Release guide

ERDAS IMAGINE 2025

Version 16.9.0

10 October 2025

Contents

About this release

This document describes enhancements in ERDAS IMAGINE 2025 (v16.9.0), including IMAGINE Photogrammetry (formerly LPS Core) and Spatial Model Editor.

ERDAS IMAGINE 2025 is a full installer, which means you can install it on its own (i.e., there is no requirement to install, or uninstall, prior versions of ERDAS IMAGINE first). It can be installed alongside prior major versions of ERDAS IMAGINE if desired. You do not have to uninstall any prior version such as ERDAS IMAGINE 2023 Update 2 – both versions can be installed and used.

ERDAS IMAGINE 2025 includes both enhancements and fixes. For information on fixes to customer-reported issues that were made in ERDAS IMAGINE 2025, see Issues resolved.

This document is an overview and does not provide all details about the product's capabilities. See the product description, online help and other documents provided with ERDAS IMAGINE for more information.

If you are a user of the Spatial Model Editor (as provided with GeoMedia Professional, for example) only the Spatial Modeler sections and information on core ERDAS IMAGINE capabilities (such as format support and projected coordinate systems) will be applicable.

New features for ERDAS IMAGINE 2025 include:

- **Backstage templates:** Starting your project in ERDAS IMAGINE just got easier
- **Cloud data:** Use modern cloud-based data sources for your projects
- **Looping in spatial models:** Enable looping until a condition is met
- **New AI libraries:** Improved training and classification performance
- **Adjusted linear stretch:** Preserve contrast in bright histogram tails
- **SAR SIFT:** Accurately co-register SAR image pairs with sub-pixel accuracy
- **Miscellaneous solutions to over 20 customer-reported issues**

ERDAS IMAGINE product tiers

ERDAS IMAGINE performs advanced remote sensing analysis and spatial modeling to create new information. In addition, with ERDAS IMAGINE, you can visualize your results in 2D, 3D, movies and on cartographic-quality map compositions. The core of the ERDAS IMAGINE product suite is engineered to scale with your geospatial data production needs. Optional modules (add-ons) providing specialized functionalities are also available to enhance productivity and capabilities.

IMAGINE Essentials is the entry-level image processing product for map creation and simple feature collection tools. IMAGINE Essentials enables serial batch processing.

IMAGINE Advantage enables advanced spectral processing, image registration, mosaicking and image analysis and change detection capabilities. IMAGINE Advantage allows you to process parallel batches for faster output.

IMAGINE Professional includes a production toolset for spatial modeling, image classification, feature extraction and advanced spectral, hyperspectral and radar processing.

IMAGINE Photogrammetry maximizes productivity with state-of-the-art photogrammetric satellite and aerial image processing algorithms.

New platforms

Geospatial Licensing 2025

Geospatial Licensing 2025 is recommended to provide concurrent licenses to 2025 products, including ERDAS IMAGINE 2025. Versions of Geospatial Licensing prior to 2025 may successfully license ERDAS IMAGINE 2025.

ERDAS IMAGINE installers no longer attempt to automatically install Geospatial Licensing tools as part of the installer. To use Geospatial Licensing tools — for example, to set up a floating/concurrent license server — you must download and install Geospatial Licensing 2025 separately.

You can find the appropriate download for Geospatial Licensing 2025 in the licensing portal.

Version 16.9 license files are required to run the ERDAS IMAGINE 2025 release. Customers who have current Maintenance contracts and valid v16.9 licenses already do not need additional licensing to use ERDAS IMAGINE 2025. Otherwise v16.9 licenses should be requested via the licensing portal.

Security vulnerabilities

A section is provided on the Hexagon community site to track security vulnerabilities and their potential impacts on Hexagon products, including ERDAS IMAGINE. Please refer to this link for further information:

Technical alerts (hexagon.com)

Windows Server 2025

Windows Server 2025 has been added as a supported platform.

Deprecated platforms

Windows 10

Microsoft will end support for Windows 10 on Oct. 14, 2025. Microsoft will no longer provide free software updates, technical assistance or security fixes for Windows 10. Consequently, Hexagon can no longer consider Windows 10 a supported platform.

Windows Server 2019

Microsoft ended mainstream support for Windows Server 2019 on Jan. 9, 2024. Consequently, Hexagon can no longer consider Windows Server 2019 a supported platform.

Python 3.7.x

The Spatial Modeler no longer supports Python 3.7.x.

The supported versions are listed in the System requirements section of this document.

Deprecated technology

SciKit

SciKit, a Python-based library formerly used for developing machine learning operators, is no longer being used. Operators have been re-implemented using mlpack, a native C++ third-party app, in order to improve overall performance.

If you have trained Intellects (*.miz files) that used these operators and you wish to continue to use them, it is recommended to retain an installation of ERDAS IMAGINE 2023 Update 2 for that purpose. Alternatively, the machine learning spatial model can be rebuilt using the new operators and retrained using the original training data to produce a new Intellect for use in ERDAS IMAGINE 2025 onward.

TensorFlow

TensorFlow, a deep learning framework, is no longer used for developing deep learning operators due to it ceasing support for GPU acceleration on Microsoft Windows. Operators have been re-implemented using libTorch in order to maintain support for GPU acceleration and to improve overall performance. For example, initialization training has been found to complete in half the time previously required.

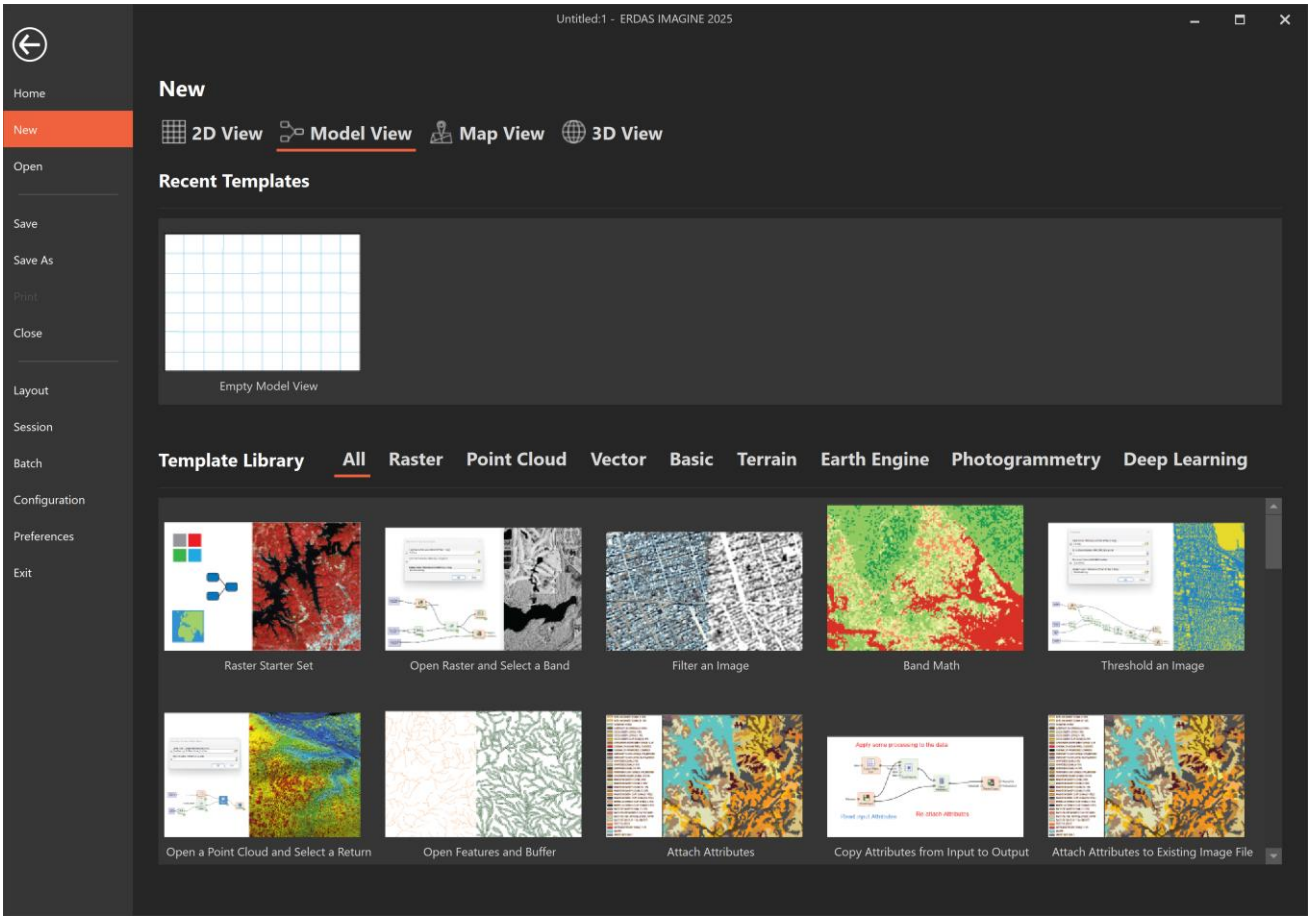
If you have trained Intellects (*.miz files) that used these operators and you wish to continue to use them, it is recommended to retain an installation of ERDAS IMAGINE 2023 Update 2 for that purpose. Alternatively, the deep learning spatial model can be rebuilt using the new operators and retrained using the original training data to produce a new Intellect for use in ERDAS IMAGINE 2025 onward.

New technology for ERDAS IMAGINE 2025

Solving the “blank screen” problem

One of the key new features for ERDAS IMAGINE 2025, and the one you will notice almost immediately, is that ERDAS IMAGINE no longer starts up with a blank canvas. Instead, it presents a Microsoft Office-like Backstage tab from which the user can choose the type of view to start, what recent files to open, or even choose from templates that are presented for starting specific workflows.

The area of the software that benefits the most from this is perhaps the Spatial Modeler, which presents an expanded list of template models, arranged in domain-specific categories.



Spatial Modeler

ERDAS IMAGINE 2025 extends the capabilities offered by Spatial Modeler with new and improved operators, including new operators for controlling looping, as well as a modernized layout for the Spatial Model Editor panels.

Geospatial Assist

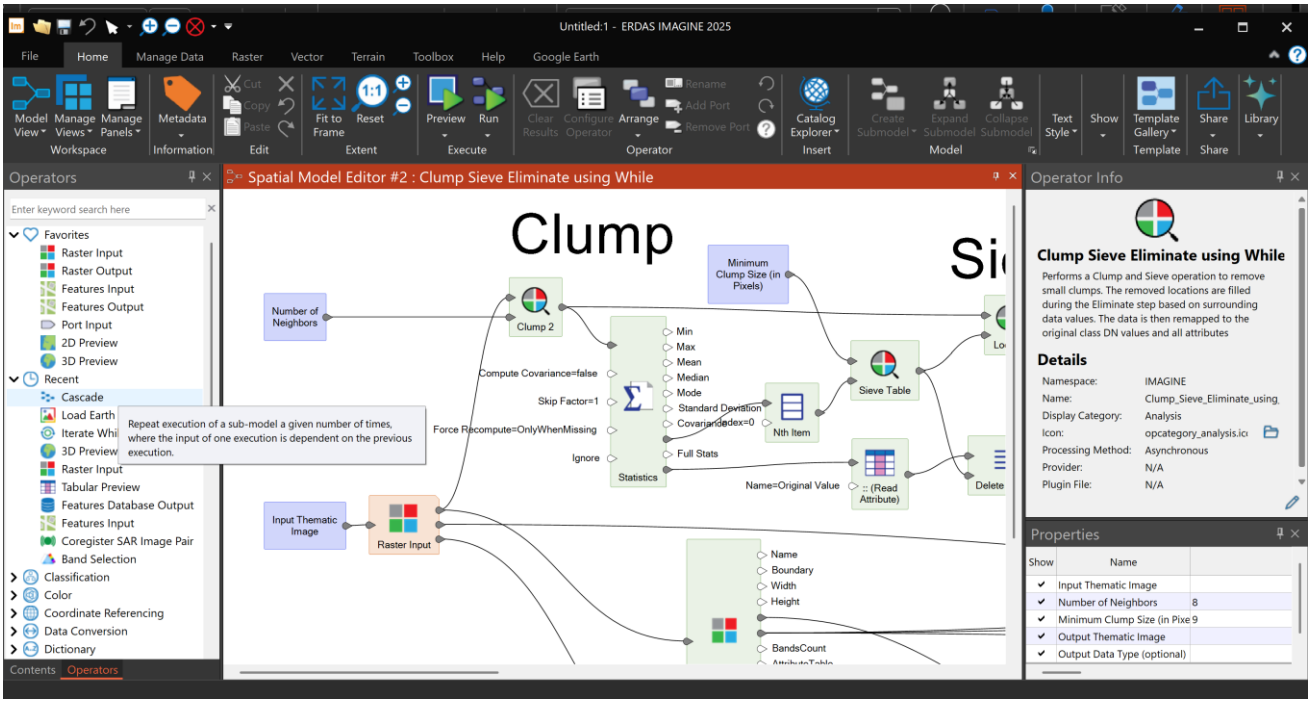
Geospatial Assist is an AI-powered assistant to help you create spatial models.

The first phase takes natural language questions from the user and provides answers, along with citations.

The second phase goal will be to have the assistant construct draft models.

Spatial Model Editor

The modernized layout for the Spatial Model Editor includes defaulting the Operators panel to the left side of the window to provide more of a “left to right” workflow while building and editing models.



