



## Section 2 RT\_View

### 2.1 Overview of the RT\_View program

This document introduces the **REF TEK** RT\_View, an application designed to allow viewing of **REF TEK** data. **REF TEK**/PASSCAL data files are binary in nature. The data is grouped in 1024 byte packets. There are a number of different packet types. Some packets (i.e. State-of-Health) are mostly plain text. Other packets (like data) are mostly binary.

The RT\_View program decodes packets and presents them in readable form. For more information on actual internal packet structure see the **REF TEK** Recording Format document. RT\_View scans the data file and presents a table of contents of packet types found. The contents list serves as a jump point to decoded packet information.

With a decoded packet displayed, the user has options available to move through the file displaying packets of the same type. Displaying the packets in its raw binary state is available. Event data and packets can be displayed in graphs as well.



**Note: At the present time RT\_View runs only on the windows platform. Windows 95 or above is required.**

## 2.2 Sensor Sensitivity Relationship

RT\_view can display event data in one of three measurements: 1) counts, 2) volts and 3) G's (acceleration of gravity). The counts format is the raw numerical data from the A/D chips. Volts format is the counts data multiplied by the specific volts per count value for a data channel. The G's format is the volts data divided by the specific volts per G value for a data channel. The user can change the current display format from the "Options" menu item. The user can tell the current selection from the Y axis data labels. Values will end in "V" for volts and "G" for G's

When displaying a graph, the status line at the bottom of the display shows the current mouse pointer position. The values are channel number, X axis actual time, X axis relative time (from event start) and Y axis value in the current selected display format (counts, volts, G's).

Using RT\_View the user can select a portion of an event for examination. By changing the X axis scales the user can zoom in on a particular point of time. Channels can also be selected/deselected to include/remove them from the display. The user can then (by using the mouse and status line) read values from the graph by positioning the cursor. Again the status line values are in the current data display format.

## 2.3 Data Conversion Information

RT\_View uses conversion information stored in the header packet of all event files. Conversion information is specific to each data channel.

Conversion information consists of:

- A/D volts per count
- A/D number of bits
- A/D full scale volts
- Sensor full scale volts
- Sensor measurement units
- Sensor volts per measurement unit

If sensor information is not present in the header packet, RT\_View will use 2.4 Volts/G as a default value.

There are several sources for the conversion information. The A/D volts per count is measured at REFTEK and stored in each A/D board when built. The A/D number of bits is stored in each A/D board when built. The A/D full scale volts is dependent on A/D board options and is stored in each A/D board when built.

The sensor values are supplied by the sensor manufacturer. For SM units with internal sensors the data is programmed into a serial EPROM that the RefTek 130 reads on boot. For the MC-12 and MC-18 units the user will have to enter the manufacturers data at installation time. See the MC-12/18 User manual for information entry details.

## 2.4 To execute the RT\_View program

### To run the RT\_View program:

1. Copy the **RT\_View.exe** program from the CD win32 directory to the **C:\vreftek** directory and execute.
2. When first executed an **RT\_View.ini** file is created and saved in the same directory as the .exe program.

### RT\_View.ini file stores settings:

- This file contains options and settings that are stored in the file when the user changes options.
- When the user creates options on the **Options** menu they can be saved to the **RT\_View.ini** file with the **SaveOptions** menu command located on the **Options** menu.
- The display size and location of the main window is saved in the **RT\_View.ini** file.

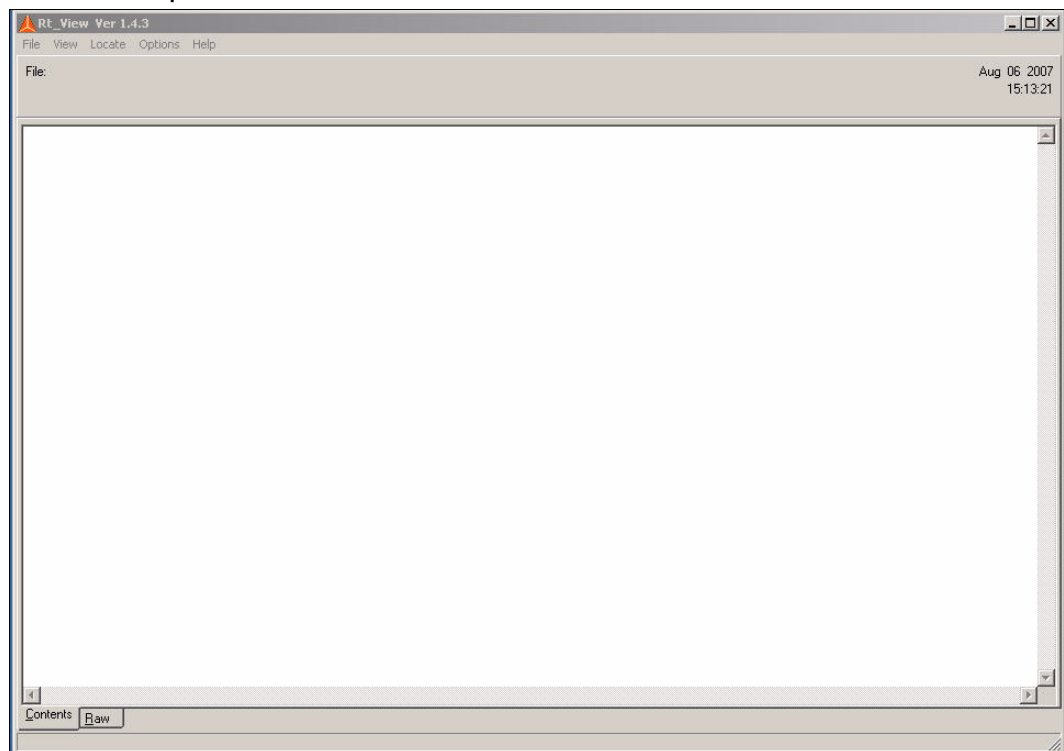
## 2.5 Viewing a file

The following screens show **RT\_View** and explain what each screen is used for by using example steps to open a file.

There are 3 ways to open files:

- Drag and Drop files on an **RT\_View** shortcut or executable.
- Drag and Drop files onto a running **RT\_View** application.
- Use the **File** and **Open** menu from the drop-down menu after opening the **RT\_View** program.

1. Start the **RT\_View** application and the following display will open.



2. Use the **File** > **Open** drop-down menu to open and view a file contents.

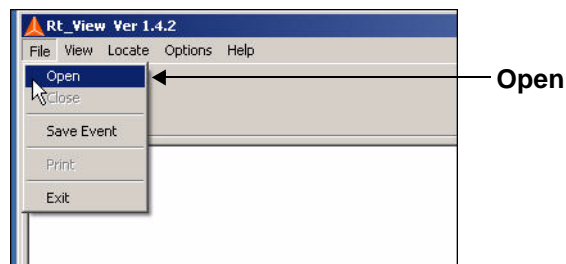
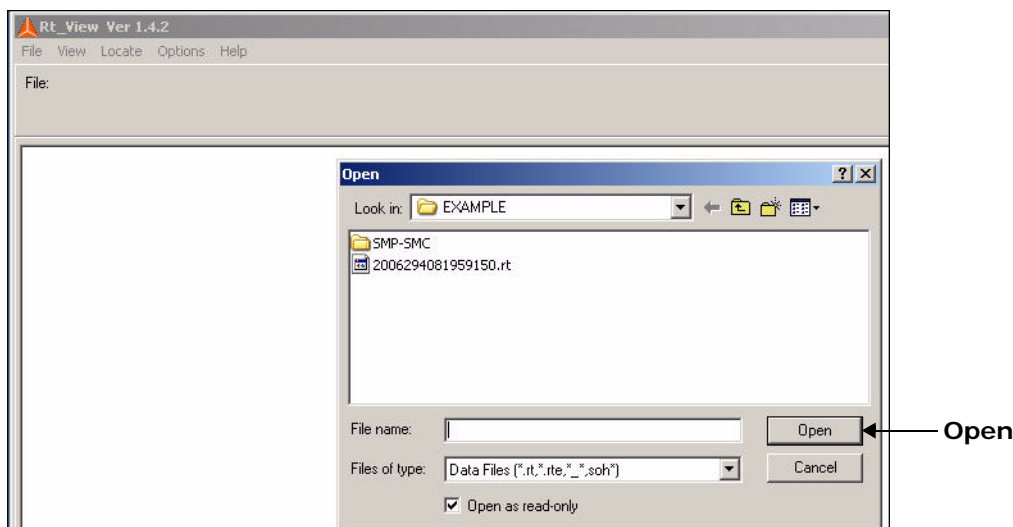


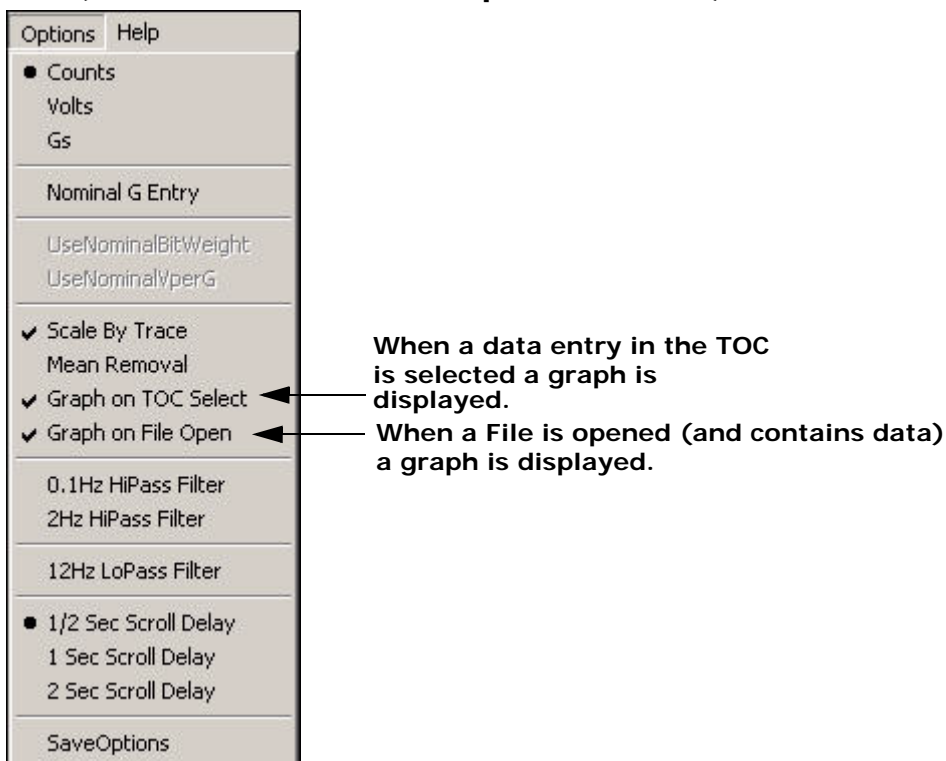
Figure 2 - 1 RT\_View main application window

3. The file manager window opens to allow browsing for a file
4. Select a file to view.



**Figure 2 - 2 Open file manager**

5. Depending on the options selected in the **Options** menu, (shown below) the file selected will open and display either:
  - **Graph of the first event data**
  - **Table of Contents**
6. By default data is graphed because these two options (shown below on the **Options** menu) are selected.

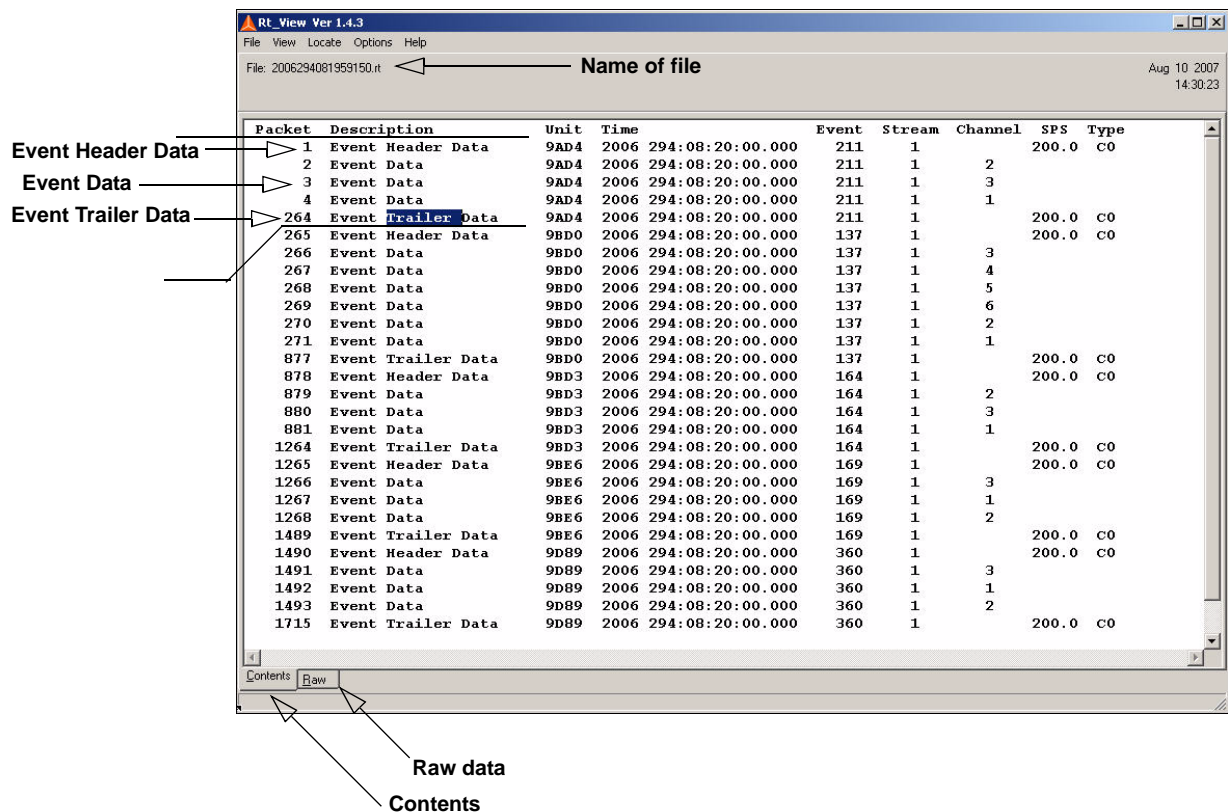


**Figure 2 - 3 Options menu**

7. If there is no event data, the viewer will open showing the table of contents of the event file as shown in Figure 2 - 4.

-OR-

Contents of a State-Of-Health file (Figure 2 - 5).



