled for visualization, making analysis results unreliable.

Should I work with Map Viewer or Map Viewer Classic?

Imagery layer styling and analysis is supported in Map Viewer Classic. Imagery layer styling and configuration in the new Map Viewer is still in beta and not fully supported, and analysis is not supported.

Learn more about Map Viewer and the supported workflows

I do not see the raster analysis tools or the option to create imagery layers in my organization.

If you do not see the option to create imagery layers or you do not have access to the raster analysis tools, you may not have privileges to create imagery layers or perform imagery analysis, or your organization has not created a hosted feature layer. The organization must have published at least one hosted feature layer to enable the ArcGIS Image Online capabilities. Any user with the Create permission can create a hosted feature layer to enable the capability. This only needs to be done once in an organization.

Is download capability supported for tiled or dynamic layers?

Downloading hosted imagery layers is not supported.

How can I improve the speed of uploading imagery data for publishing?

For most configuration types, uploaded imagery files are converted to Cloud Raster Format (the exception is the Image Collection option, which maintains original file formats). If you upload a highly compressed data format such as MRSID or JP2000, it will likely take more time to convert to CRF, while a format such as the Cloud Optimized GeoTIFF (COG) will be faster to convert.

Is my uploaded data optimized and lossless?

Uploaded data is compressed using LERC compression by default, and the maximum LERC compression error can be modified on the General tab of the Configure Properties window. The default is lossless compression. You can also choose JPEG compression for 8- or 12-bit images with 1–3 bands, and you can modify the compression quality.

8

Are my original uploaded rasters persisted, in addition to those converted to CRF for either tiled or dynamic imagery layers?

No, the original uploaded files will be replaced by CRF files, unless you choose to create an image collection layer. In that case, the original image format is maintained, and the hosted imagery layer references the mosaic dataset.

Can I create an imagery layer without spatial reference?

No, imagery layers must have an associated spatial reference system.

Can you set the default resampling method when creating an imagery layer?

When creating a tiled or dynamic imagery layer with the One Mosaicked Image option, or when creating a dynamic imagery layer with the Image Collection option, you can set the resampling method in the Configure Properties window.

Once the layer has been published, you can change the resampling method of a dynamic imagery layer from the Settings tab on the Item Details page. You cannot change the resampling method for tiled imagery at this time.

Do I need the ArcGIS Image Online extension to use raster function templates as rendering options for dynamic imagery layers?

No special privileges are required to select a raster function template from the list of predefined templates for image display. The ArcGIS Image Online extension is required to edit raster function templates in the Raster Function Editor, but using pre-existing raster function templates to render a dynamic imagery layer does not require an extension.