

OCAD 12 Offline Wiki

english

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About this Wiki

This wiki will help familiarize you with the functions of OCAD 12.


How to Get to the OCAD Wiki

There are different ways to open the Wiki from OCAD:

- In the **Help** menu you can choose the following items:
 - **Contents:** You will go to the **Main Page** of the OCAD Wiki.
 - **Menu:** You will go to the **Menu** part of the **Graphical User Interface** page.
 - **Toolbar:** You will go to the **Toolbar** part of the **Graphical User Interface** page.
 - **Renewals:** You will go to the **What is New** page.
- If you want to go directly to an article about a function, press the **F1** key when you have selected the function from the menu or toolbar.
- Many dialog boxes provide a **Help** button. Click it to go directly to the article for that function.

OCAD Tutorial Videos











OCAD offers you learn videos for various subjects. They help you to learn step by step how to use the functions. If there is an OCAD tutorial video for a specific subject area in this manual, you can open it by clicking its link in this document. Example exercises are available for most of the tutorial videos and can be downloaded from <http://www.ocad.com/en/support/learn-video/>. The tutorial videos and example exercises are available in English only.

 Many videos are made with earlier versions of OCAD. Functions or dialog boxes may have changed. Look for the OCAD Wiki article on the corresponding function to get help for the most recent version of OCAD.

 OCAD basics ^[1]

Conventions


The following conventions are used in this Wiki:

- **Bold:** Menu commands, buttons, keyboard, dialog boxes
 - *Italics:* Files
 - "Quotation marks": Input values, selection values
 -  Hint
 -  OCAD tutorial videos
 -  This function is available in OCAD 12 Mapping Solution.
 -  This function is available in OCAD 12 Professional and OCAD 12 Mapping Solution.
 -  This function is available in OCAD 12 ThematicMapper.
 -  This function is available in OCAD 12 Orienteering.
 -  This function is available in OCAD 12 Starter.
 -  This function is available in OCAD 12 Viewer.
 -  This function is available in OCAD 12 Course Setting.
 -  This function is only available in the OCAD 12 Enterprise Edition.
-


Terms/Glossary

The following terms from the disciplines of geospatial technology, computer science and cartography, are used in this manual. An explanation of the most important terms is provided here to keep the explanations as short as possible and avoid any possible misunderstanding.

- **Vertex:** **Vertices** are specified by a pair of coordinates (x/y values). **Vertices** are used to define the position of points, lines and areas.
- **Object:** Each element on a map is referred to as an object (map object). There are point, line, area and text objects.
- **Point Object:** The position of a point object on the map is defined by a single vertex. These points can be moved, deleted or rotated. The vertex generally represents the center of the symbol.
- **Line Object:** A line object on the map is defined using a sequence of vertices. Individual vertices can be moved or deleted and new ones added. The object can be disconnected, rotated, reshaped or merged with lines of the same symbol. The vertices represent the center of the line. Line objects are directional.
- **Area Object:** An area object on the map is defined by a sequence of vertices. Individual vertices can be moved or deleted and new ones added. The object can be stretched, reshaped, reduced, rotated or merged with other areas with the same kind of symbol.
- **Image Object:** An image object is an imported vector graphic element. These are solely line and area objects. Not all OCAD editing functions can be applied to image objects. An image object must be converted into an object or assigned to a symbol before it can be edited. Image objects can be converted individually or automatically based on a reference table.

 Image objects ^[2]

- **Graphic Object:** A graphic object is an element created using the **Convert To Graphic Object** function. This function is used to break an object down into its individual basic elements or to convert it into an outline.

 Graphic objects ^[3]

- **Layout Object:** A layout object is on the layout layer at the top of the map. The layout layer may contain raster images and vector objects like lines, areas or text. The vector layout objects color model is CMYK. The layout images' color model is RGB.
- **Symbol:** Symbols are used to define a map object's graphic appearance. For example, a tree may be represented by a green circle on the map. Every map object drawn using the "tree" symbol will therefore have the same graphic appearance. If the symbol is changed using the symbol editor, all map objects drawn using it also change. OCAD provides four basic symbol types that correspond to the properties of their respective objects:
 - Point symbol
 - Line symbol
 - Area symbol
 - Text symbol
- **Georeferencing:** Georeferencing refers to the allocation of spatial reference information to the map so that its content can be mapped to a geodetic reference system, i.e. augmented by geographic coordinates (geocoding). OCAD supports more than 50 geographic coordinate systems. Information about the geographic coordinate system appropriate for your application is available from national land surveying offices, cartographic institutes or data suppliers.
- **Vector Maps:** Vector maps are made up of vectors (points, lines or area objects) defined by vertices. Raster maps can be created using vector maps. OCAD maps are vector maps.
- **Georeferenced Vector Maps:** A georeferenced vector map refers to a vector map whose vectors have been referenced using geographic coordinates (geocoded).

- **Background Map:** Background map refers to a raster map or OCAD file used as a background. It serves as a drawing template or background map image. Examples include scanned draft maps, satellite pictures, orthophotos, and shading. OCAD cannot be used to edit background maps.
- **Raster Map:** A raster map (bitmap) is made up of a series of regularly spaced pixels positioned at right angles. In OCAD, they can only be used as background maps. They can neither be edited nor converted into vector maps using OCAD. OCAD supports the following raster map formats:
 - BMP - Bitmap
 - TIFF - Tagged Image File Format
 - JPG - Joint Photographic Experts Group
 - GIF - Graphics Interchange Format
 - PNG - Portable Network Graphics
- **Georeferenced Raster Map:** A georeferenced raster map refers to a raster map whose pixels have been referenced using geographic coordinates (geocoded). Georeferencing information is usually stored in a “world file”, a second file with the same name as the raster map file. The file extension is made up of three letters. The first two letters refer to the raster map file format, the third letter for world file. The world file should be neither renamed nor edited. With TIFF files, georeferencing information can be stored in the raster map file itself; a world file is therefore not always required. OCAD supports the following world files and/or georeferenced raster map file formats:
 - BPW -World file for a BMP file
 - TFW -World file for a TIFF file
 - JGW -World file for a JPG file
 - GFW -World file for a GIF file
 - PGW -World file for a PNG file

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[Next Chapter: What is New](#)

References

- [1] <http://www.ocad.com/howtos/33.htm>
 - [2] <http://www.ocad.com/howtos/60.htm>
 - [3] <http://www.ocad.com/howtos/59.htm>
 - [4] <mailto:info@ocad.com>
-

What is New

General / GUI

- Right panel replaced with **docking** dialog
- Several **new toolbar icons** added
- New tool **Open Google Street View** added
- **Pan** with mouse wheel down
- **Zoom in / out** with [Ctrl] and [+/-]
- Change view mode in **status bar**
- Faster drawing of text objects
- **License Transfer Utility** added (OCAD Service Update 12.2.0)

File

- New option to **set map scale** in new file dialog
- New option to **load symbol description** from text file when loading a new file

Import

- **Import KML** added
- **Import OSM** Available in **OCAD 12 Orienteering** and **OCAD 12 Starter** edition (*OCAD Service Update 12.2.0*)
- **Import Shape:** Smooth option
- **Import Shape:** Available in **OCAD 12 Orienteering** edition (*OCAD Service Update 12.1.2*)
- **Import Shape:** Extended to get layer information from 2nd field (*OCAD Service Update 12.2.0*)
- **Import CSV:** New option to choose m / km unit

Print / Export

- New option to **load extent from selected objects**
- **SVG export** also available in OCAD Orienteering, Starter, Viewer and CS edition
- **GPX export:** Export elevation of waypoints and track points if DEM is loaded
- **Export: SRA paper formats** added

View

- Rename a **bookmark** (*OCAD Service Update 12.1.8*)

Select

- **Lasso** selection added
- **Select object by date** function added

Drawing Objects

- **Show object length** in status bar while drawing and editing
 - Show area **completion while drawing area objects**
 - Enlarge **line text objects** automatically while writing
 - Curve mode option: **Change to straight line mode when clicking in drawing area** (*OCAD Service Update 12.1.6*)
-

Editing Objects

- Easier to catch and move object vertex (**mark** size depending on tolerance)
- Show **draft line** to previous and next vertex when moving a vertex
- Show **draft line when moving / stretching / rotating an object**
- **Move single line or area vertex** with arrow keys
- **Rotate objects:** Option to use each objects centroid as rotation center
- **Align objects** horizontal coordinate centered
- **Distribute objects** equidistant (horizontal or vertical)
- **Move object segments** with mouse down and move
- **Keep rectangular angles** while moving an object vertex when [Shift] key is down
- Click anywhere in area or text object to **move it**
- **Select and mark a word or the entire text** in text objects with double or 3x click
- **Remove multiple vertices** with [Ctrl] and mouse down move (brush)
- **Polyline to curve:** Extended with tangent length, angle and continuity parameters
- **Stretch or shrink objects**
- **Cut area:** End point can be away from the area border line
- **Fill:** Extended to fill text or point object with line or area symbol
- **Merge lines:** Tolerance option added to preferences
- **Rectangle objects:** Fill with area symbol and change to line symbol added
- Object information shows **creation and modification date**
- **Object information:** Double click on top row to sort the values
- New function to **change creation date**
- Support **regular expressions** ^[1] in **Find and replace text** function

Topology

- **Make objects rectangular**
- **Generalize buildings** (geometry simplification, replace with rectangle)
- **Smooth objects:** Extended with angle and curvature parameter
- **Direct area objects ccw** function added (*OCAD Service Update 12.1.8*)
- **Remove duplicate vertices from selected objects**
- New options to **cut or add point objects at intersections**

Symbol

- **Symbol Status Manager:** New functions to manage symbol views (normal, protected, hidden)
 - Toggle between **normal, protect objects and hide objects**
 - **Select symbols by symbol type** (point, line, ...)
 - **Select symbols by symbol status** (protected, hidden)
 - **Sort symbols by symbol type** (point, line, ...)
 - **Sort symbols by usage frequency**
 - **Symbol editor:** New button to open color dialog
 - **Symbol editor:** Support copy & paste of image objects (*OCAD Service Update 12.2.1*)
 - **Icon editor:** Multiple text symbols for palette added
 - Area symbol: New **irregular pattern** option
 - Area symbol: New option **not to cut structure elements at border**
 - Draw **unsymbolized area objects** with borderline
-

Symbol Sets

- **ISOM 2017 map and course setting symbol sets** added (*OCAD Service Update 12.2.1*)

Map

- New interactive **local transformation**
- Convert layers: Support **[Tab]** as separator in **.crt files**
- Shortcuts for **map menu** items added

Colors

- **Blend modes darken** and **multiply** added
- **Color dialog: Search box** added
- **Color dialog:** New option *Redraw screen when changing a color* to avoid redrawing

Layout

- New **opacity option**
- New **formatting (bold, italic, alignment) options for layout text objects**
- New function: **Delete layout**
- Shortcuts for **Layout menu** items added

Database

- Manage database connections: Show field datatypes
- Special fields: Option to **assign new symbol when changing field value**
- Special field '**Date**' added
- **Convert** dBase to Excel / Access function added
- Add text from database records: **SQL conditions** option added
- Set object directions from database records: **CCW and CW supported**
- Set object directions from database records: **Field for mathematical function added**, also for **XML Scripts** (*OCAD Service Update 12.1.7*)
- Select database records: Multiple row selection is now possible using **[Shift]**
- Database box: using **[Tab]** to jump to the next field
- Shortcuts for all **Database menu** items added
- **Database information** dialog added

Thematic Map

- Wizard to create **thematic map**

Multi Representation

- **Multiple Representation**

Background Map

- Support **background maps** bigger than 2.1 GB
 - Support **TIFF files with JPEG compression**
 - **Move background maps** up and down with drag and drop
 - Option to **open background maps hidden** with **[Shift]**
 - **Open PDF files as background maps** by using Ghostscript.
-

- **Online Map Services** added (*OCAD Service Update 12.2.0*)

WMS

- New option to **set path for WMS background maps** (offline)
- **Download WMS with user defined extent and resolution as background map** (offline)
- **Add User Defined Extent of WMS Layers to Background Maps (Offline)**: Available in **OCAD 12 Orienteering** edition

DEM

- **Wizard for DEM import**
- **Import wizard**: Starts with drag and drop DEM file(s) into the OCAD drawing area
- **Import wizard**: New option to **import only a user-defined extent**
- **Import wizard**: New option to **convert elevation values from mm to m**
- **Import wizard**: New option to **shift elevation data below sea level**
- **Create contour lines**: Improved (faster)
- Create hillshading: New **preview** option for grid import
- Create hillshading: New **interpolation** option for grid import
- Support **.zlas files**
- Support **compressed LAS files in RAR file format**
- **LiDAR Point Cloud Manager** added (*OCAD Service Update 12.2.1*)

GPS

GPS Real Time via Location API interface: Option added to **choose sensor** (*OCAD Service Update 12.1.6*)

XML Script

- **MapScale, Easting, Northing and Angle** options for File.New **added**
- **IgnoreMissingBackgroundMaps** option for File.Open added
- **DeleteObjectsBySymbol** function added
- Dataset name for parameter **Dataset** supported

Preferences

- New option **Join affects all line symbols in symbol group**

Course Setting

General

- Shortcuts for all **course setting menu** items added
- Enable curve drawing tool and rotate tool also in Course Setting Edition.
- **Compare course setting files** function added (*OCAD Service Update 12.1.8*)

Add Control to Map|Add Control to Course

- **Add control to map and to course at once by moving the connection line**
 - **Undo/Redo** for *add control to course* resp. *remove control from course*
 - **Skip Course Object dialog** with **Shift key** when adding a control to the map (*OCAD Service Update 12.1.6*)
-

Course Setting Box

- **Add course** button added

Controls

- **Close numbering gaps** option added in **Renumber All Controls** dialog (*OCAD Service Update 12.1.6*)

Course Statistics and Event Statistics

- Show only controls that are closer than 30m to each other for sprint races

Event Audit

- **Consistency Check Report** added (*OCAD Service Update 12.1.6*)

Relay

- Improved variation distribution for **relay courses with leg variations**

Languages

- **Polish, Catalan** and **Traditional Chinese** language added

Editions

- **OCAD 12 Starter WOD** edition added (*OCAD Service Update 12.2.0*)

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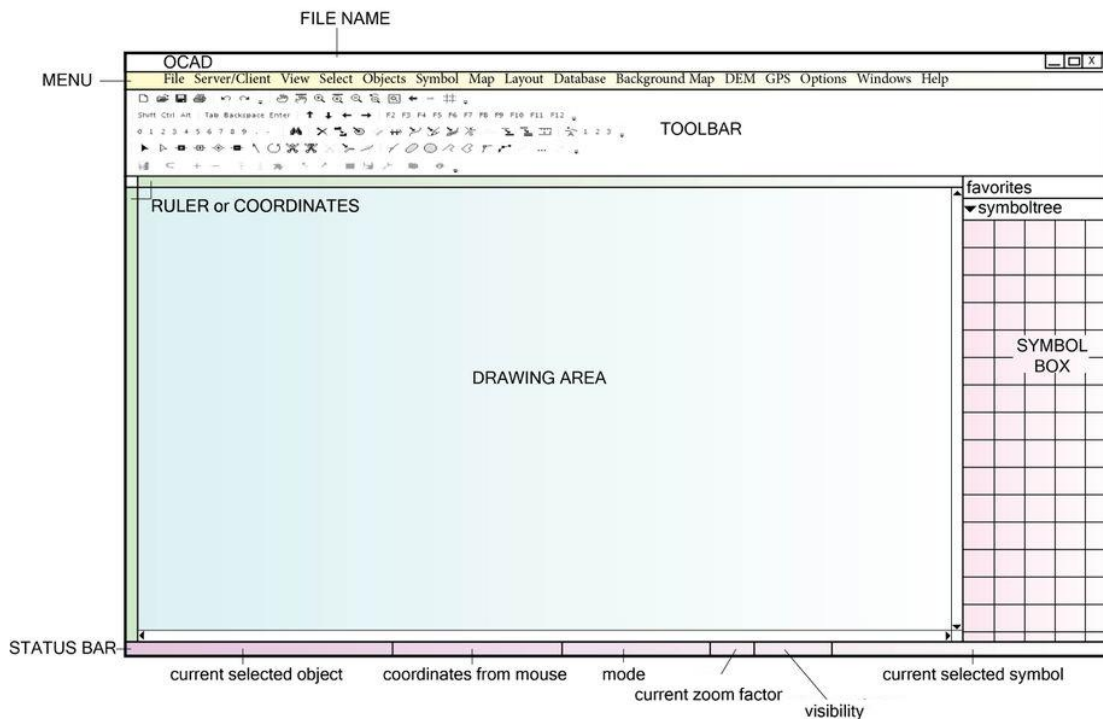
[Previous Chapter: About this Wiki](#)

[Next Chapter: Graphical User Interface](#)

References

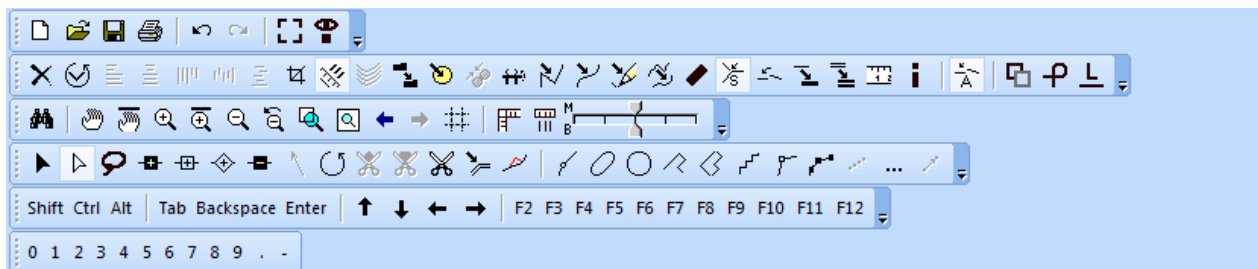
- [1] <http://www.regular-expressions.info/>

Graphical User Interface

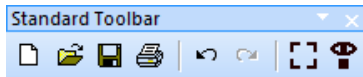


Toolbars

Toolbars can be moved within the graphical user interface. The buttons can be individually shown or hidden in the **GUI (Graphical User Interface)** category of the **OCAD Preferences** which can be found in the **Option** menu. Alternatively, click the small arrow at the end of each toolbar to adjust it.

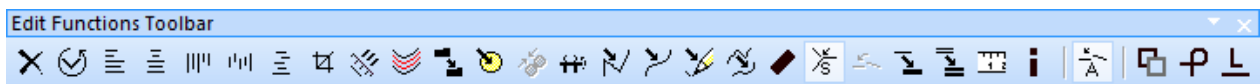


Standard Toolbar











- New:** Create a new map.
- Open:** Open an existing map.
- Save:** Save changes made to the map.
- Print:** Print out the map.
- Undo:** Undo previous actions.
- Redo:** Cancel the previous undo action.
- Manage Background Maps:** Manage the background maps.
- Symbol Status Manager:** Manage the symbol status settings.

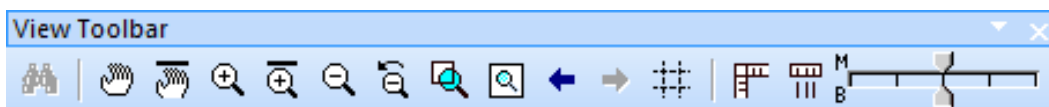
Edit Functions Toolbar


















- Delete:** Delete the selected object(s).
- Rotate (Enter Angle):** Rotate selected object(s) by entering an angle.
- Align Objects: Horizontal Coordinates:** Align objects at a horizontal coordinate.
- Align Objects: Horizontal Coordinate Centered:** Align objects at horizontal centered coordinates.
- Align Objects: Vertical Coordinates:** Align objects at a vertical coordinate.
- Distribute Objects: Horizontal Coordinate:** Distributes the selected objects horizontal with equal space between.
- Distribute Objects: Vertical Coordinate:** Distributes the selected objects vertical with equal space between.
- Crop Objects:** Crop objects in a designated area (desired sector, hole, delete selected objects).
- Move/Duplicate Parallel by Specified Distance:** Move/Duplicate an object by a specified distance and direction.
- Interpolate Objects:** Insert line or point objects regularly between existing objects.
- Duplicate Object:** Create a copy of the selected objects.
- Fill or Make Border:** Fill a line or area object with an area object, make a line border for an area object or duplicate the object identically. Create a line text object on a selected line object.
- Merge:** Merge multiple line, area and text objects with the same symbol.
- Reverse Object:** Reverse the direction of the selected line object(s).
- Change to Polyline:** Convert the selected line or area object(s) into a polyline.
- Change To Bézier Curve:** Convert the selected line or area object(s) drawn in freehand mode into Bezier curves.
- Convert To Graphic Object:** Convert the selected object(s) into their graphic elements (lines and areas).
- Smooth:** Smooth line or area objects.
- Generalize Buildings:** Simplify the building geometry or rectangle it.
- Snapping:** Snap vertices automatically to other curves or points.
- Join:** Move the ends of the selected line object to connect to adjoining objects.

-  **Change Symbol of Object:** Assign the symbol selected in the symbol box to the selected object(s).
-  **Change Symbol For All Objects With This Symbol:** Change the symbol of all objects with a symbol A to symbol B.
-  **Measure:** Measure the selected line or area object or the distance between 2 selected point objects.
-  **Object Information:** Shows the object informations.
-  **Automatic Joining:** Automatically join the ends of lines and areas during the drawing process.
-  **Select Duplicate Objects:** Selects identical objects at the same position.
-  **Select Self-Intersected Objects:** Selects all line, area and line text objects with a self-intersecting geometry.
-  **Select Line Text Objects with Line too Short:** Selects all line text objects whose text is longer than the line length.

View Toolbar


















Various functions are available for increasing or reducing the size of map view as well as repositioning it.

-  **Find Selected Objects:** Move screen to the selected object.
-  **Pan:** Reposition the map view
-  **Pan Locked:** Reposition the map view a number of times in succession.
-  **Zoom In:** Zoom in the map view to greater magnification.
-  **Zoom In Locked:** Zoom in the map view a number of times in succession.
-  **Zoom Out:** Zoom out the map view to lesser magnification.
-  **Zoom Out to Previous View:** Zoom out to the last map view of lesser magnification.
-  **Zoom to Selected Objects:** Zoom the view to the biggest possible view showing the selected objects.
-  **Show Entire Map:** Display the entire map in the drawing window.
-  **Zoom to Previous View:** Return to last map view.
-  **Zoom to Next View:** Undo "Zoom to Previous View".
-  **Show Screen Grid:** Display the coordinate grid in the drawing window.
-  **Show Rulers:** Show rulers along the top and left side of the drawing area.
-  **Ruler Guides:** Display all ruler guides in the drawing area.
-  **Draft Mode Slider:** The upper slider (M for map) is used to fade out the map objects; the lower slider (B for background) to fade out the **Background Map**. The **Draft Mode Slider** is only visible if the **Draft Mode** is activated in the **View** menu.












Editing and Drawing Toolbar

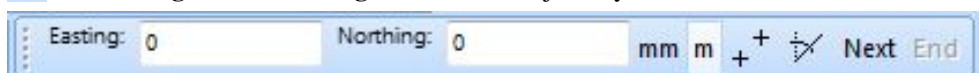


Edit modes

-  **Select and Edit Object:** Select and move objects.
-  **Select Object and Edit Vertex:** Select objects or move points of objects.
-  **Select Object with Lasso Tool:** Select objects with a Lasso.
-  **Normal Vertex:** Add a vertex. This will not influence a dashed line.
-  **Corner Vertex:** Add a corner vertex or turn a normal vertex into a dash vertex. This will affect the dashed line so that it will start with a full dash from this point, and/or the specific main symbol of a line will appear at the corner vertex.
-  **Dash Vertex:** Add a dash vertex or turn a normal vertex into a dash vertex. This will affect the dashed line, which will start with half a dash from this point.
-  **Remove Vertex**
-  **Indicate Direction of Area Pattern, Point or Text Object:** Indicate the direction of an area pattern, point or text object.
-  **Rotate Object:** Rotate the selected object(s).
-  **Cut hole:** Cut a hole into the selected area object.
-  **Cut area:** Cut the selected area object.
-  **Cut:** Cut the selected line object or the borderline of the selected double line or area.  Cutting^[1]
-  **Move parallel:** Move the selected line or area object parallel to the original object.
-  **Reshape:** Redraw part of a line, area or text object.

Drawing modes

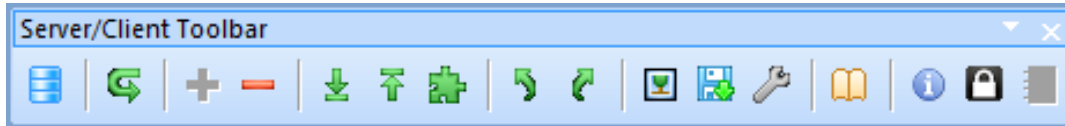
-  **Curve mode:** Draw in curve mode.
-  **Ellipse mode:** Draw elliptical (oval) objects.
-  **Circle mode:** Draw circular objects.
-  **Rectangular line mode:** Draw rectangular line objects with any number of corners.
-  **Rectangular mode:** Draw rectangular area objects with any number of corners.
-  **Stairway drawing mode:** Draw a rectangular stairway.
-  **Straight line mode:** Draw objects with straight lines.
-  **Freehand mode:** Draw objects in freehand mode.
-  **Drawing multiple point objects:** Draw several point objects that are placed on a line with a constant interval.
-  **Numeric Mode:** Draw objects in numeric mode.
-  **Laser Rangefinder drawing mode:** Draw objects by distances transmitted from a laser distance meter.


















Numeric Mode

Toolbar

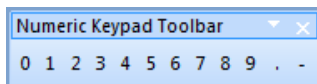
Client Server Toolbar



-  **Connect/Disconnect:** Manage CSA Projects and the connection to the server.
-  **Get Objects from Current View:** Load all objects from the server which are in the current view.
-  **Import Map:** Import an OCAD map into a CSA Project.
-  **Delete Objects in Database:** Delete an object on the server.
-  **Check Out Selected Objects:** Check out all selected objects.
-  **Check In Selected Objects:** Check in all selected objects.
-  **Show Checked Out Objects:** Show all checked out objects in a table.
- Database Undo:** Undo the previous action on the server.
-  **Database Redo:** Redo the previous action on the server.
-  **Generate Map Preview:** Generate a map preview.
-  **Save for Offline Work:** Save a part of the CSA Project for offline work.
-  **Do Database Maintenance:** Clean up the database.
-  **Manage Server Bookmarks:** Manage the server bookmarks.
-  **Show Project Information:** Show all available information about the project.
-  **Rights Management:** Administer project permissions.
-  **Working on a CSA Project** Show object history.

Numeric Keypad Toolbar

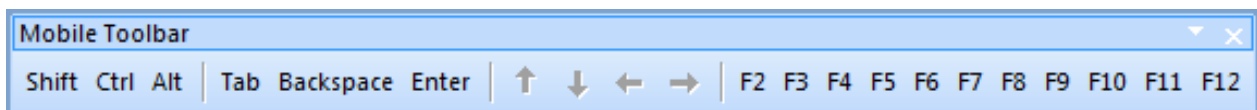
Pro Std



This toolbar can be used as an alternative to the numeric keypad. Some tablet PCs do not have a keyboard; **Numeric Toolbar** can be used to enter numbers.

Mobile Toolbar

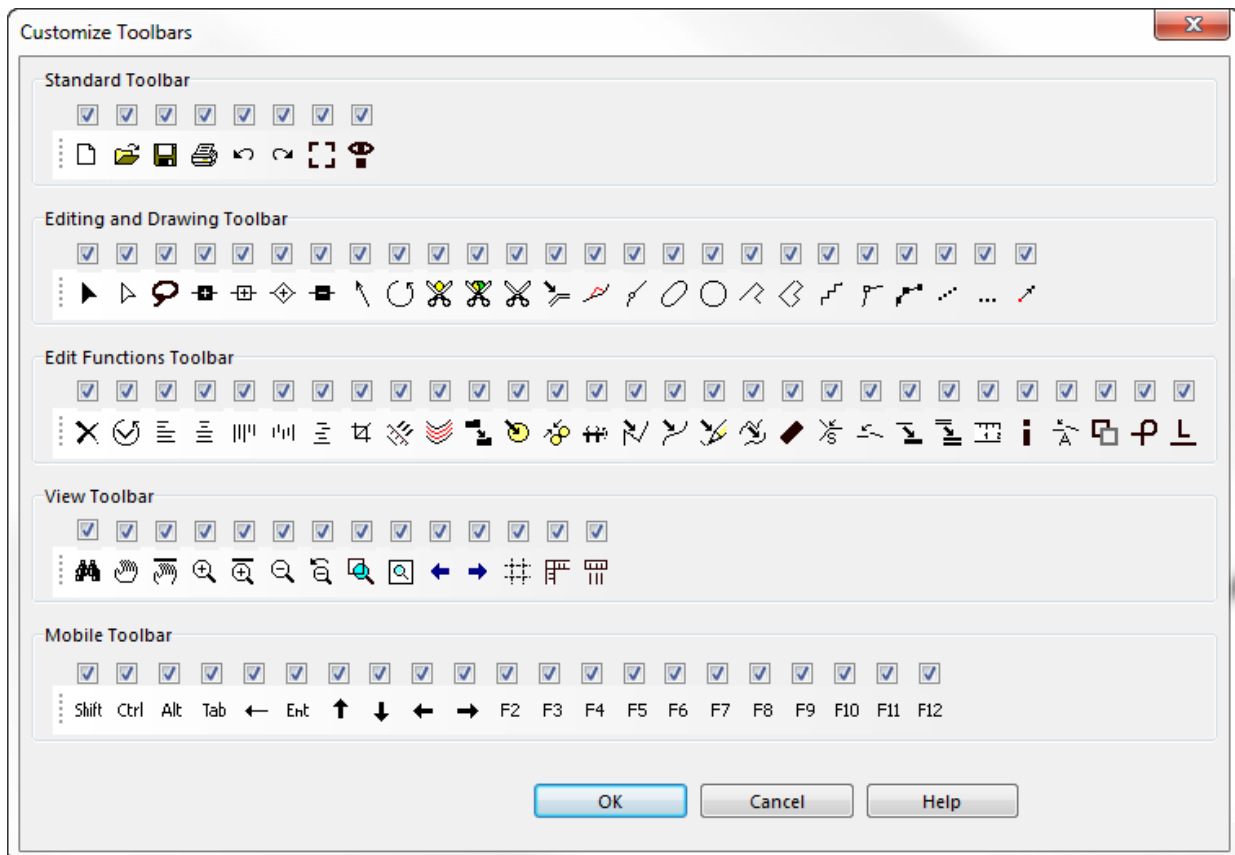
Pro Std



This toolbar can be used as an alternative to the keyboard. Some tablet PCs do not have a keyboard with these special keys; use the **Mobile Toolbar** to use these keys.

Customize Toolbar Dialog Box

Choose this command to customize toolbars. The dialog box is opened by clicking **Customize** button in on **GUI (Graphical User Interface)** page in **OCAD Preferences** dialog box or by clicking on the right end of a toolbar. When the box above the button is checked the button will be visible otherwise it will be hidden.



💡 The Numeric keypad toolbar cannot be customized.

💡 In Orienteering edition some icons and checkboxes are disabled. That means that these functions are not in the Orienteering edition.

Menu

OCAD Professional Edition features the following menus:

File View Select Object Topology Symbol Map Layout Multiple Representation Database Thematic Map Background Map DEM GPS Options Window Help

- **File:** File management, file import and export functions, printing
- **Client/Server:** Functions for Client/Server projects (OCAD Enterprise Edition only)
- **View:** Functions for viewing the map
- **Select:** Functions for selecting an object or a vertex
- **Object:** Object editing functions
- **Symbol:** Functions for creating and editing symbols
- **Map:** Map editing functions
- **Layout:** Layout management functions
- **Multiple Representation:** Multiple representation management functions
- **Database:** Functions for connecting and editing databases
- **Thematic Map:** Create, modify and delete thematic maps
- **Background Map:** Functions for loading and managing background maps
- **DEM:** Functions for the import, export and processing of Digital Elevation Models

- **GPS:** Functions for connecting GPS devices or importing GPS data
- **Options:** Functions for customizing personal preferences
- **Window:** Functions for arranging the map window
- **Help:** OCAD Help

File Menu

New: Create a new map file.

New Map Wizard: Create a new map file with the wizard.

Open: Open a map file.

Open Sample Map: Open a sample map file.

Close: Close the current map file.

Save: Save changes in the current map file.

Save As: Save the current map file under a new name.

Undo: Undo the last draw or edit operation.

Redo: Reverse the effect of the last Undo operation.

Print: Print a color map or color separations.

Import: Import a map file.

Export: Export the map in a different file format.

Export OCAD Internet Map: Export the map as an OCAD Internet Map.

Export Encrypted File: Export the map to encrypted OCAD file format.

Send File by Email: Send the map file by email.

Execute XML Script: Execute functions defined in a XML script file.

Create Backup: Make a backup copy of the current map file.

Restore Backup: Restore a map file saved with the Backup function.

Open Recently Exported Documents: Open one of the documents you have exported recently from the file that you have open.

Open Recently Used OCAD Files: Open one of the map files you have worked on recently.

Exit OCAD: Terminate OCAD.

Server/Client Menu

Connect/Disconnect: Connect or disconnect the connection to the server

Get Objects from Current View

Import Map: Import a Map from the connected server

Delete Object in Database

Check Out Selected Objects: Check out selected objects for editing.

Check in Selected Objects: Check out selected objects after finished edited objects.

Show Checked Out Objects: Show current checked out objects.

Database Undo: Undo your last move in the database.

Database Redo: Redo your last move in the database.

Generate Map Preview Generate preview from current map.

Do Database Maintenance: Upkeep Database

Manage Server Bookmarks**Show Project Information****View Menu**

Normal Mode: Normal mode view.

Spot Color Mode: Spot color view.

Draft Mode: Draft mode view. The **Background Map** can be seen behind the map.

Draft Mode Only Background Map Favorites: Draft mode view. Only favorited **Background Maps** are shown.

Keyline: Show objects as a rough sketch.

Hatch Areas: Display full areas as hatched areas on the screen.

Anti-Aliasing: Activate or disable Anti-Aliasing.

View#Line Objects Appearance as in OCAD 10: Shows line objects as in OCAD 10.

Redraw: Redraw the drawing area.

Pan: Move the view.

Move To: Move the view to a desired position.

Find Selected Objects: Move the view to selected objects in sequence.

Zoom In: Display the map with a higher magnification.

Zoom Out: Display the map with lesser magnification.

Zoom to Selected Objects: Display the map zoomed in to selected objects.

Show Entire Map: Display the entire map on the screen.

Zoom: Select the magnification in which the map is to be displayed.

User Defined: Set the view to a zoom factor defined in Preferences.

Bookmarks: Create and manage bookmarks.

- **Create:** Create a new bookmark

- **Manage:** Manage available bookmarks

Show Screen Grid: A screen grid is shown in the drawing area.

Show Rulers: Rulers are shown around the drawing area.

Ruler Guides: Manage ruler guides.

- **Show:** Show vertical or horizontal ruler guides.

- **Manage:** Add a new ruler guide.

Select Menu

Select and Edit Object: Select, move or stretch object(s).

Select Object and Edit Vertex: Select or move vertex of object(s).

Select Object with Lasso Tool: Select objects with a Lasso.

Select Objects by Symbol: Select all objects with a specified symbol or layer.

Select Objects by Property: Select all objects with same properties.

Select Objects by Date: Select objects by their creation or modification date.

Select Object by Object Index: Select the object with a given index.

Select Duplicate Objects: Select objects with identical coordinates.

Select Self-Intersected Objects

Select Line Text Objects with too Short Line

Select Objects with Invalid Geometry

Select Group: Select a group of objects.

Select All: Select all objects in map.

Clear Selection: Nothing is selected.

Invert Selection: Change current selection such that everything previously unselected will now be selected and vice versa

Select Next Object: Selects the next obvious object.

Save Selection: Save current selection for later use.

Reload Selection: Reload saved selection.

Edit Selection: Manage saved selection.

Object Menu

Cut: Copy the selected object(s) to the clipboard and delete them in the current map.

Copy: Copy the selected object(s) to the clipboard.

Paste: Insert the object(s) in the clipboard into the current map.

Delete: Delete the selected object(s).

Rotate Object: Rotate object(s).

-Rotate: Rotate the selected object(s).

-Rotate Object by Angle: Rotate the selected point object(s) by specifying a rotation angle.

Align Objects: Align the selected objects horizontally or vertically.

-Horizontal Coordinate

-Horizontal Coordinate Centered

-Vertical Coordinate

Distribute Objects: Distributes objects to equal spaces.

Indicate Direction of Area Pattern, Point or Text Object: Change direction of selected point object, area pattern or text.

Cut Objects: Cut hole, area or line.

-Cut hole: Cut a hole in an object.

-Cut area: Divides an area.

-Cut line: Divides a line.

Crop Objects: Crop selected Object(s).

Move Parallel: Move the selected line or area object parallel from the original object.

Move Parallel with Distance: Move the selected line or area object parallel with a distance from the original object.

Reshape: To shape a part of an object again or differently.

Interpolate Objects: Interpolate selected Objects to each other.

Duplicate: Duplicate (create a copy of) the selected object(s).

Move and Duplicate: Duplicate selected object and move it.

Mirror and Duplicate: Mirror selected object and duplicate it.

Fill, Make Border, Duplicate Identically: Fill a line or area object(s) with area object(s) or make line border of area object(s).

Merge: Merge multiple line, area and text objects into one object.

Reverse Object Direction: Reverse the direction of the selected line object(s).

Change to Polyline: Change selected object to polyline.

Change to Bézier Curve: Change selected object to a Bézier curve.

Convert to Graphic Object: Convert the selected object(s) to their graphic elements (lines and areas).

Convert to Layout Object: Convert selected object to layout object.

Smooth: Smooth selected line or area object(s) drawn in freehand mode.

Create Color Gradient

Change Vertex Types to: Change vertex types for the selected object(s).

Change Symbol (Selected objects)

Change Symbol (All Objects with Corresponding Symbol)

Group

Ungroup

Find and Replace Text

Insert Glyphs: Insert special letters.

Measure: Measure the selected line or area object or the distance between 2 selected point objects

Change Creation Date: Change the creation date of the selected object(s).

Object Information: Show information about selected object(s).

Topology Menu

Join: Move the ends of the selected line object to connect to adjoining objects.

Smooth: Smooth 'dithered' line or area objects.

Generalize Buildings: Simplify the buildings geometry.

Make Objects Rectangular: Make objects rectangular.

Close Area Objects

Lengthen Line Text Objects: Lengthen line text objects if the line is too short for the objects' text.

Remove Overshoots and Undershoots

Insert, Cut or Add at Intersections

Remove Duplicate Vertices From Selected Objects

Symbol Menu

New: Create a new symbol.

Edit: Define or redefine the selected symbol.

Icon: Draw or edit the symbol's icon, which appears in the symbol box.

Enlarge/Reduce: Enlarge or reduce the selected symbol or all symbols.

Copy: Copy the selected symbol to the clipboard.

Paste: Copy a symbol from the clipboard to the current map.

Delete: Delete the selected symbol.

Duplicate: Make a copy of the selected symbol.

Sort Symbol Box: Sort the symbols in the symbol box.

-By Number: Sort symbol in symbol box by number.

-By Color: Sort symbol in symbol box by color.

-By Status (Normal, Protect or Hide): Sort symbol in symbol box by status.

Select: Select certain symbols in the symbol box.

-Used: Select used symbols in symbol box.

-Unused: Select unused symbols in symbol box.

-Invert: Change current selection such that everything previously unselected will now be and vice versa.

-All: Select all symbols in symbol box.

-By Color: Select all Symbols with same color.

-By Font: Select all Symbols with same font.

Replace:

-Font

-Color

Normal: Make objects with the selected symbol(s) appear normal.

Protect: Make objects with the selected symbol(s) protected from editing.

Hide: Objects with the selected symbol(s) do not appear.

Show Unsymbolized Objects: Normal / Hide.

Show Graphic Objects: Normal / Hide.

Image Objects: Normal / Protect / Hide

-Normal: Selected Symbols are not protected and not hidden.

-Protect: Selected symbol(s) are visible but cannot be edited.

-Hide: Selected symbol(s) are not visible .

Show Symbol Favorites: Display the symbol favorites in symbol box.

Add To Favorites: Add the selected symbol(s) to symbol favorites.

Remove From Favorites: Remove the selected symbol(s) from symbol favorites.

Show Symbol Tree: Display the symbol tree in symbol box.

Remove From Symbol Tree: Remove the selected symbol(s) from symbol tree.

Map Menu

- Optimize/Repair:** Remove empty space in the map file and repair damaged objects.
- Set Scale and Coordinate System:** Set map scale and define the coordinate system.
- Change Scale:** Change the scale of the map and enlarge/reduce the map according to the new scale.
- Create Map Grid:** Create grid lines on the map.
- Create WGS84 Grid:** Create a WGS84 grid on your current view.
- Hide:** Hide the map on the screen.
- Transform:** Adjust the map to the background map.
- Move:** Move the entire map to a different location in the coordinate system.
- Stretch / Shrink:** Stretch (enlarge or reduce) the entire map horizontally or vertically.
- Mirror:** Mirror the entire map horizontally or vertically.
- Rotate Map:** Rotate the entire map.
- Change Coordinate System:** Change current coordinate system to another.
- Affine:** Adjust the whole map on background map or on grid.
- Rubbersheeting:** Adjust a part of the map on a georeferenced background map.
- Center map to Drawing Area**
- Convert Imported Layers to Symbols:** Convert the layers of an imported *.dxf or *.ai file.
- Convert Area or Line Objects to Point Objects:** Convert area to point object(s).
- Convert Text Objects to Point Objects:** Convert text to point object(s).
- Convert Text Objects from OEM to Unicode:** Convert text objects from OEM to Unicode.
- Export Objects by Selected Symbol:** Export all objects with a selected symbol to a new map file.
- Export Selected Objects**
- Export Part of Map**
- Colors:** Define or edit the colors of the current map.
- Define Spot Colors:** Define the spot colors of the current map.
- Load Colors From:** Load a color table from another map.
- Load Colors and Symbols From:** Load the symbol set from another map.
- Compare Colors and Symbols:** Compare two symbol sets.
- Routing:** Import kml file with route from Google Maps API
- Map Information:** Show map information.

Layout Menu

- Edit Layout Objects:** Draw and edit the layout objects.
 - Import Layout**
 - Save Layout**
 - Hide**
 - Add North Arrow or Scale Bar**
 - Add Map Legend**
 - Add Trim and Bleed Marks**
 - Create Graticule Name Index**
-

Create Name Index

Database Menu

Manage Database Connections: Create and edit datasets.

Create and Update Records: Create OCAD objects out of the database.

Update Special Fields

Create Objects from Table: Create OCAD objects from database records.

Assign Symbols by Records

Add Texts by Records

Define Object Directions by Records: Assign angle information from the open dataset(s) to the objects.

Merge Objects by Records

Select Linked Objects with Corresponding Record

Select Linked Objects without Corresponding Record

Select Objects Linked to the same Record

Delete Database Record when Deleting Object: If the option is turned on and an OCAD object with a linked database record is deleted, the database record is deleted, too.

Create Database Record when Cutting Object

Thematic Map Menu

Create with Wizard

Delete all Themes

Background Map Menu

Scan: Scan a background map using a TWAIN interface.

-Acquire: Acquire a background map

-Select Source: Select source from which the background map acquire

Open: Open a scanned background map stored in a file.

Adjust: Adjust the background maps in horizontal and vertical directions.

Hide All: Hide the background maps temporarily.

Manage: Set options for displaying and printing the background maps.

WMS - Web Map Service: Add background map from WMS

DEM Menu

Import: Import an ASCII Grid or XYZ file to OCAD.

Open: Open an OCAD DEM file (*.ocdDem).

Show Frame: Shows blue rectangle with the extent of loaded DEM.

Resize: Resize OCAD DEM file (make a subset) and save it as a new OCAD DEM file.

Info: Shows information about OCAD DEM file.

Close: Close OCAD DEM file.

Merge DEM: Merges two parts of a DEM together.

Calculate DEM Difference Calculates the difference between a surface and a terrain model.

Create Contour Lines: Calculates contour lines based on the loaded DEM.

Create Hypsometric Map: Calculates a grayscale or colored hypsometric map

Create Hill Shading: Calculates a shaded relief picture.

Calculate Slope Gradient Calculates a grayscale picture with slope gradient.

Classify Vegetation Height Calculates picture with vegetation height classes.

Create Profile: Creates a profile for the selected line object.

Export: Save loaded OCAD DEM file as ESRI ASCII Grid or as ASCII Grid XYZ.

GPS Menu

Real Time GPS

Import Data from GPS Device

Import from File

Connect to Laser Rangefinder

Options Menu

OCAD Preferences: Options for your individual working methods.

Shortcuts: Define or change keyboard shortcuts for menu commands.

Backup and Restore Options

Language: Choose a language.

Window Menu

Tile: Arrange all open maps horizontally or vertically on the screen.

Cascade: Arrange all open maps in a way that the title of each map is visible.

Help Menu

Contents: The contents of this help file.

Menu: Help for menu commands.

Toolbar: Help for toolbar buttons.

Tutorial: Link to the OCAD Tutorials.

What is New: Click on this menu item to open the **What is New** page.

OCAD Home page^[2]: Connect to the OCAD homepage on the Internet.

OCAD Service Update: Download the current Service Update from the OCAD website.

OCAD Learn Videos^[3]: Connect to Learning Videos on OCAD homepage.

Getting Started with OCAD 12: Open the pdf file 'Getting Started with OCAD 12'.

OCAD Blog^[4]: Show the newest posts from OCAD Blog.


License Transfer Utility: Deactivate this license and transfer it to a new user.

About OCAD^[2]: General Information about OCAD.

Using the Keyboard with the Mouse

This section provides an overview of options for using the keyboard and the mouse together.












Drawing

- **Shift**  : When starting a curve, straight line or freehand line: extend an existing object.
- **Ctrl**: Trace an existing object.
- **Alt**: Drawing a straight line: the line is made exactly horizontal or vertical.


Drawing a circle

- **Shift**  : Drag the radius from the center point.

Edit

- **Shift**  : Add or remove an object to/from the selected objects.
- **Ctrl**: Remove a vertex.
- **Shift**  + **Ctrl**: Insert a normal vertex.
- **Alt**: Select an object behind an object that has already been selected.
- **Alt** +  : Switch temporary to **Select Object and Edit Vertex** mode to select next line or area object in between adding vertices.
- **Alt** +  : Switch temporary to **Select Object and Edit Vertex** mode to select next line or area object in between adding corner vertices.
- **Alt** +  : Switch temporary to **Select Object and Edit Vertex** mode to select next line or area object in between adding dash vertices.
- **Alt** +  : Switch temporary to **Select Object and Edit Vertex** mode to select next line or area object in between removing vertices.
- **Alt** +  : Switch temporary to **Select Object and Edit Vertex** mode to select next line or area object in between reshaping objects.
- **Alt** +  : Switch temporary to **Select Object and Edit Vertex** mode to select next line object in between cutting lines.
- **Ctrl** +  : Cut a virtual gap into the selected line object.
- **Shift**  +  : Cut a broken line: a gap is inserted at the vertex where the cut was made.
- **Arrow keys**: Moves the selected object.
- **Shift** + **Arrow keys**: Moves the selected object faster.

View

- **Space bar** + **Left Mouse Button**: Move the View (pan).
- **Ctrl** + **Mouse Wheel**: Zoom in and zoom out/Increase/reduce the size of the map section.
- **Shift**  + **Mouse Wheel**: Move the map section horizontally (scroll).
- **Mouse Wheel Down**: Pan while holding the mouse wheel down.

Status Bar

In the Status Bar at the bottom of the window you can find useful information:



Currently

Selected Object: The symbol number and the name of the currently selected symbol is displayed in this part. If multiple objects are selected, the number of selected objects is shown. In addition, if you retrieve a **Bookmark**, the

saved comment is displayed here.

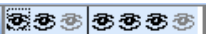


If the selected object is an area object or line object, its length (paper and real-world) will be shown as well.

Coordinates from Mouse: The coordinates of the current position of the mouse pointer is displayed in this part. You can change the format of the coordinates shown here in the **Graphical User Interface** category of **OCAD Preferences** in the **Options** menu. If a **DEM** is loaded, the elevation in meters is given in brackets after the coordinates.

Mode: The current **View Mode** is displayed in this part of the status bar. The view mode can be changed either here or in the **View** menu.

Current Zoom Factor: This field shows the current **Zoom Factor**.

Visibility: 

There are seven eye icons which indicate whether a certain map feature is visible or not. These features are (from left to right): Layout, Map, Background Map, Symbols, Unsymbolized Objects, Graphic Objects and Image Objects.

If the eye icon is black, the feature is visible.

If the eye icon is grey, no corresponding features exist.

If the eye icon is crossed off with a red cross, the feature is not visible.

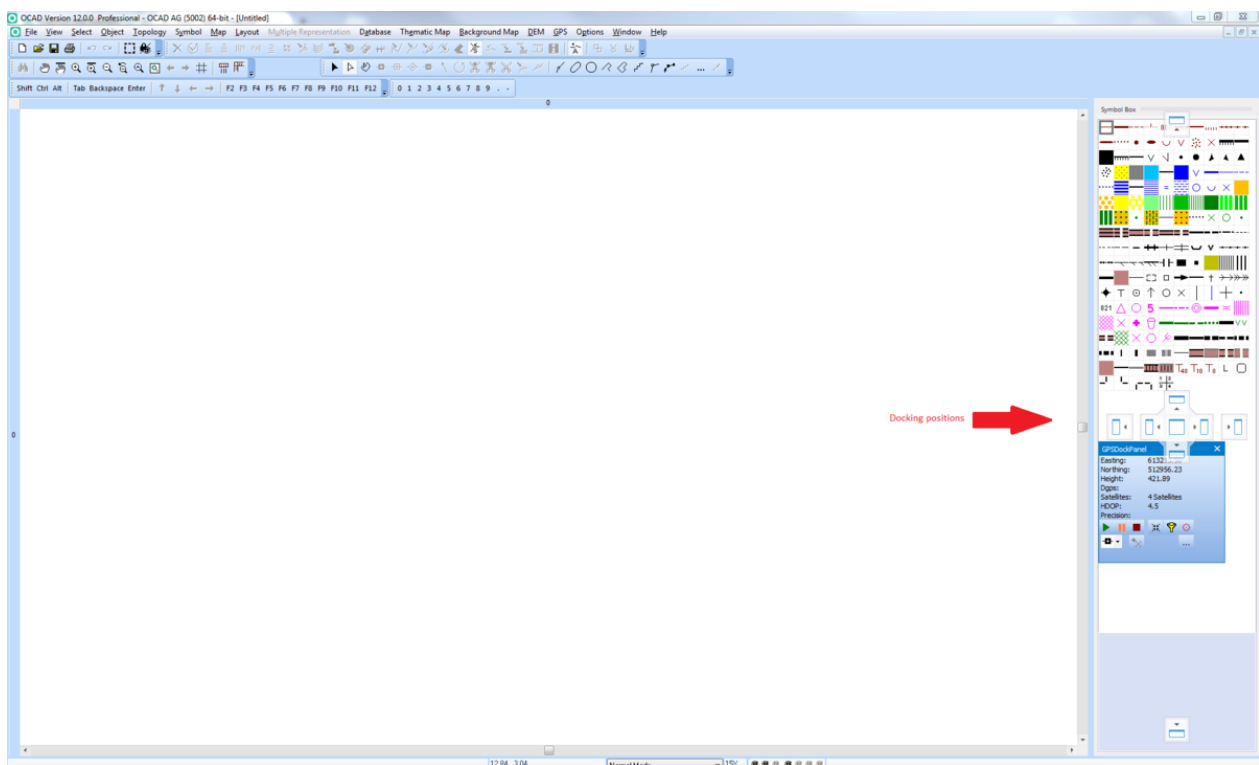
If the eye icon is crossed off with an orange cross, the feature is only partially visible.

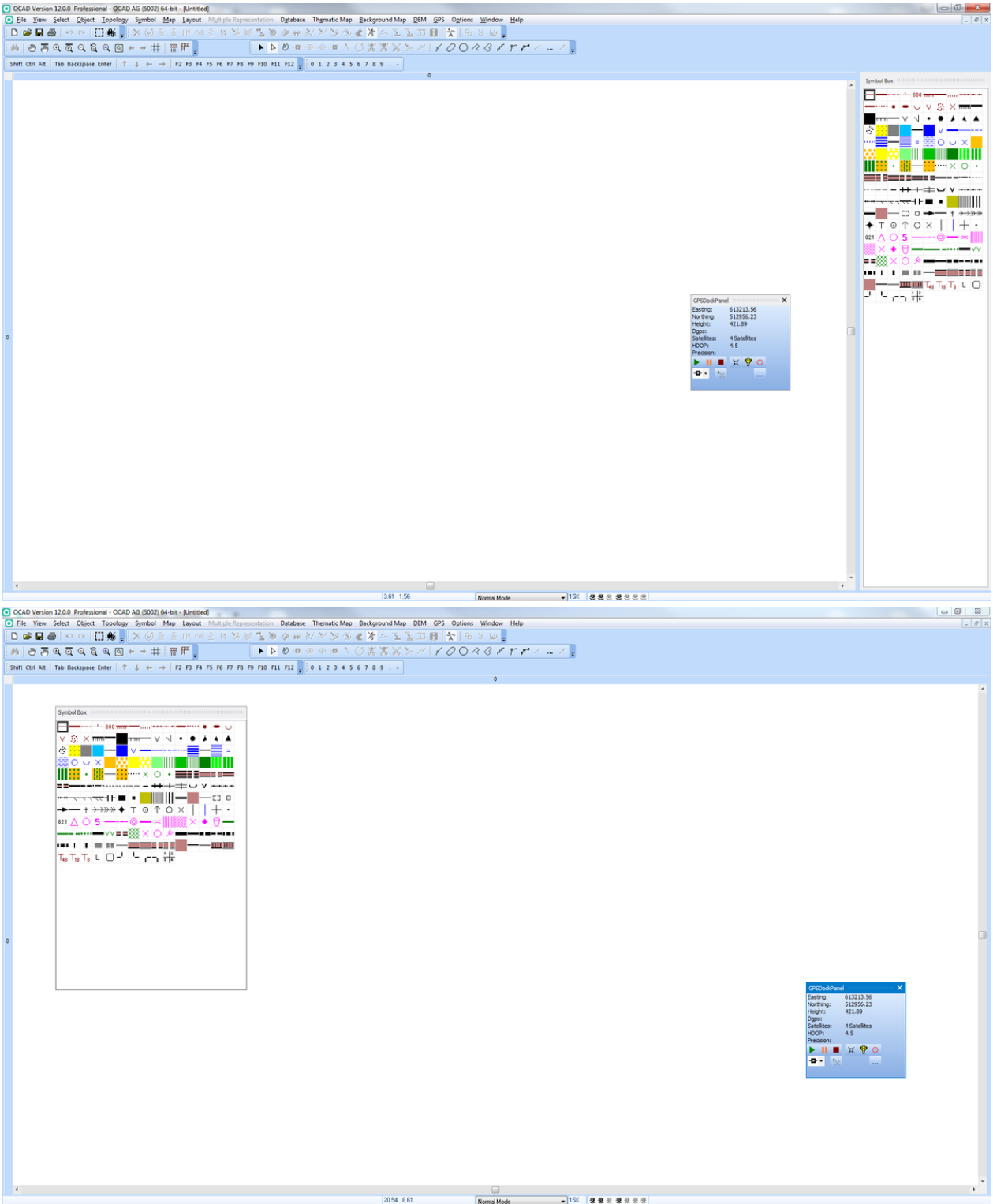
Currently Selected Symbol: The currently selected symbol is shown in this part of the status bar.

Docking

MAS Pro THM Std

It is possible to dock/undock some panels, which were located on the right side.





[Back to Main Page](#)

[Previous Chapter: What is New](#)

[Next Chapter: File](#)

References

[1] <http://www.ocad.com/howtos/70.htm>

[2] <http://www.ocad.com/en/>

[3] <http://www.ocad.com/en/support/learn-video/>

[4] <http://ocad.com/blog/>

View

View Modes



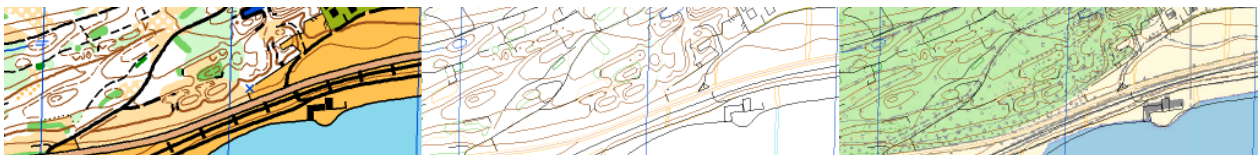
There are four different view modes:

- Normal Mode
- Spot Color Mode
- Draft Mode
- Draft Mode (Only Background Map Favorites)

Visit the **View Mode** page to get more information about the view modes.

Keyline

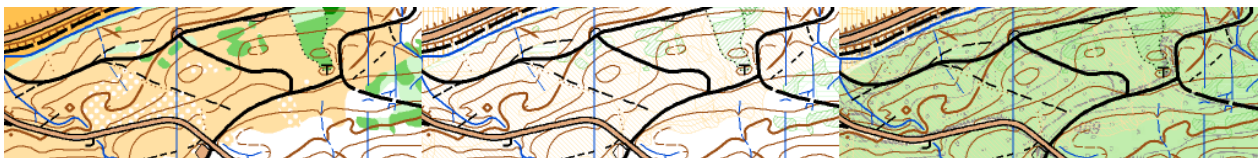
Pro



Visit the **Keyline** page to get some information about the **Keyline** mode.

Hatch Areas

Pro Std Sta View



Visit the **Hatch Areas** page to get some information about the **Hatch Areas** mode.

Anti-Aliasing

Pro Std Sta View CS

Visit the **Anti-Aliasing** page to get some information about **Anti-Aliasing**.

Line Objects Appearance as in OCAD 10

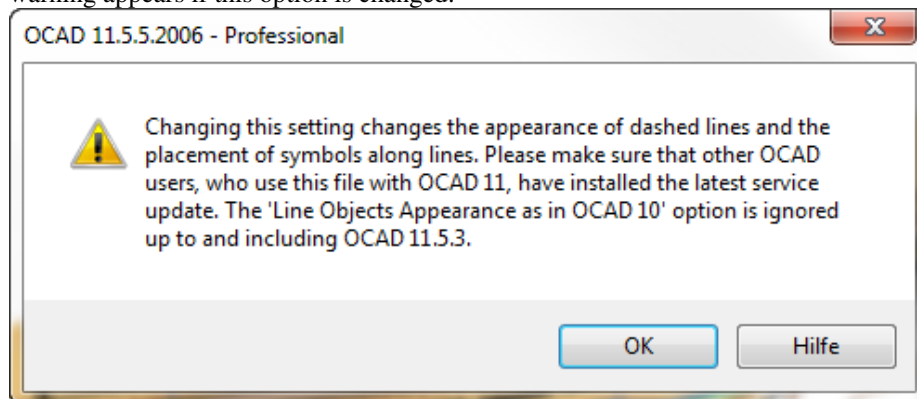
Pro Std Sta View CS

This option sets the appearance of dashed lines as it was in former OCAD versions (OCAD 10 and earlier).

This option is unchecked by default. If it is checked then dashed lines appear as in OCAD 10. If the option is unchecked, then dashed lines' appearance is based on the new more precise calculation introduced in OCAD 11.

Please make sure that other OCAD users, who use this file with OCAD 11, have installed the latest service update.

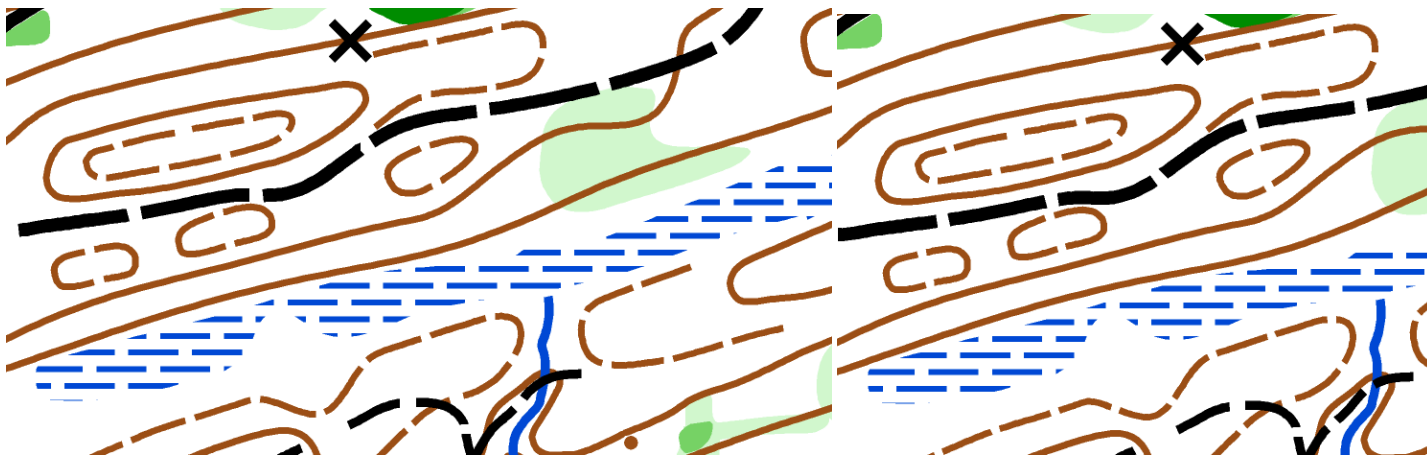
The *Line Objects Appearance as in OCAD 10* option is ignored up to and including OCAD 11.5.3. For this reason a warning appears if this option is changed:



Example

Line Appearance in OCAD 11 and later (left image) and OCAD 10 and earlier(right image). Path and form line dashes can be different.

💡 Please note that you can avoid unwanted gaps by placing **dash vertices** at critical places like bifurcations or tight curves.



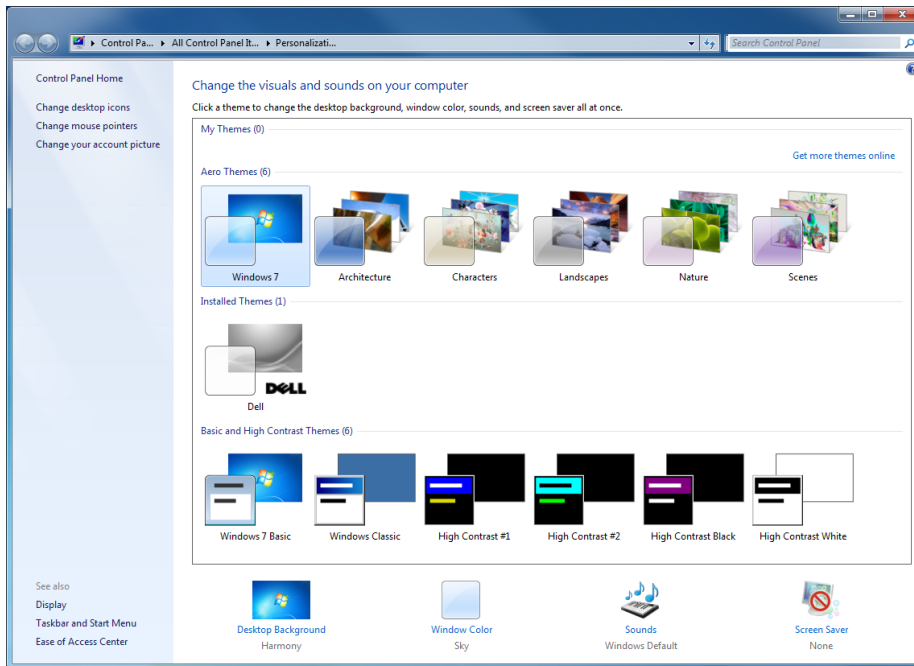
Redraw

Pro Std Sta View CS

Choose this command from the **View** or press the **F5** key (**Shortcut** by default) to redraw the map on the screen. This is especially useful when the displayed map is out of date due to editing operations (like deleting area objects). By default, the map is redrawn automatically after editing it. If you want to disable the automatic redrawing, uncheck the **Redraw background automatically** option in the **View** category of **OCAD Preferences**.





For Windows Vista and 7 users: We recommend to use an Windows Aero Theme. You can change the theme in *Control Panel\All Control Panel Items\Personalization*. The Themes *Windows Basic* and *Windows Classic* lead to many unnecessary screen redrawings in OCAD.



Pan

Pro Std Sta View CS


Choose **Pan** in the **View** menu, press the **F6** key (**Shortcut** by default) or click the  **Pan** icon in the **View Toolbar** to activate the **Pan** tool. With this tool you can move to another part of the map. Drag the map to the desired location. After you dragged once the cursor changes to the previous mode (e.g. **Select Object and Edit Vertex** mode). If you want to use the **Pan** mode several times, use the  **Pan locked** tool.



You can also hold the **Space** key or the mouse wheel to change to **Pan** mode.

Pan Locked

Pro Std

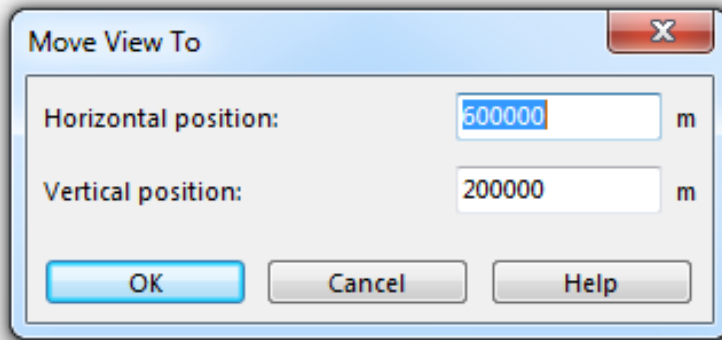
Click the  **Pan Locked** icon in the **View Toolbar** to activate the **Pan Locked** tool. With this tool you can use the **Pan** mode several times. Press the **Esc** key or another toolbar button to exit the **Pan** mode.

 You can also hold the **Space** key to change to **Pan** mode.

Move To

Pro Std


Choose this command in the **View** menu to move the view to a desired position. The **Move View To** dialog appears.



Enter the **Horizontal** and **Vertical position** in real world coordinates (or paper coordinates, if no real world coordinates are set up) and click the **OK** button. To set up the real world coordinates choose **Scale and Coordinate System** from the **Map** menu.

Find Selected Objects

Pro Std


If you have objects on the map selected, choose this command in the **View** menu or click the  **Find Selected Objects** icon in the **Edit Functions Toolbar** to move the view to those selected objects. The selected objects are displayed in the middle of the drawing area.

If multiple objects are selected, you can use this function to center the view to all selected objects in sequence.

Zoom


Zoom In

Pro Std Sta View CS

Choose the **Zoom In** command in the **View** menu, click the  **Zoom In** button in the **View toolbar** or press the **F7** key (**Shortcut** by default) to display the map with a higher magnification. There are two options to zoom into the map:


- Drag a rectangle with the mouse pointer around a desired area to see this area magnified.
- Click on the drawing area to get the double magnification of the current map view at the point you clicked.

After zooming in once, the cursor changes to the previous mode (e.g. **Select Object and Edit Vertex** mode).

 Alternatively, hold the **Ctrl** key and use the mouse wheel to zoom in and out.


Zoom In Locked

Pro Std

Click  **Zoom In Locked** button in the **View Toolbar** to use the **Zoom In** mode several times. Press the **Esc** key or another toolbar button to exit the **Zoom In** mode.

Zoom Out

Pro Std Sta View CS


Choose the **Zoom Out** command in the **View** menu, click the  **Zoom Out** button in the **View toolbar** or press the **F8** Key (**Shortcut** by default) to see a larger area of the map. The view is always reduced by half.



Alternatively, hold the **Ctrl** key and use the mouse wheel to zoom in and out.

Zoom Out to Previous View

Pro Std

Click the  **Zoom Out to Previous View** button in the **View** toolbar to reduce the view of the map to the previous view. If there is no previous view which is smaller than the current one, this function has the same effect as the **Zoom Out** function.


Zoom to Selected Objects

Pro Std

If you have some objects selected, choose this command in the **View** menu to zoom the view to them.


Show Entire Map

Pro Std Sta View CS

Choose the **Show Entire Map** command in the **View** menu or click the  **Show Entire Map** button in the **View Toolbar** to see the entire map on the screen. The scroll bars will be adjusted to the entire map.


Zoom to Previous View

Pro Std Sta View CS

Click the  **Zoom to Previous View** button in the **View Toolbar** to change the view to the previous one. This function is similar to the **Undo** function, but applies only for the view.

Zoom to Next View

Pro Std Sta View CS

Click the  **Zoom to Next View** button in the **View Toolbar** to change the view to the next one. This function is similar to the **Redo** function, but applies only for the view.

Zoom

Pro Std Sta View CS

Choose the **Zoom** command in the **View** menu to change to one of the following zoom levels. The **Shortcuts** by default are indicated in brackets.

- 0.1x
- 0.25x (Shift+F5)
- 0.5x (Shift+F6)
- 1x (Shift+F7)
- 2x (Shift+F8)
- 4x (Shift+F9)
- 8x (Shift+F10)
- 16x (Shift+F11)
- 32x (Shift+F12)



The current zoom level is displayed in the **Status Bar**.

User Defined

Pro Std

Choose the **User Defined** command in the **View** menu to change the magnification of the map to a user defined factor. This factor can be defined in the **View** category of **OCAD Preferences** in the **Options** menu.

Bookmarks

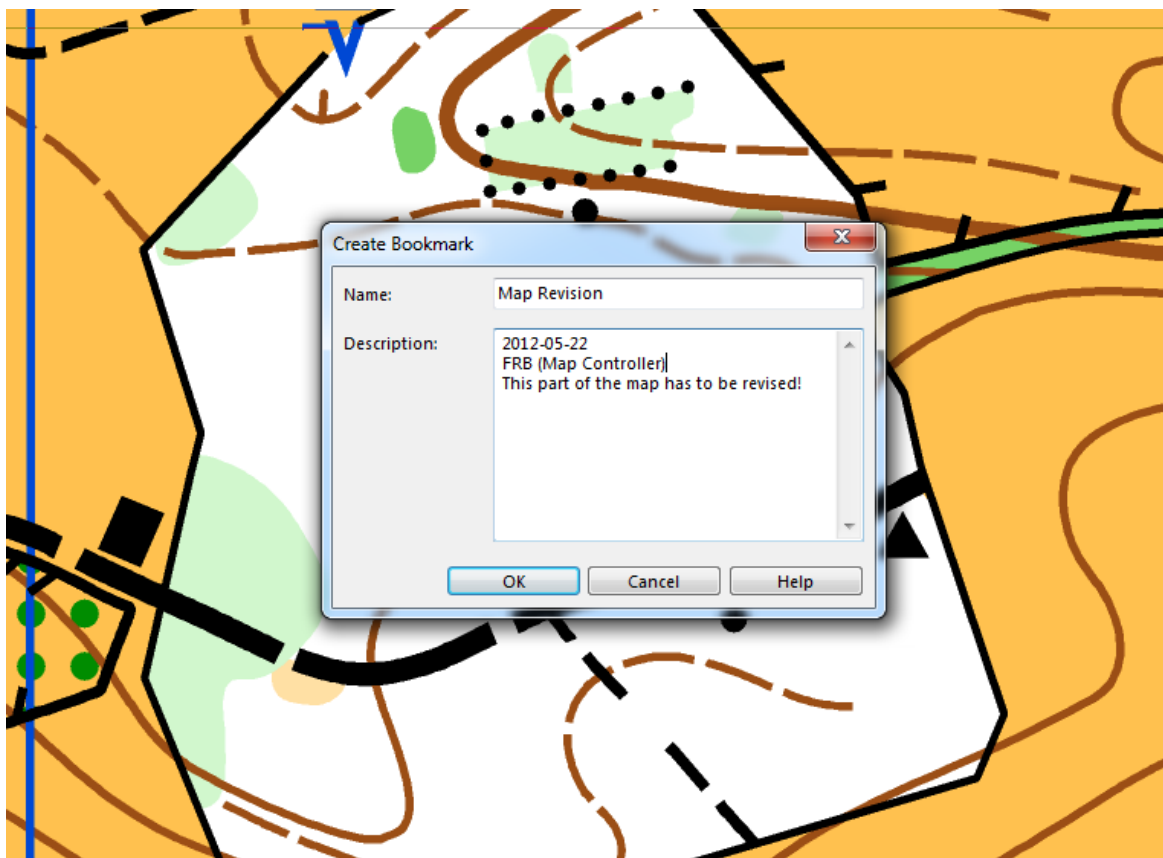
Pro Std

Choose the **Bookmarks** command in the **View** menu to create and manage bookmarks.

Bookmarks are stored views of the map, which can be easily retrieved. In addition, you can add a name and a description to the bookmark.

Create a Bookmark

1. Zoom to the view you want to store, i.e. you want to create a bookmark.
2. Choose **Bookmarks** and then **Create** in the **View** menu.
3. The **Create Bookmark** dialog box appears.



4. Enter a name and a description for the bookmark.
5. Click the **OK** button.

Retrieve a Bookmark

1. Select **Bookmarks** in the **View** menu.
2. In the submenu you can see your bookmarks listed. Choose a bookmark to display the stored view of the map.



If you have saved a comment, it is displayed in the Status Bar.


Manage Bookmarks

1. Select **Bookmarks** and then **Manage** in the **View** menu to manage bookmarks.
2. The **Manage Bookmarks** dialog appears.
3. Select a bookmark in the **Name** box. You have the following options now:
 - You can edit the description.

- You can delete the bookmark by clicking the **Delete** button.
 - You can change the stored view by clicking the **Update window** button. The current view is overwritten with the previous one.
4. Click the **OK** button to save the changes or click the **Cancel** button to quit the dialog without saving any changes.




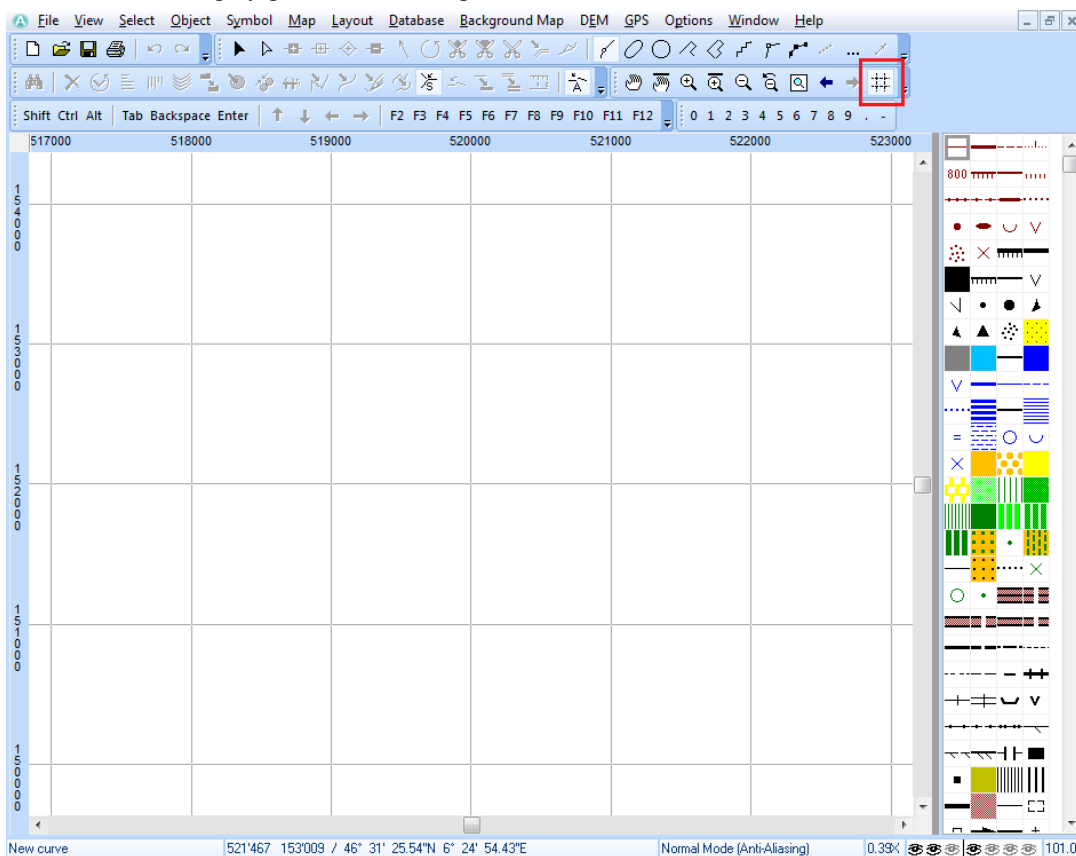
The number of bookmarks is limited by 64.

 Bookmarks ^[1]

Show Screen Grid

Pro Std Sta View CS

Enable the **Show Screen Grid** command in the **View** menu or click the  **Show Screen Grid** button in the **View Toolbar** to show a grey grid in the drawing window.



Choose **Scale and Coordinate System** from the **Map** menu to define the screen grid distance. The color and style of the screen grid can be changed in the **OCAD Preferences**.

Show Rulers and Ruler Guides

Pro Std

Visit the **Show Rulers** and **Ruler Guides** page to get some information about **Rulers** and **Ruler Guides**.

[Back to Main Page](#)

[Previous Chapter: File](#)

[Next Chapter: Create a New Map](#)

References

[1] <http://ocad.com/howtos/124.htm>

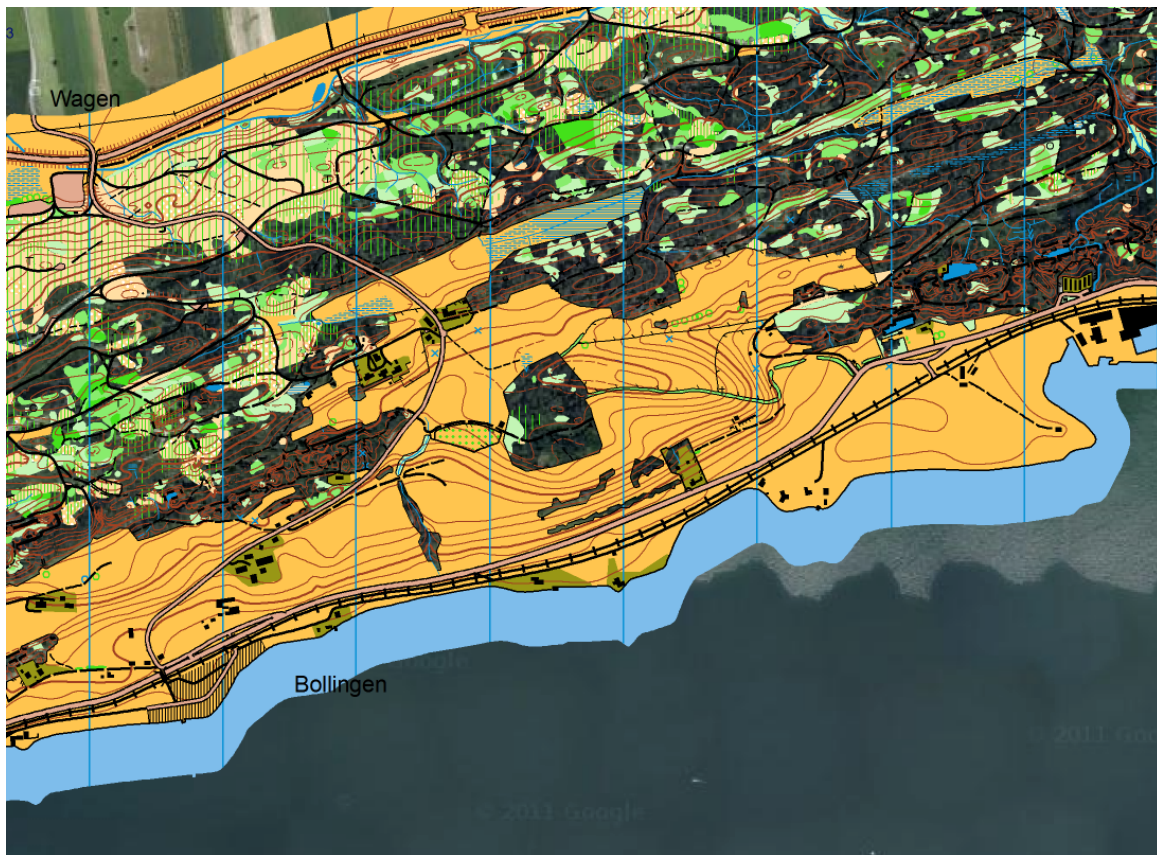
View Mode



Normal Mode

Pro Std Sta View CS

In the **Normal Mode** the map objects appear absolutely intransparent and lie over the **Background Map** which looks as follows:



Spot Color Mode

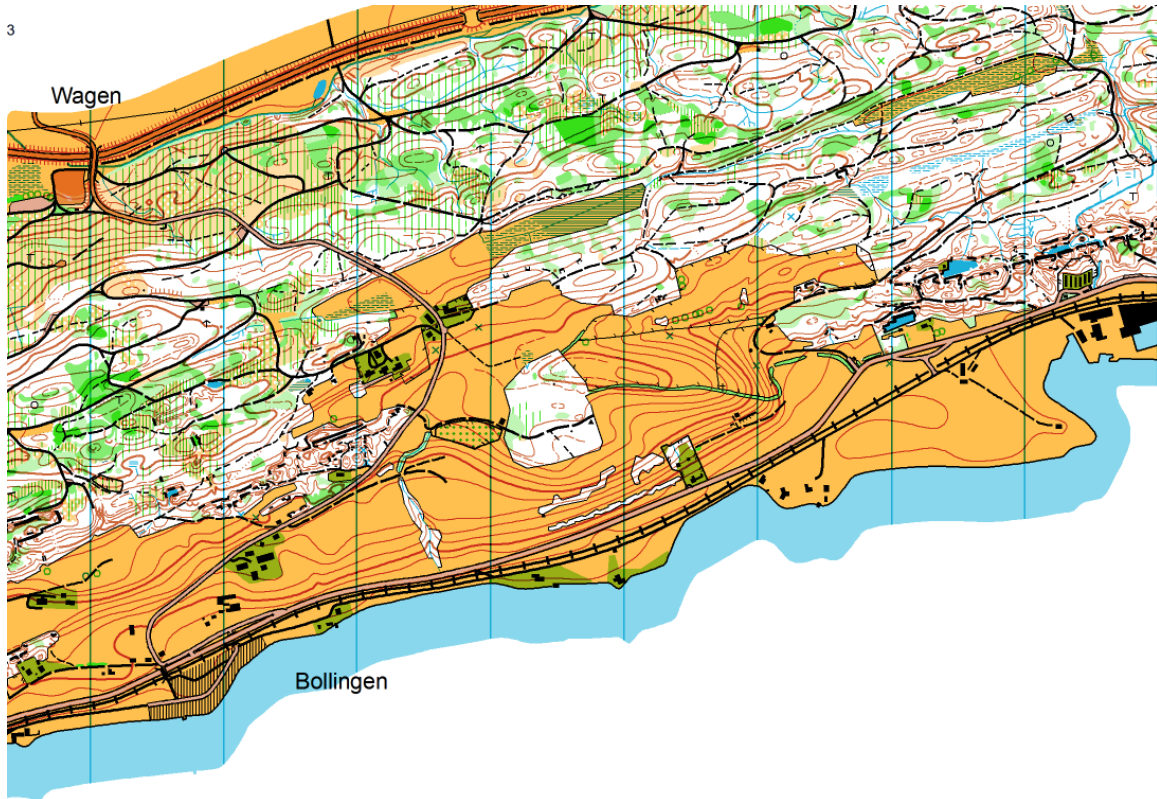


This command is enabled if at least one spot color has been defined (**Define Spot Colors**).

Choose this command to get a simulation of the spot color printing. Choose the **Spot Colors** command from the **Map** menu to define how the spot colors appear on the screen.


Raster **Background Maps** are only visible if these are assigned to a spot color in the **Background Map** dialog. OCAD **Background Maps** are always hidden.

Spot colors appear transparent to get a simulation of the final printing result.



Draft Mode



Choose this command in the **View** menu to display the map and the **Background Maps** in the draft mode. The draft mode slider  appears in the **View Toolbar**.

In the draft mode the map is display transparent and the background maps are visible.

With the draft mode slider you can set the transparency for the map and the background maps.

Use the upper slider (M stands for **Map**) for the **Map** and the lower slider (B stands for **Background Maps**) for the **Background Maps**.

- 0 (slider left) means that the map is invisible.

- 100 (slider right) means full transparency.



The draft mode replaces the **Transparent Mode** from OCAD 8. To set a color opacity choose the **Colors** command from the **Map** menu. Set the opacity for each color.



Draft Mode Only Background Map Favorites

Pro Std

Choose the **Draft Mode (Only Background Favorites)** command in the **View** menu to change to this view mode. This view mode has the same characteristics as the **Draft Mode**, with the exception that only background maps marked as favorites are displayed. Visit the **Visibility Features** article of the **Background Map** page to learn how to set a background map to the favorites.

View Mode Loop

Pro Std

Define View Mode Loop

With the **View Mode Loop** you can switch between different view modes using a **Shortcut**.

In the **View** category of the **OCAD Preferences** found in the **Options** menu you can declare which view modes shall be included in the **View Mode Loop**. All four view modes are available: **Normal Mode**, **Spot Color Mode**, **Draft Mode** and **Draft Mode (Only Background Favorites)**.

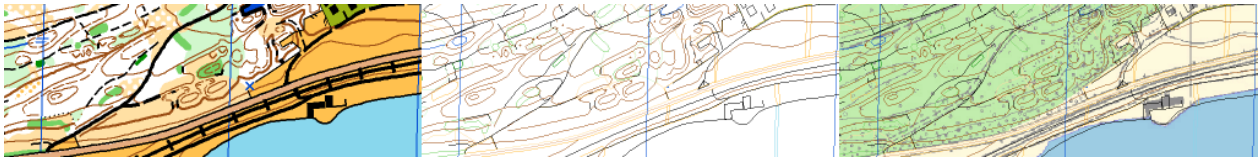
Choose the **Shortcuts** command in the **Options** menu to assign a **Shortcut**. Search for the **View - View mode loop** entry in the shortcut list. Select it and choose a shortcut from the **Shortcut** dropdown menu (e.g. F11). Click the **Close** button to finish.

Next View Mode in Loop

By using your defined shortcut (e.g. pressing the **F11** key), you can switch between the view modes selected in **OCAD Preferences**.

Back to the **View** page.

Keyline

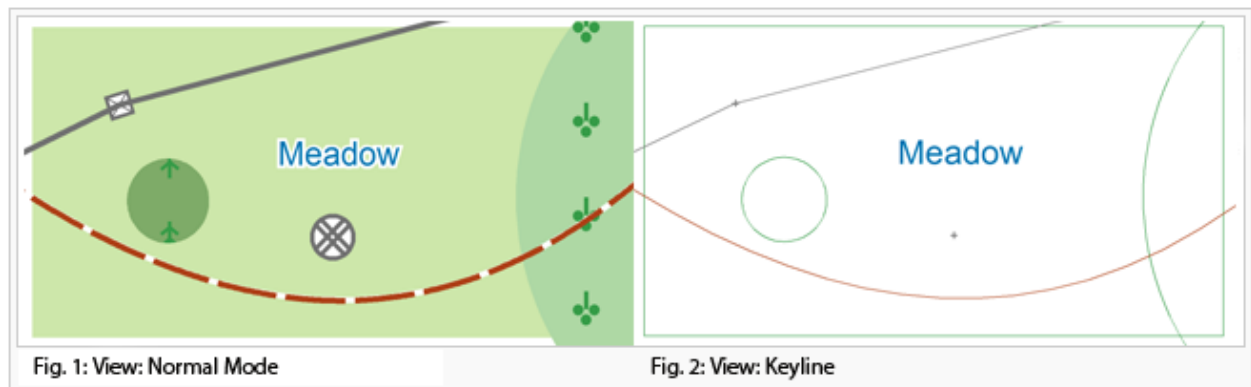


Pro

Check **Keyline** in the **View** menu to change the view into **Keyline** mode.

This view mode reduces objects to the fundament.

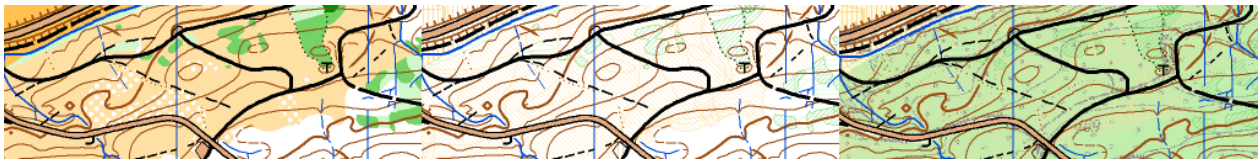
- Area objects: Only the border line is displayed in the main color of the object. White is converted to black.
- Line objects: A thin line in the main color of the line object is displayed. White is converted to black.
- Point objects: Instead of the point object, a cross is displayed in the main color of the symbol.
- Text objects: Only the letter outlines appear.



💡 The topology of the map is shown (e.g. because of the thin lines you can distinguish if an area is completely closed or not).

Back to the **View** page.

Hatch Areas

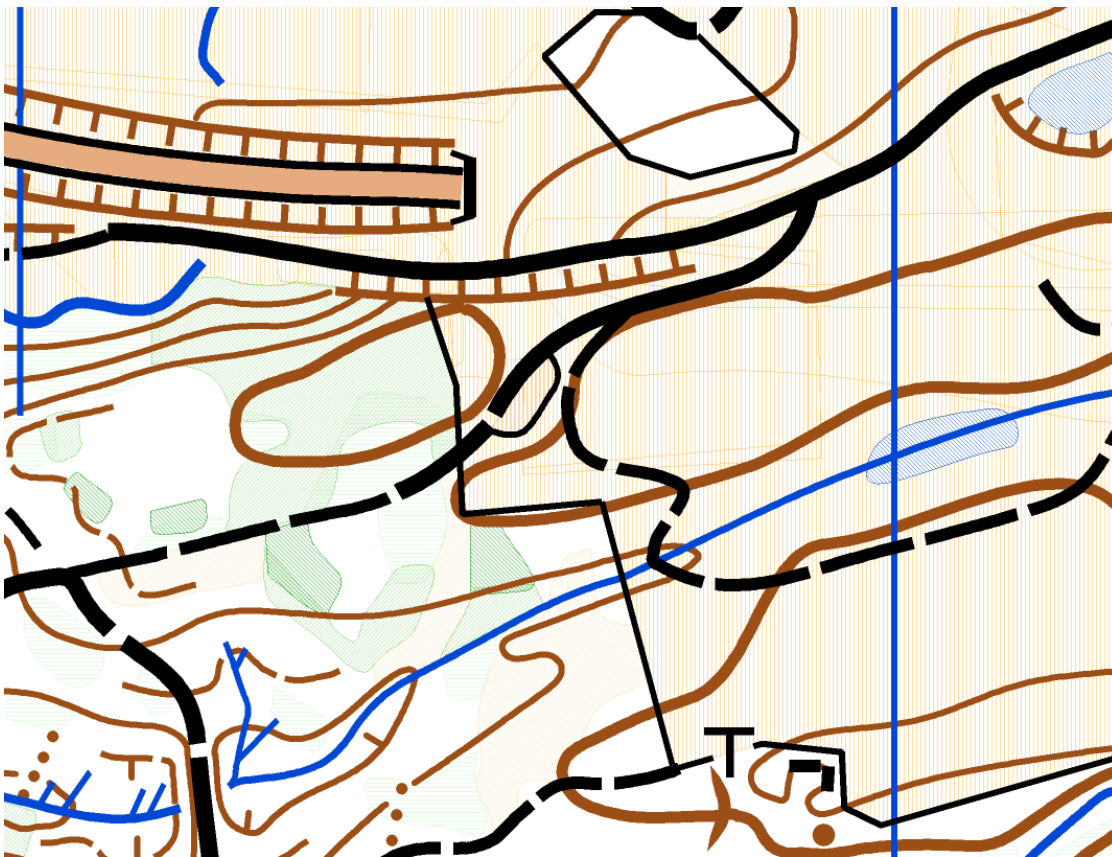


Pro Std Sta View

Choose this mode in the **View** menu to hatch all area objects so that they become transparent. Other objects are displayed normally.

This view mode is obsolete. We recommend to use the **Draft mode** or the **Keyline mode**.

Example:



💡 Please note that the hatched areas mode is not available for course setting projects.

Back to the **View** page.

Anti-Aliasing

Pro Std Sta View CS

The **Anti-Aliasing** view option in the **View** menu removes the jaggies (aliasing) during the screen representation, as the edges of the objects are smoothed.

The **Anti-Aliasing** mode makes the screen redraw slower.

The **Anti-Aliasing** mode is automatically switched off in the zoom levels higher than 16x.

The screen redrawing in **Anti-Aliasing** and **Spot Colors** mode is quite slow if the map has a lot of objects or big raster background maps are loaded. In this case we recommend to switch off **Anti-Aliasing**.



Read more about Anti-Aliasing on Wikipedia ^[1].

Back to the **View** page.

References

[1] <http://en.wikipedia.org/wiki/Antialiasing>

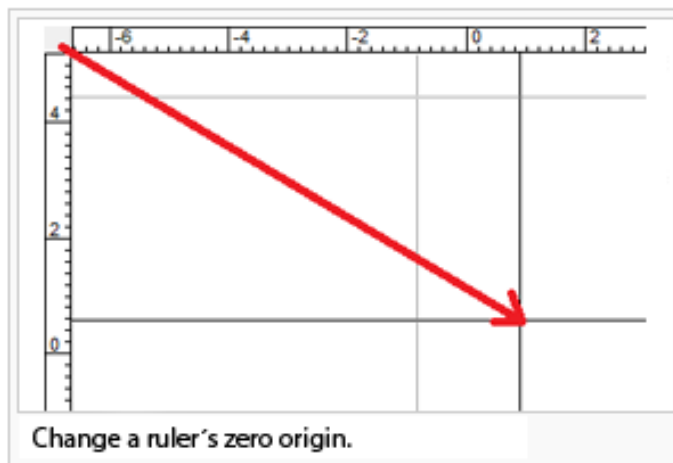
Show Rulers

Pro **Std**

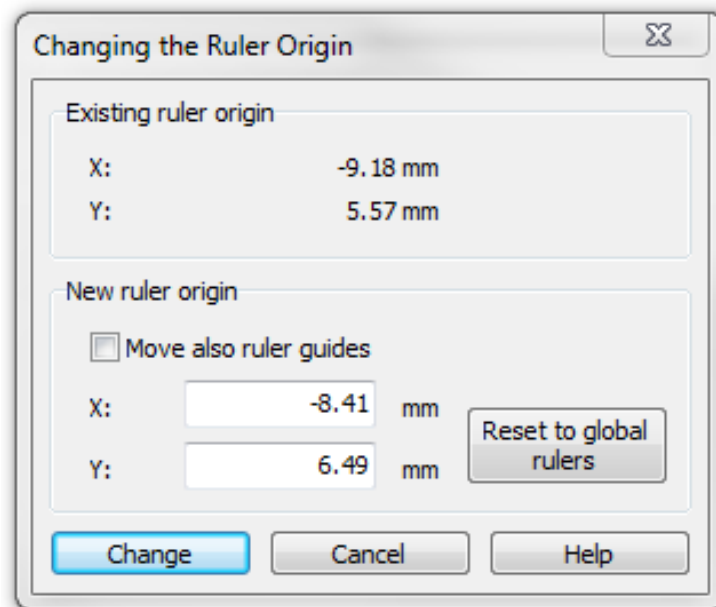
Check **Show Rulers** in the **View** menu to show rulers. They appear along the top and left side of the drawing area. By default, the ruler's origin (0|0) is the same as the grid's point of origin. Disable **Show Rulers** in the **View** menu to hide rulers again. Rulers are an assistance to create the map layout.

Change a ruler's origin

1. Position the cursor over the intersection of the rulers in the upper-left corner of the window, and drag diagonally down onto the image. Mark the new origin with the emerging cross hairs.



2. The dialog box **Change the Ruler Origin** appears.




You can also enter the position of the origin manually (in mm).

Check **Move also ruler guides** to move the **Ruler Guides**, too.

Click on **Reset to global rulers** to change the origin to default ((0mm|0mm), which is the center of the map, hence the origin of the grid).

- 💡 -The rulers are not visible on exported or printed files.
- Changing the rulers does not influence the georeference.

-The coordinates are shown in paper coordinates (mm).

 Show Ruler and Ruler Guides ^[1]

To the **Ruler Guides** page.

Back to the **View** page.

References

[1] http://www.ocad.com/howtos/131_Show_Rulers_and_Ruler_Guides.htm

Ruler Guides



Enable the **Rulers** in the **View** menu. Enable **Show** in the **Ruler Guides** submenu located in the **View** menu to display all ruler guides in the drawing area.

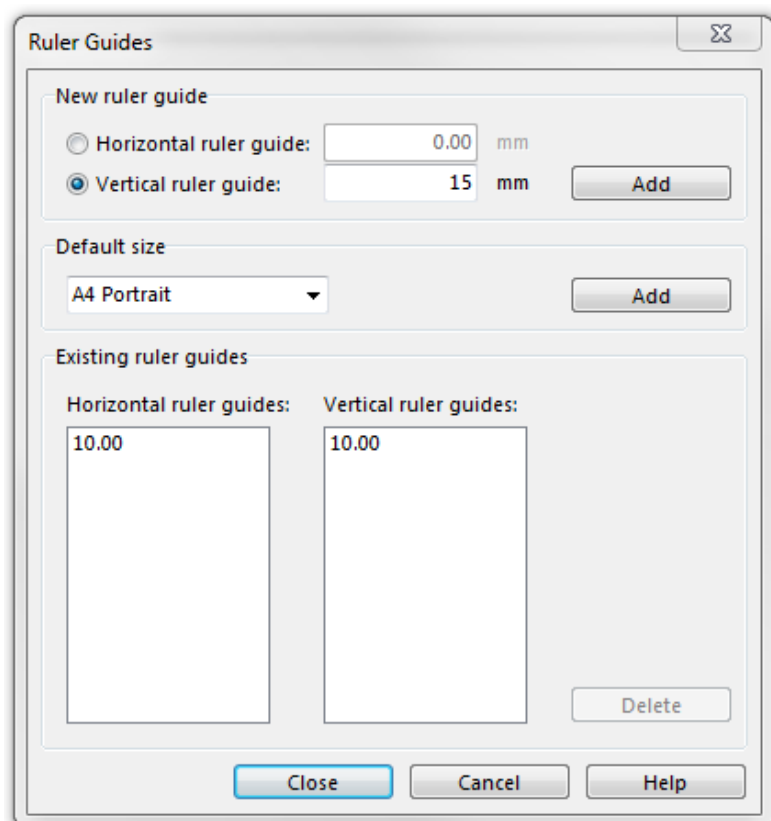
Place a Ruler Guide

You have two options to place a ruler guide:

- Drag from the horizontal ruler to the drawing area to create a horizontal guide or drag from the vertical ruler to the drawing area to create a vertical guide. The **Show** menu item in the **Ruler Guides** submenu located in the **View** menu must be enabled to place ruler guides in this way.
- Choose **Ruler Guides** and then **Manage** in the **View** menu.

In both cases the **Ruler Guides** dialog appears.

'The Ruler Guides' Dialog

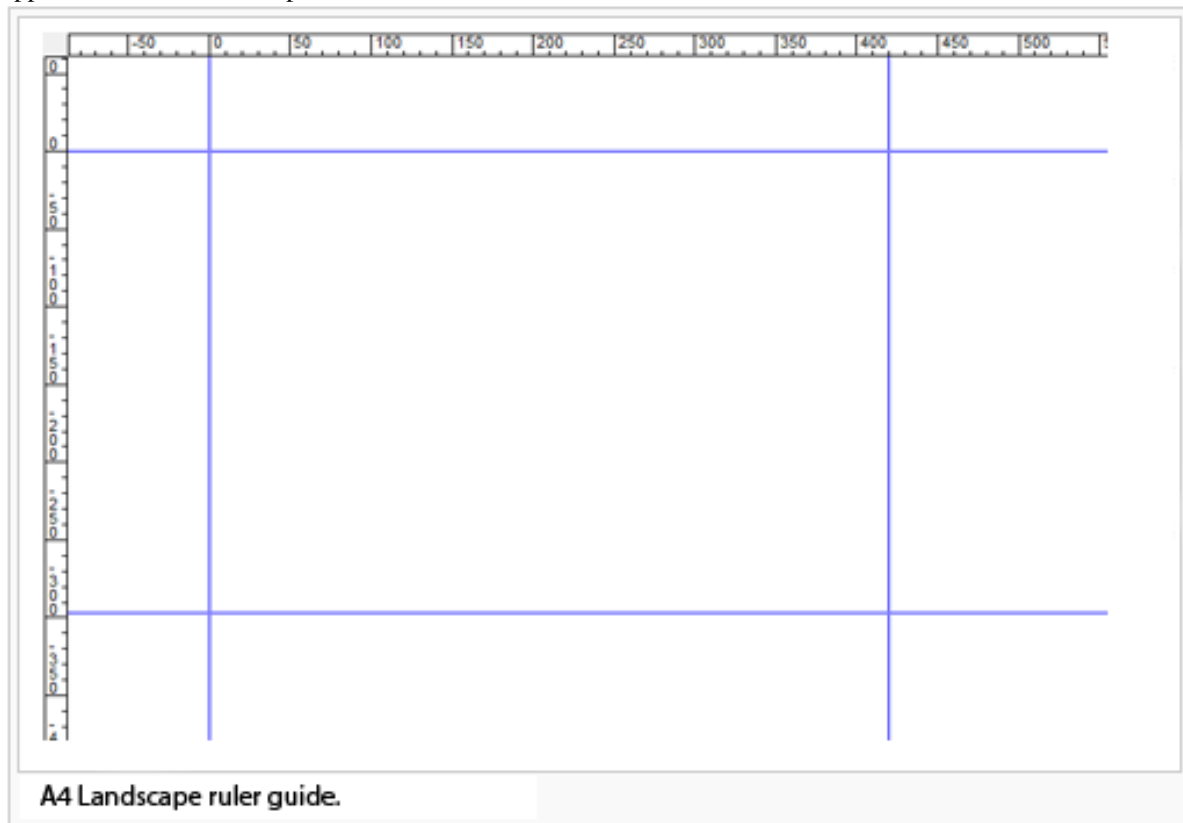


'New ruler guide' Field

If you dragged the ruler guides to the drawing area the corresponding position (in mm) is shown in the **New ruler guide** field. If you have chosen the second way to place ruler guides, enter there either a value (in mm) for a horizontal or a value for a vertical ruler guide. In both ways, click the **Add** button in the **New ruler guide** field to place the ruler guide.

'Default size' Field

In the **Default size** field of the **Ruler Guides** dialog you can place ruler guides with predefined dimensions (This is helpful if you want for example draw and print a map in DIN A4 landscape size.) Select a size from the dropdown list and click the **Add** button to place ruler guides in the chosen format. Note: The ruler's origin has to be set in the upper left corner of the map.



'Existing ruler guides' Field

In the **Existing ruler guides** field in the **Ruler Guides** dialog you can see an overview of existing ruler guides. Select one and click on the **Delete** button to delete the corresponding ruler guide.

Click on **Close** to close the **Ruler Guides** dialog box and apply all changes. Click on **Cancel** to close the **Ruler Guides** dialog without saving any changes.



Read more about customizing the **Rulers**.

 Show Ruler and Ruler Guides ^[1]

To the **Show Rulers** page.

Back to the **View** page.

Create a New Map

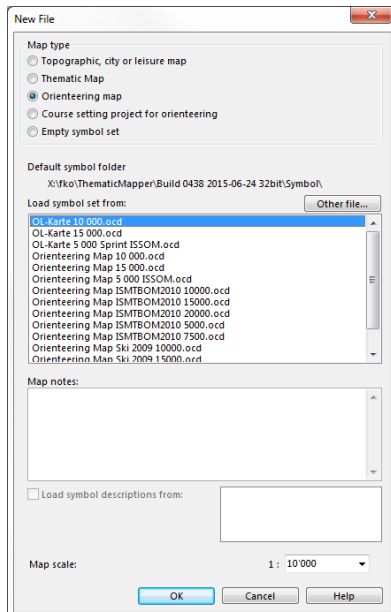
OCAD provides predefined symbol sets to help you begin drawing your map immediately.

Create a New Map



To create a new map:

1. Select **New** in the **File** menu. The **New File** dialog box appears (not in *OCAD ThematicMapper*).



2. Choose a map type. You can now choose a predefined symbol set which fits to your intended map from the selection box. If you want an empty symbol set, choose the **Empty symbol set** option. Click the **Other file** button to copy the symbols for the new map from a different map than those listed. The box lists all symbol files in the \symbol\ sub directory.

💡 - *OCAD ThematicMapper* edition steps over the **New File** dialog because the map type is always *Thematic Map* and directs you to the **Save as** dialog. The file needs to be saved. Afterwards the **Thematic Map Wizard** appears.

💡 - To add your own set of symbols to the list of predefined symbol sets, simply copy the OCD file to the OCAD sub directory *Symbol* (usually *C:\program files\OCAD\OCAD1\Symbol*). Symbol files are just normal OCAD maps, usually without any objects. The **Map notes** box shows information about the specifications of the map.

💡 - Do not edit the symbol sets provided by OCAD. When installing a Service Update OCAD overwrites these symbol sets. So your changes will be lost. If you want to modify symbols in the symbol set then first save the symbol set with another file name and edit this symbol file.

💡 - You can add, change or delete symbols in the symbol box at any time.

- Map notes can be edited in the template file itself. For this purpose choose **Map Information** in the **Map** menu.


- Edit the file *OrienteeingMapList.User.txt* in the OCAD sub directory *Symbol* if you want that user defined symbol sets are listed as map type **Orienteeing map**.

3. Decide in which **scale** the map shall be drawn.

4. It is possible to **Load symbol descriptions from** a text file. The box is only enabled if such a file exists in the symbol set folder. The file needs to contain the symbol set file name in it's filename. Please look at **Load Symbol**

Descriptions From to get more information about the content of the text file.

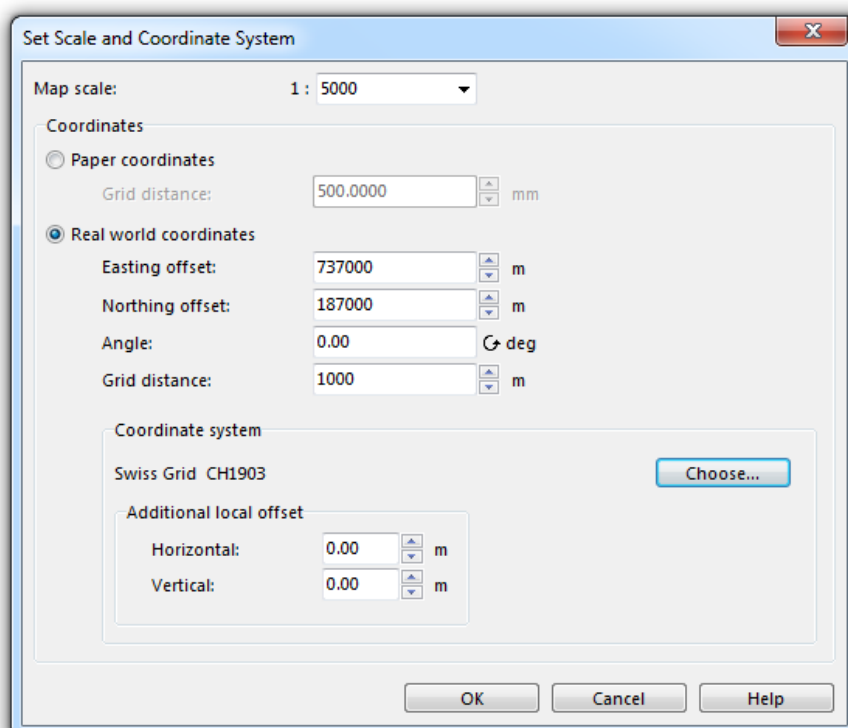
5. By clicking the **OK** button, OCAD creates a new map and copies the chosen symbol set to it.

 Creating a new map ^[1]

Set Scale and Coordinate System


Pro Std Sta CS

Select the **Set Scale and Coordinate System** item from the **Map** menu. The **Set Scale and Coordinate System** dialog box appears.



Map Scale

Enter a scale and click the **OK** button or adjust the **Coordinates** settings.

 Do not use this dialog to change the scale after entering the initial values. To increase or decrease the size of the map subsequently, use the **Change Scale** function in the **Map** menu. Setting the current scale does not enlarge or reduce the map. It only changes a number in the map file and georeferencing will be lost.

Georeference the Map

Before loading a georeferenced **Background Map**, work with **GPS** data or import **Spatial Base Data**, we recommend that you first georeference the map. You should contact your data supplier, national surveying office or cartographic institute to find out which coordinate system will best suit your needs.

Coordinates

1. Choose whether you want define **Paper coordinates** (in mm) or **Real world coordinates**. Click the corresponding radio button.
2. In the **Easting offset** and **Northing offset** fields, enter the coordinate values for the center of your map.
3. The coordinate system can be rotated by entering a value in the **Angle** field.
4. In the **Grid distance** field, enter the desired distance for the **Coordinate Grid lines**.

💡 Enter the coordinate values for the center of your map in the horizontal and vertical offset fields. This is important since the drawing area of OCAD is limited to 4 x 4 m in the **Std Orienteering** edition, in the **Sta Starter** edition as well as in the **CS Course Setting** edition and 80 x 80 m in the **Pro Professional Edition**. This option is used to ensure that imported **Spatial Base Data**, georeferenced **Background Maps** and **GPS** measurements do not lie outside the drawing area.

Coordinate System

Click the **Choose** button to define a coordinate system. The **Coordinate System** dialog appears.

The screenshot shows the 'Coordinate system' dialog box. It contains the following fields and values:

- Coordinate system:** Swiss Grid
- Zone:** CH1903+ / LV95
- Map datum:** CH 1903+
- Ellipsoid:** Bessel_1841
- Location:** Switzerland, Liechtenstein
- EPSG:** 2056 (with a link to spatialreference.org)
- ID:** 14002

At the bottom of the dialog are four buttons: Remove, OK, Cancel, and Help.

Choose the desired coordinate system. OCAD supports a lot of coordinate systems. The most common one is the **UTM**^[2] (Universal Transverse Mercator) system which is divided into 60 zones limited by meridians and defined worldwide.

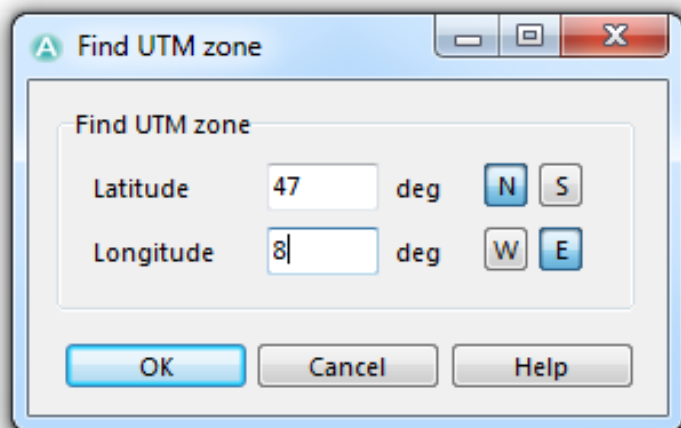
- **Zone:** Depending on the selected coordinate system you must select a zone. If the coordinate system **UTM** is selected, you can click the **Find** button to find the correct UTM zone. This function is described in the next paragraph.
- **Map datum:** This field displays the map datum for the desired coordinate system (**Map Datum**^[3]).
- **Ellipsoid:** The field displays the ellipsoid from the map datum (**Reference Ellipsoid**^[4]).
- **Location:** The field displays the location, where the coordinate system can be used.
- **EPSG:** The field displays the EPSG-Code (European Petroleum Survey Group Geodesy) of the coordinate system. An external link is provided on the right side of the dialog box. This link refers to spatialreference.org^[5], where you can get more information about the chosen coordinate system and zone.
- **ID:** The field displays the internal grid ID for this coordinate system. This grid ID is used in the [[XML Script]].

Click the **Remove** button to reset the coordinate system to **Grid undefined**.

If you are finished, click the **OK** button.

Find UTM Zone

If **UTM**^[2] is chosen as a coordinate system, the local zone can be found with this tool. Click the **Find** button next to the **Zone** dropdown list. The **Find UTM Zone** dialog appears.



Enter the geographical coordinate (degree of longitude and degree of latitude) of your map.

- **Latitude:** Enter in this field the degrees of latitude.

N (North): Click this button if the position is northern of the equator.

S (South): Click this button if the position is southern of the equator.

- **Longitude:** Enter in this field the degrees of longitude.

W (West): Click this button if the position is western of Prime Meridian (London Greenwich).

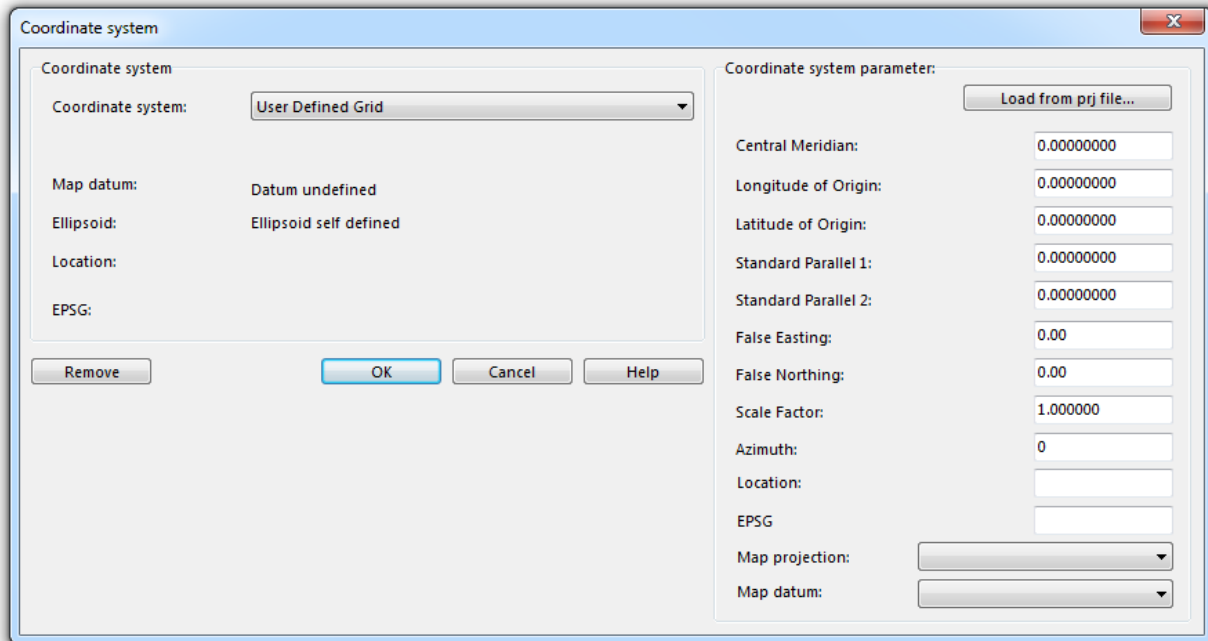
E (East): Click this button if the position is eastern of Prime Meridian (London Greenwich).

Click the button **OK** to calculate the UTM zone. The UTM zone appears in the **Coordinate system** dialog box.

Example: Coordinate from Baar (Switzerland): 47° 12 North (Latitude), 8° 31' East (Longitude). Enter 47 in the **Latitude** and 8 in the **Longitude** field. You will find out that this place is in the UTM zone 32 North.

User Defined Grid

In the **Coordinate System** dialog you have the option to choose a **User Defined Grid** in the dropdown list. If you choose it, the dialog box is extended with the **Coordinate system parameter** part.



You can load the coordinate system from a PRJ-File by clicking the corresponding button. A PRJ-File is a projection format containing coordinate system and projection information. The coordinate system parameter are updated after loading a PRJ-File. Alternatively, the required values can be typed manually but this requires a little experience.

Additional local offset

It is possible to give an additional local offset to the chosen coordinate system. Enter a value for the horizontal and vertical offset in the corresponding fields. This is especially useful if you have to work with GPS very precisely. A tectonic plate can move but the coordinate system stays the same. If you enter a local offset, this problem can be cleared.

Click the **OK** button to save changes and quit the **Set Scale and Coordinate System** dialog.



Do not use this dialog to change the real world coordinate offset if the map is georeferenced. To move a georeferenced map, use **Transform -> Center Map to Drawing Area** in the **Map** menu and enter the new offset.

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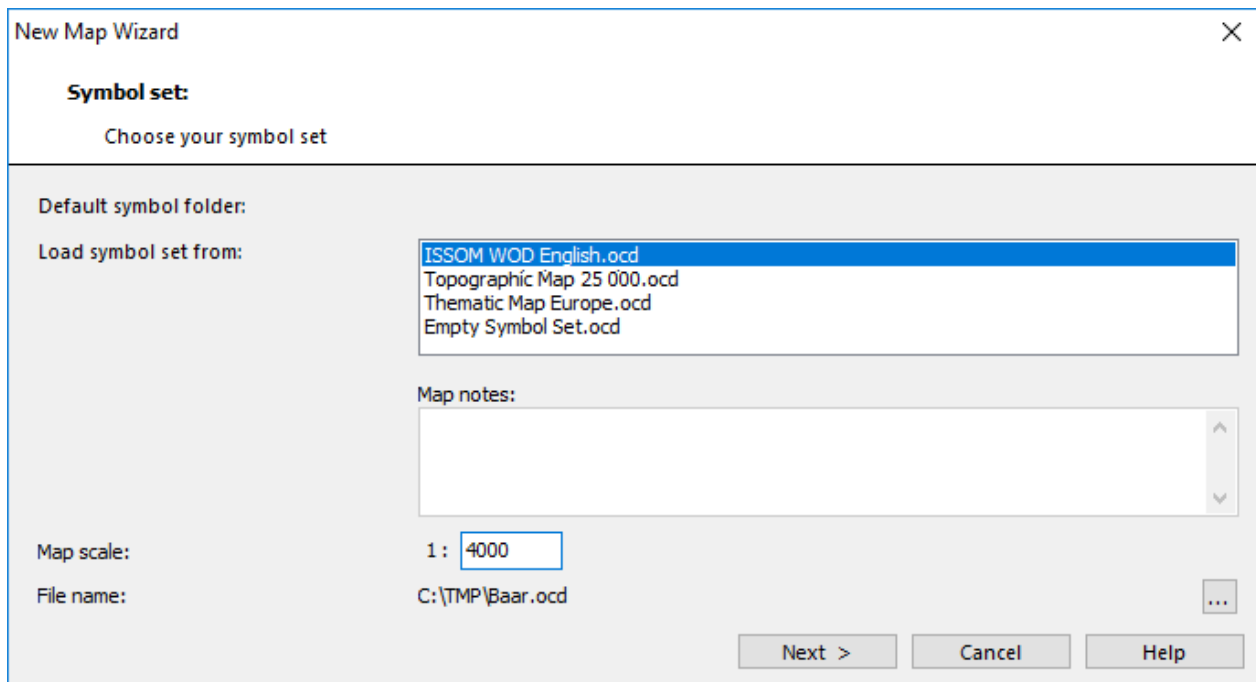
[Next Chapter: Colors](#)

References

- [1] <http://www.ocad.com/howtos/29.htm>
- [2] http://en.wikipedia.org/wiki/Universal_Transverse_Mercator_coordinate_system
- [3] http://en.wikipedia.org/wiki/Datum_%28geodesy%29
- [4] http://en.wikipedia.org/wiki/Reference_ellipsoid
- [5] <http://spatialreference.org/ref/epsg/>

New Map Wizard

Choose this command from the **File** menu to create a new map. This wizard helps you to set the geo-reference and import optionally Open Street Map ^[1] data.



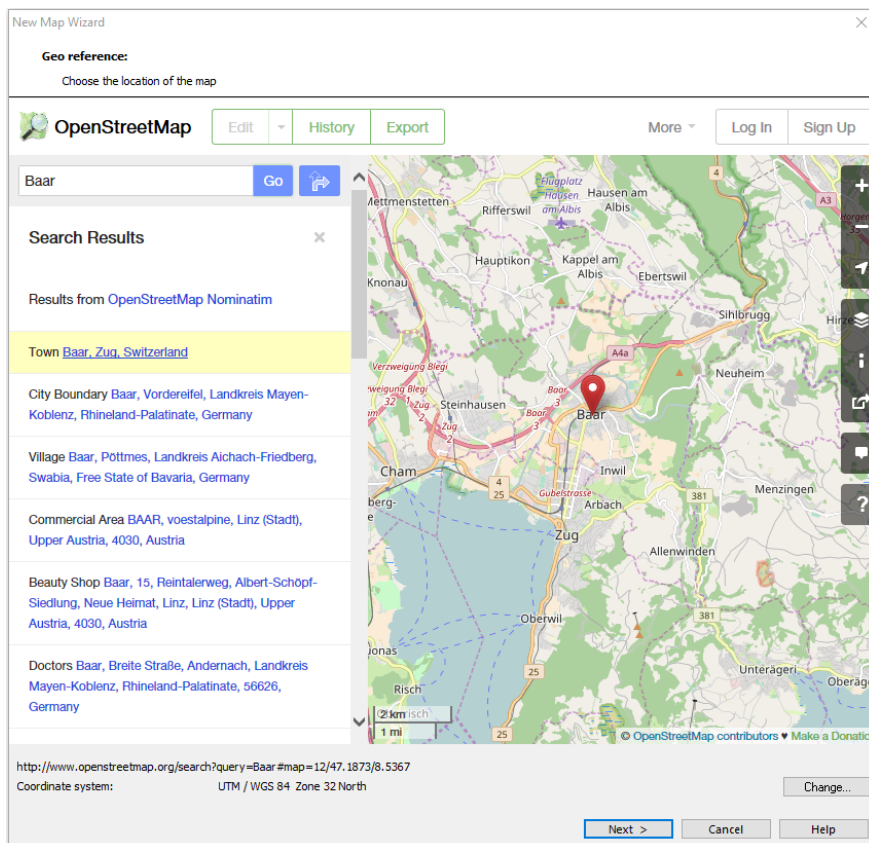
The screenshot shows the 'New Map Wizard' dialog box. At the top, it says 'Symbol set:' and 'Choose your symbol set'. Below this, there is a section for 'Default symbol folder:' and 'Load symbol set from:'. The 'Load symbol set from:' field contains a list of symbol sets: 'ISSOM WOD English.ocd', 'Topographic Map 25 000.ocd', 'Thematic Map Europe.ocd', and 'Empty Symbol Set.ocd'. Below the list is a 'Map notes:' text area. At the bottom, there are fields for 'Map scale:' (set to '1 : 4000') and 'File name:' (set to 'C:\TMP\Baar.ocd'). There are three buttons at the bottom: 'Next >', 'Cancel', and 'Help'.

The **New Map Wizard** dialog shows only OCAD 12 symbol sets. If the **Load symbol set from** field is empty, then change the **Default Symbol Folder** in the **Preferences** to the OCAD 12 symbol folder.

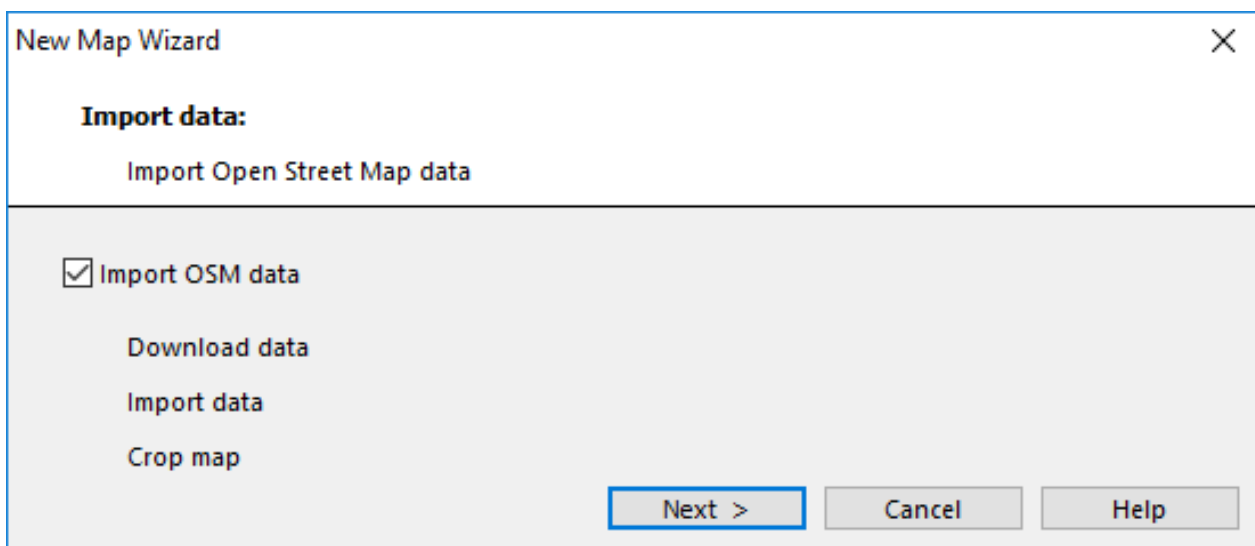
Set the **Map scale**.

Click the **Choose** button to change the default temporary file name.

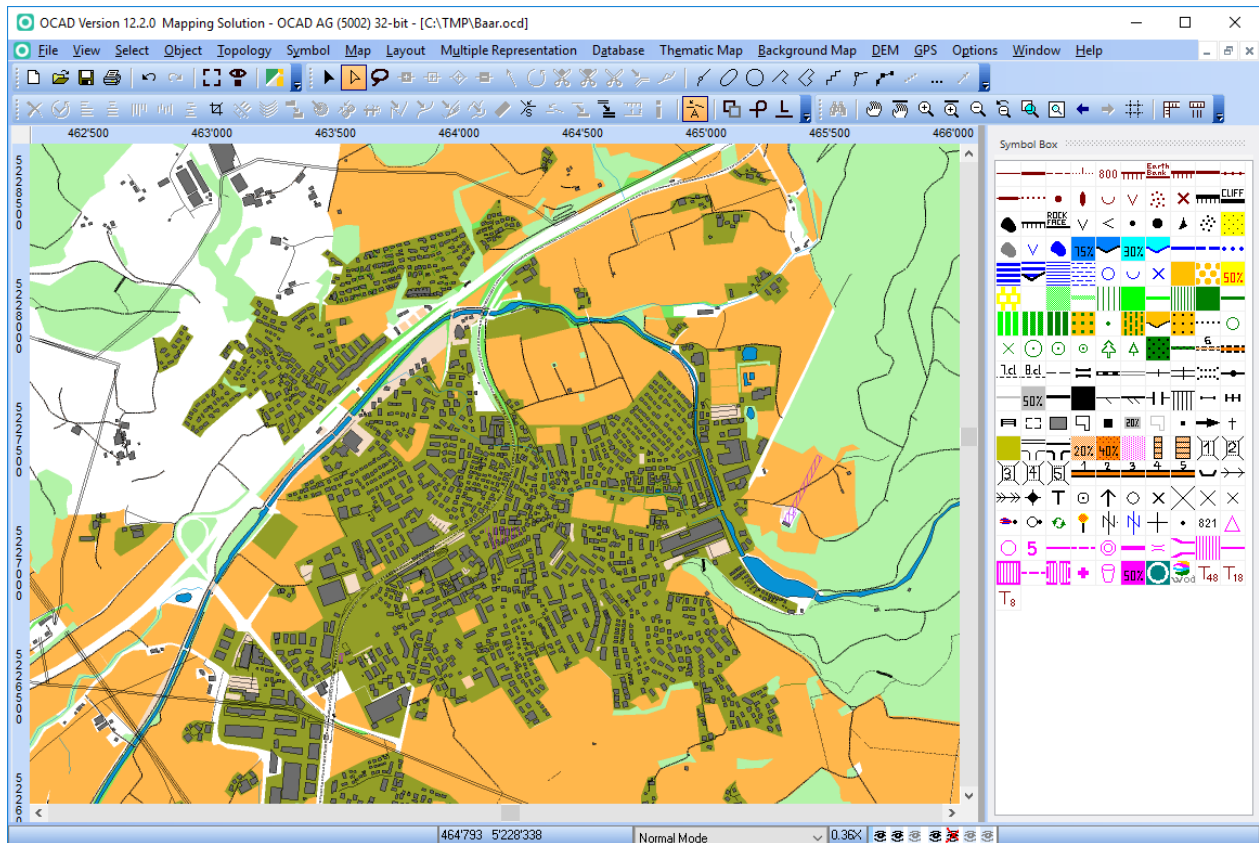
Click the **Next** button.



Choose the location of the map. Enter the location (e.g. *Baar*) in the search field and click **Go**. Choose the location in the list or move the Open Street Map to the map location. OCAD show the correct UTM coordinates system for the map location (e.g. *UTM/WGS 84 Zone 32 North*). Click the **Change** button to change to another coordinate system. Click the **Next** button.



You can import Open Street Map data for this location. Check this option to import this data. Click the **Next** button. Click the **Close** button.




References

- [1] <https://www.openstreetmap.org>

File

New



Choose this command from the **File** menu or click the  **New** button in the **Standard** toolbar to create a new, empty map. The **New File** dialog box is displayed. For further information visit the **Create a New Map** page.

New Map Wizard

Choose this command from the **File** menu to create a new map using the wizard. The **New Map Wizard** dialog box appears. For further information visit the **New Map Wizard** page.


Open



Choose this command from the **File** menu or click the  **Open** button in the **Standard** toolbar to open an existing map. The **Open Map** dialog box is displayed. Browse the map to be opened and click the **Open** button.

If the map was created with an earlier OCAD version, you will be asked if you want to convert it into the OCAD 12 format. If you answer by clicking the **No** button, the map will not be opened.

OCAD 12 can open maps vom OCAD 6 to 12. OCAD 12 doesn't support earlier OCAD file formats.

 - Do not use this command to restore a backup copy from a floppy disk created with the **Create Backup** command. Use the **Restore Backup** command instead.

- The error message "This OCAD version is not yet supported" appears if the file is an OCAD file from a higher OCAD version.
- The error message "Format not correct" appears if the file is either damaged or not an OCAD file.
- The **Fonts Not Found** dialog box appears if the map contains one or more fonts that are not installed on the computer. Probably the map was created on another computer. You must install the missing fonts in Windows or select other fonts. Otherwise a standard font is used for the missing ones.

Open Sample Map



This command chosen from the **File** menu opens the **Open Sample Map** dialog. There you can choose a sample file. The sample files are saved in the OCAD program subfolder *Samples* (usually *C:\Program Files\OCAD\OCAD 12\Samples*).


Close



Choose this command from the **File** menu to close the current map. If changes were made to the current map and **Auto Save** is switched off, then you will be asked if you want to save the changes.

Save



Choose this command in the **File** menu or click the  **Save** button in the **Standard** toolbar to save all changes in the current map on volume. If the current map has no name (untitled) the **Save As** dialog box will be displayed, where a name for the map can be entered.

Save As



Choose this command from the **File** menu to save the current map under a new name. The **Save As** file dialog box is displayed.

You can use this command to save the map in a previous OCAD version (9, 10 or 11). Choose the format in the **Save as type** list.

To create a backup file use the **Create Backup** command in the **File** menu.



OCAD 12 Course Setting files can be saved in an previous OCAD version if the file passes the **Compatibility Check**.



All changes made since the old map was saved the last time are not written to the old map. They are only written to the new map. However, if the **Auto Save** is switched on, the changes are saved to both files. The **Auto Save** function can be managed in the **OCAD Preferences**.



OCAD 12 TRIAL can't save the ocd files in an earlier OCAD version.

Open Recently Exported Documents



Choose **Open Recently Exported Documents** in the **File** menu to open a recently exported document from the opened OCAD file. The information about the recently exported documents are saved in the OCAD file that you have open. This function is not available if you do not have a file open.

Click on the **Delete List** command to clear the list.

Not existing files are disabled and cannot be opened.

Open Recently Used OCAD Files



Choose **Open Recently Used OCAD Files** in the **File** menu to open an OCAD file which you recently opened.

Not existing files are disabled and cannot be opened.

Exit OCAD



Click on to exit OCAD.

More Functions in the File Menu

Undo

Redo

Print

Import

Export

Export OCAD Internet Map

Export Encrypted File

Send File by Email

Execute XML Script

Create Backup

[Back to Main Page](#)

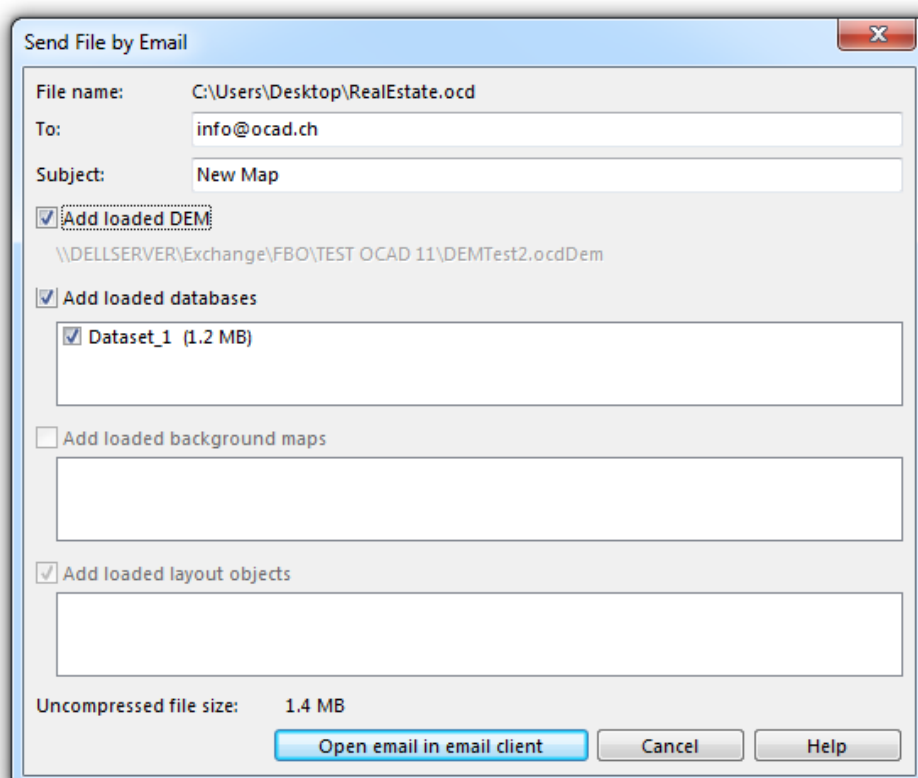
[Previous Chapter: Graphical User Interface](#)

[Next Chapter: View](#)

Send File by Email

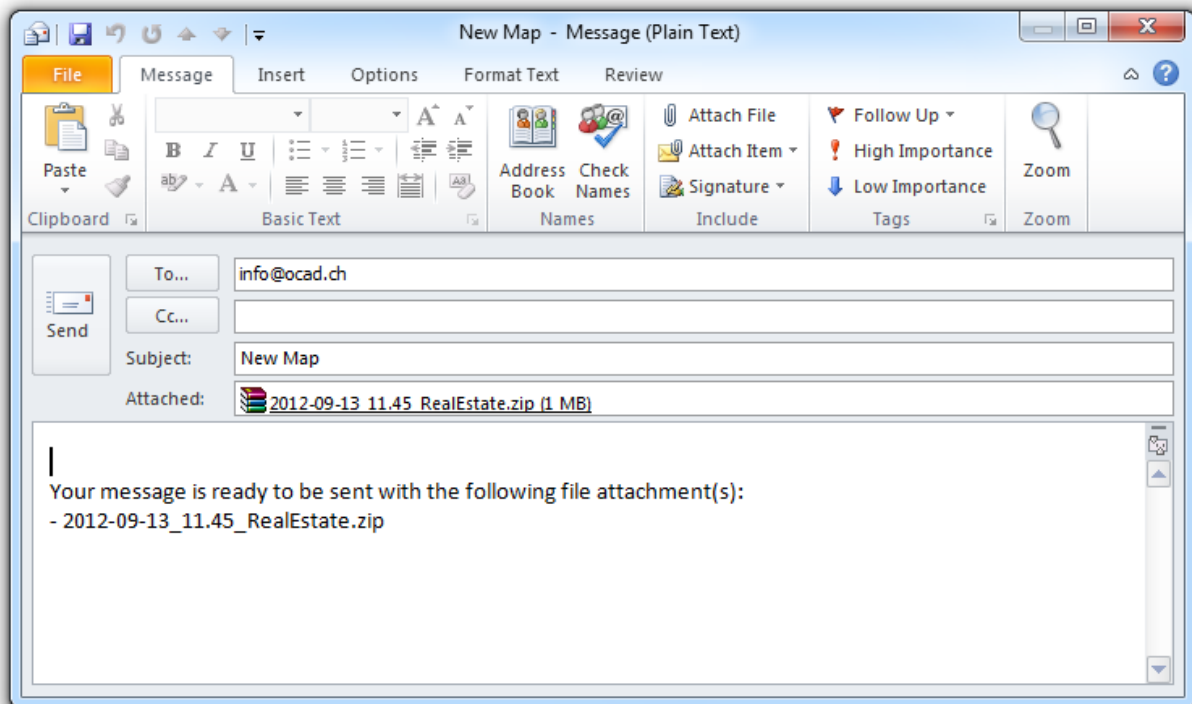
Pro **Std**

Choose the **Send File by Email** command in the **File** menu to send an OCAD map, including the loaded **DEM**, **Databases**, **Background Maps** and **Layout Objects**, by E-Mail. The **Send File by Email** command appears.



Enter the E-Mail address of the recipient in the **To** field and enter a subject. You can check all loaded **DEM**, **Databases**, **Background Maps** and **Layout Objects** you want to add to the E-Mail. The **Uncompressed file size** value shows the size of the attachment.

When you are finished, click the **Open email in email client** button to continue. OCAD opens the predefined E-Mail in the standard client (e.g. Outlook, Thunderbird, etc.).



You can add text and send it.



- Windows XP opens the email in Outlook (if installed) and not in the standard email client.

- OCAD uses the **Messaging Application Programming Interface (MAPI)** ^[1] to send the emails. Your installed email client must support the MAPI.

- OCAD does not send the used fonts.

References

[1] http://en.wikipedia.org/wiki/Messaging_Application_Programming_Interface

Create Backup

Create Backup



To create a backup of the currently opened file:

1. Choose the **Create Backup** command in the **File** menu.
2. The **Backup** dialog appears.
3. OCAD creates a new folder called **Backup** and suggests a name for the backup file, which consists of the current date and time and the file name. Alternatively, you can enter an own name.
4. Click the **Save** button to save the backup.

This function has not the same effect as the **Save As** function. After saving the backup you are still working on the old file.


Back to the **File** page.

To the **Main Page**.

Undo and Redo


Undo



Click on the **Undo** icon  in the standard toolbar, press Ctrl+Z or select **Undo** in the **File** menu to undo the last draw or edit operation.

Redo



Click on the **Redo** icon  in the standard toolbar, press Ctrl+Y or select **Redo** in the **File** menu to reverse the effect of the **Undo** operation.

Back to the **File** page.

Colors

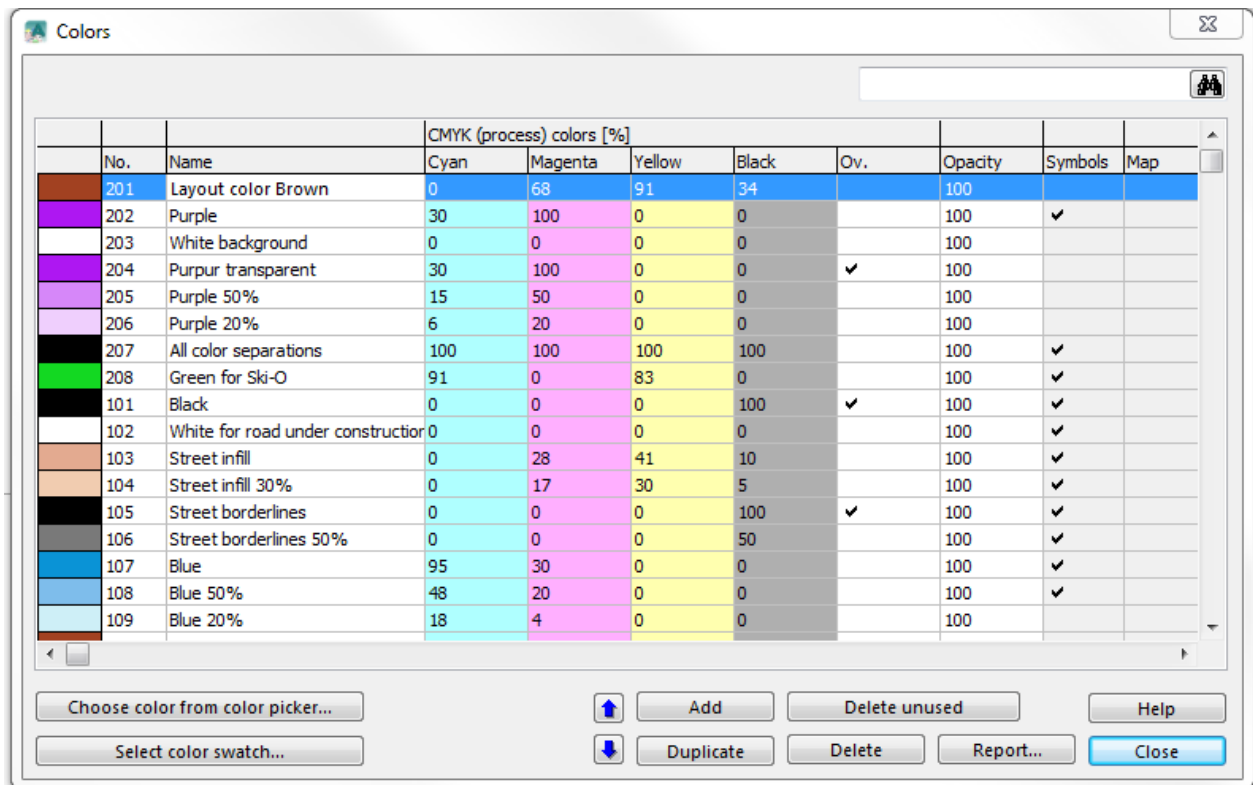
Colors

Pro Std Sta View CS

This function has limitations in the OCAD Viewer

Choose this command in the **Map** menu to define the colors and spot colors of the map. The **Colors** dialog box is displayed. In this dialog all colors which you can use for the map are listed, can be edited, created or deleted.

💡 In the top right corner is a color **search** field.



The colors are rendered on the screen and on the printer from the bottom up. The color on the bottom is rendered first and the color on the top is rendered last. Therefore, an object A with a color, which is below the color of another object B, appears behind object B on the map.

The table contains 18 columns:

Number and Name

The first column provides you with a preview of the color defined in the corresponding row. The second and the third column are defined as follows:

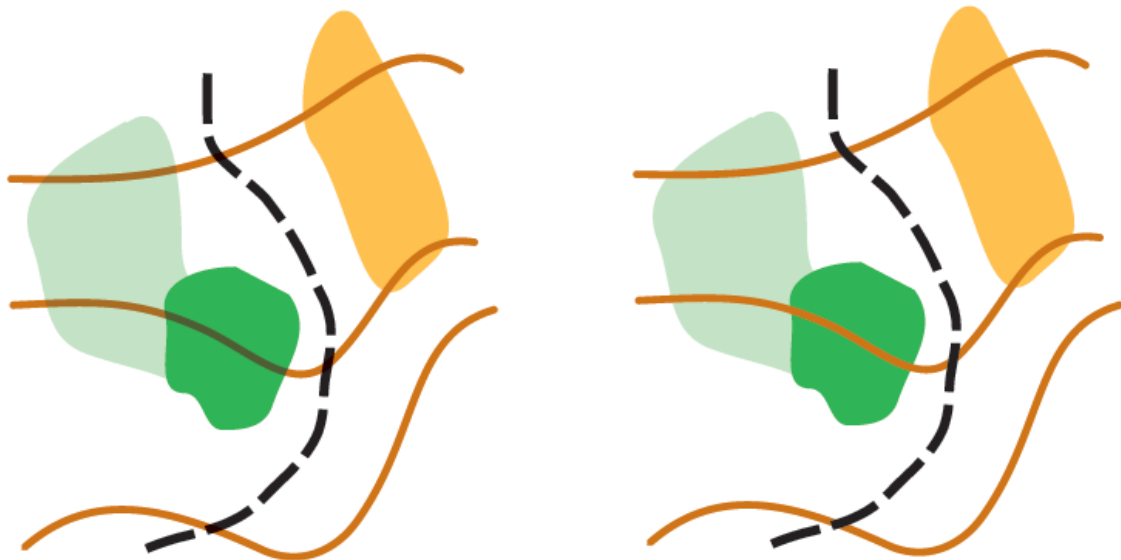
- **No.:** In this column the color number is displayed. Each color must have a number between 0 and 32000. This number can be changed by clicking on it.
- **Name:** In this column a name with up to 45 characters must be given to each color. This name can be changed by clicking on it.

CMYK (process) colors

The CMYK (Cyan, Magenta, Yellow, Key (Black)) values of the color are displayed in those 4 columns. These values can be changed by clicking on it. The color preview will be updated immediately.

Overprint

In the **Ov.** column you can check the **Overprint** option. When overprinting is chosen for a color, the CMYK separations are not omitted (i.e. the CMYK separations are printed/rendered under the color you overprint). This makes this color appearing darker when it is printed on another color. The following example should illustrate this:



In the figure on the left side, overprinting for brown and black colors is active. In contrast, on the right side, overprinting is disabled for those colors. You can see that the brown contour lines appear darker in the green areas. Furthermore, there is a similar effect when the black path crosses the contour lines.

It is noticeable that the contour lines do not appear darker when crossing the yellow area. This is due to the fact that the brown color as well as the yellow color have a cyan value of 0. Overprinting has therefore only an effect, if the upper color has at least one CMYK value which is 0 and, at the same time, this value is greater than 0 in the lower color.

In OCAD the overprinting effect is not shown. Overprinting affects only Color AI, EPS and PDF files as well as CMYK separations. Overprinting is also supported by some PostScript printers.

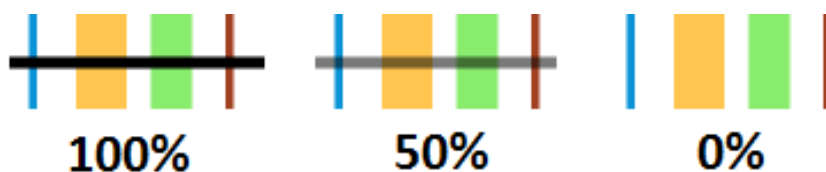
Opacity

In this column the opacity of the color in percentage can be entered by clicking the value.

An opacity value of 0 means that the color is not visible.

An opacity value from 1 to 99 means that the color is transparent with the corresponding intensity.

An opacity value of 100 means that the color is opaque.



Black with 100%, 50% and 0% opacity.

Usage

If the **Symbol** column is checked, the color is used in at least one symbol.

If the **Map** column is checked, the color is used in at least one map object, including **Image** and **Graphic Objects**.

Spot Colors

Spot colors are used if the map is printed with PMS (Pantone) colors. If the map is printed with 4 colors (CMYK), spot colors needn't be defined.

You can define a spot color value for each color. Click in the corresponding field and enter a value in percentage.

- A value of 100 means that the color appears black on the separation.
- A value of 0 means that the color appears white on the separation and erases any black color.
- An empty field means that the color has no effect on the separation.



The colors are rendered on the separation from the bottom up. The lowest color in the list is drawn first and the color on top of the list is drawn last. Therefore if you put 0 in one row, only colors below this row are erased.



Putting a 0 is especially important for streets in order to enable automatic cleaning up of crossings. The color of the street infill must be above the color of the street sidelines. And in the row of the infill there must be a 0 for the spot color of the sidelines.

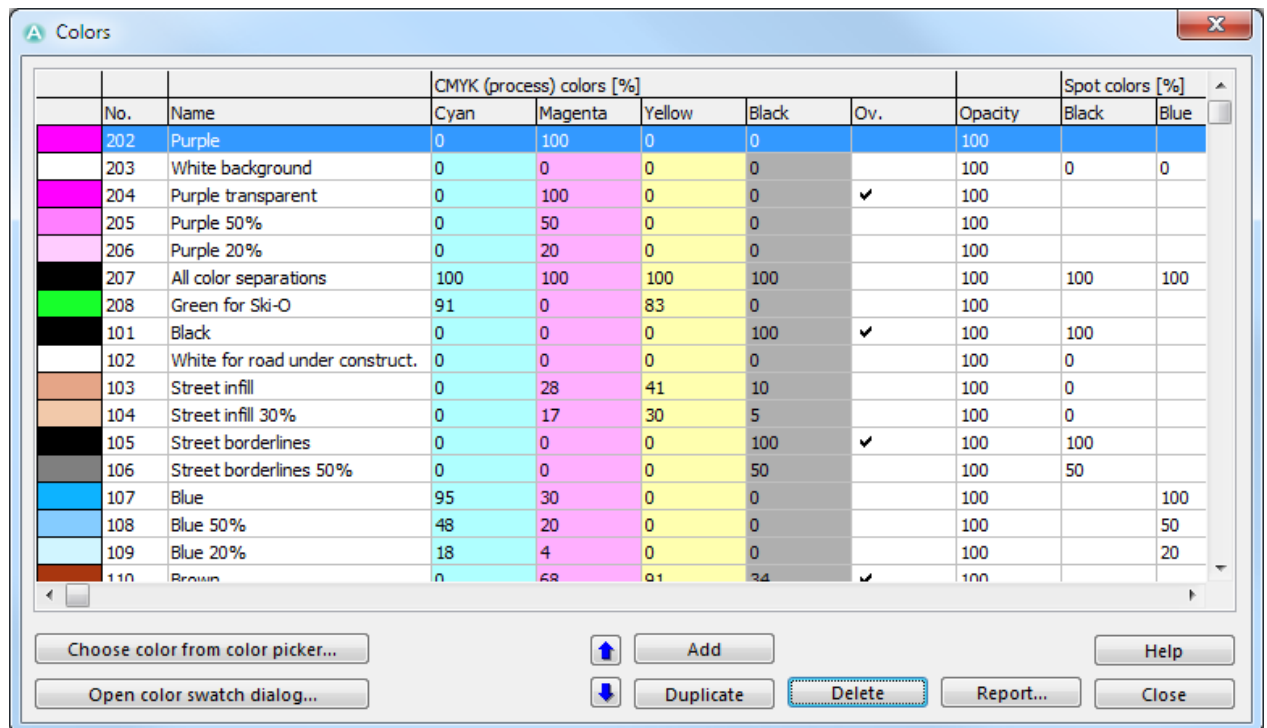
To create, edit and delete spot colors choose the **Define Spot Colors** item in the **Map** menu.

Functions

- **Redraw screen when changing a color:** OCAD redraws the map after changing a color. If the map has a lot of objects this takes some seconds. Uncheck this option to avoid the automatical redrawing of the screen.
- **Move Up:** Click the **Move Up** icon to move the selected color one row upwards in the color table.
- **Move Down:** Click the **Move Down** icon to move the selected color one row downwards in the color table.
- **Add:** Click this button to add a new color.
- **Duplicate:** Click this button to duplicate the selected color. The duplicated color is inserted below the selected color.
- **Delete unused:** Click this button to delete all colors that are neither used in any symbol nor any map object.
- **Delete:** Click this button to delete the selected color.
- **Report:** Click this button to save a report of the colors as a Word, Excel, Html or Text file. Open the report with the **Open Recently Exported Documents** command from the **File** menu.



If you have a map with a lot of objects, it may take some seconds until the **Color** dialog appears. OCAD is checking through all objects to find all colors used in the symbols and in the map. If you want OCAD to display the **Colors** dialog immediately, press the **Shift** key when choosing **Colors** in the **Map** menu. OCAD opens the dialog instantly and hides the **Symbol** and **Map** columns as well as the **Delete unused** button. This dialog looks as follows:



Choose Color from Color Picker

Click the **Choose color from color picker** button to edit the selected color in the **Color Picker** dialog.

Select Color Swatch

Click the **Select color swatch** to compare the colors from the current opened OCAD file with a color swatch from a reference file in the Color Swatch dialog.

Blend Mode

Click the **Blend Mode** button to set the blend mode for each color in PDF export in Blend Mode dialog.

Load Colors From



Choose this command in the **Map** menu to load a color table from a different OCAD-File. The **Load Colors From** dialog box is displayed. Choose a map file which the color table shall be loaded from. Click the **Open** button to continue. Another **Load Colors From** dialog box appears. You have two options:

- **Replace existing colors:** Choose this option to overwrite the existing color table of the current map with the new one.
- **Add to existing colors:** Choose this option to add the new colors to the existing color table.

Click the **OK** button to finish.

Load Colors and Symbols From



Choose this command in the **Map** menu to load a symbol set from a different OCAD-File. The **Load Colors and Symbols From** dialog box is displayed. Choose a map file which the symbol set shall be loaded from. Click the **Open** button to continue. Another **Load Colors and Symbols From** dialog box appears. You have two options:

- **Replace existing colors and symbols:** Choose this option to overwrite the existing symbol set and color table of the current map with the new ones.
- **Add to existing colors and symbols:** Choose this option to add the new symbols and colors to the existing ones.

You have the option to use a **CRT-File** to import the symbol set. In the first column of the cross reference table the symbol numbers of the current map are listed. In the second column symbol numbers of the other OCAD-File are listed, namely those numbers of symbols, which the current symbol has to be replaced with. As an example, a CRT row which is defined as 526.000 813.001, means that the symbols of all objects with the symbol number 526.000 will get the symbol of the other OCAD-File with the number 813.001.

Visit the **Cross Reference Table** page to get detailed information about using CRT-Files. Click the **Load** button to load a CRT-File.

Click the **OK** button to finish.



OCAD opens the File Dialog in the folder of the last imported file. Press the **Shift** key to open a file from the *Symbol* folder. The *Symbol* folder is a subfolder of OCAD program folder (e.g. *C:\Program Files\OCAD\OCAD 12 Mapping Solution\Symbol*).



