



# ArcGIS Data Appliance: OpenStreetMap Vector Basemaps



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# Get started

# What is ArcGIS Data Appliance: OpenStreetMap Vector Basemaps?

OSM Vector Basemaps provides detailed maps from contributors with local knowledge that you can use with your ArcGIS and web applications. Vector tiles enable dynamic cartography and provide the flexibility to create your own basemap style. The vector basemaps are available as tile layers that can be added to existing maps as either a basemap or an overlay layer.

OSM Vector Basemaps provides a content solution that works with a Standard or Advanced configuration of ArcGIS Enterprise. It is included with ArcGIS Data Appliance 7.2 with World Standard, World Advanced, North America Standard, and North America Advanced product options. It can also be licensed as a stand-alone option.



## **Note:**

This feature is not included with the World Basic product option.

The OSM Vector Basemaps help includes the following topics:

- [OSM Vector Basemaps content](#)
- [Directory of map styles](#)
- [System requirements](#)
- [Set up OSM Vector Basemaps](#)
- Information on how to [use OSM Vector Basemaps](#)
- Methods to [customize](#) OSM Vector Basemaps styles
- Reference information including [FAQs](#), [Troubleshooting](#), and [Support](#)

## OSM Vector Basemaps content

OSM Vector Basemaps is delivered on a USB flash drive loaded with two vector tile packages, styles, and a style publishing toolbox (.tbx file). This version includes the following:

- Installation vector tile packages that you upload to your ArcGIS Enterprise portal using ArcGIS Pro and publish as a hosted vector tile service on your hosting server:
  - `OSM_Vector_Basemap_DA72_Install.vtpk`—A vector tile package for for customers who want to use Web Mercator Auxiliary Sphere (WMA).
  - `OSM_Vector_Basemap_GCS_DA72_Install.vtpk`—A vector tile package for for customers who want to use OSM Vector Basemaps in WGS84 Geographic (GCS). This .vtpk file uses the WGS84 Geographic, version 2 tiling scheme.
- [Map styles](#) (for each projection) that you publish as vector tile layers to your Enterprise portal to use in your maps and apps or customize. These styles require resources included in the VectorBasemapStyles folder for publishing.
- Vector Style publishing tools for managing your vector basemap tile layers (map styles) in your Enterprise portal:
  - `VectorStylePublisher.tbx`—This toolbox is used to create vector basemap tile layers.
  - `VectorStyleUpdater.tbx`—This toolbox is used to update existing vector basemap tile layers.
- Map style text files to help you with map style updates:
  - `DA72_OSM_WMA_StyleUpdater_template.csv`—This file manages WMA styles.
  - `DA72_OSM_GCS_StyleUpdater_template.csv`—This file manages GCS styles.
- Documentation file `data_appliance_osm_vector_basemaps.pdf` that includes instructions for getting started, setup, using OSM Vector Basemaps, and more.

### **Note:**

Do not use the `OSM_Vector_Basemap_DA72_Install` and `OSM_Vector_Basemap_GCS_DA72_Install` vector tile packages for anything other than publishing the tile layer (hosted). Once you publish the tile layer to your Enterprise portal, do not share the .vtpk files publicly (Everyone), as distribution of these items outside of your organization is not permitted.

## What's new

This update of ArcGIS Data Appliance: OpenStreetMap Vector Basemaps contains two updated vector tile packages (.vtpk files) used to publish as hosted vector tile services in your ArcGIS Enterprise portal. One is in Web Mercator Auxiliary Sphere (WMA) projection and the other is in the WGS84/GCS (GCS) tiling scheme. Map styles can be published as vector tile layers for each option.

These vector tile packages contain updated global data and local authoritative data from the OpenStreetMap community.

All of the OSM Vector Basemaps vector tile layers (map styles) include cartographic styling refinements.

Existing users of the vector basemaps in the Data Appliance can update the hosted tile layer as well as five styles from version 7.1. The new VectorStyleUpdater toolbox uses a template of existing item IDs and can be run in ArcGIS Pro. Four new styles can be published with the VectorStylePublisher tool:


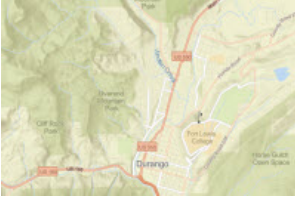
- OpenStreetMap (Esri Dark Gray Canvas Base)
- OpenStreetMap (Esri Light Gray Canvas Base)
- OpenStreetMap (Esri Dark Gray Canvas Reference)
- OpenStreetMap (Esri Light Gray Canvas Reference)

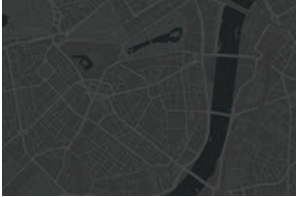


OSM Vector Basemaps now contains a total of nine vector tile layers (map styles).

New users can publish any or all of the full set of nine styles.

# Directory of map styles

OpenStreetMap (OSM) Vector Basemaps includes the following nine vector tile layers. The styles can be published in the Web Mercator Auxiliary Sphere (WMA) projection or the WGS84/GCS (GCS) tiling scheme.

| Layer name and thumbnail   | Style folder name                         | Description   |
|--|---|---|
| <p>OpenStreetMap</p>                                    | <p>openstreetmap</p>                      | <p>This tile layer provides a vector basemap of OSM data created by Esri. This vector tile basemap was authored in ArcGIS Pro from a live replica of OSM data that was rendered using OSM cartography.</p>  |
| <p>OpenStreetMap (with Relief)</p>                      | <p>openstreetmaprelief</p>                | <p>This tile layer provides a vector basemap of OSM data created by Esri. This vector tile basemap was authored in ArcGIS Pro from a live replica of OSM data that was rendered using OSM cartography. This layer is designed for use with the World Hillshade layer.</p>   |
| <p>OpenStreetMap (Esri Street style)</p>              | <p>openstreetmapesristreetstyle</p>       | <p>This tile layer provides a vector basemap of OSM data created by Esri. This vector tile basemap was authored in ArcGIS Pro from a live replica of OSM data that was rendered using a cartographic style similar to the Esri Vector Basemap World Street Map style.</p>   |
| <p>OpenStreetMap (Esri Street with Relief style)</p>  | <p>openstreetmapesristreetreliefstyle</p> | <p>This tile layer provides a vector basemap of OSM data created by Esri. This vector tile basemap was authored in ArcGIS Pro from a live replica of OSM data that was rendered using a cartographic style similar to the Esri Vector Basemap World Street Map (with Relief) style. It is designed to be used with the World Hillshade layer.</p> |
| <p>OpenStreetMap (Esri Hybrid Reference style)</p>    | <p>openstreetmapesrihybridstyle</p>       | <p>This tile layer provides a vector basemap of OSM data created by Esri. This vector tile basemap was authored in ArcGIS Pro from a live replica of OSM data that was rendered using a cartographic style similar to the Esri Vector Basemap Hybrid Reference Layer style. This layer is designed to be overlaid on imagery.</p>                 |

| Layer name and thumbnail  | Style folder name                                | Description  |
|---|--|--|
| <p>OpenStreetMap (Esri Dark Gray Canvas Base)</p>          | <p>openstreetmapesridarkgraycanvasbase</p>       | <p>This tile layer provides a vector basemap of OSM data created by Esri. This vector tile basemap was authored in ArcGIS Pro from a live replica of OSM data that was rendered in dark neutral colors.</p>                  |
| <p>OpenStreetMap (Esri Dark Gray Canvas Reference)</p>     | <p>openstreetmapesridarkgraycanvasreference</p>  | <p>This tile layer provides a vector basemap of OSM data created by Esri. This vector tile basemap was authored in ArcGIS Pro from a live replica of OSM data and features map labels for use with the Dark Base layer.</p>  |
| <p>OpenStreetMap (Esri Light Gray Canvas Base)</p>        | <p>openstreetmapesrilightgraycanvasbase</p>      | <p>This tile layer provides a vector basemap of OSM data created by Esri. This vector tile basemap was authored in ArcGIS Pro from a live replica of OSM data that was rendered in light neutral colors.</p>                 |
| <p>OpenStreetMap (Esri Light Gray Canvas Reference)</p>  | <p>openstreetmapesrilightgraycanvasreference</p> | <p>This tile layer provides a vector basemap of OSM data created by Esri. This vector tile basemap was authored in ArcGIS Pro from a live replica of OSM data and features map labels for use with the Light Base layer.</p> |



# Frequently asked questions

Listed below are frequently asked questions and answers regarding ArcGIS Data Appliance: OpenStreetMap Vector Basemaps.

- [How does ArcGIS Data Appliance: OpenStreetMap Vector Basemaps work?](#)
- [How do I set up OSM Vector Basemaps?](#)
- [Where does the data come from?](#)
- [Does OSM Vector Basemaps include imagery?](#)
- [What services are available?](#)
- [Are there any use restrictions when using OSM Vector Basemaps?](#)
- [Where can I find more information about editing custom styles?](#)
- [Where can I find more information about using basemaps in my Portal for ArcGIS Map Viewer?](#)
- [What if I need further assistance?](#)

## **How does ArcGIS Data Appliance: OpenStreetMap Vector Basemaps work?**

ArcGIS Data Appliance: OpenStreetMap Vector Basemaps (OSM Vector Basemaps) is published as a hosted vector tile service from your ArcGIS Enterprise portal along with nine map styles that you can share, use, and customize within your organization. For more information on vector basemaps and the differences between raster and vector tile layers, see [Tile layers](#) in the Portal for ArcGIS help.

## **How do I set up OSM Vector Basemaps?**

Refer to the instructional video and help documentation on the [OSM Vector Basemaps Additional resources](#) section of the ArcGIS Data Appliance 7.2 website to learn how to set up and use OSM Vector Basemaps.

## **Where does the data come from?**

The data is provided exclusively by OpenStreetMap (OSM) and its contributors. Esri maintains a replica of the OSM database, which is used to author the map using OSM cartography and generate a vector tile package.

## **Does OSM Vector Basemaps include imagery?**

No. OSM Vector Basemaps does not include raster basemaps or imagery.

## **What services are available?**

OSM Vector Basemaps only requires one service published as a hosted vector tile layer from your portal. Other maps are included as map styles that you publish to your portal as tile layers. See [Directory of map styles](#) for the vector tile layers included with OSM Vector Basemaps.

### **Are there any use restrictions when using OSM Vector Basemaps?**

The OSM Vector Basemaps provided via ArcGIS Data Appliance are intended for use with Esri software. Redistribution rights are granted by Esri and the data vendor for hard-copy renditions or static, electronic map images (for example, .gif and .jpeg) that are plotted, printed, or publicly displayed with proper metadata and source or copyright attribution to the respective data vendor or vendors. For copyright and attribution information, see **Credits** for a specific map published to your portal.

### **Where can I find more information about editing custom styles?**

View the [Working with and Customizing Esri Vector Basemaps: The Basics](#) post on the ArcGIS Blog website for more information about editing custom styles.

### **Where can I find more information about using basemaps in my Portal for ArcGIS Map Viewer?**

See [Customize basemaps](#) and [Choose basemap](#) in the Portal for ArcGIS help for more information about using basemaps in your Portal for ArcGIS Map Viewer.

### **What if I need further assistance?**

For all questions, feedback, and troubleshooting, and to report issues, contact Esri [Technical Support](#).

# System requirements

# OSM Vector Basemaps system requirements

The following software components and prerequisites are required before you deploy OSM Vector Basemaps:

- ArcGIS Pro Basic, Standard, or Advanced 2.5.1 or later
- An ArcGIS Enterprise 10.7.1, 10.8, or 10.8.1 deployment meeting the base ArcGIS Enterprise deployment specifications

## Note:

Authentication exclusions—The Linux public-key infrastructure (PKI) configuration is not supported.

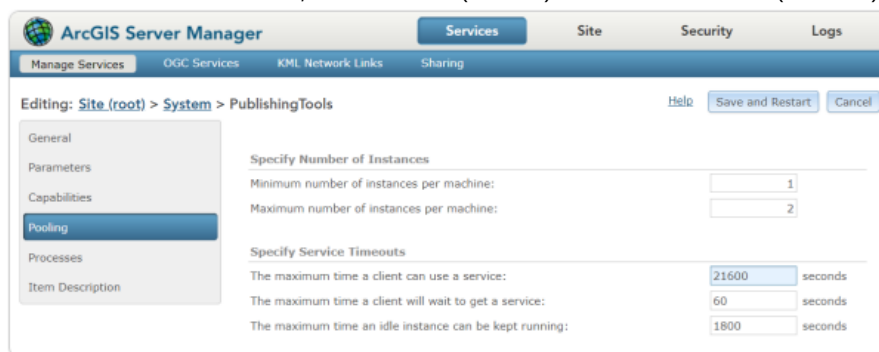
## Before you start

Before you begin your deployment, do the following:

1. Check with your portal administrator to verify or request the following:
  - A Portal for ArcGIS account with the [Publisher or Administrative role enabled](#).
  - A [named user license enabled](#) for ArcGIS Pro Standard or Advanced.
  - A minimum of 68 GB of available space per .vtpk file for your portal content directory, 34 GB of available space for your hosting server's jobs directory, and 34 GB of available space for your hosting server's cache directory.
2. Check with your ArcGIS Server administrator to verify or request the following:
  - A minimum of 68 GB of available disk space per .vtpk file on your ArcGIS Server.
  - [Enough pooling time](#) for your ArcGIS Server. Successfully publishing a large .vtpk file as a hosted vector tile service requires more time for the web client to communicate with ArcGIS Server. Check with your ArcGIS Server administrator to confirm that the **The maximum time a client can use a service** option is set to 21,600 seconds.

The following steps walk you through this process for ArcGIS Server 10.7.1, 10.8, or 10.8.1:

- Open a new browser and access ArcGIS Server Manager, for example, <https://PORTALNAME/server/manager>, and sign in.
- Click **Site (root) > System > PublishingTools**.
- Click **Pooling**, and under **Specify Service Timeouts**, change the value for **The maximum time a client can use a service** from 3,600 seconds (1 hour) to 21600 seconds (6 hours).



