OCAD-Tutorial

Visualization of GIS Data in OCAD

OCAD AG
Mühlegasse 36
CH - 6340 Baar / Schweiz
Tel (+41) 41 763 18 60
Fax (+41) 41 763 18 64

info@ocad.com
http://www.ocad.com

Contents

System Requirements

Before you start with the tutorial, we recommend you to download and install the Borland Database Engine and the Microsoft Access Database Engine 32-bit.Otherwise there could occur problems if you import shape files or edit objects connected to a database.

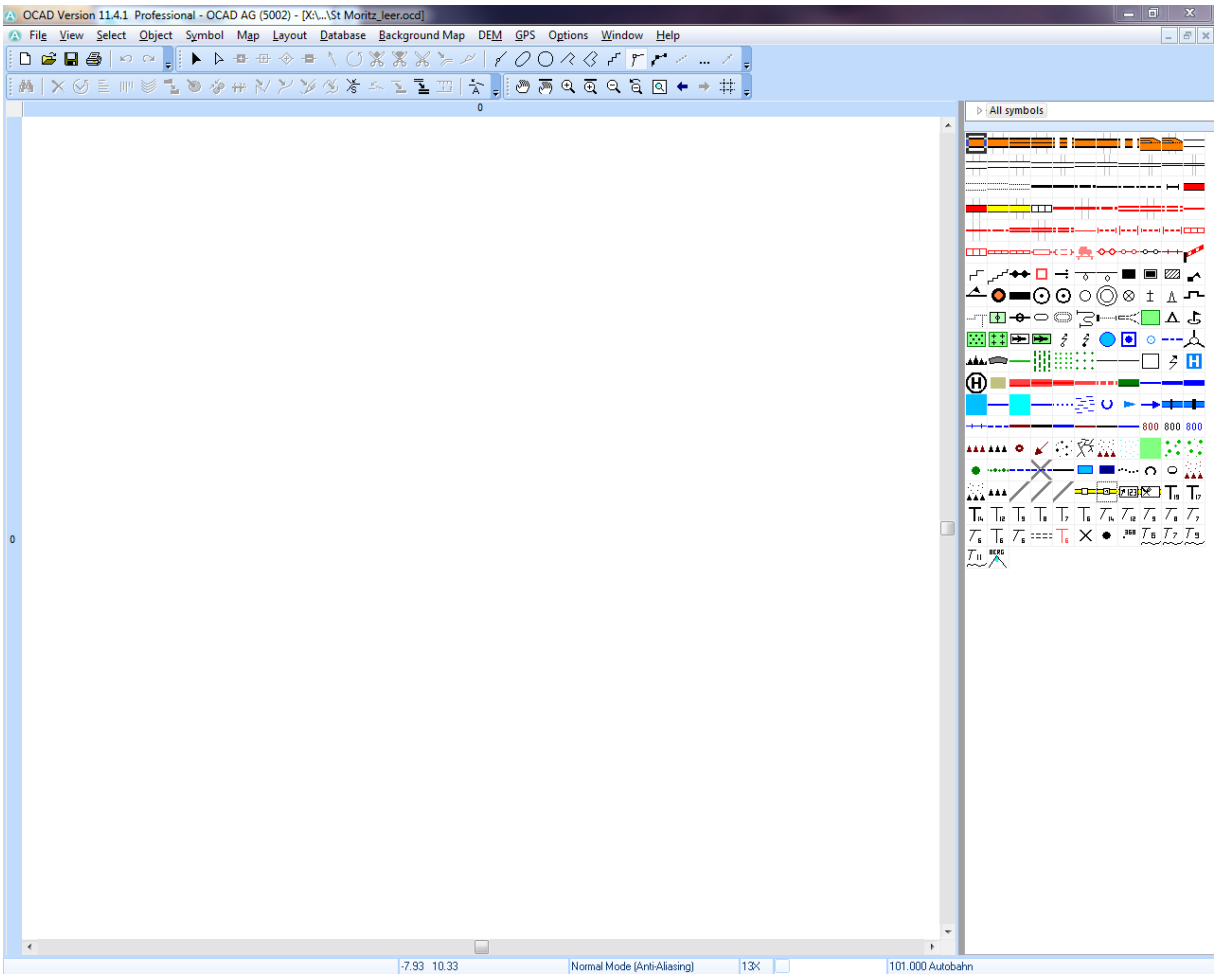
Borland Database Engine:
http://download.chip.eu/en/Borland-Database-Engine-5.1_73694.html
Microsoft Access Database Engine 32-bit:
http://www.microsoft.com/en-us/download/details.aspx?id=13255


The Access Database Engine 2010 32-bit Edition cannot be installed if the Microsoft Office 2010 64-bit Edition is installed on the same computer. In this case you have to install the Access Database Engine 2007 32-bit Edition.


Learn Videos (HowTos) for particular topics can be found in the *OCAD Learn-Videos* directory or online at http://www.ocad.com/en/howtos.htm

1 Open OCAD file

Open the file *St Moritz leer.ocd.*
The file is located in the directory *St Moritz_ocad.*



Save file

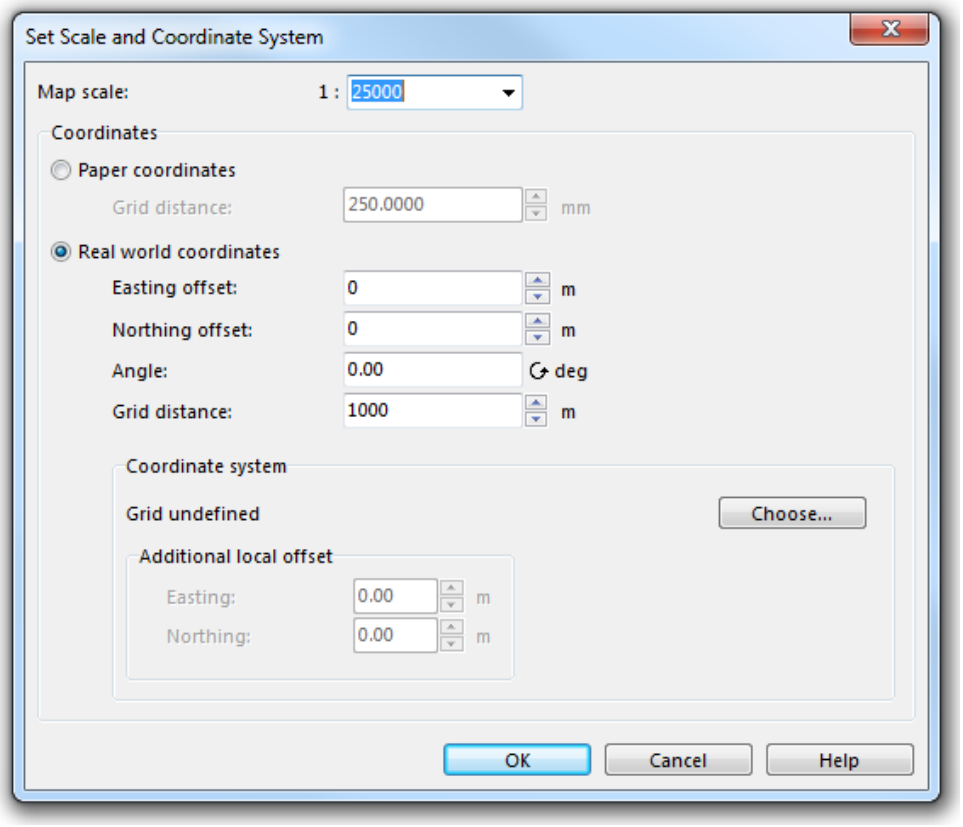
Save the file as *St Moritz.ocd*.
(*File* → *Save as…*)

Check Map Scale

Make sure that the correct map scale is selected.

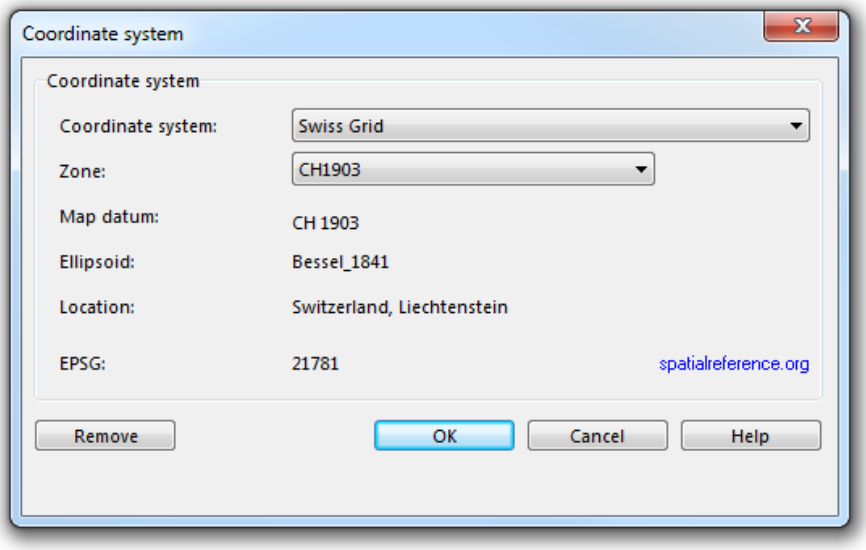
- For this example it is 1:25000

(*Map* → *Set Scale and Coordinate System…)*



Define Coordinate System

Click the *Choose…* button to define a coordinate system.
The *Coordinate System* dialog is displayed.
Choose the corresponding coordinate system.
(Coordinate System: *Swiss Grid*)

