



WINCAN

PlugIn Tool for ArcGIS

Version: 1.2

Date: 19.09.2024

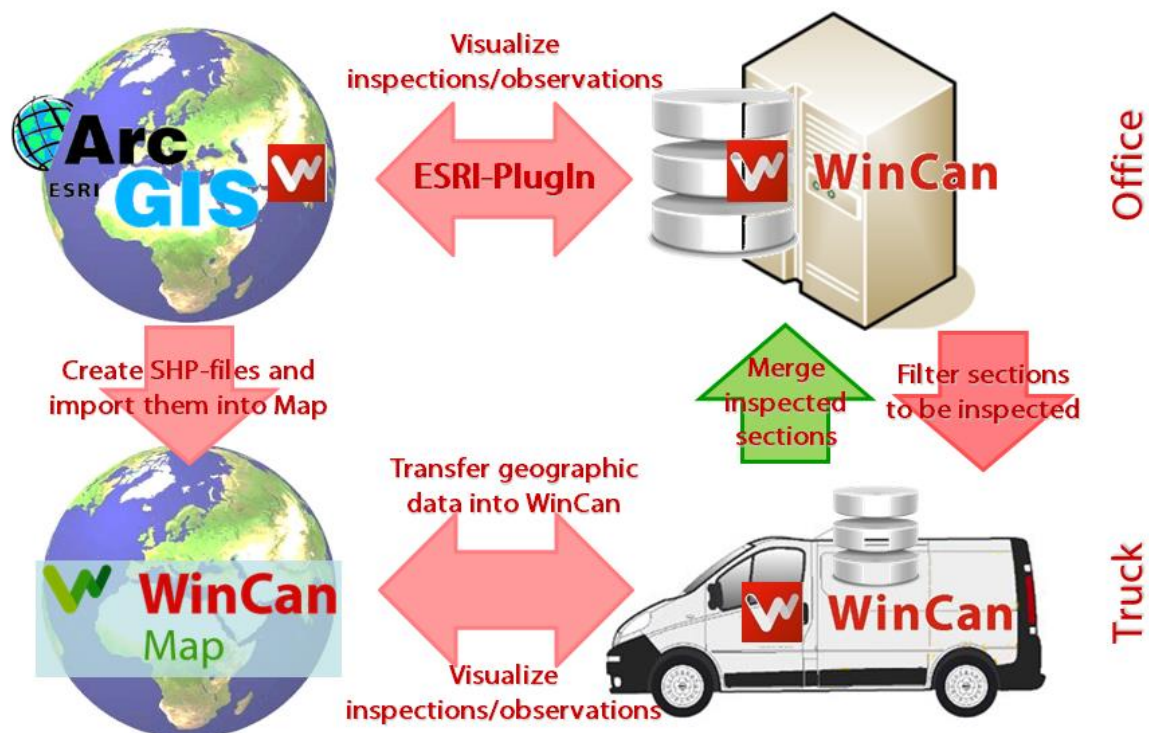
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1 Introduction

The PlugIn tool for WinCanVX has been particularly designed for **the ESRI products ArcMap or ArcPro**. Both products are especially used by the water authorities of cities for the management of larger pipe line systems. The PlugIn therefore acts as a bridge between ArcMap/ArcPro and a WinCanVX database where all the inspected sections are managed.

This finally allows the user to transfer basic data from ArcGIS to WinCanVX and to visualize inspection data from WinCanVX in ArcGIS.

Either a local WinCanVX database or a SQL-server database can be used as a container for gathering the inspection data which are continuously updated. The sketch below shows the basic work flows of such an environment:



2 System requirements

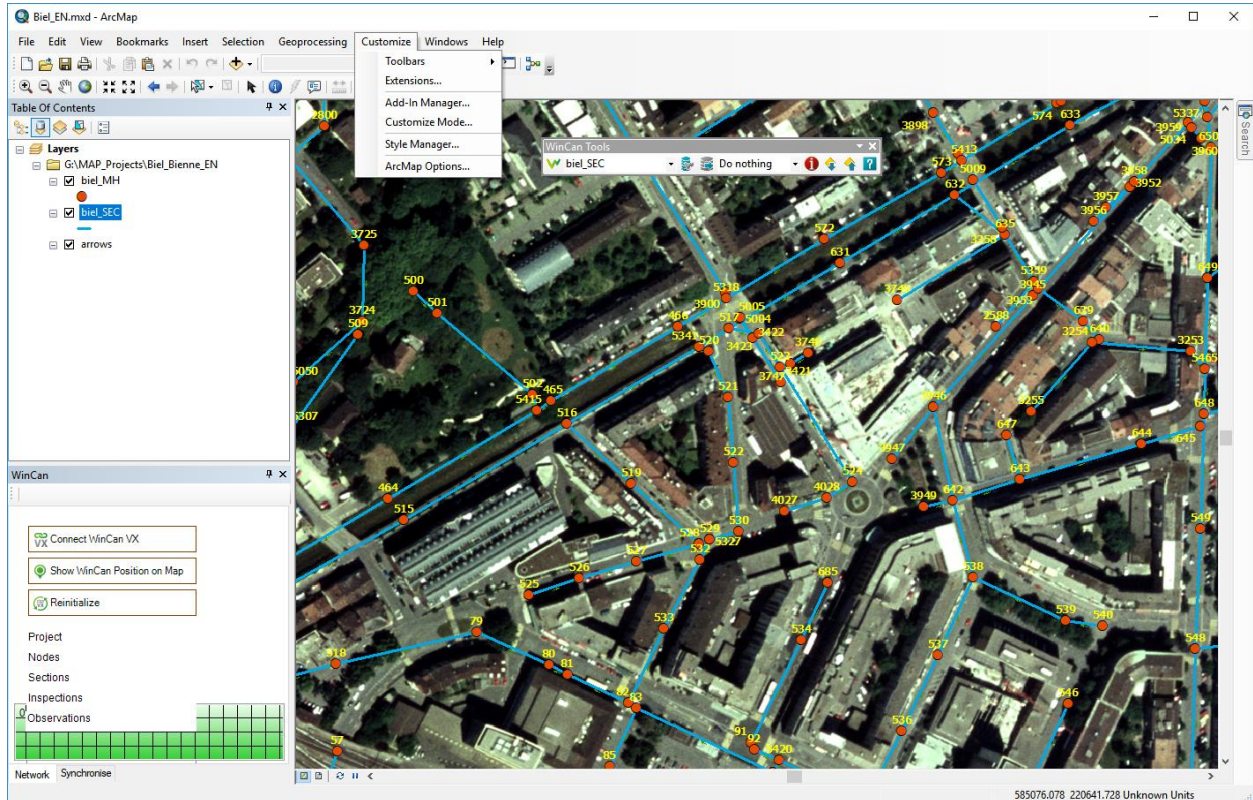
The following hardware and software parts are required in order the user is able to visualize the latest inspection results in ArcGIS at any time. Especially mind the version numbers of the software parts:

- Windows 10, PRO or Windows 11, PRO
- DotNet, version 6.X
- Graphic Board from NVidia (GeForce, series 9 or higher) with 2 VGA/DVI ports
- WinCanVX, ESRI-PlugIn; the latest version 2.5.2 is only compatible to the software parts below:
 - ✓ ArcMap 10.5 and higher or ArcPro 3.0 and higher
 - ✓ WinCanVX, version 1.1.2024.16.X or higher

3 Installation

After installing and licensing the software ArcGIS the user has to download and install the latest version of *WinCanVX_SETUP* (1.1.2024.16.X or higher) as well as the latest version of *WinCanESRIPlugin_SETUP*.

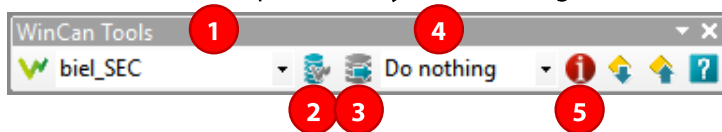
When opening ArcGIS afterwards the user is able to activate an additional toolbar that contains the basic commands to control the interactivity between ArcGIS and WinCanVX:



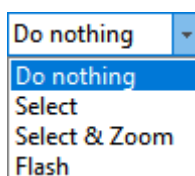
Select the command *Customize > Toolbars* to show the *WinCan Tools* toolbar as shown above. Simply grab the WinCan toolbar and dock it to another symbol bar located at the top of the ArcGIS main interface.