- Click **Save and Restart**.

- Sign out of ArcGIS Server Manager.
3. ArcGIS Data Appliance 7.2: OSM Vector Basemaps is delivered on a USB flash drive loaded with vector tiles, styles, and style publishing tools. Copy all contents of the USB flash drive to your local computer.

# Setup

# Set up ArcGIS Data Appliance: OpenStreetMap Vector Basemaps

Instructions for how to set up ArcGIS Data Appliance: OpenStreetMap Vector Basemaps depend on whether you are a new or an existing user, as follows:

- [New user](#)
- [Existing user](#)

When you've completed setting up ArcGIS Data Appliance: OpenStreetMap Vector Basemaps, your vector basemaps will be ready to use.

# Set up OSM Vector Basemaps (new user)

For information about what's included with OSM Vector Basemaps, see [OSM Vector Basemaps content](#).

## Note:

Before you proceed, review the [system requirements](#) to confirm that you can deploy OSM Vector Basemaps on your system.

Once you confirm that the system requirements are met, the workflow to set up OSM Vector Basemaps is as follows:

1. [Upload the package to your ArcGIS Enterprise portal](#)
2. [Publish the hosted tile layer \(service\)](#)
3. [Publish tile layers \(map styles\)](#)
4. [Share tile layers \(map styles\)](#)

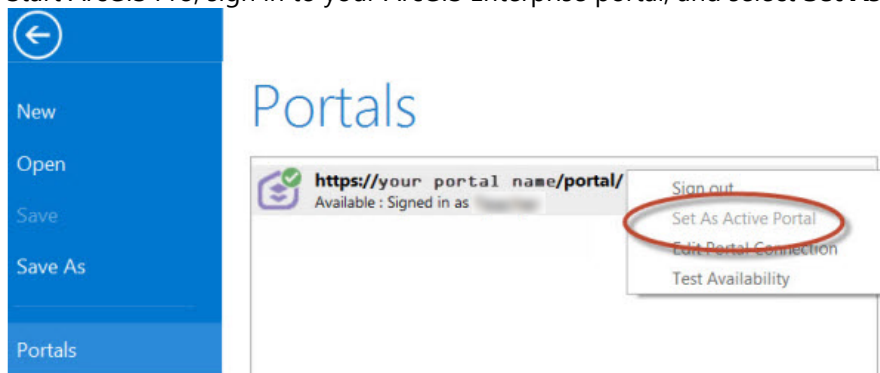
## Note:

OSM Vector Basemaps includes two vector tile packages (.vtpk) on the flash drive. The OSM\_Vector\_Basemap\_DA72\_Install.vtpk file is in the Web Mercator Auxiliary Sphere (WMA) projection. The OSM\_Vector\_Basemap\_GCS\_DA72\_Install.vtpk file is in the WGS84/GCS (GCS) tiling scheme. The following steps reflect the sharing process of the WMA vector tile package. To share the GCS package, you need to enter the correct .vtpk file name for the input package as well as take the GCS naming into consideration when publishing the hosted tile layer. The OSM Vector Basemaps styles in the GCS directory already take the GCS naming into account in the metadata files.

## Upload the package to your ArcGIS Enterprise portal

First, you need to copy the entire USB flash drive contents to your local computer if you have not already done so.

1. Start ArcGIS Pro, sign in to your ArcGIS Enterprise portal, and select **Set As Active Portal**.

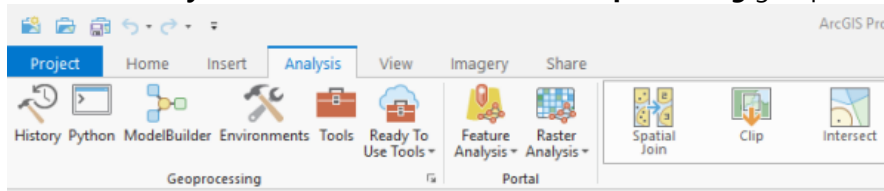


## Note:

You must sign in and connect to your portal before you proceed. You cannot enter your portal user name and password when using the Share Package tool later in these instructions. The tool obtains your credentials from ArcGIS Pro.

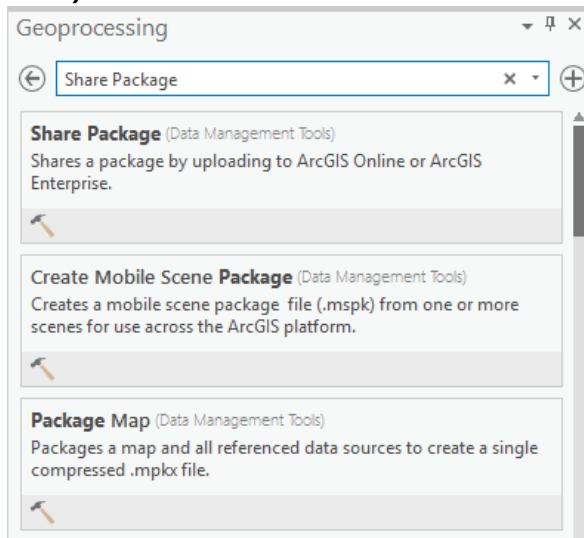


2. Create a project.
3. Select the **Analysis** tab, and select **Tools** in the **Geoprocessing** group.



The **Geoprocessing** pane appears.

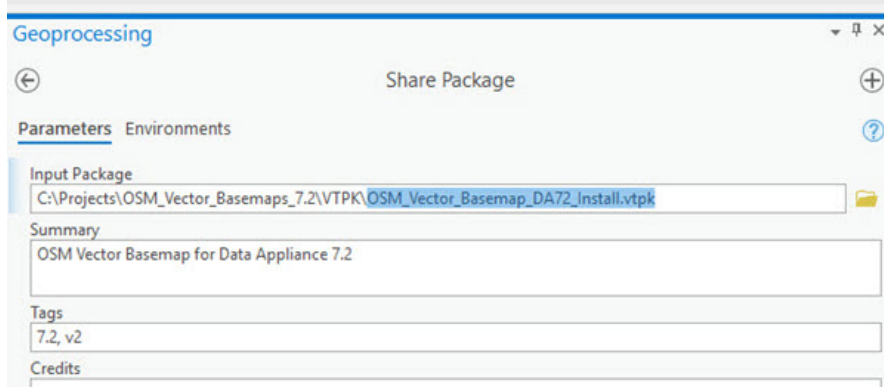
4. In the **Geoprocessing** pane, search for Share Package, and select the **Share Package (Data Management Tools)** tool from the search results.



5. In the **Share Package** dialog box, provide the following:
  - a. For **Input Package**, provide the path to the vector tile package, for example, C:\Projects\OSM\_Vector\_Basemaps\_7.2\VTPK\OSM\_Vector\_Basemap\_DA72\_Install.vtpk.
  - b. For **Summary**, type OSM Vector Basemap for Data Appliance 7.2.
  - c. For **Tags**, type 7.2, v2.

**⚠ Caution:**

Do not change the **Credits** parameter value and do not check the boxes to share with **Everybody** or **Within Organization**.



6. Select **Run**.

It will take approximately 30–120 minutes to upload the package to your portal. A **Share Package Uploaded Successfully** message appears in the **Share Package** window once the upload is complete.

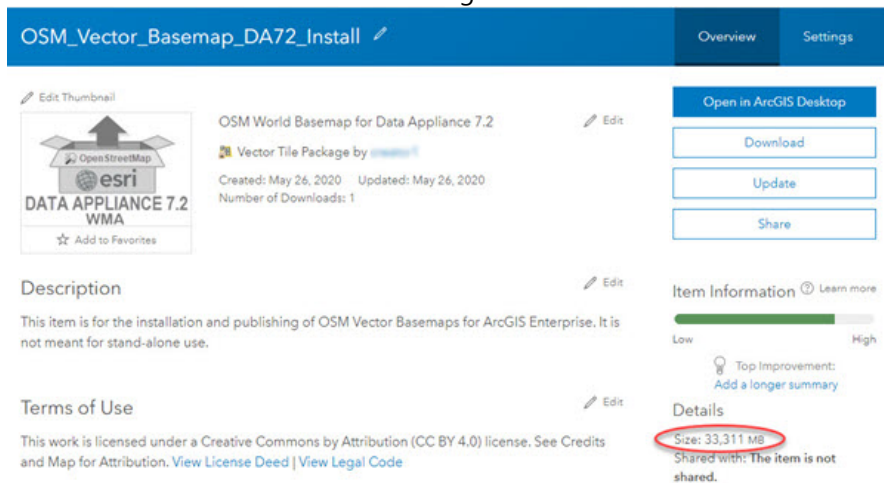
7. Through your portal, confirm that the .vtpk file uploaded successfully.

a. Open a web browser and sign in to your portal.

The OSM\_Vector\_Basemap\_DA72\_Install tile package is located in the root folder.

b. Confirm that the **Size** value of the tile package is 33,311 MB and **Shared with** indicates that the item is not shared.

Your item should look like the following:



**Note:**

If the size is not 33,311 MB, delete the item and upload the OSM\_Vector\_Basemap\_DA72\_Install tile package again. You may want to discuss the problem with your portal administrator.

For the OSM\_Vector\_Basemap\_GCS\_DA72\_Install tile package, if the size is not 33,116 MB, delete the item and upload it again.

See the [Troubleshooting OSM Vector Basemaps](#) topic for more information.

## Publish the hosted tile layer (service)

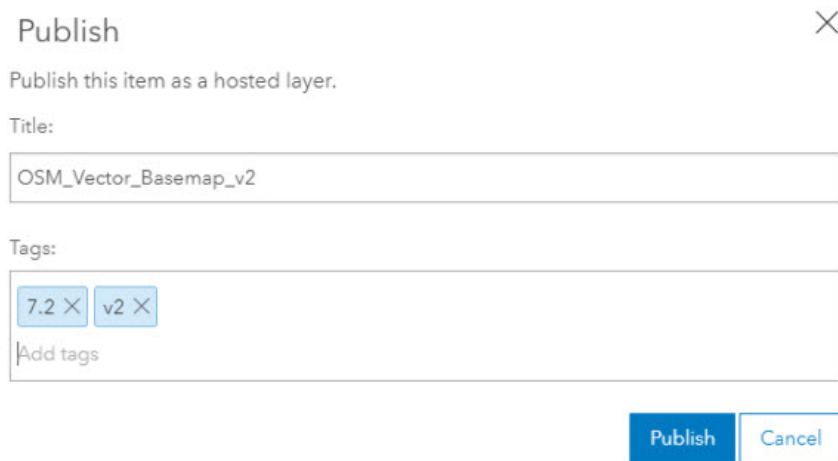
Now you'll publish the OSM Vector Basemap hosted tile layer service from your portal.

1. Sign in to your ArcGIS Enterprise portal.

 **Note:**

Your account must have publishing credentials.

2. In **My Content**, go to the item page for the vector tile package (OSM\_Vector\_Basemap\_DA72\_Install.vtpk) you uploaded to your portal.
3. Click **Publish**, change the title to OSM\_Vector\_Basemap\_v2, and click **Publish** again.



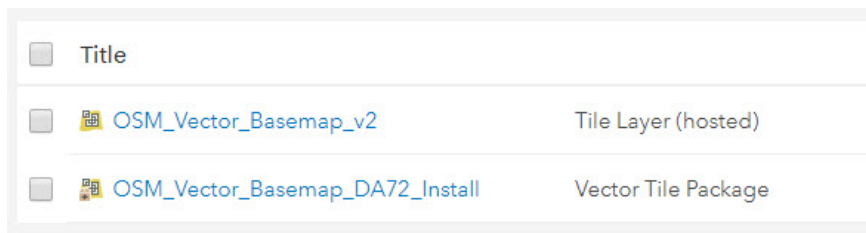
 **Note:**



For the GCS tile package, (OSM\_Vector\_Basemap\_GCS\_DA72\_Install.vtpk), change the title to OSM\_Vector\_Basemap\_GCS\_v2.

 **Note:**

It will take 30–120 minutes to create the hosted layer, depending on your system configuration.

The OSM\_Vector\_Basemap\_v2 hosted tile layer is created.



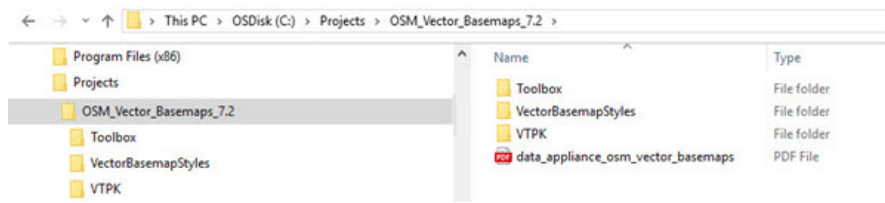
|                          |   |                     |
|--------------------------|---|---------------------|
| <input type="checkbox"/> | Title   |                     |
| <input type="checkbox"/> |  OSM_Vector_Basemap_v2           | Tile Layer (hosted) |
| <input type="checkbox"/> |  OSM_Vector_Basemap_DA72_Install | Vector Tile Package |

## Publish tile layers (map styles)

You'll publish your map styles next.

The VectorStylePublisher geoprocessing toolbox can be run in ArcGIS Pro. This toolbox publishes nine new tile layers to your portal.

