# Release Guide

ERDAS IMAGINE 2020 Update 3

Version 16.6.3

March 2021

# Contents

# About This Release

This document describes enhancements in ERDAS IMAGINE 2020 Update 3 (v16.6.3), including IMAGINE Photogrammetry (formerly LPS Core) and ERDAS ER Mapper. Although the information in this document is current as of the product release, see the Hexagon Geospatial Support website for the most current version.

Update 3 includes both enhancements and fixes. For information on fixes that were made to ERDAS IMAGINE, see the Issues Resolved section.

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

Development of ERDAS IMAGINE 2020 ensures all aspects of ERDAS IMAGINE run in 64-bit. Consequently, the installer has been split into three separate installers: ERDAS IMAGINE 2020 64-bit; ERDAS IMAGINE 2020 32-bit; and ERDAS ER Mapper 2020. The same split is available for Update 3 installers.

# ERDAS IMAGINE Product Tiers

ERDAS IMAGINE performs advanced remote sensing analysis and spatial modelling to create added information. You can also visualize results in 2D, 3D, or video and on cartographic-quality map compositions. The core of the ERDAS IMAGINE product suite is scalable to your geospatial data. Optional modules (add-ons) provide specialized functions to enhance productivity.

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 and advanced spectral, hyperspectral, and radar processing. This tier includes ERDAS ER Mapper at no additional cost.

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

# New Platforms

### Full Installers

Starting with ERDAS IMAGINE 2020 Update 1, update installers became full installers, allowing you to either install the update as a standalone (e.g., install ERDAS IMAGINE 2020 Update 3 without first installing ERDAS IMAGINE 2020) or as an update to an existing install (e.g., installing ERDAS IMAGINE 2020 Update 3 without first installing ERDAS IMAGINE 2020 Update 1). With full installers, you can no longer roll back an update to the previous version (e.g., If ERDAS IMAGINE 2020 is updated with ERDAS IMAGINE 2020 Update 3, uninstalling it removes ERDAS IMAGINE 2020 entirely). Consequently, "rolling back" now involves uninstalling ERDAS IMAGINE and re-installing the desired previous version.

### ArcGIS 10.7.x and ArcGIS 10.8.x

ERDAS IMAGINE 2020 Update 3 (32-bit) has been tested and is supported when using an installed and licensed version of ArcGIS 10.6, 10.6.1, 10.7, 10.7.1, 10.8, or 10.8.1 to provide geodatabase support libraries.

Alternatively, the IMAGINE Geodatabase Support component (based on ArcGIS Engine 10.7) can be installed to provide geodatabase support.

### PostgreSQL & PostGIS

The PostGIS Features Proxy reader now supports PostgreSQL 13.2 with PostGIS 3.1.1.

### Licensing

ERDAS IMAGINE 2020 installers no longer attempt to automatically install geospatial licensing tools as part of the installer. If customers wish to use geospatial licensing tools, for example, to set up a floating/concurrent license server, you must download Geospatial Licensing 2020 separately.

We strongly recommend upgrading to the newest version of Geospatial Licensing 2020. If you are unsure of your current version, refer to the Microsoft® Windows Add or Remove Programs utility.

You can find the appropriate download in the Downloads section of the Hexagon Geospatial website.

# New Technology

New Photogrammetry Workflows in Spatial Modeler

Over the past several years, the amount of data from image acquisition systems have grown exponentially due, in part, to the growth of lower-cost UAV platforms and constellations of satellites. This effect is seen not only in the imagery's spatial resolution but also in the frequency of acquisition, with daily revisit rates becoming the norm. This trend increases the need to process data automatically and quickly.

Photogrammetry workflows (e.g., adjustment, ortho rectification, color balancing, mosaicing) are usually the initial steps of data processing. To handle this large volume of imagery, you need photogrammetric solutions that can detect new acquisitions automatically; instantly process data; scale up computing resources as needed; and feed output to downstream geospatial processes.

Spatial Modeler is designed to solve these challenges by offering hundreds of operators that easily chain together into models to solve complex geospatial problems.

With the ERDAS IMAGINE 2020 Update 2 release, we expanded Spatial Modeler's capabilities by adding a new suite of photogrammetry operators that perform project setup, automatic point measurement, triangulation and mosaicing for scanned frame, and digital frame cameras.

In ERDAS IMAGINE 2020 Update 3, we continue this process by expanding the operators into the satellite sensors via RPC and rigorous orbital pushbroom model support.

Note that many of these new operators require additional licensing in order to run as part of a spatial model execution. This is generally noted in the Help for each operator.

Create Semi-Global Matching (SGM) Point Cloud
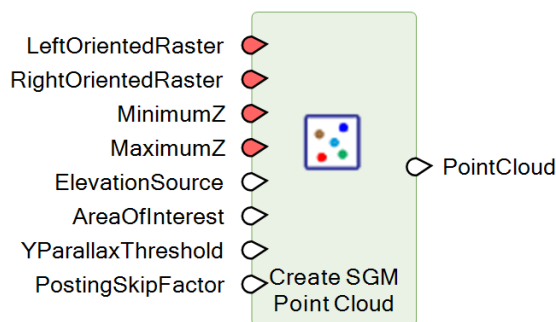


*Note: This operator requires IMAGINE DSM Extractor licenses in order to run.*

This operator extracts a dense point cloud from a pair of stereo images using Semi-Global Matching (SGM). Unlike the Create SGM Point Cloud Output operator (which has been deprecated) the Create SGM Point Cloud  is a streaming operator that does not need to output the surface model to a file. This is more suited to use in larger spatial models that perform downstream processing on the surface data.

Additionally, this operator offers a PostingSkipFactor option. The posting skip factor (a value of 1 or greater) specifies how many pixels will be skipped in the stereo pair in the X and Y directions during terrain extraction. Lower skip factor leads to denser point cloud output, and higher skip factor reduces computation time but leads to a sparser point cloud output.