File: 2006294081959150.rt

Aug 10 2007 14:30:23

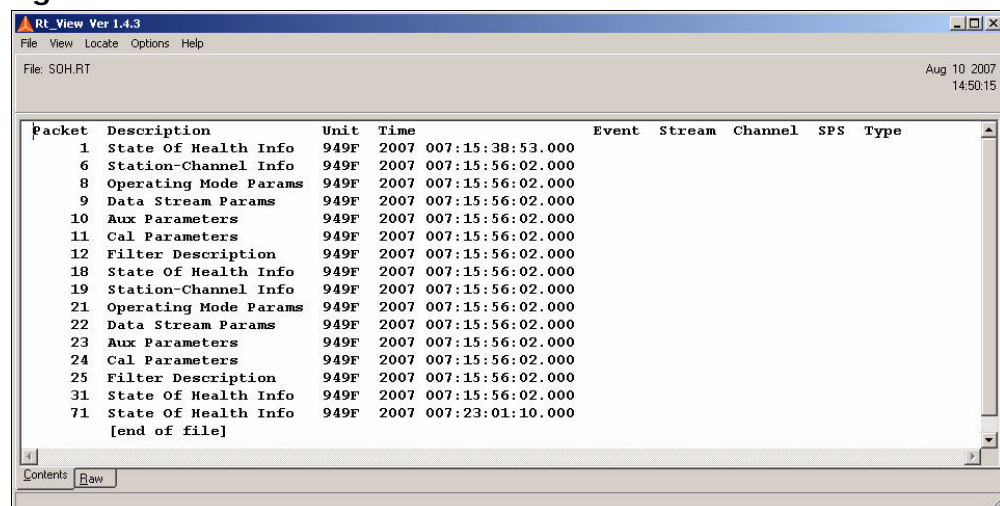
Packet	Description	Unit	Time	Event	Stream	Channel	SPS	Type
1	Event Header Data	9AD4	2006 294:08:20:00.000	211	1		200.0	C0
2	Event Data	9AD4	2006 294:08:20:00.000	211	1	2		
3	Event Data	9AD4	2006 294:08:20:00.000	211	1	3		
4	Event Data	9AD4	2006 294:08:20:00.000	211	1	1		
264	Event Trailer Data	9AD4	2006 294:08:20:00.000	211	1		200.0	C0
265	Event Header Data	9BD0	2006 294:08:20:00.000	137	1		200.0	C0
266	Event Data	9BD0	2006 294:08:20:00.000	137	1	3		
267	Event Data	9BD0	2006 294:08:20:00.000	137	1	4		
268	Event Data	9BD0	2006 294:08:20:00.000	137	1	5		
269	Event Data	9BD0	2006 294:08:20:00.000	137	1	6		
270	Event Data	9BD0	2006 294:08:20:00.000	137	1	2		
271	Event Data	9BD0	2006 294:08:20:00.000	137	1	1		
877	Event Trailer Data	9BD0	2006 294:08:20:00.000	137	1		200.0	C0
878	Event Header Data	9BD3	2006 294:08:20:00.000	164	1		200.0	C0
879	Event Data	9BD3	2006 294:08:20:00.000	164	1	2		
880	Event Data	9BD3	2006 294:08:20:00.000	164	1	3		
881	Event Data	9BD3	2006 294:08:20:00.000	164	1	1		
1264	Event Trailer Data	9BD3	2006 294:08:20:00.000	164	1		200.0	C0
1265	Event Header Data	9BE6	2006 294:08:20:00.000	169	1		200.0	C0
1266	Event Data	9BE6	2006 294:08:20:00.000	169	1	3		
1267	Event Data	9BE6	2006 294:08:20:00.000	169	1	1		
1268	Event Data	9BE6	2006 294:08:20:00.000	169	1	2		
1489	Event Trailer Data	9BE6	2006 294:08:20:00.000	169	1		200.0	C0
1490	Event Header Data	9D89	2006 294:08:20:00.000	360	1		200.0	C0
1491	Event Data	9D89	2006 294:08:20:00.000	360	1	3		
1492	Event Data	9D89	2006 294:08:20:00.000	360	1	1		
1493	Event Data	9D89	2006 294:08:20:00.000	360	1	2		
1715	Event Trailer Data	9D89	2006 294:08:20:00.000	360	1		200.0	C0

Contents Raw

Raw data

Contents

Figure 2 - 4 Table of Contents - File view



File: SOH.RT

Aug 10 2007 14:50:15

Packet	Description	Unit	Time	Event	Stream	Channel	SPS	Type
1	State Of Health Info	949F	2007 007:15:38:53.000					
6	Station-Channel Info	949F	2007 007:15:56:02.000					
8	Operating Mode Params	949F	2007 007:15:56:02.000					
9	Data Stream Params	949F	2007 007:15:56:02.000					
10	Aux Parameters	949F	2007 007:15:56:02.000					
11	Cal Parameters	949F	2007 007:15:56:02.000					
12	Filter Description	949F	2007 007:15:56:02.000					
18	State Of Health Info	949F	2007 007:15:56:02.000					
19	Station-Channel Info	949F	2007 007:15:56:02.000					
21	Operating Mode Params	949F	2007 007:15:56:02.000					
22	Data Stream Params	949F	2007 007:15:56:02.000					
23	Aux Parameters	949F	2007 007:15:56:02.000					
24	Cal Parameters	949F	2007 007:15:56:02.000					
25	Filter Description	949F	2007 007:15:56:02.000					
31	State Of Health Info	949F	2007 007:15:56:02.000					
71	State Of Health Info	949F	2007 007:23:01:10.000					
	[end of file]							

Contents Raw

Raw data

Contents

Figure 2 - 5 SOH file

## Menu Options:

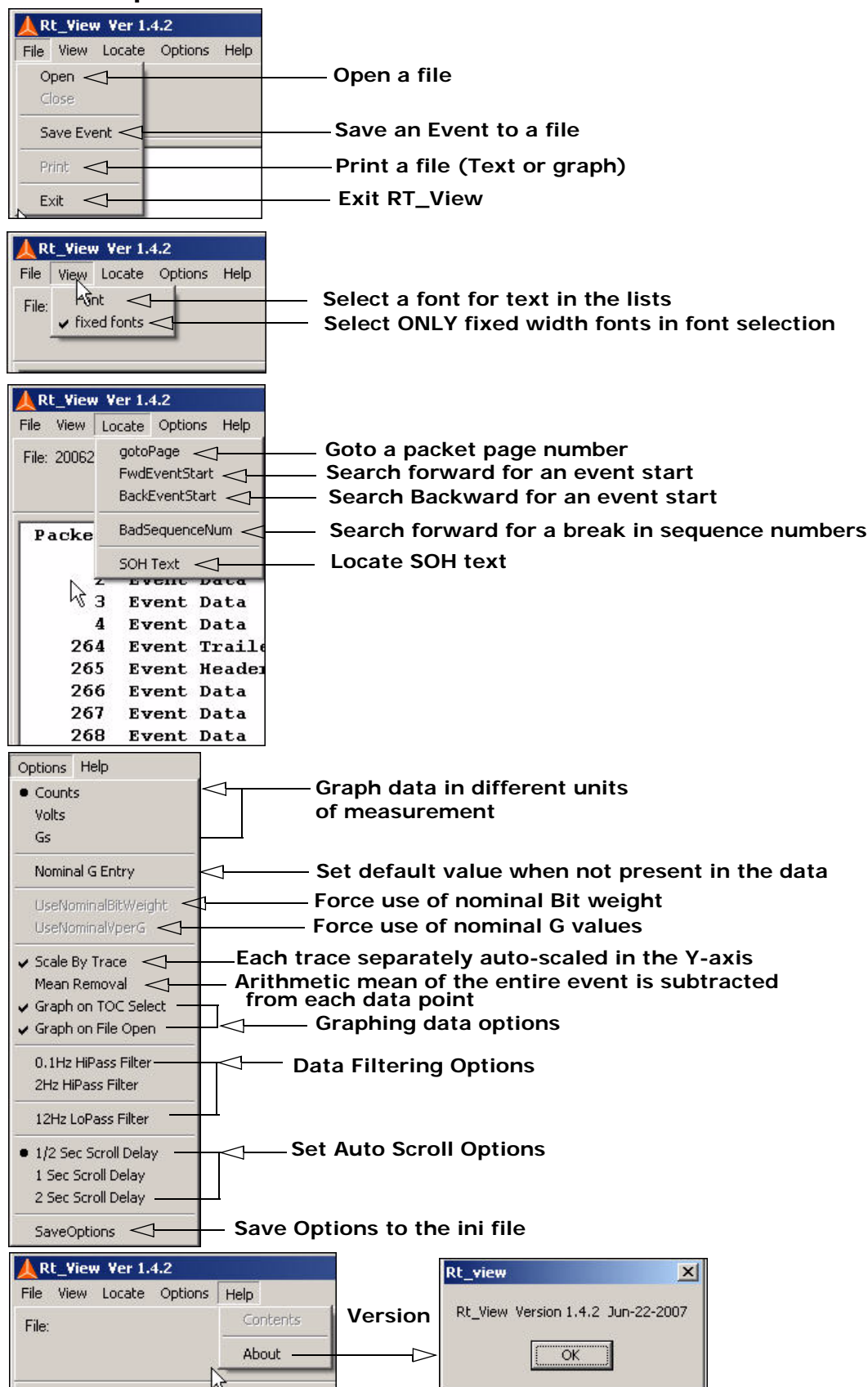


Figure 2 - 6 Menu Options



## 2.6 Viewing Event Header Data

To view Event Header Data:

1. Double-click the **Event Header Data** entry in the table of contents. This allows viewing of the header part of the file.

RT View Ver 1.4.3  
File View Locate Options Help  
File: 2006294081959150.rt Aug 10 2007 14:30:23

Packet	Description	Unit	Time	Event	Stream	Channel	SPS	Type
1	Event Header Data	9AD4	2006 294:08:20:00.000	211	1		200.0	C0
2	Event Data	9AD4	2006 294:08:20:00.000	211	1	2		
3	Event Data	9AD4	2006 294:08:20:00.000	211	1	3		
4	Event Data	9AD4	2006 294:08:20:00.000	211	1	1		
264	Event Trailer Data	9AD4	2006 294:08:20:00.000	211	1		200.0	C0
265	Event Header Data	9BD0	2006 294:08:20:00.000	137	1		200.0	C0
266	Event Data	9BD0	2006 294:08:20:00.000	137	1	3		
267	Event Data	9BD0	2006 294:08:20:00.000	137	1	4		
268	Event Data	9BD0	2006 294:08:20:00.000	137	1	5		
269	Event Data	9BD0	2006 294:08:20:00.000	137	1	6		
270	Event Data	9BD0	2006 294:08:20:00.000	137	1	2		
271	Event Data	9BD0	2006 294:08:20:00.000	137	1	1		
877	Event Trailer Data	9BD0	2006 294:08:20:00.000	137	1		200.0	C0
878	Event Header Data	9BD3	2006 294:08:20:00.000	164	1		200.0	C0
879	Event Data	9BD3	2006 294:08:20:00.000	164	1	2		
880	Event Data	9BD3	2006 294:08:20:00.000	164	1	3		
881	Event Data	9BD3	2006 294:08:20:00.000	164	1	1		
1264	Event Trailer Data	9BD3	2006 294:08:20:00.000	164	1		200.0	C0
1265	Event Header Data	9BE6	2006 294:08:20:00.000	169	1		200.0	C0
1266	Event Data	9BE6	2006 294:08:20:00.000	169	1	3		
1267	Event Data	9BE6	2006 294:08:20:00.000	169	1	1		
1268	Event Data	9BE6	2006 294:08:20:00.000	169	1	2		
1489	Event Trailer Data	9BE6	2006 294:08:20:00.000	169	1		200.0	C0
1490	Event Header Data	9D89	2006 294:08:20:00.000	360	1		200.0	C0
1491	Event Data	9D89	2006 294:08:20:00.000	360	1	3		
1492	Event Data	9D89	2006 294:08:20:00.000	360	1	1		
1493	Event Data	9D89	2006 294:08:20:00.000	360	1	2		
1715	Event Trailer Data	9D89	2006 294:08:20:00.000	360	1		200.0	C0

Contents Raw

2. The **Header** display opens a view of the header page.

RT View Ver 1.4.3

File View Locate Options Help

File: 2006294081959150.rt

Back

Packet 1 of 1,715

Next

Aug 10 2007 14:30:54

Unit 9AD4

Header Page

Bytes 416

Experiment 0

Seq 0

2006 294:08:20:00.000

Station Name MAC5

Station Comment

Total Installed Channels in Recorder 6

Stream number 1

Stream Name Continuo

Event 211

Data Format Compressed Steim 1

Sample Rate 200.0 sps

Time Source Internal Timeclock

Time Quality Last PLL < 1 Day

Trigger Type CON

Trigger Time 2006 294:08:20:00.000

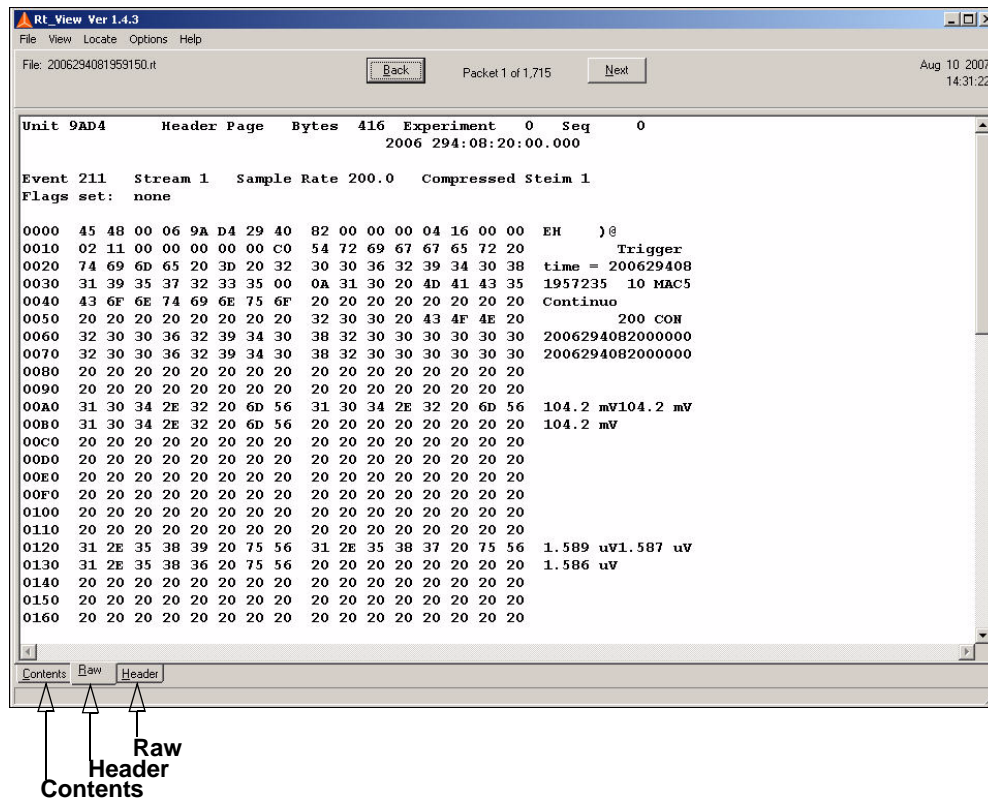
First Samp Time 2006 294:08:20:00.000

Das	Station	Bit Weight			Channel	Chan	Sensor	Sensor		
Chan	Chan	Nominal	True	Gain	A/D	FS Analog	Code	FS Analog	V/Unit	Unit
	----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1		104.2 mV	1.589 uV	x1	24 bit	+/- 10.0V		+/- 5.0V		
2		104.2 mV	1.587 uV	x1	24 bit	+/- 10.0V		+/- 5.0V		

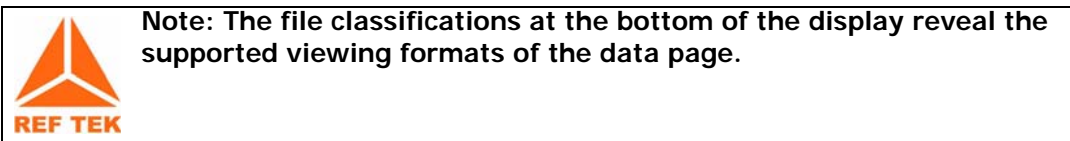
Contents Raw Header

Figure 2 - 7 Header

- Clicking the tabs located at the bottom of the display allow a different view of the file header.



#### 4. Event Header - Raw



## 2.7 Event Data Header/Trailer description

To view an Event Header or trailer:

1. Double-click the **Event Header Data** or **Event Trailer Data** entry in the table of contents. This allows viewing of the header part of the file.

