



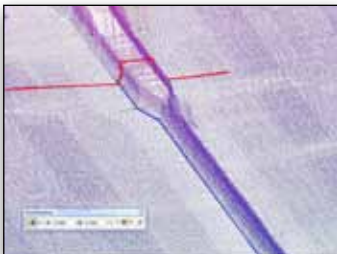
## Bentley® Descartes

The Most Comprehensive Imaging Product for Visualization and Document Conversion

Bentley Descartes advances information modeling by being the only imaging product that is integrated with MicroStation® for the processing of fundamental data types, high productivity visualization, and document conversion – all in a single product.



Work with multiple images as if they are a single image.



Visualize and edit point cloud data.



Combine various formats in a single scene.

### High-fidelity Imaging Supports Precision Mapping and Engineering

Bentley Descartes enables users to combine imagery in virtually any format and projection with the precision mapping capabilities of MicroStation and Bentley's geospatial applications for map production and digital map creation to support business or government requirements. The seamless integration of Bentley Descartes with MicroStation avoids dual working environments for raster and vector information.

### Advanced Point Cloud Processing Increases Productivity

Bentley Descartes integrates point cloud data with engineering tools. Users can easily reclassify point cloud data to fix classification errors, filter point cloud to isolate key points, drape vectors along an arbitrary direction, extract geometry for hybrid point cloud-vector models, and more. These capabilities enable users to better evaluate point clouds and produce more accurate engineering models, for civil, building, plant, and geospatial projects.

### Fast Creation of Seamless Image Mosaics

Capitalize on the high performance display engine and the capabilities of Bentley Descartes to create seamless mosaics of multiple images, scanned aerial photos, or adjacent raster scanned images to see the complete picture. Users can choose to leave the source images in their original form to produce a mosaic or create an easily transportable mosaic all in one file.

### Rapid Interpretation and Conversion

Bentley Descartes is designed to provide fingertip control over all the editing functions necessary for image interpretation and raster-to-vector conversion. It expedites work, saving time and money with a robust set of tools including cleanup, vectorization, and Optical Character Recognition.

### On-the-fly Projection of Georeferenced Images

When used with Bentley Map®, any georeferenced image can be transformed on-the-fly to another coordinate system and projection. Dynamic resampling provides instantaneous raster transformation and Job Manager allows users to process resampling jobs in batch.

### Precision Registration

Our unique WYSIWYG image registration is much more intuitive than other approaches that require distinct windows for vector and image data and that rely heavily upon transformational statistics. Registration provides for dynamic warping that overlays vector data over the uncorrected image to enable users to verify the transformation model before resampling the image, and for transformation of vector data through the same model and batch resampling of images.

### Native Support for a Wide Variety of Industry Formats

Bentley Descartes provides support for a wide variety of industry-standard image formats. Native binary, grayscale, and color image formats (1, 4, 8, 11 and 24, 48 and 64-bits). All formats are implemented natively for optimal performance. Fast open and save operations without conversion are supported and files can easily be converted to any supported format.

### Flexible Image Manipulation and Rapid Document Editing

Bentley Descartes includes tools to crop, copy, move, merge, scale, mirror, square, and rotate images or objects within images, as well as tools to make regions of images translucent or transparent. Use these capabilities to automate production of montages, corridor and plan sheet alignments, or to lay out plots or documents. Clean up drawings by filling holes, using erasers, despeckling, and a variety of other methods. Bentley Descartes also provides a rich set of tools to edit images. Rapidly improve the quality of poor source drawings in order to take advantage of automated conversion tools or quickly restore and enhance legacy drawings to prolong their life.

### Intuitive Manipulation of Large Scalable Terrain Models

Bentley Descartes enables the use and display of very large terrain models, typically for city or regional level planning, increasing the return on investment on large datasets. Users can display the scalable terrain model (STM) in a variety of modes and can easily keep it up to date by synchronizing it with a wide variety of sources.

