MPC2XL

DATA TRANSFER UTILITY FOR MED-PC® USERS
SOF-731
USER'S MANUAL

DOC-036
Rev. 2.4

notes

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CHAPTER 1 | INTRODUCTION

Overview

The purpose of this program is to create a fast and easy system for transferring the contents of MED-PC® data files to Microsoft Excel® spreadsheets, Quattro Pro and Access. Additionally, programs are supported by virtue of their ability to utilize embedded Excel spreadsheets, read comma-separated files (CSV) or past data from the Windows clipboard. Most users find MPC2XL to be most flexible when used with Excel or Quattro Pro. All examples within this manual are with reference to Excel, but the techniques will work equally well with Quattro Pro.

The system is based on creating a "profile" or template for the layout of the spreadsheet. After a profile is created and saved it may then be used to automatically transfer data. The creation of profiles is highly automated, yet very flexible. No programming is required. Any MED-PC data file may be transferred to Excel, regardless of the file naming scheme or the internal file format.

General Computer Environment

MPC2XL is compatible with Windows 95 or higher. Any computer suitable for this environment will also support MPC2XL. Direct transfer to Excel requires Excel 97 or higher; however transfers to other versions of Excel or other spreadsheet programs can be made via the clipboard.

CHAPTER 2 | PROFILE OVERVIEW

There are two basic types of profiles that may be created row profiles and table profiles. Row profiles organize data from a session into a singe spreadsheet row; table profiles create multiple rows and columns.

Table Profiles

Table profiles may be used in a variety of ways to transfer data in a tabular format to Excel. Table profiles provide a great deal of flexibility, but are not created automatically from sample MED-PC® data files in the same fashion as row profiles. There are three basic types of tables that can be created using the table editor; freestyle table, table style table, and record style table.

The table profile was designed to present trial-oriented data along with session identifying information. Clicking the **Create Table** button (Figure 2.2) creates this type of table. Session identifiers, as well as data, may be placed in the "Header Titles" and "Header Elements" rows. "Header Titles" may bear the same name as a data element or they may be different.

A key aspect of data tables is the ability to systematically extract data from an array variable without the need to explicitly type in every data element that should appear in the table. This facility is ideal for creating tables displaying the results of trial-oriented sessions. Figure 2.1 displays data from a "delayed non-match to sample" protocol. This hypothetical session consists of five trials. For each trial, eight entries were made into array "A": the trial number, trial duration, delay value, response tags, counts and latencies.

Figure 2.1 - Example Table Style Table

	A	B	C	D	E	F	G	H
1	StartDate		StartTime	Subject				
2	20060202		150216	25064				
3								
4	Trial Number	Trial Duration	Delay (sec)	Sample (1=Left)	Sample Latency	Back Level Count	Choice Latency	Response Tag(
5								
6	1	13.1	0	0	7.7	1	5.3	1
7	2	11.3	4	1	2.9	3	4.3	1
8	3	41.1	32	1	5.1	1	4	0
9	4	12.8	8	1	1.3	3	3.5	1
10	5	21	18	1	1.7	3	3.4	1
11								

Row Profiles

Row profiles transfer data to Excel on a row-by-row basis. Every session that is transferred to Excel becomes a row in the spreadsheet. Excel spreadsheets are limited to 256 columns, but the number of rows is practically unlimited. The profile generator, which may be easily edited as needed, automatically creates a sample profile. This format is useful for organizing data from many sessions so that the summary statistics may be organized for analysis. Formulas for the summary statistics may be placed directly in the profile so the results are present the instant the data are transferred.

Record Profile

Record tables are designed to transfer trial-oriented data to Excel with adequate descriptive information in each row so that the data in each row stands as an independent record. For example, including subject and date information in each row with trial data allows one to sort or analyze all of the data for an entire experiment by these elements, perhaps broken down by ranges of dates or by subject subgroups. The key to producing this type of data structure is to place session identifiers, such as "Subject", in the first few columns of the table, leaving the "Increment" and "Last Column Element" fields blank. The remaining columns contain data elements for each trial, resulting in the identifier and data information being present in each row. This creates a database-like spreadsheet that allows one to ask very detailed questions about trial or event oriented data. The details for creating the trial-oriented data table are the same as for the table profile. By transferring data only (without headers) after the first data file, and entire experiment may be analyzed using this method.

Freestyle Table Profile

The simplest table is a "Freestyle" report, which is created by clicking the **Create Freestyle** button (Figure 2.2), which creates a blank table. The right click menu may be used to paste special identifiers into the table. There are two types of identifiers. One type corresponds directly to data retrieved from MED-PC® data files. This includes the box and subject numbers and the year in which the session was started. The second type of identifier begins with an exclamation point and is constructed by MPC2XL from other identifiers. For example, !StartDate and !EndDate combine the year, month and day into a single number expressed in YYMMDD (or YYYYMMDD) format. For example, July 3, 2009 would be expressed as either 090703 or 20090703 depending upon whether the MSN code used to generate the data file contained the Y2KCOMPLIANT directive. The !CondensedStartTime and !CondensedEndTime functions create a single number reflecting HHMMSS. For example, 10:14:32 would be expressed as 101432.

Figure 2.2 – Edit Table Profiles Screen
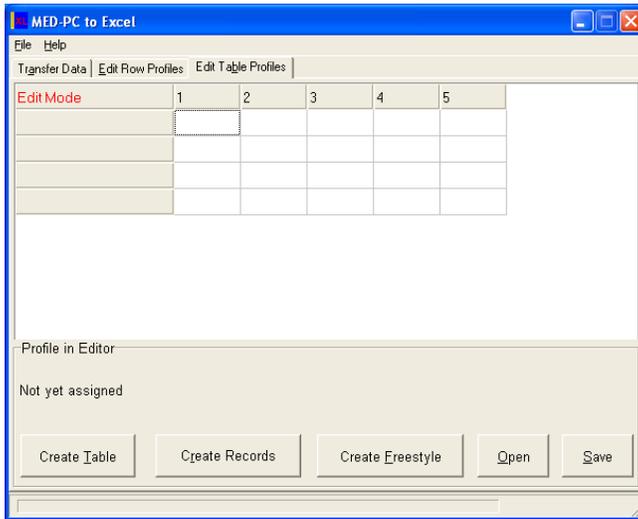
Descriptive labels are not automatically entered for identifiers. This allows the user to place a descriptive label (or even no label) wherever desired. Figure 2.3 is an example of a spreadsheet created with the freestyle profile.

