Chapter 4

Utilities

HEC-DSSVue utilities allow you to tabulate, edit, copy, rename, and delete data, manually enter data, create and edit scripts, and perform math functions, as well as merge and squeeze HEC-DSS files.

This chapter provides guidance in using these utilities and also shows you how to print, copy, and export tabular HEC-DSS data.

4.1 Viewing Tabular Data

Figure 4.1 shows an example table produced using HEC-DSSVue. Tables allow you to view and edit HEC-DSS data in a vertical scrolling window that shows the ordinate (starting from the start date/time), the date and time stamp, and the values for the selected data sets. From the **File** menu of the table window, you can view the tabular data in plot format by clicking **Plot**.

//BEECH CREEK STA/FLOW-REG--INST/01...

File Edit View

Ordinate	Date / Time	BEECH C... FLOW-RE... DCP-REV	BEECH C... STAGE--I... DCP-REV
Units		cms	m
1	01 Dec 93 12:03	106.70	3.1760
2	01 Dec 93 13:03	107.75	3.1852
3	01 Dec 93 14:03	106.70	3.1760
4	01 Dec 93 15:03	106.70	3.1760
5	01 Dec 93 16:03	105.65	3.1669
6	01 Dec 93 17:03	105.65	3.1669
7	01 Dec 93 18:03	104.59	3.1577
8	01 Dec 93 19:03	104.59	3.1577
9	01 Dec 93 20:03	103.54	3.1486
10	01 Dec 93 21:03	103.54	3.1486
11	01 Dec 93 22:03	103.54	3.1486
12	01 Dec 93 23:03	102.49	3.1394
13	02 Dec 93 00:03	101.44	3.1303
14	02 Dec 93 01:03	101.44	3.1303
15	02 Dec 93 02:03	100.39	3.1212
16	02 Dec 93 03:03	99.33	3.1120

Figure 4.1 Example Tabulation from HEC-DSSVue

4.1.1 Accessing Tables

To access tables, first select the pathnames of the records you wish to view. There are several ways to select pathnames:

- Double-click on an individual pathname in the HEC-DSS Pathname List.
- Highlight a pathname in the HEC-DSS Pathname List then click the **Select** button. Until you select a pathname, the **Select** button remains inactive.
- Click and drag your mouse to select a series of pathnames, and then click the **Select** button. You can also use **Ctrl+Click** to select multiple, non-consecutive pathnames.
- If you wish to select all of the pathnames for visualization, from the **Edit** menu, click **Select All**.
- If no pathnames are in the selection list, individual pathnames can just be highlighted for quick selection.

When you select a pathname, it will appear in the **Selected Pathnames List**.

Once you have selected the pathnames you want to visualize, you can open a table by clicking on the **Tabulate** button, or from the **Display** menu, by clicking **Tabulate**.

4.1.2 Customizing the Display of Tabular Data

In HEC-DSSVue tables you have several options for displaying data.

From the **View** menu, you can choose to display commas in numbers by selecting the **Commas** command. The date and time of the data can be tabulated in separate columns by selecting **Date and Time Separately**. To have the dates display the years with four digits, select **Date With 4 Digit Years**. You can set the precision of decimal places for your data by selecting **Decimal Places** and selecting the number of decimal places you wish to display.

4.2 Editing Tabular Data

In HEC-DSSVue, you can edit data directly in tables.

From the **Edit** menu of the table, select **Allow Editing** (Figure 4.2) to manually edit the data in the table. When this option is checked, the **Cut** and **Paste** commands also become available in the menu.

You can also use **shortcut menu** commands to edit multiple selected cells in tables (Figure 4.3).

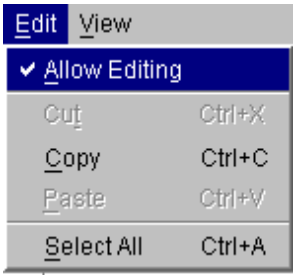

Figure 4.2 Edit menu - Allow Editing option

If you make any edits, HEC-DSSVue prompts you can save your changes with the **Save** or **Save As** items under the **File** menu. If you do not save your data, HEC-DSSVue will prompt you to save your changes when you close the window.

4.2.1 Selecting Table Cells

To select an individual table cell, double-click on it.

To select several consecutive cells, click and drag your mouse. You can also use **Ctrl+Click** to select multiple, non-consecutive records.

If you wish to select all rows in a table, from the **shortcut menu**, click **Select All** (Figure 4.3).

Figure 4.3 Shortcut Menu

4.2.2 Cutting and Pasting Data

The **Cut** command removes data from its current location and places it on the clipboard in ASCII format. For regular-interval time series data, the **Cut** command will replace the data values with missing flags.

