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1. Introduction

Sound Velocity Editor application is designed to create and modify the acoustic path data of the sonar beam and correct for angular changes of sound through water as the sound velocity changes with water depth, as well as provide 2D visualization of dependency.

2. User interface overview

2.1. General

Upon starting the application in standalone mode from Start menu the following interface will show up:

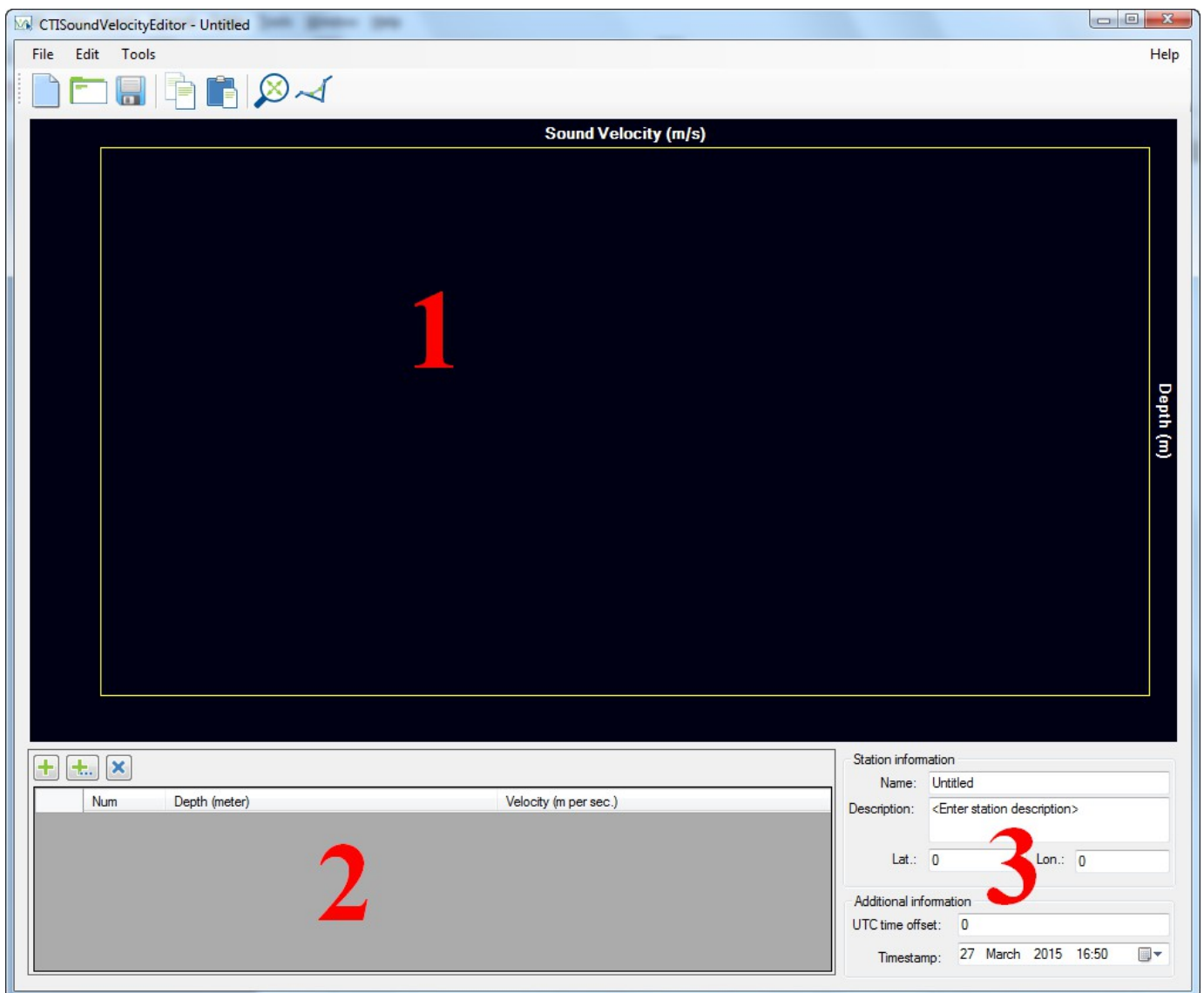


Illustration 1: Sound Velocity Editor interface. It contains following sections:

1. Graphic area.
2. Data list.
3. Station information.

When application is started in standalone mode, blank tide file is automatically created for modification. To load existing file to edit, use File → Open and Browse to the directory where the file (“<filename>.xml”) is located.