Figure 2.3 - Example Freestyle Table

CHAPTER 3 | CREATING AND EDITING ROW PROFILES

Creating a Row Profile

This section explains the creation of a row profile, then how to use the row profile to transfer data. For this example, an Excel spreadsheet is used; however, it will work equally well with other output targets. To change the output target, select File | **Output Target**, then make a selection. If the desired target is not on the list, select clipboard. See Figure 3.1.

Figure 3.1 - Output Target Menu
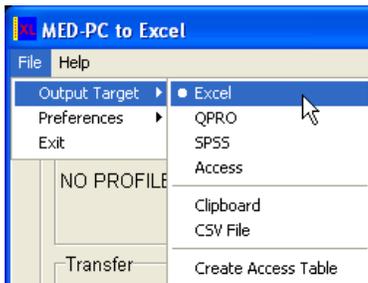
1. Print a copy of the MED-PC[®] procedure that has generated the data that will be analyzed and review the comments section to determine which variables were used for data of interest. For this example, the procedure FR10.MPC has been supplied.

2. Open the MPC2XL application.

3. Click on the **Edit Row Profiles** tab.

Figure 3.2 - Edit Row Profiles Tab
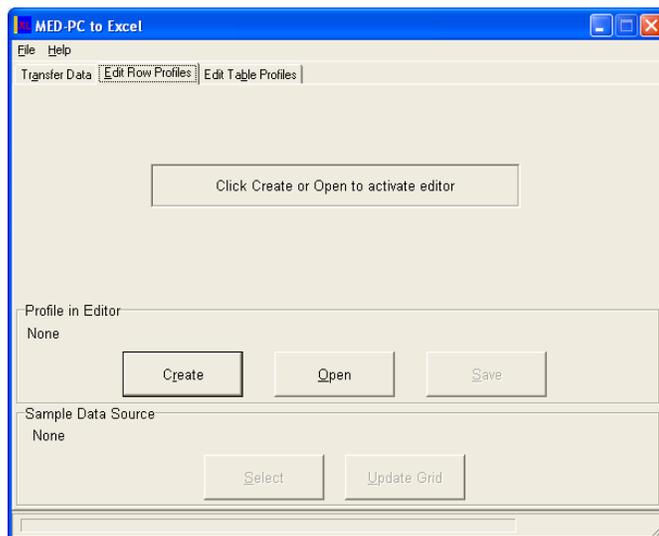
4. Click the **Create** button and select a data file for the sample profile. For this example, open !SAMPLE.01 as shown in Figure 3.3 to produce the "spreadsheet" shown in Figure 3.4. If this window does not open full size, it may be stretched using the standard click-and-drag method.

Figure 3.3 - Row Profile Data File Selection
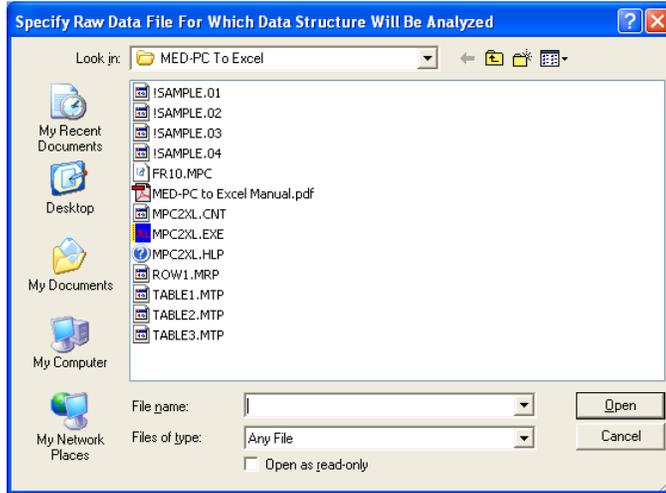
Figure 3.4 - Row Profile "Spreadsheet"
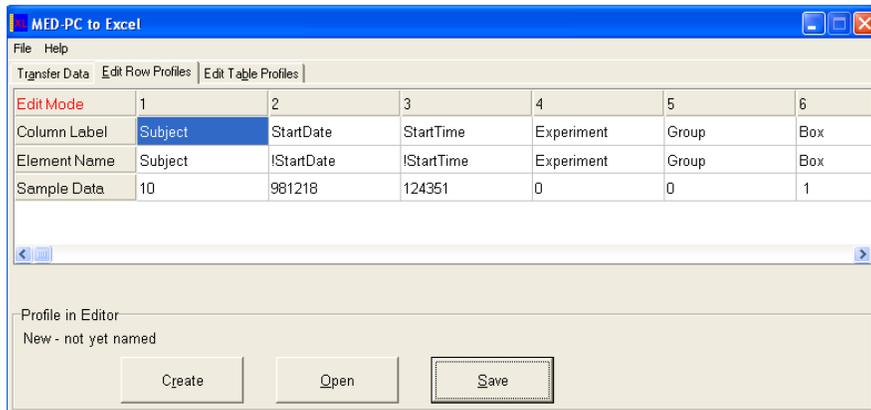
5. Notice that every variable in the data file is represented on the screen, as well as the following header information:

> **Subject**
> **Startdate** (year, month and day that the session was initiated)
> **Starttime** (hours, minutes and seconds when the session was initiated)
> **Experiment**
> **Group**
> **Box**

Comment (blank if no comment was entered during the session)
Every simple variable and array element written to the data file.

6. To use this profile as is, click **Save** and name the profile. For this example, name the file sample1. A file extension will automatically be assigned and listed under Profile Editor (Figure 3.5).

Figure 3.5 - Row File Extension
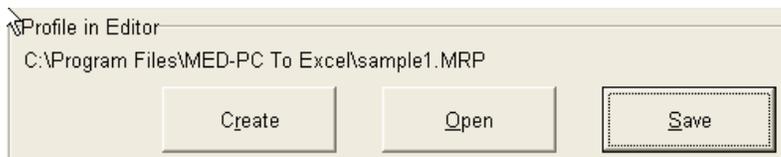
7. Click **File | Output Target** and verify that Excel is selected. Open Excel and position the mouse cursor on the cell that will be the upper left corner of the block of data being transferred. In this case, click in the cell name A1 (see Figure 3.6).

