# Release Guide

ERDAS IMAGINE 2022 Update 1

Version 16.7.1

16 December 2021

# Contents

# About This Release

This document describes enhancements in ERDAS IMAGINE 2022 Update 1 (v16.7.1), including IMAGINE Photogrammetry (formerly LPS Core).

ERDAS IMAGINE 2022 Update 1 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 product description, the online help and other documents provided with ERDAS IMAGINE for more information.

# 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, 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

## Windows 11 Support

ERDAS IMAGINE 2022 Update 1 has been tested using release versions of Windows 11 Enterprise 21H2 (Build 22000.318) and all urgent issues found were addressed. It is therefore expected that ERDAS IMAGINE 2022 Update 1 will work with the release version of Windows 11.

However Windows 11 is still not considered an officially supported platform for running ERDAS IMAGINE 2022 Update 1. An announcement regarding support will be made at a later date.

## Licensing

ERDAS IMAGINE 2022 installers no longer attempt to automatically install geospatial licensing tools as part of the installer. If you wish to use geospatial licensing tools — for example, to set up a floating/concurrent license server — you must download Geospatial Licensing 2022 separately.

We strongly recommend upgrading to the newest version of Geospatial Licensing 2022. 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.

## Apache Log4j

Details regarding a new security vulnerability identified as CVE-2021-44228 Apache Log4j 2 were recently released.

A copy of log4j__V1.2.9.jar is included in the ERDAS IMAGINE installation under the bin/x64URelease and bin/win32Release folders as a part of the Bayesian network classifier component. V1.2.9 predates the version of log4j which suffers from the current vulnerability and should not be affected by it.  This file is not used by ERDAS IMAGINE and is included for historical reasons and it is scheduled to be removed from the installation for the future v16.8 release. In the meantime, if anyone is concerned about the presence of this file it can safely be removed from the ERDAS IMAGINE installation folder.

It has been confirmed that the APIs that ERDAS IMAGINE uses from the Bayesian network classifier do not make use of the log4j classes. Because no use is made of the log4j classes no use of the JNDI or JMSAppender exploits can be made.

ERDAS IMAGINE 2022 Update 1 contains a zero length version of the jar file. I.e. the existing log4j__V1.2.9.jar file is replaced with one of the same name, but zero bytes in length (i.e. an empty file containing no java classes).

Any further updates to ERDAS IMAGINE 2022 will include the zero length version of log4j__V1.2.9.jar.

The next major release of ERDAS IMAGINE will have log4j__V1.2.9.jar completely removed.

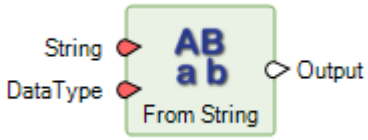
# New Technology

## Spatial Modeler

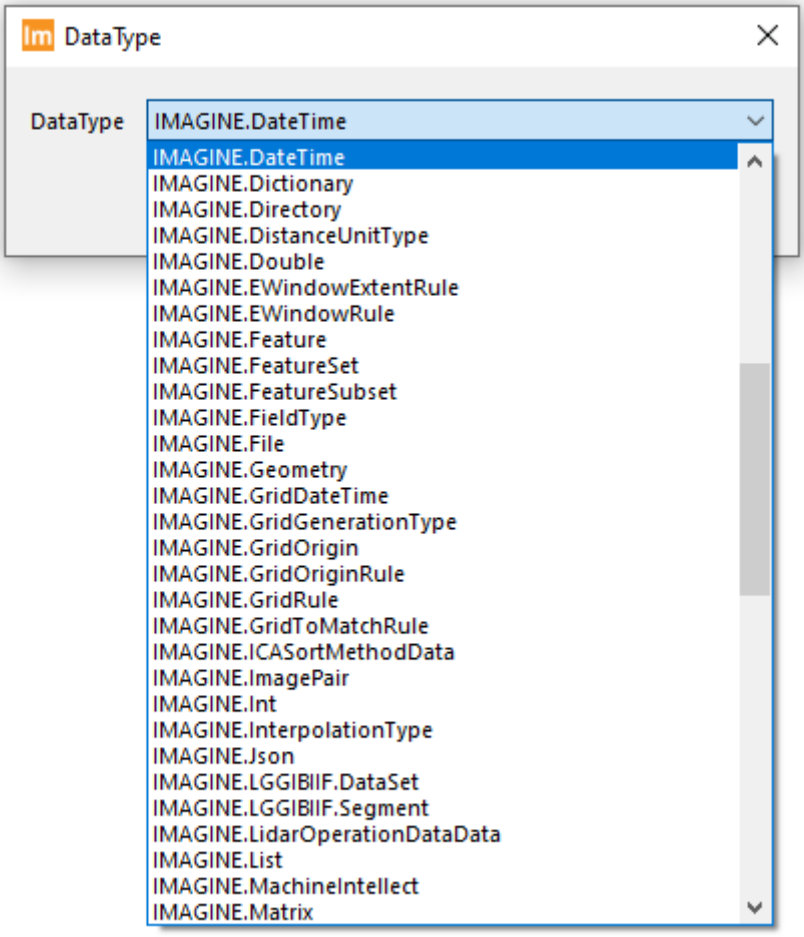
After the release of ERDAS IMAGINE 2022 it was found that a limited number of Spatial Model Operators had dialogs which were not responding to Windows Scaling settings. These have been corrected.

