



**HEXAGON**

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# **ERDAS ECW Plugin 2023 for ArcGIS Server 11.3**

User Guide

Version 16.8.2

12 August 2024

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## Overview

The ECW for ArcGIS Server 2023 extends Esri® ArcGIS Server's native capabilities to serve ECW files with version 6.1 of the ERDAS ECWJP2 SDK. This product only works for ArcGIS Server version 11.3. 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

## 2023 Update 2

- Platform support for the latest Esri® ArcGIS Server 11.3
- Esri® ArcMap support for ECW for ArcGIS Server is now deprecated. Publishing is only supported from Esri® ArcGIS Pro to ArcGIS Server 11.3
- Linux platform support: CentOS is no longer supported and replaced by Oracle Linux 8

## 2023 Update 1

- Platform support for the latest Esri® ArcGIS Server 11.2
- Esri® ArcMap support for ECW for ArcGIS Server is now deprecated. Publishing is only supported from Esri® ArcGIS Pro to ArcGIS Server 11.2
- Linux platform support: CentOS is no longer supported and replaced by Oracle Linux 8

## 2023

- Platform support for the latest Esri® ArcGIS Server 11.1
- Update of the ECW SDK to 6.1
- Esri® ArcMap support for ECW for ArcGIS Server is now deprecated. Publishing is only supported from Esri® ArcGIS Pro to ArcGIS Server 11.1
- Linux platform support: CentOS is no longer supported and replaced by Oracle Linux 8

## 2020 Update 4

- Platform support for the latest Esri® ArcGIS Server 10.9.1
- Update of the ECW SDK to 5.5 Update 4
- Esri® ArcMap support for ECW for ArcGIS Server is now deprecated. Publishing is only supported from Esri® ArcGIS Pro to ArcGIS Server 10.9.1
- Troubleshooting (logging) support has been added
- Fixed potential issue publishing ECW files as Image Service

## 2020 Update 3



- Platform support for the latest Esri® ArcGIS Server 10.9

#### **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.
- TP** = One of the third-party products is required.
- IP** = 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	
<b>Operating Systems</b>	
Windows® Server 2016 64-bit	<b>OS</b>
Windows® Server 2019 64-bit	<b>OS</b>
Windows® Server 2022 64-bit	<b>OS</b>
Oracle Linux 8 (Update 9)	<b>OS</b>
Red Hat Enterprise Linux 8 (Update 9)	<b>OS</b>
<b>Licensing</b>	
Hexagon Geospatial Licensing v16.8	<b>IP</b>
<b>Esri® Server Platform</b>	
Esri® ArcGIS for Server v11.3	<b>TP</b>

Platform support is in line with Esri’s specified platform support for that product. We no longer support CentOS. 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 Server is installed on the system. The installation will only proceed if a supported ArcGIS Server is detected.

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

- 📌 **Important Note:** *If you are upgrading an installation of ArcGIS Server, 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

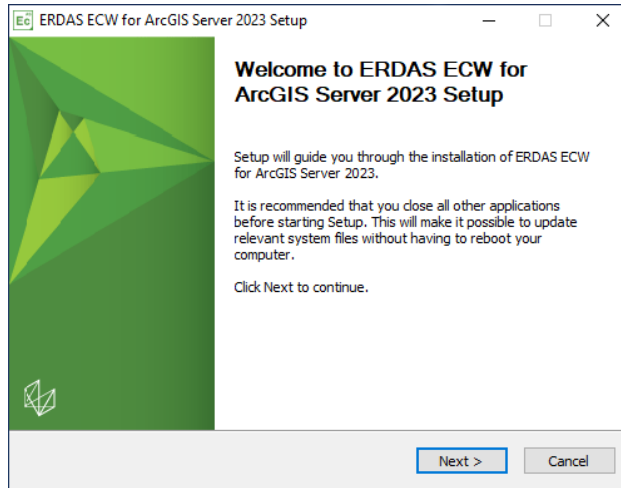
You must obtain a valid license from Hexagon to use the ERDAS ECW for ArcGIS Server 2023 product. This version of the plugin requires a version **16.8 Hexagon license**.

