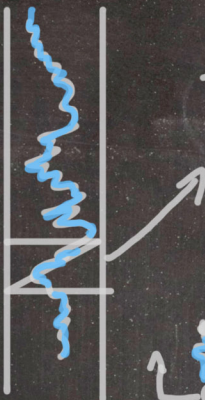


# RIG STEER

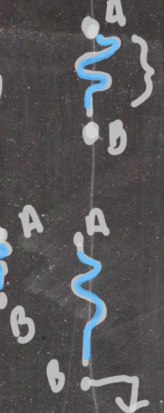
Open Beta v1.2



## User Manual

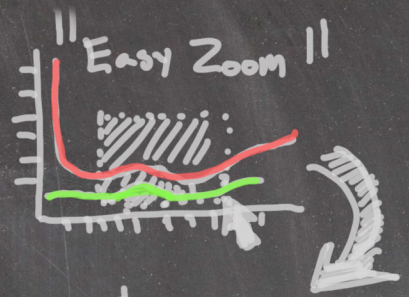


Scale section without blocks



Depth of  $c = \sum$   
 $A = B = \text{Dif} - 1$   
 $c = (\sum \times \text{Dif} + 1) \times (c \times i)$

Microsoft Excel Based



Built in System Monitor Program



Compatible

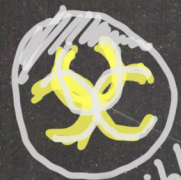
LAS

File

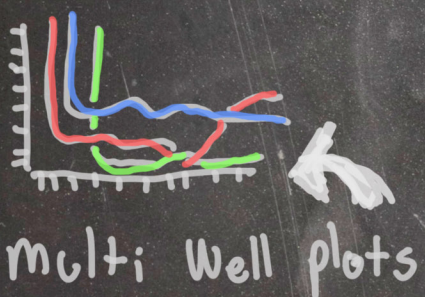
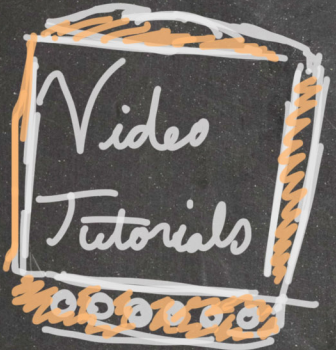
Converter

# RIG STEER

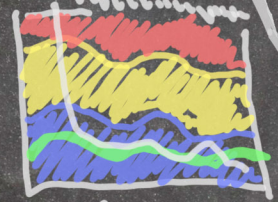
Re-think Geo Steering



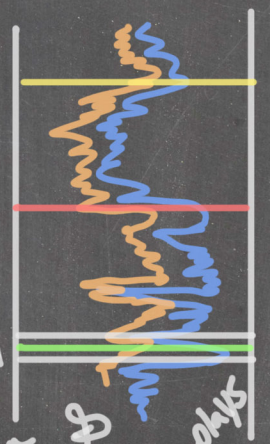
Accessible Buttons



multi Well plots



Area plots



Gamma Target & Top Displays



NO BLOCKS

# Index

1. <u>Index</u>	01
2. <u>TOS</u>	
a. <u>Beta Tester Agreement</u>	03
b. <u>Private Policy</u>	04
c. <u>Terms of Use</u>	10
3. <u>About Rig Steer</u>	13
4. <u>Basic Functions</u>	
a. <u>Buttons and Functions</u>	15
b. <u>Main keys</u>	21
c. <u>Zooming</u>	
i. <u>Click Drag-And-Drop Zoom</u>	22
ii. <u>Mouse Wheel Zoom</u>	22
iii. <u>Zoom Nudge Options</u>	22
iv. <u>Advance Zooming Options</u>	22
5. <u>Installation and Registration</u>	23
6. <u>Opening and new project</u>	24
7. <u>Open LAS Files</u>	
a. <u>Manual</u>	27
b. <u>Automatic</u>	27
c. <u>Delimit LAS</u>	28
8. <u>Importing Surveys</u>	29
9. <u>Inputting type log / gamma surveys</u>	30
10. <u>Edit gamma</u>	32
a. <u>Scaling</u>	33
b. <u>Fault</u>	33
c. <u>Auto</u>	34
d. <u>Gamma display options</u>	
i. <u>Min / Max chart settings</u>	35
ii. <u>Show Gamma Edits</u>	37
iii. <u>Display Straight Gamma VS Active Gamma</u>	37
iv. <u>Offsets</u>	37
11. <u>Main survey option</u>	
a. <u>Displays</u>	38
b. <u>Tops and target zone</u>	40
c. <u>Area plotters</u>	42
d. <u>Screen capture</u>	43
e. <u>Export Well File</u>	44

12. <u>Main survey advance options</u>	
a. <u>Dip calculator</u>	45
b. <u>Color options</u>	46
c. <u>Label options</u>	47
d. <u>Changeable name</u>	47
13. <u>Gamma advance option</u>	
a. <u>Color options</u>	48
b. <u>Sectional display</u>	
i. <u>Sectional Points</u>	50
ii. <u>Depth by Columns</u>	51
iii. <u>Block Editing</u>	52
c. <u>Kill Button</u>	53
i. <u>Kill display (blue)</u>	54
ii. <u>Kill interpretation (red)</u>	55
14. <u>Advance Rig Steer options</u>	
a. <u>Active Dip</u>	56
b. <u>Auto Locate</u>	56
c. <u>Auto Save</u>	56
d. <u>Auto Survey Fill</u>	56
e. <u>Crosshairs</u>	57
f. <u>Delimit LAS</u>	57
g. <u>Error System</u>	57
h. <u>Mouse Drill Tool</u>	57
i. <u>System Monitor</u>	58
j. <u>Color Schemes</u>	59
i. <u>Custom Color Schemes</u>	62
k. <u>Notes</u>	63
l. <u>Tutorials</u>	64

## BETA TESTER AGREEMENT

You have volunteered or have been selected to participate in the pre-operation testing of the geo-steering program, Rig Steer. Before becoming a beta tester for this program you will need to agree to this document.

While using this software you must agree to the terms of use.

- You agree that this software is 'Use at Your Own Risk' software that is not responsible for any loss of data or information. Rig Steer will not be held responsible for any misuse or data corruption that might occur during the use of this software.
- You agree to not share any information about this software or information retaining to this software through any form of communication outside of the beta testers who are also testing this software. Communications or posting information about this software is strictly prohibited.
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- You agree that you will not share any information about this software with any company, individual, community, forum, blog, corporation or competing software provider about this program during its testing period.

All beta testers agree by this document that they will not be getting any currency for their work.

Beta testers, while testing, will receive a generated license to do testing on. These licenses are machine specific and are linked to your individual computer. Any sharing of this software will be linked back to the distributor of the leaked information and legal action will be taken to preserve the software from being released before publication date.

Beta testers will be required to email all found errors or problems to [rigsteer@rigsteersoftware.com](mailto:rigsteer@rigsteersoftware.com).

# Rig Steer Privacy Policy

This privacy policy has been compiled to better serve those who are concerned with how their 'Personally identifiable information' (PII) is being used online. PII, as used in US privacy law and information security, is information that can be used on its own or with other information to identify, contact, or locate a single person, or to identify an individual in context. Please read our privacy policy carefully to get a clear understanding of how we collect, use, protect or otherwise handle your Personally Identifiable Information in accordance with our website.

## **What personal information do we collect from the people that visit our blog, website, program, software or app?**

When ordering or registering on our site, program or software, as appropriate, you may be asked to enter your name, email address, mailing address, phone number, credit card information or other details to help you with your experience.

## **When do we collect information?**

We collect information from you when you register on our site, program or software, place an order, subscribe to a newsletter, fill out a form or enter information on our site, program or software.

## **How do we use your information?**

We may use the information we collect from you when you register, make a purchase, sign up for our newsletter, respond to a survey or marketing communication, surf the website, download or register our software or programs, or use certain other site features in the following ways:

- To personalize user's experience and to allow us to deliver the type of content and product offerings in which you are most interested.
- To improve our website, program or software in order to better serve you.
- To allow us to better service you in responding to your customer service requests.
- To quickly process your transactions.
- To send periodic emails regarding your order or other products and services.

## **How do we protect visitor information?**

Our website, program and software is scanned on a regular basis for security holes and known vulnerabilities in order to make your visit to our site, software and programs as safe as possible.

We use regular Malware Scanning.

We do not use an SSL certificate

- We do not need an SSL because:

We do not store any personal information on our website.

### **Do we use 'cookies'?**

We do not use cookies for tracking purposes

You can choose to have your computer warn you each time a cookie is being sent, or you can choose to turn off all cookies. You do this through your browser (like Internet Explorer) settings. Each browser is a little different, so look at your browser's Help menu to learn the correct way to modify your cookies.

If you disable cookies off, some features will be disabled that make your site experience more efficient and some of our services will not function properly.

However, you can still place orders or use our software or programs.

### **Third Party Disclosure**

We do not sell, trade, or otherwise transfer to outside parties your personally identifiable information unless we provide you with advance notice. This does not include website hosting partners and other parties who assist us in operating our website, conducting our business, or servicing you, so long as those parties agree to keep this information confidential. We may also release your information when we believe release is appropriate to comply with the law, enforce our site policies, or protect ours or others' rights, property, or safety.

However, non-personally identifiable visitor information may be provided to other parties for marketing, advertising, or other uses.

### **Third party links**

Occasionally, at our discretion, we may include or offer third party products or services on our website, programs or software. These third party sites, programs or softwares have separate and independent privacy policies. We therefore have no responsibility or liability for the content and activities of these linked sites. Nonetheless, we seek to protect the integrity of our site and welcome any feedback about these sites.

## **Google**

Google's advertising requirements can be summed up by Google's Advertising Principles. They are put in place to provide a positive experience for users. <https://support.google.com/adwordspolicy/answer/1316548?hl=en>

We have not enabled Google AdSense on our site, programs or software but we may do so in the future.

## **California Online Privacy Protection Act**

CalOPPA is the first state law in the nation to require commercial websites and online services to post a privacy policy. The law's reach stretches well beyond California to require a person or company in the United States (and conceivably the world) that operates websites collecting personally identifiable information from California consumers to post a conspicuous privacy policy on its website stating exactly the information being collected and those individuals with whom it is being shared, and to comply with this policy. - See more at: <http://consumercal.org/california-online-privacy-protection-act-caloppa/#sthash.0FdRbT51.dpuf>

### **According to CalOPPA we agree to the following:**

Users can visit our site anonymously

Once this privacy policy is created, we will add a link to it on our home page, or as a minimum on the first significant page after entering our website.

Our Privacy Policy link includes the word 'Privacy', and can be easily be found on the page specified above.

Users will be notified of any privacy policy changes:

- On our Privacy Policy Page

Users are able to change their personal information:

- By emailing us
- By calling us



### **How does our site, program or software handle do not track signals?**

We honor do not track signals and do not track, plant cookies, or use advertising when a Do Not Track (DNT) browser mechanism is in place.

### **Does our site, program or software allow third party behavioral tracking?**

It's also important to note that we do not allow third party behavioral tracking

### **COPPA (Children Online Privacy Protection Act)**

When it comes to the collection of personal information from children under 13, the Children's Online Privacy Protection Act (COPPA) puts parents in control. The Federal Trade Commission, the nation's consumer protection agency, enforces the COPPA Rule, which spells out what operators of websites and online services must do to protect children's privacy and safety online.

We do not specifically market to children under 13.

### **Fair Information Practices**

The Fair Information Practices Principles form the backbone of privacy law in the United States and the concepts they include have played a significant role in the development of data protection laws around the globe. Understanding the Fair Information Practice Principles and how they should be implemented is critical to comply with the various privacy laws that protect personal information.

**In order to be in line with Fair Information Practices we will take the following responsive action, should a data breach occur:**

We will notify the users via email

- Within 7 business days

We will notify the users via in site notification

- Within 7 business days

We also agree to the individual redress principle, which requires that individuals have a right to pursue legally enforceable rights against data collectors and processors who fail to adhere to the law. This principle requires not only that individuals have enforceable rights against data users, but also that individuals have recourse to courts or a government agency to investigate and/or prosecute non-compliance by data processors.

## **CAN SPAM Act**

The CAN-SPAM Act is a law that sets the rules for commercial email, establishes requirements for commercial messages, gives recipients the right to have emails stopped from being sent to them, and spells out tough penalties for violations.

### **We collect your email address in order to:**

- Send information, respond to inquiries, and/or other requests or questions.
- Process orders and to send information and updates pertaining to orders
- We may also send you additional information related to your product and/or service.
- Market to our mailing list or continue to send emails to our clients after the original transaction has occurred

### **To be in accordance with CANSPAM we agree to the following:**

- NOT use false, or misleading subjects or email addresses
- Identify the message as an advertisement in some reasonable way
- Include the physical address of our business or site headquarters
- Monitor third party email marketing services for compliance, if one is used.
- Honor opt-out/unsubscribe requests quickly
- Allow users to unsubscribe by using the link at the bottom of each email

### **If at any time you would like to unsubscribe from receiving future emails, you can**

Email us at [rigsteer@rigsteersoftware.com](mailto:rigsteer@rigsteersoftware.com) and we will promptly remove you from **ALL** correspondence.

## Contacting Us

If there are any questions regarding this privacy policy you may contact us using the information below.

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606-780-0554

Last Edited on 2015-03-16

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General Terms and Conditions applicable to Use of a Web Site, Program or Software.

## **Privacy Policy**

Your privacy is very important to us. Accordingly, we have developed this Policy in order for you to understand how we collect, use, communicate and disclose and make use of personal information. The following outlines our privacy policy.

- Before or at the time of collecting personal information, we will identify the purposes for which information is being collected.
- We will collect and use of personal information solely with the objective of fulfilling those purposes specified by us and for other compatible purposes, unless we obtain the consent of the individual concerned or as required by law.
- We will only retain personal information as long as necessary for the fulfillment of those purposes.
- We will collect personal information by lawful and fair means and, where appropriate, with the knowledge or consent of the individual concerned.
- Personal data should be relevant to the purposes for which it is to be used, and, to the extent necessary for those purposes, should be accurate, complete, and up-to-date.
- We will protect personal information by reasonable security safeguards against loss or theft, as well as unauthorized access, disclosure, copying, use or modification.
- We will make readily available to customers information about our policies and practices relating to the management of personal information.

We are committed to conducting our business in accordance with these principles in order to ensure that the confidentiality of personal information is protected and maintained.

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Last Edited on 2015-03-16

## Why Rig Steer?

Rig Steer was created with a vision in focus; creating a new way of Geo Steering. We wanted to have a Geo Steering software that saved money, detoured from the use of 'Blocks', not require internet access, that felt and looked modern, to be user friendly and straight forward, but most of all to not use an Access based database.

Rig Steer has many features that detour from the common expectations of a Geo Steering software. One of the main functions of this program is that Rig Steer does not require a Microsoft Access database; instead it runs solely on Excel. The software interacts and stores data into excel, utilizing its advance calculation capabilities and displays them in easily understood graphs. With Excel as a backbone instead Access, Rig Steer opens the doors to many more users that do not have the upgraded professional version of Microsoft Office.

Excel was created as a data analysis program that has its own built in mathematic logic. Access was made to be a database that's main function is to store large amounts of data. When looking at the two options it would seem that the best choice for the Geo Steering Minimum Curvature calculations Excel would be the winner. However, Excel has one draw back that Access doesn't have. Excel does not interact easily with other software like Access does. Because of this Excel is often pushed to the side as a choice of programming.

Since other Geo Steering software utilizes Access, the calculations are not as advance as Excel. This is the reason why 'Blocks' are used instead of individual survey points. Each 'Block' is simply a different set of data in a new database that plots as a new graph over top of the existing one. Rig Steer uses one database that calculates one set of data, thus the end result is one solid target zone with none of the gaps that are created with each new 'Block'.

There is no internet activity needed to activate or run Rig Steer. With its advance calculus equations all product keys are computer specific and interchangeable between versions. For instance, if you purchase a license key, and then upgrade to the latest version of Rig Steer, there will be no need to purchase a new license, or pay an upgrade fee.

Rig Steer has multiple options for individualization of charts and graphs. Every color is customizable to suit every user or client. With preset schemes it is easy to choose one that is already made or you can create your own.

