

Matienzo Cave Data Entry & Processing Guide – part 1

Re-written after **DECLINATION* command becomes embedded in *Survex 1.2.43*, some time before April 2021

To set-up a new cave survey (e.g. site 9999):

Assumptions for private use on a Windows machine:

Survex is installed

Survex files (with the .svx extension) can be created, read and saved in *Notepad*. (Save any created file with an .svx extension and not .txt)

Step 1 below is not necessary !

1. Navigate to *Desktop/Shortcuts/surveys-working*. All cave survey data for all Matienzo caves is stored here.
2. Create a new folder called '9999' and copy the file *template-2021.svx* into it. (*Template-2021.svx* is in the folder above or available from the web site / *Cave Surveying Help* section). Rename the copied *template-2021.svx* to be *9999.svx* but, if it is likely that there is to be more than one batch or data, this file should be renamed, e.g. *9999-14-01.svx* to show the year and the sequence. (A file called *9999.svx* will then include each data file and how each is connected. See below).
3. Assuming we are working with *9999-14-01.svx*: open this working file (in *NotePad*) and edit the **BEGIN* site_batch line to read **BEGIN 9999-14-01* and the final statement to read **END 9999-14-01* (The file name agrees with this internal batch name). Most of the comments (lines starting with ;) at the top of this Survex file can be deleted. Values which must be set include
 - *DECLINATION auto x y z* which needs to be given either the exact entrance coordinates or a nearby grid reference
 - *DATE yyyy.mm.dd*
 - *Fix Station# x y z* This is required if there is an entrance, perhaps station 0 in which case:
 - *ENTRANCE 0*
 - *TEAM "name" role role*
 - (**FIX* is not necessary if a station in this batch is **EQUATEd* with a station in another batch)
4. The remaining survey leg data can then be added in the usual manner directly below the **DATA NORMAL from to tape compass clino* line. Each item in the line - from#, to#, tape, compass, clino can be separated by a *space* or *tab*. The default units are tape in metres, compass and clino in degrees.
5. Once the survey data has been entered, or every few minutes, save the file. Back in the working folder, right-click on the .svx file and select *Process*. This creates a .3d file that can be viewed in the *Aven* viewer.
6. The left, right, up, down (LRUD) data can be added after the leg data. Left and right are assumed to be at right angles to the leg. Each batch/branch of LRUD data must be headed with
 - *data passage station left right up down*And each branch must have repeat of the linking station data looking in the new direction.
7. The complete Survex file for the few legs shown in the *Underground Surveying – data collection* document is appended.
8. A cave may have survey data in several different .svx files. These can be linked together by creating a single master Survex file. This file, eg *9999.svx* contains a list of **INCLUDE* statements that list the Survex files (batches) making up the survey, and list of **EQUATE* statements that equate a station in one batch with a station in another. For example, to make station 7 in batch 14-01 and station 1 in batch 14-02 the same point, the complete *9999.svx* file would read
 - *BEGIN 9999*
 - *INCLUDE 9999-14-01*
 - *INCLUDE 9999-14-02*
 - *EQUATE 9999-14-01.7 9999-14-02.1*
 - *END 9999*Note that the .svx extension is not necessary but can be used on the included files.
9. Right-click on any .3d file to create a .dxf file. This can be viewed in *QGIS3* and used to overlay the survey on the area map (see Part 2).
10. Further Survex commands are explained in the *Survex Manual* – stored in a yellow plastic folder on the Matienzo Office shelves or [on line](#). Because each cave is stored in its own folder, it is also straightforward to bring caves together to produce a .3d file of an area or, indeed, the whole permit area.

11. It is not necessary to produce separate .svx files. All data batches can be put inside a 9999.svx file as long as each data batch is surrounded by *BEGIN and *END statements and each includes the appropriate * lines mentioned in 3 and 4 above if necessary.

To read in data from a .top file (e.g. from a PDA):

1. The .top file should be transferred from the PDA card into the working folder for the cave and renamed as, eg 9999.top
2. Run *PocketTopo*. Navigate to *Menu-File-Open* and open the desired .top file. Note that a .top survey is likely to include a number of branches and batches as the survey has been built up perhaps over a number of trips.
3. On the *PocketTopo* menu, *Export-Text* will produce a .txt file (e.g. 9999.txt). This needs to be converted to a .svx file as follows.
4. Copy the files *CaveConverter.jar* and *Conv-p2s.bat* to the cave's working folder. (These files can be found a couple of folder levels up – in a *CaveConverter* folder within *SURVEYPR*. They are produced by Paul "Footleg" Fretwell and can be [downloaded](#).)
5. Open *Conv-p2s.bat* in a text editor and modify it appropriately for the current cave. For example, for 9999.txt, exportedcave.txt survexfileout.svx p s would be altered to 9999.txt 9999.svx p s
6. Running *Conv-p2s.bat* (by double-clicking on it in the file explorer) will produce a .svx file from the .txt file. Add the appropriate *DECLINATION statement(s) to the survex file as required and any other required * statements such as *FIX.
7. To retrieve the underground drawing, navigate to *Export-Graphics* in *PocketTopo* and save as a .dxf file (actually a plan (P) and section (S), which can be viewed in *AutoCad*. Splay-legs in the survey can be removed prior to creating the .dxf file(s) by ticking the 'remove XSection' check box.

Dxf files can be converted to other formats using, e. G. <http://www.dxfconverter.org/>. These files, eg pdf or svg can be used in *Inkscape*.

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Details of how to overlay cave passage centre lines on the Matienzo map (and how to print out map sections) are in *Matienzo Cave Data Entry & Processing Guide – part 2*. This document is available in the Matienzo Caves Office in Matienzo.

Appendix 1

Survex file (9999-14-01.svx) for the data collected in *Underground Surveying – data collection*.

```
*BEGIN 9999-14-01
*CS UTM30N
*CS OUT UTM30N
*date 2014.04.18
*DECLINATION auto 454667 4803120 0183
*FIX 0 454667 4803120 0183; ETRS89

*TEAM "caver1 name" compass clino laser
*TEAM "caver2 name" notes

*ENTRANCE 0

*DATA NORMAL from to tape compass clino
0 1 5.23 154 -26
1 2 6.14 95 -15
2 3 8.3 - down

*data passage station left right up down
0 .5 1.52 0.35 0.25
1 1.55 2.04 2.45 1.23
2 2.32 2.34 3 1
3 2.31 1.56 4.65 1.35 ; up + down should be 8.30m??

*END 9999-14-01
```