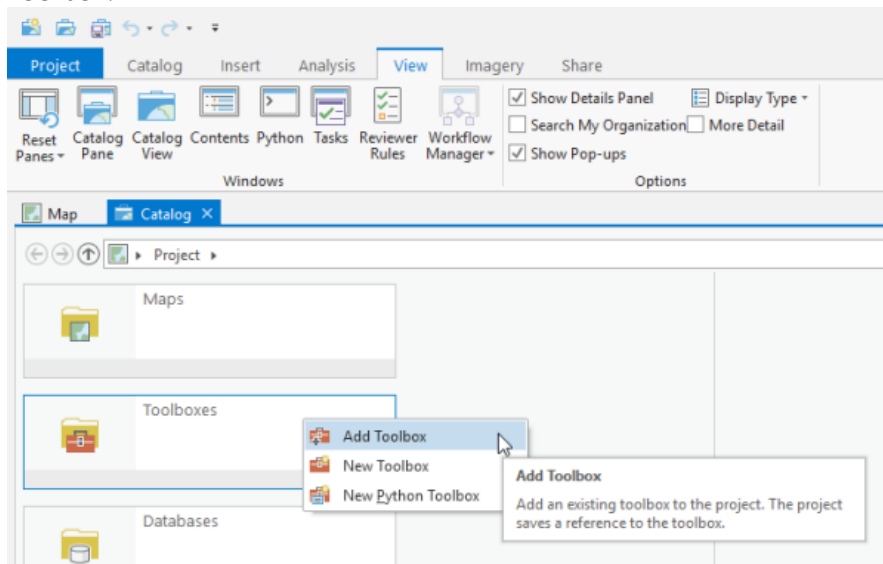
These instructions assume that the toolbox and VectorBasemapStyles folder are on your local computer.



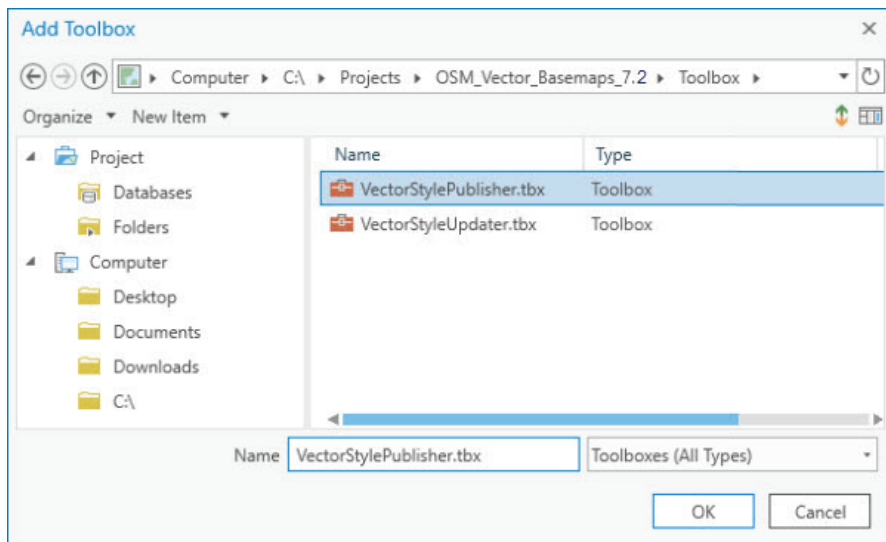
**Note:**

You must have a portal account assigned to the default publisher or administrator role, or your account must be assigned to a custom role that has privileges to create content and publish hosted tile layers.

1. Start ArcGIS Pro, sign in to your ArcGIS Enterprise portal, and select **Set As Active Portal**.
2. Create a project.
3. Select the **View** tab, select **Catalog View** in the **Windows** group, right-click **Toolboxes**, and select **Add Toolbox**.

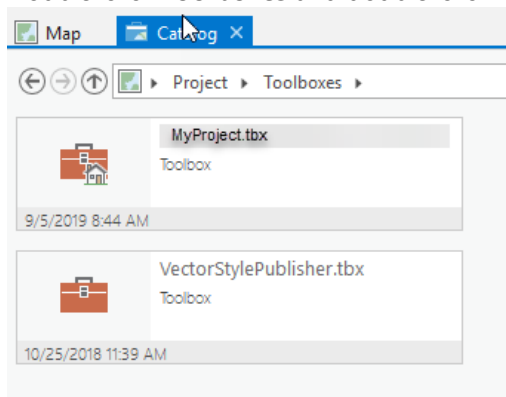


4. Browse to the location on your local computer where you copied the contents of the USB flash drive, select **VectorStylePublisher.tbx**, and select **OK**.

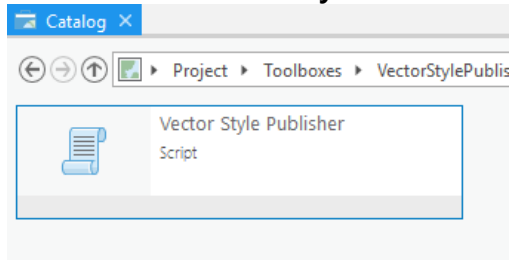


The VectorStylePublisher toolbox is added to the project.

5. Double-click **Toolboxes** and double-click **VectorStylePublisher.tbx**.



6. Double-click the **Vector Style Publisher** script.



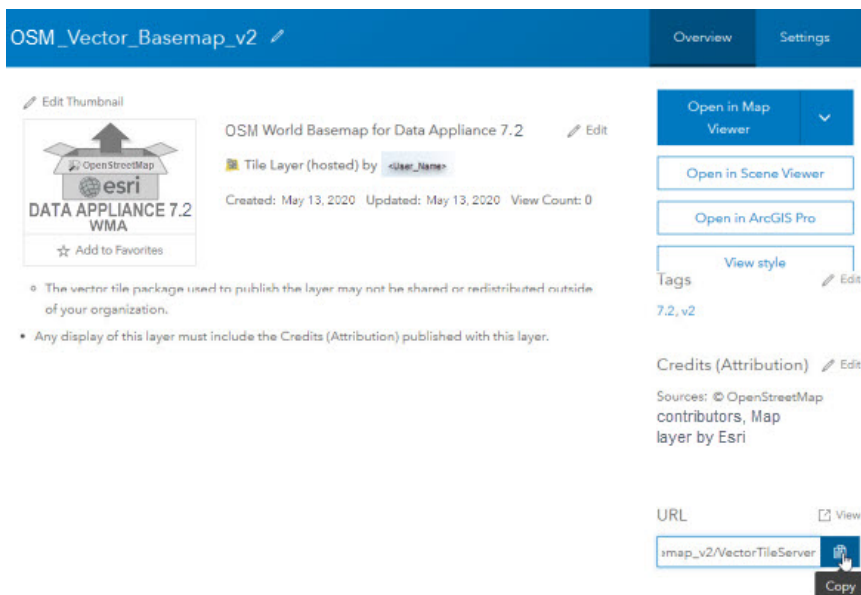
7. In the **Vector Style Publisher** dialog box, select the **Parameters** tab and provide the following:



- For **Folder containing vector styles**, browse to the location of the VectorBasemapStyles folder on your local computer, for example, C:\Projects\OSM\_Vector\_Basemaps\_7.2\VectorBasemapStyles\WMA\WMA\_NewUser.
- For **Vector Tile Service URL**, provide the URL of the OSM Vector Basemap hosted tile layer, for example, https://portalname.domain.com/arcgis/rest/services/Hosted/OSM\_Vector\_Basemap\_v2/VectorTileServer.

**Note:**

The vector tile service URL is found in the **URL** section of the **OSM\_Vector\_Basemap\_v2** hosted tile layer item page. Click the **Copy** button and paste the URL into the **Vector Tile Service URL** parameter text box.



- For **Metadata folder name**, keep the default name **metadata**.

**Note:**

If you are using a portal with PKI authentication, expand **PKI Authorization** and provide values for the **PKI Certificated file (.pfx)** and **PKI Private Password** parameters.

If you are using a portal with Linux LDAP authentication, expand **Linux LDAP** and provide values for the **Sign In Username** and **Sign In Password** parameters.

d. Click **Run**.

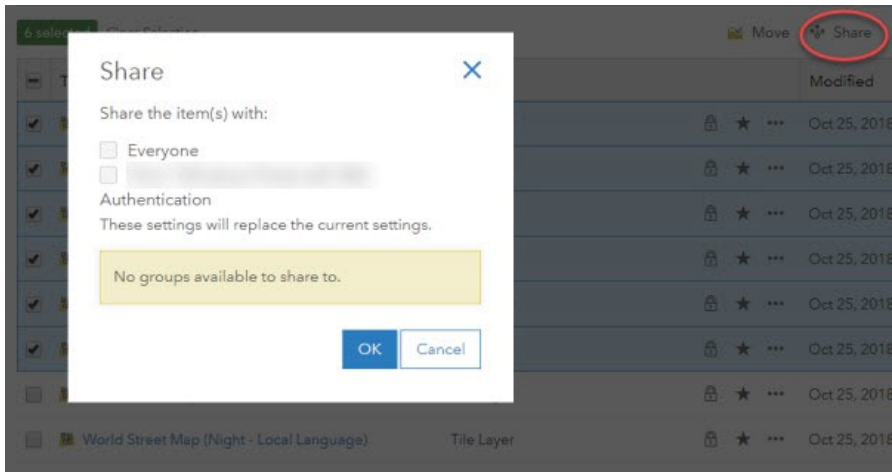
The nine vector tile layers (map styles) are created in your assigned ArcGIS Enterprise account. You can view the items in **My Content**. Eleven items are listed: nine vector tile layers, the .vtpk file, and the hosted tile layer.

## Share tile layers (map styles)

The items created are private unless you check the **Share vector style web layers publicly** check box to make them public.

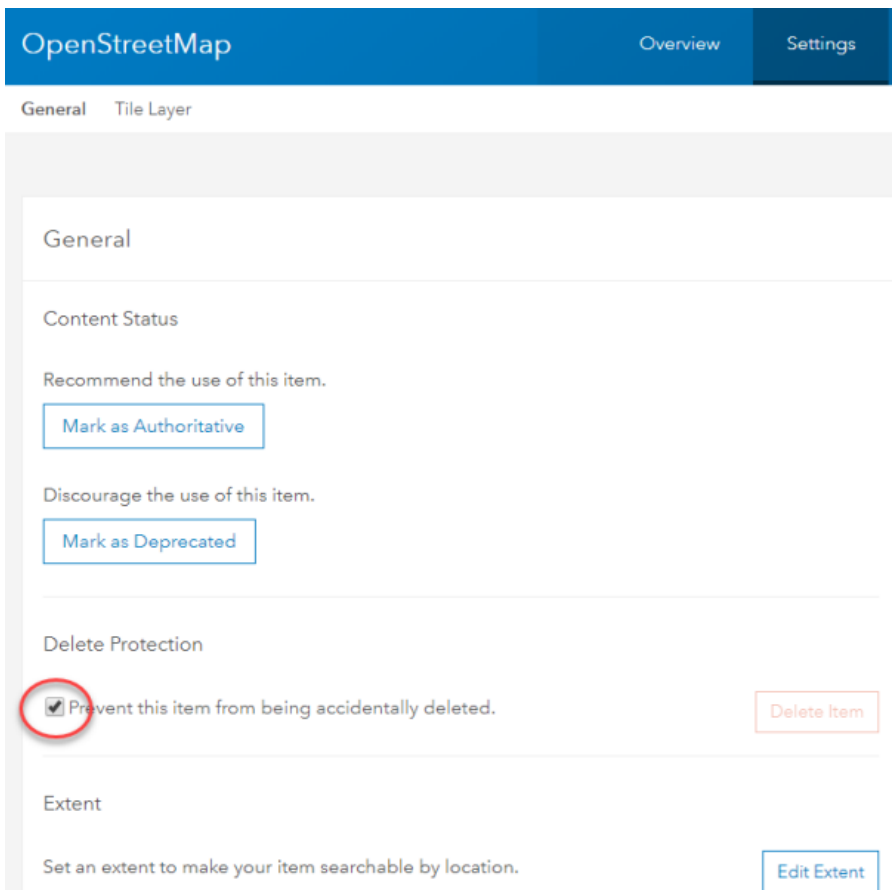


Alternatively, you can select the map items in your portal and change the sharing settings.



**Note:**

Delete protection for all items is applied upon publishing the tile layers. To change the protection setting, open the item and click the **Settings** tab. Under **Delete Protection** uncheck **Prevent this item from being accidentally deleted** and click **Save**.



Once you set up OSM Vector Basemaps, you can do the following:

- [Use OSM Vector Basemaps](#)



- [Customize styles](#)

# Set up OSM Vector Basemaps (existing user)

These steps are for updating your OSM Vector Basemaps in WMA.

 **Note:**

To use OSM Vector Basemaps in the GCS format, complete the steps using the information for GCS.

For information about what's included with OSM Vector Basemaps, see [OSM Vector Basemaps content](#) and [What's new](#).

You'll use the following workflow to update OSM Vector Basemaps:

1. [Upload the package to your ArcGIS Enterprise portal](#)
2. [Publish the new hosted tile layer \(service\)](#)

 **Note:**

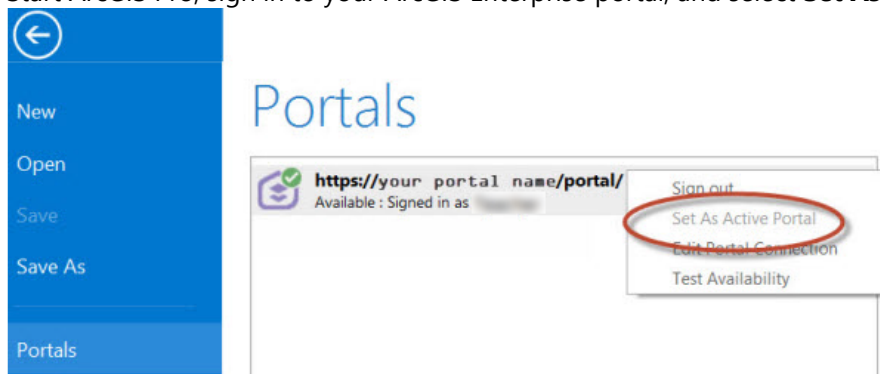
The title of your new hosted tile layer must be different than the title of your existing hosted tile layer (for example, DA71).