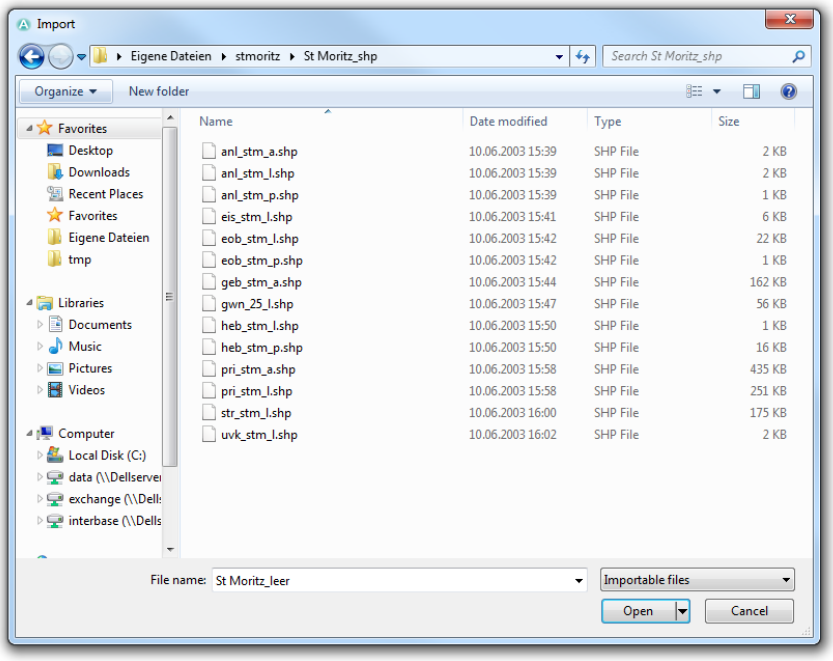


→ *OK*

The *Set Scale and Coordinate System* dialog is displayed again.
→ *OK*

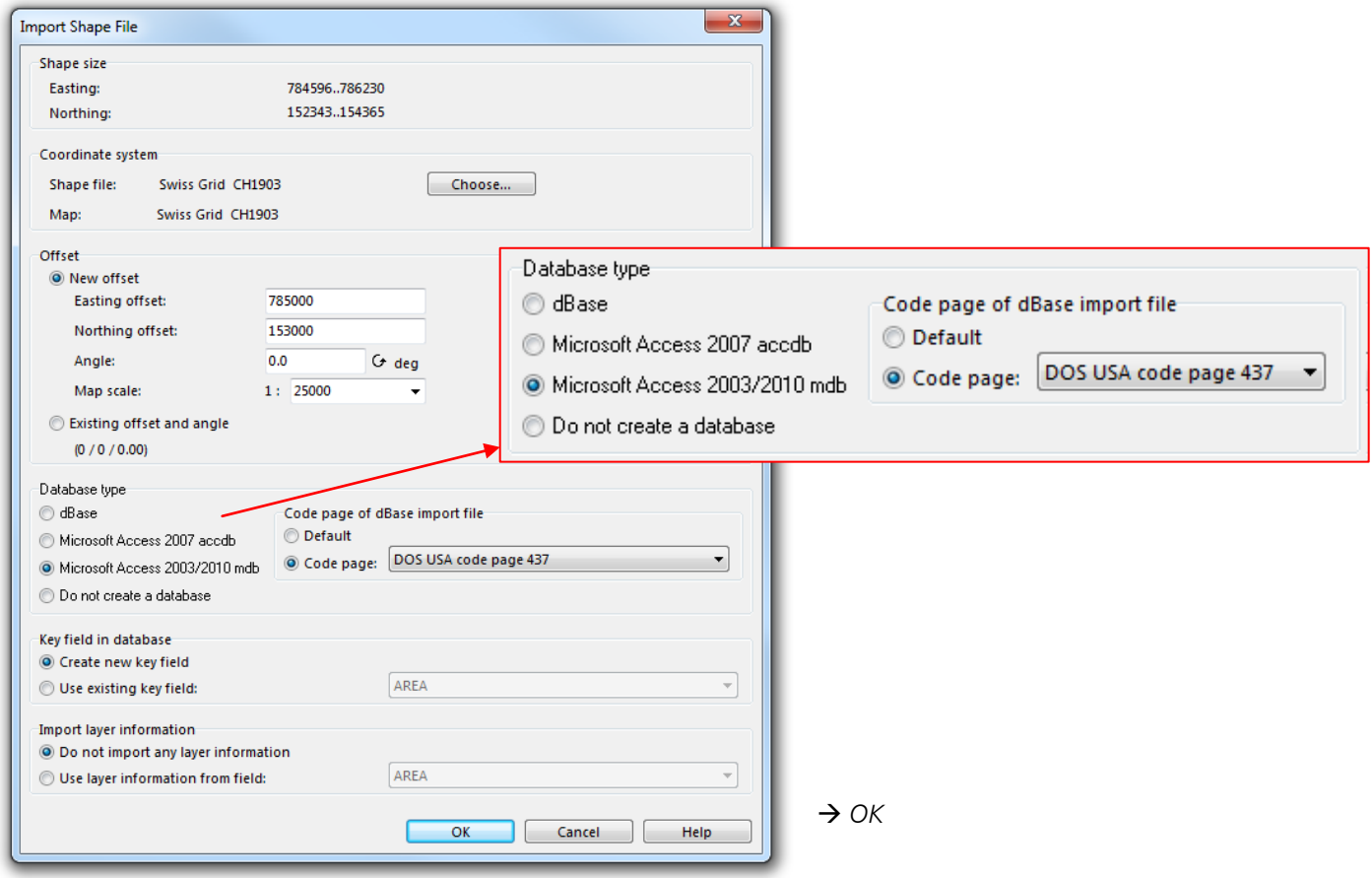
2 Import Shape Files

Import all shape files from the directory *St Moritz_shp*.
(*File* → *Import…*)



→ *Open*

The *Import Shape File* dialog is displayed.
Choose the *Microsoft Access 2003/2010 mdb* database type.



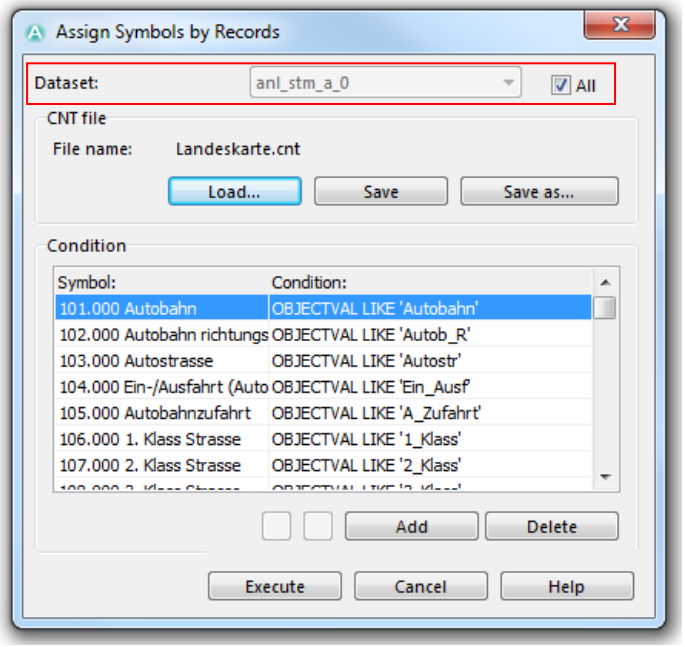
→ *OK*

3 Assign Symbols

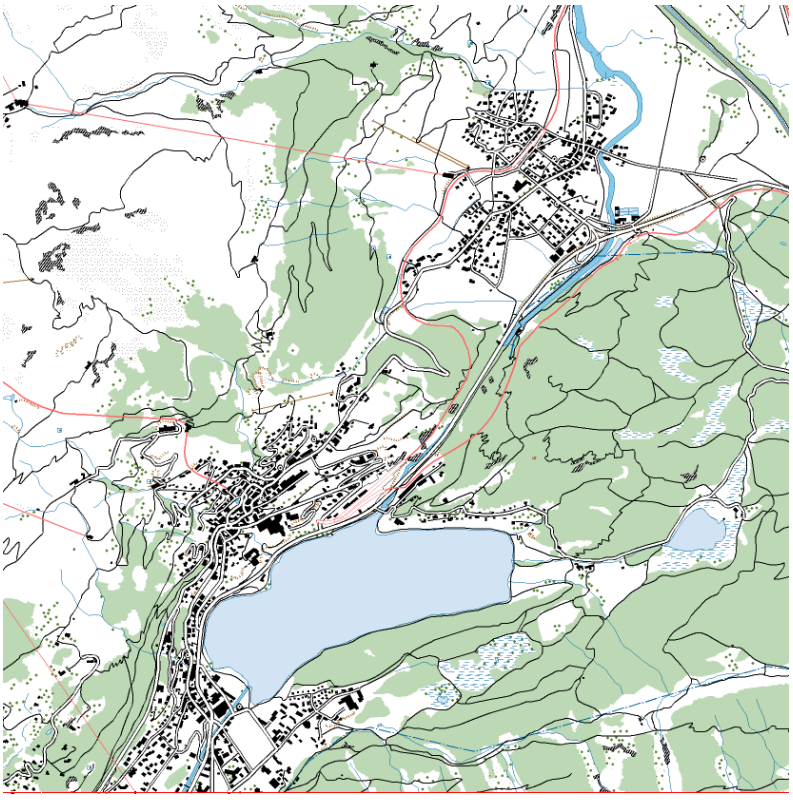
Assign Symbols by Records

Database → *Assign Symbols by Records…* → *Load…*
Select the file *Landeskarte.cnt* from the *St Moritz_cnt* directory.
→ *Open*

Choose *All* datasets.



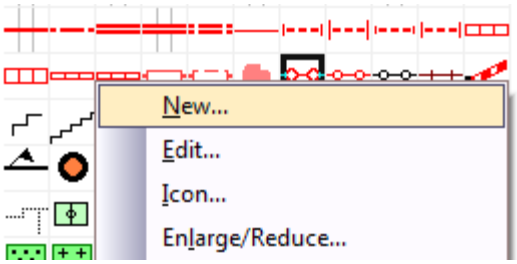
→ *Execute*



4 Display all Cable Cars in Red

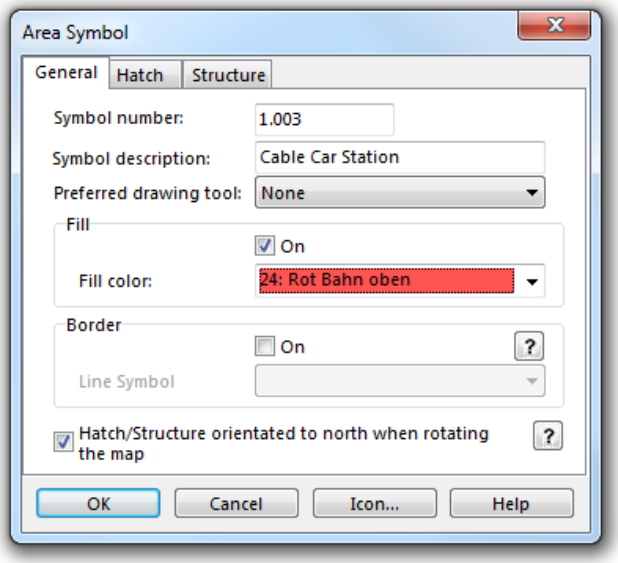
The goal of this chapter is to make cable cars stand out with a red color. Because the cable car rails are already red, you only have to adjust the stations.

Right click in the symbol box and click on *New…*

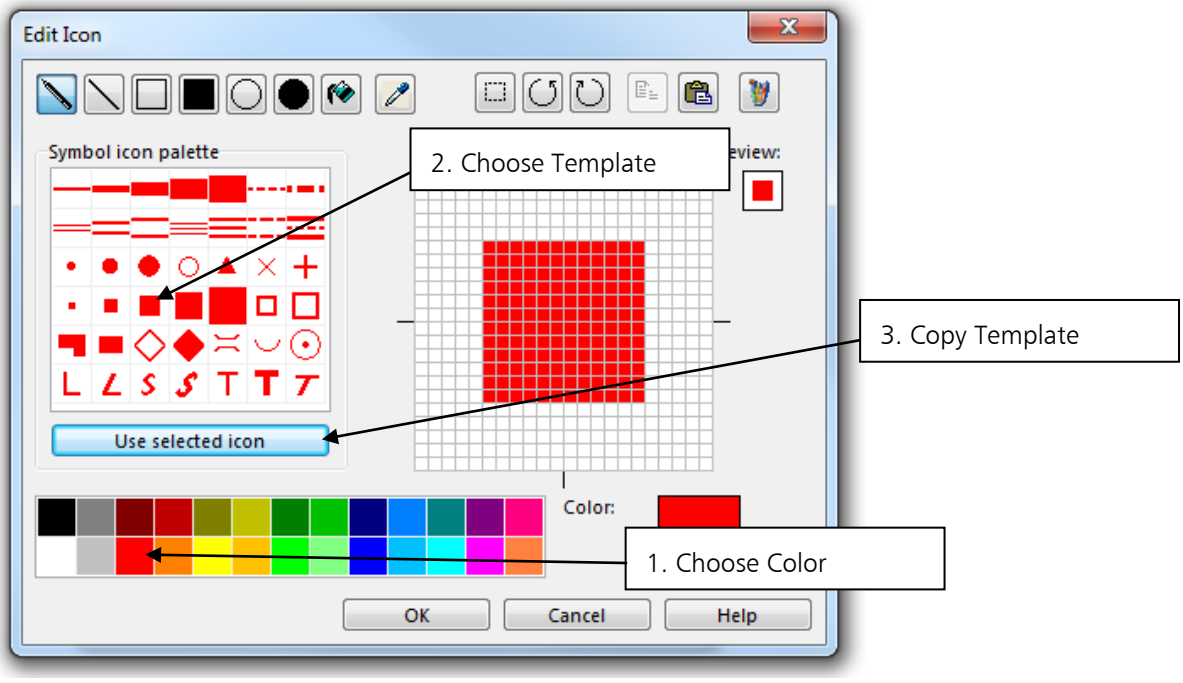


The *New Symbol* dialog appears. Choose *Area Symbol* and click *OK*.

The *Area Symbol* dialog is shown. Enter a symbol description (e.g. Cable Car Station) and choose the color (24: Rot Bahn oben).



Klick on the *Icon…* button to create an icon for this symbol.

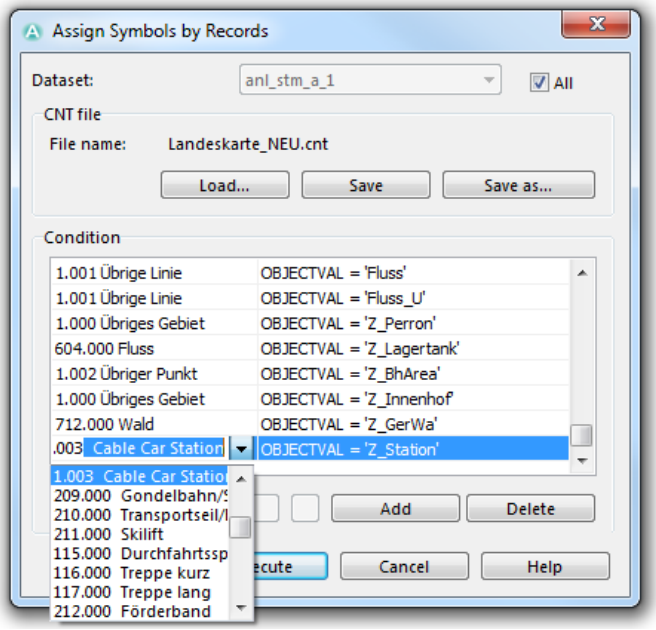


Choose in this dialog a red color and click on an icon template in the Symbol icon palette. Close the dialog *(→ OK)*.

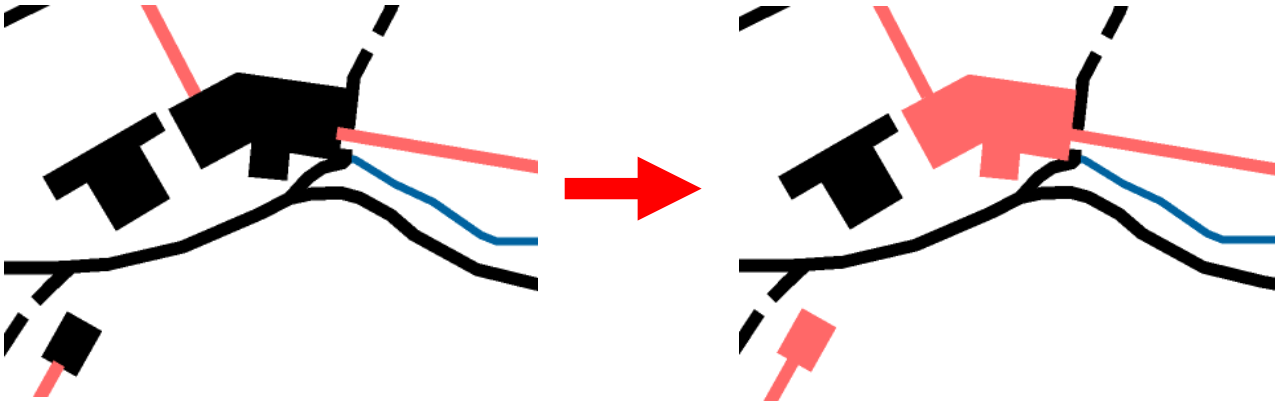
The *Area Symbol* dialog appears again. Close this dialog now *(→ OK).*

You can now adjust the color of the cable car stations.

