3D Stereo Technology

Multi-platform
Arc GIS

Worldwide Support

World-Class Digital Photogrammetric Workstation

Summit Evolution™

www.DATEM.com/**summit**

DAT/EM®
Systems International

Summit Evolution™

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DAT/EM Systems International is an Alaska-based company that has been developing photogrammetric software since 1987. As a leading developer of photogrammetric hardware and software products and services, DAT/EM specializes in 3D feature collection software with its digital stereoplotter, Summit Evolution, and its 3D stereo point cloud viewing and editing product, Landscape.

Summit Evolution maximizes the return on your investment in stereo imagery. It takes 3D stereo vector digitizing to a new level with its powerful combination of digital stereoplotter, CAD and GIS interfaces, 3D stereo vector superimposition, automated feature editing and contour generation. Through its unique and customizable Capture™ interface, image features from a Summit Evolution project are digitized directly into AutoCAD®, MicroStation® or ArcGIS®. DAT/EM SuperImposition™ is built into every Summit Evolution system; the Professional level includes automatic and semi-automatic orientation tools, coordinate transformation, mapping-related digitizing tools, and the DAT/EM MapEditor™.

Integration with the Landscape™ point cloud editing toolkit is standard.

Summit Evolution projects may be created from virtually any source of stereo imagery, including aerial digital and scanned film, close range terrestrial, digital sensors, orthophoto, Synthetic Aperture Radar, LiDAR, and satellite sources. Projects from third-party systems may be imported and immediately brought into production as Summit Evolution projects. Projects not already registered in three dimensions may use a preexisting DTM in the Follow Terrain tool to direct movement of the Summit cursor. Similarly, the Elevate Layers tool can elevate 2D vectors to 3D.

Features

- Supports monochromatic, panchromatic, three-channel and multi-channel multispectral imagery
- Supported image sources include scanned aerial film, matrix and push-broom digital airborne cameras, small- and medium-format metric cameras, close-range imagers, orthophotos, satellites, LiDAR, and synthetic aperture radar.
- Imports third-party softcopy projects, aerotriangulation results, and other orientation files for quick setup.
- Full range of manual and automatic image orientation capabilities.
- Digitizes 3D vectors directly into AutoCAD, MicroStation, or ArcGIS using DAT/EM's robust, world-class Capture interface.
- Robust and easy-to-use user interface for maximum productivity.
- Multiple stereo viewing windows including Bird's-eye, Close-up, Project Overview, and 3D Vector Split window for a variety of visualization and feedback tools.
- Multiple project windows.
- Unlimited zoom levels, fast pan, and automatic loading of adjacent stereomodels, with SuperImposition of CAD and GIS vectors over image view.
- DAT/EM Ortho+Mosaic™ modules for easy and precise creation of orthomosaics, including true orthos.
- The Terrain Visualizer tool for dynamic, real-time preview of contours while DTM objects are edited.
- Contour Creator for creating and writing the finished contours to the CAD file.
- Interface to the DAT/EM Satellite ProPacks, our solution to providing satellite orientations and 3D vector feature collection from satellites.
- Airfield3D standards-compliant airspace obstruction mapping tool.
- Point Translator for importing, georeferencing, and converting vector data, including LiDAR and other DTM features.
- Automatic elevation snapping and terrain following tools.

Recommended Configuration

www.datem.com/**configurations**

Three Levels

PROFESSIONAL
Full-function, fully capable stereoplotter.

FEATURE COLLECTION
For those whose orientation requirements are met elsewhere, but who still require the world-class Capture interface to the CAD or GIS of their choice.

LITE
A low-cost system designed for viewing, terrain following, and simple editing and measurement.

Feature	Lite	Feature Collection	Professional
DAT/EM Capture for MicroStation, AutoCAD, ArcGIS	■	■	■
Ortho+Mosaic			■
Terrain Visualizer		■	■
Contour Creator			■
Satellite Propack Interface	■	■	■
Point Translator		■	■
Airfield3D for ArcGIS			■
MapEditor automated editing software for AutoCAD or Microstation		■	■
Vector SuperImposition	■	■	■
Viewing, terrain following, and simple editing and mensuration	■	■	■
Advanced 2D and 3D editing, snapping, attribute handling		■	■
Complete software documentation and one year system support	■	■	■
Project status tracker		■	■
Landscape integration		■	■

3D Stereo Technology

Multi-platform

Worldwide Support

World-class 3D vector digitizing interface for AutoCAD™, MicroStation™, and ArcGIS™.

