



**US ARMY CORPS
OF ENGINEERS
Hydrologic Engineering Center**

HEC-DSS Microsoft Excel Data Exchange Add-In

November 2003

Table of Contents

1	INTRODUCTION	1
1.1	Acknowledgements.....	1
2	INSTALLATION	1
2.1	Installation Procedure	1
2.1.1	Copy Add-In Files.....	1
2.1.2	Load HEC-DSS Data Exchange Add-In.....	2
2.2	Uninstall HEC-DSS Data Exchange Add-In	3
3	OPENING AND CLOSING HEC-DSS FILES	4
3.1	Opening a HEC-DSS File	4
3.2	Creating a HEC-DSS File	5
3.3	Closing a HEC-DSS File	6
4	RETRIEVING DATA.....	7
4.1	Retrieving Data Using the Catalog	7
4.2	Retrieving Time Series Data with a Time Window	8
4.3	Retrieving Time Series Data by Group.....	10
4.4	Retrieving Paired (X-Y) data	12
5	STORING DATA	14
5.1	Storing Regular Interval Time Series Data.....	14
5.2	Storing Paired (X-Y) Data	16

List of Figures

FIGURE 1 - HEC-DSS MS EXCEL ZIP FILES	1
FIGURE 2 - DESTINATION FOR ADD-IN FILES	1
FIGURE 3 - LOADING THE ADD-IN	2
FIGURE 4 - ADD-INS DIALOG	2
FIGURE 5 – SELECTING OPEN MENU.....	4
FIGURE 6 – OPENING A DSS FILE	4
FIGURE 7 – OPEN MESSAGE BOX.....	4
FIGURE 8 – OPENED FILE IN ADD-IN TOOLBAR	5
FIGURE 9 – SELECTING NEW MENU	5
FIGURE 10 – NAVIGATING THE NEW FILE DIALOG.....	5
FIGURE 11 - CREATING A NEW DSS FILE DIALOG	6
FIGURE 12 –CLOSE MENU	6
FIGURE 13 - SELECTING CATALOG MENU	7
FIGURE 14 - CATALOG OPTIONS DIALOG	7
FIGURE 15 – RETRIEVE DATA DIALOG.....	8
FIGURE 16 - RETRIEVING TIME SERIES BY SELECTION MENU.....	8
FIGURE 17 - CATALOG OPTIONS DIALOG	9
FIGURE 18 - RETRIEVE TIME SERIES DATA DIALOG	9
FIGURE 19 - DEFINING A GROUP OF TIME SERIES RECORDS	10
FIGURE 20 - RETRIEVING TIME SERIES BY GROUP MENU	11
FIGURE 21 – REGULAR TIME SERIES DATA GROUP DIALOG	11
FIGURE 22 - SELECTING PAIRED DATA MENU	12
FIGURE 23 - CATALOG OPTIONS DIALOG	12
FIGURE 24 – PAIRED DATA RETRIEVAL DIALOG.....	13
FIGURE 25 - STORE TIME SERIES DATA MENU	14
FIGURE 26 –SELECTING TIME SERIES DATA TO BE STORED.....	15
FIGURE 27 - STORING TIME SERIES DATA DIALOG	15
FIGURE 28 - STORE PAIRED DATA MENU	16
FIGURE 29 - SELECTING PAIRED DATA TO BE STORED	16
FIGURE 30 - STORE PAIRED DATA DIALOG	17

1 Introduction

1.1 Introduction

The HEC-DSS MS Excel Data Exchange Add-In is a Visual Basic application for retrieving and storing both regular interval time series and paired data directly from Excel to an HEC-DSS database file. The exchange of irregular interval data has not been implemented at this time. Installation of this Application consists of copying files to the MS Excel program area, then loading the Application as an Add-In from the Excel Tools Menu. Once loaded, a DSS tool bar is displayed in the Excel toolbar area.

Data sets to retrieve are selected from a catalog listing directly available from MS Excel. For time series data, an optional time window can be specified to select portions of a DSS record or to span several records. Imported time series data is brought into a separate sheet labeled "Retrieved TS". Paired data is loaded into a sheet named "Retrieved PD".

