

ArcGIS® 9

ArcGIS® Image Server tutorial



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The Landsat data used in this tutorial is provided by Landsat.org/Tropical Rain Forest Information Center, a member of NASA's Federation for Earth Science Information Partners (ESIP) at Michigan State University (<http://www.landsat.org>).

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ArcGIS Image Server tutorial

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The ArcGIS® Image Server allows you to quickly create image service definitions to serve large quantities of raster data to a variety of clients for visualization and analysis, including mapping, surveying, photogrammetric engineering, and GIS applications.

The easiest way to begin learning about the ArcGIS Image Server and how to publish image service definitions is to complete the exercises in this tutorial. These exercises will show you how to create an image service definition and make it available on a server, how to access the image service as a client, as well as other functionality.

Before you start, it is assumed you know the fundamentals of ArcGIS Desktop software. If not, it is recommended you work through some of the other tutorials, such as *Using ArcMap*. For more information, see the ArcGIS Desktop Help. Exercise 2, provides the workflow for publishing image services using ArcGIS Server, therefore you will need to know the fundamentals of ArcGIS Server.

This tutorial includes seven exercises:

- Exercise 1 shows you how to create an image service definition.
- Exercise 2 shows you how to setup ArcGIS Image Server with ArcGIS Server, publish an image service using an image service definition and a raster dataset, and access the image services as a client.
- Exercise 3 shows you how to setup ArcGIS Image Server as a standalone application, publish the image service definition, and access the image service as a client.
- Exercise 4 shows you how to create an image service definition using the advanced options and how to apply the Viewpoint mosaic method.

- Exercise 5 takes you through the steps to create a pan-sharpened image service definition from a Landsat data source.
- Exercise 6 teaches you how to create an image service definition using raw data and orthorectification parameters defined in a MatchAT project.
- Exercise 7 shows you how to create a hillshaded and shaded relief image service definition using a DEM data source and how to create a second image service definition from one you've previously created.

To perform these exercises you need the following installed:

Exercise	ArcGIS Desktop	ArcGIS Image Server components				ArcGIS Server for the Microsoft .NET Framework
		Service Editor	Server	Service Provider	Server Manager	
1	✓	✓				
2	✓		✓	✓	✓	✓
3	✓		✓	✓	✓	
4	✓	✓				
5	✓	✓				
6	✓	✓				
7	✓	✓				

Throughout all these exercises it is assumed that you have all ArcGIS components installed on the same machine. If not, you will have to modify the directions accordingly.

This tutorial is designed to let you work at your own pace. You will need a few hours of focused time to complete all the exercises in this tutorial.

Exercise 1: Creating an image service definition

For this exercise, you will be creating an image service definition containing GeoTIFF raster dataset files using the New Image Service Wizard.

Before you begin, it is assumed that you have installed the tutorial on the C:\ drive. If not, please make the appropriate path changes throughout this tutorial, so it works properly for you.

Start ArcMap

You create new image service definitions using tools within ArcMap.

1. Click the Start button on the Windows taskbar, point to Programs, point to ArcGIS, then click ArcMap.

The ArcMap window appears.

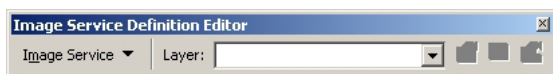
2. Click A new empty map.
3. Click OK.

Add the Image Service Definition Editor toolbar

You need to add the Image Service Definition Editor toolbar to your ArcMap window to create and edit image service definitions.

1. Click View on the Main menu, point to Toolbars, then click Image Service Definition Editor.

You can place or dock this toolbar anywhere in or around your window.

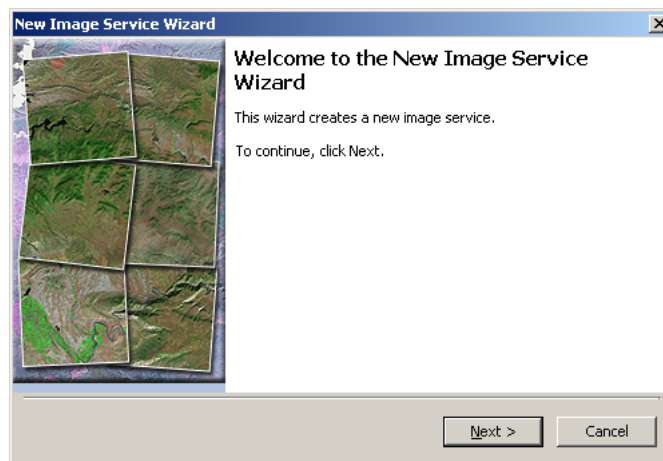


Create a new image service definition using the New Image Service Wizard

The New Image Service Wizard walks you through all the steps necessary to create a compiled image service definition for most raster types.

1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar and click New Image Service.

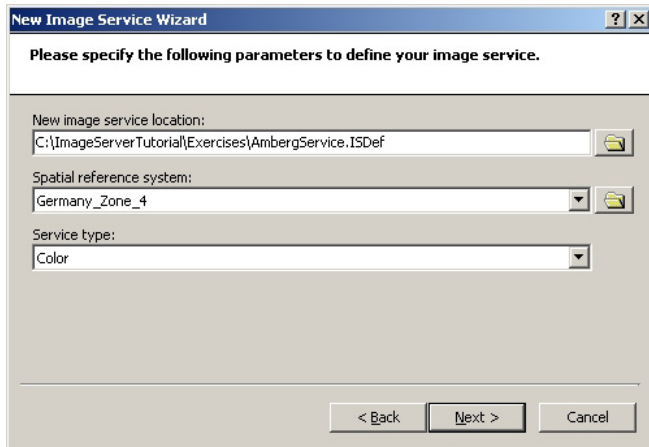
This opens the New Image Service Wizard.



2. Click the Next button.
3. Click the New image service location browse button.
4. Navigate to the location where you want to save your image service definition. In this tutorial, you will be creating the image service definition in C:\ImageServerTutorial\Exercises.

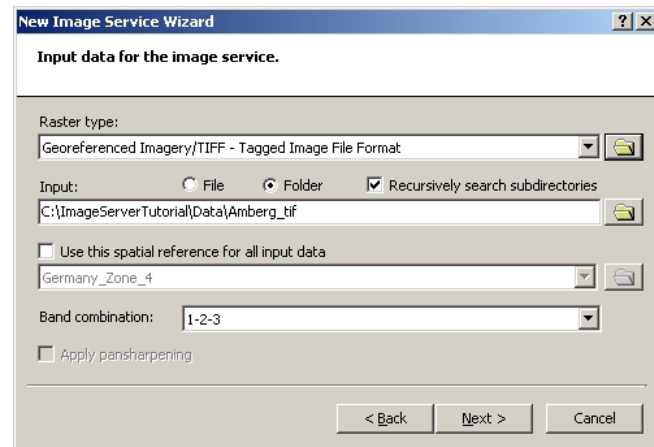
5. Type the File name “AmbergService” and click Save.
6. Click the Spatial reference system browse button.
This opens the Spatial Reference Properties dialog box.
7. Click Select.
8. Double-click the Projected Coordinate Systems folder, double-click the National Grids folder, click Germany Zone 4.prj, then click Add.
9. Click OK to close the Spatial Reference Properties dialog box.

The service type you will be creating is a color image service, since there are three bands in the GeoTIFF files that you will be adding. If there was only one band, you would be creating a panchromatic image service.

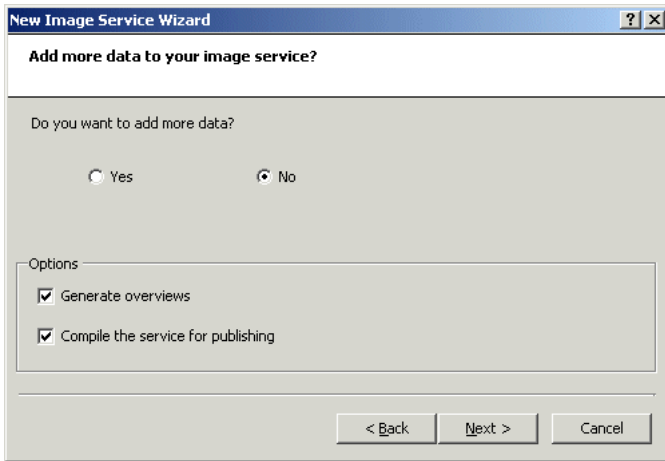


10. Click the Next button.
11. Click the Raster type browse button.
This opens the Select Raster Type dialog box.

12. Double-click the Georeferenced Imagery folder in the Select Raster Type dialog box.
13. Scroll through the list and click TIFF–Tagged Image File Format from the Name list.
14. Click OK.
15. Click the Input browse button.
16. Navigate to C:\ImageServerTutorial\Data, click the Amberg_tif folder, then click OK.



17. Click the Next button.
The raster data has already been enhanced; therefore, you do not need to apply a stretch or gamma to the data.
18. Click the Next button.
Service overviews are created to optimize the image service by allowing the service to display quickly at all scales.
Compiling the image service definition creates a compiled file (AmbergService.ISCDef) that is used to publish the image service.



19. Click the Next button.

It is important to add metadata information about the image service. This information can be viewed by clients of the published image service.

20. Type “A German City” in the Title text box.

21. Type “Amberg City, Germany” in the Geographic region text box.

22. Click the Pixel unit drop-down arrow and click True Color.

23. Click the Pixel source drop-down arrow and click Aerial Photography.

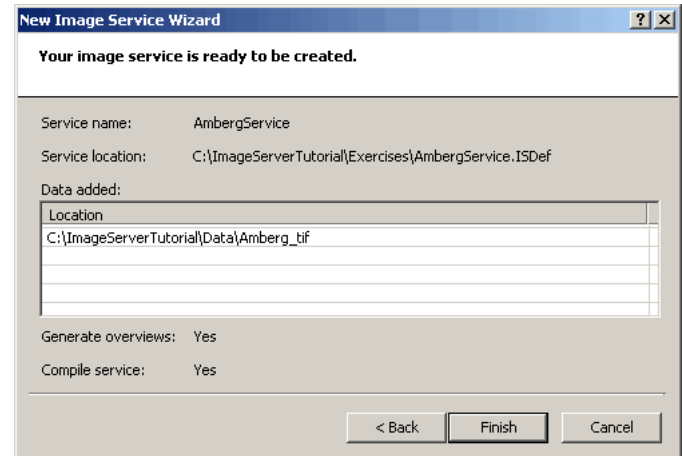
24. Type your name in the Publisher text box.

25. Type “H. D. Enterprises” in the Contact organization text box.



26. Click the Next button.

27. Review the information about the image service you will be creating.



28. Click the Finish button.

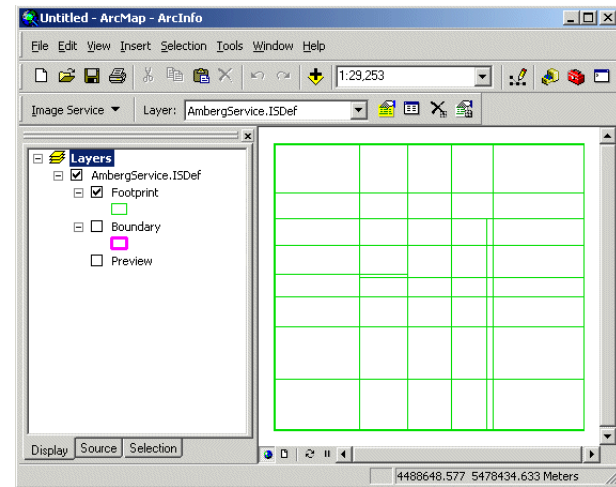
The Image Service Editor window opens. You can watch the progress of the image service definition being created. If you were creating the image service definition using the Advanced options, you would perform each of the steps displayed in this status separately.

