

ERDAS ECW Plugin 2020 Update 2 for ArcGIS Server 10.8.1

User Guide

Version 16.6.2

30 March 2021



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Overview

The ECW for ArcGIS Server 2020 extends Esri® ArcGIS Server's native capabilities to serve ECW files with version 5.5 of the ERDAS ECWJP2 SDK. This product only works for ArcGIS Server version 10.8.x. For earlier versions of ArcGIS see the Hexagon Geospatial web site for compatible versions of the plugin.

Features

- Support for ECW version 1, 2 and 3 files.
- Support for opacity channels.
- 16-bit ECW version 3 support.
- Windows and Linux support for the ArcGIS Server platform



What's New

2020 Update 2

Compatibility fix to support publishing from Esri® ArcGIS Pro to ArcGIS Server 10.8.1

2020 Update 1

Platform support for the latest Esri® 10.8.1 software release

2020

• Platform support for the latest Esri® 10.8 software release

2018 Update 2

• Platform support for the latest Esri ® 10.7 software release

2018 Update 1

• Platform support for the latest Esri ® 10.6.1 software releases

2018

- Platform support for the latest Esri ® 10.6 and Hexagon Geospatial 2018 software releases
- ECWJP2 SDK updated to v5.4 for the latest performance improvements and bug fixes

2016

- Support for ArcGIS Server 10.5.
- Windows Server 2003 support has been deprecated
- Linux platform support for RHEL and CentOS has been added
- ArcGIS for Server v10.4 now supported (v10.1 to v10.3 inclusive)
- Publishing bug fixes and performance improvements
- ECWJP2 SDK updated to v5.3 for the latest performance improvements and bug fixes



Supported Environments

OS = One of the operating systems is required.

= One of the third-party products is required.

= One of the Hexagon products is required.

R = Required

O = Optional

U = User must install

A = Automatically installed by Hexagon Setup Manager

	ECW Plugin for ArcGIS Server
Operating Systems	
Windows® Server 2012 R2 64-bit	OS
Windows® Server 2016 64-bit	os
Windows® Server 2019 64-bit	os
Red Hat Enterprise Linux / CentOS v6.x, v7.x	os
Licensing	
Hexagon Geospatial Licensing v16.6	IP
Esri® Server Platform	
Esri® ArcGIS for Server v10.8.1	TP

Platform support is in line with Esri's specified platform support for that product. Check the Esri web site for more information (Linux, Windows).



Installation Guide

This section guides you through the installation process. Before starting with the installation, please ensure that a supported ArcGIS for Server is installed on the system. The installation will only proceed if a supported ArcGIS for Server is detected.

You must have the Microsoft .NET framework 4.5 installed before launching the installer.

If a previous version of the product is installed, it will be automatically uninstalled as part of the installation process.

• Note: If you are upgrading an installation of ArcGIS Server (e.g. 10.7 to 10.8), you must uninstall the ECW for ArcGIS Server plugin before installing the upgrade, then re-install the newest version of the plugin after upgrading.

Licensing

You must obtain a valid license from Hexagon to use the ERDAS ECW for ArcGIS Server 2020 product. This version of the plugin requires a version 16.6 license.

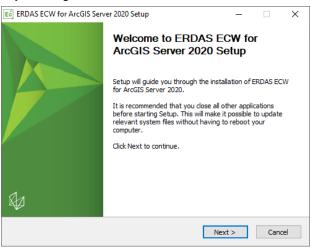
The product is licensed using the Geospatial Licensing Administrator 2018. See https://www.hexagongeospatial.com/resources/support/licensing for information on setting up the Licensing Administrator.

For more information, contact Hexagon Support.

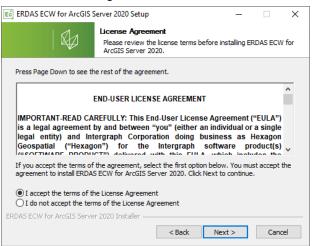


ECW for ArcGIS Server

1. Start the plugin installer by running ERDASECWForArcGISServer2020_10.8.1.exe.

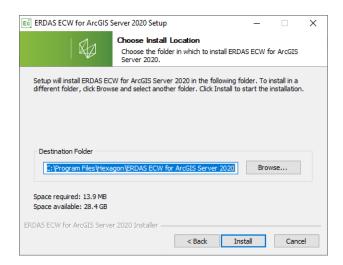


- 2. Select Next to start the installation.
- 3. You must accept the End User License agreement terms to continue.