With the HEC-DSS Data Exchange Add-In, data can be stored directly from MS Excel into an HEC-DSS database file. The format of the data in Excel must match that of a retrieved data set. When storing data the pathname parts, units, type, start and end date and time, and the data set must be selected.

This document assumes that the user is familiar with HEC-DSS and the conventions used within it. More information on HEC-DSS can be found in the HEC-DSS Vue Introduction Chapter 1, available on the HEC web site at:

<http://www.hec.usace.army.mil/software/hec-dss/hecdssvue-documentation.htm>

1.2 Acknowledgements

The HEC-DSS MS Excel Data Exchange Add-In was originally written and maintained by Dr. Kenneth Kirby. He has graciously provided it to the Hydrologic Engineering Center for distribution free of charge.

2 Installation

2.1 Installation Procedure

2.1.1 Copy Add-In Files

1. Copy the file “hlib42.dll” from the zip file, CD, or network server to the “C:\Program Files\Microsoft Office\Office” folder on your computer, assuming that you installed MS Excel to the “Program Files” directory on your C drive. For MS Office XP, the folder will be “Office10”, instead of “Office”.

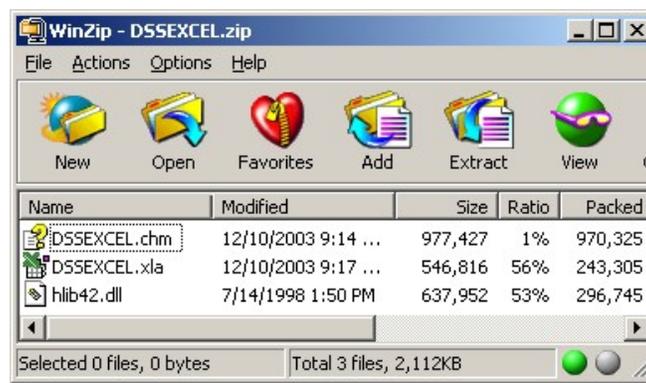


Figure 1 - HEC-DSS MS Excel Zip files

2. Copy the files DSSEXCEL.XLA and DSSEXCEL.CHM from the zip file, CD, or network server to the “C:\Program Files\Microsoft Office\Office\Library” folder on your computer, assuming that you installed MS Excel to the “Program Files” directory on your C drive. For MS Office XP, the folder will be “Office10”, instead of “Office”.

