

OCAD 12 Offline Wiki

english

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OCAD 12 Offline Wiki



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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 tutorial videos for various subjects. They help you to learn the functions and solutions step by step. 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.

 Most of the 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 Professional.
-  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

Contact

OCAD AG
Mühlegasse 36
CH-6340 Baar/Switzerland
Tel (+41) 41 763 18 60
Fax (+41) 41 763 18 64
info@ocad.com^[4]
<http://www.ocad.com>

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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
- **Pan** with mouse wheel down
- **Zoom in / out** with [Ctrl] and [+/-]
- Change view mode in **status bar**
- Faster drawing of text objects

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 Shape**: Smooth option
- **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

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

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
 - **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
- **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**
- **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

Map

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

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**
- 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
- **Move background maps** up and down with drag and drop
- Option to **open background maps hidden** with **[Shift]**

DEM

- **Wizard for DEM import**
- **Import wizard:** Starts with drag and drop DEM file(s) into the OCAD drawing area
- Import: new option to **import only a user-defined extent**
- **Create contour lines:** Improved (faster)
- Create hillshading: New **preview** option for grid import
- Create hillshading: New **interpolation** option for grid import
- Support **.zlas files**

XML Script

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

Course Setting

- Shortcuts for all **course setting menu** items added

Relay

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

Languages

- Polish language added

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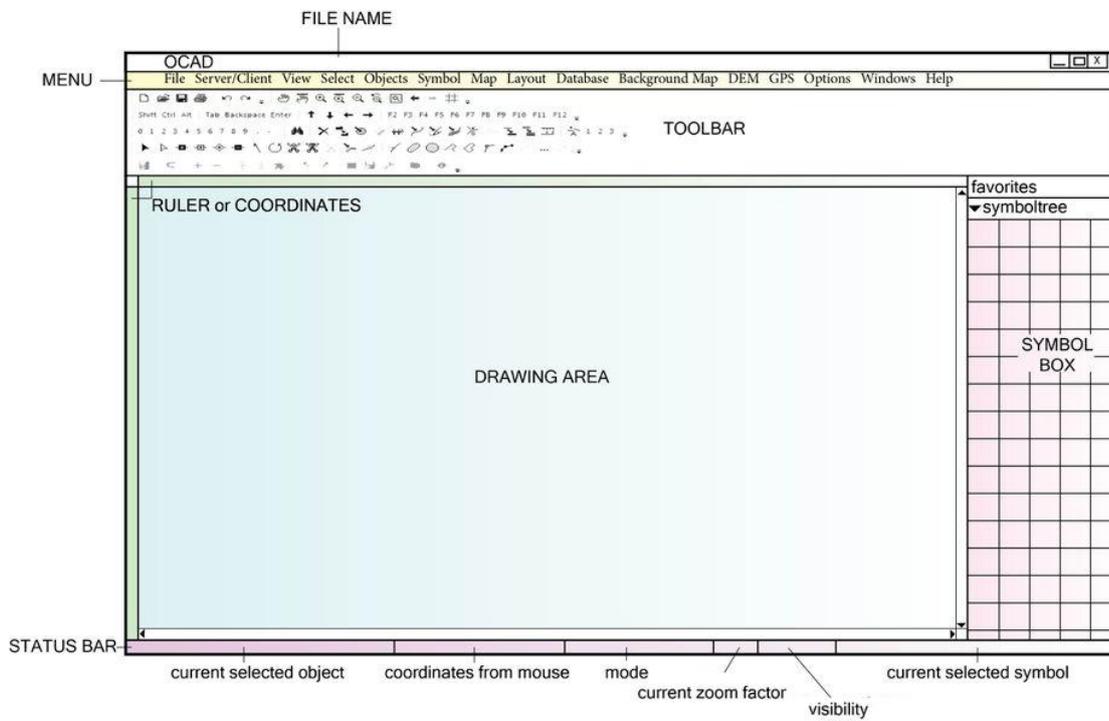
[Previous Chapter: About this Wiki](#)

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References

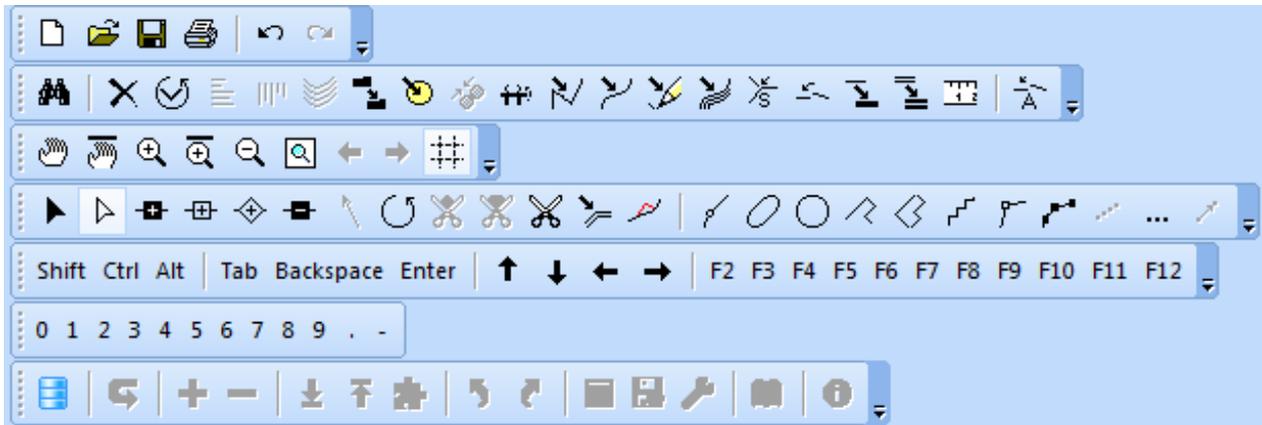
[1] <http://www.regular-expressions.info/>

Graphical User Interface

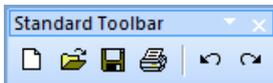


Toolbars

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.
- Info:** Shows the map 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

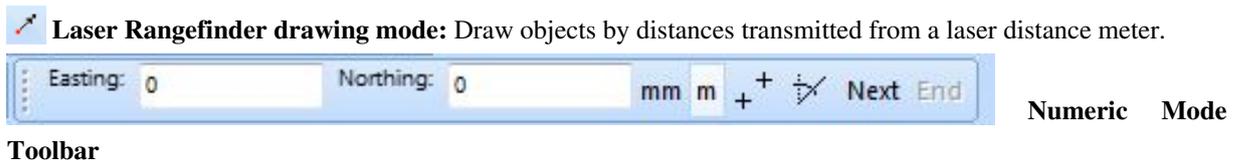


Edit modes

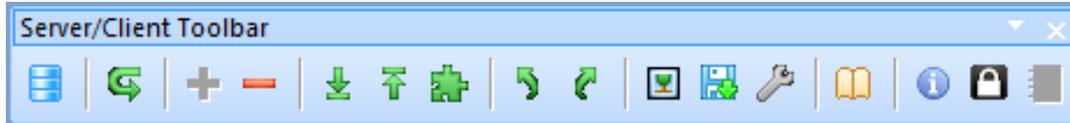
-  **Select and Edit Object:** Select and move objects.
-  **Select Object and Edit Vertex:** Select objects or move points of objects.
-  **Select Object with Lasso Tool:** Select objects with a Lasso.
-  **Normal Vertex:** Add a vertex. This will not influence a dashed line.
-  **Corner Vertex:** Add 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.



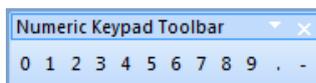
Client Server Toolbar



-  **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

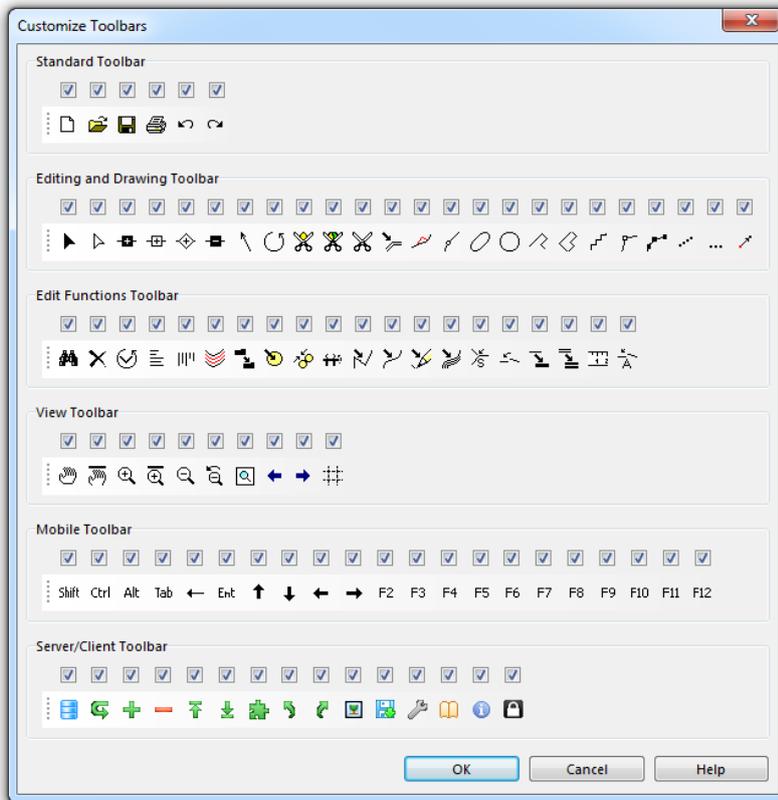
Pro Std



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.

Menu

OCAD Professional Edition features the following menus:

File Server/Client View Select Object Symbol Map Layout Database 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
- **Database:** Functions for connecting and editing databases
- **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.

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 same symbol .

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

Select Object by Object Index: Selects the object with the respective index.

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.

Select Group: Select a group of objects.

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

Topology

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

-Select Duplicate Objects:

-Select Self-Intersected Objects

-Select Line Text Objects with too Short Line

-Select Objects with Invalid Geometry

-Close Area Objects

-Remove Overshoots and Undershoots

-Insert Intersections

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

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

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

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**
- Adjust GPS**
- Import Data from GPS Device**
- Import from File**
- Connect to Laser Distance Meter**

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.

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 Update^[3]: Connect to the OCAD download site on the Internet.

OCAD Learn Videos^[4]: Connect to Learning Videos on OCAD homepage.

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

OCAD Blog^[5]: Show the newest posts from OCAD Blog.

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

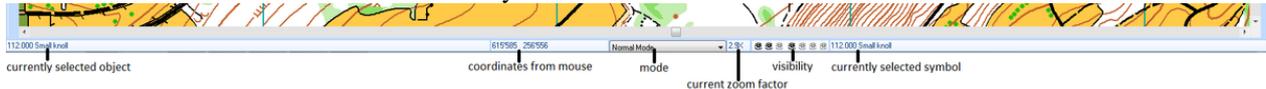
- **Shift**  : Add or remove an object to/from the selected objects.
- **Ctrl**: Remove a vertex.
- **Shift**  + **Ctrl**: Insert a normal vertex.
- **Alt**: Select an object behind an object that has already been selected.
- **Alt** +  : Switch temporary to **Select Object and Edit Vertex** mode to 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, it's 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.

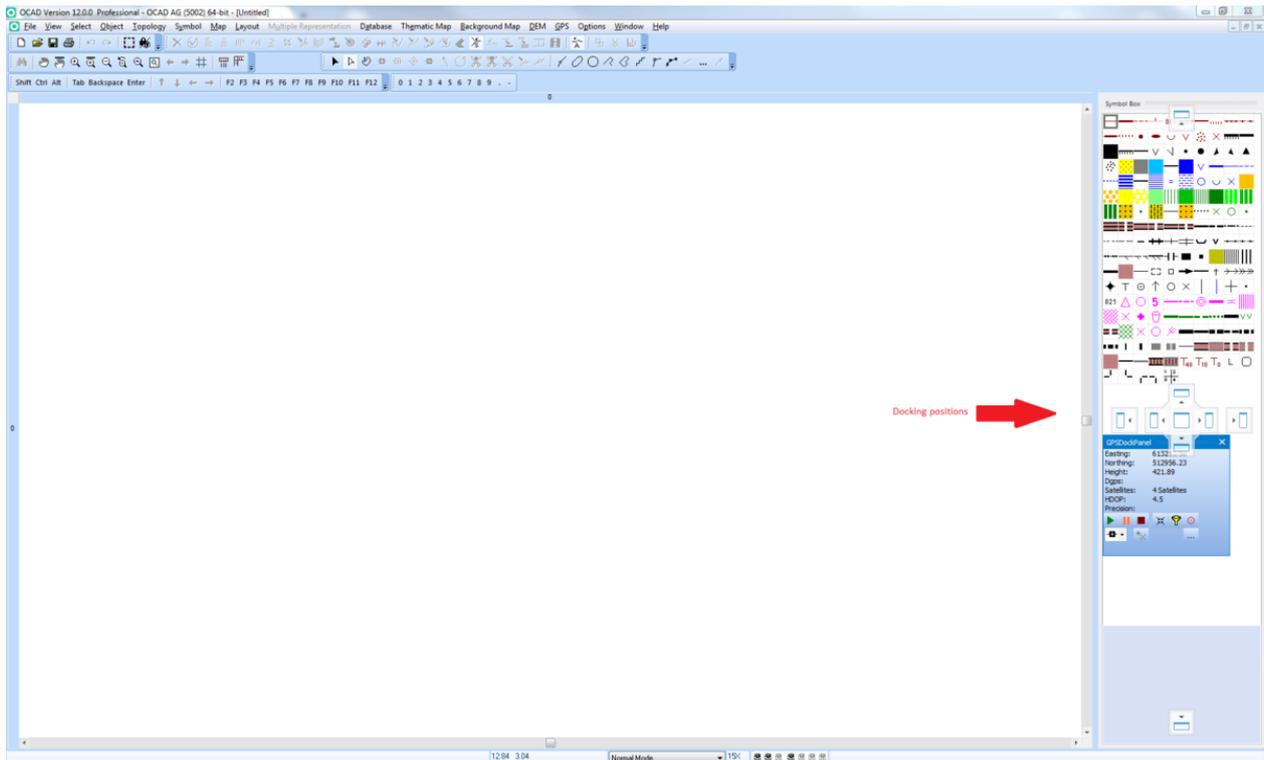
If the eye icon is crossed off with a red cross, the feature is not visible.

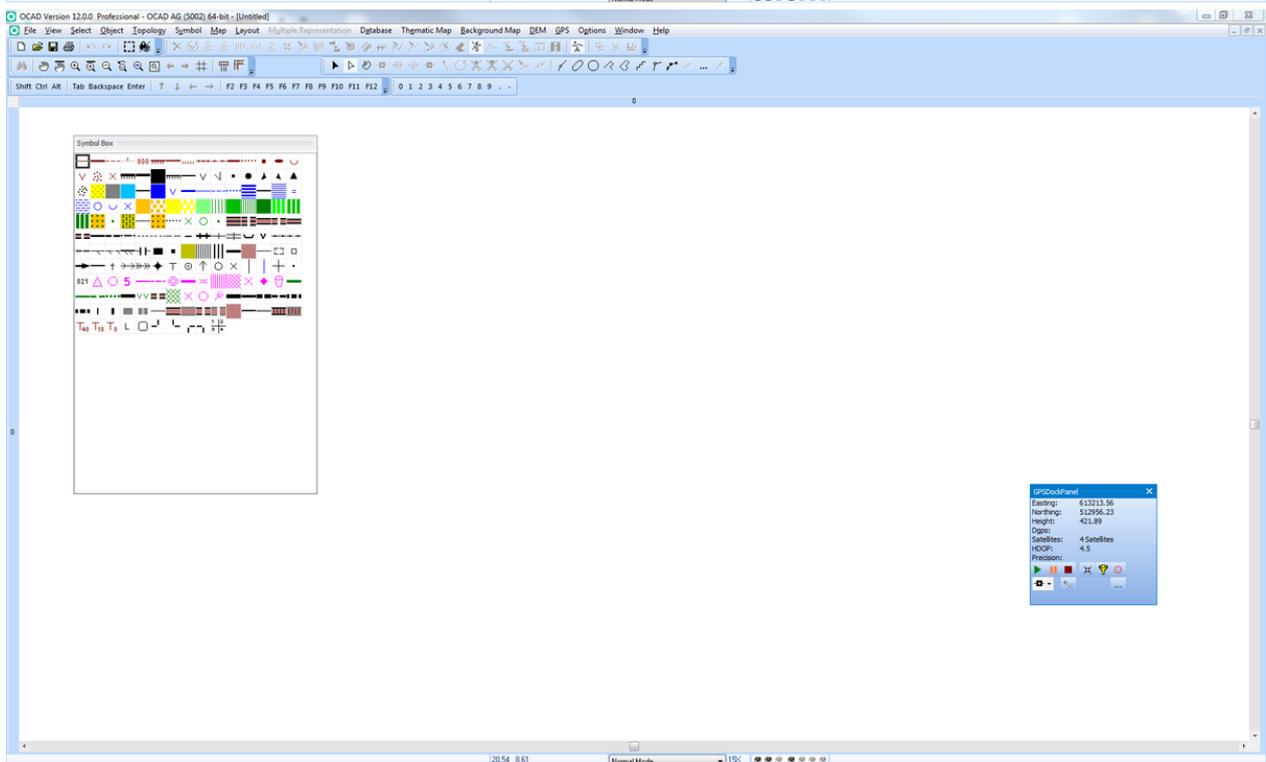
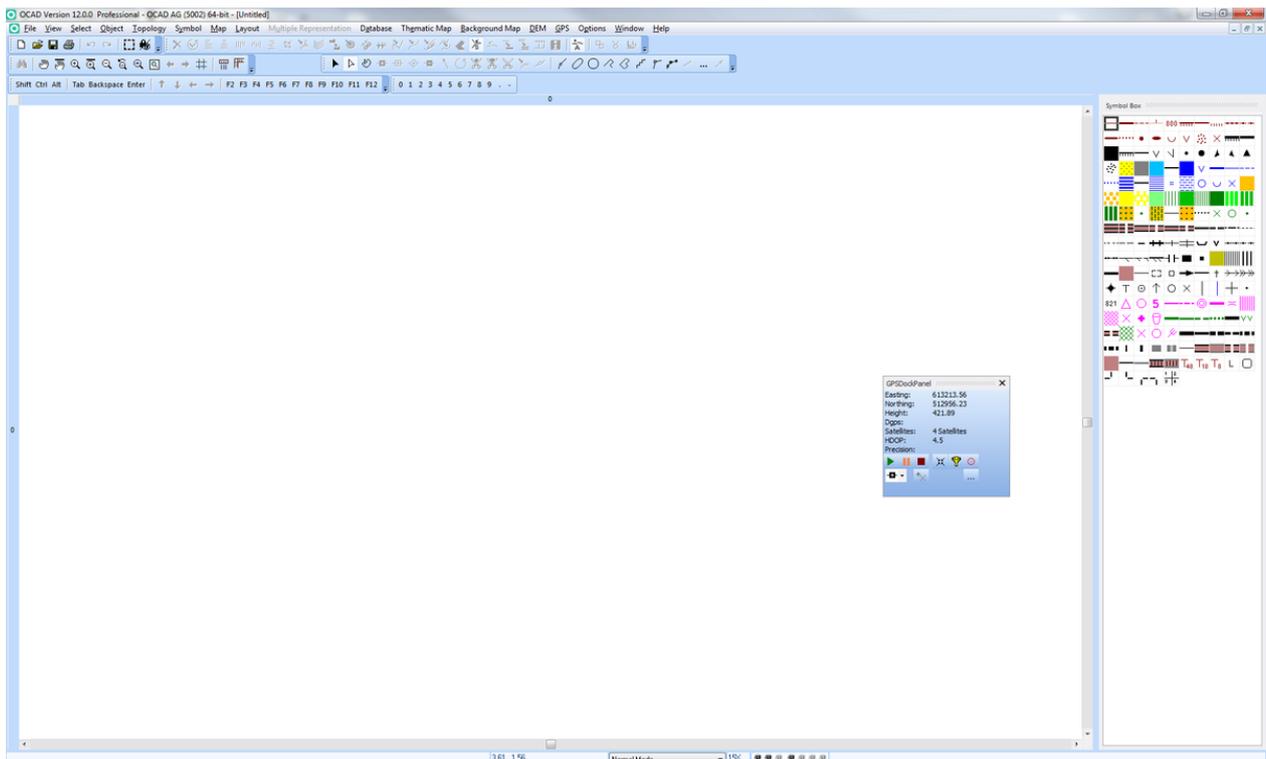
If the eye icon is crossed off with an orange cross, the feature is only partially visible.

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

Docking

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





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[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/downloads/>
- [4] <http://www.ocad.com/en/support/learn-video/>
- [5] <http://ocad.com/blog/>

View

View Modes



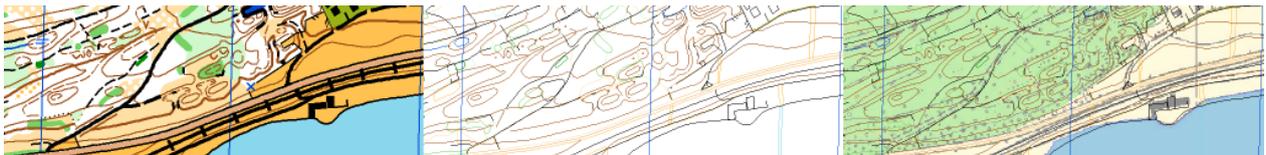
There are four different view modes:

- 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

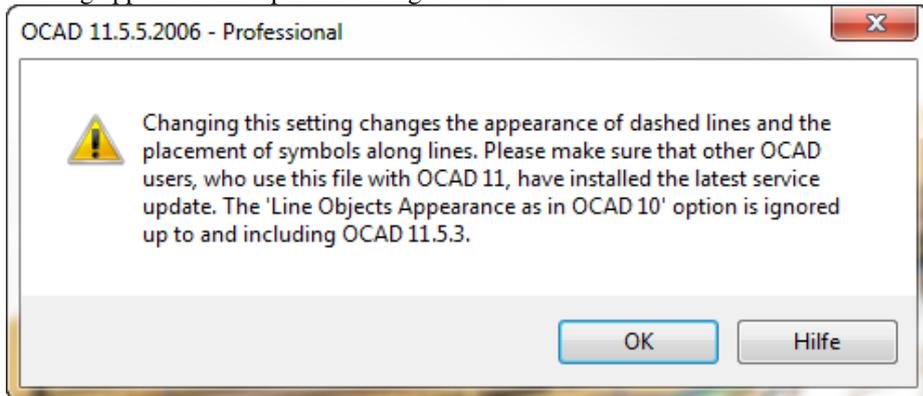


Visit the **Anti-Aliasing** page to get some information about **Anti-Aliasing**.

Line Objects Appearance as in OCAD 10



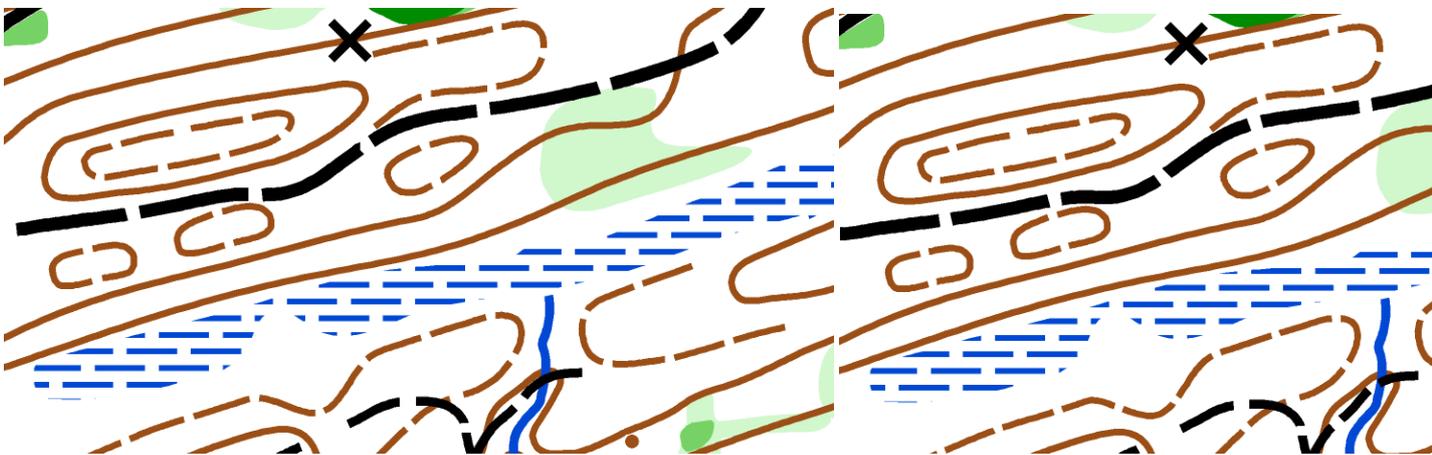
This option sets the appearance of dashed lines as it was in former OCAD versions (OCAD 10 and earlier). This option is unchecked by default. If it is checked then dashed lines appear as in OCAD 10. If the option is unchecked, then dashed lines' appearance is based on the new more precise calculation introduced in OCAD 12. Please make sure that other OCAD users, who use this file with OCAD 12, have installed the latest service update. The *Line Objects Appearance as in OCAD 10* option is ignored up to and including OCAD 12.5.3. For this reason a warning appears if this option is changed:



Example

Line Appearance in OCAD 12 (left image) and OCAD 10 (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.

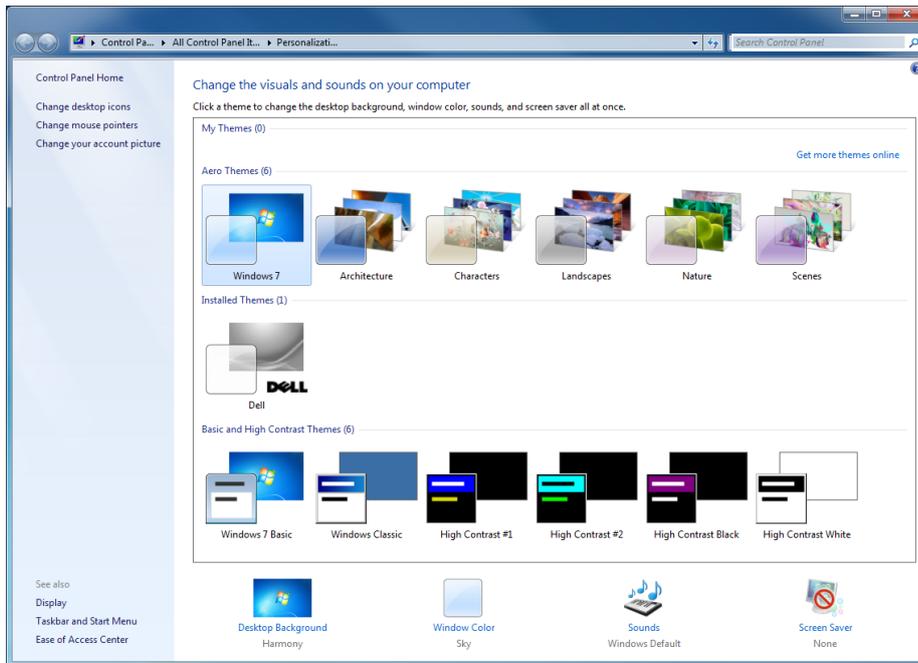


Redraw

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.

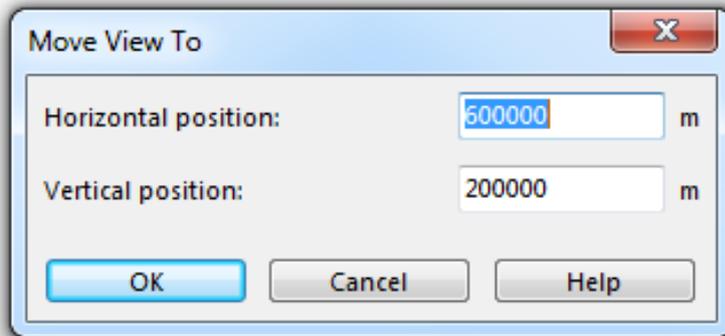
Pan Locked Pro Std

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

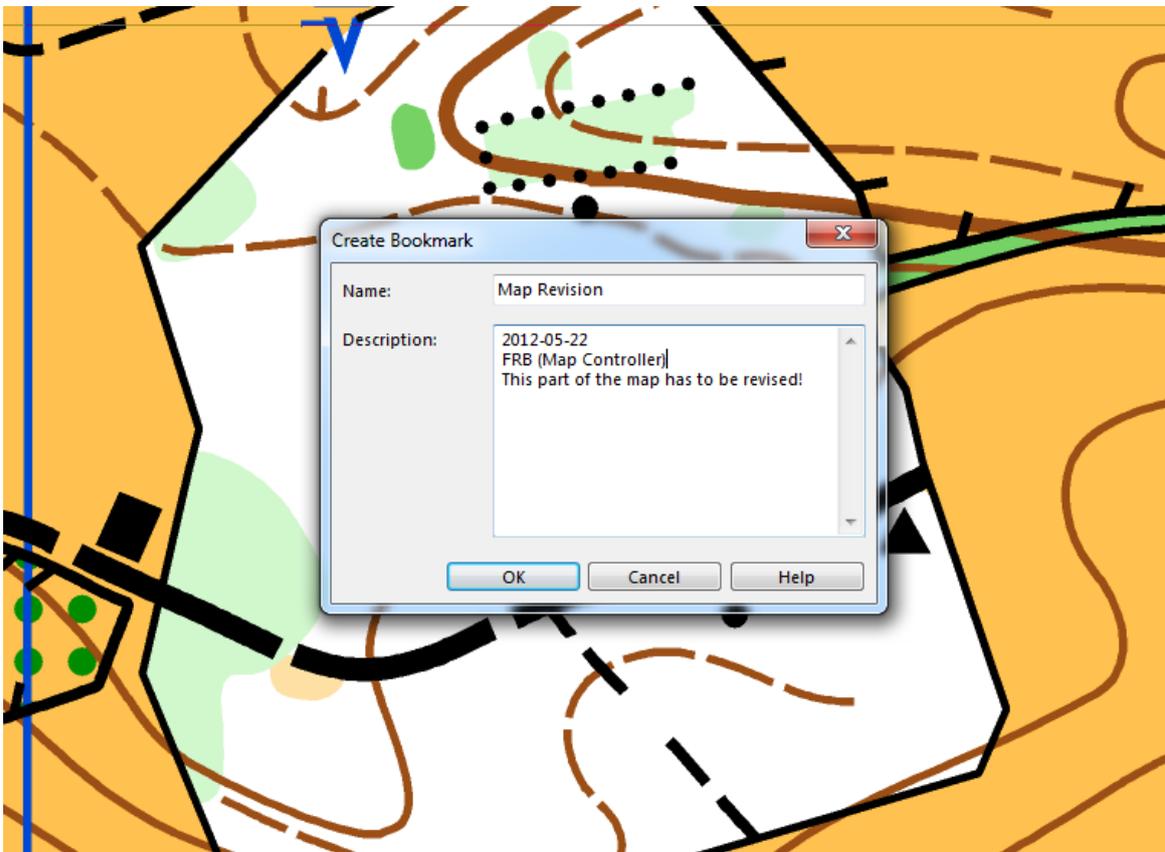
Pro Std

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.

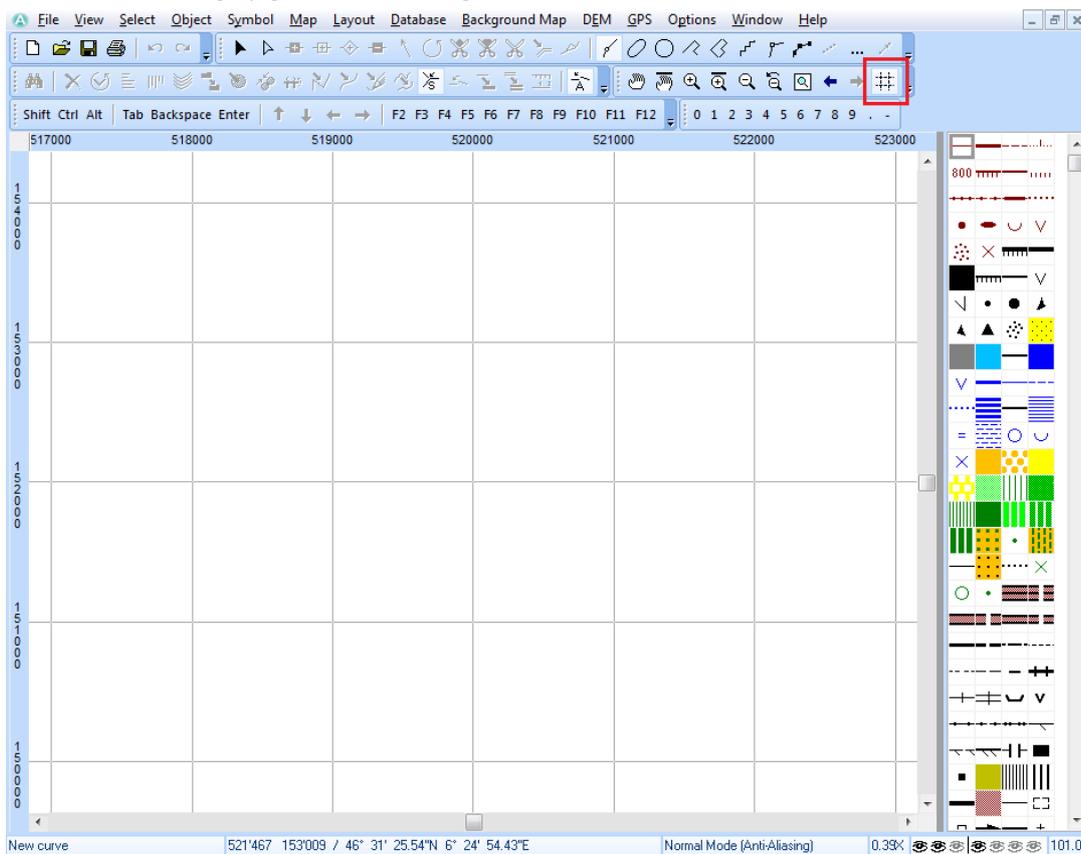
 The number of bookmarks is limited by 64.

 Bookmarks ^[1]

Show Screen Grid



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](#)

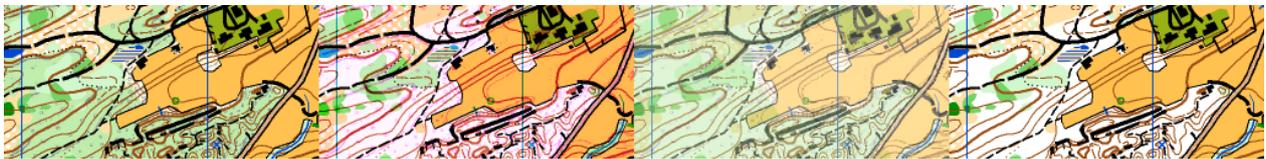
[Previous Chapter: File](#)

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

References

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

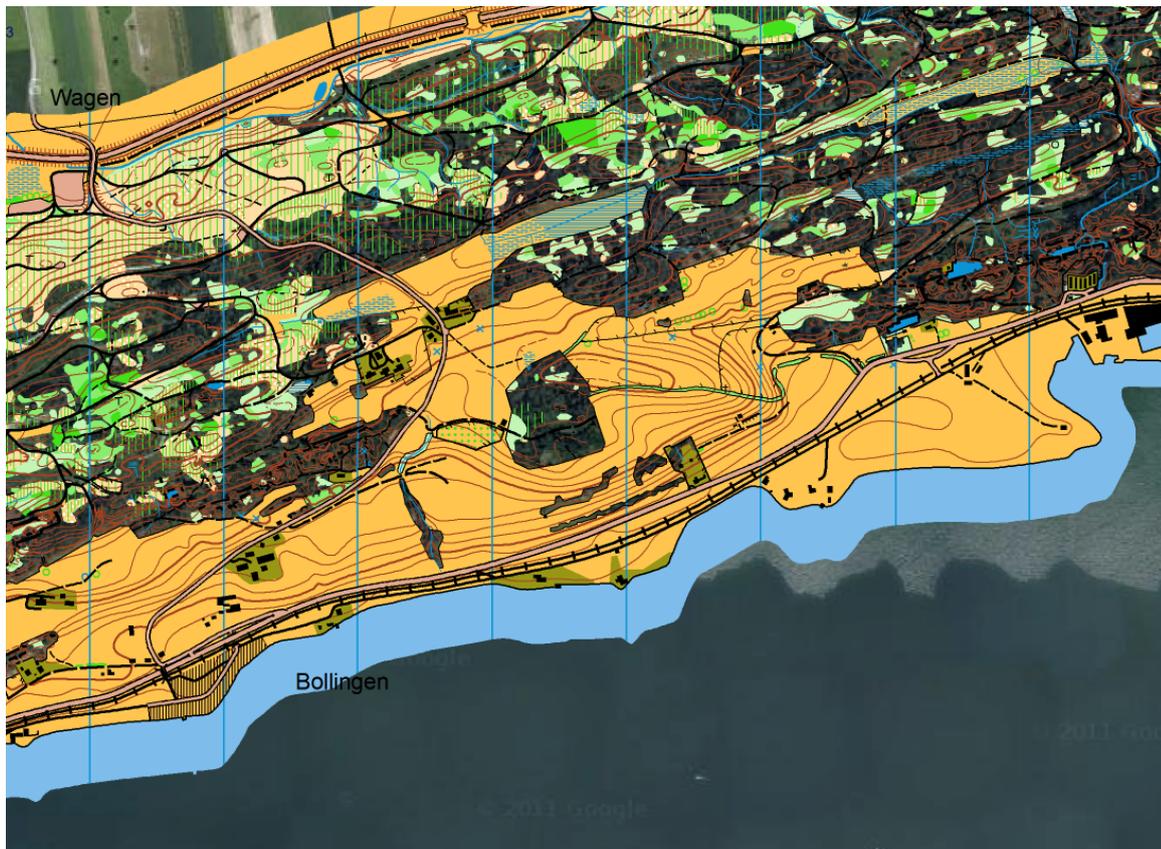
View Mode



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

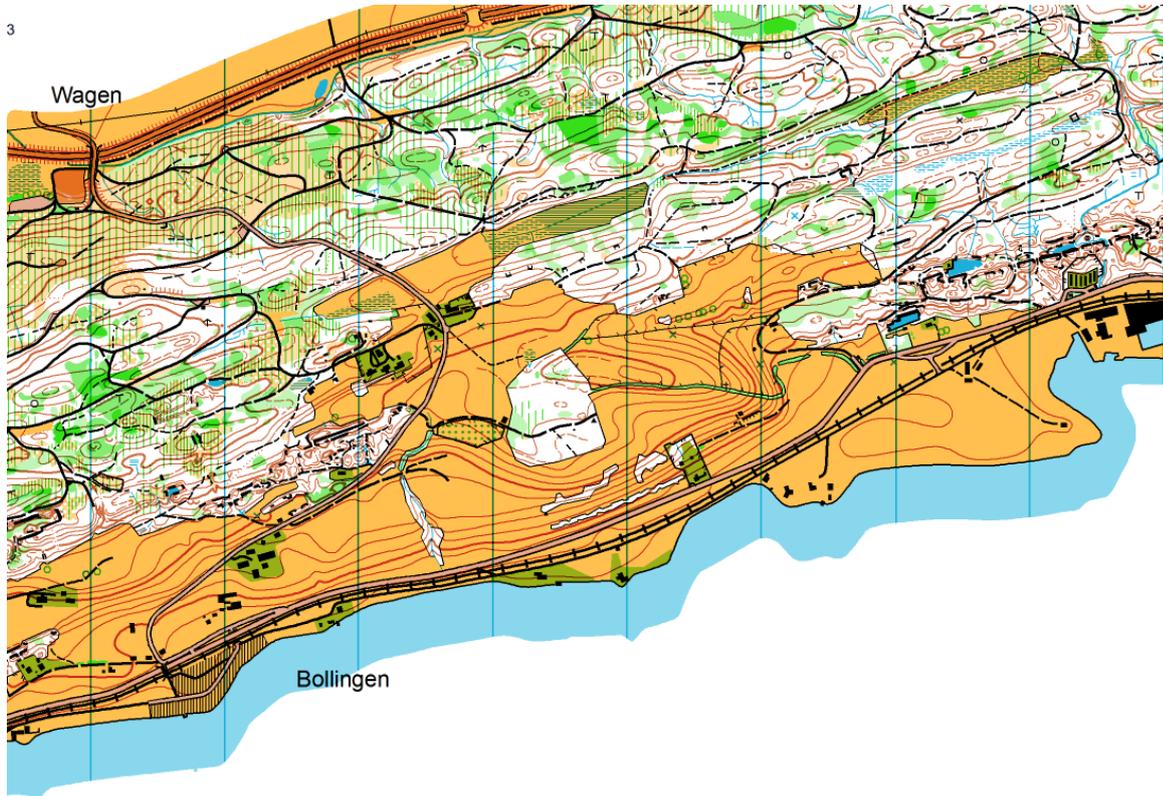


This command is enabled if at least one spot color has been defined (**Define Spot Colors**).

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)**.

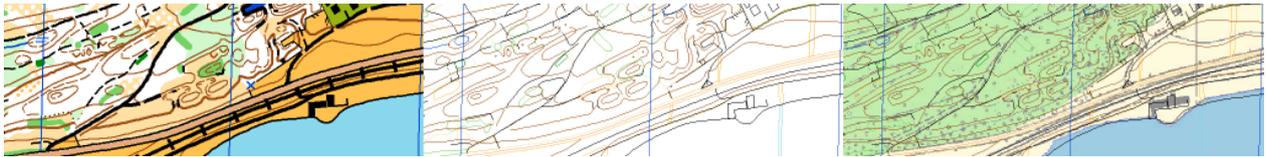
Choose the **Shortcuts** command in the **Options** menu to assign a **Shortcut**. Search for the **View - View mode loop** entry in the shortcut list. Select it and choose a shortcut from the **Shortcut** dropdown menu (e.g. F11). Click the **Close** button to finish.

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

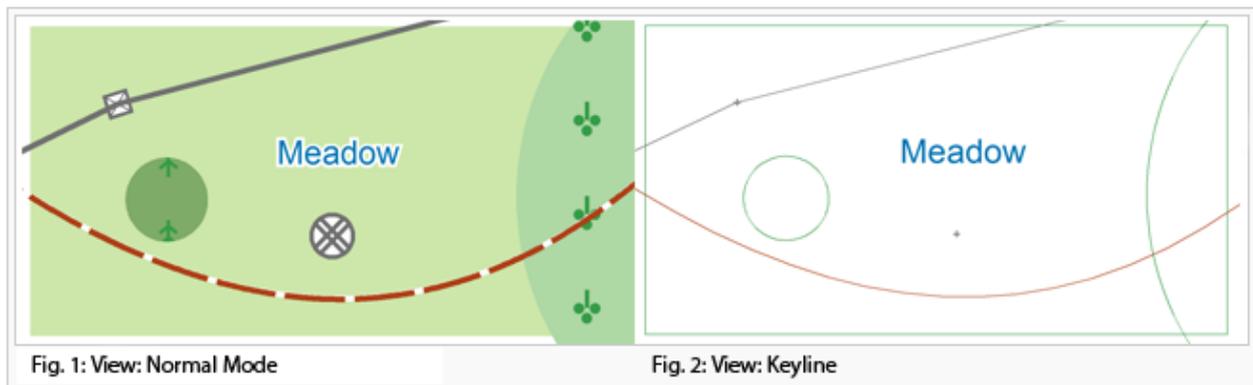


Pro

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: Text objects appear without changings.



💡 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



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>

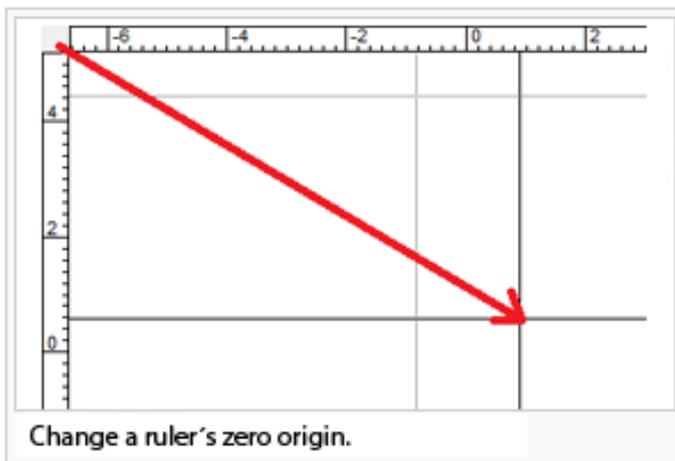
Show Rulers

Pro Std

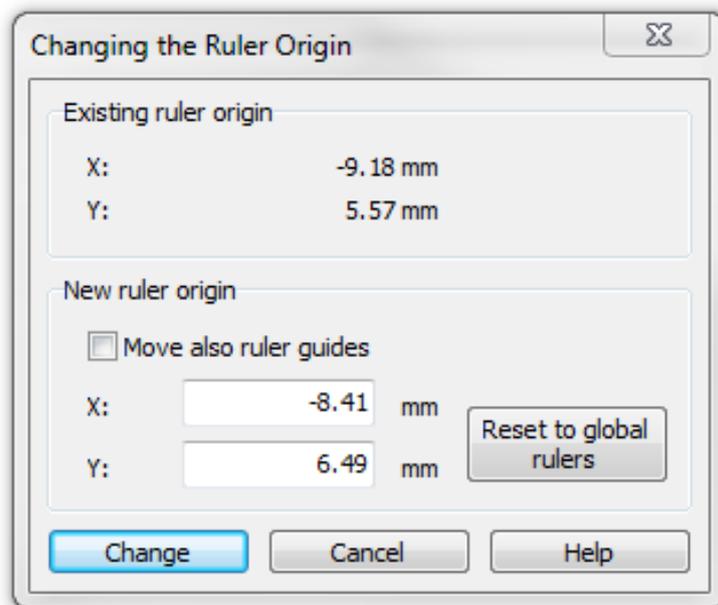
Check **Show Rulers** in the **View** menu to show rulers. They appear along the top and left side of the drawing area. By default, the ruler's origin (0|0) is the same as the grid's point of origin. Disable **Show Rulers** in the **View** menu to hide rulers again. Rulers are an assistance to create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

Pro **Std**

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.

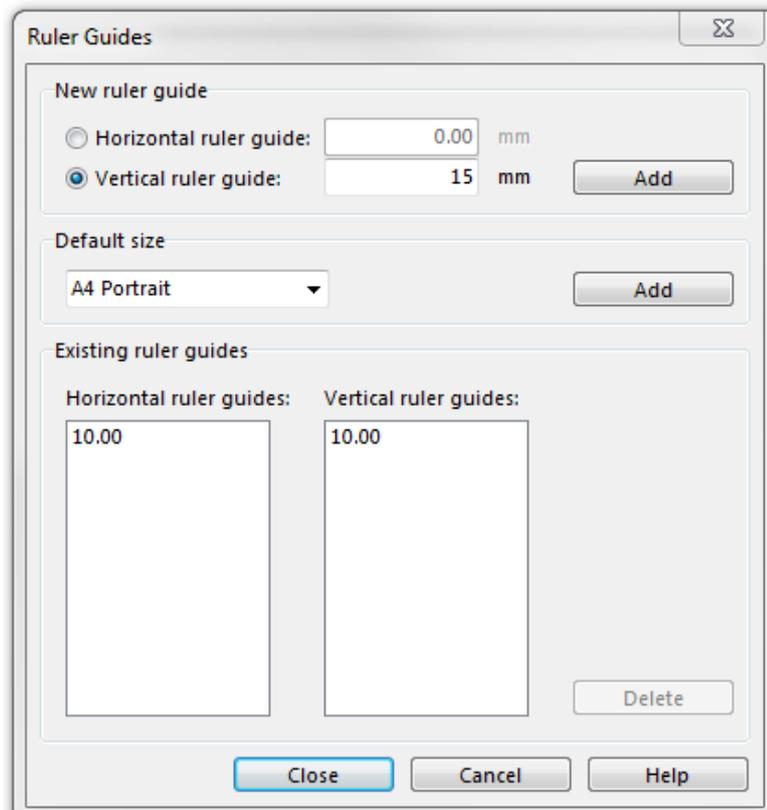
Place a Ruler Guide

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

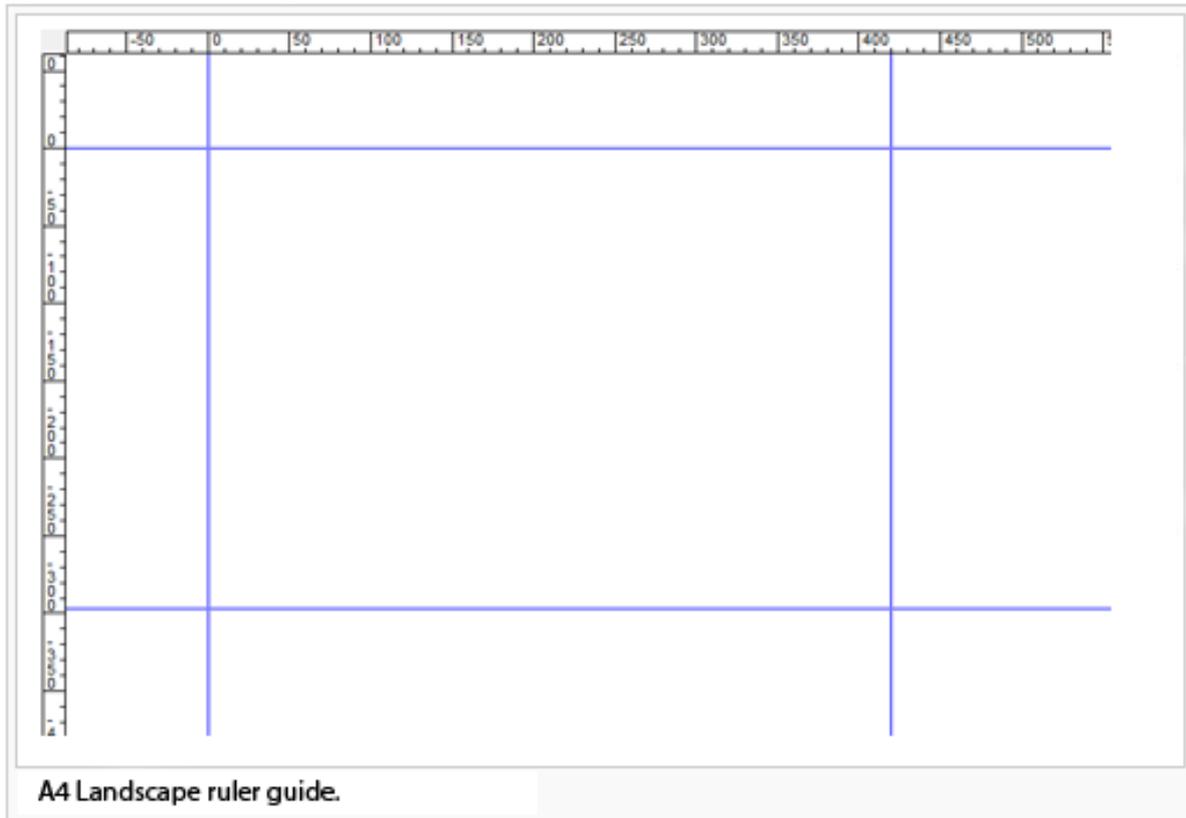


'New ruler guide' Field

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

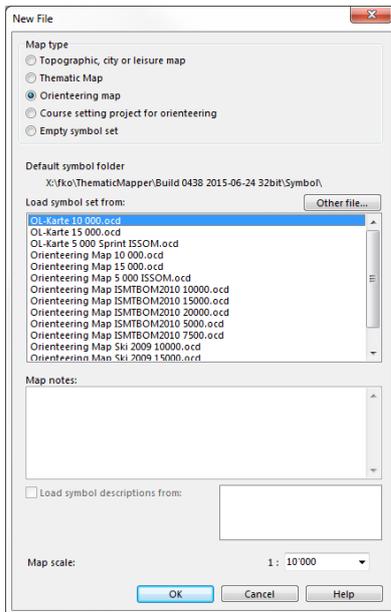
OCAD provides predefined symbol sets to help you begin drawing your map immediately.

Create a New Map



To create a new map:

1. Select **New** in the **File** menu. The **New File** dialog box appears.



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.

💡 - 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 *OrienteeringMapList.User.txt* in the OCAD sub directory *Symbol* if you want that user defined symbol sets are listed as map type **Orienteering map**.

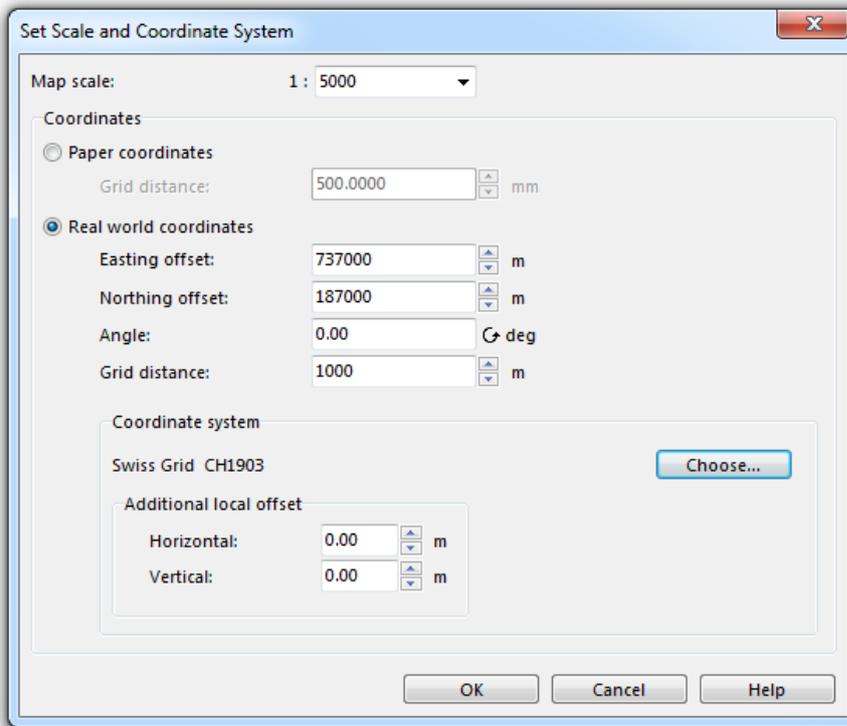
3. Decide in which **scale** the map shall be drawn.
4. For some Maps, it's possible to **Load symbol descriptions from** a text file. This requires a text file in the symbol set folder. The file needs to contain the symbolset name in it's filename. The content has to be the in each line a symbol number followed by the symbol description (ex. 101.000 Contour line).
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 to 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.

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.

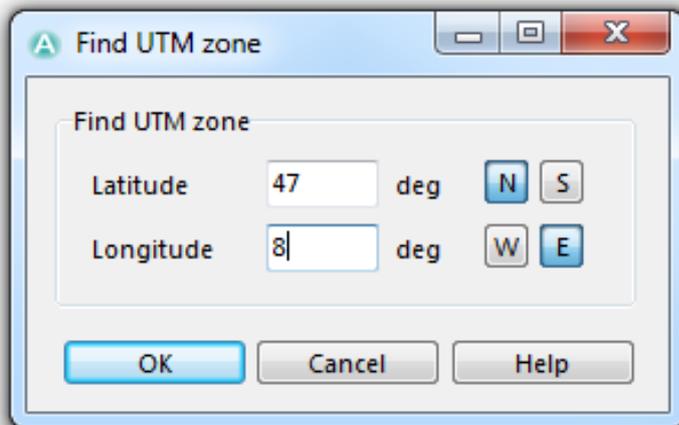
- **Zone:** Depending on the selected coordinate system you must select a zone. If the coordinate system **UTM** is selected, you can click the **Find** button to find the correct UTM zone. This function is described in the next paragraph.
- **Map datum:** This field displays the map datum for the desired 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.

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.

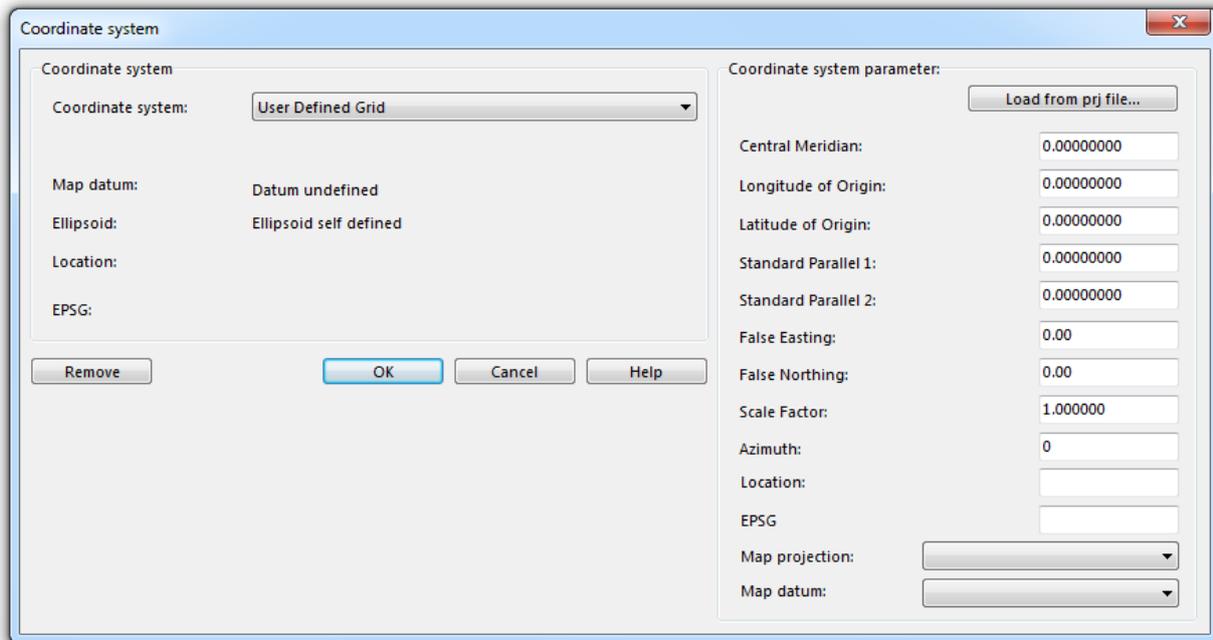
- **Latitude:** Enter in this field the degrees of latitude.
 - N (North):** Click this button if the position is northern of the equator.
 - S (South):** Click this button if the position is southern of the equator.
- **Longitude:** Enter in this field the degrees of longitude.
 - W (West):** Click 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.

[Back to Main Page](#)

[Previous Chapter: View](#)

[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/>

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.

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 (8, 9 or 10 but only 9 or 10 for a Course Setting file). In the **Save as type** list you can choose the format.

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

💡 **OCAD 12 Course Setting** files can be saved in an earlier OCAD version (9, 10 or 11) 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](#)

Colors Not Found

This message appears when opening an OCAD map or optimize/repair the map.

Color number used in symbols or graphic objects are not defined in the color table.

Opening OCAD 8 Maps

In some cases this message appears after opening and converting OCAD 8 maps. The **Color not found** dialog shows the color numbers and the symbols. The problem is that the color information for these symbols in the OCAD 8 file are not correct.

To solve this problem, select each of these symbols, click **Edit** in the **Symbol** menu and click **OK** to close the symbol dialog. OCAD writes the correct color information in the symbol.

Symbols Not Found

This message appears when opening an OCAD map or optimize/repair the map.

Symbol numbers used in objects are not defined in the maps' symbol list.

[Back to Main Page](#)

[Back to Symbol](#)

Not Closed Correctly

The error message "*file name* has not been closed correctly" appears if the last OCAD session was terminated abnormally and the changes were not saved to the map. However, these changes can be restored.

- **OK:** Continue the session with all the unsaved changes restored.
 - **Cancel:** Abandon the unsaved changes. They will be lost.
-

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



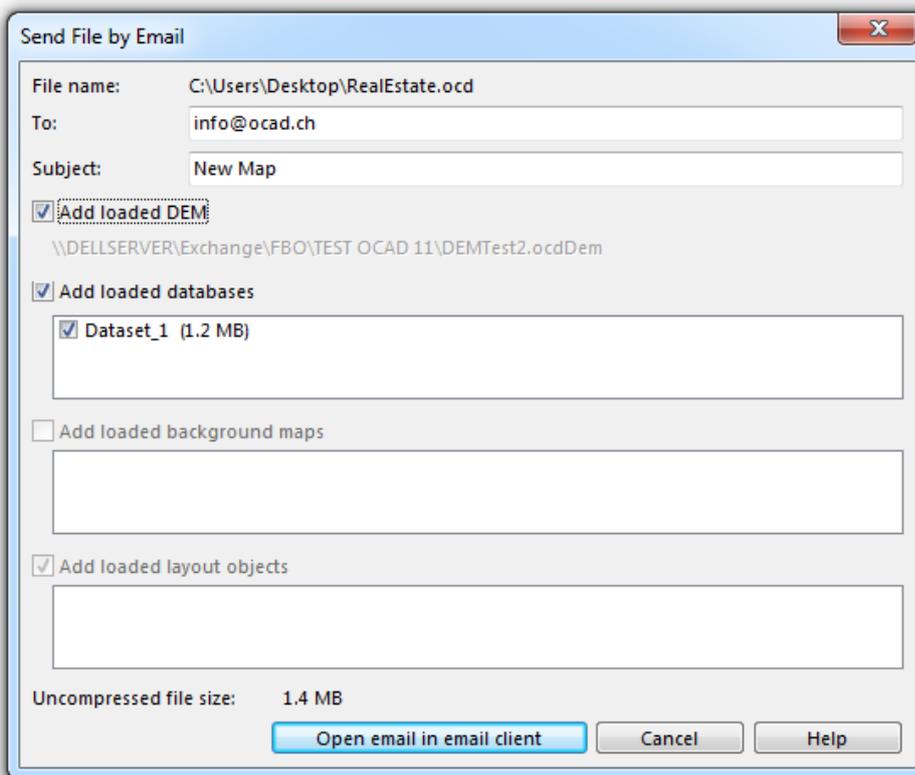
Click on the **Redo** icon  in the standard toolbar, press Ctrl+Y or select **Redo** in the **File** menu to reverse the effect of the **Undo** operation.

Back to the **File** page.

Send File by Email

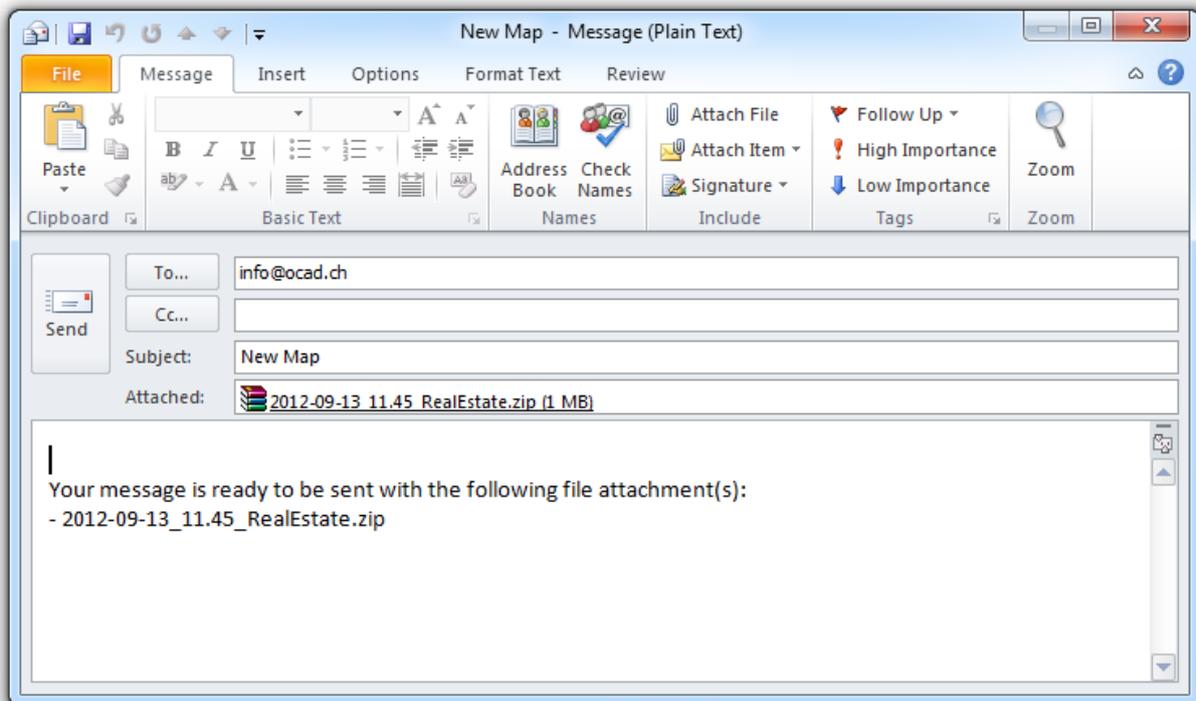


Choose the **Send File by Email** command in the **File** menu to send an OCAD map, including the loaded **DEM**, **Databases**, **Background Maps** and **Layout Objects**, by E-Mail. The **Send File by Email** command appears.



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 and Restore 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**.

Map

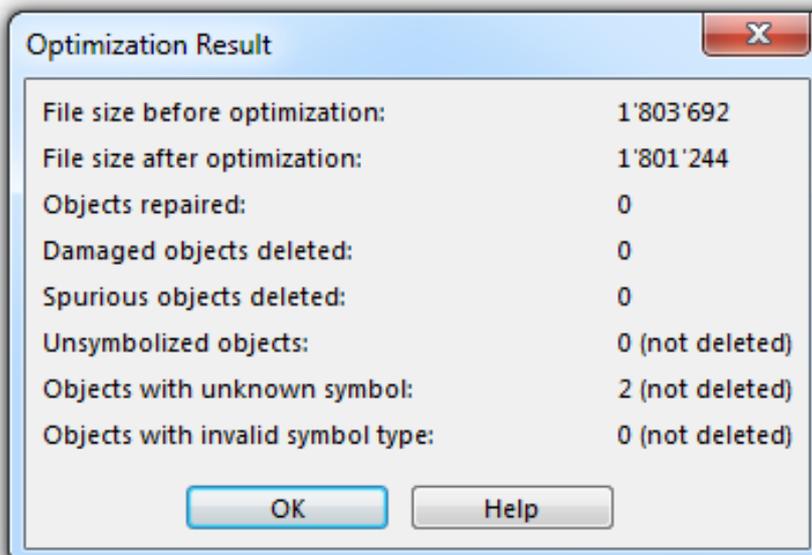
Optimize and Repair



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

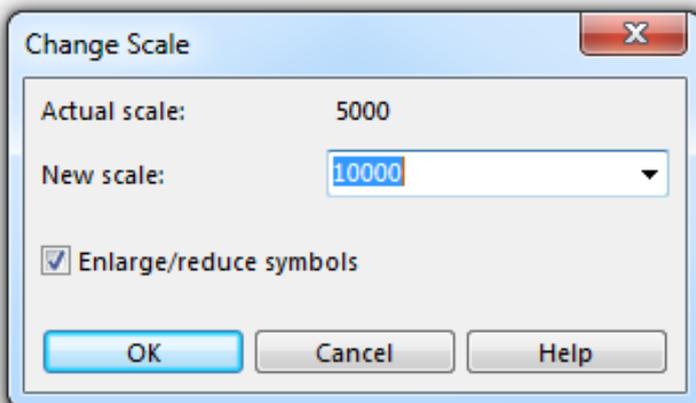


Visit the [Set Scale and Coordinate System](#) page to get some information about this function.

Change Scale



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

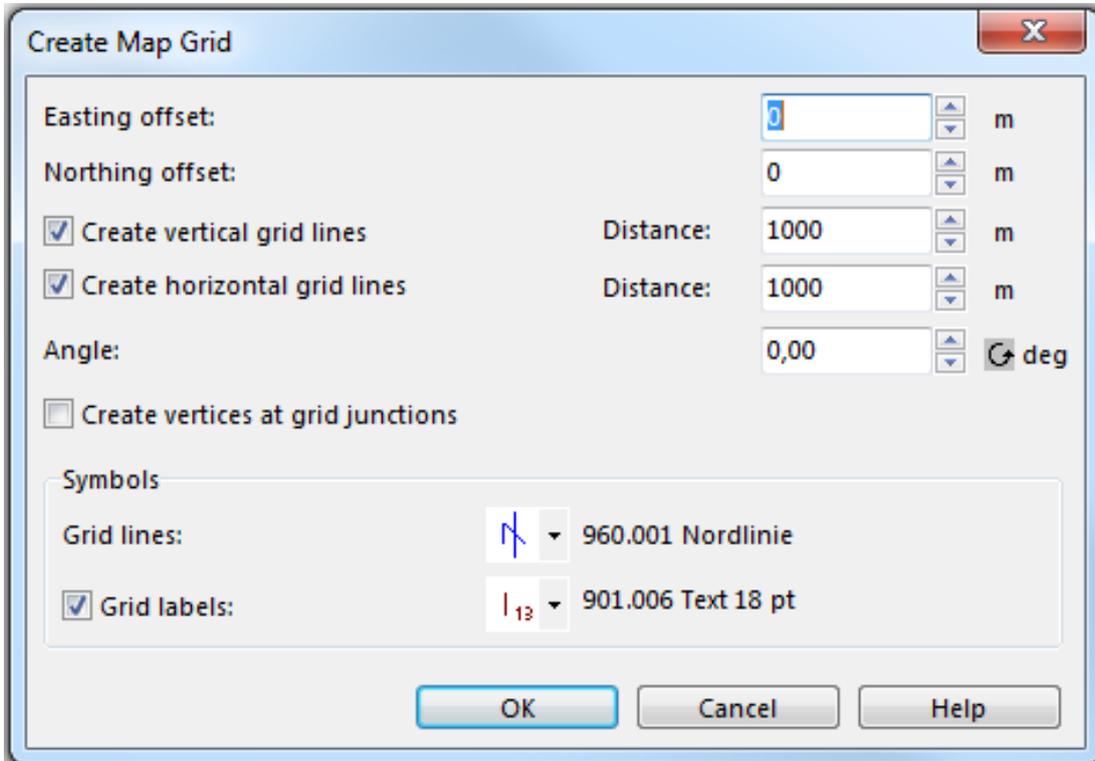
Check this box to enlarge/reduce the symbols with the same factor as the map. When the box is checked, the map is enlarged/reduced like a photographic enlargement. When this box is not checked, the map is enlarged/reduced, but the symbols are kept in the same dimension.

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!**

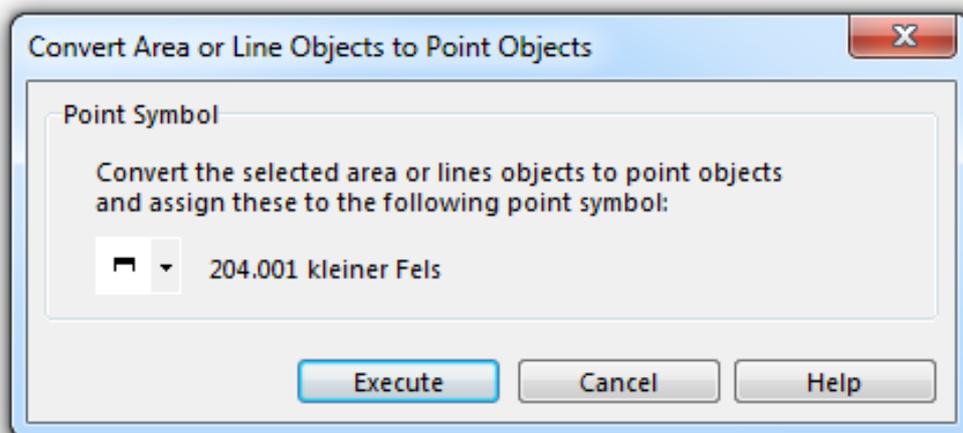
An imported layer can be converted manually. Visit the [Convert a Layer Manually](#) page to get more information.

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 whether you want to convert the objects from all text symbols or only objects from a selected symbol.

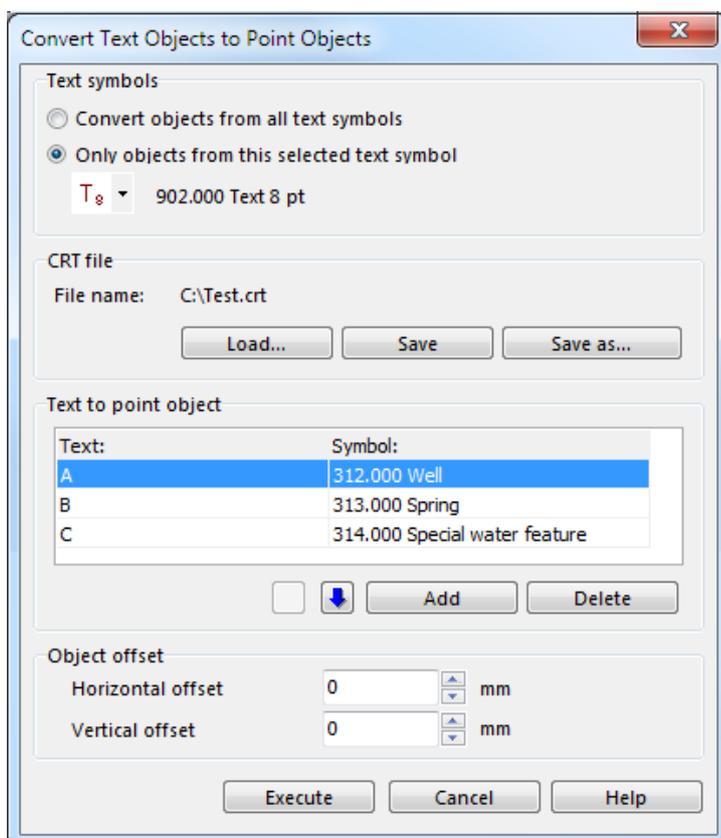
In the second part of the dialog box you can create a list of references. A reference consists of a layer and the corresponding OCAD symbol. You can save the list to a cross reference (.crt) file for later use. You can load an existing cross reference file to modify or execute it.

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.

- **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.

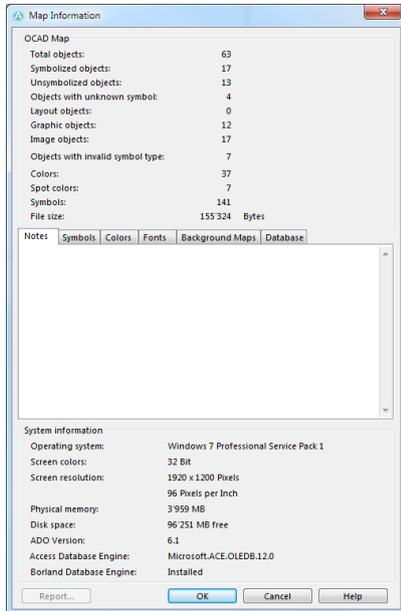
The **Logfile** shows the difference of the symbols and/or colors and if wanted also the identical symbols.

Routing Pro

Visit the **Routing** page to get some information about this function.

Map Information Pro Std Sta View CS

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.
- **Symbolized objects:** The total number of symbolized objects on the map.
- **Unsymbolized objects:** 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.

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 lowermost 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

Objects with Unknown Symbol

Objects with unknown symbol means that an object is assigned to a symbol which does not exist.

They appear in the color specified in OCAD Preferences.

An object with unknown symbol can occur for example if you change symbol set of a map or delete the symbol.

Objects with Invalid Symbol Type

Invalid symbol type means that an object is assigned to a symbol but object and symbol types are different.

They appear in the color specified in OCAD Preferences.

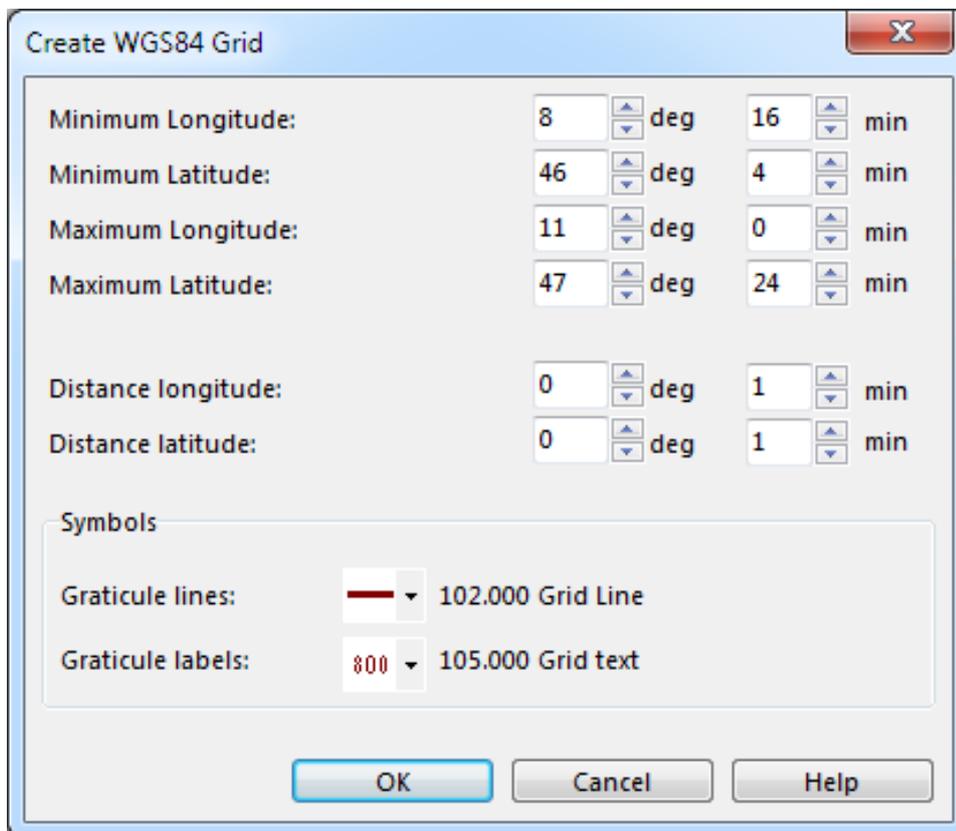
An invalid symbol type can occur for example if you change symbol sets of a map. If the new symbol has the same symbol number as the old one but the symbol type is different (e.g. an area symbol instead of a point symbol), OCAD cannot display corresponding point objects on the map anymore.

Or objects with invalid symbol type can occur if you delete a symbol (e.g. a line symbol) which is used on the map and then create a new symbol of different type (e.g. a point symbol) with the same symbol number.

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.



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

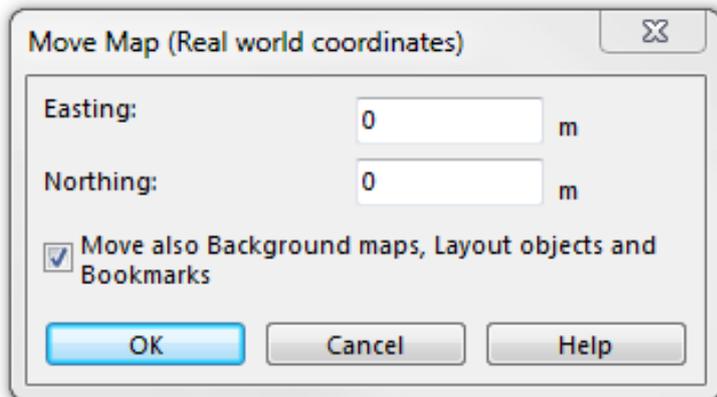


Move

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.

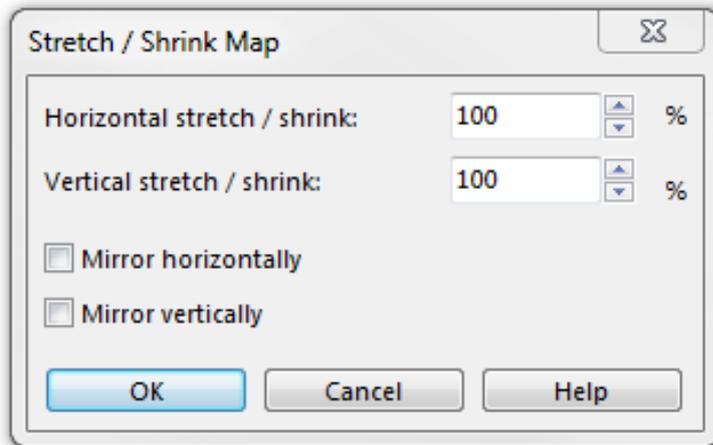
Stretch or Shrink

Pro Std Sta CS



Select the **Transform** item in the **Map** menu and choose **Stretch/Shrink**.

The **Stretch/Shrink Map** dialog opens.

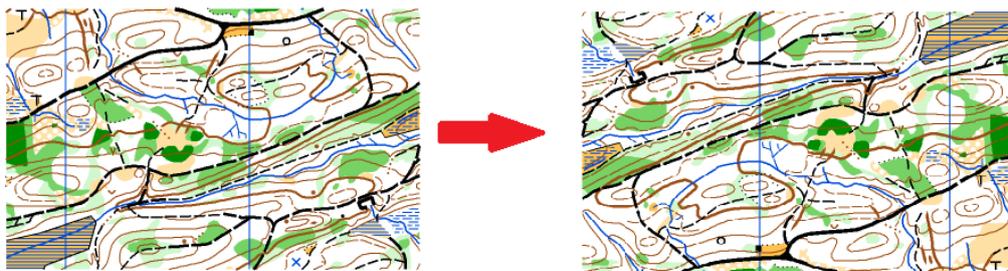


Enter a percentage value for the horizontal stretch/shrink and the vertical stretch/shrink. If both values are the same, the proportions of the map are kept.

Check the corresponding boxes if you want to reflect the map horizontally or vertically.

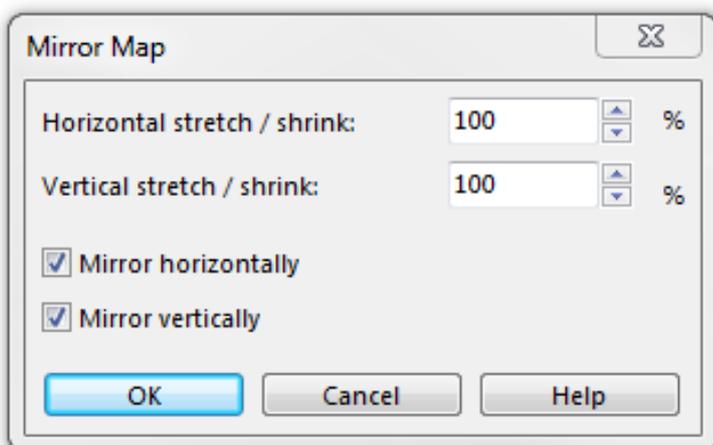
Click the **OK** button when you are finished.

Mirror



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.



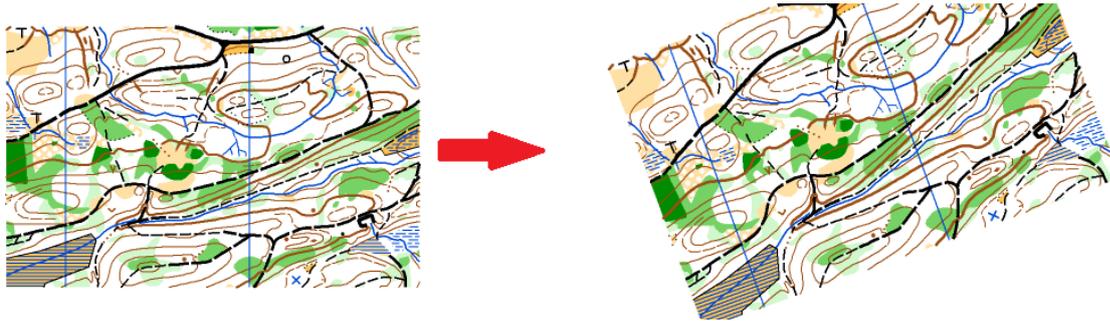
Enter a percentage value for the horizontal stretch/shrink and the vertical stretch/shrink. If both values are the same, the proportions of the map are kept.

Check the corresponding boxes if you want to reflect the map horizontally or vertically.

Click the **OK** button when you are finished.

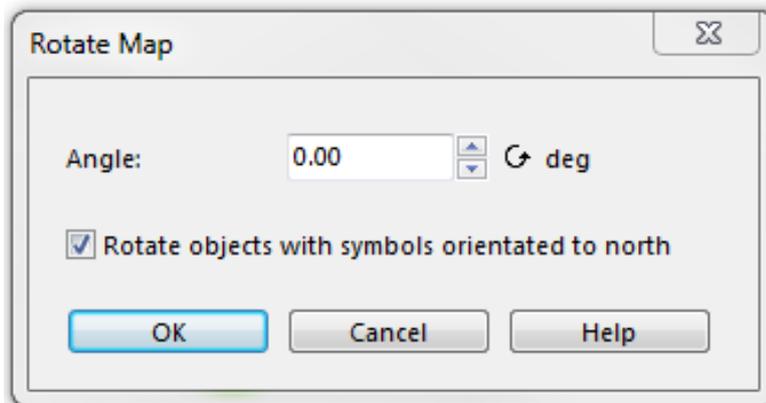
Rotate Map

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.

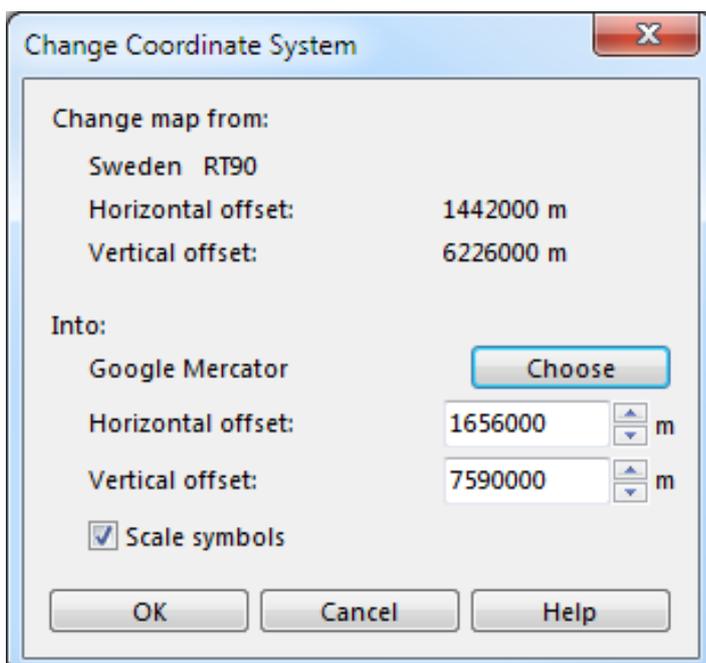
Click the **OK** button to finish.

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/shrunked and rotated).

Affine



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.

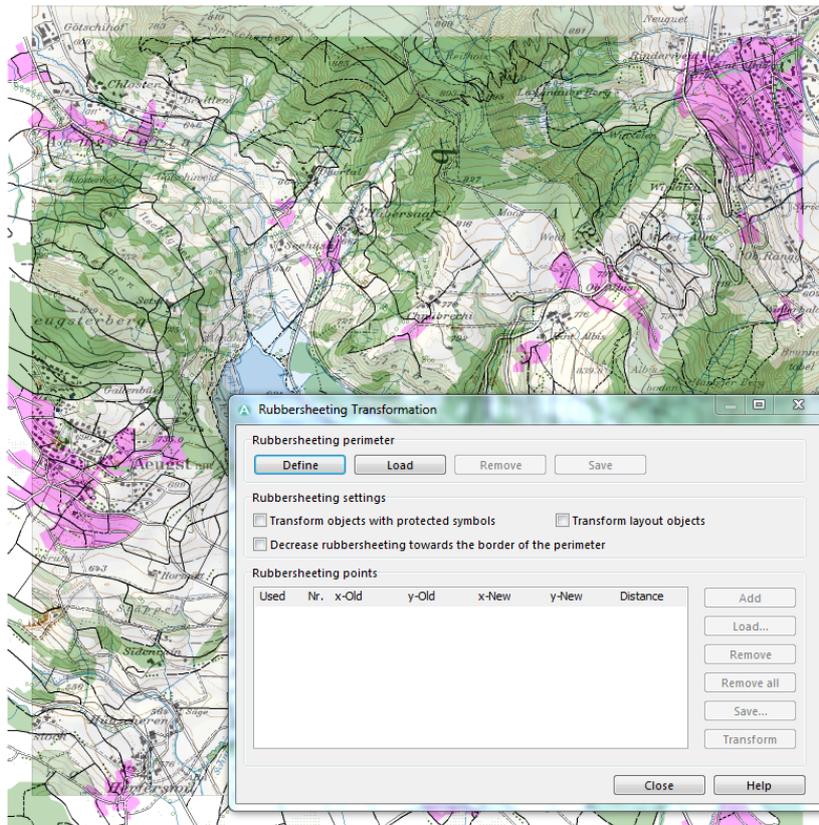


This function works in the same way as the **Adjust a Background Map** function, but it is for the map.

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.

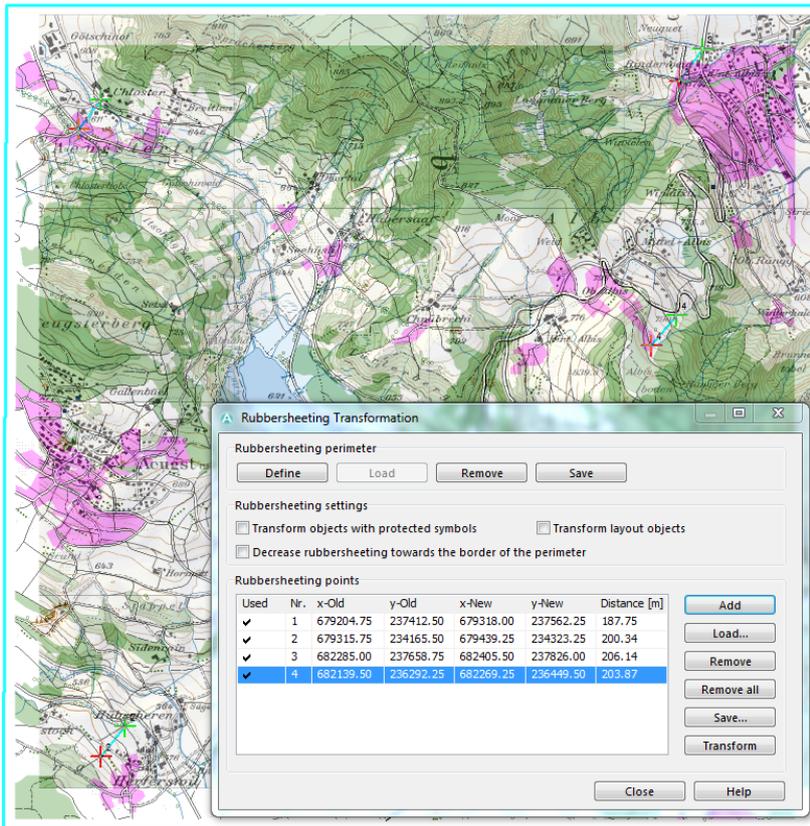
Rubbersheeting settings

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.

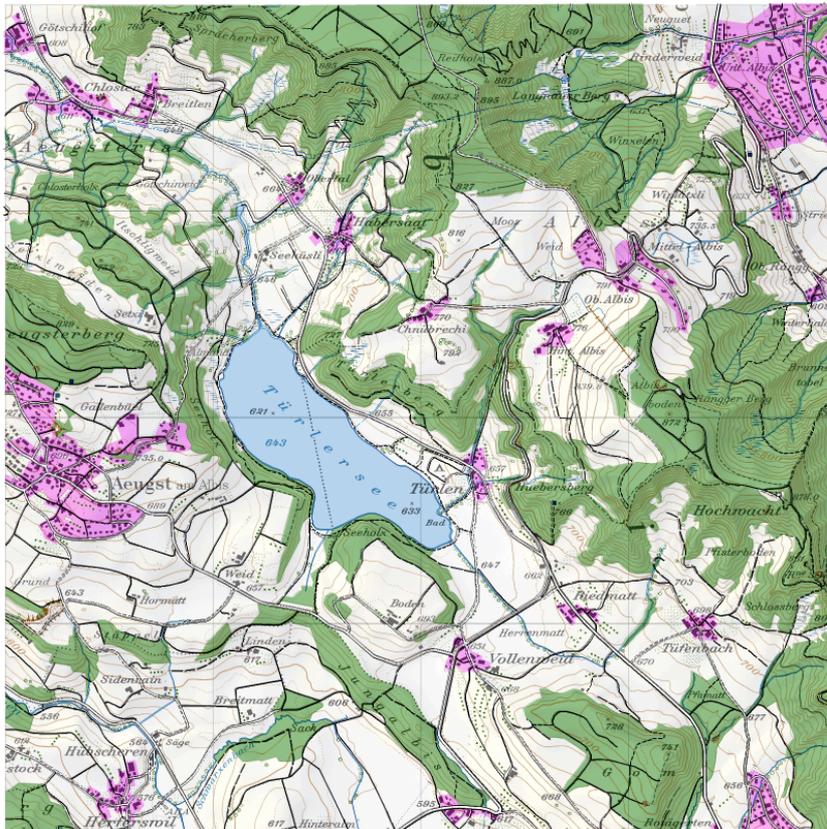
Rubbersheeting points

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.



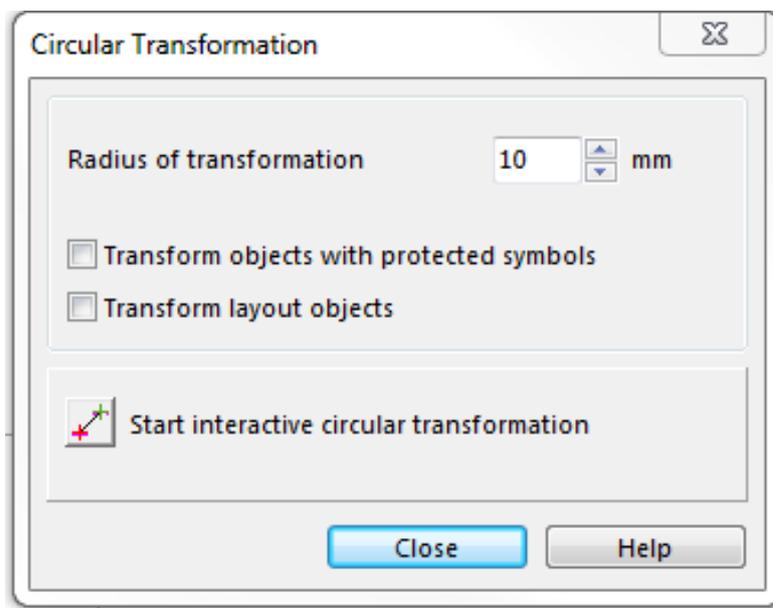
- 💡 -Click the **Undo** button in the Standard Toolbar if you are not satisfied with the rubbersheeting transformation.
- Uncheck rubbersheeting points in the **Used** column if they should not be included in the transformation. Unchecked rubbersheeting points appear in gray color on the map.

-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.