The error message "Cannot import symbol" appears if OCAD was not able to load a symbol. The **Load Colors and Symbols From** process is aborted.

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[Next Chapter: Create a New Symbol](#)

Symbol

Symbols are used to define a map object's graphic appearance (characteristic). For example, a tree is represented by a green point on the map. Every map object drawn using the "tree" symbol will therefore have the same graphic appearance. If the symbol is changed using the symbol editor, all map objects drawn using it are also changed. OCAD provides four basic symbol types that correspond to the properties of the respective objects:

- Point symbol
- Line symbol
- Area symbol
- Text symbol



You can get to the **Symbol** menu by clicking a symbol in the symbol box with the right mouse button, too.

New



Choose this command to create a new symbol. The New Symbol dialog box is displayed. Check the desired symbol type and click OK. A dialog box is shown where the parameters of the symbol can be defined, varying according to the symbol type.

For basic principles see Create a New Symbol.

- **Point symbol:** Symbol for point objects.
- **Line symbol:** Symbol for line objects.
- **Area symbol:** Symbol for area objects.
- **Text symbol:** Symbol for text.



For every text style, a separate symbol is required.

- **Line text symbol:** Line text symbols are used for text along curved lines.
- **Rectangle symbols:** Symbol for rectangular frames.

Edit



Choose this command from the **Symbol** menu or click with the right mouse button on a symbol in the symbol box to edit the currently selected symbol. According to the symbol type a dialog box is displayed where the symbol properties can be modified:

- **Edit Point Symbols**
- **Edit Line Symbols**
- **Edit Area Symbols**
- **Edit Text Symbols**
- **Edit Line Text Symbols**
- **Edit Rectangle Symbols**



If you edit a symbol, all objects on the map with this specific symbol are changed.

Icon



Choose this command from the **Symbol** menu or click with the right mouse button on a symbol in the symbol box to draw or edit the icon for the selected symbol. The **Edit Icon** dialog box appears, which contains a simple paint program to draw an icon.

Learn more about the **Icon Editor** on the **Icon Editor** page.

Enlarge Reduce



Choose this command in the **Symbol** menu to enlarge or reduce the selected symbol(s) or all symbols. The **Enlarge Symbol** dialog appears.

Factor

Enter here a percentage value to enlarge or reduce the symbol(s). A value of 100 means that the size of the symbol remains the same. A value smaller than 100 means the size of the symbol is reduced, a value greater than 100 means the size of the symbol is enlarged.

All symbols

If this check box is checked, all symbols are enlarged/reduced. If it is not checked, only the selected symbol(s) are enlarged/reduced.

This function is disabled for course setting projects.

Copy



Choose this command from the **Symbol** menu to copy the selected symbol(s) to the clipboard.

If a symbol has been copied to the clipboard, choose **Paste** from the **Symbol** menu to paste it either to the symbol box of the original map or to the symbol box of a different map. Keep in mind that when you copy a symbol to a different map, the colors are not copied.

Paste



This command is activated if the clipboard contains one or more OCAD symbols.

Choose this command to paste a symbol or a group of symbols from the clipboard to the current map. If a symbol number already exists, it is changed to the next free number. Use the **Copy** function from the **Symbol** menu to copy symbols to the clipboard.

Delete



Choose this command from the **Symbol** menu to delete the selected symbol(s). A confirmation message appears before the symbols are removed from the symbol box.

If a deleted symbol is used in the map, the respective objects are not deleted, but appear gray as **Unsymbolized Objects**.

Duplicate



Choose this command from the **Symbol** menu to duplicate (create a copy of) the selected symbol(s). The duplicated symbols get the next free symbol number.

If one symbol is selected, the duplicated symbol is inserted after the selected symbol; otherwise the duplicated symbols are appended at the end of the symbol box.

Sort Symbol Box



You can sort the symbol box by various definition.

- **By Symbol Number**
- **By Color**
- **By Symbol Type**
- **By Status (Normal, Protected or Hidden)**
- **By Usage Frequency**

Learn more about sorting the symbol box on the **Symbol Box** page.

Select

It's possible to select objects without specially clicking on them.

- **Used**
- **Unused**
- **Invert**
- **All**
- **By Symbol Number**
- **By Symbol Type**
- **By Status**
- **By Color**
- **By Fonts**

Learn more about selecting symbols on the **Symbol Box** page.

Replace



Replace Font in Symbols

Choose the **Font** function in the **Replace** submenu of the **Symbol** menu to replace a font in symbols. The **Replace Font in Symbols** dialog opens.

The font can be replaced either in all symbols with a specified font (e.g. every text symbol with the font Arial gets a new font) or in all selected symbols (All selected text objects no matter which font they have get a new font). Choose the desired option. Afterwards, choose a new font in the **New font** dropdown menu and click the **OK** button to finish.

Replace Color in Symbols

Choose the **Color** function in the **Replace** submenu of the **Symbol** menu to replace a color in symbols. The **Replace Color in Symbols** dialog opens.

Choose wheter you want to replace the color in all symbols or only in the selected symbols of the symbol box. Then select the old color in the **Old color** dropdown list as well as the new color in the **New color** dropdown list.

Click the **OK** button and the color is replaced.

Symbol Status



Each symbol has one of these four status:

- normal (visible and selectable)
- protected (and visible). **Protected** means that it is not possible to select these objects by clicking on an object in the drawing area. However you can select these objects with other functions like Select Object by Symbol or Select Object by Date.
- hidden and protected
- hidden and unprotected (former unprotected status is saved, but not selectable)

Normal (Visible and Selectable)

Choose this command in the **Symbol** menu to change the selected symbols to **Normal**. Normal symbols are neither protected nor hidden, which means they are visible and can be selected (draw, edit, delete).



Alternatively, you can press the **F2** key (**Shortcut** by default) or right click into the symbolbox and select **Normal (Visible and Selectable)** to set the symbol status of the selected symbols to **Normal**.

Protect Objects

Choose this command in the **Symbol** menu to protect the selected symbol(s). Objects with a protected symbol are visible but cannot be edited.

Protected symbols appear with a gray diagonal in the symbol box.



Alternatively, you can press the **F3** key (**Shortcut** by default) or right click into the symbolbox and select **Protect Objects** to protect the selected symbols.

Hide Objects

Choose this command in the **Symbol** menu to hide the selected symbols. Objects with a hidden symbol are not visible, not printed and not exported.

Hidden symbols appear with a gray cross (x) in the symbol box.



- There is an option in the category **Warnings** of the **OCAD Preferences** to turn on/off the warning that the map contains hidden symbols.

- Alternatively, you can press the **F4** key (**Shortcut** by default) or right click into the symbolbox and select **Hide Objects** to hide the selected symbols.

Symbol Status Manager

Choose this command in the **Symbol** panel to save symbol status settings as .xml files. With the **Symbol Status Manager** you can **Load** and **Delete** previously saved settings. It's even possible to **Export** and **Import** setting from other ocad files.

Show Unsymbolized Objects



With this menu item you can show or hide **Unsymbolized Objects**.

Show Graphic Objects



With this menu item you can show or hide **Graphic Objects**.

Image Objects



With this menu item you can show, protect or hide **Image Objects**.

Normal: The image objects are visible and can be edited, moved or deleted

Protect: The image objects are visible but cannot be selected, edited, moved or deleted.

Hide: The image objects are not visible.

Symbol Favorites



Learn more about the **Symbol Favorites** functions on the **Symbol Box** page.

Symbol Tree



Learn more about the **Symbol Tree** functions on the **Symbol Box** page.

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Symbol Box

Sort Symbol Box



Choose this command from the **Symbol** menu to sort the symbols in the symbol box. The other way to access these functions is to right click in the **Symbol Box** and the select this command.

This submenu provides multiple functions:

- **By Symbol Number:** The symbol box gets sorted by the symbol number, starting with the lowest number.
- **By Color:** The symbol box gets sorted by the order of the Map **Colors**. If an object uses multiple colors, the sort uses the first to be found color.
- **By Symbol Type:** The symbol box gets sorted by the symbol type. Starting with point objects, then line objects, area objects and as last text objects.
- **By Status (Normal, Protected or Hidden):** The symbol box gets sorted by the status of the symbols. Starting with **Normal**, then **Protected** and finally **Hidden**.
- **By Usage Frequency:** The symbol box gets sorted by how many times a symbol got used in the map, starting with the highest usage.

Select

Choose this command from the **Symbol** menu to select symbols in the symbol box. The other way to access these functions is to right click in the **Symbol Box** and the select this command.

In the submenu you can find the following functions:



- **Used:** Select all symbols which are used in the map.
- **Unused:** Select all symbols which are not used in the map.
- **Invert:** Invert the selection. Selected symbols become unselected and unselected symbols become selected.
- **All:** Select all symbols.



- **By Symbol Number:** Select a symbol by symbol number. Choose a symbol number in the **Select Symbol by Symbol Number** dialog box and click the **OK** button.
- **By Symbol Type:** Select a symbol by symbol type. Choose one or multiple symbol types in the **Select Symbol by Symbol Type** dialog box and click the **OK** button.
- **By Symbol Status:** Select a symbol by its status. Choose one or multiple status in the **Select Symbol by Status** dialog box and click the **OK** button.
- **By Color:** Select symbols by color. Choose a color in the **Select by Color** dialog box and click the **OK** button. All symbols with the chosen color are selected.
- **By Font:** Select symbols by font. Choose a font in the **Select by Font** dialog box and click the **OK** button. All text and line text symbols with the chosen font are selected.

Symbol Favorites



Show Symbol Favorites

Choose this command in the **Symbol** menu to display the symbol favorites above the symbol box.

You can add often used symbols to the favorites. The **Symbol Favorites** function makes the handling with large symbol sets easier.

Add to Symbol Favorites

Select the symbol(s) in the symbol box and choose the **Add To Favorites** command in the **Symbol** menu. The **Show Symbol Favorites** function must be enabled to choose this command.



- It is also possible to add multiple objects.

- An easy way to add symbols to the favorites is to use the **Symbol** menu which appears by clicking a symbol with the right mouse button.

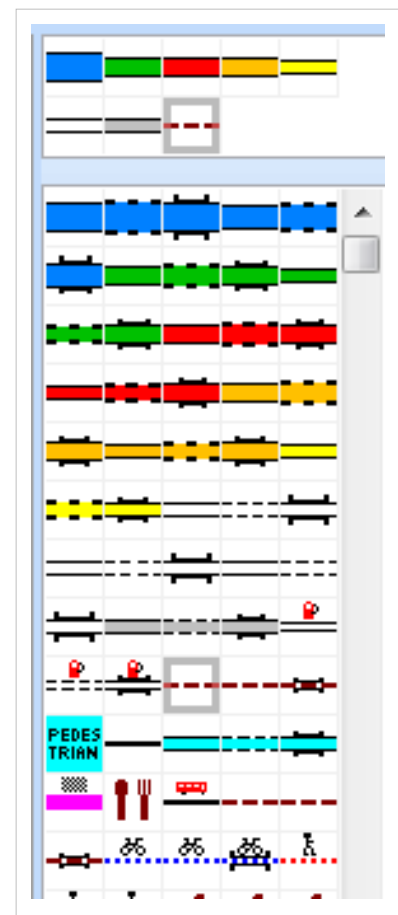
Remove from Symbol Favorites

Select the symbol(s) in the symbol favorites or in the symbol box and choose the **Remove From Favorites** command in the **Symbol** menu.



- It is also possible to remove multiple objects.

- An easy way to remove symbols from the favorites is to use the **Symbol** menu which appears by clicking a symbol with the right mouse button.



Symbol Tree



Show Symbol Tree

Choose this command in the **Symbol** menu to display the symbol tree above the symbol box. You can organize the symbols in groups (e.g. theme or colors). The symbol tree makes the handling of large symbol sets easier.

New subgroup

Click a group in the symbol tree with the right mouse button. Choose the **New subgroup** command from the popup menu. A new group is inserted as a subgroup of the selected group. Click on the group name, wait a second, and click again to rename the group.

Insert group

Click a group in the symbol tree with the right mouse button. Choose the **Insert group** command from the popup menu. A new group is inserted on the same level. Click on the group name, wait a second, and click again to rename the group.

Delete group

Click a group in the symbol tree with the right mouse button. Choose the **Delete group** command from the popup menu. The selected group is deleted and the symbols can be found in the group **Other**.

Add selected symbol

Select a symbol in the symbol box. Click the group, you want to add the symbol to, with the right mouse button and choose the **Add selected symbol** command from the popup menu. The selected symbol is added to this group.

Remove selected symbol

Select a group in the symbol tree and then a symbol in symbol box. Click this group in the symbol tree with the right mouse button. Choose the **Remove selected symbol** command from the popup menu. The removed symbol can be found in the group **Other** again.

Alternatively, you can use the **Remove from Symbol Tree** function of the **Symbol** menu to move the selected symbol to the group **Other**.

Move group

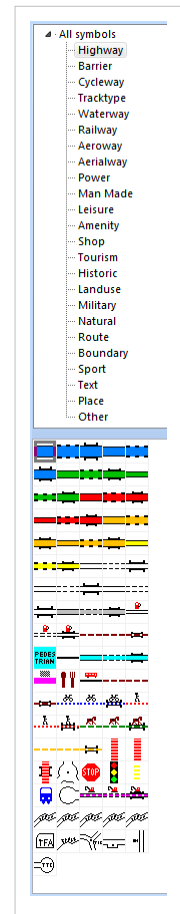
You can move a symbol tree group with drag and drop.

Change Symbol Status

You can change the symbol status of all symbols belonging to a group by choosing one of the following commands in the **Symbol Tree** popup menu (right click on a symbol group).

- **Normal:** Set all symbols of a group to **Normal** status.
- **Protect:** Protect all symbols of a group.
- **Hide:** Hide all symbols of a group.

Learn more about hiding and protecting symbols on the **Symbol Status** page.



💡 Use the small triangle before a group to expand or collapse all subgroups.

Remove from Symbol Tree

This function can be found in the **Symbol** menu and is an alternative to the **Remove selected symbol** function of the **Symbol Tree** menu (right click on a symbol group). Select a symbol which is arranged in a group and choose this function to remove the symbol from the symbol tree and move it to the group **Other**.

Selecting Symbols in the Symbol Box

To select one symbol, click the desired symbol.

To select a consecutive group of symbols:

1. Click the first symbol.
2. Press and hold down the Shift key on the keyboard and click the last symbol.

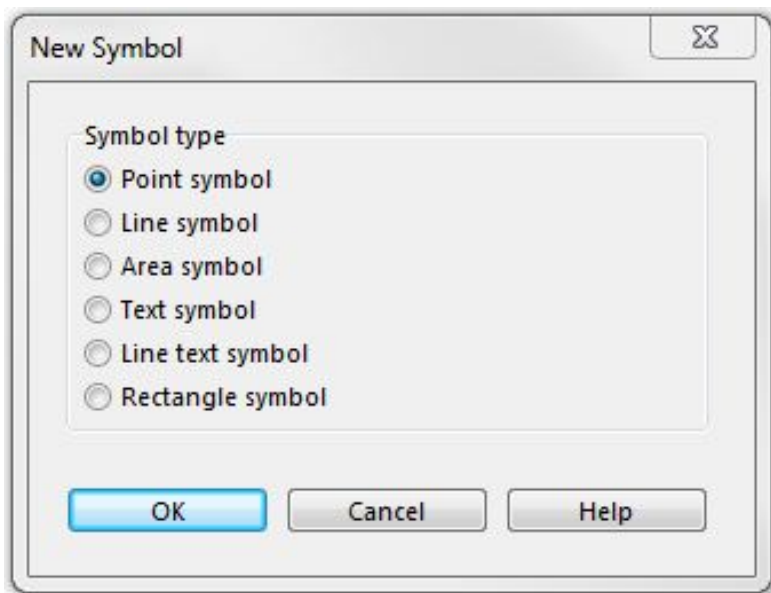
To select a non-consecutive group of symbols:

1. Click the first symbol.
2. Press and hold down the Ctrl key on the keyboard and click all the additional symbols.

Back to the **Symbol** page.

Create a New Symbol

New symbols can be created by choosing **New** in the **Symbol** menu. The **New Symbol** dialog box appears. Select one of the six different symbol types.



Create a New Point Symbol

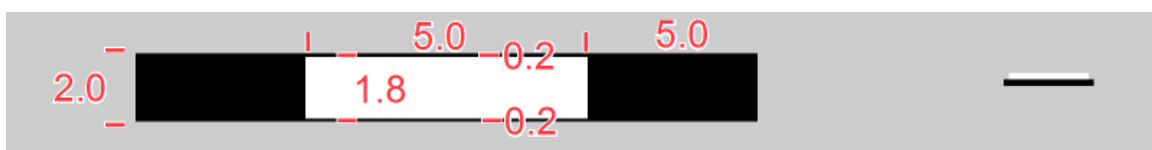
Pro Std Sta CS



Visit the [Create a New Point Symbol](#) page to learn more about this function.

Create a New Line Symbol

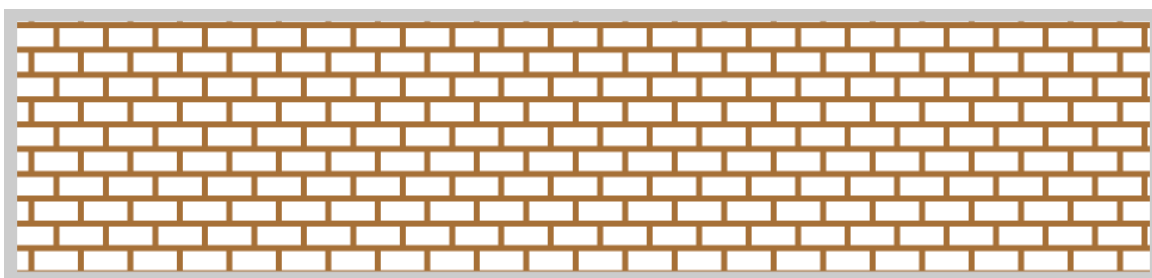
Pro Std Sta CS



Visit the [Create a New Line Symbol](#) page to learn more about this function.

Create a New Area Symbol

Pro Std Sta CS



Visit the [Create a New Area Symbol](#) page to learn more about this function.

Create a New Text Symbol

Pro Std Sta CS



Point S

Visit the [Create a New Text Symbol](#) page to learn more about this function.

Create a New Line Text Symbol



Line Text Symbols

Visit the **Create a New Line Text Symbol** page to learn more about this function.

Create a New Rectangle Symbol



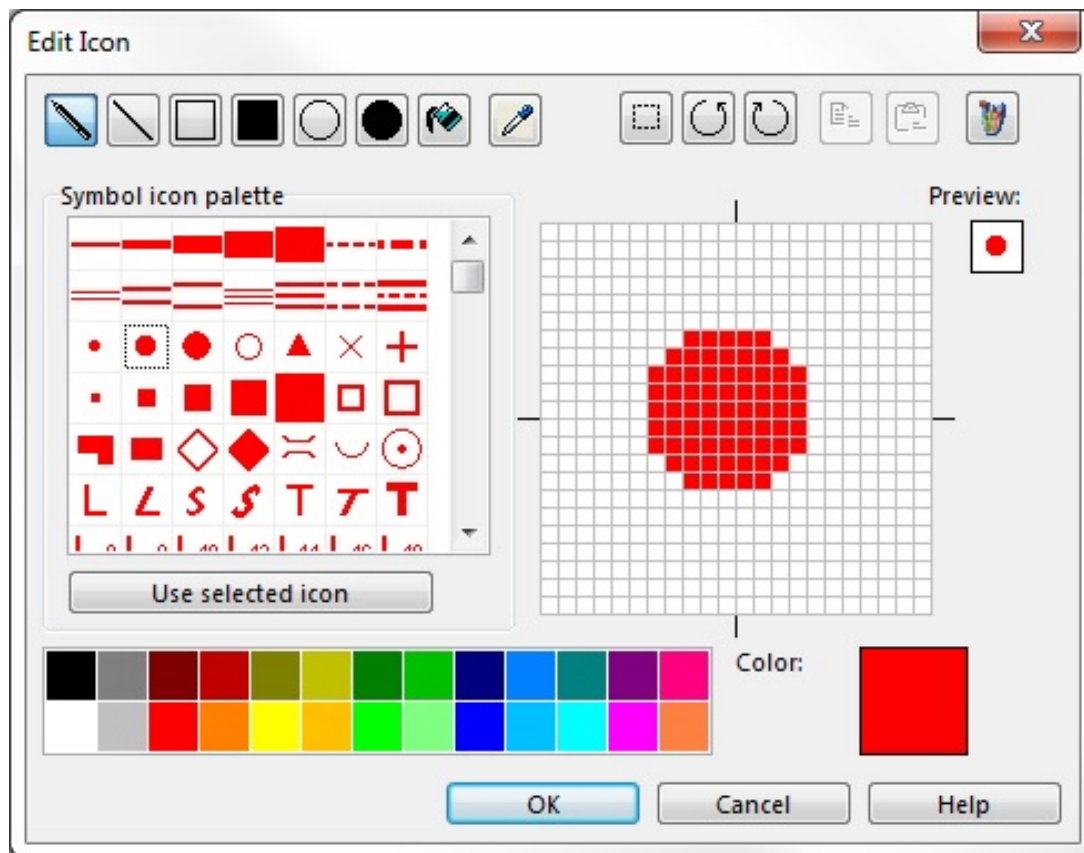
8	9	10	11	R	R	R
1	2	3	4	5	6	7

Visit the **Create a New Rectangle Symbol** page to learn more about this function.








Icon Editor

Pro Std Sta CS

Choose the **Icon** command in the **Symbol** menu to edit the icon of the selected symbol. Alternatively, you can click the symbol in the symbol box with the right mouse button and choose the **Icon** command. The **Icon Editor** dialog box appears.








Draw the icon in the 22x22 matrix. You can use different drawing tools:

-  **Pen:** Draw single pixels
-  **Line:** Draw a straight line
-  **Rectangle:** Draw a rectangle
-  **Filled Rectangle:** Draw a filled rectangle
-  **Ellipse:** Draw an ellipse
-  **Filled Circle:** Draw a filled ellipse
-  **Fill:** Fill an area (bordering pixels with the same color) with the selected color.

Before drawing choose one of the 26 colors.

Alternatively, you can choose a predefined icon from the **Symbol icon palette**. Choose one of the colors from the color palette to change the color of the symbol icons. Select an icon and click the **Use selected icon** button or double-click to overwrite the current one.

You can use the following editing tools:

-  **Pick Color:** Pick a color from the 22x22 drawing area
-  **Select:** With this tool you can select some pixels. After the selection you can move them or copy and paste them.
-  **Rotate Counterclockwise:** Rotate the whole icon counterclockwise
-  **Rotate Clockwise:** Rotate the whole icon clockwise
-  **Copy:** Copy a selection of pixels



Paste: Paste a selection of pixels



Open Paint: This button opens the **Paint** application of Windows. You can draw an icon in **Paint**. Make sure, your **Paint** document has the dimensions 22x22 pixels to get a satisfying result. When you are finished with drawing, select and copy the icon. Now you can paste it in the **Icon Editor** of OCAD.



There is an easy way to get an icon for a point object. Simply use the **Make screenshot for symbol icon** function in the **Symbol Editor**.

Define a New Color



Learn more about colors on the **Colors** page of this wiki. This article shows you, how to create intersections and overpasses for roads.

When displaying maps, OCAD uses the colors in the color table in a specific order; objects which use the lowest colors in the table are drawn first, objects which use the colors at the top of the table are drawn last. The advantage of this technique is that lines or areas can be omitted automatically. This is especially beneficial when drawing road junctions (cf. below).

1. Select **New** in the **File** menu.
2. In the New Map dialog window, double-click empty Symbolset.ocd.
3. To edit the color table, select Colors in the **Map** menu.
4. To create a new color, select **Add** in the color table and enter the name (e.g. pictogram white foreground) and CMYK value (e.g. blue 0/0/0/0) of the color.
5. You can change the position of the colors in the color table by clicking the **Move up** and **Move down** buttons.

Color table ^[1]

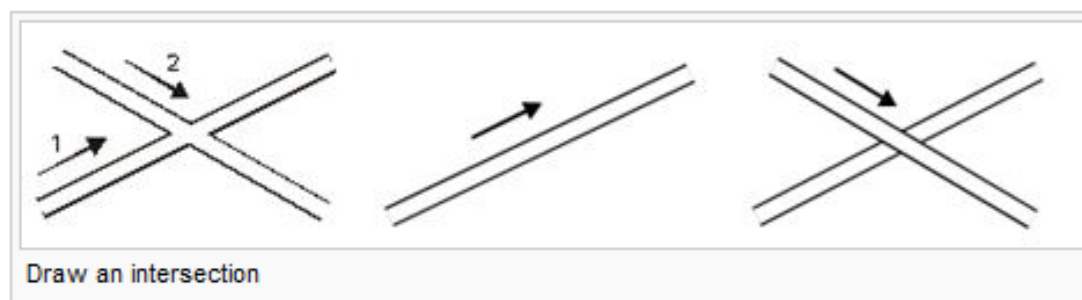
Color basics ^[2]



Roads are often displayed using two lines with a color filling between these lines. If two roads intersect, the side lines in the area where the roads cross each other must be omitted.

If two roads intersect at an under or overpass, only the lines of the lower road should be omitted. By moving the position of the color upwards or downwards, you will be able to influence these effects:

- **Intersections:** If the color of the filling is located above the color of the side lines in the color table, the side lines in the area where the roads cross each other will be omitted automatically.
- **Overpass:** To ensure the side lines are not omitted automatically, a new color must be defined for the side lines of the overpass. This color must be located above the filling color in the color table.



Learn more about colors on the **Colors** page.



If you would like to assign a color which does not yet exist, to the new symbol, a **New Color** will need to be defined.



Each symbol must have a unique symbol number between 0.001 and 999999.999.

[Back to Main Page](#)

[Previous Chapter: Colors](#)

[Next Chapter: Background Map](#)

References

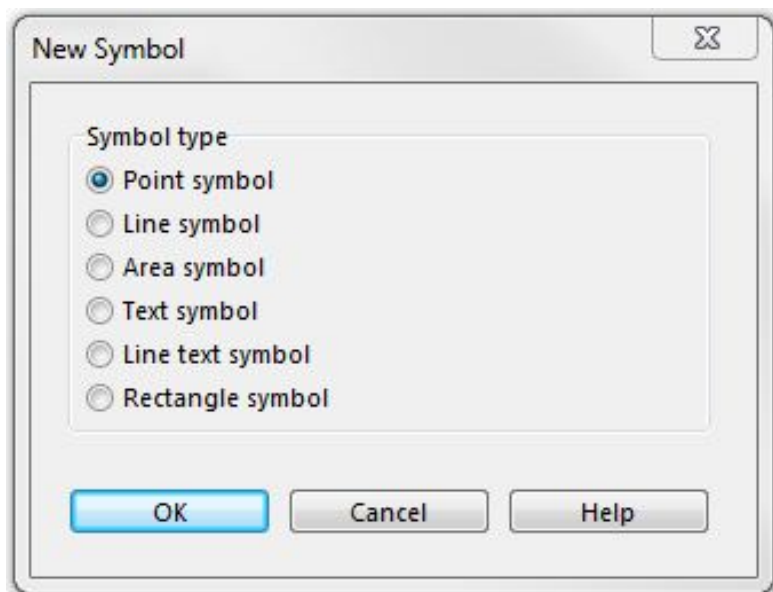
[1] <http://www.ocad.com/howtos/30.htm>

[2] <http://www.ocad.com/howtos/54.htm>

Create a New Point Symbol

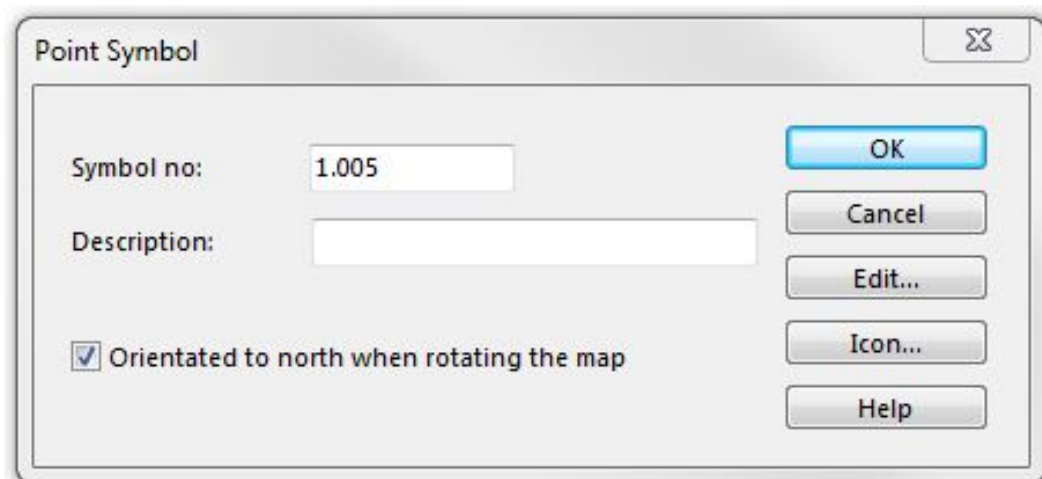


Select the **New** command in the **Symbol** menu. Choose the **Point symbol** option in the **New Symbol** dialog box to create a new point symbol.



Point Symbol Dialog

The **Point Symbol** dialog appears.



Enter a number between 0.001 and 999999.999 in the **Symbol number** field.

Enter a description of the new symbol in the **Symbol description** field.

Check the **Orientated to north when rotating the map** option if you want that the symbol always stays orientated to north when you use the **Rotate** function.

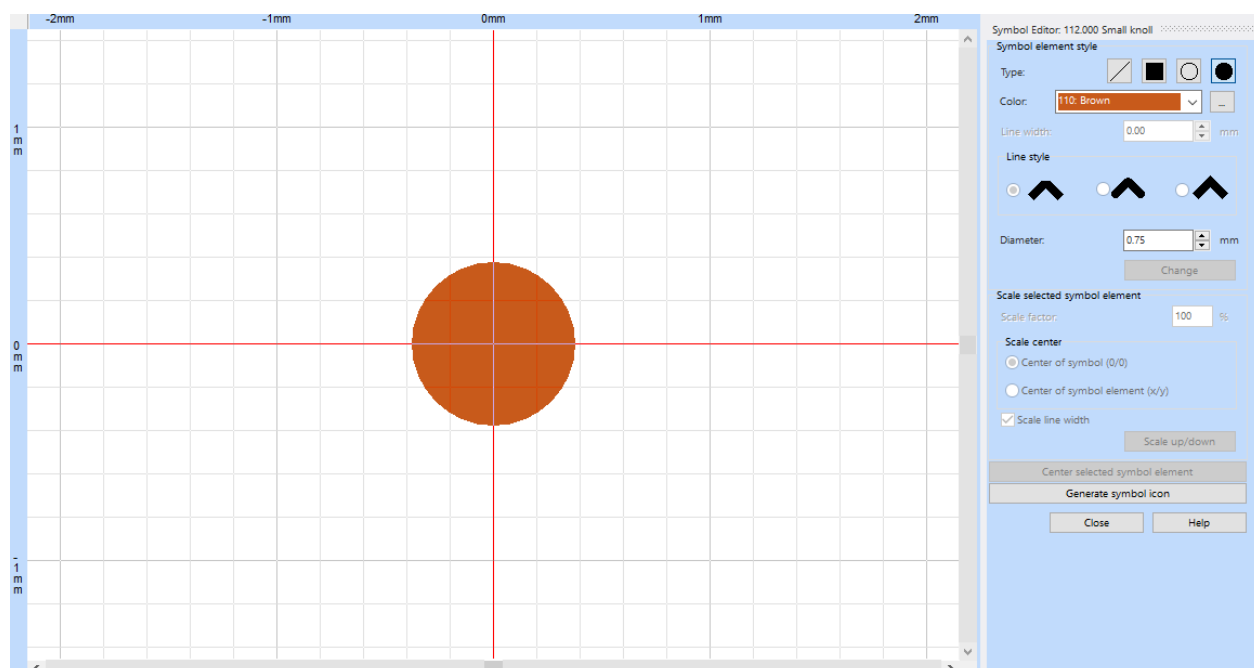
Click the **Edit** button to edit the object. The **Symbol Editor** appears.

Symbol Editor

The main window changes to the symbol editor...

- ... when you create or edit a point symbol.
- ... when you create or edit a symbol for a structured line.
- ... when you create or edit a symbol for a structured area.





When you change to the symbol editor, the magnification changes to 64x and the **Anti-Aliasing** is switched off. The coordinate (0,0) is in the center of the screen. A number of menu functions are disabled when working in the symbol editor. However, you can open and adjust a **Background Map** if you have a scanned image of the desired symbol.



Symbol Element Style


On the right side of the drawing area the **Symbol Editor** menu is displayed. In the **Symbol element style** part of this menu you can make drawing adjustments of symbol elements.

Type

You can choose between four symbol element types:  **Line**,  **Area**,  **Circle** or  **Dot (Filled Circles)**.

Color

Choose a color from the **Color** dropdown menu. These colors are the same colors as in the **Colors** dialog of the **Map** menu and have to be defined before opening the **Symbol Editor**. Learn more about defining and editing colors on the **Colors** page. If you draw a structure for an area and this area has a background color, you must choose a color which is above the background color in the color table. Otherwise the element will be covered by it.

 Click on the **Open color dialog...** button in the right of the color box to open the color dialog directly from the symbol editor

Line width

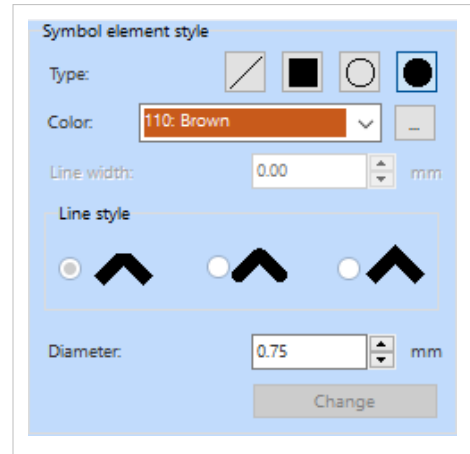
If you have chosen a **Line** or a **Circle** as a symbol element type, enter a line width in mm in this field. Note that the **Line width** is set to zero by default and with a **Line width** of zero the drawn symbol element is invisible!

Line style

If you have chosen a **Line** as a symbol element type, you can choose here how the corners and line ends of the line symbol element shall appear.

Diameter

If you have chosen a **Circle** or a **Dot** as a symbol element type, enter here the diameter the symbol element is meant to have. For circles, this diameter includes the line width of the circle line.



Draw a Symbol Element

When you made all those adjustments you can start drawing the symbol element. You can draw any number of elements for one symbol. The number of vertices of all elements is limited by 32768.

Line: A line symbol element can be drawn with the regular drawing modes (curve, ellipse, circle etc.).

Area: An area symbol element can be drawn with the regular drawing modes (curve, ellipse, circle etc.) as well.

Circle: A circle symbol element have to be placed like a point object where the placement point is the middle of the circle.

Dot: A dot symbol element have to be placed like a point object where the placement point is the middle of the filled circle.

The center of the drawing area (0mm/0mm) is equal to the center of the point object.

You can change the drawn symbol elements by selecting them and making adjustments in the **Symbol Editor** menu. Click the **Change** button at the bottom of the **Symbol element style** field to apply all changes to the symbol elements. It is also possible to add or remove vertices (**Vertices**) or use nearly all editing functions (**Edit Object**).

Scale Selected Symbol Element

In the **Scale selected symbol element** part of the **Symbol Editor** menu you can scale the selected symbol element(s):

Scale factor: Enter a scale factor in percentage.

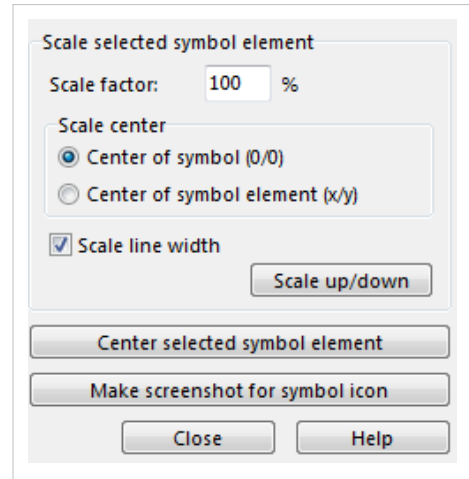
Scale center: Use either the center of the symbol (center of the drawing area (0/0)) or the center of the symbol element (x/y) as a scale center.

Scale line width: Check this option to extend or reduce also the line width.

Click the **Scale up/down** button to scale the selected symbol element(s).

Select a symbol element and click the **Center selected symbol element** button to move it to the center of the drawing area (equals center of the symbol).

Click the **Make screenshot for symbol icon** button to make a screenshot and use it as symbol icon.



Draw Symbols for Structured Lines

When drawing symbols for a line, imagine that the line goes from left to right on the x-axis. If you want a tag to point to the right side of the line, draw it downwards from the origin (0, 0); if it should point to the left side, draw it upwards.

Draw Symbols for Structured Areas

If the area symbol has a background color, this background color is also shown. Note that the background color must be below the color of any elements in the color table, otherwise these elements are covered by the background color. When you draw an element, it is also shown in gray in the neighboring fields to get a better impression of the structure.

Click the **Close** button when you are finished with drawing the symbol. The **Point Symbol** dialog box appears again. Click the **Icon** button to edit the icon manually in the **Icon Editor**. Click the **OK** button to save all changes and quit the dialog. The new symbol appears in the symbol box.

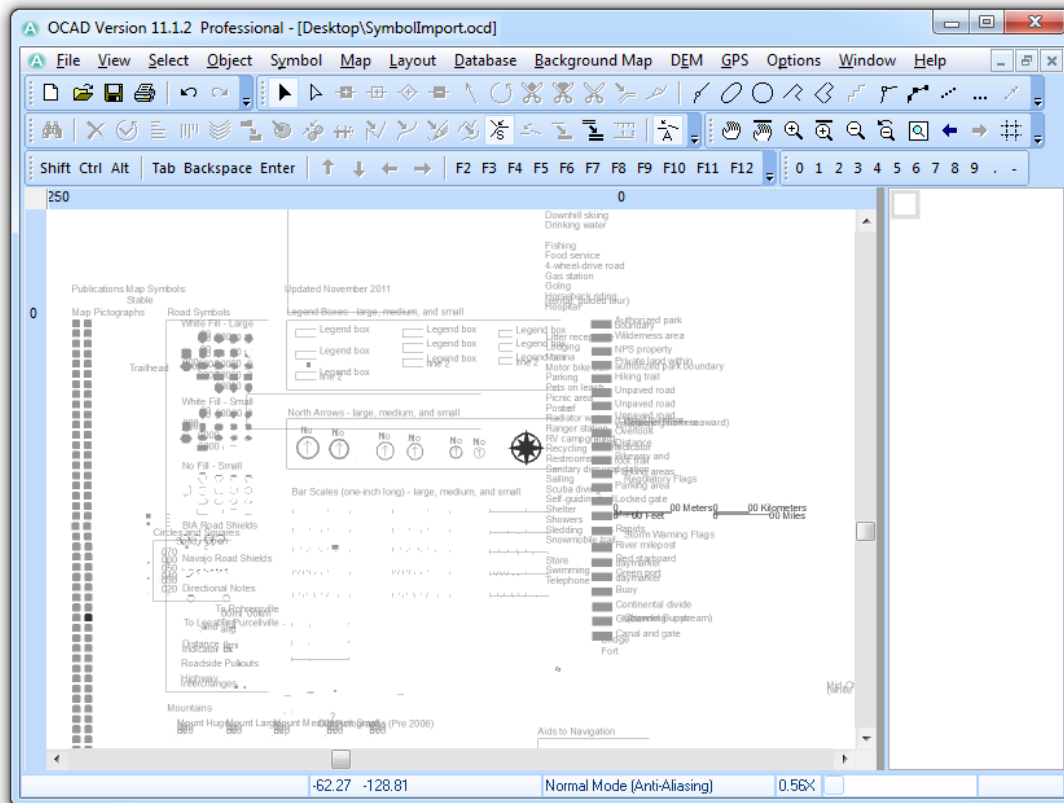
 **Different Point Symbols**^[1]

Examples

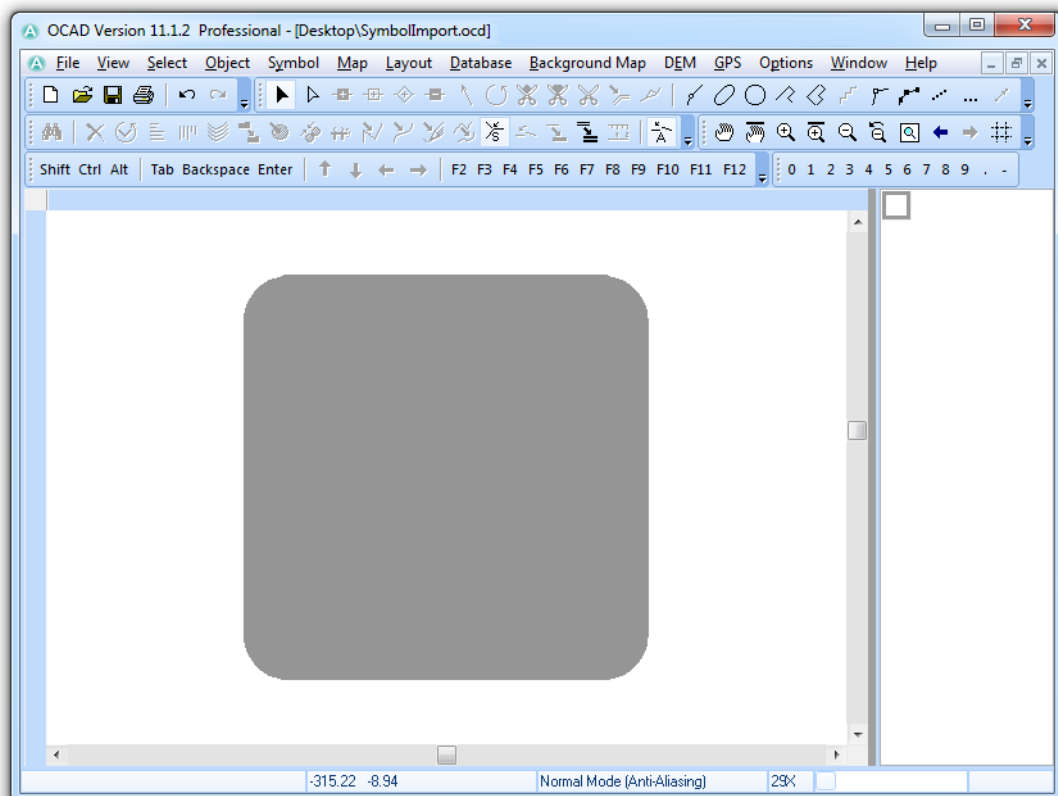
Create a Point Symbol out of Vector Data

With OCAD it is possible to import a vector image (for example a logo or a pictogram) and convert it into a symbol. In this example the **US National Park Service Pictograms**^[2] are imported, which can be downloaded as AI- or PDF-File.

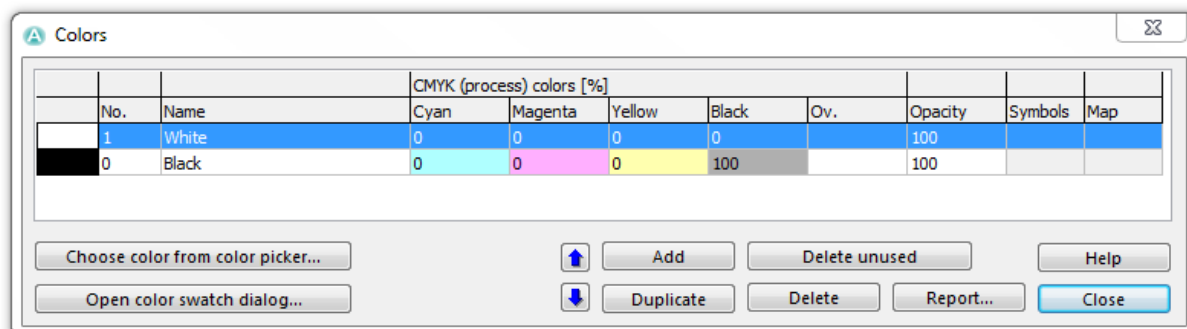
1. **Open** a project.
2. First we import the vector image. Choose the **Import** command from the **File** menu.
3. Browse the vector image file and click the **Open** button.
4. The **Save Cross Reference Table** dialog appears. It is not necessary to save one, therefore click the **Cancel** button.
5. OCAD imports the file. In this example a PDF-File is imported which contains exclusively vector data.
6. The PDF-File appears in the drawing area. The vector objects are displayed as **Image Objects**, which looks like a huge mess.



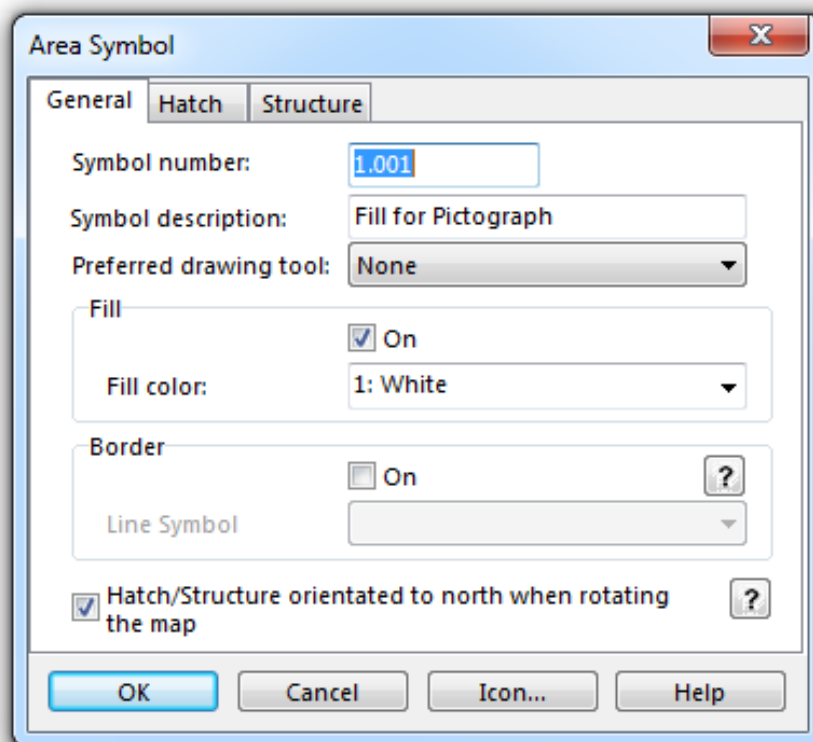
7. Search the pictograph in this chaos you want to create a symbol of. If you have troubles finding the desired pictograph, a look at the original PDF-File can probably help.
8. Select all pictographs you want to create symbols of and delete the other ones.
9. In this case the symbol for the airport was chosen, which looks still as follows:



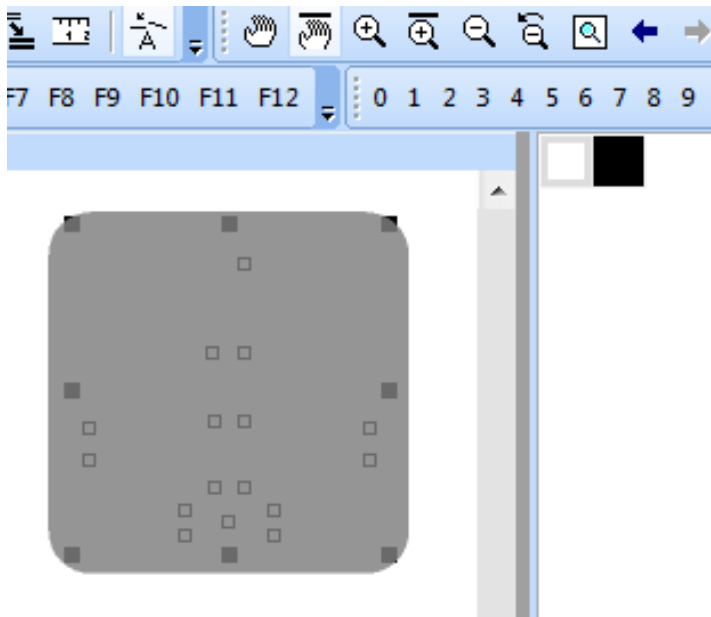
10. Now, it is time to define the **Colors**. Choose the **Colors** item from the **Map** menu and add two new colors: A white color for the plane and a black color for the background. Make sure that the white color is above the black one.




11. Click the **Close** button.
12. Area symbols have to be defined now. Click in the **Symbol Box** with the right mouse button and choose the **New** command.
13. In the next dialog, choose the **Area Symbol** item and click the **OK** button.
14. The **Area Symbol** dialog appears. Adjust all parameters as desired. At least, the **Fill** option must be checked and in the **Fill color** list, **White** must be chosen. Then click the **OK** button.



15. Repeat the last three steps for the **Black** color.
16. Select the fill of the pictograph and the symbol for the white area in the symbol box.



17. Click the  **Change Symbol (Selected Object)** icon in the **Edit Functions** toolbar.
18. Repeat this with the black color for the background.
19. Select the whole pictograph (**Select Multiple Objects**).
20. Copy the selection (Ctrl+C).
21. **Create a New Point Symbol.**
22. In the **Symbol Editor** paste the selection (Ctrl+V).
23. Scale the symbol, make a screenshot for the symbol icon and click the **Close** button.
24. Finished! The pictograph can be used as a point symbol now.

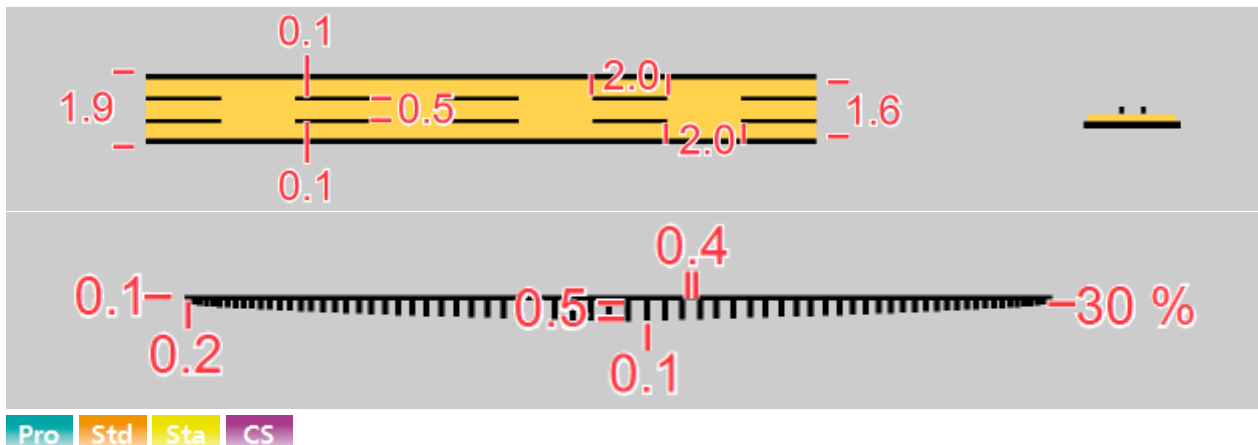


Back to the **Create a New Symbol** page.

References

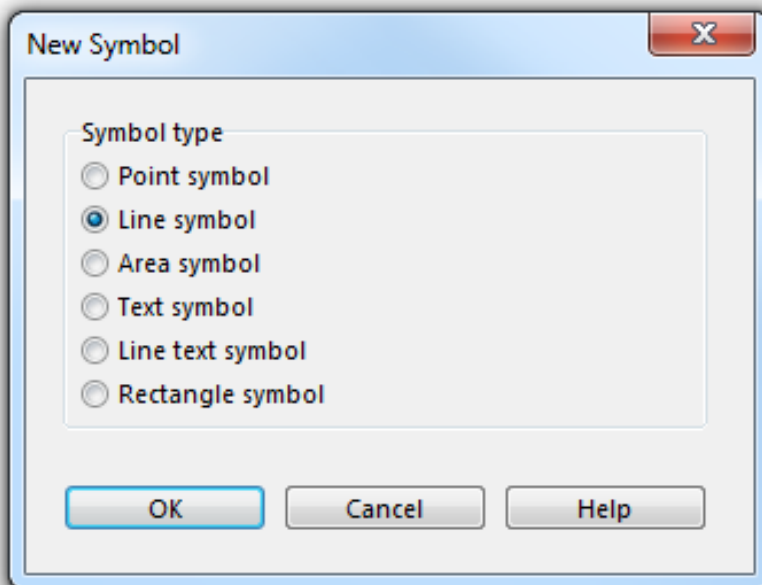
- [1] <http://www.ocad.com/howtos/64.htm>
- [2] <http://www.nps.gov/hfc/carto/map-symbols.cfm>

Create a New Line Symbol



You can create very complex line symbols with OCAD. In addition, the symbol editor can make use of nearly all the drawing modes and editing tools that are available for objects in the normal drawing window to make a line symbol even more unique.

Choose the **New** command in the **Symbol** menu. Then, choose the **Line Symbol** option in the **New Symbol** dialog to create a new line symbol.

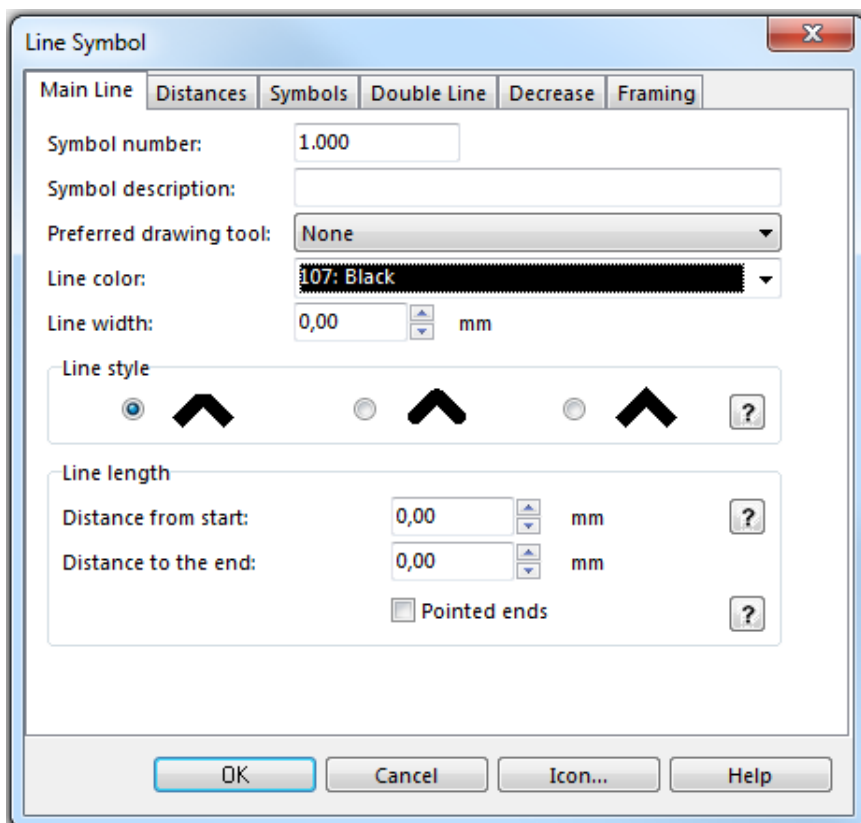


Line Symbol Dialog

The **Line Symbol** dialog appears. This dialog consists of six tabs:

- **Main Line:** Use this tab to define the color, line thickness and line type, generally the appearance of the main line.
- **Distances:** Use this tab to define the length of dashed lines and the distance between the dashes.
- **Symbols:** Use this tab to define the start, main, corner and end points.
- **Double Line:** Use this tab to define the line width, filling color, line thickness and line type of a double line.
- **Decrease:** In this tab a decreasing line type can be defined.
- **Framing:** With this tab you can use framing to cover other map objects if you use complex line symbols.

Main Line



In the **Main Line** tab you can make the following adjustments:

Symbol Number

Type a symbol number between 0.001 and 999999.999 in this field.

Symbol Description

Enter a symbol description in this field (e.g. Railway).

Preferred Drawing Tool

Choose a preferred drawing tool in the corresponding dropdown list. When the symbol is selected in the **Symbol Box** the drawing mode changes automatically to the chosen one. If **None** was chosen, the drawing mode remains the same as it was before.

Line Color

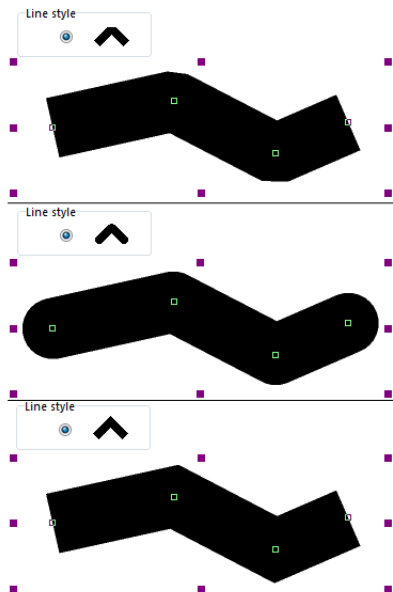
Choose a line color for the main line. The dropdown list contains all colors from the **Color Table**. If a main line is not used, it is not necessary to define a line color.

Line Width

If the symbol has a main line (full or dashed), enter a line width here. Type in **0.00** if you do not want to use a main line (e.g to create dotted lines).

Line Style

Choose between three line styles. The line ends and corners appear in each case differently.



Line Length

In this part of the dialog you can define two distances:

- **Distance from start:** This value defines the distance from the beginning of the line to the start of the main line (the start of the visible line).
- **Distance to the end:** This value defines the distance from the end of the visible line (main line) to the actual line end.

Line length

Distance from start:

0.00

mm

Distance to the end:

0.00

mm

Line length

Distance from start:

1.00

mm

Distance to the end:

3.00

mm

If you activate the **Pointed ends** option, the line gets pointed ends over the above mentioned distances.

Line length

Distance from start:

0.00

mm

Distance to the end:

0.00

mm

☐ Pointed ends

Line length

Distance from start:

1.00

mm

Distance to the end:

4.00

mm

☒ Pointed ends

Course Setting for Orienteering Options

There is an additional option in course setting projects to use the symbol as a marked route. Visit the **Add a Marked Route** article for further information.

Examples

➤ Example Full Line

This is an example for a full line.



➤ Example Dashed Line with Background

This is an example for the **Distances from start** and **Distances to the end** adjustments.



➤ Example Motorway

This is an example for the **Distances from start** and **Distances to the end** adjustments.

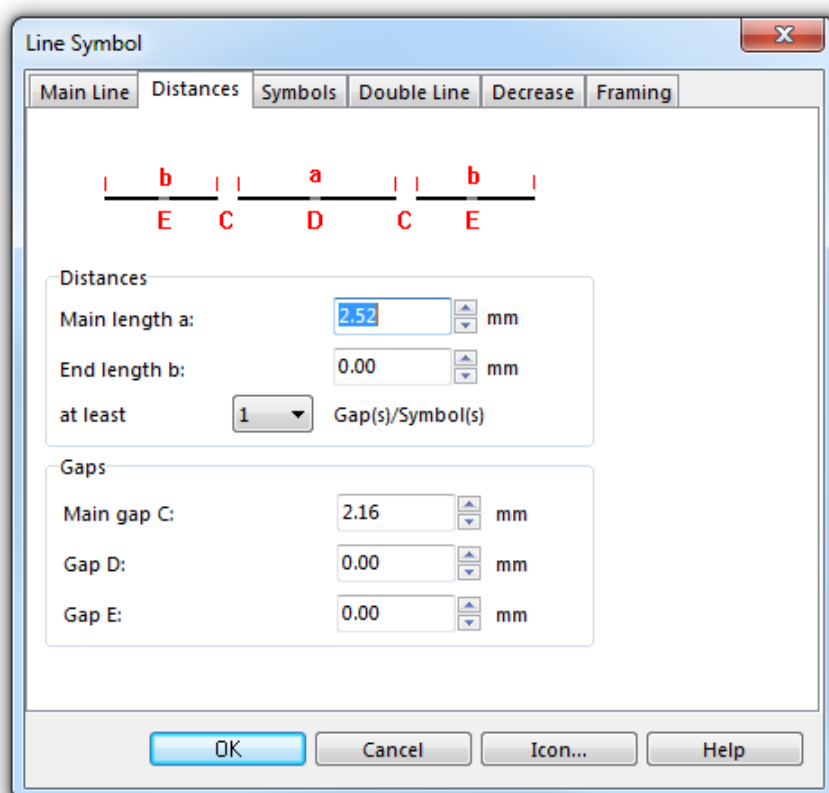


➤ Example Pointed Line

This is an example for a line with **Pointed ends**.



Distances



Use this tab to define the dashes for a dashed line.

Distances

Main length a

This length defines the length of the main dash (see figure at the top of the dialog, the main dash is indicated with the letter **a**). For a dotted line, enter here the distance between the dots.

End length b

This length defines the length of the start and end dashes (see figure at the top of the dialog, the end dashes are indicated with the letter **b**). For a dotted line, enter 0 in this field to make sure, that the line starts with a dot and not a gap. For lines with dots on it, enter here the distance from the start of the line to the first dot on the line.

💡 The end length is also used before and after a corner of the line.

at least X Gap(s)/Symbol(s)

Here you can define a minimum number (max 2) of gaps or symbols (if a main symbol is defined) that a line should contain. If you want a dashed line to always have a gap (regardless how short it is) then choose a **1** here.

Gaps

Main gap C

The value entered here defines the length of the main gap (see figure at the top of the dialog, the main gaps are indicated with the letter **C**).

Gap D

You can add an additional gap to the main dash. Define a length for it in this field (see also figure at the top of the dialog, the Gap D is indicated with the letter **D**).

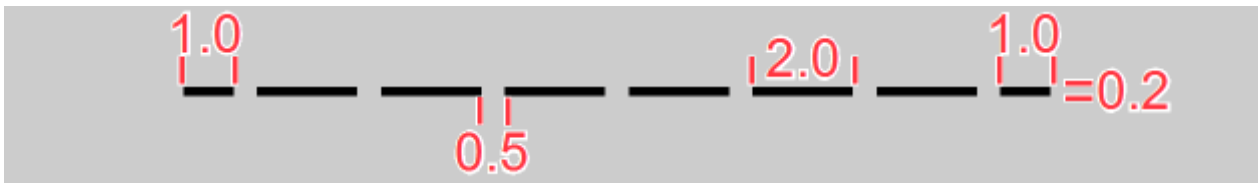
Gap E

You can add an additional gap to the end dashes. Define a length for it in this field (see also figure at the top of the dialog, the Gap E is indicated with the letter **E**). This is used rarely.

Examples

► Example Dashed Line

This is an example for a dashed line with a main length of 2.0mm, an end length of 1.0mm and a main gap of 0.5mm.



► Example Dotted Line

This is an example of a dotted line with a main length of 1.0mm.



► Example Dashed Line with Dots

This is an example for a dashed line with a dot in the middle of each dash.



Symbols

Add point symbols to your line symbol to make your symbol unique. This point symbol can be a simple dot, but it is also possible to add complex symbols.

Main Symbol

In the **Main symbol A** part of the dialog you can define a main symbol. The main symbol appears at every main gap defined in the **Distances** tab of this dialog.

No. of symbols

The main symbol may consist of more than one symbol. It can be formed of up to five equal symbols.

Edit button

To edit the symbols described in the paragraph above, click the **Edit** button. The **Symbol Editor** will appear, where you can draw a symbol with almost every drawing and editing function of OCAD. Visit the **Symbol Editor** article

for more information. In this article, there is also a specific paragraph for drawing symbols of structured lines.

Distance

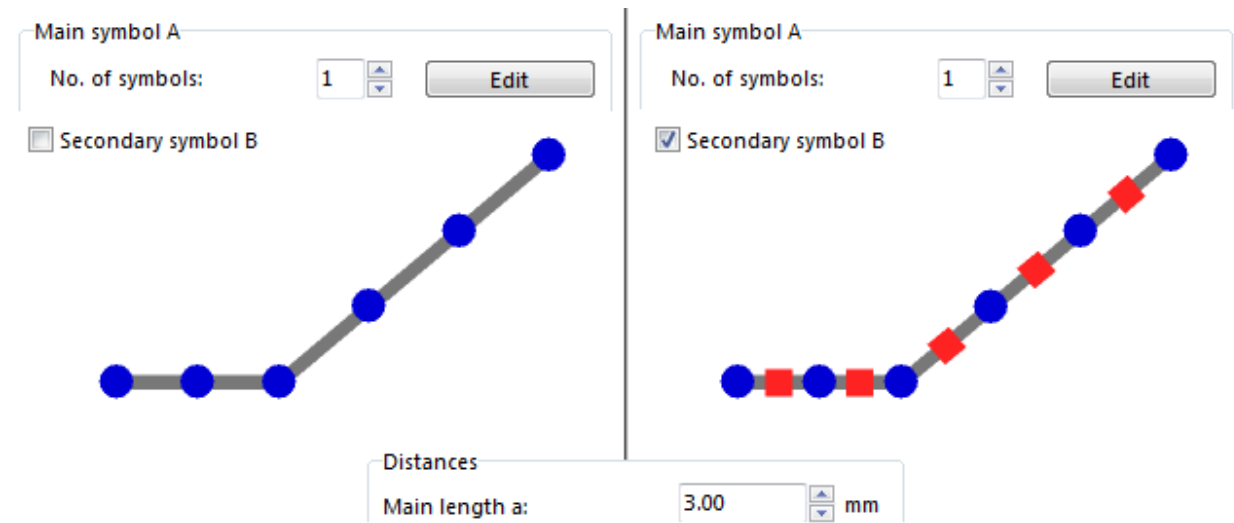
The value typed in the **Distance** field defines the distance between the individual symbols unless the number of symbols is 0 or 1.



Other Symbols

Secondary symbol B

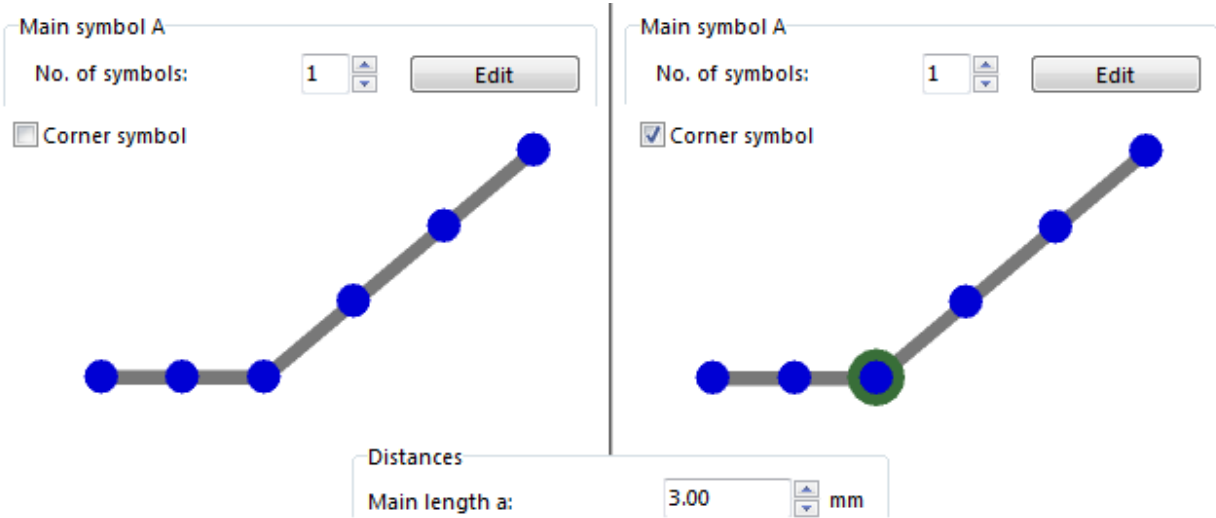
A secondary symbol appears at the position of the **Gap D** defined in the **Distances** tab of this dialog, therefore exactly in the middle of two main symbols. A secondary symbol does **not** appear if the **number of symbols** of the **Main symbol A** is 0. Click the **Edit** button to edit the symbol with help of the **Symbol Editor**.



Corner symbol

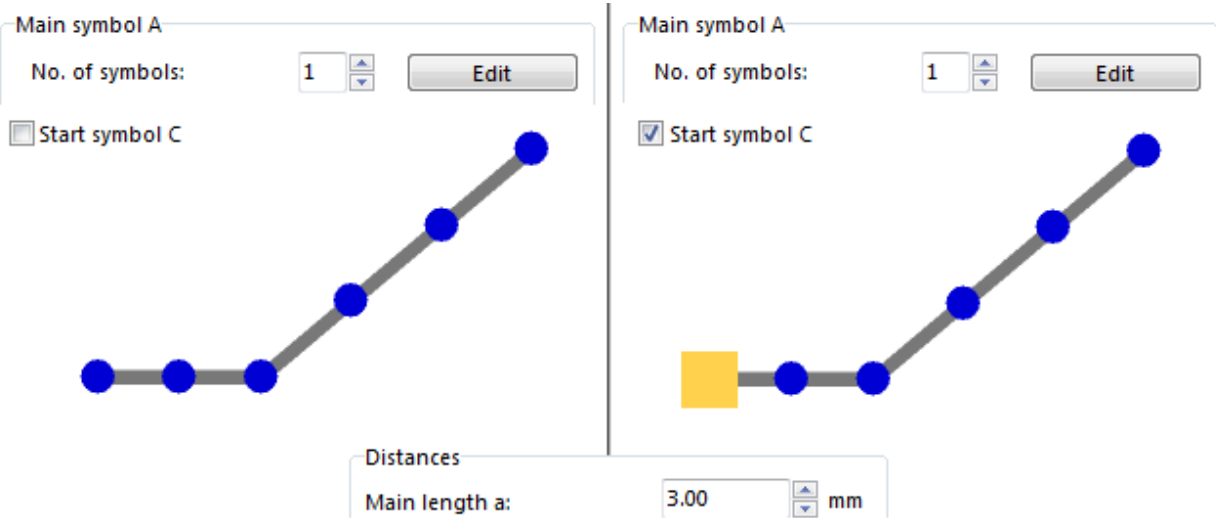
A corner symbol appears at every **Corner Vertex** of the line. Click the **Edit** button to edit the symbol with help of

the **Symbol Editor**.



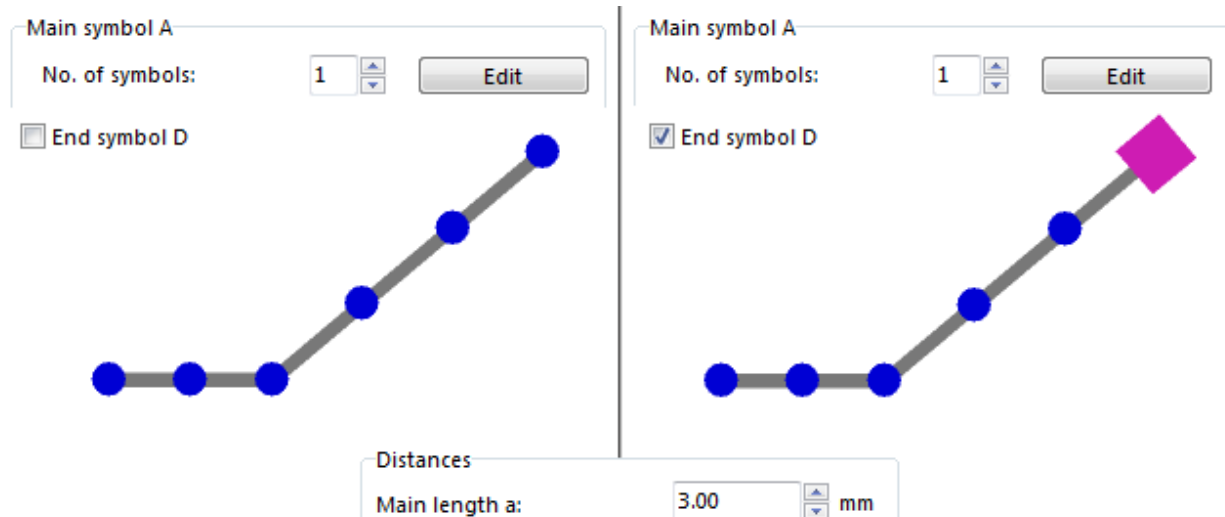
Start symbol C

The **Start symbol C** appears at the start point of a line. Click the **Edit** button to edit the symbol with help of the **Symbol Editor**.



End symbol D

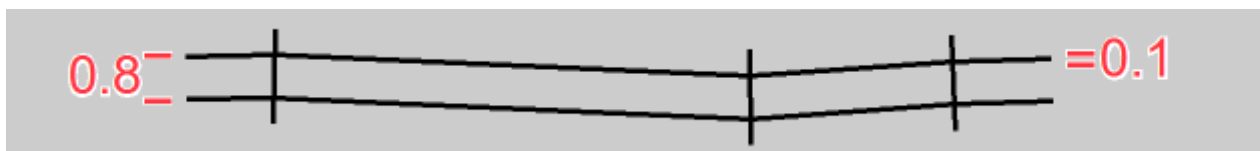
The **Start symbol C** appears at the end point of a line. Click the **Edit** button to edit the symbol with help of the **Symbol Editor**.



Examples

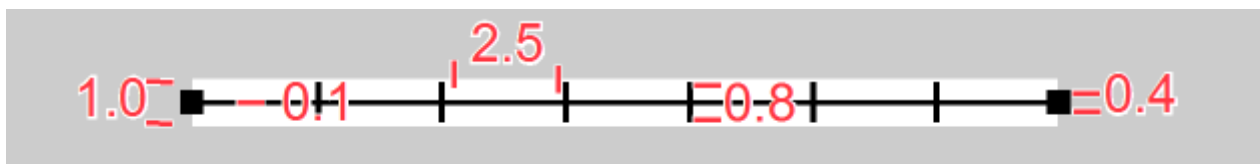
► Example Power Line

This is an example for a line symbol with corner symbols.



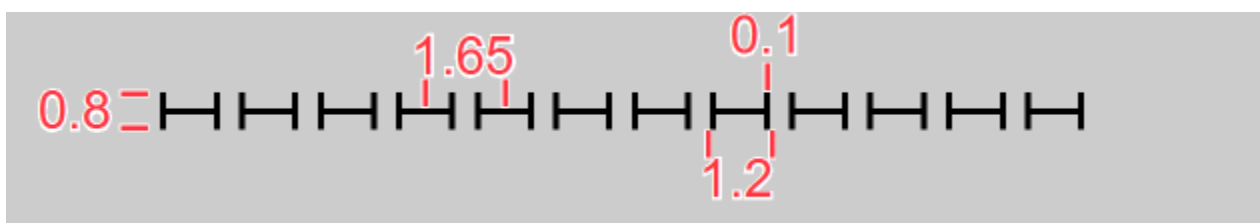
► Example Cable Car

This is an example for a line symbol with a main, a start and an end symbol.



► Example Canton Boundary

This is an example for a line symbol with a special main symbol.



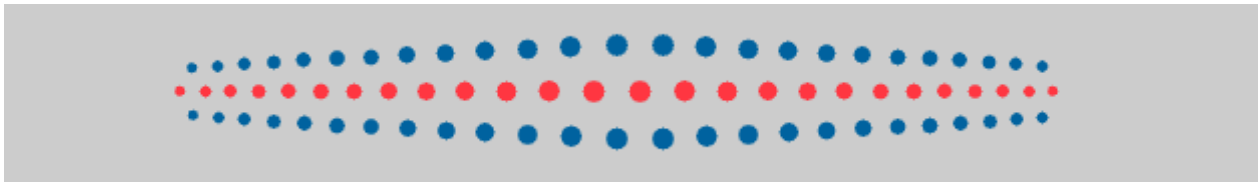
► Example Area Boundary

This is an example for a line symbol with a symbols between dashes.



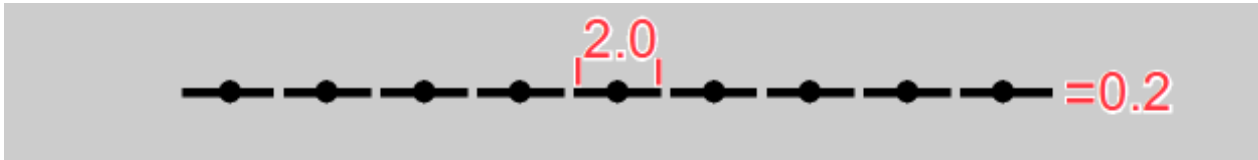
► Example Geological Line Symbol

This is an example for a line symbol with a main and a secondary symbol.



► Example Dashed Line with Dots

This is an example for a dashed line with a dot in the middle of each dash.



Double Line

Double lines are primarily used for streets, where you have a left and a right border line filled or not filled with another color. If you need a center line (often used for highways) define a main line (note, that the color for the center line must be above the color for the infill in the **Color Table**).

Mode

Select the mode of the double line. You have the following options for a double line:

- **Off:** No double line is shown.
- **Full lines:** The two lines which form a double line are continuous.
- **Left line dashed:** The left line is dashed.
- **Both lines dashed:** Both lines are dashed.
- **All dashed:** Both lines and the filling are dashed.

Width


Enter the distance between the two double lines in this field. If you use a fill color, this is the width of the filling between the two border lines.

Fill Color

Check the **On** option, to activate the fill color. In the dropdown list a color of the **Color Table** can be chosen. The border of the filling is formed by the sidelines. The filling does not exceed those border lines, therefore there are often really small gaps between the sidelines and the filling. To avoid these gaps make use of the **Framing** which is described later on this page. The advantage of a fill color is that for example street crossings are automatically cleared. To get that effect you must choose a fill color which is above the color of the side lines in the **Color Table**. Otherwise the infill cannot erase the side lines in the street crossings.

Left and Right Line

Assign a color from the **Color Table** to the left respectively the right sideline. Those can be colored individually and the **Line width** can be chosen distinctly as well. Choose 0 as a line width if you want to show the sideline for example only on the left side.



Mode: Full lines

Width: 1.60 mm

Fill color

☒ On 28: Yellow above

Left line

Color: 29: black below Line width: 0.40

Right line

Color: 29: black below Line width: 0.40

Dashed

If you chose the **Left line dashed**, **Both lines dashed** or **All dashed** option as a double line mode, you can enter the dash and gap lengths in this part of the dialog. The value entered in the **Distance a** field defines the dash length and the value entered in the **Gap** field stands for the gap length.

Examples

► Example Minor Road

This is an example for a simple double lined symbol.



► Example Motorway

This is an example for a simple double lined symbol with activated, dashed main line.



► Example National Park Boundary

This is an example of a line symbol with activated double line in the **Both lines dashed** mode and the left line set to 0.00.



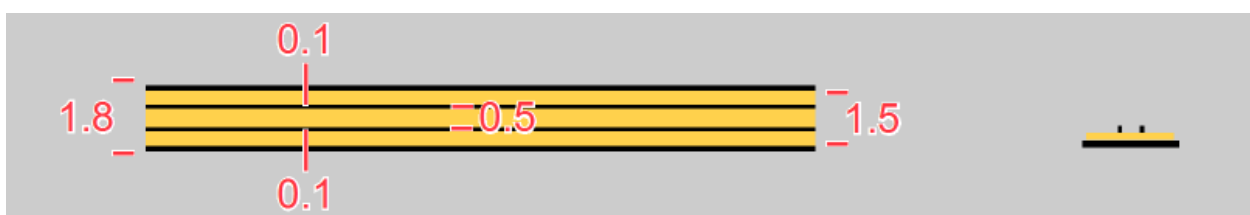
► Example Dashed Minor Road

This is an example of a line symbol with dashed double line.



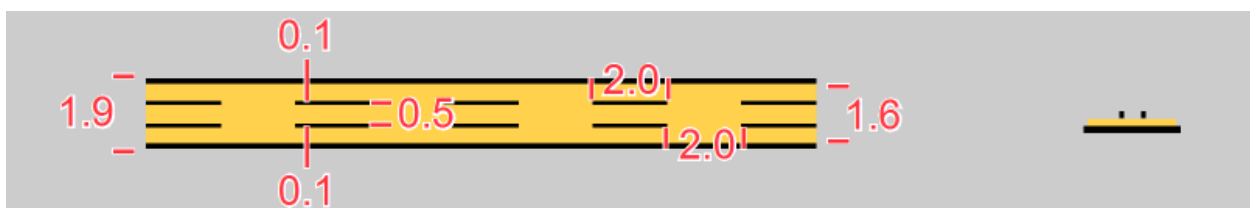
► Example Three Lanes

This is an example of a line symbol with a double line, which does not appear as a borderline.



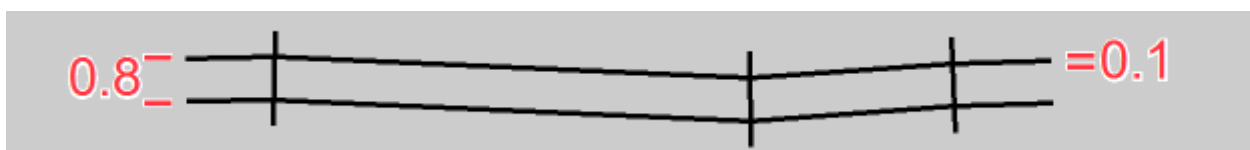
► Example Three Lanes Dashed

This is an example of a quite complex line symbol with a dashed double line, which does not appear as a borderline.



► Example Power Line

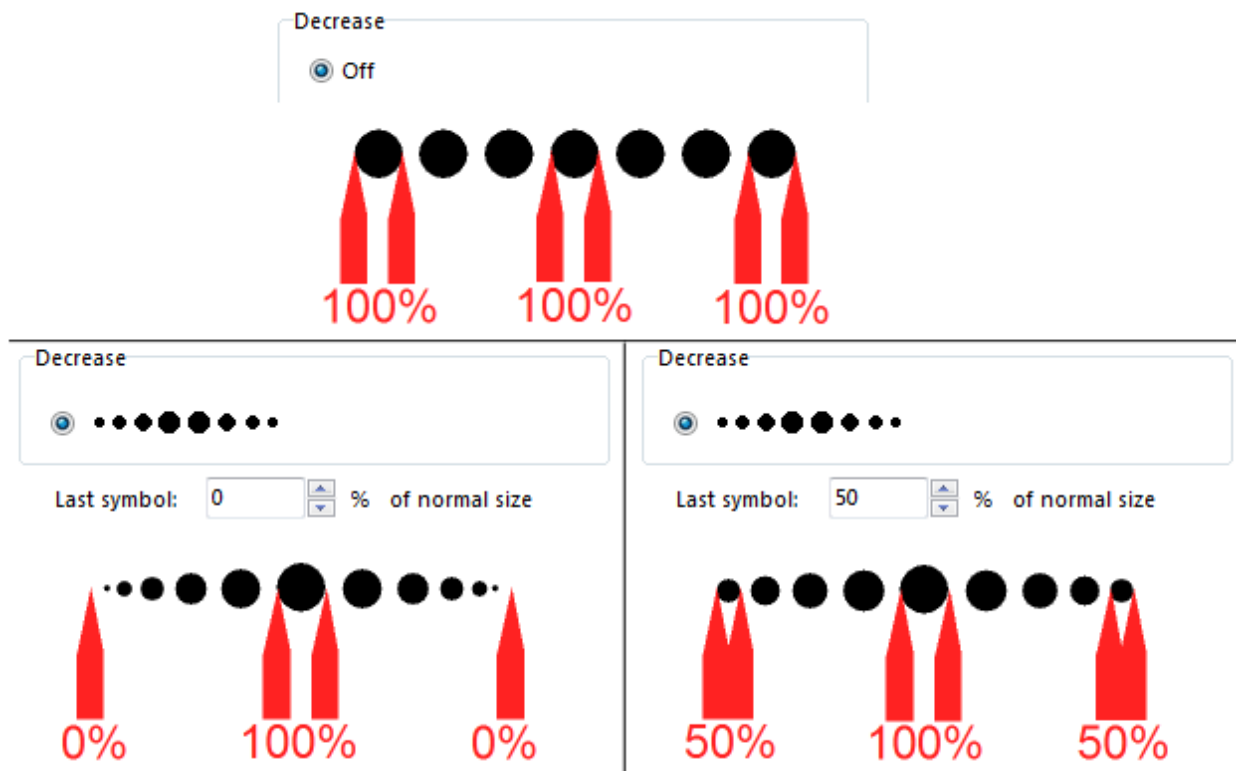
This is an example for a line symbol with a double line without filling.



Decrease

These features are primarily used for geological symbols with decreasing dots.

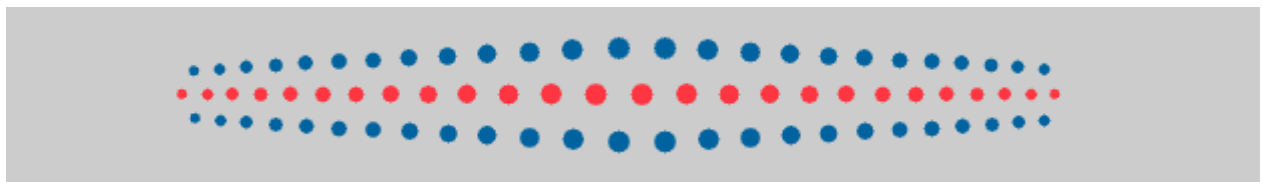
Decide if defined symbols shall only decrease at one end or at both ends in the **Decrease** part of the tab. In the **Last symbol** field enter a value in percentage how much the symbols shall decrease towards the ends. The distance between the symbols is also decreased. However, the dashes of dashed lines are not decreased. Therefore, you should not use the **Decrease** function together with dashed lines.



Examples

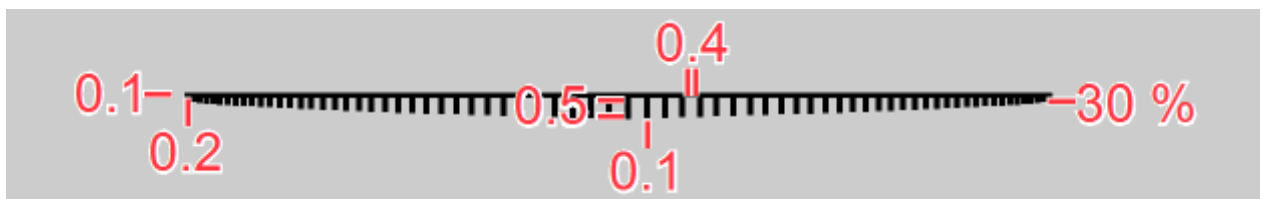
► Example Geological Line Symbol

This is an example for a line symbol with decreasing ends on both ends.



► Example Stone Embankment Top Edge

This is an example for a line symbol with decreasing ends on both ends.



Framing

Framing lines are normally used as a background to line objects. Often a framing line is used to block out (or cover) other objects. Note that the color of the framing line must be above the colors of the objects to be covered in the color table.

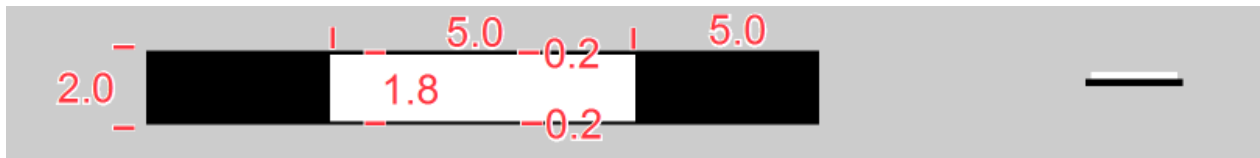
- **Line color:** Select the line color.
- **Line width:** Enter here the line width. Enter 0 here if no framing line should be drawn.
- **Line style:** Select one of the 3 line styles with different line ends and line joins.

Choose a framing if you want to avoid small gaps between sidelines and filling. These occur, when using a **Fill color** with double lines. The framing must have the same color than the filling but must be at a lower position in the **Color Table**. In addition, they must be wider than the filling (for example width of filling plus half width of the sidelines).

Examples

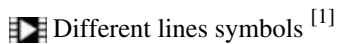
► Example Railway

This is an example for a line symbol black framing under a white main line.



Icon

Click the **Icon** button in the dialog to create an icon for the symbol. The **Icon Editor** appears. Read more about this editor in the **Icon Editor** article.



Different lines symbols ^[1]

Back to the **Create a New Symbol** page.

References

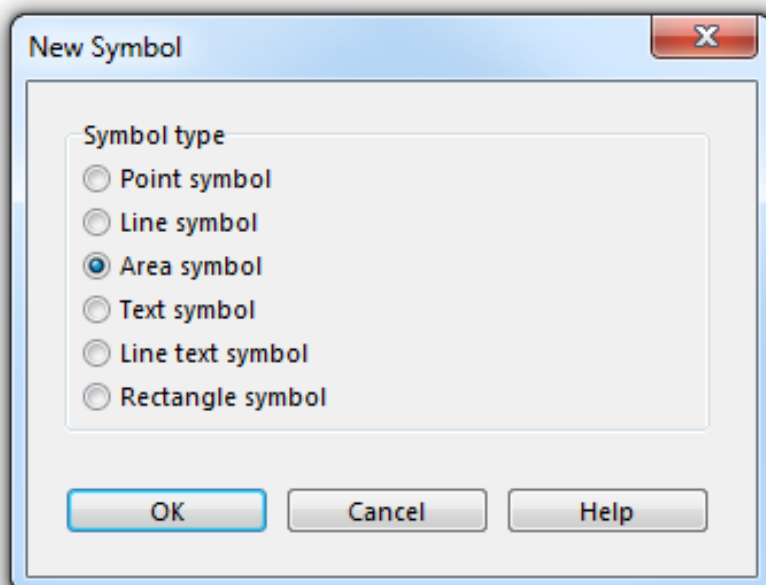
[1] <http://www.ocad.com/howtos/44.htm>

Create a New Area Symbol



You can create quite complex area symbols with OCAD. In addition, the symbol editor can make use of nearly all the drawing modes and editing tools that are available for objects in the normal drawing window to make an area symbol even more unique.

Choose the **New** command in the **Symbol** menu. Then, choose the **Area Symbol** option in the **New Symbol** dialog to create a new area symbol.



The **Area Symbol** dialog appears. This dialog provides the following three tabs:

- **General:** Used to define the color and the borderline.
- **Hatch:** Used to define the line thickness, distance and orientation of the hatching.
- **Structure:** Used to define the structure symbol as well as the distances and orientation of the structure.

General

In this tab you can make general adjustments like those for the fill and borderlines.

Symbol Number

Type a symbol number between 0.001 and 999999.999 in this field.

Symbol Description

Enter a symbol description in this field (e.g. Lake).

Preferred Drawing Tool

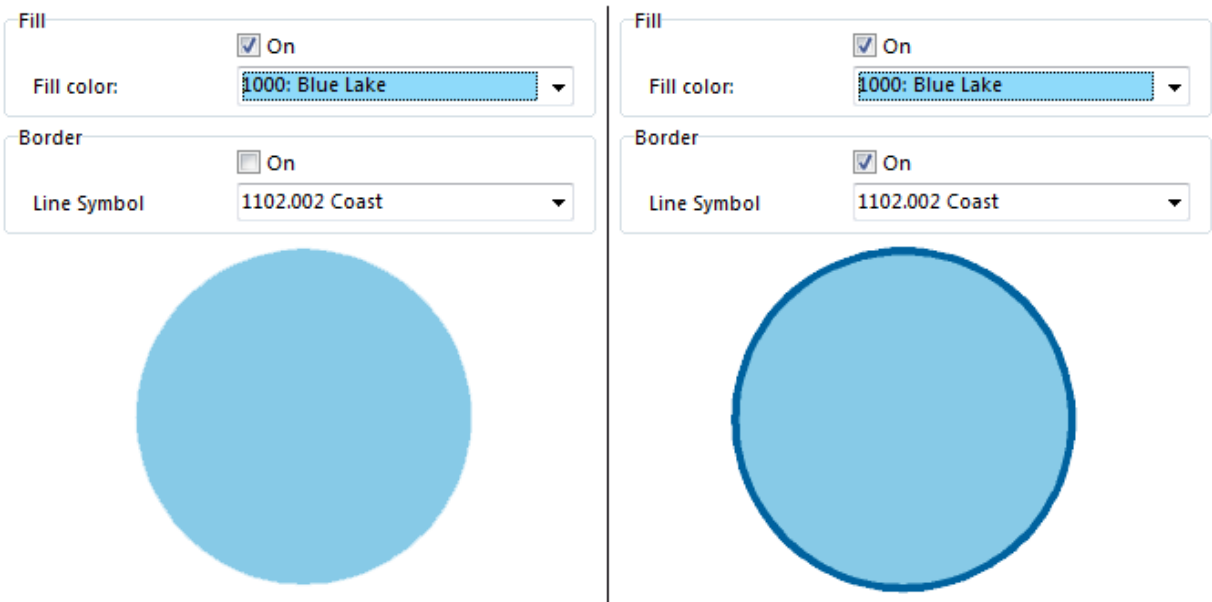
Choose a preferred drawing tool in the corresponding dropdown list. When the symbol is selected in the **Symbol Box** the drawing mode changes automatically to the chosen one. If **None** was chosen, the drawing mode remains the same as it was before.

Fill

Check the **On** field to activate the fill. Allocate a fill color from the dropdown list. All colors from the **Color Table** appear in this dropdown list. If you use borderlines or a structure, make sure that the fill color is below the borderline respectively the structure color in the **Color Table**. Otherwise, the fill covers the structure completely or the borderline is only shown with half the width.

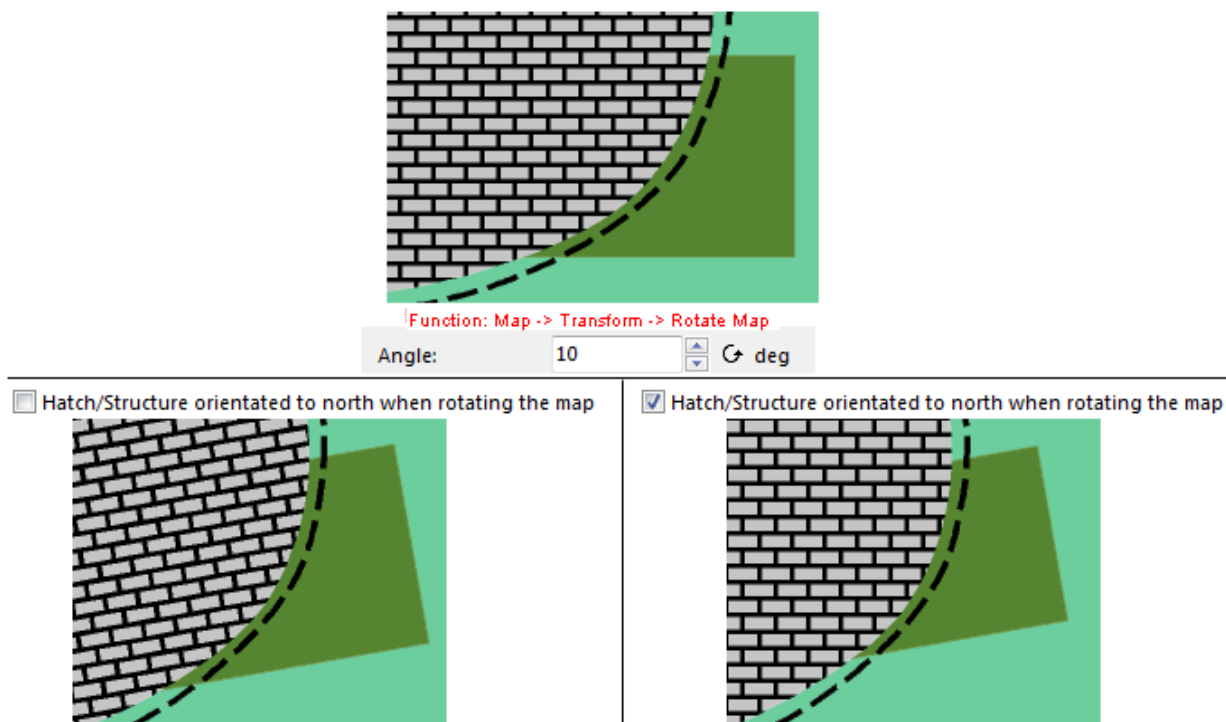
Border

Activate borderlines by checking the corresponding **On** checkbox. Then, select a line symbol in the dropdown list below. All line symbols in the **Symbol Box** are listed there. Make sure that the color of the line symbol is above the color of the fill in the **Color Table**, otherwise half of the line symbol will be covered by it.



Orientation to North

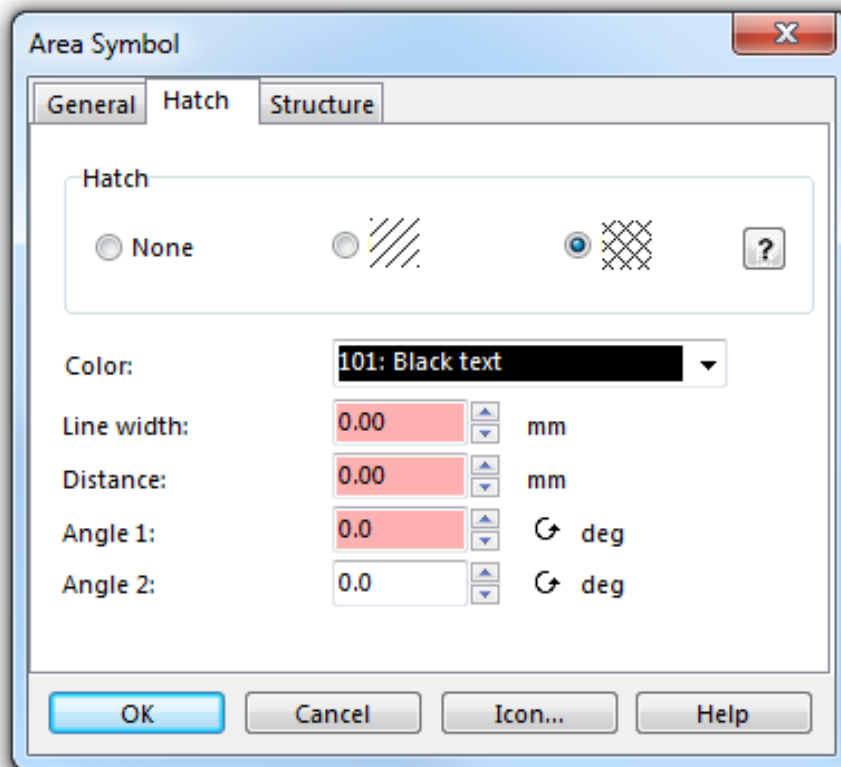
Check the **Hatch/Structure orientated to north when rotating the map** option if you want to keep a hatch or structure always orientated to north when rotating the map (**Rotate**).



Hatch

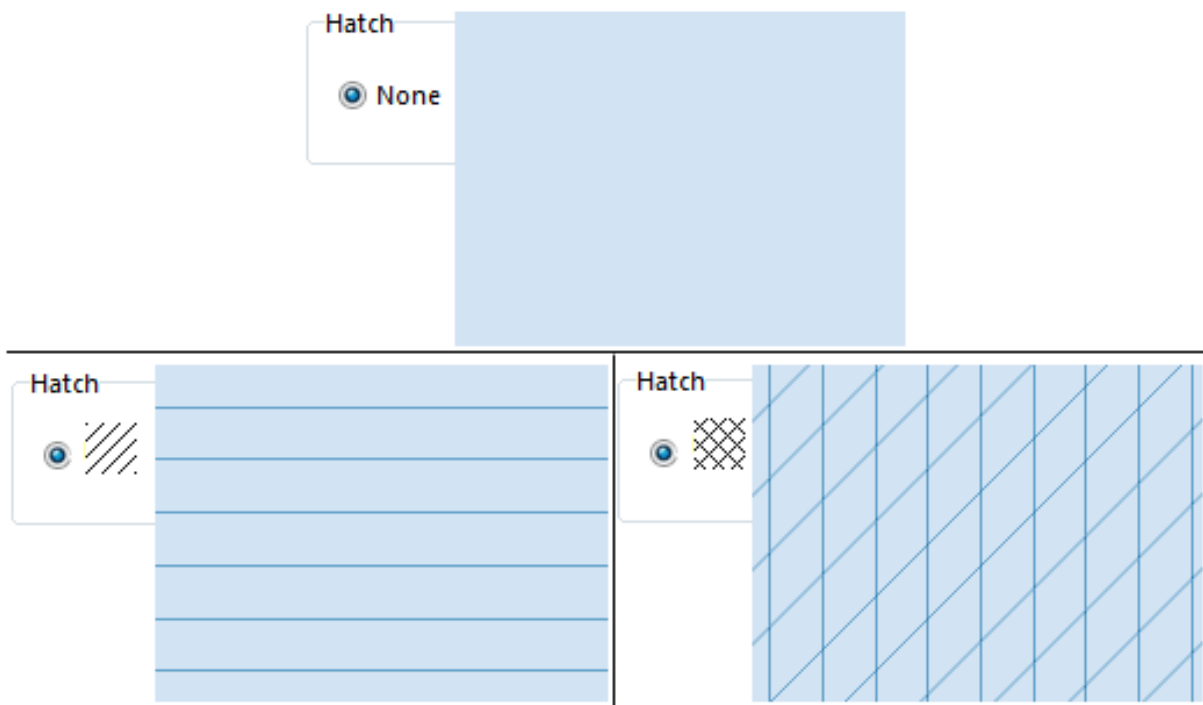


In this tab you can define the parameters for a simple hatch or a cross-hatch.



Hatch

Choose between **None** if you do not want a hatch, simple hatch or a cross-hatch.



Color

Choose a color for the hatch lines. Make sure that this color is above the background color of the area in the **Color Table**.

Line Width

Enter a line width in mm for the hatch lines in this field.

Distance

Enter the distance between the hatch lines in this field.

Angles

- **Angle 1:** Enter the angle for the hatch lines. 0 means that the lines are horizontal. For angles greater than 0, the lines are rotated counterclockwise.
- **Angle 2:** Enter the second angle for the hatch lines if you have defined a cross-hatch. Otherwise this value is ignored. 0 means that the lines are horizontal. For angles greater than 0, the lines are rotated counterclockwise.

Structure

In this tab you can define the parameters for a structure.

Area Symbol

GeneralHatchStructure

Structure

None

Width:0.00mm

Height:0.00mm

Angle:0.0deg

Edit

☐ Do not cut stucture element at border

Irregular Pattern

Horizonatal variation:0%

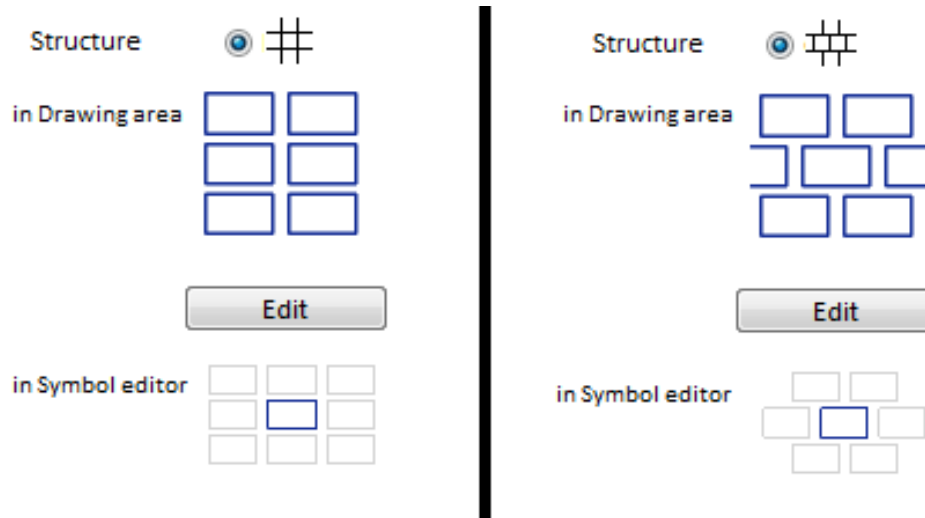
Vertical variation:0%

Minimum distance between structure symbols:0.00mm

OKCancelIcon...Help

Structure

Choose between **None** if you do not want a structure or one of the two layouts for structures.



Width

Enter the horizontal distance from one structure to the next (center to center). This distance is horizontal if the angle is 0, otherwise it is measured in the corresponding angle.

Height

Enter the vertical distance from one structure line to the next (center to center). This distance is vertical if the angle is 0, otherwise it is measured in the corresponding angle.

Angle

Enter here the angle of the structure. If this angle is 0 the structure is drawn as shown in the structure box. Otherwise it is rotated counterclockwise for positive angles.

Edit

Click this button to draw one structure element in the **Symbol Editor**. In the **Symbol Editor** the symbol will also appear (in gray) in the position of the neighboring structures in order to get an impression of the structured area. If you enter an angle other than 0, the structure will be rotated, but not the symbol. Read more about the **Symbol Editor** in the **Symbol Editor** article. This article contains also a paragraph for structured areas.



It is possible to rotate the structure of individual objects drawn with that symbol with the **Indicate Direction of Area Pattern, Point or Text Object** button. In this case the structure and the structure symbols will be rotated.

Do not cut structure element at border

This option lets you decide how the elements get drawn, if the object would be cut off at border. You can pick either **Draw element if completely inside area**, **Draw element if center inside area** or **Draw element if partially inside area**.

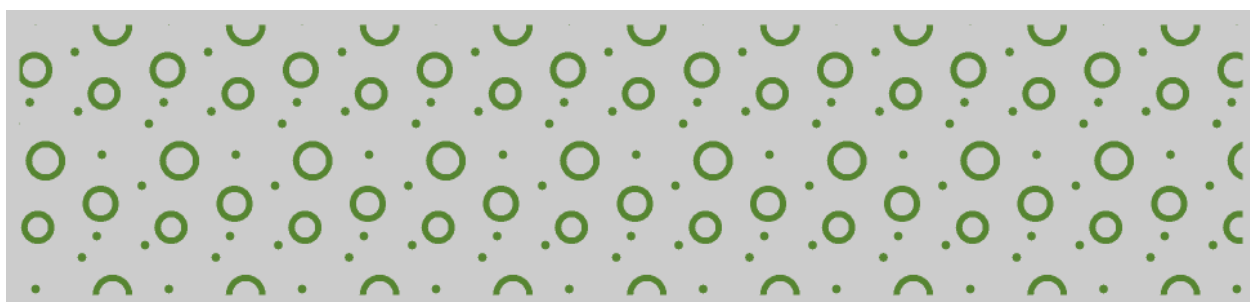
Irregular Pattern

This function allows to define the horizontal and vertical variation of objects inside the area (in %). It's also possible to push the elements inside the area apart with a defined minimum distance between symbols.

Examples

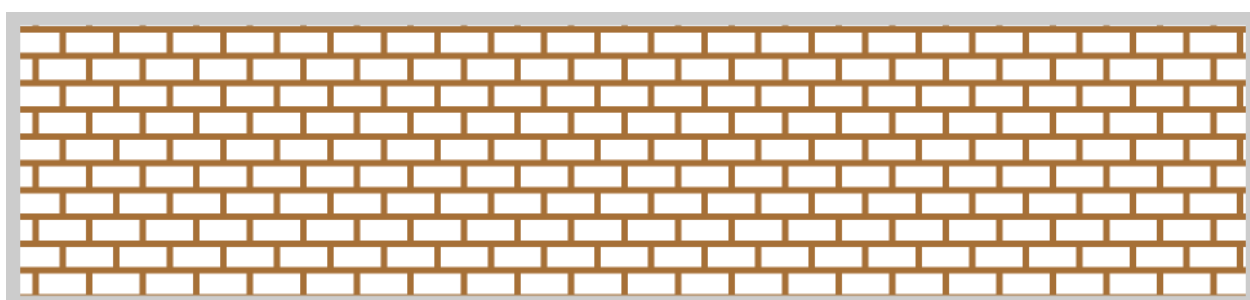
► Example Boulders with Shrubbery

This is an example for a structured area symbol.




► Example Dam

This is an example for a structured area symbol.



Icon

Click the **Icon** button in the dialog to create an icon for the symbol. The **Icon Editor** appears. Read more about this editor in the **Icon Editor** article.

 Different area symbols ^[1]

Back to the **Create a New Symbol** page.

References

[1] <http://www.ocad.com/howtos/61.htm>

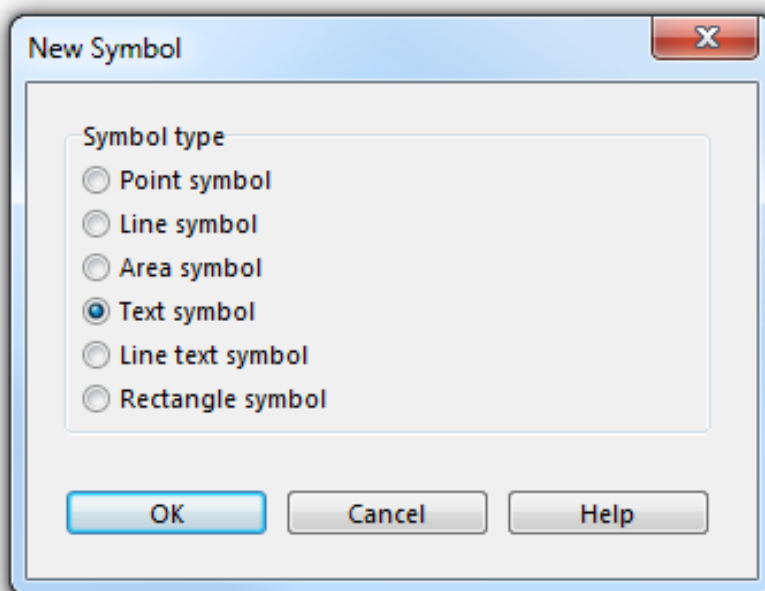
Create a New Text Symbol



Pro Std Sta CS

You can create quite complex text symbols with OCAD.

Choose the **New** command in the **Symbol** menu. Then, choose the **Text Symbol** option in the **New Symbol** dialog to create a new Text symbol.

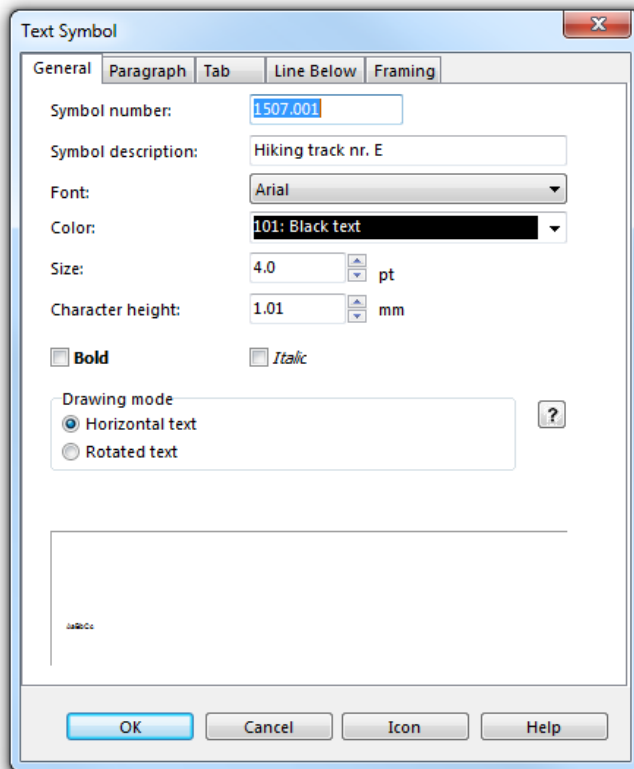


The **Text Symbol** dialog appears. This dialog provides the following five tabs:

- **General:** Used to define the font color, type and size.
- **Paragraph:** Used to define the paragraph attributes
- **Tabulator:** Used to define the tab attributes
- **Line Below:** Used to define the underscore attributes
- **Framing:** Used to define the framing and combination with point symbols

General

The **General** tab provides adjustment options for the font, color, size etc. of text symbols. At the bottom of the dialog a preview of the text is shown.



💡 For every text style, a separate symbol is required. If you modify the text symbol, then all text written with that symbol will change. 💡 The error message: "Font not found" appears if a font is chosen that is not installed on the PC. The font needs to be installed on the PC or another font must be chosen. Otherwise the font **Arial** is used.

Symbol Number

Type a symbol number between 0.001 and 999999.999 in this field.

Symbol Description

Enter a symbol description in this field (e.g. Hiking Track Label).

Font

Choose a font for the text symbol. All TrueType fonts installed in Windows are listed in the dropdown box. You cannot use raster fonts or Adobe Type Manager fonts.

Color

Choose the color for the text. All colors from the **Color Table** are listed in the dropdown list.

Size

Choose the size in points for the text. As an alternative you can enter the character height in millimeters in the **Character height** field.

Character Height

Enter here the height of the character 'B' in millimeters. Alternatively, you can enter the size of the font in points in the **Size** field.

Emphasis

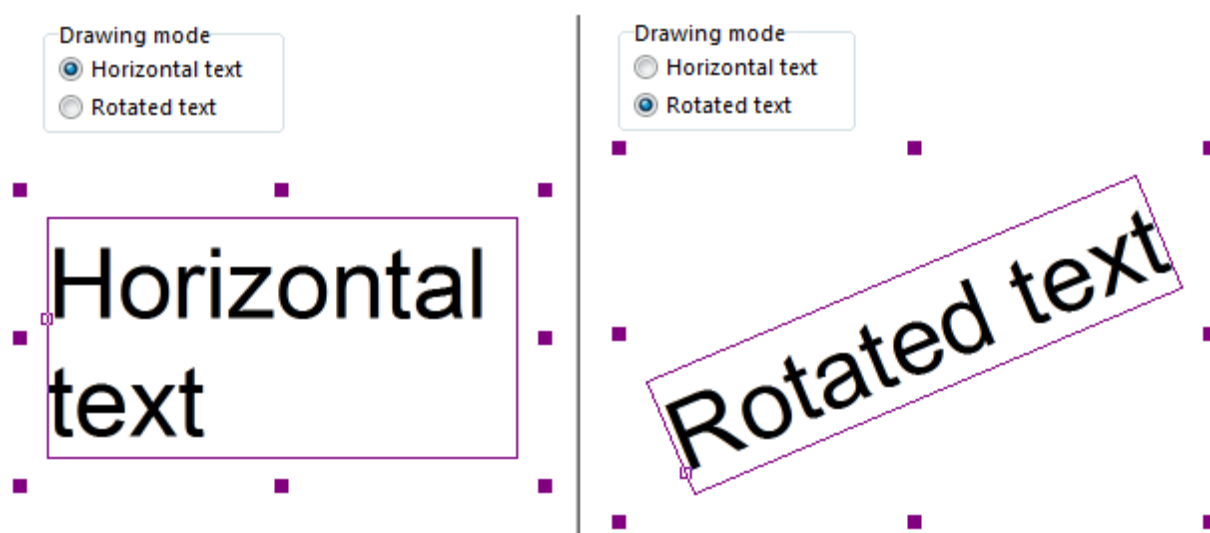
- **Bold:** Check this box for bold text.
- **Italic:** Check this box for italic text.

Drawing Mode

This setting is used if you drag the mouse in a specified direction when drawing or editing a text object or if you rotate the map with the **Rotate Map** command in the menu **Map**.

Horizontal text: Choose this option if the text shall be rendered horizontal after a rotation of the map.

Rotated text: Choose this option if the text shall rotate with the map after a rotation of the map.

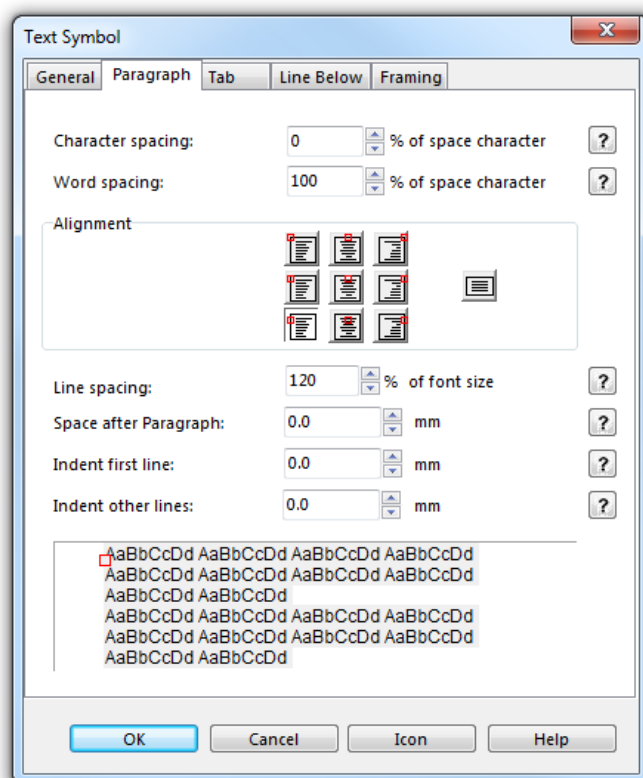


Course Setting for Orienteering Options

In **Course Setting for Orienteering** projects you have additional options for text symbols. Check the **Course setting symbol** box if you want to use this text symbol for the course title, code for variant or start numbers for relay courses. Read more about this topic on the **Add Course Setting Objects** page.

Paragraph

Choose this page to define parameters for text paragraphs. At the bottom of the dialog a preview of the text is shown.



Character Spacing


Enter here a distance to be inserted between characters. If you enter 100%, a space character is inserted between characters. The default value is 0%. Negative values can be inserted, too.


0 Character spacing: 0% of space character


50 Character spacing: 50% of space character

Word Spacing

Enter here the distance between words. 100% means that a normal space character is used between words. The default value is 100%.

 Wordspacing: 0% of space character

 Word spacing: 50% of space character


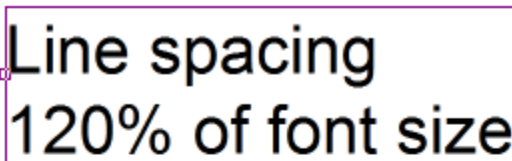
 Word spacing: 100% of space character



Alignment


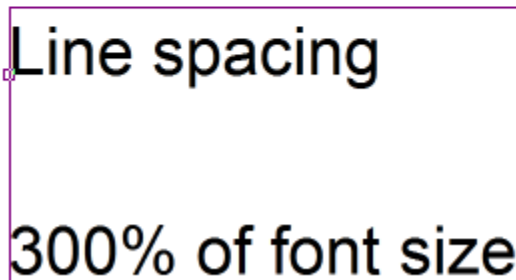
Choose an alignment of the text. You have 10 options (from **Bottom** to **Top** and **Left** to **Right**, or select the **Bottom justified** option for left-aligned text which is **Fully Justified**). This last option only influences text draw as a text frame.

Line Spacing

Enter the distance from one line to the next within a paragraph in relation to the font size. The standard value is 120%.

Space after Paragraph

Enter the additional space after each paragraph.

Space after Paragraph: mm

Space after paragraph, space
after paragraph
Space after paragraph, space
after paragraph

Space after Paragraph: mm

Space after paragraph, space
after paragraph

Space after paragraph, space
after paragraph

Indent First Line

Enter the indent of the first line of each paragraph.

Indent first line: mm

Indent first line, indent first line
Indent first line, indent first line

Indent first line: mm

Indent first line, indent first line
line
Indent first line, indent first line
line

Indent Other Lines

Enter the indent of the other lines of each paragraph.

Indent other lines:

0.0

mm

Indent other lines, indent other lines

Indent other lines, indent other lines

Indent other lines:

3.0

mm

Indent other lines, indent other lines

Indent other lines, indent other lines

Tab

Choose this page to set the tabs for the text symbol. The tabs are left adjusted. A maximum of 32 tabs can be defined. If a text contains more tab characters than defined in the list, the distance to the last tab is repeated.

To add a new tab enter the position and click the **Add** button. The tab is added to the list.

To remove a tab select the tab to be deleted in the list. Then click the **Delete** button.

Line Below

On this page a line which is drawn below each paragraph can be defined. A paragraph is terminated by a hard return - the **Enter** key.

On

Check this box to get a line below the paragraphs.

☐ On

Line color:

0: Text black

Line width:

0.20

mm

Distance from text:

0.20

mm

Text Symbol

☒ On

Line color:

0: Text black

Line width:

0.20

mm

Distance from text:

0.20

mm

Text Symbol

Line Color

Choose a color for the line. The colors from the **Color Table** appear in this list.

Line Width

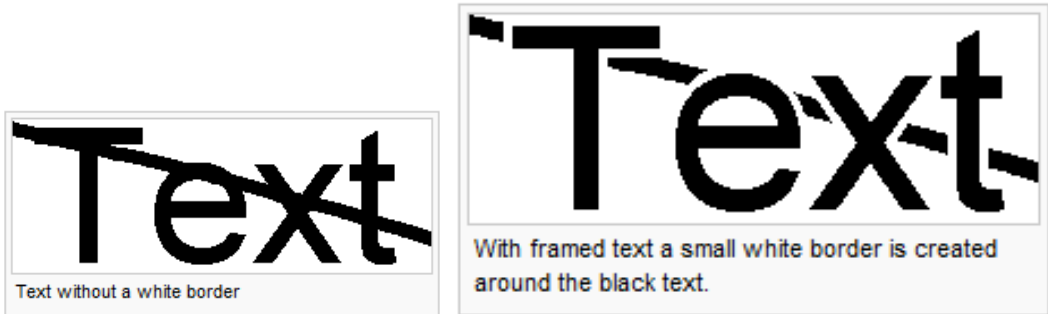
Enter a line width.

Distance from Text

Enter a distance from the baseline of the text to the upper edge of the line.

Framing

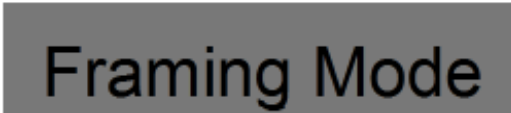
Choose this page to set the parameters for text framing. Text framing is a method to make text more readable on maps. If - for instance - you have black text on a map, it may interfere with black line objects. Text framing can also be used for decorative effects - giving the text a shadow, for instance.



For text framing you need to understand the **Color Table** and you should have some experience in creating new colors and new symbols.

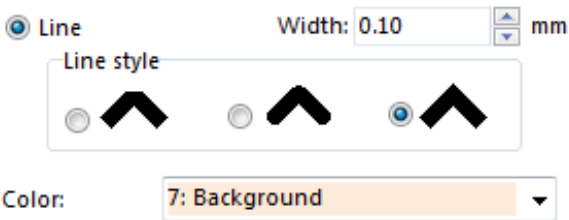
Off

Activate this box if you don't want to use text framing.



Line

Enter here the **Width** (how much the framing extends outside the character) of the text framing as well as the **Line style** (how corners and line ends appear) and the **Color** at the bottom of the **Mode** part of the dialog (all colors from the **Color Table** are listed here). To get text framing, this color must be below the color of the main font in the **Color Table**, but above the colors of any objects which you wish to cover.



Shadow

Choose this option if a shadow to the text shall be rendered. Enter the **Horizontal** and **Vertical offset** of the shadow. Choose a **Color** at the bottom of the **Mode** part of the dialog (all colors from the **Color Table** are listed here). To get text framing, this color must be below the color of the main font in the **Color Table**, but above the colors of any objects which you wish to cover.

☒ **Shadow**

Horizontal offset: mm

Vertical offset: mm

Framing Mode

Rectangle

Choose this option to add a rectangular background. Enter the values **Left**, **Right**, **Bottom** and **Top** if the rectangle shall overlap the text. Choose a **Color** at the bottom of the **Mode** part of the dialog (all colors from the **Color Table** are listed here). To get text framing, this color must be below the color of the main font in the **Color Table**, but above the colors of any objects which you wish to cover.

Point Symbol

Check the **On** option if you want to attach a point symbol to the text symbol. Then, choose a point symbol, which are those from the **Symbol Box**.



Point Symbol



Text Symbol with
allocated Point Symbol

Examples




Download-Links: [Example_Textframing.ocd](#) ^[1] [Example_TextPointsymbol.ocd](#) ^[2]

Creating a Line Text Frame



For text framing you need to understand the **Color Table** and you should have some experience in creating new colors and new symbols.

First you need two additional colors which are above the black color for symbols:

Black for text	
White for text frames	
Black	

Then you can add the text framing to an existing text symbol:


1. Right click the text symbol and choose **Edit** from the context menu.
2. Choose the **General** page. Choose the **Black for text** item for the text color.
3. Choose the **Framing** page. Activate the **Line** option.
4. Enter the desired framing width.
5. Choose the **White for text frames** item in the **Color** dropdown list.

Selective Text Framing

Often text framing erases only the black color, but the other colors still come through. OCAD allows selective text framing for printing the map with spot colors (PMS or Pantone colors), by defining the appropriate spot colors. However, on the screen all colors below the framing color are erased. So beware: the appearance of the map on the screen and the printed map will be different. Selective text framing is also possible for CMYK printing. In this case you have to define your own **Spot Color** for CMYK. You cannot use the automatic CMYK color separations.

Icon

Click the **Icon** button in the dialog to create an icon for the symbol. The **Icon Editor** appears. Read more about this editor in the **Icon Editor** article.

 Different text symbols ^[3]

Back to the **Create a New Symbol** page.

References

- [1] http://www.ocad.com/download/samples/Example_Textframing.ocd
 - [2] http://www.ocad.com/download/samples/Example_TextPointsymbol.ocd
 - [3] <http://www.ocad.com/howtos/62.htm>
-

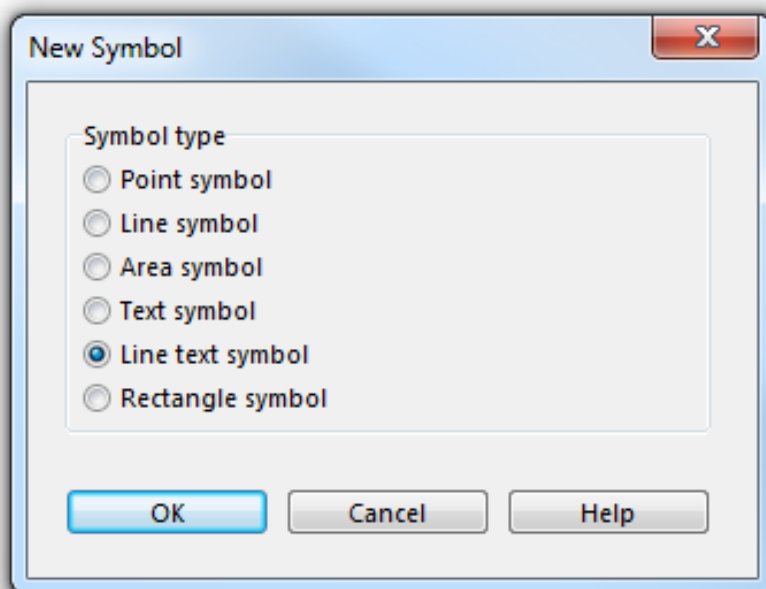
Create a New Line Text Symbol

Line Text Symbols

Pro Std Sta CS

You can create different line text symbols with OCAD.

Choose the **New** command in the **Symbol** menu. Then, choose the **Line Text Symbol** option in the **New Symbol** dialog to create a new line text symbol.

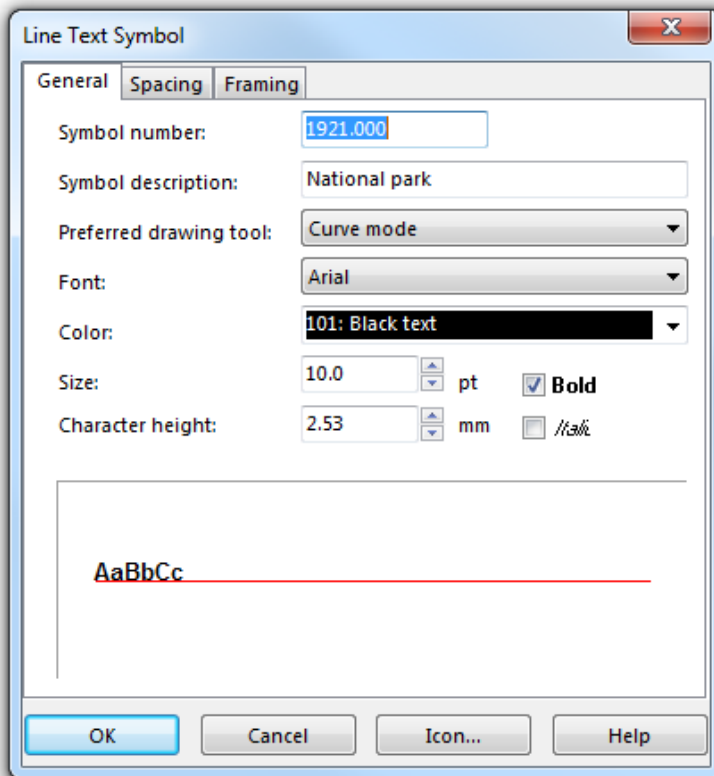


The **Line Text Symbol** dialog appears. The following options are available:

- **General:** Used to define the font color, type and size.
- **Spacing:** Used to define the letters, word spacing and text positioning.
- **Framing:** Used to define the framing

General

The **General** tab provides adjustment options for the font, color, size etc. of line text symbols. At the bottom of the dialog a preview of the text is shown.



💡 For every text style, a separate symbol is required. If you modify the line text symbol, then all text written with that symbol will change. 💡 The error message: "Font not found" appears if a font is chosen that is not installed on the PC. The font needs to be installed on the PC or another font must be chosen. Otherwise the font **Arial** is used.

Symbol Number

Type a symbol number between 0.001 and 999999.999 in this field.

Symbol Description

Enter a symbol description in this field (e.g. River Name).

Font

Choose a font for the text symbol. All TrueType fonts installed in Windows are listed in the dropdown box. You cannot use raster fonts or Adobe Type Manager fonts.

Color

Choose the color for the text. All colors from the **Color Table** are listed in the dropdown list.

Size

Choose the size in points for the text. As an alternative you can enter the character height in millimeters in the **Character height** field.

Character Height

Enter here the height of the character 'B' in millimeters. Alternatively, you can enter the size of the font in points in the **Size** field.

Emphasis

- **Bold:** Check this box for bold text.
- **Italic:** Check this box for italic text.

Spacing

Choose this page to define spacing and alignment for a **line text** symbol.

Character Spacing

Enter here a distance to be inserted between characters. If you enter 100%, a space character is inserted between characters. The default value is 0%. Negative values can be inserted, too.

Character spacing: 0% of space character

Character spacing: 50% of space character

Word Spacing

Enter here the distance between words. 100% means that a normal space character is used between words. The default value is 100%.

Wordspacing:0%ofspacecharacter

Word spacing: 50% of space character

Word spacing: 100% of space character

Alignment

Choose here how the text is aligned along the line. The **All line** options (Those three on the right side) mean that the text is distributed along the entire line. With this option the *letter-spacing* will be adapted to the length of the line text object. Choose the options from **Bottom** to **Top** and **Left** to **Right** for a normal alignment (not justified).

Framing

Choose this page to set the parameters for text framing. Text framing is a method to make text more readable on maps. If - for instance - you have black text on a map, it may interfere with black line objects. Text framing can also be used for decorative effects - giving the text a shadow, for instance.

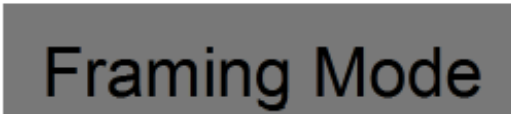


For text framing you need to understand the **Color Table** and you should have some experience in creating new colors and new symbols.

Off

Activate this box if you don't want to use text framing.

☐ Off






Line

Enter here the **Width** (how much the framing extends outside the character) of the text framing as well as the **Line style** (how corners and line ends appear) and the **Color** at the bottom of the **Mode** part of the dialog (all colors from the **Color Table** are listed here). To get text framing, this color must be below the color of the main font in the **Color Table**, but above the colors of any objects which you wish to cover.

☒ Line Width: 0.10 mm

Line style

☐  ☐  ☒ 

Color: 7: Background



Shadow

Choose this option if a shadow to the text shall be rendered. Enter the **Horizontal** and **Vertical offset** of the shadow. Choose a **Color** at the bottom of the **Mode** part of the dialog (all colors from the **Color Table** are listed here). To get text framing, this color must be below the color of the main font in the **Color Table**, but above the colors of any objects which you wish to cover.

☒ Shadow


Horizontal offset: 0.05 mm

Vertical offset: 0.10 mm



Drawing a Line Text Symbol

Line text symbols are used for text along curved lines. Line text can be written along any line, including curved lines. To draw a line text object you must define a **line text symbol** and do the following steps:

1. Select the line text symbol.
2. Draw a line in any drawing mode (curve, ellipse, circle etc.).
3. After terminating the line, an insertion line appears and you can directly type the text on the keyboard.
4. If the text goes in the wrong direction, click the  **Reverse Object** icon in the **Edit Functions** toolbar.

Icon

Click the **Icon** button in the dialog to create an icon for the symbol. The **Icon Editor** appears. Read more about this editor in the **Icon Editor** article.

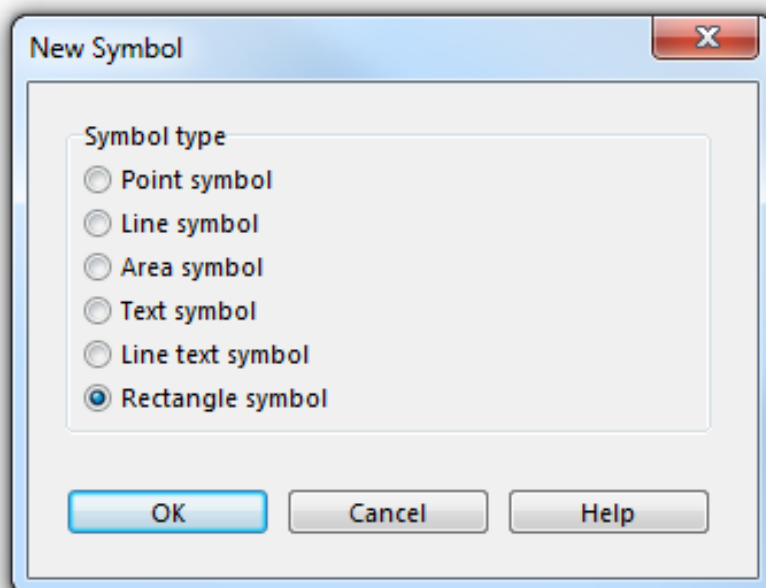
Back to the **Create a New Symbol** page.

Create a New Rectangle Symbol

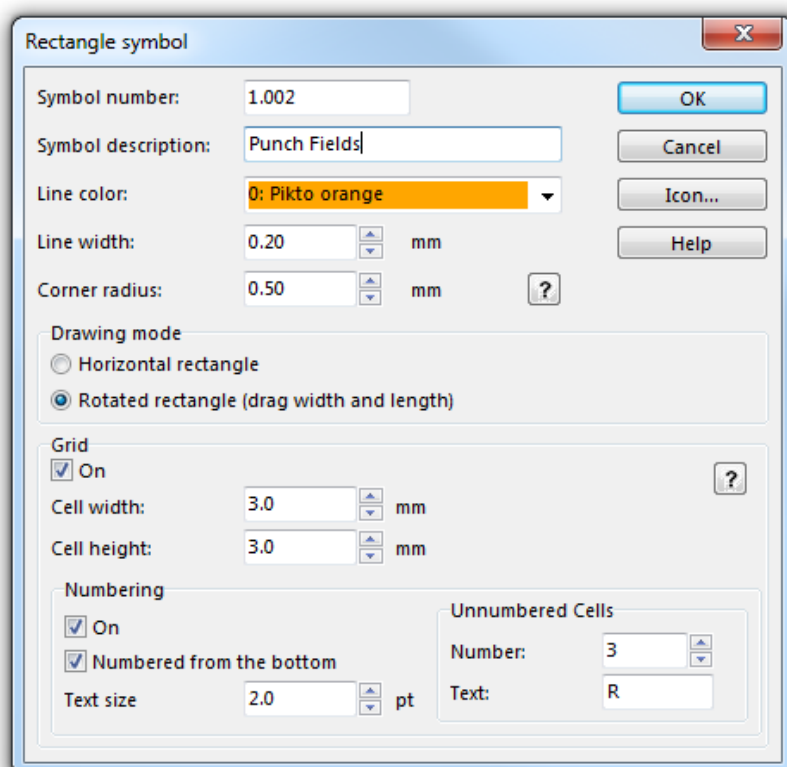


You can create rectangle symbols with OCAD.

Choose the **New** command in the **Symbol** menu. Then, choose the **Rectangle Symbol** option in the **New Symbol** dialog to create a new rectangle symbol.



The **Rectangle Symbol** dialog appears.



Rectangle symbols are used to draw rectangular frames (around the entire map or around parts of the map). A special use for **Rectangle** symbols are punch boxes for orienteering maps.

Symbol Number

Type a symbol number between 0.001 and 999999.999 in this field.

Symbol Description

Enter a symbol description in this field (e.g. Punch Box).

Line Color

Choose the color for the frame. All colors from the **Color Table** are listed in the dropdown list.

Line Width

Enter a line width for the frame.

Corner Radius

If you want the frame to have round corners, enter the corner radius here (measured to the center of the line), otherwise enter 0 here.

Line width:


1.00

mm

Corner radius:

0.00

mm



Line width:

1.00

mm

Corner radius:

5.00

mm



Line Style

Rectangle symbol

Symbol number: 950.000

Symbol description: Rectangle

Line color: 101: Black

Line width: 0.80 mm

Corner radius: 0.00 mm

Line style

Drawing mode

☒ Horizontal rectangle

☐ Rotated rectangle (drag width and length)

Grid

☒ On

Cell width: 0.0 mm

Cell height: 0.0 mm

Numbering

☒ On

☒ Numbered from the bottom

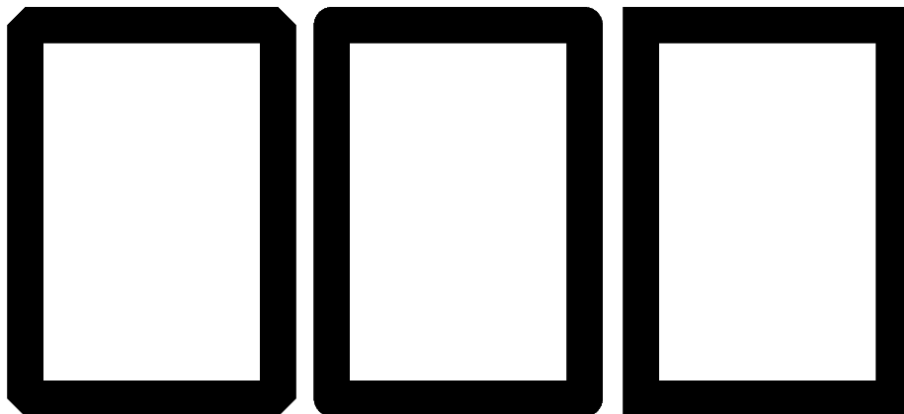
Text size: 1.0 pt

Unnumbered Cells

Number: 0

Text:

The **Line Style** option is only available, if the **Corner Radius** is set to 0. In this case you can choose between the three common line styles to define the appearance of corners and line ends.



Drawing Mode

- **Horizontal rectangle:** Activate this option if you want to draw only horizontal rectangles.
- **Rotated rectangle:** Activate this option if you want to draw rotated rectangles.

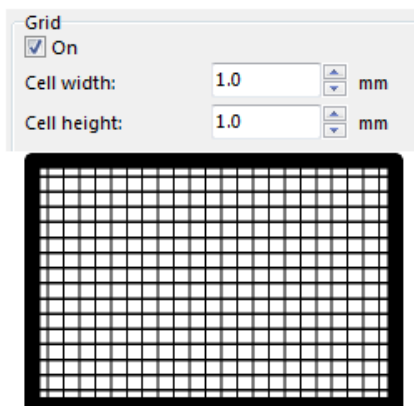
Grid

The grid line width is not alterable. So this option is obsolete.

- **On:** Activate this field if you want to add a grid into the rectangle.
- **Cell width / Cell height:** Enter the desired width and height for the cells.



The effective cell width and cell height are always a divider of the drawn rectangle's total size.



Numbering

On

Activate this field if you want to add numbers to the grid.

Numbered from the Bottom

Normally, the cells are numbered starting from the top row. Check this box to start numbering from the bottom row.

Text Size

Choose the size in points for the text.

Unnumbered Cells

Number: Enter here the number of cells used as reserved fields, if you want to create punch boxes. If you want all cells numbered enter here 0.

Text: Enter here up to 3 characters which appear instead of the number in the reserved fields.

Icon

Click the **Icon** button in the dialog to create an icon for the symbol. The **Icon Editor** appears. Read more about this editor in the **Icon Editor** article.

Back to the **Create a New Symbol** page.

Symbol Status Manager

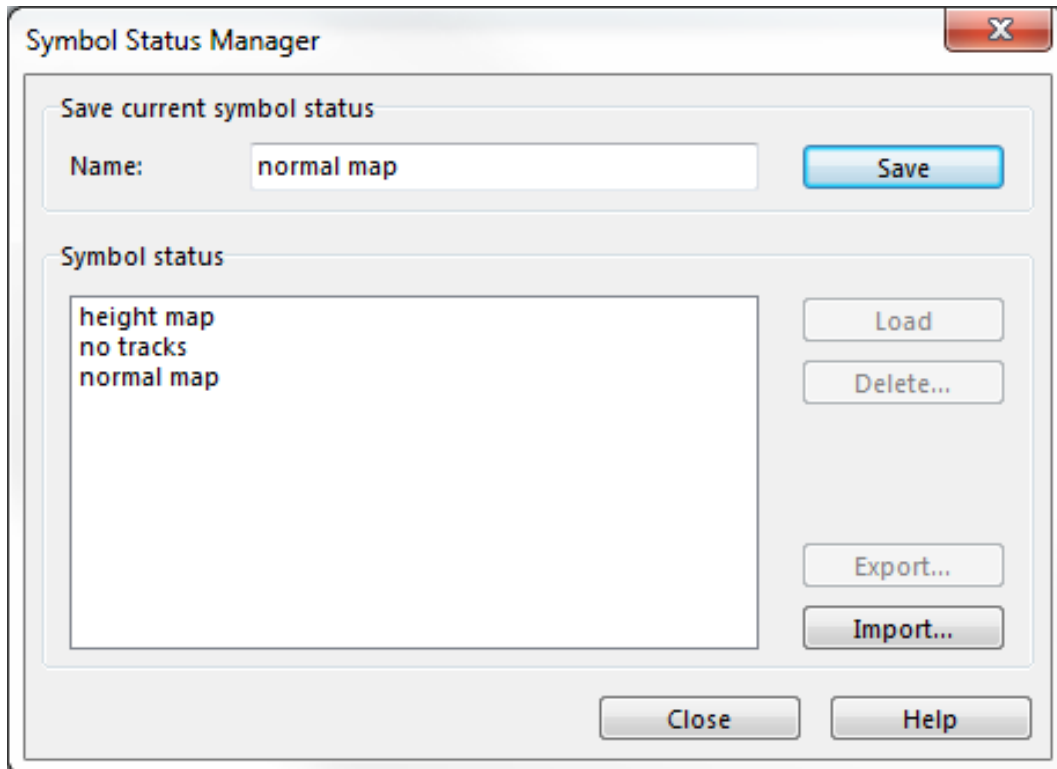


The **Status Symbol Manager** allows to easily get access to various status settings.

💡 While the **Symbol Status Manager** dialog is open, the map can still be edited.

Save current symbol status

1. Select **Symbol Status Manager** item in the **Standard Toolbar** or in the **Symbol** menu.
2. The **Symbol Status Manager** dialog opens.



3. Set the status of the symbols in the **Symbol Box** to *normal*, *protected* or *hidden* to get the map view you want.

💡 This can be done already before opening the dialog.

4. Enter a name and save the current symbol status settings by clicking on the **Save** button.

Load Symbol Status

1. Select a status in the **Symbol Status** box.
2. Either double click on the name or click on **Load** to activate this symbol status settings.

💡 Only one symbol status setting can be active.

💡 If multiple status are selected then only the one who's name is shown in the name box will be loaded.

Delete Status

1. Select a status in the **Symbol Status** box.
2. Click on the **Delete** button to delete this symbol status.

Export Symbol Status

1. Select a saved symbol status setting.
2. Click on the **Export** button.
3. Choose the destination folder and save the *.xml* file.



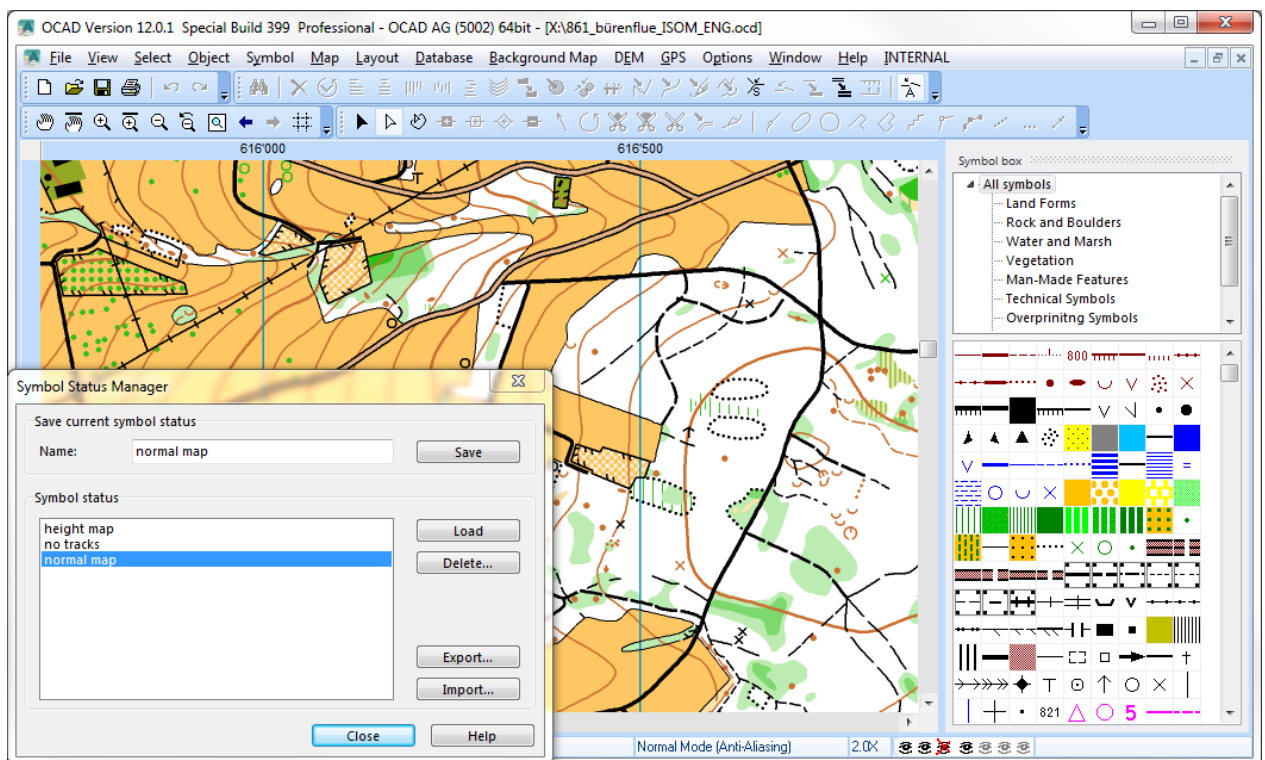
If multiple settings are selected to be exported, they are saved in one *.xml* file.

Import Symbol Status

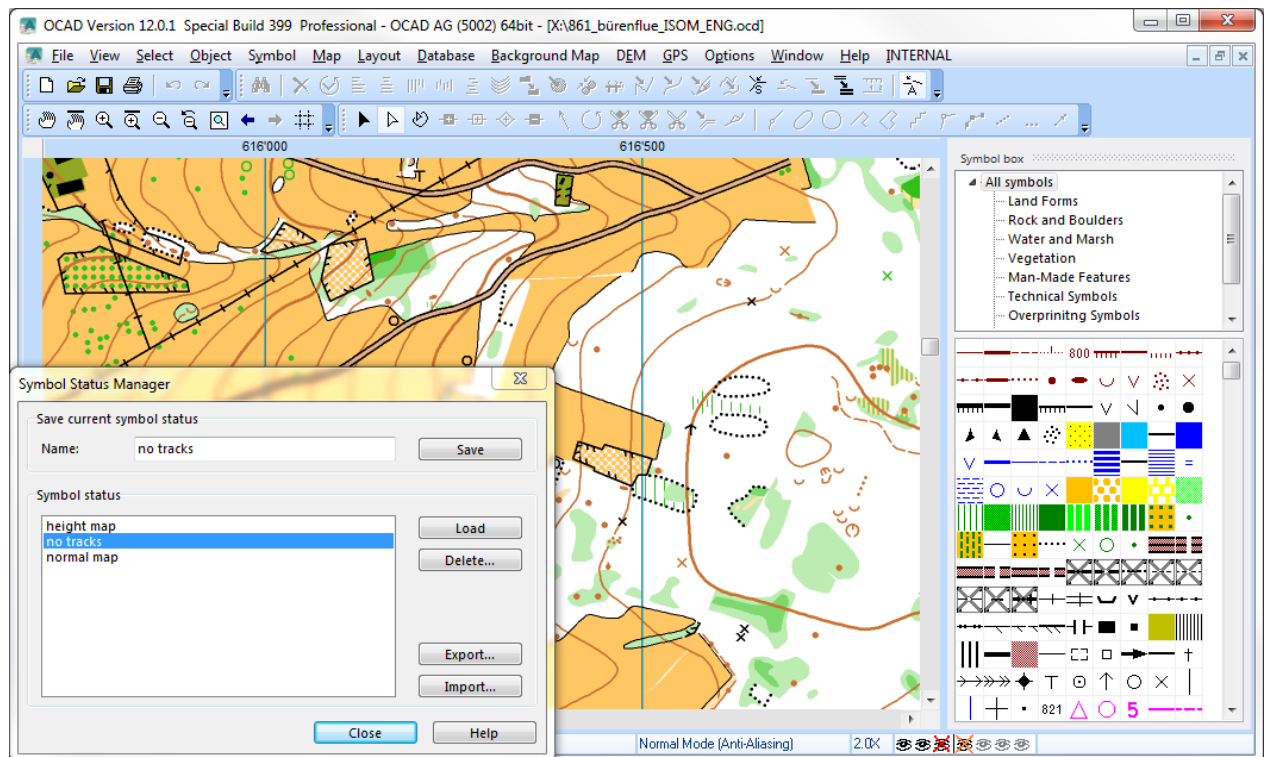
1. Click on the **Import** button.
2. Pick and load an symbol status setting(s) *.xml* file.
3. The loaded symbol status are shown in the **Symbol Status** box.

Examples

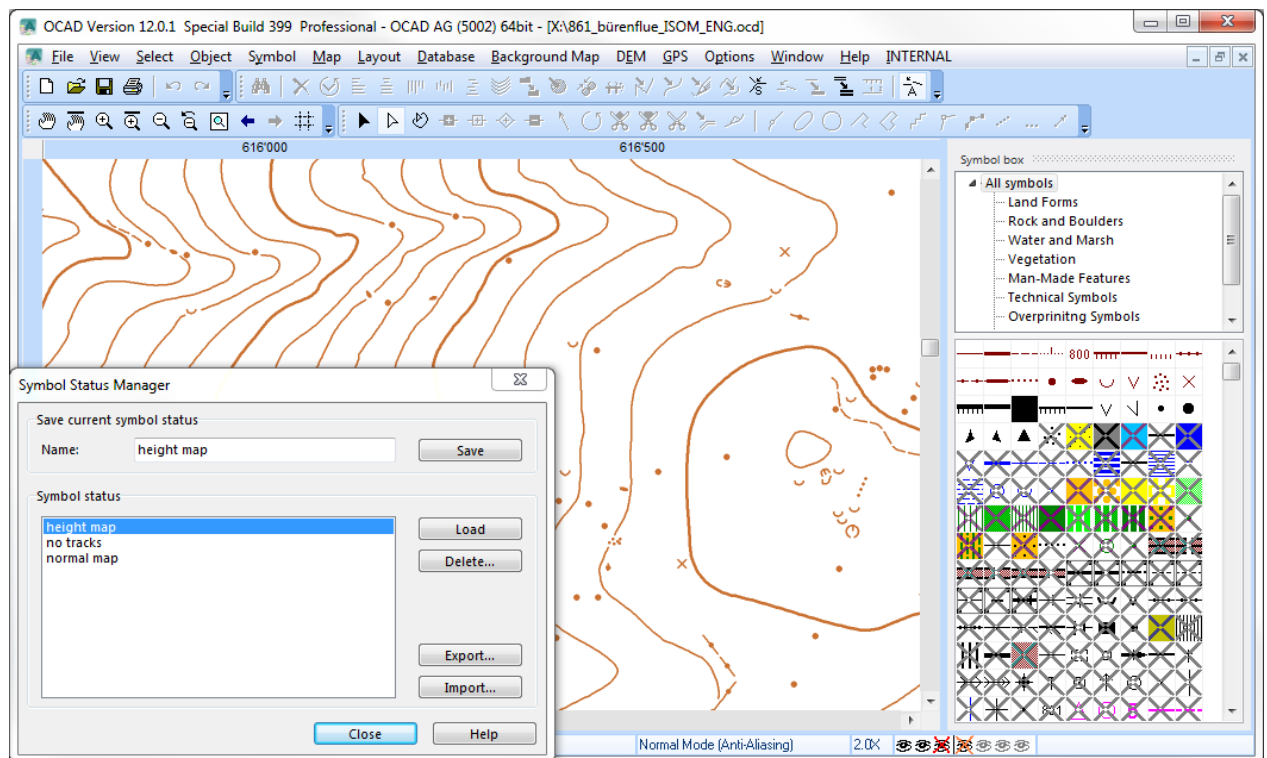
- normal map



- no tracks



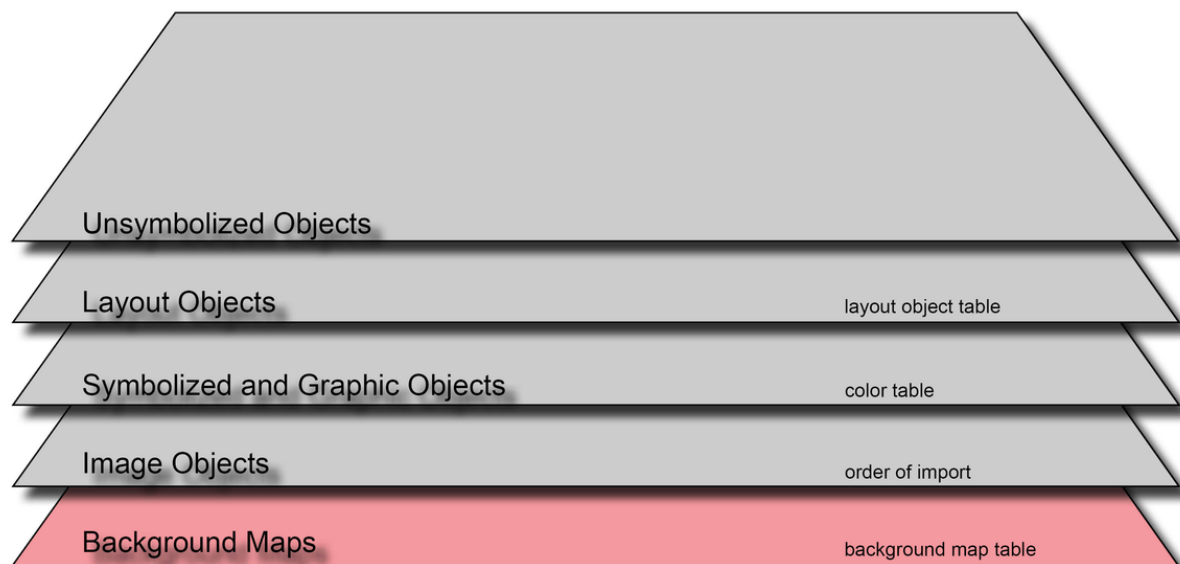
- height map



Back to Symbol

Background Map

Background map refers to a raster map or OCAD file used as a background. It serves as a drawing template or background image. Examples include scanned draft maps, satellite pictures, orthophotos or relief shadings. OCAD cannot be used to edit background maps.



