ImageStation

High-volume photogrammetry and production mapping

Unparalleled processing, accurate results for CAD- and GIS-based workflows

The ImageStation software suite enables digital photogrammetry production workflows, including project creation, orientation, and automatic triangulation from aerial and satellite imagery. It provides stereo feature collection and editing, stereo digital terrain model (DTM) collection and editing, automatic DTM and digital surface model (DSM) generation, and orthophoto production and editing. ImageStation is specially designed to move large quantities of raw spatial information to an actionable or exploitable format for government, commercial photogrammetry, and mapping agencies worldwide.

Overview

Large orthophoto projects, such as the National Agriculture Imagery Program (NAIP), generally use multiple terrain elevation datasets with different formats and coordinate systems. Generating such large elevation surfaces is labor-intensive and time-consuming. ImageStation's simplified project creation and highly automated processing gets your projects up and running quickly.

Early verification of orientation and triangulation quality means less labor spent trying to fix problems later in the process. GIS- and CAD-based 3D feature collection and editing saves time by working directly with the native database. DTM collection and editing ensure the accuracy of your elevation data with a few simple validation steps.

Dense matching with a Semi-Global Matching (SGM) algorithm creates highly dense, highly accurate point clouds from your imagery, eliminating the need for more expensive data collection flights. Streamlined, multi-user orthophoto production using aerial frame, ADS line scanner, UAV, and satellite imagery puts the power of state-of-the-art technology to work in creating planimetrically and aesthetically accurate orthophotos.

Using ImageStation within the GeoMedia context facilitates the creation of continuous, topologically accurate, and attributed map layers stored in a variety of open formats. This integration further enhances the process of creating and/or updating your GIS using photogrammetric techniques that directly store your data as an asset within a corporate database.

Your ability to capture and maintain data is easier with ImageStation Stereo for GeoMedia. Focusing on GIS workflows, you can create intelligent geographic features rather than merely place lines. Emphasis is placed on ensuring the accurate collection of geospatial data the first time and reducing the need for time-consuming cleanup or editing after data collection.
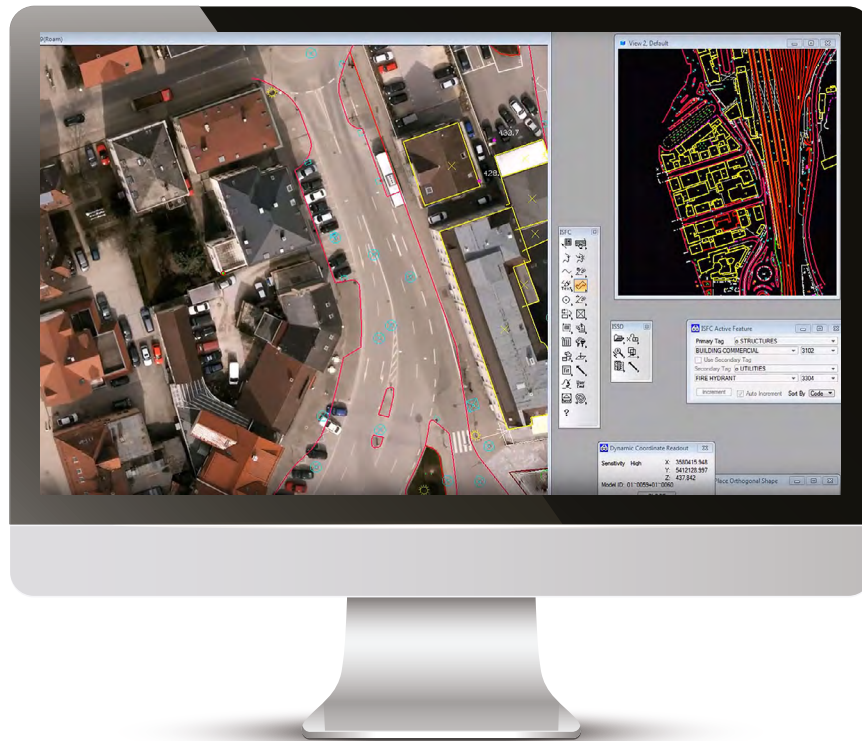
ImageStation Automatic Triangulation provides fully automatic, high-performance, high-capacity aerial triangulation.

ImageStation software suite component applications

The ImageStation software suite is offered in component applications so you can customize a solution to meet your specific production requirements.

Project and data management

- **ImageStation Photogrammetric Manager (ISPM)** – Provides project setup and data management tools for photogrammetric production workflows, including automatic interior orientation, import of aerial frame, ADS line scanner, UAV, and satellite imagery, import/export of photogrammetric data, archive/restore projects, and more.

- **ImageStation Image Formatter (ISIF)** – Provides efficient, multi-threaded, 64-bit, local and distributed batch image reformatting, on-the-fly overview generation, and application of lookup tables (LUTs).

- **HTCondor for Hexagon Geospatial** – Provides simplified installation and configuration of the free and open source HTCondor distributed processing system from the University of Wisconsin-Madison.

Orientation and triangulation

- **ImageStation Automatic Triangulation (ISAT)** – Provides fully automatic, high-performance, high-capacity aerial triangulation, including GNSS/INS data processing, seamless POSEO support, camera calibration, graphical error analysis, efficient multi-photo point measurement with automatic point transfer, automatic tie/pass point matching and bundle adjustment of satellite RPCs, and more.

