



SMS 14.0 Tutorial

Scatter Data – Import/Export

Importing and exporting scatter data



Objectives

This tutorial covers the basics of working importing scatter data into SMS and exporting SMS data as a text file.

Prerequisite Tutorials

- Overview
- Scatter Data Import

Required Components

- SMS Core

Time

- 10–20 minutes

1	Introduction.....	2
2	Importing Topographic Data.....	2
3	Exporting to Tabular Data.....	3
4	Conclusion.....	5

1 Introduction

A common method of obtaining data points for two-dimensional hydrodynamic modeling is from scattered survey points or cross sections. SMS can import delimited text files which can then be triangulated.

The data used in most of this tutorial is from where I-35 crosses the Cimarron River in Oklahoma in the United States.

2 Importing Topographic Data

Start by importing data from a tab-delimited text file by doing the following:

1. Start by launching SMS. If it is already launched, press *Ctrl+N* to reset to the default settings. Click **Don't Save** if asked to save changes.
2. Select *File | Open...* to bring up the *Open* dialog.
3. Browse to the *data files* folder for this tutorial.
4. Select "cimarron_survey_tab.txt" and click **Open** to exit the *Open* dialog and bring up the *Step 1 of 2* page of the *File Import Wizard* dialog.

This dialog provides options to specify delimiters and a starting point for importing delimited data.

5. In the *File import options* section, turn on *Space* under *Set the column delimiters*.
6. Below the *File import options* section, enter "2" as the *Start import at row* and turn off *Heading row*.
7. Click **Next >** to accept the other defaults and go to the *Step 2 of 2* page of the *File Import Wizard* dialog.
8. Select "Scatter Set" from the *SMS data type* drop-down.

This tells SMS to import the delimited data as scatter points.

9. In the *Mapping options* section, make sure *Triangulate data* is turned on.

This tells SMS to triangulate the points into a TIN.

10. Click **Finish** to close the *File Import Wizard* dialog and import the data.
11. Select *Display | Display Options...* to bring up the *Display Options* dialog.
12. Select "Scatter" from the list on the left.
13. On the *Scatter* tab, turn on *Points*.
14. Click **OK** to close the *Display Options* dialog.
15. **Frame**  the project.

The project should appear similar to Figure 1.

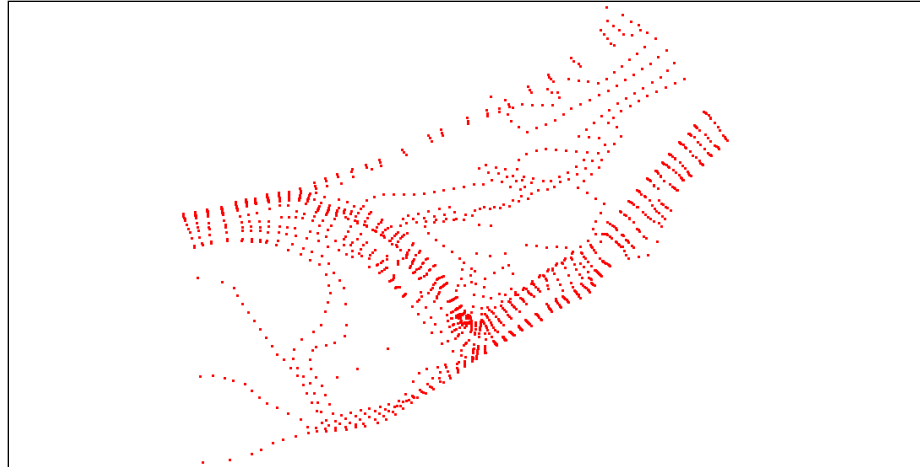


Figure 1 Imported delimited data displayed as a scatter set

Now adjust the display settings to see the TIN triangles and the surface contour data.

16. Click **Display Options**  to bring up the *Display Options* dialog.
17. Select “Scatter” from the list on the left.
18. On the *Scatter* tab, turn on *Triangles* and *Contours*.
19. On the *Contours* tab, in the *Contour method* section, select “Color Fill” from the first drop-down.
20. Click **OK** to exit the *Display Options* dialog.

The project should appear similar to Figure 2.

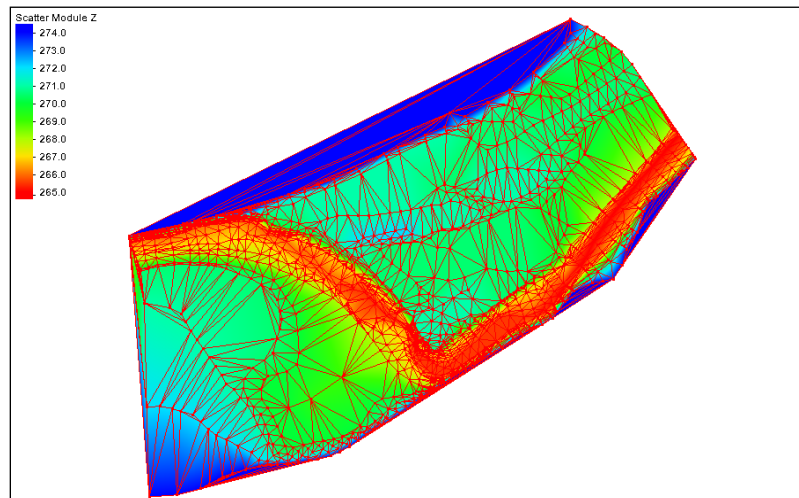


Figure 2 Triangulated and contoured data points

3 Exporting to Tabular Data

Data in SMS can be exported into a tabular format from SMS for use in other software. Start with importing a project containing a mesh.