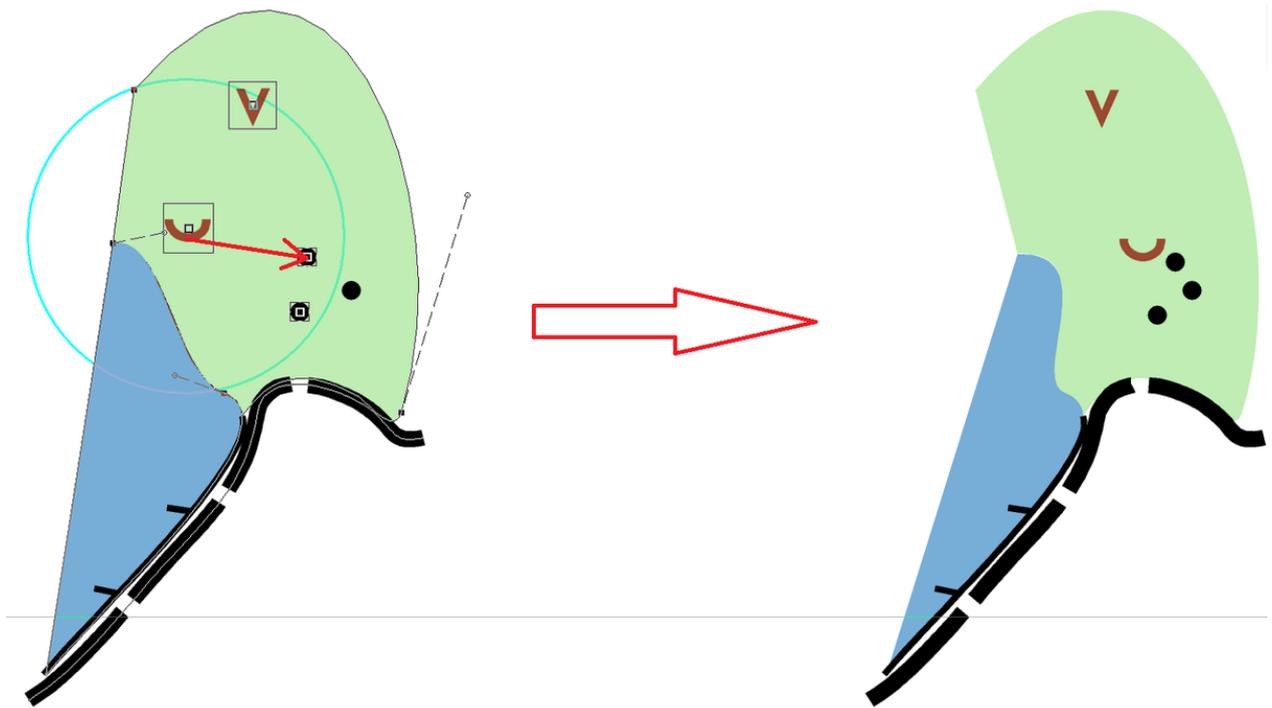
-The **Affine** function is much easier to handle and gives more or less the same result.

Local Transformation

Select the Transform item in the Map menu and choose Circular Transformation to open the Circular Transformation dialog.



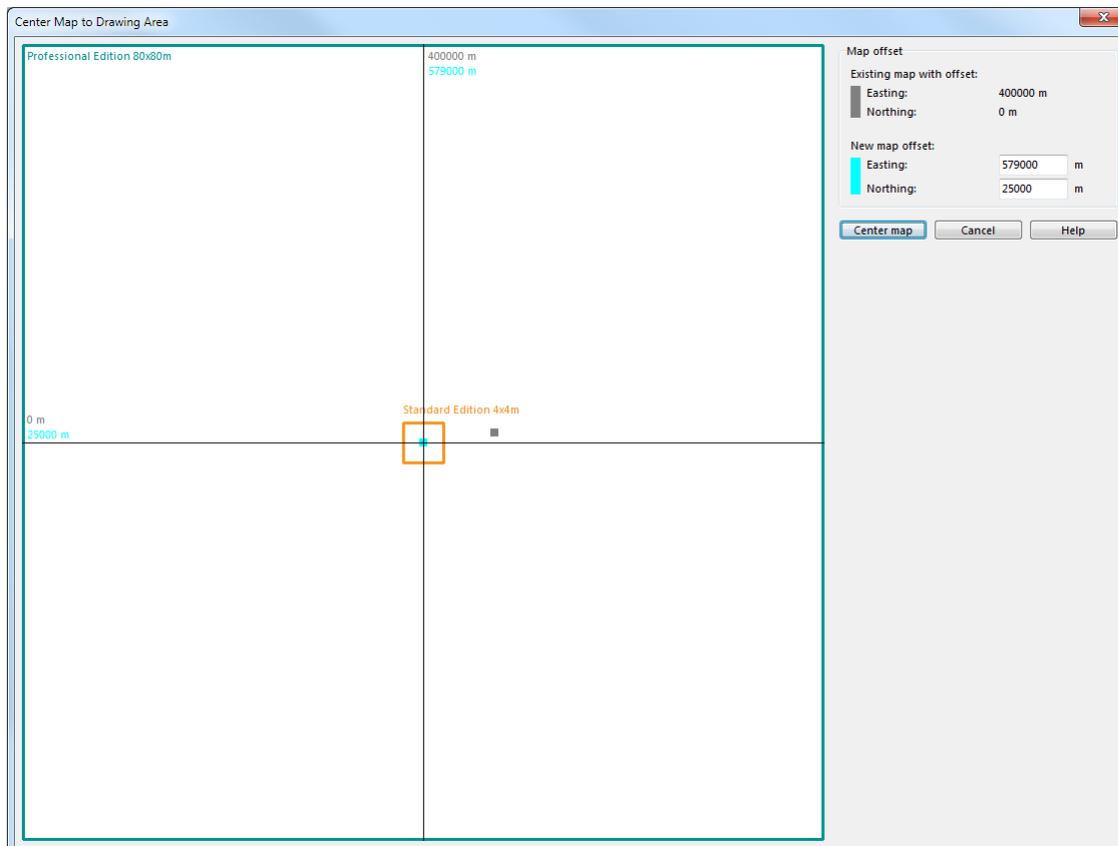
1. Define the Radius of transformation.
2. Choose if objects with protected symbol and layout objects shall transform as well.
3. Push the **Start the interactive circular transformation** button.
4. Press the left mouse button at the transformation center and move the mouse meanwhile to transform.
 1. While pressing the left mouse button, the beforehand defined transformation radius will be shown with a blue circle.
 2. If the mouse up is outside of the circle, an error message will be shown that this action is invalid.
 3. Every vertex inside the circle and every lines connected with them will be transformed.
 - 💡 The line transformation doesn't stop at the circle. They get transformed by their whole length.
 - 💡 It is still possible to edit the map whilst being in the **Circular 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

Part of the map out of area

Error message: Part of the map comes out of the map area.

The drawing area in OCAD is limited. With the chosen operation (ex. Move, Change scale, Stretch, Rotate) a part of the objects would reach out of the map area.

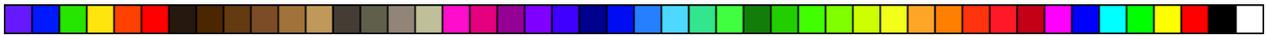
Use Center Map to Drawing Area to move the map to the center of the coordinate system and execute the command again.

OK: Click this button to continue the operation. Objects extending out of the drawing area will be lost.

Cancel: Click this button to cancel the operation.

Map Transform

Colors



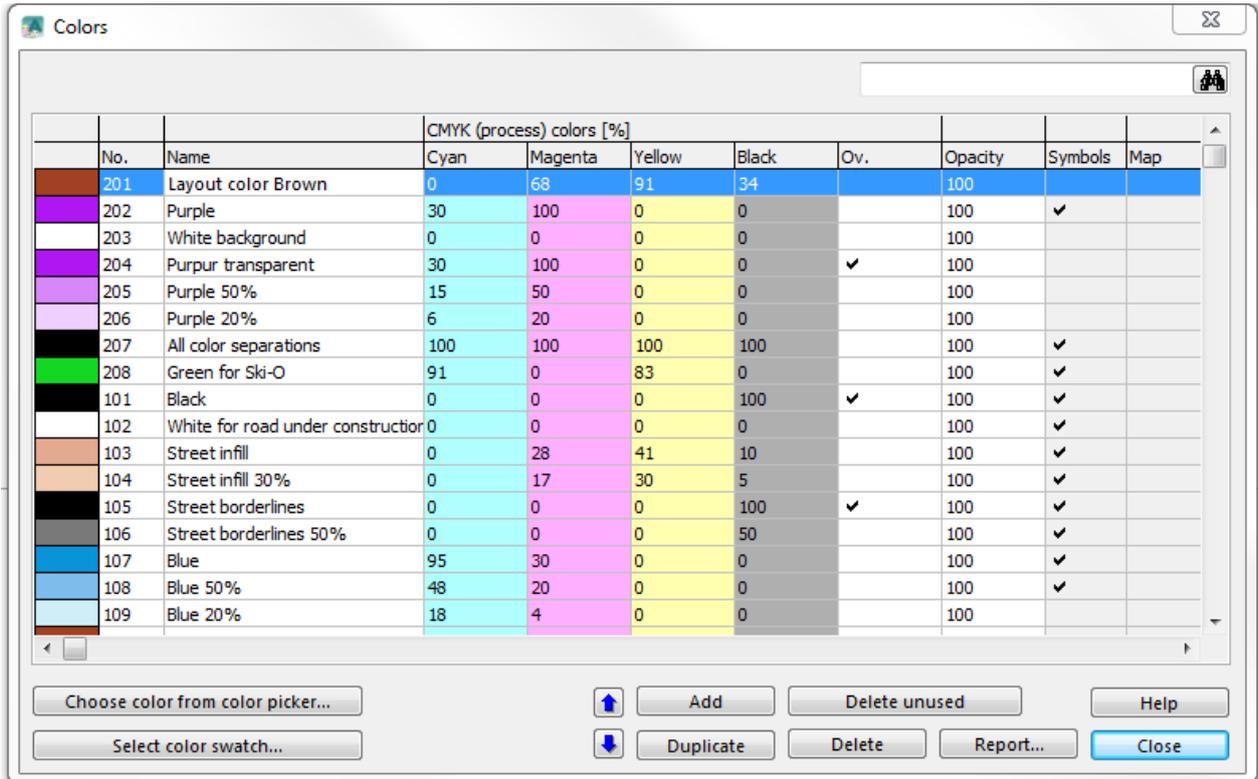
Colors



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 function.



No.	Name	CMYK (process) colors [%]					Ov.	Opacity	Symbols	Map
		Cyan	Magenta	Yellow	Black					
201	Layout color Brown	0	68	91	34		100			
202	Purple	30	100	0	0		100	✓		
203	White background	0	0	0	0		100			
204	Purpur transparent	30	100	0	0	✓	100			
205	Purple 50%	15	50	0	0		100			
206	Purple 20%	6	20	0	0		100			
207	All color separations	100	100	100	100		100	✓		
208	Green for Ski-O	91	0	83	0		100	✓		
101	Black	0	0	0	100	✓	100	✓		
102	White for road under construction	0	0	0	0		100	✓		
103	Street infill	0	28	41	10		100	✓		
104	Street infill 30%	0	17	30	5		100	✓		
105	Street borderlines	0	0	0	100	✓	100	✓		
106	Street borderlines 50%	0	0	0	50		100	✓		
107	Blue	95	30	0	0		100	✓		
108	Blue 50%	48	20	0	0		100	✓		
109	Blue 20%	18	4	0	0		100			

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:

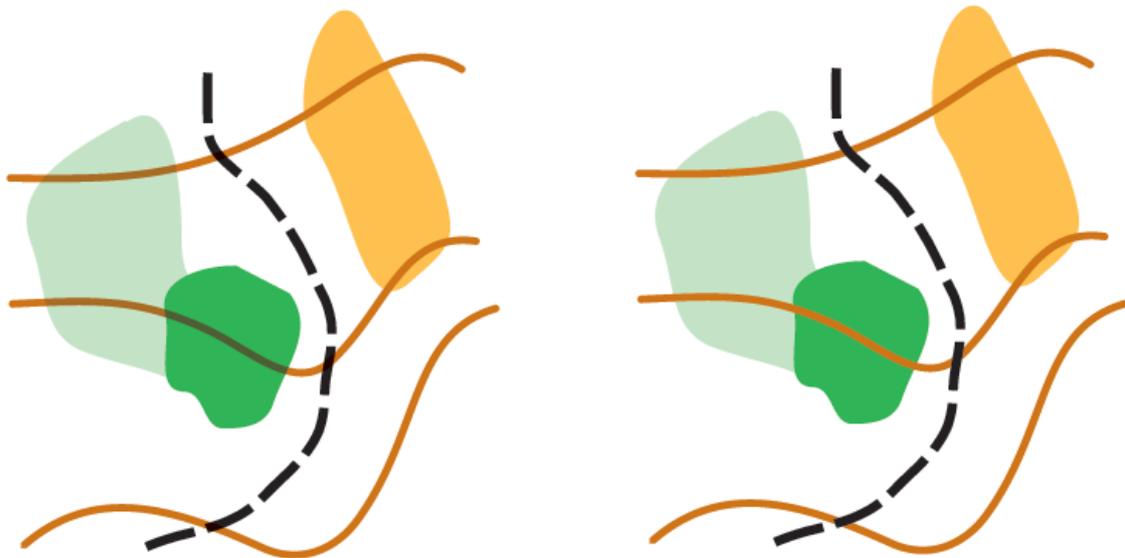
- **No.:** In this column the color number is displayed. Each color must have a number between 0 and 32000. This number can be changed by clicking on it.
- **Name:** In this column a name with up to 45 characters must be given to each color. This name can be changed by clicking on it.

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.

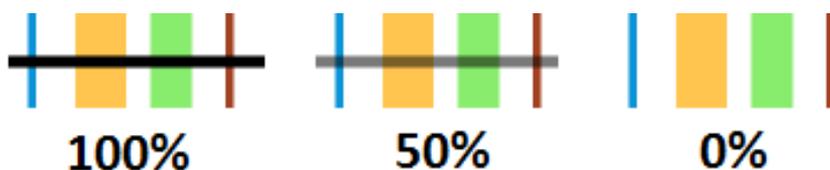
Opacity

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.

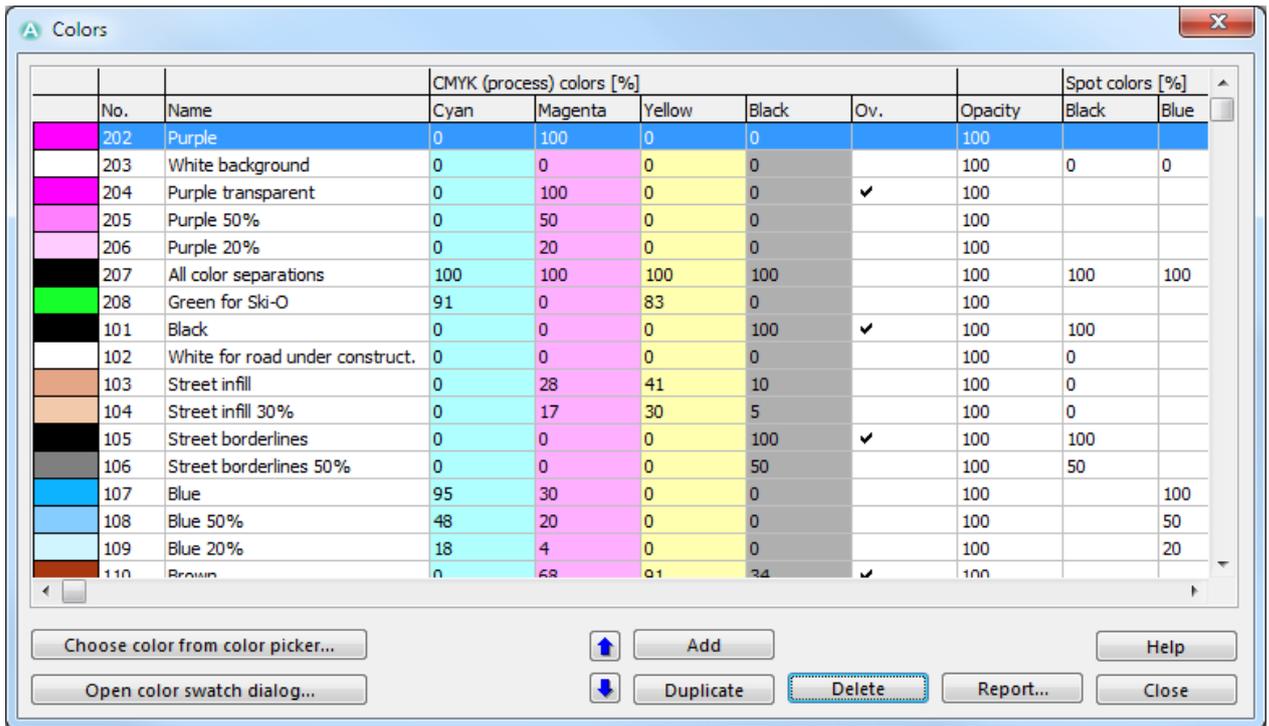
 Putting a 0 is especially important for streets in order to enable automatic cleaning up of crossings. The color of the street infill must be above the color of the street sidelines. And in the row of the infill there must be a 0 for the spot color of the sidelines.

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

Functions

- **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.
- **Choose color from Color Picker:** Click this button to edit the selected color with the **Color Picker**.
- **Open color swatch dialog:** Click this button to compare the colors from the current opened OCAD file with a color swatch from a reference file.

 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:



Load Colors From Pro Std Sta CS

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 Pro Std

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.



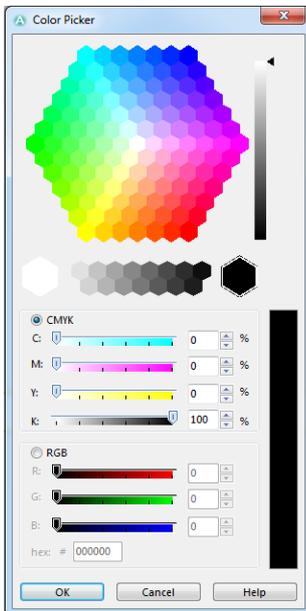
The error message "Cannot import symbol" appears if OCAD was not able to load a symbol. The **Load Colors and Symbols From** process is aborted.

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Color Picker



The **Color Picker** dialog helps to find a suitable color (e.g. if you want to define a new **Color**).

1. Choose the **Colors** command in the **Map** menu to open the **Colors** dialog.
2. Select a color or add a new one, then click the **Choose color from color picker** button to open the **Color Picker** dialog.
3. The **Color Picker** dialog appears. You can either choose...
 - ...a color from the color hexagon. Adjust the brightness of the colors with the slider on the right of the color hexagon.
 - ...a grey level from right below the color hexagon.
 - ...a color defined in the CMYK color model if you enable the **CMYK** option.
 - ...a color defined in the RGB color model if you enable the **RGB** option.

The chosen color is displayed on the bottom right side of the dialog.

If you choose a color in the color hexagon, either the CMYK or RGB values are updated depending on whether color model is enabled.

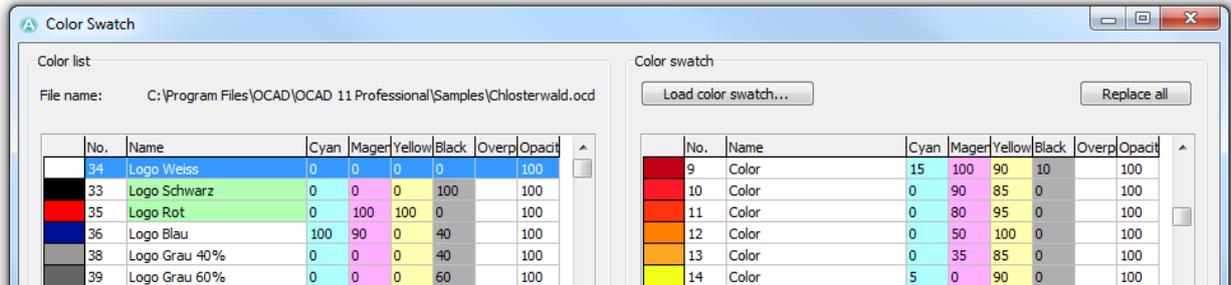
4. Click the **OK** button to accept the color, click the **Cancel** button to quit the **Color Picker** dialog without saving any changes.

[Back to the Colors page.](#)

Color Swatch

Pro Std

Use this function to compare the color values from the currently opened OCAD file with a color swatch from a reference file. Additionally, it is possible to replace colors by those from the color swatch.

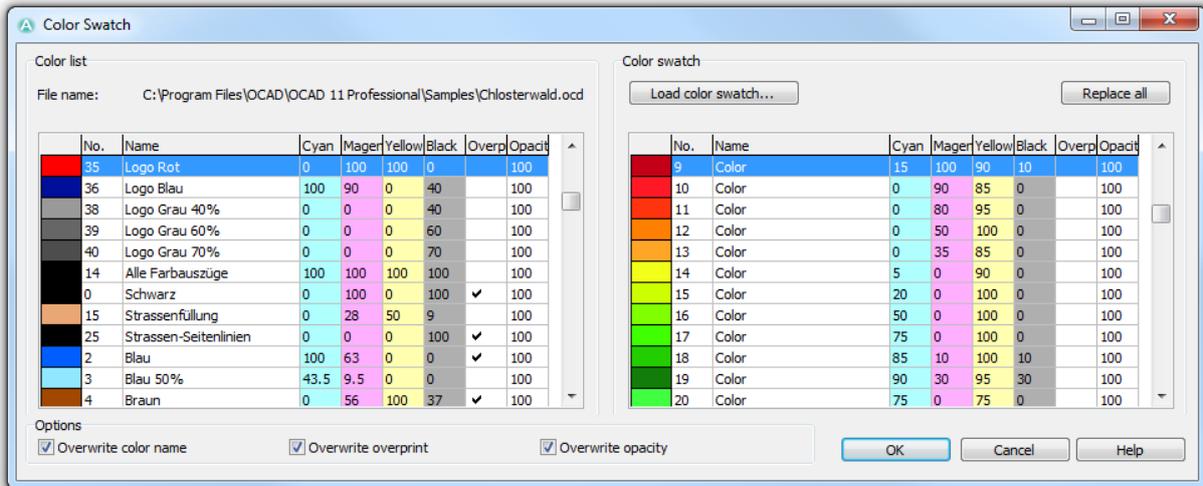


On the left part of this dialog the color table of the currently opened OCAD file is displayed. On the right side a default color swatch is shown. OCAD loads this color swatch from the file *Default Color Swatch.txt* in the OCAD program subfolder *Color Swatch*. Click the **Load color swatch** button to load your own color swatch.

 It is not possible to compare **Spot Colors** with the help of this dialog.

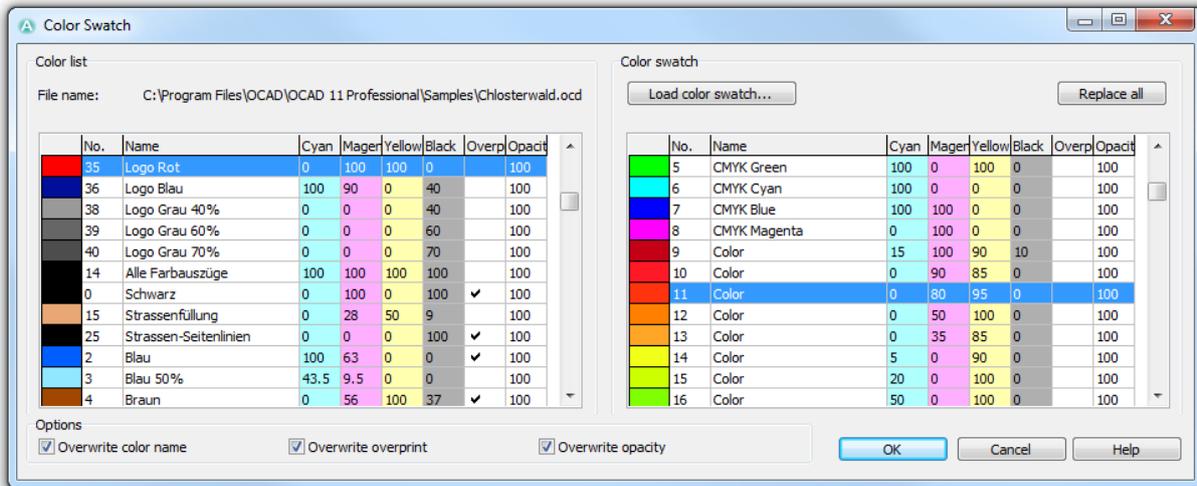
Compare Colors

Colors with identical CMYK values in the color table of the currently opened file and in the loaded color swatch are highlighted green.



Replace Colors

To replace a color in the color list click on the corresponding color in the color swatch and drag and drop it to the color which is supposed to be replaced in the color table.



For example, OCAD takes the CMYK values (0,35,85,0) of the chosen color 13 from the color swatch and overwrites these values for the existing color 502 in the color list.

OCAD overwrites always the CMYK values. Optionally OCAD overwrites also the *Color name*, the *Overprint* flag and the *Opacity*. Check the corresponding options at the bottom of the dialog.

Replace All Colors

Click the *Replace all* button to replace all colors from the list by the colors from the color swatch if they have the same color number.

Color Swatch File

The data of the color swatch are saved in a semicolon or tab separated text file with the extension *.txt*.

To create a color swatch file from an existing OCAD file click the **Report** button in the **Colors** dialog and choose *Text* as a file type.

Back to the **Colors** page.

Define Spot Colors

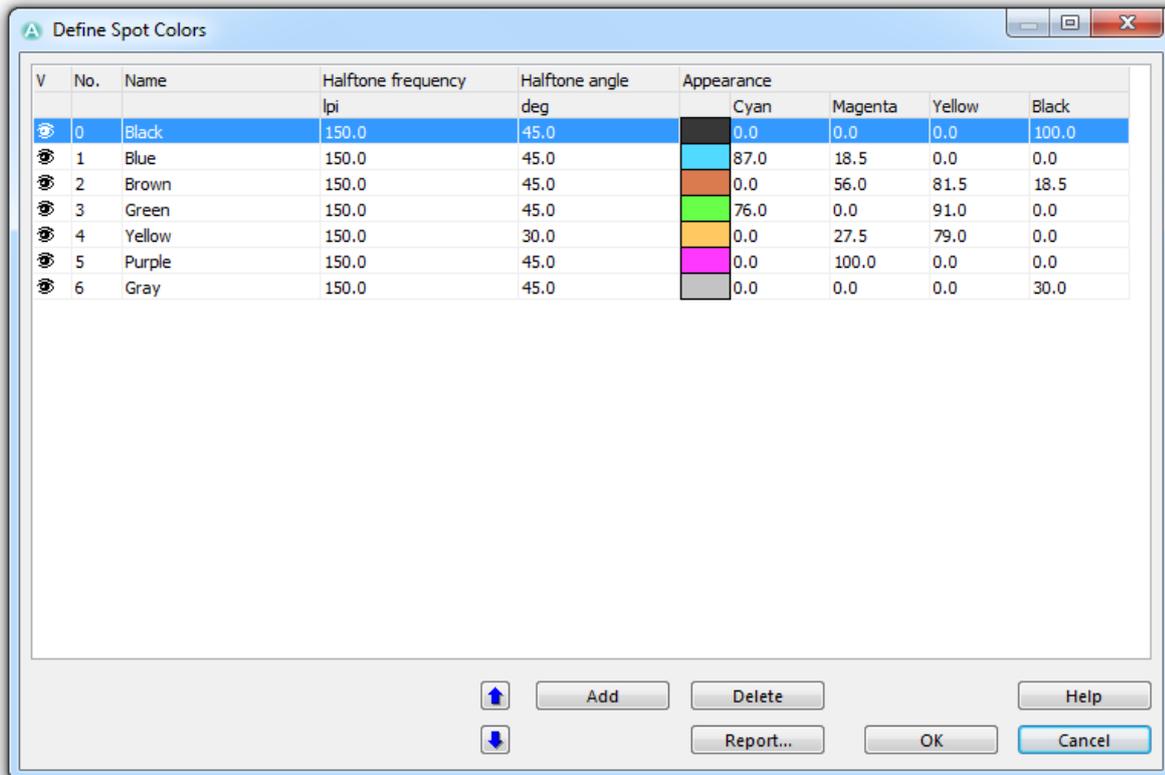


Choose this command from the **Map** menu to create, edit and delete spot colors. Read the [Wikipedia Article](#)^[1] to get an impression what spot colors are.

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.

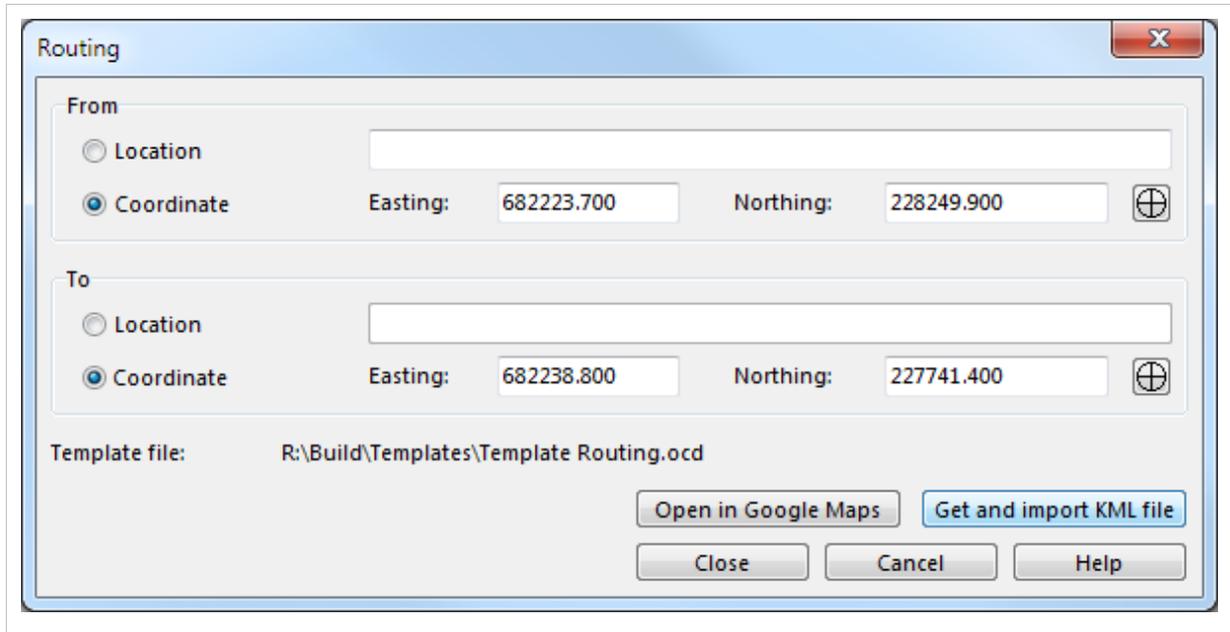
The screenshot shows a 'Routing' dialog box with the following fields and controls:

- From:**
 - Location: Mühlegasse 36, Baar, Switzerland
 - Coordinate: Easting: 0.000, Northing: 0.000
- To:**
 - Location: Zürich
 - Coordinate: Easting: 0.000, Northing: 0.000
- Template file:** R:\Build\Templates\Template Routing.ocd
- Buttons:** Open in Google Maps, Get and import KML file, Close, Cancel, 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.



Routing

From

Location

Coordinate

Easting: 682223.700 Northing: 228249.900

To

Location

Coordinate

Easting: 682238.800 Northing: 227741.400

Template file: R:\Build\Templates\Template Routing.ocd

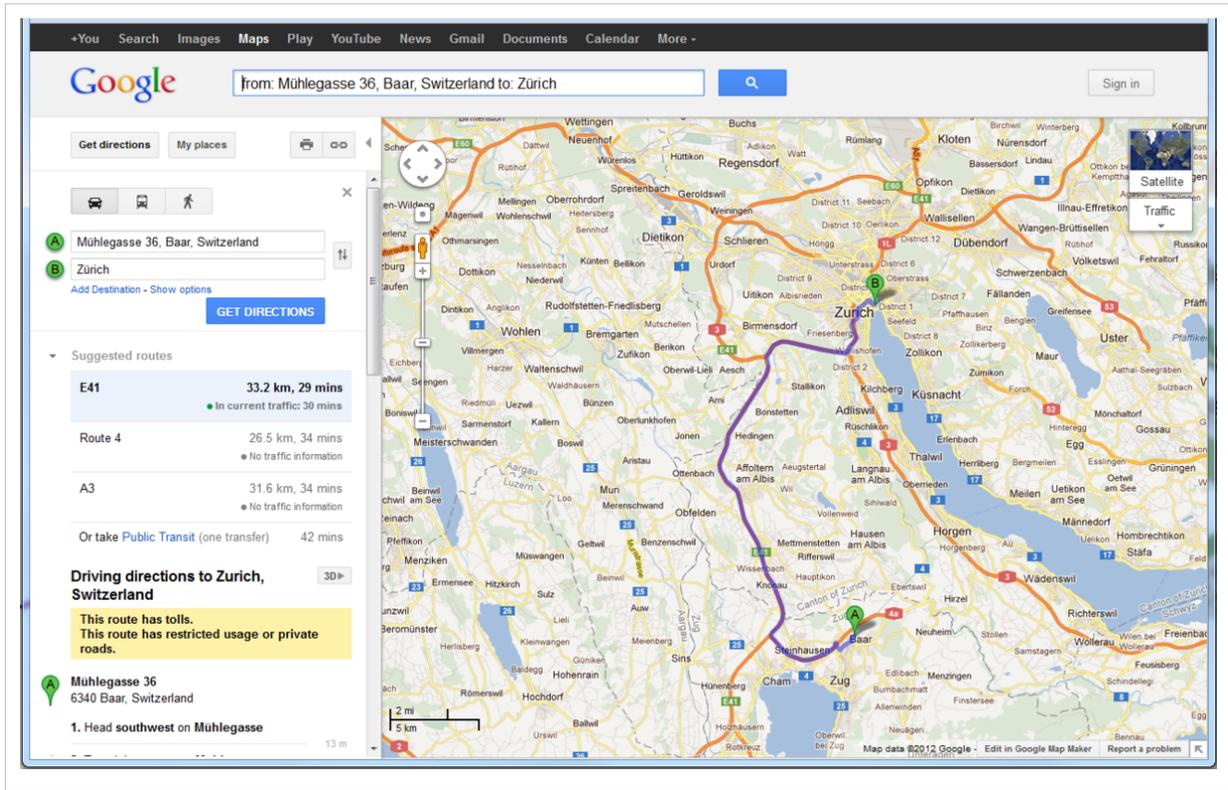
Open in Google Maps Get and import KML file

Close Cancel Help

 Please note that the function **Get and import KML file** does not work anymore.

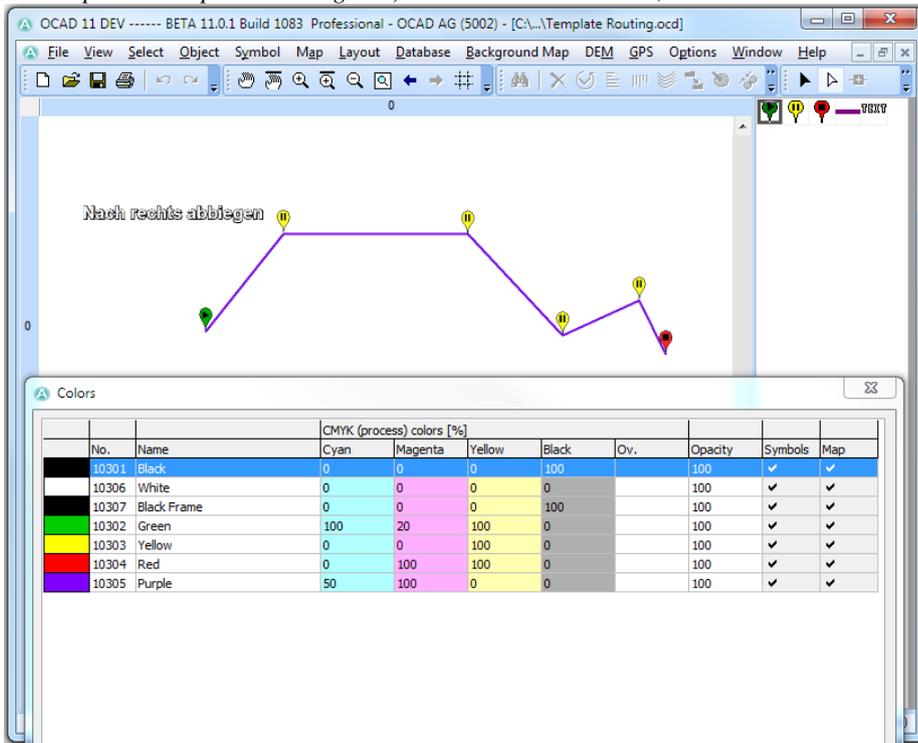
Show Route in Google Maps

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.



Back to the **Map** page.

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.

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



Normal (Visible and Selectable)

ToDo

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).

Choose this command in the **Symbol** menu to change the selected symbols to **Normal**. Normal means that they are not protected and not hidden. Objects with symbols in the normal state are displayed on the screen and can be drawn, edited and deleted.



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.

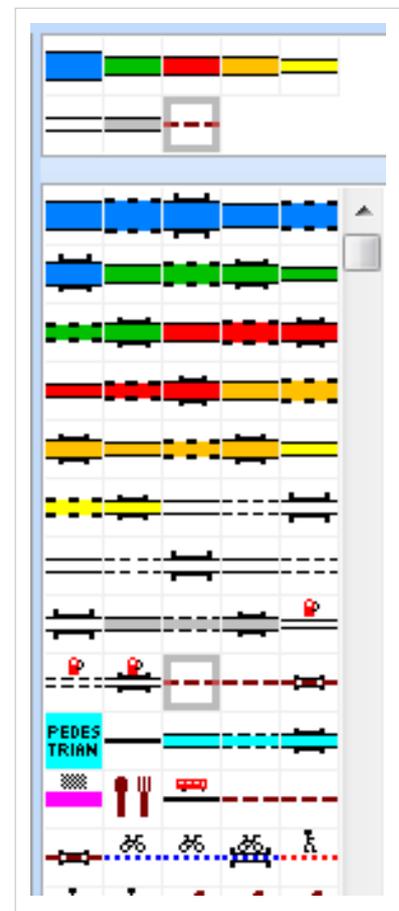
Remove from Symbol Favorites

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

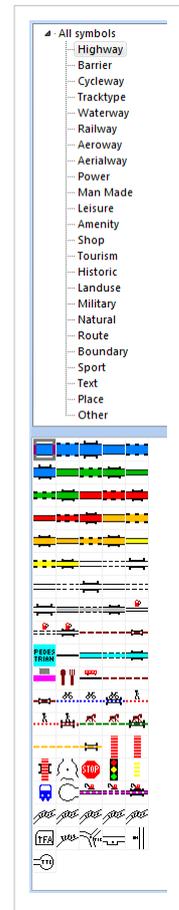
You can move a symbol tree group with drag and drop.

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.

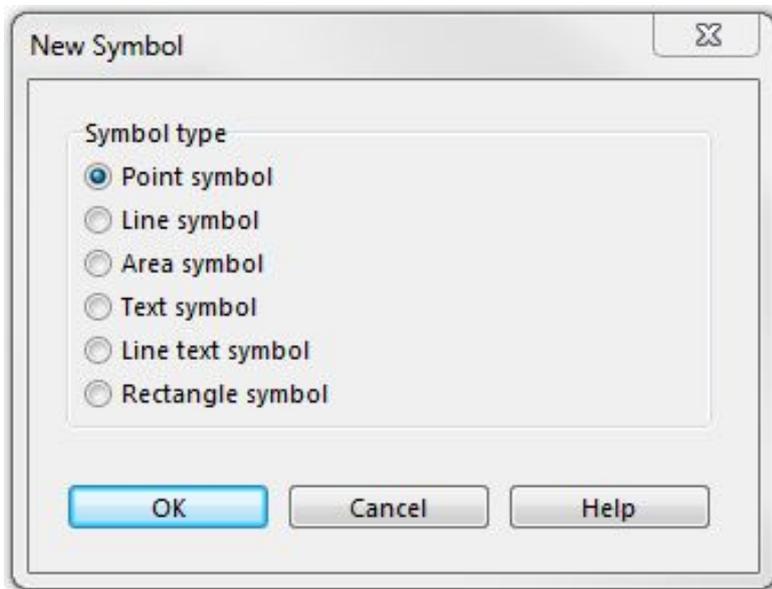
To select a non-consecutive group of symbols:

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

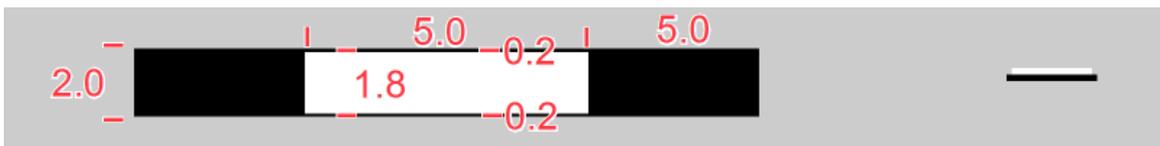
Pro Std Sta CS



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

Create a New Line Symbol

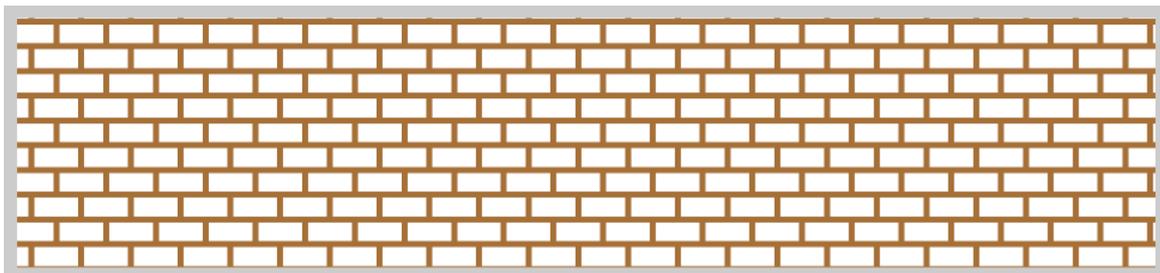
Pro Std Sta CS



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



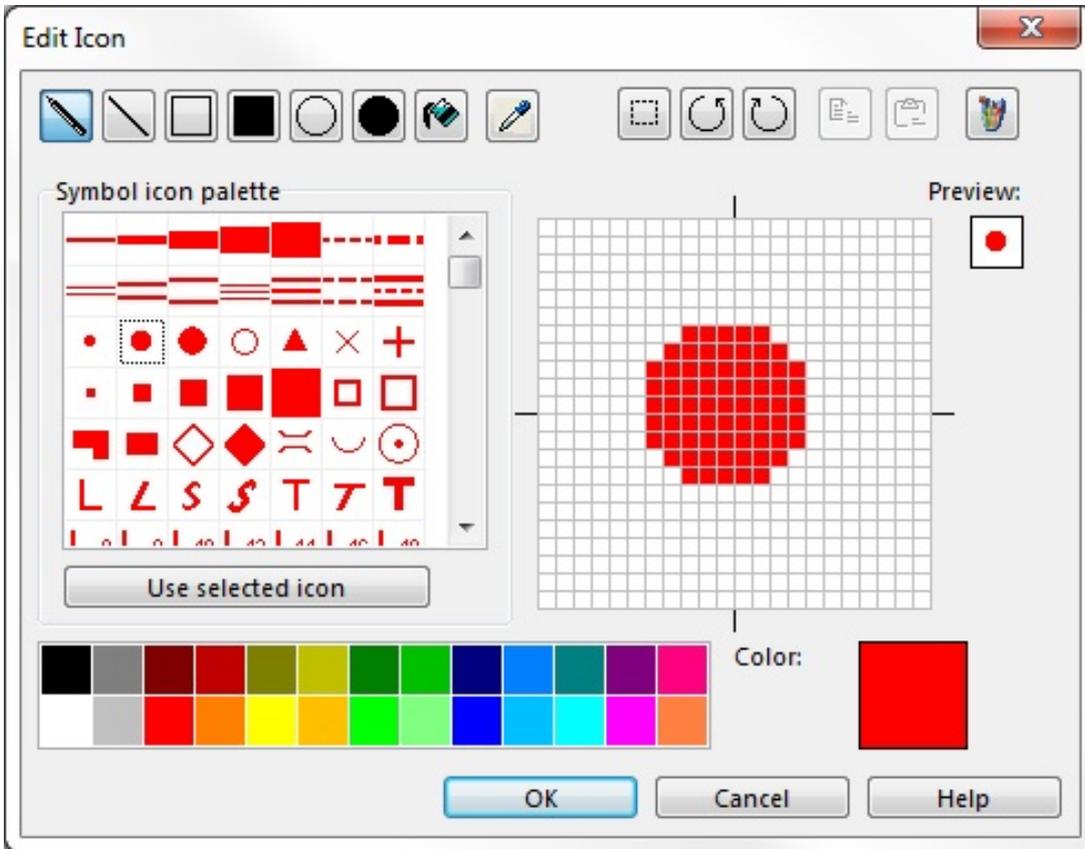
8	9	10	11	R	R	R
1	2	3	4	5	6	7

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

Icon Editor



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]

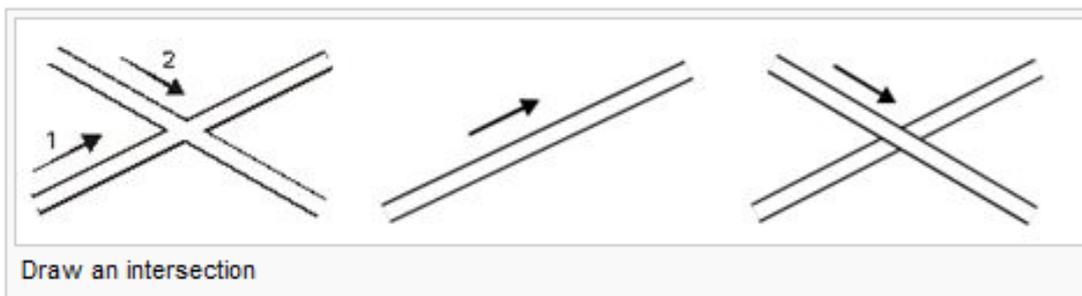
Color basics ^[2]



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

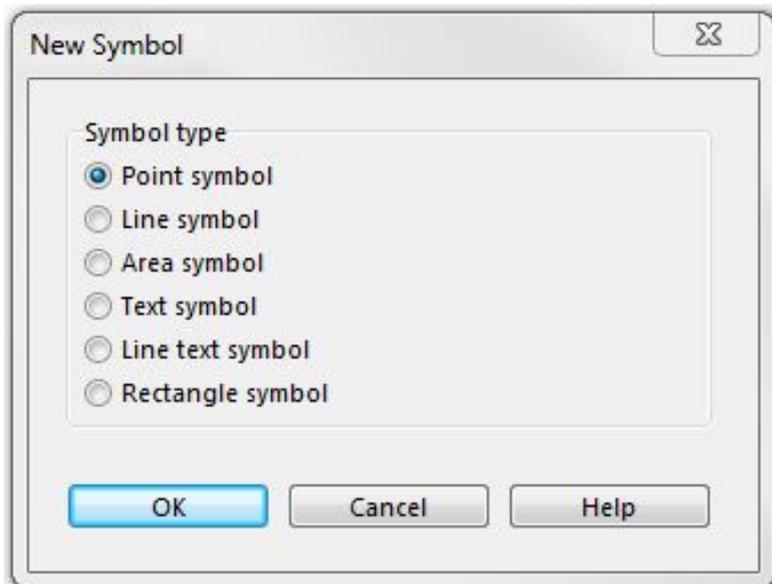
[1] <http://www.ocad.com/howtos/30.htm>

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

Create a New Point Symbol

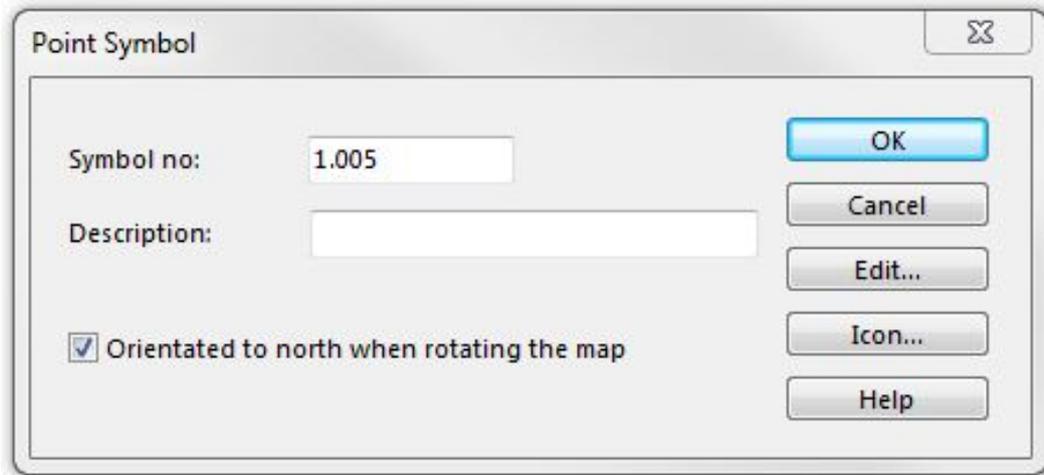


Select the **New** command in the **Symbol** menu. Choose the **Point symbol** option in the **New Symbol** dialog box to create a new point symbol.



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.

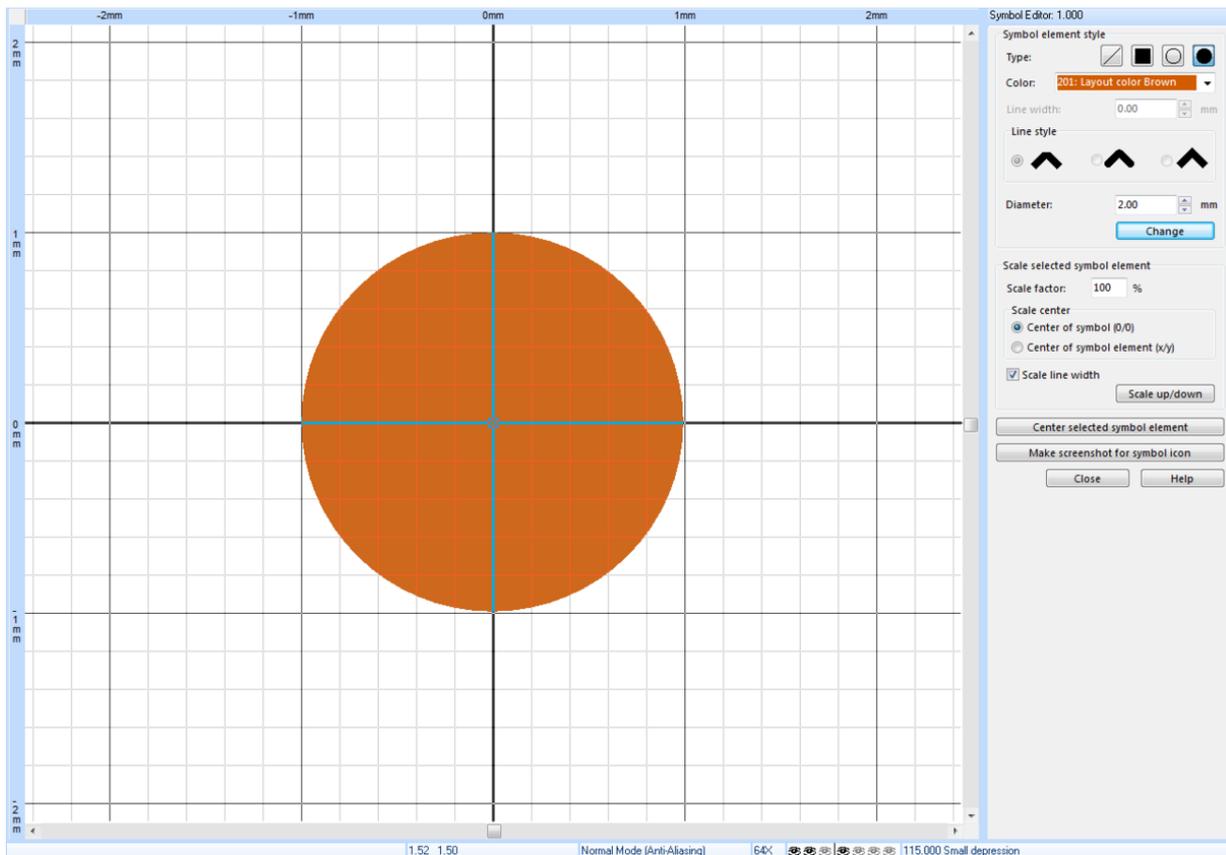
Click the **Edit** button to edit the object. The **Symbol Editor** appears.

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.

Line width

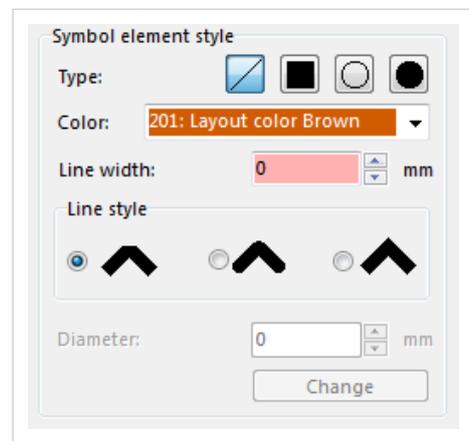
If you have chosen a **Line** or a **Circle** as a symbol element type, enter a line width in mm in this field. Note that the **Line width** is set to zero by default and with a **Line width** of zero the drawn symbol element is invisible!

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.

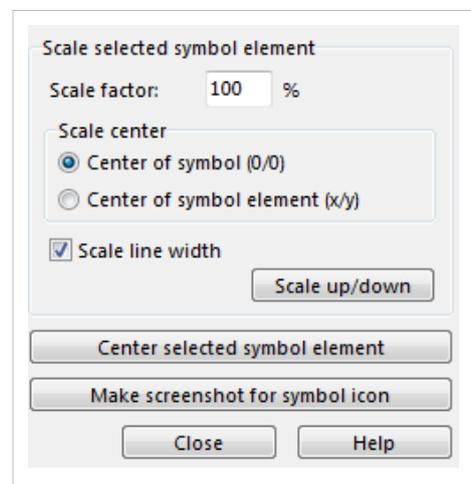
Scale center: Use either the center of the symbol (center of the drawing area (0/0)) or the center of the symbol element (x/y) as a scale center.

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.

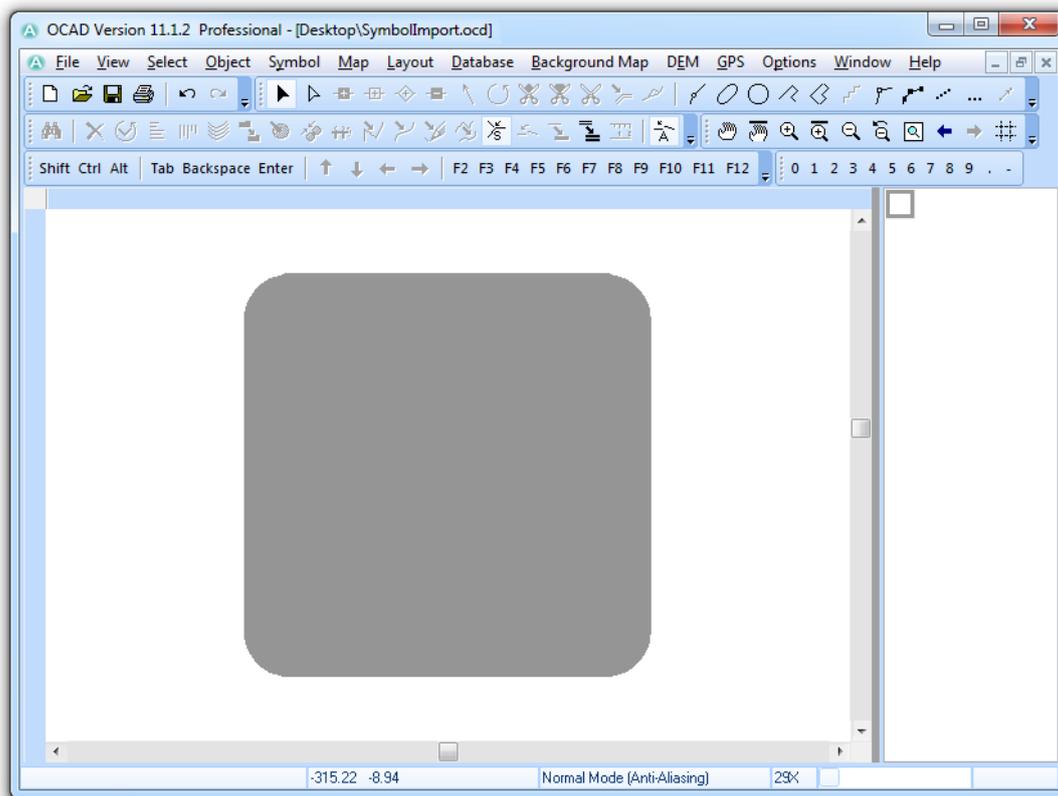
Draw Symbols for Structured Areas

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.

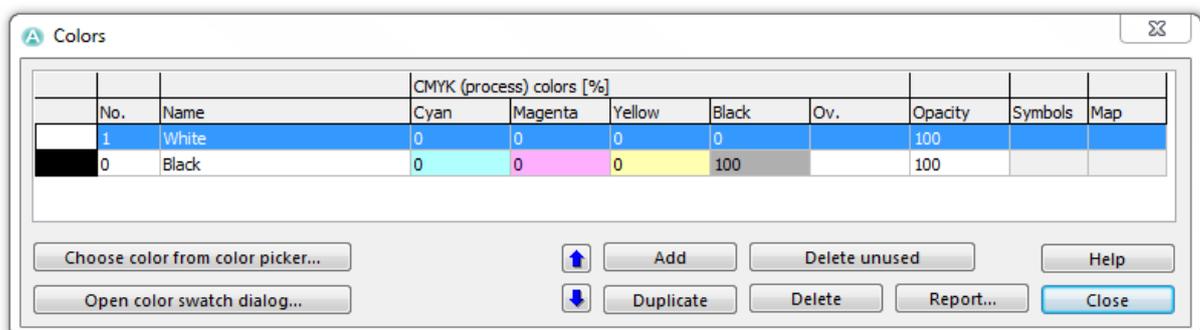
When you draw an element, it is also shown in gray in the neighboring fields to get a better impression of the structure.

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.

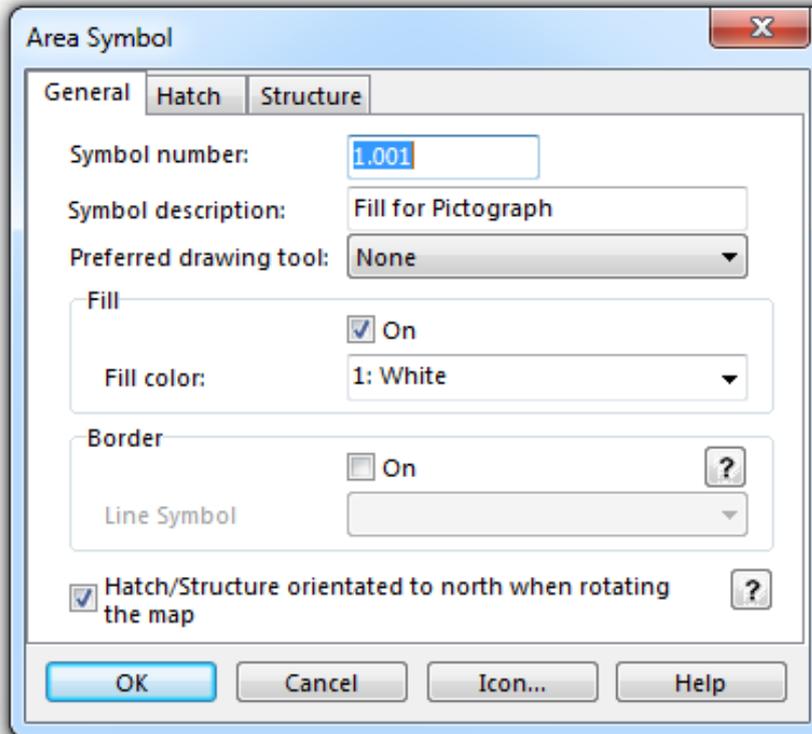
 **Different Point Symbols** ^[1]



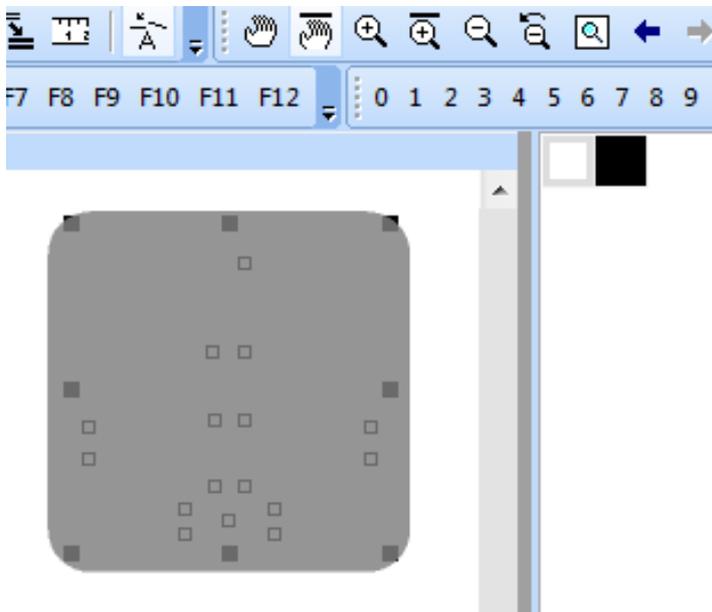
10. Now, it is time to define the **Colors**. Choose the **Colors** item from the **Map** menu and add two new colors: A white color for the plane and a black color for the background. Make sure that the white color is above the black one.



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 the 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.

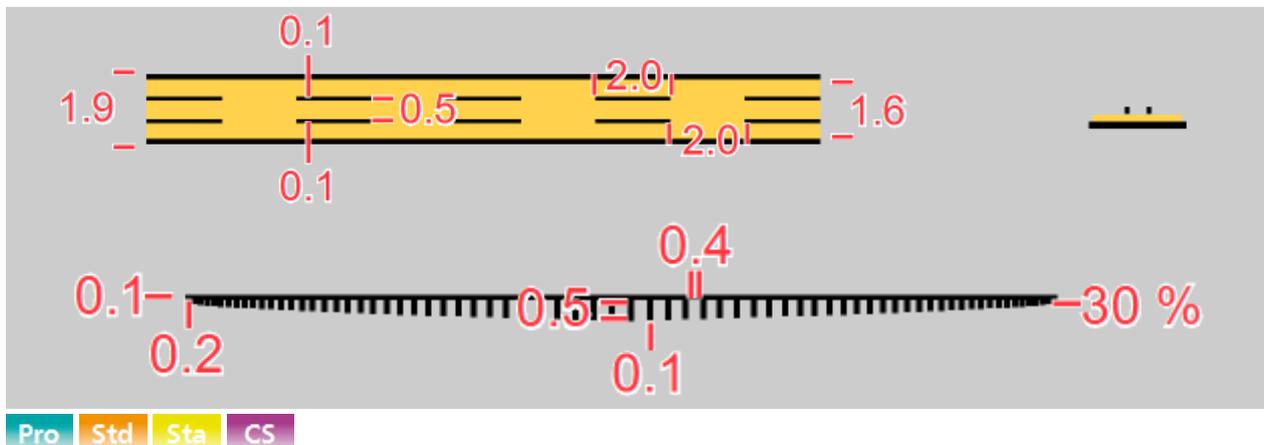


Back to the **Create a New Symbol** page.

References

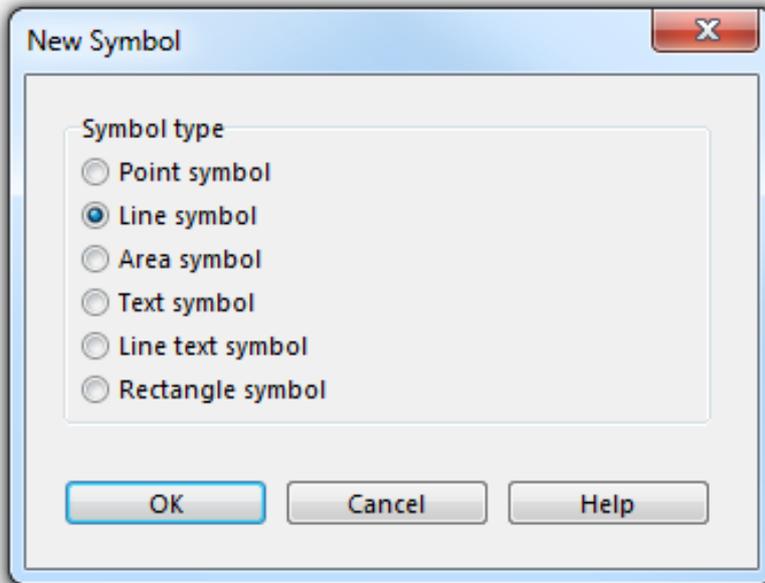
- [1] <http://www.ocad.com/howtos/64.htm>
- [2] <http://www.nps.gov/hfc/carto/map-symbols.cfm>

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.

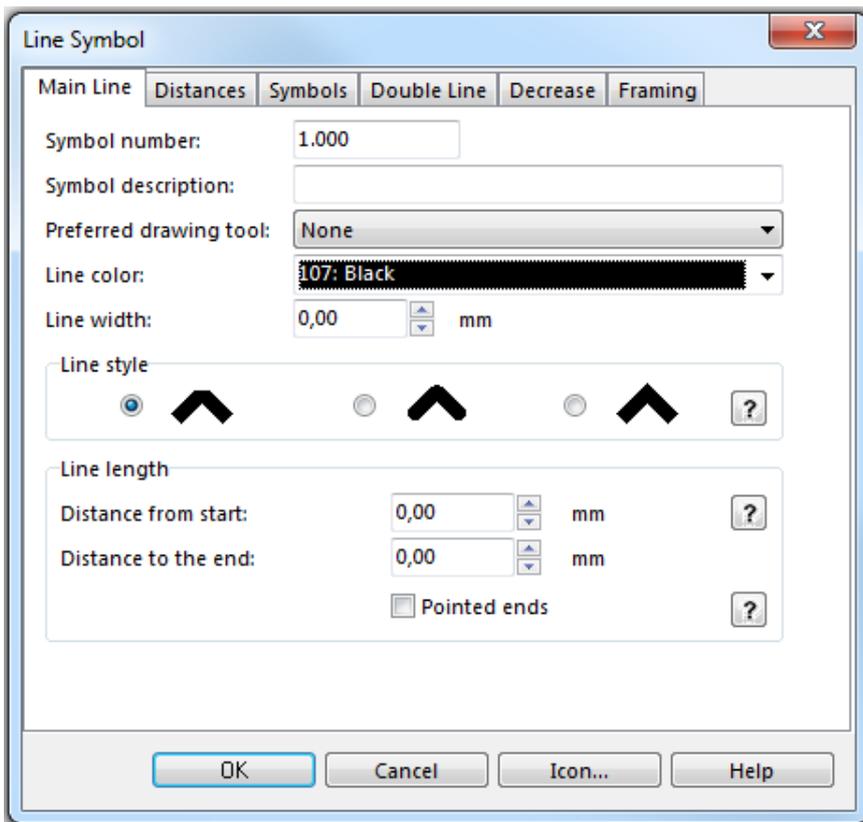


Line Symbol Dialog

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

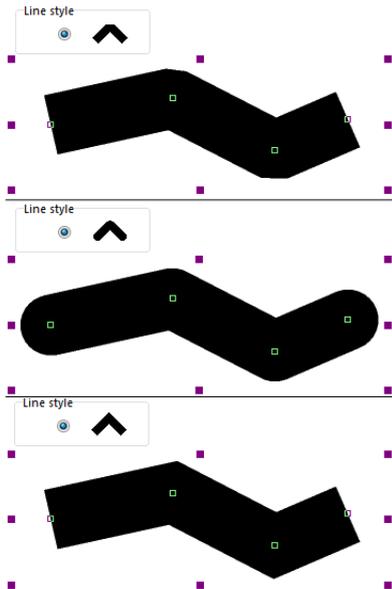
Choose a line color for the main line. The dropdown list contains all colors from the **Color Table**. If a main line is not used, it is not necessary to define a line color.

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: mm

Distance to the end: mm

Line length

Distance from start: mm

Distance to the end: mm

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

Line length

Distance from start: mm

Distance to the end: mm

Pointed ends

Line length

Distance from start: mm

Distance to the end: 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.

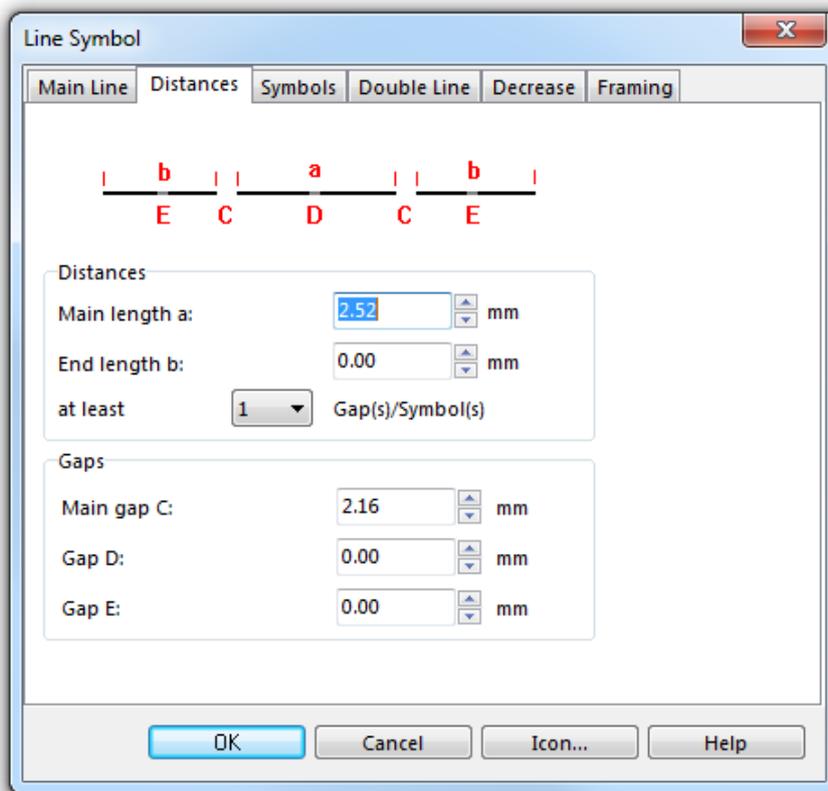


► Example Pointed Line

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**).

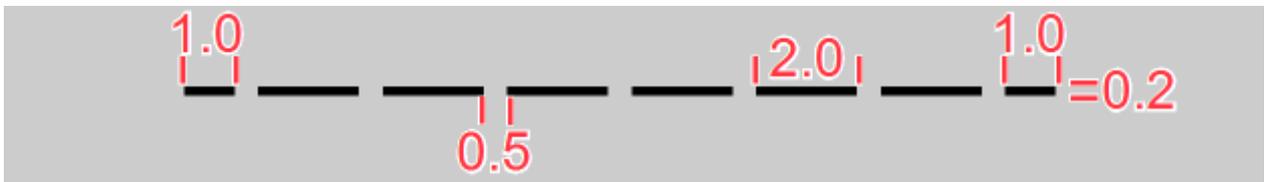
Gap E

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.

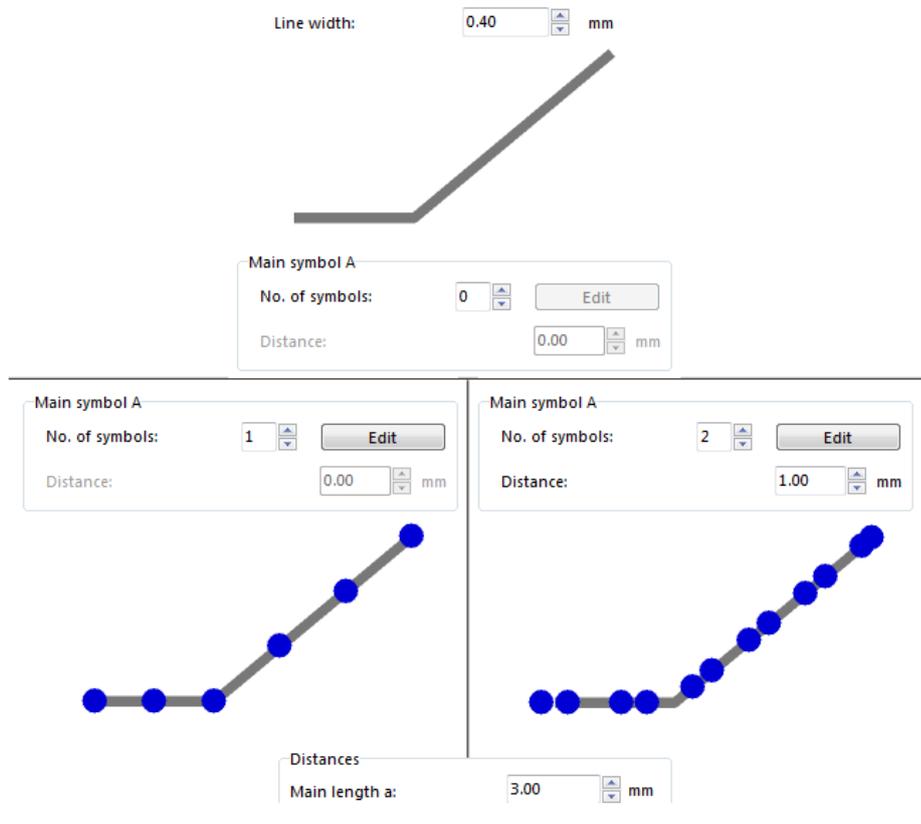
Edit button

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

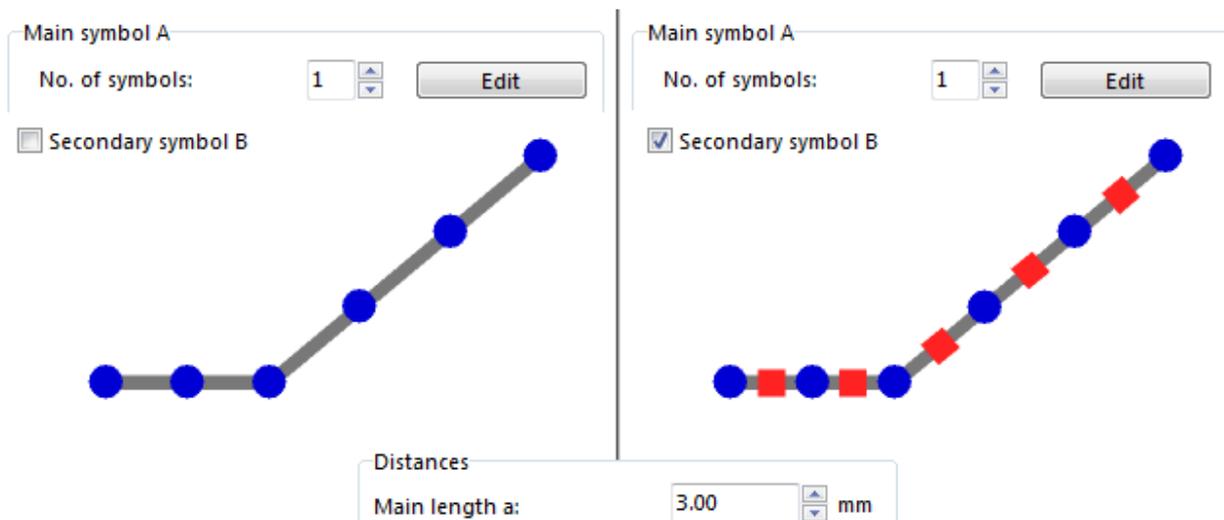
The value typed in the **Distance** field defines the distance between the individual symbols unless the number of symbols is 0 or 1.



Other Symbols

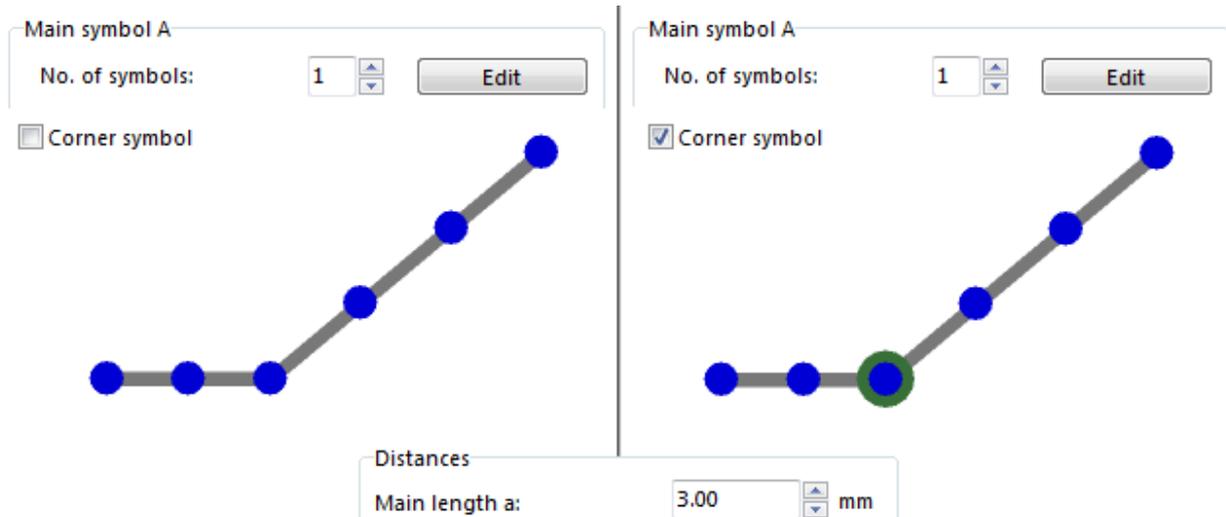
Secondary symbol B

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. Click the **Edit** button to edit the symbol with help of the **Symbol Editor**.



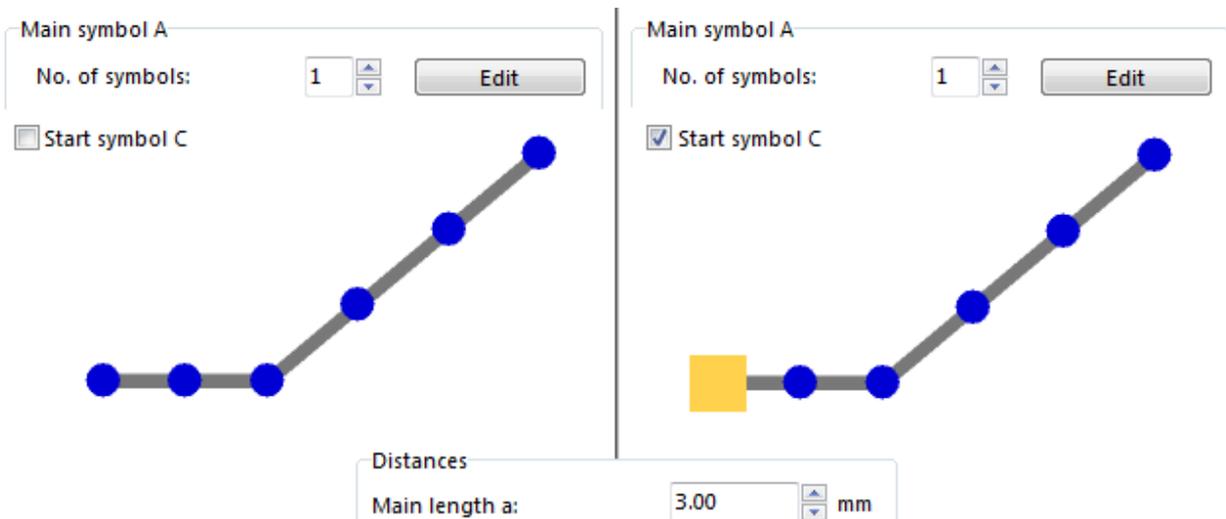
Corner symbol

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**.



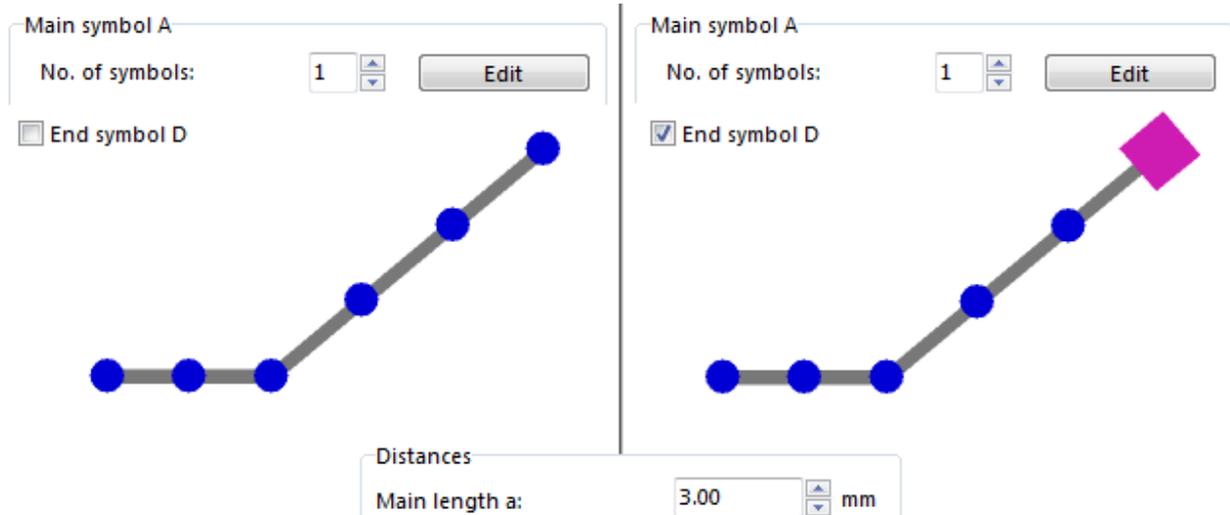
Start symbol C

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

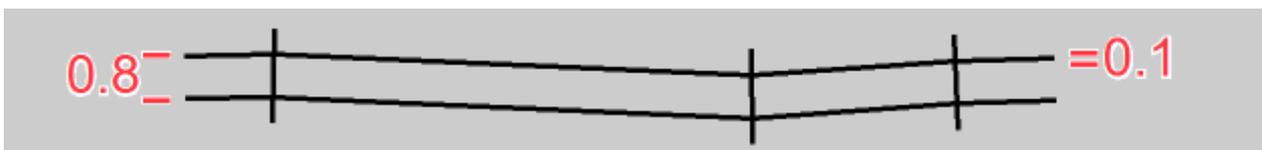
The **Start symbol C** appears at the end point of a line. Click the **Edit** button to edit the symbol with help of the **Symbol Editor**.



Examples

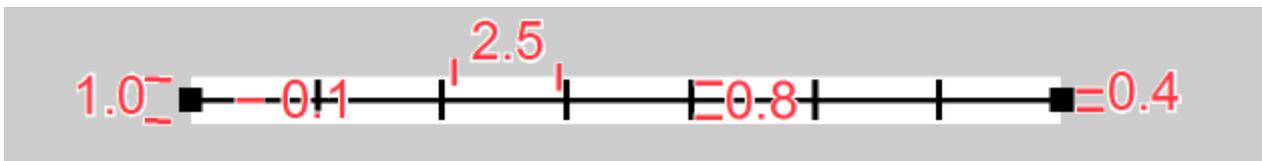
► **Example Power Line**

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



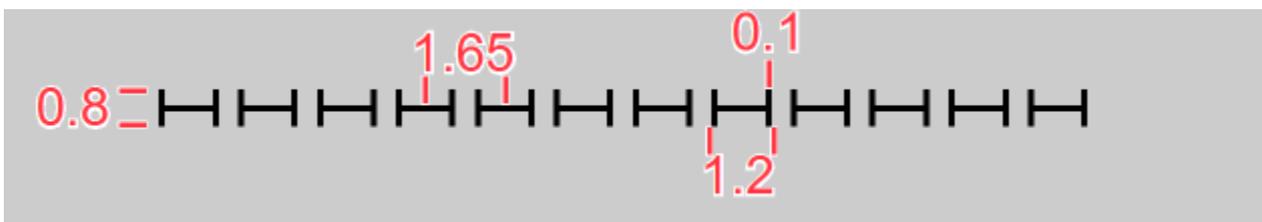
► **Example Cable Car**

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.



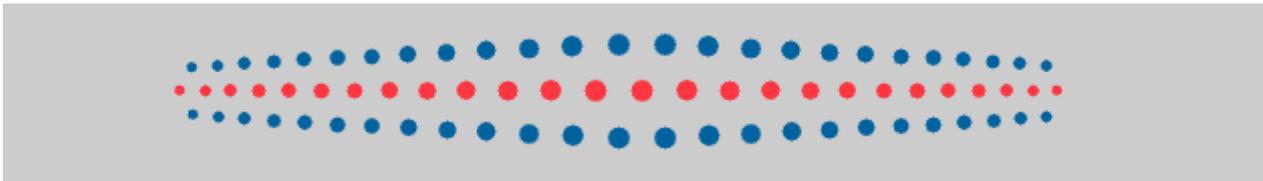
► **Example Area Boundary**

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

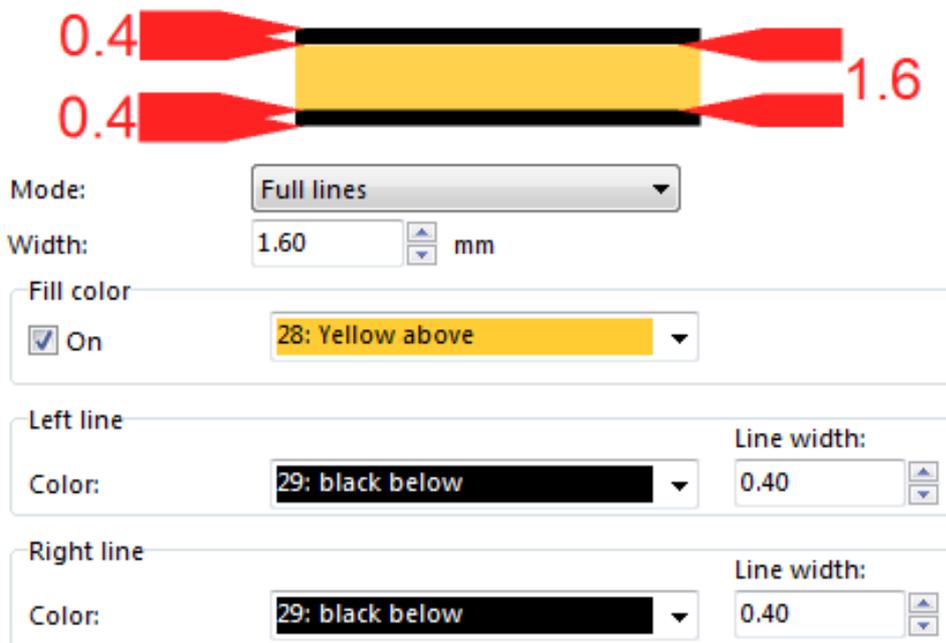
Enter the distance between the two double lines in this field. If you use a fill color, this is the width of the filling between the two border lines.

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.



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.



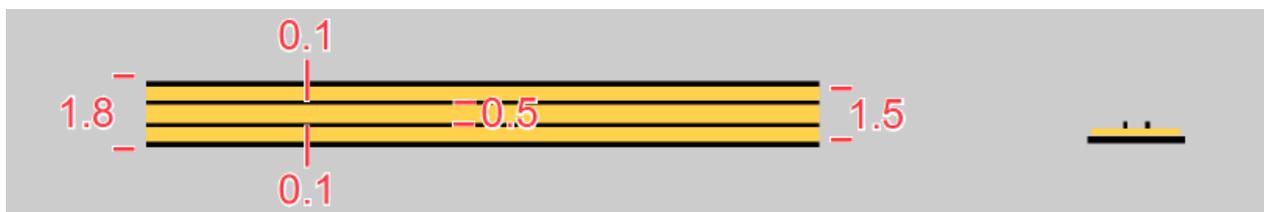
► **Example Dashed Minor Road**

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



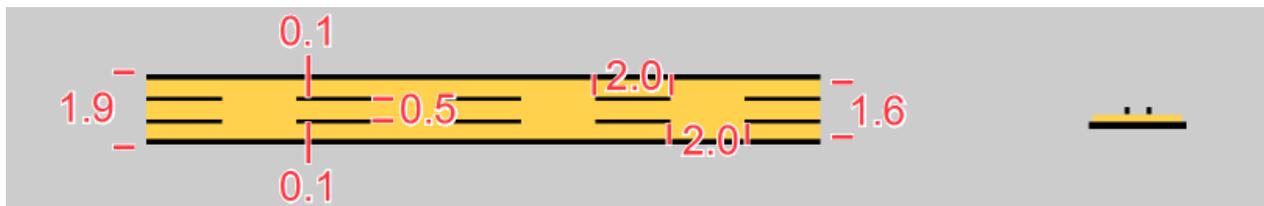
► **Example Three Lanes**

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



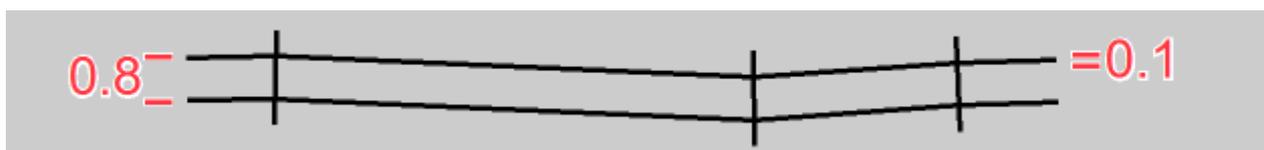
► **Example Three Lanes Dashed**

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.

Decrease

Off

Decrease

Last symbol: % of normal size

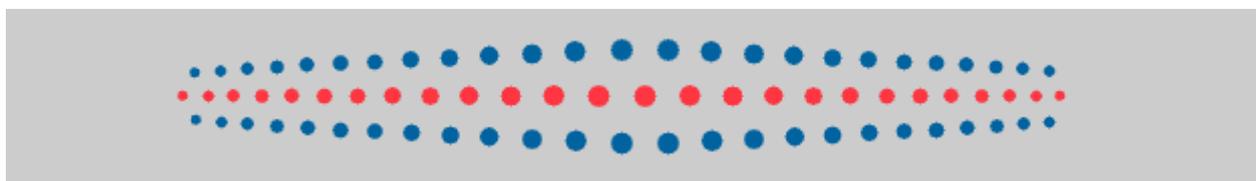
Decrease

Last symbol: % of normal size

Examples

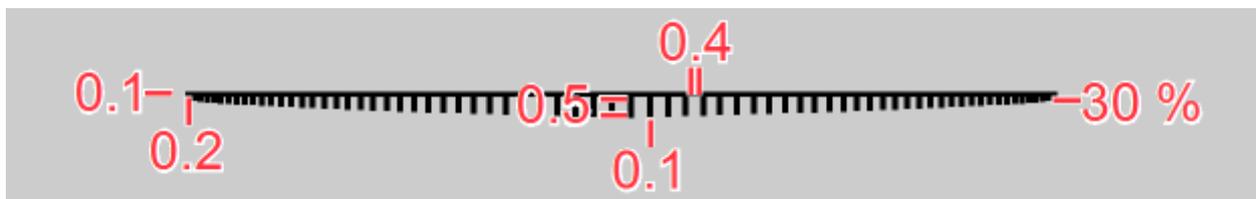
➤ **Example Geological Line Symbol**

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.

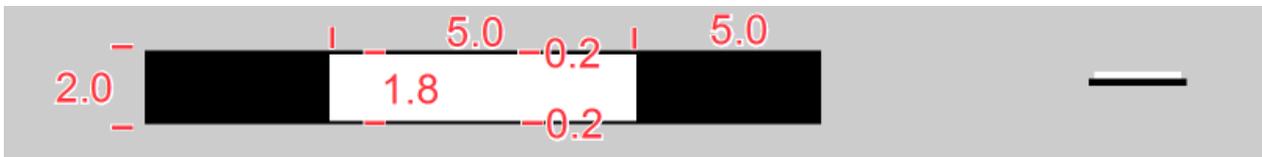
- **Line color:** Select the line color.
- **Line width:** Enter here the line width. Enter 0 here if no framing line should be drawn.
- **Line style:** Select one of the 3 line styles with different line ends and line joins.

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.

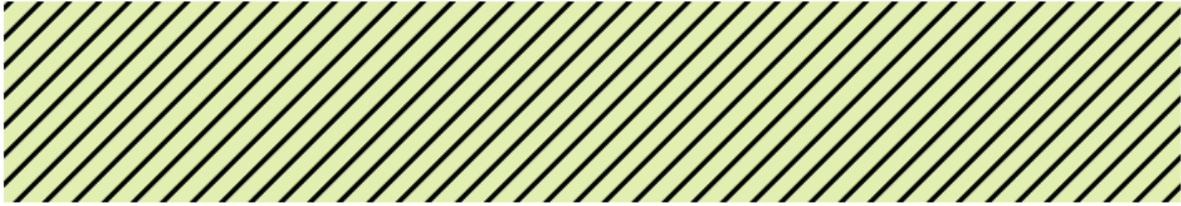
 Different lines symbols ^[1]

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

References

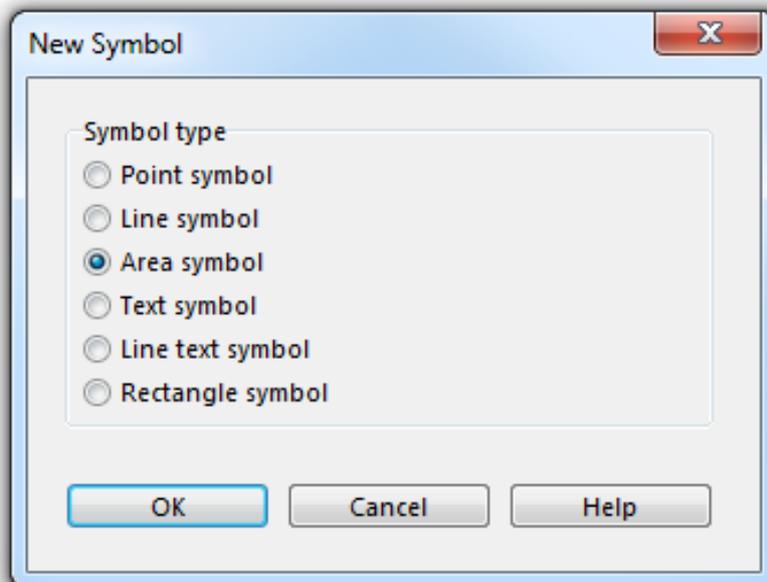
[1] <http://www.ocad.com/howtos/44.htm>

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

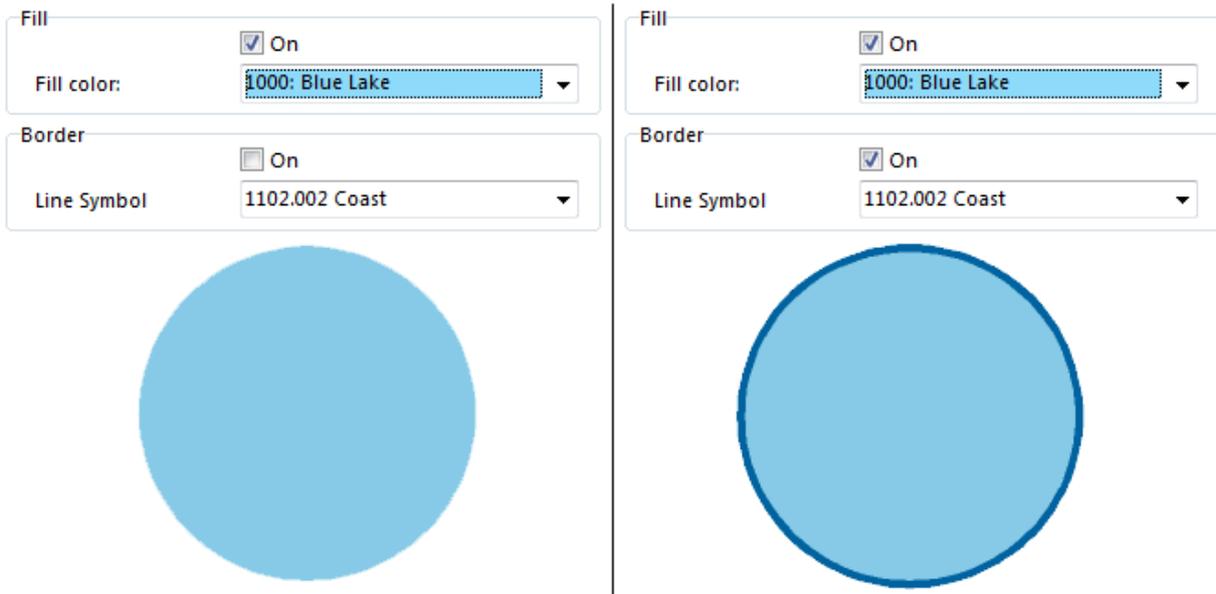
Choose a preferred drawing tool in the corresponding dropdown list. When the symbol is selected in the **Symbol Box** the drawing mode changes automatically to the chosen one. If **None** was chosen, the drawing mode remains the same as it was before.