For importing data from other source, use “File → Import”, this will open up the window Explorer where you can indicate a file with data to import. For importing a data from other source, use “File → Import”, will open up the window Explorer where you can indicate a file with a data to import. The application supports .log .vel, txt & csv file formats. The default template supports SV files in formats exported from AML Oceanographic (.log), Hypack (.vel), ODOM Digibar (.vel), ODOM other (csv) and YSI CastAway (.csv).

To duplicate a row of data, use “Edit → Copy” and “Edit → Paste” or Ctrl+C and Ctrl+V. The application also supports adding data from the clipboard separated by a space, a comma or tab.

Example:

Tab

```
1    9000
2    2000
```

Comma

```
1,200
2,6000
```

Space

```
10 2000
11 3000
```

“Tools → Interpolate value” menu item – generates a complete (linearly interpolated) sound velocity table at a specified depth interval using only data that has been entered to the Data List.

“Help → About” menu item will show the about dialog containing brief information about the application

2.2. Graphic area

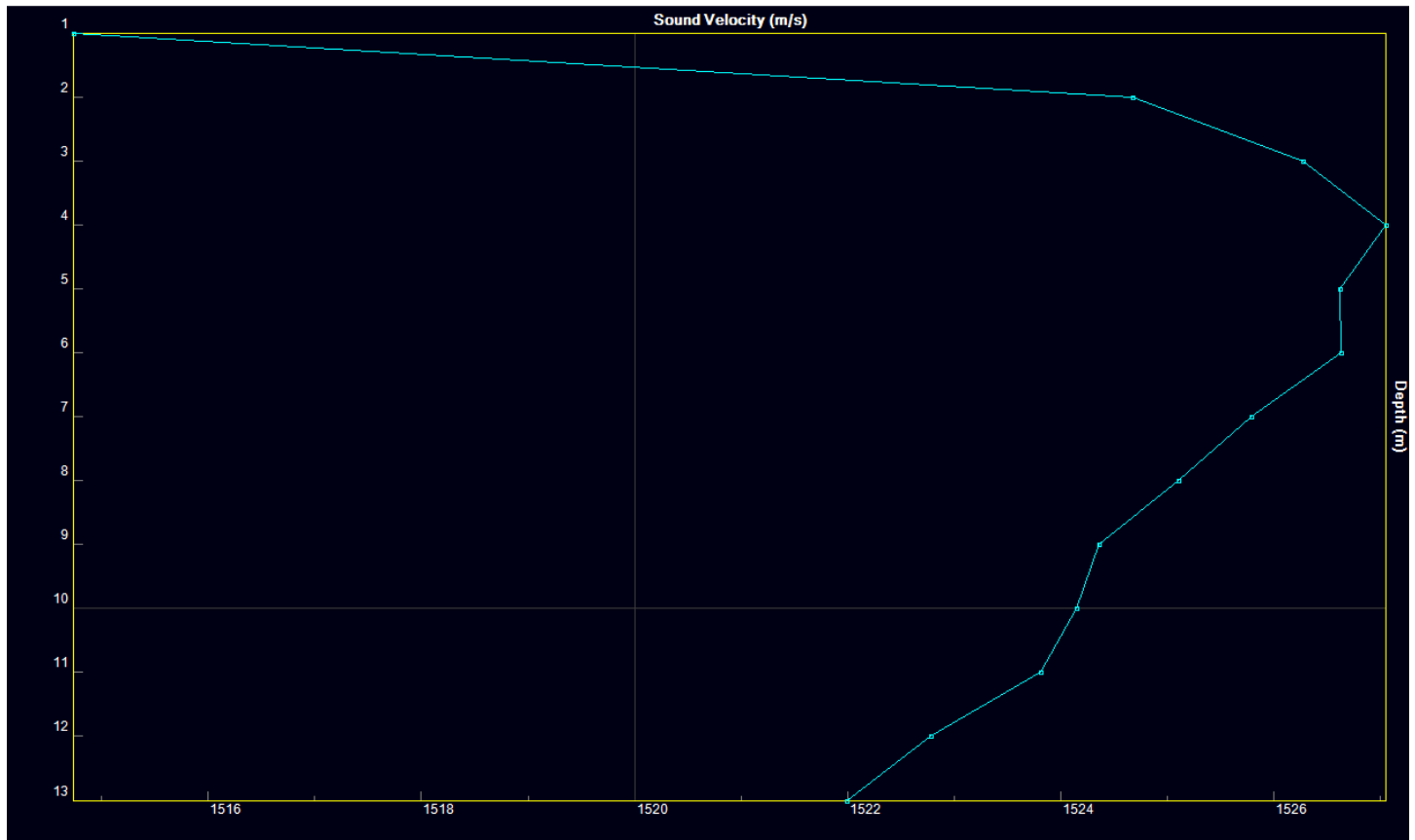


Illustration 2: Graphic area

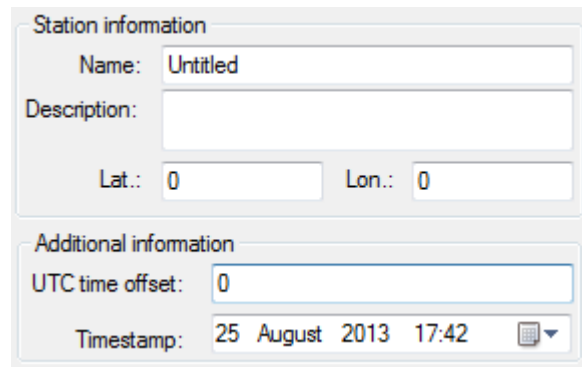
Is used for graphic presentation of the entered data. To change the scale of the chart use the mouse wheel, to change the scale of one axis, you need to place the mouse cursor on the selected axis, and also to use the wheel.

2.3. Data List

Num	Date	Time	Height
1	7/15/2013	5:00 AM	-0.08
2	7/15/2013	5:10 AM	-0.06
3	7/15/2013	5:20 AM	-0.04
4	7/15/2013	5:30 AM	-0.01
5	7/15/2013	5:40 AM	0.01
6	7/15/2013	5:50 AM	0.04

Create and delete operations are available through buttons on the box header. To create one or more rows of values use button or , the button – removes selected rows. Edit value in the cell can be opened with double-click on it.

2.4. Station information



Station information

Name:

Description:

Lat.: Lon.:

Additional information

UTC time offset:

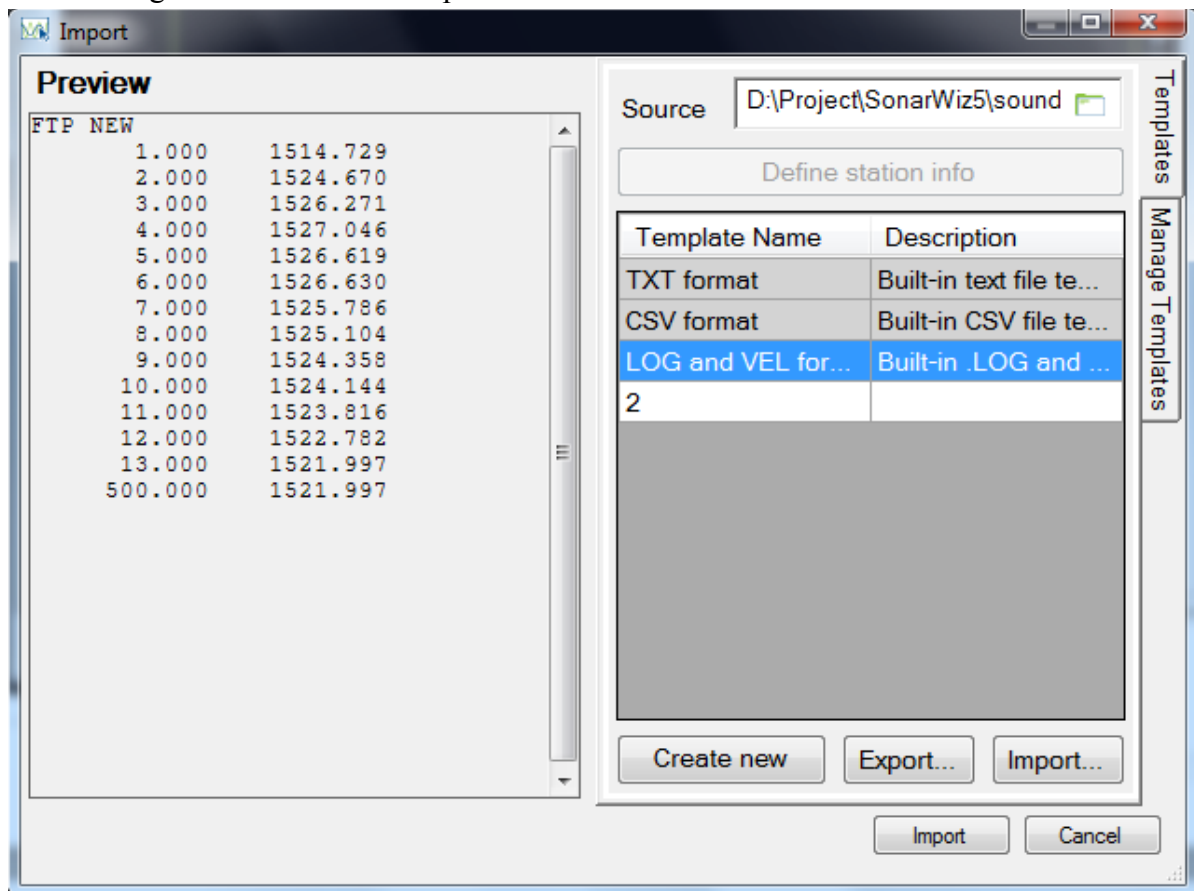
Timestamp: 25 August 2013 17:42

Illustration 4: Station information

This block is used to store additional tide station information. The name of the file you save is equal to the value inserted to the Name field. If the value in this field will be changed while editing the saved file, then the current file will be saved as a new one. For Lat. and Lon. fields you can set up an automatic conversion of inserted coordinate to the one of the following: $\pm DD.DDDDDDD$, $\pm DD MM.MMM$, $\pm DD MM SS.SSS$. To do this please open Tools > Settings.

2.5. Importing a data from other source

For calling the Import dialog click on “File → Import”, select the data file you want to import and press open. The following interface will show up:



Import

Preview

FTP NEW

1.000	1514.729
2.000	1524.670
3.000	1526.271
4.000	1527.046
5.000	1526.619
6.000	1526.630
7.000	1525.786
8.000	1525.104
9.000	1524.358
10.000	1524.144
11.000	1523.816
12.000	1522.782
13.000	1521.997
500.000	1521.997

Source

Define station info

Template Name	Description
TXT format	Built-in text file te...
CSV format	Built-in CSV file te...
LOG and VEL for...	Built-in .LOG and ...
2	

Templates Manage Templates

Create new Export... Import...

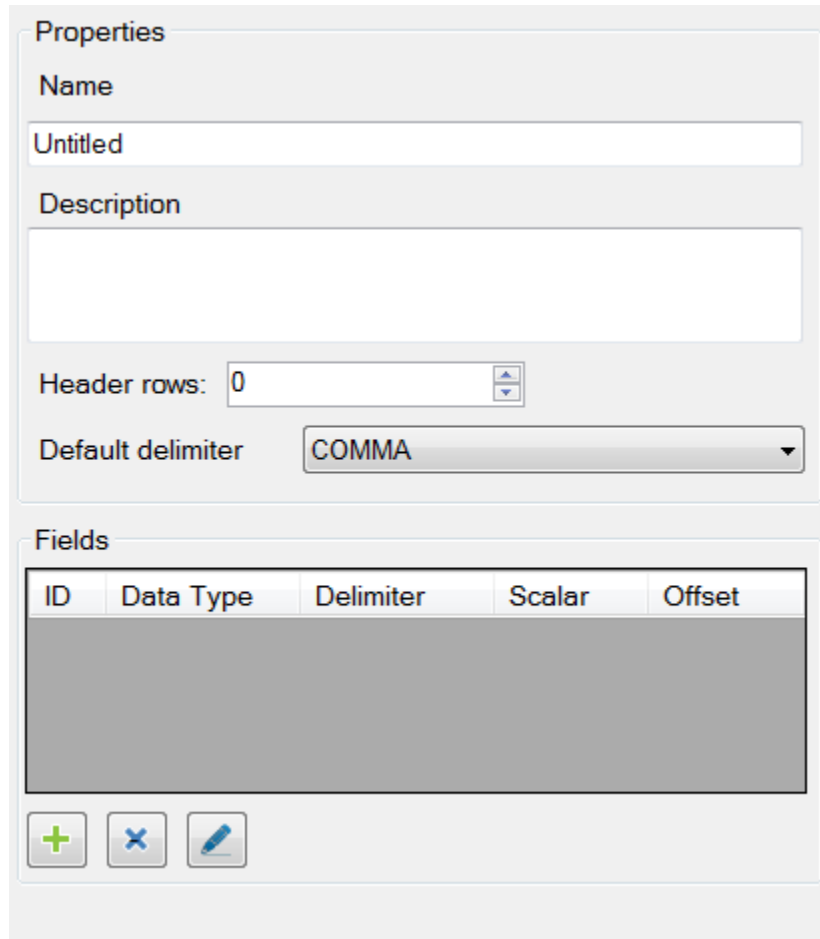
Import Cancel

Illustration 5: Import dialog

Before importing you'd need to create a template for the current data structure or use one of the predefined.