8. Return to MPC2XL and click the **Transfer Data** tab. In the "Transfer" box, check the **Column Labels** and **Data** options, as shown in Figure 3.7. Then click the **Select** button in the "Row Transfer" box and select the profile saved in Step 6. Finally, click the "Transfer" button and select !SAMPLE.01, the data file used in Step 4 to create the profile.

Figure 3.6 - Cell Selection
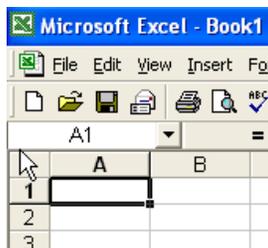
Figure 3.7 - Transfer Selections
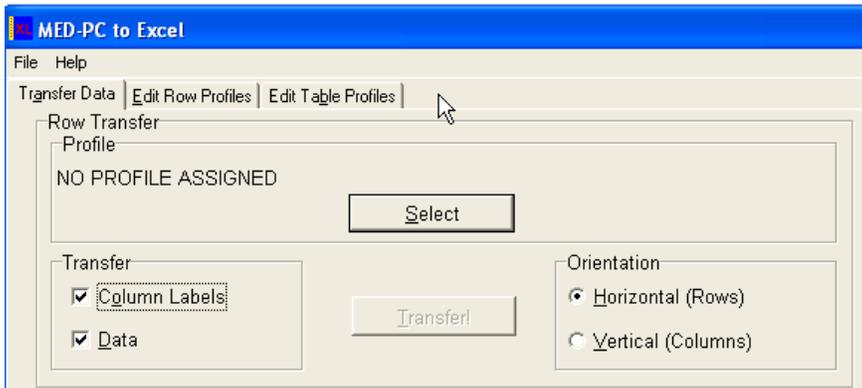
9. Return to the Excel spreadsheet. It should appear as in Figure 3.8, with the column labels and data. The next time data is transferred, simply "Select" the profile and click "Transfer", using the profile that has been created. It is possible to transfer only data by leaving the "Column Labels" box unchecked. For example, once again click in the cell that will be the starting position of the data (Figure 3.9). Transfer the data only by unchecking the Column Labels option in Figure 3.7. Transfer the data from file !SAMPLE.02 to produce the results shown in Figure 3.10.

Figure 3.8 - Row Profile Excel Spreadsheet

Figure 3.9 - No Column Labels Cell Selection

Figure 3.10 - Row Profile Spreadsheet without Column Labels

6	12L7	981218	124351	0	0	5		50	0	0	5
7											
8	10	981218	132037	0	0	1		150	0	0	15
9	35	981218	132037	0	0	2		150	0	0	15
10	16	981218	132037	0	0	3		150	0	0	15
11	ALFA	981218	132037	0	0	4		150	0	0	15
12	12L7	981218	132037	0	0	5		59	0	0	5
13											

Customizing a Row Profile

The following steps allow the user to customize the profile. Begin by selecting the **Edit Row Profiles** tab in MPC2XL and then opening the profile SAMPLE1, if not already open. Note that the upper left-most cell should read "Edit Mode". If not, it may be clicked at this time to enter the edit mode. Perform an or all of the following steps:

Deleting Columns

In most cases, not all columns are needed. For this example, delete some of the header information, such as StartDate, StartTime, Experiment, Group, Box and Comment and the zero value variables "B" and "C". To delete a column, highlight any cell in the column and right click to reveal the menu shown in Figure 3.11. Select **Delete Columns** and enter the number of columns to delete. For example, enter 3 to delete the current column plus the two columns to the right. The profile should now appear as shown in Figure 3.12.

Figure 3.11 - Column Edit Menu and Number of Columns to Delete

Edit	►
Insert Columns	
Delete Columns	
Paste an Indentifier	►

Delete current and rightward columns ☒

Total columns to delete:

1

[OK]   [Cancel]
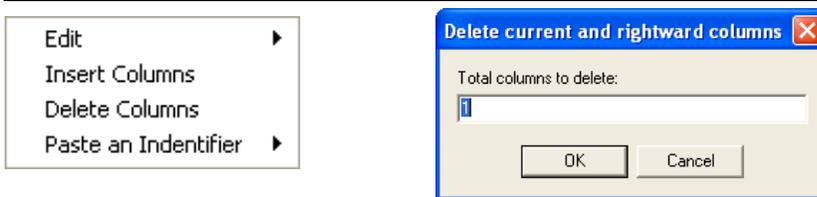
Figure 3.12 - Modified Profile

Edit Mode	1	2	3
Column Label	Subject	A	D
Element Name	Subject	A	D
Sample Data	10	150.000	15.000

NOTE: Large data arrays may result in the editor displaying more than 256 columns. The "Delete Multiple Columns" command should be used to delete columns in this situation. It is also possible to transfer data to a vertical column, greatly

expanding the number of elements that the spreadsheet can hold. Select the "Orientation" style desired, as shown in Figure 3.13

Figure 3.13 - Orientation Selection
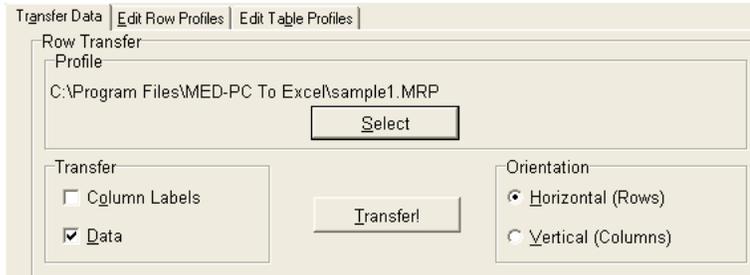
Editing Row 1 – Column Labels

The first row of the spreadsheet is defined as the Column Label row. It contains generic, descriptive labels for header and variable information. These labels will be transferred to the spreadsheet if "Transfer Labels" is selected; however, they do not control the transfer of data. These labels may be edited. For example, change "A" to Response, "D" to Reward, and "T" to time as shown in Figure 3.14.

