



SEG-Y QuickView

A fast SEG-Y file viewer

Troika International Limited

SEG-Y QuickView

Version 1.3

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Troika International Limited
Eridge House, Coach & Horses Passage, The Pantiles
Tunbridge Wells, Kent, TN2 5NP
+44 1892 616060

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About Troika International

Troika is a Global Seismic Software Company supplying Data Management utilities and transcription software to Oil and Gas Companies and Service providers worldwide.

The company was founded in 1994 as a software house specialising in the development of software relating to Seismic formats, data on legacy tapes and encapsulation formats on disk.

Troika has always had a close relationship with the SEG Technical Committee and the Standards Leadership Council (SLC) to ensure that the data is format compliant and has developed tools to address issues and problems encountered in the industry when dealing with legacy data.

Troika's latest software releases focus on the requirement to handle and process large volumes of SEG-Y and SEGD data through its Data Management Utilities suite. These utilities enable you to QC and extract knowledge in a single pass by accessing your data with customisable and configurable workflows.

With offices in England, Scotland and the United States, Troika is able to provide its services, products and support to all corners of the globe.

Troika offer all Troika products training courses that will ensure that you take the maximum advantage of there many features. These training courses can be configured to address your specific requirements.

Troika can work with you to design workflows and produce the necessary midi configuration command set to give:

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Please contact us at info@troika-int.com for more information on training and services.

SEG-Y QuickView

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CHAPTER 1

Introduction

SEG-Y QuickView is a package designed for quickly viewing SEG-Y format seismic data. This does not require a license to run.

1.1 Running SEG-Y QuickView

The package currently runs under Windows (7, 8, 10, 11) and Linux (RedHat Enterprise 7 and CentOS 7) and is driven by a GUI (Graphical User Interface).

As well as showing on the screen, any read and write errors are written to the user's logfile **QuickView_errors.log** (for the location of this file, see "3.3 Help" on page 15). It is suggested that the user periodically remove or trim this file to stop it becoming too large.



The installer automatically installs to the default install directory, without requiring user input. The graphical user interface is not displayed, making this mode of installation to be used through scripts.

1.2 System Requirements

In order to run SEG-Y QuickView it is suggested that users should use an i7 processor, or equivalent, and 16GB of RAM. As this is a RAM intensive product, the more RAM the user has installed, the faster a job can be completed.

1.3 Windows Systems

To start SEG-Y QuickView, run:

```
<QuickView installation path>\quickviewGUI.exe
```

For a silent installation run:

```
<QuickView installation path>\quickviewGUI.exe --mode unattended
```

An alternative method would be via the GUI or the user can double click the desktop/ Start menu icon or single click via the application menu.

You can associate the SEG-Y QuickView executable with one or more file types (such as .sgy) for quick startup.

1.4 Linux Systems

To start SEG-Y QuickView, run:

```
<QuickView installation path>/quickviewGUI
```

This can be done from a terminal window or via the launcher created during SEG-Y QuickView installation.

For a silent installation run:

```
<QuickView installation path>/quickviewGUI --mode unattended
```

1.5 Supply Startup Options

SEG-Y QuickView can be run with options as arguments and will then start without prompting for the information provided.

Arguments that can be supplied are described in "[Command Line Arguments](#)" on page 31.

SEG-Y QuickView can also be launched from **Marlin**, the Troika seismic data trawler, from Marlin 5.2.0 onwards.

CHAPTER 2

The SEG-Y QuickView GUI

This chapter details the panel display window in the SEG-Y QuickView interface.

2.1 Panel Display Window

The panel display window is used to manage the various information panels. Panel details can be seen in the tab headers; they can also be listed and selected from the dropdown menu to the right of the tabs.

The tabs on startup are as follows:

- Section
- File Summary
- Textual File Header
- Binary File Header
- Trace Headers

Tabs can be dragged to dock at different positions within the display window, previewed by a translucent blue rectangle, for example to view panels simultaneously for comparison, group by input file, etc.

Tabs can also be dragged outside the main SEG-Y QuickView window to move them into a new floating window. Floating windows can be docked into the panel display window with the *Dock* tool at the right of the panel toolbar or closed with the window Close (X) button.

CHAPTER 3

Main Menu Options

This chapter outlines the File, Settings and Help options found on the panel display window.

3.1 File

File, Open...(Alt-O)

File, Open ... pops up a selection box allowing the user to choose a SEG-Y file to open.

SEG-Y QuickView will trawl and display only the files identified as SEG-Y, once a directory is set; if there are no SEG-Y files available, the list will be empty. File size, line ID and Sort code are also displayed to aid selection.

File, <file path>

This drop-down menu will display up to 5 recent files, listed in chronological order with the most recently-opened at the top.

If the file selected is already open in SEG-Y QuickView, any associated panels that have been closed will be re-opened and displayed for the user.