4 The Plugin Toolbar

The WinCan toolbar provided by the ESRI PlugIn contains the following commands:



1. Select the layer you actually want to work with
2. Set the field mapping to transfer the field contents from ArcGIS to WinCanVX
3. Transfer selected elements of a layer into WinCanVX
4. Define how the sections selected in WinCanVX will be shown in ArcGIS: The following methods are available:



5. Hit this button in order to have the section selected in ArcGIS shown in WinCanVX

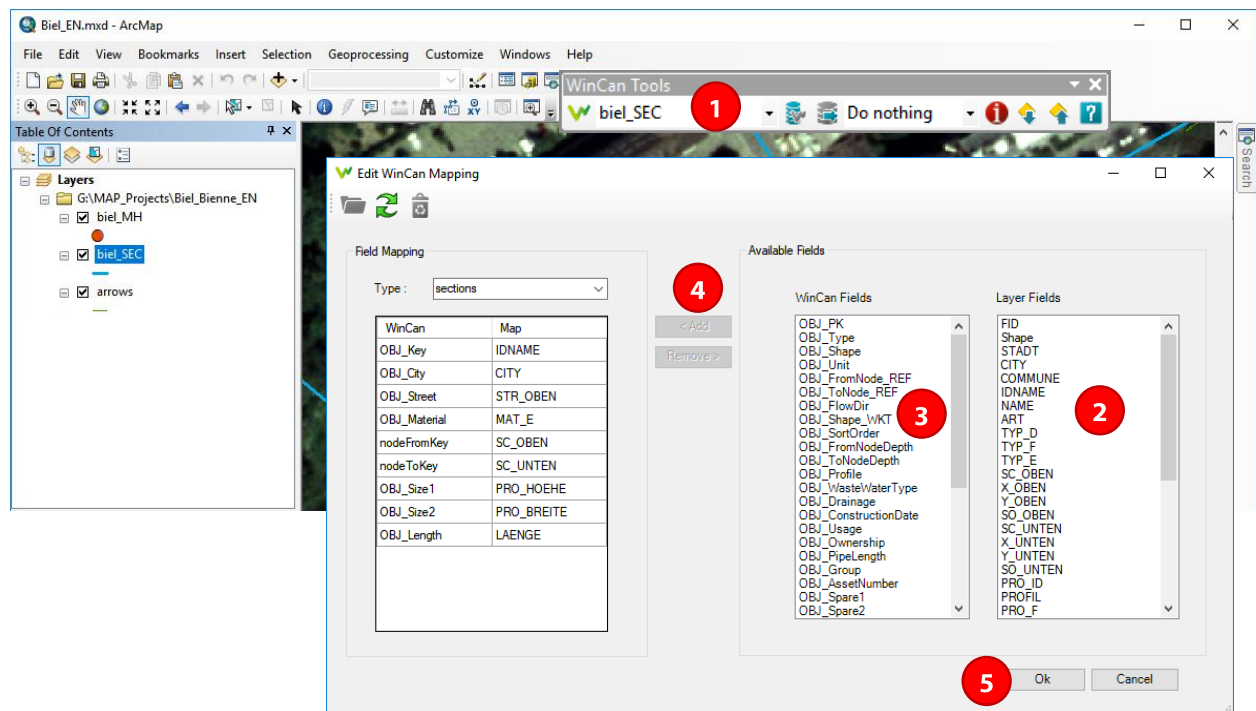
5 Field Mapping for Sections and Manholes

Before GIS-data can be transferred into the software WinCanVX each GIS field needs to be mapped or assigned to the corresponding WinCan field.

The **section/manhole fields** listed below contain the most important information to be transferred in order to start with the pipe survey in WinCan.

