

WAVEWIN

MARK AND SAVE HELP



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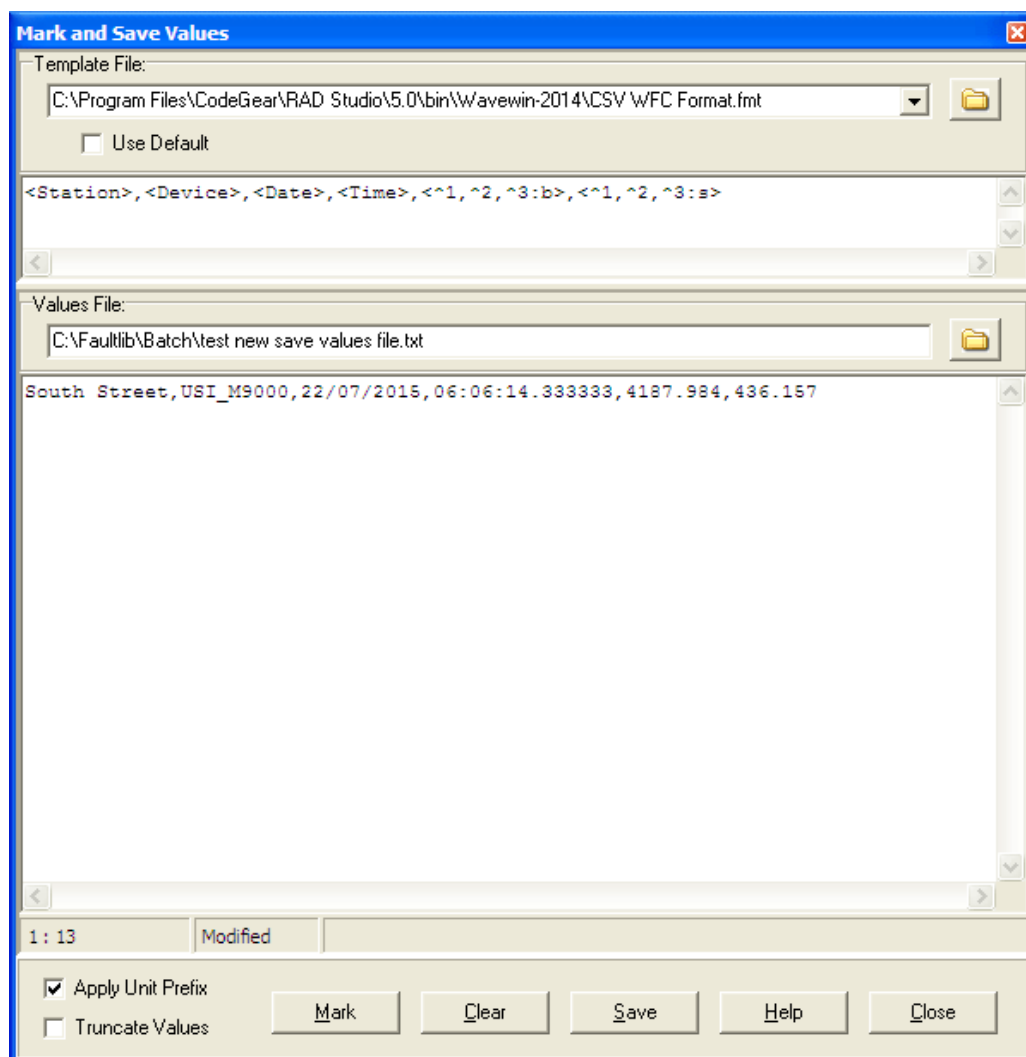
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Overview

The Mark and Save feature saves selected analog column data to a user defined ASCII file using the selected template file. To open the Mark and Save window select the Mark & Save Window menu option under the Values menu. The window is divided into two sections. The top section displays the contents of the selected template file in a notepad editor and contains a drop down list to select the template file. The list is initially populated with all the files that have a *.FMT extension and are located in the Wavewin directory. A browse button is available to add template files to the list that are not located in the Wavewin directory. To save a new template file, edit the contents of the existing template file, change the name of the file using the list box's edit box then click the Save button.

