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Hydrologic Engineering Center

HEC-DSS Add-In Excel® Data Exchange for Excel 2003

User's Manual

Version 3.2
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14. ABSTRACT
The HEC-DSS Excel® Data Exchange Add-In is an application for retrieving and storing regular interval time series and paired data from an HEC-DSS database file, from an Excel® workbook. Installation of the application consists of running the setup package and loading the add-in into Excel®.

15. SUBJECT TERMS
HEC-DSS, Excel, data, exchange, add-in, workbook, retrieving, storing, regular, time series, paired, database, file

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[1] In the past, for non-Corps users, HEC has provided a list of possible vendors for assistance or support for HEC software. By direction of USACE counsel HEC has discontinued this practice and has removed the list from our web site.

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Chapter 1 Introduction

1.1 Introduction

The HEC-DSS Excel Data Exchange Add-In is an application for retrieving and storing regular interval time series and paired data of an HEC-DSS database file with an Excel workbook. The exchange of irregular interval data has not been implemented. Installation of the application consists of running the setup package and loading the 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 specified using an HEC-DSS file catalog that can be made available using the Add-In. For time series data, a 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 currently open workbook to the user's specified worksheet. Time series data can be retrieved in three storable formats plus a non-storable format.

Data can be stored directly from an Excel workbook into an HEC-DSS database file using the Add-In. The format of the time series data in Excel can be one of three formats. Paired data can only be posted using the retrieved format. When storing data, pathname parts, units, type, and the data set must be specified. If storing time series data, the starting and ending dates and times must also be specified.

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

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

This documentation is for Version 3.2.

1.2 Acknowledgements

The HEC-DSS Excel Data Exchange Add-In was originally written and maintained by Dr. Kenneth Kirby. He graciously provided it to the Hydrologic Engineering Center for distribution free of charge. Version 3.2 was created by Dave King of the Bureau of Reclamation.

Chapter 2 Installation

2.1 Installation Procedure

2.1.1 Download and Run Setup Package

To install the software, run the setup package and follow the wizards to complete the installation.

2.1.2 Load HEC-DSS Excel Data Exchange Add-In

Use the following steps to load the Add-In:

1. Open Excel.
2. Open any workbook (An open workbook must exist for the Add-In menu to appear).
3. On the Tool menu, click Add-Ins as shown on Figure 1.
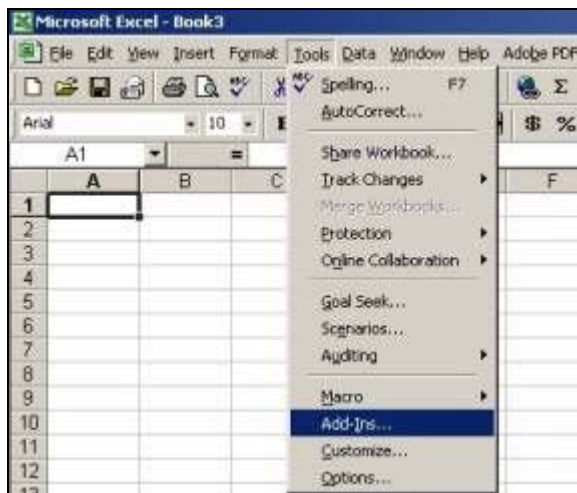
Figure 1. Excel Add-In Access

4. Click on the "Browse..." button and navigate to the installation folder of the Add-In and select "DSSExcel.xla".

The setup package will install the add-in and supporting PDF documentation in one of two locations, depending on what version of Windows (32-Bit or 64-Bit) you are running.

32-Bit version of Windows XP, Vista, or 7:
C:\Program Files\HEC\HEC-DSS Excel Data Exchange Add-In For Office 2003

64-Bit version of Windows XP, Vista, or 7:
C:\Program Files (x86)\HEC\HEC-DSS Excel Data Exchange Add-In For Office 2003

After browsing to the add-in, make sure the checkbox is enabled as shown in Figure 2.

Figure 2. Excel Add-In Dialog Box

For more information about Add-Ins, see the "add-in programs" topic in Excel Help

