ME scope

Shape Table (SHP) Window

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Table of Contents

Shape Table (SHP) Window **6**
Opening a Window 6
Shapes & M#s Spreadsheets **7**
Right Click Menus 7
Re-Ordering Spreadsheet Columns 7
Spreadsheet Vertical Scrolling 7
Spreadsheet Text Size 7
Cut, Copy & Paste Text 7
Showing & Hiding Spreadsheet Columns 7
Reset Spreadsheet Column Widths 8
Re-Ordering Spreadsheet Columns 8
Shapes Spreadsheet **8**
File Menu **8**
File | Save Shape Table 8
File | Save Shape Table As 8
File | Export Shape Table 8
UFF File Export 9
File | Copy to Clipboard | Shapes SS 9
File | Copy to Clipboard | M#s SS 9
File | Print | Shapes SS 9
File | Print | M#s SS 9
File | Shape Table Properties 10
File | Shape Table Options 10
Animation Tab 10
Show Hide Tab 10
Contour Colors Tab 11
High & Low Contour Limits 11
File | Close Shape Table 11
Importing Shapes Using Spreadsheet Format **11**
Creating a .TXT File Template 11
Add Your Data to The .TXT File 11
Import The .TXT File 11
Display Menu **12**
Display | Center Shape Table Window 12
Display | Toolbars 12

Display | Split 12
Display | M#s | Real 12
Display | M#s | Imaginary 12
Display | M#s | Magnitude 12
Display | M#s | Phase 12
Display | M#s | Real and Imaginary 12
Display | M#s | Magnitude and Phase 12
Animated Display of Shapes 12
Sweep Animation 12
Sine Dwell Animation 13
Stationary Dwell 13
Which Shape Data is Displayed in Animation? 13
Displaying Shapes for Selected M#s 13
Displaying Shapes with Multiple Reference DOFs 13
Shapes Menu 14
Shapes | Select By 14
Shapes | Select All 14
Shapes | Invert Selection 14
Shapes | Select None 14
Shapes | Sort By 14
Shapes | Move Selected Shapes Up or Down 15
Shapes | Add 15
Shapes | Delete Selected 15
Shapes | Copy to File 15
Shapes | Paste from File 15
M#s Menu 16
Selected M#s 16
M#s | Select | Select By 16
Start and Skip M#s 16
By Units 16
By DOF 16
By Roving DOF 17
By Reference DOF 17
By Point 17
By Direction 17
By Rectangular Matrix DOFs 17
By Measurement Type 17

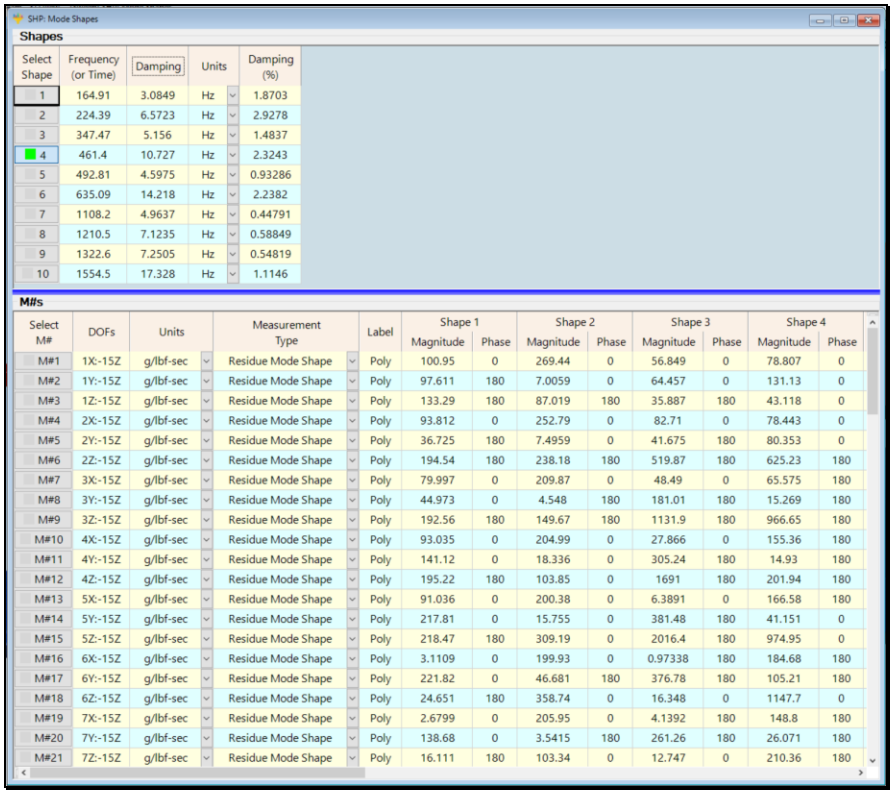
By Measurement Set....17
By Data Type....17
By Label....17
By Input Output....17
By Source....17
M#s | Select | Select All....18
M#s | Select | Invert Selection....18
M#s | Select | Select None....18
M#s | Sort By....18
By Units....19
By DOF....19
By Roving DOF....19
By Reference DOF....19
By Point....19
By Direction....19
By Rectangular Matrix DOFs....19
By Measurement Type....19
By Measurement Set....19
By Data Type....19
By Label....20
By Input Output....20
By Acoustic Source....20
M#s | Move Selected Up or Down....20
M#s | Add....20
M#s | Delete Selected....20
Edit Menu....20
Edit | Undo....20
Edit | Redo....20
Tools Menu....20
Tools | Save Shapes....20
Script Menu....21
Script | Display | Sine Dwell Cycles per Shape....21
Parameter....21
Script | Shapes | Select a Shape....21
Parameters....21
Script | Shapes | Select....21
Parameters....21