You can cut data from one set of cells and paste them into another set of cells (in the same table or another table). To do this:

1. From the **View** menu of the table (or tables), click **Allow Editing**.
2. Select the cells you want to cut.
3. From either the **View** menu or the **shortcut menu** (Figure 4.3), click **Cut**.
4. Select the cells where you want to move the data.
5. From either the **View** menu or the **shortcut menu** (Figure 4.3), click **Paste**.

4.2.3 Copying and Pasting Data

The **Copy** command places the selected data on the clipboard in ASCII format. You can also copy data from one set of cells to another. To do this:

1. Select **Allow Editing** from the **View** menu of the table (or tables).
2. Select the cells you want to copy.
3. Choose **Copy** from either the **View** menu or the **shortcut menu** (Figure 4.3) of the table.
4. Select the cells where you want to copy the data.
5. Choose **Paste** from either the **View** menu or the **shortcut menu** (Figure 4.3) of the table.

You can also use the **Copy** command to copy and paste data into another application, such as Microsoft Excel or Word.

4.2.4 Clearing Table Cells

When you clear table cells, the data is not saved on the clipboard, so you cannot later paste the data back into the table. For regular-interval time series data, the **Clear** command will replace the data values with missing flags. To clear table cells:

1. From the **View** menu of the table (or tables), click **Allow Editing**.
2. Select the cells you want to clear.
3. From the **shortcut menu** of the table (Figure 4.3), click **Clear**.

4.2.5 Appending Rows

Appending rows is automatic when editing data. When you set the table into edit mode, two blank rows appear at the end of the table where you can enter data. After you enter data for a row, an additional blank row appears. When you save the data, any blank rows at the end of the table are removed automatically.

4.2.6 Deleting Rows

You may delete rows from a table when working with irregular-interval time series data and paired data. To delete a row from a table, first select the row (see Section 4.2.1). Next, from the **shortcut menu** (Figure 4.3), click **Delete Row(s)**.

If you are working with regular interval time series data, you will not be able to delete rows; instead, change the data to missing data flags (-901.)

4.3 Printing, Copying, and Exporting Tables

HEC-DSSVue tables offer several commands that allow you to print as well as export or copy, and paste plots into other applications such as Microsoft Excel and Word.

4.3.1 Printing Tables

You can access the **Print** command from either the **File** menu (Figure 4.5) or from the **shortcut menu** (Figure 4.6) of the table window. The **Print Preview** command is also available in the shortcut menu.

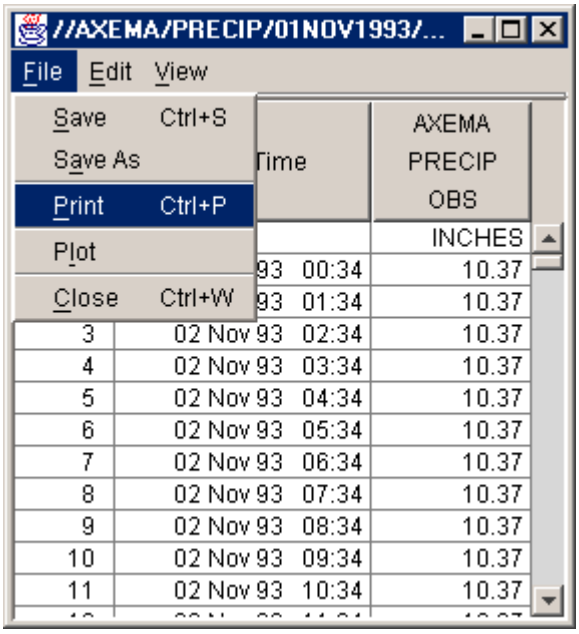

Figure 4.5 File Menu--Table Window

Figure 4.6 Shortcut Menu--Print Command

In a table, the **Print** and **Print Preview** commands open the **Print Properties** dialog box (Figure 4.7), which offers options on three tabs.

The **Page** tab allows you to specify the page Orientation, Scaling, and Selection; you can also choose to print the table as ASCII, Repeat Headers on every page, and print the Gridlines.

On the **Header/Footer** tab, you can type in the header and footer you want to appear on your printed pages.

The **Table Title** tab offers a default title for the table based on the data source. You may edit this title.

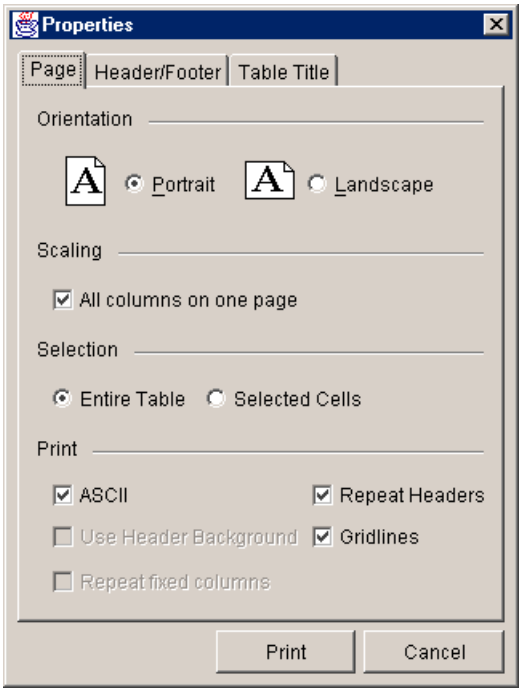

Figure 4.7 Print Properties Dialog Box

On the **Print Properties** dialog box, the **Print** button performs two functions, depending on whether you arrived at the dialog box via the **Print** command or the **Print Preview** command.