Packet	Description	Unit	Time	Event	Stream	Channel
1	Event Header Data	91C8	2004 133:15:48:53.895			
2	Event Data	91C8	2004 133:15:48:53.895	3	1	1
3	Event Data	91C8	2004 133:15:48:53.895	3	1	2
4	Event Data	91C8	2004 133:15:48:53.895	3	1	3
32	Event Trailer Data	91C8	2004 133:15:48:53.895			

Figure 2 - 8 Table of contents

2. The **Header** display opens a view of the header page.

Unit	Header Page	Bytes	Experiment	Seq
91C8		416	10	0
2004 133:15:48:53.895				
Station Name	99999			
Station Comment	999991-LOAD TEST			
Stream number	1			
Stream Name	Triggered Stream			
Event	3			
Data Format	Compressed			
Sample Rate	200 sps			
Time Source				
Time Quality				
Trigger Type	CHD			
Trigger Time	2004 133:15:48:53.895			
First Samp Time	2004 133:15:48:53.895			
Chan 1 Nom Bit Weight	52.08 mV			
Chan 2 Nom Bit Weight	52.08 mV			
Chan 3 Nom Bit Weight	52.08 mV			
Chan 1 True Bit Weight	818.9 nV			
Chan 2 True Bit Weight	819.5 nV			
Chan 3 True Bit Weight	819.0 nV			
Chan 1 Gain	x1			
Chan 2 Gain	x1			
Chan 3 Gain	x1			

Figure 2 - 9 Top of header page

## 3. Use the scroll-bar to view the bottom page of the header.

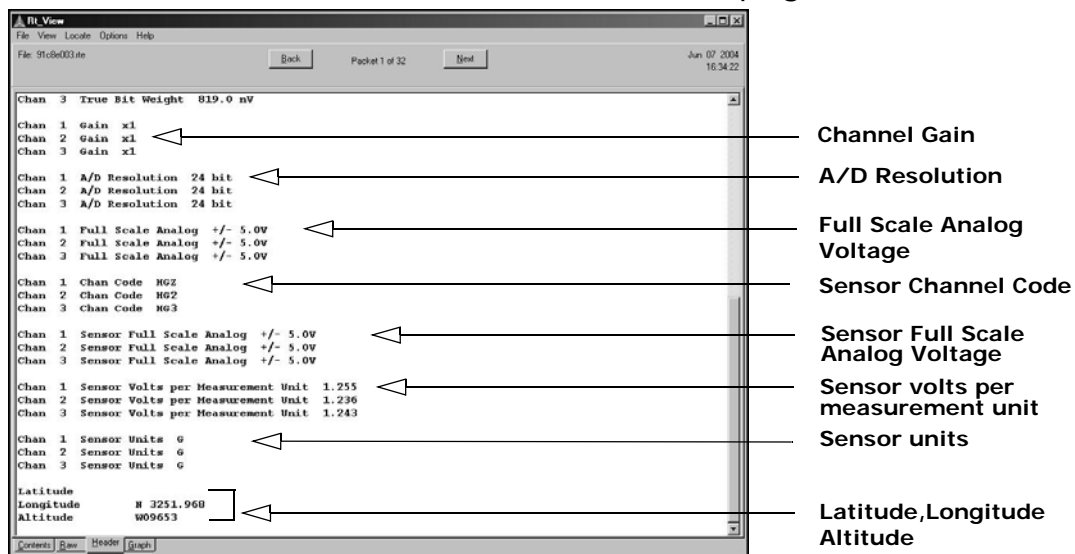


Figure 2 - 10 End of header page

## 2.8 Viewing Event Data

To view Event Data:

1. Double-click the Event Data entry in the table of contents. This allows viewing of the data.

Packet	Description	Unit	Time	Event	Stream	Channel	SPS	Type
1	Event Header Data	9AD4	2006 294:08:20:00.000	211	1		200.0	C0
2	Event Data	9AD4	2006 294:08:20:00.000	211	1	2		
3	Event Data	9AD4	2006 294:08:20:00.000	211	1	3		
4	Event Data	9AD4	2006 294:08:20:00.000	211	1	1		
264	Event <b>Trailer Data</b>	9AD4	2006 294:08:20:00.000	211	1		200.0	C0
265	Event Header Data	9BD0	2006 294:08:20:00.000	137	1		200.0	C0
266	Event Data	9BD0	2006 294:08:20:00.000	137	1	3		
267	Event Data	9BD0	2006 294:08:20:00.000	137	1	4		
268	Event Data	9BD0	2006 294:08:20:00.000	137	1	5		
269	Event Data	9BD0	2006 294:08:20:00.000	137	1	6		
270	Event Data	9BD0	2006 294:08:20:00.000	137	1	2		
271	Event Data	9BD0	2006 294:08:20:00.000	137	1	1		
877	Event Trailer Data	9BD0	2006 294:08:20:00.000	137	1		200.0	C0
878	Event Header Data	9BD3	2006 294:08:20:00.000	164	1		200.0	C0
879	Event Data	9BD3	2006 294:08:20:00.000	164	1	2		
880	Event Data	9BD3	2006 294:08:20:00.000	164	1	3		
881	Event Data	9BD3	2006 294:08:20:00.000	164	1	1		
1264	Event Trailer Data	9BD3	2006 294:08:20:00.000	164	1		200.0	C0
1265	Event Header Data	9BE6	2006 294:08:20:00.000	169	1		200.0	C0
1266	Event Data	9BE6	2006 294:08:20:00.000	169	1	3		
1267	Event Data	9BE6	2006 294:08:20:00.000	169	1	1		
1268	Event Data	9BE6	2006 294:08:20:00.000	169	1	2		
1489	Event Trailer Data	9BE6	2006 294:08:20:00.000	169	1		200.0	C0
1490	Event Header Data	9D89	2006 294:08:20:00.000	360	1		200.0	C0
1491	Event Data	9D89	2006 294:08:20:00.000	360	1	3		
1492	Event Data	9D89	2006 294:08:20:00.000	360	1	1		
1493	Event Data	9D89	2006 294:08:20:00.000	360	1	2		
1715	Event Trailer Data	9D89	2006 294:08:20:00.000	360	1		200.0	C0

Figure 2 - 11 Event Data contents

2. Clicking the **Graph** button opens a time series graph of the Event data.

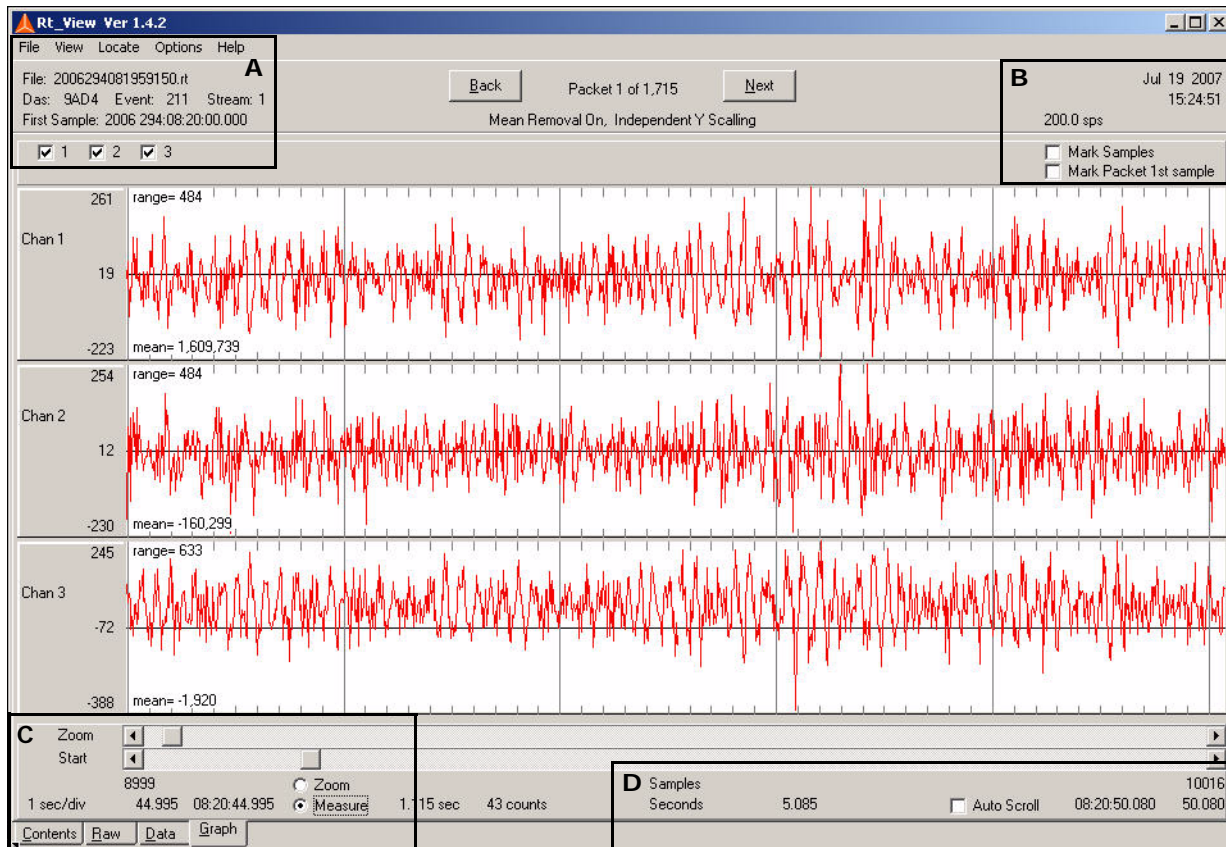


Figure 2 - 12 RT\_View of the data

The following close-up views of the displays show how to use areas of the display.

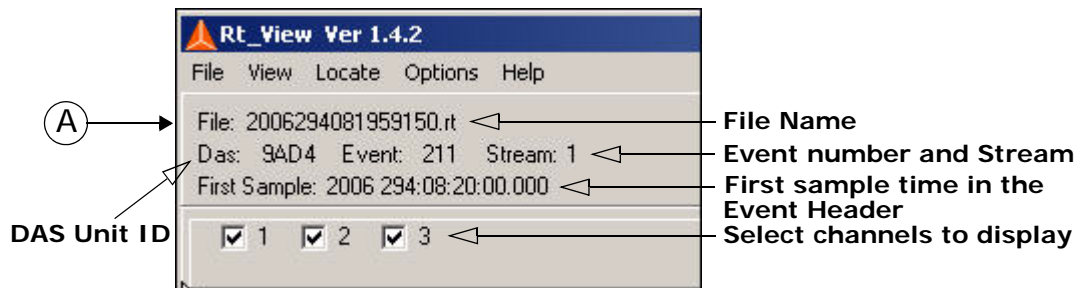


Figure 2 - 13 Section A - Upper-Left display

Figure 2 - 14 Pull-Down menu options



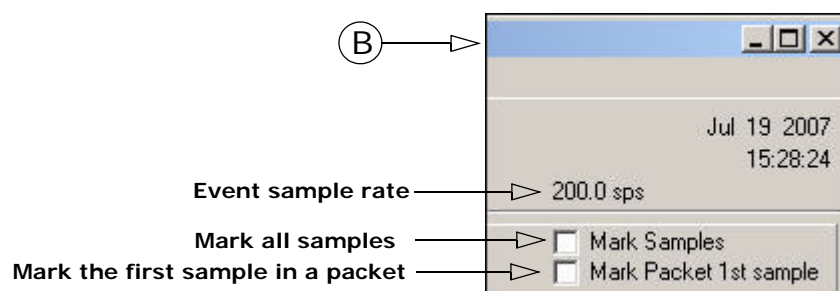


Figure 2 - 15 Section B - Upper-Right display

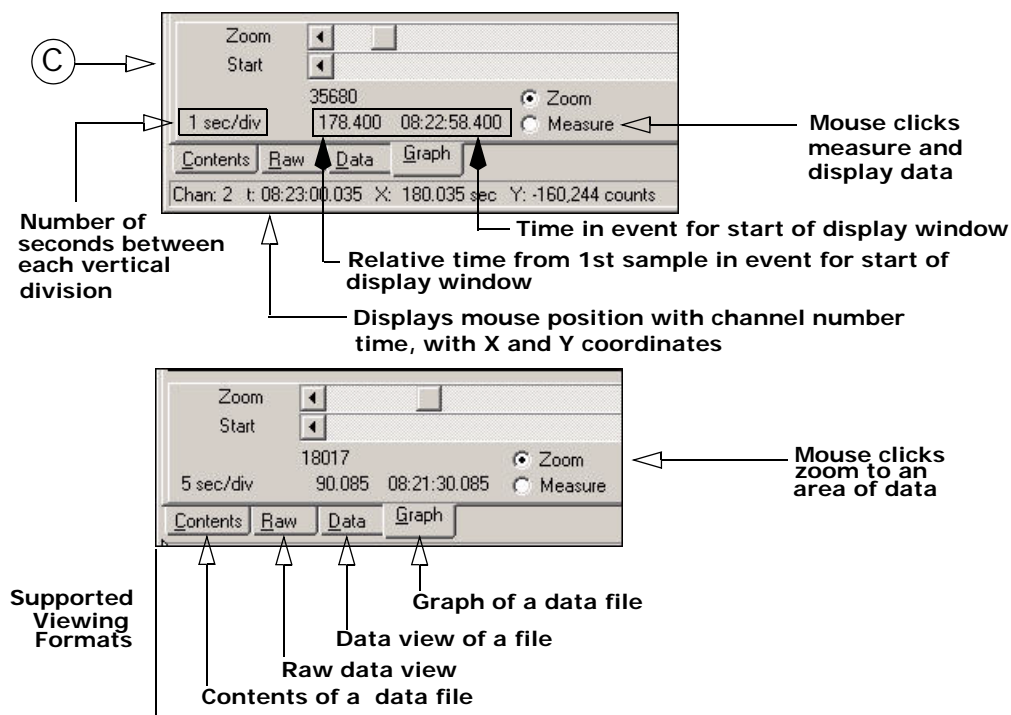


Figure 2 - 16 Section C - Lower-Left display

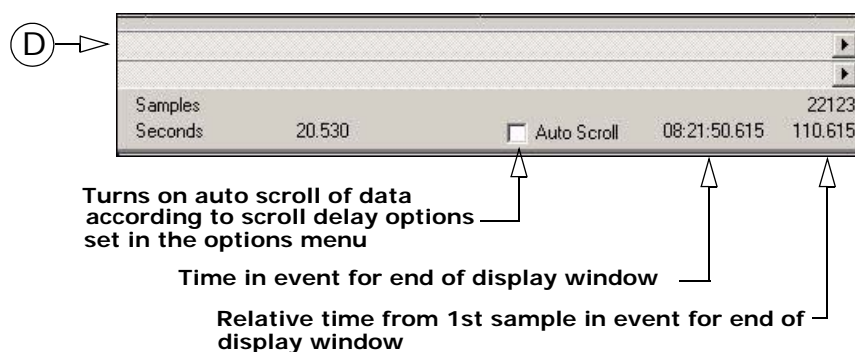


Figure 2 - 17 Section D - Lower-Right display

### 3. Click the **Data** button opens a view of sample data.

n	time	Data
1	08:20:00.000	-160329 -160254 -160293 -160254 -160303
6	08:20:00.025	-160305 -160317 -160306 -160295 -160310
11	08:20:00.050	-160196 -160354 -160374 -160227 -160277
16	08:20:00.075	-160220 -160335 -160357 -160232 -160281
21	08:20:00.100	-160276 -160317 -160333 -160288 -160283
26	08:20:00.125	-160317 -160278 -160274 -160321 -160268
31	08:20:00.150	-160375 -160365 -160346 -160344 -160202
36	08:20:00.175	-160284 -160223 -160226 -160338 -160273
41	08:20:00.200	-160312 -160285 -160277 -160271 -160277
46	08:20:00.225	-160300 -160264 -160311 -160350 -160418
51	08:20:00.250	-160354 -160294 -160288 -160247 -160302
56	08:20:00.275	-160282 -160277 -160306 -160285 -160268
61	08:20:00.300	-160331 -160312 -160225 -160324 -160292
66	08:20:00.325	-160241 -160298 -160274 -160265 -160208
71	08:20:00.350	-160277 -160412 -160382 -160229 -160316
76	08:20:00.375	-160404 -160267 -160442 -160284 -160119
81	08:20:00.400	-160385 -160291 -160272 -160277 -160223
86	08:20:00.425	-160306 -160275 -160264 -160273 -160417
91	08:20:00.450	-160303 -160142 -160314 -160219 -160328
96	08:20:00.475	-160379 -160237 -160375 -160269 -160350
101	08:20:00.500	-160450 -160280 -160310 -160240 -160218
106	08:20:00.525	-160294 -160276 -160330 -160378 -160301