The bottom section displays the contents of the values file in a notepad editor and the location and name of the file. To save the analog data to a new file change the name of the file using the edit box or use the Browse button to create a new file, then click the Save button



The Apply Unit Prefix will multiply all analog values by 1000 if the values are in kilo. The truncate Values will save only integer values.

The Use Default checkbox will write the visible analog columns to the Values notepad with a header for each column.

Before saving values to an ASCII file the template files must be created. Refer to the next section on how to create a Template file.

Template Files

To create a new template file clear the contents of the existing template file in the notepad editor, change the name of the template file using the list box's edit box then click the Save button. To clear the contents of the Template notepad editor mark the contents of the editor then press the delete key.

To save any changes made to the active template file click the Save button.

The template files use < > characters to define the available window commands and < > and [] characters define the analog commands. Review the Template Commands section below for the supported Window and Analog commands.

To add a header to the Values file, define the first line in the template file with <Header>= followed by the header information. For example, the following two lines define the header and data of the Values file:

```
<Header>= Station, Device, Date, Time, RMS, Angle  
<Station>, <Device>, <Date>, <Time>, <^1:R>, <^1:P>
```

Any text not in the < > and [] characters get written to the Values file as they appear in the template file.

Below is an example of a template file.

```
% Initial Postfault Quantities
```

```
save rect( <1> ) as P_Ia  
save rect( <2> ) as P_Ib  
save rect( <3> ) as P_Ic  
save rect( <4> ) as P_In  
save rect( <5> ) as P_kVa  
save rect( <6> ) as P_kVb  
save rect( <7> ) as P_kVc
```

Results of the values saved using the above template when only the RMS and Phase columns are visible in the data plotting analog table.

```
% Initial Postfault Quantities
```

```
save rect( 1096.346,172.477 ) as P_Ia  
save rect( 577.000,24.181 ) as P_Ib  
save rect( 3168.159,38.157 ) as P_Ic  
save rect( 3024.967,50.501 ) as P_In  
save rect( 219759.479,328.716 ) as P_kVa  
save rect( 209623.595,209.628 ) as P_kVb  
save rect( 174040.116,78.700 ) as P_kVc
```

TEMPLATE COMMANDS

Window Commands

<STATION>	Write the full Station name.
<STATION:12>	Write the first 12 characters of the Station name.
<DEVICE>	Write the full Device name.
<DEVICE:6>	Write the first 6 characters of the Device name.
<DATE:F>	Write the Date at the data bar in the following format mm/dd/yyyy.
<TIME:F>	Write the Time at the data bar in the following format hh:mm:ss.zzzzzz.
<DATE:U>	Write the Date at the data bar in the following format yyymmdd.
<TIME:U>	Write the Time at the data bar in the following format hhmmsszzz.
<CDATE>	Writes out the current date, process date..
<CTIME>	Writes out the current time, process time.
<CYCLES>	Write the number of Cycles between the data bar and the reference bar.
<DELTA>	Write the time difference between the data bar and the reference bar.
<LINE>	Write the active Line name.
<DATA>	Write if the data being processed is BAD or GOOD. This is determined by the size of the binary file compared with the calculated size using the total samples * scan size.
<REMOTE>	Write the Remote Feeder Name as defined in the Line Group, REMOTENAME=.
<RDME>	Write the Remote Station Name as defined in the Line Group, REMOTEDME=.
<RDEV>	Write the Remote Device Name as defined in the Line Group, REMOTEDEVICE=.
<PHSROT>	Write the Phase Rotation as defined in the Line Group, PHASEROTATION=.
<SFREQ>	Write the sampling frequency at the data bar or reference bar.
<LFREQ>	Write the line frequency.
<LL>	Write the Line Length.
<Z1M>	Write the Z1 Magnitude.
<Z1P>	Write the Z1 Angle.
<Z0M>	Write the Z0 Magnitude.
<Z0P>	Write the Z0 Angle.
<DMEFL>	Writes out the fault location calculated by the device, if available.
<DMELL>	Writes out the line length stored in the device, if available.
<DMEZ1M>	Writes out the Z1 Magnitude stored in the device, if available.
<DMEZ1A>	Writes out the Z1 Angle stored in the device, if available.
<DMEZ0M>	Writes out the Z0 Magnitude stored in the device, if available.
<DMEZ0A>	Writes out the Z0 Angle stored in the device, if available.
<FILENAME>	Write the Filename displayed in the data plotting window.
<TRIGGERS>	Write the number of triggers for the script commands.
<CKTNUM>	Write the Circuit Name as defined in the Line Group as CKTNUM=.
<TOBUS>	Write the To Bus Name as defined in the Line Group as TOBUS=.
<FROMBUS>	Write the From Bus Name as defined in the Line Group as FROMBUS=.
<REPORTFILE>	Write the name of the generated PDF report file. If there was no report file generated it writes NONE.