From the **Print Preview** command on the shortcut menu, the **Print** button on the **Print Properties** dialog box opens a **Print Preview** window, which allows you to view the table as it will be printed. Figure 4.8 shows an example. You can click the **Print** button in the Print Preview window to print your table.

From the **Print** command, the **Print** button on the **Print Properties** dialog box opens a Windows-style print dialog box, where you can choose your printer, set printer properties, and specify the number of copies to print. You can also print your table to a file instead of to a printer.

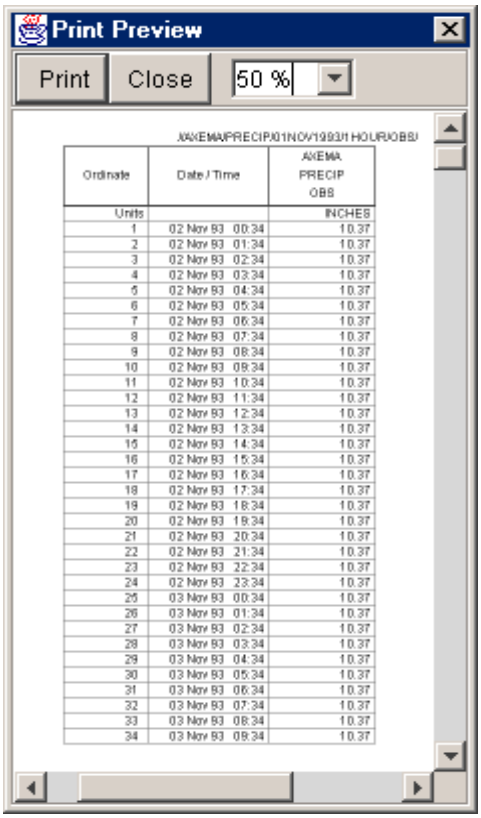

Figure 4.8 Print Preview of a Table (Example)

4.3.2 Exporting Tables

From the **shortcut menu**, click **Export** to export a table to a file, which you can then open in another application.

The **Export** command opens the **Table Export Options** dialog box (Figure 4.9).

In the **Table Export Options** dialog box, you can choose the **Field Delimiter** (tab, space, comma, or colon), specify **Fixed-Width Columns**, choose to display **Quoted Strings**, **Include Column Headers**, and opt to **Print Gridlines** and **Title**.

Figure 4.9 Table Export Options Dialog Box

4.3.3 Copying Tables to the Clipboard for Use in Other Applications

To copy a table to the clipboard, click **Copy** from the table window's **Edit** menu (Figure 4.10). You can also right-click inside the table and select **Copy** from the **shortcut menu** (Figure 4.11). You can then paste the table as tab-separated values into another application such as Microsoft Excel or Word.

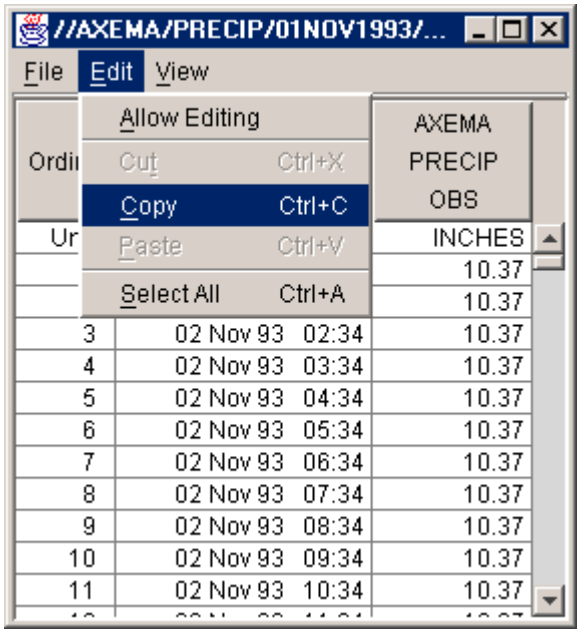

Figure 4.10 Edit Menu--Table Window

Figure 4.11 Shortcut Menu--Copy Command

4.4 Entering Data Manually

You can enter time series and paired data manually using the Manual Data Entry editors available from the **Utilities** menu.