Figure 3.14 - Renamed Profile Labels

Edit Mode	1	2	3	4
Column Label	Subject	Response	Reward	Time
Element Name	Subject	A	D	T
Sample Data	10	150.000	15.000	332.000

Editing Row 2 – Variables and Formulas

The second row of the spreadsheet is defined as the Element Name row. It contains the variable names, formulae and functions that affect data to be transferred. Variables are specified by name, A, B, C, etc., while array elements are specified by the array name and subscript, A(0), A(1), A(2), etc.

In this example the values of variables A,D and T are displayed in columns 2, 3 and 4 respectively. By using the information from the procedure that created the !SAMPLE.01 file, we were able to label these columns. This example will change the zero value variable Z to response rate in responses/minute.

Columns may be added by right clicking on any cell. The new column(s) will be inserted to the left. Cell contents may be moved using the "click and drag" method or by right clicking on the column whose contents will be moved and selecting "Cut", then right clicking on the column to the right of where the contents will be added and select

"Paste." Keep in mind that column 1 is equivalent to column A on the spreadsheet and that the row containing data is row 2 in the spreadsheet.

Response rate (in minutes) can be calculated by taking 60 times the response count, divided by the session time (in seconds). Using the standard A1 reference style, the formula would look like =60*B2/D2, where the response count is in column B and the session time is in column D. This method is effective if each file contains only one set of datum, but if the sample file contains data from five animals, then the R1C1 reference style must be used in Excel, where R = ROW, C = COLUMN and the number in [ ]'s represents the position of the cell containing the formula. Refer to the Excel help topics for more information on this feature. To activate this feature select **Tools | Options | General**, then be sure that **R1C1 reference style** is selected, see Figure 3.15.

Figure 3.15 - Selecting R1C1 Reference Style
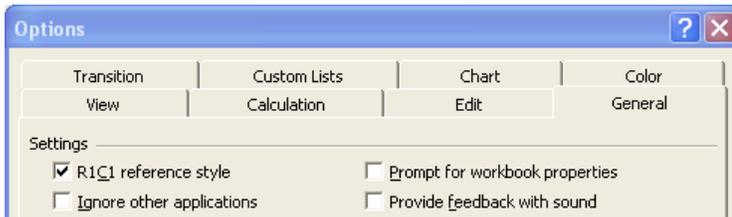
Using this format the response rate in minutes now becomes =60*RC[-3]/RC[-1]. Place this formula in Row 2, Column 5. Complete this task by changing the label in Row 1, Column 5 from "Z" to "Rate" and click the "Update" button to transfer the formula to Row 3. The profile should now be identical to Figure 3.16.

The bottom row contains data from the sample data file. The only purpose of the third row is to help recognize the contents of the variables contained in the second row. Now save the changes.   A new profile name may be assigned or the profile may be overwritten to the SAMPLE1 file. The data may now be transferred. The transferred data should resemble Figure 3.17. Refer to the **Tips on Transferring Row Data** section of this manual for transferring additional blocks of data.

Figure 3.16 - Formula

Edit Mode	1	2	3	4	5
Column Label	Subject	Response	Reward	Time	Rate
Element Name	Subject	A	D	T	=60*rc[-3]/rc[-1]
Sample Data	10	150.000	15.000	332.000	=60*rc[-3]/rc[-1]

Figure 3.17 - Spreadsheet with Formula

	1	2	3	4	5
1	Subject	Response	Reward	Time	Rate
2	10	150	15	332	27.10843
3	35	150	15	458	19.65066
4	16	150	15	606	14.85149
5	ALFA	131	13	900	8.733333
6	12L7	50	5	900	3.333333

Tips on Transferring Row Data

1. Check **Column Labels** if the columns labels should be transferred to the spreadsheet. This is normally done only when setting up a new sheet. Labels are typically put in the first row and it is generally not advisable to put multiple rows of labels in a row-oriented spreadsheet. This option is not selected by default.

Figure 3.18 - Transfer Panel
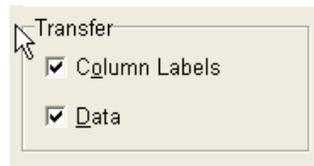
2. Check **Data** if the actual data should be transferred. This option is selected by default. To add data to the spreadsheet, uncheck **Column Labels** so that only **Data** is selected, and make sure the first cell to be used for the next block of data is selected. This could be the first row below the first block of data or the first column to the right of the first block of data.

3. Click the **Transfer** button and select one or more data files to transfer to Excel. Note that noncontiguous files in the dialog may be selected by holding the Ctrl key while clicking on the desired files. A contiguous range of files may be selected by holding the Shift key while clicking on the first and last files. The data will be transferred after clicking the **OK** button of the file dialog.

4. The Orientation panel controls whether the data is transferred as rows or as columns. Although the row editor displays profiles as rows, it is also possible to transfer data in columns just by selecting **Vertical (Columns)**. If 256 or more columns per row are being transferred, then it is advisable to transfer data in the default horizontal format due to the limitations of Excel.

Figure 3.19 - Orientation Panel
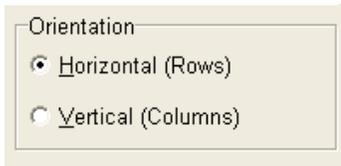
5. Command line parameters may be used in conjunction with shortcuts to MPC2XL to specify default profile names and data directories. This may simplify the use of MPC2XL for technicians.

Other Editing Functions and Features

1. The width of columns may be adjusted to facilitate editing of long labels and formulae by positioning the cursor between two columns in the gray row labeled "Column" and then dragging the mouse while holding down the left mouse button. This will have no effect on the resulting output.

2. Columns may be moved by positioning the cursor on the column row in the center of a column heading and dragging the mouse while holding down the left mouse button. Release the button when the column is in the desired position.

3. The "Column Label" row contains arbitrary descriptive labels. These labels may be transferred to the spreadsheet if desired, but they do not control the flow of data from data files into the spreadsheet.

4. The "Element Name" row controls the transfer of data. In addition to special identifiers, variable and array elements may be specified in this row. Variables are specified by their name, while array elements are specified by the array name and subscript.