## Define Image Parameters for Orbital Pushbroom Model
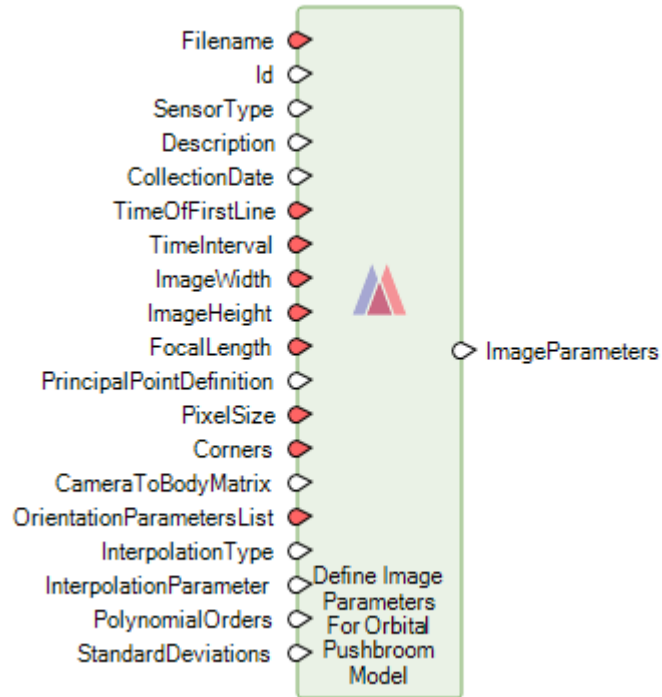


This defines the parameters which describe an image collected using an orbital pushbroom sensor. Additionally, parameters related to how the sensor is modelled or adjusted for the particular image may be specified in the InterpolationType, InterpolationParameter, PolynomialOrders and StandardDeviations options.

This operator is provided to handle orbital pushbroom models for which the image parameters are not automatically read by Spatial Modeler. The image parameters for known orbital pushbroom models may be automatically obtained using the Read Image Parameters For Orbital Pushbroom Model operator.

## Define Block Parameters for Orbital Pushbroom Model
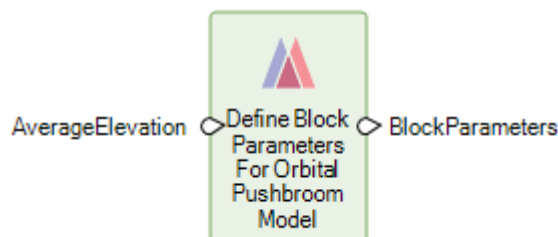


This defines the parameters needed to create a block for the management of orbital pushbroom images.

## Read Image Parameters for Orbital Pushbroom Model
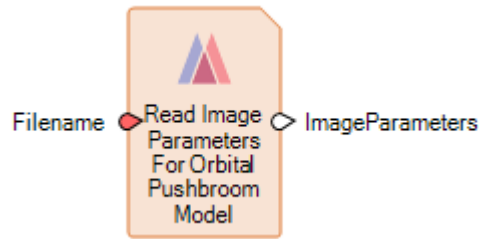


This operator reads the orbital pushbroom sensor model metadata associated with a given image file and returns it as a dictionary containing ImageParameters as described in Define Image Parameters for Orbital Pushbroom Model operator. There are many different satellite systems that use the orbital pushbroom sensor model; however, the way the metadata is represented can vary from sensor to sensor. There is a dedicated format decoder for each of the supported orbital pushbroom sensor types. This operator uses those decoders to ingest the metadata and make it available in a common internal form defined in the "Define Image Parameters for Orbital Pushbroom Model" operator.
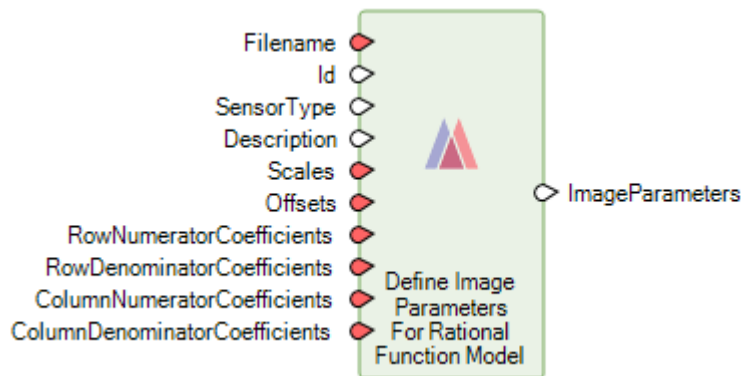
## Define Image Parameters for Rational Function Model



This defines the parameters which describe a collected image using a rational function sensor.

## Define Block Parameters for Rational Function Model



This operator defines the dictionary needed to create a Rational Function Block. Currently, other than the SensorCategory of RationalFunction which is automatically populated by this operator, there are no additional parameters needed.

## Add Orthos to Block



*Note: This operator requires IMAGINE Advantage licenses or higher in order to run.*

The operator adds one or more ortho images to a block. The added ortho images can be used in operations such as mosaicking where the block is used as input.

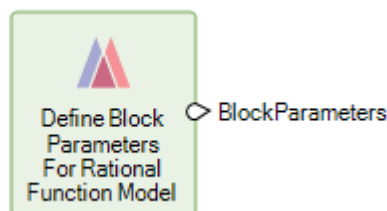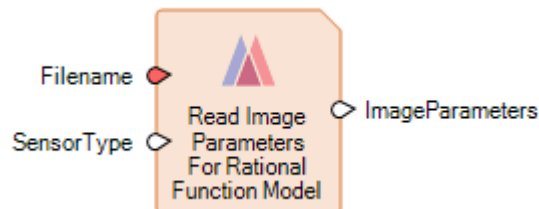## Read Image Parameters for Rational Function Model



This operator reads the rational function sensor model metadata associated with a given image file and returns it as a dictionary containing ImageParameters as described in the Define Image Parameters for Rational Function Model operator. There are several satellite systems that use the rational function sensor model; however, the way the metadata represents can vary from sensor to sensor. There is a dedicated format decoder for each of the supported rational function sensor types.. This operator uses those decoders to ingest the metadata and make it available in a common internal form defined in the Define Image Parameters for Rational Function Model operator.