Figure 2 - 18 Data view

### 4. Clicking the **Raw** button open a raw data view of the Header Page.

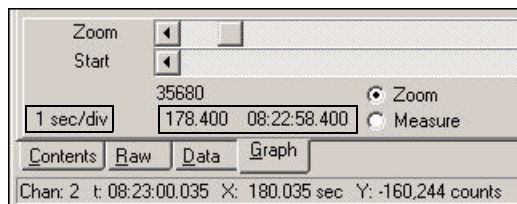
n	time	Data
0000	44 54 00 06 9A D4 29 40	82 00 00 00 10 24 00 01 DT )@ \$
0010	02 11 00 01 01 11 00 C0	0D 82 BC AE 0D 82 B7 AC
0020	44 54 00 06 9A D4 29 40	81 95 72 35 00 00 03 06 DT )@ r5
0030	02 11 00 01 00 00 00 C0	41 38 32 44 32 34 30 30 A82D2400
0040	03 5A 95 69 FF FD 8D B7	FF FD 8D DE FF FD 8D B7 Z i
0050	4B D9 27 CF FE F4 0B 0B	FF F1 00 72 FF 62 FF EC K ' r b
0060	00 93 FF CE 39 8D EA 7D	CF 05 D7 F0 2D 05 DE 27 9 } - ' 5
0070	04 D1 35 95 00 0A 00 13	00 02 00 8E AE 3D FD 90 5 =
0080	15 55 6A A5 41 D9 1B 08	06 FA E9 24 D1 D9 BC 40 Uj A \$ @
0090	3C 06 29 C9 14 05 E3 15	11 C1 13 57 9D 20 33 C7 < ) W 3
00A0	18 09 39 BB FF 79 00 1E	00 99 FF A9 FF A8 00 89 9 y
00B0	FF 51 00 9E 00 A5 FE F6	5E 13 FB 36 AD 1F 0B F7 Q ^ 6
00C0	2A AA 50 00 FF 70 00 72	00 A1 FF 54 00 5F FF 93 * P p r T _
00D0	FF CD 00 8E FF 76 00 6A	FF AF FF 9C 00 AA FF E2 v j
00E0	46 16 B4 12 CA D0 4D 0B	CE F1 EF BB E1 DA 62 1D F M b
00F0	FF B7 00 9D 00 8F FF 7F	00 56 FF A2 FF 57 00 B2 V w
0100	00 00 00 00 FF 48 FF F6	00 8C FF 51 0A D4 38 78 H Q 8x
0110	10 7E B0 EF 00 2B 00 13	00 18 FF 60 CD 00 28 B3 ~ + (
0120	00 55 00 7D FF 2E 00 85	FF EC 00 10 00 95 FF 46 U } . F
0130	55 DB BE 60 FF 62 FF 9E	00 83 00 54 EB 0C DE 4B U ` b T K
0140	00 00 00 00 47 BC 4F 09	FF 54 FF D2 3D F6 1D 0A G o T =
0150	D7 2D DF D8 0B 28 26 02	EF D1 38 F8 BF 17 3E 90 - (& 8 >
0160	00 05 00 9B FF 64 00 5E	00 47 FF B3 00 A6 FF 97 d ^ G
0170	FF 70 00 46 ED C1 14 CD	1A 45 10 68 B6 EE 29 9D p F E h )
0180	00 00 00 00 17 29 0F B8	10 1B C1 57 B7 3B 06 BA ) W ;

### 5. Select the **Contents** button to return to the table of contents to view another part of the file.



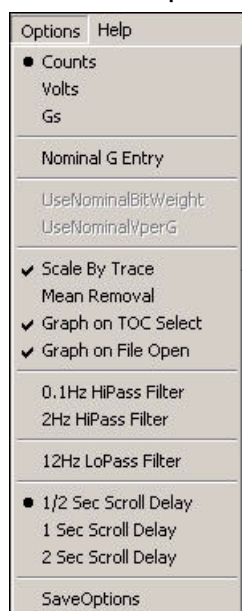
## 2.9 Options menu

The RT\_view program has several viewing options that can be applied as each screen of data is viewed. Placing the mouse cursor anywhere in the graphic area displays on the status line the cursor position in the graph. The status line displays **x** and **y** values.



Displays mouse position with channel number time, with X and Y coordinates

1. Select the drop-down **Option** menu to allow graphing of the event data with different units (Counts, Volts, or G's), set G\_Entry options, add viewing options, and to save present options as default.



Viewing options

Save options as default

Figure 2 - 19 Counts option



**Note:** Select the *Graph on TOC Select* option to open any data view with the graphical view option as default.

2. Select the **counts** option to view the data in raw digital counts.

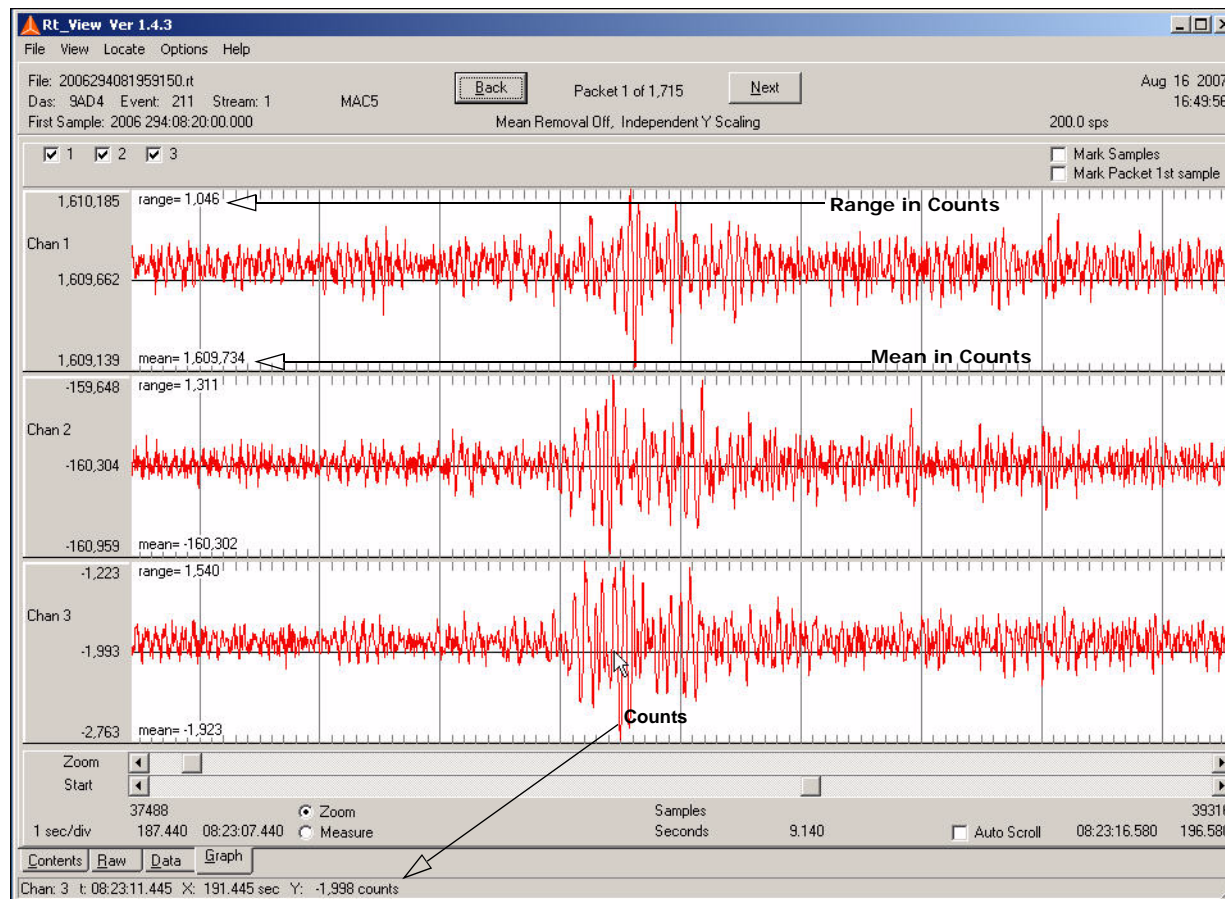


Figure 2 - 20 Counts display example



**Note:** Counts updated from cursor position are displayed on the bottom of the window. Range, Mean, and status line Y values are in counts.

## 2.9.1 Using the Volts option

1. Select the **Volts** option to view the data with volts as the units of measurement.

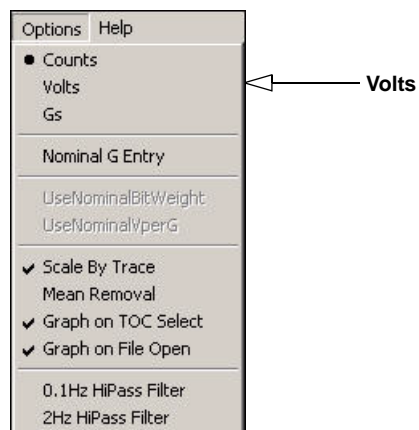


Figure 2 - 21 Volts option

2. The volts per count conversion is automatically read from the Event Header packet (a true Bit Weight field).

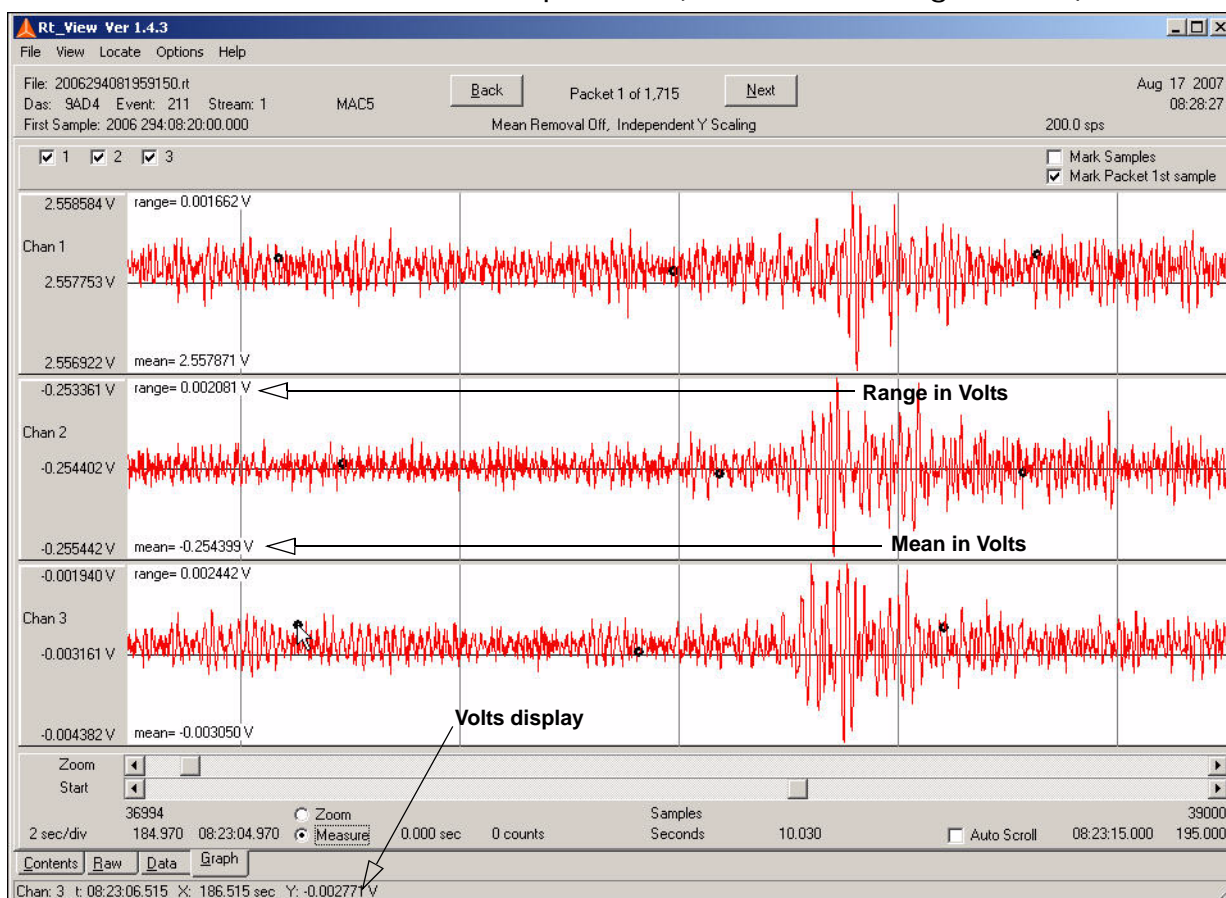


Figure 2 - 22 Volts display example



**Note:** Volts updated from cursor position are displayed on the bottom of the window. Range, Mean, and status line Y values are in volts.

## 2.9.2 Using the G's option

1. Select the **G's** option to view the data with G's as the units of measurement.

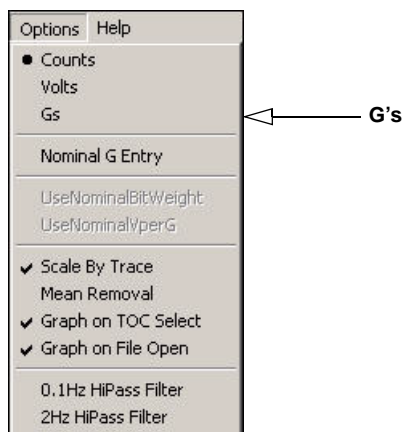


Figure 2 - 23 G's option

2. The window refreshes to view the data with G's as the units of measurement.

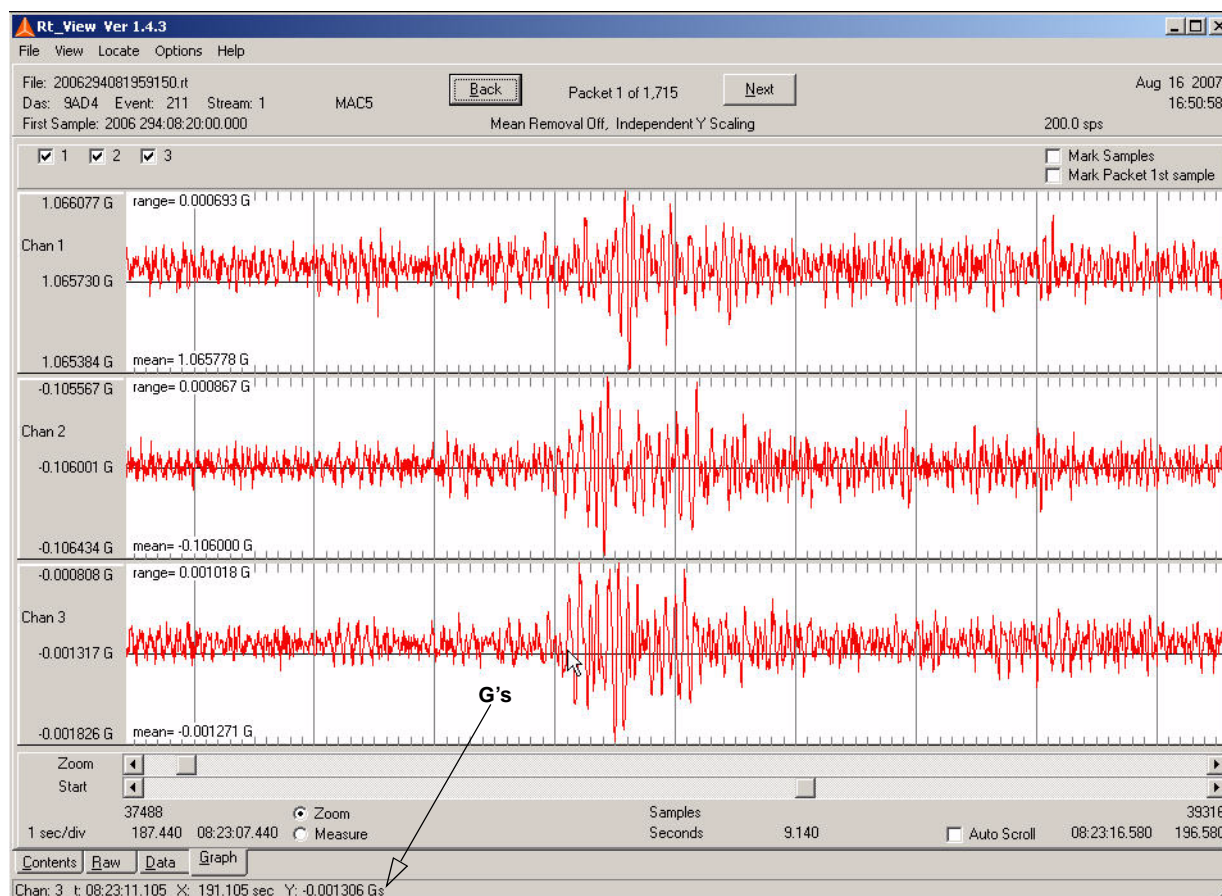


Figure 2 - 24 G's display example



**Note:** G's updated from cursor position are displayed on the bottom of the window. Range, Mean, and status line Y values are in G's.

## 2.9.3 Using the G's entry option

Nominal G entry is used to set default values for when they are not present in the event data. If the event data contains these values then they take priority over any of these user entered values.