With no use of 'Blocks' the target zones plots as one solid line. Editing this line is as simple as picking a start point, end point, and moving he target zone up or down in order to match gamma. Or the user can line up two sections and auto-fill all the points between with the 'Kill' feature. This 'Kill' feature will auto draw all the points in the selected range to either fill

If you prefer to use a 'Block' system though, there is an option available for this. Simply select your ranges, via points or depths, and select the corresponding sections with the 1, 2, 3, 4, or 5 key to

select and edit that section of gamma. This imitates the 'Block' feel without the headache involved in the maintenance of making your ending and beginning points line up.

LAS files can be converted over to Excel files when needed. And with our Copy and Paste functionality it is easy to import new data into your project file.

Rig Steer comes with a computer monitoring system as well. This built in program will monitor computer activity and usages to alert the user if the computer is about to crash or if the internet ever becomes disconnected.

Rig Steer is also not limited in its email client. It has been designed to work with most email clients in order to improve productivity. With this boundary overstepped reports can be emailed directly to clients without any extra software.

One of the most requested feature when designing this software was the layout of the buttons and functions. With the first time user in mind this software was designed to be easily navigated between options. Fewer tabs, more functions and less confusion was a necessary addition.

We were also requested to reduce the number of multi-handed keyboard functions. By doing this the idea was to keep one hand on the mouse while leaving the other hand on one side of the keyboard at all times. This incorporated layout will allow the user to steer without ever moving their hands from the keyboard to the mouse, and back again, thus decreasing the amount of time require to accurately steer a well file.

Rig Steer, being in Beta, still has a way to go before it is considered a new advancement in Geo Steering. However, we have rethought the process from the ground up to make advancements in the Geo Steering field.



## Basic Functions

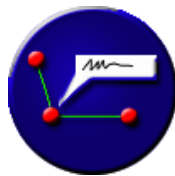
This section breaks down the buttons and basic functions in the Rig Steer program.

### Main Chart



#### Label Options

This is the label option. This option, when on **GREEN**, will show the points in the graph. When this option is on **BLUE** it will show the points and the label depth on the graph. When this option is off (**GRAY**) it will not show any points or labels.



#### Graph Options

This is the Graph Options. This will open a new window in which the user can select which data set to display on the main chart.



#### Color Options

This will open a window which will allow the user to change the color options of the main chart.



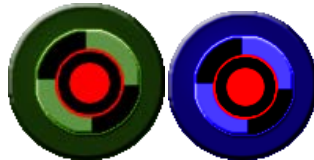
### Kill Button

The Kill function will allow the user to LEFT CLICK on a starting point of the Target Zone and then RIGHT CLICK on an end point. This will hide all other points on the Gamma Chart except for the selected data. If the user HOLD SHIFT and then selects a start point and end point the program will kill the interpretation between both points, thus creating a straight line.



### Target Zone

Activating this (**GREEN**) will show the target zone on the main chart. Activating this again (**BLUE**) will show target zone and selected tops in the 'Customize' option in the gamma section.



### Screen Capture

Clicking this button will activate the screen capture program. Adjust the picture where you would like to capture and click 'Take Picture'. You can then save the image as either a JPEG or PNG.



### 3D Charting

Currently unavailable in the Beta Version, this will allow the user to chart the current dataset in a 3D graph.



### Area Plotter

This will graph the selected tops on the main chart in an Area Plotter display.



### Project Export

This option will allow the user to export the current project into an Excel File and Email it to the client.

## Gamma Chart Buttons



### Open LAS

This button will open an LAS file in an Excel format.



### Import Gamma Sheet

This will start and import a new Gamma Sheet into the project.



### Export

This will export all data into Excel, preparing the document for saving.



### Gamma Options

This opens the Gamma Options for customization.



### Multi Select

With the Multi Select Deactivated (**GRAY**) the user can select one point on the Gamma Chart when HOLDING DOWN RIGHT CLICK and drag and drop it to manipulate the data. With the Multi Select Activated (**GREEN**) the user then select a starting point on the Gamma with a LEFT CLICK and an end point with a RIGHT CLICK and then manipulate all data between the two points with the MOUSE MOVE (scale) or by HOLDING SHIFT and MOUSE MOVE (move) to create a fault.



### Manual / Automatic

When Manual is activated (**GRAY**) all points under selected when Multi Selecting do not move or scale with the selected points. When Automatic is activated (**GREEN**) all points under selected when Multi Selecting are moved or scaled with selected.



## Additional Buttons



### Notes

This will open an additional window allowing the user to write notes for themselves or someone else who will be steering the well.



### Refresher

This will refresh all data.



### Save

This saves the project



### Expand / Shrink

This will expand or shrink the display of selected item



### Write

This will write the information to Rig Steer, but not save the options on the project file

## Additional Functions

### Keys And Mouse

#### Mouse

- LEFT CLICK to select a start point
- RIGHT CLICK to select an end point
- SHIFT
  - Used on Gamma Chart to create faults
  - Used on Main Chart to
    - Calculate Dip
    - Kill interpretation
  - Used on Data Import Grids to Select Range or Delete Range
- MOUSE MOVE used in Gamma Selection to Scale selected data points

#### Keys

- ESCAPE is used to undo progress to last active save or refresh
- S can be struck to SAVE progress (while editing gamma)
- CONTROL and S can be struck to SAVE progress
- SPACE or ENTER can be used to temporarily save data (NOT a real save)
- D is used for nudging the selected graph or chart to the Right
- A is used for nudging the selected graph or chart to the Left
- W is used for nudging the selected graph or chart Up
- S is used for nudging the selected graph or chart Down
- Q is used for zooming with the mouse wheel on only the X axis
- E is used for zooming with the mouse wheel on only the Y axis
- DELETE key is used for deleting selected data

## Zooming

### Click Drag-And-Drop Zoom

- To ZOOM IN on a chart you need to LEFT CLICK on an area, HOLD DOWN the mouse click and DRAG-AND-DROP to the end of the ZOOM IN area. This will ZOOM IN into the selected area.
- To ZOOM OUT click the Negative Button (-) beside the scroll bars after ZOOM IN is activated.

### Mouse Wheel

Rig Steer comes equip with a smart zoom feature that will zoom into a selected chart wherever the mouse is located. To activate this place your mouse on the area of the chart where you want to zoom, and roll the mouse wheel away from you to zoom in or toward you to zoom out.

Clicking on the mouse wheel will enable an auto pan feature to pan the charts up, down, left or right.

### Zoom Nudge

**LEFT or RIGHT** - When zooming with Rig Steer the user can nudge the chart or graph to the left or right with either the scroll bars or by pressing the 'D' Key for right and the 'A' key for left.

**UP or DOWN** - When zooming with Rig Steer the user can nudge the chart or graph up or down with either the scroll bars or by pressing the 'W' Key for up and the 'S' key for down.

### Advance Zooming Options

When zooming, you can zoom in on either axis with the following functions:

- Holding the 'Q' key while zooming will only zoom on the X axis.
- Holding the 'E' key while zooming will only zoom on the Y axis.

When zooming you can change the percentage of the zoom ration at the top right of the main Rig Steer window. By default it is set to 25%. In this section you can also toggle on or of the scroll bars if needed.

If you ever need to reset the zoom function, the button at the bottom right of the main Rig Steer window, 'Reset Zoom' will reset the zoom on all charts and graphs back to the default zoom.



# Installation and Registration

## Installation

In some cases it is required to install Rig Steer as ‘Administrator’ by right clicking on the installer and ‘Run as Administrator’. After installation you will be greeted with a window letting you know that you don’t have a license key.

After creating a license file Rig Steer will then greet you with a tutorial window. In this window you will find videos and text support documents, stepping you through how to do different functions in Rig Steer. These options are also available later from the Help > Tutorials menu option.

## Registration

Now that you have your software installed you can activate your program. If you have a license key already you can enter it in or import the license file itself. To type in the key first input the expiration date as follows MM (month), DD (date), YYYY(year), and then enter the license as shown in your confirmation email. To import your license file please select the “Import a License File” button and then locate the .xlsx license file send to you.

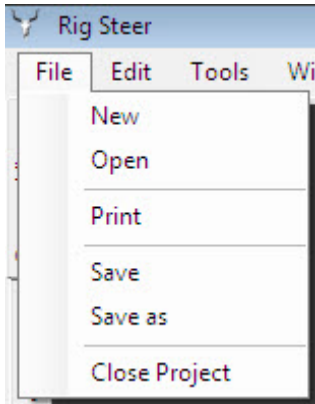
If you do not yet have a license you can Email a request for a Trial or for a Purchase Link to buy a license.

**PLEASE NOTE – If there is a negative value in your license you will need to include the negative sign.**

The license keys are based on your computer specific number. Each computer is different, and the number is generated based on ALL of the hardware specs of the machine. It is highly suggested to purchase monthly subscriptions in case of key changes.

It is not required to have internet access in order to activate your program because of its advance calculus validation. If the key you receive is entered incorrectly your license will not activate.

## Opening and Starting a New Project



In Rig Steer you can either Open a project or start a New project in the File Menu. In the Open section you will need to select a well file to load. If this well file was not created on your machine you will either need to open it first in Excel and 'Enable Content' for the macros, or go into Excel's Advance Settings to enable all macros (for instructions please see Installation and Registration).

To start a New well file you will need to go to File > New. In the next window you will be asked to save the new well file. After you save the file you will be asked to input all required information to start a well.

**Note – if any data here is unknown you can leave it blank and Rig Steer will fill it in for you automatically.**

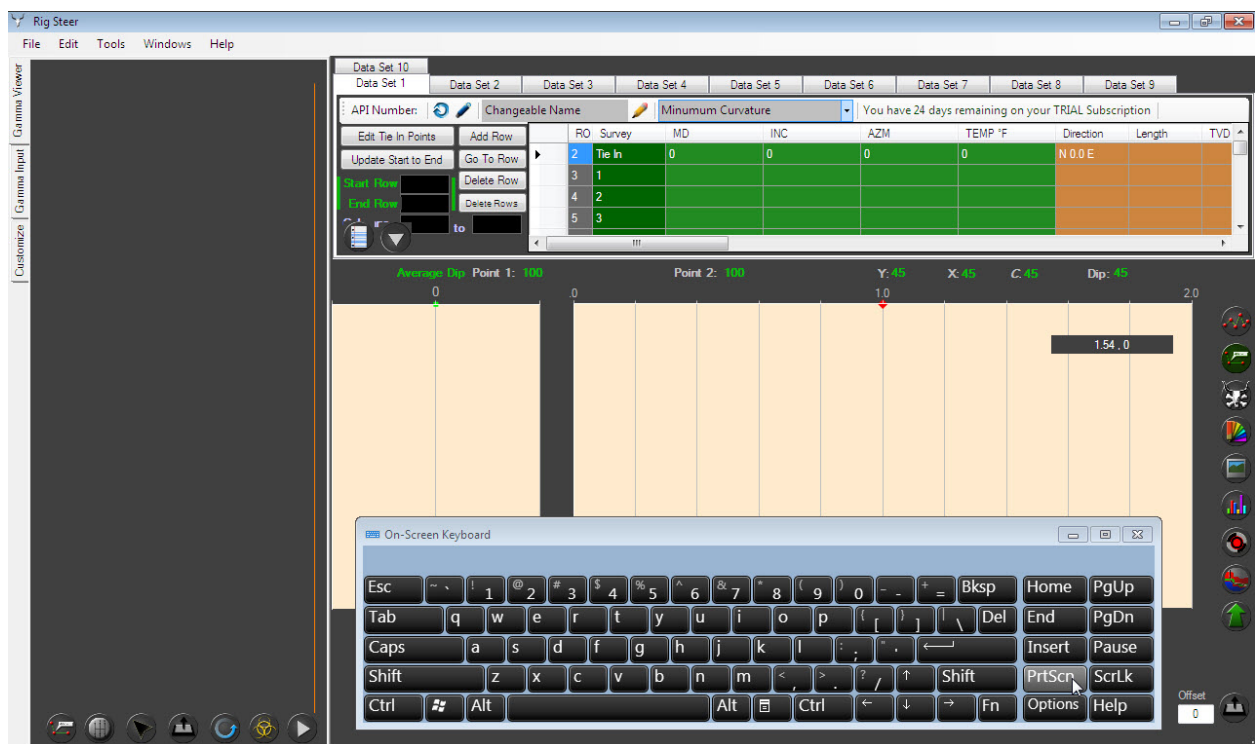
A screenshot of the 'Program Project Info' dialog box. The title is in green. It contains three input fields: 'Maximum Surveys' with a value of 1000, 'How Many Steering' with a value of 10, and a 'Project Size' progress bar. To the right of the 'Maximum Surveys' field is a green text box explaining the limit. To the right of the 'How Many Steering' field is a green text box explaining the limit. Below the progress bar, it says 'Approximate Project Size = 14 MBs' and 'NOT EMailable'. At the bottom right are 'Back' and 'Finished' buttons.

In the green section you will be able to select how many surveys you plan on having on this well. This is the screen where you set your maximum size your project could be. The first Text Box at the top chooses your maximum Surveys. This will set the limit for all well files or interpretation on this well file. 1,000 is the normal, however it can go up to 15,000. The next Text Box you can choose how many wells you plan on steering with this file. The maximum is 10, and is set to that be default. This will not affect the well file at all. The only reason why this is displayed is so the user can see an approximation on how large the final size of the well file will be.

In the bottom right of the screen you can see an approximate project size, which will take your maximum survey count and your maximum steered wells to give you an estimate on how large the final project will be, and if it is able to be emailed. This is a handy little feature, however, if you are just setting it up for the first time you shouldn't have to worry about the size of the document.

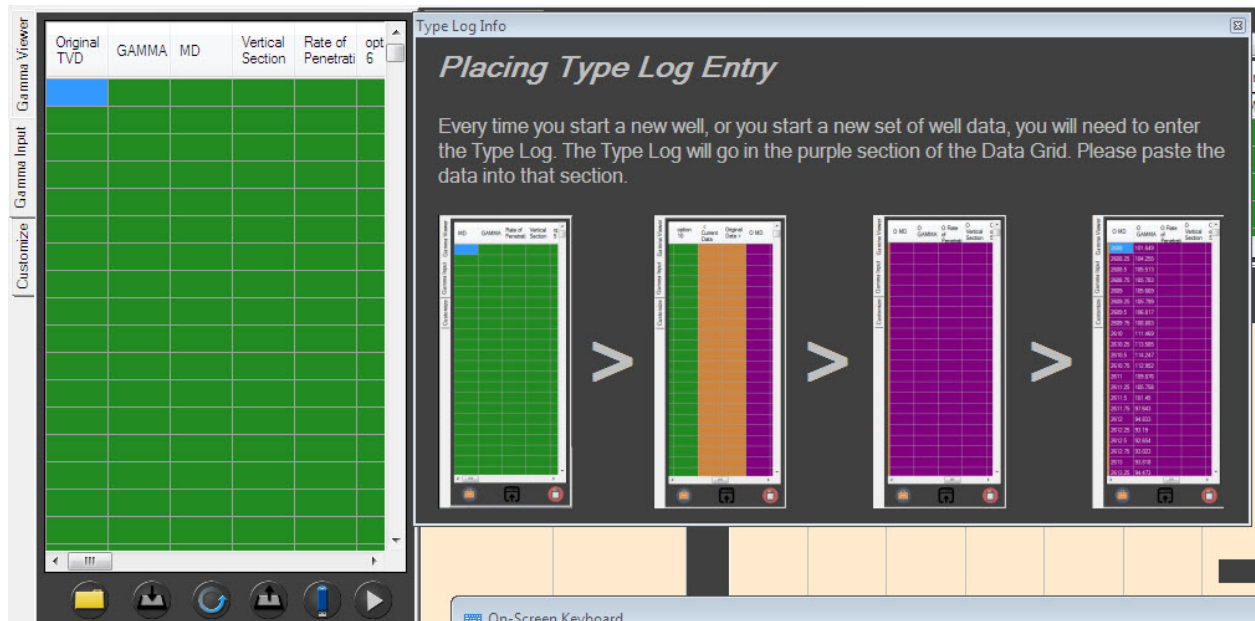
**Note – If you set your maximum survey count too low then you will need to start a new well project in order to fix this.**

In the last window you will need to select which way you would wish to steer. The three options you have is Minimum Curvature (default), Radius of Curvature or Average Angle. These can be changed later as needed, but for most cases Minimum Curvature is the option you will want to take.



The next step is to start a gamma sheet. This is done automatically when starting a new well file, however if there is an error and the data sheet was not created (notice the gray box on the left of the image above – this indicates that the gamma sheet was NOT created) will need to start a new gamma sheet manually. How you do this is go to the 'Gamma Input' tab on the left hand side of the screen and click on the 'Import Gamma' button.