File, Quit (Alt-X)

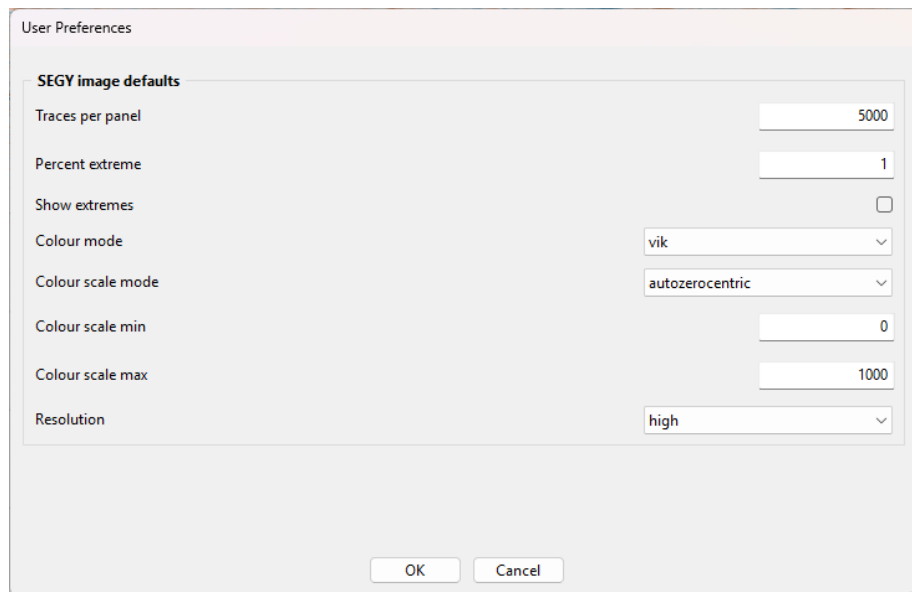
The **File, Quit** command will close the SEG-Y QuickView application.

3.2 Settings

Settings, User Preferences...(Alt-U)

Clicking on **Settings, User Preferences** opens a pop-up that shows the user's current settings and personal preferences; the user can edit these here as well.

Once the parameters are set using **OK**, they are saved to disk.



The screenshot shows a dialog box titled "User Preferences" with a section for "SEG-Y image defaults". The settings are as follows:

Setting	Value
Traces per panel	5000
Percent extreme	1
Show extremes	<input type="checkbox"/>
Colour mode	vik
Colour scale mode	autozero-centric
Colour scale min	0
Colour scale max	1000
Resolution	high

At the bottom of the dialog are "OK" and "Cancel" buttons.

When SEG-Y QuickView is started up thereafter, the user's preferences are reloaded. The preferences file is stored in a user-specific location dependent on the operating system; to view the location use ["3.3 Help" on the next page](#).

SEG-Y image defaults

Values set here are the defaults used each time a SEG-Y image is first displayed. Values for individual images can then be changed via the image panel toolbar.

Traces per panel (max 5000)

The number of traces to display. Also sets the initial number of traces to step forwards or backwards with the Step tool arrows.

Percent extreme (0 - 100)

The percentage of extreme values to exclude when calculating the range of colours or displacements to represent each value.

Show extremes (Off/On)

If **On**, extreme values will be highlighted in red for the higher extreme and green for the lower one. This functionality is not available when plotting wiggle curves.

Colour mode (Named colour maps, for example 'vik', plus 'wiggle' or 'wiggle-fill')

Colour Scale Mode

Drop down menu controlling the behaviour of the colour scale limits. The options are:

1. *autozerocentric*: The limits are determined automatically to optimize the visualization of the data currently plotted, while maintaining the colour scale centred around zero. These limits will likely change if a different section of the data is displayed.
2. *auto*: The limits are determined automatically to optimize the visualization of the data currently plotted, regardless of whether the scale is centred around zero or not. As in Autocentric, these limits will likely change if a different section of the data is displayed.
3. *minmax*: Allows the user to fix the limits, maximum and minimum, of the colour scale. These values will remain fixed across the dataset unless modified by the user in the Image Toolbar.
4. *zerocentric*: Allows the user to fix the limits of the colour scale while maintaining the colour scale centred around zero. In this case, only the entered maximum limit will be taken into account, using its additive inverse as minimum limit. . These values will remain fixed across the dataset unless modified by the user in the Image Toolbar.

Colour scale min

Default minimum limit for the minmax option of colour scale mode. This value is ignored if another colour scale mode option is chosen. If this value is larger than Colour scale max the resulting colourscale will be flipped.

Colour scale max

Default maximum limit for the options minmax and zerocentric of colour scale mode. This value is ignored if another colour scale mode option is chosen. If this value is smaller than Colour scale min the resulting colourscale will be flipped.

Resolution

Controls the general resolution of the SEG-Y data image. This includes the thickness of gridlines and the labels in the axis. A lower resolution will enhance the refreshing speed, whereas a higher resolution enhances the quality of the image.

Settings, User Preferences can be updated at any time and those parameter changes will be applied to the new panels.

3.3 Help

The **Help** tab displays the documents or information seen below.

The options will be displayed in either HTML or PDF documents; depending on the platform:

- Windows: Uses the application associated with the file (like double-clicking the file from a file browser).
- Linux: Uses xdg-open or htmlview.

Help, QuickView Reference Manual

Help, QuickView Reference Manual opens the QuickView Reference Manual.

Help, QuickView User guide

Help, QuickView User guide opens a viewer and displays the User Guide. This has notes on use with screenshots.

Help, QuickView User files info

Help, QuickView User files info opens an information box showing where QuickView user files (user preferences and error logs) are written and their names.

Help, Release notes

Help, Release notes opens a browser window and shows the QuickView release notes.

Help, About QuickView (Alt-A)

Help, About QuickView brings up an information box showing the QuickView version and other product information.

