PCI Geomatics is pleased to announce the release of Geomatica 2017. This document will outline important information for all users about this new release.

Packaging

Geomatica 2017 includes the addition of 2 new packages to the Geomatica packaging structure for our commercial application.

Package	Package Code	Description
Geomatica Core	GEO	Base Geomatica package offering dynamic solutions for all types of desktop geomatics.
Geomatica Prime	GTA	Advanced base package which also includes scripting via Python, EASI or PCI Modeler.
Geomatica Developer Edition	GDE	Base package designed for those users who wish to create workflows using Geomatica tools, but not interested in commercial production.
Air Photo Ortho Suite	OAM	Add-on package with tools for the orthorectification and mosaicking of data from analogue and digital/video cameras.
ADS Ortho Suite	ADS	Add-on package licensing tools for the orthorectification and mosaicking of ADS 40/80/100 data.
Satellite Ortho Suite	OSM	Add-on package with tools for the orthorectification and mosaicking of optical satellite imagery.
Radar Ortho Suite	RAD	Add-on package with tools for the orthorectification and mosaicking of synthetic aperture radar imagery.
Ortho Production Toolkit	OPT	Add-on package with powerful tools to automate the orthorectification and mosaicking processes.
Automatic DEM	ODM	Add-on package which includes tools to extract digital elevation models from stereo imagery.
Pan Sharpening	PAN	Add-on package with tools for fusing multi-spectral and panchromatic image data.
Atmospheric Correction	ACD / ACP	Add-on package with various tools for the atmospheric correction of optical satellite imagery.
SAR Polarimetry Workstation	APW	Add-on package that provides a complete set of tools and applications for working with Polarimetric SAR data.
Object Analyst ** New for 2017 **	OBC	Add-on package that provides interactive tools for Object Based Image Analysis / Segmentation
InSAR ** New for 2017 **	INS	Add-on package that provides Interferometric SAR tools for land subsidence and uplift measurement

Supported Platforms

Geomatica 2017 will continue to support all of the platforms that were supported with the previous versions of Geomatica, but will also include support for Windows Server 2016.

***NOTE*: The Geomatica 2017 release may be the final release for support on Windows Server 2008.**

Functional Changes

Geomatica 2017 includes a number of functional changes that users should be aware of. These changes include the addition of new functions, the renaming of some functions, and finally the retirement of some functions as well.

New Functions

The following functions have been added to the software for this release:

- ADSCOPYCORR – license code ADS
  - Function for copying model-correction terms from one segment to another, specific to the Leica Airborne Digital Sensor (ADS).
- ADSL0TOL1 – license code ADS
  - Function for converting Leica Airborne Digital Sensor (ADS) products from level 0 to level 1.
- DEMADJUST – license code ODM
  - Function for adjusting (raise/lower) a raster DEM to elevation points held in a vector layer so that it better fits the elevation points.
- EPIPOLARDSM – license code ODM
  - Function to create a raster digital surface model (DSM) from epipolar stereo pairs using the Semi-Global Matching (SGM) method,
- INSADJUST – license code INS
  - Function created to adjust Interferometric Phase for Baseline Offset and Orbital Drift Errors
- INSCALDEFO – license code INS
  - Function used to adjust unwrapped displacement values to be zero at all points held in a vector layer.
- INSCOREG – license code INS
  - Function designed to automatically co-register and resample the dependent file to the reference file.
- INSINFO – license code INS
  - Function which generates a text file of the sensor and interferometric parameters for the given reference and the dependent file configuration(s).

- INSRAW – license code INS
    - Module required to produce the raw interferogram using the specified reference file and the resampled dependent file generated by the INSCOREG module.
- INSSTACK – license code INS
    - This function converts a number of co-registered SAR interferograms, or terrain displacement channels derived from them, into a time-ordered stack of interferometric phases, ground velocities or displacements.
- INSTOPO – license code INS
    - Module that adjusts the phase of a raw interferogram to compensate for flat earth and topographic effects.
- INSUNWRAP – license code INS
    - Unwraps phases of SAR interferograms by performing a two dimensional integration of the wrapped phase values to generate the unambiguous phase.
- OEBLUNDER – license code OPT
    - New function which automatically detects and removes errors, or blunders in images, tie points (TP), and ground control points (GCP) in a Geomatica OrthoEngine project file.
- OEPNTTHIN – license code OPT
    - Function to remove redundant tie points (TP) and ground control points (GCP) from an OrthoEngine project file.
- RECALC – license code GEO
    - Recomputes the math model of an existing OrthoEngine project and writes the result to the output OrthoEngine project file.
- RMPROJ – license code GEO
    - Function to delete an existing OrthoEngine project file.

Other New Capabilities

The following new items were added to Geomatica for the 2017 release:

- Focus
    - Analysis -> Object Analyst
        - Interactive environment for object based image analysis, including image segmentation, feature extraction, classification, and accuracy assessment
    - Analysis -> InSAR Temporal Chart
        - Charting tool to conduct temporal analysis of an InSAR data stack.
- OrthoEngine
    - Tools->Import->GCPs
        - Allows users to import GCPs from a “bulk” text file into the existing OrthoEngine project.

- Tools->GCP/TP Accuracy
  - Allows users to set the accuracy values for GCPs and TPs in the existing OrthoEngine project.
- Project step -> Aerial camera calibration panel
  - Now includes the ability to properly apply the atmospheric refraction correction

Retired Functions

The following functions have been part retired from the Geomatica software.