To create a new template, do the following:

1. Hit on the "Create new template" button.
2. Enter basic information like template name, template description.

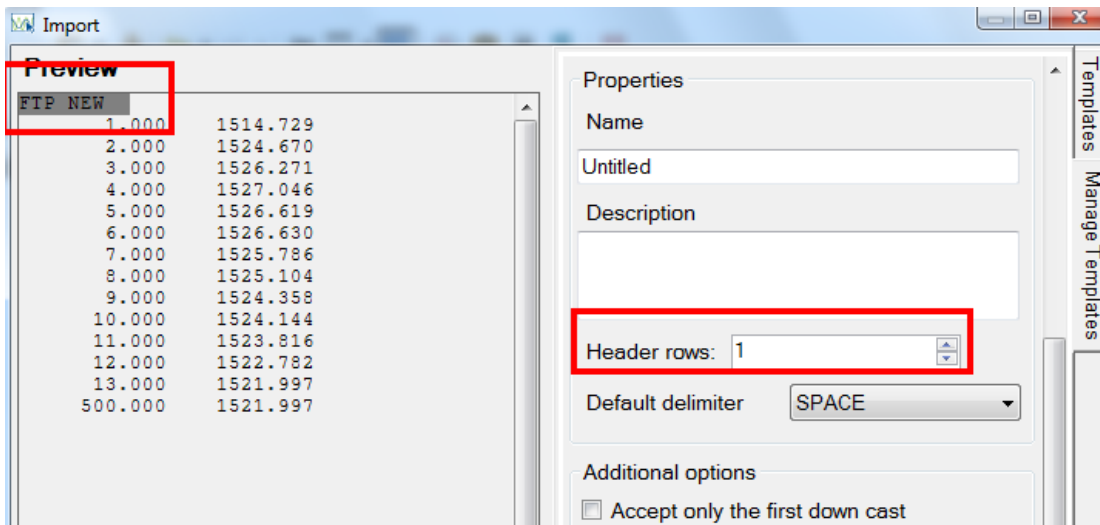


The screenshot shows a 'Properties' dialog box with the following elements:

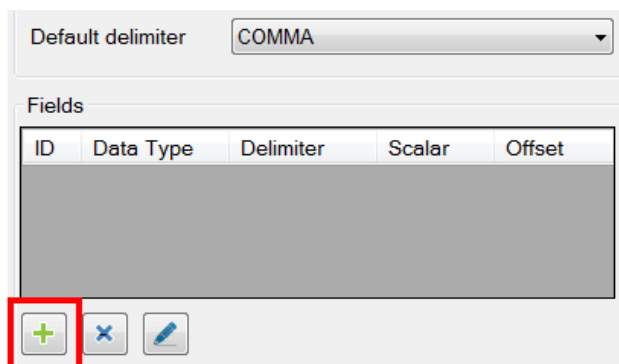
- Name:** A text input field containing 'Untitled'.
- Description:** A large empty text area.
- Header rows:** A numeric input field with '0' and up/down arrow buttons.
- Default delimiter:** A dropdown menu currently set to 'COMMA'.
- Fields:** A table with the following structure:

ID	Data Type	Delimiter	Scalar	Offset
- Buttons:** Three icons at the bottom: a green plus sign (+), a blue 'x' (close), and a blue pencil (edit).

3. Specify the number of lines in the file header that does not contain data to be imported. These rows will be highlighted gray in the preview area