The product is licensed using the Geospatial Licensing Administrator 2023. See <https://www.hexagongeospatial.com/support/licensing> for information on setting up the Licensing Administrator.

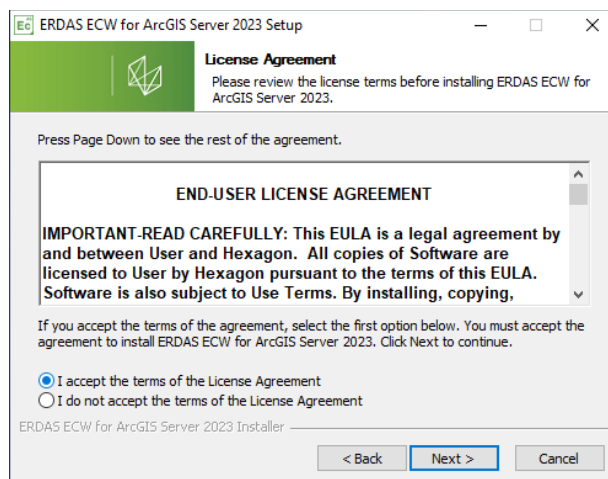
For more information, contact Hexagon Support.

## Windows Installation

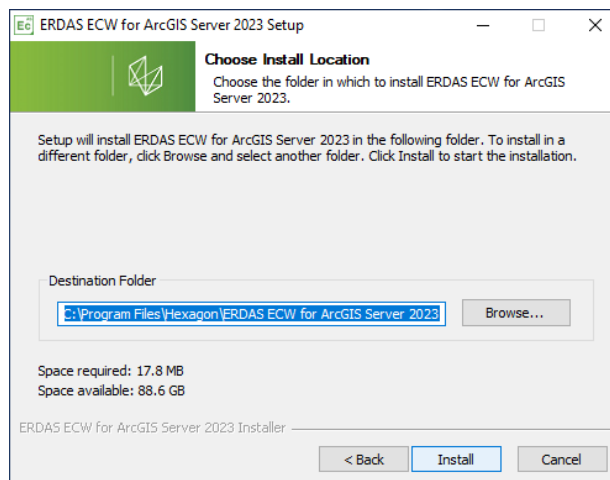
1. Start the plugin installer by running ERDASECWForArcGISServer2023\_11.3.exe.