4.4.1 Entering Time Series Data Manually

To enter time series data manually:

1. From the **Utilities** menu, choose **Manual Data Entry**, and then select **Time Series**. The **Manual Time Series Data Entry** dialog box (Figure 4.12) will open.

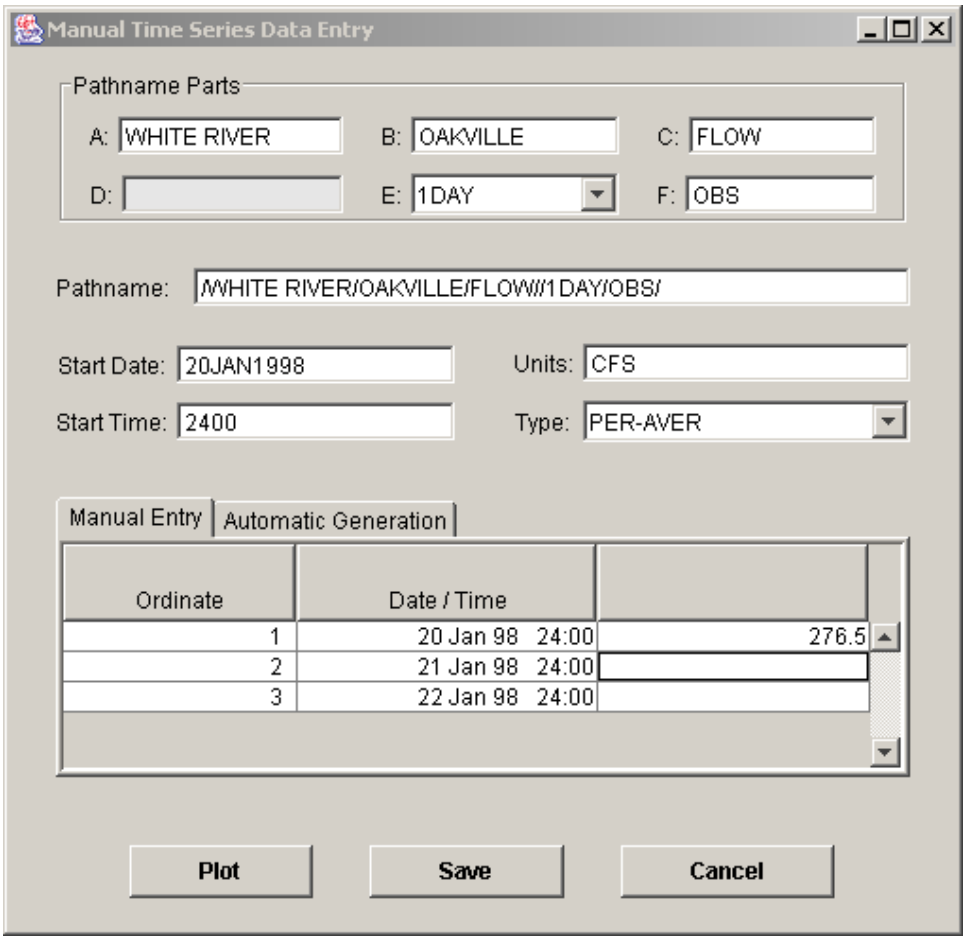

Figure 4.12 HEC-DSSVue Manual Time Series Data Entry Dialog Box

2. Type the **Pathname Parts** into the A, B, C, and F boxes, then select the appropriate time interval for the E box. The complete pathname will automatically appear in the **Pathname** box. You can also enter the pathname into the **Pathname** box; the parts will appear in the **Pathname Parts** boxes. You cannot enter the "D" (date) part, as this is set according to your **Start Date**).

3. Enter the **Start Date** (*e.g.,* 25Mar2002) and **Start Time** (*e.g.,* 1400).
4. Enter the **Units** (*e.g.,* CFS)
5. From the **Type** list, select a data type. Your options are *PER-AVER*, *INST-VAL*, *PER-CUM*, and *INST-CUM*.
6. For regular-interval time series data, the Date/Time boxes in the table will fill in automatically according to the start date and time you have entered. For irregular-interval data, you will need to enter a date and time for each data value.
7. Type the data values into the third column.
8. To view the data in plot form, click the **Plot** button.
9. To save the new time series record, click **Save**.

You can also automatically generate regular-interval time series data. This will fill in a single number for a time window. To generate this data:

1. Complete steps 1 through 5 (above.)
2. Select the **Automatic Generation** tab.
3. Enter the **End Date** and **End Time** for the data.
4. Enter the **Fill Value**, which is the single value for the specified time window.
5. Press the **Generate** button. This will return you to the **Manual Entry** tab, where you can plot, save, or further edit the data.

4.4.2 Entering Paired Data Manually

To enter paired data manually:

1. From the **Utilities** menu, choose **Manual Data Entry**, and then select **Paired Data**. The **Manual Paired Data Entry** dialog box dialog box (Figure 4.13) will open.