Analog Commands

<>	Write the analog data at the data bar,
[]	Write the analog data at the reference bar,
Number	Write the visible analog column data at the data bar separated by commas for specified Channel number.
^Number	Write all the visible analog column data separated by commas for the Channel in number position.
:A	Write the average value for the whole channel.
:C	Write the RMS value for the last cycles in the file.

:R	Write the RMS value.
:T	Write the Channel Title.
:U	Write the Channel Unit.
:P	Write the Phase value.
:I	Write the Instantaneous value.
:F	Write the DFT magnitude for the specified Harmonic. For example, ^6:F0 writes the DFT Magnitude of the DC Offset for channel 6 and ^6:F2 writes the DFT Magnitude of the 2 nd Harmonic for channel 6.
:D	Write the Duration of the Fault.
:H	Write the value DC Offset divided by the fundamental. Indicates a pegged channel.
:X	Write the CT ratio.
:Y	Write the PT ratio.
:Z	Write the frequency.
:W	Write the megawatts.
:V	Write the mega vars.
:H	Writes the values of the DC Offset divided by the fundamental value H0/H1. This indicates if a channel is pegged.
:Z	Writes the Frequency calculated from the 3rd to the 4th cycle.
:C	Writes the RMS value for the last sample in the file
:A	Writes the average of all the samples in the channel.
:J	The J command jumps a number of cycles forward or backward.
L	Used as a Less Than Trigger on values for the analog channels.
G	Used as a Greater Than Trigger on values for the analog channels.
:%	Write the Percentage of Nominal from the Prefault bar to the Fault bar.
:%v	<i>Measures voltage sag immunity.</i>
:+	<i>Write the channel's maximum value.</i>
:-	<i>Write the channels minimum value.</i>
:Number	Specifies the width of the analog data values. Will only be applied if the defined width is greater than the length of the data values. Spaces are padded to the beginning of the written values. This is used to right justify values.
:S	The skew of the 3 analog channels using the angles. The S command is used with 3 analog channels <1,2,3:S>. This command adds the 3 angles at the cursor. One of the channels must be marked as a reference channel.
:B	The Unbalanced Value for 3 Channels. The B command is used with 3 analog channels <1,2,3:B>. This command finds the highest and lowest DFT magnitude of the 3 channels. The result is the highest – lowest.
:N	The Negative Sequence for 3 Channels. The N command is used with 3 analog channels <^1,^2,^3:N>. This command computes the negative sequence for the 3 current or voltage channels in position 1, 2 and 3 on the screen. The magnitude for the negative sequence result is displayed.
:Q	The Positive Sequence for 3 Channels. The Q command is used with 3 analog channels <^1,^2,^3:Q>. This command computes the positive sequence for the 3 current or voltage channels in position 1, 2 and 3 on the screen. The magnitude for the positive sequence result is displayed.
:M	The M command is used for an entire channel. It calculates the maximum value of the channel minus the minimum value of the channel divided by 2 ((max-min)/2), <^1:M>. Since the command is not sample based both types of brackets can be used (<>,[]).
:SG100 :BL50 :NG5000 :ML700	The letter G or L followed by a number after the :S, :B, :M or :N defines a trigger. The letter G stands for greater than and L is less than. If the result is true than Alarm is displayed else Normal is displayed.

