

# Leica CloudWorx 1.1 for Intergraph SmartPLANT® Review

Powerful, versatile solution for using laser scan data in Intergraph SmartPlant® Review



## Leica CloudWorx 1.1 for Intergraph SmartPlant® Review

is the first point cloud solution to provide Intergraph users with the convenience and added value of working with rich as-built laser scan data directly within Intergraph SmartPlant Review.

High-Definition Surveying™ or HDS™ (also known as laser scanning) offers the most accurate, complete, cost-effective way to collect and work with as-built information for existing facilities. Intergraph users have long enjoyed the capability to work directly with laser scan data within PDS using MicroStation-based CloudWorx solutions. Now they can enjoy the same benefits in Intergraph's latest design review platform.

## Review and Visualize in Context with the Existing Environment

Users enjoy a virtual site presence within their native review environment. Project and design teams can review, visualize, and dynamically interact with real world "as-found" point cloud conditions and a fully-rendered PDS or SmartPlant 3D design model. The result is greater confidence in assessing a design's impact on construction and/or operations.

## Powerful Point Cloud Management & Measurement

Leica CloudWorx for Intergraph SmartPlant Review users can quickly navigate and manipulate point cloud data. For any viewpoint, the application automatically selects the best set of data to load, plus it allows users ready access to all data without having to chop up scan data sets into smaller blocks. To quickly navigate to areas of specific interest, users can apply handy "Cutplane Slices and Sections" and/or spatial "Limit Boxes" and recall the defined partition on demand. Users can also use SmartPlant Review tools for direct measurement.

## Automated Point Cloud Interference Detection

CloudWorx for Intergraph SmartPlant Review allows users to automatically detect clashes between modeled objects and point clouds, with results based on a user-defined tolerance threshold setting. All scan points indicating a clash within the defined threshold are visually highlighted.

## High Accuracy Plus High Performance

The Leica CloudWorx for Intergraph SmartPlant Review application is based on Leica Geosystems' Cyclone point cloud foundation, which lets users enjoy both high accuracy and high performance point cloud management. Leica's point-based representation – in contrast to volumetric or "voxel" based representation approaches – preserves the highest accuracy of the raw scan data. From a performance standpoint, Leica algorithms treat data volumetrically for efficient processing, storage, and sharing.

## Versatile Support of Multiple Scanner Formats

Intergraph users can take advantage of geometric scan data from any laser scanner via industry-standard ASCII-based data formats. In addition, Leica CloudWorx for Intergraph SmartPlant Review directly accepts, without any data format conversion, compact native data formats from the industry's most popular scanners. These include all models of Leica Geosystems HDS time-of-flight and phase-based laser scanners, all Cyra scanners, and selected scanners from other vendors. This capability to accept native formats from the industry's most popular scanners provides users the opportunity to take advantage of increased office efficiencies via the largest network of scanning service providers and installed base of scanners.

- when it has to be **right**

**Leica**  
Geosystems

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Features		Benefits
<p><b>Large Point Cloud and Model Support</b></p> <p>Efficient loading Visualization Navigation Cyclone Object Database Client/Server technology</p> <ul style="list-style-type: none"> <li>- Fast data processing</li> <li>- Efficient data management</li> </ul>	<p><b>Point Cloud Management</b></p> <p>By scanner location</p>	<p><b>Easy to Learn and Easy to Use</b></p> <p>Integrated into existing SmartPlant Review design and work processes Short learning curve</p>
<p><b>Rendering</b></p> <p>Level of Detail (LOD) graphics "Single pick" point cloud density control Intelligent memory management</p>	<p><b>Interference Checking</b></p> <p>Check designs for potential interferences with point clouds Highlight interfering points User-defined parameters</p>	<p><b>Fast, Accurate, Comprehensive, Reality-Based</b></p> <p>Comprehensive as-built data Efficient information extraction tools Higher confidence as-built projects using sophisticated environment visualization</p>
<p><b>Visualization</b></p> <p>View point clouds with:</p> <ul style="list-style-type: none"> <li>- Intensity mapping</li> <li>- True color</li> </ul>	<p><b>Point Cloud Archiving</b></p> <p>Point clouds as historical as-built record</p>	<p><b>Supports Wide Range of Applications</b></p> <p>Concept validation Engineering and construction planning As-is condition assessment for range of applications including retrofit and revamp projects</p>
<p><b>Display Control</b></p> <p>Control over:</p> <ul style="list-style-type: none"> <li>- Displaying point clouds</li> <li>- Snapping to point clouds</li> </ul> <p>Flexible point masking:</p> <ul style="list-style-type: none"> <li>- Fence</li> <li>- Section (half-space)</li> <li>- Slice</li> <li>- Limit box (volume clipping)</li> </ul>		<p><b>Verify Designs with Detailed Point Cloud Data</b></p> <p>Facilitate adjustments to proposed retrofit designs for clash-free installation Support construction monitoring</p>
<p><b>Point Cloud Management</b></p> <p>Limit Box Manager Cutplane Manager (sections, slices) Hide Regions Manager (fences) Layers in Cyclone database</p>		<p><b>Minimize or Eliminate Site Revisits</b></p> <p>Detailed point clouds archived in Cyclone database provide data on as-needed basis</p>
<p><b>Measurement – Support Intergraph Surface Measuring</b></p> <p>3D point coordinate Point-to-point Point-to-design entity</p>		<p><b>Workgroup Support</b></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><b>System Requirements</b></p> <p>Microsoft Windows XP (SP1 or higher), Windows 2000 (SP3 or higher with up to date security patches) 2.0 GHz Pentium® 4 or higher/ Pentium® M Processor 1.7 GHz or higher 512 MB RAM (1GB or more recommended) SVGA or OpenGL accelerated graphics card Ethernet network card for licensing Intergraph SmartPlant Review version 05.01.002.20 Intergraph Point Cloud Integrator</p>

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