CAPTURE™

Feature of **SUMMIT EVOLUTION & LANDSCAPE**

DAT/EM Capture is the primary tool for vector collection from stereo images. Vector information can be collected directly into one or more companion CAD or GIS programs. Currently supported companions are AutoCAD®, MicroStation®, and ESRI ArcGIS®; the Capture API (Application Program Interface) admits easy access to other CAD and GIS programs. The ability to digitize 3D vector data directly, without translators, into these CAD packages, including attribute, block and cell support, is a major example of the superiority and flexibility of DAT/EM's software design.

The robust middleware design of Capture delivers unbreakable connectivity plus full access to all the native functionality of the companion CAD and GIS. The middleware design is key — in addition to interfacing our own Summit Evolution line of digital photogrammetric workstations to the companion software, Capture also extends the serviceability of legacy Analog and Analytical workstations as well as DAT/EM's new point cloud editing toolkit, Landscape.

Stereo viewing with real-time panning and zooming, vector data superimposition onto stereo imagery, and true 3D digitizing and editing tools such as convenient building squaring, 3D vertex dragging and field editing, all contribute to making DAT/EM Capture the peak of softcopy convenience. The stereo capture capability is a real boon to people trying to interpret imagery: urban planners, foresters, wetlands biologists, geologists...

Enter the powerful world of 3D digitizing and drawing file editing with DAT/EM Capture.

DAT/EM Capture interfaces directly from one of DAT/EM's flagship products, such as the Summit Evolution™ digital photogrammetric workstation or the Landscape™ pointcloud editing toolkit, to one of three companion CAD or GIS applications. Or both. Or all three. Or more —with the DAT/EM API it is easy to create a custom interface.

Using a stereo front-end application such as Summit Evolution or Landscape to display stereo data, Capture works in the background to send 3D (X, Y, Z) ground coordinate triplets to the companion application. Simultaneously, 2D or 3D features from the CAD or GIS are rendered back in true relative 3D position in the stereo display using DAT/EM Super/Imposition™ for immediate feedback and feature verification. The user's experience and productivity are enhanced from precise and instantaneous validation of their work.

Features

- DAT/EM Capture's drawing and editing tools make mapping-specific tasks easy to accomplish
- Custom building squaring modes
- Your choice of 2D and 3D snapping modes spot elevation

- A wide selection of multiple-line offsets
- DTM point collection
- Specialty mapping tools such as contour labeling
- CAD-specific attribute mapping

Capture is included in select Mapping Suites   *Recommended hardware configuration* www.datem.com/**configurations**

CAPSS-20120731

DAT/EM®
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3D Stereo Technology

Multi-platform
ArcGIS

Worldwide Support

Standards-Compliant Automatic Airspace Obstruction Mapping Tool

AIRFIELD3D

Feature of **SUMMIT EVOLUTION™ | PROFESSIONAL**

www.DATEM.com/airfield3d

Summit Evolution™ Professional by DAT/EM Systems International is used to accurately and efficiently collect 3D geospatial airport and aeronautical data. Airfield3D™ is a component of Summit Evolution specifically designed to complete Airport Airspace Analysis Surveys that comply with the data structure identified in the U.S. Federal Aviation Administration Advisory Circular 150/5300 – 18B (FAA 18B).

Airfield3D uses the stereoplotter engine of Summit Evolution Professional to enable viewing, identification, and attribution of objects penetrating sensitive airspace. Using DAT/EM's world-renowned, high-performance stereo user interface, Airfield3D offers automatic project setup, automatic field calculation and attribution (with manual override), and visual cueing of obstruction surface violations. Airfield3D collects all data directly into FAA-designed templates for ArcGIS®, which means the files are always in their delivery format.

