

SKI-Pro's GIS/CAD Export Tool

The **GIS/CAD Export** tool is the interface between SKI-Pro and your CAD package. With this tool it is simple to convert point information into graphical formats.



The GIS/CAD Export tool is an optional and protected component of SKI-Pro and can be ordered under article number **667253**.

Introduction

With this tool, it is possible to export and convert point and code information from SKI-Pro projects to AutoCAD™ DXF or DWG files, MicroStation™ DGN files or MapInfo™ MIF files. Most GIS or CAD software packages can import DXF, DGN and MIF files.

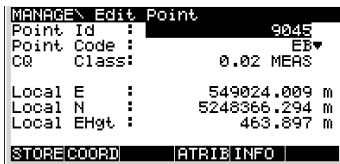
With the GIS/CAD Export tool, **thematically codes** (including all attributes) attached to the points recorded in the field are assigned to the **blocks** (or **cells** – which are used with DGN files) that are to be used within the CAD package.

Blocks (or cells) are explained in detail later, but basically contain the geometrical symbol and attribute text information used in the CAD package.

Note, it is only possible to export **projects** from SKI-Pro with the GIS/CAD Export tool - **coordinate sets** cannot be converted to CAD files. Additionally, the point coordinates must be convertible to local grid coordinates – thus a coordinate system must be attached to a project.

After export, the surveyed data can be directly viewed in the CAD package with all symbols and attributes being correctly displayed.

Below left, point 9045 has been measured and coded as a lamp pole (code EB). On the right it is shown how we wish this point to appear in the CAD package.



To achieve this, it is necessary to provide certain information to the GIS/CAD tool...

What do we need...?

To convert the surveyed data to the symbols in the CAD package we have to **define** a **template**. The **template** is known as the **AutoCAD DXF**

Header File or **Microstation SEED File**. The template contains all information required to export the data from the project into the CAD file format.

In addition, it is required to **assign** the project information (point ID, codes, attributes) to the drawing information. This is done during the GIS/CAD export using a **Lookup Table**.

The Header File

The **Header File** (or **SEED File** for Microstation) is nothing more than an ASCII-file containing basic information and drawing elements. This is needed to create the expected layout and style of your drawing. The DXF Header File contains the following information:

- Layer names and colours
- Line types used in the drawing
- Text fonts
- Geometry of symbols
- Attributes (tags) of symbols
- Block information...

It is not necessary to create a new Header File for each new drawing. Create a new Header File only when the style and type of the drawing should be changed.

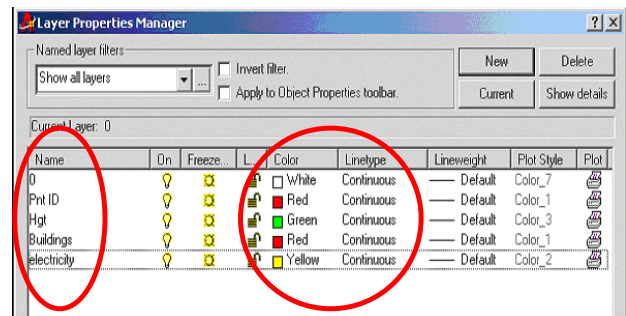
For example a user may typically produce drawings of different "styles" for cadastral surveys, for topographic surveys and for as built surveys. In this case, a different Header File would be needed for each of these different "styles".

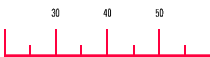
How to create an AutoCAD Header File...

In the AutoCAD package open a new drawing - or edit an existing DXF header file if you want to add, delete or edit drawing elements. Generally, the procedure described below is then followed...

Step 1: Define the Layers and Line Types:

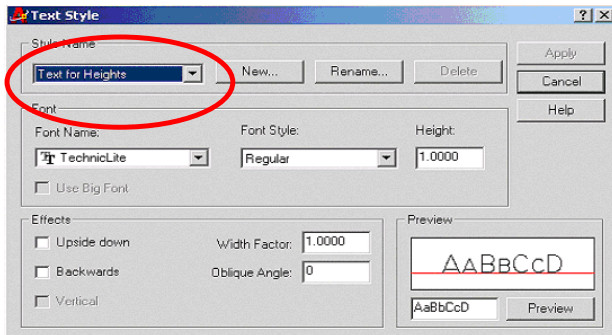
If you have used layers in the field, it may be useful to define the same or similar layers within AutoCAD.





Step 2: Define the Layers and Line Types:

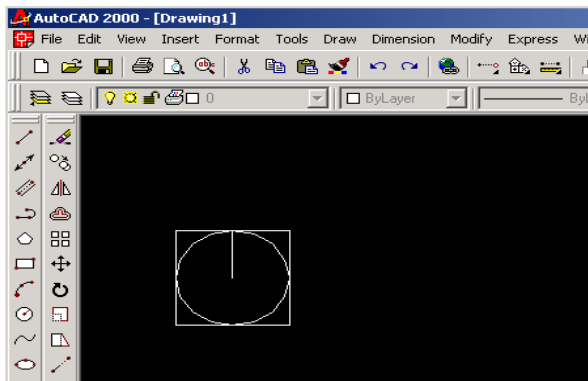
You may wish to define different **text styles** for the Point Id attributes, for Height attributes and all other attributes you want to display in your AutoCAD drawing. Therefore, define the style names and select fonts etc...