Script | Shapes | Color 21
Parameter 21
Script | Shapes | Label 21
Parameter 21
Script | Shapes | Frequency 21
Parameter 21
Script | Shapes | Damping 21
Parameter 21
Script | Shapes | Copy Cells to Clipboard 22
Parameters 22
Script | Shapes | Paste Clipboard to Cells 22
Parameters 22
Script | Shapes | Copy Cell to Variable 22
Parameters 22
Script | Shapes | Paste Variable to Cell 22
Parameters 22
Script | Shapes | Create Data Block 23
Parameters 23
Script | M#s | Select 23
Parameters 23
Script | M#s | Select an M# 23
Parameters 23
Script | M#s | Color 23
Parameter 23
Script | M#s | Label 23
Parameter 23
Script | M#s | DOF 23
Parameter 23
Script | M#s | Units 23
Parameter 23
Script | M#s | Measurement Type 24
Parameter 24
Script | M#s | Copy Cells to Clipboard 24
Parameters 24
Script | M#s | Paste Clipboard to Cells 24
Parameters 24
Script | M#s | Copy Cell to Variable 24

Parameters 24
Script | M#s | Paste Variable to Cell 24
Parameters 24

Shape Table (SHP) Window

To **enlarge this text**, ***click*** on it, ***hold down*** **the Ctrl key** and ***spin the mouse wheel***.



This chapter contains descriptions of the **basic commands** in the Shape Table (**SHP**) Window.

Only the commands for a **VT-620 Visual ODS** Package are documented in this chapter. Additional commands authorized by MEscope Options are documented in separate chapters. Execute **Help | License Manager** to verify the Options authorized by your MEscope license.

The Shape Table (**SHP**) window is used for,

- Viewing, editing, and performing math operations on operating deflection shapes (**ODS's**), mode shapes, acoustic shapes, and engineering data shapes
- Displaying shapes in animation on a 3D model in a ***connected*** Structure (**STR**) window

Menu command descriptions are ordered in this chapter by command menu ***(from left to right)***, and then by the commands in each menu ***(from top to bottom)***.

Each menu command is executed by choosing it from its command **menu**, or by ***clicking*** on its **Ribbon** or its **Tool** if it is on a **Toolbar**.

Opening a Window

To open a Shape Table (**SHP**) window in the Work Area,

- ***Double click*** on its name in either pane of the **Current Project Panel**
- Or ***right click*** on its name in either pane of the **Current Project Panel** and execute **Open** from the menu

Shapes & M#s Spreadsheets

The Shape Table (**SHP**) window is divided into **two spreadsheets**, separated by **a blue splitter bar**.

The **Shapes** spreadsheet is ***(above or left of)*** the **blue splitter bar**.

The **M#s** spreadsheet is ***(below or right of)*** of the **blue splitter bar**.

- ***Drag*** the **blue splitter bar** in the window to make either spreadsheet larger

Right Click Menus

- ***Right click*** **on a spreadsheet** to display a menu of ***frequently used*** spreadsheet commands

Re-Ordering Spreadsheet Columns

- ***Click*** & ***drag*** the **column header** to move a spreadsheet column to a new position

Spreadsheet Vertical Scrolling

If a ***vertical scroll bar*** is displayed on the ***right side*** of a spreadsheet,

- ***Click*** on the spreadsheet and ***spin the mouse wheel*** to ***scroll*** the spreadsheet vertically

Spreadsheet Text Size

To change the text size in a spreadsheet,

- Click on the spreadsheet, ***hold down*** **the Ctrl key**, and ***spin the mouse wheel***

Cut, Copy & Paste Text

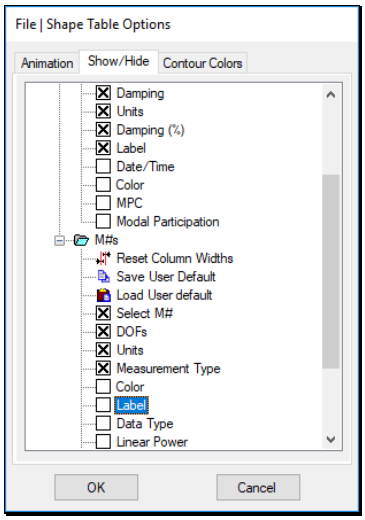
- ***Select*** one or more spreadsheet text cells
- ***Hold down*** **the Ctrl key** and,
  - ***Press*** **the X key to cut** the ***selected*** text to the Windows Clipboard
  - ***Press*** **the C key to copy** the ***selected*** text to the Windows Clipboard
  - ***Press*** **the V key to paste** text from the Windows Clipboard into the ***selected*** cells

Showing & Hiding Spreadsheet Columns

- ***Right click*** on the spreadsheet and execute **Show Hide Columns** from the menu

The **File | Shape Table Options** box will open displaying the **Show Hide** tab, as shown below

- ***Check*** columns to show them, and ***Un-check*** columns to hide them, and ***click*** on **OK**



Reset Spreadsheet Column Widths

- ***Right click*** on the spreadsheet and execute **Reset Column Widths** from the menu

Re-Ordering Spreadsheet Columns

- ***Click*** & ***drag*** the **column header** to move a column to a new position

Shapes Spreadsheet

Each **row** of the Shapes spreadsheet contains a parameter for ***each*** **shape** in the Shape Table **(SHP)**.

