RELEASE GUIDE
IMAGESTATION 2018

Version 16.5
February 27, 2018

Contents

ABOUT THIS RELEASE

This document describes the enhancements for ImageStation. Although the information in this document is current as of the product release, see the Hexagon Geospatial Support website for the most current version.

This release includes both enhancements and fixes. For information on fixes that were made to ImageStation for this release, see the Issues Resolved section. For information on enhancements, see the New Technology 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 ImageStation for more information.

IMAGESTATION

ImageStation® software suite enables digital photogrammetry production workflows, including project creation, orientation, and triangulation from aerial and satellite imagery. It also provides stereo GIS feature collection and editing, digital terrain model (DTM) collection and editing, as well as orthophoto production and editing. ImageStation is specially designed for high-volume photogrammetry and production mapping customers who need to move large quantities of raw spatial information to an actionable or exploitable format.

NEW PLATFORMS

GEOMEDIA 2018 AND CORE COMPONENTS

The ImageStation suite of products has been updated for compatibility with GeoMedia 2018 and its underlying core components, including Common Raster Platform and Common Coordinate Systems.

LICENSING

Starting with the Power Portfolio 2018 release, licenses are no longer based on Certificate-file based technology. Instead, licenses are based on Activation IDs, allowing you to activate products without providing Host IDs or other hardware-related parameters. You can also re-host without emailing the licensing team for assistance. The Power Portfolio 2018 release also includes improved tools that make it easier to install licenses, set up license servers, and provide more professional error handling. Finally, the Power Portfolio 2018 release includes improved customer notification in the products, such as an "end of subscription" message in the Start-up screen. These more secure and automated processes, along with a new licensing portal, provide you with a better overall user experience.

NEW TECHNOLOGY

EXPANDED SUPPORT FOR SATELLITE SENSORS IN ISPM/ISAT

The *Tools* >> *IKONOS/GeoEye* menu in ISPM has been renamed to *Tools* >> *Satellite* and the functionality has been greatly expanded. The *Reformat Images* command has been modified to include support for almost any sensor that provides rational functions in the form of RPCs. Many generic orbital pushbroom (GOP) models can also be ingested, as well as Replacement Sensor Model (RSM) data coming in the form of NITF files. The Satellite Triangulation module in ImageStation Automatic Triangulation (ISAT) has been updated to be able to perform bundle adjustments on these projects, even for those that have dissimilar polynomial coefficient denominator terms, which was a restriction in the past. This adjustment capability is included with ISAT, and the ImageStation Satellite Triangulation (ISST) module is not required. It supports the following sensors with RPC, RSM, and GOP metadata:

- RPC: ALOS PRISM JAXA CEOS (VOL-ALPSM*)

- RPC: CARTOSAT (*.tif) with external (decrypted) *_rpc.txt file

- RPC: DEIMOS-2, DMC-3 NRGB (or PAN) TIFF (*.tif) with external RPC file (*_rpc.txt)

- RPC: Digital Globe (GeoEye-1, QuickBird-2, WorldView 1-4) (*.TIL with *.RPB)

- RPC: DPPDB (*[LF|RF].ntf) with IMRFCA embedded tag

- RPC: DubaiSat-2 (D2_*.tif) with external *_rpc.txt file

- RPC: Gokturk-2 with external RPC.txt file1

- RPC: IKONOS/GeoEye (*.ntf) or *.tif, *.jp2) with (*_rpc.txt). Also works for UrtheCast sensor data.

- RPC: KazEOSat-1,2 DIMAP (*.dim)

- RPC: KOMPSAT-2, KOMPSAT-3 (MSC_*.tif, K3_*.tif)

- RPC: PeruSat-1 DIMAP (DIM_*.XML) with external RPC_*.XML file

- RPC: Pleiades DIMAP v2 (DIM_PHR*.XML)

- RPC: RapidEye (*_metadata.xml) with external *_rpc.xml file

- RPC: SPOT 6,7 DIMAP (DIM_*.XML) with external RPC_*.XML file

- RPC: Standalone BGRN (or PAN) TIFF (*.tif) with external RPC file (*_rpc.txt, *.rpc). Also works for Deimos-1, SkySat, PlanetScope (Dove satellite), ZY-3, TH01, and TeLEOS sensor data.

- RPC: Standalone NITF (*.ntf) with RPC00B embedded tag. Also works for OrbView sensor data.