Help, Contact Troika

Help, Contact Troika displays Troika International contact information.

CHAPTER 4

SEG-Y Information Panels

This chapter details how to navigate the information panels, displayed at the top of the application.

When a file is opened, SEG-Y QuickView will create and display the following information panels: **Section, File summary, Textual file header, Binary file header, Trace headers**. All panels are read-only.

4.1 Section

Section displays a plot of seismic data of (up to 5000) traces.

The number of traces to display initially is determined by the level of zoom, up to a maximum of 5,000 traces.

See "5.2 SEG-Y Image Toolbar" on page 21 for details of the plotting options available. Vertical annotation is time or depth, displayed in thousandths of the unit used in the file.

Scaling is applied across all traces displayed, so there may be changes in amplitude along the display. If an area looks "washed out" because of this, zooming in should make the data visible.

4.2 File Summary

File summary displays an information overview for the file. Included in this are number of traces, samples per trace and sample interval.

4.3 Textual File Header

Textual header displays the file textual header records (EBCDIC/ASCII) as ASCII text.

Any invalid or non-printable characters found in the original header will be replaced by dots.

4.4 Binary File Header

Binary header will display the commonly-used values from the file binary header. Where these are codes or flags, a description for the current value will be seen in the **Value description** column according to the file's SEG-Y revision.

Bytes	Item	Notes
1 - 4	Job number	
5 - 8	Line number	
9 - 12	Reel number	
13 - 14	Number of data traces per ensemble	
15 - 16	Number of auxiliary traces per ensemble	
17 - 18	Sample interval (microseconds)	

Bytes	Item	Notes
21 - 22	Number of samples per data trace	
25 - 26	Data sample format code	Valid codes are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16.
27 - 28	Ensemble fold	
29 - 30	Trace sorting code	Valid codes are -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
31 - 32	Vertical sum code	Valid codes are positive integers
51 - 52	Gain recovered flag	Valid codes are 1, 2
53 - 54	Amplitude recovery method	Valid codes are 1, 2, 3, 4
55 - 56	Measurement system code	Valid codes are 1, 2
57 - 58	Impulse signal polarity	Valid codes are 1, 2
97 - 100	Rev 2: Byte order flag	Valid codes are 16909060 (0102030416), 67305985 (0403020116), 33620995 (0201040316) For revisions 0 and 1 these bytes are unassigned and may contain other values
301 - 301	Rev 1/2: Major SEG-Y format revision number	For revisions 1 and 2 complete revision number is major.minor
302 - 302	Rev 1/2: Minor SEG-Y format revision number	For revision 0 these bytes are unassigned and may contain other values
303 - 304	Rev 1/2: Fixed trace length flag	Valid codes are 0, 1 For revision 0 these bytes are unassigned and may contain other values
305 - 306	Rev 1/2: Number of extended textual headers	For revision 0 these bytes are unassigned and may contain other values

4.5 Trace Headers

Trace headers displays values from the file trace headers in a spreadsheet.

Raw values are displayed here, so entries such as coordinates that may have scalers will be displayed here without the scaler applied.

For help with the trace headers spreadsheet and associated options, see 6. ["Trace Headers Spreadsheet"](#) on page 29

CHAPTER 5

SEG-Y Section Window

This chapter details the SEG-Y Section Window and what it entails.

SEG-Y image windows display a section.

Unless the full file is displayed, scrollbars at the bottom and right of the image will indicate the visible portion and allow navigation around the data (as an alternative to Pan, Trace and Step below), updating the From trace value accordingly.

Depending on the image type, the amount of data used and the machine specifications, image creation may be slow. As it cannot be interrupted, the image window and SEG-Y QuickView itself cannot be closed while an image is being created. If there is nothing to display or an error is encountered during image creation, the image panel will be closed.

5.1 Panel Options

SEG-Y image panels have this tool in the top right hand corner:

Export

Allows a copy of the current display to be saved to a graphics file. A box will pop up for selection of the output file path.

Dock

Docks the display pane into the main window.

Dock is only available when the display pane has been dragged out from the panel display manager into a floating window.