Database → *Assign Symbols by Records…* → *Load…*
Select again the file *Landeskarte.cnt* from the *St Moritz_cnt* directory. → *Open*
Scroll down to the bottom of the Condition table.
You should find there the description *OBJECTVAL = 'Z_Station'*. Change the assigned symbol for this description to *1.003 Cable Car Station.*



Save the new table *(→ Save)* and assign the symbols *(→ Execute).*

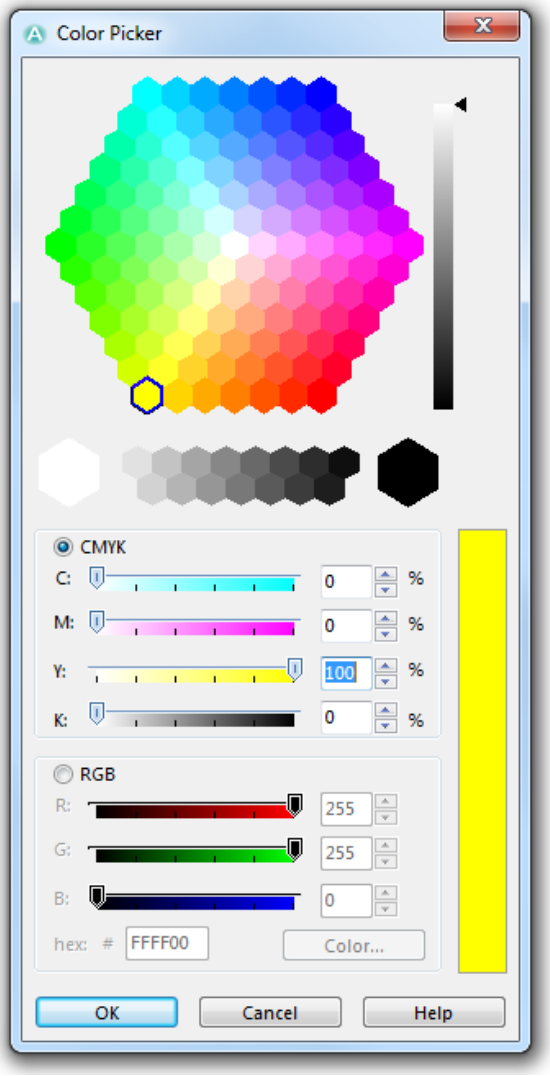


5 Import Hiking Trails

The goal of this chapter is to import a trail with GPS data and display it on the map.

First, you have to define a new color for the trail.
Open the *Colors* dialog.
(Map → Colors…)

Click the *Add* button and open the color picker to choose the new color.
(→ Choose color from color picker…)



→ OK

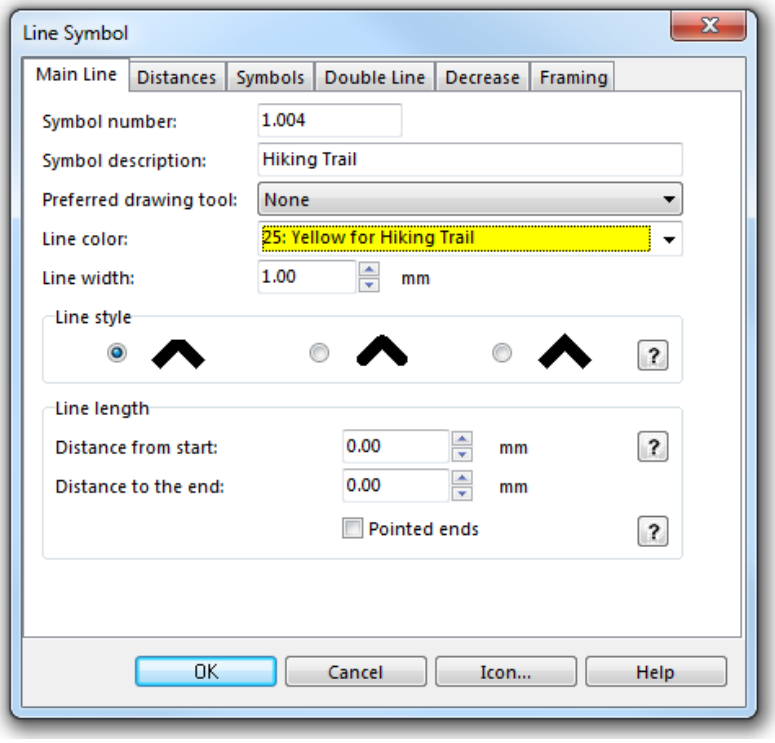
The *Color* dialog appears again. You can now name the color (e.g. Yellow for Hiking Trail)

The order of the different colors is very important. The colors on top of the list cover the ones below. Symbols drawn with a top color also cover symbols drawn with a color below. Therefore, the new red color has to be placed below the colors for text/paths etc. and on top of the colors for contour lines etc.

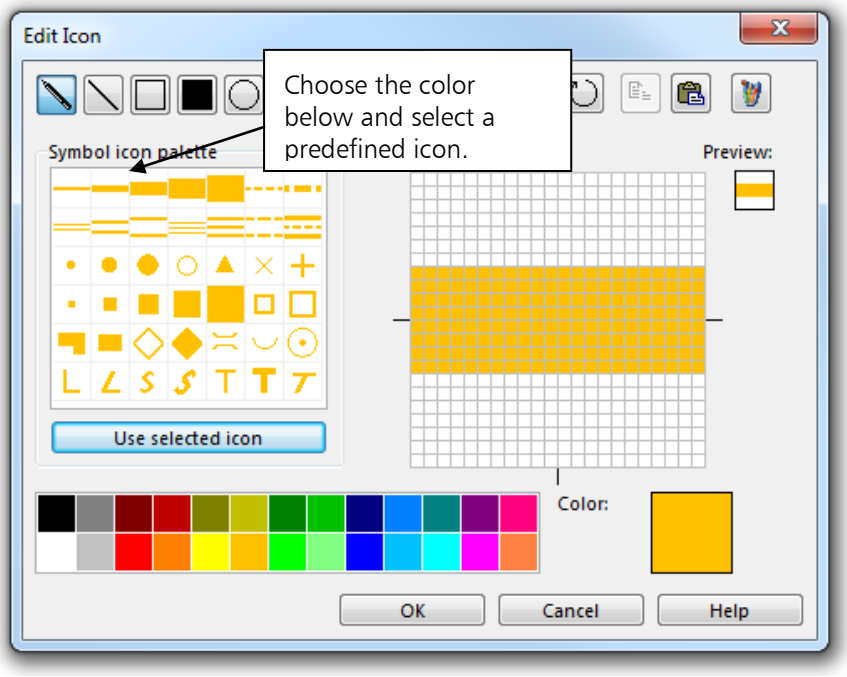
- To move a color in the table you have to select it and click on the arrow buttons below.

Create now a new line symbol (*Symbol → New…)*.
The *Line Symbol* dialog is displayed.

- Change the *Line color* to the defined *Yellow* color.
- Enter the *Symbol description* (Hiking Trail) and the *Line width* (e.g. 1 mm).



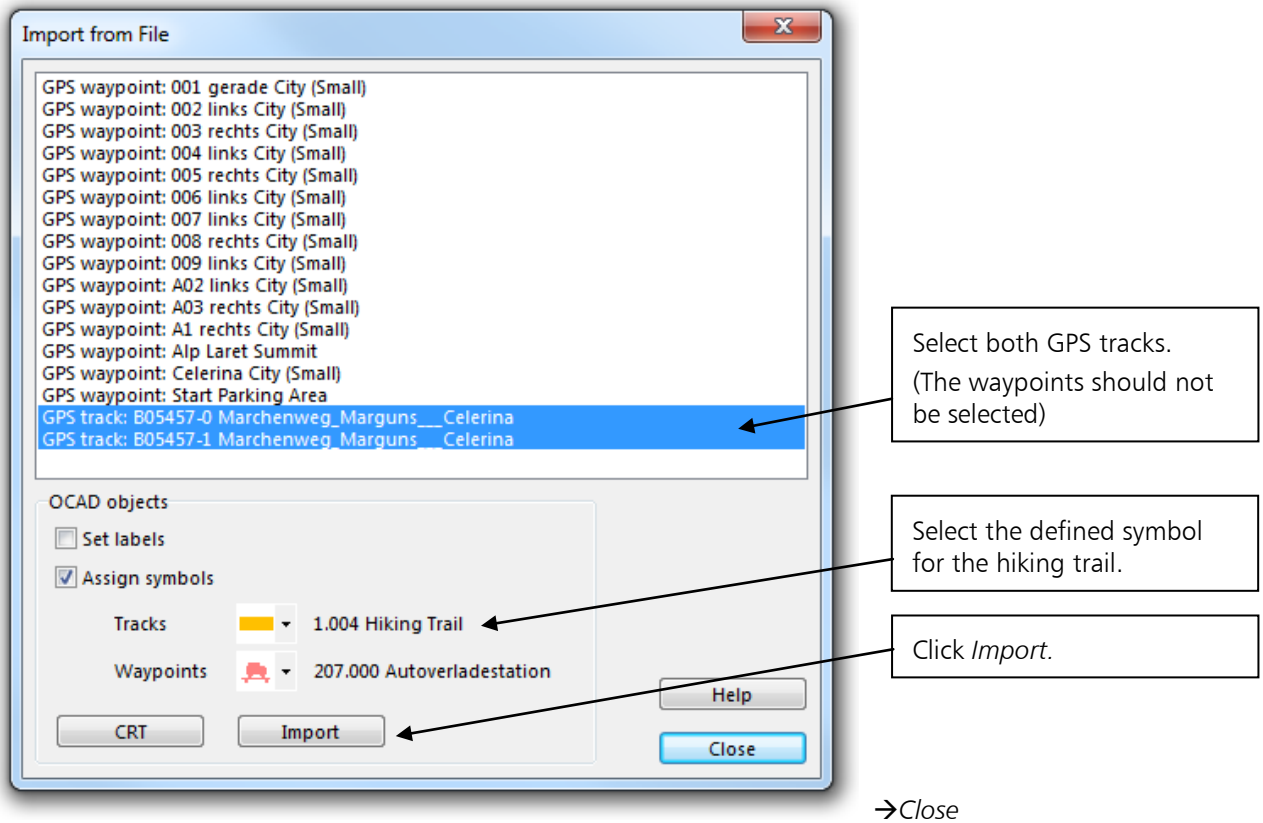
Click the *Icon…* button to create an icon for this symbol.



→ *OK*

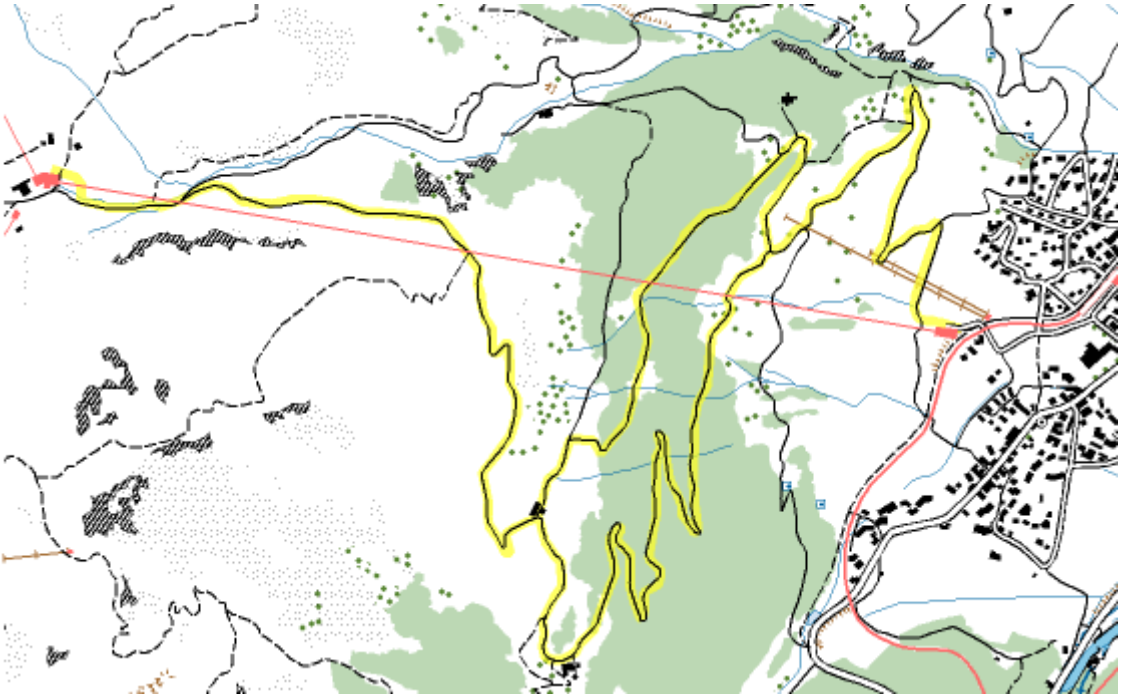
The *Line Symbol* dialog is displayed again. You can now close this window. *(→ OK)*

Import the GPS data. *(GPS → Import from File...)*
Open the file *B05457-Marchenweg_Marguns_Celerina.gpx* from the *St Moritz_gpx* directory.