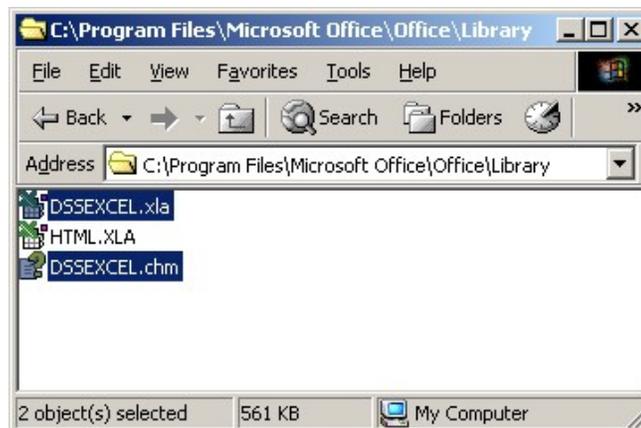


Figure 2 - Destination for Add-In files

2.1.2 Load HEC-DSS Data Exchange Add-In

1. Execute Microsoft Excel.
2. Open an existing or new workbook.
3. On the Tools menu, click Add-Ins...

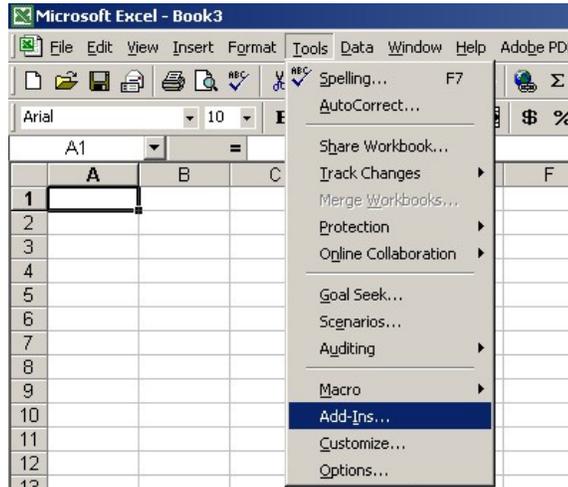


Figure 3 - Loading the Add-In

4. Select the check box to the left of "HEC-DSS MS-Excel Data Exchange" in the Add-Ins available dialog.

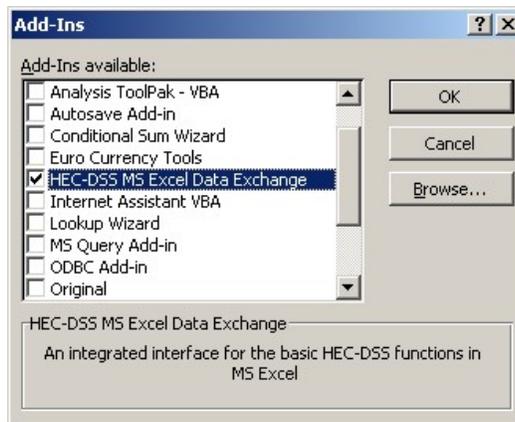


Figure 4 - Add-Ins dialog

Notes:

- Excel must have a workbook open for the Add-In menu to be available.

- If the HEC-DSS Data Exchange add-in is loaded, a check mark will appear to the left of its name in the Excel Add-Ins available list. The caption for Excel will indicate that the Add-In is active.
- For more information about add-ins, see the “add-in programs” topic in Excel Help.

2.2 Uninstall HEC-DSS Data Exchange Add-In

1. Unload HEC-DSS Data Exchange Add-In.

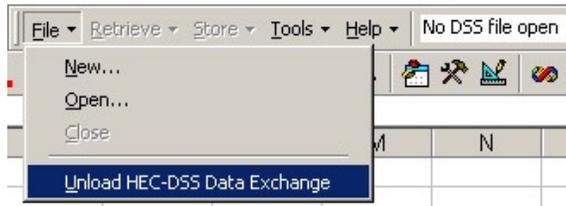


Figure 5 - Unloading the Add-In

2. Delete the files DSSEXCEL.XLA, DSSEXCEL.CHM, and DSSEXCEL_LOG.TXT from the C:\Program Files\Microsoft Office\Office\Library directory.
3. Delete the HLIB42.DLL file from the C:\Program Files\Microsoft Office\Office.