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

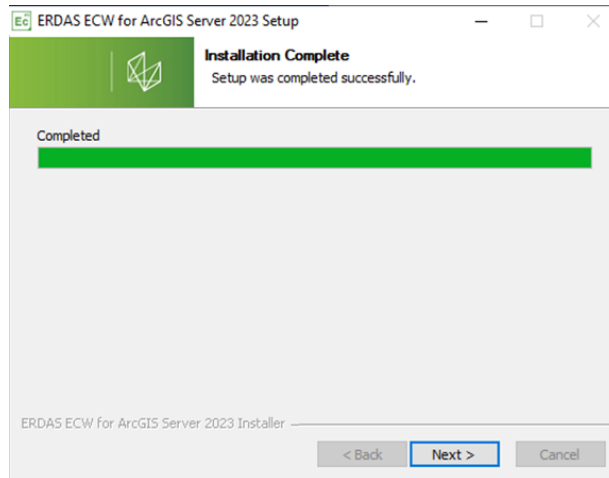


4. Select an installation location, then click "Install" to begin copying files.

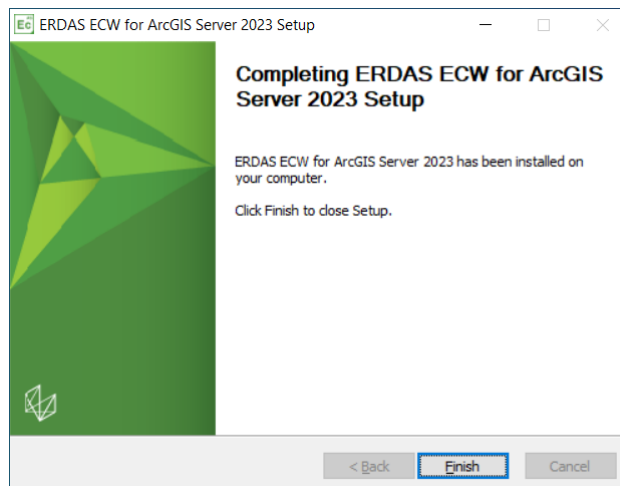




5. The installation will unpack and deploy the required files.



6. Select "Finish" to complete the installation.



## Windows Uninstallation

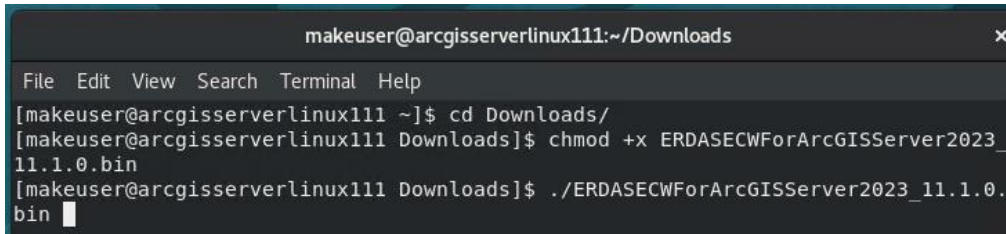
To remove or uninstall the plugin or license manager, use the standard Windows "Add/Remove Programs" feature of the Control Panel.

## Linux Installation

ArcGIS Server on Linux runs under the Wine framework, which is a compatibility layer that allows deployment of Windows applications on Linux. This means that we cannot use the native Linux installation mechanism to install and must copy and configure the plugin manually on this platform.

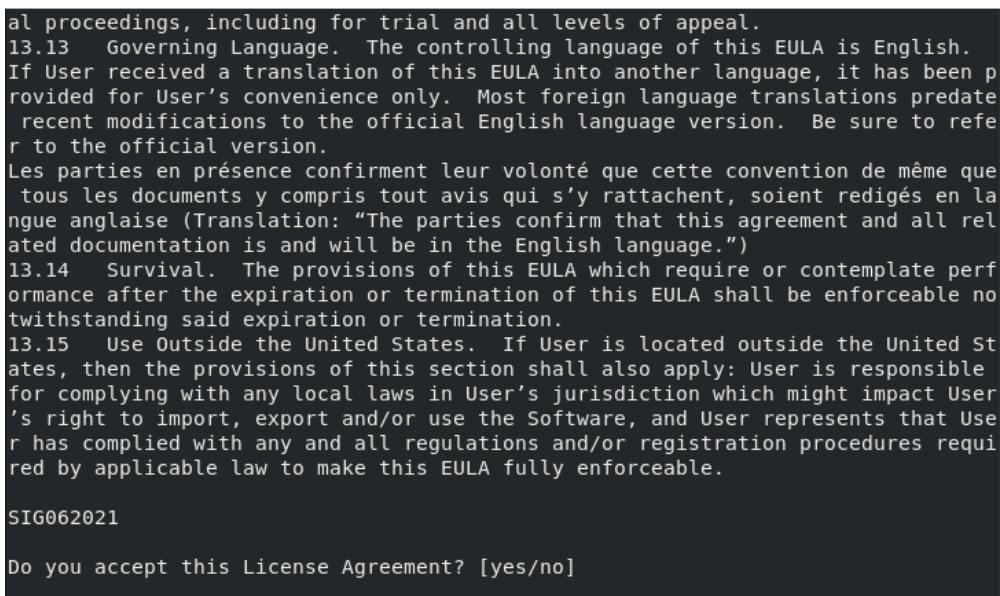
To install on a supported Linux platform:

1. Download and extract the installer. Give executable rights to the bin file, then execute the bin file.



```
makeuser@arcgisserverlinux111:~/Downloads
File Edit View Search Terminal Help
[makeuser@arcgisserverlinux111 ~]$ cd Downloads/
[makeuser@arcgisserverlinux111 Downloads]$ chmod +x ERDASECWForArcGISServer2023_11.1.0.bin
[makeuser@arcgisserverlinux111 Downloads]$ ./ERDASECWForArcGISServer2023_11.1.0.bin
```

2. The EULA will be displayed and must be accepted for installation to continue. Press the spacebar to scroll through the EULA, then type “yes” to continue.



```
al proceedings, including for trial and all levels of appeal.
13.13 Governing Language. The controlling language of this EULA is English.
If User received a translation of this EULA into another language, it has been p
rovided for User's convenience only. Most foreign language translations predate
recent modifications to the official English language version. Be sure to refe
r to the official version.
Les parties en présence confirment leur volonté que cette convention de même que
tous les documents y compris tout avis qui s'y rattachent, soient rédigés en la
ngue anglaise (Translation: "The parties confirm that this agreement and all rel
ated documentation is and will be in the English language.")
13.14 Survival. The provisions of this EULA which require or contemplate perf
ormance after the expiration or termination of this EULA shall be enforceable no
twithstanding said expiration or termination.
13.15 Use Outside the United States. If User is located outside the United St
ates, then the provisions of this section shall also apply: User is responsible
for complying with any local laws in User's jurisdiction which might impact Use
r's right to import, export and/or use the Software, and User represents that Use
r has complied with any and all regulations and/or registration procedures requi
red by applicable law to make this EULA fully enforceable.

SIG062021

Do you accept this License Agreement? [yes/no]
```

3. 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.



```
creating: framework/  
creating: framework/runtime/  
creating: framework/runtime/ArcGIS/  
creating: framework/runtime/ArcGIS/bin/  
creating: framework/runtime/ArcGIS/bin/ermlib/  
creating: framework/runtime/ArcGIS/bin/ermlib/PROJ_DATA/  
inflating: framework/runtime/ArcGIS/bin/ermlib/PROJ_DATA/NCSECWConfig.xml  
inflating: framework/runtime/ArcGIS/bin/ermlib/PROJ_DATA/PcskeyProjDatum.dat  
creating: framework/runtime/ArcGIS/bin/gdalplugins/  
inflating: framework/runtime/ArcGIS/bin/gdalplugins/GDAL_ECW_JP2ECW.dll  
inflating: LinuxInstructions.txt  
inflating: mfc140.dll  
inflating: mfc140u.dll  
inflating: mfcml140.dll  
inflating: mfcml140u.dll  
inflating: ServerUserGuide.pdf
```

4. Locate the directory where the downloaded files were extracted. From here-in, these instructions refer to this location as <ECWPLUGIN\_HOME>.
5. Locate the installation directory of ArcGIS Server. From here-in, these instructions refer to this location as <ARCGIS\_HOME>.
6. Copy the contents of the bin directory from the source to the ArcGIS install directory. For example:

```
cp -rf <ECWPLUGIN_HOME>/framework/runtime/ArcGIS/bin/ermlib  
<ARCGIS_HOME>/server/framework/runtime/ArcGIS/bin/
```

7. Copy the GDAL image format driver from the source directory to the ArcGIS installer gdalplugins directory. For example:

```
cp  
<ECWPLUGIN_HOME>framework/runtime/ArcGIS/bin/gdalplugins/GDAL_ECW_JP  
2ECW.dll  
<ARCGIS_HOME>/server/framework/runtime/ArcGIS/bin/gdalplugins/
```