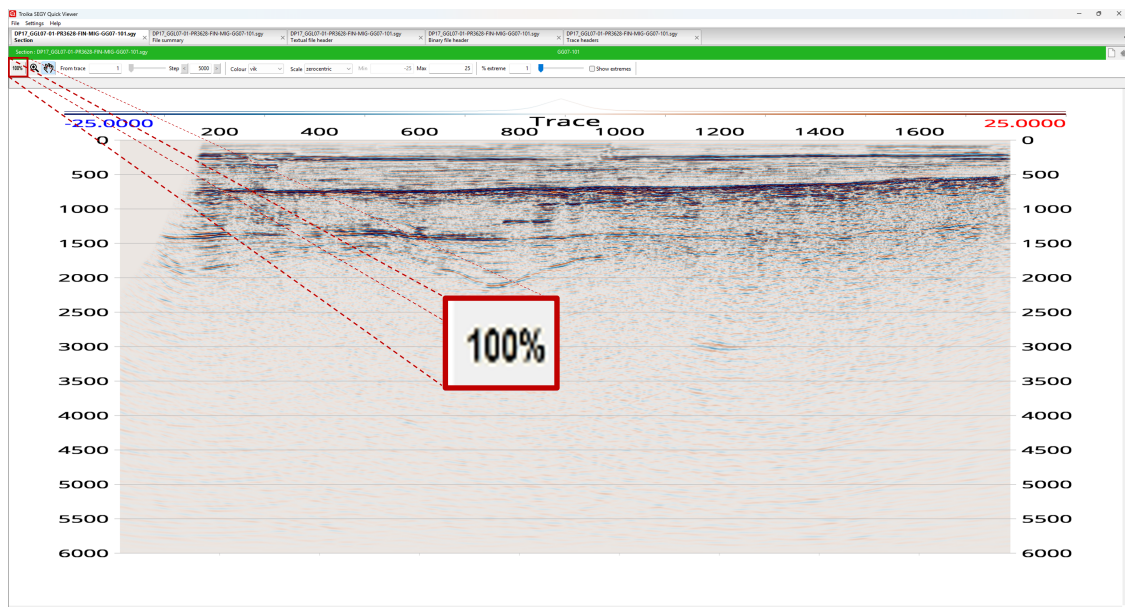
5.2 SEG-Y Image Toolbar

The floating windows used to display SEG-Y images have a toolbar at the top. Tool default values are in "3.2 Settings" on page 13.

Zoom and **Pan** form a group from which one mode is always selected. Zoom mode is active when the window is first displayed.

Full Extent

The **Full extent** tool will revert the zoom window and redisplay the data at the number of traces the user has set as their default. The software default is 5000 traces.



Zoom

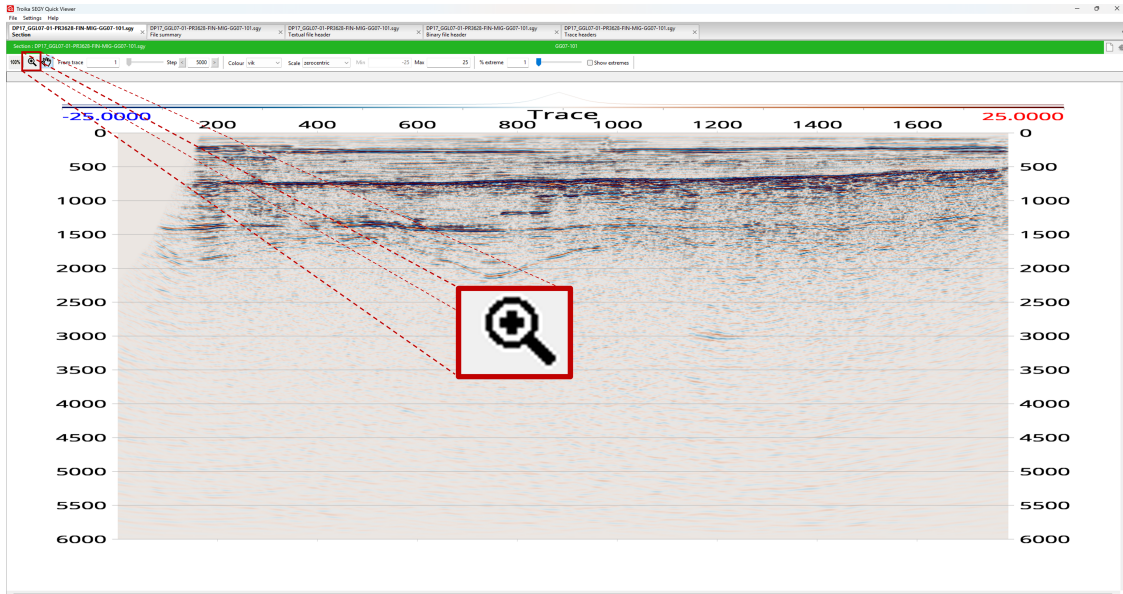
When in **Zoom** mode the user can zoom in by holding down the left mouse button and drag out a rectangle to define the area they want to zoom in; clicking the right mouse button will partially zoom the image out.

At this point, the new display will be centered and will display twice as much data on each axis (unless too close to the edge - you cannot zoom out beyond the original extent in any direction).

When the user double-clicks the left mouse button they will return the image to its full extent (identical to using the **Full extent** tool).

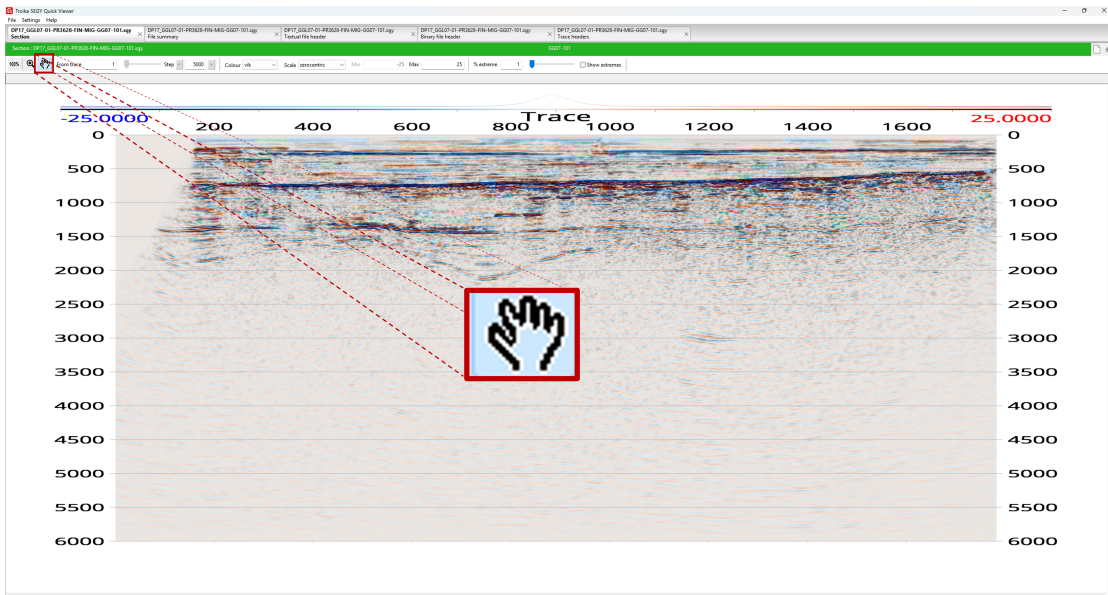
If the zoom area defined does not contain any data points, SEG-Y QuickView will report that there is no data to display. You can return to the full display by left double-clicking or with the **Full Extent** tool.