1. To change the per channel volts per G conversion value use the **G's entry** option on the **Option** menu.

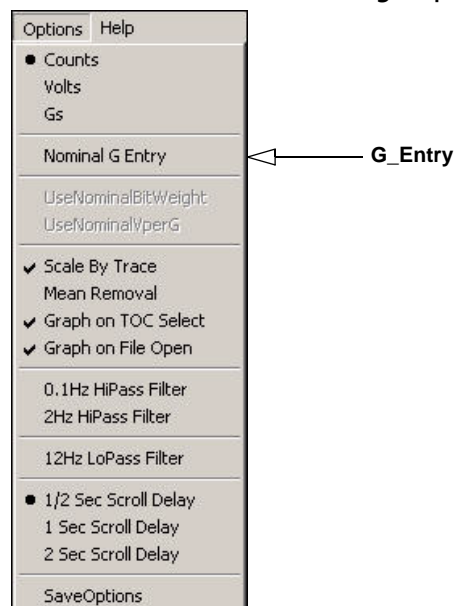


Figure 2 - 25 G\_Entry option

2. Under the **Options** menu, select the **Gs\_Entry** option.

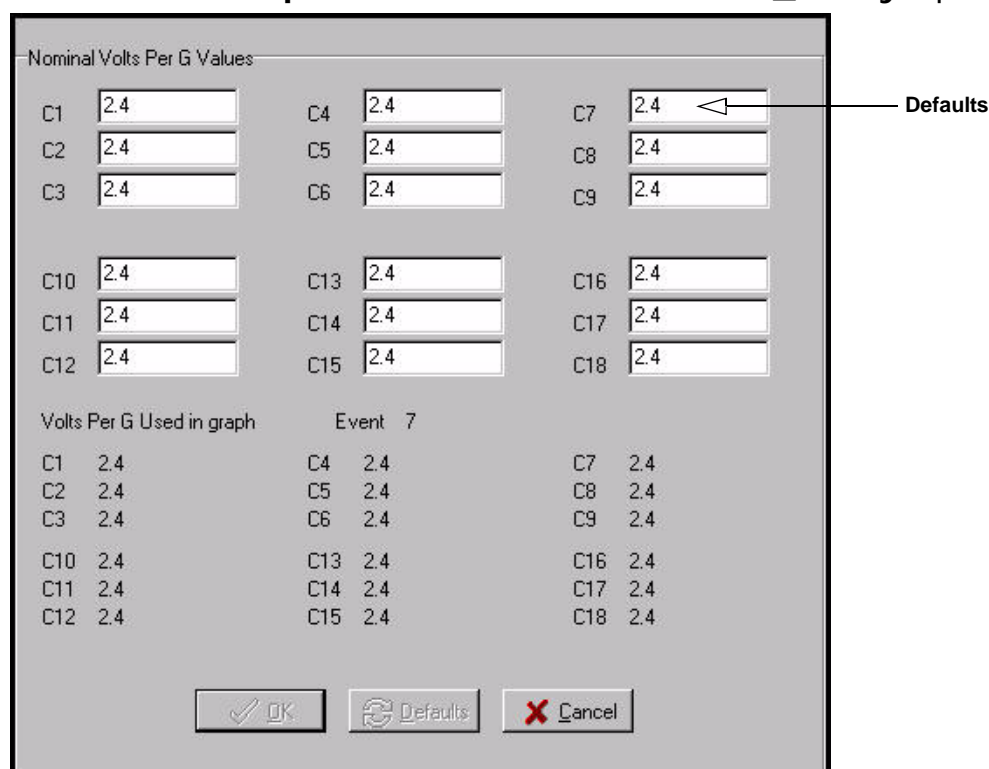


Figure 2 - 26 G\_Entry display



If the defaults icon is disabled (grayed out) the RT\_View.ini file must be updated with any windows editor to enable editing.

1. Open the RT\_View.ini file.

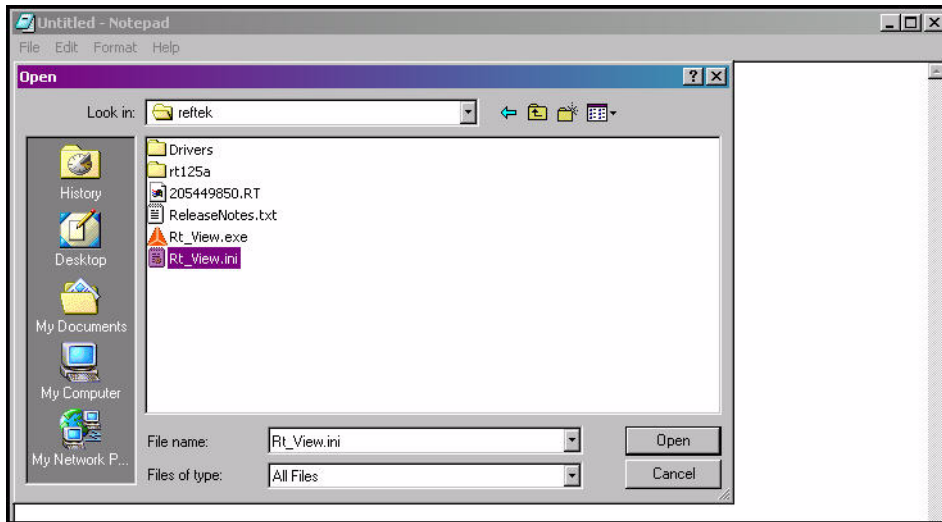


Figure 2 - 27 Edit RT\_View.ini file

Example RT\_View.in file

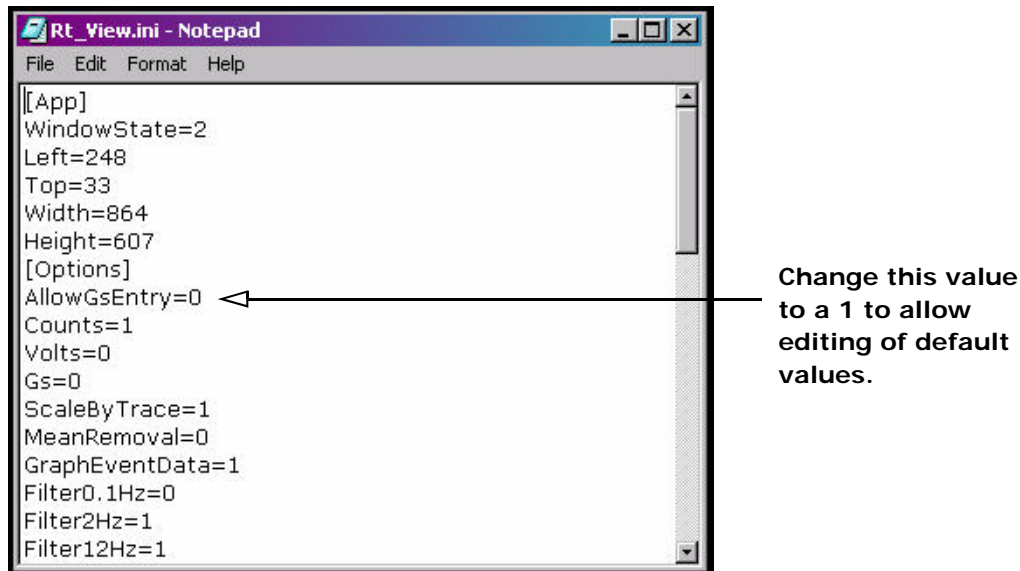


Figure 2 - 28 RT\_View.ini file

## 2.9.4 Using Independent-Y-Scaling (Scale By Trace)

Scale-by-trace (in the option menu) is defined as each trace separately auto-scaled in the Y-axis (amplitude).

If Scale-By-Trace is on the display reads "Independent Y Scaling".

If Scale-By-Trace is off the display reads "Common Y Scaling".

With these enabled or disabled the window is updated as shown below with the current option selected.

1. Select the **Scale By Trace** option on the **Option** menu to enable this option.

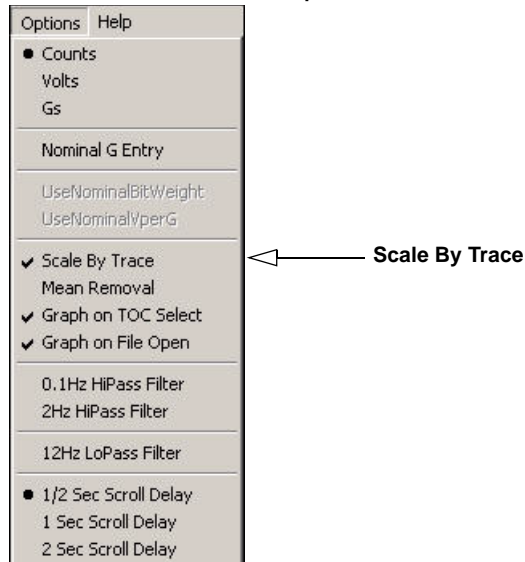


Figure 2 - 29 Scale By Trace option

2. The screen redraws with **Scale By Trace** enabled.

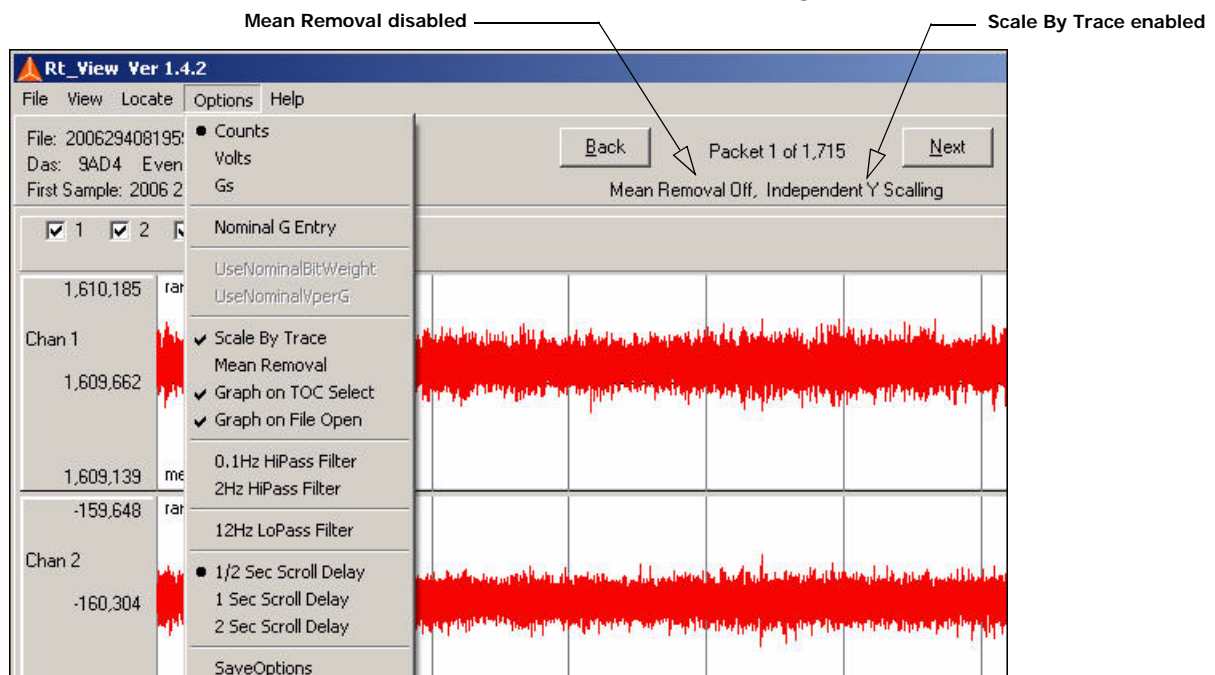


Figure 2 - 30 Counts display with Scale By Trace enabled

## 2.9.5 Using the Mean Removal option

Mean removal is when an arithmetic mean of the entire event is subtracted from each data point (or sample).

With these enabled or disabled the window can be updated as shown below with Common-Y-scaling and Mean Removal Off.

1. Select the **Mean Removal** option on the **Option** menu to enable this option.

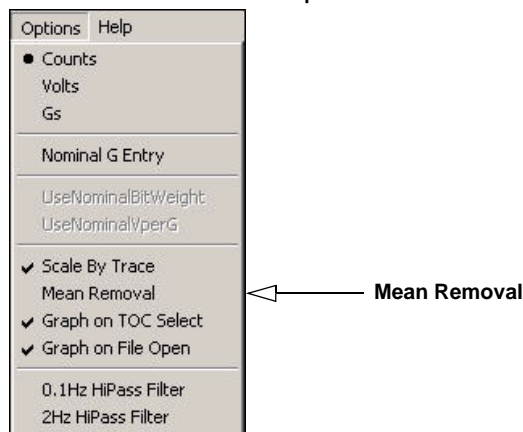


Figure 2 - 31 Mean Removal option

2. The screen redraws with **Mean Removal** and **Scale By Trace** enabled

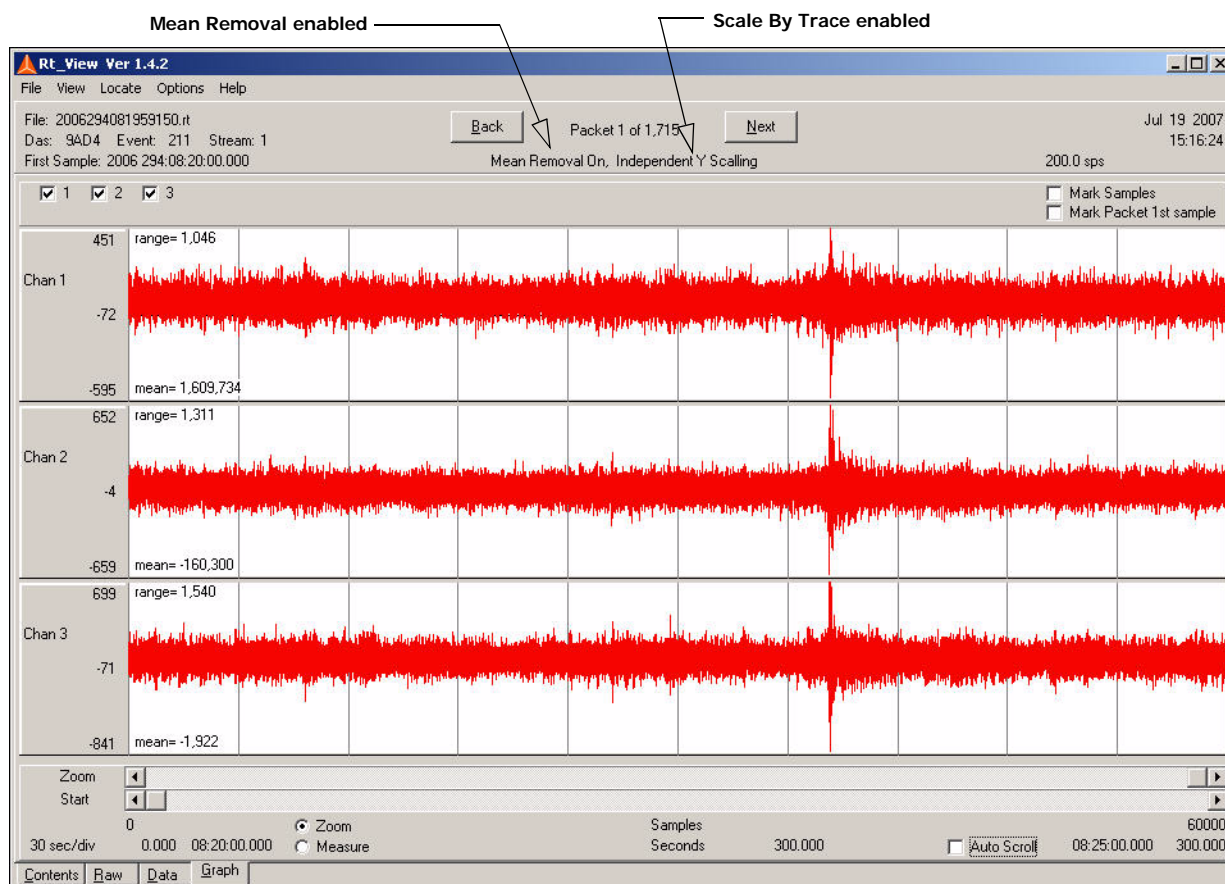


Figure 2 - 32 Counts display example with Mean Removal enabled.



## 2.9.6 Using the Data Filtering option

Data filtering is used to allow the user to view the event data as the triggering software in the DAS does.