## New Artificial Intelligence Semantic Segmentation Operators for Spatial Modeler

Hexagon continues to add operators to Spatial Modeler. New (or modified) operators are outlined below, with a brief description of their capabilities. See the ERDAS IMAGINE 2020 Help for complete details on each operator, and visit the Hexagon Geospatial Community Spatial Recipes page for examples of spatial models that use many of these capabilities.

## Initialize Image Segmenter
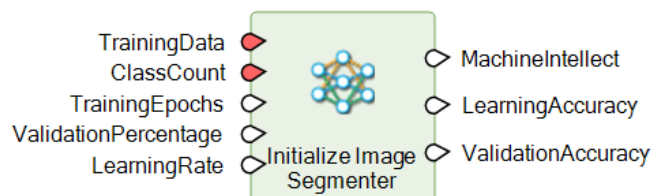


This operator produces a Machine Intellect by training a deep neural network. You case use this Machine Intellect to perform semantic segmentation on images using the Segment Image Using Deep Learning operator.

Semantic Segmentation is a term more commonly used in computer vision and is increasingly used in remote sensing. It is another term for the classical pixel level image classification in remote sensing. As such, all

applications that start with image classification (e.g., land cover mapping, precision agriculture, and road network detection) will benefit from this deep learning-based approach to image classification.

The Image Segmenter is trained using example image tiles (approximately 224 x 224 pixels) with corresponding label images which show the class distribution in the training images.

## Segment Image Using Deep Learning
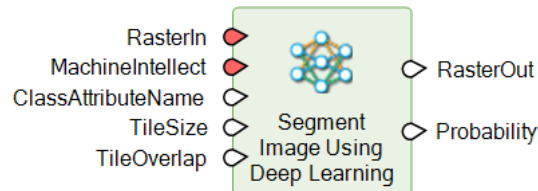


This operator performs semantic segmentation on the input raster and assigns a class and probability that the class is correct for each pixel. This is done using the trained deep learning-based image segmenter specified on the MachineIntellect port.
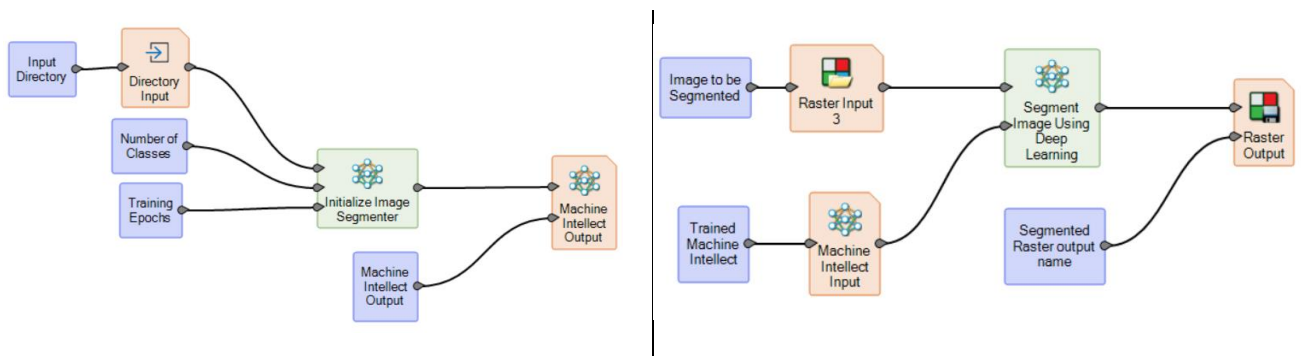


For example, the screenshots below show a multi-class semantic segmentation of satellite data to identify buildings, roads, etc.

Updated Operators

Mosaic Images
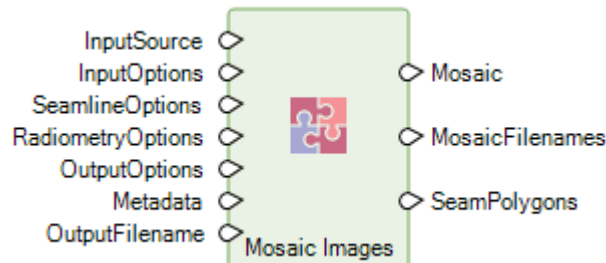


*Note: This operator requires IMAGINE Advantage licenses or higher in order to run.*

The Mosaic Images operator now accepts a list of input filenames rather than requiring a block as input. This enables you to mosaic existing ortho images.

Point Input
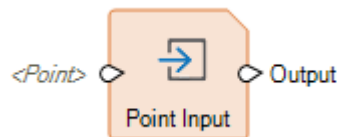


The Point Input operator has been enhanced to provide an input dialog that integrates with the Inquire Cursor. This allows you to easily select the point location for input to a Spatial Model. For example, if you use the Grow Region operator, you may want to use the Inquire Cursor to pick the location in which to grow.
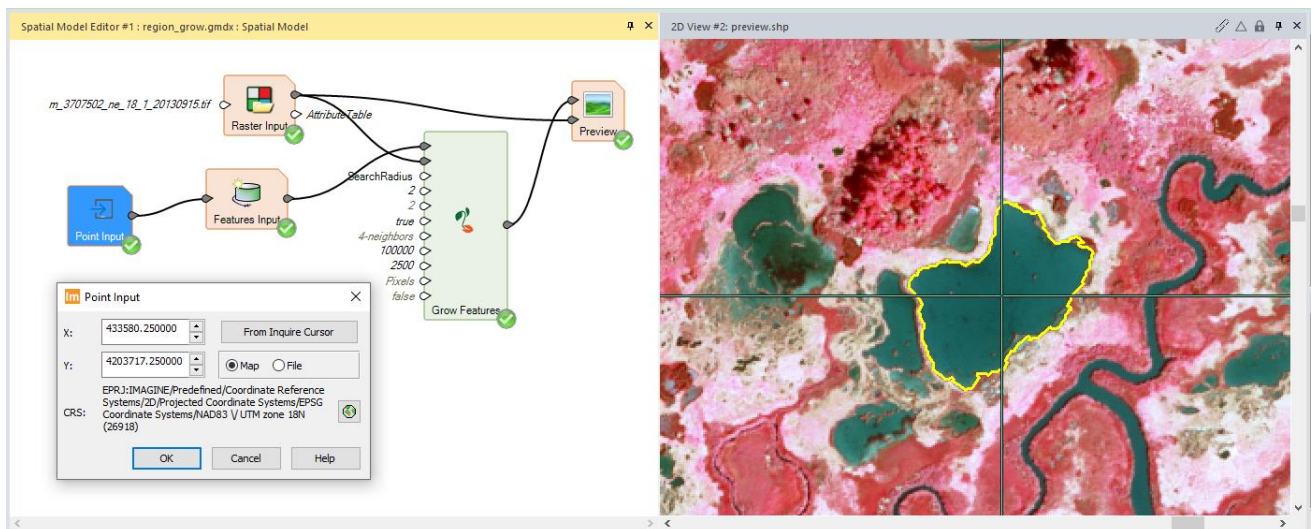
## Spatial Model Editor Interface Improvements