5. Many spreadsheets are limited to 256 columns, but the number of rows is practically unlimited. If more than 256 columns are present in the row profile when you attempt to save it, a dialog box will appear suggesting that the number of columns in the profile be reduced. This warning may be ignored if the data will be transferred in columns. See the note under "Deleting Columns."

6. The transfer process is extremely fault tolerant. For example, it is acceptable to include variables in a row profile that may or may not be present in data files that are transferred with the profile. If a profile requests a variable that is not present in a particular data file, the resulting spreadsheet row will just contain the name of the requested variable, rather than a value for the variable.

7. The table and profile editors operate in two modes – "Edit Mode" and "Selection Mode". These modes determine whether the mouse may be used to select multiple

cells for cut, copy and paste operations. The mode is displayed in red text in the upper-left corner of the grid. Clicking on the corner cell toggles the mode. Cell entries can only be edited when the grid is in Edit Mode. To copy a range of cells, place the grid in Selection Mode, then drag the mouse while holding the left mouse button to highlight multiple cells. After a range of cells has been selected, cut, copy and paste functions may be accessed from the Edit submenu of the right-click menu.

Figure 3.20 - Edit Mode and Selection Mode

Edit Mode	1	2
Column Label	Subject	Star
Element Name	Subject	!Sta
Sample Data	10	981

Selection Mode	1	2
Column Label	Subject	Sta
Element Name	Subject	!St
Sample Data	10	98

Setting Defaults with Command Line Parameters

A very convenient way to use MPC2XL is to create multiple shortcuts to then program and edit the properties of each shortcut to pass command line parameters to MPC2XL. MPC2XL accepts command line parameters specifying a default row profile, a default table profile, and a default data directory. This will help technicians to use MPC2XL efficiently and accurately. It is especially convenient to create a separate shortcut for each experiment or type of analysis.

Steps for Setting Up Shortcuts with Command Line Parameters

1. Create a shortcut to MPC2XL. This may be done by finding MPC2XL in Windows Explorer, then right clicking on MPC2XL and selecting "Create Shortcut" from the popup menu.

2. Drag the shortcut to the desktop.

3. Right click on the shortcut and select **Properties**. Select the **Shortcut** tab as shown in Figure 3.1

Figure 3.21 - Editing a Shortcut
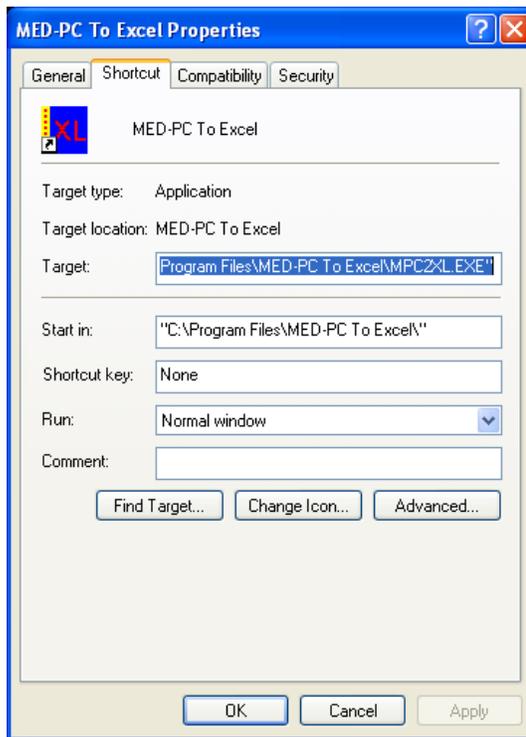
4. Edit the **Target** field to add a complete path to a row and/or table profile that should be automatically selected on the "Transfer Data" tab of MPC2XL. Be sure to include drive, directory, filename and file extensions.   For example, SAMPLE1.MRP and TABLE1.MTP could be specified by amending the "Target" entry to read:

    C:\MPC2XL\MPC2XL.EXE C:\MPC2XL\SAMPLE1.MRP C:\MPC2XL\TABLE1.MTP

Note that MPC2XL will recognize row profiles versus table profiles on the basis of their extensions. The order in which they appear does not matter, and it is acceptable to specify just one. However, the path to MPC2XL must be specified before any profiles. Click **Apply** to make the changes.

A default data directory may be specified by editing the **Start in** field. If the data for the experiment is kept in "C:\MPC2XL", then edit the field accordingly.

Suggestions for Using MPC2XL

1. If large amounts of event data are being collected (e.g., the time of occurrences of every response), consider also collecting summary data. Then set up separate profiles to transfer the summary data and event data into Excel. The summary data may be conveniently managed in a row-oriented profile, whereas a table profile or record-oriented profile could be used to manage the event data.

2. Consider collecting data for an entire experiment and for all subjects on a single spreadsheet page. Coupled with features such as sorting, pivot tables and autofilters, this approach allows the user to analyze data in a very flexible fashion.

HINT: MPC2XL provides extensive popup hints that change as the cursor is moved about the application. These hints may be toggled on and off by clicking **File | Preferences | Display Hints** (Figure 3.22).

Figure 3.22 - Display Hints Option

CHAPTER 4 | CREATING AND EDITING TABLE PROFILES

Table profiles may be used in a variety of ways to transfer data in a tabular format. Table profiles provide a great deal of flexibility, but are not created automatically from MED-PC data files in the same fashion as row profiles. There are three basic types of tables, Freestyle, Table Style and Record Style, which can be created using the table editor (contained in the "Edit Table Profiles" tab).

Freestyle Tables

This is the simplest table to create. A Freestyle Table is created by clicking the **Create Freestyle** button (see Figure 4.1). The right mouse button may then be used to insert identifiers. Note that descriptive labels are not automatically entered for identifiers. This allows the user to place descriptive labels (or no label) wherever desired. The following example assumes that the section on Creating and Editing Row Profiles has already been read and that the basic tools of MPC2XL are already understood. It also assumes that Excel will accept RC formula notation.

1. Launch MPC2XL; click on the **Edit Table Profiles** tab at the top of the form and then the **Create Freestyle** button on the bottom row of the form. The blank form in Figure 4.1 should now be displayed.