3. [Replace the existing hosted tile layer \(service\) with the new hosted tile layer](#)
4. [Update existing tile layers \(map styles\)](#)
5. [Publish new tile layers \(map styles\)](#)
6. [Share tile layers \(map styles\)](#)

## Upload the package to your ArcGIS Enterprise portal

First, you need to copy the entire USB flash drive contents to your local computer if you have not already done so. Review the [system requirements](#) to confirm that you can deploy the OSM Vector Basemaps update.

1. Start ArcGIS Pro, sign in to your ArcGIS Enterprise portal, and select **Set As Active Portal**.

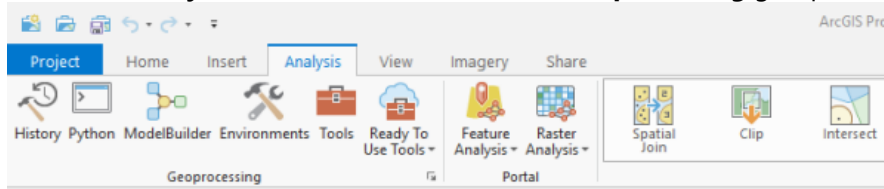


 **Note:**

You must sign in and connect to your portal before you proceed. You cannot enter your portal user name and password when using the Share Package tool later in these instructions. The tool obtains your credentials from ArcGIS Pro.

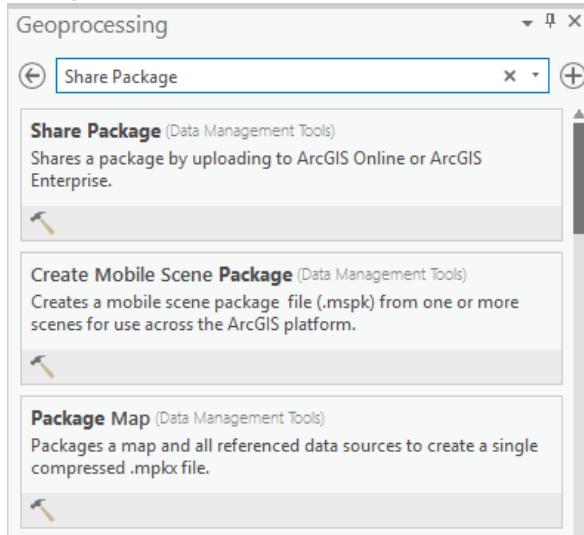
2. Create a project.

3. Select the **Analysis** tab, and select **Tools** in the **Geoprocessing** group.



The **Geoprocessing** pane appears.

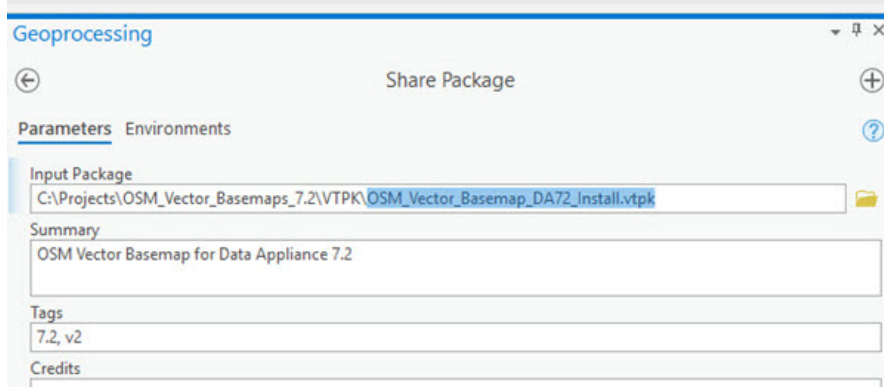
4. In the **Geoprocessing** pane, search for **Share Package**, and select the **Share Package (Data Management Tools)** tool from the search results.



5. In the **Share Package** dialog box, provide the following:
- For **Input Package**, provide the path to the vector tile package, for example, C:\Projects\OSM\_Vector\_Basemaps\_7.2\VTPK\OSM\_Vector\_Basemap\_DA72\_Install.vtpk.
  - For **Summary**, type OSM Vector Basemap for Data Appliance 7.2.
  - For **Tags**, type 7.2, v2.

**⚠ Caution:**

Do not change the **Credits** parameter value and do not check the boxes to share with **Everybody** or **Within Organization**.



6. Select **Run**.

It will take approximately 30–120 minutes to upload the package to your portal. A **Share Package Uploaded Successfully** message appears in the **Share Package** window once the upload is complete.

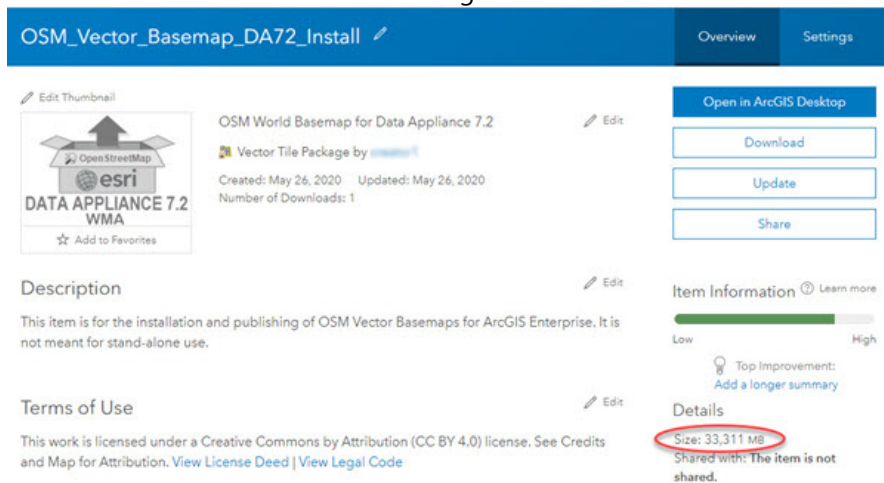
7. Through your portal, confirm that the .vtpk file uploaded successfully.

a. Open a web browser and sign in to your portal.

The OSM\_Vector\_Basemap\_DA72\_Install tile package is located in the root folder.

b. Under **Details**, confirm that the **Size** value of the tile package is 33,311 MB and **Shared with** indicates that the item is not shared.

Your item should look like the following:



**Note:**

If the size is not 33,311 MB, delete the item and upload the OSM\_Vector\_Basemap\_DA72\_Install tile package again. You may want to discuss the problem with your portal administrator.

For the OSM\_Vector\_Basemap\_GCS\_DA72\_Install tile package, if the size is not 33,116 MB, delete the item and upload it again.

See the [Troubleshooting OSM Vector Basemaps](#) topic for more information.

## Publish the new hosted tile layer (service)

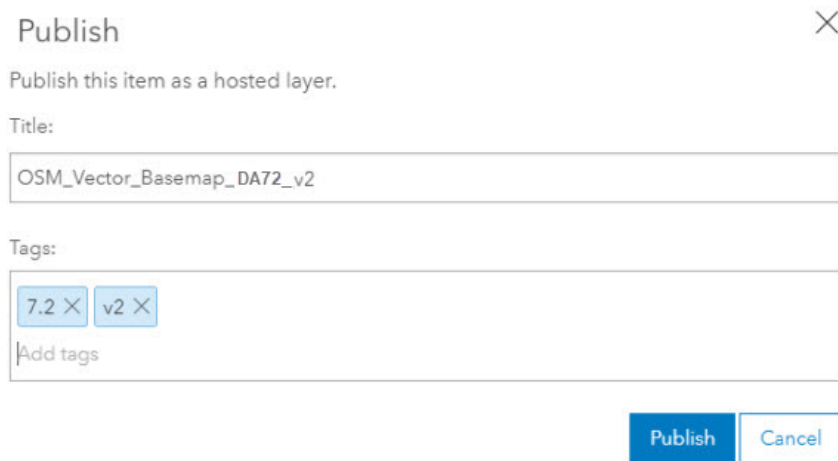
Now you'll publish the new OSM Vector Basemaps hosted tile layer service from your portal.

1. Sign in to your ArcGIS Enterprise portal.

 **Note:**

Your account must have publishing credentials.

2. In **My Content**, go to the item page for the vector tile package (OSM\_Vector\_Basemap\_DA72\_Install.vtpk) you uploaded to your portal.
3. Click **Publish**, change the title to OSM\_Vector\_Basemap\_DA72\_v2, and click **Publish** again.



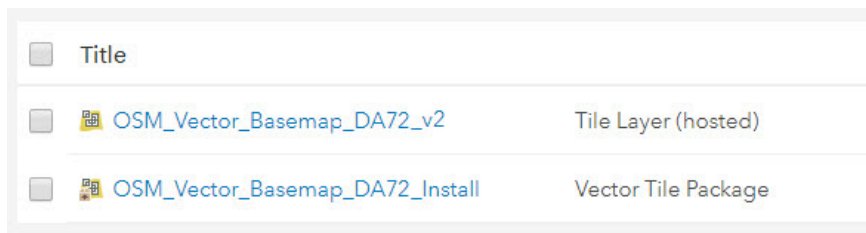
 **Note:**

For the GCS tile package, use the OSM\_Vector\_Basemap\_GCS\_DA72\_Install.vtpk file. Change the title to OSM\_Vector\_Basemap\_GCS\_DA72\_v2 for the hosted tile layer that gets published.

 **Note:**

It will take 30–120 minutes to create the hosted layer, depending on your system configuration.

The OSM\_Vector\_Basemap\_DA72\_v2 hosted tile layer is created.



| Title | Item Name                       | Item Type           |
|-------|---------------------------------|---------------------|
|       | OSM_Vector_Basemap_DA72_v2      | Tile Layer (hosted) |
|       | OSM_Vector_Basemap_DA72_Install | Vector Tile Package |

## Replace the existing hosted tile layer (service) with the new hosted tile layer (service)

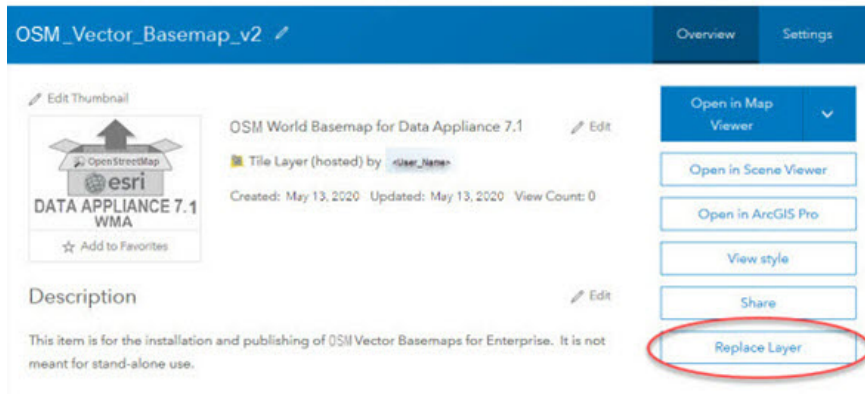
Next, you'll replace the 7.1 basemap hosted tile layer (service) with the 7.2 hosted tile layer (service).

1. Sign in to your ArcGIS Enterprise portal.

**Note:**

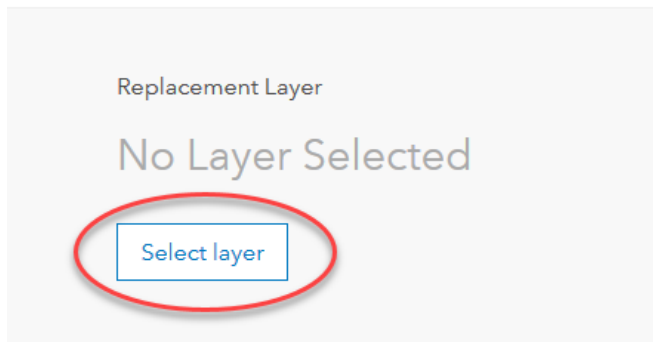
Your account must have publishing credentials.

2. In **My Content**, go to the item page for the **OSM\_Vector\_Basemap\_v2** vector tile service.
3. Click **Replace Layer**.



4. Click **Select layer** and select the newly published OSM\_Vector\_Basemap\_DA72\_v2 layer.

### Replace Layer

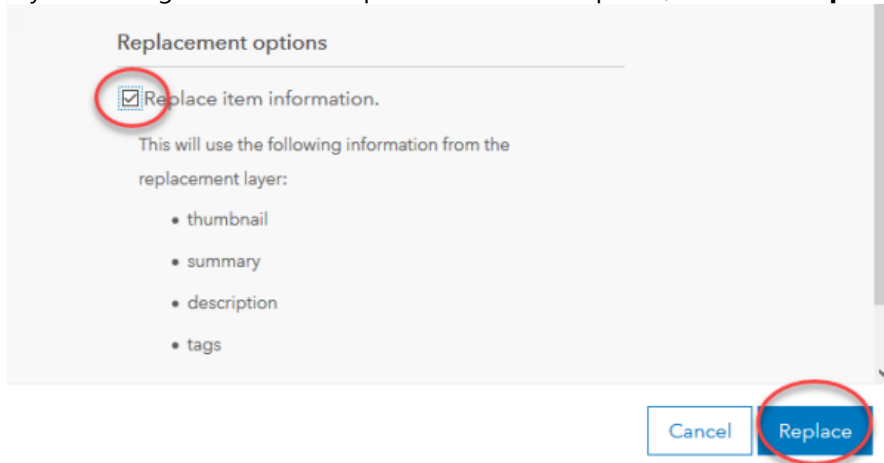


5. For **Archive this layer as**, click the edit button and change the value to OSM\_Vector\_Basemap\_DA71\_v2.



6. Click **Save**.

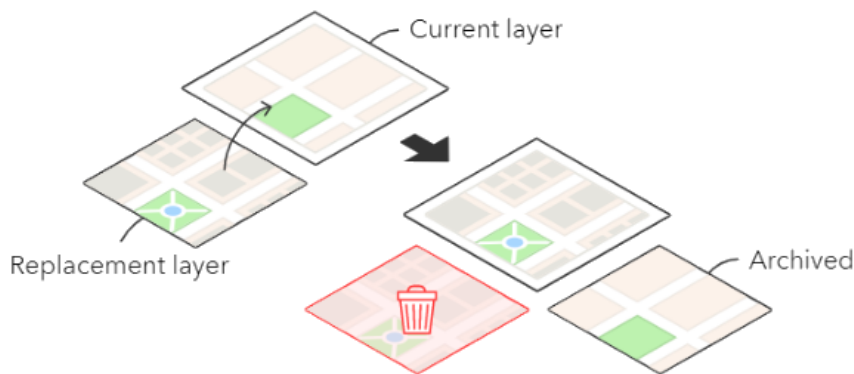
7. If you're using an ArcGIS Enterprise 10.7.1 or later portal, check the **Replace item information** check box.