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.

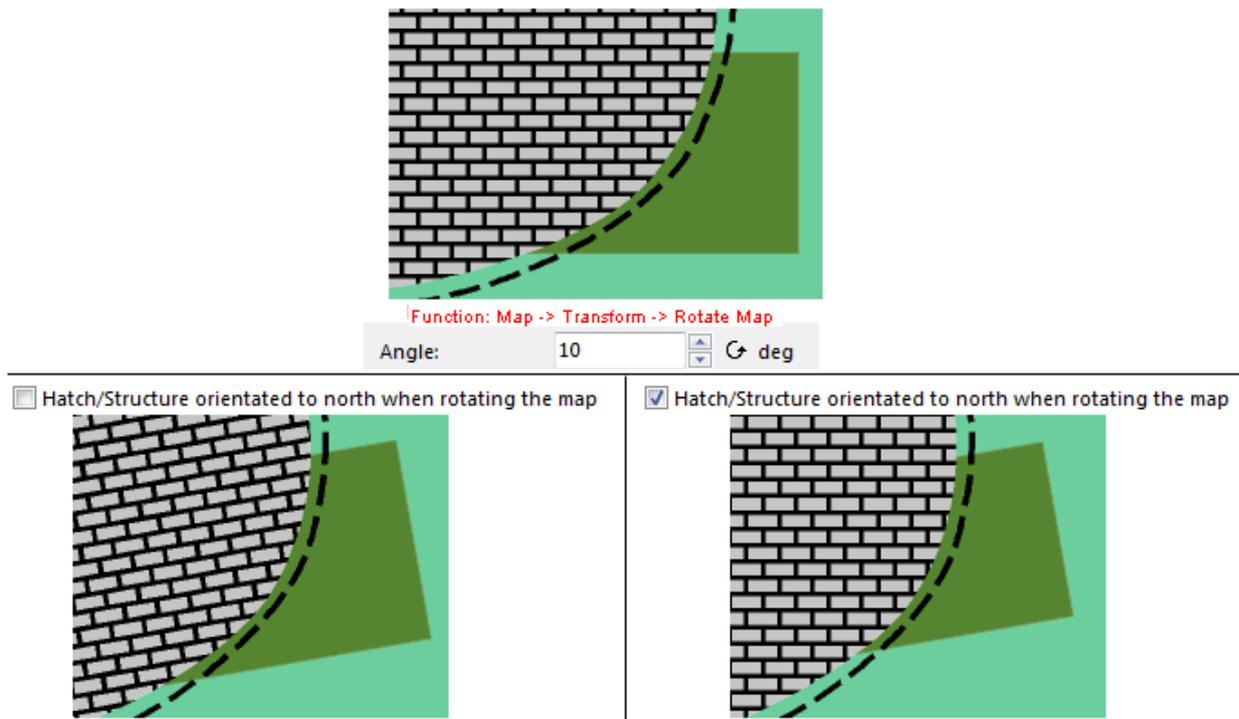
Border

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.

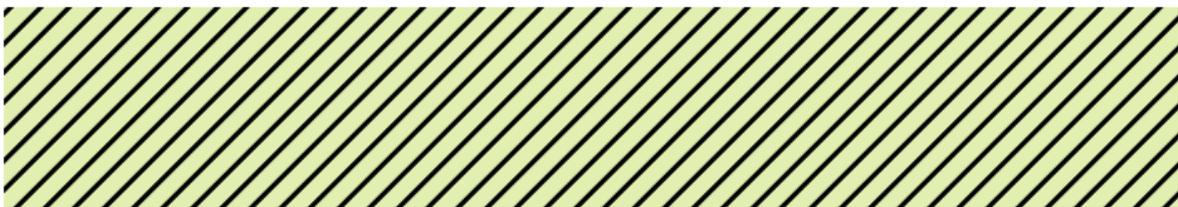


Orientation to North

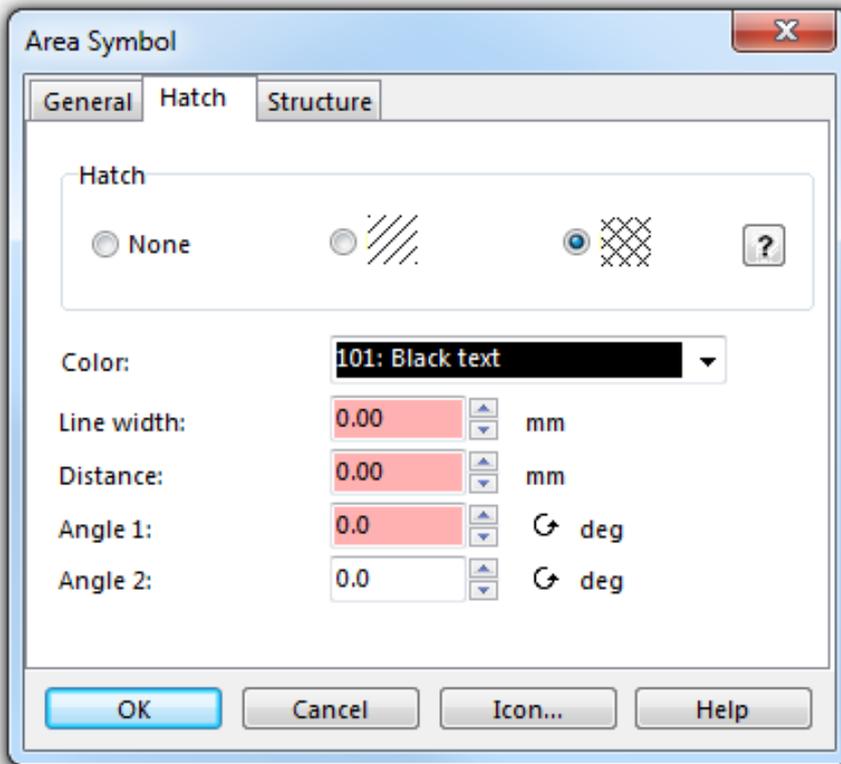
Check the **Hatch/Structure orientated to north when rotating the map** option if you want to keep a hatch or structure always orientated to north when rotating the map (**Rotate**).



Hatch

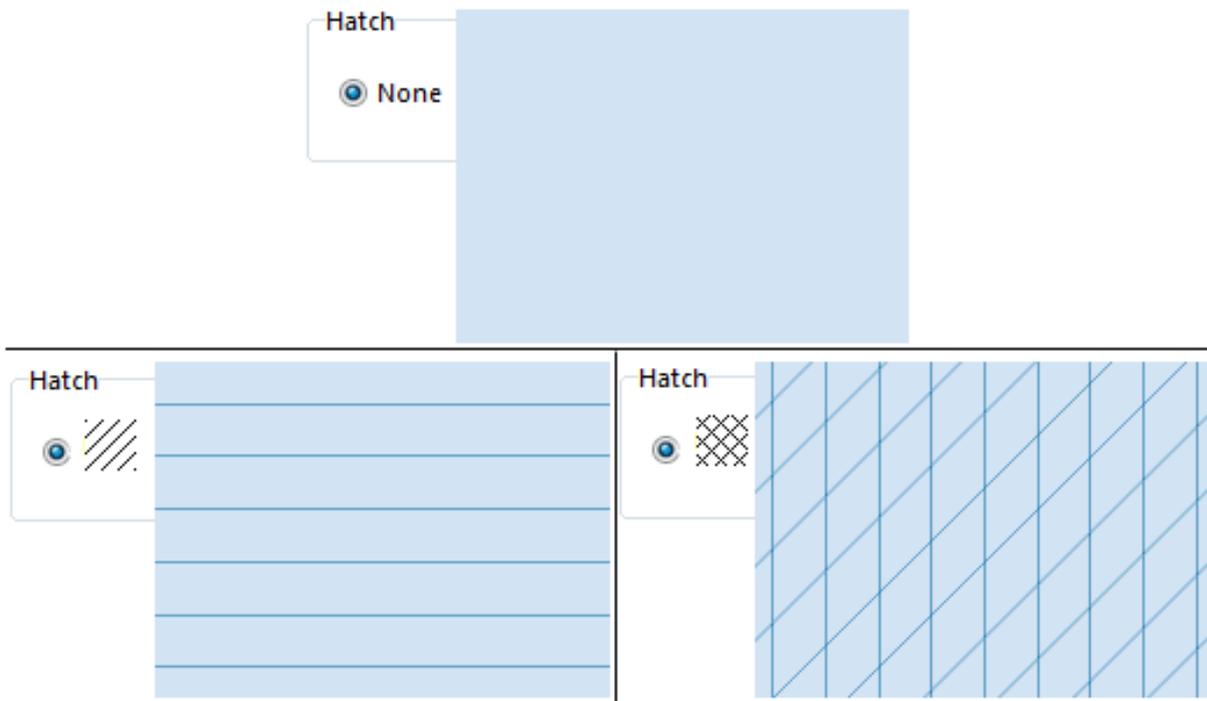


In this tab you can define the parameters for a simple hatch or a cross-hatch.



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

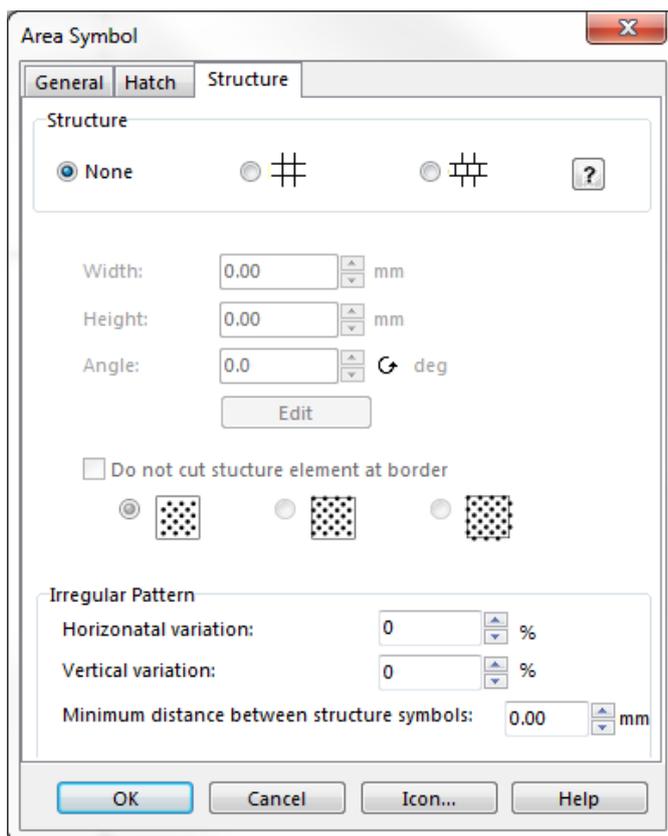
Enter the distance between the hatch lines in this field.

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.

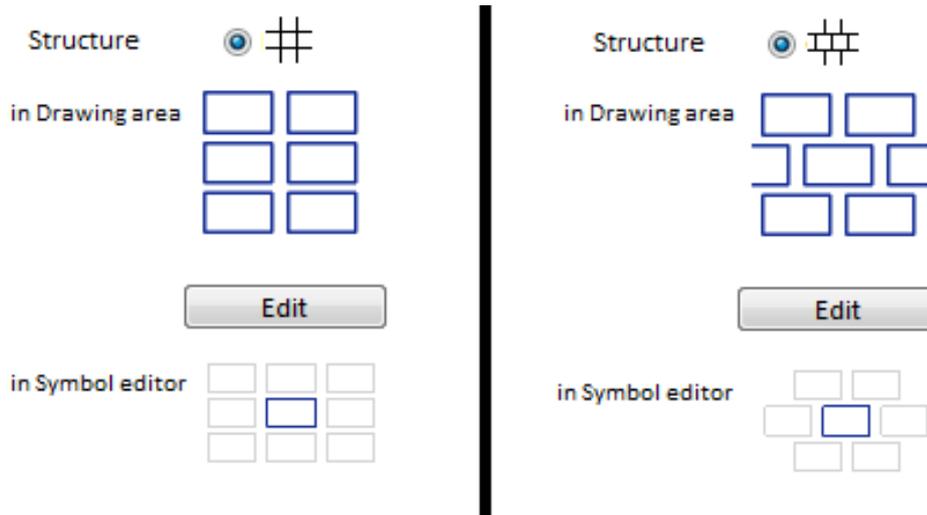
Structure

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



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**.

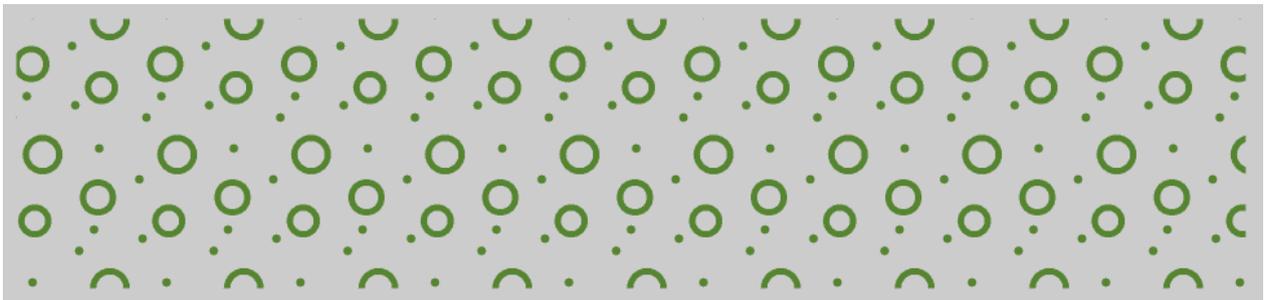
Irregular Pattern

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

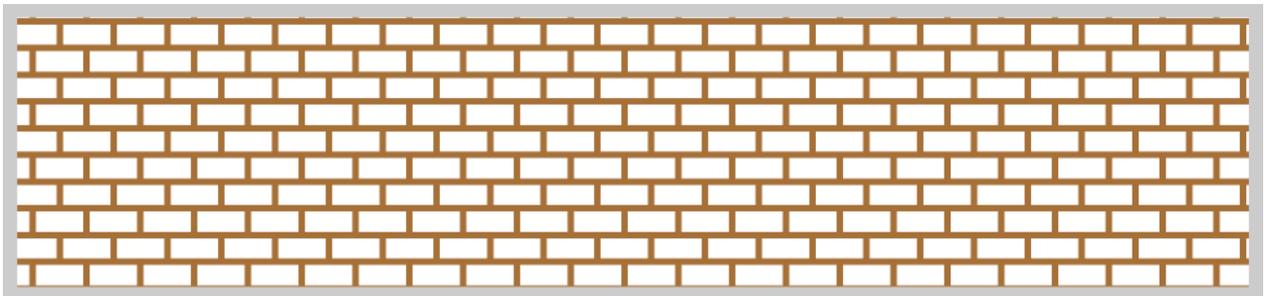
► Example Boulders with Shrubbery

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>

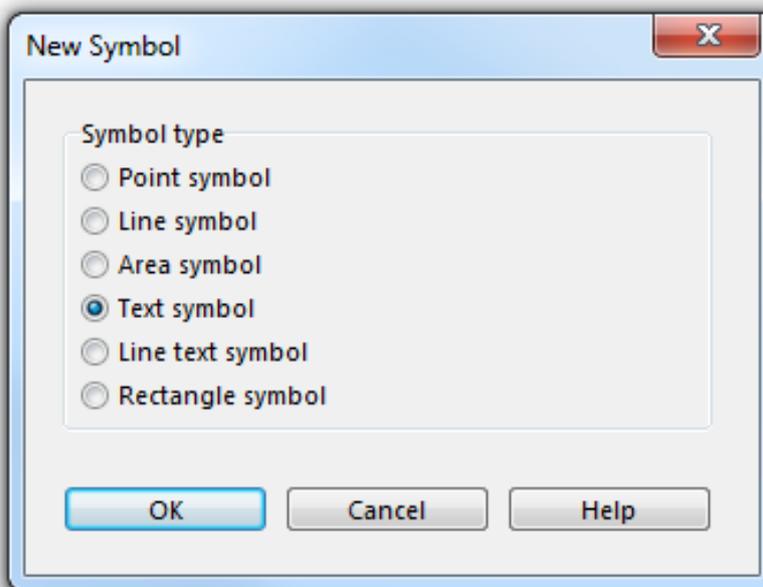
Create a New Text Symbol



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.

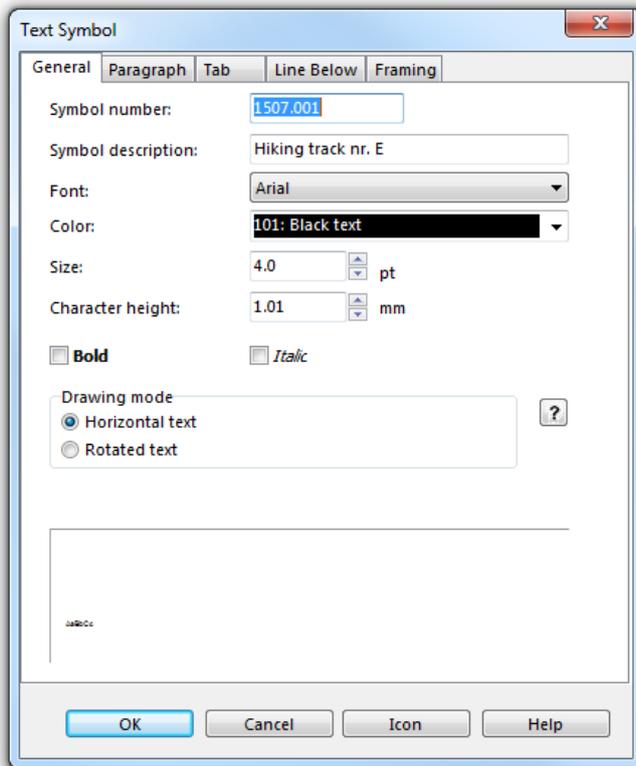


The **Text Symbol** dialog appears. This dialog provides the following five tabs:

- **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

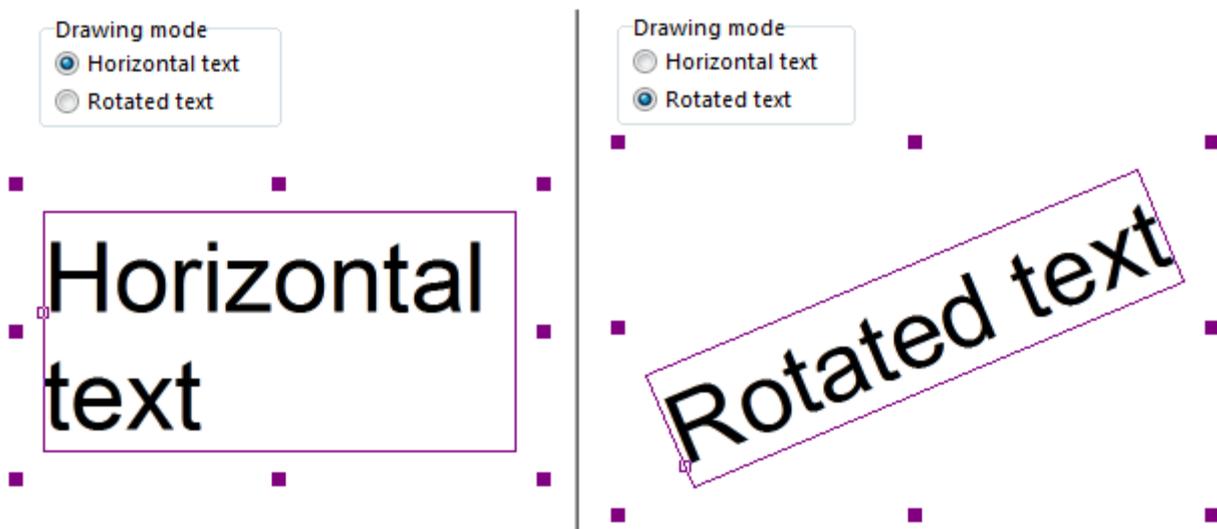
- **Bold:** Check this box for bold text.
- **Italic:** Check this box for italic text.

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.

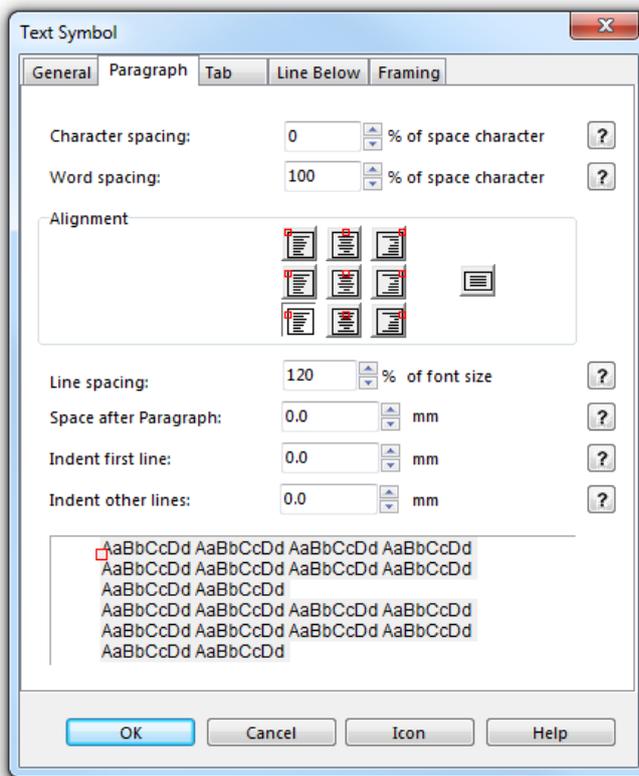


Course Setting for Orienteering Options

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%.

Line spacing
120% of font size

Line spacing
20% of font size

Line spacing
300% of font size

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

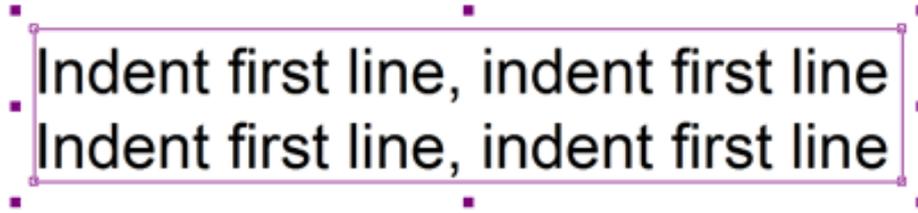
Space after paragraph, space
after paragraph

Space after paragraph, space
after paragraph

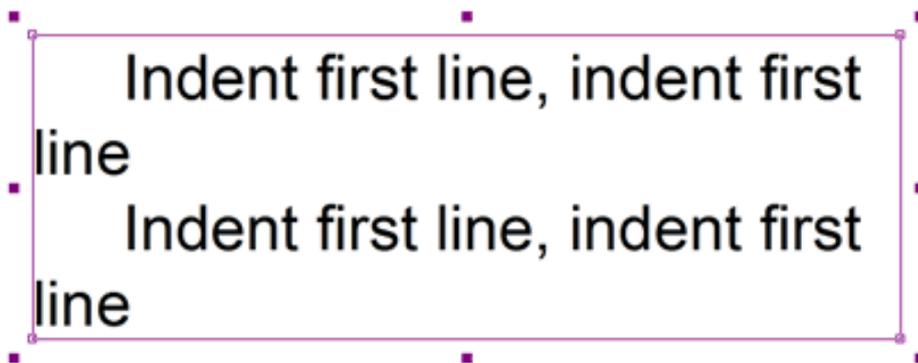
Indent First Line

Enter the indent of the first line of each paragraph.

Indent first line: mm



Indent first line: mm



Indent Other Lines

Enter the indent of the other lines of each paragraph.

Indent other lines: mm

Indent other lines, indent other lines
Indent other lines, indent other lines

Indent other lines: 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.

<input type="checkbox"/> On	<input checked="" type="checkbox"/> On
Line color: <input type="text" value="0: Text black"/>	Line color: <input type="text" value="0: Text black"/>
Line width: <input type="text" value="0.20"/> mm	Line width: <input type="text" value="0.20"/> mm
Distance from text: <input type="text" value="0.20"/> mm	Distance from text: <input type="text" value="0.20"/> mm
Text Symbol	<u>Text Symbol</u>

Line Color

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

Line Width

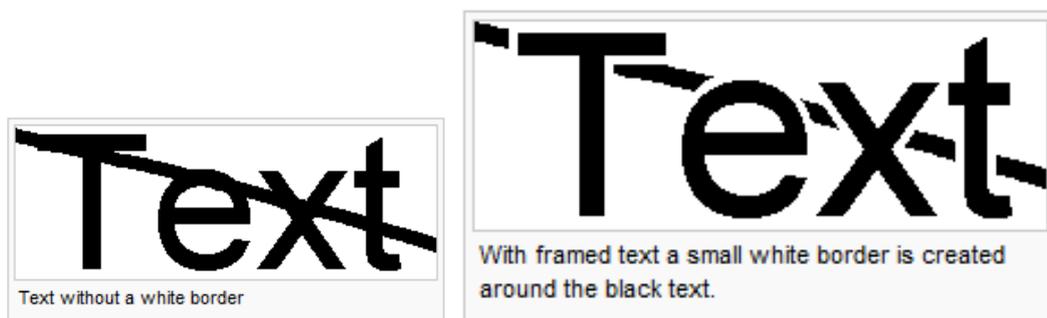
Enter a line width.

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

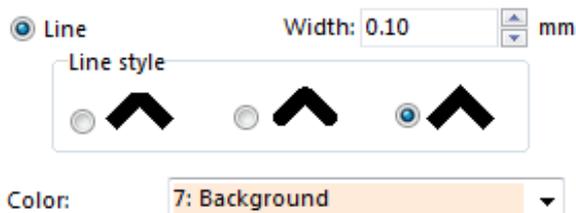
Activate this box if you don't want to use text framing.

Off

Framing Mode

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.



Framing Mode

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



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>
-

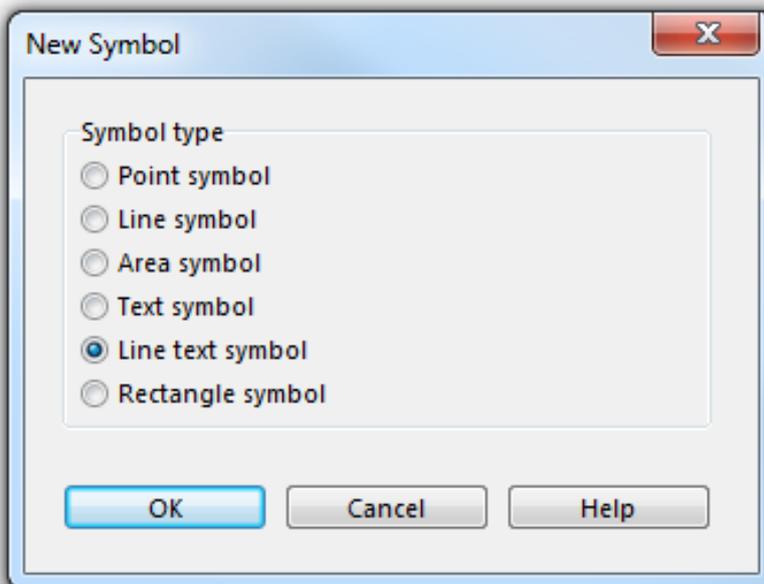
Create a New Line Text Symbol

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.

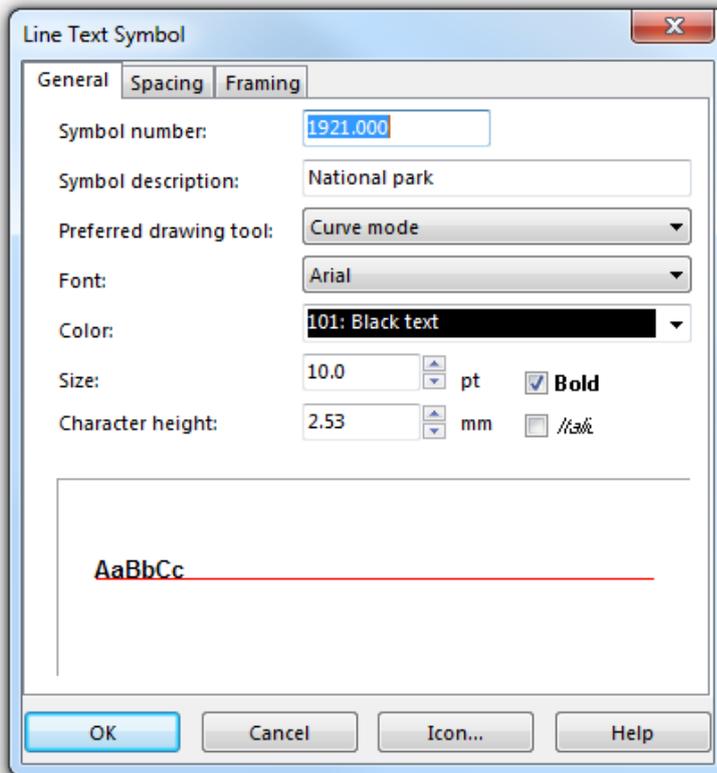


The **Line Text Symbol** dialog appears. The following options are available:

- **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

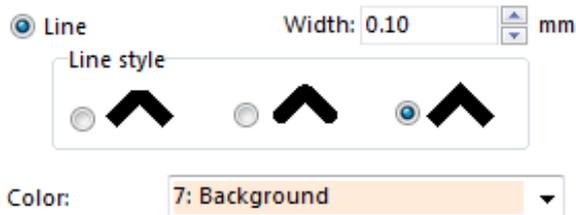
Activate this box if you don't want to use text framing.

Off

Framing Mode

Line

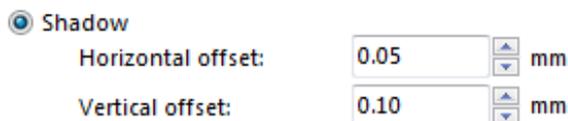
Enter here the **Width** (how much the framing extends outside the character) of the text framing as well as the **Line style** (how corners and line ends appear) and the **Color** at the bottom of the **Mode** part of the dialog (all colors from the **Color Table** are listed here). To get text framing, 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.



Framing Mode

Shadow

Choose this option if a shadow to the text shall be rendered. Enter the **Horizontal offset** 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.



Framing Mode

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.

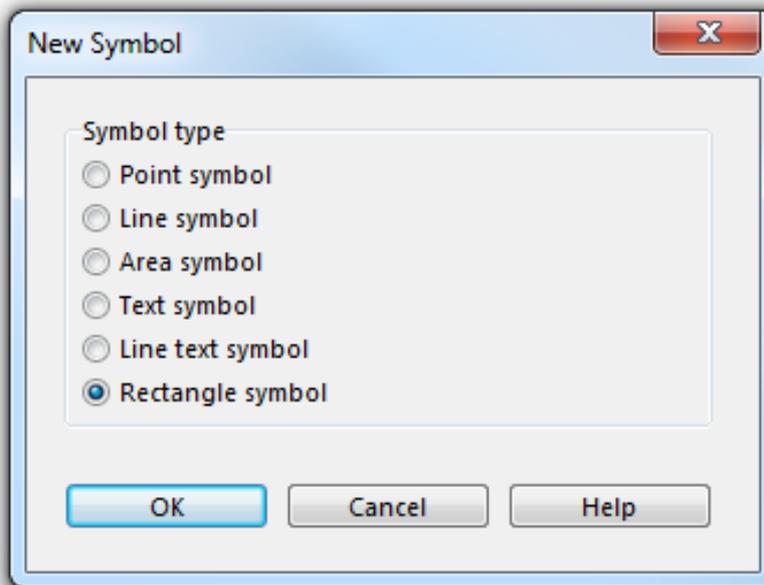
Back to the **Create a New Symbol** page.

Create a New Rectangle Symbol

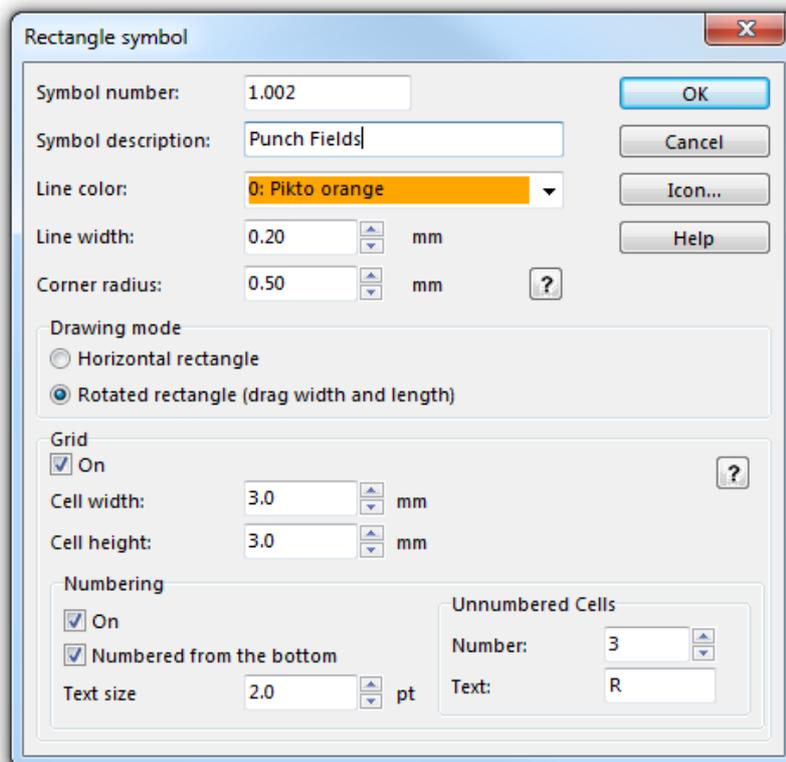


You can create rectangle symbols with OCAD.

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.

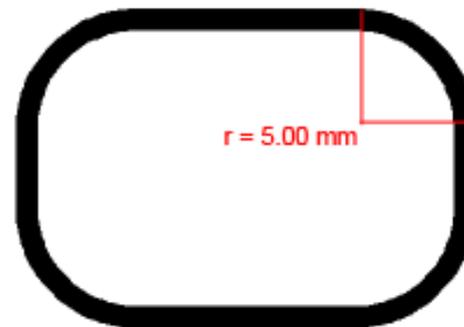
Corner Radius

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.

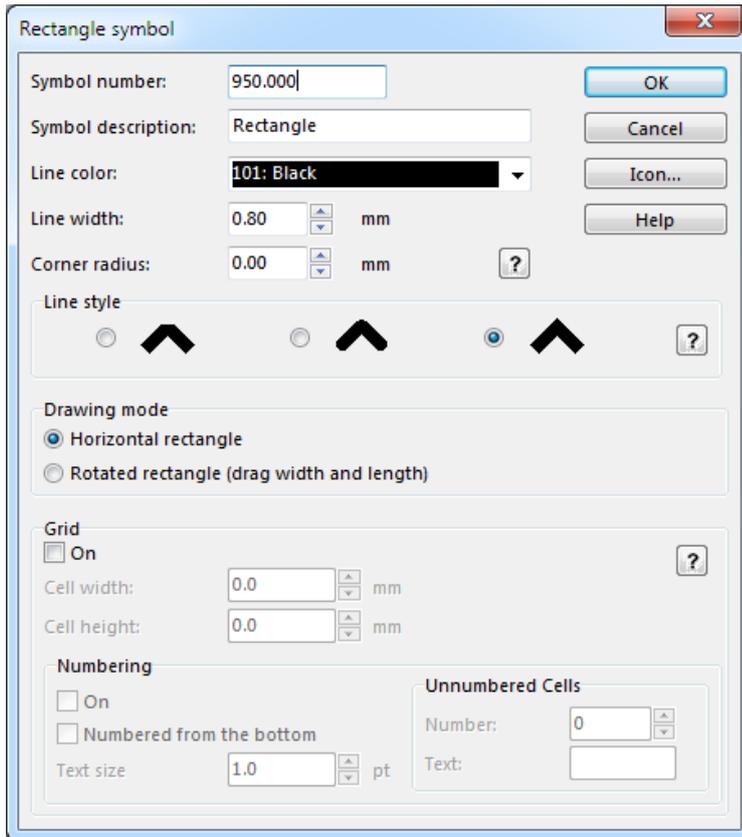
Line width:	<input type="text" value="1.00"/>	<input type="button" value="▲"/> <input type="button" value="▼"/>	mm
Corner radius:	<input type="text" value="0.00"/>	<input type="button" value="▲"/> <input type="button" value="▼"/>	mm



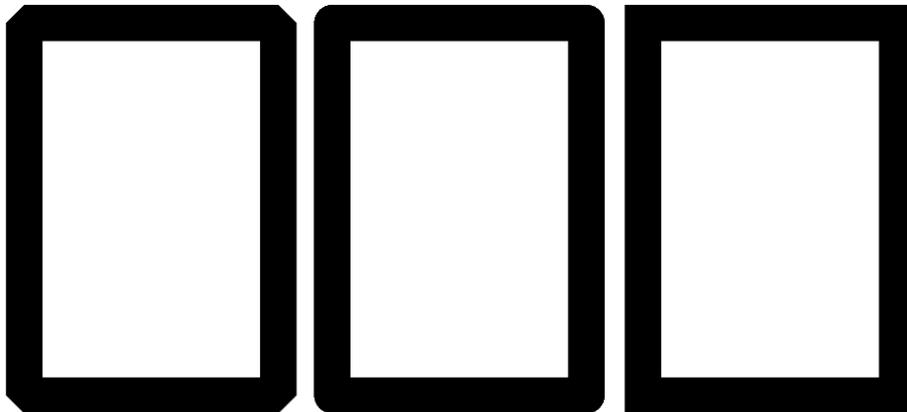
Line width:	<input type="text" value="1.00"/>	<input type="button" value="▲"/> <input type="button" value="▼"/>	mm
Corner radius:	<input type="text" value="5.00"/>	<input type="button" value="▲"/> <input type="button" value="▼"/>	mm



Line Style



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.

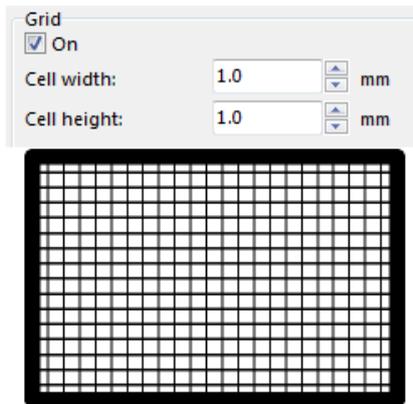


Drawing Mode

- **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

- **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.



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.

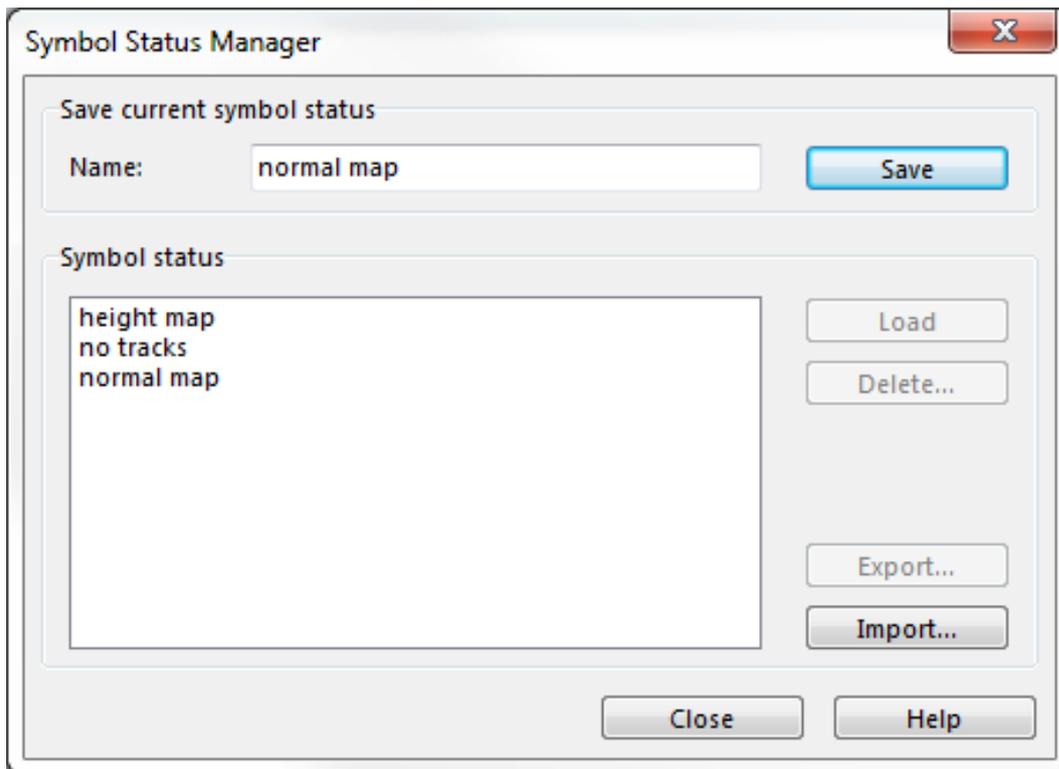
Symbol Status Manager

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** in the **Symbol** panel.
2. The **Symbol Status Manager** dialog opens.



3. Decide in the **Symbol Box** which object which status should have.

💡 This can be done before opening the dialog as well.

4. Click on **Save** to save the current symbol status setting.

Symbol status

In this box are all the possible symbol status settings shown.

Change Settings

1. Click on a saved setting in the box.
 1. The selected name gets a blue bar and the name is shown above.

💡 Only one symbol status setting can be active at one time.

💡 If multiple files are picked, only the one which name gets shown will be loaded.

2. Either double click on the name or click on **Load** to activate the setting

Export

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

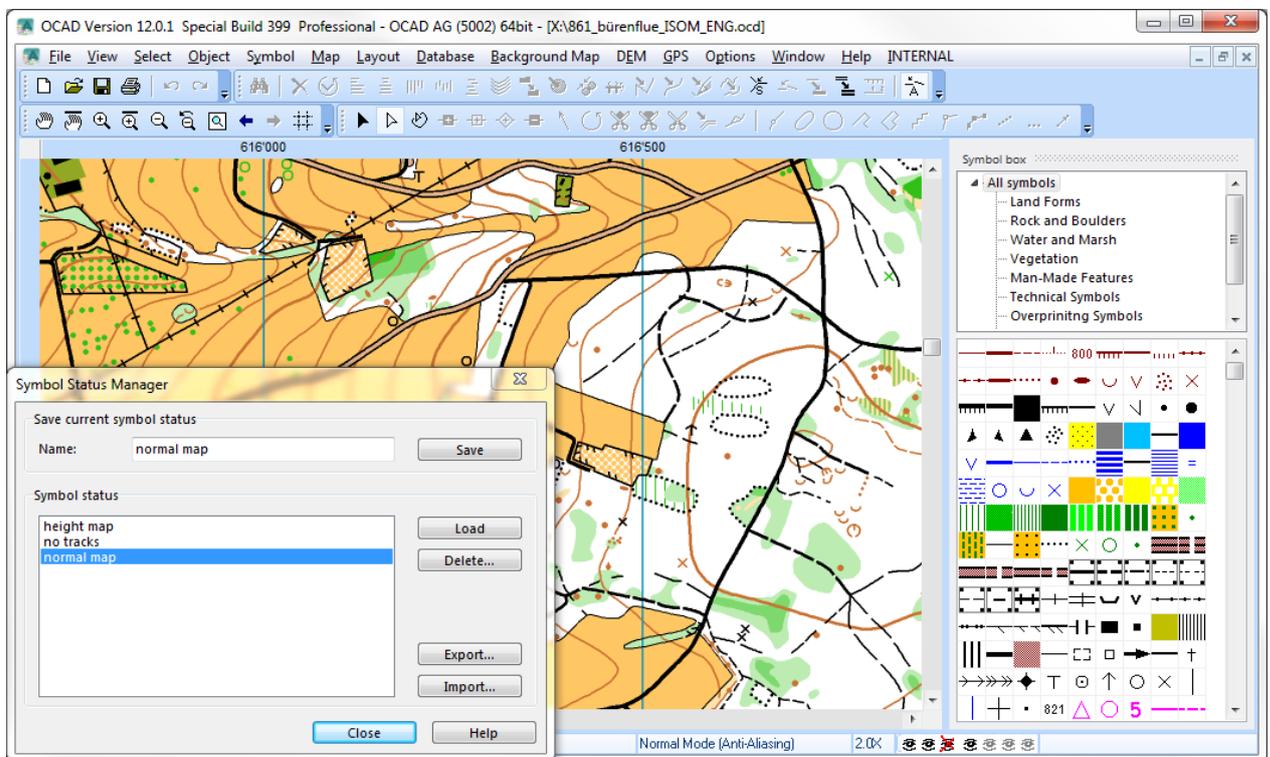
💡 If multiple settings are picked to be exported, they get saved in one .xml file but if the file gets imported all settings are present.

Import

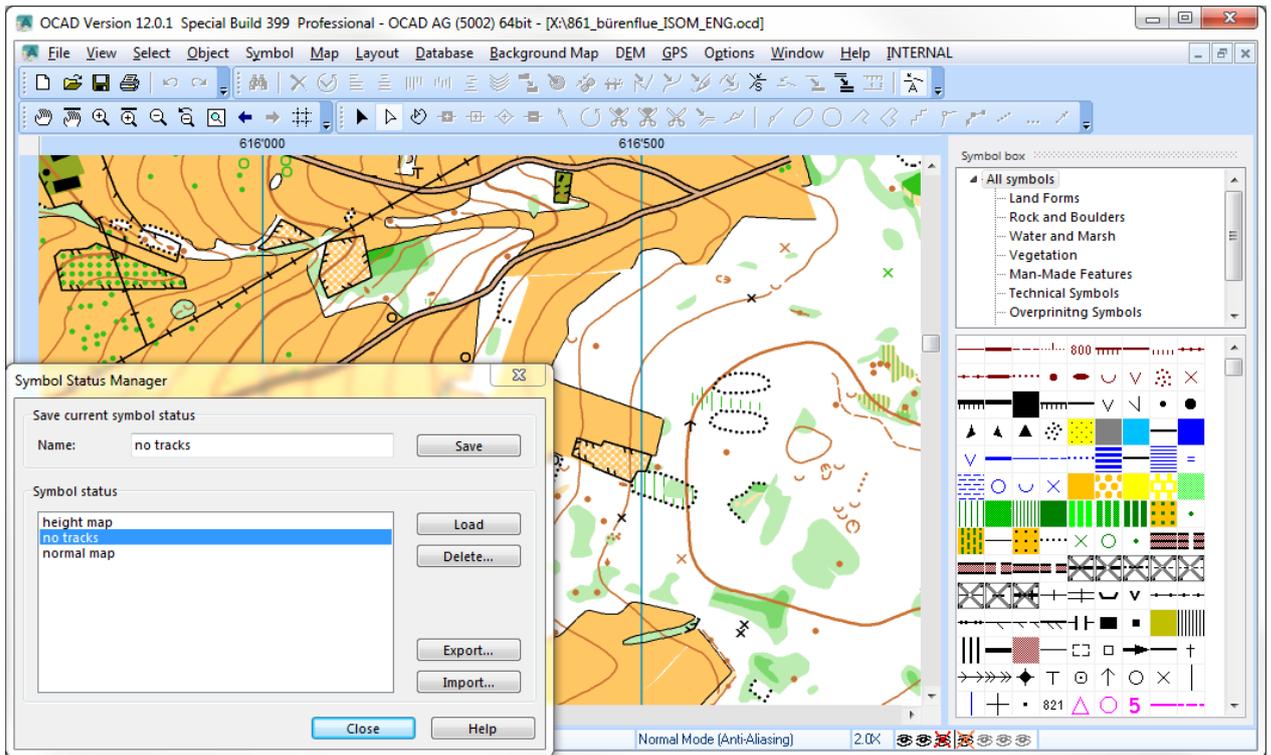
1. Click on the **Import** button.
2. Pick and load an .xml file.
3. The loaded symbol status settings get shown in the **Symbol Status** box.

Examples

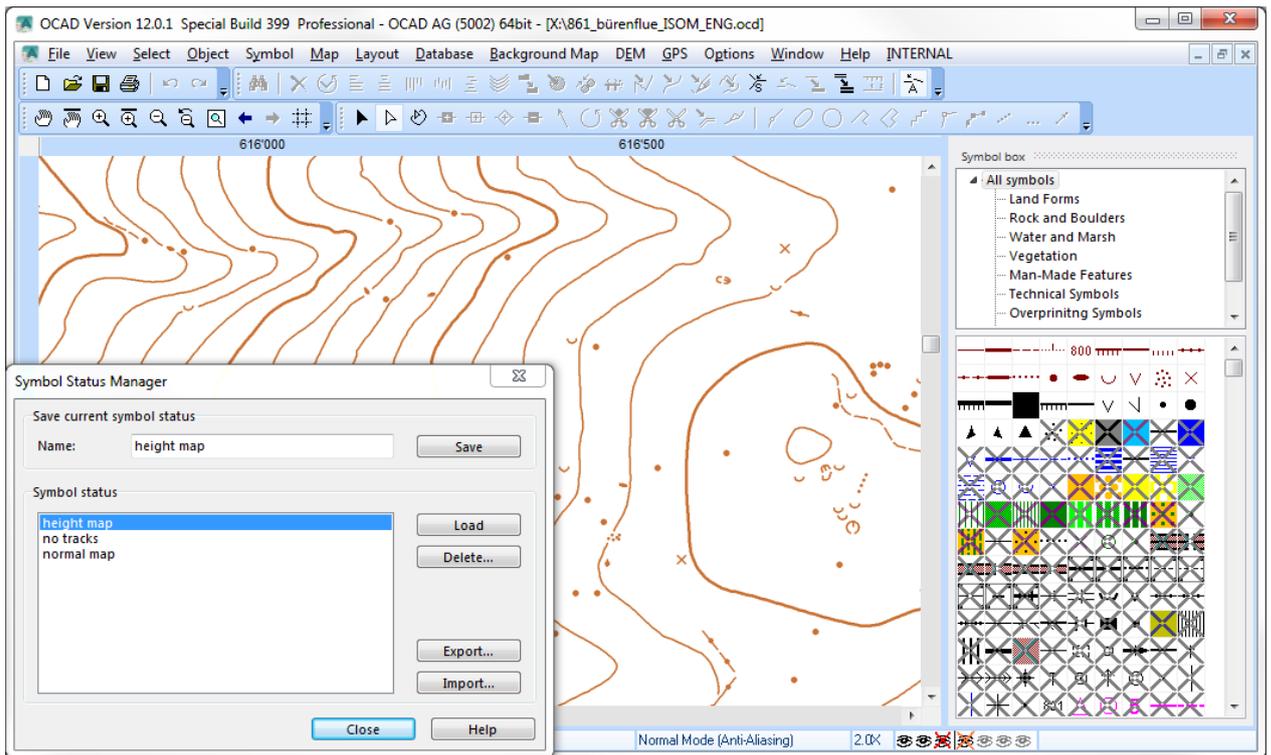
- normal map



- no tracks

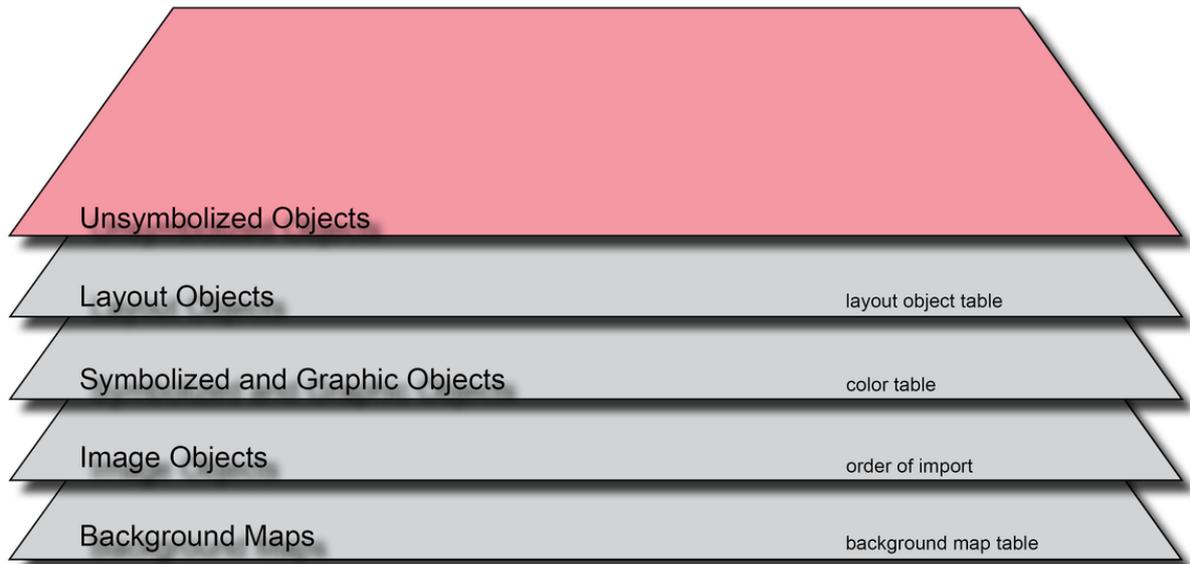


- height map



Back to Symbol

Unsymbolized Objects



Change color on the map:

1. Choose **OCAD Preferences** from **Options** menu.
2. Choose **Object** from **Categories**.
3. Change **Color** from **Objects without Symbol**.



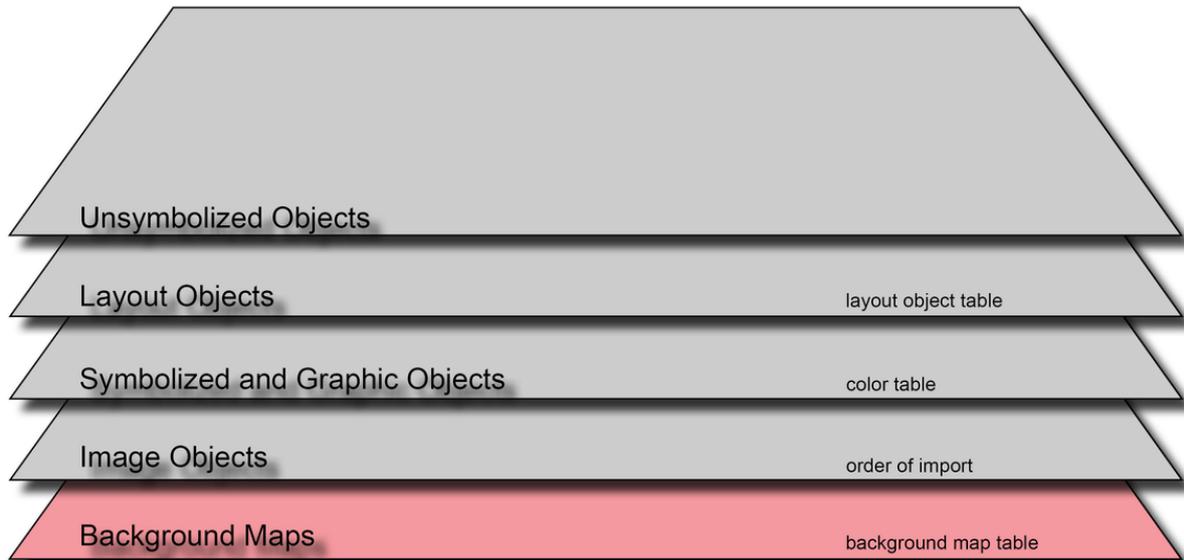
Hide unsymbolized objects with uncheck the option **Show Objects without Symbol** from **Symbol** menu.

Import Files

Unsymbolized objects are created by importing DXF, EMF, WMF or Shape files. They are not assigned to any symbol and appear in the color specified in **OCAD Preferences**. The layer name is shown in the left part of the status line if an unsymbolized object is selected.

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



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.

In the **Scan** submenu of the **Background map** menu you can find the following two commands:

- **Acquire:** Choose this command to start scanning. This command will show the main window of the TWAIN driver of your scanner. After scanning a file, a dialog box is displayed where you can enter a filename for the scanned background map. The file will be saved in the bmp file format. Then the scanned background map is opened.
- **Select source:** If more than one TWAIN source (or more than one driver) is installed, you can select the desired source with this command.

The following requirements are needed to scan with OCAD:

You must have a scanner connected to your PC, and a 32-bit TWAIN driver must be installed.

 This function is obsolete because its supports only the bmp file format. The file size of bmp files is much more bigger than jpg. So we recommend to use the scanner program of the corresponding scanner and save the scanned background map as a JPEG file. Choose the **Open** command from the **Background map** menu to open this file in OCAD. Choose **Adjust** from the **Background map** menu to adjust the background map to the grid or to the part of the map you have already drawn.

Open a Background Map



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, 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.

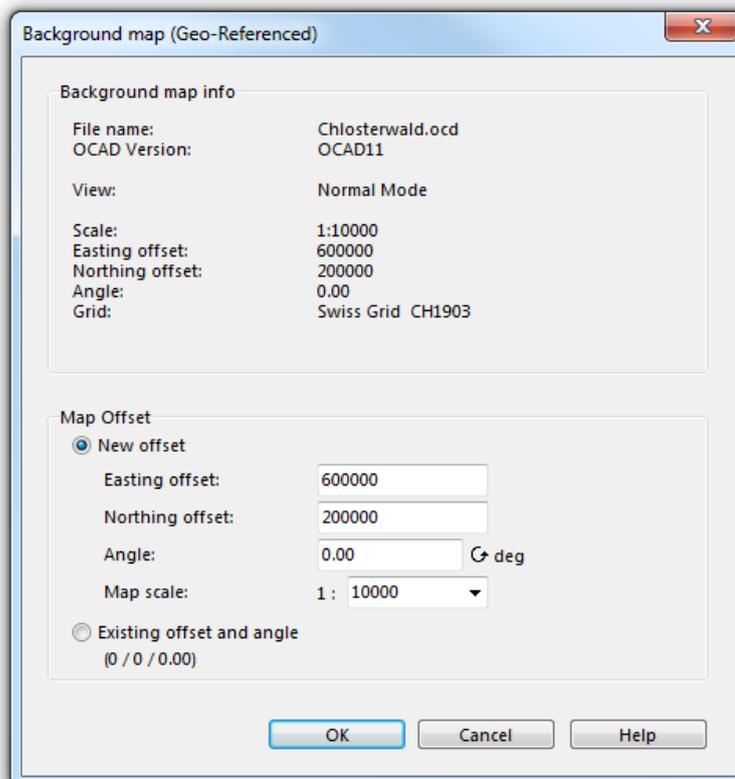
💡 Ocad 12 can load only encrypted Ocad files exported from OCAD 12. Encrypted Ocad 10 or Ocad 11 files are not compatible with Ocad 12.

💡 OCAD loads the background map hidden when pressing the [Shift] key whilst clicking the **Open** menu item.

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.

Background Map Basics ^[1]

Use a Non Georeferenced Raster Map as Background Map

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

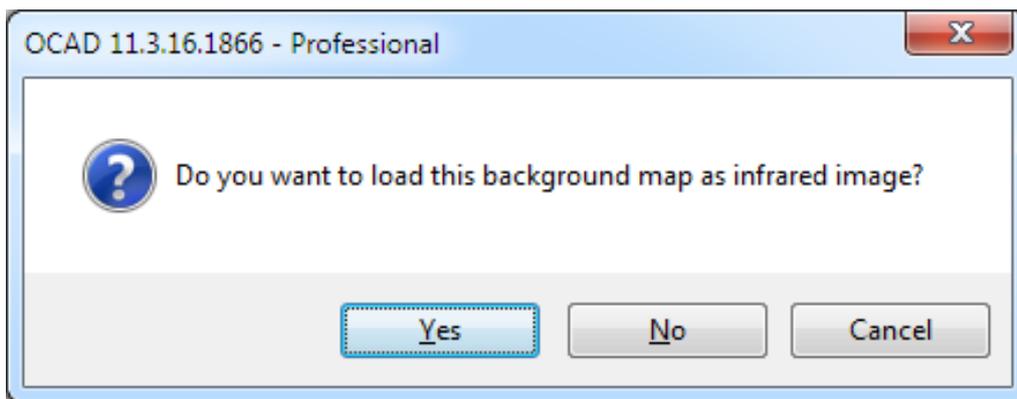
1. Select the **Open** command in the **Background Map** menu. The Background Map dialog box opens.
2. Select a file and click the **Open** button.
3. Enter a resolution for the background map (if a raster map is loaded) and click the **OK** button.

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.

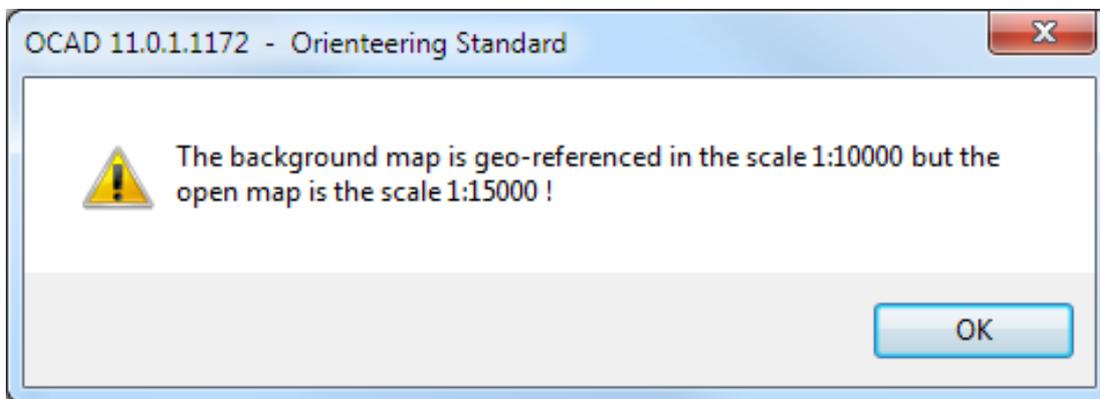
Error Message TIFF variant not supported

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

Error Message 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.

Adjust a Background Map



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.

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 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.

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 ^[2]

Hide all Background Maps



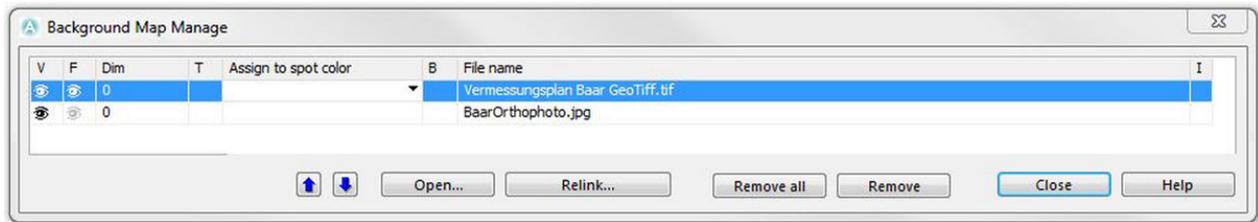
Choose the **Hide All** command in the **Background Map** menu or press the **F10** key (**Shortcut** by default) to hide all background maps temporarily or make them visible when they are hidden. This command is active if one or more background maps are loaded.

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

Manage Background Maps



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



- **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



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.

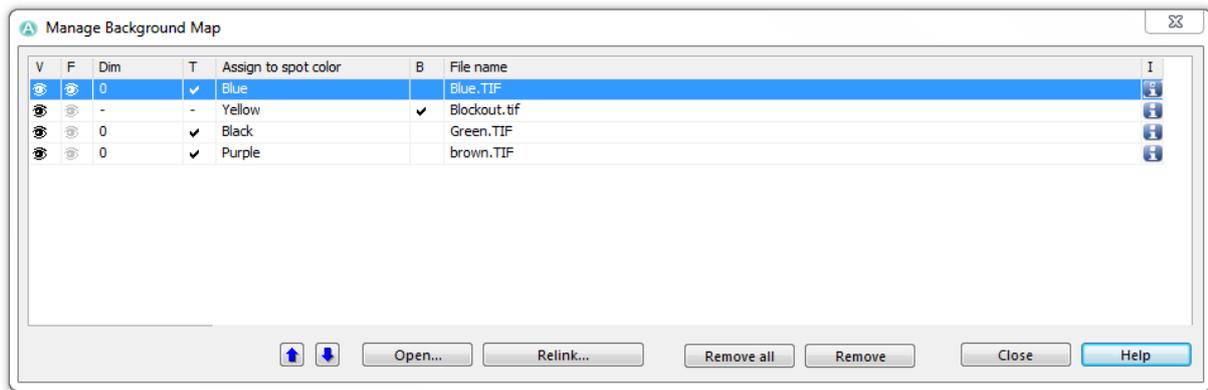
Blockout



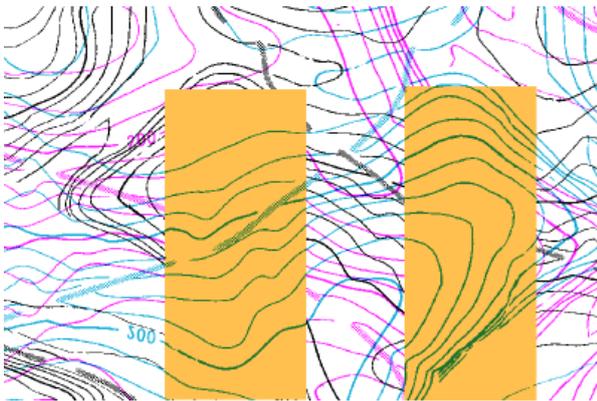
This column is labeled with a **B** and is only available for raster background maps. Click a cell in the **Blockout** column to use the corresponding background map as a block out mask.

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.

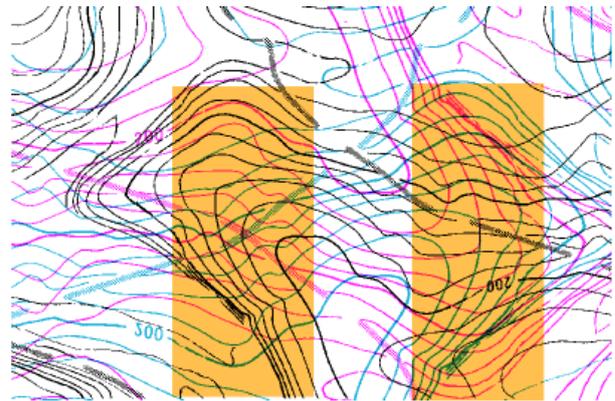
In the following example, there are four black and white or grey-scale background maps loaded. Each background map was assigned to a spot color. There are the purple, the black and the blue lines. The fourth background map was assigned to the yellow color. The **Manage Background Map** dialog looks as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

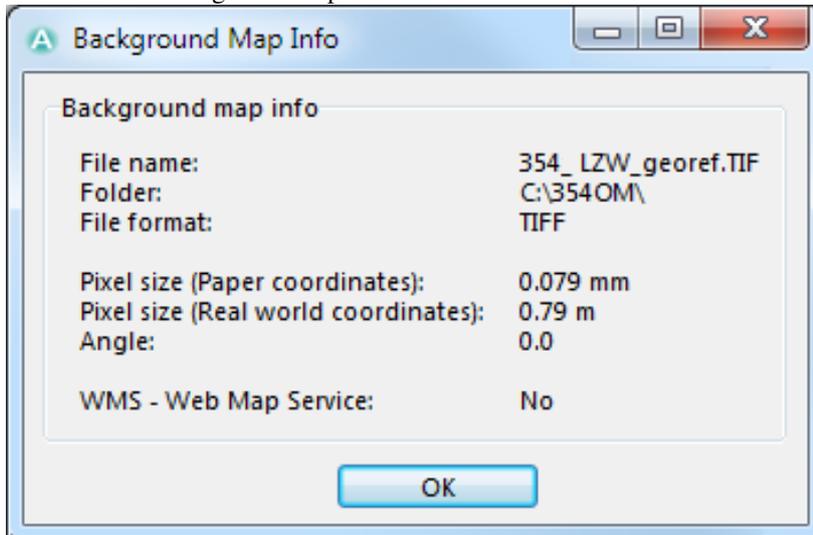
File name

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

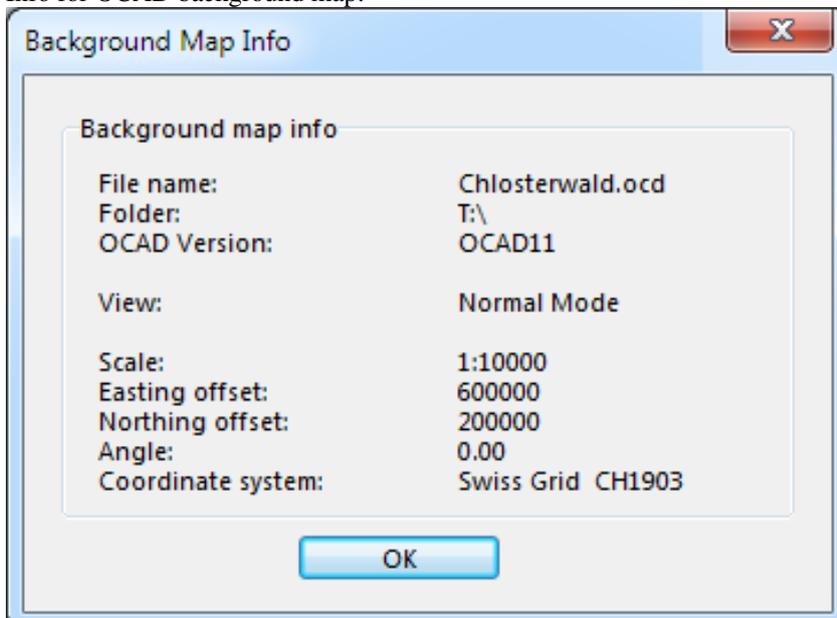
I (Information)

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.

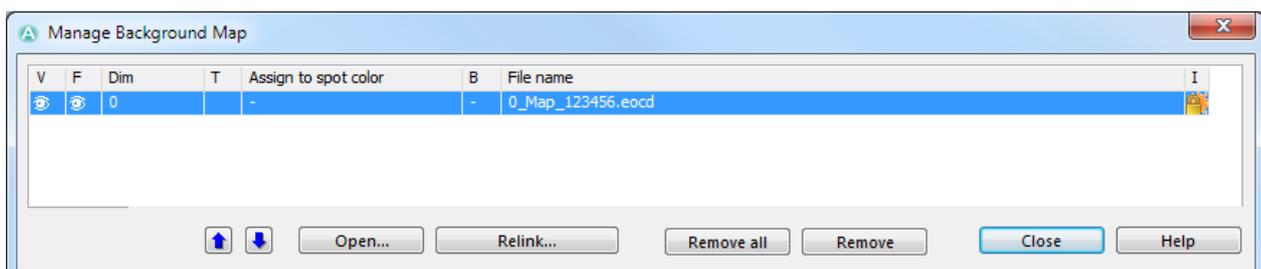
Info for raster background map:



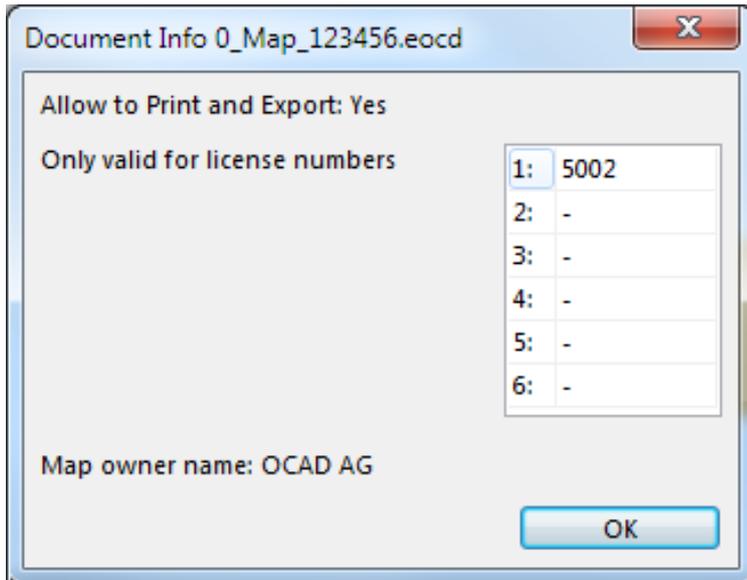
Info for OCAD background map:



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.



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.
- **Open:** Click this button to open a new background map (**Open a new Background Map**).
- **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.

 The selected background map can be moved up and down with drag and drop.  OCAD loads the background map hidden when pressing the Shift key and clicking the **Open** menu item.

Web Map Service - WMS



Visit the **Web Map Service** 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.ocad.com/howtos/73.htm>

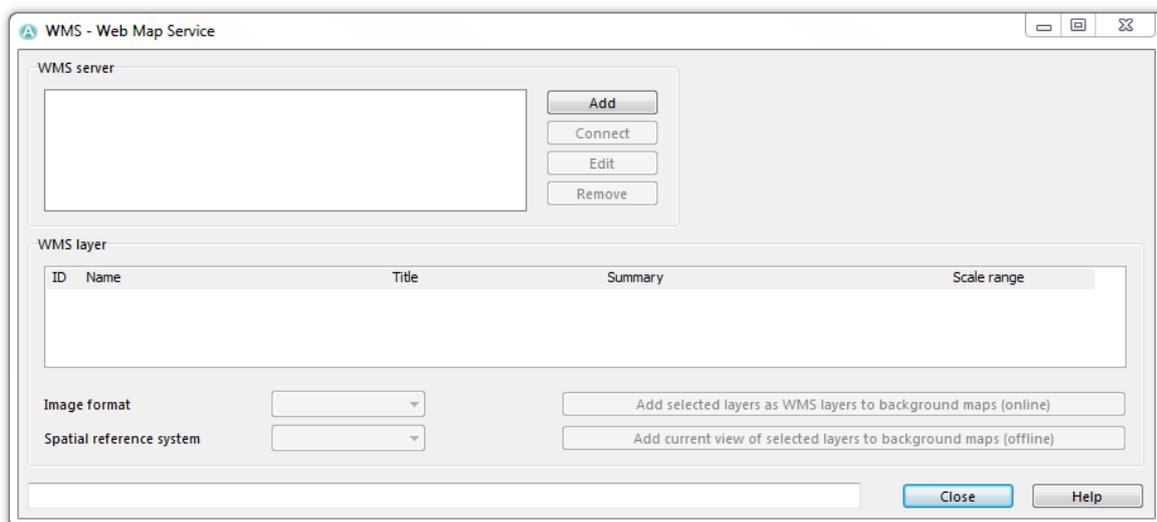
WMS



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.

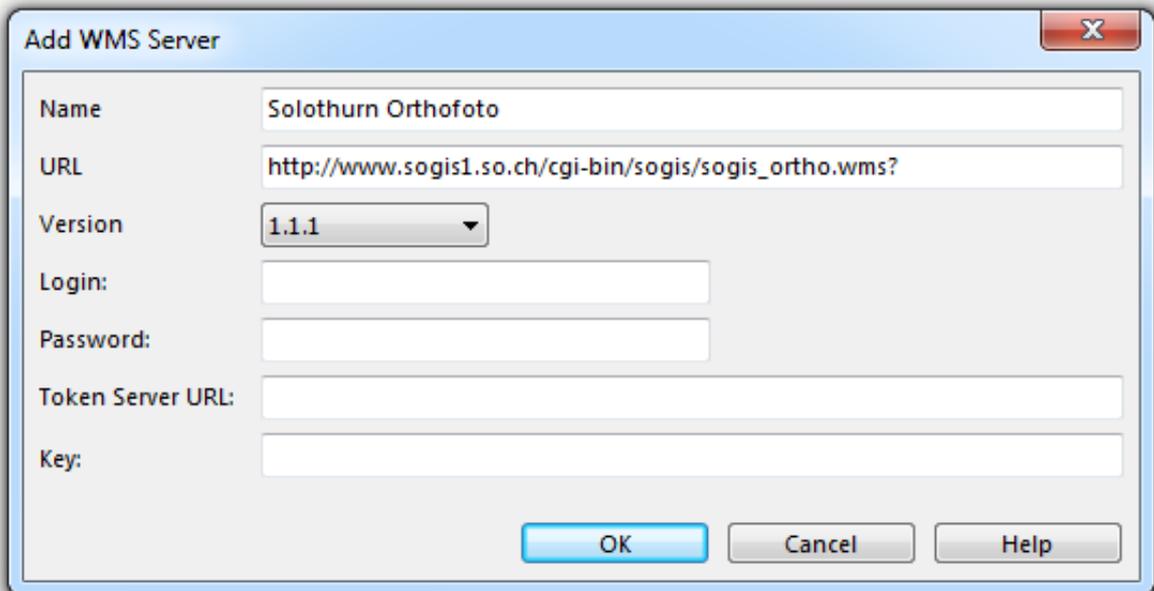


WMS Server

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**.



The 'Add WMS Server' dialog box contains the following fields and controls:

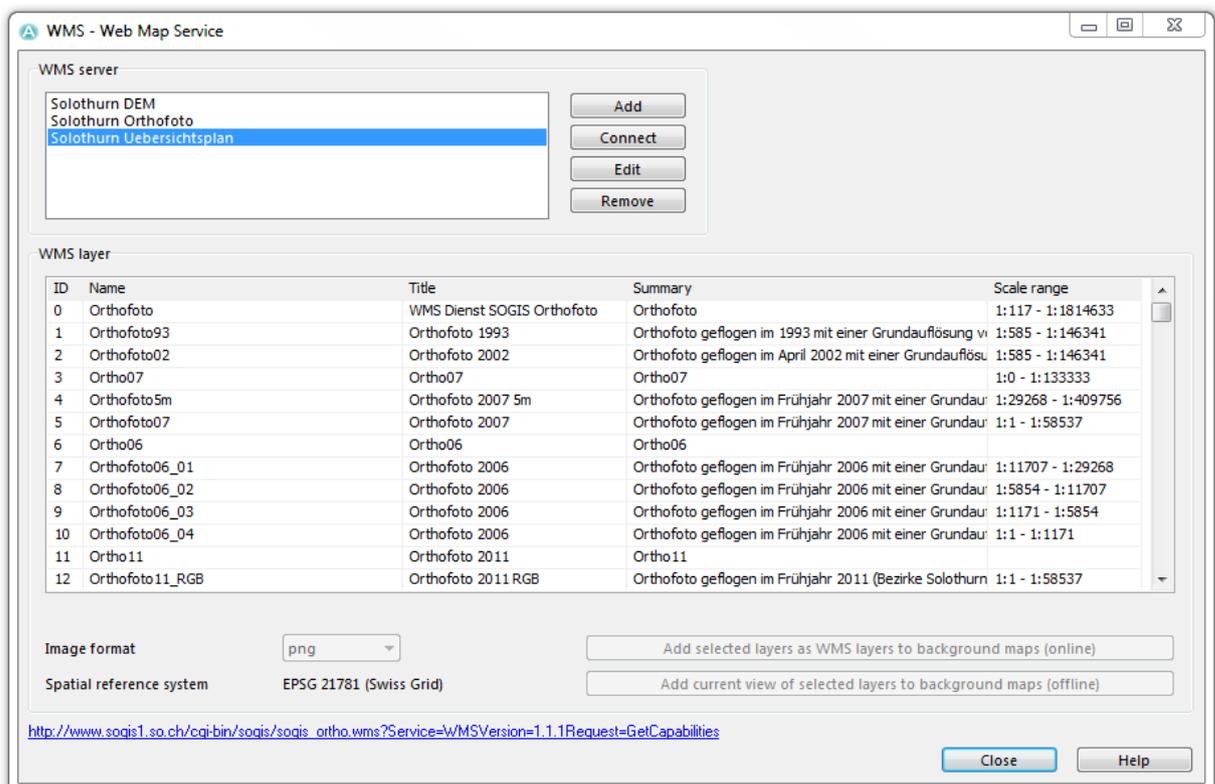
- Name:** Solothurn Orthofoto
- URL:** http://www.sogis1.so.ch/cgi-bin/sogis/sogis_ortho.wms?
- Version:** 1.1.1 (dropdown menu)
- Login:** (empty text field)
- Password:** (empty text field)
- Token Server URL:** (empty text field)
- Key:** (empty text field)
- Buttons:** OK, Cancel, Help

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**.

💡 A bug with the error message 'Could Not Load SSL Library' is fixed since OCAD 11.1.7.1385.



The 'WMS - Web Map Service' dialog box displays the following information:

WMS server

- Solothurn DEM
- Solothurn Orthofoto
- Solothurn Uebersichtsplan (selected)

Buttons: Add, Connect, Edit, Remove

WMS layer

ID	Name	Title	Summary	Scale range
0	Orthofoto	WMS Dienst SOGIS Orthofoto	Orthofoto	1:117 - 1:1814633
1	Orthofoto93	Orthofoto 1993	Orthofoto geflogen im 1993 mit einer Grundaufösung v	1:585 - 1:146341
2	Orthofoto02	Orthofoto 2002	Orthofoto geflogen im April 2002 mit einer Grundaufösu	1:585 - 1:146341
3	Ortho07	Ortho07	Ortho07	1:0 - 1:133333
4	Orthofoto5m	Orthofoto 2007 5m	Orthofoto geflogen im Frühjahr 2007 mit einer Grunda	1:29268 - 1:409756
5	Orthofoto07	Orthofoto 2007	Orthofoto geflogen im Frühjahr 2007 mit einer Grunda	1:1 - 1:58537
6	Ortho06	Ortho06	Ortho06	
7	Orthofoto06_01	Orthofoto 2006	Orthofoto geflogen im Frühjahr 2006 mit einer Grunda	1:11707 - 1:29268
8	Orthofoto06_02	Orthofoto 2006	Orthofoto geflogen im Frühjahr 2006 mit einer Grunda	1:5854 - 1:11707
9	Orthofoto06_03	Orthofoto 2006	Orthofoto geflogen im Frühjahr 2006 mit einer Grunda	1:1171 - 1:5854
10	Orthofoto06_04	Orthofoto 2006	Orthofoto geflogen im Frühjahr 2006 mit einer Grunda	1:1 - 1:1171
11	Ortho11	Orthofoto 2011	Ortho11	
12	Orthofoto11_RGB	Orthofoto 2011 RGB	Orthofoto geflogen im Frühjahr 2011 (Bezirke Solothurn	1:1 - 1:58537

Image format: png

Spatial reference system: EPSG 21781 (Swiss Grid)

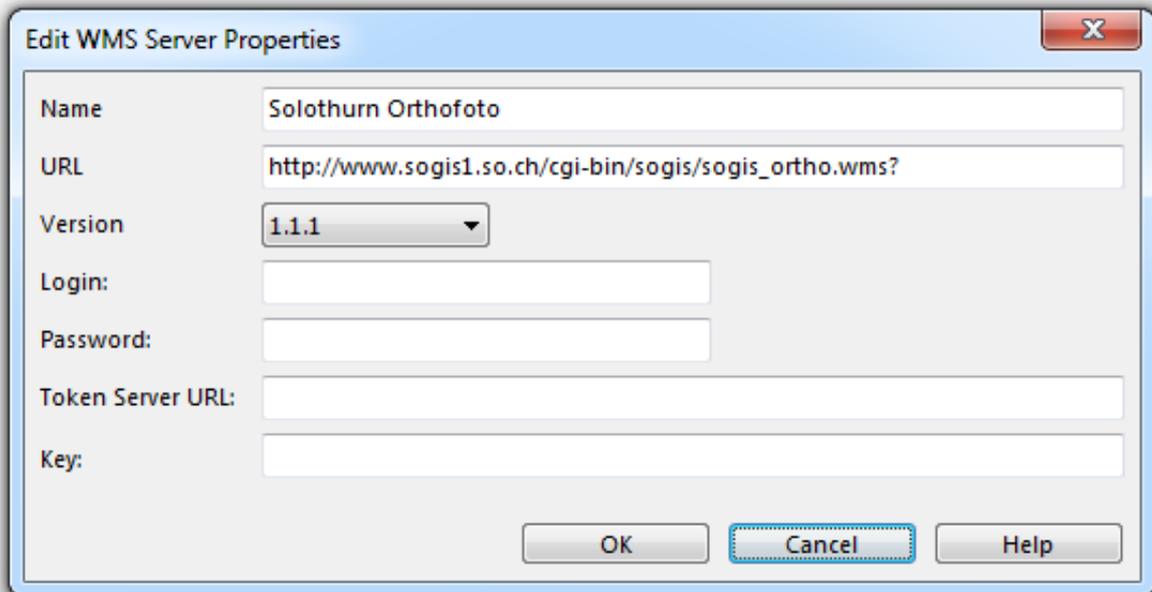
Buttons: Add selected layers as WMS layers to background maps (online), Add current view of selected layers to background maps (offline)

URL: http://www.sogis1.so.ch/cgi-bin/sogis/sogis_ortho.wms?Service=WMSVersion=1.1.1Request=GetCapabilities

Buttons: 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 image shows a dialog box titled "Edit WMS Server Properties" with a close button (X) in the top right corner. The dialog contains several input fields and a dropdown menu:

- Name:** Solothurn Orthofoto
- URL:** http://www.sogis1.so.ch/cgi-bin/sogis/sogis_ortho.wms?
- Version:** 1.1.1 (dropdown menu)
- Login:** (empty text field)
- Password:** (empty text field)
- Token Server URL:** (empty text field)
- Key:** (empty text field)

At the bottom of the dialog, there are three buttons: **OK**, **Cancel** (highlighted with a blue border), and **Help**.

Remove a WMS Server

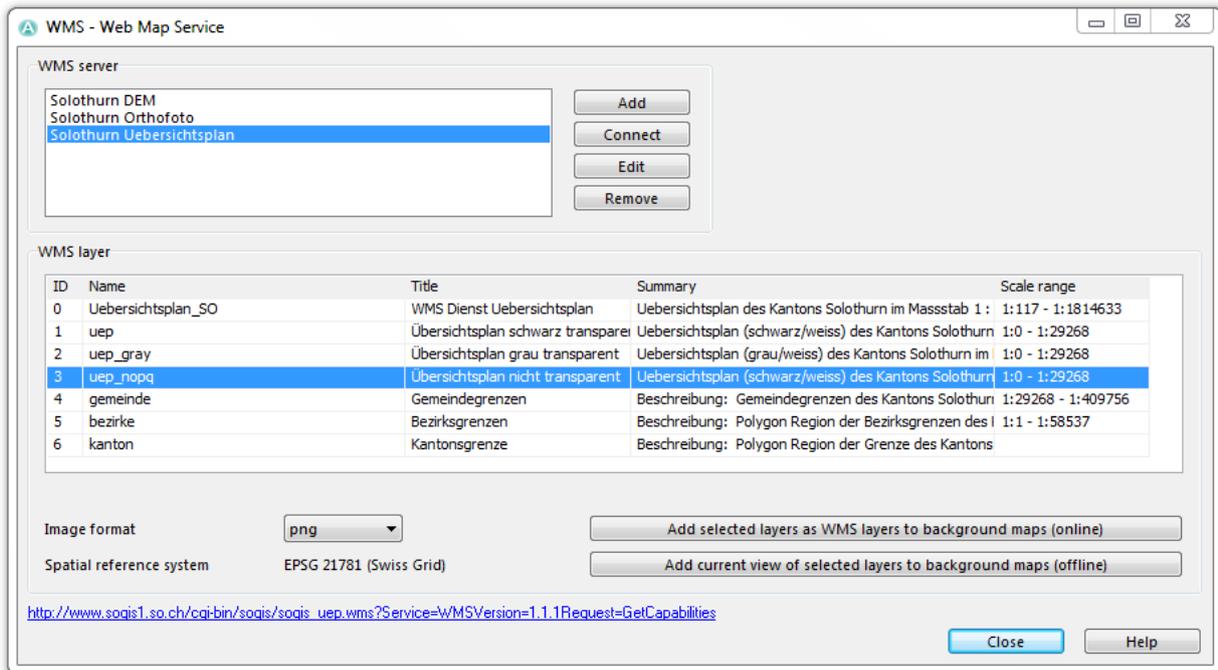
Click the **Remove** button to remove the selected WMS server from the list.

Proxy Server Authorization

ToDo

WMS Layer

After connecting to a WMS server the available WMS layers are listed in the WMS layer box. The **Image format** can be chosen if a layer is selected.



💡 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** box at the lower part of the dialog remains empty.

Add Selected Layers as WMS Layers to Background Maps (Online)

Select a WMS layer in the list, choose an image format in the **Image format** dropdown list (those formats are provided by the WMS server) and click the **Add selected layers as WMS layers to background maps (online)** button. If no real world coordinates are set, the **Background map (Geo-Referenced)** dialog appears. Choose an offset and click the **OK** button.

The WMS layer appears in the table of the **Manage Background Map** dialog which can be displayed in the **Background Map** menu.

This is an online **Background Map**. Everytime the view of the map is changed, the **Background Map** gets updated from the WMS server. Updating the **Background Map** can take a moment. Choose the online **Background Map** option only if you are using a fast WMS server and a good internet connection. As an alternative, you can load the layer as offline **Background Maps**.

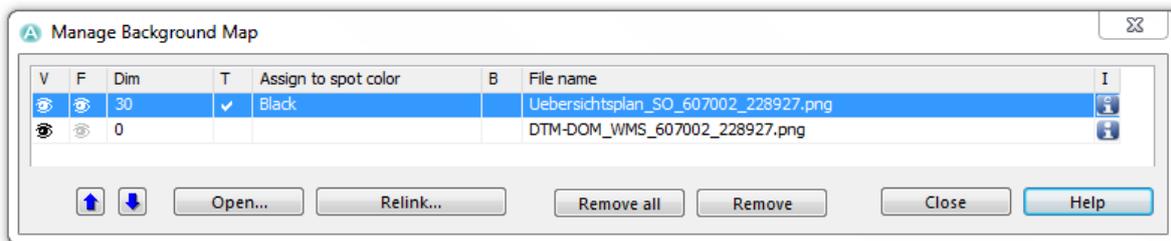
Add Current View of Selected Layers to Background Maps (Offline)

Select a WMS layer in the list, choose an image format in the **Image format** dropdown list (those formats are provided by the WMS server) and click the **Add current view of selected layers to background maps (offline)** button. If no real world coordinates are set, the **Background map (Geo-Referenced)** dialog appears. Choose an offset and click the **OK** button.

The WMS layer appears in the table of the **Manage Background Map** dialog which can be displayed in the **Background Map** menu.

This is an offline **Background Map**. An image of the chosen WMS layer of the current view was downloaded from the WMS server and is now available in OCAD. The **Background Map** does not get updated when changing the view.

Click the **Close** button when finished. You can manage the view or remove the WMS maps by choosing the **Manage** command from the **Background Map** menu.



Examples to display the map:



Back to the **Background Map** page.

References

- [1] http://en.wikipedia.org/wiki/Web_Map_Service

Relink Directories

This command is used to relink directories with background maps, databases, OIM files or GPS log files. It is may used after moving files, renaming directories or opening maps on another computer.

Old directory: Choose the directory you want to relink from the combo box.

New directory: Click on the ... button and navigate to the new directory.

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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)
- 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.

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 symbols and colors:** Choose this option to import symbols and colors completely (for example to print 2 maps with different symbol sets and color tables). ToDo
- **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:** ToDo
- **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

Pro **Std**

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.

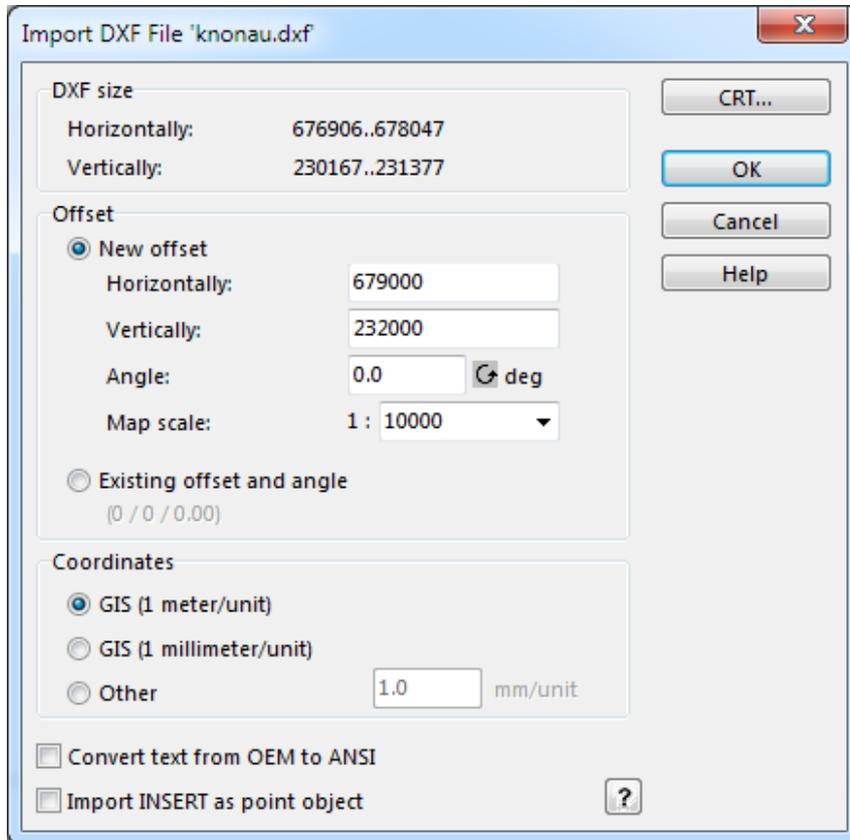
 Use **Convert Imported Layers to Symbol** from the **Map** menu to convert the imported objects from image objects to symbolized OCAD objects.

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]).