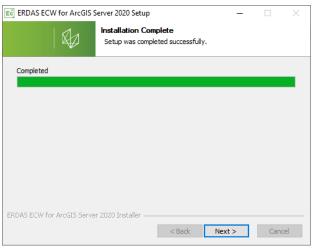


4. Select an installation location, then click "Install" to begin copying files.

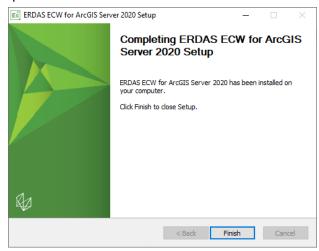




5. The installation will unpack and deploy the required files.



6. Select "Finish" to complete the installation.





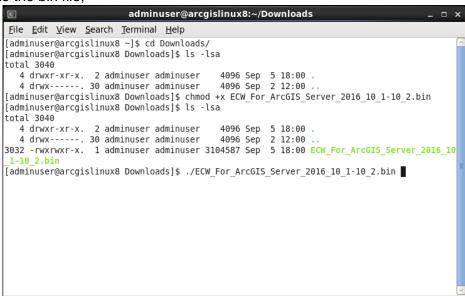
Uninstallation

To remove or uninstall the plugin or license manager, use the standard Windows "Add/Remove Programs" feature of the Control Panel.

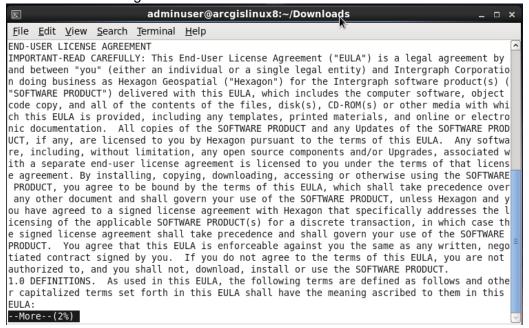


Linux

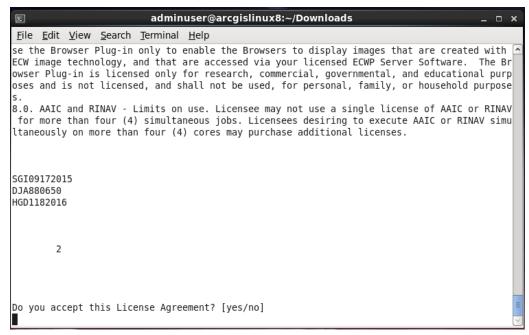
- 1. Download and extract the installer. Give executable rights to the bin file before executing.
- 2. Execute the bin file,



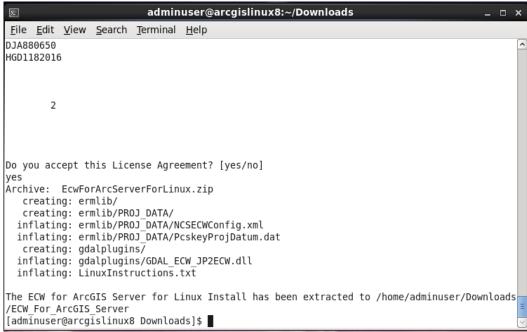
3. The EULA will be presented, and must be accepted for installation to continue. Press the spacebar to scroll though the EULA.







4. Once the EULA has been accepted, the installation will unpack the required files. The installer does not deploy the files, this must be done manually.



5. ECW for ArcGIS Server can be deployed to one of two locations, either the ArcGIS bin folder or ArcGIS Java folder.

ArcGIS' bin folder (preferred):

 a. Copy the contents of the extracted folder ECW_For_ArcGIS_Server to \$ARCGIS_INSTALL_DIRECTORY/arcgis/server/bin, where \$ARCGIS_INSTALL_DIRECTORY is the installation directory of ArcGIS_Server.



b. When deploying to the ArcGIS' bin folder, the *GDAL_DRIVER_PATH* variable needs to be set and point to the deployed *gdalplugins* folder. The value of this variable needs to be exported with the root directory being set to *Z* and using backslashes.