The process of starting a new Spatial Model Editor panel has been difficult to navigate in the past.  To make this process easier and more consistent with starting other types of View, Update 3 includes a shortcut located at **Home** tab > **Window** group > **Add Views** pulldown > **Create New Spatial Model Editor.**

We have also enhanced the Spatial Model Editor to persist the last state of the gridlines. Whichever state the Show Gridlines checkbox is set will determine how it is set when a new Spatial Model Editor is started.

## Format Support

### ICEYE SLC

ICEYE's small satellite SAR imaging constellation is customized for the high revisit rate and frequent delivery of high-resolution imagery.

 Interferometric processing has now been tested using the limited set of available sample SLC (single look complex) datasets.  Further optimizations will occur as additional samples are delivered.

### RADARSAT Constellation Mission (RCM)

The RADARSAT Constellation Mission (RCM) is Canada's new generation of Earth observation satellites. Launched on June 12, 2019, the three identical satellites provide daily images of Canada's vast territory and maritime approaches, as well as images of the Arctic, up to four times a day. It also has daily access to 90 percent of the world's surface.

### Maxar / DigitalGlobe WorldView Legion

Synthesized examples indicate the upcoming WorldView Legion sensor is supported via RPC and Orbital Pushbroom geometric models for orthorectification and other photogrammetric processing.

### PRISMA L2D

PRISMA L2D hyperspectral data delivered in HDF5 format (.he5) now geolocates correctly.

### Defense Gridded Elevation Data (DGED)

The Defense Gridded Elevation Data (DGED) reader now recognizes more vertical coordinate reference systems that can be defined in the data and correctly interprets the data as elevation rather than simply an image.
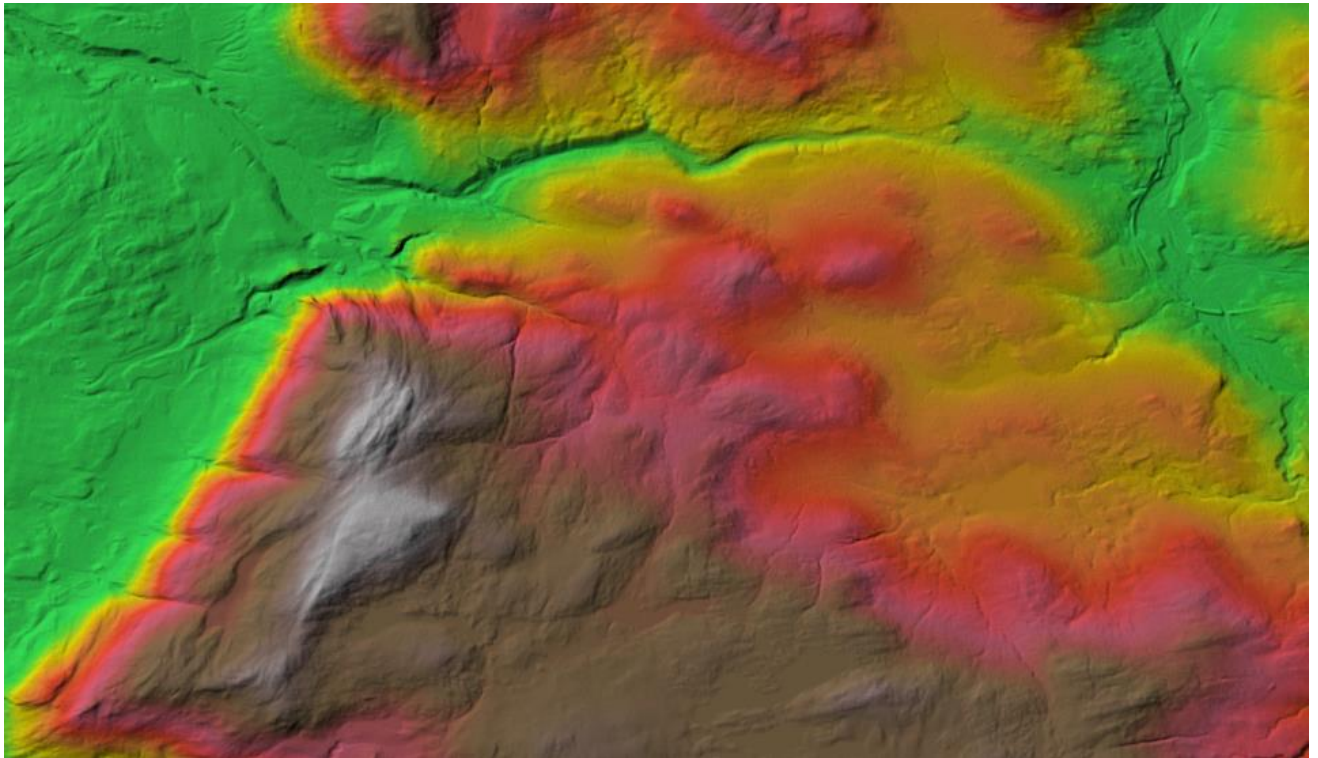
### DiMAP v2 NoData

DiMAP v2 data (e.g., SPOT, Pleiades, Pleiades Neo, etc.) XML headers often define a NoData value. This value is now automatically used as the NoData value in ERDAS IMAGINE.