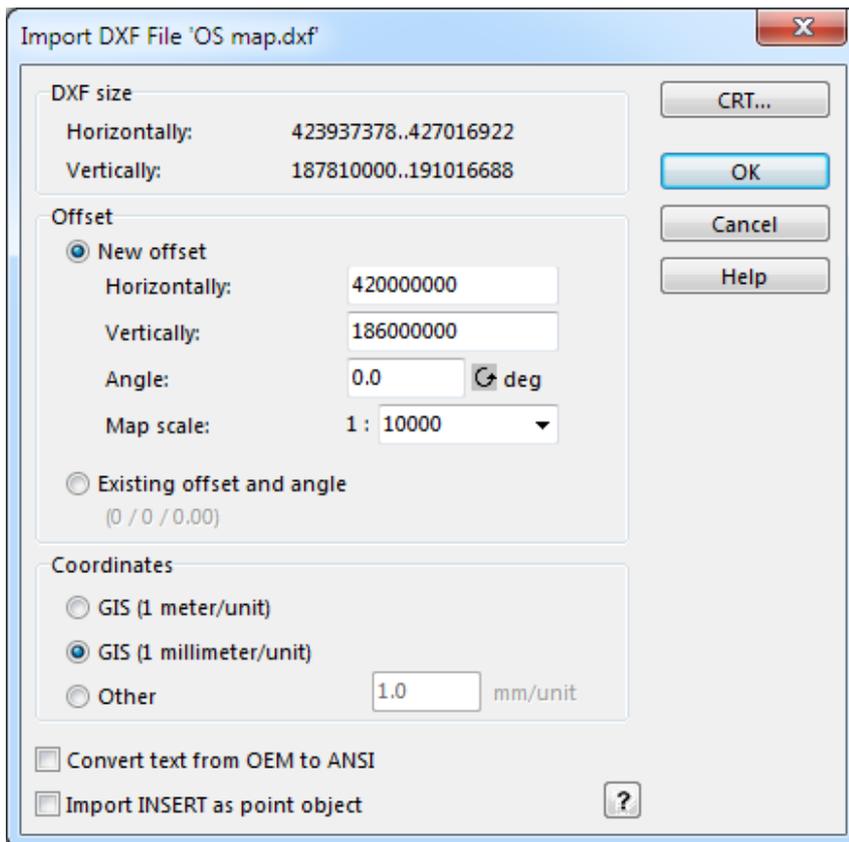
Choose a DXF-File (*.dxf) in the **Import** dialog and click the open button.



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.
 - **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.



- **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

ToDo

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 OSM Files Pro

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.

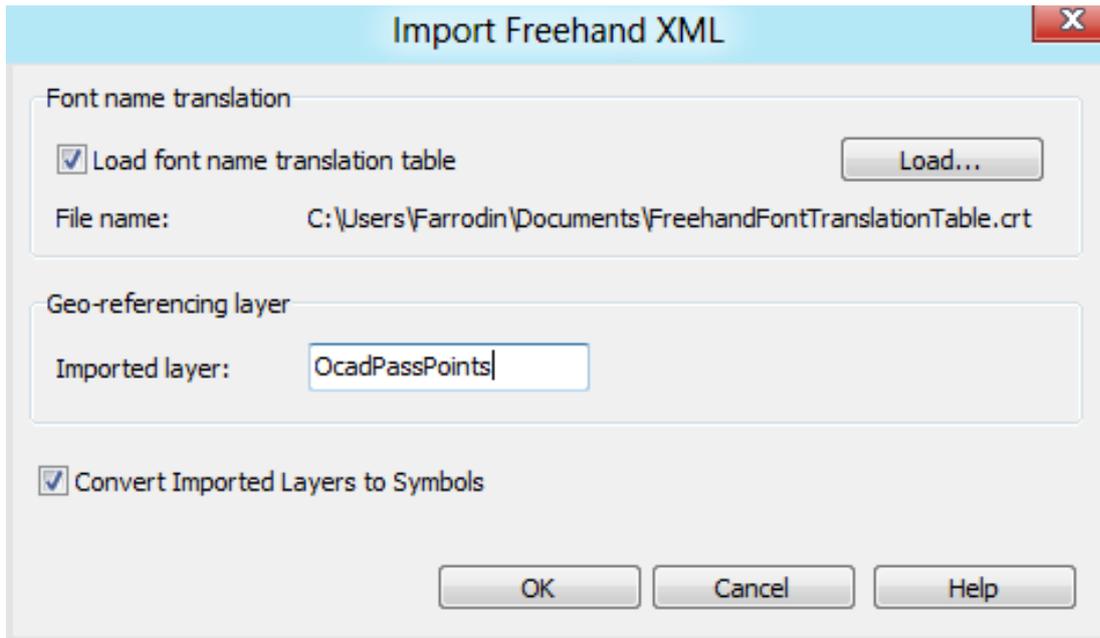
The PDF-File is displayed in the middle of the current view of the map. All objects are selected, hence, it can be easily moved to the desired position.

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 (*.rew) 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:

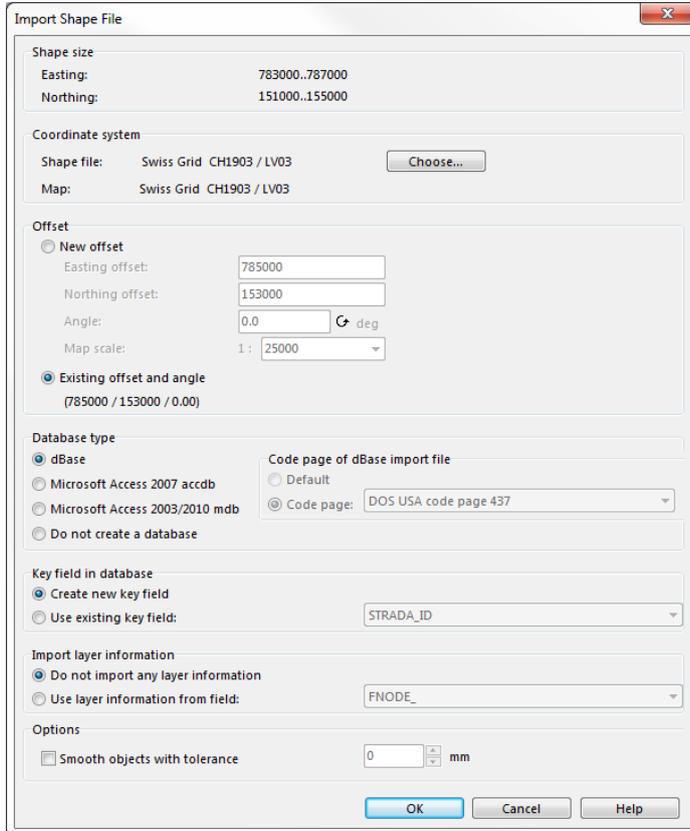
- Select this option if the imported layers should be converted to OCAD symbols. This step can be done also after the import by using **Convert Imported Layers to Symbol** from the **Map** menu.

Import Shape Files



Get some information about **Shape Files** on **Wikipedia** ^[2].

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.

Database type:

- Since OCAD 11 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.

Imported layer:

- **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.

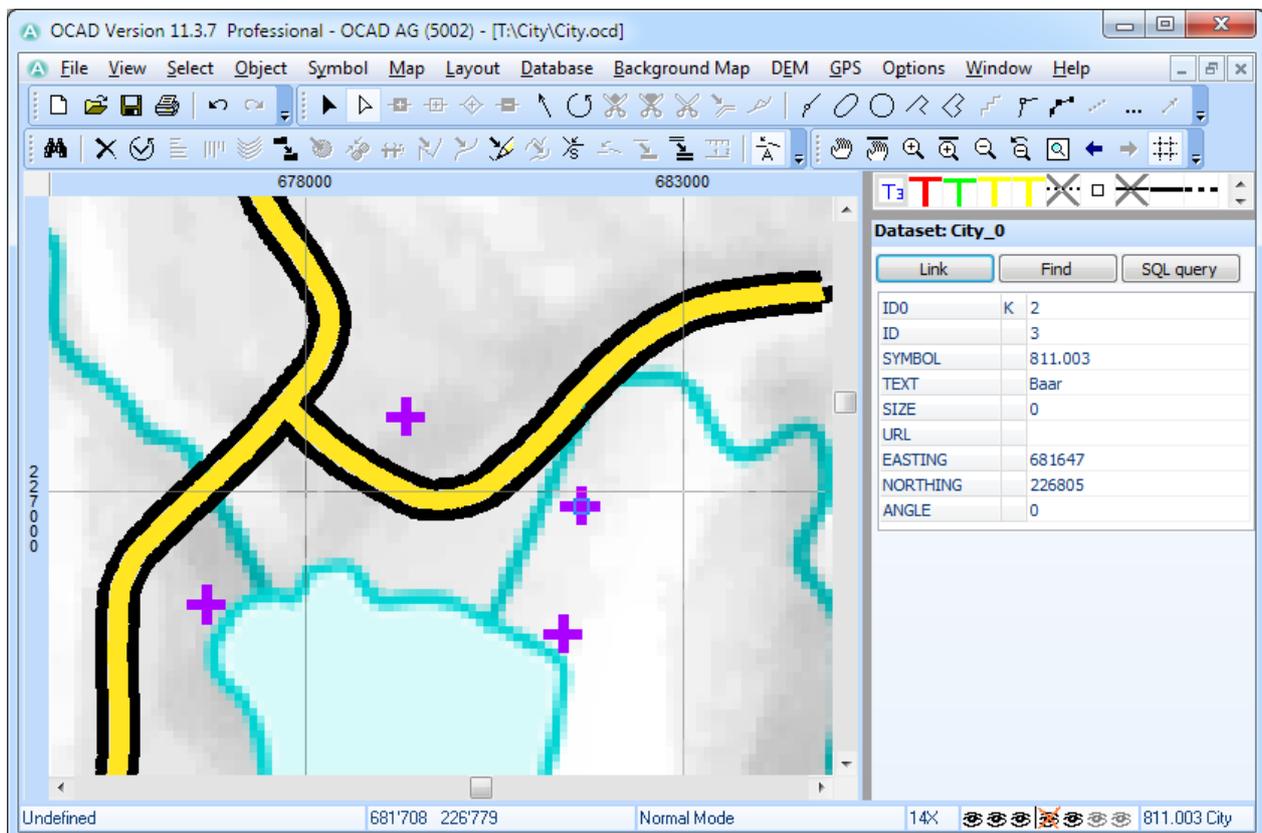
Smooth objects Additional option whether objects imported from shape file should be smoothed with a tolerance.

Import Text or Line Text Objects

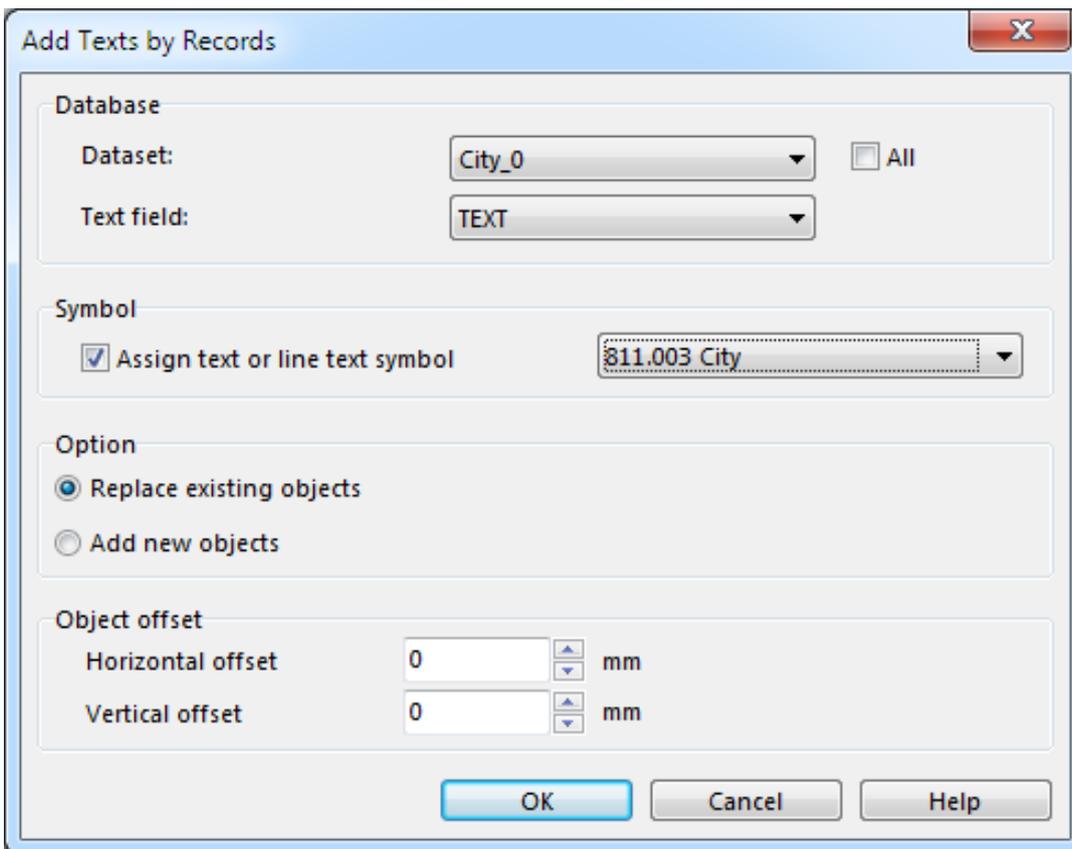
There are no text objects in Shape files. The texts like city names or river names are stored as attributes of the objects in the Shape file's dBase file. You can create text objects from imported point objects or line text objects from imported line objects by using **Add Texts by Records...** in the **Database** menu.

Example

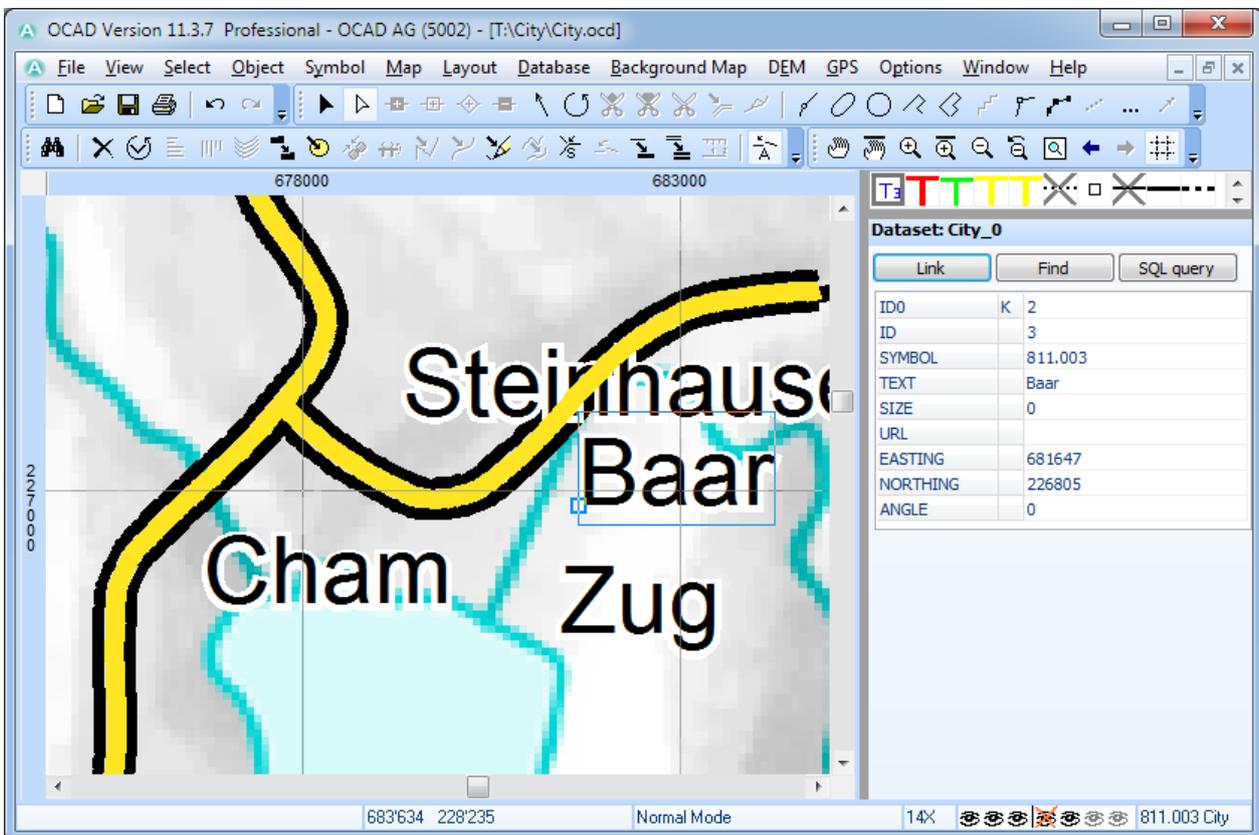
After importing the Shape file the objects appear in OCAD as unsymbolized objects. The label of the selected object is stored in the according database record ('Baar' in the field 'TEXT').



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 SOSI Files

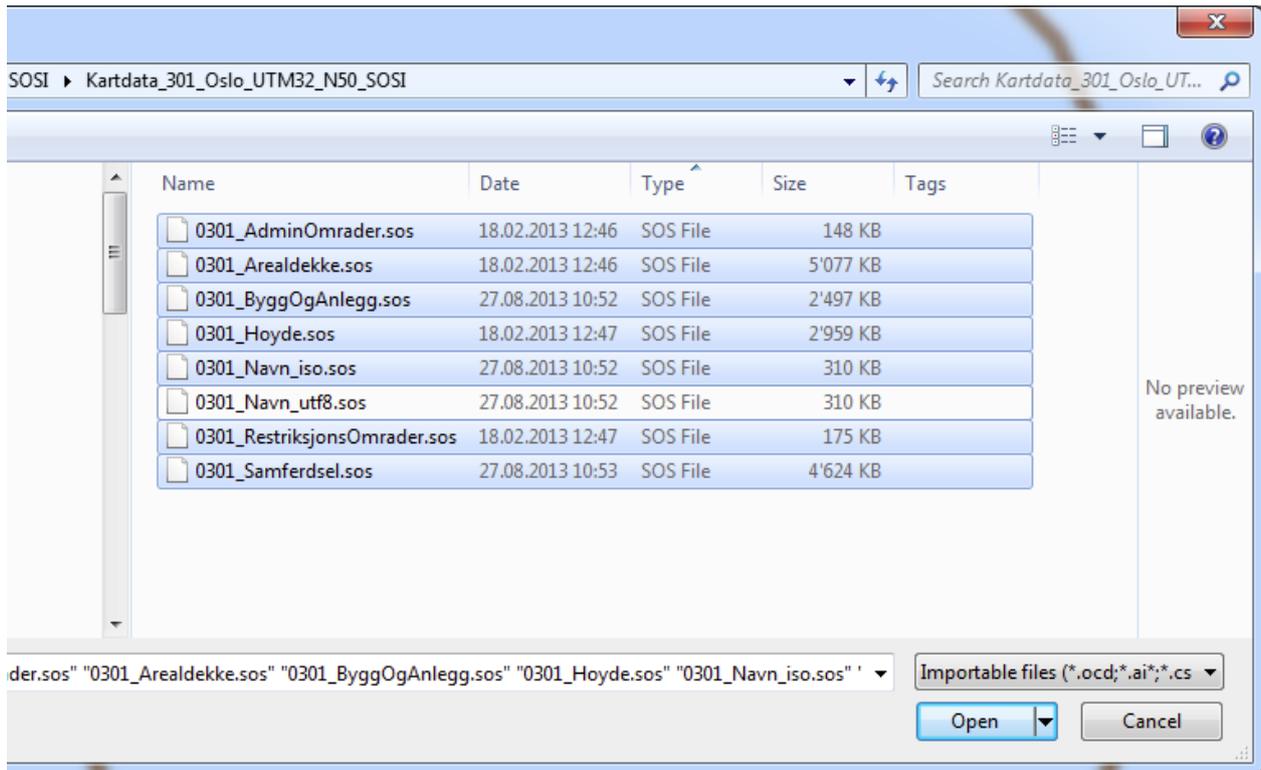
Pro Std

Choose this function import SOSI files. SOSI ^[3] is a much used geospatial vector data format predominantly used for exchange of geographical information in Norway.

The Norwegian Mapping Authority Kartverket ^[4] released its map data in SOSI file format for free use ^[5] 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.

Import SOSI File

SOSI extent

Easting: 582073..610362

Northing: 6629970..6669093

Offset

New offset

Easting: 596000

Northing: 6650000

Angle: 0.0 deg

Map scale: 1 : 10000

Existing offset and angle
(0 / 0 / 0.00)

CRT file

Filename: SOSI50_2_OCAD.crt X Choose...

OK Cancel Help

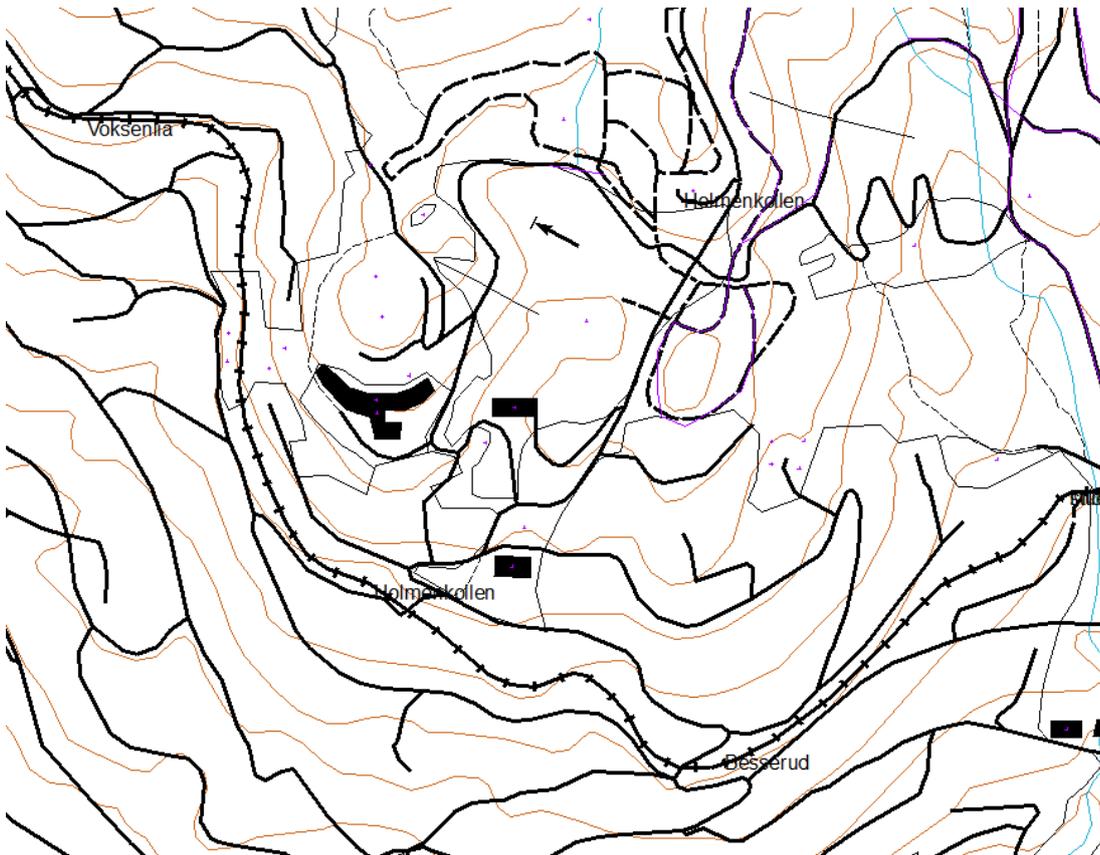
OCAD has already two predefined crt tables for Orienteering maps which assigns the imported layers to symbols. Both crt files are in the OCAD program subfolder *crt*.

- *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 ^[6]] 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 ^[7] in Wikipedia ^[8].

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.

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.

CSV File Example with Comma as Separator

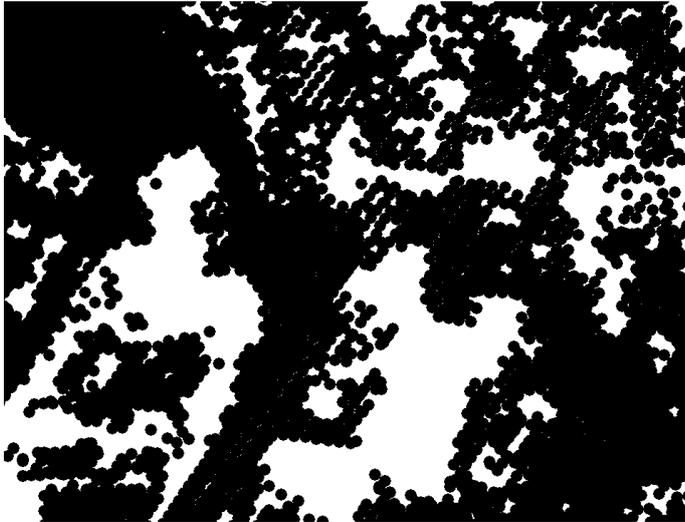
```
W13,457538.286,287921.422,105.426,A
W14,457530.267,287906.700,105.351,A
W15,457513.024,287892.899,105.736,B
W16,457509.835,287889.936,105.788,D
W17,457495.739,287896.681,106.758,C
```

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 (All Objects with Corresponding Symbol)** function in the **Object** menu or 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] http://en.wikipedia.org/wiki/Shape_file
- [3] <http://en.wikipedia.org/wiki/SOSI>
- [4] <http://kartverket.no>
- [5] <http://www.statkart.no/Kart/Gratis-kartdata/Last-ned-gratis-kartdata/>
- [6] <http://www.w3.org/TR/SVG11/>
- [7] http://en.wikipedia.org/wiki/Comma-separated_values
- [8] <http://en.wikipedia.org/>

Import Open Street Map Files

Pro

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.

View **Edit** ▾ **History** **Export**

Export Close

Area to Export

46.60013

7.93759 7.98961

46.57303

Manually select a different area

Format to Export

OpenStreetMap XML Data

Map Image (shows standard layer)

Embeddable HTML

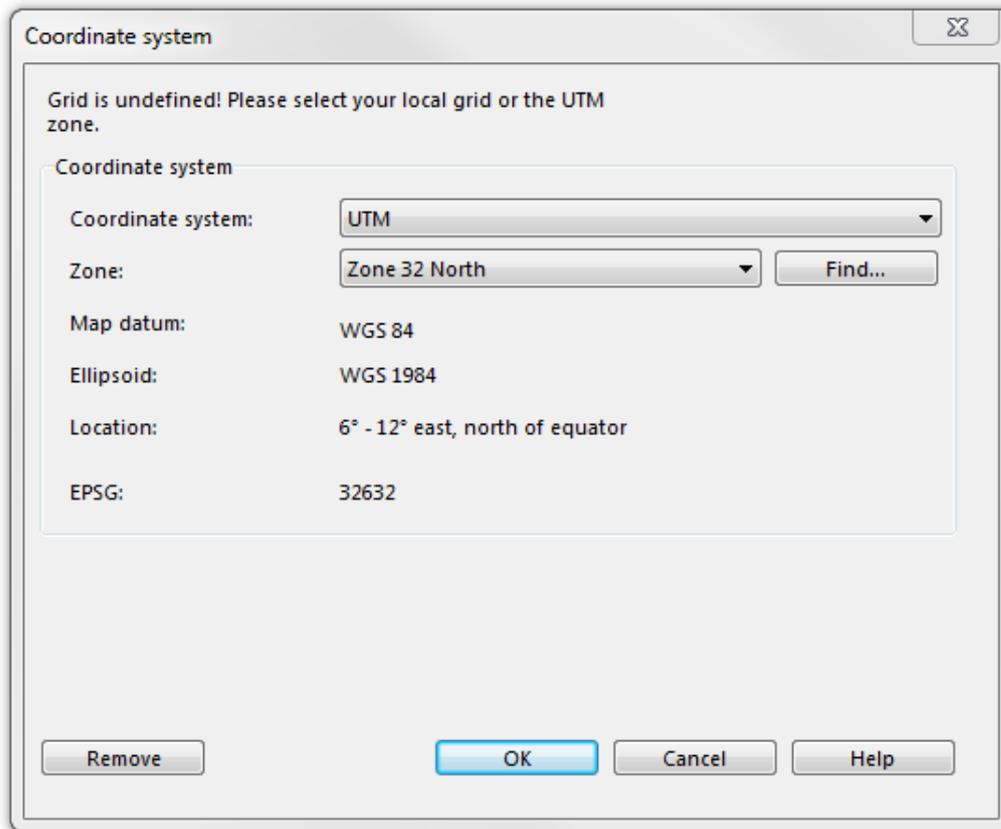
Licence

OpenStreetMap data is licensed under the [Creative Commons Attribution-ShareAlike 2.0 license](#).

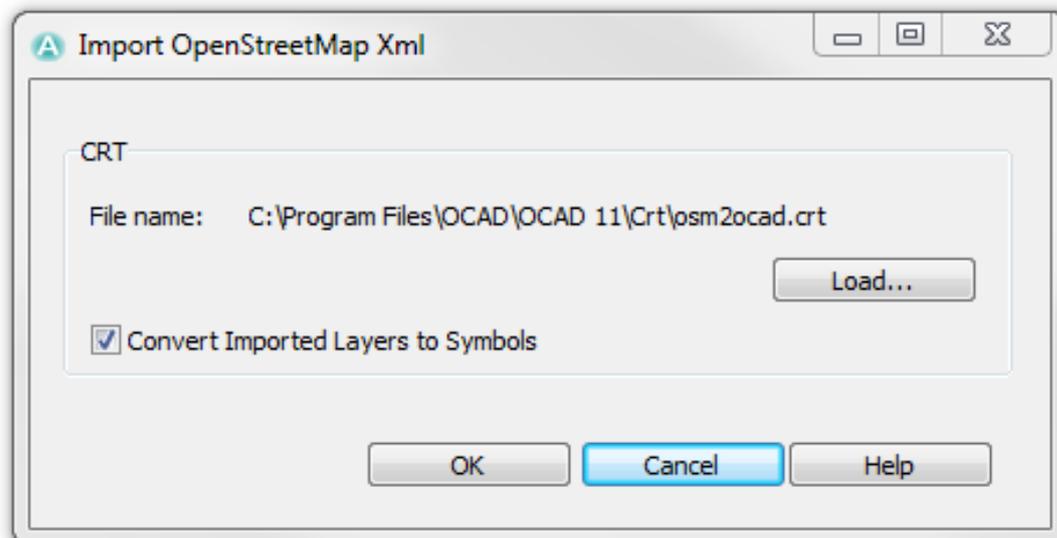
Export

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.

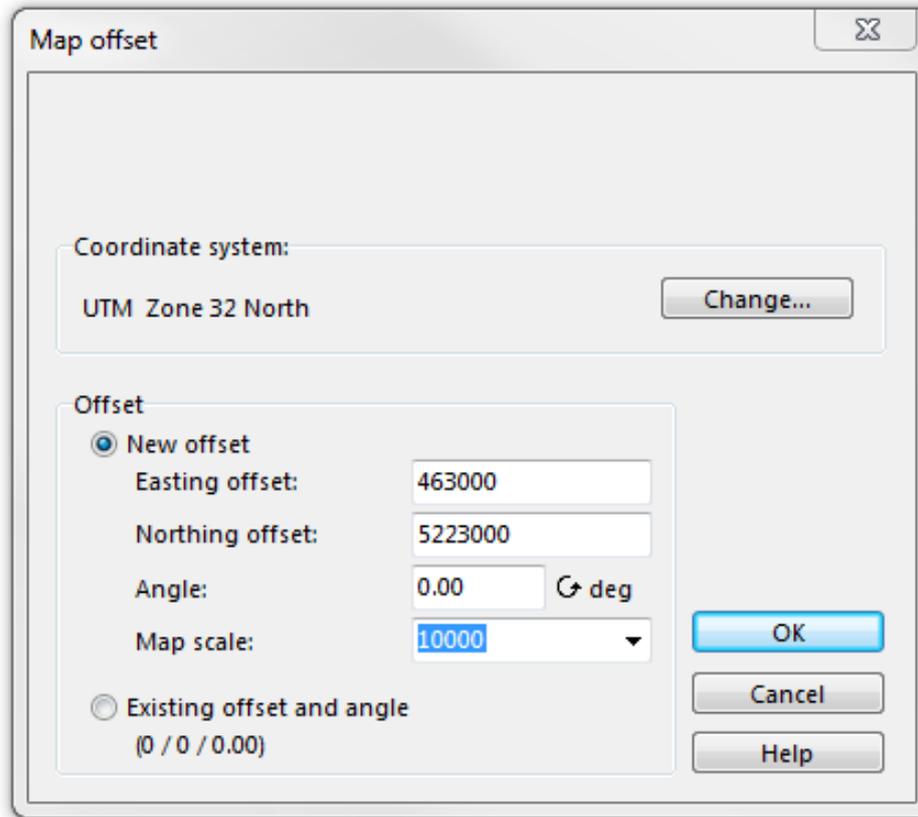


11. Click the **OK** button to continue.
12. The **Import OpenStreetMap XML** dialog appears. You have to load a CRT-File now. Learn more about CRT-Files on the **Cross Reference Table** page. The **osm2ocad.crt** file is used by default and fits with the chosen symbol set. If you uncheck the **Convert 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.

How to Import FreeHand Files

FreeHand ^[1] is a desktop publishing software from Adobe ^[2].

Building up line symbols in OCAD is different to FreeHand: For example, in OCAD a street line symbol, consisting of two side lines and a street panel, is depicted with a single line axis. In FreeHand the same street symbol consists of three line elements that are grouped. If objects from Freehand files are imported via an AI file into OCAD, only the effective line axes (point, surface and line geometry) can be imported.

For this purpose we recommend that you proceed as follows:

1. First of all generate the map symbols in OCAD by exporting the Freehand map legends in AI format (version 8) and importing them into OCAD. In this context consult our Howtos film: Constructing a point symbol from an Adobe Illustrator file ^[3]
2. Import the AI file with the map into OCAD.
3. Construct a CRT table by assigning the number of the AI symbol to OCAD's symbol number. You should only use the objects with the actual point, line and surface geometry.
4. Execute the script (translate planes). The point, line and surface geometries are assigned to the appropriate OCAD symbols!

See also: Migration of unstructured DTP maps

References

[1] <http://www.adobe.com/products/freehand/>

[2] <http://www.adobe.com>

[3] <http://ocad.com/howtos/56.htm>

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.

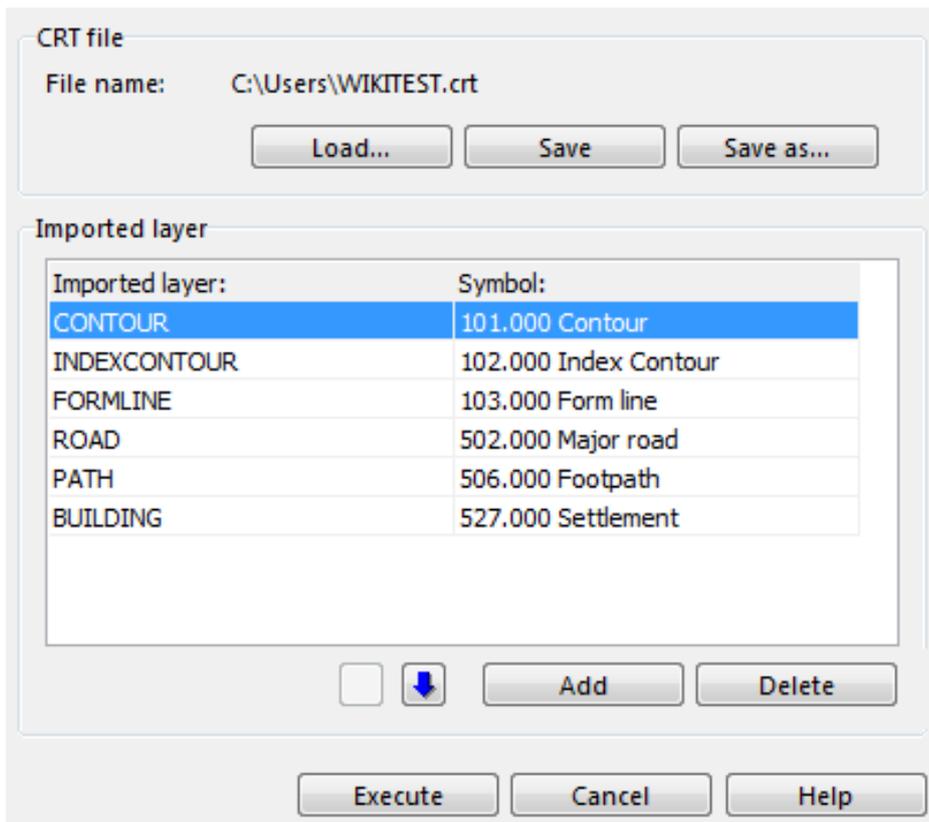
The following table from the **Convert Imported Layers to Symbols** function can be taken as an example. In the first column symbol numbers of the OCAD File are listed. In the second column the layer names are listed. The two columns are separated by a space character or a **[Tab]**. OCAD converts now 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:



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.



