

BENEFITS

Fast access to millions of points in AutoCAD: PointCloud supports the visualisation and analysis of millions of 3D points within AutoCAD. Points recorded with a 3D Laser Scanner can be processed using standard 2D and 3D AutoCAD commands.

As the use of 3D Laser Scanners for recording industrial structures, historic buildings and sculptures increase, there is a need to be able to combine the resultant point cloud with other information such as photographs and vector data to produce complete records and possibly CAD drawings.

Running within the latest versions of AutoCAD, PointCloud reads most common data formats. Advanced management of the display ensures speed is maintained during zoom, pan and orbit operations. With slice and bounding box selection commands along with support for object snap selection of points within the cloud could not be easier.

VIEWING

A typical PC display can only show 0.7 million points (1024x768). Also many of the millions of points within the typical pointcloud are situated behind other points. PointCloud combines these two facts to display only points that are visible ensuring the quickest possible display and making it easier for the operator to work with the cloud.

The number of displayed points is reduced during pan and orbit commands to ensure a swift transition between views.

PointCloud includes a "section manager" enabling the operator to divide the cloud into manageable portions for processing or visualisation. Single or multiple slices may be created with ease. Complex polygons may also be defined.

With orientated images loaded, the cloud may be displayed superimposed over the images.

MODELLING / DRAWING

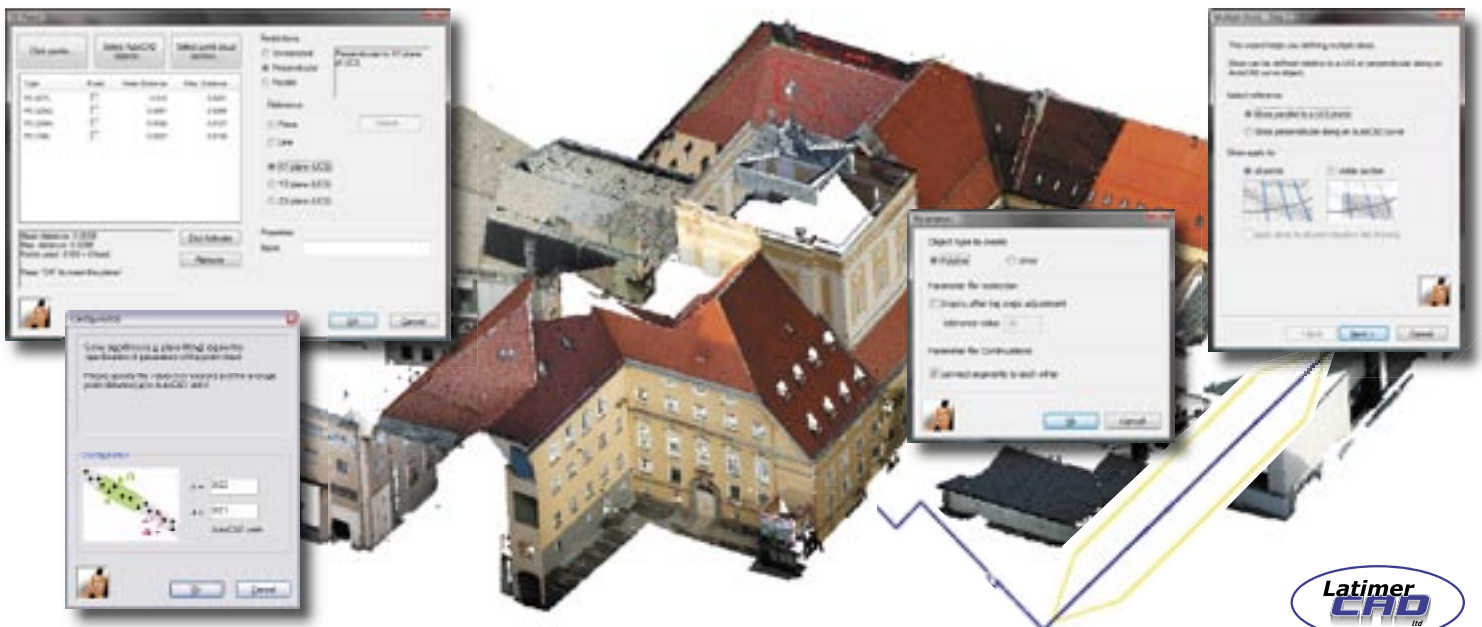
Any of the points within the cloud may be picked during AutoCAD drawing commands via the "Node" snap. However due to the nature of pointcloud data, it is usually best to use some form of "fitting" to create drawings and models.

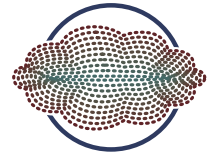
Planes may be fitted to whole sections of the cloud. Creating a UCS on the plane allows the operator to "trace" within the cloud. Plane intersections may be calculated allowing corners to be found quickly.

For creating plans and elevations, lines or polylines may be "best fitted" to the pointcloud slice.

In addition, cylinders may also be "best fitted" and joined (with changes in diameter and elbows) for fast modelling of pipework.

Adding orientated images to the cloud enables the operator to use the high resolution of imagery to locate and trace details whilst PointCloud provides the full 3D location from the cloud data.





FLEXIBILITY

The native file format of PointCloud is the PTC file. Most scanner types provide export to PTC files directly. If no PTC export is possible the scanned data can be imported into PointCloud using ASCII .

Manufacturers that currently export PTC files directly:

- FaroScene (FARO)
- Ilris3D-Parser (Optech)
- LaserControl (Zoller&Frölich and Leica HDS4500/6000)
- Polyworks (Inovmetric)
- Reconstructor (JRC/Topotek)
- RealWorksSurvey (Trimble)
- RiScanPro (Riegl LMS)

Orthophotos that have been created using the following systems may be imported;

- RealWorks Survey (Trimble)
- Reconstructor (JRC/Topotek)
- RiScanPro (Riegl LMS)

Oriented images (scanposimages, undistorted images) created in the following systems may be imported;

- RiScanPro (Riegl LMS)
- Reconstructor (JRC/Topotek)
- PointCloud can also orientate images internally

FREE EDITION

In many cases the operator of the scanner is not the final user of the cloud data. The "Free Edition" of PointCloud allows users to unlock specific clouds for clients. This allows service providers to forward the data captured (point clouds) to their clients for further analysis and processing.

Together with the PointCloud data, a fully functioning PointCloud version is supplied to the final customer (via CD or web download). No additional licence is required for the PointCloud Free Edition. Only supplied (unlocked) data may be loaded

MAJOR FUNCTIONS

File Commands:

- Load PTC (single and multiple)
- Load ASCII (includes XYZ, PTS)
- Load orientated image**
- Export PTC (Cloud / Section)
- Activate for "Free Edition"

Cloud Sectioning:

- Slicing; single, multiple and shift
- Bounding boxes
- Polygons; include or exclude
- Sections along a curve

Modelling:

- All points "Node" Snap
- Fit outline plan **
- Fit plane **
- UCS from plane **
- Extend planes **
- Intersection of planes **
- Cylinder fitting **
- Clash detection (Cloud to 3D Solid)**

Modelling with Images

- Orientate Image **
- Set view to image **
- Intersect point from 2 images **
- 3D Drawing on Image **

** Pro Version only.