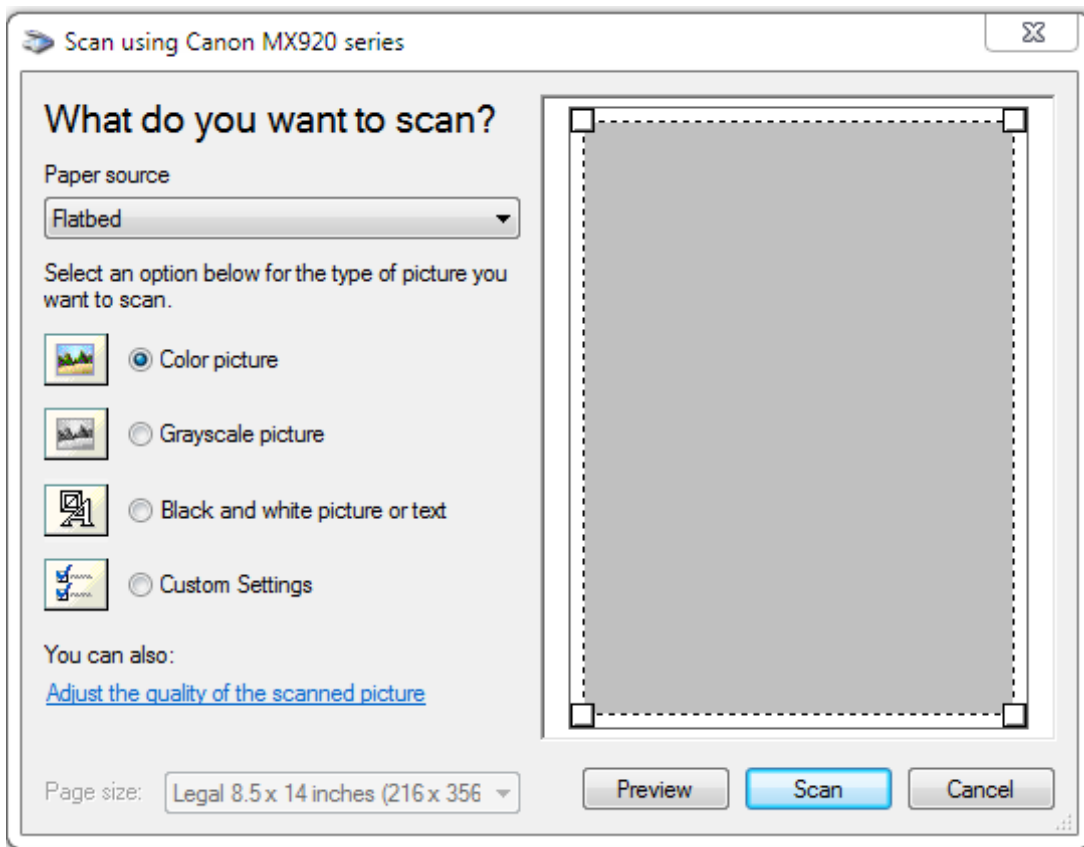
Scanning a Background Map

Pro Std

It is recommendable to keep with the following two things:

- **Use a grid:** In most cases you cannot scan the entire draft map (the background map). You are either limited by Windows (which limits the maximum size of background maps), by the available memory, or by the size of the scanner (A4). In these cases, it is strongly recommended that you should draw a grid on the draft map. In many cases there is already a kilometer grid which can be used. If this does not exist, you should draw a precise grid of vertical and horizontal lines (perhaps at a distance of 10 cm). Then the scanned pieces can be easily joined together in OCAD.
- **Resolution:** It is recommendable to scan the map with 300 dpi.

OCAD supports only WIA compatible scanners. Click **Scan** in the **Background map** menu. The Scan dialog opens.



Choose the extent and click **Scan**. You have the option to save file in jpg, bmp or png file format. Then the scanned background map is opened.

Open a Background Map

Pro Std Sta CS

Choose this command from the **Background Map** menu to open a background map which is displayed as a background picture on the screen. OCAD can open *BMP*, *GIF*, *PDF*, *PNG*, *TIFF*, *JPEG* and *TIFF* files. In addition, OCAD maps (*.ocd) or **Encrypted OCAD maps** (*.eocd) can be loaded as a background map, too. The **Open Background map** dialog appears. Choose a file and click the **Open** button.

Note: In the **OCAD Starter Edition**, **OCAD** (.ocd) and **Encrypted OCAD Maps** (.eocd) are only available to use as a background map in course setting projects.



Ocad 12 can load only encrypted Ocad files exported from OCAD 12. Encrypted Ocad 10 or Ocad 11 files are not compatible with Ocad 12.



OCAD loads the background map hidden when pressing the **Shift** key while clicking the **Open** menu item.

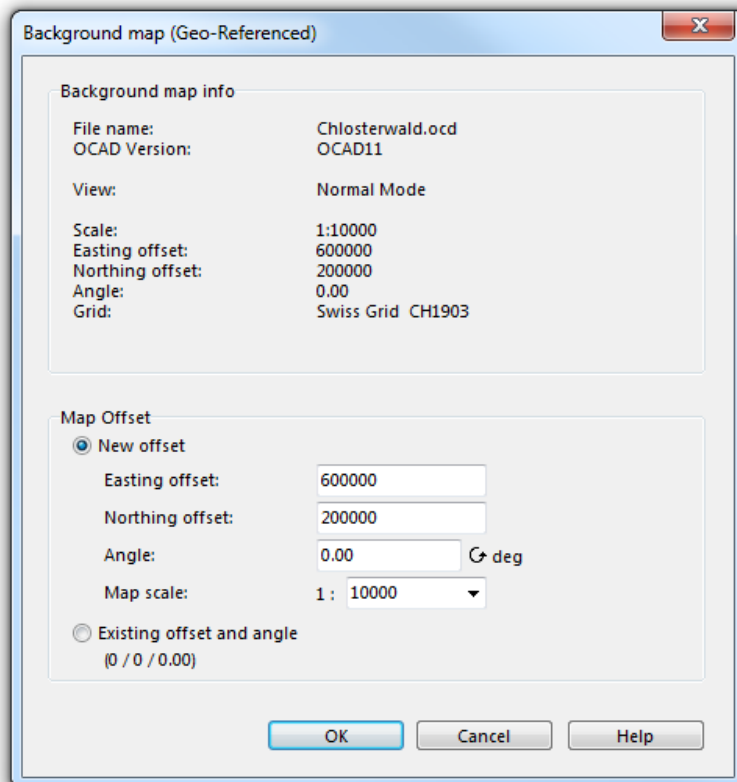


OCAD does not support *JPEG2000* and *ECW* files. We recommend to transform them to *TIFF* with tools like *IGNMap*.

Use a Georeferenced Raster Map as Background Map

If your map is georeferenced and you want to use a georeferenced map as background map:

1. Select the **Open** command in the **Background Map** menu. The **Background Map** dialog box opens.
2. Select a file and click the **Open** button.
3. The **Background Map (Geo-Referenced)** dialog appears and shows the geo-referencing of the selected map.
 - Select the **New Offset** option to create a new map offset. The center of the map will be moved to the offset you typed in the **Easting** and **Northing Offset** fields and rotated with the angle entered in the **Angle** field. In addition, the scale can be changed.
 - Select the **Existing Offset and Angle** option to leave the map as it is. The background map will be placed at the correct position with reference to the existing map offset and angle. If you choose this option, the background map may be placed outside the map range. In this case, an error message will appear.



4. Click the **OK** button to finish.



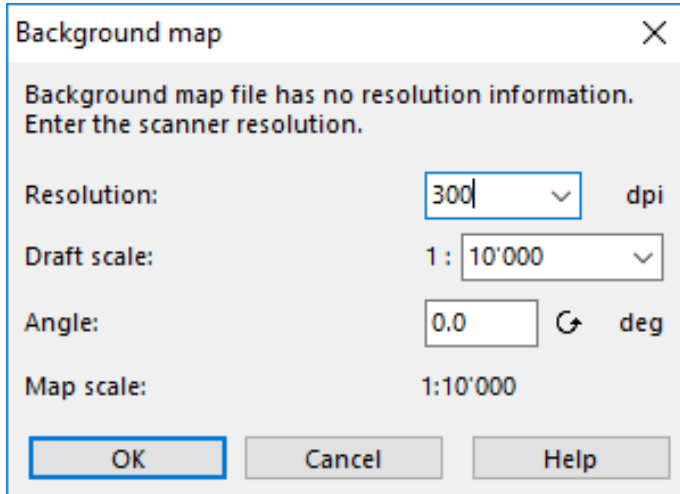
- Click the **Entire Map** button to display the entire background map.

- The **Draft Mode** option in the **View** menu can be used to dim map objects and the background map itself.
- Ocad files can also be loaded as background maps.


Use a Non Georeferenced Raster Map as Background Map

If your map is georeferenced and you want to load a non-georeferenced map:

1. Select the **Open** command in the **Background Map** menu. The Background Map dialog box opens.
2. Select a file and click the **Open** button.
3. Enter a resolution for the background map (if a raster map is loaded) and click the **OK** button.

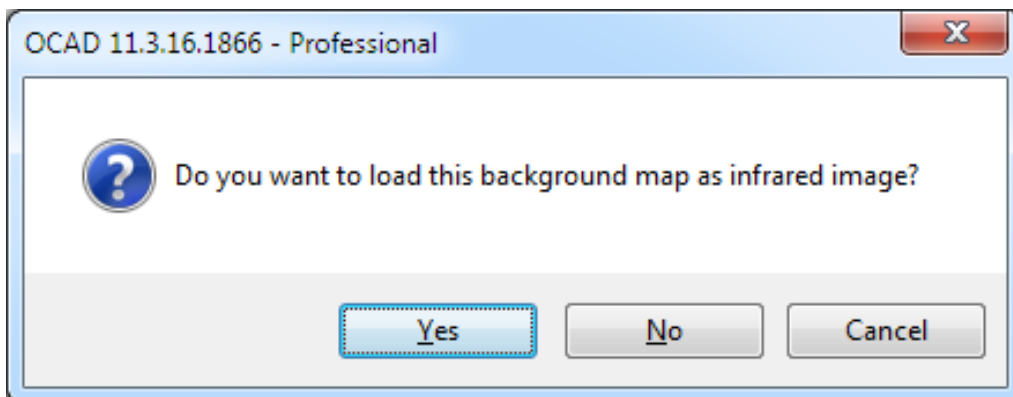


The background map is displayed at the center of the current drawing area. The raster map (background map) now needs to be adjusted with the map (**Adjust a Background Map**). In other words, it needs to be referenced with the map coordinate system.

 You can scan a raster map to use it as a background map directly in Ocad: Select **Scan** in the **Background Map** menu and then choose the **Acquire** submenu. Your scanner's dialog box will open (**Scanning a Background Map**).

Infrared Images

OCAD supports 32-bit infrared tiff images. When opening an infrared image Ocad shows the following message box:



Click **Yes** to show the background map as false-color image using the infrared, red and green spectral bands mapped to RGB.



Click **No** to show the background map as true-color image.



Error or Warning Messages

Error Message Not enough memory for the background map

This error message appears if Windows cannot provide the memory needed to load the whole background map. For uncompressed background map files the size of memory needed is about the file size. Compressed background map files have to be expanded in memory and therefore need more memory than their file size.

💡 If Ocad 64-bit version is used, background map files bigger than 2.1GB can be loaded.

Error Message TIFF variant not supported

This error message appears if the TIFF variant is not supported by the current version of OCAD.

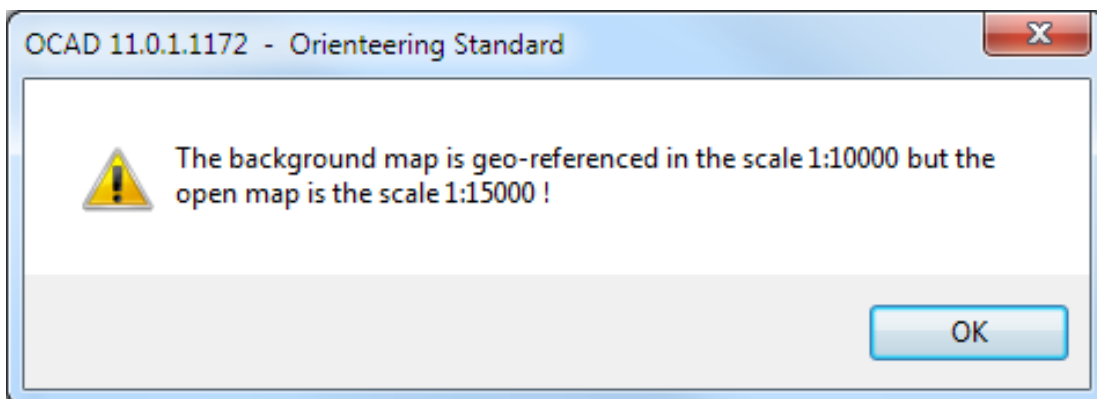
Error Message This TIFF file contains tiles. OCAD does not support TIFF files with tiles

This error message appears if the TIFF contains tiles which OCAD does not support. Please convert this file into an untiled TIFF format.

Error Message Compression type not supported

This error message appears if the compression in the opened TIFF file is not supported by the current version of Ocad.

Warning The background map is geo-referenced in the scale 1:x but the open map is in the scale 1:y



This warning appears if the OCD background map is geo-referenced and has an other scale than the currently opened map. Ocad opens the map but ignores the georeferencing (no scaling and no offset) and uses the paper coordinates.

To avoid this warning message, open the OCD-File you want to load as a background map and use the **change the map scale** function.

Limitations for Georeferenced ocd Background Maps

OCAD supports different real world offsets and real world angles. The offset and angle can be set in the **Set Scale and Coordinate System** dialog. In some cases, OCAD has a redrawing problem with different real world angles.

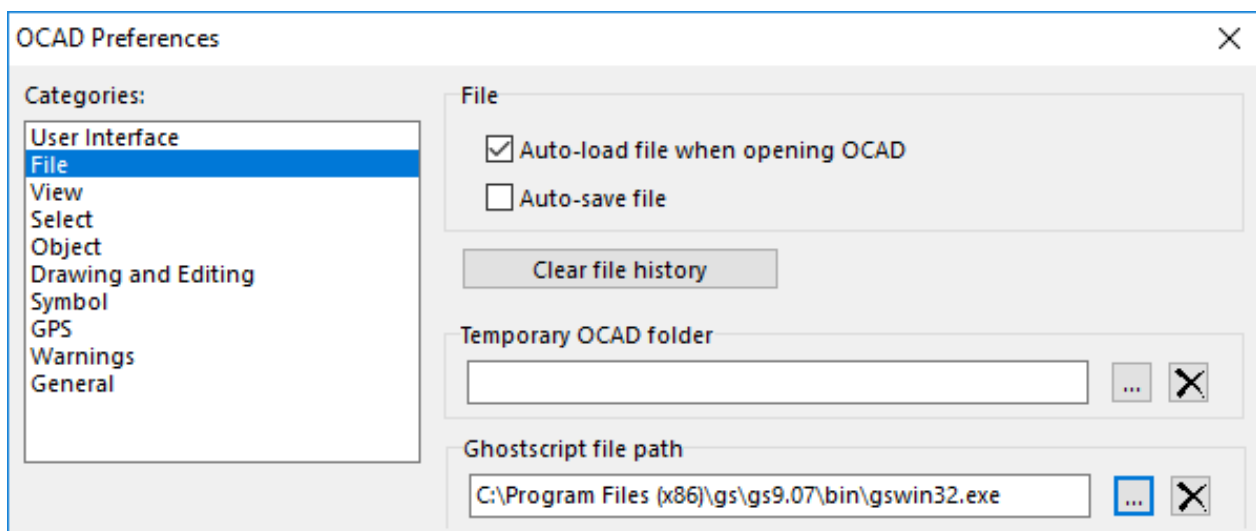
Open pdf as Background Map

OCAD cannot load pdf files as background maps. OCAD uses the software Ghostscript ^[2] to convert the pdf to jpg and load this jpg file.

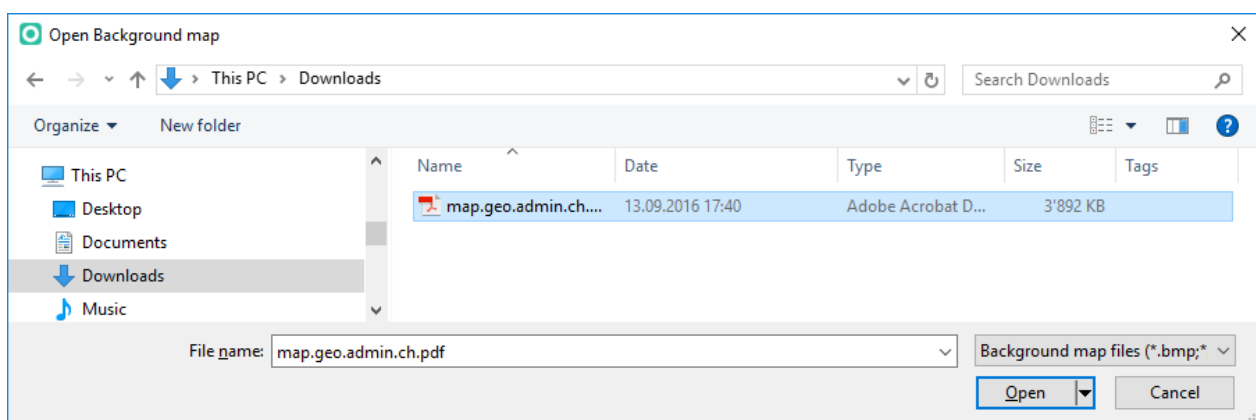
To open pdf files you have to install the software Ghostscript ^[2] and set the Ghostscript path in the OCAD Preferences.

Example:

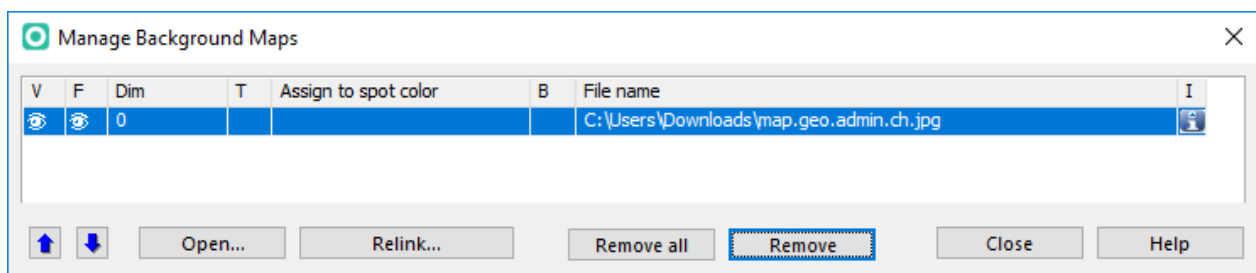
- Set Ghostscript file path in Ghostscript file path in the OCAD Preferences



- Open pdf as background map



- Ghostscript converts the file to a not georeferenced jpg. So you have to adjust this background map. The loaded jpg images is in the list of the background maps.

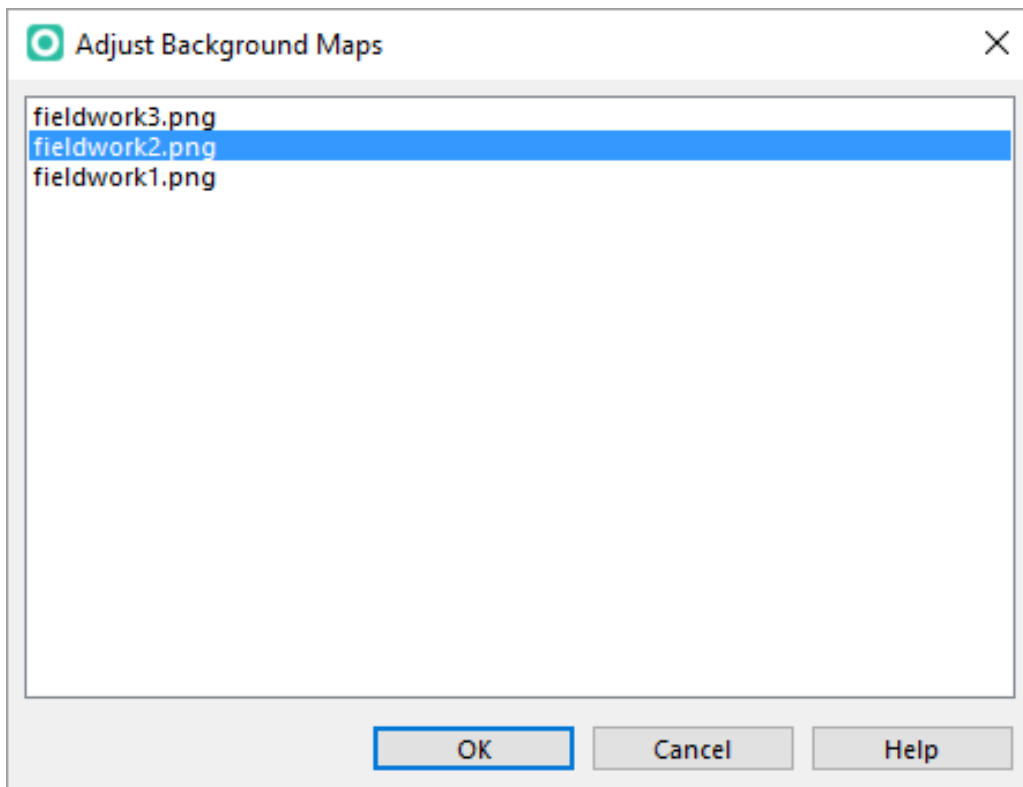


Adjust a Background Map

Pro Std Sta CS

Choose this command in the **Background Map** menu or press the **F9** button (**Shortcut** by default) to adjust the background map. This command is active when one or more raster background maps are loaded.

If more than one background map is loaded, you will have to choose a map in a dialog box:



💡 Background

maps from online WMS are not shown in this dialog box.

A background map can be adjusted to the grid or to the map. A grid on the background map makes it easier to adjust it. The grid crossing points can be used for the adjustment (however, any points can be used).

It is possible to use 1 to 12 points for the adjustment. After choosing the **Adjust** command the cursor changes to a cross line with a black and white squared pattern. You are now in the **Adjust** mode. Do the following steps for each adjustment point:

1. Mark a point on the background map (e.g. grid point or a surface reference point) by clicking it.
2. Mark the same point on the map by clicking it.

In the bottom left part of the **Status Bar** you can always see, which point you have to mark at the moment, when you are in the **Adjust** mode.

When having adjusted enough points, execute the adjustment by pressing the **Enter** key. The background map is rotated and stretched to get the best fit for the adjustment points.

If the adjustment is not good use the **Undo** function to cancel the new adjustment.

💡 - If the size of the raster map corresponds exactly with that of the map scale and has not been rotated, it is possible to adjust it with the map using a single point pair. OCAD will correctly reposition the raster map without changing the scale or angle.

- If the raster map is contorted, rescaled or rotated, you will need to use between 3 and 12 point pairs to adjust the image with the map. OCAD repositions the raster map by transforming it (affine transformation) and adjusts the scale and angle accordingly. The point pairs should be distributed equally across the map.
- If the adjustment point pairs lie outside of the drawing window, you can move the map section between the adjustment point pairs during the adjustment process.

Error **Adjustment points too close**: When using several points for adjusting a background map, the outermost points must be separated by at least 2 mm on the background map.


Note: OCAD Background Maps cannot be adjusted. The **Georeferencing** is used to place the map or, if the map is not georeferenced, the origin of the background map (middle of the map, point (0/0)) is displayed on the origin of the current map.

Once you have completed the map adjustment, the raster map can be saved as a georeferenced raster map. The advantage of this is that the raster map will be loaded in the correct position the next time it is opened.

Export Georeferenced Raster Map

To save the raster map as a georeferenced raster map:

1. Select the **Export** command in the **File** menu.
2. Select a desired raster format (TIF, JPG, GIF or BMP)
3. Select a **Resolution** (300 dpi is recommended for printing maps)
4. Select the **Create World file** option
5. Click the **OK** button.

 Adjust Background maps ^[3]

Hide all Background Maps

Pro Std Sta View CS

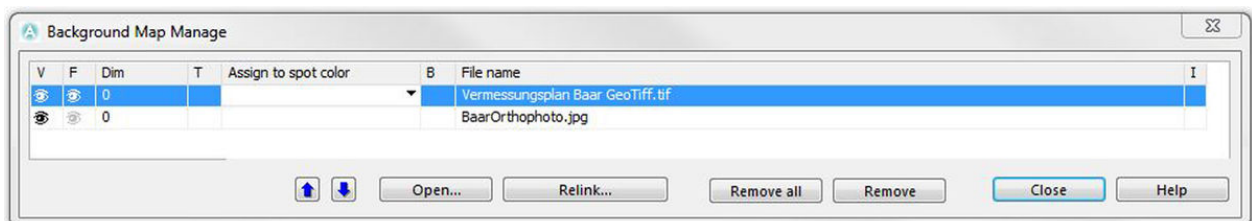
Choose the **Hide All** command in the **Background Map** menu or press the **F10** key (**Shortcut** by default) to hide all background maps temporarily or make them visible when they are hidden. This command is active if one or more background maps are loaded.

If you want to hide only single background maps, choose the **Manage** command from the **Background Map** menu.

Manage Background Maps

Pro Std Sta View CS

Choose the **Manage** command from the **Background Map** menu to set options for displaying and printing the background maps. The **Manage Background Map** dialog box is displayed. This is a non-modal dialog box. It is possible to switch between the dialog box and the map window without closing the dialog. Changes are directly updated on the map.



In the **Manage Background Map** dialog a table is displayed. In this table all loaded background maps are listed. The table consists of the following columns:

Visibility options

Pro Std Sta View CS

- **V (Visible):** You can make a background map visible or hide it by clicking the corresponding cell in this column. An eye icon in this column means that the background map is visible.



To hide all background maps temporary use the **Hide All** command in the **Background Map** menu.

- **F (Visible in Background Favorites view mode):** You can make a background map visible or hide it in the **Background Favorites** by clicking the corresponding cell in this column. An eye icon in this column means that the background map is visible in the **Background Favorites**.
- **Dim:** In this column you can enter a value in percentage to make the background map appear brighter, i.e. to dim it. 0% means the background map is displayed in its original colors. 100% means the background map appears completely white. Dimming is used to get a better distinction between the background map and the map.
- **T (Transparent):** If more than one background map is opened you can set them transparent so that both are visible. Activate this option by clicking the corresponding cell in this column.

Assign to Spot Color

Pro Std Sta

This feature is used in a special production process, namely to update old hand drawn or scribed maps. The printing plates for each spot color are scanned (black and white or gray-scale) and then used as background maps. When such a background map is assigned to a spot color, it is displayed with this color. In addition, when the **Spot Color View** is activated the background map is displayed together with the corresponding spot color.

Visit the **Define Spot Colors** page to learn more about spot colors.

Note: This feature is intended for black and white or gray-scale background maps. If a color background map is assigned, the resulting colors are undefined.

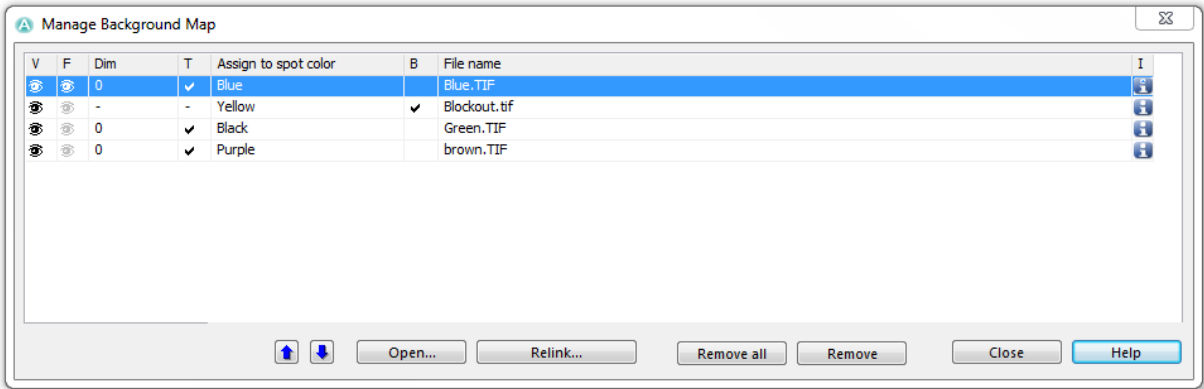
Blockout

Pro Std Sta

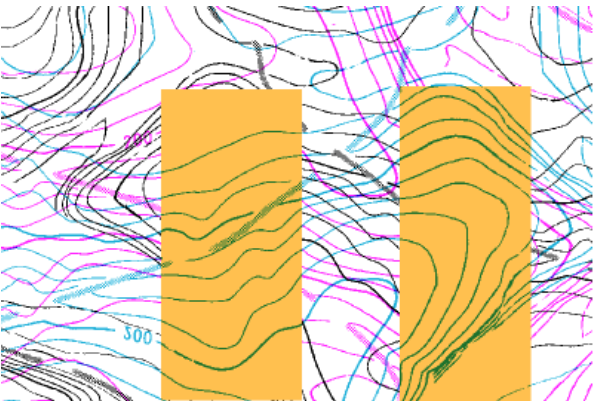
This column is labeled with a **B** and is only available for raster background maps. Click a cell in the **Blockout** column to use the corresponding background map as a block out mask.

If you have several black and white or gray-scale background maps which are transparent and assigned to a spot color, you can use this function to hide some background maps in a certain area of a different background map.

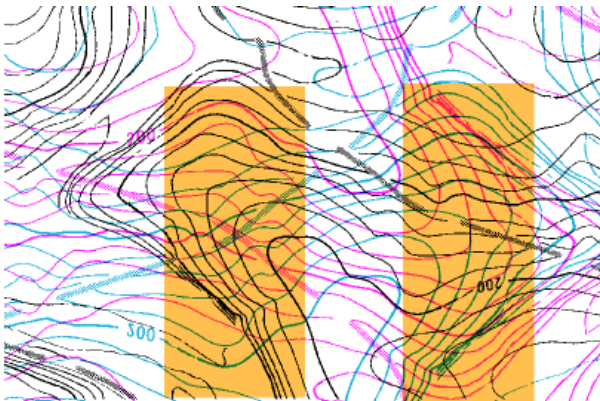
In the following example, there are four black and white or grey-scale background maps loaded. Each background map was assigned to a spot color. There are the purple, the black and the blue lines. The fourth background map was assigned to the yellow color. The **Manage Background Map** dialog looks as follows:



The yellow background map is used as a **Blockout** mask. The result looks as follows.



with Blockout




without Blockout

The black and the purple background maps are hidden behind the yellow areas when using **Blockout**. The blue background map is drawn over the yellow areas because it is over the blockout mask in the order of the background maps.

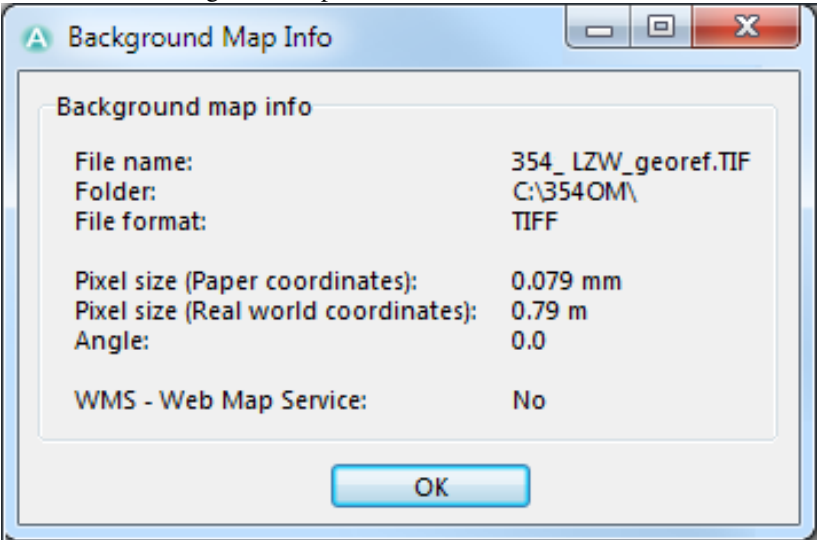
File name Pro Std Sta View CS

The file name of the background map is displayed in the **File name** column.

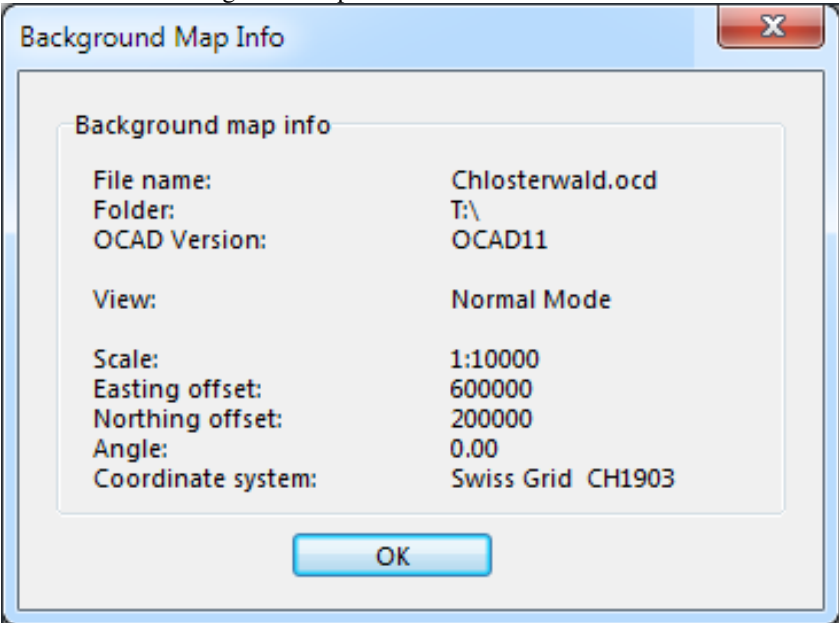
I (Information) Pro Std Sta View CS

Click on the  information icon to get more information about the corresponding raster background map. The **Background Map Info** dialog box appears with additional information. The given information varies depending on the file type.

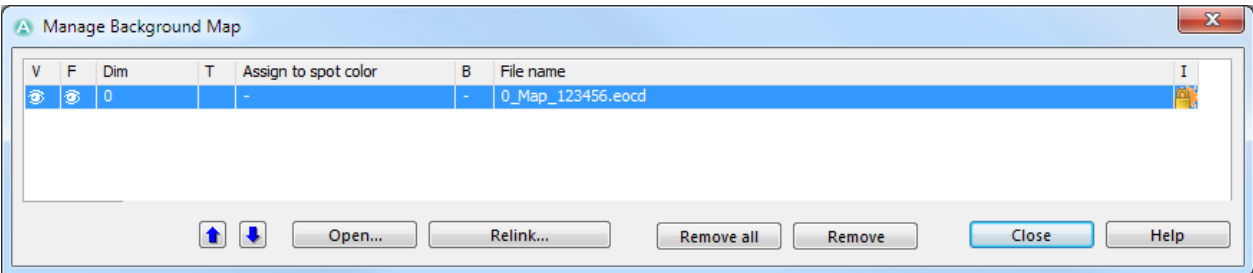
Info for raster background map:




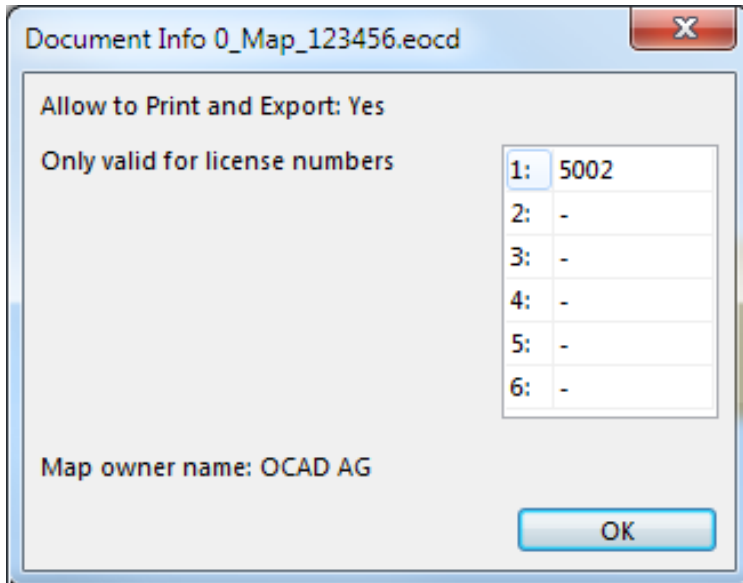
Info for OCAD background map:



If an encrypted background map is load then a  lock icon is displayed in the information column.

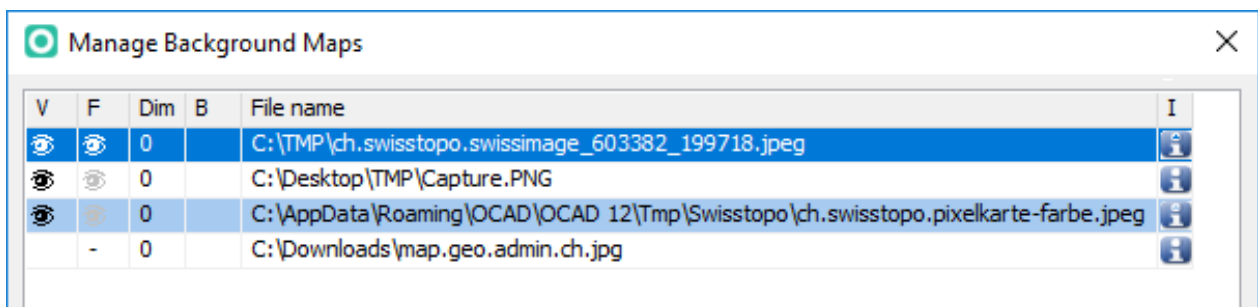


Click on the  lock icon to get more information about the encrypted background map.



WMS

Background maps from online WMS are displayed with light blue color.



Other Functions



- **Move Up:** Click the **Move Up** icon to move the selected background map one line upwards. Background maps which are listed in a upper position in the **Manage Background Map** table are displayed in the foreground.
- **Move Down:** Click the **Move Down** icon to move the selected background map one line downwards. Background maps which are listed in a lower position in the **Manage Background Map** table are displayed in the background.
 - 💡 The selected background map can also be moved up and down with *drag and drop* on the **file name** column.
- **Open:** Click this button to open a new background map (**Open a new Background Map**).
 - 💡 OCAD loads the background map hidden when pressing the *Shift* key while clicking the **Open** button or menu item.
- **Relink:** Relink background maps to another directory.
- **Remove all:** Click this button to remove all background maps. This command does not delete the background map files.
- **Remove:** Click this button to remove the selected background map. This command does not delete the background map file.
- **Close:** Click the close button to quit the dialog.

Web Map Service - WMS

Pro

Visit the **Web Map Service** page to get some information about this function.

Online Map Services

Visit the **Online Map Services** page to get some information about this function.

Back to Main Page

Previous Chapter: Create a New Symbol

Next Chapter: Import Files

References

[1] <http://www.ocad.com/howtos/71.htm>


[2] <http://www.ghostscript.com/download/gsdnld.html>

[3] <http://www.ocad.com/howtos/73.htm>

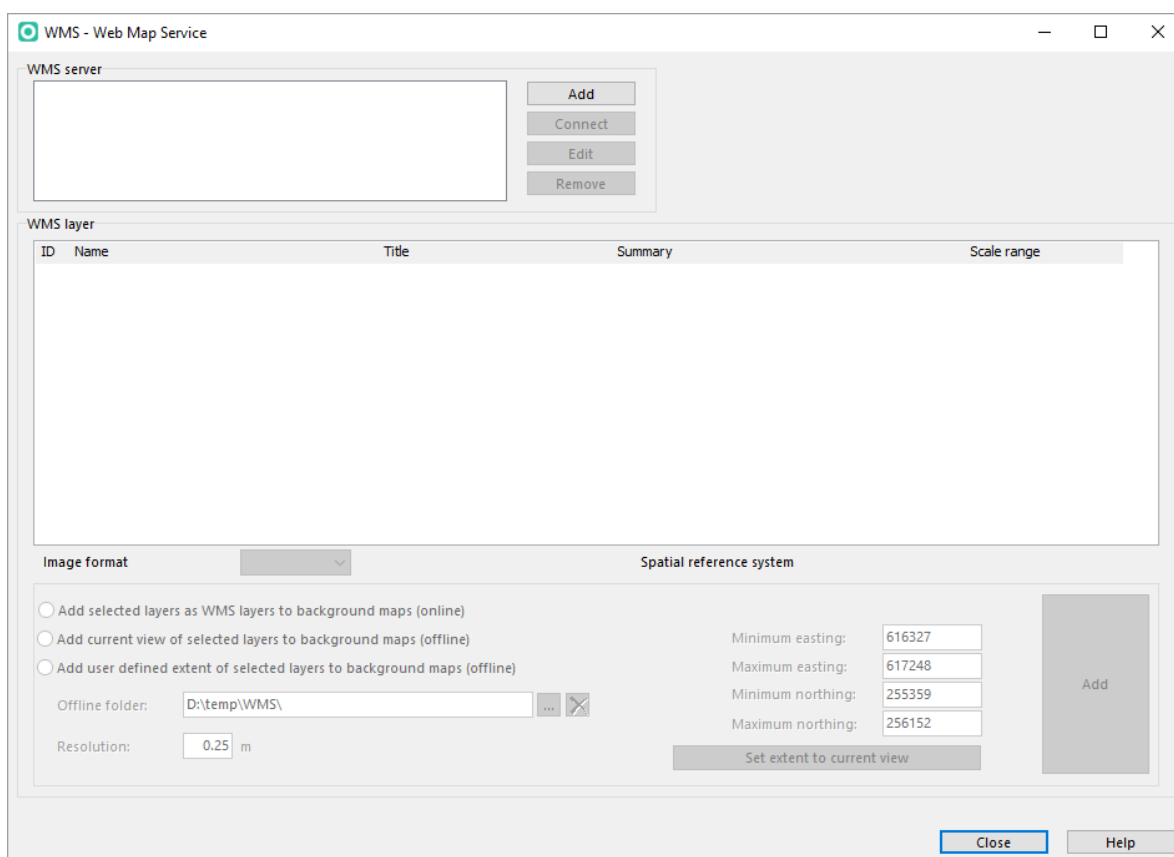
WMS



A Web Map Service (WMS) is a standard protocol for serving georeferenced map images over the Internet. The images are generated by a map server using data from a GIS database. *(taken from the **Wikipedia Article** ^[1].)*

 WMS requires a georeferenced map. Choose the **Scale and Coordinate System** command from the **Map** menu to set the map scale and a coordinate system. Real world coordinates do not have to be necessarily defined. They can be left at (0/0) for example.

To set up a map from a WMS server choose the **WMS - Web Map Service** command from the **Background Map** menu. The **WMS - Web Map Service** dialog appears.

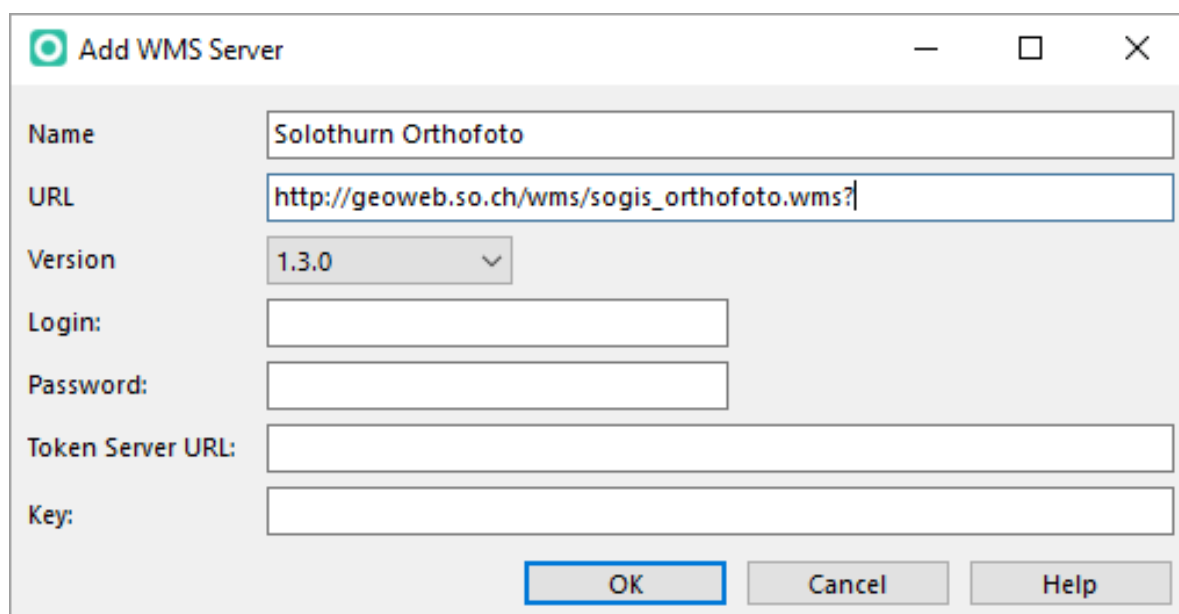


WMS Server

The WMS servers are listed in the upper box of the **WMS - Web Map Service** dialog.

Add a WMS Server

1. Click the **Add** button.
2. The **Add WMS Server** dialog appears.
3. Enter the **Name** of the server, the **URL**, the **Version** and, if required, a **Login** with **Password**, the **Token Server URL** and a **Key**.




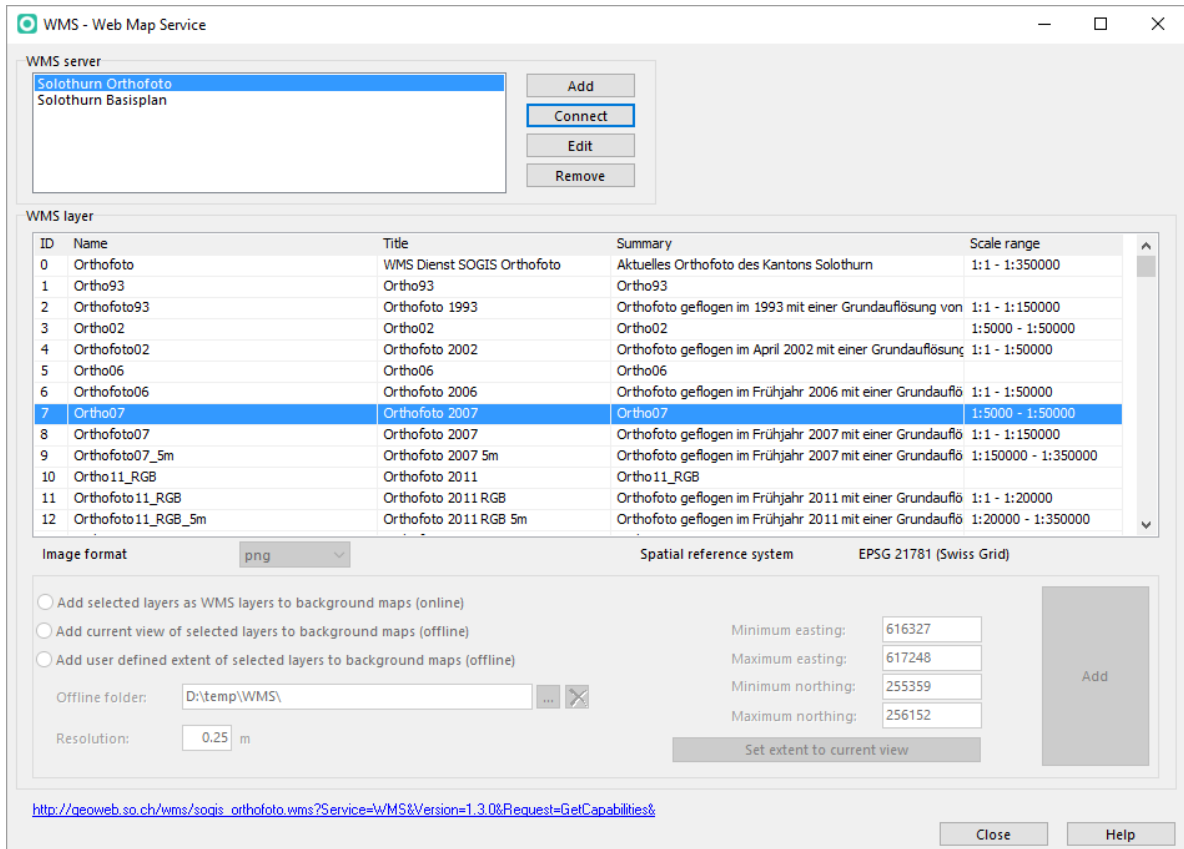
4. Click the **OK** button when finished.

5. The WMS server appears in the WMS server box.

Connect to a WMS Server

Select a WMS server from the list and click **Connect**. If the connection was successful, OCAD gets a list from the server with the available layers. These layers are listed in the WMS layer table of the **WMS - Web Map Service** dialog. Read the **WMS Layer** article to learn how to use layers as **Background Maps**.

 Internet connection via proxy server is supported since OCAD 12.1.2.



WMS - Web Map Service

WMS server

- Solothurn Orthofoto
- Solothurn Basisplan

Add
Connect
Edit
Remove

WMS layer

ID	Name	Title	Summary	Scale range
0	Orthofoto	WMS Dienst SOGIS Orthofoto	Aktuelles Orthofoto des Kantons Solothurn	1:1 - 1:350000
1	Ortho93	Ortho93	Ortho93	
2	Orthofoto93	Orthofoto 1993	Orthofoto geflogen im 1993 mit einer Grundaufösung von	1:1 - 1:150000
3	Ortho02	Ortho02	Ortho02	1:5000 - 1:50000
4	Orthofoto02	Orthofoto 2002	Orthofoto geflogen im April 2002 mit einer Grundaufösung	1:1 - 1:50000
5	Ortho06	Ortho06	Ortho06	
6	Orthofoto06	Orthofoto 2006	Orthofoto geflogen im Frühjahr 2006 mit einer Grundaufö	1:1 - 1:50000
7	Ortho07	Orthofoto 2007	Ortho07	1:5000 - 1:50000
8	Orthofoto07	Orthofoto 2007	Orthofoto geflogen im Frühjahr 2007 mit einer Grundaufö	1:1 - 1:150000
9	Orthofoto07_5m	Orthofoto 2007 5m	Orthofoto geflogen im Frühjahr 2007 mit einer Grundaufö	1:150000 - 1:350000
10	Ortho11_RGB	Orthofoto 2011	Ortho11_RGB	
11	Orthofoto11_RGB	Orthofoto 2011 RGB	Orthofoto geflogen im Frühjahr 2011 mit einer Grundaufö	1:1 - 1:20000
12	Orthofoto11_RGB_5m	Orthofoto 2011 RGB 5m	Orthofoto geflogen im Frühjahr 2011 mit einer Grundaufö	1:20000 - 1:350000

Image format: png

Spatial reference system: EPSG 21781 (Swiss Grid)

☐ Add selected layers as WMS layers to background maps (online)
☐ Add current view of selected layers to background maps (offline)
☐ Add user defined extent of selected layers to background maps (offline)

Offline folder: D:\temp\WMS\

Resolution: 0.25 m

Minimum easting: 616327
 Maximum easting: 617248
 Minimum northing: 255359
 Maximum northing: 256152

Set extent to current view

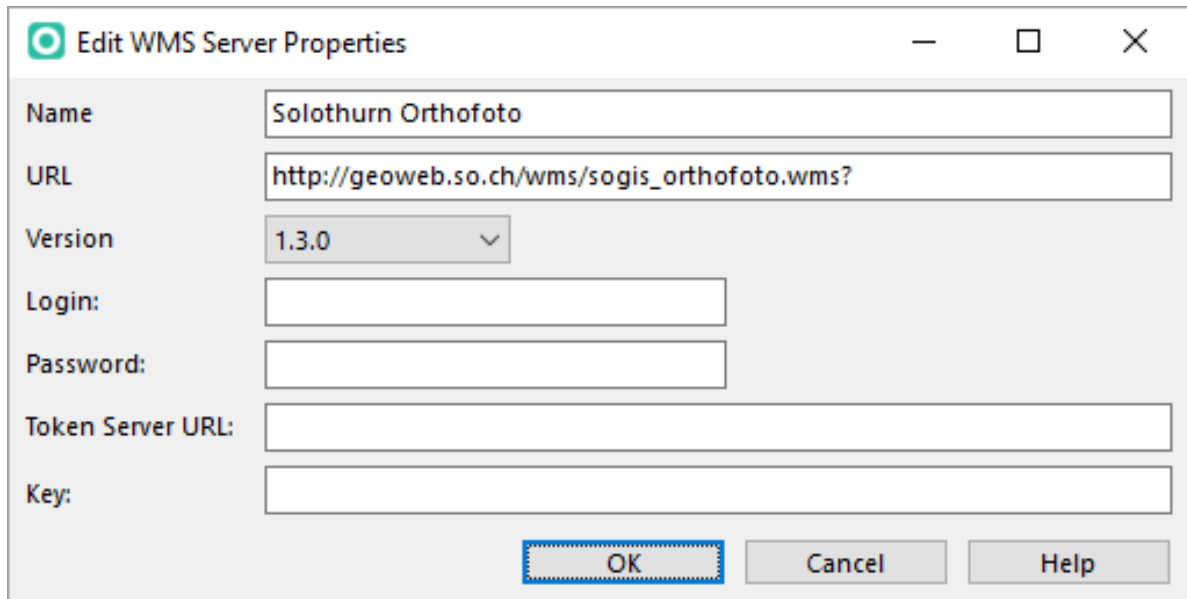
Add

http://geoweb.so.ch/wms/sogis_orthofoto.wms?Service=WMS&Version=1.3.0&Request=GetCapabilities&

Close Help

Edit WMS Server Properties

Select a WMS server and click the **Edit** button to edit its properties. The **Edit WMS Server Properties** dialog appears which is equal to the **Add WMS Server** dialog.



The dialog box titled "Edit WMS Server Properties" contains the following fields and buttons:

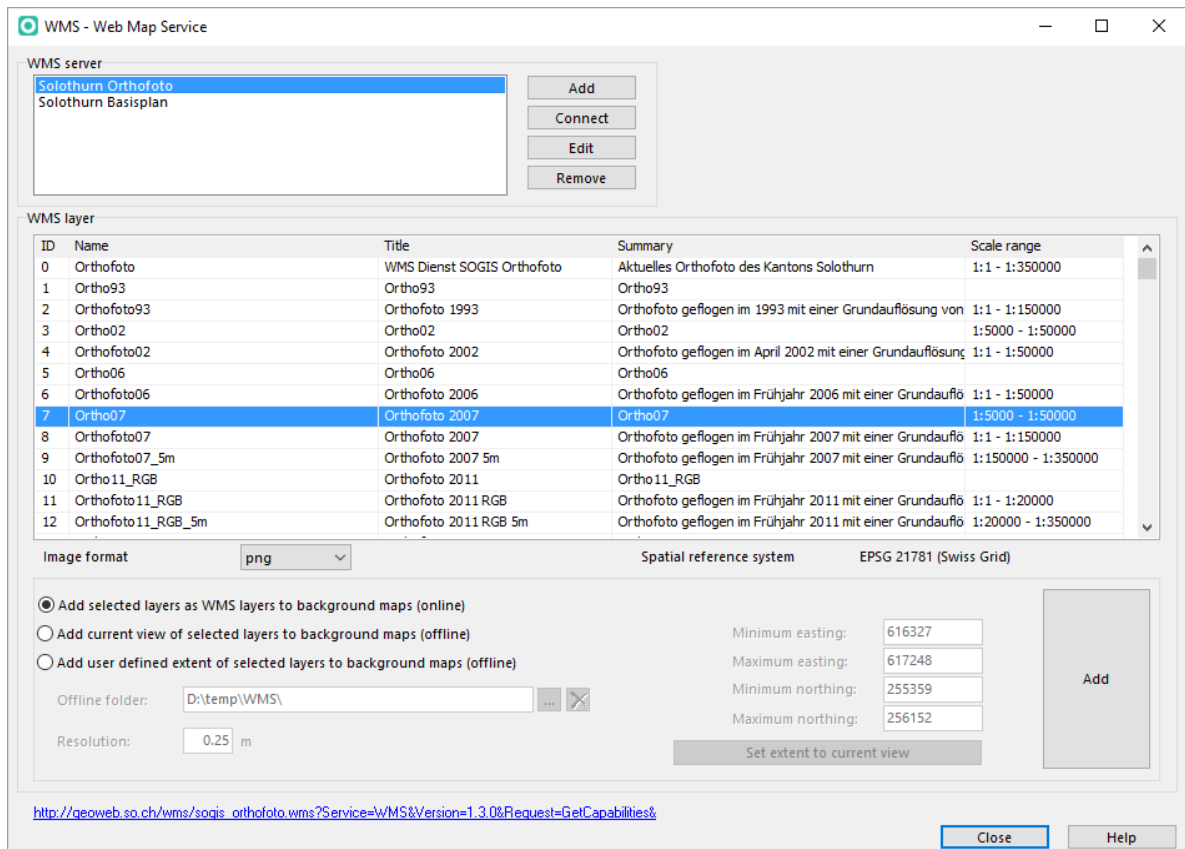
- Name:** Solothurn Orthofoto
- URL:** http://geoweb.so.ch/wms/sogis_orthofoto.wms?
- Version:** 1.3.0 (dropdown menu)
- Login:** (empty text field)
- Password:** (empty text field)
- Token Server URL:** (empty text field)
- Key:** (empty text field)
- Buttons:** OK, Cancel, Help

Remove a WMS Server

Click the **Remove** button to remove the selected WMS server from the list.

WMS Layer

After connecting to a WMS server the available WMS layers are listed in the WMS layer box.



The dialog box titled "WMS - Web Map Service" contains the following sections and controls:

- WMS server:**
 - List: Solothurn Orthofoto, Solothurn Basisplan
 - Buttons: Add, Connect, Edit, Remove
- WMS layer:**

ID	Name	Title	Summary	Scale range
0	Orthofoto	WMS Dienst SOGIS Orthofoto	Aktuelles Orthofoto des Kantons Solothurn	1:1 - 1:350000
1	Ortho93	Ortho93	Orthofoto geflogen im 1993 mit einer Grundaufösung von	1:1 - 1:150000
2	Orthofoto93	Orthofoto 1993	Orthofoto geflogen im 1993 mit einer Grundaufösung von	1:1 - 1:150000
3	Ortho02	Ortho02	Orthofoto geflogen im April 2002 mit einer Grundaufösung	1:5000 - 1:50000
4	Orthofoto02	Orthofoto 2002	Orthofoto geflogen im April 2002 mit einer Grundaufösung	1:1 - 1:50000
5	Ortho06	Ortho06	Orthofoto geflogen im Frühjahr 2006 mit einer Grundaufösung	1:1 - 1:50000
6	Orthofoto06	Orthofoto 2006	Orthofoto geflogen im Frühjahr 2006 mit einer Grundaufösung	1:1 - 1:50000
7	Ortho07	Orthofoto 2007	Orthofoto geflogen im Frühjahr 2007 mit einer Grundaufösung	1:1 - 1:50000
8	Orthofoto07	Orthofoto 2007	Orthofoto geflogen im Frühjahr 2007 mit einer Grundaufösung	1:1 - 1:150000
9	Orthofoto07_5m	Orthofoto 2007 5m	Orthofoto geflogen im Frühjahr 2007 mit einer Grundaufösung	1:150000 - 1:350000
10	Ortho11_RGB	Orthofoto 2011	Orthofoto geflogen im Frühjahr 2011 mit einer Grundaufösung	1:1 - 1:20000
11	Orthofoto11_RGB	Orthofoto 2011 RGB	Orthofoto geflogen im Frühjahr 2011 mit einer Grundaufösung	1:1 - 1:20000
12	Orthofoto11_RGB_5m	Orthofoto 2011 RGB 5m	Orthofoto geflogen im Frühjahr 2011 mit einer Grundaufösung	1:20000 - 1:350000
- Image format:** png (dropdown menu)
- Spatial reference system:** EPSG 21781 (Swiss Grid)
- Options:**
 - ☒ Add selected layers as WMS layers to background maps (online)
 - ☐ Add current view of selected layers to background maps (offline)
 - ☐ Add user defined extent of selected layers to background maps (offline)
- Offline folder:** D:\temp\WMS\ (with browse button)
- Resolution:** 0.25 m
- Extent fields:**
 - Minimum easting: 616327
 - Maximum easting: 617248
 - Minimum northing: 255359
 - Maximum northing: 256152
- Buttons:** Add, Set extent to current view, Close, Help

URL at the bottom: http://geoweb.so.ch/wms/sogis_orthofoto.wms?Service=WMS&Version=1.3.0&Request=GetCapabilities&

1. Select a WMS layer in the list and choose an **Image format** from dropdown list (those formats are provided by the WMS server).
2. Choose an option how to add the selected layers:
 - **Add Selected Layers as WMS Layers to Background Maps (Online)**

☒ Add selected layers as WMS layers to background maps (online)
☐ Add current view of selected layers to background maps (offline)
☐ Add user defined extent of selected layers to background maps (offline)

Offline folder: ... X

Resolution: m

Minimum easting:
 Maximum easting:
 Minimum northing:
 Maximum northing:

http://geoweb.so.ch/wms/sogis_orthofoto.wms?Service=WMS&Version=1.3.0&Request=GetCapabilities&

This is an online **Background Map**. It is updated by the WMS Server by each change of the map view. This can take a moment. Choose the *online* option only if you are using a fast WMS server and work with high speed internet connection. As an alternative, you can add the layer as an offline background map.

- **Add current view of selected layers to background maps (Offline)**

☐ Add selected layers as WMS layers to background maps (online)
☒ Add current view of selected layers to background maps (offline)
☐ Add user defined extent of selected layers to background maps (offline)

Offline folder: ... X

Resolution: m

Minimum easting:
 Maximum easting:
 Minimum northing:
 Maximum northing:

http://geoweb.so.ch/wms/sogis_orthofoto.wms?Service=WMS&Version=1.3.0&Request=GetCapabilities&

- Define the **Offline folder**. The current map folder is set as default.

With this offline option an image of the chosen WMS layer of the current view is downloaded from the WMS server and added as a custom background map to the map. It does not get updated when changing the view.

- **Add User Defined Extent of Selected Layers to Background Maps (Offline)**

☐ Add selected layers as WMS layers to background maps (online)
☐ Add current view of selected layers to background maps (offline)
☒ Add user defined extent of selected layers to background maps (offline)

Offline folder: ... X

Resolution: m

Minimum easting:
 Maximum easting:
 Minimum northing:
 Maximum northing:

http://geoweb.so.ch/wms/sogis_orthofoto.wms?Service=WMS&Version=1.3.0&Request=GetCapabilities&

- Define the **Offline folder**. The current map folder is set as default.
- Define the **Resolution**.
- Define the **Extent** (minimum easting, maximum easting, minimum northing, maximum northing). The current view extent is set as a default when opening the WMS dialog but the entries are not updated automatically by changing the view. The extent can be updated by clicking the **Set extent to current view** button.

With this offline option an image of the chosen WMS layer of the defined extent is downloaded from the WMS server and added as a custom background map to the map. It does not get updated when

changing the view.



3. Click the **Add** button.

The WMS layer appears in the table of the **Manage Background Map** dialog which can be displayed in the **Background Map** menu.



The **Background map (Geo-Referenced)** dialog appears if no real world coordinates offset is set. Choose an offset and click the **OK** button.

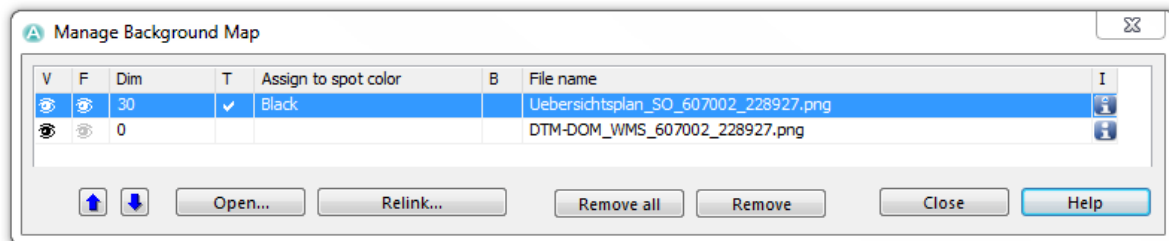


Web Map Services generally provide their images in multiple spatial reference systems. OCAD can only access to WMS if the OCAD maps' coordinate system (ex. Swiss Grid CH1903) is supported by the WMS. Then the **Spatial reference system** is automatically set to the corresponding EPSG code. If the chosen coordinate system is not compatible with the WMS, the **Spatial reference system** caption in the WMS dialog remains empty.

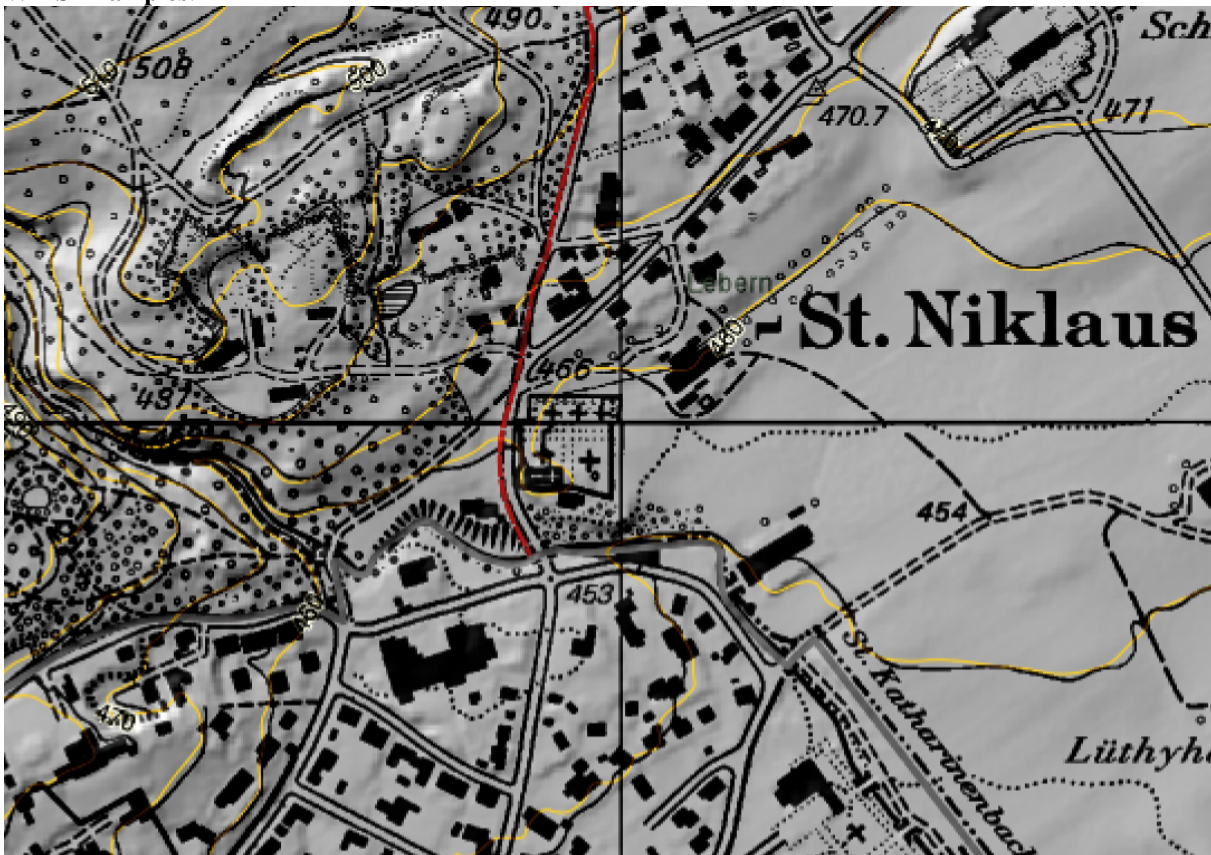
Click the **Close** button when finished.



Manage the view or remove the WMS maps by choosing the **Manage** command from the **Background Map** menu:



WMS Examples:



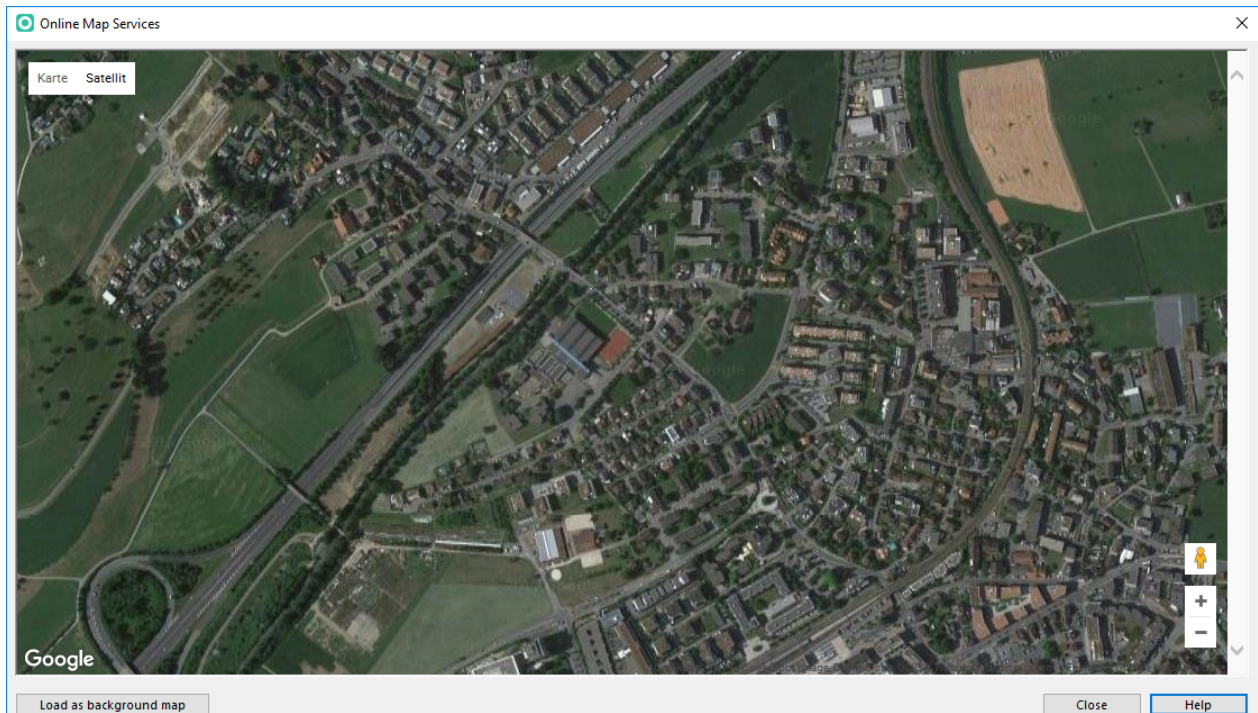
Back to the **Background Map** page.

References

[1] http://en.wikipedia.org/wiki/Web_Map_Service

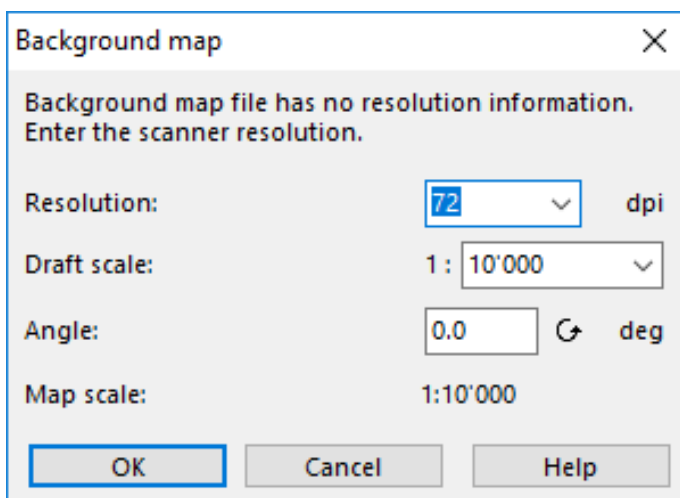
Online Map Services

Choose this command from the **Background Map** menu to load temporary a screenshot from Google Maps as background map.



If the map is geo-referenced, OCAD opens Google Maps at the same location. Move and zoom in Google Maps to the desired location. You can also enlarge the **Online Map Services** dialog by clicking and dragging a corner.

Click **Load as background map** to make a screenshot and load this map as background map. The **Background Map** dialog appears. The screenshot is not geo-referenced.



Click **OK**. OCAD loads this screenshot and change to Draft mode.



Choose **Adjust** in the **Background Map** menu to adjust this screenshot.



Please note that Google Street View doesn't work here.

Import Files

Choose this command in the **File** menu to import an external file to the current map. The **Import** dialog box is displayed. Initially all importable files are listed. The following file types can be imported:

- OCAD map files (*.ocd)
- Adobe Illustrator files (*.ai) (only vector data)
- CSV files (*.csv)
- DXF files (*.dxf)
- Enhanced Meta files (*.emf) (only vector data)
- GML files (*.gml)
- GPX files (*.gpx)
- KML files (*.kml)
- OpenStreetMap files (*.osm)
- NMEA files (*.nmea)
- PDF files (*.pdf) (only vector data)
- Freehand XML files (*.rcw)
- Shape files (*.shp)
- SVG files (*.svg)
- Windows Meta files (*.wmf) (only vector data)
- xyz files (*.xyz)



It is possible to select and import multiple dxf, gpx, nmea, shp and xyz files in this dialog box.



OCAD opens the File Dialog in the folder of the last imported file. Press the **Shift** key to open a file from the *Templates* folder. The *Templates* folder is a subfolder of OCAD program folder (e.g. *C:\Program Files\OCAD\OCAD 12 Mapping Solution\Templates*).

Import OCAD Map



Choose an OCAD-File (*.ocd) in the **Import** dialog box and click the open button. The **Import OCAD Map** dialog appears with the following options:

Position

- **Place using the mouse:** Choose this option to import for example a logo. The imported map is displayed in the center of the screen and all objects are selected. Thus, you can drag it with the mouse to the desired position.
- **Place with offset:** Choose this option when combining different parts of a map. Enter the offset in mm where the origin (0, 0) of the imported map should be placed.
- **Use real world coordinates:** Choose this option to import a georeferenced map. The map is automatically placed at the correct position.

Symbols

- **Do not import any symbols and colors:** Choose this option to not import any symbols and colors.
- **Import symbols only if symbol number does not exist yet:** Choose this option to import symbols only if the symbol number does not exist yet. The symbol signature will not be compared. OCAD will not produce a new symbol if there is a symbol with an equal symbol number but a different signature. Colors will not be imported.
- **Import symbols that do not exist. If the imported symbol number exists then a new symbol number is applied:** Choose this option to import symbols if they do not exist. OCAD will produce a new symbol if there is a symbol with an equal number but a different signature. The new symbol number gets the next unused decimal (e.g. 102.001 becomes 102.002). Colors will not be imported. *This option accords with the data import function of OCAD 8.*

- **Import all symbols and colors:** Choose this option to import all symbols and colors from the imported map (for example to print 2 maps with different symbol sets and color tables). There are two options to import the **Colors** either *at the top* or *at the bottom* of the color table.
- **Change symbol status from Normal to Protect:** Check this option to change to symbol status off the imported symbols from Normal to Protect. This option is recommended for importing an ocd map into a course setting project.
- **Rotate objects with symbols orientated to north:** This option is only available if the **Real world coordinates** options are turned on in the current and the imported map file and if the real world angle property is different in both maps. Select this option if the imported objects with north oriented symbols shall be rotated by this angle difference.
- **Use CRT file:** Activate this button to use a CRT converting table. This table consists of two columns, which are separated by a blank. In the first column there is the symbol number of the OCAD symbol in the map which is to be imported. In the second column there is the symbol number of the opened OCAD file. Visit the **Cross Reference Table** page to get more information about CRT-Files.

Example:

```
526.0 813.1
```

That means that all objects with the symbol number 526.000 will get the number 813.001 after the import.

- **Load:** Click this button to load a CRT file.

Database

- **Database, Import existing database connections:** This option is enabled if the import file contains database connections. When this option is chosen then OCAD creates a new database connection to the existing database if there is not already a database connection with the same name and file path in the OCAD file. Please note that OCAD creates a new connection with a new name if a dataset with the same name but another file path exists. Otherwise OCAD uses the existing dataset. OCAD does not merge databases.



Please note that this CRT file is not compatible with the CRT files created in **Convert Layers** dialog! A list of all CRT-Files which can be used with OCAD can be found on the **Cross Reference Table** page.



The error message: "Cannot import symbol" appears if OCAD could not import a symbol. The import is aborted.

Import Adobe Illustrator File



Choose an Adobe Illustrator file (*.ai) in the **Import** dialog and click the open button. Files from Illustrator version 4 and later can be imported.

The objects from an Adobe Illustrator file are imported into OCAD as image objects. The layer names are imported with the objects. The layer name is displayed in the left part of the status bar if an image object is selected.



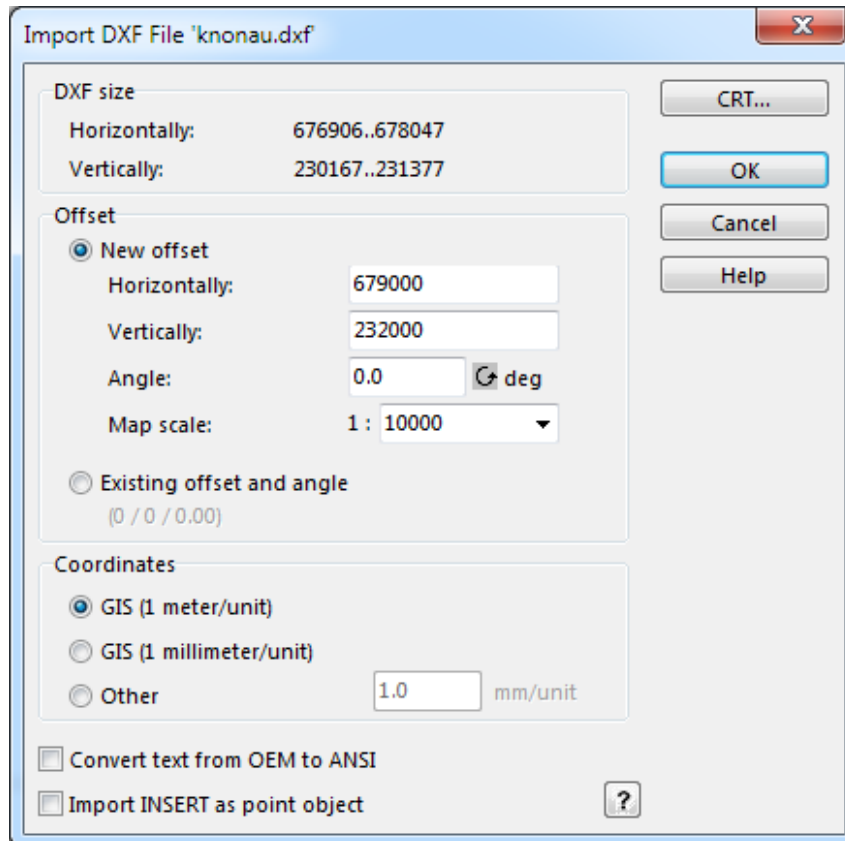
Use **Convert Imported Layers to Symbol** from the **Map** menu to convert the imported objects from image objects to symbolized OCAD objects.

Import DXF File

Pro Std Sta

DXF stands for Drawing Exchange Format and is a CAD data file format developed by Autodesk made for data exchange between AutoCAD and other programs (Read more in the [Wikipedia Article](#) ^[1]).

Choose a DXF-File (*.dxf) in the **Import** dialog and click the open button.



The **Import DXF-File** dialog appears with the following options and information:

- **DXF size:** This box shows the range of the coordinates in the DXF file.
- **Offset:** Choose here whether you want to change the OCAD real world coordinates or to keep the existing ones.
 - **New offset:** Choose this option if no real world coordinates are defined for the map. If you leave the proposed offset unchanged, the imported objects will be placed in the center of the OCAD drawing area. In addition, you can set the desired scale of the OCAD map here.
 - **Existing offset and angle:** Choose this option if the map already has real world coordinates and you want to fit the imported DXF file to the existing coordinates.
- **Coordinates:** Define here how the coordinates of the DXF file should be interpreted. OCAD does not support WGS 84 coordinates.
 - **GIS (1 meter/unit):** Choose this option when importing DXF files from Geographic Information Systems (GIS), where 1 unit in the DXF-File corresponds to 1 meter in the real world. The map scale is used for the transformation. Choose **Scale and Coordinate System** from the **Map** menu to set the map scale.
 - **GIS (1 millimeter/unit):** Choose this option when importing DXF files from Geographic Information Systems (GIS), where 1 unit in the DXF-File corresponds to 1 millimeter in the real world. Usually GIS data uses the unit meter. Please check the unit of the dxf data before importing the data into OCAD.

This example is from British Ordnance Survey data. The dxf size and the proposed new offset is in millimeter.

Import DXF File 'OS map.dxf'

DXF size

Horizontally: 423937378..427016922

Vertically: 187810000..191016688

Offset

☒ New offset

Horizontally: 420000000

Vertically: 186000000

Angle: 0.0 deg

Map scale: 1 : 10000

☐ Existing offset and angle
(0 / 0 / 0.00)

Coordinates

☐ GIS (1 meter/unit)

☒ GIS (1 millimeter/unit)

☐ Other 1.0 mm/unit

☐ Convert text from OEM to ANSI

☐ Import INSERT as point object

CRT... OK Cancel Help

- **Other:** Choose this option when importing DXF files from graphic programs. Enter the size in millimeters of one DXF unit on the map (e.g. if the DXF units are inches, enter 25.4).
- **Convert text Objects from OEM to Unicode:** Activate this box if the text in the DXF file is encoded in the OEM character set. OEM character set is used by old DOS programs and concerns only accented characters (ä, à, å etc.). Windows programs normally produce text in the ANSI character set. If accented characters are not imported correctly, try this option.
- **Import INSERT as point object:** Activate this option to import INSERT objects in the DXF file as point objects in OCAD. Otherwise the definition of INSERT objects is imported.
- **CRT:** Click this button if you have converted a similar DXF file before using **Convert layers**. A file dialog box appears. Choose the CRT file created with the **Convert layers** command. Read more about CRT-Files on the **Cross Reference Table** page. You will find examples there, too.



If you do not use a CRT-File for importing a DXF-File, the DXF objects are imported as **Unsymbolized Objects**. Use the **Convert Imported Layers to Symbol** function in the **Map** menu to assign the objects to a symbol later on.

Import EMF File

Pro Std

Choose this function to import Windows Enhanced Metafile.

This import file format is obsolete.

Import GML Files

Pro

Choose this function to import Normbasierte Austauschschnittstelle (NAS) ^[2] data.

OCAD cannot import other GML files.

Import GPX File

Pro Std

Choose the .gpx file format in the **Import File** dialog. Read more about importing GPX files in the **GPS - Import from File** article.

This function is also available for the **Sta** OCAD 12 Starter and the **CS** OCAD 12 Course Setting Edition. For this purpose, choose the **Import from File** command in the **GPS** menu.

Import KML File

Pro

Choose the *.kml format in the file import dialog to import Keyhole Markup Language (KML) ^[3] files.

The line color, line width and fill color of the objects is also imported.

Import OSM Files

Pro Std Sta

A description of this function with an example can be found on the **Import Open Street Map Files** page.

Import NMEA Files

Pro Std

Choose the .nmea file format in the **Import File** dialog. Read more about importing NMEA files in the **GPS - Import from File** article.

This function is also available for the **Sta** OCAD 12 Starter Edition. For this purpose, choose the **Import from File** command in the **GPS** menu.

Import PDF Files

Pro Std

Choose a **PDF-File** in the **Import** dialog and click the **Open** button. The **Save Cross Reference Table** dialog appears. If you want to save a CRT-File, click the **Save** button. If you want to continue without saving a CRT-File, click the **Cancel** button. Learn more about CRT-Files on the **Cross Reference Table** page.

The PDF-File is displayed in the middle of the current view of the map. All objects are selected, hence, it can be easily moved to the desired position.

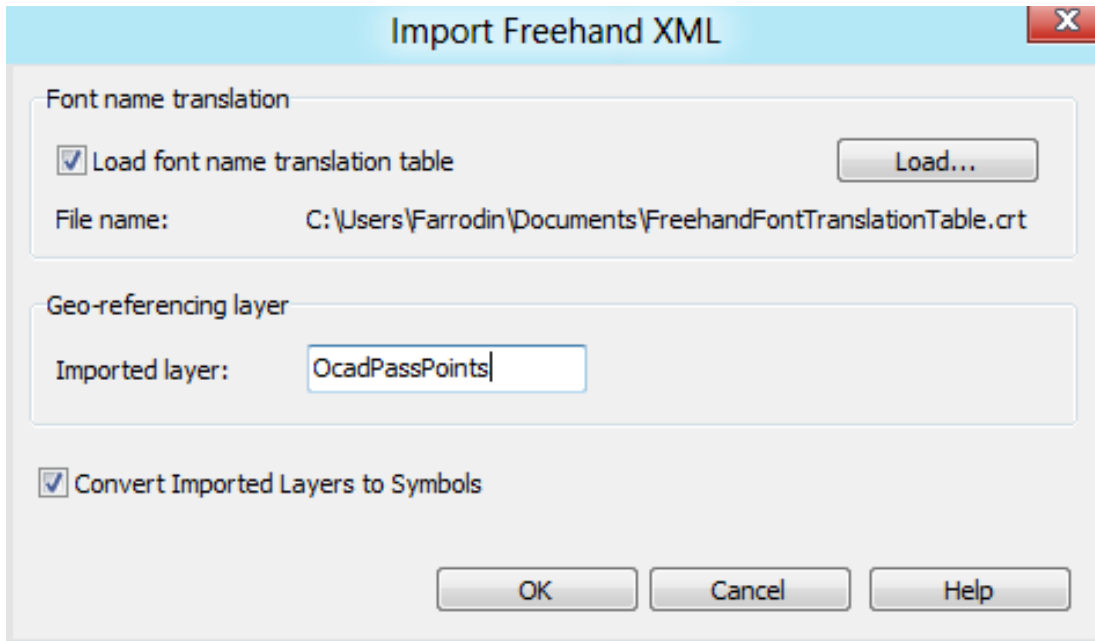
Please note, that it is only possible to import vector PDF-Files. If the PDF-File contains raster images, they are displayed as a grey area on the map.



Vector objects in PDF-Files are imported as **Image Objects** and can be converted to symbols using the **Convert Imported Layers to Symbols** function. Learn how to make a point symbol out of a vector graphic by reading the **Create a Point Symbol out of Vector Data** article.

Import Freehand XML Files

Pro



Choose a Freehand XML File (*.rw) in the Import dialog and click the open button. The **Import Freehand XML** dialog appears with the following options:

Font name translation:

- Select the **load font name translation table** option if the Macintosh font names used in the Freehand XML file should be translated to the Windows font names. This translation is defined in a cross reference table (*.crt).

Example:

```
NicV-Normal;NicV
```

That means the font of all objects that used the **NicV-Normal** in Freehand will be changed to **NicV** after the import.

- **Load:** Click this button to load a CRT file.
- **File name:** The file name of the loaded CRT file is shown here.

Geo-referencing layer:

- **Imported layer:** OCAD offers a coarse georeferencing for Freehand XML files if the Freehand XML file contains a layer with coordinate values. This layer must be entered in the **imported layer** text box.

Convert imported layers to symbols:

- Select this option if the imported layers should be converted to OCAD symbols. This step can be done also after the import by using **Convert Imported Layers to Symbol** from the **Map** menu.

Import Shape Files

Pro

Get some information about **Shape Files** on **Wikipedia** ^[4].

If you choose an **ESRI Shape File** in the **Import** dialog, the **Import Shape File** dialog appears.

The import dialog offers the following options:

Shape size:

- This box shows the dimension of the data in the shape file using its coordinates.

Coordinate System:

- This box allows you to transform the imported Shape file data to the maps coordinate system. Click the **Choose** button to choose the Shape file's coordinate system if it is different to the map coordinate system.

Offset:

- **New offset:** Choose this option when importing the first shape file to the actual map and if the map is not georeferenced yet. OCAD proposes reasonable easting and northing offset values. OCAD also proposes a map scale that the entire map in the shape file fits into the drawing area of OCAD.
- **Existing offset and angle:** Select this option when importing the second and the following shape file to the actual map or if the map is already georeferenced. The new shape file will then fit to the already imported shape files.

New database type:

- When importing Shape files, OCAD creates a new database for each Shape file. You can choose between the database types **dBase**, **Microsoft Access 2007 accdb** and **Microsoft Access 2003/2010 mdb**.
- Microsoft Access databases are much faster than dBase and support Unicode. dBase is more compatible with Shape export.
- If one of the Microsoft Access options is chosen then the **code page** of the imported Shape file's dBase file should be declared. This is important to ensure a correct text conversion from dBase (Ansi) to Microsoft Access (Unicode) conversion.

- Choose **Do not create a database** when you do not need the attribute data. Then OCAD imports only the geometry from the Shape file. You can add one attribute as layer name when choosing the option **Use layer information from field**.

Key field in database: OCAD creates a copy of the Shape file's dBase file during the import process. OCAD can optionally add an additional key field to the copied dBase file.

- **Create new key field:** Select this option, if the dBase file does not contain a key field with a unique key for each object or if you are not sure if such a key field exists.
- **Use existing key field:** Select this option, if the dBase file already contains a key field and you are sure that it contains a unique key for each object. Select the key field.
- **View table:** Click on this button to see the dBase table. The **View Table** dialog opens. This table helps to decide which key field can be used. It is not possible to edit this table.

Import layer information:

- **Do not import any layer information:** Select this option if no layer information should be imported. Symbols must be assigned with **Assign Symbols by Records** command in **Database** menu. This may takes a lot of time.
- **Use layer information from field:** Select this option if you want to import layer information (ex. lake, forest etc.) from a specified dBase field. This allows you to choose **Convert Imported Layers to Symbol** from the **Map** menu to assign symbols to the imported data.
- **View table:** Click on this button to see the dBase table. The **View Table** dialog opens. This table helps to decide which field contains the layer information. It is not possible to edit this table.



Check the **Field 2** box to choose a 2nd database field. In that case the imported layer information will be both field values, concatenated by an underscore: FieldValue1_FieldValue2.

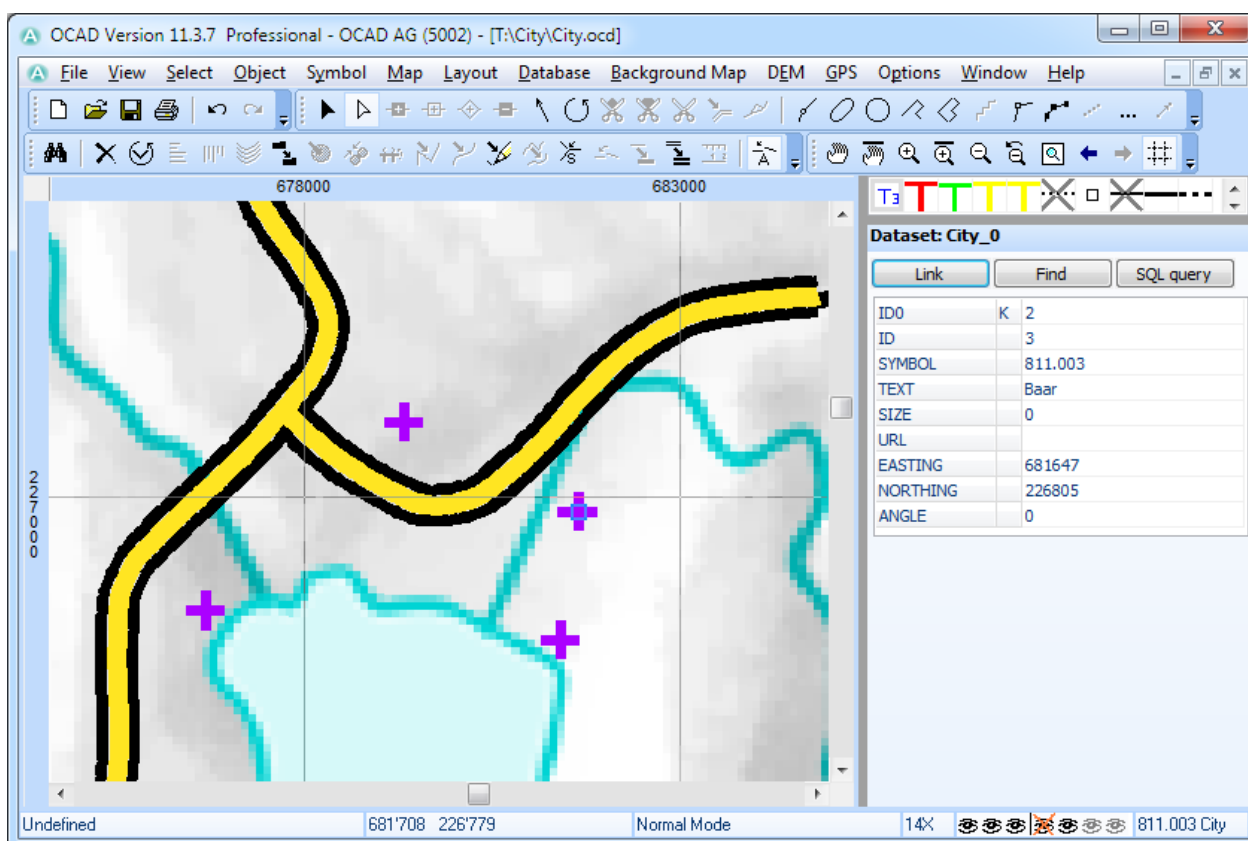
Smooth objects Additional option whether objects imported from shape file should be smoothed with a tolerance.

Import Text or Line Text Objects

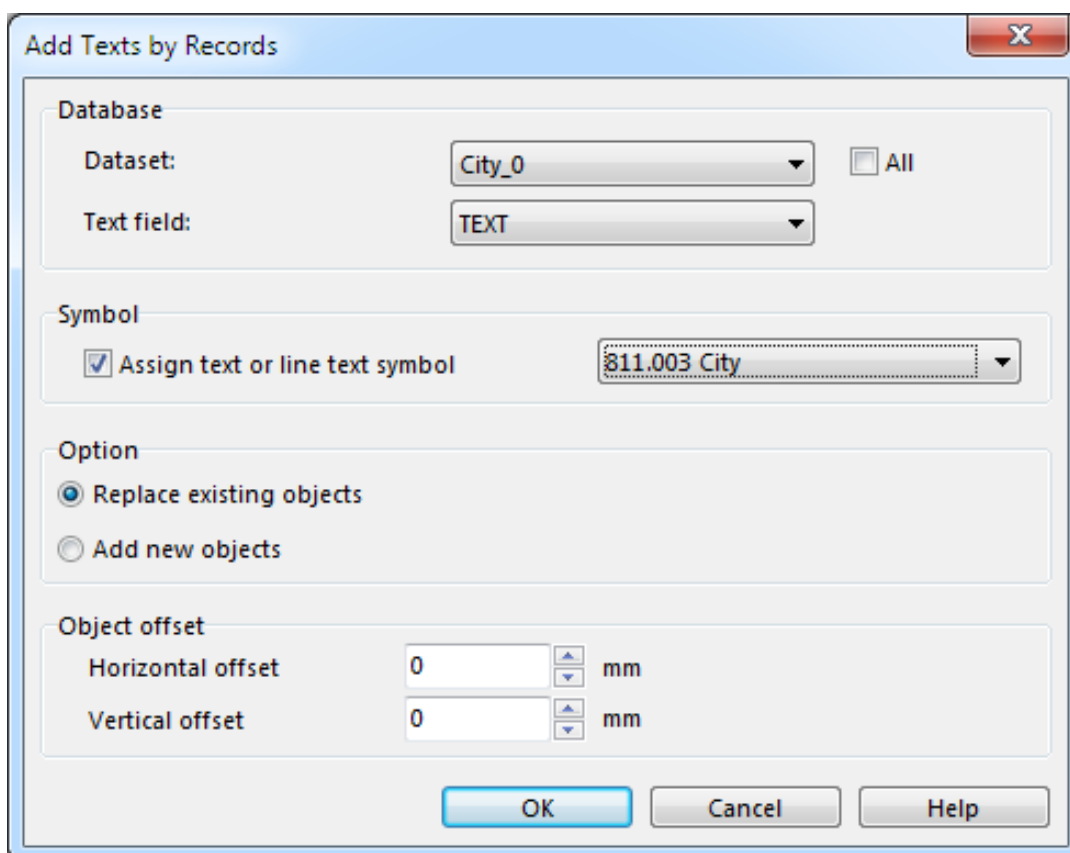
There are no text objects in Shape files. The texts like city names or river names are stored as attributes of the objects in the Shape file's dBase file. You can create text objects from imported point objects or line text objects from imported line objects by using **Add Texts by Records...** in the **Database** menu.

Example

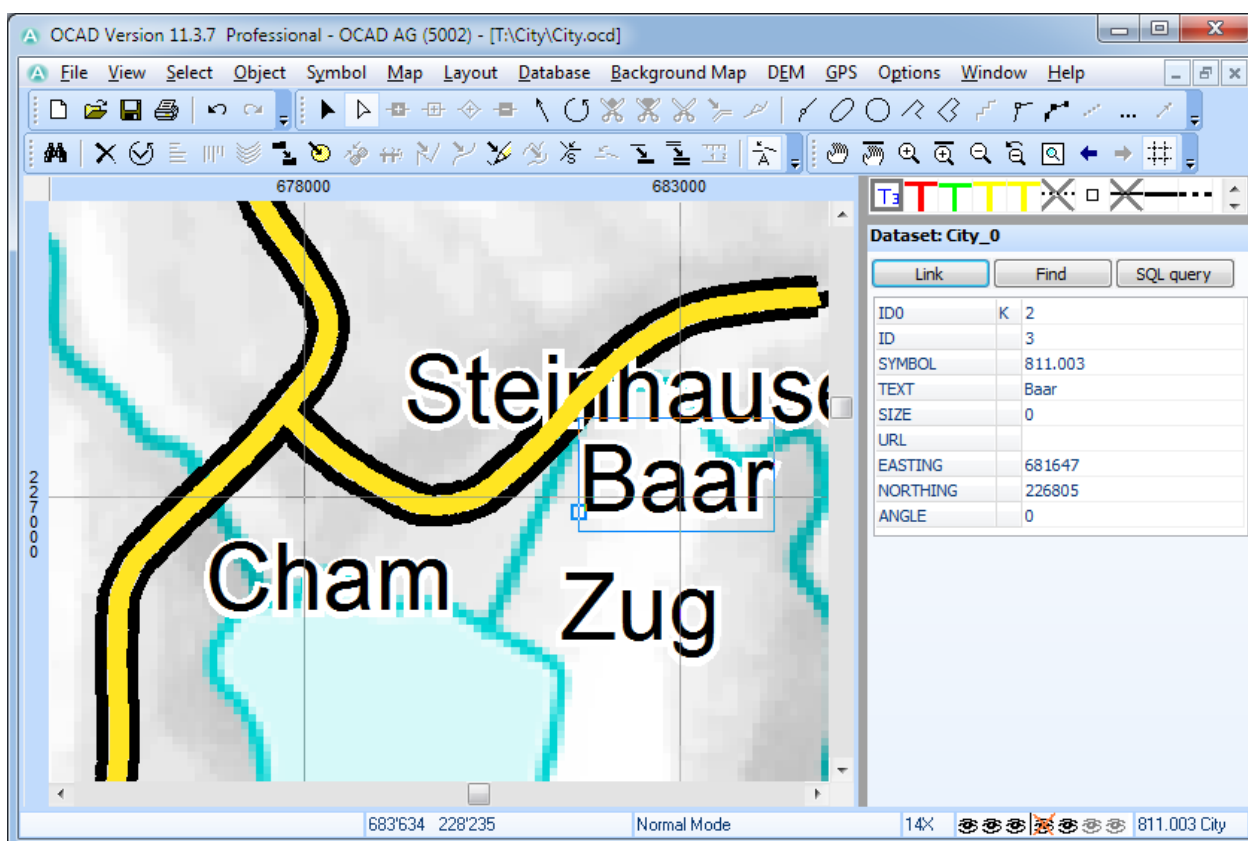
After importing the Shape file the objects appear in OCAD as unsymbolized objects. The label of the selected object is stored in the according database record ('Baar' in the field 'TEXT').



Click **Add Texts by Records...** in **Database** menu to create the text objects. The **Add Texts by Records** dialog appears.



Choose the option **Replace existing objects** and click **OK** to create the text objects.



Import Shape Files in Orienteering Edition

Std

This function needs OCAD 12.1.2 or higher ^[5].

Geodata are often provided in the Shape file format. Get some information about **Shape Files** on **Wikipedia** ^[4].

If you choose an **ESRI Shape File** in the **Import** dialog, the **Import Shape File** dialog appears.

The 'Import Shape File' dialog box contains the following sections and options:

- Shape size:**
 - Easting: 679000..683000
 - Northing: 234000..238000
- Coordinate system:**
 - Shape file: Swiss Grid CH1903 / LV03
 - Map: Swiss Grid CH1903 / LV03
 - Buttons: Choose...
- Offset:**
 - ☒ New offset
 - Easting offset: 681000
 - Northing offset: 236000
 - Angle: 0.0 deg
 - Map scale: 1 : 10'000
 - ☐ Existing offset and angle (0 / 0 / 0.00)
- Import layer information:**
 - ☐ Do not import any layer information
 - ☒ Use layer information from field: FNODE_
- Options:**
 - ☐ Smooth objects with tolerance: 0 mm

Buttons: OK, Cancel, Help

The import dialog offers the following options:

Shape size:

- This box shows the dimension of the data in the shape file using its coordinates.


Coordinate System:

- This box allows you to transform the imported Shape file data to the maps coordinate system. Click the **Choose** button to choose the Shape file's coordinate system if it is different to the map coordinate system.

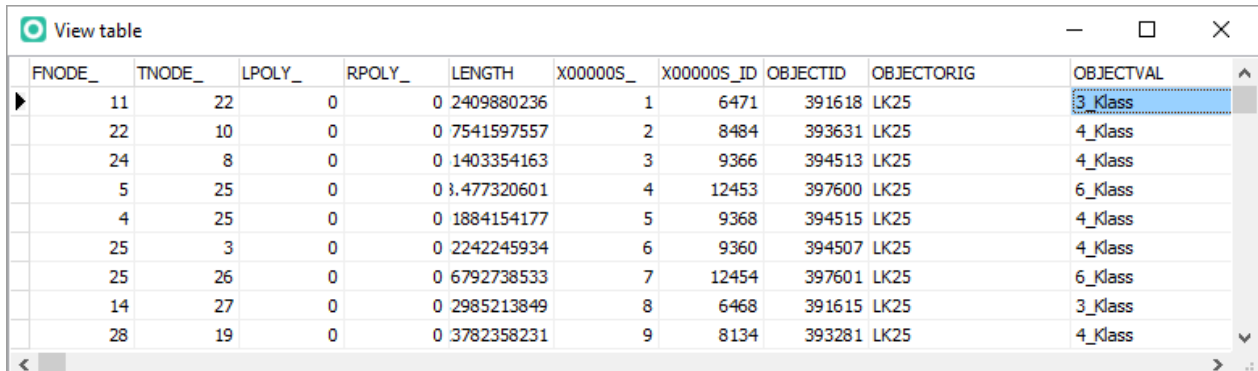
Offset:

- **New offset:** Choose this option when importing the first shape file to the actual map and if the map is not georeferenced yet. OCAD proposes reasonable easting and northing offset values. OCAD also proposes a map scale that the entire map in the shape file fits into the drawing area of OCAD.
- **Existing offset and angle:** Select this option when importing the second and the following shape file to the actual map or if the map is already georeferenced. The new shape file will then fit to the already imported shape files.

Import layer information:

- **Do not import any layer information:** Select this option if no layer information should be imported.
- **Use layer information from field:** Select this option if you want to import layer information (ex. lake, forest, street classes etc.) from a specified dBase field. This allows you to choose **Convert Imported Layers to Symbol** from the **Map** menu to assign symbols to the imported data.
- **View table:** Click on this  button to see the dBase table. The **View Table** dialog opens. This table helps to decide which field contains the layer information. It is not possible to edit this table.

Example:



FNODE_	TNODE_	LPOLY_	RPOLY_	LENGTH	X00000S_	X00000S_ID	OBJECTID	OBJECTORIG	OBJECTVAL
11	22	0	0	2409880236	1	6471	391618	LK25	3_Klass
22	10	0	0	7541597557	2	8484	393631	LK25	4_Klass
24	8	0	0	1403354163	3	9366	394513	LK25	4_Klass
5	25	0	0	3.477320601	4	12453	397600	LK25	6_Klass
4	25	0	0	1884154177	5	9368	394515	LK25	4_Klass
25	3	0	0	2242245934	6	9360	394507	LK25	4_Klass
25	26	0	0	6792738533	7	12454	397601	LK25	6_Klass
14	27	0	0	2985213849	8	6468	391615	LK25	3_Klass
28	19	0	0	3782358231	9	8134	393281	LK25	4_Klass

This Shape file contains roads. In the database field *OBJECTVAL* is the road classification. So choose this field to import for each street object the classification.

Smooth objects Additional option whether objects imported from shape file should be smoothed with a tolerance.

Import SOSI Files

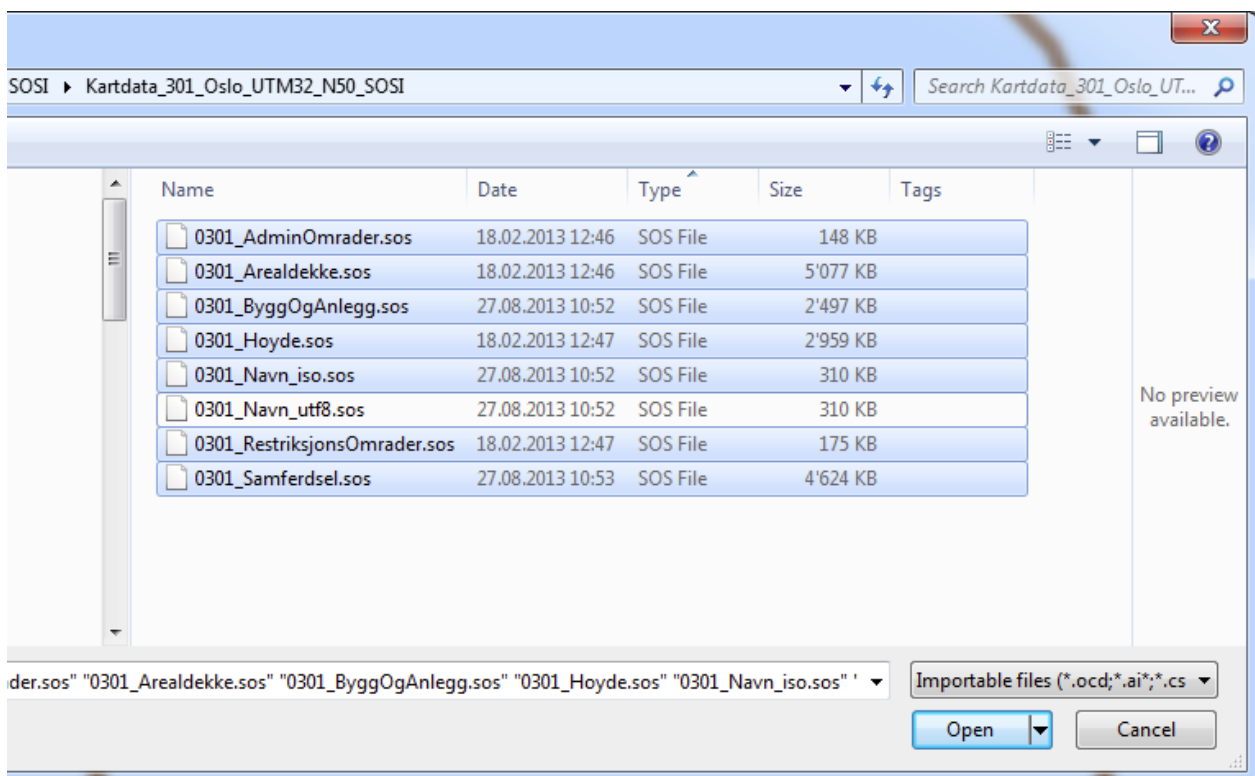


Choose this function import SOSI files. SOSI ^[6] is a much used geospatial vector data format predominantly used for exchange of geographical information in Norway.

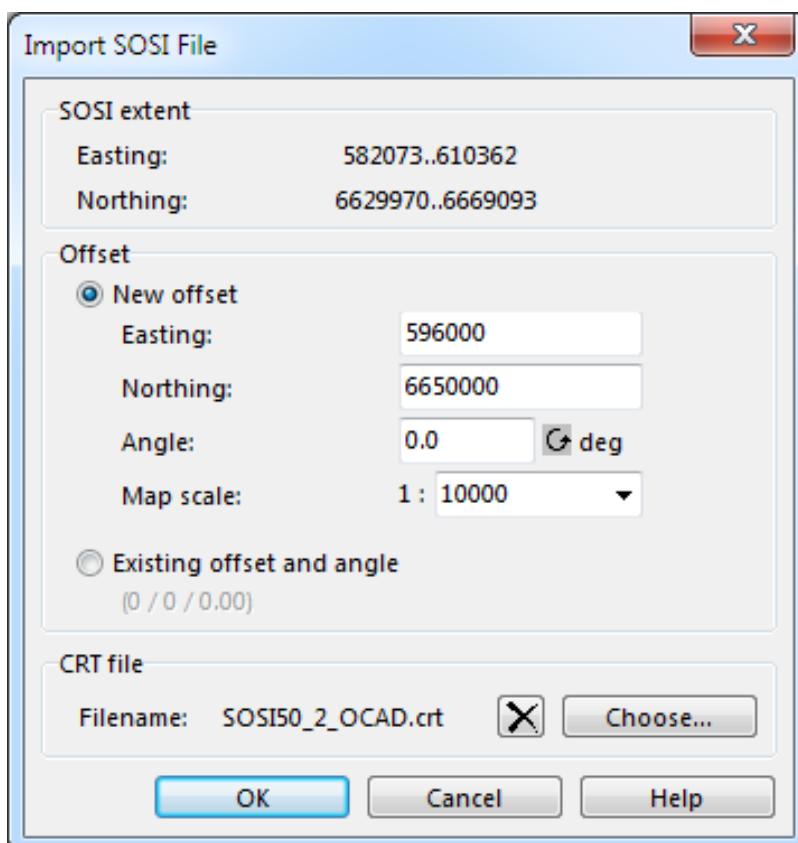
The Norwegian Mapping Authority Kartverket ^[7] released its map data in SOSI file format for free use ^[8] in September 2013.

This example shows the import of the N50 Kartdata, UTM 32 data of Oslo. Each community consists of 8 SOSI files.

Choose **Import** from the **File** menu. Select all sos-files except the utf8 text file. Otherwise you will import every text label twice.



Click Open. The Import SOSI File dialog appears.



OCAD has already two predefined crt tables for Orienteering maps which assigns the imported layers to symbols. Both crt files are in the OCAD program subfolder *crt*.

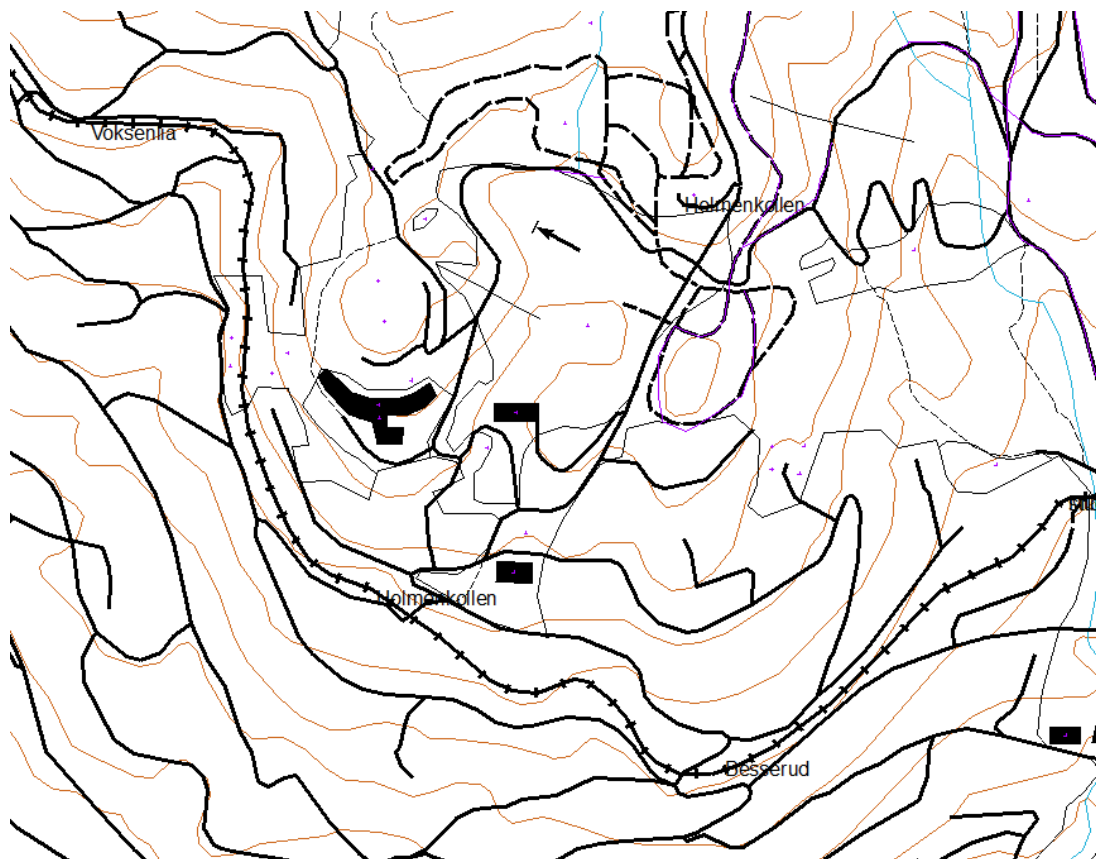
- **SOSI_2_ISSOM.crt**: Convert the objects from SOSI layers to the symbols of sprint orienteering maps (ISSOM in the scale 1:4000 or 1:5000).

- SOSI_N50_2_ISOM.crt: Convert the objects from SOSI layers to the symbols of orienteering maps (ISOM in the scale 1:10000 or 1:15000)

Click **Choose** to choose another crt file or **X** if you do not want to use a crt file.

Read more about crt-files in the Cross Reference Table article.

Click OK to import the files.



💡 OCAD imports only vector objects. OCAD doesn't support the RASTER object.

Import SVG Files

Pro

[SVG ^[9]] stands for Scalable Vector Graphics, an XML-based file format for two-dimensional vector graphics. Choose an SVG file (*.svg) in the **Import** dialog and click the open button.

The objects from the SVG file are imported into OCAD as image objects. The layer names are imported with the objects. The layer name is displayed in the left part of the status bar if an image object is selected.

💡 Use **Convert Imported Layers to Symbol** from the **Map** menu to convert the imported objects from image objects to symbolized OCAD objects.

Import WMF Files

Pro Std

Choose this function to import Windows Metafile.

This import file format is obsolete.


Import CSV and XYZ Files

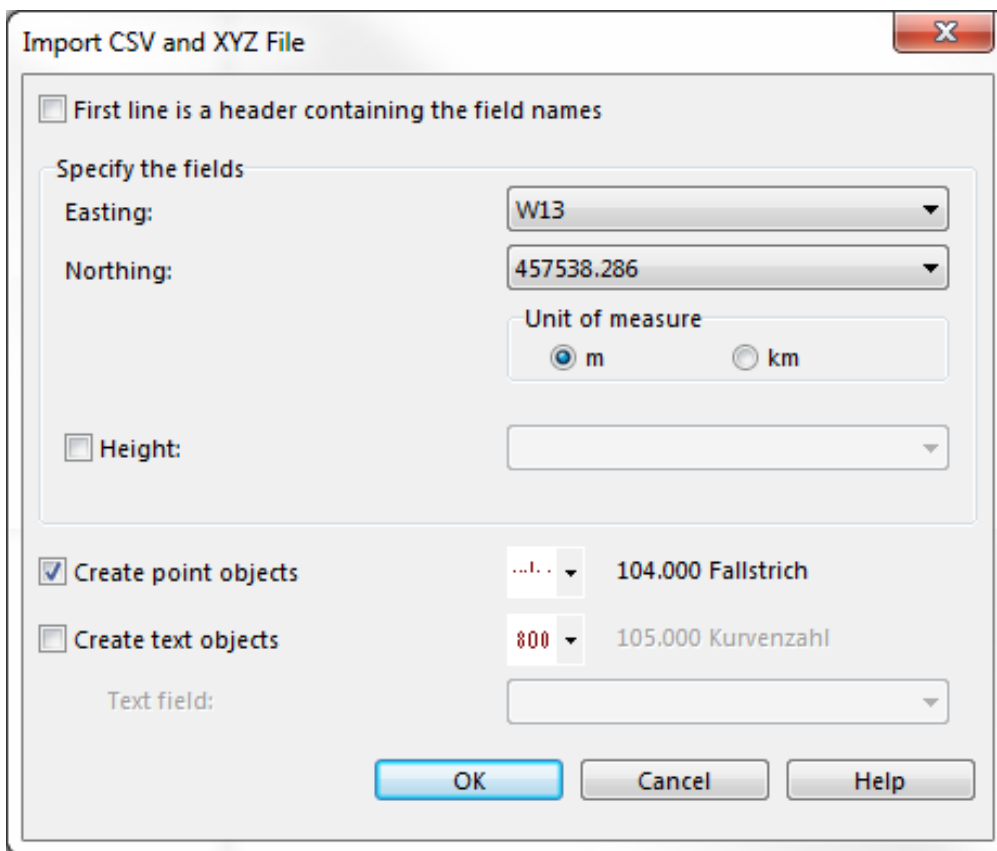
Pro Std

Choose this function to import csv and xyz files.

csv (Comma-separated values) files contain coordinates and other information like text label. Read more about CSV ^[10] in Wikipedia ^[11].

xyz files contain 3d coordinate values.

 Real world coordinates must be chosen in **Scale and Coordinate System** dialog from the **Map** menu and map offset must be set that the imported points are within the drawing area.

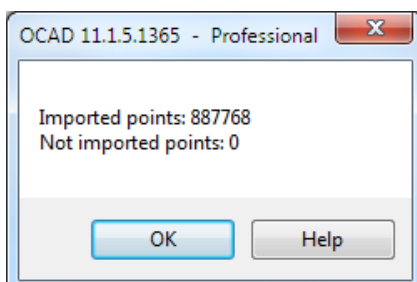


The dialog box titled "Import CSV and XYZ File" contains the following options and fields:

- ☐ First line is a header containing the field names
- Specify the fields**
 - Easting: W13
 - Northing: 457538.286
 - Unit of measure: ☒ m ☐ km
 - ☐ Height: (empty dropdown)
- ☒ Create point objects: ...1... 104.000 Fallstrich
- ☐ Create text objects: 800 105.000 Kurvenzahl
- Text field: (empty dropdown)
- Buttons: OK, Cancel, Help

Specify the Northing, Easting and optionally the Height field. Specify the unit of measure and choose a point or text symbol that should be assigned to the imported objects. OCAD will create point and text objects with x/y coordinates. Height values are assigned to the objects' height property. Select an object and show **Object Information** to see height value of the selected object.

After the import OCAD shows a summary about the imported points.



The summary dialog box titled "OCAD 11.1.5.1365 - Professional" displays the following information:

- Imported points: 887768
- Not imported points: 0
- Buttons: OK, Help

CSV File Example with Comma as Separator

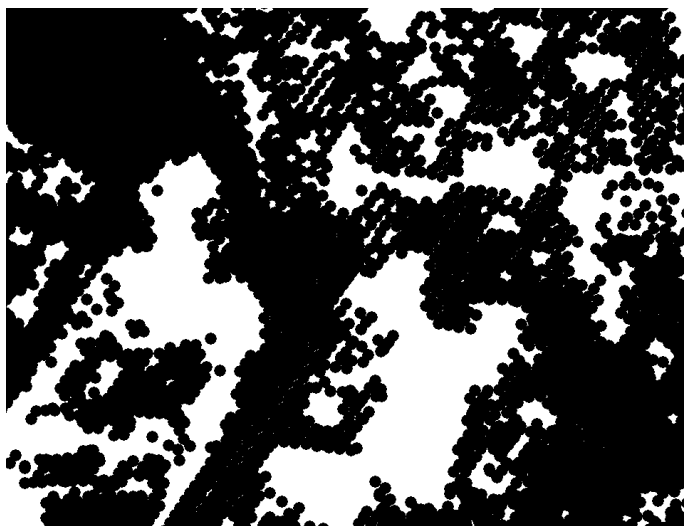
```
W13,457538.286,287921.422,105.426,A  
W14,457530.267,287906.700,105.351,A  
W15,457513.024,287892.899,105.736,B  
W16,457509.835,287889.936,105.788,D  
W17,457495.739,287896.681,106.758,C
```

XYZ-File Example Space as Separator and File Header

```
EASTING NORTHING HEIGHT  
579609.39 335648.46 701.00  
579609.40 335627.71 698.79  
579609.40 335659.36 702.60  
579609.40 335729.36 711.52  
579609.40 335766.15 715.91  
579609.41 335674.01 704.39
```

Example

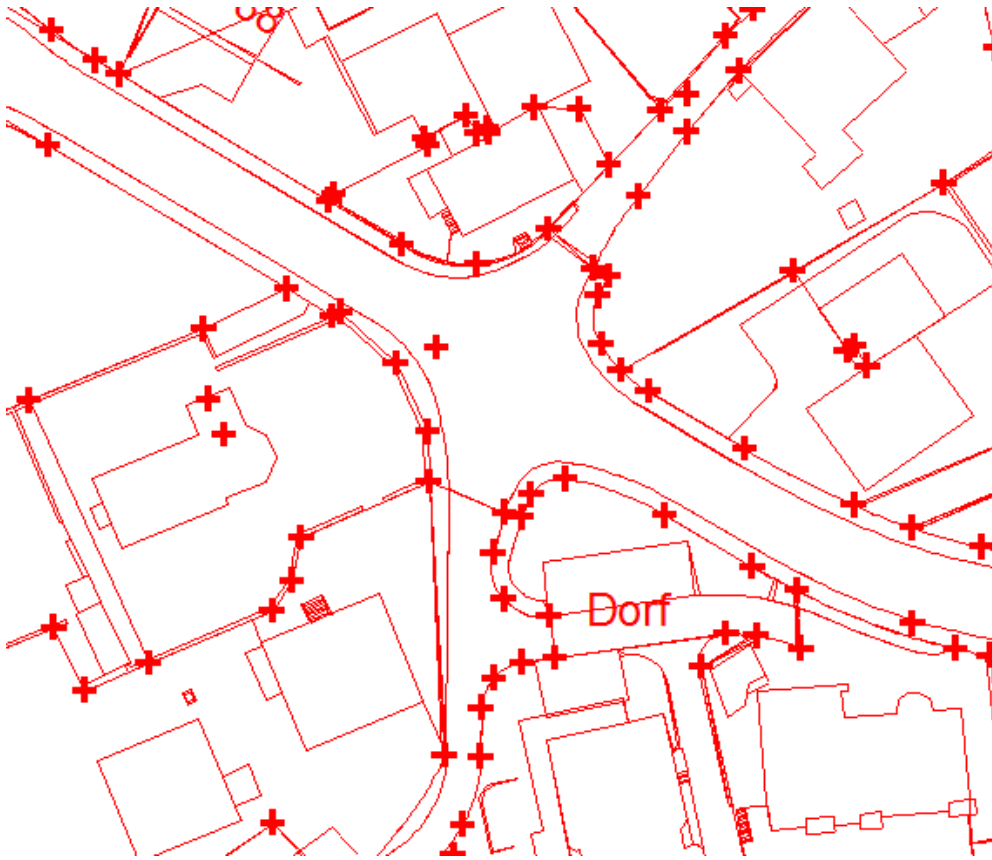
The following example shows the result of DTM xyz file import.



OCAD created for each data point a point object which are assigned to a point symbol (black dot).


Converting a Layer Manually

When importing a file which is not an OCAD file, **Unsymbolized Objects** are created. They appear in the color specified in **OCAD Preferences**.



When you select such an object, a layer name will appear on the left side of the **Status Bar**. To get a real map, the layers have to be converted to OCAD symbols.

Normally you convert layers using the **Convert Imported Layers to Symbols** command from the **Map** menu. You can also convert a layer manually:

1. Select an imported unsymbolized object. On the left side of the **Status Bar** the layer name is shown.
2. Select the corresponding OCAD symbol in the symbol box.
3. Choose the **Change symbol for all objects with this symbol** function in the **Object** menu or the  button in the **Edit Functions Toolbar**.
4. Leave the preset values unchanged and click the **OK** button.

[Back to Main Page](#)

[Previous Chapter: Background Map](#)

[Next Chapter: Drawing an Object](#)

References

- [1] <http://en.wikipedia.org/wiki/Dxf>
 - [2] https://de.wikipedia.org/wiki/Normbasierte_Austauschnittstelle
 - [3] https://de.wikipedia.org/wiki/Keyhole_Markup_Language
 - [4] http://en.wikipedia.org/wiki/Shape_file
 - [5] <http://www.ocad.com/en/downloads/service-update>
 - [6] <http://en.wikipedia.org/wiki/SOSI>
 - [7] <http://kartverket.no>
 - [8] <http://www.statkart.no/Kart/Gratis-kartdata/Last-ned-gratis-kartdata/>
-

[9] <http://www.w3.org/TR/SVG11/>

[10] http://en.wikipedia.org/wiki/Comma-separated_values

[11] <http://en.wikipedia.org/>

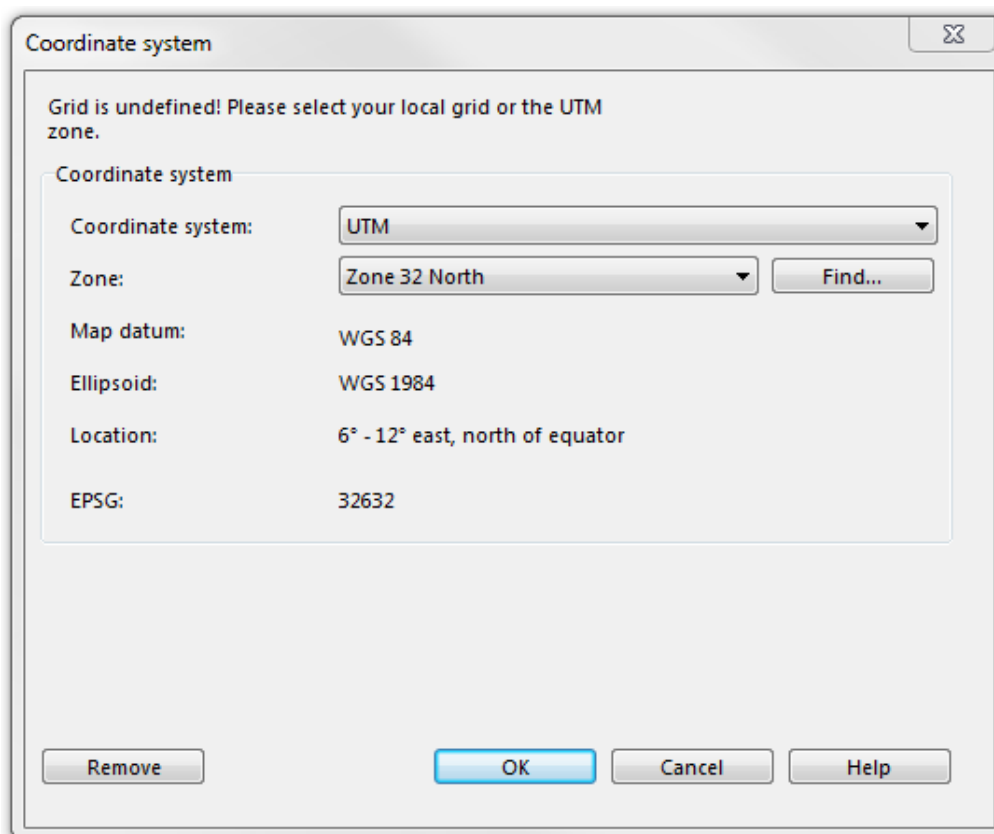
Import Open Street Map Files

Pro Std Sta

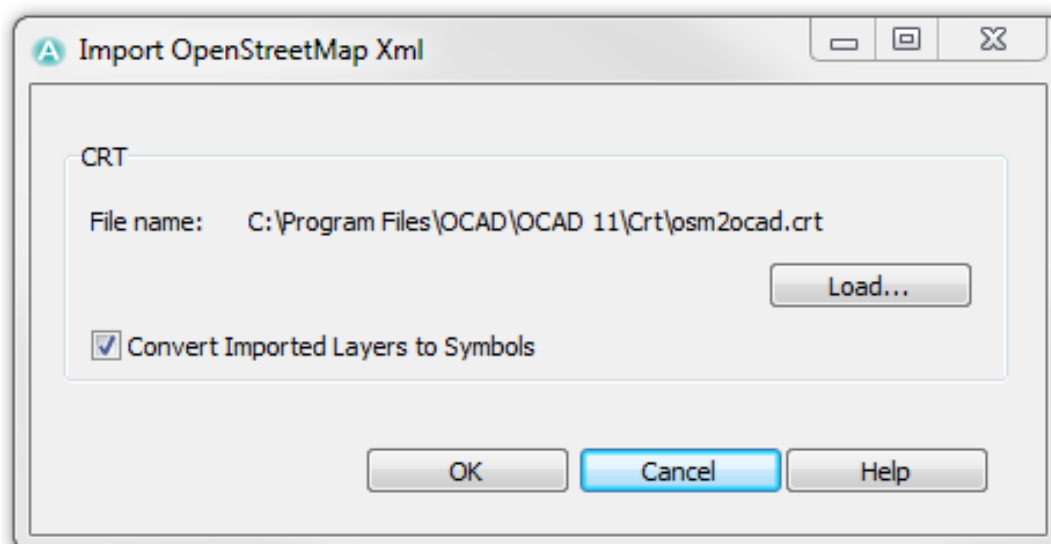
1. Open <http://www.openstreetmap.org/>
2. Look for the desired area.
3. Choose the **Export** command from the menu.
4. Choose the **Area for Export**.
5. Select the **OpenStreetmap-XML-data** option as format.
6. Click the **Export** button.

The screenshot shows the 'Export' dialog box in OpenStreetMap. At the top, there are tabs for 'View', 'Edit', 'History', and 'Export', with 'Export' being the active tab. Below the tabs is a header bar with the word 'Export' on the left and a 'Close' button on the right. The main section is titled 'Area to Export' and contains four input fields for coordinates: '46.60013', '7.93759', '7.98961', and '46.57303'. Below these fields is a blue link that says 'Manually select a different area'. The next section is titled 'Format to Export' and contains three radio button options: 'OpenStreetMap XML Data' (which is selected), 'Map Image (shows standard layer)', and 'Embeddable HTML'. The final section is titled 'Licence' and contains a paragraph stating 'OpenStreetMap data is licensed under the [Creative Commons Attribution-ShareAlike 2.0 license](#)'. At the bottom of the dialog is a large 'Export' button.

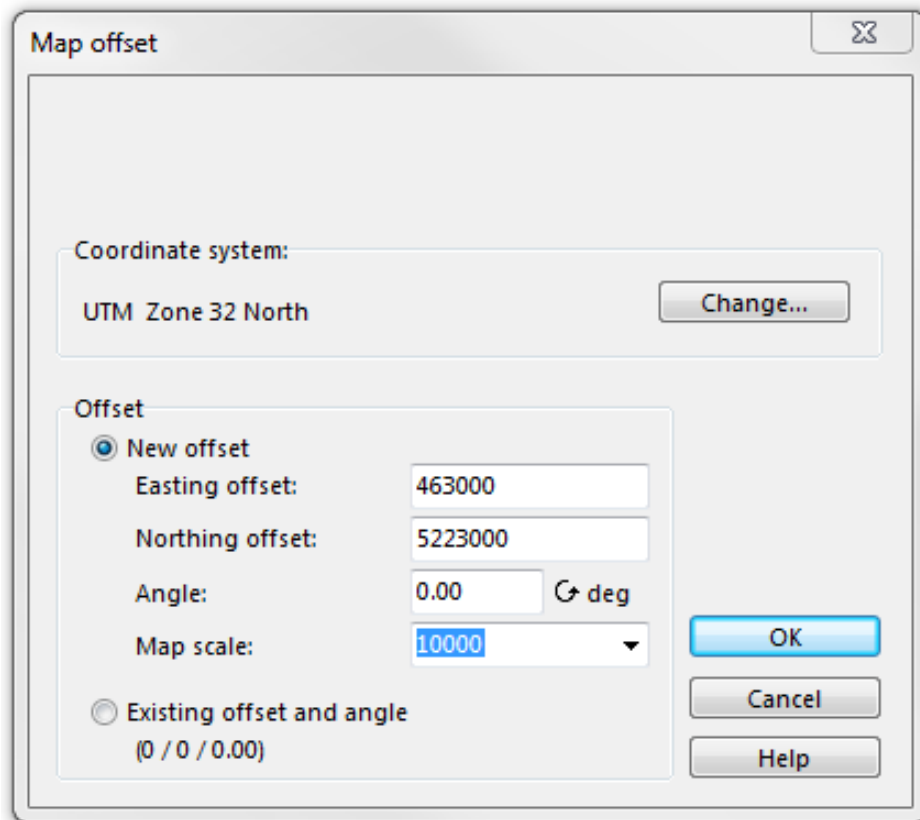
7. **Create a New Map** and use the **OpenStreetMap 10 000.ocd** symbol set in the **Topographic, city or leisure map** category.
8. Choose the **Import** command in the **File** menu and select the just downloaded **map.osm** file.
9. If the map is not saved yet, OCAD asks you to **Save As** the map.
10. If the **Coordinate System** is not set yet, OCAD asks you to choose a correct coordinate system and zone.



11. Click the **OK** button to continue.
12. The **Import OpenStreetMap XML** dialog appears. You have to load a CRT-File now. Learn more about CRT-Files on the **Cross Reference Table** page. The **osm2ocad.crt** file is used by default and fits with the chosen symbol set. If you uncheck the **Convert Imported Layers to Symbols** box, the OSM data is imported as **Unsymbolized Objects**. Otherwise, a symbol is allocated to each OSM object, which is that, what you normally want.



13. Click the **OK** button to continue
14. The **Map offset** dialog appears. It is possible to change the coordinate system once again in this dialog. In addition, you can enter a new offset. OCAD proposes an offset which fits best to the OSM data. Choose the **Existing offset and angle** option if you do not want to change the offset.



15. Click the **OK** button to continue.
16. The **Save Cross Reference Table** dialog appears. This can take several seconds.
17. Browse a location for the new **Cross Reference Table** and click the **Save** button.
18. OCAD imports all OpenStreetMap objects now.

CRT File

The corresponding **Cross Reference Table** to this function in the OCAD directory looks as follows:

```
1001.0 way_highway_motorway
1001.1 way_highway_motorway_tunnel_yes
1002.0 way_highway_motorway_link
1002.1 way_highway_motorway_link_tunnel_yes
1003.0 way_highway_trunk
.
.
.
```

In the first column, the symbol numbers of the Open Street Map symbol set are listed. In the second column, the name of the corresponding Open Street Map object can be found.

At the end of the importing process you have to save another CRT-File. This is the same CRT-File as the loaded one but, in addition, the layer names of objects, which the standard symbol set does not provide, are added with a symbol number 0.0. You can add these symbols to the symbol set and enter the number directly in the CRT-File with a normal Text Editor (e.g. Microsoft Notepad). Then use the **Convert Imported Layers to Symbols** function to symbolize the **Unsymbolized Objects**.



- OCAD will convert directly the layers to symbols during the import when the check box **Convert Imported Layers to Symbols** is checked.


- Choose the **Convert Imported Layers to Symbols** function in the **Map** menu to load the *.crt file and convert the layers to symbols later on.

Back to the **Import Files** page.

Cross Reference Table

A **Cross Reference Table (CRT)** contains data which refers to related or synonymous information elsewhere, usually within the same document. Therefore, a **Cross Reference Table** helps OCAD to transcribe data (symbols, text etc.) with new information.

A **CRT-File** (with the ending .crt) is a text file with the necessary information for the translation. All **CRT-Files** which are saved by OCAD contain a table with two columns. Information from the second column gets translated into the information of first column.

 In some cases it is the other way round.

The following table from the **Convert Imported Layers to Symbols** function can be taken as an example. In the first column symbol numbers of the OCAD File are listed. In the second column the layer names are listed. The two columns are separated by a space character or a **[Tab]**. OCAD converts now each layer to an object with the symbol listed in the first column.

```
101.000 CONTOUR
102.000 INDEXCONTOUR
103.000 FORMLINE
502.000 ROAD
506.000 PATH
527.000 BUILDING
```

CRT-Files are used for many OCAD functions:

Function	First Column	Second Column
Convert Imported Layers to Symbols	Symbol number	Layer name
Convert Text Objects to Point Objects	Symbol number of point object	Plain text
Convert Text Objects from OEM to Unicode	Unicode (0..65535)	OEM character code (0..255)
Load Colors and Symbols From	Symbol number of the current OCAD-File	Symbol number of the symbol to replace with of the other OCAD-File
Import OCAD Map	Symbol number of the map to be imported	Symbol number of the currently opened OCAD-File
Import DXF File	Symbol number in the OCAD Map	Name of the corresponding DXF-Layer
Import PDF File	Symbol number in the OCAD Map	Name of the corresponding layer in the PDF-File
Import Open Street Map Files	Symbol number in the OSM symbol set	Name of the corresponding layer in the OSM-File
More are following...	-	-

In some of the functions, the CRT-File can be created, edited, loaded or saved directly in the function dialog. This part of the dialog looks as follows:


CRT file

File name: C:\Users\WIKITEST.crt

Load... Save Save as...

Imported layer

Imported layer:	Symbol:
CONTOUR	101.000 Contour
INDEXCONTOUR	102.000 Index Contour
FORMLINE	103.000 Form line
ROAD	502.000 Major road
PATH	506.000 Footpath
BUILDING	527.000 Settlement

☐  Add Delete

Execute Cancel Help

You have the following options:

- **Load:** Click this button to load an existing CRT-File.
- **Save:** Click this button to save the changes to a CRT-File.
- **Save as:** Click this button to save the changes to a different CRT-File.
- **First Column (in the example OEM [0..255]):** In this column you can select or enter the data which you want to translate.
- **Second Column (in the example Unicode [0..65535]):** In this column you can select or enter the data which the first column shall be translated into.
- **Move Up:** Click the **Move up** icon to move the selected line upwards in the table.
- **Move Down:** Click the **Move down** icon to move the selected line downwards in the table.
- **Add:** Click this button to add a reference to the list.
- **Delete:** Click this button to delete the selected reference.

You can edit a CRT-File with a text editor (e.g. Microsoft Notepad), too.

Examples

Load Colors and Symbols From

The CRT-File of the **Load Colors and Symbols From** function is defined as follows:

In the first column of the cross reference table the symbol numbers of the current map are listed. In the second column symbol numbers of the other OCAD-File are listed, namely those numbers of symbols, which the current symbol has to be replaced with.

Example:

526.000 813.001

If a row of the CRT-File looks as in the example, the symbols of all objects with the symbol number 526.00 will get the symbol of the other OCAD-File with the number 813.001.

Import OCAD-Files

The CRT-File of the **Import OCAD Map** function is defined as follows:

In the first column of the cross reference table the symbol numbers of the map to be imported have to be listed. In the second column the symbol numbers of the currently opened OCAD-File have to be listed.

Example:

```
101.000 305.000
```

All objects with the symbol 101.000 in the file which is to be imported are assigned with the symbol 305.000 of the currently opened OCAD-File.

Import DXF-Files

Click the **CRT** button in the **Import DXF File** dialog box to load a cross reference table. A cross reference table is used when **Importing** or **Exporting a DXF file**. It defines how DXF layers are translated to OCAD symbols and vice versa.

Each line in this file contains an OCAD symbol number and the name of the corresponding DXF layer. The two are separated by a space character. Use an application such as Microsoft Notepad to create a cross reference table.

This is an example:

```
101.000 CONTOUR
102.000 INDEXCONTOUR
103.000 FORMLINE
502.000 ROAD
506.000 PATH
527.000 BUILDING
```

When importing from DXF to OCAD, all objects in the DXF file with the layer name CONTOUR are translated into symbol 101.000. When exporting from OCAD to DXF, all objects with the symbol 101.000 get the layer name CONTOUR. Choose **Convert layers** from the **Map** menu to create a CRT file for an imported map.



-I as symbol number means that OCAD delete these objects.



Convert DXF Geobau layers to OCAD ISSOM symbol set with this CRT-Table: [DxfGeobau_to_Issom.zip^[1]]

Import PDF-Files

When you import a PDF-File in an OCAD map, you are asked if you want to save a CRT-File. This CRT-File is helpful when you want to convert the layers in the PDF-File to symbols later on. The layer names are saved in the second column of the file. In the first column you will have to enter the corresponding symbol number manually.

Import Open Street Map Files

The corresponding CRT-File to the **Import Open Street Map Files** function in the OCAD directory looks as follows:

```
1001.0 way_highway_motorway
1001.1 way_highway_motorway_tunnel_yes
1002.0 way_highway_motorway_link
1002.1 way_highway_motorway_link_tunnel_yes
```

```
1003.0 way_highway_trunk
.
.
.
```

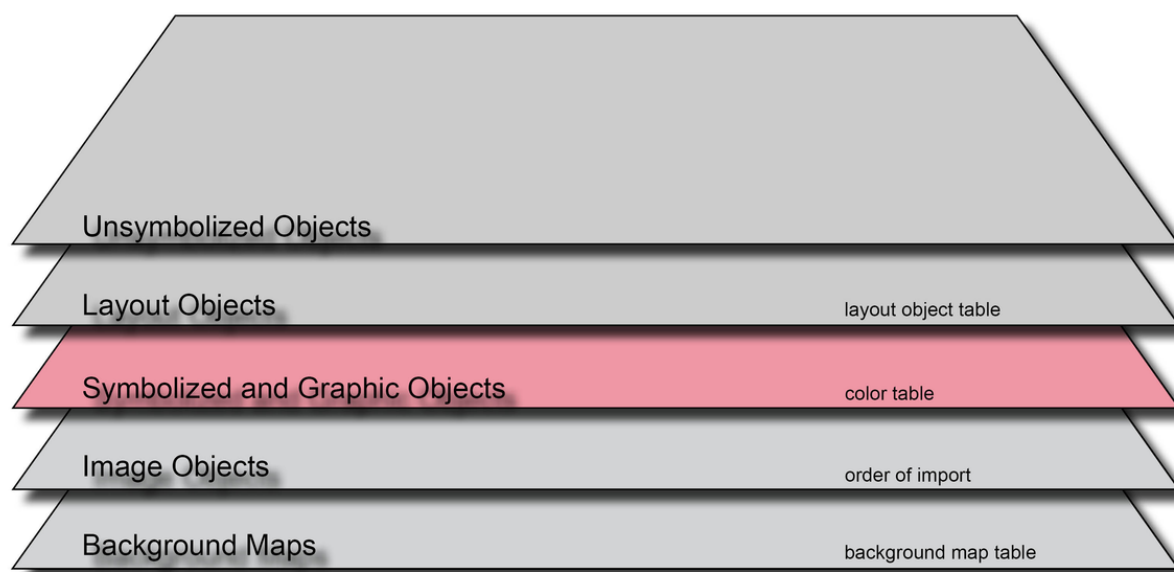
In the first column, the symbol numbers of the Open Street Map symbol set are listed. In the second column, the name of the corresponding Open Street Map object can be found.

At the end of the importing process you have to save another CRT-File. This is the same CRT-File as the loaded one but, in addition, the layer names of objects, which the standard symbol set does not provide, are added with a symbol number 0.0. You can add these symbols to the symbol set and enter the number directly in the CRT-File with a normal Text Editor (e.g. Microsoft Notepad). Then use the **Convert Imported Layers to Symbols** function to symbolize the **Unsymbolized Objects**.

References

[1] http://www.ocad.com/download/samples/DxfGeobau_to_Issom.zip

Drawing an Object



Draw a Point Object

Pro Std Sta CS

1. Choose a point symbol.
2. Select any drawing mode. The cursor appears as a crosshair with a point in the lower right-hand corner.
3. Click a position in the drawing window.
4. The point object appears.

-To define a specific direction of for the object, click and hold the left mouse button on desired position; then drag to the direction you wish the object to be oriented to.

-The object can be adjusted retrospectively. To do this, select the point object and align it using the **Indicate direction of area pattern, point or text object** function.

Drawing point objects ^[1]

Draw a Line or Area Object

Pro Std Sta CS

You must select one of the eight drawing modes to draw a line or area object.

- The cursor appears as a crosshair with the symbol for the selected drawing mode in the lower right-hand corner.
- In the lower left-hand corner will be shown the total line length.




If you draw an area the finishing line is shown dashed, whilst the left mouse button is pressed.

Draw a Straight Line

Pro Std Sta CS



1. To draw straight lines such as streets, power lines or sidewalks, select **Straight line mode**.
2. Select a line or area symbol from the symbol box.
3. Select **Straight line mode**.
4. Position the cursor at the point where you want to start the line, then click and hold the left mouse button and drag the cursor in the desired direction. The help line provides a preview of the line that has just been drawn.
5. To add a vertex to the straight line, release the left mouse button. Now press and hold the left mouse button once more and drag the cursor in the desired direction. Repeat this process as often as necessary.
6. Click the left mouse button when you have finished drawing and the help line is transformed into the selected line or area symbol.

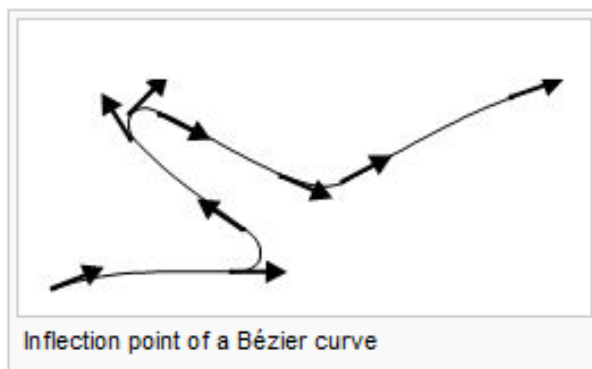
 Drawing straight object ^[2]

Draw a Curve

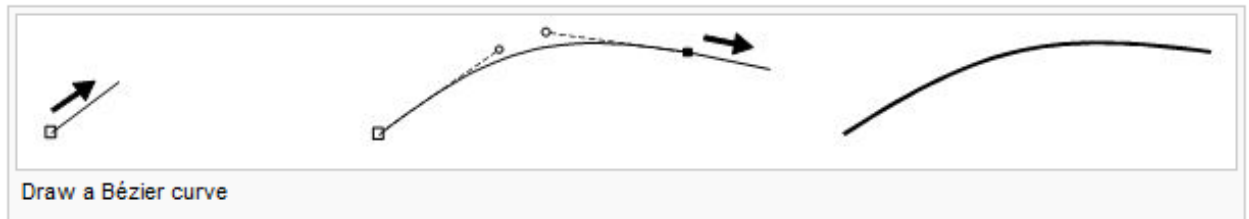
Pro Std Sta CS




Select Bézier **Curve mode** to draw flowing or curved lines such as contours or shore lines. Drawing Bézier **Curves** requires some practice as you need to get a feeling for where the radius or curvature of a flowing or curved line changes. The turning point is where the vertex and its tangents need setting. Once you have mastered this technique, you will be able to draw curved lines and area objects efficiently and precisely.

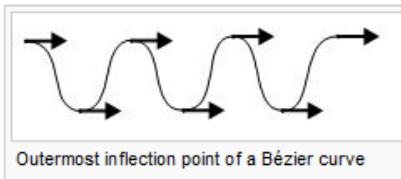


1. Select a line or area symbol from the symbol box.
2. Select Bézier-**Curve mode**.
3. Position the cursor at the point where you want to start the line, click and hold the left mouse button and drag the cursor to form the radius you want and release the left mouse button.
4. Position the cursor at the next inflection, click and hold the left mouse button and drag the cursor to form the radius you want and release the left mouse button. The help line provides a preview of the curved line that has just been drawn. Repeat this process for each inflection point.
5. Click the left mouse button when you have finished drawing and the help line is transformed into the selected line or area symbol.

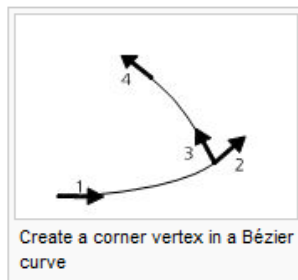



💡 -If you are unhappy with the tangent, simply click the **Backspace**  button. The last tangent will be deleted and you can try again. You can delete as many tangents as you like up to the beginning of the line. This is not possible once the object has been completed.

-Sinuous lines can be managed easily by placing tangents at the outermost points.

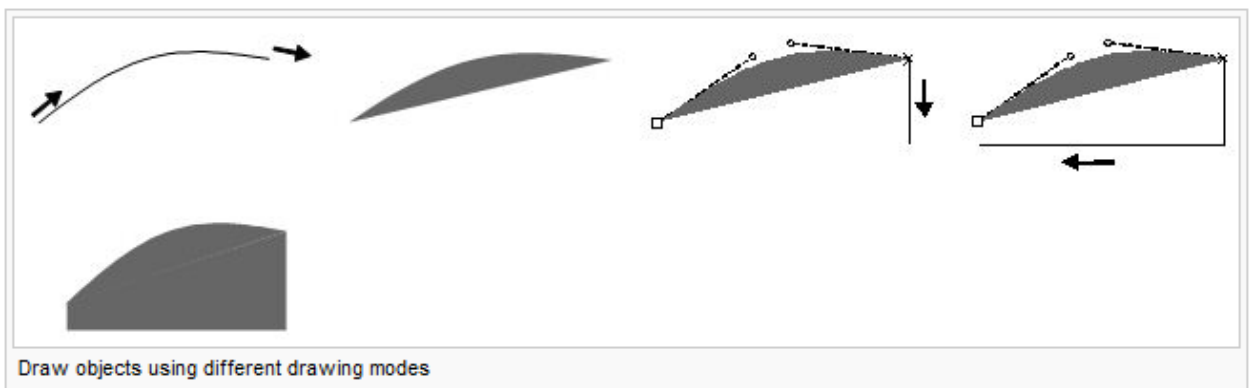




💡 You can force a corner vertex by dragging two tangents from the same vertex point. **Curve:** Tangents 2 and 3 start at the same point but move in different directions. A corner vertex is created.





 Drawing curve object ^[3]

💡 You can draw parts of a line or area object using different drawing modes. Select the appropriate symbol and draw the first part of your object using a drawing mode. Now press the Tab button until the desired drawing mode appears and then continue drawing.



💡 You can lengthen existing line objects or expand area objects. Simply select the appropriate symbol, press and hold the **Shift**  button and start drawing at the beginning or end of the existing object. Release the **Shift**  button once the line or area has been added.

 Continuing existing objects ^[4]

💡 To draw horizontal or vertical lines, press and hold the **Alt** button. The **Shift**  and **Alt** button functions can be combined.

💡 Download this exercise ^[5] to draw Bézier curves.

Change to Straight Line Mode

OCAD 12.1.6 and later has a new option for the Curve mode. This function makes it easier to combine curves and straight lines.

First activate this option **Curve mode: Change to straight line mode when clicking in drawing area** in the **Preferences -> Drawing and Editing** tab.

Start drawing the curve. To draw a straight line click in the drawing area and release the left mouse button. So you can easily switch between straight line mode and curve mode. Double click the left mouse button to finish drawing.

Draw a Freehand Line



Freehand drawing mode plots the movement of the cursor and converts it into a line. Tracing flowing or curved lines using this mode is not very efficient or precise. Depending on the drawing speed and selected smoothing factor (1, 2 or 3), the line may appear somewhat angular because the vertices are connected using straight lines.

1. Select a line or area symbol from the symbol box.
2. Select **Freehand mode**.
3. Position the cursor at the beginning of the line, press the left mouse button briefly and trace the line you want using the mouse.
4. Click the left mouse button when you have finished drawing and the help line is transformed into the selected line or area symbol.