**Note:**

The content of the current layer is archived.  
A new layer is created to archive the current layer.  
The replacement layer is deleted afterwards.

- The item id and URL of the current layer is retained so that apps and styles referencing the layer continue to work.
- The content of the current layer is archived as a new layer.
- The replacement layer is deleted after the current layer is replaced.
- Ideal for creating designated layers for archives.

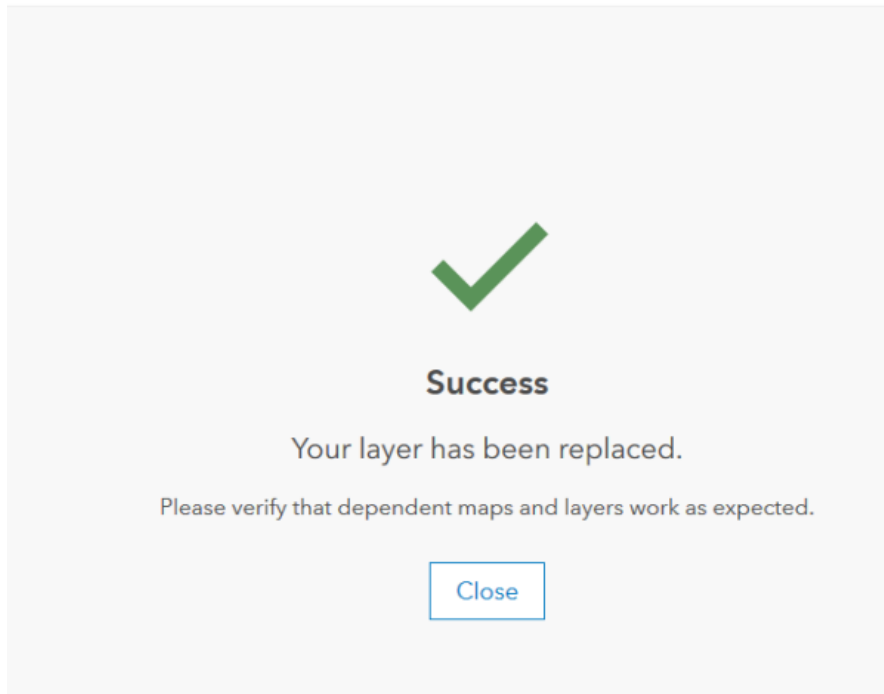


The image above shows the **Replace Layer** function. For ArcGIS Data Appliance: OpenStreetMap Vector Basemaps 7.2, the current layer starts as DA7.1. The replacement layer is DA7.2. You are archiving the DA7.1 hosted tile layer, and the current layer (OSM\_Vector\_Basemaps\_v2) now displays the DA7.2 hosted tile layer. Replacing the tile set allows the item ID and URL paths to remain intact so maps and apps continue to work with the current layer and display the new DA7.2 basemap content.

8. Click **Replace**.

In a few minutes, the **Success** message appears.

## Replace Layer



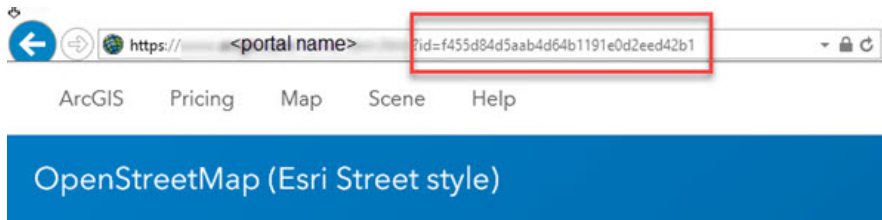
9. Click **Close**.

## Update existing tile layers

Use the Vector Style Updater tool to update your existing layers.

1. Open the DA72\_OSM\_WMA\_StyleUpdater\_template.csv file located in the C:\Projects\OSM\_Vector\_Basemaps\_7.2\Toolbox folder.

- a. Include the item IDs of all your existing styles in the **itemid** column in this table. The item ID for each style can be obtained from the portal URL for each style. Only copy and paste the series of letters and numbers after ...id=.

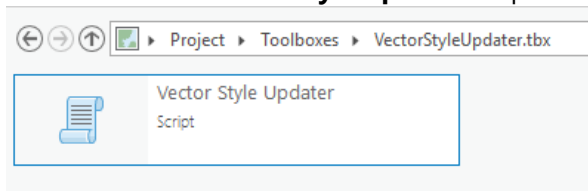


- b. Once you fill in the **itemid** column, save the file and rename it DA72\_OSM\_WMA\_StyleUpdater.csv.

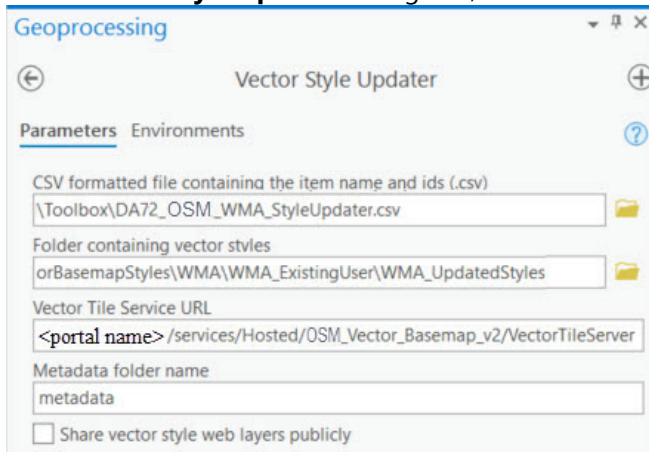


| Itemid                           | title   | foldername                         |
|----------------------------------|---|------------------------------------|
| 2dc6cea0b1764a1f9af2e679f642f0f5 | OpenStreetMap                                 | openstreetmap                      |
| 80d6b8271e1849cd9c3042060001f425 | OpenStreetMap (Esri Hybrid Reference style)   | openstreetmapesrihybridstyle       |
| de24a3cf4cc9451298ea173c4b324736 | OpenStreetMap (Esri Street with Relief style) | openstreetmapesristreetreliefstyle |
| 3a2e806e6e654ea78ecb705119ceae9f | OpenStreetMap (Esri Street style)             | openstreetmapesristreetstyle       |
| 2914a5eab3a0412593b66d384379f89f | OpenStreetMap (with Relief)                   | openstreetmaprelief                |

2. Run the Vector Style Updater tool.
  - a. Start ArcGIS Pro, sign in to your ArcGIS Enterprise portal, and select **Set As Active Portal**.
  - b. Create a project.
  - c. Select the **View** tab, select **Catalog View** in the **Windows** group, right-click **Toolboxes**, and select **Add Toolbox**.
  - d. Browse to the location on your local computer where you copied the contents of the USB flash drive, select **VectorStyleUpdater.tbx**, and select **OK**.  
The VectorStyleUpdater toolbox is added to the project.
  - e. Double-click **Toolboxes**, and double-click **VectorStyleUpdater.tbx**.
  - f. Double-click the **Vector Style Updater** script.



- g. In the **Vector Style Updater** dialog box, select the **Parameters** tab and provide the following:

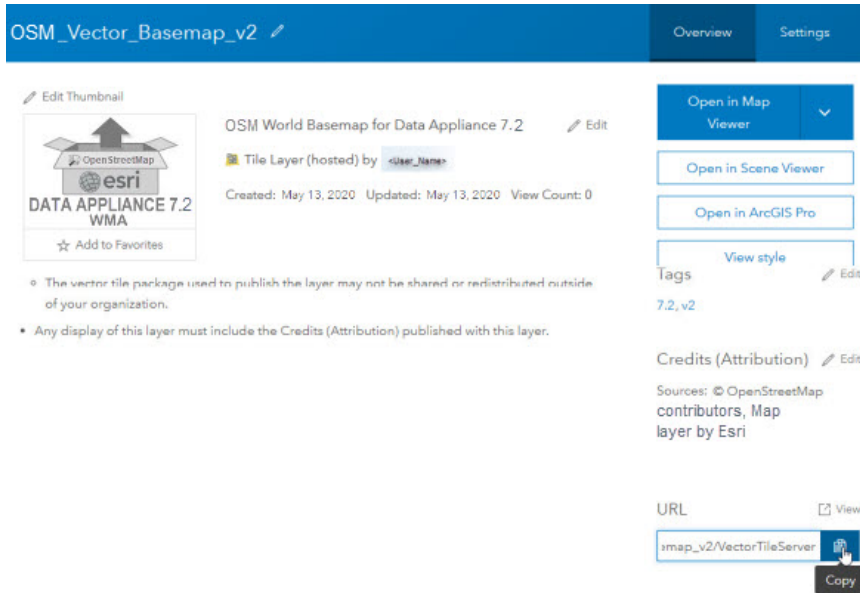


- i. For **CSV formatted file containing the item name and ids (.csv)**, browse to the location of the DA72\_OSM\_WMA\_StyleUpdater.csv file on your local computer.
- ii. For **Folder containing vector styles**, browse to the location of the WMA Updated Styles folder on your local computer, for example, C:\Projects\OSM\_Vector\_Basemaps\_7.2\VectorBasemapStyles\WMA\WMA\_ExistingUser\WMA\_UpdatedStyles.

- iii. For **Vector Tile Service URL**, provide the URL of the OSM Vector Basemap tile layer that you replaced above, for example, `https://portalname.domain.com/arcgis/rest/services/Hosted/OSM_Vector_Basemap_v2/VectorTileServer`.

**Note:**

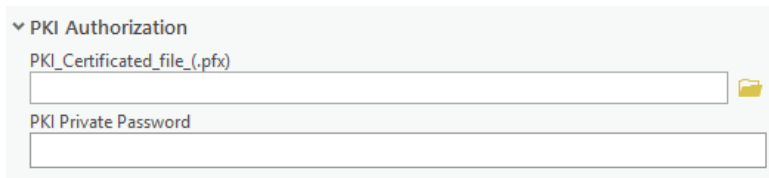
The vector tile service URL is in the URL section of the **OSM\_Vector\_Basemap\_v2** hosted tile layer item page. Click the **Copy** button and paste the URL into the **Vector Tile Service URL** parameter text box.



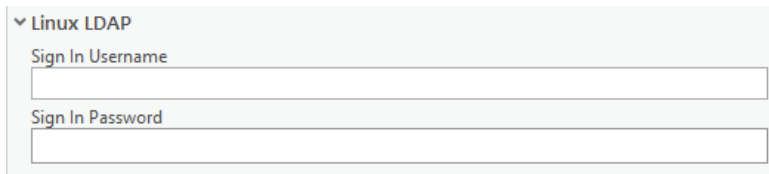
- iv. For **Metadata folder name**, keep the default name **metadata**.

**Note:**

If you are using a portal with PKI authentication, expand **PKI Authorization** and provide values for the **PKI Certificated file (.pfx)** and **PKI Private Password** parameters.



If you are using a portal with Linux LDAP authentication, expand **Linux LDAP** and provide values for the **Sign In Username** and **Sign In Password** parameters.



- 3. Click **Run**.

It can take up to a minute to update each existing style in your portal using the Vector Style Updater tool.

The VectorStyleUpdater toolbox displays a successful update message when complete.

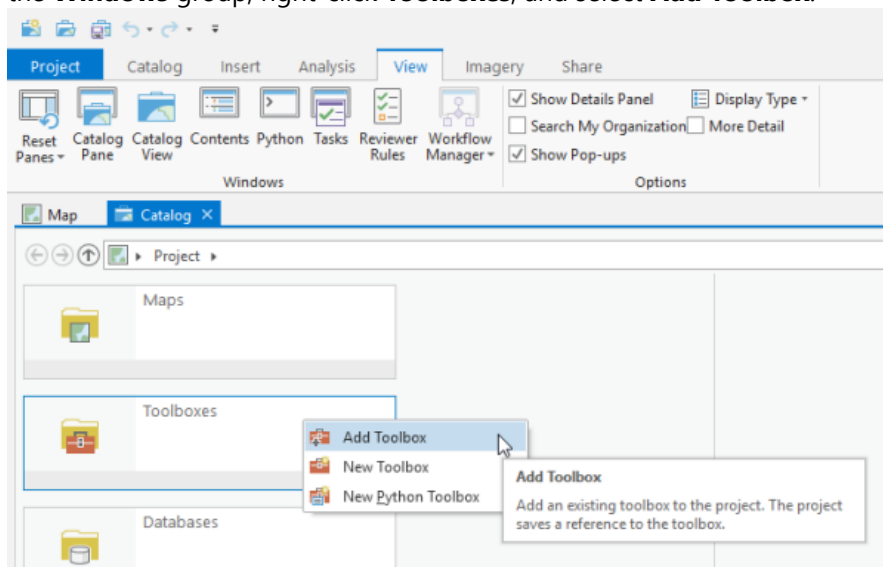
The five vector tile layers (map styles) are updated in your assigned ArcGIS Enterprise account. You can view the five items in **My Content**.