- RSM: Standalone NITF (*.ntf) with RSMPCA, RSMIDA embedded tags

- GOP: ALOS AVNIR-2 JAXA CEOS (VOL-ALAV2*)

- GOP: ALOS PRISM JAXA CEOS (VOL-ALPSM*)

- GOP: EROS (*.1A.16bit.tif) and (*.1A) with *.pass and *.tqr files

- GOP: FORMOSAT-1,2 DIMAP (*.dim)

- GOP: Gokturk-1, GKT DIMAP (PM_*.XML)

- GOP: KazEOSat-1 DIMAP (*.dim)

- GOP: OrbView (*.tif) with *.eph, *.att, *.pvl files

- GOP: Pleiades DIMAP v2 (DIM_PHR*.XML)

- GOP: SPOT5 DIMAP (*.dim)

- GOP: SPOT6,7 DIMAP v2 (DIM_*.XML)

- GOP: THEOS-1 DIMAP (*.dim)

- GOP: VNREDSat-1 DIMAP (*.dim)

AUTOMATIC PASS/TIE POINT GENERATION FOR RPC PROJECTS

An option has been added to the *Tools* >> *Satellite* >> *Generate ISPM Project* command in ISPM that will cause the command to automatically generate pass/tie points on satellite images that are ingested through this command.
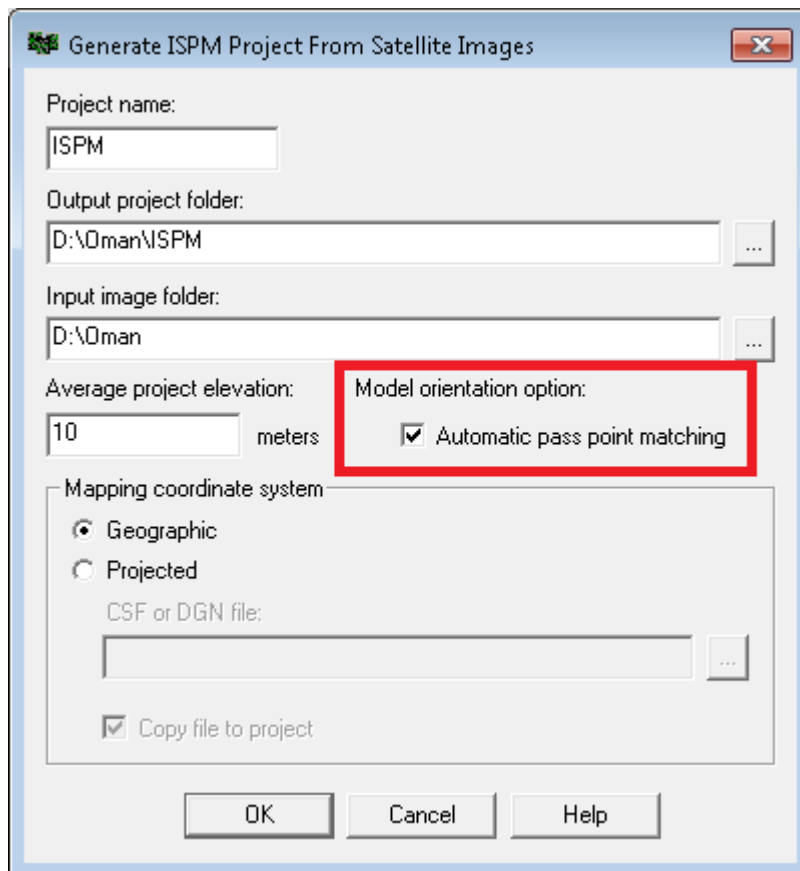
IMPORT UAV DATA