Airfield3D is included in select Mapping Suites

Recommended Configuration

http://www.datem.com/**configurations**

Features

- View stereo images and collects features using the Summit Evolution™ Professional digital photogrammetric workstation.
- Digitize directly into ArcGIS templates supplied by the FAA and designed specifically to comply with FAA Circular 18B.
- Integrate flawlessly with ArcGIS geodatabases, shapefiles, and tables.
- Easily import tabular and vector survey information (e.g. survey information and obstruction areas) using wizards.
- Automatically construct Airport Airspace Survey Surfaces for Vertically Guided (VG) and Non-Vertically Guided (NVG) surfaces from runway centerline and airport elevation.
- Automatically subdivide, identify, and attribute VG and NVG surfaces.
- Automatically calculate the Area Limit obstructing-surface grid. Grid definition parameters are customizable.

- Fill multiple attribute fields simultaneously (with manual override).
- Select attributes from standard domains, including natural and man-made objects.
- Automatically detect the Obstruction Identification Surface (OIS):
  - Cursor changes color when crossing the surface.
  - Cursor can either move freely or can be locked to follow the surface elevation
- Provide realtime feedback of OIS violations:
  - Distance above surface
  - Name of surface(s)
  - Name of surface section
- Write Obstruction Identification Surface into the FAA template for that data type.
- Verify and report.

AIRFSS-20120715

DAT/EM® Systems International

POWERED BY **esri**

Full 3D Map Editing for AutoCAD™

MapEditor

www.DATEM.com/**mapeditor**

*Reduce overall editing
time from hours to minutes*

DAT/EM MapEditor for AutoCAD is a full 3D editing package for AutoCAD DWG files. It has many time-saving tools such as global block changes and clipping, and includes several 2D digitizing commands. They can reduce overall editing time from hours to minutes. Commands may be run interactively on an as-needed basis, or in batch using a command list file.

MapEditor is an ADS application working completely within AutoCAD and AutoCAD-based applications on Windows XP®, Windows Vista®, and Windows 7.

Features

- 3D TO 2D conversion of polylines
- BREAK polylines along cutting edges
- BREAKLINE FILTER changes the layer of DTM points that are located near linework
- CLIP objects and/or layers exterior or interior to a polyline boundary
- CLIP objects around text
- CROSSCHECK searches for crossing or nearly crossing polylines
- DTM DISTRIBUTOR combines two or more DTM point sets into a single, evenly distributed grid
- EDITLINE draws a new polyline section, or connects parts of two polylines to a new section, joining them all together into one polyline
- EXTEND polylines to meet other polylines
- FILTER reduces the number of polyline vertices while preserving the original polyline appearance

- FIX Z values on 2D polylines so each vertex has the same elevation as the starting segment
- GRIDIT inserts a map sheet grid with northing and easting text
- NTERP adds intermediate elevation contours between existing index contours within a user-defined area
- JOIN two or more polylines together into one polyline
- LABELIT adds elevation labels or blocks to polylines with options for rotation and breaking
- PATTERN polylines with blocks or drawings
- RESIZE symbols and text
- REVERSE polyline vertex order
- SCALLOP polylines to denote areas covered by trees and vegetation
- SMOOTH polylines
- SQUARE sides of existing objects

MapEditor is included in select Mapping Suites

Recommended Configuration: www.datem.com/**configurations**

MEACSS-20120802
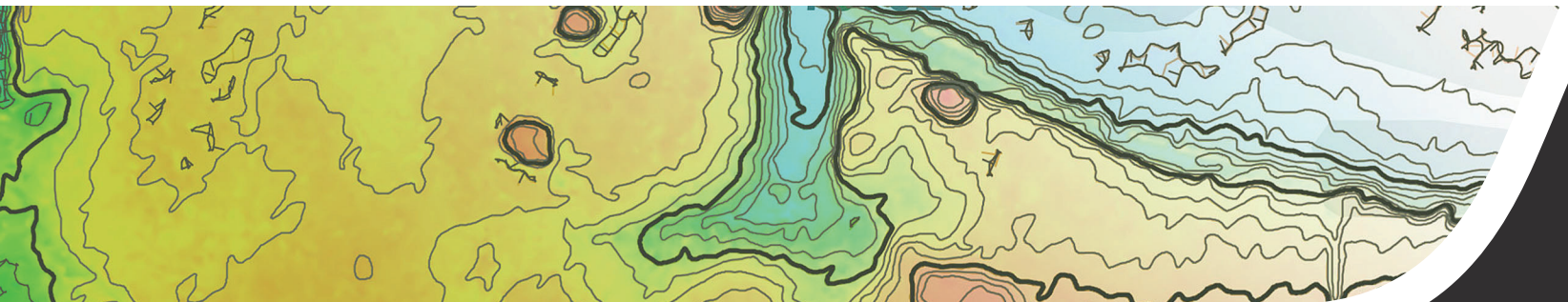
DAT/EM®
Systems International

