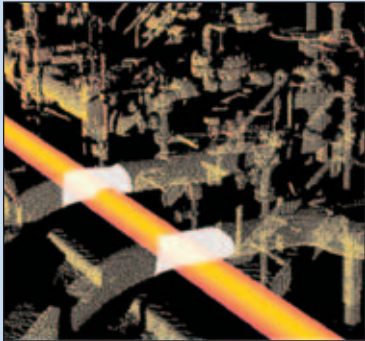
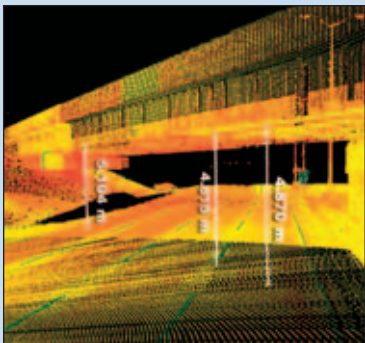


Leica CloudWorx 3.3 for MicroStation

Software application that lets users take advantage of rich 3D point clouds directly within CAD



Interference Checking



Point-to-Point Clearance Measurement



Accurate 2D Elevation from Point Clouds

Leica CloudWorx 3.3 for MicroStation

Delivers 3D point clouds created by High-Definition Surveying™ (HDS™), or 3D laser scanning, systems directly into the hands of designers and engineers who need accurate, detailed field conditions. Leica CloudWorx provides immediate productivity, enabling users to easily visualize and work with 3D point cloud data, create accurate as-builts, check proposed designs against existing site conditions and compare construction progress with design plans in the familiar MicroStation environment.

Powerful Performance and Visualization

3D laser scanners capture existing conditions in the field to generate a highly visual and accurate representation of reality as 3D point clouds. Leica CloudWorx uses Leica Cyclone technology to efficiently display point clouds in MicroStation – merging sophisticated rendering performance, visualization, data management and data interrogation with popular CAD tools.

Point Cloud Display Control

To focus on particular areas of interest, easy-to-use tools define specific areas of 3D point clouds to display. For improved visualization, segments of point clouds can be selectively hidden using fences and user-defined cutplanes or slices through the point cloud data.

Spatial Navigation with 3D Limit Box

Project data can be organized into 3D Limit Boxes. A Limit Box Manager enables users to navigate spatially through the database quickly loading and viewing data as-needed.

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 point cloud slices 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

Leica CloudWorx' powerful pipe fitting tool enables users to quickly create accurate, intelligent as-built piping models, best-fit to the 3D point clouds, with the help of plant design add-on applications for MicroStation such as Bentley PlantSpace or PDS. Tie-in locations for proposed retrofit designs can also be easily identified and marked. Planar surfaces can also be modeled 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 proposed designs for potential interferences with point clouds that represent actual “as-built” or “as-is” conditions. 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

Leica 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. The user can extract 3D coordinates to represent site features that are easily identifiable in detailed point clouds. Original ground points can be extracted for topographic modeling.

Available in Multiple Languages

CloudWorx is available in English, German and Japanese language versions.

- when it has to be **right**

Leica
Geosystems

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Features		Benefits
<p>Large Point Cloud Support</p> <p>Efficient loading Visualization Navigation Cyclone Object Database Client/Server technology</p> <ul style="list-style-type: none"> - Fast data processing - Efficient data management 	<p>Modeling</p> <p>Pipe Modeling:</p> <ul style="list-style-type: none"> - Least-squares fitting - Fit points inside fence - Grow from pick - Grow a piping run from picks - Connection of piping run - User-defined error tolerance <p>Planar surface (patch) modeling:</p> <ul style="list-style-type: none"> - Least-squares fitting - Fit points inside fence - Grow from pick - User-defined error tolerance <p>Best-fit 2D lines, polylines, arcs:</p> <ul style="list-style-type: none"> - Fit 2D lines, polylines, arcs to point cloud slices - User-defined tolerance <p>Flange Tie-Point Location Tool</p> <p>Place flange tie-point from point cloud</p> <ul style="list-style-type: none"> - Using coordinate axis - Using pipe axis - Using 2 or 3 hint points - Optional flange thickness offset distance <p>- Find Tie-Point</p> <ul style="list-style-type: none"> - Work from flange face - Offset to hidden face - Offset to raised face <p>Tracing</p>	<p>Easy to Learn and Easy to Use</p> <p>Integrated into existing MicroStation design and work processes Short learning curve</p>
<p>Rendering</p> <p>Level of Detail (LOD) graphics</p> <ul style="list-style-type: none"> - "Single pick" point cloud density control <p>Intelligent memory management</p>		<p>Fast, Accurate, Comprehensive, Reality-based</p> <p>Comprehensive as-built data Efficient modeling and information extraction tools Higher confidence as-built projects through sophisticated software algorithms.</p>
<p>Visualization</p> <p>View point clouds with:</p> <ul style="list-style-type: none"> - Intensity mapping - True color 		<p>Supports Wide Range of Plant, Civil, Architectural Applications</p> <p>Accurate 2D planimetric and elevation drawings 3D as-built models Engineering planning As-is condition assessment for range of applications including retrofit and revamp projects</p>
<p>Display Control</p> <p>Control over:</p> <ul style="list-style-type: none"> - Displaying point clouds - Snapping to point clouds <p>Flexible point masking:</p> <ul style="list-style-type: none"> - Fence - Section (half-space) - Slice - Limit box (volume clipping) 		<p>Verify Designs with Detailed Point Cloud Data</p> <p>Facilitate adjustments to proposed retrofit designs for clash-free installation Support construction monitoring</p>
<p>Point Cloud Management</p> <p>By scanner location Limit Box Manager Cutplane Manager (sections, slices) Hide Regions Manager (fences) Layers in Cyclone database</p>	<p>Interference Checking</p> <p>Check designs for potential interferences with point clouds Highlight interfering points User-defined parameters Advanced clash management database system</p> <ul style="list-style-type: none"> - Project based management - Organized by group of clashing points per CAD entity - Clash by region - Sort, classify, ignore - Re-run clash and update status - Configure clash parameters - Automated visualization - Auto navigate to any specific clash - Auto limit box about clashing point region - Wireframe box surrounding clashing points - Advanced relational database reporting system (Requires Microsoft Access) 	<p>Minimize or Eliminate Site Revisits</p> <p>Detailed point clouds archived in Cyclone database provide data on as-needed basis</p>
<p>Measurement</p> <p>3D point coordinate Point-to-point Point-to-design entity</p>		<p>Workgroup Support</p> <p>Flexible licensing and enterprise usage options. Licensing options include node-locked, floating, or Leica EnterpriseElite subscription licensing. Database sharing via Cyclone-SERVER or via Terminal Server access.</p>
<p>Output</p> <p>Ability to plot points</p>		<p>System Requirements</p> <p>English: Microsoft Windows XP (SP1 or higher), Windows 2000 (SP3 or higher with up to date security patches) German/Japanese: Microsoft Windows XP Professional (SP2 or higher) 2 GHz Pentium 4, or higher 512 MB RAM (1GB or more recommended) SVGA or OpenGL accelerated graphics card Ethernet network card, for licensing</p>
<p>Point Cloud Archiving</p> <p>Point clouds as historical as-built record</p>		<p>MicroStation Version Support</p> <p>CloudWorx for MicroStation works with all versions of Microstation from MicroStation/J through MicroStation V8 XM Edition.</p>

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