



CoProcess

ADVANCED LIDAR DATA
PROCESSING SOFTWARE



MAPPING
& GEOSPATIAL

ADVANCED POINT CLOUD POST- PROCESSING SOFTWARE

CoProcess, developed by CHCNAV, is a powerful software solution tailored to the post-processing of massive point cloud data. As a fully integrated platform, CoProcess seamlessly processes point cloud data captured in the field into a variety of multi-format deliverables. Point cloud management, measurement tools and visualization are just part of the software solution, which also features a free configuration viewer. Creation of Digital Elevation Models (DEMs) and Digital Terrain Models (DTMs), semi-automatic feature extraction, automatic data classification, road design and more are all possible with CoProcess.

MASSIVE DATA CLASSIFICATION

Using state-of-the-art CHCNAV algorithms, CoProcess allows both automatic and manual classification of point cloud data into different categories such as ground, vegetation, buildings, roads, power lines and more.

AUTOMATIC DEM/DSM GENERATION

CoProcess serves as a comprehensive software solution for generating DEMs or DSMs from point cloud data, from the initial field data collection to the final rendering. The process includes a specialized algorithm for efficient measurement noise filtering, automatic ground point filtering, and seamless export of DEM/DSM data based on the required configuration. In addition, CoProcess provides various editing functions to further enhance the quality of the DEM/DSM data.

VOLUME CALCULATION AND ANALYSIS

CoProcess supports volume calculation from point clouds using the grid or triangulation method, with results easily exported in DXF or doc format. It also facilitates the analysis of volume differences between successive LiDAR data sets, providing detailed reports for informed decision making.

POWERFUL FEATURE EXTRACTION

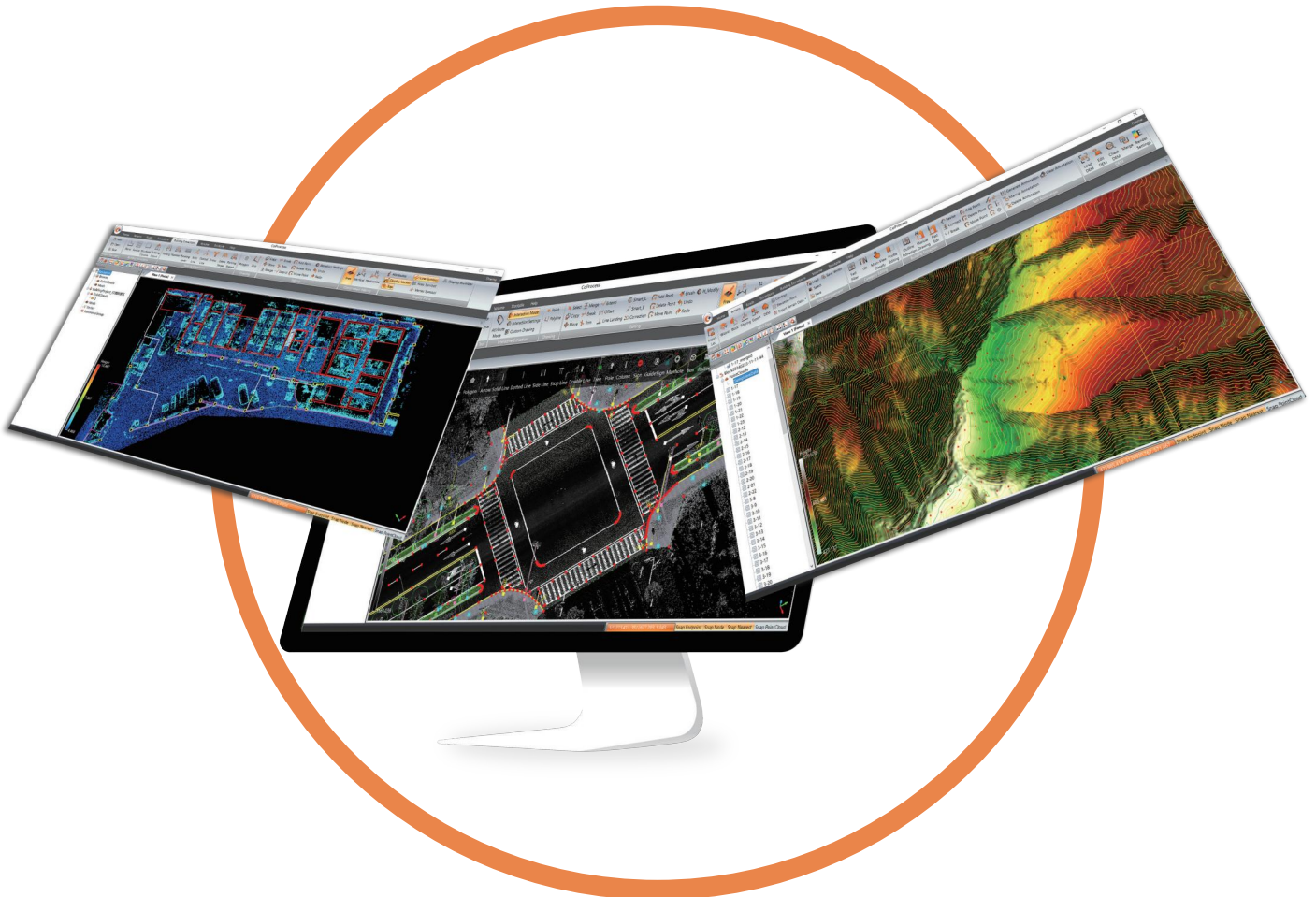
CoProcess' robust feature extraction module supports both automatic and manual extraction of road and building features. In mining scenarios, bench crest and bench toe can be generated by automatic and manual methods. In building extraction module, the elements of building plane and façade can be extracted by automatic and manual methods. Extracted features can be easily converted to DAT or DXF format for seamless integration with software such as AutoCAD and ArcGIS, significantly improving work efficiency and productivity compared to traditional survey methods.