When the creation of the new image service definition is complete, you will see “Process Completed.” in the Image Service Editor window.

```
[ImageServiceCore.ImageService.Save] Writing raster definition
[ImageServiceCore.ImageService.Save] Writing raster groups
[ImageServiceCore.ImageService.Save] Writing raster group 1 of 18
[ImageServiceCore.ImageService.Save] Writing raster group 11 of 18
[ImageServiceCore.ImageService.Save] Writing raster group 18 of 18
[ImageServiceCore.ImageService.Save] Compiled Service saved to 'C:\ImageServerTutorial\
[ServiceEditorCore] Successfully created the compiled Image Service file: 'C:\ImageService
[ServiceEditor] Executed successfully...
[ServiceEditor] Performing clean up...
[ServiceEditor] Process completed.
```

29. Click the Close button.

The image service custom group layer, AmbergService.ISDef, is added to the ArcMap table of contents. It contains the Footprint, Boundary, and Preview layers. The Footprint layer contains the footprints of each raster dataset in the image service definition, including the GeoTIFF files that were added and the service overviews that were created. The Boundary layer contains a polygon representing the extent of every dataset in the image service definition. The Preview layer can be used to preview the image service and the information about the image service that clients can access.



Preview the image service

1. Check the Preview layer in the table of contents to display the layer.

The preview is generated with the same processes used to generate the image that is sent to the client; therefore, you can always be certain of the image the client will view.

2. Click the Zoom In tool  on the Tools toolbar.
3. Zoom in to an area in the display view.

You can use a variety of tools on the Tools toolbar to explore and move around the image in the Preview layer.

4. Close ArcMap.
5. Click No; you do not need to save your ArcMap session.

You have now created an image service definition and previewed how it will appear when it is published.

To publish the image service definition you need to follow the steps in either Exercise 2 or 3. If you want to publish the image service definition using ArcGIS Server, follow the directions in Exercise 2. If you want to publish the image service definition using ArcGIS Image Server's standalone configuration, follow the directions in Exercise 3.

Exercise 2: Serving image services using ArcGIS Server

For this exercise you will be serving image services using ArcGIS Server. To do this you are required to have ArcGIS Server and ArcGIS Image Server installed.

There are two important requirements to complete this tutorial:

- ArcGIS Server must be configured
- You must have administrative access to ArcGIS Server in ArcCatalog

You will be configuring the ArcGIS Image Server and registering it with the ArcGIS Server.

NOTE: Exercise 2 should not be followed by exercise 3. Each of these exercises presents one of the two ways you can publish image services. If you wish to perform exercise 3 later, be sure to stop and remove all the services, service providers and servers you create and start in this exercise.

Through this exercise you will publish the compiled image service definition from exercise 1 and an additional TIFF file. Alternatively, you could publish any of the compiled image service definitions in any of the exercises in this tutorial.

You will also access these image services as a client and examine the different properties.

Before you begin, it is assumed that you have installed the tutorial on the C:\ drive. If not, please make the appropriate path changes throughout this tutorial, so it works properly for you.

Start the Image Server Manager

1. Click the Start button on the Windows taskbar, click All Programs, point to ArcGIS, point to Image Server, then click Server Manager.

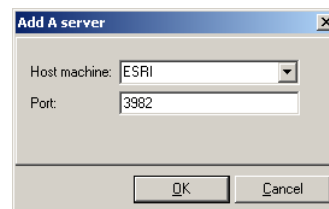
The Image Server Manager application opens.

2. Click File and click Add Server.


The Add a server dialog box opens.

Your computer's name is specified as the Host machine. There are only three options for naming the Host Machine—it can be:


- The machine's name (for example, the browse name on the network)
- The machine's IP address
- The default: 127.0.0.1



3982 is the default port number for an ArcGIS Image Server server.

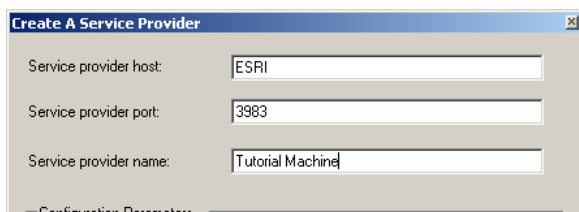
3. Click OK.
4. Click Yes to create the server configuration.
5. Click the Start button  to start the server.

Create and start a service provider

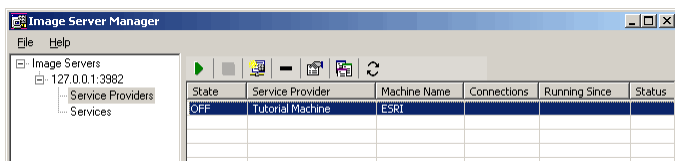
1. Expand the server node in the left pane of the Image Server Manager window.
2. Click Service Providers.
3. Click the New button .

This opens the Create A Service Provider dialog box.

4. Type “Tutorial Machine” in the Service provider name text box.



5. Click OK.
6. Click Tutorial Machine under the Service Provider column to highlight the row.



7. Click the Start button  on the Image Server Manager window.

The state will change to ON.

8. Close the Server Manager.

The server and service provider will continue to run when the Server Manager application is closed.

If you've performed exercise 3 or if you plan to perform exercise 3 you will notice that the process to set up the server and service provider using the Image Server Manager is identical. Where they differ is in how the image services are published. When you use ArcGIS Image Server as a standalone server, the image services are published using the Image Server Manager. When you use ArcGIS Image Server as an extension to ArcGIS Server the image services are published from within the ArcGIS Server application, which will be presented in following steps.

Open ArcCatalog

You will be using ArcCatalog to manage the ArcGIS Server and publish your image services.

1. Click the Start button on the Windows taskbar, click All Programs, point to ArcGIS, then click ArcCatalog.

Configure ArcGIS Server and ArcGIS Image Server

1. Expand GIS Servers in the Catalog tree.
3. Double-click Add GIS Server.

The Add ArcGIS Server wizard is opened.

4. Click Manage GIS Servers.
5. Click the Next button.
6. Type the Server URL.

This information would have been defined in the ArcGIS Server post install process. In the sample URL, you may replace “www.myserver.com” with the name of your server machine.

7. Type the Host Name.



8. Click Finish.

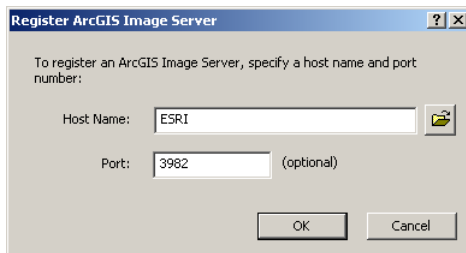
Your new server connection will appear at the bottom of the GIS Servers list in the Content tree.

9. Right-click the server connection you made in ArcCatalog and click Server Properties.

10. Click the Hosts tab.

11. Click the Register Image Server button.

12. Type your computer's name in the Server Name text box.



13. Click OK.

The Server Object Manager (SOM) is now aware of the location of the ArcGIS Image Server server and will use this when serving compiled image service definitions.

14. Click OK to close the Server Properties text box.

Publish an image service definition

1. In the Catalog tree, navigate to C:\ImageServerTutorial\Exercises\AmbergService.ISCDef.
2. Right-click AmbergService.ISCDef and click Publish to ArcGIS Server.

This opens the Publish to ArcGIS Server wizard.

3. Make sure the ArcGIS Server is the same server name as the connection you made earlier.
4. The Service Name will be the name you specified when creating the image service definition.
5. Click the Next button.
6. The Imaging capability will be checked.

In the future you could choose to check the WCS for the Open Geospatial Consortium, Inc. (OGC) web coverage service capability or the WMS for the OGC web map service capability.

7. Click the Next button.
8. Click the Finish button.

The AmbergService will be added as an image service connection to the server connection in the Catalog tree.

9. Click the AmbergService image service under your ArcGIS Server connection.
10. Click the Preview tab to preview the image service.

Publish a raster dataset

You are not limited to publishing compiled image service definitions in ArcGIS Server. You may also publish a raster dataset or raster dataset layer as an image service when using ArcGIS Server. Next, you will publish a single raster dataset as an image service.

1. Navigate to C:\ImageServerTutorial\Data\Amberg.tif.

2. Click 090160.tif.

Since you are still using the Preview tab a dialog box will open asking you if you want to build pyramids for this raster dataset.

3. Click Yes, to build pyramids.
4. Right-click 090160.tif and click Publish to ArcGIS Server.

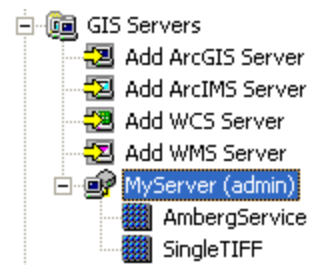
This opens the Publish to ArcGIS Server wizard.

5. Make sure the ArcGIS Server is the same server name as the connection you made earlier.
6. Type “SingleTIFF” in the Service Name text box.
7. Click the Next button.

The Imaging capability will be checked.

8. Click the Next button again.
9. Click the Finish button.

The SingleTIFF will be added as an image service connection to the server connection in the Catalog tree.




10. Click the SingleTIFF image service under your ArcGIS Server connection.

You are previewing one of the TIFF files that was used to create the AmbergService image service definition. This TIFF file is being published as its own image service.

11. Close ArcCatalog.

Add the image services to ArcMap.

1. Open ArcMap.
2. Click A new empty map.
3. Click OK.
4. Click the Add Data button  on the Standard toolbar.
5. Click the Look in drop-down arrow and click GIS Servers.
6. Double-click your ArcGIS Server connection.
7. Hold the Ctrl key, click AmbergService, click SingleTiff, then click Add.

Both services are added to the ArcMap table of contents.

8. Check the layers on and off, and use the tools of the Tools toolbar to examine the image services.

Viewing the image service properties

1. Right-click the SingleTiff layer and click Properties.
You will see there are five tabs on the Layer Properties dialog box.
2. Click each tab to examine the properties.
3. Click Cancel to close the dialog box.
3. Right-click the AmbergService layer and click Properties.
You will see there are seven tabs on the Layer Properties dialog box. The additional Metadata and Mosaic tabs are unique to image services using compiled image service definitions as input. On the Mosaic tab you can change the mosaic method. On the metadata tab you can view the metadata information about the image service.
4. Close ArcMap to complete the exercise.

You can leave the server connection in ArcCatalog connected so that you can publish the results from other exercises in this tutorial.

Exercise 3: Serving an image service using ArcGIS Image Server

For this exercise, you will be using the Server Manager to configure and start the server and service provider, serve an image service, and access the image service in ArcMap using a direct connection. The compiled image service definition that will be used in this exercises was created in Exercise 1.

NOTE: Exercise 3 should not follow exercise 2. Each of these exercises presents one of the two ways you can publish image services. If you wish to perform exercise 2 later, be sure to stop and remove all the services, service providers and servers you create and start in this exercise.