The Shapes spreadsheet contains the following ***columns***,

- **Select Shape** button
- **Frequency** (or **Time**)
- **Damping**
- **Units** of frequency & damping (or time)
- **Damping (%)**
- **Label**
- **Date Time**
- **Color**

Shape color (used during animation if **Animate Using the Shape Color** is ***checked*** on the **Animation** tab in the **File | Shape Table Options**.

File Menu

This menu is also displayed when you ***right-click in the spreadsheet area*** of a Shape Table (**SHP**) window.

File | Save Shape Table

Saves the Shape Table (**SHP**) file into the ***current*** **Project file** on disk.

File | Save Shape Table As

Saves a ***copy*** of the Shape Table (**SHP**) file with a ***new name*** into the ***current*** **Project file** on disk.

File | Export Shape Table

Exports the data in a Shape Table (**SHP)** window to a disk file in an external file format.

When this command is executed, the Windows **File Save As** dialog box is opened

- Choose an export file format from the **Save as type** list
- Choose a disk folder in which to save the file or create a new one
- Type the desired file name into the **File name** box
- ***Click*** on the **Save** button

UFF File Export

The table below shows the **Data Set Type** that is created when a Shape Table (**SHP**) is exported to a disk file in **UFF** format.

If the Shape Table (**SHP**) ***is connected*** to a Structure (**STR**) file, a dialog box will open asking if you want to export both the Shape Table (**SHP**) & Structure (**STR**) files together in the same file.

- ***Click*** on **Yes** to export both files together in the same file
- ***Click*** on **No** to export only the Shape Table (**SHP**) file

UFF only supports **Global (X, Y, Z)** coordinates, so shape components are converted from **Measurement Axes** to **Global** (**X, Y, Z**) coordinates when exported to a **UFF** file.

MEscope File	Type of Data	UFF Data Type
Structure (**STR**)	Structure Points & Lines	15 & 82
Shape Table (**SHP**)	Shapes	55
Data Block (**BLK**)	Time Waveforms, FRFs, Transmissibility's, Auto & Cross Spectra, Fourier Spectra.	58

File | Copy to Clipboard | Shapes SS

Copies the **Shapes** spreadsheet to the Windows Clipboard.

File | Copy to Clipboard | M#s SS

Copies the M#s spreadsheet to the Windows Clipboard.

File | Print | Shapes SS

Prints the **Shapes** spreadsheet on the Windows printer.

The installed Windows printer must be a graphics printer to use this command.

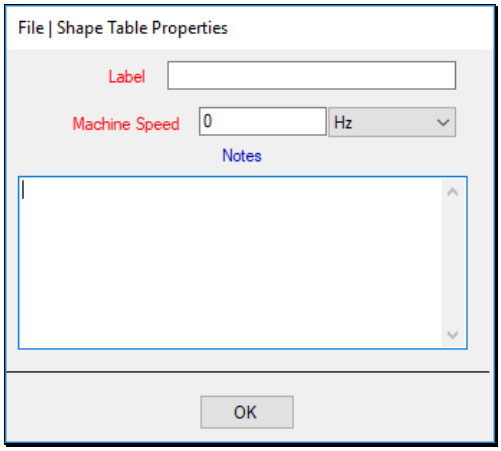
File | Print | M#s SS

Prints the **M#s spreadsheet** on the Windows printer.

The installed Windows printer must be a graphics printer to use this command.

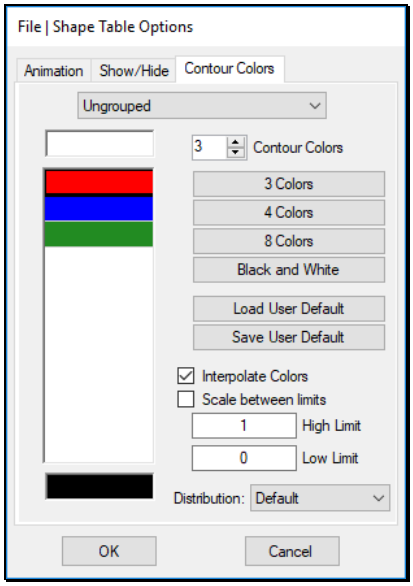
File | Shape Table Properties

Opens the Shape Properties dialog box, as shown below.



File | Shape Table Options

Opens the Shape Table (**SHP**) Options box.



Animation Tab

During **Sweep** animation, the number of **Sine Dwell Cycles per Shape** is executed before displaying the next shape.

If **Line Color uses Shape Color** is ***checked,*** the Shape color is used as the **Line** color during animation.

Show Hide Tab

Shows or **hides** columns of the **Shapes** or **M#s** spreadsheets.

- ***Right click*** on the **Shapes** or **M#s spreadsheets** and select **Show Hide Columns** from the menu
  - ***Check*** columns to ***show*** them
  - ***Un-Check*** columns to ***hide*** them

Contour Colors Tab

Contour colors are used by the following commands,

- Display | **MAC**
- Display | Source Rank
- Commands in the **Deflection | Contours Menu** in a ***connected*** Structure (**STR**) window

High & Low Contour Limits

High & **Low Limits** are entered into the **High Limit** and **Low Limit** boxes ***above*** & ***below*** the color bar.