USER-FRIENDLY INTERFACE DESIGN

CoProcess has an intuitive user interface with four main modules: Foundation, Terrain, Road, Extractions, Building Extractions, Stockpile and Volume. The CoData point cloud format enhances the user experience when importing and visualizing large datasets. The interface and module layout are customizable to suit the user's preferred work habits. With an integrated workflow wizard and user manual, CoProcess is easy to learn and master, making it an effective tool for even new users.

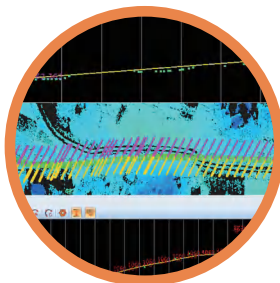


PROFESSIONAL POST-PROCESSING SOFTWARE



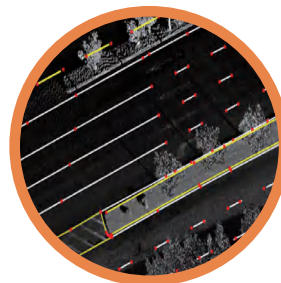
Powerful Data Engine

CHCNAV's proprietary data engine allows users to integrate massive, dense point clouds of entire cities into CoProcess with no loss of productivity.



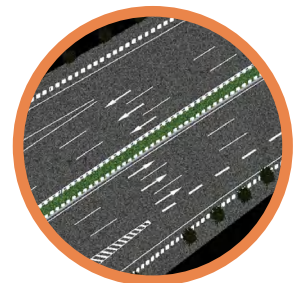
Road analysis

Road is a CoProcess module that automates the extraction and calculation of key road features captured by 3D mapping systems.



2D vectorization

Assets and measurements are AI extracted from point clouds and imagery to reduce operator processing time.



3D Modeling

Automated modeling based on extracted road objects and component vectors are associated with point clouds to automatically generate the road surface.

SPECIFICATIONS

System Recommendations

Operating system	Microsoft Windows 7, 8, 10, 11 (64-bit)
Install package size	Less than 500 MB
File system	NTFS

Hardware

Processor	Intel @ Core™ i7 (Minimum) Intel @ Core™ i9 (Recommended)
RAM	8 GB (Minimum) 32 GB or more 64 bit OS (Recommended)
Hard disk	500 GB SSD Drive (Minimum) 1 TB SSD Drive (Recommended)
Large project disk option	RAID 5, 6, or 10 w/ SATA or SAS drives
Graphics card	Nvidia GeForce 4 GB (Minimum) Nvidia GeForce 6 GB+ (Recommended)
Display	1024 × 768 (Minimum) 1920 × 1280 (Recommended)
Input	Keyboard, mouse with wheel

Software License

License type	Time limited SW registration code USB dongle driver
SW upgrade	Online version check Manual install package

Supported Language

English
Chinese
Russian

CoProcess Specifications

Foundation module	<p>The software uses a custom format (*.codata) to quickly visualize massive point cloud data, and quickly build *.las, *.txt, *.csv, *.pts, *.xyz into *.codata through LOD technology.</p> <p>Covers conventional renderings such as height, intensity, RGB, classification, single, time, returns, return number, etc. It provides multi-hue rainbow, blend and mix rendering, and EDL effects improve rendering detail contrast.</p> <p>Realize the scene roaming of point clouds, vectors and images, perform viewpoint roaming according to the viewing angle position, and perform trajectory roaming by setting the browsing path.</p> <p>Provides single point, multi-point, distance, area, density and angle measurement. In addition to basic measurement, the software also provides elevation inspection, density quality inspection and profile analysis functions.</p>
Foundation module	Provides rectangle and polygon selection of point cloud, and the functions of inner clipping, outer clipping, clearing and saving of updated point cloud.

Terrains module

In addition to Standard CoProcess module. Automatic processing to output DEM results that meet the accuracy requirements. Quickly and accurately extract ground points under complex terrains. Variety of editing methods such as elevation leveling, elevation smoothing, elevation deletion, patching invalid values, elevation patching, removing spikes, and adaptive smoothing to quickly edit DEM results. Generate contour data in dxf format based on point cloud data. Generate the elevation points in DAT format according to the square grid or diamond grid. Realize TIN browsing and point cloud and TIN synchronous editing.

Roads module

One-click to generate cross section and vertical section. Efficient editing of cross section and vertical section. Design routine automatically according to coordinates of stakes; circular curve; transition curve, etc. Add stakes in the view or according to user-defined mileage.

Volume module

Volume calculation by grid method, the result can be output in dxf format. Analyze volume difference between two phases, and output the report. Automatic generation of bench crest and bench toe. TIN editing functions (smoothing, filtering, simplifying, cavity filling). Calculate the volume of user-defined region, and output the report.

Extraction module

Automatic and manual extraction of road features. Overlay display of panoramic images and point cloud data. Automatic generation of road surface model based on extracted vector and point cloud data. Extraction of 10 km of road elements per person per day.

Bulding Extractions

Support for semi-automatic and tracked extraction of planar features. Support for semi-automatic extraction of façade windows and parking elements.

Stockpile Module

One-click clearing of non-stockpile point clouds. Automatically identify the range of the stockpile. Calculation of single-phase stockpile volume and two-phase filling and excavation volume.

* Specifications are subject to change without notice.

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