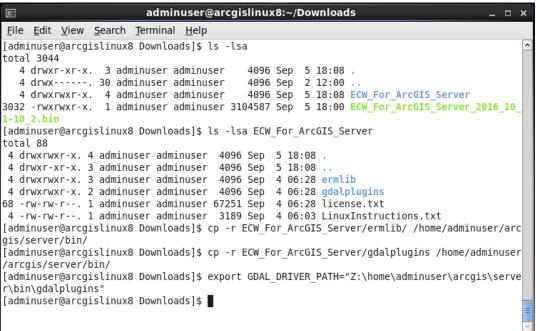
For example, if ArcGIS Server was installed to /home/adminuser/arcgis, the GDAL_DRIVER_PATH will be set as follows,

export

GDAL_DRIVER_PATH="Z:\home\adminuser\arcgis\server\bin\gdalplugins"

The GDAL_DRIVER_PATH needs to be set at a location where it will be visible to ArcGIS Server, and this will depend on how ArcGIS Server is deployed. For example, the variable can be exported within the script that starts ArcGIS Server.

Note that the *GDAL_DRIVER_PATH* will affect all instances of GDAL with visibility to it. If another instance of GDAL exists, and setting the variable to the *gdalplugins* folder is undesirable, then deploy ECW For ArcGIS Server to the ArcGIS Server's Java folder (see below).



ArcGIS' Java folder:

- a. Copy the contents of the extracted folder ECW_For_ArcGIS_Server to \$ARCGIS_INSTALL_DIRECTORY/arcgis/server/framework/runtime/jre/bin, where \$ARCGIS_INSTALL_DIRECTORY is the installation directory of ArcGIS Server.
- b. When deploying to the ArcGIS' Java folder, the *GDAL_DRIVER_PATH* variable does not needs to be set. This is the default location that ArcGIS Server will search for GDAL plugins.



```
adminuser@arcgislinux8:~/Downloads
File Edit View Search Terminal Help
[adminuser@arcgislinux8 Downloads]$ ls -lsa
total 3044
   4 drwxr-xr-x. 3 adminuser adminuser
                                             4096 Sep 5 18:08
                                             4096 Sep 2 12:00
   4 drwx----. 30 adminuser adminuser
4 drwxrwxr-x. 4 adminuser adminuser 4096 Sep 5 18:08 ECW For ArcGIS Server 3032 -rwxrwxr-x. 1 adminuser adminuser 3104587 Sep 5 18:00 ECW For ArcGIS Server 2016 10
                                             4096 Sep 5 18:08 ECW_For_ArcGIS_Server
 -10 2.bin
[adminuser@arcgislinux8 Downloads]$ ls -lsa ECW For ArcGIS Server
 4 drwxrwxr-x. 4 adminuser adminuser 4096 Sep 5 18:08
 4 drwxr-xr-x. 3 adminuser adminuser
                                       4096 Sep
                                                  5 18:08
 4 drwxrwxr-x. 3 adminuser adminuser
                                       4096 Sep
                                                 4 06:28 ermlib
 4 drwxrwxr-x. 2 adminuser adminuser
                                       4096 Sep 4 06:28 gdalplugins
68 -rw-rw-r--. 1 adminuser adminuser 67251 Sep 4 06:28 license.txt
 4 -rw-rw-r--. 1 adminuser adminuser 3189 Sep
                                                 4 06:03 LinuxInstructions.txt
[adminuser@arcgislinux8 Downloads]$ cp -r ECW For ArcGIS Server/ermlib/ /home/adminuser/arc
gis/server/framework/runtime/jre/bin/
[adminuser@arcgislinux8 Downloads]$ cp -r ECW For ArcGIS Server/gdalplugins/ /home/adminuse
r/arcgis/server/framework/runtime/jre/bin/
[adminuser@arcgislinux8 Downloads]$
```

- 1. Configure the license. A brief summary of how to configure the license is presented below. For a more detailed workflow, please refer the Intergraph Licensing documentation.
 - a. Create a file called INGRTS_LICENSE_PATH in \$ARCGIS_INSTALL_DIRECTORY/arcgis/server/framework/runtime/.wine/drive_c/ProgramData/Intergraph/Licensing/.
 - b. Edit *INGRTS_LICENSE_PATH* so that it points to a valid license directory or license server.