3 Opening and Closing HEC-DSS Files

3.1 Opening a HEC-DSS File

1. On the HEC-DSS add-in toolbar File menu, click Open...

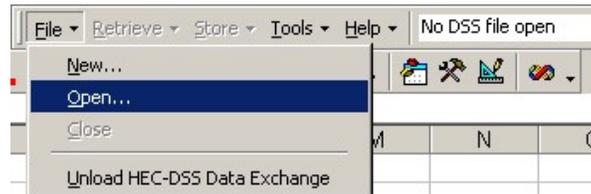


Figure 5 – Selecting Open menu

2. In the Open window, navigate your way to the file that you want to open.

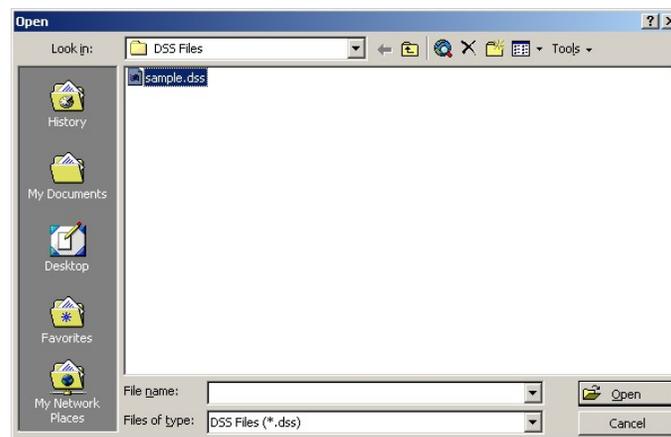


Figure 6 – Opening a DSS file

3. Double-click the HEC-DSS file to open it. A message box will display the results of the open operation.



Figure 7 – Open Message Box

4. The name of the open HEC-DSS file is displayed in the HEC-DSS add-in toolbar.



Figure 8 – Opened File in Add-In Toolbar

3.2 Creating a HEC-DSS File

1. On the HEC-DSS add-in toolbar File menu, click New...

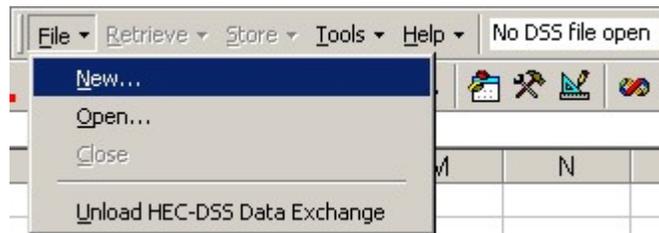


Figure 9 – Selecting New menu

2. In the Save window, navigate your way to the location where you want to create the HEC-DSS file.

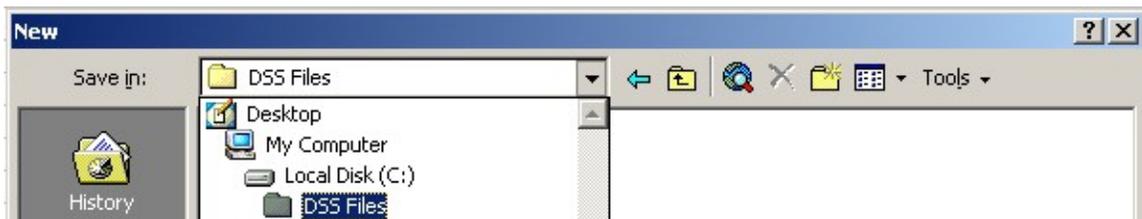


Figure 10 – Navigating the New File dialog

3. Type the name of the new file in the File name dialog.

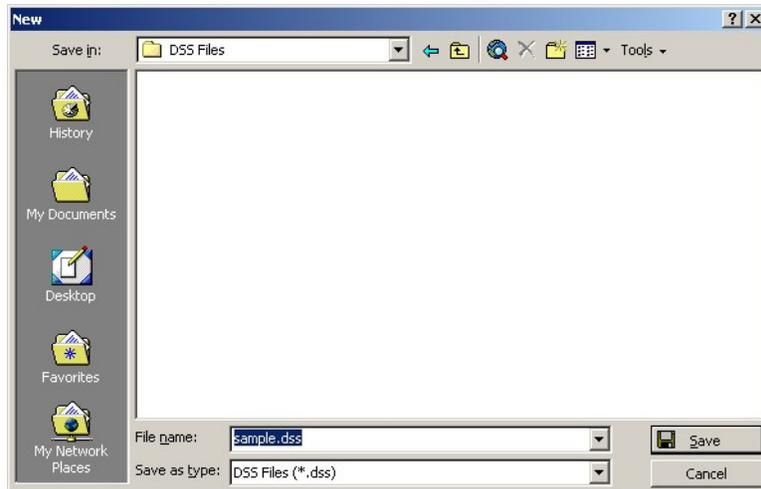


Figure 11 - Creating a new DSS file dialog

4. Click the Save button. If the file already exists, you will be asked if you want to open the file.

3.3 Closing a HEC-DSS File

1. On the HEC-DSS add-in toolbar File menu, click Close.



Figure 12 –Close menu

4 Retrieving Data

You can use any of Excel's capability to manipulate and work with data in the workbook. You can enter and use formulas as usual; you can also use macros and Visual Basic programs. With the HEC-DSS Data Exchange add-in, you can retrieve either regular-interval time series data or paired (X-Y) data from the open HEC-DSS file. Currently, there are no capabilities to store or retrieve irregular-interval time series data.

You can retrieve regular-interval time series data from the open HEC-DSS file and copy them into the active Excel workbook. You can retrieve the data by selection, by group, or by data block.