The scale can be changed by zooming in or out.



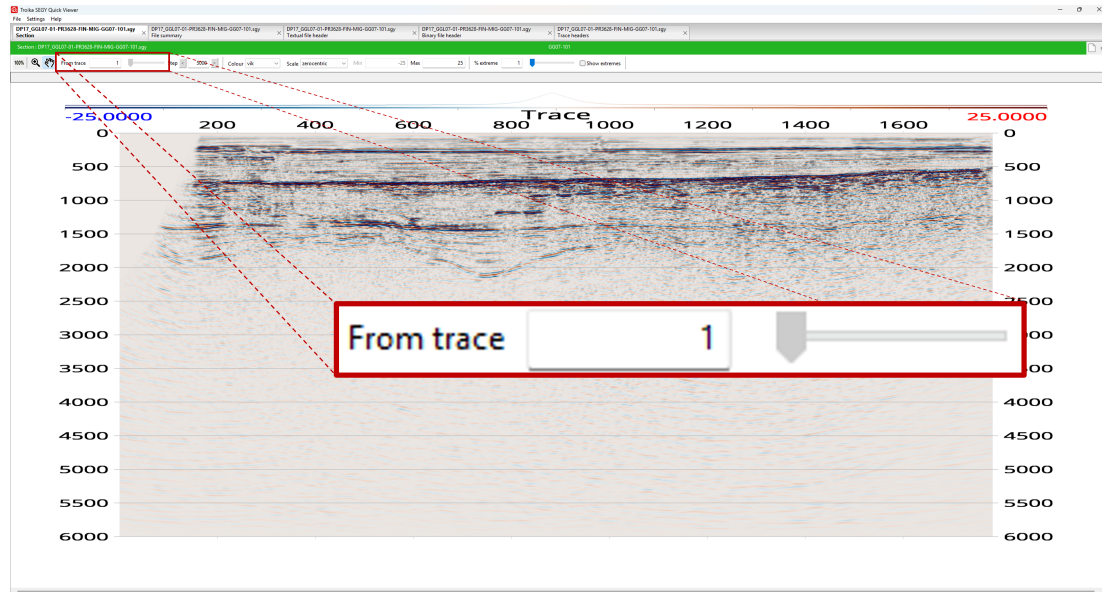
Pan

In **Pan** mode, hold down the left mouse button and move the cursor across the window. The display will be redrawn once the mouse is released and the **From trace** value updated accordingly.



From Trace

The **From Trace** tool shows the first trace currently displayed (first trace in file is 1). You can redisplay from a new start trace number by entering it in the **From Trace** field or moving the associated slider.

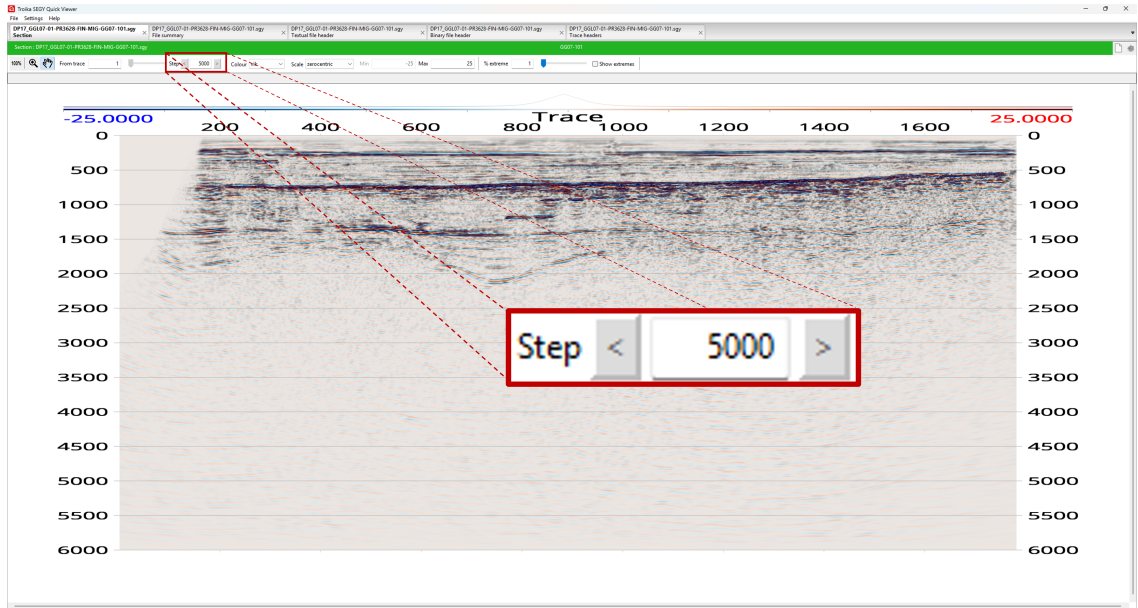


Step

Users can utilize the **Step** tool to step backwards or forwards from the current traces displayed using the left or right arrow buttons. The field between the buttons sets the number of traces to step from the current first trace displayed.