### Pleiades Neo DiMAP Geometric Models

Pleiades Neo imagery is supported in both rigorous Orbital Pushbroom and RPC geometric models.

## General ERDAS IMAGINE

### Multi-band Thematic display

In previous updates, a multi-band thematic dataset,such as what is produced by ERDAS IMAGINE's supervised fuzzy classification tools, would default to open as a True Color display type. This default could be visually confusing. We have updated this display to ensure that despite the number of bands present in an image, if the first band is marked as thematic, the data will default to opening as Pseudo Color (band 1).

### Escape Key

You can now dismiss dialogs using the industry-standard method of pressing the Esc key.

### Lagrange Resampling

The Lagrange resampling method is now supported in IMAGINE Autosync (a part of the IMAGINE Expansion Pack product) and MosaicPro.

## SIPS v2.4.15

We have updated the installer to use the Unclassified SIPS v2.4.15 XML file to control default Image Chain display parameters.

You can acquire extended versions of SIPS via the IMAGINE Defence Productivity Module (DPM).

## IMAGINE Digital Surface Model (DSM) Extractor

You can now define a spatial subset to limit the area in which the Digital Surface Model (DSM) is extracted.

We have introduced a posting skip factor which specifies how many pixels will be skipped in the stereo pair in the X and Y directions during terrain extraction. Lower skip factor leads to denser point cloud output, and higher skip factor reduces computation time but leads to a sparser point cloud output.

## IMAGINE SAR Feature

We have implemented two new classes of speckle suppression algorithms, including:

### Artificial Intelligence Convolutional Neural Network (CNN) Despeckle

This function will process the radar image through a convolutional neural, network-based algorithm specifically trained to minimize speckle noise. This algorithm is fully automated and requires no user input.

### Anisotropic and SuperPixel

This dialog enables the application of two sequential algorithms for a radar image. The first option, Despeckle, offers two forms of Anisotropic radiometric reconstruction – the Mixed-Norm algorithm and the Feature Preserving algorithm. Optionally, this step can be omitted by selecting "none".

The intermediate image from the Despeckle step is followed by the second Segmentation step. The Superpixel algorithm evaluates the pixel values (greyscale) and modifies them to produce coherent regions (i.e., sub-features). The Cluster version of the algorithm also reduces pixel size. Again, selecting "none" eliminates this step from the processing.

# System Requirements

## ERDAS IMAGINE

| | |
|---|---|
| Computer/ Processor | 64-bit: Intel 64 (EM64T), AMD 64, or equivalent (four or more logical processors are strongly recommended) |
| Memory (RAM) | 16 GB or more strongly recommended |
| Disk Space | • 6 GB for software<br>• 7 GB for example data<br>• Data storage requirements vary by mapping project[1] |
| Operating Systems [2, 3, 4] | • Windows 10 Pro (64-bit)<br>• Windows 10 Enterprise (64-bit)<br>• Windows Server 2016 (64-bit)<br>• Windows Server 2019 (64-bit) |
| Software | • OpenGL 2.1 or higher (this typically comes with supported graphics cards [5])<br>• 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<br>• Python 3.6.x or 3.7.x (Python is optionally usable with Spatial Modeler)<br>• Microsoft DirectX® 9c or higher<br>• .NET Framework 4.7.2 or higher<br>• OpenCL 1.2 with a device that supports double precision (cl_khr_fp64) if wanting to GPU accelerate NNDiffuse and other Operators<br>• An NVIDIA card with CUDA capabilities is recommended for use with Deep Learning. |
| Recommended Graphics Cards for Stereo Display [6] | • NVIDIA® Quadro® P6000, P5000, P4000, P2000<br>• NVIDIA® Quadro® M6000, M5000, M4000, M2000<br>• NVIDIA® Quadro® K5200, K5000, K4200, K4000, K2200, K600, K420<br>• NVIDIA Quadro RTX4000 |
| Recommended Stereo Display Monitors | • 120 Hz (or above) LCD Monitors with NVIDIA 3D Vision™ Kit, or<br>• 3D PluraView system from Schneider Digital [7]<br>• Vision Engineering CONTOUR 3D stereoscopic GIS display |
| Recommended Stereo Glasses and Emitter kits | • NVIDIA 3D Vision™ Kit<br>• 3DTV universal Emitter |
| Peripherals | All software installations require:<br>• One Windows-compatible mouse with scroll wheel or equivalent input device<br>• Printing requires Windows-supported hardcopy devices [8]<br>Software security (Hexagon Geospatial Licensing 2020) requires one of the following:<br>• Ethernet card, or<br>• One USB port for hardware key<br>Advanced data collection requires one of the following hand controllers: [9]<br>• TopoMouse™ or TopoMouse USB™<br>• Immersion 3D Mouse<br>• MOUSE-TRAK<br>• Stealth 3D (Immersion), S3D-E type, Serial Port<br>• Stealth Z, S2-Z model, USB version<br>• Stealth V, S3-V type (add as a serial device) |