Digital Commands

B1:T	Write the Breaker 1 Digital Channel Trigger Information as defined in the Line Group as Breaker1=. The output text is the Digital Channel Title/Start Second:Milliseconds/Duration. If the Digital Channel started in Alarm state, then NA is defined as the start date. If the Digital Channel started in Alarm state or ended in Alarm state, then NA is written for the Duration.
B2:T	Write the Breaker 2 Digital Channel Trigger Information as defined in the Line Group as Breaker2=. The output text is the Digital Channel Title/Start Second:Milliseconds/Duration. If the Digital Channel started in Alarm state, then NA is defined as the start date. If the Digital Channel started in Alarm state or ended in Alarm state, then NA is written for the Duration.
E1:T	Write the Event 1 Digital Channel Trigger Information as defined in the Line Group as Event1=. The output text is the Digital Channel Title/Start Second:Milliseconds/Duration. If the Digital Channel started in Alarm state, then NA is defined as the start date. If the Digital Channel started in Alarm state or ended in Alarm state, then NA is written for the Duration.
B1:S	Write A (Alarm) or N (No Alarm) indicating if the Breaker 1 Trigger status in the File.
E3:D	Write the Event 3 Start Time
B1:E	Write the total number of times the digital channel toggled.
B4:H	Writes the title of the digital channel

Example Analog Commands

<1>	Write the visible analog column data at the data bar separated by commas for Channel 1.
<^1>	Write the visible analog column data separated by commas for the Channel in position 1.
<1:R>	Write the RMS value at the data bar for Channel 1.
<2:T>	Write the Channel Title for Channel 2.
<^3:U>	Write the Channel Unit for the Channel in position 3.
<4:P>	Write the Phase value for channel 4.
<^5:I>	Write the Instantaneous value for the Channel in position 5.
<6:F5>	Write the DFT magnitude of the 5 th Harmonic for Channel 6.
[^1]	Write the visible analog column data at the reference bar separated by commas for Channel 1.
<^1:MG1000>	Write Alarm if the $((\text{max}-\text{min}) / 2)$ is greater than 1000 else it writes Normal.
<^1,^2,^3:S>	Write the sum of the angles at the data bar. One of the 3 channels must be marked as a reference channel.
[^1,^2,^3:B]	Write the difference between the highest and lowest DFT magnitude at the reference bar.
<^1,^2,^3:N>	Write the magnitude of the negative sequence at the data bar for the channels in position 1, 2 and 3.
<^1,^2,^3:NG50>	Write Alarm if the magnitude of the negative sequence is greater than 50 or it write Normal if the magnitude of the negative sequence is less than or equal to 50 for the channels in position 1, 2 and 3 at the data bar.

When a carat ^ is specified before the channel number it indicates the channel position in the display. The < > characters saves the analog data at the data bar and the [] characters saves the analog data at the reference bar.

Value Files

To create a new values file click the Clear button to clear the contents of the existing values file in the notepad editor, change the name of the file using the edit box or click the Browse button to create a new file, then click the Save button.