8. Copy the MFC dlls from the source directory to the ArcGIS installer binary directory. For example:

```
cp <ECWPLUGIN_HOME>/*.dll  
<ARCGIS_HOME>/server/framework/runtime/ArcGIS/bin/
```

9. Configure the License:

- a. Create a file called INGRTS\_LICENSE\_PATH in:

```
<ARCGIS_HOME>/server/framework/runtime/.wine/drive_c/ProgramDat  
a/Intergraph/Licensing/
```

Note: Sometimes depending on the linux OS, the path can also be



```
<ARCGIS_HOME>/server/framework/runtime/.wine/drive_c/ProgramData/Licensing/
```

- b. Edit `INGRTS_LICENSE_PATH` so that it points to a valid license server, e.g.,

```
@licenseserver.domain.com;
```

**Note:** Ensure to add the “;” separator at the end of the address.

10. Edit `RasterFormats.dat` at the ArcGIS install located at:

```
<ARCGIS_HOME>/server/framework/runtime/ArcGIS/bin
```

and add the line below at the end of the content:

```
<e on="y" nm="ERDAS ECW v6" ex="*.ecw" et="ECW_JP2ECW" at="0x27" />
```

11. Restart the server.

## Linux Uninstallation

To uninstall ECW for ArcGIS Server, manually revert the above installation steps.

1. Delete the following line from

```
<ARCGIS_HOME>/server/framework/runtime/ArcGIS/bin/RasterFormats.dat
```

```
<e on="y" nm="ERDAS ECW v6" ex="*.ecw" et="ECW_JP2ECW" at="0x27" />
```

2. Remove the license configuration files:

```
cd <ARCGIS_HOME>/server/framework/runtime/.wine/drive_c/ProgramData/
```

```
rm -rf Intergraph Licensing
```

3. Remove the plugin files:

```
rm -rf <ARCGIS_HOME>/server/framework/runtime/ArcGIS/bin/ermlib
```

```
rm
```

```
<ARCGIS_HOME>/server/framework/runtime/ArcGIS/bin/gdalplugins/GDAL_EC  
CW_JP2ECW.dll
```

```
rm <ARCGIS_HOME>/server/framework/runtime/ArcGIS/bin/mfc*.dll
```

# Using the ECW Plugin

## Configuration

The ERDAS ECW for ArcGIS server product provides a configuration file `NCSECWConfig.xml`, located in the installation location of ArcGIS Server, for example:

```
C:\Program Files\ArcGIS\Server\framework\runtime\ArcGIS\bin\ermlib\PROJ_DATA\NCSECWConfig.xml
```

## SDK Cache Size

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.