## Publish new tile layers (map styles)

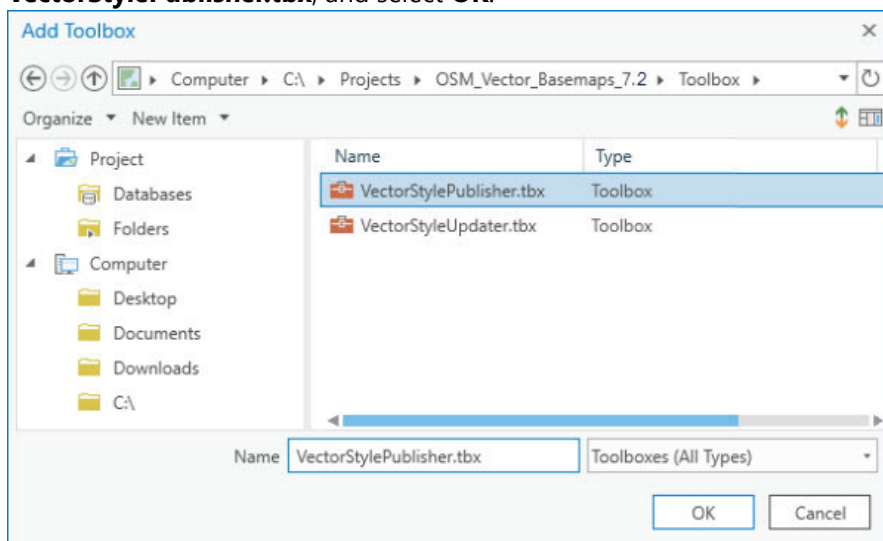
You'll publish the new map styles next.

The VectorStylePublisher geoprocessing toolbox can be run in ArcGIS Pro. This toolbox publishes new private map items in your portal for four new vector tile layers.

1. In the ArcGIS Pro project you created to update the existing styles, select the **View** tab, select **Catalog View** in the **Windows** group, right-click **Toolboxes**, and select **Add Toolbox**.

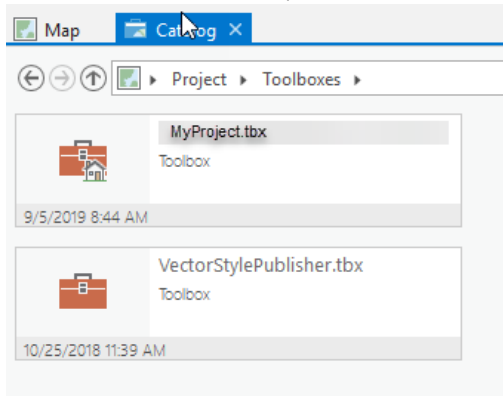


2. Browse to the location on your local computer where you copied the contents of the USB flash drive, select **VectorStylePublisher.tbx**, and select **OK**.

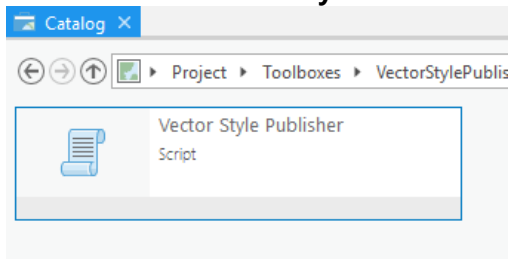


The VectorStylePublisher toolbox is added to the project.

3. Double-click **Toolboxes**, and double-click **VectorStylePublisher.tbx**.



4. Double-click the **Vector Style Publisher** script.

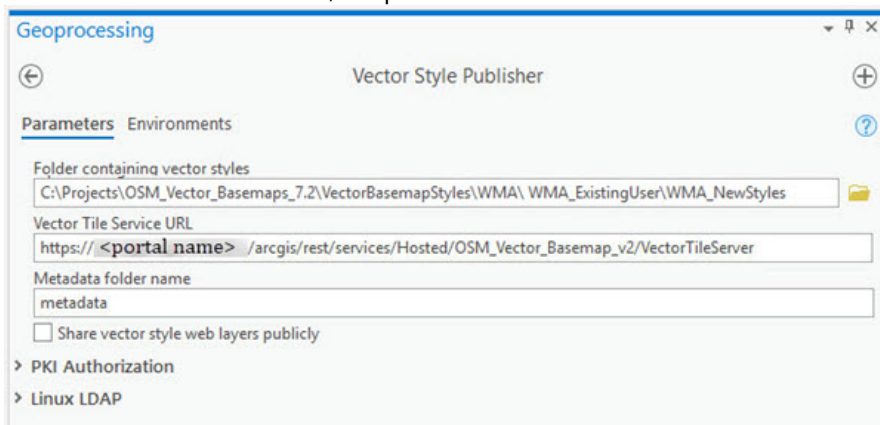


5. In the **Vector Style Publisher** dialog box, select the **Parameters** tab and provide the following:
  - a. For **Folder containing vector styles**, browse to the location of the WMA New Styles folder on your local computer, for example, C:\Projects\OSM\_Vector\_Basemaps\_7.2\VectorBasemapStyles\WMA\WMA\_ExistingUser\WMA\_NewStyles.
  - b. For **Vector Tile Service URL**, provide the URL of the OSM Vector Basemap tile layer, for example, https://portalname.domain.com/arcgis/rest/services/Hosted/OSM\_Vector\_Basemap\_v2/VectorTileServer.

**Note:**

The vector tile service URL is in the **URL** section of the **OSM\_Vector\_Basemap\_v2** hosted tile layer item page. Click the **Copy** button and paste the URL into the **Vector Tile Service URL** parameter text box.

- c. For **Metadata folder name**, keep the default name **metadata**.



**Note:**

If you are using a portal with PKI authentication, expand **PKI Authorization** and provide values for the **PKI Certificated file (.pfx)** and **PKI Private Password** parameters.

If you are using a portal with Linux LDAP authentication, expand **Linux LDAP** and provide values for the **Sign In Username** and **Sign In Password** parameters.

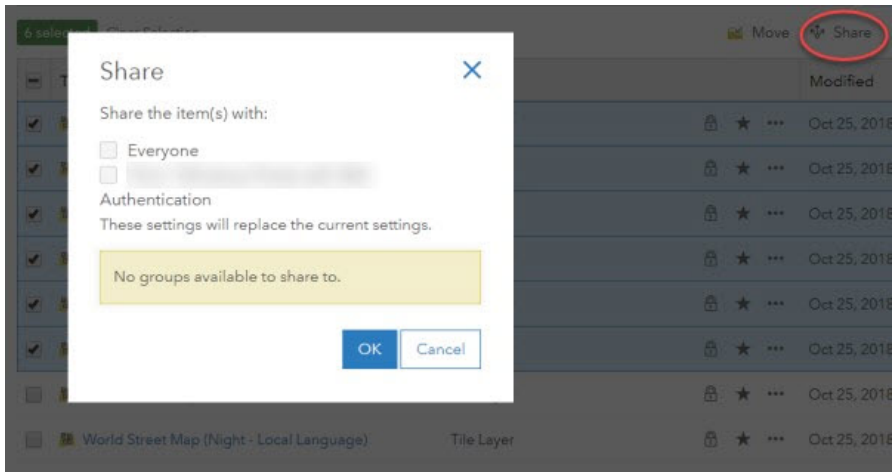
d. Click **Run**.

The four new vector tile layers (map styles) are created in your assigned ArcGIS Enterprise portal account. You can view the items in **My Content**. Thirteen items are listed: nine vector tile layers (four new plus five existing), both 7.1 and 7.2 .vtpk files, and the active and archived hosted tile layers.

## Share tile layers (map styles)

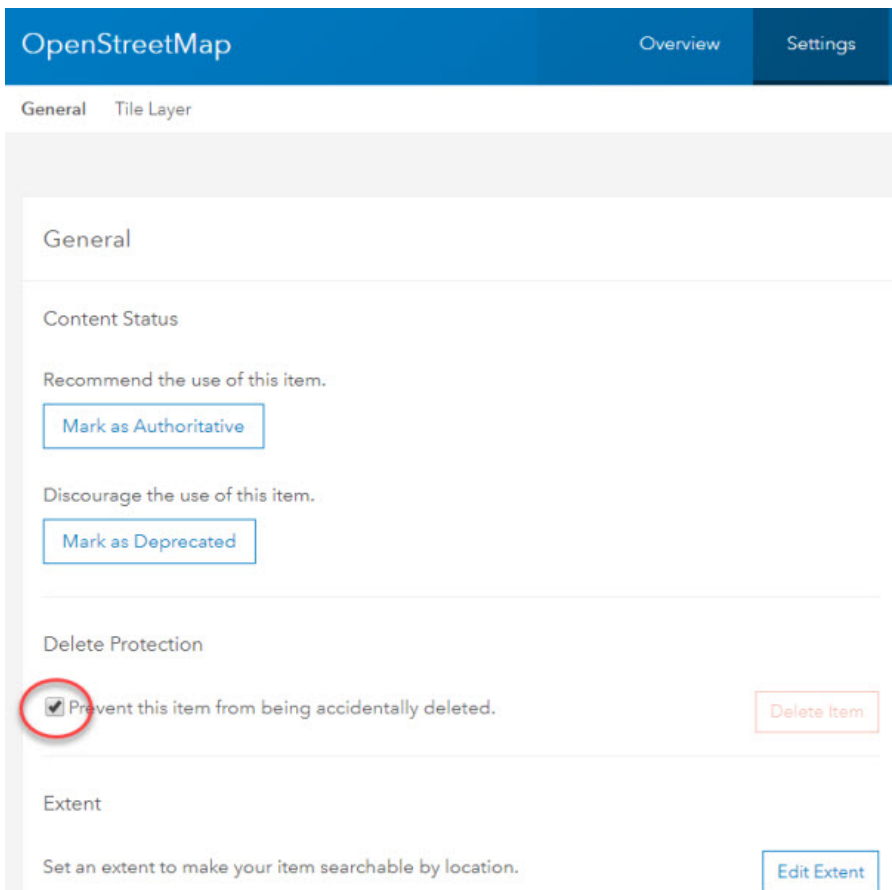
The items created are private unless you check the **Share vector style web layers publicly** check box to make them public.

Alternatively, you can select the map items in your portal and change the sharing settings.



**Note:**

Delete protection for all items is applied upon publishing the tile layers. To change the protection setting, open the item and click the **Settings** tab. Under **Delete Protection**, uncheck **Prevent this item from being accidentally deleted** and click **Save**.



Once you set up the OSM Vector Basemaps update, you can do the following:

- [Use OSM Vector Basemaps](#)

- [Customize styles](#)

# Troubleshooting OSM Vector Basemaps

Listed below are issues you may encounter when working with OSM Vector Basemaps content as well as recommended solutions.

- [What if the size of the uploaded .vtpk file does not match the size of the source .vtpk file?](#)
- [What if I encounter the There was an error message when I try to publish the service?](#)
- [What do I do if the progress bar keeps loading when I'm trying to publish my service?](#)

## What if the size of the uploaded .vtpk file does not match the size of the source .vtpk file?

If your hosted tile layer service did not publish successfully, an issue may have occurred during the upload of the vector tile package (.vtpk) file to your portal. The size of the .vtpk file on disk and the size of the uploaded file on your portal must match.

The size of the OSM\_Vector\_Basemap\_DA72\_Install.vtpk file is 33,311 MB and the OSM\_Vector\_Basemap\_GCS\_DA72\_Install.vtpk file is 33,116 MB.

You can check the size of the uploaded vector tile package (supporting the service) on the item details page. The following screen capture shows the OSM\_Vector\_Basemap\_DA72\_Install vector tile package details:

### Details

Size: 33,311 MB

Shared with: The item is not shared.



If the size does not match, review the log via the server manager to see if there are any errors.

In some cases, the ArcGIS Pro Share Package geoprocessing tool may have produced a **Success** message, but when you check the size of the .vtpk file from the item details page, it does not match. Here are some things that you can try to resolve this issue:

- Upload the .vtpk file again. First, delete the OSM\_Vector\_Basemap\_DA72\_Install.vtpk or OSM\_Vector\_Basemap\_GCS\_DA72\_Install.vtpk file from your portal. Next, upload the OSM\_Vector\_Basemap\_DA72\_Install.vtpk or OSM\_Vector\_Basemap\_GCS\_DA72\_Install.vtpk file again using the ArcGIS Pro Share Package geoprocessing tool.
- Verify with your portal administrator that there is at least 68 GB of disk space per .vtpk file available on your portal. Make sure there is space on <ArcGIS portal install drive>\arcgis\arcgisportal where the content items are stored.
- Verify that you are using a supported version of ArcGIS Pro. See the [system requirements](#) for details.

Contact Esri [Technical Support](#) if you still cannot successfully upload the .vtpk file.

### Note:

The following answers reflect troubleshooting of the WMA vector tile package and service. To troubleshoot the GCS vector tile package and service, you need to take the GCS naming into consideration.



### **What if I encounter the There was an error message when I try to publish the service?**

Work with your systems administrator to check the ArcGIS Server Manager logs.

If there is an error due to a geoprocessing service (PublishingTools) timing out or crashing, you may have skipped a [system requirements](#) step. Confirm that you changed the value of **The maximum time a client can use a service** to 21,600 seconds.