4. To indicate a first column with data press on “+” button



5. In the appeared window specify data type and format, delimiter to the next column with data and press “OK”.

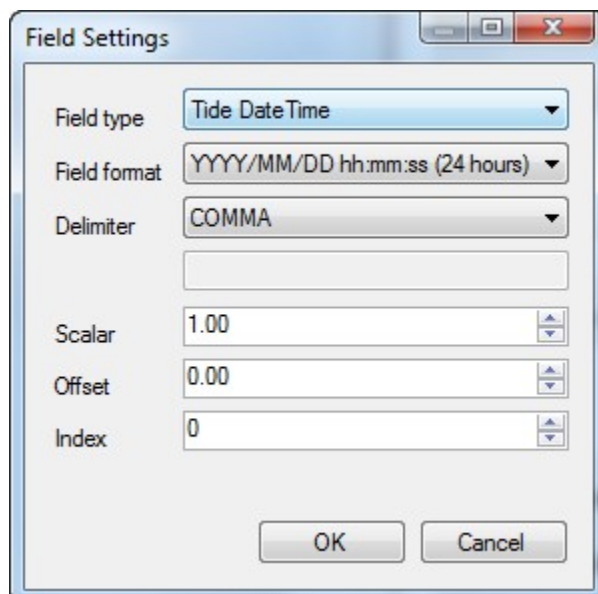
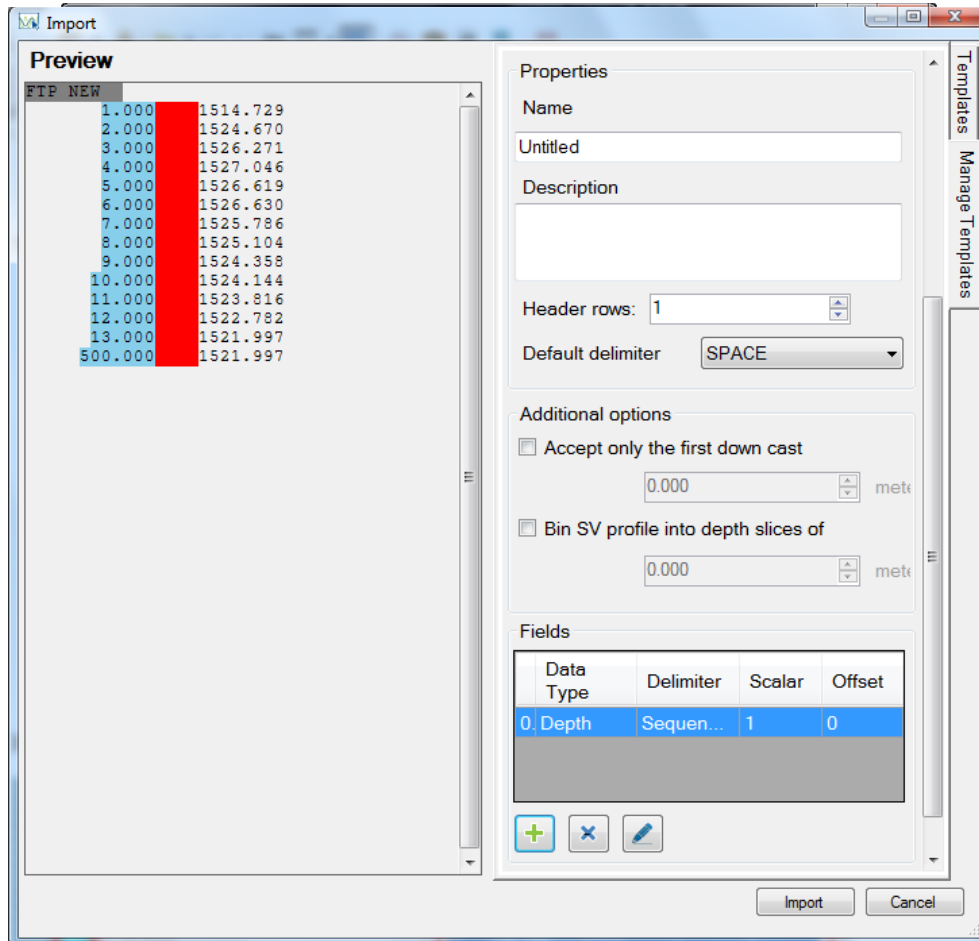


Illustration 6: Settings for data recognition

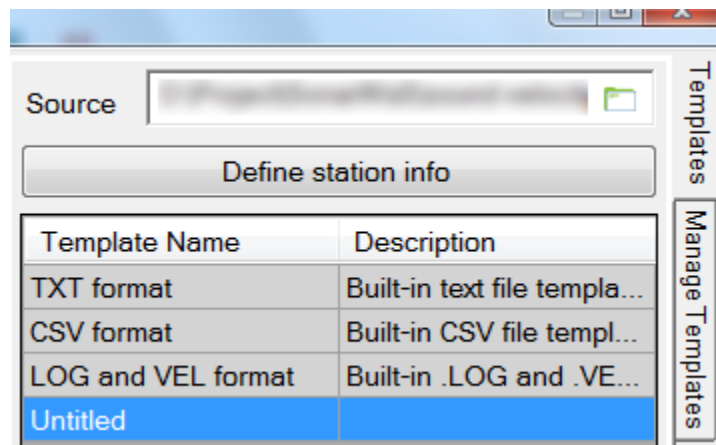
The preview area will show a result of interpretation