Figure 4.1 - Blank Freestyle Table
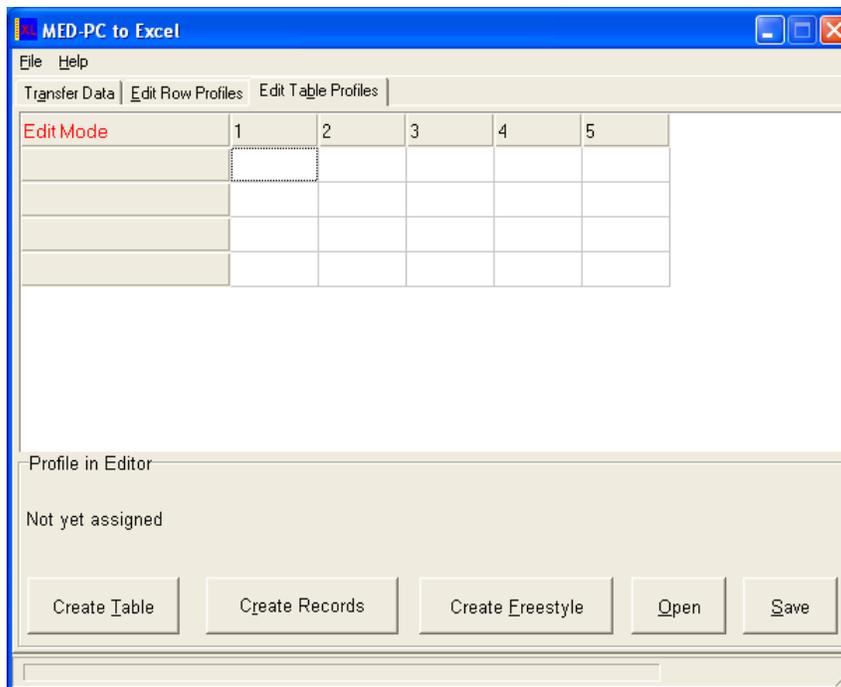
2. Click Cell R1C1 and right click **Row | Insert | Blank Table Rows | Number of Rows to Insert**, as shown in Figure 4.2, to add 5 rows to the blank sheet.

Figure 4.2 - Inserting Blank Rows
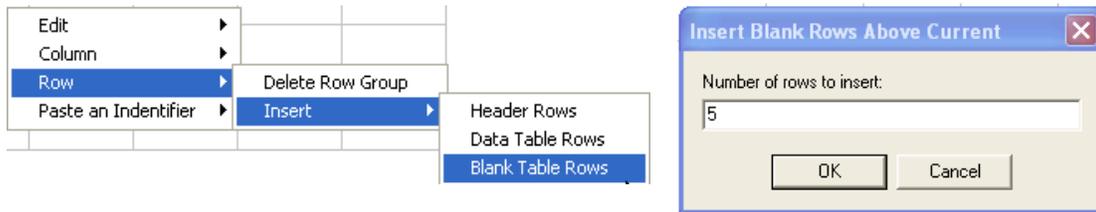
Place the following labels in the first Column:

    Row 1: Start Date:

    Row 2: Start Time:

    Row 3: Subject ID:

    Row 4: Comments:

    Row 5: Leave Blank

    Row 6: Response Count:

    Row 7: Session Time:

    Row 8: Response Rate:

Place the following Identifiers (right click | Paste an Identifier) in Column 2:

    Row 1: Condensed Start Date (choose either format)

    Row 2: Condensed Start Time (choose either format)

    Row 3: Subject

    Row 4: Comment

    Type in the following Variables and formulas as indicated:

    Row 6, Column 2: A

    Row 7, Column 2: =RC{1}/60

    Row 7, Column 3: T

NOTE: Because the data file contains time in seconds the report should show minutes, the variable value was placed in Column 3 (which can be hidden in Excel if desired) and the formula for time in minutes was placed in Column 2.

    Row 8, Column 2: =R[-2]C/R[-1]C

The complete profiles should look similar to Figure 4.3. Save this profile as table1.

Figure 4.3 - Freestyle Table Profile

Edit Mode	1	2	3
	Start Date:	!StartDate/	
	Start Time:	!StartTime:	
	Subject ID:	Subject	
	Comments:	Comment	
	Response Count:	A	
	Session Time:	=RC[1]/60	T
	Response Rate:	=R[-2]C/R[-1]C	

3. Click the **Transfer Data** tab at the top of the page. Under **Table Transfer**, click the **Select** button and click on Table1.mtp. Click the **Transfer** button and select the sample.01 file. Clicking **Open** automatically initiates the data transfer process.

4. Return to the Excel spreadsheet to review a sample report similar to that shown in Figure 4.4.

Figure 4.4 - Sample Freestyle Spreadsheet

	1	2	3
1	Start Date:	12/18/1998	
2	Start Time:	12:43:51	
3	Subject ID:	10	
4	Comments:		
5			
6	Response Count:	150	
7	Session Time:	5.533333333	332
8	Response Rate:	27.10843373	
9			
10	Start Date:	12/18/1998	
11	Start Time:	12:43:51	
12	Subject ID:	35	
13	Comments:		
14			
15	Response Count:	150	
16	Session Time:	7.633333333	458
17	Response Rate:	19.65065502	
18			
19	Start Date:	12/18/1998	
20	Start Time:	12:43:51	
21	Subject ID:	16	
22	Comments:		
23			
24	Response Count:	150	

Table Style Tables

The table style profiles, like the freestyle table, require that the user define each cell; however, it has more structure to it than the freestyle. This style of table was designed to present trial-oriented data along with session identifying information. Create this type of table by clicking the **Edit Tables** tab at the top of the MPC2XL form and the **Create Table** button at the bottom of the form to produce a blank form similar to the one shown in Figure 4.5.

Figure 4.5 - Blank Table Style Table

In contrast to the freestyle row, which doesn't have a label in the left column, descriptive labels in the "Header Titles" row may bear the same name as a data element. Right click the first cell in the "Header Titles" row and select **Paste an Identifier**, then click the identifier to insert, for example **Condensed Start Date**. Note that this selection allows the user to select a date format. Once selected, the start date title appears in the title row and the data element in the "Header Elements" row. The title may be edited if desired. In the example, a space was added between "Start" and "Date". User defined titles may also be entered in the "Header Titles" row with the appropriate variable name for the formula placed in the "Header Elements" row just below the titles. Free form data may also be added just below the Header Elements by inserting "Blank Rows". This is done by right clicking the black row, then selecting **Row | Insert | Blank Table Rows**.

