

ER Mapper ECW Reader/Writer

FORMAT NOTES:

This format is not supported by FME Base Edition.

The ECW Reader/Writer allows FME to read and write data in ER Mapper's Compressed Wavelet (ECW) format.

Overview

The ECW image format is used to compress very large images, without using intermediate tiling or intermediate disk storage. There is no inherent limitation to image size in the compression technology. However, any image saved in this format must be at least 128 x 128 pixels. Any non-eight-bit source data will be rescaled to eight-bit.

The ECW technique also takes advantage of CPU, L1 and L2 levels of cache to do its linear and unidirectional data flow through the Discrete Wavelet Transformations (DWT) process.

Many less common coordinate systems may not be mapped properly when writing to ECW files. Coordinate system and georeferencing transformations are read, but in some cases coordinate systems may not translate.

GCPs (ground control points) present along with a projection in an ECW file being read can either be applied to the data as an affine transformation, or stored as properties of the raster geometry. GCPs cannot be written to ECW.

The ECW writer supports the following option:

- **Compression Level:** This option sets the desired compression level of the output image. This is expressed as a percentage of the original file size; for example, setting a compression level of 75 means that the output image will be approximately 75% smaller than an uncompressed image (i.e. it will be $\sim 1/4$ of the size). Note that this value only represents the targeted compression level, and this may not actually be achieved. Also note that ECW does not support lossless compression; that is, even if a compression level of 0 is specified, the output ECW file may not be identical to the original image.

ECW Quick Facts

Format Type Identifier	ECW
Reader/Writer	Both
Licensing Level	Professional
Dependencies	None
Dataset Type	Reader: File, Writer: Directory
Feature Type	ECW or <source_dataset_filename>
Typical File Extensions	.ecw
Automated Translation Support	Yes
User-Defined Attributes	Through TAB files
Coordinate System Support	Yes
Generic Color Support	No
Spatial Index	No
Schema Required	No
Transaction Support	No
Encoding Support	No
Geometry Type	ecw_type

Geometry Support			
Geometry	Supported?	Geometry	Supported?
aggregate	no	point	no
circles	no	polygon	no
circular arc	no	raster	yes
donut polygon	no	solid	no
elliptical arc	no	surface	no
ellipses	no	text	no
line	no	z values	no
none	no		

Band Interpretations	Red8, Green8, Blue8, Alpha8, Gray8
Palette Key Interpretations	not applicable
Palette Value Interpretations	not applicable
Nodata Value	not applicable
Cell Origin (x, y)	0.5, 0.5
Rotation Support	No
GCP Support	Reading: Yes Writing: Through TAB files only
World File Support	No
TAB File Support	Yes

Reader Overview

FME considers a single ECW file to be a dataset. The ECW file contains pixel data. Each pixel in the file is a point in a single FME raster feature.

Reader Directives

The suffixes shown are prefixed by the current <ReaderKeyword> in a mapping file. By default, the <ReaderKeyword> for the ECW reader is ECW.

DATASET

Required/Optional: *Required*

The value for this directive is the name of a single ECW file. The normal extension for the file is .ecw.

An example of the DATASET directive in use is:

```
ECW_DATASET "C:\DATA\ECW\RGBimage.ecw"
```

APPLY_GCPS

Required/Optional: *Required*

The value for this keyword is either YES or NO. If set to YES, GCP information, including a GCP projection, will be read from the file and applied to the raster data as an affine transformation. If set to NO, the GCP information is preserved as properties on the raster geometry.

Default value: *NO*

Example:

```
APPLY_GCPS "YES"
```

GCP_INTERPOLATION_METHOD

Required/Optional: *Required*

The value for this keyword is one of NearestNeighbor, Bilinear or Bicubic. If APPLY_GCPS is set to Yes, this directive must be specified.

Default value: *NearestNeighbor*

Example:

```
GCP_INTERPOLATION_METHOD "Bilinear"
```

GROUP_BY_DATASET

Required/Optional: *Required*

The value for this directive is either Yes or No. When the value is set to No, the only feature type this reader will use is the reader type name, which in this case is ECW. When the value is set to Yes, the feature type of each dataset is the filename (without

the path or the extension) of the dataset. The default value for this directive is No.

An example of the `GROUP_BY_DATASET` keyword in use is:

```
GROUP_BY_DATASET "Yes"
```

Writer Overview

The ECW writer creates and writes data into a single directory specified by the `DATASET` keyword. The ECW writer distinguishes duplicate output files by appending numbers to the filenames. Please *About FME Rasters* on page 13 for details.

Writer Directives

The suffixes shown are prefixed by the current `<WriterKeyword>` in a mapping file. By default, the `<WriterKeyword>` for the ECW writer is `ECW`.

DATASET

Required/Optional: *Required*

The value for this directive is the path of the output directory where the data will be written.

An example of the `DATASET` directive in use is:

```
ECW_DATASET "C:\DATA\ECW\OUTPUT"
```

FME Raster Features

FME raster features represent raster data and use several concepts that are unlike those used in the handling of vector data. See *About FME Rasters* on page 13.

ECW supports rasters with an arbitrary number of bands, provided all bands are the same data type and no band has a palette.

Feature Representation

In addition to the generic FME feature attributes that FME Workbench adds to all features (see *About Feature Attributes* on page 7), this format adds the format-specific attributes described in this section.

ECW features specify a matrix of *x*, *y*, and *z* coordinates. For each raster, there will only be a single feature returned.

Attribute Name	Contents
<code>ecw_type</code>	This will always be <code>ecw_raster</code> .

Attribute Name	Contents
<code>ecw_compression_level</code>	This sets the quality of the compression. The range of the value is from 0 (best quality) to 99 (worst quality). The default value is 75. This is a writer attribute.
<code>ecw_tab_file_generation</code>	Enables or disables the generation of a TAB file along with the output ECW image. The value can be yes or no. The default value is yes. This is a writer attribute.