→*Close*

The imported trail is shown in yellow color.



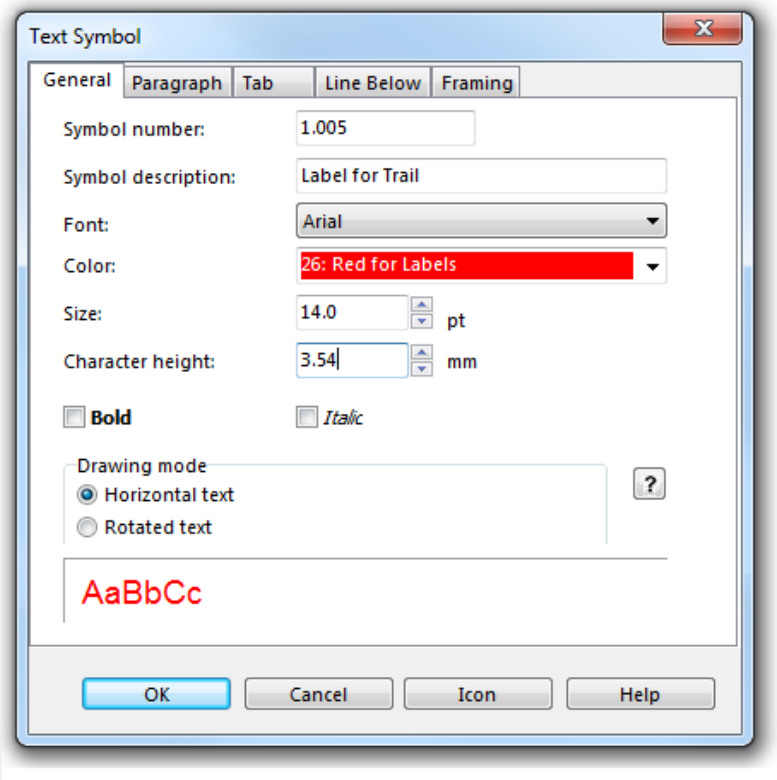
6 Labels for Hiking Trails

Create again a new color.

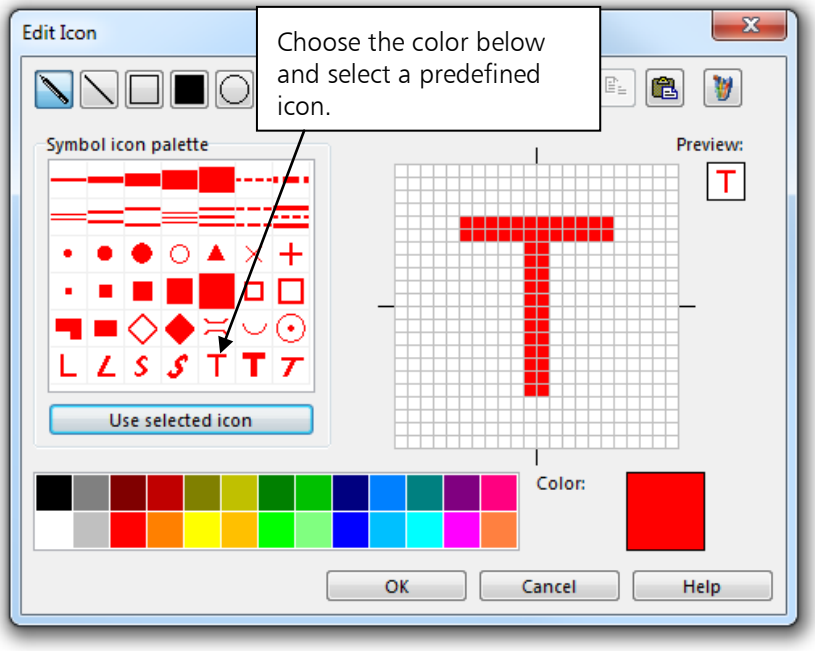
- Choose a red color.
- Name the color *Red for Labels.*
- Place the color on top of the color *12: Blau Schrift* in the color dialog.

Create a new text symbol. *(Symbol → New...)*
The *Text Symbol* dialog is displayed.

- Enter a Symbol description (e.g. Label for Trail).
- Change the color (Red for Labels).
- Change the size (14.0 pt).



Click the *Icon...* button to create an icon for this symbol.

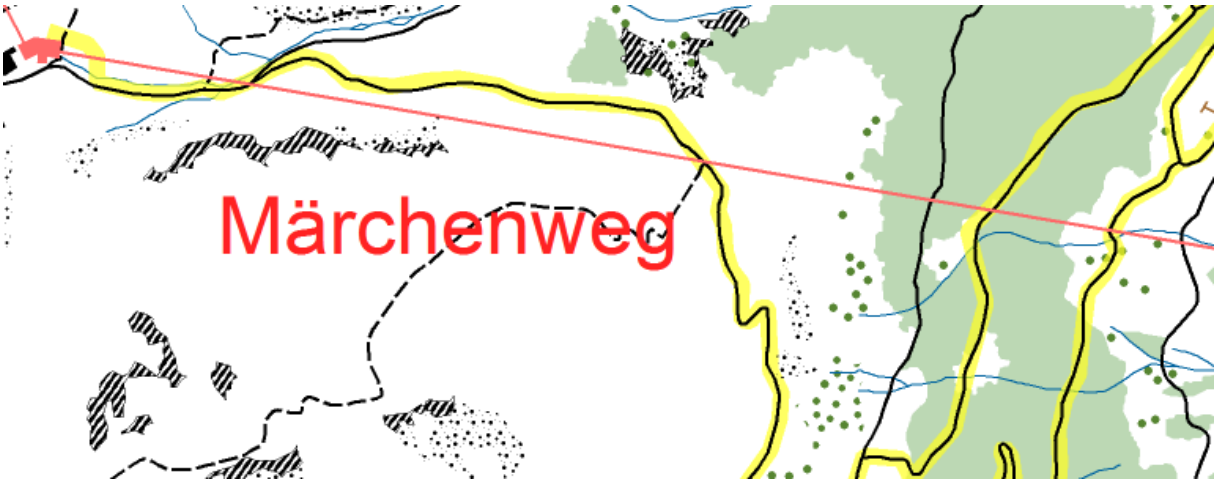


→ *OK*

The *Text Symbol* dialog is displayed again. Close this window now (→*OK*).

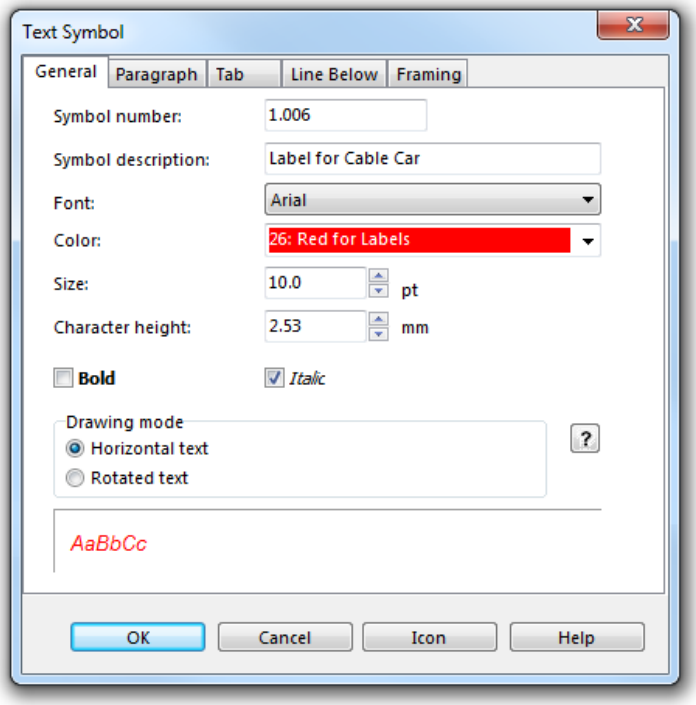
In order to label the trail, select any drawing tool.

Click on the position where you want to place your label and enter the description of the trail. (Märchenweg)

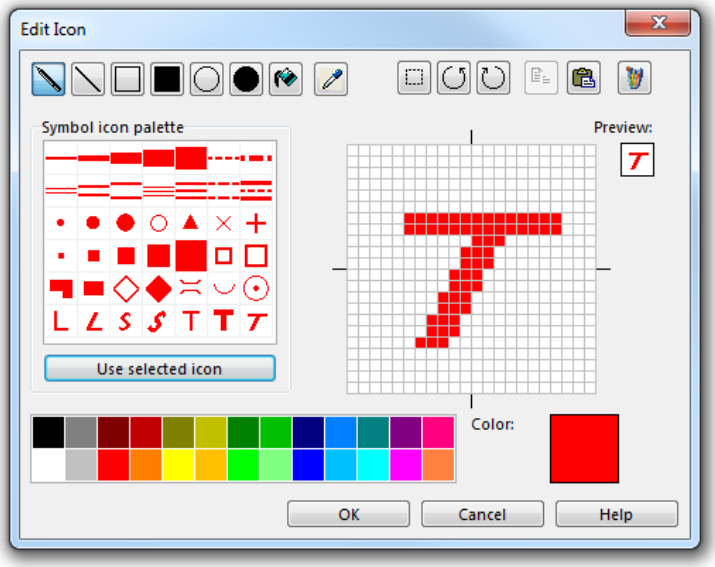


7 Labels for Cable Cars

Create a new text symbol *(Symbol → New...)*

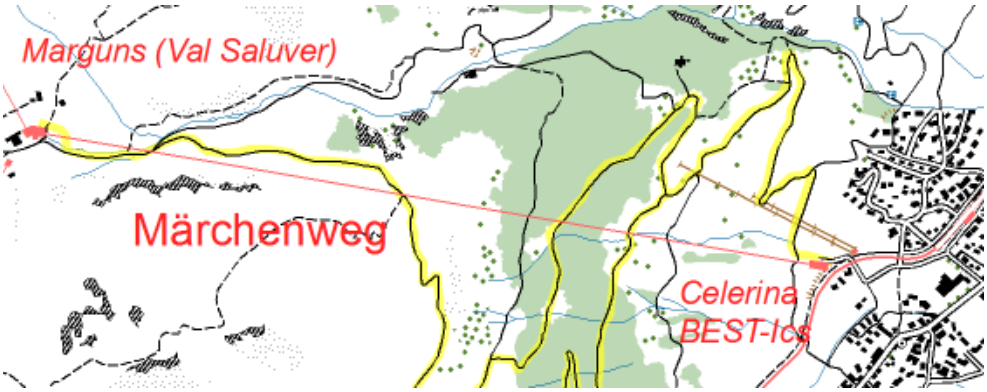


→*Icon*



→ *OK*

Create the labels as shown in the example.



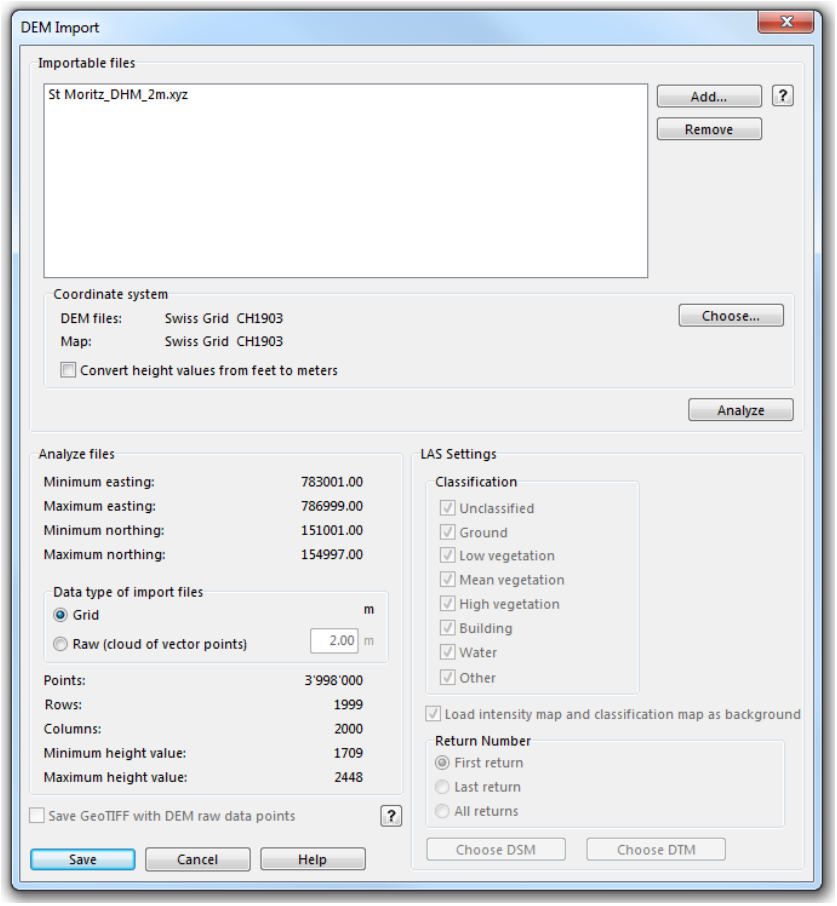
8 Import Elevation Model

In order to create contour lines for the map, you first have to import elevation data.