If you draw in freehand mode the same way as in straight mode, normal points will be placed at the corners. Unlike corner points, normal points do not affect dashed lines.

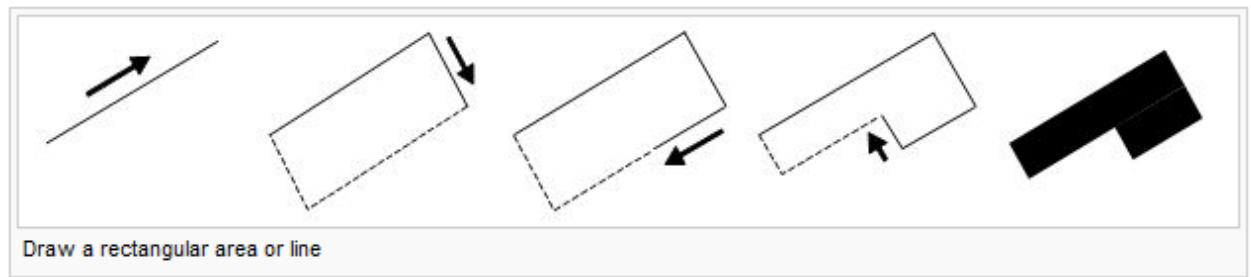
Draw a Rectangular Area




Select **Rectangular mode** if you want to draw rectangular areas or objects such as buildings or squares. This drawing mode creates a right-angle in every corner and ensures the start and end points of the outline are identical.

1. Select a line or area symbol from the symbol box.
2. Select **Rectangular mode**.
3. Position the cursor on one of the corners of the longest side of the rectangular area. Press and hold the left mouse button and drag the cursor along the longest side to the next corner.
4. When the cursor reaches the corner, release the left mouse button and then press it again. Hold the left mouse button and drag the cursor towards the next corner. The help line provides you with a preview of the straight line that has just been drawn. A broken line shows you what the rectangular object will look like when you have finished. Repeat the above process to draw a line to the third corner.
5. Click the left mouse button to finish the drawing; the help line is then transformed into the selected line or area symbol.

You should always draw the longest side of a rectangular area first since it is easier to define the rectangular orientation of an area from the longer side.



 Drawing rectangular objects ^[6]

Draw a Rectangular Line

Pro Std



Select **Rectangular line mode** if you want to draw rectangular line objects such as sidewalks or stairs. This drawing mode creates a right-angle in every corner. The only difference between **Rectangular line mode** and **Rectangular mode** is that the start and end points are not identical when using rectangular line mode.

1. Select a line symbol from the symbol box.
2. Select **Rectangular line mode**.
3. Position the cursor at the beginning of the rectangular line. Press and hold the left mouse button and drag the cursor along the longest side to the next corner.
4. When the cursor reaches the corner, release the left mouse button and then press it again. Hold the left mouse button and drag the cursor towards the next corner. The help line provides a preview of the line that has just been drawn. Repeat this process until you reach the end of the rectangular line.
5. Click the left mouse button when you have finished drawing and the help line is then transformed into the selected line symbol.

You should always draw the longest side of a rectangular line first since it is easier to define the rectangular orientation of a line from the longer side.

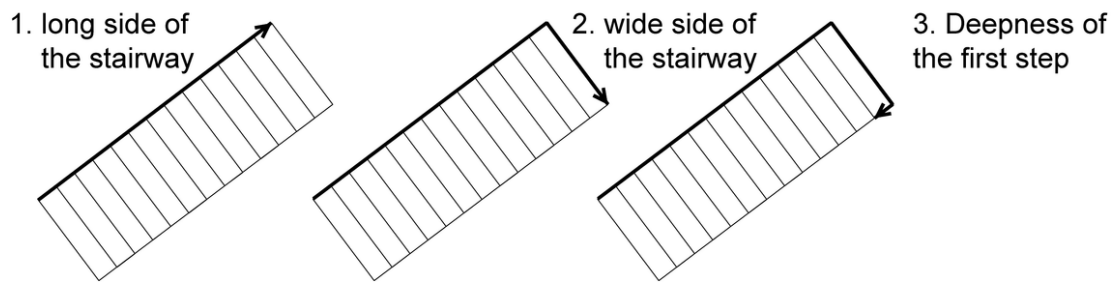
Draw a Stairway

Pro Std



Select **Stairway drawing mode** if you want to draw a rectangular stairway.

1. Select a line symbol from the symbol box.
2. Select **Stairway mode**.
3. Position the cursor at the beginning of the stairway. Press and hold the left mouse button and drag the cursor along the longest side to the next corner.
4. When the cursor reaches the corner, release the left mouse button and then press it again. Hold the left mouse button and drag the cursor towards the next corner. The help line provides a preview of the line that has just been drawn.
5. Hold the left mouse button and drag the cursor to the first step. The step help lines provide a preview of the stairway. Release the left mouse button.



Draw a Circular Object

Pro Std Sta




Select **Circle mode** if you want to draw circular objects such as roundabouts or silos.


1. Select a line or area symbol from the symbol box.
2. Select **Circle mode**.
3. Position the cursor at the edge of the object, then press and hold the left mouse button and drag the cursor to the opposite edge. Release the mouse button. The help line is transformed into the selected line or area symbol.



-The outline or circular line is drawn as a Bézier curve.

-You can also drag the circle from the center point. Simply press and hold the **Shift**  button and drag a radius.

-Clicking the center of the circle with the right mouse button without dragging displays the **Draw Circle** dialog box. Here you can enter the radius of the circle in mm or m.

 Drawing circular objects ^[7]

Draw an Elliptical Object


Pro Std Sta



Select **Ellipse mode** if you want to draw oval objects such as hills or dips.


1. Select a line or area symbol from the symbol box.
2. Select **Ellipse mode**.
3. Position the cursor at the beginning of the longer ellipse axis, then press and hold the left mouse button and drag the cursor towards the end of the axis.
4. Position the cursor at the beginning of the shorter ellipse axis, then press and hold the left mouse button and drag the cursor towards the end of the axis. Release the mouse button. The help line is transformed into the selected line or area symbol.



 Draw an ellipse ^[8]



The outline or ellipse line is drawn as a Bézier curve.

 Drawing elliptical objects ^[8]

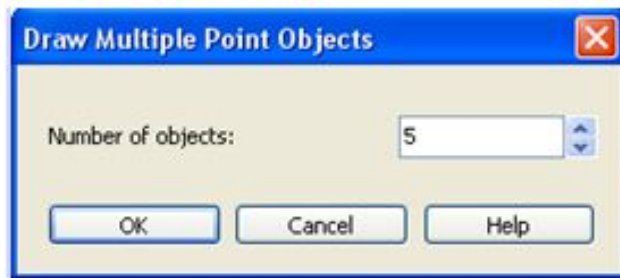
Draw Multiple Point Objects

Pro Std



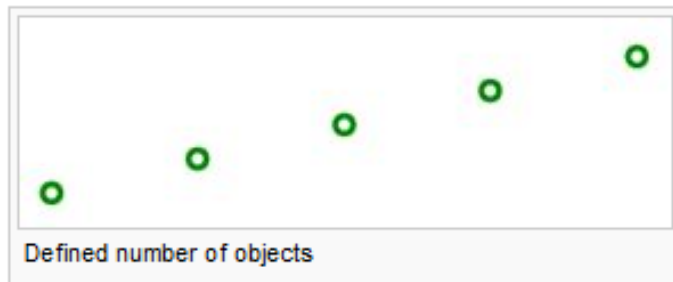
This drawing tool is used to draw several point objects that are placed on a line with a constant interval.

1. Choose a point symbol in the symbol box.
2. Choose the drawing tool Drawing multiple point objects from the Edit and Drawing toolbar.
3. Draw a line from the position of the first to the position of the last feature.
4. The Dialog Draw Multiple Point Objects appears:



Enter the number of objects and click the OK button.

The defined number of objects are drawn:



If the number of objects is 1, the objects position will be in the center of the drawn line.

Laser Rangefinder Drawing Mode

Pro



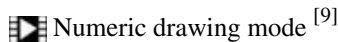
Laser rangefinder drawing tool.

Numerical Drawing Mode

Pro Std



Select Numeric mode if you have measurement values or coordinate pairs for specific objects.



Numeric drawing mode ^[9]

Construct a point object using distance or azimuth measurements.


1. Select a point symbol from the symbol box.
2. Select **Numeric mode**.
3. Enter the coordinates of your location in the **Easting** and **Northing** fields. A small cross highlights the position in the drawing window.
4. Enter the length in mm or m in the **Length** field and the **Angle** in a clockwise or counterclockwise direction.
5. Click **End**.
6. The angle and distance measurements are used to position the point object.




-You can change the direction from clockwise to counterclockwise, or vice-versa, by clicking the **Counterclockwise** or **Clockwise** buttons.

-You can change the unit of measurement from millimeter to meter, or vice-versa, by clicking the **Millimeter** or **Meter** button.

Construct a line or area object using coordinate pairs.

1. Select a line or area symbol from the symbol box.
2. Select **Numeric mode**.
3. Enter the coordinates of your first coordinate pair in the **Easting** and **Northing** fields. A small gray cross highlights the position of the first coordinate pair in the drawing window.
4. Select the construction mode  **Enter** positions.
5. Enter the coordinates of the second coordinate pair in mm or m and click **Next**. A help line appears between the first and second coordinate pair. Repeat this process as often as necessary; the help line is extended each time. Click **End** once you have entered the final coordinate pair.
6. The sections are then transformed into the selected line or area symbol.

Construct a line or area object using distance or azimuth measurements.

1. Select a line or area symbol from the symbol box.
2. Select **Numeric mode**.
3. Enter the coordinates of your starting point in the **Easting** and **Northing** fields. A small cross highlights the position of the starting point in the drawing window
4. Select the construction mode  **Enter length and angle**.
5. Enter the length in mm or m in the **Length** field and enter the **Angle** in a clockwise or counterclockwise direction. A help line appears that displays the distance and azimuth from the starting point. Repeat this process as often as necessary; the help line is extended each time. Click **End** once you have entered the final distance and azimuth values.
6. The sections are then transformed into the selected line or area symbol.

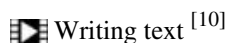
Place a Text Object



Text and line text symbols are available for placing text. Text symbols are generally aligned horizontally. Line text symbols follow the flow of rivers or streets.

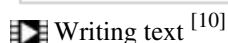
Place a text object

You can choose text frames or anchor points for placing text objects.



Define a text frame


1. Select a text symbol from the symbol box.
2. Select a drawing mode.
3. Position the cursor on the upper left-hand corner of the desired text frame, then click and hold the left mouse button and drag the cursor to the lower right-hand corner. Release the mouse button. The text cursor for inputting text appears.
4. Enter the desired text. The line break is added automatically Press **Enter** to start a new paragraph.



💡 You **can't** draw a text frame with a text symbol whose **Drawing Mode** is set to **Rotated Text**.

Define a text anchor point

1. Select a text symbol from the symbol box.
2. Select a drawing mode.
3. Position the cursor at the point where the text is to be anchored. Release the mouse button. The text cursor for inputting text appears.
4. Enter the desired text. Press **Enter** to start a new paragraph.

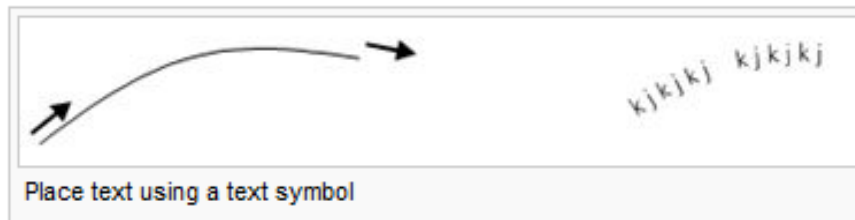
 Writing text ^[10]


💡 The text objects line length gets enlarged while writing.

Place a Line Text Object

Select a Line Text symbol if you want your text to follow the flow of a curve.

1. Select a Line Text symbol from the symbol box.
2. Select **Bézier Curve mode**.
3. Draw a curve
 1. Once you have finished drawing the line, a help line appears as well as the text cursor for inputting text.
4. Enter the desired text.



 Writing text ^[10]

💡 Line text object's **line length is enlarged while writing text** if the line text symbol alignment is **left aligned**.

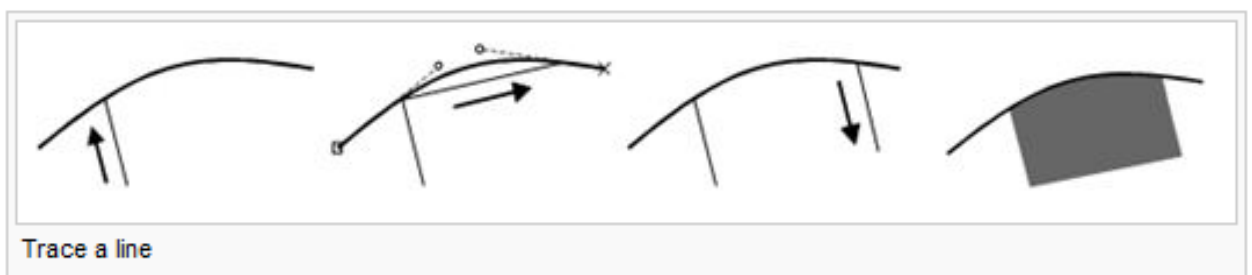
Following Existing Objects


Pro Std Sta

Ctrl button: **Following existing objects**


Area objects are often limited by line objects. You can trace existing line or area objects without having to redraw them.


1. Select a line or area symbol from the symbol box.
2. Select a drawing mode.
3. Press and hold the **Ctrl** button, then position the cursor at the point from which you want to trace the line. This does not have to be the start or end point of the line. The help line will appear with its vertices.
4. Click and hold the left mouse button and drag the cursor to the desired point. This does not have to be the start or end point of the line.
5. Release the mouse button. The traced line is transformed into the selected line or area symbol.



 -With double lines (e.g. streets), you can trace the middle line as well as both side lines. If you do not require this option, you can deactivate it under Preferences, Drawing in the Options menu.

-Line tracing is only possible in straight, Bézier and freehand mode.

-It is possible to trace the outline of existing area objects. However, it is only possible to trace up to one half of the outline, otherwise the trace would be in the opposite direction. The point, up to which the object can be traced, is represented by a large square .





 Following existing objects ^[11]

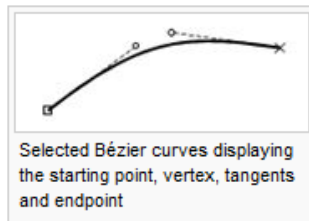
Edit a Vertex

Pro Std Sta CS



To edit a vertex, select the Select Object and Edit Vertex editing mode. You will then be able to move, delete or change the type of vertex.


For point objects, the middle of the symbol is represented by a large square . For line and area objects, the first point of the object is represented by a large square , vertices by small squares , and the last point of the object by a cross **X**. With Bézier curves, circle symbols  are used to represent the ends of the tangents.




 Drawing curves ^[3]

When drawing broken or dotted lines in OCAD, the dashes and spaces always have the same length. You will never get half dashes or spaces; the dashes are distributed proportionally across the entire object. However, if you add a corner vertex, the dashes before and after the vertex are calculated separately. A corner vertex is made up of two adjoining dashes; a dash point is positioned at the center of a single dash (the dash is therefore split in the middle). Corner vertices and dash points are therefore used to define the appearance of corners and intersections.

The following functions are available for editing vertices and influencing dashed lines:

 **Remove Vertex:** Remove a vertex from the object. Alternatively, you can press the Ctrl button and then click the vertex.

 Different point types ^[12]





💡 Every vertex can be changed into a different kind of vertex. To do this, simply select the vertex type you want and then click the vertex object to change it.

💡 If a vertex of line or area objects is moved, a draft line is shown as "preview".

🖱️ Influencing dashed lines ^[13]

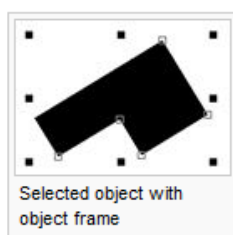
Further information about **Vertices**.

Edit an Object

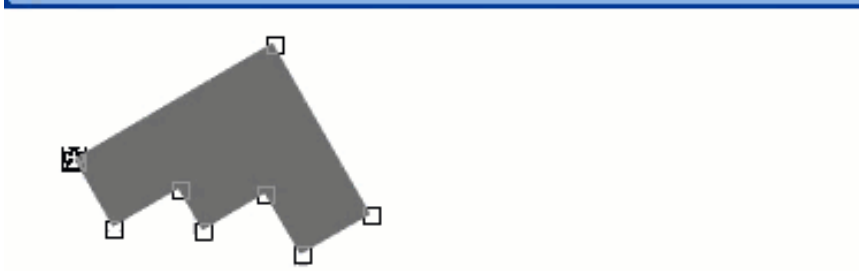
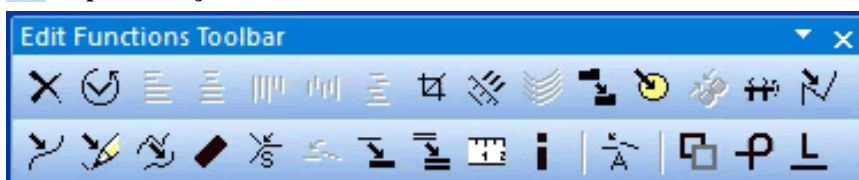
Pro Std Sta CS



To edit an object, you must select the **Select and Edit** object mode. As soon as you have selected the object, the object frame appears with anchor points ■. You can now move, rotate, cut, stretch or reduce the size of the object or use the following functions:



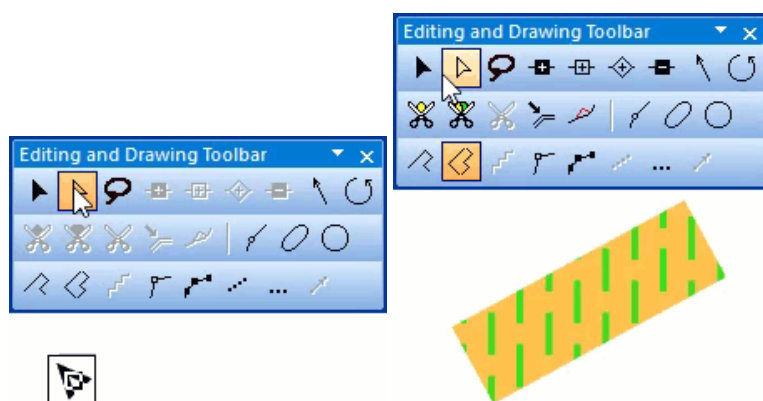
🖱️ Duplicate object:



Duplicate the selected object. Alternatively, press Ctrl + C and Ctrl + V.

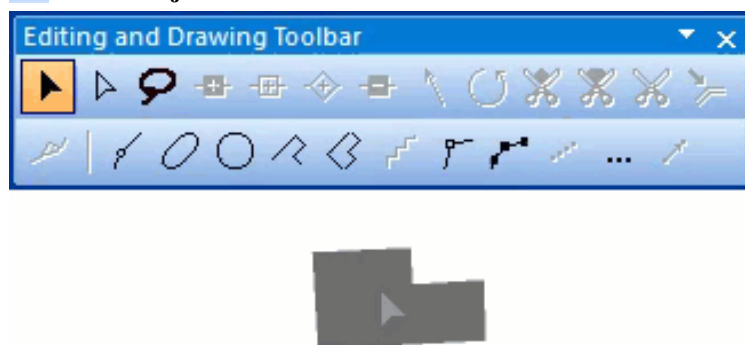


🖱️ Indicate direction of area pattern, point or text object:



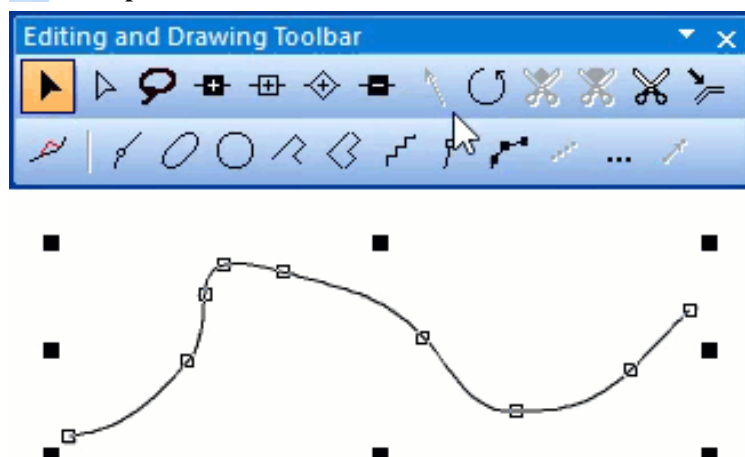
Change the direction of the selected point or text object or the structure of the selected area object.

Rotate Object:




Rotate the selected object around a defined rotation point.

Move parallel:

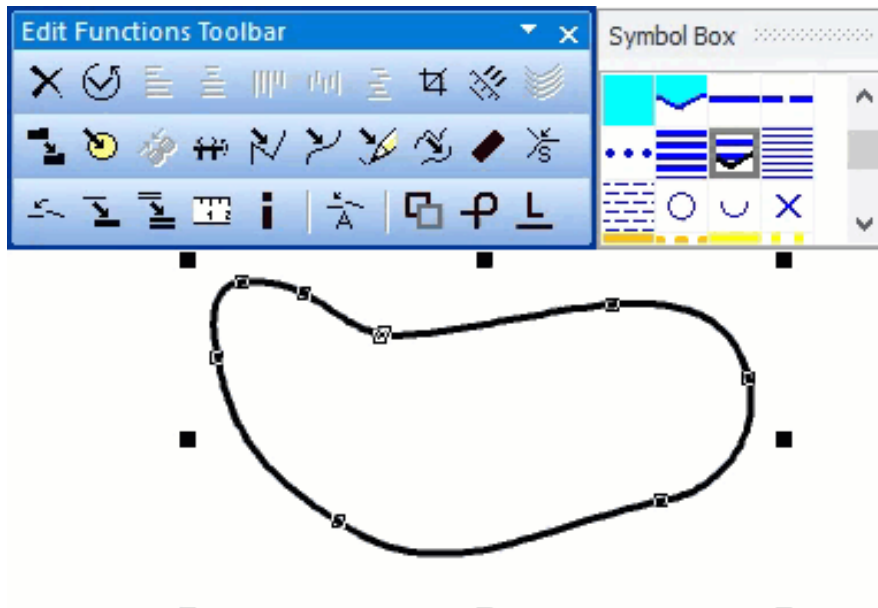


Move the selected line object in a parallel direction or stretch or reduce the size of the selected area object.

Move parallel with distance

-  -Only for line, area and line text objects
 - Positive values move the object to the right side, negative to the left.
 - 'Move': Move the selected object
 - 'Duplicate': Make a copy and move the copy to the new position

Fill or make border:



Fill in a hole in the selected area object using an area symbol or draw a border around the hole using a line symbol. Fill in the selected line object using an area symbol or combine the selected area object with an area symbol.

Holes in areas often need filling. With OCAD you can draw a border around a hole using a line symbol or fill in a hole using an area symbol.

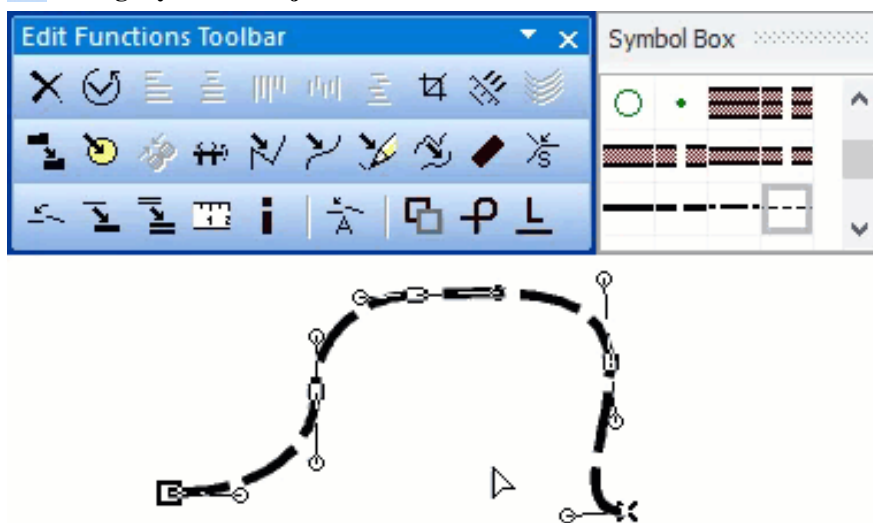
1. Select a hole by clicking it.
2. Select a line or area symbol from the symbol box.
3. Select **Fill or make border**. A border is drawn around the hole using the selected line object or it is filled in using the area object.

💡 After selecting a line or area object, you can combine it with another symbol. Select the object, then choose the desired line or area symbol from the symbol box and click **Fill or make border**. The duplicated object will be positioned above or below the selected object.

Find selected objects:

Display the selected objects in the center of the drawing window.

Change symbol of object:

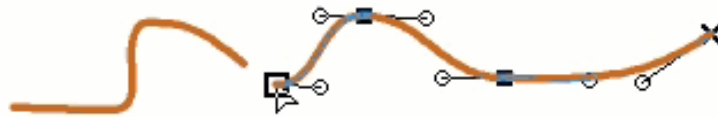
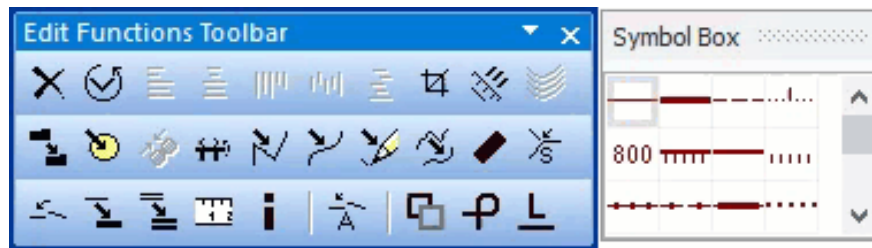


Assign a new symbol to the selected object.

Change symbol of all objects with this symbol:

Assign a new symbol to all objects with a specific symbol.

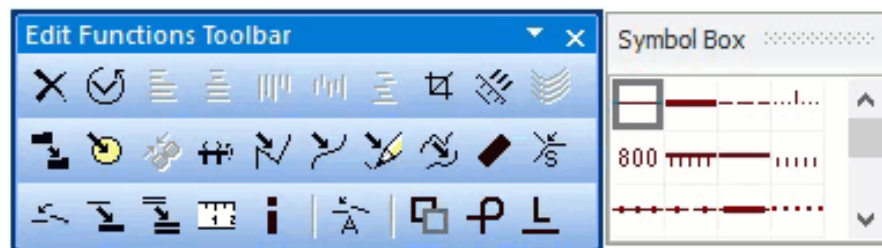
Join:



Join the ends of selected line objects that have the same symbol or the same symbol group. You can change this option in the Preferences.

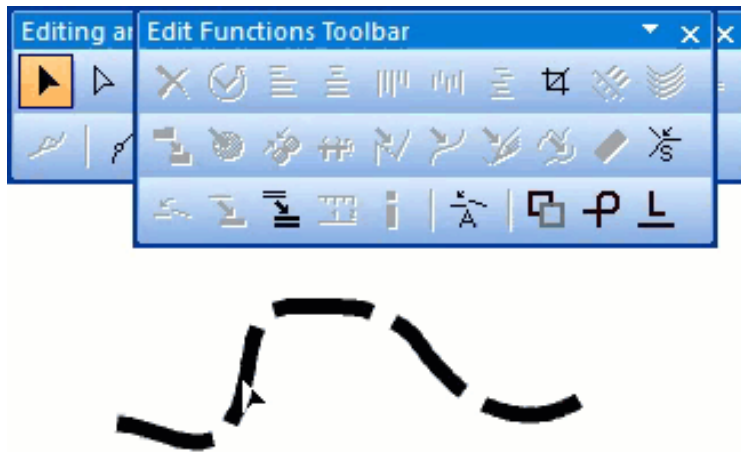
 Join and merge objects ^[14]

To Curve:



Change the selected freehand line into a Bézier curve. Select smooth level in toolbar.

To Graphics:




Break down the selected object into its graphical elements or display the outlines of the respective elements.

Change from drawing mode to one of the editing modes (**Select and Edit object** or **Select Object and Edit Vertex**) to edit an object. Click the **Select and Edit object** or **Select Object and Edit Vertex** button to do this. The cursor appears as either a solid or transparent arrow.

💡 A context menu appears when you press the right mouse button and you can change from drawing mode to editing mode and vice-versa. By deactivating the **Context menu** option under **OCAD Preferences, GUI** in the **Options** menu you can switch from drawing mode to editing mode, and vice-versa, by simply clicking the right mouse button.

💡 If an object is moved or stretched, a draft line is shown as "preview".

💡 Objects can be moved by clicking inside the object and moving the mouse after the object got selected. If the mouse is in a correct spot, it changes to a cross shaped cursor .



Snapping

Snapping





Tips with Keyboard and Mouse

Drawing





Pro Std Sta

- **Continue an existing line:** Press the **Shift** key and click the end point of the line to be continued. This can be used instead of the  **Merge** function.
- **Draw horizontal or vertical lines:** Press the **Alt** key while drawing. The line snaps in a vertical or horizontal direction. This can be useful when drawing a border or north lines. This function is also available in the  **OCAD 12 CS Edition**.
- **Following Existing Objects:** Hold the **Ctrl** key and click with the **Left Mouse Button** a point on the line to be followed. The **Ctrl** key can be released now. Keep the **Left Mouse Button** pressed and release it at the point the following shall stop. The drawing of the line can be continued now.
- **Change drawing mode during drawing and editing:** Press the **Tab** key until the desired drawing mode appears to change the drawing mode.

Editing

- **Delete Vertices from line or area objects:** Hold the **Ctrl** key and click the vertex with the **Left Mouse Button**. See also:  **Remove Vertex Tool**
- **Add Normal Vertices to line or area objects:** Hold the **Shift** and the **Ctrl** key pressed and click the corresponding point on the line with the **Left Mouse Button**. See also:  **Add Normal Vertex Tool**
- **Select an object under a already selected object:** Hold the **Alt** key and click the object above the object to be selected. This function only has an effect if you are clicking near a **Vertex** of the object above.
- **Move the selected object:** Use the **Arrow** keys to move a selected object. For more information about selecting and moving objects visit the **Select** page.
- **Select multiple objects:** Hold the **Shift** key and click the objects to be selected one after another. As an alternative, drag an area with the **Right Mouse Button** in the  **Select and Edit Object** or  **Select Object and Edit Vertex** mode to select all objects which are in it. Read the **Select Multiple Objects** article for more information.

Cutting

- **Select next object:** Select a line object and choose the  **Cut** function. If you press the **Alt** key, the cursor changes to the  **Select Object and Edit Vertex** mode. Keep the **Alt** key pressed and click the next object you want to cut. Release the **Alt** key and continue with the cutting.
- **Insert a virtual gap:** Select a line object and choose the  **Cut** function. If you press the **Ctrl** key while cutting, a virtual gap is inserted. A virtual gap is graphical gap only: the line is not interrupted.
- **Dashed line: Insert a gap at the cutting point:** Select a dashed line object and choose the  **Cut** function. Hold the **Shift** key while cutting a dashed line to insert a gap with the same length, as the other gaps in the dashed line, at the cutting point.

Back to Main Page

Previous Chapter: Import Files

Next Chapter: Select

References

- [1] <http://www.ocad.com/howtos/26.htm>
 - [2] <http://www.ocad.com/howtos/20.htm>
 - [3] <http://www.ocad.com/howtos/25.htm>
 - [4] <http://www.ocad.com/howtos/35.htm>
 - [5] <http://www.ocad.com/schulung/UebungBezier.zip>
 - [6] <http://www.ocad.com/howtos/23.htm>
 - [7] <http://www.ocad.com/howtos/22.htm>
 - [8] <http://www.ocad.com/howtos/21.htm>
 - [9] <http://www.ocad.com/howtos/27.htm>
 - [10] <http://www.ocad.com/howtos/28.htm>
 - [11] <http://www.ocad.com/howtos/34.htm>
 - [12] <http://www.ocad.com/howtos/66.htm>
 - [13] <http://www.ocad.com/howtos/32.htm>
 - [14] <http://www.ocad.com/howtos/37.htm>
-

Snapping


Pro

Click the  **Snapping** icon in the **Edit Functions Toolbar** to enable snapping.

The snapping works with unsymbolized, graphic and image objects and with objects from symbols with status normal or protect. The snapping does not work with layout objects, objects from hidden symbols and with background maps.

Enter the snapping tolerance in screen pixel in **OCAD Preferences** in the menu **Options** and change **Snapping Tolerance** in the category **Drawing and Editing**. The default value is 5 pixels.

 Press the Ctrl + Alt keys to switch on the snapping temporary if the snapping mode is switched off.

 [Snapping ^[1]] Note: The snapping tolerance is in **Drawing and Editing** page (not GUI).



References

[1] http://www.ocad.com/howtos/134_Snapping.htm

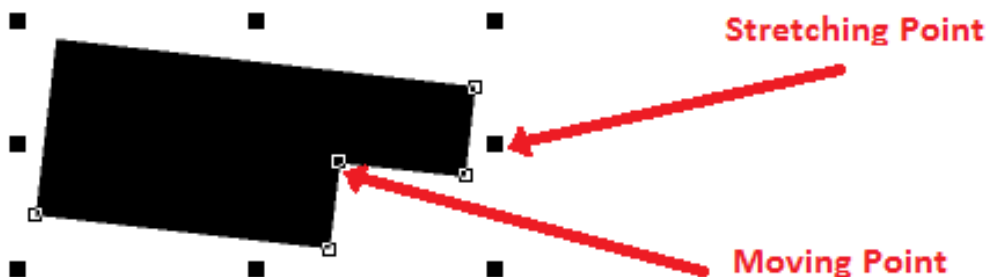
Select



Select and Edit Object

Pro Std Sta CS

Choose **Select and Edit Object** in the **Select** menu or click the **Select and Edit Object** icon  in the **Editing and Drawing Toolbar** to select and edit an object. The cursor changes to a black arrow like on the icon . You are now in the **Select and Edit Object** mode.


Click on an object to select it. The selection looks as follows if you have **Object Stretching** in the **Object** category in **OCAD Preferences** activated:



 Objects can be selected by either clicking on them or clicking outside and drawing a window over the object.  You can select multiple objects on the same time with this method.

 While moving/stretching/rotating an object, it's new position is shown with a draft line.

Stretch an Area or Line Object

If you have **Object Stretching** in the **Object** category in **OCAD Preferences** activated, you can click and drag the black squares ■ (stretching points) to stretch the object. If you want to keep the shape of the object drag a square from the corner. If you drag a square from the middle, the object is distorted in the corresponding direction. If you hold down the  key while dragging a stretching point ■, the object is stretched relative to the center.



Stretching does not work for point and text objects. If you stretch line text objects, the line is stretched and not the text.

If **Object Stretching** is not enabled, the stretching points ■ are not visible.

Move an Object


Click and drag one of the unfilled squares □ (moving points) to move the object. Each square represents a vertex. If a hole is selected, you can move it in the same way. Line, area and text objects don't need to be picked by their moving points to be moved, a simple click and drag in the object is sufficient.


Objects can also be moved using the arrow keys. Press additional the Shift key to move the object faster.

 Objects can be moved by clicking inside the object and moving the mouse after the object got selected. If the mouse is in a correct spot, it changes to a cross shaped cursor .

Select a Hole in an Area



It is possible to select a hole in an area object by clicking inside the desired hole. Only the hole will be selected. You can accomplish editing operations (e.g. **Enlarge/Reduce**, **Fill**, **Rotate**, **Move** or **Delete**) as for a normal area object. Find more about cutting holes on the **Edit Object** page.

 If you have enabled the **Auto select symbol when selecting object** option in the **Symbol** category of **OCAD Preferences**, the corresponding symbol is automatically selected when selecting an object. This does not work for a selection of multiple objects.

 Disable **Context menu in drawing area** in the **GUI (Graphical User Interface)** category of **OCAD Preferences** to switch easily to the current **Drawing** mode and the **Select Object and Edit Vertex** mode by a simple click with the right mouse button on the drawing area. If this option is enabled, the context menu appears by clicking on the drawing area with the right mouse button. Read more about the context menu on the **OCAD Preferences** page.

Select Object and Edit Vertex

Pro Std Sta CS

Choose **Select Object and Edit Vertex** in the **Select** menu or click the **Select Object and Edit Vertex** icon  in the **Editing and Drawing Toolbar** to select and edit vertices. The cursor changes to a transparent arrow like on the icon . You are now in the **Select Object and Edit Vertex** mode. Click on an object to select it.



The

characteristics of every vertex are visible in this selection.



Objects can be selected by either clicking on them or clicking outside and drawing a window over the object.




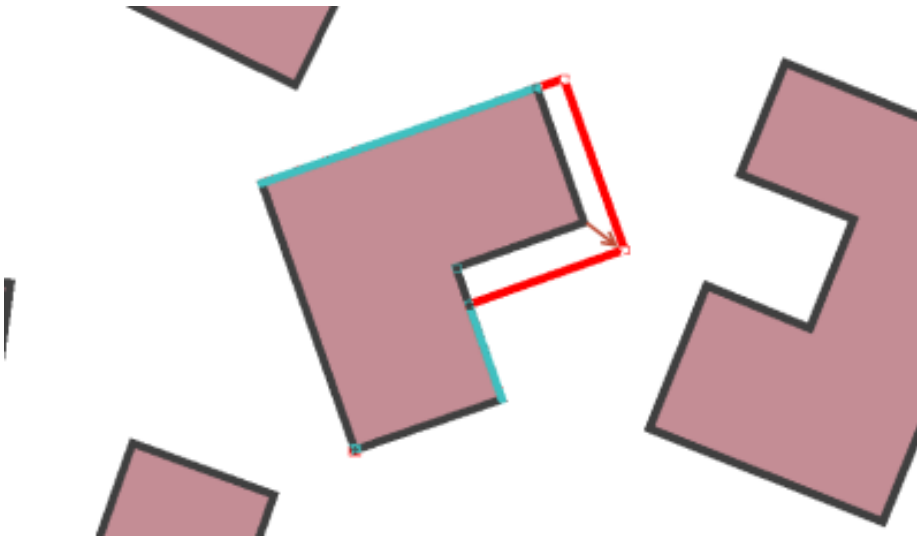
You can select multiple objects on the same time with this method.



While moving vertices, a draft line shows the connection to the previous and next unmoved vertex.

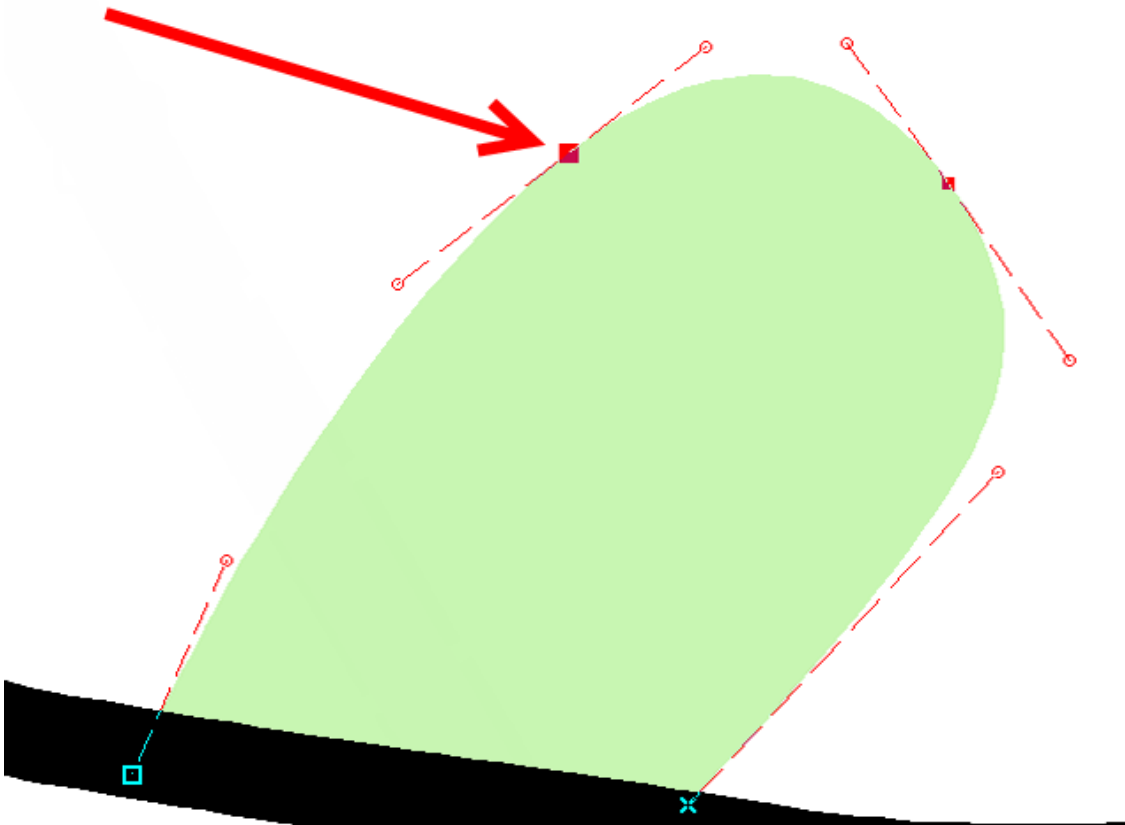
Move Single Vertices

Once an object is selected you can move a single vertex of the selected object. Simply drag the desired point to the new position.  Right angles are kept by holding down **SHIFT** key while moving a single vertex.



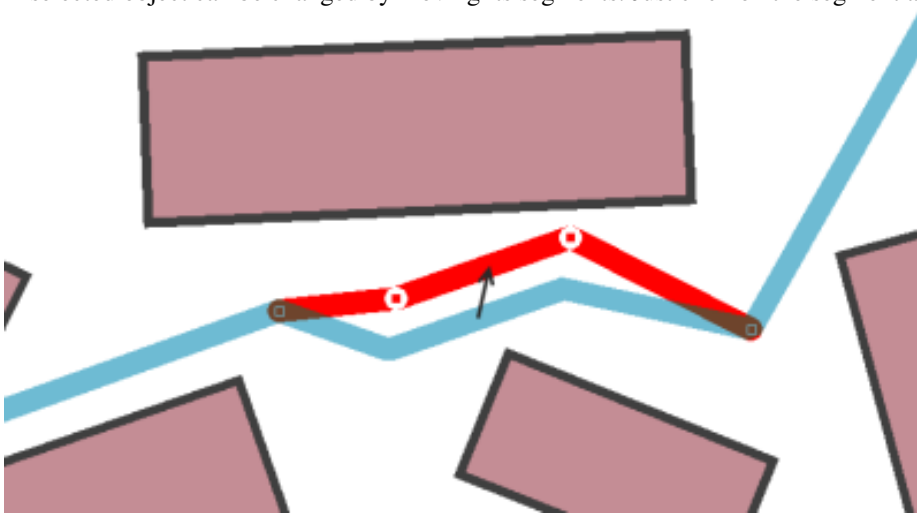
Move Vertex With Arrow Keys

It is also possible to move a vertex with arrow keys. **Double click** on a vertex and move it then with the **arrow keys**. The selected vertex gets shown a little bigger after double click.



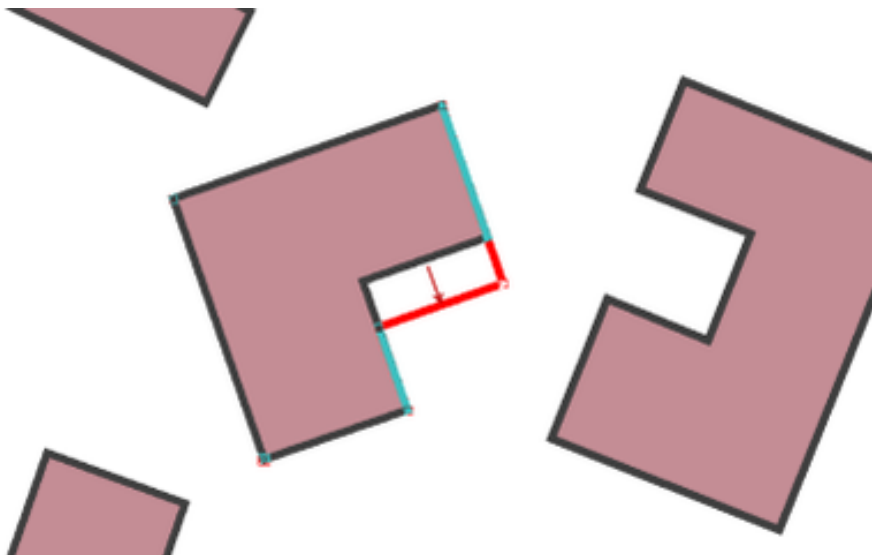
Move a Segment

A selected object can be changed by moving its segments. Just click on the segment and drag it.



💡 The moved segment doesn't get transformed, but the ones it is connected to.

💡 If a corner is rectangular, the angle will be kept and the segment can be move only along this/these straight/s.

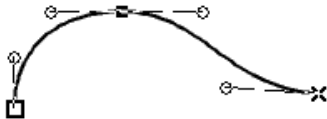


Samples:



Edit a Bezier Vertex

Once an object containing Bezier vertices is selected you can edit those.




Drag a tangent endpoint O to edit the tangent.

Select a Hole in an Area

It is possible to select a hole in an area object by clicking inside the desired hole. Only the vertices of the hole will be marked. You can accomplish editing operations (e.g. **Fill**, **Rotate**, **Move** or **Delete**) as for a normal area object. Find more about cutting holes on the **Edit Object** page.

💡 If you select an object in the **Select Object and Edit Vertex**  mode, you can move it using the arrow keys on the keyboard.

💡 If you select an object in the **Select Object and Edit Vertex**  mode and then **double click** on a vertex, the mark gets bigger and the vertex can be moved by using the arrow keys on the keyboard.

💡 If you have enabled the **Auto select symbol when selecting object** option in the **Symbol** category of **OCAD Preferences**, the corresponding symbol is automatically selected when selecting an object. This does not work for a selection of multiple objects.

💡 Disable **Context menu in drawing area** in the **GUI (Graphical User Interface)** category of **OCAD Preferences** to switch easily between the current **Drawing** mode and the **Select Object and Edit Vertex** mode by a simple click with the right mouse button on the drawing area. If this option is enabled, the context menu appears by

clicking on the drawing area with the right mouse button. Read more about the context menu on the OCAD Preferences page.

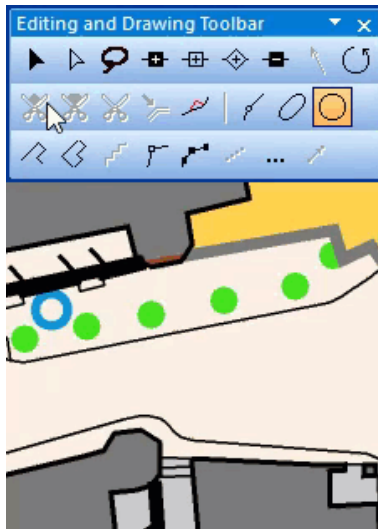
💡 Text object can be selected and marked with a double click in the text.

Select and Edit Multiple Objects


Pro Std Sta CS


Drag an area in the  **Select and Edit Object** or  **Select Object and Edit Vertex** mode to select all objects which are in it.

You can choose between two modes to select multiple objects in the **Select** category of **OCAD Preferences** in the **Options** menu: Either all objects must be with at least one vertex in the selection or all objects must be completely in the selection.




Alternatively, you can select every object individually by holding the **Shift** key while clicking the objects.

In the  **Select and Edit Object** mode it is possible to enlarge or reduce a selection of objects. For that purpose, drag one of the black squares ■ in the desired direction.

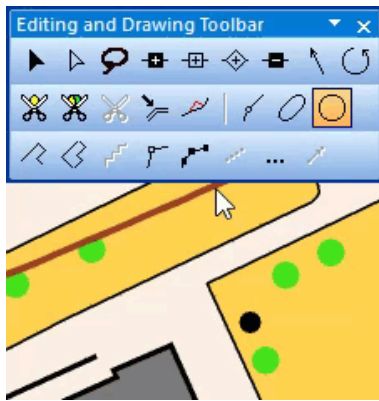
It is also possible to move a selection of objects in both modes. If you move the mouse over the selection the cursor changes its appearance to . By clicking and dragging the selection or using the arrow keys you can move it.

💡 Enable the **Move multiple objects** option in the **Warnings** category of **OCAD Preferences** to get a warning message when you move multiple objects. Use this option in order to guard against moving multiple objects accidentally.

Select Object with Lasso Tool

1. Choose **Select Object with Lasso Tool** in the **Select** menu or click the **Select Object with Lasso Tool** icon  in the Editing and Drawing Toolbar. The transparent arrow with a loop behind shows that you are now in the Select Object with Lasso Tool mode.
2. Draw a Freehand line by holding down the left mouse button when moving the mouse cursor.
3. Finish the lasso line by leaving the left mouse key. The objects within the lasso line are selected.

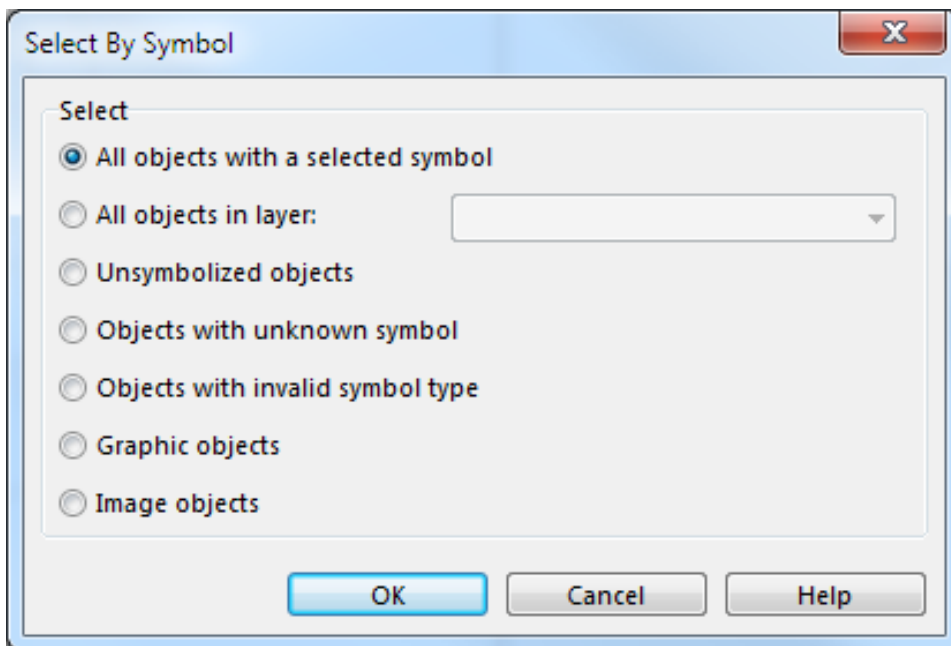
💡 It depends from the Select Preferences if objects that are only partially within the lasso line are selected.



Select Objects by Symbol

Pro Std Sta

Choose **Select Objects by Symbol** in the **Select** menu to select all objects with certain symbols or in a certain layer. As an example you can select all roads. The **Select By Symbol** dialog box appears.



All objects with a selected symbol

Choose this option and click on the **OK** button to select all objects with the selected symbol(s). Select the symbol(s) before you choose the **Select Objects by Symbol** command. For the example given above, select all road symbols. All roads are selected and you can for example measure their total length or make a modification to them.

All objects in layer

If you import files like PDF, DXF, Adobe Illustrator or OpenStreetMap with layer information, the layer information does not get lost, though OCAD does not support layers as they are known in Adobe Illustrator or similar applications. Choose the **All objects in a layer** option to select all objects which are in the same layer. Choose a layer in the dropdown list. If you have selected an object of this layer before choosing this command, the layer name will already be filled in. For example, choose the layer which contains all the roads and click the **OK** button to select all roads.

Objects without symbol

Choose this option and click on the **OK** button to select all Unsymbolized Objects.

Objects with unknown symbol

Choose this option and click on the **OK** button to select all Objects with Unknown Symbol.

Objects with invalid symbol type

Choose this option and click on the **OK** button to select all Objects with Invalid Symbol Type.

Graphic objects

Choose this option and click on the **OK** button to select all Graphic Objects.

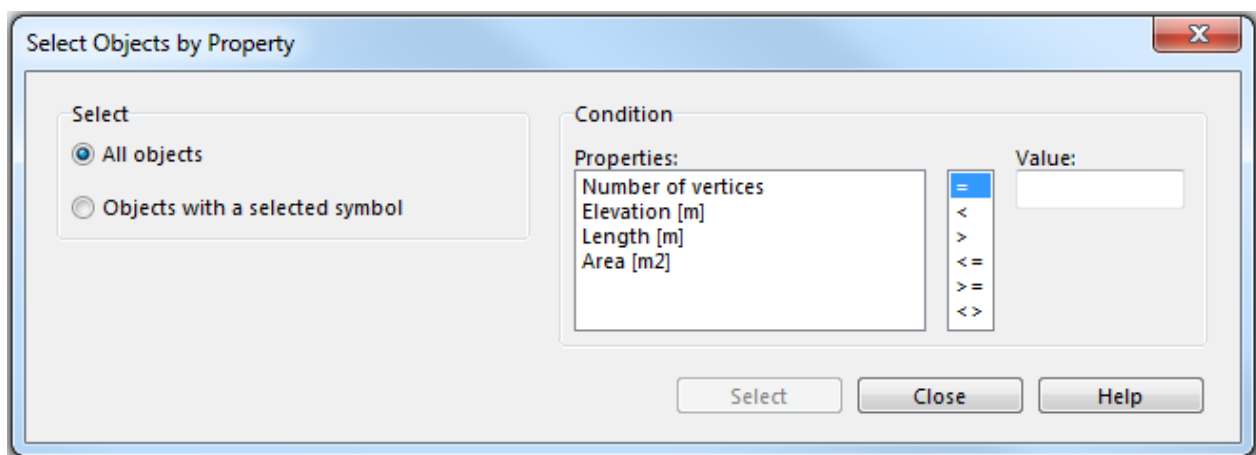
Image objects

Choose this option and click on the **OK** button to select all Image Objects.

Select Objects by Property

Pro Std

Choose **Select Objects by Property** in the **Select** menu to select objects by particular properties. The **Select by Property** dialog box appears.



In the **Select** field you can choose between two options:

- The **All Objects** option means that the selection is made out of all objects on the map.
- The **Objects with a selected symbol** option means that the selection is reduced to the objects with a symbol that is selected in the symbol box.


In the **Condition** field you can impose conditions.

- Choose a property like **Number of vertices**, **Length [m]** in the first box.
- Choose an operator like **< > =** in the second box.
- Enter a condition value in the third box.

Click the **Select** button to continue.

The **Object Information** table dialog box appears and the desired objects are selected. The number of selected objects is shown in the header of the dialog. You have now different options:

- Click the **Save Selection** button to save the selection.
- Click the **Report** button to save a report in a Microsoft Excel (.xls), Text (.txt), Website (.htm) or Microsoft Word (.doc) file.
- Click the **Close** button to close the dialog and return to the **Select Objects by Property** dialog.

 The **Object Information** and the **Select Objects by Property** dialog are non-modal dialogs. This means, that you can edit the map without closing the dialogs. If the **Object Information** dialog box is opened, you can for example select other objects on the map. The object information is refreshed automatically.

Example 1: Select all objects which are longer than 200m.


1. Choose the **All objects** option in the **Select Objects by Property** dialog.
2. In the **Condition** field choose **Length [m]** as the **Property**, **>** as an operator and enter the value **200**.
3. Click on the **Select** button to continue. The **Object Information** table dialog box appears. All objects longer than 200m are selected and listed in the table dialog box.

Example 2: Select all lakes and ponds with an area smaller or equal than 3000m².


1. Select the symbol for a lake and a pond in the symbol box. It is possible to do this even if the **Select Objects by Property** dialog is opened because it is a non-modal dialog.
2. Choose the **Objects with a selected symbol** option in the **Select Objects by Property** dialog.
3. In the **Condition** field choose **Area [m²]** as the **Property**, **<=** as an operator and enter the value **3000**.
4. Click on the **Select** button to continue. The **Object Information** table dialog box appears. All lakes and ponds with an area smaller or equal than 3000m² are selected and listed in the table dialog box.

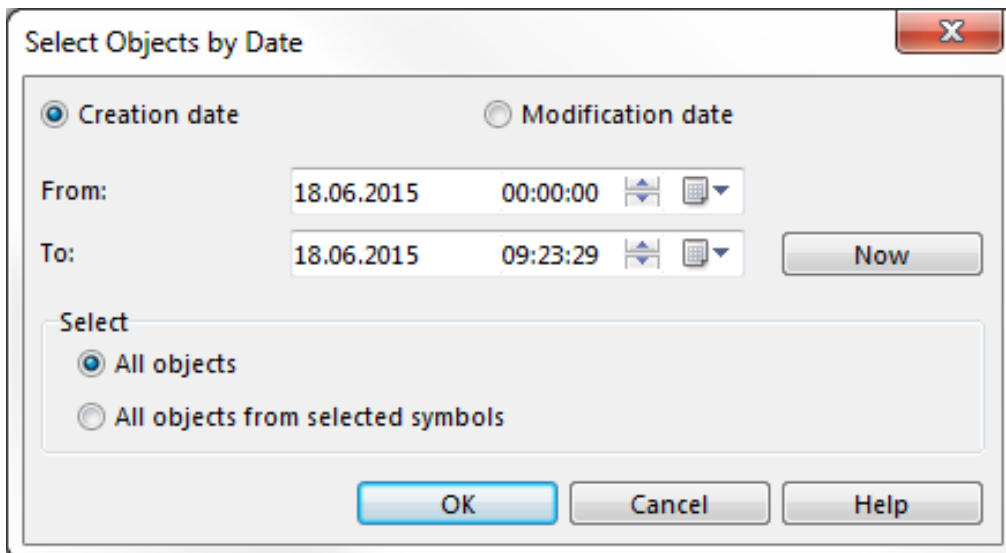
Select Objects by Date

With this function objects can be selected either by their **Creation date** or **Modification date**. It also allows to differ between **All objects** and **All objects from selected symbols**.

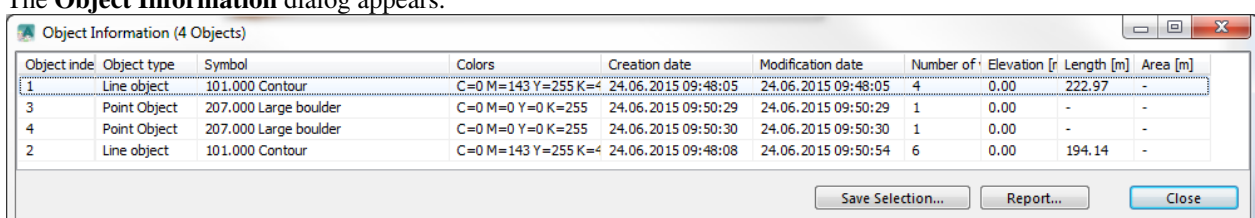
 **All objects from selected symbols** means to select only the previously selected symbol within the time frame.

1. Choose the **Select Object by Date** command from the **Select** menu.
2. A dialog appears where you can pick the date mode, enter the time frame and decide which symbols shall be selected.

-  By default, the actual date is picked.
3. Click the **OK** button to select the object(s).



The **Object Information** dialog appears.



Object index	Object type	Symbol	Colors	Creation date	Modification date	Number of	Elevation [r]	Length [m]	Area [m]
1	Line object	101.000 Contour	C=0 M=143 Y=255 K=4	24.06.2015 09:48:05	24.06.2015 09:48:05	4	0.00	222.97	-
3	Point Object	207.000 Large boulder	C=0 M=0 Y=0 K=255	24.06.2015 09:50:29	24.06.2015 09:50:29	1	0.00	-	-
4	Point Object	207.000 Large boulder	C=0 M=0 Y=0 K=255	24.06.2015 09:50:30	24.06.2015 09:50:30	1	0.00	-	-
2	Line object	101.000 Contour	C=0 M=143 Y=255 K=4	24.06.2015 09:48:08	24.06.2015 09:50:54	6	0.00	194.14	-

💡 It's possible to sort the values by double clicking on the top row.

Last Modified Objects

Click the **Last modified** button to select the last 100 changed objects. The **Object Information** dialog appears. The objects are sorted by the *Modification date*.

Select Object by Object Index

Pro

With this function objects can be selected by their object index. The object index is an internal index for each object and cannot be changed. The object information is shown in the **Object Information** dialog which can be found in the **Select** menu.

Choose the **Select Object by Object Index** command from the **Select** menu. A dialog appears where you can enter the object index. Click the **OK** button to select the object.

The first drawn or imported object has the object index 1. The object index is a number and unique in a ocd file.

Select Duplicate Objects

Pro

Std

Choose this function from the **Select** menu.

With this function you can find all duplicate objects. The objects must be identical and on the same position that they can be found. The selection can be saved with OCAD 12 Professional right after carrying out the command (**Save a Selection**).

💡 Objects with different symbols whose geometry is identical are not selected.

Select Self Intersected Objects

Pro

Std

Choose this function from the **Select** menu.

This function selects all line, area and line text objects with a self-intersecting geometry. The selection can be saved right after carrying out the command (**Save a Selection**).

Select Objects with Invalid Geometry

Pro

Choose this function from the **Select** menu to select all objects with invalid geometry.

The following objects are selected:

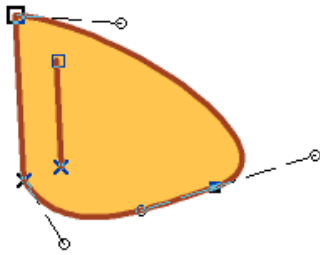
- **Objects which start with a hole:** OCAD selects all objects, whose first vertex has a hole flag. This can be a hole with no exterior ring.
- **Damaged Bezier curves:** A Bezier curve is composed of minimum a start point, a first Bezier vertex, a second Bezier vertex and an end point (see illustration).



If a Bezier curve has less than these vertices, it is selected.

- **Line objects with invalid hole flag:** A line object which contains a vertex with a hole flag is selected.
- **Area object with invalid geometry:** OCAD selects all area objects, whose vertices have the same coordinate. This problem can occur when the scale is reduced.
- **Line objects with the same start and end point:** This problem can occur when the scale is reduced. In this case, the start and end point of a really short line object can fall together.

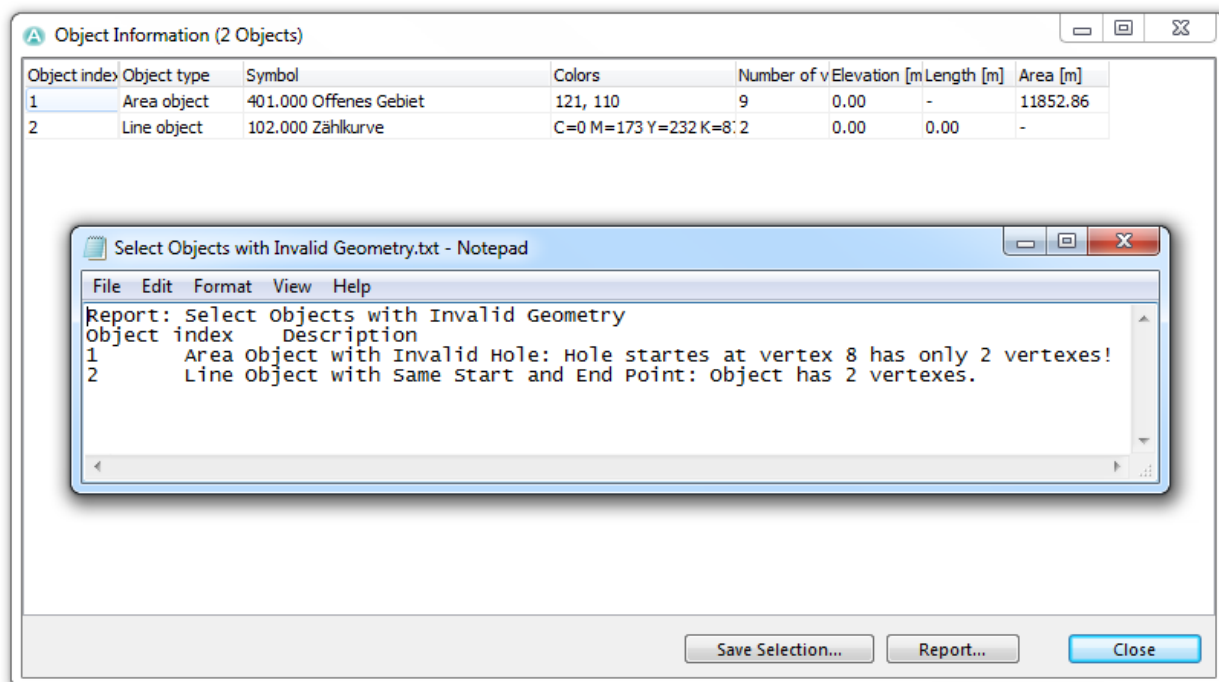
- **Area object with an invalid hole:** A hole must have minimum three vertices. A hole with one or two vertices is selected (see illustration).



- **Area object with an invalid exterior ring:** An invalid exterior ring can be a ring with only one vertex (see illustration).
- **Graphic object with invalid object type:** **Graphic Objects** are either areas or lines. OCAD selects all other types.
- **Object with invalid number of vertices:** A line object must have minimum two vertices and an area object three. If they have less vertices, they are selected. In addition, text and line text objects containing no text are selected. To select line text objects with a too short line, use the **Select Line Text Objects with too Short Line** function.

It is difficult to get an object with invalid geometry. It can happen when you import files or change the scale.

After choosing the function, OCAD searches objects with invalid geometry, selects them and displays them in the **Object Information** dialog. In addition, a text file opens with a report. This file is stored in a temporary folder.



The selected objects should be deleted, otherwise they can cause problems when exporting files like PDF or Shape.

The object index is indicated in the **Object Information** dialog as well as in the text file. Use the **Select Object by Object Index** function to find the object later with help of the object index.

Select Line Text Objects with Line too Short

Pro

Choose this function from the **Select** menu.

This function selects all line text objects whose text is longer than the line length. This can happen when the font of a text symbol has been increased. The selection can be saved right after carrying out the command (**Save a Selection**).

Select All

Pro Std

Choose **Select All** in the **Select** menu to select all symbolized (also from protected and hidden symbols), unsymbolized, graphic and image objects. Layout objects are not selected.

Clear Selection

Pro Std

Choose **Clear Selection** in the **Select** menu or press the **Esc** key to deselect all objects.

Invert Selection

Pro Std

Choose **Invert Selection** in the **Select** menu to deselect all selected objects and select all unselected object. Layout objects are not selected.

Select Next Object

Pro Std

This menu item is only available if an object is already selected. Choose **Select Next Object** in the **Select** menu to select an object which is behind an object that is already selected.

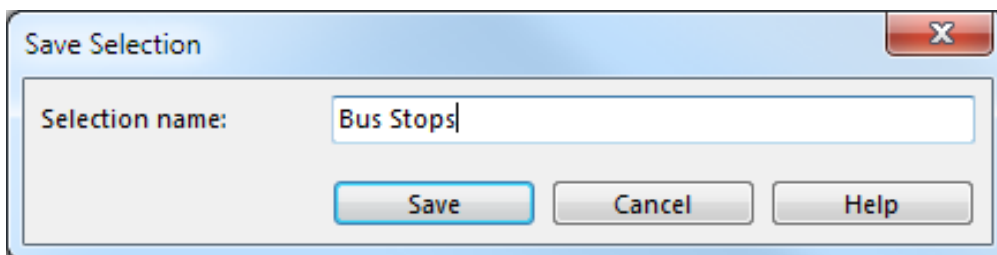


To select an object behind an already selected object you can also keep the **Alt** or **Alt Gr** key pressed and click on the already selected object.

Save Selection

Pro

Choose **Save Selection** in the **Select** menu to save the current selection. The **Save Selection** dialog box appears.



Enter the name of the selection and click on the **Save** button.



Choose **Select Objects by Symbol** in the **Select** menu to select all objects of the selected symbols.

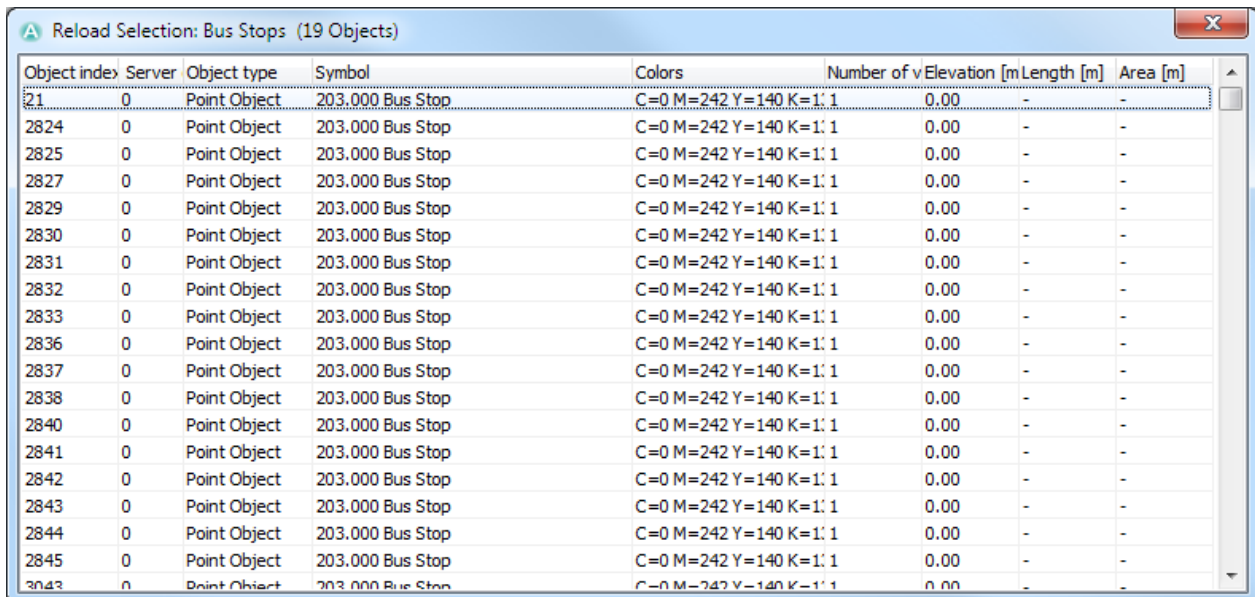


Due to performance issues the number of objects in a selection is limited by 50'000 objects.

Reload Selection

Pro

Choose **Reload Selection** in the **Select** menu to select all objects from a saved selection. Choose a saved selection and the **Reload Selection** dialog appears.



Object index	Server	Object type	Symbol	Colors	Number of v	Elevation [m]	Length [m]	Area [m]
21	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2824	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2825	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2827	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2829	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2830	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2831	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2832	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2833	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2836	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2837	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2838	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2840	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2841	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2842	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2843	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2844	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2845	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-
2843	0	Point Object	203.000 Bus Stop	C=0 M=242 Y=140 K=1: 1		0.00	-	-

The list of the selected objects with additional information is shown in the dialog. The number of selected objects is shown in the caption in brackets.

Select one object in the list and OCAD selects this object in the drawing area in the edit mode.

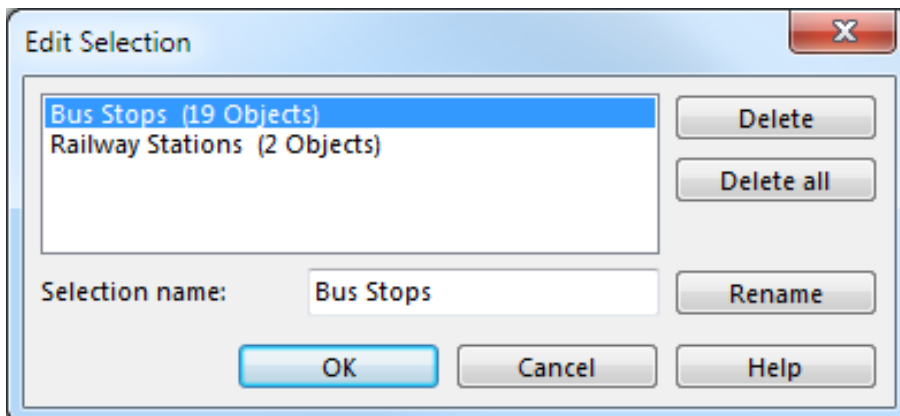


The **Reload Selection** function selects also symbolized objects from symbols with the status **Protect** or **Hide**.

Edit Selection

Pro

Choose **Edit Selection** in the **Select** menu to rename or delete saved selections.



Edit Selection

Bus Stops (19 Objects)
Railway Stations (2 Objects)

Selection name:

Buttons: Delete, Delete all, Rename, OK, Cancel, Help

Delete a Selection

Select a selection in the **Edit Selection** dialog and click the **Delete** button to delete it. Click the **Delete all** button to delete all selections.

Rename a Selection


Select a selection in the **Edit Selection** dialog. Then enter a new name for the selection in the **Selection name** field. Click the **Rename** button to apply the new name.

Click the **OK** button to save and quit the **Edit Selection** dialog. Click the **Cancel** button to close the **Edit Selection** dialog without saving any changes.

Select Group

Pro

If you have **Grouped** objects on your map, you can select them easily by choosing the **Select Group** command in the **Select** menu.

 [Selection ^[1]]

[Back to Main Page](#)

[Previous Chapter: Drawing an Object](#)

[Next Chapter: Edit Object](#)

References

[1] http://www.ocad.com/howtos/136_Selection.htm

Object

Cut

Pro Std Sta CS

Choose this command in the **Object** menu to cut the selected object(s). Optionally, you can press Ctrl+X. The cut object(s) are stored in the clipboard and can be pasted again by choosing the **Paste** command in the **Object** menu or pressing Ctrl+V.

Copy

Pro Std Sta CS

Choose this command in the **Object** menu or press Ctrl+C to copy the selected object(s) to the clipboard. A maximum of 50 MB of data can be copied to the clipboard.

Paste

Pro Std Sta CS

This command is enabled in the **Object** menu when the clipboard contains OCAD objects or text and you are writing text.

Choose this command to copy the object(s) in the clipboard to the current map. Alternatively, you can press Ctrl+V. They are initially placed in the center of the screen.

Choose **Cut** (Ctrl+X) or **Copy** (Ctrl+C) from the **Object** menu to copy objects to the clipboard.


When writing text, the text from the clipboard is inserted.



When pasting an object from a different map, and the corresponding symbol does not exist in the current map, the symbol will be added. However, if the color table is different, the object may appear in wrong colors. You will have to adjust the colors of the newly added symbol.

Delete



Choose this command in the **Object** menu or from the **Edit Functions Toolbar**  to delete the selected object(s). Alternatively, press the **Delete** key on the keyboard. When writing text, the next character or the selected text is deleted.

Back to the **Edit Object** page.

Edit Object

Basic Functions




Copy and Paste

Visit the **Copy and Paste** page to get some information about copying and pasting objects.

Cut and Delete

Visit the **Cut and Delete** page to get some information about cutting and deleting objects.

Edit Text

Choose the **Select Object and Edit Vertex** tool  to select the text object or the line text object. Click with the mouse cursor into the text at the position where you want to change it.



Use **double click** to select a word.






Click **three times** to select the whole text of an object.

Rotate

Rotate an Object



Choose **Rotate** in the **Rotate Object** submenu of the **Object** menu or click the  **Rotate Object** icon in the **Editing and Drawing Toolbar** to rotate an object. This function is only enabled when an object is selected.

The cursor changes to the anchor point symbol () first. With this cursor you can define the center of the rotation (anchor point). Click on the desired location. When the anchor point is defined, the cursor changes to the rotate symbol (). Now you can rotate the object. Move the mouse pointer to a place distant from the anchor point, press and hold the left mouse button. With the button pressed, rotate the object as desired. The object gets shown with a draft line as "preview", until you release the mouse button to finish the rotation.

Rotate an Object by Angle

Pro Std




(This function is only enabled if one or several objects are selected)

Select **Rotate (Enter Angle)** in the **Rotate Object** submenu of the **Object** menu to rotate the selected object(s) by angle. The **Rotate (Enter Angle)** dialog appears.

- Enter an *angle* in degrees.
- Choose a rotation center option (this option is only visible if several objects are selected).
 - Use *selected objects centroid as common rotation center* will use the selected objects centroid as one common rotation center. This option is set by default if also line or area objects are selected.
 - Use *each object's centroid as rotation center* will use each object's centroid as an individual rotation center. This option is set by default if only point or text objects are selected.
- Click the **OK** button to finish the process.

Align Objects

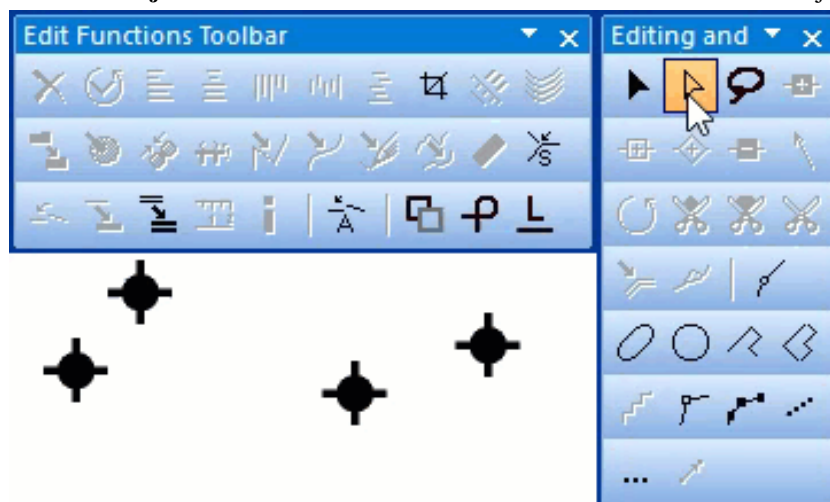
Pro Std

Visit the **Align Objects** page to find some information about the  **Align Object: Horizontal Coordinate**,  **Align Objects: Horizontal Coordinate Centered** and the  **Align Object: Vertical Coordinate** function.

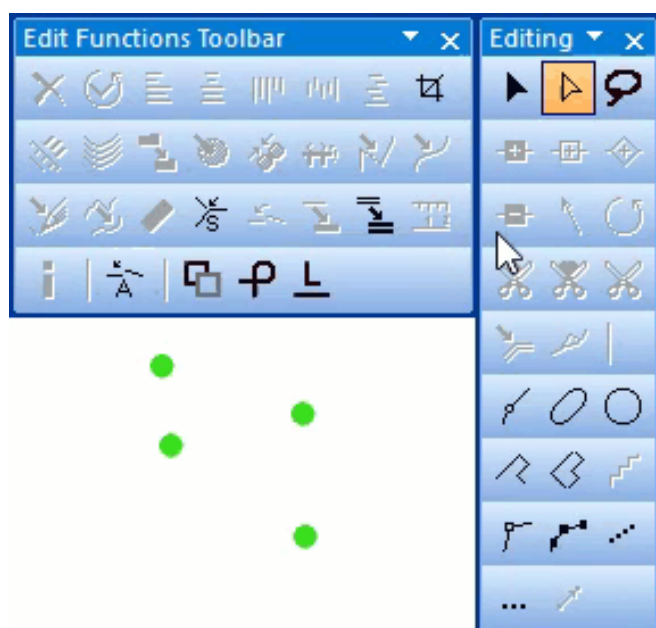
Distribute Objects

These functions distribute the selected objects with equal space between. The set borders are the upmost/leftmost and the lowest/rightmost object.

 **Distribute Objects: Horizontal Coordinate** This function distributes the objects horizontally.




 **Distribute Objects: Vertical Coordinate** This function distributes the objects vertically.

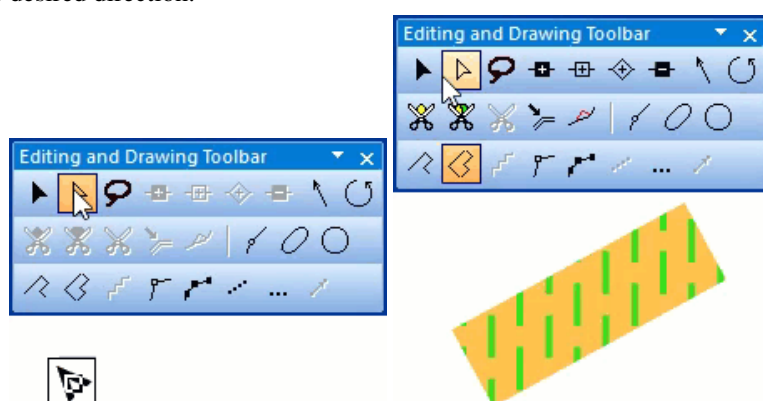


Indicate Direction of Area Pattern or Point or Text Object

Pro Std Sta

Choose this command either from the **Objects** menu or click the corresponding button  in the **Editing and Drawing Toolbar** to indicate the direction of an area pattern, point or text object.

This function is only enabled if a point, area or text object is selected. Choose this function to change the direction of a point object, of the pattern of an area object or of text. Indicate the new direction by dragging a line from the object in the desired direction.



Note the difference to the Rotate button, where you first mark the anchor point and then rotate the object. In this mode you just drag a long line for the new direction. The object remains in the same place.

Cut a Hole or Area or Line


Visit the **Cut** page to get some information about the  **Cut Hole**,  **Cut Area** and the  **Cut Line** function.

Crop Objects

Pro **Std** **Sta**

Visit the **Crop Objects** page to find some information about the **Crop Objects** button.

Move Parallel

Visit the **Move Parallel** page to find some information about the  **Move Parallel** and the **Move/Duplicate Parallel by Specified Distance** function.

Reshape

Pro **Std**

Visit the **Reshape** page to find some information about the  **Reshape** function.


Interpolate Objects

Pro **Std**

Visit the **Interpolate Objects** page to find some information about the  **Interpolate Objects** function.

Duplicate

Pro **Std** **Sta** **CS**

A description of the  **Duplicate** function can be found on the **Duplicate** page.

Move and Duplicate

Pro **Std**

Visit the **Move and Duplicate** page to get some information about this function.

Mirror and Duplicate

Pro **Std**

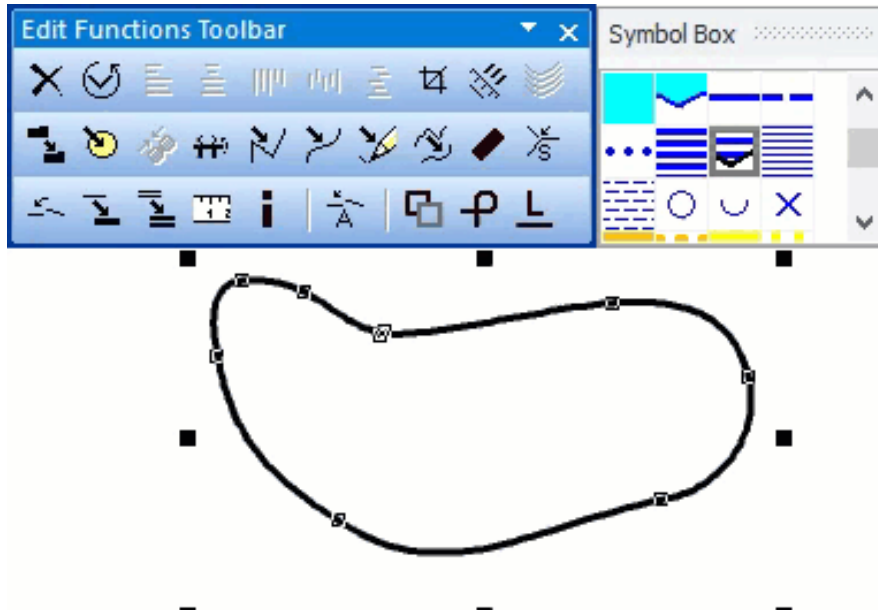
Visit the **Mirror and Duplicate** page to get some information about this function.


Stretch or Shrink

You get access to this function through picking **Stretch / Shrink** in the **Object** menu. In the following dialog, it's possible to define the new horizontal and vertical length (in %). By default, the **Preserve horizontal / vertical ratio** option is selected.

Fill or Make Border or Duplicate Identically

Pro Std Sta CS



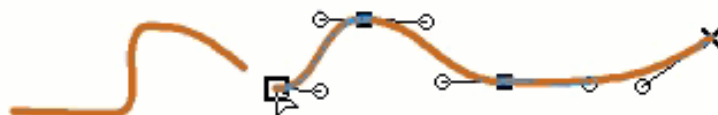
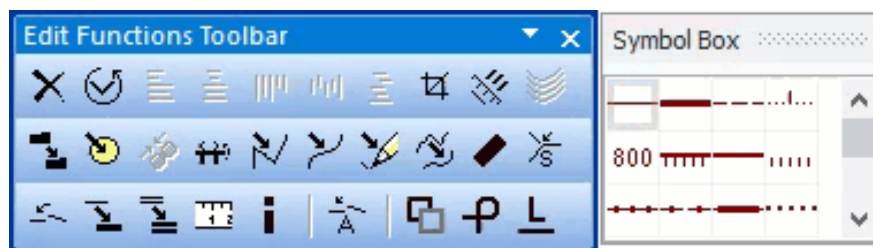
You can find this functions either in the **Object** menu or you can click the corresponding button  in the **Edit Functions Toolbar**.


This function is enabled when an object is selected on the map and a symbol is selected in the symbol box which is compatible with the selected object. For example, areas can be filled with other areas, or surrounded with line objects but you cannot fill them with point objects. With this function it is possible to do several things:

- If you use this function when you have selected an object with the same symbol as selected in the symbol box, an identical copy of the object at the same position is made.
- If you use this function when you have selected an object with the same symbol type as the symbol selected in the symbol box (e.g both are area, line, text or point symbols), a copy of the object is made at the same position and the selected symbol in the symbol box is assigned to this new object.
- If you use this function when you have selected an area object in the drawing area and a line symbol in the symbol box, a border line around the area object is created.
- The other way round, if you use this function when you have selected a line object in the drawing area and an area symbol in the symbol box, the line object is filled with the area symbol.
- If you use this function when you have selected a hole, the hole is filled if you have selected an area in the symbol box or a border line is created if you have selected a line in the symbol box. Read more about holes here.
- If you use this function when you have selected a line object in the drawing area and a line text object in the symbol box, a line text symbol with the default text 'LTEXT' is created along the line object.
- If you use this function when you have selected an text or point object, the bounding box is filled if you have selected an area in the symbol box or a border line is created if you have selected a line in the symbol box.

Merge

Pro Std Sta CS



You can find this function in the **Object** menu or by clicking the  **Merge** button in the **Edit Functions Toolbar**. With this function you can merge the selected objects. It is enabled if two or more line, area or text objects with the same symbol are selected.

Merge Line Objects


To merge line objects, the start respectively the end points of the selected lines must be close together. You can set the merge tolerance in the Preferences. OCAD merges first objects with identically endpoints.


Merge Area Objects

To merge area objects, the selected area objects have to overlap.

Merge Text Objects

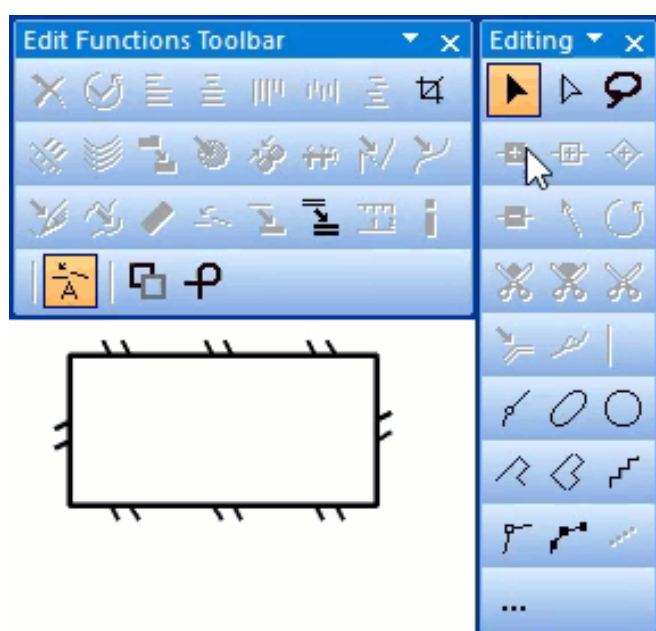
If you merge text objects, the text parts are positioned with a line break under the first text.


 When drawing line or area objects, you can continue existing line or area objects, instead of merging them afterwards. To do this, keep the **Shift** key pressed and start drawing at the first or last vertex of the existing object.

 Join and merge objects ^[14]

Reverse Object Direction


Pro Std Sta



You can find this function in the **Object** menu or by clicking the  **Reverse Object** button in the **Edit Functions Toolbar**.

This function is enabled when a line, line text or area object is selected. It will reverse the direction of the object, the first vertex becomes the last one and vice versa.

Reverse object direction function is useful for objects with asymmetrical line symbols. If a line or borderline has tags to the right side, the tags will point to the left side after reversing. Line text appears on the other side of the line.

 Reversing objects ^[1]

Change to Polyline or Bezier Curve

You can find some help about these functions on the **Change to Polyline or Bezier Curve** page.

Convert to

Graphic Object

Visit the **Convert into Graphic Object** page to get some information about converting objects into graphic objects.

Layout Object

Visit the **Convert into Layout Object** page to get some information about converting objects into layout objects.

Create Color Gradient

With this function you can create a color gradient. Visit the **Create Color Gradient** page to get more information.

Vertices

Add Vertex

The commands for adding new vertices can be found in the **Editing and Drawing Toolbar**.



Add normal vertex



Add corner vertex



Add dash vertex

You can find more information about adding vertices on the **Vertices** page.

Remove Vertex

Click the  **Remove Vertex** button in the **Editing and Drawing Toolbar** to remove a vertex.



You can find more information about removing vertices on the **Vertices** page.

Change Vertex Types to

You can find this function in the **Object** menu. You can find more information about this function on the **Vertices** page.

Change Symbol

You can find more information about the  **Change Symbol of Object** and the  **Change Symbol for all Objects with this Symbol** functions on the **Change Symbol** page.

Group and Ungroup

Pro

Learn how to group and ungroup objects on the **Group and Ungroup** page.

Find and Replace Text

Pro

Choose this command in the **Object** menu to find and replace text of objects. The **Find and Replace Text** dialog box is displayed.

The texts are loaded in the text field if the map does not contain more than 50'000 objects. If you want to load the text objects anyway then click the 'Auto fill' check box. To avoid long waiting time OCAD loads only the first 5'000 text objects in the combo box.

Find text

1. Enter a text you want to find.
2. If you choose the **Case sensitive** option, capitalization of letters is considered in the **Find** function.
3. Choose the **Whole words** only option if the **Find** function shall ignore parts of words.
4. Click the **Find** button. OCAD will select an object found. Click the **Find** button again to find the next object.

Click the **Delete object** to delete the last found, selected object.

Replace with

1. Enter a text that shall replace the word you looked for in the **Find text** part.
2. Click the **Replace** button to replace the text in the last found object. Click the **Replace all** button to replace every text which matches with the **Found** text.

Click the **Close** button to quit the dialog.



Press the **Shift** key when opening the dialog. Then OCAD does not load the texts in the combo box. If the map contains several thousand text objects then the loading of the text objects needs some time (up to one minute).



Regular expressions ^[2] are supported since OCAD 12. Please note that regular expressions use *, +, . or ? as wildcards. These characters have to be used with a backslash ex. \+ to find only the text objects with a + character.

Insert Glyphs

Pro

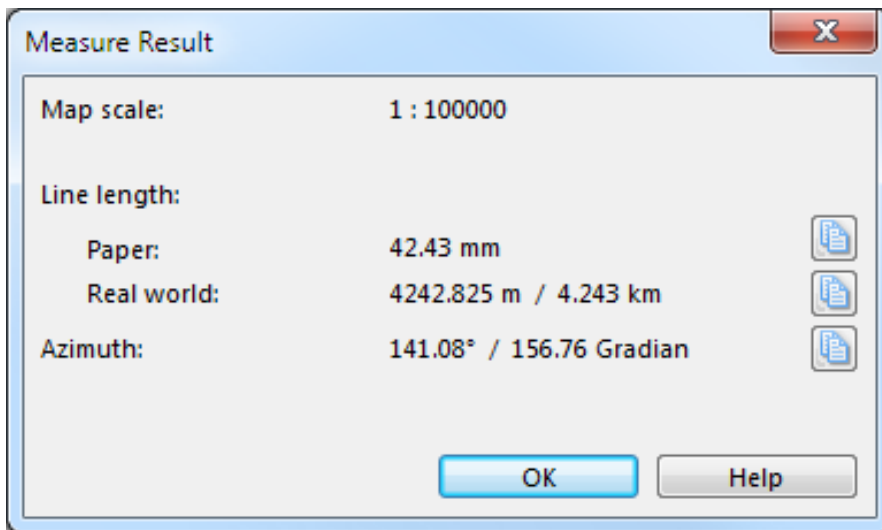
Visit the **Insert Glyphs** page to find information about glyphs in OCAD.

Measure

Pro Std Sta CS

Choose this command from the **Object** menu or click the **Measure** icon in the **Edit Functions Toolbar**. This command is enabled when line or area objects or 2 point objects are selected.

Choose this command to measure the length of the selected line object(s), the area of the selected area object(s) or the distance between 2 point objects. The result is displayed in the **Measure Result** dialog box.



If you select multiple line or area objects (**Select Multiple Objects**), the displayed length respectively area is the sum of all selected lines or areas.

The map scale is used for the calculation.

Click on the **Copy** button to copy the value to the Windows Clipboard.

Change Creation Date

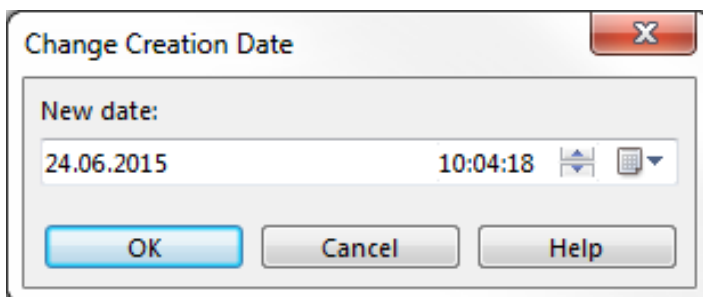
Choose this command from the **Object** menu to change the creation date of the selected object(s).

1. Select the desired objects and open the **Change Creation Date** dialog.
2. Enter your desired creation date and time.



For **New date** is automatically the current time and date.

3. Click **OK** to change the date.



This function does not change the modification date of the selected object(s).

Object Information

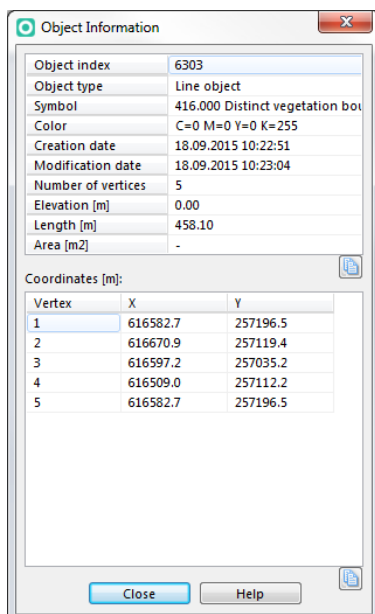


Choose this command from the **Object** menu to get more information about the selected object(s). This command is enabled if at least 1 object is selected.

The following information is shown in the **Object Information** dialog:

- Object index (for internal use)
- Server object index (for only internal use)
- Object type
- Symbol
- Color
- Creation date
- Modification date

- Number of vertices
- Elevation [m]
- Length [m]
- Area [m2]
- Coordinates [mm] or [m] (only if 1 object is selected)



- This is a non-modal dialog. You can always add or remove objects from a selection even if the dialog box is opened. The information in the dialog gets updated instantly if you make any changes to the selection.

- It is possible to save a selection in the **Object Information** dialog when you select multiple objects (**Select Multiple Objects**). Click the **Save Selection** button in the dialog. Learn more about saving selections on the **Save Selection** page.
- Double click on a cell and press the **Ctrl + C** keys to copy a cell value to the Windows Clipboard.
- Click on the a copy button to copy the object information or the coordinate values to the clipboard.
- A double click on the top row of the collums allows to sort the values.

[Back to Main Page](#)

[Previous Chapter: Select](#)

[Next Chapter: Topology](#)

References

[1] <http://www.ocad.com/howtos/36.htm>

[2] <http://www.regular-expressions.info>

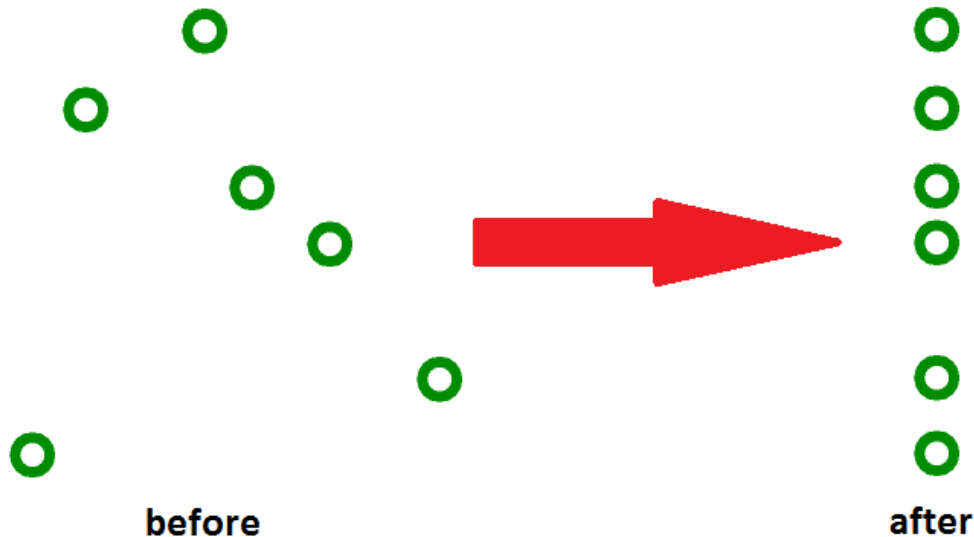
Align Objects

Pro Std

This command is only enabled if two or more objects are selected. There are three alignment options, which you can either choose from the **Align Objects** submenu of the **Object** menu or from the **Edit Functions Toolbar**. The alignment orientates itself on the bounding box of the objects.

Align Object: Horizontal Coordinate

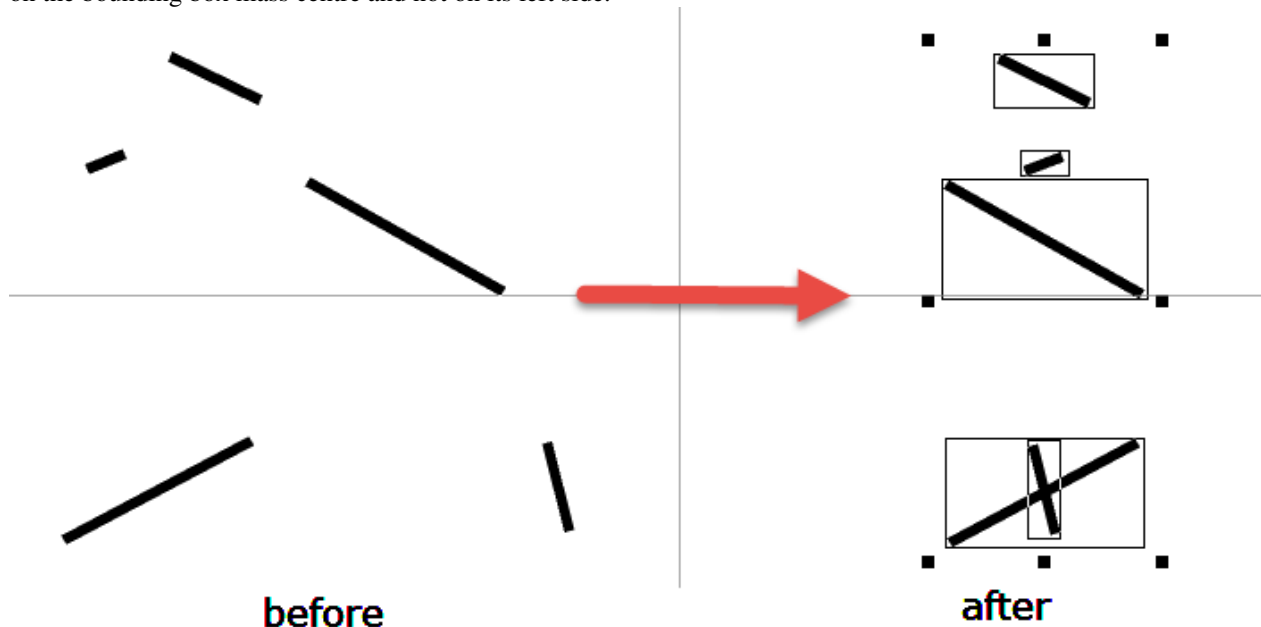
The selected objects are moved horizontally to the position of the first drawn object.



 **Align**

Object: Horizontal Coordinate Centered

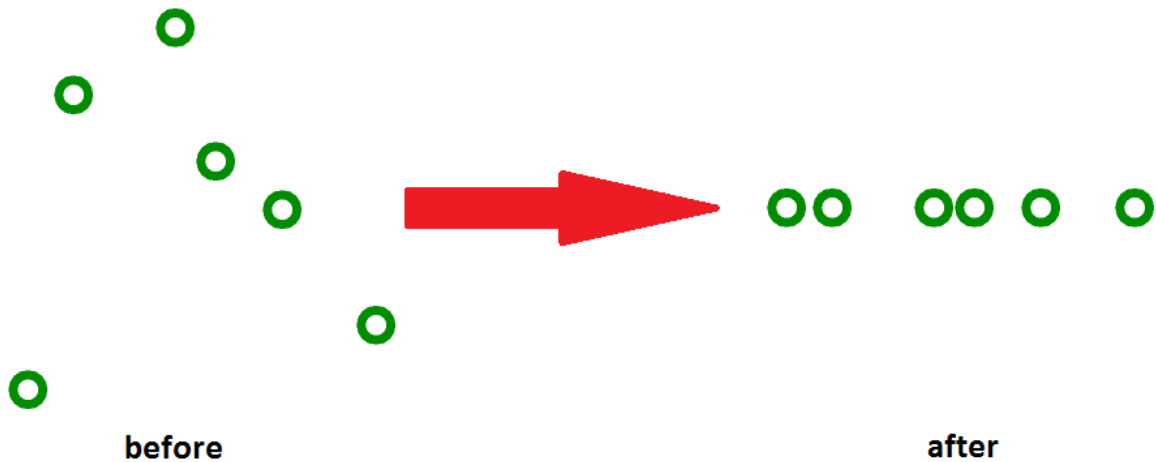
The selected objects are moved horizontally to the position of the first drawn object. The alignment orientates itself on the bounding box mass centre and not on its left side.



 **Align**

Object: Vertical Coordinate

The selected objects are moved vertically to the position of the first drawn object.



💡 For

line, area and text objects the alignment is related to the position of the objects' first vertex.

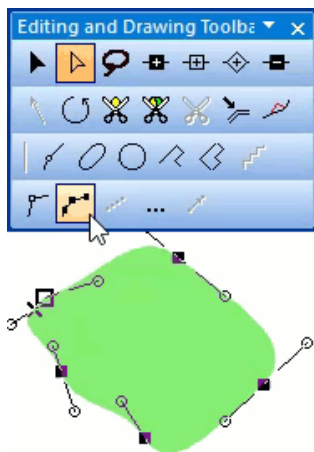
Back to the **Edit Object** page.

Cut

You can find the following functions in the **Cut Object** submenu of the **Object** menu or in the **Editing and Drawing Toolbar**.


Cut Hole

Pro Std Sta CS



This function is enabled when an area object is selected.

Choose this function to cut a hole out of an area. Any drawing mode can be used (Curve, ellipse, circle etc.). This is the procedure:


1. Select the object to cut a hole in.
2. Select a drawing mode (Curve, Ellipse, Circle etc.)
3. Choose the  **Cut Hole** function.
4. Draw the hole.

💡 Use Fill or Make Border to fill in the hole.

💡 Change drawing mode with the **Tab** key before starting to cut.

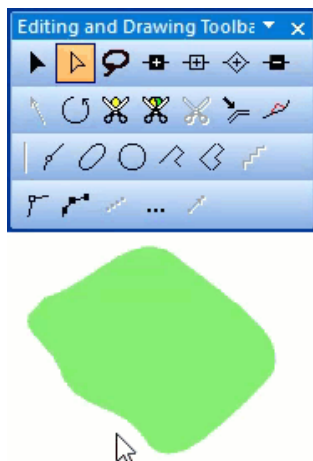


a: Cut a hole in an area object, b: Fill in a hole

 Cut a Hole ^[1]

Cut Area


Pro Std Sta




This function is enabled when an area object is selected.


Choose this function to split an area into two objects.

You can use the Curve, Straight line, Rectangular line or Freehand mode to split an area object into two objects.

1. Select the area object to cut.
2. Select a drawing mode (Curve, Straight line, Rectangular or Freehand).
3. Choose the  **Cut Area** function.
4. Draw the cut line. It must start at the border of the area, go across the area and end at the border of the area. Since OCAD 12, the last vertex of the cut line can be away from the border of the area.

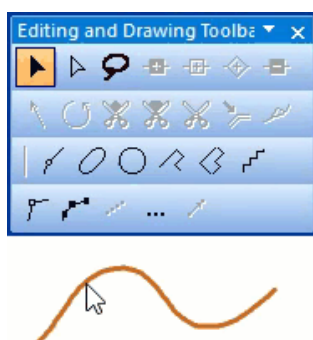
The area is now split into two objects. Note that the cut line should not cross a hole. Otherwise the hole may not be treated correctly for the 2 resulting objects.

 After cutting the area object always the smaller of the two new area objects is selected.

 Change drawing mode with the **Tab** key before starting to cut.

Cut Line

Pro Std Sta CS



This function is enabled when a line or an area object with border line is selected.

Choose this function to divide a line into 2 objects or to cut a **Virtual gap** into a line object, i.e. the line object is not divided, the gap concerns only graphic representation of the object.


Split a line object

Click on the desired position anywhere on the line. The line is then split into 2 objects. One of them is selected.

You can use this function to influence the dashes of a dashed line.

Split a line object with cut-out

Instead of just splitting you can create a cut-out (a gap) in the line.

1. Choose the  **Cut** function.
2. Place the mouse pointer at the start point of the cut.
3. Press and hold down the left mouse button.
4. Move the mouse pointer to the end of the cut.
5. Release the mouse button. The object is now divided into two and the cut-out portion is deleted.



-If you press the **Ctrl** key when cutting a line, the line is not divided into 2 objects. A Virtual gap concerning only the graphic representation of the object is inserted.

-If you press the **Shift** key when cutting a dashed line, you insert a gap with the same length, as the other gaps in the dashed line.

-It is possible to cut a part of the individual sidelines of double line symbols (like major roads), without having to cut the entire line itself.

Cut Object



If you are looking for help on the **Cut Object** function, visit the **Cut Object** page.

Back to the **Edit Object** page.

References

- [1] <http://www.ocad.com/howtos/31.htm>

Crop Objects



Choose the **Crop Objects** command in the **Object** menu to crop objects. The **Crop Objects** dialog appears. This is a non-modal dialog.

In the first field, choose between 3 different **Objects to crop** modes:

- **All objects:** All objects (symbolized, unsymbolized, graphic, image and layout objects) in a certain area are cropped.
- **All objects from selected symbols:** All objects from selected symbols in the symbol box which are in a certain area are cropped.
- **Only chosen objects:** All selected objects in the drawing area will be cropped. Click the **Add selected objects** button to choose the objects.

Choose between 2 different **Line or area cropping objects** modes in the second field:

- **Use cropping rectangle:** All desired objects outside of a rectangle are cropped. Move and adjust the rectangle to the desired position and size.
- **Chosen line or area object** All desired objects outside of a line or area object are cropped. Click the **Choose selected cropping object** button to choose the cropping object. Check the option **Delete cropping object** to delete the selected cropping template after cropping.



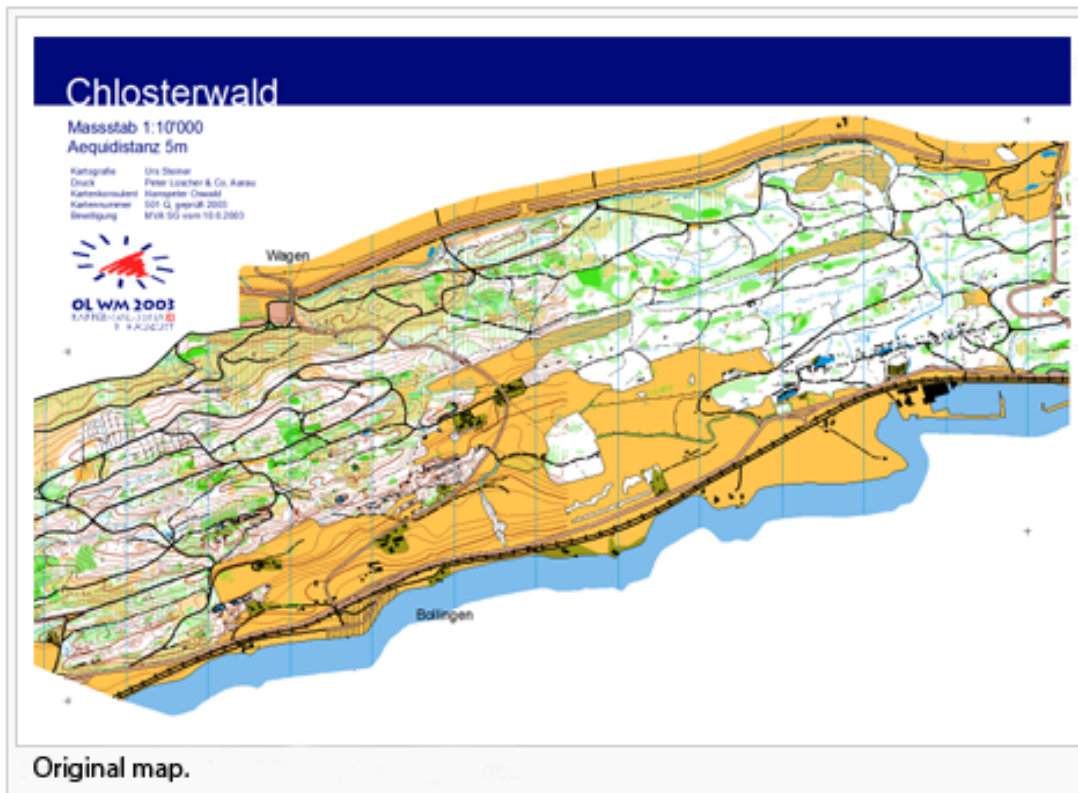
The OCAD Starter edition has limited functionality. Only the **Use cropping rectangle** option is enabled.

Check the option **Cut a hole** to cut a hole instead of cropping, i.e. all desired objects inside a range are cropped. Click the **Crop** button to finish.



The number of vertices of the crop object has a big influence on the speed of this function.

Examples and Demonstrations



Create a desired sector



Use this options from **Crop Objects** to crop a smaller part of the entire map.

1. Choose **Crop Objects** from the **Object** menu.
2. Choose **All Objects** at **Objects to crop**.
3. Draw an object which narrows the desired area or select an existing object.
4. Choose **Chosen line or area object** and click **Choose selected cropping object**.
5. Choose **Delete cropping object** if you want to delete the drawn cropping template afterwards.
6. Instead of using points 3 and 4 it is also possible to use the **Use cropping rectangle** option.
7. Click **Crop** and OCAD creates the area you selected.

Create a hole

1. Choose **Crop Objects** from the **Object** menu.
2. Choose **All Objects** at **Objects to crop**.
3. Draw an object which narrows the desired area or select an existing object.
4. Choose **Chosen line or area object** and click the **Choose selected cropping object** button.
5. Choose **Delete cropping object** if you want to delete the drawn cropping template afterwards.
6. Instead of using points 3 and 4 it is also possible to use the **Use cropping rectangle** option.
7. Check **Cut a hole**.
8. Click **Crop** and OCAD creates a hole where you have drawn and selected the area.

Delete selected objects in a certain area

1. Choose **Crop Objects** from the **Object** menu.
2. Draw an object which narrows the desired area or select an existing object.
3. Choose **Chosen line or area object** and click the **Choose selected cropping object** button.
4. Instead of using point 2 and 3 it is also possible to use the **Use cropping rectangle** option.
5. Choose **Delete cropping object** if you want to delete the drawn cropping template afterwards.
6. Select **All objects from selected symbols** and mark the symbols in the symbol box which have to be cropped.
7. Click **Crop** and OCAD delete all selected symbols which you selected in the symbol box except the chosen area.

 [Crop Objects ^[1]]

Back to the **Edit Object** page.

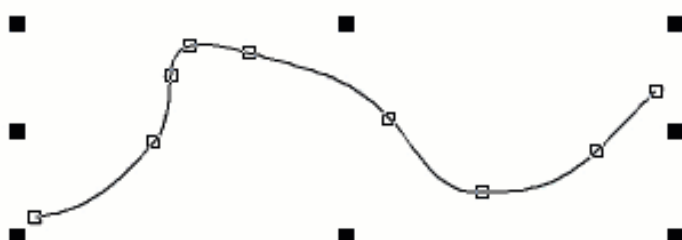
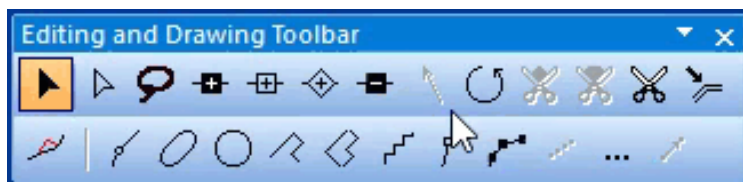
References


- [1] http://www.ocad.com/howtos/137_Crop_Objects.htm
-

Move Parallel and Move and Duplicate Parallel by Specified Distance


Move Parallel

Pro Std Sta



Choose this function in the **Object** menu or click the  **Move Parallel** button in the **Editing and Drawing Toolbar**. This mode is activated when a line, line text or area object is selected.

Choose this function to move a line (or the outline of an area) parallel to the original line.

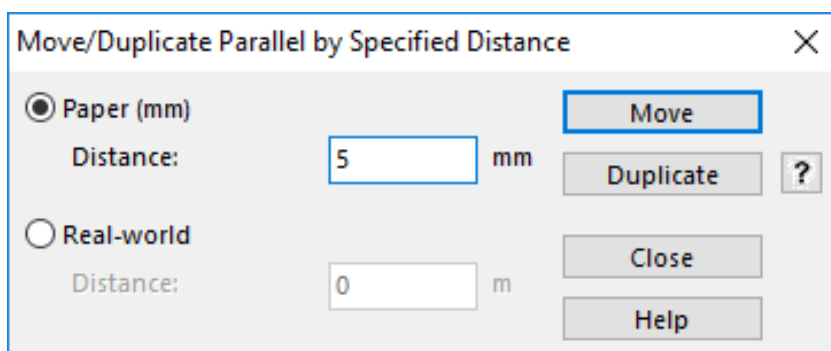
1. Select a line, line text, or area object.
2. Choose the  **Move Parallel** function.
3. Drag a vertex of the selected object in the desired direction. A help line with vertices gives a preview of the parallel moved object.
4. Drop the object to finish parallel moving.

This mode is especially useful when writing street names on curved streets. To draw the line for the line text, follow the center line of the street and enter the text. Then select this mode to move the text to the desired position. The line of the text will stay parallel to the original line and follows curves so that a constant distance from the original line is kept.

Move and Duplicate Parallel by Specified Distance

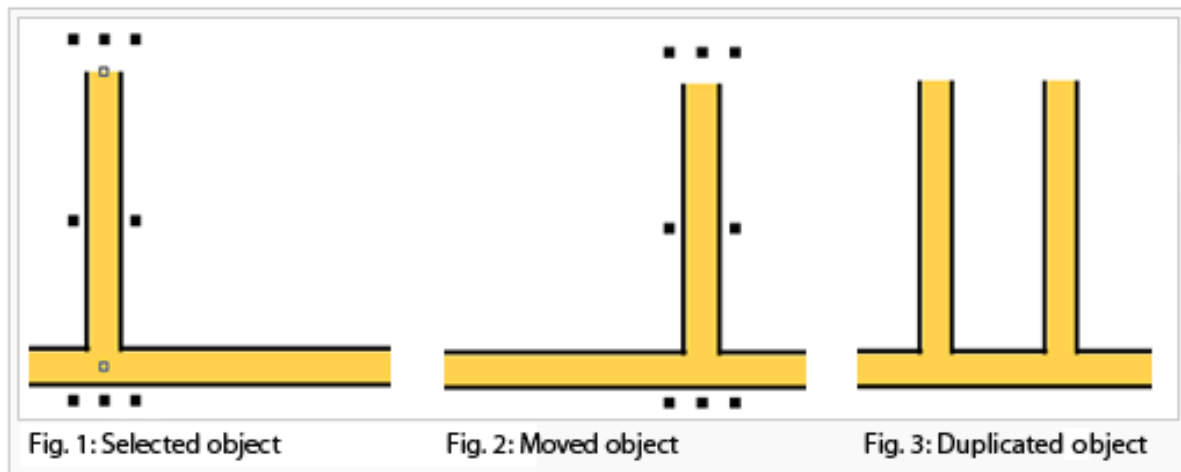
Pro Std

1. Choose the **Move/Duplicate Parallel by Specified Distance** function in the **Object** menu if you want to move a line, line text or area object parallel with a certain distance. Point and text objects are moved according to their direction.
2. The **Move/Duplicate Parallel by Specified Distance** dialog box appears.



3. Choose either the **Paper (mm)** or the **Real world coordinates** input option and enter a value in **mm** or in **m**.
4. Click the **Move** button to move the object, click the **Duplicate** button to duplicate and move the object.

- Click the **Close** button to close the dialog.





Back to the **Edit Object** page.

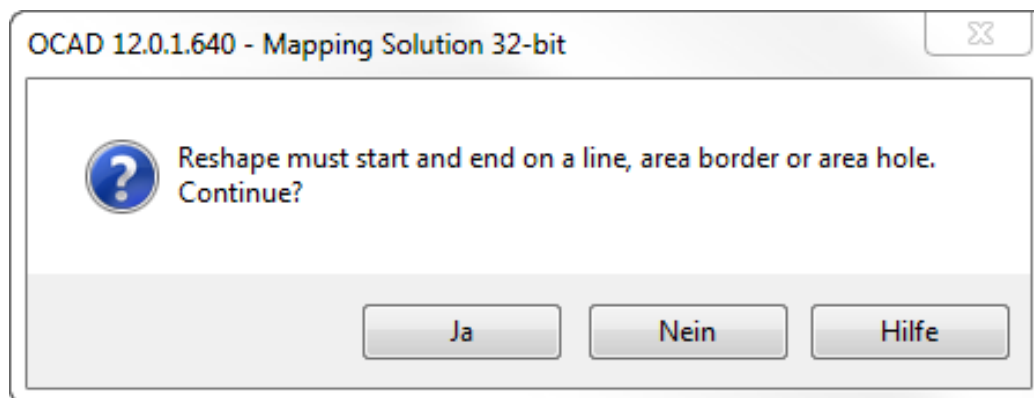
Reshape

Pro **Std**

With the **Reshape** function you can edit the shape of a line, line text or area object easily.

- Choose the  **Reshape** function either in the **Object** menu or in the **Editing and Drawing Toolbar**. A line, line text or area object must be selected.
- Once you are in the **Reshape** mode, start drawing the new shape of the selected object. Reshape needs to start and end on the shape of the selected object.

 You will be asked whether you want to continue if the end point is not placed on the shape of the selected object.



 [Reshape ^[1]]


Back to the **Edit Object** page.

References

- [1] http://www.ocad.com/howtos/132_Reshape.htm

Interpolate Objects


Pro **Std**

This function is available if two point objects or two line objects are selected. Both line objects must have the same number of vertices! The function can be found either in the **Object** menu or when you click the  **Interpolate Objects** icon in the **Edit Functions Toolbar**.

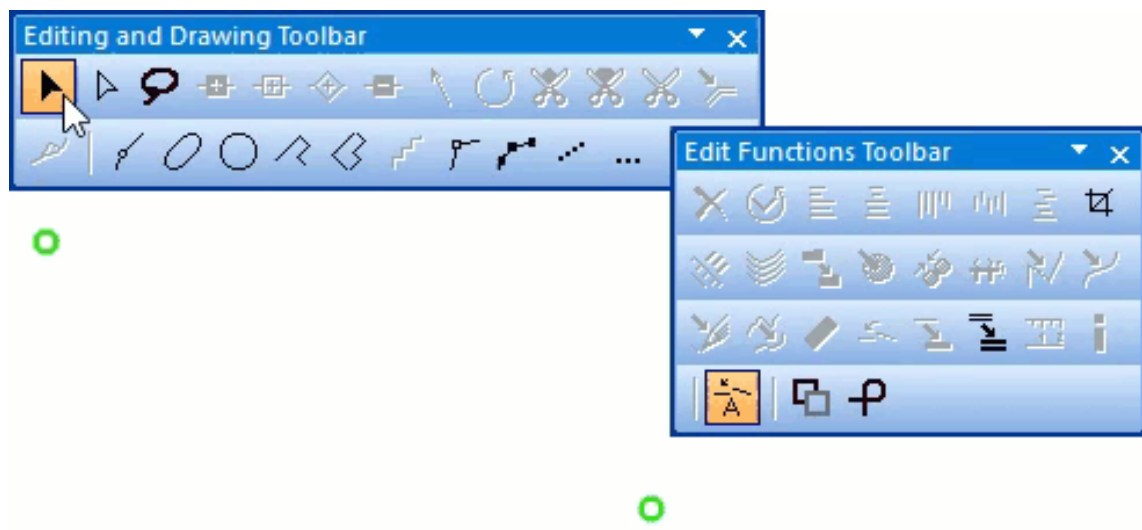
You can either...


- ... interpolate line objects like contour lines or
- ... interpolate point objects e.g. when you want to draw an avenue.

Line objects

1. Create the upper line with a certain number of vertices.
2. Create the lowermost line with the same number of vertices like the upper line.
3. Select both lines (Select Multiple Objects).
4. Choose the  **Interpolate Objects** function.
5. The **Interpolate Objects** dialog opens.
6. Enter the number of objects you want to insert between the two lines.
7. Choose a symbol for the inserted lines.
8. Click the **OK** button to finish the interpolation.


Point objects



1. Place two point objects in the drawing area.
2. Select both points (Select Multiple Objects).
3. Choose the  **Interpolate Objects** function.
4. The **Interpolate Objects** dialog opens.
5. Enter the number of objects you want to insert between the two point objects.
6. Choose a symbol for the inserted point objects.
7. Click the **OK** button to finish the interpolation.



-Inspect the **Symbol** in the **Interpolate Objects** dialog box for correct interpolating.

-Instead of using the **Interpolate Objects** function for point objects it is also possible to use the  **Drawing multiple point objects** tool.

 [Interpolate Objects ^[1]]

Back to the **Edit Object** page.

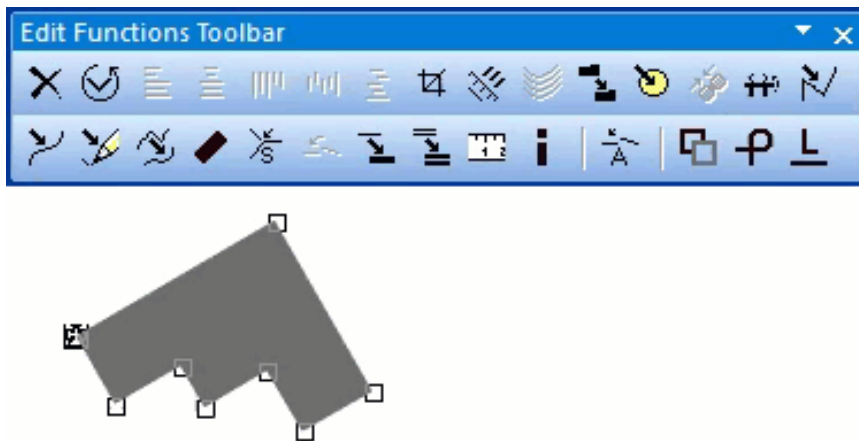
References


[1] http://www.ocad.com/howtos/129_Interpolate_Objects.htm

Duplicate and Move and Duplicate

Duplicate

Pro Std Sta CS



You can choose this function in the **Object** menu or by clicking the  **Duplicate object** icon in the **Edit Functions Toolbar**.

This function is activated if at least one arbitrary object is selected.

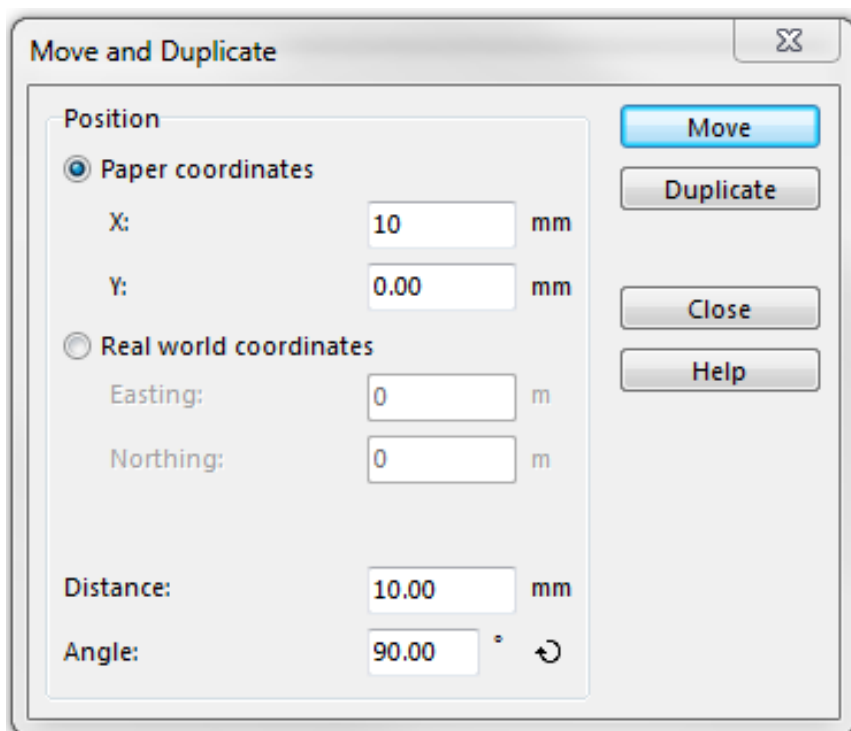
Click this button to duplicate (create a copy of) the selected object(s). The cursor changes automatically to the **Select and Edit Object** mode, which allows you to move the new objects to the desired place. Visit the **Select and Edit Object** page to get some information about moving objects.

Move and Duplicate

Pro Std

Choose this function in the **Object** menu to move and duplicate an object. This function is activated if at least one arbitrary object is selected.

1. Select one or more object(s).
2. Choose the **Move and Duplicate** function.
3. The **Move and Duplicate** dialog box appears.



Move and Duplicate

Position

☒ **Paper coordinates**

X: mm

Y: mm

☐ **Real world coordinates**

Easting: m

Northing: m

Distance: mm

Angle: ° ↻

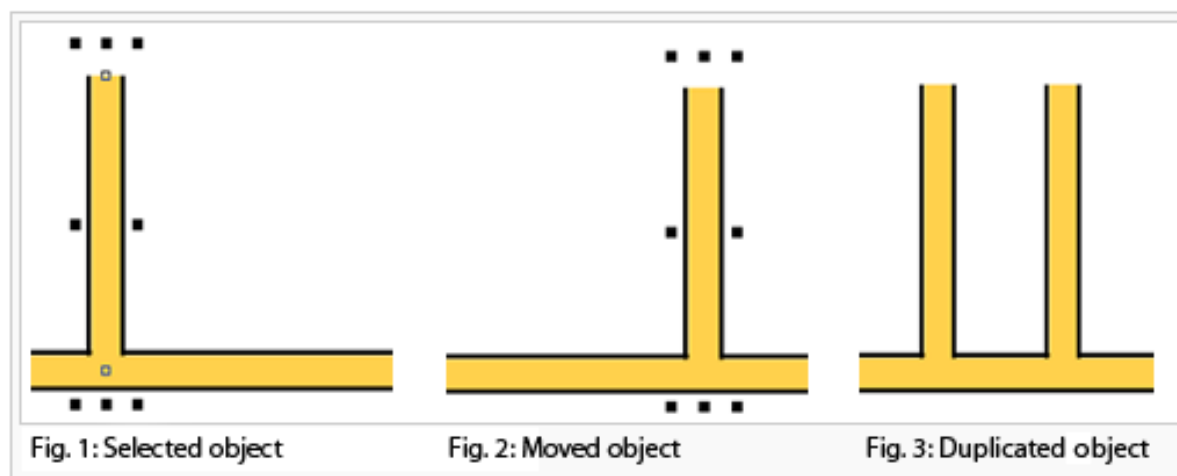
Move

Duplicate

Close

Help

4. Enter a position in **Paper coordinates (mm)** or **Real world coordinates (m)** for the moved or duplicated objects. Alternatively, you can enter a distance (mm) and an angle.
5. Click the **Move** button if you want to move the objects without duplicating or click the **Duplicate** button if you want to duplicate and then move the objects.



Back to the **Edit Object** page.

To the **Mirror and Duplicate** page.

Mirror and Duplicate

Pro Std

Choose the **Mirror and Duplicate** function in the **Object** menu to mirror (and duplicate) an area or line object. The function is available when at least one object is selected.

1. Select a line, an area object or multiple objects (Select and Edit Multiple Objects).
2. Choose the **Mirror and Duplicate** function.
3. The **Mirror and Duplicate** dialog appears.
4. Choose whether the object(s) should be reflected horizontally or vertically.
5. Click the **Mirror** button to mirror the object(s) without duplicating them or click the **Duplicate** button to duplicate and mirror the objects.
6. Click the **Close** button to quit the dialog.



- Point and text objects cannot be reflected. Convert them to a **Graphic Object** before reflecting.

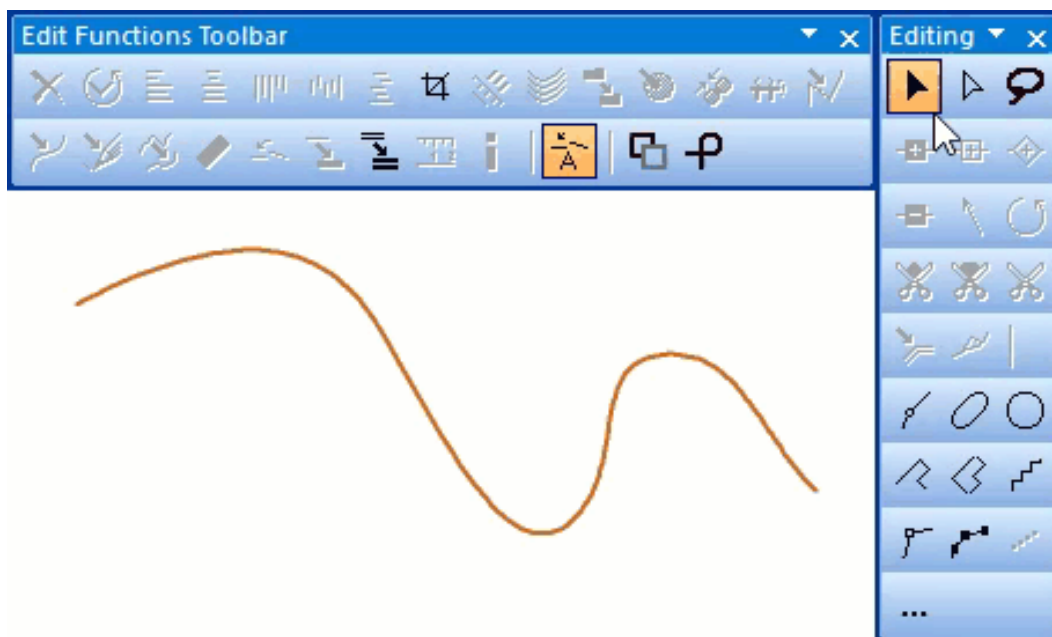
Back to the **Edit Object** page.


To the **Duplicate** page.

Change to Polyline and Change to Bezier Curve

Change to Polyline

Pro Std



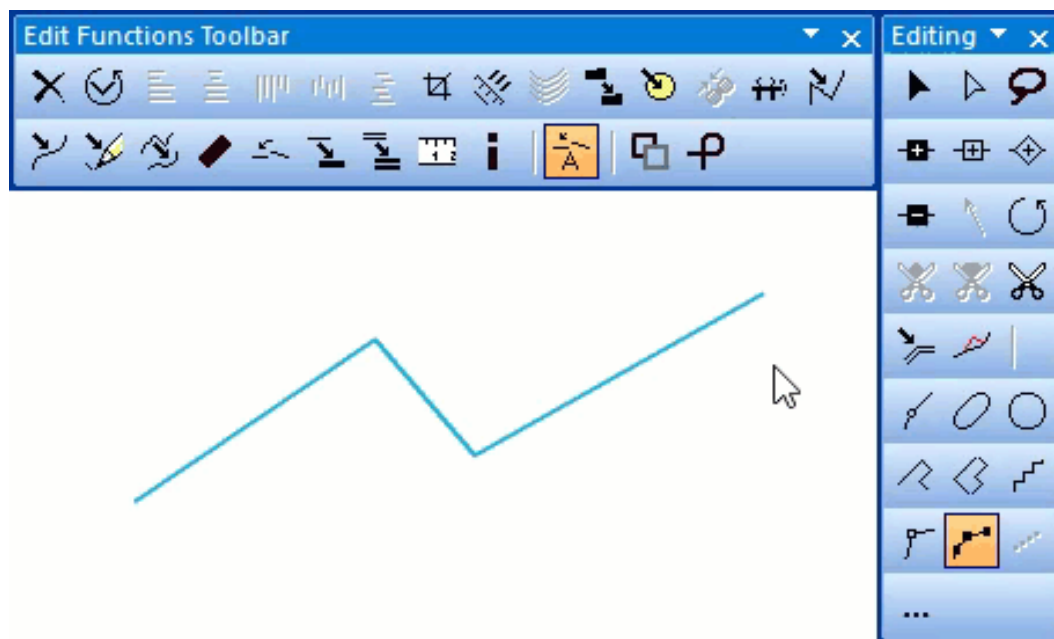
You can find this function in the **Object** menu or by clicking the  **Change to Polyline** button in the **Edit Functions Toolbar**. This function is available when a line, area or line text object is selected.


Choose this function to change a line into a polyline. A polyline is an angular line, this means all Bezier vertices are replaced with regular vertices.

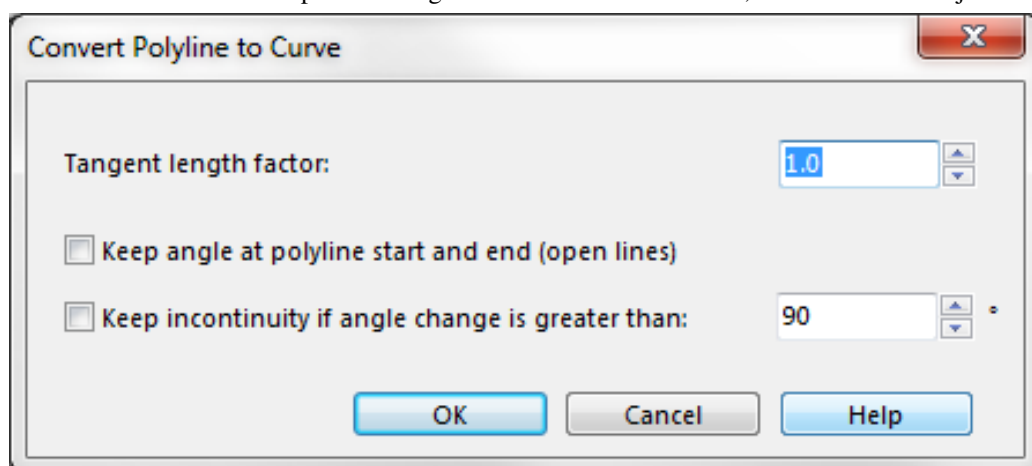
Define the **Smooth** tolerance in the menu **Options - OCAD Preferences** - category **Drawing and Editing**.

Change to Bezier Curve

Pro Std Sta



You can find this function in the **Object** menu or by clicking the  **Change to Bezier Curve** button in the **Edit Functions Toolbar**. This opens a dialog and is available when a line, area or line text object is selected.



Choose this command to convert the selected polylines to Bezier curves. The quality of the Bezier curve depends on the number of vertices of the original polylines and the tangent length factor. If the polyline has only a few vertices the distance from the Bezier curve to the original polyline between the vertices can be much bigger than the tolerance value. The closer the tangent length factor gets to zero, the more points are left and the curve looks more like the polyline.



💡 The **Convert polyline to curve** dialog is not shown if the **Shift** key is pressed while clicking **Change to Bezier Curve** button in the toolbar.

💡 If a hole inside an area object is selected, only the border of the hole is converted.




Define the **Change to Bezier curve** tolerance in the menu **Options - OCAD Preferences - category Drawing and Editing**.

Back to the **Edit Object** page.

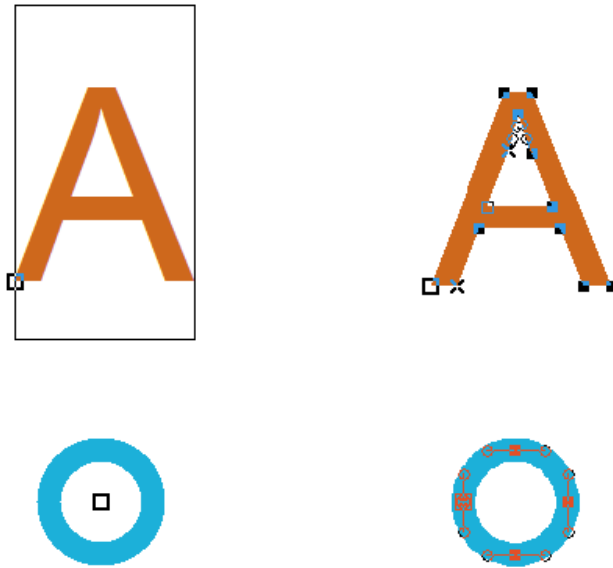
Convert into Graphic Object

Pro Std Sta

Choose **Convert into Graphic Object** from the **Object** menu or click the  **Convert into Graphic Object** button in the **Edit Functions Toolbar** to convert selected objects into graphic objects.

What is a Graphic Object?

A **Graphic Object** is an object which is not assigned to a symbol. It is either a line or area object with a corresponding color. Here are two examples:



Symbolized Object

Graphic Object

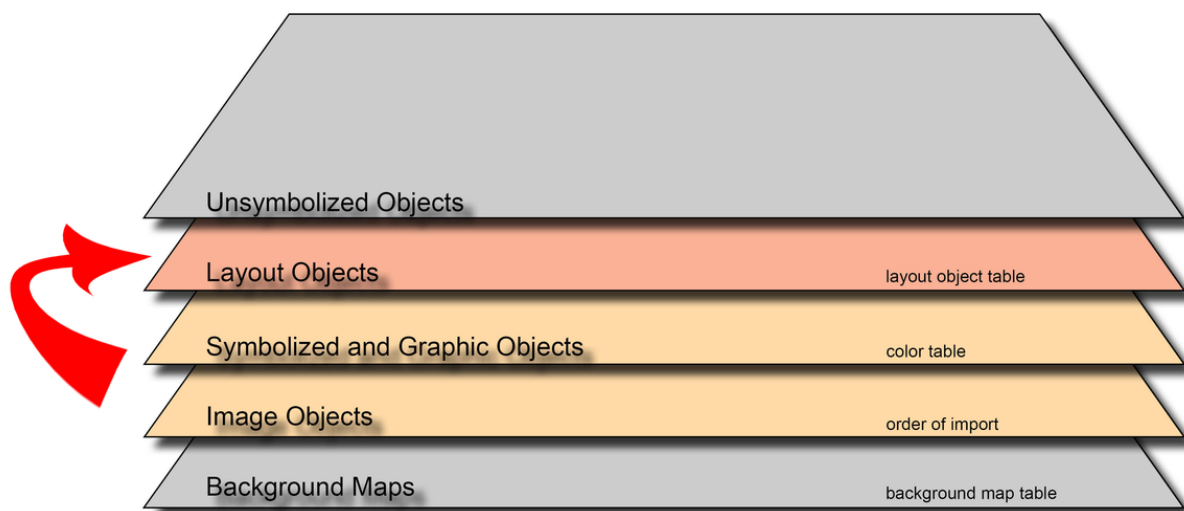
Symbolized text objects are converted into graphic area objects. A point object is taken apart in its fundamental components which are line or area objects, in this case a blue line object (circle).

To convert a graphic object into a layout object choose the **Convert into Layout Object** function from the **Object** menu.

Back to the **Edit Object** page.

Convert into Layout Object

Pro Std



Choose the **Convert into Layout Object** function from the **Object** menu to convert selected objects into layout objects.



Edit Layout Objects mode must be activated to be able to select and edit **Layout Objects**.



Read more about **Layout Objects** on the **Layout** page.

To convert a layout object into a graphic object choose the **Convert into Graphic Object** function from the **Object** menu.

Back to the **Edit Object** page.

To the **Layout** page.

Create Color Gradient



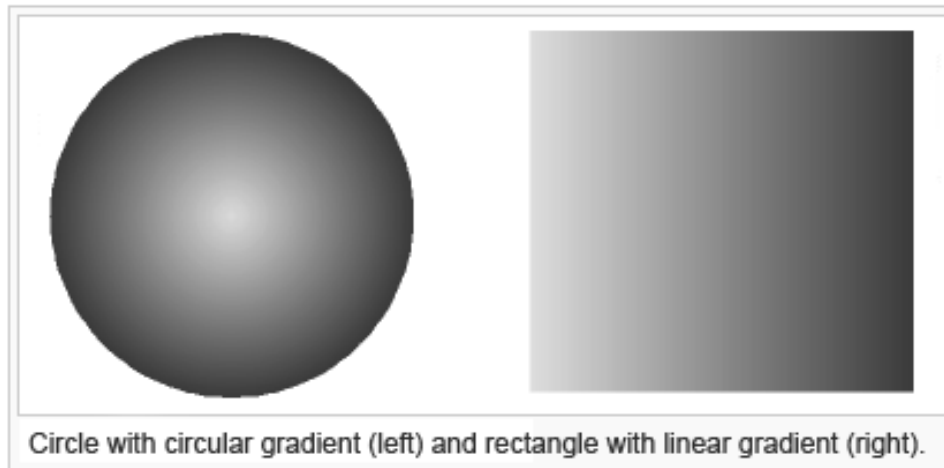
There are two types of gradients:

- **Linear gradient**

To create a linear gradient select an area object from your drawing area which is drawn in the straight line or rectangular mode.

- **Circular gradient**

To create a circular gradient select a circle object from your drawing area.



1. Select an area symbol.
2. Choose the straight line or circle drawing mode.
3. Draw an object. OCAD uses only the first four vertices to create a linear gradient.
4. Select the **Create Gradient** function from the **Object** menu.
5. Choose the first color:
 - Linear gradient means the left color is the first color.
 - Circular gradient means the color in the middle of the circle is the first color.
6. Choose the second color.
7. Choose a one of the following options:
 - **Do not add the new image objects to a selection:** The image objects are selected but the selection is not saved.
 - **Add the new image objects to an existing selection:** The selection of the image objects is saved in an existing selection. Choose the existing selection in the dropdown menu. Visit the **Select** page to get more information about saving selections.
 - **Add the new image objects to a new selection:** The selection of the image objects is saved in a new selection. Enter a name for the new selection in the field on the right. Visit the **Select** page to get more information about saving selections.
8. When clicking **OK** OCAD generates 100 **Image Objects** in different colors.

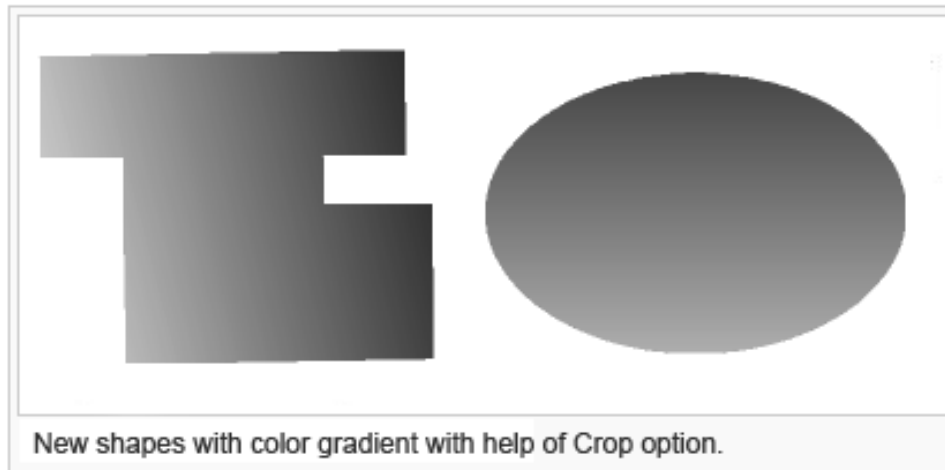


- Choose an new selection for the gradient to select and move it easily with **Reload Selection** in the **Select** menu.
- The recently created gradient is always on top of the image objects.

Use the **Crop** function in **Object** menu to cut the image objects to a new shape:

1. Create an object with required gradient.
2. Draw an object on it with the desired shape.
3. Choose **Crop Objects** from the **Object** menu.

4. Select the gradient (100 image objects) and choose in the **Objects to crop** field the **Only chosen objects** option. Then click the **Add selected objects** button.
5. Select the drawn object with the desired shape and choose the **Chosen line or area object** option in the **Line or area crop object** field. Then click the **Choose selected crop object** button.
6. Click **OK** to finish.



 [Create Color Gradient ^[1]]

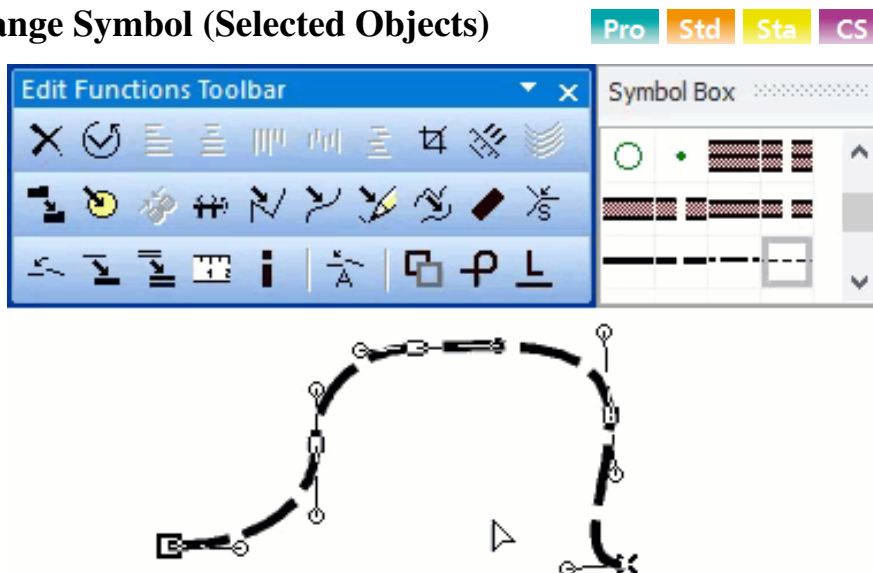
Back to the **Edit Object** page.


References

[1] http://www.ocad.com/howtos/130_Create_Gradient.htm

Change Symbol

Change Symbol (Selected Objects)



You can find this function either in the **Object** menu or by clicking the  **Change symbol of object** button in the **Edit Functions Toolbar**. This command is enabled when at least one object is selected and the symbol selected in the symbol box is compatible with it.

With this function you can change a selected object's symbol.


1. Select at least one object in the drawing area.

2. Select the new symbol in the symbol box.
3. Choose the **Change Symbol (Selected Objects)** function.

OCAD assigns all selected objects the new symbol.

Change Symbol (All Objects with Corresponding Symbol)

Pro Std Sta

Choose this command in the **Object** menu or click the  **Change symbol for all objects with this symbol** button to change all objects with a symbol A to symbol B. The **Change Symbol (All Objects with Corresponding Symbol)** dialog appears.

In the **Change all objects with** field you can choose whether you want to change all objects with a specific symbol number or all objects which are in an imported layer. Enter a symbol number or select an imported layer. The given number in the box is the currently selected object.

Enter the symbol number of the new symbol. The given number in the box is the currently selected symbol in the symbol box. Click the **OK** button to finish.



This command is especially useful to **translate the layers** of an imported file to OCAD symbols.

Back to the **Edit Object** page.

Group and Ungroup

Select this function in the **Object** menu to group and/or ungroup objects from the drawing area.



-Grouped objects can be moved easily because they behave as a single object.

-In contrast to image objects the individual properties will always remain.

Group

Pro

1. Select all objects which have to be added in one group (**Select Multiple Objects**).
2. Select **Group** in the **Object** menu.
3. Enter a **Group name** and click the **Group** button.



-To select a group select **Select Group** in **Select** menu.

-If you want to edit a single object from a group, you have to ungroup first.

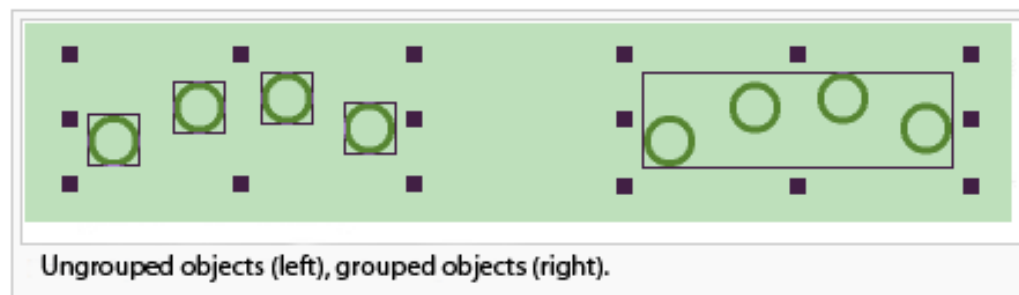
Ungroup


Pro Std Sta

1. Select the group which have to be ungrouped.
2. Select **Ungroup** in the **Object** menu.



To add objects in an existing group, the group must be ungrouped and then grouped again.



 [Group and Ungroup ^[1]]

Back to the **Edit Object** page.

References

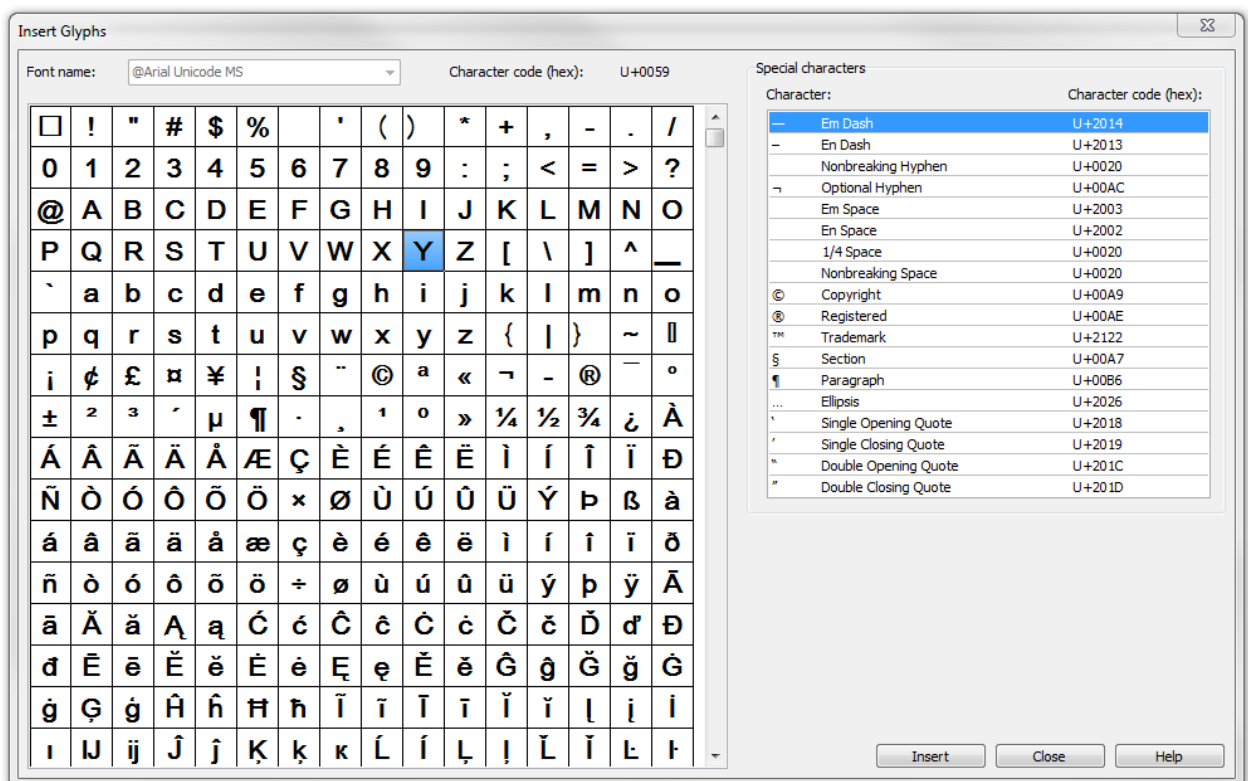
[1] http://www.ocad.com/howtos/135_Group_and_Ungroup.htm

Insert Glyphs

Pro

The function **Insert glyphs** can be used to insert **special characters** like ² for m² into your text objects.

1. To insert glyphs change the **Font** in the **Text Symbol** dialog box into a font which supports the required glyphs.
2. Select an existing text object and set the cursor to the position you want to insert a glyph.
3. Choose the **Insert Glyphs** command from the **Object** menu.
4. The **Insert Glyphs** dialog box appears:



5. Double click on a character to add it or select a character and click the **Insert** button.
6. Click the **Close** button to quit this dialog.