2.2 Uninstall HEC-DSS Excel Data Exchange Add-In

The application provides a way to uninstall itself using the unload option as shown on Figure 3. Any Add-In can be uninstalled by un-checking the Add-In in the Add-In dialog, then un-checking the Add-In under "View" "Toolbars" as shown on Figure 4.
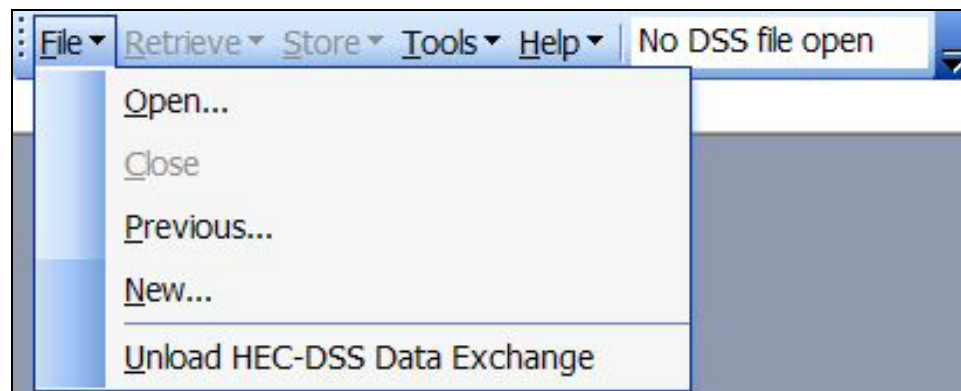
Figure 3. Application's Unload Add-In Option under File Menu
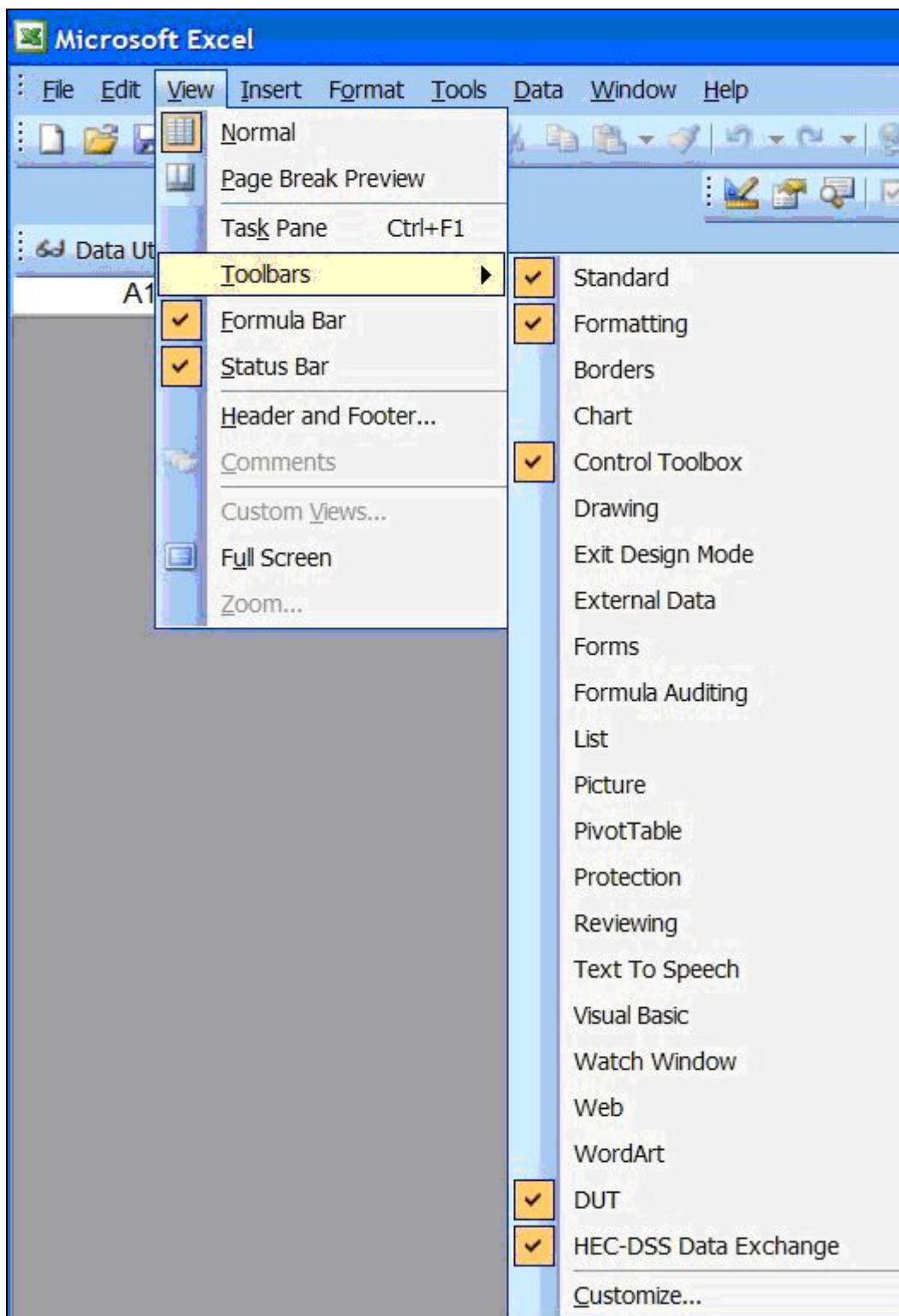
Figure 4. Excel's Toolbars Menu

Chapter 3 HEC-DSS File Management

3.1 Opening a HEC-DSS File

Open an existing HEC-DSS file using either the "Open" or "Previous" options on the File menu as shown on Figure 5. Use the "Previous" option to open the previous HEC-DSS file that you opened.
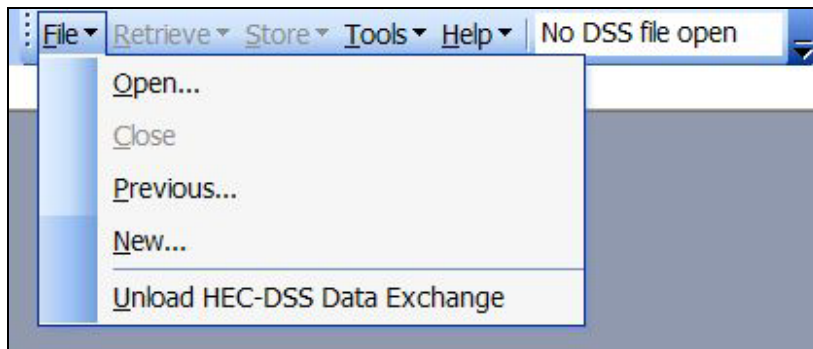
Figure 5. HEC-DSS Excel Data Exchange Add-In File Menu

If the DSS file is successfully opened, a confirmation is presented as shown on Figure 6. The currently open DSS file is displayed in the Add-In's toolbar as shown on Figure 7.
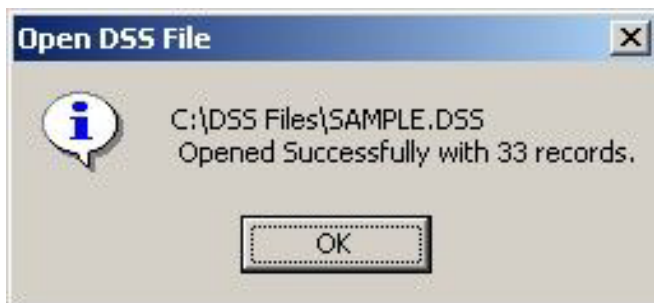
Figure 6. Open DSS File Confirmation Message Box

Figure 7. Current DSS File

3.2 Creating a HEC-DSS File

Create a new HEC-DSS file using the "New…" option of the file menu as shown on Figure 5. If the file already exists, you will be asked if you want to open the file.

3.3 Closing a HEC-DSS File

Close a HEC-DSS file using the "Close" option of the file menu as shown on Figure 8. Always close a file before attempting to open it with another application because Excel locks the file. In addition, close and reopen a file if the application gives an error message during retrievals and postings.
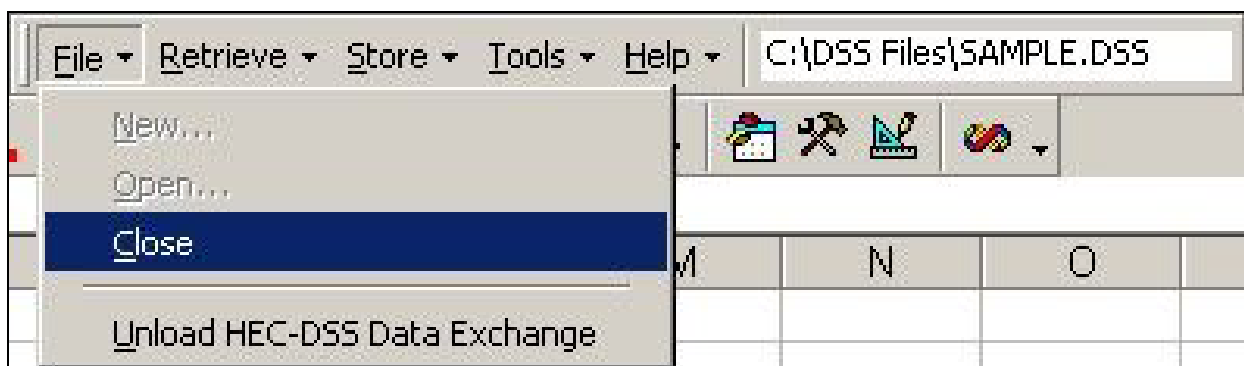
Figure 8. Close Option of Add-In File Menu