(*DEM → Import…)*

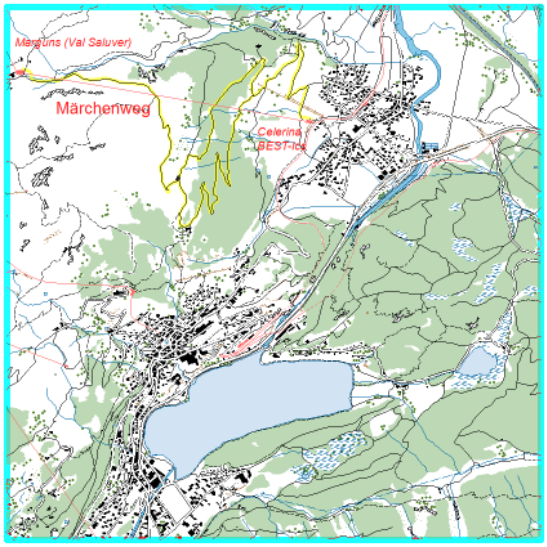
Click in the *DEM Import* dialog on the *Add* button and select the file *St Moritz_DHM_2m.xyz* from the directory *St Moritz_xyz.*

Click now the *Analyze* button. This process will take a moment, because the elevation model is a large file.



Klick the *Save* button and save the elevation model as an ocddem file with the name *St Moritz_hoehe*. Ocddem is an OCAD internal file format for elevation models. It allows OCAD a fast access to the elevation data.

A blue frame is now displayed, which defines the dimensions of the loaded elevation model.

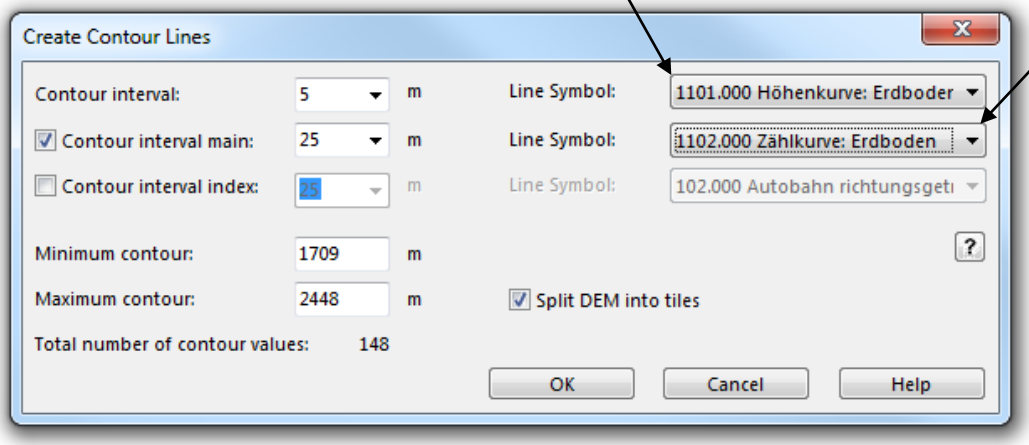


9 Create Contour Lines

The data can now be used to create contour lines.
(*DEM → Create Contour Lines…)*
Enter the same values as in the example.
Deactivate the *Contour interval index* option.

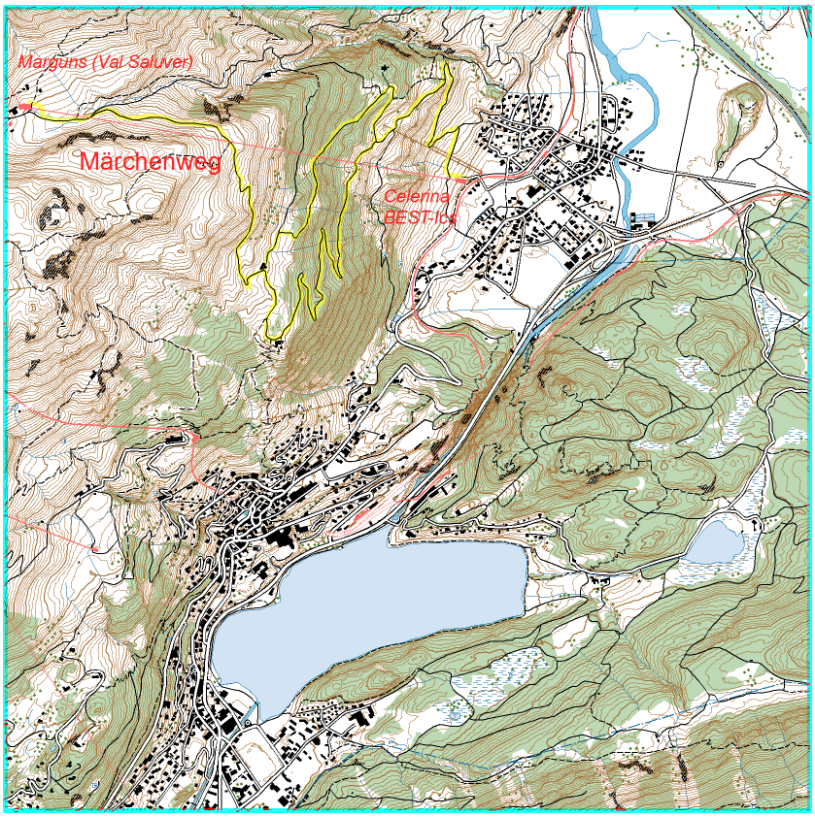
Contour interval: 5m
Line symbol: *1101.000 Höhenkurve Erdboden*

Contour interval main: 25m
Liniensymbol: *1102.000 Zählkurve Erdboden*

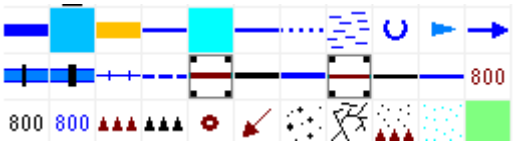


→ *OK.* The calculation while take some time.

The contour lines are now displayed on the map.

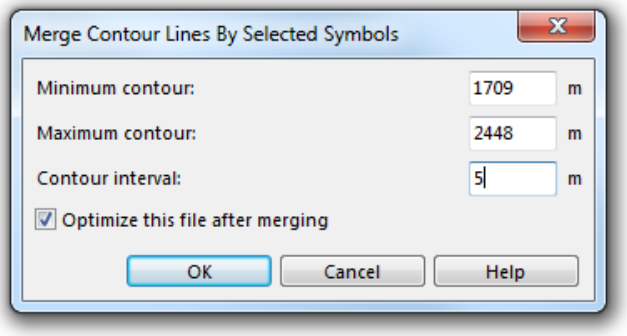


The contour lines are created tile by tile. They now have to be merged together again.

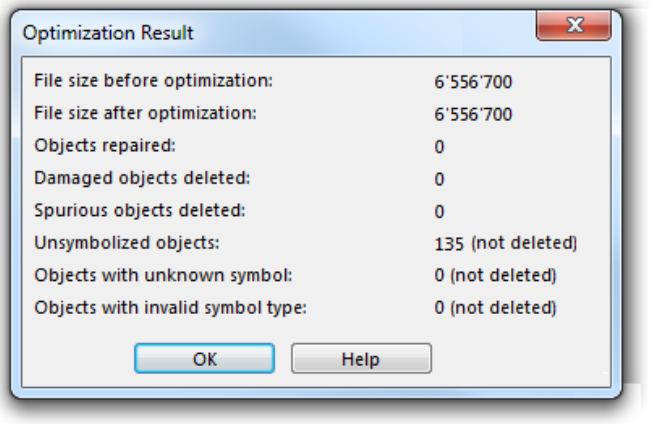


Select the symbols *1101.000 Höhenkurve: Erdboden* and *1102.000 Zählkurve: Erdboden* by clicking on their icons while pressing the control key.

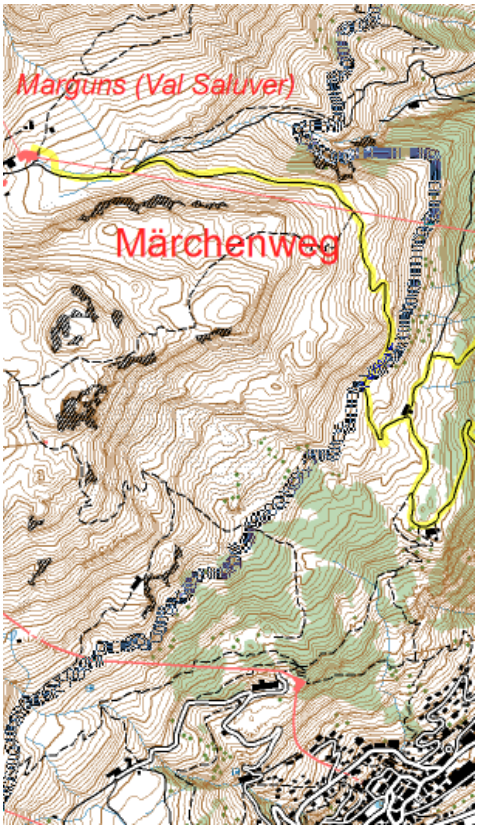
DEM → Merge Contour Lines By Selected Symbols...



→*OK*

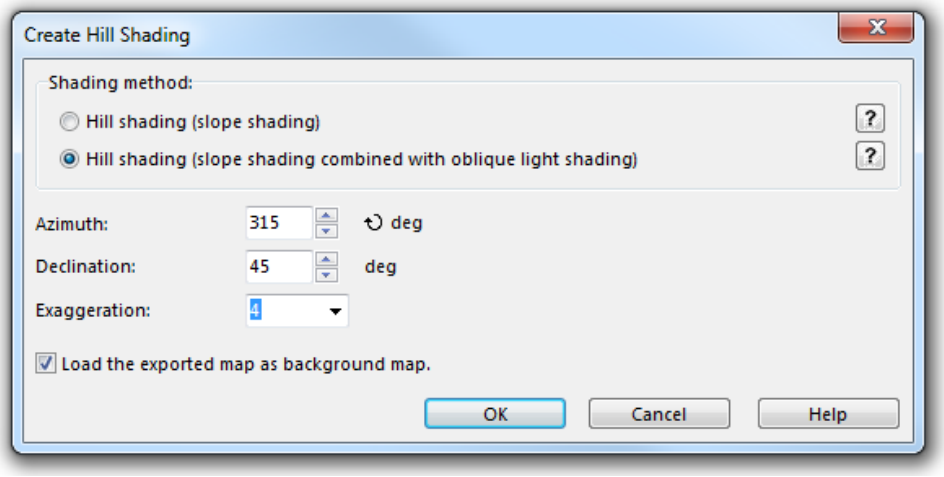


→*OK*



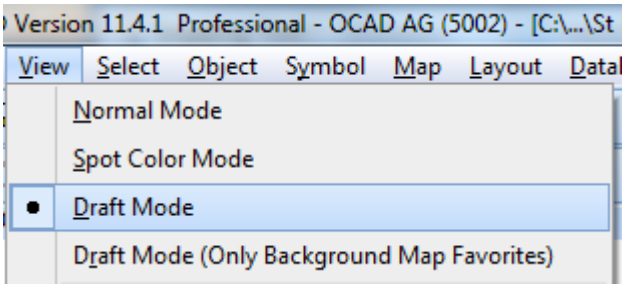
10 Create Hill Shading

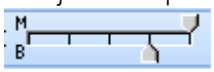
DEM → Create Hill Shading…
Choose *Hill shading (slope shading combined with oblique light shading)*.