Once here, if you have the Type Log, you can go ahead and Copy and Paste the Type Log into the designated place in the Purple Section of the Gamma Data Grid (as shown in the window that displayed). After that click the 'Export' button to export the data into Excel.

If you need more information about Opening LAS please refer to the 'Open LAS Files' section of this manual.

After this your project is set up. To save progress click the 'Save' icon.



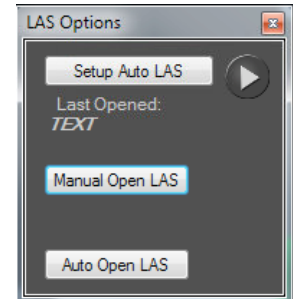
Projects can automatically save by turning on the 'Auto Save' feature in the 'Tools' option on the main window. Doing so will automatically save your project after certain actions, like updating gamma, have been made.

# Open LAS Files



LAS files can be opened in the Gamma Section page with the 'Open LAS File' button.

After clicking the 'Open LAS Files' button you will be greeted with this window to the right. In this window you can Manually Open, Setup Auto and Open Auto.



## Manually Open

When LAS Options are opened you can Manually Open LAS files by clicking the 'Manual Open LAS'. From here you select the LAS file to open. The LAS file will then be converted into an excel document in which you can copy and paste data into your Rig Steer well file project.

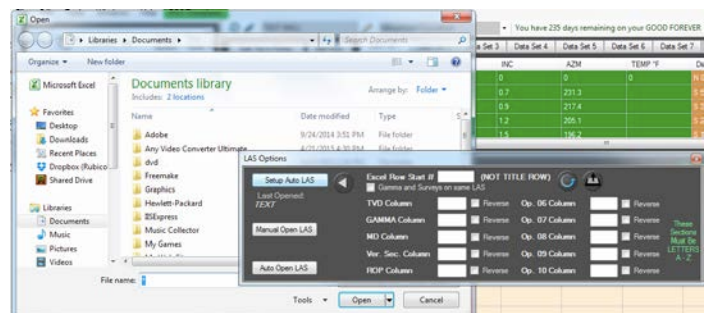
The Manually Open LAS option is primarily used to open Type Log Files.

## Auto Open LAS

Auto Open LAS files will allow the user to set a selection range on the LAS files and then automatically import the new LAS data into Rig Steer from the selected LAS file. First you will need to set up the LAS file ranges.

Click on the 'Setup Auto LAS'. This will open an LAS file. From here take note of the LAS file rows and column numbers, inputting them into the correct box.

After the respected boxes are filled simply click the 'Import' button, close the LAS files and the Open LAS window. Reopen the window and click the 'Auto Open LAS'. Select the LAS file you want to open and the program should automatically open and import the data into the correct place.

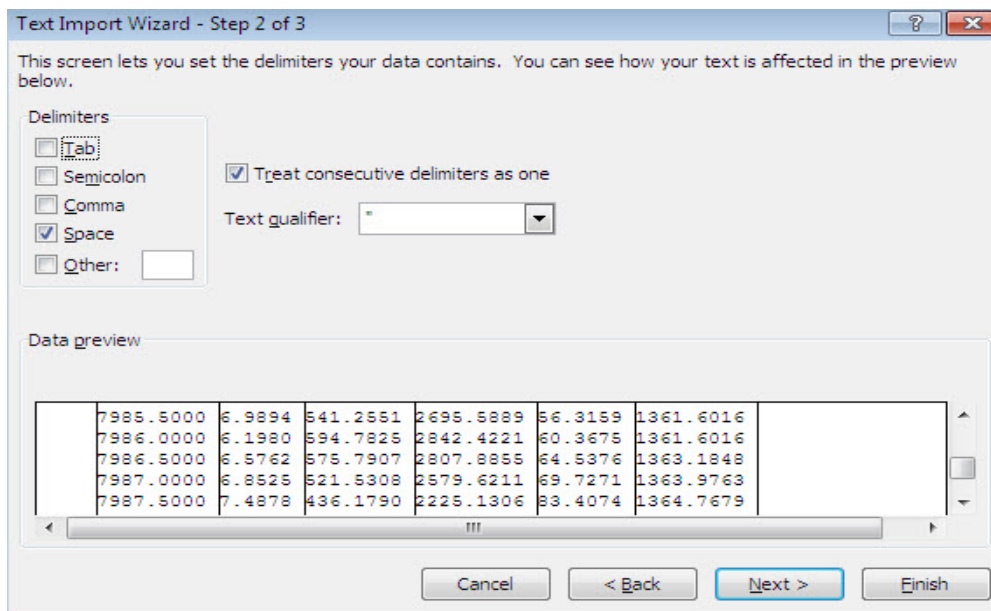
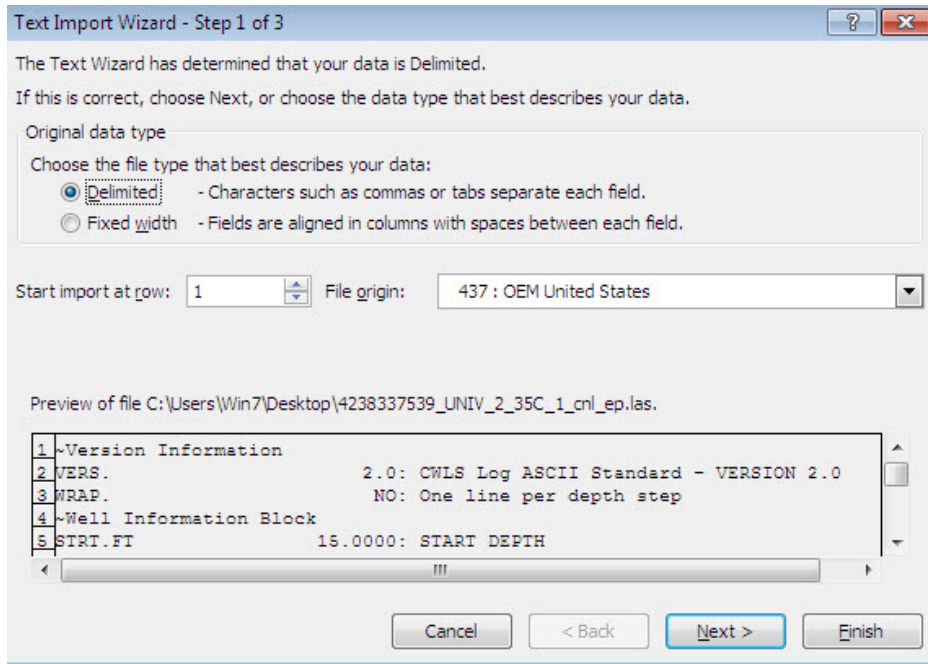


**NOTE – The 'Reverse' is for items that are in reverse order, and the 'Gamma and Survey' will add +1 to the row value every time to compensate for LAS files that have both gamma and surveys together.**

## Delimited LAS option

You may notice that in the tools menu you can find a 'Delimited LAS' option. This option when turned on (by default) will automatically open the LAS files and select what kind of delimited document the LAS file is. If this automatic feature does not produce the desired effect you can turn this option off and select the Delimited option yourself when opening LAS files.

### Delimited – Spaces



# Input Surveys

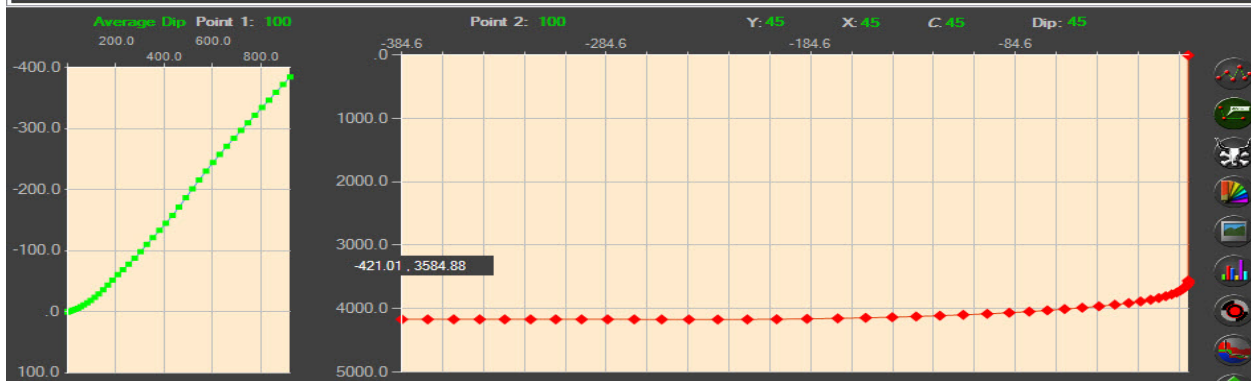
Inputting survey data is as simple as Copy and Paste. Open the survey file, select the data you wish to import, COPY that data and PASTE it into Rig Steer. You can also select all the data in a range (even the ones already pasted in) if needed. Sometimes this will make it easier and faster than finding the last left off survey and only pasting in that value. After pasted in click “Update Start to End” to update all data and import it into excel, as well as populate the main chart.

**NOTE – if the AZM or INC has two or more lines of the same value it will throw an error producing a TVD value of -21000000. To fix this select the numbers that are the same and change them by a small amount (like 0 to 0.0001). This can be manually changed or automatically by the “Auto Survey Fill” in the Tools Menu (which is on by default).**

RO	Survey	MD	INC	AZM	TEMP 'F	Direction	Length	TVD
2	Tie In	0	0	0	0	N 0.0 E		
3	1							
4	2							
5	3							

RO	Survey	MD	INC	AZM	TEMP 'F	Direction	Length	TVD
2	Tie In	0	0	0	0	N 0.0 E		
3	1	3557	0.0001	0.0001				
4	2	3562	2.3	65				
5	3	3594	6.3	93.3				

RO	Survey	MD	INC	AZM	TEMP 'F	Direction	Length	TVD
41	39	4734	89.8	113.5		S 66.5 E	31	4169
42	40	4766	89.6	113.2		S 66.8 E	32	4169
43	41	4797	89.9	113.1		S 66.9 E	31	4169
44	42	4829	90.2	113.7		S 66.3 E	32	4169



## Input Type Log / Survey for Gamma

Inputting surveys into the Gamma is just like inputting data into the regular surveys. Simply Copy and Paste into the correct places. The Type Log goes in the Purple Section while the Active Gamma Surveys go into the Green Section.

**Note – The BLUE section and ORANGE section are not changeable. This does not mean that they are useless; on the contrary, they are very important. These sections are the areas that the calculations for offsets and tops are calculated.**

The first screenshot shows the 'Gamma Viewer' interface with the 'Type Log Data' column highlighted in orange and the 'TL GAMMA' column highlighted in blue. The second screenshot shows the same interface with numerical values entered into the 'TL TVD' and 'TL GAMMA' columns.

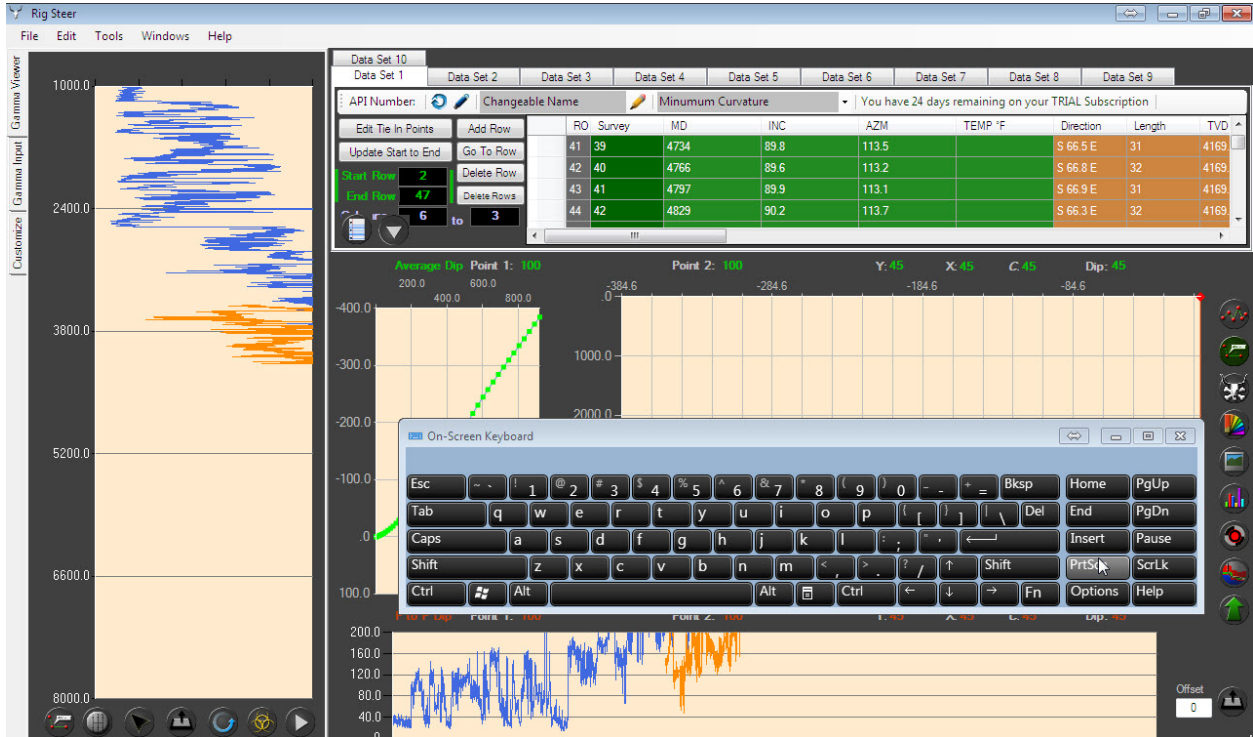
Position	< Current Data	Type Log Data >	TL TVD	TL GAMMA	TL Rate of Penetr...
1	<Last ...	<Last ...	14.28	0	
1	<Last ...	<Last ...	14.78	76.378	
2	<Previ...	<Previ...	15.28	75.666	
			15.78	79.434	
1	<Last ...	<Last ...	16.28	81.838	
0	<Gam...	<Gam...	16.78	82.022	
			17.28	83.85	
0	t1		17.78	86.781	
0	t2		18.28	87.654	
0	t3		18.78	89.648	
0	t4		19.28	87.82	
0	t5		19.78	76.77	
	TZ		20.28	69.791	
	TA		20.78	70.123	
	TB		21.28	75.004	
			21.78	81.526	
			22.28	80.571	

The third screenshot shows the 'Gamma Viewer' interface with the 'Original TVD' column highlighted in blue. The fourth screenshot shows the same interface with numerical values entered into the 'Original TVD', 'GAMMA', and 'MD' columns.

Original TVD	GAMMA	MD	Vertical Section	Rate of Penetrati	opt 6
3500.5	142	3500.5			
3501	144	3501			
3501.5	151	3501.5			
3502	151	3502			
3502.5	148	3502.5			
3503	137	3503			
3503.5	140	3503.5			
3504	144	3504			
3504.5	144	3504.5			
3505	152	3505			
3505.5	149	3505.5			
3506	142	3506			
3506.5	142	3506.5			
3507	141	3507			
3507.5	143	3507.5			
3508	135	3508			
3508.5	128.5	3508.5			



After the data is in the Data Grid you then need to Export it into Excel with the 'Export' button. This button will export all data into Excel and get the content ready for saving. After export is complete you will see the Type Log and Gamma Files updated on the Bottom Gamma Chart and the Gamma Chart on the left.



## Editing Gamma

When editing gamma there are multiple ways to edit and steer a well. This section will cover the basic most commonly used methods. Later we will cover the Advance options.

First you will need to know is the Button Functions (for more please refer to the Buttons and Functions shown previously in this book). There are many buttons related to the Gamma, however the only two that are mandatory are Multi Select and Manual / Automatic (shown below)



### Multi Select

With the Multi Select Deactivated (GRAY) the user can select one point on the Gamma Chart when HOLDING DOWN RIGHT CLICK and drag and drop it to manipulate the data. With the Multi Select Activated (GREEN) the user than select a starting point on the Gamma with a LEFT CLICK and an end point with a RIGHT CLICK and then manipulate all data between the two points with the MOUSE MOVE (scale) or by HOLDING SHIFT and MOUSE MOVE (move) to create a fault.



