



# CloudWorx for Intergraph Smart® 3D

## Analyze 3D Point Clouds within Smart 3D

Intergraph Smart® 3D offers market-leading, next-generation plant, offshore and material handling design solutions. The CloudWorx add-on provides access to point cloud data inside Smart 3D. This software along with Leica Geosystems Jetstream or Intergraph Smart Laser Data Engineer is a powerful combination that enables you to perform an asset walkdown inside Smart 3D without leaving the comfort and safety of your office.

CloudWorx for Intergraph Smart 3D is a plug-in for efficiently manipulating as-built point cloud data – captured by laser scanners – directly within Smart 3D for better retrofit design, construction and operations. It provides a virtual site within Smart 3D for greater confidence in assessing potential construction and operational impacts of the new design.

Take advantage of the Smart 3D interface and tools to shorten the learning curve of working with laser scan data. Efficiently visualize and process large point cloud data sets. You can create accurate 3D as-builts, check proposed designs against existing conditions, perform critical construction and fabrication QA, and more ... all directly within Smart 3D.

The Hexagon PPM solution is faster and easier than other point cloud plug-ins. A unique TruSpace viewing window provides intuitive, panoramic viewing so users can comprehend point clouds better. TruSpace also enables users to manipulate point clouds faster and directly

“jump to” nearby scanner locations. The unique centralized database architecture even lets multiple users access all of the scan data without having to segment it.

### **Conceive and Design in Context with the Existing Environment**

Design teams can conceive, design, visualize and dynamically interact in context with the real-world, “as-found” point cloud conditions. Users experience the physical reality as a digital reality.

### **Powerful Point Cloud Management and Measurement**

Quickly and effectively manage vast amounts of point cloud data. “Cut Plane Slices and Half-Space Sections” and/or “Limit Boxes” provide a quick and easy way to navigate point cloud data. Take measurements with familiar Smart 3D measuring tools.

### **3D as-built Modeling**

Using the Smart 3D native modeling tools, users can create catalog-based, intelligent, as-built piping systems directly from point clouds. You can also use the point cloud points to model structures, duct work, electrical tray systems, vessels and equipment.

## Automated Point Cloud Clash Detection and Reporting Clash Manager

Smart 3D provides powerful clash detecting and reporting tools for checking point clouds against modeled objects. Interfering points are visually highlighted and itemized, with clashes stored in the database for managing, tracking, assigning and classifying. A powerful navigation feature lets users easily pull up isolated views of any clash.

## Multiple Scanner Formats Support Large Point Cloud Management

CloudWorx for Smart 3D users can take advantage of spatial scan data from any laser scanner via conversion of industry-standard data formats to a common format. These include all models of Leica Geosystems HDS laser scanners.

### Benefits

- Support for any laser scanner output through Cyclone REGISTER
- Multi-user, simultaneous network access
- Fast manipulation of point cloud data within Smart 3D
- Graphical user interface that blends with Smart 3D commands
- Easy, clear viewing using slices, half-space sections and limit boxes
- Direct measurements from point clouds
- Clash checking and reporting
- Generate drawings with point clouds along with 3D objects
- Quicker digitalization using the smart route and native commands of Smart 3D
- Easily perform demolish workflows on the point cloud data
- Support to detect and correct construction/site deviation corrections
- Visual progress tracking of Smart 3D model creation from point clouds

## Large Point Cloud Management

- 3D limit boxes, slices, interactive visualization of massive data sets
- JetStream point cloud engine for high-speed rendering without any lags or "regen" delays, even when working with billions of points
- Cyclone object database technology for fast, efficient point cloud management

### Visualization

- Intensity mapping and photo-quality true color
- TruSpace panoramic viewer
  - Select view point from key plan
  - Drive Smart 3D viewpoint from TruSpace
  - Quick limit box in Smart 3D from single pick in TruSpace
  - Send point picks from TruSpace to Smart 3D commands
  - Include background image
  - Access to Geotags, Snapshots with mark-ups and other metadata
- Limit boxes, slices, cut planes

### Measurement

- 3D point coordinate, point-to-point, point-to-design entity

### Modeling

- Auto-route pipe from point clouds
- Drive native modeling commands using point cloud pick points
- Centerline references for cylindrical shapes of an Equipment

### Interference Checking

- Check designs for interferences with point clouds using Smart 3D clash tool and highlight interfering points

## About Hexagon

Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications.

Hexagon's PPM division empowers its clients to transform unstructured information into a smart digital asset to visualize, build and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire lifecycle.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 21,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at [hexagon.com](http://hexagon.com) and follow us @HexagonAB.