A key aspect of data tables is the ability to systematically extract data from an array without the need to explicitly type in every data element that should appear in the table. This facility is ideal for creating tables displaying the results of trial-oriented sessions. A sample profile has been provided. Click on **Open** then highlight Table2.mtp, then click **Open** again to view the sample profile shown in Figure 4.6. This table was created to extract data from a delayed non-match to sample experiment. The MSN procedure that produced this file was written to place 11 data elements in array "A" for each trial. If fifty trials (instead of five in the file !sample.04) were present, one would have initially enter as many as 550 elements in a freestyle table. A trial-oriented table uses the "Column Titles", "1st Column Element", "Increment", and "Last Column Element" rows, which function together to create the data table.

Figure 4.6 - Example Table Style Table

Selection Mode	1	2	3	4	5	6
Header Titles	Start Date	Start Time	Subject #			
Header Elements	!StartDate/	!StartTime:	Subject			
Column Titles	Trial Number	Trial Duration	Delay (sec	Sample (1	Sample La	Back Lever
1st Column Element	A(0)	A(7)	A(1)	A(2)	A(3)	A(4)
Increment	11	11	11	11	11	11
Last Column Element	A(500)	A(500)	A(56)	A(57)	A(58)	A(59)

Column Titles

Identical to the Freestyle Table. Enter titles that are appropriate for each column. In the example, Trial Number, Trial Duration, and Delay (sec) have been entered for the first three columns.

1st Column Element

Enter the first element to begin selecting from. In this example, this is element (0); however, it may be any legal element defined in the MSN procedure. Also notice that in column 2 the elements do not appear to have any particular order. Although not shown, elements could come from different arrays.

Increment

The number of elements for each trail or data block. In the example, the MSN procedure saved 11 elements per trial, elements 0-10 for trial 1, elements 11-21 for trial 2, etc. This increment size will be the same for all elements from the same array. Note, that is not the number of elements to transfer. In the example, elements 8,9 and 10 from each block were not used.

Last Column Element

The last element that may be selected. If an array is only used for "common" data, then the easiest entry is the last element as defined by the DIM statement in the MSN procedure. In the example, 500 has been used for columns 1 and 2. The last element may also be precisely defined as in the remaining columns.

Transferring data using the "table" profile is the same as transferring row data. If changes were made to this profile, click **Save**. Next click the **Transfer Data** tab at the top of the MPC2XL form. In the **Table Transfer** section of the form, "No Profile Assigned" or "C:\MPC2XL1\Table2.MRP" should appear. If "No Profile Assigned" appears, click **Selec**t and open profile Table2.MRP. Next check both the "Column Labels" and "Data" boxes. Make sure cell R1C1 is selected on a clean spreadsheet, then click **Transfer**, and open the data file !Sample.04 to produce Figure 4.7.

Figure 4.7 - Table Style Table

	1	2	3	4	5	6	7	8
1	Start Date	Start Time	Subject #					
2	9/16/1998	15:58:07	250M					
3								
4	Trial Number	Trial Duration	Delay (sec)	Sample (1 = Left)	Sample Latency	Back Lever Count	Choice Latency	Response Tag (1 = correct)
5	1	26.5	16	0	6.8	2	3.7	1
6	2	8.7	0	1	3.6	1	5	1
7	3	11.8	4	1	3.2	6	4.5	0
8	4	63.39999999	32	1	23.8	2	7.6	1
9	5	38.7	8	1	24.9	1	5.7	1

Additional Considerations

1. The data for different columns may be contained in more than one array.

2. The data may begin somewhere in the middle of the array.

3. Fixed information may be placed into the table by leaving the "Increment" and "Last Column Element" fields empty then placing an entry in the "1st Column Element" field. For example, a formula could be placed in the "1st Column Element" field that manipulates other data in the row.

4. It is not a problem if the entries for various columns generate differing numbers of table entries; the table will be dimensioned to accommodate the largest data request and blank cells will be outputted as necessary. For example, one column could generate 3 rows, whereas another could require 10. In this case, a table with 10 rows would be created.

Record Style Tables

The record style profile, like the freestyle and table style, requires that the user defines each cell. It is designed to transfer trial-oriented data without any descriptive labels. The details for creating the trial-oriented data table are the same as described for the table style profile. The purpose of the record table is to create data rows containing only data, without any headers. One use for this format is to create database-like spreadsheets that allow one to ask very detailed questions about trial- or event-oriented data. The basic concept is to create a row for each trial, subject, experiment, etc. and to include adequate descriptive information in each row so that the data in each row stands as an independent record. For example, including subject and date information in each row allows one to sort or analyze all of the data for an entire experiment by trail number, perhaps broken down by ranges of dates or by subject. The key to producing this type of data structure is to place session identifiers, such as "Subject", in the "1st Column Element" cell and to leave the "increment" and "Last Column Element" fields blank. Combined with array information in other columns, this will result in the subject number being placed in each row.

NOTE: The Column Labels and Data Transfer option should only be selected the first time that data is transferred to a given sheet. This will ensure that only data are transferred once a header row has been placed in the spreadsheet.

Adding and Deleting Header Rows, Blank Rows and Table Rows

The three table formats that have been discussed above may all be customized through the use of the right mouse button menu. For example, more than one data table may appear in a profile by using the **Row | Insert | Data Table Rows** menu selection. In a similar manner, blank rows or free form data may be added by inserting a blank row and editing as desired. The order in which various types of rows are included are irrelevant – MPC2XL will faithfully produce a table.

Automatically Inserting A Trial Number

"!RowNumber" is an identifier from the right mouse menu only when editing a Table profile. This identifier inserts a number corresponding to the row of the current set of table rows that is being created. A typical use for this function is to automatically insert trial number when displaying trial-oriented data. This function is ignored if it is manually inserted into a row profile.

Enabling/Disabling Popup Hints

MPC2XL provides extensive popup hints that change as the cursor is moved about the application. These hints may be toggled on and off by clicking **Edit | Preferences | Display Hints** menu selection.