-Only characters that are included in the character set can be added.



-Add special characters on the right side of the dialog.




-Glyphs can also be used in layout text objects.

Back to the **Edit Object** page.

Topology


Join



Choose the  **Join** function in the **Topology** menu or in the **Edit Functions Toolbar**. This function is active if a line object is selected.

Use this function to adjust adjoining line ends so that they coincide. Only line objects with the same symbol are joined. This is especially useful when continuing a line object such as a contour. Note that the objects remain independent objects, but the coordinates of the end vertices are equalized. If you want to merge objects, choose the **Merge** command.

Automatic Joining


If you enable  **Automatic Joining** in the **Edit Functions Toolbar**, end points of lines or areas are joined automatically when finishing drawing a line or area near another end. The **Join when drawing lines** tolerance can be set in the **Drawing and Editing** category of the **OCAD Preferences**. To switch off the automatic joining temporary during drawing, press the Shift key when terminating the line or area object.

Tolerance Value

Define how close two line end points have to be for joining them in the **Drawing and Editing** category of **OCAD Preferences**.

Smooth



Visit the **Smooth** page to find some information about the  **Smooth** function.

Generalize Buildings



Allows to simplify the building geometry or rectangle it.

1. Click on **Generalize Buildings** in the **Topology** menu. The **Generalize Buildings** dialog opens.
2. Choose between **Geometry simplification** and **Rectangle** option.

Geometry simplification:

- Define the **angle change** and the **segment offset** as thresholds if vertices should be deleted.
- There are also options to keep **Corner vertices** and **Dash vertices**.

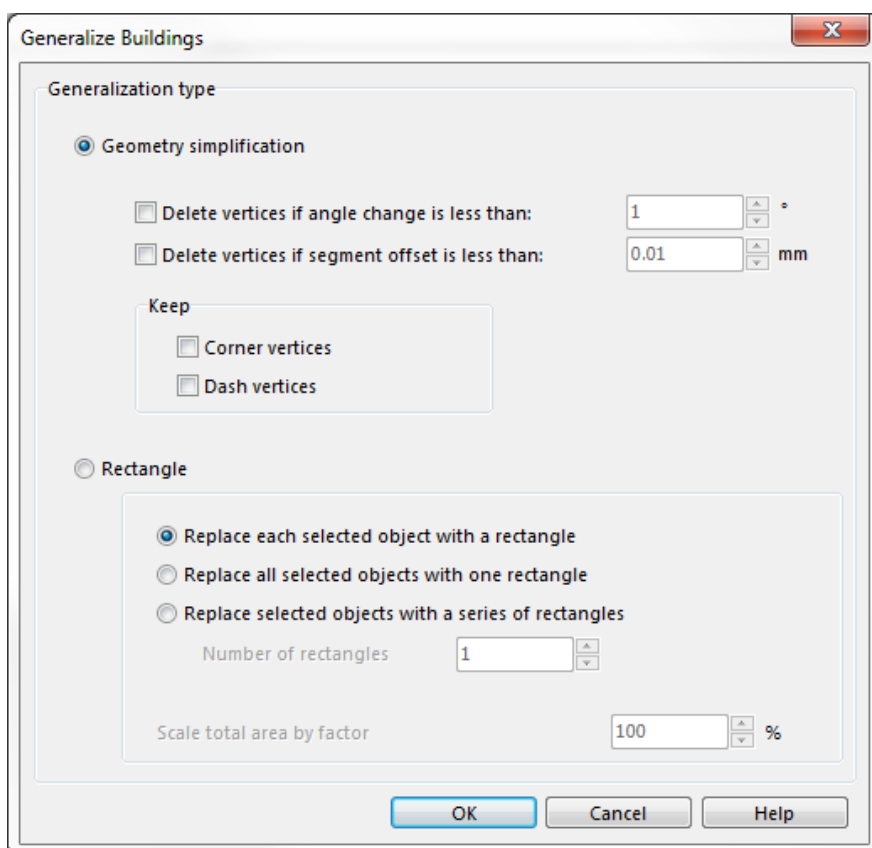
Rectangle:

- Decide if **each selected object will be replaced a rectangle**, if **all selected objects will be replaced with one rectangle** or if **the selected object will be replaced with a series of rectangles**. Enter the **Number of rectangles** if you choose the last option.
- Enter a **factor to scale the total area**.



The result of replacing three buildings with one rectangle may be better if the new area is more than 100% of the sum of the three areas because of the space between the original buildings. In such cases often a factor of 130-140% is used.

3. Click **OK**

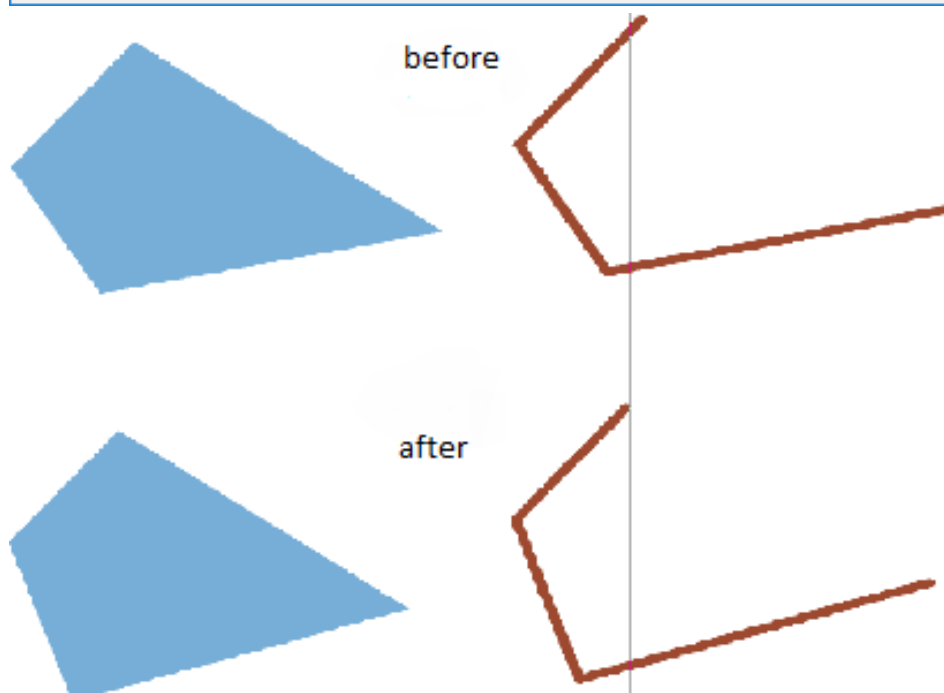
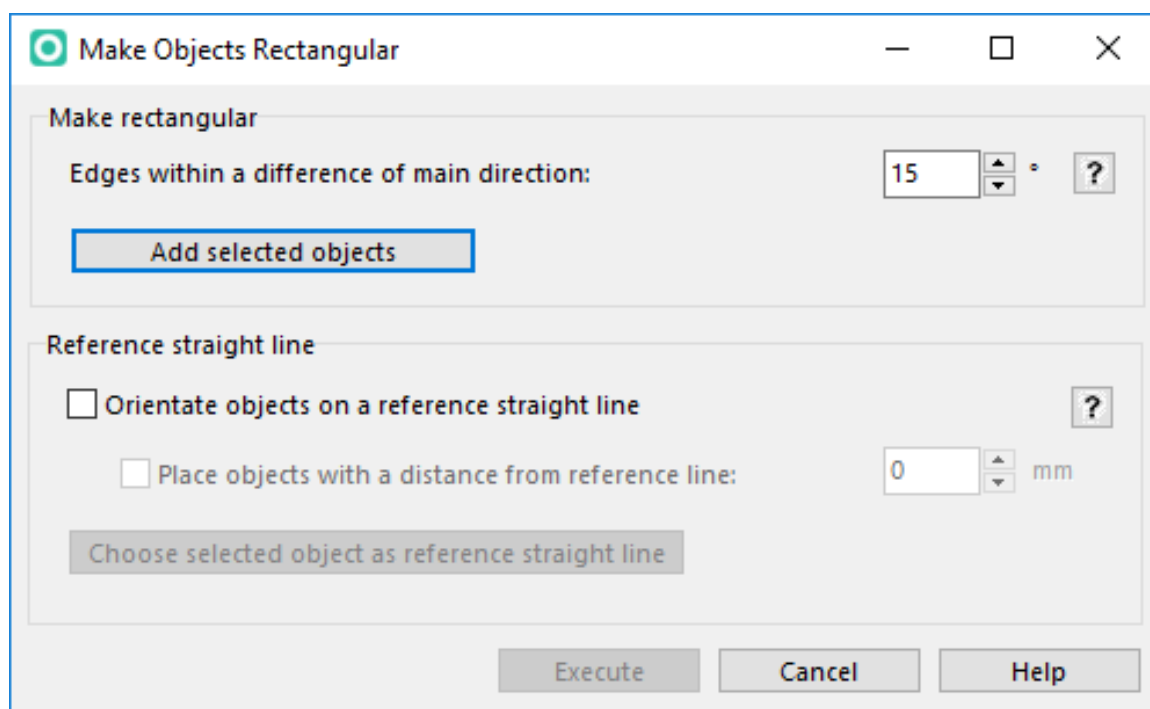


Make Objects Rectangular

MAS Pro Std

This function allows to rectify line and area objects. Angles close to 90° are forced to be exactly 90°.

1. Select the object(s) that should be rectified.
2. Click on **Make Objects Rectangular...** in the **Topology** menu to open the non-modal **Make Objects Rectangular** dialog.
3. Define the allowed angle tolerance as a **difference from 90°**. A tolerance of 10° means that all edges with an angle change between 80 and 100° will be rectified.
4. Click on **Add selected objects**. This is necessary since this is a non-modal dialog.
5. Decide, if the selected objects shall also be orientated along a reference line.
6. Define the distance between the object(s) and the reference line.
7. Select the reference line object on the map and click **Choose selected object as reference straight line**
8. Click **Execute** button to execute the function.



Close Area Objects

MAS Pro

Choose this function from the **Topology** menu.

This function closes the desired area(s).

1. Select the area objects to close either in the drawing area or in the symbol box. Do not select any area object if you want to close all area objects on the map.
2. Choose the **Close Area Objects** command.
3. The **Close Area Objects** dialog appears.
4. Choose whether you want to close all area objects, all area objects from the selected symbols or all selected area objects on the map.

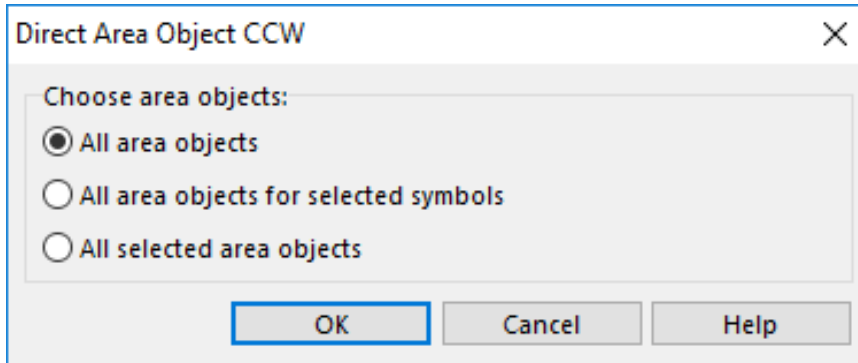
- Click the **OK** button to finish. OCAD closes the desired areas (which means that the end and start point of an area object have the same coordinate).



OCAD is able to close area objects automatically when drawing. Enable the **Close area objects when drawing** option in the **Drawing and Editing** category of **OCAD Preferences** to activate this function.

Direct Area Object CCW

Choose this function from the **Topology** menu.



This function change the direction of area object that choose objects have counterclockwise (CCW) direction. In some cases that is necessary. For example for area objects with border line.

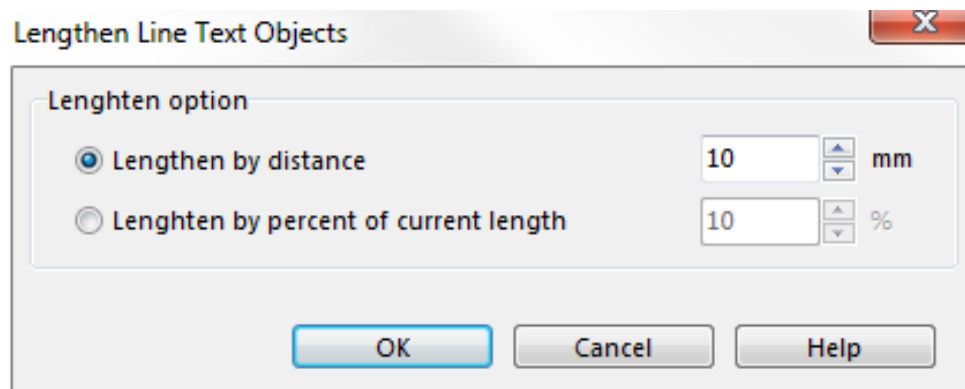
The direction of an area object can be change with the Reverse Object Direction function.

Lengthen Line Text Objects

MAS Pro

Choose this function from the **Topology** menu.

The function lengthens the selected line text objects by distance or a percent value of current length. The lengthening is always added at the end of the line text object. Choose the option **Lengthen by distance** or **Lengthen by percent of current length** and enter the distance in mm or the percent value.



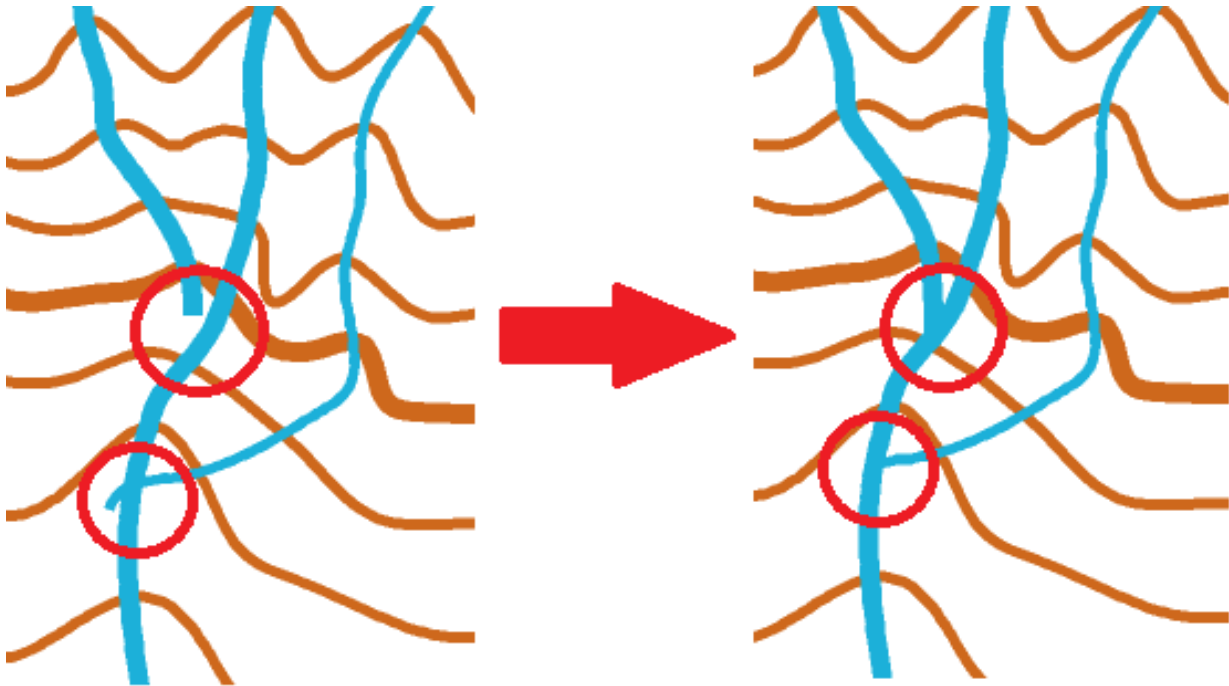
Remove Undershoots and Overshoots



Choose this function from the **Topology** menu.

This function removes over- and undershoots of the selected lines.

This command is enabled when line objects are selected.



1. Select the line objects with over- and/or undershoots.
2. Choose the **Remove Overshoots and Undershoots** function.
3. The **Remove Overshoots and Undershoots** dialog box appears.
4. Decide whether you want to remove overshoots, undershoots or both of them.
5. Define a tolerance value. This value determines how much a line must over- or undershoot so that it gets cut or extended.
6. Click the **OK** button to finish.

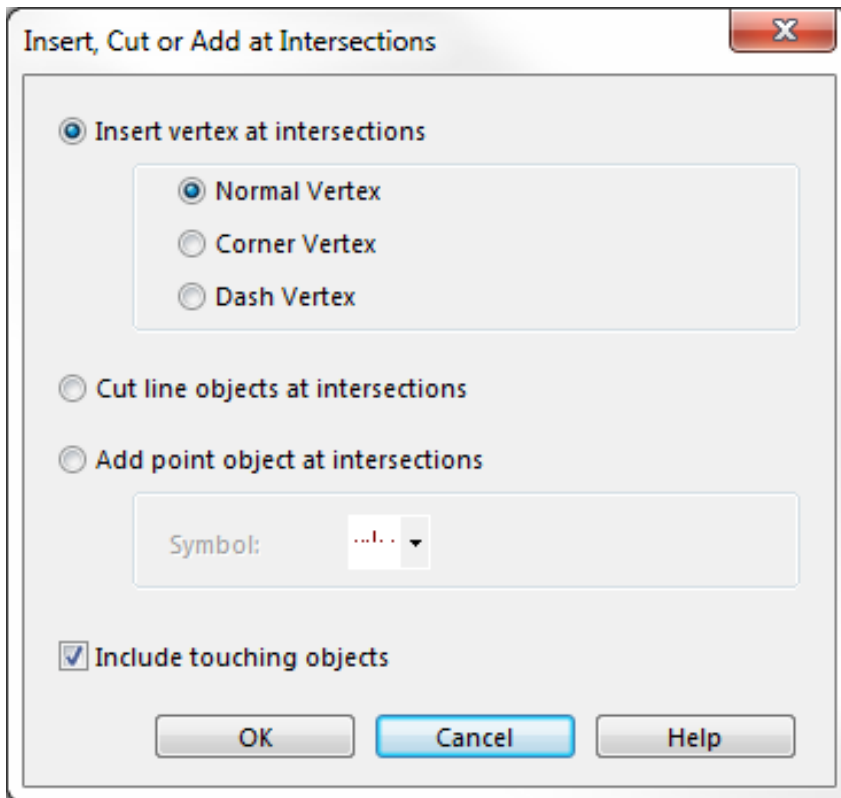


If you want to prevent from creating under- and overshoots, enable the **Snapping** function.

Insert, Cut or Add at Intersections

MAS Pro Std

You can find this function in the **Topology** menu.



1. Select the **line** objects you want to work with. Please note that the function applies only to intersections and self-intersections of the selected objects.
2. Choose the **Insert, Cut or Add at Intersections** function.
3. The **Insert, Cut or Add at Intersections** dialog appears.
4. Choose whether you want to **Insert vertex at intersections**, to **Cut line objects at intersections** or to **Add Point object at intersections**.
 1. If you want a vertex at intersections, you have to choose between a **Normal Vertex**, a **Corner Vertex** or a **Dash Vertex** (Read more about vertices on the **Vertices** page).
 2. If you want a point object at intersections, you have to pick one.
5. If desired, check the **Include touching objects** option.
 - 💡 If this option is checked, touching objects get the same reaction as intersected objects.
6. Click the **OK** button to finish.

This function can be useful if you want to improve the graphic appearance of dashed lines' intersections. For example, if you insert a **Dash Vertex**, the intersection will be in the middle of a dash (Learn more about vertices on the **Vertices** page).

Remove Duplicate Vertices from selected Objects

MAS Pro Std

Choose the **Remove Duplicate Vertices from selected Objects** command in the **Topology** menu to remove the duplicate (=consecutive with identical coordinates) vertices of selected objects.


[Back to Main Page](#)

[Previous Chapter: Edit Object](#)

[Next Chapter: Symbol](#)

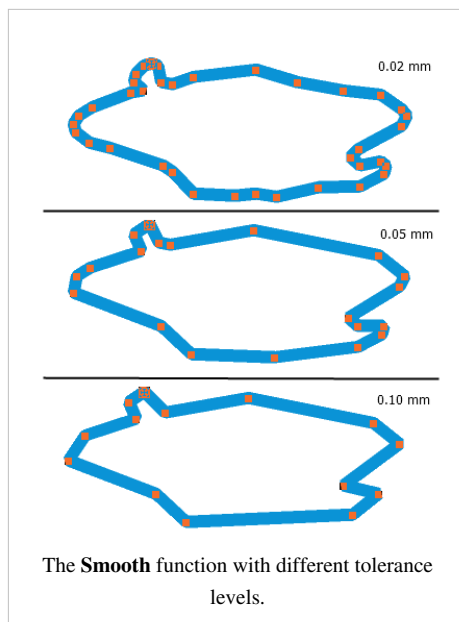
Smooth

Pro Std Sta

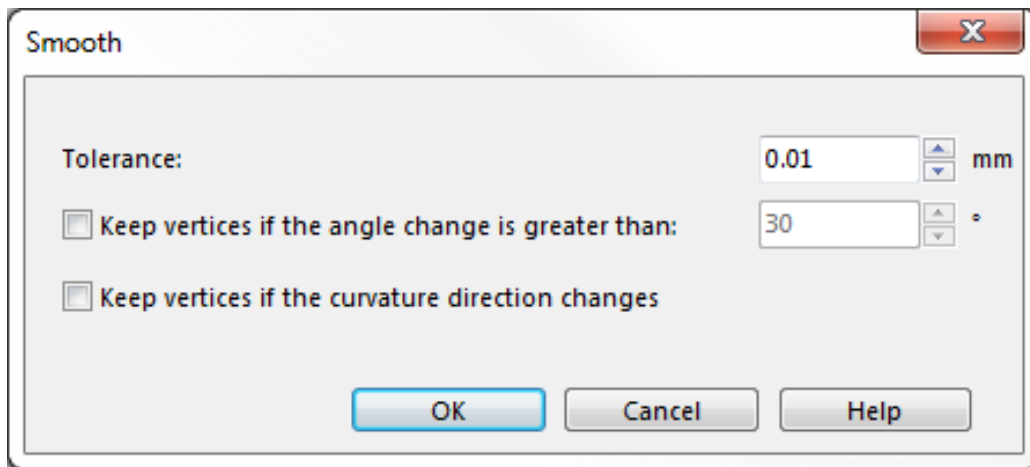
Choose this command in the **Topology** menu or by clicking the  **Smooth** button in the **Edit Functions Toolbar**.

This command is activated when at least one line or area object is selected.

Choose this command to smooth 'dithered' line or area objects with the smoothing tolerance defined in the **Drawing and Editing** category of **OCAD Preferences (Smooth (generalization))**. The **Smooth** function uses the Douglas-Peucker algorithm and removes unnecessary vertices.



1. Click **Smooth** to open the **Smooth Objects** dialog.
2. Enter the tolerance and decide if and under which conditions the vertices shall be kept.
3. Click **OK**



Back to the **Topology** page.

Vertices




Vertices are specified by a pair of coordinates (x/y values). Vertices are used to define the position of points, lines and areas.

There are 3 types of vertices:

- Normal Vertex
- Corner Vertex
- Dash Vertex


Add Vertex

The commands for adding new vertices can be found in the **Editing and Drawing Toolbar**.

-  Add normal vertex
-  Add corner vertex
-  Add dash vertex

Add Normal Vertex

Pro Std Sta CS

The  **Add normal vertex** function is enabled when a line, line text or area object is selected. Click this button to change the cursor to the **Add normal vertex** mode. When this mode is selected, you can insert additional normal vertices or change existing vertices to normal vertices.

Hold the **Alt** key to switch temporary to  **Select Object and Edit Vertex** mode, in order to select other objects.

Insert Normal Vertices

Select a line, line text or area object, change to the **Add normal vertex** mode and move the mouse pointer to the desired position on the line object or on the border of the area object. Then, click the left mouse button. A new normal vertex is inserted.

You can also insert normal vertices in  **Select and Edit Object** or  **Select Object and Edit Vertex** mode when holding down both the  and the **Ctrl** key.

Change a Vertex to a Normal Vertex


Select a line, line text or area object, change to the **Add normal vertex** mode and move the mouse pointer to the vertex to be converted. Then, click the left mouse button. The vertex is changed to a normal vertex.



If you want to change all vertices of an object to normal vertices use the **Change Vertex Types to** function.


Add Corner Vertex




A  **Corner Vertex** is a special vertex of line, line text and area objects. You can use this function if a line, line text or area object is selected.

Corner vertices have 3 effects:

- they influence how line objects are drawn
- they influence the editing of a Bézier curves
- when smoothing (automatically or manually) they remain in the same position

When an object is selected, corner vertices are marked with an empty rectangle ().

Corner vertices are automatically created when drawing in the  **Straight Line** mode.

Hold the **Alt** key to switch temporary to  **Select Object and Edit Vertex** mode, in order to select other objects.

Insert Corner Vertices

Select a line, line text or area object, change to the **Add corner vertex** mode and move the mouse pointer to the desired position on the line object or on the border of the area object. Then, click the left mouse button. A new corner vertex is inserted.

Change a Vertex to a Corner Vertex

Select a line, line text or area object, change to the **Add corner vertex** mode and move the mouse pointer to the vertex to be converted. Then, click the left mouse button. The vertex is changed to a corner vertex.



If you want to change all vertices of an object to corner vertices use the **Change Vertex Types to** function.

Influence on line objects

Corner vertices influence structured line objects such as dashed lines. When OCAD renders a dashed line it distributes dashes of equal length on that line. Corner vertices divide a line into several line sections. OCAD distributes the dashes on each section as if they are individual objects.



In the **Comparison** part of this page some examples can be found.

Influence on Bézier curves

Corner vertices allow you to create corners in Bézier curves. The **Bezier vertex** before and after a corner vertex can be moved individually without influencing each other. This allows you to create sharp corners.

Add Dash Vertex



A  **Dash Vertex** is a special vertex of line or area objects. Dash vertices influence how line objects are rendered. When an object is selected, dash vertices are marked with a diamond (). You can use this function if a line, line text or area object is selected.

Hold the **Alt** key to switch temporary to  **Select Object and Edit Vertex** mode, in order to select other objects.

Insert Dash Vertices

Select a line, line text or area object, change to the **Add dash vertex** mode and move the mouse pointer to the desired position on the line object or on the border of the area object. Then, click the left mouse button. A new dash vertex is inserted.

Change a Vertex to a Dash Vertex

Select a line, line text or area object, change to the **Add dash vertex** mode and move the mouse pointer to the vertex to be converted. Then, click the left mouse button. The vertex is changed to a dash vertex.



If you want to change all vertices of an object to dash vertices use the **Change Vertex Types to** function.

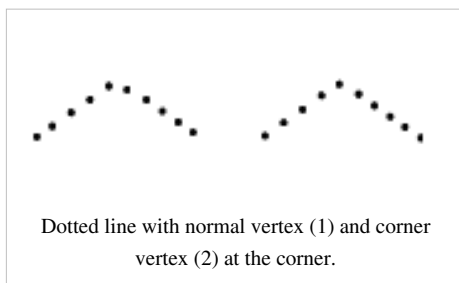
Influence on line objects

Dash vertexes influence structured line objects such as dashed lines. When OCAD renders a dashed line it distributes dashes of equal length on that line. Insert a dash vertex to force a dash to a certain position.

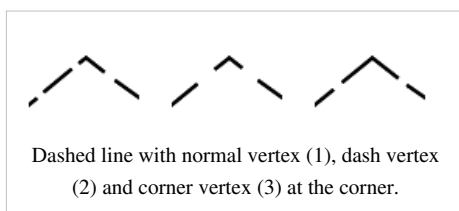
In the **Comparison** part of this page some examples can be found.

Comparison and Examples

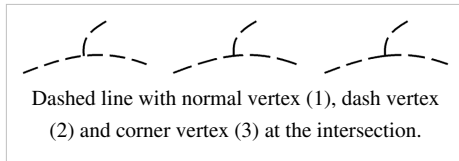
Dotted Line



Dashed Line



Dashed Line with Intersection





Remove Vertex

Pro Std Sta CS



Click the  **Remove Vertex** button in the **Editing and Drawing Toolbar** to remove a vertex.

This function is enabled when a line or area object is selected. When you use this function, the cursor changes to the **Remove Vertex** mode.

Remove a vertex from a line or area object by clicking the desired vertex on the selected object with the left mouse button.

 **Remove multiple vertices** by clicking the  **Remove Vertex** button and **holding down** the **Ctrl** key and the **left mouse** key while moving over the vertices. The mouse movement works like an eraser for the vertices of the selected object.

 You can also remove vertices in  **Select and Edit Object** or  **Select Object and Edit Vertex** mode when holding down the **Ctrl** key and clicking on a vertex.

 Hold the **Alt** key to switch temporary to  **Select Object and Edit Vertex** mode, in order to select other objects.

Change Vertex Types to

Pro Std

You can find this function in the **Object** menu and is enabled if at least one line, line text or area object is selected.

1. Select at least one line, line text or area object.
2. Select the **Change Vertex Types to** submenu in the **Object** menu and choose the desired vertex type (normal vertex, corner vertex or dash vertex).
3. The **Change Vertex Types to** dialog appears.
4. In the **From** field, choose which vertex types you want to convert.
5. If you do not want to change the first and last vertex, check the **Do not change first and last vertex** option.
6. Click the **OK** button.

Note: Virtual gap vertices can only be converted to normal vertices (Learn how to make a virtual gap here: **Cut Line**).

To the **Edit Object** page.

Map

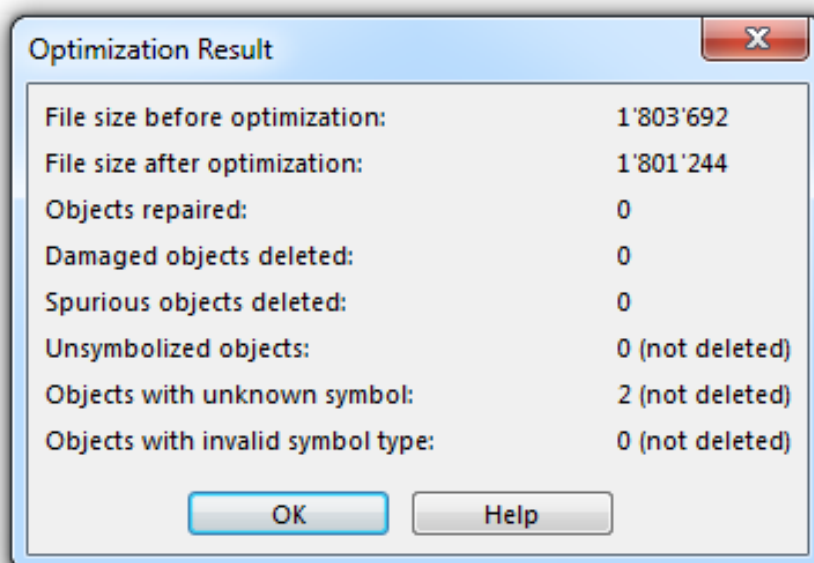
Optimize and Repair

Pro Std Sta View CS

Choose this command in the **Map** menu to optimize (reduce) the size of the map file and repair damaged objects. With edit operations such as deleting objects, empty space is created in the map file. This function removes this empty space and therefore reduces the size of the map file.

When OCAD encounters damaged objects it tries to repair them. If this is not possible, they are deleted.

After the optimization the **Optimization Result** dialog box is displayed with the following information:



- **File size before optimization** in bytes.
- **File size after optimization** in bytes.
- **Objects repaired**
- **Damaged objects deleted**
- **Spurious objects deleted:** Spurious objects are objects which are not visible. These may be text objects with no text and no line, line objects with only one point, or area objects with only 2 points.
- **Unsymbolized Objects**
- **Objects with Unknown Symbol**
- **Objects with Invalid Symbol Type**

Set Scale and Coordinate System

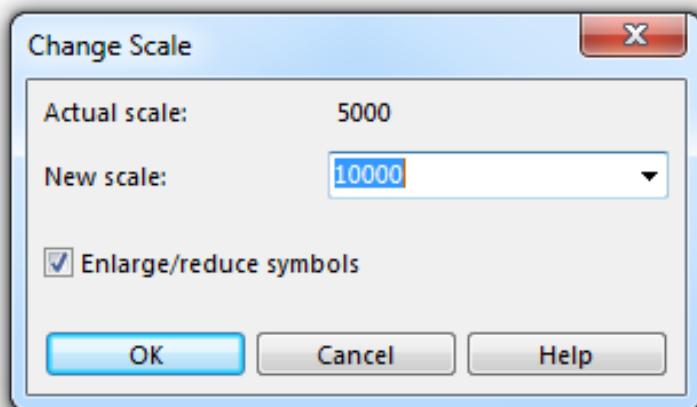
Pro Std Sta CS

Visit the **Set Scale and Coordinate System** page to get some information about this function.

Change Scale

Pro Std Sta CS

Choose this command in the **Map** menu to change the scale of the map. The map is enlarged/reduced according to the new scale. The **Change Scale** dialog box is displayed, where the new scale can be entered.



Actual scale

This line shows the current scale of the map. Choose the **Set Scale and Coordinate System** command from the **Map** menu to set the current scale.

💡 Setting the current scale with the **Set Scale and Coordinate System** function does not enlarge or reduce the map. It only changes a number in the map file.

New scale

Enter here the desired new scale of the map. You may choose one of the predefined scales or enter the scale on the keyboard.

Enlarge/reduce symbols

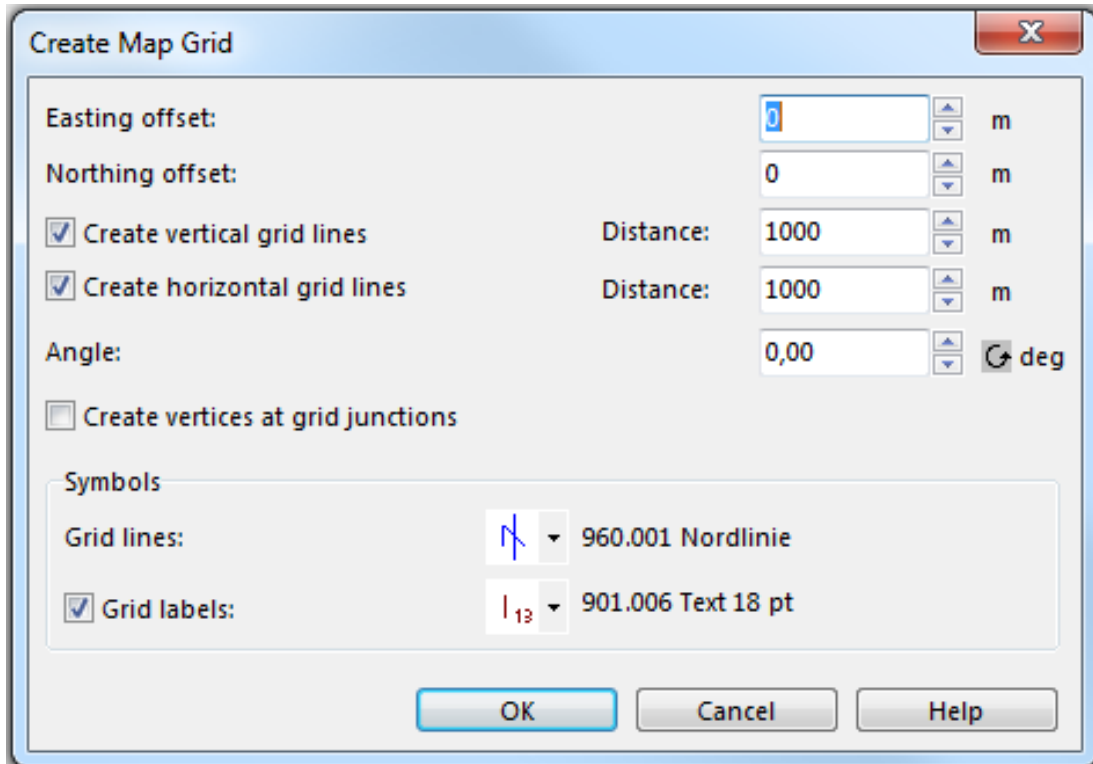
Check this box to enlarge/reduce the symbols with the same factor as the map. When the box is checked, the map is enlarged/reduced like a photographic enlargement. When this box is not checked, the map is enlarged/reduced, but the symbols are kept in the same dimension.

Click the **OK** button to finish.

Create Map Grid

Pro Std Sta

Choose this command from the **Map** menu to create grid lines on the map (e.g. it can be used to draw **Magnetic North** lines or the grid for a **Name Index**.). The **Create Map Grid** dialog box is displayed.



Now, you have to make the following adjustments:

- **Easting offset:** Enter the easting offset to the defined map grid for the vertical grid lines.
- **Northing offset:** Enter the northing offset to the defined map grid for the horizontal grid lines.
- **Create vertical grid lines:** Check this option to create vertical grid lines and enter the distance .
- **Create horizontal grid lines:** Check this option to create horizontal grid lines and enter the distance .
- **Angle:** OCAD uses the real world angle.
- **Create vertices at grid junctions:** Check this option to create a vertex at every grid junction.
- **Symbols:**
 - **Grid lines:** Select a line symbol for the grid lines (map grid).
 - **Grid labels:** Select a text symbol for the grid labels.

Click the **OK** button when finished. The grid is drawn over the whole map. Therefore, remove background maps which are larger than the map before creating a grid.



Create Name Index is the corresponding function to create a name index based on a rectangular map grid.



The minimum and maximum grid line distance depends on the map grid distance. You can change this grid distance in **Set Scale and Coordinate System** dialog.

Create WGS84 Grid

Pro

Read more about this topic on the **Create WGS84 Grid** page.

Hide

Pro**Std****Sta**

Choose this command in the **Map** menu to hide the map on the screen.

Transform

Information about the transforming functions, which are **Move**, **Stretch/Shrink**, **Mirror**, **Rotate Map**, **Change Coordinate System**, **Affine**, **Rubbersheeting**, **Local Transformation** and **Center Map to Drawing Area**, can be found on the **Map Transform** page.

Convert Imported Layers to Symbols

Pro**Std****Sta**

Choose this command from the **Map** menu to convert the layers of an imported DXF, Shape or AI file to symbolized objects. The **Convert Imported Layers to Symbols** dialog box appears.

In this dialog box you can create a list of references. A reference consists of a layer and the corresponding OCAD symbol. You can save the list to a cross reference (.crt) file for later use. You can load an existing cross reference file to modify or execute it.

Visit the **Cross Reference Table** page to get some information about CRT-Files and the CRT-File part in the dialog.

Click the **Execute** button when you are finished with editing the **CRT-File**. The conversion gets executed.

Click **Add all** to add all imported layers to the table.



- Please note that this CRT file does not work to **Import OCD Files!**

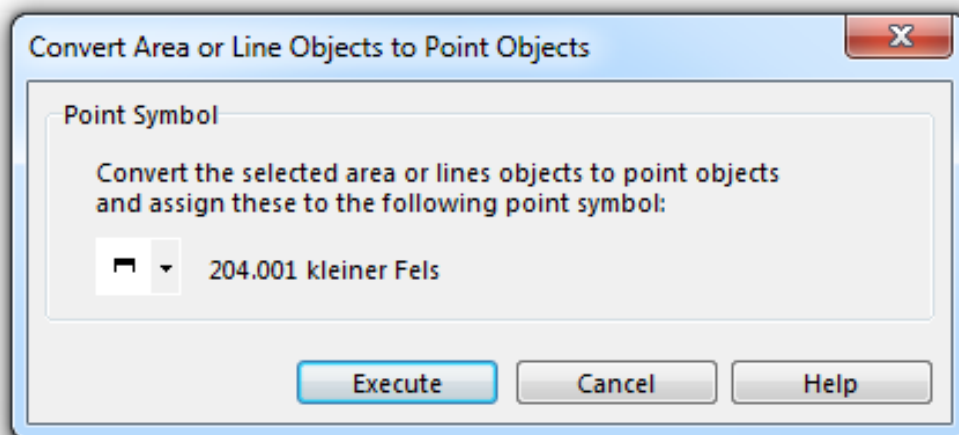
An imported layer can be converted manually. Visit the **Convert a Layer Manually** page to get more information.

Convert Area or Line Objects to Point Objects

Pro

Choose this function in the **Map** menu to convert area or line objects to point objects. This command is enabled if an area or line object is selected.

1. Select a line or an area object.
2. The **Convert Area or Line Objects to Point Objects** dialog appears.



3. Choose a point symbol.

- Click the **Execute** button. The selected area or line object is converted to a point symbol and the chosen symbol is assigned to it.



The point symbol appears in the middle of the area or the line.

Convert Text Objects to Point Objects

Pro

Choose this command from the **Map** menu to convert text to point objects. The **Convert Text Objects to Point Objects** dialog appears.

This function is used after import map drawn in DTP program. In a DTP program point symbols are often drawn with a character and a special symbol fonts. OCAD can convert this characters to a point symbol.

In the first part of the dialog you can decide wheter you want to convert the objects from all text symbols or only objects from a selected symbol.

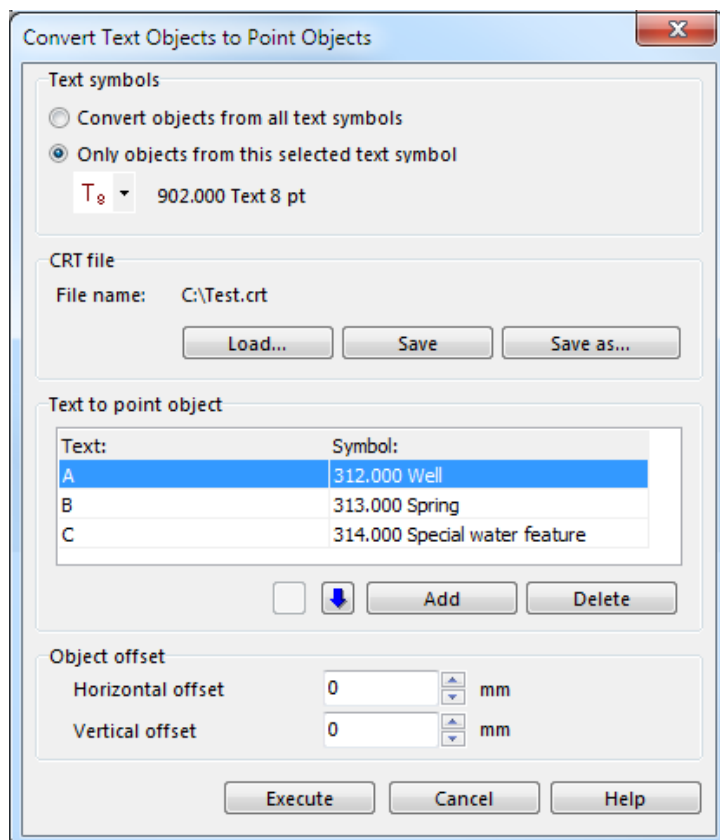
In the second part of the dialog box you can create a list of references. A reference consists of a layer and the corresponding OCAD symbol. You can save the list to a cross reference (.crt) file for later use. You can load an existing cross reference file to modify or execute it.

Visit the **Cross Reference Table** page to get some information about CRT-Files and the CRT-File part in the dialog.

Example of crt file:

```
312.000 A
313.000 B
314.000 C
```

The same data in the dialog:



Click the **Execute** button when you are finished with editing the **CRT-File**. The conversion gets executed.

Convert Text Objects from OEM to Unicode



Choose this command from the **Map** menu to convert text objects from OEM to Unicode.

This function can be used after importing geodata from non-Unicode compatible programs or open ocd files from older OCAD versions. OCAD 12 is Unicode compatible.

In the first part of the dialog you can decide whether you want to convert the text from all text symbols or only objects from a selected symbol.

In the second part of the dialog box you can create a list of references. A reference consists of a layer and the corresponding OCAD symbol. You can save the list to a cross reference (.crt) file for later use. You can load an existing cross reference file to modify or execute it.

Visit the **Cross Reference Table** page to get some information about CRT-Files and the CRT-File part in the dialog.

Click the **Execute** button when you are finished with editing the **CRT-File**. The conversion gets executed.

Example: After opening OCAD 7 file in OCAD 12 file some characters are invisible (e.g. the character Š from codepage Windows-1250 ^[1] to represent texts in Central European and Eastern European languages). Use this function to convert this character from OEM code '141' to the Unicode '356'.

Export Objects by Selected Symbols

With this function you can export objects with the selected symbol(s) in a new OCAD-Map. Select the desired symbol(s) before choosing this function (e.g. you can export all roads).

Choose this function from the **Map** menu. The **Export Objects by Selected Symbols** dialog opens. Browse a location and enter a name for the new file. Then, click the **Save** button to finish.

Export Selected Objects

With this function you can export the selected object(s) in a new OCAD-Map. Select the desired object(s) before choosing this function.

Choose this function from the **Map** menu. The **Export Selected Objects** dialog opens. Browse a location and enter a name for the new file. Then, click the **Save** button to finish.

Delete Objects by Selected Symbols



Choose **Delete Objects by Selected Symbols** in the **Map** menu to select all objects with certain symbols or in a certain layer. As an example you can select all roads. The **Delete Objects by Selected Symbols** dialog box appears.

All objects with a selected symbol

Choose this option and click on the **OK** button to delete all objects with the selected symbol(s). Select the symbol(s) before you choose the **Delete Objects by Selected Symbols** command.

All objects in layer

If you import files like PDF, DXF, Adobe Illustrator or OpenStreetMap with layer information, the layer information does not get lost, though OCAD does not support layers as they are known in Adobe Illustrator or similar applications. Choose the **All objects in a layer** option to delete all objects which are in the same layer. Choose a layer in the dropdown list.

Unsymbolized objects

Choose this option and click on the **OK** button to delete all Unsymbolized Objects.

Objects with unknown symbol

Choose this option and click on the **OK** button to delete all Objects with Unknown Symbol.

Objects with invalid symbol type

Choose this option and click on the **OK** button to delete all Objects with Invalid Symbol Type.

Graphic objects

Choose this option and click on the **OK** button to delete all Graphic Objects.

Image objects

Choose this option and click on the **OK** button to delete all Image Objects.

Export Part of Map





With this function you can export a part of the current map in a new OCAD-Map.


Choose this function from the **Map** menu. The **Export Part of Map** dialog opens on the right side of the screen. The following adjustments can be made:

Boundaries

- **Rectangular boundaries:** Choose this option to export a rectangular part of the map. You can modify or move the boundaries using the mouse.


Click  **Setup** button to define the region to be exported with coordinates. The **Setup Part of Map (Export)** dialog box appears.


Click the  **Entire Map** button to export the entire map. The boundary rectangle adjusts to the entire map.


Click the  **To Current View** button to export the map which is currently displayed on the screen. The boundary rectangle adjusts to the current view.

- **Use selected object for boundaries:** Choose this option to export an irregularly shaped part of the map. Before choosing the **Export Part of Map** command, you must draw the shape with a line or area object.

- **Export with selected object:** If you check this option the object which defines the boundary is exported as well.

 To make this function faster convert this cutting object from a curve to a polyline (**Change to Polyline**).

 The number of vertices of the cutting object has a big influence on the speed of this function.

 This option may produce inverted area objects or other artefacts. Namely if the cutting object has self-intersections or if the cutting object crosses a hole of an area object.

 We recommend to use the **Rectangular boundaries** option to export a rectangular part of the map.

- **Export database links:** This option is checked by default. If you do not want to export the database links, then uncheck this option. This will speed up the export significantly if the map has a lot of linked objects.

Click the **OK** button when finished. The **Export Part of Map** dialog opens. Browse a location and enter a name for the new file. Then, click the **Save** button to finish.

Colors



You can find all information about colors on the **Colors** page.

Define Spot Colors



Visit the **Define Spot Colors** page to get some information about this function.

Load Colors From



Information about this function can be found on the **Colors** page.

Load Colors and Symbols From



Information about this function can be found on the **Colors** page.

Compare Symbols and Colors



Select this command in the **Map** menu to compare the symbol set of the open file with a reference OCAD map. The **Reference map** dialog appears. Choose a reference file and click the **Open** button. The **Compare Symbols and Colors** dialog box appears. You have the following options:

- **Compare colors:** Activate this check box if the color table shall be compared.
- **Compare symbols:** Activate this check box if the symbols shall be compared.
- **Used symbols only:** Activate this checkbox if only used symbols shall be compared.
- **List identical symbols:** Activate this check box if the identical symbols shall be listed, too. If this check box is deactivated, only the different symbols will be logged in the TXT-File.

Click the **OK** button to continue. OCAD saves a text file to the location of the currently opened OCAD-Map under the name *FILENAME.CompareResult.txt* and opens it. Make sure that the directory of the current OCAD-Map is not a read-only folder.

The **Logfile** shows the difference of the symbols and/or colors and if wanted also the identical symbols.

Routing



Visit the **Routing** page to get some information about this function.

Load Symbol Descriptions From

Choose this command in the Map menu to load symbol descriptions from a text file. Choose the **Load Symbol Descriptions From...** item from the **Map** menu. The **Load** dialog box is displayed. Choose a text file what contains the symbol descriptions. Click the Open button to load the symbol descriptions. The text file needs to contain the symbol number followed by a SPACE or TAB as separator and the symbol description, ex:

101.000 Contour

102.000 Index Contour

Save Symbol Descriptions To

Choose this command in the Map menu to save the symbol descriptions to a text file. Select the **Save Symbol Descriptions From...** item from the **Map** menu. The **Save** dialog box is displayed. Choose a path and file name. Click the **Save** button to save the symbol descriptions. The text file contains the symbol number followed by a TAB as separator and the symbol description, ex:

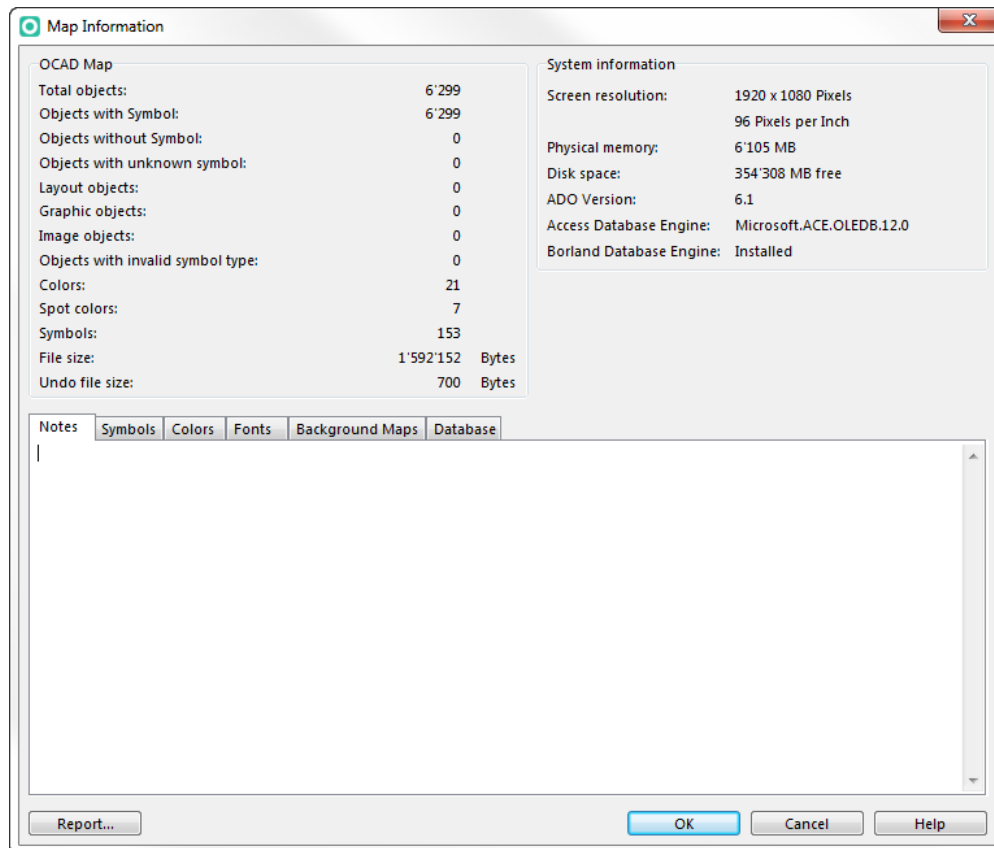
101.000 Contour

102.000 Index Contour

Map Information



Choose this command from the **Map** menu to get some information about the current map and about the Windows system. The **Map Information** dialog box is displayed.



The dialog box provides the following information:

- **Total objects:** The total number of objects on the map.
- **Objects with symbol:** The total number of symbolized objects on the map.
- **Objects without symbol:** The total number of **Unsymbolized Objects** on the map.
- **Objects with unknown symbol:** The total number of **Objects with Unknown Symbol** on the map.
- **Layout objects:** The total number of **Layout Objects** on the map.
- **Graphic objects:** The total number of **Graphic Objects** on the map.
- **Image objects:** The total number of **Image Objects** on the map.
- **Objects with invalid symbol type:** The total number of **Objects with Invalid Symbol Type** on the map.
- **Colors:** The total number of **Colors**.
- **Spot Colors:** The total number of **Spot Colors**.
- **Symbols:** The total number of **Symbols**.
- **File size:** The size of the map file on the disk in Bytes.

- **Undo file size:** The size of the undo file in the *temporary OCAD folder* in Bytes. The undo file is used for Undo/Redo.

In addition, you can choose between six tabs with detailed information:

- **Notes:** Enter information about the map here. This feature was called **File information** until OCAD 9. The text you type in here will show up in the **New File** dialog under **Map notes** if you use the map as a symbol template.
- **Symbols:** This tab shows a tree view of all **Symbols** in the **Symbol Box**.
- **Colors:** This tab shows a tree view of all **Colors** in the color table and in which symbols they are used.
- **Fonts:** This tab shows a tree view of all used fonts and in which symbols they are used.
- **Background Maps:** This tab shows a tree view of all **Background Maps** loaded.
- **Database:** This tab shows a tree view of all connected **Databases** in the map.

Click the **Report** button to save a report of the selected tab as a XLS or TXT File.

The right part of the dialog is the **System information** part with the following information:

- **Screen resolution:** Number of dots in horizontal and vertical direction on the screen. The resolution is determined by the currently installed screen driver. In addition, the **Pixels per Inch** are given.
- **Physical memory:** Size of the physical memory (RAM).
- **Disk space:** Available disk space on the drive where OCAD is installed in Megabytes.
- **ADO Version:** The current version of the **ActiveX Data Objects (ADO)** ^[2] is displayed here.
- **Access Database Engine:** The **Access Database Engine (32-bit)** ^[3] is displayed here.
- **Borland Database Engine:** Shows if **Borland Database Engine** ^[4] is installed or not.

Click the **OK** button to save and quit.

Back to Main Page

Previous Chapter: Symbol

Next Chapter: Layout

References

[1] <http://en.wikipedia.org/wiki/Windows-1250>

[2] http://en.wikipedia.org/wiki/ActiveX_Data_Objects

[3] <http://www.microsoft.com/download/en/details.aspx?id=13255>

[4] http://en.wikipedia.org/wiki/Borland_Database_Engine

Create WGS84 Grid

Pro

This command is activated when you have set the **Coordinate System** in the **Map** menu and can be found in the **Map** menu as well. The **Create WGS84 Grid** dialog appears.

Create WGS84 Grid

Minimum Longitude:	8	deg	16	min
Minimum Latitude:	46	deg	4	min
Maximum Longitude:	11	deg	0	min
Maximum Latitude:	47	deg	24	min
Distance longitude:	0	deg	1	min
Distance latitude:	0	deg	1	min

Symbols

Graticule lines:		102.000 Grid Line
Graticule labels:		105.000 Grid text

OK Cancel Help

You have to enter several values now:

- **Minimum Longitude:** Enter the minimum longitude (where the first grid line is to be drawn) in degrees and minutes. A degree-value in the east of the zero meridian has to be written with positiv sign, a degree-value in the west with a negative sign.
- **Minimum Latitude:** Enter the minimum latitude (where the first grid line is to be drawn) in degrees and minutes. A degree-value in the north of the equator has to be written with positiv sign, a degree-value in the south with a negative sign.
- **Maximum Longitude:** Enter the maximum longitude (where the last grid line is to be drawn) in degrees and minutes. A degree-value in the east of the zero meridian has to be written with positiv sign, a degree-value in the west with a negative sign.
- **Maximum Latitude:** Enter the maximum latitude (where the last grid line is to be drawn) in degrees and minutes. A degree-value in the north of the equator has to be written with positiv sign, a degree-value in the south with a negative sign.
- **Distance Longitude:** Enter the distance between the longitude graticule lines in degrees and minutes.
- **Distance Latitude:** Enter the distance between the latitude graticule lines in degrees and minutes.
- **Symbols:**
 - **Graticule lines:** Select a line symbol for graticule lines (map grid).
 - **Graticule labels:** Select a text symbol for graticule labels.

Click the **OK** button when finished.

- 💡 - **Create Graticule Name Index** is the corresponding function to create a graticule name index.
 - Read more about the WGS84 Grid in the **Wikipedia Article** ^[1].

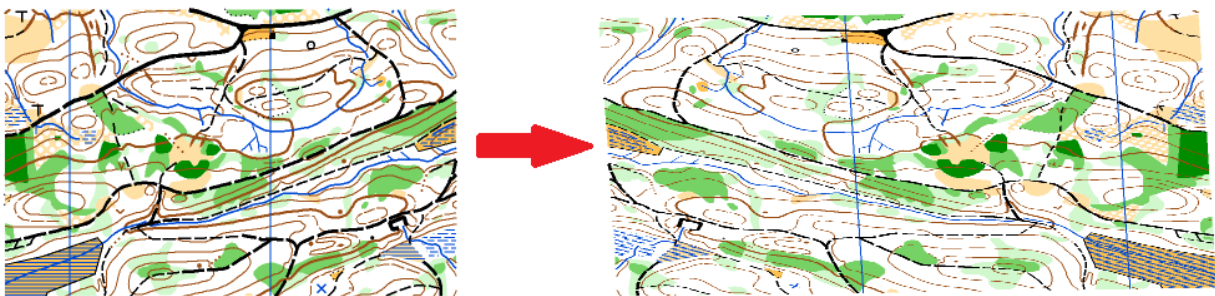
 [Create WGS84 Grid ^[2]]

Back to the **Map** page.

References

- [1] http://en.wikipedia.org/wiki/World_Geodetic_System
- [2] http://www.ocad.com/howtos/133_Create_WGS84_Grid.htm

Map Transform

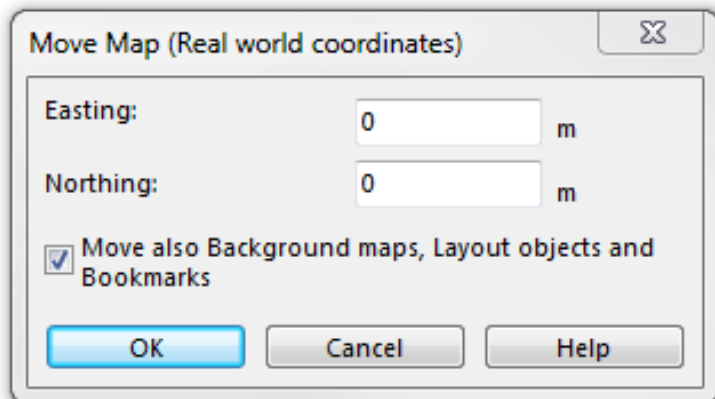


Move

Pro **Std** **Sta**

Select the **Transform** item in the **Map** menu and choose **Move**.

The **Move Map** dialog appears. Depending on whether you are using paper coordinates or real world coordinates (**Set Scale and Coordinate System**) you can enter different values.



With set paper coordinates enter a **X** and a **Y** value in mm. By clicking the **OK** button the map is moved in the desired direction.

With set real world coordinates enter a value in m for easting and northing. By clicking the **OK** button the map is moved in the desired direction.

Check the corresponding option to move also **Background Maps**, **Layout Objects** and **Bookmarks**.

💡 Do not use this dialog to change the real world coordinate offset if the map is georeferenced. To move a georeferenced map, use the **Center Map to Drawing Area** function in the **Transform** submenu of the **Map** menu and enter the new offset.

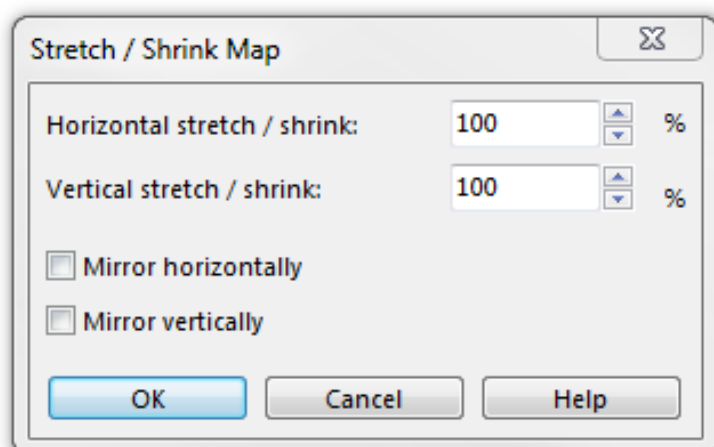
Stretch or Shrink

Pro Std Sta CS



Select the **Transform** item in the **Map** menu and choose **Stretch/Shrink**.

The **Stretch/Shrink Map** dialog opens.



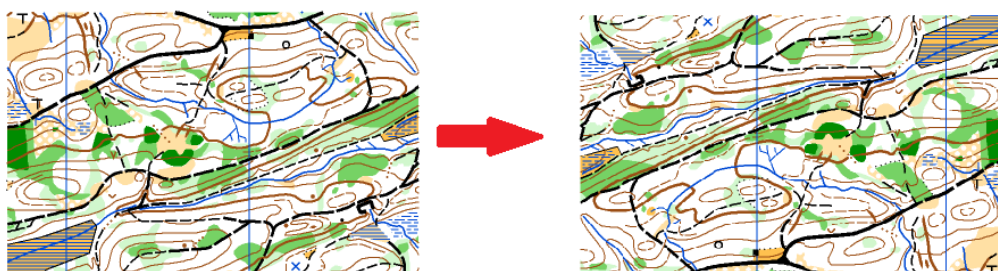
Enter a percentage value for the horizontal stretch/shrink and the vertical stretch/shrink. If both values are the same, the proportions of the map are kept.

Check the corresponding boxes if you want to reflect the map horizontally or vertically.

Click the **OK** button when you are finished.

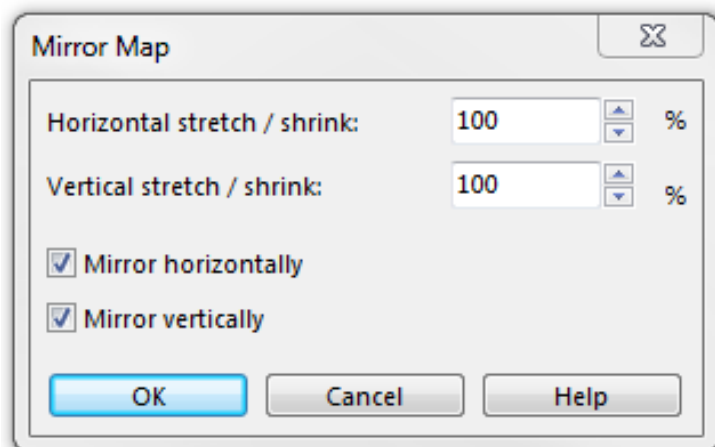
Mirror

Pro Std Sta CS



Select the **Transform** item in the **Map** menu and choose **Mirror**.

The **Mirror Map** dialog opens, which is the same as the **Stretch/Shrink Map** dialog.



Enter a percentage value for the horizontal stretch/shrink and the vertical stretch/shrink. If both values are the same, the proportions of the map are kept.

Check the corresponding boxes if you want to reflect the map horizontally or vertically.

Click the **OK** button when you are finished.

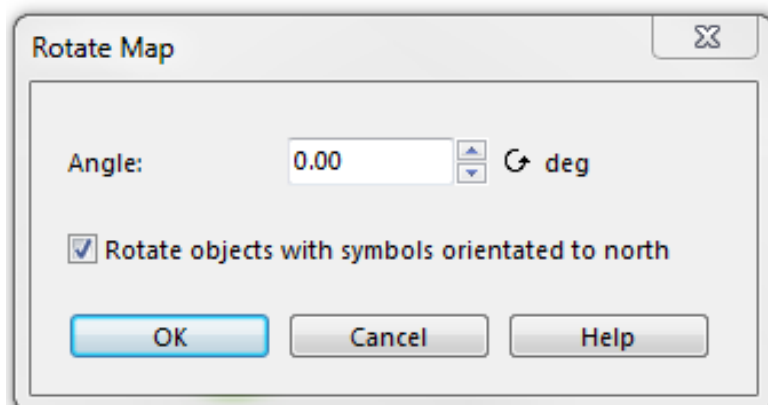
Rotate Map

Pro Std Sta



Select the **Transform** item in the **Map** menu and choose **Rotate Map**.

The **Rotate Map** dialog opens.



Enter an angle in degrees and check the corresponding option if you want to rotate objects with symbols orientated to north.

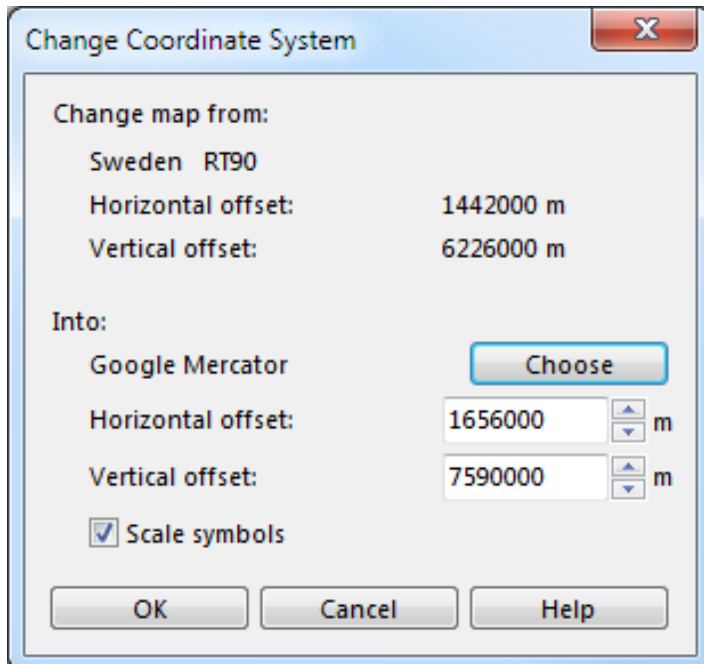
Click the **OK** button to finish.

Change Coordinate System

Pro Std

Select the **Transform** item in the **Map** menu and choose **Change Coordinate System**.

The **Change Coordinate System** dialog opens.



The current coordinate system is displayed in the **Change map from** part of the dialog.

Click the **Choose** button in the **Into** part to choose a new coordinate system. Select the system in the **Coordinate System** dialog and click the **OK** button.

The new offset is displayed in the **Horizontal offset** and **Vertical offset** fields and can be edited there, too.

The option **Scale symbols** is only enabled when Google Mercator^[1] coordinate system is chosen. If this option is checked then OCAD scales all symbols according to the new scale in the center of the map. The map looks similar as before the transformation.

Click the **OK** button when finished. OCAD converts every vertex' coordinate to UTM and then (if necessary) to the desired coordinate system. Due to different origins of the coordinate systems the map gets transformed (stretched/shrunk and rotated).

Affine

Pro Std

Select the **Transform** item in the **Map** menu and choose **Affine** to adjust the whole map on background map or on grid. With this function you can geo-reference the map. The **grid button** must be pressed to see the grid. You can use 1 to 12 points for the adjustment. For each point you do the following:

1. Mark a point on map.
2. Mark the same grid point on reference (background map or grid).

When you have adjusted enough points, press the **Enter** key on the keyboard. The map is rotated and stretched (Affine transformation) to get the best fit for the adjustment points. You can achieve a precise adjustment with 4 adjustment points arranged in a rectangle. In this way you can compensate rotation and distortion. The horizontal and vertical scales will be adjusted individually.

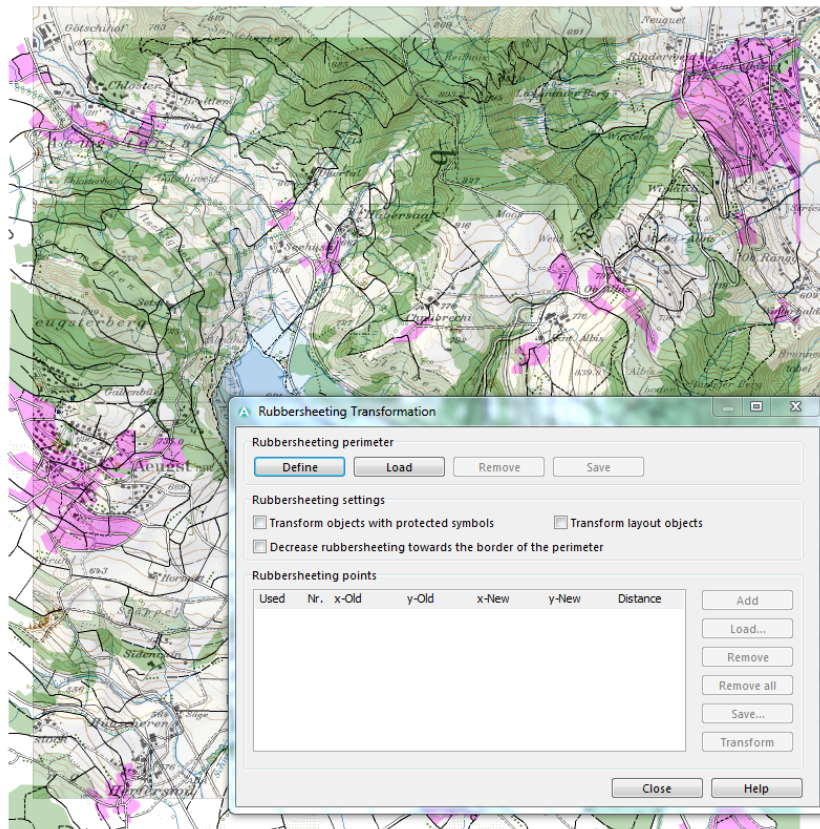


This function works in the same way as the **Adjust a Background Map** function, but it is for the map.

Rubbersheeting

Pro Std

Select the **Transform** item in the **Map** menu and choose **Rubbersheeting** to adjust the map or a part of the map to a geo-referenced background map. The **Rubbersheeting Transformation** dialog appears.



Rubbersheeting perimeter

The **Rubbersheeting perimeter** is an area in which the **Rubbersheeting Transformation** is carried out. Objects outside of the rubbersheeting perimeter are not transformed.

Click the **Define** button and define the perimeter by drawing a polyline on the map (one corner per click). To define a new rubbersheeting perimeter click the **Remove** button to remove the actual one. Click the **Load** button to load an exported rubbersheeting perimeter (txt-File). Click the **Save** button to save the current perimeter.

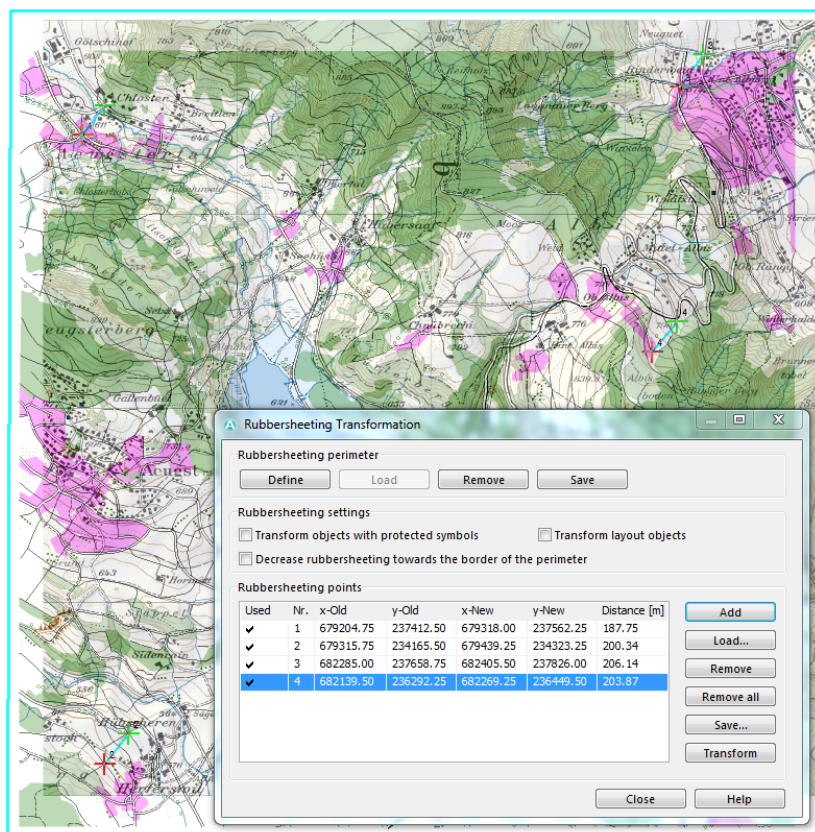
Rubbersheeting settings

Check the corresponding boxes if you want to transform objects with protected symbols, transform layout objects or decrease rubbersheeting towards the border of the perimeter.

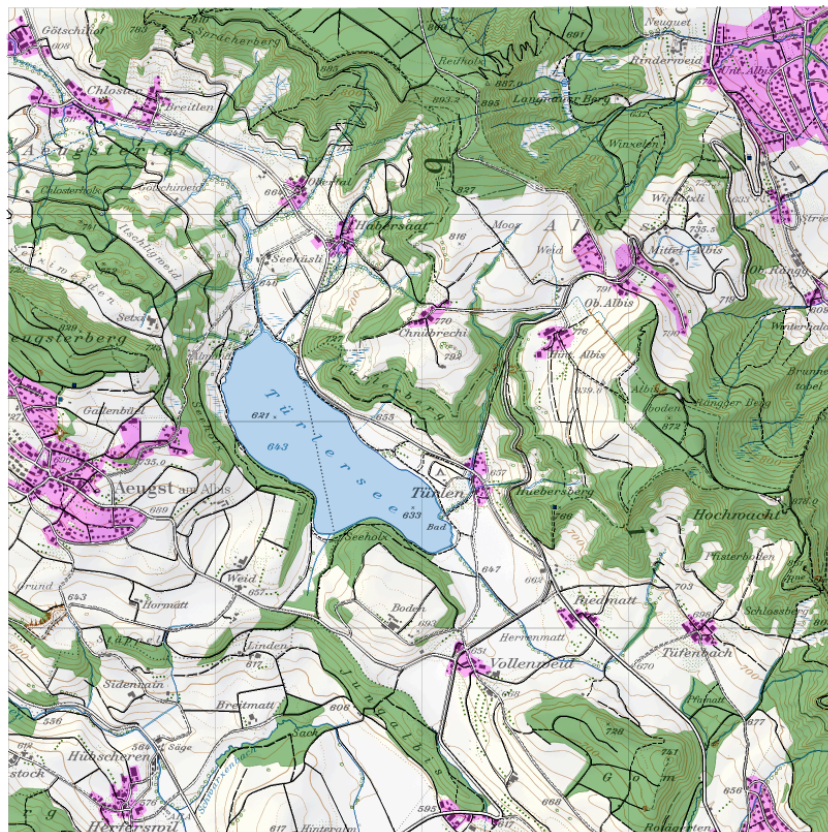
Rubbersheeting points

Click the **Add** button and do the following steps:

- Click a point on the map.
- Click the same point on the reference map (grid or background map). The rubbersheeting points are shown on the map by a red and a green cross and a connection line.
- Do the same procedure for other points.
- Click the **Transform** button to transform the map. Click the **Save** button to save the rubbersheeting points. Click the **Remove** button to remove the selected rubbersheeting point. Click the **Remove all** button to remove all rubbersheeting points. Click the **Load** button to load a saved selection of rubbersheeting points.



Click the **Close** button when finished.



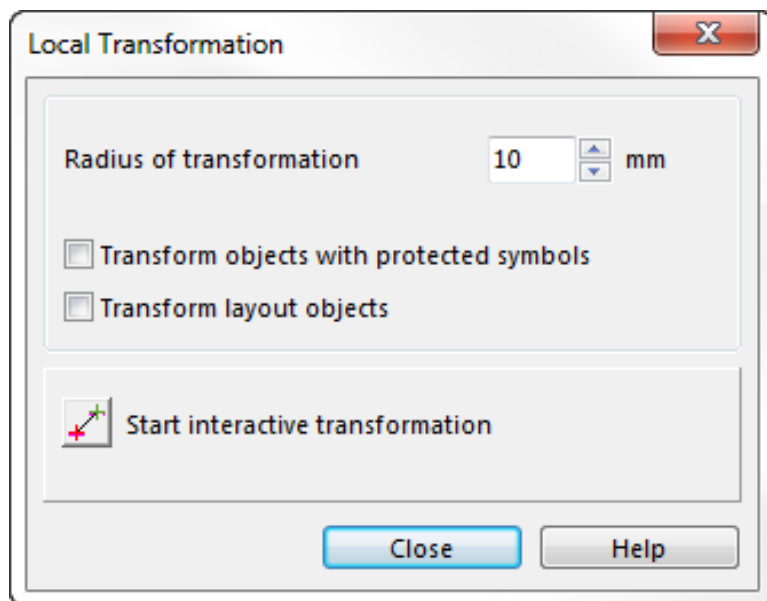
- Click the **Undo** button in the Standard Toolbar if you are not satisfied with the rubbersheeting transformation.
- Uncheck rubbersheeting points in the **Used** column if they should not be included in the transformation. Unchecked rubbersheeting points appear in gray color on the map.

- The rubbersheeting perimeter defines that only objects or vertices of objects within this perimeter are transformed. But it is possible that objects or vertices of objects are moved out of the perimeter by the transformation! Place rubbersheeting point pairs with the same position on the perimeter border to avoid this.
- The **Affine** function is much easier to handle and gives more or less the same result.

Local Transformation

Local Transformation is an *interactive* tool to **eliminate local distortions**. This tool makes the adjustment of existing maps to geo-referenced base maps (hillshading, orthophotos etc.) easier and more accurate too.

Select the Transform item in the **Map** menu and choose **Local Transformation** to open the **Local Transformation** dialog.

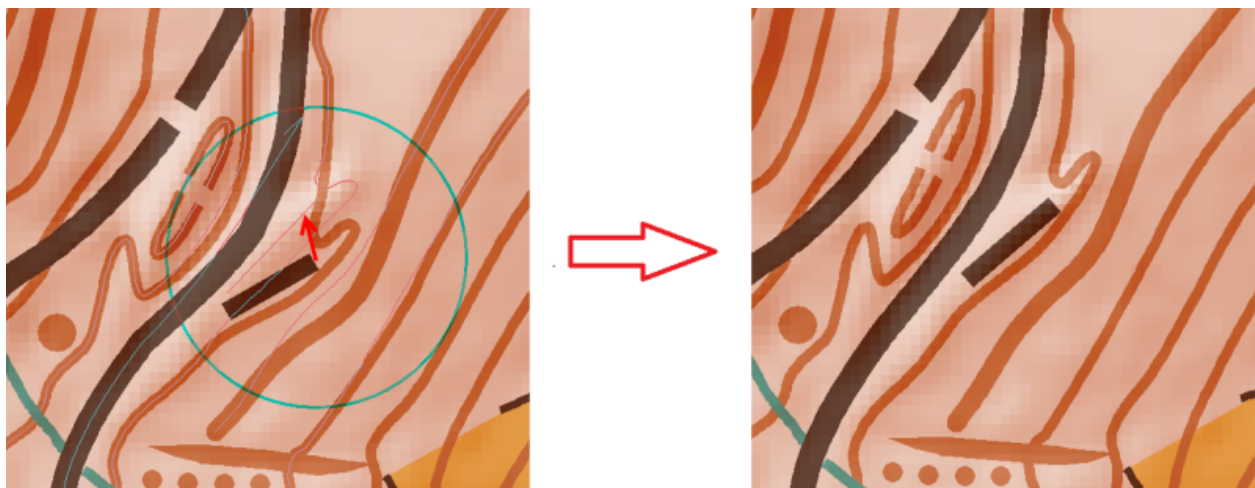


1. Define the *Radius* of transformation.
2. Choose if objects with *protected symbol* and *layout objects* shall be transformed as well.
3. Click on the **Start the interactive transformation** button.
4. Press the left mouse button at the transformation center and move the mouse meanwhile to transform. The mouse up needs to be within the circle.

💡 While pressing the left mouse button, the beforehand defined transformation radius will be shown with a blue circle.

💡 Each vertex inside the circle will be transformed. Thus the transformation doesn't stop exactly at the border of the circle for line and area objects that are partially within the circle. They get transformed until their first vertex out of the circle.

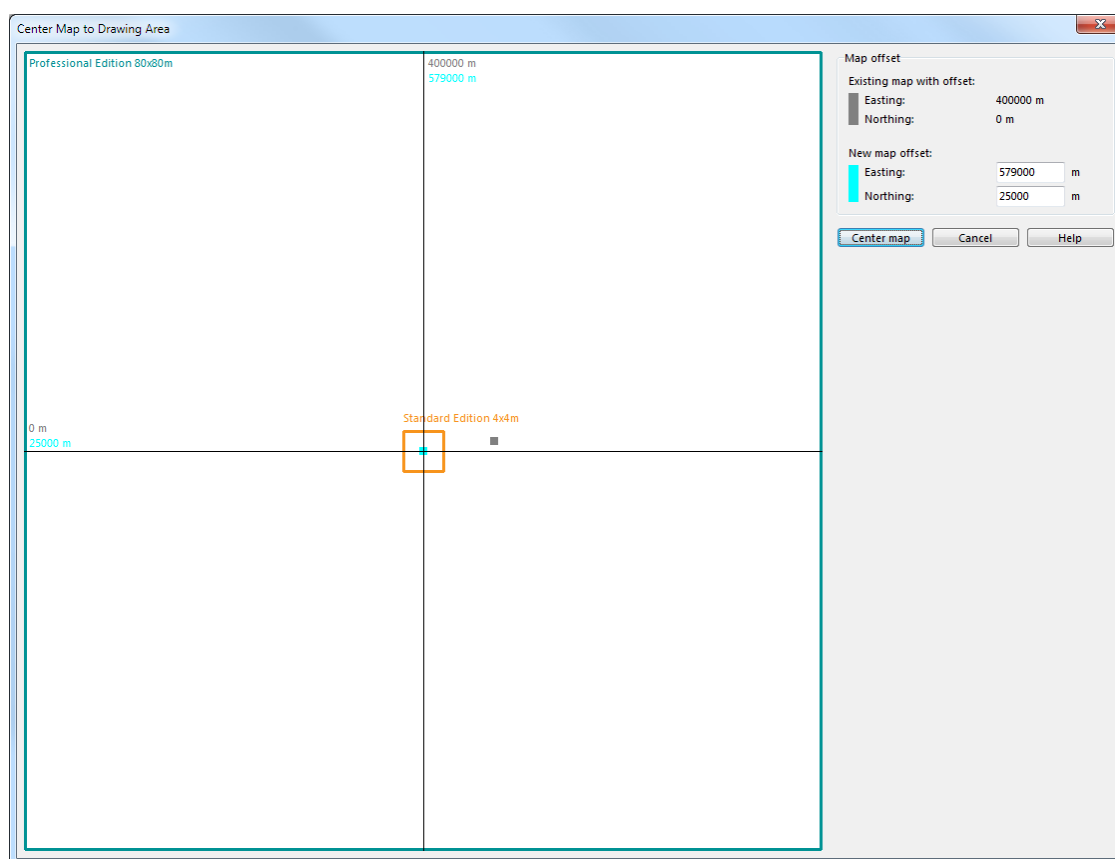
💡 It is possible to edit the map while having opened the non-modal **Local Transformation** dialog.



Center Map to Drawing Area

Pro Std

Select the **Transform** item in the **Map** menu and choose **Center Map to Drawing Area**. The **Center Map to Drawing Area** dialog appears.



This function is often used to center a map drawn in OCAD Professional edition into the smaller drawing area from OCAD Orienteering, Starter or CS edition. OCAD moves the map offset, all objects, all background maps and all bookmarks. After this function the map is still geo-referenced. In the dialog the extent with the existing map offset is shown in grey, the extent with the new offset in blue. The green rectangle shows the drawing area of OCAD Professional edition (80x80m), the orange the drawing area from Orienteering, Starter and CS edition (4x4m). If a map should be visible in all OCAD editions then the entire map must fit in the 4x4m drawing area.

The proposed new map offset is displayed in the **New map offset** fields and can be edited there. This new map offset is calculated from the map and his visible background maps. If the background maps are hidden then OCAD calculates the new map offset only from the map.

Click the **Center map** button to move the map to the center of the drawing area.

The geo-reference of the map is not changed.

Back to the **Map** page.

References

[1] http://en.wikipedia.org/wiki/Mercator_projection

Define Spot Colors

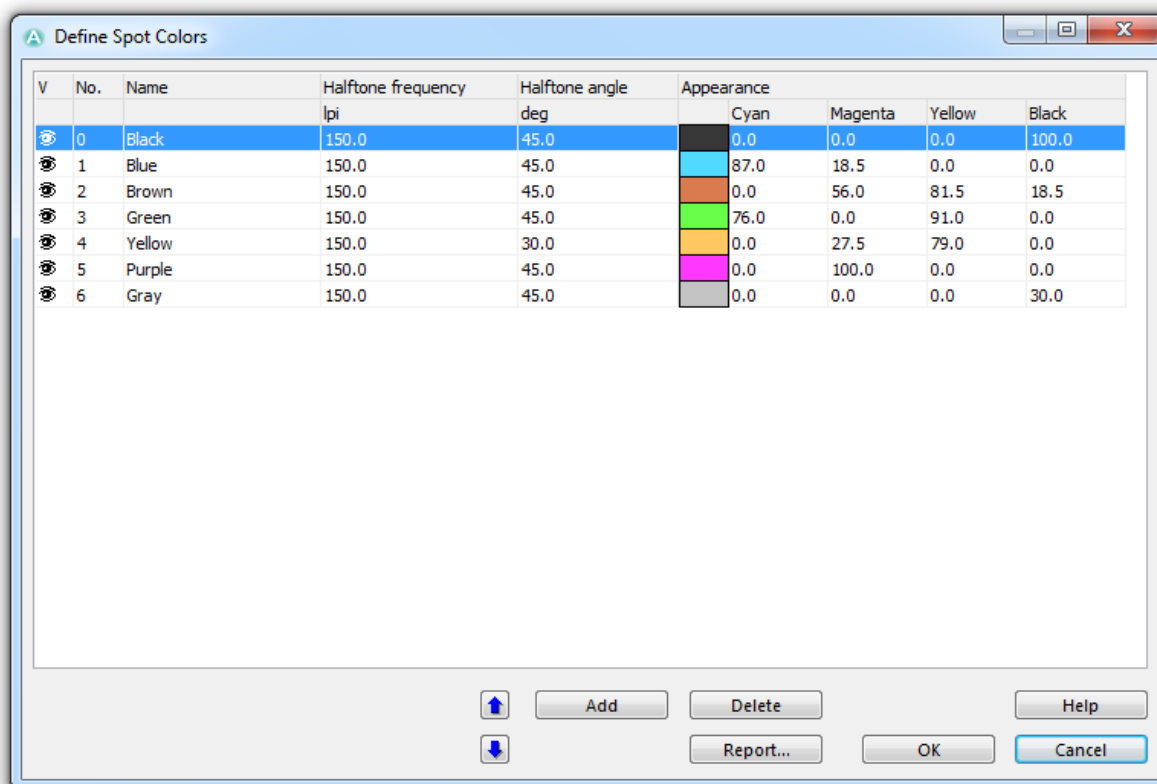
Pro **Std** **Sta** **View** **CS**

Choose this command from the **Map** menu to create, edit and delete spot colors. Read the **Wikipedia Article** ^[1] to get an impression what spot colors are.

High quality maps are often printed with spot colors. Spot colors are also referred as **PMS (Pantone matching system)** ^[2] colors.

Choose the **Spot Colors** command in the **View** menu to get a preview of the spot color print.

If you choose the **Define Spot Colors** command in the **Map** menu, you will get to the **Define Spot Colors** dialog:



A table shows all currently defined spot colors. The columns provide the following information:

- **V (Visible):** If you click the eye icon in this column you can hide or display a spot color.
- **No. (Number):** Enter here a number for the spot color.
- **Name:** Enter here a name for the spot color.
- **Halftone Frequency:** This column determines how fine the typesetter will present halftone screens. The standard value is 150 lines per inch (lpi). Read more about this topic in the **Wikipedia Article** ^[3].

- **Halftone Angle:** This determines the angle of halftone screens. The standard value is 45°. Read more about this topic in the **Wikipedia Article** ^[3].



If dotted areas are rendered as a halftone screen, then the halftone screen angle should be different from the angle of the dots to avoid Moiré effects on the printed map.

- **Appearance:** These values are used for the spot color view (the spot color view is a simulation of the map printed with spot colors). They are also used when exporting the map in the AI and PDF format with spot colors.

In addition, you have the following functions:

- **Move up:** Click the **Move up** button to move up the selected spot color.
- **Move down:** Click the **Move down** button to move down the selected spot color.
- **Add:** Click this button to create a new spot color.
- **Delete:** Click this button to delete the currently selected spot color.

Click the **Report** button to save the table as a XLS, TXT, HTM or DOC-File.

Click the **OK** button to save all changes and quit the dialog.

Back to the **Map** page.

To the **Colors** page.

References

[1] http://en.wikipedia.org/wiki/Spot_color

[2] http://en.wikipedia.org/wiki/Pantone_Matching_System#Pantone_Color_Matching_System

[3] <http://en.wikipedia.org/wiki/Halftone>

Routing

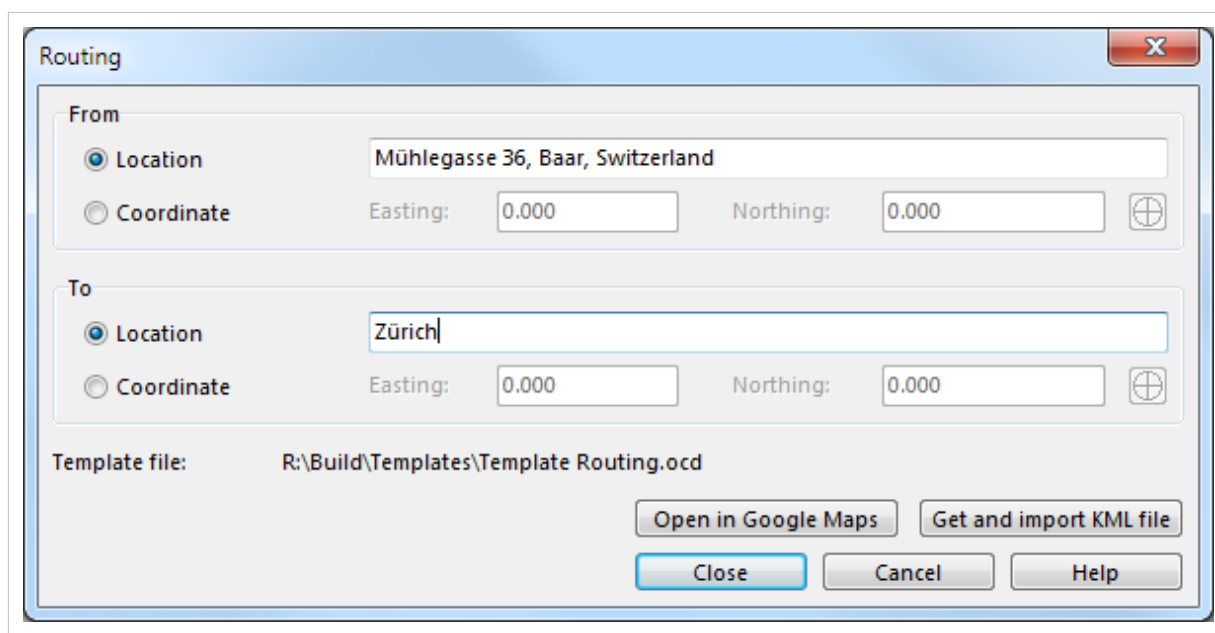
Pro

This command is only available if the map is georeferenced and a **Coordinate System** is set.

This command can be used to find the fastest way by car between two arbitrary points by downloading and importing the vector data from Google Maps.

Routing by Entering a Location


1. Select **Routing** in the **Map** menu to open the **Routing** dialog.
2. Enter the name of the start and end location.

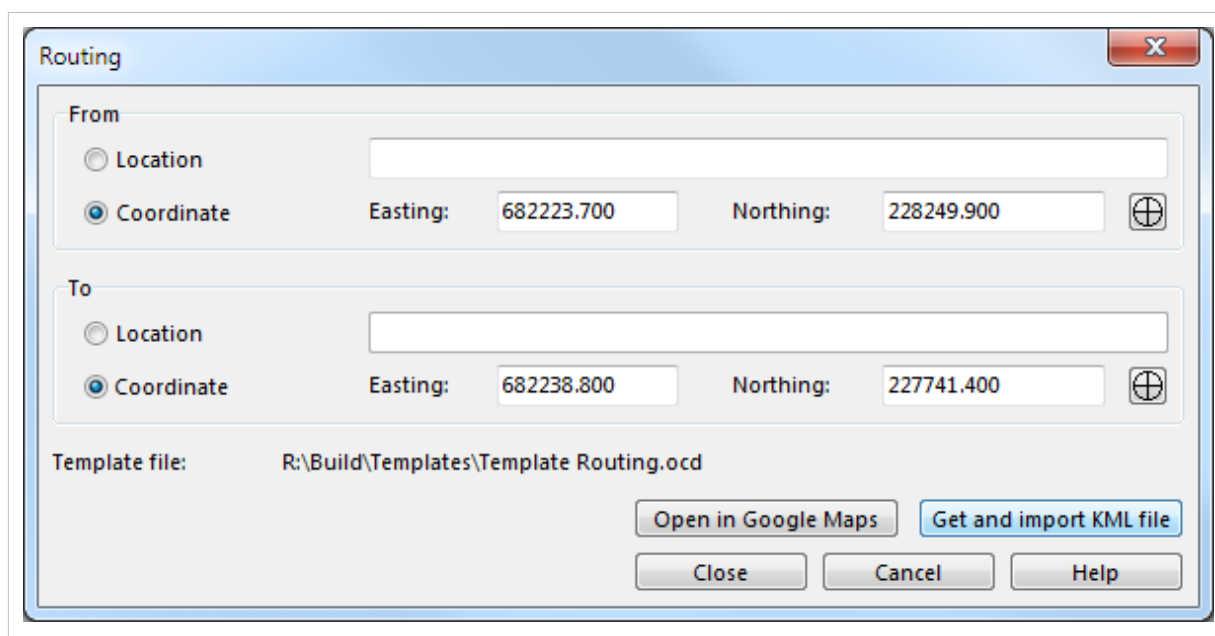


The Routing dialog box is shown with the 'From' section set to 'Location' and the text 'Mühlegasse 36, Baar, Switzerland'. The 'To' section is also set to 'Location' with the text 'Zürich'. Both sections have 'Easting' and 'Northing' fields set to '0.000'. The 'Template file' is 'R:\Build\Templates\Template Routing.ocd'. At the bottom, there are buttons for 'Open in Google Maps', 'Get and import KML file', 'Close', 'Cancel', and 'Help'.

Routing by Entering Coordinates

Instead of entering the name of the start and end point you can also simply click on these locations on the map.

1. Activate the **Coordinate** option in the **Routing** dialog.
2. Click on the **Get Coordinate from Drawing Area** button , then click on the start location on your map. OCAD displays the coordinate in the **Routing** dialog. Optionally you can enter the coordinate manually.
3. Do the same for the end location.



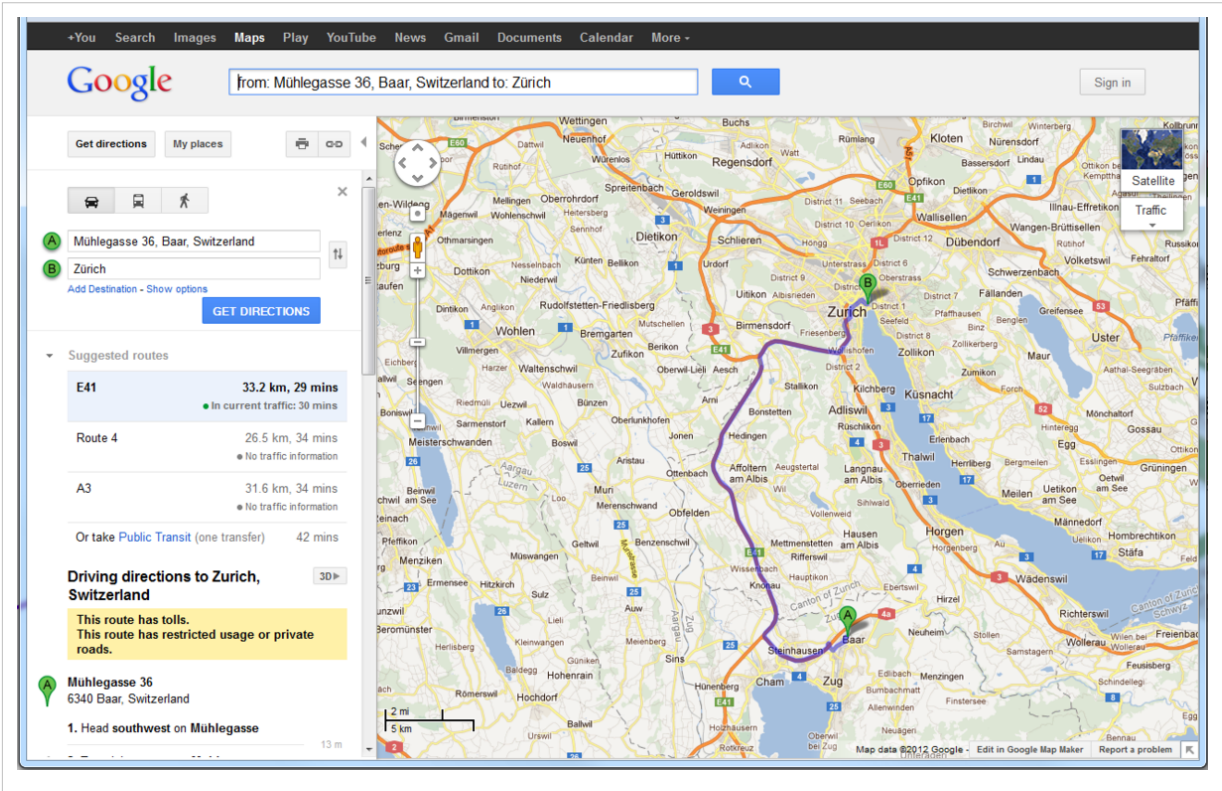
The Routing dialog box is shown with the 'From' section set to 'Coordinate' and the 'To' section also set to 'Coordinate'. The 'From' section has 'Easting' set to '682223.700' and 'Northing' set to '228249.900'. The 'To' section has 'Easting' set to '682238.800' and 'Northing' set to '227741.400'. The 'Template file' is 'R:\Build\Templates\Template Routing.ocd'. At the bottom, there are buttons for 'Open in Google Maps', 'Get and import KML file', 'Close', 'Cancel', and 'Help'.



Please note that the function **Get and import KML file** does not work anymore.

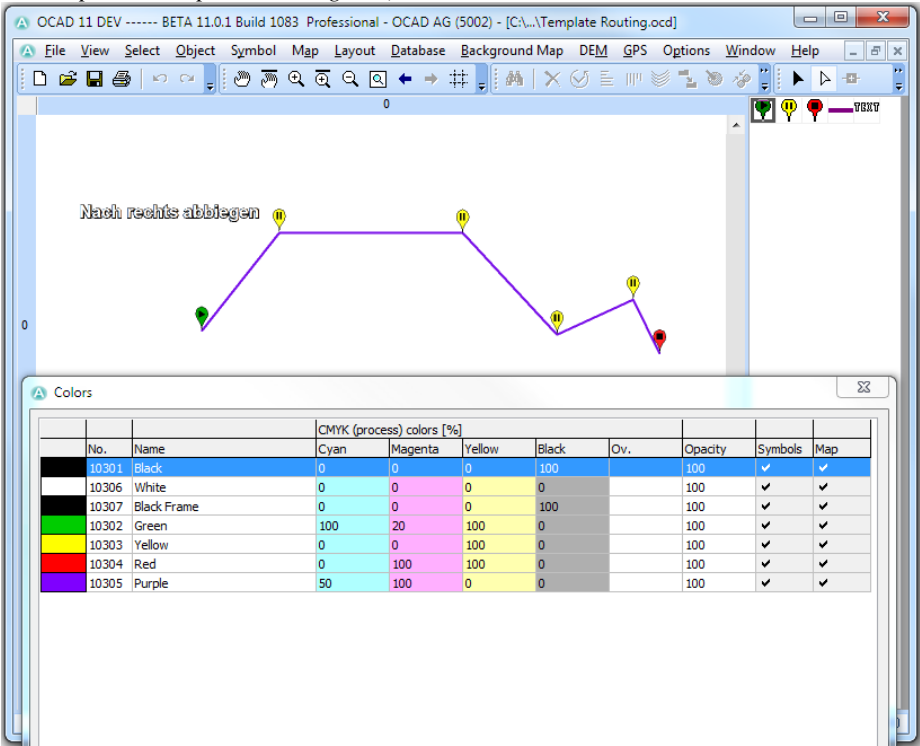
Show Route in Google Maps

Click on the **Open in Google Maps** button to see the route on Google Maps.

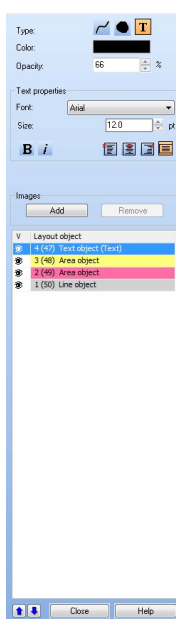
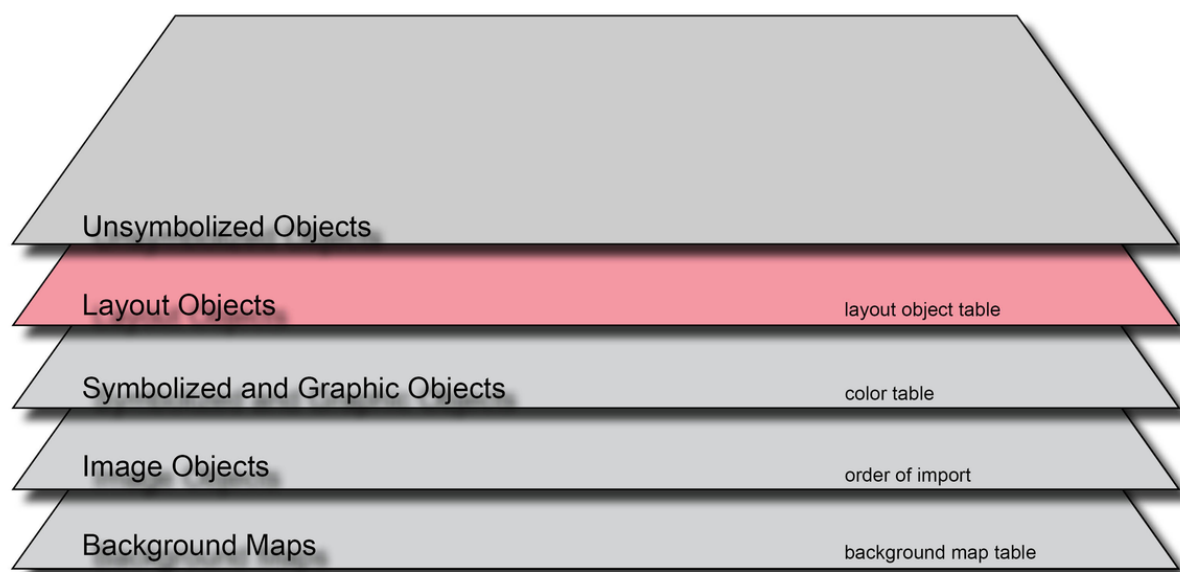


Template File

The symbols and colors used for routing are saved in a template file (usually *C:\Program Files\OCAD\OCAD 12\Templates\Template Routing.ocd*) and can be edited there, too.



Layout



Since Ocad 11, it's possible to add layout layers in the map. This layer may contain raster images and vector objects like lines, areas or text. The vector layout objects color model is CMYK. The layout images' one is RGB. Spot colors are not supported by the OCAD layout layer.

Layout objects cannot be selected, moved, removed or changed unless you choose the **Edit Layout Objects** command in the **Layout** menu.

Edit Layout Objects



Use this function in the **Layout** menu to add, remove or edit layout objects and define their properties. The **Edit Layout Objects** dialog appears on the right side of the window. Now you can move, edit or remove layout objects in the drawing area like normal objects.

Add a line, area or text layout object:

1. Click the **Line**, **Area** or **Text** icon in the **Edit Layout Objects** dialog as a **Type**.
2. Choose a **Color**. Click the color field to define the color with the **Color Picker**.
3. If you have chosen a line, define the **Line width** in the **Line properties** category in mm. If you have chosen a text, choose a **Font** and a **Text size** in the **Text properties** category.
4. The **Opacity** can be defined for each object.
5. Draw the layout object with the regular drawing tools.

To edit the drawn layout object select it and change the properties (color, line width etc.) in the **Edit Layout Objects** dialog or use the editing functions of OCAD (**Edit Object**).

Add an image:

1. Click the **Add** button in the **Images** category of the **Edit Layout Objects** dialog.
2. The **Add Layout Image** dialog opens and you can browse an image. The supported image files are .bmp, .dib, .gif, .jpg, .png, .tiff. Click the **Open** button to add the image.
3. Move and resize the image objects by using the **Select and Edit Object** Tool. They can be moved with arrow keys as well.

- Remove a layout image by selecting it in the layout objects list and clicking the **Remove** button in the **Images** category of the **Edit Layout Objects** dialog.

- The error message "The maximum allowed entries of layout objects is reached" appears if the list contains the maximum of 256 entries.
- All Layout objects are listed in the layout objects list. It is possible to set them visible or hidden and to move them up and down.
- The error message: "Font not found" appears if a layout object is linked to a font that is not installed on the PC. The font needs to be installed on the PC or another font must be chosen. Otherwise the font Arial is used.

Object Type	Parameter	Properties
Line Object	Color Opacity Line width	Color Picker in [%] in [mm]
Area Object	Color Opacity	Color Picker in [%]
Text Object	Color Opacity Text properties	in [%] Font Size in [pt] Bold Italic Bottom left Bottom center Bottom right Fully justified
Images	Add Remove	

Import Layout



Choose this command in the **Layout** menu to import the layout objects from another OCAD map. The layout objects are placed in the center of the actual drawing area. This command is only available if you are in the **Edit Layout Objects** mode.

Save Layout



Choose this command from the **Layout** menu to save the layout objects to a separate OCAD file. This command is only available if you are in the **Edit Layout Objects** mode.

Delete Layout



Choose this command from the **Layout** menu to delete all the layout objects. This command is only available if you are in the **Edit Layout Objects** mode.

Hide




Select **Hide** in the **Layout** menu to hide all layout objects.

Add North Arrow or Scale Bar



You can add predefined north arrows or scale bars to the Layout.

1. Choose **Edit Layout Objects** in the **Layout** menu.
2. Choose **Add North Arrow or Scale Bar** in the **Layout** menu.
3. The **Add North Arrow or Scale Bar** dialog appears and you can choose between different north arrows and scale bars from the *Templates* folder of the OCAD directory (Usually *C:\Program Files\OCAD\OCAD 12 Edition\Templates*).
4. Click the **Open** button to add the selected object to the layout objects.

 - In the OCAD directory you can find a PDF-File with an overview of all predefined north arrows and scale bars (Usually *C:\Program Files\OCAD\OCAD 12 Edition\Templates*).

- North arrow and scale bar templates are black. You can change the color after adding them by choosing a color from the color field in the **Edit Layout Objects** dialog.

Add Map Legend



Choose the **Add Map Legend** function from the **Layout** menu to create a **Map Legend**. The **Add Map Legend** dialog appears.

Legend Icon

Define values for the legend icon in this part of the dialog. You have to set a value for the **Icon height**, the **Icon width** and the **Line spacing**. If you want that only used symbols are shown in the legend, check the corresponding box. In the same way, you can decide whether hidden symbols are shown in the legend or not.


Symbol type

Only the checked symbol types are taken into consideration for the map legend. Click the **All** button to check or click the **None** button to uncheck all symbol types.

Legend Text

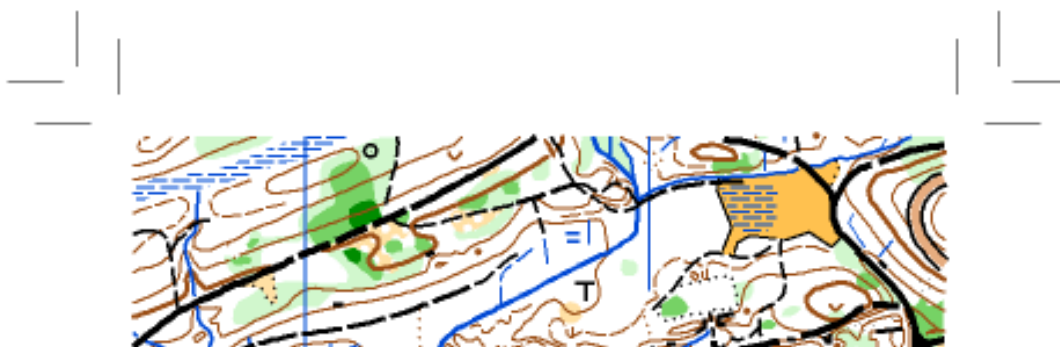
Choose a symbol for the legend text. This must be a text symbol of course. If you want that the symbol number is shown in the legend text, check the corresponding option.

Click the **OK** button to add the map legend.

 This function creates symbolized map objects, not layout objects. Use the function **Convert to Layout Object** to convert them into layout objects.

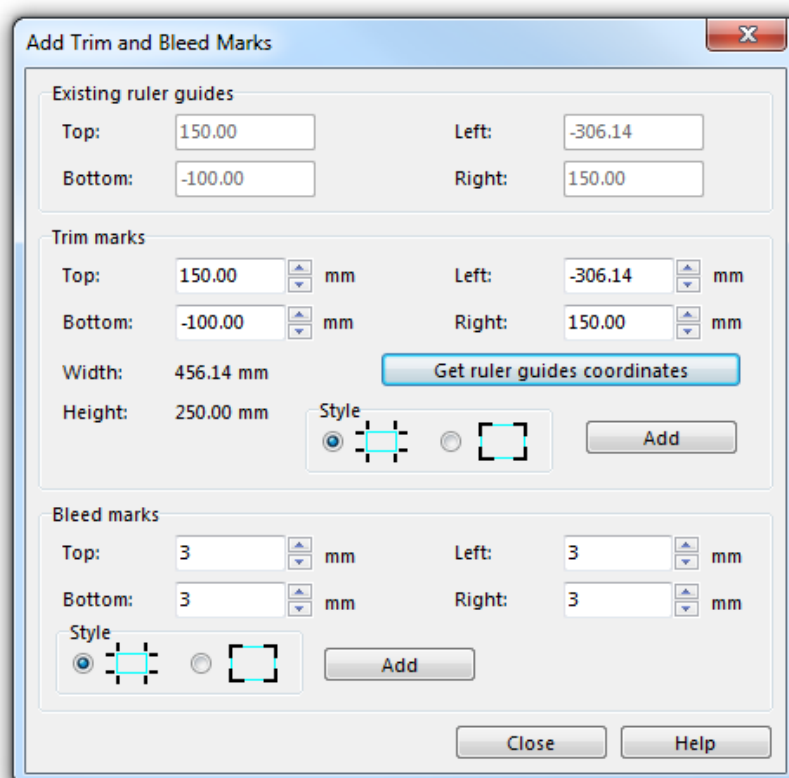
Add Trim and Bleed Marks

Pro Std



This command adds trim and bleed marks as layout objects to the map.

1. The easiest way to add trim and bleed marks is when you set the ruler guides to the border of the map and the map layout (e.g. A4 landscape format) first. Learn how to use the ruler guides on the **Ruler Guides** page. If you do not want to use **Ruler Guides** skip this step.
2. Choose the **Add Trim and Bleed Marks** function in the **Layout** menu.
3. The **Add Trim and Bleed Marks** dialog opens.



4. If you are using **Ruler Guides**, click the **Get ruler guides coordinates** button in the **Trim marks** part of the dialog, select a style (see below) and then click the **Add** button. Trim marks with the coordinates of the ruler guides are added. If you are not using **Ruler Guides**, enter the paper coordinates for the trim marks manually before clicking the **Add** button.
5. Enter the offset for the bleed marks in the **Bleed marks** part of the dialog if you want to add them and select a style (see below). Then click the **Add** button.



6. Click the **Close** button to apply all adjustments and quit the dialog.

Trim and Bleed Marks are layout objects and can be edited and removed like other layout object.

Create Graticule Name Index

Pro

This command is only available if the map is georeferenced and a coordinate system is set. The command calculates a name index based on the WGS84 graticule.

Select one or more symbols in the symbol box before choosing the command. All text objects and line text objects with these symbol(s) are included to the index.

Create Graticule Name Index Dialog

- **Index origin of longitude/latitude:** Enter index origin coordinates.
- **Horizontal/vertical distance:** Enter the distance between the grid lines.
- **Angle:** Enter the angle of the grid. This angle is zero, if the grid is not rotated.
- **Style:** Choose a numbering style. One axis is always numbered "A, B, C..." and the other "1, 2, 3..."
- **Name index symbol:** Choose a text symbol. It is used as a symbol for the name index text objects.

After clicking the **OK** button a text object with the index will be added in the center of the drawing area and can be moved to the desired position.



This function creates symbolized map objects, not layout objects. Use the function **Convert to Layout Object** to convert the index to layout objects.



Create WGS84 Grid is the corresponding function to create a graticule.



Define a **Tab** in the name index text symbol therewith the indices are written in a column.

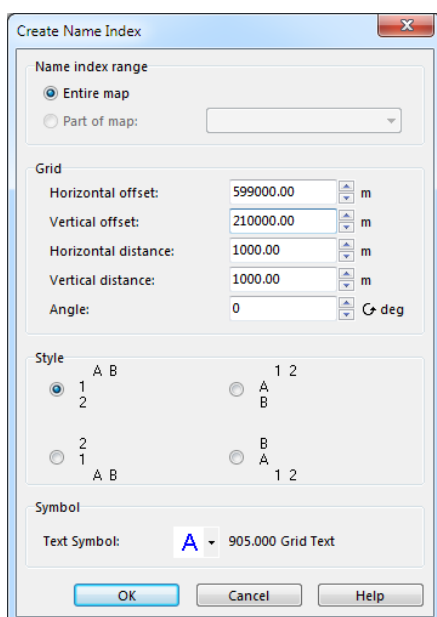
Error Message *Text is too long*

Each text object in OCAD is limited by 32000 characters. This error message appears when the text has more characters. OCAD copies the full text string in the Windows Clipboard. In this case we recommend you to split the text string from Windows Clipboard in a Text editor and paste it into OCAD.

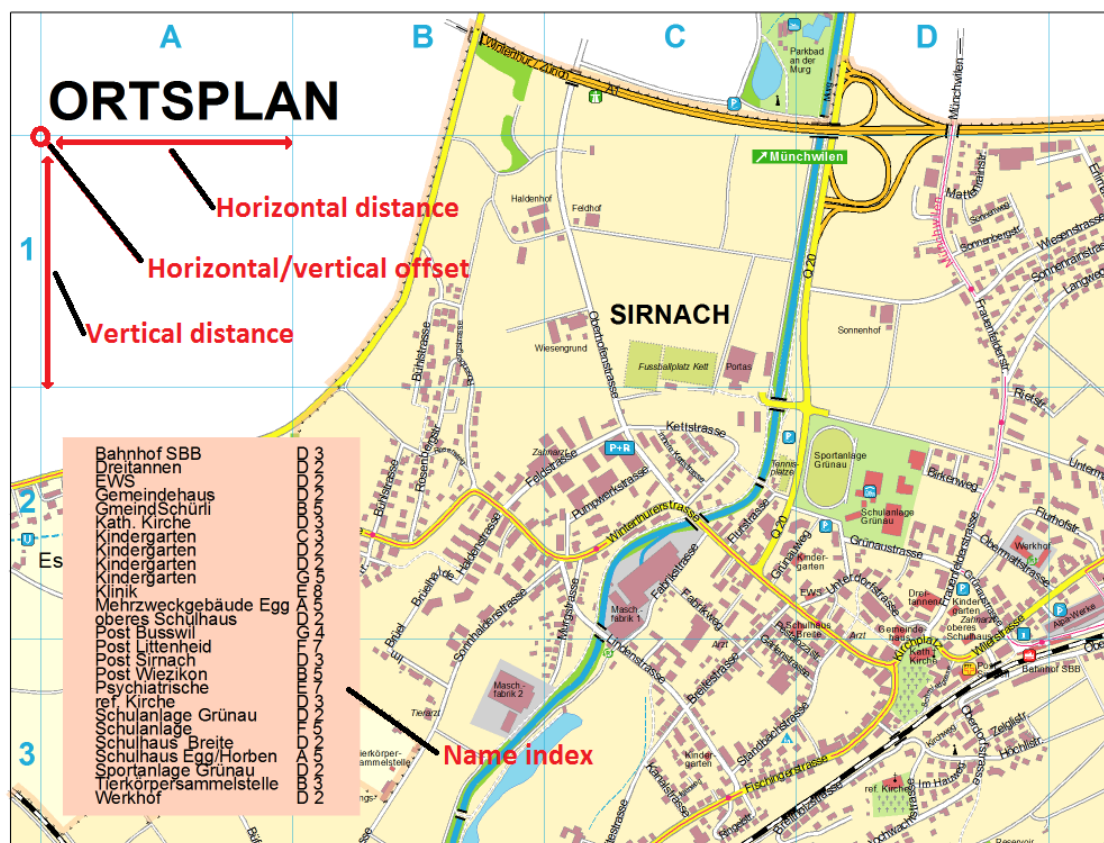
Create Name Index

Pro

Make sure you have selected one or more text or line text symbols in the symbol box before choosing **Create Name Index** in the **Layout** menu. The **Create Name Index Dialog** appears.




OCAD creates the name index from all objects from the selected text or line text symbols. For example, if you want to list all street names, select all symbols for street names in the symbol box.




- **Name index range:** Choose **Entire map** to create the index for the entire map or choose **Part of map** for a desired part. OCAD uses the part of maps defined in the print and export dialogs.
- **Horizontal/vertical offset:** Enter the coordinate of the upper left or lower left corner where the numbering of the grid starts (in this example the origin of the A1 square). The coordinate can be easily found out by reading them in the **Status Bar** while hovering with the mouse over this point.
- **Horizontal/vertical distance:** Enter the distance between the grid lines (in this example the distance from A to B square respectively from 1 to 2 square).

- **Angle:** Enter the angle of the grid if it is rotated. Usually, namely in the case of exactly horizontal and vertical grid lines, the angle is zero.
- **Style:** Choose a numbering style. One axis is always numbered "A, B, C..." and the other "1, 2, 3..."
- **Symbol:** Choose a text symbol. It is used for the text objects, building the name index.

After clicking the **OK** button a text object with the index will be added in the center of the drawing area and can be moved to a desired position.

 This function creates symbolized map objects, not layout objects. Use the function **Convert to Layout Object** to convert the index to layout objects.

 **Create Map Grid** is the corresponding function to create a rectangular map grid. OCAD does not create a map grid with the **Create Name Index** function.

 Define a **Tab** in the name index text symbol therewith the indices are written in a column.

Error Message *Text is too long*

Each text object in OCAD is limited by 32000 characters. This error message appears when the text has more characters. OCAD copies the full text string in the Windows Clipboard. In this case we recommend you to split the text string from Windows Clipboard in a Text editor and paste it into OCAD.

Convert to Layout Object

Visit the **Convert to Layout Object** page to get some information about this function.

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[Previous Chapter: Map](#)

[Next Chapter: Multiple Representation](#)

Multiple Representation

Anleitung OCAD 12 Multi-Repräsentation (deutsch) ^[1]

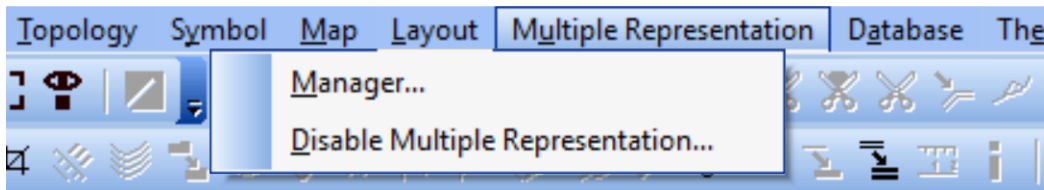
What is Multiple Representation in OCAD? MAS Pro

Multiple representation enables the ability to store different states of objects in one single OCAD file. To show these different states of objects, you need to create multiple representations. After you created a new representation and set it active, you start with the original map and can alter objects or add new ones. The original map won't be changed, but just your representation. This can be helpful for example when you want to translate a city map to another language. Just add a new representation where you translate the labels. If you need to change objects in the original map, these changes are automatically assumed to the new representation. For more examples see Examples: How OCAD Multiple Representation is meant to work.

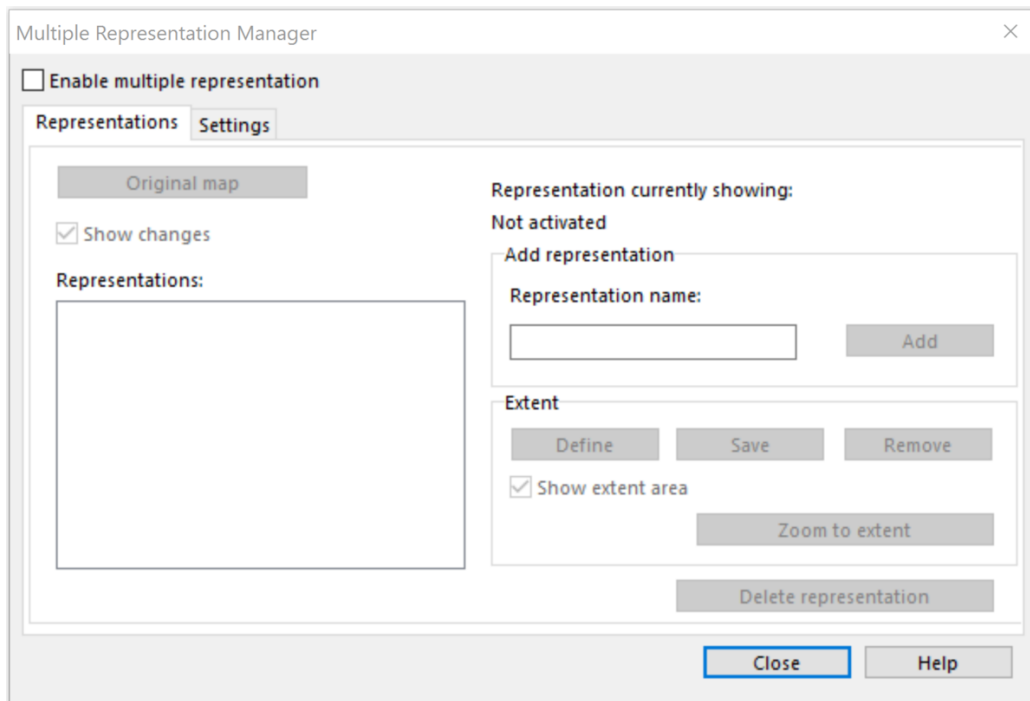
The multiple representation is available in OCAD 12 Professional and OCAD 12 Mapping solution. OCAD maps with an active multiple representation can only be opened with these two editions.

Multiple Representation Manager

Click on **Multiple Representation -> Manager...** to open the manager. The multiple representation manager serves for the activation and management of the representations. You can only activate the multiple representation in the multiple representation manager.



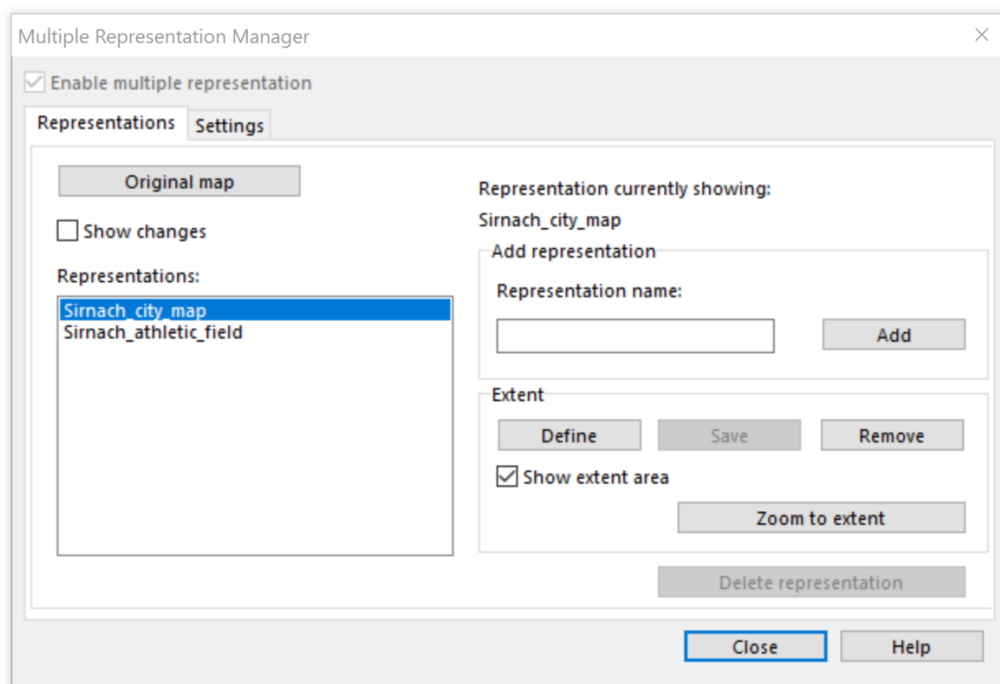
Click in the head of the dialog on **Enable multiple representation** to activate the multiple representation. The multiple representation manager is a non-modal dialog, you can edit the map while the dialog is open.



Representations

Add Representation

Enter the name of the representation in the field **Representation name** and click on the button **Add**. You see the added representation in the list of the **Representations** on the left side. After the activation of the multiple representation and the creation of the new representations "Sirnach_city_map" and "Sirnach_athletic_field", the dialog looks like this:



Define, Save and Remove the Extent

In the section **Extent**, you have the possibility to define the border of a representation. Click on the **Define** button and define the extent of the representation with the black rectangle in the map window. Click on **Save** and activate **Show extent area**. The extent gets shown with a red frame in the map window. You can remove the extent, if you click on **Remove** or you can overwrite it by defining and saving a new one.

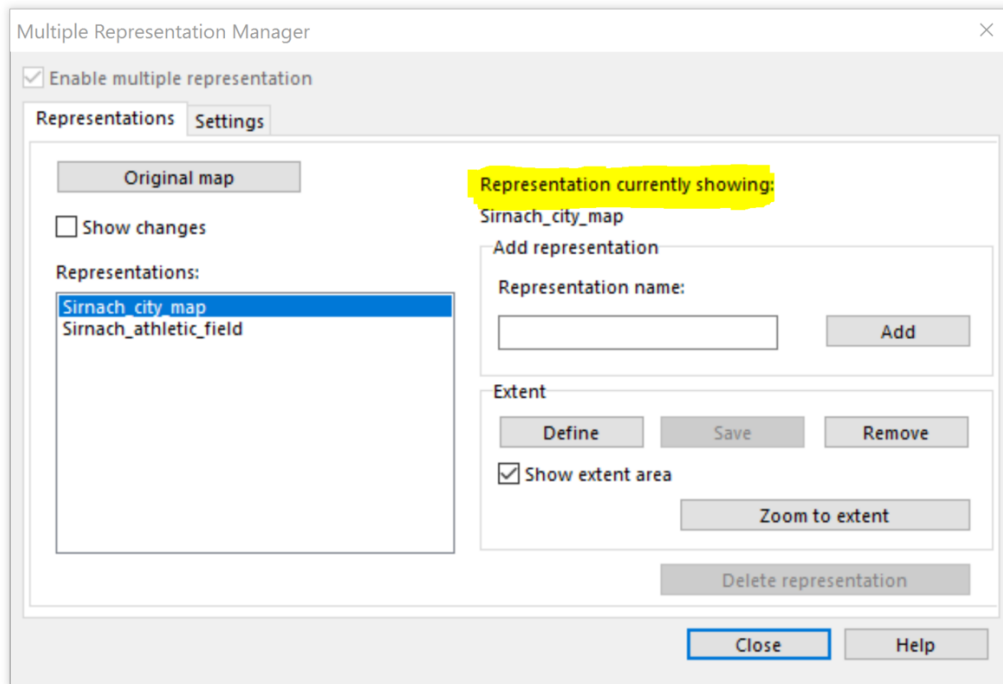
💡 You don't need to define an extent, but it makes it easier for you to keep the overview. Furthermore, you can use the defined extent as an input, when you like to export or print the representation.

Zoom to Extent

If you have defined an extent for the currently showing representation, you can click on the button **Zoom to extent** to zoom to the extent of this representation.

Change the Currently Showing Representation

The currently showing representation is the `Sirnach_city_map`. With a double click on the favored representation you can change between the representations. You see the currently showing representation in the top right of the dialog.



Original Map

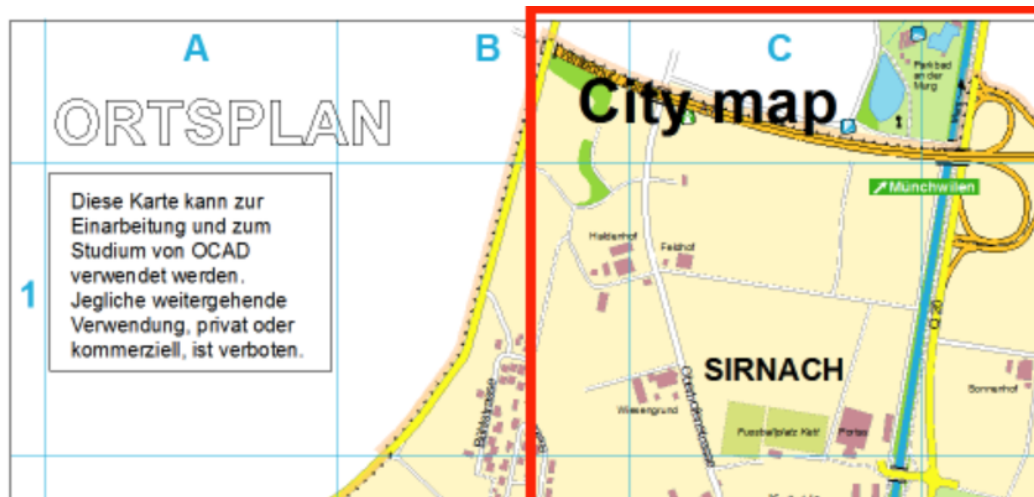
If you click on the button **Original Map**, the original map is shown in the map window.

Show Changes

If a representation is shown, you can activate the option **Show changes**. All objects, that have been moved, changed or deleted compared to the original map, are shown in the Keyline modus, like the label „Ortsplan“ in following example:



The red frame in the map is the defined extent of the currently showing representation. The label “City map” would be missing in the `Sirnach_athletic_field` if it wouldn't have been moved to a new position within in the representation extent.

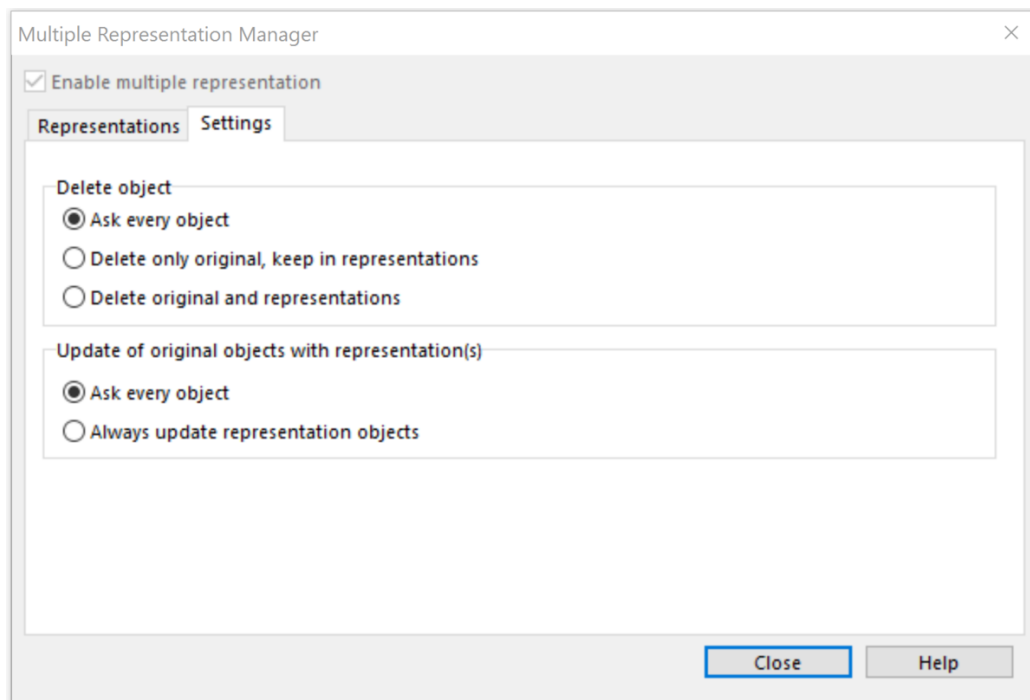


Delete Representations

A representation can be deleted, if it isn't the currently showing representation. Click (once, no double click) on the representation in the list and click on the button **Remove**.

Settings

You can manage the properties for deleting or updating objects of the original map in the **Settings** tab.



Delete Objects

Ask every object

If an object is deleted in the original map, a dialog appears and asks, if you also want to delete the object in the representations or if you want to keep it there. This dialog appears once per object and representation.

Delete only original, keep in representations

If an object is deleted in the original map, it is kept in the representations.

Delete original and representations

If an object is deleted in the original map, it is also deleted in the representations.

💡 If an object is deleted in the representation, there are no effects to the original map and the other representations. To delete an object in all representations, you have to delete it in the original map.

Update of original objects with representation(s)

Here you can define what will happen, if an object is changed in the original map, that has already been changed in a representation before.

Ask every object

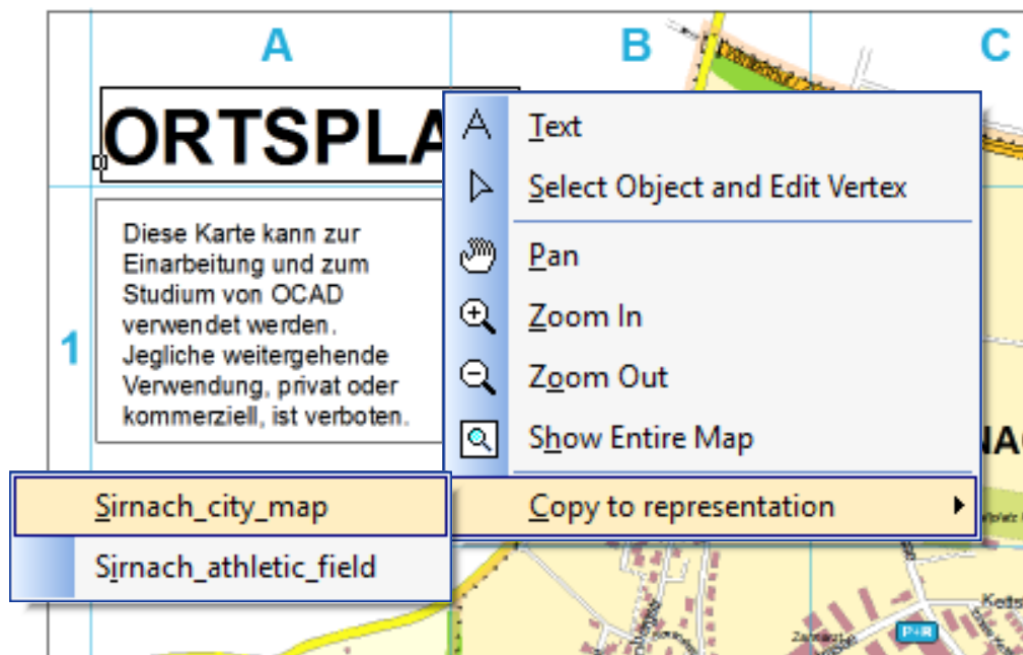
If an object is changed in the original map, a dialog appears to ask if the changes should be assumed to each representation. This dialog appears once per object and representation.

Always update representation objects

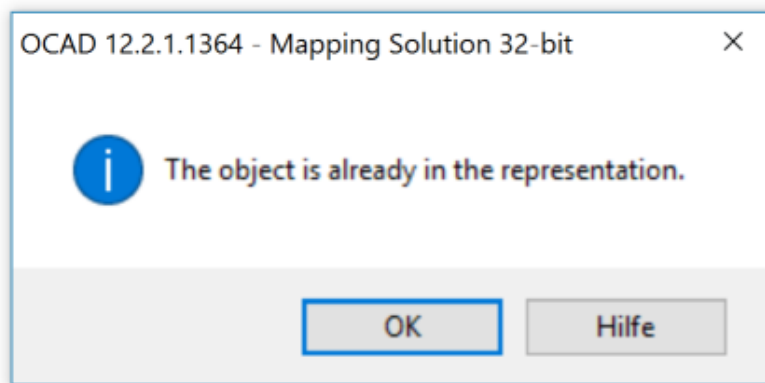
If an object is changed in the original map, the changes are automatically assumed to all representations.

Copy Objects from the Original Map to the Representation

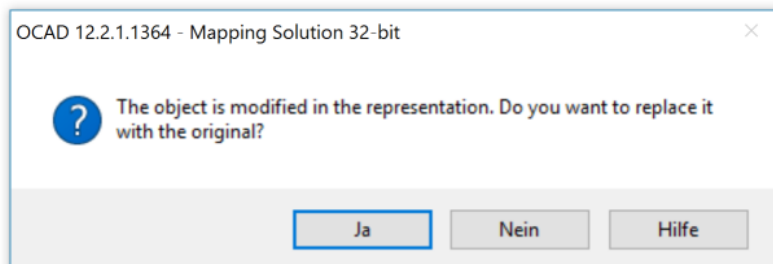
If you have deleted (e.g. by mistake) one or several objects in a representation, you can undo this action. Go to the original map, right-click on a selected object, click on **Copy in representation** and choose in which representation you want to copy the object.



This message appears if the object is already in the representation:



This message appears if the object has already been changed in the representation:



Disable multiple representation

The multiple representation can be disabled in an OCAD map by going to **Multiple Representation -> Disable multiple representation...**

The contents of the representations get lost.

Print and Export

If you print or export the map, the currently showing representation/original map is printed or exported.

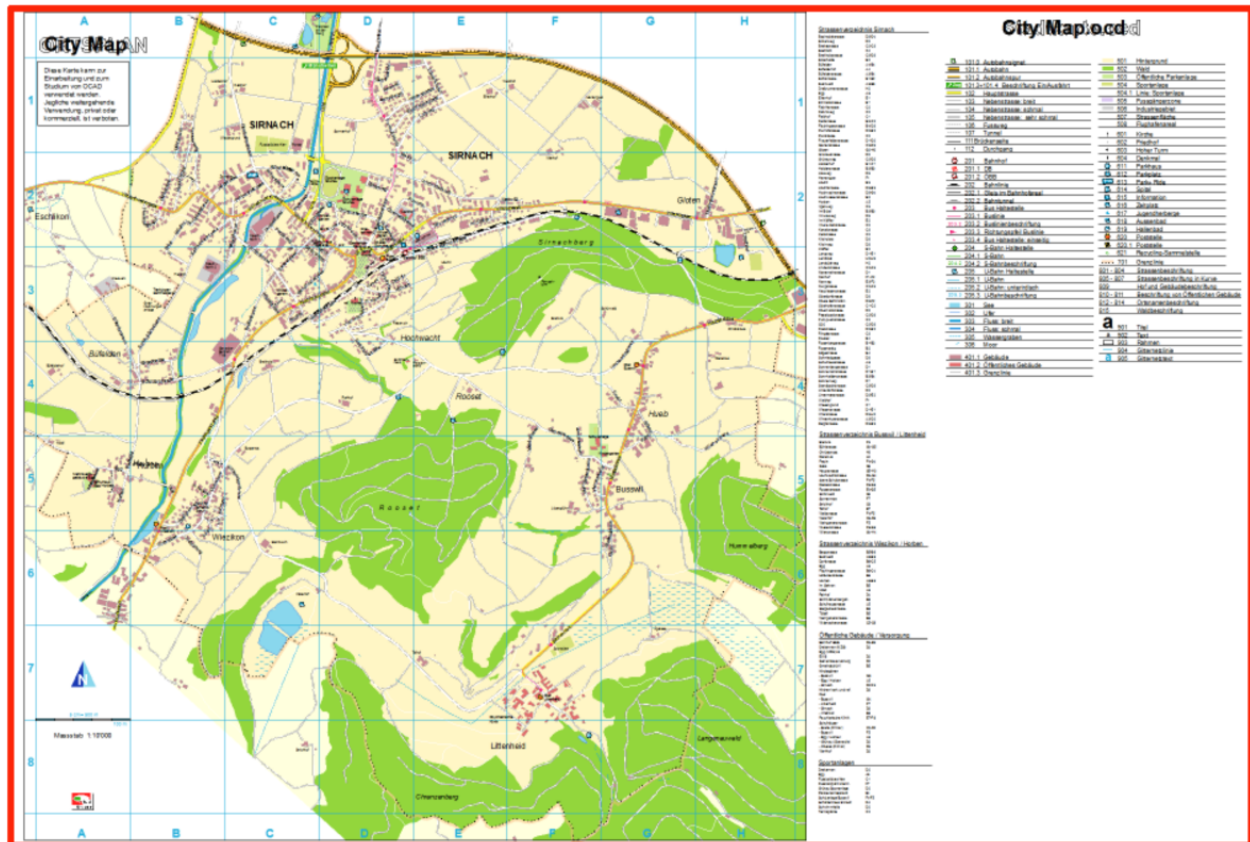
Restrictions

The function in the menu **Thematic Map** can't be used, if the multiple representation is activated. Following functions are only available, if the original map is shown:

- Import files
- Functions in the menus **Map**, **Database**, **DEM** and **GPS**

Examples: How OCAD Multiple Representation is meant to work

The representation "Sirnach_city_map" is an English translation of the original German map. Just the labels are different, the content of the map is the same.



For the representation "Sirnach_athletic_field" an approach plan was created. It contains additional labels and



arrows.

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References

[1] http://www.ocad.com/docs/Anleitung_OCAD_12_Multirepraesentation.pdf

Export Files

To print out a map or use it in another desktop publishing program, export it in for example PDF format.

1. Select **Export** in the **File** menu.
2. Select the area to print (**Entire Map**, **Part of Map** or **One page**) in the **Setup field**. Now place the gray frame in the drawing window over the area you want to print out. If you cannot see the frame, click **Zoom out** in the **View** menu until the frame becomes visible.
3. Click **OK** to export the map.



If you want to export the raster background map as well, enter a resolution for it.



File Export Information

Export AI

Pro

(This function is not available in Draft mode. Change to Normal mode to export AI file.)

Choose this command to export the map to an AI (Adobe Illustrator) file.

After clicking **OK**, a file dialog box is displayed where you can enter a file name for the exported map.

The AI format is the preferred format if you want to process the map further in a graphics program. It preserves the full graphics quality of the map. The exported file contains layers corresponding to the OCAD symbols appearing on the map. The format is Adobe Illustrator version 7.

Part of Map Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

Click the button Setup



to define the part of map to be exported by coordinates. The dialog box **Setup Part of Map (Export)** appears.

Click the button Entire map



to export the entire map.

Click the button To current view



to export the currently on the screen displayed map.

If this check box is not active the entire map will be exported.

Export scale Enter the scale for the exported map. You can enter the scale on the keyboard, or choose one of the predefined scales.

Colors CMYK (process) colors: Select this radio button if you want to print the map using **process colors**. Spot colors: Select this radio button if you want to print the map using spot colors Mode. If you choose this option, the appearance must be specified for each spot color. Choose **Spot color Mode** from the **Map** menu to define the appearance for the different spot colors. Activate Combine to export all selected spot colors in the same file. This is for very special cases. Normally you should not use this option.

Export BMP




Choose this command to export the map to a BMP file. The **Export BMP File** dialog box is displayed. After clicking OK, a file dialog box is displayed where you can enter a file name for the exported bitmap.


- **Resolution:** Enter here the desired resolution for the exported BMP file.
- **Pixel size:** Enter here the size of a pixel in the real world.
- **Create World file (*.bpw):** Choose this option if you want to use the exported file in a GIS (Geographical Information System). A World file with the georeference information is created.
- **Anti-Aliasing:** Anti-Aliasing is method to make the edges of lines and texts appear soft. Normally you should activate this option.
- **Color correction:** Activate this option to apply the same color correction as for the screen. Set up the color correction in the OCAD Preferences from the Options menu (Category: View)

- **Part of map**


Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

Click the button Setup  to define the part of map to be exported by coordinates. The dialog box **Setup Part of Map (Export)** appears.

Click the button Entire map  to export the entire map.

Click the button To current view  to export the currently on the screen displayed map.
If this check box is not active the entire map will be exported.

- **Tiles**

Activate this check box to export the map in tiles instead of one single file. Click the button Setup  to define the tiles. The dialog box Setup tiles appears.

Pixel size and **Create World file** option are only available if **Real world coordinate** mode in **Scale and Coordinate System** from the **Map** menu is activated



The error message: "Not enough memory for exporting" appears if Windows cannot provide the memory needed. Choose a lower raster resolution.



The size of the exported BMP is limited to 32000 x 32000 pixels.

Export DXF



(This function is not available in Draft mode. Change to Normal mode to export DXF file.)

(This function is not available if the map is hidden.)

Choose this command to export the entire map to a *.dxf file. After clicking OK, a file dialog box is displayed where you can enter a filename for the exported map. The exported DXF contains only layers (corresponding to the symbols) and coordinates, but no graphics. (That is, the appearance of the symbols is lost.) If you want to process a map further in a graphics program, the PDF format is the preferred format. There all graphics are exported.

Export Scale

Enter the scale for the exported map. You can enter the scale on the keyboard, or choose one of the predefined scales.

Convert text from ANSI to OEM

Activate this option if text should be converted to the OEM character set. OEM character set is used by old DOS programs and concerns only accented characters (ä, à, å etc.). :Normally you should not activate this option.

If accented characters are not imported correctly in the DOS program, try this option.

Convert text from ANSI to Unicode: Activate this option if text should be converted to the Unicode character set.

Only objects with a selected symbol: Activate this option to export only objects with a **selected symbol**.

CRT

Choose this button to load a cross reference table. In a **cross reference table** you can define how the OCAD symbols are translated to DXF layers. If you do not use a cross :reference table, then the symbol numbers without decimal point are used as DXF layers (e.g. symbol 101.0 is translated to 1010). The **Load Cross Reference Table** file dialog box is displayed.

Export OCAD curves as DXF splines

Activate this option if OCAD Bézier curves should be converted to DXF splines. Otherwise they are converted to polylines.

- **GIS (m):** Select this radio button if you want to use the *.dxf file in a Geographic Information System (GIS). 1 unit corresponds to 1 meter in the real world. The map scale is used for the transformation.
- **Paper (mm):** Select this radio button if you want to use the *.dxf file in a graphics program. 1 unit corresponds to 1 mm on the map.

Export EPS






(This function is not available in Draft mode. Change to Normal mode to export EPS file.)

Choose this command to export the map (or part of it) in the EPS format. After clicking **OK**, a file dialog box is displayed where you can enter a filename for the exported map. *.eps files are mainly used to print maps on a color copier or to make the printing films for offset printing. EPS files can be opened in Adobe Illustrator.

Part of map

Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

- Click the button **Setup**  to define the part of map to be exported by coordinates. The dialog box **Setup Part of Map (Export)** appears.
- Click the button **Entire map**  to export the entire map.
- Click the button **To current view**  to export the currently on the screen displayed map.
If this check box is not active the entire map will be exported.

Export scale

Enter the scale for the exported map. You can enter the scale on the keyboard, or choose one of the predefined scales. If the export scale is different from the map scale, the map and the symbols are enlarged/reduced according to the ratio of the map and export scales.

Colors

- **Color EPS (CMYK):** Select this radio button to export a colored map. The color EPS contains CMYK colors. At the service bureau color copies or films for CMYK printing can be made.
- **Spot color separations:** Select this option to export spot color separations. Choose Spot color Mode from the View menu to define spot colors. When this radio button is activated and spot colors are defined, you can select one or more of the defined spot colors in the Spot colors list box. Normally you export an EPS file for each of these spot colors.

Export GIF






Choose this command to export the map as a GIF file. After clicking **OK**, a file dialog box is displayed where you can enter a filename for the exported map. GIF files are used to publish small maps in the Internet. For large maps the OIM (OCAD Internet) file format is recommended. For maps GIF offers the better compression than JPEG and therefore gives smaller files.


- **Resolution:** Enter here the desired resolution for the exported GIF file.
- **Pixel size:** Enter here the size of a pixel in the real world.
- **Create World file (*.gfw):** Choose this option if you want to use the exported file in a GIS (Geographical Information System). A World file with the georeference information is created.


Anti-Aliasing Anti-Aliasing is method to make the edges of lines and texts appear soft. Normally you should activate this option.


Color correction Activate this option to apply the same color correction as for the screen.


Part of map Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

- Click the button Setup  to define the part of map to be exported by coordinates. The dialog box **Setup Part of Map (Export)** appears.
 - Click the button Entire map  to export the entire map.
 - Click the button To current view  to export the currently on the screen displayed map.
- If this check box is not active the entire map will be exported.

Tiles Activate this check box to export the map in tiles instead of one single file. Click the button Setup  to define the tiles.

 Pixel size and **Create World file** option are only available if **Real world coordinate** mode in **Scale and Coordinate System** from the **Map** menu is activated.

 The error message: "Not enough memory for exporting" appears if Windows cannot provide the memory needed. Choose a lower raster resolution.

 The size of the exported GIF is limited to 65535 x 65535 pixels.


Export GPX



(This function is not available if the map is hidden.)

(This function is not available for course setting projects. Use the Export Courses GPX function to export the courses and the course setting objects in a gpx file).

Choose GPX file format to export OCAD objects as waypoints, tracks or routes that can be loaded to GPS devices.

 -Only the selected map objects are exported.

-Only point, line, text and line text objects are exported. Area objects cannot be exported to GPX.

-Export elevation of waypoints and track points if DEM is loaded.

Metadata

- **Description:** A description of the contents of the GPX file.
- **Author:** The person or organization who created the GPX file.
- **Keywords:** Keywords associated with the file. Search engines or databases can use this information.

Export line objects as

- **Routes:** Line objects are exported as routes: <rte>. A route is an ordered list of waypoints leading to a destination.

- **Tracks:** Line objects are exported as tracks: <trk>. A track is an ordered list of points describing a path.

After clicking OK, the file dialog box is displayed where you can enter a filename.

Export JPEG



Choose this command to export the map as a JPEG file. After clicking **OK**, a file dialog box is displayed where you can enter a file name for the exported map. JPEG files are used to publish small maps in the Internet. For large maps the OIM (OCAD Internet) file format is recommended. For maps GIF offers the better compression than JPEG and therefore gives smaller files.

- **Resolution:** Enter here the desired resolution for the exported JPEG file.
- **Pixel size:** Enter here the size of a pixel in the real world.
- **Create World file (*.jgw):** Choose this option if you want to use the exported file in a GIS (Geographical Information System). A World file with the georeference information is created.

Anti-Aliasing: Anti-Aliasing is method to make the edges of lines and texts appear soft. Normally you should activate this option. **Color correction:** Activate this option to apply the same color correction as for the screen. Choose Color correction from the Options menu to setup the color correction.

Part of map: Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

Click the button Setup to define the part of map to be exported by coordinates. The dialog box **Setup Part of Map (Export)** appears.

Click the button Entire map to export the entire map.

Click the button To current view to export the currently on the screen displayed map.

If this check box is not active the entire map will be exported.

Tiles: Activate this check box to export the map in tiles instead of one single file. Click the button **Setup** to define the tiles. The dialog box Setup tiles appears.



Pixel size and **Create World file** option are only available if **Real world coordinate** mode in **Scale and Coordinate System** from the **Map** menu is activated.



The error message: "Not enough memory for exporting" appears if Windows cannot provide the memory needed. Choose a lower raster resolution.



The size of the exported JPEG is limited to 65535 x 65535 pixels.


Export PNG




Choose this command to export the map to a PNG file. The **Export PNG File** dialog box is displayed. After clicking OK, a file dialog box is displayed where you can enter a file name for the exported PNG.

- **Resolution:** Enter here the desired resolution for the exported PNG file.
- **Pixel size:** Enter here the size of a pixel in the real world.
- **Create World file (*.pgw):** Choose this option if you want to use the exported file in a GIS (Geographical Information System). A World file with the georeference information is created.
- **Anti-Aliasing:** Anti-Aliasing is method to make the edges of lines and texts appear soft. Normally you should activate this option.
- **Color correction:** Activate this option to apply the same color correction as for the screen. Set up the color correction in the OCAD Preferences from the Options menu (Category: View)
- **Part of map**


Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

Click the button Setup  to define the part of map to be exported by coordinates. The dialog box **Setup Part of Map (Export)** appears.

Click the button Entire map  to export the entire map.

Click the button To current view  to export the currently on the screen displayed map.
If this check box is not active the entire map will be exported.

- **Tiles**

Activate this check box to export the map in tiles instead of one single file. Click the button Setup  to define the tiles. The dialog box Setup tiles appears.

Pixel size and Create **World file** option are only available if **Real world coordinate** mode in **Scale and Coordinate System** from the **Map** menu is activated



The error message: "Not enough memory for exporting" appears if Windows cannot provide the memory needed. Choose a lower raster resolution.