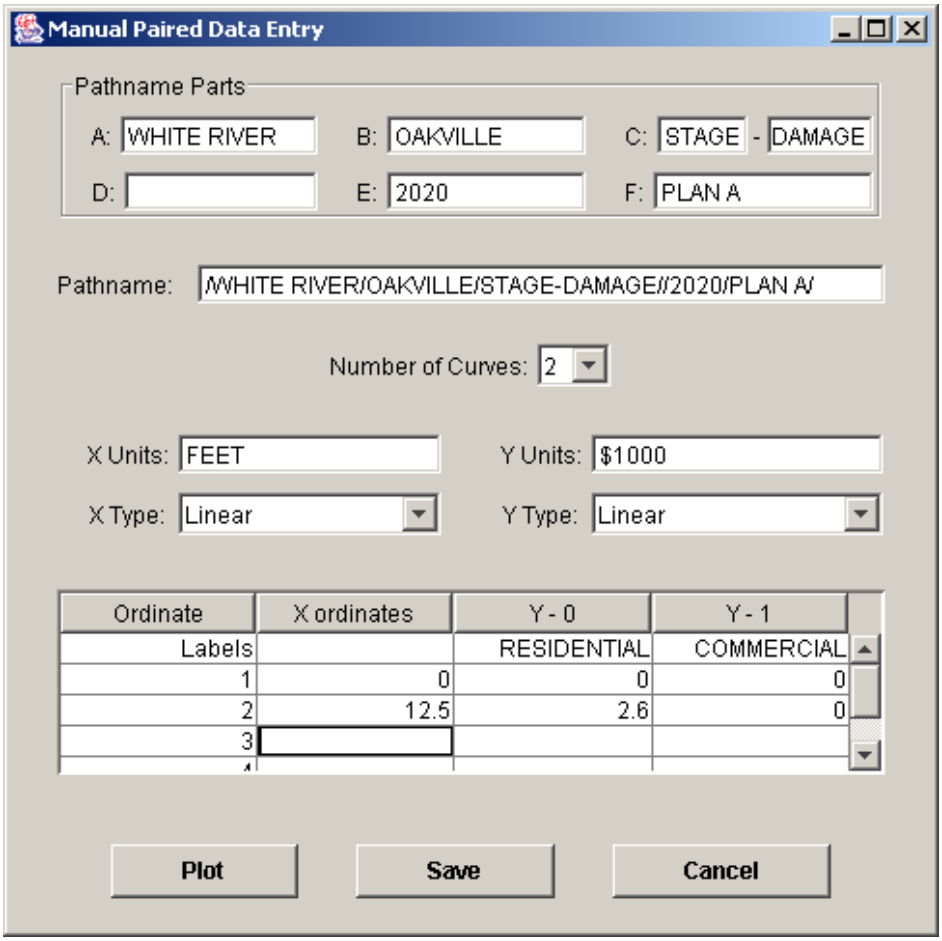

Figure 4.13 HEC-DSSVue Manual Paired Data Entry Dialog Box

2. Type the **Pathname Parts** into the A, B, C, D, E, and F boxes. The complete pathname will automatically appear in the **Pathname** box. You can also enter the pathname into the **Pathname** box; the parts will appear in the **Pathname Parts** boxes. Be sure the "C" part contains both an X parameter and a Y parameter, separated by a hyphen (e.g., STAGE-FLOW or ELEV-DAMAGE).
3. Select the **Number of Curves** for the Y parameter from the list.
4. Enter the **X Units** (belonging to the first parameter) and the **Y Units** (belonging to the second parameter).
5. Choose the **X Type** and **Y Type** from the lists. Available options are *Linear*, *Log*, and *Probability*.
6. In the table, the **Y ordinates** column will split into individual columns according to the **Number of Curves** you have specified.
7. Type the data values into the **X ordinates** and **Y ordinates** columns.
8. To view the data in plot form, click the **Plot** button.
9. To save the new time series record, click **Save**.

4.5 Renaming HEC-DSS Data in HEC-DSSVue

The **Rename** command renames record pathnames. To rename HEC-DSS records:

1. Select the record or records to rename.
2. From the **Utilities** menu, select **Rename Records**. The **Rename Records to:** dialog box (Figure 4.14) will open.