3D Stereo Technology

Worldwide Support

Platform

Full 3D Map Editing for MicroStation™

MapEditor

Reduce overall editing time from hours to minutes

DAT/EM MapEditor for MicroStation is a full 3D editing package for MicroStation DGN files. It has many time-saving tools that process groups of objects, and includes vertex and partial line string editing   and 2D and 3D digitizing commands. Contains both interactive and batch mode commands to accommodate every editing need, from executing a single command on a single element to running many commands across multiple files.

MapEditor is an MDL application that works completely within MicroStation and Micro-Station-based applications on Windows XP®, Windows Vista®, and Windows 7.

Features

- BREAK elements at selected vertices or near points, or on an intersecting element or fence
- BREAKLINE FILTER deletes or modifies points from the area in or near line strings, fences and/or shapes
- CHANGE ATTRIBUTES to standardize or change combinations of level, color, weight and line code
- CHECK ATTRIBUTES displays a list or report of unverified objects for interactive editing
- CLIP and remove elements from inside or outside of shapes
- CLOSE LINE STRING converts line strings into shapes

- CURVE TO LINE STRING converts curves to line strings
- DELETE objects based on attributes
- DTM DISTRIBUTOR merges multiple DTM point distributions into one evenly spaced DTM grid
- FILTER line strings to remove unneeded vertices while preserving the original shape of the line string
- FIND DUPLICATE objects and display them for editing
- FIX COMPLEX HEADER verifies and repairs complex line strings and shapes; compresses them into the minimum number of components; drops complex status when possible
- JOIN sets of line strings into single elements
- LINE STRING TO CURVE converts line strings to curves

- PATTERN performs global patterning and pattern removal
- REPLACE one object type with another, or change text strings and cells
- ROTATE objects based on attributes
- SCALLOP line strings defining trees or vegetation
- SMOOTH line strings by adding vertices for a smoother appearance
- SQUARE existing line strings or shapes
- TOUCH and trim lines and line strings of one symbology to objects on another symbology
- ZCHECK marks and zooms to conflicting Z values and XY intersections

MapEditor is included in select Mapping Suites

Recommended Configuration: www.datem.com/**configurations**
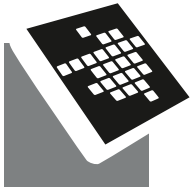
MEMS-20120802

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DAT/EM®
Systems International

LANDSCAPE™

www.DATEM.com/landscape

The latest in innovative software from DAT/EM Systems International, Landscape is an essential software tool for editing large terrain point sets such as LiDAR (Light Detection and Ranging) files. It provides an advanced, efficient, fast, and easy-to-understand portal into the world of 3-dimensional LiDAR points. Landscape is equipped with utilities for editing, modifying, and classifying 3D points (point clouds) and for generating new data based on the points. Landscape's tools can be configured by the user to enhance understanding of the data view.

The editing tools in Landscape allow easy modification of point cloud data. Editing tools can be used to affect a single point, all points in a project, or a selection built using Landscape's sophisticated filtering tools. Included with Landscape is DAT/EM Drawing Tools, a simple built-in vector editor which may be used to collect and save vector features in a variety of formats.

For more advanced digitizing tools, one or more companion DAT/EM Capture™ module may be added. With Capture, advanced CAD and GIS formats for AutoCAD®, MicroStation®, and ArcGIS® may all be superimposed and viewed in the Landscape 3D viewing environment, and objects in those drawings may be used as input into the various tools in Landscape.

Easily integrated with Summit Evolution™, point clouds in Landscape may be viewed in tandem with stereo imagery, and each data type may be used seamlessly with the other to manage, edit, and collect vector and point cloud data.