| | |
|---|---|
| | • 3Dconnexion SpaceMouse Pro [10]<br>• 3Dconnexion SpaceExplorer mouse [10]<br>• EK2000 Hand Wheels<br>• EMSEN Hand Wheels<br>• Z/I Mouse |
| ArcGIS and GeoMedia Interoperability | • ERDAS IMAGINE can be safely installed on a computer that has GeoMedia 2018 or GeoMedia 2020 installed; however, for greatest compatibility, it is highly recommended to install matching versions (including updates).<br>• ERDAS IMAGINE 2020 requires GeoMedia 2020 for live linking. Order of installation does not matter.<br>• ERDAS IMAGINE can interact with both types of personal Geodatabases (*.mdb and *.gdb).<br>• ERDAS IMAGINE can be safely installed on a computer that has ArcGIS® versions 10.6 through 10.8.1.<br>• ERDAS IMAGINE and IMAGINE Photogrammetry (32-bit) can interact with ArcGIS Server 10.6 – 10.8.1 Geodatabase servers (ArcSDE). To read or interact with an Enterprise Geodatabase, you must either:<br>   o Install and license the appropriate version of ArcGIS for Desktop versions 10.6 through 10.8.1, OR<br>   o Install the IMAGINE Geodatabase Support (based on ArcEngine 10.7) - requires no license |
| Database Engines | • PostgreSQL 13.2 with PostGIS 3.1.1: PostGIS can be used to store GeoMedia Features (.pfp)<br>• Oracle Server 12c 12.2 64-bit: Oracle Server 12c can be used to store Oracle GeoRaster (.ogr) (requires Oracle Spatial), SDE Raster (.sdi) (requires ArcGIS for Server) and Oracle Spatial Features (.ogv) (requires Oracle Spatial), as well as GeoMedia Features (.ofp).<br>• Microsoft SQL Server 2017 64-bit: Microsoft SQL Server 2017 can be used to store GeoMedia Features (.sfp) |

## 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] ERDAS ER Mapper is not supported on Windows 8. It is considered Viable on Windows 8.1.

[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 2020 Update 3

## IMAGINE Essentials

| Issue ID | Summary – IMAGINE Essentials | Description / How to Reproduce |
|---|---|---|
| 00074497 | Raster edit Recode doesn't update the Contents legend entry | ERDAS IMAGINE 2020 Update 2<br><br>1. Make a local copy of a thematic image with, for example, 9 classes<br>2. Display the image in a 2D View<br>3. Expand the Contents treeview so you can see the legend of the classes<br>4. Thematic tab > Edit group > Recode<br>5. Select rows 5 - 8 and change their New Value to 1<br>6. Click Apply<br>7. You should see the colors change in the View<br>8. Click the Save icon at top left<br>9. Say yes to the warning message<br>10. Now bring up the Raster Attribute Editor (Table tab > Show Attributes) and note that you successfully got rid of all but 5 entries.<br><br>But Contents still shows all 9 |
| 00062249 | Multipoint Geometric Correction ("warptool") crashes when used with Bing Maps reference | Customer reports that the Multipoint Geometric Correction tool crashes "from time to time" during georeferencing. As a reference Bing Maps is used with a Basic Key. Before local data was used without problems. For the current region there is no local data available and that's why Bing Maps is used.<br><br>In the session log attached near the end there are a lot of entries saying:<br><br>"SessionMgr(14900): Image block count exceeds 2^32"<br>Then the log ends with:<br>"SessionMgr(14900): warptool.exe exited with status 255."<br><br>Steps to replicate:<br>1. Open a local image file without reference in ERDAS IMAGINE<br>2. Prior to georeferencing, the customer calculates pyramids and statistics for this image<br>3. Open Multipoint Geometric Correction tool (Panchromatic > Transform & Orthocorrect > Control Points)<br>4. Choose "Polynomial" as Geometric Model<br>5. Choose the option "Bing Aerial Layer" for "Collect Reference Points From"<br>6. Keep default target projection "Pseudo Mercator / WGS 84"<br>7. Maximise the Multipoint tool<br>8. Start georeferencing: Zoom into the view with the unreferenced image, set the first point there, and afterwards set the corresponding reference point in the Bing Maps view<br>9. Repeat step 8 several times, but the last time try to swap the order for placing the points (set reference point > set unreferenced point). The placement of the reference point already causes the warptool to crash. |
| 00071901 | Some Sentinel-2 data fails to open with error "image file is missing" | All three of the Sentinel-2 importers fail to import some Sentinel-2 data resulting in the error "image file is missing". According to the data's manifest.safe file this is Level-1C data, but it appears to be labelled incorrectly. The data is actually Level 2A. |
| 00073793 | ERDAS IMAGINE fails to read the projection for a shapefile from a Dutch Web Feature Service | Customer provided a shapefile that is derived from a Dutch Web Features service. When opening the shapefile in the 2D View or SMSDK, EPRJ fails to create a CRS even though the PRJ file is recognized by PE and is a valid description of the CRS for Amersfoort/ RD New, EPSG Code 28992. |

| 00071834 | ERDAS IMAGINE doesn't display all attributes from HPC format (exported from LAS) | To reproduce:<br><br>1. Run Manage Data > Export Data<br>2. Pick Hexagon Point Cloud (HPC) as Format, define a .las file as Input File and provide output filename. Click Ok.<br>3. In the opened dialog window activate Include Attributes option and click OK.<br>4. Load the resulting .hpc file to the 2D View and open attribute table (Table tab > Show Attributes). Intensity, Return and Class will have all 0s<br><br>This is an ERDAS IMAGINE display issue, attributes are being written correctly:<br>the attributes are being written but ERDAS IMAGINE isn't reading them when displaying the attribute table. ERDAS IMAGINE also only renders HPC point clouds by RGB for performance reasons.<br><br>I.e. the HPC files are attributed correctly but some work was required to expose them to 2D View users. |
|---|---|---|

## IMAGINE Advantage

| Issue ID | Summary – IMAGINE Advantage | Description / How to Reproduce |
|---|---|---|
| 00070615 | Resolution Merge fails to complete when writing to TIFF with Japanese system locale (32-bit) | The issue with Japanese system locale and writing TIFF output in Model Maker based tools present in ERDAS IMAGINE 2020 Update 1.<br><br>Related to 32-bit installer only:<br><br>1. Change system locale to Japanese. Control Panel>Region>Administrative tab>Change System Locale>Japanese (Japan)<br>2. Run ERDAS IMAGINE 2020 32-bit<br>3. Go to Raster > Pan Sharpen > Resolution Merge<br>4. Define:<br>    a. High Resolution - QuickBird_Pyramids_Pan.img<br>    b. Multispectral Input - QuickBird_Pyramids_MS.img<br>    c. Output file - specify filename and pick TIFF as Files of Type<br>    d. Output Data Type - Unsigned 16 bit<br>5. You will get the red progress bar at the end and the following status in session log: modeler.exe exited with status -1073740940.<br>6. But TIFF file is still successfully written together with pyramids |
| 00072352 | OLH missing for Raster > Change Detection 'Feature to Feature' and 'Chart to Chart' | Raster tab > Change Detection group > Change Detection Tools 'Feature to Feature' and 'Chart to Chart' program do not have OLH pages. |
| 00067106 | MosaicPro omitting images at the corners (GDA2020 datum) | To reproduce, load images to MosaicPro and run mosaic producing ECW output data (looks like issue is not dependent on the output format, but customer initially needed to create ECW output). The output mosaic will miss one image at the top right corner. Customer is having multiple sets of data, where either one or two images at corners are missing in output mosaic. |
| 00067045 | MosaicPro output shows seam gaps which follow seamline polygon edges | A single pixel gap / hole is generated in MosaicPro output. The gap follows the seamline polygon (.shp) used in the mosaic. |