## Updated Spatial Modeler Operators

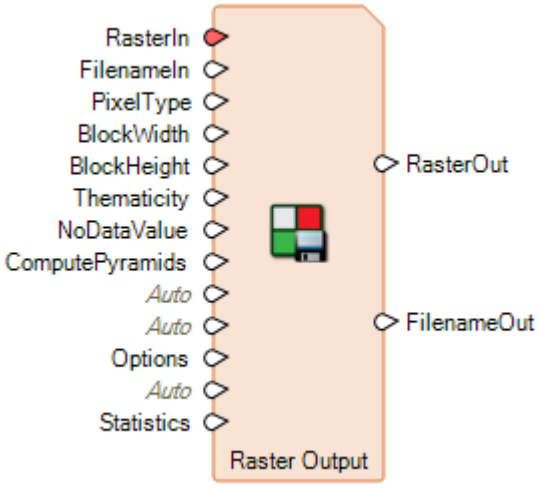
### From String



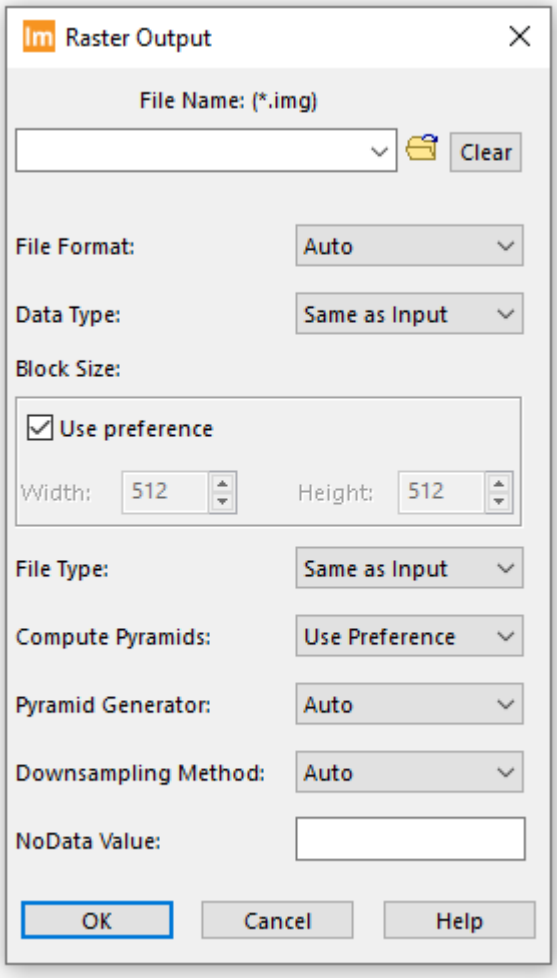

The From String operator's DataType port now provides a dialog from which acceptable DataTypes can be chosen. This makes it easier to choose an appropriate DataType and to avoid typos.