If this would take the trace range beyond valid limits then a panel of the relevant size including the first or last **From Trace** in the file will be displayed.

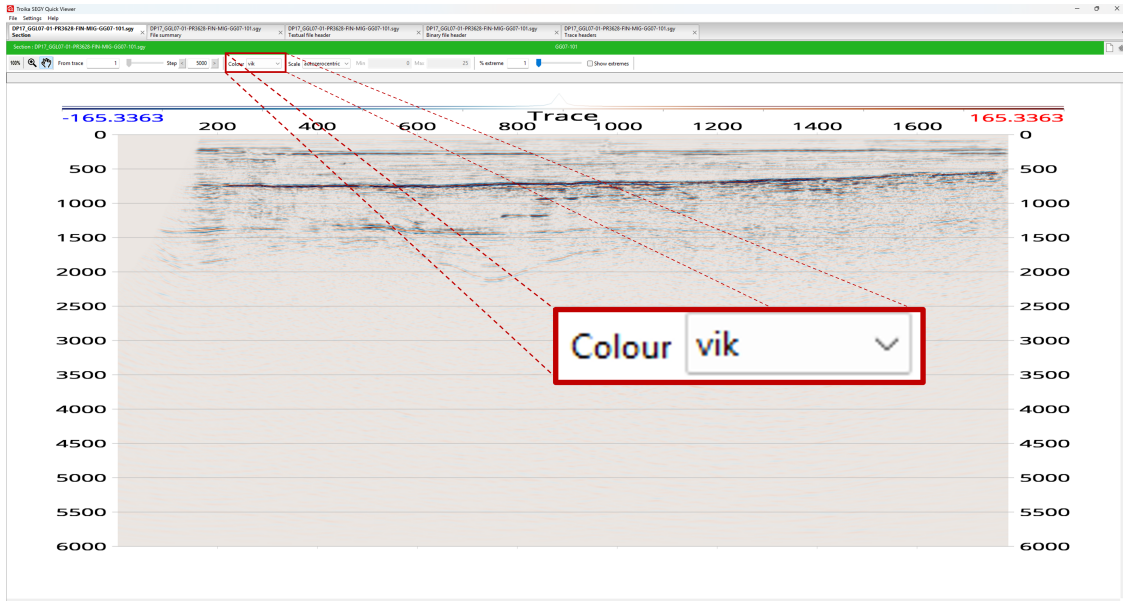
The **From Trace** tool value will be updated to show the new first trace displayed.



Colour

Colour mode controls how the traces in the file are graphically represented, either as black wiggle traces (wiggle), black wiggle trace with positives filled (wiggle-fill), or as a density plot with a specific colourmap (see table below):

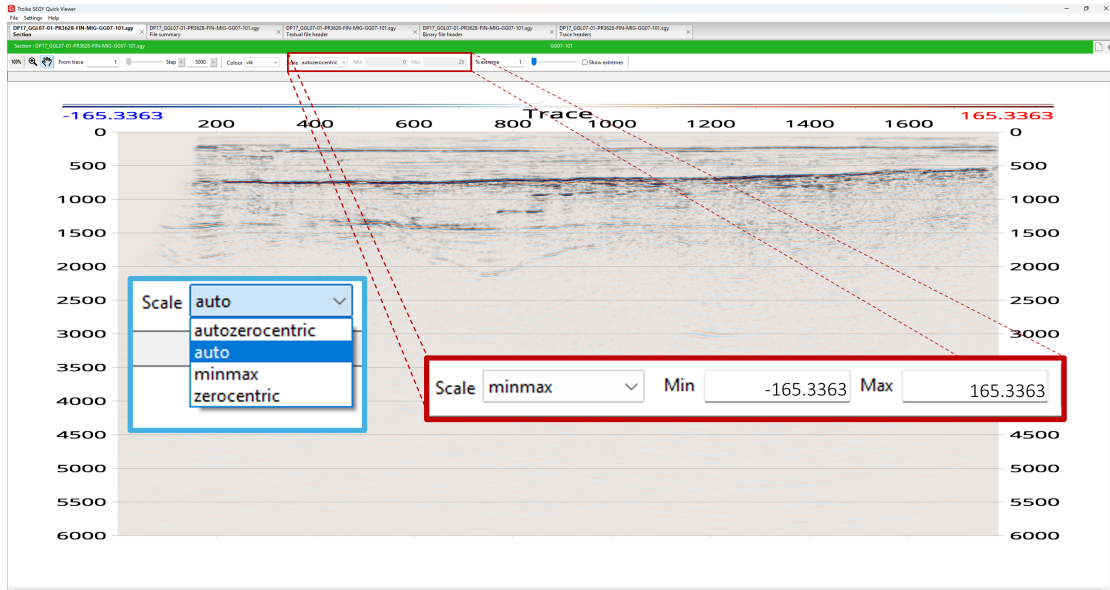
Colour Map	Sample	Colour Map	Sample	Colour Map	Sample	Colour Map	Sample
acton		bukavu		lajolla		roma	
bam		bw		lapaz		roma0	
bam0		bwb		lipari		rbw	
bamako		cork		lisbon		tofino	
batlow		cork0		managua		tokyo	
batlowK		davos		navia		turku	
batlowW		devon		naviaW		vanimo	
berlin		fes		nuuk		vik	
bilbao		glasgow		oleron		vik0	
blue		grayC		oslo		viridis	
broc		green		rb		wb	
broc0		hawaii		red			
buda		imola		rgb			