In addition, Bubble Help is available in the Operators panel (as shown above) so that more information can be determined about individual operators without the need to drag them onto the editor canvas first, as was

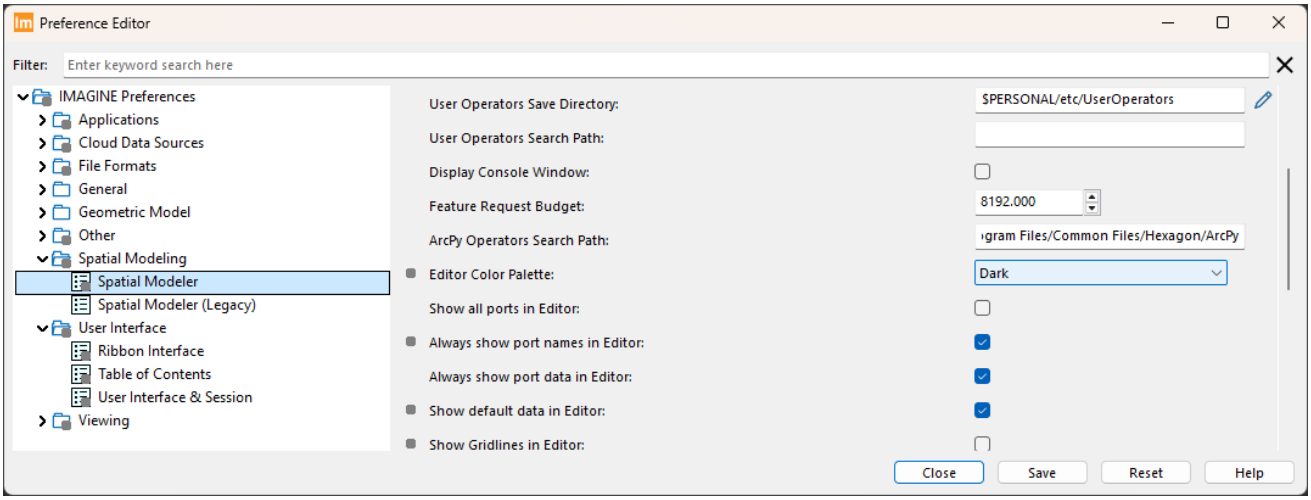
previously the case. Just hover the mouse over each operator in the Operators panel tree view and information about that operator will pop up.

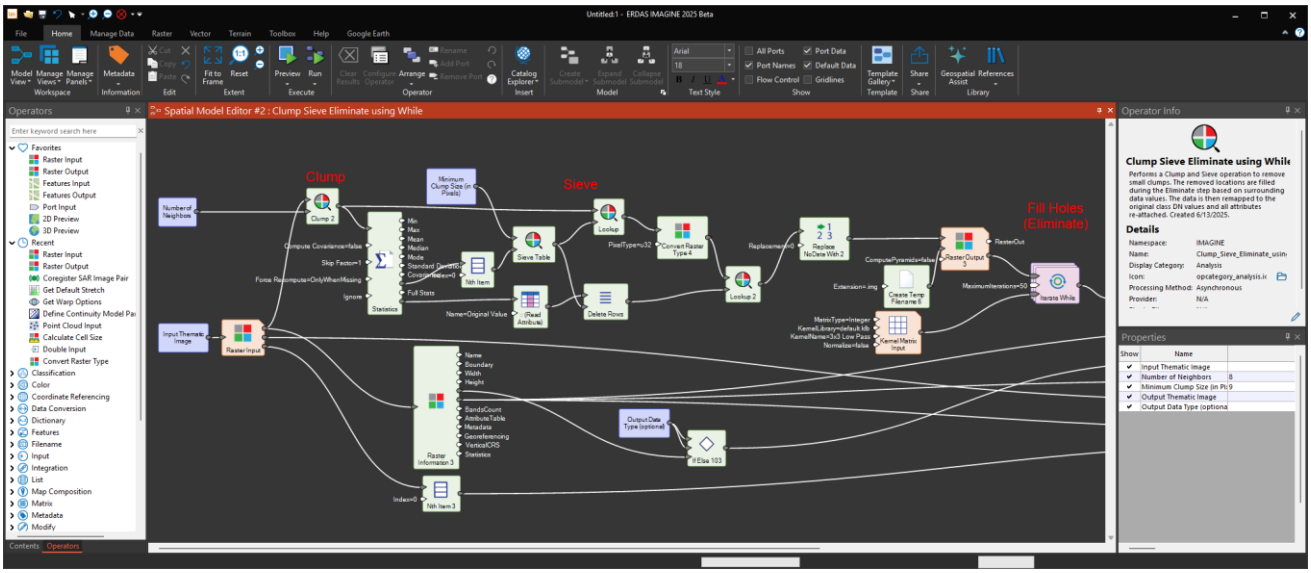
Your panel arrangement persists between sessions now. So, if you prefer the Operators panel to be docked on the right-hand side of the editor by default simply undock from the left and re-dock to the right in the location you want it. Next time you restart the Spatial Model Editor it, and any other changes in arrangement of panels you made previously, will be automatically restored to the same locations.

Operators in the Operators panel have also been organized into a new category structure which should make it more intuitive for the first-time user of Spatial Model Editor to find operators associated with specific tasks or data types. Advanced users will probably still want to use the Search tool to find the operators they want.

Speaking of finding specific operators, did you know that we often deprecate operators in favor of new versions with additional capabilities? In general, these deprecated operators will continue to work (for at least one major release cycle) in already authored models, but ideally, they should be replaced as soon as possible (after testing to ensure the model still works the way intended) with the more modern versions. To make it easier to do this the Navigation panel now enables searching for deprecated operators (just type “Deprecated” in the Navigation panel search box) and driving to their locations for easy replacement. This is especially useful if the deprecated operators are nested in sub-models which may not be as obvious when looking at the model.

The ERDAS IMAGINE ribbon interface can be swapped to a “dark mode” through Preferences, but it was not previously possible to affect the canvas of the Spatial Model Editor, meaning that you could inadvertently switch from a dark view to a light one unintentionally. This has been remedied by supporting a separate Preference for Spatial Model Editor enabling light, medium and dark modes:



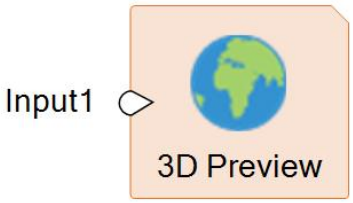


As mentioned above, new modes for looping, or iterating, through data have been added in the form of new Iterate While and Cascade operators. More information on these can be found in the New Spatial Modeler operators section. But their use has been made easier in a manner similar to that provided for creating regular sub-models or Iterators, namely menu options for Create and Explode. This facilitates the creation of your new looping sub-model by first creating a “single-pass” version of the needed functions, testing to ensure that single-pass works, selecting the appropriate sections of the model and applying the Create option to insert and set up the initial contents of the iterating operator.

Finally, it is now easier to cancel processes that were started in the Spatial Model Editor via Run Just This or Preview since both options will now show a progress meter at the bottom right of the window, along with a Cancel button which can be used to cancel the operation.

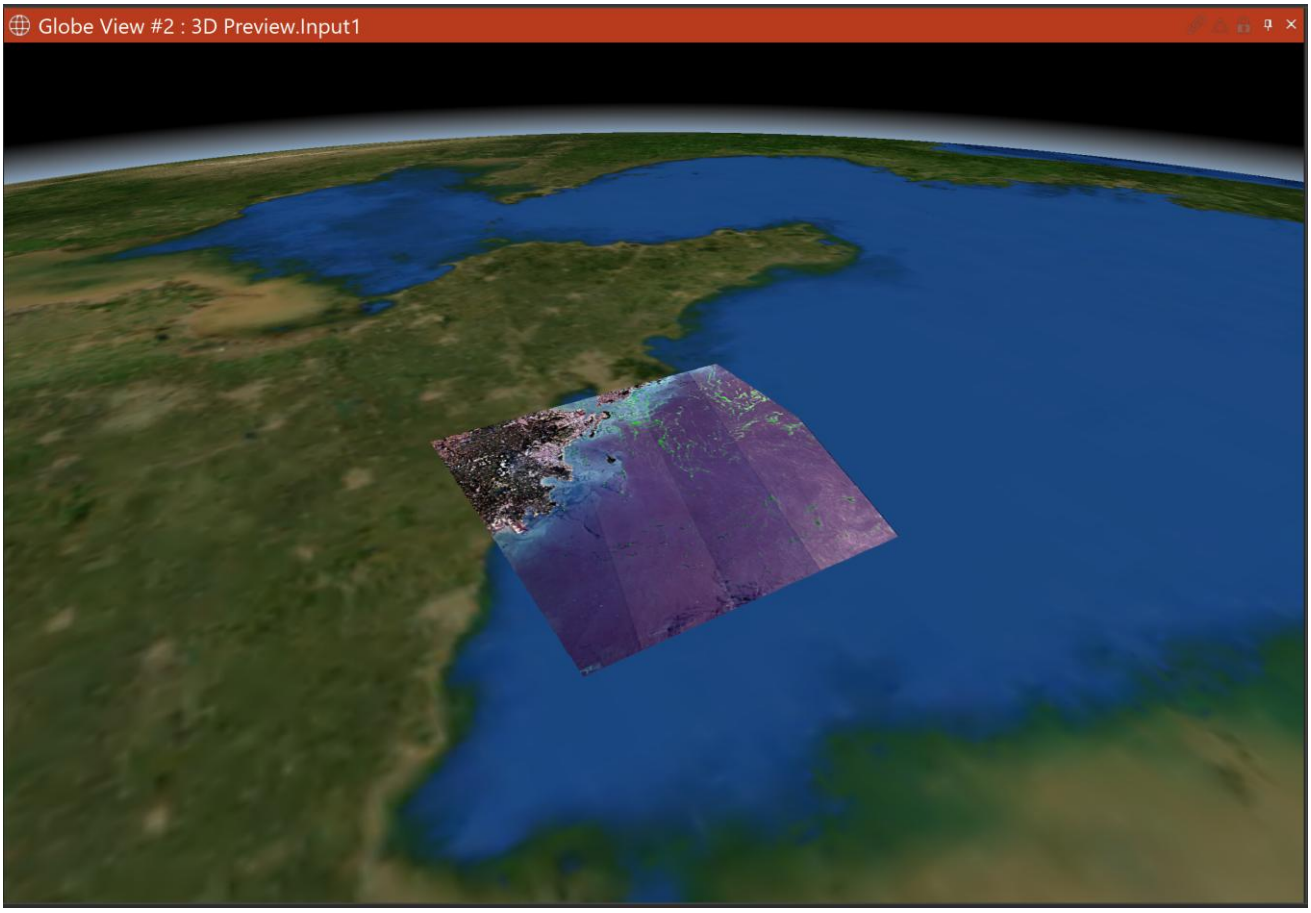
Updated Spatial Modeler operators in ERDAS IMAGINE 2025

3D Preview



Previews — tools provided by the Spatial Modeler Editor — are generally used for visualizing intermediate and terminal outputs of a Spatial Model during development. This allows you to quickly determine if the processing appears to be producing the expected result. For example, you may wish to visualize the results of removing noise from point cloud data by visualizing the output in the Globe View. This will give you the opportunity to assess if the noise points have been removed from the data and, if necessary, to tweak the noise removing parameters.

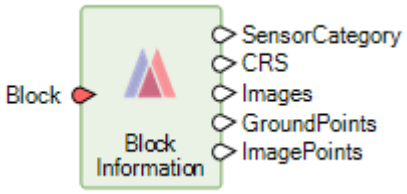
The operator has been updated to support not only point cloud data, but also raster and features.



The raster support includes use of image chains for the display and styling of data (such as access to the standard Stretch panel), as well as access to attribute table information.

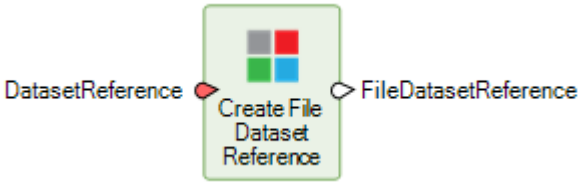
In addition, Globe View has been enhanced to provide updated mouse navigation modes and use of backdrops and background colors, as well as the ability to swap to a 2D (planimetric) display mode.

Block Information



This operator provides basic information about a photogrammetric block. It has been enhanced to output the block's Ground and Image control coordinates as Features point geometries for ease of previewing data.

Create File Dataset Reference



This operator gets an equivalent file dataset reference from an input dataset reference that may now be a URI. When working with datasets containing multiple images, this is a useful way of obtaining a file reference to a sub image. An input dataset reference is a reference to a file on the local file system or cloud data source or a sub image of a raster dataset. The identifier for a cloud dataset or a sub image is a Uniform Resource Identifier (URI). A file on the local file system can be specified as either a File or a URI.

Deep learning operators

Several operators used for deep learning artificial intelligence processing have been re-implemented using libTorch in order to maintain support for GPU acceleration and to improve overall performance. For example, initialization training has been found to complete in half the time previously required. Affected operators include:

- Initialize Inception
- Initialize Image Segmenter
- Initialize Object Detection
- Classify using Deep Learning
- Detect Objects using Deep Learning
- Segment Images Using Deep Learning
- Import Deep Learning Classifier
- Import Image Segmenter
- Import Object Detection
- Refine Deep Learning Classifier
- Refine Image Segmenter
- Refine Object Detection

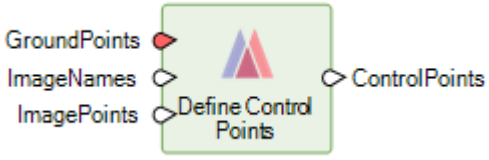
Machine learning operators

Several operators used for machine learning artificial intelligence processing have been re-implemented using mlpack, a native C++ third-party app, in order to improve overall performance. These include:

- Initialize CART

- Initialize Random Forest
- Initialize Naïve Bayes
- Initialize SVM
- Initialize CART Regressor
- Classify Using K-Means
- Classify using Machine Learning
- Predict using Machine Learning

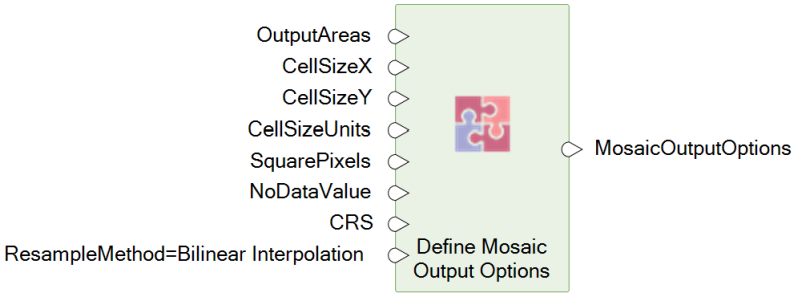
Define Control Points



This defines the dictionary of control points based on the features of ground points, image names and image points. A control point is a point with known or unknown ground coordinates and one or more associated image locations. A ground control point (GCP) is a control point with known ground coordinates.

This operator has been updated so that the expected GroundID field can be something other than an integer, such as a string. This aligns better with the way customers capture, describe and track GCPs in their projects.

Define Mosaic Output Options



A new port has been added to support NoDataValue definition.

This port determines what NoData locations will be replaced with within the corresponding band of the output mosaic image (when used by the Mosaic Images operator).