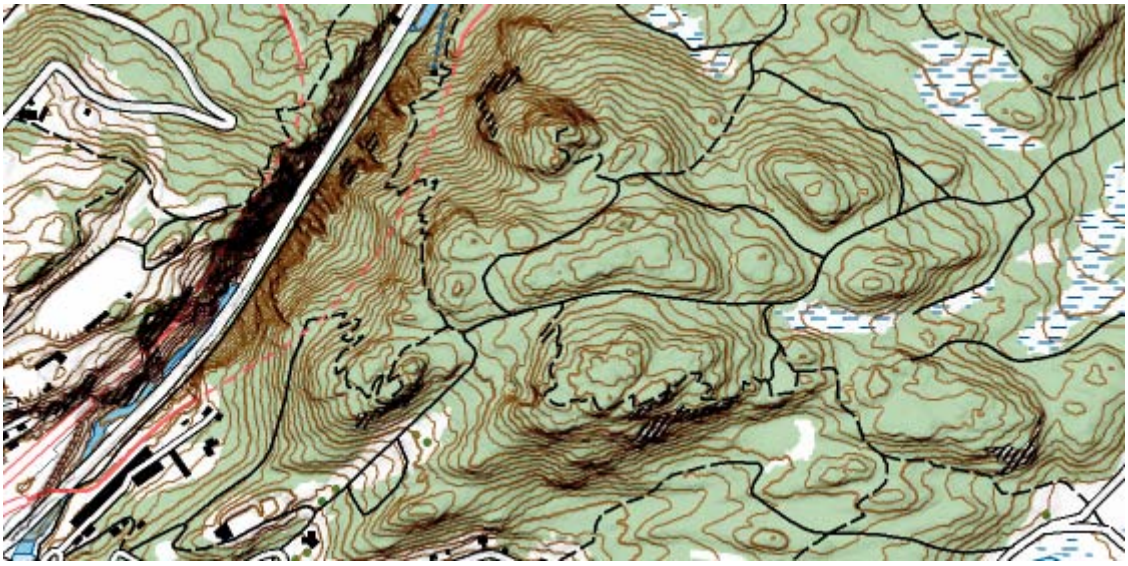


→*OK*

Switch to the *draft mode. (View → Draft Mode)*



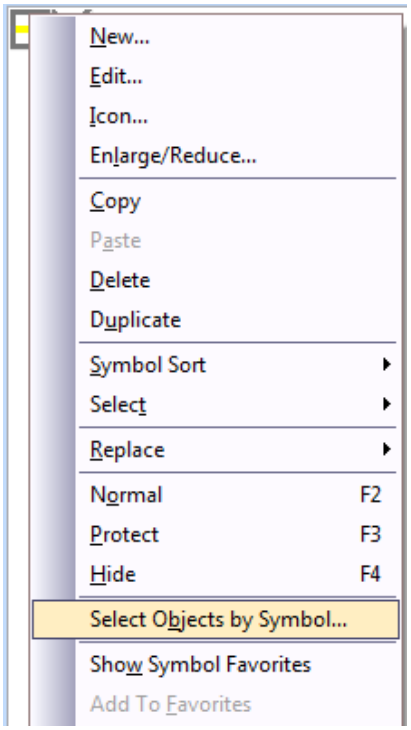
The hill shading is now visible on the map.
Use the Draftmode-Slider to adjust the opacity of the map.
Set the following option: 

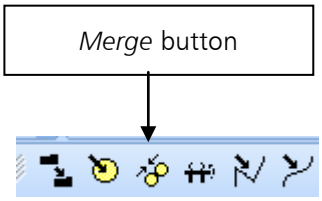


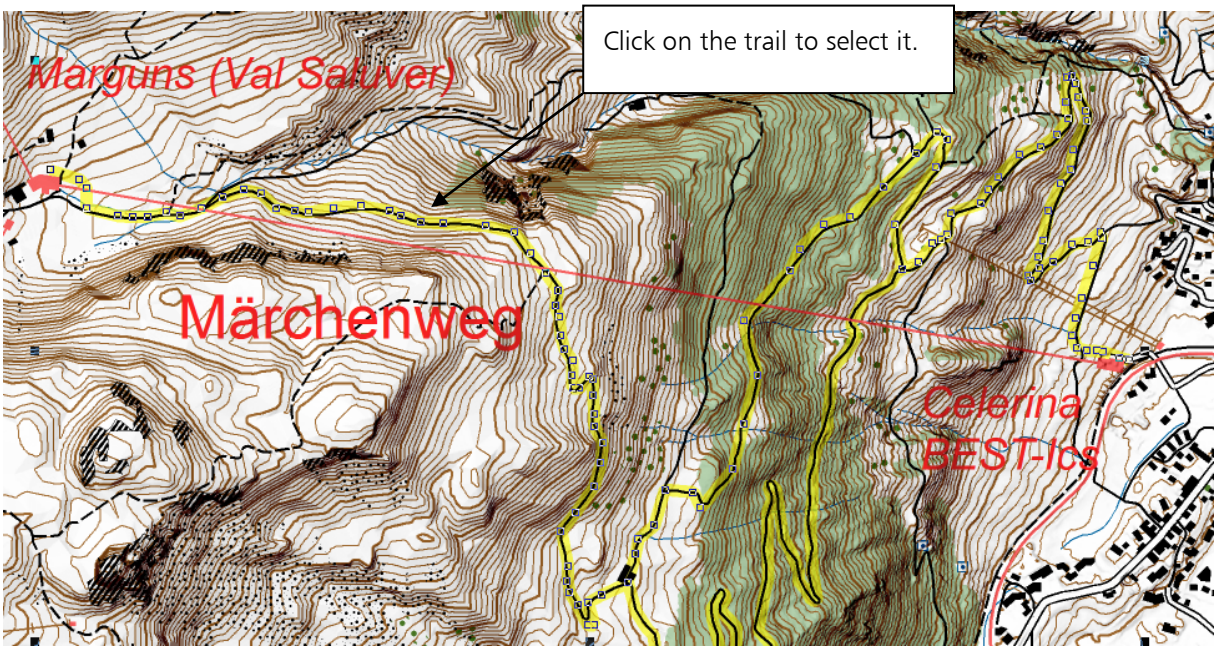
11 Create a Profile of the Hiking Trail

First you have to merge the parts of the hiking trail.

Right click on the symbol (*1.001 Hiking Trail*) in the symbol box. Then click *Select Objects by Symbol…* If the trails are selected, click on the *Merge* button in the toolbar.

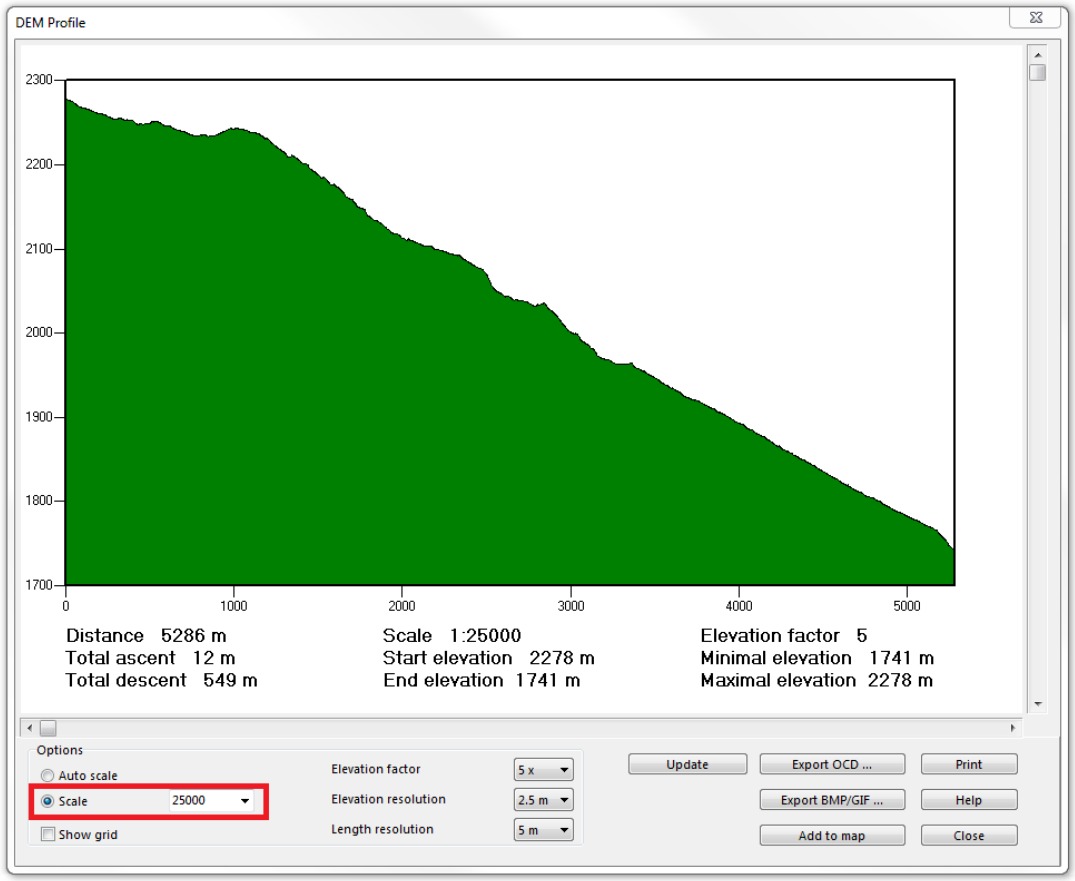






You can now create the elevation profile *(DEM → Create Profile…)*

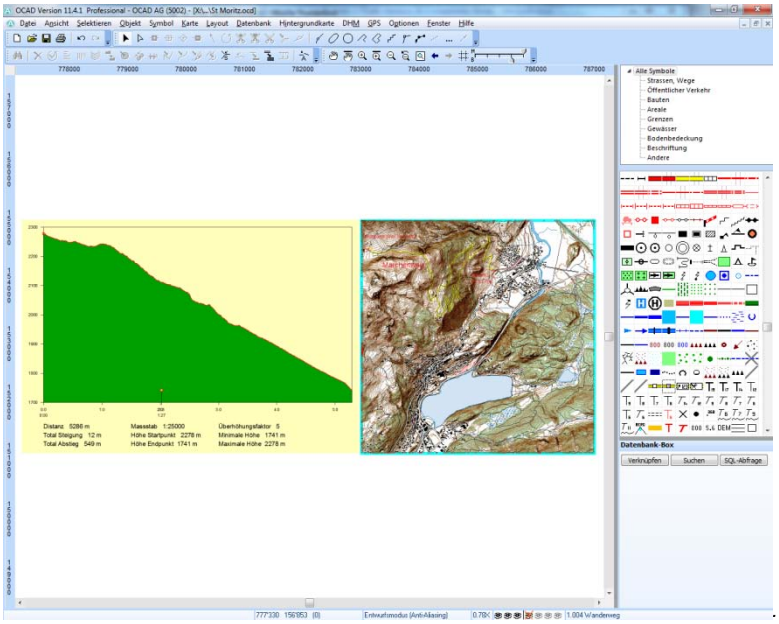
The *DEM Profile* dialog is displayed. Set the *scale* to 1:25000.



Add the created profile to the map. *(Add to map → OK)*
The *DEM Profile* dialog is displayed again. You can now close this dialog. (→ *Close)*

Zoom out  to keep the overview.

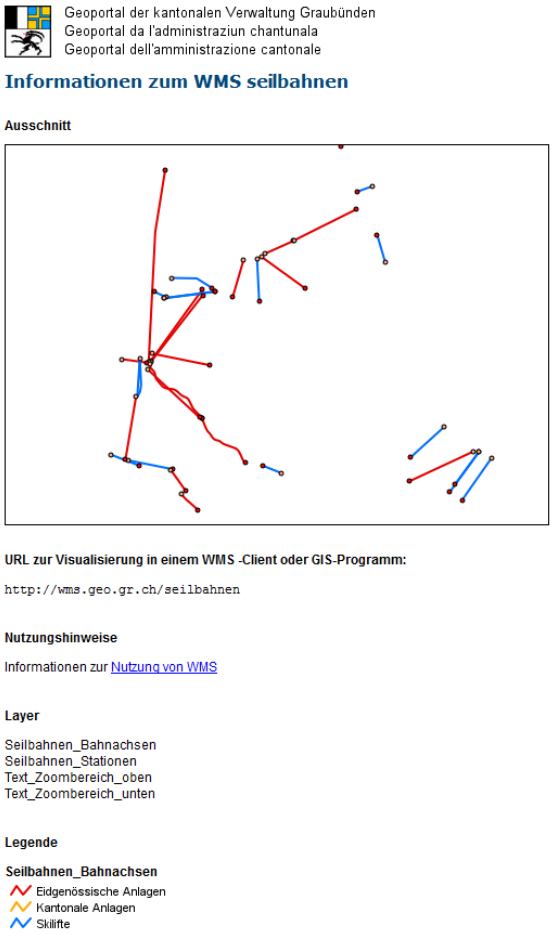
Click and drag the profile to place it next to the map.



OCAD has additionally created symbols and colors for the DEM profile. You can edit those if you like.

12 WMS: Adjust Cable Car

One cable car near Celerina was renovated. To adjust this change, you can load a WMS with all cable cars from the GeoPortal of the canton of Grisons as a background map.