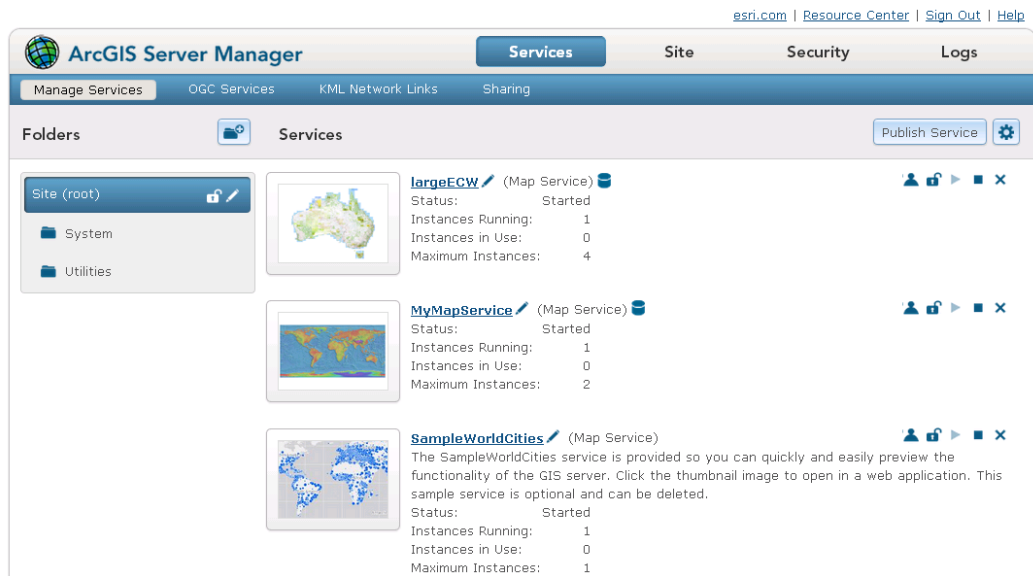


Figure 1 - Two published services with ECW data

### 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**.

$$\begin{aligned}
 & (\text{NumberOfInstances} / \text{InstancesPerProcess}) \times \text{Memory} \times \text{ECWSDK Cache} \\
 & = (4/1) \times 8 \times 0.1 = 3.2 \text{ GB}
 \end{aligned}$$

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

$$3.2\text{gb} * 5 = \mathbf{16 \text{ GB (total)}}$$

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 :  $\langle \text{SDKCacheSize} \rangle 0.2 \langle /\text{SDKCacheSize} \rangle$

This configuration assigns 3.2Gb for ECW decoding **per Service**.

$$\begin{aligned} & (\text{NumberOfInstances}/\text{InstancesPerProcess}) \times \text{Memory} \times \text{ECWSDK Cache} \\ & = (16/8) \times 16 \times 0.2 = 3.2 \text{ GB} \end{aligned}$$

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

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

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

### Log File Configuration

By default, the logging capability is not set up as it can impact performance. Once troubleshooting has finished troubleshooting, the logging should be turned off.

When modifying the log parameters values, you need to stop/start ArcGIS Server service (not restart) or restart the server.

The log cannot be deleted until you stop ArcGIS server.

```
<!-- ECW (only concerning ECW), ON (all type of logs) //-->
<LogFilter>ECW</LogFilter>

<!-- NONE (default because of performance) , DEBUG, WARNING, FAILURE, FATAL //-->
<LogLevel>NONE</LogLevel>

<!-- The file path should contain no space and the folder should have enough permissions //-->
<LogPath>C:\arcgisserver\logs\ecwforarcgisserver.log</LogPath>
```

### 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

## Logging

After installation, if you are still unable to publish or load service definitions that contain ECW files, you can add logging parameters in NCSEcwConfig.xml to help troubleshoot. The configuration file's default path is stated below.

Windows:

```
<ARCGIS_HOME>\Server\framework\runtime\ArcGIS\bin\ermlib\PROJ_DATA\  
NCSECWConfig.xml
```

Linux:

```
<ARCGIS_HOME>/server/framework/runtime/ArcGIS/bin/ermlib/PROJ_DATA/NCSECW  
onfig.xml
```

NCSECWConfig.xml contains parameters to set the logging level and log file location:

```
<LogFilter>ECW</LogFilter>  
<!-- Log level is one of NONE (default),  
      DEBUG, WARNING, FAILURE, FATAL //-->  
<LogLevel>DEBUG</LogLevel>  
<!-- Path to the log file. //-->  
<LogPath>C:\arcgisserver\logs\ecwforarcgisserver.log</LogPath>
```

Under Linux, LogPath still refers to a Windows directory structure under the Wine framework. That is, if LogPath in Linux is set to "C:\ecwforarcgisserver.log", then the absolute path of the log file is:

```
<ARCGIS_HOME>/server/framework/runtime/.wine/drive_c/ecwforarcgisserver.lo  
g
```

**Note:** The log file path name cannot contain spaces. Once you have finished troubleshooting the issue, it is recommended to setup the log level back to NONE as it can impact performance.