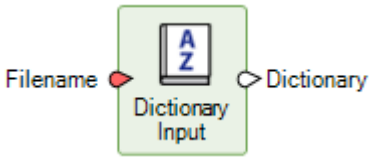
If the input is a single Scalar, that is the value that will replace all the NoData locations across all bands. If a List of Scalars is used, the number of items in the List must be the same as the number of bands of the Raster. The Scalars in the list are what will be used at the NoData locations for the corresponding band.

When explicitly defining a non-NaN NoDataValue, valid pixels (i.e., locations that are not considered to be NoData) with this value will be reassigned to a new value, as follows:

- For integer output pixel types, the new value is determined based on the position of NoDataValue within the data range:
- If NoDataValue is in the lower half of the range, the new value is NoDataValue + 1
- If it's in the upper half, the new value is NoDataValue - 1

- Example: For U8 (range 0–255), if NoDataValue < 128, the new value will be NoDataValue + 1; otherwise, it will be NoDataValue - 1
- For floating-point output pixel types, the new value is calculated by adding the smallest offset to NoDataValue such that the new value is different from the original in computer representation

Dictionary Input



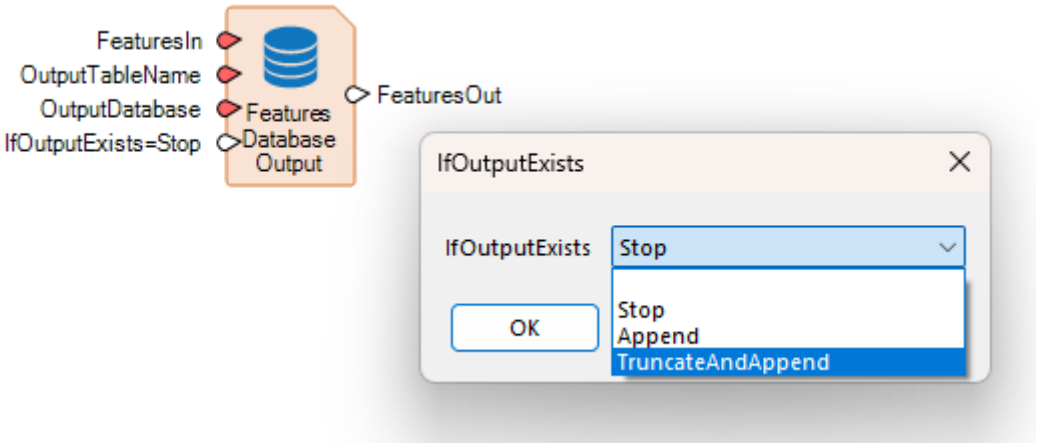
The Dictionary Input operator is used to read a file of key/value pairs (e.g., XML, HDR, HFA, JSON, etc) on the local file system or, new for this release, a cloud data source. The identifier for a cloud dataset is a Uniform Resource Identifier (URI). A file on the local file system can be specified as either a File or a URI.

Google Earth Engine operators

The Google Earth Engine operators have had license checks on the ERDAS IMAGINE LiveLink for Google Earth Engine product removed.

However, a Google Earth Engine service account is still required in order to use these operators and services.

Features Database Output



Previously, the Features Database Output operator could only write the output data to a new table in the database. A new port has been added to control the behavior if the name of an existing table is provided.

Allowable values are:

- Stop. Raise an error and do not output data.
- Append. Insert features into the existing table.
- TruncateAndAppend. Delete all existing records from OutputTableName and then insert features into the existing table.

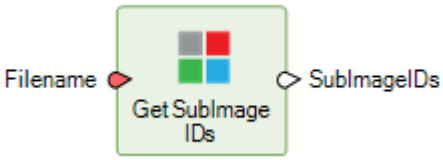
Features Input

Features Input provides streaming data access to the set of features referenced on its Filename port.

The operator has been updated to support Ground Control Coordinate (*.gcc) files as input, to create an output of point geometry Features.

Support has also been added to read GeoJSON format input files.

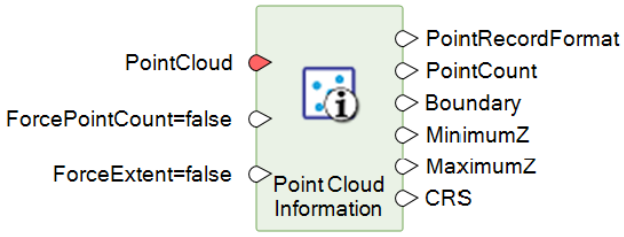
Get SubImage IDs



This operator gets information about sub images from a raster dataset reference and has been enhanced in this release to support input via Uniform Resource Identifier (URI).

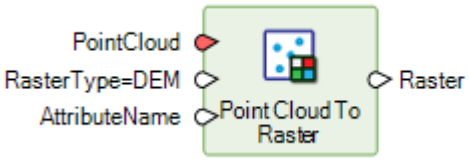
Due to the reality of multi-image raster formats (e.g., GeoPackage, NITF), in some contexts we use the term sub image to refer to an image in a raster dataset. This operator gets a list of sub image identifiers from a file on the local file system or cloud data source. The identifier for a cloud dataset is a URI. A file on the local file system can be specified as either a File or a URI. A single identifier can be fed into the Raster Input operator to open that sub image.

Point Cloud Information



The Point Cloud Information operator has been updated to correctly report the number of points if the count exceeds 4.2 billion.

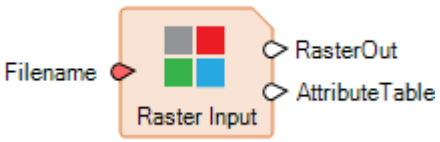
Point Cloud To Raster



Converts point cloud input to raster output. Basically, at each output pixel location an intersecting input point is identified and a value from that point is used to populate the DN value(s) of the raster. Normally this value would be the Z component of the 3D point used, in order to construct a raster digital surface model. However, other attributes of the input point cloud can also be used to provide the DN values.

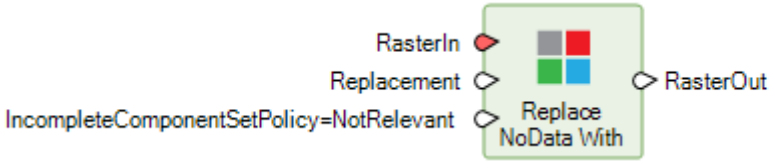
This has been extended in this release to include custom attributes, which can be created internally by the spatial model prior to feeding the point cloud to this operator.

Raster Input

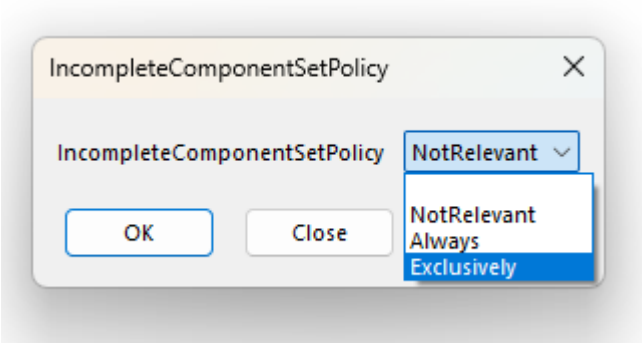


The Raster Input operator now supports cloud-based imagery sources (such as Google Earth Engine, STAC Browsers, APOLLO Catalogs, etc.) via URI.

Replace NoData With



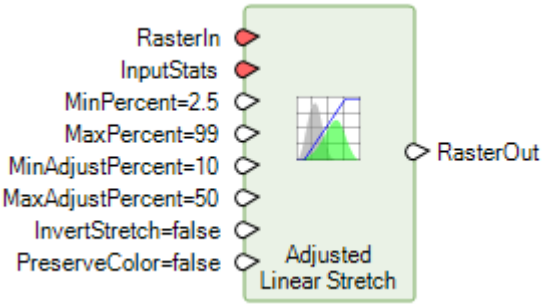
The Replace NoData With operator has been updated to support an “any band is NoData” concept via a new IncompleteComponentSetPolicy port:



New Spatial Modeler operators in ERDAS IMAGINE 2025

The following operators are new for the ERDAS IMAGINE 2025 release.

Adjusted Linear Stretch



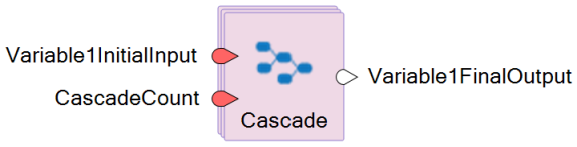
An adjusted linear stretch is similar to a linear stretch but provides more settings to control midtones, shadows and highlights in an image.

Four input values are used to determine the minimum (dark point) and maximum (white point) data values between which to linearly stretch the input data to a 0-255 brightness range.

The Adjusted Linear Stretch operator and its default settings are intended for use with modern 16-bit sensors with skewed histograms having a long tail to the bright side of the histogram.

The screenshot above shows two views of the same u16 panchromatic image. The left is displayed using default Left Right Clip stretch parameters while the right is displayed using default Adjusted Linear Stretch parameters. The left view shows saturation in the bright portions of the histogram on the building roof, obscuring details. Whereas the right preserves contrast even in the bright roof areas.

Cascade



This operator repeats execution of a sub-model a given number of times, where the input of one execution is dependent on the previous execution results.

For example, you may wish to apply a Focal Majority filter sequentially to a raster 10 times, with the raster result of each filter operation being the input to the next application. Rather than stringing together ten Focal Majority operators, simply place one Focal Majority inside a Cascade sub-model, connect the input raster to the **Variable1InitialInput** port and set the **CascadeCount** to 10.

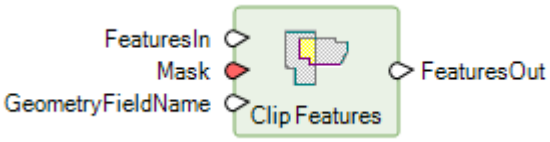
When a variable port is added to Cascade, it populates the sub-model with a set of operators to get (Variable<N> Input) and set (Variable<N> Output) that value.

Port Inputs can be added and act as constant values, which maintain the given value for each and every iteration. Port Outputs cannot be added.

In each iteration, the content of Variable<N> Output will be the content of Variable<N> Input for the next iteration. After the last iteration the Variable<N> Output for that iteration becomes the **Variable<N>FinalOutput** data.

Streaming data is supported through variables.

Clip Features

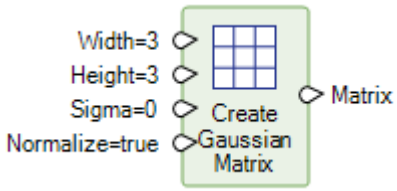


This operator functions like a cookie cutter in carving out a piece of one set of feature geometries (FeaturesIn) using the feature geometries in another dataset (Mask).

FeaturesIn port data is passed through to the FeaturesOut port with identity and all fields intact apart from input geometry fields, plus a new primary geometry field containing only that part of the original geometry clipped by data from the Mask port. The output geometry may be a collection if the mask geometries divide the original geometry into multiple discontiguous sections.

The Mask features must be of equal or higher-order geometry (area being the highest and point being the lowest) than FeaturesIn. For example, an area can clip areas, lines or points, but a line can clip only other lines or points, and a point can clip only other points.

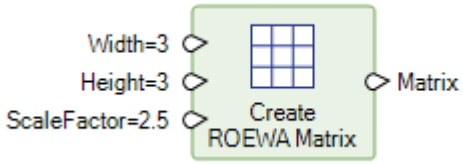
Create Gaussian Matrix



This operator can create a matrix where the cell values are based on a Gaussian function. A Gaussian matrix is a smoothing kernel that can be used to remove noise, though it reduces detail. It can be used to improve visualization. The cell values are weighted based on the distance from the center, giving more importance to closer pixels and less to those farther away.

It is most frequently used for enhancing SAR imagery.

Create ROEWA Matrix

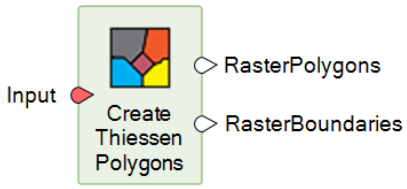


This operator can create a matrix where the cell values are a normalized Ratio of Exponentially Weighted Averages (ROEWA) on opposite sides of the central cell.

A ROEWA matrix is an edge detection and smoothing kernel that can be used to remove noise while preserving structures. It can be used in target recognition and to improve visualization.

It is most frequently used for enhancing SAR imagery.

Create Thiessen Polygons

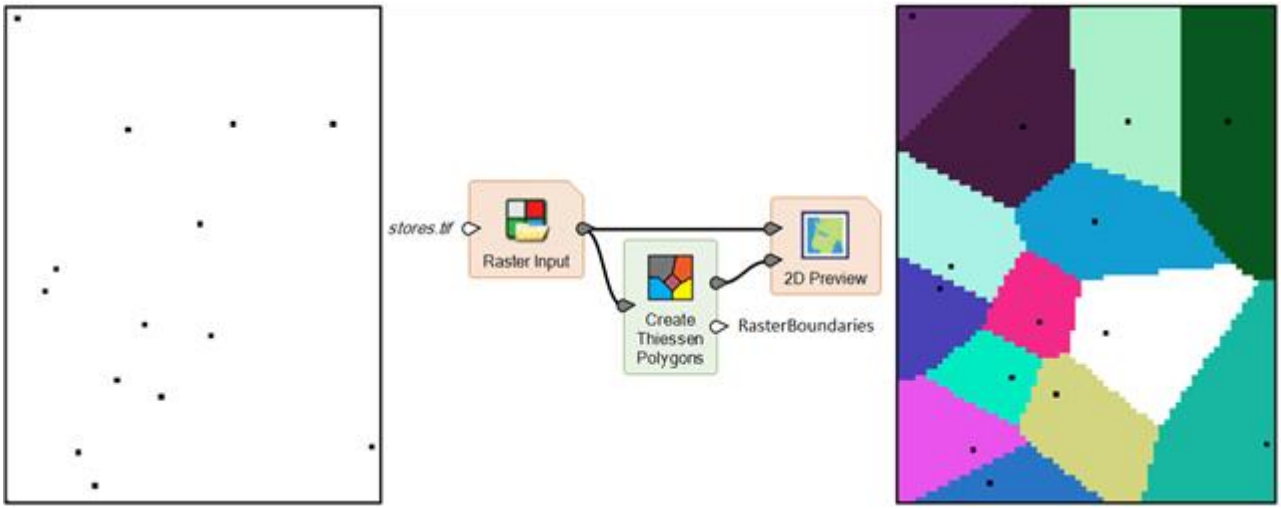


This operator divides space based on proximity to source pixels representing point, line and area phenomena in the input raster. Each output polygon covers an area for which every location is nearer to its source pixels than to all other source pixels and the pixel values take on the value of its nearest source pixel.