Geoportal der kantonalen Verwaltung Graubünden
Geoportal da l'administraziun chantunala
Geoportal dell'amministrazione cantonale

Informationen zum WMS seilbahnen

Ausschnitt

URL zur Visualisierung in einem WMS -Client oder GIS-Programm:

`http://wms.geo.gr.ch/seilbahnen`

Nutzungshinweise

Informationen zur Nutzung von WMS

Layer

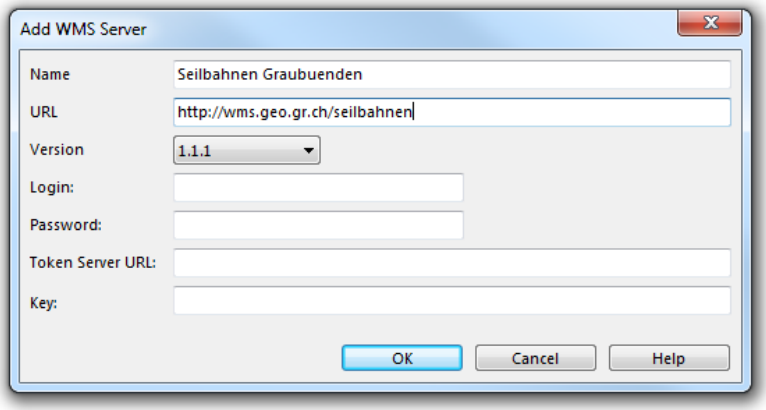
Seilbahnen_Bahnachsen
Seilbahnen_Stationen
Text_Zoombereich_oben
Text_Zoombereich_unten

Legende

Seilbahnen_Bahnachsen
Eidgenössische Anlagen
Kantonale Anlagen
Skilifte

Background Map → *WMS – Web Map Service…*
The *WMS - Web Map Service* dialog appears. Click on the *Add* button

Enter in the *Add WMS Server* dialog the following information:
Name: Seilbahnen Graubuenden
URL: http://wms.geo.gr.ch/seilbahnen



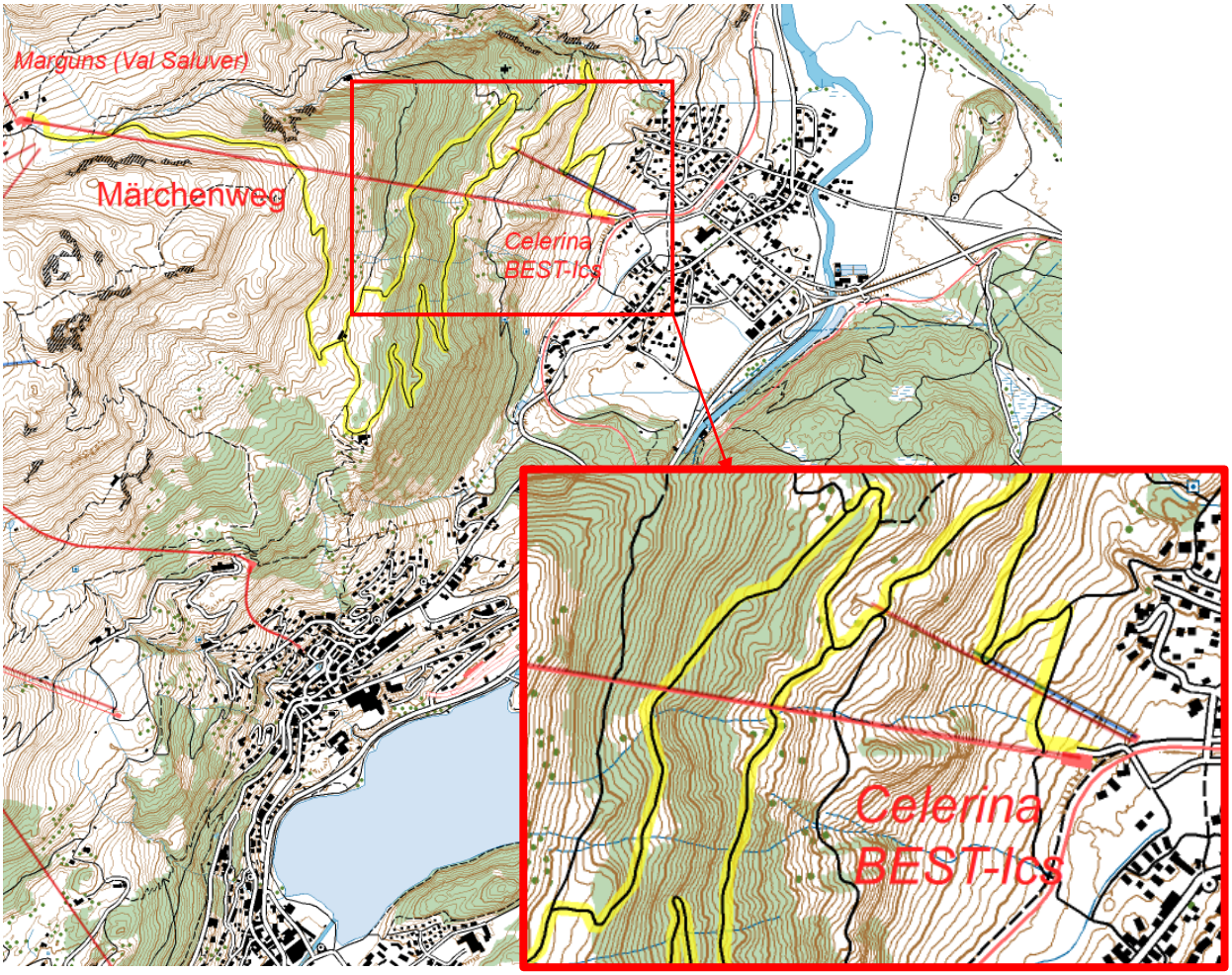
→ *OK*

Click in the *WMS – Web Map Service* dialog the *Connect* button. *(→ Connect)*
Select the *Seilbahnen_Bahnachsen* WMS Layer and add it to your background maps.
(→ Add selected layers as WMS layers to background maps (online))

You need an internet connection to load a WMS Layer.

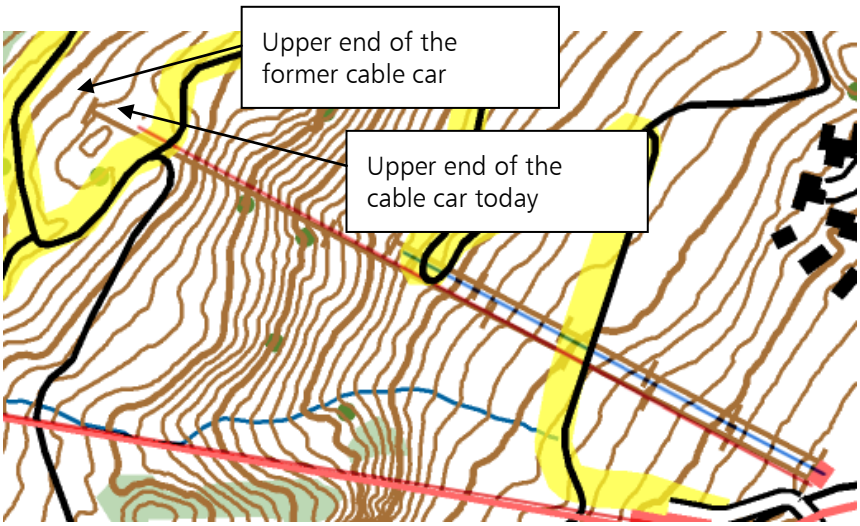
ID	Name	Title	Summary	Scale range
0	WMS_Seilbahnen	Kanton Graubünden, Seilbahnen	WMS_Seilbahnen	
1	Seilbahnen_Bahnachsen	Bahnachsen		1:2727 - 1:733333
2	Seilbahnen_Stationen	Stationen		1:2727 - 1:733333
3	Text_Zoombereich_oben	Text_Zoombereich_oben		1:733333 - 1:1999999
4	Text_Zoombereich_unten	Text_Zoombereich_unten		1:49 - 1:2727

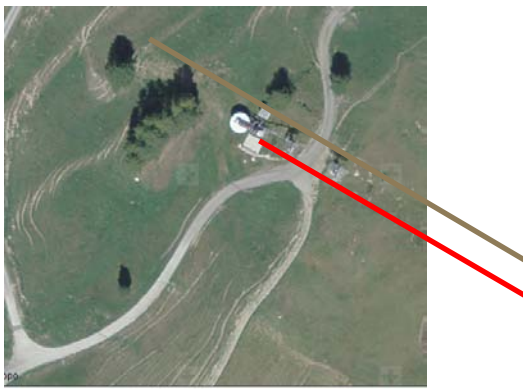
As soon the layer is loaded, you can close the dialog. *(→ Close)*
On the loaded WMS layer you can see cable cars as red lines and ski lifts as blue lines.
Zoom in to the part of the map near Celerina.
Use the *Zoom in locked* function and drag the desired area on the map.



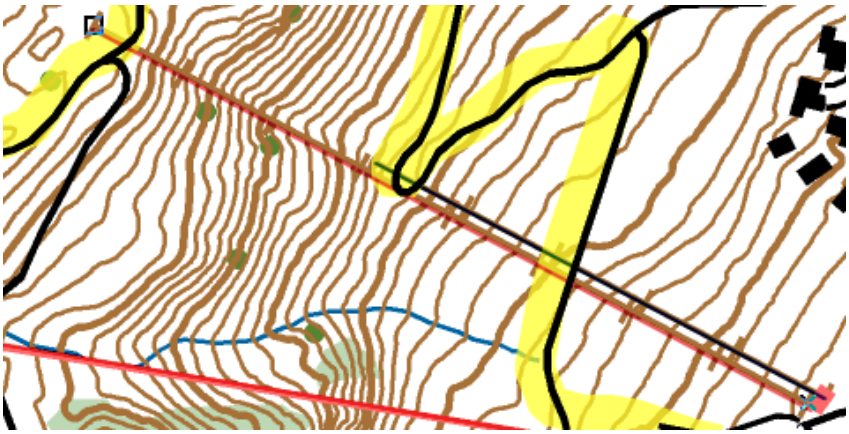
You can load an aerial photo as a reference. Open the background map *Celerina.tif (Backgroundmap → Open)*.

Select the cable car and place it correctly.

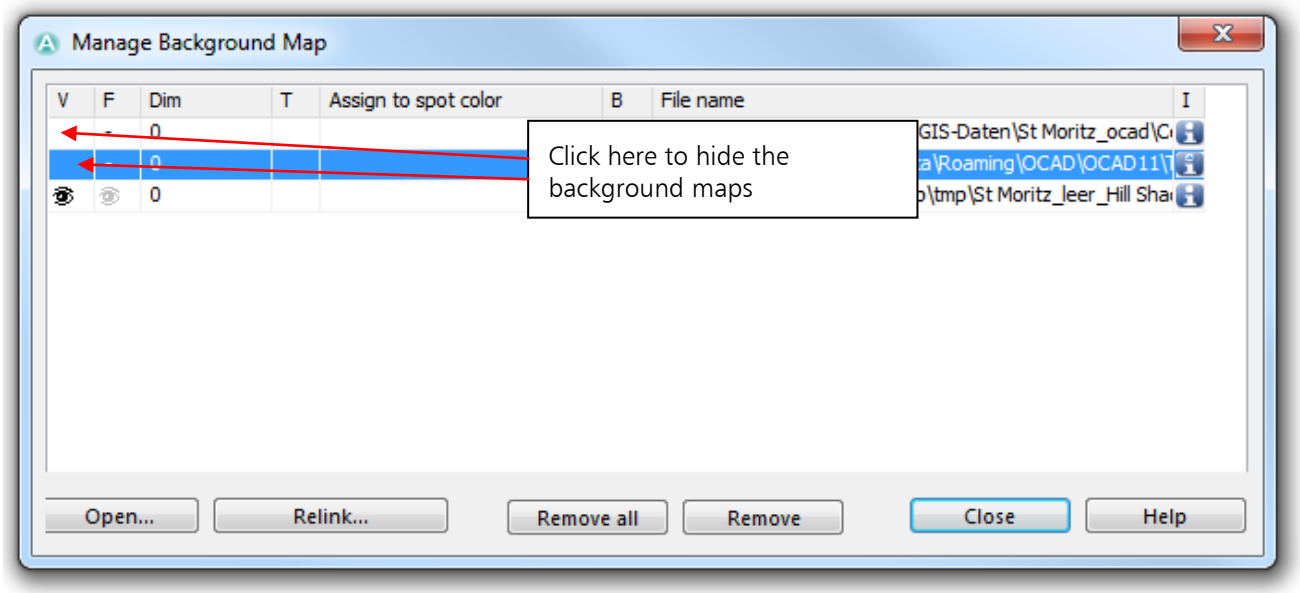




The cable car has now been successfully adjusted.