1. Select the **2Hz HiPass Filter** and **12Hz LoPass Filter** option on the **Option** menu to enable this option.

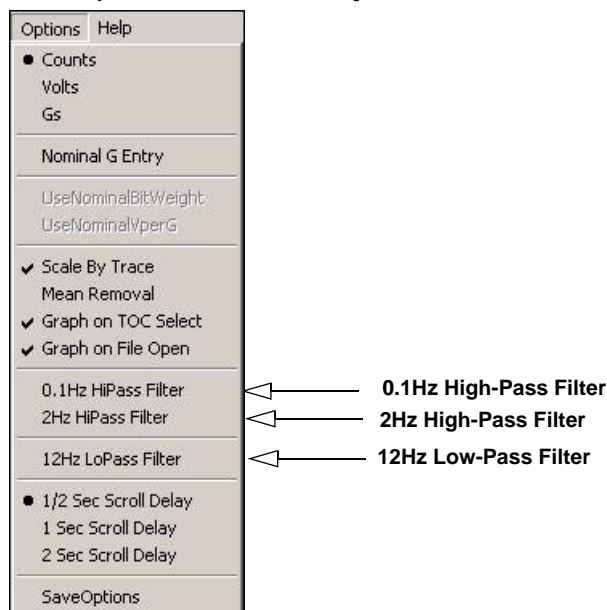


Figure 2 - 33 Mean Removal option

2. The screen redraws with **2Hz HiPass Filter** and **2Hz LoPass Filter** enabled

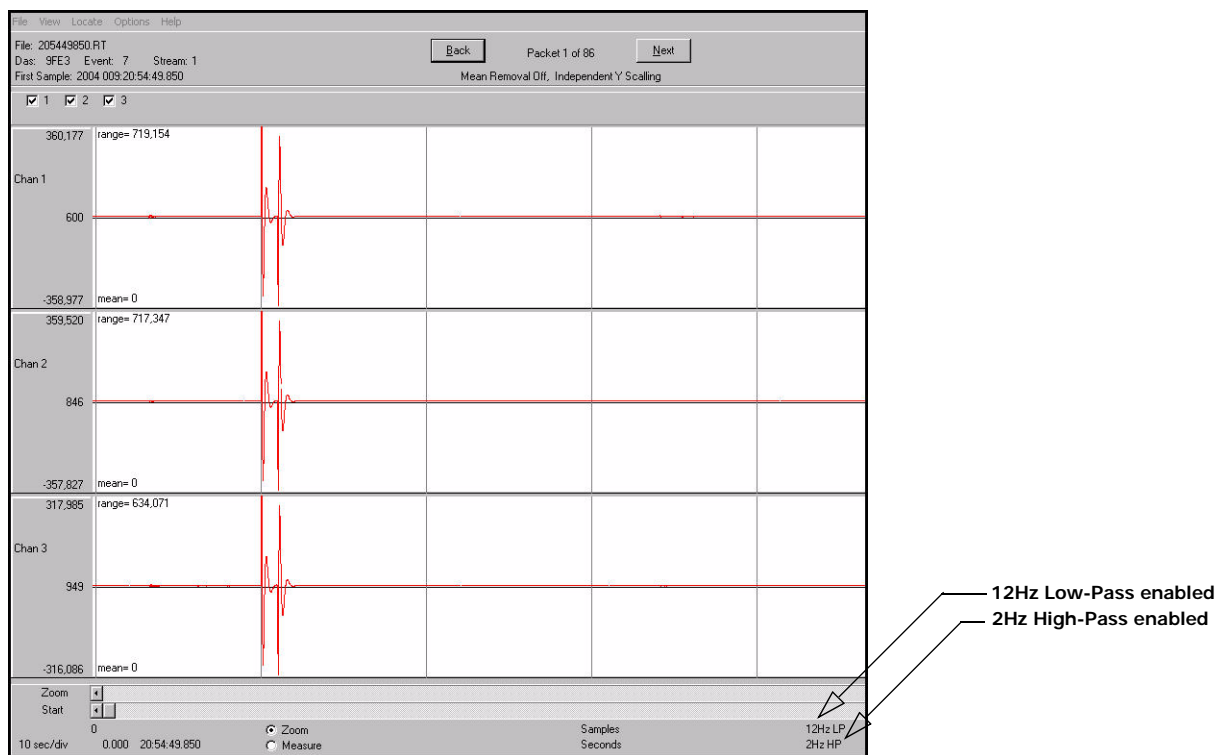
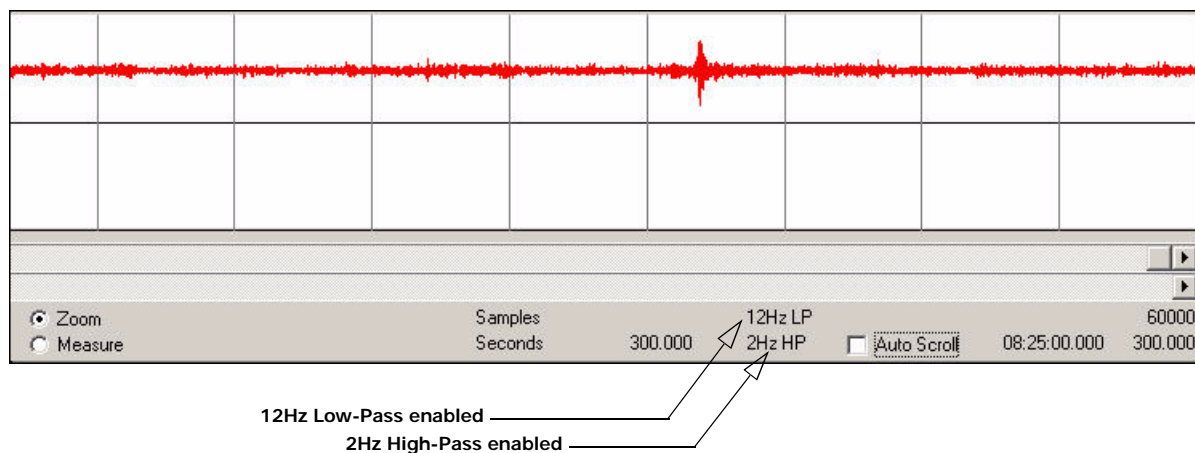


Figure 2 - 34 Display example with filtering options enabled.

This detail view shows the 2Hz HiPass Filter and 12Hz LoPass Filter indicators as enabled.



**Figure 2 - 35 Display example with filtering indicators enabled.**

## 2.10 Zooming

1. It is also possible to zoom in to an area of data by using the left mouse button to select a window area in one data window as shown below, and dragging across to select a new viewing window.

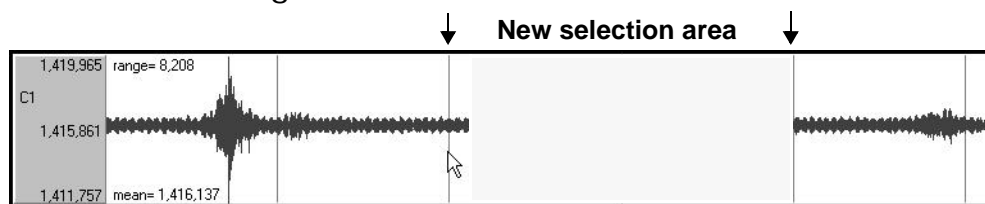


Figure 2 - 36 Dragging a new selection area

2. A new window is displayed based on the new selection area. All channels are zoomed the same amount.

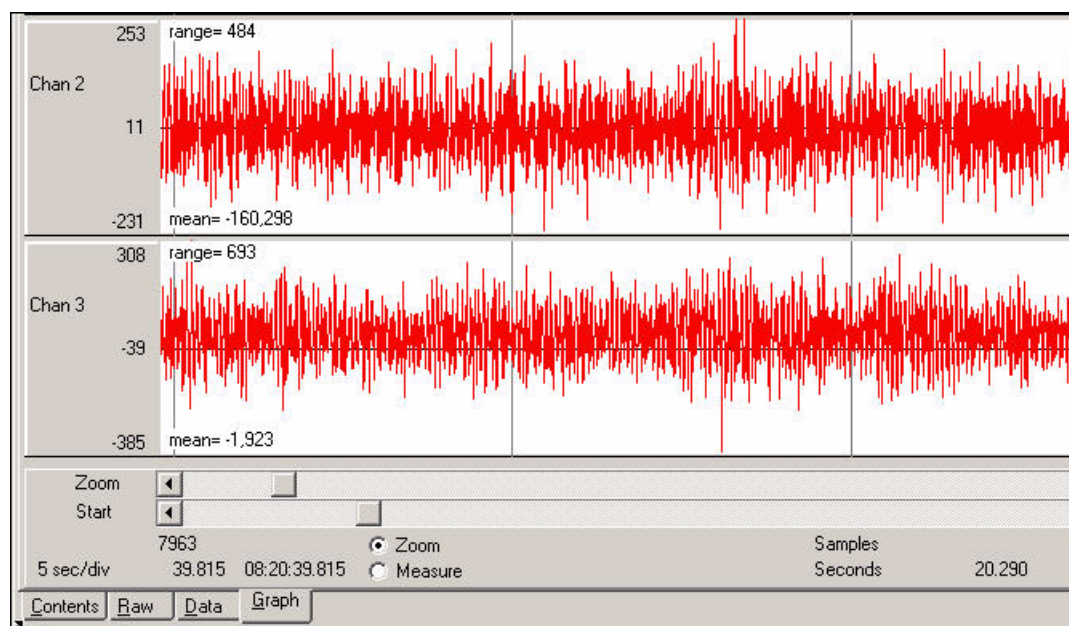


Figure 2 - 37 Zoomed data view



**Note:** It is possible to undo up to 99 zoom in operations.

**Note:** The scroll bars may also be used for a zoom operation but changes are not remembered for undo operations.

3. To cancel a zoom right click in the graph. Each right click cancels one level of zoom and restores the previous display.

## 2.11 Measure

It is also possible to measure amplitude or time

1. Select the **Measure** option check box.

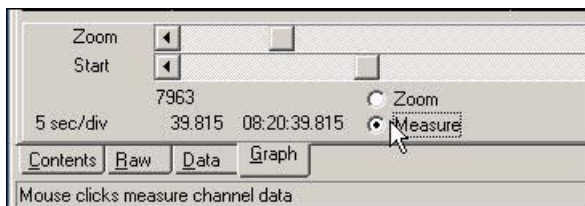


Figure 2 - 38 Measure options

2. Select an area to measure using the mouse.
3. Note the measurement in the area shown below in units of time and amplitude.

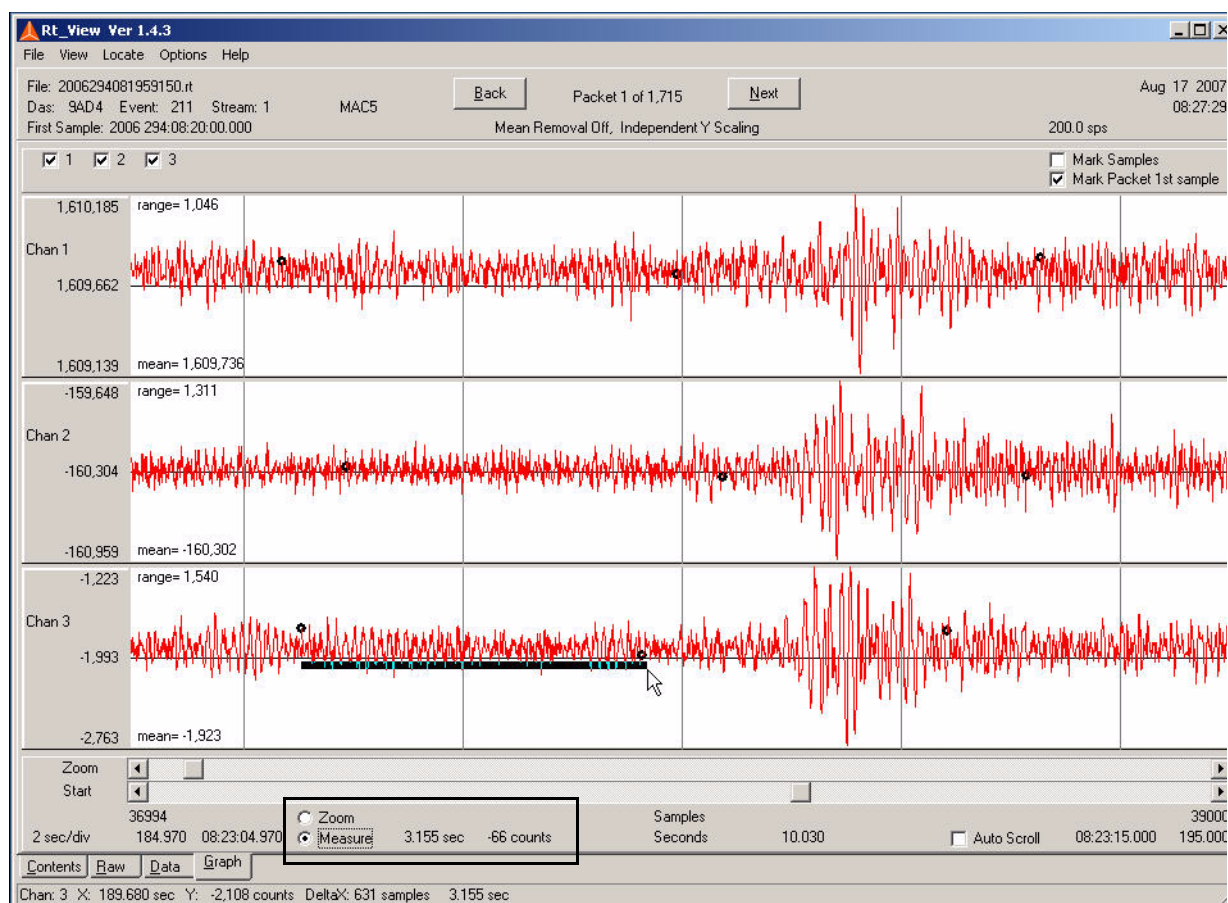


Figure 2 - 39 Measuring

## 2.12 Viewing a State-of-Health file

To view a State-of-Health file:

- Drag and Drop files on an **RT\_View** shortcut or executable.
  - Drag and Drop files onto a running **RT\_View** application.
  - Use the **File** and **Open** menu from the drop-down menu after opening the **RT\_View** program.
1. Close any open file first before opening a State-of-Health file by selecting **File** and **Close**.
  2. Open a State-of-health file by selecting the file and using the **Open** button.

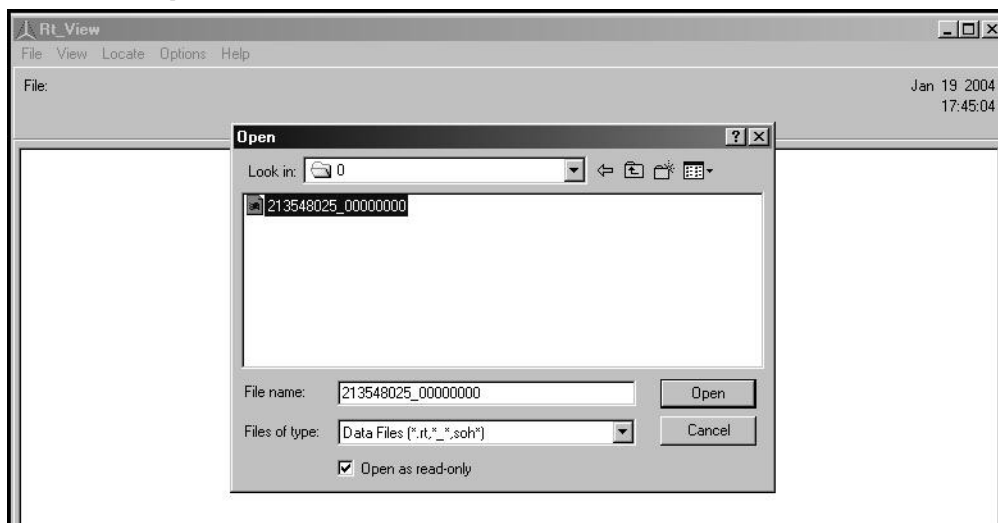


Figure 2 - 40 Select a State-of-health file

3. Double-clicking a **State of Health Info** entry in the table of contents allows viewing of the state-of-health packets in the file.

Packet	Description	Unit	Time	Event	Stream	Channel
1	State Of Health Info	9181	2004 005:00:00:00.000			
16	Station-Chammel Info	9181	2004 005:22:00:00.000			
18	Operating Mode Params	9181	2004 005:22:00:00.000			
19	Data Stream Params	9181	2004 005:22:00:00.000			
20	Aux Parameters	9181	2004 005:22:00:00.000			
21	Cal Parameters	9181	2004 005:22:00:00.000			
22	State Of Health Info	9181	2004 005:22:00:06.000			

Figure 2 - 41 State of Health contents.