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
```

·
·
·

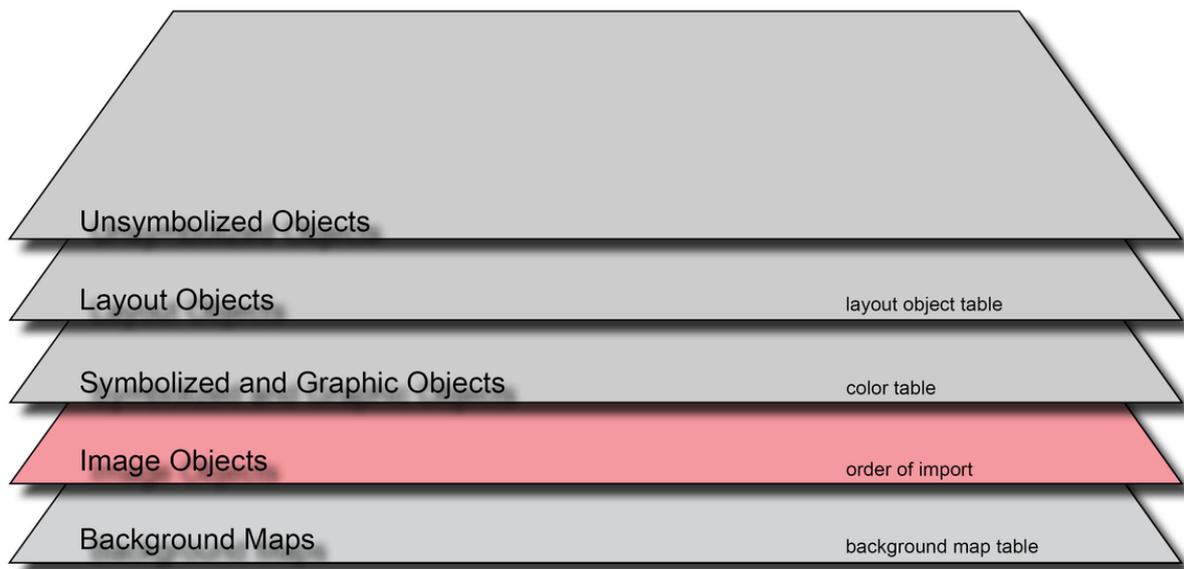
In the first column, the symbol numbers of the Open Street Map symbol set are listed. In the second column, the name of the corresponding Open Street Map object can be found.

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

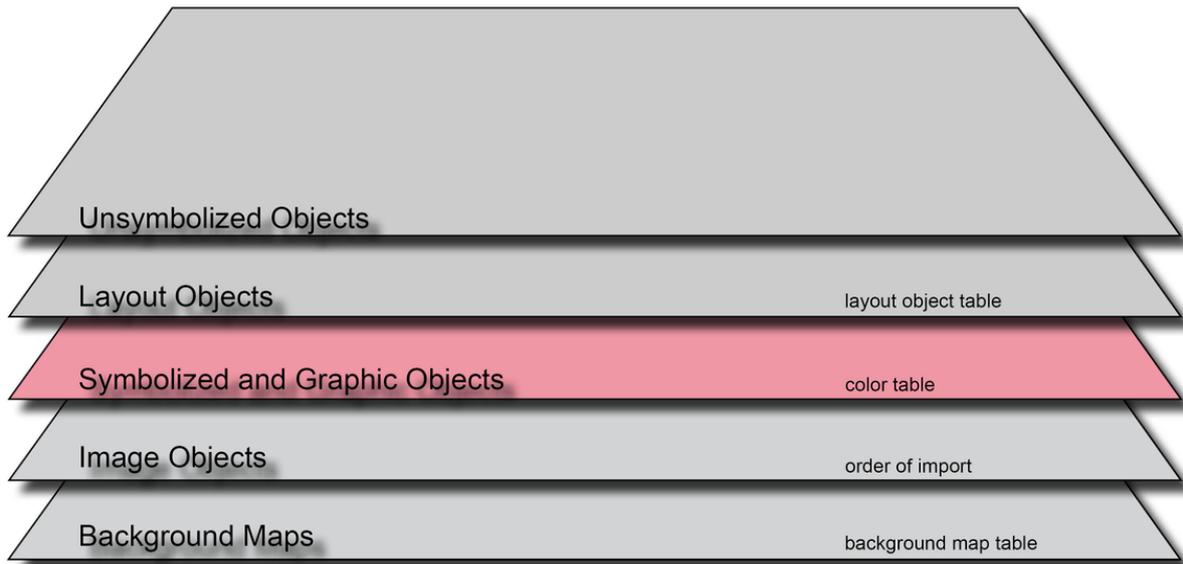
Image Objects



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]

Drawing an Object



Draw a Point Object



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

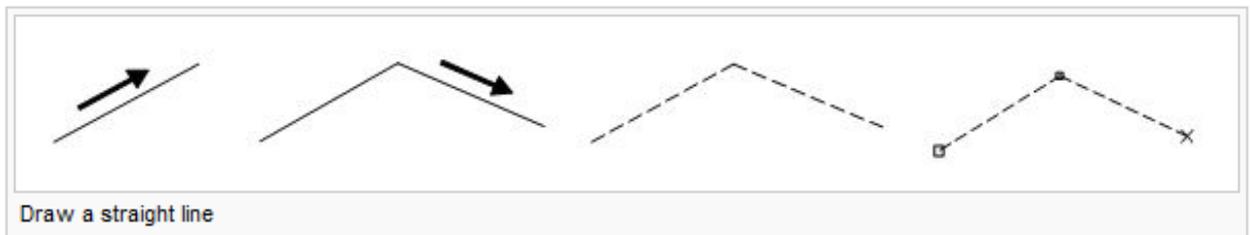


You must select one of the eight drawing modes to draw a line or area object.

- 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



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.

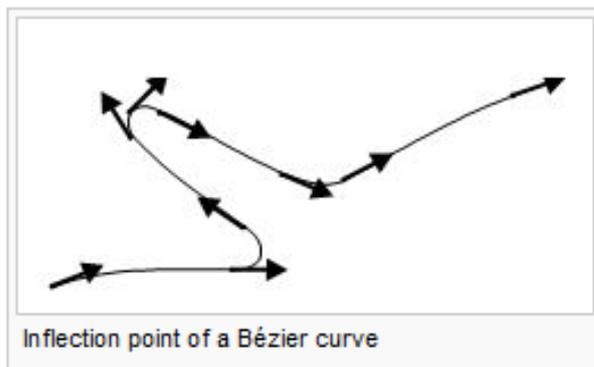
 Drawing straight object ^[2]

Draw a Curve

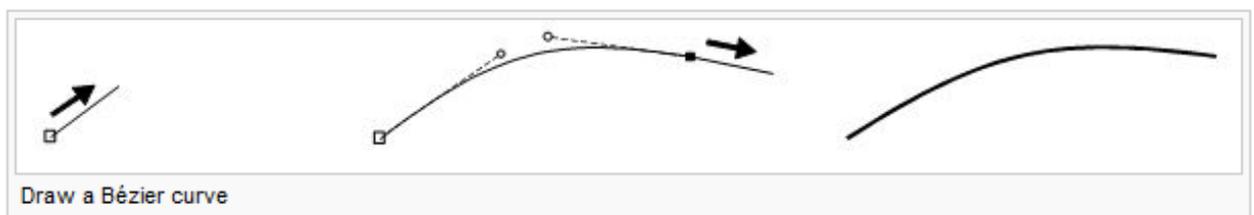
Pro Std Sta



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.

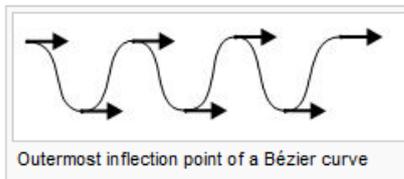


1. Select a line or area symbol from the symbol box.
2. Select Bézier-**Curve mode**.
3. Position the cursor at the point where you want to start the line, click and hold the left mouse button and drag the cursor to form the radius you want and release the left mouse button.
4. Position the cursor at 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.

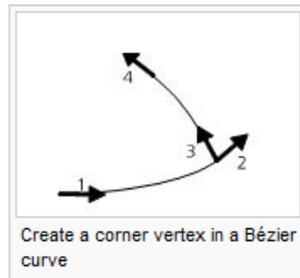


 -If you are unhappy with the tangent, simply click the **Backspace**  button. The last tangent will be deleted and you can try again. You can delete as many tangents as you like up to the beginning of the line. This is not possible once the object has been completed.

-Sinuous lines can be managed easily by placing tangents at the outermost points.

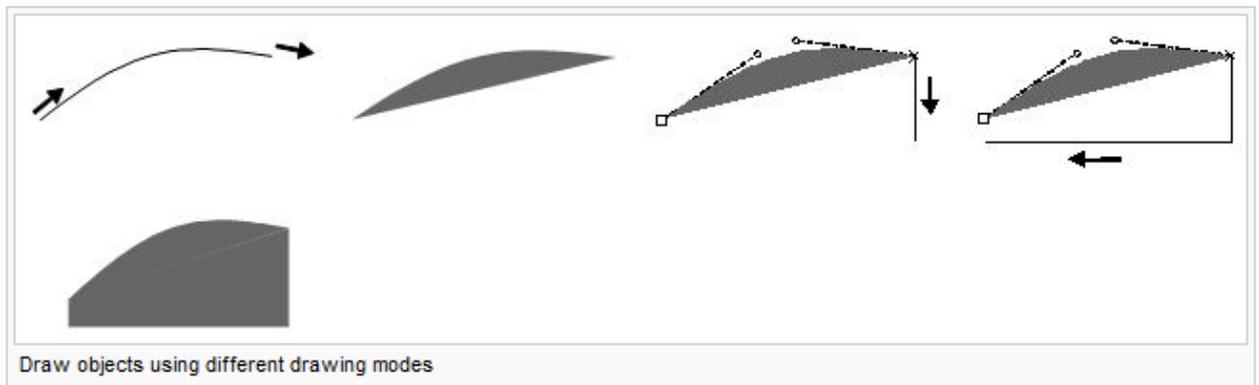


💡 You can force a corner vertex by dragging two tangents from the same vertex point. **Curve:** Tangents 2 and 3 start at the same point but move in different directions. A corner vertex is created.



🖱️ 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.

Draw a Freehand Line

Pro Std Sta



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

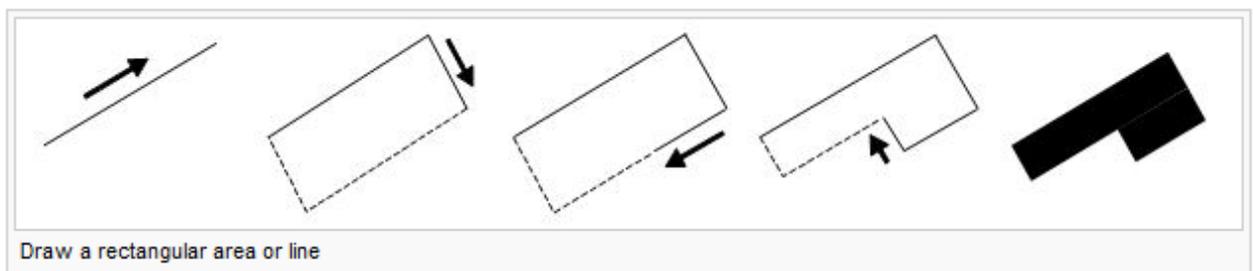
Pro Std Sta



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.

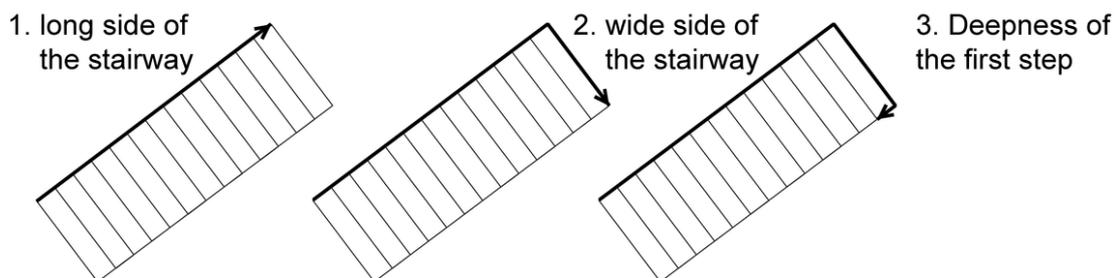
Draw a Stairway

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



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



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]

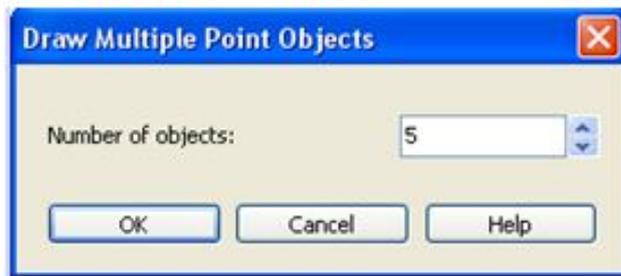
Draw Multiple Point Objects

Pro Std



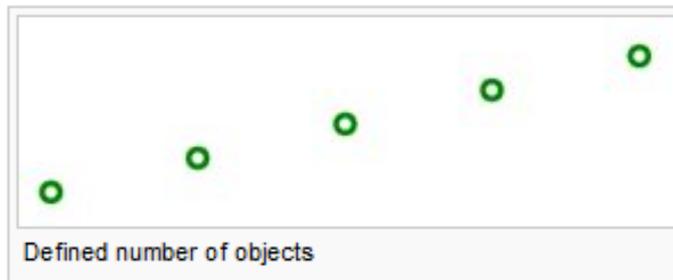
This drawing tool is used to draw several point objects that are placed on a line with a constant interval.

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.

 Numerical 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.

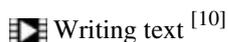
Place a Text Object



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.

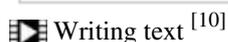
Place a text object

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**.

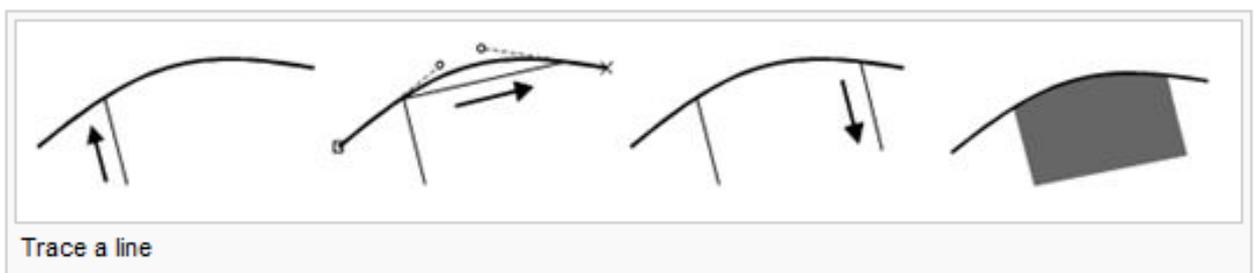
Following Existing Objects

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]

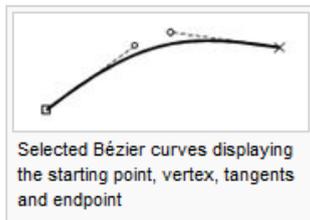
Edit a Vertex

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.



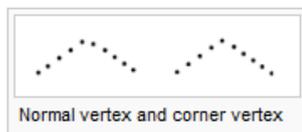
 Drawing curves ^[3]

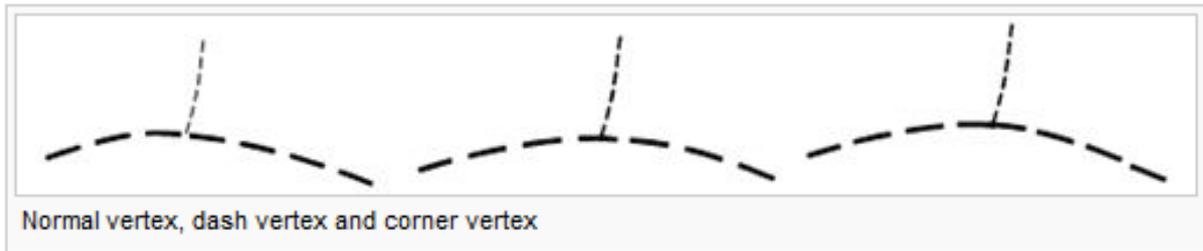
When drawing broken or dotted lines in OCAD, the dashes and spaces always have the same length. You will never get half dashes or spaces; the dashes are distributed proportionally across the entire object. However, if you add a corner vertex, the dashes before and after the vertex are calculated separately. 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]

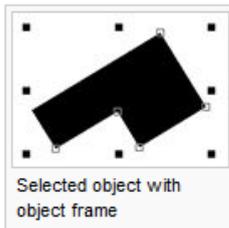
Further information about **Vertices**.

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.

 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



- **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.

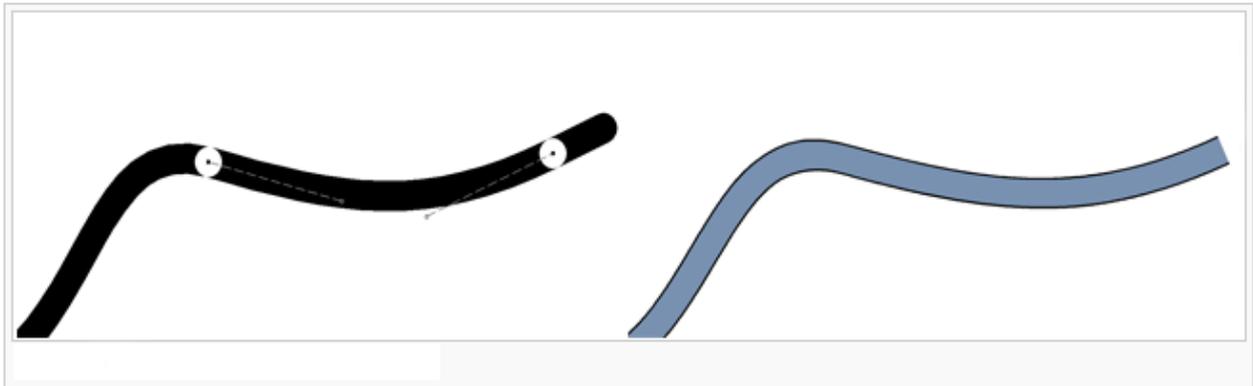
 [Snapping ^[1]] Note: The snapping tolerance is in **Drawing and Editing** page (not GUI).

References

[1] http://www.ocad.com/howtos/134_Snapping.htm

Live Preview

Click to turn it on **OCAD Preferences** in the menu **Options** and check **Enable Live Preview** in the category **Drawing and Editing**.



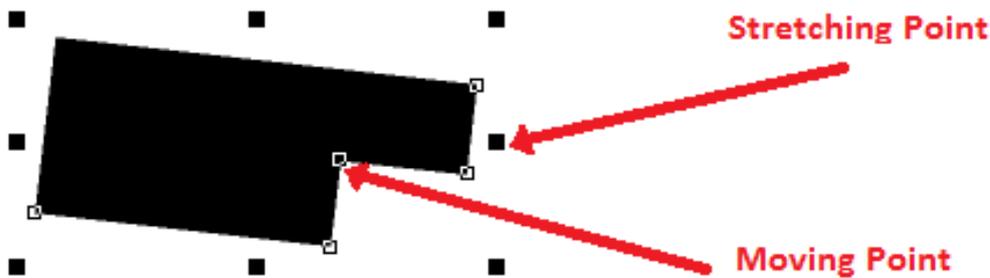
Select

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.

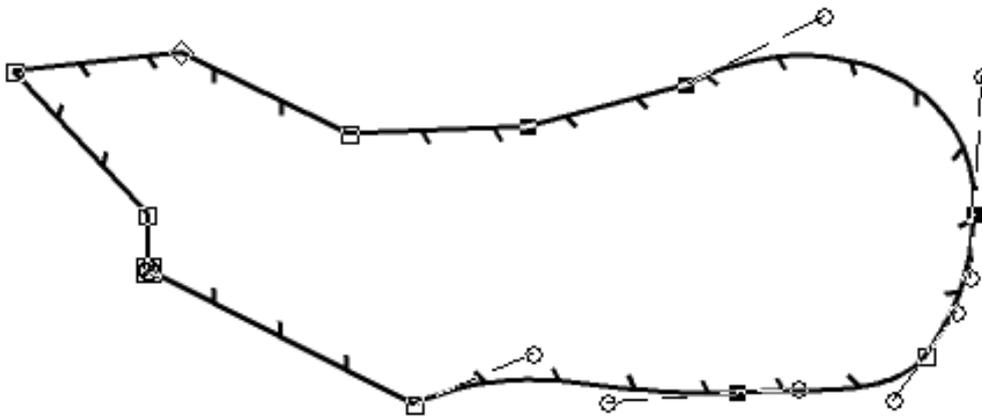
💡 If you have enabled the **Auto select symbol when selecting object** option in the **Symbol** category of **OCAD Preferences**, the corresponding symbol is automatically selected when selecting an object. This does not work for a selection of multiple objects.

💡 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.



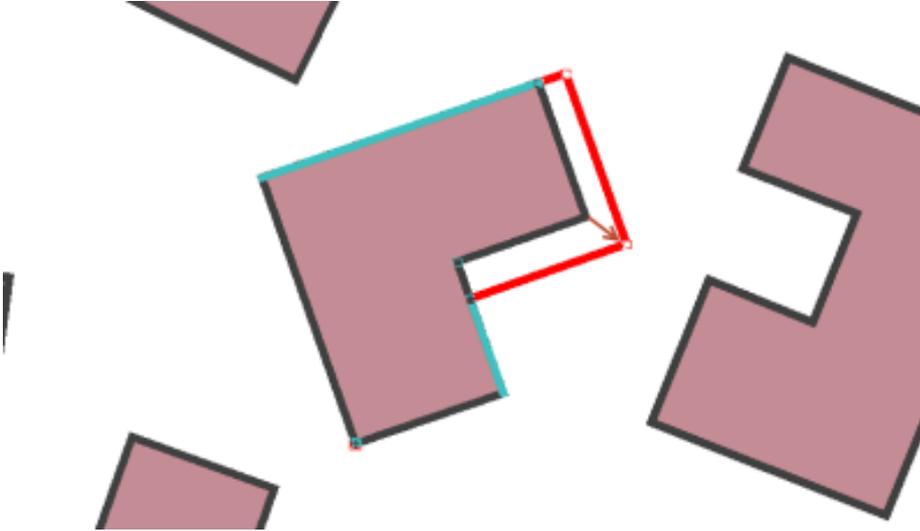
You can select multiple objects on the same time with this method.

💡 While moving vertices, a draft line shows the connection to the previous and next unmoved vertex.

Move Single Vertices

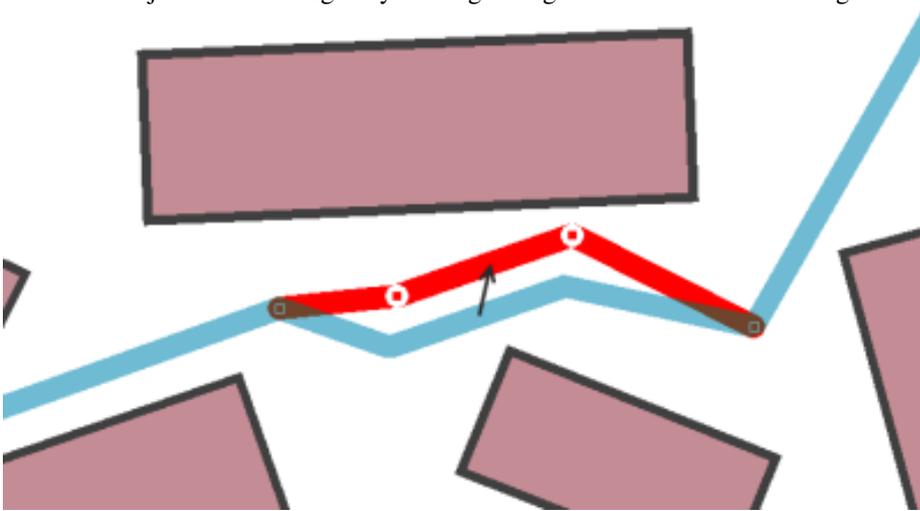
Once an object is selected you can move a single vertex of the selected object. Simply drag the desired point to the new position. It's possible as well to double click on a vertex and move it then with the arrow keys.

- 💡 The selected vertex gets shown a little bigger.
- 💡 Right angles are kept by holding down **SHIFT** key while moving a single vertex.

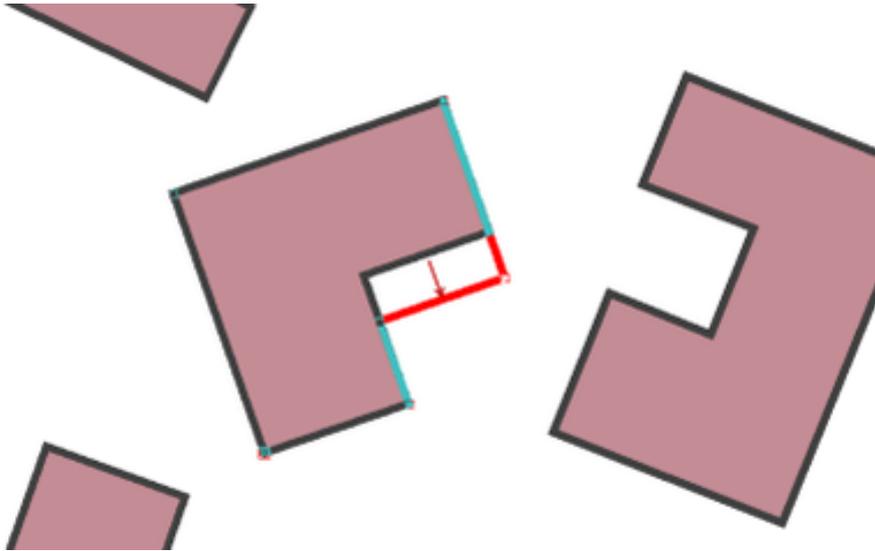


Move a Segment

A selected object can be changed by moving its segments. Just click on the segment and drag it.

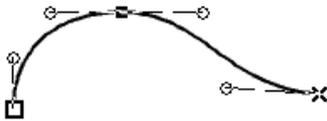


- 💡 The moved segment doesn't get transformed, but the ones it is connected to.
- 💡 If a corner is rectangular, the angle will be kept and the segment can be move only along this/these straight/s.



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.

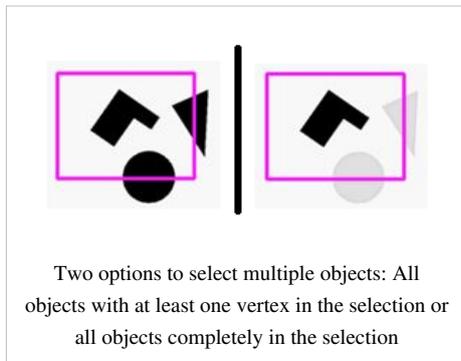
- 💡 If you select an object in the **Select Object and Edit Vertex**  mode, you can move it using the arrow keys on the keyboard.
- 💡 If you select an object in the **Select Object and Edit Vertex**  mode and then **double click** on a vertex, the mark gets bigger and the vertex can be moved by using 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



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

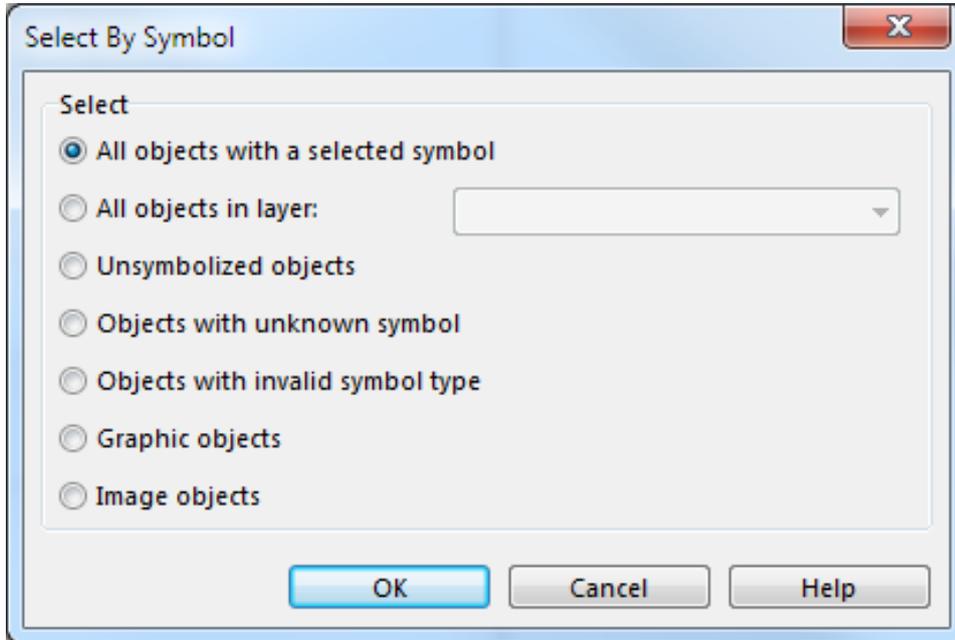
1. Choose **Select Object with Lasso Tool** in the **Select** menu or click the **Select Object with Lasso Tool** icon  in the Editing and Drawing Toolbar. The transparent arrow with a loop behind shows that you are now in the **Select Object with Lasso Tool** mode.
2. Draw a Freehand line by holding 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

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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.

Unsymbolized objects

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.

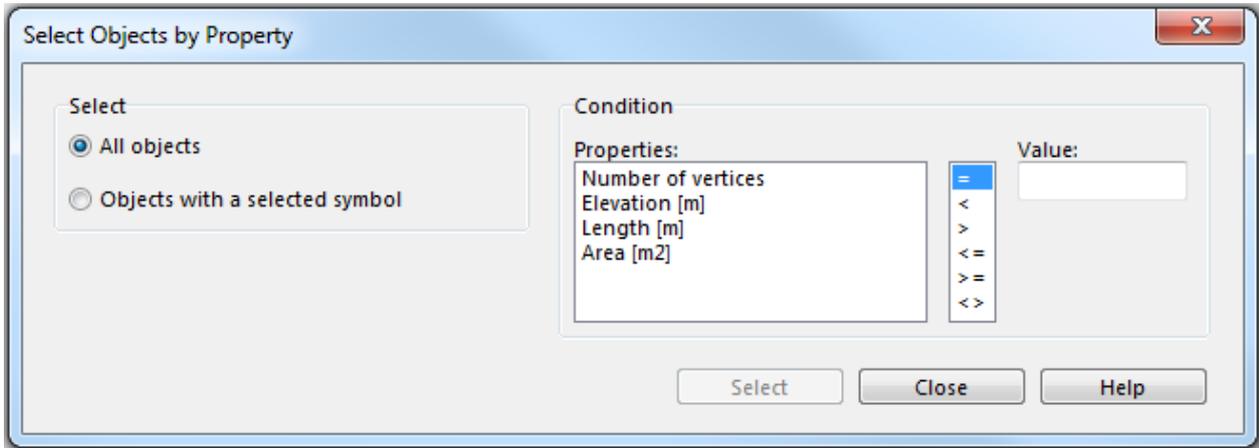
Image objects

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

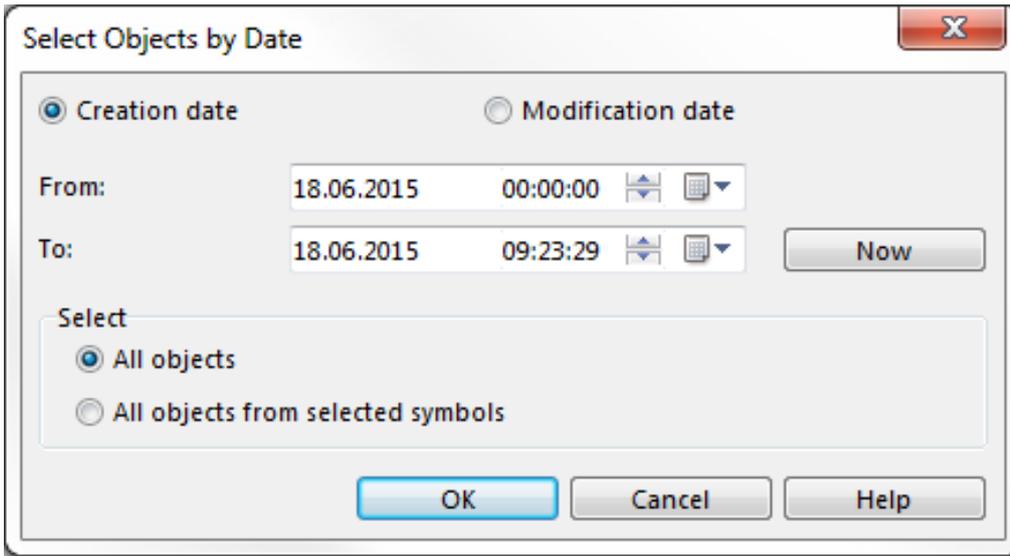
With this function objects can be selected either by their **Creation date** or **Modification date**. It also allows to differ between **All objects** and **All objects from selected symbols**.

💡 **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.

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

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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.

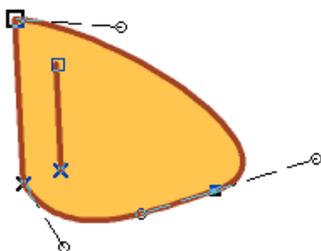
The following objects are selected:

- **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).

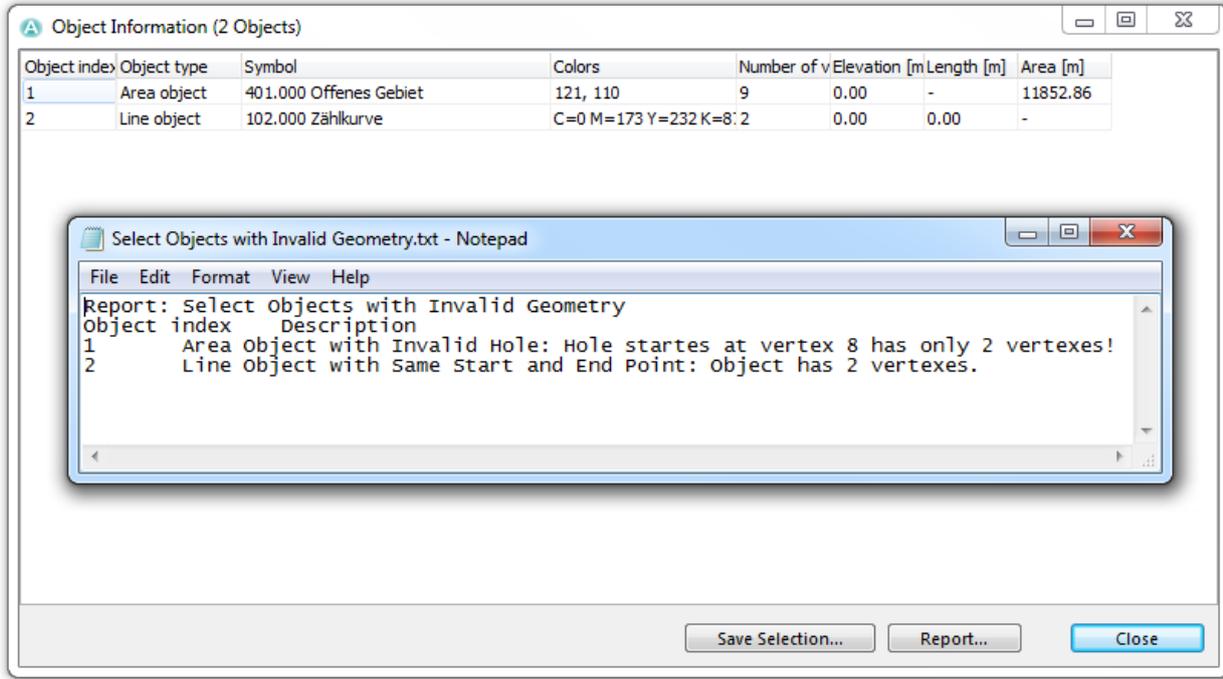


- **Area object with an invalid exterior ring:** An invalid exterior ring can be a ring with only one vertex (see illustration).
- **Graphic object with invalid object type:** **Graphic Objects** are either areas or lines. OCAD selects all other types.

- **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.

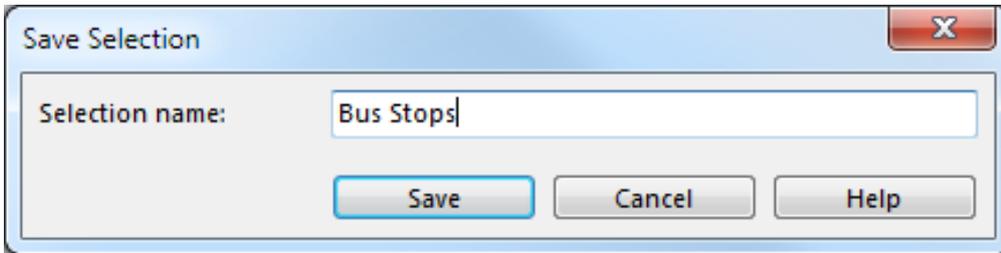
Select Next Object Pro Std

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.

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.

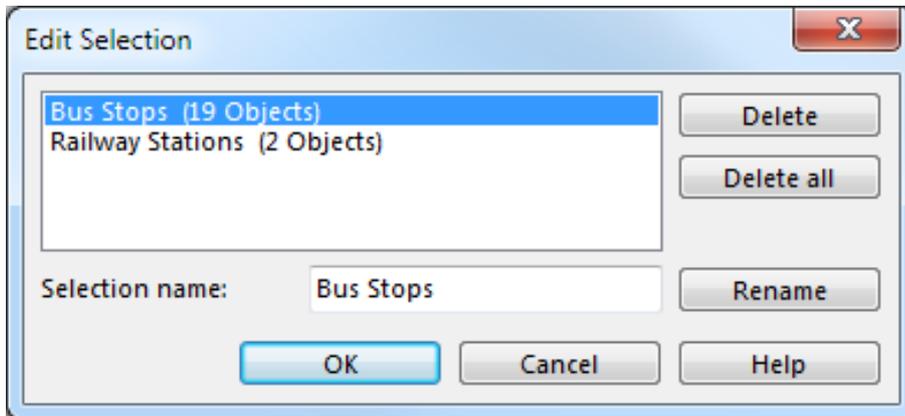
Select one object in the list and OCAD selects this object in the drawing area in the edit mode.

 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.



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



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



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



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



Select **Rotate (Enter Angle)** in the **Rotate Object** submenu of the **Object** menu to rotate the selected object(s) by angle. This function is only enabled when an object is selected. The **Rotate (Enter Angle)** dialog appears. Enter an angle in degrees and click the **OK** button to finish the process.

The rotation center is the center of the selected object except for text objects, where the anchor point is the rotation center.

Align Objects

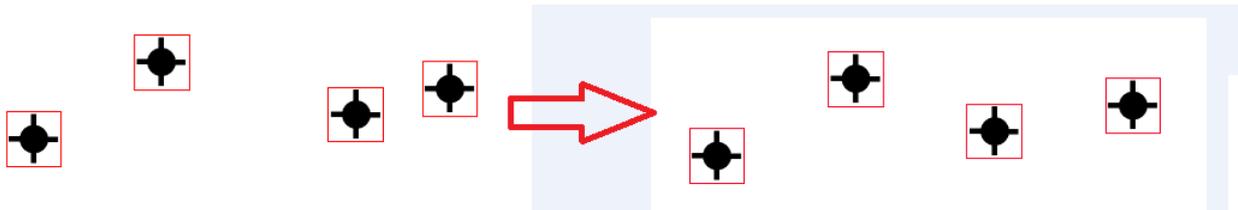
Pro Std

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.

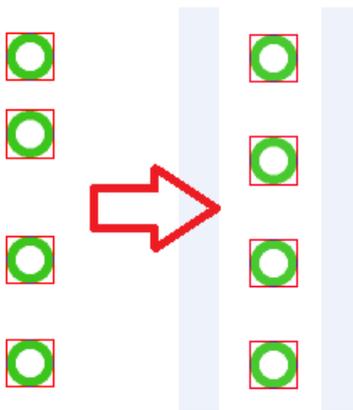
Distribute Objects

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.

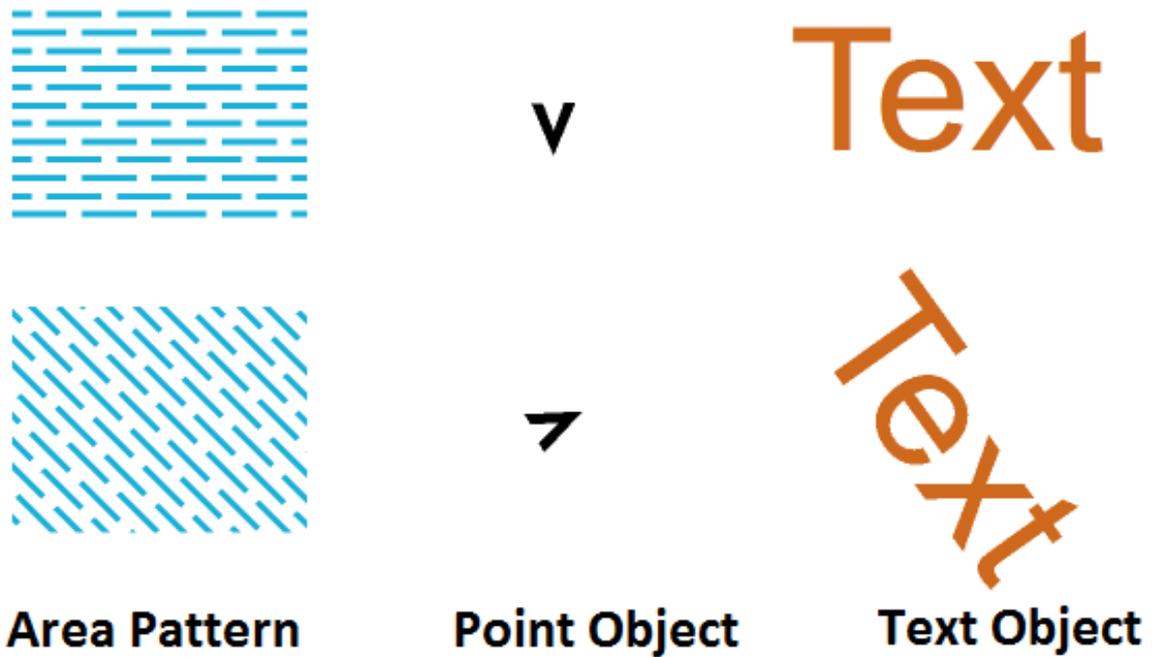


Indicate Direction of Area Pattern or Point or Text Object

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**

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

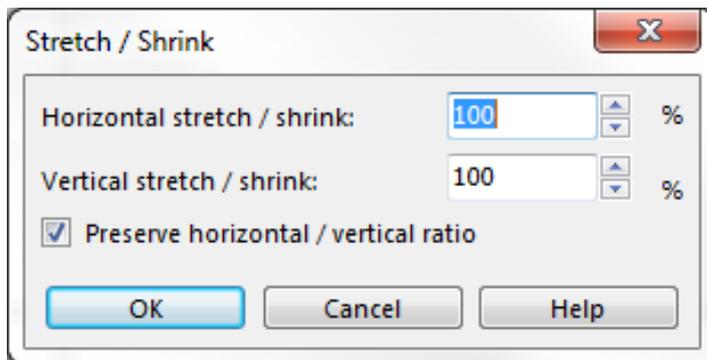
Visit the **Move and Duplicate** page to get some information about this function.

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



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 (at most 0.25 mm). After using this function, the merged line objects are selected.

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]

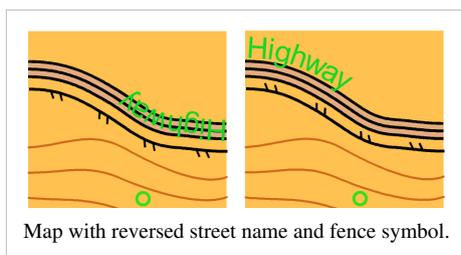
Reverse Object Direction



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



Learn how to group and ungroup objects on the [Group and Ungroup](#) page.

Find and Replace Text



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

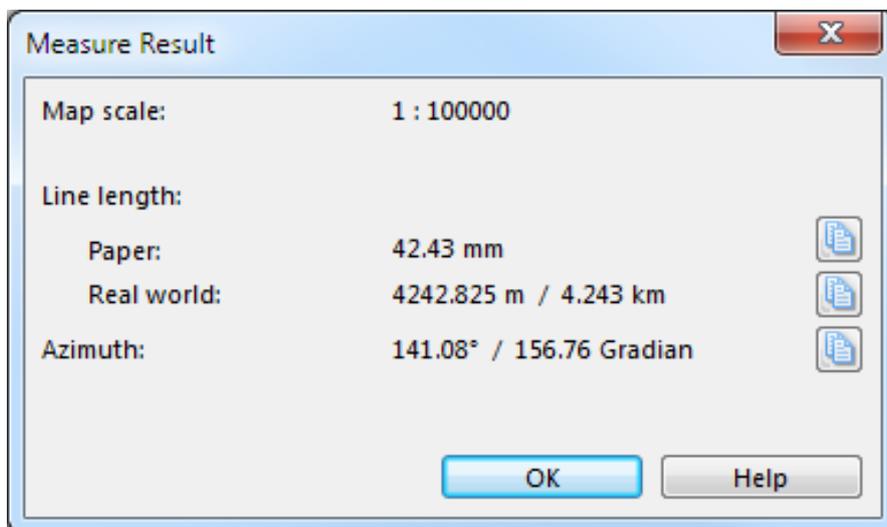
Visit the **Insert Glyphs** page to find information about glyphs in OCAD.

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.

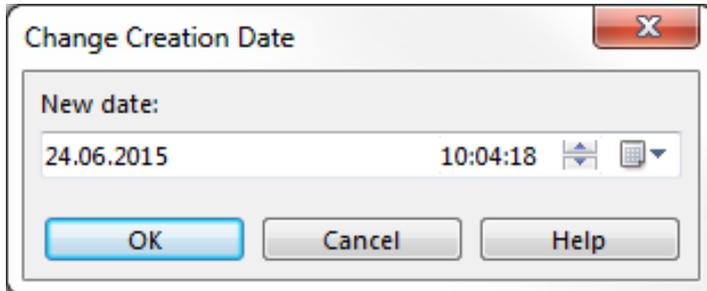
Change Creation Date

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).

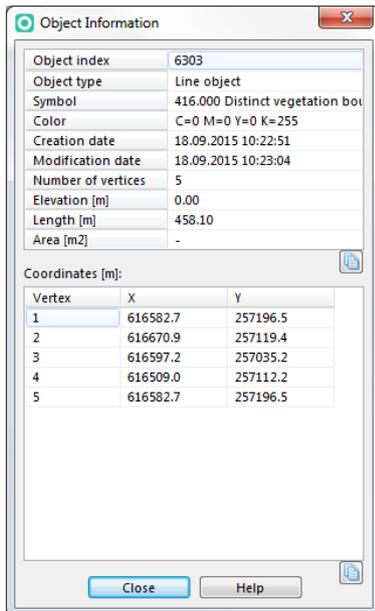
Object Information



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>

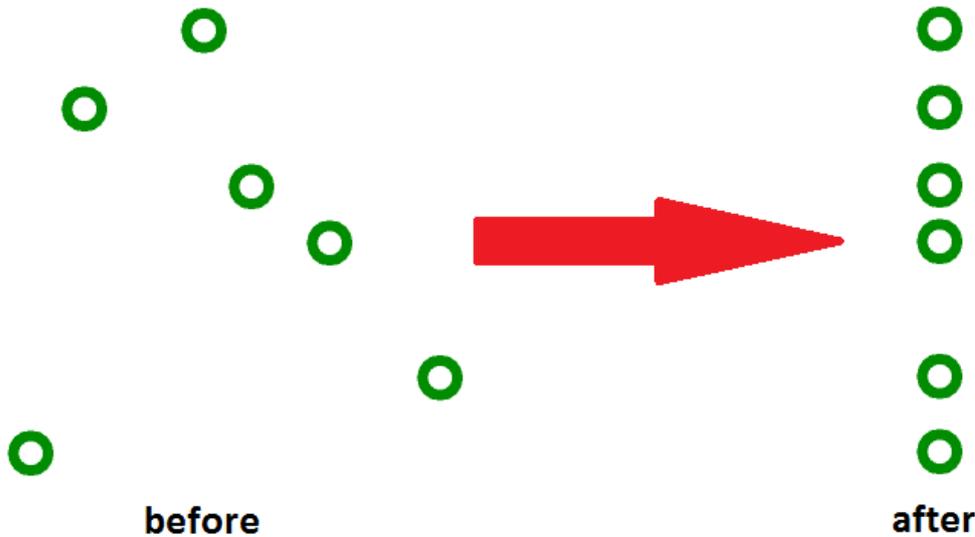
Align Objects

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 allignement orientates itself on the bounding box of the objects.

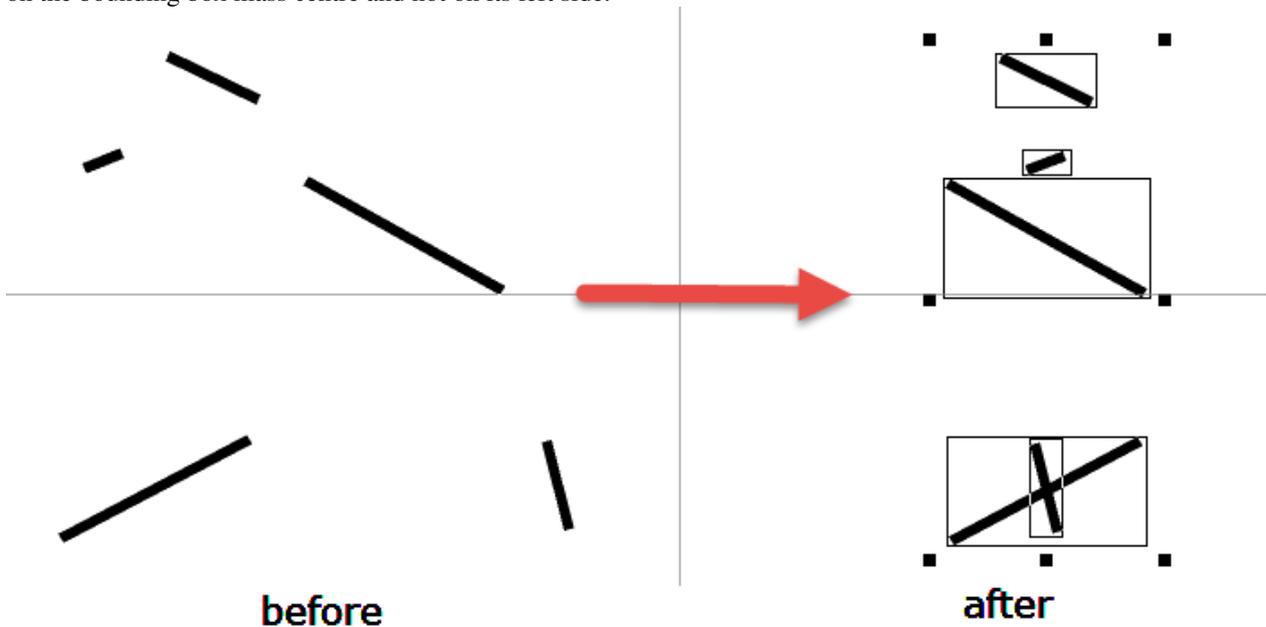
Align Object: Horizontal Coordinate

The selected objects are moved horizontally to the position of the first drawn object.



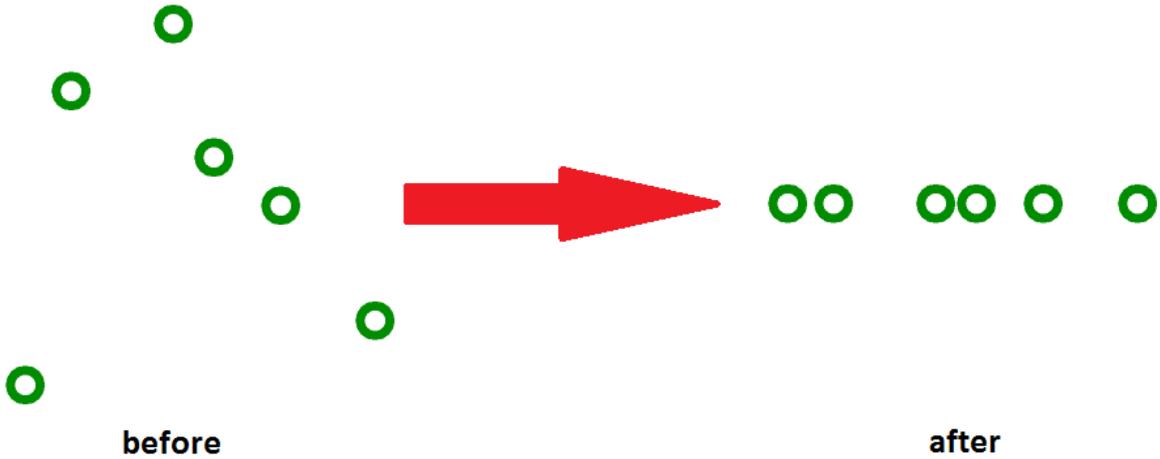
Object: Horizontal Coordinate Centered

The selected objects are moved horizontally to the position of the first drawn object. The allignement orientates itself on the bounding box mass centre and not on its left side.



Object: Vertical Coordinate

The selected objects are moved vertically to the position of the first drawn object.



line, area and text objects the alignment is related to the position of the objects' first vertex.

For

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**.

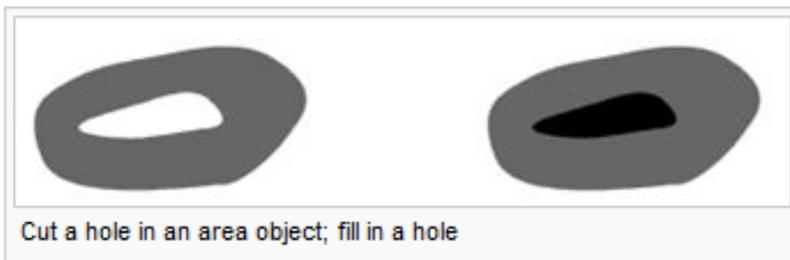
Cut Hole Pro Std Sta CS

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



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



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 (introduced in OCAD 10), 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:

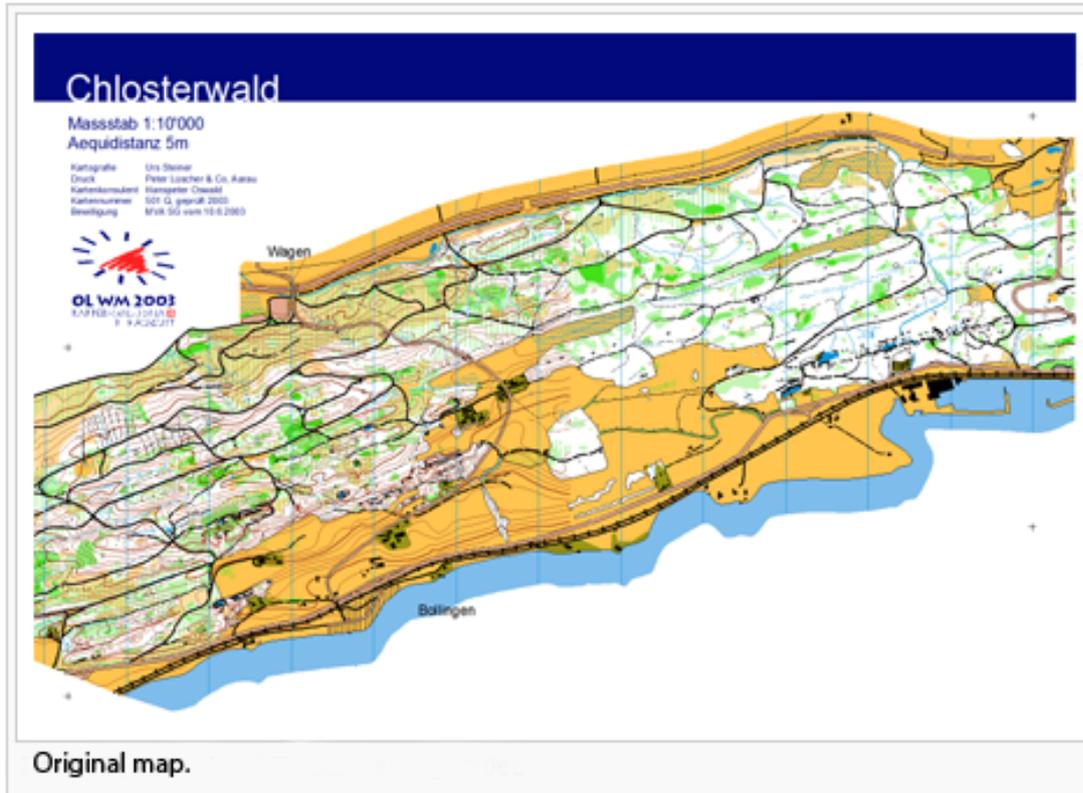
- **Use cropping rectangle:** All desired objects outside of a rectangle are cropped. Move and adjust the rectangle to the desired position and size.
- **Chosen line or area object** All desired objects outside of a line or area object are cropped. Click the **Choose selected cropping object** button to choose the cropping object. Check the option **Delete cropping object** to delete the selected cropping template after cropping.

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.



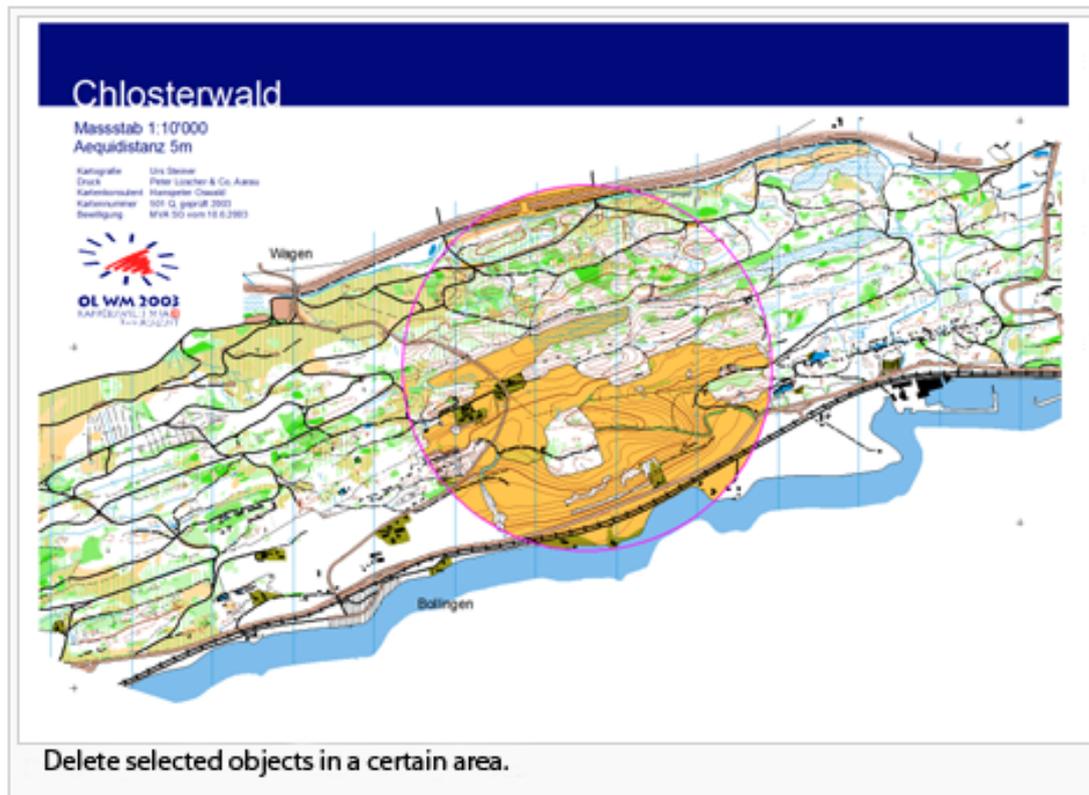
Create a hole

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. Select **All objects from selected symbols** and mark the symbols in the symbol box which have to be cropped.
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 point 3 and 4 it is also possible to use the **Use cropping rectangle** option.
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.

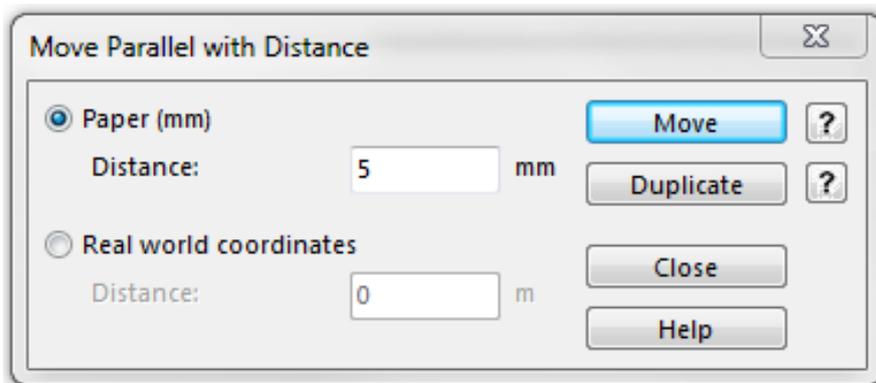
1. Select a line, line text, or area object.
2. Choose the  **Move Parallel** function.
3. Drag a vertex of the selected object in the desired direction. A help line with vertices gives a preview of the parallel moved object.
4. Drop the object to finish parallel moving.

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.

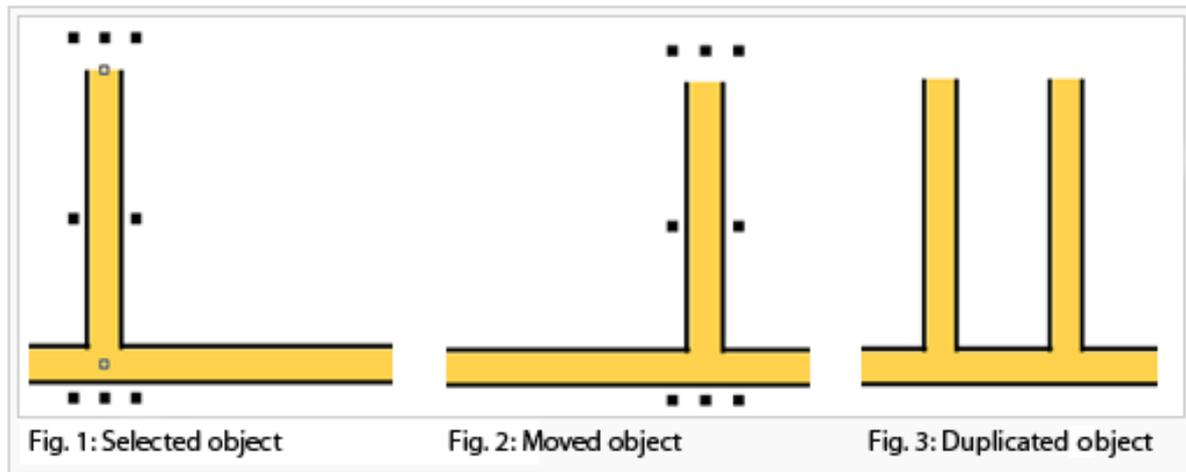
Move and Duplicate Parallel by Specified Distance

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.
5. Click the **Close** button to close the dialog.



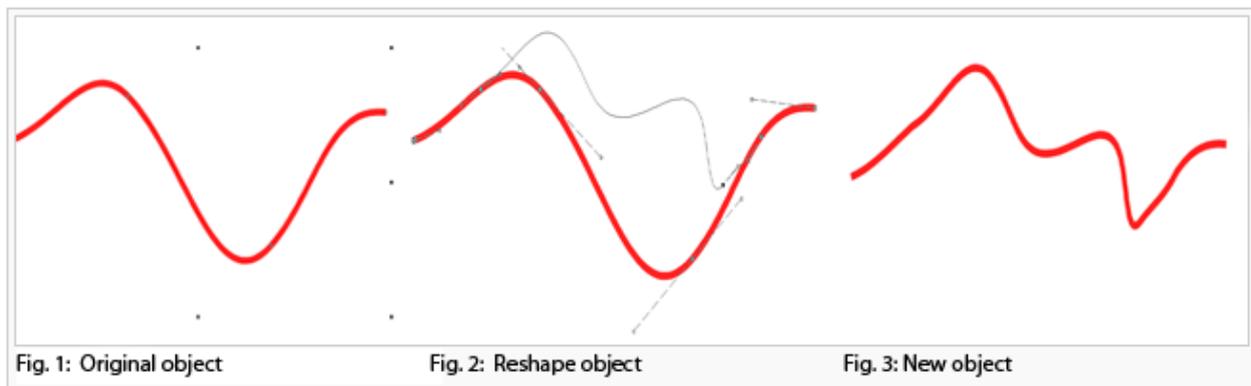
Back to the **Edit Object** page.

Reshape

Pro Std

With the **Reshape** function you can edit the shape of a line, line text or area object easily.

1. 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.
2. When you are in the **Reshape** mode, click on a desired place of the selected object and draw a new shape. Reshape must start and end on the selected line or on the border of the selected area.



 [Reshape^[1]]

Back to the **Edit Object** page.

References

- [1] http://www.ocad.com/howtos/132_Reshape.htm

Interpolate Objects

Pro Std

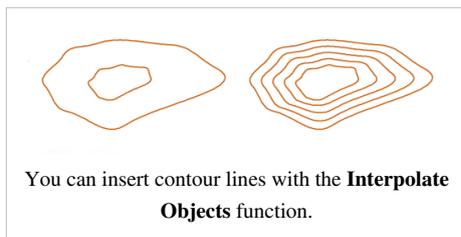
This function is available if two point objects or two line objects are selected. Both line objects must have the same number of vertices! The function can be found either in the **Object** menu or when you click the  **Interpolate Objects** icon in the **Edit Functions Toolbar**.

You can either...

- ... interpolate line objects like contour lines or
- ... interpolate point objects e.g. when you want to draw an avenue.

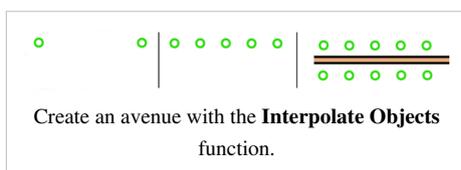
Line objects

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



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.

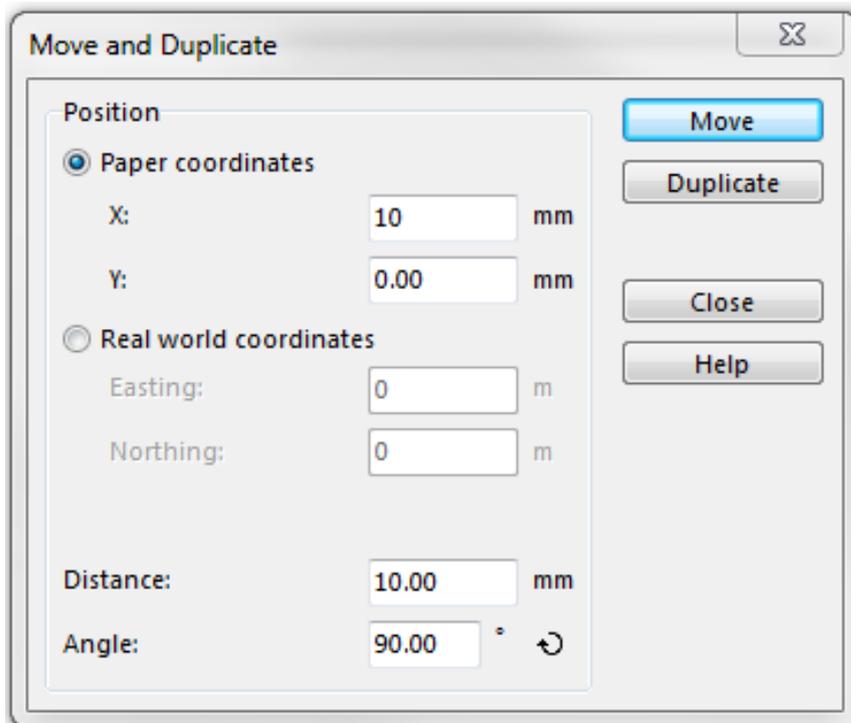
Click this button to duplicate (create a copy of) the selected object(s). The cursor changes automatically to the **Select and Edit Object** mode, which allows you to move the new objects to the desired place. Visit the **Select and Edit Object** page to get some information about moving objects.

Move and Duplicate

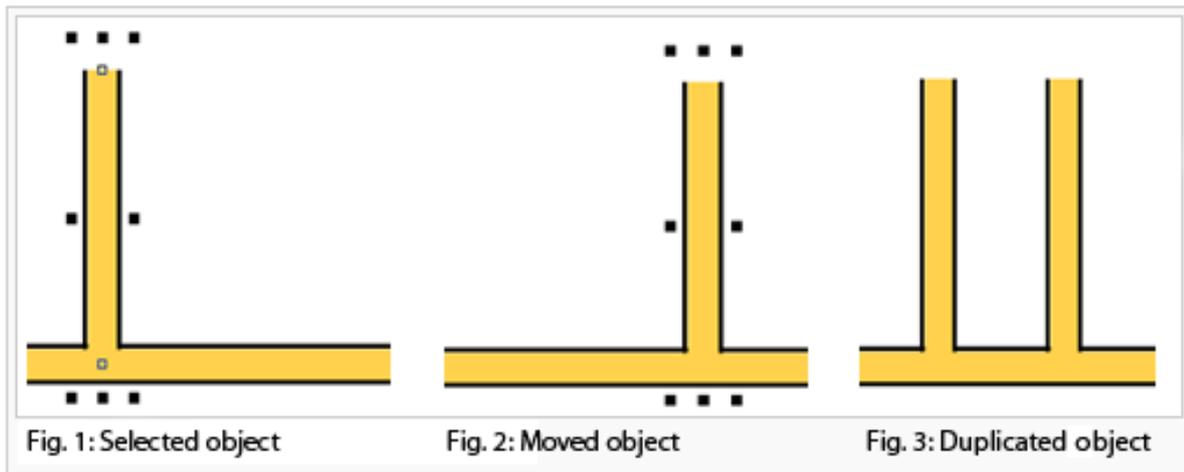


Choose this function in the **Object** menu to move and duplicate an object. This function is activated if at least one arbitrary object is selected.

1. Select one or more object(s).
2. Choose the **Move and Duplicate** function.
3. The **Move and Duplicate** dialog box appears.



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.

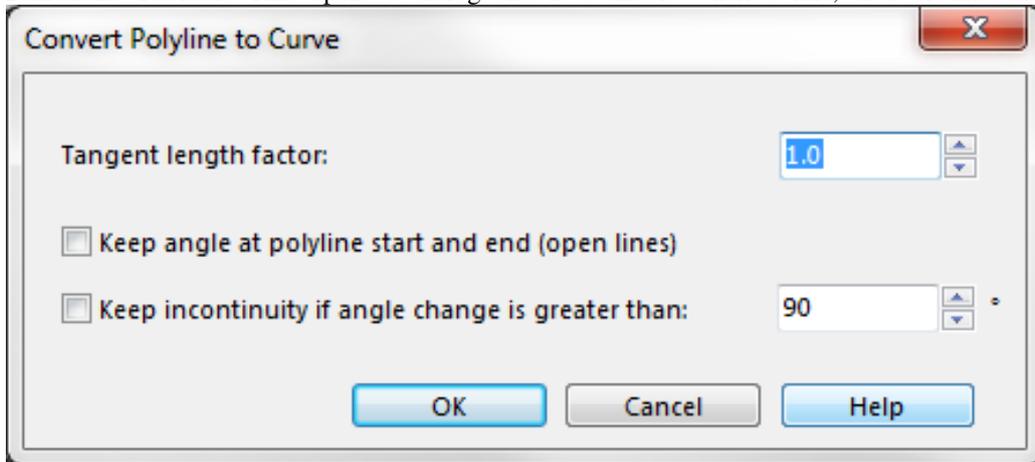


Define the **Smooth** tolerance in the menu **Options - OCAD Preferences** - category **Drawing and Editing**.

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.



 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.

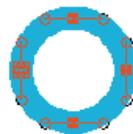
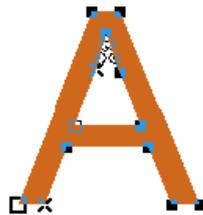
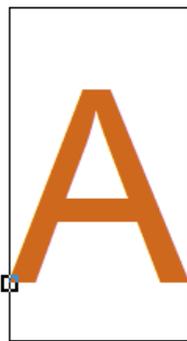
Convert into Graphic Object

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

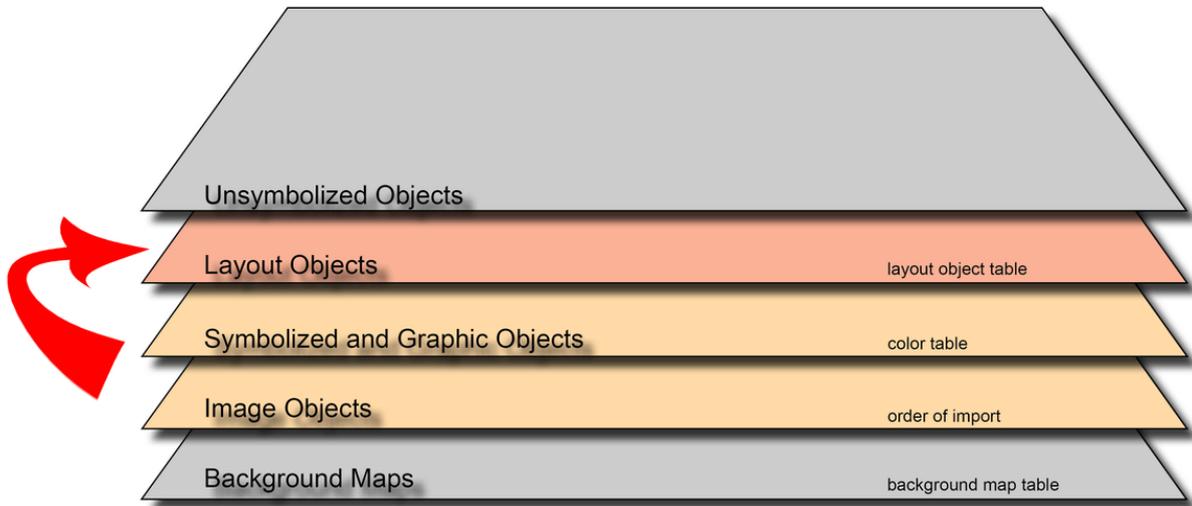
Symbolized text objects are converted into graphic area objects. A point object is taken apart in its fundamental components which are line or area objects, in this case a blue line object (circle).

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.

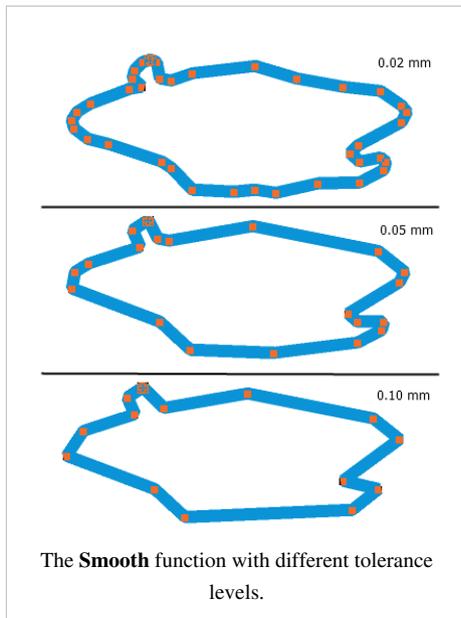
Smooth

Pro Std Sta

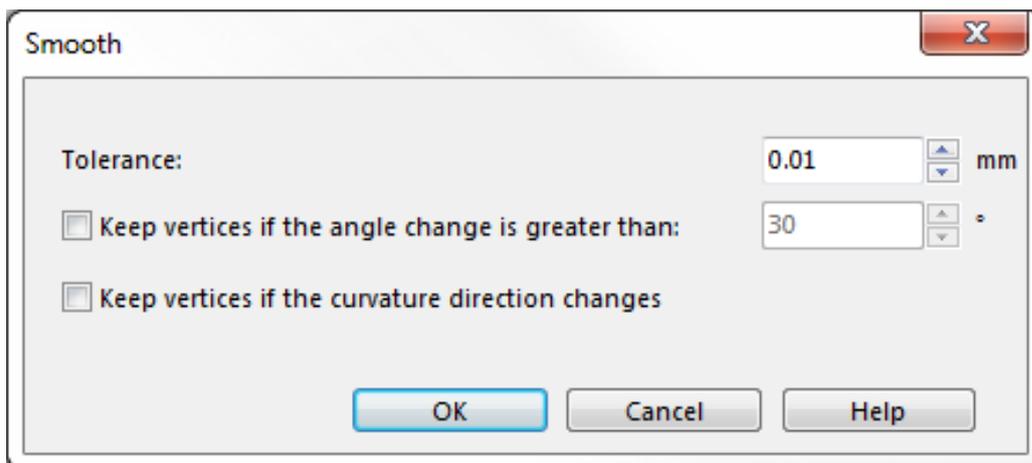
Choose this command in the **Topology** menu or by clicking the  **Smooth** button in the **Edit Functions Toolbar**.

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.

Create Color Gradient

Pro Std

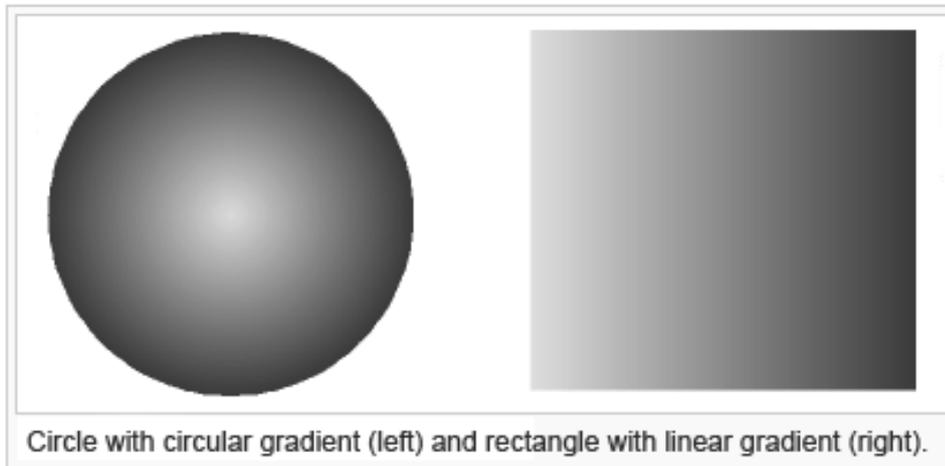
There are two types of gradients:

- **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.

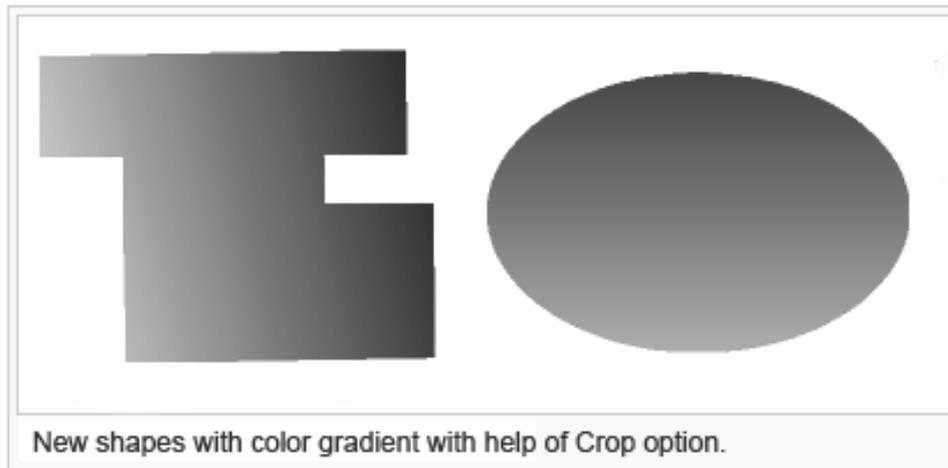


1. Select an area symbol.
2. Choose the straight line or circle drawing mode.
3. Draw an object. OCAD uses only the first four vertices to create a linear gradient.
4. Select the **Create Gradient** function from the **Object** menu.
5. Choose the first color:
 - Linear gradient means the left color 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

Topology

Join

Pro Std

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:

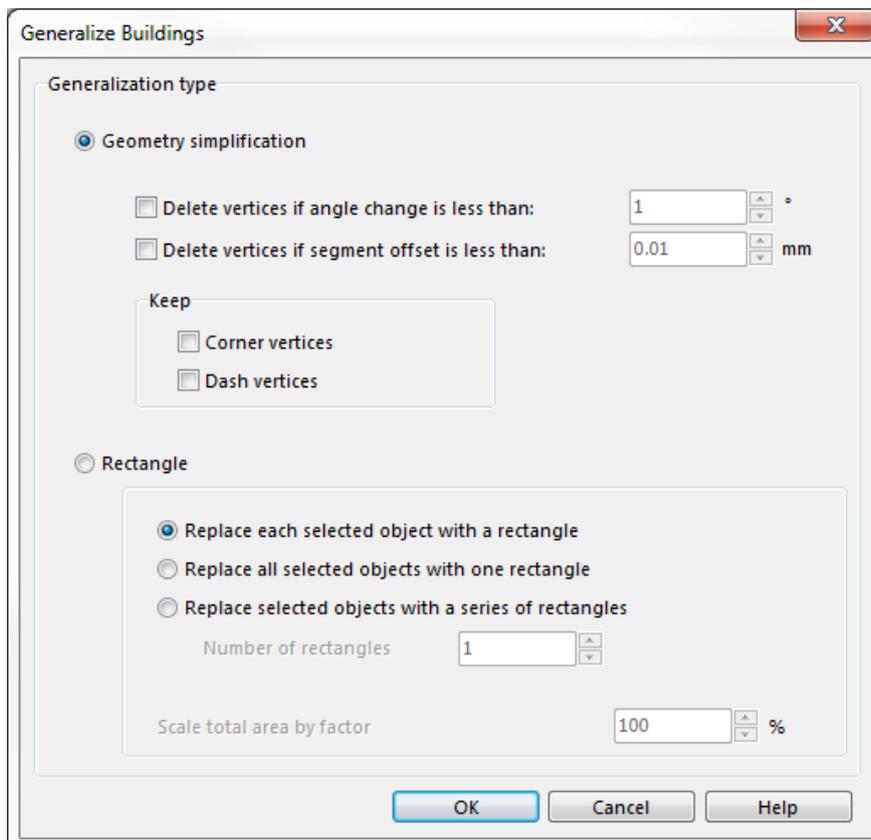
- Define the **angle change** and the **segment offset** as thresholds if vertices should be deleted.
- There are also options to keep **Corner vertices** and **Dash vertices**.

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.

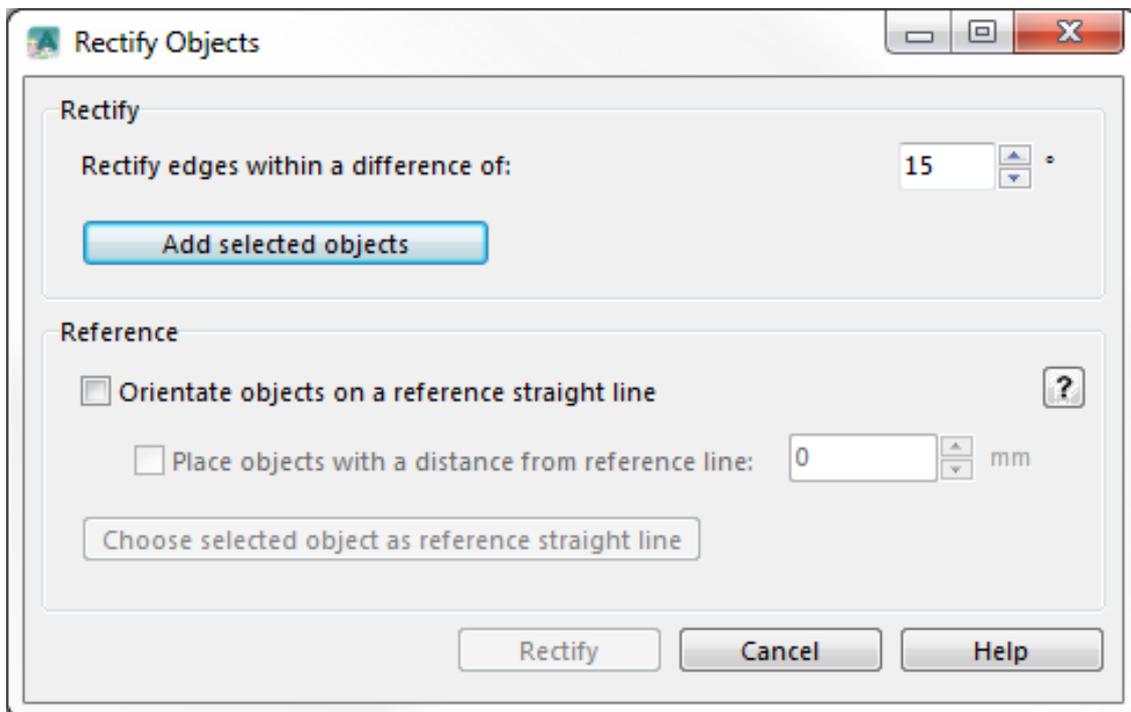
3. Click **OK**

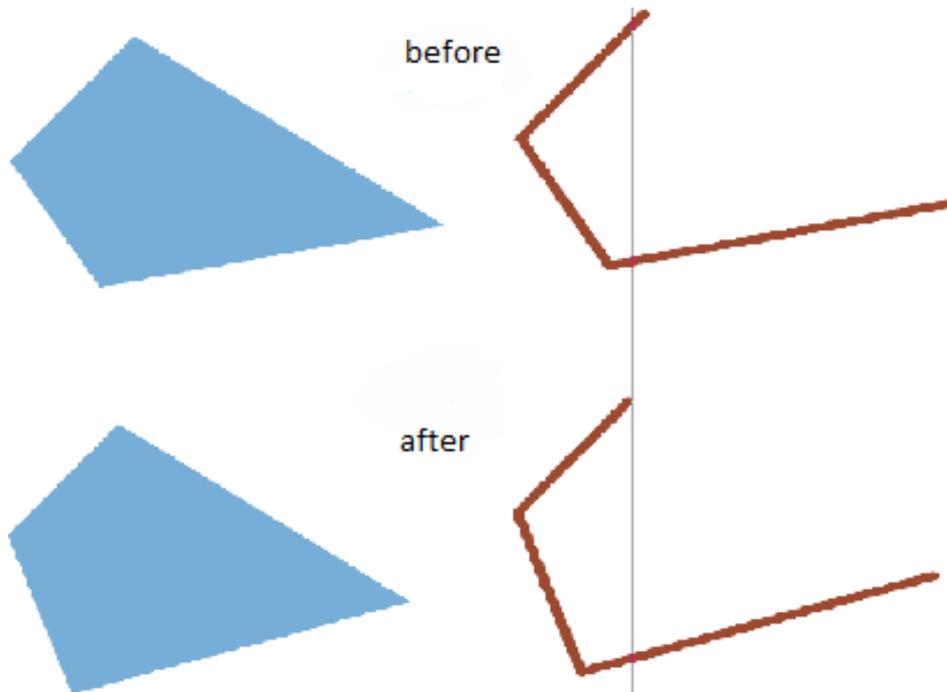


Make Objects Rectangular

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

Pro

Choose this function from the **Topology** menu.

This function closes the desired area(s).

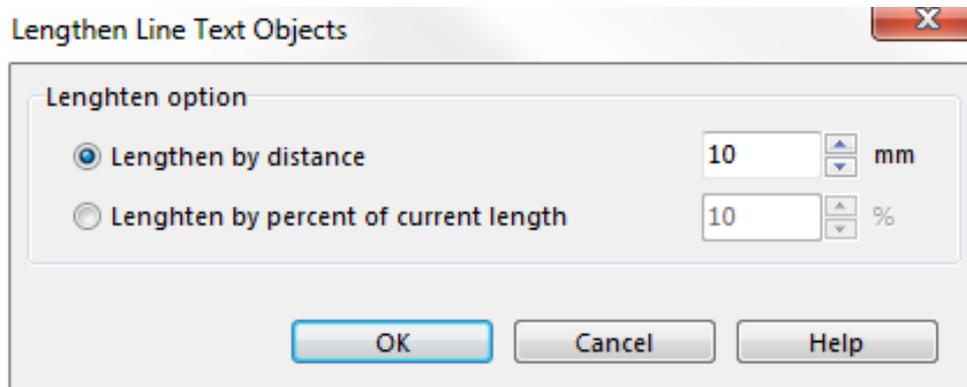
1. Select the area objects to close either in the drawing area or in the symbol box. Do not select any area object if you want to close all area objects on the map.
2. Choose the **Close Area Objects** command.
3. The **Close Area Objects** dialog appears.
4. Choose whether you want to close all area objects, all area objects from the selected symbols or all selected area objects on the map.
5. 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.

Lengthen Line Text Objects Pro

Choose this function from the **Topology** menu.

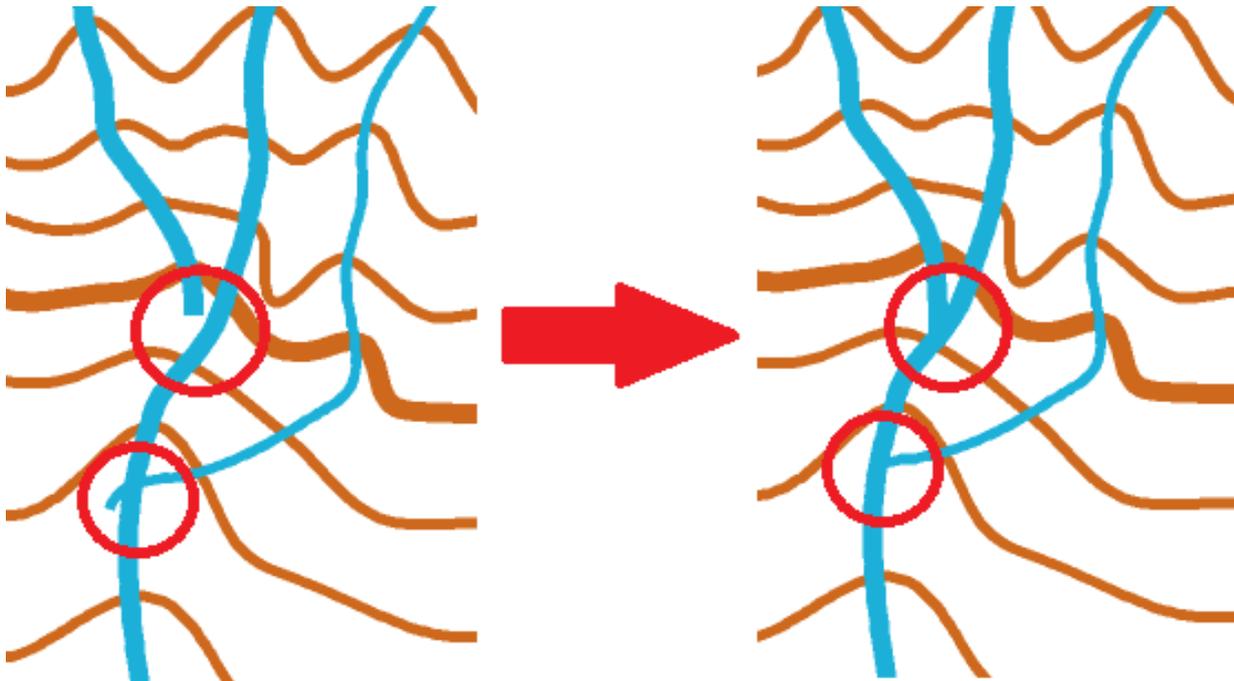
The function lengthens the selected line text objects by distance or a percent value of current length. The lengthening is always added at the end of the line text object. Choose the option **Lengthen by distance** or **Lengthen by percent of current length** and enter the distance in mm or the percent value.



Remove Undershoots and Overshoots Pro

Choose the **Remove Overshoots and Undershoots** command in the **Topology** menu to remove over- and undershoots of the selected lines.

This command is enabled when line objects are selected.



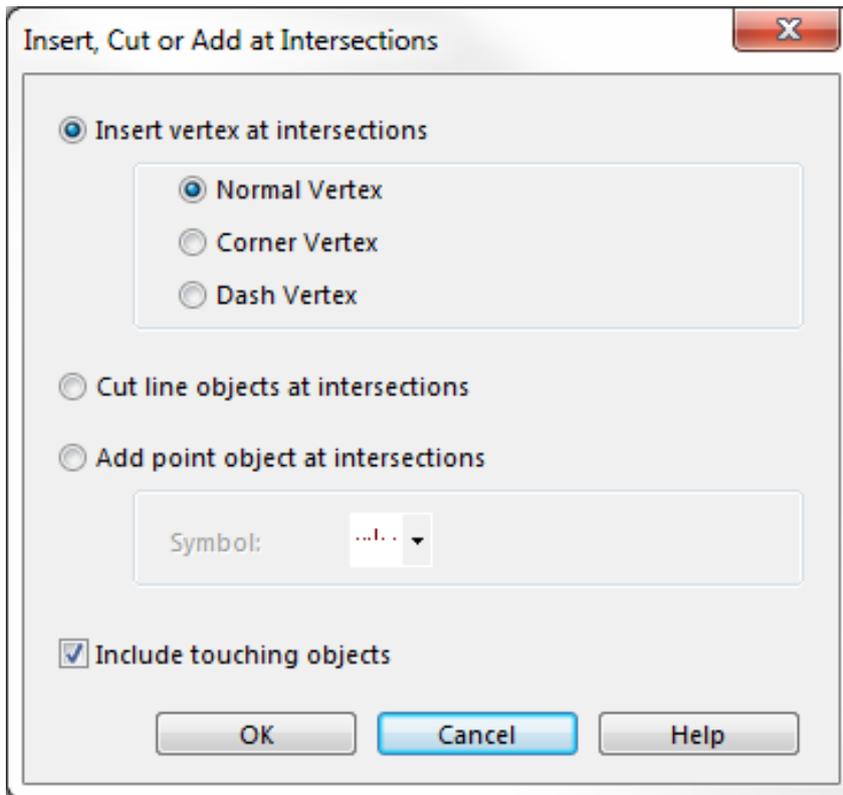
1. Select the line objects with over- and/or undershoots.
2. Choose the **Remove Overshoots and Undershoots** function.
3. The **Remove Overshoots and Undershoots** dialog box appears.
4. Decide whether you want to remove overshoots, undershoots or both of them.
5. Define a tolerance value. This value 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

Pro Std

You can find this function in the **Topology** menu.



1. Select two or more **line** 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

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](#)

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.

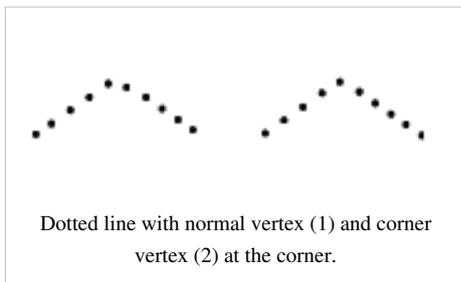
Influence on line objects

Dash vertices 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.

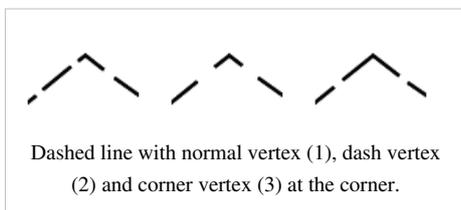
In the **Comparison** part of this page some examples can be found.

Comparison and Examples

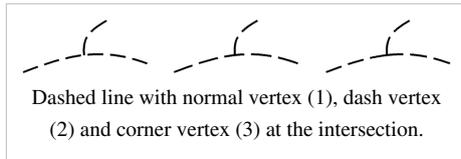
Dotted Line



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.

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)



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 wheter 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

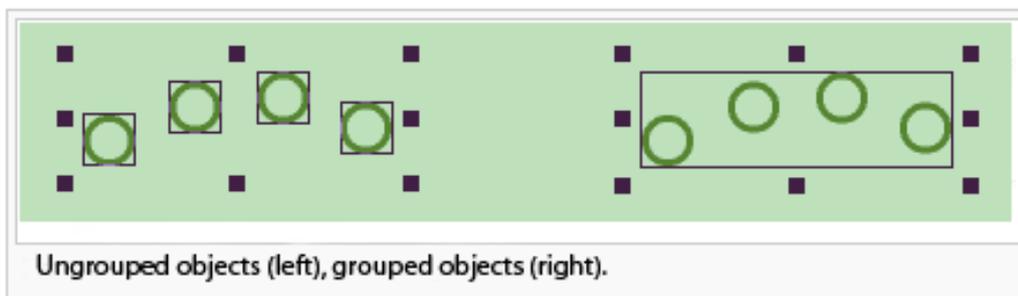
1. Select all objects which have to be added in one group (**Select Multiple Objects**).
2. Select **Group** in the **Object** menu.
3. Enter a **Group name** and click the **Group** button.

- 💡 -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

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.

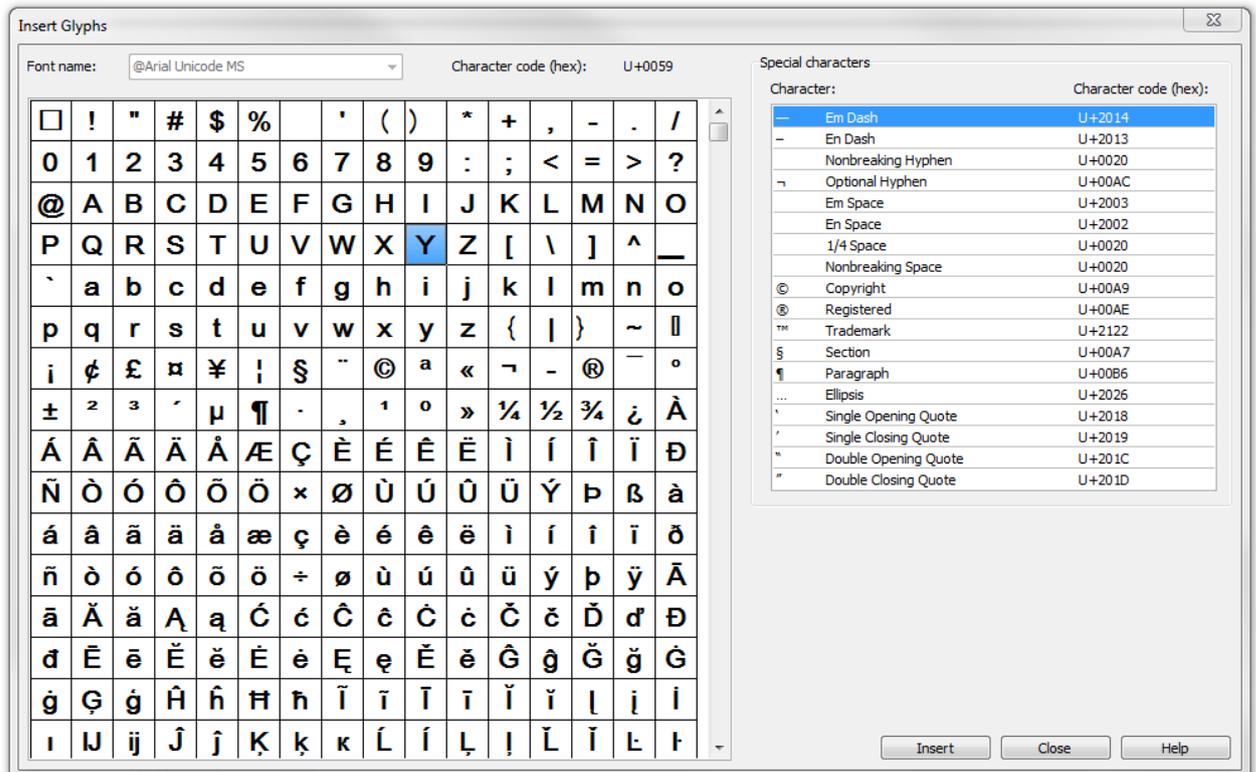
References

- [1] http://www.ocad.com/howtos/135_Group_and_Ungroup.htm

Insert Glyphs

Pro

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:

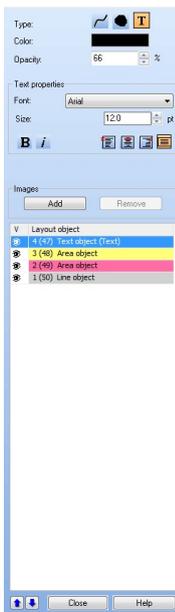
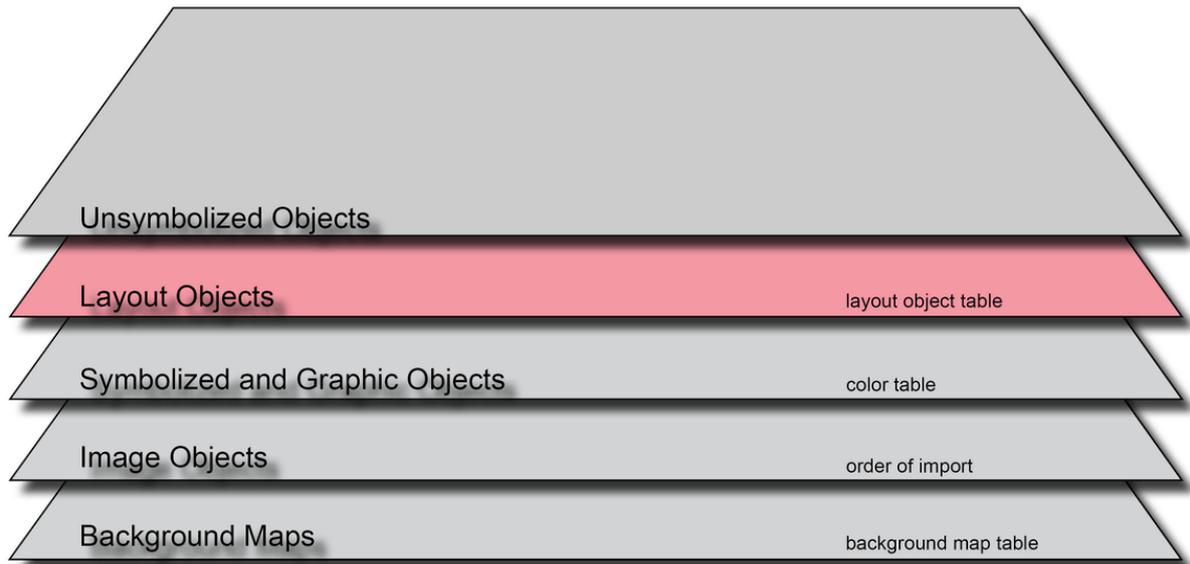


5. Double click on a character to add it or select a character and click the **Insert** button.
6. Click the **Close** button to quit this dialog.

- 💡 -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.

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

Pro Std

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

Pro Std

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

Pro Std

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

Pro Std

Select **Hide** in the **Layout** menu to hide all layout objects.

Add North Arrow or Scale Bar

Pro Std

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

Pro Std

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.

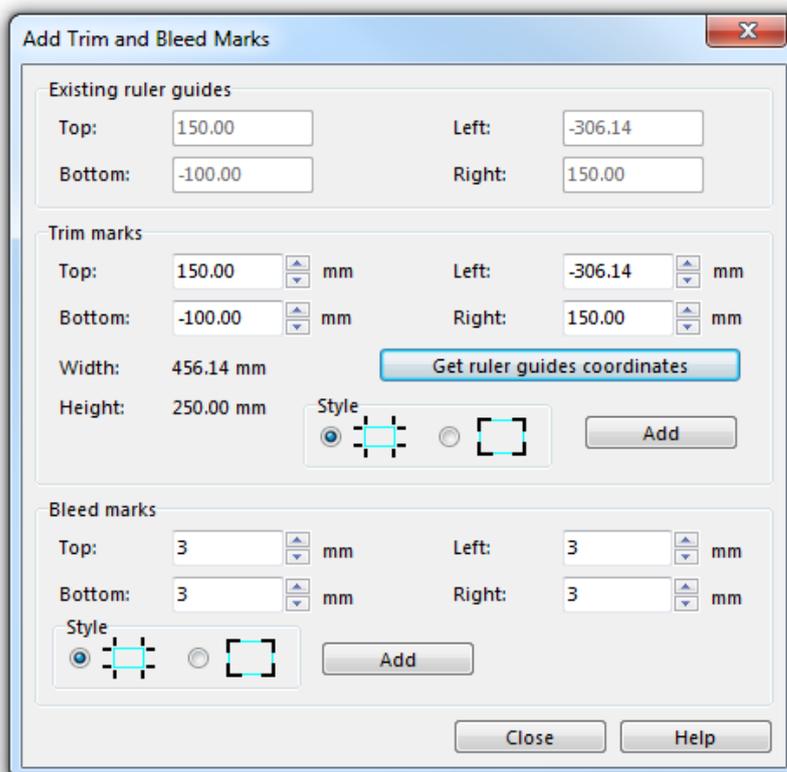
Add Trim and Bleed Marks

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.

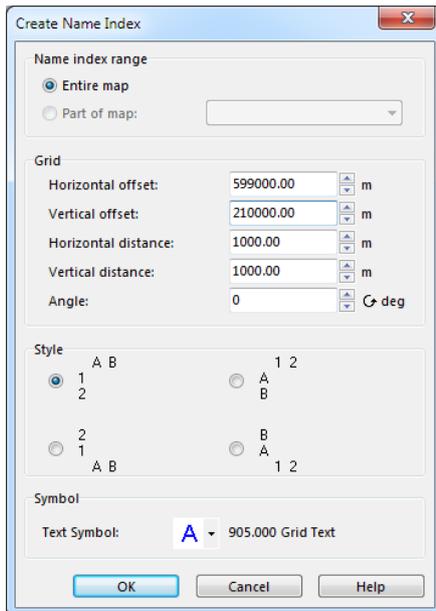
💡 Define a **Tab** in the name index text symbol therewith the indices are written in a column.

Error Message *Text is too long*

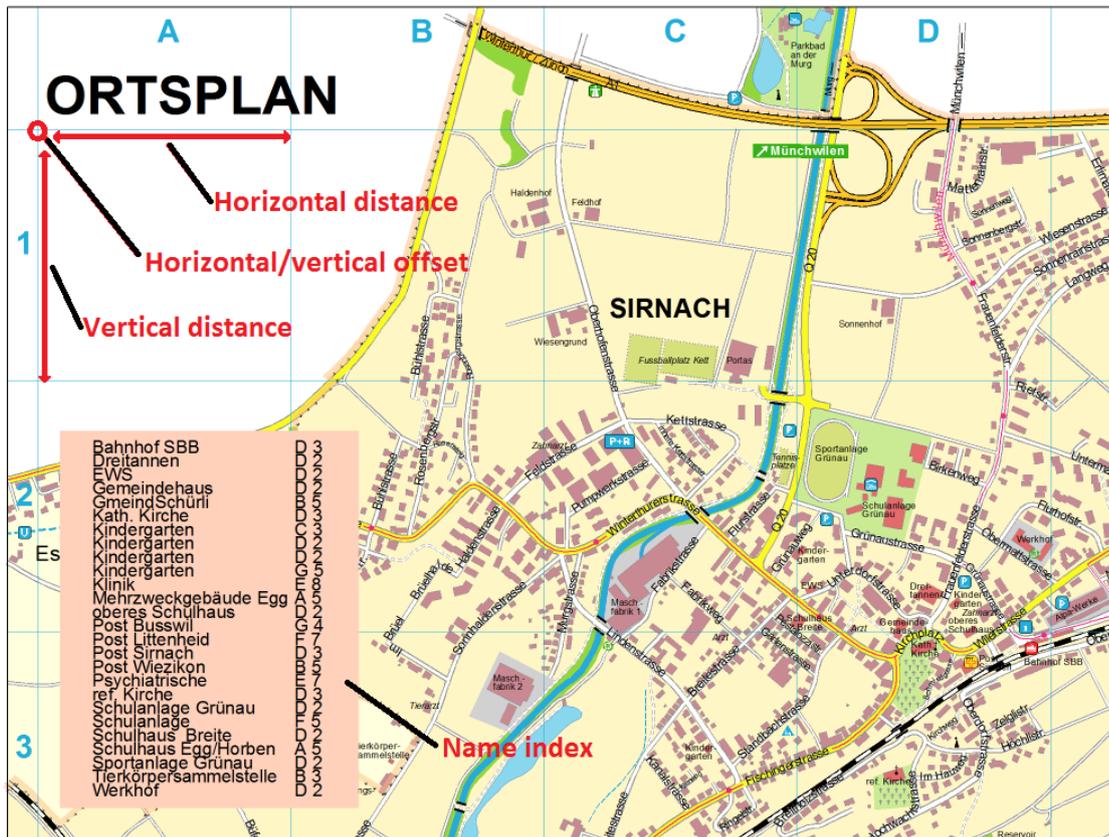
Each text object in OCAD is limited by 32000 characters. This error message appears when the text has more charcaters. OCAD copies the full text string in the Windows Clipboard. In this case we recommend you to split the text string from Windows Clipboard in a Text editor and paste it into OCAD.

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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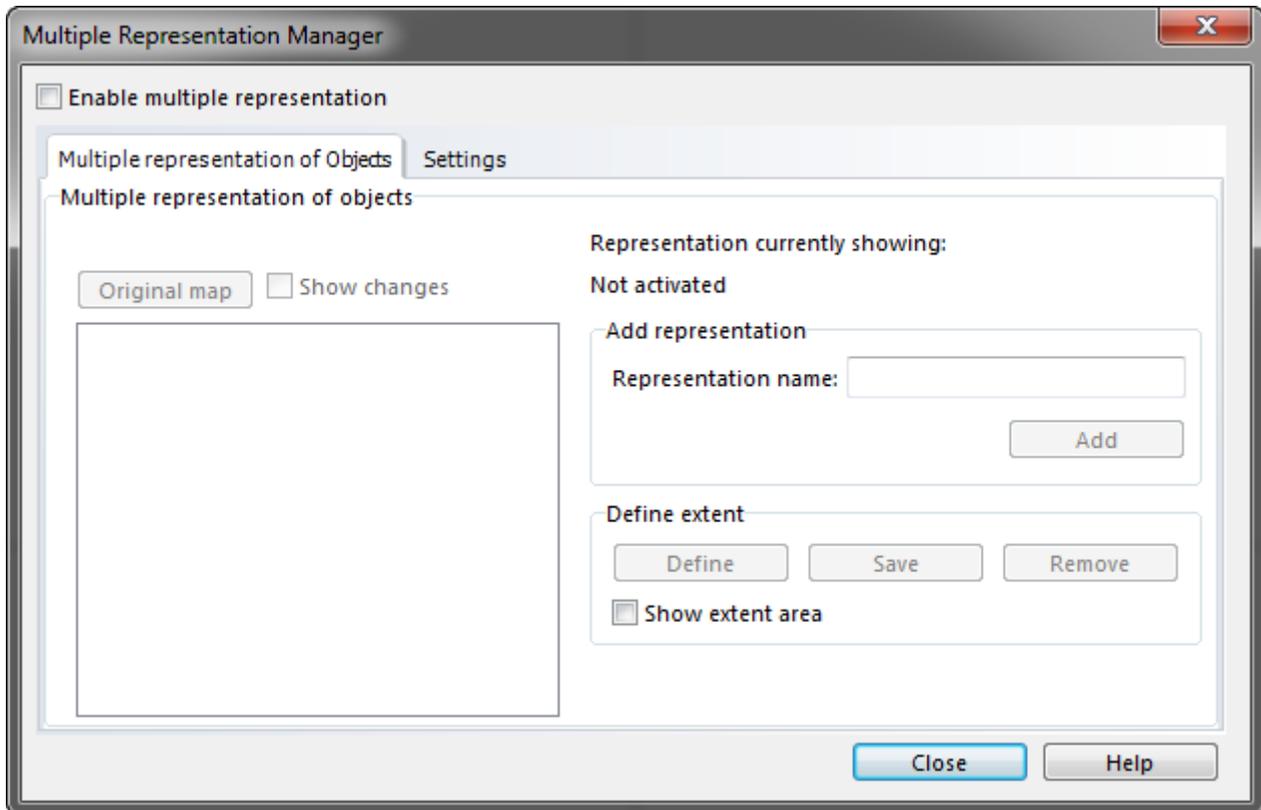
[Next Chapter: Multiple Representation](#)

Multiple Representation

Choose the command **Manager** from the **Multiple Representation** menu and click on **Enable multiple representation** to enable this function.

The file must be saved before it is possible to enable Multiple Representation

💡 Once activated, this function can't be disabled for the file again.



Add project

1. Enter a distinctive project name.
2. Click on the **Add** button.
3. The new representation gets listed in the left panel at the end.

💡 The activated representation get's shown at **Representation currently showing, above** Add representation.

💡 To change the active representation, the desired representation has to be double clicked.

Show changes

This function allows to see the difference between the currently activated representation and the original map. For all objects that has been altered with the original one is shown in Keyline.

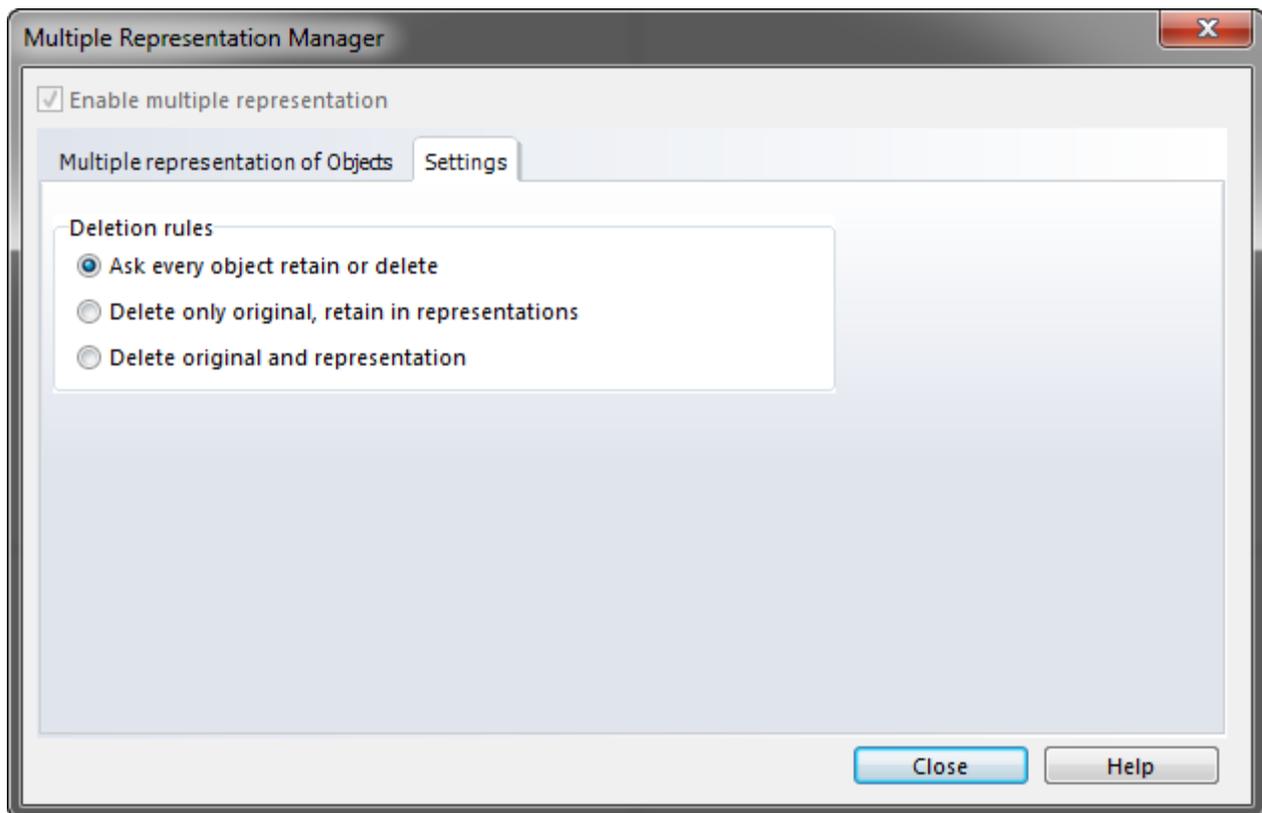
Define extent

The definition of an extend should be understand as guidelines to help defining areas the representation should be done. The extent doesn't prevent from altering objects outside the defined area.

1. Click on the **Define** button.
2. A black rectangle gets shown, which can be moved and changed in size.
 - 💡 At first, the rectangle has the size of the drawing window.
 - 💡 The rectangle kept the size, if the active project gets changed, but the extent didn't get saved.
3. Click on the **Save** button to save the current extent.
4. The extent gets shown with a red frame.
 - 💡 By default the extent area gets shown, but it can be disabled as well.
 - 💡 To change the extent area, you have to define and save the area again.
 - 💡 It's possible to remove an extent area, but not a project.

Settings

In the settings tab it is possible to select the behavior for the deletion of objects.



💡 This behavioral setting is only relevant for deletion of objects in the original map.

The behavior can be chosen between:

Ask every object retain or delete

A message will occur for every object if it should be retained in the representations (it means a copy is created for every representation) or it should be deleted. Any changes to the object in a representation will be kept.

Delete only original, retain in representation

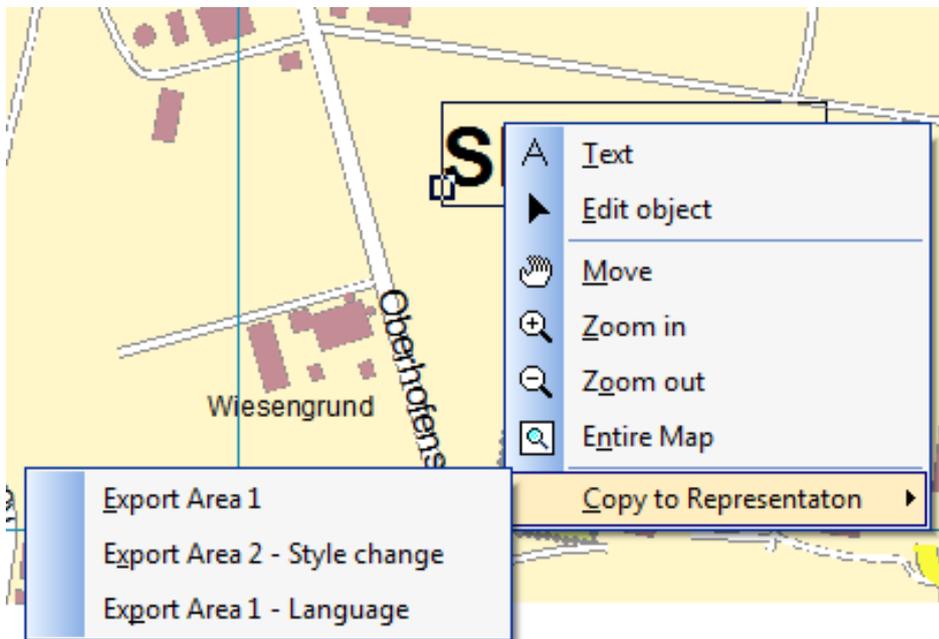
The object will be removed from the original map but will be retained in every currently available representation. Same as above but with the fixed answer to yes.

Delete original and representation

The object will be deleted from every representation without keeping changes or anything.

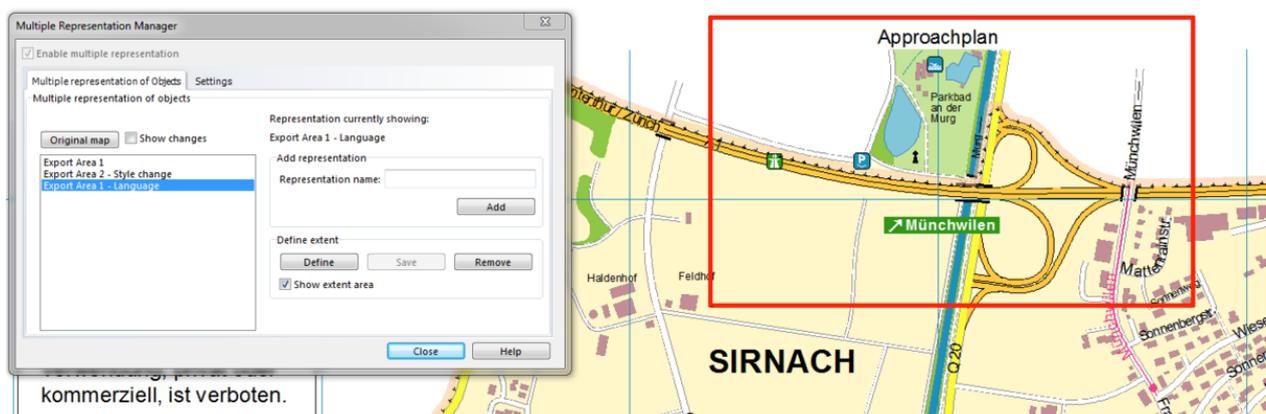
Copy to representation

If you deleted one or several objects from a representation you can undo the deletion by going to the original map, select the objects and open the right-click context menu. It will expand with the menu item **Copy to Representation** and showing all defined representations. This can also be used to revert changes from objects to the original objects. If you copy objects from the original map to the representation and they have been changed, all changes will be overwritten.

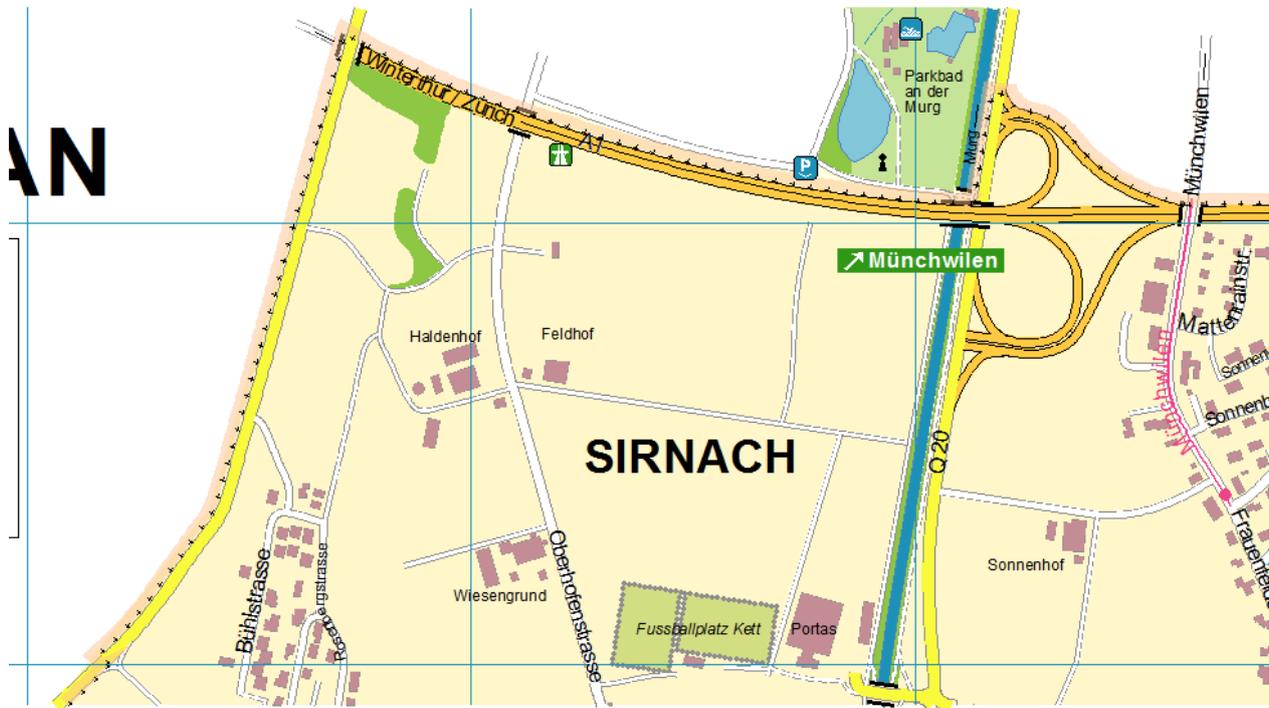


Example - How OCAD Multiple Representation is meant to work.

Multiple Representation of objects in OCAD is meant to enable the ability for different representations of map objects, variation of places for texts due to map borders and also different languages. All of it will be maintained in a single OCAD file. The following example is taken from the OCAD sample maps set "Sirnach".



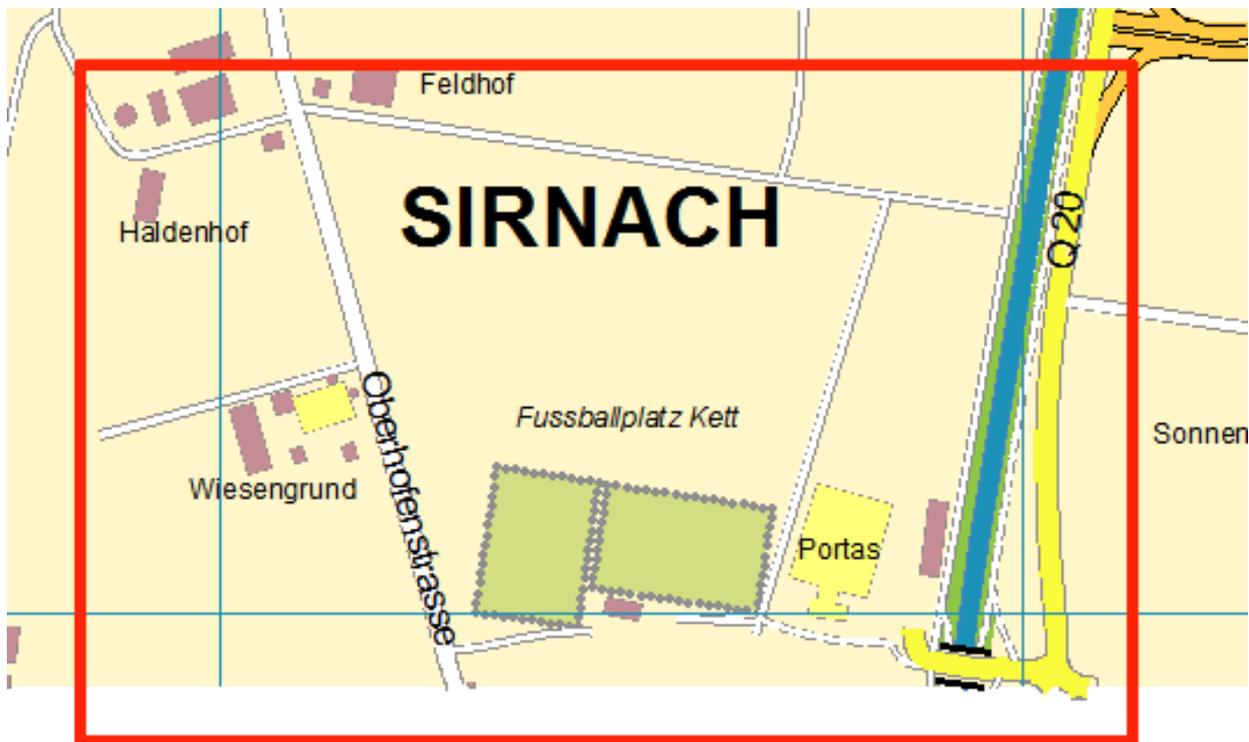
The map has three different representation with slight changes. For the representation currently showing the area is defined around the highway intersection and the public park bath Murg. The map title is approach plan. As can be seen from the original map, there has not been any map title nor would the highway symbol be in the border, this has all been done in the representation.



Another representation is showing the same area for the approach plan but with a German title.



Yet another example from the same map shows another area where the place names has been moved into the desired area and also two buildings have been re-styled to show of that different symbolisation can be done within the multiple representation.



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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.

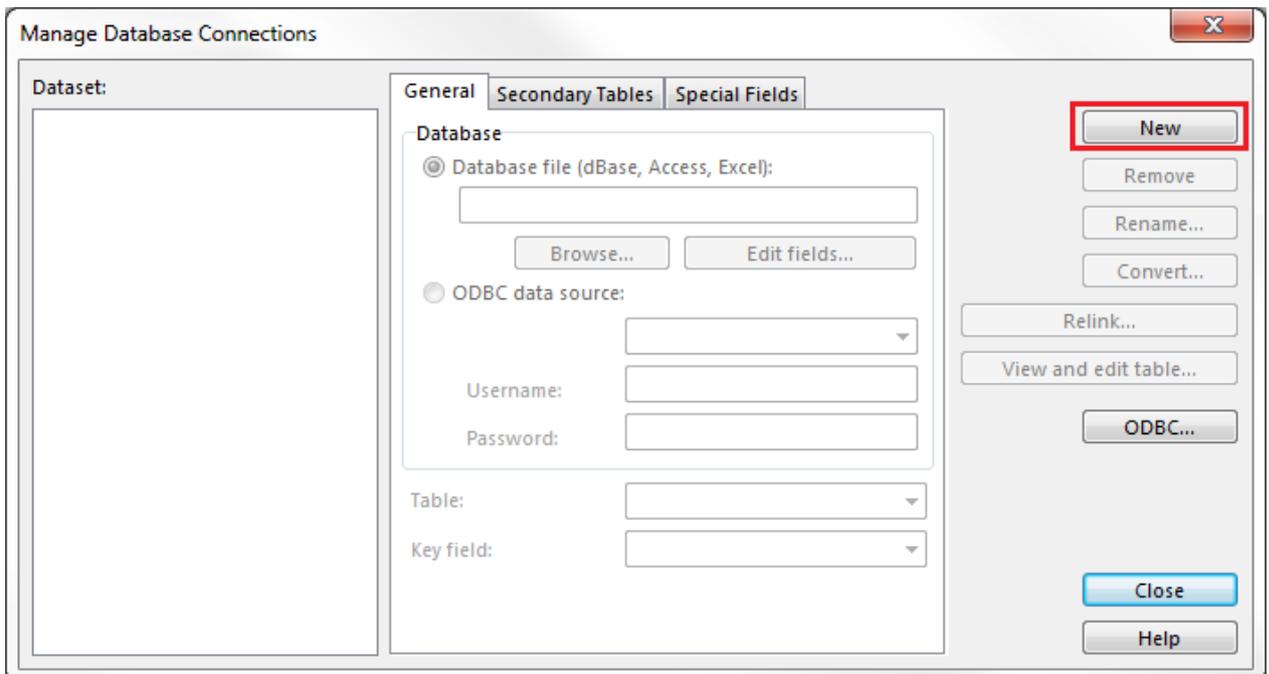
Manage Database Connections

Pro

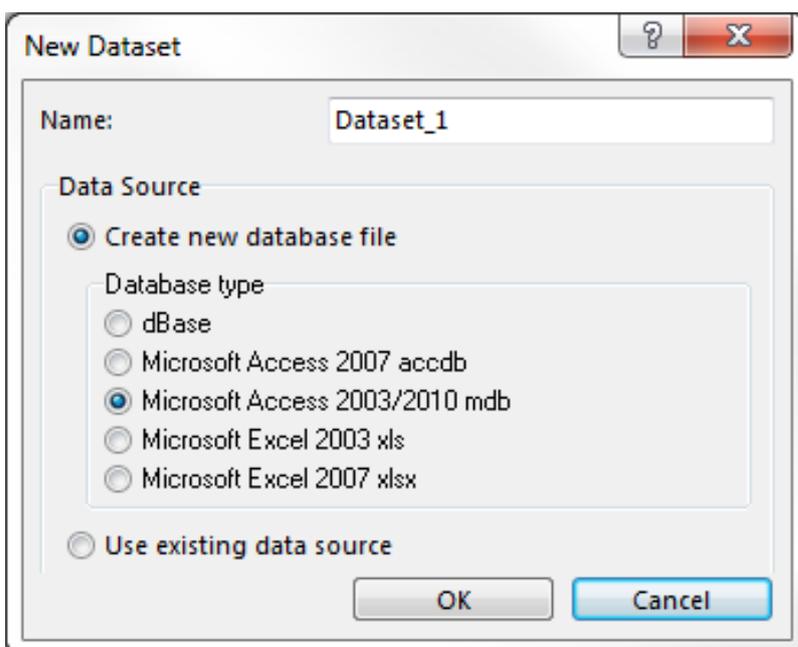
Create a New Database Connection

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.

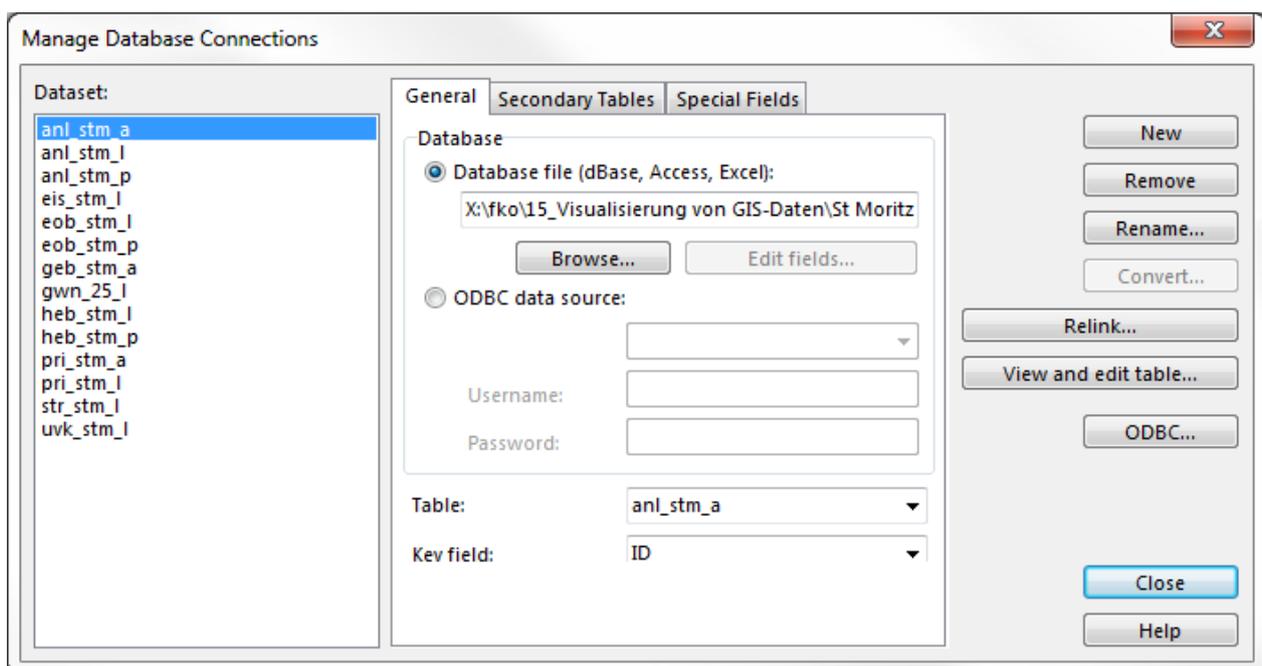
When a database connection is newly created, OCAD displays a dialog after closing the **Manage Database Connections** dialog. You can check two options in this dialog:

- **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**.

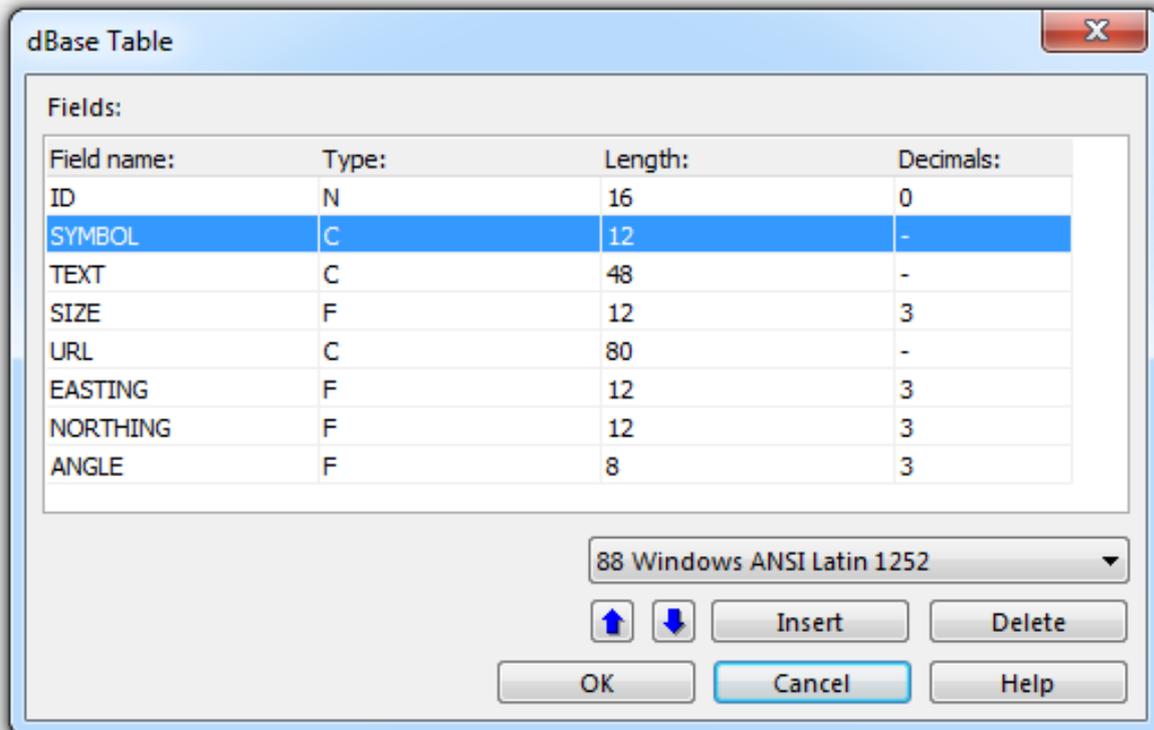


dBase

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.

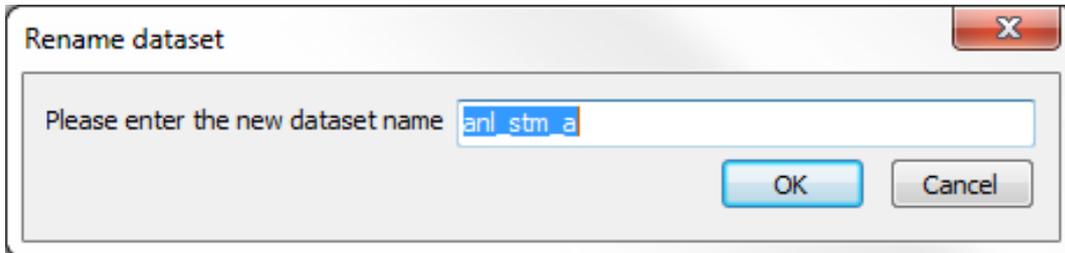
Remove

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.

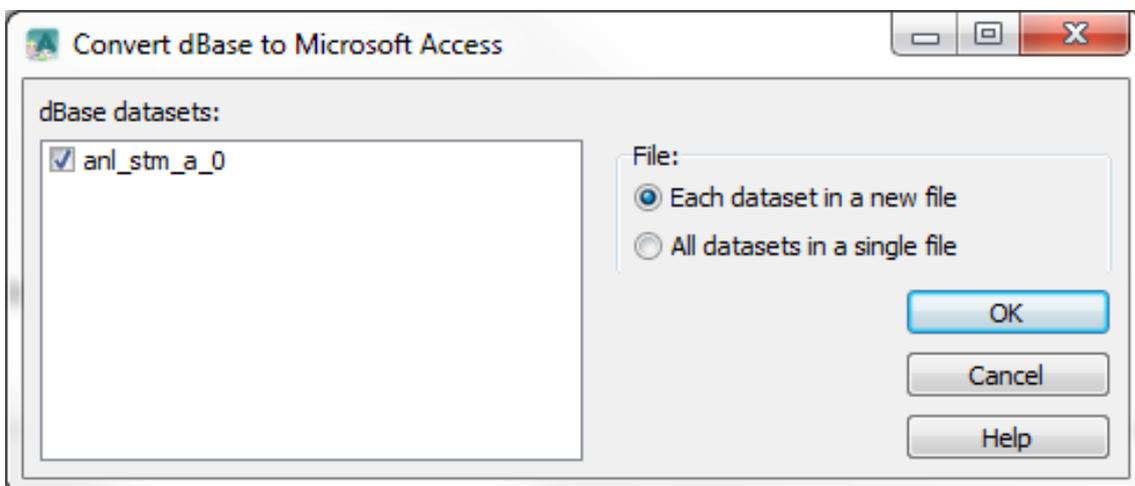


3. Enter the new dataset name.
4. Click on the "OK" Button.

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).

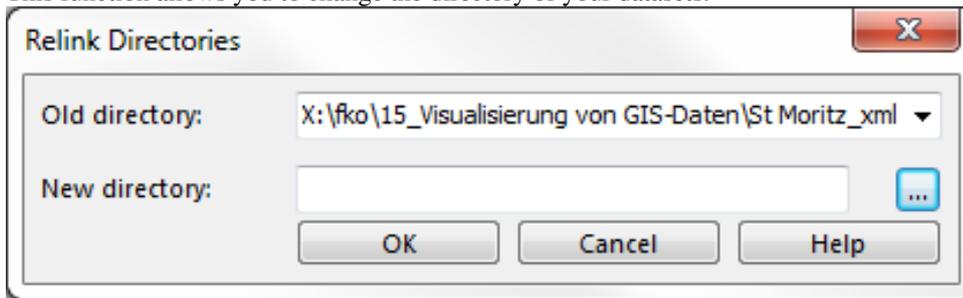
1. Get to **Manage Database Connections** in Database.
2. Click on the "**Convert**" Button and the Convert dBase to Microsoft Access dialog opens.



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.

ID	AREA	PERIMETER	OBJECTID	OBJECTORIG	OBJECTVAL	YEAROFCHAN
1	5783687048	0213399845	9069576	LK25	Z_BhArea	1991
2	0246263444	1519301814	10906530	LK25	Z_BhArea	1998
3	5985515915	4513404563	9069583	LK25	Z_BhArea	1991

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.

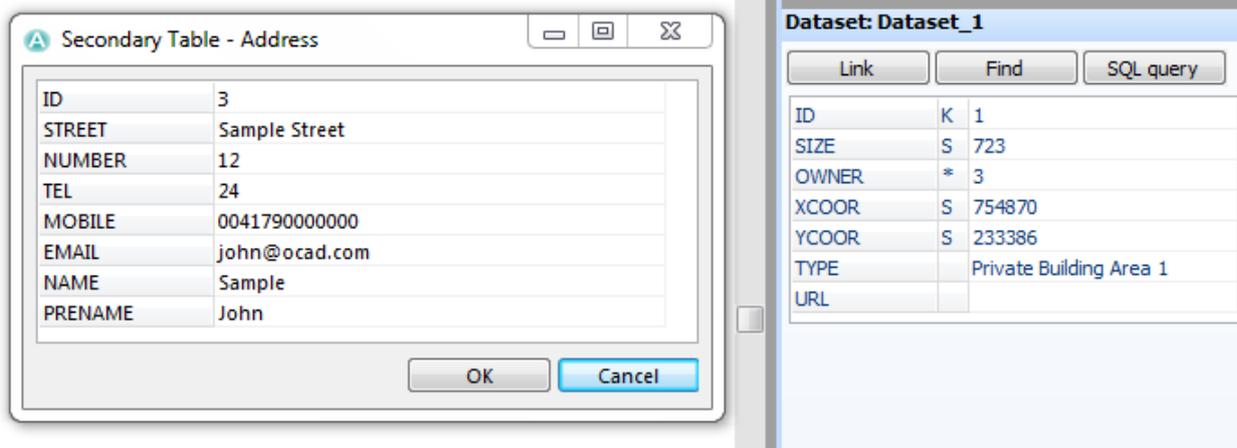
Click the **Edit** button to change the settings of the secondary table.

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			
	Link	Find	SQL query
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:



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:

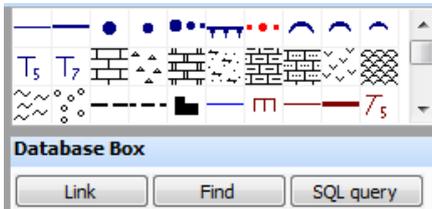
- **Symbol field:** The symbol number of the object is automatically copied to the database field which you have chosen in the dropdown list. It is possible to let new symbols get assigned, when the field value is changed.
- Assign new symbol when changing field value: ToDo
- **Text field:** For text 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

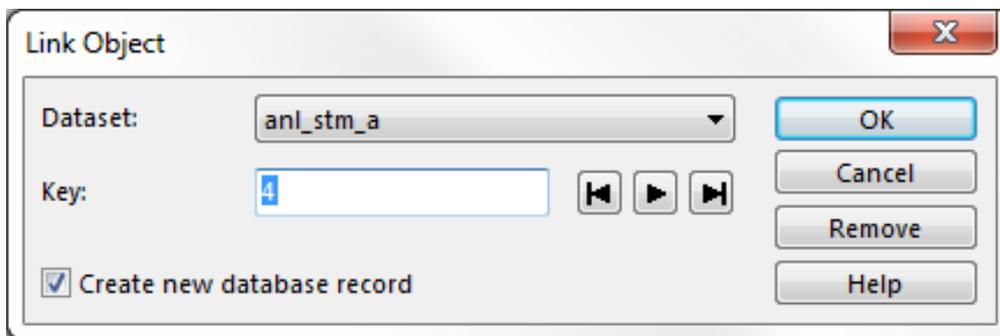
When the map was connected to a database, the **Database Box** appears below the **Symbol Box**.



 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.

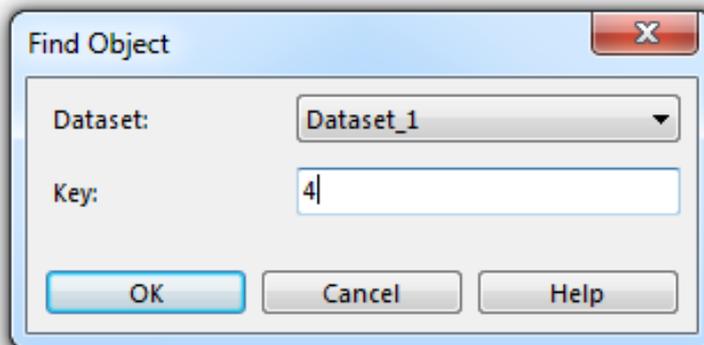
It is possible to open an URL directly from the **Database Box**. Press the **Ctrl** key and click the field. OCAD opens the URL in the web browser. This works for local files (for example a picture), too:

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

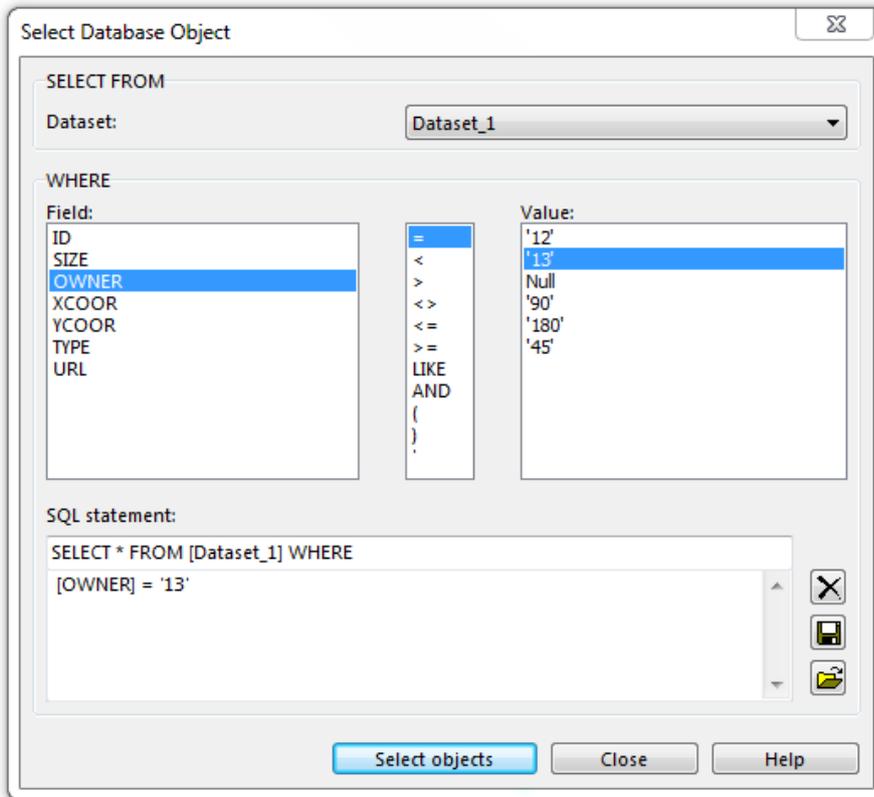
Find an object with help of the key by clicking the **Find** button in the **Database Box**. The **Find Object** dialog appears.



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.

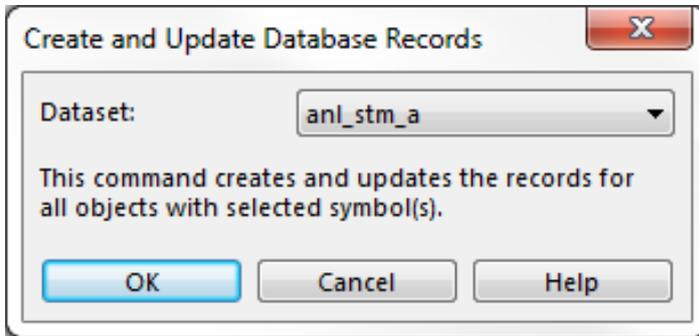
The **SQL statement** should always contain the components FIELD - OPERATOR - VALUE (example: Length > 430). An **SQL statement** can be **cleared**, **saved** or **loaded** by clicking the corresponding button to the right of the **SQL** statement box.

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.

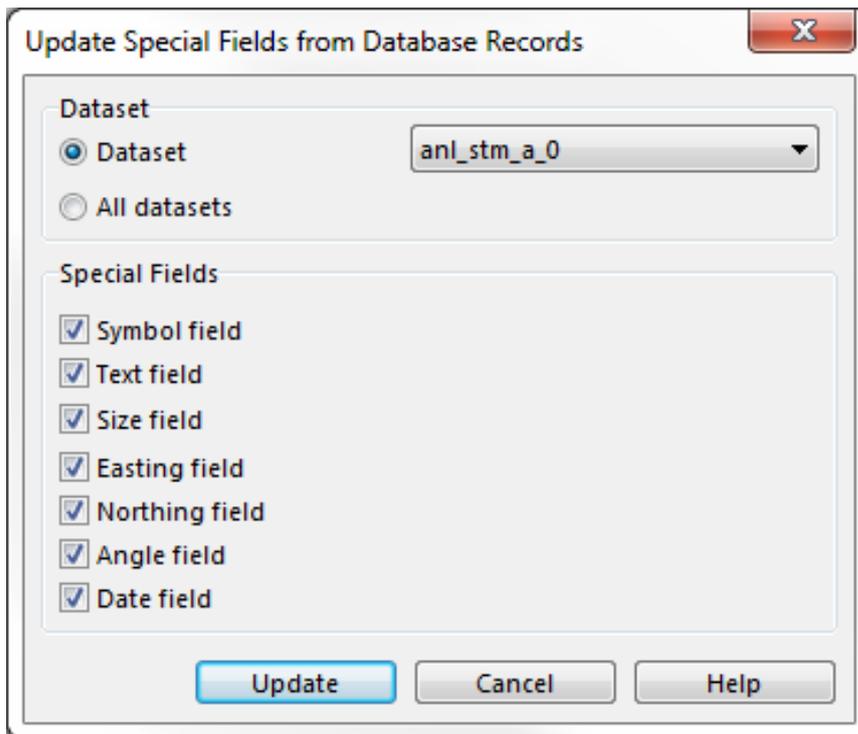
1. Make sure you have enabled the **Special Fields** for text.
2. Select all symbols which are used for street names.
3. Choose the **Create and Update Records** command from the **Database** menu.
4. Select the dataset and click **OK**.

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.

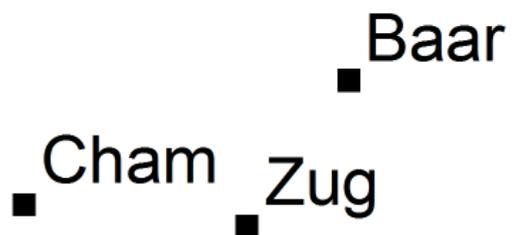


2. Select a dataset or choose the **All datasets** option.
3. Then, check all special fields you want to update and click the **Update** button.

Create Objects from Database Records

Pro

	A	B	C	D
1	ID	NAME	XCOORD	YCOORD
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.

The screenshot shows a dialog box titled "Create Objects from Database Records". It contains the following fields and controls:

- Dataset:** A dropdown menu with "anl_stm_a" selected.
- Coordinates:** Two dropdown menus for "Easting:" and "Northing:". Below them is a "Unit of measure" section with radio buttons for "m" (selected) and "km".
- Text field:** A dropdown menu.
- Assign symbol:** Radio buttons for "Selected symbol:" (selected) and "Condition table". Below "Selected symbol:" is a "Condition:" text input field. Below "Condition table" is a "CNT file:" button with an ellipsis.
- Offset:** Two spinners for "Horizontal offset:" and "Vertical offset:", both set to "0.00" and "mm".
- Buttons:** "OK", "Cancel", and "Help" buttons at the bottom.

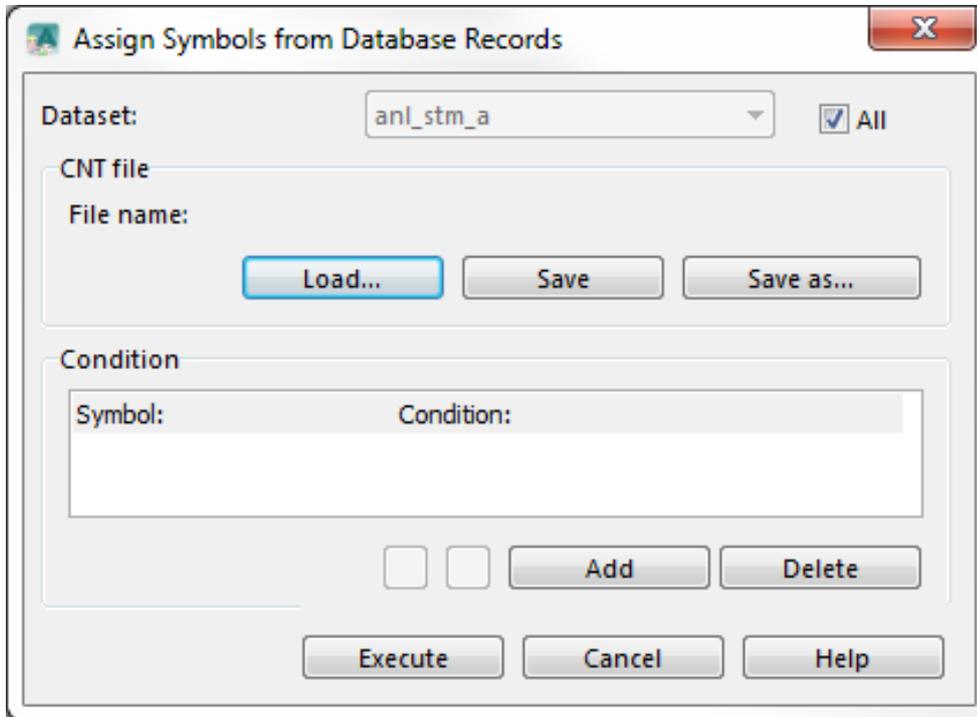
4. Select the dataset which contains the information the object is to be created with.
5. Select the field for the **Easting** and **Northing** which determines the position of the new object.
If the dataset is a line text object with two points (P1,P2), P1 has the coordinates of the Easting and Northing 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.

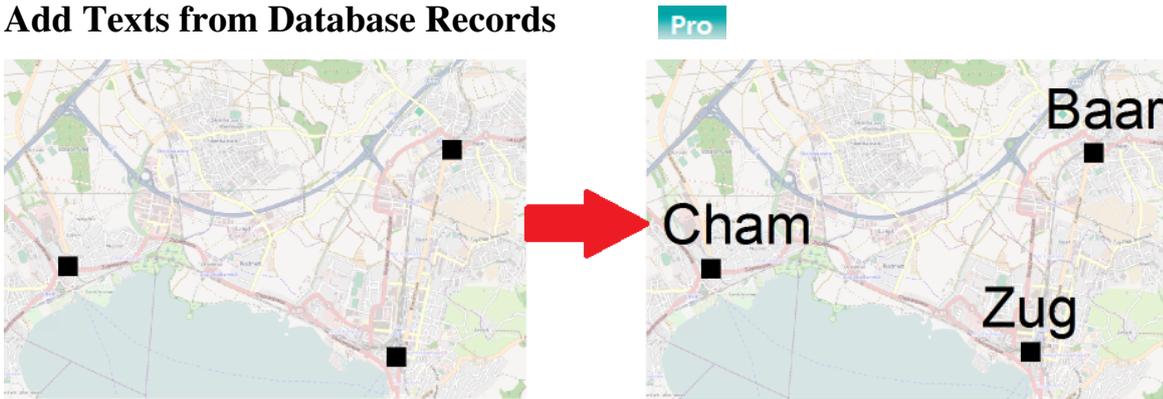


In this dialog box you can create a list of conditions. You can save the list to a condition file (*.cnt) for later use. You can load an existing condition file to modify or execute it. You have the following possibilities in the **Assign Symbols by Records** dialog:

- **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.

