



# DTMaster

## INPHO SOFTWARE

Effectively visualize, edit and classify point clouds and provide ultimate quality control for your digital terrain model (DTM)/LiDAR workflow.

DTMaster is a complete visualization and editing tool for digital terrain models and point clouds. It combines state of the art LiDAR/point cloud editing and processing tools with photogrammetric vector digitizing and stereoscopic visualizations:

- ▶ Easily handle efficient checking, editing and classification of huge DTM and LiDAR projects consisting of billions of points using a tiled data structure
- ▶ Visualize and quality control data using excellent monoscopic or stereoscopic tools
- ▶ Underlay DTM data with thousands of orthophotos or complete blocks of aerial stereo photographs
- ▶ Extended batch capabilities for fast point cloud filtering, gap filling and mapping-grade contouring

DTMaster is optimized for efficient checking, editing and classification of DTM projects. Further, DTMaster allows DTM data to be superimposed over thousands of orthophotos or complete blocks of aerial photographs. Available as a monoscopic DTM editor or stereoscopic DTM editing station. Recommended add-on to MATCH-T or SCOP++

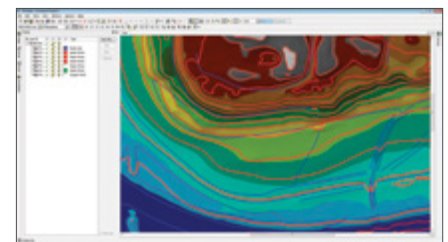
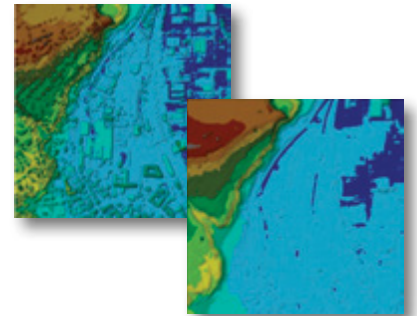
### Feature Capabilities

With 64-bit architecture and high-performance point-cloud visualization, DTMaster efficiently handles massive volumes of point-cloud data. all data is managed in an efficient multi-layer and multifile data structure. Extremely fast and compact data handling is guaranteed through binary, tiled data storage. Sophisticated tile management and navigation make the tool effective independent of data volume:

- ▶ Optional automatic data thin-out for visualization according to zoom level
- ▶ Guided editing wizards with heads-up options display
- ▶ Definable shortcuts for frequently used actions
- ▶ DTMaster provides a comprehensive set of efficient tools for quality assurance of DTM data, including data visualization, numeric plausibility checking, as well as interactive data editing and 3D measurement
- ▶ Use internal project-wide or brush-type classification algorithms
- ▶ Effectively manage display settings for very complex editing projects with hundreds of files and layers using customizable sets for display settings
- ▶ Correlation-based and interpolation-based follow-terrain cursor for precise automatic 3D digitizing in 3Dstereo or monoscopic ortho scenes combined with height models (monoplotting)
- ▶ Point-offset and stereo-parallax evaluation with support for individual operator-specific height correction value

### Key Features

- ▶ DTMaster is extremely powerful in visualization and editing of very dense point clouds:
- ▶ Visual data checking
- ▶ Colorized point clouds from orthophotos or aerial image blocks
- ▶ 3D visualization of building or embankment objects
- ▶ Automated plausibility checks and data modifications
- ▶ Multi-file and multi-layer based editing and basic CAD mapping functionality (3D stereo and monoplotting)