**Note:** The file classifications at the bottom of the display reveal the supported viewing formats of the file.

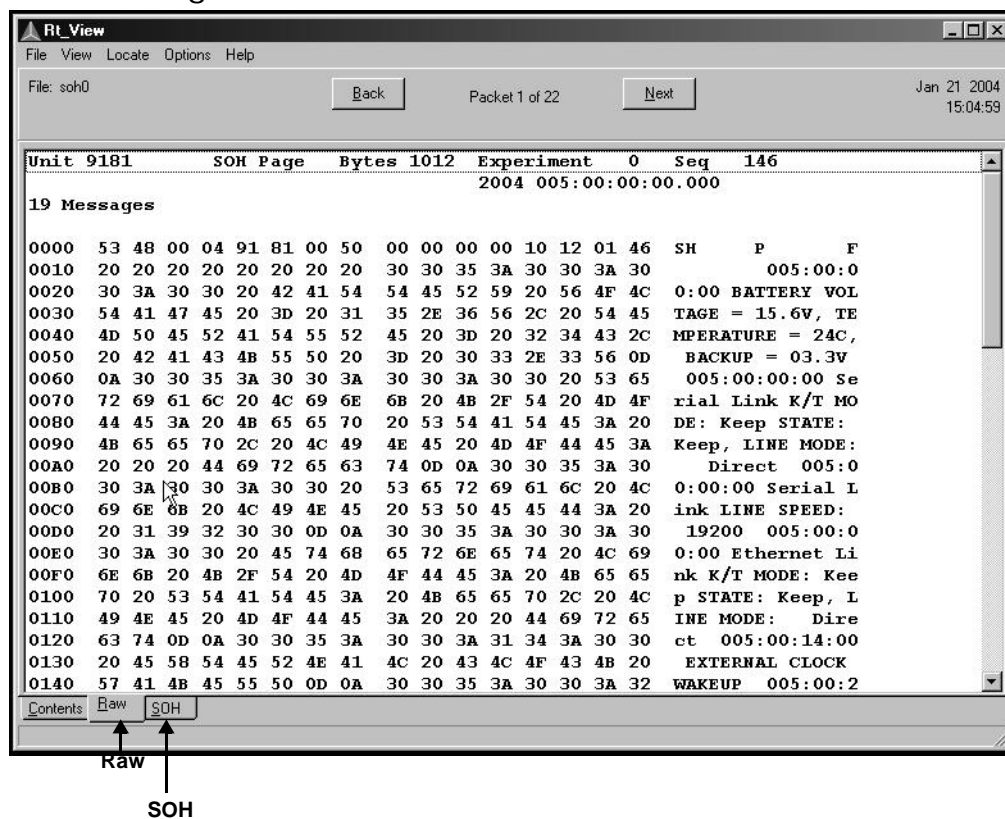
4. Clicking **Raw** allows different views of the data.

Figure 2 - 42 Event file contents

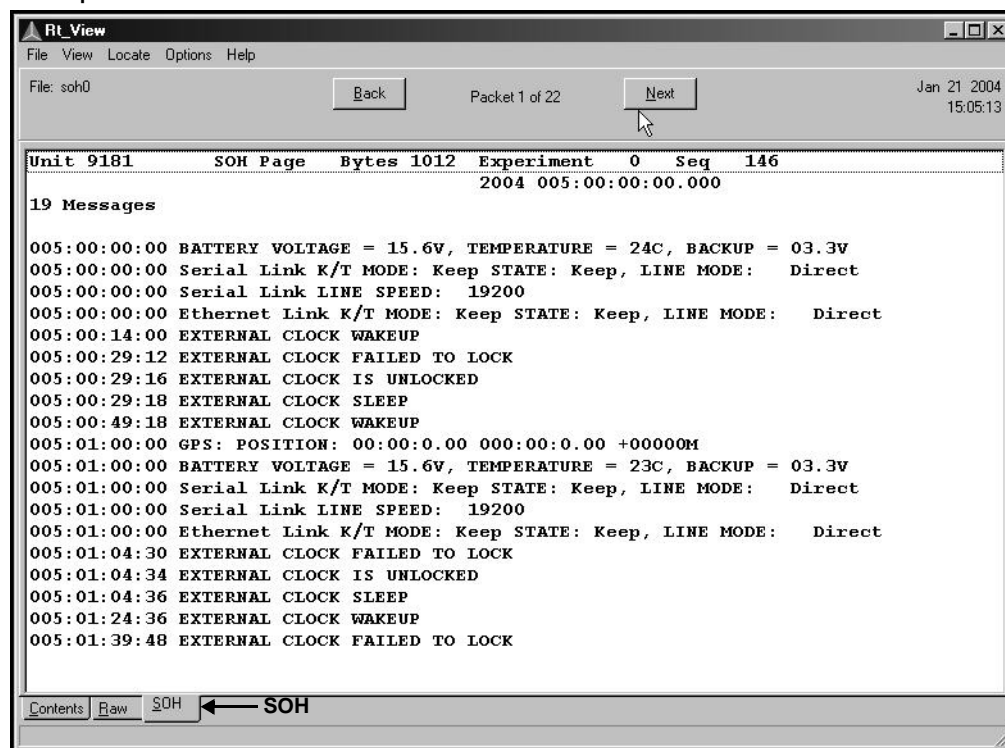
5. Clicking **SOH** tab opens an entry listing view of the SOH packet.

Figure 2 - 43 SOH view





## Appendix B

### RT\_View Release Notes

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#### B.1 Version 1.4.3 (August 7, 2006)

This section of this manual lists and describes the functional modifications made to the Ref Tek RT\_View software version 1.4.2 to create version 1.4.3, as follows:

**WARNING: Please review all release notes between the software version you are running and the version you wish to install.**

1. Corrected spelling of scaling on graph page.
2. Modified Print Graph horizontal center grid line to a dash at each vertical seconds grid line.
3. Added Station Name to on screen graph and printed graph.
4. Added detection of new Sensor Test flag and display on Event Header, Trailer and Data pages.
5. Added Display Sensor Test message on Graph page.

- 1 Corrected spelling of scaling.**  
Corrected spelling of scaling on the graph page.
- 2 Modified Print Graph horizontal center grid.**  
Modified Print Graph horizontal center grid line to a dash at each vertical seconds grid line
- 3 Added Station Name to screen display.**  
Added Station Name to screen graph and printed graph.
- 4 Added detection of new Sensor Test flag.**  
Add detection of new Sensor Test flag and display on Event Header, Trailer and Data pages.
- 5 Added Display Sensor Test message.**  
Added Display Sensor Test message on graph page.



## B.2 Version 1.4.2 (June 18, 2007)

This section of this manual lists and describes the functional modifications made to the Ref Tek RT\_View software version 1.4.1 to create version 1.4.2, as follows:

**WARNING: Please review all release notes between the software version you are running and the version you wish to install.**

1. Corrected marked samples color.
2. Corrected ALT+left\_click on graph failure.
3. Corrected saved graph image 4Kx2K.
4. Corrected overlap of auto scroll check box.
5. Corrected vertical scaling.
6. Modified Graph Tab (removed).
7. Modified saved image size.
8. Modified saved graph image.
9. Modified Options menu item **GraphEventData**.
10. Modified SPS, Event # and add Stream #.
11. Modified filter tags to say **Off**.
12. Modified to allow any mouse click in graph.
13. Added listing packets in Table of Contents.
14. Added support for data format codes **33**, **C1** and **C3**.
15. Added forcing of the file last packet displayed.
16. Added more graphing of events.
17. Added time width of current graph.
18. Added Options menu item **Graph on File Open**.
19. Added analog filter code.
20. Added line for overscale count if it is non-zero.
21. Added gain and full scale voltage support.
22. Added scroll delay values to the **Options**.
23. Added Auto Scroll check box to allow scanning.

- 1 Corrected marked samples color.**  
Corrected marked samples color changing from black to red on refresh.
- 2 Corrected ALT+left\_click on graph failure.**  
Corrected ALT+left\_click on graph failure due to changes to display graph on program open.
- 3 Corrected saved graph image 4Kx2K.**  
Corrected saved graph image 4Kx2K caused "out of memory" when multiple programs opened.
- 4 Corrected overlap of auto scroll check box.**  
Corrected overlap of auto scroll check box and enabled filter flags.
- 5 Corrected vertical scaling.**  
Corrected vertical scaling during auto scroll.
- 6 Modified Graph Tab (removed).**  
Modified Graph Tab (removed) when Header or Trailer Tabs displayed (part of ALT+left\_click problem).
- 7 Modified saved image size.**  
Modified saved image size to current system screen resolution.
- 8 Modified saved graph image.**  
Modified saved graph image from 2000 x 2000 to 4000 x 2000.
- 9 Modified Options menu item *GraphEventData*.**  
Modified Options menu item *GraphEventData* to Graph on *TOC Select*.
- 10 Modified SPS, Event # and add Stream #.**  
Modified SPS, Event # and add Stream # to printer plot.
- 11 Modified filter tags to say *Off*.**  
Modified filter tags to say *Off* instead of blank on printer plot.
- 12 Modified to allow any mouse click in graph.**  
Modified to allow any mouse click in graph window to disable auto scroll.
- 13 Added listing packets in Table of Contents.**  
Added listing packets in Table of Contents with packet overscale flag set.

**14 Added support for data format codes 33, C1 and C3.**

Added support data format codes *3*, *C1* and *C3* for samples marked overscale.

**15 Added forcing of the file last packet displayed.**

Added forcing of the file last packet displayed in the table of contents along with a 'end of file' message.

**16 Added more graphing of events.**

Added graphing of events without event headers and/or trailers.

**17 Added time width of current graph.**

Added time width of current graph to bottom of graph.

**18 Added Options menu item Graph on File Open.**

Added Options menu item *Graph on File Open* to skip display of the contents.

**19 Added analog filter code.**

Added analog filter code to channel gain field.

**20 Added line for overscale count if it is non-zero.**

Added line for overscale count if it is non-zero.

**21 Added gain and full scale voltage support.**

Added gain and full scale voltage support for RT601 A/D boards (QH DAS firmware).

**22 Added scroll delay values to the Options.**

Added 3 scroll delay values to the Options menu.

**23 Added Auto Scroll check box to allow scanning.**

Added Auto Scroll check box to allow scanning through the entire event.

## **B.3 Version 1.4.1 (August 7, 2006)**

This section of this manual lists and describes the functional modifications made to the Ref Tek RT\_View software version 1.4.0 to create version 1.4.1, as follows:

**WARNING: Please review all release notes between the software version you are running and the version you wish to install.**

1. Corrected bug when graphing filtered data that did not scale traces correctly.
2. Modified click on X scroll bar behavior to small change of 1 sec and large change of current zoom width.
3. Added text to printer output if filters are on.
4. Added version display in top left of window.

## **B.4 Version 1.4.0 (September 23, 2005)**

This section of this manual lists and describes the functional modifications made to the Ref Tek RT\_View software version 1.3.0 to create version 1.4.0, as follows:

**WARNING: Please review all release notes between the software version you are running and the version you wish to install.**

### **New Features since 1.3.0**

1. Add data filtering of 12Hz low pass, 0.1Hz High pass and 2Hz High pass.
2. Add decode of Trigger Out Delay in Event Headers and Trailers.
3. Added a INI file entry to enable/disable editing of nominal Volts per G values.
4. Added support for 18 channels.

### **Changes for version 1.4.0**

1. Corrected zoom glitch.
2. Corrected contents list.
3. Corrected Next and Back Button.
4. Corrected not reading header.
5. Corrected existing print bug.
6. Corrected long integer overflow calculating time.
7. Corrected memory overwrite.
8. Modified text windows.
9. Modified header 2 and trailer 2.
10. Modified file open.
11. Modified Menu subitem.
12. Modified the Gs Entry screen.
13. Modified AllowGsEntry.
14. Modified Event header and trailer.
15. Modified data page contents.
16. Modified stream number.
17. Added SOH text search.
18. Added total recorder channels.
19. Added decode calibration schedule.
20. Added flag data decompression.
21. Added display of stream number.
22. Added marker for first sample of data packet.
23. Added save filter selection to ini file.

- 24. Added filtering options.
- 25. Added decode of Trigger Out Delay.
- 26. Added the actual used Volts per G values.
- 27. Added an INI file entry for AllowGsEntry.
- 28. Added Decode calibration schedule.
- 29. Added detection of data compression control flag errors.
- 30. Added detection of number of decompressed values error.
- 31. Added ability to flag above errors in contents and on data tab.

## **Version 1.4.0**

### **1 Corrected zoom glitch**

Corrected glitch when zoomed in middle of event at beginning of window. Start filter 1000 samples before displayed data.

### **2 Corrected contents list**

Corrected contents list jump to page for long lists, bug introduced with 18 chan support (1.3.0.10).

### **3 Corrected Next and Back Button**

Corrected Next and Back Button on graphs for multiple events, bug introduced with 18 chan support (1.3.0.10).

### **4 Corrected not reading header 1**

Corrected not reading header 1 for bit-weights in 18 channel file.

### **5 Corrected print bug**

Corrected existing print bug that overwrote the top of page.

### **6 Corrected long integer overflow calculating time**

Corrected long integer overflow calculating time. When using the mouse to point at data, the reported time would suddenly change drastically.

### **7 Corrected memory overwrite**

Corrected memory overwrite in getgamples for steim 2 when data packet number of samples equals zero and when data packet number of samples equals zero.

### **8 Modified text windows**

Modified text windows to allow vert and horz scroll bars.

### **9 Modified header 2 and trailer 2**

Modified header 2 and trailer 2 in contents, raw, header and trailer tabs.

### **10 Modified file open**

Modified file open to be ReadOnly and ShareDenyNone.

### **11 Modified Menu subitem**

Modified Menu subitem from G\_Entry to "Nominal G Entry".

### **12 Modified the Gs Entry screen**

Modified the Gs Entry screen title text to read "Nominal Volts Per G Values".

### **13 Modified AllowGsEntry**

Modified AllowGsEntry to disable the Option submenu items Use-NominalBitWeight and UseNominalVperG and also to disable the OK and Defaults buttons in the Nominal G Entry screen.

### **14 Modified Event header and trailer**

Modified Event header and trailer; time source, time quality decoding. Added to Event header and trailer; total recorder channels.

### **15 Modified data page contents**

Modified data pages in contents for a second event in the file with the same event number. Added display of data pages in contents for a second event in the file with the same event number.

### **16 Modified stream number**

Modified stream number to display in top panel when graphing.

### **17 Added SOH text search**

Case insensitive

### **18 Added total recorder channels**

Added total recorder channels to Event header and trailer decoding.

### **19 Added decode calibration schedule**

Added decode calibration schedule in Cal packets produced by 130 firmware release 2.7.0.

### **20 Added flag data decompression**

Added flag data decompression and number of decompressed values errors in contents and on data tab.

### **21 Added display of stream number**

Added display of stream number in top panel when graphing.

### **22 Added display of stream number**

### **23 Added marker for first sample of data packet**

### **24 Added save filter selection to ini file**

### **25 Added filtering options**

Added filtering, 12Hz Lopass, 0.1Hz Hipass and 2Hz Hipass.

### **26 Added decode of Trigger Out Delay**

Added decode of Trigger Out Delay in Event Headers and Trailers.



**27 Added the actual used Volts per G**

Added the actual used Volts per G values to the Nominal G Entry Screen.

**28 Added an INI file entry for AllowGsEntry**

Added an INI file entry for AllowGsEntry. Default entry to off.

**29 Added Decode calibration schedule**

Added Decode calibration schedule in Cal packets produced by 130 firmware release 2.7.0.

**30 Added detection of data compression control flag errors.**

Added ability to flag above errors in contents and on data tab.

**31 Added detection of number of decompressed values error.**

Added ability to flag above errors in contents and on data tab.

## **B.5 Version 1.3.0 (September 23, 2005)**

**This section of this manual lists and describes the functional modifications made to the Ref Tek RT\_View software version 1.2.0 to create version 1.3.0, as follows:**

### **New Features since 1.2.0**

1. Added support for filter description packet.
2. Added support for Steim 2 decompression.
3. Added G's entry for channels 7-16.
4. Added Time align the graph x axis.
5. Added time to each line of samples in Data tab.
6. Added use of ALT key with mouse to switch to the data tab for that time.
7. Added MarkSamples check box to draw circles around sample points.
8. Added time in hh:mm:ss format to status bar for mouse position in graph.
9. Added channel display check boxes to top panel.
10. Added Menu Options for force use of nominal bit weight and nominal volts per G
11. Added zoom button, measure button and measure text to graph page.
12. Added Left and right mouse click either hi-light/zoom or hi-light/measure time.
13. Added support for 72A scsi disk data (multiple units and events interleaved.)
14. Modified to speed up graphing
15. Modified table of contents to remember the last selected item.