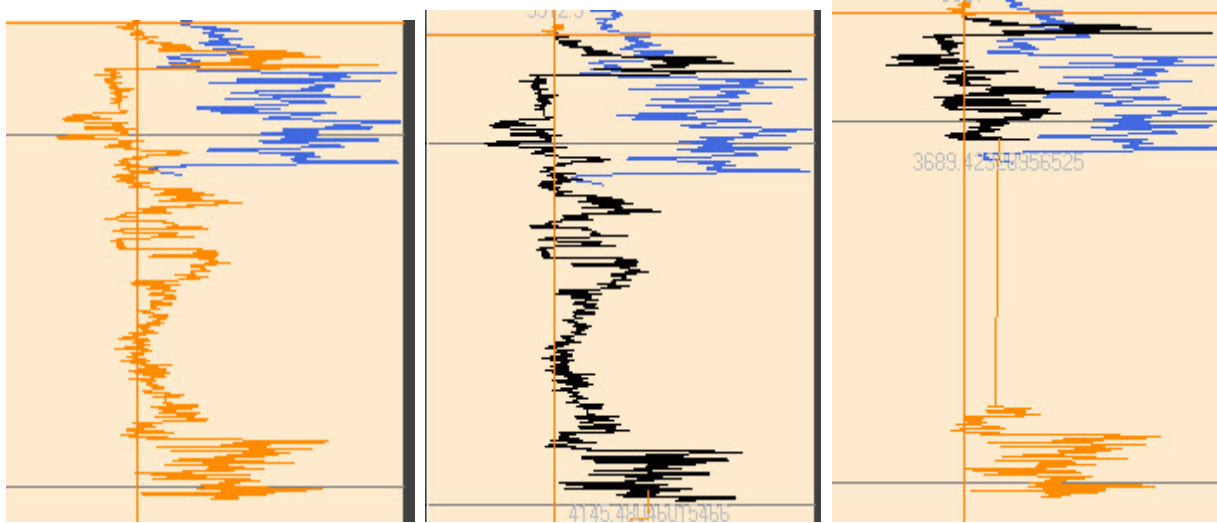
### Manual / Automatic

When Manual is activated (GRAY) all points under selected when Multi Selecting do not move or scale with the selected points. When Automatic is activated (GREEN) all points under selected when Multi Selecting are moved or scaled with selected.

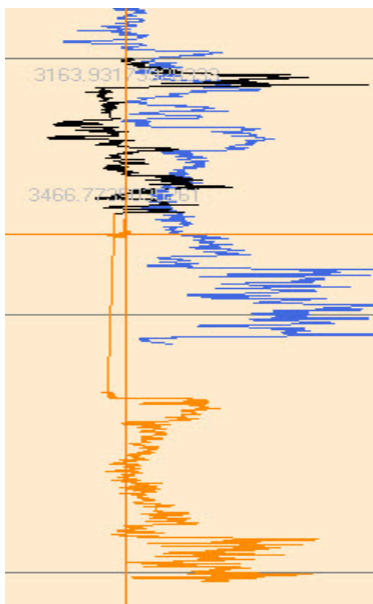


## Scaling

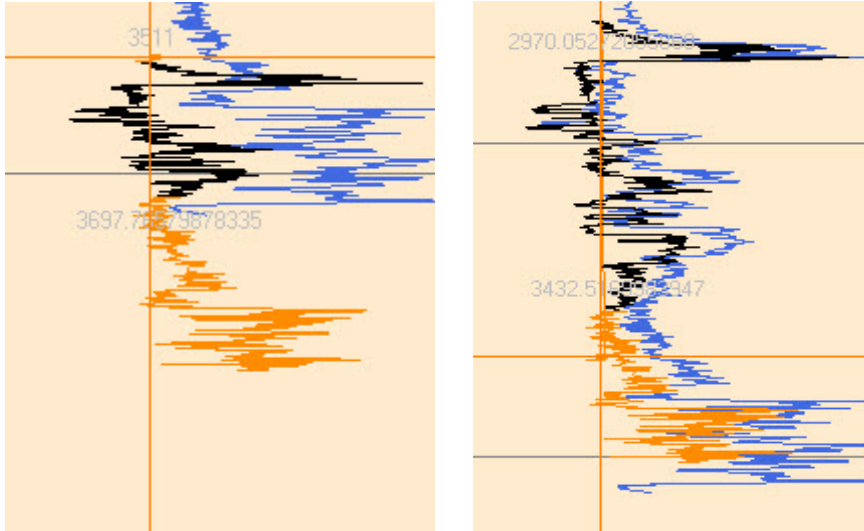
To scale the gamma files you will first need to toggle ON the Multi Select. Use the LEFT CLICK to select a start point and RIGHT CLICK to select the end point. With the multi select on with a MOUSE MOVE you can scale the selected points.



If you hold SHIFT with the MOUSE MOVE you can move the selected points to a new location, in return you also create a FAULT.

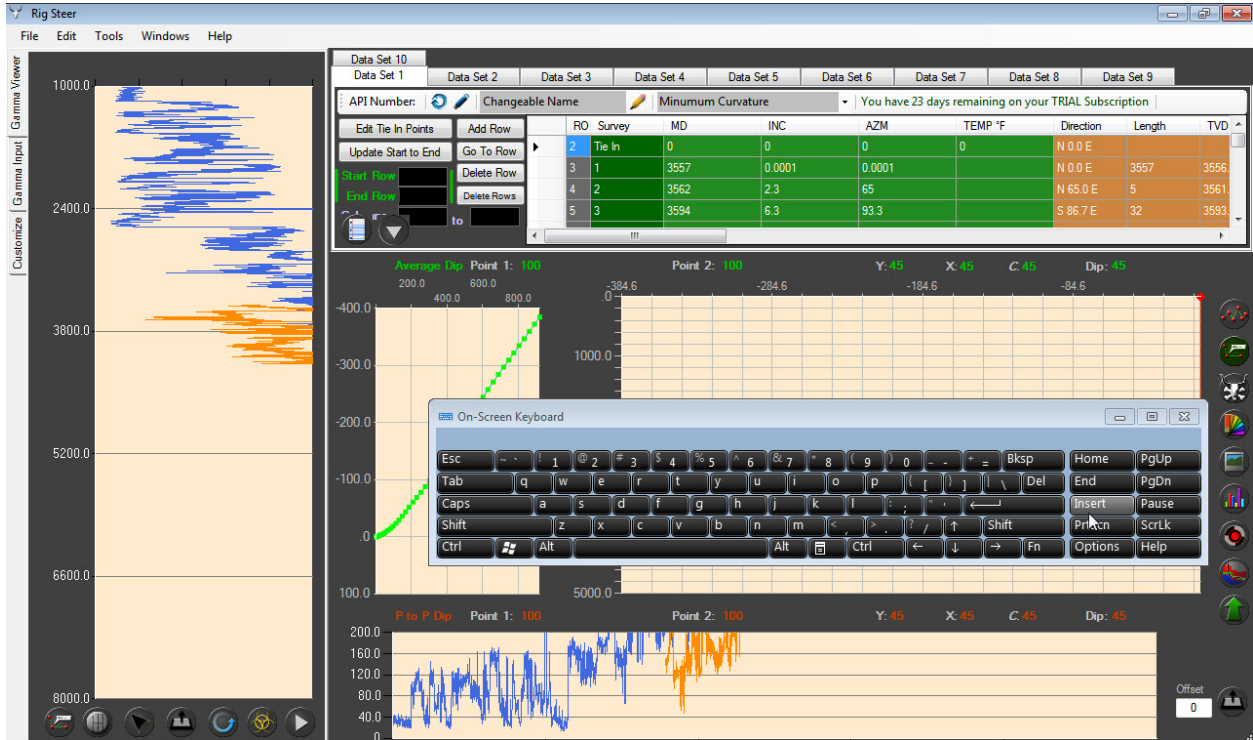


The next portion to look at is the Manual and Automatic. You have already seen the effect of the Manual (GRAY) function, if you have the AUTOMATIC on then all the points below the selected will be moved with the selected.

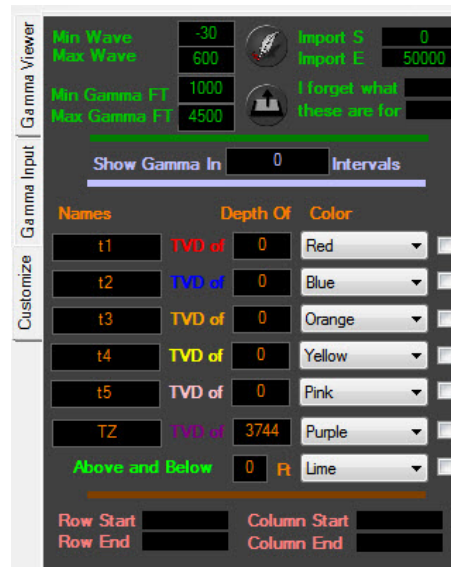


## Gamma Display Options

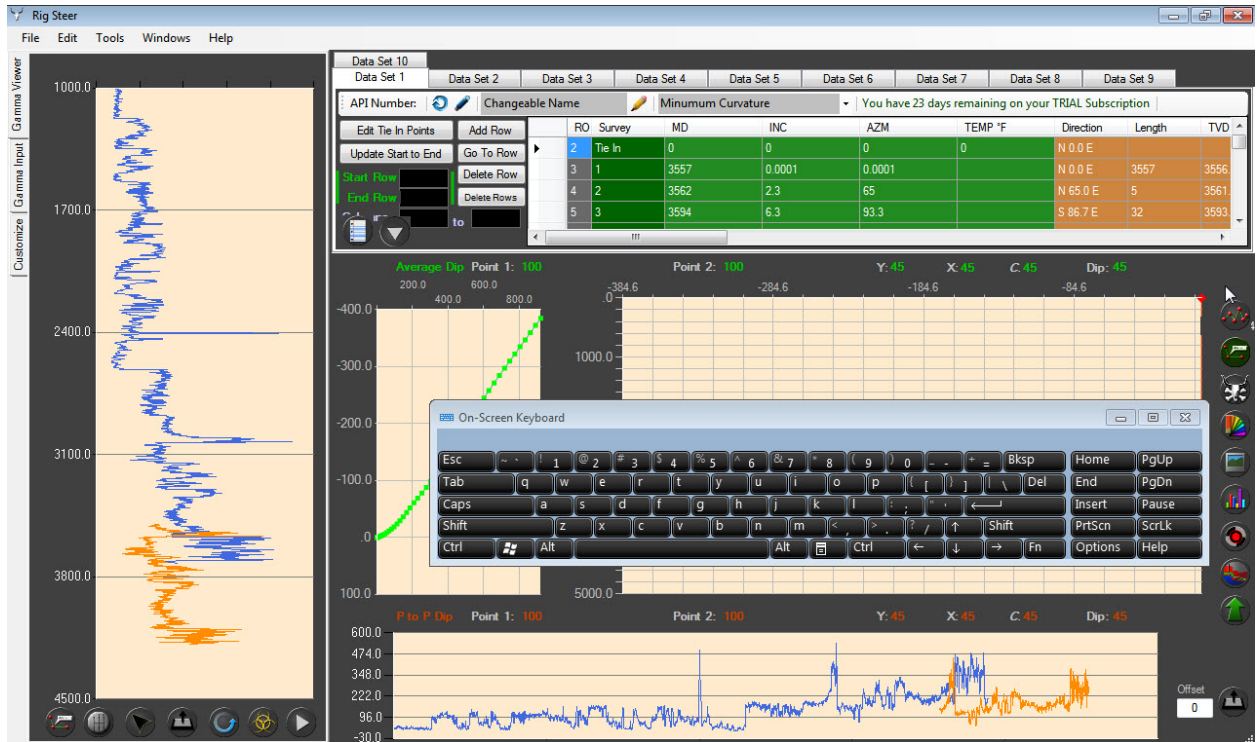
Most times the default settings for the Gamma Display are not adequate for viewing all the input data. An example of this is shown below:



To fix this you will need to go into the 'Customize' tab on the left and changing the settings on the Min and Max settings for each Gamma and Gamma FT



The changed settings give this as a result. A fully viewable gamma section on both the left chart and the bottom chart.



### Showing Gamma Edits

When editing gamma it is possible to show the gamma being edited on the main chart. This feature is turned on by default, and be toggled off in the “Tools” menu if desired.

### Please note

When editing gamma, to view the target zone on the main graph you will need to activate the ‘Target Zone’ button on the right hand side of the main window.

## Straight VS Active Gamma

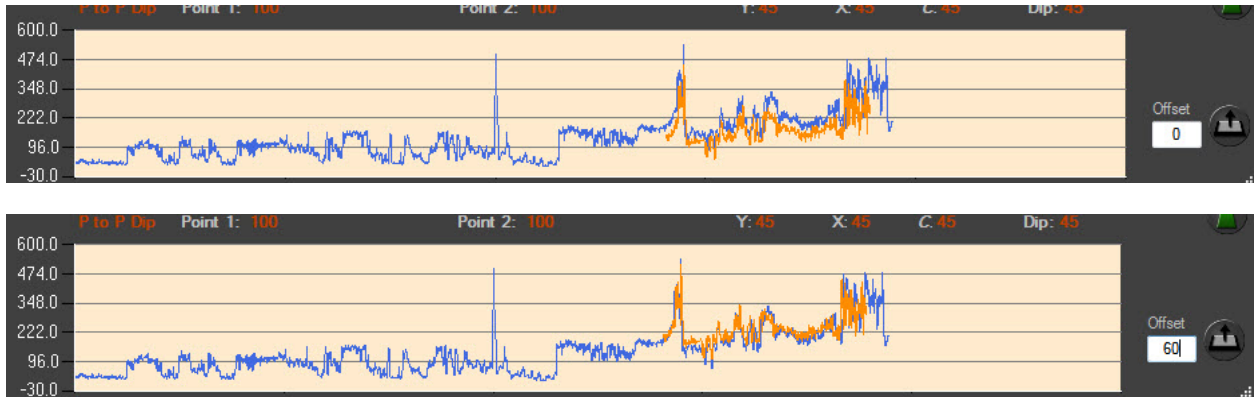
You may notice that the chart at the bottom has a check box that reads “Show Log”. This, deactivated by default, will show the Type Log and the Gamma on the same plane when it is on. When off it will show only the Gamma, however it shows it in a Straight Plane. This is useful when the ‘Auto Locate’ tool is on and you can see your gamma as you are mousing over your target zone.

## Off Setting

If you will need to offset the input gamma (ORANGE in the example) you simply change the ‘Offset’ on the bottom right of the screen and hit ENTER or the INPORT button located beside it.

Positive numbers will offset Gamma higher on the bottom chart, or closer to the right on the left chart, while negative numbers will offset Gamma lower on the bottom chart, or closer to the left on the left chart.

**-NOTE - For best result when offsetting gamma please select the ‘Show Log’ checkbox above the offset import button.**



# Main Survey Options

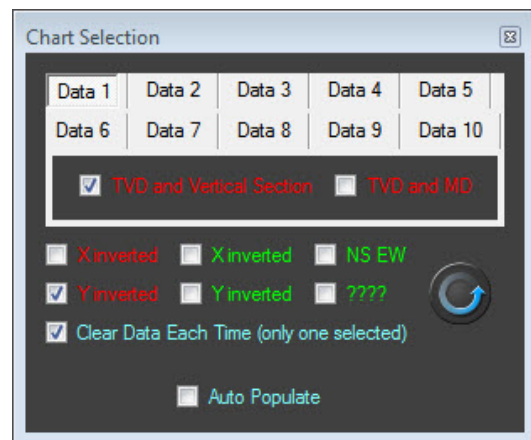
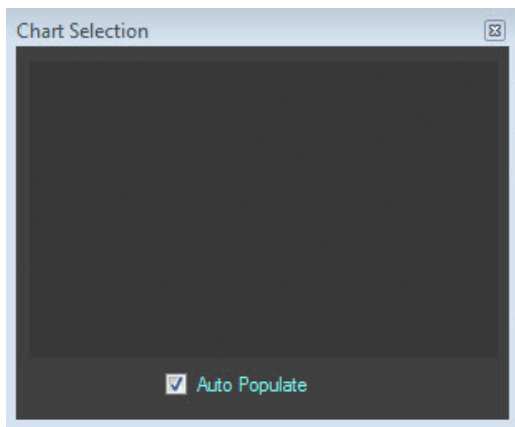
## Display Options

You might notice that the default display option will only show one chart and also only the TVD versus Vertical Section (which shows an accurate display of the drill location under the earth). For steering purposes however you will need to change this orientation to TVD versus MD. This will allow the user to display the Target Zone and steer wells.