Chapter 4 Retrieving Data

Two methods of retrieving paired data (PD) and four methods of retrieving regular interval time series (RITS) data exists. Use the Catalog method to query all data associated with a path. Use the Retrieve methods to query time series data by a time window. RITS queries made using the Retrieve methods provide three formats and a combination format for the return data. In addition, RITS queries support three methods for storing RITS data. A workbook must be open and in focus to retrieve data.

4.1 Catalog Retrievals

Use the following steps to query data using the catalog method:

1. Select the Catalog option from the HEC-DSS Add-In as shown on Figure 9.
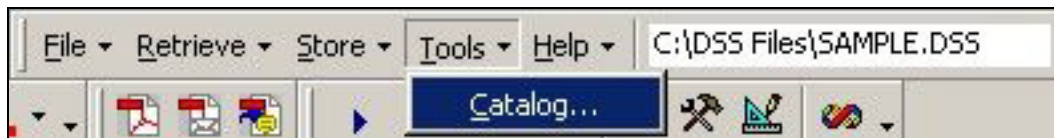
Figure 9. Catalog Menu Selection

2. Chose "Full" or "Selective" from the form shown on Figure 10.

Figure 10. Full or Selective Options

3. If the "Selective" option is chosen, specify the selection criteria using the form shown on Figure 11.

4. Highlight one or more desired records as shown Figure 12.

5. Specify data action – "Delete" or "Retrieve".

6. Press "OK" to query data or "Cancel" to exit.

7. Specify the worksheet name as shown on Figure 13.
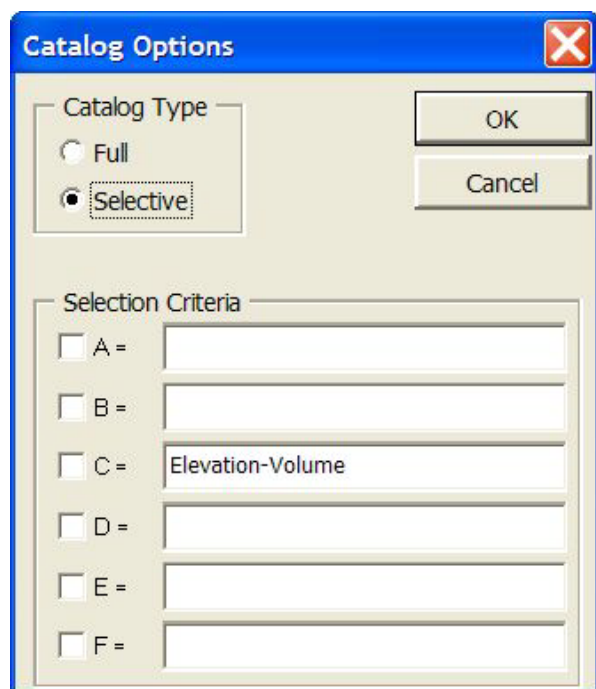
Figure 11. Catalog Options Dialog Box
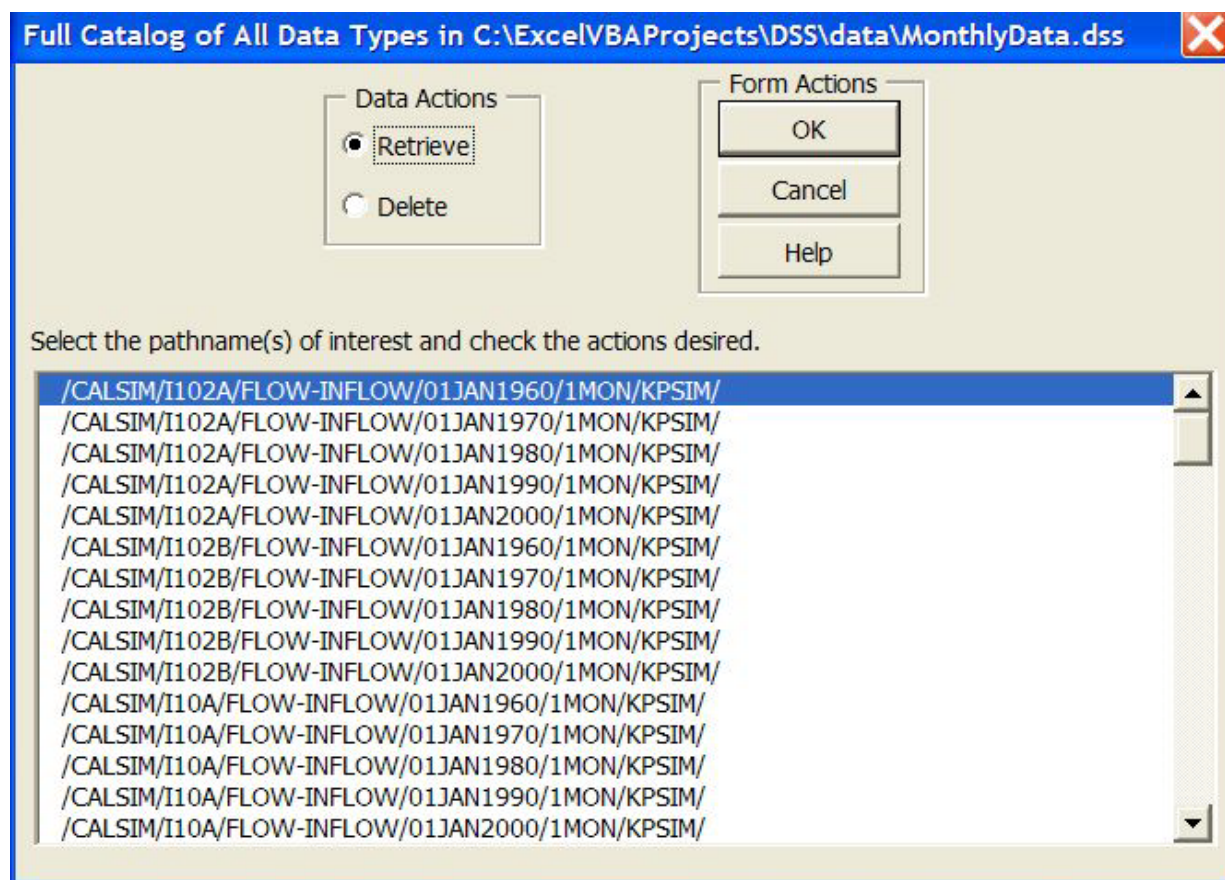
Figure 12. Catalog Selection Dialog Box