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**. 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!

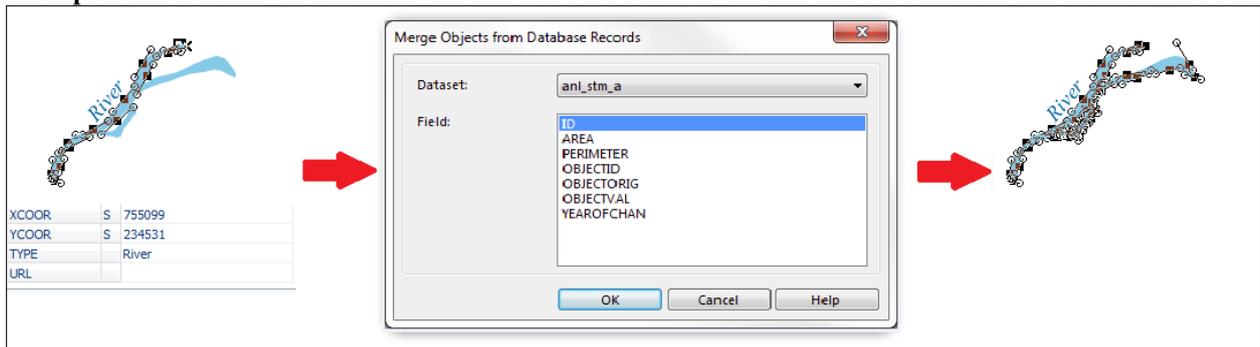
Merge Objects from Database Records Pro

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 has 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.

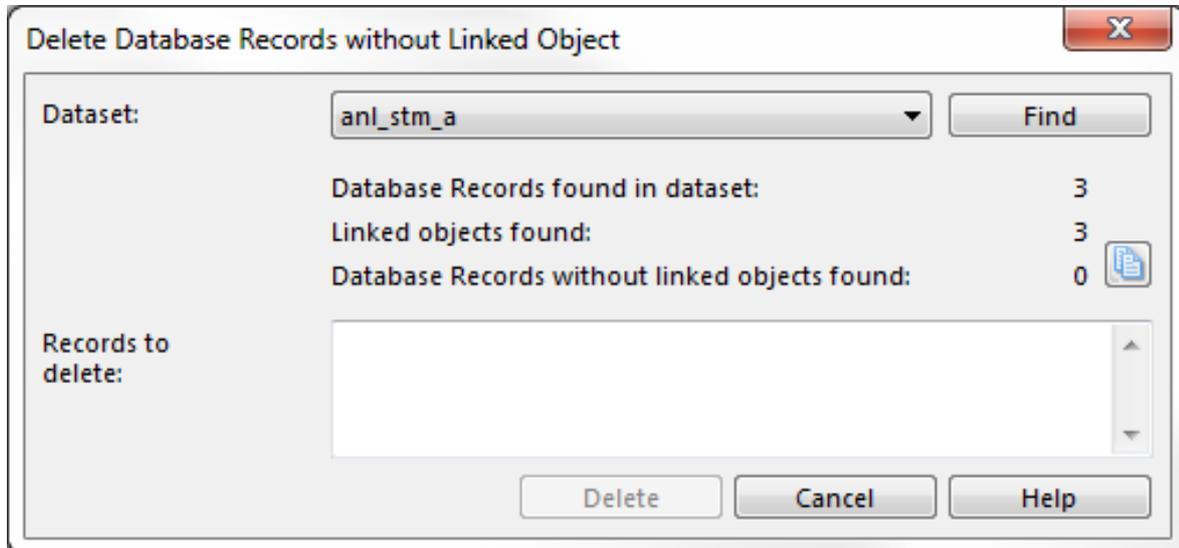
Select Objects Linked to the same Database Records

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



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.

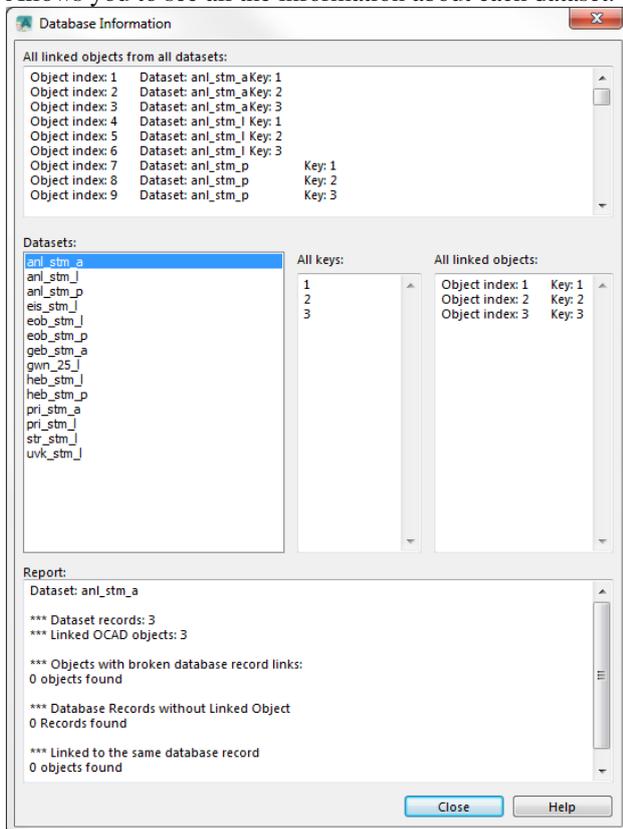
Create Database Record when Cutting Object

If this option is checked in the **Database** menu, a second database record is created when a linked object is cut.

Database Information



Allows you to see all the information about each 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

You can get access to the **Thematic Map Wizard** by opening a **New File** with choosing **Thematic Map** as a **map type** or by clicking **Create with Wizard...** in the **Thematic Map** menu. It opens the start page of the wizard with an overview of the **six steps** to create a thematic map.

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.



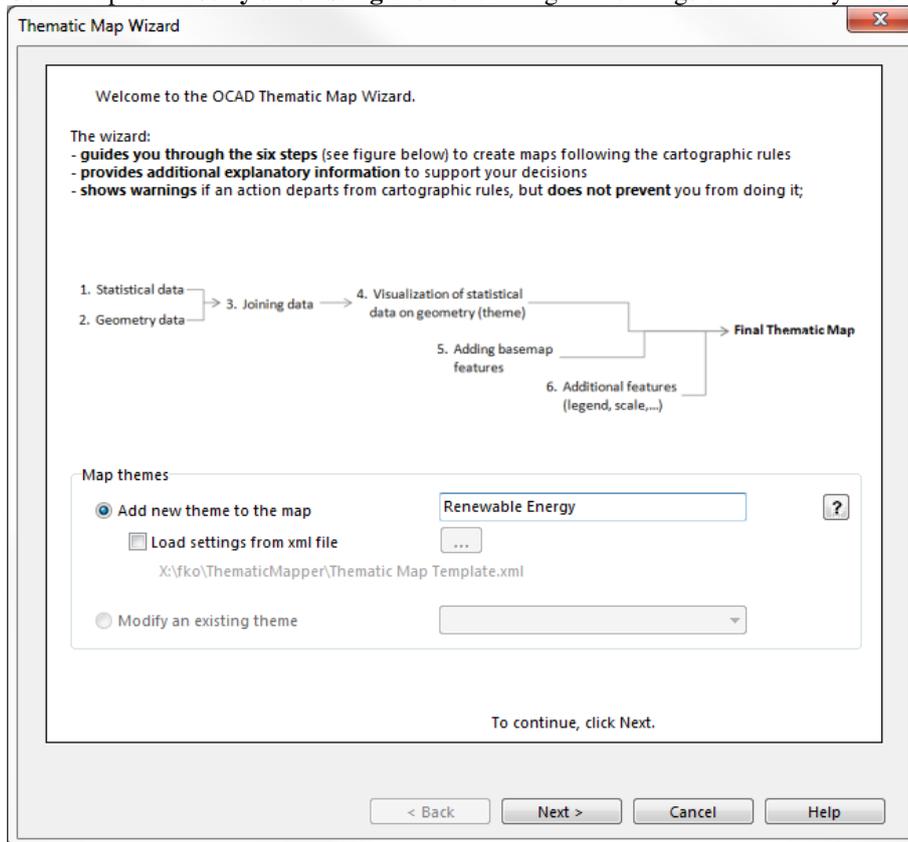
A map can have more than one theme (ex. choropleths + proportional symbols).



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 file

💡 The format of this file can be *.xls, *.csv, *.dbf or *.txt.

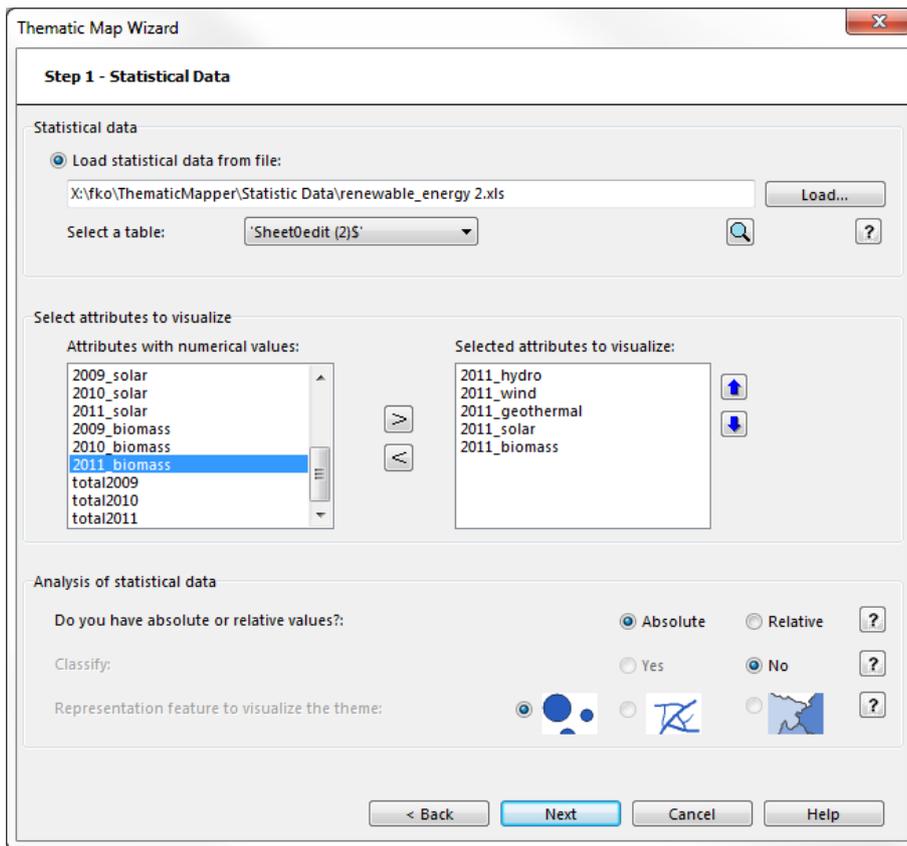
💡 The statistical data should be complete and accurate, which means that all the fields should contain the necessary information.

💡 It's possible to check the table with the 🔍 lense icon.

💡 The statistical data should have a common field with the attribute table of geometry data, in order then to be joined.

2. Select attributes to visualize either with selecting them and pressing the [>]-button, double click or drag and drop.

3. Define if the values are absolute or relative, the map shall be classified and how to visualize the theme.



Step 2 - Geometry

1. Load a geometry data from .shp file.

💡 It's possible to either watch the data in tabular form or to get a map preview.

2. Set map scale and map size.

💡 By default map scale and size are linked, but it's possible to deselect them . The icon is blue if it's inactive.

3. Pick a coordinate system.

💡 It automatically picks the selected coordinate system of the Ocad-map.

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: europe.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

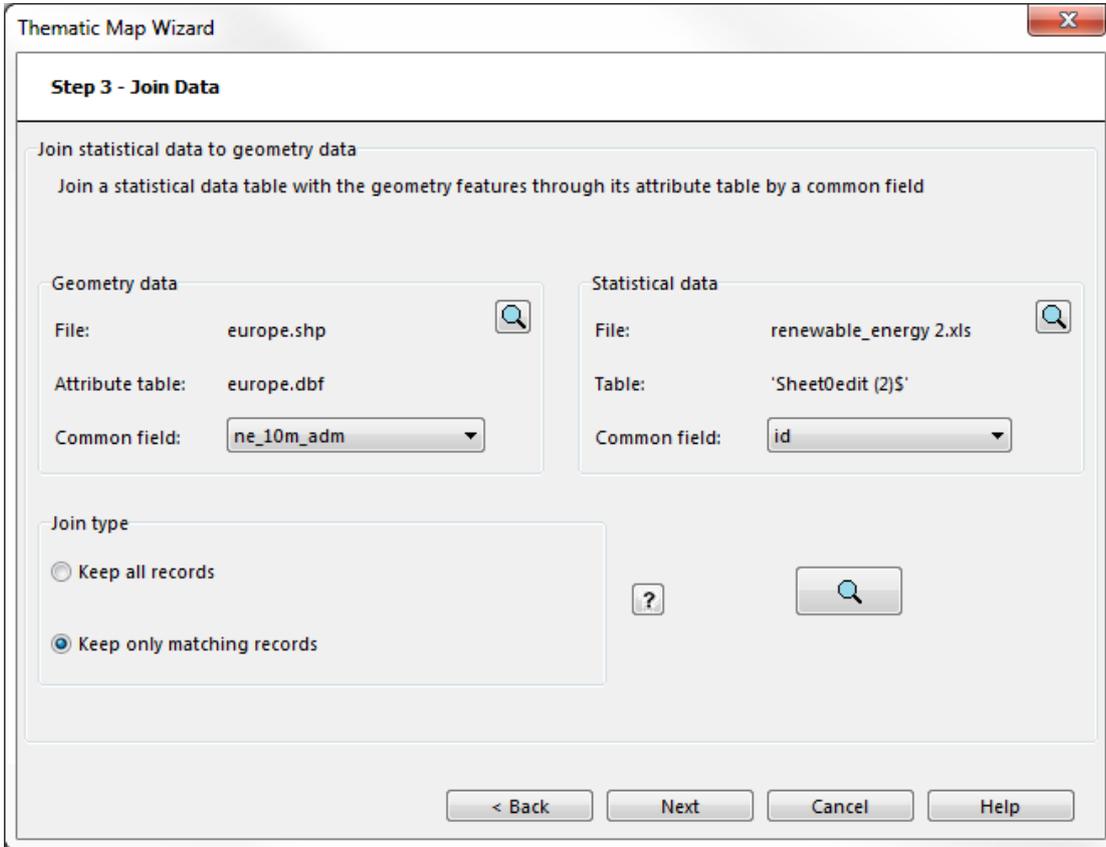
< Back Cancel Help

Step 3 - Join Data

1. Pick a common field of both tables.

 If you aren't sure which fields have common values, you can use the  lense Icon to check the tables.

2. Decide if all records shall be kept or only the matching ones.



Step 4 - Visualization of map's theme

Phase 1

Decide which visualization method is suitable for the chosen data. The wizard suggests the most appropriate method(s) according to the choices done in **Step 1**.

Phase 1.5: Only for divided charts

1. Divide the attributes to several groups by clicking on the [...] -button and opening the **Create Groups with Drag and Drop** window.

 Only available if multiple elements of the same attribute are choosen.

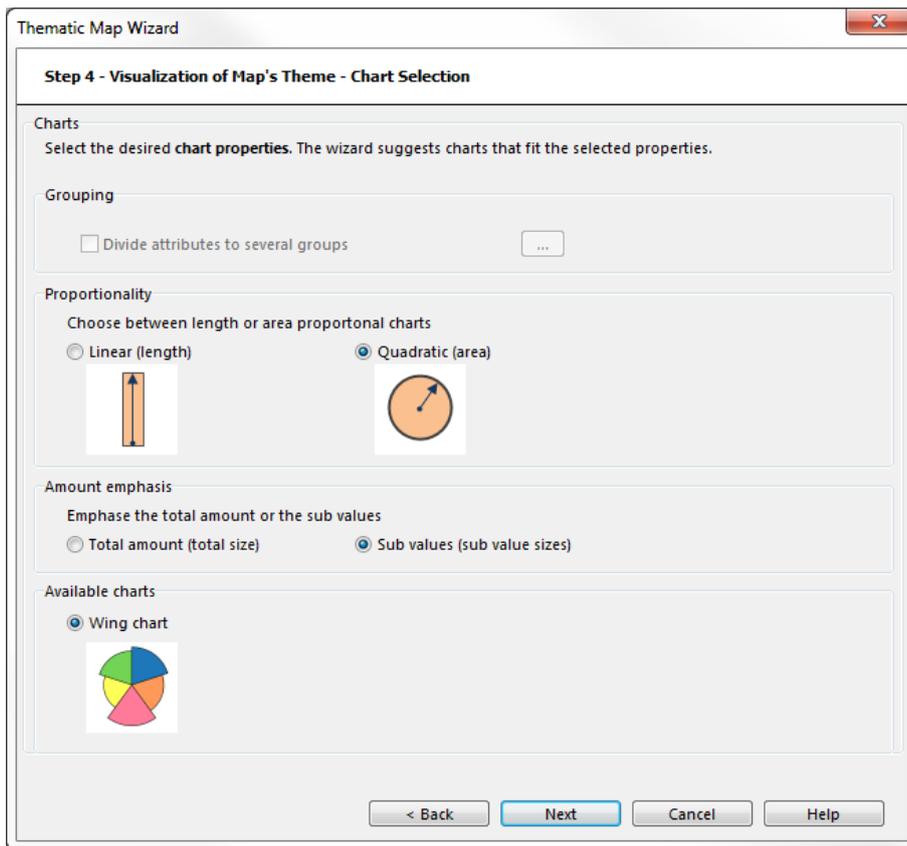
1. Select the amount of groups.

 Each column is one group.

2. Sort and creat the groups with drag and drop.

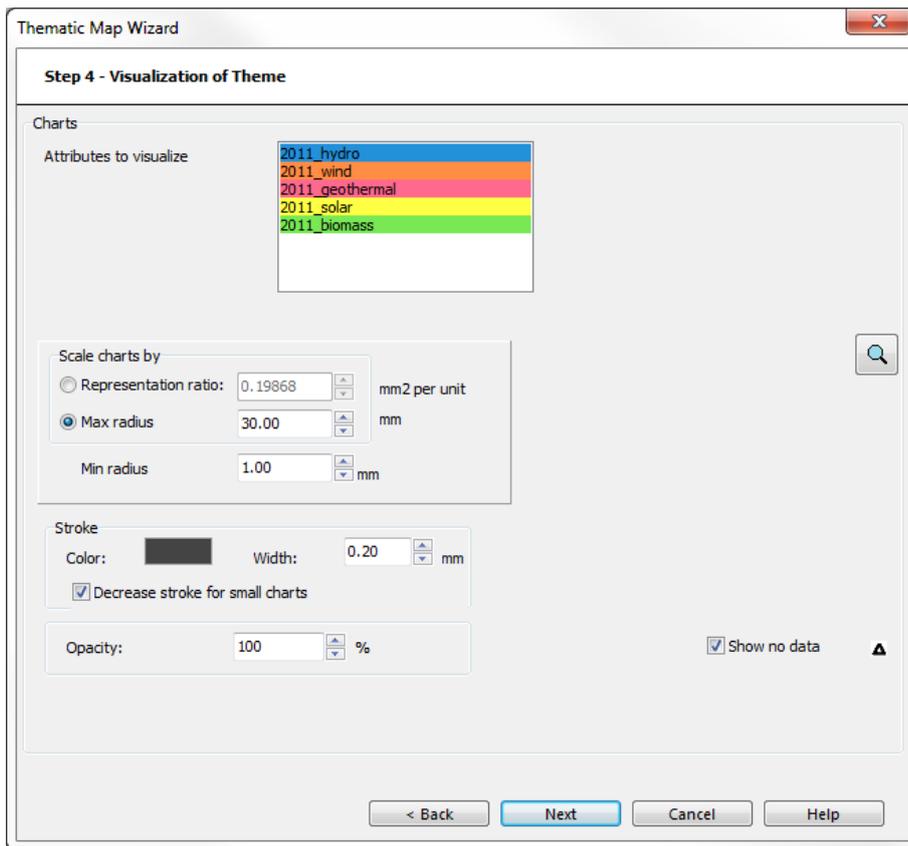
 Only logical group settings get shown and are to be picked.

3. Click on **Close** to use the current setting.
2. Define the proportionality of the chart elements.
3. Define the amount emphasis.
4. Make your choice out of the available charts.



Phase 2

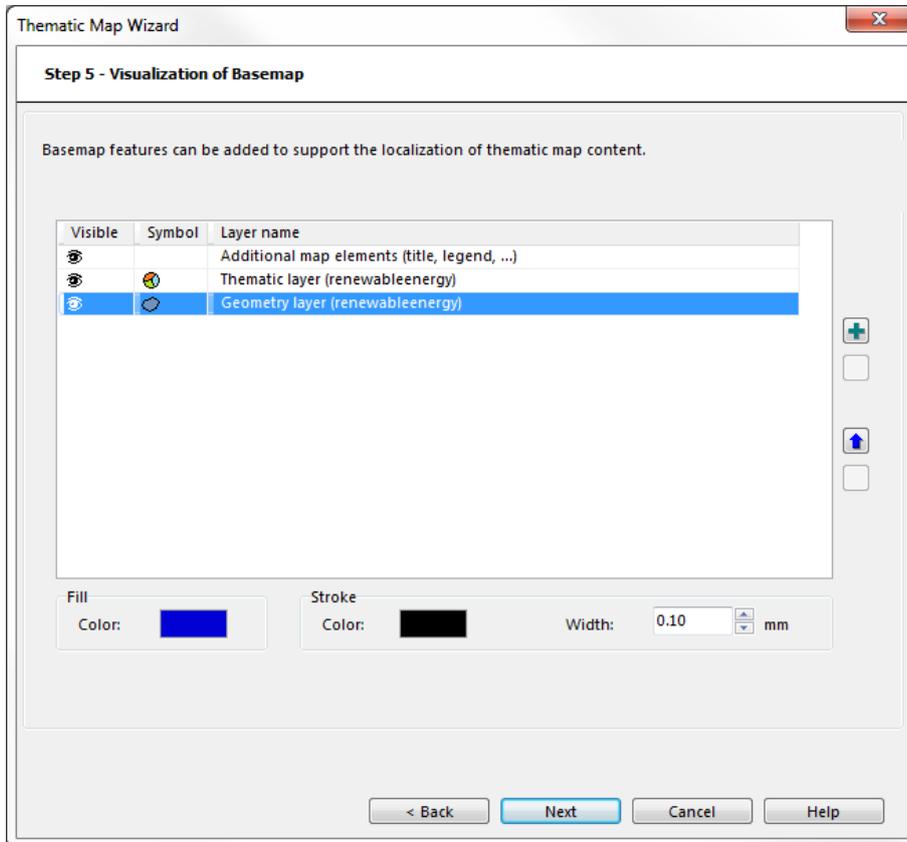
1. Decide which visualization type shall be used.
2. A double click on the attribute(s) opens the color picker and allows to change the coloration either with CMYK or RGB.
3. Define the scale, minimum height and bar width for the visualization.
4. Define the stroke setting.
 1. Click in the color box to open the color picker and select a color.
 2. Define the stroke width and decide if the stroke shall decrease for small symbols.
 3. Decide if **0 values** and **no data** shall be shown.
5. Define the opacity.



Step 5 - Visualization of Basemap

This step shows the different layers and can be edited and arranged. Additional layers can be added  and removed .

 Make sure that the basemap features are suitable for this scale.

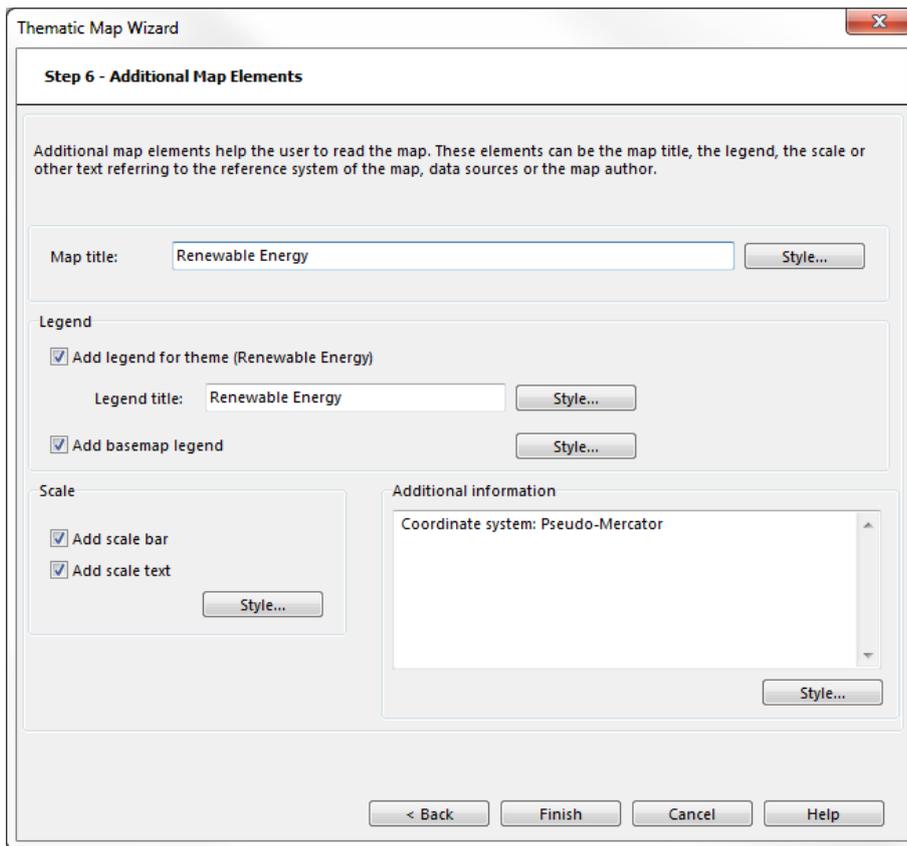


Step 6 - Additional Map Elements

Additional map elements help the user to read the map.

1. Set a map title.
2. Decide if any legends shall be added.
3. Decide if a **scale bar** or a **scale text** shall be added.
4. Decide if you want to add any additional text information.

 Any text element can get it's own style setting.



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.

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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.
 - 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 KML



(This function is not available if the map is hidden.)

Choose KML (Google Earth) 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.

After clicking OK, a file dialog box is displayed where you can enter a filename.

Export KMZ Pro Std

Choose this command to export the map as a raster KMZ file. It is possible to open the exported KMZ file in Google Earth or upload this file on a Garmin GPS which supports 'Garmin Custom Maps'.



Tiles: Choose here between no tiles, 'Garmin Custom Maps' optimized tiles (max 1024x1024 pixels) or user-defined 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

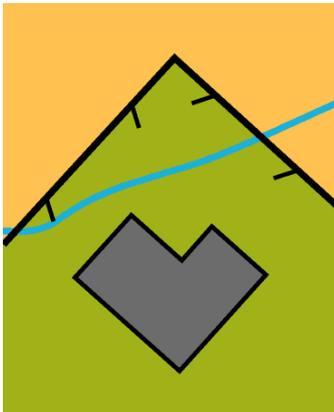
CMYK (process) solors: Select this radio button to export a color map. The color PDF contains CMYK colors. At the service bureau color copies or films for CMYK printing can be made.

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.



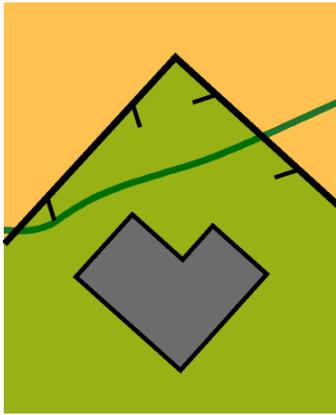
All 5 used colors (Black, Blue, Gray, Olive, Yellow) are defined as CMYK values and Spot color values in the Color table.

The color Olive consists 50% of the spot color Green_PMS361 and 100% of Yellow_PMS136.

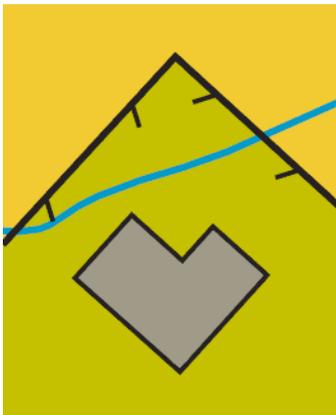
The value '0' in the spot colors column means 'Knocking out'. For example the color Olive knocks out the three spot colors Blue_PMS299, Green_PMS361, Yellow_PMS136. But the color Blue doesn't knock out the spot color Yellow_PMS136.

Colors											Spot colors [%]			
No.	Name	CMYK (process) colors [%]					Ov.	Opacity	Symbols	Map	Black_Spot	Blue_299	Green_361	Yellow_136
		Cyan	Magenta	Yellow	Black									
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.



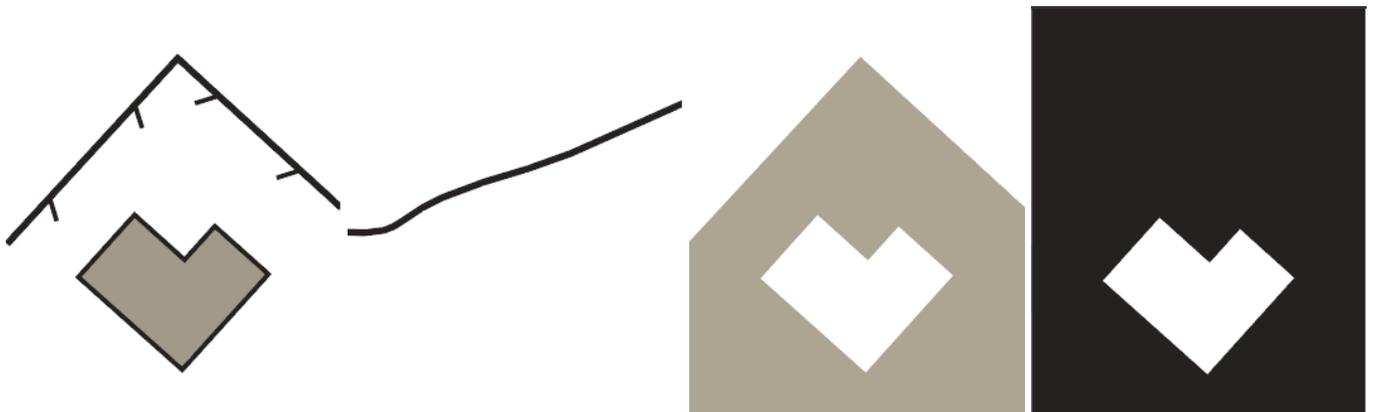
When exporting the file as pdf and choosing the **CMYK (process) colors** option then OCAD ignores the spot colors. The pdf appears in Adobe Reader as in OCAD Normal View.



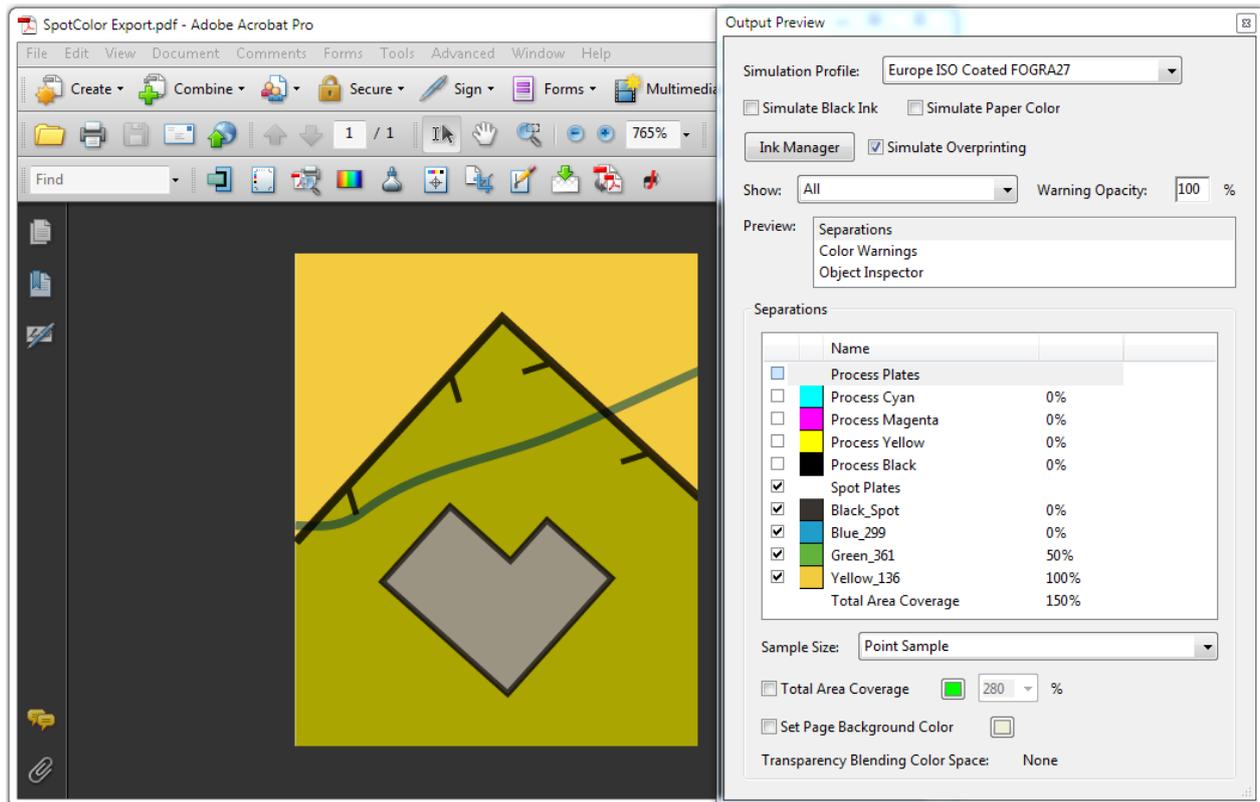
When choosing the not combined Spot colors then OCAD creates for each spot color a pdf file in grayscale. That are the four sport colors:

- Black_Spot
- Blue_PMS299
- Green_PMS361
- Yellow_PMS136

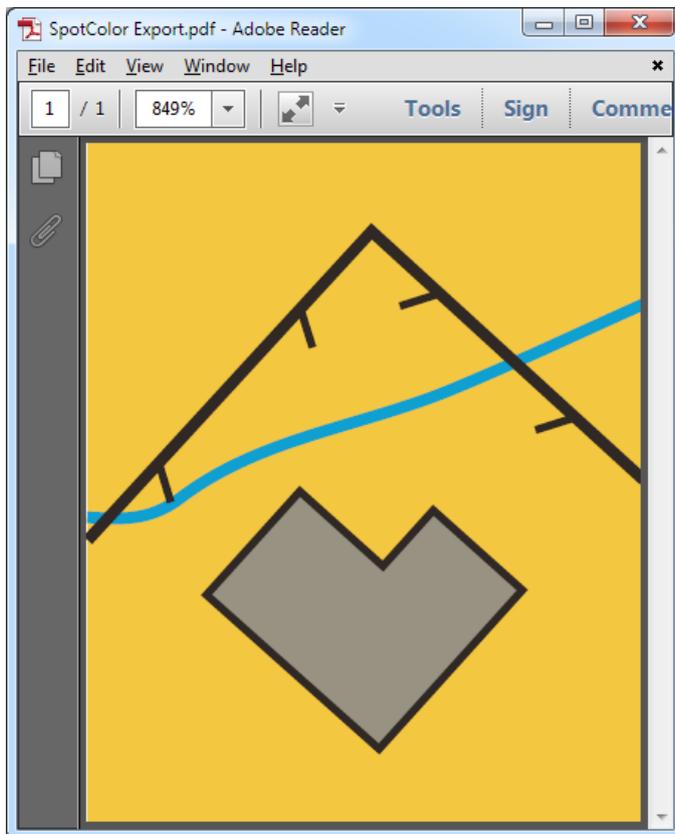
The color Olive consists of 50% Green_PMS361 and 100% Yellow_PMS136. The gray building knocks out the other three spot colors.



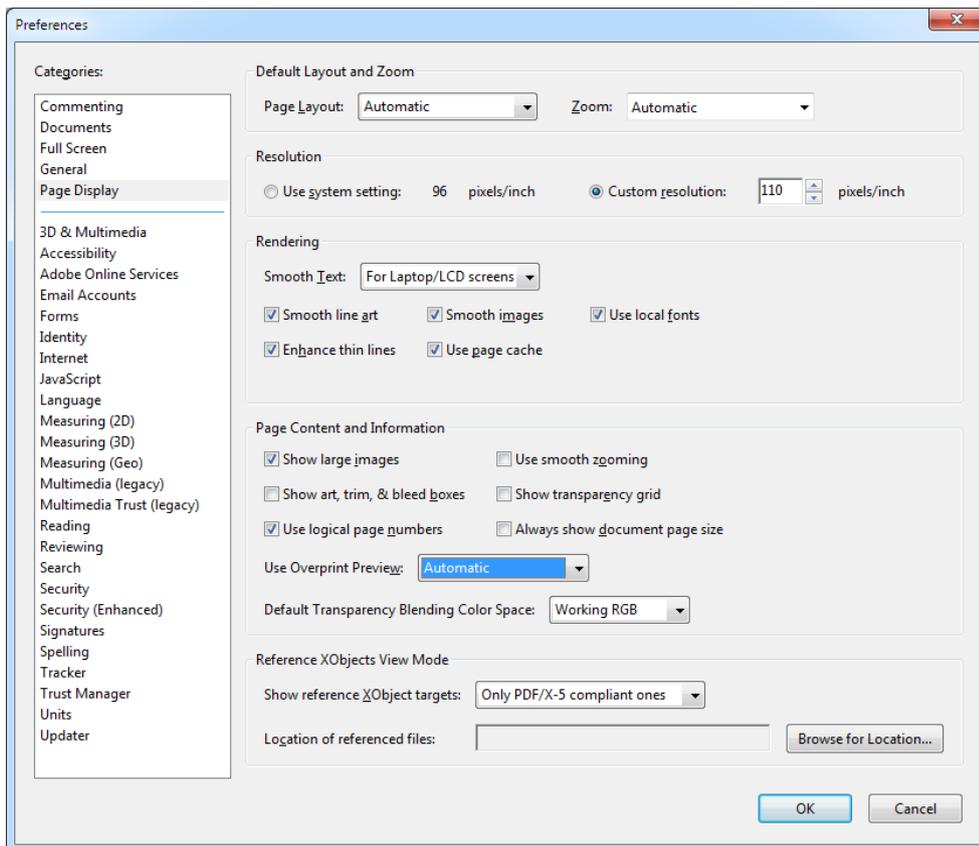
When choosing the combined Spot colors then OCAD creates one pdf file with the four selected spot colors. The four single spot plates are visible in the Separations list in Adobe Acrobat Pro. Please check that the option **Simulate Overprinting** is activated.



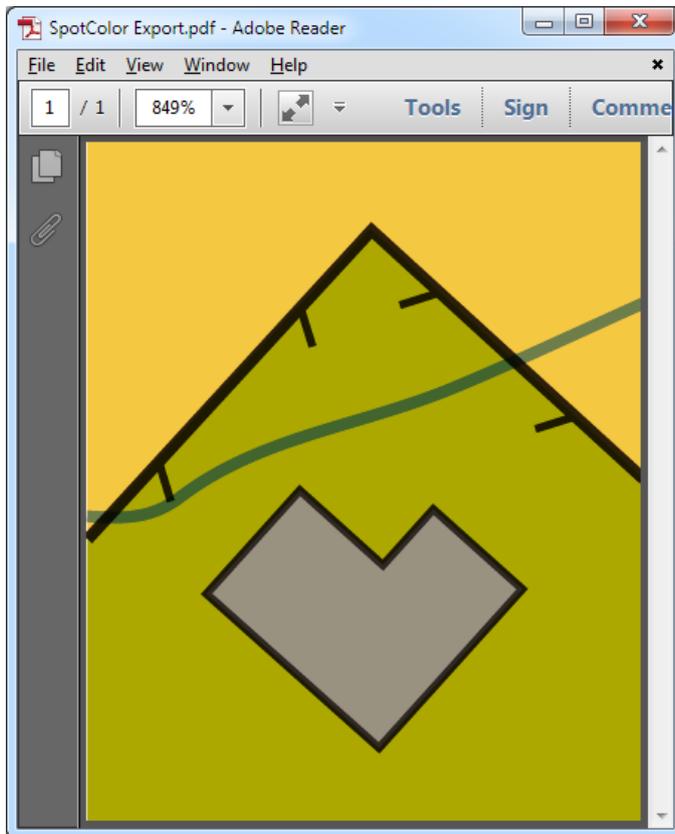
With the default settings Adobe Reader doesn't simulate the spot color printing. The yellow part of the Olive area overlays the green part and isn't transparent.



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.

If you select **Objects in dataset** the dBase file will contain the information of the corresponding table.

 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.

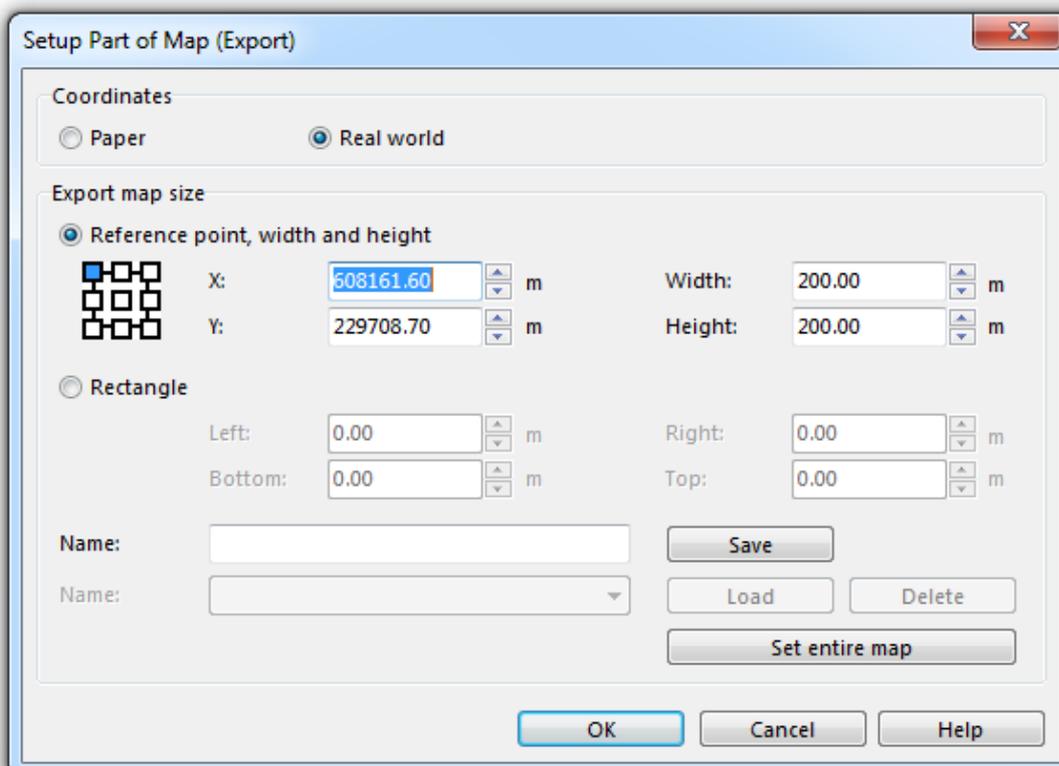
Export Encrypted File

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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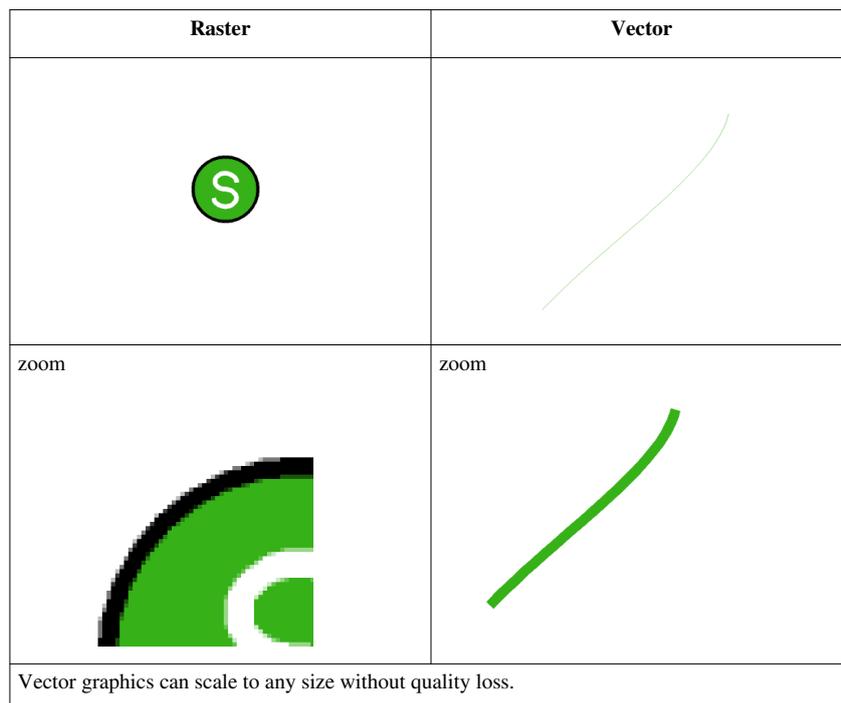
File Export Information

Files

File extension	Format	Properties	Advantages	Disadvantages	Graphic
*.ai	Adobe Illustrator	Version 7			Vector (2D)
*.bmp	Bitmap		Uncompressed or lossless RLE (runlength encoding) compression	The weak compression result in larger file sizes than other formats	Raster
*.dxf	Drawing Interchange Format			Also suitable for 3D models	Vector (2D)
*.eps	Encapsulated Post Script		Writing style		Vector and/or Raster
*.Gif	Graphic Interchange format		-Lossless compressing graphics format -Supports animations	Limited to 256 colors	Raster
*.gpx	GPS eXchange file	GPS data		XML-based format for GPS data	
*.jpg	Joint photographic experts group		-Lossy compressed 24 bit image files -Embedding of paths possible	This is unsuitable for text and hard color transitions	Raster
*.Kml	Google Earth (Vector)	Map			Vector
*.kmz	Google Earth (Raster)	Coordinates			Raster
*.htm	OCAD internet map	Types: -Java Applet -Flash -SVG			

*.pdf	Portable Document Format		-Lossless compression -On any operating system readable -Small file size	Need reader to read	Raster and/or vector
*.shp	Shapefile	ESRI ArcGIS format for storing vector data			
*.svg	Scalable Vector Graphics	Open, XML-based vector graphics format			
*.tiff	Tagged Image File Format	Universal, pixel image format	-Lossless compression -32 bit		

Raster-Vector



More Informations:

Raster Graphics Wikipedia ^[1]

Vector Graphics Wikipedia ^[2]

References

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

[2] http://en.wikipedia.org/wiki/Vector_graphics

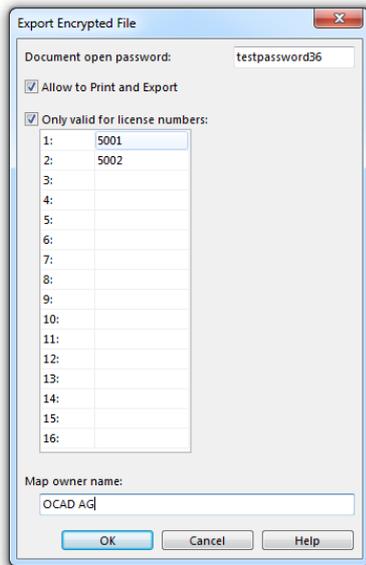
Encrypted OCAD File

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.

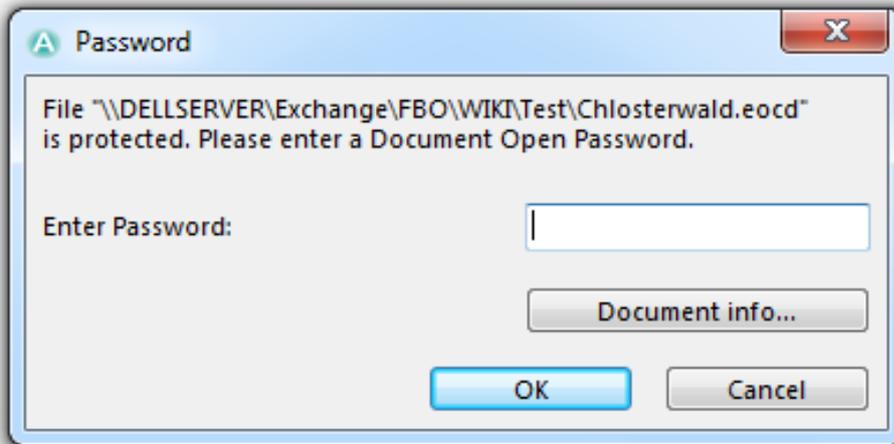
Load an Encrypted OCAD File



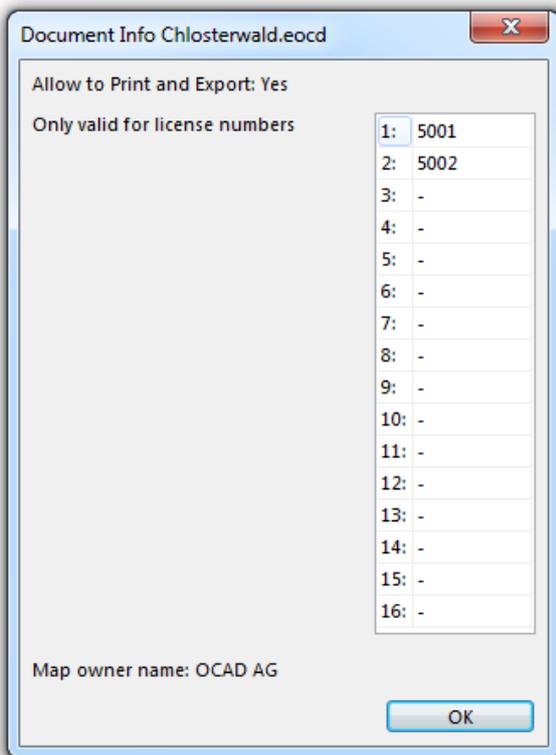
In the OCAD Starter Edition, encrypted OCAD files can only be loaded in course setting projects.

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.

Setup Tiles

This dialog box appears if the Setup button for Tiles in the Export panel is clicked.

If you choose the Tiles option, the map is divided into small rectangular fields (tiles) and a 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 the width and height of a tile.

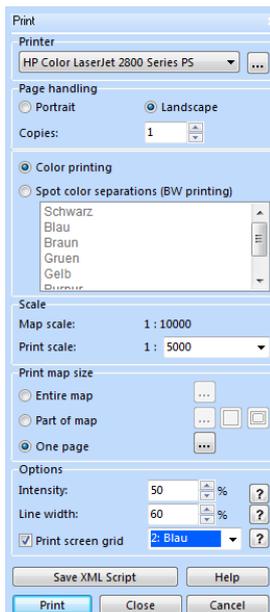
Back to Export Files

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 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.

First, choose between **Paper** or **Real World Coordinates**. In the **Print map size** part of the dialog, you can make the following adjustments:

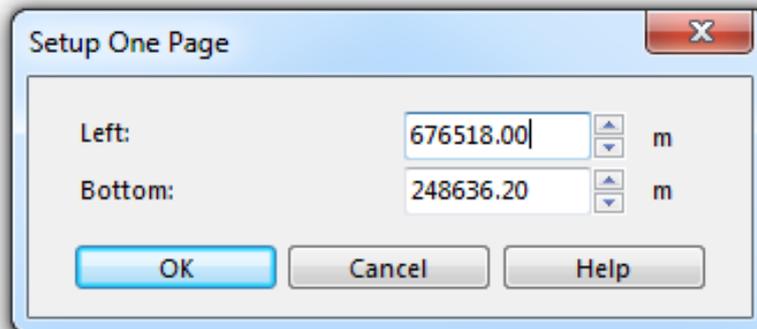
1. Choose between the **Reference point, width and height** and the **Rectangle** option. When you choose the first option:
 1. Choose the point of the map which you want to define as the reference point (e.g. upper left corner). Click one of the nine squares.
 2. Enter the coordinate of the chosen point.
 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



DEM Import Wizard

Pro Std

The OCAD DEM Module 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 or *.zlas) and SRTM file (*.hgt) file.

1. Open a map or create a new one.
2. Select **Import** from the **DEM** menu. First use **Add** button to add at least 1 DEM to the **DEM Import** dialog.
3. **Analyze** the DEM to get some information about the DEM like extent, cell size etc. The **DEM Import** dialog extends after analyzing a LAS file and provides some additional settings.
4. 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.
5. At the end of the import procedure the imported DEM must be saved in the OCAD DEM file format (*.ocdDem) and it is loaded to the OCAD map.
6. To see the extent of the loaded DEM activate the **Show Frame** menu item.



The **Cell size** range is between 0.01 and 650 m.



The DEM import limit depends on the amount of memory available.

Coordinate System:

DEM data are sometimes in another coordinate system than the map. OCAD provides a new function to transform DEM data during the DEM import.

In this example bellow the map file with the loaded orthophoto has the UTM Zone 18 North coordinate system, but the Lidar data are only available in US State Plane New York Long Island (US Feet).

Click the **Choose** button in the DEM Import dialog to choose the coordinate system of the DEM file and check the option **Convert height values from feet to meters**. Click **Analyze**.

OCAD transforms all data points during the analysis procedure.

LAS data import:

- Click the **Choose DTM** button to create a terrain model from LAS data. This selects **ground** classification and the **Last return** option.
- Click the **Choose DSM** button to create a surface model from LAS data. This selects **all classifications** and the **First return** option.

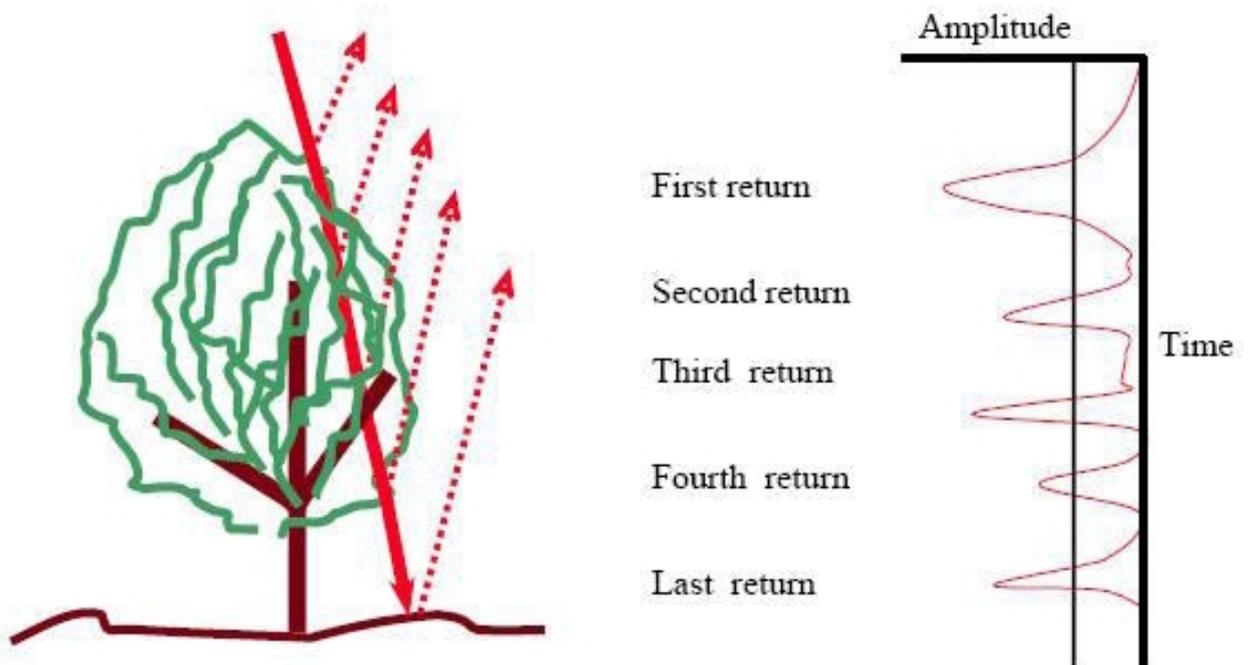


During LAS data import a classification image and a intensity image are created and loaded as background maps. A difference image between the first and last return is created if the **All returns** option in the DEM Import dialog is chosen.

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)

💡 A Radar beam splits as it hits objects. The result are multiple returns. LIDAR can collect up to four 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.

💡 Compressed LAS file (*.laz): OCAD uses the laszip.exe^[1] tool from Martin Isenburg^[2] to decompress the laz file.

SRTM hgt data import:

- This is a world wide available DEM data set from the Shuttle Radar Topography Mission (SRTM).
- The data files and documentation: [3]

💡 SRTM hgt data import requires that a coordinate system set in the OCAD map file.

Open

Pro Std Sta CS

Open an OCAD DEM file (*.ocdDem).

Show Frame

Pro Std Sta CS

Shows blue rectangle with the extent of the loaded DEM.

Resize

Pro Std

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

Info

Pro Std Sta CS

Shows information about OCAD DEM file.

💡 When moving the mouse cursor over the file name then the file name with path appears.

Close



Close OCAD DEM file.

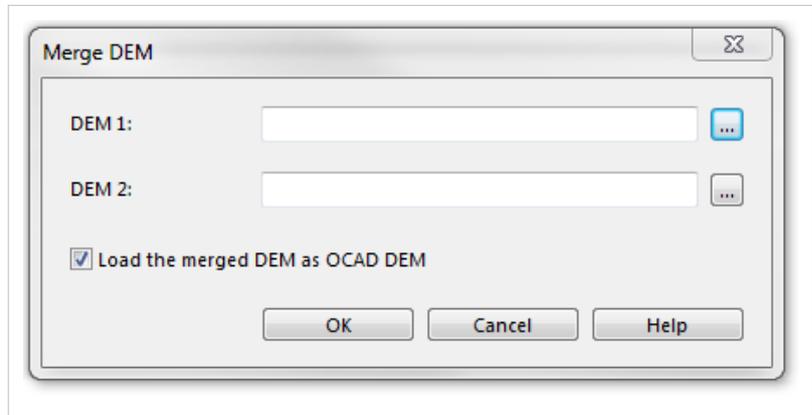
Merge DEM



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

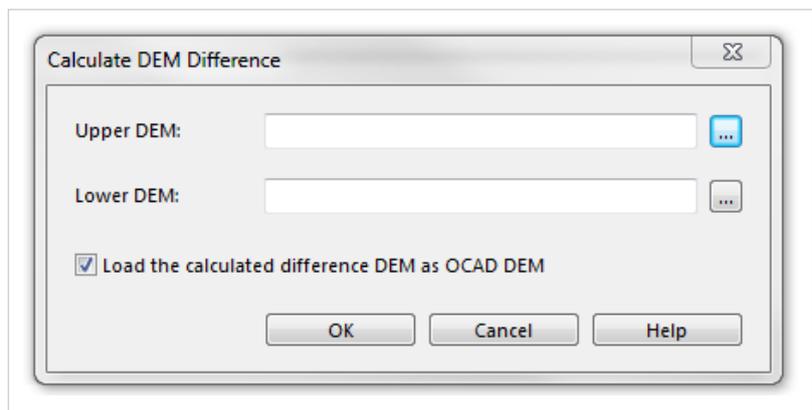


1. Choose **Calculate DEM Difference** from **DEM** menu.
2. The **Calculate DEM Difference** dialog box appears.
3. Add *Upper DEM* = DSM data file
4. Add *Lower DEM* = DEM data file
5. Click **OK**.

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.

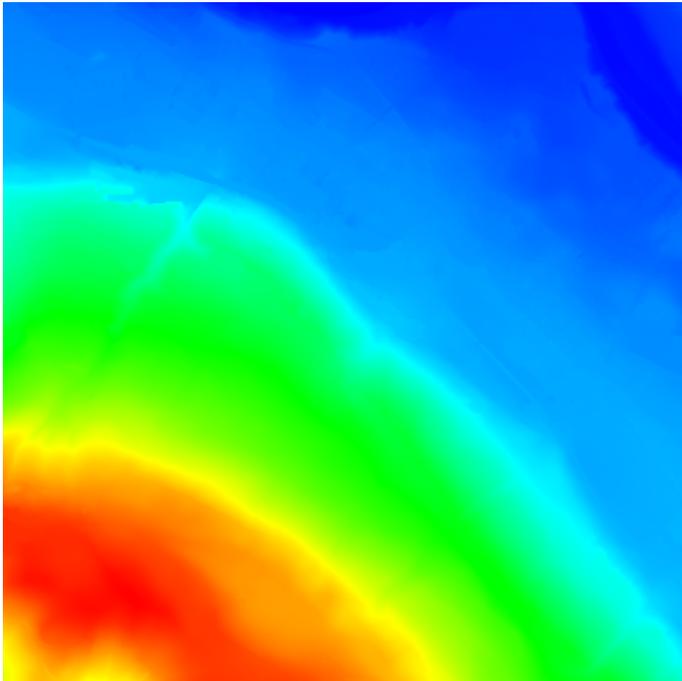
💡 The cell size of *Upper DEM* and *Lower DEM* can be different. OCAD takes the cell size of *Upper DEM* for the new DEM.



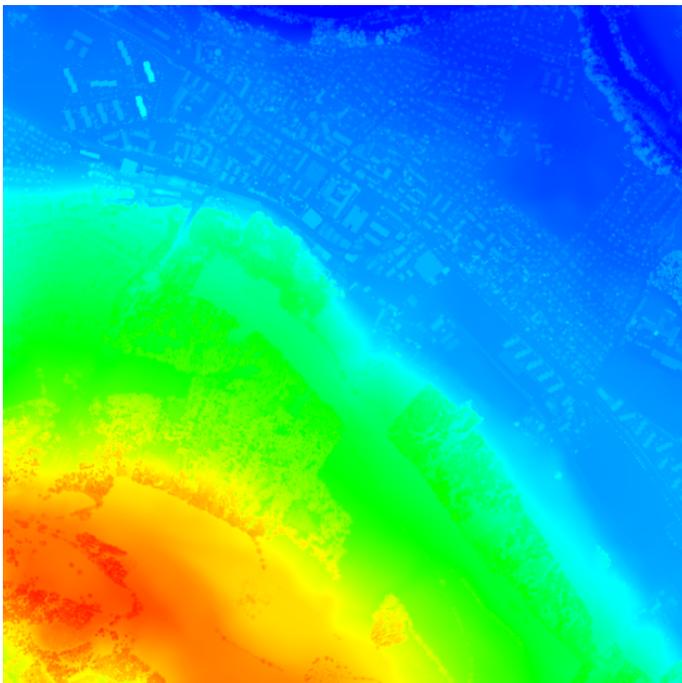
Example

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

Pro Std

- Choose **Create Contour Lines** from DEM menu.
- The **Create Contour Lines** dialog box appears.

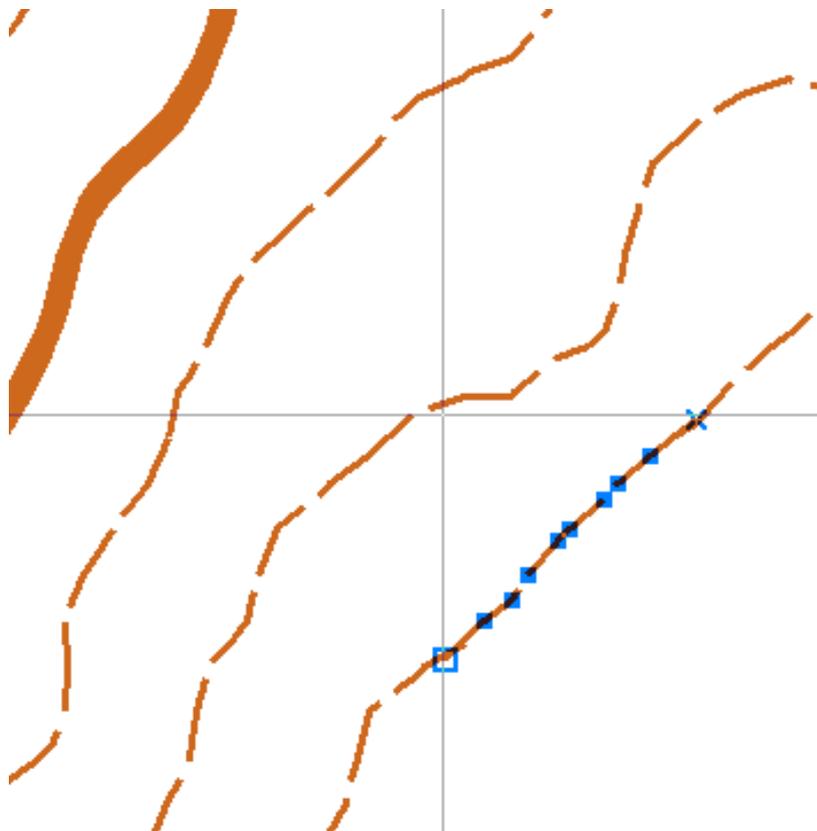
This function calculates contour lines based on the loaded DEM.

This function can take a lot of time. OCAD starts to calculate the contour lines from the lowest elevation (minimum contour). During the calculation process the current elevation is shown in the left status bar.

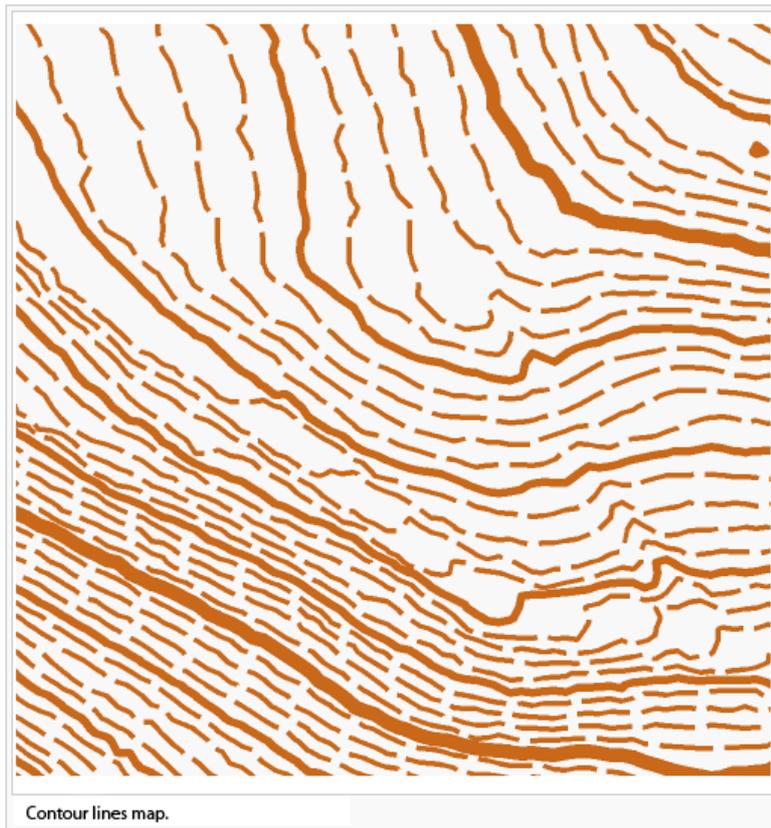
- Define 1-3 contour intervals (for example 1m, 5m, 25m) and a pre-selected line symbol (according to the first three line symbols in the settings) for each type appears (can be changed).

💡 Contour interval values can be entered manually or chosen from the list.

- Specify the minimum (lowest) and maximum (highest) contour for the calculation.
- Activate the option **Split DEM into tiles** to speed up this calculate process. In this case OCAD splits the dem into small tiles and calculates tile by tile. Finally the contour lines are also splited at the tile borders. It is not visible on the screen but you see it when selecting a contour line. Use the Merge Contour Lines By Selected Symbols function to merge the contour lines if needed.



The selected contour line is cutted at the tile borders.



Create Hypsometric Map

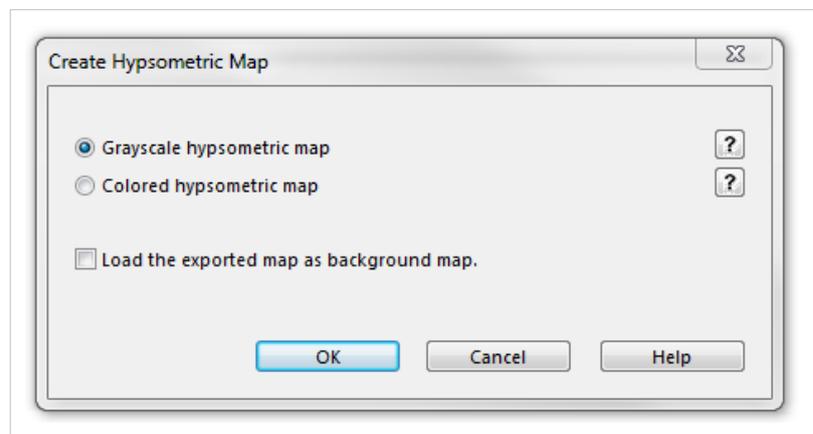
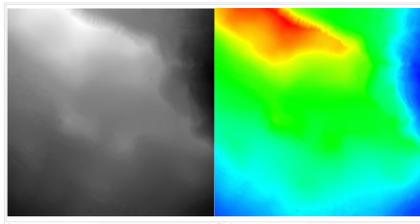
Pro Std

This function calculates a grayscale or colored hypsometric map as GeoTIFF file.

Optionally it is directly loaded as background map.

Two different types of hypsometric maps can be edited:

- Grayscale hypsometric map
- Colored hypsometric map



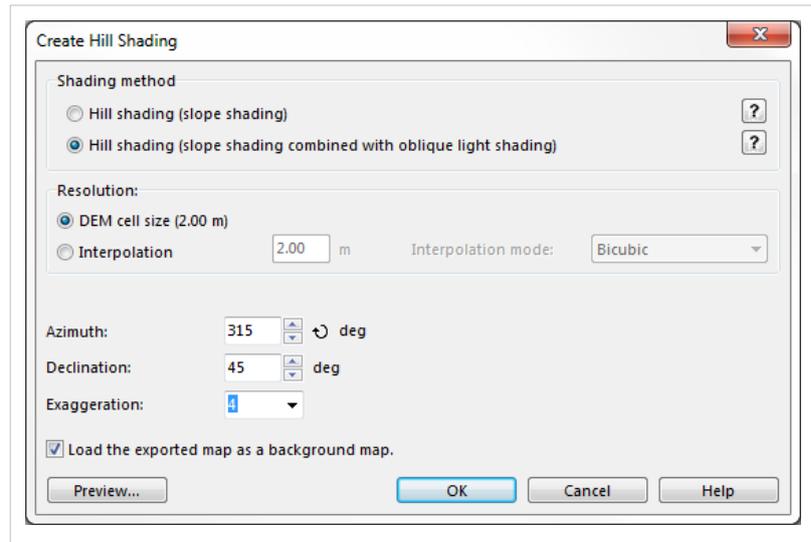
Create Hill Shading

Pro Std

This function calculates a shaded relief picture (hill shading).

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.



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°.

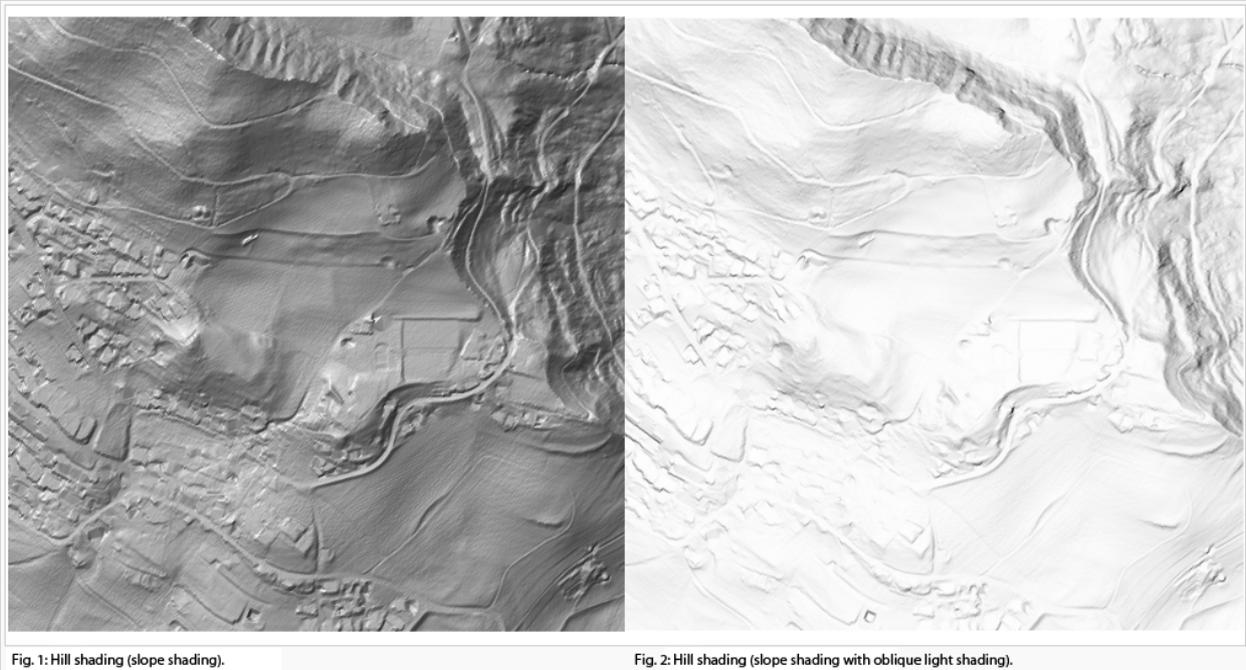
An **Exaggeration** factor of 4 is pre-selected and can be altered.

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.

💡 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.

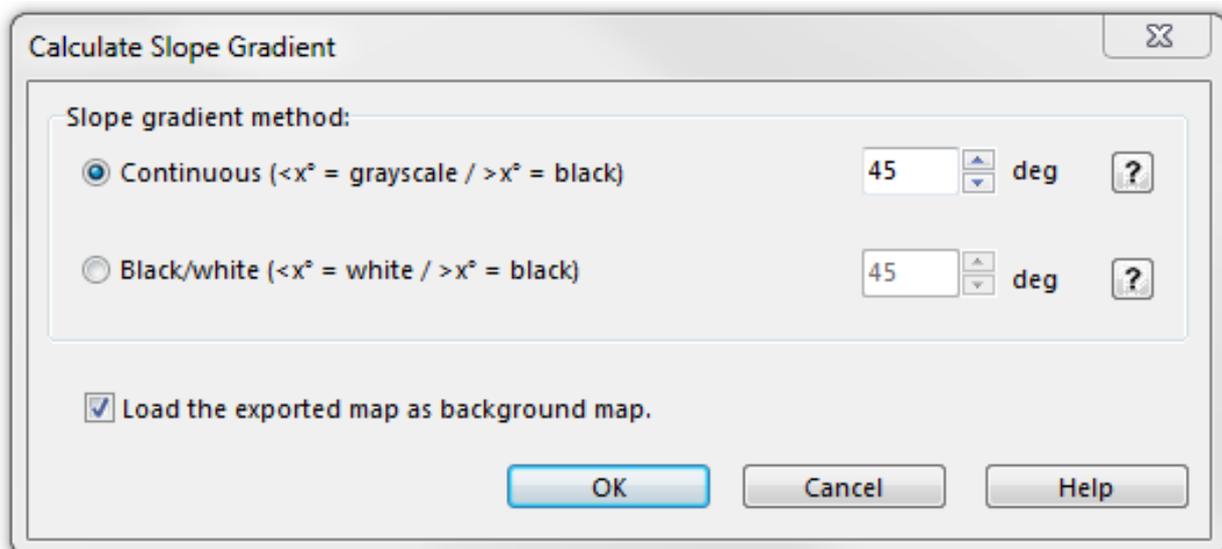


Error Message *Bitmap is too big*

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

Pro Std



Choose **Calculate Slope Gradient** from **DEM** menu.

The **Calculate Slope Gradient** dialog box appears.

Select one of two different methods:

- Continuous (<x° = grayscale / >x° = black)
- Black/White (<x° = white / >x° = 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.

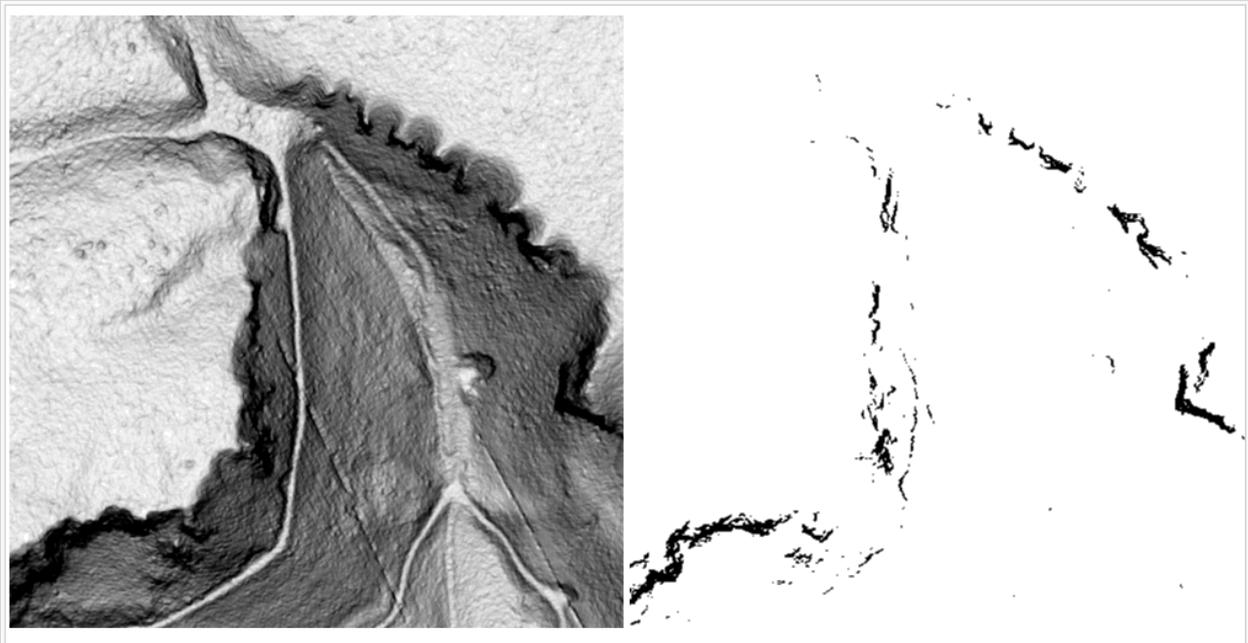


Fig. 1: Slope gradient method: Continuous (0° - 50° = grayscale).

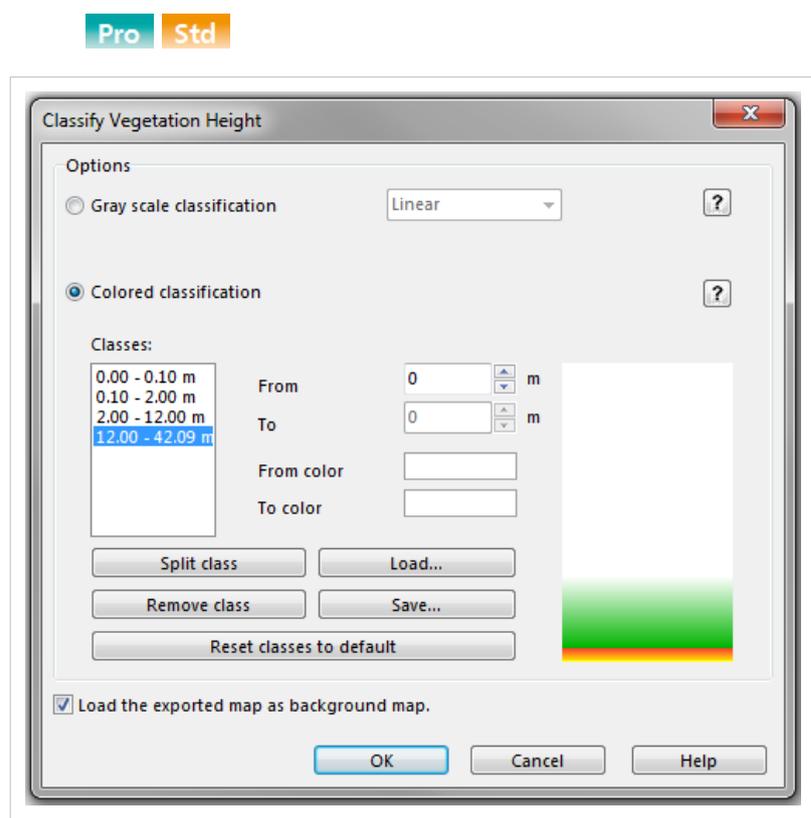
Fig. 2: Slope gradient method: Black/white (< 45° = white).

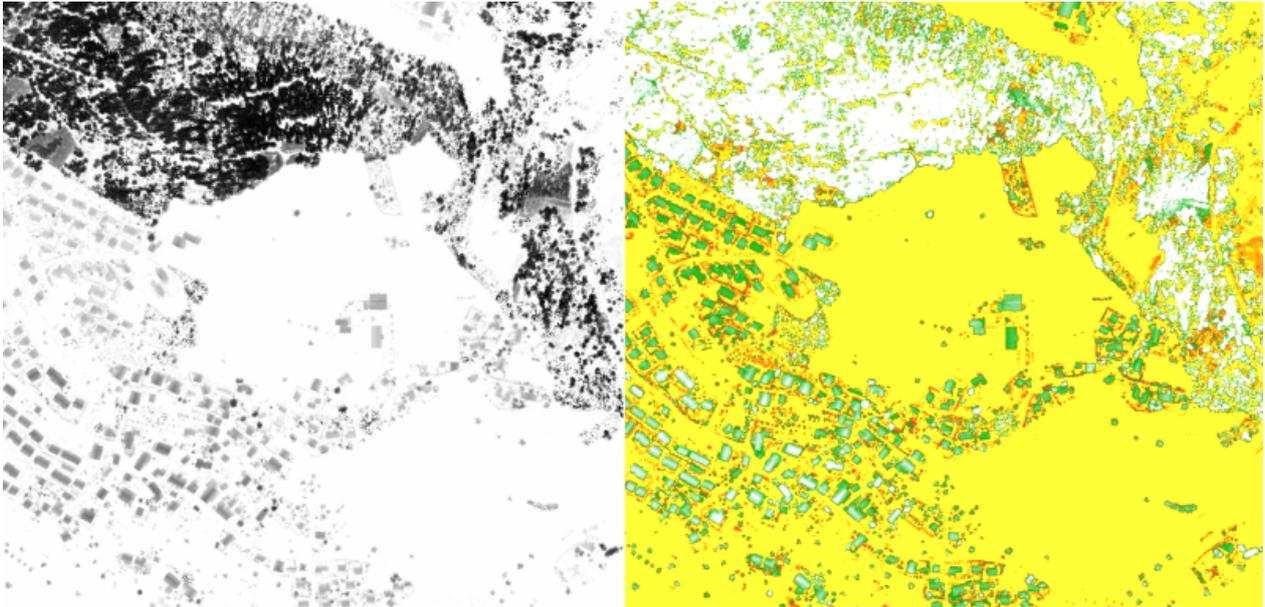
Classify Vegetation Height

Choose **Classify Vegetation Height** from **DEM** menu.

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

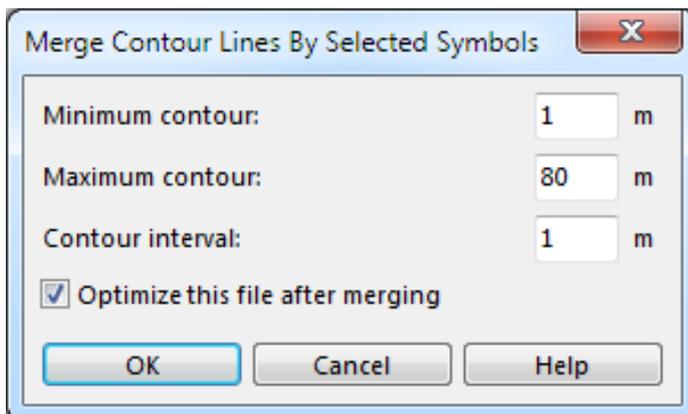




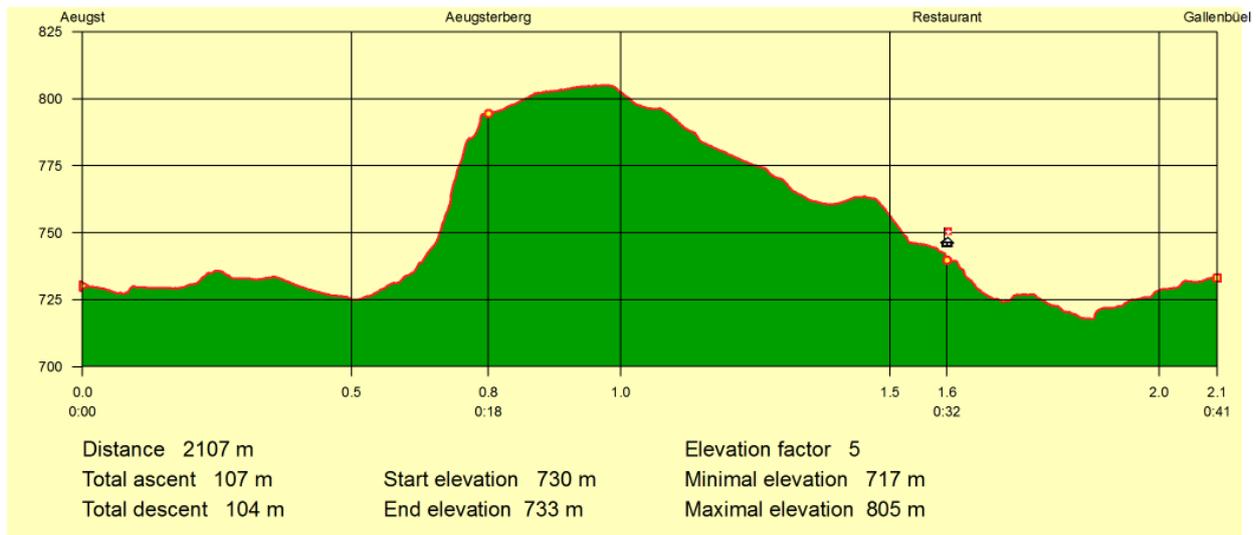
Merge Contour Lines By Selected Symbols

Pro Std

- 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

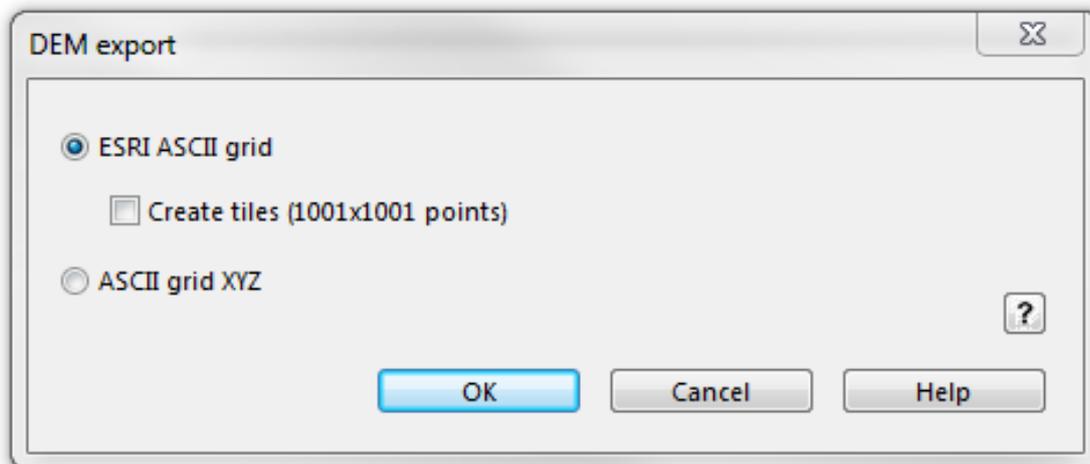


Find more information about this function on the [DEM Profile](#) page.

Export



- 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.

ocdLas File

Pro Std

Learn more about the **ocdLas File** functions on the **ocdLas File** page.

[Back to Main Page](#)

[Previous Chapter: Printing Maps](#)

[Next Chapter: GPS](#)

References

- [1] <http://www.cs.unc.edu/~isenburg/lastools/>
- [2] <http://www.cs.unc.edu/~isenburg/>
- [3] http://dds.cr.usgs.gov/srtm/version2_1/

DEM Profile

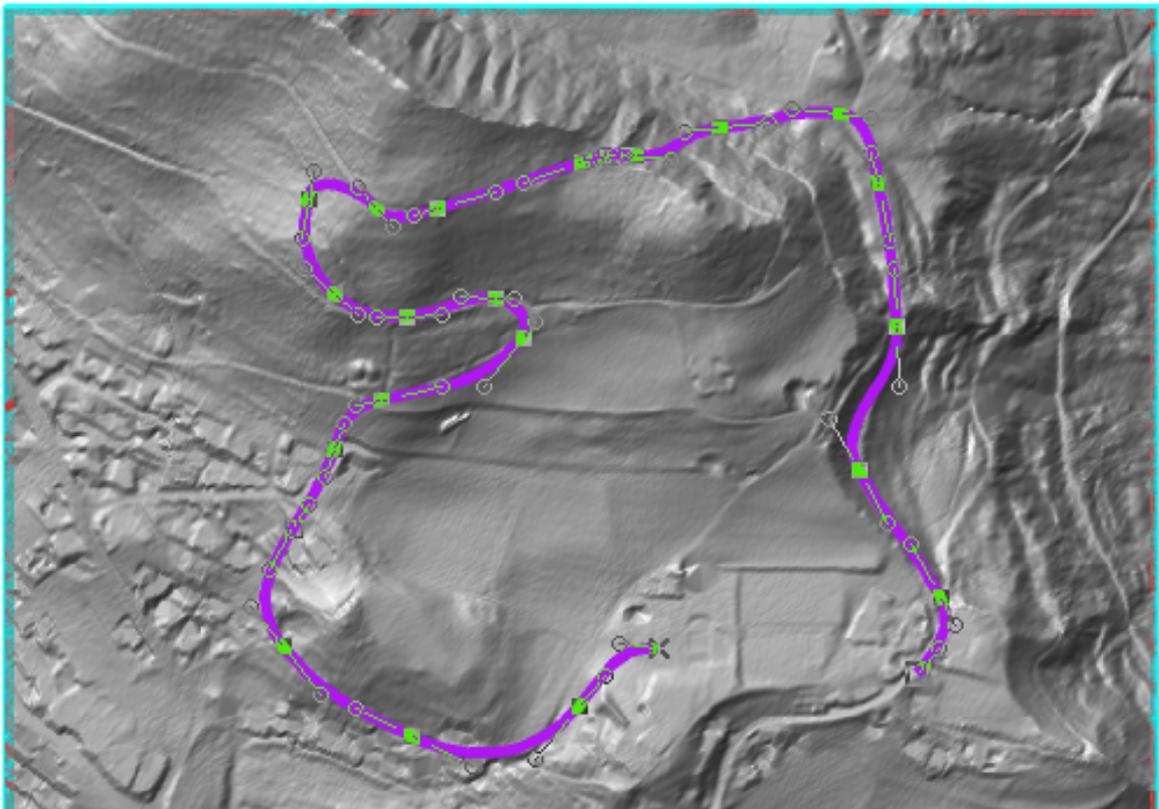
To use this function a **DEM** has to be loaded.

Create a Profile

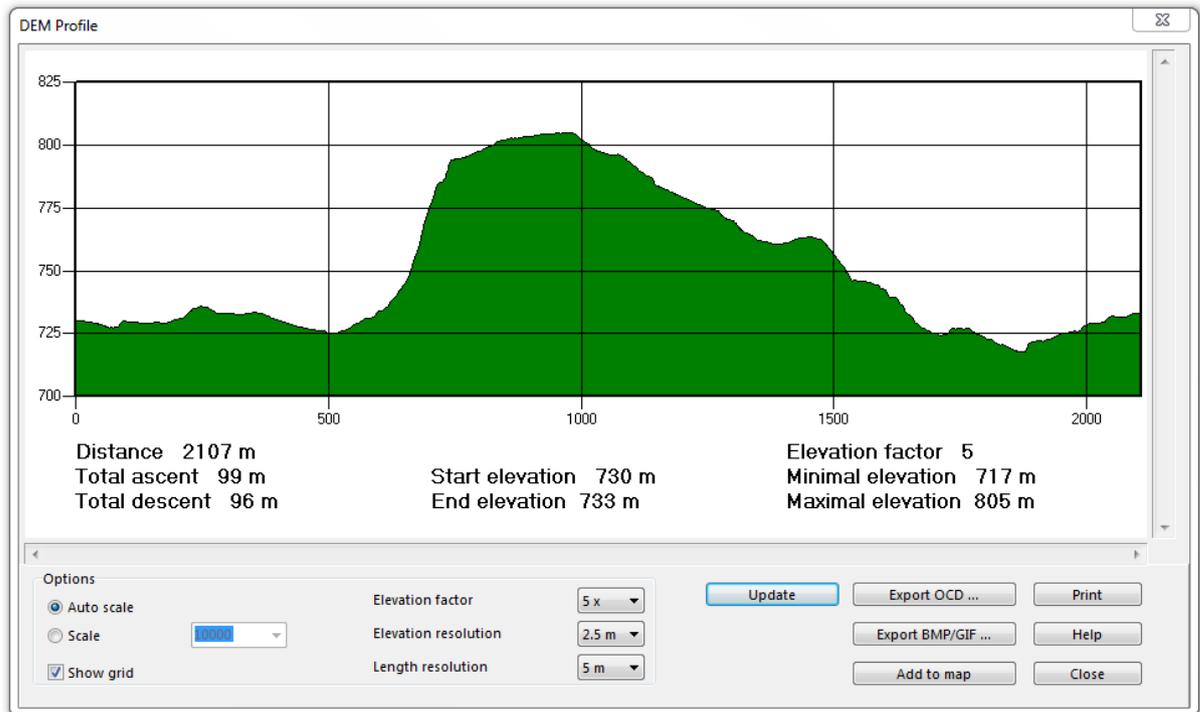
Pro Std Sta CS

To create a profile:

1. Select a line object within the **DEM** data. Add a **Corner Vertex** to the line to create a stopover. Stopovers are visible in the profile after exporting an OCD-File or adding it to the map.



2. Choose the **Create Profile** command from the **DEM** menu.
 3. The **DEM Profile** dialog appears and the profile is shown.
-



You have several options now:

- **Auto scale:** If this option is enabled, OCAD takes a scale which fits best to the dialog box.
- **Scale:** Choose the desired scale of the profile in the dropdown list.
- **Show grid:** If this box is activated, a grid is shown in the profile.
- **Elevation factor:** Choose an elevation factor in the dropdown list. This is the scale factor for the horizontal profile axis (height).
- The **Elevation resolution** and the **Length resolution** are filters that influence the calculation of the total ascent and total descent. These resolution values should not be more accurate than the elevation resolution and cell size of the DEM.

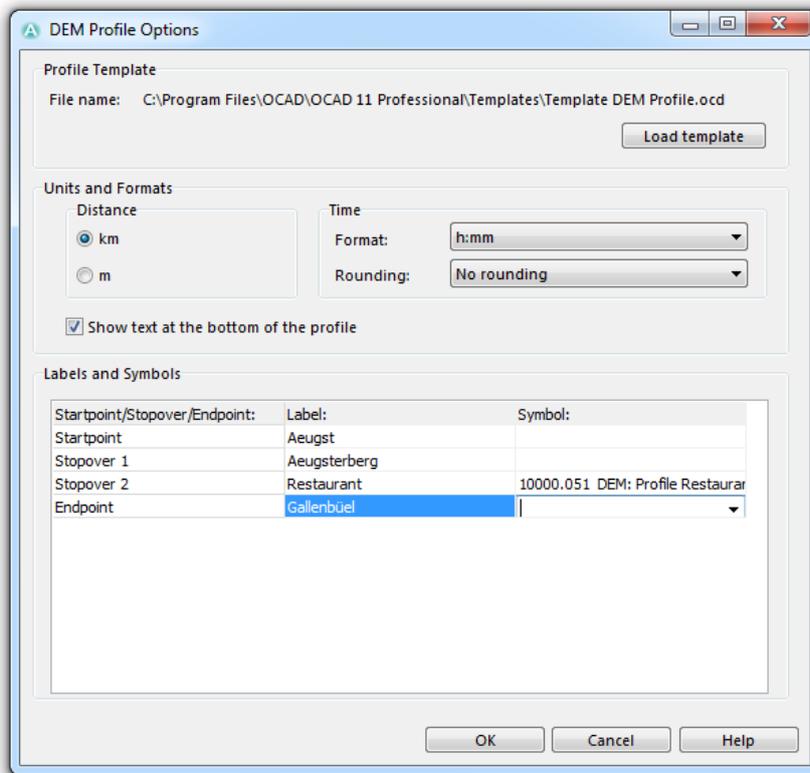
 **DEM Profile** dialog is a non-modal dialog. The user can switch to the OCAD map window. It is possible to edit the selected line object in the OCAD map. Click the **Update** button in the **DEM Profile** dialog to see the profile for the edited or newly selected object.

Export Profile

Pro

Export OCD

Click the **Export OCD** button to export the profile to a new OCD-File. The **DEM Profile Options** dialog appears.



The *Template DEM Profile.ocd* file in the *OCAD*-directory is chosen as a template file (for the symbol set, colors etc.) by default. You can choose an own template by clicking the **Load template** button.

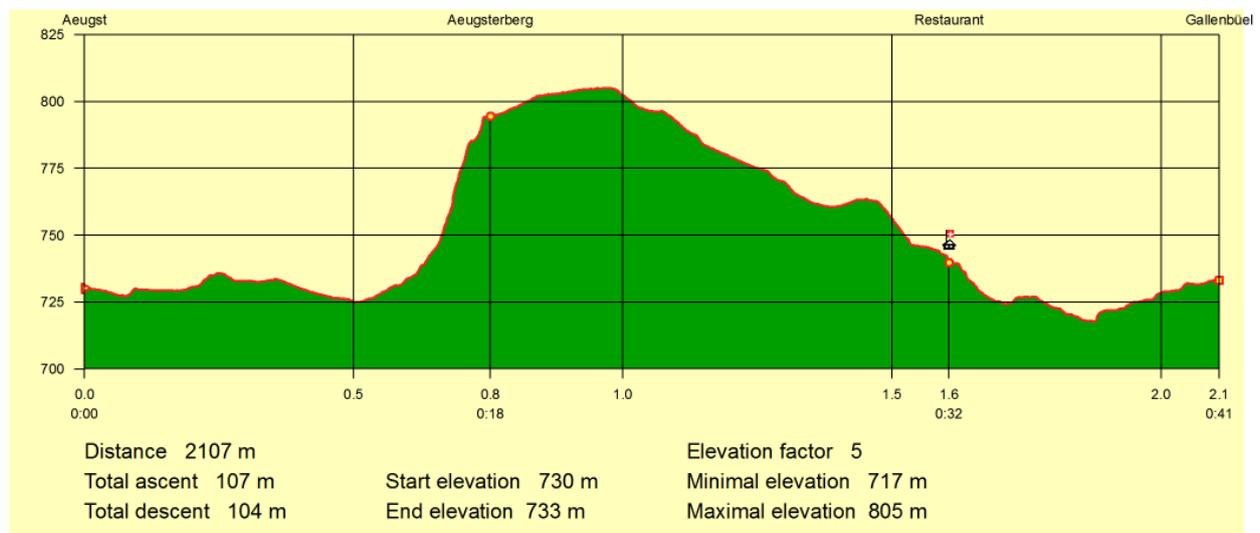
Symbol Number	Description	Symbol Type	Color(s)
10000.001	DEM: Elevation Text	Text symbol	10000: UPPER BLACK DEM PROFILE
10000.002	DEM: Distance Text	Text symbol	10000: UPPER BLACK DEM PROFILE
10000.003	DEM: Text	Text symbol	10000: UPPER BLACK DEM PROFILE
10000.004	DEM: Horizontal Grid Line	Line symbol	10006: LOWER BLACK DEM PROFILE
10000.005	DEM: Profile Frame	Line symbol	10000: UPPER BLACK DEM PROFILE
10000.006	DEM: Profile Line	Line symbol	10005: LOWER RED DEM PROFILE
10000.007	DEM: Profile Area	Area symbol	10003: GREEN DEM PROFILE
10000.008	DEM: White Background	Area symbol	10002: WHITE DEM PROFILE
10000.009	DEM: Horizontal Tag	Point symbol	10000: UPPER BLACK DEM PROFILE
10000.010	DEM: Vertical Tag	Point symbol	10000: UPPER BLACK DEM PROFILE
10000.011	DEM: Time Text	Text symbol	10000: UPPER BLACK DEM PROFILE
10000.012	DEM: Label Text Stopover	Text symbol	10000: UPPER BLACK DEM PROFILE
10000.014	DEM: Label Text Start- and Endpoint	Text symbol	10000: UPPER BLACK DEM PROFILE

10000.020	DEM: Profile Startpoint	Point symbol	10001: UPPER RED DEM PROFILE, 10004: YELLOW DEM PROFILE
10000.021	DEM: Profile Stopover	Point symbol	10001: UPPER RED DEM PROFILE 10004: YELLOW DEM PROFILE
10000.022	DEM: Profile Endpoint	Point symbol	10001: UPPER RED DEM PROFILE 10004: YELLOW DEM PROFILE
10000.041	DEM: Vertical Grid Line	Line symbol	10006: LOWER BLACK DEM PROFILE
10000.051	DEM: Profile Restaurant	Point symbol	10000: UPPER BLACK DEM PROFILE 10001: UPPER RED DEM PROFILE 10007: UPPER WHITE DEM PROFILE

In the **Units and Formats** category, you can choose, whether the distance is to be shown in **km** or in **m**. In addition, you can set the time format (at the moment only **h:mm** is available) and the rounding (**no rounding, 5 minutes, 10 minutes**). Uncheck the **Show text at the bottom of the profile** option if you do not want any text under the profile.

In the **Labels and Symbols** category, labels and symbols can be allocated to the start- and endpoint or a stopover. Enter a label in the corresponding field (for example the name of a place) and choose a symbol from the dropdown list. These symbols are defined in the template file. Add a **Corner Vertex** to the line which defines the profile to create a stopover.

Click the **OK** button when finished. In the next dialog you have to save the profile at the desired location. To open the document, use the **Open Recently Exported Documents** function in the **File** menu. The profile can be edited (e.g. change colors or add objects) there.



Stopovers are marked with a dot on the profile line and a vertical line to the x-axis. At the start- and endpoints as well as the stopovers the covered distance and the walking time are indicated.

Export BMP/GIF

Click the **Export BMP/GIF** button to export the profile as a raster image. The **Save Picture** dialog box appears. Browse a location and enter a name for the new file. Choose the file type in the **Save as type** drop down list. Click the **Save** button to finish. The exported profile looks the same as the profile shown in the **DEM Profile** dialog.

Add to map

Note: This function is similar to the **Export OCD** function. For more information and illustrations visit the corresponding article.

Click the **Add to map** button to add the profile to the currently opened map. The **DEM Profile Options** dialog appears.

The *Template DEM Profile.ocd* file in the *OCAD*-directory is chosen as a template file (for the symbol set, colors etc.) by default. You can choose an own template by clicking the **Load template** button.

In the **Units and Formats** category, you can choose, whether the distance is to be shown in **km** or in **m**. In addition, you can set the time format (at the moment only **h:mm** is available) and the rounding (**no rounding**, **5 minutes**, **10 minutes**). Uncheck the **Show text at the bottom of the profile** option if you do not want any text under the profile.

In the **Labels and Symbols** category, labels and symbols can be allocated to the start- and endpoint or a stopover. Enter a label in the corresponding field (for example the name of a place) and choose a symbol from the dropdown list. These symbols are defined in the template file. Add a **Corner Vertex** to the line which defines the profile to create a stopover.

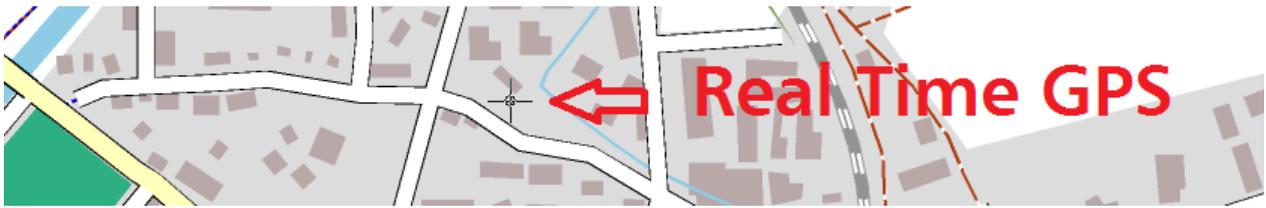
Click the **OK** button when finished. The symbols and colors from the template file are added to the current symbol set and the profile is displayed.

Print

Click the **Print** button to print the profile. The profile is printed exactly as it is displayed in the dialog box.

Back to the **DEM** page.

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 **GPSSGate 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 Port: COM3

Windows Location API Baud rate: 9600 bps

HTTP (Smartphone)

Connect

Disconnect

Help

Test...

Requirements

DGPS, RTK, Float RTK

Min. 4 satellites Otherwise

HDOP < 1 Position is not saved

Options

Filter 5 Values (Default)

Accuracy circle

Auto scroll (moving map)

Subtract antenna height from Z value 0.0 m

GPS real time mode

Geo-referenced mode

Adjusted mode

Coordinate system

Swiss Grid CH1903 Change...

Connection Settings

There are three Connection Settings:

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

Not all Windows computers support COM ports anymore. In such cases internal or external GPS devices can be connected using the Windows Location API ^[3]. OCAD supports this interface since service update 11.4.0 ^[4]. 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. Enter this address with the port (seperated by a colon) in your browser on your smartphone to connect the device. Example: 192.168.1.37:8088

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

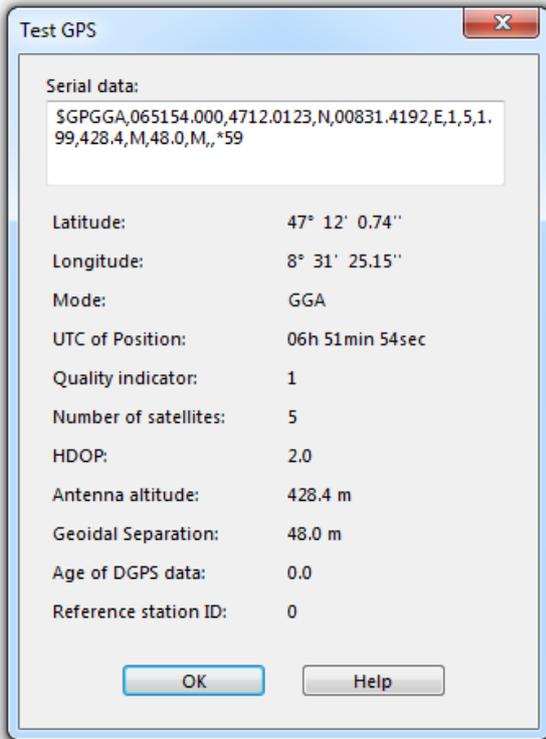
- **Filter:** Check this option to activate a filter and specify how many GPS positions are averaged. This results in a more stable position, but the update is slower.
- **Accuracy circle:** This option is enabled when the **Filter** option is checked. Check this option to show the accuracy circle. This 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.
- **GPS real time mode:** Choose between **Geo-referenced mode** (since OCAD 9) and **Adjusted Mode** (until OCAD 8).
- **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 recieved 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:

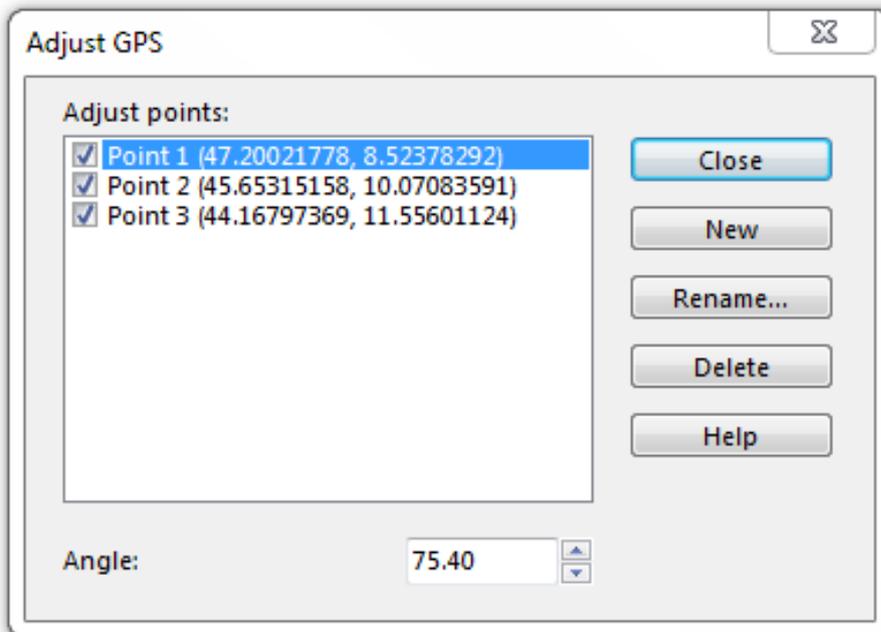


Adjust GPS

Pro Std

This command is activated when the **Real Time GPS** is turned on and the **Adjusted mode** is set in the **Real Time GPS Settings** dialog box.

Choose this command to adjust your base map to the coordinates provided by the GPS. The **Adjust GPS** dialog box is displayed.



You can use up to 32 points for the adjustment. The existing adjustment points are listed in the **Adjust points** box.

Note: You can turn on or off each adjustment point by checking it or not.

The dialog provides the following functions:

- **Close:** Close the dialog box by clicking this button. The **Adjust GPS** dialog is a non-modal dialog.
- **New:** You can create a new adjustment point when you are at a known position in the terrain and your GPS device sends the position. Click this button and the cursor changes to a satellite symbol. Mark your position on the base map. The point is added to the adjustment points and the adjustment is recalculated.
- **Rename:** Click this button to rename the selected adjustment point.
- **Delete:** Click this button to delete the selected adjustment point.
- **Angle:** If you use only one adjustment point, you can enter the angle of your map here. You must enter the angle of your map compared to the WGS84 coordinate system used by the GPS device. The angle of the WGS84 coordinate system is normally different from your country's coordinate system. If the map is rotated counterclockwise, enter a positive angle otherwise enter a negative angle.

If more than one adjustment point is used, the angle is calculated from the adjustment points. In this case the **Angle** value is not used.

Import Data from GPS Device



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

Pro

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/da/nmea.htm#GGA>
- [8] http://en.wikipedia.org/wiki/Dilution_of_precision_%28GPS%29
- [9] <http://www.gpsinformation.org/da/nmea.htm#RMC>
- [10] http://en.wikipedia.org/wiki/Differential_GPS
- [11] <http://en.wikipedia.org/wiki/HDOP>

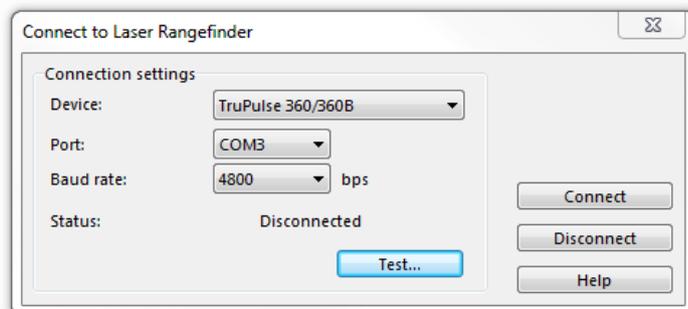
Laser Rangefinder

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.

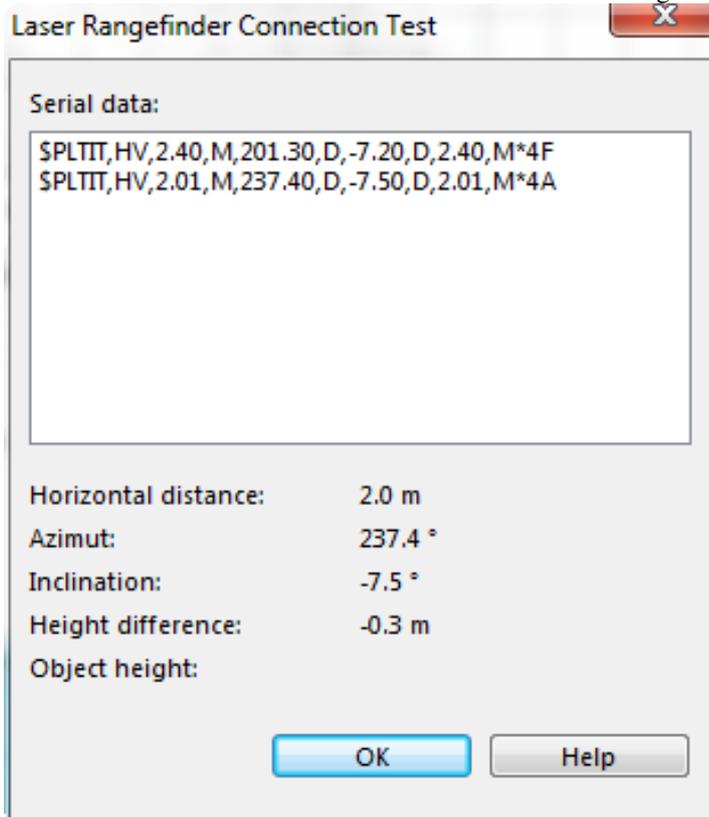
1. Switch on the Laser Rangefinder
2. Choose **Connect to Laser Rangefinder** from the **GPS** menu.
3. Set device, port and speed.
4. Click the **Test...** button to test the connection.
5. Click the **Connect** button to start the connection.



TruPulse 360°B

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.

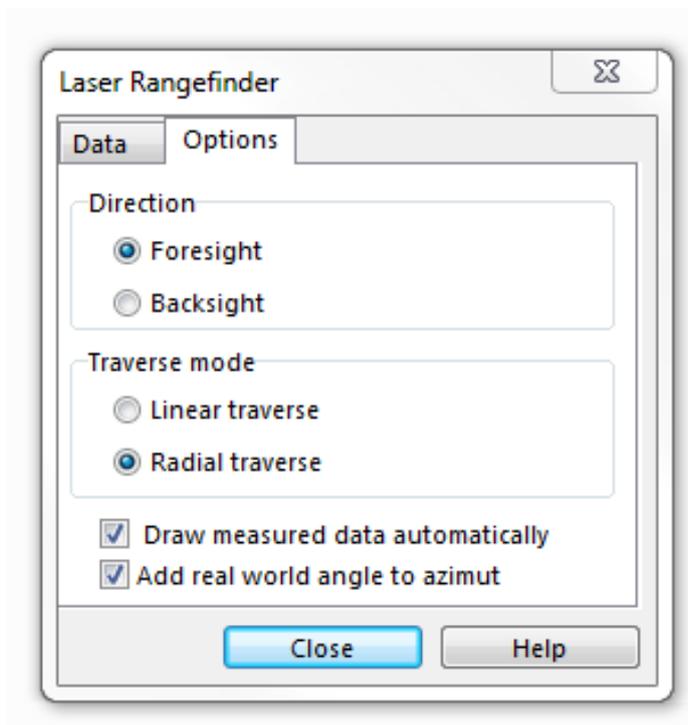
- Foresight: Measure forwards from your known position to a place with unknown position.
- Backsight: Measure backwards from a place with known position to your unknown position.

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.

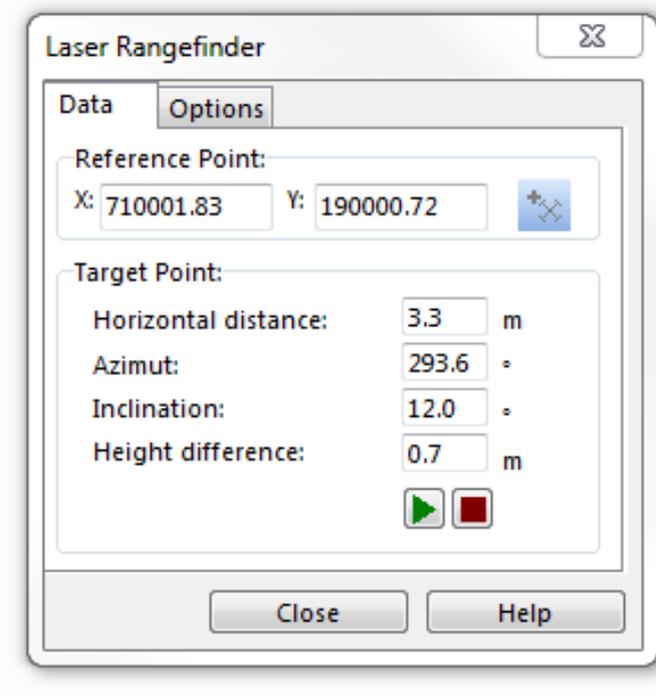
Draw measures data automatically: Turn on this option if measured positions should be added to the map automatically. Otherwise each position must be confirmed by the user.

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 measured 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.



[Back to GPS](#)

[Back to Drawing an Object](#)

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XML Script

Pro

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.

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 600000 200000 4.5
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	String Integer Boolean Integer Integer Double Integer Double Integer Integer 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
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. 10 000 true, false
Map.ConvertLayer	CrtFile	String	crt file name
Map.LoadSymbolsFrom	File	String	ocd file name (with symbols to be loaded) The option <i>replace existing colors and symbols</i> is used

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 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 Symbol ReplaceExistingObjects	String Integer String String Boolean	<i>all</i> for all databases 1, 2, 3, ... for only one database ex. 101.0 true, false (Default)
Database.Assign.Angles	Dataset AngleField	String Integer String	<i>all</i> for all databases 1, 2, 3, ... for only one database
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 Visible VisibleInFavorites Dimm Transparent SpotColor Blockout Infrared	String Boolean Boolean Integer Boolean String Boolean Integer	true, false; Default = true true, false; Default = true [0..100]; Default = 0 [only works if Blockout is false] true, false; Default = false [only works if Blockout is false] false] spot color name true, false; Default = false 0=undefined, 1=32bit-infrared, 2=32bit RGB
BackgroundMap.Remove		String	<i>all</i> or filename

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>
  <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>