The operator takes as input a source raster containing pixels representing discrete point, line and area phenomena, most commonly sparse points or clusters amid NoData pixels. Each cluster or connected set of pixels sharing a common value results in a polygon in the output rasters. For each output polygon all locations within that polygon are closer to its source pixels than to any other source pixels in the input raster. The pixel values within each polygon will share the same value as its source pixel. It is possible for two or more polygons to share the same values. If such polygons abut, they will be merged into a single polygon.

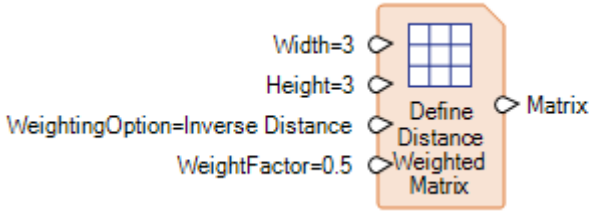
As an example, the operator can be used to define catchment areas. In the example input below, the original data points represent the locations of convenience stores presumed to attract customers for whom their location is the most convenient (shortest distance).

For RasterPolygons , the operator produces a result raster representing the areas surrounding each convenience store. Each polygon consists of pixels that are closer to their containing source pixels than to any other source pixels. In the example output below, each NoData pixel in the input source has been assigned the pixel value of its nearest source pixels.



This operator is licensed for use by licensed users of IMAGINE Advantage, IMAGINE Professional, GeoMedia Advantage and GeoMedia Professional.

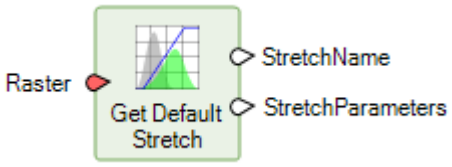
Define Distance Weighted Matrix



The Define Distance Weighted Matrix operator creates a matrix where the cell values are based on the distance from the center cell. If Width and/or Height is even, the upper left of the center cluster will be used to determine the distance. Some examples:

Port Values	Matrix
Width = 3	0.500 0.646 0.500
Height = 3	0.646 1.000 0.646
WeightingOption = Inverse Distance	0.500 0.646 0.500
WeightFactor = 0.5	
Width = 4	0.750 0.823 0.750 0.605
Height = 4	0.823 1.000 0.823 0.646
WeightingOption = Inverse Distance	0.750 0.823 0.750 0.605
WeightFactor = 0.5	0.605 0.646 0.605 0.500
Width = 4	0.500 0.500 0.500 0.500
Height = 4	0.500 1.000 0.500 0.500
WeightingOption = Equal	0.500 0.500 0.500 0.500
WeightFactor = 0.5	0.500 0.500 0.500 0.500

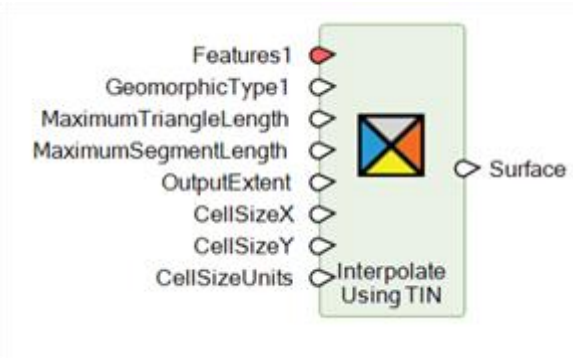
Get Default Stretch



This operator determines from the input raster and/or preferences what the stretch name and stretch parameters should be for default visualization of that raster.

This operator is now used to determine the default styling behavior when opening images into a 2D View. Unlike previous versions of ERDAS IMAGINE the default display for Unsigned 8-bit, 1 and 3 band, athematic imagery will now be No Stretch to reflect the fact that most modern imagery stored as 8-bit has already been stretched to the full data range.

Interpolate Using TIN

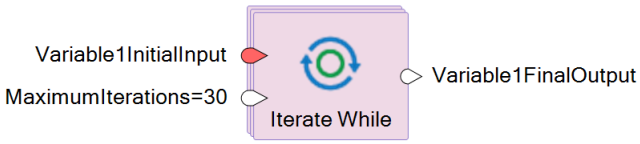


A Triangulated Irregular Network (TIN) can be used to address the interpolation of sparsely distributed data of varying densities into a surface. A TIN is a vector-based representation of a physical land surface or sea floor, made up of irregularly distributed points, lines and areas with 3D coordinates (x, y and z) that are arranged in a network of non-overlapping triangles. An advantage of using a TIN to create a surface is that the input points are distributed variably based on an algorithm that determines which points are most necessary to an accurate representation of the terrain. The Interpolate Using TIN operator has been designed to convert vertices from 3D features into a TIN for the purpose of generating a raster elevation surface (DEM).

When executed, the operator adds all of the geomorphic input feature geometries to a new TIN and triangulates it. At this point, the TIN is ready to provide elevation information at any location on the triangle mesh surface. The input features are added to the TIN in the order in which they are defined by the feature input ports. The individual points are added in the same order in which they are stored in the feature geometry. The order matters because points that conflict, sharing the same location, are discarded.

Note that this operator is a part of the Grid Analysis Operator Pack and requires an IMAGINE Advantage, IMAGINE Professional, GeoMedia Advantage or GeoMedia Professional license.

Iterate While



With this operator, you can iterate a sub-model while a continue condition is met.

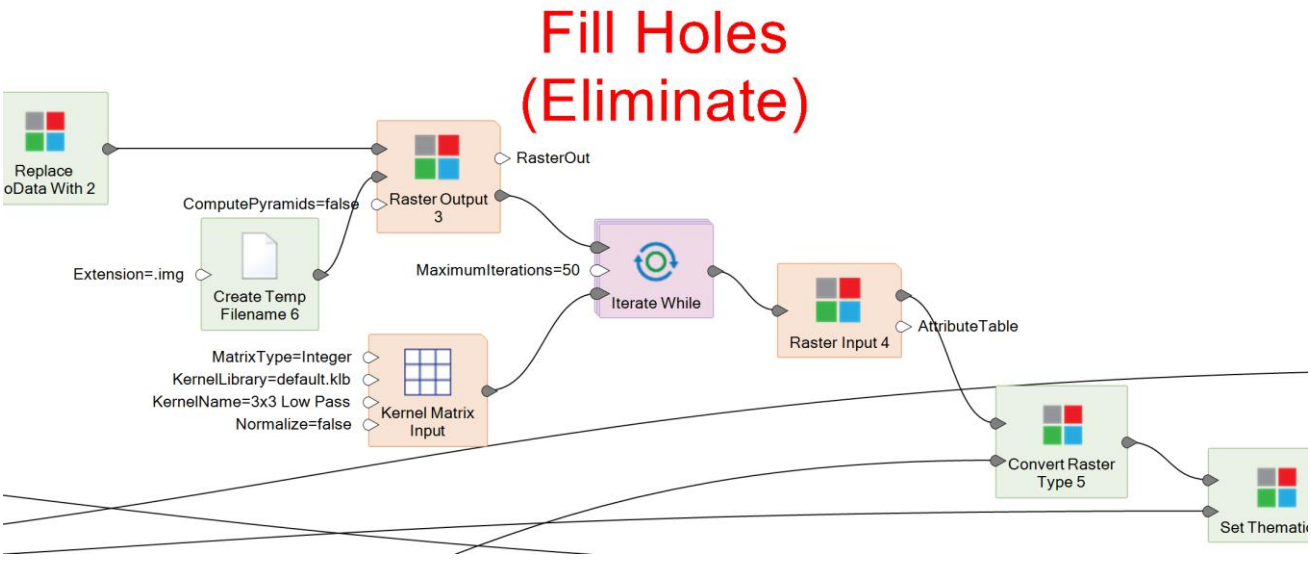
When a variable port is added to Iterate While, it populates the sub-model with a set of operators to get and set that value. The Continue condition is populated as well.

Port Inputs can be added and act as constant values, which maintain the given value for each and every iteration. Port Outputs cannot be added.

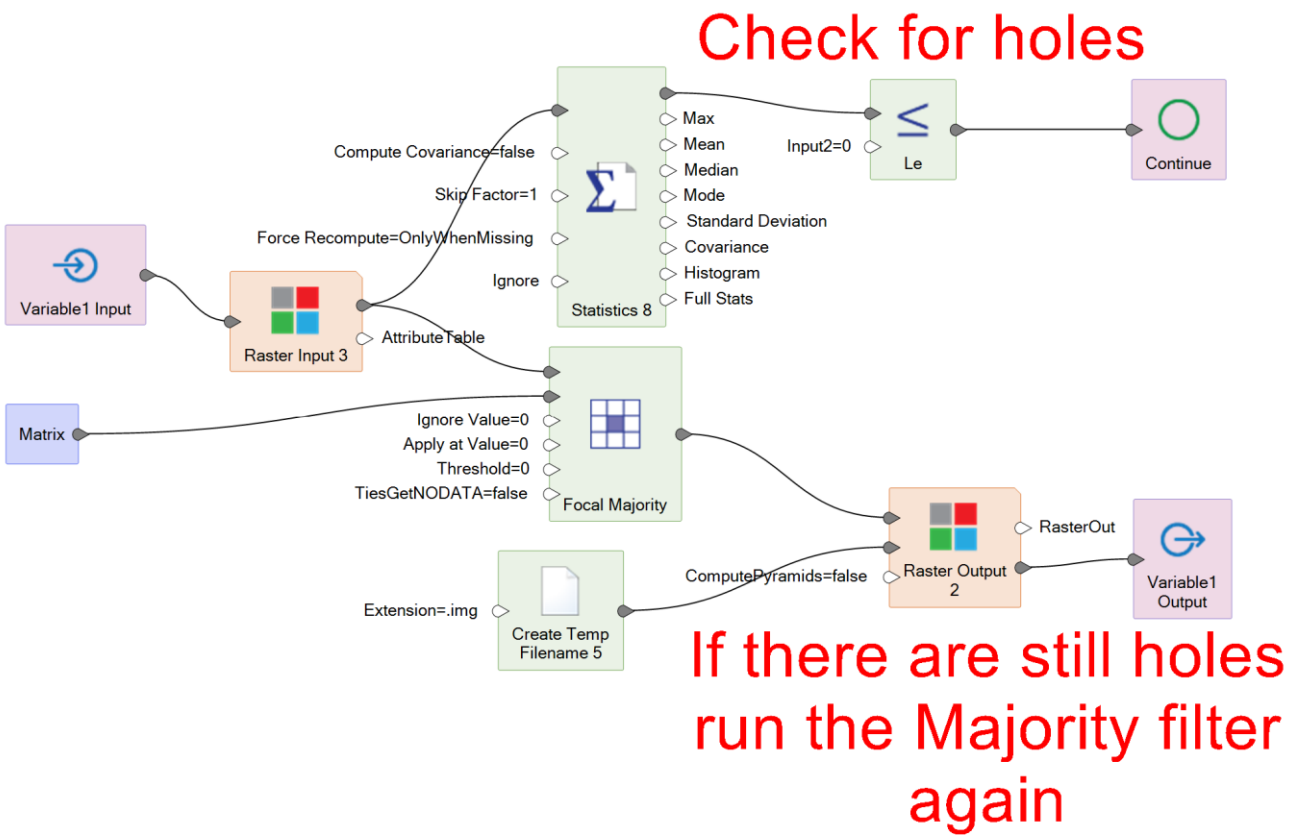
In each iteration, if the Continue test is true, then the content of Variable<N> Output will be the content of Variable<N> Input for the next iteration. If the Continue test evaluates as false in an iteration, then the Variable<N> Input for that iteration becomes the Variable<N>FinalOutput data. Streaming data is not supported through variables.

A typical example of where Iterate While is used would be the Clump, Sieve and Eliminate process where a thematic dataset is transformed to contiguous clumps of the same class, clumps smaller than a defined size are removed (sieved) and then the resulting holes are filled in (eliminated) by running a Focal Majority function until there are no more holes. The Focal Majority can be placed inside an Iterate While sub-model inside which there is a check to see if any holes exist in the raster being processed. If they do, the raster is passed through for another round of filtering. If they don't, the current raster is passed out as the final result.

A "Clump Sieve Eliminate using While" model is provided as one of the new templates, which can be opened along with the Spatial Model Editor. Here is the Iterate While section:

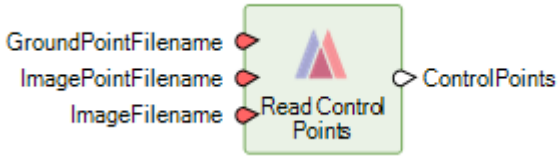


…and here are the contents of the Iterate While sub-model:



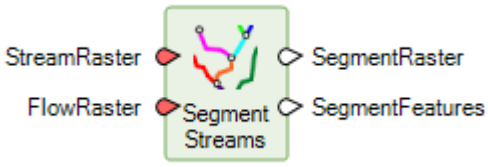
You can see the upper portion is the Continue condition where the raster Statistics are checked to see if there are pixels with DN value 0 (indicating holes being present). If the Continue condition is true then the main portion of the sub-model is run again and the results sent back to the beginning for the Continue condition to be checked again. Once the Continue condition fails (no DN 0 pixels are detected) that Raster is passed out as the final result and the main model outside the Iterate While loop can continue.

Read Control Points



This operator reads control points from ground control coordinate (*.gcc) files. Given the two input .gcc files and an input image filename corresponding to the input image points .gcc the operator will create the ControlPoints dictionary structure used by the Spatial Modeler Photogrammetry operators.