Figure 13. Target Worksheet Name Specification

The Catalog method makes no distinction between paired data and RITS data but can be distinguished by PD and RITS using your catalog choices. If a RITS record is chosen, the entire record is returned. In addition, RITS data retrieved using the catalog method can not be posted without reformatting the data.

4.2 Regular Interval Time Series Retrievals By Time Window

RITS data by time window can be retrieved to four formats by interactive catalog specification, group pathname specification, and RiverWare Header specification. The following sections discuss these options and the data formats.

4.2.1 Time Window Catalog Selection Retrieval

Use the following steps to query RITS data using a catalog specification with a time window specification.

1. Select "By Selection..." from the "Retrieve" "Regular Time Series" dropdown as shown on Figure 14.
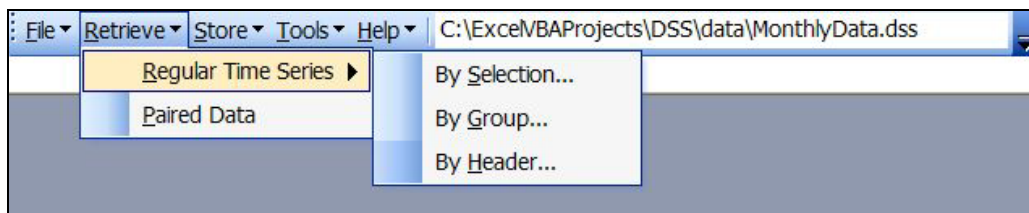
Figure 14. Time Window Retrieval Menu Options
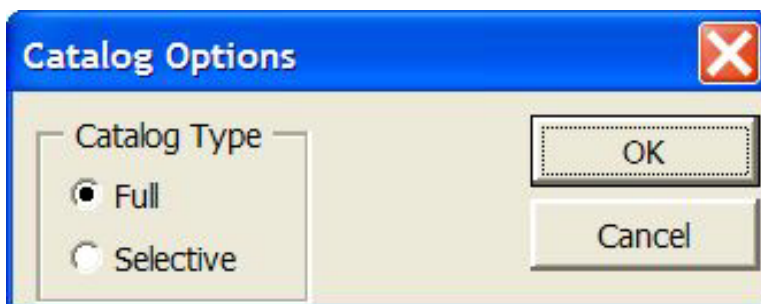
2. Chose "Full" or "Selective" from the form shown on Figure 10.

3. If the "Selective" option is chosen, specify the selection criteria using the form shown on Figure 11.

4. Highlight one or more desired records as shown Figure 15.
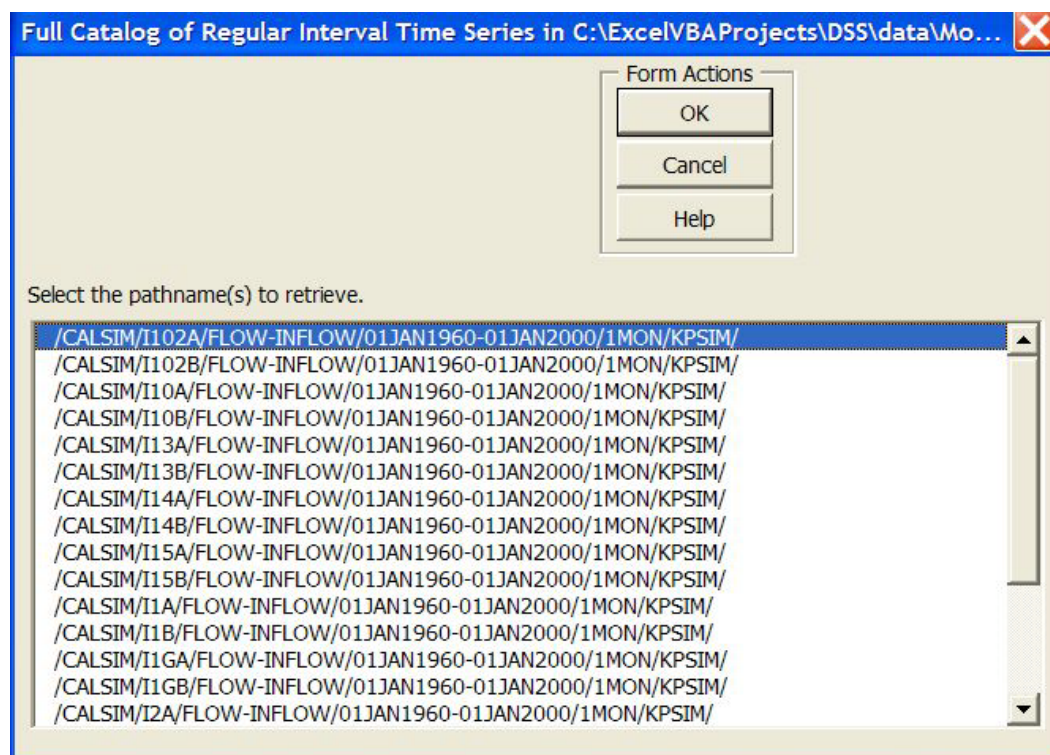
Figure 15. Time Window Retrieval Catalog Selection