If the **Low Limit = 50** and the **High Limit = 100,** then color contours will only be displayed for shape values between 50 & 100.

Values ***above*** or ***below*** the limits are displayed using the **limit** colors.

If shape data at a Point is ***only one dimensional*** (only one of the **Deflection | X, Y, Z** commands is ***checked***), then contours are displayed for shape values between ***Plus & Minus*** limits.

If shape data at a Point is ***more than one dimensional***, contours are displayed for ***shape magnitudes*** between positive ***Low & High*** limits.

File | Close Shape Table

Closes the Shape Table (**SHP**) window.

Any window can also be closed by ***clicking*** on the close button in the ***upper right corner*** of the window.

Importing Shapes Using Spreadsheet Format

Use the Shape Table (**SHP**) spreadsheet **(.TXT)** file format to import shape data in ASCII text spreadsheet format

The Shape Table (**SHP**) spreadsheet format is columns of text separated by ***delimiters***, such as ***commas*** or ***tab*** characters.

Creating a .TXT File Template

To create an **.TXT** file template,

- Start with any Shape Table (**SHP**) file in MEscope
- Open the Shape Table (**SHP**) file
- Execute **File | Export** and export the file in **.TXT** format

Add Your Data to The .TXT File

- Open the **.TXT** file in a spreadsheet program like **MS Excel** or a word processor like **MS Word**
- Replace the shape data in the spreadsheet columns with your data
- Edit the other information where applicable
- Save the file to disk

Import The .TXT File

Make sure that the **.TXT** file is no longer open in the spreadsheet or word processor program before importing it to **MEscope**.

- Execute **File | Import | Shape Table** in the **MEscope** window and import the **.TXT** File

Display Menu

This menu is also displayed when you ***right-click*** **in the spreadsheet area** of a Shape Table (**SHP**) window.

Display | Center Shape Table Window

Centers the Shape Table (**SHP**) window in the **Work Area** of the **MEscope** window.

Repeated execution of this command alternately centers the window and returns it to its former position.

Display | Toolbars

If ***checked***, the Toolbars are displayed in the Shape Table (**SHP**) window

Display | Split

Toggles the display of the **Shapes** spreadsheet and the **M#s** spreadsheet in a Shape Table (**SHP**) window between ***side-by-side*** & ***upper-lower*** format.

- In ***side-by-side*** format, the **Shapes** spreadsheet ***is on the left*** and the **M#s** spreadsheet ***is on the right*** of the **blue splitter bar**
- In ***upper-lower*** format, the **Shapes** spreadsheet ***is above,*** and the **M#s** spreadsheet ***is below*** the **blue splitter bar**

Display | M#s | Real

Displays the ***real part*** of all shape components (**M#s)** in the **M#s** spreadsheet.

Display | M#s | Imaginary

Displays the ***imaginary part*** of all shape components (**M#s)** in the **M#s** spreadsheet.

Display | M#s | Magnitude

Displays the ***magnitude*** of all shape components (**M#s)** in the **M#s** spreadsheet.

Display | M#s | Phase

Displays the ***phase*** of all shape components (**M#s)** in the **M#s** spreadsheet.

Display | M#s | Real and Imaginary

Displays the ***real & imaginary parts*** of all shape components (**M#s)** in the **M#s** spreadsheet.

Display | M#s | Magnitude and Phase

Displays the ***magnitude & phase*** of all shape components (**M#s)** in the **M#s** spreadsheet.

Animated Display of Shapes

To create an animated shape display, measurement data is retrieved from the Shape Table (**SHP**) for ***all Linked M#s*** on the structure model in the ***connected*** Structure **(STR**) window.

Shape animation is initiated by executing **Animate | Animate a Shape** in the ***connected*** Structure **(STR**) window.

Sweep Animation

When **Animate | Sweep** is ***checked*** in the ***connected*** Structure **(STR**) window,

- Shapes are ***successively selected***, and the shape data for the ***currently selected shape*** is displayed as the animated shape using **Sine Dwell** Animation
- The number of **Sine Dwell cycles per Shape** is executed before the next shape is selected
- This number of Sine Dwell cycles per Shape is edited on the Animation tab in the File | Shape Table Options box

Sine Dwell Animation

When **Animate | Sine Dwell** is ***checked*** in the ***connected*** Structure **(STR)** window,

- Each shape is multiplied by **sine values** (evenly spaced between values of **-1 & +1**) to provide sinusoidal modulation of the shape data

Stationary Dwell

When **Animate | Stationary Dwell** is ***checked*** in the ***connected*** Structure **(STR)** window,

- The measurement (**M#**) values for the ***selected*** **shape** are displayed ***without sinusoidal modulation***

Which Shape Data is Displayed in Animation?