Several tools for working with large point datasets are incorporated in Landscape and are also available with a Summit Evolution Professional installation:

- **Generate LiDAR Frame**
  Generates images and their stereo mates from point data files, enabling 3D stereoscopic imaging.

- **Generate Stereo Mate**
  Generates stereo mates (.tif) from existing LiDAR images (i.e. "LiDARgrammetry")

- **Point Translator**
  Management tool to combine, extract, and merge point files in a wide variety of formats, spacings, and orientations.

- **Super/Imposition Tool**
  Load vector and orthophoto files to view together with the points in Landscape.

Features

- View points in perspective stereo with many coloring and viewing options. Roam, zoom, pan, and rotate from any angle or distance.
- Colorize the view of the point cloud by elevation, return, flight line, intensity, RGB color (orthophoto), or classification.
- No limit to the number of simultaneous input files. Tools for controlling the detail on display.
- Full 3D mouse support for navigating, selecting, and digitizing. Support for mouse button programming and macro creation using DAT/EM Button Manager.
- Edit and reclassify points. Output the revised point set to a new file.
- Digitize new 3D vectors such as breaklines based on the points.
- View existing .dxf, .dwg, .dgn, or .shp vector files with the points.
- Draw and edit objects with the built-in vector editor, DAT/EM Drawing Tools.
- Optionally, digitize directly into AutoCAD, MicroStation, or ArcGIS using DAT/EM Capture.
- Superimpose existing objects directly from AutoCAD, MicroStation, or ArcGIS.
- Fully integrated with Summit Evolution, DAT/EM's world-class digital photogrammetric workstation. Superimpose Landscape's points on a Summit stereomodel for direct validation of your work.

Recommended Configuration

www.datem.com/**configurations**

3D Stereo Technology

Multi-platform

Worldwide Support

Productivity at your fingertips!

Hardware

Hardware™

DAT/EM Systems International is an Alaska-based company that has been developing photogrammetric software since 1987. As a leading developer of photogrammetric hardware and software products and services, DAT/EM specializes in 3D feature collection software with its digital stereoplotter, Summit Evolution, and its 3D stereo point cloud viewing and editing product, Landscape.

KeyPad
Single-touch tactile command entry system

The original DAT/EM Keypad is a multipurpose reprogrammable touch pad. Originally designed to run with our DAT/EM Capture stereoplotter interface, the DAT/EM Keypad is versatile enough to use either as an accessory or a stand-alone programmable keys. Its changeable 8 ½" by 11" overlay/menus are easily customized and printable on any system printer.

TouchPad
Touch Sensitive Interface

The new 'TouchPad' from DAT/EM Systems International allows operators to quickly and efficiently issue command sequences during map compilation.
The touch-responsive interface, which has no moving parts, work with existing DAT/EM Keypad overlays. Easily programmable, the Touchpad can display key diagrams both horizontally and vertically.
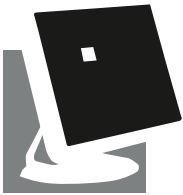
TouchScreen
On-the-fly configurable tactile interface

The new 'TouchScreen' from DAT/EM Systems International is a stand-alone LCD monitor with an integrated tactile interface. With a single touch, the Touch Screen allows operators to quickly and efficiently send command sequences during map compilation. Existing DAT/EM Keypad overlay files may be used or customized as required.

KeyPad Advantage
Highly configurable wireless keypad

The Keypad Advantage is the latest keypad variant offered by DAT/EM Systems International. It offers a wireless interface in addition to the features offered by the DAT/EM 'TouchScreen' and 'TouchPad.' Like its predecessors, the Keypad Advantage may be run using an existing DAT/EM Keypad overlay or a user designed overlay. The Keypad Advantage can be run from a wide range of Android platforms; the application is compatible with all devices running Android OS 4.0 or greater.

HandWheels
X, Y, Z precise, and comfortable coordinate entry

DAT/EM Systems International has fully redesigned its line of handwheels and footdisks with operator comfort and ease of use in mind. The handwheels are made from machined aluminum and are precisely balanced to offset handle weight. Handwheel disks are designed with the size and mass to provide an extremely solid, smooth feel for the operator. The disks are also commercially anodized for a hard, scratch resistant finish that gives a smooth, silky feel that will not chip or peel away like those with powder coatings.

Recommended Configuration

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