5. Press "OK" to query data or "Cancel" to exit.

6. Specify the time window as shown on Figure 16.
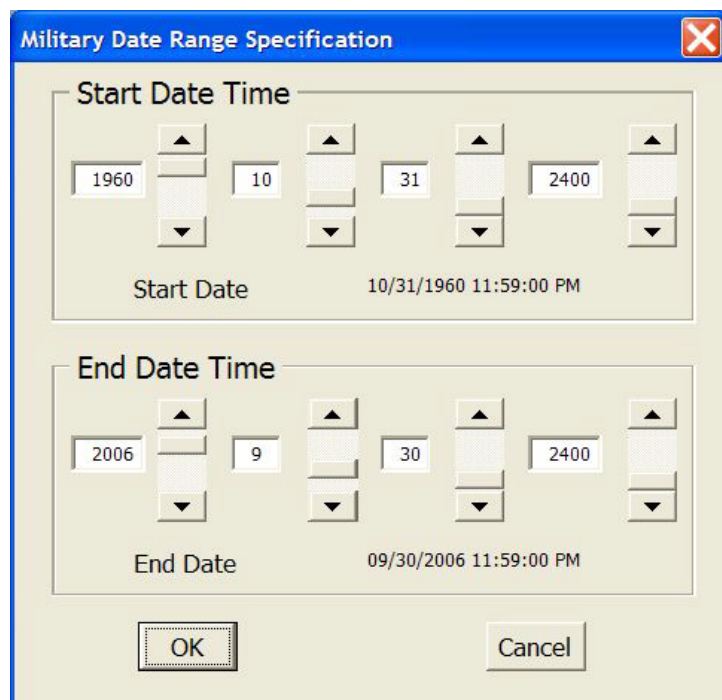
Figure 16. Time Window Specification

7. Specify the worksheet name as shown on Figure 13.

8. Select the data format as shown on Figure 17.
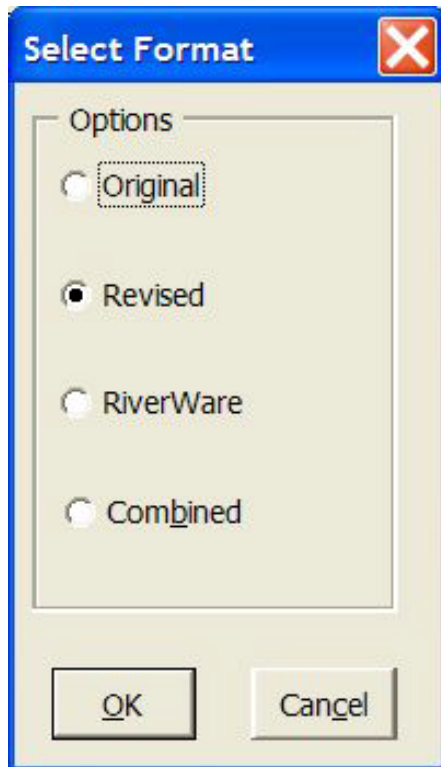
Figure 17. Data Format Options

9. Specify the group specifications worksheet name.

10. If RiverWare format was selected, specify the RiverWare header worksheet name. The header worksheet's name must begin with "Header".

If the data, group specifications, or RiverWare header worksheets already exists, you are prompted if you wish to overwrite them.

The data formats are shown on Figures 18 through 21. The "Original" format is the format used by versions of the application before Version 3.2. The "Revised" format is the same as the "Original" format with dates moved to first column. The RiverWare format is consist with the format created by RiverWare Excel output. RiverWare is a hydrologic modeling system developed by the Center For Advanced Decision Support For Water And Environmental Systems (CADSWES). Information on RiverWare is available at:

http://cadswes.colorado.edu/riverware/

The "Combined" format combines the RiverWare format with the "Revised" format. Note that the date column's format for the RiverWare and Combined formats will vary depending upon the time interval.

Part A:		CALSIM	CALSIM	CALSIM	CALSIM	CALSIM
Part B:		I102A	I102B	I10A	I10B	I13A
Part C:		FLOW-INFLOW	FLOW-INFLOW	FLOW-INFLOW	FLOW-INFLOW	FLOW-INFLOW
Part D:						
Part E:		1MON	1MON	1MON	1MON	1MON
Part F:		KPSIM	KPSIM	KPSIM	KPSIM	KPSIM
Beg. Date:		31-Oct-60	31-Oct-60	31-Oct-60	31-Oct-60	31-Oct-60
Beg. Time:		2400	2400	2400	2400	2400
End Date:		30-Sep-06	30-Sep-06	30-Sep-06	30-Sep-06	30-Sep-06
End Time:		2400	2400	2400	2400	2400
Units:		TAF	TAF	TAF	TAF	TAF
Data Type:	Index	PER-AVER	PER-AVER	PER-AVER	PER-AVER	PER-AVER
	10/31/1960	0.33	0.00	0.12	0.00	0.00
	11/30/1960	1.45	0.00	2.75	0.00	0.09
	12/31/1960	2.01	0.00	5.83	0.00	3.34
	01/31/1961	0.00	0.00	-0.47	0.00	0.00
	02/28/1961	5.47	0.00	5.67	0.00	11.27
	03/31/1961	4.48	4.78	3.91	-1.01	5.74
	04/30/1961	5.57	5.57	-3.63	0.16	1.47
	05/31/1961	4.84	5.16	-11.43	-9.39	7.98
	06/30/1961	2.90	2.90	-5.51	-1.92	0.00
	07/31/1961	0.31	0.33	-5.23	-8.12	0.00
	08/31/1961	0.15	0.00	-8.97	0.00	0.55
	09/30/1961	0.00	0.00	-4.51	0.00	0.04

Figure 18. Original Data Format

Part A:	CALSIM	CALSIM	CALSIM	CALSIM	CALSIM	CALSIM
Part B:	I102A	I102B	I10A	I10B	I13A	I13B
Part C:	FLOW-INFLOW	FLOW-INFLOW	FLOW-INFLOW	FLOW-INFLOW	FLOW-INFLOW	FLOW-INFLOW
Part D:						
Part E:	1MON	1MON	1MON	1MON	1MON	1MON
Part F:	KPSIM	KPSIM	KPSIM	KPSIM	KPSIM	KPSIM
Beg. Date:	31-Oct-60	31-Oct-60	31-Oct-60	31-Oct-60	31-Oct-60	31-Oct-60
Beg. Time:	2400	2400	2400	2400	2400	2400
End Date:	30-Sep-06	30-Sep-06	30-Sep-06	30-Sep-06	30-Sep-06	30-Sep-06
End Time:	2400	2400	2400	2400	2400	2400
Units:	TAF	TAF	TAF	TAF	TAF	TAF
Data Type:	PER-AVER	PER-AVER	PER-AVER	PER-AVER	PER-AVER	PER-AVER
10/31/1960	0.33	0.00	0.12	0.00	0.00	0.00
11/30/1960	1.45	0.00	2.75	0.00	0.09	0.00
12/31/1960	2.01	0.00	5.83	0.00	3.34	0.00
01/31/1961	0.00	0.00	-0.47	0.00	0.00	0.00
02/28/1961	5.47	0.00	5.67	0.00	11.27	0.00
03/31/1961	4.48	4.78	3.91	-1.01	5.74	6.12
04/30/1961	5.57	5.57	-3.63	0.16	1.47	1.47
05/31/1961	4.84	5.16	-11.43	-9.39	7.98	8.51
06/30/1961	2.90	2.90	-5.51	-1.92	0.00	0.00
07/31/1961	0.31	0.33	-5.23	-8.12	0.00	0.00
08/31/1961	0.15	0.00	-8.97	0.00	0.55	0.00
09/30/1961	0.00	0.00	-4.51	0.00	0.04	0.00