## Raster Output



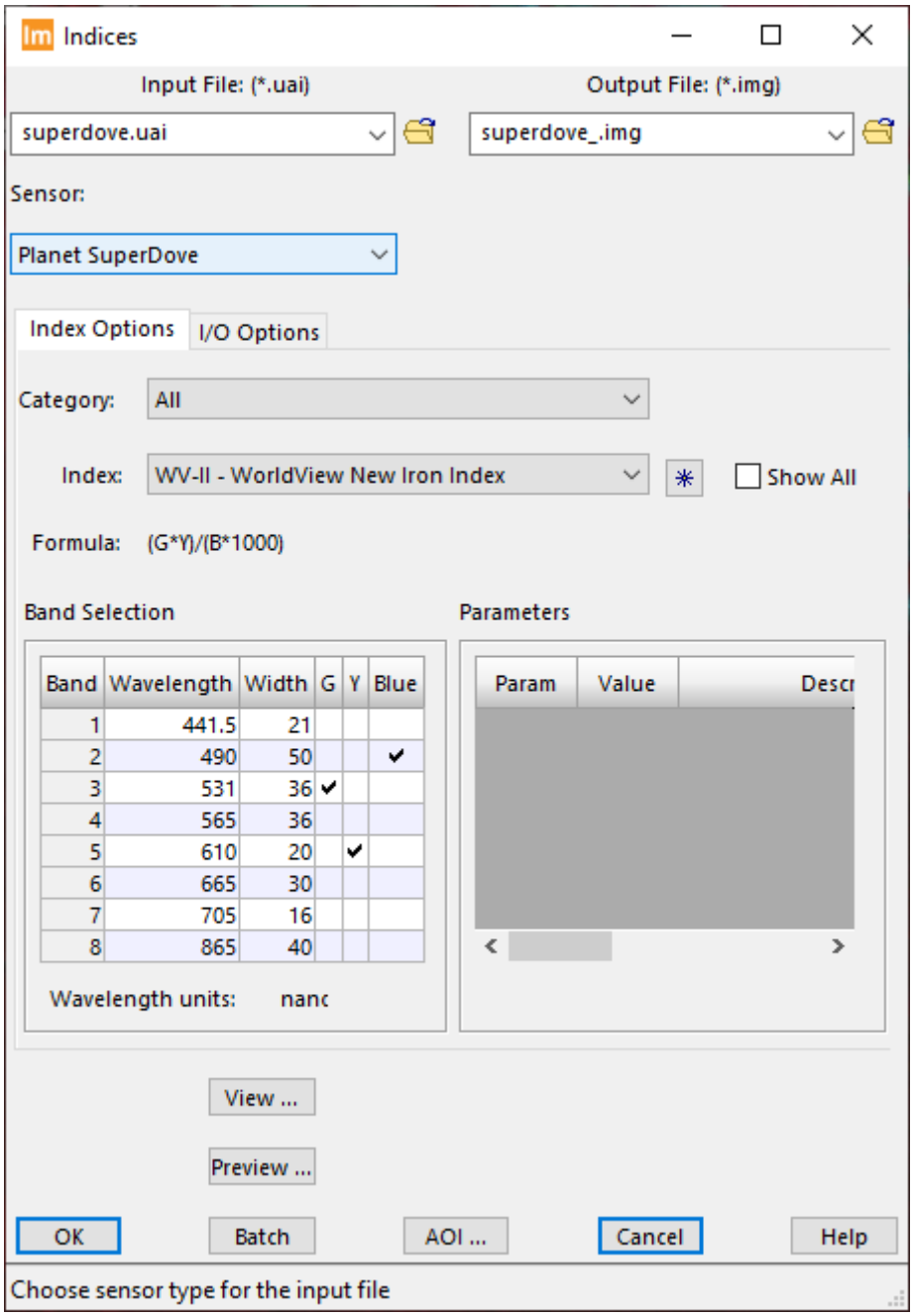

The Raster Output operator's dialog now exposes the new options which were added in previous releases, providing a more efficient method to set the desired parameters.



# Format Support

## Planet SuperDove

Planet's SuperDove constellation of satellites is supported via the TIFF raster dll. A Sensor Attribute File (SAF) has been added to make exploiting the 8 available wavelength bands easier in tools such as the 2D Views' band selector, or the Indices dialogs.




## Pleiades Neo Support

Several late-breaking changes in the Pleiades Neo DiMAP v2 format are now supported, as well as a SAF being added in support of the 6-band R,G,B,NIR,RE,DB multispectral images.

## GeoTIFF Vertical Datum tags

Elevation Information parameters stored in the GeoTIFF VerticalCSTypeGeoKey of TIFF-formatted elevation data are now preserved when converting to IMG or when producing a GeoTIFF. In previous versions, the vertical coordinate system information was written to a separate .AUX file with the same root name as the parent TIFF, which was prone to loss or failure to read by some third-party applications. Storing internal to the TIFF file itself in the VerticalCSTypeGeoKey provides a more robust solution.