Before you begin, it is assumed that you have installed the tutorial on the C:\ drive. If not, please make the appropriate path changes throughout this tutorial, so it works properly for you.

Start the Image Server Manager

1. Click the Start button on the Windows taskbar, click All Programs, point to ArcGIS, point to Image Server, then click Server Manager.

The Image Server Manager application opens.

2. Click File and click Add Server.

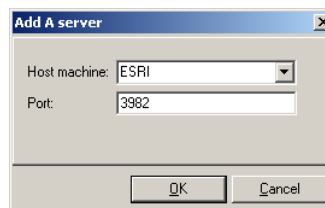
The Add a server dialog box opens.

Your computer's name is specified as the Host machine.


There are only three options for naming the Host Machine—it can be:

- The machine's name (for example, the browse name on the network)
- The machine's IP address


- The default: 127.0.0.1



3982 is the default port number for an ArcGIS Image Server server.

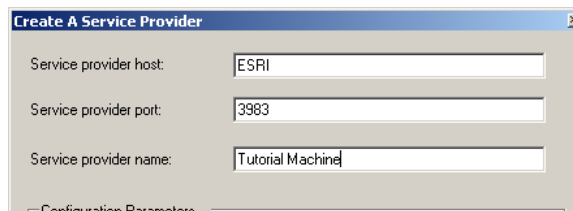
3. Click OK.
4. Click Yes to create the server configuration.
5. Click the Start button  to start the server.

Create and start a service provider

1. Expand the server node in the left pane of the Image Server Manager window.
2. Click Service Providers.
3. Click the New button .

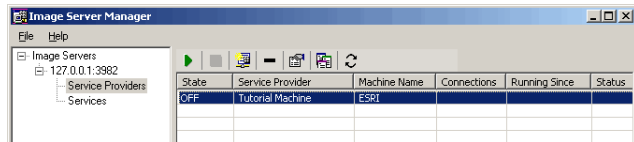
This opens the Create A Service Provider dialog box.

4. Type “Tutorial Machine” in the Service provider name text box.



5. Click OK.

- Click Tutorial Machine under the Service Provider column to highlight the row.




- Click the Start button  on the Image Server Manager window.

The state will change to ON.

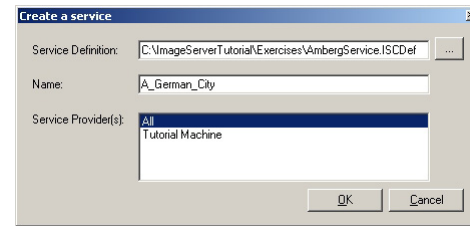
If you've performed exercise 2 or if you plan to perform exercise 2 you will notice that the process to set up the server and service provider using the Image Server Manager is identical. Where they differ is in how the image services are published. When you use ArcGIS Image Server as an extension to ArcGIS Server the image services are published from within the ArcGIS Server application. When you use ArcGIS Image Server as a standalone server, the image services are published using the Image Server Manager, which will be presented in following steps.

Publish an image service

In these next steps you will publish an image service by loading the compiled image service definition onto the service provider.

- Click the Services node in the left pane of the Image Server Manager window.
- Click the Add button  on the Image Server Manager window.
- Click the Service definition browse button.
- Navigate to C:\ImageServerTutorial\Exercises.
- Click AmbergService.ISCDef.

- Click Open.



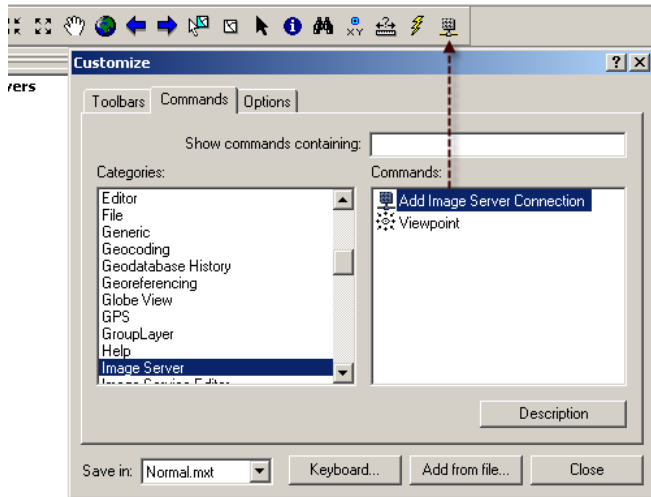
- Click OK.

This adds the image service to the list and starts it (State = On).

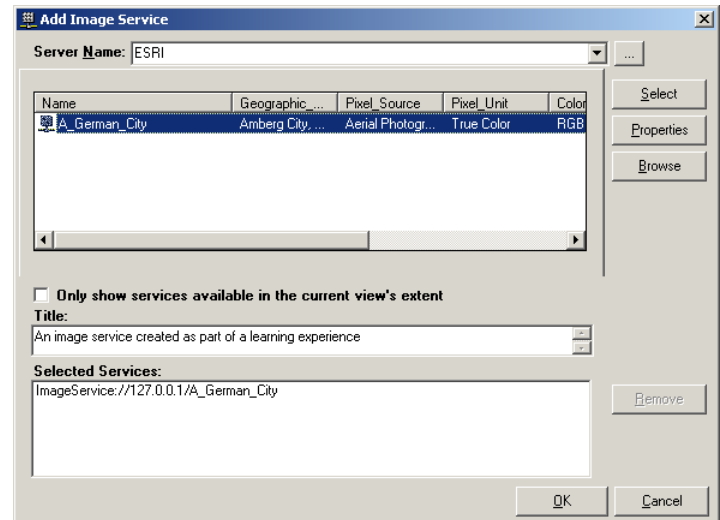
- Close the Image Server Manager window.

Displaying an image service in ArcMap as a client

- Click the Start button on the Windows taskbar, point to Programs, point to ArcGIS, then click ArcMap.
- Click A new empty map.
- Click OK on the ArcMap dialog box.
- Click Tools on the Main menu and click Customize.
- Click the Commands tab.
- Click Image Server in the Categories list.
- Click and drag the Add Image Server Connection command to the Tools toolbar and drop it.

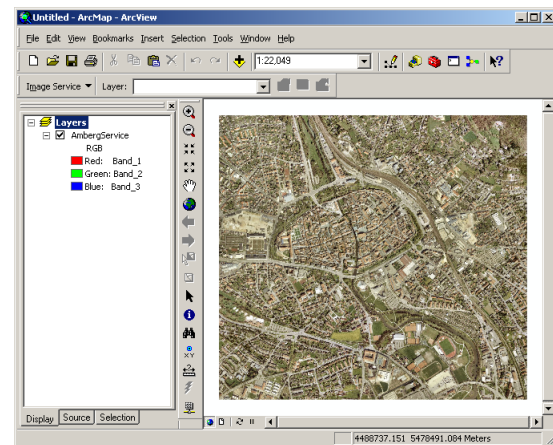


8. Click Close on the Customize dialog box.
9. Click the Add Image Server Connection button on the Tools toolbar.
10. Click the Server Name drop-down arrow and click 127.0.0.1.
11. Double-click AmbergService to add it to the Selected Services list.



12. Click OK.

The image service is added as a layer in ArcMap. You can now use the tools on the Tools toolbar to zoom in and out and pan around the image.



View the image service metadata

1. Right-click the AmbergService layer in the ArcMap table of contents and click Properties.

2. Click the Metadata tab.

You can see the metadata that you entered when creating the image service on the Information tab.




3. Click Cancel to close this dialog box.

You have now set up the ArcGIS Image Server, configured the server and service provider, served an image service, and viewed it using the direct-connection client in ArcMap. You can now close ArcMap or click New on the Standard toolbar to begin a new session in ArcMap and continue onto exercise 4.

Do not remove anything or turn anything off in the Image Server Manager if you are continuing with the exercises in this tutorial. If you close the Image Server Manager and need to reopen it to continue with another exercise, you will still have the server you created in the Image Servers list along with the service provider and any services. If, by chance, the server or service providers are not running, you simply have to click them and click the Start button to restart them. You need to start the server first, and the service provider second. Once a service provider is restarted, any image service that was added to it will appear in the Services list.

Removing configurations

If you need to remove the image services and the server configuration, you need to stop and remove each component as outlined in the following steps:

1. Open the Image Server Manager.
2. Click the Service Providers node in the Image Server Manager.
3. Click Tutorial Machine under the Service provider column to highlight the row.
4. Click the Stop button .
5. Click the Delete button  if you wish to erase the service provider configuration from this server.
6. Click Yes to delete the service provider configuration.
7. Click the server node.
8. Click the Stop button .
9. Click Yes to stop the server.
10. Click File and click Remove server.
11. Click Yes to remove the server.
12. Close the Image Server Manager.

Exercise 4: Creating an image service definition with an altering viewpoint

For this exercise you will be creating an image service definition using the Advanced options. The reason you are not using the New Image Service Wizard is because you need to set the option that allows clients to use the Viewpoint mosaicking method.

To create an image service definition that can take advantage of the Viewpoint mosaicking method, you need to have multiple raster datasets that overlap a particular area of interest, taken at multiple points of view. In this case, there are eight overlapping raster datasets in the area of interest.

Start ArcMap

You create new image service definitions using tools within ArcMap.

1. Click the Start button on the Windows taskbar, point to Programs, point to ArcGIS, then click ArcMap.

The ArcMap window appears.

2. Click A new empty map.
3. Click OK.

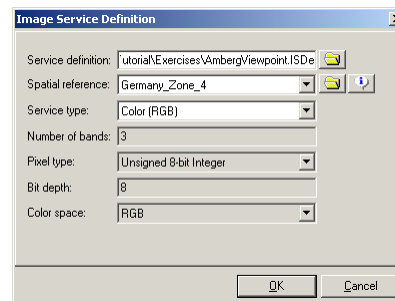
Create a new image service definition

The first step is to create a new image service definition.

1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, then click New Service Definition.

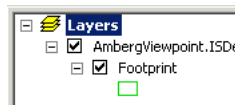
This opens the Image Service Definition dialog box. The information you add in this dialog box is used to define characteristics of the image service.

2. Click the Service Definition browse button.
3. Navigate to the location where you want to save your image service definition. In this tutorial, you will be creating it in C:\ImageServerTutorial\Exercises.
4. Type the File name “AmbergViewpoint” and click Save.
5. Click the Spatial Reference browse button.
This opens the Spatial Reference Properties dialog box.
6. Click Select.
7. Double-click the Projected Coordinate Systems folder, double-click the National Grids folder, click Germany Zone 4.prj, then click Add.
8. Click Finish to close the Spatial Reference Properties dialog box.
9. Verify that the Service Type is Color (RGB).



10. Click OK to create the new image service.

A custom group layer is added to the table of contents, titled AmbergViewpoint.ISDef, containing an empty footprint layer. The footprint layer will contain the outline of the raster datasets when they are added to the image service definition.

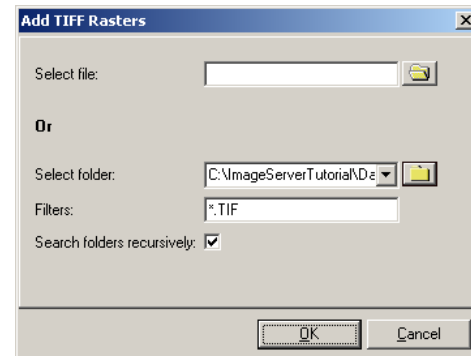


Add raster data to the new image service definition

1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, then click Add Raster Dataset.
2. Double-click the Georeferenced Imagery folder in the Select Raster Type dialog box.
3. Scroll through the list and click TIFF–Tagged Image File Format from the Name list.
4. Click OK.