## Graph Options



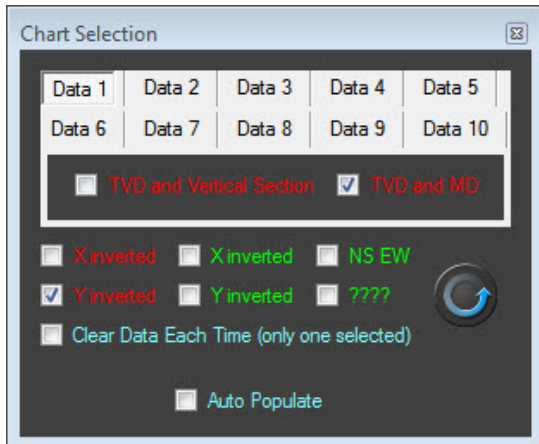
Clicking the 'Graph Options' button you will be greeted with a new window. This window now only has one option, which is the 'Auto Populate' checkbox. This box, which checked, will auto populate with the default settings. At this point you could choose to let the auto take control, and simply click on the "Target Zone" button to view the Target Zone and begin steering. However, the Auto will only allow one drill to be displayed at once. To display multiple drills at once you will need to deselect Auto Populate.



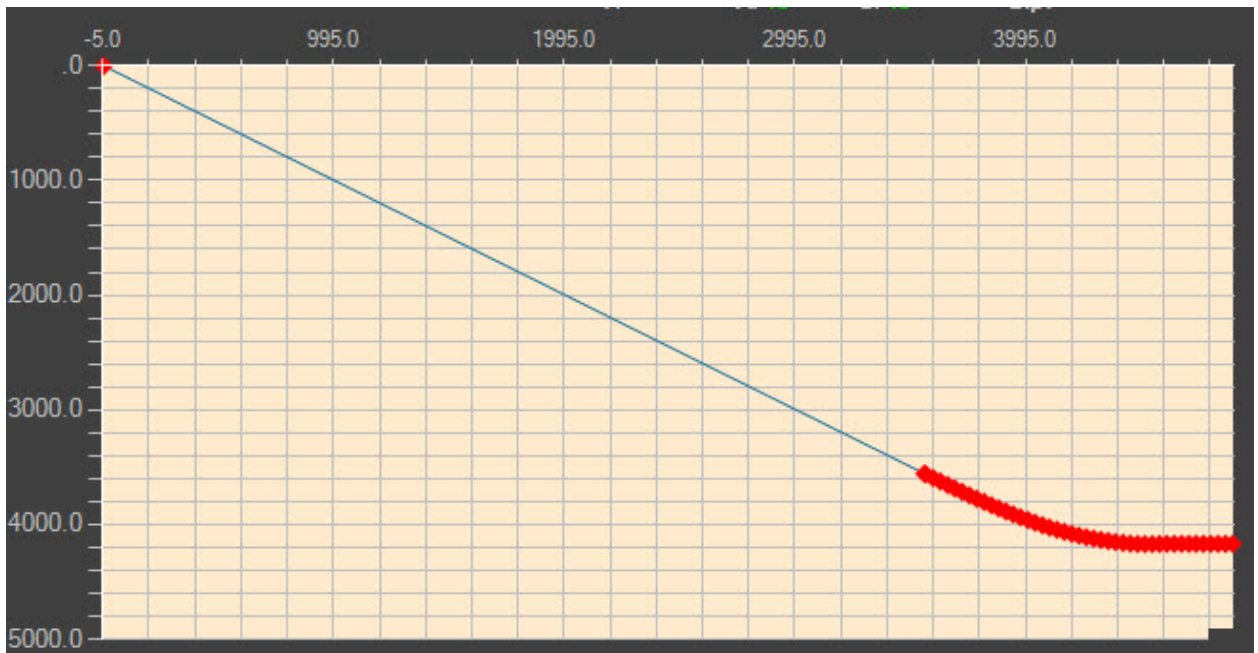
When you deselect 'auto' you will see that more options become available. These options might be a little overwhelming at first, however there are only two that you really need to worry about, those being the 'Clear Data' and 'TVD and MD'. The first, 'Clear Data Each Time' will allow only one data set to be active, picking the first selected automatically. This can be helpful, but also annoying if you are trying to view more than one. In most cases leave this setting off.

The next option is the 'TVD and MD'. This will allow you to see the drill and Target Zone together in the same plain.





After you have these selected you can click the 'Refresh' button to view them on the main chart.



The other options, as said before, are not as important now, however we will go ahead and explain them. At the top of the Graph Options window you will see 'Data 1', 'Data 2' and so on. These are each well or interpretation for each project file. This will give the user the ability to view up to ten different wells or interpretations at one time.

The options 'X inverted' and 'Y inverted' IN RED will effect the main chart, if the X axis or Y axis is inverted. The GREEN affects the second chart, which displays the North South East West direction of the drill.

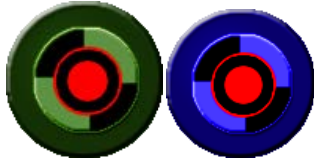
## Targets and Tops

With the 'TVD and MD' selected in the 'Chart Options' window you can now view the target zone and tops. To view the target zone all you will need to do is click the 'Target Zone' button.

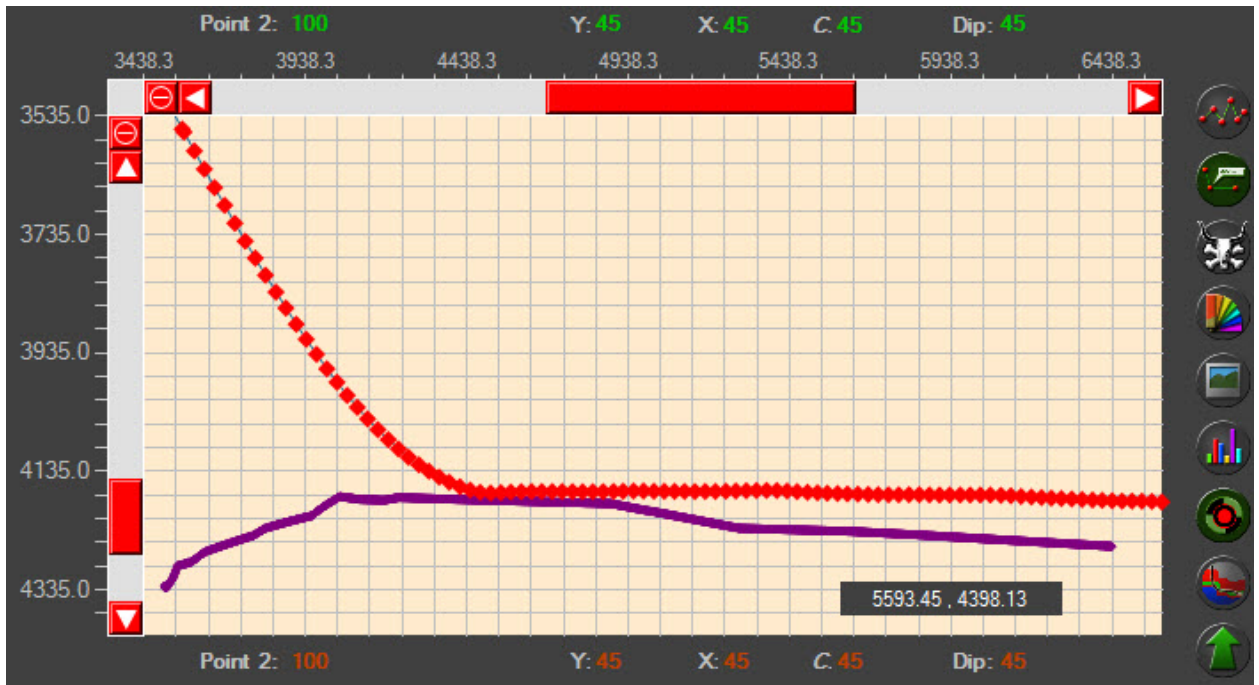


### Target Zone

Activating this (GREEN) will show the target zone on the main chart.  
Activating this again (BLUE) will show target zone and selected tops in the 'Customize' option in the gamma section.



Toggle it onto green to view the Target on the main chart.



To view the Target Tops you will need to go to the 'Customize' tab on the left and then Toggle on selected Target Zones in that tab and click the 'Write' button (the feather). With the selected on you want click the 'Target Zone' button again until it is blue. Then you will see the tops plotted with the Target Zone on the main chart, as well as the Gamma Graphs.

If you need to edit, add or remove tops names or depths simply write the changes in this window and then click the 'Import' button to import the data into excel and change the data.

**Gamma Viewer**

Min Wave: -30    Import S: 0  
 Max Wave: 600    Import E: 50000

Min Gamma FT: 1000    I forget what these are for  
 Max Gamma FT: 4000

Show Gamma In: 0 Intervals

Names	Depth Of	Color	
t1	TVD of 2000	Red	<input checked="" type="checkbox"/>
t2	TVD of 2500	Blue	<input checked="" type="checkbox"/>
t3	TVD of 2750	Orange	<input checked="" type="checkbox"/>
t4	TVD of 3350	Yellow	<input checked="" type="checkbox"/>
t5	TVD of 3600	Pink	<input checked="" type="checkbox"/>
TZ	TVD of 3644	Purple	<input checked="" type="checkbox"/>
Above and Below	14 R	Lime	<input checked="" type="checkbox"/>

Row Start:    Column Start:     
 Row End:    Column End:   



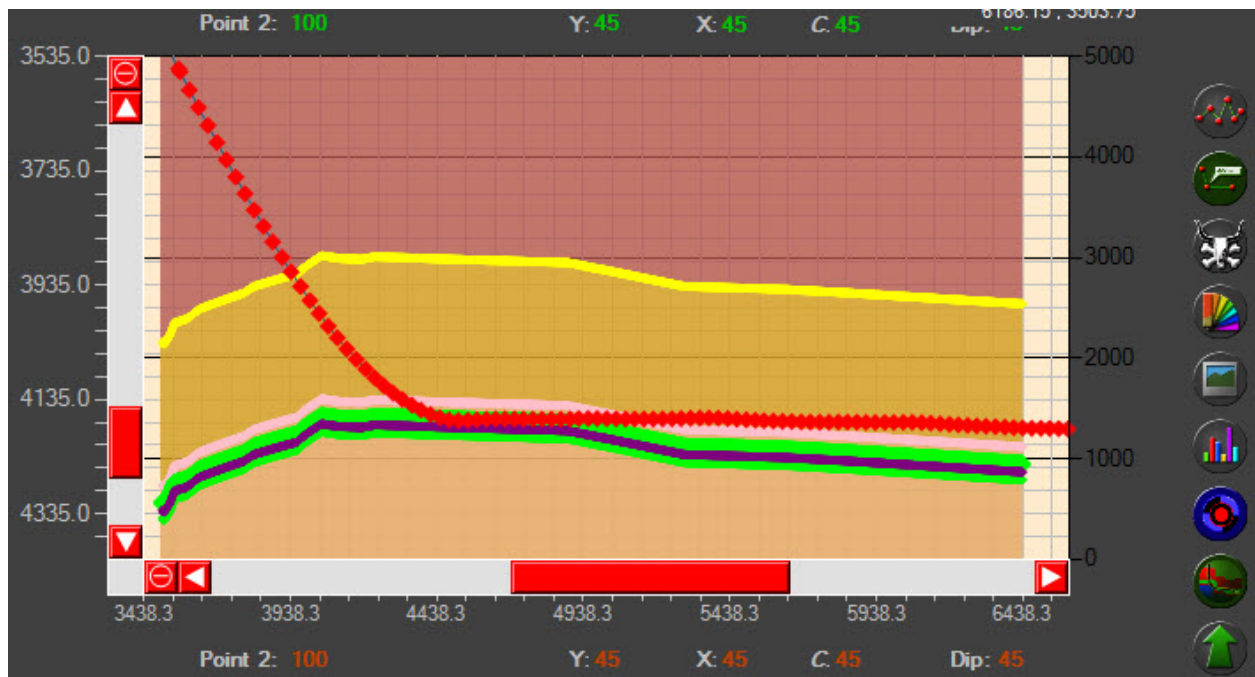
## Area Plots

With the tops selected in the 'Customize' tab you can display the tops as an Area Plot by clicking the 'Area Plotter' button.



### Area Plotter

This will graph the selected tops on the main chart in an Area Plotter display.



## Screen Capture

The built in screen capture button is a very nice feature that will allow the user to take a screen shot of a selected area and save the image as either a JPEG or a PNG. What is very convenient about this screen capture is that the average file size of a saved image is under 200kb, which means in the average email you could attach 500 screen shots and still send the message.



### Screen Capture

Clicking this button will activate the screen capture program. Adjust the picture where you would like to capture and click 'Take Picture'. You can then save the image as either a JPEG or PNG.

To activate this click the button and then scale the window to the size you want. Once scaled click 'Take Picture' and save picture in desired location.



# Export Well File

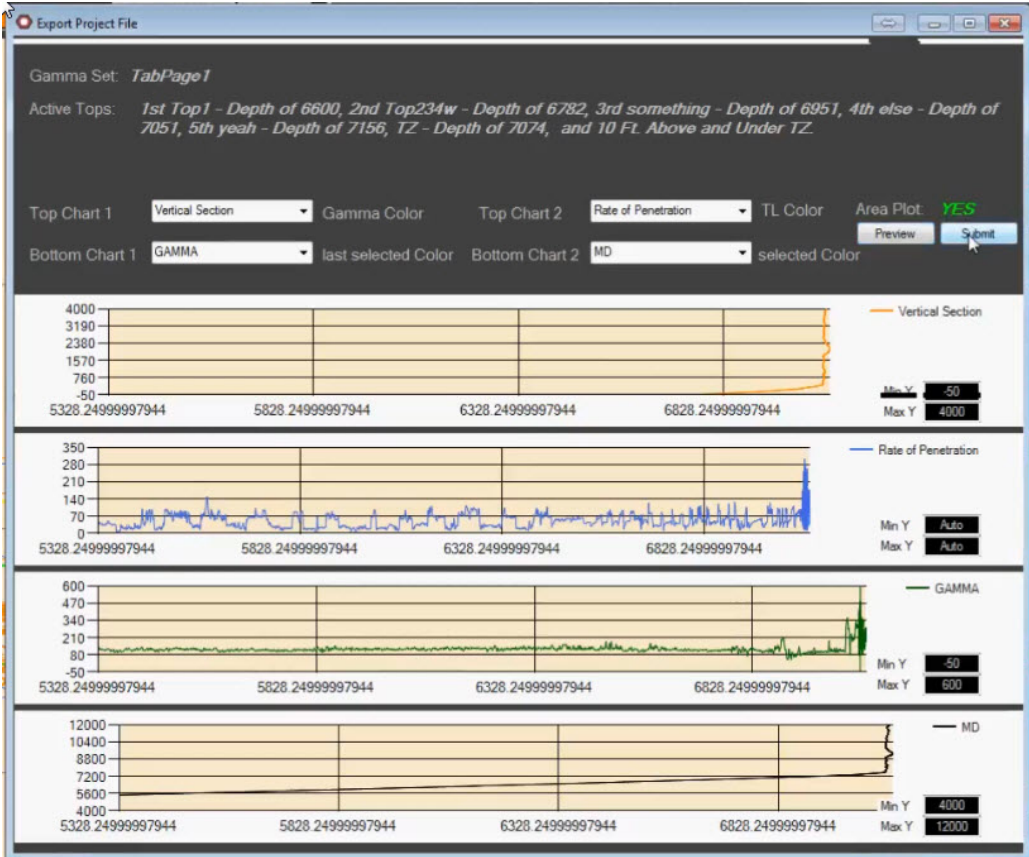


## Project Export

This option will allow the user to export the current project into an Excel File and Email it to the client.

By clicking this button you will open a new window in which you can chose chart information from your LAS Gamma Files. Pressing 'Preview' will allow you to view your selected data sets. You can change the Y values of the charts to better match the desired final export. When you are ready click the 'Submit' button and all of your data will be exported into an Excel document that you can email or send.