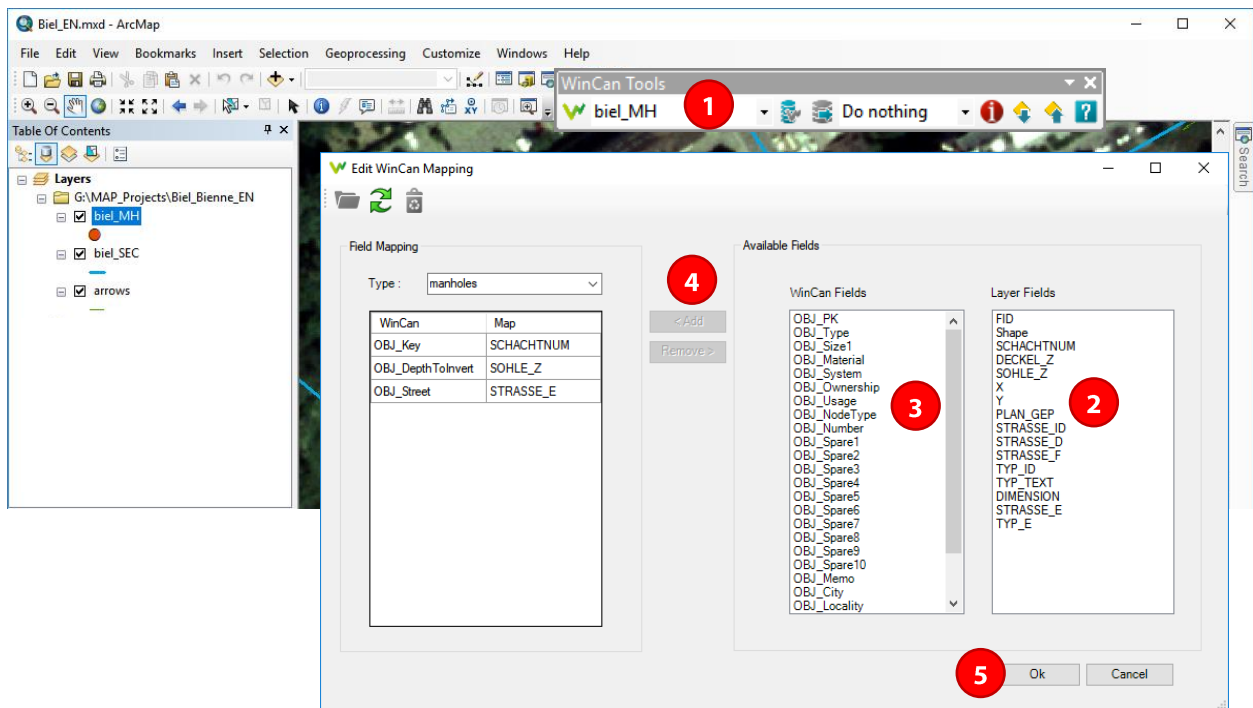
OBJ_Key	-> Section/Manhole Name (unique name to identify the section/manhole)
OBJ_Length	-> Length of the section (distance from Upstream Manhole to Downstream Manhole)
OBJ_DepthToInvert	-> Depth of the manhole (distance from cover to bench/channel)
OBJ_City	-> Name of the City/Town where the section/manhole is located
OBJ_Street	-> Name of the Street where the section/manhole is located
nodeFromKey	-> Name of the Upstream Manhole
nodeToKey	-> Name of the Downstream Manhole
OBJ_Shape	-> Shape of the pipe (circular, rectangular, egg-shaped etc.)
OBJ_Size1	-> Diameter/Height of the pipe (in mm)
OBJ_Size2	-> Width of the pipe (in mm)
OBJ_Material	-> Material of the pipe (concrete, steel etc.)
OBJ_SectionType	-> Type of section (waste water, stormwater, mixed water)
OBJ_Usage	-> Type of section (replaces OBJ_SectionType in some standards)
OBJ_WasteWaterType	-> Type of section (replaces OBJ_SectionType in some standards)

These fields can be picked directly from the mapping dialogue after you selected the corresponding layer (1). Proceed as follows to assign the GIS section fields (2) with the appropriate section fields (3) used in WinCan:



Field Mapping for Sections and Manholes

Proceed as follows to assign the GIS manhole fields (2) with the appropriate manhole fields (3) used in WinCan:




Note that the name of the layer fields (2) are taken directly from the GIS and cannot be modified with the PlugIn tool from WinCan. In most cases the user must figure out from the name what kind of information the layer field (GIS-field) really contains.