## IMAGINE Objective

| Issue ID | Summary – IMAGINE Objective | Description / How to Reproduce |
|---|---|---|
| 00072036 | Objective's PC Centerline pixel cue is removed from software but PC Centerline is still documented in OLH. | PC Centerline pixel cue is documented to be included in the Objective software but the option has been removed from Objective. |
| 00067532 | The Objective Raster Object Creator Segmentation operator generates unexpected results when using 'Output Processing > Extent / AOI' options | Layer images with vertical artifacts (i.e. strips) are generated when running an Objective model that uses Output Processing > Extent / AOI options (From Inquire Box, From File, From AOI, Manual). The Manual option works correctly if the default full image extent is used.<br><br>The problem may be isolated to the ROC Segmentation operator. The problem is not observed using the ROC Segmentation_Lambda Schedule operator.<br><br>To recreate:<br><br>1. Run Objective, open existing project 'exclude_building.lfp'. The model should open starting at the Raster Pixel Processor node and stopping at the Raster Object Creator node.<br>2. Select Process menu > Output Process Settings…<br>3. Select Extent / AOI tab<br>4. Select From File, then select subset.img, then OK<br>5. Run model |
| 00067145 | Objective ROC – Segmentation Plug-in layer hanging with some input images | The Objective ROC Segmentation Plug-in layer process runs until the ROC Progress meter stops at 92%. The ROC process must be manually killed before Objective can be run again. If the full input image is divided into quarters, each quarter can be processed completely by the ROC Segmentation Plug-in. If the full image is divided into halves (top, bottom), the top half completes normally, but the bottom half hangs in the same manner as when using the full input image. |
| 00072251 | IMAGINE Objective process cannot be started later with Batch tool | Customer wanted to run their IMAGINE Objective feature model process in batch mode so that they can start the processing at a later time, but it does not work. If the user chooses the "Submit > Start Processing Now" option from the Batch Command Editor their feature model process runs as expected. But if they choose "Submit > Start Processing Later At…" it does not work.<br><br>Steps to reproduce the problem.<br><br>1. Copy the files rooftops.lfp, rooftops.lfm and residential.img to a local directory.<br>2. Start IMAGINE Objective.<br>3. Open the feature project file rooftops.lfp.<br>4. Click on the Process menu and choose "Batch Objective Process".<br>5. In the Batch Command Editor click the Submit button.<br>6. Choose the "Start Processing Later At…" option.<br>7. Click the Credentials button and enter your user credentials then click OK.<br>8. Adjust the start time so that it is a minute ahead.<br>9. Click OK.<br>10. The process starts and finishes very quickly. No processing occurs and no output files are created. |

## IMAGINE Photogrammetry

| Issue ID | Summary – IMAGINE Photogrammetry | Description / How to Reproduce |
|---|---|---|
| 00071724 | Very dense vertex interpolation during breakline editing | While moving a breakline over another existing breakline new vertices are immediately (on the fly) interpolated on the moved and on the overlapping breakline. The vertices of both breaklines get an extreme density of interpolated vertices while moving and not only at the end of the move (when releasing the Create/Edit button). |
| 00071726 | Breakline measurement cause problems near other breaklines | An accidental editing of a breakline vertices happens when a new breakline is digitized near an existing breakline which is within the "selection radius". The adjacent breakline point(s) will be shifted then. An "Undo" sometimes result in unexpected effects. These are for example: the adjacent breakline disappears (Redo could fix this problem) or the adjacent breakline appers twice (old and new position). |
| 00074735 | IMAGINE DSM Extractor interface image pair threshold issue | Have a block file with 7 images with 80% overlap.<br><br>When opening in the DSM Extractor interface it calculates/shows the rows with pairs based on 50% overlap or more. That is all normal. When I select 80% overlap or more it still shows the same amount of rows however now with many empty ones. Yet when I lower the percentage to 40% it still shows the same amount of rows in the preview even though there are more pairs now (15).<br><br>So it still shows 11 rows, 4 pairs are missing which will not be considered. When pressing Run Now it will only take those selected out of these 11 options, the other 4 will automatically not be used. When pressing Submit all 15 pairs do appear. |
| 00071725 | Points and Breaklines are sometimes duplicated after editing in Terrain Editor | When zooming in and out after having moved/edited a point or a breakline the edited element sometimes is displayed twice (old and new position). When executing "Save" afterwards the elements in the LTFX file are really existing twice (old and new).<br><br>Try to move some height points (4 to 5) with the Point Tool from one position to another (move in xyz). Then zoom in and out a couple of times. Try to do the same with breakline vertices using the Breakline Tool. |
| 00071725 | Terrain Editor: Points and Breaklines are sometimes duplicated after editing | When zooming in and out after having moved/edited a point or a breakline the edited element sometimes is displayed twice (old and new position). When executing "Save" afterwards the elements in the LTFX file are really existing twice (old and new). |
| 00028810 | WorldView image processing issues in SGM Tridicon | Customer is generating point clouds in Tridicon SGM using WorldView imagery. There are a lot of bad matches in Tridicon SGM outputs. It looks like accurate surface points are in there, but they are surrounded by several high and low anomalous points. Customer has created several iterations of blockfiles using various in-track stereo WV3 imagery, multiple formats (NTF and GeoTIFF), varying #'s of GCPs and tiepoints, and have ran SGM using the different pyramid and disparity levels, but still getting similar results. Triangulation results are good. |
| 00046100 | Import tool imports INPHO project with wrong flying height. | When importing Inpho project to block file; at project import default unit is meters, and when you enter units as US Survey Feet importer makes a conversion from meters to US Survey feet which it shouldn't because project is triangulated in US Survey feet. Defining the INPHO projection units should not result in unit conversion. |