Segment Streams



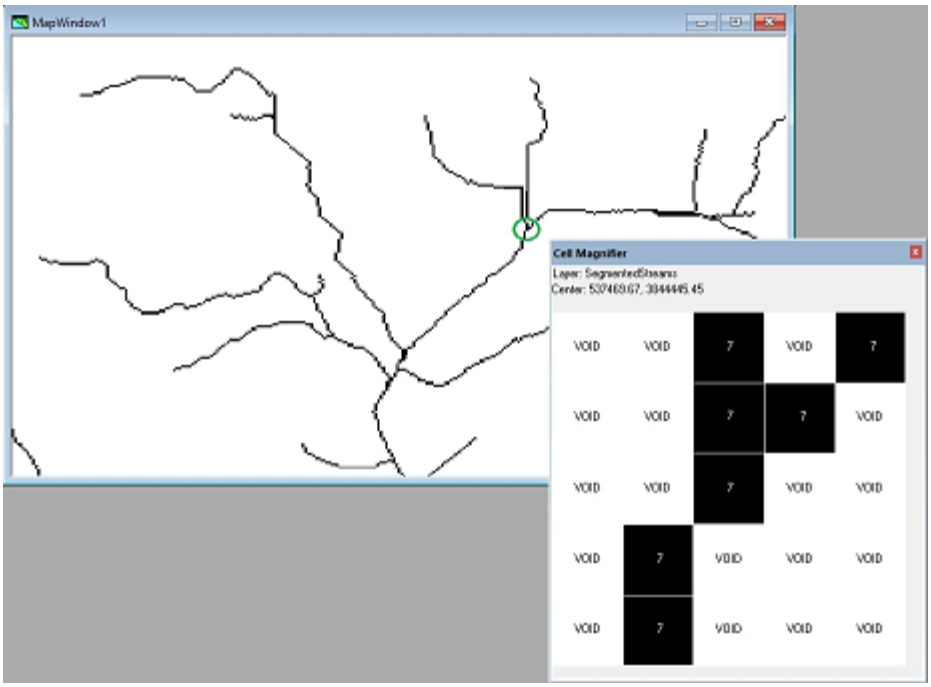
This operator is licensed for use by licensed users of IMAGINE Advantage, IMAGINE Professional, GeoMedia Advantage, and GeoMedia Professional.

Segment Streams identifies the individual stream segments within a stream network raster.

Segment Streams was developed as part of a collection of operators for hydrological analysis. It can be used within a spatial model to identify stream segments within a stream network. It would most commonly be used in the course of watershed analysis to segment stream networks in preparation for the Sub-Basin Delineation calculation. A complex watershed will have a great number of segments.

Stream segments are the sections of a stream that connect two successive junctions, a junction and an outlet, or a junction and a headwater. A junction cell is one into which two or more cells flow. An outlet cell is one that has no outflow, or which flows into a NoData cell or off the raster edge. A headwater cell is a cell into which no neighbors flow, but itself flows into a neighbor.

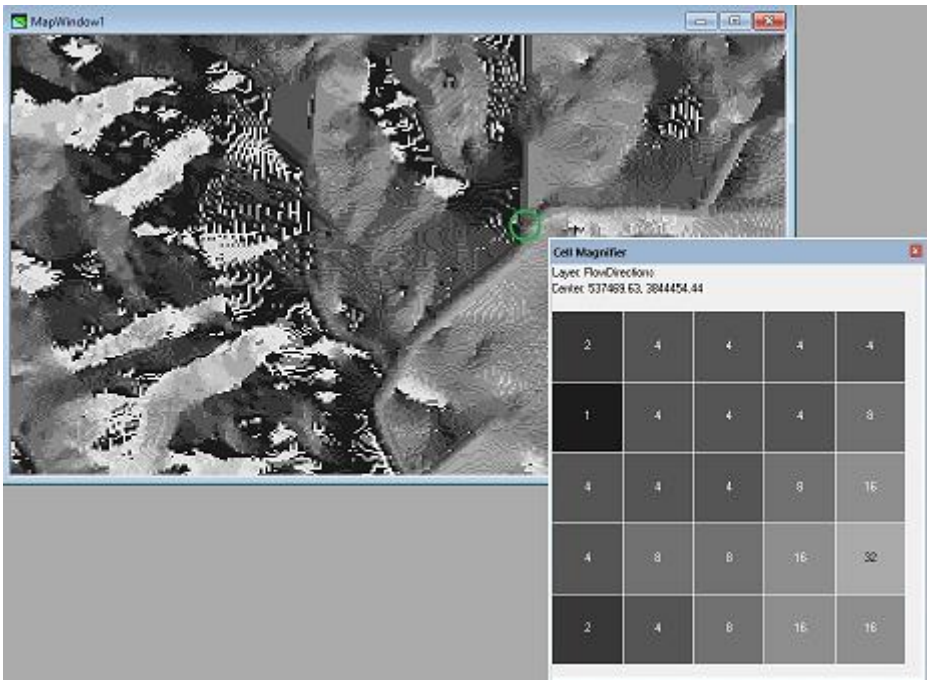
The source raster contains data that defines a stream network. Every cell with a value is considered to be part of the stream network, while NoData cells are not. A stream network raster is produced by identifying the cells of a flow accumulation raster that have a value greater than zero or a specified threshold. The following image shows an example of a stream network raster.



The flow raster contains data that defines the downhill flow (drainage) direction for each cell across the raster surface area. This should be the same flow raster that was used to produce the flow accumulation and stream network rasters. Segment Streams expects the flow map to contain only values corresponding to the eight cardinal flow directions, which are:

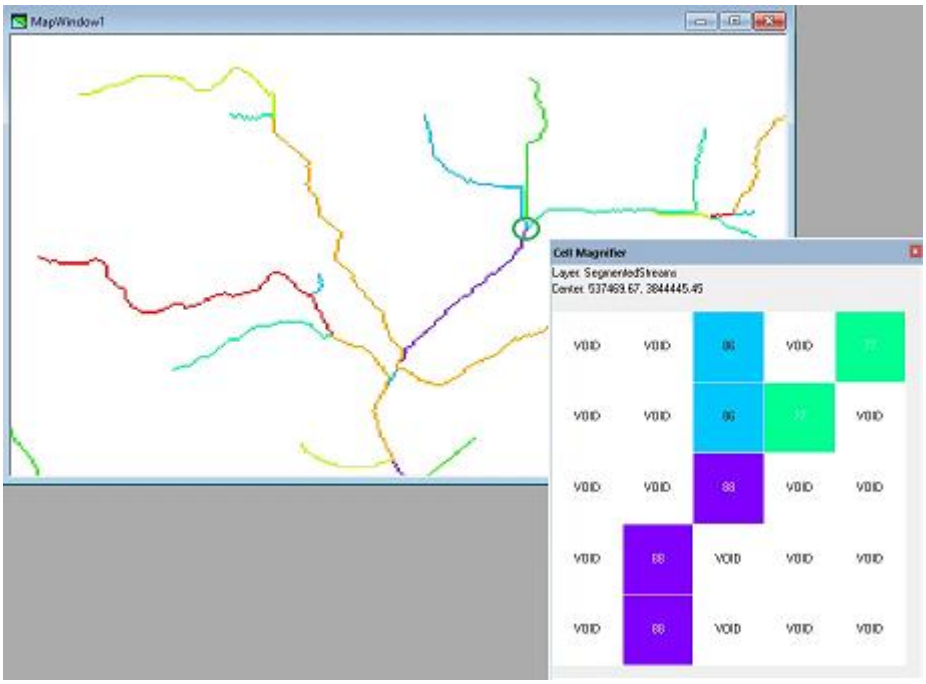
- 1 - Eastward flow
- 2 - Southeastward flow
- 4 - Southward flow
- 8 - Southwestward flow
- 16 - Westward flow
- 32 - Northwestward flow
- 64 - Northward flow
- 128 - Northeastward flow

Any other flow direction values encountered will be treated as "no flow". The following image shows an example of a flow raster.

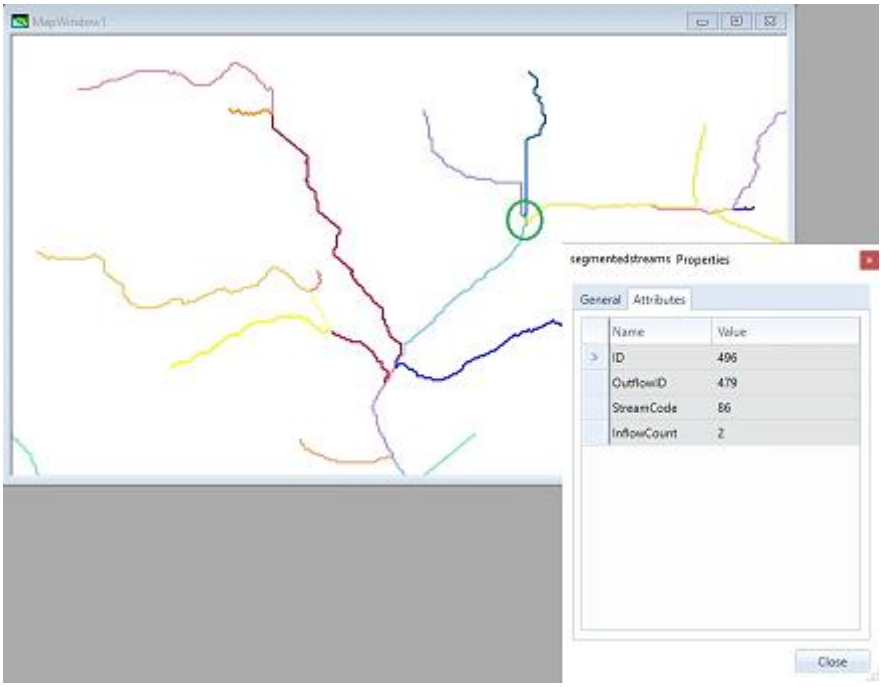


Segment Streams produces two types of output: a stream segment raster and stream segment features.'a0The stream segment raster contains data that defines each segment of a stream network with a unique, numeric identification value. Every cell that is not part of the stream network is set to NoData.

The following image shows an example of a stream segment raster.



The following image shows an example of stream segment features.



Mapping Operator Pack

This is a group of new operators, primarily aimed at feature map generalization tasks, licensed to GeoMedia Advanced Collection or GeoMedia Mapping Manager. Please refer to the documentation for those products, or to the individual operators, for more information.

- Aggregate Areas
- Aggregate Points
- Bridge Concavities
- Clarify Area
- Collapse To Line
- Collapse To Point
- Extend Boundaries
- Smooth Topology
- Simplify Topology
- Square Area
- Typify Lines
- Typify Points

Deprecated Spatial Modeler operators in ERDAS IMAGINE 2025

The following operators, associated with defining custom CNN deep learning intelligences, have been removed from the software since they could not be re-implemented using libTorch:

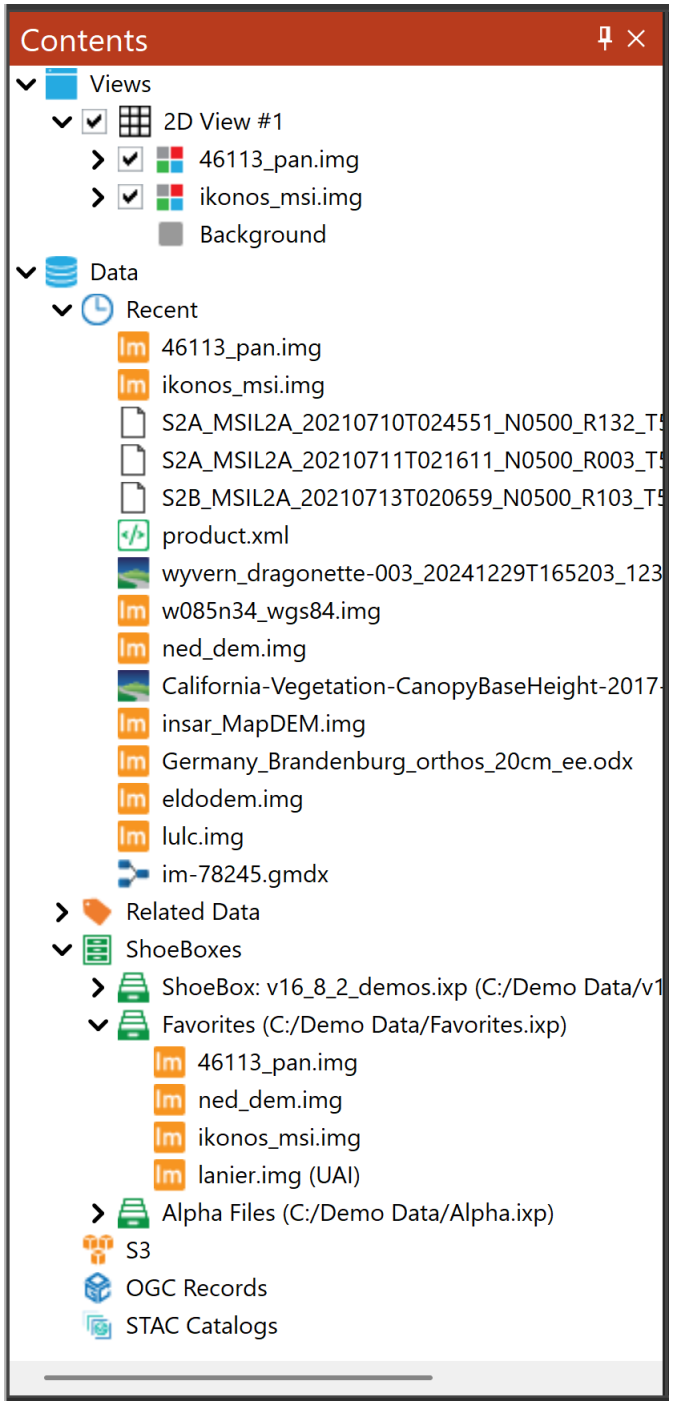
- Initialize Deep Intellect
- Initialize Random Forest Regressor
- Define Deep Learning Flatten Layer
- Define Deep Learning Dense Layer
- Define Deep Learning Activation Layer
- Define Deep Learning 2D Pooling Layer
- Define Deep Learning 2D Convolution Layer

If you have spatial models that use these operators and you wish to continue to use them, it is recommended to retain an installation of ERDAS IMAGINE 2023 Update 2 for that purpose.

General ERDAS IMAGINE 2025

Consolidated Contents panel

Previously, there was a Contents panel showing the layers being used in open Views, and a separate Retriever panel, which initially was empty. These have been combined, along with recently accessed data and other capabilities.



The new Contents panel includes:

- Views
- Data
  - Recent
  - Related Data
  - Shoeboxes
  - Cloud Sources
    - S3
    - OGC Records
    - STAC Catalogs

The contents and state of the Data section are persisted between sessions of ERDAS IMAGINE.

The tree-view supports keyboard navigation.

Entries can be removed from the Recent section by right-clicking with the mouse pointer over a specific entry and selecting “Remove from List.” This is also supported if multiple entries are selected.

