



## LEADING-EDGE TECHNOLOGY

Take advantage of Smart 3D's advanced architecture to increase productivity, reduce rework, accelerate projects, and ultimately gain a competitive edge:

- **Concurrent Design** – Leverage the data-centric 3D modeling paradigm to maximize project communication and efficiency through real-time concurrent design.
- **Intelligent Rules and Relationships** – Capture your company's tacit knowledge and engineering expertise to drive 3D design with customizable rules that enable objects to interact in an intelligent and automated manner.
- **Task-based Modeling** – Ramp up projects quickly with a common, easy-to-learn interface that also provides a discipline-specific experience for each user based on the task/workflow being executed.
- **Automated Deliverables** – Ensure accuracy of procurement, fabrication, and construction packages as well as adherence to project schedule via fully-automated drawing and report generation.
- **Interoperability** – Work with a rich array of 3D design formats in a single hybrid model while consistently sharing engineering data across multiple teams via integration with SmartPlant Enterprise.

## WHAT'S NEW IN INTERGRAPH SMART™ 3D

Intergraph® is consolidating its market-leading, next-generation plant, offshore, and materials handling design solutions, SmartPlant® 3D, SmartMarine® 3D, and SmartPlant 3D Materials Handling Edition, into a single solution called Intergraph Smart™ 3D. Smart 3D technology delivers the highest level of productivity of any solution available today.

### SINGLE APPLICATION

Smart 3D provides multi-industry capabilities in a single application. Combining the functionality for ship/offshore projects and materials handling with those of onshore plant design, Smart 3D represents the most comprehensive solution for intelligent 3D design. Since all the data is stored in a single database, concurrent engineering in one or multiple locations is achieved via robust and flexible data replication technology from Microsoft® or Oracle. A consistent, workflow-oriented user interface designed to be intuitive and discoverable makes Smart 3D easy to learn, allowing quick ramp-up of even the largest projects.

### PRODUCTIVITY IMPROVEMENTS

Smart 3D includes several enhancements aimed at boosting productivity, such as:

- Extended Model Data Reuse (MDR) capabilities now support marine structural objects, pipe spec mapping, and drawing reuse.
- Improved performance and reduced administrative overhead for global workshare for Oracle users via Oracle GoldenGate.
- Full integration of Intergraph's powerful Batch Services technology, including central administration of both local and piped queues.
- Spec-driven duct modeling to ensure HVAC and industrial duct systems are compliant with company practice and applicable engineering standards.
- Improved object selection, rotation, and measurement in a 3D modeling environment.
- Intuitive, user-definable forms for straightforward modeling of complex pipe support assemblies.
- Improved modeling of jacketed piping, including automated discrimination between core and jacket pipe runs; support for disconnected jacketing; and automated generation of fabrication/erection isometrics.
- More automatic cable routing capabilities, like allowable and avoidance volumes.

### NEW CAPABILITIES FOR ONSHORE PLANT DESIGN

For companies previously using SmartPlant 3D or other plant design systems, several powerful application environments are now available:

- **Modular design capabilities** – Rule-based or interactive assembly definitions for use in sequencing construction and installation operations.
- **Weight and Center of Gravity** – Automated calculation and flexible display/reporting for accurate and comprehensive tracking of mass property information.
- **Automated Structural Detailing** – Rule-based generation of welds, bevels, notching, sniping, and more for both modeling and fabrication.
- **Structural Manufacturing** – Automatic cutting sketches and interface to external nesting systems.
- **Hole Management** – Managed environment enables rule-based generation of penetrations through all types of structural objects with automated detailing, change management, and handshaking between the initiator and the owner of the object being penetrated.
- **Additional automatic drawing extraction capabilities** – Assembly sequencing and structural fabrication drawings.

### 3D INTEROPERABILITY

Smart 3D is the only system to offer interoperability with both graphics and data attributes of foreign CAD models, making it ideally suited to brownfield and joint-venture projects. This capability allows intelligent connections to externally modeled piping and equipment, real-time clashing across all authoring tools, view filtering, and combined foreign-native orthographic drawings and reports. Through integration with SmartPlant Interop Publisher, Smart 3D extends the number of supported 3D formats, enabling an even richer, centrally-managed 3D ecosystem.

### DRAWINGS AND REPORTS

Improvements to automated generation of project deliverables – including simplified administration and configuration utilities – add value to projects more quickly than ever before. Smart 3D now comes with a new Isometric Setup tool for even easier configura-

tion of integrated Piping Isometric generation. Isometrics have been enhanced to better support jacketed piping, including disconnected sections.

A new profile and data drawing template enables users to update bills of materials to better reflect company standards. Drawing by ruleset functionality has been extended to support outfitting/plant objects, providing an efficient mechanism for automated generation of complete drawings sets. And, the automatic drawing templates now offer enhancements for hangers and support.

### MARINE AND OFFSHORE

Smart 3D continues to extend its 3D modeling capabilities to meet the needs of the marine/offshore design and fabrication market. Enhancements include sophisticated plate-splitting and weld generation capabilities, advanced member placement, parametric modeling of topological openings, additional options for structural detailing, and greater detection and change management capabilities in the Common Parts Engine.

### MINING AND MATERIALS HANDLING

Responding to input from a burgeoning user community in the mining sector, Smart 3D now leverages a conveyor belt object class, extending capabilities to model, manage, and generate accurate and detailed deliverables on mining projects in a comprehensive and efficient manner. Enhancements include:

- Seamless integration with SideWinder, Helix, and Beltstat belt design applications.
- Automated belt certification/correction.
- Internal 2D/3D workflow for modeling conveyor components.
- Trestle Wizard for parametric modeling of trestles.
- Design reuse capabilities via Smart 3D's MDR command.
- Parametric layout, modeling, and detail design of chutes.

## ABOUT INTERGRAPH

Intergraph is the leading global provider of engineering and geospatial software that enables customers to visualize complex data. Businesses and governments in more than 60 countries rely on Intergraph's industry-specific software to organize vast amounts of data to make processes and infrastructure better, safer and smarter. The company's software and services empower customers to build and operate more efficient plants and ships, create intelligent maps, and protect critical infrastructure and millions of people around the world.

Intergraph operates through two divisions: Process, Power & Marine (PP&M) and Security, Government & Infrastructure (SG&I). Intergraph PP&M provides enterprise engineering software for the design, construction, operation and data management of plants, ships and offshore

facilities. Intergraph SG&I provides geospatially powered solutions, including ERDAS technologies, to the public safety and security, defense and intelligence, government, transportation, photogrammetry, and utilities and communications industries. Intergraph Government Solutions (IGS) is a wholly owned subsidiary of Intergraph Corporation responsible for the SG&I U.S. federal business.

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