Figure 19. Revised Data Format

Date	I102A FLOW- INFLOW	I102B FLOW- INFLOW	I10A FLOW- INFLOW	I10B FLOW- INFLOW	I13A FLOW- INFLOW	I13B FLOW- INFLOW	I14A FLOW- INFLOW	I14B FLOW- INFLOW
10/1960	0.33	0.00	0.12	0.00	0.00	0.00	6.14	0.00
11/1960	1.45	0.00	2.75	0.00	0.09	0.00	11.78	0.00
12/1960	2.01	0.00	5.83	0.00	3.34	0.00	7.94	0.00
1/1961	0.00	0.00	-0.47	0.00	0.00	0.00	4.14	0.00
2/1961	5.47	0.00	5.67	0.00	11.27	0.00	2.55	0.00
3/1961	4.48	4.78	3.91	-1.01	5.74	6.12	0.94	1.00
4/1961	5.57	5.57	-3.63	0.16	1.47	1.47	1.91	1.91
5/1961	4.84	5.16	-11.43	-9.39	7.98	8.51	0.11	0.11
6/1961	2.90	2.90	-5.51	-1.92	0.00	0.00	2.33	2.33
7/1961	0.31	0.33	-5.23	-8.12	0.00	0.00	0.00	0.00
8/1961	0.15	0.00	-8.97	0.00	0.55	0.00	0.21	0.00
9/1961	0.00	0.00	-4.51	0.00	0.04	0.00	0.00	0.00

Figure 20. RiverWare Data Format

Part A:	CALSIM	CALSIM	CALSIM	CALSIM
Part B:	I102A	I102B	I10A	I10B
Part C:	FLOW-INFLOW	FLOW-INFLOW	FLOW-INFLOW	FLOW-INFLOW
Part D:				
Part E:	1MON	1MON	1MON	1MON
Part F:	KPSIM	KPSIM	KPSIM	KPSIM
Beg. Date:	31-Oct-60	31-Oct-60	31-Oct-60	31-Oct-60
Beg. Time:	2400	2400	2400	2400
End Date:	30-Sep-06	30-Sep-06	30-Sep-06	30-Sep-06
End Time:	2400	2400	2400	2400
Units:	TAF	TAF	TAF	TAF
Data Type:	PER-AVER	PER-AVER	PER-AVER	PER-AVER
10/1960	0.33	0.00	0.12	0.00
11/1960	1.45	0.00	2.75	0.00
12/1960	2.01	0.00	5.83	0.00
1/1961	0.00	0.00	-0.47	0.00
2/1961	5.47	0.00	5.67	0.00
3/1961	4.48	4.78	3.91	-1.01
4/1961	5.57	5.57	-3.63	0.16
5/1961	4.84	5.16	-11.43	-9.39
6/1961	2.90	2.90	-5.51	-1.92
7/1961	0.31	0.33	-5.23	-8.12
8/1961	0.15	0.00	-8.97	0.00
9/1961	0.00	0.00	-4.51	0.00

Figure 21. Combined Data Format

A group specifications worksheet is created for each format to support retrieving and storing of data. An example group specifications worksheet is shown on Figure 18. The "RiverWare" and "Combined" formats also create a RiverWare Header worksheet as shown on Figure 19. The RiverWare Header is a map of the data on a worksheet. A header worksheet posted by RiverWare includes the time window, timestep, objects, slots, scale, and units. Header worksheets have been extended to support this Add-In and others by inclusion of data associated

Worksheet:	MyRTSData		
Start Date:	31-Oct-60		
Start Time:	2400		
Finish Date:	30-Sep-06		
Finish Time:	2400		
	Pathnames:		
	/CALSIM/I102A/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I102B/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I10A/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I10B/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I13A/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I13B/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER

Figure 22. Group Specification Worksheet Example

Name	Owner	Descriptic	Creation Date	Numbe	Number o	Number o	Orientation			Source Book	Source P	Source Header		
N/A	dking		8/10/2009 10:07	1	8	552	Runs			N/A	N/A	N/A		
Run #	Start	End	Timestep Unit	Unit Qu	Timesteps	Consecut	Index Sequential				Workshee	DMI Path	DMI Type	DB Spec1 DB Spec2
Run0	10/1960	9/2006	month	1	552	0			0		ts4	C:\ExcelVBAProjects\dss\data\monthlydata.dss	HEC DSS Output	
Slot #	Object Ty	Object Na	Slot Name	Units	Scale	Separator	Station			Parameter	DMI Flag	DMI Scale		
Slot0		I102A	FLOW-INFLOW	TAF		1	/CALSIM/I102A/FLOW-INFLOW//1MON/KPSIM/			PER-AVER				
Slot1		I102B	FLOW-INFLOW	TAF		1	/CALSIM/I102B/FLOW-INFLOW//1MON/KPSIM/			PER-AVER				
Slot2		I10A	FLOW-INFLOW	TAF		1	/CALSIM/I10A/FLOW-INFLOW//1MON/KPSIM/			PER-AVER				
Slot3		I10B	FLOW-INFLOW	TAF		1	/CALSIM/I10B/FLOW-INFLOW//1MON/KPSIM/			PER-AVER				
Slot4		I13A	FLOW-INFLOW	TAF		1	/CALSIM/I13A/FLOW-INFLOW//1MON/KPSIM/			PER-AVER				
Slot5		I13B	FLOW-INFLOW	TAF		1	/CALSIM/I13B/FLOW-INFLOW//1MON/KPSIM/			PER-AVER				
Slot6		I14A	FLOW-INFLOW	TAF		1	/CALSIM/I14A/FLOW-INFLOW//1MON/KPSIM/			PER-AVER				
Slot7		I14B	FLOW-INFLOW	TAF		1	/CALSIM/I14B/FLOW-INFLOW//1MON/KPSIM/			PER-AVER				

Figure 23. RiverWare Header Worksheet Example

with other data stores. In this case, the other data store is an HEC-DSS file and the header includes the HEC-DSS file name and paths.

