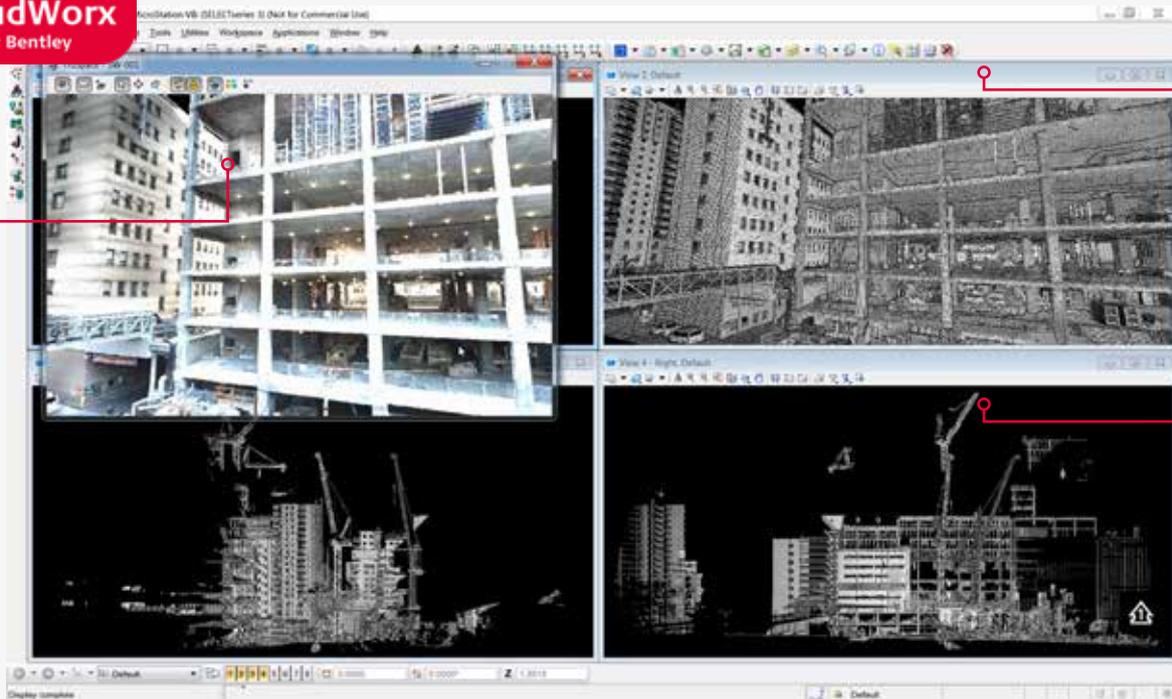


# Leica CloudWorx for Bentley

## Point cloud plug-in software



The CAD window can synch and follow the TruSpace viewer for easier navigation



JetStream point cloud engine available for unlimited point cloud rendering in size and area

Clear viewing of entire job site with out the need to load only partial jobs. Load the entire job at once with instant rendering of unlimited points using JetStream

### Efficient management, viewing and processing of laser scan data for architectural, plant, civil and other 2D and 3D projects.

Leica CloudWorx for Bentley is the most efficient and popular plug-in software for using as-built point cloud data directly within Bentley, AECOSim Building Designer and OpenBuildings Designer.

Users take advantage of the familiar Bentley interface and tools to shorten the learning curve for working with laser scan data. Leica CloudWorx along with the powerful Leica Cyclone and Leica JetStream point cloud engines let users efficiently visualise and process large point cloud data sets as part of the traditional design process. By leveraging the accuracy of point cloud data users can create accurate 2D and 3D as-builts, check proposed designs against existing conditions, perform critical construction and fabrication QA, and more... all directly within the Bentley product.

In the past, users often struggled with point cloud manipulation when using Bentley point cloud plug-ins.

CloudWorx overcomes this with its powerful TruSpace viewing window. This intuitive, panoramic viewing window lets users "see" better what the point cloud represents, and acts like a super-control to drive point cloud visualisation in Bentley with unprecedented speed.