The change in the config file is enabled after a restart of the ArcGIS Server service.

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

This limitation was addressed since 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.

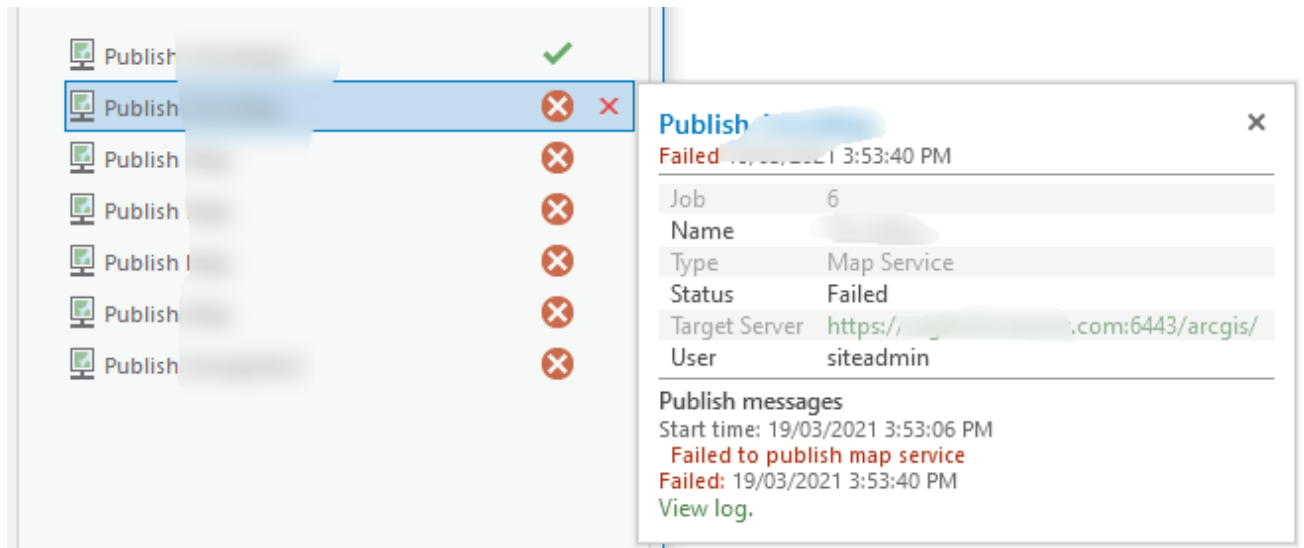
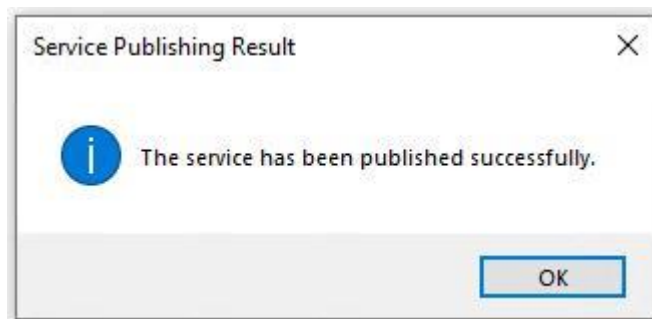


Figure 2 - ArcGIS Pro failure to publish ECW data example. Success shown once ECW for ArcGIS Server is installed.