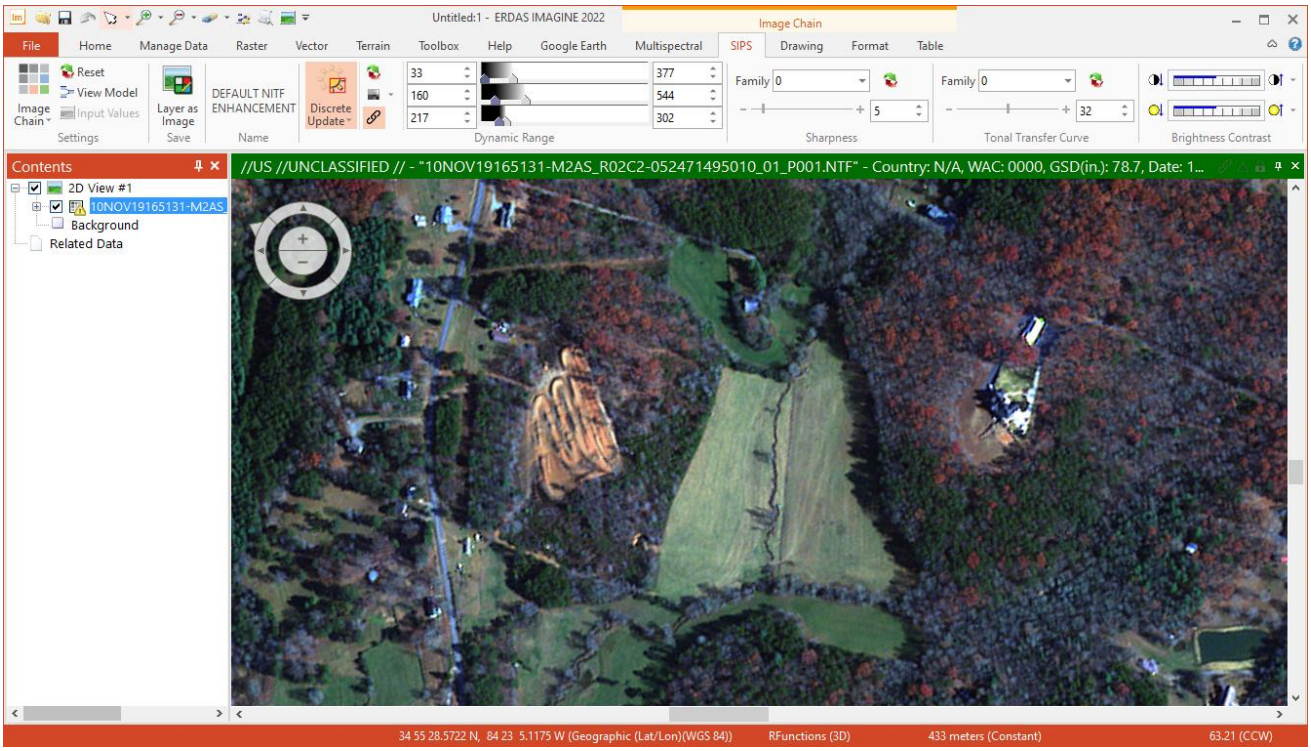
## Capella SIDD NITF

Support for Capella SIDD data in NITF format has been made more robust.

# General ERDAS IMAGINE

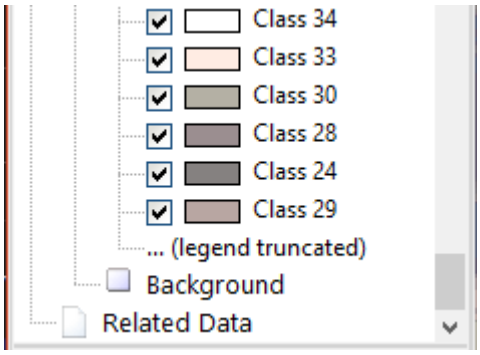
## Dynamic Range Adjustments menu

The Dynamic Range Adjustments menu (Live, Discrete and Unique Update) has been added to the SIPS-specific Image Chain ribbon tabs to make it more efficient to control those parameters without switching tabs.




## Contents Legend

The Legend in the Contents panel now indicates if the legend has been truncated at 256 entries. Datasets such as Clumped thematic images can have hundreds of thousands of discrete DN values (or more), which you would not want to attempt to represent in the Contents legend, and so it is truncated at 256 entries. Indicating when this truncation has occurred, means the user knows to use an alternative, such as the Raster Attributes CellArray, to access all the class values.




## Editing File Geodatabase features

Feature data stored in the File Geodatabase format can now be edited in the 2D View.