A new module has been added to the ISPM (ImageStation Photogrammetric Manager) Tools menu that streamlines the import process for UAV data. It can automatically extract camera, photo, and exterior orientation parameters from EXIF tags stored in the image files.
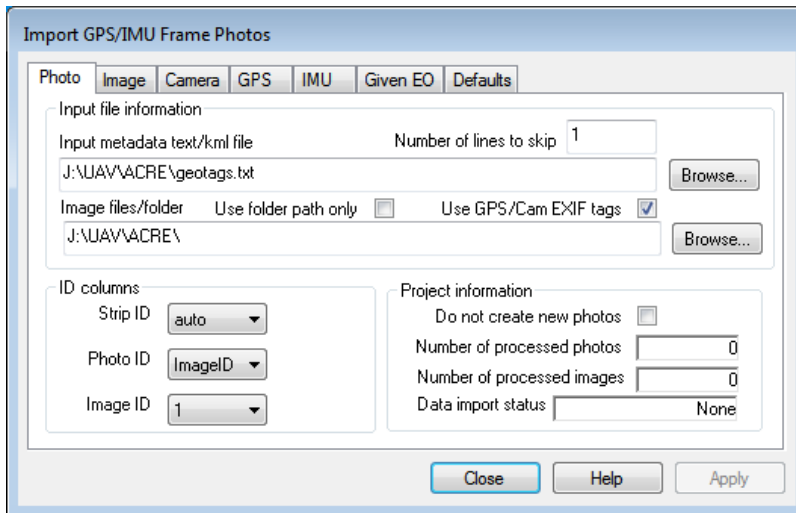
IMPORT IMAGINE PHOTOGRAMMETRY PROJECTS
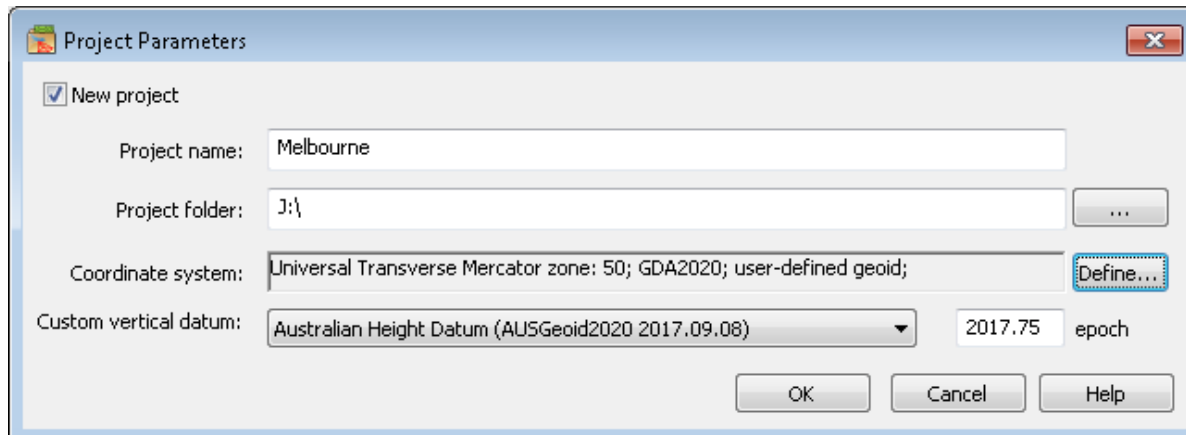
A new module has been added to ISPM to import IMAGINE Photogrammetry project block files (*.BLK) into ImageStation. Project parameters, photos and photo coordinates, camera, and control point data are included in the translation. The command works for projects that contain aerial frame photography and most satellite sensor projects, but will not import ADS, VisionMap, or CSM projects. All supported satellite sensor projects are converted to rational functions (RPCs) prior to importing into ImageStation.
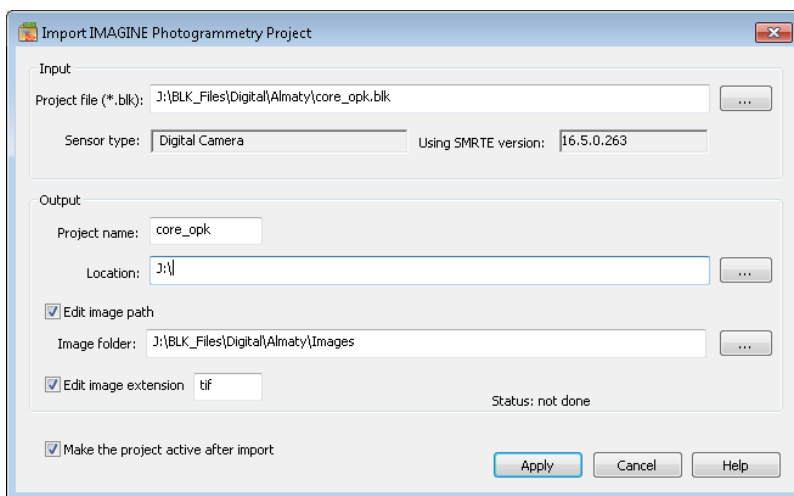
ABILITY TO MAP ADS DATA TO GDA94 AND GDA2020 DATUMS

Users can now import ADS imagery that is referenced to the Australian GDA94 and GDA2020 datums into ISPM for use with the rest of the ImageStation products. These use the 7 parameter Bursa Wolf transformation that ties to the appropriate epoch which the user can key in (in decimal years) during the import process. Previously, this data could only be imported with reference to WGS84.