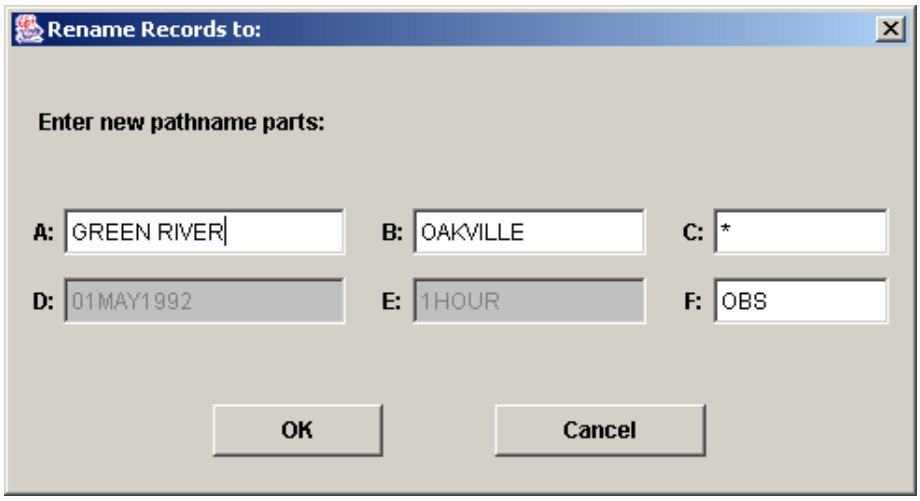

Figure 4.14 HEC-DSSVue Rename Records to Dialog Box

3. You may change one or more pathname parts or the entire record. Type the new **Pathname Parts** into the A, B, C, D, E, and F boxes. You cannot change the D or E parts for time series data (use Math Functions to accomplish this). For multiple records, pathname parts that are the same for all records will show up in the dialog. Where parts differ (such as having pathnames with C parts of FLOW and ELEVATION), the part will be displayed with an asterisk (*).
4. Click **OK**.

4.6 Copying Records into a HEC-DSS File

To copy records into another HEC-DSS file,

1. Select the record or records to copy.
2. From the **Utilities** menu, select **Copy Records**. The **Copy Records into HEC-DSS File** dialog box (Figure 4.15) will open.
3. In the **File Name** box, type in a new HEC-DSS filename or select an existing HEC-DSS File into which you want to copy the record into and click **Open**. A confirmation message will appear stating that the record has been copied to the HEC-DSS file you selected.

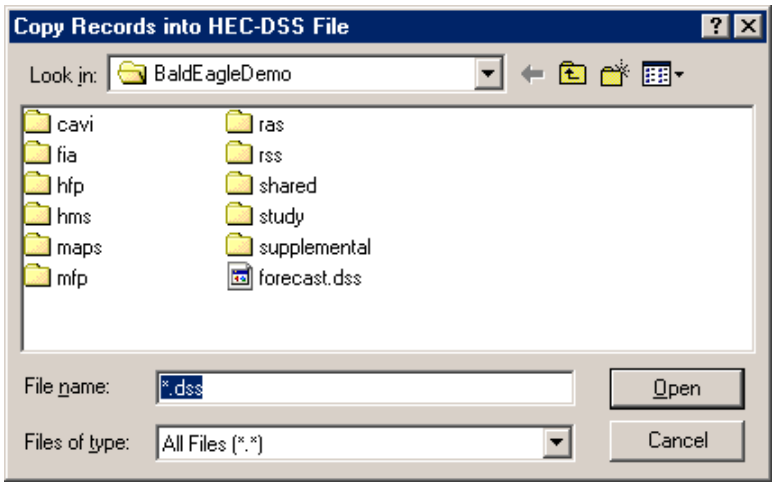

Figure 4.15 HEC-DSSVue Copy Records into HEC-DSS File Dialog Box

4.7 Duplicating Records

The **Duplicate** command duplicates records in the same HEC-DSS file, giving the new records different pathnames.

To duplicate records:

1. Select the record or records to duplicate.
2. From the Utilities menu, select **Duplicate Records**. The **New Pathname Parts for Duplicate Records** dialog box (Figure 4.16) will open.

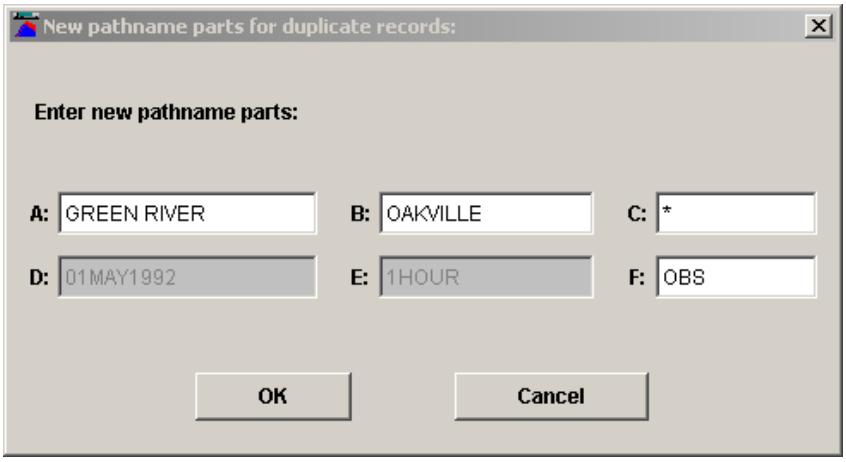

Figure 4.16 HEC-DSSVue New Pathname Parts for Duplicate Records Dialog Box

3. Type the new **Pathname Parts** into the A, B, C, D, E, and F boxes You cannot change the D or E parts for time series data (use Math Functions to accomplish this). For multiple records, pathname parts that are the same for all records will show up in the dialog. Where parts differ (such as

having pathnames with C parts of FLOW and ELEVATION), the part will be displayed with an asterisk (*).