As soon as you're sure the GIS field selected in group 2 would match perfectly to the corresponding WinCan field in group 3 you can hit the button *Add* (4) to set the field mapping for each pair of fields.

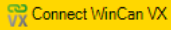
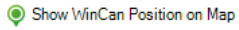
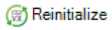
Finally hit the button *OK* (5) to confirm the field mapping for the current layer.

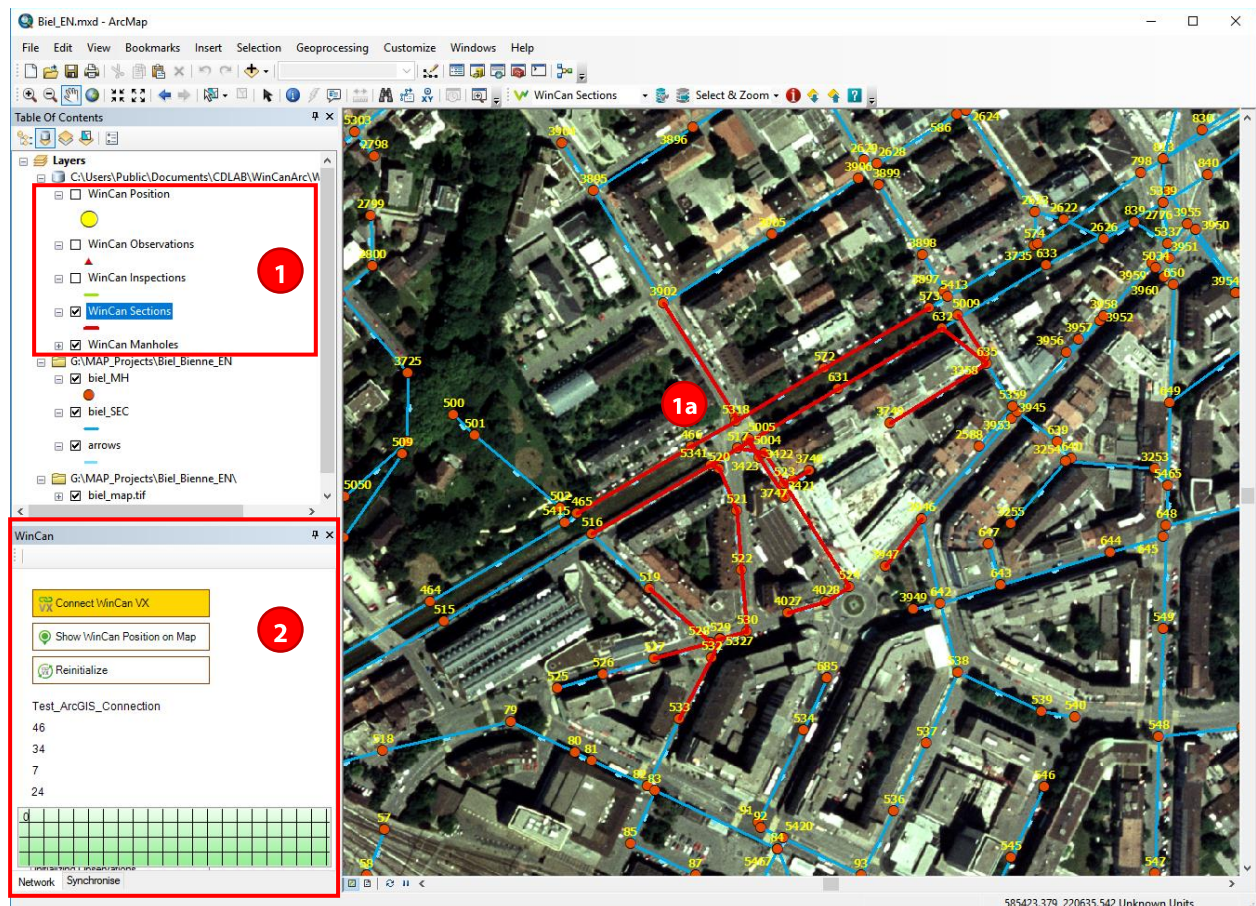
6 Transferring Data into WinCanVX

Make sure all the data are loaded in ArcGIS and that you created a new empty project in WinCanVX. This project should be based on the official standard mostly used in your country (e.g. PACP6, WRC4, WSA2013, EN-13508 etc.).

