
Using This Manual

The Contents of This Manual

The TGrid User's Guide tells you what you need to know to use TGrid. Chapters 6 through 15 describe the menus that appear at the top of the TGrid window and explain the use of the associated graphical user interface menu items and the text interface menu items. The appendices contain information about importing boundary and volume meshes, the mesh file format, tips, troubleshooting, and the shortcut keys and query functions available in TGrid to make your task easier. At the end of the User's Guide, you will find a glossary, a bibliography, and the index.



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A brief description of what's in each chapter follows:

- Chapter 1: [Introduction to TGrid](#) gives you an overview of unstructured grid generation and describes the way in which TGrid interacts with other products.
- Chapter 2: [Getting Started](#) gives an overview of the problem setup steps. In this chapter you will also find information about starting TGrid.
- Chapter 3: [Graphical User Interface](#) describes the using of the graphical user interface. It also explains how to use the TGrid on-line help system.
- Chapter 4: [Sample Session](#) presents a sample TGrid session that you can work through at your own pace.
- Chapter 5: [Text User Interface](#) describes the use of the text interface and options associated with it. See the separate Text Command List for information about specific text interface commands.
- Chapter 6: [File Types](#) contains information about the files that TGrid can read and write (including hardcopy files).
- Chapter 7: [Manipulating the Boundary Mesh](#) explains the need for a high-quality boundary mesh and describes various options available to create such mesh.

- Chapter 8: [Wrapping Boundaries](#) contains information about creating a high-quality boundary mesh starting from bad surface mesh using the surface wrapper tool.
- Chapter 9: [Creating a Mesh](#) describes the meshing strategy and creation of pyramids, non-conformals, and heat exchanger mesh.
- Chapter 10: [Generating Prisms](#) describes the procedure to create prism mesh. It also explains how to deal with common problems that can be faced while creating prisms.
- Chapter 11: [Generating Triangular/Tetrahedral Meshes](#) describes the meshing procedures for triangular and tetrahedral meshes.
- Chapter 12: [Generating the Hexcore Mesh](#) describes the procedure and options for creating hexcore meshes.
- Chapter 13: [Improving the Mesh](#) describes the options available for improving the quality of a volume mesh.
- Chapter 14: [Examining the Mesh](#) describes the methods available for checking the mesh graphically.
- Chapter 15: [Reporting Mesh Statistics](#) describes methods for checking the mesh diagnostically.
- Appendix A: [Importing Boundary and Volume Meshes](#) describes filters that you can use to convert data from various software packages to a form that TGrid can accept.
- Appendix B: [Mesh File Format](#) describes the format of the TGrid mesh file.
- Appendix C: [Shortcut Keys](#) lists all the hotkeys (shortcut keys) available in TGrid.
- Appendix D: [Query Functions](#) lists the query functions available in TGrid.
- Appendix E: [Tips](#) contains information on tips that will be useful to you while working on TGrid.

The Contents of Other Manuals

In addition to this User's Guide, there are two more manuals available to help you use TGrid:

- The **Tutorial Guide** contains example problems. Each tutorial contains detailed instructions on performing the tasks associated with it.
- The **Text Command List** provides a brief description of the commands in the TGrid text interface.

How To Use This Manual

Depending on your familiarity with computational fluid dynamics (CFD) and the TGrid software, you can use this manual in different ways.

For the Beginner

The suggested readings for the beginner are as follows:

- For information about how TGrid relates to and interacts with other products, or about the motivation for unstructured grid generation, read [Chapter 1: Introduction to TGrid](#).
- To learn more about the user interface, read [Chapters 3 and 5](#).
- To learn about reading and writing files, see [Chapter 6: File Types](#).
- For information about checking and improving a boundary mesh, see [Chapter 7: Manipulating the Boundary Mesh](#).
- To find out about the different types of meshes that TGrid can generate, the meshing processes, and how to solve or avoid meshing problems, see [Chapters 9–12](#).
- To learn about checking the quality of the mesh, see [Chapters 14 and 15](#).
- To find out how to use the on-line help in TGrid, read [Section 3.6: Using the GUI Help System](#).

Depending on the characteristics of your particular problem, and the tools you want to employ, use the table of contents and the indexes to find the relevant information.



For the Experienced User

If you are an experienced user who needs to look up specific information, there are different tools that allow you to use the TGrid User's Guide as a reference manual.

- The table of contents, lists topics that are discussed in a procedural order, enabling you to find material relating to a particular procedural step.
- The Index, allows you to access information about a particular subject.

Typographical Conventions Used In This Manual

Several typographical conventions are used in the text of this manual to facilitate your learning process.

- An informational icon () marks an important note.
- A warning icon () marks an important note or warning.
- Different type styles are used to indicate graphical user interface menu items and text interface menu items (e.g., **Display Grid** panel, `display/grid` command).
- The text interface type style is also used when illustrating exactly what appears on the screen or exactly what you need to type into a field in a panel.
- A mini flow chart is used to indicate the menu selections that lead you to a specific panel. For example,

Display → Grid...

indicates that the **Grid...** menu item can be selected from the **Display** pull-down menu at the top of the TGrid console window.

The words surrounded by boxes invoke menus (or submenus) and the arrows point from a specific menu toward the item you should select from that menu. In this manual, mini flow charts usually precede a description of a panel or a screen illustration showing how to use the panel. They allow you to look up information about a panel and quickly determine how to access it without having to search the preceding material.

- The menu selections that will lead you to a particular panel are also indicated (usually within a paragraph) using a “/”. For example, **Display/**Grid... tells you to choose **Grid...** from the **Display** menu.

Contacting Technical Support

The support engineers can help you to plan your CFD modeling projects and to overcome any difficulties you encounter while using TGrid. If you encounter difficulties we invite you to call your support engineer for assistance. However, there are a few things that we encourage you to do before calling:

- Read the section(s) of the manual containing information on the commands you are trying to use or the type of problem you are trying to solve.
- Recall the exact steps you were following that led up to and caused the problem.

- Write down the exact error message that appeared, if any.
- For particularly difficult problems, save a transcript file of the TGrid session in which the problem occurred. This is the best source that we can use to reproduce the problem and thereby help to identify the cause.