CALCULATE VOLUME

A new command **Calculate Volume** has been added to ImageStation DTM for GeoMedia (ISDG) to calculate the cut and/or fill volumes between two surfaces (or between multiple pairs of surfaces) by projecting the triangles from the compare surface onto the base surface.

ISDQ SPATIAL MODELS

In addition to the powerful **ISDQ** workflow editor interface, **ISDQ** provides a simplified command panel interface for running a number of predefined workflows. These predefined workflows are implemented as spatial models that call the underlying **ISDQ** command line utilities. The actual **ISDQ** spatial models are delivered to the *ISDQ* product folder under *\Program\Spatial_Models* and can be viewed using a text editor or the **Spatial Modeler Editor** delivered with **GeoMedia** and **ERDAS IMAGINE**. Advanced users with a **GeoMedia Professional** or **ERDAS IMAGINE Professional** license can also create and edit spatial models.

To access **ISDQSM**, use your operating system's **Start** menu, navigate to **ImageStation DTMQue 2018**, and then click **ImageStation DTMQue Spatial Models.**
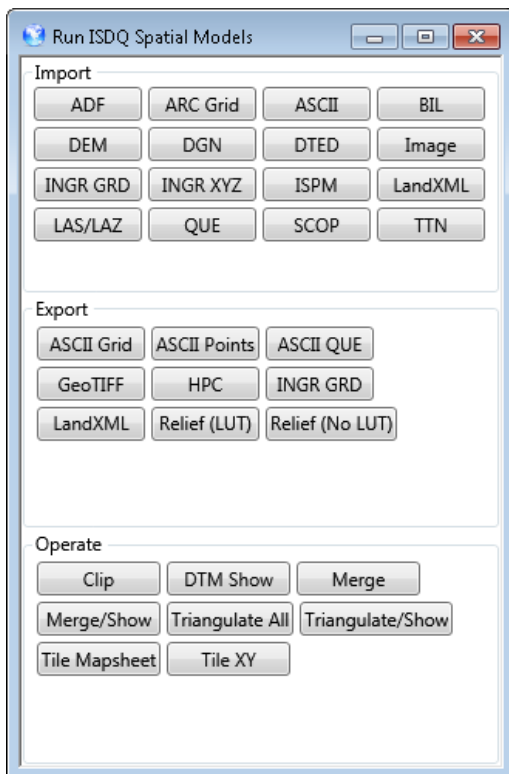
SUPPORT FOR GEOTIFF ELEVATION FILES

Elevation Manager was updated to support 16-bit integer and 32-bit floating point GeoTIFF files as elevation files for use in ImageStation applications, including ImageStation DTMQue (ISDQ) and ImageStation OrthoPro (ISOP) for orthorectification.

SUPPORT FOR VERSION 1.4 LAS/LAZ FILES

ImageStation surface libraries were modified to handle the latest version of LAS and LAZ format files in the industry. With a Hexagon Geospatial-written parser for the formats, reading the data is now much faster than when using third party libraries; the larger the file, the better the performance improvement.

LABEL CHANGE FOR CURSOR SENSITIVITY SETTINGS

In ImageStation Stereo for GeoMedia (ISSG), the labels for the cursor sensitivity, High/Low/Mens, have been changed to High/Med/Low on the Cursor Sensitivity, Coordinate Readout, and SSE dialogs.