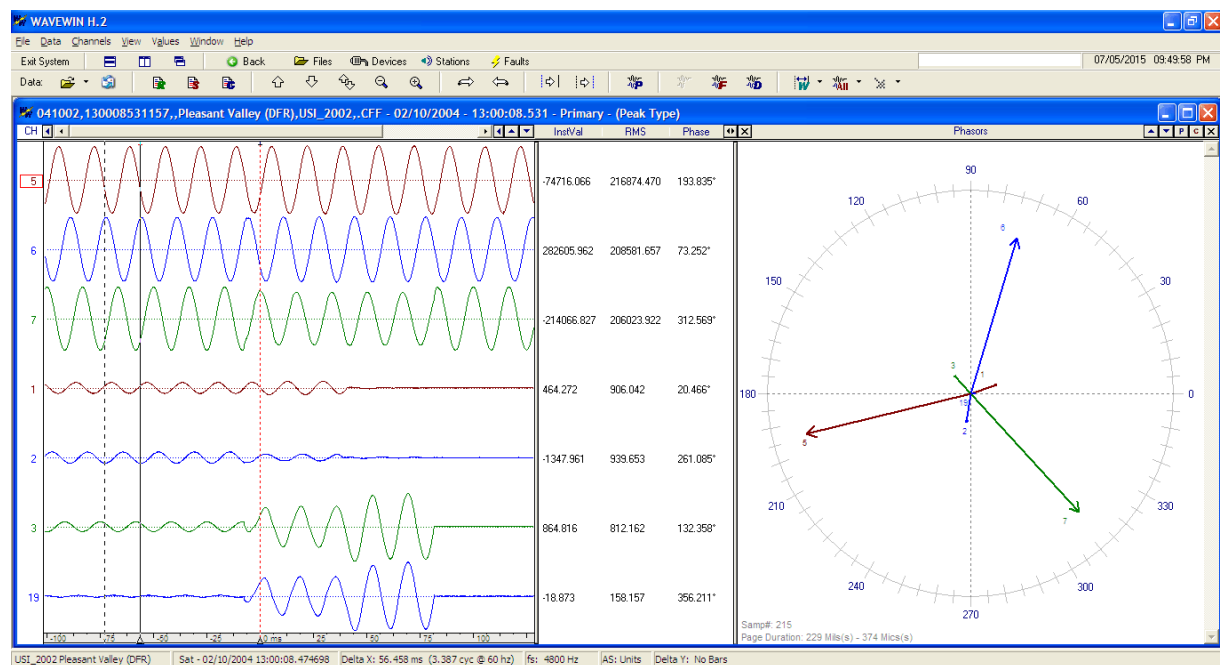
To write a template command to the values file, first position the data and/or the reference bar in the data plotting window then click the Mark button in the Mark and Save window or select the Mark Scan menu option under the Values menu in the data plotting window. You can also use the shortcut keys Ctrl-S to mark an analog scan in the data plotting window. Each command will be appended to the values notepad window. Click the Save button to save any changes to the template and values file.

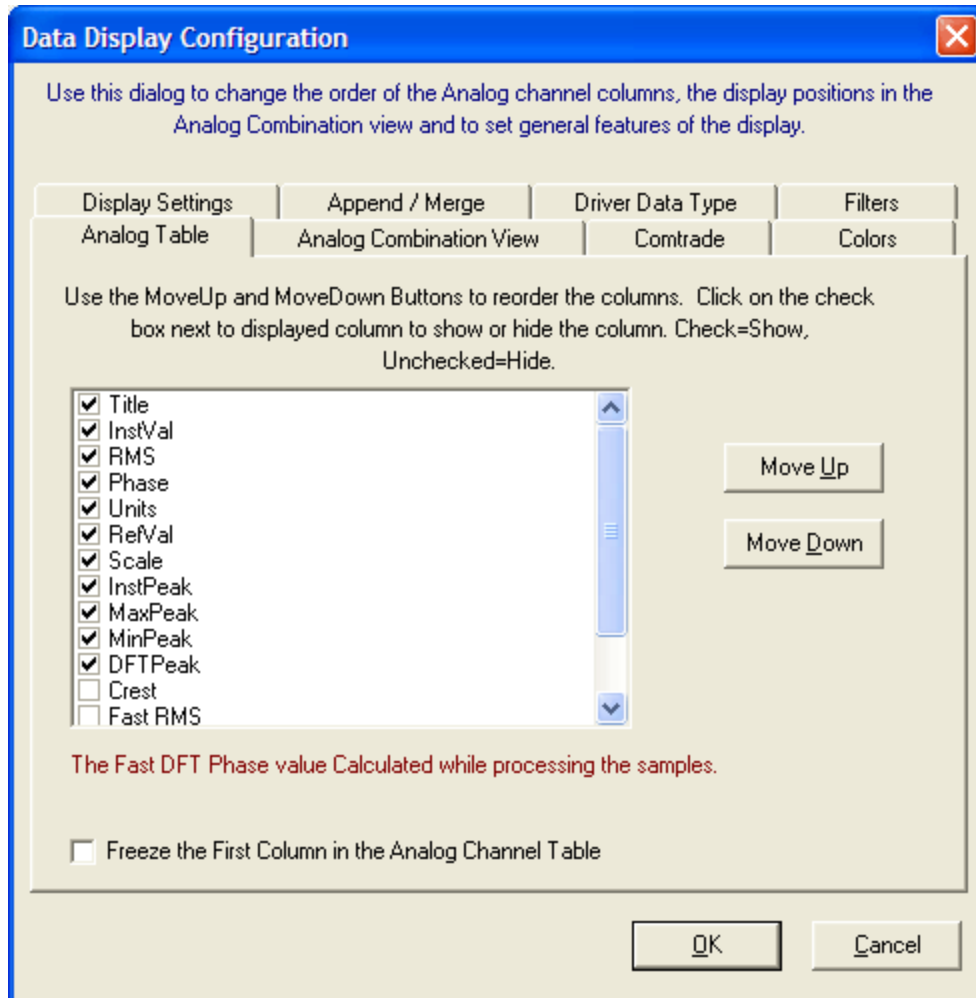
To navigate to the next Marked Scan in the data plotting window select the Next Marked Scan menu option under the Values menu or use the shortcut keys Ctrl-X to navigate to the next Marked Scan.