4.1 Retrieving Data Using the Catalog

1. From the HEC-DSS add-in toolbar Tools menu, click Catalog...

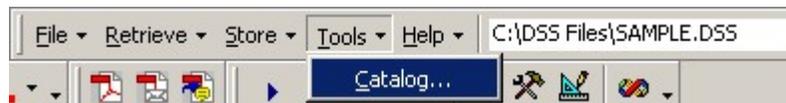


Figure 13 - Selecting Catalog menu

2. When prompted, create either a full or selective catalog. A list of available records in the open HEC-DSS file that meet your selection criteria will be displayed.

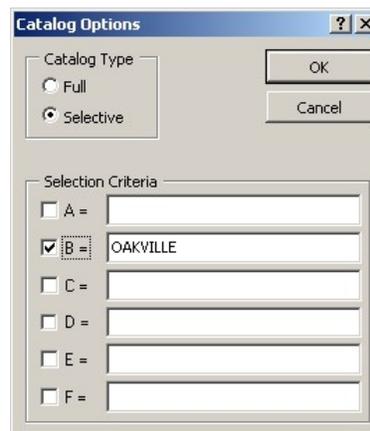


Figure 14 - Catalog Options dialog

3. To retrieve and copy the desired records to the active workbook, select one or more records.

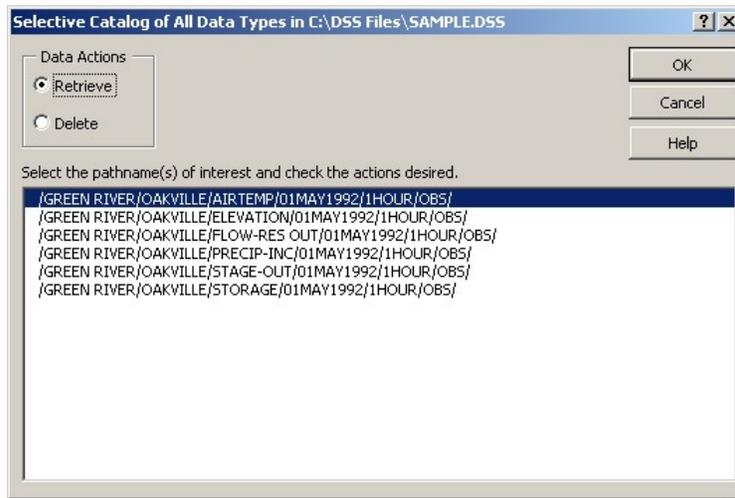


Figure 15 – Retrieve Data dialog

4. Select the check box to the left of Retrieve in the Data Actions box.
5. Click OK.

Notes:

- The list of available pathnames includes all data types included in the open HEC-DSS file.
- If the selected record(s) are regular-interval time series, the entire record will be retrieved.
- Irregular interval time series data cannot be retrieved at this time.

4.2 Retrieving Time Series Data with a Time Window

1. From the HEC-DSS add-in toolbar retrieve menu, Regular Time Series sub-menu, click By Selection...



Figure 16 - Retrieving time series by selection menu

2. When prompted, create either a full or selective catalog. A list of available records in the open HEC-DSS file that meet your selection criteria will be displayed.

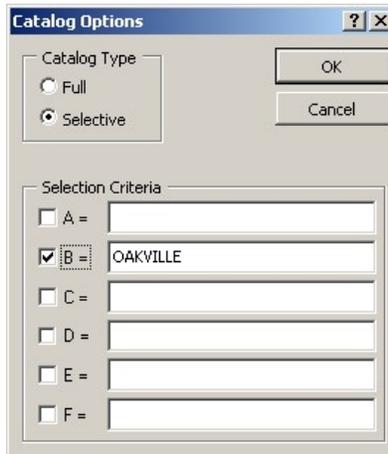


Figure 17 - Catalog Options dialog

3. To retrieve and copy the desired records to the active workbook, specify the time window information at the top of the dialog.