# 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) (version 1607 or higher)<br>• Windows 10 Enterprise (64-bit) (version 1607 or higher)<br>• Windows Server 2019 (64-bit)<br>• Windows Server 2022 (64-bit)<br>• Windows 11 Enterprise (64-bit) (Viable, not currently considered Supported) |
| 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. Microsoft Visual C++ 2010 x64 Redistributable is also required.<br>• Python 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. Functions should fall back to the CPU if suitable GPU not present.<br>• An NVIDIA card with CUDA Compute level of 3.0 or greater is recommended for use with Deep Learning and 5.0 or greater for other Spatial Modeler Operators. Functions should fall back to the CPU if suitable GPU not present. |
| 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 2022) 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 |

| | |
|---|---|
| | • 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)<br>• 3Dconnexion SpaceMouse Pro[10]<br>• 3Dconnexion SpaceExplorer mouse[10]<br>• Z/I Mouse |
| ArcGIS and GeoMedia Interoperability | • ERDAS IMAGINE can be safely installed on a computer that has GeoMedia 2020 or GeoMedia 2022 installed; however, for greatest compatibility, it is highly recommended to install matching versions (including updates).<br>• ERDAS IMAGINE 2022 requires GeoMedia 2022 for live linking. Order of installation does not matter.<br>• ERDAS IMAGINE can interact with File Geodatabases.<br>• ERDAS IMAGINE can be safely installed on a computer that has ArcGIS® versions 10.6 through 10.8.1 (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)<br>• Oracle Server 19c (12.2.0.3) 64-bit: Oracle Server 19c 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 2019 64-bit: Microsoft SQL Server 2019 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] 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 2022 Update 1

## IMAGINE Essentials

| Support Ticket | Summary – IMAGINE Essentials |
|---|---|
| 00035101 | Spectral Profile Tool crashes when dragging the Spectral Profile window from a Hi-res monitor to a Low-res monitor |
| 00031144 | Crash occurs when changing Image Chain to SIPS for Sentinel-2 imagery opened using directory-based S2*_*SAFE raster dll |
| 00023117 | Opening the vector attribute cell array and then clicking within features causes the column headings to disappear |

## IMAGINE Advantage

| Support Ticket | Summary – IMAGINE Advantage |
|---|---|
| 00022722 | Allow non-integer values for contours created with Terrain Prep Tool |
| 00023378 | MosaicPro crashes when using .mop with color balancing enabled and a high volume of input TIFF images |

## IMAGINE Objective

| Support Ticket | Summary – IMAGINE Objective |
|---|---|
| 00023143 | When using IMAGINE Objective's vector object processor Association:Shadows with the Compute function enabled it was reporting a shadow angle of 359 degrees. This has been corrected to return a more appropriate angle for the data. |
| 00023129 | Distribution bounds for Rectangularity were not being used |

## IMAGINE Photogrammetry

| Support Ticket | Summary – IMAGINE Photogrammetry |
|---|---|
| 00023574 | The output of the RPC Generation tool was outputting a RPC file that did not fit RPC specifications in STDI-0002 Appendix E. |

## IMAGINE Professional

| Support Ticket | Summary – IMAGINE Professional |
|---|---|
| 00023214 | The subset output option in Spectral Analysis Workstation using an AOI from Edit Spatial Subset writes a background value assigned to '-inf'. The output subset can be displayed without error, but the content cannot be visually interpreted. The output is displayed as a solid block of data. |

## Spatial Modeler

| Support Ticket | Summary – Spatial Modeler |
|---|---|
| 00031363 | Features Input operator doesn't always read all geometries from GeoPackage<br><br>This was tracked to the particular GeoPackage having an (incorrect) Feature Count of 0 which was not being catered for. |
| 00029935 | "Define Point Match Options" operator problem causing a crash.<br><br>If creating a model with the "Generate Control Points Based On Reference" and the "Define Point Match Options, using the "UseCustomPointDistribution" options could lead to a crash. |
| 00023173, 00023213 | Object Detection finds objects in NoData region |
| 00035645 | CLAHE operator model can generate unexpected raster output band values when downstream Band Selection operators split the raster stream into individual bands. |
| 00035338 | Convert To Raster operator outputs to extent of input file instead of input features |
| 00023222 | Read Image Parameters For Frame Camera Model operator UI provider cell array does not show the Image Orientation column. |

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

Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Safety, Infrastructure & Geospatial division improves the performance, efficiency and resilience of vital services. Its Safety & Infrastructure solutions enable smart and safe cities. Its Geospatial software leverages the power of location intelligence.

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