Switch back to ArcGIS, activate the corresponding layer (e.g. SECTION) and select a group of objects you want to transfer. Clicking on the *Transfer* button  finally transfers the selected objects into WinCan.

After the data transfer both software parts ArcGIS and WinCanVX are able to communicate with each other: the WinCan PlugIn has created a new layer group (1) that allows the user to check which sections have already been transferred (1a). In addition a WinCan panel (2) pops up and provides a group of three buttons:

	Run the communication between ArcGIS and WinCanVX
	Show the observation that is currently selected in WinCanVX on the map.
	Refresh the communication in case the interactivity between ArcGIS and WinCanVX may be blocked.



7 Control of the inspection progress

From now inspections can easily be planned using the filter tool in WinCanVX and exporting the sections into a new project which is finally copied on the computer in a CCTV-truck.

After the inspection the project must be copied back from the CCTV-truck to the office computer and merged into the main project database linked to ArcGIS.

As soon as you run the communication (2) between ArcGIS and WinCanVX you will see directly the sections that have been transferred into WinCanVX (1a) and been inspected (1b). So you may highlight an inspected section in WinCan (3), browse through the list of observations (4) and follow their positions on the map (4a). ArcGIS and WinCanVX are now fully synchronized:

The screenshot displays the WinCanVX software interface integrated with ArcGIS. The top window shows an aerial map with inspection sections (1a) and observations (1b) overlaid. The bottom window shows the WinCanVX data table with sections and observations.

WinCanVX Data Table:

Sections	Haltungsbe	HL [m]	Ort	Strasse	Schacht	Schacht	Material	Profil
16	2RW cd 2	13.00	Hometown	Spitalstrasse	3422	5004	Concrete	
17	1SW CD 3	72.70	Hometown	Quasi. Unterer	632	631	Concrete	
18	1SW CDB 6	74.80	Hometown	Spitalstrasse	524	523	Concrete	
19	1SW CD 4	71.10	Hometown	Quasi. Unterer	631	517	Concrete	
20	1SW A 9	12.10	Hometown	Rechberger-Strasse	527	532	Concrete	
21	1SW CDB 3	35.70	Biel-Gartler	Aachbergstrasse	527	528	Stahl	Kreisprofil 40...
22	1SW CDB 10	6.00	Hometown	Waffengasse	517	523	Concrete	
23	1SW CD 5	19.10	Hometown	Spitalstrasse	517	5341	Concrete	1450/800mm
24	1SW CB 4	80.80	Hometown	Spitalstrasse	3902	3900	Concrete	
25	1SW CDC 7	35.90	Hometown	Haller-Strasse, Albr.	522	521	Concrete	
26	1SW CDC 4	5.50	Hometown	Kocher-Strasse, Th.	528	529	Concrete	
27	1SW CDC 8	28.00	Hometown	Haller-Strasse, Albr.	521	520	Concrete	
28	2RW cd 3	13.00	Hometown	Spitalstrasse	3422	5005	Concrete	
29	1SW CDA 8	37.80	Hometown	Waffengasse	635	632	Concrete	

Observations	m +	m -	OP Ku	Zustand	C	Fot	F	F	Sat	MP	Sc	La	St	D	S	B	Bemer
1	0.00	35.70	BCD	Rohranfang													
2	2.00	33.70	BAAB	Rohr deformiert, horizontal von 10 Uhr bis 1 Uhr, Abmes...													
3	10.00	25.70	BCAZA	Anschluss, offen bei 10 Uhr, 100mm hoch, 100mm breit													
4	20.00	15.70	BCAZA	Anschluss, offen bei 12 Uhr, 200mm hoch, 200mm breit													
5	25.00	10.70	BCAZA	Anschluss, offen bei 2 Uhr, 100mm hoch, 100mm breit													
6	28.00	7.70	BABBB	Riss, radial bei 10 Uhr, 50mm breit, Start													
7	32.00	3.70	BABBB	Riss, radial von 10 Uhr bis 11 Uhr, 50mm breit, Ende													
8	35.70	0.00	BCE	Rohrende													