## 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.



In general, to 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, ensure the license server is correctly setup.
- 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

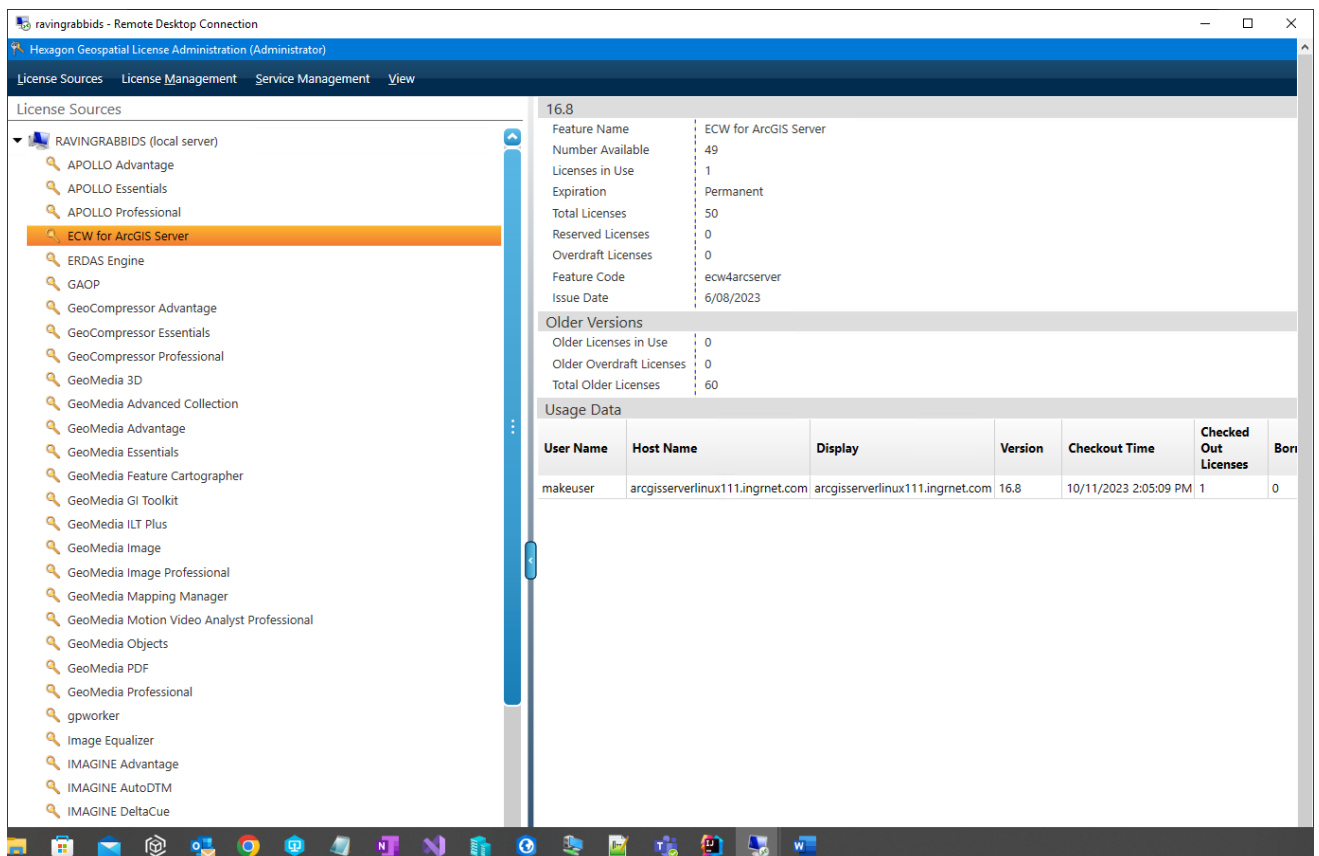


In the file, insert the location of the Hexagon Geospatial concurrent license source.

```
@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 that there are valid “ECW for ArcGIS Server” licenses available in the left panel. Selecting the product should confirm the expected licenses in your ArcGIS Server deployment
- If you there are no machines listed in the Usage Data, re-check the `INGRTS_LICENSE_PATH` file .



- If the expected machines are shown, it confirms licensing is working 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 contain 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 pre-existing 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 2023 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](https://hexagon.com) and follow us @HexagonAB.

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