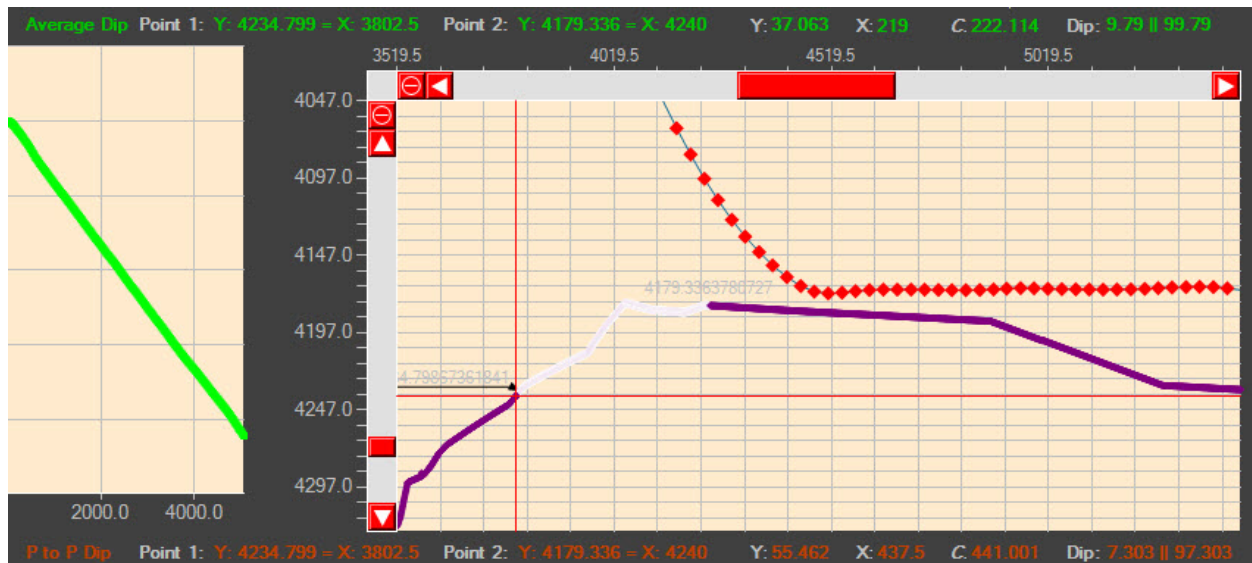
Note – This will take a screen shot of all of your data, graphs, and charts in the respected color schemes.



# Main Survey Advance Options

## Dip Calculator

The Dip Calculator can be activated as long as you have the Target Zone activated. How you activate the Dip Calculator is by HOLDING SHIFT on the main chart and LEFT CLICKING a start point, and then RIGHT CLICK an end point (while still HOLDING SHIFT). When holding SHIFT your DRILL DOWN TOOL (if activated) will change to GREEN in indicate the dip calculator being activated.



What you will notice when you do this is that the selected area changes colors and that the GREEN numbers above change while the ORANGE numbers below change as well. These numbers are your Dip.

The GREEN numbers above represent the Average Dip. This takes the averages of all the points between the two selected. 'Point 1' gives you the X and Y values of first point selected (start point), 'Point 2' represents the second points values (end point), 'Y' represents the Y average, the 'X' represents the average of X values, 'C' is the average of the distance between the two points and 'Dip' is the calculations of the Dip – First section being the average percent, while the second set of numbers is the average angle set at 90 degrees.

The ORANGE numbers below represent the Point to Point Dip. This only looks at the Start Point and the End Point and gives you the Dip between the two. 'Point 1' gives you the X and Y values of first point selected (start point), 'Point 2' represents the second points values (end point), 'Y' represents the value of the Y, the 'X' represents the value of X, 'C' the distance between the two points and 'Dip' is the calculations of the Dip – First section being the percent, while the second set of numbers is the average angle set at 90 degrees.

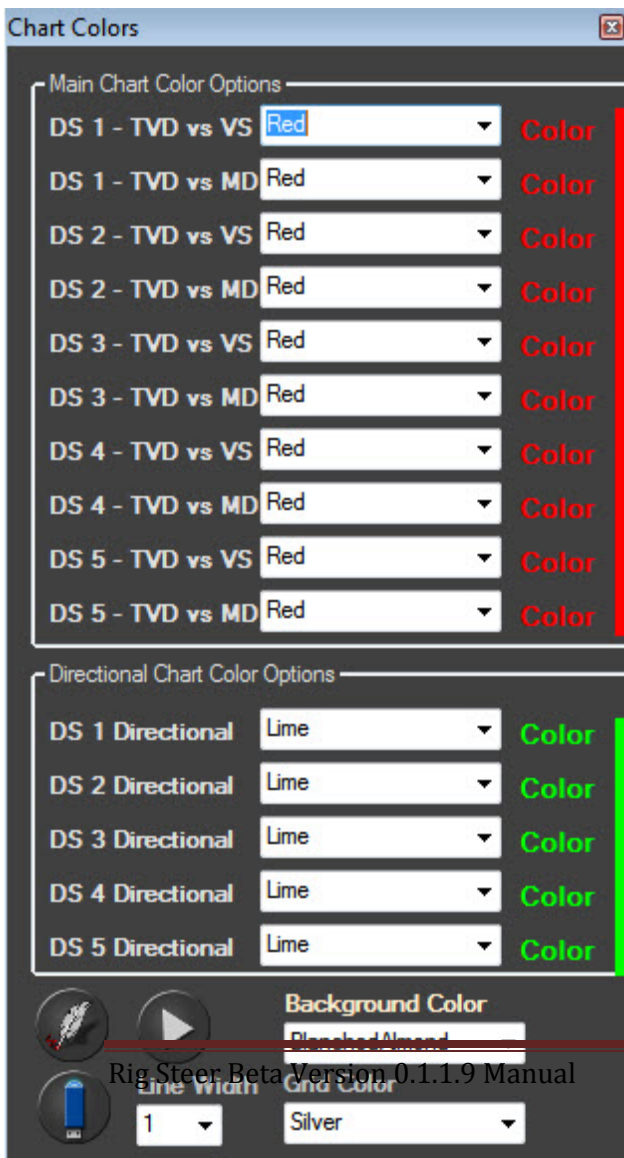
## Color Options

To access the Color Options for the main chart you will need to click on the 'Color Option' button located on the right hand side of the screen.



### Color Options

This will open a window which will allow the user to change the color options of the main chart.



In this window you can change the color options for the main chart. The top sections gives you the options for each Data Set (DS) and each type of display (TVD and Vertical Section OR TVD and MD). When you change these colors the colors will also change on the 'Color' beside it.

The lower options in GREEN will change the directional colors for each data set.

Below the color blocks you will see the 'Background Color' option and 'Grid Color' option. These options will change the Background Color of the charts and the Grid Colors of the charts.

The 'Line Width' will also change the line widths of the chart.

To write these changes to the chart you will need to click the 'Write' button. To save the workbook you can click 'Save'.

**NOTE – if you would like to not see the grid lines you can simply change the color of the grid lines to the same color as the background.**

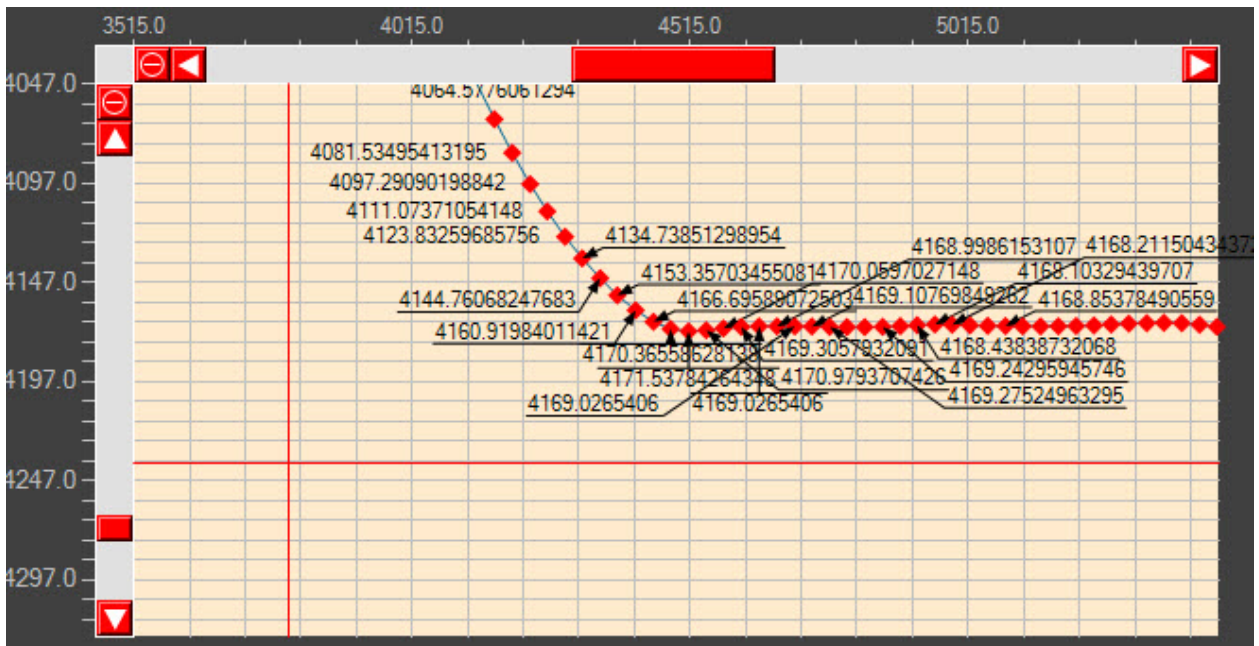
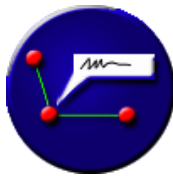


## Label Options



### Label Options

This is the label option. This option, when on **GREEN**, will show the points in the graph. When this option is on **BLUE** it will show the points and the label depth on the graph. When this option is off (**GRAY**) it will not show any points or labels.



**NOTE – With the labels being displayed, your computer may slow down due to the amount of processing power it takes to display the 10,000+ labels that can be displayed on some well files.**

## Changeable Name

Though not necessary to do, you can change the name of the data set at the top of the screen to anything you want by simply typing in a name and clicking the 'Pencil' button to save the name.



## Gamma Advance Options

### Color Options

To get to the color gamma options you will need to open the 'Gamma Options' button.



### Gamma Options

This opens the Gamma Options for customization.

In the first screen you will see a bunch of options that are not available in the Beta Version. In the future this is where you are going to be able to select what to plot on the Gamma chart and what to steer with (Gamma [the only option available in Rig Steer Beta], Temp, ect.). For now the only think you can do is extend the display with the expand arrow.



### Expand / Shrink

This will expand or shrink the display of selected item

In the extended window you will now see several color options which I will explain.



The top section will change the color and display options of both Gamma Charts, and are pretty self-explanatory.

Background – changes the background color

Type long – changes the type log color

Gamma marker – changes the gamma marker color (if marker is turned on)

Gamma color – changes the gamma color

Line Width – changes the width of the line

Last Selected – changes the color of the last selected

Selected color – changes the color of the currently selected

## Sectionals

### Sectional Point Display

Gamma Waves Color Options

Background: BlachedAlmond

TYPE LOG Color: RoyalBlue

Gamma Marker: Red

Gamma Color: DarkOrange

Line Width: 1

Last Selected: White

Selected Color: Black

Show Gamma Sections

Show All Gamma

Show Sections

Sectionals Points

Depth by Columns

Those Range From The Newest Gamma (5) To Oldest In Set (1)

Section 1 Color: Peru

Section 2 Color: SeaGreen

Section 3 Color: OrangeRed

Section 4 Color: Turquoise

Section 5 Color: DarkOrange

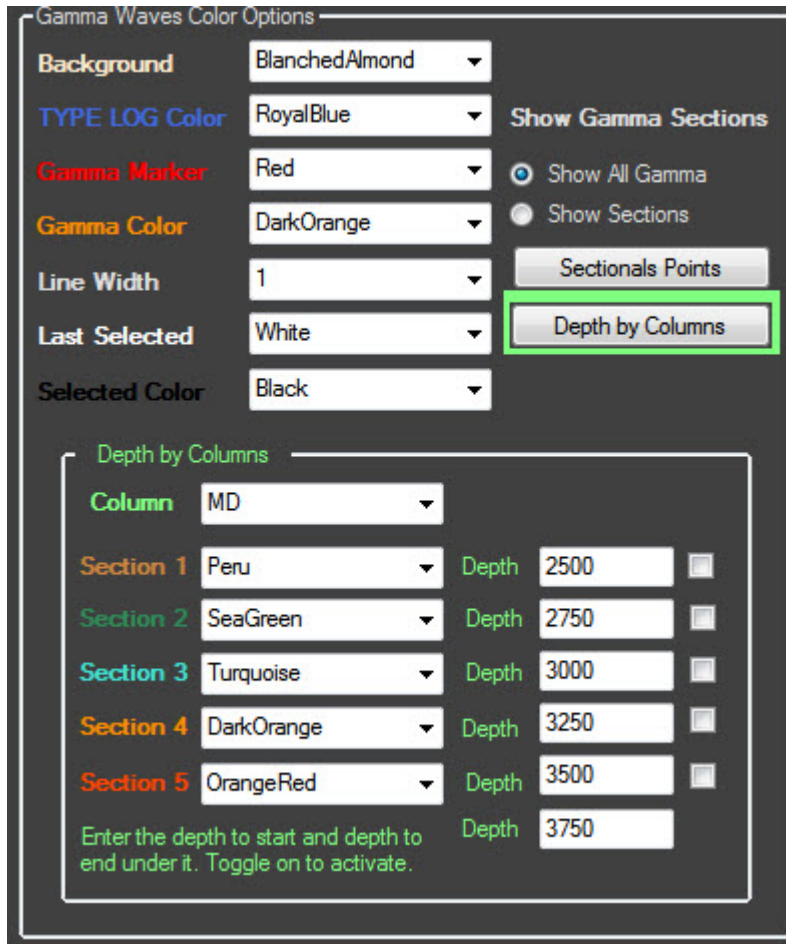
Sections are in 60 point increments

With the default display option 'Sectionals Points' is automatically selected. With this option you can set sections by points. By default the amount of sections is set to 60. This, on average, would be 2 survey points per section.

With the toggles on the right you can select which section you would like to display with what color. The sections are layered 1 to 5 (1 being the oldest, 5 being the newest).

**NOTE** – if you would like to show ONLY the sectionals then select 'Show Sections' at the top instead of 'Show All Gamma'.