4. Click **OK**. A confirmation message will appear, stating that the records have been duplicated.

4.8 Merging HEC-DSS Files

Merging copies all of the records in the currently opened HEC-DSS file into another. This is similar to selecting all records then using the **Copy Records** option, but is much more efficient. However, this option will overwrite any records with the same pathnames, and will not splice together time series records. To merge the current HEC-DSS file into another:

1. From the **Utilities** menu, click **Merge**. The **Merge (copy all records) into HEC-DSS File** dialog box (Figure 4.17) will open.

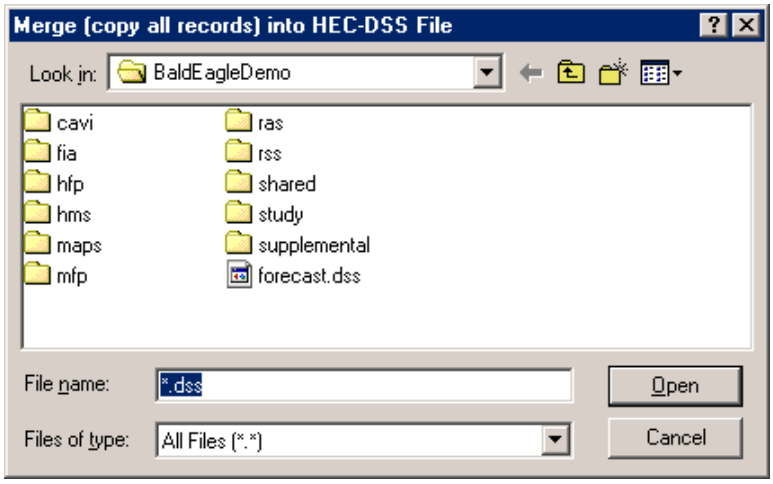

Figure 4.17 HEC-DSSVue Merge (copy all records) into HEC-DSS File Dialog Box

2. In the **File Name** box, select an existing HEC-DSS File into which you want to copy all of the records into and click **Open**. A confirmation message will appear stating that the records have been copied into the HEC-DSS file you selected.

4.9 Squeezing HEC-DSS Files

When you delete or rename records, a HEC-DSS file will accumulate inactive space. The **Squeeze** command removes inactive space by copying all valid data to a new file then renaming the new file to the old filename. The **Squeeze** command will also automatically re-adjust internal HEC-DSS table

sizes to optimize access to the data. Once a squeeze has been accomplished, deleted data cannot be recovered.

To squeeze an HEC-DSS file:

1. Open the HEC-DSS file, then, from the **Utilities** menu, click **Squeeze**. A window will appear indicating the status of the squeeze process, as shown in Figure 4.18.
2. If you wish, you may cancel the squeeze prior to completion, by pressing the **Cancel** button.
3. When the process is complete, a confirmation will appear (Figure 4.19)

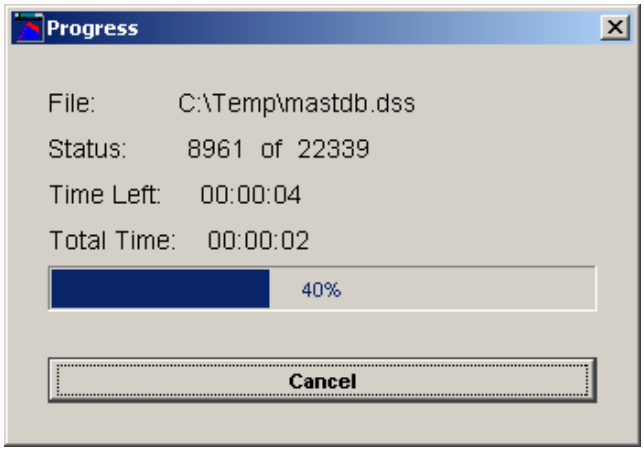

Figure 4.18 HEC-DSSVue Squeeze progress window (example)

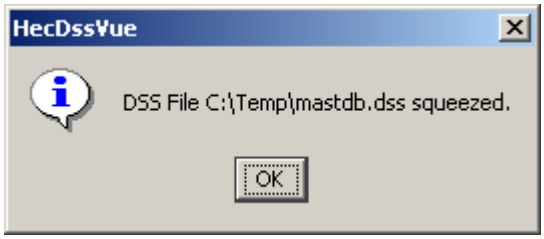

Figure 4.19 Example HEC-DSSVue Squeeze Confirmation Message

4.10 Scripting

You can use Jython scripts that you or others write, to perform math functions, create custom plots or tables, and automate repetitive tasks. To edit, test, and select scripts, use the **Script Browser**. To run scripts that have already been setup, use the **Script Selector** window. To access the **Script Browser** (Figure 4.21), from the **Utilities** menu, click **Script Browser**. To access the **Script Selector** window, from the **Utilities** menu, click **Script Selector**. For more information, refer to the chapter on **Scripting**.