Scale

Drop down menu controlling the behaviour of the colour scale limits. The options are:

1. *autozeroentric*: The limits are determined automatically to optimize the visualization of the data currently plotted, while maintaining the colour scale centred around zero. These limits will likely change if a different section of the data is displayed.
2. *auto*: The limits are determined automatically to optimize the visualization of the data currently plotted, regardless of whether the scale is centred around zero or not. As in Auto-centric, these limits will likely change if a different section of the data is displayed.
3. *minmax*: Allows the user to fix the limits, maximum and minimum, of the colour scale. These values will remain fixed across the dataset unless modified by the user in the Image Toolbar.
4. *zero-centric*: Allows the user to fix the limits of the colour scale while maintaining the colour scale centred around zero. In this case, only the entered maximum limit will be taken into account, using its additive inverse as minimum limit. . These values will remain fixed across the dataset unless modified by the user in the Image Toolbar.



Min

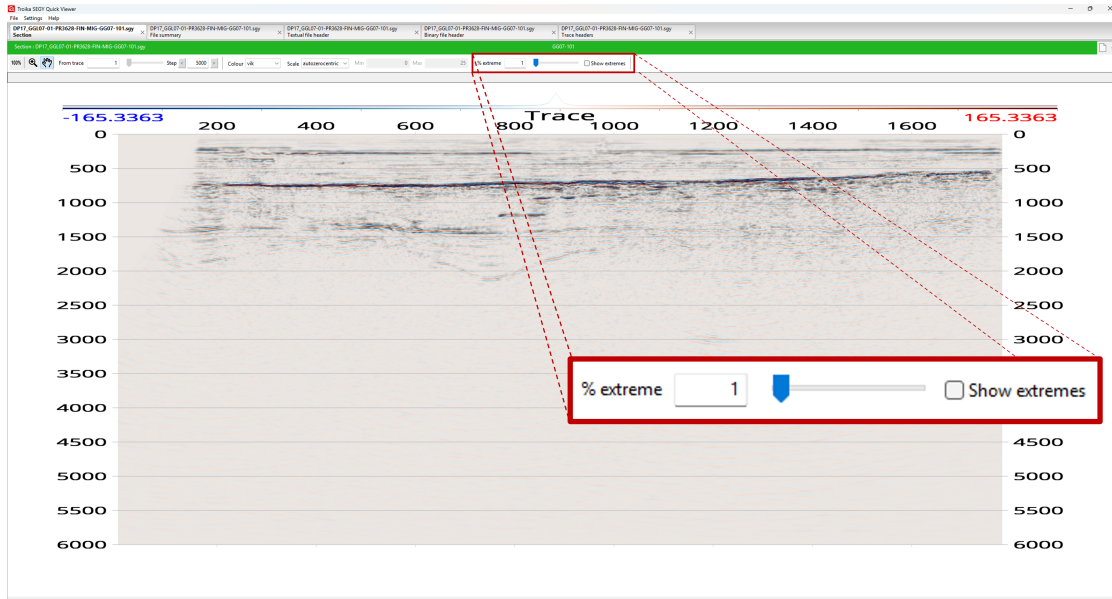
Minimum limit for the *minmax* option of colour scale mode. This value is ignored if another colour scale mode option is chosen. However, when using *minmax*, If this value is larger than *Max* the resulting colourscale will be flipped.

Max

Maximum limit for the options *minmax* and *zerocentric* of colour scale mode. This value is ignored if another colour scale mode option is chosen. However, when using *minmax*, if this value is smaller than *Min* the resulting colourscale will be flipped.

% extreme

The **% extreme** slider sets the percentage of extreme values to exclude when calculating the range of colours or displacements to represent each value. The default value is 0 i.e. do not exclude extreme values.