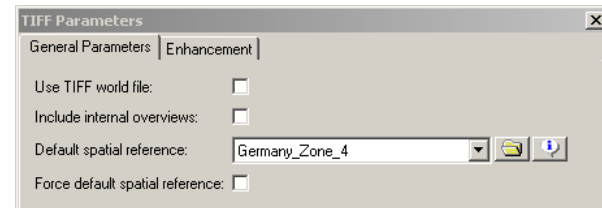
This opens the Add TIFF Rasters dialog box.

5. Click the Select Folder browse button.
6. Navigate to C:\ImageServerTutorial\Data and click the Amberg_tif folder.
7. Click OK.



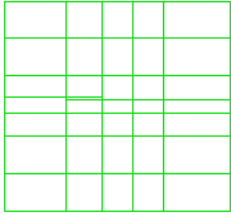
8. Click OK on the Add TIFF Rasters dialog box.
9. Uncheck Use TIFF world file.
10. Uncheck Include internal overviews.
11. Click the Default spatial reference drop-down arrow and click Germany_Zone_4.

The spatial reference of the TIFF rasters is the same as the image service.




12. Click OK.

The Status bar in the bottom left corner of the ArcMap window displays the process of the raster datasets being added to the image service definition. First, the raster process definitions are generated, then the raster data is added to the image service definition. When this process completes, you will see the footprint of the raster datasets in the data view.



Edit image service definition properties and metadata

1. Click the Image Service Properties button  on the Image Service Definition Editor toolbar.
2. Type your name in the Author text box.
3. Type “H. D. Enterprises” in the Organization text box.
4. Type “This is a small image service definition that is being set up for a learning experience.” in the Comments text box.

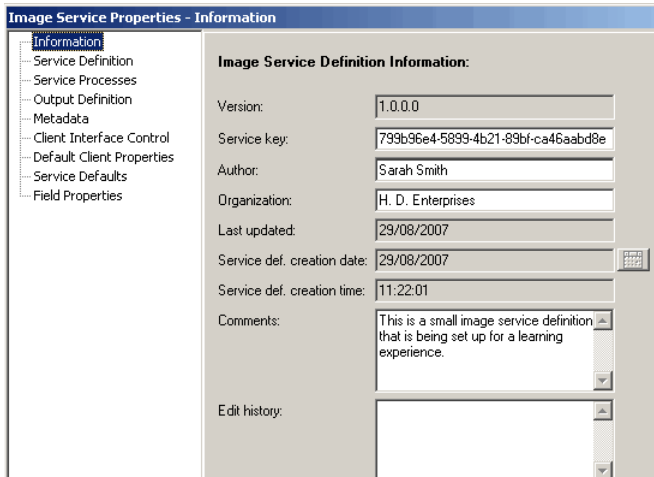


Image Service Properties - Information

Information

- Service Definition
- Service Processes
- Output Definition
- Metadata
- Client Interface Control
- Default Client Properties
- Service Defaults
- Field Properties

Image Service Definition Information:

Version: 1.0.0.0

Service key: 793b96e4-5899-4b21-89bf-ca46aabd8e

Author: Sarah Smith

Organization: H. D. Enterprises

Last updated: 29/08/2007

Service def. creation date: 29/08/2007

Service def. creation time: 11:22:01

Comments: This is a small image service definition that is being set up for a learning experience.

Edit history:

5. Click the Metadata node in the list on the left of the dialog box.
6. Type “Houses with red roofs” in the Title text box.
7. Type “Tutorial exercise 4” in the Edition text box.
8. Type “Germany” in the Geographic Region text box.

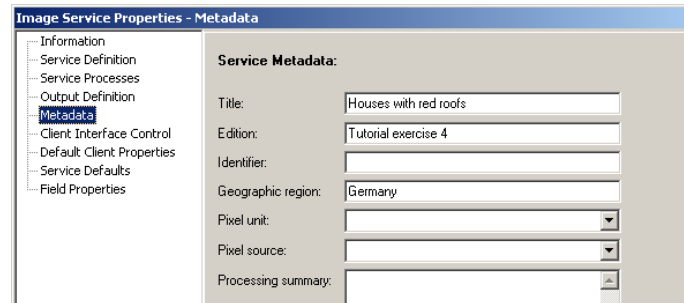


Image Service Properties - Metadata

Information

- Service Definition
- Service Processes
- Output Definition
- Metadata
- Client Interface Control
- Default Client Properties
- Service Defaults
- Field Properties

Service Metadata:

Title: Houses with red roofs

Edition: Tutorial exercise 4

Identifier: (empty)

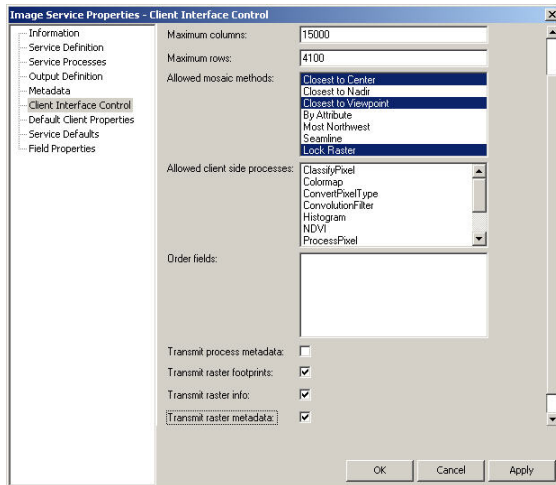
Geographic region: Germany

Pixel unit: (dropdown menu)

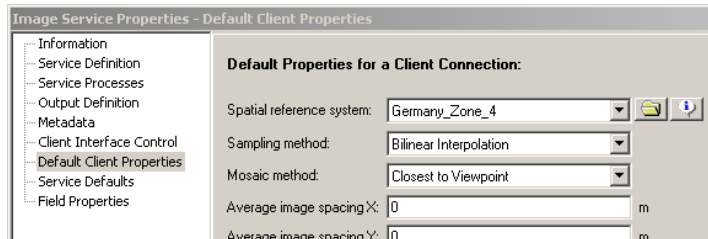
Pixel source: (dropdown menu)

Processing summary: (dropdown menu)

9. Click the Client Interface Control node in the list on the left of the dialog box.
10. Press the Ctrl key on the keyboard and click Closest to Viewpoint in the Allowed Mosaic Methods box to add this method to the selected list.
11. Scroll down and check Transmit Raster Metadata.



12. Click the Default Client Properties node in the list on the left of the dialog box.
13. Click the Mosaic Method drop-down arrow and click Closest to Viewpoint.

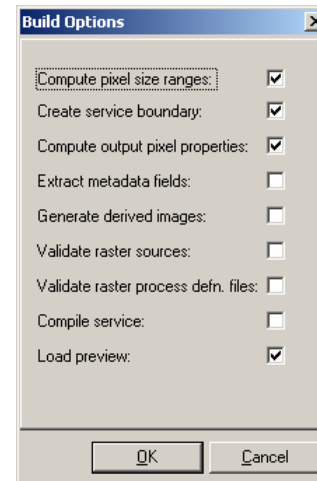


14. Click OK.

Build the image service definition

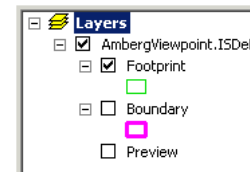
1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, and click Build.

This opens the Build Options dialog box.



2. Click OK.

The build process calculates the minimum and maximum pixel sizes for each image and generates the boundary layer. The Boundary layer and Preview layer are added to the AmbergViewpoint group layer in the table of contents. The boundary outlines the extent of all the datasets as a whole and is generated when the image service definition is built. The preview allows you to view the raster datasets in the image service definition which appear as a single mosaicked raster dataset.




3. Check the Boundary layer in the table of contents to view the boundary.

Optimize and compile the image service definition

1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, point to Optimize, point to Service Overviews, then click Define.

The Service Overview Parameters dialog box defaults define the parameters that will be used to create the overviews. This process will create compressed TIFF files in a folder next to the AmbergViewpoint.ISDef folder, called AmbergViewpoint.DerivedImages.

2. Click OK.
3. Click OK on the information dialog box that opens, letting you know the service overviews have been successfully defined.

4. Click the Service Table button  on the Image Service Editor toolbar.

This table lists all the rasters contained in the image service definition.

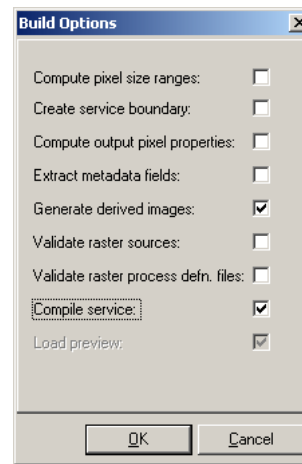
5. Scroll to the bottom of the list.

You can see that there are several entries at the bottom of the list with a Raster Type of ServiceOverview. These entries were created in step 2, when you ran the process to define the service overviews.

6. Close the Attributes of Footprint table.
7. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, then click Build.

Generate derived images is checked on by default. This is the operation used to build the service overview files defined in step 1.

Compile service is checked on by default. Compiling the image service definition generates a compiled image service definition file called AmbergViewpoint.ISCDef. This is the file that is used to publish the image service.



8. Click OK.


The Image Service Editor window displays the processing status of the service overview creation. Once the service overviews are generated and the image service definition is compiled, you can continue.

Symbolize the footprints

1. Right-click the Footprint layer in the table of contents, point to Symbolize, and click By Type.

Symbology is added to the Footprint layer, and the legend is displayed in the table of contents. You can now distinguish the footprints of the raster datasets you originally added from the service overview you just built.

Preview the data

1. Check the Preview layer in the table of contents to display the layer.
The preview you're viewing is generated from one of the service overview layers.
2. Click the Zoom In tool  on the Tools toolbar.
3. Zoom in to an area in the display view.
You can use a variety of tools on the Tools toolbar to explore and move around the image in the Preview layer.
4. Exit ArcMap.
5. Click No; you do not need to save your ArcMap session.


Serve the image service definition

To serve the image service definition you need to follow the steps in exercises 2 or 3. Replacing C:\ImageServerTutorial\Exercises\AmbergService with C:\ImageServerTutorial\Exercises\AmbergViewpoint.


Once you have served the image service definition, open the image service in ArcMap using the directions in either exercise 2 or 3, then continue with the steps below.

Add the Viewpoint image service

1. Open ArcMap.
2. Click File on the Main menu and click Open.
3. Navigate to C:\ImageServerTutorial\Exercises.
4. Click Viewpoint.mxd.
5. Click Open.

6. If the image service was published using ArcGIS Server:
 1. Click the Add Data button  on the Standard toolbar.
 2. Click the Look in drop-down arrow and click GIS Servers.
 3. Double-click your ArcGIS Server connection.
 4. Click AmbergViewpoint and click Add.

If the image service was published using ArcGIS Image Server:

1. Click the Add Image Server Connection  button.
2. Double-click AmbergViewpoint to add it to the Selected Services list.
3. Click OK.