If you would like to edit the created settings select a row and press on 

6. Repeat the steps 4 and 5 for other columns.

After the template has been created you can also specify additional data, like station name, description and coordinates, which should be imported. For this open the tab Templates and press "Define station info"



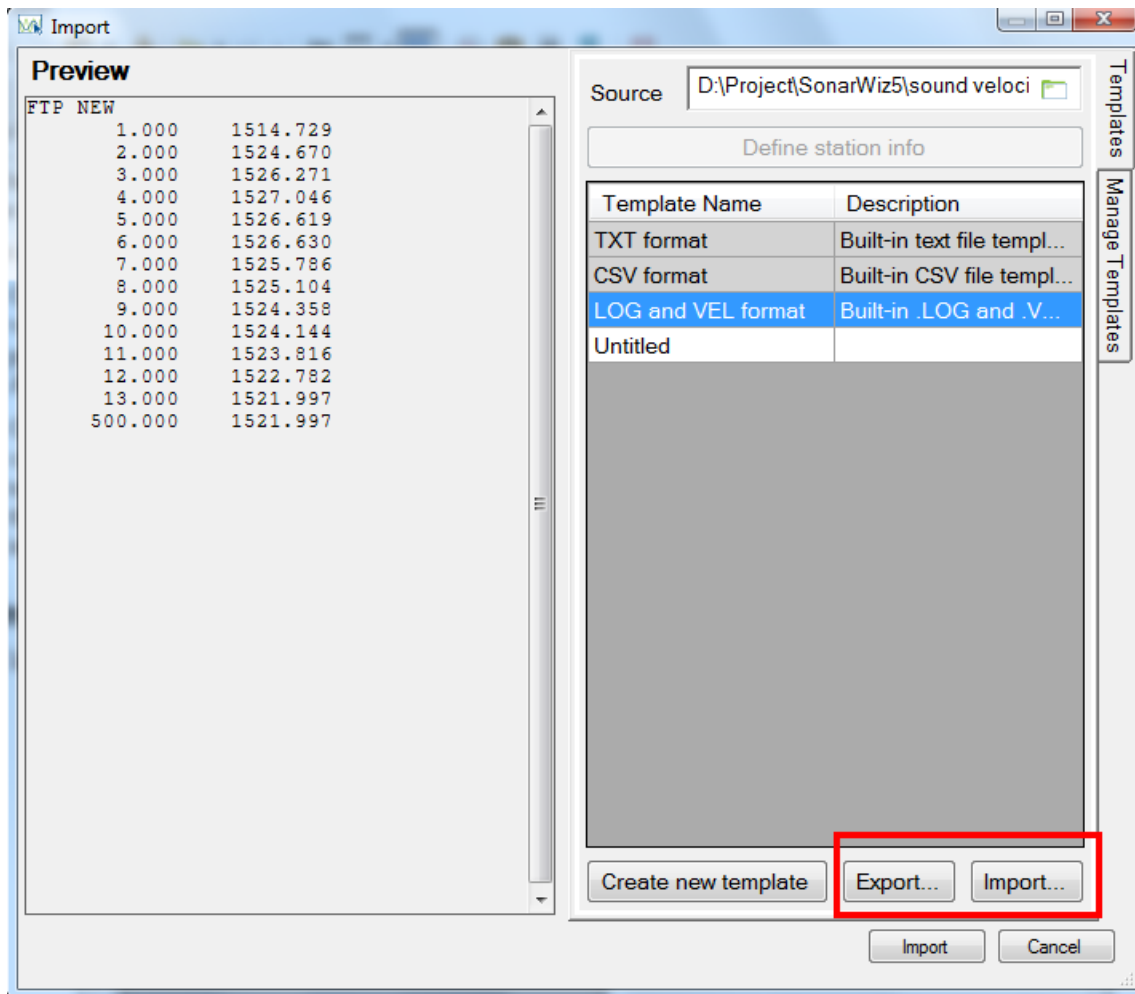
Please be careful, in this case the current information in this fields on the main window will be replaced with new one.

You can also specify additional option for importing.

- Option “Accept only the first down cast” - during the importing process compare the previous depth value with the current, if the current value is less more than specified in the field “meters”, the import process will be terminate.
All data which was processed successfully when importing, before stopping, well be added to the grid.
- Option “Bin SV profile into depth slices of” - during the import are compared the depth values and in case the difference between the first value and the next value exceeds the average value specified in the text field, then only that value which is located between the first value and exceeding value and which is the most close to the average value of this group of values excluding the exceeding value will be imported. Further, the same logic applies for the remaining values.