The "RiverWare" and "Combined" formats should only be used with data of consistent timestep (interval or Part E). In addition, if the group specifications worksheets are to be used for retrieving and storing data, they should also be of consistent timestep.

Lines can be added above the dates and values lines on "RiverWare" and "Combined" formats worksheets as long as the dates column does not include any dates above the first values line. Do not change the twelve lines above the values lines on the "Original" or "Revised" formats if want to use the data range specification method to store data (see data storage methods in Chapter 5).

Columns E, H, and I of the RiverWare header worksheet after line 4 are units, path specification, and aggregation type (PER-AVER, etc). Column H is used when a RiverWare header is used for retrievals and storing data. Columns E and I are used for storing. Columns 13 and 14 of line 4 of the header worksheet (DB Spec1 and DB Spec2) can be used to specify global Parts A and F. Specify Parts A or F in column H as "//" if you want to use the global specification. Otherwise, the column H specification overrides the global specification.

4.2.2 Group Specifications Time Window Retrieval

A group specifications worksheet can be used a specification for retrieving data. Follow the following steps to retrieve RITS data using this approach.

1. Highlight column B of the group specifications as shown on Figure 24.

A	B	C	D
Worksheet:	**MyRTSData**		
Start Date:	31-Oct-60		
Start Time:	2400		
Finish Date:	30-Sep-06		
Finish Time:	2400		
	Pathnames:		
	/CALSIM/I102A/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I102B/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I10A/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I10B/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I13A/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER
	/CALSIM/I13B/FLOW-INFLOW//1MON/KPSIM/	TAF	PER-AVER

Figure 24. Retrieval Group Specifications Range Selection

2. Select the "By Group" option of the "Retrieve" "Regular Time Series" dropdown menu as shown on Figure 14.

3. Verify the range specification on the form shown on Figure 25. Step 2 can be skipped but it predisposes the range specification.

Figure 25. Group Specifications Range Specification

4. Press "OK" to initiate the data retrieval.

5. Specify the time window as shown on Figure 16.

6. Specify the worksheet name as shown on Figure 13.

7. Select the data format as shown on Figure 17.

If you select the "RiverWare" or "Combined" formats, you will be prompted for the RiverWare Header worksheet name. If you specify a time window that varies from the previous retrieval, the data worksheet is revised to reflect the new time window. You can specify the time window on the group specifications worksheet before starting the retrieval. The time window on the group specifications worksheets is always used as the default time window by the date time form.

4.2.3 RiverWare Header Time Window Retrieval

A RiverWare Header worksheet can be used a specification for retrieving data. Follow the following steps to retrieve RITS data using this approach.

1. Select the "By Header" option of the "Retrieve" "Regular Time Series" dropdown menu as shown on Figure 14.

2. If more than one Header exists, select the desired header using the form presented.

3. Specify the time window as shown on Figure 16.

The data will be returned to the worksheet specified on the header worksheet. If the time window is revised, the date specifications on the header worksheet will be revised.

4.3 Paired Data Retrieval

Paired data can be retrieved by selecting "Paired Data" from the "Retrieve" menu as shown on Figure 14. Then specify the catalog as with other catalog retrievals. Example paired data retrieval is shown on Figure 26. The format is the same as returned by the catalog method. The advantage of retrieving paired data via the "Retrieve" menu is that the catalog selection will only include paired data paths.

Part A:	EWCD		EWCD		EWCD	
Part B:	CLEVELAND		CLEVELAND		ELECTRICLAKE	
Part C:	ELEVATION-AREA		ELEVATION-VOLUME		ELEVATION-AREA	
Part D:						
Part E:						
Part F:						
Units:	feet	acres	feet	acre-ft	feet	acres
Data Type:	UNT	UNT	UNT	UNT	UNT	UNT
Label:	**Ordinate**	Area	**Ordinate**	volume	**Ordinate**	area
	8,770.00	0.00	8,770.00	0.00	8,369.00	0.00
	8,771.00	0.92	8,771.00	3.27	8,380.00	7.98
	8,772.00	1.84	8,772.00	13.07	8,385.00	11.61
	8,773.00	4.37	8,773.00	29.40	8,390.00	15.24
	8,774.00	6.90	8,774.00	52.06	8,395.00	18.86
	8,775.00	9.42	8,775.00	80.61	8,400.00	22.49
	8,776.00	11.95	8,776.00	114.41	8,405.00	26.12
	8,777.00	14.48	8,777.00	152.93	8,410.00	29.75
	8,778.00	18.25	8,778.00	195.82	8,415.00	33.37

Figure 26. Example Paired Data Retrieval

Chapter 5 Storing Data

Three methods for storing regular interval time series data in an HEC-DSS file exist as shown on Figure 27. In addition, paired data can be posted. The following options discuss these methods. A workbook must be open and in focus to store data.
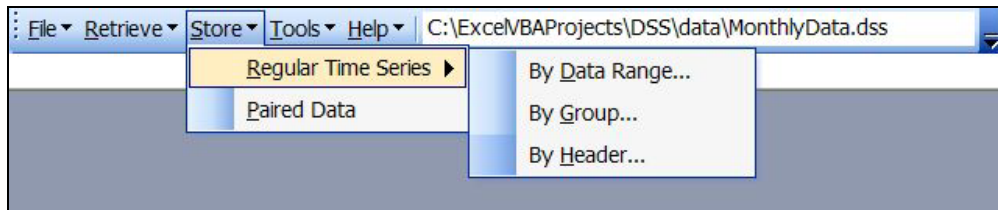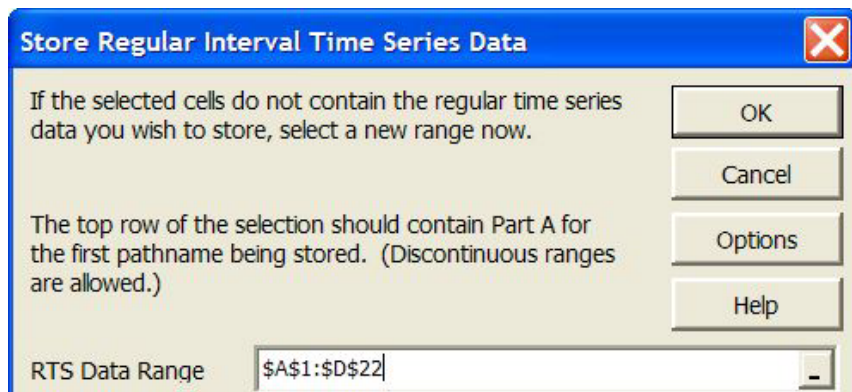

Figure 27. Data Storage Options Menu

5.1 RITS Data Storage Using a Data Range Specification

A range of data specified in the "Revised" or "Original" formats can be used to store RITS data. Use the following steps to store data using this approach.