Step 3: Design the Graphical Symbols:

Points are normally displayed in CAD drawings as symbols. For each code used in the field it is normally expected to display a different symbol in your drawing. Each different symbol type must be defined in the Header template File:

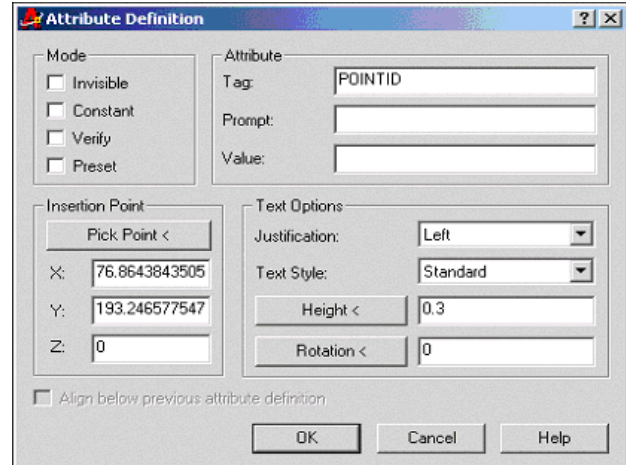
Use the different AutoCAD drawing elements and **design the graphical and geometrical representation** of the different point **symbols** to be used in your drawing:



Step 4: Define the Point Attributes:

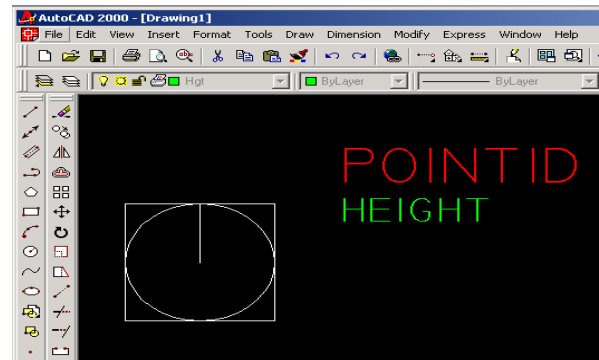
Once the symbols are defined, it is now necessary to **define the point attributes**. Normally, the point ID and elevation are of most interest and are displayed within the final drawing.

If you also wish to display additional attributes in the CAD drawing which have been used in the field then these also have to be defined:



Each AutoCAD attribute must be given a name. This name is later used to assign the CAD attribute to the attribute used in the field.

Additionally select the **text style** for the attribute (which you have defined earlier), define the **height** of the text attribute and define the **position** of the attribute in relation of the point symbol. This has to be repeated for each attribute.

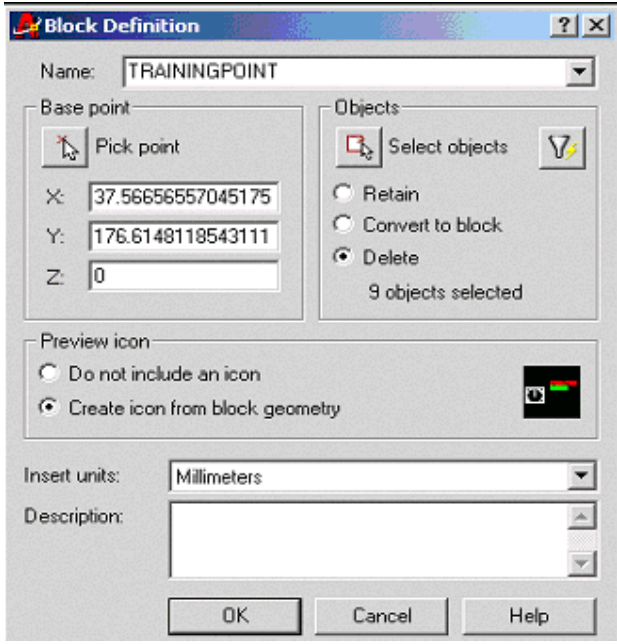
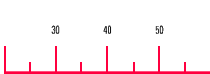


Step 5: Create the Blocks:

It is now necessary to define which elements belong together – that is, create the **blocks**. A block contains the graphical symbol of the point and the attributes (including the style of the attributes).

A defined block can then be selected in SKI-Pro to match them to the used point codes. Typically, for each code used in the field, a block should be defined in the header file.

It is necessary to define a **name** and **base point** for each block. The coordinates of the surveyed points being exported refer to the defined base point.



Ensure to select all elements (symbols and attributes), which should belong to one block.

Note that the sequence in which you select the attribute elements during the block creation is also stored in the Header File. With a logical order (for example Point ID and then Height) it will be much easier to assign the "Leica" attributes to the "Block" attributes in the GIS/CAD Look Up Table. This will become clearer later.

Step 6: Save the Header File:

After defining all blocks, the Header File is complete and can be used in the GIS/CAD Export tool of SKI-Pro. Save the Header File in a .dxf Format and give the file a name that indicates it is a Header File for a specific type of drawing.