Add the Viewpoint tool

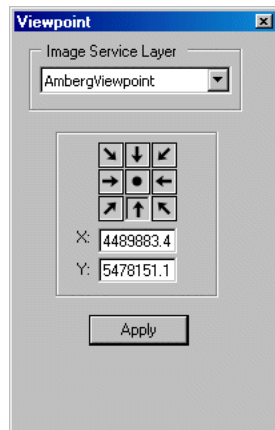
1. Click Tools on the Main menu and click Customize.
2. Click the Commands tab.
3. Click Image Server in the Categories list.
4. Click and drag the Viewpoint command to the Tools toolbar and drop it.
5. Click Close.

Explore the Viewpoint service

1. Click Bookmarks on the Main menu and click Viewpoint.
2. Click the Viewpoint button you added to the Tools toolbar.

This opens the dockable Viewpoint window.

3. Click one of the arrows in the window and click Apply to view the center building at a different angle.



4. Repeat clicking the other arrows and clicking Apply to view the center building from other angles.
5. When finished looking at the different viewpoints, close ArcMap.

You have now created, served, and used an image service that uses the Viewpoint mosaic method.

Exercise 5: Creating a multi-band, pan-sharpened, image service definition

For this exercise, you will be creating an image service definition using Landsat 7 ETM imagery. There are multiple bands in this raster dataset. The image service definition will use seven of these bands, where one will be used for pan-sharpening. The clients accessing the image service will have the ability to change the band combination.

The Landsat data used in this exercise is provided by Landsat.org/Tropical Rain Forest Information Center, a member of NASA's Federation for Earth Science Information Partners (ESIP) at Michigan State University (<http://www Landsat.org>).

Before you begin, it is assumed that you have installed the tutorial on the C:\ drive. If not, please make the appropriate path changes throughout this tutorial, so it works properly for you.

Start ArcMap

You create new image service definitions using the tools within ArcMap.

1. Click the Start button on the Windows taskbar, point to Programs, point to ArcGIS, then click ArcMap.

The ArcMap window appears.

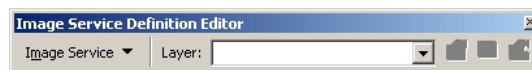
2. Click A new empty map.
3. Click OK.

Add the Image Service Definition Editor toolbar

You need to add the Service Definition Editor toolbar to your ArcMap window to create and edit services. If you have performed any of the previous exercises, you may

already have this toolbar open; therefore, you can skip this step.

1. Click View on the Main menu, point to Toolbars, then click Image Service Definition Editor.



You can place or dock this toolbar anywhere in or around your window.

Create a new image service definition

The first step is to create a new image service definition.

1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, and click New Service Definition.

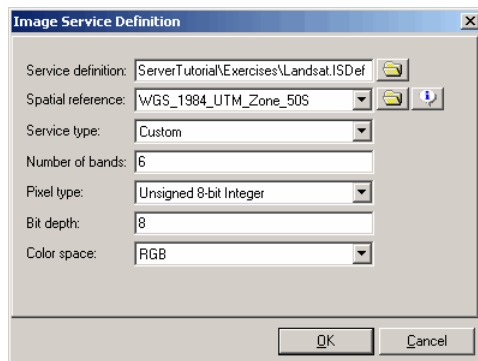
This opens the Image Service Definition dialog box. The information you add in this dialog box is used to define the characteristics of the image service.

2. Click the Service Definition browse button.
3. Navigate to the location where you want to save your image service definition. In this tutorial, you will be creating it in C:\ImageServerTutorial\Exercises.
4. Type the File name "Landsat" and click Save.
5. Click the Spatial Reference browse button.

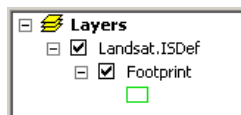
This opens the Spatial Reference Properties dialog box.

6. Click Select.

7. Double-click the Projected Coordinate Systems folder, double-click the Utm folder, double-click the Wgs 1984 folder, click WGS 1984 UTM Zone 50S.prj, then click Add.
8. Click Finish to close the Spatial Reference Properties dialog box.
9. Click the Service type drop-down arrow and click Custom.
10. Type “6” in the Number of bands text box.



11. Click OK to create the new image service.
A custom group layer is added to the table of contents, titled Landsat.ISDef, containing an empty footprint layer. The footprint layer will contain the outline of the raster datasets when they are added to the image service definition.



Add the Landsat raster data

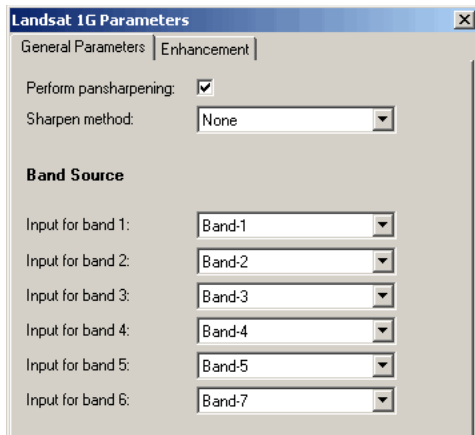
1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, and click Add Raster Dataset.
2. Double-click the Georeferenced Imagery folder in the Select Raster Type dialog box.
3. Scroll through the list and click Landsat-7 Level 1G.
4. Click OK.

This opens the Add Landsat-7 Level 1G Products dialog box.

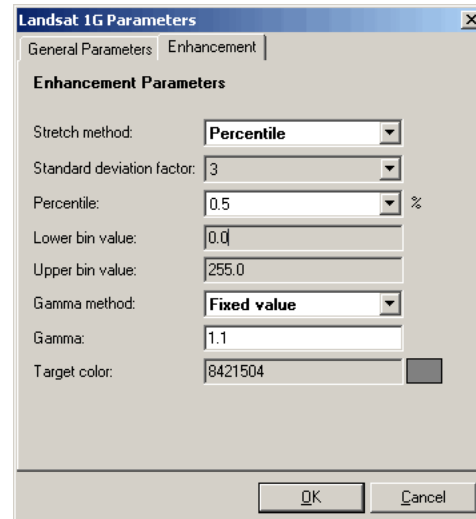
5. Click the Select folder browse button.
6. Navigate to C:\ImageServerTutorial\Data and click the Landsat_p114r75 folder.
7. Click OK.
8. Click OK on the Add Landsat-7 Level 1G Products dialog box.

This opens the Landsat 1G Parameters dialog box.

9. Click the Input for band 1 drop-down arrow and click Band-1.
10. Click the Input for band 3 drop-down arrow and click Band -3.




11. Click the Enhancement tab.
12. Click the Stretch method drop-down arrow and click Percentile.
13. Click the Percentile drop-down arrow and click 0.5.
14. Click the Gamma method drop-down arrow and click Fixed value.
15. Type “1.1” in the Gamma text box.

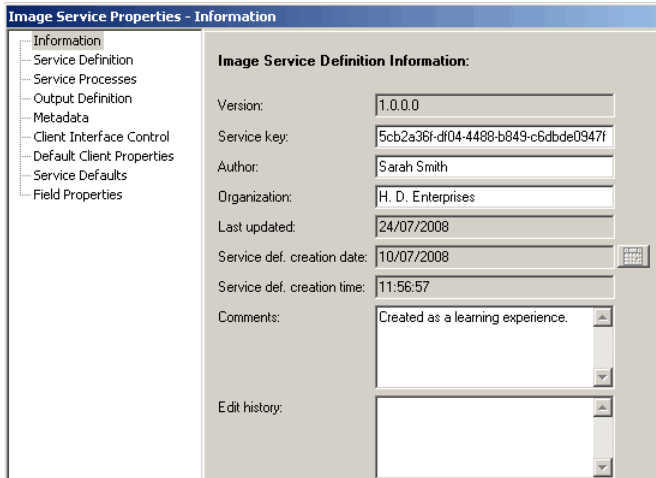


16. Click OK.

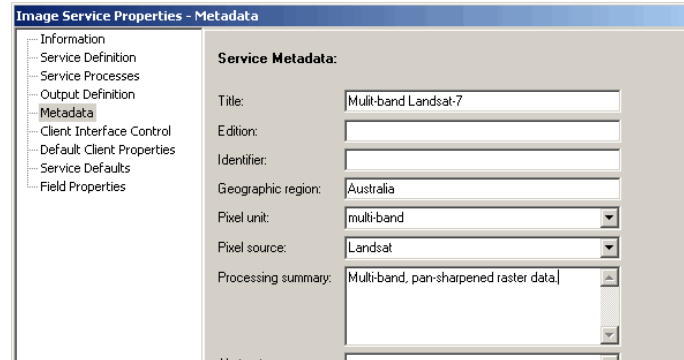
The Status bar in the bottom left corner of the ArcMap window displays the process of the raster dataset being added to the image service definition. First, the raster process definition is generated, then the raster data is added to the image service definition. When this process completes, you will see the footprint of the raster dataset in the data view.

Edit image service definition metadata

1. Click the Image Service Properties button  on the Image Service Definition Editor toolbar.
2. Type your name in the Author text box.
3. Type “H. D. Enterprises” in the Organization text box.
4. Type “Created as a learning experience.” in the Comments text box.



5. Click the Metadata node in the list on the left of the dialog box.
6. Type “Multi-band Landsat-7” in the Title text box.
7. Type “Australia” in the Geographic region text box.
8. Type “multi-band” in the Pixel unit text box.
9. Click the Pixel source drop-down arrow and click Landsat.
10. Type “Multi-band, pan-sharpened raster data.” in the Processing summary text box.

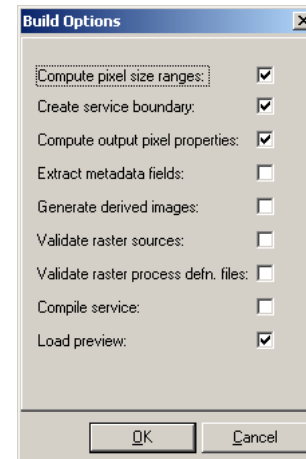


11. Click OK to close the dialog box.

Build the image service definition

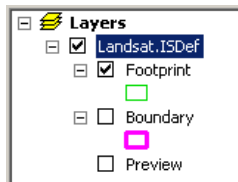
1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, and click Build.

This opens the Build Options dialog box.



2. Click OK.

The build process calculates the minimum and maximum pixel sizes for each raster dataset and generates the Boundary layer. The Boundary layer and Preview layer are added to the Landsat group layer in the table of contents. The boundary outlines the extent of all the datasets and is generated when the image service definition is built. The preview allows you to view the raster data in the image service definition.



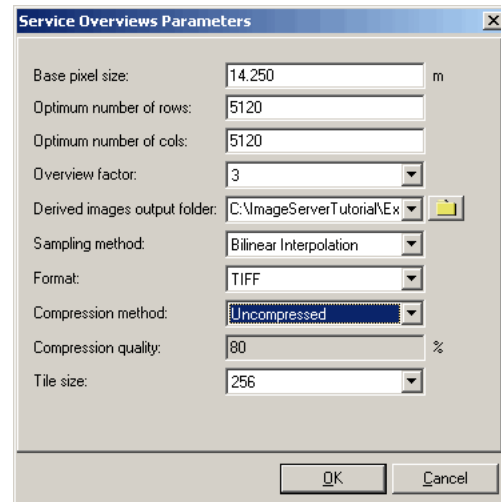
Optimize and compile the image service definition

1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, point to Optimize, point to Service Overviews, then click Define.