The size of the exported PNG is limited to 32000 x 32000 pixels.

Export KML



(This function is not available if the map is hidden.)

Choose **KML Google Earth (Vector)** file format if you want to view the export map objects in a Earth Viewer.



-Only the selected map objects are exported.

-Only point, line and area objects are exported. Text object cannot be exported to KML.

- **Name:** This is the name of the place folder in the places panel of Google Earth.
- **Screen overlay:** Define what an icon should be shown in top left corner of the Earth Viewer window when the KML file is opened. This icon is not included in the KML file. An URL must be entered. The screen overlay name is the name shown in the places panel of Google Earth
- **Look at (longitude, latitude and range):** Geographical coordinates and height above sea level where the viewer should start navigating by opening Google Earth.
- **Height for area objects:** Set a height value for area objects to make them looking three-dimensional.
- **Placemark default name:** Set a default name that is shown in the places panel of Google Earth.
- **Default icon for point objects:** Point objects are converted to placemarks. A placemark needs an icon (small picture). This icon is not included in the KML file. An URL must be entered. Google Earth loads the icon dynamically when the KML file is opened.
- **Compress file:** Compress the file and change the extension to *kmz*.

After clicking OK, a file dialog box is displayed where you can enter a filename.

Export KMZ

Pro Std

Choose **KMZ Google Earth (Raster)** to export the map as a raster KMZ file. It is possible to open the exported KMZ file in Google Earth ^[1].

Garmin Custom Maps

Another possibility is to upload this kmz file on a Garmin GPS which supports 'Garmin Custom Maps'.



More about Garmin Custom Maps ^[2]

Tiles: Choose here between no tiles, 'Garmin Custom Maps' optimized tiles (max 1024x1024 pixels) or user-defined tiles.

Some Garmin GPS support only a limited number of tiles in kmz file. OCAD shows the number of tiles for the choosen export rectangle in the status bar.

Export size: 177.1 x 373.5 mm (32 Tiles)

After clicking OK, a file dialog box is displayed where you can enter a filename.

Export OCAD Internet Map

Pro

Read more about this topic on the **OCAD Internet Map** page.



Export PDF


Pro Std Sta View CS

(This function is not available in Draft mode. Change to Normal mode to export PDF file.)

Choose this command to export the map to a PDF-file. After clicking **OK**, a file dialog box is displayed where you can enter a filename for the exported map. You can open and print PDF files with Adobe Acrobat Reader.

Part of map Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

- Click the button **Setup**  to define the part of map to be exported by coordinates. The dialog box **Setup Part of Map (Export)** appears.
- Click the button **Entire map**  to export the entire map.

- Click the button **To current view**  to export the currently on the screen displayed map.
If this check box is not active the entire map will be exported.

Export scale Enter the scale for the exported map. You can enter the scale on the keyboard, or choose one of the predefined scales. If the export scale is different from the map scale, the map and the symbols are enlarged/reduced according to the ratio of the map and export scales.

Colors

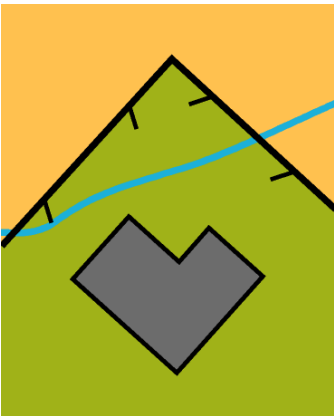
CMYK (process) colors: Select this radio button to export a color map. The color PDF contains CMYK colors. At the service bureau color copies or films for CMYK printing can be made.

Spot color separations: Select this option to export spot color separations. Choose Spot color mode from the View menu to define spot colors. When this radio button is activated and spot colors are defined, you can select one or more of the defined spot colors in the Spot colors list box. Normally you export a PDF file for each of these spot colors. Activate Combine to export all selected spot colors in the same file. This is for very special cases. Normally you should not use this option.

Compress file: Activate this box to compress the export file. The compression does not influence the print quality.

Export Example

This is an example of an Orienteering map in the Normal View. The small watercourse is blue.



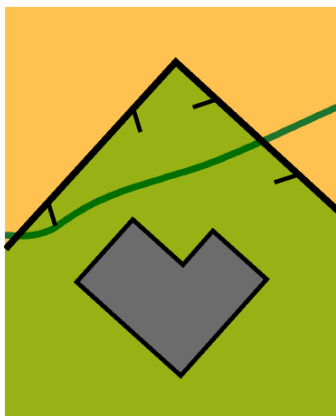
All 5 used colors (Black, Blue, Gray, Olive, Yellow) are defined as CMYK values and Spot color values in the Color table.

The color Olive consists 50% of the spot color Green_PMS361 and 100% of Yellow_PMS136.

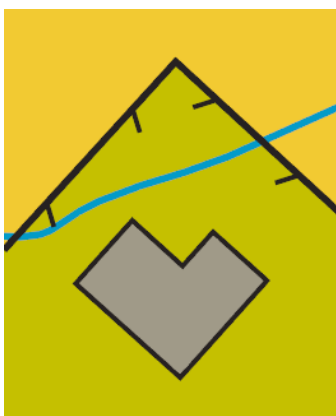
The value '0' in the spot colors column means 'Knocking out'. For example the color Gray knocks out the three spot colors Blue_PMS299, Green_PMS361, Yellow_PMS136. But the color Blue doesn't knock out the spot color Yellow_PMS136.

Colors													
CMYK (process) colors [%]										Spot colors [%]			
No.	Name	Cyan	Magenta	Yellow	Black	Ov.	Opacity	Symbols	Map	Black_Spot	Blue_299	Green_361	Yellow_136
0	Black	0	0	0	100	✓	100	✓	✓	100			
2	Blue	87	18	0	0	✓	100	✓	✓		100		
23	Gray	0	0	0	55		100	✓	✓	55	0	0	0
12	Olive	10.5	0	97.5	27		100	✓	✓			50	100
9	Yellow	0	27	79	0		100	✓	✓				100

In Spot color view mode OCAD simulates the spot color printing. Spot colors appear transparent to get a simulation of the final printing result. The overlapping watercourse doesn't knockout the Yellow color below and appears green.



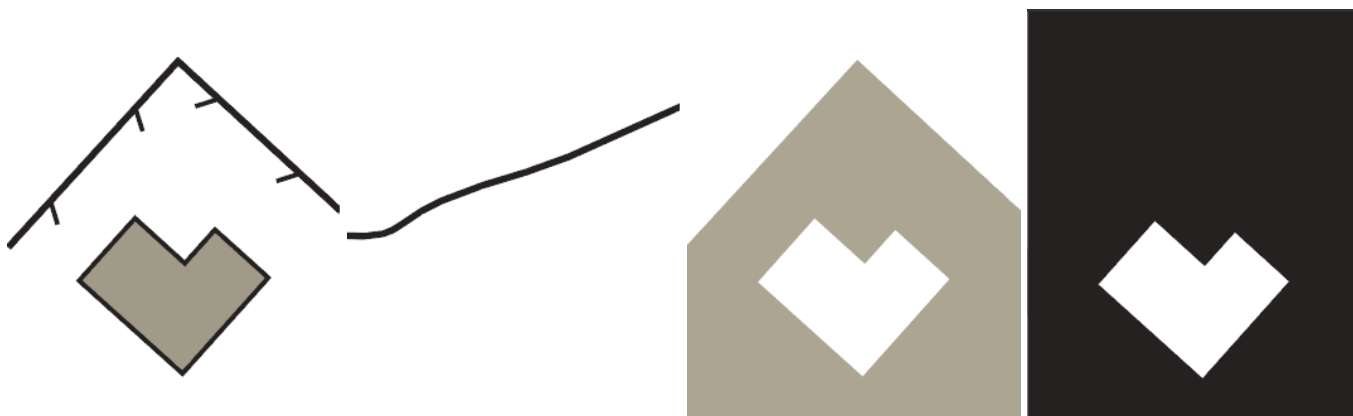
When exporting the file as pdf and choosing the **CMYK (process) colors** option then OCAD ignores the spot colors. The pdf appears in Adobe Reader as in OCAD Normal View.



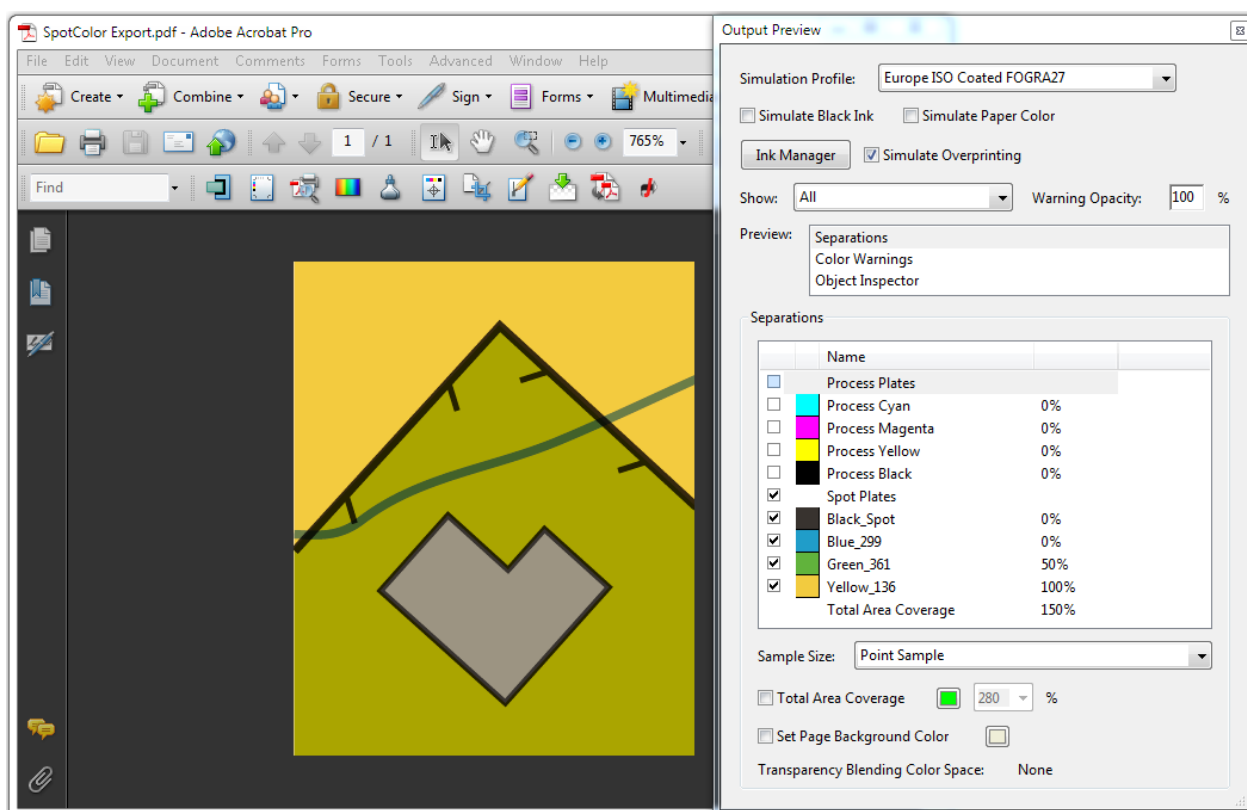
When choosing the not combined Spot colors then OCAD creates for each spot color a pdf file in grayscale. That are the four sport colors:

- Black_Spot
- Blue_PMS299
- Green_PMS361
- Yellow_PMS136

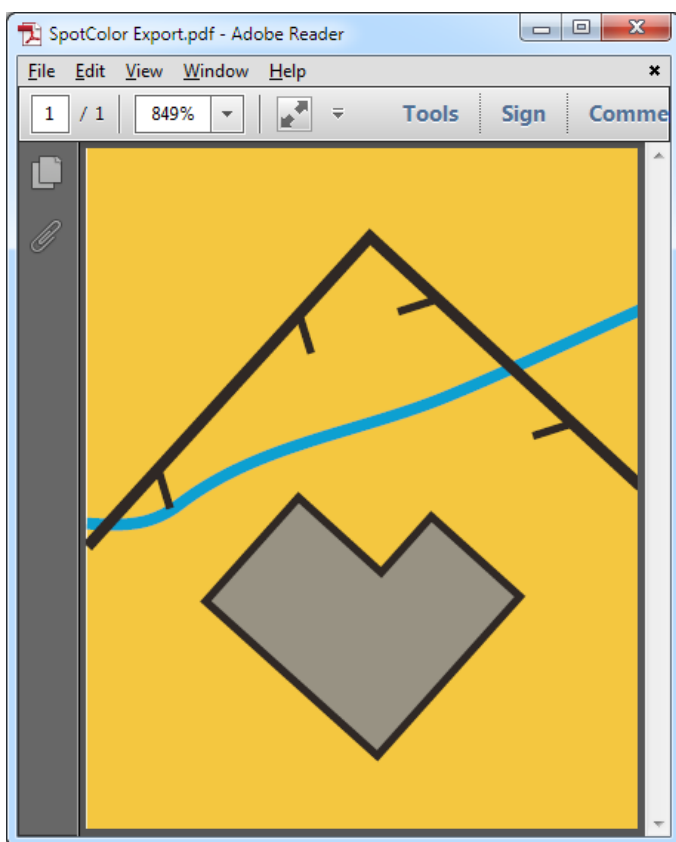
The color Olive consists of 50% Green_PMS361 and 100% Yellow_PMS136. The gray building knocks out the other three spot colors.



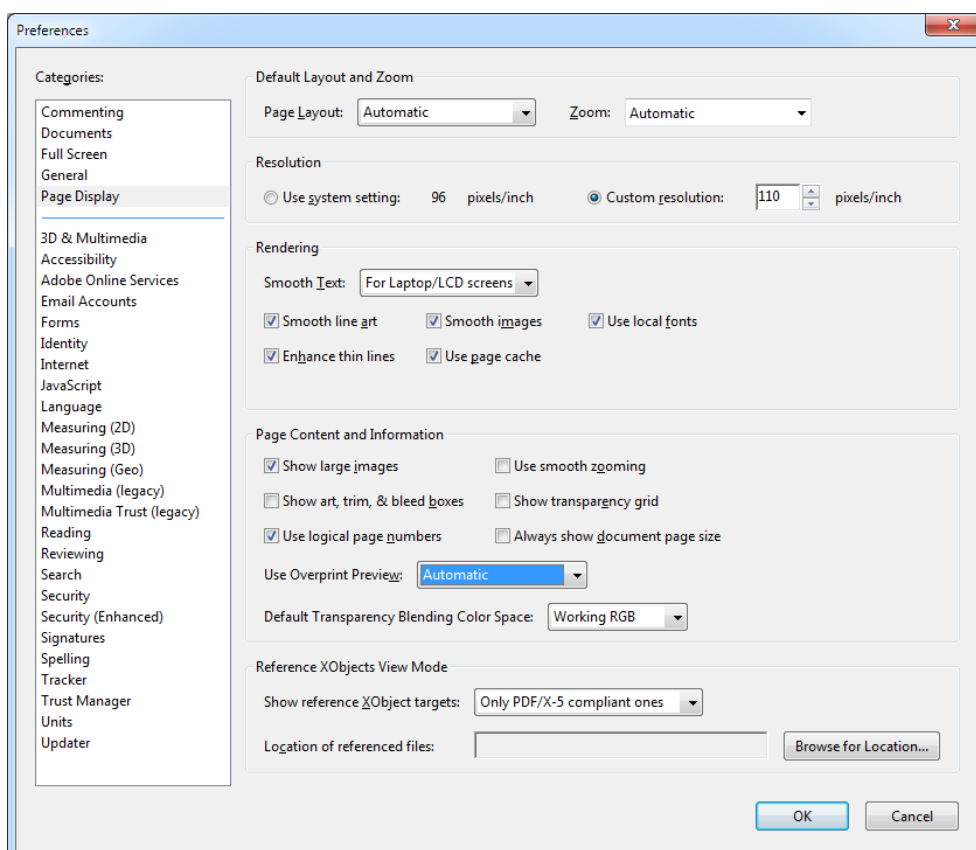
When choosing the combined Spot colors then OCAD creates one pdf file with the four selected spot colors. The four single spot plates are visible in the Separations list in Adobe Acrobat Pro. Please check that the option **Simulate Overprinting** is activated.



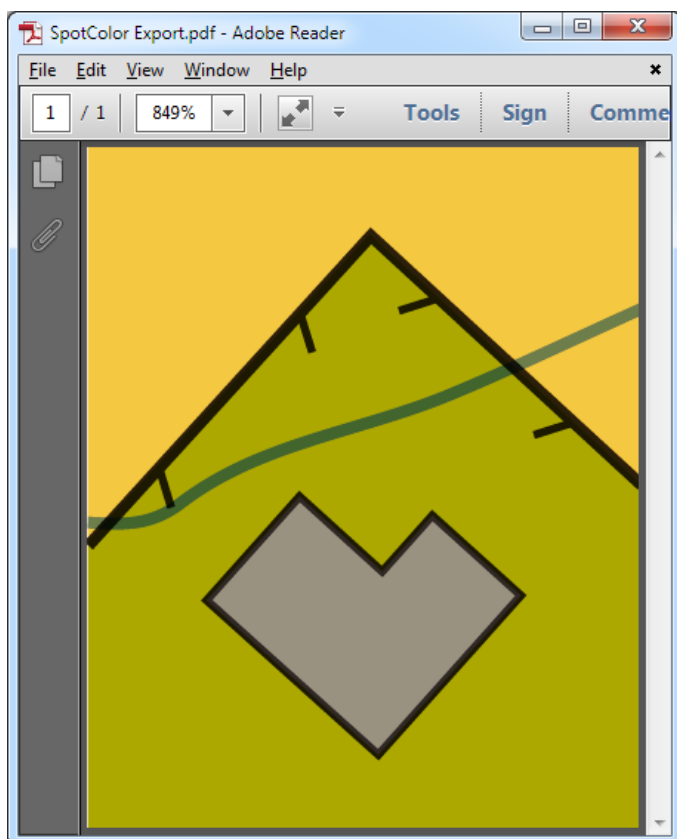
With the default settings Adobe Reader doesn't simulate the spot color printing. The yellow part of the Olive area overlays the green part and isn't transparent.



Click **Preferences** in **Edit** menu. The Preferences opens. Choose the **Page Display** page and change the **Use Overprint Preview** value from **Only For PDF/X Files** to **Automatic**.



Then Adobe Acrobat simulates the spot color printing also for this combined spot color pdf file.



Export Shape

Pro

(This function is not available in Draft mode. Change to Normal mode to export Shape file.)


(This function is not available if the map is hidden.)

Choose this command to export the map in the shape format.

The shape format consists of 3 files


- *.shp: the shape file
- *.shx: the shape index
- *.dbf: a dBase file

Point, line, area and texts objects must be exported separately. If you export all types totally 12 files will be produced.

Objects In this box you select which object types should be exported. You can select one or more types by using the  and **Ctrl** keys. Initially all types are selected.


Dataset Select here if all objects should be exported or only objects linked to a specified dataset.


If you select **All objects** the dBase file will contain an ID, the symbol number, the angle and for texts the text.

 OCAD exports also the objects from visible ocd background maps.

 The text length is limited to ANSI 128 characters.

If you select **Objects in dataset** the dBase file will contain the information of the corresponding table.

 The text length is limited to ANSI 256 characters.

 OCAD exports the line text objects as lines. The text is in exported database.

 OCAD does not export unsymbolized objects.

Export SVG

Pro

Std




Sta

View

CS

(This function is not available in Draft mode. Change to Normal mode to export SVG file.)

Choose this command to export the map to a SVG (Scalable Vector Graphics) file. After clicking **OK**, a file dialog box is displayed where you can enter a filename for the exported map. Part of map Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

- Click the button **Setup**  to define the part of map to be exported by coordinates. The dialog box **Setup Part of Map (Export)** appears.
- Click the button **Entire map**  to export the entire map.
- Click the button **To current view**  to export the currently on the screen displayed map.

If this check box is not active the entire map will be exported.

Export scale Enter the scale for the exported map. You can enter the scale on the keyboard, or choose one of the predefined scales.

Compress file Activate this box to compress the export file.

Export TIFF






Choose this command to export the map as a TIFF file. After clicking **OK**, a file dialog box is displayed where you can enter a filename for the exported map.

- **Resolution:** Enter here the desired resolution for the exported TIFF file.
- **Pixel size:** Enter here the size of a pixel in the real world.
- **Create World file (*.tfw):** Choose this option if you want to use the exported file in a GIS (Geographical Information System). A World file with the georeference information is created. This option is only available if the map is georeferenced.


Anti-Aliasing Anti-Aliasing is a method to make the edges of lines and text appear soft. Normally you should activate this option.

Color correction Activate this option to apply the same color correction as for the screen.

Part of map Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

- Click the button **Setup**  to define the part of map to be exported by coordinates. The dialog box **Setup Part of Map (Export)** appears.
- Click the button **Entire map**  to export the entire map.
- Click the button **To current view**  to export the currently on the screen displayed map.

If this check box is not active the entire map will be exported.

Tiles Activate this check box to export the map in tiles instead of one single file. Click the button **Setup**  to define the tiles. The dialog box **Setup tiles** appears.

Setup Tiles This dialog box appears if you click the **Setup** button for **Tiles** in the **Export** panel. If you choose the Tiles option, the map is divided into small rectangular fields (tiles) and one file is exported for each tile. The tiles start from the lower left corner. To number the files, the number of the column and the number of the row are appended to the file name.

"filename_0_0.tif" is the tile in the lower left corner.

"filename_1_0.tif" is the tile to the right of the first tile.

All tiles have the same size, even if they extend beyond the map size or the part of map defined.

Tile size: Enter here the size of a tile.

Color

Color TIFF (RGB): Select this option to export a color map.

Compression: Choose LZW to compress the export file.

Spot color separations: Select this option to export spot color separations. Choose Spot colors Mode from the View menu to define spot colors. When this radio button is activated and spot colors are defined, you can select one or more of the defined spot colors in the Spot colors list box. Normally you export a TIFF file for each of these spot colors. Activate Combine to export all selected spot colors in the same file. This is for very special cases. Normally you should not use this option.

Color depth: **Select the color depth (number of different colors to export):**

CMYK (32 Bits): 4295 million colors.

RGB (24 Bits): 16 million colors.

256 colors: 8 bits with 256 colors.

Grayscale: 8 bits with 256 gray scales

Black/White: 1 bit with black or white.

Halftone screen: 1 bit with black or white.

💡 Pixel size and Create World file option are only available if Real world coordinate mode in Scale and Coordinate System from the Map menu is activated.

💡 The error message: "Not enough memory for exporting" appears if Windows cannot provide the memory needed. Choose a lower raster resolution.


Export Encrypted File

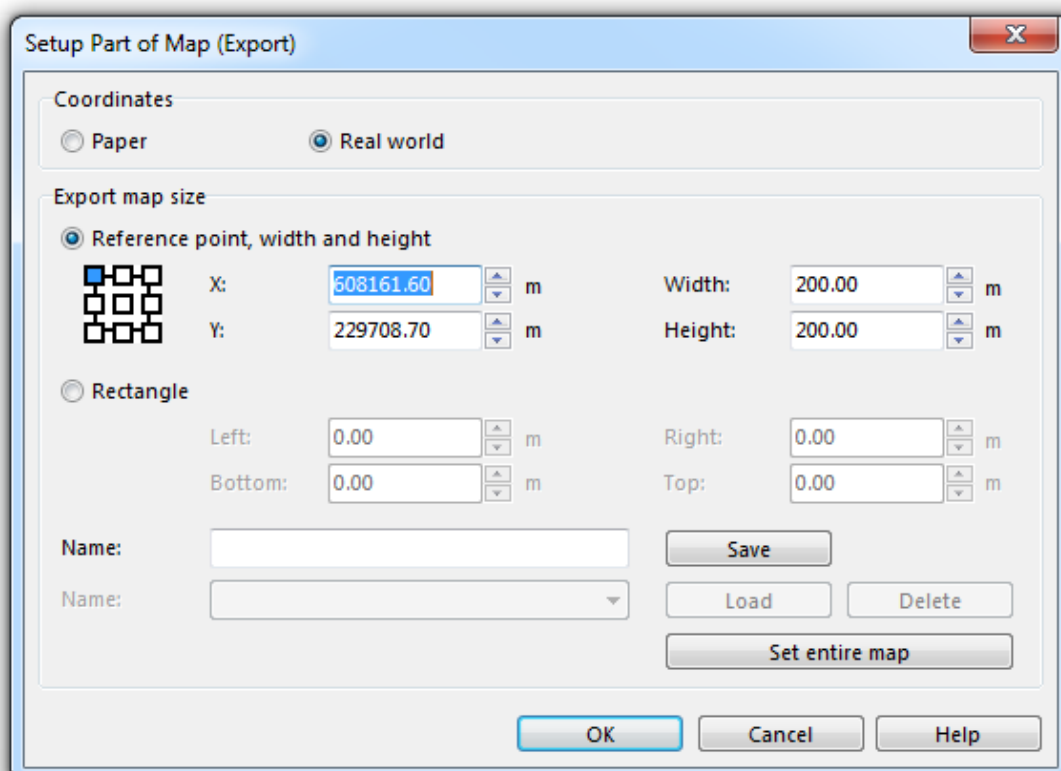
Pro Std

Learn more about this topic on the [Encrypted OCAD File](#) page.

Setup Part of Map

When exporting in certain file formats, you will have the option to export only a part of the map. By clicking the

 **Setup** button, the export area can be defined. The **Setup Part of Map (Export)** dialog appears.



First, choose between **Paper** or **Real World Coordinates**. In the **Export map size** part of the dialog, you can make the following adjustments:

1. Choose between the **Reference point, width and height** and the **Rectangle** option. When you choose the first option:

1. Choose the point of the map which you want to define as the reference point (e.g. upper left corner). Click one of the nine squares.
2. Enter the coordinate of the chosen point.
3. Enter the dimension (**Width** and **Height**) of the map to be printed in m (real world coordinates) or mm (paper coordinates).
2. If the **Rectangle** option was chosen:
 1. Enter the coordinate of the bottom left and the top right corner of the rectangle to be exported in m (real world coordinates) or mm (paper coordinates).
3. You can name the adjustments and save them by clicking the **Save** button.
4. If there are saved settings, you can load them using the **Load** button or delete them using the **Delete** button.
5. Click the **Set entire map** to set the values given in the **Export map size** part of the dialog to the entire map.
6. Click the **OK** button when finished.

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[Previous Chapter: Multiple Representation](#)

[Next Chapter: Printing Maps](#)

References

- [1] <https://www.google.com/earth/>
 [2] <http://www.garmin.com/us/products/onthetrail/custommaps>

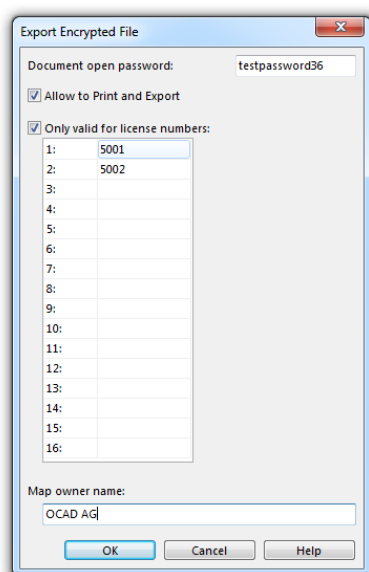
Encrypted OCAD File

When a map is sold for example for **Course Setting for Orienteering** or drawing an overlay, it is possible to encrypt the map. An encrypted OCAD map can only be loaded as a **Background Map** and cannot be edited. The owner of the map can make more limitations which are described on this page.

Export an Encrypted OCAD File



Choose the **Export Encrypted File** command in the **File** menu. The **Export Encrypted File** dialog appears.



- **Document open password:** In this field you can set a password, which is needed to load the encrypted file as a background map. The password must have minimum four characters.
- **Allow to Print and Export:** Check this option to allow to print and export the map.
- **Only valid for license numbers:** Check this option to allow only the listed license numbers to load the map. Add license numbers by clicking a field and typing them. You can give the permission to load your map as a background map to maximum 16 licenses.
- **Map owner name:** Enter the map owner's name. This name is displayed when the encrypted file is opened.

Click the **OK** button to continue. The **Save** dialog appears. Browse a location, enter a name and click the **Save** button. The **Export Encrypted File** dialog appears with a summary of the settings made. You can select and copy this information and send it to the map receiver.

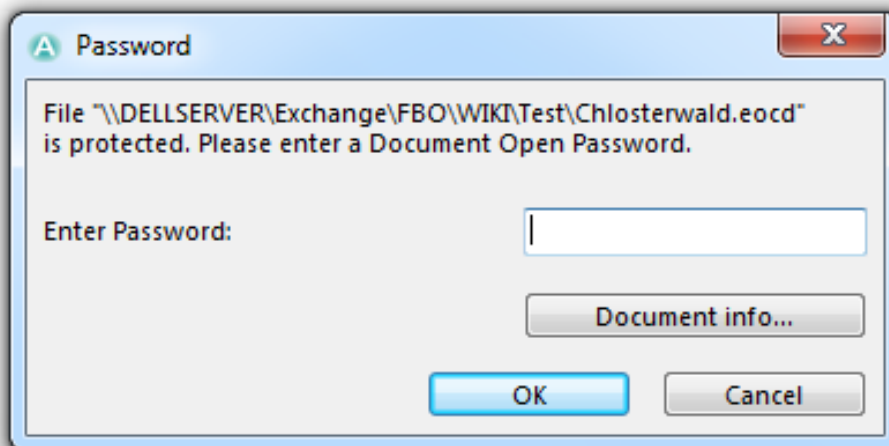
Load an Encrypted OCAD File



In the OCAD Starter Edition, encrypted OCAD files can only be loaded in course setting projects.

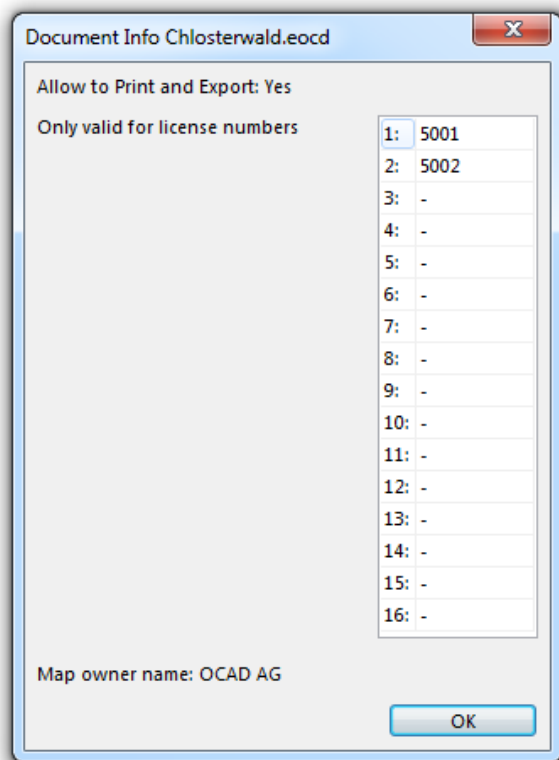
Encrypted OCAD Files can only be loaded as **Background Maps**. For this purpose, choose the **Open** command in the **Background Map** menu. The **Open Background Map** dialog appears. Choose the .eocd file and click the **Open** button.

The following dialog appears:



Enter the password you received from the map owner and click the **OK** button.

You get more information about the encrypted file by clicking the **Document info** button.



This dialog can also be displayed by clicking the **Document info** icon in the **Manage Background Map** dialog.


💡 OCAD 12 can load only encrypted OCAD files exported from OCAD 12. Encrypted OCAD 10 or OCAD 11 files are not compatible with OCAD 12.

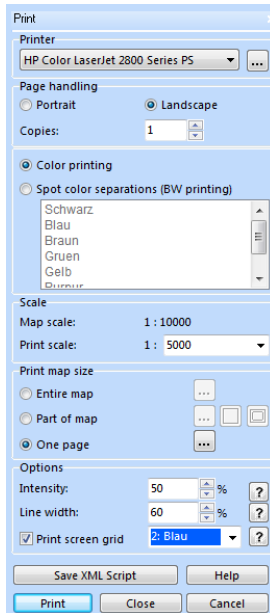
Back to the **Export Files** page.




Printing Maps



To print the map:

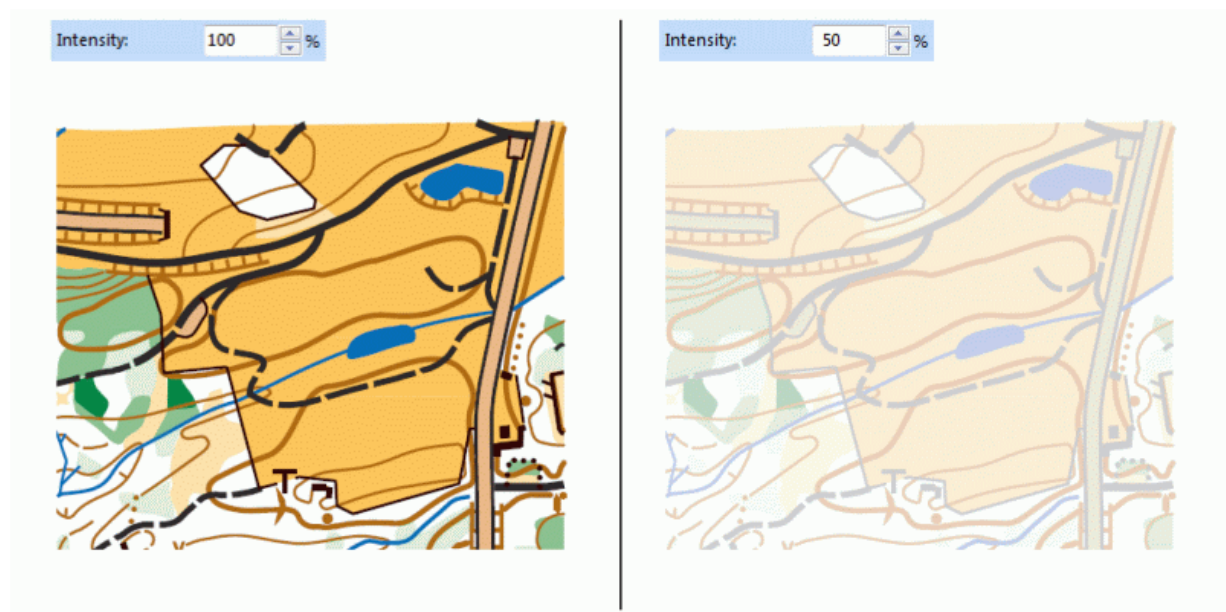
1. Select **Print** in the **File** menu, press Ctrl+P or click on the **Print** icon  in the standard toolbar. The **Print** dialog appears on the right hand side of the window.



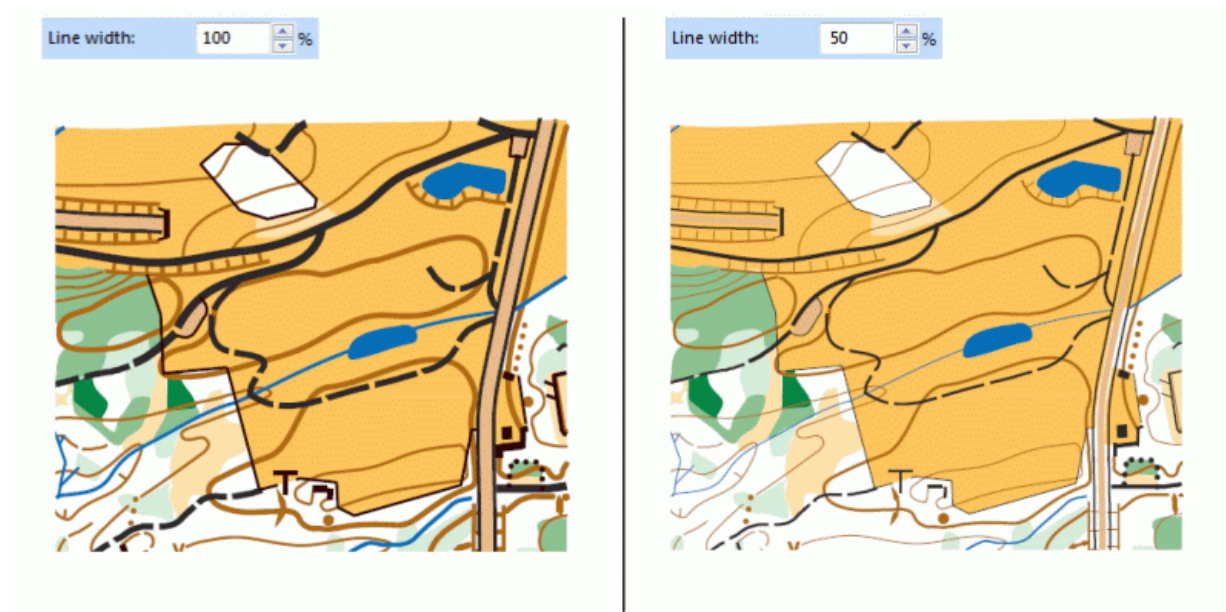
2. Select the printer to print the map. In the box you can select one of the installed Windows printer drivers. Click the **Properties** button  to change printing options.
3. In the **Page handling** box you can set the page orientation (**Portrait** or **Landscape**) and the number of copies you would like to print.
4. Decide between **Color printing** or **Spot color separations (Black & White printing)** in the next box. Select the second option to print black and white with spot color separations. Choose **Define Spot Colors** from the **Map** menu to define spot colors. When this radio button is activated and spot colors are defined, you can select one or more of the defined spot colors in the **Spot colors** list box.
5. Define the print scale in the **Scale** box. You can enter the scale on the keyboard, or choose one of the predefined scales. If the print scale is different from the map scale, the map and the symbols are enlarged/reduced according to the ratio of the map and print scales.
6. In the **Print map size** box you have the following options:
 - **Entire map:** The entire map will be printed. Gray frames show a print preview on the basis of the defined paper size in the printer settings. If the map is too large for one page, it will be printed on several pages. Click on the **Setup** icon  to make more adjustments.
 - **Part of map:** Print a part of the map. If you choose this option a thin black and a grey frame appear. The thin black frame shows the area which is to be printed, the grey frame shows the paper size. Adjust the thin black frame to your desired map part. More information about setting up **Part of the Map** can be found further down on this page.
 - **One page:** Select this option to print one page of paper of the map. Click the **Setup**  button to define the region to be printed. More information about setting up **One Page** can be found further down on this page.
 - If you cannot see the frame, click **Zoom out** in the **View** menu until the frame becomes visible.
 - Move the mouse pointer inside the rectangle to drag the entire rectangle. Drag a corner or one side to resize the rectangle.

7. In the **Options** box you can make the following adjustments:

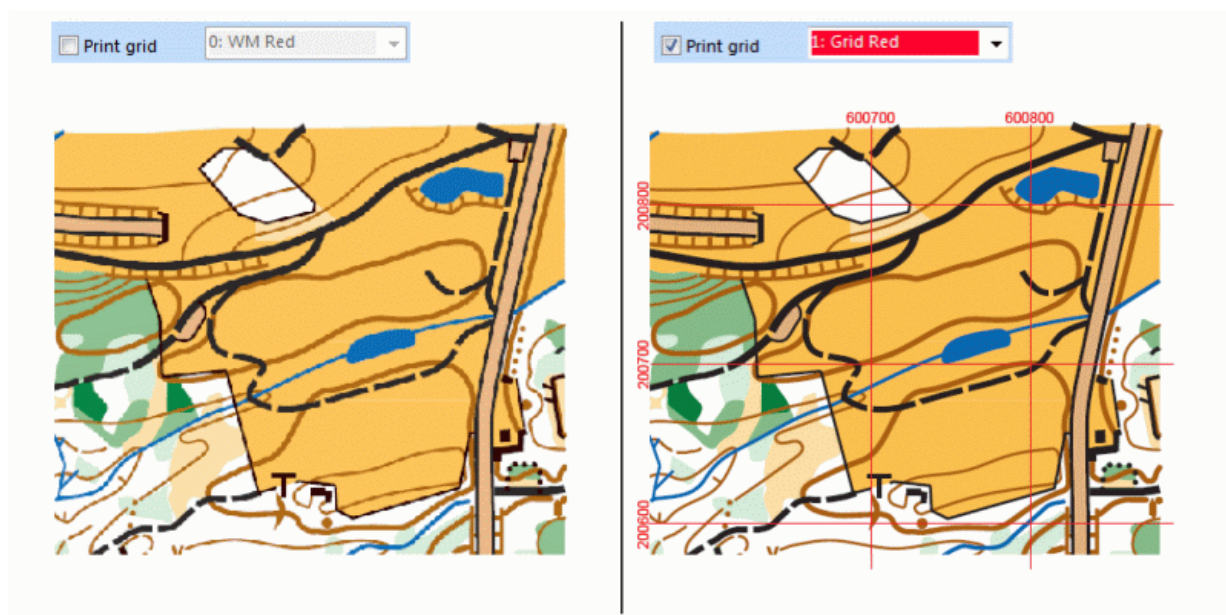
- **Intensity:** For older ink jet printers you can reduce the color intensity here. This reduces the amount of ink applied.



- **Line width:** For older ink jet printers you can reduce the line width here. This reduces the amount of ink applied.



- **Print screen grid:** Check this box to print a grid on the map. Choose the color of the grid in the drop-down list.




8. Click **Print** to print out the respective area.

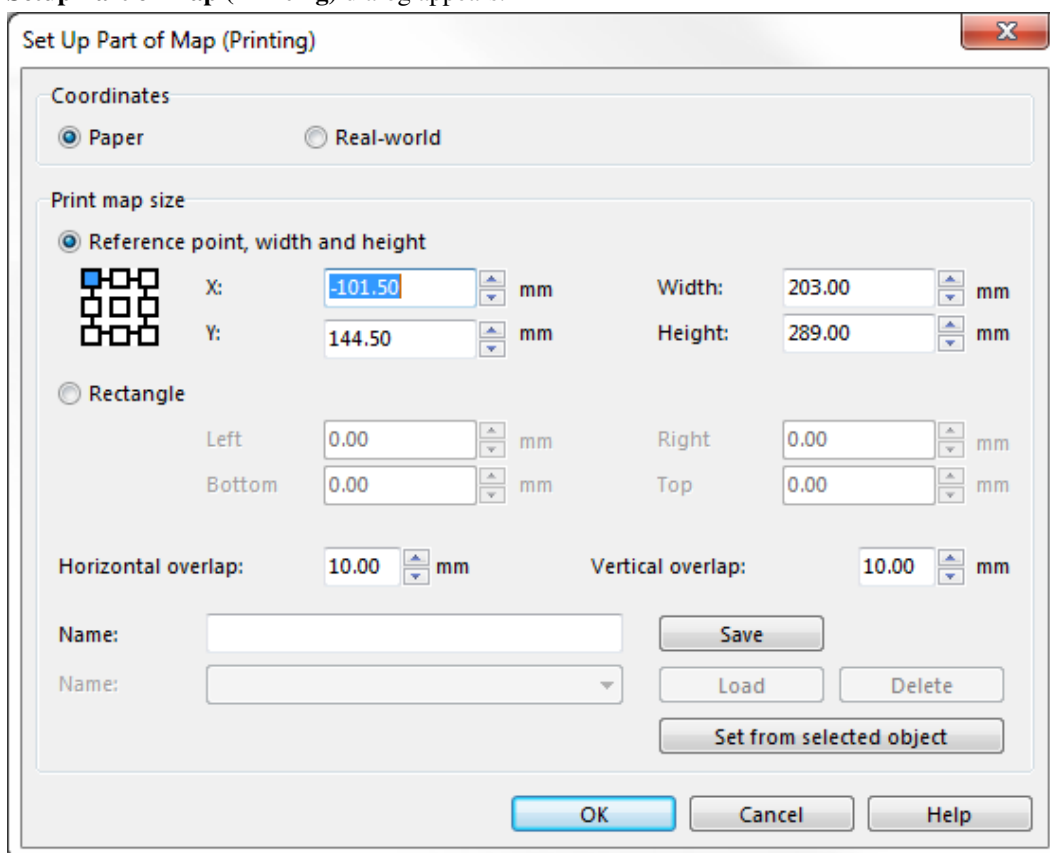
Click **Save XML** to save an XML file with the print settings (Same filename and path as OCAD map). Use **Execute XML Script** command in **File** menu to print the map with the settings saved in the XML file.

Hide the background map before printing the map, if you do not want this to be printed out as well. If you are still in **Draft mode**, select **Normal Mode** in the **View** menu.

💡 The error message: "Paper size is not defined" appears if a paper size is defined that is not available for the selected printer.

Setup Part of Map

Choose the **Part of map** option as the print map size and click the  **Setup** button to define the printing area. The **Setup Part of Map (Printing)** dialog appears.




Set Up Part of Map (Printing)

Coordinates

☒ Paper ☐ Real-world

Print map size

☒ Reference point, width and height

 X: mm Width: mm

Y: mm Height: mm

☐ Rectangle

Left mm Right mm

Bottom mm Top mm

Horizontal overlap: mm Vertical overlap: mm

Name:

Name:


Save Load Delete

Set from selected object


OK Cancel Help

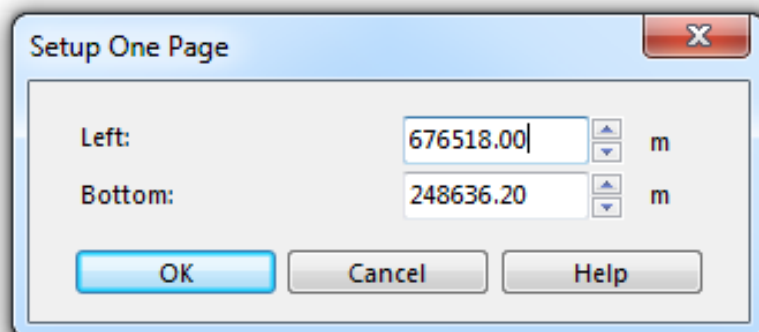
First, choose between **Paper** or **Real World Coordinates**. In the **Print map size** part of the dialog, you can make the following adjustments:

1. Choose between the **Reference point, width and height** and the **Rectangle** option. When you choose the first option:
 1. Choose the point of the map which you want to define as the reference point (e.g. upper left corner). Click one of the nine squares.
 2. Enter the coordinate of the chosen point.
 3. Enter the dimension (**Width** and **Height**) of the map to be printed in m (real world coordinates) or mm (paper coordinates).
2. If the **Rectangle** option was chosen:
 1. Enter the coordinate of the bottom left and the top right corner of the rectangle to be printed in m (real world coordinates) or mm (paper coordinates).
3. Set the vertical and horizontal overlap. If the map does not fit to one page, the given overlap is printed on both pages, therefore the maps are overlapping.
4. Click on **Set from selected object** to set the map boundaries fitting.
5. You can name the adjustments and save them by clicking the **Save** button.
6. If there are saved settings, you can load them using the **Load** button or delete them using the **Delete** button.
7. Click the **OK** button when finished.


 The overlap values can be negative. This can be useful when printing the courses for relays in orienteering. Place the start number and or advertisement to be printed on the back side beside the map. With a negativ overlap a gap between the two pages is created.

Setup One Page

Choose the **One page** option as the print map size and click the  **Setup** button to define the printing area. The **Setup One Page** dialog appears.



In this dialog you have to set the bottom left corner of the page to be printed in mm (paper coordinates) or m (when you have **Set a Coordinate System**). Click the **OK** button when finished.

 A preview is given in the drawing area.

[Back to Main Page](#)

[Previous Chapter: Export Files](#)

[Next Chapter: DEM](#)

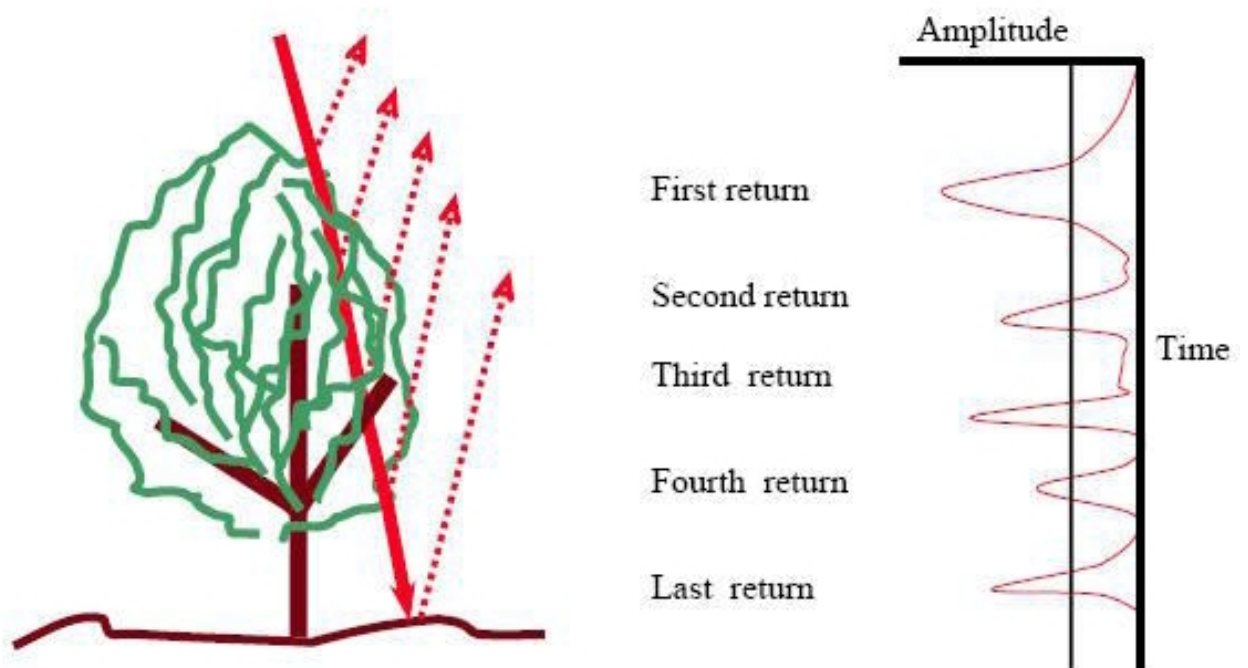
DEM

A DEM (Digital Elevation Model) contains points with elevation data. DEM Data are based on LIDAR (Light Detection and Ranging) technology measurement, also known as Airborne Laser Scanning. There are DEM with point data arranged in a regular grid with a constant distance between the points. This distance is called cell size. Other DEM contain data points arranged irregularly (cloud-model).

Read more about this topic: http://en.wikipedia.org/wiki/Digital_elevation_model



A laser beam splits as it hits objects. The result are multiple returns. The difference between first and last return can show object height. The last return doesn't always reach the ground.



Source: Lohani, Bharat. Airborne Altimetric LiDAR: Principle, Data Collection, Processing and Applications.

DEM Import Wizard

MAS Pro Std

Read more about importing DEM file on the page DEM Import Wizard.

Open

MAS Pro Std Sta CS

Open an OCAD DEM file (*.ocdDem). OCAD 12 can also open ocdDems created in OCAD 11.

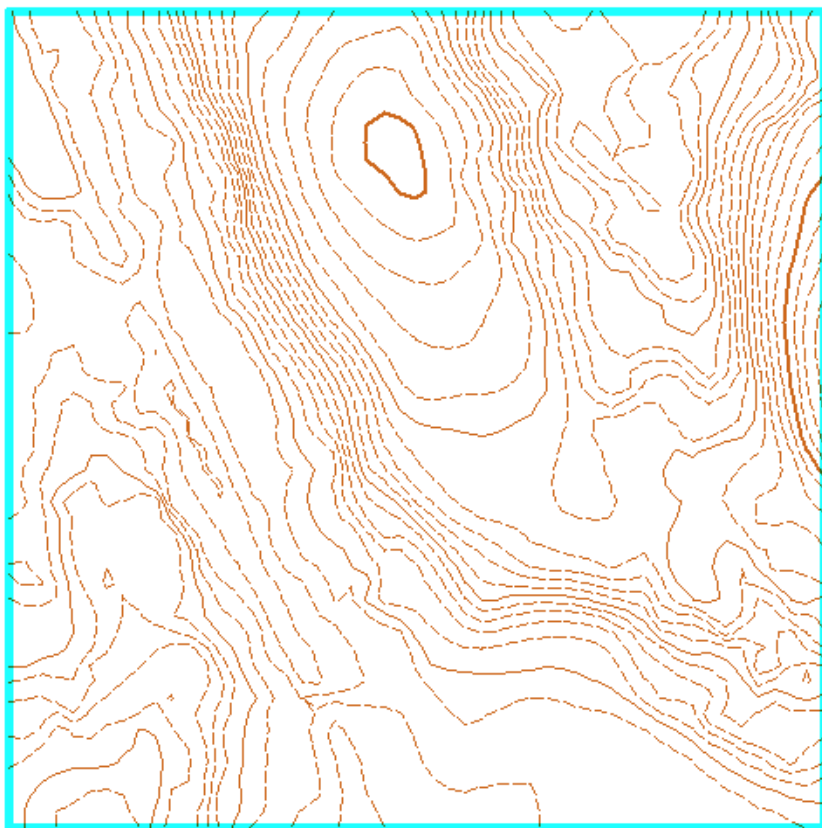
The OCAD DEM file is a DEM grid in an OCAD internal file format created in the DEM Import Wizard. This file is optimized for fast access to the height values.

For more information (e.g. cell size) about this file open the DEM Information dialog.

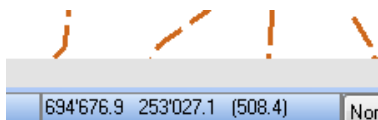
Show Frame

MAS Pro Std Sta CS

Shows blue rectangle with the extent of the loaded DEM.



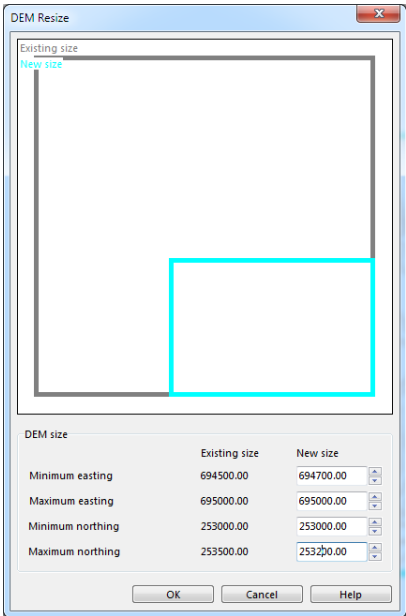
When moving the mouse cursor inside the frame the height values is show in the status bar together with the coordinate.



Resize

MASProStd

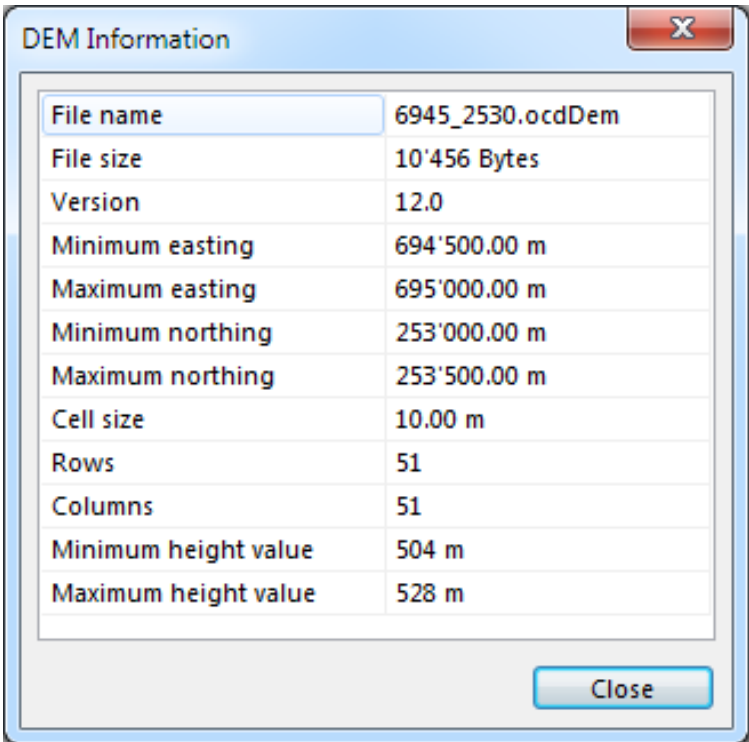
Resize the loaded OCAD DEM file (make a subset) and save it as a new OCAD DEM file or overwrite the existing one.



Info

MASProStdStaCS

Shows information about OCAD DEM file.



When moving the mouse cursor over the file name then the file name with path appears.

Close

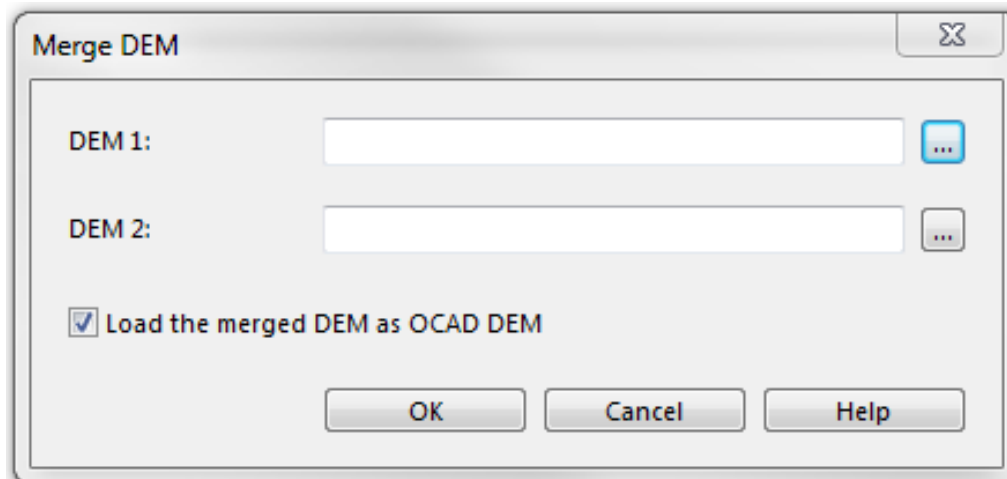
MAS Pro Std Sta CS

This function closes OCAD DEM file.

Merge DEM

MAS Pro Std

Choose **Merge** from **DEM** menu to merge two different DEMs.



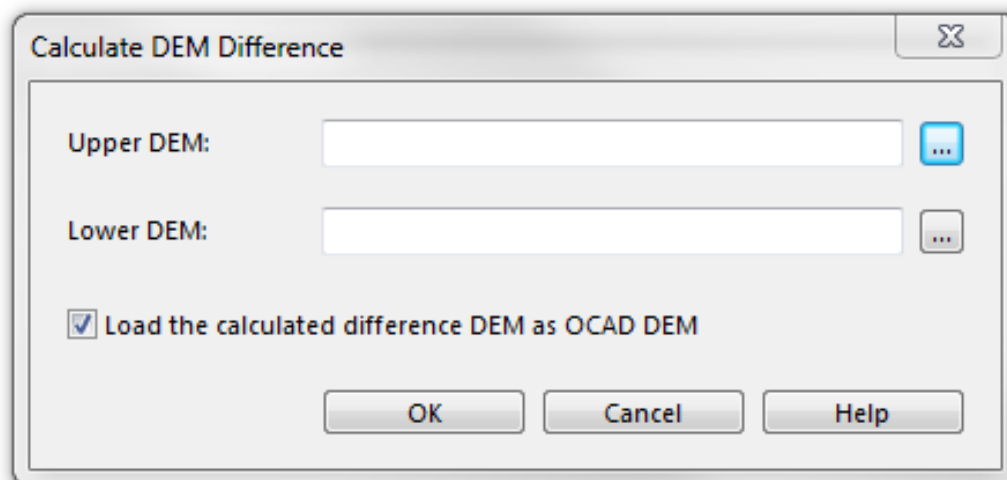
- **DEM 1:** Choose the first DEM.
- **DEM 2:** Choose the second DEM.

The two DEMs must have the same cell size.

Calculate DEM Difference

MAS Pro Std

Choose **Calculate DEM Difference** from **DEM** menu. The **Calculate DEM Difference** dialog box appears.



Usually it is the difference between a terrain model and a surface model.

- Add *Upper DEM* = DSM data file
- Add *Lower DEM* = DTM data file
- Click **OK**.

In the DEM Import Wizard it is possible to import DTM and DSM and create the DEM difference in one step.

To visualize the DEM difference choose **Classify Vegetation Height**



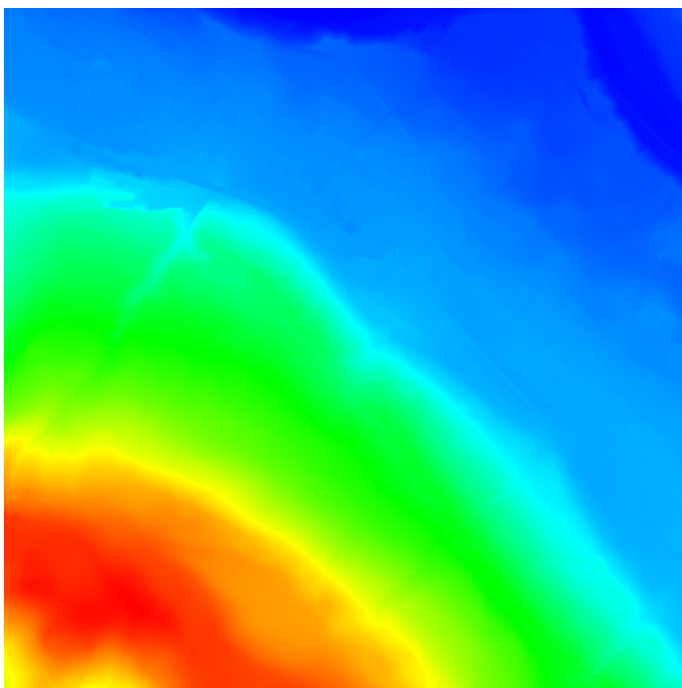
The extent of the *Upper DEM* and *Lower DEM* can be different. OCAD takes the overlapping area for the new DEM.

💡 The cell size of *Upper DEM* and *Lower DEM* can be different. OCAD takes the cell size of *Upper DEM* for the new DEM.

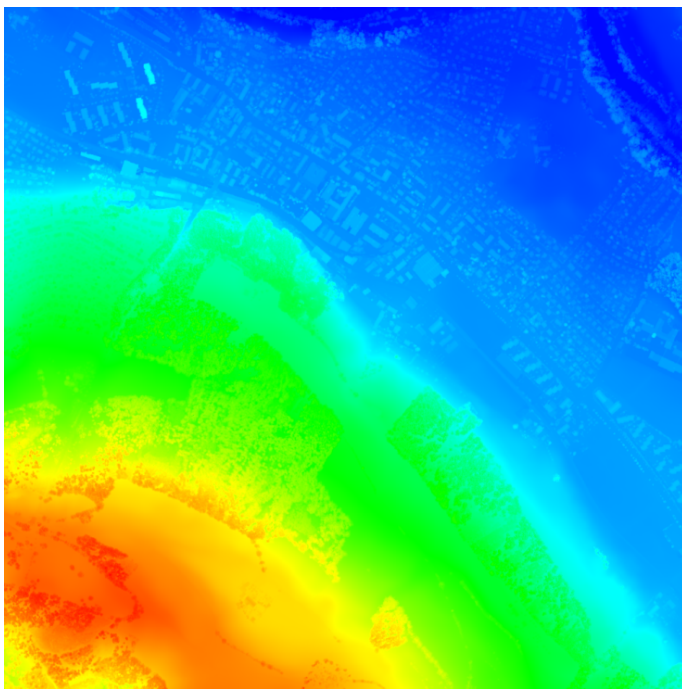
Example

This is an example to show what can result from the **Calculate DEM Difference** function.

This is a DTM (Digital Terrain Model) with a cell size of 5m shown as hypsometric map:



The next picture shows the DSM (Digital Surface Model) of the same area with a cell size of 2m as hypsometric map. The buildings (northern part) and forest (south western part) are slightly visible.



The next picture shows a **Difference DEM** with a cell size of 2m shown as raster background map after calculating the **DEM Difference**. In addition, heights were colored using the **Classify Vegetation Height** function.



- The area with no difference of the DTM and the DSM are displayed white.
- A height difference up to 15m appears red.
- The greater the difference, the greener an area appears.

When moving the mouse cursor over the map the difference is shown in the **Status Bar**.

Data source: Test data Wabern from swisstopo.

Create Contour Lines

MAS Pro Std

Choose **Create Contour Lines** from **DEM** menu. The **Create Contour Lines** dialog box appears.

Read more about this function on the page DEM Import Wizard.

Create Hypsometric Map

MAS Pro Std

Choose **Create Hypsometric Map** from **DEM** menu. The **Create Hypsometric Map** dialog box appears.

Read more about this function on the page DEM Import Wizard.

Create Hill Shading

MAS Pro Std

Choose **Create Hill Shading** from **DEM** menu. The **Create Hill Shading** dialog box appears.

Read more about this function on the page DEM Import Wizard.

Calculate Slope Gradient

MAS Pro Std

Choose **Calculate Slope Gradient** from **DEM** menu. The **Calculate Slope Gradient** dialog box appears.

Read more about this function on the page [DEM Import Wizard](#).

Classify Vegetation Height

MAS Pro Std

Choose **Classify Vegetation Height** from **DEM** menu. The **Classify Vegetation Height** dialog box appears.

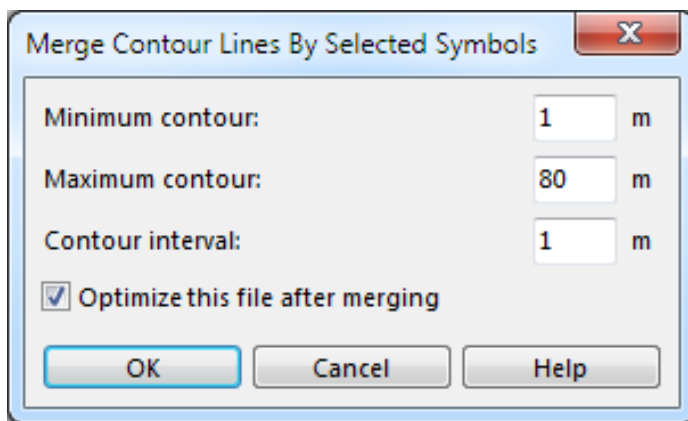
Read more about this function on the page [DEM Import Wizard](#).

Merge Contour Lines By Selected Symbols

MAS Pro Std

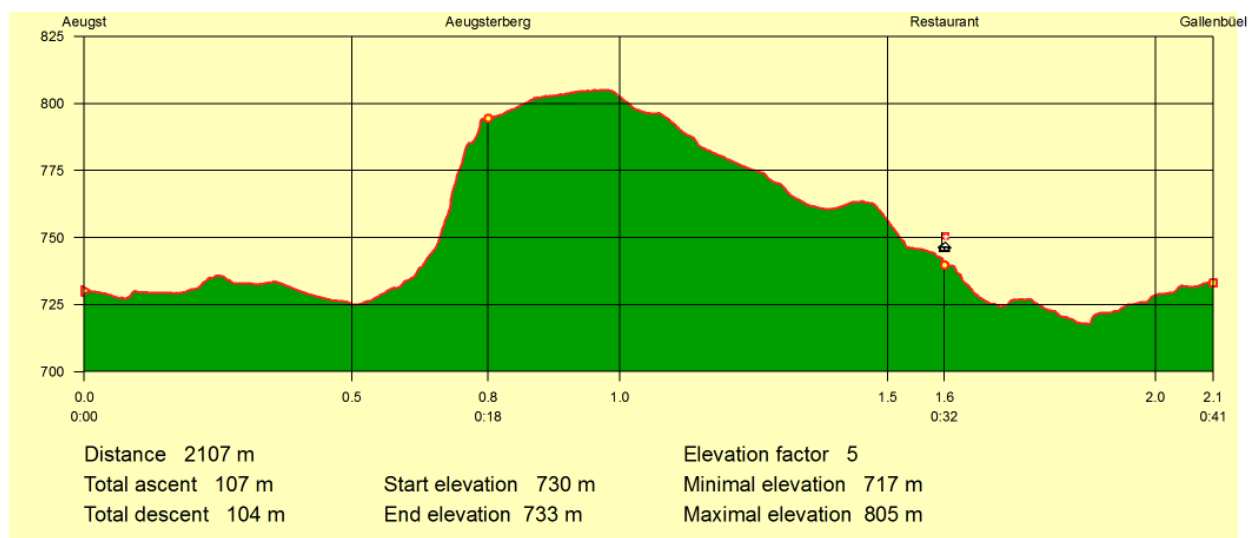
This is an obsolete function. It is still in OCAD 12 due to compatibility issues. OCAD 12 merges the contour lines automatically.

- Select the contour line symbols
- Choose **Merge Contour Lines By Selected Symbols** from **DEM** menu.
- The **Merge Contour Lines By Selected Symbols** dialog box appears.



Create Profile

MAS Pro Std Sta CS

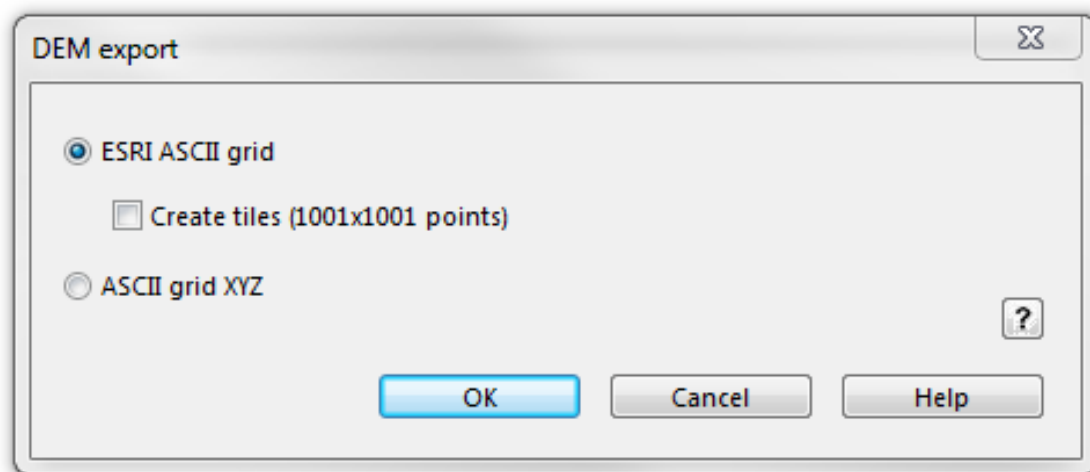


Find more information about this function on the [DEM Profile](#) page.

Export

MAS Pro Std

- Choose **Export** from DEM menu.
- The **DEM Export** dialog box appears.



The function exports the loaded DEM file to the following formats:

- ESRI ASCII Grid
- ASCII Grid XYZ
- OCAD 11 DEM

Select **Create tiles** for large DEMs to create tiles from 1001x1001 points.

The OCAD 12 DEM's cannot be opened in OCAD 11. This export function creates a OCAD 11 compatible DEM.

LiDAR Point Cloud Manager

MAS Pro Std

The **LiDAR Point Cloud Manager** analyzes the vegetation within the forest and creates a vegetation raster map. Learn more on the **LiDAR Point Cloud Manager** page.

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DEM Import Wizard

With this DEM Import Wizard you can import DEM data and create the following output formats:

- Contour lines
- Hypsometric map
- Hill shading map
- Slope gradient map
- Vegetation height map
- Raw data points map
- Intensity map
- Classification map

DEM Import Data



The DEM Import Wizard is able to import files with regular and irregular DEM data. Supported DEM data formats are:

- ESRI ASCII Grid (*.asc)
- Raw data ASCII XYZ file (*.xyz)
- ASCII Grid XYZ file (*.xyz)
- LAS file (*.las)
- compressed LAS file (*.laz, *.rar or *.zlas)
- SRTM file (*.hgt)

laz and zLas Files

laz and zLas files are compressed LAS file.

OCAD uses the laszip.exe ^[1] and LASliberator ^[2] tools from Martin Isenburg ^[3] to decompress the laz and zLas files.

SRTM Files

This is a world wide available DEM data set from the Shuttle Radar Topography Mission (SRTM). SRTM hgt data import requires that a coordinate system set in the OCAD map file.

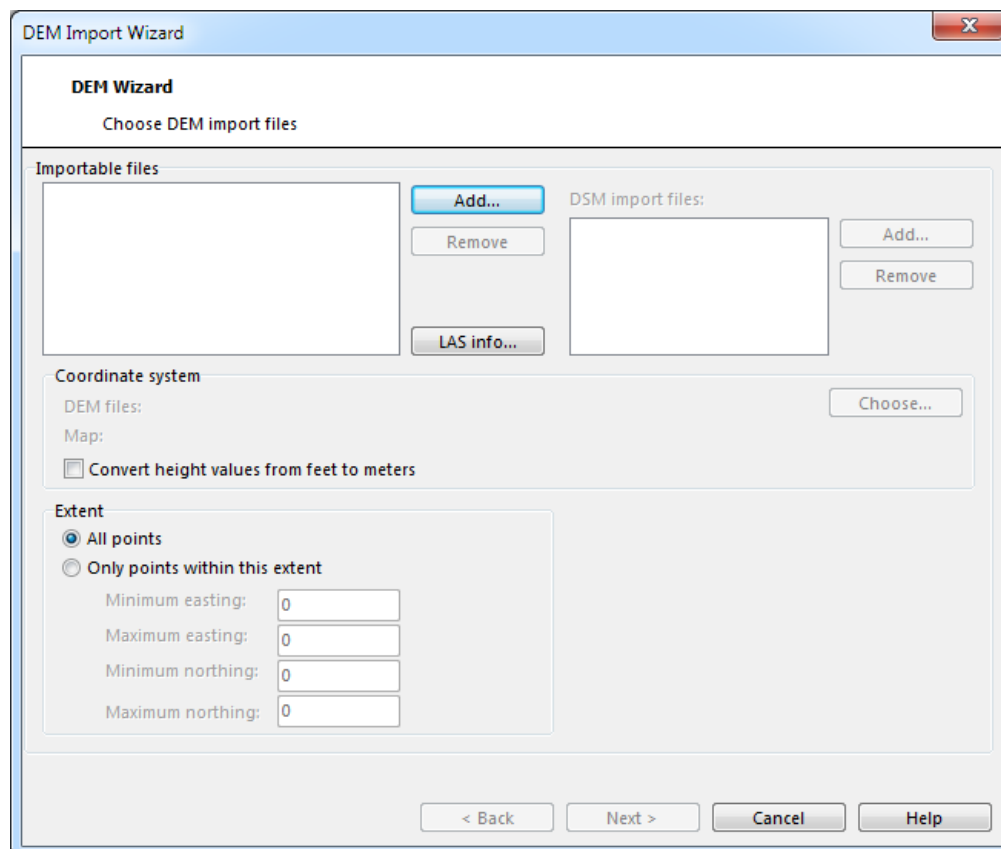
Link: <https://lta.cr.usgs.gov/SRTM1Arc>

rar Files

Please note that OCAD can not handle file names with Non-ASCII character like Å.

Start Import DEM Wizard

Select **Import** from the **DEM** menu. The DEM Import Wizard appears. Otherwise you can also drag and drop an DEM file from Windows File Explorer onto the OCAD drawing area.

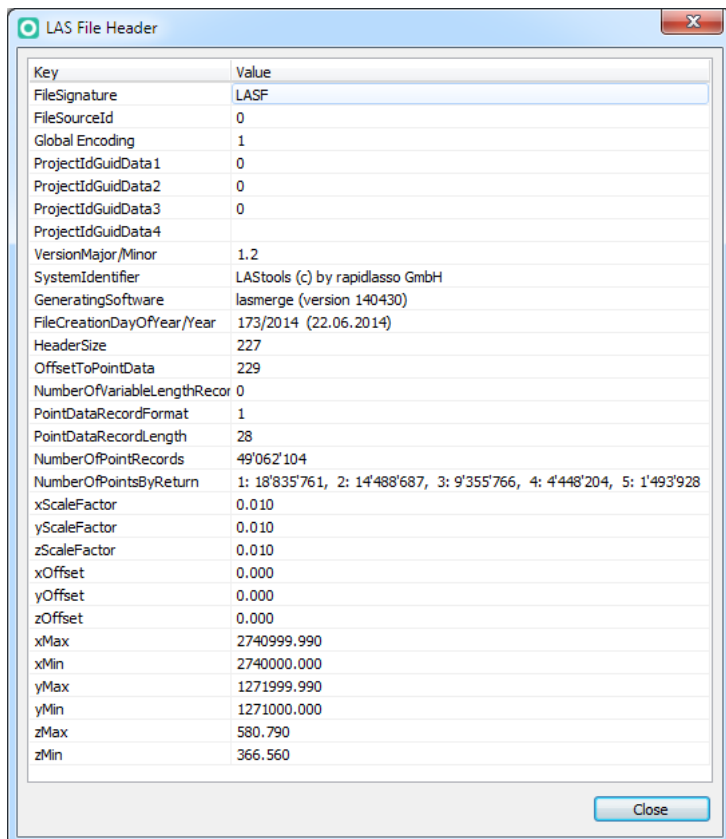


First use **Add** button to add at least 1 DEM to the **DEM Import Wizard** dialog. You have three different options:

- Choose a las files which often contain DTM and DSM data
- Choose only DTM data
- Choose DTM and DSM data

Choose las Files

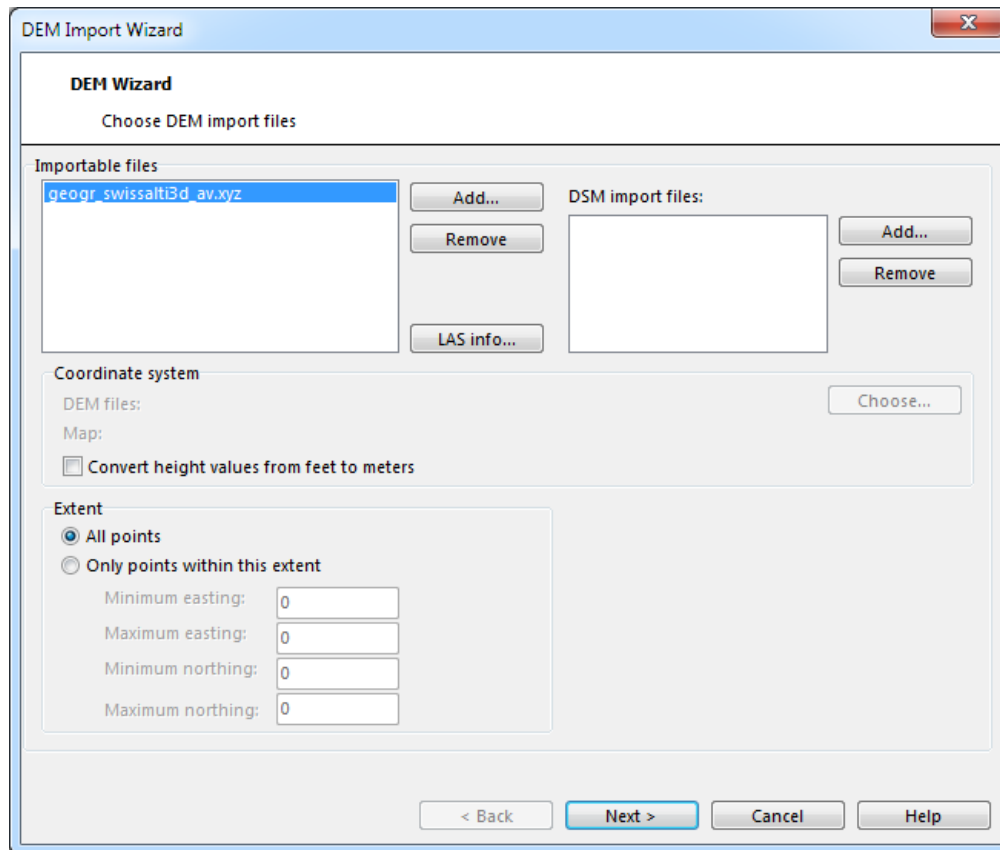
- After adding a las file you can select the item and click the **LAS Info** button. The **LAS File Header** dialog opens which shows the information from the file header like the *Number of Points by Return* or the *Extent*.



Choose DTM Data

Add only the DTM file(s).

Please note that not all functions (e.g. vegetation height) are available if only DTM data are available.



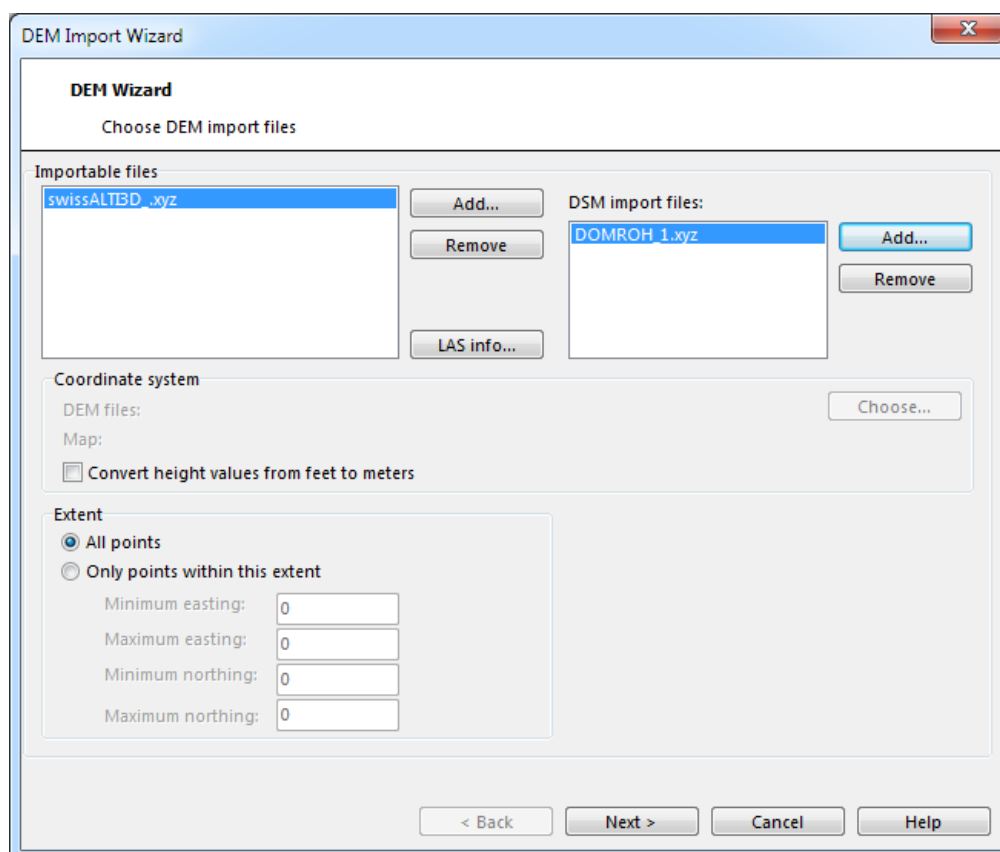
The image shows a screenshot of the 'DEM Import Wizard' dialog box. The title bar reads 'DEM Import Wizard' with a close button. The main title is 'DEM Wizard' and the subtitle is 'Choose DEM import files'. The dialog is divided into several sections:

- Importable files:** A list box containing 'geogr_swissalt3d_av.xyz'. To its right are 'Add...' and 'Remove' buttons, and a 'LAS info...' button below them.
- DSM import files:** An empty list box with 'Add...' and 'Remove' buttons to its right.
- Coordinate system:** Includes 'DEM files:' and 'Map:' labels, a 'Choose...' button, and a checkbox labeled 'Convert height values from feet to meters' which is currently unchecked.
- Extent:** Contains two radio buttons: 'All points' (selected) and 'Only points within this extent'. Below the second radio button are four input fields for 'Minimum easting:', 'Maximum easting:', 'Minimum northing:', and 'Maximum northing:', each with the value '0'.

At the bottom of the dialog are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

Choose DTM and DSM Data

Add the DTM file(s) on the left side and the DSM file(s) on the right.

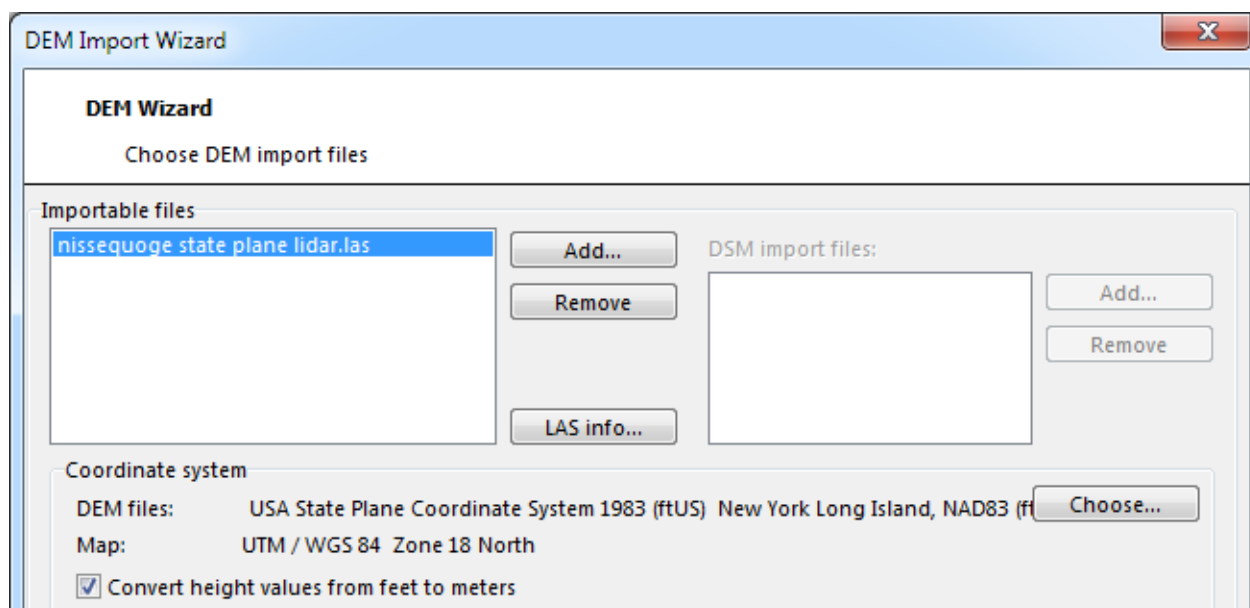


If the DSM have an other extent than the DTM then OCAD cuts to the DSM to the extent of the DTM or the chosen extent.

Coordinate System

Usually the DEM data are in the same coordinate system as the OCAD map. So no transformation is necessary.

OCAD supports the transformation during the DEM import. Click the **Choose** button to select the coordinate system of the DEM data.



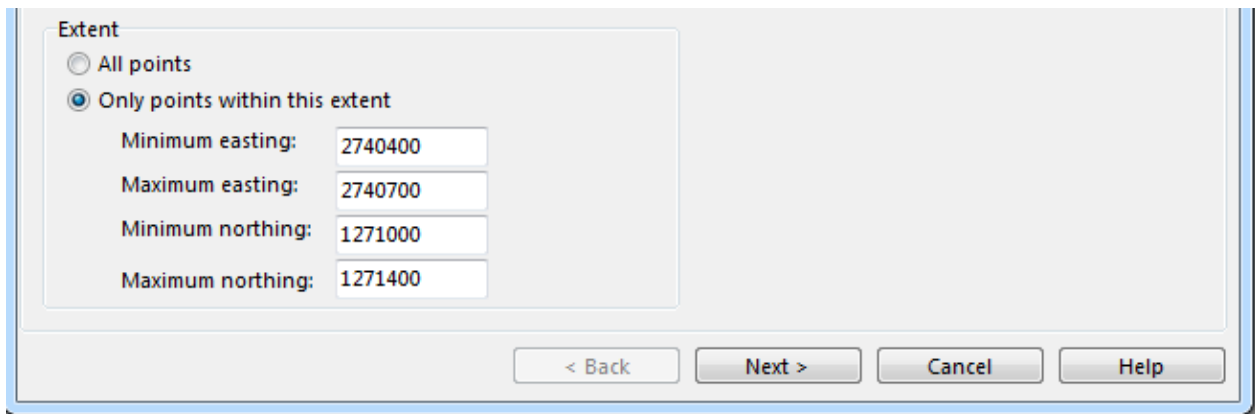
In this example OCAD transforms the DEM data from *US State Plane (Feet)* to the metric UTM Zone 18 North.

- **Convert height values from Feet to Meters:** Optional it is possible to convert also the height values from Feet to Meters. Some DEM data in USA are provides in Feet.
- **Convert height values from mm to Meters:** Optional it is possible to convert also the height values from Millimeters (mm) to Meters. Some DEM data in UK are provides in mm.
- **Shift elevations below sea level:** OCAD cannot work with elevations below the sea level. OCAD shifts them to 0m when importing the data. This option is a temporary workaround. If the option is checked then OCAD shifts all elevations by 1000m. So check this option if you have terrain below the sea level.

Extent

DEM data are often big. So the calculation needs needs a lot of time and memory. If you do not need the whole extent of DEM data you can enter here the used extent.

Please note that when an object is selected in the drawing area and you open the DEM Import Wizard, OCAD used the extent of the selected object as default extent.



Click the **Next** button. OCAD imports the file(s). Depends on the file size of data this step can takes some minutes. The **Settings** dialog appears.

Settings

This dialog shows the information about the DEM data.

Analyze Files

OCAD shows here the information about the map extent and the average number of point per square meter.

If the source file is a regular grid (data type of import files = grid), the **Cell size** box is set to read only. OCAD sets the same cell size for the imported DEM. For irregular DEM data source (data type of import files = raw) the cell size can be set in the 'cell size' box. For these DEM's OCAD interpolates a regular grid with the specified cell size during the import. The cell size depends on the import data and the further usage of the DEM.

The **Cell size** range is between 0.01 and 650 m.

File Name

During the import procedure the imported DEM must be saved in the OCAD DEM file format (*.ocdDem) and it is loaded to the OCAD map.

Choose here the file name of this DEM file.

If only one import file is chosen OCAD uses by default the file name of the import file. Otherwise the filename of the ocd map.

If the ocd file is untitled OCAD exports the DEM files in the temporary user directory (C:\Users\XXX\AppData\Roaming\OCAD\OCAD 12Tmp).

Options

OCAD can create different outputs depending on the choosen import data type (DTM and DSM or only DTM).

Check or uncheck these outputs. OCAD shows for each output a page with options later in the **DEM Import Wizard**.

LAS Settings

The LAS Settings dialog is only visble when importing las/laz/zlas files.

DEM Import Wizard

DEM Wizard

LAS Settings

Digital Terrain Model (DTM)

☒ Create DTM

LAS Settings

Classification

- ☐ Unclassified (0)
- ☒ Ground (7'295'973)
- ☐ Low vegetation (2'135'617)
- ☐ Mean vegetation (0)
- ☐ High vegetation (16'725'730)
- ☐ Building (860)
- ☐ Low point (Noise) (55)
- ☐ Water (0)
- ☐ Overlap points (45'226'772)
- ☐ Other (580'966)

Return Number

☐ First return (18'835'761)

☒ Last return (18'847'531)

☐ All returns (49'062'104)

Choose DTM

☒ Load intensity map and classification map as background map

Digital Surface Model (DSM)

☒ Create DSM

LAS Settings

Classification

- ☒ Unclassified (0)
- ☒ Ground (7'295'973)
- ☒ Low vegetation (2'135'617)
- ☒ Mean vegetation (0)
- ☒ High vegetation (16'725'730)
- ☒ Building (860)
- ☒ Low point (Noise) (55)
- ☒ Water (0)
- ☒ Overlap points (45'226'772)
- ☒ Other (580'966)

Return Number

☒ First return (18'835'761)

☐ Last return (18'847'531)

☐ All returns (49'062'104)

Choose DSM

☒ Load intensity map and classification map as background map

☒ Create ocdLas

< Back Next > Cancel Help

On the left side OCAD shows the information about the DTM, on the right to the DSM. If is possible to create both DEMs in one step or only one DEM.

Each point is classified. The value in the round brackets is the number of points for this classification.

- Click the **Choose DTM** button to reset the Classification and Return Number option to the default values.
- Click the **Choose DSM** button to reset the Classification and Return Number option to the default values.

Usually the default setting are right. But in some cases it makes sense to uncheck the overlap point for the DSM. It depends on the used data. Change also this settings if the data are not classified.

Create Intensity and Classification Map

Check the option **Create intensity and classification map** to create these maps. If created OCAD loads these raster maps as background maps.

Intensity Map

Each data point has an intensity of the returned laser beam. This intensity is shown in a grayscale map.

Example:



Classification Map

Each data point has a classification or is unclassified. This classification is shown in a colored map.

Example:



The classification tiff image has the following color index:

- 0 Created, never classified (light gray)
- 1 unclassified (red)
- 2 Ground (yellow)
- 3 Low Vegetation (light green)
- 4 Medium Vegetation (green)
- 5 High Vegetation (dark green)
- 6 Building (Generic) (gray)
- 7 Low point (noise) (gray)
- 9 Water (blue)
- 10 Bridge (brown)
- 11 Road (brown)
- 12 Overlap pointd (gray)

Create ocdLas

Check this option to create an ocdLas file. This is a file which contains all points of the LiDAR point cloud and it is optimized for the use with OCAD.

This file is used to analyze the vegetation. This file is often very big (> 1 GB). That is the reason why OCAD doesn't load this file by default after creating the dem.

Learn more about the ocdLas file functions on the [LiDAR_Point_Cloud_Manager](#) page.

Click the **Next** button.

Create Contour Lines

Pro Std

Choose **Create Contour Lines** from **DEM** menu or from **DEM Import Wizard**. The **Create Contour Lines** dialog box appears.

The screenshot shows the 'DEM Import Wizard' dialog box with the 'Create Contour Lines' step selected. The settings are as follows:

Setting	Value	Unit	Line Symbol
Contour interval:	1.00	m	103.000 Form line
<input checked="" type="checkbox"/> Contour interval main:	5.00	m	101.000 Contour
<input checked="" type="checkbox"/> Contour interval index:	25.00	m	102.000 Index Contour
Minimum contour:	415	m	
Maximum contour:	1555	m	
Total number of contour values:	1141		

At the bottom, there are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

This function calculates contour lines based on the DEM.

- Define 1-3 contour intervals (for example 1m, 5m, 25m) and a pre-selected line symbol (according to the first three line symbols in the settings) for each type appears (can be changed).



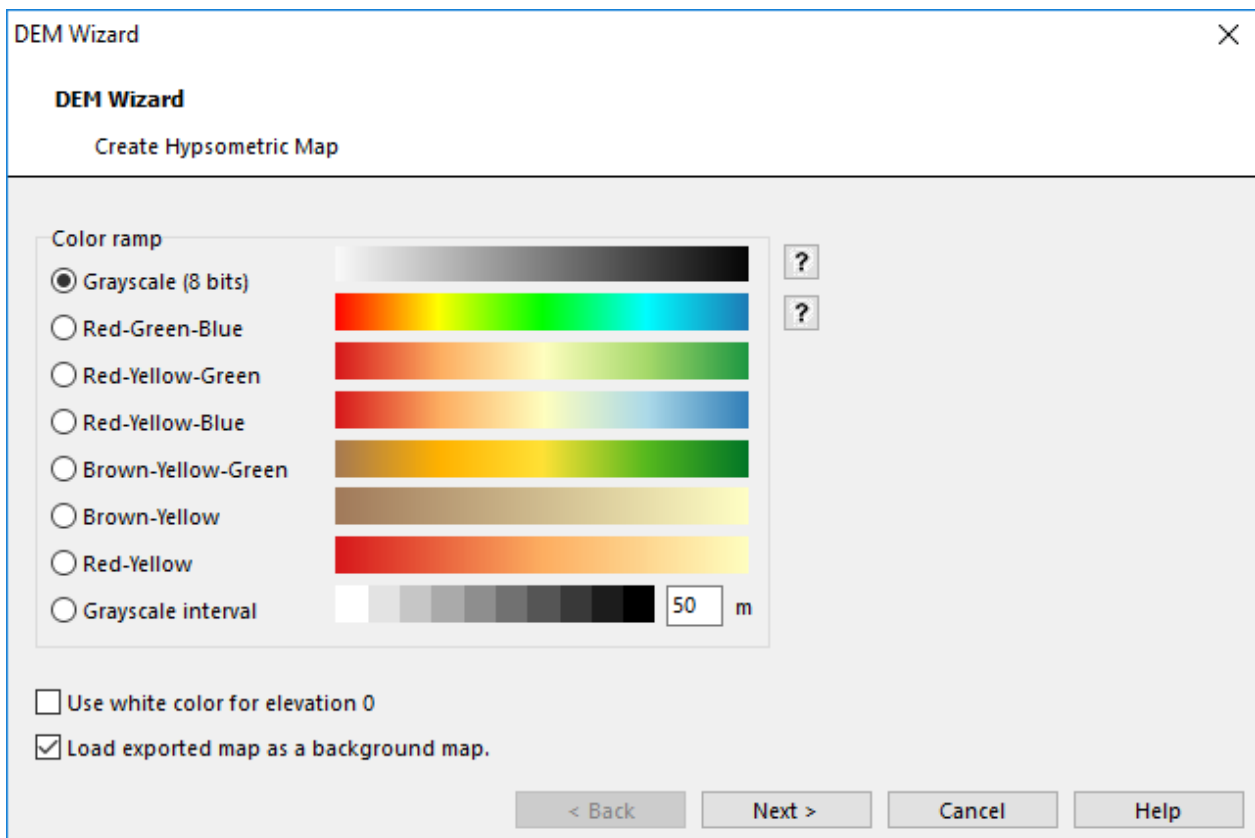
Contour interval values can be entered manually or chosen from the list.

- Specify the minimum (lowest) and maximum (highest) contour for the calculation.

Create Hypsometric Map

Choose **Create Hypsometric Map** from **DEM** menu or from **DEM Import Wizard**. The **Create Hypsometric Map** dialog box appears.

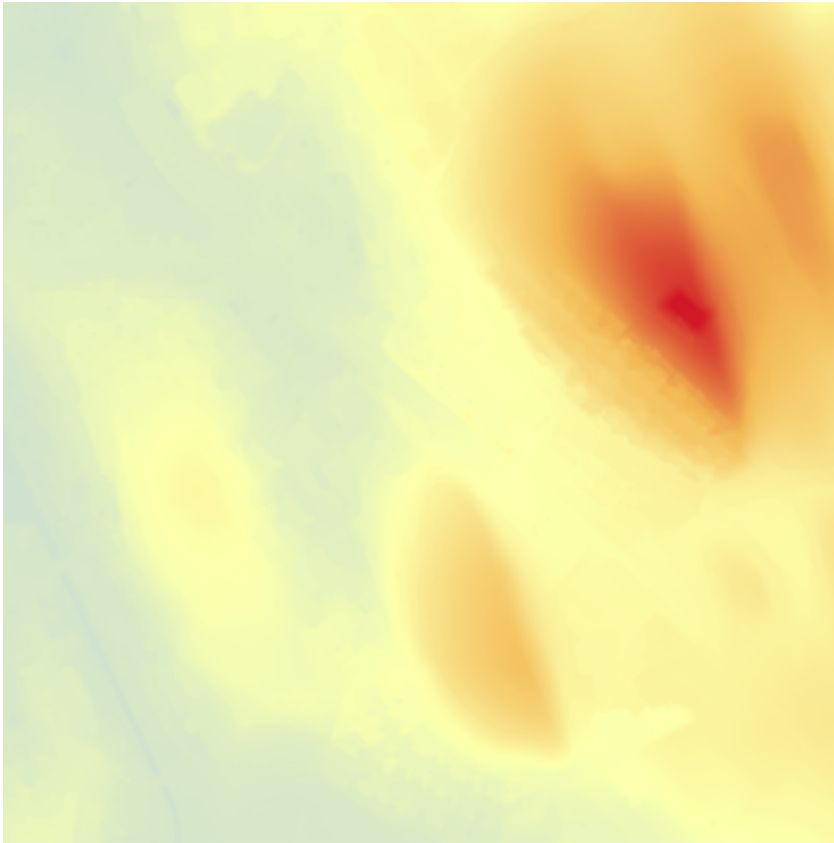
The progression is from highest at left to lowest at right.



This function calculates a grayscale or colored hypsometric map as GeoTIFF file. Choose one of the color ramps.

Optionally you can set white color for areas with no data.

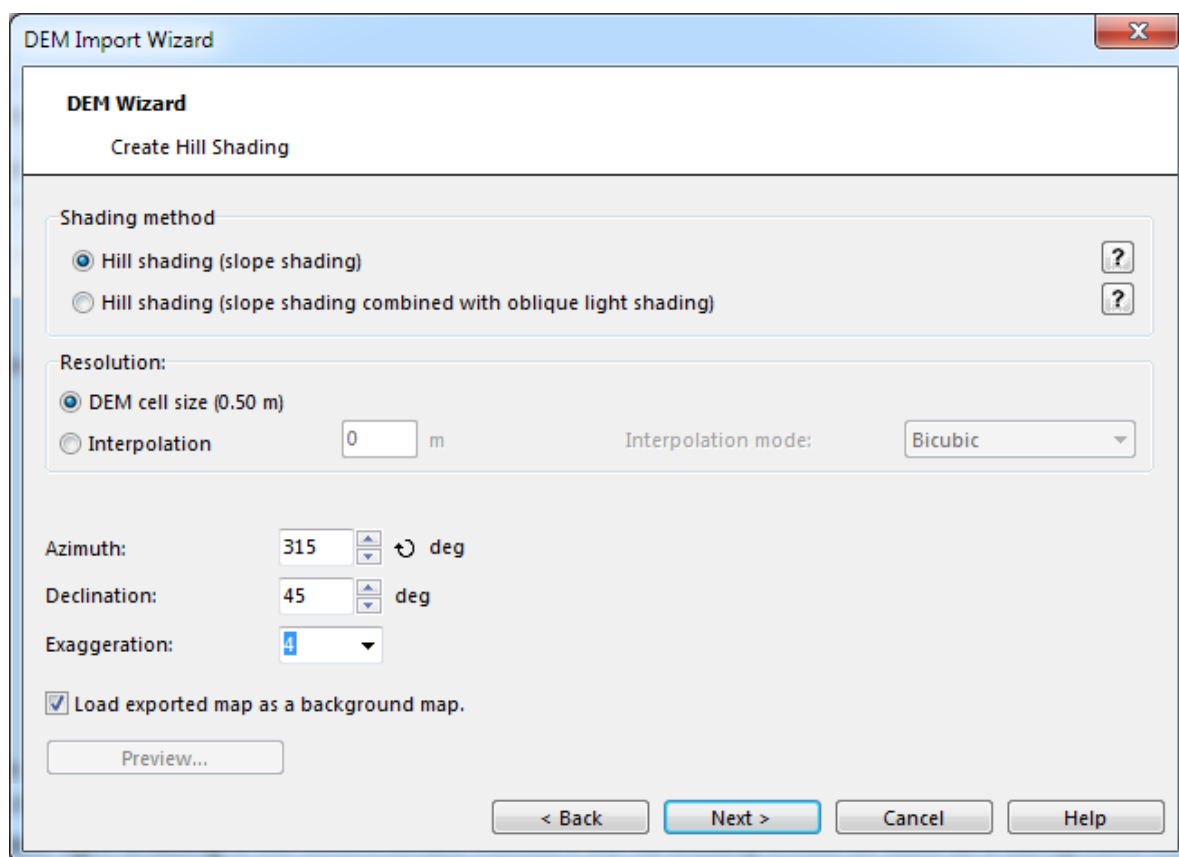
Optionally the created raster file is directly loaded as background map.



Create Hill Shading

Choose **Create Hill Shading** from **DEM** menu or from **DEM Import Wizard**. The **Create Hill Shading** dialog box appears.

This function calculates a shaded relief picture (hill shading).



Shading method

There are two calculation methods available:

- **Slope shading** is optimized to see outlines of features like paths in a slope.
- **Slope shading combined with oblique light shading** is the recommended method if the hill shading should be used as a background relief of a map.

Optionally the calculated hill shading is directly loaded as background map.

Resolution

Aside from the chosen method, there is to define the **Resolution** and the **Interpolation** mode if chosen. The default interpolation mode is Bicubic, but there are 7 other algorithm.

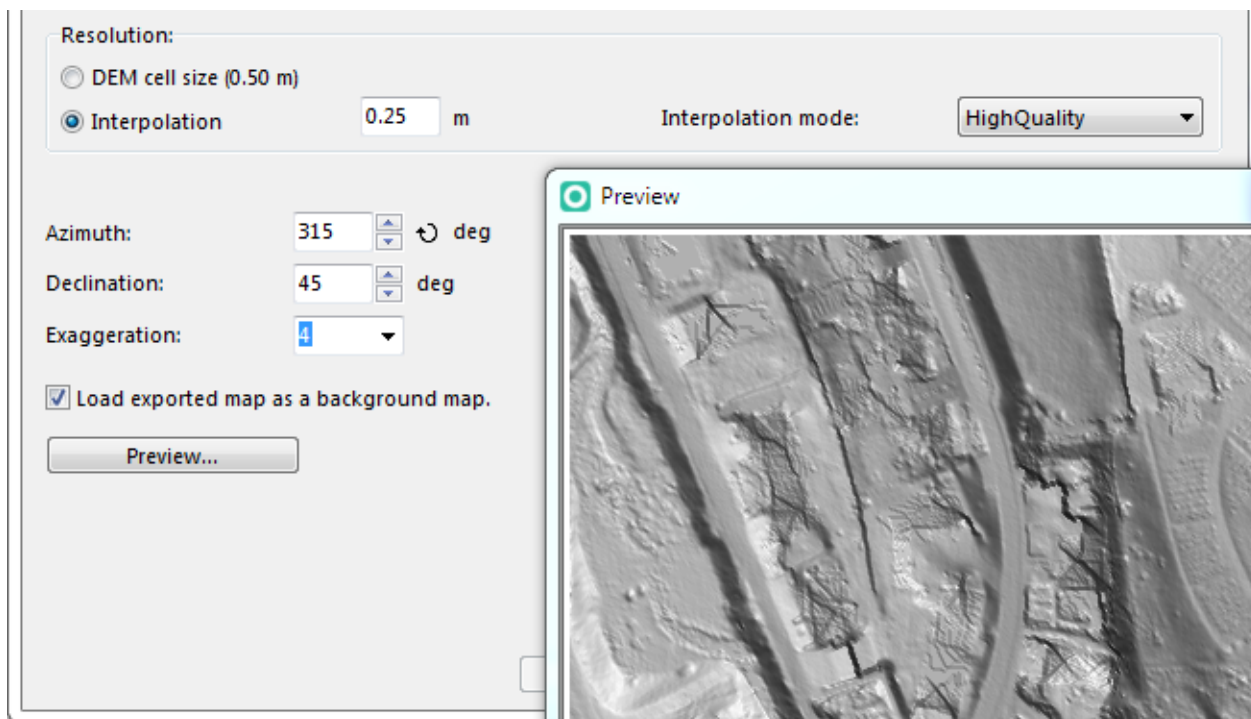
Additionally an **Azimuth** and a **Declination** of the light source has to be set. Standard settings are 315° (north-west) and 45°.

An **Exaggeration** factor of 4 is pre-selected and can be altered.

Preview

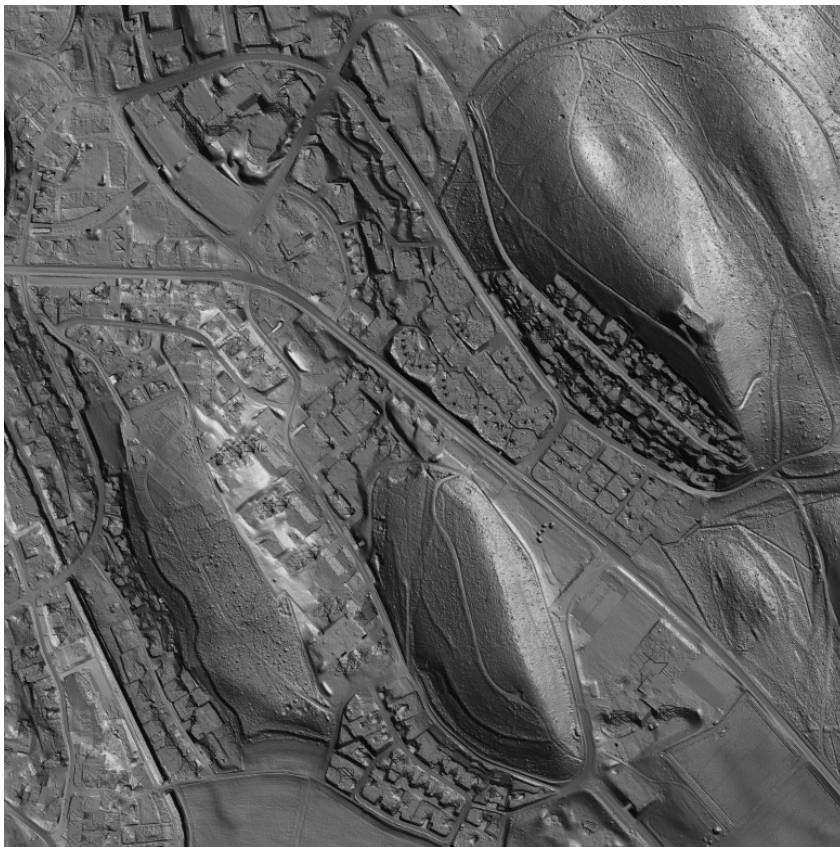
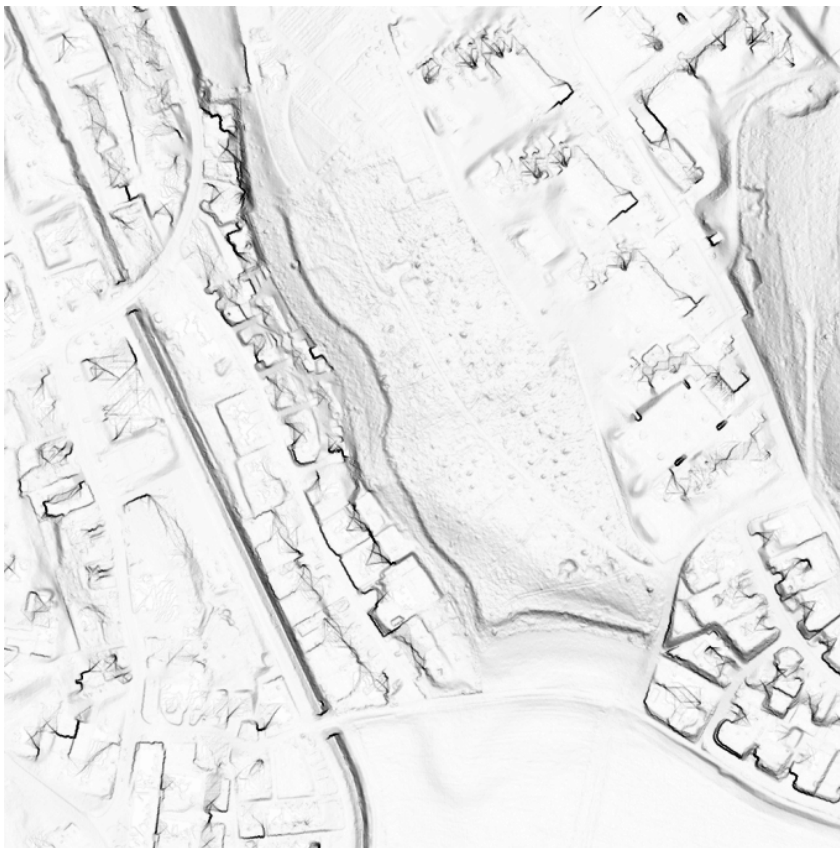
The **Preview...** button allows you get a first impression of the current setting for your hillshading and can be use to optimize it. Click and move with the left mouse button allows to pan the current view.

The **Preview...** button is only enabeld when importing a dem grid file or an ocddem is already loaded. This function is disabled when importing las/laz files.



💡 To detect point and line objects like paths or watercourses from DEM we recommend using the same resolution as the DEM. To create a relief and if the DEM cell size isn't high then we recommend to set a smaller resolution.

💡 The default export file format is JPEG and creates an 8 bit JPEG with in grayscale and a world file with the geo reference. If you decide to export the file in TIFF-format, only with resolution option 'DEM cell size' then OCAD creates an 8 bit grayscale tiff with color palette. Otherwise a 24 bit RGB tiff.

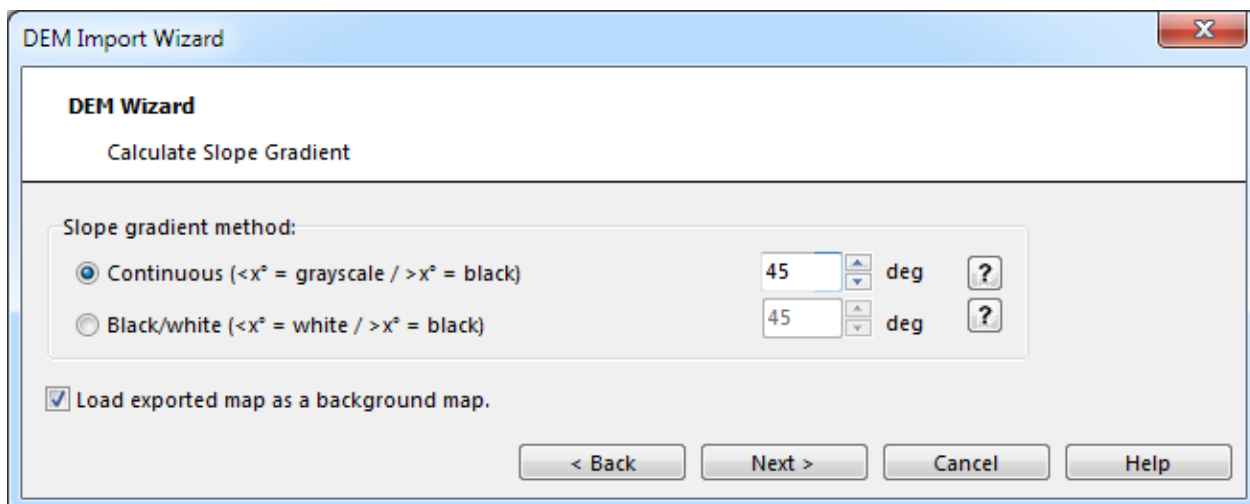
Hillshading (slope shading)**Hillshading (slope shading combined with oblique light shading)**

Error Message *Bitmap is too big*

The size of the hill shading image is limited. If this error message appears please enter a bigger value for the interpolation.

Calculate Slope Gradient

Choose **Calculate Slope Gradient** from **DEM** menu or from **DEM Import Wizard**. The **Calculate Slope Gradient** dialog box appears.



Select one of two different methods:

- Continuous ($<x^\circ = \text{grayscale} / >x^\circ = \text{black}$)
- Black/White ($<x^\circ = \text{white} / >x^\circ = \text{black}$)

The resulting picture can be used to identify cliffs and rock faces. The result can sometimes be significantly improved with a slight adjustment of the gradient (between 42-45 degrees).

Slope gradient also shows paths or relief features independent from an azimuth like the Hill Shading.

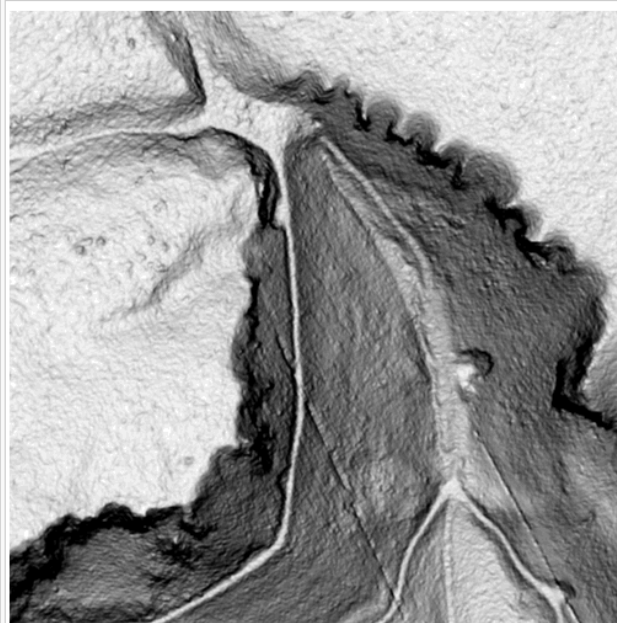


Fig. 1: Slope gradient method: Continuous ($0^\circ - 50^\circ = \text{grayscale}$).

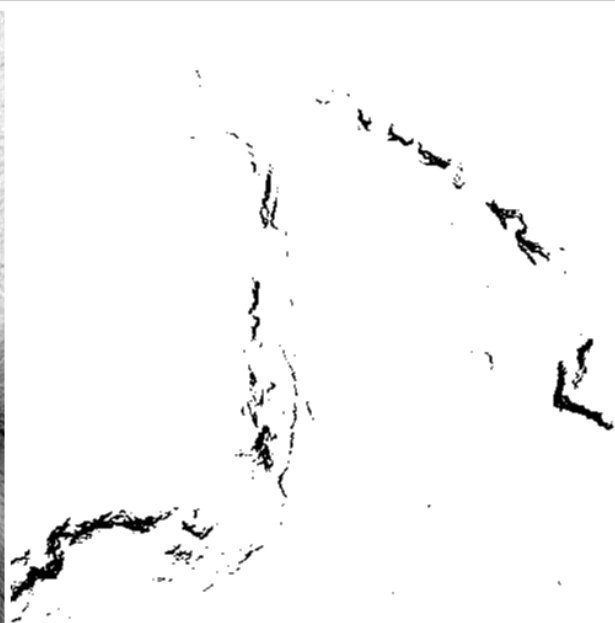
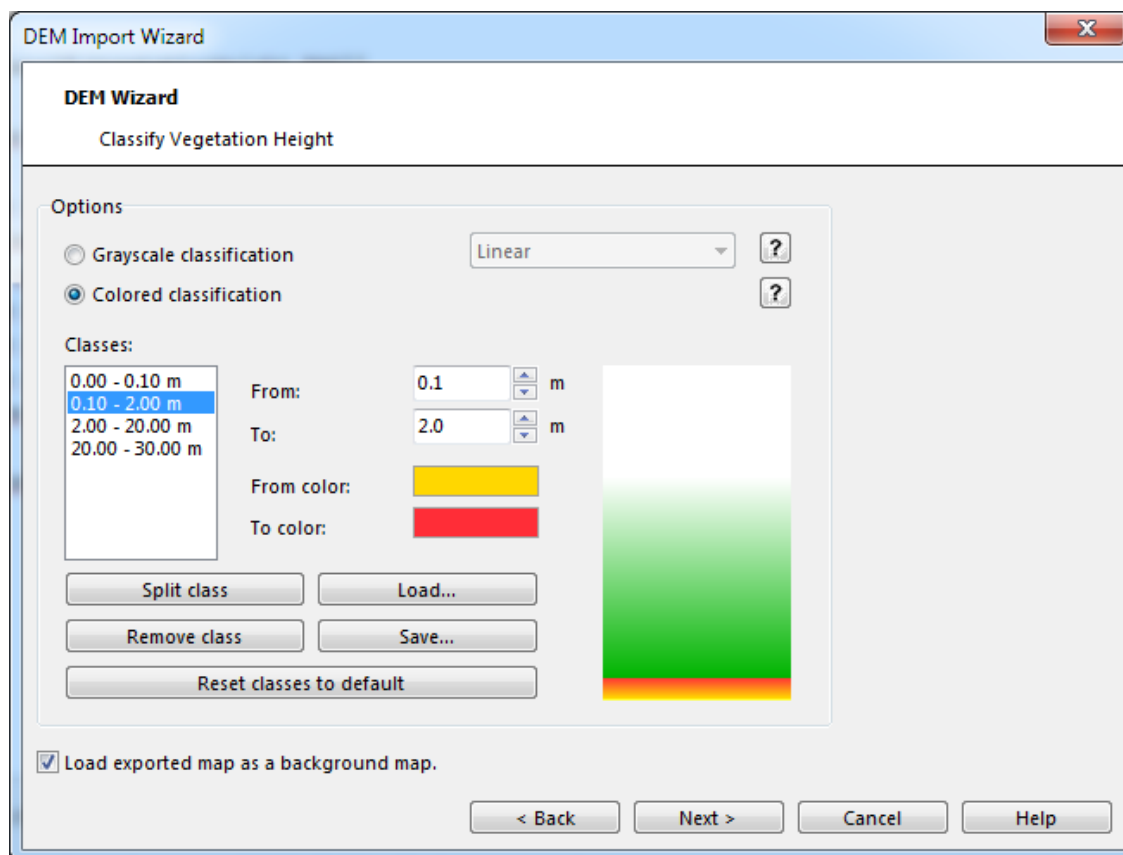


Fig. 2: Slope gradient method: Black/white ($< 45^\circ = \text{white}$).

Classify Vegetation Height

Choose **Classify Vegetation Height** from **DEM** menu or from **DEM Import Wizard**. The **Classify Vegetation Height** dialog box appears.



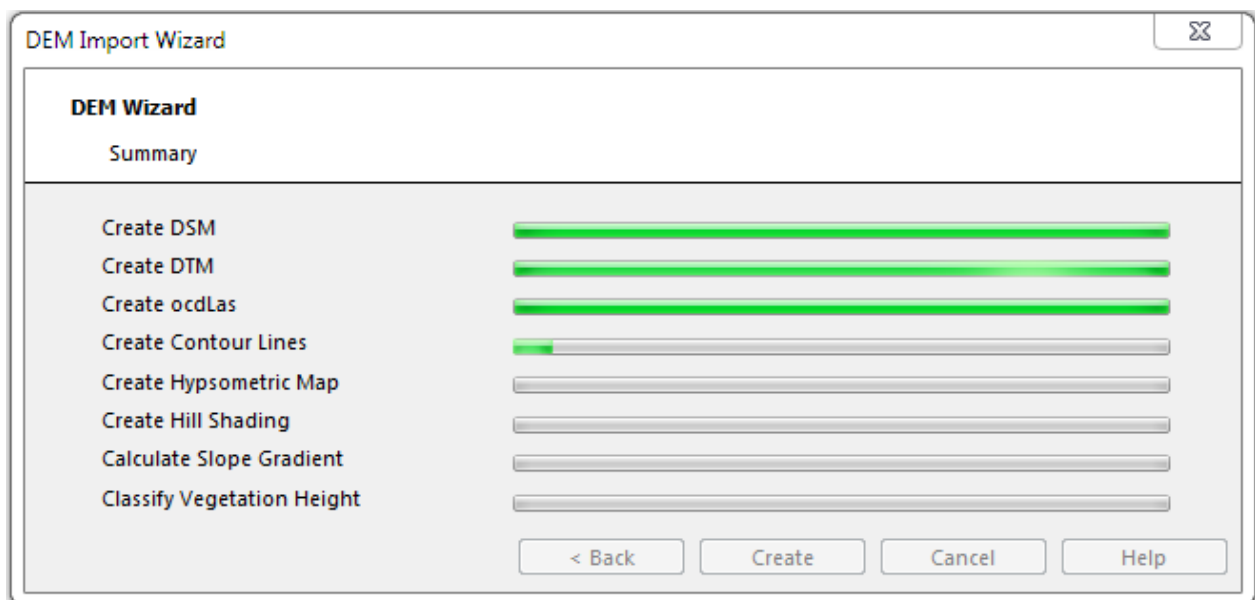
There are two different options to show vegetation height classification:

- Gray scale classification with options: Linear, Quadratic negative, Quadratic positive
- Colored classification: Define classes with a height and color range
 - Split a class into two classes by clicking the **Split class** button
 - Remove a class by clicking the **Remove class** button
 - Load the settings from a text file by clicking the **Load** button
 - Save the settings to a text file by clicking the **Save** button
 - Reset the classes and colors to the default settings by clicking the **Reset classes to default** button



Summary

This dialog is only visible in **DEM Import Wizard**. It shows the progress of the different functions.



After finishing the process the dialog closes automatically.

References

- [1] <http://www.cs.unc.edu/~isenburg/lastools/>
- [2] <http://rapidlasso.com/2015/04/20/new-lasliberator-frees-lidar-from-closed-format/>
- [3] <http://www.cs.unc.edu/~isenburg/>

GPS



Real Time GPS

Pro Std

Choose this command from the **GPS** menu for mobile mapping with GPS. The GPS device must be connected to the computer via the COM interface with Bluetooth. If your GPS device is connected via an USB port, please install a software like **GPSTGate Client** ^[1] to transfer the data to a virtual COM port.

💡 It is important that the coordinate system on the GPS device is WGS84 or a UTM zone. Otherwise, OCAD cannot analyze the data correctly and the position is wrong (some 100 meters)!

When you choose the **Real Time GPS** command from the **GPS** menu, the **Real Time GPS Settings** dialog appears.

Real Time GPS Settings

Real Time GPS Settings

Connection settings

Interface

☒ COM

☐ Windows Location API

☐ HTTP (Smartphone)

Port: COM3

Baud rate: 9600 bps

Test...

Connect

Disconnect

Help

Requirements

☐ DGPS, RTK, Float RTK

☐ Min. 4 satellites

☒ HDOP < 1

Otherwise

Position is not saved

Options

☐ Filter 5 Values (Default)

☐ Accuracy circle

☐ Auto scroll (moving map)

☐ Subtract antenna height from Z value 0.0 m

Coordinate system

Swiss Grid CH1903

Change...

Connection Settings

There are three Connection Settings. The COM interface works only in OCAD 32-bit version!

COM

Choose this option to connect your GPS device with a COM port.

1. **Port:** Choose the COM port where the GPS device is connected. The GPS device must send the **NMEA 0183 Format** ^[2].
2. **Baud rate:** Choose the baud rate the serial port. NMEA 0183 defines 4800 bps but some devices may send data at a different speed.
3. **Test:** Click the **Test** button to open the **Test GPS** dialog box. The NMEA messages received from the GPS device are displayed there and you can verify the connection of the GPS device. Read more about this dialog in the **Test GPS** article on this page.

Windows Location API

Internal or external GPS devices can be connected using the Windows Location API ^[3]. This options is recommended if the Windows computer does not anymore support COM ports. OCAD supports this interface since service update 11.4.0 ^[4].

Choose a sensor from the **sensor list** and click the **Test** button to test the connection settings. The real time GPS works still in the habitual way.

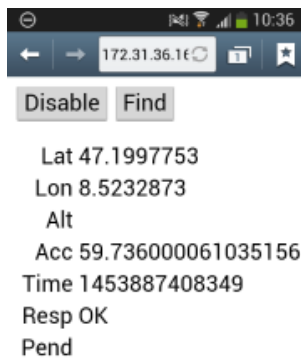
💡 The GPS must be manually activated as a location sensor in the **Windows settings**.

HTTP (Smartphone)

Choose this option to connect your smartphone as a GPS device. Please note that the **GPS must be activated on your smartphone**.

1. **Port:** Enter a port for the IP address. The default port is 8088 and does not necessarily have to be changed.
2. **IP address:** This is the IP address to connect your smartphone to your computer.

3. Activate the connection by clicking the **Test** or **Connect** button.
4. Enter the **IP address** with the **port** (separated by a colon, ex. 192.168.1.37:8088) in a browser. It should look like the image below. Click on the left button if it is called **Enable** (the button will change to *Disable*) to start sending the GPS positions from your smartphone to your computer.



- 💡 Make sure that the address in your browser does not have a `http://` prefix.
- 💡 Due to restrictions some Smartphones do not allow to access the ip address in their browser.
- 💡 OCAD does not show the GPS cursor if the accuracy is too bad (state: *GPS: No fix*).

Requirements

The following requirements can be given:

- **DGPS, RTK, Float RTK:** Check this option to use DGPS, RTK, Float RTK and define if the positions calculated without **DGPS** ^[5], **RTK** ^[6], **Float RTK** are **not saved** or **not saved and not shown**.
 - 💡 This option has only an effect if OCAD receives the **GGA Message** ^[7]. Click the **Test** button to see what type of message is sent from the device.
- **Min. 4 satellites:** Check this option as a kind of precision requirement and define if the positions calculated from less than 4 satellites are **not saved** or **not saved and not shown**.
- **HDOP:** Check this option to define an upper limit for the **HDOP (Horizontal Dilution of Precision)** ^[8] value and define if the positions calculated with a higher HDOP are **not saved** or **not saved and not shown**.

Options

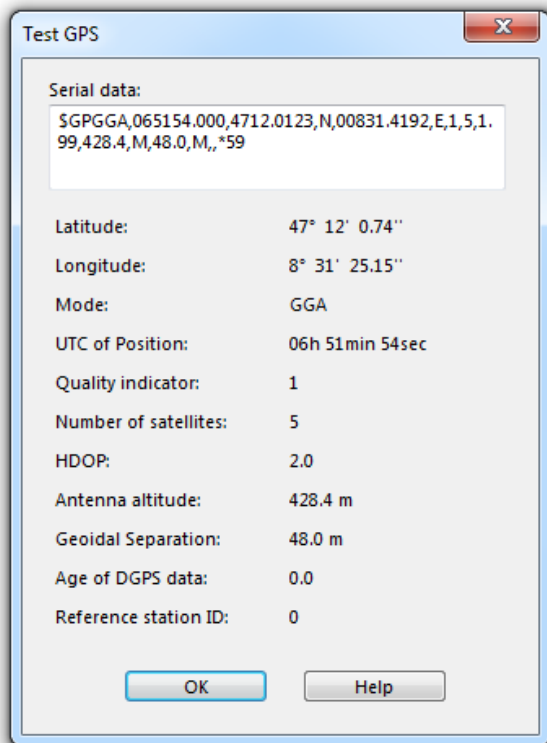
- **Filter:** Check this option to activate a filter and specify how many GPS positions are averaged. This results in a more stable position, but the update is slower.
- **Accuracy circle:** This option is enabled when the **Filter** option is checked. Check this option to show the accuracy circle. This shows the accuracy of the last 5 measurements with a circle around the GPS marker.
- **Auto scroll (moving map):** Check this option to move the map automatically with the GPS marker.
- **Subtract antenna height from Z value:** Check this option to define a correction for the Z value. The entered value gets subtracted from the measured height value.
- **Coordinate system:** Click this button to change the coordinate system. The **Coordinate System** dialog box appears.

Click the **Connect** button to turn on the real time GPS mode. The **GPS** box is displayed in the lower right corner if the connection to the GPS device was successful.

Close the **Real Time GPS Settings** dialog or click the **Disconnect** button to turn off real time GPS.

Test GPS

Click the **Test** button in the **Real Time GPS Settings** dialog to open the **Test GPS** dialog.



If OCAD receives **GGA Messages** ^[7], those messages are displayed in the **Serial data** field. Characters 4 to 6 show the abbreviation GGA (e.g. \$XXGGA...). **RMC Messages** ^[9] are displayed if OCAD does not receive any GGA messages. RMC messages contain no information about DGPS and the number of satellites. However, the position can still be used in OCAD. The serial data box remains empty, if the GPS device is sending neither of the two messages or if there is a connection problem. Check that you have selected the right port in the **Real Time GPS Settings** dialog box and that the GPS device is connected correctly to the PC.

GGA message example:

```
$GPGGA,092750.000,5321.6802,N,00630.3372,W,1,8,1.03,61.7,M,55.2,M,,*76
```

RMC message example:

```
$GPRMC,092750.000,A,5321.6802,N,00630.3372,W,0.02,31.66,280511,,A*43
```

OCAD takes the serial data apart and displays it in a bit more user-friendly view below the **Serial data** box.

Mapping with Real Time GPS


The **GPS** box is displayed in the lower right corner if OCAD is successfully connected to a GPS device.





The following information is given in this box:


- **Easting:** In this field the easting value of the coordinate is displayed. If the **Filter** is activated, then it is the averaged value.
- **Northing:** In this field the northing value of the coordinate is displayed. If the **Filter** is activated, then it is the averaged value.
- **Height:** In this field the height is displayed. If the **Filter** is activated, then it is the averaged value.
- **DGPS:** A green or red dot shows if a DGPS^[10] signal is received.
- **Satellites:** In this field the number of received satellites is displayed. A Red number means that the requirements defined in the **Real Time GPS Settings** are not fulfilled.
- **HDOP:** The **HDOP (Horizontal Dilution of Precision)**^[11] is displayed in this field. HDOP is a quality indicator for the position of the useable satellites on the local sky. HDOP values less than 4 are very good, HDOP greater than 8 are bad. A Red number means that the requirements defined in the **Real Time GPS Settings** are not fulfilled.
- **Precision (x Val):** In this field the accuracy (root mean square) of specified number of the last measurements is displayed. The **Filter length** can be specified in the **Real Time GPS Settings** dialog.


Below the information part of the box, there are several icons:


 **Start GPS Measurement:** Click this icon to create an OCAD object with the receiving GPS information. A symbol must be selected. Choose a point symbol and click the **Start GPS Measurement** icon to create an object at the position of the GPS marker. If a line or area symbol is selected, OCAD starts with the measurement and draws a vertice for every received position. The object is represented with a thin black line.

 **Pause GPS Measurement:** Click this icon to interrupt the GPS measurement without finishing the object. Click the icon again to continue with the measurement.

 **Stop GPS Measurement:** Click this icon to finish the line or area object. The object is displayed with the assigned symbol.


 **Find GPS Marker:** Click this icon to move the view to the GPS marker. Enable the **Auto Scroll** option to always move the view, when the GPS marker is leaving the current view.




 **Filter:** Turn on or off the filter by clicking this icon. The filter can be adjusted in the **Real Time GPS Settings** dialog.


 **Accuracy Circle:** Turn on or off the accuracy circle by clicking this icon. This shows the accuracy of the last 5 measurements with a circle around the GPS marker. This option is only available when the **Filter** is enabled.

Select Vertex Type: In this dropdown list you can select between two types of **Vertices**:

Choose the **Normal Vertex** option when a point should be added to the object for every position received from the GPS device.

Choose the **Corner Vertex** option when a position should be manually added to the object by clicking the  **Start GPS Measurement** button. This option is typically used to draw objects with straight parts and corners like a fence. If a point or text object is selected, the vertex type cannot be changed.

 **Add GPS Position to Calculate Average:** Click this button for every position you want include into an average calculation. The number of added positions is shown in the button hint. Click the  **Start GPS Measurement** icon to create the object at the calculated average position. This function is only available when a point symbol is selected. This is especially useful when the GPS position of an uncrossable feature (e.g. small house, deep hole, huge tree etc.) is to be measured. Some points around the feature have to be recorded and by clicking the  **Start GPS Measurement** icon, the average point can be found.

 **Open Real Time GPS Settings:** This icon opens the **Real Time GPS Settings** dialog box.

💡 The GPS cursor is drawn with the mark color. Change the **Mark Color** in the **Drawing and Editing** part of the **OCAD Preferences**.

💡 There is a **better visible, thicker GPS cursor** since OCAD version 11.3.0:



Import Data from GPS Device

Pro Std

This function is obsolete! If you want to import GPS data from GPS devices, import the waypoints and tracks with the corresponding software of the GPS device to the computer. Then use the **Import from File** function in OCAD. As an alternative, for fieldwork, use the **Real Time GPS** function.

Choose this command to import tracks or waypoints from a **GPS Garmin eTrex** device. The GPS device must be connected to the PC with a serial data cable or Bluetooth.

- **GPS:** In this field the information about the GPS device is displayed.
- **Status:** In this field the status between OCAD and GPS is displayed.

Connection

- **Connect GPS:** Click this button to connect OCAD with the GPS device. After a successful connection the GPS information and the status are displayed.
- **Settings:** Click this button to change the GPS settings. The **Import from GPS Settings** dialog is displayed.

GPS data

- **Get waypoints:** Click this button to load all waypoints. Each waypoint is displayed with in a row in the GPS data field.
- **Get tracks:** Click this button to download all tracks. Each track is displayed with in a row in the GPS data field. Only the start point is displayed.

💡 This command can take several minutes!

OCAD objects

- **Set labels:** Check this option to create also text objects with the name of the waypoints and tracks.
- **CRT:** Use a **Cross Reference Table** to assign symbols to the waypoints and tracks. OCAD creates **Unsymbolized Objects** if no **Cross Reference Table** is selected.

Each line of the cross reference table contains the OCAD symbol number and the Garmin symbol name.

Example of a cross reference table:

```
535.0 waypoint dot
536.0 campground symbol
540.0 scenic area symbol
```

- **Create:** Select the waypoints and tracks in the GPS data field and click this button to create OCAD objects from the selected GPS data.



A popup menu appears when clicking the list with the GPS data with the right mouse button. In this popup menu you have the option to **Select all**, **Unselect all** and **Clear list**. With the **Clear list** command all waypoints and tracks are removed. In addition, you can **Make an OCAD object**. By clicking this command, an OCAD object of the selected track or waypoint is created.

Import from GPS Settings

In this dialog box you can make the setting for the GPS data import. Verify also your settings on the GPS device (e.g. data format: GARMIN)!

- **Port:** Choose the port where the GPS device is connected.
- **Speed data import:** Choose the speed of the serial port. Garmin defines 9600 bps.
- **Coordinate system:** Click the **Change** button to select or change the coordinate system. The **Coordinate System** dialog box appears.

Import from File



Choose this command from the **GPS** menu to import a GPS data file to the current map. The **Load GPS data from files** dialog box is displayed. Initially all importable GPS data files are listed. The following file types can be imported:

- GPX files
- FRWD files
- NMEA files

The **Import from File** dialog appears, where all available waypoints and tracks from the imported file are listed. There are several options in the **OCAD objects** part of the dialog:

- **Set label:** Check this option to create also text objects with the name of the waypoints and tracks.
- **Assign Symbols:** Check this option to assign a specified symbol to the imported objects. Otherwise OCAD will create **Unsymbolized Objects**.
- **CRT:** Use a **Cross Reference Table** to assign symbols to the waypoints and tracks.



A popup menu appears when clicking the list with the GPS data with the right mouse button. In this popup menu you have the option to **Select all**, **Unselect all** and **Clear list**. With the **Clear list** command all waypoints and tracks are removed. In addition, you can **Make an OCAD object**. By clicking this command, an OCAD object of the selected track or waypoint is created.

Click the **Import** button to import all selected tracks or waypoints in the list.

GPS Map Offset

This dialog box appears if the GPS coordinates are out of the maximum map size. Adjust the following parameters:

- **Coordinate system** If you work with GPS you must select a coordinate system. Click the **Change** button to select or change the coordinate system. The **Coordinate System** dialog box appears.
- **Offset** Choose here whether you want to change the OCAD real world coordinates or to keep the existing ones.
- **New offset:** Choose this option if no real world coordinates are defined for the map. OCAD already proposes reasonable values. You can leave them unchanged.
- **Existing offset and angle:** Choose this option if the map already has real world coordinates and you want to fit the imported objects to the existing coordinates.

Laser Rangefinder

A small teal square icon with the word "Pro" in white text.

Read more about using the "**TruPulse 360/360B**" **Laser Rangefinder** on the **Laser Rangefinder** page

[Back to Main Page](#)

[Previous Chapter: DEM](#)

[Next Chapter: Database](#)

References

- [1] http://gpsgate.com/products/gpsgate_client
 - [2] http://en.wikipedia.org/wiki/NMEA_0183
 - [3] <http://msdn.microsoft.com/en-us/library/windows/desktop/dd464636%28v=vs.85%29.aspx>
 - [4] <http://www.ocad.com/en/downloads>
 - [5] <http://en.wikipedia.org/wiki/DGPS>
 - [6] http://en.wikipedia.org/wiki/Real_Time_Kinematic
 - [7] <http://www.gpsinformation.org/dale/nmea.htm#GGA>
 - [8] http://en.wikipedia.org/wiki/Dilution_of_precision_%28GPS%29
 - [9] <http://www.gpsinformation.org/dale/nmea.htm#RMC>
 - [10] http://en.wikipedia.org/wiki/Differential_GPS
 - [11] <http://en.wikipedia.org/wiki/HDOP>
-

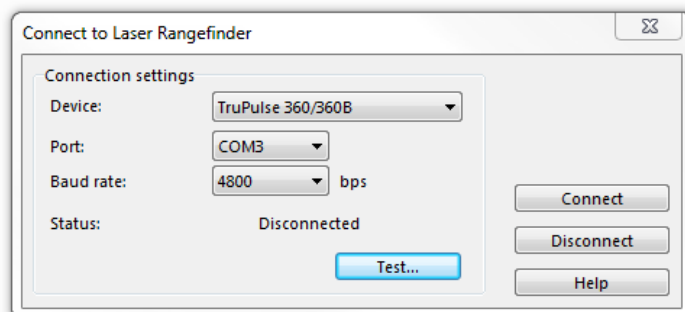
Laser Rangefinder

Pro

Connect to Laser Rangefinder

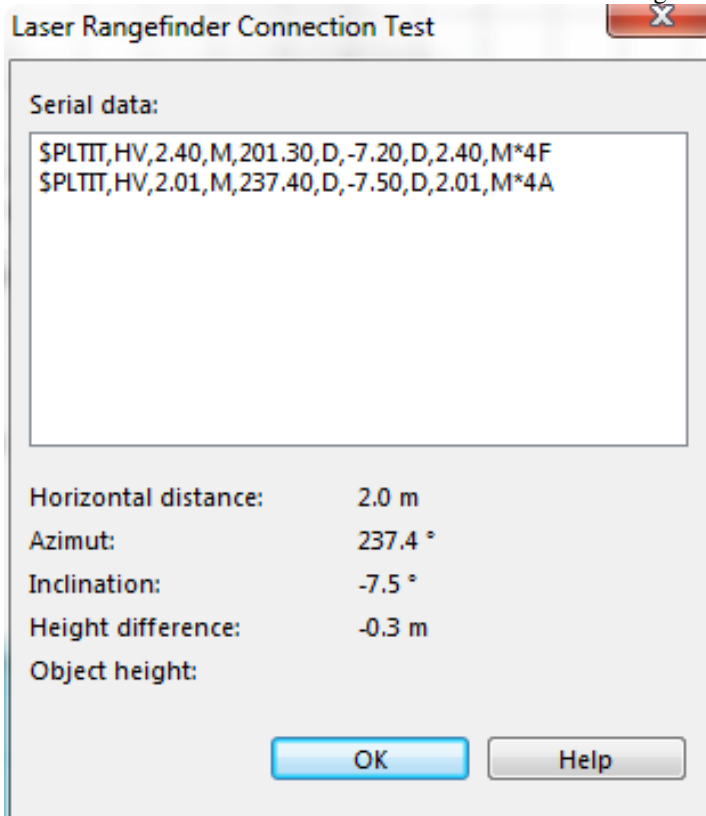
A connection to Laser Rangefinder can be setup via a serial COM port. Use bluetooth for the data transfer from the Laser Rangefinder to the computer.

1. Switch on the Laser Rangefinder
2. Choose **Connect to Laser Rangefinder** from the **GPS** menu.
3. Set device, port and speed.
4. Click the **Test...** button to test the connection.
5. Click the **Connect** button to start the connection.



Laser Rangefinder Connection Test

Measured data values are shown here if the connection settings are correctly.



Laser Rangefinder Drawing Tool

Choose the  **Laser rangefinder drawing mode**. The **Laser Rangefinder** dialog appears.

Drawing options

Settings for different working processes can be done in the **Options** tab.

Direction: Choose between foresight and backsight.

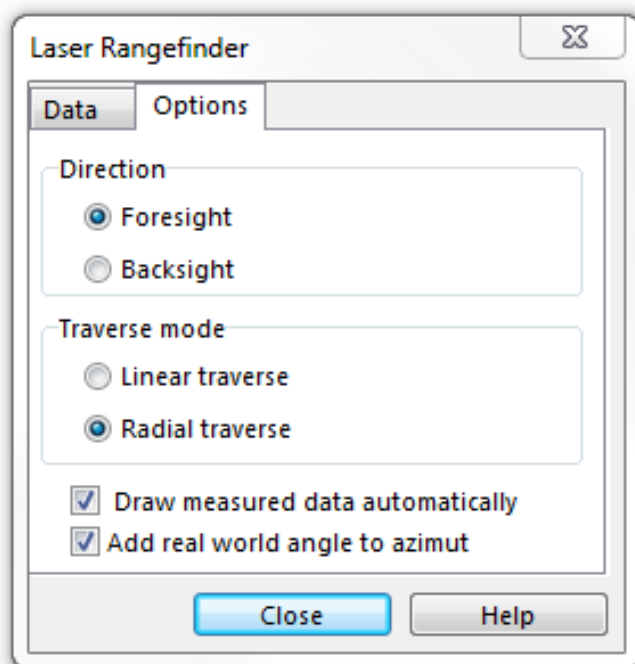
- Foresight: Measure forwards from your known position to a place with unknown position.
- Backsight: Measure backwards from a place with known position to your unknown position.

Traverse mode: Choose between linear traverse and radial traverse

- Linear traverse: Measure a series of points. A measured point is the start position for the next measurement.
- Radial traverse: Measure a series of points. The start position is always the same.

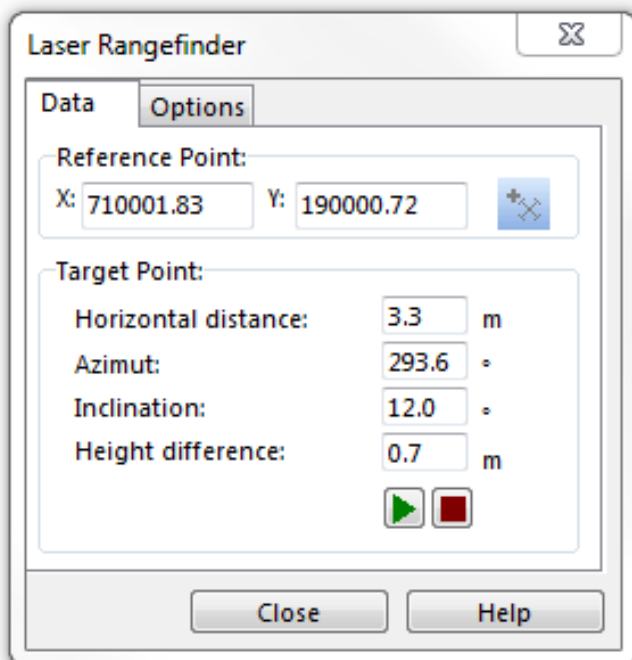
Draw measures data automatically: Turn on this option if measured positions should be added to the map automatically. Otherwise each position must be confirmed by the user.

Add real world angle to azimuth: Turn off this option if declination is already corrected by the laser range finder.



Drawing

1. Set a reference point: Set it by clicking on the map or get the GPS position.
2. Measure the features position. Depending on the **Draw measures data automatically** option the positions are added to the map automatically or they must be confirmed.
3. Finish a feature by clicking the **Stop** button.



 [Laser Rangefinder^[1]]

[Back to GPS](#)

[Back to Drawing an Object](#)

[Back to Main Page](#)

References

[1] http://www.ocad.com/howtos/142_Laser_Rangefinder.htm

Database

Pro

Introduction to Database Connection

In OCAD information which is stored in a database can be added to an object (e.g. position of the object, name of the place, URL-Link, length of the object etc.). A database is structured as follows:

General Structure of a Database

Table

A database usually consists of several tables. There are different forms of databases: In a flat file database like **dBase** ^[1], each table is a file and all tables in a folder form the database. In other databases like **Microsoft Access** ^[2] or in spreadsheet programs like **Microsoft Excel** ^[3] all tables of the database are in the same file.

Record

A table consists of records. A record is a row in the table and contains the information about an OCAD object.

Field

A record consists of fields. Each field contains a single information of an OCAD object, which is described by the corresponding record. Normally this information is a number, but can also be text. For example the x-coordinate of the objects' position. Each record has a key field, which is used to identify the record. This is mostly a number.

Example

The following table contains three records. Each record describes an area object in OCAD which describes real estate and consists of six fields: **ID**, **SIZE**, **OWNER** and **XCOORD**, **YCOORD**, **TYPE**. The **ID** is the key field, which is used by OCAD to identify the record. The **SIZE** describes the magnitude of the area. In the **OWNER** field, there is a number which links to a **Secondary Table**. The fourth and the fifth field contain the coordinate and in the last field, the type of the area is indicated.

ID	SIZE	OWNER	XCOORD	YCOORD	TYPE
1	724	29	754870	233386	Private Building Area
2	702	12	754900	233442	School
3	422	13	754815	233505	Private Building Area

In OCAD a record is displayed as follows when the corresponding object is selected:

Dataset: Dataset_1		
Link	Find	SQL query
ID	K	1
SIZE	S	724
OWNER	*	29
XCOORD	S	754870
YCOORD	S	233386
TYPE		Private Building Area

Dataset

To connect to a table OCAD uses a dataset. The dataset contains the link to the database, the name of the table, the name of the key field and information about other special fields. You can have several datasets for the same OCAD map.

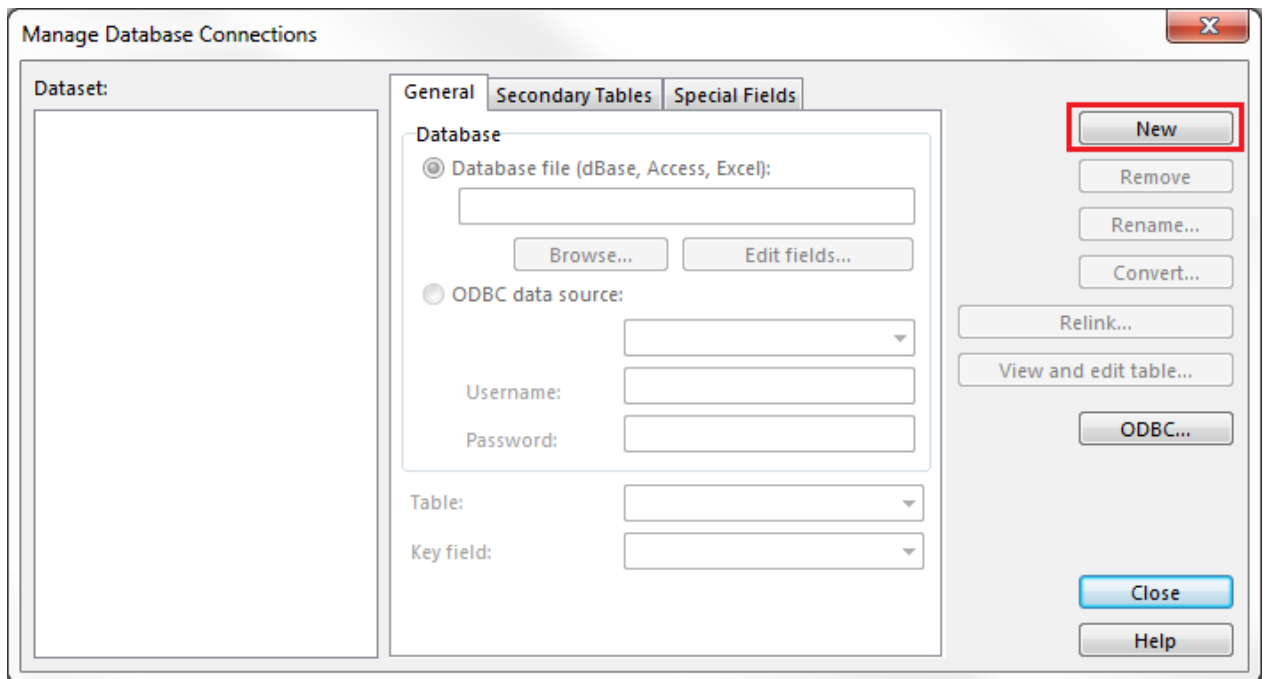
Manage Database Connections

Pro

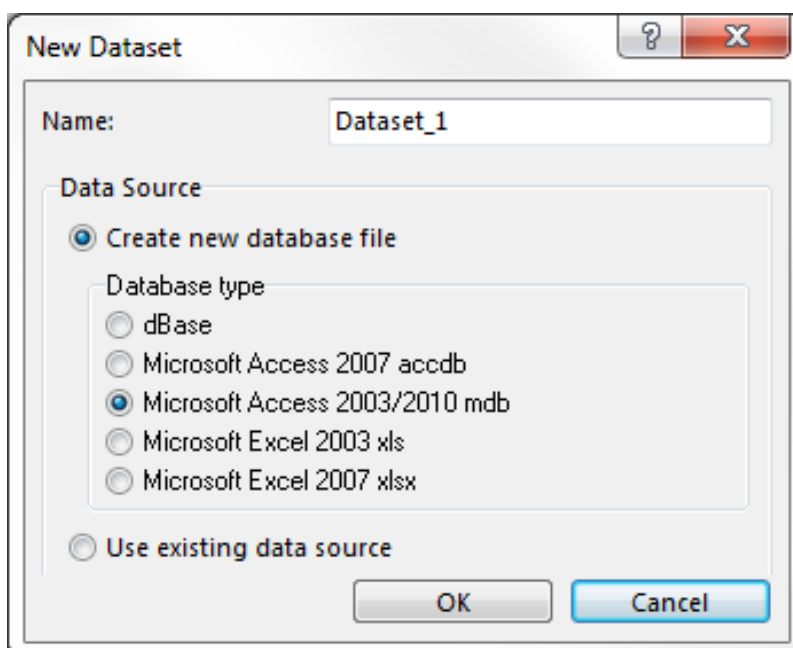
Create a New Database Connection

You have to create a dataset, which can be done by following these steps:

1. Choose the **Manage Database Connections** command in the **Database** menu.
2. The **Manage Database Connections** dialog opens.



3. Click the **New** button.



4. The **New Dataset** dialog appears. Choose the **Create new database file** option and select a **Database type** or choose the **Use existing datasource** option. Note that the **Access Database Engine** has to be installed if one of the **Microsoft Access** or **Microsoft Excel** database type options is chosen. See at **Map Information** in the **Map** menu if the Access Database Engine is installed.
5. If a new database file is created, the **Save Database File** dialog appears. If an existing datasource is used, the location of the datasource has to be specified by clicking the **Browse** button or connecting via ODBC in the **Manage Database Connections** dialog.
6. The dataset is created. Your OCAD map is now connected to the database.