The Related Data section now lists information for data in the Recent and Shoe Box sections, not just the View sections.

Previously, with the "Fit to Frame" preference (under Viewer category of Preference Editor) switched ON, if an image was either opened from the backstage (File --> Recent) or dragged and dropped into Viewer from a file explorer then it wouldn't Fit to Frame. The preference was honored only when the image was opened using a file chooser. This has been updated so that the Preference is always honored, no matter how the image is added to a 2D View.

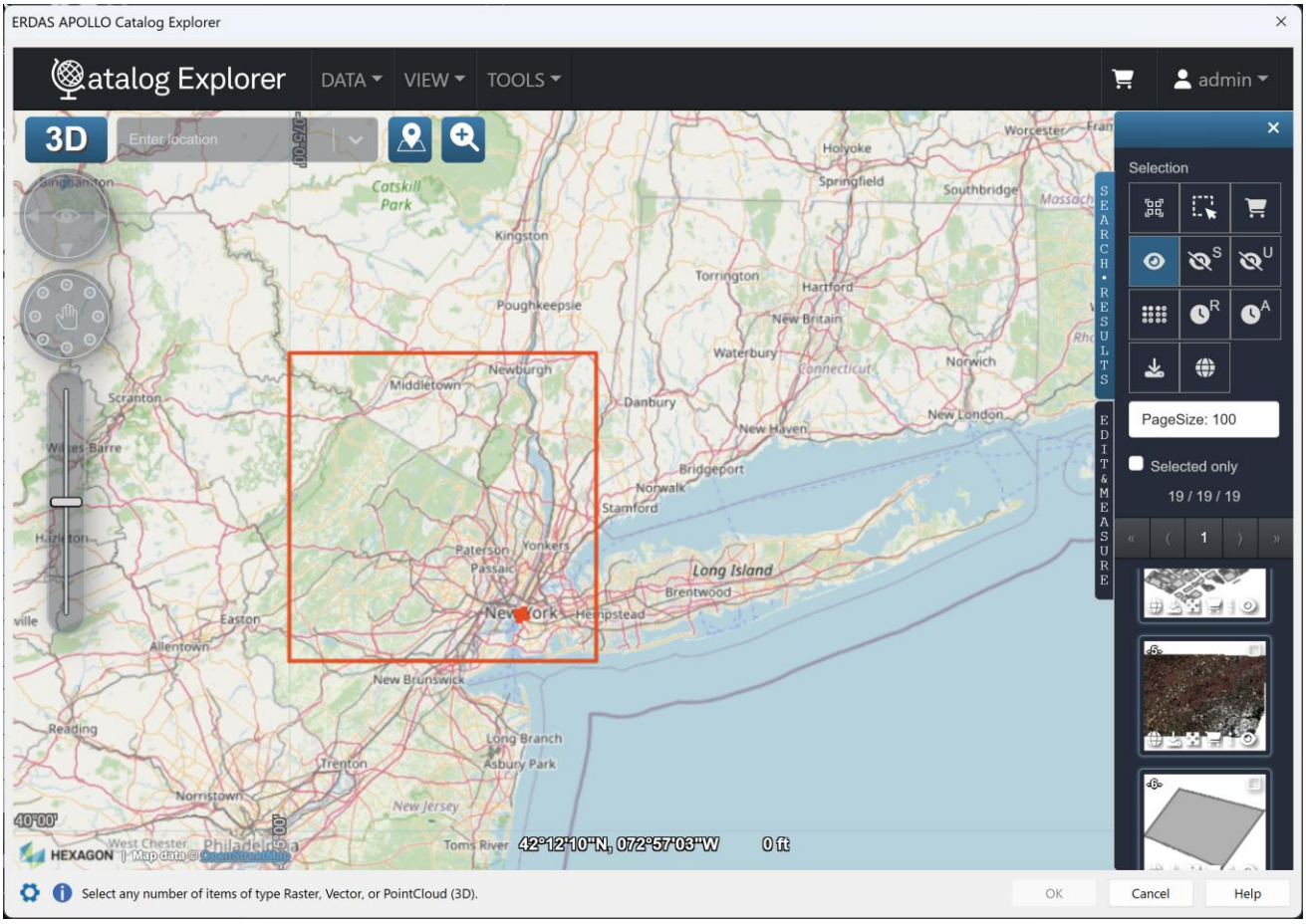
Cloud Data

Data stored in cloud locations such as SpatioTemporal Asset Catalogs (STAC), S3, Google Earth Engine and ERDAS APOLLO are becoming commonplace sources of information for remote sensing. Access to these services has been enabled in ERDAS IMAGINE 2025 via support for their native browser capabilities or via simple tree-view navigation.

As well as having access via the Contents panel, there is a Cloud tab on the File Selector dialog when the application is capable of accessing data on the cloud, such as in Spatial Modeler.

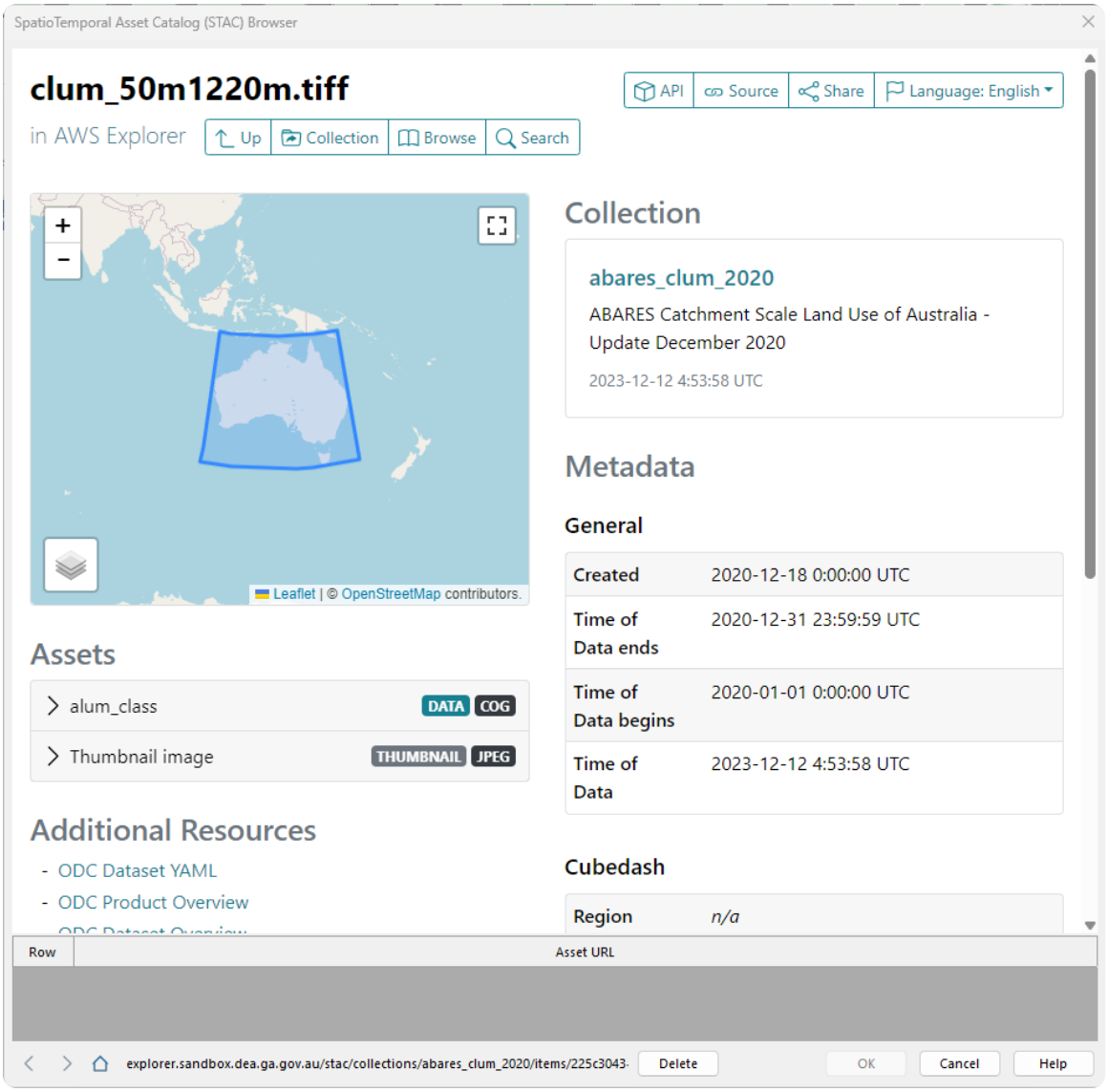
ERDAS APOLLO Catalog Explorer

The old application used to access enterprise data managed by ERDAS APOLLO has been replaced by the modern ERDAS APOLLO Catalog Explorer which provides a much more intuitive, interactive user interface for discovering raster data managed by your company. Images can be selected in the catalog and loaded directly into ERDAS IMAGINE and the Spatial Modeler.



STAC Browser

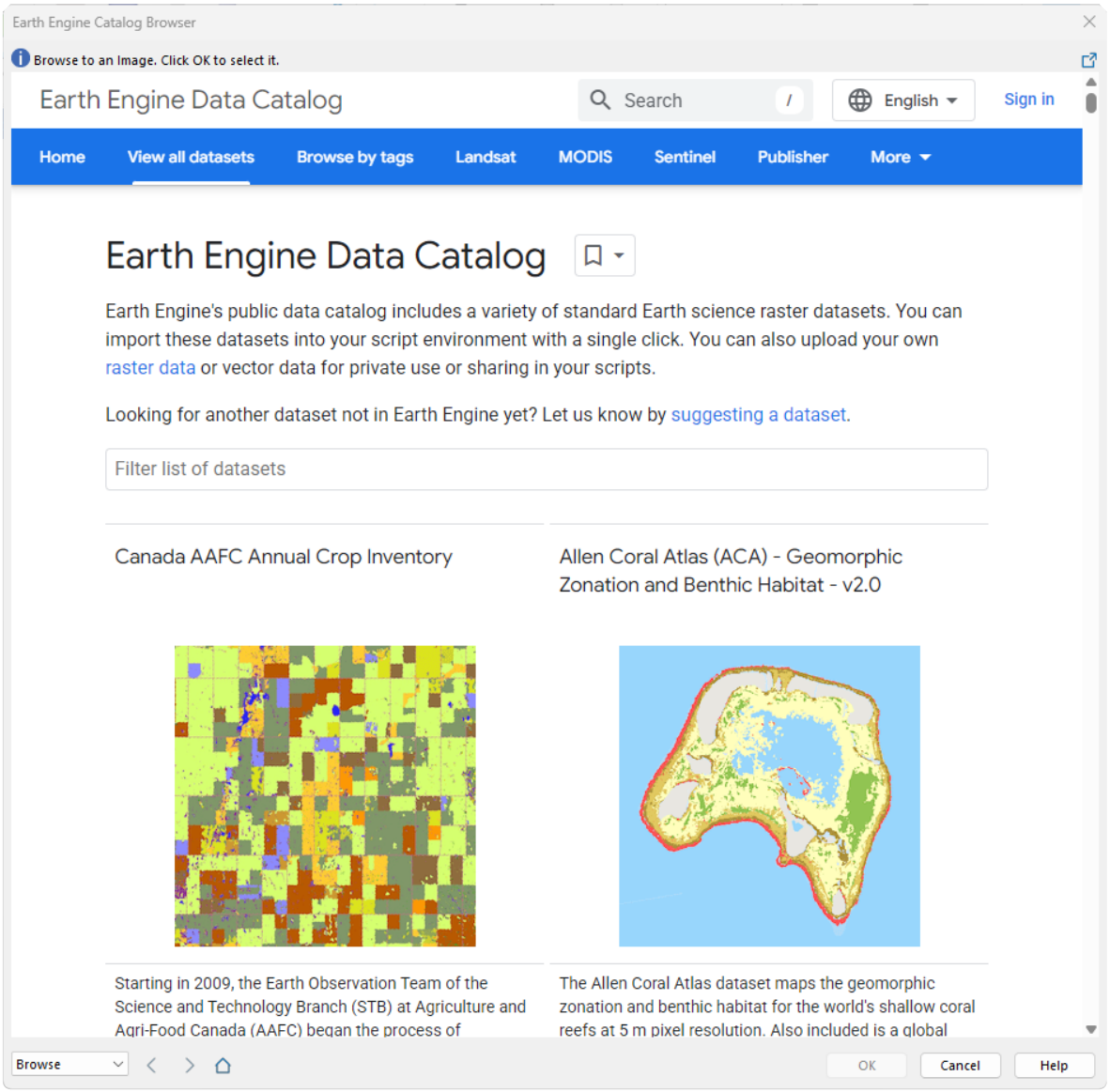
A STAC is a standard that has grown organically to be used to publish lists of available assets. Many organizations make data inventory catalogs available through this protocol. There is also a public website that allows exploration and access to data in a growing number of catalogs. The STAC Browser catalog is a new dialog that makes access to this website easy and streamlines the ingestion of the data. This tool can be accessed from the backstage, from the Spatial Modeler ribbon and from the File Chooser.