The Service Overview Parameters dialog box defaults define the parameters that will be used to create the overviews.

2. Click the Compression method drop-down arrow and click Uncompressed.

Changing to Uncompressed will create service overviews with six bands. If you use the default compression, only three-band TIFF files would be created.



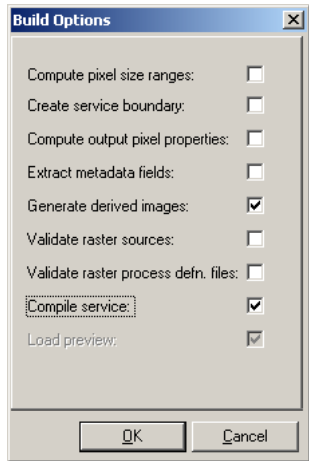
3. Click OK.

This process will create TIFF files in a folder next to the Landsat.ISDef folder, called Landsat.DerivedImages.

When creating service overviews that contain more than three bands, only the TIFF format can be used, and it cannot be created using compression.

4. Click OK on the information dialog box that opens, letting you know the service overviews have been successfully defined.
5. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, then click Build.

Generate derived images and Compile service are checked by default. Compiling the image service definition generates a compiled image service definition file called Landsat.ISCDef. This is the file that is used to publish the image service.



6. Click OK.

The Image Service Editor window displays the processing status of the service overview creation. Once the service overviews are generated and the image service definition is compiled, you can continue.

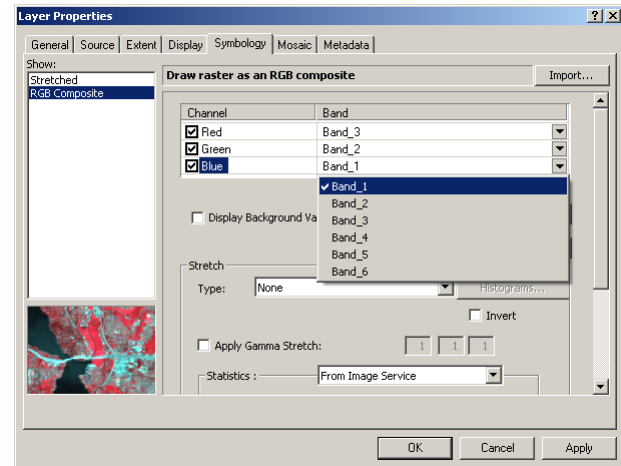
Preview the data

1. Check the Preview layer in the table of contents to display the layer.

The preview you're viewing is generated from one of the service overview layers. Additionally, the band combination is not producing an image with colors you may be used to viewing. To create a natural color (or true color) view—one that is similar to how we see with our eyes, you will change the band combination.

2. Right-click the Preview layer in the table of contents and click Properties.
3. Click the Symbology tab.

4. Click the Red band drop-down arrow and click Band_3.
5. Click the Blue band drop-down arrow and click Band_1.



6. Click OK.

You can change the rendering or the display properties of the image service in the Preview layer in the same way you would interact with it as a client.

7. Click the Zoom In tool  on the Tools toolbar.
8. Zoom in to an area in the display view.

You can use a variety of tools on the Tools toolbar to explore and move around the image in the Preview layer.

9. Exit ArcMap.
10. Click No; you do not need to save your ArcMap session.

Publish the image service definition

You have now created an image service definition and previewed how it will appear when it is published.

To publish the image service definition you need to follow the steps in either Exercise 2 or 3. If you want to publish the image service definition using ArcGIS Server, follow the directions in Exercise 2. If you want to publish the image service definition using ArcGIS Image Server's standalone configuration, follow the directions in Exercise 3. Remember, you are publishing the Landsat.ISCDef from the Exercises folder.

Exercise 6: Building an image service definition for orthorectifying imagery

For this exercise, you will be setting up an image service definition using raw aerial imagery, a DEM, and some parameter files. This image service definition will be created using the MATCH-AT raster type. This exercise does not rely on any of the previous exercises.

Before you begin, it is assumed that you have installed the tutorial on the C:\ drive. If not, you will need to edit the MATCH-AT project file (Amberg_MAT2.prj in \ImageServerTutorial\Data\Amberg_scans\Match-AT Parameters) to update the path to the data. This project file is a text file you can open in any text editor program (such as Notepad or WordPad). Search for the string “C:\ImageServerTutorial\Data\Amberg_scans\Scans” and replace it with your path to the \Scans folder containing the .tif files. This path appears 16 times in this file.

For example, if your path is D:\mydata, you will likely replace text in the line:

```
$PHOTO_FILE: C:\ImageServerTutorial\Data\Amberg_scans\Scans\110211.tif
```

with

```
$PHOTO_FILE: D:\mydata\ImageServerTutorial\Data\Amberg_scans\Scans\110211.tif
```

Start ArcMap

You create new image service definitions using the tools within ArcMap.

1. Click the Start button on the Windows taskbar, point to Programs, point to ArcGIS, then click ArcMap.

The ArcMap window appears.

2. Click A new empty map.
3. Click OK.

Add the Image Service Definition Editor toolbar

You need to add the Image Service Definition Editor toolbar to your ArcMap window to create and edit image service definitions. If you have performed any of the previous exercises, you may already have this toolbar open; therefore, you can skip this step.

1. Click View on the Main menu, point to Toolbars, then click Image Service Definition Editor.

You can place or dock this toolbar anywhere in or around your window.



Create a new image service definition

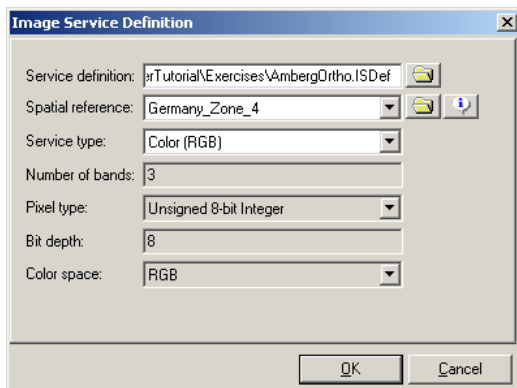
1. Click the Image Service drop-down menu on the Image Service Editor toolbar, point to Advanced, and click New Service Definition.

This opens the Image Service Definition dialog box.

The information you add in this dialog box is used to define the characteristics of the image service.

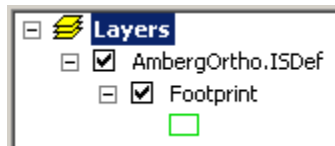
2. Click the Service definition browse button.
3. Navigate to the location where you want to save your image service definition. In this tutorial, you will be creating it in C:\ImageServerTutorial\Exercises.
4. Type the File name “AmbergOrtho” and click Save.

5. Click the Spatial reference browse button.
This opens the Spatial Reference Properties dialog box.
6. Click Select.
7. Double-click Projected Coordinate Systems, double-click National Grids, click Germany Zone 4.prj, then click Add.
8. Click Finish to close the Spatial Reference Properties dialog box.
9. Verify that the Service type is Color (RGB).



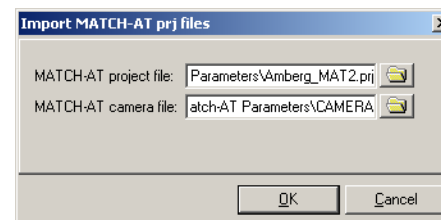
10. Click OK to create the new image service definition.

A custom group layer is added to the table of contents, titled AmbergOrtho.ISDef, containing an empty Footprint layer. The Footprint layer will contain the outline of the raster datasets when they are added to the image service.



Add raster data to the new image service definition

1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar and click Add Data.
This opens the Add Data Wizard.
2. Click the Next button.
3. Click the Raster type browse button.
This opens the Select Raster Type dialog box.
4. Double-click the Orthorectification folder.
5. Click MATCH-AT Project File from the Name list.
6. Click OK.
7. Click the Input browse button.
This opens the Import MATCH-AT prj files dialog box.
8. Click the MATCH-AT Project File Browse button.
9. Navigate to C:\ImageServerTutorial\Data\Amberg_scans\Match-AT Parameters and click the Amberg_MAT2.prj file.
10. Click Open.
11. Click the MATCH-AT Camera File browse button.
12. Click the CAMERA file.
13. Click Open.



14. Click OK.

This opens the MATCH-AT Project dialog box.

15. Click the Spatial reference system drop-down arrow and click Germany_Zone_4.

16. Type “13” in the Forward clip percentage text box.

17. Type “13” in the Sideways clip percentage text box.

Typically, there is at least 60 percent forward overlap and 25 percent side overlap with aerial photography. Clipping these overlapping edges allows artifacts to be removed along the edge of the frames, such as fiducial marks.

18. Click the Terrain type drop-down arrow and click DEM.

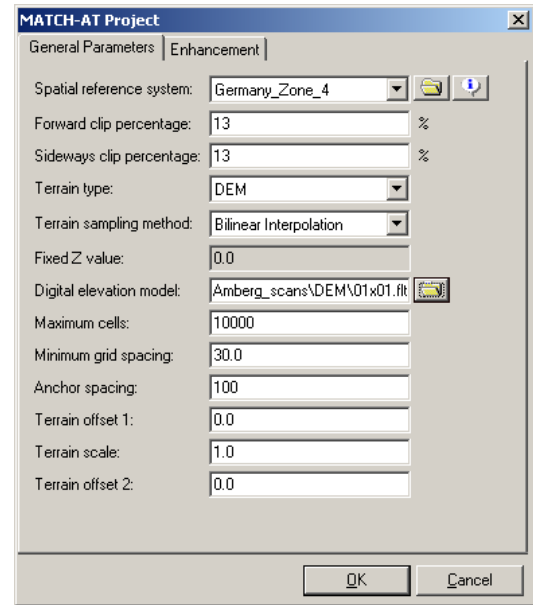
19. Click the Digital elevation model Browse button.

20. Click the Files of type drop-down arrow and click DEM FLT file (*.flt).

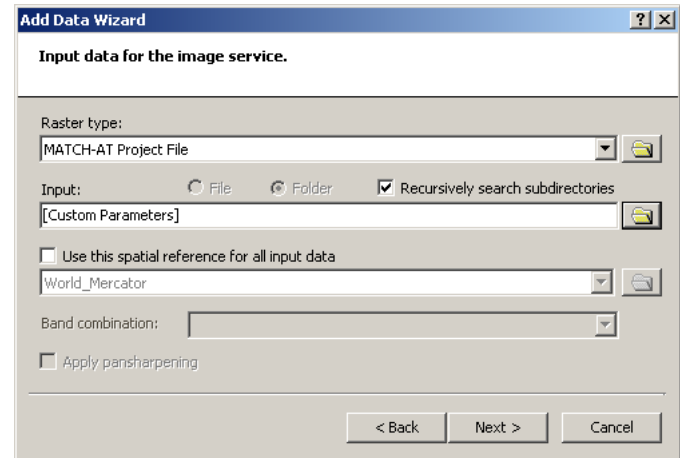
21. Navigate to C:\ImageServerTutorial\Data\Amberg_scans\DEM and click the 01x01.flt file.

22. Click Open.

Leave the remaining default parameters.