NEW PRODUCT INSTALLER

A new installer for the ImageStation products has been added to the root folder of the delivery media. *ImageStationInstaller.exe* lets users pick all the products they want to install or uninstall, and then installs or uninstalls them in passive (unattended) mode. Click the question mark icon in the upper right corner of the dialog box for more details about the installer.
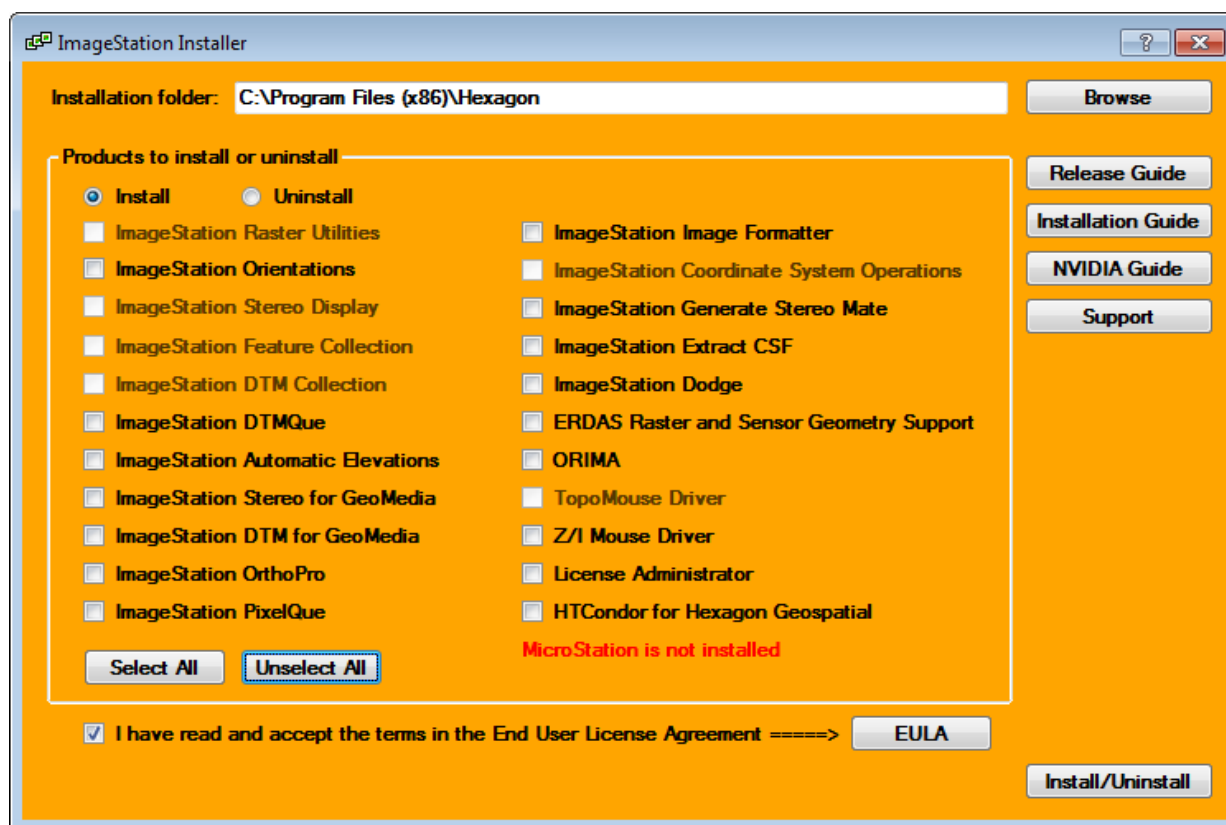
SUPPORT FOR NVIDIA QUADRO P SERIES GRAPHIC CARDS (ISPM, ISAT, ISSG, ISSD)

Support for NVIDIA Quadro P series graphic cards has been added to the ImageStation applications which can perform stereo display.

SYSTEM REQUIREMENTS

IMAGESTATION

Computer/ Processor	64-bit: Intel 64 (EM64T), AMD 64, or equivalent (Multi-core processors are strongly recommended)
Memory (RAM)	4 GB minimum, 8 GB minimum for ImageStation Automatic Elevations-Extended
Disk Space	4 GB for software Data storage requirements vary by mapping project[1]
Operating Systems	- Windows® 7 SP1 or higher, Professional and Ultimate (64-bit) - Windows® 10, Professional and Enterprise (64-bit)
Database Server Engines	- Any GeoMedia-supported warehouse connection - see GeoMedia documentation for details on read-only and read-write database server connections and versions that are supported - SQL Server or SQL Server Express 2014, 2016, or 2017 (64-bit) is required for ImageStation DTM for GeoMedia
Software	**ImageStation is compatible with the following software packages and may require them, depending on the modules used.** ImageStation Photogrammetric Manager - ImageStation Image Formatter recommended - ERDAS Raster and Sensor Geometry required for expanded satellite support for Remote Sensor workflows ImageStation Automatic Elevations - Compatible with MicroStation V8i which must be installed first if writing data to DGN format is required ImageStation DTMQue - ERDAS Raster and Sensor Geometry required for using ImageStation DTMQue Spatial Models (ISDQSM)