Note that a Header File is actually an "empty drawing" - but full of information (Layers, Text Styles, Blocks, Attributes...)

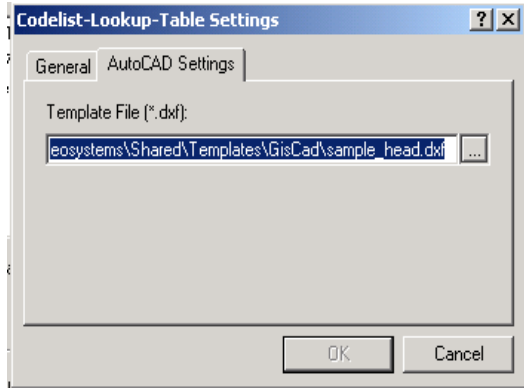
The Lookup Table

Why do we need a **Look Up Table**?

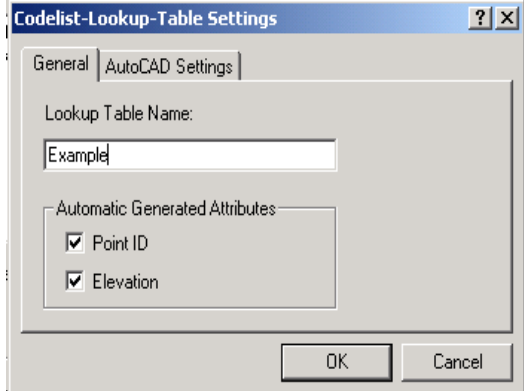
The Look Up Table is the interface between the surveyed data and the design of the CAD drawing: It links the **thematical codes** used during the survey, with the **Blocks** (or cells) defined in the header template file.

The Look Up Table allows to assign all "Leica" attributes (Point ID and Height) and "coding" attributes (which belong to the codes) to those Block (Cell) attributes, which are defined in the template file.

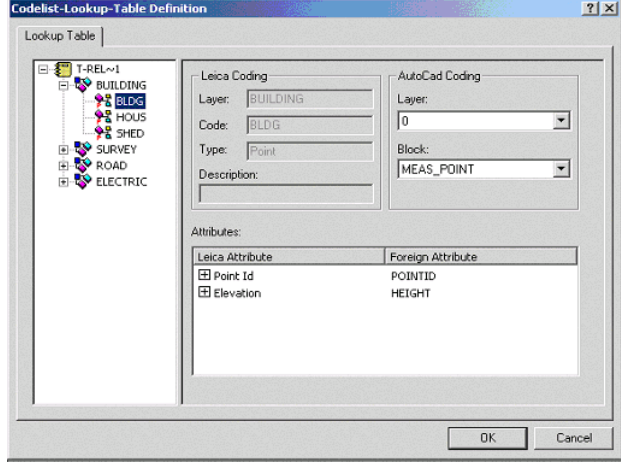
In the GSI/CAD Export tool create a new Lockup Table and define which Header File you want to use for the creation of your drawing.



Define also if SKI-pro should automatically assign the Leica attributes - **Point ID** and **Elevation** - to the AutoCAD Attributes.



In the **Export File** dialog box, pressing the **Lookup...** button allows you to assign the codes used in the field to the AutoCAD blocks:



Once the code is assigned to the block you can then assign the attributes used in the field to the AutoCAD attributes.

The different AutoCAD layers, blocks and attributes (on the right half of the panel) are all read from the linked AutoCAD header file. That means, the more layers, blocks and attributes are defined in that header file, the more you can select in the GIS/CAD Look Up Table. The order in which the AutoCAD attributes are shown in the Look Up Table is read from the Header File.

Note that similar to the Header template files, it is in general only needed to define a Look Up Table once for each type of drawing which should be created. (topographic survey, cadastral survey, As Built, etc...)

Before finally exporting the SKI-Pro project to the GIS/CAD file format, the export settings should be checked.

Export Settings

Similar to the Export of ASCII data, the GIS/CAD Export tool allows you to define certain export settings.

The coordinate class and coordinate type to be exported can be selected and the correct coordinate system in which the points should be transferred should be chosen.

The CAD packages settings (the **Format**, the **AutoCAD Release Version** etc) can also be defined here.

Note it is also possible to export surveyed points to which no point code was attached. If it is needed to export these points then the layer and block to which these points should be exported can be defined.

The project can now be exported and the results can be seen in your CAD package!

Remember...

- The **GIS/CAD Export** tool is the interface between the SKI-Pro project (your fieldwork) and your CAD package.
- It is necessary to use a **Header Template File** and define a **Look Up Table**.
- The **Header Template File** defines how the exported data will be displayed in the used CAD package. It contains all information of used layers, colours, text styles, line types, symbols and attributes.
- The **Look Up Table** is needed to assign the point codes and the attributes to the blocks (Cells) and attributes of your CAD package.
- The SKI-Pro GIS/CAD Export Tool supports **AutoCAD™**, **MicroStation™** and **MapInfo™** CAD packages.