- If **Display | M#s | Real** is ***checked***, the Real part of the **M#** data is displayed
- If **Display | M#s | Imaginary** is ***checked***, the Imaginary part of the **M#** data is displayed
- Otherwise, the ***complex*** (***magnitude & phase***) of the **M#** data is displayed during shape animation

Displaying Shapes for Selected M#s

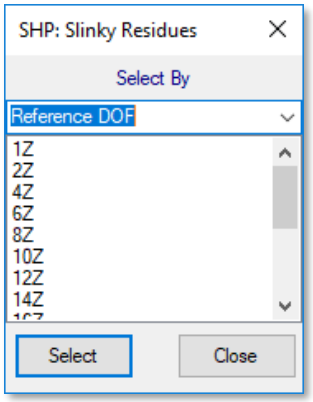
- If **M#s** are ***selected***, values for the ***selected*** and **Linked M#s** are used for the animated shape
- If **M#s** are ***not selected***, values for ***all*** **Linked M#s** are used for the animated shape

Displaying Shapes with Multiple Reference DOFs

When animation is initiated from a Shape Table (**SHP**) with ***multiple reference*** **DOFs**, the **M#s | Select| Select By** dialog box will open.

ODS's or mode shapes can only be displayed ***from one reference at a time***.

- ***Choose*** a Reference DOF, and ***press*** **the Select button** to display shapes for the ***selected*** Reference DOF



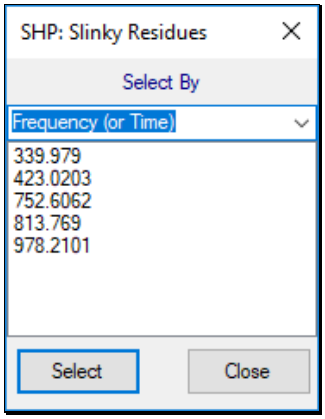
Shapes Menu

This menu is also displayed when you ***right-click*** **in the spreadsheet area** of a Shape Table (**SHP**) window.

Shapes | Select By

Selects shapes according to several different shape properties.

- A property is chosen from the list in the **Select By** dialog box



Shapes | Select All

Selects all shapes.

Shapes | Invert Selection

Changes ***un-selected*** shapes to ***selected*** and ***selected*** to ***un-selected*** shapes.

Shapes | Select None

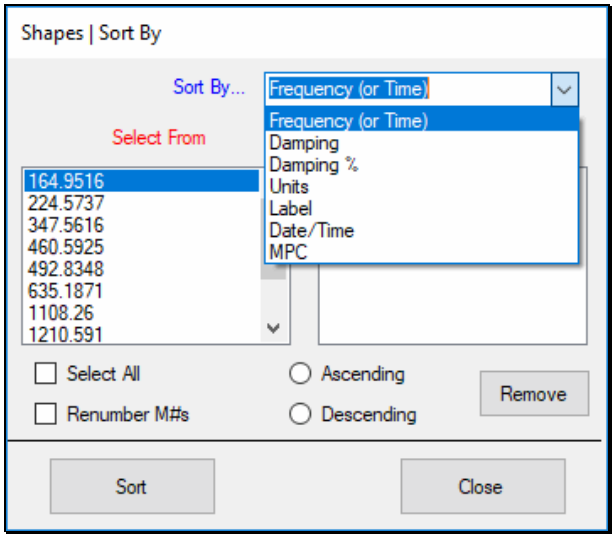
Un-selects all shapes.

- ***Double click*** on the **Shape** column heading in the **Shapes** spreadsheet to **select** or ***un-select all*** shapes

Shapes | Sort By

Sorts shapes according to a chosen shape property.

- A property is chosen from the list in the **Sort By** dialog box



Shapes | Move Selected Shapes Up or Down

Moves the ***selected shapes*** upward (or downward) in the **Shapes spreadsheet** each time this command is executed.

Shapes | Add

Adds new shapes to a Shape Table (**SHP**).

Shape data can be added in several ways,

- ***Double click*** on a **column** heading and enter data into the dialog box for ***all*** (or ***selected***) shapes
- ***Click*** on a spreadsheet cell and type in data
- Use the keyboard **Ctrl C** & **Ctrl V** commands to copy data between spreadsheet cells
- Choose items from the **drop-down list** in a cell when available

Shapes | Delete Selected

Deletes ***selected*** Shapes from a Shape Table (**SHP**).

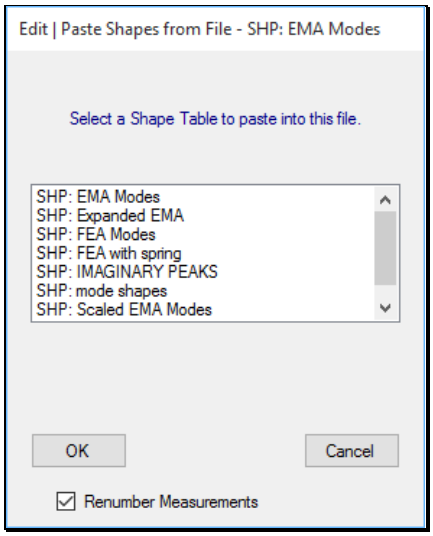
Shapes | Copy to File

Copies ***all*** (or ***selected***) shapes and ***all*** (or ***selected***) **M#s** of each shape into a new Shape Table (**SHP**) file.

Shapes | Paste from File

Pastes shapes from another Shape Table (**SHP**) file into the current Shape Table (**SHP**).

- When this command is executed, a Shape Table (**SHP**) **Selection** dialog box is opened
- ***Choose*** a Shape Table (**SHP**) to paste from, and ***click*** on **OK**



The shapes of the chosen Shape Table (**SHP**) are pasted with those in the Shape Table (**SHP**) window by comparing shape DOFs

- If a ***matching DOF*** is found, the data for the new shapes is ***added to the same row*** in the **M#s** spreadsheet where the matching DOF is found
- If no matching DOF is found, a new row is created in the M#s spreadsheet, and the new shape data is added to the new row

M#s Menu

This menu is also displayed when you ***right-click in the spreadsheet area*** of a Shape Table (**SHP**) window.

