Introduction

Overview

This introduction provides an overview of the capabilities and features of NCSA UIFlow on the color-equipped Macintosh. The organization and use of this manual are described and notational conventions are explained.

What is NCSA UIFlow?

NCSA UIFlow is a software tool developed to help scientists visually create fluid dynamics datasets. Specifically, NCSA UIFlow acts as a pre-processor for UIFlow2D, a fluid dynamics program which can be run remotely on Cray computer systems or locally on a Macintosh. NCSA UIFlow takes the visual data created by the user and converts it to a form which UIFlow2D understands. NCSA UIFlow uses NCSA's Data Transfer Mechanism (DTM) when connecting to a remote host and running UIFlow2D.

This work was funded in part by Wright-Patterson AFB, Ohio. UIFlow2D was developed at the Department of Mechanical Engineering at the University of Illinois by Pratap Vanka and Kevin Cope. The UIFlow preprocessor was designed and created at NCSA by Tom Redman and Kim Stephenson.

Special Features

NCSA UIFlow allows you to:

- specify Wall Types for segments along the dataset's boundary

- create grid divisions to allow additional calculations without creating additional segments

- create baffles and obstacles within the boundaries

- specify the data returned by the UIFlow2D program

- specify what the geometry represents in terms of the compressibility and density of the fluid

- create files automatically in a format compatible with the UIFlow2D program

- customizes your data using detailed options

- magnifies your geometry to better view specific portions of the dataset

System Requirements

To use NCSA UIFlow, you need a Macintosh with 256 color capabilities, at least one megabyte of RAM and a monitor.

Use of This Manual

This section describes the scope and organization of this manual, and the conventions and nomenclature used in developing it.

Before using NCSA UIFlow, you should know how to use the mouse, issue commands from menus, work with windows, and locate files using directory dialog boxes. If you have not used the Macintosh before or need more information regarding these procedures, you may wish to refer to your Macintosh user's guide before using this package.

Manual Contents

This manual is organized into the following chapters:

Chapter 1, "NCSA UIFlow Tutorial," introduces the basic steps involved in using NCSA UIFlow for the Macintosh: starting the program; creating and editing datasets within the Geometry View window; saving and loading datasets; and quitting the program.

Chapter 2, "The Geometry Window," discusses the features and tools available in the working window of the program.

Chapter 3, "NCSA UIFlow Menus," describes in detail each of the commands found in the menus of NCSA UIFlow's menu bar.

Form of Presentation

The material in this tutorial is presented in text, screen displays, or entry format notation.

Text
In explaining various features and commands, this tutorial will present a word within a paragraph in *italics* to indicate that the word is defined within the paragraph.

Portions of this tutorial refer to other sections or chapters of the manual where related topics are discussed. These cross references usually indicate the title of sections or chapters enclosed in

quotation marks, such as, See Chapter 1, "NCSA UIFlow Tutorial."

Command Line Format Notation

Throughout this tutorial, several explanations instruct you to make entries by typing on the keyboard. These entry instructions are printed in `courier bold type` and appear within a paragraph or on a separate line. The command lines in this manual are normally shown in lower case.

Keys that are labeled with more than one character (such as the **RETURN** key) are identified with all uppercase letters. Keys are printed in bold type. Keys that are to be pressed simultaneously or in succession are linked with a hyphen. For example, press **CONTROL-A**.

The meaning of each special notation applied to format lines is listed in Table I.1.

Table I.1 **Meaning of Entry Format Notations**

Appearance	Example	Entry Method
On separate line; lowercase, courier bold type	`dothis`	Enter the keys for each character.
Within a text line; uppercase	RETURN	Press the single key indicated.
Within a text line; uppercase;	CONTROL-A	While holding down the first one or two key(s) hyphens between key names indicated, press the last key indicated.
On separate line or within a text line; italic, lowercase, courier bold type	*filename*	This notation is a variable, which represents a certain kind of entry, but may consist of different characters every time you make the entry.

Figure I.1 shows you how to read and enter a command line.

Figure I.1 **Reading and Entering a Command Line**