## IMAGINE Professional

| Issue ID | Summary – IMAGINE Professional | Description / How to Reproduce |
|---|---|---|
| 00072928 | Knowledge classification not working | IMAGINE Professional 2020 with or without Update 2 crashes when trying to complete knowledge engineering workflow |
| 00073991 | Update help documentation for creating custom spectral library | When attempting to open a custom spectrum library in the Working Materials Libraries panel the Spectral Analysis Workstation crashes. No error messages are observed, but the session log reports "imagespectrometry.exe exited with status -1073741819."<br><br>It appears that the header information in the library file is causing this problem. Although the help documentation states that only six fields are required (Name, Type, Class, First X Value, First Y Value, Number of X Values), you actually need to have two more fields (X Units, Y Units). |
| 00073803 | Subpixel Preprocessing tool does not work in ERDAS IMAGINE 2020 Update2 64-bit | The Subpixel Classifier's Preprocessing tool does not work in the 64-bit version of ERDAS IMAGINE. The progress meter gets to 2% before it fails. The session log reports "aaipreprocess.exe exited with status -1073740791." It works in the 32-bit version of ERDAS IMAGINE 2020. |

## Spatial Modeler

| Issue ID | Summary – Spatial Modeler | Description / How to Reproduce |
|---|---|---|
| 00072486 | OLH for 'Create SGM Point Cloud Output' has typo | OLH for 'Create SGM Point Cloud Output' has a typo:<br><br>The operator checks for IMAGINE_SGM license. For ERDAS IMAGINE 202 Update 2, it can also be unlocked with AutoDTM license. |
| 00071951 | Including Add Background Row operator to a String table will crash ERDAS IMAGINE. | There is an issue with the "Add Background Row" operator. If the input for this operator is a sting table Spatial Modeler / ERDAS IMAGINE crashes. |
| 00005283 | Setting AOI without Georeferencing Doesn't work on Raster Input | Create an AOI on top of an image without map/projection information. Create a Raster Input giving it the AOI created. Preview. See nothing. |
| 00073007 | smprocess crashes during initialization of custom products with Update2 | When custom DLLs with SpatialModeler extensions are present, smprocess crashes regularly but unfortunately the crashes cannot be reproduced easily. This seems to be a problem with ERDAS IMAGINE 2020 Update 2. As a consequence, certain third-party developed and sold add-on products crash frequently and can therefore not be used with ERDAS IMAGINE 2020 Update 2.<br><br>Engineering tracked down the problem to be related to the specification of the SearchPaths in the DLLs XML configuration. |
| 00068746 | 'Features Output' operator creates .csv with double-quotes around numeric attributes causing other applications to interpret the values as text | When using the 'Features Output' operator and selecting 'GeoCSV (.csv)" as the type for the FileNameIn port the output .csv file that is created will contain double quotes (") around numeric attribute values. For instance, I created a very simple spatial model with just a 'Features Input' operator and a 'Features Output' operator where the output was GeoCSV. When the model is run and a shapefile containing a attribute of type Integer is used as input to the 'Features Input' operator the resulting .csv file from the 'Features Output' operator will contain double quotes around each of the Integer values. The contents of the .csv file as output from the Features Output operator using my model and input shape file is shown below:<br><br>PrimaryKey,Text1,Integer1,ID1<br>"1",Eleven,"11","1"<br>"2",TwentyFour,"24","2"<br>"3",ThreeHundredSeventySix,"376","3" |
| 00072855 | Error opening Block file that was created in the Spatial Modeler | A customer pointed us at an issue where he created a Block File in the Spatial Modeler. When opening the resulting Photogrammetric Project in a 2D View, the block file did open, however when going to Interior Orientation an error occurred. This error also meant that the PixelSizeX and PixelSizeY were reset to 0 for all images, meaning this had to be redone. This issue does not always occur.<br><br>It was found that if using non-standard axis orientations (Down+X, Left+X and Up+X) they do not work properly and cause this issue. |
| 00073945 | ERDAS IMAGINE taking 3x longer to preview the result of Clump + Convert To Features | To reproduce:<br><br>The dem_differencing_update1.gmdx model has been created in ERDAS IMAGINE Update 1. Try to run the Preview with associated data  This model runs within 1 minute in Update 1 (as well as Update 2)<br><br>In dem_differencing_update2.gmdx model, Convert To Features and Clump operators have been replaced with new ones. For the new requirement of new Clump operator, additionally 0s have been defined as NoData. Try to run the Preview with associated data. ERDAS IMAGINE will become unresponsive (i.e. you are in danger of getting the "Not Responding" dialog) and produce the result within 3 minutes 32 seconds. |

| 00072977 | Features Input operator fails to read data if filename/path includes "&" | To reproduce: <br><br> 1. The data should be located in folder named "data & model" or create any other folder that will include the "&" symbol. <br> 2. Run data_prep_extract_rooftops.gmdx with associated files. It will read raster file successfully but Features Input will fail with "Cannot open specified Vector source" error. <br><br> Full Message is <br><br> Cannot open specified Vector source (erdas::sb_CGP::FeaturesInput::OnExecute failed) |
|---|---|---|
| 00077250 | Issue with orthorectification of ALOS PRISM data in Spatial Modeler | Orthorectify without GCP tool is producing the expected output with ALOS PRISM data, while trying to replicate the same workflow in Spatial Modeler gives wrong result (either left or right part of image getting clipped out) <br><br> This issue is addressed in Update 3 by using the new satellite photogrammetry operators. |

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