2.6. Import and Export templates

Import and export templates are available on Import dialog



Before exporting you'd need to create a template. After a template has been created you can call the export dialog for creating a file with your template settings. In the appeared dialog you can specify which templates should be exported, output folder and file name where exported templates should be put.

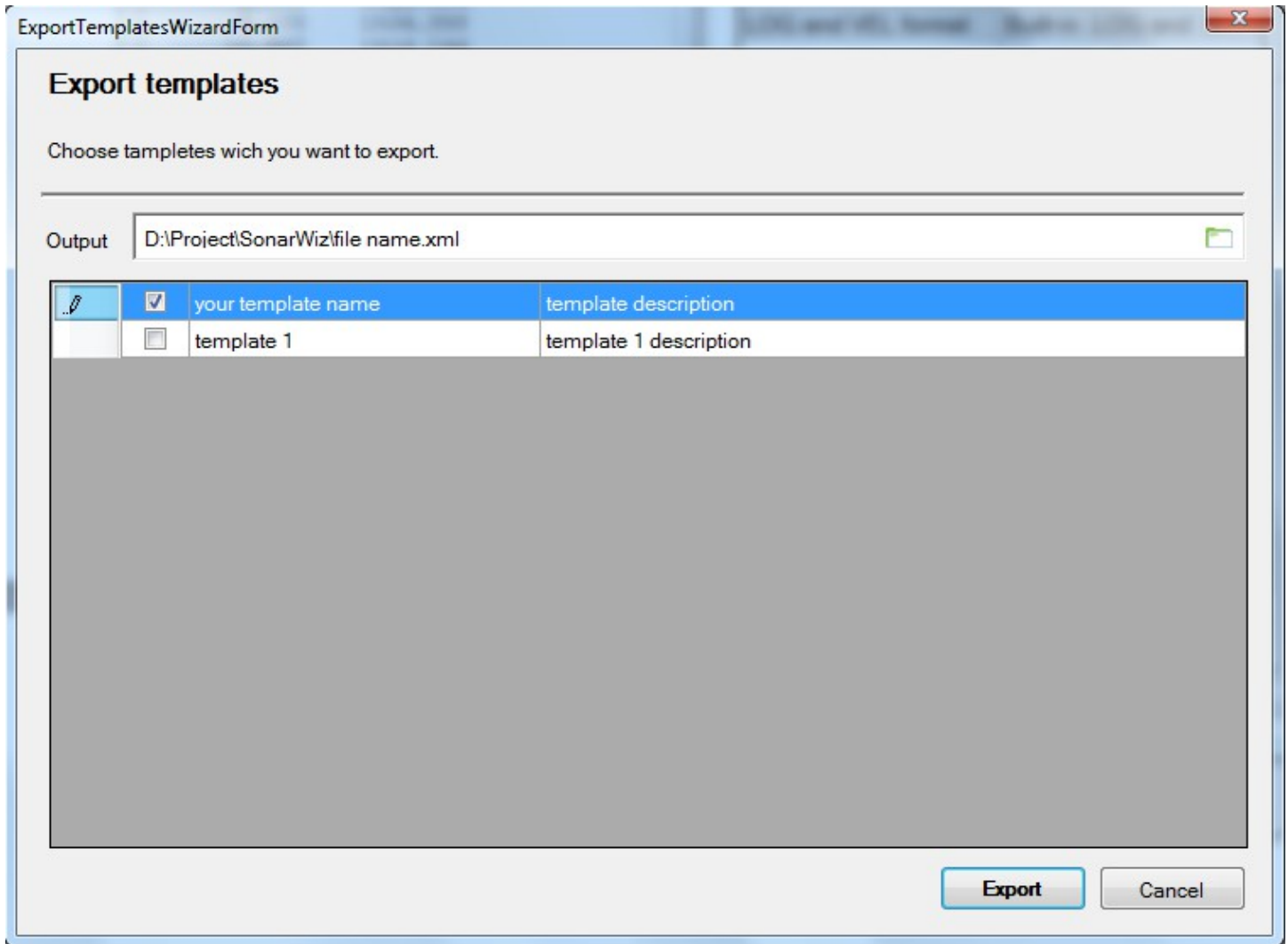


Illustration 7: Export Template dialog

To begin export please click on the button “Export”.

To import templates to Sound Velocity Editor please press on the button Import and in the appeared window specify a file with templates. If the import was successful in the main window of Import dialog will be accessible to new templates