2. Open \$ARCGIS_INSTALL_DIRECTORY/arcgis/server/bin/RasterFormats.dat and add the line below at the end of content of RasterFormats.dat file. This step is only specific for 10.8.1.

```
<e on="y" nm="ERDAS ECW v5" ex="*.ecw" et="ECW_JP2ECW" at="0x27" />
```

- 3. Also, copy the extracted files from ECW_For_ArcGIS_Server to \$ARCGIS_INSTALL_ DIRECTORY/arcgis/server/framework/runtime/ArcGIS/bin.
- 4. Same with Step 7, open \$ARCGIS_INSTALL_DIRECTORY/arcgis/server/framework /runtime/ArcGIS/bin /RasterFormats.dat and add the line below at the end of content of RasterFormats.dat file.

```
<e on="y" nm="ERDAS ECW v5" ex="*.ecw" et="ECW_JP2ECW" at="0x27" />
```



Using the ECW Plugin

Configuration

The ERDAS ECW for ArcGIS server product provides a configuration file located in the installation location of ArcGIS Server,

C:\Program Files\ArcGIS\Server\bin\ermlib\PROJ DATA\NCSECWConfig.xml

The <SDKCacheSize> specifies the amount of memory that the ERDAS ECW for ArcGIS Server product will use for decoding ECW files expressed as a percentage of the total system memory available where 0.1 represents 10%. This parameter,

- 1. Is set per process (ArcSOC.exe).
 - a. Due to the Esri® ArcGIS for Server multi-process architecture, ECW for ArcGIS Server has no awareness or knowledge about how many other ArcSOC processes are in use nor how many other Services with ECW data are deployed on the server.
- 2. Has no relationship to the number or size of ECW files deployed within each Service.
 - a. Setting a value of 0.2 will use the same amount of memory with 1x small ECW file as a Service with 1000x large ECW files. The value merely defines the maximum size of the memory pool that ECW for ArcGIS Server will manage.

Increasing the memory cache often improves performance and decreases Disk I/O but can exhaust available physical memory if the SDKCacheSize is set incorrectly. Too low a setting will cause unnecessary disk reads and slows performance. Careful consideration of this setting is required to balance performance with memory usage requirements.



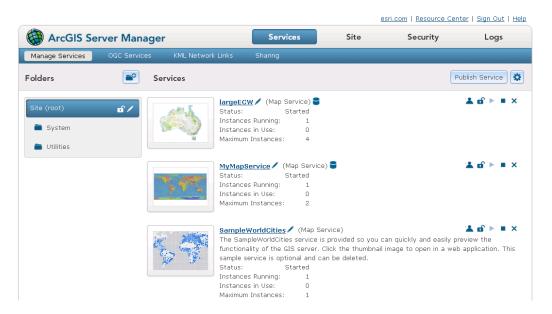


Figure 1 - Two published services with ECW data

Example 1: ArcGIS Server configured for high isolation

ArcGIS Server configuration:

- Run instances of this configuration: In a separate process for each instance (high isolation)
- Instances per process: 1
- Maximum number of instances per machine: 4
- Total System Memory: 8Gb
- Cache Size: <SDKCacheSize>0.1</SDKCacheSize>

This configuration assigns 3.2Gb for ECW decoding per Service.

```
(NumberOfInstances/InstancesPerProcess) x Memory x ECWSDK Cache = (4/1) x 8 x 0.1 = 3.2 GB
```

If an ArcGIS Server has 10 Services deployed with 5 having ECW data the total memory usage for the above instance configuration would be,

```
3.2gb * 5 = 16 GB total
```

In addition to the memory requirements of ArcGIS Server for rendering the other data layers.