Most Shape Table (**SHP**) commands operate on ***all*** (or ***selected***) **M#s**, and some commands operate ***only on selected*** **M#s.**

Selected M#s

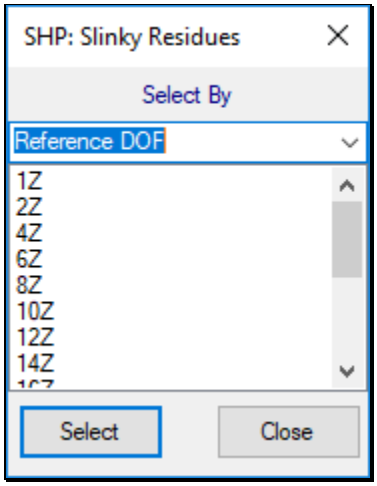
All selected **M#s** are indicated when their **Select M#** button is displayed with a **green background** in the **M#s** spreadsheet.

- *Double click* in the Select M# column heading *to toggle the* M# *selection*

M#s | Select | Select By

Opens a dialog box containing a list of options for selecting **M#s**.

- Choose a method from the **Select By** drop down list
- Choose items from the selection list
- ***Hold down*** **the Shift key or Ctrl key** and make multiple selections
- *Click* on Select to *select* the M#s



Start and Skip M#s

Opens another dialog box wherein you can enter a **Starting M#** and a **Skip M#s** (number of **M#s** to skip over) for ***selecting*** **M#s**.

- The default values are **Starting M# = 1**, and **Skip M#s = 0**.

By Units

Selects **M#s** by their Engineering Units.

- Engineering Units are listed in the **Units** column in the DOFs spreadsheet

By DOF

Selects **M#s** by their DOF.

M# DOF ➔ Roving DOF : Reference DOF [Measurement Set]

- ***Single channel*** **M#s** have only a Roving DOF
- ***Cross channel*** **M#s** have a Roving & Reference DOFs
- **Measurement Set** numbers are used when data is acquired in ***multiple*** **measurement sets**
- **M#** DOFs are displayed in the DOFs column in the **M#s** spreadsheet

By Roving DOF

Selects **M#s** by their Roving DOF.

DOF ➔ **Roving DOF :** Reference DOF

By Reference DOF

Selects **M#s** by their Reference DOF.

DOF ➔ Roving DOF **: Reference DOF**

By Point

Selects **M#s** by their ***Roving DOF*** Point number.

DOF ➔ Roving (**Point Number** & Direction) : Reference DOF.

By Direction

Selects **M#s** by their ***Roving*** direction.

DOF ➔ Roving (Point Number & **Direction**) : Reference DOF.

By Rectangular Matrix DOFs

Selects **M#s** that form a **rectangular matrix** of ***rows & columns*** based on their DOFs.

- ***Roving DOFs*** correspond to ***rows*** of the rectangular matrix
- ***Reference DOFs*** correspond to ***columns*** of the rectangular matrix

By Measurement Type

Selects **M#s** by their Measurement Type.

- Measurement Types are listed in the **Measurement Type** column in the **M#s** spreadsheet

By Measurement Set

Selects **M#s** by their **Measurement Set** number.

DOF ➔ Roving DOF : Reference DOF **[Measurement Set]**

By Data Type

Selects **M#s** by their Data Type.

- Data Types are listed in the **Data Type** column in the **M#s** spreadsheet

By Label

Selects **M#s** by their text Label.

- Labels are listed in the Label column in the **M#s** spreadsheet

By Input Output

Selects **M#s** by their **Input Output**.

- Input Output is listed in the **Input Output** column in the **M#s** spreadsheet

By Source

Selects **M#s** by their **Source** name.

- Source names are listed in the **Source** column in the **M#s** spreadsheet

M#s | Select | Select All

Selects ***all*** **M#s**.

M#s | Select | Invert Selection

Inverts the ***selection*** of ***all*** **M#s**.

- All selected M#s are un-selected, and all un-selected M#s are selected

M#s | Select | Select None

Un-selects ***all*** **M#s**.

M#s | Sort By

Sorts (***re-orders***) ***all*** (or ***selected***) **M#s** in the **M#s** spreadsheet of a Shape Table (**SHP**).

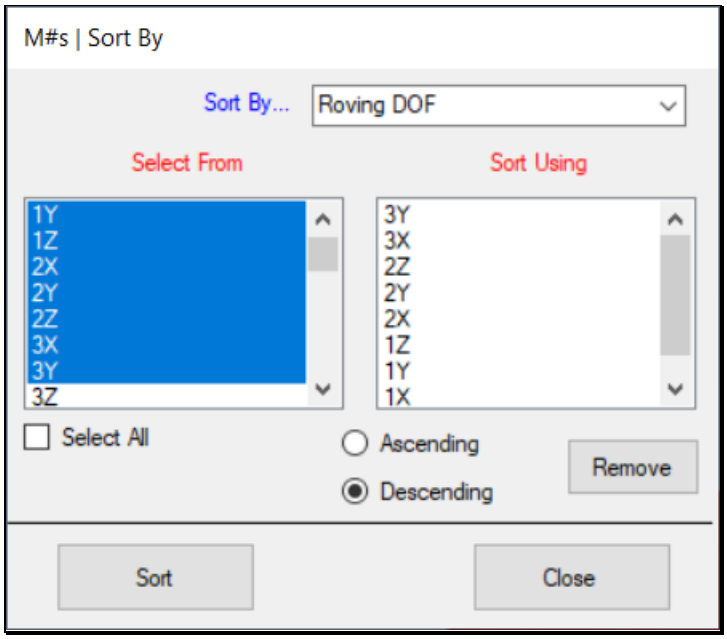
Each component of a shape has a ***unique*** **M#**

M#s are used by the **M# Links** in a ***connected*** Structure (**STR**) window to retrieve shape component data for display in animation.