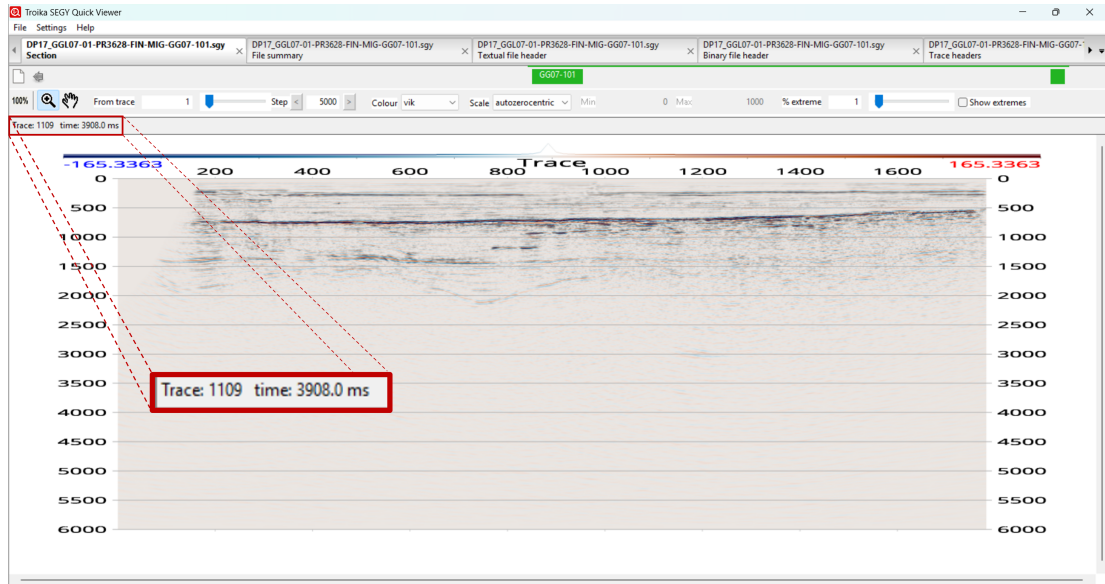
Show Extremes

If **Show extremes** is On, any extreme values excluded from the range calculations (see **% extreme** above) are highlighted in fluorescent colours to denote higher and lower extremes. This functionality is not available when plotting wiggle curves.

5.3 Information Bar

An information bar, normally with a grey background, is located between the SEG-Y toolbar and the image pane. When an image is being created, a message shows the current activity on a green background. If an error occurs, details are logged in the `QuickView_errors.log` file (use "3.3 Help" on page 15 to find this file).

Once an image is displayed, the information bar shows the current grid position of the cursor within the live data area as it is moved over the image. (When zoomed in very closely the current position may not be shown, however it will reappear on zoom out.)



CHAPTER 6

Trace Headers Spreadsheet

6.1 Trace Headers

The spreadsheet displays the contents of all the trace header entries as defined in the standard trace header layout for the file's SEG-Y revision. **Raw values** are displayed here.

Row labels	Sequential trace number within the file
Column labels	Trace header entry: start and end bytes, name

Example shown below:

Troika SEGY Quick Viewer
File Settings Help

DP17_ACB11-PR4454-FIN-PSTM-ACB11-001.sgy Section × DP17_ACB11-PR4454-FIN-PSTM-ACB11-001.sgy File summary × DP17_ACB11-PR4454-FIN-PSTM-ACB11-001.sgy Textual file header

Trace headers : DP17_ACB11-PR4454-FIN-PSTM-ACB11-001.sgy

	1 - 4 linetrc	5 - 8 reeltrc	9 - 12 ffid	13 - 16 chan	17 - 20 espnum	21 - 24 cdp	25 - 28 cdptrc	29 - 30 trctype
1	1	1	0	1	4177	1	0	1
2	2	2	0	1	4177	2	0	1
3	3	3	0	1	4176	3	0	1
4	4	4	0	1	4176	4	0	1
5	5	5	0	1	4175	5	0	1
6	6	6	0	1	4175	6	0	1
7	7	7	0	1	4174	7	0	1
8	8	8	0	1	4174	8	0	1
9	9	9	0	1	4173	9	0	1
10	10	10	0	1	4173	10	0	1
11	11	11	0	1	4172	11	0	1
12	12	12	0	1	4172	12	0	1
13	13	13	0	1	4171	13	0	1
14	14	14	0	1	4171	14	0	1
15	15	15	0	1	4170	15	0	1
16	16	16	0	1	4170	16	0	1
17	17	17	0	1	4169	17	0	1
18	18	18	0	1	4169	18	0	1
19	19	19	0	1	4168	19	0	1
20	20	20	0	1	4168	20	0	1
21	21	21	0	1	4167	21	0	1
22	22	22	0	1	4167	22	0	1
23	23	23	0	1	4166	23	0	1
24	24	24	0	1	4166	24	0	1
25	25	25	0	1	4165	25	0	1
26	26	26	0	1	4165	26	0	1
27	27	27	0	1	4164	27	0	1
28	28	28	0	1	4164	28	0	1
29	29	29	0	1	4163	29	0	1
30	30	30	0	1	4163	30	0	1

CHAPTER 7

Command Line Arguments

7.1 Arguments

Below are valid arguments that can be supplied when starting SEG-Y QuickView via command line; these are optional:

<code>--input-path</code>	The complete path to an input file to load. A single path should be supplied. <code>--input-path</code> can only be supplied once.
	A file path can be supplied on its own as the last argument. This allows SEG-Y QuickView to be set as the default application when opening a filetype.

Examples:

In the examples below, represents the SEG-Y QuickView installation path.

On Windows, two ways to open file E:\My projects\Demo\fred.sgy:

```
.....\quickviewGUI.exe --input-path "E:\My projects\Demo\fred.sgy
```

```
.....\quickviewGUI.exe "E:\My projects\Demo\fred.sgy
```

On Linux, open file /data/SEG-Y/Demo/fred.sgy:

```
...../quickviewGUI --input-path /data/SEG-Y/Demo/fred.sgy
```