- **ImageStation Satellite Triangulation (ISST)** – Provides simultaneous bundle adjustment of images from select satellite sensors based on ephemeris data and sophisticated orbital models.
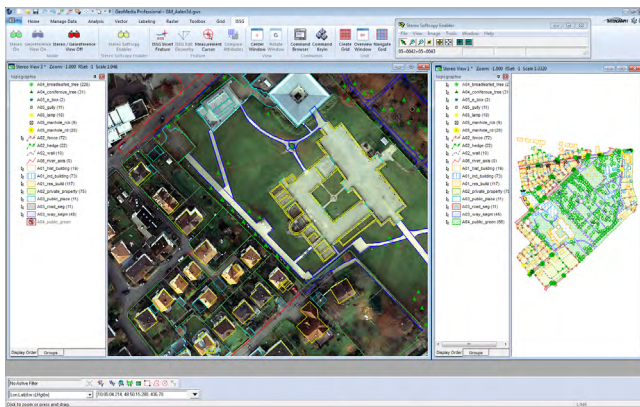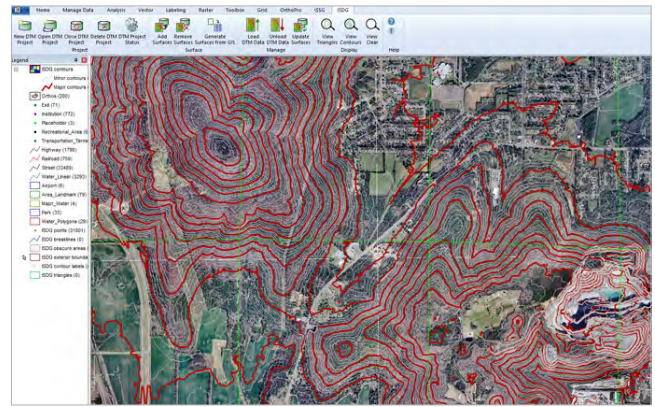
ImageStation Stereo for GeoMedia provides high-performance stereo image display fully integrated with the feature collection and editing capabilities of a full-featured GIS.

ImageStation DTM for GeoMedia provides interactive collection and editing of terrain data to generate surface files for photogrammetric, mapping, and engineering workflows.

Feature collection

- **ImageStation Feature Collection (ISFC)** – Provides interactive collection and editing of 2D and 3D map feature data and attributes in the MicroStation CAD environment, completely integrated with ImageStation Stereo Display and ImageStation DTM Collection.

- **ImageStation Stereo Display (ISSD)** – Provides stereo image and vector display, photogrammetrically accurate 3D cursor tracking, on-the-fly image enhancement, smooth roam, and digital zoom in the MicroStation CAD environment, completely integrated with ImageStation Feature Collection and ImageStation DTM Collection.

- **ImageStation Stereo for GeoMedia (ISSG)** – Provides stereo image and vector display, photogrammetrically accurate 3D cursor tracking, interactive collection and editing of 2D and 3D feature data and attributes, on-the-fly image enhancement, smooth roam, and digital zoom in the GeoMedia GIS environment, completely integrated with ImageStation DTM for GeoMedia.

- **ImageStation Stereo Viewer for GeoMedia (ISSV)** – Provides stereo image and vector viewing, on-the-fly image enhancement, smooth roam, digital zoom, and 3D linear and area measurement in a separate (non-map) window in the GeoMedia GIS environment (no feature collection).

Digital terrain model generation

- **ImageStation DTM Collection (ISDC)** – Provides interactive collection and editing of DTM data, elevation points, breaklines, and other geomorphic features. It also provides real-time dynamic editing, TIN and contour generation, volume calculation, and import/export of elevation files in the MicroStation CAD environment, completely integrated with ImageStation Stereo Display and ImageStation Feature Collection.

- **ImageStation DTM for GeoMedia (ISDG)** – Provides a set of tools for working in the GeoMedia GIS environment and with ImageStation Stereo for GeoMedia to interactively collect and edit terrain data to generate surface files for photogrammetric, mapping, and engineering workflows.

- **ImageStation Automatic Elevations (ISAE)** – Provides automatic generation of DTMs from aerial or satellite stereo imagery using hierarchical feature-based matching and local or distributed multi-threaded processing.

- **ImageStation Automatic Elevations DSM (ISAD)** – A superset of ISAE that adds 64-bit dense point cloud digital surface model (DSM) and raster generation from aerial frame and satellite stereo imagery using Semi-Global Matching (SGM) and local or distributed multi-threaded processing.

- **ImageStation DTMQue (ISDQ)** – Provides a graphical workflow editor for batch processing to perform DTM format conversion, coordinate transformation, tiling, merging, thinning, clipping, triangulation, and QA/QC tools. ISDQ is a native 64-bit application for enhanced memory capacity and performance. It also allows for parallel processing of jobs.

ImageStation OrthoPro provides a complete solution for orthorectification, enhancement, automatic seamline generation, tone balancing, and mosaicking.

Orthophoto generation

- **ImageStation OrthoPro (ISOP)** – Provides a complete orthomosaic solution including orthorectification, true ortho capability, adaptive radiometric enhancements (dodging, dehaze, ADRA), automatic seamline generation, semi-automated review and editing of seamlines, tone balancing, mosaicking, and geometric accuracy assessment. It automatically inputs data from different projections and datums on the fly, then integrates them into one mapping project. ISOP utilizes multi-threaded, 64-bit, and parallel processing to maximize throughput.

- **ImageStation PixelQue (ISPQ)** – Provides systematic quality review, markup of problem areas, queued editing of marked problems, and enhancement of ortho mosaics.

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 resilience and sustainability of the world's critical services and infrastructure. Our solutions turn complex data about people, places and assets into meaningful information and capabilities for better, faster decision-making in public safety, utilities, defense, transportation and government.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 21,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at hexagon.com and follow us @HexagonAB.