```

XML Script Thematic Maps

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			
AddScaleText			
AdditionalInformationText			

			font size true, false 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>
    </MapTheme>
  </File.CreateThematicMap>
</OcadScript>
```

```
<StatDataTable>Sheet0$</StatDataTable>
<StatDataCommonField>id</StatDataCommonField>
<VisualizeAttributes>2011</VisualizeAttributes>
<AttributesValuesType>absolute</AttributesValuesType>
<Classify>no</Classify>
<RepresentationFeature>point</RepresentationFeature>
<GeometryDataPath>C:\import\europa.shp</GeometryDataPath>
<GeometryDataCommonField>ne_10m_adm</GeometryDataCommonField>
<JoinType>0</JoinType>
<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>
```



```

<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 chosen, 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.PartialMap	Range L, R, B, T	Integer Float	1 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 ObjectSelectedSymbols 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> //PDF 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>
      <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 an 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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HTML Entities

The following HTML entities can be converted by OCAD Internet Map to HTML entities

Character	Entity Name	Description
"	"	quotation mark
'	'	apostrophe
&	&	ampersand
<	<	less-than
>	>	greater-than
¡	¡	inverted exclamation mark
¢	¢	cent
£	£	pound
¤	¤	currency
¥	¥	yen
‡	¦	broken vertical bar
§	§	section
¨	¨	spacing diaeresis
©	©	copyright
ª	ª	feminine ordinal indicator
«	«	angle quotation mark (left)
¬	¬	negation
®	®	registered trademark
ˆ	¯	spacing macron
°	°	degree
±	±	plus-or-minus
²	²	superscript 2
³	³	superscript 3
´	´	spacing acute
µ	µ	micro
¶	¶	paragraph
·	·	middle dot
¸	¸	spacing cedilla
¹	¹	superscript 1
º	º	masculine ordinal indicator
»	»	angle quotation mark (right)
¼	¼	fraction 1/4
½	½	fraction 1/2
¾	¾	fraction 3/4
¿	¿	inverted question mark

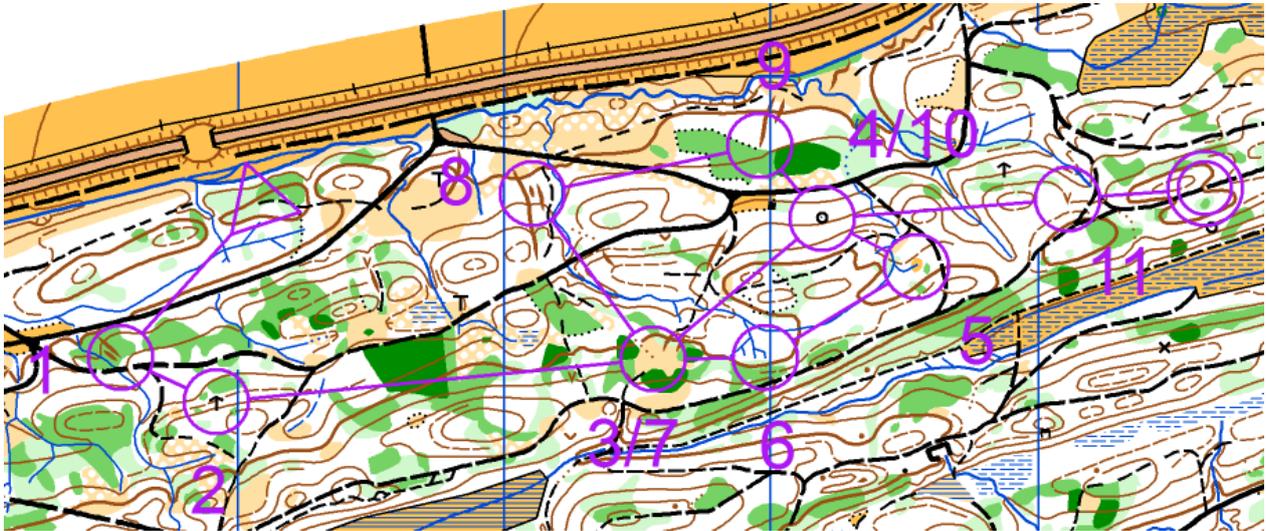
×	×	multiplication
÷	÷	division
À	À	capital a, grave accent
Á	Á	capital a, acute accent
Â	Â	capital a, circumflex accent
Ã	Ã	capital a, tilde
Ä	Ä	capital a, umlaut mark
Å	Å	capital a, ring
Æ	Æ	capital ae
Ç	Ç	capital c, cedilla
È	È	capital e, grave accent
É	É	capital e, acute accent
Ê	Ê	capital e, circumflex accent
Ë	Ë	capital e, umlaut mark
Ì	Ì	capital i, grave accent
Í	Í	capital i, acute accent
Î	Î	capital i, circumflex accent
Ï	Ï	capital i, umlaut mark
Ð	Ð	capital eth, Icelandic
Ñ	Ñ	capital n, tilde
Ò	Ò	capital o, grave accent
Ó	Ó	capital o, acute accent
Ô	Ô	capital o, circumflex accent
Õ	Õ	capital o, tilde
Ö	Ö	capital o, umlaut mark
Ø	Ø	capital o, slash
Ù	Ù	capital u, grave accent
Ú	Ú	capital u, acute accent
Û	Û	capital u, circumflex accent
Ü	Ü	capital u, umlaut mark
Ý	Ý	capital y, acute accent
Þ	Þ	capital THORN, Icelandic
ß	ß	small sharp s, German
à	à	small a, grave accent
á	á	small a, acute accent
â	â	small a, circumflex accent
ã	ã	small a, tilde
ä	ä	small a, umlaut mark
å	å	small a, ring

æ	æ	small ae
ç	ç	small c, cedilla
è	è	small e, grave accent
é	é	small e, acute accent
ê	ê	small e, circumflex accent
ë	ë	small e, umlaut mark
ì	ì	small i, grave accent
í	í	small i, acute accent
î	î	small i, circumflex accent
ï	ï	small i, umlaut mark
ð	ð	small eth, Icelandic
ñ	ñ	small n, tilde
ò	ò	small o, grave accent
ó	ó	small o, acute accent
ô	ô	small o, circumflex accent
õ	õ	small o, tilde
ö	ö	small o, umlaut mark
ø	ø	small o, slash
ù	ù	small u, grave accent
ú	ú	small u, acute accent
û	û	small u, circumflex accent
ü	ü	small u, umlaut mark
ý	ý	small y, acute accent
þ	þ	small thorn, Icelandic
ÿ	ÿ	small y, umlaut mark

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Course Setting for Orienteering

Pro Std Sta CS



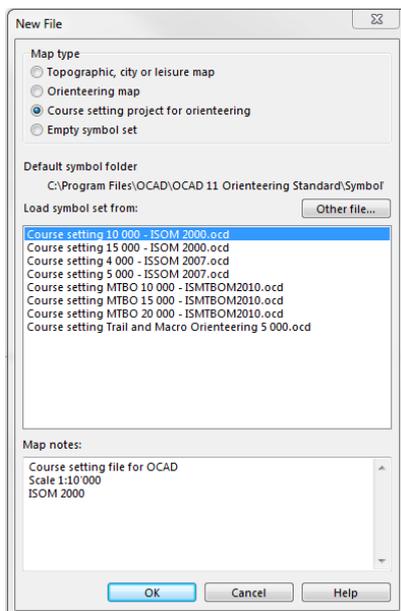
(The Course Setting functions are only available in course setting projects!)

OCAD provides completely integrated functions for course setting in orienteering.

Start a New Course Setting Project

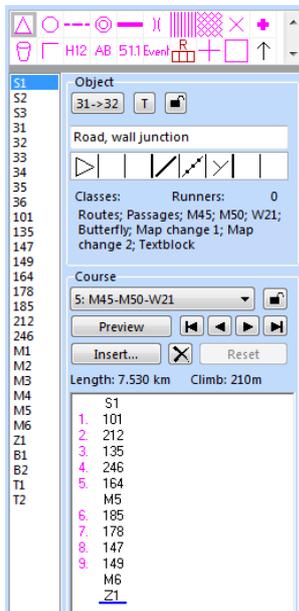
A course setting project is a special OCAD file. Like map files it has the extension .ocd, but it has a special internal mark to identify it as a course setting file. To create a course setting project, you must create a new map file.

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

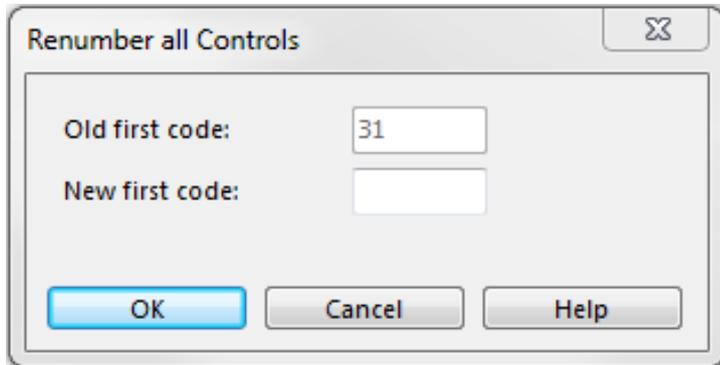
Preview Mode

Controls

The following two functions can be found in the **Controls** submenu of the **Course Setting** menu:

Renumber all Controls

Choose the **Renumber all Controls** command in the **Controls** submenu of the **Course Setting** menu to display the following dialog:



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**. Click the **OK** button when finished.

This function can be useful if you come to know the available control numbers not before setting the courses.

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.

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 **Course Statistic and Event Statistic** command from the **Course Setting** menu to display a course and event statistic. Visit the **Course Statistic and Event Statistic** page for more information.

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

At the moment importing courses from **ORware** ^[1] is the only option for an import. 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.

Options

Choose the **Options** command from the **Course Setting** menu to get some **Course Setting Options**.

Save as OCAD 9 or OCAD 10

You can save your course setting project as OCAD 9 or OCAD 10 file. Please note, that some features may be lost according to the **Compatibility Check**.

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References

[1] <http://www.picotiming.ch/indexsoft.html>

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.
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.
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.
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 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:

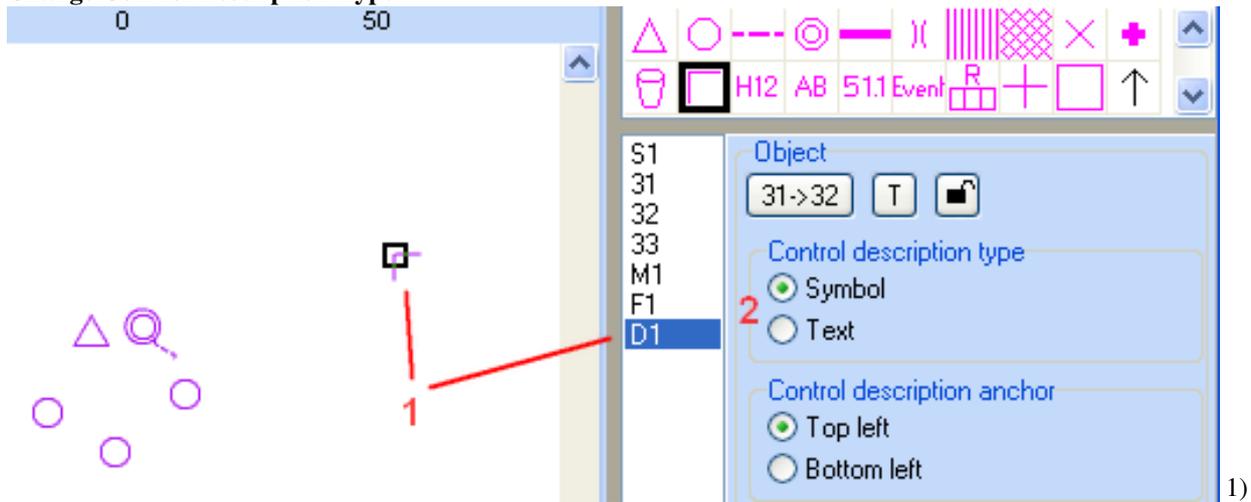
1. Right-click on the  **Marked Route** symbol in the symbol box.
2. Choose the **Duplicate** command.
3. Right-click on the duplicated  **Marked Route** symbol in the symbol box.
4. Choose the **Edit** command from the context menu. The **Line Symbol** dialog box appears.
5. In the **Main Line** tab 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.

Add a Control Description

To print a control description together with the course you have to place a control description object. This object is a placeholder and indicates the upper left corner of the control description.

1. Select the  **Control Description** symbol in the symbol box.
2. Select any drawing mode.
3. Place the upper left corner of the control description on the map.
4. Now the **Course Object Dialog Box** appears. It proposes a code. Enter a different code if desired.
5. Click the **OK** button.
6. The **Control Description** object is indicated by a hook on the map which is the upper left corner.
7. Select it to get some editing options. Read the **IOF Symbol Control Description** article to get more information.

Change Control Description Type



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**.

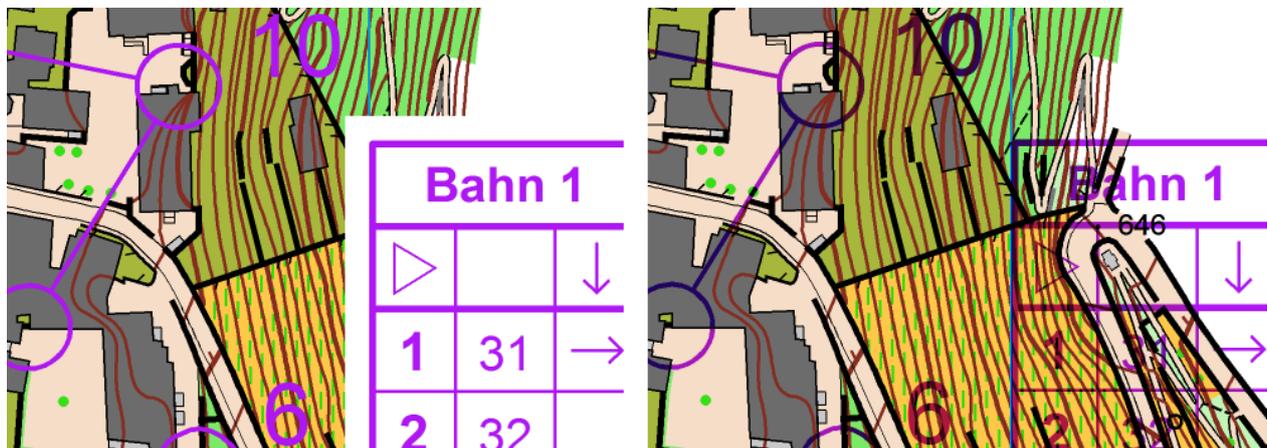
Control Description with White Background

If the background map should be masked below the text description, activate the **White background** option in the **Options** dialog of the **Course Setting** menu.

Click the **Preview** button to get a preview of the control description.

Control Description with White Background (Draft Mode)

If you prefer to print your maps in draft mode, you will face a problem, that there is no block-out of the control description in draft mode.



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 **H12 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 **H12 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 **AB 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:

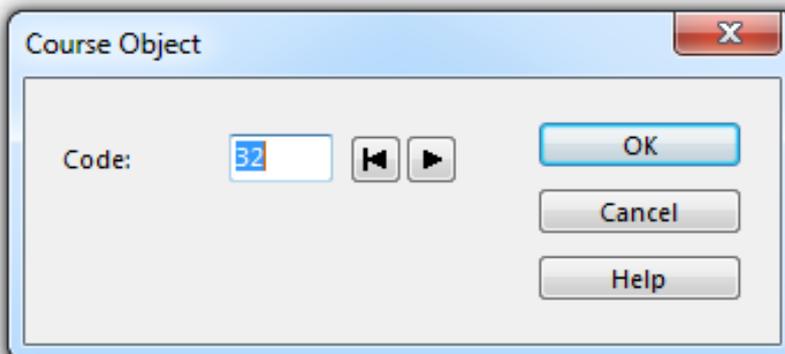
1. Right-click on the  **Marked Route** symbol in the symbol box.
2. Choose the **Duplicate** command.

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.

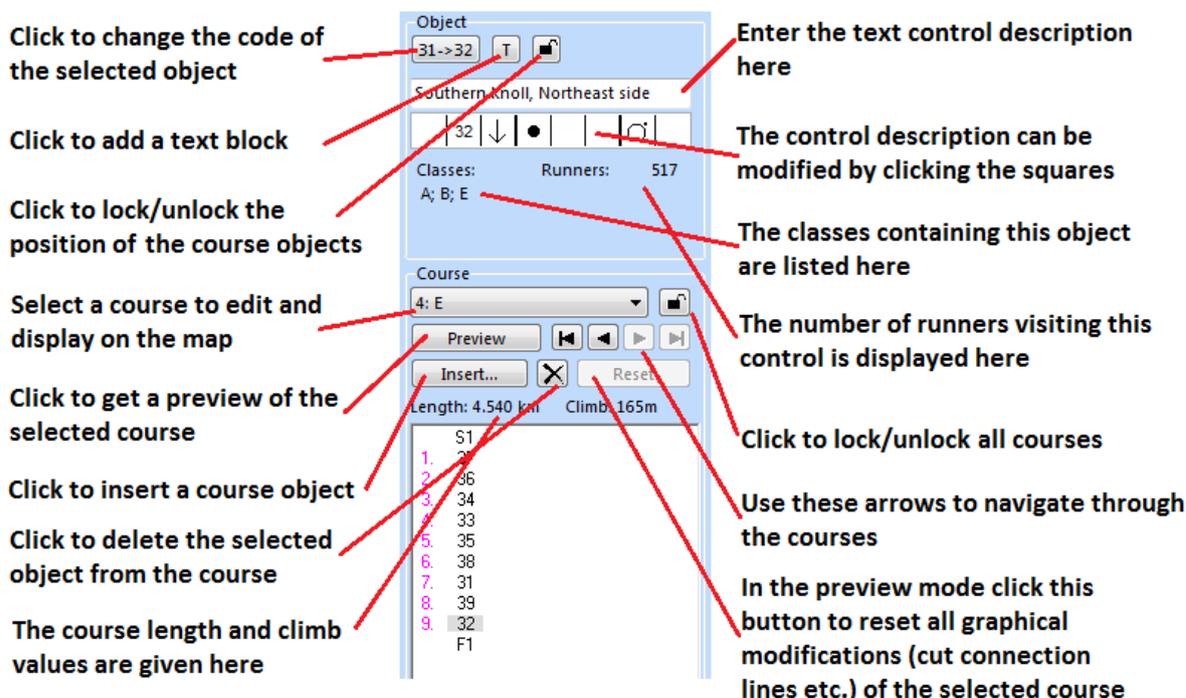
- If **Auto Control Description** is activated, this dialog is extended with the control description part. Read the **Course Setting with Auto Control Description** article for more information.

Back to the **Course Setting for Orienteering** page.

Edit Course Setting Objects



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	30	∨		

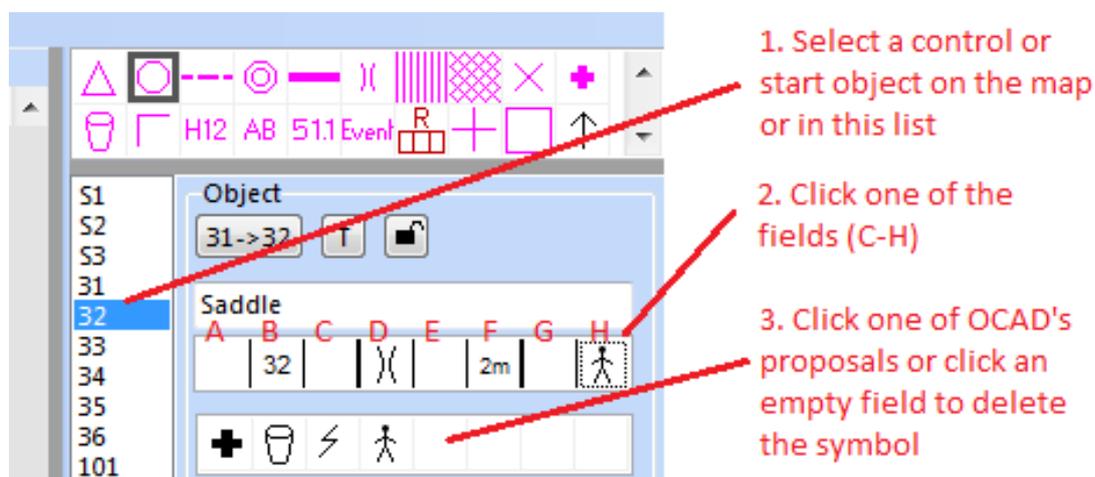
Lock or Unlock Objects

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.

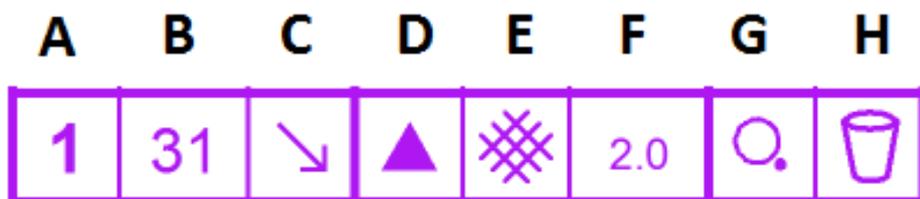
Text Control Description

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**.

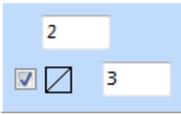
C: **Which of any Similar Feature:** Declare the position of the feature when there are similar features at close quarters.

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:

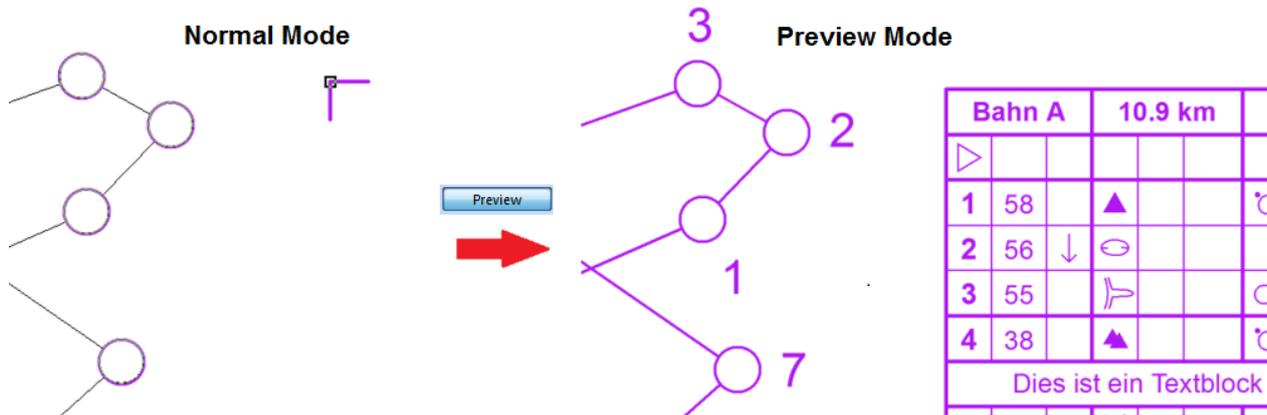
- **Runners:** Select this item to display all controls. In the **Preview** mode the total number of runners visiting this control is given in brackets behind each control code. Define the number of runners per class in the **Classes** dialog.
- **All controls:** Select this item to display all controls on the map. In the **Preview** mode each control is displayed with its code.

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

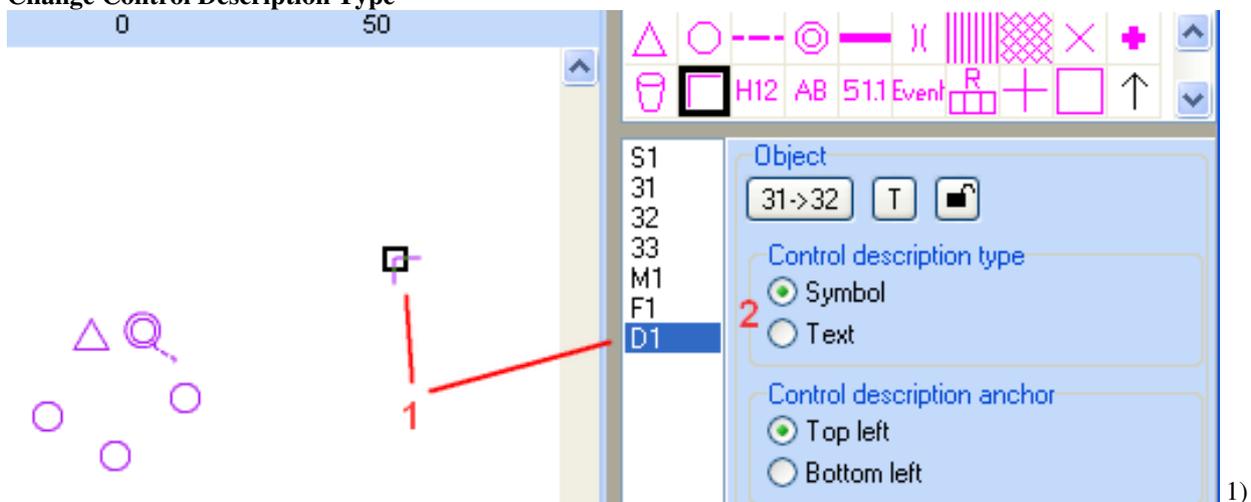
The length and climb of the course is displayed here. The length of the course is calculated automatically. However, you can add an extra length in the **Courses** dialog. If a **DEM** is used, the climb is calculated automatically, too. Although, you will have to adjust this value in the **Courses** 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.

Change Control Description Type



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>

Control Elevation

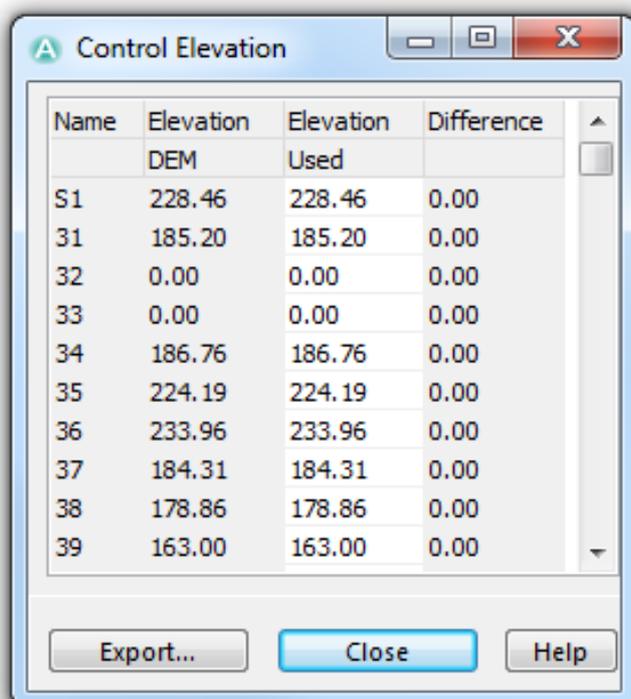
Pro Std Sta CS

(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.

Create a New Course

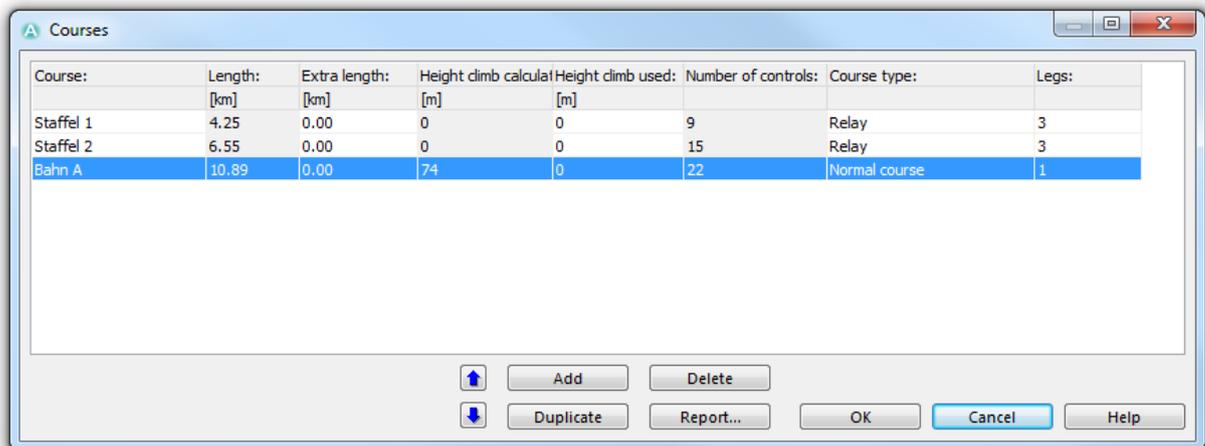
Pro Std Sta CS

(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:

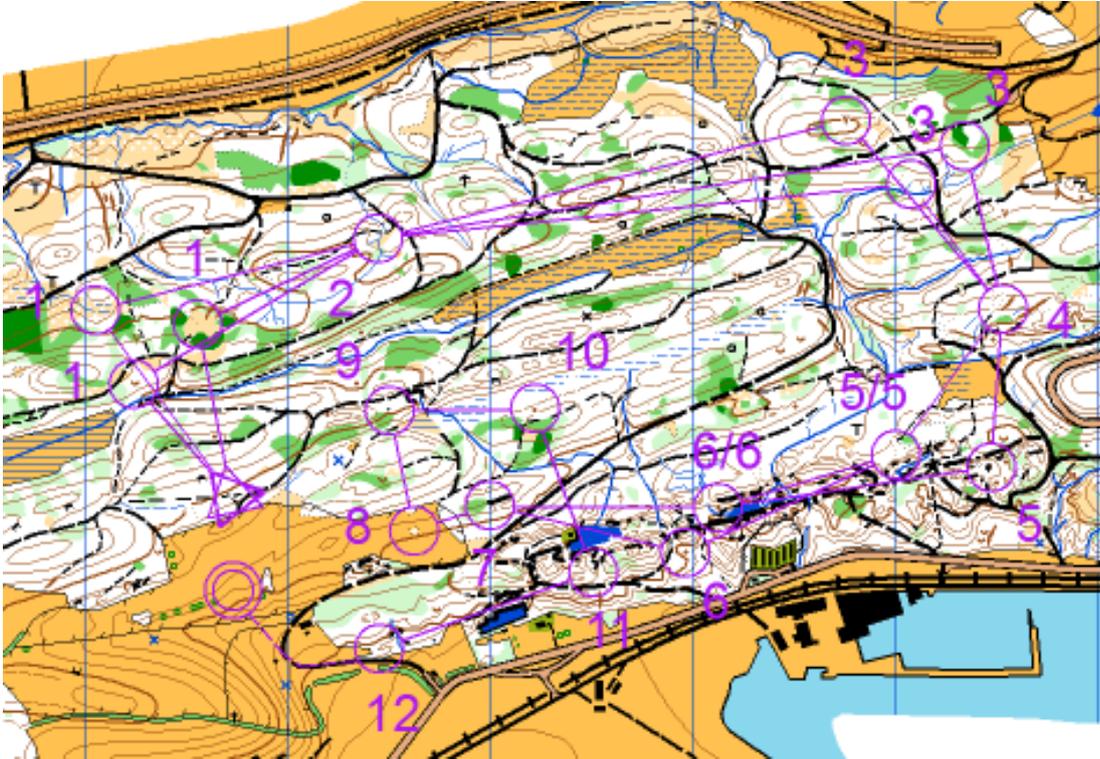
- **Course:** Edit the course name in this column.
- **Length:** The length is calculated automatically with help of the set scale. This column cannot be edited.
- **Extra length:** In this column you can enter extra length. The extra length is added to the calculated length and the sum shows up in the 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 Relay Courses

Pro Std Sta CS

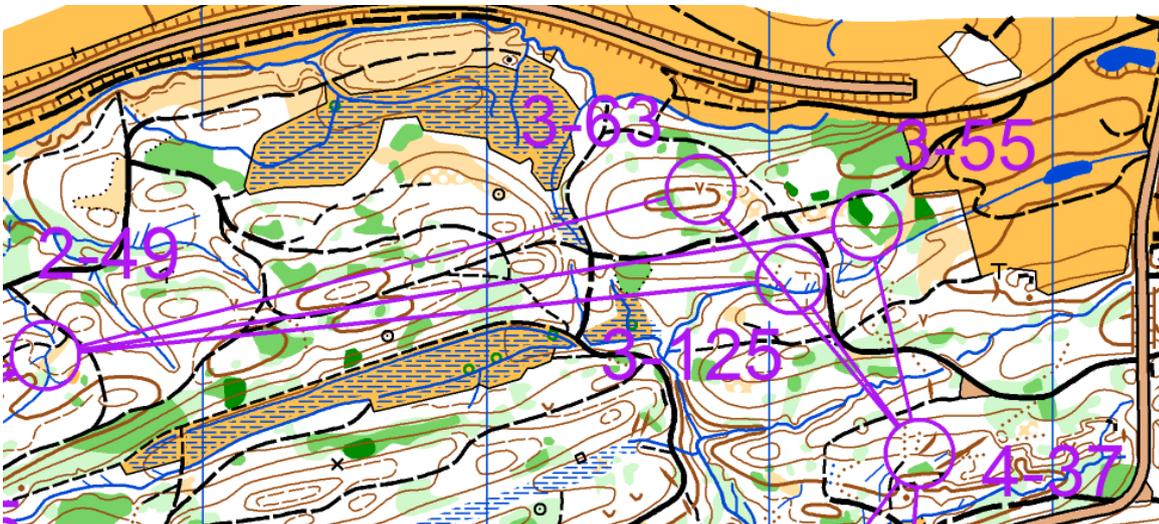
This function is only available in course setting projects!



To set courses for a relay, do the following steps:

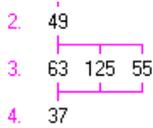
1. **Create a New Course Setting Project.**
2. **Add Course Setting Objects** (e.g. Start, Controls, Finish) to the project.
3. **Create a New Course.** Choose **Relay** as the **Course type** and define the number of legs.
4. **Create a New Class.** Check the option **Create classes automatically**. 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.

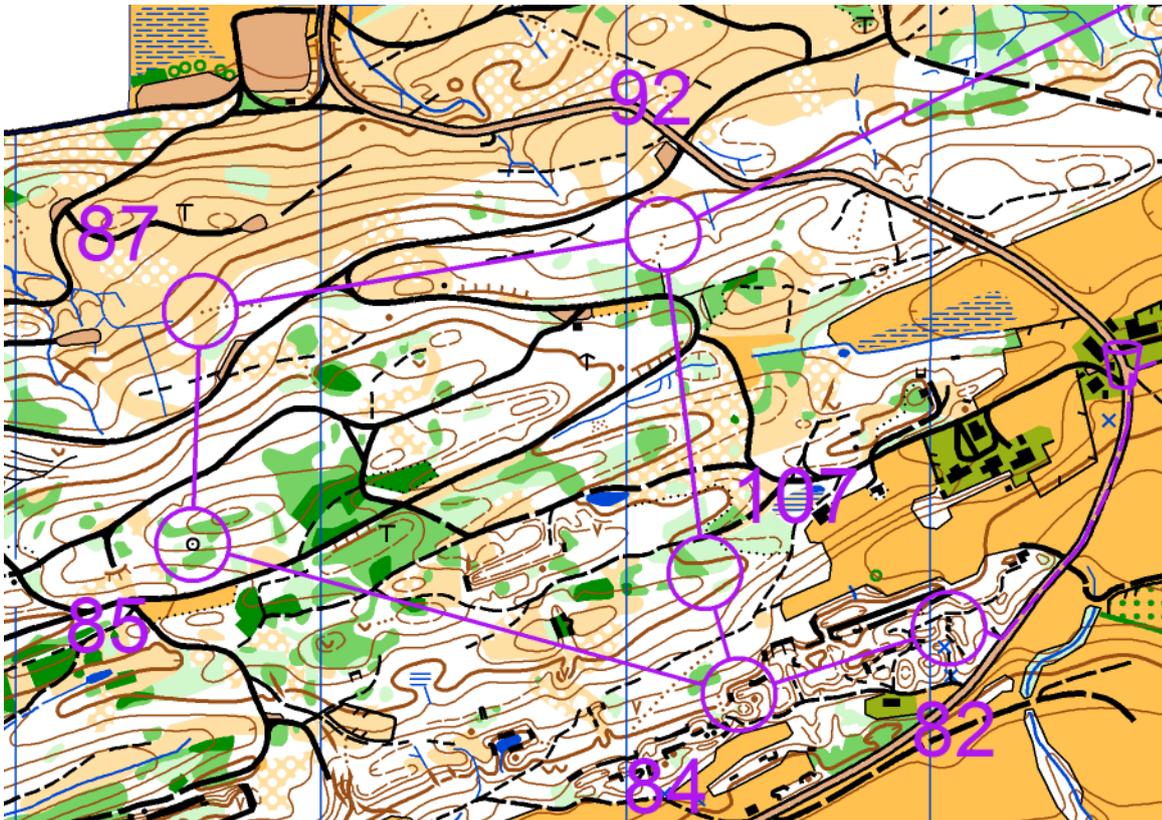
1. Mark a position in the relay course where you want to insert the variation.
2. Click the **Insert** button in the **Course Object Box** on the right side of the window.
3. The **Insert Course Object** dialog appears.
4. Choose the **Team Variation** option.
5. Click the **OK** button.
6. The team 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.

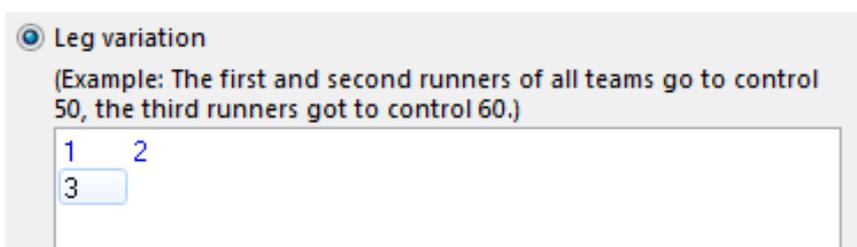
- OCAD will tell you with a warning message when you are trying to create something unfair.
- To delete a variation select it and press the **Delete** key or click the **Delete** icon.

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.

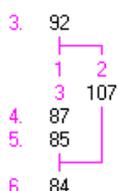
1. Mark a position in the relay course where you want to insert the variation.
2. Click the **Insert** button in the **Course Object Box** on the right side of the window.
3. The **Insert Course Object** dialog appears.
4. Choose the **Leg Variation** option.
5. Drag identical legs to the same column 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

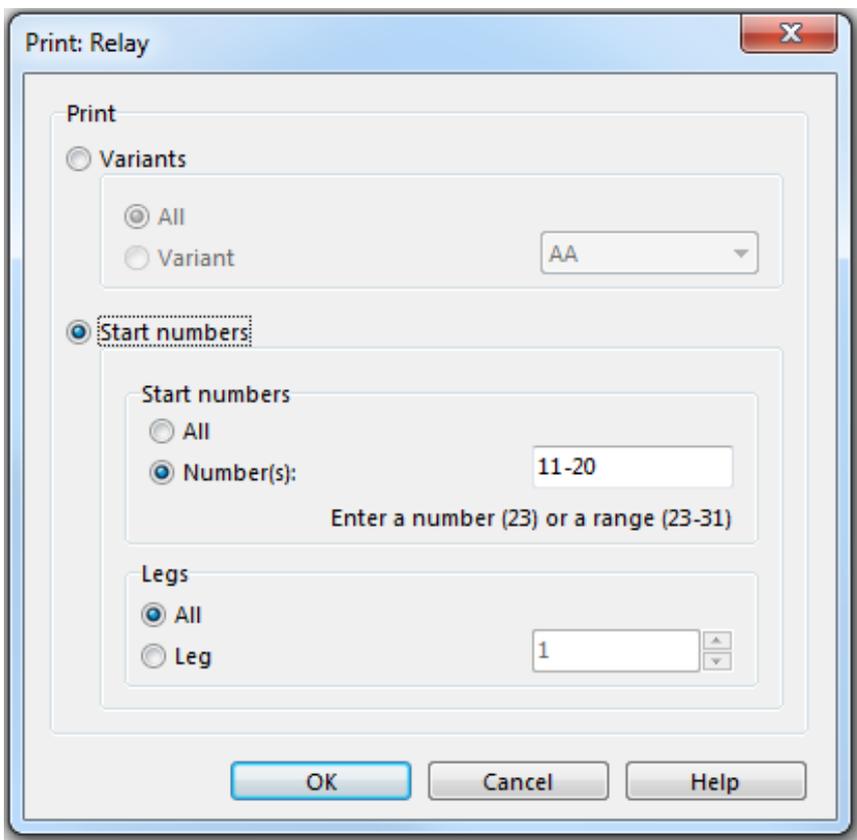
Read the **Add Variant for Relay Courses** article for more information.

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.

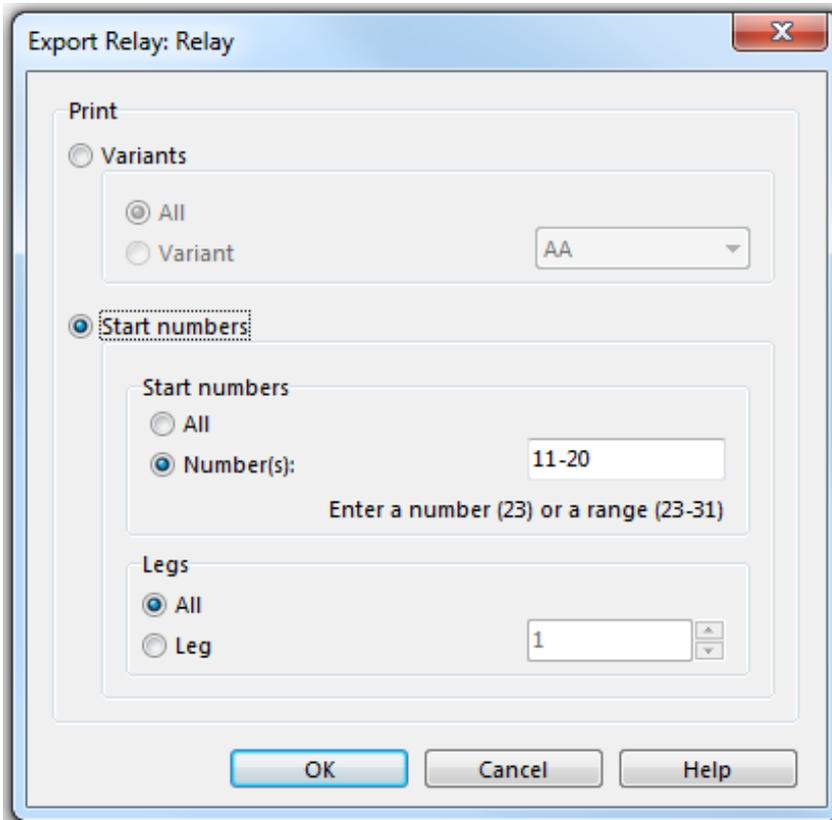
Click the **OK** button when finished. The courses are printed. This can take a moment.

 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.

One-Man Relay Courses



A one-man relay is a relay with mass-start and any number of legs competed by one single runner. The difference of a one-man relay course to a normal relay course is mostly that the legs are a bit more different. This is to make the course more attractive to the single runner.

One-man relay courses can be set similar to normal **Relay Courses**. Visit the **Create Relay Courses** page for more information.

Back to the **Course Setting for Orienteering** page.

Score Orienteering



Score orienteering is not implemented in OCAD yet. Although there are options to create a score orienteering event with OCAD.

Use all Controls

The simplest way is to set controls, a start and a finish and then print all controls. There will be no need to **Create a New Course**. The disadvantage of this method is that you cannot make classes, so all participants will have the same controls.

Hide Connection Lines

A different method is hiding the connection lines. Do the following:

1. **Create a New Course**.
2. **Add Course Objects** to it.
3. Search the symbol for the **Connection Line** in the symbol box.
4. **Hide** the symbol.
5. Search the symbol for the **Control Number in the Control Description**.
6. **Hide** the symbol.
7. Set the numbering in the **Course Setting Options** to **Code only**.
8. If you change to the **Preview** mode, the course looks like a score orienteering course now.



Add controls in their numerical order to the course to get them rightly sorted on the control description. The length of the course can be edited in the **Courses** dialog in the column for extra length. Extra length can be negative.

There is a OCAD learn video about this method:

 Score Orienteering ^[1]

Hide Single Connection Lines

Deleting single connection lines is not possible but you can use a trick. Change to the **Preview** mode and drag the end point of the connection line to the start point, so that they start and end at the same point. This makes the connection line invisible. You can use this method when you have a part of arbitrary control order within a normal course.



Add controls in their numerical order to the course to get them rightly sorted on the control description. The length of the course can be edited in the **Courses** dialog in the column for extra length. Extra length can be negative.

Back to the **Course Setting for Orienteering** page.

References

[1] <http://ocad.com/howtos/52.htm>

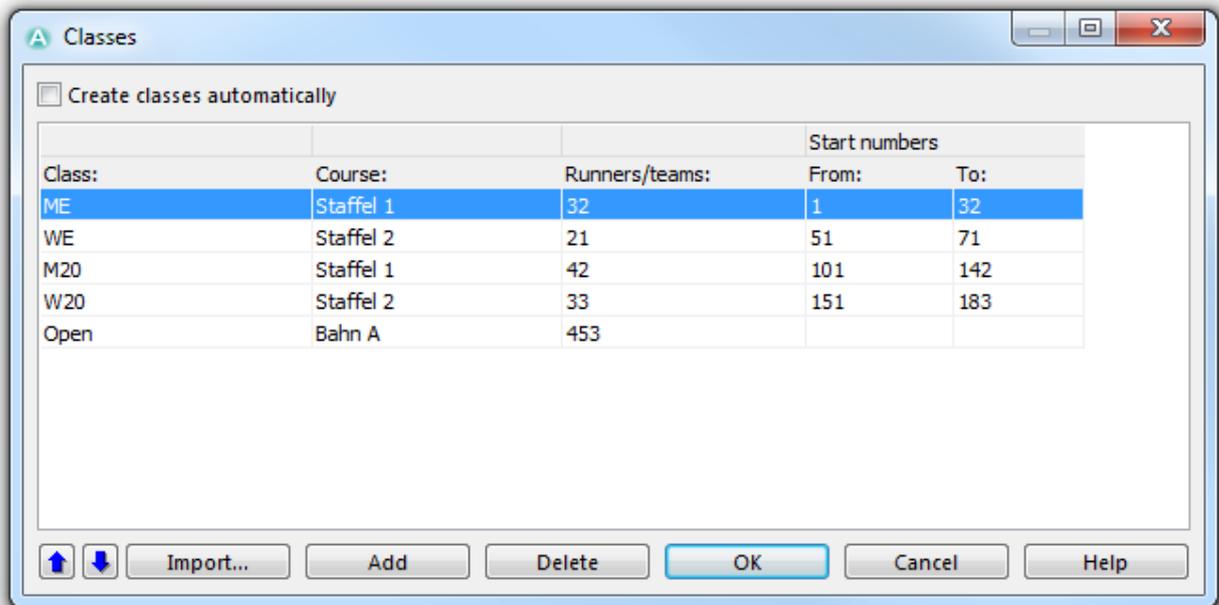
Create a New Class

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.

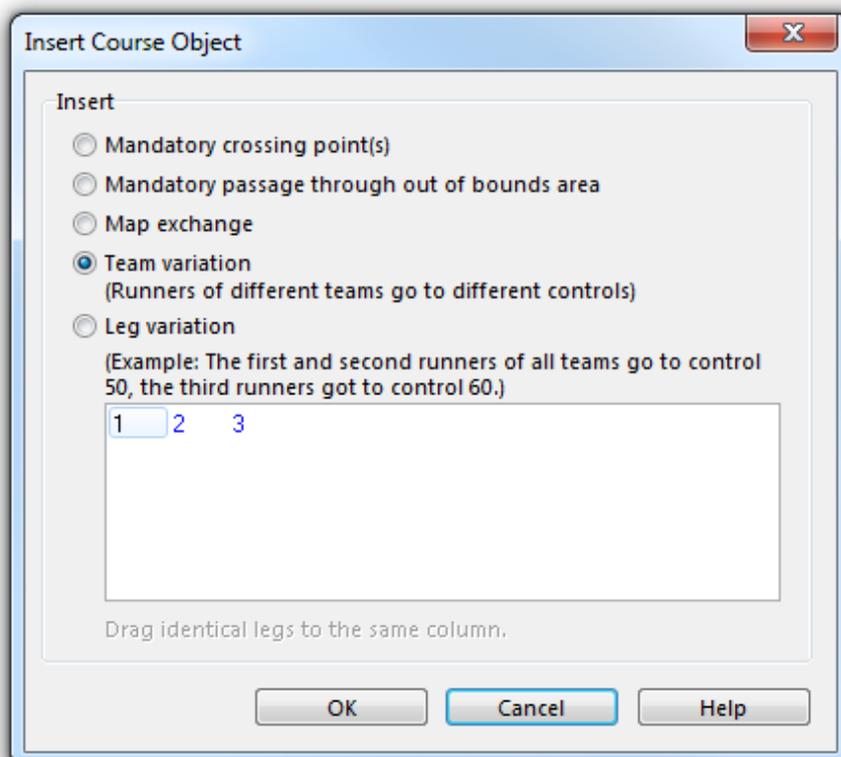
Back to the **Course Setting for Orienteering** page.

Insert Course Object

Pro Std Sta CS

(This function is only available in course setting projects!)

This dialog box appears when you click the Insert button in the course setting box.



Mandatory Crossing Point

Check this option to add a mandatory crossing point. The mandatory crossing point appears in the control description.



Mandatory Passage Through Out of Bound Area

Check this option to add a mandatory passage through out of bound area. The mandatory passage appears in the control description.



Map Exchange

Check this option to add a map exchange. The map exchange appears in the control description.



A map exchange can be placed after a control (which is indicated with 0m to the next start in the control description) or after a **Marked Route** (the length of the marked route appears in the control description).

The map exchange also has an impact on printing. With an inserted map exchange, two maps are printed. The start on the second map is indicated with a **Start** symbol. To show a start symbol on the second map, a start symbol must be added after the map exchange.

Team Variation

This command is only available for relay and one-man relay courses.

Read the **Insert a Team Variation** article for more information.

Leg Variation

This command is only available for relay and one-man relay courses.

Read the **Insert a Leg Variation** article for more information.

Back to the **Course Setting for Orienteering** page.

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.

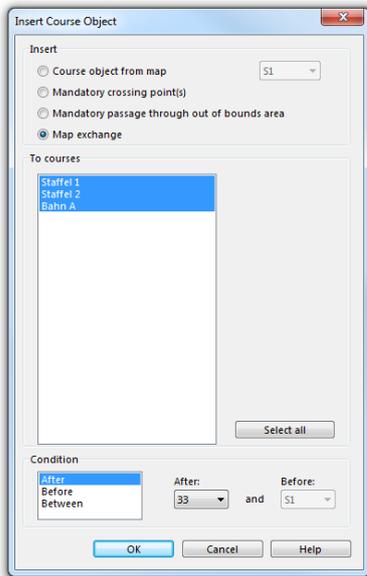
7. 57
8. 41
9. 39

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

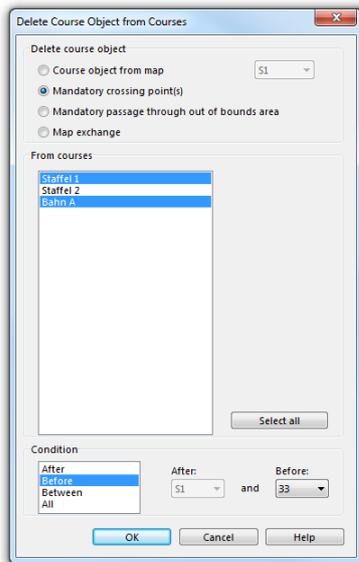


(This function is only available in course setting projects!)

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.

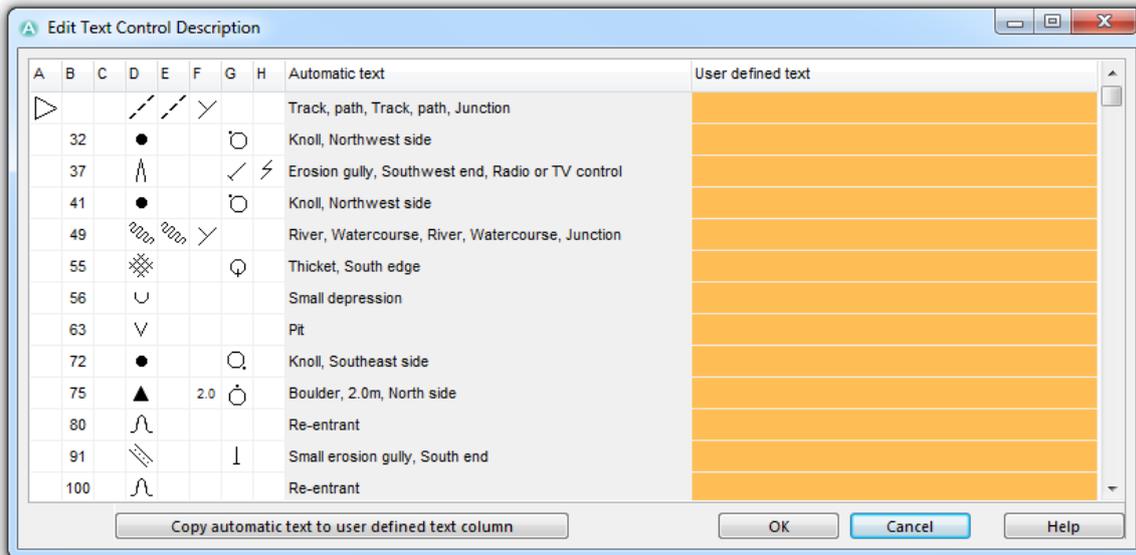
Back to the **Course Setting for Orienteering** page.

Edit Text Control Description

Pro Std Sta CS

(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:

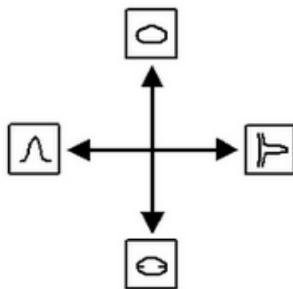
None Beneath Between Top Foot

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.

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 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.

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.

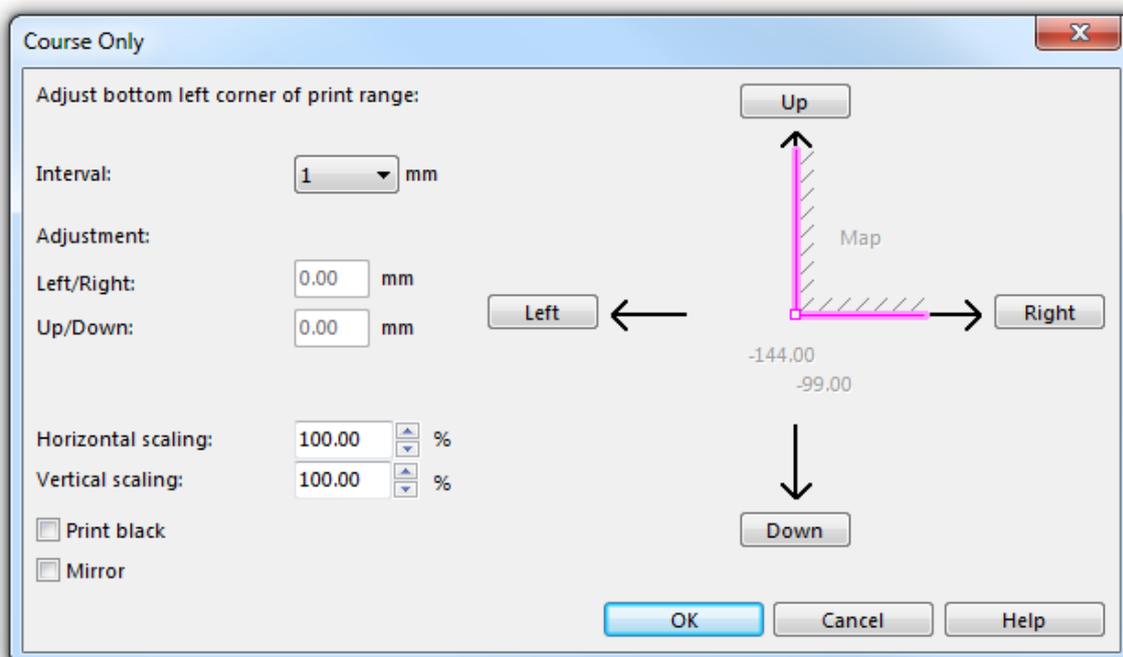
The **Print Courses** box appears on the right side of the screen. Adjust the settings which can be made in the **Printer**, **Page handling**, **Scale** and **Options** part with help of the **Printing Maps** page. The differences of the **Print Courses** to the **Print** box are that there is no **Color** 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.

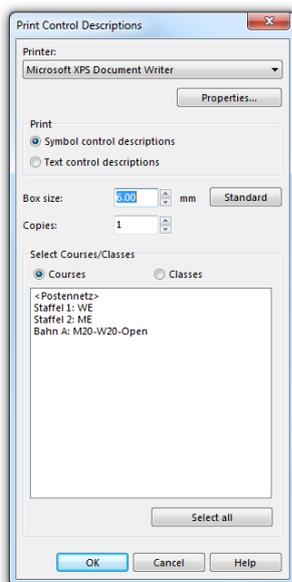
Back to the **Course Setting for Orienteering** page.

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 wheter 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.

Back to the **Course Setting for Orienteering** page.

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** ^[1] 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 *.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 *.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 chosen.