When this command is executed, the dialog box below opens

- Choose a sorting method from the **Sort By** drop down list
- Use individual selections from the **Select From** list or **Select All** to obtain an initial **Sort Using** list
- Use the **Ascending, Descending** selections to order the **Sort Using** list
- Select items in the list and use the **Remove** button to obtain the desired list
- ***Click*** on **Sort** to sort the **M#s** according to the **Sort Using** list

All **M#s** that don't satisfy the criterion in the **Sort Using** list follow the sorted **M#s** in the sorted order.



Sort By Dialog box.

By Units

Sorts **M#s** by their Engineering Units.

Engineering Units are listed in the **Units** column in the **M#s** spreadsheet.

By DOF

Sorts **M#s** by their DOF.

DOF ➔ Roving DOF : Reference DOF [Measurement Set]

- Single-channel M#s have only a Roving DOF
- Cross-channel M#s have Roving & Reference DOFs
- Measurement Set numbers are used when data is ***acquired in multiple measurement sets***
- DOFs are displayed in the **DOFs** column in the **M#s** spreadsheet

By Roving DOF

Sorts **M#s** by their Roving DOF.

DOF ➔ **Roving DOF** : Reference DOF

By Reference DOF

Sorts **M#s** by their Reference DOF.

DOF ➔ Roving DOF : **Reference DOF**

By Point

Sorts **M#s** by their ***Roving DOF*** Point number.

DOF ➔ Roving (**Point Number** & Direction) : Reference DOF

By Direction

Sorts **M#s** by their ***Roving*** direction.

DOF ➔ Roving (Point Number & **direction**) : Reference DOF

By Rectangular Matrix DOFs

Sorts **M#s** that form a **rectangular matrix** of ***rows & columns*** based on their DOFs.

- **Roving DOFs** correspond to **rows** of the rectangular matrix
- **Reference DOFs** correspond to **columns** of the rectangular matrix

By Measurement Type

Sorts **M#s** by their Measurement Type.

- Measurement Types are listed in the **Measurement Type** column in the **M#s** spreadsheet

By Measurement Set

Sorts **M#s** by their **Measurement Set** number.

DOF ➔ Roving DOF : Reference DOF **[Measurement Set]**

By Data Type

Sorts **M#s** by their Data Type.

- Data Types are listed in the **Data Type** column in the **M#s** spreadsheet

By Label

Sorts **M#s** by their text Label.

- Labels are listed in the **Label** column in the **M#s** spreadsheet

By Input Output

Sorts **M#s** by their Input Output.

- Input Output is listed in the **Input Output** column in the **M#s** spreadsheet

By Acoustic Source

Sorts **M#s** by their **Acoustic Source** text name.

- Source names are listed in the **Acoustic Source** column in the **M#s** spreadsheet

M#s | Move Selected Up or Down

Moves the ***selected M#s*** upward (or downward) in the **M#s spreadsheet** each time this command is executed.

M#s | Add

Adds ***rows*** to the end of the **M#s** spreadsheet.

- When it is executed, a dialog box is opened
- Enter the number of **M#s** to add and ***click*** on **OK**

M#s | Delete Selected

Deletes all ***selected*** rows of ***M#s*** from the **M#s** spreadsheet.

Edit Menu

This menu is also displayed when you ***right-click in the spreadsheet area*** of a Shape Table (**SHP**) window.

Edit | Undo

Restores the window to the state it was in ***before*** the ***last*** operation.

This command can be used repeatedly to undo the last **N** operations, **N** = **Number of edits saved**.

The **Number of edits saved** is changed on the **General** tab in the **Project | MEscope Options** dialog box.

Edit | Redo

Restores the window to the state it was in ***before*** the ***last execution*** of the **Edit | Undo** command.

Tools Menu

This menu is also displayed when you ***right-click in the spreadsheet area*** of a Shape Table (**SHP**) window.

Tools | Save Shapes

Saves ***all*** (or ***selected***) shapes and ***all*** (or ***selected***) **M#s** for each shape into another Shape Table (**SHP**).

Script Menu

The commands in this menu can be added to a Script (**VSL**) window to automate the execution of these and most other **MEscope** commands.

Script | Display | Sine Dwell Cycles per Shape

Sets the number of **Dwell Cycles per Shape** during **Sweep animation** from a Shape Table (**SHP**).

During **Sweep animation** from a Shape Table (**SHP**), the specified number of **Dwell Cycles per Shape** is carried out before displaying the next shape in animation.

Parameter

- Number of Cycles

Script | Shapes | Select a Shape

Selects (or ***un-selects***) a Shape by its ***shape number*** in the **Shapes** spreadsheet.