23. Click OK.



24. Click the Next button.

25. Uncheck Generate overviews.

You will be editing the footprints to be sure that they correctly reflect the orthorectified shape of each raster dataset. This is a step that needs to be done before creating service overviews.

26. Uncheck Compile the service for publishing.

27. Click the Next button.

28. Review the information about the image service you will be creating.

29. Click the Finish button.

The Image Service Editor window will open and display the status as the data is added and the image service definition is built. When it is complete, you will see “Process completed” in the window.

30. Click Close on the Image Service Editor window.

The Boundary layer and Preview layer are added to the AmbergOrtho.ISDef group layer in the table of contents.

31. Right-click the Preview layer and click Zoom to Layer to view all the footprints in the image service definition.

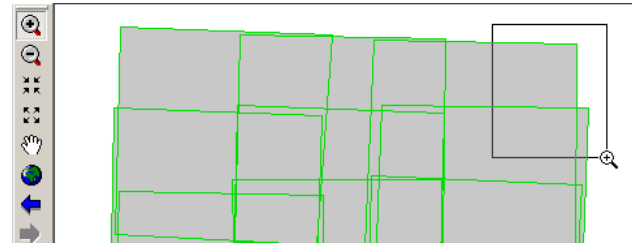
Preview the data

1. Click Preview in the table of contents.

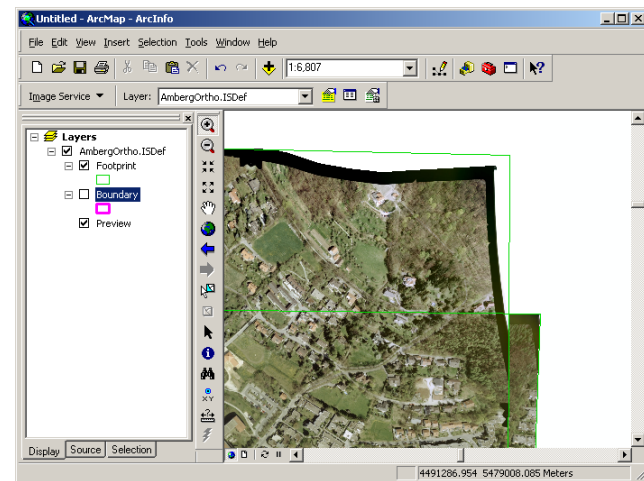
This will display a gray image representing the extent of the raster data in the image service definition.

2. Click the Zoom In tool  on the Tools toolbar.

3. Zoom in on a small area in the upper right corner of the image service definition extents.



After zooming in you should see an image similar to the one displayed below.



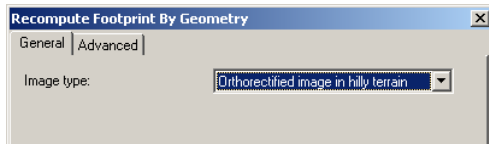
Recompute the footprints

You can see that the green lines of the footprints do not accurately represent the orthorectified raster datasets. To make the image service definition more efficient and to remove the black border pixels you will recompute the footprints of all the raster datasets.

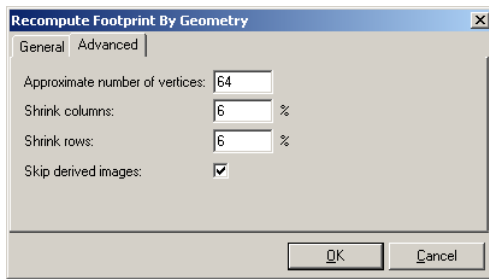
1. Right-click Footprint in the table of contents, point to Recompute Footprint, then click By Geometry.

This opens the Recompute Footprint By Geometry dialog box.

2. Click the Image type drop-down arrow and click Orthorectified image in hilly terrain.



3. Click the Advanced tab.
4. Type 6 in the Shrink columns text box.
5. Type 6 in the Shrink rows text box.



6. Click OK.

The footprints will be recalculated to represent the correct shape of the orthorectified raster datasets and will be shrunk by 6 percent in the row and column dimension in order to remove the black border contained in each raster dataset.

Recalculate the boundary

The boundary no longer represents the extent of all the footprints correctly; therefore, it needs to be recalculated.

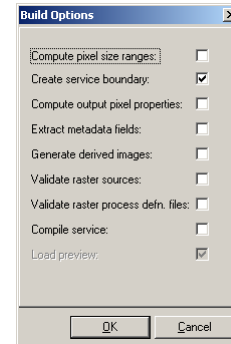
1. Check on the Boundary in the table of contents.

You will see that the boundary does not match the recalculated footprints.

2. Click the Image Service drop-down menu on the Image Service Editor toolbar, point to Advanced, then click Build.

This opens the Build Options dialog box.

3. Verify that Create service boundary is checked.



4. Click OK.

You should see that the boundary lines up with the footprints.

Build the service overviews

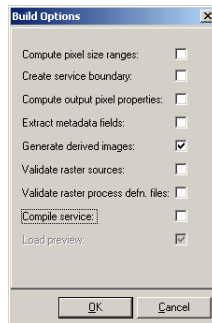
1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, point to Optimize, point to Service Overviews, then click Define.

The Service Overview Parameters dialog box defaults define the parameters that will be used to create the overviews. This process will create compressed TIFF files in a folder next to the AmbergOrtho.ISDef folder, called AmbergOrtho.DerivedImages.

2. Click OK.
3. Click OK on the information dialog box that opens, letting you know the service overviews have been successfully defined.
4. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, then click Build.

Generate derived images is checked on by default. This is the operation used to build the service overview files defined in step 1.

5. Uncheck Compile service.




6. Click OK.

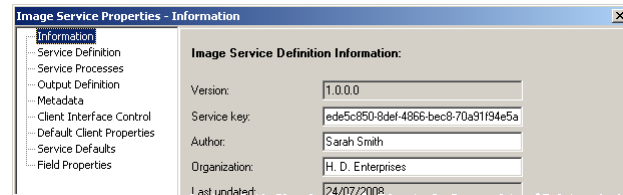
Once the service overviews are generated and the process is complete, you can continue.

Preview the data

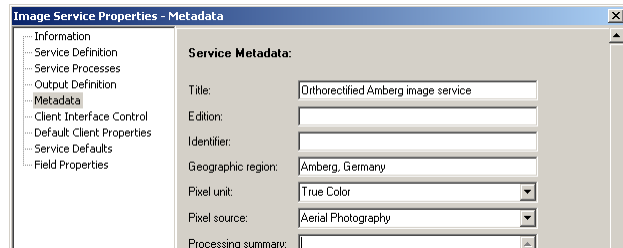
1. Click the Full Extent tool  on the Tools toolbar to preview the entire image service.
2. Use the tools on the Tools toolbar to examine the image service.

Edit the image service properties

1. Click the Image Service Properties button  on the Image Service Definition Editor toolbar.
2. Type your name in the Author text box.
3. Type “H. D. Enterprises” in the Organization text box.



4. Click the Metadata node in the list on the left of the dialog box.
5. Type “Orthorectified Amberg image service” in the Title text box.
6. Type “Amberg, Germany” in the Geographic region text box.
7. Click the Pixel unit drop-down arrow and click True Color.
8. Click the Pixel source drop-down arrow and click Aerial Photography.



9. Click OK.

Once you are finished creating the image service definition you must compile it. Compiling it creates a compiled file that is used by the Service Provider.

1. Click the Image Service drop-down menu from the Image Service Definition Editor toolbar, point to Advanced, then click Compile.

2. Click Yes to continue.

Compiling the image service definition generates a compiled image service definition file called AmbergOrtho.ISCDef.

3. When you see the message “Done: ‘Compiling the Service’” in the Image Service Editor window, the compile process is complete.
4. Exit ArcMap.
5. Click No; you do not need to save your ArcMap session.

Publish the image service definition

You have now created an image service definition and previewed how it will appear when it is published.

To publish the image service definition you need to follow the steps in either Exercise 2 or 3. If you want to publish the image service definition using ArcGIS Server, follow the directions in Exercise 2. If you want to publish the image service definition using ArcGIS Image Server’s standalone configuration, follow the directions in Exercise 3. Remember, you are publishing the AmbergOrtho.ISCDef from the Exercises folder.

Exercise 7: Creating image service definitions from a DEM

For this exercise, you will create two image service definitions using a DEM. The output of the first image service definition will be a hillshade image generated from the DEM, and the second will be a shaded relief image generated from the same DEM. You will also learn how to make a copy of an image service definition to create a second image service definition.

Before you begin, it is assumed that you have installed the tutorial on the C:\ drive. If not, please make the appropriate path changes throughout this tutorial so it works properly for you.

Start ArcMap

You create new image service definitions using tools within ArcMap.

1. Click the Start button on the Windows taskbar, point to Programs, point to ArcGIS, then click ArcMap.
The ArcMap window appears.
2. Click A new empty map.
3. Click OK.

Add the Image Service Definition Editor toolbar

You need to add the Image Service Definition Editor toolbar to your ArcMap window to create and edit image service definitions. If you have performed any of the previous exercises, you may already have this toolbar open; therefore, you can skip this step.

1. Click View on the Main menu, point to Toolbars, then click Image Service Definition Editor.

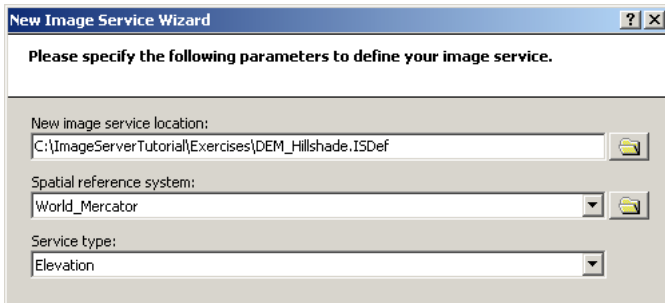
You can place or dock this toolbar anywhere in or around your window.



Create a new image service definition

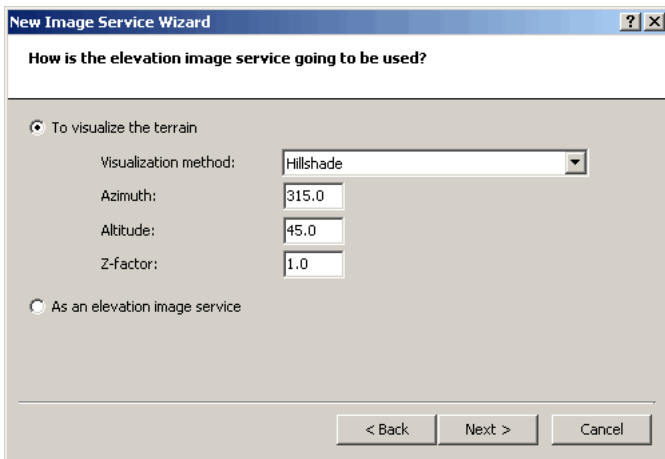
The first step is to create a new image service definition.

1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar and click New Image Service.
This opens the New Image Service Wizard.
2. Click the Next button.
3. Click the New image service location browse button.
4. Navigate to the location where you want to save your image service definition. In this tutorial, you will be creating it in C:\ImageServerTutorial\Exercises.
5. Type the File name “DEM_Hillshade” and click Save.
6. Click the Service type drop-down arrow and click Elevation.