### Features and Benefits

- Auto-Fit Polyline tool lets users quickly fit 2D lines and arcs to the point cloud with one or two picks
- QuickSlice tool lets users quickly slice and orientate the point cloud, aligning the UCS to walls and floors
- Points on a Grid tool
- SmartPick capability
- Steel fitters with support for standard catalogs
- Fast manipulation of scans in MicroStation
- Directly access laser scan data sets using the all new JetStream and the popular Cyclone project structure
- Slices – quickly trace or auto-fit 2D lines, polylines, arcs
- 2D line, steel, flange and auto-pipe fitters for intelligent as-builts
- Accurate tie-ins and clash checks
- Fully-featured for 3D or 2D deliverables
- English, German and Japanese versions

leica-geosystems.com



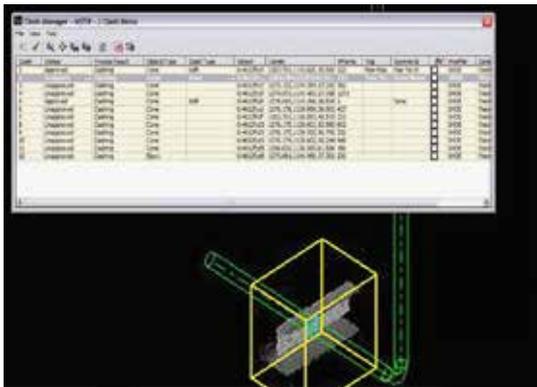
- when it has to be **right**

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# Leica CloudWorx for Bentley



One common usage of point cloud data in CloudWorx is to trace over the point clouds to create dimensionally correct 2D or 3D wire frames for building elevations, model extrusions, etc. Several CloudWorx commands make this easy.



Clash Manager creates a database for managing, tracking, assigning and classifying clashes. A powerful navigation feature lets users easily pull up isolated views of any clash. Here we see a pipe clashing with scanned point cloud data of a beam.

## Control point cloud display

Easy-to-use tools allow a user to quickly define specific areas of interest to display while hiding other portions of a point cloud for improved visualisation and comprehension. Quickly work in 2D and 3D by using fences and user-defined cutplanes, slices or 3D limit boxes.

## Accurate building documentation

Slices through point cloud data facilitate the creation of planimetric and elevation drawings. 2D lines, polylines and arcs can be best-fit to provide accurate results. Cross sections of point clouds can also be plotted directly, introducing an entirely new, accurate deliverable and reducing project cycle time.

## As-built piping models

Pipe fitting, steel fitting (with catalogue support) and flange fitting tools enable users to quickly create accurate, intelligent as-built piping models, best-fit to the point clouds, in conjunction with tools in Bentley PlantSpace, PDS, etc. without the labour intensive process of hand modelling each object. Tie-in locations for proposed retrofit designs are also easily identified thanks to an automatic tie-point finder. Planar surfaces can also be modelled from point clouds using CloudWorx fitting and region growing tools.

## Detailed information for retrofit projects

Engineers can use CloudWorx in retrofit design projects to check for potential interferences with as-built or as-is conditions by leveraging the accuracy and precision of laser scanning. The unparalleled detail provided by point clouds allows engineers to create 2D or 3D designs based on accurate, comprehensive information, providing time and cost-savings throughout a project's various construction phases.

## Civil engineering applications

CloudWorx integrates with applications like Bentley's InRoads and GEOPAK to deliver solutions for civil engineering projects, such as transportation infrastructure, land development, bridge models and more. Users can extract 3D coordinates to represent site features that are easily identifiable in detailed point clouds. Original ground points can be extracted for topographic modelling.

## Available in multiple languages

CloudWorx for Bentley is localised in multiple languages. See the Leica CloudWorx Technical Specifications document for a complete listing of product specifications.

### LEICA CLOUDWORX FOR BENTLEY\*

<b>Large point cloud management</b>	3D limit boxes, slices, interactive visualisation of massive data sets Connects to Cyclone or JetStream Database Technology for fast, efficient point cloud management.
<b>Rendering</b>	Level of Detail (LOD) graphics, "Single pick" point cloud density control
<b>Visualisation</b>	Intensity mapping, true colour TruSpace panoramic viewer <ul style="list-style-type: none"> <li>- Select view point from key plan</li> <li>- Drive CAD viewpoint from TruSpace</li> <li>- Quick limit box in CAD from single pick in TruSpace</li> <li>- Send point picks from TruSpace to CAD commands</li> <li>- Include background image</li> </ul> Limit boxes, slices, cut planes
<b>Measurement</b>	3D point coordinate, point-to-point, point-to-design entity
<b>Modelling</b>	Pipe Modelling: least-squares fitting, fit points inside fence, grow from pick, grow a pipe run from picks, connect pipe runs. Planar surface (patch) modelling: best-fit 2D lines, polylines, arcs, Steel Fitter (with catalogues), Flange Fitter & Tie-Point Location tools.
<b>Interference checking</b>	Check designs for potential interferences with point clouds, advanced clash management database system
<b>CloudWorx Ultimate compatibility</b>	CloudWorx for Bentley is compatible with the CloudWorx Ultimate licence

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\* Reference the Leica CloudWorx Technical Specifications document for a complete listing of product specifications.

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