Parameters

- A shape number (can also be a Script Variable)
- Select (**Yes or No**).
- Un-select All First (**Yes or No**)

Script | Shapes | Select

Selects (or ***un-selects***) a range of shapes in the Shape Table (**SHP**).

Parameters

- A ***range of shapes*** (1,2, 3,,,; 1-3; all)
- Select (**Yes or No**)
- Un-select All First (**Yes or No**)

Script | Shapes | Color

Changes the **color** of ***all*** (or ***selected***) shapes in the **Shapes** spreadsheet.

Parameter

- Shape Color (from color pallet)

Script | Shapes | Label

Changes the **label** of ***all*** (or ***selected***) shapes in the **Shapes** spreadsheet.

Parameter

- Label (text)

Script | Shapes | Frequency

Changes the **frequency** of ***all*** (or ***selected***) shapes in the **Shapes** spreadsheet.

Parameter

- Frequency value (in Hz)

Script | Shapes | Damping

Changes the **damping** of ***all*** (or ***selected***) shapes in the **Shapes** spreadsheet.

Parameter

- Damping (in Hz)

Script | Shapes | Copy Cells to Clipboard

Copies rows & columns of data from the **Shapes** spreadsheet to the Windows Clipboard.

Row & Column numbers start at "1" and exclude the **Select Shapes** column

Parameters

- Top Left Row
- Top Left Column
- Bottom Right Row
- Bottom Right Column

Script | Shapes | Paste Clipboard to Cells

Pastes data from the Windows Clipboard into the **Shapes** spreadsheet.

Row & Column numbers start at "1" and exclude the **Select Shapes** column

Parameters

- Top Left Row
- Top Left Column
- Bottom Right Row
- Bottom Right Column

Script | Shapes | Copy Cell to Variable

Copies a cell (row & column) of data from the **Shapes** spreadsheet in a Shape Table (**SHP**) to a Global Variable.

Row & Column numbers start at "1" and exclude the **Select Shapes** column

Parameters

- Row
- Column
- Variable Name

Script | Shapes | Paste Variable to Cell

Pastes a Global variable value into a cell (row & column) of the **Shapes** spreadsheet in a Shape Table (**SHP**).

Row & Column numbers start at "1" and exclude the **Select Shapes** column

Parameters

- Row
- Column
- Variable Name

Script | Shapes | Create Data Block

Stores each shape from a Shape Table (**SHP**) into a Data Block as an ODS at the frequency or time of the shape.

- Each ***shape component*** (**M#)** in the **M#s** spreadsheet of the Shape Table (**SHP**) becomes a sample of data for an **M#** in the Data Block
- Each shape can be displayed in animation on a ***connected*** Structure window model by placing the Line cursor at the frequency or time of the shape

Parameters

- Destination Data Block
- Source Shape Table (**SHP**)

Script | M#s | Select

Selects or ***un-selects*** a range of **M#s** in the **M#s** spreadsheet.

Parameters

- **M#s** (1,2, 3,,,; 1-3; all)
- Select (**Yes or No**).
- Un-select All First (**Yes or No**)

Script | M#s | Select an M#

Selects or ***un-selects*** an **M#** in the **M#s** spreadsheet.

Parameters

- ***M#*** (can also be a Macro Variable)
- Select (**Yes or No**).
- Un-select All First (**Yes or No**)

Script | M#s | Color

Changes the **color** of ***all*** (or ***selected***) **M#s** in the **M#s** spreadsheet.

Parameter

- **M#** Color (from color pallet)

Script | M#s | Label

Changes the **label** of ***all*** (or ***selected***) **M#s** in the **M#s** spreadsheet.

Parameter

- Label (text)

Script | M#s | DOF

Changes the **DOF** of ***all*** (or ***selected***) **M#s** in the **M#s** spreadsheet.

Parameter

- DOF (point & direction)

Script | M#s | Units

Changes the **units** of ***all*** (or ***selected***) **M#s** in the **M#s** spreadsheet.

Parameter

- Units (g, N, lbs,)

Script | M#s | Measurement Type

Changes the M**easurement Type** of ***all*** (or ***selected***) **M#s** in the **M#s** spreadsheet.

Parameter

- Measurement Type (drop down list)

Script | M#s | Copy Cells to Clipboard

Copies rows & columns of data from the **M#s** spreadsheet to the Windows Clipboard.

- Row & Column numbers start at **"1"** and exclude the **Select M#s** column

Parameters

- Top Left Row
- Top Left Column
- Bottom Right Row
- Bottom Right Column

Script | M#s | Paste Clipboard to Cells

Pastes data from the Windows Clipboard into rows & columns of the **M#s** spreadsheet.

- Row & Column numbers start at **"1"** and exclude the **Select M#s** column.\

Parameters

- Top Left Row
- Top Left Column
- Bottom Right Row
- Bottom Right Column

Script | M#s | Copy Cell to Variable

Copies a cell (row & column) of data from the **M#s** spreadsheet to a **Global Variable**.

- Row & Column numbers start at "1" and exclude the **Select M#s** column

Parameters

- Row
- Column
- Variable Name

Script | M#s | Paste Variable to Cell

Pastes a Macro Variable value into a cell (row & column) in the **M#s** spreadsheet.

- Row & Column numbers start at "1" and exclude the **Select M#s** column

Parameters

- Row
- Column
- Variable Name