Once you have updated the geoprocessing service maximum time, do the following:

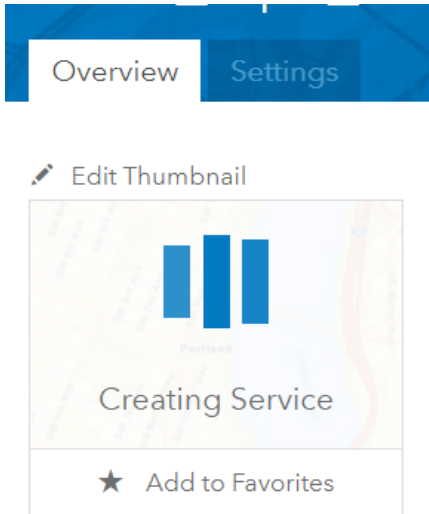
1. On your server, delete the OSM\_Vector\_Basemap\_v2 or OSM\_Vector\_Basemap\_GCS\_v2 hosted tile layer.
2. On the ArcGIS Server machine, delete the job in the <ArcGIS\_Server\_Install\_Path>\arcgis\arcgisserver\directories\arcgisjobs\system\publishingtools\_gpserver\

 **Note:**

You can find the job ID in the log file.

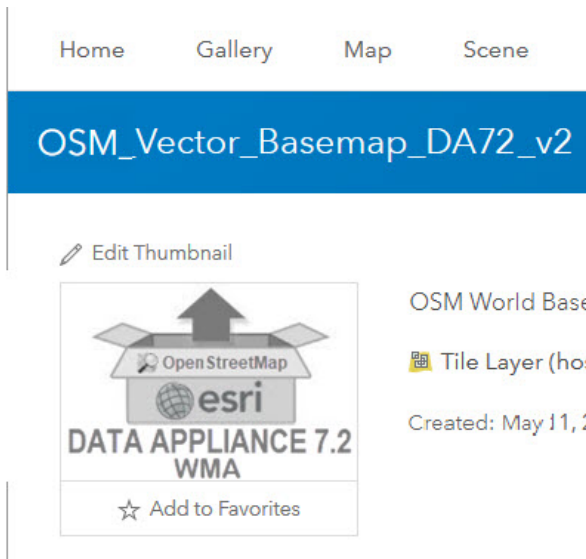
3. Restart the server.
4. Verify that you have at least 68 GB of available space per .vtpk file on ArcGIS Server.
5. In your portal, publish the OSM\_Vector\_Basemap\_v2 or OSM\_Vector\_Basemap\_GCS\_v2 tile layer again.

### What do I do if the progress bar keeps loading when I'm trying to publish my service?



If the **Creating Service** progress bar continues to load after two hours, the browser connection to the portal may have failed.

Sign out of the portal and sign in again to see if the thumbnail has changed to the Data Appliance 7.2 icon, because the browser connection does not affect the creation of the service.



If the thumbnail changes to the Data Appliance 7.2 icon, confirm that the map displays as expected.

## Additional resources

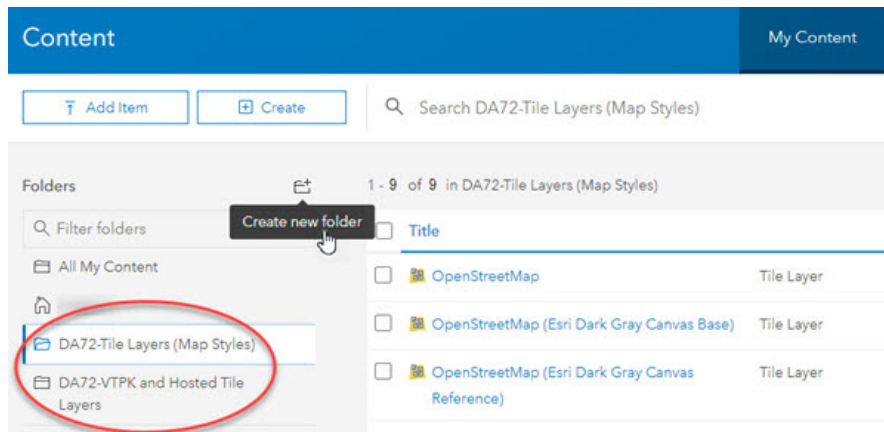
The following resources are available for OSM Vector Basemaps:

- [ArcGIS Data Appliance 7.2: OSM Vector Basemaps help](#) [PDF]
- [ArcGIS Data Appliance 7.2: Esri Vector Basemaps New users video](#) [captioned MP4] demonstrating uploading, updating and publishing Esri Vector Basemaps to your portal—Instructions for uploading and publishing OSM Vector Basemaps are similar to Esri Vector Basemaps. The names of the files and styles used in the video reflect the source data. Substitute OpenStreetMap (OSM) file names for Esri Vector Basemaps file names when following the instructions in the video.
- [ArcGIS Data Appliance 7.2: Esri Vector Basemaps Existing users video](#) [captioned MP4] demonstrating uploading, updating and publishing Esri Vector Basemaps to your portal—Instructions for uploading and publishing OSM Vector Basemaps are similar to Esri Vector Basemaps. The names of the files and styles used in the video reflect the source data. Substitute OpenStreetMap (OSM) file names for Esri Vector Basemaps file names when following the instructions in the video.
- [Tile layers](#), [Customize basemaps](#), and [Choose basemap](#) in the Portal for ArcGIS help
- [Working with and Customizing Esri Vector Basemaps: The Basics](#) blog post
- [Style a vector basemap](#) using the ArcGIS Vector Style Editor in the ArcGIS for Developers website (for ArcGIS 10.8 or later users only)

# Use

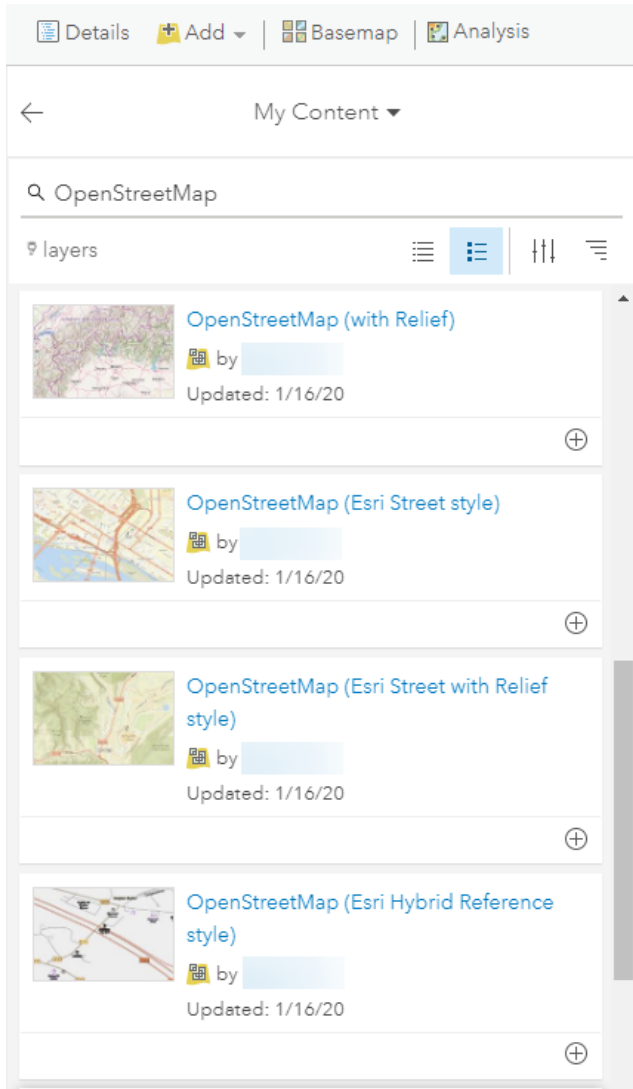
## Use OSM Vector Basemaps

With the addition of vector tile packages (.vtpk), hosted tile layers, and tile layers in your portal, you will have a number of items in your ArcGIS Enterprise **Content** window. With the correct administrative privileges, you can create folders, groups, and categories. By creating folders and moving items into them, you can organize your **Content** window to make it easier to find the items you are looking for. The following image shows some folder name suggestions. See [Manage content](#) in the Portal for ArcGIS help for information on managing content in ArcGIS Enterprise.

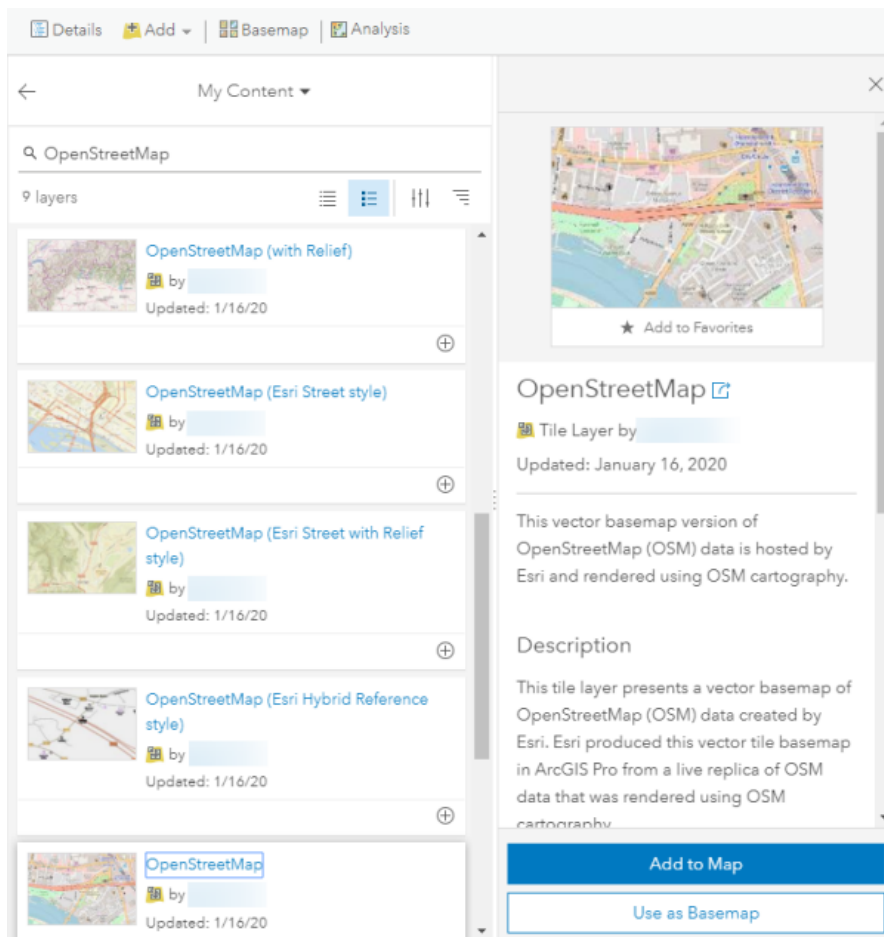


You can use OSM Vector Basemaps in your applications in the following ways:

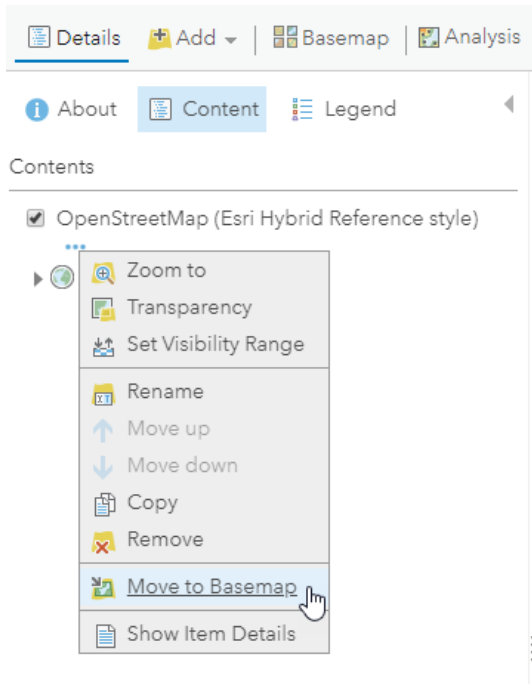
- The nine map tile layers (styles) can be added to a map in ArcGIS Pro or to Map Viewer in your Enterprise portal.



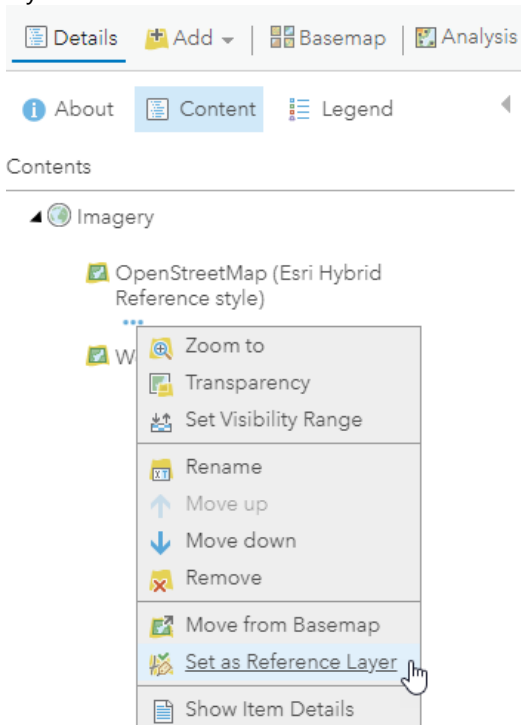
- The tile layers (styles) can be added to an existing basemap, or they can be added as the basemap.



- Three of the nine map tile layers (styles) can be used with a raster layer—World Hillshade or World Imagery—as the basemap in their web map:
  - OpenStreetMap (with relief)—World Hillshade
  - OpenStreetMap (Esri Street with Relief style)—World Hillshade
  - OpenStreetMap (Esri Hybrid Reference style)—World Imagery
- If you have a tile layer (style) in your map, it can be moved to the basemap.



- The Hybrid Reference layer can be moved to the basemap and set as the reference layer over the World Imagery layer.



- The OpenStreetMap Dark Gray or Light Gray Canvas Reference layers can be moved to the basemap and set as the reference layer over the Canvas Base layer.