ImageStation Automatic Elevations–Extended

ImageStation Image Formatter

- No prerequisites

ImageStation Automatic Triangulation

- ImageStation Photogrammetric Manager is required

ImageStation Satellite Triangulation

- ImageStation Photogrammetric Manager is required

- ImageStation Automatic Triangulation is required

ImageStation Stereo Display

ImageStation Feature Collection

- MicroStation V8i is required

ImageStation DTM Collection

- MicroStation V8i is required

- ImageStation Stereo Display and ImageStation Feature Collection are recommended

ImageStation OrthoPro

ImageStation PixelQue

ImageStation Stereo Viewer for GeoMedia

- GeoMedia Essentials, Advantage, or Professional tier is required

ImageStation DTM for GeoMedia

- GeoMedia Essentials, Advantage, or Professional tier is required

- GeoMedia Advantage or Professional, and ImageStation Stereo for GeoMedia are recommended

- SQL Server or SQL Server Express 2014, 2016, or 2017 (64-bit) is required

	ImageStation Stereo for GeoMedia • GeoMedia Advantage or Professional tier is required
Graphics Boards	See table "Currently Qualified Graphics Boards for Stereo Viewing"
Graphics Displays	The following HD monitors are currently qualified for stereo viewing (although others may adequately perform): • Planar, model SA2311W 3D Vision™ Ready Monitor • Acer model GD235 • Samsung model 2233rz • ViewSonic model VX2268wm • ViewSonic model V3D245 (single display only) • ASUS model VG278H (single display only) • ASUS model VG278HE • BenQ models XL2420T/Z 4K Ultra HD monitors are not currently supported.
Peripherals	3D pointing device (Z/I Mouse, softmouse 3D, Stealth 3D Mouse (E-Type and V-Type), TopoMouse) highly recommended for ISSD, ISSV, and ISSG Software security (Hexagon Geospatial Licensing) requires one of the following: • Internet connection for online license activation • Ethernet card for offline license activation • One USB port for hardware key for offline license activation

CURRENTLY QUALIFIED GRAPHICS BOARDS FOR STEREO VIEWING[2,3]

Graphics Board	NVIDIA 3D Active 1 display	NVIDIA 3D Active 2 displays (stereo/mono)	NVIDIA 3D Active 2 displays (stereo/stereo)
Quadro GP100[7]	yes	yes	yes[4]
Quadro P6000[7]	yes	yes	yes[4]
Quadro P5000[7]	yes	yes	yYes[4]
Quadro P4000	yes[4]	yes[4]	yes[5]
Quadro P2000	yes[4]	yes[4]	yes[5]
Quadro M6000	yes	yes	yes
Quadro M5000	yes	yes	Yes[4]
Quadro M4000	yes[4]	yes[4]	yes[5]
Quadro K6000	yes	yes	yes
Quadro K5200	yes	yes	yes
Quadro K5000	yes	yes	yes
Quadro K4200	yes	yes	yes[4]
Quadro K4000	yes	yes	yes[4]
Quadro 6000[6]	yes	yes	yes[4]
Quadro 5000[6]	yes	yes	Yes[4]
Quadro 4000[6]	yes	yes	yes[4]

Quadro FX 5800[6]	yes	yes	yes
Quadro FX 4800[6]	yes	yes	yes[4]
Quadro FX 4700[6]	yes	yes	yes
Quadro FX 4600[6]	yes	yes	yes

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 final 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] Refer to the **NVIDIA Driver Configuration Instructions** on the ImageStation product DVD for driver information for each graphics card and operating system.

[3] See the **Known Issues** section for more information about graphics drivers.

[4] DP to DVI-D dual-link adaptor required.

Important - Be sure to get dual-link adaptors that are USB powered, such as the **BizLink XT625** or the **Accell B087B-002B** (or **B087B-007B)** models. All monitor cables must be **dual-link** DVI to support stereo display.

[5] Two DP to DVI-D dual-link adaptors required.

[6] These cards are no longer tested. Information is for legacy purposes only.

[7] These cards require 8-pin PCIe power cables. Make sure your computer's power supply provides this type of power cable, or use a 6-pin to 8-pin PCIe power adaptor cable.