- AST – Database segment type codes
- CDADS – Read ADS40/ADS80 data from CD
- CDEOSAT – Read EOSAT fast-format CD
- CORCOEF – Calculate correction coefficients
- DITOP – Read TOPSAR data from a JPL file
- DN2REF – Convert digital number to reflectance
- EX2 – Fortran example program
- FAVPRO – Averaging (Mean) filter
- IPPI – Convert image to BSQ intermediate format
- LOOKJPL – Print JPL polarimetric data
- MIRROR – Mirror image channels
- RPT – Output message to report device
- RTV – Raster to vector conversion (superseded by RAS2LINE or RAS2POLY)
- SVFRD – SVF to PCI image transfer
- SVFWR – PCI to SVF image transfer
- WSIW – WDB search for image file transfer

Converted Functions

The following functions were older Fortran-based functions that have been rewritten and are still included in the Geomatica software.

- ANG – Angle of incidence from elevation data
- APS – Alter pixel size
- CSE – Class signature editor
- CSR – Class signature report
- CHNSEL – Channel selection
- CONTEXT – Contextual classification
- LUTREAD – Read look-up table (LUT) from a text file
- LUTWRIT – Write a look-up table (LUT) to a text file
- MINDIS – Minimum distance classifier
- MLC – Maximum likelihood classifier
- MLR – Maximum likelihood report
- NUM – Database image numeric window

- PCTREAD – Read a pseudocolor table (PCT) from a text file
- PCTWRIT – Write a pseudocolor table (PCT) to a text file
- SIGMERG – Merge signatures
- SIGSEP – Calculate signature separability
- UNMIX – Linear spectral unmixing
- VLM – Elevation data volume under a bitmap

Modified Functions

The following functions have been modified in the 2017 release of Geomatica. This may include a change to the signature of the function.

- AUTOTIE – Automatic tie-point collection
- GCPREAD – Read ground control points (GCPs) from a text file
- GCPREFN – GCP refinement
- GCPWRIT – Write ground control points (GCPs) to a text file
- GEOCODEDEM – support for InSAR generate DEMs added
- MOSDEF – Mosaic definition preparation
- MOSPREP – Mosaic scene list preparation
- MOSRUN – Mosaic creation
- TPEXPORT – Export tie points (TPs) from a project to a text file
- TPIMPORT – Import tie points (TPs) from a text file to a project
- TPREFN – Tie point refinement

Other Modified Capabilities

The following items were modified in the Geomatica 2017 release:

- Focus
    - Layer -> DEM Editing
        - Additional filter capabilities added to the interface
- OrthoEngine
    - Project File support

      In Geomatica 2017 the OrthoEngine project file format has been changed to support the use of active and inactive points. (GCPs and tie-points) Therefore, projects created in the 2017 version cannot be opened in Geomatica 2016.
    - View -> Project Overview
        - Visualization of reference image backdrop
        - Visualization of image thumbnails for all data in the project
        - Addition of measurement tool
        - New Kappa rotation tool

- GCP/TP Collection -> Residual Report panel
  - Addition of new tools for controlling the report view and also new abilities to edit the points.
  - New ability to activate/deactivate points to better evaluate the overall project model.

Resolved Issues

The following is a list of items that have been reported by customers and fixed for this release.

Issue ID	Component	Description
1198	Focus	Fix the ability to view vector attributes using Chinese characters
7934	SAR Analysis	Add capability for SAR filters to support complex valued input
9248	Mosaicking	Defining mosaic area from file generating wrong boundaries
10393	Pan Sharpening	Pan sharpening with WorldView-2 ACOMP data not working
10561	OrthoEngine	Add ability to export GCPs for multiple images
10996	Smart GeoFill	Ortho-on-the-fly producing strange coloured pixels
11003	OrthoEngine	TP collection reporting incorrect number of collected points
11028	GDB	UAVSAR datasets causing Focus to crash
11044	Focus	Visualization errors with JPEG2000 imagery
11135	DEM Extraction	Improve performance in DEM Extraction process
11174	GDB	Fix issues in ingest of Sentinel-1 polarimetric data
11387	Focus	Reprojection tool re-ordering and scaling output data incorrectly
11439	GDB	PALSAR data being imported upside-down
11462	ATCOR	Haze removal failing for WorldView-3 imagery
11522	Polarimetric SAR	SPTA crashing when computing numeric output values
11523	Image Processing	Reprojection improperly setting metadata tags in output file
11623	GDB	Loading Sentinel-2 datasets across 2 UTM zones causing error
11717	Mosaicking	Mosaic failing with Long/Lat images due to resolution issues
11788	GDB	Loading MODIS data results in missing channels
11790	Image Processing	STITCH function not processing GeoEye-1 data correctly
11840	Geomatica Platform	BasicReader causing Python crash when using large file
11919	Focus	Focus histogram producing incorrect results under mask area
11930	OrthoEngine	Automatic GCP collection fails due to projection error
12064	GDB	Opening WorldView-2 IMD file results in striping of image
12087	True Ortho	True Ortho process creating incorrect no data areas in output

Known Issues

The following is a list of known problems in the 2017 release that are being fixed and should be available in the first service pack. If you need this fix prior to that time, please contact PCI Support.

Bug Number	Component	Description
11308	Python	Python scripting windows in Focus crashes when using Python 2.7.11
11543	DEM Extraction	Inconsistent crash when extracting DEM from RISAT slant range data
11659	DEM Extraction	NoData areas being produced when extracting DEM from ADS data
12135	Mosaicking	Strips of data missing sometimes when mosaicking ADS datasets
12206	Mosaic Tool	Mosaic tool fails to process Hyperspectral image data