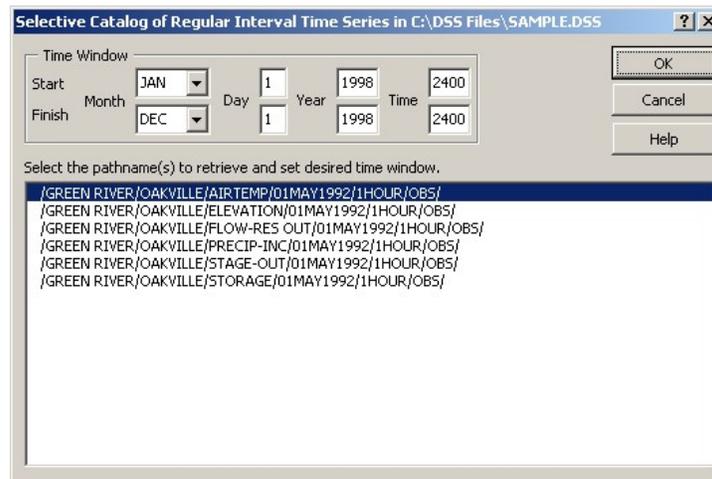


Figure 18 - Retrieve time series data dialog

4. Select one or more records to retrieve.
5. Click OK.

Notes:

- The dialog shows only unique regular-interval pathnames. If some of the time series records span multiple standard data blocks, the pathname is shown with both the first and last block start dates in pathname part D.
- The selected records will be copied to a worksheet named Retrieved TS in the active workbook. If the worksheet does not exist, it will be created.
- The selected records will be copied to the column directly after the last used column in the worksheet. (Even if data has been deleted, Excel has marked the column as used.)
- Irregular interval time series data cannot be retrieved at this time.

4.3 Retrieving Time Series Data by Group

HEC-DSS Data Exchange Add-In allows you to define groups of regular-interval time series records. . You can create and save this group definition on any worksheet. The group definition consists of Group Name, Start Date, Start Time, Finish Date, Finish Time, and all pathnames desired. These group definitions can be used to retrieve a predefined set of records for a specified time window. This can be useful to compare data from different HEC-DSS files. The records specified in the group definition are always retrieved in the same order. This makes it easy to update Excel charts with new data.

To retrieve regular-interval time series data by group:

1. Open a worksheet
2. Define a group of regular-interval time series records.

	A	B
1	Group Name:	WCA1 Seepage
2	Start Date:	12/31/1964
3	Start Time:	2400
4	Finish Date:	12/31/1989
5	Finish Time:	2400
6		Pathnames:
7		//GW1/FLOW_IN(KAF)/01JAN1960/1MON//
8		//GW1-SA1_SUP/FLOW_DIV(KAF)/01JAN1960/1MON//

Figure 19 - Defining a group of time series records

- On the HEC-DSS add-in toolbar Retrieve menu, Regular Time Series sub-menu, click By Group...



Figure 20 - Retrieving Time Series by group menu

- In the Regular Time Series Data Range dialog, select the cells on the active worksheet that contain the group definition. (Select the cells containing the Start Date through the last pathname.) Only one group can be processed at a time.

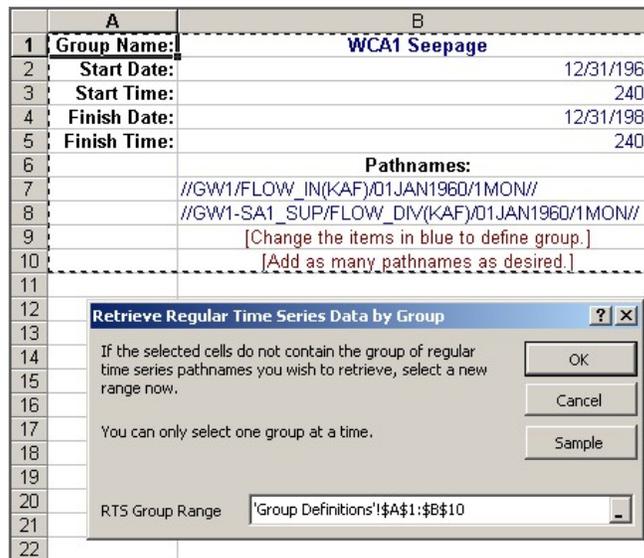


Figure 21 – Regular Time Series Data Group dialog

- Click OK.

