

Making Waves

You can make waves by:

- Loading data from a file
- Typing or pasting in a table
- Using the **Make** operation (via a dialog or directly from the command line)
- Using the **Duplicate** operation (via a dialog or directly from the command line)

Most people start by loading data from a file. Igor can load data from text files. In this case, Igor makes a wave for each column of text in the file. Igor can also load data from binary files or application-specific files created by other programs. For information on loading data from files, see **Importing Data** on page II-126.

You can enter data manually into a table. This is recommended only if you have a small amount of data. See **Using a Table to Create New Waves** on page II-239.

To synthesize data with a mathematical expression, you would start by making a wave using the **Make** operation (see page V-526). This operation is also often used inside an Igor procedure to make waves for temporary use.

The **Duplicate** operation (see page V-185) is an important and handy tool. Many built-in operations transform data in place. Thus, if you want to keep your original data as well as the transformed copy of it, use **Duplicate** to make a clone of the original.

Wave Names

All waves in Igor have names so that you can reference them from commands. You also use a wave's name to select it from a list or pop-up menu in Igor dialogs or to reference it in a waveform assignment statement.

You need to choose wave names when you use the **Make**, **Duplicate** or **Rename** operations via dialogs, directly from the command line, and when you use the Data Browser.

All names in Igor are case insensitive; wave0 and WAVE0 refer to the same wave.

The rules for the kind of characters that you can use to make a wave name fall into two categories: standard and liberal. Both standard and liberal names are limited to 255 bytes in length.

Prior to Igor Pro 8.00, wave names were limited to 31 bytes. If you use long wave names, your wave and experiment files will require Igor Pro 8.00 or later.

Standard names must start with an alphabetic character (A - Z or a-z) and may contain ASCII alphabetic and numeric characters and the underscore character only. Other characters, including spaces, dashes and periods and non-ASCII characters are not allowed. We put this restriction on standard names so that Igor can identify them unambiguously in commands, including waveform assignment statements.

Liberal names, on the other hand, can contain any character except control characters (such as tab or carriage return) and the following four characters:

" " : ;

Standard names can be used without quotation in commands and expressions but liberal names must be quoted. For example:

```
Make wave0; wave0 = p           // wave0 is a standard name
Make 'wave 0'; 'wave 0' = p     // 'wave 0' is a liberal name
```

Igor can not unambiguously identify liberal names in commands unless they are quoted. For example, in wave0 = miles/hour

miles/hour could be a single wave or it could be the quotient of two waves.