## Customize styles

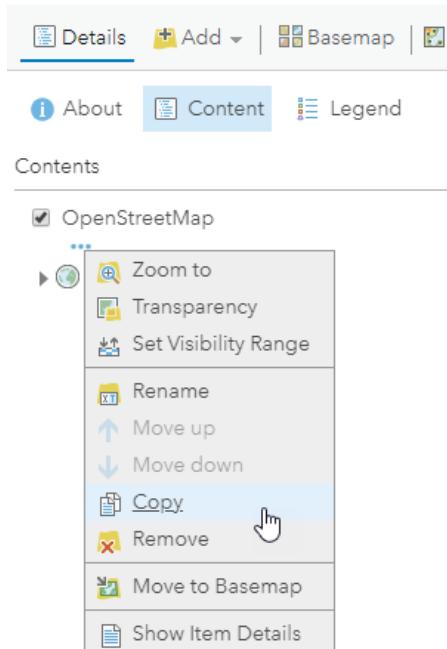
With ArcGIS Data Appliance: OpenStreetMap Vector Basemaps, you can modify and customize the map style. You can customize the map by changing the hex color codes of map features or labels, removing feature classes, changing fonts (face, size, and color), or making other edits. For more information, see the [vector basemap blog post](#) on the ArcGIS Blog website.

Customization requires changes to the map style's `resources\styles\root.json` file. There are two main ways to customize your maps: add a style to the map in Map Viewer or copy a `root.json` style from the USB flash drive. If you are using ArcGIS Enterprise 10.8 or later, you can use the new Vector Tile Style Editor. Then you can edit the custom style map item to include a new thumbnail and update the item's information for your custom style.

### Add a style to the map in Map Viewer and rename the style

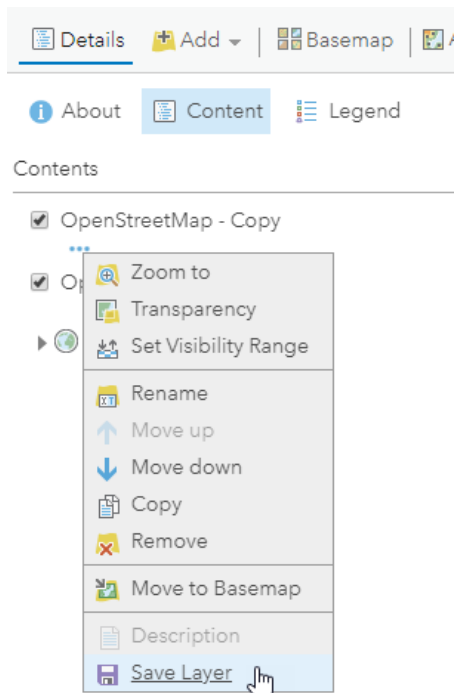
To add a style using Map Viewer, complete the following steps:

1. In your Enterprise portal, open the style you want to customize in Map Viewer, for example, OpenStreetMap.
2. Click **More Options**  and select **Copy**.

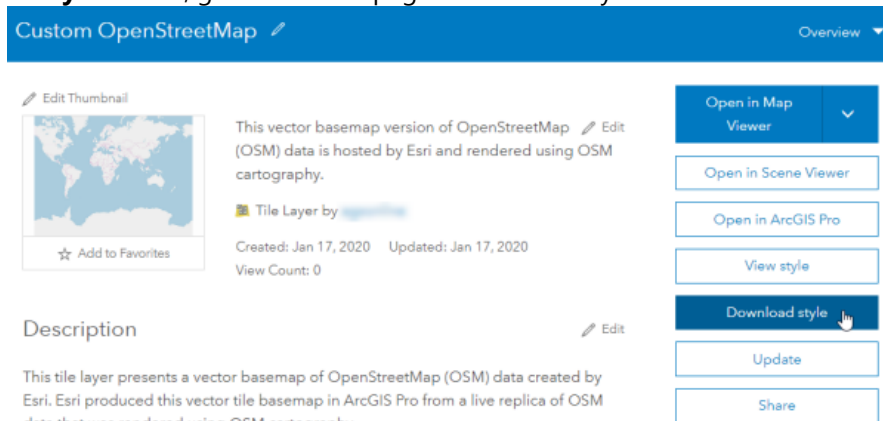


A new OpenStreetMap - Copy layer is added to the top of the **Contents** pane.

3. Click **More Options**  and select **Save Layer**.



4. Rename the style, for example, Custom OpenStreetMap, and select the folder where you want to save the new style.
5. In **My Content**, go to the item page for the new style and click the **Download style** button.



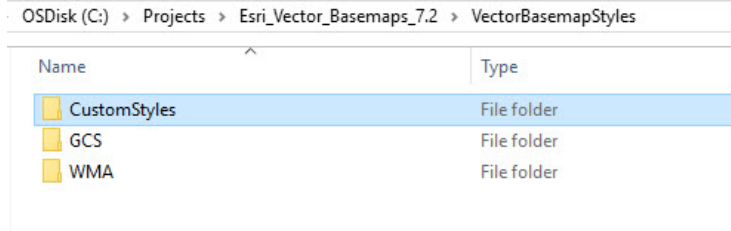
The style (`root.json` file) is saved to your computer.

6. Open the `root.json` file in a text editor such as Adobe Brackets or Notepad++, and edit and save the file. Edits to the `root.json` file can be color value, line width, font size, and so on.
7. Validate the JSON using [JSONLint](#) or a similar JSON validation tool. You can also use this website to parse the JSON into a more user-friendly format before editing.
8. On the item page for the new style, click the **Update** button to update the item and load the modified `root.json` file from your computer to your portal.

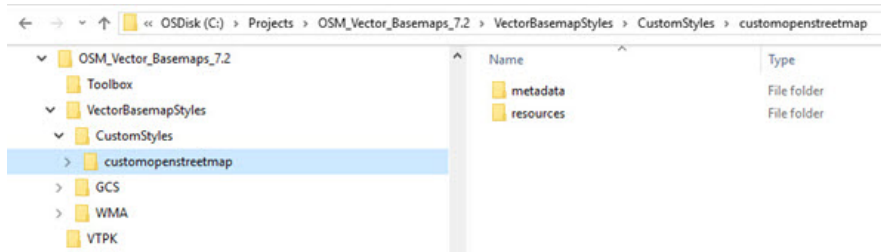
## Copy a style from the USB flash drive and rename the map style directory

To copy a root.json style from the USB flash drive, complete the following steps:

1. On your local computer, create a directory called CustomStyles at the same directory level as the GCS and WMA directories.



2. Copy a style from the USB flash drive and rename the map style directory; for example, copy the openstreetmap directory into a new directory and change the name to customopenstreetmap.



3. In the new customopenstreetmap directory, open the resources\styles\root.json file (for example, CustomStyles\customopenstreetmap\resources\styles\root.json) in a text editor such as Adobe Brackets or Notepad++, edit the map code, and save the file.

An example of a style edit in the root.json file is changing the country boundary in purple (#AC46AC) to red (#FF0000).



4. In the new customopenstreetmap directory, open the metadata\metadata.json file (for example, CustomStyles\customopenstreetmap\metadata\metadata.json) in a text editor such as Adobe Brackets or Notepad++, and edit "title":, replacing "OpenStreetMap" with a new map title, for example, "Custom OpenStreetMap", and save the file.

```

1  {
2  "item": {
3    "id": " ",
4    "owner": "esri",
5    "orgId": " ",
6    "created": 1479914181000,
7    "modified": 1501816893000,
8    "guid": null,
9    "name": null,
10   "title": "OpenStreetMap",
11   "type": "Vector Tile Service",
12   "typeKeywords": ["Data", "Service", "Vecto
13   "description": "This tile layer presents a
14   "tags": ["Data Appliance", "7.1", "71", "A
15   "snippet": "This vector basemap version of
  
```

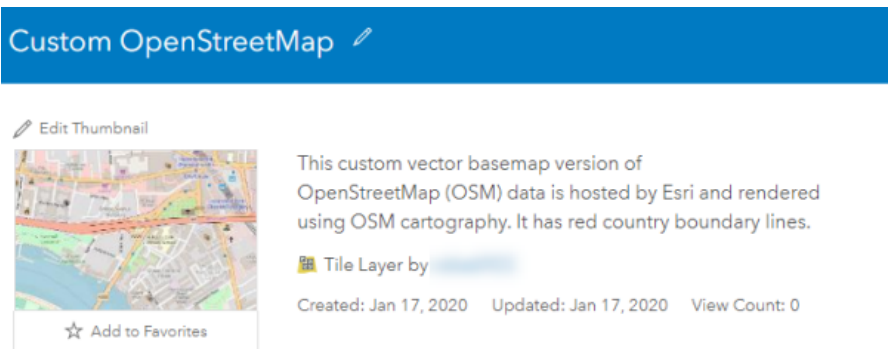
5. Validate the JSON using [JSONLint](#) or a similar JSON validation tool.
6. Perform the [publish tile layers \(map styles\)](#) steps, this time pointing to the new directory containing your custom style.

The new style is created in your Enterprise portal under **My Content**. Following the naming conventions in steps 1–4 produces a new item in your portal named Custom OpenStreetMap.

## Edit the custom style map item in your portal

On the map item page of your custom map style, you can update the summary, description, tags, and thumbnail to better describe the new map you styled.

It is recommended that you apply **Delete Protection** to your custom style map item on the item's **Settings** tab.

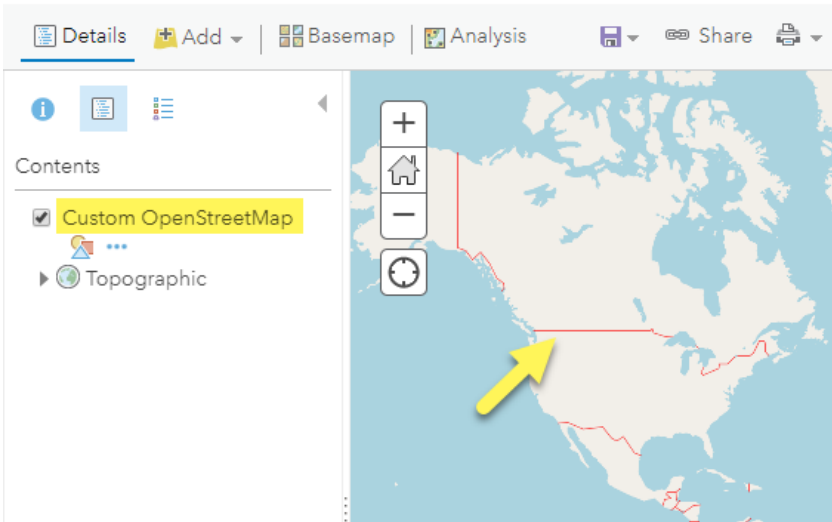


### Description

This vector tile layer is a customized version of the OpenStreetMap.

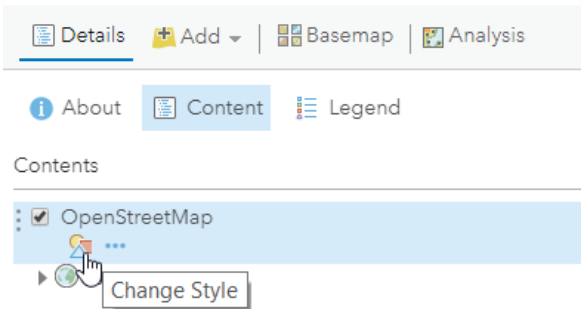
The country boundary lines were changed to red.

Home ▾ Custom OpenStreetMap

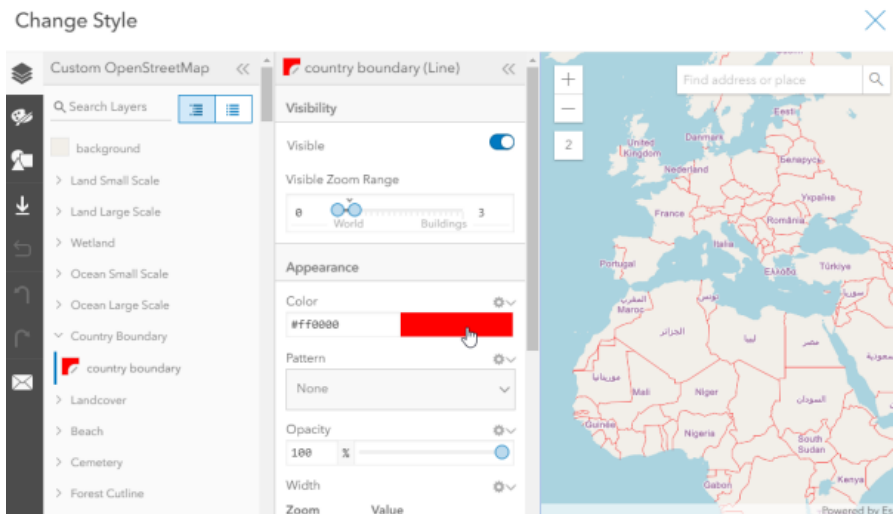


## Esri Vector Tile Style Editor

If you're using ArcGIS Enterprise 10.8 or later, you can customize vector map styles through an app in Map Viewer. Access the Style Editor from the **Change Style** button under any OSM vector basemap tile layer. Save the new style to your portal.



Styling options include the **Quick Edit** tool, in which layers are customized across groups of features, and the **Layer Style Editor** list for individual feature style controls. Colors, line weights, font faces, and sprite symbology are examples of the style changes that can be applied to your custom map item.



Information about using the ArcGIS Vector Style Editor to [style a vector basemap](#) is available in the ArcGIS for Developers website.

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# Support

# Support

Support for ArcGIS Data Appliance: OpenStreetMap Vector Basemaps is provided by the Esri Technical Support team.

Contact the following:

- United States users—Contact Esri Technical Support using one of the following options. Hours are Monday through Friday, 9:00 a.m. to 5:00 p.m. (Pacific time), excluding Esri holidays:
  - Phone: 888-377-4575
  - Email: [support@esri.com](mailto:support@esri.com)
  - Web page: <http://support.esri.com/contact-tech-support>
- International users—Support is provided by your [local Esri distributor](#).