## TECHNICAL SPECIFICATIONS

## FEATURES OVERVIEW

- High performance project backdrop-image computation for most effective visualization of huge aerial image blocks as interpretation background for editing tasks
- Visual data checking:
  - Color superimposition: DTM data overlaying raster imagery, such as stereo imagery with automatic selection of best-fit stereo image pair
  - DTMaster works with all hardware supporting quad-buffered stereo. If quad-buffered stereo is not supported, it automatically switches to anaglyph stereo.
  - Orthophotos
  - Digital maps
  - Realtime brightness and contrast adjustment for raster imagery
  - On-the-fly contour generation
  - Perspective view with online 3D panning and draping of geo-referenced raster imagery
  - Hill-shading
  - Z-coding
  - Hatching of excluded areas
  - Rotate the lateral view freely in a 3D space for a multi-perspective inspection
- Automated plausibility checks:
  - Detection of lines which are crossing. Point clusters showing a height monotony as well as larger point distances in XY or Z. Each can be semi-automatically corrected.
  - Detection of height outliers
  - Detection of very close or identical points
  - Detection of gaps in a point cloud
- Automated data modifications:
  - Local or project-wide filtering and classification of point clouds acquired with LiDAR scanners or from image matching (e.g. MATCH-T DSM) for refining quality, as well as for separating points on vegetation or buildings
  - Deletion of points close to lines
  - Thin-out algorithm
  - Deletion of identical points
  - Re-interpolation of selected points or along lines or within a fence according to surrounding areas and automatic gap filling
  - Extended batch filtering, gap-filling and mapping-grade contouring
- Data editing and measurement:
  - Editing in stereo, ortho, and lateral view, specific oblique mode
  - Broad range of powerful selection and 2D/3D snap modes
  - Efficient stereoscopic measurement and editing of points and lines
  - Interactive grid measurement
  - Various editing functions for polygon areas (classification, deletion, constant height setting and more)
  - Automatic correlation-based or interpolation-based terrain following mode for precise 3D digitizing

## BENEFITS

- Integrates into any 3rd party DTM/DSM/point cloud workflow as visualization and editing tool
- Produces engineering quality DTM or DSM data:
- Comprehensive functionality with an efficient user interface for data viewing, checking and editing
- Large data volumes can be easily processed and visualized
- Data structures are optimized for very fast data handling
- Does not require a CAD or GIS
- Re-classify data between various files/layers, file-separated and combined vector data exports
- Seamless workflow within the complete Inpho software family. Benefit from project / DTM transformation tools, export and import into 3rd party workflows (e.g. Hexagon, BAE)
- Powerful mass-production functionality such as merging / tiling / format conversions / grid interpolation
- Suited for any amount of point data volumes through intelligent tile management and navigation

## BUNDLES

## LiDAR Box:

- DTMaster is part of the LiDAR processing workflow combined with SCOP++ LiDAR

## DTM Box:

- DTMaster is part of the DTM / point cloud generation workflow from images with MATCH-T DSM

## OPTIONS

- Hardware: Optionally, inpho® provides all necessary hardware for DTMaster, including computers, monitors, stereo viewing systems and 3D cursors.
- Monthly rental and updates from previous versions
- Maintenance (1st year included in software price) includes support and version updates
- Network licensing available

## SYSTEM REQUIREMENTS

- PC workstation
- 8 GB RAM
- High-End OpenGL graphics card supporting OpenGL 1.5 or higher
- Large hard disk
- Windows 7, 64 bit
- For stereoscopic viewing:
  - Stereo-capable graphics card(s) supporting OpenGL quad-buffered stereo (e.g. Nvidia Quadro series)
  - Stereo viewing system
  - 3D mouse

## SUPPORTED SENSOR TYPES

- Imaging sensors:
  - Analogue and digital frame sensors
  - Panchromatic or multichannel
  - ADS Pushbroom sensors
  - satellite sensors (including SPOT 1-7, Plejades, Quickbird, IKONOS, ALOS, ASTER, CARTOSAT, IRS, GeoEye, Landsat, OrbView, RapidEye, WorldView, Resurs-P..)
- Point Clouds:
  - LiDAR derived point clouds
  - Image matching derived point clouds
  - Generic point cloud data or grid data

## SUPPORTED FORMATS

- Supported image formats:
  - Georeferenced orthos: GeoTIFF, TiffWorld (tfw), ADS+tif/tfw
  - TIFF, JPG, BigTiff
  - JPEG2000, TIFFjpeg
  - EXIF
  - 8/12/16 bit
- Height model / morphology data formats
  - Grid-operations:
    - ◊ \*dtm \*.rdh \*.bil \*.fit \*.tol \*.grd \*.tif \*.tiff \*.smti \*.tpix.shp, BIL, BWNP, BXYZ, DTM, DXF, DXF\_TIN, FLT, GRD, LAS, LASZip, SHP\_TIN, TIFF16, TIFF32, VRML, VRML\_TIN, WNP, XYZ
  - Point-cloud operations:
    - ◊ LAS, LASZip, XYZ, BXYZ

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