Selecting the Correct Output Target

Explicitly Supported Applications

Excel, Quattro Pro, SPSS and Access are explicitly supported by MPC2XL. To transfer data to the programs, pull down the **File | Output Target** menu selection and select the appropriate application. Data for these applications are automatically inserted wherever the cursor is located. When using MPC2XL with SPSS, data may only be transferred using Row Oriented Profiles. This is because SPSS expects the user to explicitly define the variable type (text, integer, etc.) that each column will contain.

Transferring Data to Unsupported Applications

    Method 1: Pasting Data from the Windows Clipboard.

Data may be transferred to some unsupported application by selecting the "Clipboard" option under the **File | Output Target** menu. When this application is selected, data are placed on the Windows clipboard. Use the unsupported application's **Edit | Paste** command to paste the data from the clipboard into the application. This method works with Sigmaplot 4.0.

Method 2: Save the data as a Comma Separated File (CSV).

Many applications are capable of importing data files that have been saved in CSV format. Determine whether or not the application supports this format by using **File | Open** and browsing through the list of file formats appearing in the drop down box of file formats. To transfer data to a CSV file, select "CSV File" from the **File | Output Target** menu. Next the user will be prompted to enter a filename for the CSV file whenever a file is transferred. Note that appending data to CSV files is not supported; use a new filename if the existing CSV file should not be overwritten. In practice, this should now be a difficulty because it is best to save the data in the target application's file format after importing data with its CSV option.

Method 3: Transfer the Data to Excel and the Open the Spreadsheet in the Desired Application.

Many applications, such as Sigmaplot, are capable of opening or embedding Excel spreadsheets. It may be possible to transfer the data to an Excel spreadsheet, save the spreadsheet and then open it in the desired application. A variation or this approach is to transfer the data to Excel and the use Excel's **File | Save As** command to save the spreadsheet in a format that the target application is capable of importing. Excel is capable of saving data in a variety of formats, including DIF, WKS and DBF.

CHAPTER 5 | FREQUENTLY ASKED QUESTIONS

Does MPC2XL support all MED-PC data formats?

Yes, however the stripped without identifiers format is generally not recommended because the internal structure does not provide information about the names of the variables and arrays it uses.

Can data files contain more than one session or sessions with different formats?

Yes, however this can lead to errors in data collection. MPC2XL transfers all data for which matches can be found between the profile and the file. Because of this we recommend a single file for each subject, for each session.

What happens if my data contains more than one session and the data is from different experiments with different data structures?

MPC2XL will transfer all of the data to the extent that matches can be found between data elements requested in the profile and the data actually found in the data files. No particular harm will occur in this situation, but you may end up transferring data from the sessions that are unrelated to the experiment for which the profile was created. It might be tempting to conclude that MPC2XL should have been designed to skip sessions for which a reasonable match between the profile and the data file cannot be found. However, this strategy was not implemented because it would have severely reduced the overall power of MPC2XL. The advantage to having a "fuzzy" system is that it is very fault-tolerant and allows one to make changes to the data structure of an experiment as the experiment evolves, without necessarily forcing the creation of a new profile.

How do I handle large amounts of data?

If you are collecting large amounts of event data (e.g., the time of occurrence of every response), consider also collecting summary data. Then set up separate profiles to transfer the summary data and event data into Excel. The summary data could be conveniently managed in a row-oriented profile, whereas a table profile or record-oriented profile could be used to manage event data.

Can an entire experiment be placed in a single spreadsheet?

Yes, collecting data for all subjects in an entire experiment on a single spreadsheet page, coupled with features such as sorting, pivot tables and AutoFilters, generally allow one to analyze data in a very flexible fashion.

This manual covers the requirements of a compatible computer, installing software, and the on-screen features of MPC2XL. If any questions arise that are not answered by this manual or by the on-screen help menus supplied with this software, please feel free to contact MED Associates.

My data is collected using the "Stripped format, all data are output one datum per line", as selected in WMPCINST. Why does MPC2XL misname my variables and arrays?

This file format is absolute and its use is discouraged. The internal structure of this format does not provide information about the names of variables and arrays; it only indicates the presence of arrays of particular sizes. MPC2XL deals with the ambiguity by assigning letters of the alphabet sequentially to data found in stripped data files. Letters of the alphabet are first assigned to variables and then to arrays. For example, if the file indicates that there are 24 simple variables and 2 arrays, the variables will be assigned in order from "A" to "X" while arrays will be arbitrarily assigned to Y() and Z(). These assignments will match the actual data file only if the MSN program actually defined to arrays as "Y" and "Z" via LIST or DIM statements. If the MSN arrays were named C() and G(), variables A and B would be the only variables properly identified by MPC2XL. Variable D would be identified as C, E as D, F as E, H as F, I as G, etc., while array C would be identified as Y() and array G would be named Z() by MPC2XL.

Because of the obvious confusion that could result using a stripped format, it is strongly recommended that the other stripped file formats or the annotated format be used. The "Stripped with Variable Identification" is probably the most efficient and powerful format with all necessary information stored in the most compact file. The Annotated format is the easiest to read with a text editor such as Notepad.

APPENDIX A | INSTALLING MPC2XL

MPC2XL installation is quick and easy. Before beginning the installation, phone, fax or e-mail Med Associates with the registration information in order to receive the software installation password. This password will be necessary during the installation process.

Begin installation by placing the MPC2XL CD into the CD-ROM drive. The screen shown in Figure A.1 will appear. Click **Install MED-PC to Excel** and the screen shown in Figure A.2 will appear.

Figure A.1 – MPC2XL Main Screen

Click Install to begin installation. Follow the steps to complete the installation, entering the desired User Name, Company Name and Password when prompted. When installation is complete, the screen shown in Figure A.3 will appear.

Figure A.2 – Installation Wizard

Click **Finish** to close this screen. A desktop shortcut to MPC2XL was created during installation and may now be used to open the application.

Figure A.3 - Installation Complete

APPENDIX B | CONTACT INFORMATION

Please contact MED Associates, Inc. for information regarding any of our products.

Visit our website at www.med-associates.com for contact information.

For technical questions, email support@med-associates.com.