

Introduction to Geomatica® 10.3

At PCI Geomatics, our goal is to provide you with the best tools available to help turn spatial data into information, and with the release of Geomatica 10.3, we continue with our tradition of providing leading-edge technology for the geospatial professional.

With over 27 years experience in building image-processing software, we are the image experts. We strive to build technologies that leverage remotely sensed imagery, creating spatially accurate images, extracting information from them, combining them with other spatial layers, and publishing your results. Geomatica 10.3 represents the culmination of these efforts to date. This release improves and adds to the capabilities for which Geomatica is known, helping you turn your images into answers and to use them in your GIS system.

Geomatica version 10.3 is an update with significant enhancements to the Geomatica 10 suite. This update includes new features, along with improvements in the reliability, performance, usability, and functionality of Geomatica in addition to fixes of customer-identified bugs.

Geomatica now includes support for ESRI® ArcGIS® Server Image Extension

PCI Geomatics is proud to announce support for the ArcGIS Image Server within Geomatica. This support will feature:

Geomatica / ArcGIS Server Interoperability

- Geomatica Focus: users will have the ability to load data from an ArcGIS Image Server as a “read-only” layer into Focus, allowing them to integrate ArcGIS Image Server data into their processing.
- OrthoEngine: users will be able to load data from ArcGIS Image Server in OrthoEngine to collect ground control data or reference elevations in an orthorectification process.

Multi-Sensor support for the ArcGIS Server Image Extension through OrthoEngine

GIS users can now rely on PCI's OrthoEngine technology to accurately and efficiently correct raw satellite imagery, which opens new doors for the integration of remotely sensed imagery into GIS workflows.

ESRI RPDef (Raster Process Definition) support

- OrthoEngine will allow users to perform corrections to satellite imagery not currently supported by ESRI's ArcGIS Image Server, and save the data into ArcGIS Image Server's RPDef format. This will allow GIS users to achieve the following with satellite imagery:
 - Include additional satellites into ESRI workflows than previously possible, as the existing Image Server only supports Landsat-7, QB, SPOT, IKONOS
- Allow users to refine nominal georeferencing information by using GCPs
 - Existing support is for RPC or data supplier corrected data only
- Users can correct a collection of images simultaneously (i.e. block bundle adjustment) and achieve higher levels of registration accuracy
 - Existing support is for single image correction only

In Version 10.3, PCI supports the following sensors for RPDef export:

- | | | | | |
|---------------|--------------|----------------|---------------|--------------|
| → Ikonos | → Quickbird | → Terrasar-X | → Spot 1-5 | → RapidEye |
| → GeoEye-1 | → Radarsat-2 | → Cosmo-Skymed | → ASAR | → Cartosat-1 |
| → ALOS PALSAR | → ASTER | → Landsat 1-7 | → WorldView-1 | |

Manual Mosaicking

The manual mosaicking interface within OrthoEngine has been completely re-designed. The new interface enables users to load all un-mosaicked data into a single window from which they will be able to see real-time changes in colour balancing and cutline generation.

Visual Modeler

Air Photo Orthorectification

The following functions have been added to the Visual Modeler interface, allowing users to create full Air Photo orthorectification workflows:

- CAMIMPORT Module for importing camera calibration parameters from an XML file into an OrthoEngine project file.
- CAMEXPORT Module exports the camera calibration information from an OrthoEngine project file to an XML file.
- AUTOFID This function automatically collects image coordinates of fiducial marks in multiple images using supplied templates.
- EOIMPORT This module allows users to import the exterior orientation data into an OrthoEngine project file.
- EOEXPORT Allows users to export the exterior orientation data from an OrthoEngine project file into a text file.
- GCPIMPORT Module for importing GCPs from a GCP segment into an OrthoEngine project file.
- CHIPEXT This function automatically extracts chips from a geocoded image to a chip database.
- RAW2CHIP This module performs automatic chip extraction from a raw image and its ground control point (GCP) segment to a chip database.
- APMODEL Used to perform a bundle adjustment on a set of aerial photos with ground control points (GCPs) and tie points (TPs) from an OrthoEngine project.
- EPIPOLAR This function generates epipolar images from stereo pairs or raw images.
- AUTODEM This function generates a DEM from a pair of stereo images.
- GEOCODEDEM This module geocodes epipolar digital elevation models (DEMs) by reprojecting to the ground coordinate system.
- MERGEBAND Data can be distributed with multiple bands (for example, red, green, blue, and near infra-red) that are separated into different files. This function merges these files in one PCIDSK file.
- STITCH Some satellite imagery can be provided in different tiles with orbital data information for each separated tile. The STITCH module lets you merge the different tiles, which are obtained from the same orbit on the same day, into one complete scene.

Classification Workflow

The current classification workflow was reviewed, featuring upgrades to signature generation, which includes using vectors as training areas and multiple signatures creation in a single pass.

As part of this work, the following new function has been added to Geomatica. The capability replaces an existing function which will be retired from Geomatica in the next release:

- CSG2 Signature generation function, replacing CSG, which will be retired in the next release.

SAR Polarimetry Workstation

Geomatica Version 10.2.1 included the SAR Polarimetry functions within the Geomatica environment. In Version 10.3, the underlying coding of these functions has been upgraded, leading to improvements in overall stability and performance.