ISSUES RESOLVED

IMAGESTATION ORIENTATIONS (ISPM, ISAT, ISST)

CR #	Summary - Orientations	Description/ How to Reproduce
1-LMH8EK	Image residuals missing for rotated GeoEye case	When running the bundle adjustment on the GeoEye data sets that have rotated images, the image residuals are not being reported. Object residuals are reported correctly, and the overall solution is fine – there are just no image stats.
1-KHEJXO	Ground coordinate readout for ADS projects problem in Multiphoto	Open any ADS project with Multiphoto Orientations. Right-click in the middle status bar area at the bottom of the main window and change the coordinate readout to Geound Coordinates. Move the cursor over any stereo view. The coordinate readout changes to coordinate overflow error characters.
1-T3SXP3	Project with more than 16 blocks causes PhotoTX not to open	The attached project has 38 blocks. If you open the project with PhotoTX, the OK button never enables, even if you click on the valid blocks. When you click Close, the program crashes. If you delete the blocks such that there are 16 or less (including the internal "_bundle_" blocks), then everything functions correctly.
1-R3VV7R	ISAT matching Autostretch option isn't working	If the user enables the Autostretch option in ISAT point matching, the stretching does not get applied. There are many errors written to the log file indicating that the was an "Error reading from histogram" once the matching gets to the full resolution matching level. However, the overall matching process does complete. Development has traced the problem to an improper memory allocation in CFL histo module. Problem does not occur in 14.00 release.
1-LMI5JP	Corrupted stereo view in roam	When a stereo view is loaded into roam in the Windows 10 environment, the bottom of the display becomes blurred. This happens because of changes made in the video drivers and the operating systems. Problem also affects ISSD and ISSG.
1-QPZN6V	Adding photos via Edit Photos command creates duplicate point measurements	Open a project that has photos in it with points measured on the photos, then go to the Edit Photos command, key in a new Photo ID and Image File name, and click Apply to create the photo. The photo gets created fine, but all the point measurements from the first photo in the list are duplicated in the new photo, which effectively corrupts the photo/project. User has to open the photo file with a text editor to remove the point measurements. Point measurements should NOT be copied when the edit results in a new photo being created.
IG-6336	Changes to IKONOS adjustment options are not honored	If the user runs the bundle adjustment for satellite projects, goes to Options >> IKONOS Options, makes some changes and clicks OK, and runs the bundle adjustment, new settings are honored. But if the user re-visits the dialog and makes changes, they are NOT honored. User must switch out of the project and re-open it to get it to honor the new adjustment settings.

| IG-6804 | Import ADS Fails for certain images | Received a data set from a customer with images that were longer than any we've seen before. Two of the 50 images in the project would fail to import. |

IMAGESTATION STEREO DISPLAY (ISSD)

CR #	Summary - ISSD	Description / How to Reproduce
IG-9681	Windows 10 upgrade causes ISSD to fail to start	The Windows 10 Fall Creators Edition has a bug which causes products with App Paths registry entries longer than 250 characters to get completely ignored, causing ISSD, ISFC and ISDC to fail to start. Starting ISSD results in the following error: *"OS cannot load C:\Program Files(x86)\Hexagon\ImageStation Stereo Display 2016\bin\issddlm.dll. Error126 MDL loader:cannot load library(DLL or MDL common library)issddlm"* WORKAROUND: Add the following to the system PATH environment variable: *C:\Program Files (x86)\Common Files\Intergraph* *C:\Program Files (x86)\Common Files\ZI Imaging* *C:\Program Files (x86)\Hexagon\ImageStation Stereo Display 2016\bin* *C:\Program Files (x86)\Hexagon\ImageStation Stereo Display 2016\mdlapps*
1-LMI560	Corrupted stereo view in roam	When a stereo view is loaded into roam in the Windows 10 environment, the bottom of the display becomes blurred. This happens because of changes made in the video drivers and the operating systems. Problem also affects Orientations and ISSG.

IMAGESTATION STEREO FOR GEOMEDIA (ISSG)

CR #	Summary - ISSG	Description / How to Reproduce
IG-2324	Remove multiple refreshes when loading stereo display	When enabling the stereo view with the model space fitted to the Map Window, ISSG repaints the vectors over and over, sometimes as much as 5 times. This is time consuming.
1-VSDFW1	Installing ISSG after GI Toolkit causes CPD dialog to not display	Installing ISSG after GI Toolkit causes the CPD dialog to not display when you run GI Toolkit tab > Review panel > Properties Toggle command. Install GITK after ISSG, and the CPD dialog displays fine.
1-LMI5KH	Corrupted stereo view in roam	When a stereo view is loaded into roam in the Windows 10 environment, the bottom of the display is blurred. This happens

because of changes made in the video drivers and the operating systems. Problem also affects ISSD and Orientations.