The analog commands listed in the Template file section specifies what values to write to the values file. If the analog channel commands defined in the active template file does not specify a specific data value then all the analog columns visible will be saved with each command separated by commas. For example if the analog channel command is <1> and the INST, RMS and PHASE columns are visible then it will write the INST,RMS,PHASE values for Channel 1.

If a specific analog channel is defined in the template file with no data value indicated and the channel is not visible then that template command is ignored.


When a template command is written to the values file a red upside down T is displayed above the analog scan in the data display window. To clear the red marks from the data display window select the "Clear Marked Values" menu option under the "Values" menu.





To setup the waveform display for saving analog values review the following sections:

SELECT ANALOG CHANNELS

Description: To isolate certain analog channels mark the desired channels. Marked channels are displayed in red. To mark a channel move the channel cursor to the channel and press the spacebar or click on the channel's number or table values. After marking all of the desired channel's press <enter> or click on the View Marked button . Only the marked channels will be displayed.

Activation: *Menu:* Channels Menu, View Mark(s) 

ARRANGE ANALOG CHANNELS

Description: To arrange the analog channels in a specific order mark the channels to be moved and press the "+" key to move them up or the "-" key to move them down. Also, use the mouse to drag the marked channels to the desired position.

Activation: *Menu:* Channel Menu, Shift Marks Up and Shift Marks Down

Comments: Analog channels can only be moved if they are marked. Use the spacebar or mouse to mark channels. Marked channels are displayed in red.

SELECT ANALOG COLUMNS

Description: All visible columns displayed in the table will be saved to the Values file if the Use Default checkbox is checked. Move the data bar along the waveform to change the sample values displayed in the table.

To change the way the columns are displayed open the "Properties" dialog located in the "File" menu. Select the "Analog Table" tab. A list of all of the available analog columns is displayed. Use the "Move Up" and "Move Down" buttons to change the order of the columns and the check box next to each column header to hide or show the column (checked =show, unchecked=hide).

Resizing the Analog table can also isolate the columns to save. Use the Shift-left and Shift-right keys to navigate through the columns. Navigate to the first column to be saved then resize the window by dragging the table/phaser separator bar to show only the columns needed.

Activation: *Menu:* File Menu, Window Properties

CLEAR VALUES FILE

Description: To clear the marked analog scans in the data plotting window select the Clear Marked Values menu option under the Values menu.

Activation: *Menu:* Values Menu, Clear Marked Values

Comments: When a template command is written to the values file a red upside down T is displayed above the analog scan in the data display window.