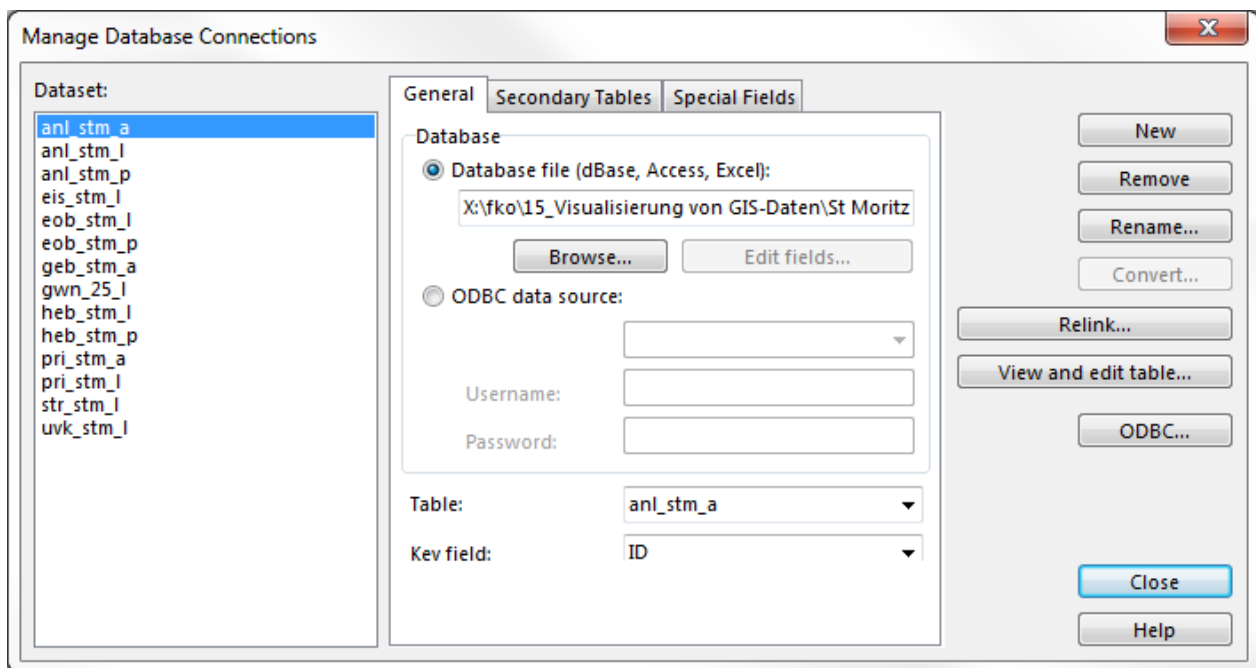
When a database connection is newly created, OCAD displays a dialog after closing the **Manage Database Connections** dialog. You can check two options in this dialog:

- **Delete Database Record when Deleting Object**
- **Create Database Record when Cutting Object**

General Settings for the Selected Dataset

The first of the three tabs in the **Manage Database Connections** dialog is about general settings of the currently selected dataset. In the first part the source of the database is given. It can be either a **Database file** or an **ODBC data source**. Click the **Edit Fields...** button to edit the fields of the selected dataset (only available for dBase format).

In the lower part of this tab, the **Table** which contains the desired information can be chosen. Define a **Key field** so that OCAD can identify the record. This field is mostly named **ID**.

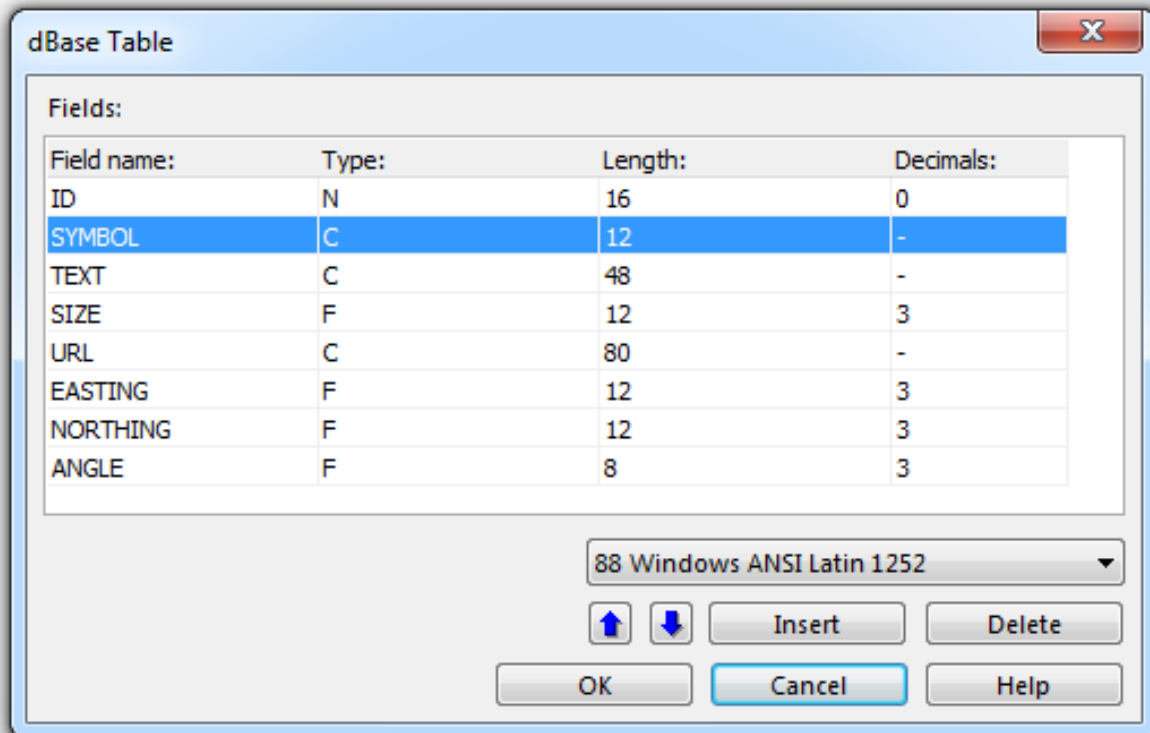


dBase

When OCAD is connected with a dBase table there are additional functions available. In dBase each table is a file. It is possible to edit field settings within OCAD. If a dBase table is loaded, the **Edit fields** button is enabled in the **General** tab of the **Manage Database Connections** dialog. Click it to open the **dBase Table** dialog.

💡 OCAD can only link dBase files in the 32 bit version. In 64 bit version a warning appears when opening the ocd file. The warning can be switched on/off in the Preferences in the submenu **Warnings**.

💡 You can convert these databases to Microsoft Access in the **Manage Database Connections** dialog with convert or open this ocd file in OCAD in 32 bit version.



This dialog box lists the fields of the dBase table. Each field is displayed in a line. There are several functions available:

- **Name:** Enter here the name for the field. The name must start with a letter and may contain up to 10 letters and numbers. Letters are converted to capital letters.
- **Type:** Choose either **Character (C)**, **Number (N)** or **Float (F)** as a field type.
- **Length:** Enter here the number of characters for the field.
- **Decimals:** This field is only active if the data type is **Float**. Enter the number of decimals.
- **Move Up:** Click this icon to move the selected field one line upwards.
- **Move Down:** Click this icon to move the selected field one line downwards.
- **Insert:** Click this button to add a field. After adding the new field, the dBase table is restructured. Existing information is preserved.
- **Delete:** Click this button to delete the selected field.
- **Character encoding:** A character encoding type can be chosen in the corresponding dropdown list.

💡 If you do not have installed the **Borland Database Engine (BDE)**, only filenames with less than 8 characters are allowed (Example: 'test5678.dbf'). Click the **Map Information** command in the **Map** menu to see, if the **Borland Database Engine** is installed or not. It can be downloaded from the internet for free.

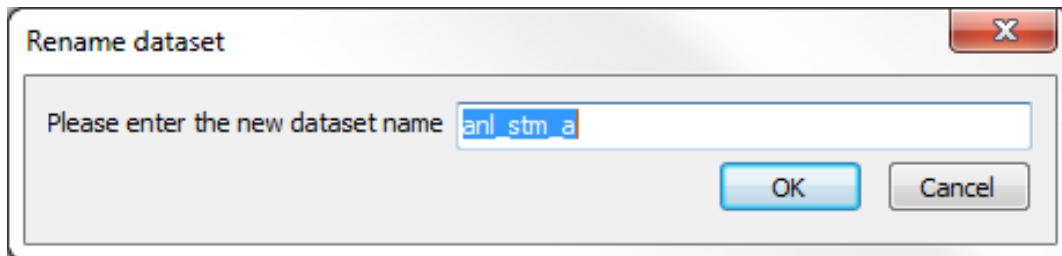
Remove

With this function, you can remove the selected dataset.

Rename

This function allows you to change the selected dataset name.

1. Choose your dataset, which you want to rename.
2. Click on the "Rename..." Button.

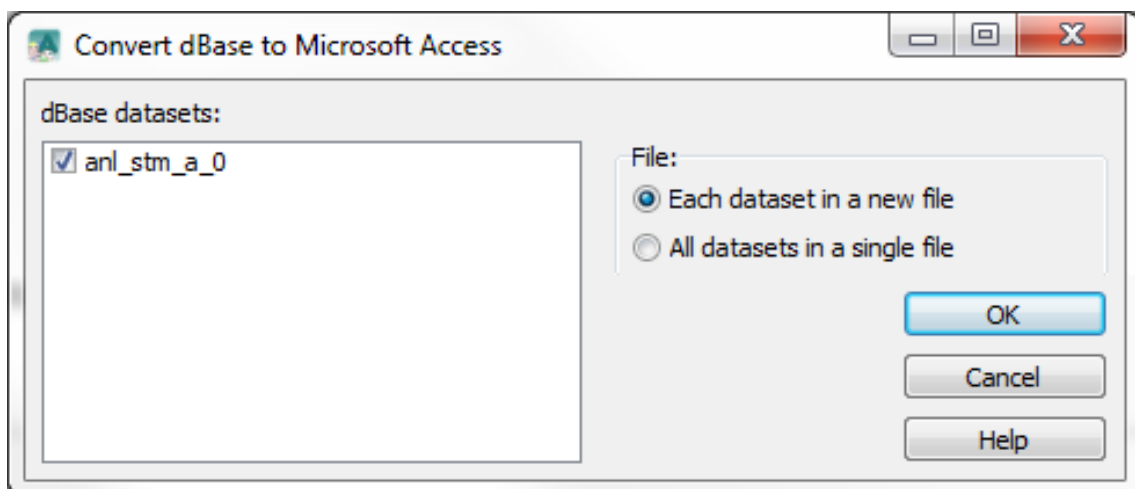


3. Enter the new dataset name.
4. Click on the "OK" Button.

Convert

It allows you to convert your datasets to Microsoft access either each as single file or all datasets in one file. This works only if your datasets are in dBase (*.dbf).

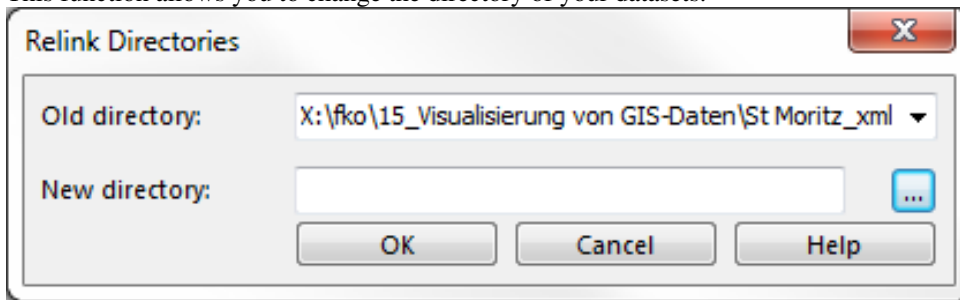
1. Get to **Manage Database Connections** in Database.
2. Click on the "**Convert**" Button and the Convert dBase to Microsoft Access dialog opens.



3. Pick your datasets, which shall get converted and if each dataset shall be in a new file or all datasets in a single file.
4. Click on "OK" to end the process.

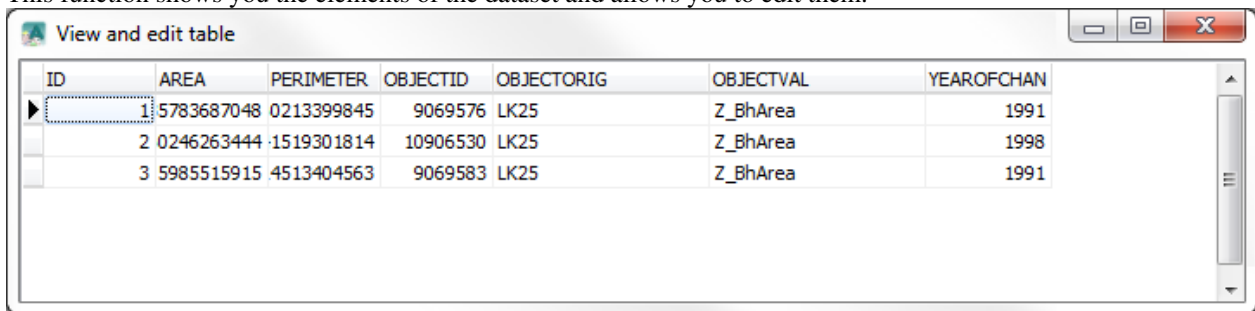
Relink

This function allows you to change the directory of your datasets.



View and edit table

This function shows you the elements of the dataset and allows you to edit them.



ODBC

You can access to databases via **ODBC** ^[4] (Open Manage Database Connection). This is an interface to connect to all kind of databases.

Click the **ODBC** button in the **Manage Database Connections** dialog to create a new ODBC data source or to modify an existing data source. The **ODBC Data Source Administrator** is started. This is a Microsoft program and contains its own online help. Here are just some hints: Normally you create a new User DNS.

For a connection to an **Excel** file, you select the Excel driver and the Excel (*.xls) file.

For a connection to an **Access** database, you select the Access driver and the Access (*.mdb) file.

For a connection to a **flat file** database like dBase you do not select the dBase file. Instead you select the folder where the dBase file is.

Create and Edit Secondary Tables

Secondary tables are tables which are linked to a field in the primary table. This is especially useful, when additional information is added. For example, imagine a map with all real estates of a village. Then, each owner would get a number, which is stored in the primary table. The secondary table would be linked to this number and would contain all names, addresses and contact information of the owners. If an owner changed his contact information, you would update the changes in the secondary table, which would have an effect on all his real estates.

In OCAD, secondary tables can be managed in the **Secondary Tables** tab of the **Manage Database Connections** dialog. Click the **Add** button to add a new one. The **Secondary Table** dialog appears. First, you have to define the **Reference field in the primary table**, which is the field, the secondary table is linked to. Then, choose the secondary table which must be in the same dataset. Finally, define a **Key field** for the secondary table and click the **OK** button.

Click the **Edit** button to change the settings of the secondary table.

Click the **Remove** button to remove the selected secondary table.

Fields which are linked to a secondary table are indicated with an asterisk (see below).

Dataset: Dataset_1		
<div>LinkFindSQL query</div>		
ID	K	1
SIZE	S	724
OWNER	*	29
XCOORD	S	754870
YCOORD	S	233386
TYPE		Private Building Area

Click the asterisk to display the secondary table:

Secondary Table - Address

ID	3
STREET	Sample Street
NUMBER	12
TEL	24
MOBILE	0041790000000
EMAIL	john@ocad.com
NAME	Sample
PRENAME	John

OKCancel

Dataset: Dataset_1

LinkFindSQL query

ID	K	1
SIZE	S	723
OWNER	*	3
XCOORD	S	754870
YCOORD	S	233386
TYPE		Private Building Area 1
URL		

Define Special Fields

Open this tab to define special fields. Special fields are automatically updated in the database when a modification to the object in the map is made. However, it does not work in the other direction. If you change such a field in the table, the object is not updated.

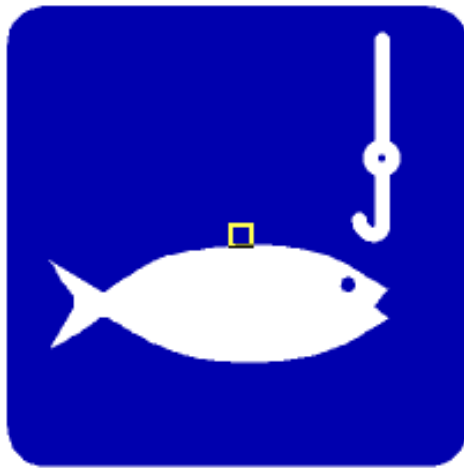
OCAD provides the following special fields:

- **Symbol field:** The symbol number of the object is automatically copied to the database field which you have chosen in the dropdown list. It is possible to let new symbols get assigned, when the field value is changed.
- **Assign new symbol when changing field value:** When changing the symbol number in the database field then OCAD change the symbol of the linked object.
 - Example:
 - Object is assigned to symbol number 900.002.



Dataset: Dataset_1		
<div>LinkFindS</div>		
ID	K	1
SYMBOL	S	900.002
TEXT	S	
SIZE	S	0
URL		
EASTING	S	14.28
NORTHING	S	5.87
ANGLE	S	0

- When changing the symbol number to 900.003 in the database box then OCAD changes the symbol.



Dataset: Dataset_1		
<input type="button" value="Link"/> <input type="button" value="Find"/>		
ID	K	1
SYMBOL	S	900.003
TEXT	S	
SIZE	S	0
URL		
EASTING	S	14.28
NORTHING	S	5.87
ANGLE	S	0

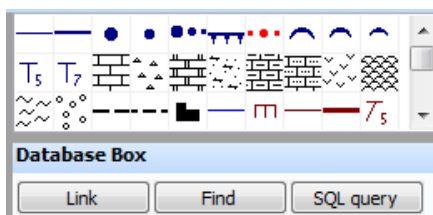
- **Text field:** For text and line text objects, the text of the objects is automatically copied to the database field which you have chosen in the dropdown list. For multiline text, only the first line is copied.
- **Size field:** The size of the object is automatically copied to the database field which you have chosen in the dropdown list. For line objects the length and for area objects the area is taken. Adjust the units in the corresponding fields as well as the number of decimals.
- **Easting:** For point objects the horizontal coordinate is copied to the chosen database field. For line, area and text objects it is the horizontal coordinate of the start point.
- **Northing:** For point objects the vertical coordinate is copied to the chosen database field. For line, area and text objects it is the vertical coordinate of the start point.
- **Angle:** For point and text objects the angle is copied to the chosen database field.
- **Date:** The date of the object is automatically copied to the database field which you have chosen in the dropdown list. It's value get's adjusted, whenever you change the object.

Database Box

Pro

Link Object

When the map was connected to a database, the **Database Box** appears below the **Symbol Box**.

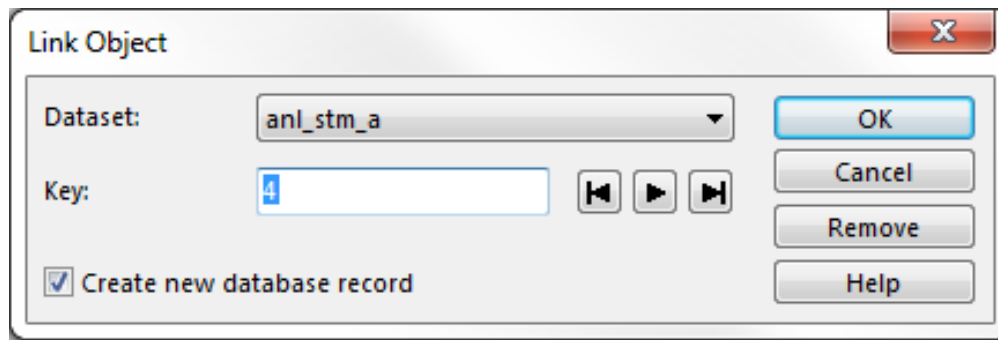


The **Database Box** is shown right below the **Symbol Box** by default. Only one row of the **Symbol Box** is visible.

To move the **Database Box** down, simply click and drag the grey bar between symbol and database box down.

To link an object:

1. Select the object which you want to link to a record.
2. Click the **Link** button in the **Database Box**.
3. The **Link Object** dialog appears.



4. Select the dataset which contains the desired record.
5. Enter a key. This number is used for the key field. Unless you make any changes, OCAD takes always the next free integer.
6. Check the **Create new record** option. If the object is to be linked to a record which already exists, uncheck this option and enter the key of the record.
7. Click the **OK** button.
8. The **Record** is shown in the **Database Box** now.

To remove a link:

1. Select the object which the link is to be removed from.
2. Click the **Link** button in the **Database Box**.
3. The **Link Object** dialog appears.
4. Click the **Remove** button.
5. The link is removed from the object but the record is not deleted from the table.

Learn how to link multiple objects to records in the **Create and Update Records** article.

Records in OCAD

This is how a record looks in the **Database Box**:

Dataset: Dataset_1		
Link Find SQL query		
ID	K	1
SIZE	S	724
OWNER	*	29
XCOORD	S	754870
YCOORD	S	233386
TYPE		Private Building Area
URL		http://www.ocad.com

The **Key field** is indicated with a **K** behind the field name. A **S** means, that this is a **Special Field**. A link to a **Secondary Table** is indicated with an asterisk. If no sign appears in this column, it is just a normal field.

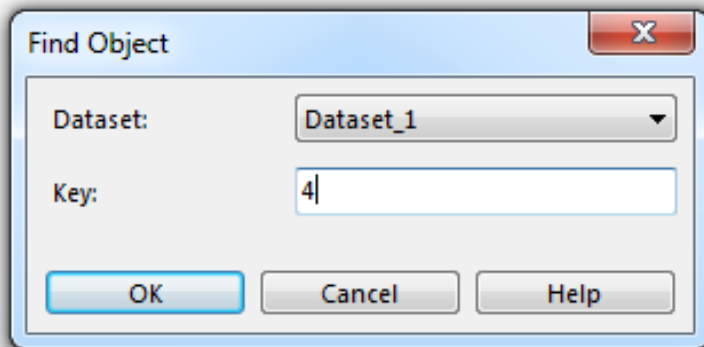
It is possible to open an URL directly from the **Database Box**. Press the **Ctrl** key and click the field. OCAD opens the URL in the web browser. This works for local files (for example a picture), too:

Dataset: Dataset_1		
Link Find SQL query		
ID	K	2
SIZE	S	702
OWNER	*	12
XCOORD	S	754900
YCOORD	S	233442
TYPE		School
URL		D:\tmp\School.JPG

OCAD opens the file in the default program.

Find Object

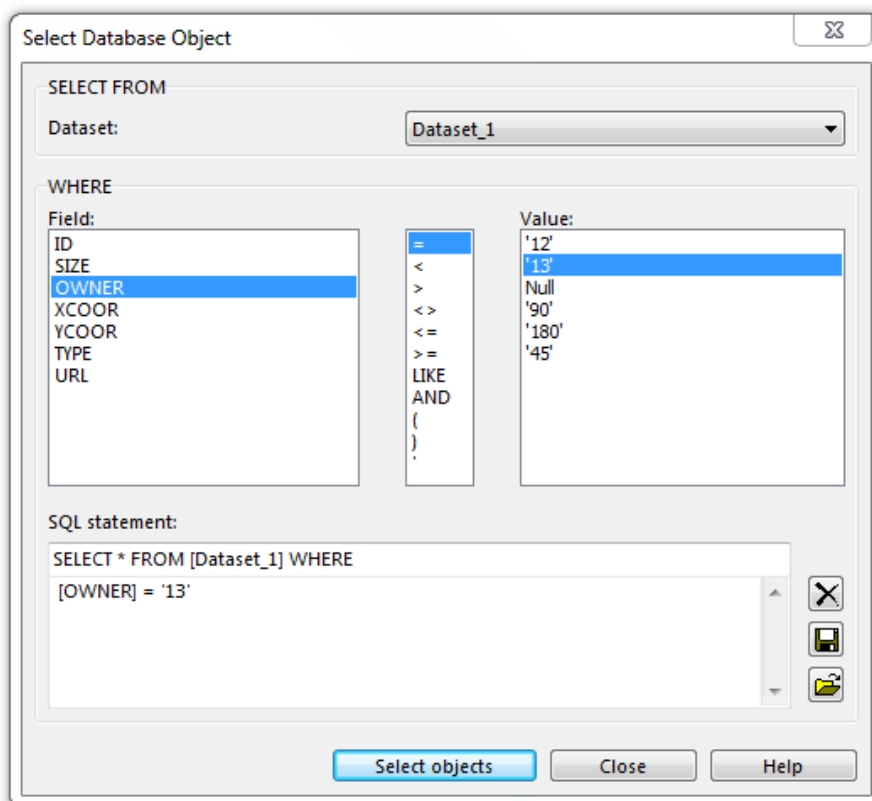
Find an object with help of the key by clicking the **Find** button in the **Database Box**. The **Find Object** dialog appears.



Select a dataset and enter the key. Click the **OK** button. OCAD will display the record in the **Dialog Box** and will move the view to the corresponding object. Furthermore, the object will be selected.

SQL Query

Click the **SQL Query** button to select database objects by a certain criteria. The **Select Database Object** dialog appears.



In the **SELECT FROM** part of the dialog, choose a dataset.

In the **WHERE** part you can give a condition:

Field: Choose a field of the selected dataset. When you double-click a field name it is added to the **SQL statement** box.

Operator: Select an operator. When you double-click an operator it is added to the **SQL statement** box.

Value: Select a Value. When you double-click a value it is added to the **SQL statement** box.

The **SQL statement** should always contain the components **FIELD - OPERATOR - VALUE** (example: Length > 430). An **SQL statement** can be **cleared**, **saved** or **loaded** by clicking the corresponding button to the right of the **SQL statement** box.

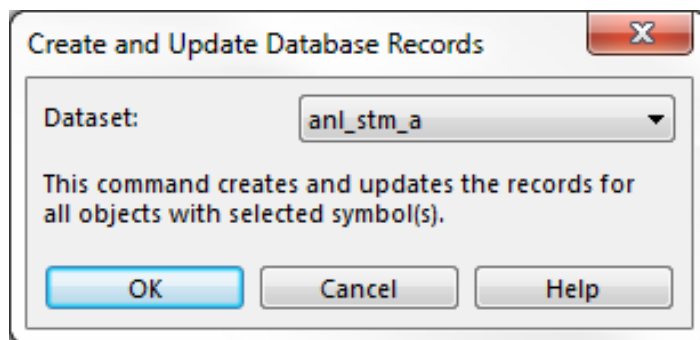
Click the **Select** button to start the database query. The found objects are selected and the corresponding records are displayed in a table.

Create and Update Database Records

Pro

With this function, new records can be created or updated for all objects with the selected symbol:

1. Choose the **Create and Update Database Records** command in the **Database** menu.
2. The **Create and Update Database Records** dialog appears.



3. Select the **Dataset** the records are to be created in and click the **OK** button.
4. New records are created and linked to all objects with the selected symbol(s). The next free integers are used for the key fields. If they are already linked to records, the records are updated. **Special Fields** are updated automatically.

As an example, assume that you want to create an **OCAD Internet Map** with a street find function. All street names must be linked to the database. OCAD provides a simple way to create these links.

1. Make sure you have enabled the **Special Fields** for text.
2. Select all symbols which are used for street names.
3. Choose the **Create and Update Records** command from the **Database** menu.
4. Select the dataset and click **OK**.

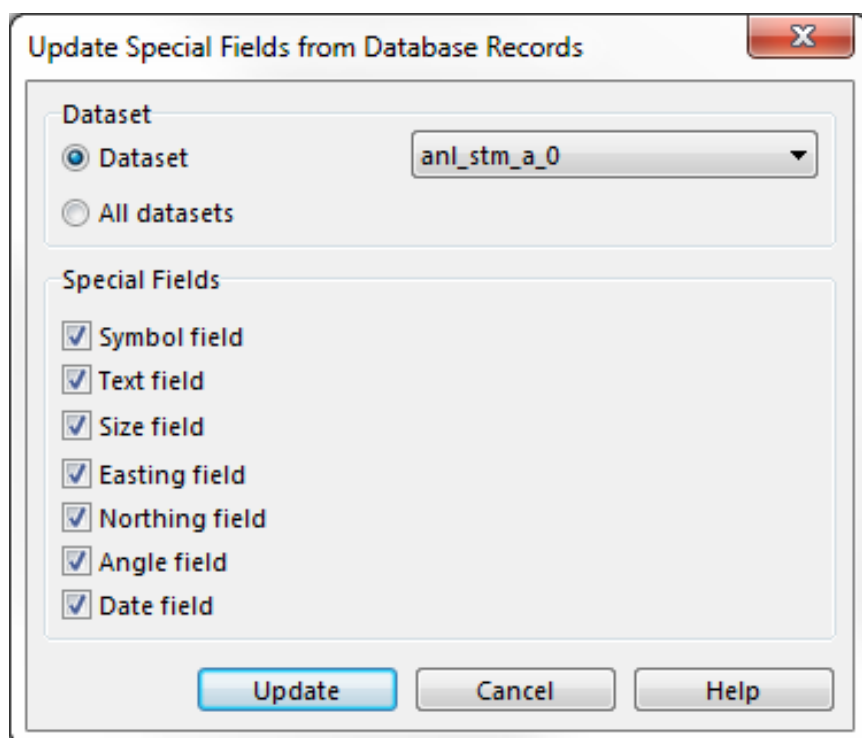
Now all street names are linked to a record which contains the street name itself as a field.

Update Special Fields from Database Records

Pro

Special Fields are only updated automatically when the linked object is edited. When objects are linked to a database and the database is edited with another program, the **Special Fields** are not updated, until you use the **Update Special Fields from Database Records** function in the **Database** menu. The same applies for fields which were edited manually in OCAD.

1. Choose in the **database** pannel **Update Special Fields from Database Records** and the dialog opens.

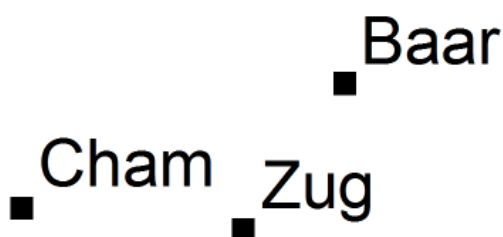


2. Select a dataset or choose the **All datasets** option.
3. Then, check all special fields you want to update and click the **Update** button.

Create Objects from Database Records

Pro

	A	B	C	D
1	ID	NAME	XCOOR	YCOOR
2		1 Cham	677840	226000
3		2 Zug	681670	224700
4		3 Baar	682500	228000



With this option, objects can be created with location and text data from the database.

1. Select the symbol the new objects shall get. This must be a point or a text symbol.
2. Choose the **Create Objects from Database Records** command in the **Database** menu.
3. The **Create Objects from Database Records** dialog appears.

Create Objects from Database Records

Dataset: anl_stm_a

Coordinates

Easting: [dropdown]

Northing: [dropdown]

Unit of measure: ☒ m ☐ km

Text field: [dropdown]

Assign symbol

☒ Selected symbol: Condition: [text field]

☐ Condition table CNT file: [button]

Offset

Horizontal offset: 0.00 mm

Vertical offset: 0.00 mm

OK Cancel Help

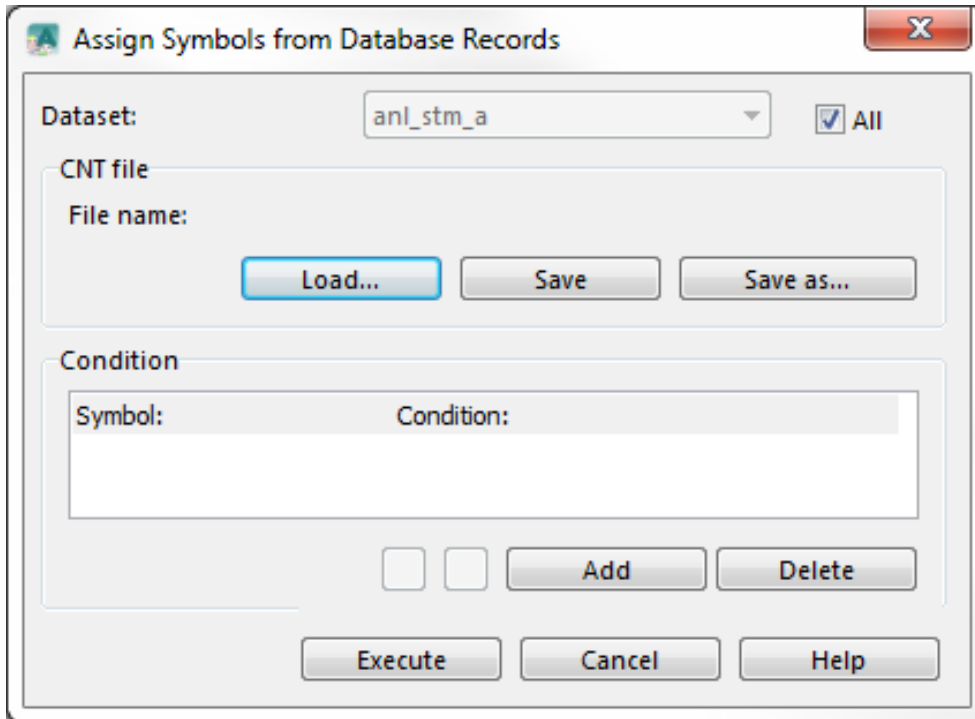
4. Select the dataset which contains the information the object is to be created with.
5. Select the field for the **Easting** and **Northing** which determines the position of the new object.
If the dataset is a line text object with two points (P1,P2), P1 has the coordinates of the Easting and Northing fields. The length of the line text is added to the P2 easting coordinate.
6. Choose between **m** and **km** as a unit of measure.
7. If a text symbol was selected in the beginning, you have to select a text field. The content of the text field is used as the text of the OCAD object.
8. Enter a condition. This condition must be an **SQL statement**: FIELDNAME OPERATOR VALUE (Examples: SIZE > 500, City='Baar'). If this field is empty, all records in the table get an object on the map.
9. You can give a horizontal and vertical offset. This is useful for example when you want to import city names. First create a point object for each city, then create a text object with the city name with an offset, so that the name does not overlap with the point object.
10. Finally, click the **OK** button.

Assign Symbols from Database Records

Pro

After importing for example a Shape file the objects have no symbol assigned and appear as **Unsymbolized Objects**. With this command you can use the information in the database table to assign OCAD symbols to the objects.

Choose the **Assign Symbols from Database Records** command in the **Database** menu. The **Assign Symbols from Database Records** dialog appears.



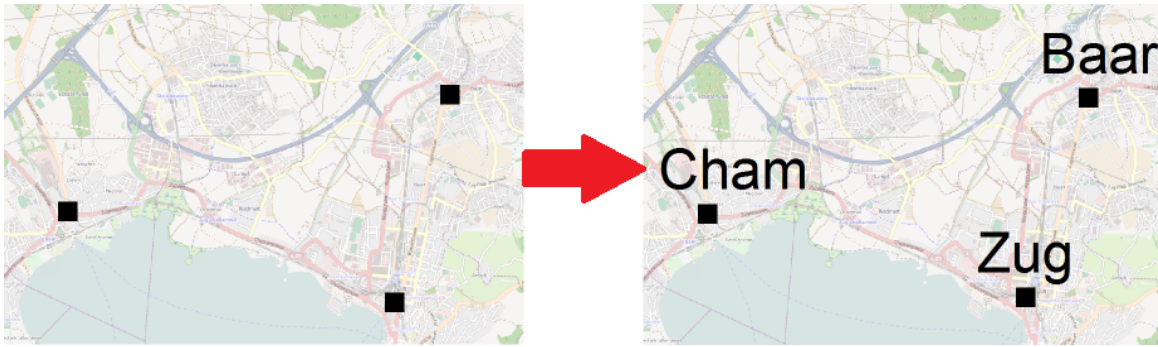
In this dialog box you can create a list of conditions. You can save the list to a condition file (*.cnt) for later use. You can load an existing condition file to modify or execute it. You have the following possibilities in the **Assign Symbols by Records** dialog:

- **Dataset:** Select here the dataset which should be used to assign symbols. Check **All** to execute the condition for all datasets.
- **Load:** Click this button to load an existing condition file (*.cnt).
- **Save:** Click this button to save the changes to a condition file (*.cnt).
- **Save as:** Click this button to save the changes to a different condition file (*.cnt).
- **Symbol:** Select here a symbol. For those objects the condition is true, the symbol number will be assigned.
- **Condition:** Enter the condition here. This must be a **SQL statement**: FIELDNAME OPERATOR VALUE (Example: TYPE = 'BUILDING').
- **Move up:** Click this button to move up the selected condition.
- **Move down:** Click this button to move down the selected condition.
- **Add:** Click this button to add a condition to the list.
- **Delete:** Click this button to delete the selected condition.
- **Execute:** Click this button to execute the assignment.

💡 **Assign Symbols from Database Records** might make slow progress for big datasets. There is an alternative for shape files by choosing the option **Use layer information from field** in the **Import Shape File** dialog and **Convert Imported Layers to Symbols...** afterwards.

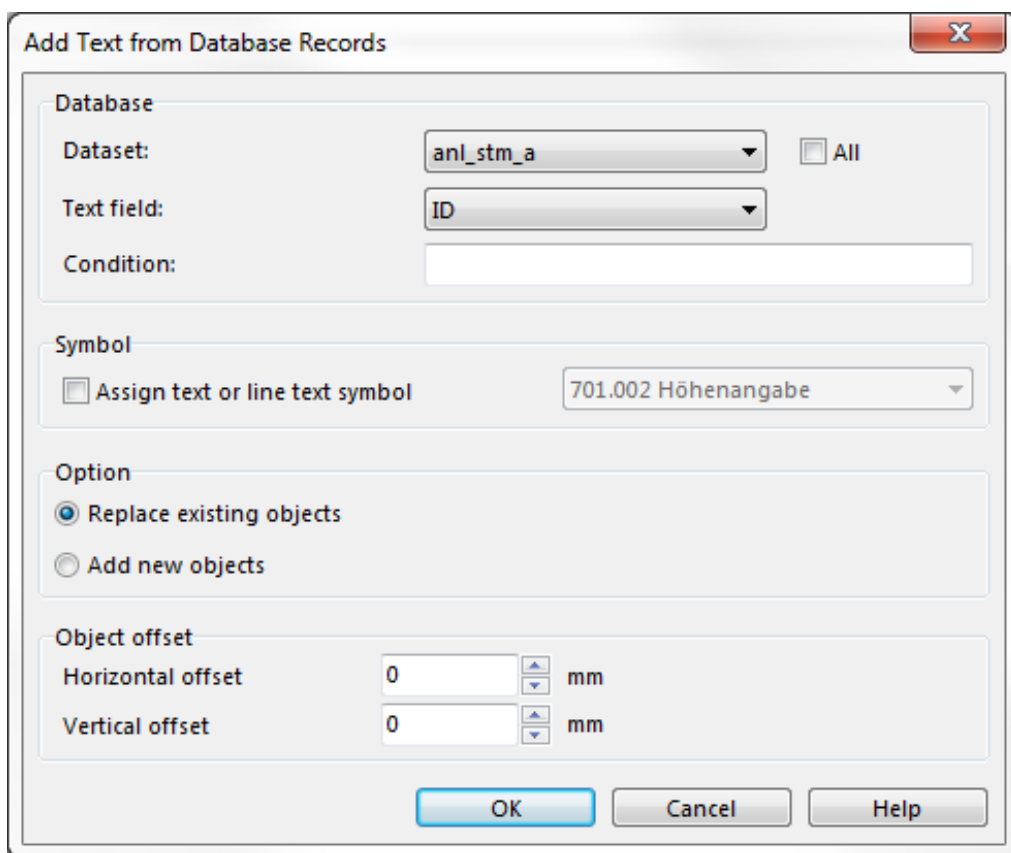
💡 If there is an apostrophe in the value then you have to add an addition apostrophe. For example: *'RIVERNAME LIKE 'Avançon'*

Add Texts from Database Records



With this function it is possible to add a text which is written in a field of a record to an OCAD object.

1. Choose the **Add Texts from Database Records** command in the **Database** menu.
2. The **Add Texts from Database Records** dialog appears.



3. Choose a **Dataset** or check the **All** option to take all datasets into consideration.
4. Choose the field which contains the **Text** to be added.
It's possible to assign a parameter condition for the text.
5. Assign a text or line text symbol. If no symbol is assigned, the text appears as **Unsymbolized Objects**.
6. You can either replace the existing objects or add new objects.
7. Enter an **Object offset** if you want to have the text slightly displaced from the existing object.
8. Click the **OK** button.

Set Object Direction from Database Records

Pro

With this function the object direction can be defined by an angle (in degrees) from a field of the database.

Choose the **Define Object Directions from Database Records** command from the **Database** menu. A dialog appears. Choose a **Dataset** in the dropdown list or check the **All** option to take all datasets into consideration. Then define the **Angle field**.

Mathematical function: Optionally you can define a mathematical function. To convert Radians to Degrees enter $*180/3.14159$.

Click the **OK** button when finished.

The following things are rotated according to the angle field:

- Text objects
- Point objects
- The pattern of area objects

OCAD does not rotate line or line text objects!

Merge Objects from Database Records

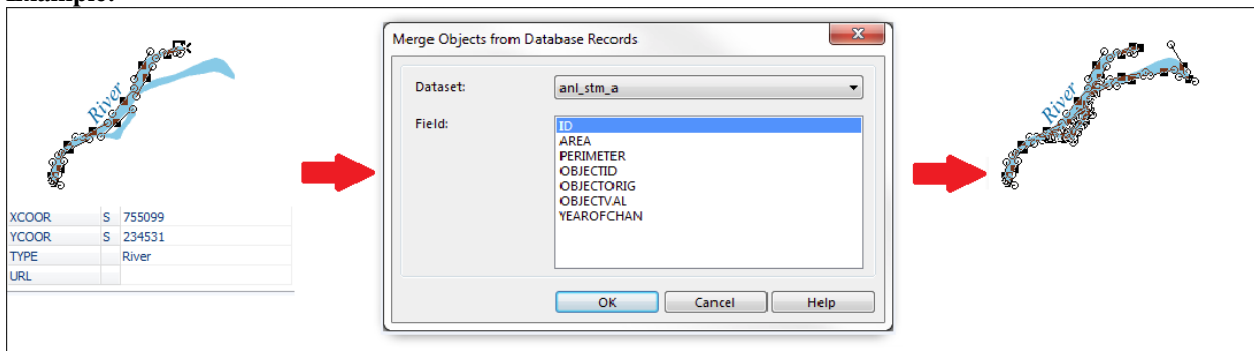
Pro

With this function, objects with the same value on a specified database field are merged. They also must have the same symbol.

Choose the **Merge Objects from Database Records** command in the **Database** menu. A dialog appears. Choose a **Dataset** or check the **All** option to take all datasets into consideration. Then choose the field with the value to be used for merging the objects. Click the **OK** button when finished.

The merged objects have to be linked again to the database.

Example:



You have different river segments on a map. Each river segment have the same river name. With the **Merge Objects from Database Records** function, they can easily be merged to one object.

Select Linked Objects

Pro

Select Objects with Database Record Links

Choose this function in the **Database** menu to select all objects with a link to an existing record.

Select Objects with Broken Database Record Links

Choose this function in the **Database** menu to select all objects which are linked to a record but the record was not found.

Select Objects without Database Record Link from Selected Symbols

Choose this function in the **Database** menu to select all objects which are not linked to a record. OCAD checks only if a record link exists. OCAD does not check if the record link is broken or not. To check if the record links are broken choose **Select Objects with Broken Database Record Links**.

Select Objects Linked to the same Database Records

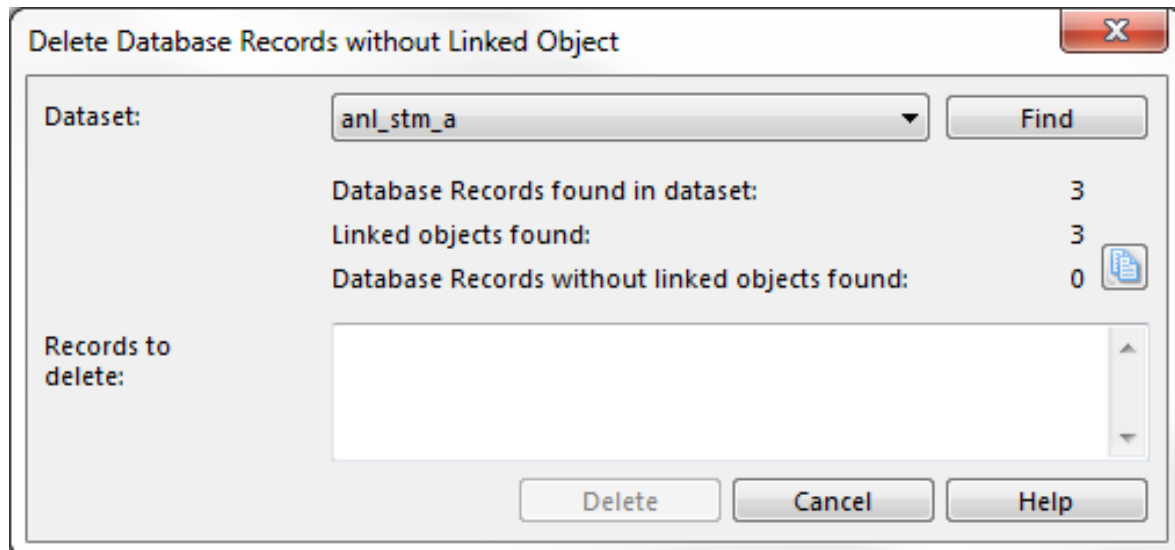
Choose this function in the **Database** menu. By choosing this function, multiple objects which link to the same record are selected.

Delete Database Records without Linked Object

Pro

Use this function to delete unused database records for example after using the Part of Map function.

Choose **Delete Records without Linked Object** in the **Database** menu. The **Delete Records without Linked Object** dialog appears.



Select the dataset and click the **Find** button. OCAD checks for

- records in the selected dataset
- links to OCAD objects found. OCAD does not check if the objects also exists.
- records in the selected dataset without a link to an OCAD object

The ids of the records without a link to an OCAD object are shown in the *Records to delete* field. Please note that only the first 100 ids are shown. For the complete list of ids please use the *Copy report to Clipboard* function.

Click the **Copy report to Clipboard** icon to copy a list with the record ids to the Windows Clipboard. You can paste this list into a text document.

Example of this report:

```
*** Records found in dataset: (35982)
198
199
200
...

*** Linked objects found: (818)
199
18421
202
...

*** Records without linked objects found: (35165)
49535
49536
49537
...
```

Click the **Delete** button to delete the records according the list from the *Records to delete* field. The number of the deleted records are shown in the left status bar during the deleting process. Press the ESC key to abort this process.



Please note that is not possible to undo this process. So please backup your database before starting the deleting process.

Options

Pro

Delete Database Record when Deleting Object

If this option is checked in the **Database** menu, the corresponding record is deleted when you delete a linked object in OCAD.

Create Database Record when Cutting Object

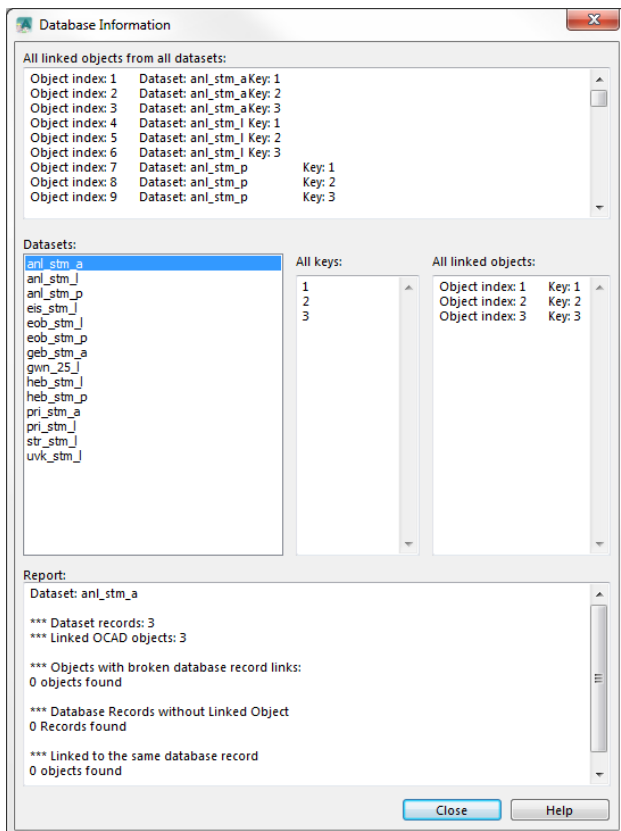
If this option is checked in the **Database** menu, a second database record is created when a linked object is cut.

Database Information

Pro

Allows you to see all the information about each dataset.

OCAD checks for invalid database links and shows these in the **Report** field when opening the dialog.



All linked objects from all datasets: Shows all objects which have link to a database records. OCAD does not check if this record really exists (broken database record links).

Datasets: Shows all datasets. Click on a dataset to load the data for this dataset.

All keys in database: Shows all keys from the chosen dataset. This list shows also keys from database records which are not linked with OCAD objects.

All linked objects: Shows all objects which are linked with the chosen dataset. OCAD does not check if this record really exists (broken database record links).

Report: Shows a report about the chosen dataset.

Database Compatibility

OCAD checks the compatibility of the dataset. OCAD 12 exists in two different as 32 bit and 64 bit versions.

Microsoft Excel/Access

OCAD 64 bit version cannot connect to Microsoft Excel/Access if the 32 bit version of Microsoft Access Database Engine is installed. The same with 64 bit Microsoft Access Database Engine and OCAD 32 bit version.

In this case use the same OCAD version as installed Microsoft Access Database Engine.



You can switch on/off this warning in the Preferences in the submenu **Warnings**.

[Back to Main Page](#)

[Previous Chapter: GPS](#)

[Next Chapter: Thematic Map](#)

References

- [1] <http://en.wikipedia.org/wiki/DBase>
- [2] http://en.wikipedia.org/wiki/Microsoft_Access
- [3] http://en.wikipedia.org/wiki/Microsoft_Excel
- [4] <http://en.wikipedia.org/wiki/ODBC>

Thematic Map

OCAD ThematicMapper has been developed in a joint project of the OCAD Inc. and the Institute of Cartography and Geoinformation at ETH Zurich. As a core of the new application a **step-by-step wizard guides - considering established cartographic rules - through the process of creating thematic maps**. The wizard supports the user from the data analysis to the thematic symbolization and visualization. The OCAD ThematicMapper opens the OCAD software for the broad scope of thematic statistical maps ^[1].

OCAD ThematicMapper supports **numerous visualization methods for point-like, linear and area-based representations** like proportional symbols, lines and arrows as well as choropleths ^[2] or various types of charts such as bar charts, pie charts ^[3] and wing charts. These can be divided into groups for example, to make comparable the consumption of different energy sources of two years.

Create a Thematic Map



You can get access to the **Thematic Map Wizard** by opening a **New File** with choosing **Thematic Map** as a **map type** (this is done silently in the OCAD ThematicMapper edition) or by clicking **Create with Wizard...** in the **Thematic Map** menu. It opens the *Welcome page* of the wizard with an overview of the **six steps** to create a thematic map.

Requirements

OCAD ThematicMapper module requires the **Borland Database Engine** ^[4] and the **Microsoft Access Database Engine** ^[3]. See also system requirements.

Welcome Page

Add a new theme

Choose the **Add new theme to the map** option and enter a name for the theme (ex. population change). It is possible to load the wizard settings with the **load settings from xml file** option if you have already created thematic maps with the Thematic Map Wizard. The xml file can be chosen with the **...** button.



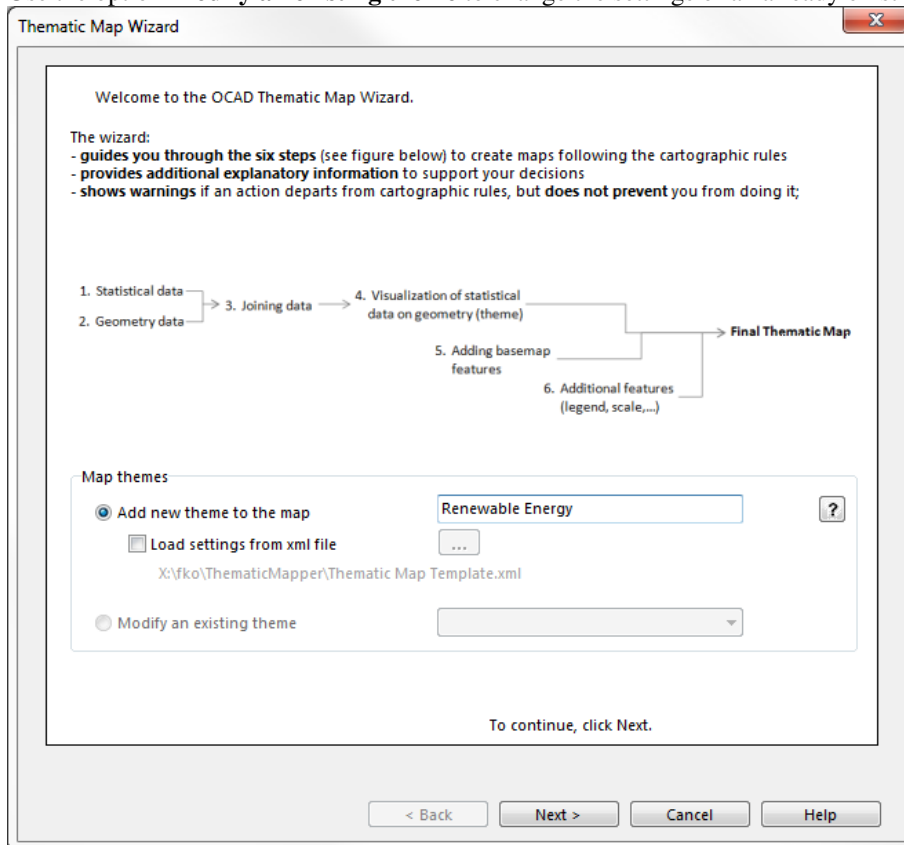
A map can have more than one theme (ex. choropleths + proportional symbols).



The next button is only active if a theme name is set.

Modify an existing theme

Use the option **Modify an existing theme** to change the settings of an already existing theme in your map file.



Step 1 - Statistical Data

1. Load statistical data from a file (*.xls, *.csv, *.dbf or *.txt).



The statistical data should be complete and accurate.



Select a table (sheet) if an Excel file is loaded.



It's possible to view the table with the  lense icon.



The statistical data should have a common field with the attribute table of the geometry data, in order to be joined later.

2. Select attributes to visualize either by double click, drag and drop or selecting them and pressing the [>]-button.



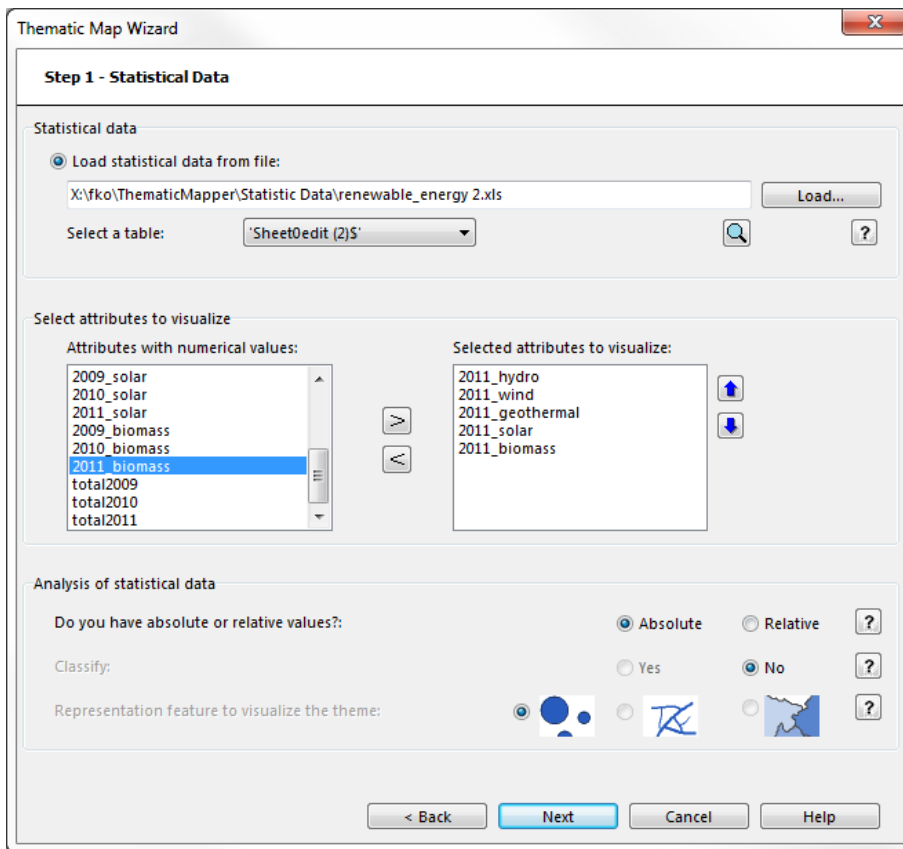
Remove attributes from the selection by double click (in the box *Selected attributes to visualize*), drag and drop or selecting them and pressing the [<]-button.

3. Define if the attribute values are *absolute* or *relative* and if they shall be *classified* and choose the *representation feature* to visualize the theme.



The *Classify* and the *representation feature* option are disabled if more than one attribute is chosen.

4. Click the **Next** button to go on with Step 2.



Step 2 - Geometry

1. Load the geometry data from shape (*.shp) file.

💡 It's possible get a data preview. The *Geometry Data Viewer* is opened by clicking on the 🔍 lense icon. Switch between the *Geometry* and the 'attribute(s) tab to view the map or the attribute table.

2. Set map scale and map size.

💡 The map scale and the map size are linked by default. Click the **Keep ratio between map scale and map size** 🔗 button to disable the ratio fixation.

3. Select a coordinate system.

💡 By default the coordinate system of the template file (loaded during the *New File* process) is set.

The template file is loaded from: OCAD program path -> *symbols\Thematic Map.ocd*. Select another one by clicking on the **Choose** button.

1. Click the **Next** button to go on with Step 3.

Thematic Map Wizard

Step 2 - Geometry

Geometry data

Based on the representation feature selected in step 1, geometry data with **point** or **polygon** features should be

☒ Load geometry data from file

X:\fko\ThematicMapper\Geometry\europa.shp

Attribute table: europa.dbf

Easting extent: -2781973 .. 4868105 (7650 km)

Northing extent: 3548449 .. 11917287 (8369 km)

Map scale

Map scale 1 : 10'000'000

Map size

Width 765 mm

Height 837 mm

☒ Preserve width/height ratio



Coordinate system

Pseudo-Mercator

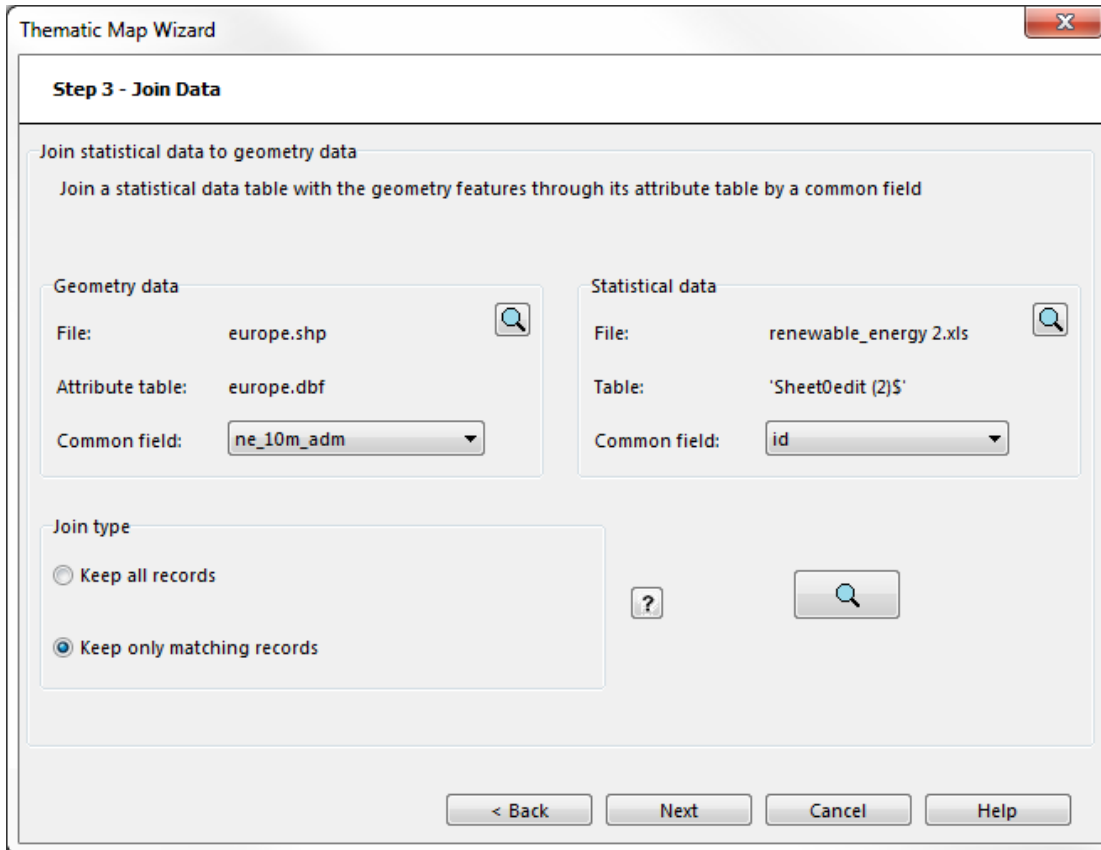
< Back **Next** Cancel Help

Step 3 - Join Data

1. Choose a common field in both tables.

 Click on the  lense icons to view the tables, if you are not sure which fields have common values.

2. Decide between the options **Keep all records** (Left outer join) or **Keep matching records** (inner join).
3. Click the **Next** button to go on with step 4.



The screenshot shows the 'Thematic Map Wizard' window at 'Step 3 - Join Data'. The title bar says 'Thematic Map Wizard' with a close button. The main area is titled 'Join statistical data to geometry data' and contains the instruction 'Join a statistical data table with the geometry features through its attribute table by a common field'. There are two main sections: 'Geometry data' and 'Statistical data'. In the 'Geometry data' section, 'File' is 'europe.shp', 'Attribute table' is 'europe.dbf', and 'Common field' is 'ne_10m_adm'. In the 'Statistical data' section, 'File' is 'renewable_energy 2.xls', 'Table' is ''Sheet0edit (2)\$'', and 'Common field' is 'id'. Below these sections is the 'Join type' section with two radio buttons: 'Keep all records' (unselected) and 'Keep only matching records' (selected). There are also two buttons with magnifying glass icons, one with a question mark icon, and a '< Back' button. At the bottom are 'Next', 'Cancel', and 'Help' buttons.


Step 4 - Visualization of map's theme

Step 4.1: Choose a Visualization Method

1. Choose a visualization method that is suitable for the chosen data. The wizard suggests the most appropriate method(s) according to the choices done in **Step 1**.
2. Click the **Next** button to go on with step 4.

Step 4.1.1: Select the Chart Properties (Only for charts)

1. **Grouping:** Choose if the attributes shall be divided into groups.

 The grouping option is only enabled if the number of selected attributes allows to create groups with a constant number of attributes.

Select the **Divide attributes to several groups** option if they attributes should be divided to several groups.

Click on the ... button to open the **Define groups with drag and drop** window.

Select a number of groups and divide the attributes to the corresponding number of columns. Each column represents one group. Keep attention that have the same order of attributes.

Enter the group names in the first row.

Click **Close** to hide the **Define groups with drag and drop** window.

2. Proportionality

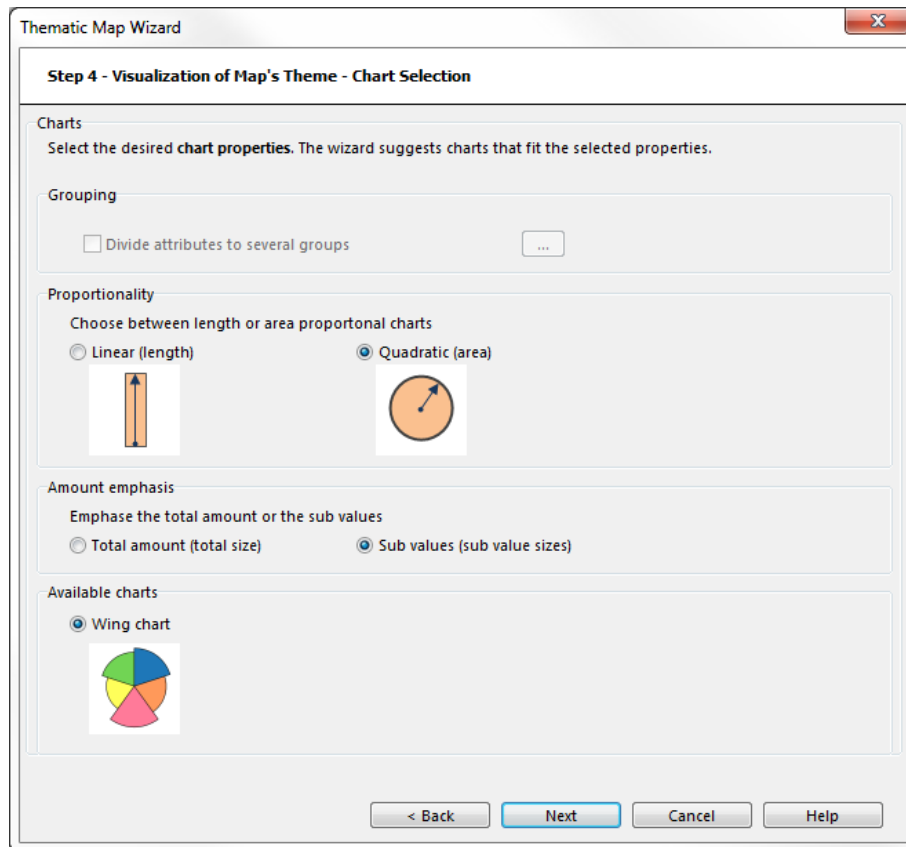
Choose if the chart size should be *Linear (length)* or *Quadratic (area)* proportional to the data values.

3. Amount emphasis

Choose between emphasizing the *Total amount (total size)* or the *Sub values (sub value sizes)*.

4. Choose one of the available charts.

5. Click the **Next** button to go on.




Step 4.2: Visualization Properties



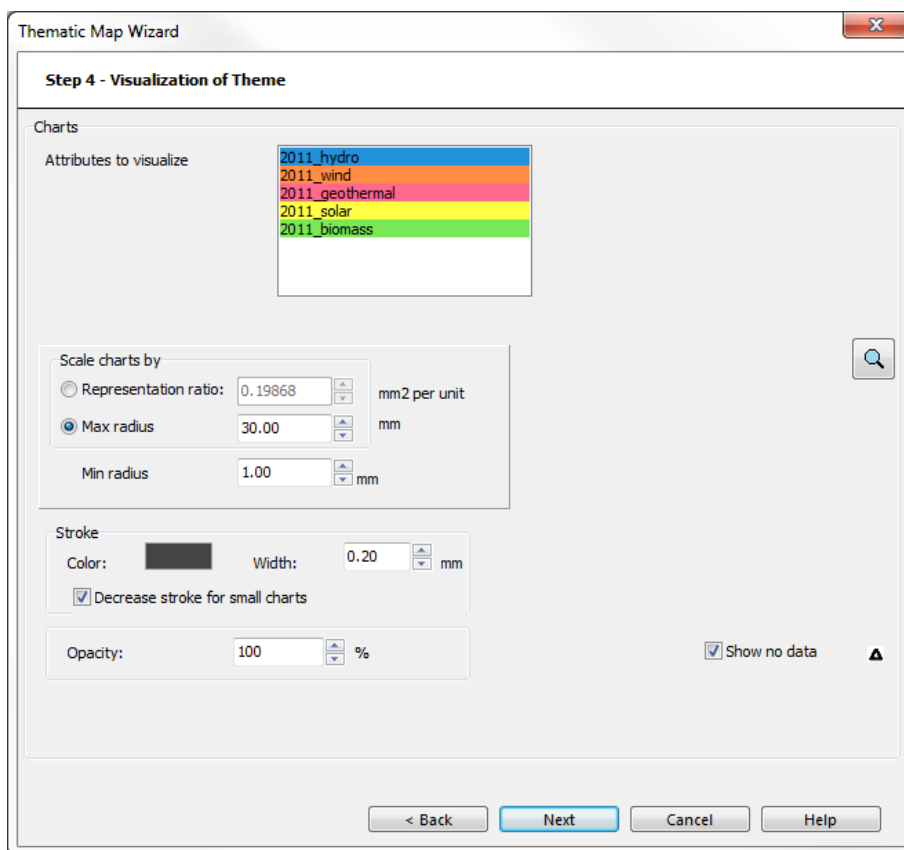
The available visualization properties depend from the visualization method chosen in step 4.1.



Click the  lense icon to show/hide the preview on the right side of the wizard.



Proportional Symbols



1. Choose a **Visualization type** like **Proportional bar**, **Proportional circle** or **Proportional square**.
2. Define the symbol color by double-clicking on the attribute(s). The color picker opens and allows to define the color either with CMYK or RGB.
3. Scale the symbol size by a **Representation ratio** or a **Maximum size** (height, radius, side length etc.). Define also a minimum size (height, radius etc.)
 1. Define a **Bar width** for the visualization type *Proportional bar*.
4. Define the **Stroke color** and **Stroke width** and if the stroke width shall **decrease** for smaller symbols.
5. Define the **Opacity** in a value range between 0 and 100%.
6. Decide if **0 values** and **no data** shall be shown.
7. Click the **Next** button to go on.



Step 5 - Visualization of Basemap

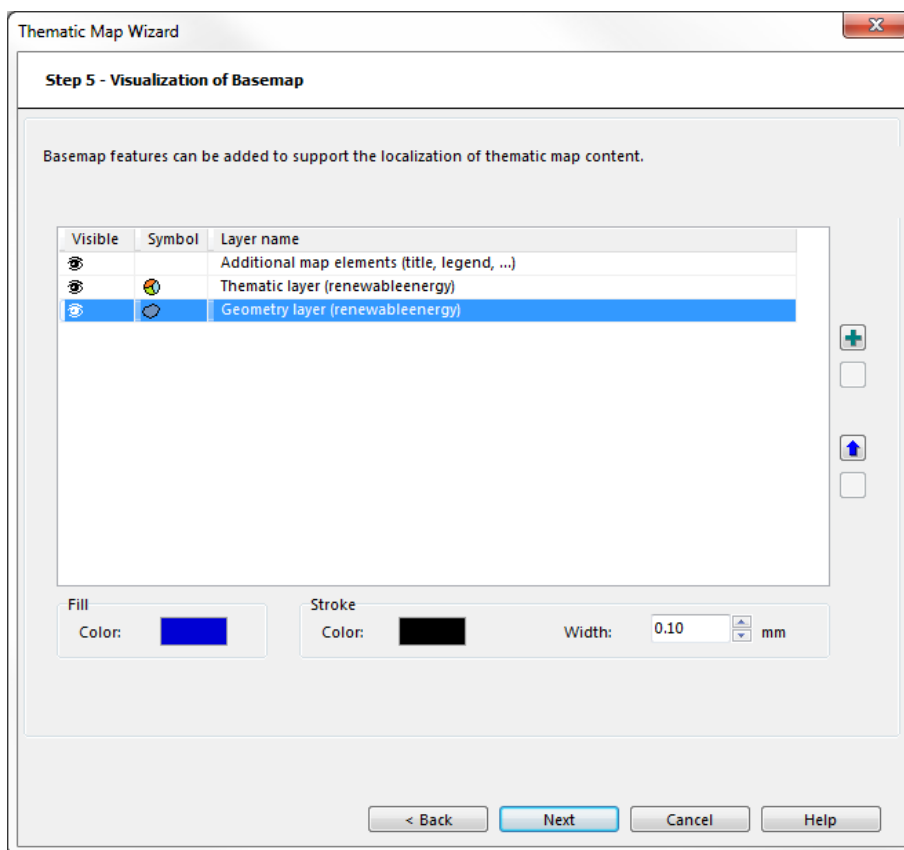
The different layers are listed in the table.

Additional basemap layers can be added  and layers can also be removed . Make sure that the basemap features are suitable for this scale.

The layer order can be changed by clicking the  and  button.

Define the visualization properties (fill color, stroke color and width) for the *geometry layer* and the *basemap layer(s)*.

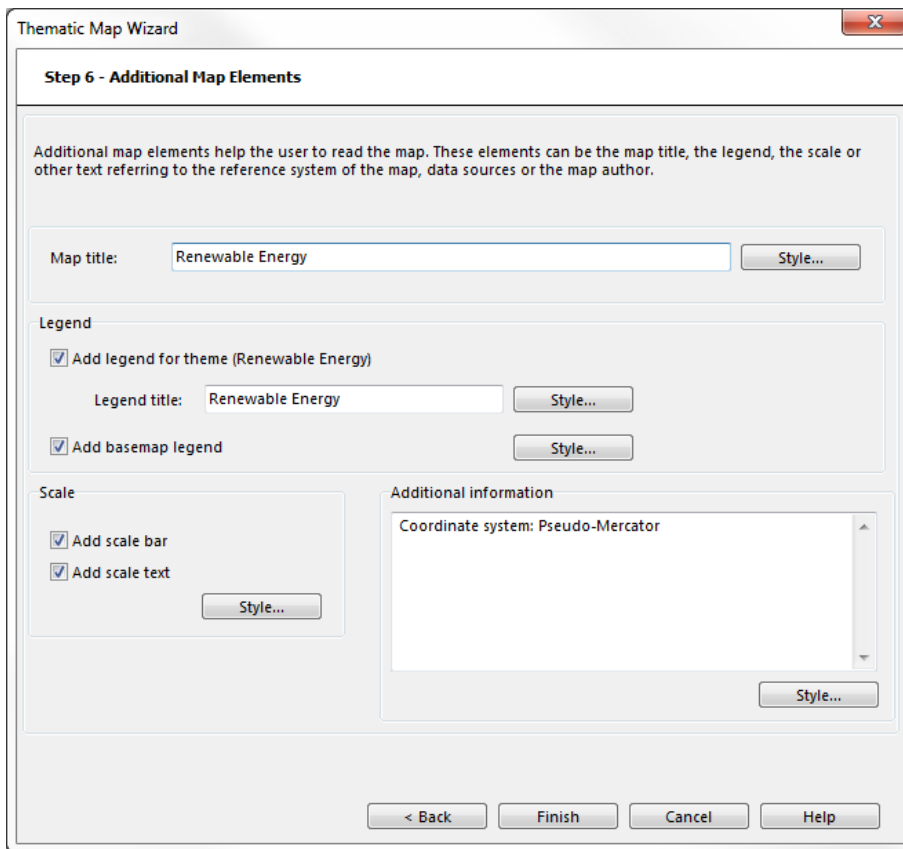
Click the **Next** button to go on.



Step 6 - Additional Map Elements

Additional map elements help the user to read the map. The elements can be moved and edited directly on the map.

1. Enter a **Map title** and define its style.
2. Choose if a **Legend for the theme** shall be added, define its title and the style.
3. Choose if a **Basemap legend** shall be added.
4. Choose if a **Scale bar** and/ or a **Scale text** shall be added.
5. Decide if you want to add any **Additional text information** by typing the text into the box.
6. Click on the **Finish** button to create the final map.



Create Thematic Maps with XML Script

OCAD XML scripts functionality does also support to **create thematic maps with xml script**

Thematic Map Samples

There are several sample maps available in the OCAD program subfolder *Samples\ThematicMapper* (usually *C:\Program Files\OCAD\OCAD 12\Samples\ThematicMapper*) as well as statistic data samples, geometry data samples and XML script samples.



Open the *sample maps* by using **Open Sample Map...** in the **File** menu.




Execute the *XML scripts* by using **Execute XML Script** in the **File** menu.

Thematic Map Tutorials

- Visualisierung von Einwohnerdaten mit proportionalen Symbolen: Download as a PDF file ^[5]. (Visualization of population data with proportional symbols)
- Visualisierung von Migrationsdaten mit proportionalen Pfeilen: Download as a PDF file ^[6]. (Visualization of migration data with proportional arrows)
- Visualisierung von Daten zur Produktion erneuerbarer Energie mit unterteilten Flügeldiagrammen: Download as a PDF file ^[7]. (Visualization of renewable energy production data with divided wing charts)

Thematic Map Videos

 [Create an Energy Production Wing Charts Map ^[8]]

 [Create a Population Change Choropleth Map ^[9]]

[Back to Main Page](#)

[Previous Chapter: Database](#)

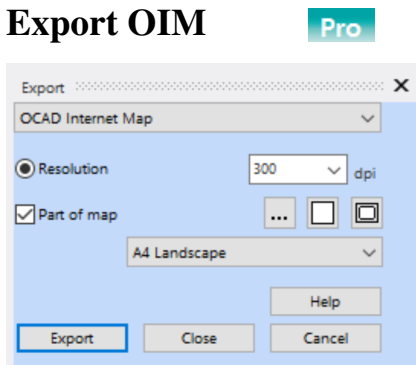
[Next Chapter: XML Script](#)

References

- [1] https://en.wikipedia.org/wiki/Thematic_map
- [2] https://en.wikipedia.org/wiki/Choropleth_map
- [3] https://en.wikipedia.org/wiki/Pie_chart
- [4] <http://www.ocad.com/download/bde.exe>
- [5] http://ocad.com/tutorials/Tutorial_ThematicMapper_Visualisierung_von_Einwohnerdaten.pdf
- [6] http://ocad.com/tutorials/Tutorial_ThematicMapper_Visualisierung_Migrationsdaten.pdf
- [7] http://ocad.com/tutorials/Tutorial_ThematicMapper_Visualisierung_Produktion_erneuerbarer_Energie.pdf
- [8] http://www.ocad.com/howtos/Create_EnergyProduction_WingChartsMap.html
- [9] http://www.ocad.com/howtos/Create_PopulationChange_ChoroplethMap.html


OCAD Internet Map

Export OIM




Choose **Export OCAD Internet Map** from **File** menu to export the map as OIM (OCAD Internet Map). With OIM you can publish big OCAD maps on internet. Additionally, it is possible to display and query Points of Interest (POI). You can insert the OCAD Internet Map to a HTML file.

- **Resolution:** Enter here the resolution for the map tiles (GIF).
- **Part of map:** Activate this check box to export a part of the map. The map section will be shown with a rectangle on the drawing window. You can alter the rectangle with the mouse.

Click the Setup button  to define the part of map to be exported by coordinates. The dialog box Setup Part of Map (Export) appears.

Click the Entire map button  to export the entire map.

Click the To current view button  to export the currently on the screen displayed map.
If this check box is not active the entire map will be exported.



It is also possible to choose a defined format like A4 landscape.

-> Click **Export**. The **Export OCAD Internet Map** dialog box appears.

OCAD Internet Map (OIM) Export Wizard

General Project Settings

- Map title - heading of the map
- Map subtitle - may be a copyright statement or similar
- Choose the favoured position of the Map tile/ Map subtitle by clicking on the corresponding button.

Base map layout:

- Base layer name - name of the map (e.g. St. Moritz - OCAD Internet Map Example)
- Edit layer enable - enables the users the ability to draw on the map
- Search with selection - search only in one POI category, for example streets
- Classic layout - use default layout for export
- Global searchbox - search for POI's (works only with PHP support)
- OCAD Slogan - displays OCAD slogan on your exported map

POI selection hint - change default label for POI selection hint

Search with selection heading - change default heading for Search with selection

Global search box heading - change default heading for Global search box

Search button (Global search box) - change default label for Search button

- Create tiles - need to be selected if the map tiles should be created, otherwise only the meta files are created

-> Click **Next**

Export OCAD Internet Map

OCAD Internet Map (OIM) Export Wizard

General project settings

Map title: St. Moritz - OCAD Internet Map Example

Map subtitle: Created with swisstopo sample data. This example can be used for test purposes o

Base map layout

Base layer name: Topographic Map

☒ Edit layer enable

☒ Search with selection

☒ Classic layout

☐ Global search box

☒ OCAD Slogan

POI selection hint: Select a POI from the map

Search with selection heading: Search for a POI (with selection)

Global search box heading: Search for a POI

Search button (Global search box): Go to location

☒ Create tiles

To continue, click Next.

< Back Next > Cancel Help

General project settings

Export OCAD Internet Map

OCAD Internet Map (OIM) Export Wizard

Zoom level settings

Zoom from: 1 Zoom to: 3

Zoom level	Map file
Zoom 0	L:\9_Lernhilfen\4_Demos\15_Visualisierung von GIS-Daten\St Moritz_oim\St Moritz Overview.ocd
Zoom 1	L:\9_Lernhilfen\4_Demos\15_Visualisierung von GIS-Daten\St Moritz_oim\St Moritz Overview.ocd
Zoom 2	L:\9_Lernhilfen\4_Demos\15_Visualisierung von GIS-Daten\St Moritz_oim\St Moritz Centre.ocd
Zoom 3	L:\9_Lernhilfen\4_Demos\15_Visualisierung von GIS-Daten\St Moritz_oim\St Moritz Centre.ocd

Relink Change Reset all to current file

To continue, click Next.

< Back Next > Cancel Help

Zoomlevel settings

Zoom Level Settings

Select **Zoom from** and **Zoom to** levels which are created. Be aware that the overview map need a zoom level 0.

Generated levels are highlighted green, not created levels are grayed out. If the file is not found it is highlighted in red.

- **Relink** - change the folder of all maps
- **Change** - change the map for the selected zoom level
- **Reset all to current file** - currently opened file is taken for all zoom levels

-> Click **Next**

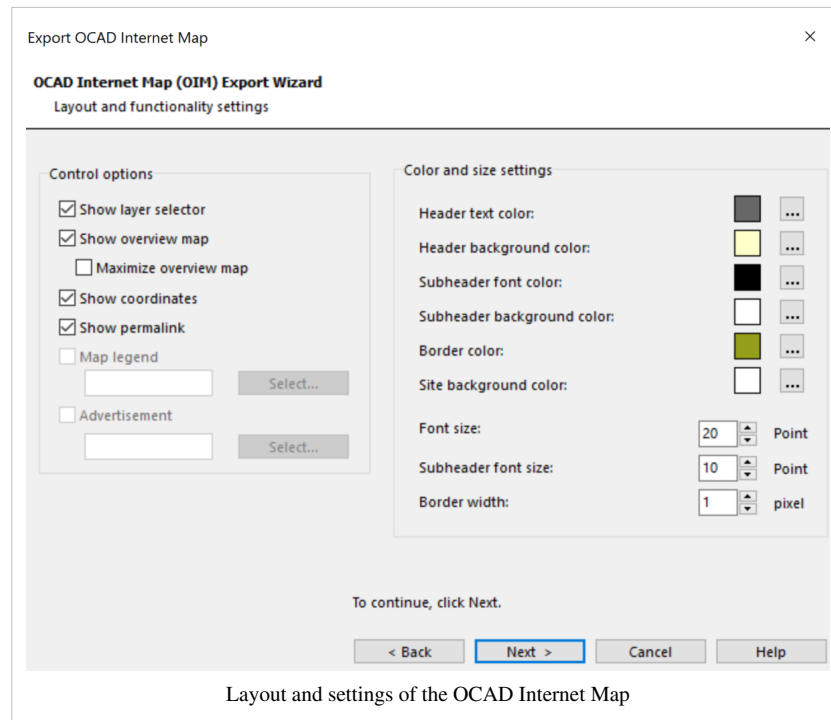
Layout and Functionality Settings

Control Options:

- Show layer selector - enables the user to select different POI groups
- Show overview map - enables the overview map feature
 - Maximize overview map - shows the map maximized by default
- Show coordinates - show coordinates in the lower right corner
- Show permalink - enables the user the ability to link to a specific zoom, map view and layers
- Map legend - if activated, you can select a file to display a map legend (jpg, png, gif)
- Advertisement - if activated, you can select a file for an advertisement (jpg, png, gif)

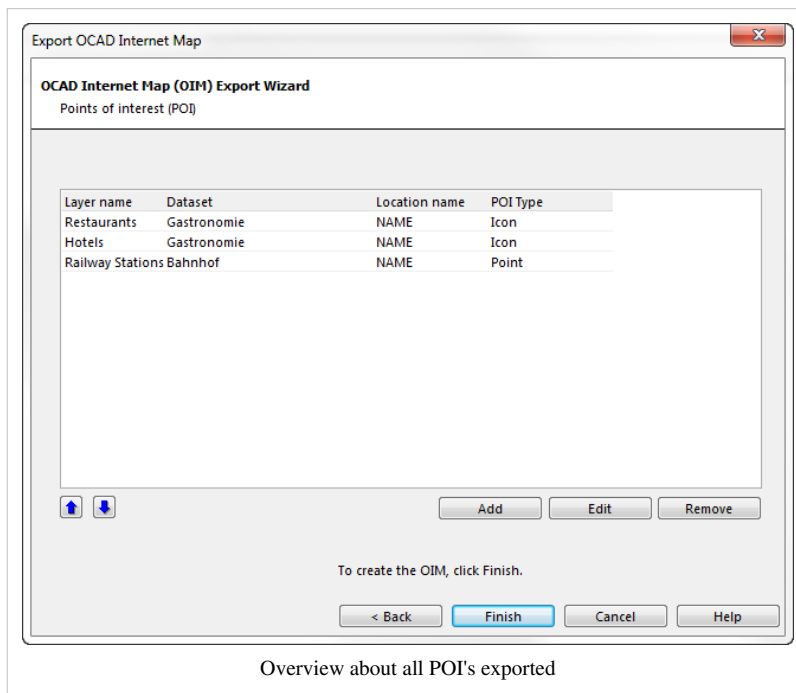
Color and Size Settings:

- Header text color - color of the map title
 - Header background color - background of the map title
 - Subheader font color - color of the map subtitle
 - Subheader background color - background of the map subtitle
 - Border color - border color of the map
 - Site background color - general site background
 - Font size - font size of the map title
 - Subheader font size - font size of the map subtitle (e.g. copyright)
 - Border width - thickness of the border
-



-> Click **Next**

Points of Interest (POI)



💡 Points of Interest (POI), like Restaurants, Hotels or train stations can only displayed in the web map, if they have been added to the OCAD map before.

Choose **Add** to add a POI layer. The **POI Selector** dialog box appears:

- Title - name of the layer
- Dataset - dataset to choose from
- Condition - with an SQL expression the result set can be limited.

e.g.:

TYPE LIKE "Hotel" or
symbolnumber = 521.000

- Location field - Name. It's the main name of the POIs, which is shown in the search

- Hover title on mouseover - a tooltip will be provided if the mouse moves over the POI
- Highlight POI through search result - an arrow will blink three times when the POI is selected from the search box
- Visible from zoom level - shows the entire overlay starting from the given zoom level. e.g.: show from zoom level 3 on
- Points of Interest type:
 - Point (vector) - POIs are drawn as vector points on the map

-Icon (information bubbles) - POIs are represented by the provided icon file

-> Click **Next**

POI Selector: Icon Settings (if chosen)

Icon settings (only if **icon** is chosen in the previous step):

- Icon - click the **select** button and choose a file (red background if file not found)
- Icon offset - offset from the anchor point
- Icon size - size of the icon (only in html, image will not be resized)

-> Click **Next**

POI Selector: Vector Settings (if chosen)

Vector settings (only if **vector** is chosen in the previous step):

- Point fill color - represents the main color (fill color) of the vector point.
- Point stroke color - represents the outline color
- Point radius - size of the vector point
- Point fill opacity - applies to the main color
- Point stroke opacity - applies to the stroke color



If you set both opacity values to 0, the vector points are transparent to the web map user. However, the points will still provide information for queries and mouseover events. -> Click **Next**

POI Selector: General settings (if previously chosen Vector Settings)

- Short description - database field containing short description (important for search)
- Description - database field containing description for the info bubble or the right info box
- URL field - database field containing the URL
- Link name - database field containing a link name

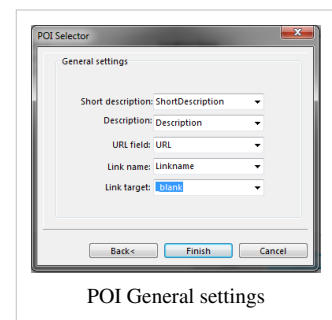
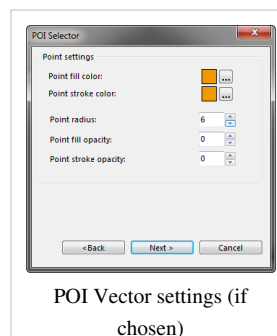
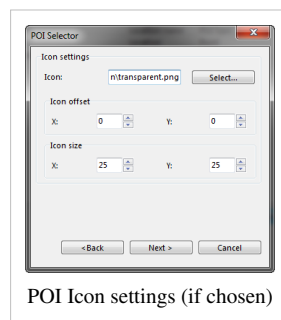
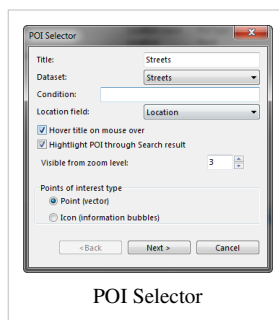


If the URL should be shown select the same field as for the URL

- Link target - link target for the browser
 - _blank - opens the linked target in a new window or tab
 - _parent - opens the linked target in the parent frame
 - _self - opens the linked target in the same window/tab as it was clicked
 - _top - opens the linked target in the full body of the window

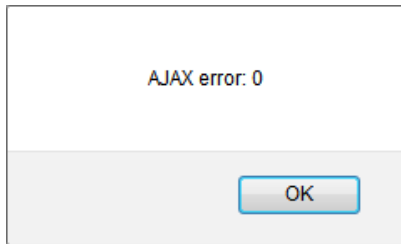
URL, Link name and target are not mandatory fields.

-> Click **Finish**



Choose a directory and **Save** the file. To see the exported internet map, open the *.html file in the browser.

The search functionality only works on a server with PHP support otherwise the error message **AJAX error: 0** occurs.



On the site HTML Entities the supported and convertible HTML characters can be seen.



If you have stored your web map files locally, the POI will be displayed correctly only in Firefox at the moment. However, as soon as the web map files have been uploaded on your web server, the POI are also displayed correctly in other common browsers.



Let's assume you check your OIM in your browser after the export. The map tiles have been exported properly, but there's something wrong with your POI. So, if you re-export your map, just skip the option **Create tiles** in the General project settings. The export will thereby run much faster, especially if you have big maps.

OCAD Internet Map Example St.Moritz

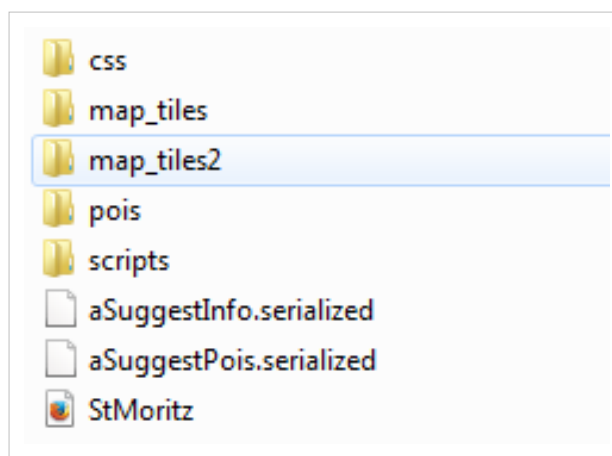
Example of an OCAD Internet Map export: Internet Map St. Moritz ^[1]

Extend OIM Functionality with Scripting

More advanced functions can be scripted. Examples can be found under OIM scripting

How To Add Second Base Map Layer to the OCAD Internet Map

- Export two OCAD Internet Map exports with a different base map (ex. one with a topographic map and the other with an aerial image). Save them to different folders.
- Navigate to the folder of the 2nd export and rename the sub folder *map_tiles* to *map_tiles2*.
- Copy *map_tiles2* to the folder of the 1st OIM export. There should be now two sub folders *map_tiles* and *map_tiles2*.



- Navigate from the 1st OIM export folder to the sub folder *scripts* and open the file *BasisFunctions.js* in a text editor. Duplicate the function *overlay_getTileURL* and rename the 2nd to *overlay_getTileURL2*. Within this "*overlay_getTileURL2* function rename *map_tiles* to *map_tiles2*.

```

/*
 * OCAD Internet Map for OpenLayers
 * OCAD AG, Baar, Switzerland 2012
 * Author: Markus Fuchs-winkler
 */

function overlay_getTileURL(bounds) {
var res = this.map.getResolution();
var x = Math.round((bounds.left - this.maxExtent.left) / (res * this.tileSize.w));
var y = Math.round((bounds.bottom - this.maxExtent.bottom) / (res * this.tileSize.h));
var z = this.map.getZoom();
if (x >= 0 && y >= 0) {
return this.url + "map_tiles/" + z + "/" + x + "/" + y + "." + this.type;
} else {
return "none.png";
}
}

function overlay_getTileURL2(bounds) {
var res = this.map.getResolution();
var x = Math.round((bounds.left - this.maxExtent.left) / (res * this.tileSize.w));
var y = Math.round((bounds.bottom - this.maxExtent.bottom) / (res * this.tileSize.h));
var z = this.map.getZoom();
if (x >= 0 && y >= 0) {
return this.url + "map_tiles2/" + z + "/" + x + "/" + y + "." + this.type;
} else {
return "none.png";
}
}

```

- Open the OIM main html file from the OIM export folder in an editor and duplicate the *basemap* section and add them as *basemap1* and *basemap2*. Change the layer name for *basemap2* to *Orthophoto* (or something else...) and call the *overlay_getTileURL2*. Duplicate also *map.addLayer(basemap)* add it as *map.addLayer(basemap1)* and *map.addLayer(basemap2)*.

```

function init() {
var options = {
controls: [],
maxExtent: new OpenLayers.Bounds(575127.600000,197313.700000,575850.100000,197821.200000),
maxResolution: 3.386667,
numZoomLevels: 10};
map = new OpenLayers.Map('map', options);

basemap1 = new OpenLayers.Layer.TMS( "Topographic Map", "",
{ url: '.', serviceVersion: '.', layername: '.', alpha: false,
type: 'gif', getURL: overlay_getTileURL, transitionEffect: resize });

basemap2 = new OpenLayers.Layer.TMS( "Orthophoto", "",
{ url: '.', serviceVersion: '.', layername: '.', alpha: false,
type: 'gif', getURL: overlay_getTileURL2, transitionEffect: resize });

map.addLayer(basemap1);
map.addLayer(basemap2);
map.zoomToExtent(mapBounds);
map.addControl(new OpenLayers.Control.PanZoomBar({ zoomStopHeight: 15 }));

```

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References

- [1] http://ocad.com/demo/OIM_StMoritz/StMoritz.html

OCAD Internet Map scripting

OCAD Internet Maps can be customized by adapting the html file or with additional JavaScript code.

Zoom to Midway

In order to load the web map not in the smallest zoom level you can insert a command in the web map html file directly after the following line:

```
zoomChanged();
```

Insert:

```
map.zoomTo(map.numZoomLevels- Math.floor(map.numZoomLevels/2));
```

With this additional line the map is zoomed to midway of all available zoom levels during the startup instead of zoom level 0.

Hide/Show Layers

Layers can be shown or hidden with the layer command `setVisibility`. All Layers are exported in the order they are shown in the `_poiLayers` array.

Example:

```
function ShowLayer() {  
    _poiLayers[0].setVisibility(true);  
}  
  
function HideLayer() {  
    _poiLayers[0].setVisibility(false);  
}
```

The Javascript functions can be called with an external link from the same page.

Jump to a Certain Point

In order to go to a certain location on the map the following function can be called.

```
function JumpToPointOfInterest() {  
    var point = new OpenLayers.LonLat(136733, 6667650);  
    map.zoomTo(map.numZoomLevels-1);  
    map.panTo(point);  
}
```

The variable `map.numZoomLevels` needs to be decreased by one to get the maximum zoom level.

Add Additional Vector Points for Locations

In order to achieve additional vector points this can be done with

```
function ShowPointOfInterest() {  
  
    var point1 = new OpenLayers.Geometry.Point(149667,6680327);  
  
    var point2 = new OpenLayers.Geometry.Point(150386,6678682);  
  
    var feature_point = new OpenLayers.Feature.Vector(point1, {},{fillOpacity : 0.4, pointRadius: 45, fillColor: "#ff0000" });  
    var feature_point2 = new OpenLayers.Feature.Vector(point2, {},{pointRadius: 15, fillColor: "#ff0000"});  
  
    highlight_layer.addFeatures([feature_point, feature_point2]);  
  
}
```

Therefore an additional layer needs to be introduced in the init script with the following lines:

```
highlight_layer = new OpenLayers.Layer.Vector('Highlight Layer');  
map.addLayer(highlight_layer);
```

Please the two lines between the "addControl" commands and "XMLInitPois" command.

For the vector styling the options can be seen in the OpenLayers documentation: [style options ^[1]]

Center Locations with Drop Down List

To center a location with a select list the following code can be introduced:

```
function JumpToPoint(coords) {  
    if (value = null) {  
        exit;  
    }  
    var cord = coords.split(",");  
    var point1 = new OpenLayers.LonLat(cord[0],cord[1]);  
    map.zoomTo(map.numZoomLevels-1);  
    map.panTo(point1);  
}
```

The code in the HTML file may looks like this:

```
<select id= "dropdown-select" onchange="JumpToPoint(this.value);">  
    <option value="null">Select</option>  
    <option value="134314,6668774">Location 1</option>  
    <option value="149659,6679976">Location 2</option>  
    <option value="140800,6668437">Location 3</option>  
</select>
```

References

[1] <http://dev.openlayers.org/apidocs/files/OpenLayers/Feature/Vector-js.html#OpenLayers.Feature.Vector.style>

XML Script



Choose this command to execute functions whose settings are defined in a XML file.

Introduction

Select **Execute XML Script** from **File** menu or drag-and-drop then xml file to the OCAD window.

OCAD creates a log file in the temporary folder (*C:\Users\USERNAME\AppData\Roaming\OCAD\OCAD 12\Tmp*).

XML Script General

File

Node <OcadScript>	Parameter	Data type	Values / Description
File.New	File MapScale Easting Northing Angle	String Integer Integer Integer Double	file name of existing symbol set 10000 obsolete, use Map.ScaleAndCoordinateSystem obsolete, use Map.ScaleAndCoordinateSystem obsolete, use Map.ScaleAndCoordinateSystem
File.Open	File IgnoreMissingBackgroundMaps	String Boolean	ocd file name true, false (default: false)
File.Close	Enabled	Boolean	true, false
File.Save	Enabled	Boolean	true, false
File.SaveAs	File	String	ocd file name
File.Import.Ocd	File SymbolOption ColorOption	String Integer Integer	File name [0..3] [0, 1]
File.MultipleFileImport	Directory CoordinateSystem NewOffset Horizontally Vertically Angle MapScale GridDistance DatabaseType Codepage KeyField LayerField LayerField2	String Integer Boolean Integer Integer Double Integer Double Integer Integer String String String	Directory of import files -1 = WGS 84, 1000 = existing grid of OCAD file 0 = dBase, 1 = Access 2007, 2 = Access 2003/2010, 3 = Do not create a database 0 = Default, Codepage number ' ' = Create new key field, field name ' ' = do not import layer information, field name ' ' = do not import 2nd layer information, field name, LayerField and LayerField2 content are concatenated by ' _ '
File.Exit	Enabled	Boolean	true, false

View

Node <OcadScript>	Parameter	Data type	Values / Description
View.Mode		Enum types	normalMode, spotColorMode, draftMode
View.EntireMap	Enabled	Boolean	true, false
View.MoveTo	X Y	Double Double	
View.Zoom		Double	

Symbol

Node <OcadScript>	Parameter	Data type	Values / Description
Symbol.ChangeStatus	Number Status	integer integer	e. g. 100000 for symbol number 100.000 [0, 1, 2, 3] for normal, protected, hidden and hidden protected

Map

Node <OcadScript>	Parameter	Data type	Values / Description
Map.OptimizeRepair	Enabled	Boolean	true, false
Map.ChangeScale	NewScale EnlargeReduceSymbols	Integer Boolean	e. g. 10000 true, false
Map.ConvertLayer	CrtFile	String	crt file name
Map.DeleteObjectsBySymbol	SymbolNumber	Double	e.g. 526.002
Map.LoadSymbolsFrom	File	String	ocd file name (with symbols to be loaded) The option <i>replace existing colors and symbols</i> is used
Map.ScaleAndCoordinateSystem	MapScale Easting Northing Angle CoordinateSystem	Integer Integer Integer Double Integer	e.g. 10000 e.g. 600000 e.g. 200000 e.g. 4.5 internal grid id
Map.Transform.ChangeCoordinateSystem	CoordinateSystem EastingOffset NorthingOffset ScaleSymbols	Integer Integer Integer Boolean	internal grid id true, false

Database

Node <OcadScript>	Parameter	Data type	Values / Description
Database.Dataset.New	DatasetName DBaseFile OdbcDataSource Table KeyField SymbolField TextField SizeField LengthUnit AreaUnit Decimals HorizontalCoordinate VerticalCoordinate Username Passwort	String String String String String String String String String Integer String String String String	mandatory mandatory mandatory
Database.Dataset.Remove	Dataset	String Integer	<i>all</i> for all databases 3, 2, 1, ... for only one or several
Database.Assign.Symbols	Dataset CntFile	String Integer String	<i>all</i> for all databases 1, 2, 3, ... for only one database Condition table file
Database.Assign.Texts	Dataset TextField Condition Symbol ReplaceExistingObjects	String Integer String String String Boolean	<i>all</i> for all databases 1, 2, 3, ... for only one database ex. 101.0 true, false (Default)
Database.SetObjectDirection	Dataset AngleField MathematicalFunction	String Integer String String	<i>all</i> for all databases 1, 2, 3, ... for only one database eg.: *180/3.14159
Database.CreateObjects	Dataset SelectSymbol Condition HorizontalCoordinate VerticalCoordinate Unit TextField HorizontalOffset VerticalOffset	Integer Double String String String Enum types String Double Double	1, 2, 3, ... Number of dataset Symbol numer. ex. 207.0 SQL String (ex. SYMBOL LIKE 207.0) Database fieldname Database fieldname m, km Database fieldname

Background Map

Node <OcadScript>	Parameter	Data type	Values / Description
BackgroundMap.Open	FileName	String	true, false; Default = true
	Visible	Boolean	true, false; Default = true
	VisibleInFavorites	Boolean	[0..100]; Default = 0 [only works if Blockout is false]
	Dimm	Integer	true, false; Default = false [only works if Blockout is false]
	Transparent	Boolean	false]
	SpotColor	String	spot color name
	Blockout	Boolean	true, false; Default = false
	Infrared	Integer	0=undefined, 1=32bit-infrared, 2=32bit RGB
BackgroundMap.Remove		String	<i>all</i> or filename
BackgroundMap.Reload a)		String	<i>all</i> or filename

a): Limited functionality. Not available for all users.

Example

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<!-- OCAD XML Script for multiple Shape import and assigning symbols from database -->

<OcadScript>

  <File.New>
    <!-- This path has to be adjusted before using the script! Choose a template file. -->
    <File>C:\Export\Chlosterwald.ocd</File>
  </File.New>

  <File.MultipleFileImport>
    <!-- This path has to be adjusted before using the script! -->
    <Directory>C:\Export\Files</Directory>
    <CoordinateSystem>1000</CoordinateSystem>
    <NewOffset>true</NewOffset>
    <Horizontally>600000</Horizontally>
    <Vertically>200000</Vertically>
    <Angle>0</Angle>
    <MapScale>10000</MapScale>
    <GridDistance>500</GridDistance>
    <LayerField>OBJECTVAL</LayerField>
  </File.MultipleFileImport>

  <Database.Assign.Texts>
    <Dataset>all</Dataset>
    <Condition/>
    <TextField>TEXT</TextField>
    <Symbol>902.000</Symbol>
    <ReplaceExistingObjects>false</ReplaceExistingObjects>
  </Database.Assign.Texts>

  <Database.Assign.Angles>
```



```
<Dataset>all</Dataset>
  <AngleField>ANGLE</AngleField>
</Database.Assign.Angles>

<Database.Assign.Symbols>
  <Dataset>all</Dataset>
  <CntFile>C:\Export\Chlosterwald.cnt</CntFile>
</Database.Assign.Symbols>

<Database.Dataset.Remove>
  <Dataset>all</Dataset>
</Database.Dataset.Remove>

<Map.OptimizeRepair>
  <Enabled>true</Enabled>
</Map.OptimizeRepair>

<View.EntireMap>
  <Enabled>true</Enabled>
</View.EntireMap>

<File.Save>
  <Enabled>>false</Enabled>
</File.Save>

<File.SaveAs>
  <File>C:\Export\Chlosterwald_Example.ocd</File>
</File.SaveAs>

<File.Close>
  <Enabled>true</Enabled>
</File.Close>

<File.Exit>
  <Enabled>>false</Enabled>
</File.Exit>

</OcadScript>
```

Node <OcadScript>	Parameter	Data type	Values / Description
File.CreateThematicMap	<MapTheme>	string	Theme name
	Name	string	statistic data file path
	StatDataPath	string	Sheet or table for Excel or Access files
	StatDataTable	string	Common Id field
	StatDataCommonField	string	Attribute(s) to visualize: Ex. 2004 or 2009 2011
	VisualizeAttributes	ValueType	absolute, relative
	AttributesValuesType	ClassifyType	yes, no
	Classify	RepresentationFeatureType	point, line, area
	RepresentationFeature	string	Geometry data file path
	GeometryDataPath	string	Common Id field
	GeometryDataCommonField	JoinType	see Thematic Map Data Types table
	JoinType	VisualizationMethodType	see Thematic Map Data Types table
	VisualizationMethod	VisualizationTypeType	see Thematic Map Data Types table
	VisualizationType	ScalingModeType	see Thematic Map Data Types table
	<VisualizationProperties>	double	see Thematic Map Data Types table
	ScalingMode	double	max. size in mm
	MaxSize	FillColor	min. size in mm
	MinSize	StrokeColor	fill color: ex. C=84 M=0 Y=128 K=0
	FillColor	double	stroke color: ex. C=0 M=0 Y=0 K=255
	StrokeColor	double	max. stroke width in mm
	StrokeMaxWidth	boolean	min. stroke width in mm
	StrokeMinWidth	boolean	true, false
	DecreaseStroke	boolean	true, false
	ShowZeroValue	integer	true, false
	ShowNoData	string	%
	Opacity	ColorType	ThemeLegendTitle
	ThemeLegendTitle	integer	font color: ex. C=0 M=0 Y=0 K=255
	</VisualizationProperties>	string	opacity in %
	</MapTheme>	double	font name
	<MapTitleStyle>	boolean	
	Color	boolean	
	Opacity	AlignmentType	
	Font	...	
	Size	...	
	isBold	boolean	
	isItalic	boolean	
	Alignment	string	
	</MapTitleStyle>		
	<LegendTitleStyle>		
	see MapTitleStyle...		
	</LegendTitleStyle>		
	<LegendTextStyle>		
	see MapTitleStyle...		
	</LegendTextStyle>		
	AddScaleBar		font size
	AddScaleText		true, false
	AdditionalInformationText		true, false
			0=align bottom left
			...
			...
			true, false
			true, false
			Ex. Coordinate system: Pseudo-Mercator

Thematic Map Data Types

Data type	Values
ValueType	absolute, relative
ClassifyType	yes, no
RepresentationFeatureType	point, line, area
JoinType	0=KeepAllRecords, 1=KeepOnlyMatchingRecords
VisualizationMethodType	mProportionalSymbols, vmProportionalLines, vmProportionalArrows, vmGraduatedSymbols, vmGraduatedLines, vmGraduatedArrows, vmChoropleths, vmCharts
VisualizationTypeType	vtProportionalBar, vtProportionalCircle, vtProportionalSquare, vtProportionalLine, vtProportionalArrow, vtGraduatedBar, vtGraduatedCircle, vtGraduatedSquare, vtGraduatedLine, vtGraduatedArrow, vtChoropleth, vtPieChart, vtWingChart, vtBarChart, vtDividedPieChart, vtDividedWingChart, vtDividedBarChart, vtStackedBarChart, vtPercentageStackedBarChart
ScalingModeType	0=scaling by representation ratio, 1=scaling by max. size
DataClassificationMethodType	cmManual, cmNaturalBreaks, cmEqualIntervals, cmQuantiles
ColorType	CMYK color definition [0..255]: C=84 M=0 Y=128 K=0

Thematic Map Script Examples

The following example creates a **thematic map** with proportional squares about the population in europe 2011.

```
<?xml version="1.0" encoding="UTF-8"?>
<OcadScript>
  <OcadVersion>OCAD 12.0.1.515 - Professional 32-bit</OcadVersion>

  <File.New>
    <File>Thematic Map.ocd</File>
    <MapScale>25000000</MapScale>
  </File.New>

  <File.SaveAs>
    <File>Thematic Map Population Europe ProportionalSquare.ocd</File>
  </File.SaveAs>

  <File.CreateThematicMap>
    <MapTheme>
      <Name>Population 2011</Name>
      <StatDataPath>C:\import\population.xls</StatDataPath>
      <StatDataTable>Sheet0$</StatDataTable>
      <StatDataCommonField>id</StatDataCommonField>
      <VisualizeAttributes>2011</VisualizeAttributes>
      <AttributesValuesType>absolute</AttributesValuesType>
      <Classify>no</Classify>
      <RepresentationFeature>point</RepresentationFeature>
      <GeometryDataPath>C:\import\europe.shp</GeometryDataPath>
      <GeometryDataCommonField>ne_10m_adm</GeometryDataCommonField>
      <JoinType>0</JoinType>
    </MapTheme>
  </File.CreateThematicMap>
</OcadScript>
```

```

    <VisualizationMethod>vmProportionalSymbols</VisualizationMethod>
    <VisualizationType>vtProportionalSquare</VisualizationType>
    <VisualizationProperties>
        <ScalingMode>1</ScalingMode>
        <MaxSize>30.00</MaxSize>
        <MinSize>1.00</MinSize>
        <FillColor>C=84 M=0 Y=128 K=0</FillColor>
        <StrokeColor>C=0 M=0 Y=0 K=181</StrokeColor>
        <StrokeMaxWidth>0.40</StrokeMaxWidth>
        <StrokeMinWidth>0.08</StrokeMinWidth>
        <DecreaseStroke>true</DecreaseStroke>
        <ShowZeroValue>true</ShowZeroValue>
        <ShowNoData>true</ShowNoData>
        <Opacity>80</Opacity>
        <ThemeLegendTitle>Population</ThemeLegendTitle>
    </VisualizationProperties>
</MapTheme>
<MapTitle>Population in Europe 2011</MapTitle>
<DefaultTextStyle>
    <Color>C=0 M=0 Y=0 K=150</Color>
    <Opacity>100</Opacity>
    <Font>Arial</Font>
    <Size>9.0</Size>
    <isBold>0</isBold>
    <isItalic>0</isItalic>
    <Alignment>0</Alignment>
</DefaultTextStyle>
<MapTitleStyle>
    <Opacity>80</Opacity>
    <Size>24.00</Size>
    <Alignment>1</Alignment>
</MapTitleStyle>
<AddThemeLegend>true</AddThemeLegend>
<AddBasemapLegend>true</AddBasemapLegend>
<LegendTitleStyle>
    <Size>12.0</Size>
</LegendTitleStyle>
<LegendTextStyle>
    <Size>9.0</Size>
</LegendTextStyle>
<AddScaleBar>true</AddScaleBar>
<AddScaleText>true</AddScaleText>
<AdditionalInformationText>OCAD ThematicMapper sample map</AdditionalInformationText>
</File.CreateThematicMap>

<File.Save>
    <Enabled>true</Enabled>

```

```
</File.Save>
</OcadScript>
```

XML Script Partial Map

Node <OcadScript>	Parameter	Data type	Values / Description
Export	File coordSystem L, R, B, T	String Enum types Float	eg.: , c:\export\PartialMap1.ocd ' OCAD creates files PartialMap1_#verticalPages_#horizontalPages.ocd mm (paper, m (real world) left, right, bottom, top
Export.loop	Enabled HorizontalPages VerticalPages HorizontalOverlap VerticalOverlap	Bool Integer Integer Float Float	true, false number of pages in horizontal direction number of pages in vertical direction horizontal overlap in [mm] or [m] vertical overlap in [mm] or [m]

Example

The following example exports parts of an ocad map.

```
<ocadScript>                                     // comment

<partialMapScript><br>

  <export id="0">                                // first export section

    <file>c:\export\PartialMap1.ocd</file>         // export file

    <coordSystem>mm</coordSystem>                // paper oder real world coordinates

    <T>100</T>                                    // export rectangle with Top Left point and Bottom Right point

    <L>0</L>

    <B>50</B>

    <R>50</R>

    <loop>                                        // the loop export several ocd files. For this example 21 files.

      <enabled>>true</enabled>

      <horizontalPages>7</horizontalPages>

      <verticalPages>3</verticalPages>

      <horizontalOverlap>10</horizontalOverlap>    // horizontal and vertical overlap.

      <verticalOverlap>10</verticalOverlap>

    </loop>

  </export>

  <export id="1">                                // second export section

    <file>c:\export\PartialMap2.ocd</file>

    <coordSystem>mm</coordSystem>

    <L>0</L>

    <R>50</R>

    <B>50</B>

    <T>100</T>

    <loop>                                        // export only one ocd file

      <enabled>false</enabled>

    </loop>
```

```

</export><br>

</partialMapScript>

</ocadScript>

```

XML Script Print

Print parameters can be saved in a XML script.

Node <OcadScript>	Parameter	Data type	Values / Description
File.Print.Printer	Name DmPaperSize DmDefaultSource DmPrintQuality DmColor DmMediaType	String Integer Integer Integer Integer Integer	Eg. 'HP Color LaserJet 2840 PCL' File->Print->Save XML Script->Open the Script and depending on which printer was choosen, the informations are there.
File.Print.Portrait	Enabled	Bool	true, false
File.Print.SpotColor	Enabled Colors	Bool String	true, false Name of the spot color(s)
File.Print.PartOfMap	Range Coordinates L, R, B, T	Integer Enum types Float	1 mm (page), m (real world) Left, Right, Bottom, Top
File.Print.HorizontalOverlap		Float	
File.Print.VerticalOverlap		Float	
File.Print.PrintScale		Integer	Eg. 25000
File.Print.Copies		Integer	Number of copies
File.Print.Intensity		Integer	
File.Print.LineWidth		Integer	
File.Print.PrintScreenGrid	Enabled PrintScreenGridColor	Bool Integer	true, false Ocad color number

XML Script Export

Watch out for the file endings.

Resolution is only used if File.Export.GeoRef -> Enabled = false

AI (Adobe Illustrator), PDF

Node <OcadScript>	Parameter	Data type	Values / Description
File.Export	File Format Resolution ExportScale	String Enum types Integer Integer	eg.: ,c:\Export\Chlosterwald.ai' AI, PDF in dpi [40..2540] (only if the map has raster background maps) eg. '10000' for the scale 1:10'000
File.Export.PartOfMap	Enabled Coordinates L, R, B, T	Bool Enum types Float	true, false mm (page), m (real world) left, right, bottom, top
File.Export	Colors	Enum types	normal, spotColors
File.Export.SpotColors	Combine Enabled	Bool String	true, false [only if Colors = spotColors] Spotcolor name [only if Colors = spotColors]

BMP, GIF, JPEG

Node <OcadScript>	Parameter	Data type	Values / Description
File.Export	File Format Quality Resolution Anti-Aliasing ColorCorrection	String Enum types Integer Integer Boolean Boolean	eg.: ,c:\Export\Chlosterwald.bmp' BMP, GIF, JPEG only for JPEG, [0..100] in dpi [40..2540] true, false true, false
File.Export.PartOfMap	Enabled Coordinates L, R, B, T	Bool Enum types Float	true, false mm (page), m (real world) left, right, bottom, top for rotated maps use here the coordinate of the upper left und lower right corner
File.Export.Tiles	Enabled Width Height	Boolean Integer Integer	true, false [only if Enabled = true] [only if Enabled = true]
File.Export.GeoRef	Enabled PixelSize CreateWorldFile	Bool Float Bool	true, false in meter [only if Enabled = true] true, false [only if Enabled = true]

EPS

Node <OcadScript>	Parameter	Data type	Values / Description
File.Export	File Format ExportScale	String Enum types Integer	eg.: ,c:\Export\Chlosterwald.eps ' EPS e.g. '10000' for the scale 1:10'000
File.Export.PartOfMap	Enabled Coordinates L, R, B, T	Bool Enum types Float	true, false mm (page), m (real world) left, right, bottom, top
File.Export	Colors	Enum types	normal, spotColors
File.Export.SpotColors	Enabled	Spotcolor name	[only if Colors = spotColors]

SVG (Scalable Vector Graphics)

Node <OcadScript>	Parameter	Data type	Values / Description
File.Export	File Format ExportScale CompressFile	String Enum types Integer Boolean	eg.: ,c:\Export\Chlosterwald.svg ' SVG e.g. '10000' for the scale 1:10'000 true, false
File.Export.PartOfMap	Enabled Coordinates L, R, B, T	Bool Enum types Float	true, false mm (page), m (real world) left, right, bottom, top

TIFF

Node <OcadScript>	Parameter	Data type	Values / Description
File.Export	File Format Resolution Anti-Aliasing ColorCorrection	String Enum types Integer Boolean Boolean	eg.: ,c:\Export\Chlosterwald.tif TIFF in dpi [40..2540] true, false true, false
File.Export.PartOfMap	Enabled Coordinates L, R, B, T	Bool Enum types Float	true, false mm (page), m (real world) left, right, bottom, top
File.Export.Tiles	Enabled Width Height	Bool Integer Integer	true, false [only if Enabled = true] [only if Enabled = true]
File.Export.GeoRef	Enabled PixelSize CreateWorldFile	Bool Float Bool	true, false in meter [only if Enabled = true] true, false [only if Enabled = true]
File.Export	Colors	Enum types	normal, spotColors
File.Export.SpotColors	Combine Enabled	Bool Spotcolor name	true, false [only if Colors = spotColors] [only if Colors = spotColors]
File.Export	ColorMode	Integer	0 = 32 bit CMYK 1 = 24 bit RGB 2 = 256 colors 3 = grayscale 4 = 8 bit CMYK 5 = 1 bit black/white 6 = halftone screen [only if spotColor = true]
File.Export	Compression	Integer	1 = no compression 2 = CCITT [only used with ColorMode 5/6] 4 = FaxG4 [only used with ColorMode 5/6] 5 = LZW

DXF

Node <OcadScript>	Parameter	Data type	Values / Description
File.Export	File Format ExportScale ConvertAnsiToOem ConvertOemToUnicode ObjectsSelectedSymbols AddSymbolDescription UseCrtFileName ExportAsSplines Coordinates	String Enum types Integer Boolean Boolean Boolean Boolean String Boolean Enum types	eg.: ,c:\Export\Chlosterwald.dxf ' DXF e.g. '10000' for the scale 1:10'000 true, false true, false true, false true, false eg.: ,c:\CRT\Chlosterwald.crt' true, false m, mm

Shape

Node <OcadScript>	Parameter	Data type	Values / Description
File.Export	ExportPath Format PointObjects LineObjects AreaObjects TextObjects Dataset WordWrap ProjectionFile Utf8Encoding	String Enum types Boolean Boolean Boolean Boolean String Integer Boolean Boolean Boolean	eg.: ,c:\Export' (only path name) SHAPE true, false true, false true, false true, false all for all databases 1, 2, 3, ... for only one database true, false true, false true, false

Example

The following example exports two pdf files in spot colors and two Shape files. Each OcadScript node can contain many children.

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<OcadScript>

  <File.Open>
    <File>M:\OCAD12\Changes\11-06xx\11-0663\Chlosterwald.ocd</File>
  </File.Open>

  <File.Export>
    <File>M:\OCAD12\Changes\11-06xx\11-0663\output\Chlosterwald.pdf</File>
    <Format>PDF</Format>
    <PartOfMap>
      <Enabled>true</Enabled>
      <Coordinates>mm</Coordinates>
      <L>0</L>
      <R>50</R>
    </PartOfMap>
  </File.Export>
//PDF export
```

```

        <B>50</B>
        <T>100</T>
    </PartOfMap>
    <ExportScale>10000</ExportScale>
    <Colors>spotColors</Colors>
    <SpotColors>
        <Combine>>false</Combine>
        <Enabled>Blau</Enabled>
        <Enabled>Gelb</Enabled>
    </SpotColors>
</File.Export>

<File.Export>                                     //Shape export
    <ExportPath>M:\OCAD12\Changes\11-06xx\11-0663\output\</ExportPath>
    <Format>SHAPE</Format>
    <PointObjects>>false</PointObjects>
    <LineObjects>>true</LineObjects>
    <AreaObjects>>true</AreaObjects>
    <TextObjects>>false</TextObjects>
    <Dataset>all</Dataset>
    <WordWrap>>true</WordWrap>
    <ProjectionFile>>false</ProjectionFile>
</File.Export>

<File.Save>
    <Enabled>true</Enabled>
</File.Save>

<File.Close>
    <Enabled>true</Enabled>
</File.Close>
</OcadScript>

```

Run XML Script from the Command Line

It is possible to execute a XML script file from the command line or from batch file.

Open the Windows command and enter the OCAD program name and the xml script file. For example: "C:\Program Files\OCAD\OCAD 12\Ocad12.exe" "C:\Data\ExportScriptExample_PDF.xml"

Do not forget to use the parameter <File.Open> to open the file, <File.Close> to close it and <File.Exit> to close OCAD.

Open ocd File from the Command Line

It is possible to open an ocd file from the command line with optional view parameters.

Open the Windows command and enter the OCAD program name and the ocd file name.

For example:

```
"C:\Program Files\OCAD\OCAD 12\Ocad12.exe" "M:\Data\Map.cod"
```

Additional OCAD supports the following optional view parameters to open a map at desired position and view scale.

```
-c: center for view  
-s: view scale
```

For example:

```
"C:\Program Files\OCAD\OCAD 12\Ocad12.exe" -c 710000,231000 -s 2500 "M:\Data\Map.cod"
```

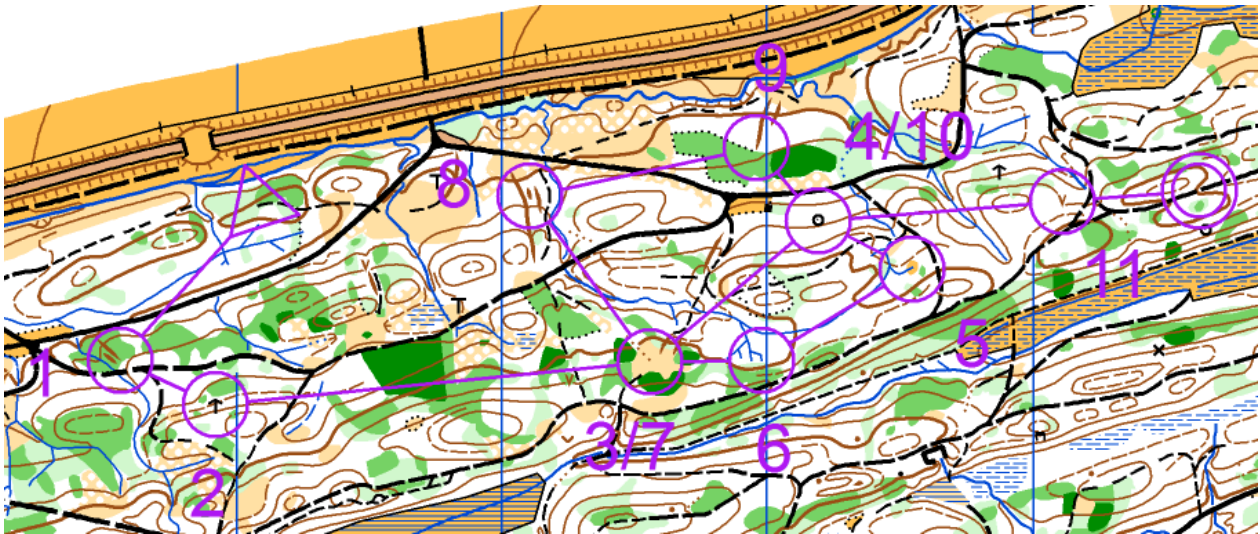
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[Next Chapter: Course Setting for Orienteering](#)

Course Setting for Orienteering

Pro Std Sta CS



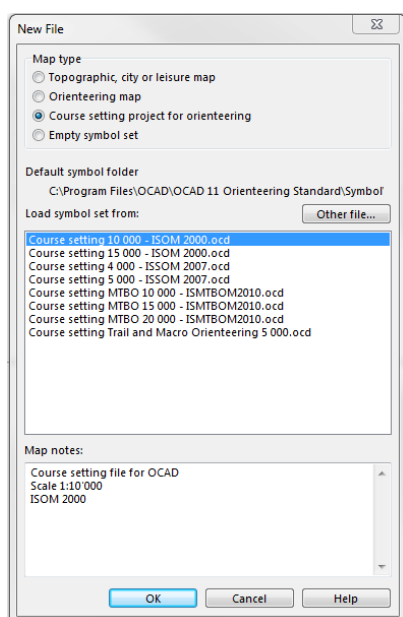
(The Course Setting functions are only available in course setting projects!)


OCAD provides completely integrated functions for course setting in orienteering.

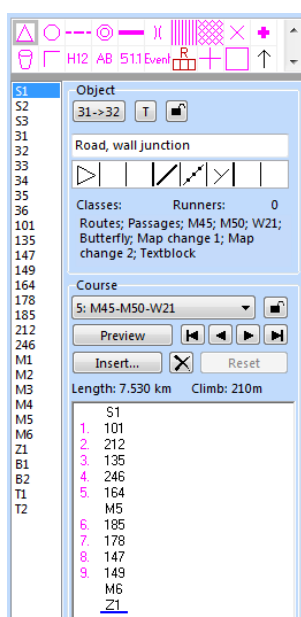
Start a New Course Setting Project

A course setting project is a special OCAD file. Like map files it has the extension .ocd, but it has a special internal mark to identify it as a course setting file. To create a course setting project, you must create a new map file.

1. Choose the **New** command from the **File** menu or click the **New** button. The **New File** dialog box is displayed.



2. In the **Map type** box select the '**Course setting project for orienteering**' item.
3. Select a symbol set from the **Load symbol set from** box. For a course setting project in a scale where no symbol set is available please choose one of the available symbol sets.
4. Click the **OK** button.
5. Choose the **Set Scale and Coordinate System** command from the **Map** menu. Set the map scale to the correct value. It is important to do this before starting with course setting because the calculation of the courses length depends on the map scale.
6. Choose the **Save** command from the **File** menu or click the  **Save** button. The **Save As** dialog box appears. Enter a file name for the course setting file.
7. Choose the **Open** command from the **Background Map** menu to open a map file as a background map.
8. Choose the **Entire Map** command from the **View** menu to show the whole map on the screen.



The **Course Setting Box** is displayed on the right side of the OCAD window. This **Course Setting Box** provides a lot of functions and options. Visit the **Edit Course Setting Objects** page to get more information.

Add Course Setting Objects

To learn how to add course setting objects visit the **Add Course Setting Objects** page with the following articles:

1. **Add Start, Controls and Finish**
2. **Add a Marked Route**
3. **Add a Control Description**
4. **Add a Course Title**
5. **Add Variant for Relay Courses.** Learn how to create relay courses on the **Create Relay Courses** page.
6. **Add Start Numbers for Relay Courses.** Learn how to create relay courses on the **Create Relay Courses** page.
7. **Add Other Objects**, like the event title, logos, corrections on the map etc.
8. **Course Setting Dialog Box**

Edit Course Setting Objects

Information about all functions which are provided by the course setting box on the right side of the window can be found on the **Edit Course Setting Objects** page.

Most important functions:

Change Code of Course Objects

Insert a Text Block

Lock or Unlock Course Objects

Edit Control Description

Add, Edit or Remove Course Objects

Preview Mode

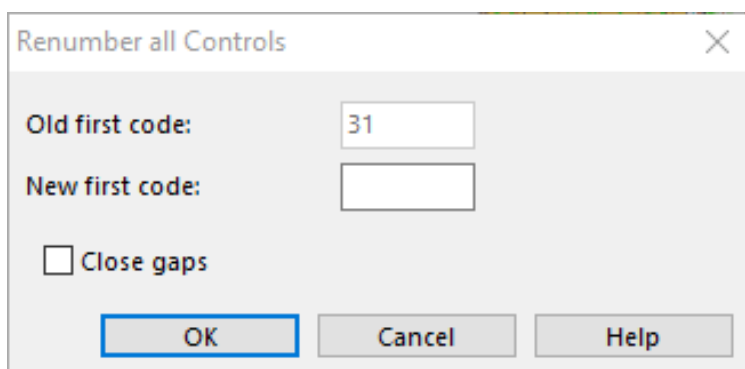
Controls

The following two functions can be found in the **Controls** submenu of the **Course Setting** menu:

Renumber all Controls

This function is useful if you did not know the available control numbers for your event when starting to plan the courses.

Choose the **Renumber all Controls** command in the **Controls** submenu of the **Course Setting** menu to display the **Renumber all Controls** dialog.



1. Enter a **New first code** to shift all control codes. All codes are shifted with the difference between the **New first code** and the **Old first code**.

2. Check the option **Close numbering gaps** if gaps with not used numbers should be closed.
3. Click the **OK** button when finished.

Control Elevation

Visit the **Control Elevation** page to find more information about this function.

Courses

As a next step you can **Create a New Course**. A course is basically a list of the start, controls, marked route(s) and the finish. You may want to **Insert Other Course Objects** like mandatory crossing point, mandatory passage through out of bound area, map exchange, relay team or leg variation.

OCAD supports:

- **Individual Courses** with symbol sets for foot-o, ski-o, mtb-o and trail-o
- **Relay Courses**
- **One-Man Relay Courses**
- **Score Orienteering**

All information about courses can be found on the **Create a New Course** page.

 Create butterfly courses ^[1]

Classes

In OCAD you can either work with courses only or you can use classes and courses. Different classes may use the same course. Visit the **Create a New Class** page for more information.

Insert Course Object to Courses

Choose this function from the **Course Setting** menu. Learn more about this function on the **Add a Course Object to Courses** page.

Delete Course Object from Courses

This is the inverse function of the **Insert Course Object to Courses** function.

Read more about this function on the **Delete Course Object from Courses** page.

Make Graphic Modifications

Often it is necessary to **Make Graphic Modifications** to the courses generated by OCAD.

Move Control Number for All Courses

To move the control number for all courses (for example if it covers important map information):

1. Change to **Preview** mode.
2. **Move** a control number and keep it selected.
3. Choose the **Move Control Number for all Courses** command from the **Course Setting** menu.
4. The control number is moved for all other courses, too.

Edit Connection Line for All Courses

To edit a connection line for all courses (for example if it covers important map information):

1. Change to **Preview** mode.
2. **Edit** the connection line and keep it selected.
3. Choose the **Edit Connection Line for all Courses** command from the **Course Setting** menu.
4. The connection line is edited in all other courses which use it, too.

Edit Text Control Description

Choose the **Edit Text Control Description** command in the **Course Setting** menu to edit the text control description. Visit the **Edit Text Control Description** page for more information.

Auto Control Description

OCAD provides an **Auto Control Description** tool that recognizes map objects, where controls are placed, and sets the corresponding IOF symbol to the control description. Visit the **Auto Control Description** page for more information.

Punching Unit IDs

Choose the **Punching Unit IDs** command in the **Course Setting** menu to enter the punching unit IDs. Visit the **Punching Unit IDs** page for more information.

Course Statistic and Event Statistic

Choose the command **Course Statistic and Event Statistic** from the **Course Setting** menu to display a course and event statistic. Visit the page **Course Statistic and Event Statistic** for more information.

Consistency Check Report

Choose the command **Consistency Check Report** from the **Course Setting** menu to display the consistency check report. Visit the page **Consistency Check Report** for more information.

Compare Course Setting Files

The function **Compare Course Setting Files** is only enabled if no ocd file is open.



The *Course Setting* menu is not visible by default for OCAD Professional and OCAD Mapping Solution. Open and close a course setting file to make it visible.

1. Add the files that should be compared to the **files** box.
2. Click the **Compare files** button.
3. The differences are shown in the dialog.
4. Click the **Save As...** to save the text as html file.

The function shows the following differences between course setting files:

- Different Course Objects
 - Different Courses
 - Different Preview Objects
 - Different Course Setting Options
-

Print

In the **Print** submenu of the **Course Setting** menu you have the option to print the **Courses** or the **Control Descriptions**.

Courses can be printed together with the map or on an already printed map. OCAD provides adjustment functions to adjust the course to the already printed map. In addition EPS files can be created to make plates for offset printing. Visit the **Print Courses** page for more information.

To get more information about printing control descriptions, visit the **Print Control Descriptions** page.

Control descriptions can be printed together with the course on the map: **Add a Control Description Object**.

Import

It is possible to import an **OCAD Map** or to import courses from **ORware** ^[2]. Visit the **Course Setting Import** page for more information.


Export

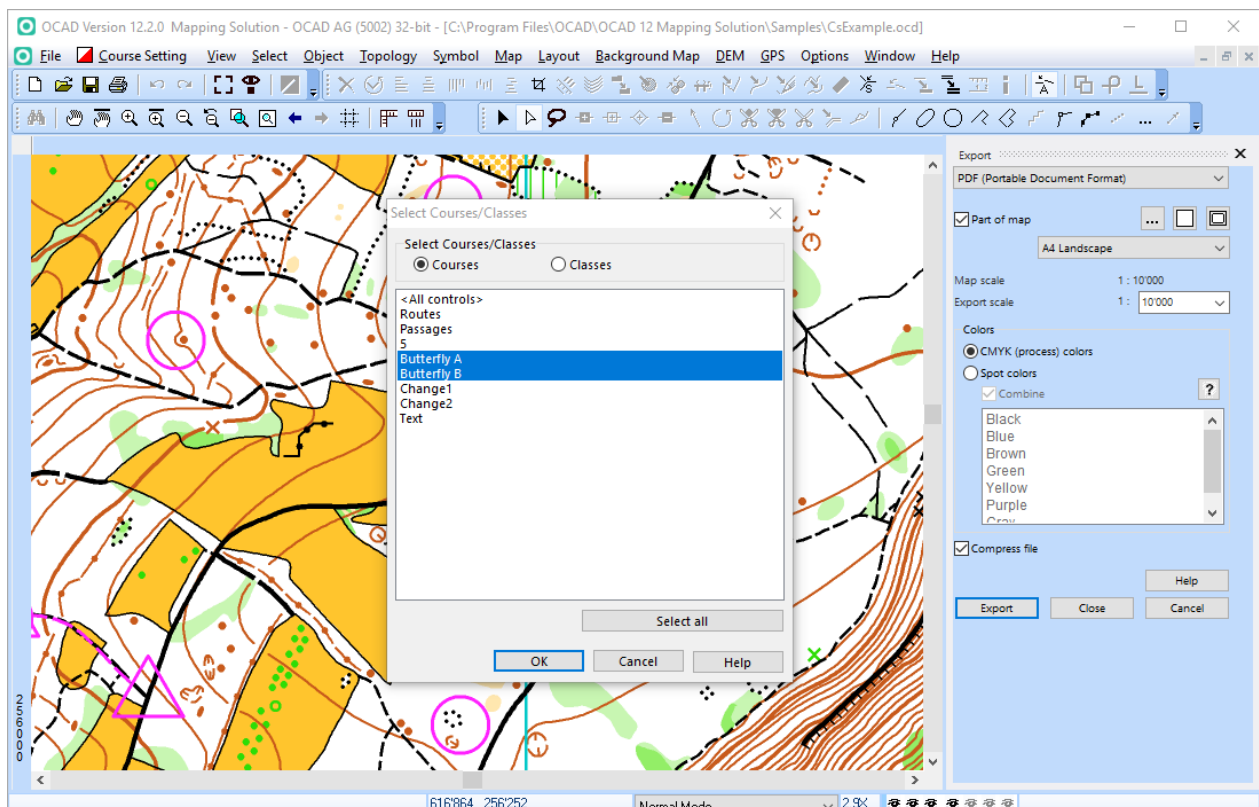
OCAD provides different export options of course data for event software, courses as gpx file, course maps etc. Visit the **Course Setting Export** page for more information.

Create PDF Files for Printing

Please use **Export** from the **File** menu if you want to create **PDF files** from the courses to provide them to the printery.

Please select the courses/classes in the **Select Courses/Classes** dialog that appears after clicking the **Export** button in the Export panel.

 You can also export the PDF files from exported **Course Maps**. In that case the **Select Courses/Classes** dialog does not appear since a course map file contains only graphics.



Options

Choose the **Options** command from the **Course Setting** menu to get some **Course Setting Options**.

Save as OCAD 9, OCAD 10 or OCAD 11

You can save your course setting project as OCAD 9, OCAD 10 or OCAD 11 file. Please note, that some features may be lost according to the **Compatibility Check**.

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[Previous Chapter: XML Script](#)

[Next Chapter: Client Server Architecture](#)

References

[1] <http://ocad.com/howtos/11.htm>

[2] <http://www.picotiming.ch/indexsoft.html>

Create a New Course

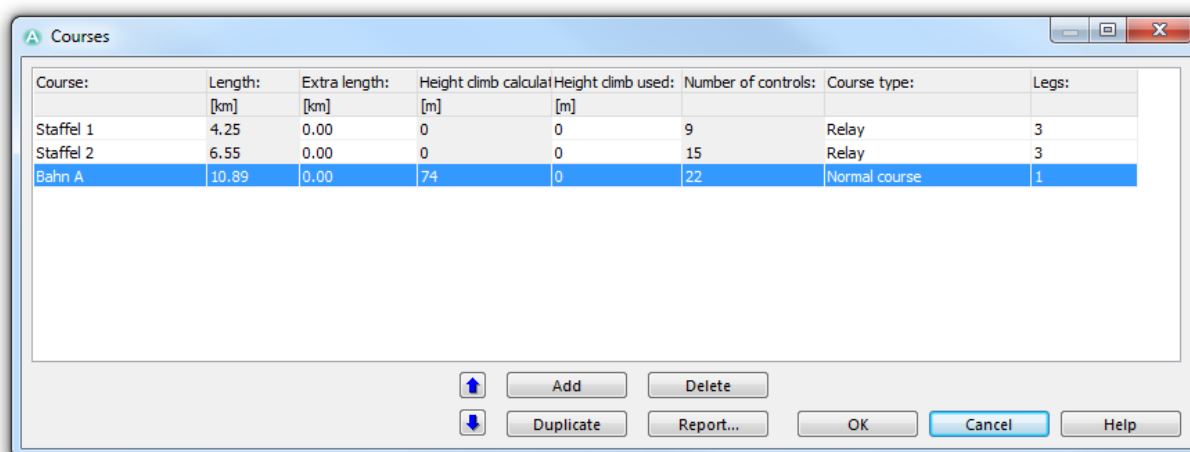
Pro **Std** **Sta** **CS**

(This function is only available in course setting projects!)

To create a new course, you first define its name and other parameters. Then you add the course objects.

Define the Name and Other Settings

1. Choose the **Courses** command in the **Course Setting** menu.
2. The **Courses** dialog appears.



3. Click the **Add** button.
4. Enter a course name in the first column.
5. Define the **Course type** in the corresponding column. You can choose between **Normal Course**, **Relay** or **One-man relay**.
6. If you have chosen the **Relay** or **One-man relay** option, define the number of legs in the last column.
7. Click the **OK** button when finished. Other adjustments can be made after adding course objects to the course in this dialog. Visit the corresponding article below.

Add Course Objects

Adding course objects is the next step. They must have been created before (**Add Course Setting Objects**).

To add a course object to a course follow these steps:

1. Select the course in the dropdown list of the **Course Object Box**.
2. Make sure that you are not in the **Preview Mode**.
3. Double click a course object either on the map or in the course objects list.
4. The course object is inserted at the position of the blue horizontal insertion line in the **Course Object Box**. Click the correct position in the course (so that the line gets moved) before adding the course object.

```

7. 57
8. 41
9. 39

```

You can add a **Start**, a **Finish**, **Controls** or a **Marked Route** to the course, as well as some special objects (e.g. relay variations or **Text Blocks**) listed on the **Insert Course Object** page.

Edit the Course

Find editing options on the **Edit Course Setting Objects** page.

Choose the **Courses** command in the **Course Setting** menu to display the **Courses** table with the following headers:

- **Course:** Edit the course name in this column.
- **Length:** The length is calculated automatically with help of the set scale. This column cannot be edited.
- **Extra length:** In this column you can enter extra length. The extra length is added to the calculated length and the sum shows up in the control description. The extra length can also be negative to make the course length shorter.
- **Height climb calculation:** In this column the calculated climbing is shown. Climbing is calculated with help of the **DEM** or with the control elevations entered in the **Control Elevation** dialog.
- **Height climb used:** Enter a value here for the height climb which shall show up in the control description.
- **Number of controls:** The number of controls is listed in this column.
- **Course type:** Change between **Normal course**, **Relay** or **One-man relay** in this dropdown list.
- **Legs:** For **Relays** and **One-man relays** enter the number of legs in this column.
- Click the **Move up** or the **Move down** button to move the selected course up or down.
- Click the **Add** button to add a new course.
- Click the **Delete** button to delete the selected course.
- Click the **Duplicate** button to duplicate the selected course.
- Click the **Report** button to save the table as a XLS, TXT, HTM or DOC-File.
- Click the **OK** button to save all changes and quit the dialog.
- Click the **Cancel** button to quit the dialog without saving any changes.

Back to the **Course Setting for Orienteering** page.

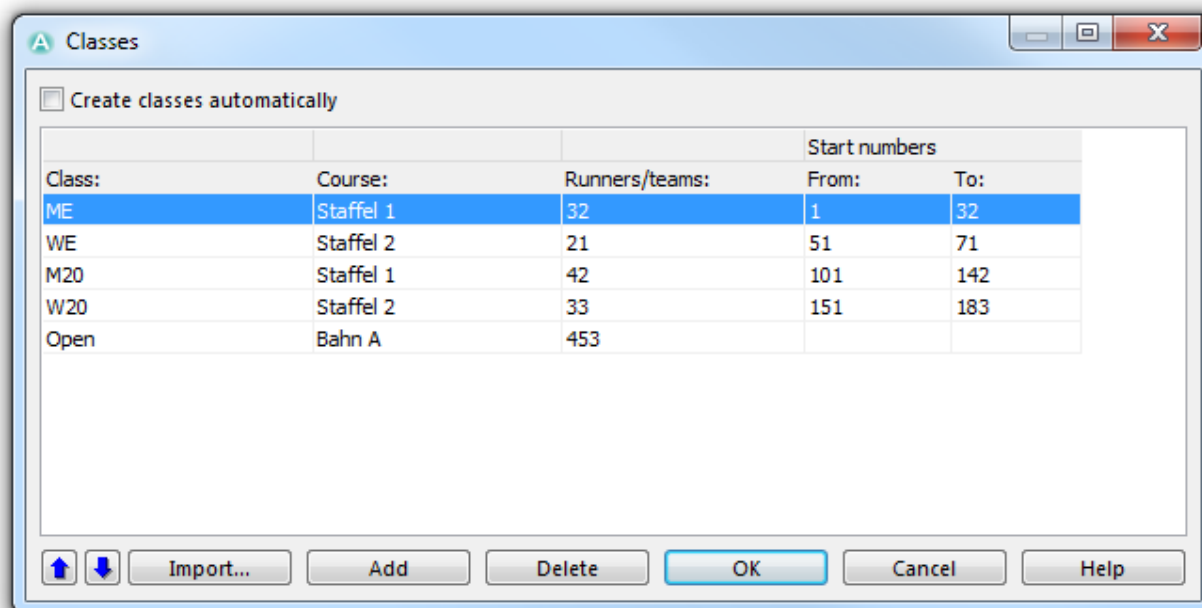
Create a New Class

Pro Std Sta CS

(This function is only available in course setting projects!)

This function is used when different classes use the same course. You will have to define classes and allocate a course to them.

1. Choose the **Classes** command from the **Course Setting** menu.
2. The **Classes** dialog appears.



3. Uncheck the **Create classes automatically** option. If this option is enabled, courses and classes are equal which means that every class has a different course.
4. Click the **Add** button to create a new class. A new row is inserted in the table.
5. Enter a name in the **Class** column (e.g. M20)
6. Allocate a course. Choose the course from the dropdown list in the **Course** column.
7. Define the estimated number of runners or teams (for **Relay Courses**) in the corresponding column. This number is used for the calculation of course statistic.
8. Enter the **Start numbers** allocated to this class. This is especially important when setting a **Relay Course**. On the basis of the start numbers, variations get allocated to the teams.

Click the **Move Up** or **Move Down** button to move a class up or down in the table. Click the **Delete** button to delete the selected class. Click the **OK** button to save and quit the dialog.

Import Class Assignment

Click the **Import** button to import a class assignment file. The file contains two columns with course name and class name. The columns are separated by a semikolon (;) or a tab. OCAD ignores the first header line.

Example file:

```
Course;Class
1;M17
1;M40
2;W21
3;W13-14
```

OCAD adds the class only if the course exists.

Back to the **Course Setting for Orienteering** page.



Add Course Setting Objects





(This function is only available in course setting projects!)

Add Start Controls and Finish



Start

1. Select the  **Start** symbol in the symbol box.
2. Select any drawing mode.
3. Click in the drawing area to place the object. Now the **Course Object Dialog Box** appears. It proposes the code S1 for the start. Enter a different code if desired.
 **Skip** the course object dialog box by holding down the Shift key when clicking in the drawing area.
4. Click the **OK** button.
5. The **Start** object appears on the map.
6. You can now **Add the Course Object to Courses**.
7. Select it to get some editing options. Visit the **Edit Course Setting Objects** page to get more information (e.g. how to edit the control description).

Control

1. Select the  **Control** symbol in the symbol box.
2. Select any drawing mode.
3. Click in the drawing area to place the object. Now the **Course Object Dialog Box** appears. It proposes a code. Enter a different code if desired.
 **Skip** the course object dialog box by holding down the Shift key when clicking in the drawing area.
4. Click the **OK** button.
5. The **Control** object appears on the map.
6. You can now **Add the Course Object to Courses**.
7. Select it to get some editing options. Visit the **Edit Course Setting Objects** page to get more information (e.g. how to edit the control description).


Finish

1. Select the  **Finish** symbol in the symbol box.
 2. Select any drawing mode.
 3. Click in the drawing area to place the object. Now the **Course Object Dialog Box** appears. It proposes a code. Enter a different code if desired.
 **Skip** the course object dialog box by holding down the Shift key when clicking in the drawing area.
 4. Click the **OK** button.
 5. The **Finish** object appears on the map.
 6. You can now **Add the Course Object to Courses**.
 7. Select it to get some editing options. Visit the **Edit Course Setting Objects** page to get more information.
-

💡 It is not possible to edit the control description for the finish. The control description is defined by the marked route between the last control and the finish.

Add Control to Map and Course at once by Moving the Connection Line

This feature has been added in OCAD version 12.0.6

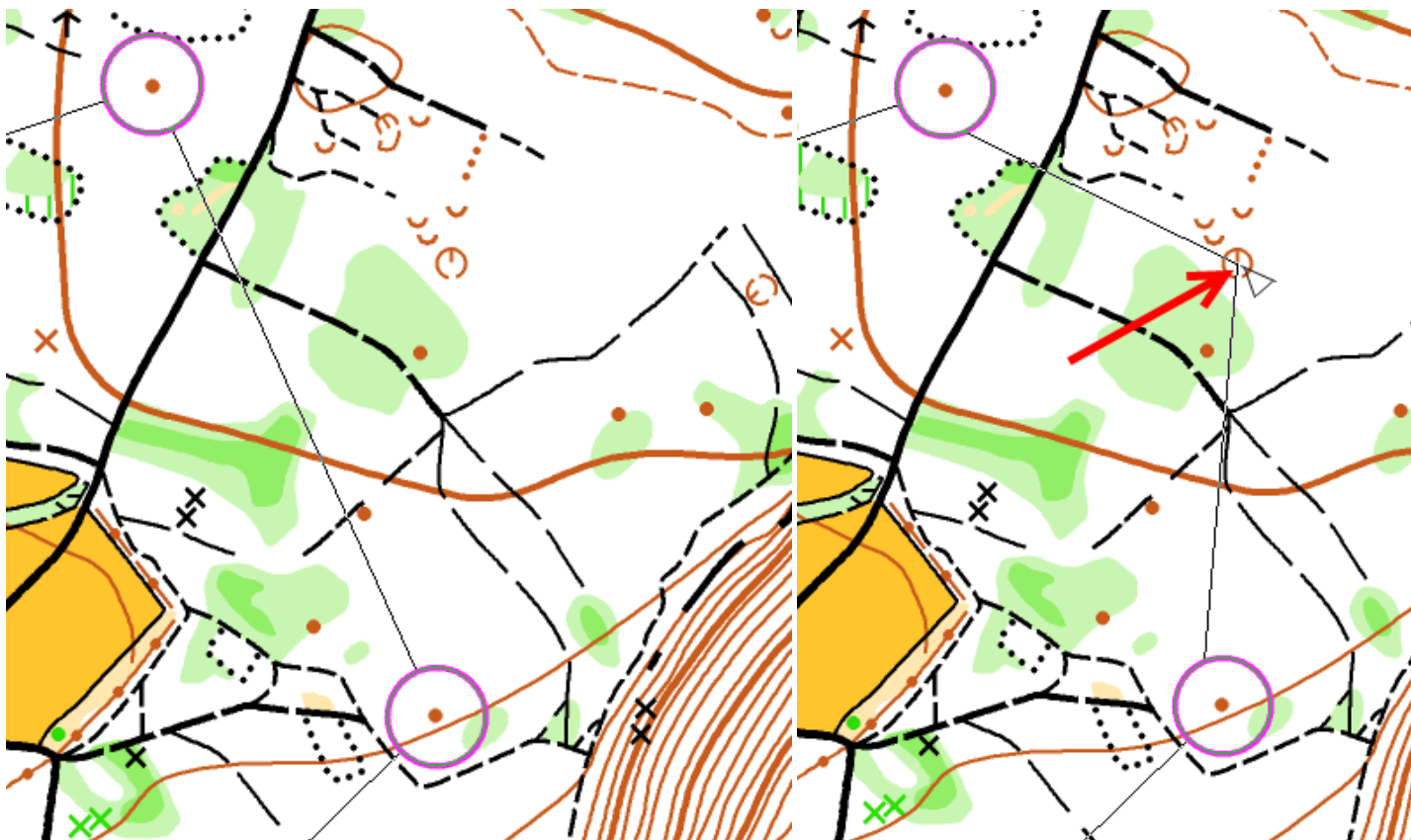
1. Select the course in the dropdown list of the **Course Object Box**.
2. Make sure that you are not in the Preview Mode.
3. Select the  **Control** symbol in the symbol box.
4. Choose the **Select Object and Edit Vertex** tool.
5. Click on the connection line between those controls where the object should be added and drag the connection line to the place where the object should be added. Now the **Course Object Dialog Box** appears. It proposes a code. Enter a different code if desired.

💡 **Skip** the course object dialog box by holding down the Shift key when clicking in the drawing area.

6. Click the **OK** button.
7. The object appears on the map and is **added to the course**.

💡 **Variant for step 5 and 6:** If the connection line is moved to an existing control then this control is added to the course without creating a new control on the map.

🖼️ [Add Control to Map and Course at once by Moving the Connection Line ^[1]]




Add a Marked Route

A marked route is mostly used from the last control to the finish. Sometimes you may also have marked routes between controls (e.g. to cross a bridge or a dangerous area).

The marked route treated in this article applies to a route the runner must use. If you want to add a marked route just for information, but which is not part of the course you have to add it as a different object, which is described at the end of this article.

To create a marked route:

1. Select the  **Marked Route** symbol in the symbol box.
2. Select a drawing tool (e.g. the curve tool).
3. Draw the marked route in the direction in which the competitors are running (e.g. from the last control to the finish).
4. Now the **Course Object Dialog Box** appears. It proposes a code. Enter a different code if desired (See below if this dialog box does not appear automatically).
5. Click the **OK** button.
6. The **Marked Route** object is shown on the map.
7. You can now **Add the Course Object to Courses**.
8. Select it to get some editing options. Visit the **Edit Course Setting Objects** page to get more information.


Check **Funnel tapes** in the **Course Object Box** when a marked route is selected to get the corresponding symbol on the control description.

The marked route defines how the finish is displayed on the control description. Marked routes can be drawn anywhere in the course, but note that they must be drawn in the direction in which the competitors are running, otherwise the course will not be drawn correctly.





Marked routes must be added to each course like controls and the finish (**Add a Course Object to Courses**).

If the **Course Object Dialog Box** does not appear automatically:

1. Right-click on the  **Marked Route** symbol in the symbol box.
2. Choose the **Edit** command from the context menu. The **Line Symbol** dialog box appears.
3. In the **Main Line** tab activate the **Course setting symbol: Marked route** option.
4. Click the **OK** button and draw the marked route again.


If you want to create a marked route without influence on the course:

1. Right-click on the  **Marked Route** symbol in the symbol box.
2. Choose the **Duplicate** command.
3. Right-click on the duplicated  **Marked Route** symbol in the symbol box.
4. Choose the **Edit** command from the context menu. The **Line Symbol** dialog box appears.
5. In the **Main Line** tab disable the **Course setting symbol: Marked route** option.
6. Click the **OK** button. Now you can draw a marked route which cannot be added to a course and is always visible.

In this case, activate the new option **Draw white background even in draft mode** in the **Course Setting Options** dialog. Read more in the **Course Setting Options** article.

Add a Course Title

Normally you add the title of the course to the map. To add a course title, you place a text object which is a placeholder for the course title. This text object will be filled with the course title in each course.

1. Select the  **Course Title** symbol in the symbol box.
2. Select any drawing mode.
3. Click in the drawing area to place the object. Now the **Course Object Dialog Box** appears. It proposes a code. Enter a different code if desired. If this dialog does not appear automatically, you must make a modification to the course title symbol which is described below.
4. Click the **OK** button.
5. The **Course Title** object appears on the map with the placeholder text **Course**.
6. Select it to get some editing options. Visit the **Edit Course Setting Objects** page to get more information.


Click the **Preview** button to get a preview of the course title.

OCAD allows you to use the course name (e.g. Course C), a list of all classes using that course (e.g. M16 - W20 - M40) or both (e.g. Course C M16 - W20 - M40) as a course title. To define the appearance of the course title:

1. Choose the **Options** command from the **Course Setting** menu. The **Course Options** dialog box appears.
2. Select the desired course title in the **Course title** box.


The same course title will also appear in the control description.