1. Select "By Data Range" from the "Store" "Regular Time Series" option as shown on Figure 27.

2. Specify the range of data to post as shown on Figures 28 and 29. If the data range is specified before beginning the process, it will appear in the "RTS Data Range" specification shown on Figure 29. Otherwise, select the data range by pressing the "…" button.

Figure 28. RITS Data Range Storage Range Specification Example

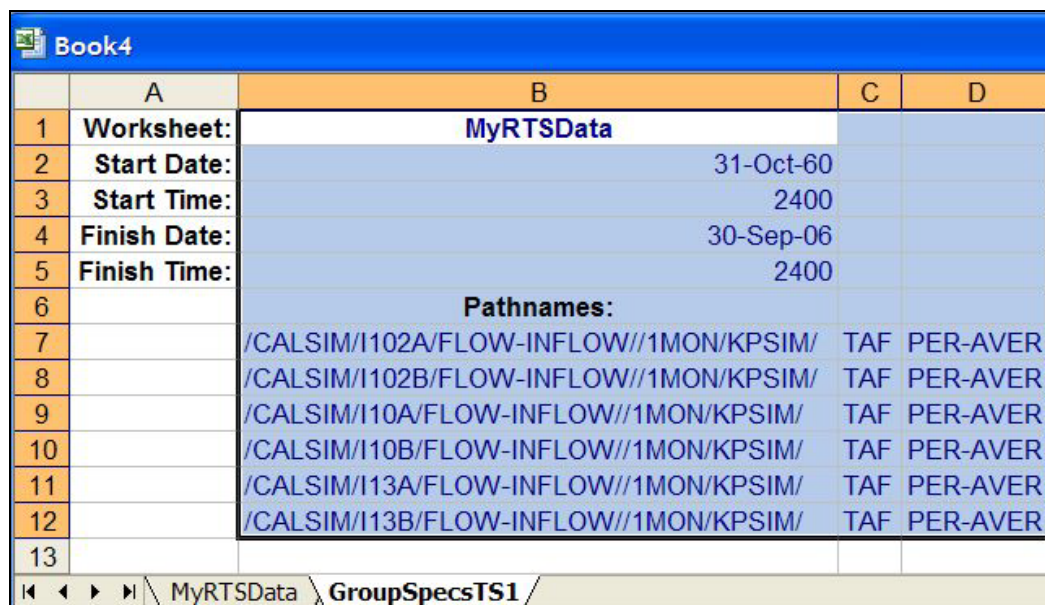**Figure 29. RITS Data Range Storage Dialog Box**

3. If necessary, designate the data storage option by pressing the "Options" button and selecting the desired option.

4. Press "OK" on the form to post the data or "Cancel" to exit.

5.2 RITS Data Storage Using A Group Specification

A range of data specified in any of the formats using a group specifications worksheet to store RITS data. Use the following steps to store data using this approach.
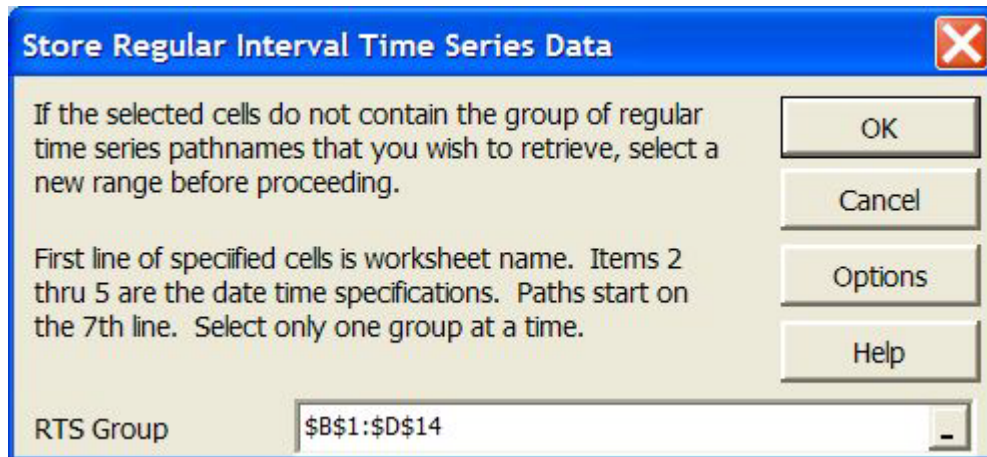
1. Select "By Group…" from the "Store" "Regular Time Series" option as shown on Figure 37.

2. Specify the range of the group specification to post as shown on Figures 30 and 31. If the data range is specified before beginning the process, it will appear in the "RTS Data

Figure 30. RITS Group Specification Storage Range Specification Example

Figure 31. RITS Group Specification Storage Range Dialog Box

Range" specification shown on Figure 29. Otherwise, select the data range by pressing the "…" button. The range must include columns C and D with the units and type specifications.

3. If necessary, designate the data storage option by pressing the "Options" button and selecting the desired option.

4. Press "OK" on the form to post the data or "Cancel" to exit.

5. Specify the time window as shown on Figure 16.

5.3 RITS Data Storage Using A RiverWare Header

A RiverWare Header worksheet can be used to specify the data to store in an HEC-DSS data file using the following steps:

1. Select "By Header" from the "Store" "Regular Time Series" option as shown on Figure 27.

2. If more than one Header exists, select the desired header using the form presented.

3. Specify the time window as shown on Figure 16.

The data will be obtained from the worksheet specified on the header worksheet.

5.4 Paired Data Storage

A range of data can be used to store paired data. Use the following steps to store paired data using this approach.

1. Select "Paired" from the "Store" menu as shown on Figure 27.

2. Specify the range of data to post as shown on Figures 32 and 33. If the data range is specified before beginning the process, it will appear in the "Paired Data Range" specification shown on Figure 33. Otherwise, select the data range by pressing the "…" button.

Figure 32. Paired Data Storage Range Specification Example

Figure 33. Paired Data Storage Data Range Dialog Box

3. If necessary, designate the data storage option by pressing the "Options" button and selecting the desired option.

4. Press "OK" on the form to post the data or "Cancel" to exit.