## Depth by Columns



Gamma Waves Color Options

Background: BlunchedAlmond

TYPE LOG Color: RoyalBlue

Gamma Marker: Red

Gamma Color: DarkOrange

Line Width: 1

Last Selected: White

Selected Color: Black

Show Gamma Sections

Show All Gamma

Show Sections

Sectionals Points

**Depth by Columns**

Depth by Columns

Section	Color	Depth	Toggle
Section 1	Peru	2500	<input type="checkbox"/>
Section 2	SeaGreen	2750	<input type="checkbox"/>
Section 3	Turquoise	3000	<input type="checkbox"/>
Section 4	DarkOrange	3250	<input type="checkbox"/>
Section 5	OrangeRed	3500	<input type="checkbox"/>
		3750	<input type="checkbox"/>

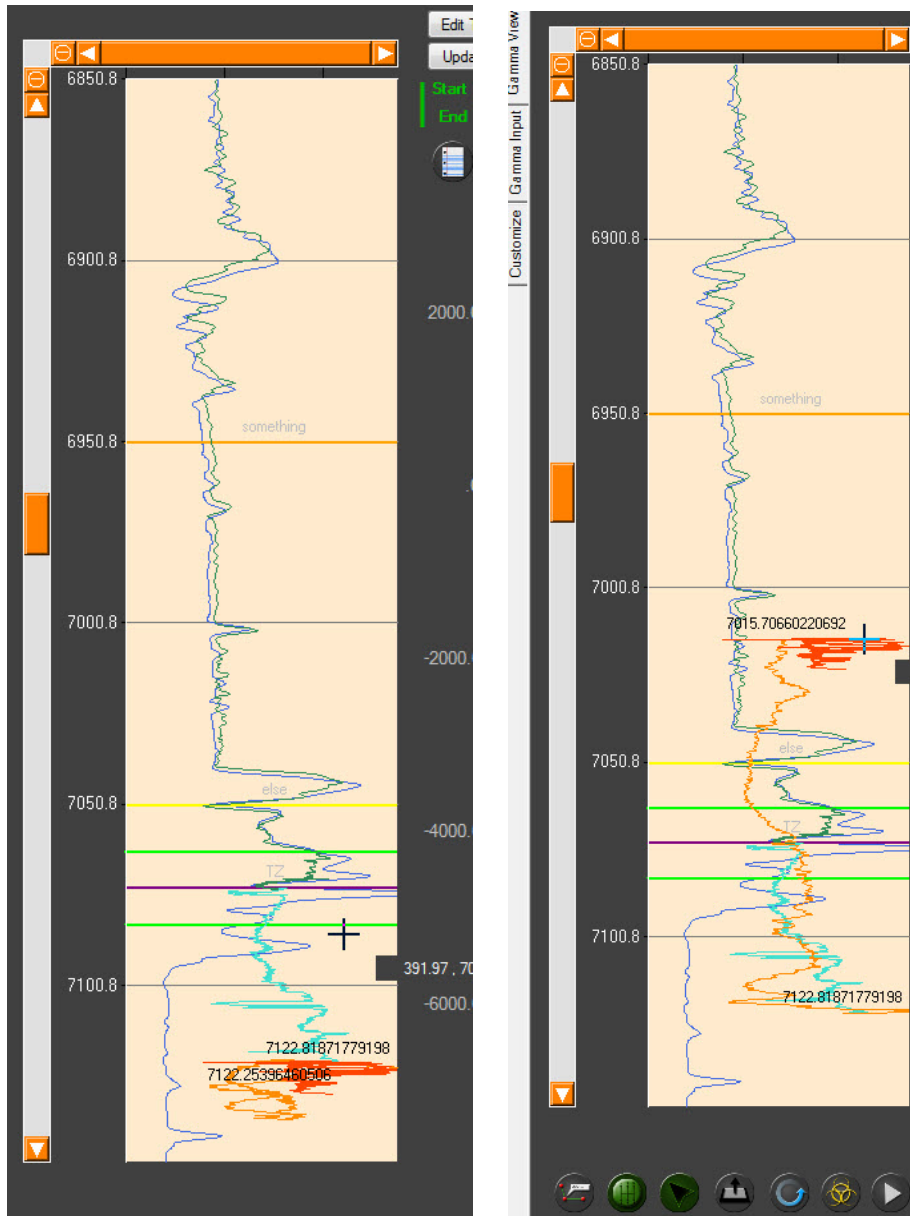
Enter the depth to start and depth to end under it. Toggle on to activate.

By selecting the 'Depth by Columns' button you will see that there is a new section at the bottom of this window. What this will do is allow the user to set a column (now only the MD is useable with the Beta Version), and with that column you can change the color of selected depths.

The depths are not preset, so you will need to type those in yourself. When you toggle on a section, from that depth to the one under it (the start of the new section) will be changed to that color. You will need to have a number under that so the chart coloring knows where to end.

**NOTE** – if you would like to show **ONLY** the sectionals then select 'Show Sections' at the top instead of 'Show All Gamma'.

## Block Editing



When either the Sectional Points or Depth by Columns is activated, pressing the 1, 2, 3, 4 or 5 key will tell Rig Steer to select that section of gamma. With this method the user can mimic the use of blocks without having the headache of trying to match up every end and beginning data point.

## Kill Button

### Kill Button



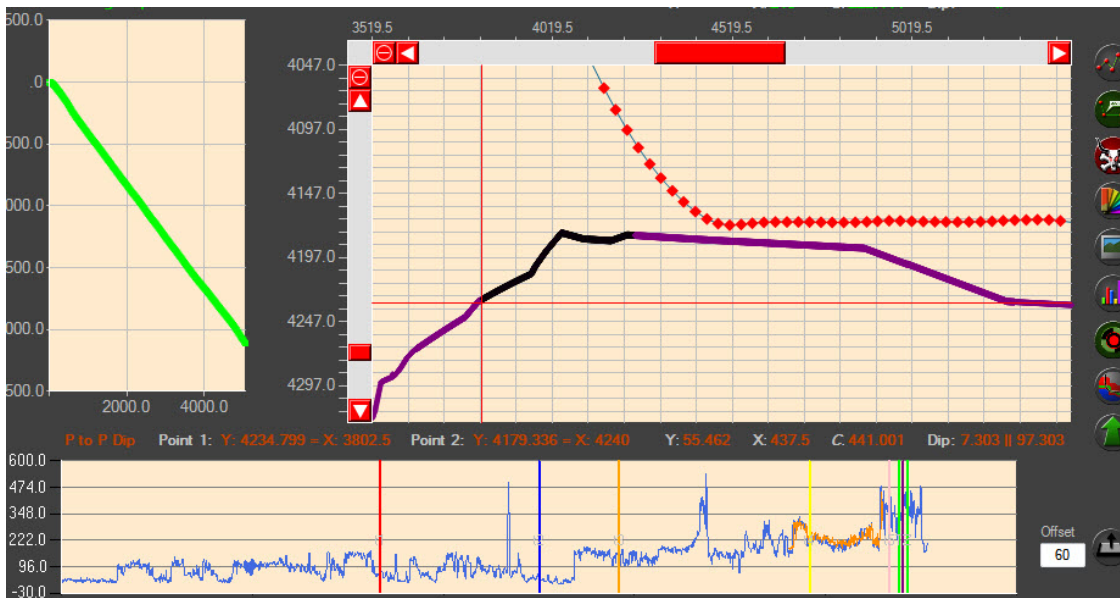
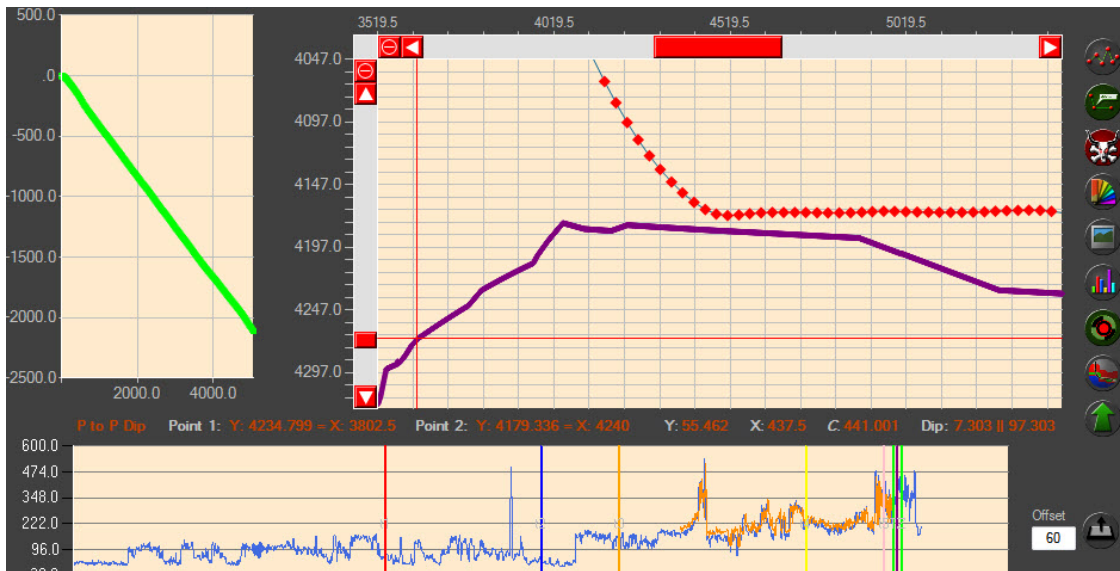
The Kill function will allow the user to LEFT CLICK on a starting point of the Target Zone and then RIGHT CLICK on an end point. This will hide all other points on the Gamma Chart except for the selected data. If the user HOLD SHIFT and then selects a start point and end point the program will kill the interpretation between both points, thus creating a straight line.



## Kill Display

As mentioned above, there are two functions to the Kill button. The first is a Kill Display option. With this option you can hide all the gamma on the left and bottom graphs EXCEPT for the area you selected from the main chart.

How you accomplish this is by toggling on the Kill Button. Doing so will change the color of the button to red, and the color of the Drill Mouse Tool to blue. From there you LEFT CLICK on a start point and RIGHT CLICK on an end point on the main graph Target Zone.



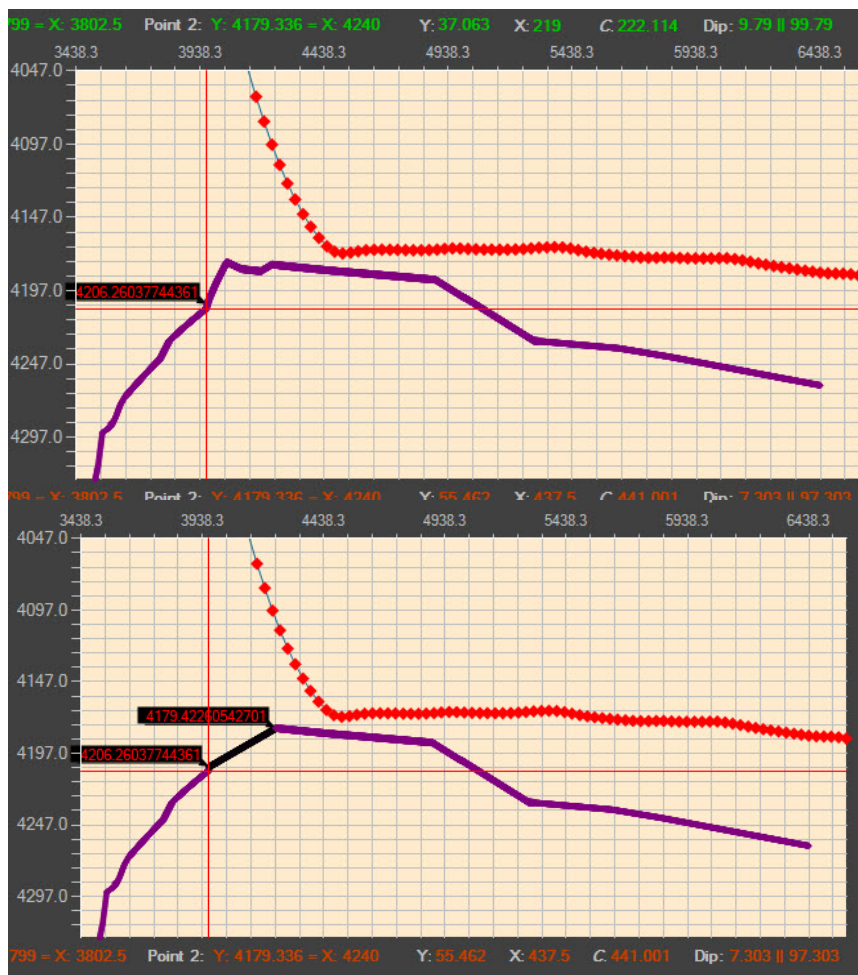


## Kill Interpretation

The second function that this button has is the ability to Kill and interpretation. What this means is that if an interpretation becomes 'out of whack', so to speak, you can select a start point and end point and then create a straight line between the two. Doing this will, as the name says, Kill the interpretation.

To Kill the Interpretation you will need to have the Kill Button ON (RED) and then HOLD SHIFT. HOLDING SHIFT will change the text color in the Drill Mouse Tool to RED. With the SHIFT HELD you need to LEFT CLICK to select a start point and RIGHT CLICK to select an end point. After that you will see that the interpretation between the two points has been 'killed'.

At this point you can either click the 'Import' button to save, click the 'S' button to save, press ENTER or SPACE to temporary save, or the ESCAPE button to back up or undo.



## Advance Rig Steer Options

These options are for the Rig Steer program itself, not so much for an individual chart or one function.

### Active Dip Tool

This tool, when turned on, will display an live active dip of the target zone and tops on the main graph when editing gamma.

### Auto Locate

This tool, when turned on, will activate the location of either the Target Zone or Main Drill on both Data Grids as well as Gamma Graphs.

### Auto Save

The Auto Save function when activated will periodically save your progress on your projects incase of system failure. When saving you will see an animated loading icon in the bottom right hand corner of your screen. When this icon is shown your project is saving. You can toggle this function on or off in the Tools > Auto Save. Gray means that the tool is ON while no color indicates that it is off.

### Auto Survey Fill

Auto Survey Fill will automatically correct any errors found in the survey files when imported into Rig Steer.

## Crosshairs

This tool will activate a crosshair cursor option for your program.

The color options for the Crosshairs are **RED** – **WHITE** – **BLACK** – **GREEN** – **YELLOW**. The user can only activate one crosshair option at a time, and only one color at a time.

## Delimit LAS

Delimit LAS is an auto LAS file delimiter. This will determine which way an LAS file should be delimited.

## Error System

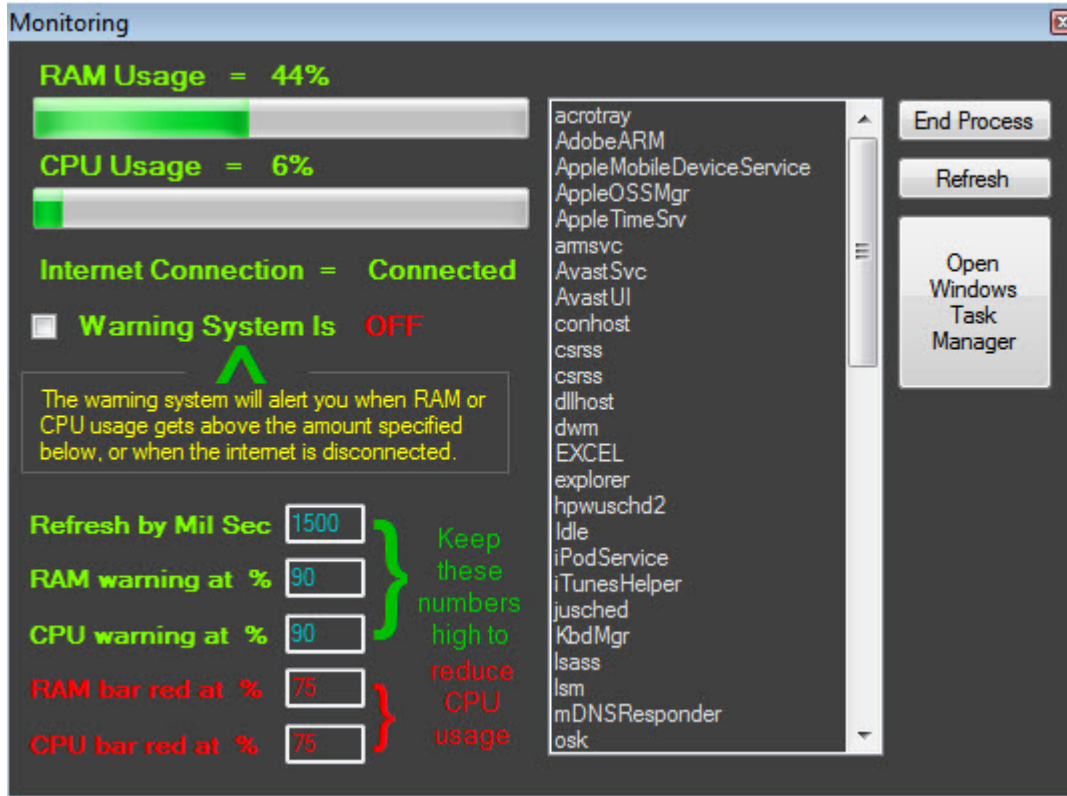
This tool, found in Tools > Error System, when on will show all errors the program may encounter. If the tool is turned off only the major system errors will be shown.

## Mouse Drill Tool

This tool is the Label that follows the mouse on the main chart. It shows the X and Y values for that position on the chart. You can toggle this on or off by going to Tools > Mouse Drill Tool. The **WHITE** lettering is activated with the normal Drill Tool, **GREEN** is when you are calculating the dip (by holding SHIFT), **BLUE** is when you have the KILL BUTTON activated and wanting to only show a selected portion of gamma, and **RED** when the KILL BUTTON is activated and you would like to kill the interpretation between two active points.

## System Monitor

The System Monitor can be accessed by going to 'Windows' > 'System Monitor'. In this new window you will see these options.



The first bar will display your current RAM usage. The next bar is the CPU usage. Under the CPU is a internet connection. Under the internet connection there is a warning system that will alert you if you RAM or CPU usage gets too high, or if your internet becomes disconnected.