Google Earth Engine Browser

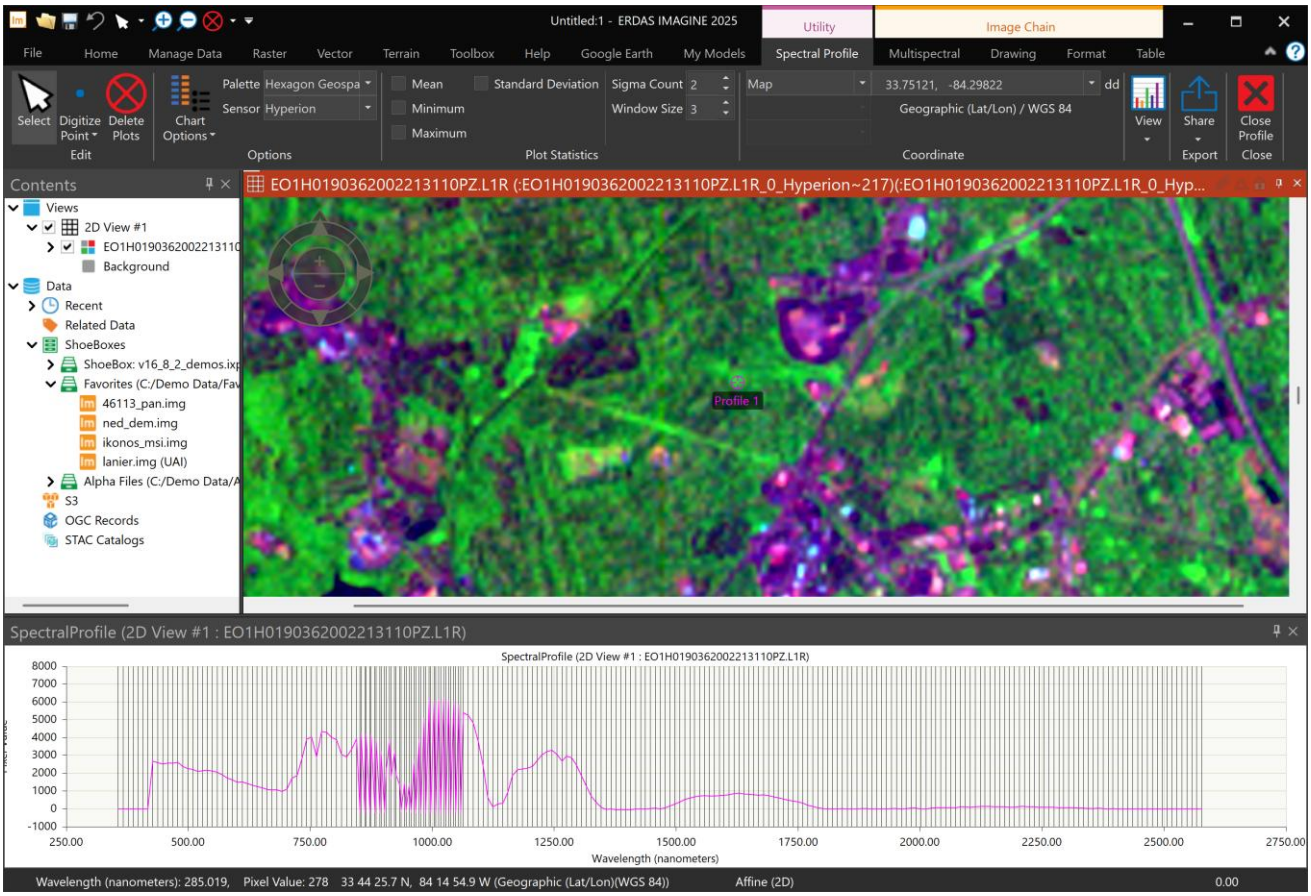
The Google Earth Engine Browser was introduced in the previous version, but was only available to configure specific Earth Engine operators. This has now been made available from the backstage, from the Spatial Modeler ribbon and from the File Chooser. It can now be used to provide direct access to Earth Engine images.

NOTE: Accessing images requires an Earth Engine service account has been configured.



Ribbonized Profile tools

The Spectral, Surface and Spatial Profile tools have been re-implemented as ribbon-embedded dockable panel tools removing the propensity for the prior tools to disappear behind the main ERDAS IMAGINE interface as you interacted with the data you wished to profile.



The Profile tools also now work with 2D Preview raster layers in Spatial Model Editor.

Also, the Spatial Profile linked Inquire Cursor now shows DN values from rasters displayed using the Image Chain methods as well as working with MRF and GeoPackage formats (GDAL supported formats).

Adjusted Linear Stretch

The Stretch Panel now has an option for parameterizing and applying an Adjusted Linear Stretch based on the Spatial Modeler operator of the same name (see screenshots above).

No Stretch

With modern true color (and greyscale) imagery it is generally the case that the data is already optimized for direct display to screen brightness. Consequently, the default behavior for opening Athematic (continuous), 1- or 3-band, Unsigned 8-bit imagery into a 2D View is now to apply a No Stretch. In other words, the DN value is mapped directly to screen brightness.

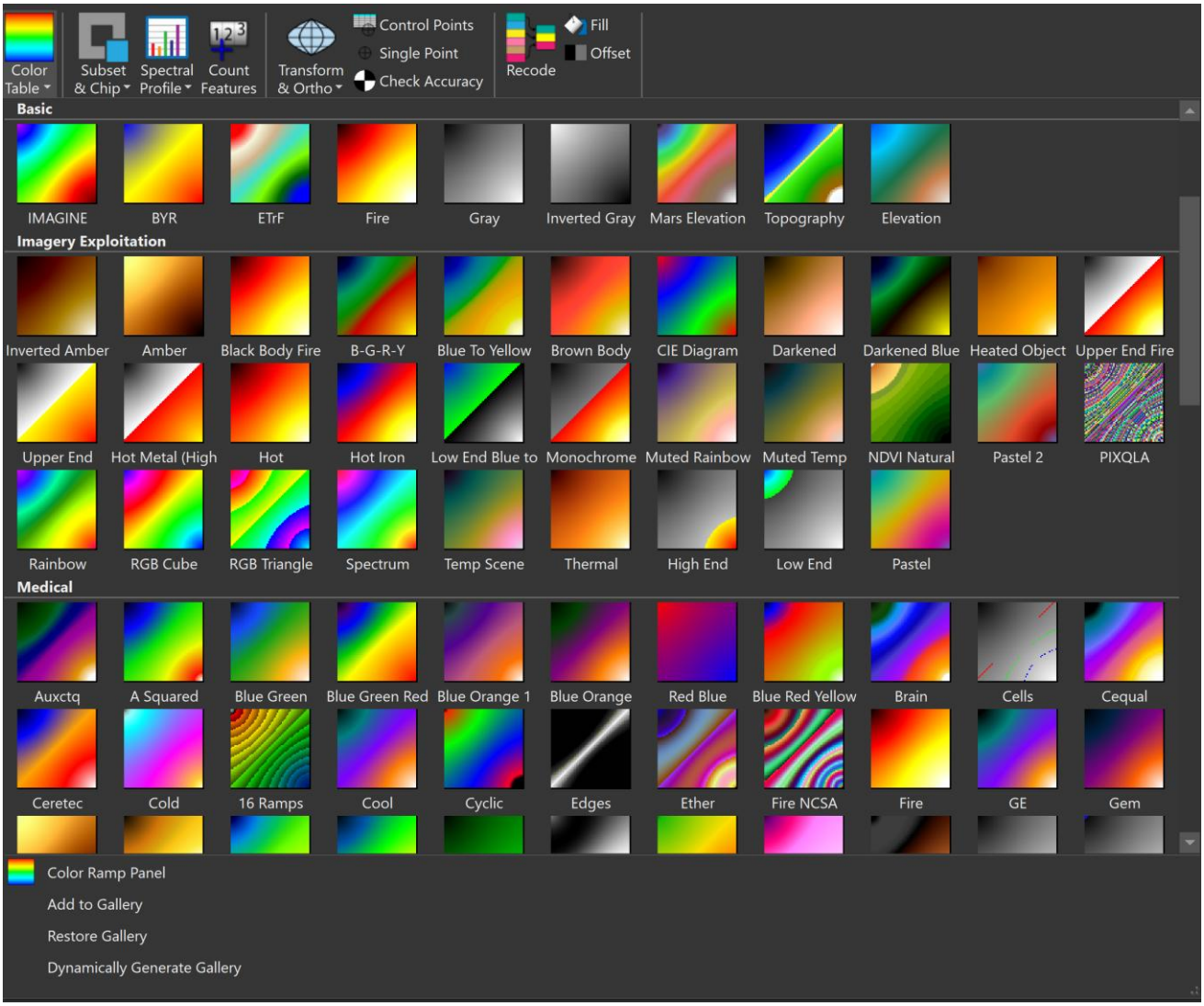
Other data types are still affected by Preference settings, or SIPS tables, for their default display styling.

Below you can see the effect of this change in default behavior on an array of 9 u8 airphotos. The view on the left shows the prior default display using a percentage stretch which, because the statistical distribution of

each photo varies, produces a “checkerboard” effect in the display (especially at top left). Whereas the view on the right shows the default behavior in ERDAS IMAGINE 2025 with a seamless transition between frames.

Faster Color Table gallery

Previously, bringing up the Color Table gallery could be slow since the software dynamically constructed all the color ramp chips based on the displayed image (at the center of the View). This not only took some time, but it also potentially only used a limited range of pixels and colors. By default, the software now shows pre-built ramp chips, which should represent the entire possible range of colors.



If desired, the old behavior can be used by choosing the “Dynamically Generate Gallery” option at the bottom of the gallery menu.

"Transfer Attributes" checkbox for Recode

The Recode function accessible from Raster tab > Raster GIIS group > Thematic menu > Recode used to always copy the “Class Name” and “Class Color” attributes from the input raster to the output raster. In some cases, this could lead to a false impression that the recode did not work properly and make the visual interpretation of the resulting raster difficult to visualize.

Consequently, a checkbox has been added for those occasions where you do not wish to transfer attributes from the input thematic image.

Use Color Palettes for multiple selections

Users can now pick Color Palettes to set the colors of a selection in a raster attribute cellarray, enabling quick assignment of a standardized color palette to landcover classes and other thematic legends.

Polarization Angle option for SAR Polarimetric Classification

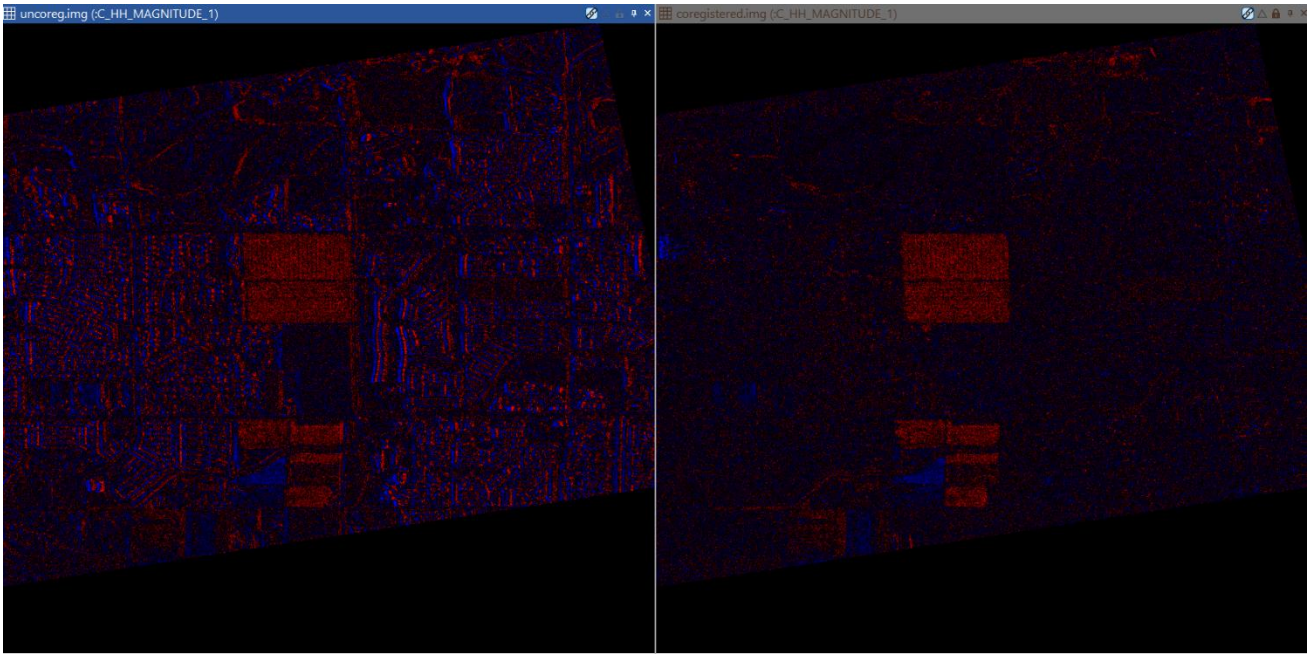
The polarization orientation angle can be obtained using the arc tangent of the VV/VH or HH/HV polarizations. This is useful for mapping anisotropy.

Improved SAR image co-registration

Several SAR utilities available in ERDAS IMAGINE, such as Coherence Change Detection (CCD), Interferometric DEM extraction and displacement mapping, and StereoSAR DSM, rely on the images that are being analyzed being accurately co-registered with each other to minimize false matches and detections.

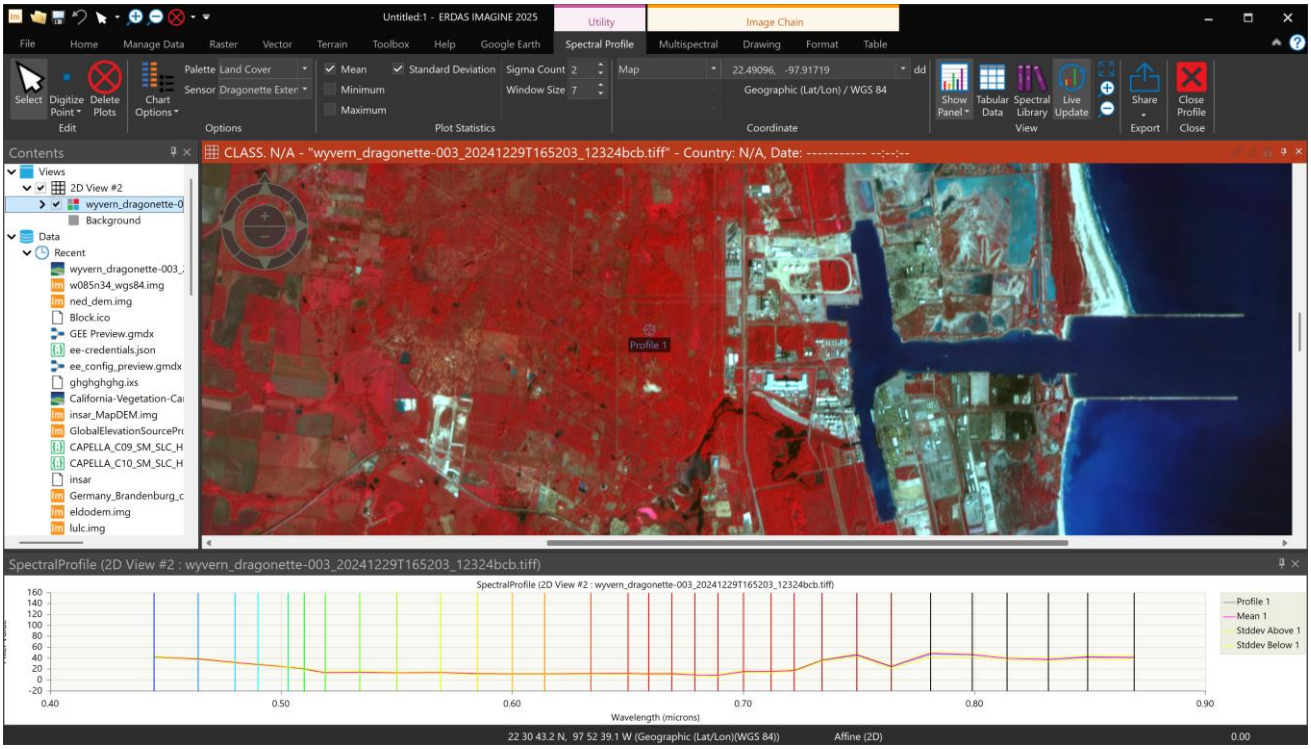
The co-registration process available in the SAR utilities has been re-implemented using a modern approach based on SAR SIFT, which makes the technique available to a much broader array of SAR sensors than was previously possible.