IMAGESTATION DTM FOR GEOMEDIA (ISDG)

CR #	Summary - ISDG	Description / How to Reproduce
1-TPOUAN	ISDG dialogs can get stuck in background	If the user switches focus to other applications while an ISDG dialog box is open, it is possible that the user won't be able to gain access back to the ISDG dialog box. To reproduce: 1. Open any ISDG dialog box, such as Calculate Volume. 2. Press ALT+TAB on the keyboard to switch to some other application such as Windows Explorer or task Manager. 3. Use ALT+TAB again to try to return to the Calculate Volume dialog box. 4. It disappears behind the GeoMedia main window, and you can't access it. **Note: There is one way to get it back; Hover your system cursor over the GM icon on the Windows Taskbar until the GM main window and Calculate Volume thumbnail images appear, right-click on the Calculate Volume thumbnail, and select "Move." This will force the dialog to the top and puts the system cursor on it so you can click to move it anywhere. It will stay in front after that.**
IG-2771, IG-4411	Surface generation adds point to exterior boundary that gets used in triangulation	ISDG/ISDTM sometimes adds points at the point of intersection where obscure areas and/or breaklines get clipped at the model's edge. This causes gross errors along the surface edge. Model 13~37+13~38 from the Wichita project has 2 instances of this problem. Model 12~39+12~40 also has this problem.

IMAGESTATION IMAGE FORMATTER (ISIF)

CR #	Summary - ISIF	Description / How to Reproduce
IG-5630	Crash while adding Gaussian overviews	Trying to use ISIF to reformat any file and add Gaussian overviews on Windows 10 causes a crash in RSetGen.dll. Problem does not occur on Windows 7, does not occur with 2015 release, and does not occur if averaged overviews are added instead.

IMAGESTATION AUTOMATIC ELEVATIONS EXTENDED (ISAE-X)

CR #	Summary – ISAE-X	Description / How to Reproduce
IG-2557	XProSGM module crashes with certain data sets	Certain data sets could cause the XProSGM module to crash.
1-LKN28Z	Documented command line argument is insufficient	The documentation for the Thinning command line argument was insufficient. It lacked the list of legitimate values that can be entered to affect the thinning process of the point cloud.

IMAGESTATION ORTHOPRO (ISOP)

CR #	Summary – ISOP	Description / How to Reproduce
1-MEHE4J	True Ortho process hangs if progress bar is disabled	If the user changes OrthoPro preferences to disable the display of progress bars, then VZGen.exe will hang shortly after starting the True Ortho process.
1-M9RR97	ISOP is miscalculating surface footprints	The area surface areas are not being calculated correctly if the surface is rotated to a non-cardinal orientation. This is causing rectified areas to be clipped off at the corners.

DEPRECATED

WINDOWS 8

Support for Windows 8/8.1 has been deprecated. Users should upgrade to Windows 10. Windows 7 is still supported.

SQL SERVER 2012

Support for SQL Server 2012 with ISDG has been deprecated. Users should upgrade to SQL Server 2014 on Windows 7, or use SQL Server 2016 or 2017 on Windows 10.

ISPM COMMANDS

The following commands are no longer supported and have been removed from ISPM:

- **Import >> PEX/PHOREX**
- **Export >> P-CAP/PHOREX**
- **Export >> IMA**
- **Tools >> STARIMAGER**
- **Tools >> RSM – Users should now use the Tools >> Satellite commands to ingest RSM data**
- **Tools >> IKONOS/GeoEye has been renamed to Tools >> Satellite**

KNOWN ISSUES

JERKY ROAM PERFORMANCE IN ISSG ON WINDOWS 7

The use of NVIDIA *P, M*, and *K* series cards with ISSG on Windows 7 causes the roam view to momentarily halt when the stereo cursor passes over existing features that are locatable, which in turn causes a snap glyph to appear. This can result in extremely jerky roam if there are a lot of features displayed and **SmartSnap** options are enabled on the **Vector** tab. This problem does not occur with older cards, nor does it occur on Windows 10. Users can disable the **SmartSnap** options to alleviate the problem. We are continuing to investigate this with NVIDIA. Check with Hexagon Geospatial support for the latest information on this.

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