Example 2: ArcGIS Server configured for low isolation

ArcGIS Server configuration:

 Run instances of this configuration: In a separate process for this configuration only (low isolation)



- Instances per process: 8
- Maximum number of instances per machine: 16
- Total System Memory: 16Gb
- Cache Size: <SDKCacheSize>0.2</SDKCacheSize>

This configuration assigns 3.2Gb for ECW decoding per Service.

```
(NumberOfInstances/InstancesPerProcess) x Memory x ECWSDK Cache = (16/8) x 16 x 0.2 = 3.2 GB
```

If an ArcGIS Server has 10 Services deployed with 2 having ECW data the total memory usage for the above instance configuration would be,

```
6.4 \text{gb} * 2 = 12.8 \text{ GB total}
```

In addition to the memory requirements of ArcGIS Server for rendering the other data layers.

Publishing an ECW Resource on ArcGIS Server

Once the ECW plugin is installed, you can add ECW files to any map service in the same way you would add other raster file type, no extra steps are necessary.

Refer to the Esri documentation for ArcGIS Server on how to configure map services. The injected ECW format will inherit the same platform capabilities of other Raster formats published to ArcGIS Server.



Troubleshooting

Linux Installation

If after installing ECW for ArcGIS Server Linux and ArcGIS Server is still unable to publish or load service definitions that contains an ECW file, debug logging can be enabled to provide troubleshooting information.

Enable debug logging,

```
export CPL_DEBUG=ON
export CPL LOG="c:\CPL LOG.log"
```

The above will set the log level to DEBUG and set the log file location to

```
$ARCGIS_INSTALL_DIRECTORY/arcgis/server/framework/runtime/.wine/drive_c/CPL LOG.log
```

To enable license logging (this needs CPL_DEBUG and CPL_LOG set)

```
export FLEXLM DIAGNOSTICS=2
```

Note that the environment variables need to be set in such a manner that they are visible to ArcGIS Server. This can be done either in a terminal and launching ArcGIS within that terminal, or within the ArcGIS Server start-up scripts.

Failure to publish from Esri ArcGIS Pro but successful from Esri ArcGIS Desktop

This limitation was addressed in the 10.8.1 Update 2 release and was caused by ArcGIS Pro's dependency on the System/PublishingToolsEx.GPServer endpoint that was not previously enabled. ArcGIS for Desktop customers continue to be supported publishing ECW data to the original

System/PublishingTools.GPServer endpoint. Both are enabled in this update.

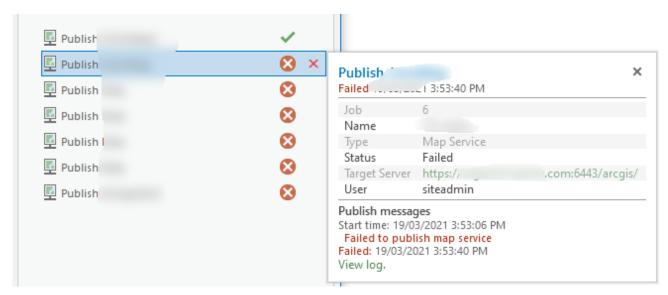
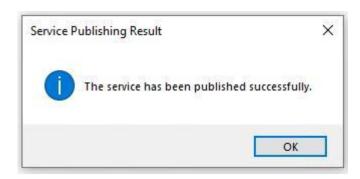


Figure 2 - ArcGIS Pro failure to publish ECW data example. Success shown once ECW for ArcGIS Server is installed.



Failure to display ECW layers

Irrespective of the successful deployment of ECW for ArcGIS Server, publishing ECW layers may still yield success even though the product has not been configured correctly. Most commonly, the product has been installed but licensing has not been configured.



To generally troubleshoot,

• If publishing a service with ECW data fails to preview or display, check the service logs.



- If the service log reports errors, specifically failure to open the dataset, check the licensing definition.
- On the ArcGIS Server machine(s) where ECW for ArcGIS Server is deployed, open the following file in a text editor or create the file if it does not exist,

```
C:\ProgramData\Intergraph\Licensing\INGRTS LICENSE PATH
```