The screenshot below shows a “Blue is New / Red is Fled” Coherence Change Detection (CCD) performed on a Radarsat-2 image pair. The view on the left is the CCD result without using co-registration and shows the typical “twinning” caused by misregistration, which subsequently generates false positive detections of change. Conversely, the results in the right view are from the pair after the new co-registration has been applied. True change is much more clearly defined in this view.



Spectral Attribute Files (SAF) have been added for Wyvern Dragonette hyperspectral images

Wyvern's Dragonette constellation is one of the world's highest resolution commercial hyperspectral satellites, with a ground sampling distance of 5.3 meters and spectral range of 445 nm to 869 nm in 23 to 32 narrow spectral bands. In support of these sensors Spectral Attribute Files for both Extended and Standard modes have been added to provide meaningful spectral profile plots such as that shown below and to assist in image classification using hyperspectral techniques.



IMECE-1 RPC model

IMECE-1 is an Earth observation satellite designed and developed by TÜBİTAK Space Technologies Research Institute (TÜBİTAK UZAY) and produced in Turkey to provide high resolution imagery.

THEOS-2 Rigorous sensor model

THEOS-2 (Thailand Earth Observation System-2) is a Thai Earth observation satellite. The satellite is capable of observing Earth's surface with a resolution of up to 50cm.

ICEYE Dwell mode

The ICEYE format changed with its new Dwell imaging mode (SLEDF). This is now supported.

Point Cloud Metadata tool

This tool now reports the compression method used to produce the point cloud dataset.

SICD

SICD versions 1.0 through 1.3 are now supported. The software has also been updated to account for the image rotation so that the Phase can be accurately corrected for Earth curvature.

COSMO SkyMed Second Generation

COSMO SkyMed Second Generation (CSG) is now supported in the IMAGINE SAR Interferometry tools.

Projected Coordinate Systems

EPSG: 20049 (SIRGAS-Chile 2021 / UTM zone 19S) and EPSG:20048 (SIRGAS-Chile 2021 / UTM zone 18S) have been added, as well as other updates from the EPSG database.

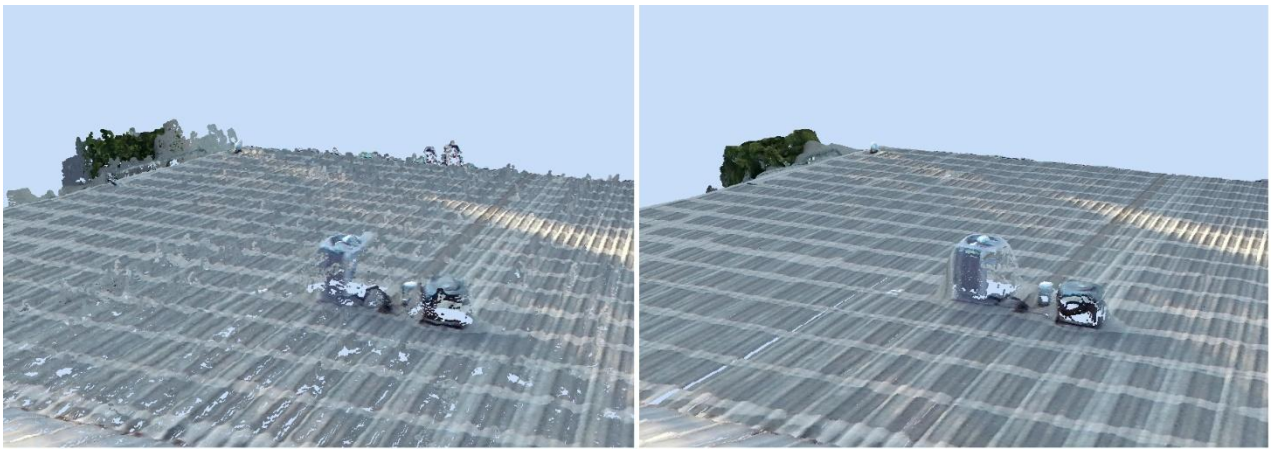
Point Cloud Tools

All the tools in the Terrain tab > Point Cloud Tools group have been reimplemented using Spatial Modeler to improve reliability and performance.

IMAGINE DSM Extraction

Improvements have been made to the SGM algorithm for sharp 3D surface reconstruction. A photo-consistency-based framework is used in pre-filters and post-filters to the SGM scanline optimization process where color edges help better delineate disparity (elevation) edges, and where the near monotone areas with low color gradient help suppress the matching noise (spikes).

A side-by-side comparison is shown below between the ERDAS IMAGINE 2023 algorithm (left) and the improved 2025 algorithm (right).



These changes are especially beneficial to satellite stereo pairs where the previous algorithm generated excessive noise over surfaces with poor radiometry correspondences such as water surfaces.

System requirements for ERDAS IMAGINE 2025

ERDAS IMAGINE

Computer/processor	64-bit: Intel 64 (EM64T), AMD 64 or equivalent (four or more logical processors are strongly recommended) Support for the Advanced Vector Instruction Set (AVX) is required for the following capabilities: • Artificial Intelligence operators in Spatial Modeler (as indicated by their specific Help pages) • Hexagon Smart Point Cloud (HSPC) formats handling
Memory (RAM)	16 GB minimum, more is strongly recommended
Disk space	• 11 GB for software • 7 GB for optional example data • Data storage requirements vary by mapping project[1] • SSD drives strongly recommended for both software and data
Operating systems[2, 3, 4]	• Windows 11 Enterprise (64-bit) • Windows 11 Professional (64-bit) • Windows Server 2022 (64-bit) (requires WebView2 installer from Microsoft) • Windows Server 2025 (64-bit)
Software	• OpenGL 4.2 or higher is required for Globe Views (this typically comes with supported graphics cards[5]) • Java Runtime 1.7.0.80 or higher — IMAGINE Objective requires JRE and can utilize any installed and configured JRE of version 1.7.0.80 or higher; Microsoft Visual C++ 2010 x64 Redistributable is also required • Python 3.9.x through 3.13.x can optionally be used for writing Python scripts that reference ERDAS IMAGINE libraries or access operators that are available in the Spatial Modeler • Python 3.9.x through 3.13.x are optionally supported for executing Python scripts in the Spatial Model Editor's Python Script operator • Microsoft DirectX 9c or higher • .NET Framework 4.7.2 or higher • OpenCL 1.2 with a device that supports double precision (cl_khr_fp64) if wanting to GPU accelerate NNDiffuse and other operators (most functions should fall back to the CPU if a suitable GPU is not present) • An NVIDIA card with CUDA Compute level of 3.5 or greater is recommended for use with Deep Learning and 5.0 or greater for other Spatial Modeler operators (most functions should fall back to the CPU if a suitable GPU is not present)

Recommended graphics cards for stereo display[6]	• NVIDIA Quadro P6000, P5000, P4000 and P2000 • NVIDIA Quadro M6000, M5000, M4000 and M2000 • NVIDIA Quadro K5200, K5000, K4200, K4000, K2200, K600 and K420 • NVIDIA Quadro RTX 4000 • NVIDIA Quadro RTX A4500 and RTX A5000
Recommended stereo display monitors	• 120 Hz (or above) LCD Monitors with NVIDIA 3D Vision Kit • 3D PluraView system from Schneider Digital[7] • Vision Engineering CONTOUR 3D stereoscopic GIS display
Recommended stereo glasses and emitter kits	• NVIDIA 3D Vision Kit • 3DTV Universal Emitter
Peripherals	All software installations: • One Windows-compatible mouse with scroll wheel or equivalent input device • Printing requires Windows-supported hardcopy devices[8] Software security (Hexagon Geospatial Licensing 2023) requires one of the following: • Ethernet card • One USB port for hardware key Advanced data collection requires one of the following hand controllers:[9] • TopoMouse or TopoMouse USB • Immersion 3D Mouse • MOUSE-TRAK • Stealth 3D (Immersion), S3D-E type, Serial Port • Stealth Z, S2-Z model, USB version • Stealth V, S3-V type (add as a serial device) • H-Type Stealth Mouse • 3Dconnexion SpaceMouse Pro[10] • 3Dconnexion SpaceExplorer mouse[10] • Z/I Mouse
Software interoperability	• ERDAS IMAGINE can be safely installed on a computer that has GeoMedia 2023 or GeoMedia 2025 installed; however, for greatest compatibility, it is highly recommended to install matching versions (including updates) • ERDAS IMAGINE 2025 requires GeoMedia 2025 for live linking (order of installation does not matter) • ERDAS IMAGINE 2025 can read web services from an ERDAS APOLLO 2025 catalog. • ERDAS IMAGINE can interact with File Geodatabases (but ArcGIS installation is not required for File Geodatabase access)
Database engines	• PostgreSQL 13.2 with PostGIS 3.1.1: PostGIS can be used to store GeoMedia Features (.pfp) • Oracle Server 19c (12.2.0.3) 64-bit: Oracle Server 19c can be used to store Oracle Spatial Features (.ogv) (requires Oracle Spatial), as well as GeoMedia Features (.ofp)

	• Microsoft SQL Server 2019 64-bit: Microsoft SQL Server 2019 can be used to store GeoMedia Features (.sfp)
Internet connection	• ERDAS IMAGINE LiveLink for Google Earth Engine requires an active internet connection to operate. It has no offline mode.

ERDAS IMAGINE system requirements notes

[1] Disk I/O is usually the slowest task in geospatial data processing. Faster hard disks improve productivity. Reading data from one disk, writing temporary data to a second disk and writing data to a third disk improves performance. Disk arrays improve productivity, but some RAID options slow performance. Network disk drives are subject to network limitations.

[2] Server operating systems are not supported for IMAGINE Photogrammetry, ORIMA or ERDAS ER Mapper.

[3] The 3D stereo viewing and peripheral requirements of IMAGINE Photogrammetry limit its operating system options.

[4] Includes ERDAS ER Mapper support.

[5] Windows provides a generic OpenGL driver for all supported graphics cards; however, an OpenGL-optimized graphics card and driver are recommended for these applications.

[6] Graphics cards certified with previous versions of IMAGINE Photogrammetry and ORIMA may also be compatible but are not certified in the current version. Drivers must not be newer than R418. NVIDIA dropped 3D Vision support for drivers released after R418 U4 (425.31), which was released on April 11, 2019.

[7] Stereo monitors certified with previous versions of IMAGINE Photogrammetry and ORIMA may also be compatible but are not certified in the current version.

[8] HP-RTL drivers are recommended. Windows 64-bit print servers require 64-bit print drivers.

[9] Stealth S-Mouse (S2-S model) and MOUSE-TRAK are the only supported hand controllers in Stereo Analyst for ERDAS IMAGINE.

[10] 3Dconnexion mice are supported in IMAGINE Photogrammetry.

Issues resolved: ERDAS IMAGINE 2025

IMAGINE Essentials

Support ticket	Summary
00401627	A crash has been fixed when raster editing and clearing the view after applying a statistical filter
00027321	Displaying a WMS service after displaying a local raster layer has beer corrected so that the display area does not change
00402590	Display of a specifically configured “mega-block” TIFF file (without pyramids) has been made far more efficient
00470227	PIX images from the ITRES Hyperspectral sensor no longer cause a crash in ERDAS IMAGINE. Note however it often preferred to open via the .pix.hdr anyway.
00420567	When creating TIFFs using MaskIFD for NoData, information could be lost in the higher pyramid levels. This has been corrected (but will require pyramids to be re-built if the dataset suffered from this issue)
00400334	A fix to reprojection from EPSG 2039 to EPSG 3857 was not included in ERDAS IMAGINE 2023 Update 2. The fix has now been re-incorporated.
00403010	StriX SLC CEOS metadata was being interpreted incorrectly. The correct beam mode and polarizations should now be reported.
00409437	Any issues accessing the Marine Traffic Service (with a valid key) should be first reported directly to KPLER.
00023090	Cubic Convolution and LaGrange resampling could introduce 0-valued pixels in reprojected data. Options have been added to help avoid these cases.
00028218	With certain configurations ERDAS IMAGINE could sometimes crash when opening NITF data with a CSM plugin DLL installed.
00384493	A 3D Shapefile with Z coordinate was not being displayed properly in ERDAS IMAGINE.
00380657	Copy / Paste of special characters within the vector and raster attribute editors has been corrected.
00490912	Accessing WMTS services which lack a WGS84 bounding box is now supported.

IMAGINE Advantage

Support ticket	Summary
00461641	In some instances batch exporting to ASRP could create an incorrectly formatted header
00446029	When contiguous sheets were involved, export to CADRG was sometimes incorrect.

00413011	When exporting data with pixel resolution below 2 meters to RPF CIB format, the A.TOC could not be opened to view NITF metadata in the View NITF Metadata tool. Creation of the A.TOC has been modified to avoid this.
00412375	Issues with the entry order of parameters to the Sentinel-1 Orbit Correction utility have been addressed.

IMAGINE DSM Extractor

00023322	Buildings were not extracted well with DSM Extractor compared to another photogrammetry package.

IMAGINE Photogrammetry

Support ticket	Summary
00457872	In some instances the DEM extent calculated by ATE was incorrect. This has been addressed.

Spatial Modeler

Support ticket	Summary
00385115	Summarize Related Features operator was failing to create a coordinate system object.
00404364	When creating label images for two (or more) classes using the Generate Deep Learning Training Chips operator all DN values will now be considered even if those pixels might normally be excluded as NoData,
00456124	The Compute Footprints operator was taking an unexpectedly long time to produce results with particular datasets.

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