Notes:

- The Group Name is intended for the user and is not used by the HEC-DSS Data Exchange add-in.
- The pathname part D is ignored because the time series records are retrieved according to the time window specified.
- To see an example, select the HEC-DSS add-in toolbar Retrieve menu, Regular Time Series sub-menu, By Group... and click the Show Sample

button. An example of the format will be written to the active workbook on a worksheet named Group Definitions.

- The records contained in the group definition will be retrieved for the time window specified in the group definition and copied to the Retrieved TS worksheet.
- If you delete (or rename) the Retrieved TS worksheet before retrieving the records, the records will always be written to the same location.

4.4 Retrieving Paired (X-Y) data

Paired (X-Y) data records can be retrieved from the open HEC-DSS file and copied into the active Excel workbook.

1. From the HEC-DSS add-in toolbar Retrieve menu, click Paired Data.



Figure 22 - Selecting Paired Data menu

2. When prompted, select full or selective catalog.

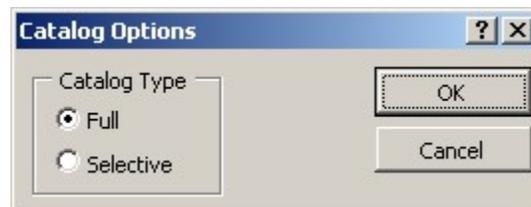


Figure 23 - Catalog Options dialog

3. A list of paired data records in the open HEC-DSS file that meet your selection criteria will be displayed. To retrieve data, select one or more records, and click OK.

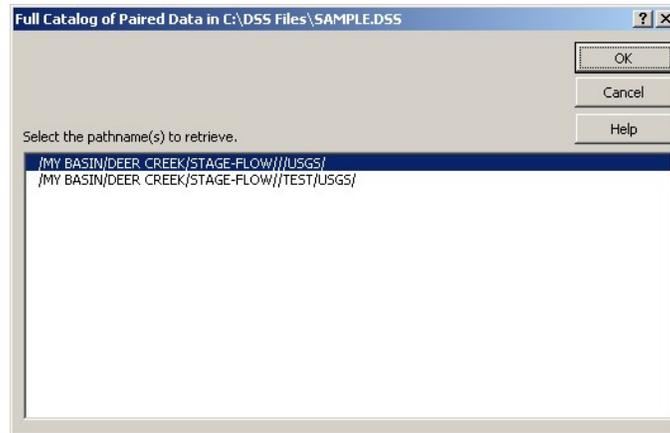


Figure 24 – Paired Data Retrieval dialog

Notes:

- The dialog shows only paired data record pathnames.
- The selected paired data records will be copied to a worksheet named Retrieved PD in the active workbook. If the worksheet does not exist, it will be created.
- The selected paired data records will be copied to the column directly after the last used column in the worksheet. (Even if data have been deleted, Excel marks the column as used.)

5 Storing Data

With the HEC-DSS Data Exchange add-in, you can copy either regular-interval time series data or paired (X-Y) data from the current Excel workbook to the open HEC-DSS file. Irregular interval time series data cannot be stored with this add-in at this time.

5.1 Storing Regular Interval Time Series Data

1. Activate the Excel worksheet that contains the records that you want to store.
2. On the HEC-DSS add-in toolbar Store menu, click Regular Time Series.



Figure 25 - Store time series data menu

3. On the active worksheet, select the data that you want to store. (Discontinuous ranges are acceptable.) As shown in the example below, the selected range must include the cell for pathname part A at the top of the selection, followed by pathname parts B – F, with the beginning date and beginning time in the rows directly below. Units and data type can be entered. The values to be stored start directly below the row containing the data type (12 rows below the row containing pathname part A). The labels in bold and the dates under the heading Index in the example are not required to store records.