1. Select *File* | **New** to clear out the data in SMS.

2. When asked to confirm deletion of all data, click **Don't Save**.
3. Click **Open**  to bring up the *Open* dialog.
4. Browse to the *data files* folder for this tutorial.
5. Select “Cimarron.sms” and click **Open** to exit the *Open* dialog.

The project should appear similar to Figure 3.

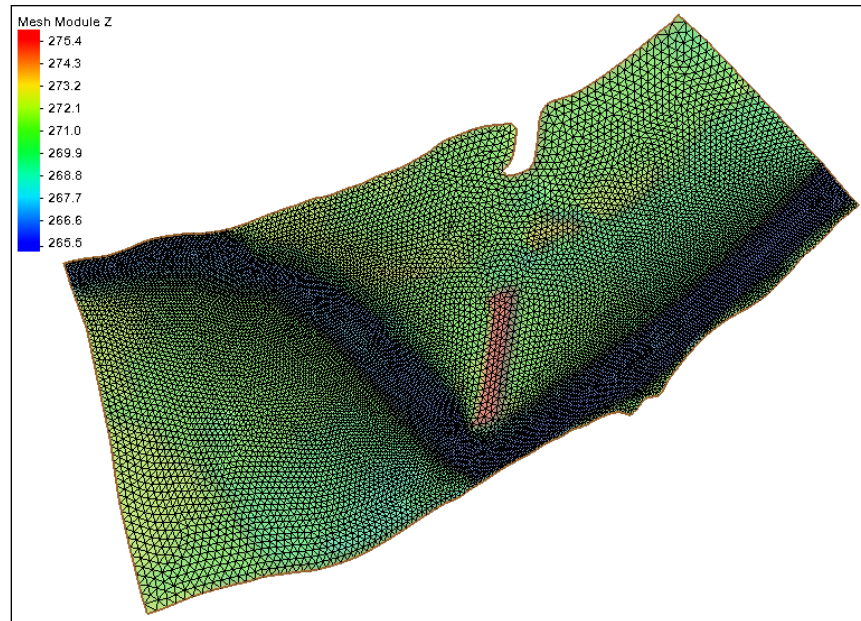


Figure 3 Imported mesh

To export the mesh as a tab-delimited text file, do the following:

6. In the Project Explorer, select “ Mesh” to make it active.
7. Select *File* | **Save As...** to bring up the *Save As* dialog.
8. Select “Tabular Data Files (*.txt)” from the *Save as type* drop-down.
9. Enter “cimarron_tabular2.txt” as the *File name*.
10. Click **Save** to close the *Save As* dialog and open the *Export Tabular File* dialog.

The *Export Tabular File* dialog allows defining how the mesh data will be saved in the text file.

11. In the *Options* section, enter “4” as the *Number of Columns*.
12. In the spreadsheet, in column 1, click the **Data...** button in the *Data* row to open the *Format Column Data* dialog.
13. In the *Dataset to Export* section, select “x location” and click **OK** to close the *Format Column Data* dialog.
14. In column 2, on the *Data* row, click the **Data...** button to open the *Format Column Data* dialog.
15. In the *Dataset to Export* section, select “y location” from the tree list and click **OK** to close the *Format Column Data* dialog.
16. In column 3, on the *Data* row, click the **Data...** button to open the *Format Column Data* dialog.

17. In the *Dataset to Export* section, select “Z” from the tree list and click **OK** to close the *Format Column Data* dialog.
18. In column 4, on the *Data* row, click the **Data...** button to open the *Format Column Data* dialog.
19. In the *Dataset to Export* section, select “Velocity” from the tree list.

Because the “ Velocity” dataset is transient, it must be specified which time steps will be included in the text file.

20. In the *Timesteps to Export* section, change *Export* to “timestep range”.
21. Change the *Last* drop-down menu to be “0 04:00:00”. This will include all time steps.
22. Click **OK** to close the *Format Column Data* dialog.
23. Turn on *Column Headings*.
24. Enter “X” on the *Heading* row in column 1.
25. Repeat step 24 for columns 2, 3, and 4, entering “Y”, “Z”, and “Velocity” respectively for the *Heading* row.
26. Click **OK** to exit the *Export Tabular File* dialog and save the file.

4 Conclusion

This concludes the “Scatter Data – Import/Export” tutorial. It reviewed some of the features that SMS provides for importing and exporting scatter data. Feel free to continue experimenting with the interface, or exit the program.