7. Click the Next button.

You will be creating a image service definition that will produce a hillshaded visualization of a digital elevation model; therefore, you can leave the defaults.



8. Click the Next button.

9. Click the Raster type browse button.

This opens the Select Raster Type dialog box.

10. Double-click the Elevation folder.

11. Click Binary FLT from the Name list.

12. Click OK.

13. Click File radio button for the input type.

14. Click the Input browse button.

15. Navigate to C:\ImageServerTutorial\Data\DEM, click DEM.fit, then click Open.

16. Check Use this spatial reference for all input data.

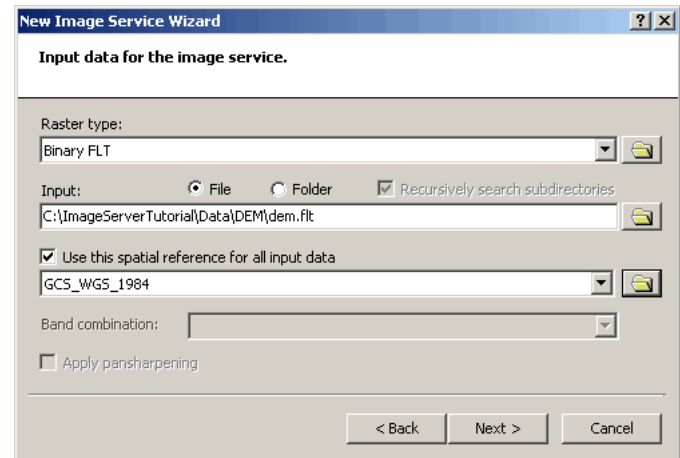
17. Click the spatial reference browse button.

This opens the Spatial Reference Properties dialog box.

18. Click the Select button.

19. Double-click the Geographic Coordinate Systems folder, double-click the World folder, click WGS 1984.prj, then click Add.

20. Click OK to close the dialog box.



21. Click the Next button.

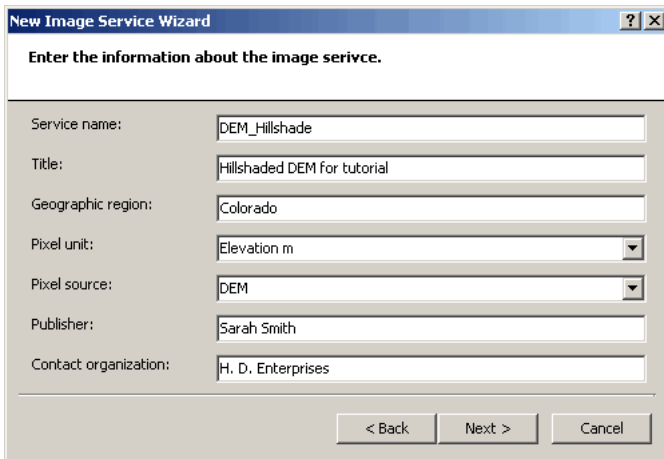
Service overviews are created to optimize the image service by allowing the service to display quickly at all scales.

Compiling the image service definition creates a compiled file (DEM_Hillshade.ISCDef) that is used by the service provider.

22. Click the Next button.

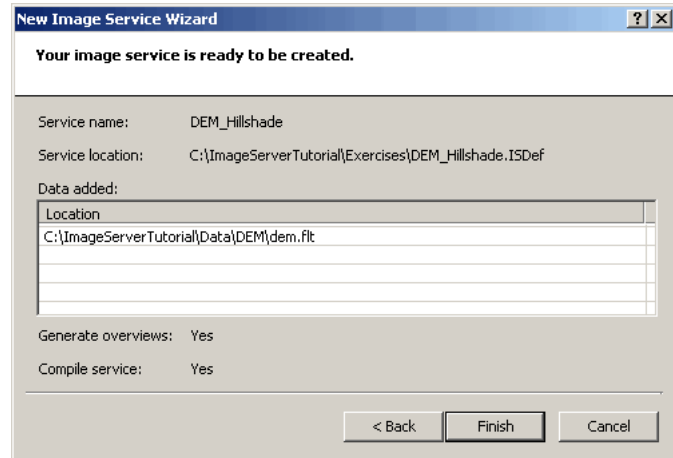
It is important to add metadata information about the image service. This information can be viewed by clients to inform them about the image service.

23. Type “Hillshaded DEM for tutorial” in the Title text box.
24. Type “Colorado” in the Geographic region text box.
25. Click the Pixel unit drop-down arrow and click Elevation m.
26. Type “DEM” in the Pixel source text box.
27. Type your name in the Publisher text box.
28. Type “H. D. Enterprises” in the Contact organization text box.



29. Click the Next button.

30. Review the information about the image service you will be creating.



31. Click the Finish button.

The Image Service Editor window will open and display the status of the image service definition as it is built and compiled. When it is complete, you will see “Process completed” in the window.

32. Click Close on the Image Service Editor window.

The image service custom group layer, DEM_Hillshade.ISCDef, is added to the ArcMap table of contents. It contains the Footprint, Boundary, and Preview layers. The Footprint layer contains the footprints of the DEM, including the service overview that was created. The Boundary layer contains a polygon representing the extent of the entire image service dataset. The Preview layer can be used to preview the image service and the information about the image service that clients can access.

33. Check the Preview layer in the table of contents to examine the shaded relief image.

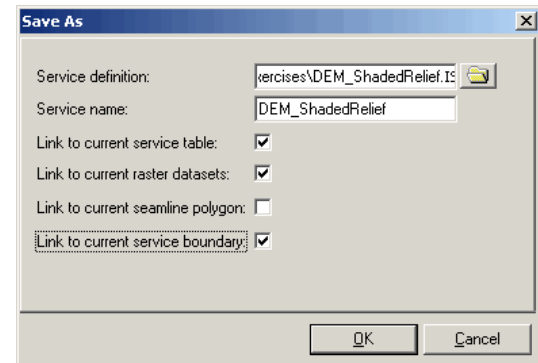
Create a copy of the image service definition

You will be creating a copy of the image service definition and changing the visualization method from hillshade to shaded relief. You could instead create a second image service definition from the original dataset and use the Shaded Relief visualization method. With the data used in this exercise, you are not saving any considerable time by using either method; however, when you are working with very large image service definitions it will always save you time if you can create a second image service definition from the first, which you will learn about in this part of this exercise.

One reason you would want to build a second image service definition from the first is because they can share the RPDefs that are generated and share the service overviews. The service overviews are actually created prior to any service process; therefore, you can share the service overviews of one image service definition with another similar image service definition if you are only making changes to the processes at the service level (not changing any raster level processing).



1. Click the Image Service drop-down menu, point to Advanced, then click Save As.
2. Click the Service definition browse button.
3. Type “DEM_ShadedRelief” in the File name box and click Save.
4. Type “Dem_ShadedRelief” for the Service Name.
5. Check Link to current service table.
6. Check Link to current raster datasets.

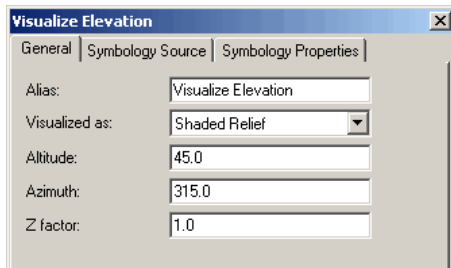
7. Check Link to current service boundary.



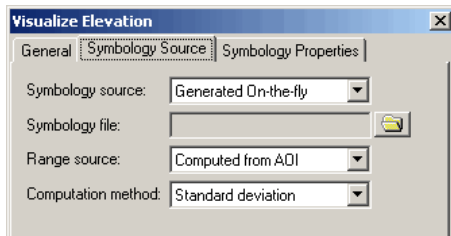
8. Click OK.
9. Click Yes to load the new service.
10. Uncheck the DEM_Hillshade.ISDef group layer in the table of contents.

Edit the Visualization Elevation process

1. Check that DEM_ShadedRelief is selected in the Layer box on the Image Service Definition Editor toolbar.
2. Click the Image Service Properties button  on the Image Service Definition Editor toolbar.
3. Click the Service Processes node in the list on the left side of the dialog box.
4. Click Visualize Elevation in the Processes Selected list.
5. Click the Edit button . This opens the Visualize Elevation dialog box.
6. Click the Visualized as drop-down arrow and click Shaded Relief.

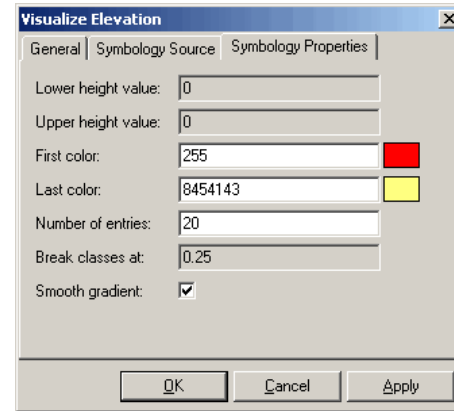


7. Click the Symbology Source tab.
8. Click the Symbology source drop-down arrow and click Generated On-the-fly.
9. Click the Range source drop-down arrow and click Computed from AOI.
AOI is an acronym used for area of interest.
10. Click the Computation method drop-down arrow and click Standard deviation.



11. Click the Symbology Properties tab.
12. Click the First color colored box.
13. Click a red color.
14. Click OK.
15. Click the Last color colored box.
16. Click a yellow color.
17. Click OK.

18. Type "20" in the Number of entries text box.



19. Click OK to close the Visualize Elevation dialog box.
20. Verify that Visualize Elevation is still checked in the Processes Selected list.



21. Click OK to close the Image Service Properties dialog box.

Build and compile the image service definition

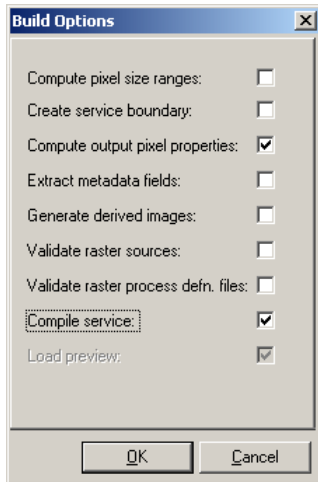
1. Click the Image Service drop-down menu on the Image Service Definition Editor toolbar, point to Advanced, then click Build.

This opens the Build Options dialog box.

2. Check Compute output pixel properties.

You need to recompute the output pixel properties to change these properties from a grayscale output to a color output.

3. Check Compile service.



4. Click OK.

The build process is run and the status is displayed in the Image Service Editor window. Compiling the image service generates a compiled image service definition file, called DEM_ShadedRelief.ISCDef. When the process is complete, the Preview layer will be added to the DEM_ShadedRelief.ISDef group layer.

5. Check the Preview layer in the table of contents to examine the shaded relief image.
6. Exit ArcMap.
7. Click No; you do not need to save your ArcMap session.

Publish the image service definition

You have now created two image service definitions and previewed how each will appear when they are published.

To publish the image service definitions you need to follow the steps in either Exercise 2 or 3. If you want to publish the image service definitions using ArcGIS Server, follow the directions in Exercise 2. If you want to publish the image service definitions using ArcGIS Image Server's standalone configuration, follow the directions in Exercise 3. Remember, you are publishing the DEM_Hillshade.ISCDef and DEM_ShadedRelief.ISCDef from the Exercises folder.