	A	B	C	D
1	Part A:		ADHAIM	
2	Part B:		INJANA - NARROWS	
3	Part C:		FLOW	
4	Part D:			
5	Part E:		1DAY	
6	Part F:		OBS	
7	Beg. Date:		1-Jan-98	
8	Beg. Time:		2400	
9	End Date:		1-Dec-98	
10	End Time:		2400	
11	Units:			
12	Data Type:	Index		
13		01/01/1998	250.00	
14		01/02/1998	250.00	
15		01/03/1998	250.00	
16		01/04/1998	250.00	
17		01/05/1998	250.00	
18		01/06/1998	250.00	
19		01/07/1998	250.00	
20		01/08/1998	250.00	
21		01/09/1998	250.00	
22		01/10/1998	250.00	
23		01/11/1998	250.00	
24		01/12/1998	250.00	
25		01/13/1998	250.00	
26		01/14/1998	250.00	
27		01/15/1998	250.00	

Figure 26 –Selecting time series data to be stored

4. Set the Options as desired.

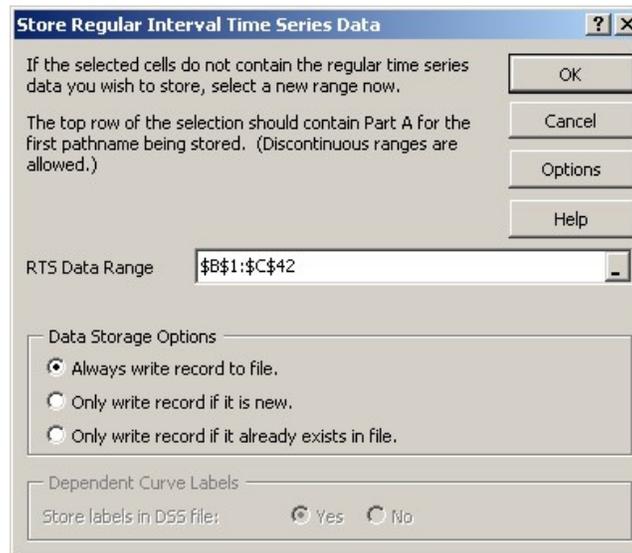


Figure 27 - Storing Time Series Data dialog

5. Select OK.

5.2 Storing Paired (X-Y) Data

1. Activate the worksheet that contains the records you want to store.
2. On the HEC-DSS add-in toolbar Store menu, click Paired Data.



Figure 28 - Store paired data menu

3. Select the data records on the active worksheet you want to store. (Discontinuous ranges are acceptable.) As shown in the example below, the selected range must include the cell for pathname part A at the top of the selection, followed by pathname parts B – F. Units and data type can be entered as shown. The ordinate (X) values to be stored start directly below the row containing the data type in the column that contains the pathname parts. The dependent (Y) values are stored in columns to the right, aligned with the corresponding ordinate. 50 sets of Y values are allowed.

	A	B	C
1	Part A:	ADHAIM	
2	Part B:	INJANA - NARROWS	
3	Part C:	FLOW-STAGE	
4	Part D:		
5	Part E:		
6	Part F:		
7	Units:	cms	m
8	Data Type:	UNT	UNT
9	Label:	Ordinate	
10		0.00	79.90
11		2.00	80.00
12		25.00	80.50
13		90.00	81.00
14		295.00	82.00
15		660.00	83.00
16		1,170.00	84.00
17		1,850.00	85.00
18		2,940.00	86.30

Figure 29 - Selecting paired data to be stored

4. Set the Options as desired.

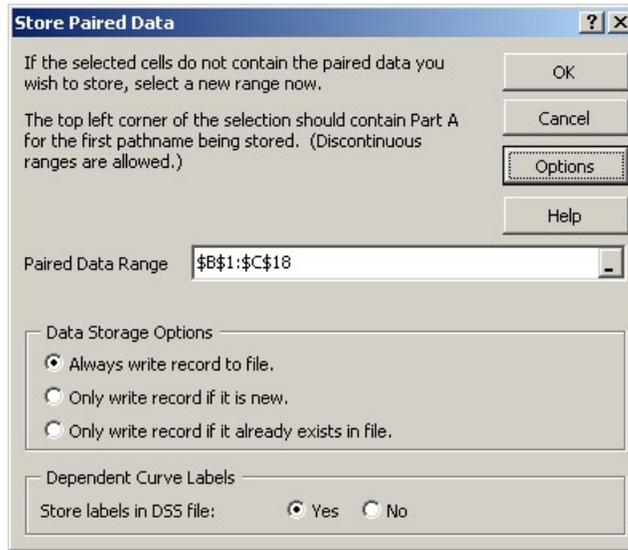


Figure 30 - Store Paired Data dialog

5. Select OK.