Bentley
Advancing Infrastructure

PRODUCT DATA SHEET

OpenRail™ Designer

Integrated Modeling, Analysis, and Documentation for Rail Networks

OpenRail Designer is a complete software for detailed rail network design. Its integrated approach to both 2D and 3D design supports project teams to work using intuitive and traditional design methods while benefiting from the advantages of the new technology. Powerful, intelligent modeling supports BIM workflows and adherence to project standards, as well as enables production of documentation directly from the 3D model.

From routine track upgrades to mega projects, OpenRail Designer has discipline-focused capabilities for a wide variety of complex tasks, including alignment and profile regression analysis, Cant, yard design, corridor modeling, low voltage assets/signaling, and turnout placement.

OpenRail Designer delivers industry-recognized tools and workflows for metro, light rail, commuter, high-speed, and freight infrastructure for significant productivity improvements, better quality, reduced rework, and on-time delivery.

EFFICIENT OPTIMIZED DESIGN

Use intelligent 3D modeling and powerful design and analytical tools to perform faster design iterations and streamline time-consuming tasks to optimize your design. Enhance your track geometry designs, reuse common design layouts, analyze rail and sleeper placement, and perform rail track regressions for significantly increased productivity.

SIMPLIFIED COLLABORATION

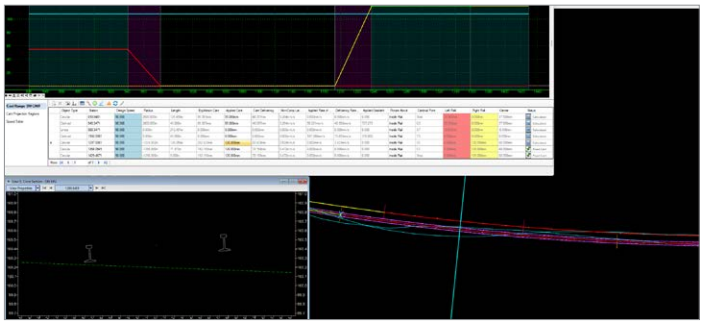
OpenRail Designer's BIM enabled workflows and interoperable software facilitates coordination among project stakeholders, including engineers, contractors, and suppliers. See the full picture with geotechnical, drainage, utilities, and visualization tools integrated with detailed rail design capabilities to improve project delivery and decision-making. Let your teams create, visualize, automate, and instantly modify designs together with the most up-to-date models from anywhere.

CONSISTENT ACCURATE DELIVERABLES

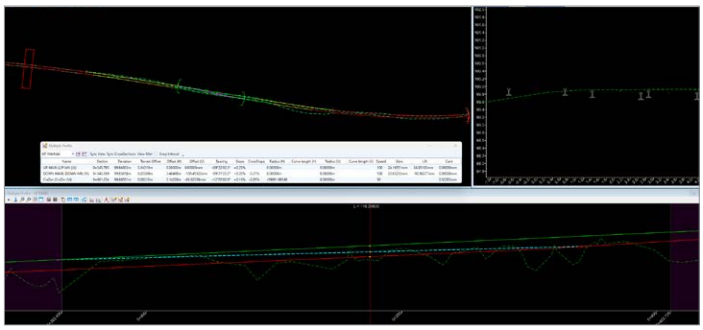
Sync design and drafting for automated plan production, removing the need for manual updates when the design changes and assuring the accuracy of final construction documents. Simplify compliance with consistent project standards with drawings across projects and organizations. Enable BIM workflows to simplify handover into construction and operations.

POWERFUL SCALABLE PERFORMANCE

OpenRail Designer can scale with project teams, size, and complexity, as well as geographic distribution. Teams can easily manage large models and drawings as OpenRail Designer consolidates both the graphics and engineering data into the DGN file. Data is easily shared, and referenced, as it is all located in the DGN. The DGN file allows teams to store data in one, or many, federated files and easily work with them across the entire project by simply referencing the DGN files. Its 64-bit architecture ensures that it can be used efficiently on the largest projects, leverage the memory capacity of modern computers, and support the most recent Windows operating systems.



Expedite the planning, design, and delivery of rail networks with discipline focused tools and workflows.



Powerful design and analytical tools enable faster design iterations and streamline time-consuming tasks to optimize your design.

SYSTEM REQUIREMENTS

MINIMUM: Intel or AMD processor 2.5 GHz or greater, 16 GTB RAM, 25 GB hard disk space.

RECOMMENDED: 32GB RAM, 1 GB video RAM, 42 GB hard disk space for companion applications.

OpenRail Designer At-a-glance

PLATFORM

- All MicroStation® functionality
- Production drafting
- Create parametric solids, surfaces, meshes, and feature models
- Item types for custom attribution
- Reporting and tables
- Easily integrate hundreds of geographic coordinate systems
- Printing and plotting
- Integrate CAD data in many formats: DGN, DWG, DXF, PDF/U3D, IFC, Rhino 3DM, STL, VRML World, and SketchUp SKP
- Integrated Bentley LumenRT visualization capabilities
- ProjectWise® integration

TERRAIN MODELING

- Import from 20+ common formats (graphics, point clouds, ascii, InRoads®, GEOPAK, MX, LiDAR, DEM, and LandXML)
- Import from Esri, USGS, and SRTM services
- Create complex and delta terrain models
- Edit terrain models
- Transform terrain models
- Label contours and spot points
- Display contours, triangles, spots, and flow arrows

GEOTECHNICAL

- Integrate OpenGround®
- Query gINT® project files
- Display borehole locations, profiles, and cross sections
- Annotate boreholes

GEOMETRY

- Horizontal geometry (arc or chord)
- Horizontal geometry spirals: Clothoid, Bi-quadratic Parabola, Bloss, Sinusoid, Cosine, various Cubic Parabola, and more.
- Vertical geometry (parabolic or circular)
- Horizontal and vertical best fit and regression
- Customizable geometry reports
- Rail turnouts and crossings
- Speed zone tables
- Cant
- Rail topology

LOW VOLTAGE ASSETS/SIGNAL SIGHTING

- Low voltage assets standards
- Trenches along a topology route
- Trench elevations
- Trench connections
- Schematic diagrams

SURVEY

- Read/write standard raw survey formats
- Reduce survey data
- Feature coding for custom survey feature connectivity, display, and annotation
- Adjustments: least squares, compass, Crandall, and transit
- Produce dynamic graphical and tabular editing of survey field book data
- Conduct terrain modeling
- Export common data formats

REALITY MODELLING

- Use raster images
- Attach point clouds
- Attach reality meshes
- Classify point cloud classification
- Use reality mesh edit, drape, and extract tools
- Develop scalable terrain models

DRAINAGE AND UTILITIES

- 3D modelling of utilities, storm, and sanitary drainage
- Steady-state (e.g. rational method) hydraulic design and analysis
- Culvert design and hydraulic analysis
- Unsteady-state hydraulic analysis
- Pond design and analysis
- Hydraulic analysis of low impact developments

MODELING

- Corridor modeling
- Superelevation/Cant
- Sweep envelope
- Site grading optimization
- Dynamic cross sections
- Earthworks – triangulated and end area volumes
- Customizable earthwork reports

DELIVERABLES

- Plan and profile sheet generation
- Cross section sheet generation
- Sheet and object annotation
- Reporting
- Synchronization with Bentley Infrastructure Cloud™
- Export to common formats: DWG, DXF, LandXML, and IFC

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FIND OUT MORE AT BENTLEY.COM

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