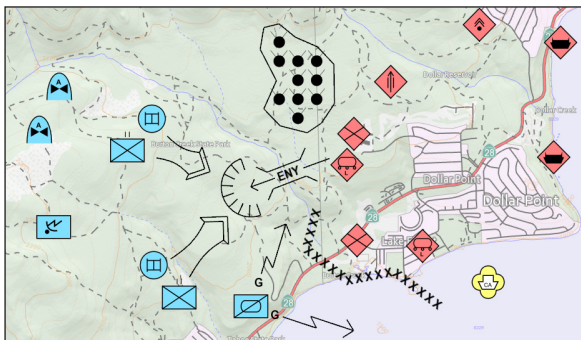


Carmenta Engine 5.1 Extensions

Tactical Extension

- Extension for creating, managing and visualizing tactical symbols according to the MIL-STD-2525B (change 1) standard.
- For more information please refer to the separate Tactical Extension product sheet.



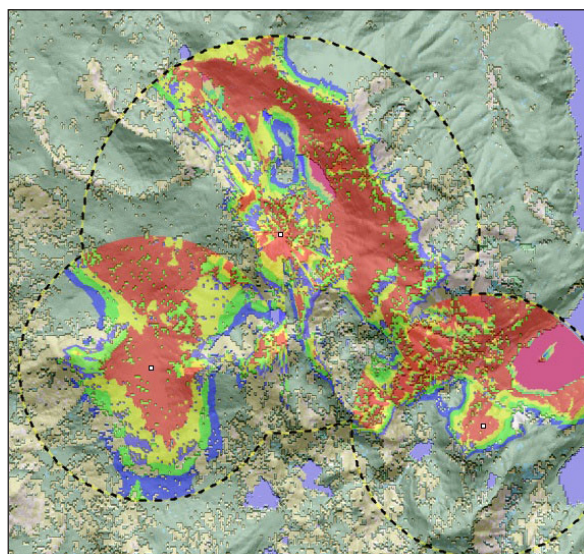
3D Extension

- Enables interactive fly-throughs in 3D with dynamic loading of visible data.
- 2D and 3D are integrated in the same system. Since they use the same data and visualization models, it is easy to add a 3D view of the same data.
- Automatic on the fly generation of 3D worlds straight from 2D/3D GIS data, no 3D modeling is needed.
- Interaction tools for navigating in 3D worlds.
- 3D variants of nearly all the 2D visualizations, such as text and symbol labels.
- 2D objects can be elevated to ground level or draped onto textures.
- Support for VRML and 3D Studio (.3ds) 3D models.
- Level of detail in 3D terrain and VRML-objects based on distance from the camera.
- 3D parameters such as camera and sun position, camera angles and fog can be dynamically set.
- Automatic 3D building and fence generation from 2D lines and polygons.
- 3D ground can be generated on the fly from elevation raster data, 3D lines or 3D points. Configurable triangle decimation.
- Any 2D layer or combination of 2D layers may be draped over a 3D ground.
- Distribution of points for trees or other vegetation.



Visibility Analysis Extension

- Extension for performing visibility calculations.
- Uses elevation data to compute the regions that have a free line of sight to the position of a geographical object.
- Extremely rapid, usually the calculations and presentation can be done in real-time.
- Optionally uses a level of detail method to speed up far range calculations.
- The line of sight result consists of raster values that tell were the ground is visible or how tall something would have needed to be - to be seen.
- The line of sight result can be visualized in 3D or intersected and visualized as a vertical profile.
- It may also batch compute the line of sight from each possible position within an area (a visibility index) for indicating in which area it is most likely to get a good line of sight.
- Another variant is the "target line of sight", a line of sight between objects. This operation tags objects with the objects they currently see.
- Provides functionality for computing the shadows cast by hills on a specific time and day.
- Can also be used for calculating the line of sight from regular or phased array radar systems.
- Parameters: lobe size width and height, direction and pitch, and the sensor height above its carrier (carrier can be on ground or airborne), minimum and maximum range, and refraction in the atmosphere.
- The point from where the line of sight is calculated can be dynamic, e.g. connected to an object that is moving.



Military Geodata Formats Extension

- Adds functionality for reading military geographic data in CMRG (PCMap), DFAD and RPF (CADRG and CIB) formats.

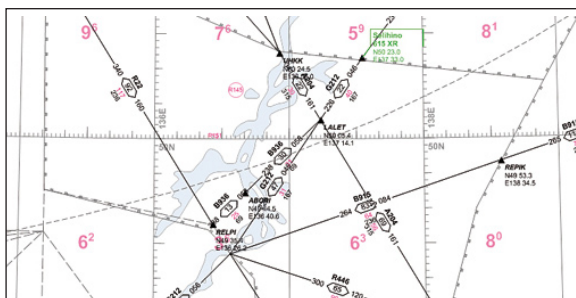
Vertical Profile Extension

- Extension for generating a vertical profile, usually a ground profile, along a route.
- Profiles can be generated from elevation information in raster data, lines or points.
- The route can be put on same view as the vertical profile.
- Fits perfectly into the Carmenta Engine model. Generated profiles are visualized using the normal visualization model, and input can be other analysis operations such as a 3D view shed from line of sight operations.
- Possible to make multiple layered vertical profiles in the same View. For instance, a profile with ground and trees.



ARINC 424 Extension

- Reads aeronautical navigation database files on the ARINC SPECIFICATION 424-16, 424-17 and 424-18 formats.
- Reads most of the sections available in the files: Airports, Heliports, Airport runways, Airport gates, Enroute and terminal waypoints, VHF nav aids, NDB enroute and terminal nav aids, Holding patterns, Enroute airways, SIDs, STARs and Approach procedures, Preferred routes, FIRs and UIRs, Controlled airspaces, Restrictive airspaces, Airway restrictions, GridMORA, and Airport, Heliport and Enroute communication.



C-MAP CM93 Extension ¹

- Adds functionality for reading C-Map nautical vector chart data in CM93 format.

C-MAP CM93 S52 Presentation Extension ¹

- Extension for reading CM93 vector data and displaying it using an ECDIS S52 compliant renderer.

DWG and DXF Extension

- Extension for reading CAD databases in the file formats DWG and DXF, as used by AutoCAD.

Microsoft SQL Server Extension

- Extension for reading spatial objects from a Microsoft SQL Server 2008 relational database.

MySQL Extension

- Extension for reading spatial objects from a MySQL relational database with spatial extension.

Oracle Spatial Extension

- Extension for reading spatial objects from an Oracle Spatial relational database.

Printing Extension ¹

- Extension for handling scale-correct printing of maps and other Carmenta Engine 2D Views on printers.
- Support for printing directly on printer with printer's resolution or in-directly by first rendering to an internal bitmap.
- Support for tiled printing that enables printing on large paper sizes such as A0.

Terrain Vehicle Analysis Extension

- Extension for calculation of terrain vehicle accessibility and speed in terrain.

¹ Not available for Linux.