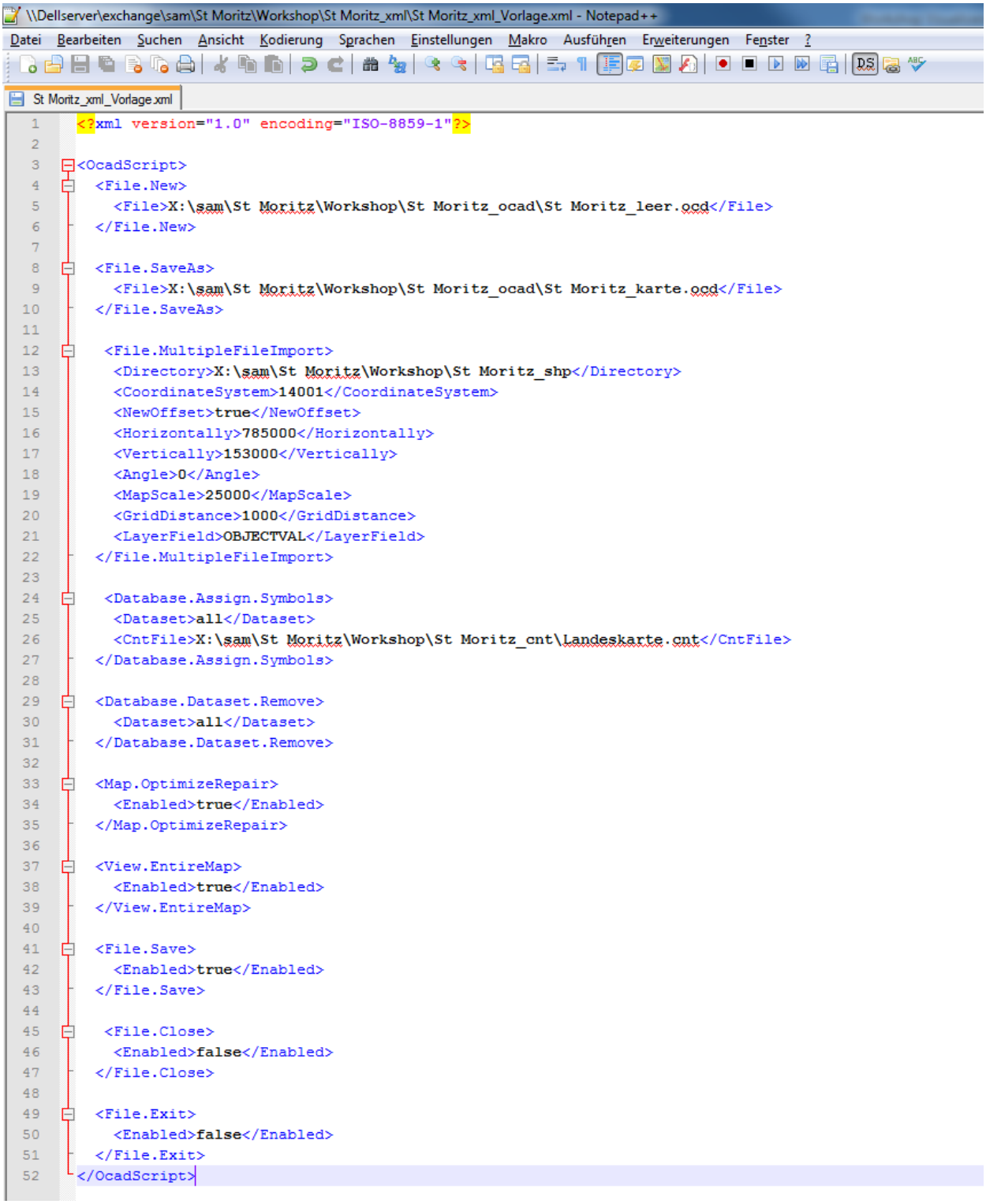
You can now hide the background map. *(Background Map → Manage...)*



→ *Close*

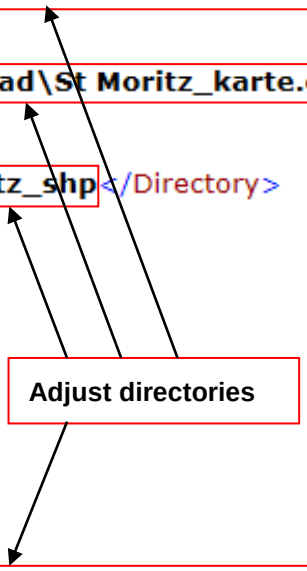
13 XML Script

All the steps from chapter 1 to 3 can be replaced by the execution of an XML Script.
Open any text editor e.g. *Windows Editor* and open the file *St Moritz_xml_Vorlage* from the directory *St Moritz_xml*.



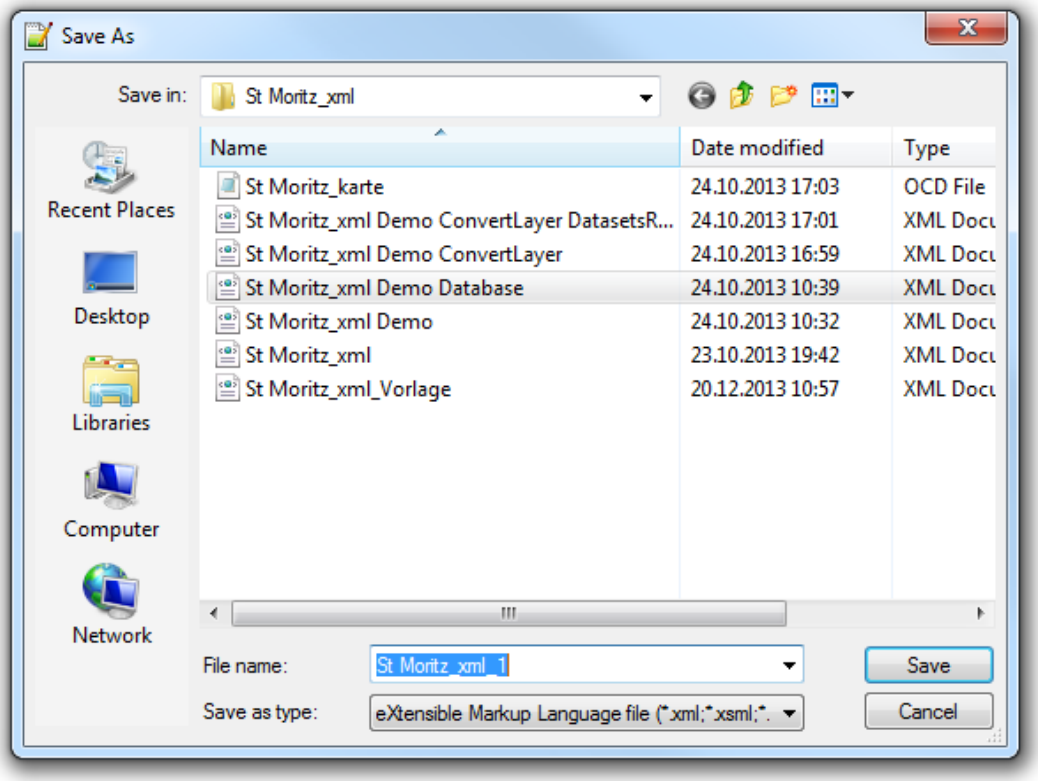
This is an OCAD XML Script for the import of multiple shape files and the assignment of the symbols according to the database records. However, before you are using this XML Script, you first have to adjust its directories.

```
<?xml version="1.0" encoding="ISO-8859-1"?>
- <OcadScript>
  - <File.New>
      <File>X:\sam\St Moritz\Workshop\St Moritz_ocad\St Moritz_leer.ocd</File>
    </File.New>
  - <File.SaveAs>
      <File>X:\sam\St Moritz\Workshop\St Moritz_ocad\St Moritz_karte.ocd</File>
    </File.SaveAs>
  - <File.MultipleFileImport>
      <Directory>X:\sam\St Moritz\Workshop\St Moritz_shp</Directory>
      <CoordinateSystem>14001</CoordinateSystem>
      <NewOffset>true</NewOffset>
      <Horizontally>785000</Horizontally>
      <Vertically>153000</Vertically>
      <Angle>0</Angle>
      <MapScale>25000</MapScale>
      <GridDistance>1000</GridDistance>
      <LayerField>OBJECTVAL</LayerField>
    </File.MultipleFileImport>
  - <Database.Assign.Symbols>
      <Dataset>all</Dataset>
      <CntFile>X:\sam\St Moritz\Workshop\St Moritz_cnt\Landeskarte.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>true</Enabled>
    </File.Save>
  - <File.Close>
      <Enabled>false</Enabled>
    </File.Close>
  - <File.Exit>
      <Enabled>false</Enabled>
    </File.Exit>
</OcadScript>
```



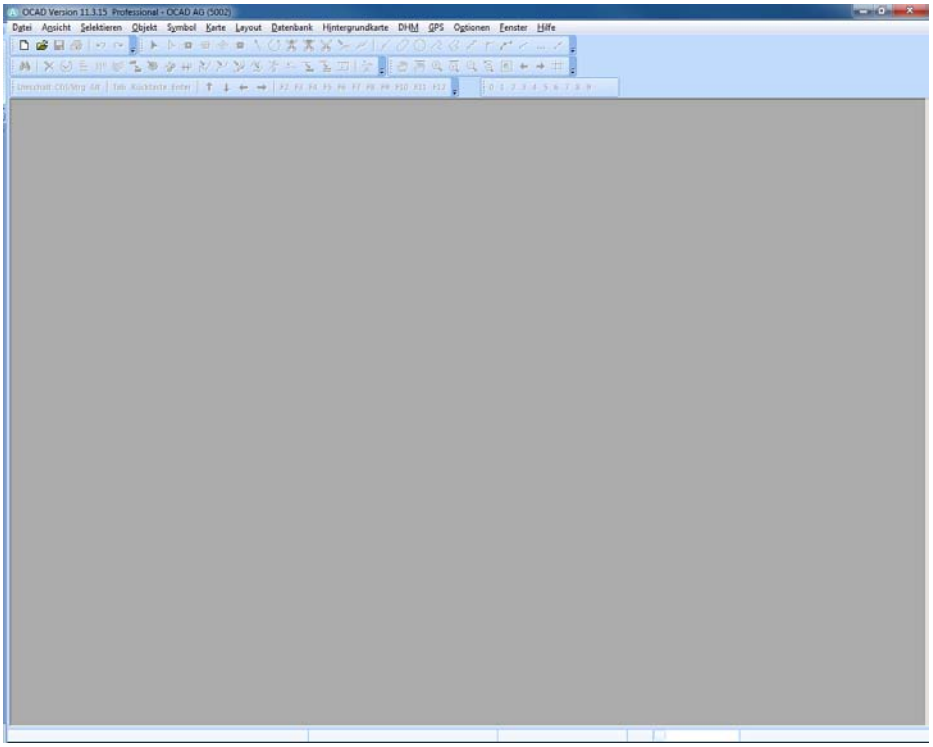
Save the document under the name *St Moritz_xml_1*.
(File → Save as...)

If you change something on the XML Script, save the new Script always under a new name. If you just overwrite the old XML Script and try to open it, the XML parser will execute the old, cached edition.



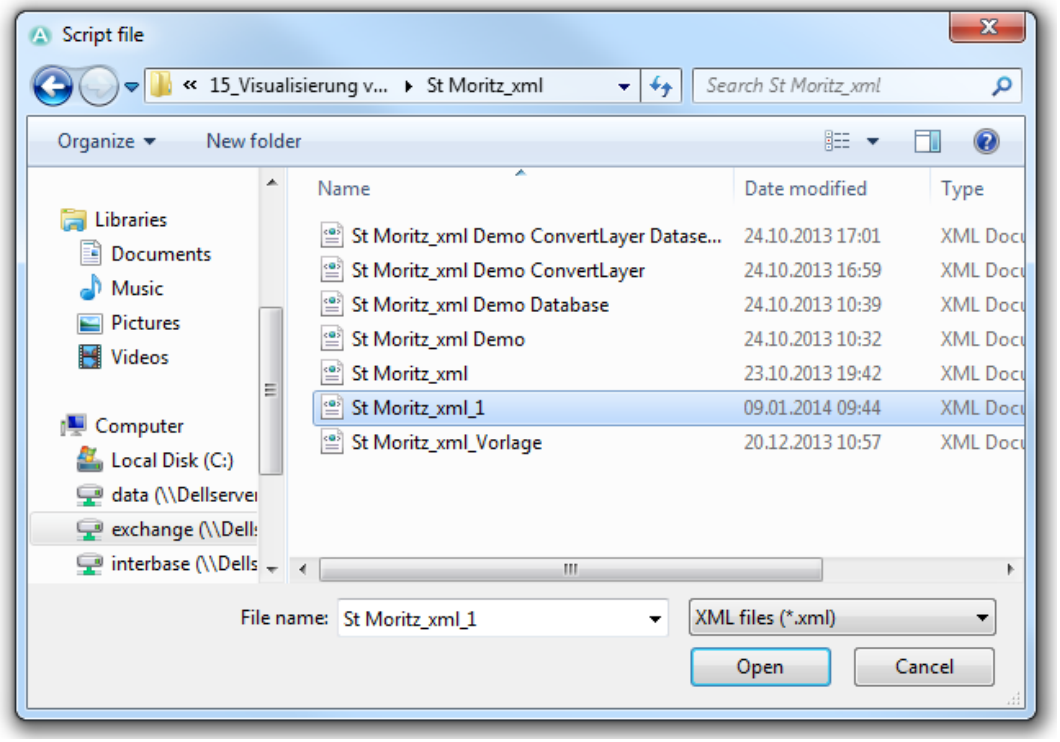
→ *Save*

Open now OCAD. An empty (gray) window should now appear.



File → Execute XML Script…

Open the saved file *St Moritz_xml_1.xml* from the directory *St Moritz_xml.*



→*Open*

OCAD now executes the XML Script, which will take a moment.
The executed processes are:

- Open OCAD file
- Import shape files
- Assign symbols
- Save OCAD file

The created OCAD file was saved under the name *St Moritz_karte.ocd* in the directory *St Moritz_ocad.*