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
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;0.2
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;0.28
```

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

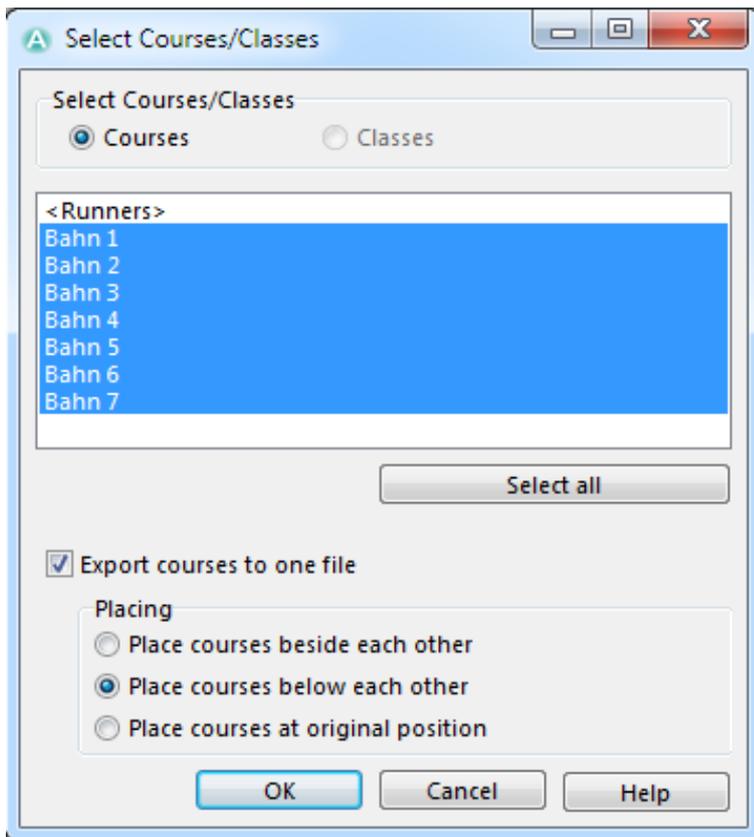
Use this command to export course, leg and event statistics to a text file. The text file contains the same information as in the **Course Statistic and Event Statistic** dialog. This export is also available via the **Course Statistic and Event Statistic** command in the **Course Setting** menu.

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 for Orienteering** edition. However, this works only for course maps, which were exported from an **OCAD Course Setting for Orienteering** edition. The functions for editing a course map in **OCAD Course Setting for Orienteering** edition are restricted. For example, the use of the **Curve** tool is not possible.

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



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

Pro Std Sta CS

(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]
 - Course name options:
 - Classes
 - Course name and class(es)
 - Course name only
- Controls**
 - Numbering options:
 - 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 whether the **Course Title** shall be displayed with the **Classes**, the **Course Name and Classes** or the **Course Name only**.

<p>Course title</p> <p><input checked="" type="radio"/> Classes</p> <p><input type="radio"/> Course name and class(es)</p> <p><input type="radio"/> Course name only</p>	<p>Course title</p> <p><input type="radio"/> Classes</p> <p><input checked="" type="radio"/> Course name and class(es)</p> <p><input type="radio"/> Course name only</p>	<p>Course title</p> <p><input type="radio"/> Classes</p> <p><input type="radio"/> Course name and class(es)</p> <p><input checked="" type="radio"/> Course name only</p>
<p>M45</p> <p>M50</p> <p>W21</p>	<p>Course 5</p> <p>M45</p> <p>M50</p> <p>W21</p>	<p>Course 5</p>

Controls

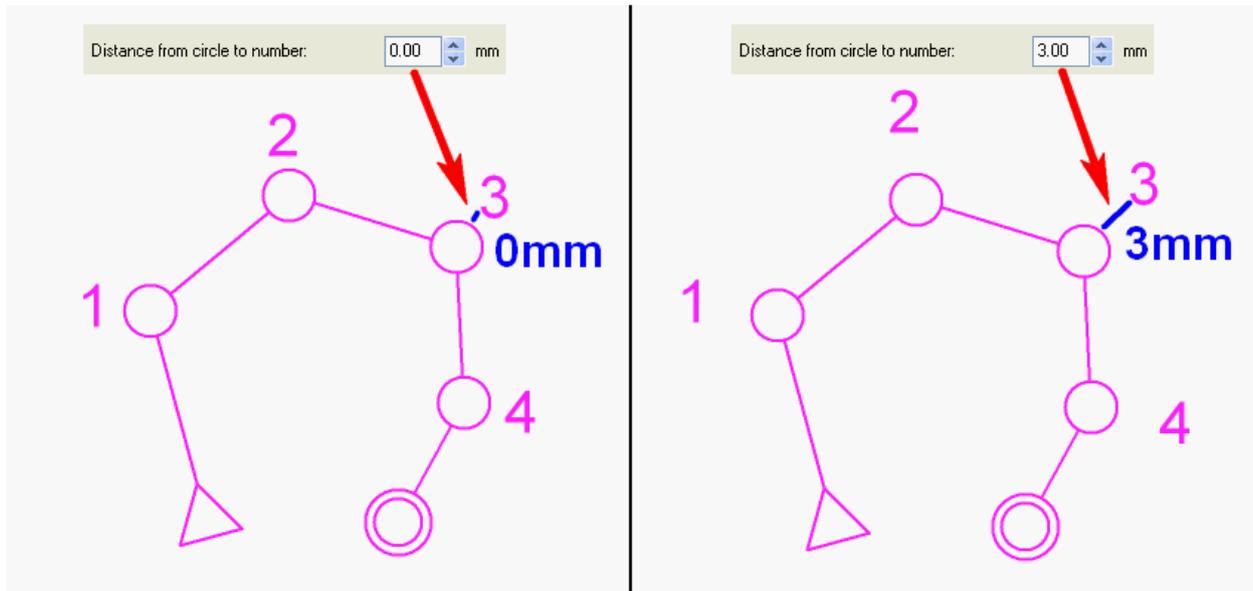
Numbering

Choose whether the controls shall be numbered with the **Number**, the **Number and Code** or the **Code only**.

<p>Numbering</p> <p><input checked="" type="radio"/> Number</p> <p><input type="radio"/> Number and code</p> <p><input type="radio"/> Code only</p>	<p>Numbering</p> <p><input type="radio"/> Number</p> <p><input checked="" type="radio"/> Number and code</p> <p><input type="radio"/> Code only</p>	<p>Numbering</p> <p><input type="radio"/> Number</p> <p><input type="radio"/> Number and code</p> <p><input checked="" type="radio"/> Code only</p>

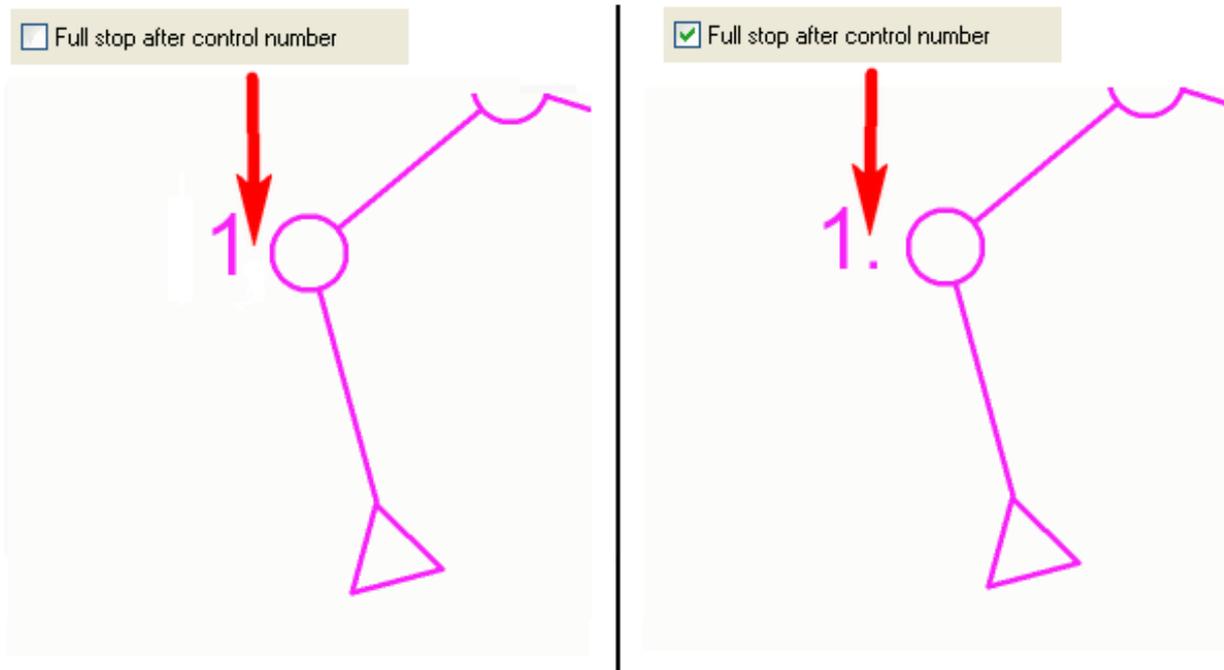
Distance from Circle to Number

Enter the default distance from the control circle to the number in mm.



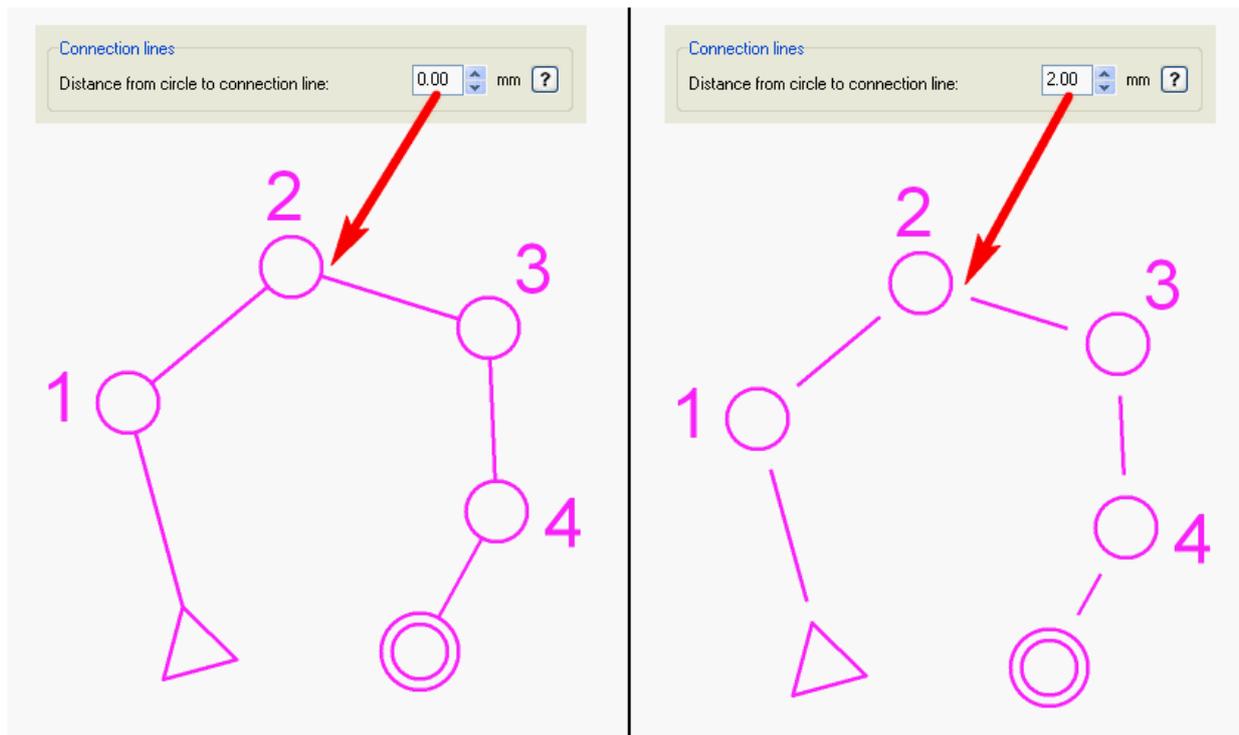
Full Stop Behind Control Number

Check this option if a full stop shall be placed behind each control number.



Connection Lines

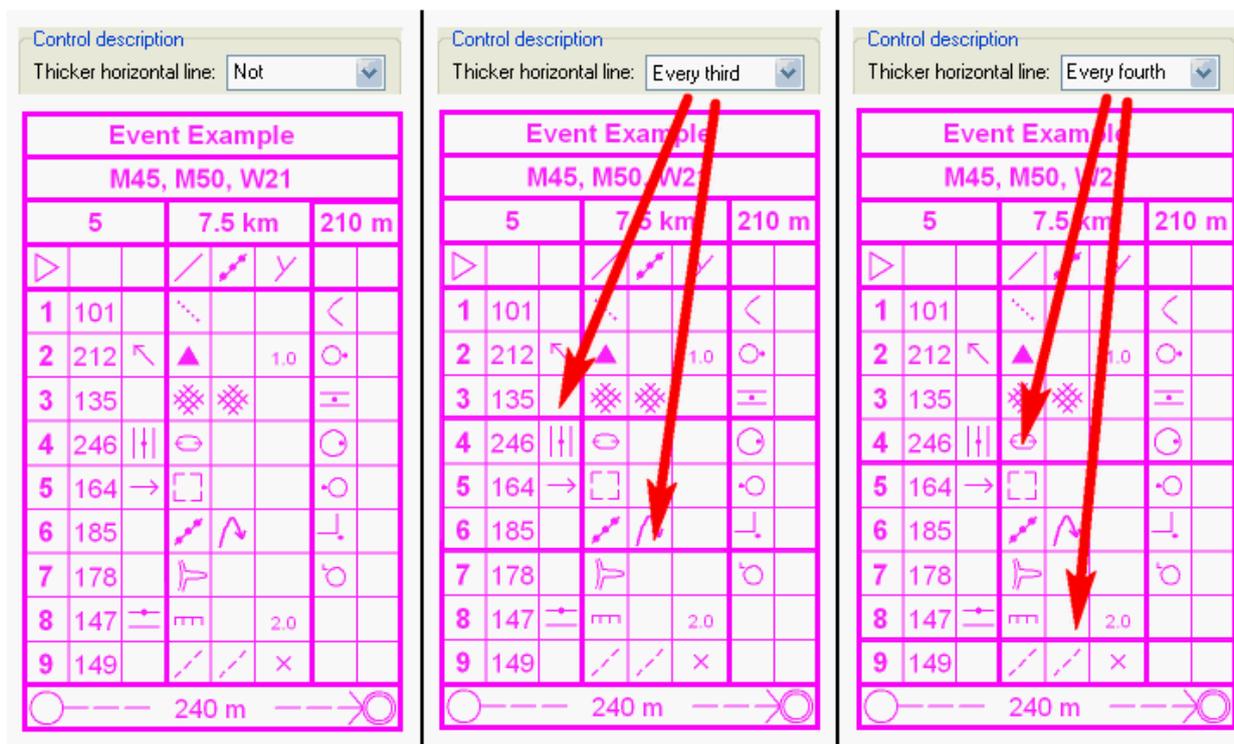
Define a distance from the circle to the connection line in this field.



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.



Maximum Length

Define the maximum length of the control description in rows in this field.

Maximum length 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					
▶			/	↗	Y						
1	101		⋯			<					
2	212	↖	▲		1.0	○					
3	135		⊗	⊗		≡					
4	246		⊖			⊙					
5	164	→	□			⊙					

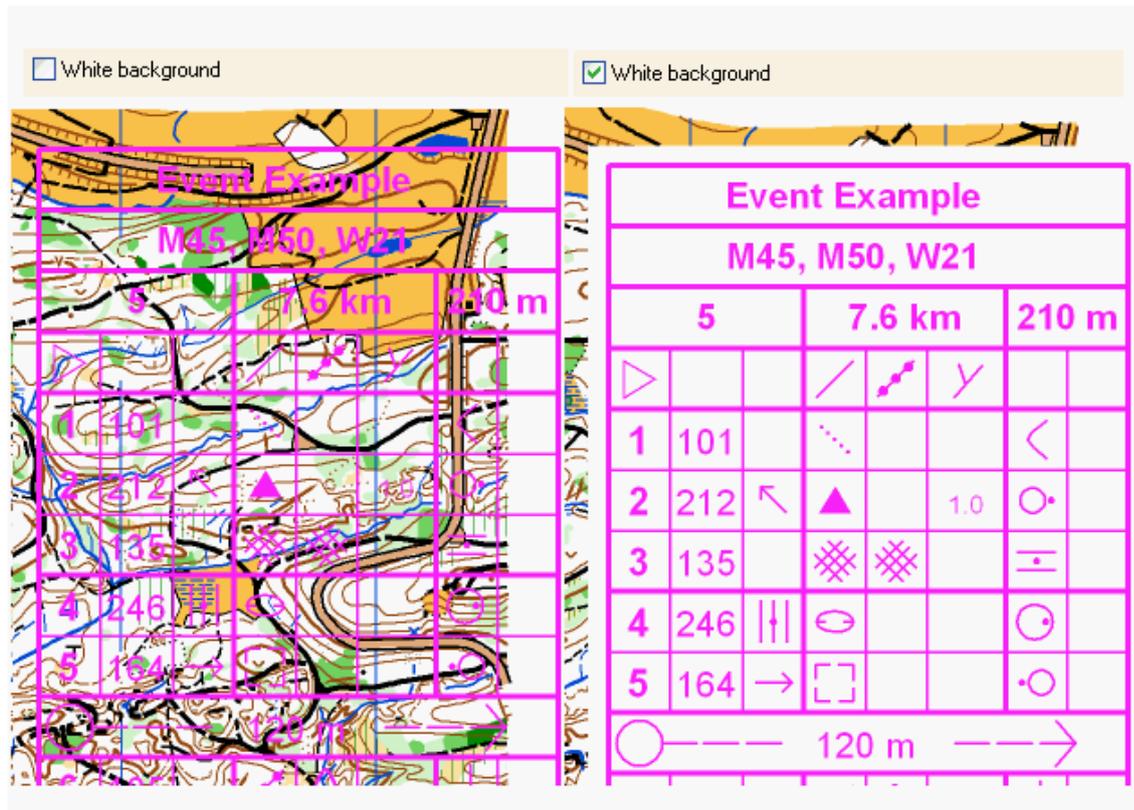
Box size: mm

Event Example											
M45, M50, W21											
5			7.6 km			210 m					
▶	S1		/	↗	Y						
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.

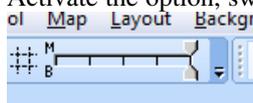
White Background

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.

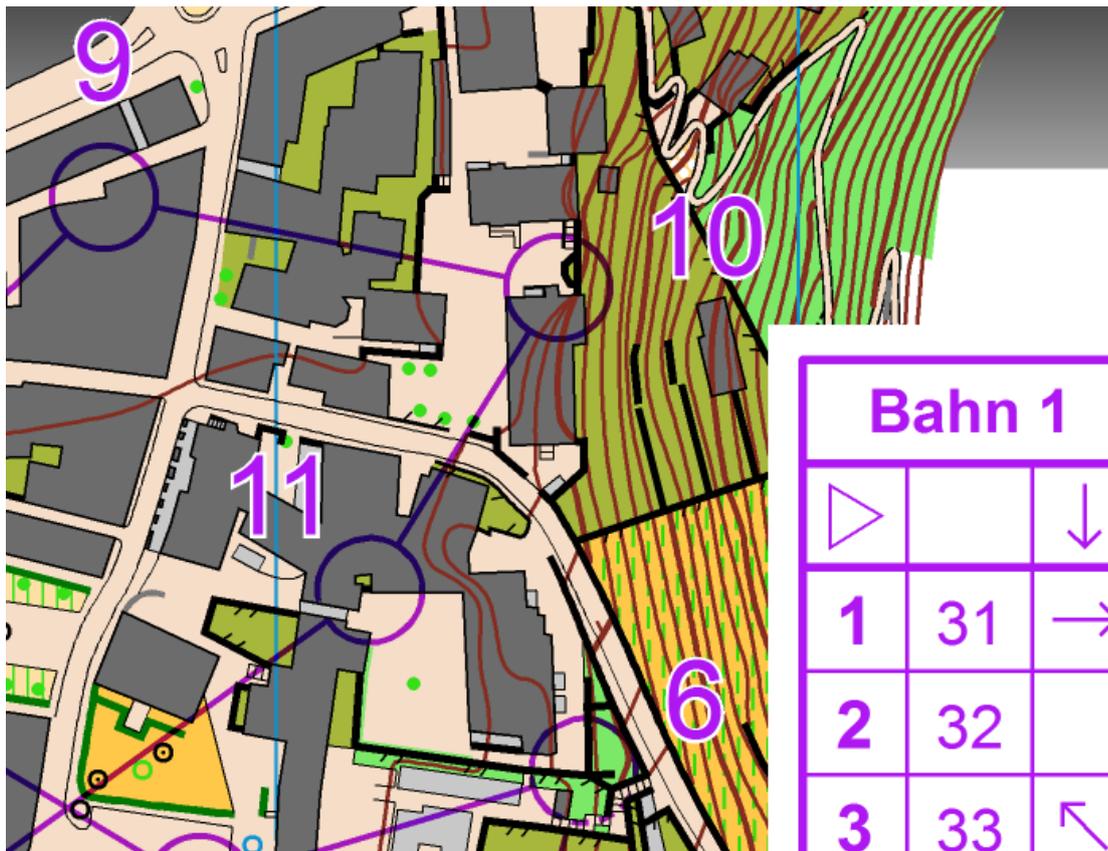


Select a course and click the **Preview** button. The course overprint now is transparent, but the white background of the control description is opaque and blocks out the orienteering map.

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.

Add control descriptions for all controls

Add control descriptions for all controls

<All controls>

Preview
⏪ ⏩

<All controls>

Preview
⏪ ⏩

Event Example

▶ S1	/	↗	γ	
▶ S2	×			
▶ S3	⌋			
31	•	1m 2m		
32) (2m		
33	⌋	3m		
34	∨			
35	+++			
36	□			
101	↘			<

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.

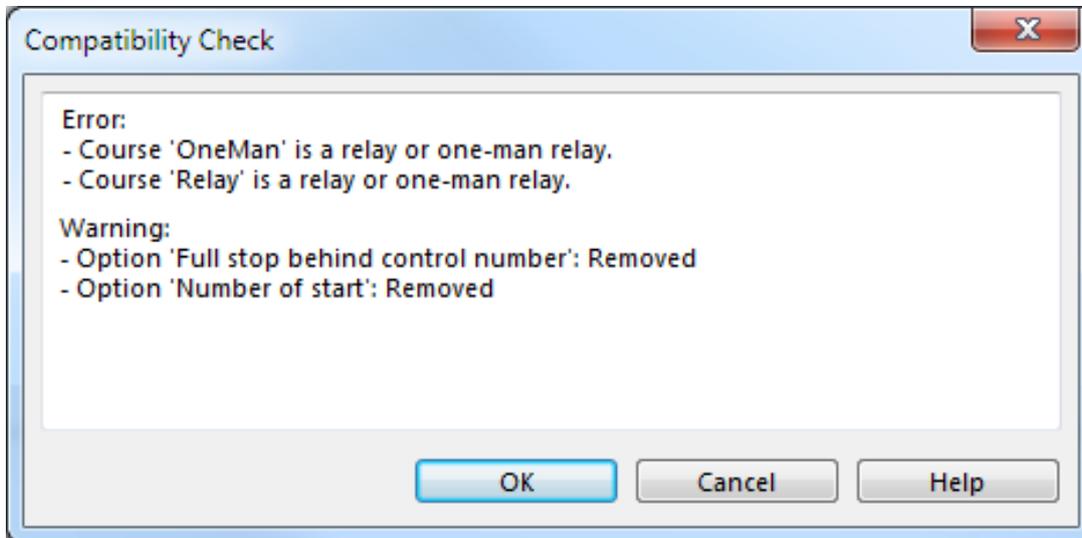
References

- [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 an earlier OCAD version (9, 10 or 11) if the file passes the Compatibility Check.

The Compatibility Check dialog shows the information about the compatibility.



Errors

OCAD 12 is using a better distribution for relays and one-man relays variations. So relays and one-man relays are not compatible with earlier OCAD versions.

Warnings

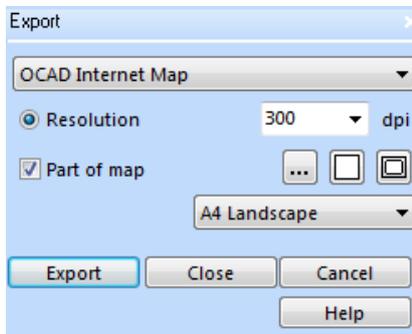
The following OCAD 12 features are not compatible with earlier OCAD versions and will be deleted:

- Option 'Full stop behind control number' (OCAD 9)
 - Option 'Number of start' (OCAD 9)
 - Control description anchor (OCAD 9 and 10)
-

OCAD Internet Map

Export OIM

Pro



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. 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

Base map layout:

Base layer name - name of the map (e.g. Citymap of Baar)

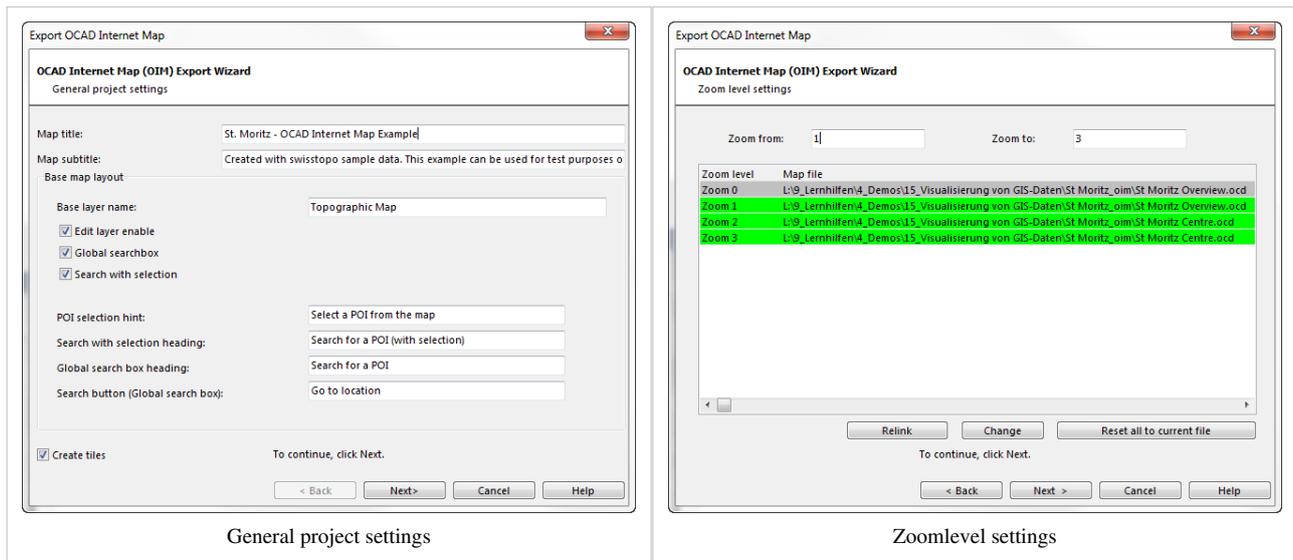
Edit layer enable - enables the users the ability to draw on the map

Global searchbox - search for POI's (works only with PHP support)

Search with selection - search only in one POI category, for example streets

- Create tiles - need to be selected if the map tiles should be created, otherwise only the meta files are created

-> Click **Next**



Zoom Level Settings

Select **Zoom from** and **Zoom to** levels which are created. Be aware that the overview map needs 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**

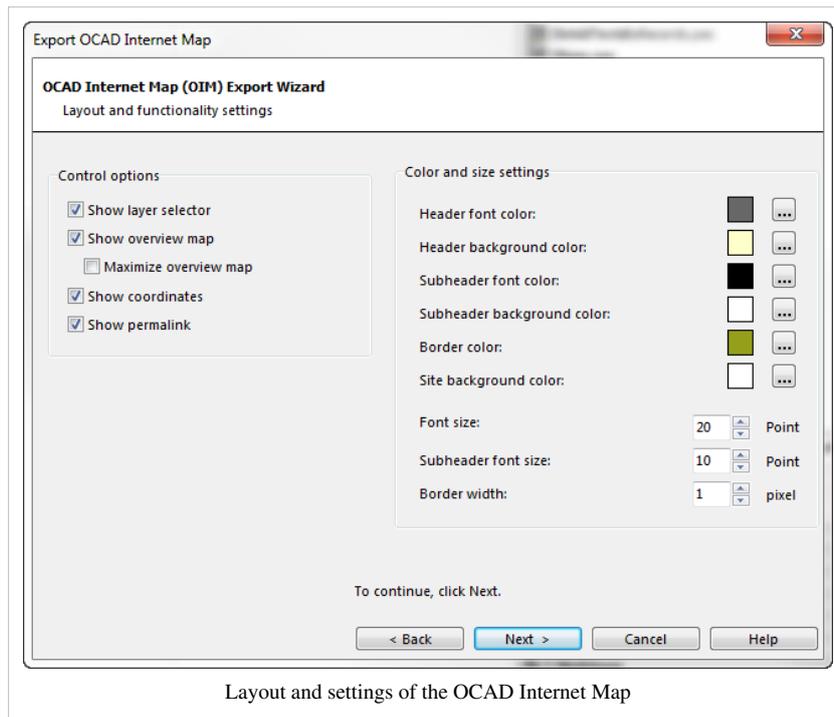
Layout and Functionality Settings

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

Color and Size Settings:

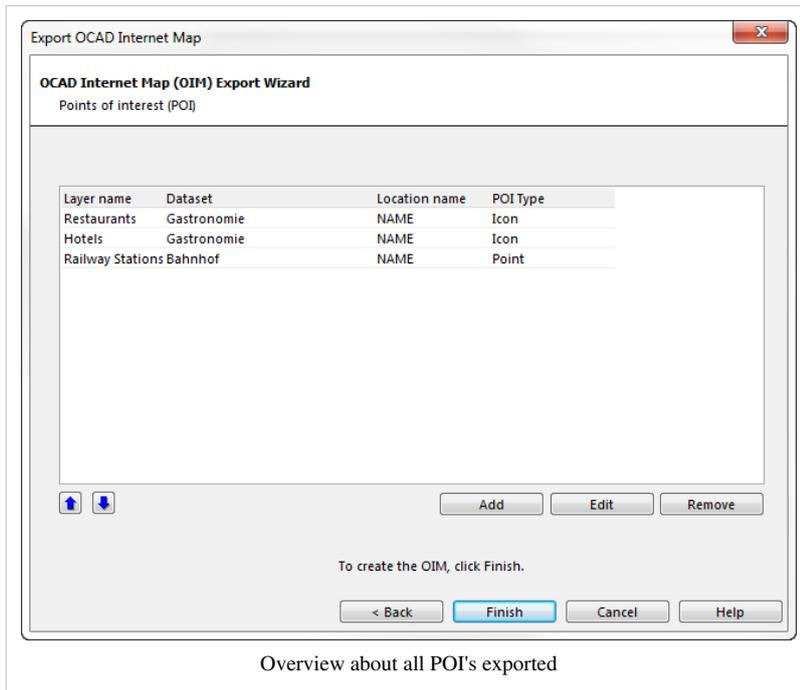
- Header font color - color of the map title
- Header background color - background of the map title
- Sub header font color - color of the map subtitle
- Sub header background color - background of the map subtitle
- Border color - border color of the map
- Site background color - general site background
- Font size - font size of the map title
- Sub header font size - font size of the map subtitle (e.g. copyright)
- Border width - thickness of the border



Layout and settings of the OCAD Internet Map

-> Click Next

Points of Interest (POI)



Overview about all POI's exported

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.:

location like 'myplace'

or

symbolnumber = 521.000

- Location field - name, it's the main name of the POIs, which is shown in the search
- Hover title on mouse over - 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
- Point of interest type:

-Point (vector) - POIs are drawn as yellow dot on the map

-Icon (information bubbles) - POIs are represented with the provided icon file

-> Click **Next**

POI 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 Vector Settings (if chosen)

Vector settings (only if **vector** is chosen in the previous step):

- Point fill color - represents the main color of the vector point. Opacity settings apply to this color.
- Point stroke color
- Point radius - size of the vector point
- Point fill opacity - applies to the main color.
- Point stroke opacity - applies on the stroke color

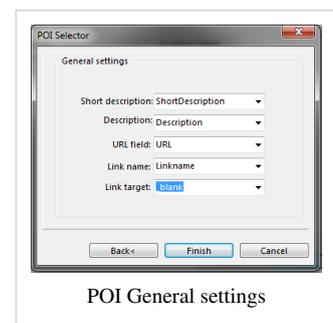
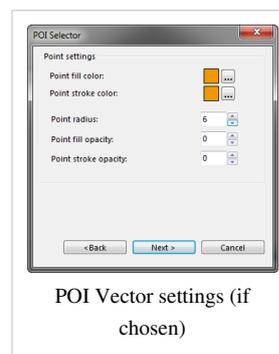
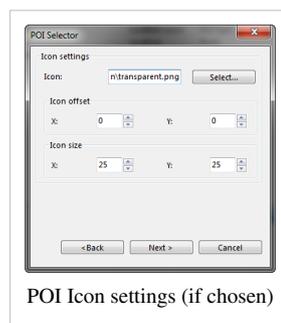
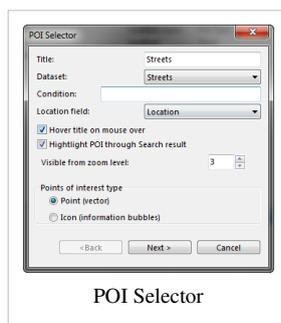
If you set both values to 0 - they are transparent to the web map user. -> Click **Next**

POI General 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 as in URL
- Link target - link target for the browser

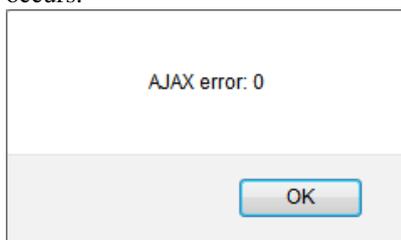
URL, Link name and target are not mandatory fields.

-> 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.



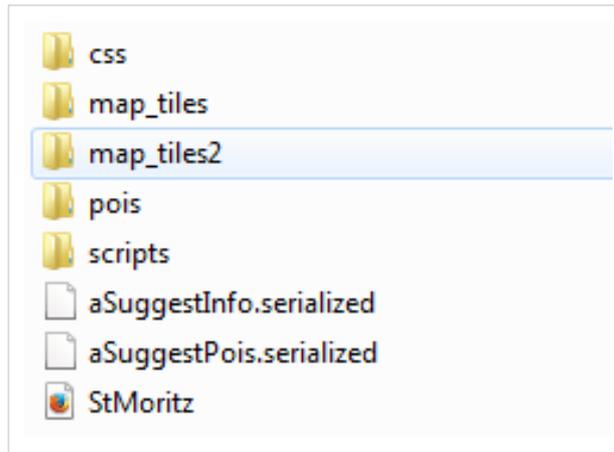
On the site HTML Entities the supported and convertible HTML characters can be seen.

More advanced functions can be scripted. Examples can be found under OIM scripting

Example of an OCAD Internet Map export: Internet Map St. Moritz ^[1]

How To Add Second Base Map Layer to the OCAD Internet Map

- Make 2 OCAD Internet Map exports with 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( "Orthofoto", "",
  { 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 }));
}
```

[Back to Main Page](#)

[Previous Chapter: Client Server Architecture](#)

[Next Chapter: Tutorials](#)

References

[1] http://ocad.com/demo/OIM_StMoritz/StMoritz.html

OCAD Internet Map scripting

OCAD Internet Map can be custom scripted with addition JavaScript code.

Zoom to midway

In order to load the webmap not in the smallest zoom level you can add the following command to the html-file directly after the following line:

```
zoomChanged();
```

Insert:

```
map.zoomTo(map.numZoomLevels- Math.floor(map.numZoomLevels/2));
```

With this 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 exposed 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 JupToPointOfInterest() {
    var point = new OpenLayers.LonLat(136733, 6667650);
    map.zoomTo(map.numZoomLevels-1);
    map.panTo(point);
}
```

The variable `map.numZoomLevels` must always be decreased by one in order 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 must be introduced in the init script with the following lines:

```
highlight_layer = new OpenLayers.Layer.Vector('Highlight Layer');
map.addLayer(highlight_layer);
```

The two lines must be placed 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 JupToPoint(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);
}
```

In the HTML file the code can look like as follows:

```
<select id= "dropdown-select" onchange="JupToPoint(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>

OCAD Preferences

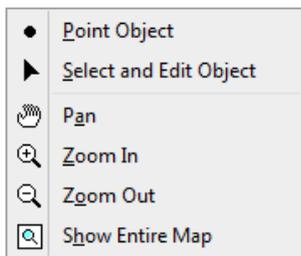


Some preferences are not available in the *OCAD 12 Starter* and *OCAD 12 Course Setting* editions.

GUI (Graphical User Interface)

Context menu in drawing area

If enabled, the context menu is shown by clicking on the drawing area with the right mouse button.



In the upper part of the **Context** menu, you can switch between the current **Drawing Mode**, the **Select and Edit Object** mode and the **Select Object and Edit Vertex** mode.

In the lower part of the **Context** menu, you can change the view either with the **Pan**, **Zoom In**, **Zoom Out** or the **Show Entire Map** tool.

If disabled, you can switch between the current **Drawing Mode** and the **Select Object and Edit Vertex** mode by clicking on the drawing area with the right mouse button.

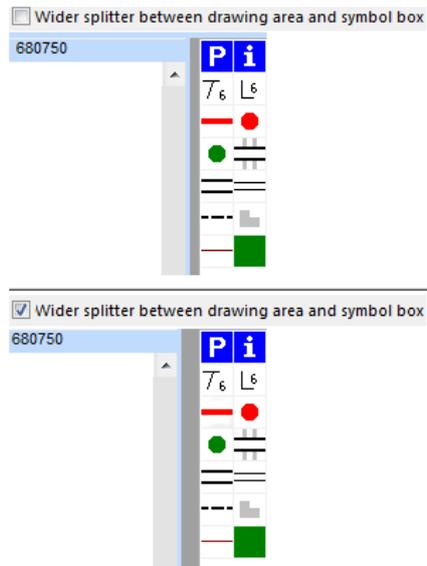
Right mouse click change between drawing and editing

This option is only activated if the **Context menu in drawing area** option is deactivated.

We recommend to deactivate this option when drawing on a tablet with a pen. In this case OCAD ignores the right click during drawing.

Wider splitter between drawing area and symbol box

If this option is enabled, the splitter between the symbol box and the drawing area appears wider as usual. This feature may improve the user-friendliness.



Toolbars

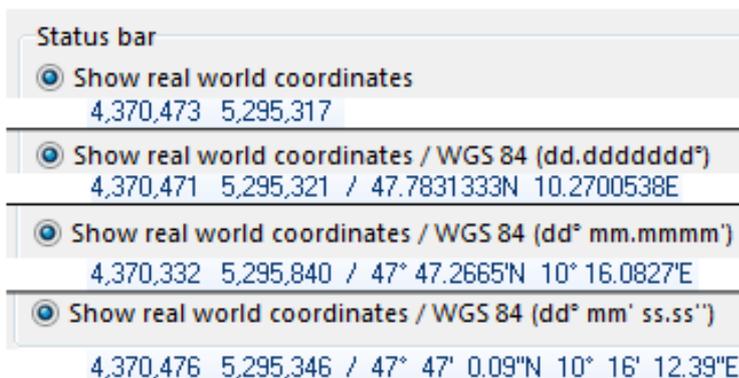
Show or Hide the following toolbars in this field:

- **Editing and Drawing Toolbar**
- **Edit Functions Toolbar**
- **Mobile Toolbar**
- **Numeric Keypad Toolbar**
- **Standard Toolbar**
- **View Toolbar**

Click the **Customize** button to add or remove icons to/from the toolbars.

Status bar

Choose the format of the coordinates appearing in the Status Bar in this box.



Style

Change the virtual appearance of the GUI by choosing one in the dropdown list.

File

Auto file load when opening OCAD

Check this box to load the last map you worked on automatically when OCAD is started. Otherwise no map will be loaded.

Auto file save

This option is not enabled when a map is loaded. Please close all maps before opening **OCAD Preferences**.

Check this box to save all changes to the original file automatically.

When this box is not checked, all changes are saved in a temporary file. When you close the file you will be asked if you want to save the changes to the original file.

This option has no effect for untitled files (new files which have never been saved to disk).

 In the mode of permanent automatic saving, the file is considered as "read only". If you want to save it, you are re-directed to the **Save as** procedure requesting a new name for the file.

Clear file history

Click this button to clear the file history from Recently Exported Documents and Recently Used OCAD Files. If a drive from the file history files does not exist anymore, e.g. disconnected network drives, it may need more time to open the File menu. This function solves the problem.

View

User defined zoom in menu item

Enter a value to specify the User Defined Zoom. Choose **User Defined** in the **View** menu to apply the specified zoom to the map.

View mode loop

With the **View mode loop** tool you can easily switch between different view modes. Select the view modes you want to switch between in the **View mode loop** box in the **View** category of **OCAD Preferences**.

To use the **View mode loop** you have to define a **Shortcut** for **View - View Mode Loop**. Afterwards you can switch between the set view modes using the **Shortcut**.

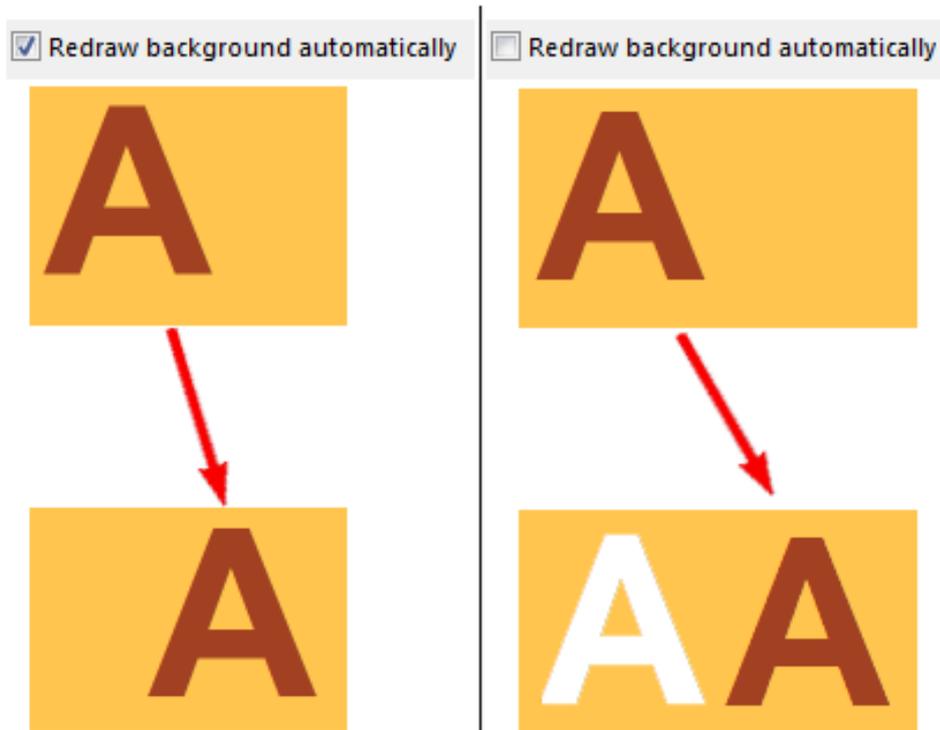
Visit the **View Mode Loop** article to get more information about this function.

Color Correction

On some monitors colors and gamma of the map are not displayed correctly. Use the controller to regulate the color and gamma manually. Click on the **Standard** button to set the **Color Correction** back to default.

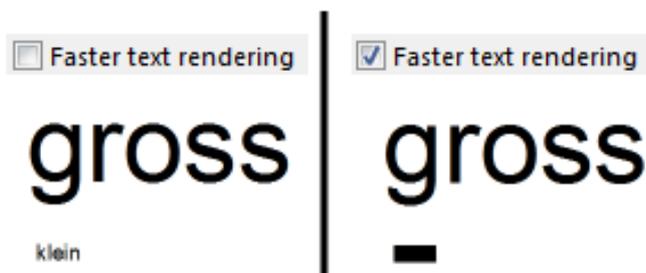
Redraw background automatically

If this option is enabled, the map is redrawn after every single modification of the map (This may reduce the performance of OCAD). Otherwise you have to press the **F5** key or select **Redraw** in the **View** menu to redraw the map.

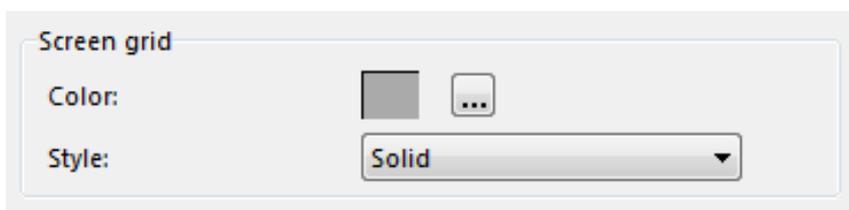


Faster text rendering

Enable the **Faster text rendering** option to render text faster and less precisely. This may increase the performance of OCAD.



Screen Grid



In this section of the **OCAD Preferences** the color and the appearance of the **Screen Grid** can be changed.

Change the **Color** by clicking the  **Setup** icon.

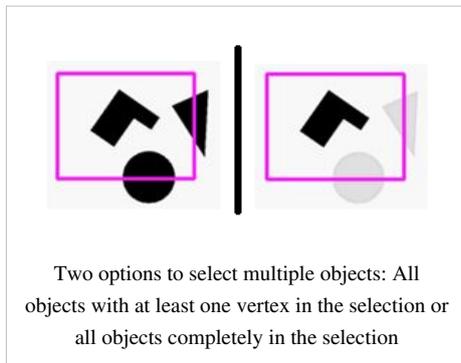
Click the **Default** button to reload the default gray color.

Choose a **Style** from the dropdown menu. The **Screen Grid** can either be **Solid**, **Dashed** or **Dotted**.

Select

You can choose between two modes to select multiple objects:

- All objects must be with at least one vertex in the selection.
- All objects must be completely in the selection.



You can find more information about selecting multiple objects on this page: [Select and Edit Multiple Objects](#).

Object

Object stretching

If this option is activated, you are able to stretch objects in the  **Select and Edit Object** mode.

You can find more about stretching objects on this page: [Select and Edit Object](#).

Unsymbolized objects

Choose a color for Unsymbolized Objects by clicking on the **Setup**  icon. The **Color Picker** dialog appears and you can configure the color.

Drawing and Editing

Drawing Bézier curves

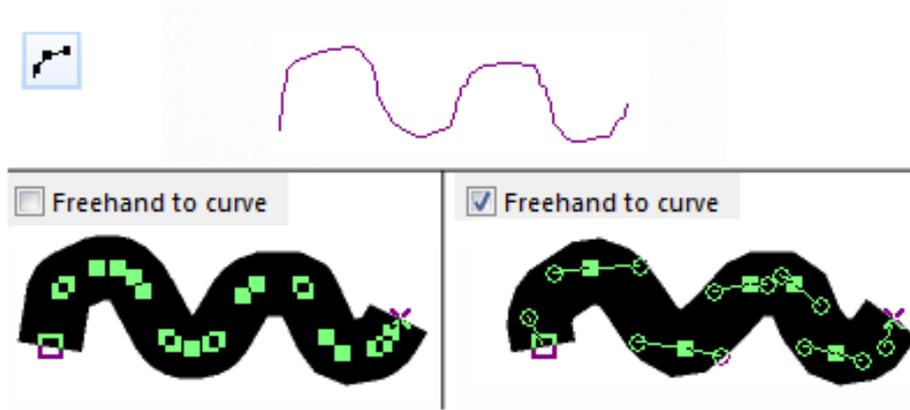
Choose the preferred mode for drawing curves.

- In OCAD mode, only the direction of a dragged tangent is used. The distance from the normal vertices to the curve vertices is calculated automatically. This is the recommended mode.
- In Illustrator mode, the length of the dragged tangent is used to calculate the distance of the curve vertex.

You can find more about drawing curves on the following page: [Draw a Curve](#).

Convert freehand to curve when drawing

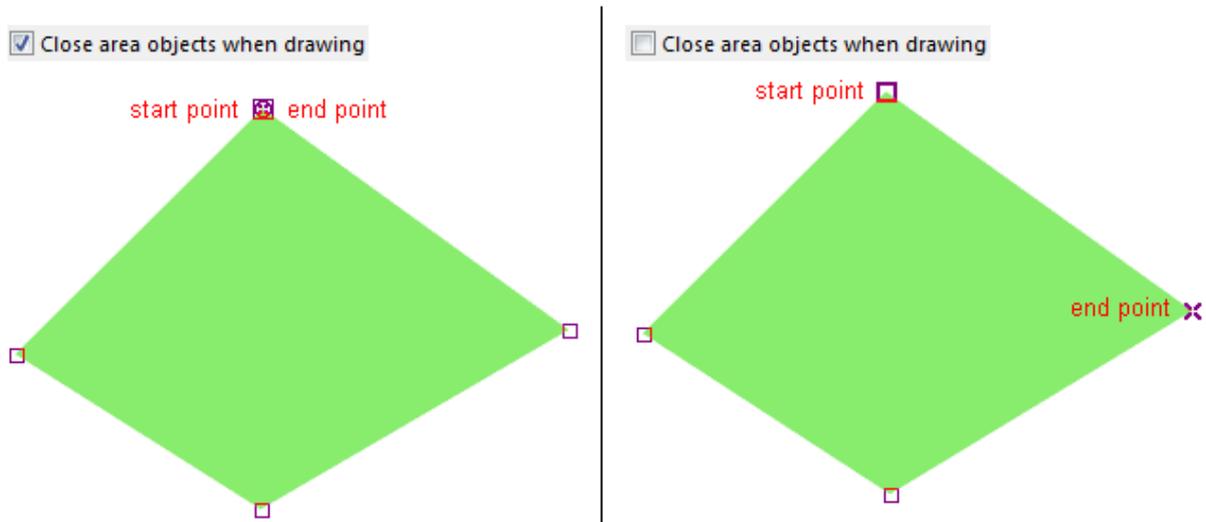
Check this box to convert lines and areas to curves when drawing in freehand mode. Otherwise they remain as polygons. The settings made in the **Smooth when drawing freehand** dropdown list of the **Tolerances** field determine the smoothing level.



Close area objects when drawing

OCAD closes area objects automatically if this option is checked. If the start and end point are different, OCAD adds an end point with the same position as the start point.

Choose **Close Area Objects** in the **Topology** part of the **Object** menu to close already drawn area objects.

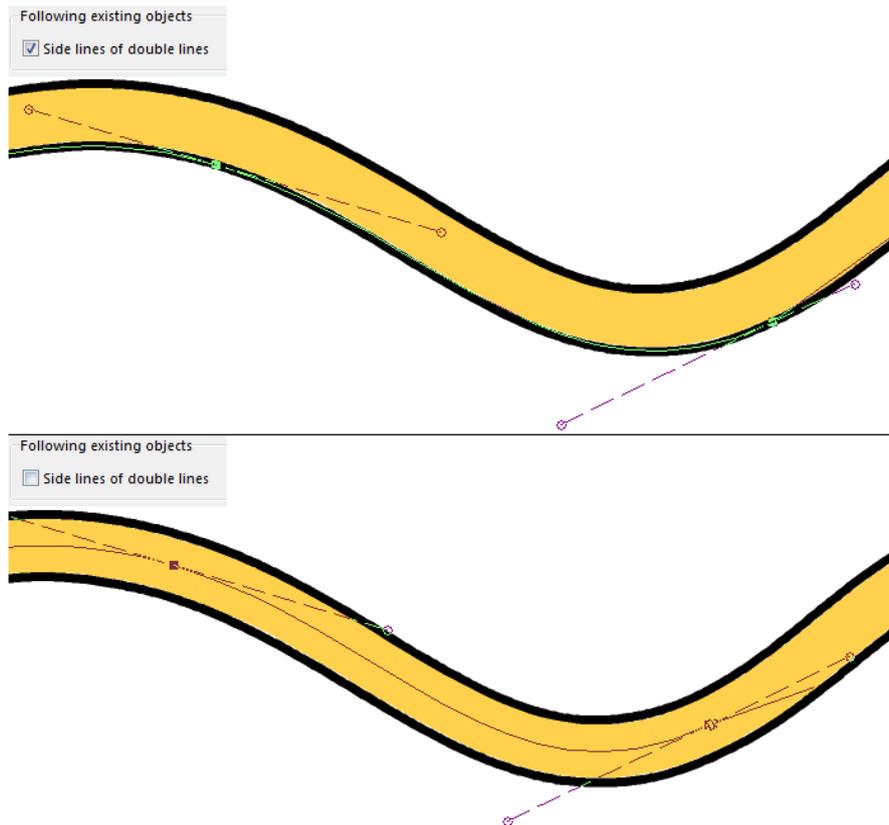


Move closed start and end points of line and area objects together

When this option is switched on, and the start and end points of a line or area object coincide (the line is closed), they are moved together during editing. If you move the start point, then the end point will also move.

Following existing objects

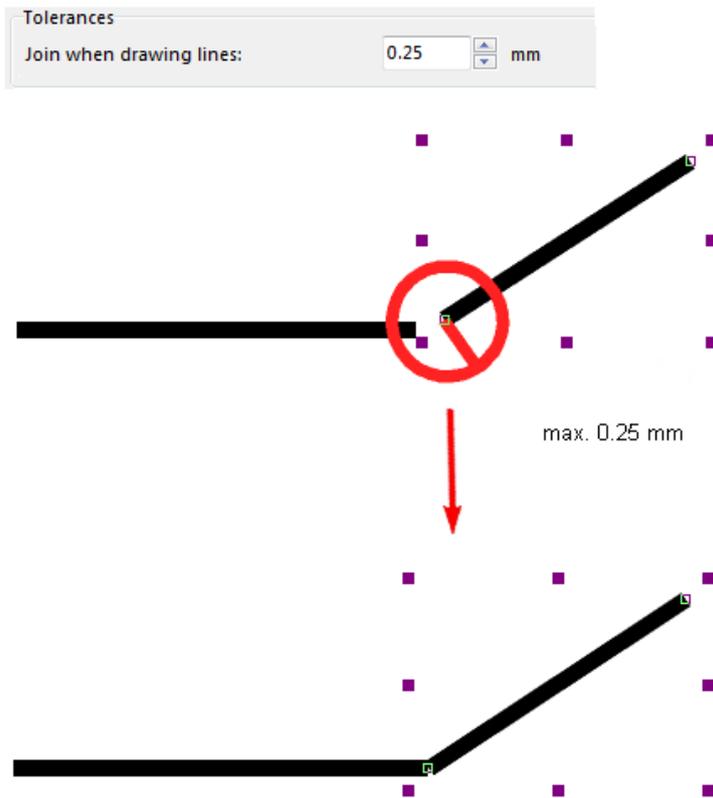
Uncheck the **Side lines of double lines** option if side lines of double lines should not be traced when you are following existing lines. You can find more about this topic on the **Following Existing Objects** page.



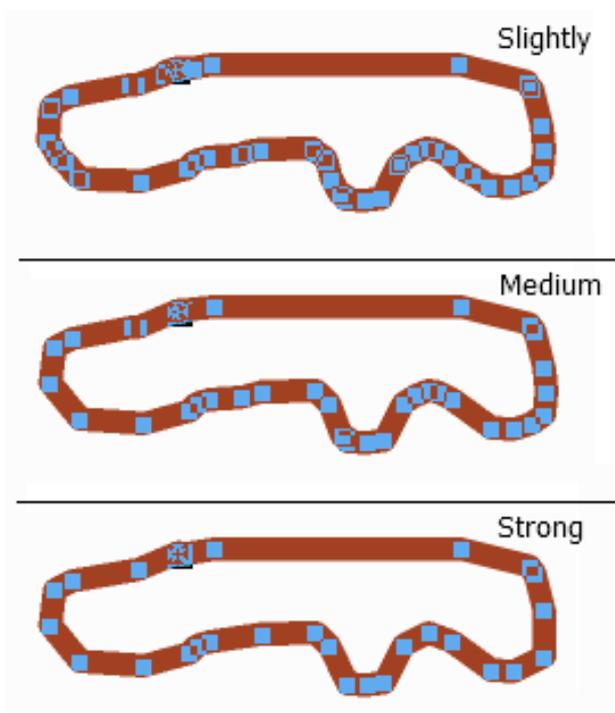
 Following existing objects ^[11]

Tolerances

- Select objects:** This tolerance defines the maximum distance on each side of a thin line where you can click to select it. Objects with a thicker main line than the tolerance level can be selected by clicking on the entire line width. The default value is 3 pixels.
 -  This tolerance is further used in multiple tools like **Cut lines**, **Cut areas**, **Following existing objects**, **Reshape**, **Add Vertex**, **Remove Vertex**, **Change Vertex Type**.
- Snapping:** If you activate the **Snapping** tool, moving a vertex close to an objects has a snapping effect. This tolerance defines the maximum distance you have to approach to the object, so that the vertex snaps to it. The default value is 5 pixels.
 -  [Snapping ^[11]
- Join when drawing lines:** This tolerance defines the maximum distance a vertex has to approach to another line end to join it. The default value is 0.25 mm. If the line width is bigger than this tolerance then OCAD takes the line width as the tolerance. This tolerance is used for lines and areas

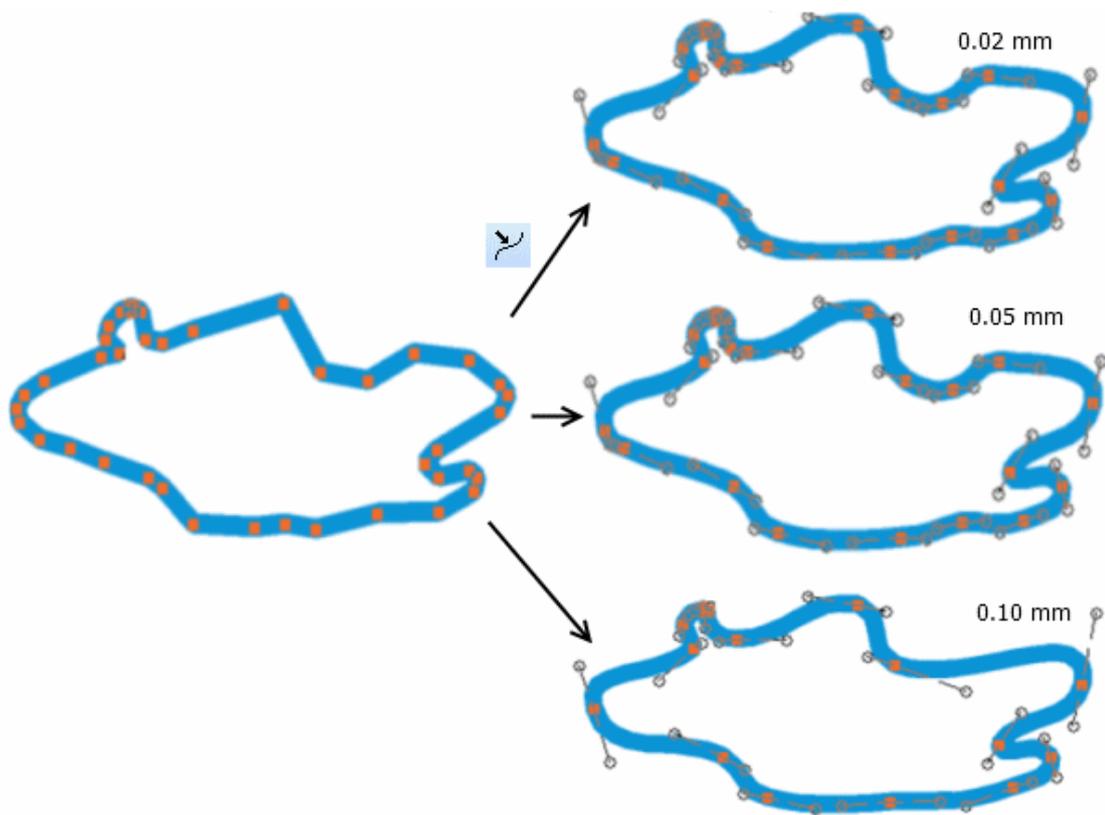


- **Merge lines:** This tolerance defines the maximum distance two line ends can be apart to still get merged. By default, lines get merged if they are closer than 0.8 mm.
- **Smooth when drawing freehand:** There are three smoothing levels for freehand drawing mode: slightly, medium and strong. They correspond to 0, 1 and 2 in earlier OCAD versions.

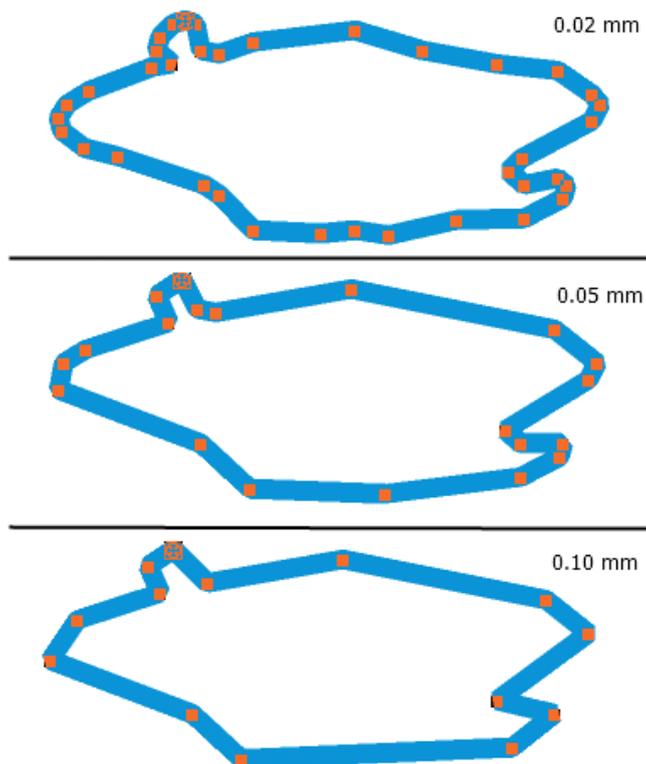


- **Change to Bezier curve:** This tolerance defines the maximum distance the vertices can move away from the original position by changing from polyline to Bezier curve. The default value is 0.10 mm. Note that the distance

between the curve and the polyline can be greater between the vertices.



- **Smooth (generalization):** This tolerance is used by the Douglas-Peucker smoothing algorithm. Vertices that are closer to the direct line between the previous and the next vertex are removed. The default value is 0.05 mm. This smooth tolerance is also used in the 'Change to Polyline' function.

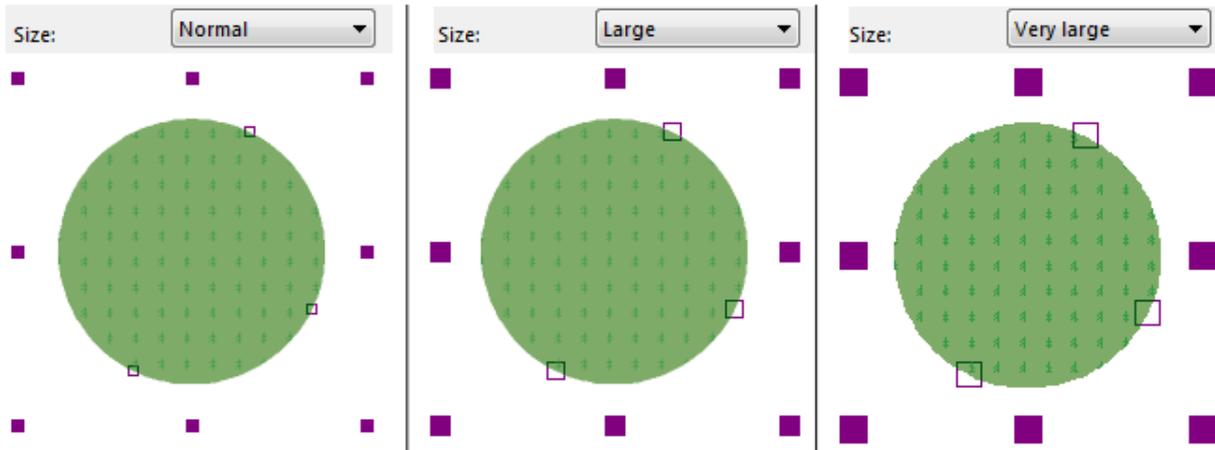


Cursor color

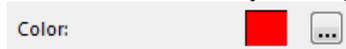
You can change the cursor color to black, red, blue, purple or yellow by selecting a color in the dropdown list.

Mark

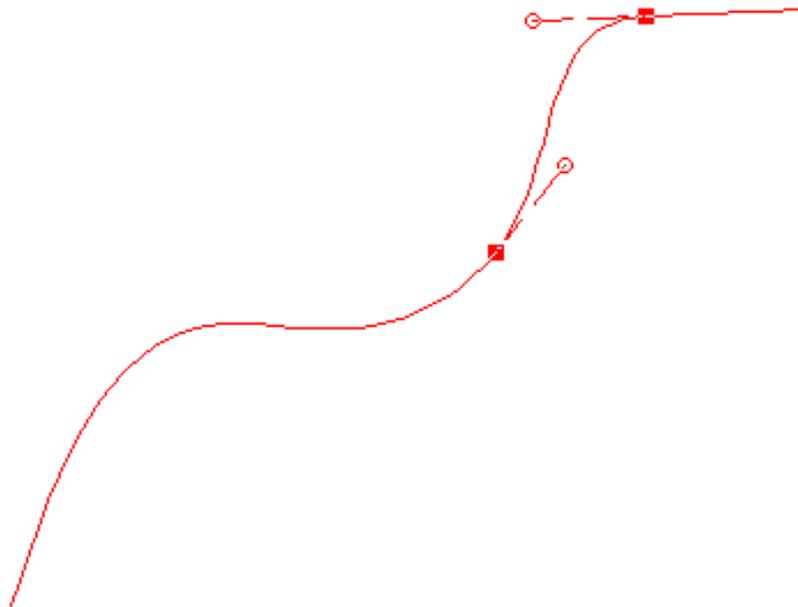
Set the mark size to normal, large or very large.



Choose a mark color by clicking the  **Setup** icon.



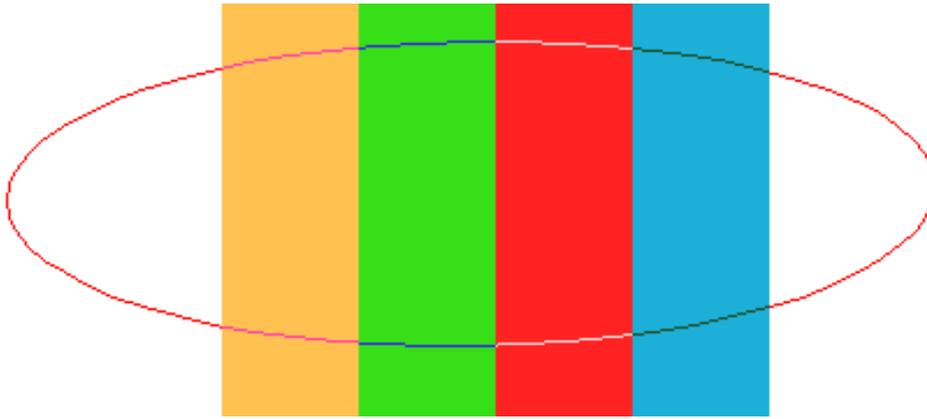
The mark color is used during drawing and to mark the selected objects.



The GPS cursor in GPS Real Time mode is also drawn with the chosen mark color.



 OCAD uses the chosen mark color only on white background. Otherwise OCAD choose a color with high contrast to the background color.



Enable live preview

Enable this option to show the real line width when drawing line objects.

Auto scroll

Check this option if the map view should automatically scroll if you drag out of the drawing area. Disable **Auto scroll** if you have a slow PC.

Symbol

Default symbol folder

You can change the default symbol folder by clicking on the  **Browse** icon. Choose a folder as *default symbol folder* which you want to load symbols from when you create a new map. Click on the  **Delete** icon to clear the current folder path. If no folder is selected, OCAD loads symbols from the *Symbol* folder in the *OCAD program directory* (usually: *C:\Program Files\OCAD\OCAD 12\Symbol*) when you want to create a new map.

Symbol

- **Selected symbol blink in symbol box:** If you check this option, the selected symbol blinks in the symbol box. This illustrates the selected symbol.
- **Lock symbol positions in symbol box:** If you check this option, you are not able to drag and drop a symbol to a new position in the symbol box.
- **Auto select symbol when selecting object:** If you check this option, the corresponding symbol is automatically selected when you select an object. This does not work when you select multiple objects.
- **Change to drawing mode when selecting a symbol:** If you check this option, OCAD change to a drawing mode when selecting a symbol in the symbol box. If the symbol has a preferred drawing mode then OCAD change to this drawing mode.

GPS

GPS Log File

Check the **Log all positions sent from gps** option to save all position sent from a GPS device in real time to a log file (Text-File). Click the  **Browse** icon to choose a folder, the log files are saved to. The log files are named with the date and time the real time GPS is enabled.

Warnings

Warnings for hidden symbols

These warnings can be activated when you either print, export or import a map. If you check those options, you will get a warning message if you have hidden symbols on the map and you are trying to carry out one of mentioned operations.

Moving warnings

Enable the **Move multiple objects** option to get a warning message when you move multiple objects. Use this option in order to guard against moving multiple objects accidentally.

General

Updater

Disable the option **Check for Service Updates when you start OCAD** to not check for new free Service Updates when you start OCAD. In some cases this check takes too long.

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 also available on our website in the Download ^[4] section.

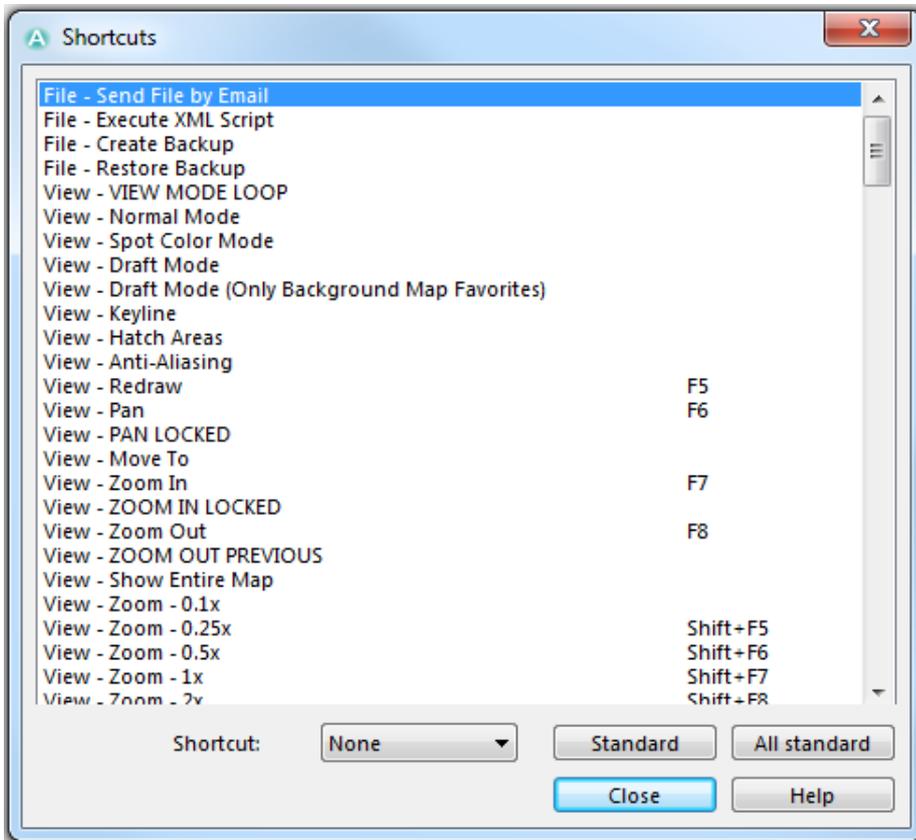
OCAD Blog

If this option is activated, new OCAD blog posts are shown when you start OCAD.

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

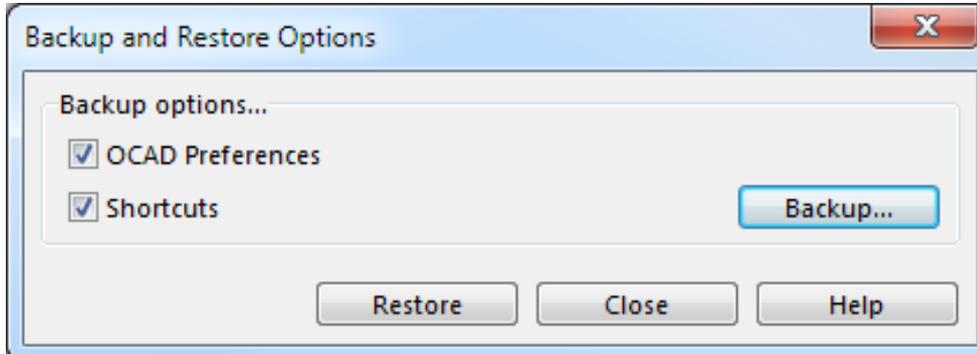
Tips with Keyboard and Mouse

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.



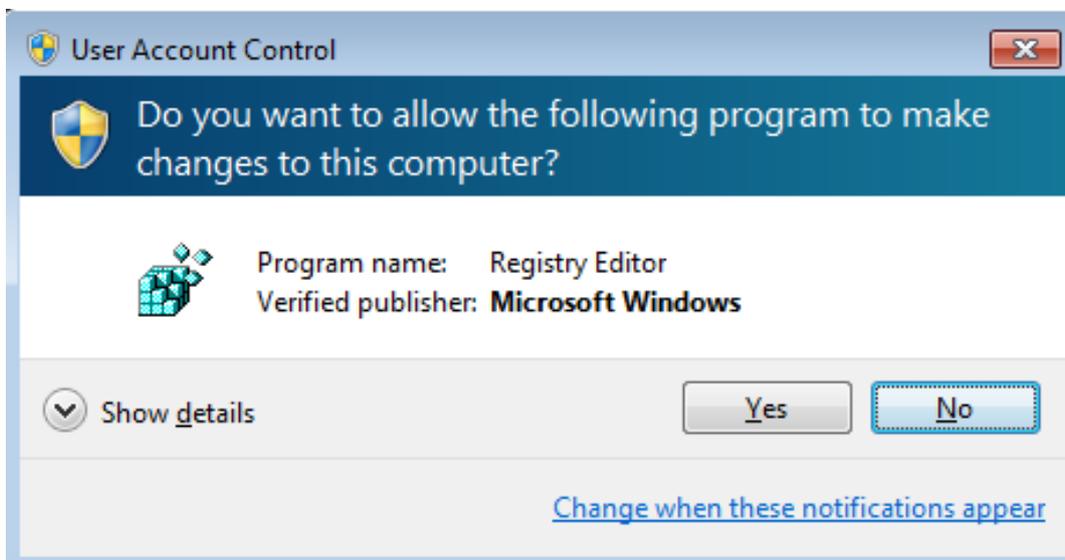
Backup

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).

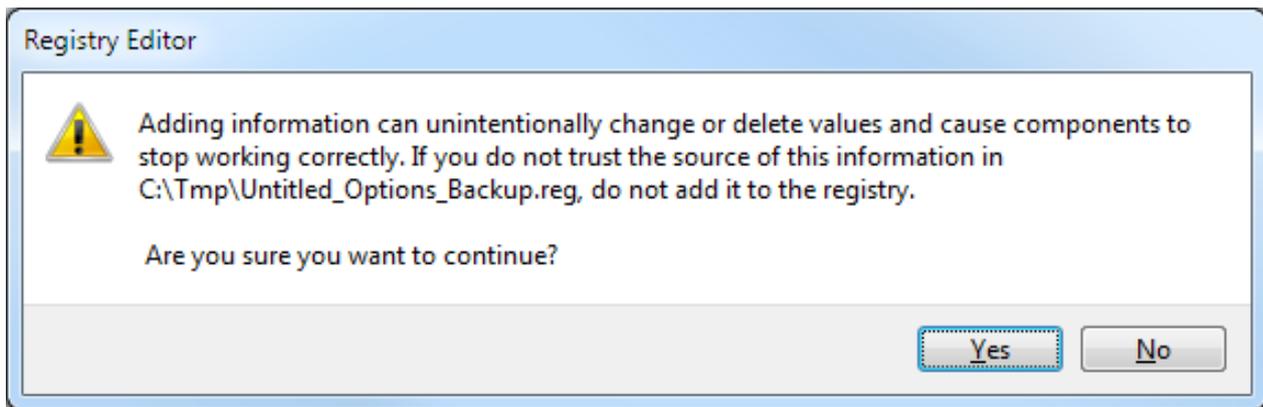
Restore

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.

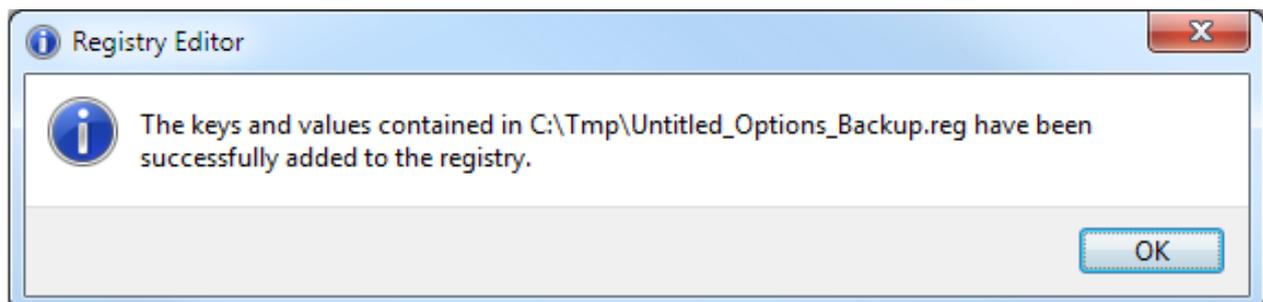
Windows shows the following 3 messages. Close the dialog not before clicking through these 3 messages.



Click the **Yes** button.

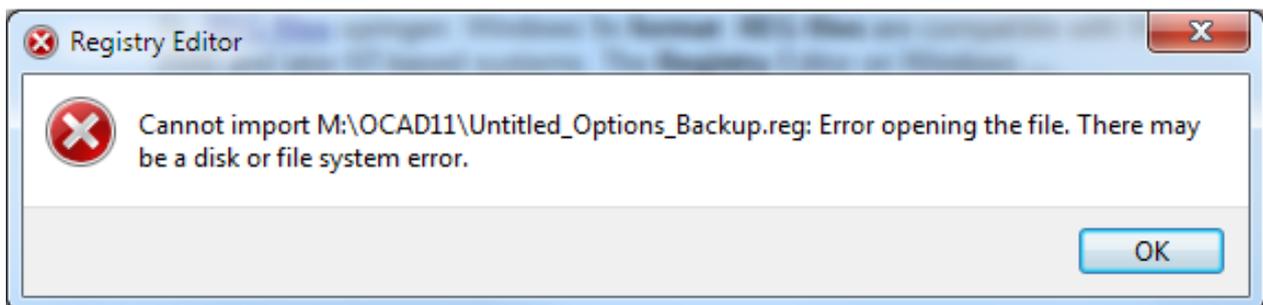


Click the **Yes** button.



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
- Czech
- German
- Spanish
- French
- Italian
- Hungarian
- Norwegian
- Polish
- Portuguese
- Russian
- Finnish
- Swedish
- Turkish
- Japanese

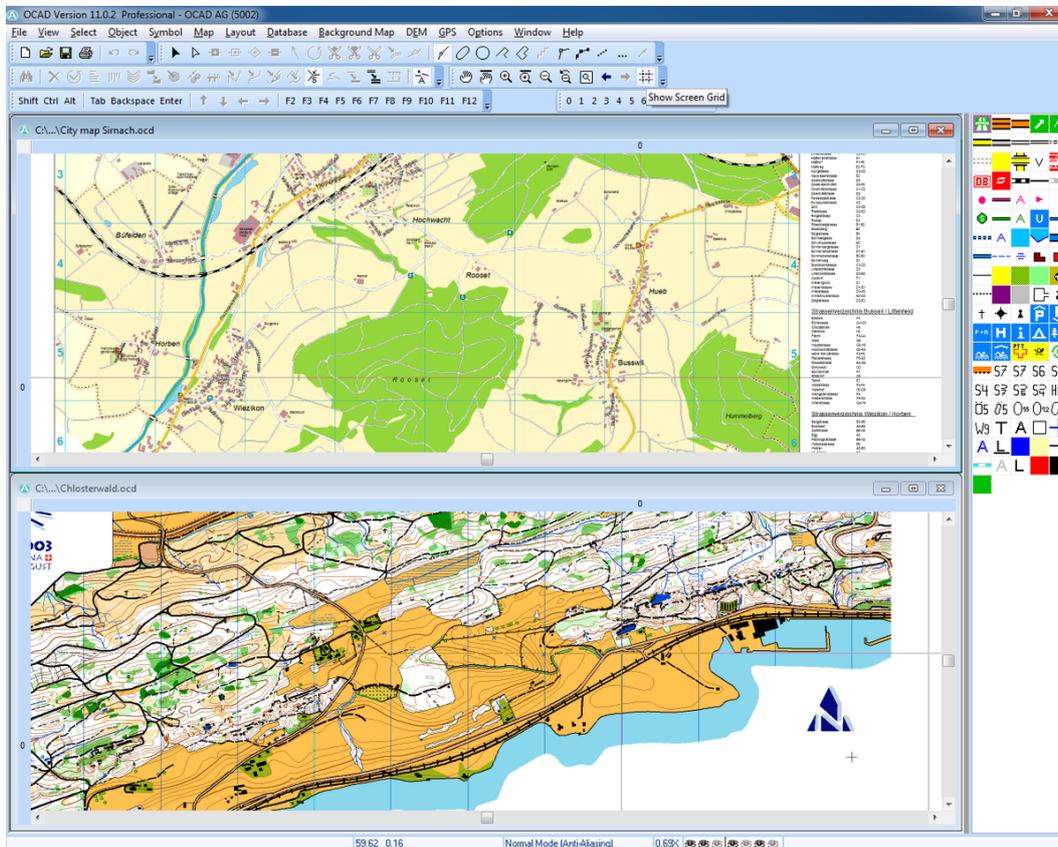
 Changing the language has no effect on the language of symbol and color descriptions of the template files. The language you must define during the installation process defines which template files are installed and therefore which language they have.

Window

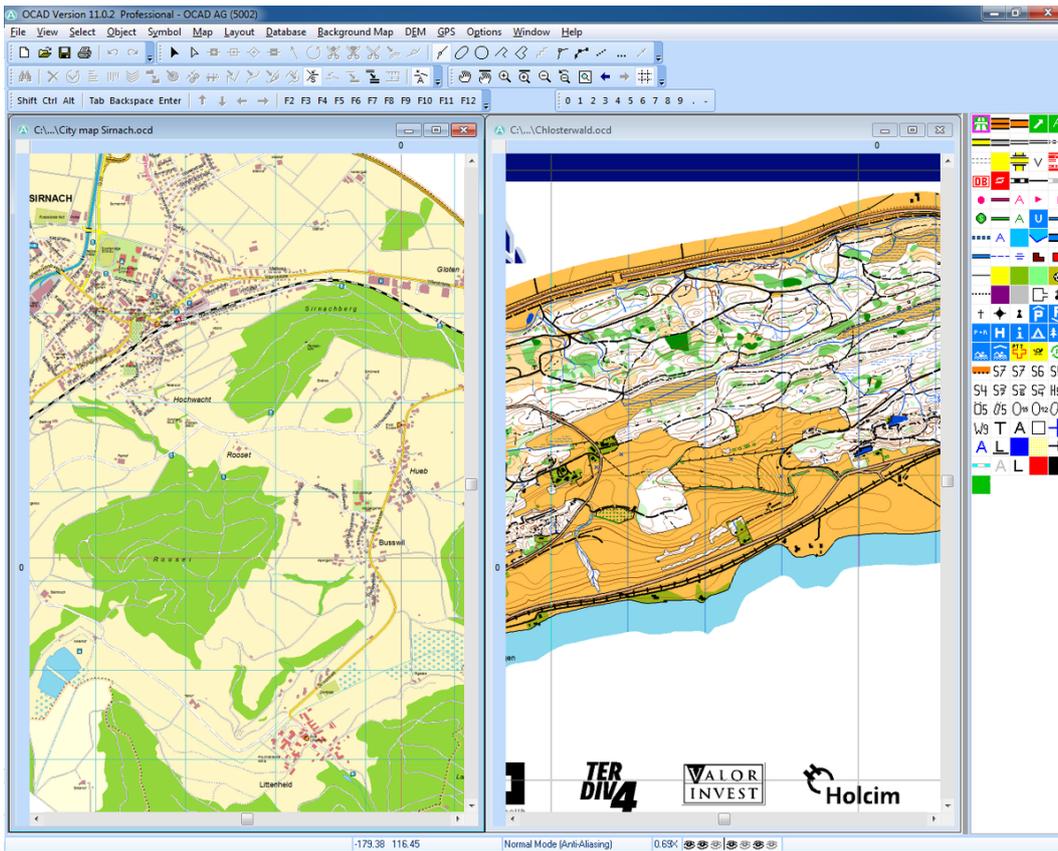
Tile

Pro Std Sta View CS

Choose the **Horizontally** command in the **Tile** submenu of the **Window** menu to arrange all opened OCAD projects horizontally in the OCAD window.



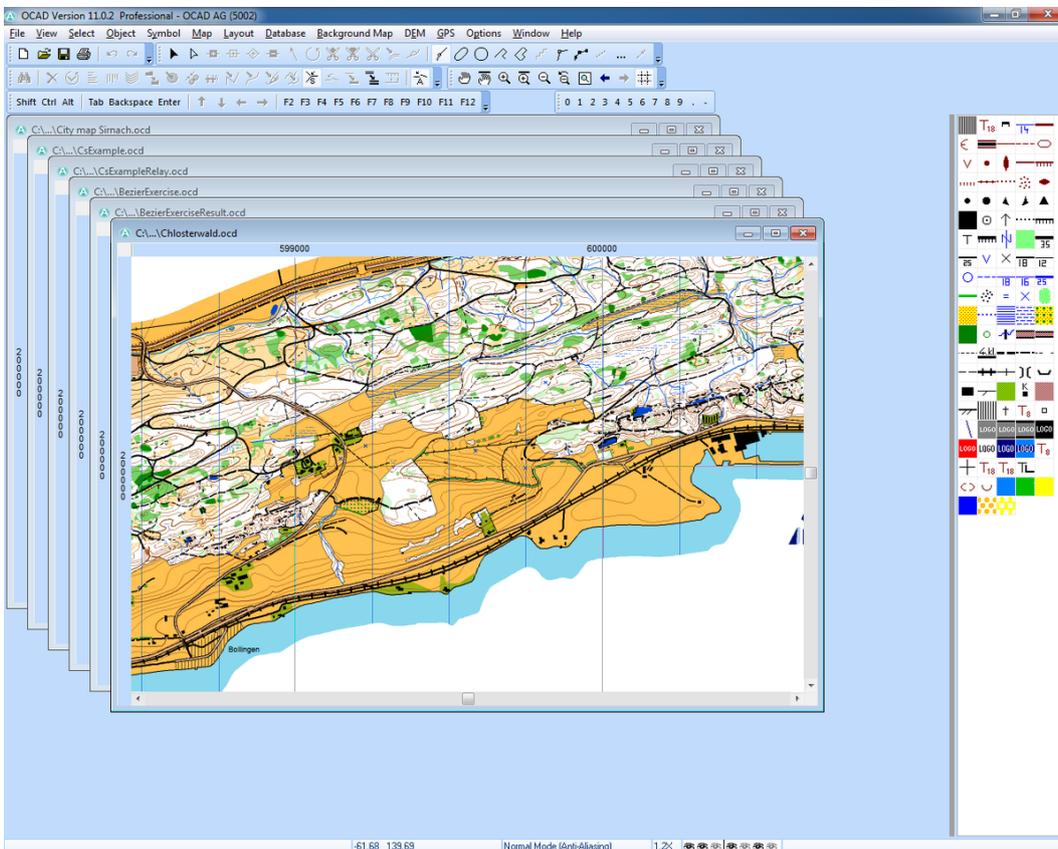
Choose the **Vertically** command in the **Tile** submenu of the **Window** menu to arrange all opened OCAD projects vertically in the OCAD window.



Cascade



Choose the **Cascade** command in the **Window** menu to cascade all opened OCAD projects.



Switch to Opened OCAD Window

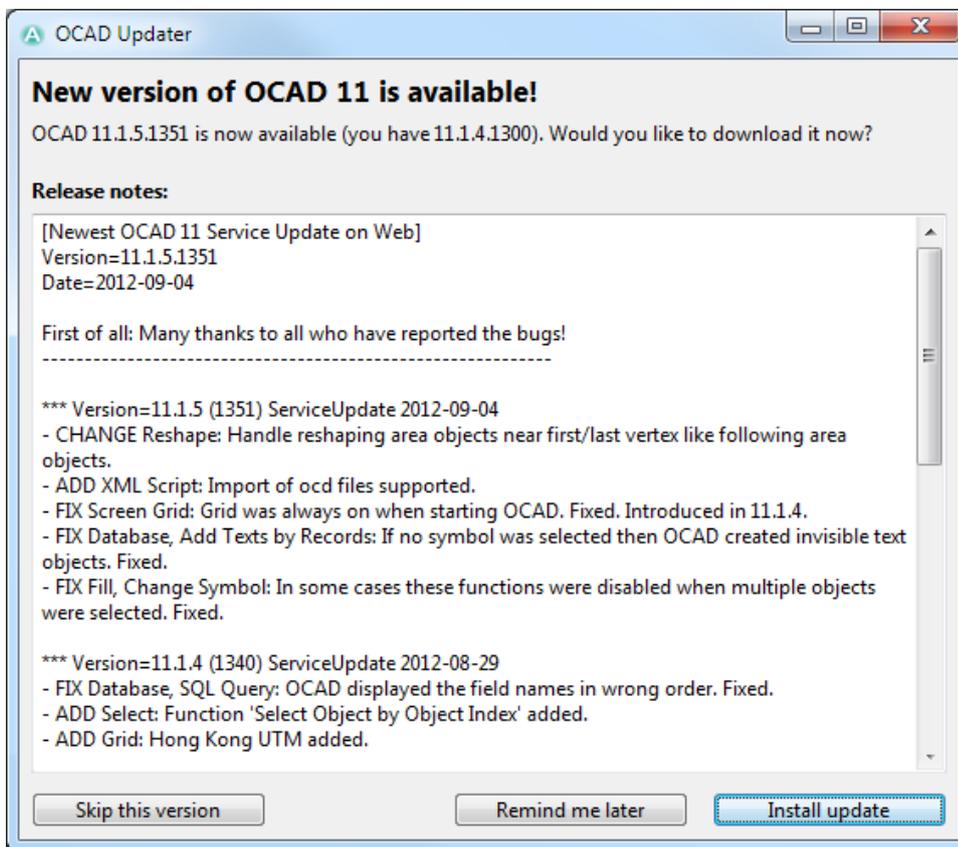
In the lowermost part of the **Window** menu, all opened OCAD projects are listed. Choose a project to put it to the foreground.

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 version: Click this button to skip the current version. OCAD will not ask again to install the service update until a new version is available.

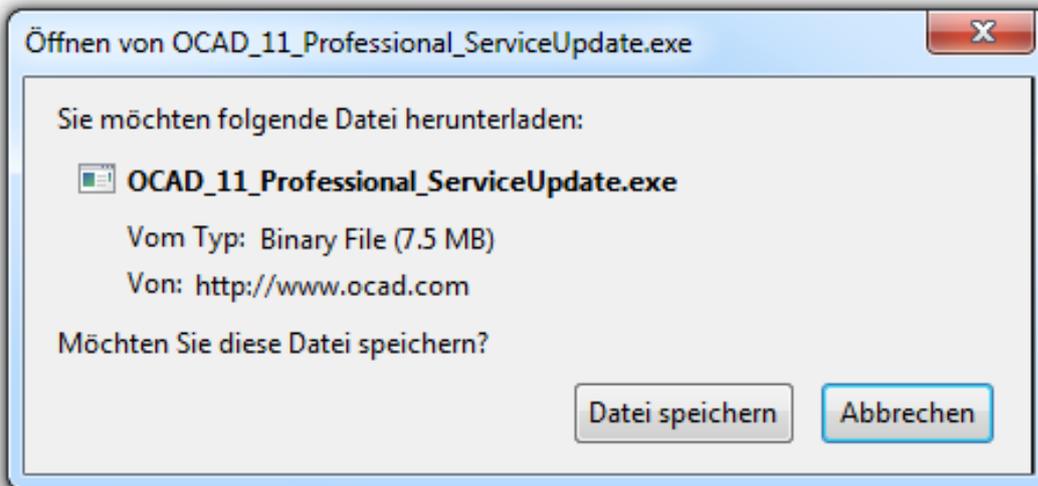
Remind me later: When this button is clicked, OCAD will ask you again to install the Service Update, when you start it the next time.

Install update: Click this button to install the update.

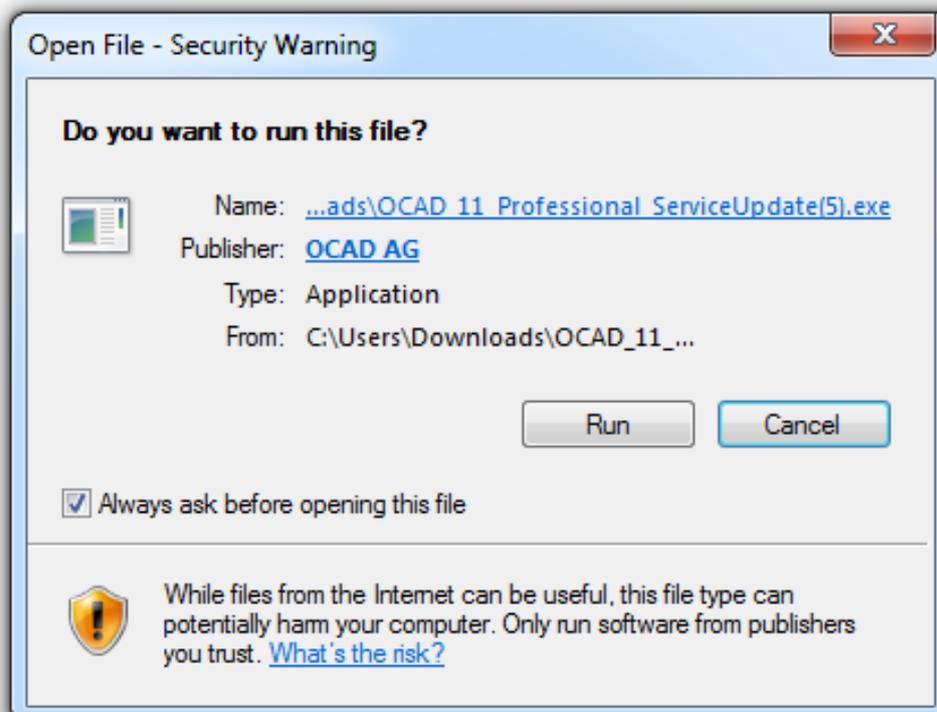
Installation

Please close OCAD before installing the Service Update. If you click the **Install update** button from the **OCAD Updater**, OCAD will close automatically.

When you click the **Install update** button, The default browser will be opened and you will be asked to save the update.



Download the update and run it.



If this dialog appears, click on the **Run** button. If the **User Account Control** dialog appears, click the **Yes** button.

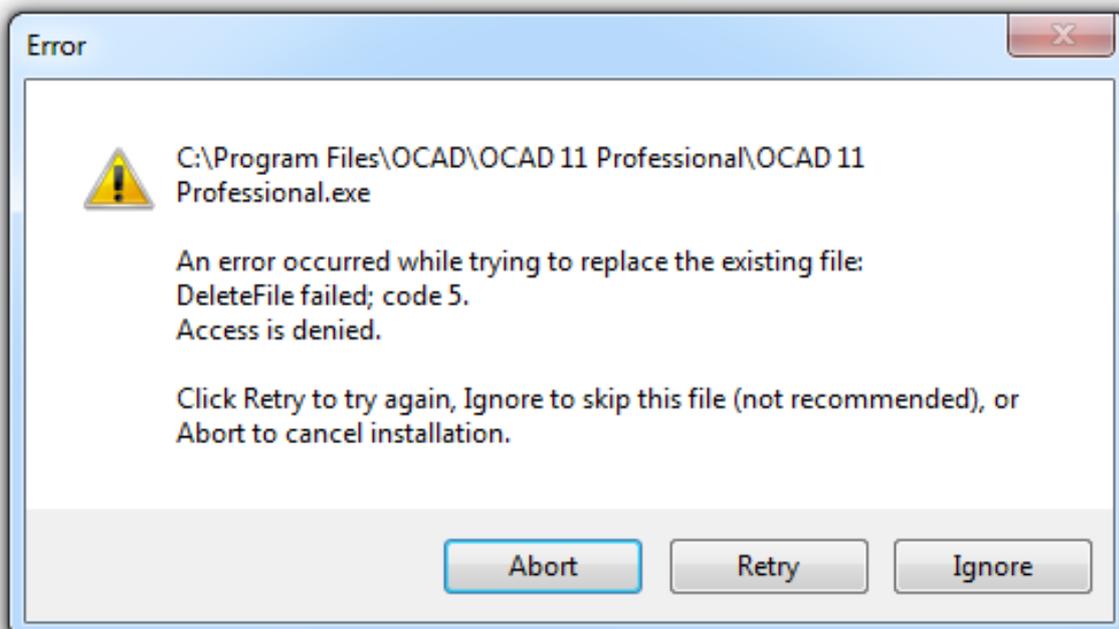
The installation wizard starts with the selection of a language.



The wizard will guide you through the installation.

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.

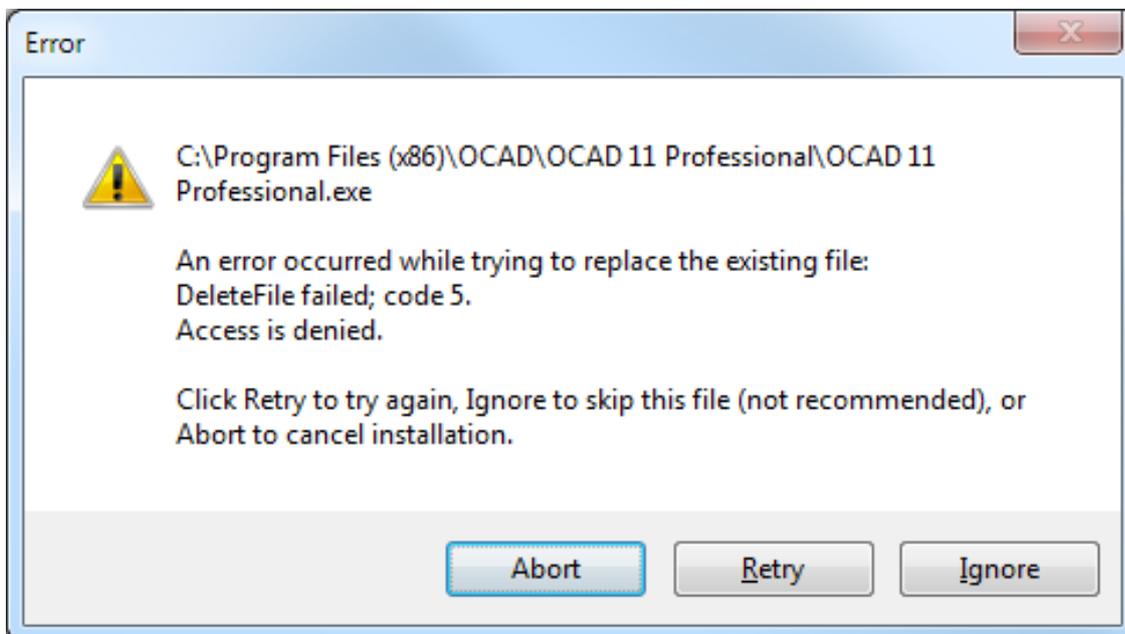
You find the corresponding link in the OCAD **Help** Menu or see <http://www.ocad.com/en/support/learn-video>

Adobe Flash Player must be installed to watch the movies.



Error Messages

An error occurred while trying to replace the existing file

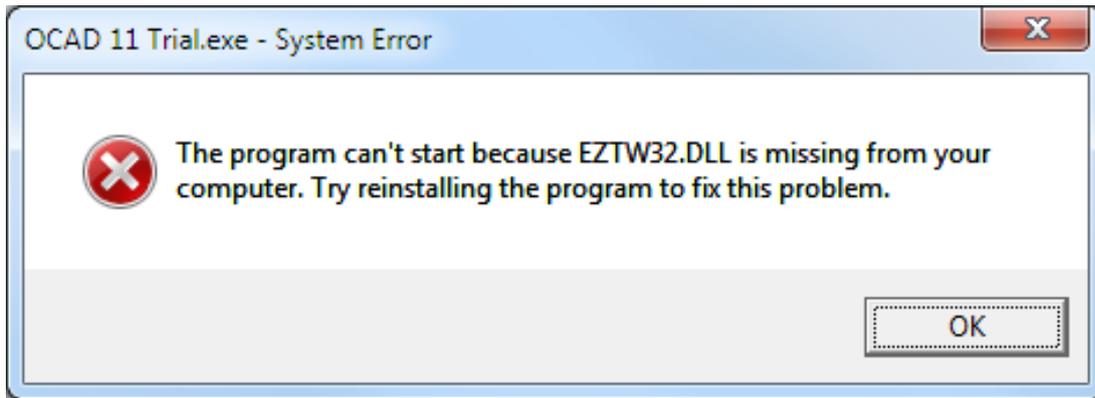


This error message appears when installing an OCAD Service Update.

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.

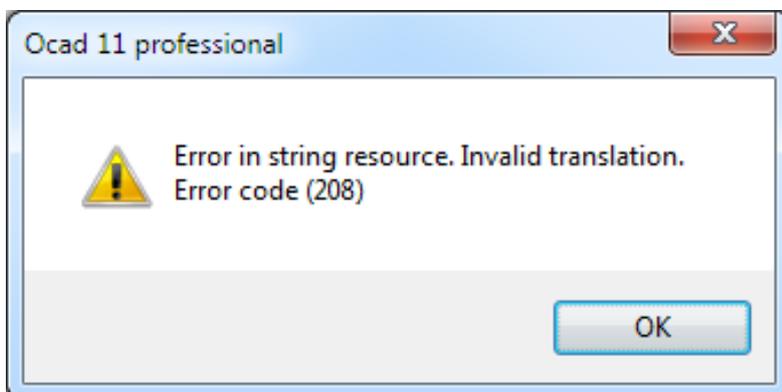
Cause: You have installed the Service Update instead of the Trial version.

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

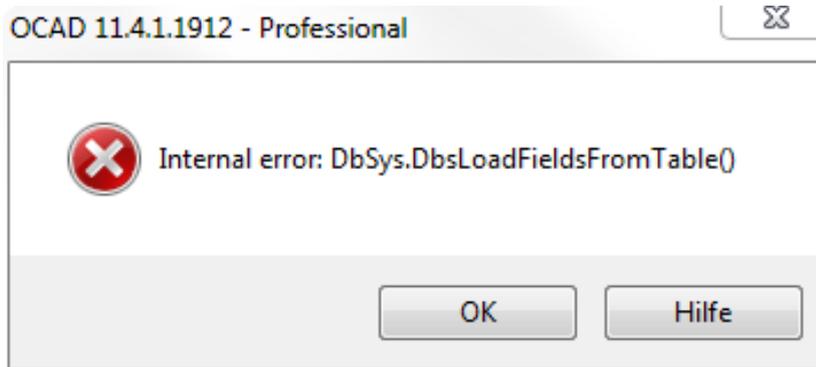
This error message appears when selecting an objects which is linked to a database record.

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()

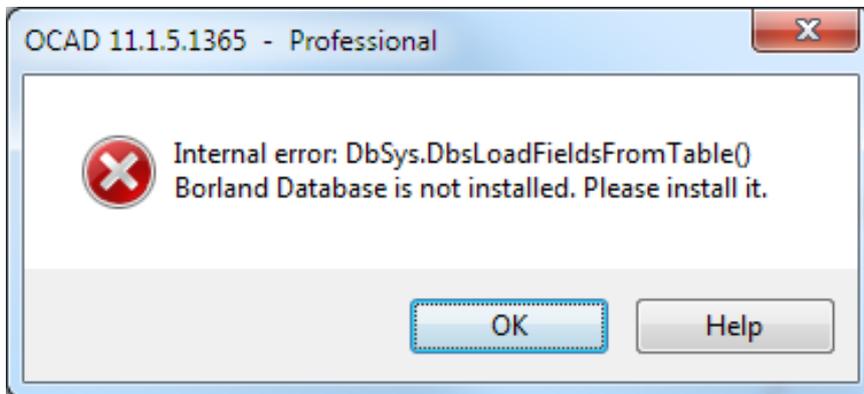


This error message appears after importing a Shape file.

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.

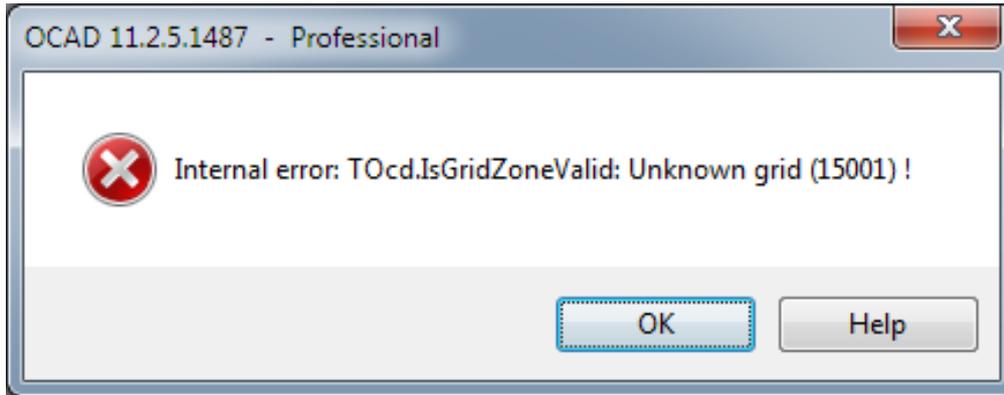


This error message appears after importing a Shape file.

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 ^[3] and restart OCAD.

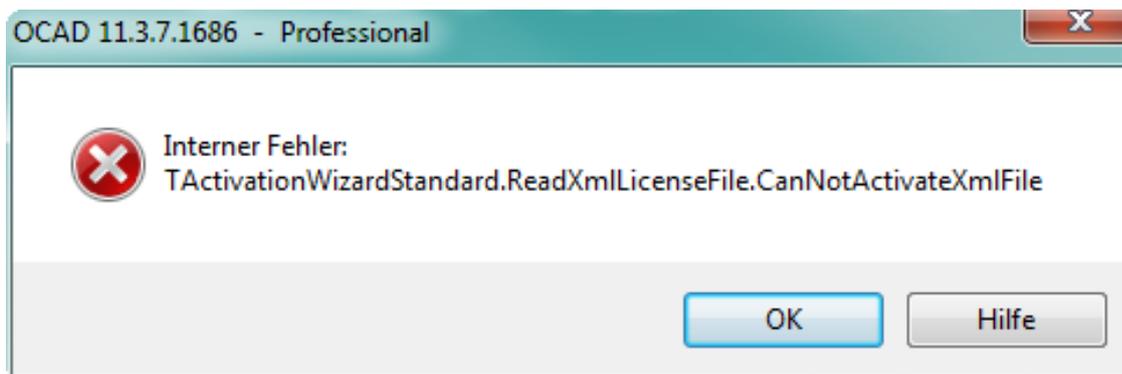
Solution 2: Rename the Shape file. Please note that all related files (*.dbf, *.shp and *.shx) must be renamed.

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

[3] <http://www.ocad.com/download/bde.exe>

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.
-