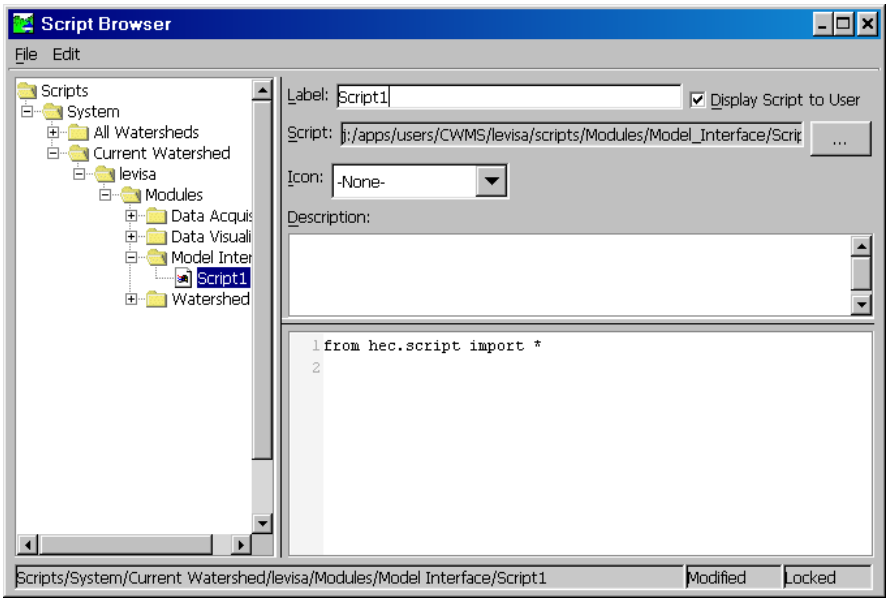

Figure 4.21 Script Browser

4.11 Performing Math Functions

To access HEC-DSSVue Math Functions, from the **Utilities** menu, click **Math Functions**. The **Math Functions** dialog box (Figure 4.22) will open.

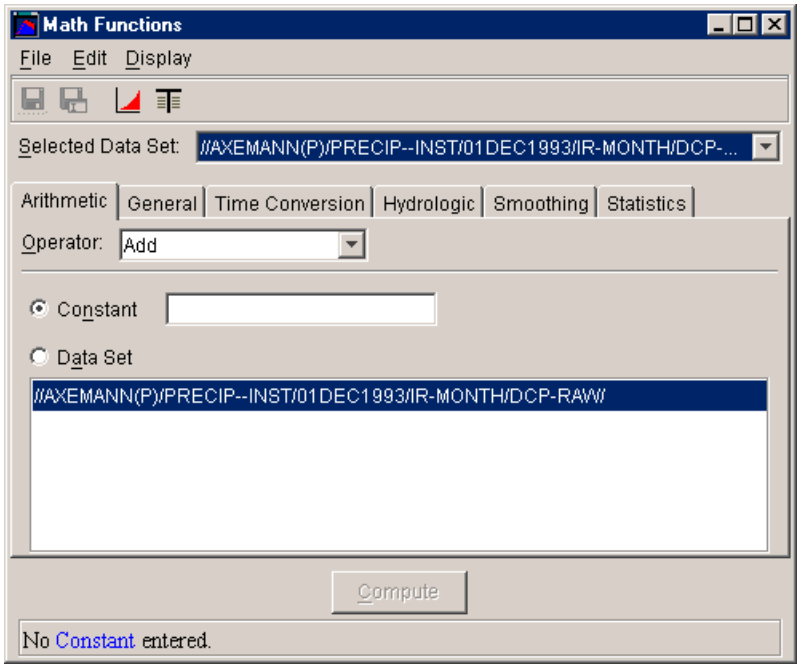

Figure 4.22 HEC-DSSVue Math Functions Dialog Box

HEC-DSSVue Math Functions facilitate the mathematical manipulation of time series and paired data sets you have selected. Available functions fall into six categories: **Arithmetic**, **General**, **Time Conversion**, **Hydrologic**, **Smoothing**, and **Statistics**. Each function category is a tab on the Math Functions screen.

Use the **Operator** list to select functions, and choose data sets from the **Selected Data Set** list. Click the **Compute** button to apply a function. The Compute button is available only if the data on the function screen is complete.

Refer to the chapters on **Math** and **Scripting** for more information about math functions and scripting in HEC-DSSVue Math.