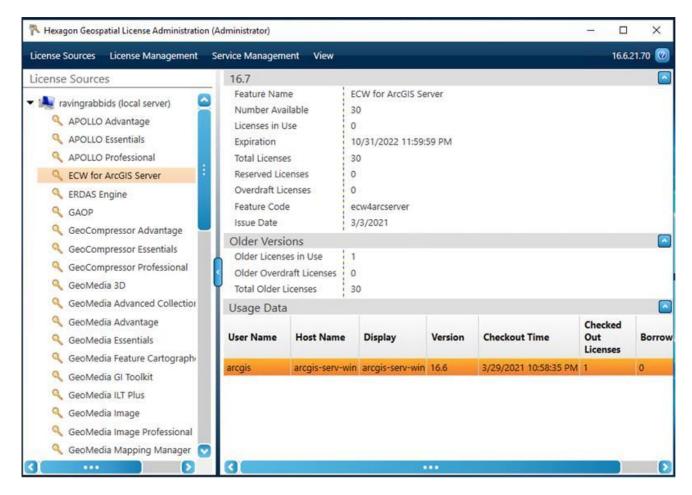
In the file, insert the location of the Hexagon Geospatial concurrent license source.

@licenseSVR;

If the file already exists and the license server is correct, skip to the next step.

- Save and close the file. Restart ArcGIS Server.
- On the machine with the Hexagon Geospatial License Server installed (specified in INGRTS_LICENSE_PATH), verify if there are ECW ArcGIS Server Licenses available in the left panel. Highlighting this product should then confirm the expected server(s) in your ArcGIS Server deployment
 - o If you see no machines listed in the Usage Data, re-check INGRTS LICENSE PATH.





- If the expected machines are shown, it confirms Licensing is working as expected and licenses have been checked out correctly.
- If the services with ECW data still do not display, contact the Hexagon Geospatial support team.

Stretch applied to ECW files are absent

Stretches applied to ECW files may be absent when the maps they are contained in are published to an ArcGIS Server.

The ECW v3 file can store statistics information within the file itself, negating the need to store such information within auxiliary xml files. Statistics calculated for ECW v3 files are not written immediately into the file after they are calculated. This is because the file is currently opened and in use by ArcGIS Desktop (ArcMap or ArcCatalog), which prevents it from being modified. The calculated statistics are only written into the ECW file after ArcGIS Desktop closes the file.

If an ECW file is published to an ArcGIS Server, and that ECW has a stretch applied using statistics calculated within the current ArcGIS Desktop session, the stretch applied to the ECW file might be absent when served. This is because the ECW file packaged within the service definition does not



contained the statistics needed to apply the stretch, since it is not written into the ECW file until the ArcGIS Desktop session finishes.

We recommend that after calculating statistics for an ECW file, you close the current ArcGIS Desktop session. This allows the calculated statistics to be written into the file, before publishing it to an ArcGIS Server.

Publishing Errors

ArcGIS Server may encounter errors when trying to republish data that had failed previously. For example, when republishing ECW data that failed previously due to licensing errors that has since been corrected, the republishing can still fail. ArcGIS Desktop may display an error:

"ERROR 001369" Failed to create the service. Please consult the GP Results Windows for enhanced error description or contact your administrator for the server logs.

While in ArcGIS Server error logs:

"Failed to create the service.: Unable to delete a preexisting service input folder: C:\arcgisserver\directories\arcgissystem\arcgisinput\{service name}. Verify no process is accessing files in the folder. Re-starting the publishing tools service may solve the problem."

This failure can be due to Opportunistic Locking in Windows, and is described in more details here, http://server.arcgis.com/en/server/latest/administer/linux/common-problems-and-solutions.htm#anchor30.

To work around the issue:

1. Delete the generated files from previous failed publish in

"C:\arcgisserver\directories\arcgissystem\arcgisinput" or publish using a different name.



Support

ERDAS ECW for ArcGIS Server Plugin product support is available to all customers with active Software Maintenance on any of the dependant Hexagon Geospatial 2020 products. See the Hexagon Geospatial Support webpage for more information on how to raise support requests.

When reporting problems, please include all relevant information and example data.



About Hexagon

Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications.

Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous — ensuring a scalable, sustainable future.

Hexagon's Geospatial division creates solutions that deliver a 5D smart digital reality with insight into what was, what is, what could be, what should be, and ultimately, what will be.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 20,000 employees in 50 countries and net sales of approximately 4.3bn USD. Learn more at hexagon.com and follow us @HexagonAB.

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