If the **Course Object Dialog Box** does not appear automatically:


1. Right-click on the  **Course Title** symbol in the symbol box.
2. Choose the **Edit** command from the context menu. The **Text Symbol** dialog box appears.
3. In the **General** tab activate the **Course setting symbol** option and choose the **Course title** item from the dropdown list.
4. Click the **OK** button and place the course title again.

Add Variant for Relay Courses

For relay courses, you can add an overview of the variations (variant) to the map. To add the variant, a text object which is a placeholder for the variant is placed. This text object will be filled with the variant of each runner when printing or exporting the map. The variations are indicated with a letter in the variant text field. The leg is indicated with the number at the beginning of the text field. The variations are indicated with letters (e.g. from A to C at a three men relay). If two runners have the same sequence of letters, they have exactly the same variations on this leg. Different letters mean different variations.

1. Select the  **Variant (Relay)** symbol in the symbol box.
2. Select any drawing mode.
3. Click in the drawing area to place the object. Now the **Course Object Dialog Box** appears. It proposes a code. Enter a different code if desired. If this dialog does not appear automatically, you must make a modification to the course title symbol which is described below.
4. Click the **OK** button.
5. The **Variant** object appears on the map with the placeholder text **AB**. This text is replaced with the variation sequence when printing or exporting the map.
6. Select it to get some editing options. Visit the **Edit Course Setting Objects** page to get more information.

If the **Course Object Dialog Box** does not appear automatically:


1. Right-click on the  **Variant (Relay)** symbol in the symbol box.
2. Choose the **Edit** command from the context menu. The **Text Symbol** dialog box appears.
3. In the **General** tab activate the **Course setting symbol** option and choose the **Code for variant (relay)** item from the dropdown list.
4. Click the **OK** button and place the Variant object again.




Visit the **Create Relay Courses** page to get more information about relays.

Add Start Numbers for Relay Courses

For relay courses, you must add the start number to the course in order to give the right map to the right runner. To add a start number, a text object which is a placeholder for the start number is placed. This text object will be filled with the start number of each runner when printing or exporting the map.

1. Select the  **Start Number (Relay)** symbol in the symbol box.
2. Select any drawing mode.
3. Click in the drawing area to place the object. Now the **Course Object Dialog Box** appears. It proposes a code. Enter a different code if desired. If this dialog does not appear automatically, you must make a modification to the course title symbol which is described below.
4. Click the **OK** button.
5. The **Start Number** object appears on the map with the placeholder text **51.1**. This text is replaced with the start number when printing or exporting the map.
6. Select it to get some editing options. Visit the **Edit Course Setting Objects** page to get more information.

If the **Course Object Dialog Box** does not appear automatically:

1. Right-click on the  **Start Number (Relay)** symbol in the symbol box.
2. Choose the **Edit** command from the context menu. The **Text Symbol** dialog box appears.
3. In the **General** tab activate the **Course setting symbol** option and choose the **Start number (relay)** item from the dropdown list.
4. Click the **OK** button and place the start number again.




Visit the **Create Relay Courses** page to get more information about relays.

Add Other Objects


In a course overprint you may want to add other objects like:

- **Event Title**
- **Logo of the Event**
- **Date of the Event**
- **Corrections to the Map**
- **Other information relevant to the runner**

The standard symbol set contains a symbol for the event title . For other objects you may have to **Create Your Own Symbols**. It is important for these symbols that the option **Course Setting Symbol** (in the symbol dialog, when you click the symbol with the right mouse button and choose **Edit** from the context menu) is switched off. The option **Course Setting Symbol** must be used only for objects which belong to a course like controls, the marked route from the last control to the finish or the course title.

Example If there is a marked route for children which you would like to appear on all other courses (just for information) you proceed as follows:

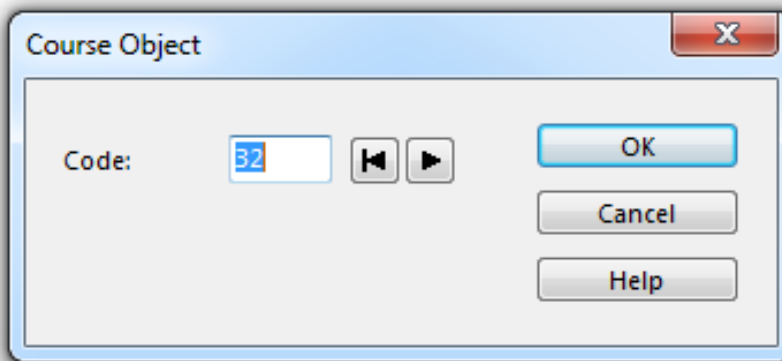
1. Right-click on the  **Marked Route** symbol in the symbol box.
2. Choose the **Duplicate** command.

3. Right-click on the duplicated  **Marked Route** symbol in the symbol box.
4. Choose the **Edit** command from the context menu. The **Line Symbol** dialog box appears.
5. In the **Main Line** tab disable the **Course setting symbol: Marked route** option.
6. Click the **OK** button. Now you can draw a marked route which cannot be added to a course and is always visible.

Use this new symbol to draw the children course.

Course Object Dialog Box

This dialog box appears after placing a course object or clicking the **Change Code** button in the course setting box on the right side of the window.



In this dialog box you can create or edit the code of a course object.

Code

OCAD proposes the next free number for the controls and a letter plus a number for other course objects. It is recommended to use this convention.

First Free Code button

Click this button to get the first free code available. For control objects OCAD first searches for the lowest number you have defined and assumes that you want to use only numbers above this number. If you want to use a lower number, you must enter it on the keyboard.

Next Free Code button

Click this button to get the next free code available.

Click the **OK** button when finished.



- There are no restrictions for the code. You can enter an arbitrary code, even letters and some glyphs are allowed.

- If **Auto Control Description** is activated, this dialog is extended with the control description part. Read the **Course Setting with Auto Control Description** article for more information.

Back to the **Course Setting for Orienteering** page.

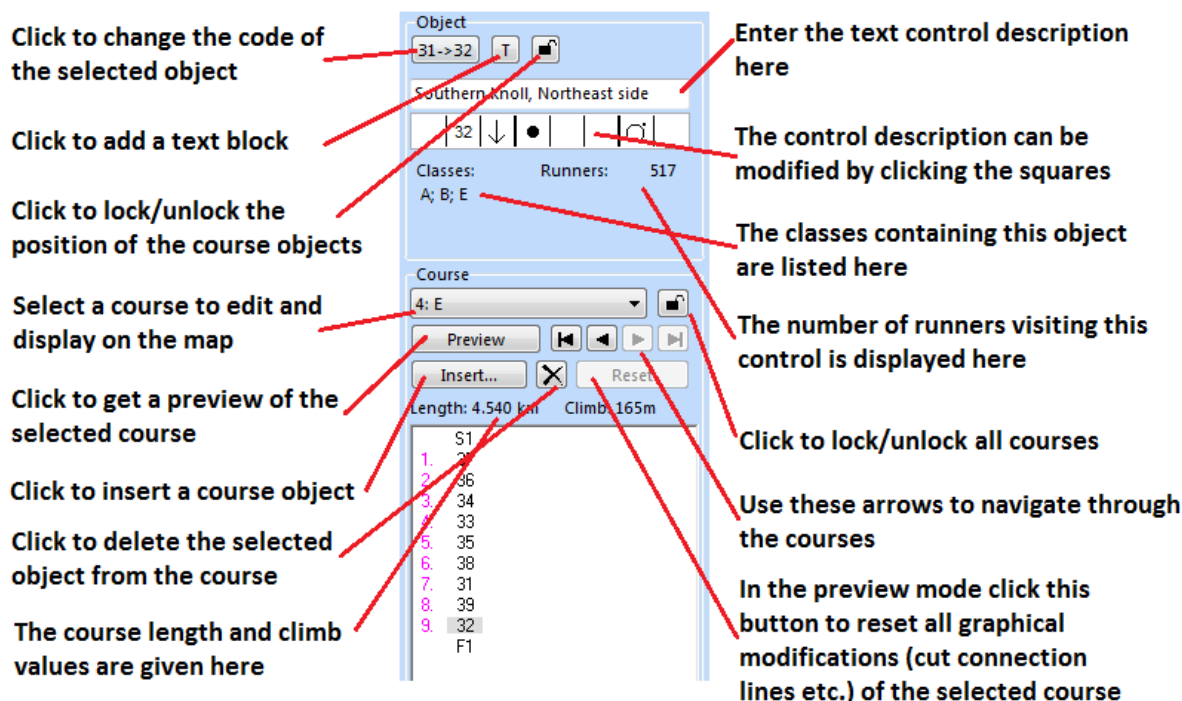
References

- [1] <http://www.ocad.com/howtos/AddControlToMapAndCourseByMovingConnectionLine.mp4>

Edit Course Setting Objects

Pro Std Sta CS

The **Course Setting Box** on the right side of the window provides several editing options for added course setting objects (Start, Control, Finish, Marked Route etc.).



Change Code

Change the code of the selected course setting object by clicking the corresponding button (see figure). The **Course Object Dialog Box** appears. Enter an arbitrary new code (no restrictions) or click the arrows to find the first or the next free code. Click the **OK** button when finished.

If you want to renumber all controls, use the **Renumber all controls** function in the **Controls** submenu of the **Course Setting** menu.

Text Block

Click this button (see figure above) to add a text block to the control description. The **Course Object** dialog appears. Enter a code for the text block and click the **OK** button. The text block appears in the list of all course objects to the left of the **Object** box. Select it and type a text in the field standing for the text control description (see figure above). Now the text block has to be added to a course. For this reason, select the course, mark the correct position in the course (e.g. after control number 38) and double-click the text block in the course object list. The inserted text appears in the control description.

8	37	^			⊥
9	38	^			✓
This is a text block					
10	34	⊙			⊙
11	39	∇			

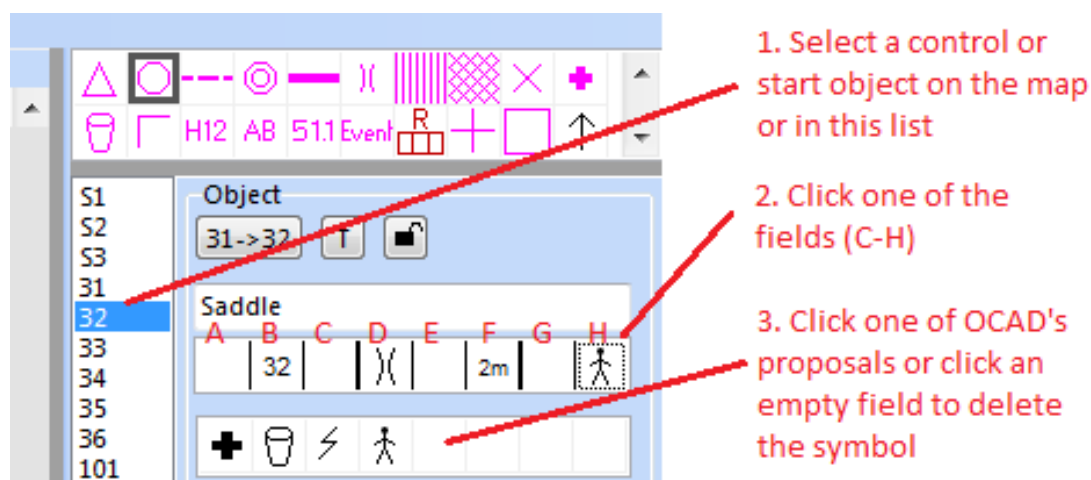
Lock or Unlock Objects

Click the **Lock** button (see figure above) to lock or unlock course setting objects. If the course setting objects are locked, they cannot be moved in the drawing area.

Text Control Description

Enter a text in this field (see figure above) for the text control description. Alternatively, the text control description can be edited using the **Edit Text Control Description** function in the **Course Setting** menu. Defining a text for the text control description is possible for **Starts**, **Controls**, **Marked Routes** and **Text Blocks** (displayed also in the symbol control description).

IOF Symbol Control Description



You can edit the IOF symbol description by clicking one of the eight squares. OCAD proposes some symbols for the corresponding field in a menu. To delete a symbol from the control description, click an empty field of OCAD's proposals, when clicking the corresponding square (C-H).



A: Control Number: The control number is specified automatically depending on the sequence of the controls and cannot be edited.

B: Control Code: To edit the control code use the **Change Code button**.

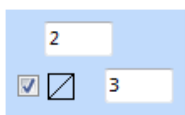
C: Which of any Similar Feature: Declare the position of the feature when there are similar features at close quarters.

D: Control Feature: The control feature can be declared in this field.

E: Appearance: Add additional information characterizing the appearance of the feature.

F: Dimensions/Combinations: The dimensions or combinations of the feature can be declared in this field.

You can either choose the crossing or junction symbol for two combination symbols or enter the dimension of the feature:



Enter a value in the upper field of this box to define the dimension of this feature.

Enter a value in both fields of this box to define the heights of two features.

Enter a value in both fields and check the diagonal box to define the height of a feature on a slope.

G: Location of the Control Flag: Declare the precise location of the control flag in this field.

H: Other Information: Other information can be given in this field (e.g. radio control or refreshments).



- Sources and additional information to the IOF control description can be found here: **IOF Control Descriptions 2004.pdf**^[1]

- Editing the symbol control description is possible for **Starts** and **Controls**.

- It is not possible to edit the control description for the finish. The control description is defined by the marked route between the last control and the finish.

Add an Own Symbol to the Control Description

It is possible to add an own symbol to the control description.

1. Create a new point symbol with the correct appearance and dimensions for the control description. Learn how to create a new point symbol on the **Create a New Symbol** page.
2. Unlike the **Point Symbol Dialog** in a normal map project, the **Point Symbol Dialog** of **Course Setting** projects have an additional part, namely the **Course setting project for orienteering** part.
3. Check the **Control description symbol** option.
4. Check the fields (B-H), which you want OCAD to propose your own symbol.
5. Click the **OK** button when finished.

Classes and Runners

In this part of the dialog all **Classes** using the selected course setting objects are listed. In addition, the total number of runners visiting this object is given. Define the number of runners per class in the **Classes** dialog.

Course

Select a course in the dropdown list (see figure at the top). The course is now selected. You can add course objects to it by double clicking them on the map or on the list with all objects. There are two special items in this list:

- **Runners:** Select this item to display all controls. In the **Preview** mode the total number of runners visiting this control is given in brackets behind each control code. Define the number of runners per class in the **Classes** dialog.
- **All controls:** Select this item to display all controls on the map. In the **Preview** mode each control is displayed with its code.

Add Course

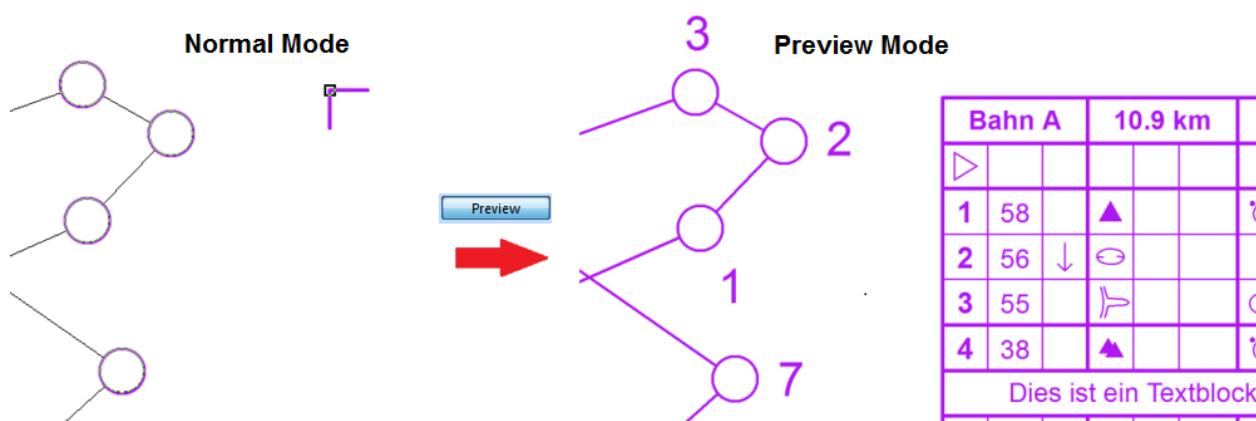
Click the **Add** icon to add a new course. The Courses dialog opens with the added course listed in the last row.

Lock or Unlock Courses

Click the **Lock** icon to lock or unlock all courses. When courses are locked, it is not possible to add or remove course setting objects.

Preview

Click the **Preview** button to get a preview of the selected course. You are now in the **Preview** mode. In the **Preview** mode it is possible to make several graphical adjustments on the course.



The following adjustments are allowed:

- **Connection Lines:** Connection lines can be edited with most of the editing tools (e.g. **Reshape**, **Add**, **Move** or **Remove Vertices**, **Cut** etc.). This can be useful if for example a connection line crosses another control or covers an important map object.
- **Control Numbers:** Select a control number and move it to another position. This can be useful if the control number gets in the way of other course objects or important map information.

Visit the **Make Graphic Modifications** page to get more information.

Note: Other adjustments (e.g. move controls or add new course objects) are not allowed to make in the **Preview** mode. Make sure you click the **Preview** button again before going on working on the courses.

💡 - If control circles cover important map information, they have to be cut in the normal mode and not in the **Preview** mode.

- When moving a control or a course setting object on the map, all affecting graphical adjustments (e.g. moved control numbers or cut connection lines) made in the preview mode get lost. Use the **Lock** button to prevent from moving course objects accidentally.

Switch Between Courses

Use the arrow buttons to switch between the courses.

Insert

Select a course and click the **Insert** button. The following course objects can be inserted:

- Mandatory crossing point(s)
- Mandatory passage through out of bounds area
- Map exchange
- Team variation
- Leg variation

Visit the **Insert Course Object** page for more information.

Delete

Remove a course object from a course by selecting it and clicking the **Delete** button. Alternatively, you can press the **Delete** key.

Reset


This button is available when you are in the **Preview** mode. All graphical adjustments (e.g. moved control numbers or cut connection lines) are removed when clicking this button.

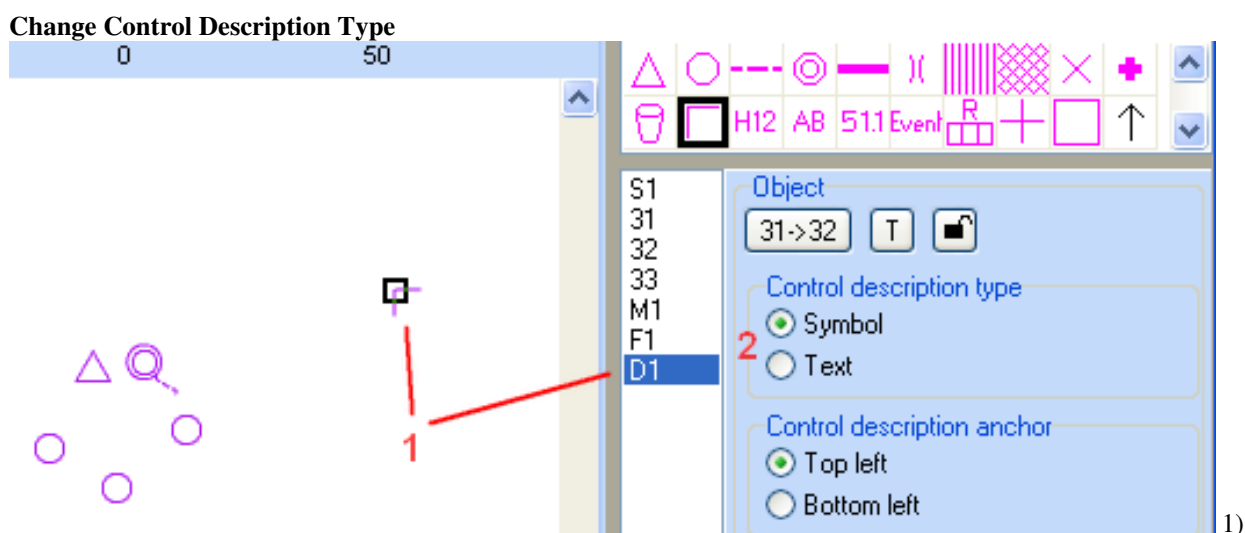
Course Length and Climb

The length and climb of the course is displayed here. The length of the course is calculated automatically. However, you can add an extra length in the **Courses** dialog. If a **DEM** is used, the climb is calculated automatically, too. Although, you will have to adjust this value in the **Courses** dialog because OCAD calculates it using the linear distance.

Functions for Special Course Objects

Control Description

Choose the  **Control Description** symbol and place it on the map. Enter a code in the **Course Object** dialog and click the **OK** button. The upper right corner of the control description is indicated with a hook. In the **Course Object Box** on the right side of the window you have the option to change the **Control description type** from symbol to text or change the **Control description anchor** from top left to bottom left.



Select the control description corner on the drawing area or in the course setting objects list.

2) Change the **Control description type** from symbol to text or vice versa on the right side of the window.

💡 It's the same with changing the **Control description anchor** from top left to bottom left in the **Course Object Box**.

Marked Route

If you select a marked route on the map, enable the **Funnel tapes** option in the **Course Object Box** to get the corresponding symbol in the control description. In addition, a text can be entered in the field above. This text appears in the text control description and has no effect on the symbol control description.

Learn how to add a **Marked route** with help of the **Add a Marked Route** article.

Main Page

Course Setting for Orienteering

References

[1] <http://orienteering.org/wp-content/uploads/2010/12/IOF-Control-Descriptions-2004.pdf>

Add a Course Object to Courses



(This function is only available in course setting projects!)

Add a Course Object to Courses

To add a course object to a course follow these steps:

1. Select the course in the dropdown list of the **Course Object Box**.
2. Make sure that you are not in the **Preview Mode**.
3. Double click a course object either on the map or in the course objects list.
4. The course object is inserted at the position of the blue horizontal insertion line in the **Course Object Box**. Click the correct position in the course (so that the line gets moved) before adding the course object.

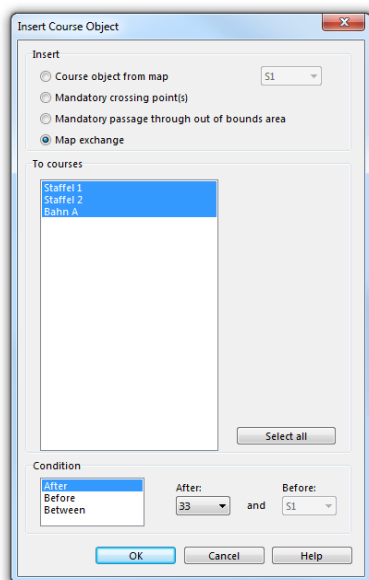
7. 57
8. 41
9. 39

You can add a **Start**, a **Finish**, **Controls** or a **Marked Route** to the course, as well as some special objects (e.g. relay variations or **Text Blocks**) listed on the **Insert Course Object** page.

Insert Course Objects to Courses

With this function a course object (start, control, marked route, finish, mandatory crossing point, mandatory passage or map exchange) can be inserted to multiple courses at a specified position.

1. Choose the **Insert Course Objects to Courses** command in the **Course Setting** menu.
2. The **Insert Course Object** dialog appears.



3. Choose an object to be inserted: **Course Object from Map** (select it in the dropdown list), **Mandatory Crossing Point(s)**, **Mandatory Passage Through Out of Bounds Area** or a **Map Exchange**.
4. Select the courses which the course object is to be inserted in the **To Courses** field. Select multiple courses by holding the **Ctrl** key or by clicking the **Select all** button.
5. Define a condition. Choose between **After**, **Before** or **Between** and select the course objects in the drop down lists.
6. Click the **OK** button when finished.

Back to the **Course Setting for Orienteering** page.

Delete Course Object from Courses

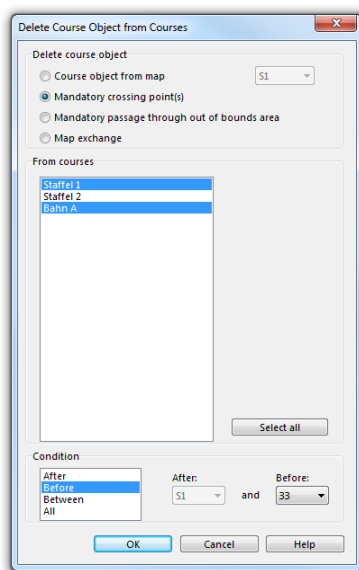
Pro **Std** **Sta** **CS**

(This function is only available in course setting projects!)

This is the inverse function of the **Insert Course Object to Courses** function.

With this function a course object (start, control, marked route, finish, mandatory crossing point, mandatory passage or map exchange) can be deleted from multiple courses at a specified position.

1. Choose the **Delete Course Objects from Courses** command in the **Course Setting** menu.
2. The **Delete Course Object from Courses** dialog appears.



3. Choose an object to be deleted: **Course Object from Map** (select it in the dropdown list), **Mandatory Crossing Point(s)**, **Mandatory Passage Through Out of Bounds Area** or a **Map Exchange**.
4. Select the courses which the course object is to be removed from in the **From Courses** field. Select multiple courses by holding the **Ctrl** key or by clicking the **Select all** button.
5. Define a condition. Choose between **After**, **Before**, **Between** or **All** and select the course objects in the dropdown lists.
6. Click the **OK** button when finished.

Back to the **Course Setting for Orienteering** page.

Make Graphic Modifications





(This function is only available in course setting projects!)

Often it is necessary to make graphic modifications to the courses generated by OCAD because for example a course object covers important map information. The common modifications made for the different courses are stored in the course setting file.

Cut out Control Circles

If a control circle covers a map detail like a knoll, a part of the control circle should be cut out to make the knoll visible. You need to make this cut-out only once. It will be visible for all courses that use this control.

1. Switch off the **Preview** mode.
2. Select the desired control.
3. Select the  **Cut** tool to cut out a part of the control circle.




 To close (repair) a cut, select the **Cut** tool and click into the gap.


Modify Connection Lines and Moving Control Numbers

You can modify connection lines and move control numbers of a specific course.

1. Select the desired course in the **Course Object Box** on the right side of the window.
2. Make sure that you are in the **Preview** mode.
3. Select the desired control number or connection line.

Then:

- Move the control number by dragging the small square to the desired position.
- Cut out a part of the connection line using the  **Cut** tool and **dragging** the mouse from the beginning to the the end of the part that should be cut out.
- Insert additional vertices into the connection line using the  **Add Normal Vertex** tool. Move these vertices using the  **Select Object and Edit Vertex** tool.

 Use the **Move Control Number for All Courses** or the **Edit Connection Line for All Courses** functions to modify course objects with an effect on all courses.

Make Other Modifications

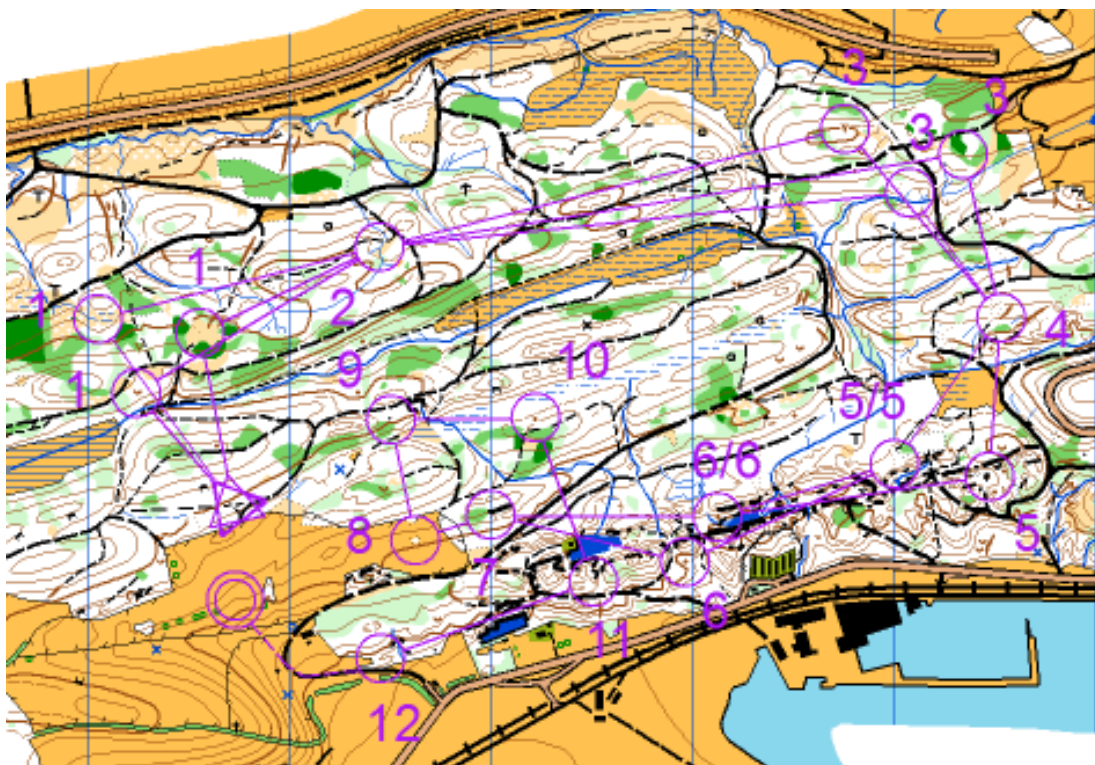
To make further modifications choose **Export Course Maps** from the **Export** submenu in the **Course Setting** menu.

Back to the **Course Setting for Orienteering** page.

Create Relay Courses

Pro Std Sta CS

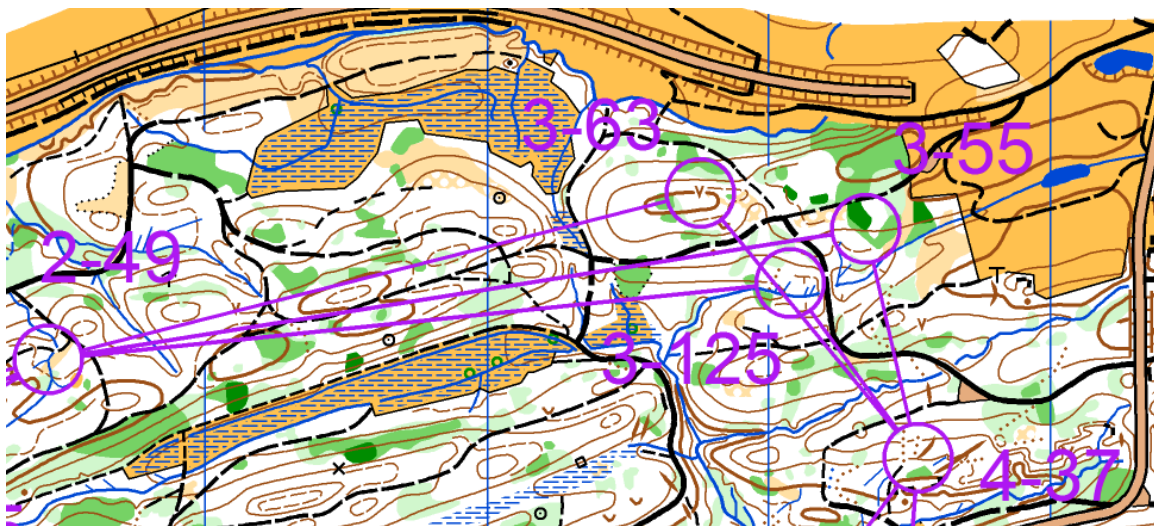
This function is only available in course setting projects!




To set courses for a relay, do the following steps:

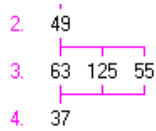
1. **Create a New Course Setting Project.**
2. **Add Course Setting Objects** (e.g. Start, Controls, Finish) to the project.
3. **Create a New Course.** Choose **Relay** as the **Course type** and define the number of legs.
4. **Create a New Class.** Check the option **Create classes automatically**. Define the number of teams and allocate start numbers to the class.
5. **Add the Course Objects to a Course.** You have special options for the relay.

Insert a Team Variation



A team variation means that runners of different teams go to different controls. OCAD allocates the chosen amount of controls regularly to the teams, but, to make the relay fair, each runner of the team get a different variation (e.g. Runner 1 goes to control 63, Runner 2 goes to control 55 and Runner 3 goes to control 125). The number of possible variations is given by the number of legs of the relay. If a relay consists of three legs, you will have to make three variations, so that the relay is fair. Although, variations can be equal to each other (if for example you want to place only two controls instead of three), in this case the equal variations are visited more often than the other one. In any case, OCAD will force you to keep the relay fair (i.e. all teams have run the same leg variations at the end of the relay). Although, you should verify the courses before printing.

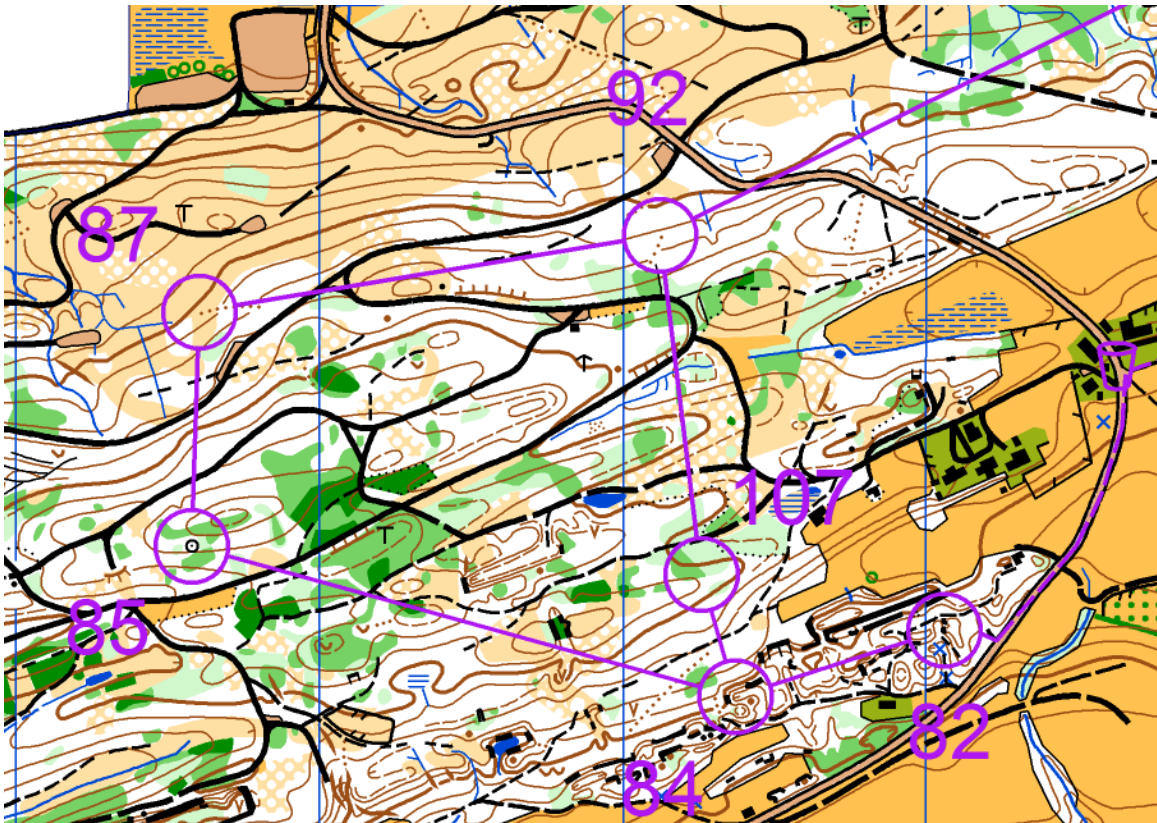
1. Mark a position in the relay course where you want to insert the variation.
2. Click the **Insert** button in the **Course Object Box** on the right side of the window.
3. The **Insert Course Object** dialog appears.
4. Choose the **Team Variation** option.
5. Click the **OK** button.
6. The team variation  appears in the course box.
7. You can add controls to the variation by marking the correct position and double clicking them.
8. The variation for the example above looks as follows:



- It is also possible to leave a variation empty. This means that two runners in a team of three will have to get a control and one runner leaves it out.

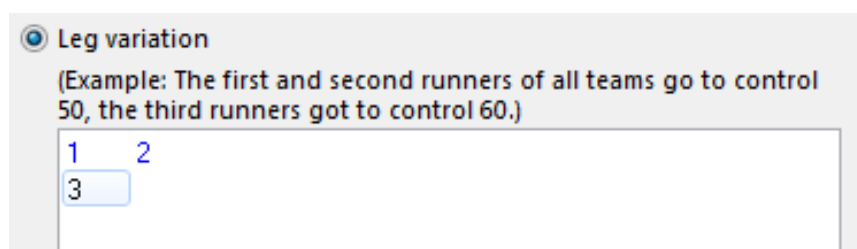
- OCAD will tell you with a warning message when you are trying to create something unfair.
- To delete a variation select it and press the **Delete** key or click the **Delete** icon.

Insert a Leg Variation



A leg variation means that there is a variation of the legs within the same team. This can be used for when you have a relay with three legs but the second leg is shorter than the other two legs. In the example above the first and the third runner goes from control 92 to 87, then to 85 and finally to control number 84, whereas the second runner goes from control number 92 to 107 and then directly to 84, which is the shorter leg. All runners who run the second leg of the relay will have this shorter variation. It is also possible to make team or additional leg variations within a leg variation itself. The same which applies to the team variation, applies also to the leg variation: OCAD will force you to keep the relay fair (i.e. all teams have run the same leg variations at the end of the relay). Although, you should verify the courses before printing.

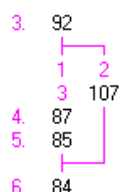
1. Mark a position in the relay course where you want to insert the variation.
2. Click the **Insert** button in the **Course Object Box** on the right side of the window.
3. The **Insert Course Object** dialog appears.
4. Choose the **Leg Variation** option.
5. Drag identical legs to the same column in the table.



6. Click the **OK** button when finished.



7. The leg variation appears in the course box. The pink numbers indicate the leg number.
8. You can add controls to the variation by marking the correct position and double clicking them.
9. The variation for the example above looks as follows:



- It is also possible to leave a variation empty. This means that some legs have additional controls where other legs go directly to the next control in common.

- OCAD will tell you with a warning message when you are trying to create something unfair.
- To delete a variation select it and press the **Delete** key or click the **Delete** icon.

Add the Variant to the Map

Read the **Add Variant for Relay Courses** article for more information.

Add the Start Number to the Map

Read the **Add Start Numbers for Relay Courses** article for more information.

Print a Relay Course

1. Choose **Courses** in the **Print** submenu of the **Course Setting** menu.
2. Adjust the print settings with help of the **Print Courses** and the **Printing Maps** pages of this Wiki.
3. Select the relay course in the **Select Courses/Classes** field.
4. Click the **Print** button.
5. The **Print** dialog appears.

You can print:

- **Variants**
 - **All**: All variants are printed once.
 - **Variant**: The variant selected in the dropdown list is printed once.
- **Start numbers**
 - **All**: All courses to all defined start numbers (in the **Classes** dialog) are printed. The variations are allocated regularly to the teams.
 - **Number(s)**: All courses to the defined start numbers (in the **Classes** dialog) entered in this field are printed. The variations are allocated regularly to the teams. You can enter a single start number (e.g. 23) or a range of numbers (e.g. 23-31).
 - **Legs**: If you choose the **Start numbers** option you also have to define which legs you want to print.
 - **All**: All legs of the selected start numbers are printed.

- **Leg:** Enter a leg number if you want to print only single legs of the selected start numbers.

Click the **OK** button when finished. The courses are printed. This can take a moment.



You can anytime reprint the course for a specific runner under the condition that nothing in the variations has been changed.

Export

Export a Relay Course

1. Choose **Export** in the **File** menu.
2. Adjust the export settings with help of the **Export Files** page of this Wiki.
3. Click the **Export** button.
4. The **Select Courses/Classes** dialog appears.
5. Select the relay course and click the **OK** button.
6. The **Export Relay** dialog appears which is the same as the **Print** dialog.

You can export:

- **Variants**
 - **All:** All variants are exported once.
 - **Variant:** The variant selected in the dropdown list is exported once.
- **Start numbers**
 - **All:** All courses to all defined start numbers (in the **Classes** dialog) are exported. The variations are allocated regularly to the teams.
 - **Number(s):** All courses to the defined start numbers (in the **Classes** dialog) entered in this field are exported. The variations are allocated regularly to the teams. You can enter a single start number (e.g. 23) or a range of numbers (e.g. 23-31).
 - **Legs:** If you choose the **Start numbers** option you also have to define which legs you want to export.

- **All:** All legs of the selected start numbers are exported.
- **Leg:** Enter a leg number if you want to export only single legs of the selected start numbers.

Click the **OK** button when finished. The courses are exported. This can take a moment.

Export Relay Variations

1. Choose the **Export Relay Variations** command in the **Export** submenu of the **Course Setting** menu.
2. The **Export Relay Variations** dialog appears.
3. Browse a location and enter a name for the file to export.
4. Click the **Save** button to export the txt-file.

The Text-File contains all courses. The start numbers are listed with the corresponding variation.

Back to the **Course Setting for Orienteering** page.

Control Elevation

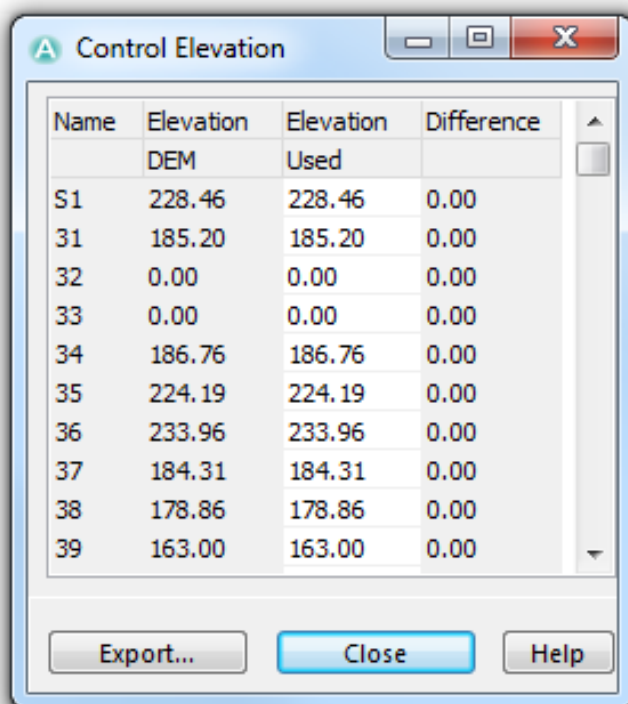
Pro **Std** **Sta** **CS**

(This function is only available in course setting projects!)

Control elevation is used to calculate the height climb for courses.

Choose the **Control Elevation** command in the **Controls** submenu of the **Course Setting** menu to change the elevation of a control.

The **Control Elevation** dialog box is displayed. It shows a table with four columns:



- **Name:** In this column the control code is displayed.
- **Elevation DEM:** This column shows the elevation of the control calculated with help of the **DEM**. If no **DEM** is loaded, this column is empty.

- **Elevation Used:** In this column an elevation value can be entered if there is no DEM available or if elevation DEM value is not correct. If a value is entered in this column, it is used for courses' height climb calculation.
- **Difference:** The difference between the **Elevation DEM** and the **Elevation Used** columns is displayed here.

Click the **Close** button to quit this dialog. Click the **Export** button to export the table as a XLS, TXT, HTM or DOC-File.

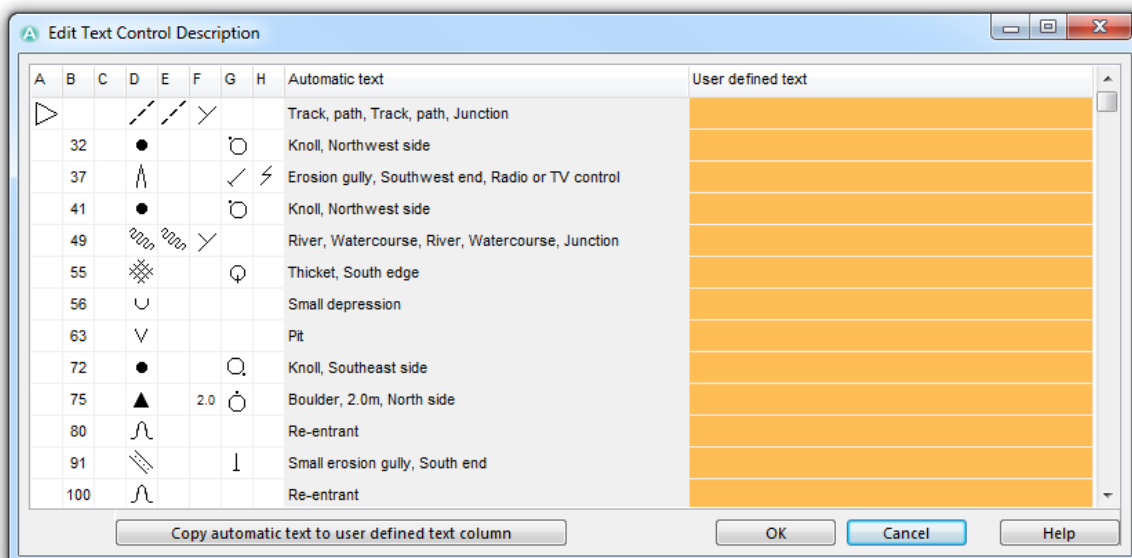
Back to the **Course Setting for Orienteering** page.

Edit Text Control Description



(This function is only available in course setting projects!)

Choose the **Edit Text Control Description** command in the **Course Setting** menu to edit the text control description. The **Edit Text Control Description** dialog appears:




You can write to each control a user defined text in the orange colored column. To copy the automatic text to the user defined text column use the corresponding button at the bottom of the dialog. Only the text in the **User defined text** column will appear in the text control description. The automatic text is generated according to the symbol names. To rename a symbol click the corresponding symbol with the right mouse button in the symbol box and choose the **Edit** command in the context menu. Enter a new name in the **Symbol description** field of the dialog.



Note that when you use the **Copy automatic text to user defined text column** button, all user defined text gets overwritten with the automatic text. Make sure to copy the automatic text to the user defined column before you edit the text by hand.

Click the **OK** button when finished.

To add a text control description to your course choose the  **Control Description** symbol and place it on the map. Enter a code in the **Course Object** dialog and click the **OK** button. The upper right corner of the control description is indicated with a hook. In the **Course Object Box** on the right side of the window you have the option to change the **Control description type** from symbol to text.

The text symbol description can also be edited in the **Course Object Box**. Visit the **Edit Course Setting Objects** page for more information.

Back to the **Course Setting for Orienteering** page.

Auto Control Description



(This function is only available in course setting projects!)

Auto Control Description is a tool to support course setters with a semi-automatic identification of the control feature. The course setting project and the map need to have the same scale and the same offset.

Activate the Auto Control Description

1. Choose the **Auto Control Description** command in the **Course Setting** menu to set up auto control description.
2. The **Auto Control Description** dialog box is displayed.
3. Check the **Use auto control description** option.
4. An OCD or EOCD-**Background Map** must be chosen. The **Auto Control Description** tool does not work with raster background maps.

Allocation Table

Click the **Allocation Table** button in the **Auto Control Description** dialog to display the allocation table. In the allocation table the relationship between the map symbols and the control description symbols are defined. The allocation table must be adapted if the background map was not drawn with an actual ISOM compatible symbol set.

The allocation table contains nine columns:

- **Map Symbol:** The symbol numbers of the map symbols are listed here.
- **Control Description, Symbol 1-6:** This column contains the numbers of the symbols of the currently opened course setting file which match to the map symbols. You can allocate up to six different symbols. When you set a control later you can switch between these symbols using the **Tab** key. If you do not want to allocate a symbol number for a column, enter **0.000**.
- **Mouse Event, Drag Direction:** This column defines the symbol which is used for the location of the control flag when you drag the mouse pointer in a direction after placing a control. The allowed inputs for this column are:

None Side Edge Part CornerInside CornerOutside Tip End PartUpperLower Top Beneath Foot Footside Between

The corresponding symbol is taken when you drag the mouse pointer in the direction which the control flag stands (**Location of the Control Flag** part in the **IOF Symbol Control Description**).

- **Mouse Event, Click:** This column defines the symbol which is used for the location of the control flag when you place the control by a simple click. The allowed inputs for this column are:

None Beneath Between Top Foot

The corresponding symbol is taken when you place a control by a simple click (**Location of the Control Flag** part in the **IOF Symbol Control Description**).

Course Setting with Auto Control Description

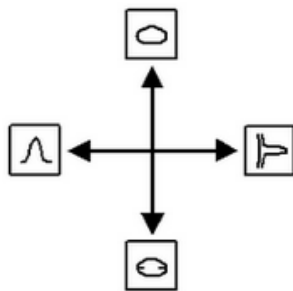
1. Activate the Auto Control Description.

2. Place a control on the map.

3. The **Course Object Dialog Box** appears with an additional part for the **IOF Symbol Control Description**.

- If the control was placed by clicking exactly on an OCAD object, OCAD will identify the control feature and add the corresponding symbol to the control description. If more than one symbol is defined for this feature in the allocation table you can switch between them by pressing the **Tab** key.
- If the control is placed exactly on an OCAD object by pressing the left mouse button and dragging in a defined direction, OCAD will identify the control feature and additionally recognize the location of the control in relation to the feature. If more than one symbol is defined for this feature in the allocation table you can switch between them by pressing the **Tab** key.
- If the control is not placed exactly on an OCAD object, what typically happens for contour features, press the **Shift** key while placing the control. OCAD will search around the control position for an object. If this object is a contour line OCAD, sets a hill in the control description by default. Change the control description symbol by pressing the **Tab** key.

💡 In addition, there is a way to bring OCAD to add the hill, depression, re-entrant or spur symbol directly to the control description. When placing a control at one of these features press the **Shift** key and drag the mouse in one of the four main directions:



Up = hill

Down = depression

Left = re-entrant

Right = spur

Back to the **Course Setting for Orienteering** page.

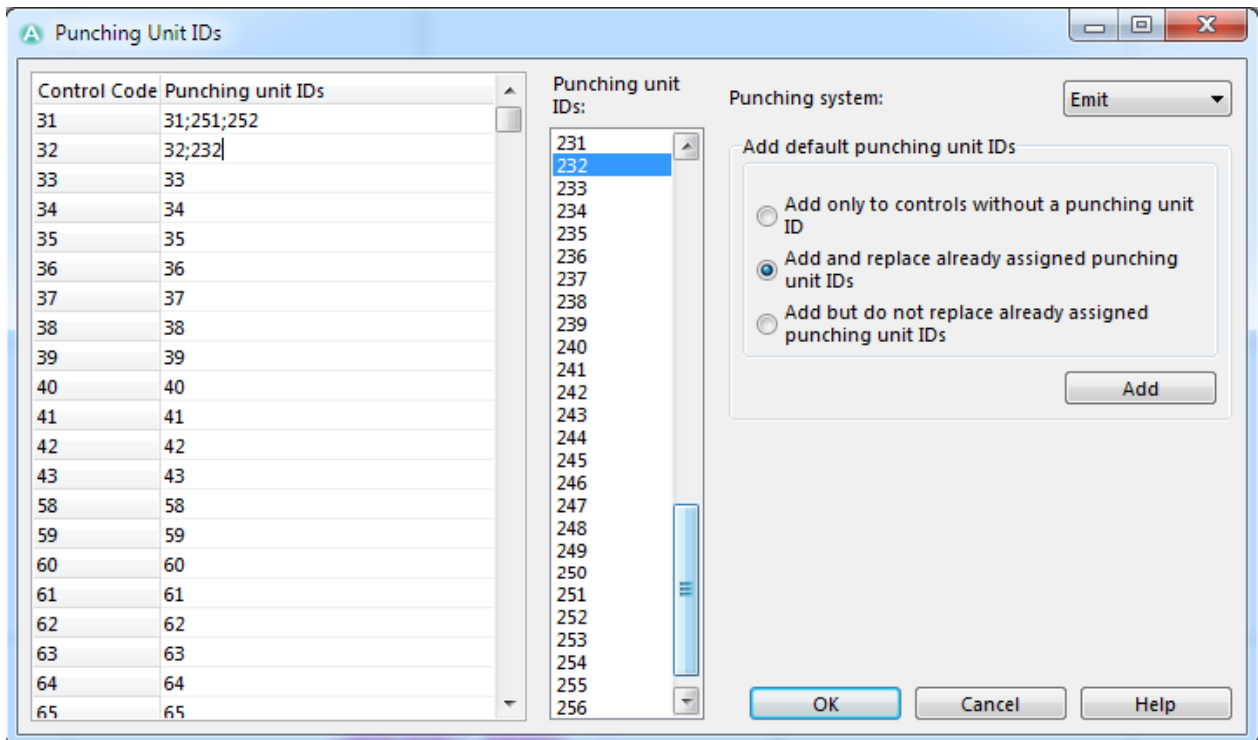
Punching Unit IDs

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(This function is only available in course setting projects!)

Choose the **Punching Unit IDs** command in the **Course Setting** menu to enter the punching unit IDs. The **Punching Unit IDs** dialog appears.

Punching unit IDs are often used for Emit result systems. OCAD exports the punching unit IDs in IOF XML file version 2 and 3.



After placing a control you can add the electrical ID of the Emit punching unit to it or, if there is more than one unit at the same control, all the IDs which refer to this control. The ID of an Emit unit is often different from the code shown in the control description.

Select a field in the **Punching Unit IDs** column and double click an ID in the list on the right side of the table to add it. The ID can also be typed directly into the field. Per control code more than one punching unit IDs can be allocated. They are separated by a semicolon (;).

Choose a punching system in the **Punching system** dropdown list. You can choose between **SportIdent**, **Emit** and **Other**.

In the **Add default punching unit IDs**-part of the dialog you can add the already existing codes of the controls to the punching unit IDs. You have three options:

- Choose the first option to add the existing control codes only to controls, which does not have a punching unit ID, yet.
- Choose the second option to add all existing control codes and replace the existing punching unit IDs.
- Choose the third option to add all existing control codes without replacing the existing punching unit IDs.

Click the **Add** button to execute the chosen action.

Back to the **Course Setting for Orienteering** page.

Course Statistic and Event Statistic



(This function is only available in course setting projects!)

Choose this command from the **Course Setting** menu to see several course and event statistics. Before using this command you must enter the estimated number of runners for each course, otherwise you will not get the full functionality. Select **Classes** in the **Course Setting** menu to get to the **Classes** dialog box where you can enter this number.

Course Statistics

In this part of the dialog a table is shown with all course objects listed, the number of courses which use it and the number of runners which will visit it. When you select a course object, you can see which courses and which classes contain it in the two boxes on the right side.

Leg Statistics

In this part of the dialog a table is shown with all legs listed and the number of courses which contain it. Select a leg to see all courses containing it in the box on the right side.

Leg statistics includes only normal courses.

Event Statistics

The following information can be found in this part of the dialog:

- Number of controls
- Number of courses
- Number of classes
- Shortest distances between controls: All controls with a distance less than 60m (resp. 30m for sprint races) to each other are listed here.
- Legs between 2 controls in opposite direction: All legs which are used in two directions are listed here.
- Identical courses: All identical courses are listed here.
- Courses without start or finish: All courses with missing start or finish are listed here.

Control/Course diagram

A table is displayed in this part of the dialog. You can read out of this diagram which control is used in which course at which position.

Export

Click the **Export** button to export the course statistic to a text file.

Back to the **Course Setting for Orienteering** page.

Course Setting Consistency Check Report



(This function is only available in course setting projects!)

(The consistency check report is added in OCAD 12.1.6)

This dialog shows a html formatted report about the course setting **Consistency Check**.

Use the **Print** button to print the dialog content or the **Save as** button to save the content as a html file.

Missing Course Item(s)

This section lists missing start or finish items in a course or if no climb is set.



The climb is not checked for relay courses.

Identical Courses

All identical courses are listed here.

Shortest Distances Between Controls

All controls that are closer than 60m (30m for sprint races) to each other are listed here.

Unused Control

This section lists controls that are not used in any course.

Control Description Shortcoming(s)

This section lists shortcomings in the control description:

- No symbol defined in column D
- No symbol defined in column D and E although "crossing/intersection", "junction" is chosen in column F
- No symbol defined in column D and E although "between" is chosen in column G
- No "crossing/intersection", "junction" or "between" chosen although symbols are defined in column D and E

Opposite Direction Legs

This section lists legs that are used in the opposite direction by different course



Opposite direction legs are not checked for relay courses.

Back to the **Course Setting for Orienteering** page.

Print Courses



(This function is only available in course setting projects!)

Choose the **Courses** command in the **Print** submenu of the **Course Setting** menu to print courses.

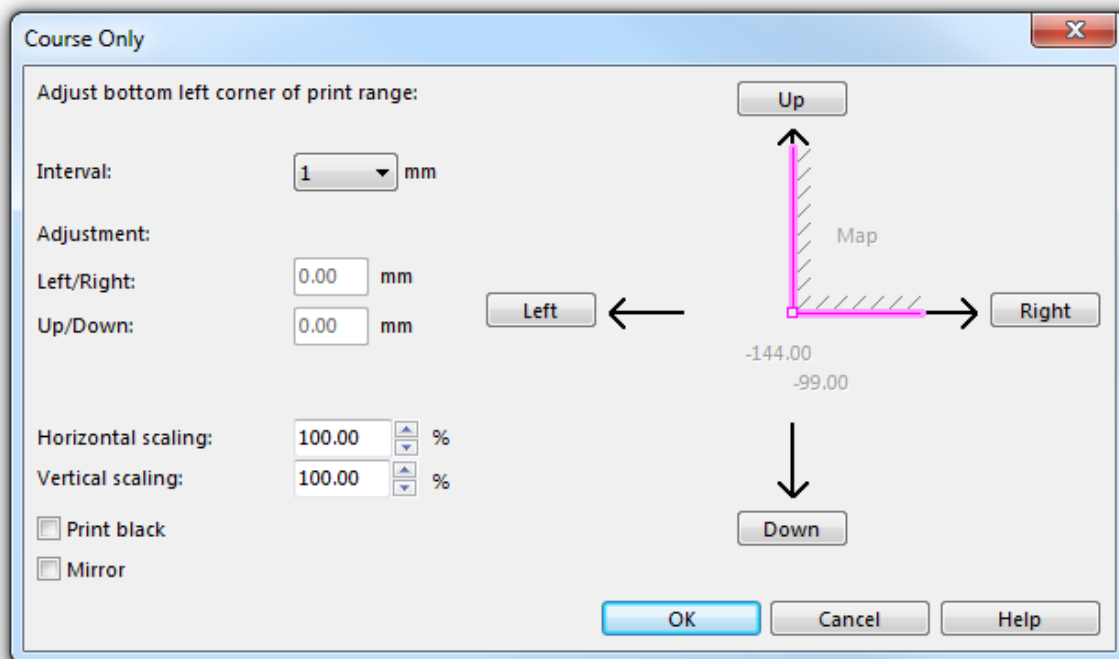
The **Print Courses** box appears on the right side of the screen. Adjust the settings which can be made in the **Printer**, **Page handling**, **Scale** and **Options** part with help of the **Printing Maps** page. The differences of the **Print Courses** to the **Print** box are that there is no **Color** field but in addition a **Select Courses/Classes** field. The **Print map size** field has the extra option **Course only on already printed map**.

Print Course Only

Choose the **Course only on already printed map** option from the **Print map size** part of the **Print Courses** box.

Click the  **Setup** button.

The **Course Only** dialog appears:



Adjust bottom left corner of the print range:

- **Intervall:** Set the interval step for 1 click on an adjustment button (**Left**, **Up**, **Right**, **Down**).
- **Left, Up, Right, Down:** Click on the adjustment buttons **Left**, **Up**, **Right** or **Down** to adjust the print range in relation to the map. The left/right and up/down adjustment is displayed on the left side of the dialog box, in the **Adjustment** part.
- **Horizontal Scaling, Vertical Scaling:** Enter here a scaling to adjust the course to an already printed map. Normally you will need here only very small corrections (99...101%) caused by the shrinking of the paper.
- **Print black:** Activate this option if the courses should be printed in black. Use this setting for making printing films.
- **Mirror:** Activate this option if the courses should be mirrored. This is used for making printing films on laser or inkjet printers.

Select Courses/Classes

Choose whether you want to select **Courses** or **Classes**. Select all courses/classes to be printed. Select several courses/classes by holding the **Ctrl** key or all courses/classes by clicking the **All** button.

Print Relay Courses

Relay courses normally have variations. The start number and the leg number define the course for a specific runner. You can anytime reprint the course for a specific runner under the condition that nothing in the variations has been changed.

Read the **Print a Relay Course** article for more information.

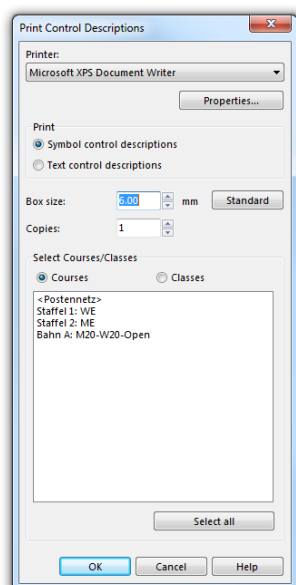
Back to the **Course Setting for Orienteering** page.

Print Control Descriptions



(This function is only available in course setting projects!)

Choose the **Control Descriptions** command in the **Print** submenu of the **Course Setting** menu to print the control descriptions. The **Print Control Descriptions** dialog box is displayed.



Make the following adjustments:

Printer

Select the printer to print the control description. In the box you can select one of the installed Windows printer drivers. Click the **Properties** button to change printing options (for instance to print in landscape mode).

Print

- **Control descriptions:** Select this radio button to print the symbolic control descriptions.
- **Text control descriptions:** Select this option to print the control descriptions as text. A text must be defined for each control (**Edit Text Control Description**).

Box size

Enter the size of the symbol boxes for the symbolic controls descriptions. Click the **Standard** button to set this value to **6 mm**.

Copies

Enter the number of copies to be printed.



If you enter more than 1 copy, OCAD will fill entire pages with the same course until the number of copies is reached. Therefore if you enter "2" you will get one page per course filled with as many control descriptions as possible of that course.

Select Courses/Classes

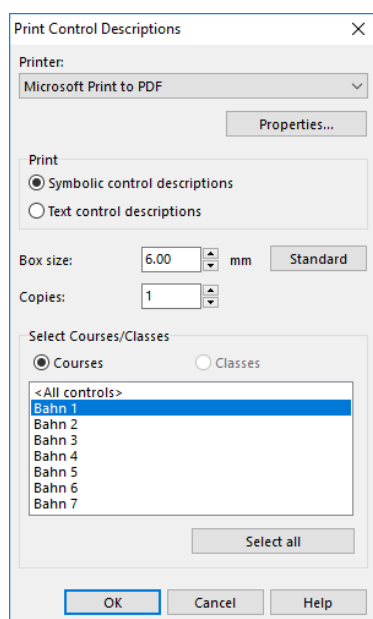
Choose whether you want to select **Courses** or **Classes**. Select all courses/classes which the control descriptions are to be printed. Select several courses/classes by holding the **Ctrl** key or all courses/classes by clicking the **All** button.



You can enter the title for the control descriptions in the **Course Setting Options** dialog box.

Export Control Description in PDF File

In Windows 10 it is possible to export the control description in a pdf file without installing additional software like FreePdf ^[1] or Adobe Acrobat ^[2].



Choose the *Microsoft Print to PDF*.

Bahn 1			3.6 km	130 m
▷			■	△
1	31	Π		♂
2	32	■		└
3	33	■		└
4	60	■		♂
5	34	■		└
6	35	■		└
7	36	■		└
8	37	■		└
9	38	■		└
10	39	Π		└
11	40	↓	■	○
12	41	↗		<
13	53	↗		Y
14	43	↗		↗
15	59	↗		↘
16	65	↓	△	
17	44	△		
18	45	△		

Bahn 2			3.1 km	110 m
▷			■	△
1	32	■		└
2	31	Π		♂
3	55	■		└
4	38	■		└
5	61	■		└
6	39	Π		└
7	40	↓	■	○
8	41	↗		<
9	53	↗		Y
10	43	↗		↗
11	65	↓	△	
12	44	△		
13	45	△		
14	46	△		
15	47	→	△	
16	48	↑	↗	↘
17	49	△		
18	57	↑	Π	└

Bahn 3			2.8 km	100 m
▷			■	△
1	55	■		└
2	31	Π		♂
3	36	■		└
4	37	■		└
5	38	■		└
6	39	Π		└
7	40	↓	■	○
8	41	↗		<
9	53	↗		Y
10	59	↗		↘
11	65	↓	△	
12	44	△		
13	47	→	△	
14	48	↑	↗	↘
15	57	↑	Π	└
16	61	■		└
17	51	■		└
18	54	■		└

Back to the **Course Setting for Orienteering** page.

References

- [1] http://freepdfxp.de/index_de.html
 [2] http://www.acrobat.adobe.com/Acrobat_DC

Course Setting Import



(This function is only available in course setting projects!)

Import an OCAD Map

It is possible to import an OCAD map in a course setting project.

1. Choose the **Import** command from the **File** menu.
2. Select an OCAD map in the browser and click the **Open** button.
3. The **Import OCAD Map** dialog appears. Read the **Import OCAD Map** article if you do not know how to deal with this dialog.
4. Click the **OK** button to finish.

Use this function for example to import ski or bike orienteering maps, where control circles and connection lines are not printed over all map objects.

Import Courses from ORware

With this function course definitions exported as *.txt or *.csv file from the event software **ORware** ^[2] can be imported to an OCAD course setting project. This import is primarily thought for events where the runners from a class have individual courses (butterflies, loops etc.). The import creates one course per runner with it's individual course definition.

The course setting objects (start, controls, finish etc.) have to be added to the course setting project before starting with the import.

File Structure

[TYPE];[IDENT];[CLASS];[COMBINATION];[LENGTH];[CLIMB];[START];[CTRL1]; ... ;[CTRLn];[FINISH]

- [TYPE]: Course type (individual race or relay)
- [IDENT]: Course identification. Example: M21-17 (course name and startnumber)
- [CLASS]: Class name
- [COMBINATION]: Variation code. Example: BCCA
- [LENGTH]: Course length
- [CLIMB]: Course climb
- [START]: Start code
- [CTRL1] ... [CTRLn]: Control 1 - n codes
- [FINISH]: Finish code

File Example

[TYPE];[IDENT];[CLASS];[COMBINATION];[LENGTH];[CLIMB];[START];[CTRL1]; ... ;[CTRLn];[FINISH];

Individual race;M20-1;M20;AA;3700;50;L1;31;33;34;36;M1

Individual race;M20-2;M20;AB;3700;50;L1;31;33;35;36;M1

Individual race;M20-3;M20;BA;3700;50;L1;32;33;34;36;M1

Individual race;M20-4;M20;BB;3700;50;L1;32;33;35;36;M1



The header line has to be included into the *.txt or *.csv file.



[TYPE] column is not used in OCAD 12. All imported courses are treated as individual courses.



Marked routes are imported as controls. Do not add them to the *.txt or *.csv file. Add marked routes to the courses with Insert Course Object to Courses function.



Map changes cannot be imported. Add map exchanges to the courses with Insert Course Object to Courses

function.

Back to the **Course Setting for Orienteering** page.

Course Setting Export



(This function is only available in course setting projects!)

In the **Export** submenu of the **Course Setting** menu you have different options for an export.

Export Courses XML

Choose this command to export a XML file with the course data. OCAD supports the IOF Version 2.0.3 and 3.0.

The exported XML file is opened automatically. The **IOFdata.dtd** file also belongs to the XML file. This document type definition file specifies the structure of the XML document.

The exported XML file can be read from several event softwares.

Export Courses Text

1. Choose this command to export a list of control numbers of the courses or classes in text file.
2. The dialog box **Export Courses (Text)** appears.
3. Choose wheter you want to export **Courses** or **Classes**
4. Check the **Export climbing** option when climbing shall be exported, too.
5. Check the **Export number of controls** option to export also the number of controls.

Format of the exported file:

1. The class name as entered in the **Classes** dialog box or the **Course Name**.
2. Length of the course in km (calculated length plus extra length entered in the **Courses** dialog box).
3. Climb of the course as entered in the **Courses** dialog box.
4. Number of controls.
5. Start, all controls and finish (**Relay** variations are indicated in brackets)

Example:

Normal Course	5.7	130	19	S1-117-150-107-63-93-99-97-98-64-140-52-87-132-95-116-90-47-120-115-F1
Relay.1	3.3	85	12	S1-(71/117/118)-64-(78/140/70)-52-(- (106-132/87-56))-95-116-90-47-120-115-F1

The exported file is opened automatically in a text editor.



When you export **Relay Courses** each leg is exported individually.



There is no option to choose courses or classes when **Create classes automatically** in the **Classes** dialog is choosen.

Export Classes Version 8 Text

Choose this command to export a list of the control numbers of the classes.

The exported file can then be imported in several event softwares.

After choosing this command the **Export Classes (Version 8)** dialog box appears where you can choose a path and enter the file name for the class file.

Format of the exported file The exported file is a text file. For normal courses there is one line per class, for relay courses and one-man relay courses there is one line per runner (the range of start numbers must have been defined in the **Classes** dialog box). The fields are separated with semicolons (;) and contain the following information:

1. Class name as entered in the **Classes** dialog box. If classes are created automatically, this field is empty.
2. Course name.
3. Start number.
 - for normal courses this number is "0".
 - for relay courses this is the start number of the team, a point and the number of the leg-runner (e.g. "101.1")
 - for one-man relay courses this is the start number (e.g. "201")
4. Length of the course in km (calculated length plus extra length entered in the **Course** dialog box).
5. Climbing of the course as entered in the **Courses** dialog box.
6. All controls, starting with the start, then the controls and finally the finish. Between the controls the distance to the next control is indicated.

Example:

```
M16;Normal
Course;0;5.700;130;S1;0.219;117;0.412;150;0.502;107;0.155;63;0.113;93;0.176;99;0.183;97;0.200
Relay;Relay;1.1;3.300;205;S1;0.185;71;0.351;64;0.661;140;0.191;52;0.225;106;0.286;132;0.290
Relay;Relay;1.2;3.400;205;S1;0.219;117;0.246;64;0.733;70;0.207;52;0.198;87;0.341;56;0.281
Relay;Relay;1.3;3.400;205;S1;0.287;118;0.360;64;0.596;78;0.303;52;0.225;106;0.229;56;0.280
```

The exported file is opened automatically in a text editor.

💡 **Classes** have to be defined to use this function. Otherwise, an error message will appear.

Export Courses GPX

Choose this command to export courses to a GPX-File. **Relay Courses** and **One-Man Relay Courses** cannot be exported to a GPX-File.

All course setting objects (start, controls, finish) are exported as waypoints. All courses, including start, controls, marked routes and finish are exported as tracks.

💡 This command needs real world coordinates and a coordinate system. Choose the **Set Scale and Coordinate System** command from the **Map** menu to change these settings.

 To open the exported file choose the **Recently Exported Documents** command from the **File** menu.

Export Course Statistic and Event Statistic

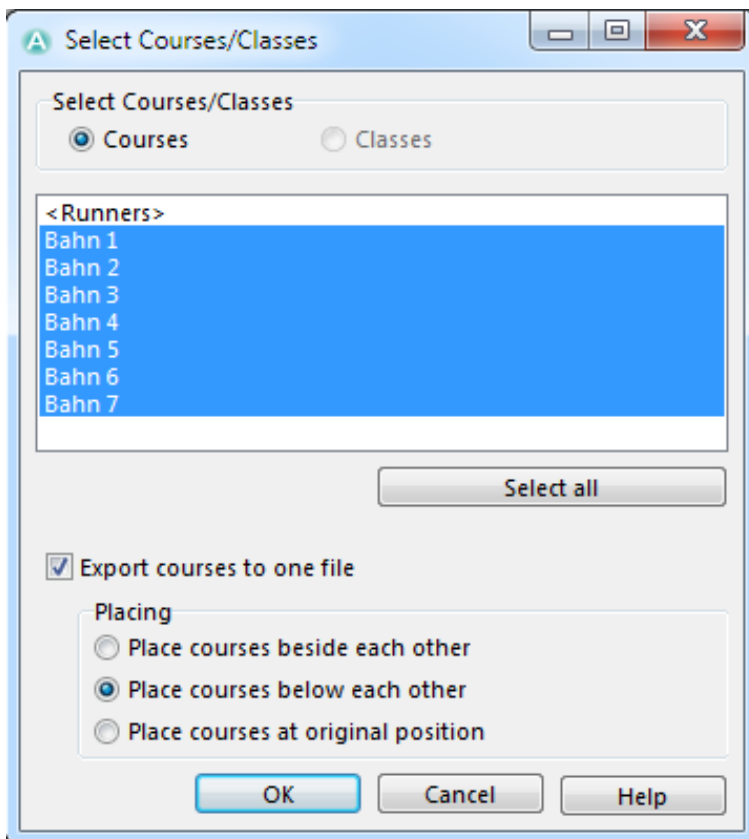
Use this command to export course, leg and event statistics to a text file. The text file contains the same information as in the **Course Statistic and Event Statistic** dialog. This export is also available via the **Course Statistic and Event Statistic** command in the **Course Setting** menu.

Export Course Maps

Use this command to **Make Graphic Modifications** to courses that are not possible within the course setting project. The common modifications like moving the control numbers or modifying the connection lines are possible without using this command. Visit the **Make Graphic Modifications** page for more information.

A course map file is a normal OCAD-File and not a course setting file. The **Background Map** will be the same as in the course setting file. All symbols used for course setting are imported in the symbol set. Opening course maps is also possible in the **OCAD Course Setting** edition. However, this works only for course maps, which were exported from an **OCAD Course Setting** edition. However the functions for editing a course map in **OCAD Course Setting** edition are restricted since not all editing tools are available in this edition.

Using this command may be dangerous. If you make modifications to the courses after exporting the course maps, the exported course maps are not updated and are therefore not correct. Use this command only if you are absolutely sure that the courses are final.



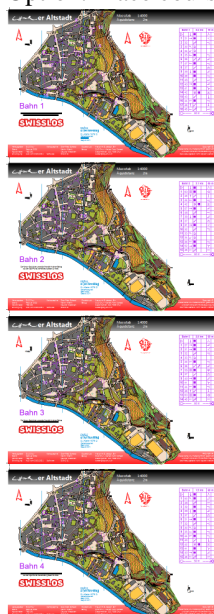
1. Choose the **Course Maps** command from the **Export** submenu of the **Course Setting** menu.
2. The **Select Courses/Classes** dialog appears.
3. Select whether you want to export **Courses** or **Classes**.
4. Select all courses/classes to be exported. Select multiple courses/classes by holding the **Ctrl** key or click the **Select all** button to select all courses/classes.
5. If multiple courses/classes are selected they are exported in different files unless you check the **Export courses to one file** option. Choose whether you want to place the courses beside each other, below each other or at the original position.

6. Click the **OK** button when finished.

Option: Place courses beside each other



Option: Place courses below each other



Option: Place courses at original position



💡 There is no option to choose courses or classes when **Create classes automatically** in the **Classes** dialog is chosen.

💡 If you want to export **Relay Courses** or **One-Man Relay Courses**, you will have to define which legs/variations/start numbers you want to export. This dialog is the same as the dialog in the **Export a Relay Course** article. Read this article for more information.

Export Control Description Text

Use this command to export control descriptions as text files. Control descriptions for **Relay Courses** and **One-Man Relay Courses** cannot be exported.

1. Choose the **Export Control Description (Text)** command from the **Export** submenu of the **Course Setting** menu.
2. The **Select Courses/Classes** dialog appears.
3. Select wheter you want to export control descriptions of **Courses** or **Classes**.
4. Select all courses/classes the control description is to be exported. Select multiple courses/classes by holding the **Ctrl** key or click the **Select all** button to select all courses/classes.
5. If multiple courses/classes are selected they are exported in the same file beneath eachother.
6. Click the **OK** button when finished.



A **Text Control Description** has to be defined to get an useful output of this function.



There is no option to choose courses or classes when **Create classes automatically** in the **Classes** dialog is choosen.

Example Output:

```
Chlosterwald Orienteering Event
Class M20
Course A,   Length 3.3 km, Climb 205 m
Start      Path, Path, Junction
1.         71      Small depression
2.         64      River, Watercourse, Junction
3.         78      Pit
4.         52      Erosion gully, Southwest end, Radio control
5.         106     Small erosion gully, South end
6.         132     Knoll, South side
7.         95      Re-entrant
8.         116     Copse, West side, TV control
9.         90      Boulder, 2.0m, North side
10.        47      Knoll, Northwest side
11.        120     Spur, Southeastern foot
12.        115     Re-entrant
Follow taped route 230 m from last control to finish
```

Export Relay Variations

1. Choose the **Export Relay Variations** command in the **Export** submenu of the **Course Setting** menu.
2. The **Export Relay Variations** dialog appears.
3. Browse a location and enter a name for the file to export.
4. Click the **Save** button to export the TXT-file.

The Text-File contains all courses. The start numbers are listed with the corresponding variation.

Learn more about relays on the **Create Relay Courses** page.

Back to the **Course Setting for Orienteering** page.

Course Setting Options

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(This function is only available in course setting projects!)

Choose the **Options** command from the **Course Setting** menu to display the **Course Options** dialog box.

The screenshot shows the 'Course Options' dialog box with the following settings:

- Titles**
 - Event title: [Empty text box]
 - Course title: [Empty text box] ?
 - ☐ Classes
 - ☒ Course name and class(es)
 - ☐ Course name only
- Controls**
 - Numbering: [Empty text box] ?
 - ☐ Number
 - ☐ Number and code
 - ☒ Code only
 - Distance from circle to number: 1.00 mm ?
 - ☐ Full stop behind control number ?
- Connection lines**
 - Distance from circle to connection line: 0.00 mm ?
- Control description**
 - Thicker horizontal line: Every third ?
 - Maximum length: 50 Rows ?
 - ☐ Number of start ?
- Control description on the map**
 - Box size: 6.00 mm Standard ?
 - ☒ White background ?
 - ☒ Add control descriptions for all controls ?
- XML export**
 - ☒ Export course relay combinations (not IOF 2.0.3 standard)

Buttons: OK, Cancel, Help

Titles

Event Title

Enter the name of the event. The event title appears on top of the control description.

Course Title

Choose wheter the **Course Title** shall be displayed with the **Classes**, the **Course Name and Classes** or the **Course Name only**.

Course title

☒ Classes

☐ Course name and class(es)

☐ Course name only

M45
M50
W21

Course title

☐ Classes

☒ Course name and class(es)

☐ Course name only

Course 5
M45
M50
W21

Course title

☐ Classes

☐ Course name and class(es)

☒ Course name only

Course 5

Controls

Numbering

Choose wheter the controls shall be numbered with the **Number**, the **Number and Code** or the **Code only**.

Numbering

☒ Number

☐ Number and code

☐ Code only

1

2

3

4

Numbering

☐ Number

☒ Number and code

☐ Code only

1-31

2-32

3-33

4-34

Numbering

☐ Number

☐ Number and code

☒ Code only

31

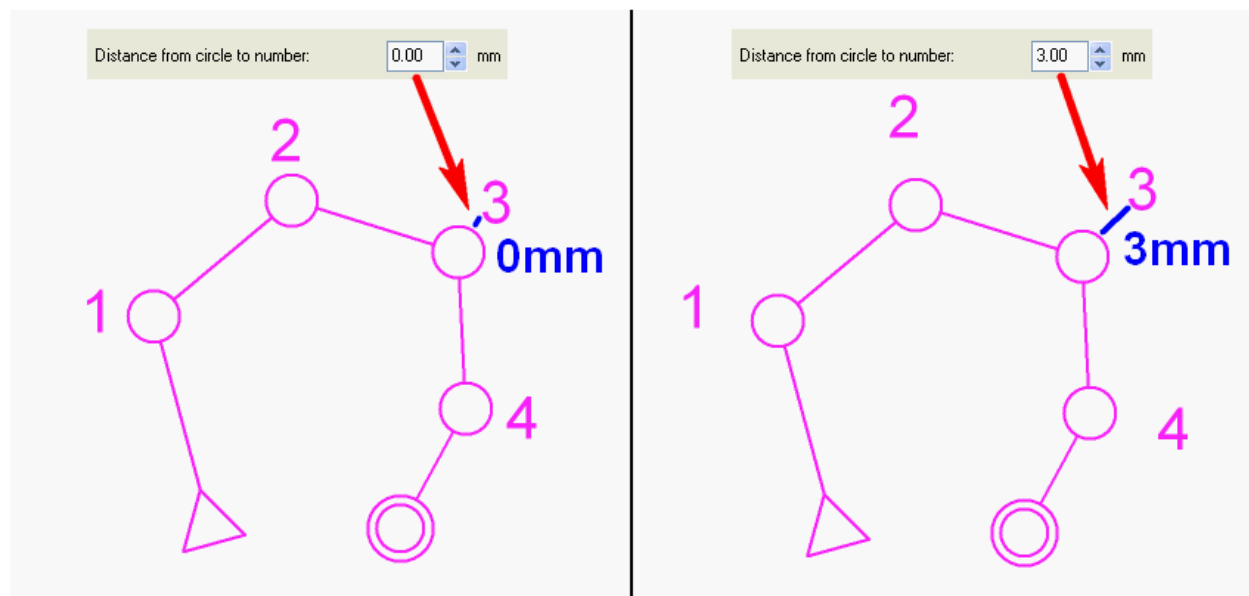
32

33

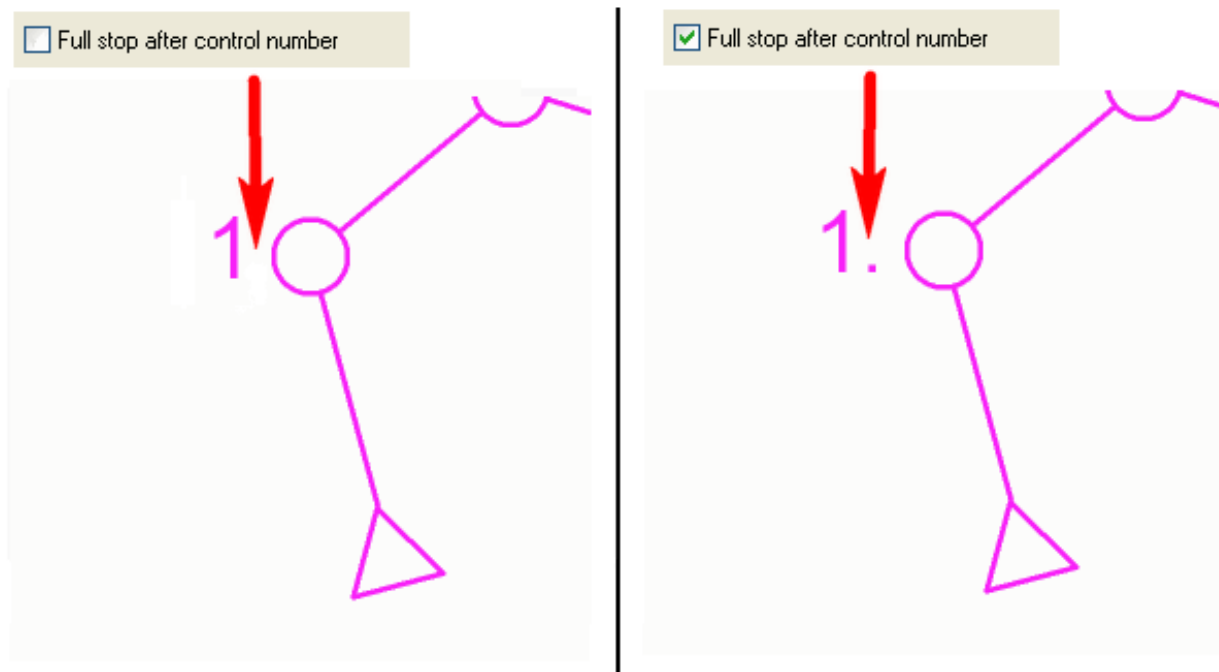
34

Distance from Circle to Number

Enter the default distance from the control circle to the number in mm.

**Full Stop Behind Control Number**

Check this option if a full stop shall be placed behind each control number.

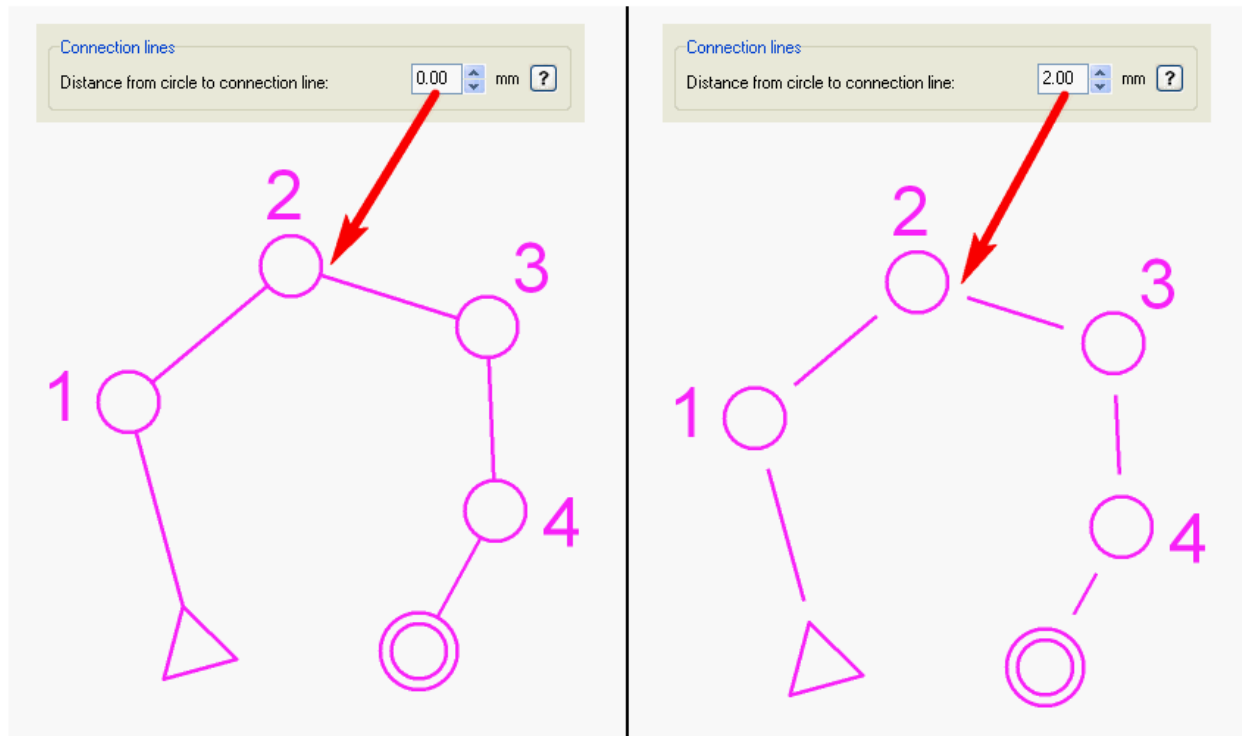


White Outline on Control Number

This function is only available for ISSOM 2007 and ISOM 2017 course setting projects. ToDo.

Connection Lines

Define a distance from the circle to the connection line in this field.



Control Description

Thicker Horizontal Line

Choose between a thicker horizontal line in the IOF Symbol Control Description every third or every fourth line or not at all.

Control description

Thicker horizontal line: Not

Event Example											
M45, M50, W21											
5			7.5 km			210 m					
▶			/	↗	↘						
1	101		⋯			<					
2	212	↖	▲		1.0	○					
3	135		⊗	⊗		≡					
4	246		○			○					
5	164	→	□			○					
6	185		↗	↻		└					
7	178		└			○					
8	147	⇌	≡		2.0						
9	149		/	/	×						
○----- 240 m ----->○											

Control description

Thicker horizontal line: Every third

Event Example											
M45, M50, W21											
5			7.5 km			210 m					
▶			/	↗	↘						
1	101		⋯			<					
2	212	↖	▲		1.0	○					
3	135		⊗	⊗		≡					
4	246		○			○					
5	164	→	□			○					
6	185		↗	↻		└					
7	178		└			○					
8	147	⇌	≡		2.0						
9	149		/	/	×						
○----- 240 m ----->○											

Control description

Thicker horizontal line: Every fourth

Event Example											
M45, M50, W21											
5			7.5 km			210 m					
▶			/	↗	↘						
1	101		⋯			<					
2	212	↖	▲		1.0	○					
3	135		⊗	⊗		≡					
4	246		○			○					
5	164	→	□			○					
6	185		↗	↻		└					
7	178		└			○					
8	147	⇌	≡		2.0						
9	149		/	/	×						
○----- 240 m ----->○											

Maximum Length

Define the maximum length of the control description in rows in this field.

Maximum length

10

Rows

Event Example

M45, M50, W21

5	7.6 km	210 m
	S1	
1	101	
2	212	1.0
3	135	
4	246	
5	164	
--- 120 m ---		

6	185		
7	178		
8	147		2.0
9	149		
--- 240 m ---			

Number of Start

Check this option so that the number of the start appears in the control description.

☐ Number of start

Event Example

M45, M50, W21

5	7.6 km	210 m
1	101	
2	212	1.0
3	135	
4	246	
5	164	
--- 120 m ---		

☒ Number of start

Event Example

M45, M50, W21

5	7.6 km	210 m
	S1	
1	101	
2	212	1.0
3	135	
4	246	
5	164	
--- 120 m ---		

Control Description on the Map

Box Size

Define the size of a box in the control description in this field. Click the **Standard** button to set the value to **6.00 mm**.

Box size: mm

Event Example											
M45, M50, W21											
5			7.6 km			210 m					
▶			↗	↘	↙						
1	101		⋯			<					
2	212	↖	▲		1.0	○					
3	135		⊗	⊗		≡					
4	246		⊖			⊙					
5	164	→	□			•○					

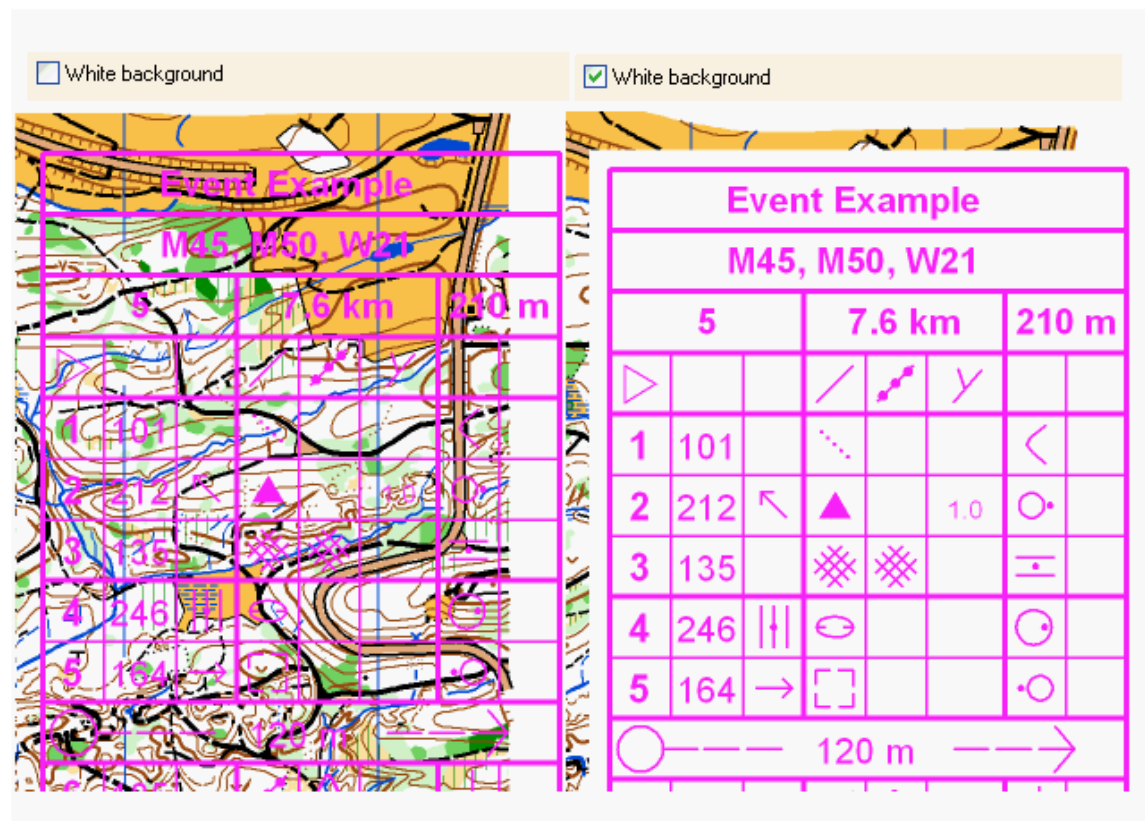
Box size: mm

Event Example											
M45, M50, W21											
5			7.6 km			210 m					
▶	S1		↗	↘	↙						
1	101		⋯			<					
2	212	↖	▲		1.0	○					
3	135		⊗	⊗		≡					
4	246		⊖			⊙					
5	164	→	□			•○					

💡 IOF International Specification for Control Description 2004 ^[1]: The description sheet boxes should be between 5mm and 7mm.

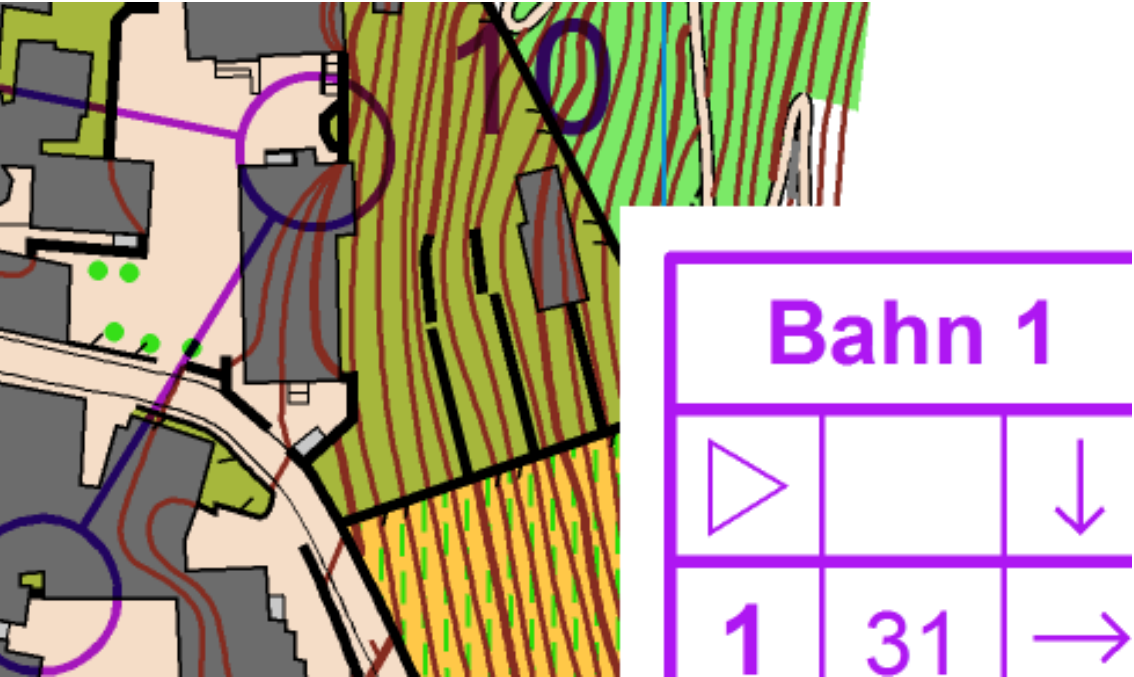
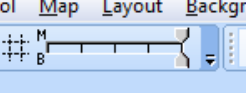
White Background

Check this option to get a white background behind the control description on the map.



Check the **Draw white background even in draft mode** option to show the control description with white background also in draft mode. Use this option if you prefer to print your maps in draft mode.

Activate the option, switch to draft mode and move both draft mode sliders in the View toolbar to the right position.

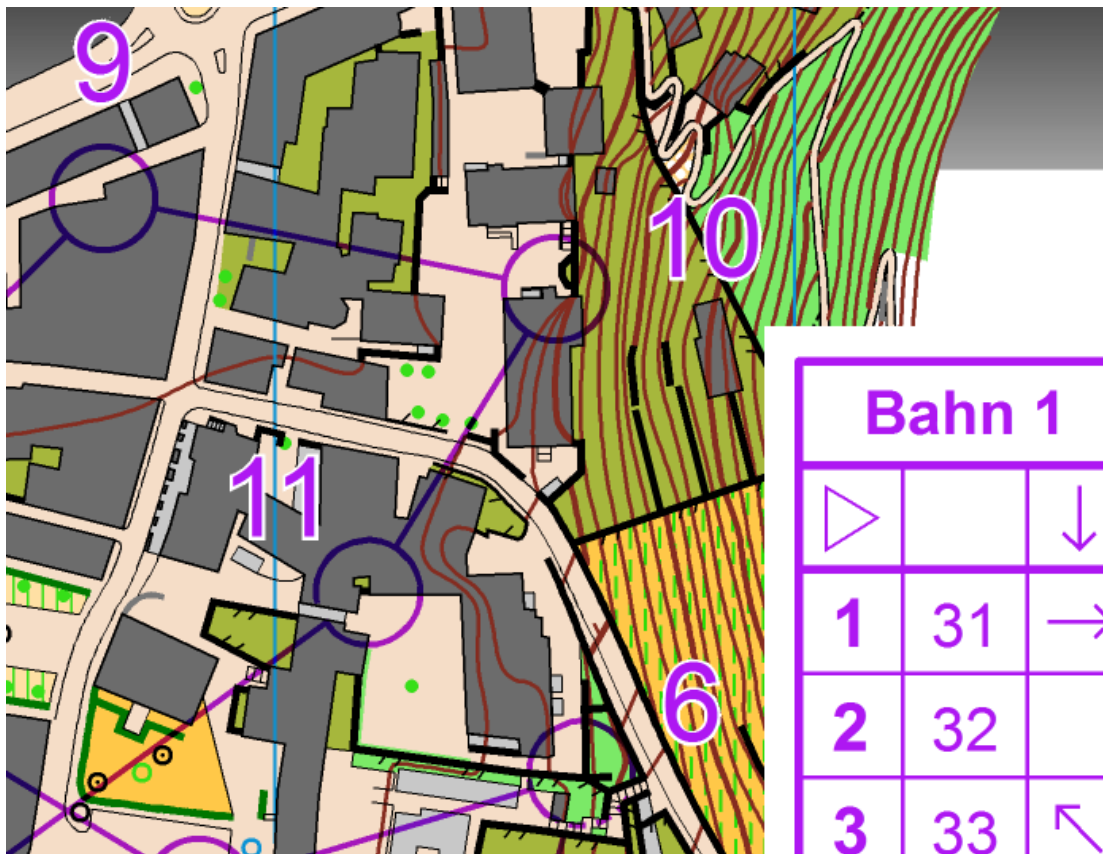


Select a course and click the **Preview** button. The course overprint now is transparent, but the white background of the control description is opaque and blocks out the orienteering map.

OCAD does not block out only the control description. Furthermore, OCAD blocks out all objects drawn with this opaque color used in the symbol **760.00 White background**. By default it is the color number **203 White background**.

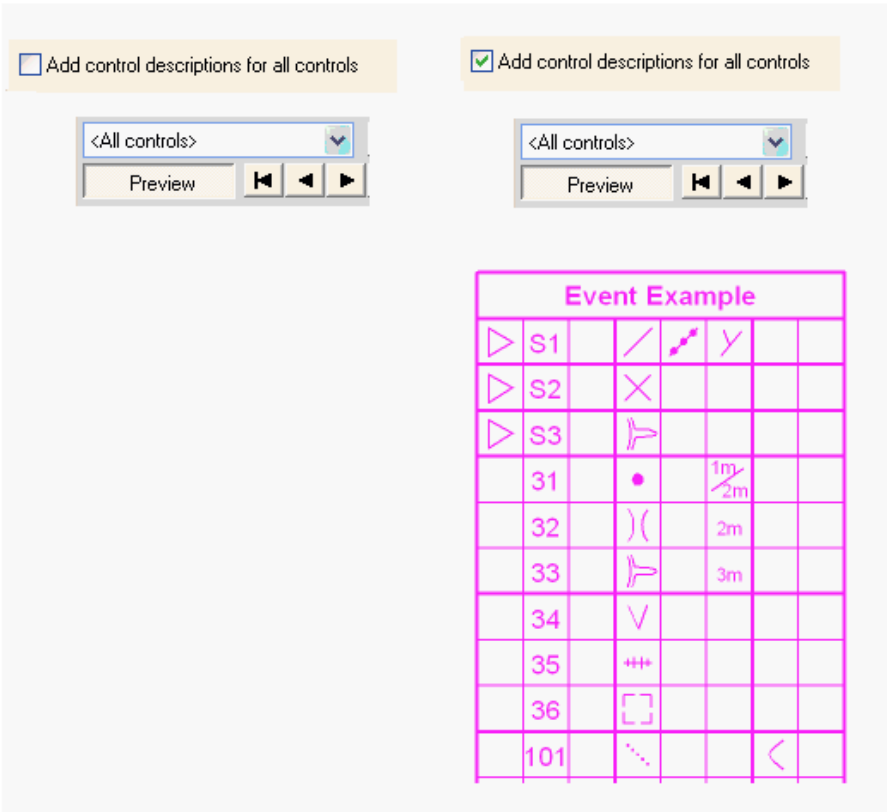
Example: If you also like a framing of the control numbers in draft mode, select the symbol **703.000 Course: Control number**, edit the symbol and change the color from **204 Purple transparent** to **202 Purple**. Click on the Framing tab, enter the new **Line width** (0.2mm) and change the **Framing color** to the opaque color **203 White background**.

Close this dialog. The control numbers have now a white framing.



Add Control Descriptions for All Controls

Check this option to add the control description on the **All Controls** map, too.



XML Export

Activate this check box to export the relay variation within the XML export, too. This is an extension of the IOF specification.

Back to the **Course Setting for Orienteering** page.

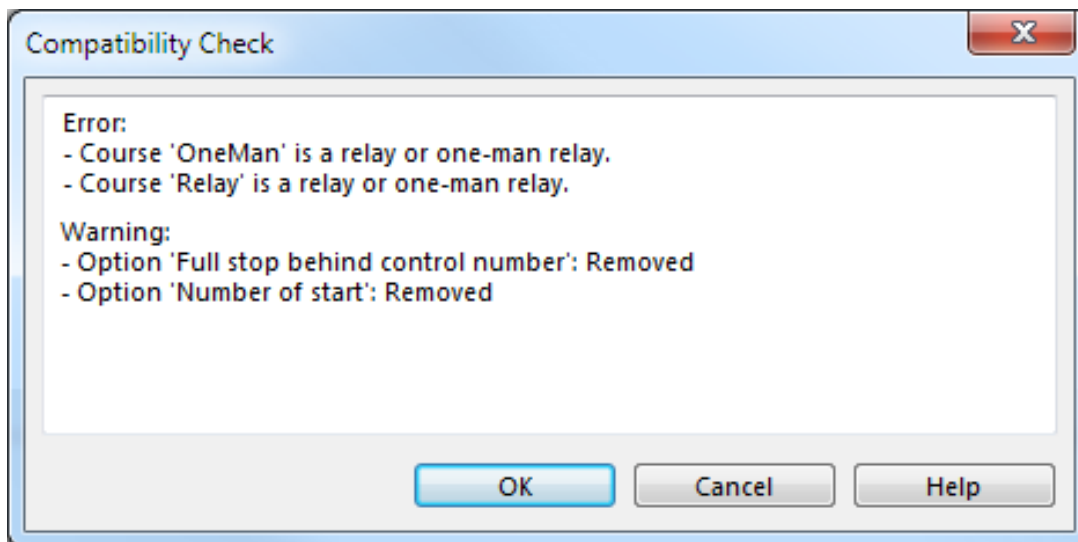
References

[1] <http://orienteering.org/wp-content/uploads/2010/12/IOF-Control-Descriptions-20041.pdf>

Compatibility Check

OCAD 12 Course Setting files can be saved in a previous OCAD versions (9, 10 or 11) if the file passes the Compatibility Check.

Example:



Errors

Course setting files containing relay or one-man relay courses cannot be saved in a previous OCAD version. OCAD 12 is using a better distribution for relays and one-man relays variations. As a consequence relay and one-man relay courses are not compatible with previous OCAD versions.

Warnings

The following features are not known in older OCAD versions and will be deleted:

- Option 'Full stop behind control number' (OCAD 9)
- Option 'Number of start' (OCAD 9)
- Control description anchor (OCAD 9 and 10)

Tutorials

Topographic Maps, City Maps and Leisure Maps

1. Migration of unstructured DTP maps to OCAD ^[1]
Migration von unstrukturierten DTP-Karten nach OCAD (deutsch) ^[2]
2. Visualization of GIS Data in OCAD ^[3]
Visualisierung von GIS-Daten in OCAD (deutsch) ^[4]
3. Redaktion Schweizer Wanderwege: aktuelle Wanderkarten für eine Zeitschrift

Thematic Maps

1. OCAD ThematicMapper Tutorials

Orienteering Maps and Course Setting

1. Getting Started with Course Setting in OCAD 12 ^[5]
Einführung in die Bahnlegung mit OCAD 12 (deutsch) ^[6]
2. Drawing Orienteering Maps in OCAD 12 ^[7]
OL-Karten zeichnen mit OCAD 12 (deutsch) ^[8]
3. Using Airborne Laserscanning Data for Orienteering Base Map Generation

World Orienteering Day

1. Creating Orienteering Maps with OCAD ^[9]

Back to Main Page

Previous Chapter: OCAD Internet Map

Next Chapter: Technical Data

References

- [1] http://www.ocad.com/docs/Migration_DTP_Maps_to_Ocad.pdf
 - [2] http://www.ocad.com/docs/Migration_DTP_Karten_nach_Ocad.pdf
 - [3] http://www.ocad.com/docs/Visualization_of_GIS_Data_in_OCAD.pdf
 - [4] http://www.ocad.com/docs/Visualisierung_von_GIS_Daten_in_OCAD.pdf
 - [5] http://www.ocad.com/docs/Getting_Started_with_Course_Setting_in_OCAD_12.pdf
 - [6] http://www.ocad.com/docs/Einfuehrung_in_die_Bahnlegung_mit_OCAD_12.pdf
 - [7] http://www.ocad.com/docs/Drawing_Orienteering_Maps_in_OCAD_12.pdf
 - [8] http://www.ocad.com/docs/OL-Karten_zeichnen_mit_OCAD_12.pdf
 - [9] http://www.ocad.com/docs/World_Orienteering_Day_OCAD_Tutorial.pdf
-

Technical Data

Computer / System Requirements

- OCAD 12 requires Windows 7, Windows 8 or Windows 10 (32 or 64 bit). OCAD 12 is available as 32 bit and 64 bit software.
- We strongly recommend for Windows Vista und Windows 7 to use the default Aero Theme to avoid unnecessary screen redraws or erased maps when moving dialogs.
- 50 MB of free disk space for the installation
- At least 1 GB RAM (depends on the size of open maps and background maps). The OCAD program without any open map needs only 70 MB RAM.
- OCAD 12 as 32 bit software can allocate up to approx. 3.5 GB RAM (**32-bit** Windows 7 consult the page Physical Memory). OCAD 12 as 64 bit software and can allocate more than 3.5 GB RAM if available.
- Screen resolution: 1280 x 1024 or higher recommended
- OCAD 12 MappingSolution/OCAD 12 Professional/OCAD 12 ThematicMapper: We recommend to install the Borland Database Engine ^[4] (import shape files, database connections to dBase files, using OCAD to create thematic maps) and the Microsoft Access Database Engine 32-bit ^[3] (database connections to Access/Excel files, using OCAD to create thematic maps).



OCAD 64 bit version cannot connect to Microsoft Excel/Access if the 32 bit version of Microsoft Access Database Engine is installed. The same with 64 bit Microsoft Access Database Engine and OCAD 32 bit version. In this case use the same OCAD version as installed Microsoft Access Database Engine..

64-bit Version vs. 32-bit Version

OCAD 12 is now available as 64-bit version. However, we have still also a 32-bit version. The OCAD Setup installs both versions. Both versions use the same resources, nevertheless it is possible to run both version at the same time. The installer creates a program shortcut for each version. Please note, the 64-bit version isn't faster than the 32-bit version. The big advantage of 64-bit is that OCAD can allocate more than 3 GB RAM if available on the computer. That is important when loading huge raster background maps or DEM files.

You can check your Windows version in the OCAD map information dialog.

OCAD 64-bit runs only in Windows 64-bit version. Nowadays, most computers are running on a 64-bit Windows version. OCAD 32-bit runs on both Windows 64-bit and 32-bit. The ocd files are 100% compatible between both versions.

Please note that not all OCAD functions are available in both versions. The restrictions for OCAD 64-bit version are:

- dbf database file cannot be used
- GPS Real Time via COM interface does not work
- Laser Range Finder does not work

After the installation ocd files are associated with OCAD 12 32-bit version. To change to 64-bit see How to Change Default Program Association.

OCAD on Mac OS X

Read the **OCAD on Mac OS X** article for more information.

OCAD Limits

- Maximal map size: 4 x 4 meters (OCAD Orienteering edition), 80 x 80 meters (Professional edition)
- Resolution (accuracy of coordinates) 0.01 mm
- 10000 objects (Starter edition), 16 million objects (OCAD Professional, Orienteering, Course Setting and Viewer edition)
- 4 million vertices for each object
- Unlimited number of symbols (number range 0.001 to 999'999.999)
- 32'000 colors (number range from 0 to 32'000)
- 2 GB file size

OCAD File Format

This description of the OCAD file format is intended for programmers who want to directly access the information in OCAD files.

- OCAD 12 File Format
- OCAD 11 File Format ^[1]
- OCAD 10 File Format ^[2]
- OCAD 9/10 Graphic ^[3]
- OCAD 9 File Format ^[4]
- OCAD 6/7/8 File Format ^[5]

Recommendations

OCAD runs on all 7 / 8 or 10 computers except Windows 8 RT (ARM tablets).

Mapping on TabletPC

Hardware:

- Tablet PC with Windows
- Long battery life (8 hours or longer)
- Outdoor screen
- GPS with USB or Bluetooth connection

Software:

- OCAD Orienteering Edition

Draw Orienteering Maps and Course Setting

Hardware:

- Desktop or Laptop with Windows
- 4 GB or more RAM (at least 8 GB RAM when working with big Airborne Laserscanning Files)

Software:

- OCAD Orienteering Edition or OCAD Course Setting Edition

Map Publishing Companies

Hardware:

- Desktop PC with Windows one or two screens
- 4 or more GB RAM

Software:

- OCAD Professional Edition

Special OCAD Settings:

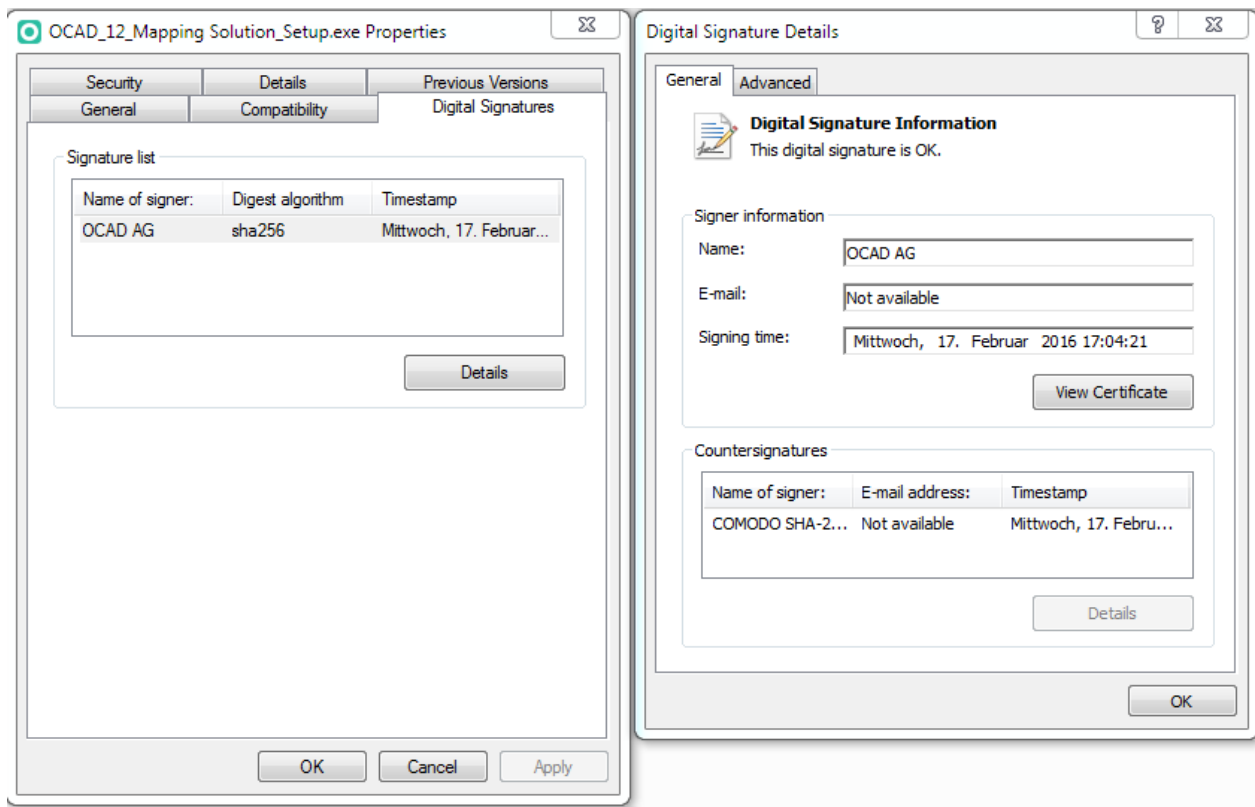
- Switch on the **Faster text rendering** in **OCAD Preferences** -> **View** tab in **Options** menu.
- Switch off the **Anti-Aliasing** mode in **View** menu. If Anti-Aliasing is switched off then OCAD draws the screen color by color. Otherwise OCAD draws the screen once after a short time.

Digital Signature

The OCAD program file and the OCAD setup file are signed with the digital signature ^[6] of OCAD AG. That confirms the software author and guarantee that the code has not been altered or corrupted since it was signed by use of a cryptographic hash. OCAD uses the digital signature algorithm sha256RSA.

That is the reason why OCAD 12 doesn't run on Windows XP and Vista.

To see the digital signature open the context menu of the OCAD setup file (.exe file) in **File Explorer** and click **Properties**. The **Properties dialog** opens. Click the **Digital Signature** tab. Click **Details**. In **Digital Signature Details** dialog is the **Signer Name** *OCAD AG*.



[Back to Main Page](#)

[Previous Chapter: Tutorials](#)

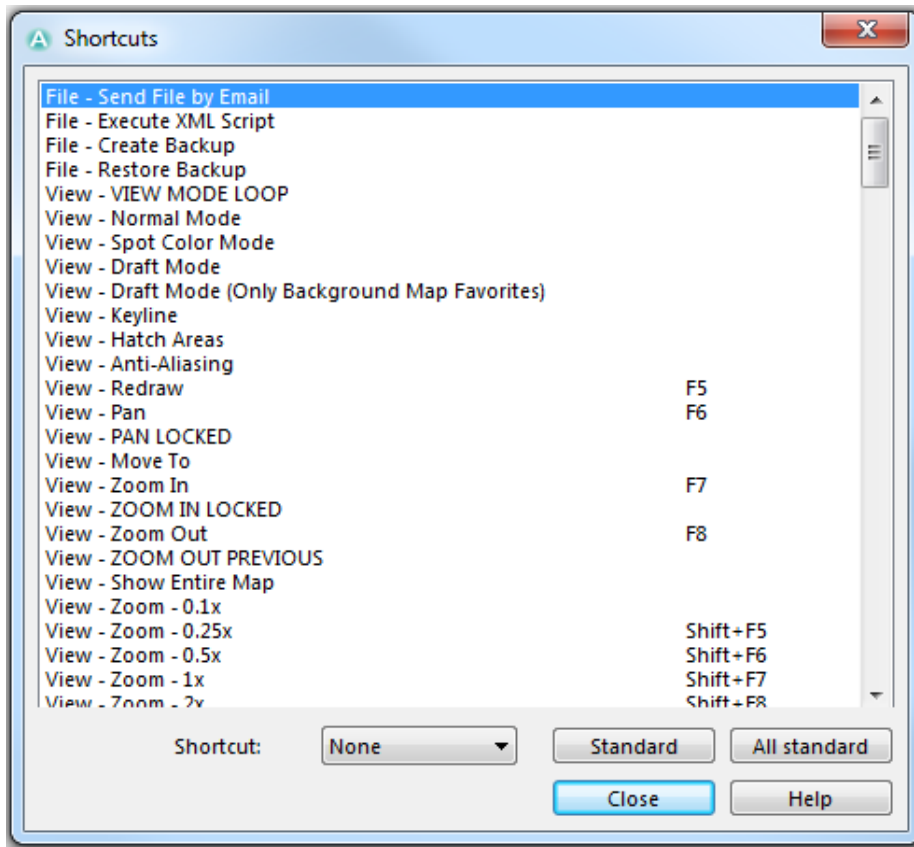
References

- [1] http://www.ocad.com/wiki/ocad11/en/?title=Main_Page
- [2] <http://www.ocad.ch/docs/OCAD10Format.txt>
- [3] <http://www.ocad.ch/docs/OCAD9Format.pdf>
- [4] <http://www.ocad.ch/docs/OCAD9Format.txt>
- [5] <http://www.ocad.ch/docs/format8.txt>
- [6] https://en.wikipedia.org/wiki/Code_signing

Shortcuts

Pro Std

Choose **Shortcuts** from the **Options** menu to edit and define shortcuts. The **Shortcuts** dialog box opens.



Define a Shortcut

1. Select a function (e.g. View - Normal Mode) in the dialog box.
2. Choose a shortcut in the **Shortcut** dropdown list.
3. Click the **Close** button. Now you can use the shortcut.

Reset a Shortcut to Standard

1. Select a function (e.g. View - Normal Mode) in the dialog box.
2. Click the **Standard** button to set a single shortcut to default or click the **All standard** button to set all shortcuts to default.
3. Click the **Close** button to save and quit the dialog.

Default Shortcuts

The following shortcuts are set by default:

- F2: Symbol -> Normal
- F3: Symbol -> Protect
- F4: Symbol -> Hide
- F5: View -> Redraw
- F6: View -> Pan
- F7: View -> Zoom In
- F8: View -> Zoom Out
- F9: Background Map -> Adjust
- F10: Background Map -> Hide All
- F11: Background Map -> Manage
- Shift+F5: View -> Zoom -> 0.25x
- Shift+F6: View -> Zoom -> 0.5x
- Shift+F7: View -> Zoom -> 1x
- Shift+F8: View -> Zoom -> 2x
- Shift+F9: View -> Zoom -> 4x
- Shift+F10: View -> Zoom -> 8x
- Shift+F11: View -> Zoom -> 16x
- Shift+F12: View -> Zoom -> 32x

Additional Shortcuts

The following shortcuts are unchangeable Windows shortcuts:

- F1: Help (Opens the OCAD Wiki)
- Ctrl+C: Copy Object
- Ctrl+X: Cut Object
- Ctrl+V: Paste Object
- Ctrl+Z: Undo

The following shortcuts are unchangeable drawing and editing shortcuts:

- V: Select and edit object
- A: Select object and edit vertex
- P: Select last used drawing mode

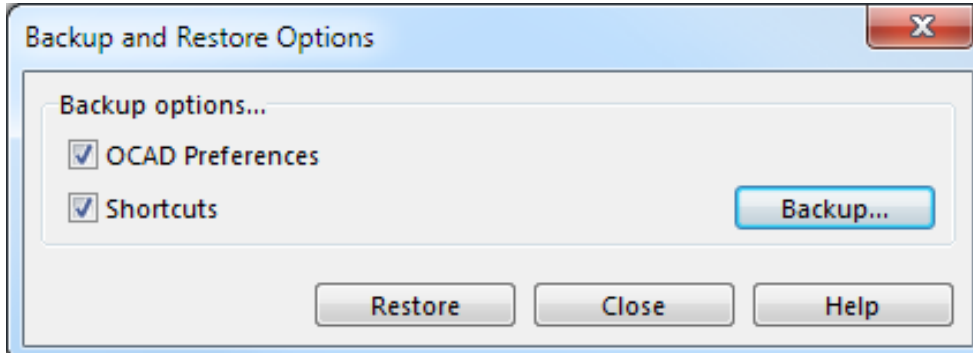
Tips with Keyboard and Mouse

For tips using the keyboard and the mouse visit the **Tips with Keyboard and Mouse** page.

Backup and Restore Options

Pro Std

Choose the **Backup and Restore the OCAD Options** command in the **Options** menu to save or restore the OCAD Options. The **Backup and Restore the OCAD Options** dialog appears.



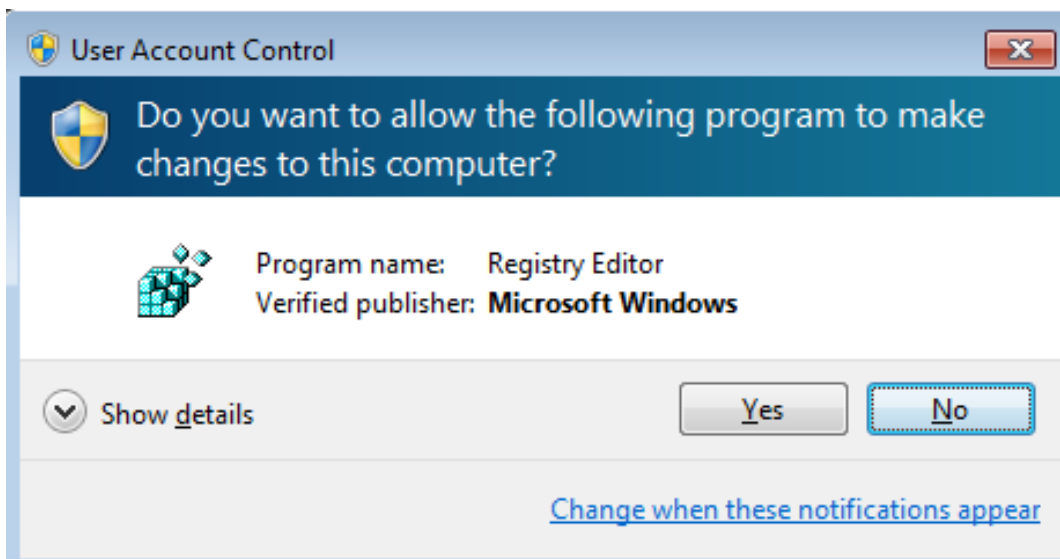
Backup

You can either save the **OCAD Preferences**, the **Shortcuts** or both of them. Check the desired options. When you click the **Backup** button, you can save the **OCAD Preferences** and **Shortcuts** stored in Windows Registry in a reg file (Windows Registry File).

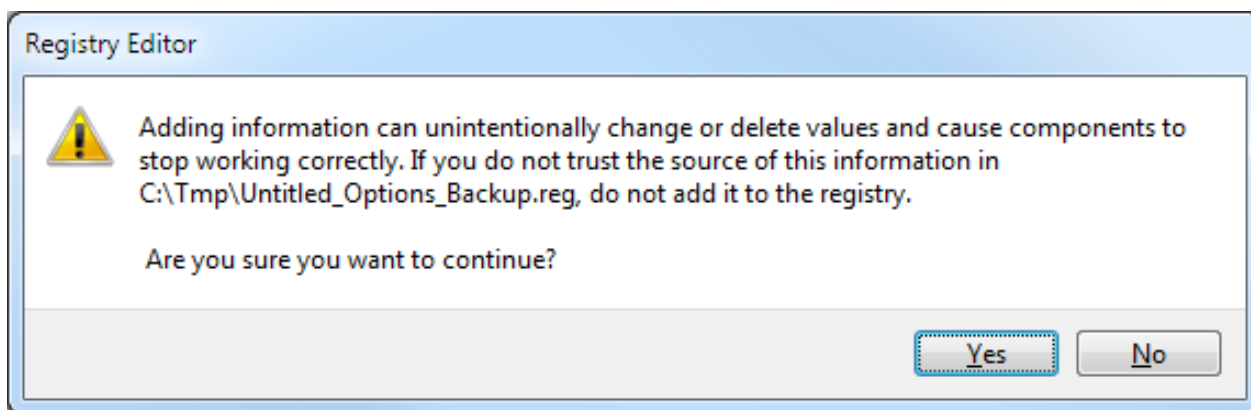
Restore

Restore the backed up **OCAD Preferences** and **Shortcuts** from the reg file by clicking the **Restore** button. Select the reg file and click the **Open** button in the **Restore** dialog.

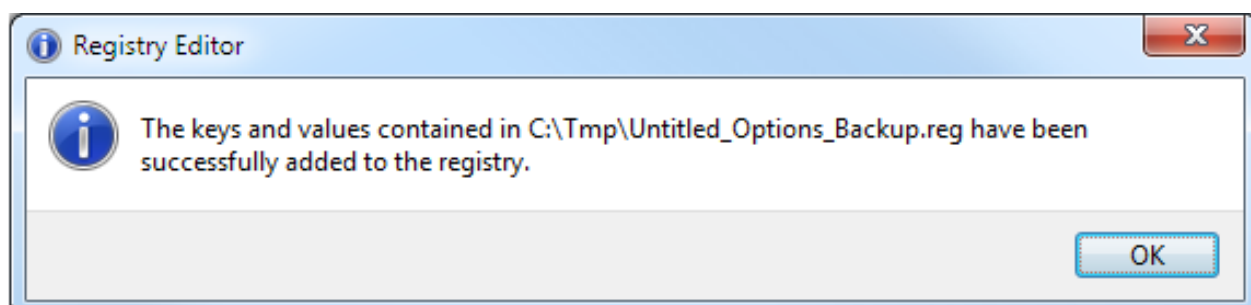
Windows shows the following 3 messages. Close the dialog not before clicking through these 3 messages.




Click the **Yes** button.

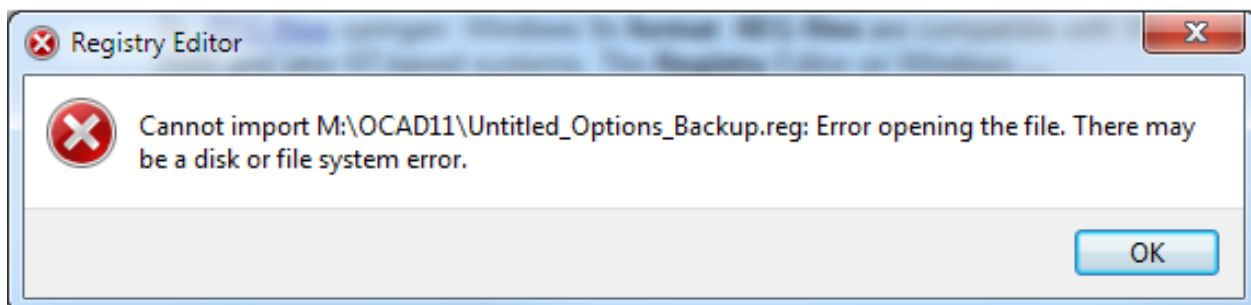


Click the **Yes** button.



Click the **OK** button.

 The reg file must be saved on the local disk (not network). Otherwise the Registry Editor shows the following error message:




Language



Choose the **Language** submenu in the **Options** menu to change the language. OCAD supports the following languages at the moment:

- English
- Catalan
- Czech
- German
- Spanish
- French
- Italian
- Hungarian
- Norwegian
- Polish
- Portuguese
- Russian
- Finnish
- Swedish
- Turkish
- Japanese
- Traditional Chinese

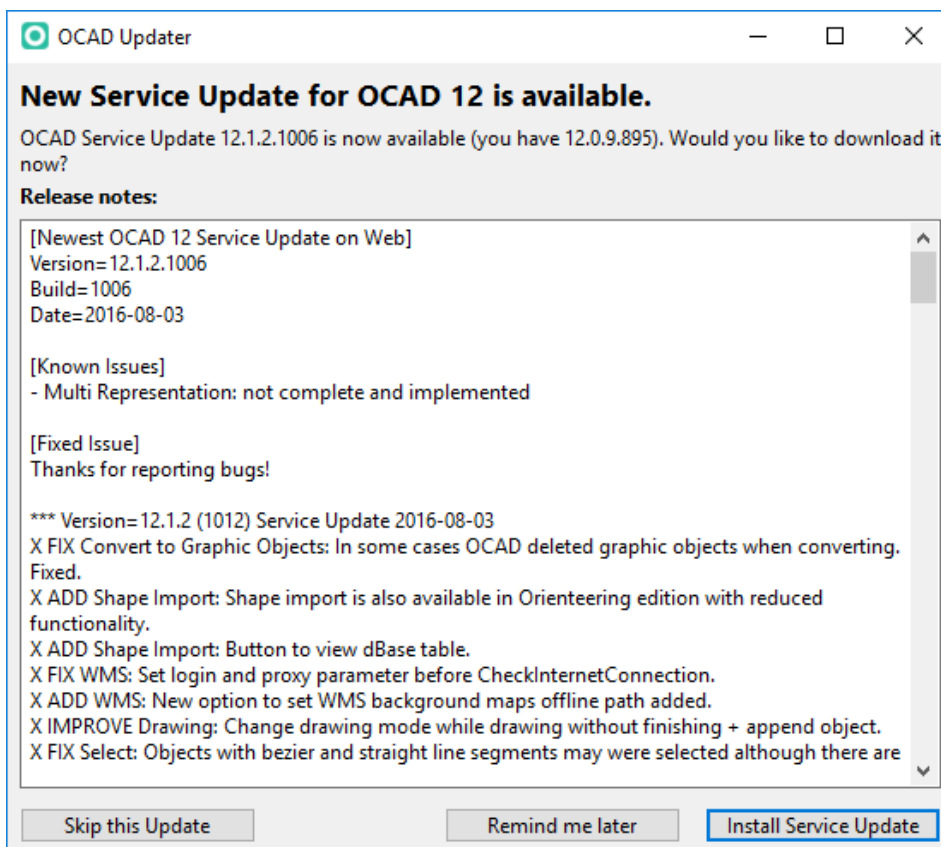
 Changing the language has no effect on the language of symbol and color descriptions of the template files. The language you choose during the installation process defines which template files are installed and therefore which language they have.

Service Update

OCAD AG aims the goal to maintain the software without errors to the best possible extend. For this reason, known bugs are corrected in Service Updates. Therefore we recommend using OCAD software always with the most recent Service Update to benefit from the quality improvements. The latest Service Update is available on our website in the **Download** ^[4] section.

OCAD Updater

OCAD checks for the newest Service Update online, everytime when it is started. The **OCAD Updater** dialog appears.



The content of the Service Update is listed in the **Release notes** part of the dialog. You have three options:

Skip this Update: Click this button to skip the current version. OCAD will not ask again to install the service update until a new version is available.

Remind me later: When this button is clicked, OCAD will ask you again to install the Service Update, when you start it the next time.

Install Service Update: Click this button to install the update.

OCAD Service Update

Click **OCAD 12 Service Update** in the **Help menu** to download the current Service Update from the OCAD website.

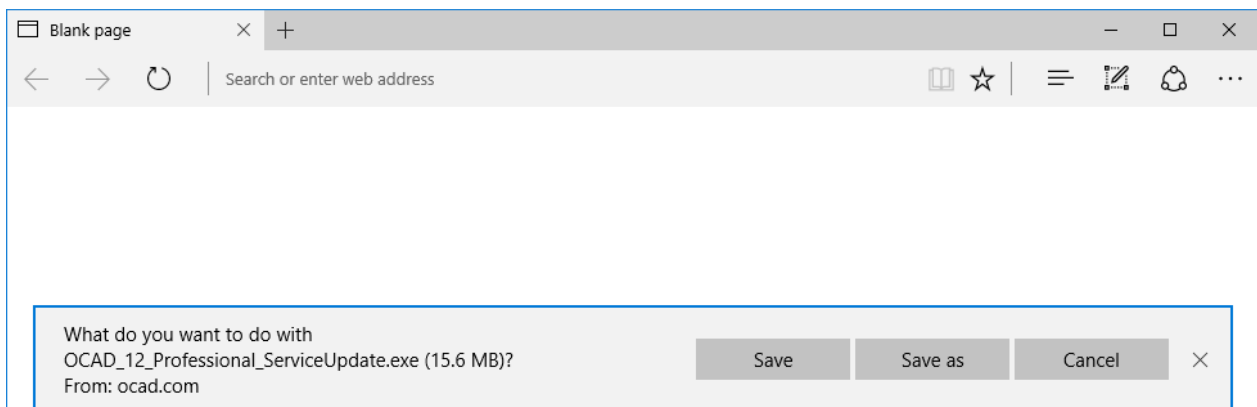
Before installing this Service Update please close OCAD. Otherwise OCAD cannot replace all file and an error message during the installation appears.

Installation

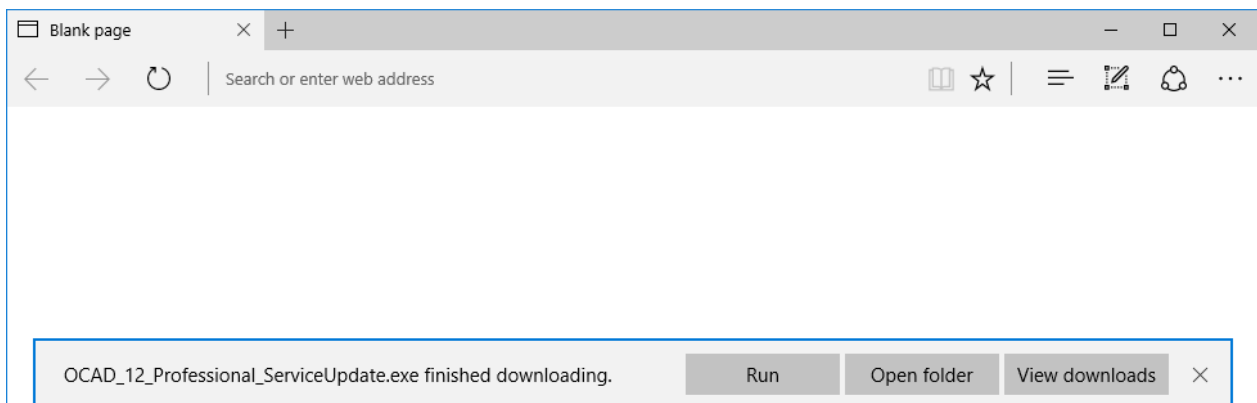
Close OCAD before installing the Service Update. Otherwise the update fails.

If you click the **Install update** button from the **OCAD Updater**, OCAD will close automatically.

When you click the **Install update** button, the default web browser (e.g. Microsoft Edge) will be opened and you will be asked to **Save** the update.



The web browser download the file and run the security scan.



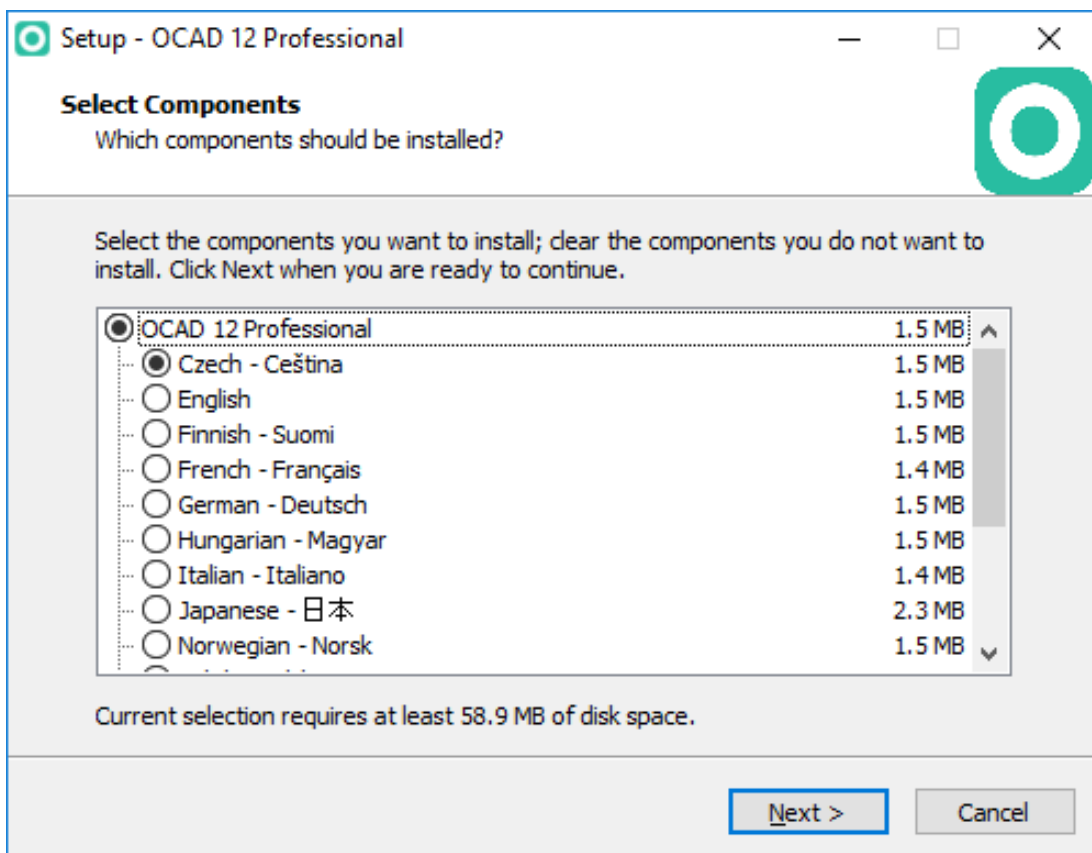
Click on the **Run** button.

The **User Account Control** dialog appears.




The verified publisher is *OCAD AG*. Click the **Yes** button to start to installation.

The installation wizard starts with the selection of a language.



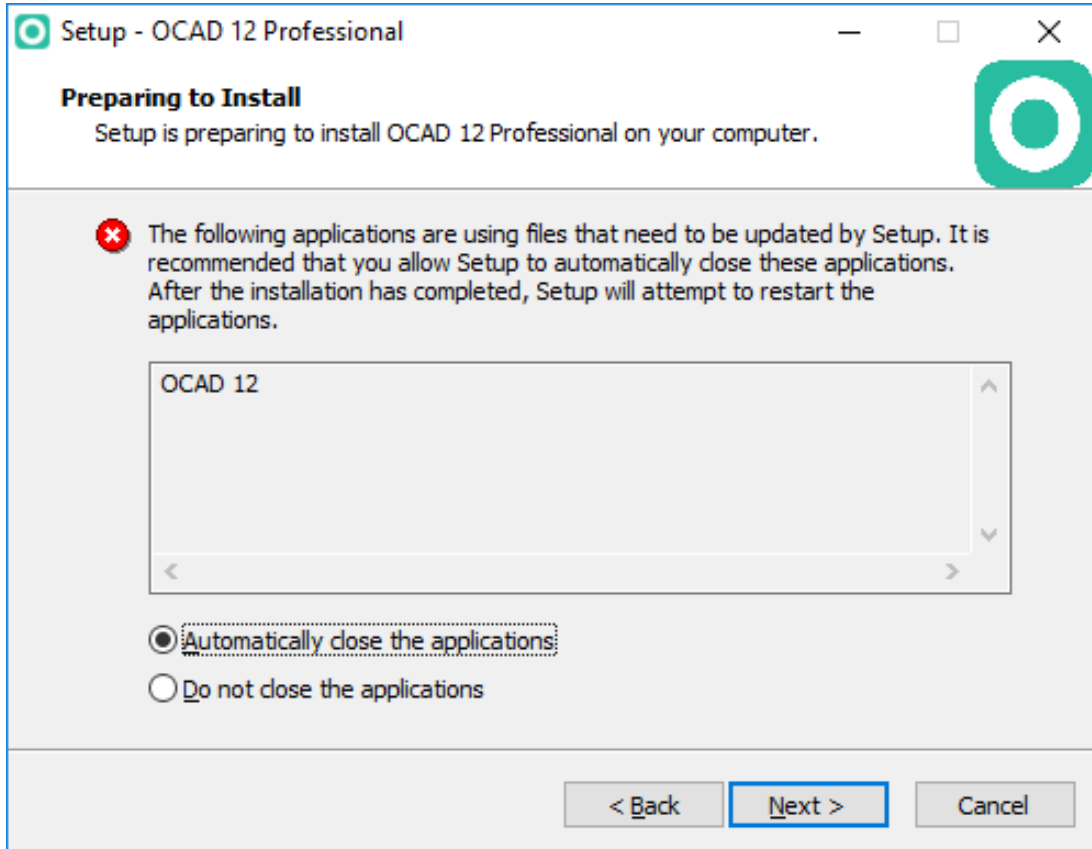
The wizard will guide you through the installation.

 The components option can be reset to *Czech - Čeština*. This may happen if a special build has been installed before which resets the registry key *Inno Setup: Selected Components* in *HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\OCAD 12 [Edition]_is1*

from *ocad,lang/xxx*

Error Message

If the following error message appears during the installation, OCAD is still opened and has to be closed. Close OCAD and click the **Retry** button.



Switch Off the OCAD Updater

To switch off the OCAD Updater disable the option in the Preferences.

OCAD Learn Videos

Several videos will help you to use OCAD.

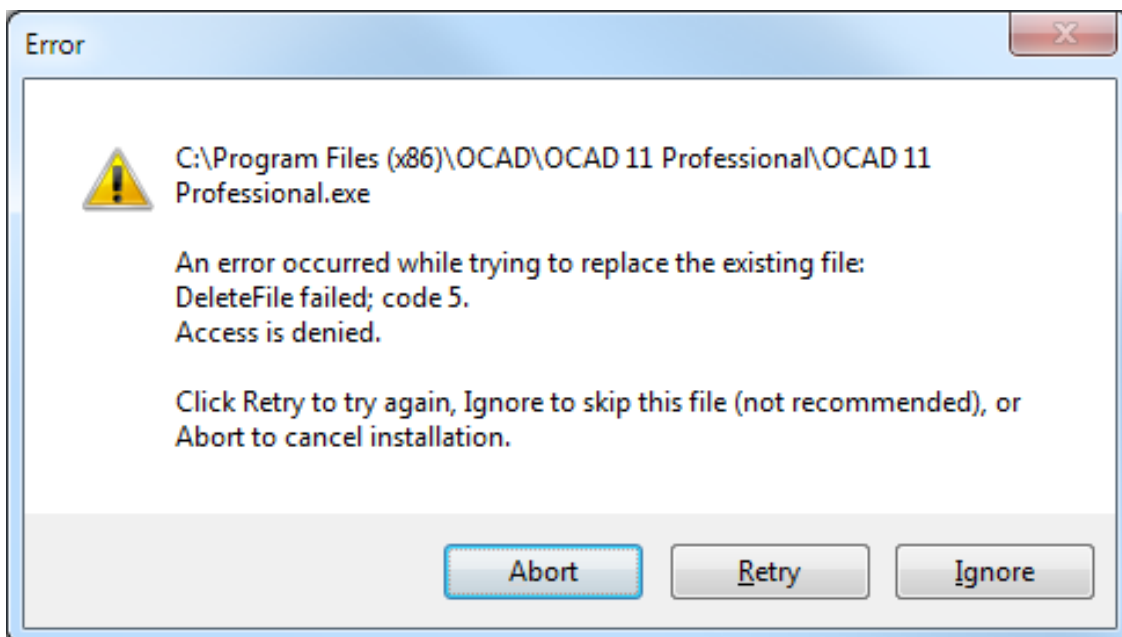
You find the corresponding link in the OCAD **Help** Menu or see <http://www.ocad.com/en/support/learn-video>

Adobe Flash Player must be installed to watch the movies.



Error Messages

An error occurred while trying to replace the existing file

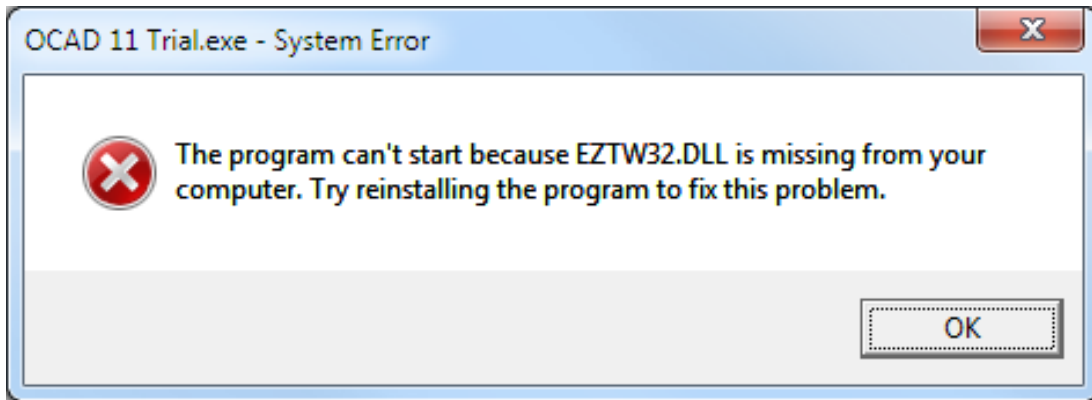


This error message appears when installing an OCAD Service Update.

Cause: The installer can not replace the program file because the OCAD program is open.

Solution: Close the OCAD program before executing the Service Update.

The program can not start because ETZW32.DLL is missing from your computer



Installing Service Update

This error message appears after installing an OCAD Service Update.

Cause 1: OCAD was not yet installed from the original CD.

Solution 1: Install first OCAD from the original CD and install then the Service Update.

Cause 2: During the installation process a wrong program folder was chosen. The wizard installed the Service Update in a wrong program folder.

Solution 2: Install the OCAD Service Update again but choose the correct program folder.

Installing OCAD Trial

This error message appears after installing an OCAD Trial version.

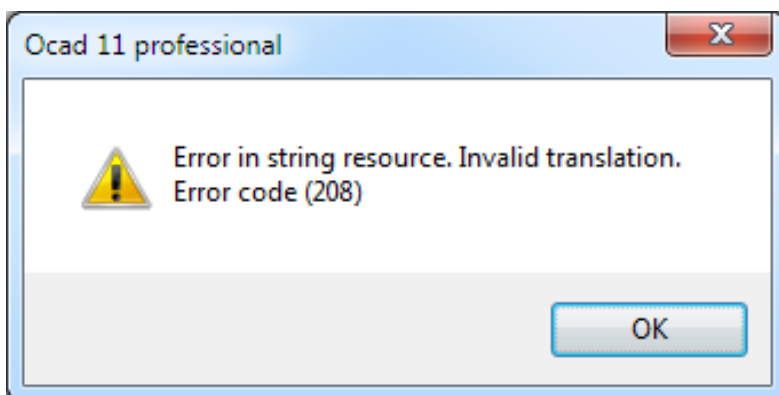
Cause: You have installed the Service Update instead of the Trial version.

Solution: Download the Trial version ^[1] from our website and install it.

Error Code 206

This is an installation error and may appears after replacing the harddisk. Solution: Reinstall OCAD.

Error in string resource. Invalid translation. Error code 208



This error message appears after installing an OCAD Service Update.

Cause: OCAD was running when installing the Service Update. The installer didn't replace the program file. The old program file is not compatible with the new string files.

Solution: Close OCAD first und install the current Service Update again.

Field ID not found

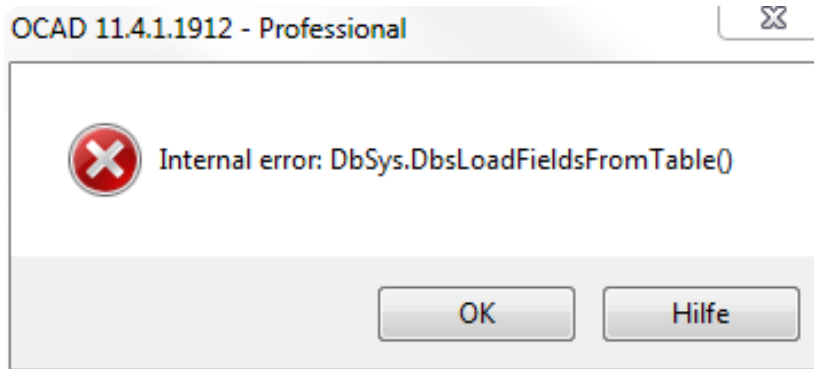
This error message appears when selecting an objects which is linked to a database record.

Cause: Borland Database Engine (BDE) is not installed and the dbf file name contains more than 8 characters

Solution 1: Please install the Borland Database Engine ^[2] and restart OCAD.

Solution 2: Rename the Shape file. Please note that all related files (*.dbf, *.shp and *.shx) must be renamed.

DbSys.DbsLoadFieldsFromTable()

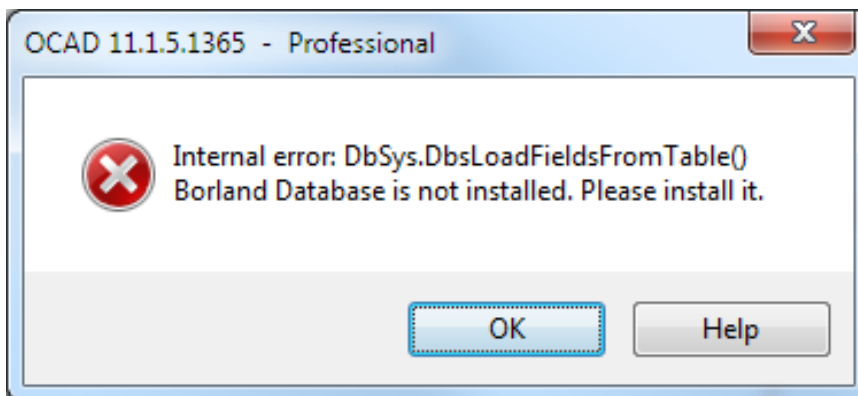


This error message appears after importing a Shape file.

Cause: The dBase file contains invalid field definitions.

Solution 1: Click **Edit Field...** button in the **Manage Database Connections** dialog and reduce length values for numeric fields to 20. This is the maximum value.

DbSys.DbsLoadFieldsFromTable(). Borland Database Engine is not installed. Please install it.

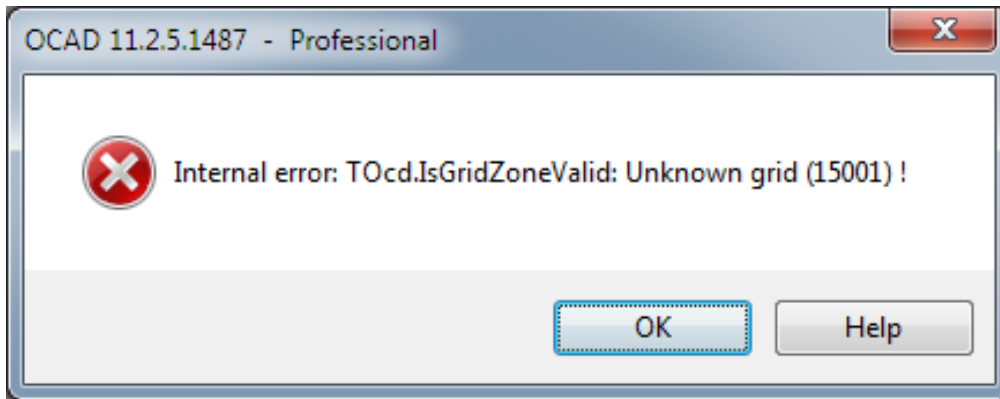


This error message appears after importing a Shape file.

Cause: Borland Database Engine (BDE) is not installed and the dbf file name contains more than 8 characters.

Solution 1: Please install the Borland Database Engine ^[4] and restart OCAD.

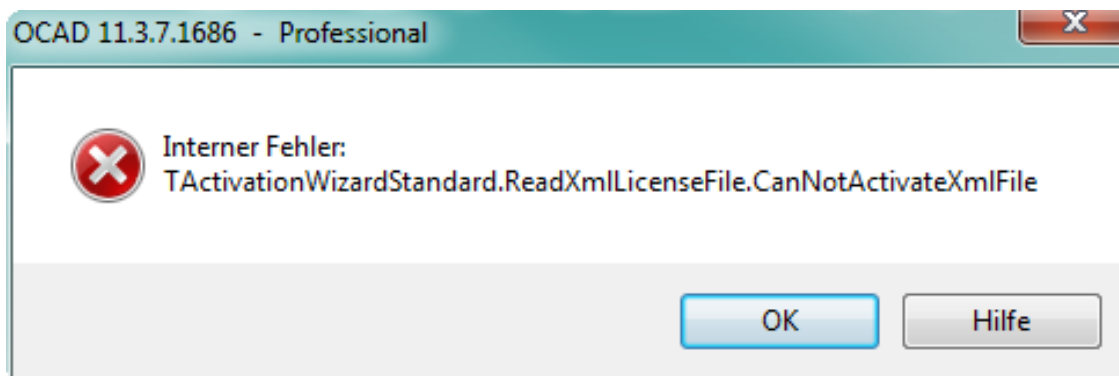
Solution 2: Rename the Shape file. Please note that all related files (*.dbf, *.shp and *.shx) must be renamed.

Internal error: TOcd.IsGridZoneValid: Unknown grid ()!

This error message when opening the ocd file.

Cause: The used OCAD version does not yet support this grid.

Solution: Please install the current OCAD Service Update ^[4].

**Internal error:
TActivationWizardStandard.ReadXmlLicenseFile.CanNotActivateXmlFile**

This error message appears after starting OCAD.

Cause: OCAD could not validate the activation xml file. This may happens when using Windows XP without Service Pack 3 or Windows Vista without Service Pack 1.

Solution: Please install Service Pack 3 for Windows XP or Service Pack 1 for Windows Vista.

References

[1] <http://www.ocad.com/en/downloads/ocad-trial-edition>

[2] http://download.chip.eu/en/Borland-Database-Engine-5.1_73694.html

Internal Error

An internal error may be caused by a faulty map file or by an error in the program. Please report such an error to OCAD AG ^[4].

How To Handle Large OCAD Files

There are different measures and settings that help to OCAD to handle large files:

- Delete unused colors
- Hide unused symbols
- Switch on the Faster text rendering option in the **View** tab of the **OCAD Preferences** in the **Options** menu.
- Switch off the **Anti-Aliasing** mode in **View** menu. If Anti-Aliasing is switched off then OCAD draws the screen color by color. Otherwise OCAD draws the screen once after a short time.
- Use Access **Database connection** instead of dBase.

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