## System Requirements

Please refer to the Installation Requirements section of the Bentley Descartes ReadMe file at [www.bentley.com/Descartes-Spec](http://www.bentley.com/Descartes-Spec)

Find out about Bentley at: [www.bentley.com](http://www.bentley.com)

Contact Bentley  
1-800-BENTLEY (1-800-236-8539)  
Outside the US +1 610-458-5000

Global Office Listings  
[www.bentley.com/contact](http://www.bentley.com/contact)

# Bentley Descartes At-A-Glance

## Visualization

- Image draping on DTM or 3D Objects
- MicroStation-based rendering
- Real-life textures
- Lighting effects
- Elevation
- Perspective
- Creation of fly-throughs and animations
- Creation of 3D PDFs
- Interpretation and Conversion
- Semi-automatic and interactive modes
- Intelligent conversion
- Topologically ready linework
- Point, stream, and arc modes
- Gap jumping
- Generalization
- RasterSnap
- Contour conversion
- Rasters erased while vectorizing
- Optical Character Recognition

## High Fidelity Imaging

- AccuSnap-enabled image borders
- Standard MicroStation selection sets for manipulation
- Standard MicroStation tools for move, scale, and rotate
- Dynamic transparency
- Display priority settings
- New line conversion engine
- New generalization algorithms

## On-the-fly Projection

- Coordinate system and projection system control
- Transformation of vector and raster data
- Georeferenced file format support
- Georeferenced "sister files"
- User-defined projections

## Document Cleanup, Editing, Enhancement and Image Manipulation

- Clean-up tools
- Clean-up mask
- Pixel-grid at high-zoom levels
- Vector stamping
- Drafting
- Rubber sheeting

## Image Enhancement

- Translate, scale, and rotate
- Set translucency/transparency
- Use WYSIWYG enhancement tools
- Crop non-rectangular shapes
- Perform selection set operations
- Perform contrast stretch

## Registration

- Precision warping with register
- WYSIWYG display of vectors and control points over raster
- Batch resampling
- Multiple warping methods
- Align tool
- Batch processing

## Image Mosaics

- Automatic seaming and feathering
- Unlimited number of images
- Automatic color balancing
- Corridor cropping to DGN elements
- Mosaics processed as a single image
- High-performance image display
- 1-bit to 24-bit color support
- 16-bit/channel support (64-bits)
- Look-Up-Table (LUT) support
- Fast file open and save
- Image conversion not needed

## Standard File Formats

- ECW (unlimited), PDF, IMG, JPEG 2000, BIL, DOQ, FLI, SPOT CAP and Digital Image Map
- TIFF (1 to 32-bit), GEOTIFF, iTIFF, COT, CIT, RLE, CALS, PCX, IMG, BUM, TG4, INT, RGB, TGA, JPEG, RLC, RS, HMR, BMP, and IKONOS 3 (Red), and 4 (NIR) bands from GeoEye
- Compression schemes: Deflate, Pack-Bits, CCITT3, CCITT4, and JPEG 2000
- Wavelet compression schemes: ECW and MrSID

## Point Cloud Processing

- Point cloud visualization
- Drape and snap elements
- Classification editing
- Smart Snap (fully integrated with MicroStation's AccuSnap)
- Visual Explorer
- Batch tile export
- Pointools, POD, LAS, and XYZ file export
- Primitive fitting (extraction of planar and cylindrical elements)

## Scalable Terrain Modeling

- Creation of scalable terrain models (STMs)
- High performance display of very large digital terrain models (DTMs)
- Flexible display modes: smooth shading, smooth shading with shadows, aspect angle, elevation, slope, contours
- High resolution image draping on STM
- STM update and synchronization with DGN files, Civil DTMs, point cloud data, XYZ files



*Bentley Descartes enables users to easily integrate raster and vector data.*



*Image courtesy of the City of Québec*

*An image that illustrates drape aerial photographs on terrain models.*