---

## Changes for version 1.3.0

**WARNING: Please review all release notes between the software version you are running and the version you wish to install.**

1. Corrected printing problem.
2. Corrected run time error.
3. Corrected decoding of Data Stream packet.
4. Corrected runtime error.
5. Corrected bug in 32-bit data.
6. Corrected bug in steim 2.
7. Corrected decode of steim.
8. Corrected mean value computation.
9. Corrected printing lockup.
10. Corrected scroll bar arrows.
11. Corrected mouse click.
12. Corrected rounding error.
13. Corrected plotting error.
14. Corrected measuring Y value.
15. Corrected graphing data.
16. Corrected mouse move display.
17. Corrected event without data.
18. Corrected Date conversion.
19. Corrected packet graphing.
20. Corrected data page error.
21. Corrected graphing bad date error.
22. Corrected end event errors.
23. Corrected channel graphing.
24. Corrected search functions.
25. Corrected contents tab.
26. Corrected graph interleave.
27. Modified decode data destination.
28. Modified filter packet decode.
29. Modified sample rate.
30. Modified multiple program copies.
31. Modified filter packet format.
32. Modified event channels.
33. Modified to work with rtcnvrt.
34. Modified G's.
35. Modified X graphing grid.
36. Modified Mark Sample.
37. Modified Packet time.
38. Modified default to 3 channel.

- 39. Modified channel number.
- 40. Modified channel check boxes.
- 41. Modified hi-light region limit.
- 42. Modified left and right mouse click.
- 43. Modified graphing speed.
- 44. Modified disk access.
- 45. Modified zoom.
- 46. Modified windows short date.
- 47. Modified draw.
- 48. Modified screen graph.
- 49. Modified printed plot.
- 50. Modified TOC.
- 51. Added data packet type.
- 52. Added data tab message.
- 53. Added graph color change.
- 54. Added SaveEvent function.
- 55. Added FD decode.
- 56. Added Steim 2 decompression.
- 57. Added G's entry for Ch 7-16.
- 58. Added PI decode.
- 59. Added event header info.
- 60. Added time to Data tab.
- 61. Added use of ALT key.
- 62. Added MarkSamples.
- 63. Added time format.
- 64. Added channel display boxes.
- 65. Added status bar.
- 66. Added bit weight menu options.
- 67. Added zoom button.
- 68. Added channel check boxes.
- 69. Added 0.1 graphing.
- 70. Added disable of NEXT and BACK.
- 71. Added Save screen.
- 72. Added DAS checking of S/N.
- 73. Added drag and drop.

- 1 Corrected printing of filter description**  
Corrected printing of filter description packet.
- 2 Corrected run time error**  
Corrected run time error when a packet is more than 24 days from event start. Time is forced to a max of 24 days from event start.
- 3 Corrected decoding of Data Stream packet**  
Corrected decoding of Data Stream packet with two streams having the same trigger type.
- 4 Corrected runtime error**  
Corrected runtime error on close due to small array size filter packet coefficients.
- 5 Corrected bug in 32 bit data**  
Corrected bug in 32 bit data introduced in 1.2.0.20.
- 6 Corrected bug in steim 2**  
Corrected bug in steim 2, 15 bit value decode.
- 7 Corrected decode**  
Corrected decode of steim 2. Corrected decode of steim 1 bug introduced in 1.2.0.20.
- 8 Corrected mean value computation**  
Corrected mean value computation to be the displayed data instead of entire event.
- 9 Corrected printing lockup**  
Corrected lockup in printing the graph from beta 15.
- 10 Corrected scroll bar arrows**  
Corrected click of scroll bar arrows to move in step size of 1 sample.
- 11 Corrected mouse click**  
Corrected ALT mouse click not display correct channel or time. Corrected mouse to status bar display when channels are not displayed.
- 12 Corrected rounding error**  
Corrected rounding in calc of date time from mouse position result in 1mS error.
- 13 Corrected plotting error**  
Corrected plotting of very first sample, 1 sample period late.

## **14 Corrected measuring Y value**

Corrected measure Y value jump when mouse moves to another channel area.

## **15 Corrected graphing data**

Corrected Graph Data (when units of G's selected) to use event header volts per G otherwise use value in G's entry table.

## **16 Corrected mouse move display**

Corrected mouse move display of x value to use a saved sps from graphing event.

## **17 Corrected event without data**

Corrected to handle event with no data.

## **18 Corrected Date conversion**

Corrected Date conversion to use windows DateSeperator character.

## **19 Corrected packet graphing**

Corrected problem in graphing when back to back packets are the same channel.

## **20 Corrected data page error**

Corrected going to last data page if no event trailer.

## **21 Corrected graphing bad date error**

Corrected "Bad Date" error on graph. Reload event header after scanning for data min max because another event header for a new event could have been read.

## **22 Corrected end event errors**

Corrected more places checking for end event with DAS and event numbers.

## **23 Corrected channel graphing**

Corrected graph if channel data first samples are not time aligned.

## **24 Corrected search functions**

Corrected search functions to exit proper when starting 1 page from end(forward search) or beginning (back search).

## **25 Corrected contents tab**

Corrected contents tab to display every event header and trailer. Other like pages that follow are suppressed in the contents as before.

## **26 Corrected graph interleave**

Corrected graph if more than one event in file and the events are interleaved.

## **27 Modified decode data destination**

Modified decode data destination in stream info and aux info to be position dependent instead of value dependent.

## **28 Modified filter packet decode**

Modified filter packet decode per change in recording format.

## **29 Modified sample rate**

Modified to handle 0.1 sample per second rate.

## **30 Modified multiple program copies**

Modified spawn multiple copies of program when more than one file drag and drop on program.

## **31 Modified filter packet format**

Modified format of filter packet scaller display.

## **32 Modified event channels**

Modified the channels of an event to be written to ascii files.

## **33 Modified to work with rtcnvt**

Modified filenames and content to match that of **REF TEK** rtcnvt program.

## **34 Modified G's**

Modified default G's to 2.4.

## **35 Modified X graphing grid**

Modified graph X grid to be time aligned instead of relative to first sample. Modified graph X grid to show short ticks at 0.1 second intervals and top to bottom line on the second when grid is 1 sec/div.

## **36 Modified Mark Sample**

Modified and moved "Mark Samples" option from menu to a Check box on the Graph tab.

## **37 Modified Packet time**

Modified the Packet time to locate where to place the first sample of packet on the graph.

## **38 Modified default to 3 channel**

Modified default to 3 channel check boxes visible at file open.



### **39 Modified channel number**

Modified channel number text limit if more than 6 channels on screen.

### **40 Modified channel check boxes**

Modified visible only channel check boxes for active channels in event.

### **41 Modified hi-light region limit**

Modified the limit of the hi-light region to present channel when measure button checked.

### **42 Modified left and right mouse click**

Modified left and right mouse click to be either hi-light/zoom or hi-light/measure time.

### **43 Modified graphing speed**

Modified and speed up graphing by reducing the line drawing calls made.

### **44 Modified disk access**

Modified and reduced disk access by storing select information for each packet in an array.

### **45 Modified zoom**

Modified zoom to not allow zoom scroll bar to go to zero.

### **46 Modified windows short date**

Modified windows short date format to properly position the year ( m/d/y y/m/d ) in internal date conversion (started in v1.2.0.7 beta).

### **47 Modified draw**

Modified draw to save the bitmap at same time as screen to allow window to go to background and finish the plot.

### **48 Modified screen graph**

Modified screen graph limitation of 6 channels to now be 16.

### **49 Modified printed plot**

Modified printed plot if first channel is not 1.

### **50 Modified TOC**

Modified the table of contents remember the last selected item for when the user goes back to the contents.

## **51 Added data packet type**

Added data packet type to contents header and trailer message.

## **52 Added data tab message**

Added message in data tab if decompressed last page sample does not match the stored last value.

## **53 Added graph color change**

Added change of graph plot color from red to black for packet that the decompressed last sample does not match the stored last value.

## **54 Added SaveEvent function**

Added the Enable of the SaveEvent menu function.

## **55 Added FD decode**

Added decode of FD (filter description) packet type.

## **56 Added Steim 2 decompression**

Added Steim 2 decompression for C2 data packet.

## **57 Added G's entry for ch 7-16**

Added G's entry for channels 7-16.

## **58 Added PI decode**

Added decode of Parameter Implement Time field in Aux, Cal, Data Stream, Op Mode and Station Channel packets.

## **59 Added event header info**

Added event header channel gain codes F to J.

## **60 Added time to Data tab**

Added time to each line of samples in Data tab.

## **61 Added use of ALT key**

Added use of ALT key with mouse left click to switch to the data tab and packet containing that time point.

## **62 Added MarkSamples**

Added MarkSamples menu item to draw circles around sample points.

## **63 Added time format**

Added time in hh:mm:ss format to status bar for mouse position in graph.

## **64 Added channel display boxes**

Added channel display check boxes to top panel.

## **65 Added status bar**

Added status bar hints for menu items.

## **66 Added bit weight menu options**

Added Menu Options for force use of nominal bit weight and nominal volts per G.

## **67 Added zoom button**

Added zoom button, measure button and measure text to graph page.

## **68 Added channel check boxes**

Added channel check boxes to a panel in the graph tab sheet.

## **69 Added 0.1 graphing**

Added 0.1 sec/div capability to graphing.

## **70 Added disable of NEXT and BACK**

Added disable of NEXT and BACK button during graphing.

## **71 Added Save screen**

Added Save screen to bitmap for fast repaint when switching between windows programs.

## **72 Added DAS checking of S/N**

Added checking of the DAS s/n and event num for Back and Next buttons.

## **73 Added drag and drop**

Added function to allow file drag and drop without doing a file/close first.

## **B.6 Version 1.2.0 (June 8, 2004)**

**This section of this manual lists and describes the functional modifications made to the Ref Tek RT\_View software version 1.1.0 to create version 1.2.0, as follows:**

1. Corrected an off by one problem.
2. Corrected divide by zero.
3. Corrected display problem.
4. Corrected close file windows handle.
5. Corrected continuos trigger start time.
6. Corrected event header and trailer station.
7. Corrected field sizes in event header and trailer.
8. Modified hard coded field length.
9. Modified all hard coded field position/length values.
10. Added event header and trailer sensor units fields.
11. Added changed size of sensor VPU field.
12. Added decoding of filter list codes.
13. Added event header and trailer fields.
14. Added chan and sensor fields to event header and trailer.
15. Added time source, time quality and station comment.

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Please review all release notes between the software version you are running and the version you wish to install.

- 1 Corrected an off by one problem.**  
Corrected an off by one problem in Menu > Locate > gotopage.
- 2 Corrected divide by zero.**  
Corrected divide by zero when file had only and event header, no data and user clicked on "graph" tab.
- 3 Corrected display problem.**  
Corrected display problem with event header and trailer new fields.
- 4 Corrected close file windows handle type.**  
Corrected close file windows handle type from menu File Exit.
- 5 Corrected continuos trigger start time.**  
Corrected continuos trigger start time field length.
- 6 Corrected event header and trailer.**  
Corrected event header and trailer station comment field length.
- 7 Corrected field sizes in event header and trailer.**  
Corrected field sizes in event header and trailer per Recording format doc dated May 13, 2004.
- 8 Modified hard coded field length.**  
Modified hard coded field length for sensor volt per unit in event header and trailer packet decode.
- 9 Modified all hard coded field position/length values.**  
Modified all hard coded field position/length values (in event header and trailer decode) with entries already defined in include file.
- 10 Added event header and trailer sensor units fields.**  
Added event header and trailer sensor units fields.
- 11 Added changed size of sensor VPU field.**  
Added changed size of sensor VPU field in header and trailer.
- 12 Added decoding of filter list codes.**  
Added decoding of filter list codes.
- 13 Added event header and trailer fields.**  
Added event header and trailer new fields.

**14 Added chan and sensor fields to event header and trailer.**

Added chan gain, chan a/d resolution, chan FSA, chan code, sensor FSA and sensor VPU to event header and trailer.

**15 Added time source, time quality and station comment.**

Added time source, time quality and station comment to event header and trailer.

## **B.7 Version 1.1.0 (February 26, 2004)**

**This section of this manual lists and describes the functional modifications made to the Ref Tek RT\_View software version 1.0 to create version 1.1.0, as follows:**

1. Corrected drag and drop of a file to shortcut.
2. Corrected print graph x axis.
3. Corrected scroll bars to default on file open.
4. Corrected close file handle.
5. Corrected event station comment.
6. Corrected continuous trigger start time.
7. Corrected display problem.
8. Corrected divide by zero with no data.
9. Removed range from status line display.
10. Modified opening files to be Read-Only.
11. Modified hard coded field lengths.
12. Modified field sizes (event header and trailer).
13. Added vertical range to Status line text.
14. Added drag and drop of a file to running program.
15. Added units label to y scale values.
16. Added ScaleByTrace option.
17. Added graph Y center line value.
18. Added mean removal option.
19. Added graph zoom/unzoom.
20. Added print graph Y center line value.
21. Added text mode display.
22. Added display of range and mean.
23. Added delta time to click-and-drag.
24. Added file extension .rte.
25. Added GraphEventData to Options menu.
26. Added set defaults button.
27. Added Save Options menu.
28. Added ini file.
29. Added new event header and trailer fields.
30. Added decode of filter list.



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Please review all release notes between the software version you are running and the version you wish to install.

- 1 Corrected drag and drop of a file to shortcut**  
Fixed drag and drop of a file on to the non running executable (or a shortcut) that generated a "Cannot focus a disabled or invisible window" popup box.
- 2 Corrected print graph x axis**  
Fixed print graph x axis min. and max values when zoomed.
- 3 Corrected scroll bars to default on file open**  
Forced scroll bars to default on file open.
- 4 Corrected close files handle**  
Fixed file closing handle type on "File" "Exit" menu.
- 5 Corrected event station comment**  
Fixed event header and trailer station comment field length.
- 6 Corrected continuous trigger start time**  
Fixed continuous trigger start time field length.
- 7 Corrected display problem**  
Fixed display problem with added event header and trailer fields.
- 8 Corrected divide by zero with no data**  
Fixed divide by zero when file has only an event header and no data when a user clicks the "graph" tab.
- 9 Removed range from status line display**  
Removed range from status line display.
- 10 Modified opening files to be Read-Only**  
Change file routines from pascal type to windows handle type so that the data files can be opened read-only.
- 11 Modified hard coded field lengths**  
Replaced hard coded position/length values (in event header and trailer decode) with entries already defined in the include file.
- 12 Modified filed sizes in event header and trailer**  
Change size of sensor VPU field in header and trailer. Applied change in field sizes in event header and trailer per Recording Format Specification (May 13, 2004).

### **13 Added vertical range to Status line text**

In data graph window, added vertical range to Status line text.

### **14 Added drag and drop of a file to running program**

Added drag and drop of a file from Windows Explorer on to the running executable. Rt\_View cannot have a file open when drag and drop is performed.

### **15 Added units label to Y scale values**

Added units label (V,G) to y scale values.

### **16 Added ScaleByTrace option**

Added ScaleByTrace option to allow common scaling of all displayed channels or independent scaling of each channel.

### **17 Added graph Y center line value**

Added graph Y center line value.

### **18 Added mean removal option**

Added mean removal option.

### **19 Added graph zoom/unzoom**

Added graph zoom/unzoom via left/right mouse button clicks.

### **20 Added print graph Y center line value**

Added print graph Y center line value.

### **21 Added text mode display**

Added text mode display of ScaleByTrace and MeanRemoval to display and print.

### **22 Added display of range and mean**

Added display of range and mean to each graph for display and print.

### **23 Added delta time to click-and-drag**

Added delta time to click-and-drag to zoom.

### **24 Added file extension .rte**

Added file extension .rte to file open dialog box.

### **25 Added GraphEventData to Options menu**

Added GraphEventData to Options menu to allow graphing of event data to display when Event Header, Trailer or Data is clicked on in the Contents list.

## **26 Added set defaults button**

Added set defaults button (1.2V/G) to Gs Entry window under options.

## **27 Added Save Options menu**

Added Save Options menu item to put Option menu setting to ini file.

## **28 Added ini file**

Added ini file for the application window size and state save/restore.

## **29 Added new event header and trailer fields**

Added time source, time quality and station comment to event header and trailer. Added channel gain, channel A/D resolution, channel FSA, channel code, sensor FSA and sensor VPU to event header and trailer. Added sensor units fields.

## **30 Added decode of filter list**

Added decoding of filter list codes.