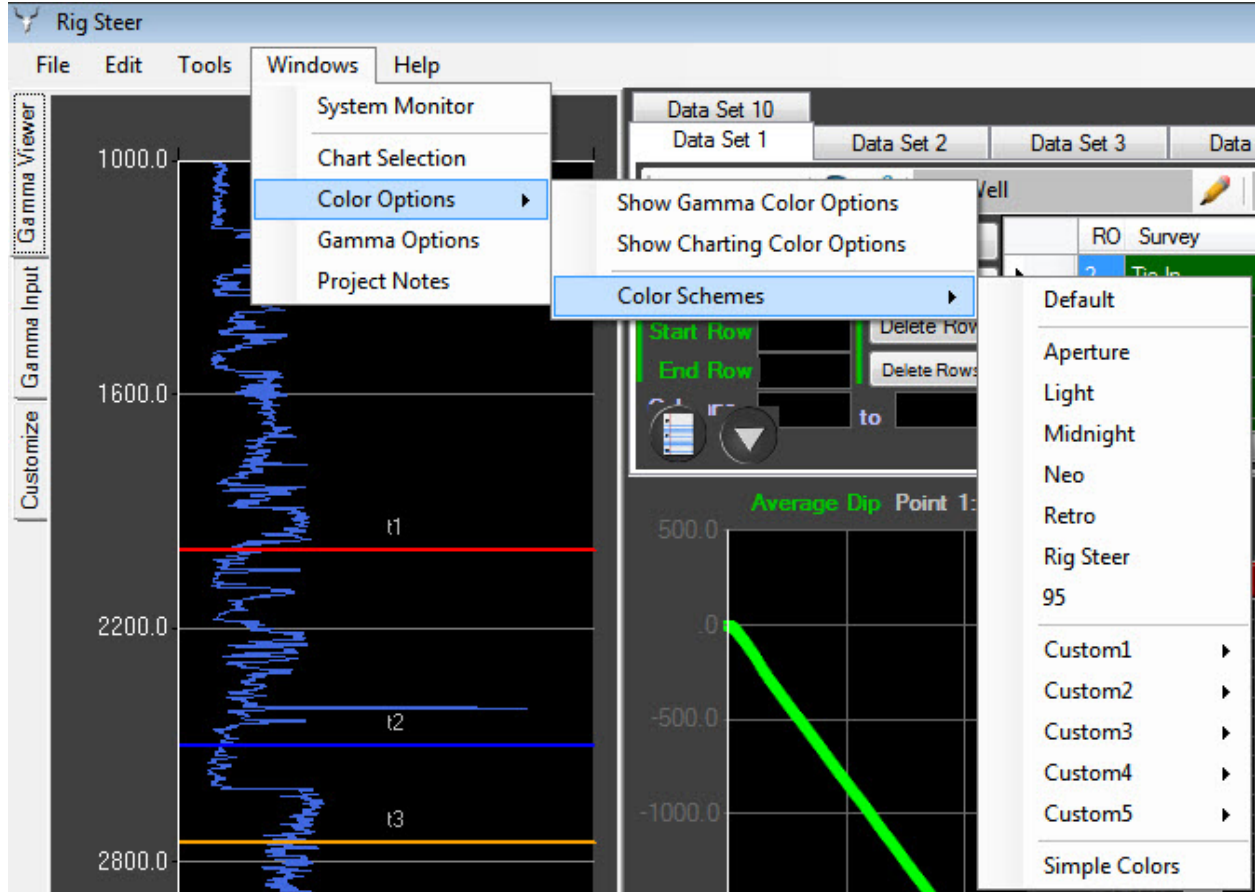
To the right of the screen is a Windows Task Manager. With this program you can find programs that are running and you can terminate said program.

With the numbers below the warning system you can change the refresh rate, the RAM usage warnings, CPU usage warnings, RAM and CPU color display change.

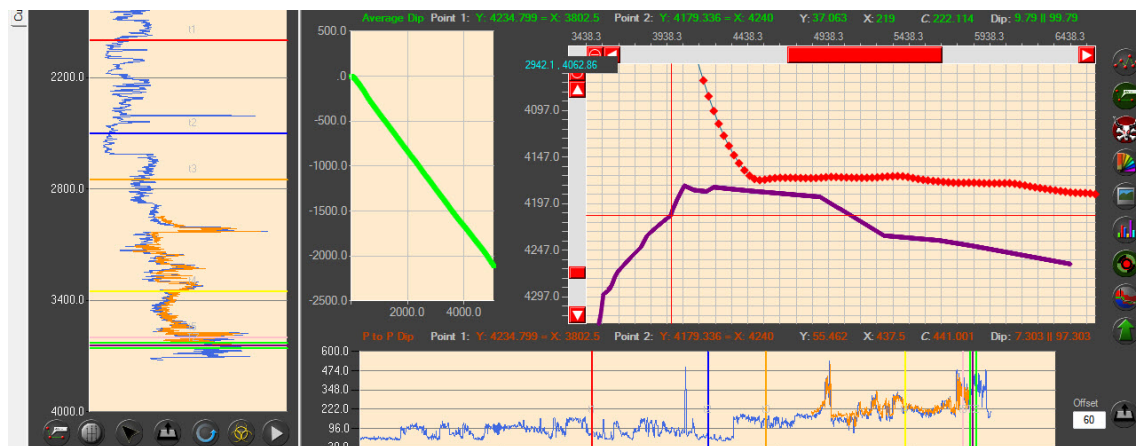
It is recommended that you turn on the 'Warning System' to warn you if your computer becomes disconnected or if your computer is close to crashing. This can save you from having loss of data from crashes or system shut downs.

## Color Schemes

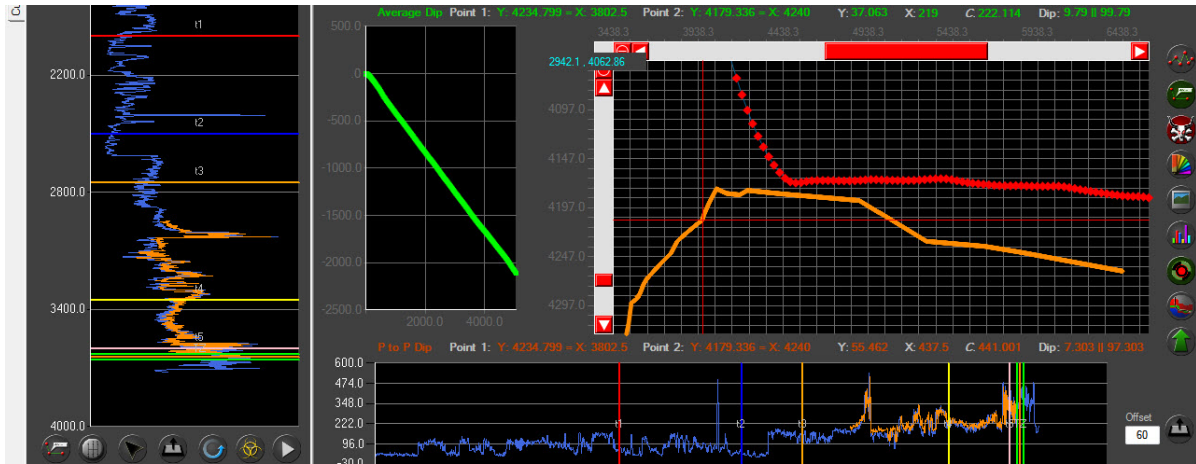
There are many options for colors with Rig Steer however there are several preset schemes available in 'Windows' > 'Color Options' > 'Color Schemes'. These color schemes can be activated by simply clicking on them.



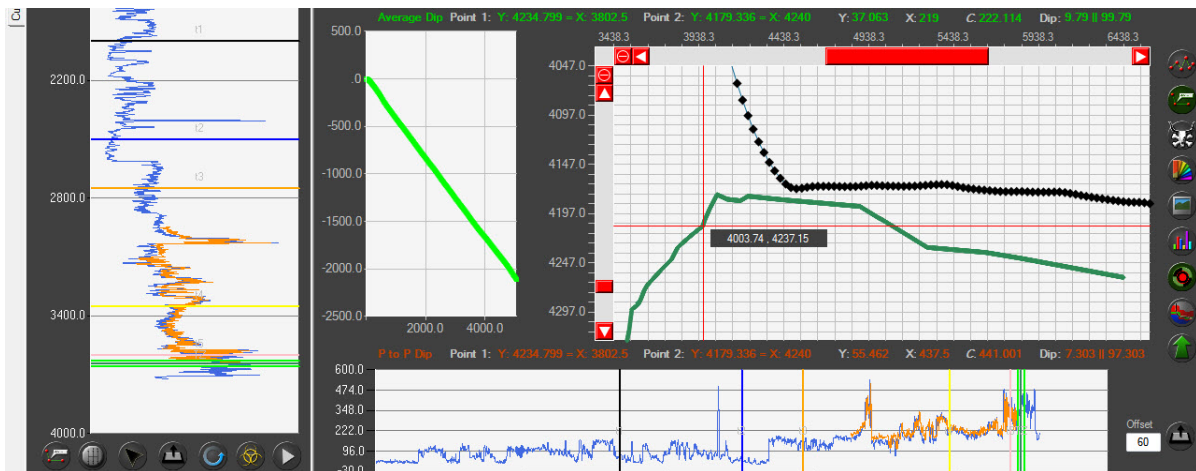
Default (the one that is auto loaded every time)



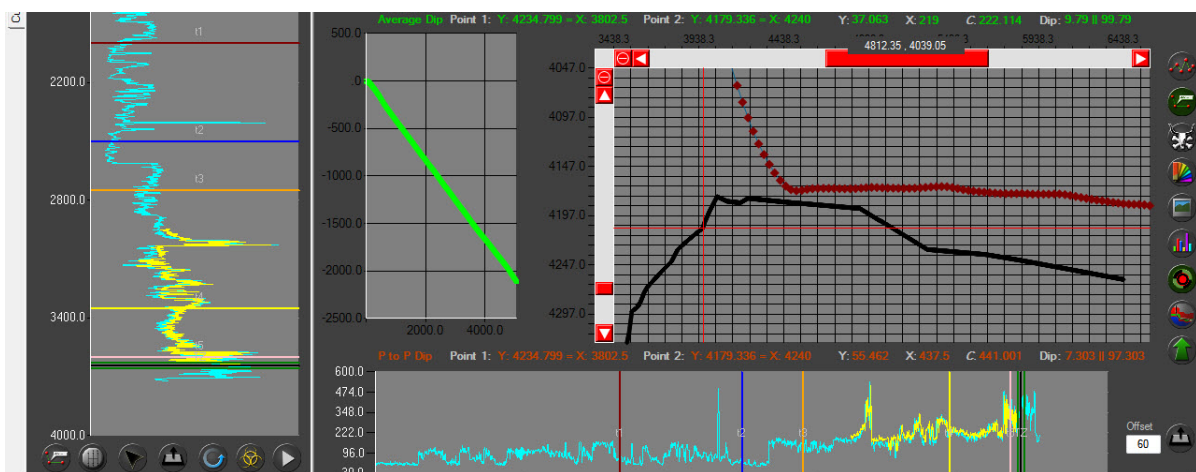
## Aperture



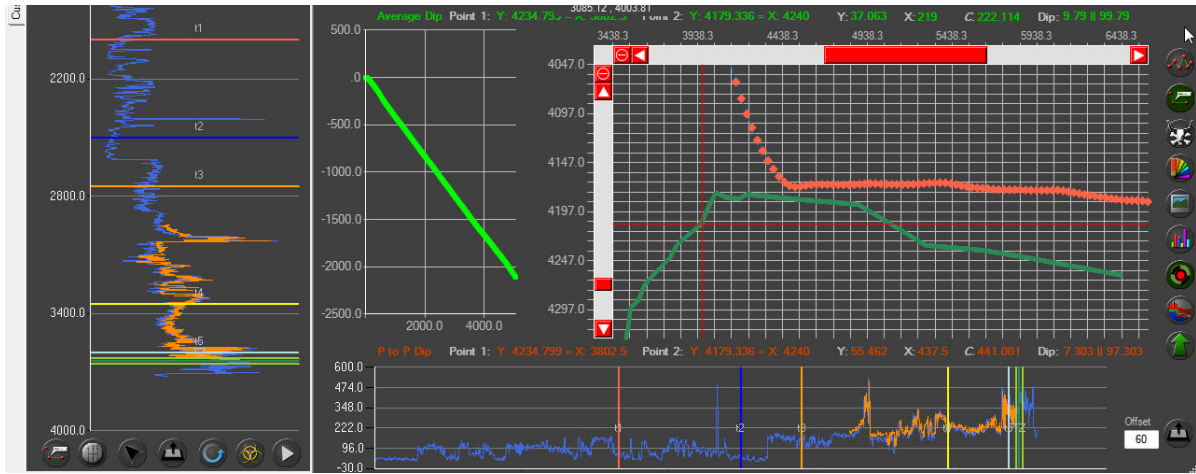
## Light



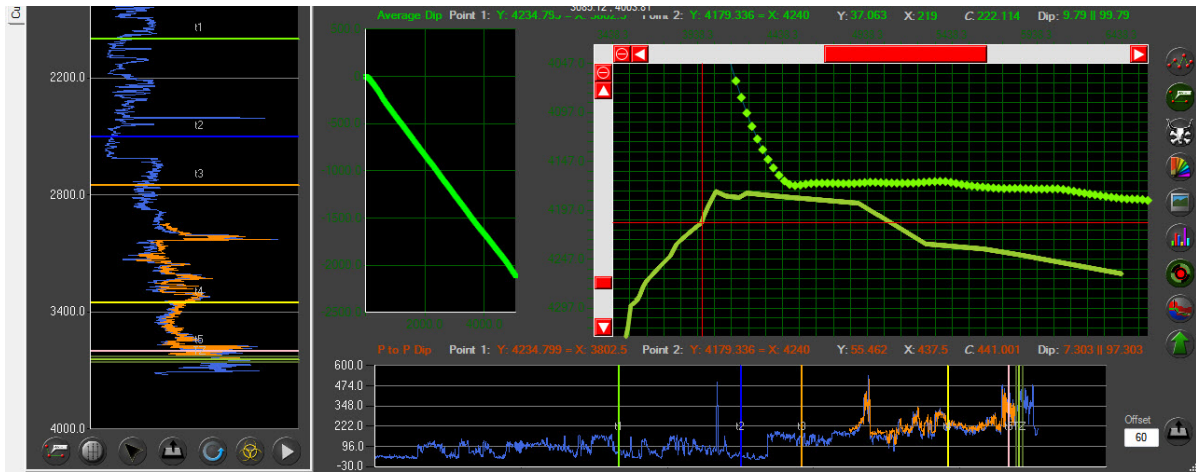
## Midnight



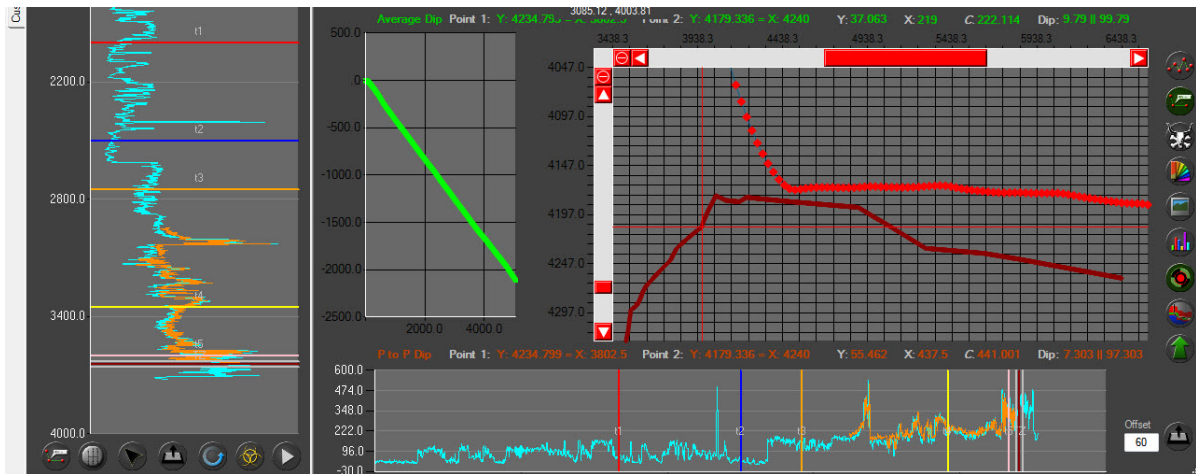
# Neo

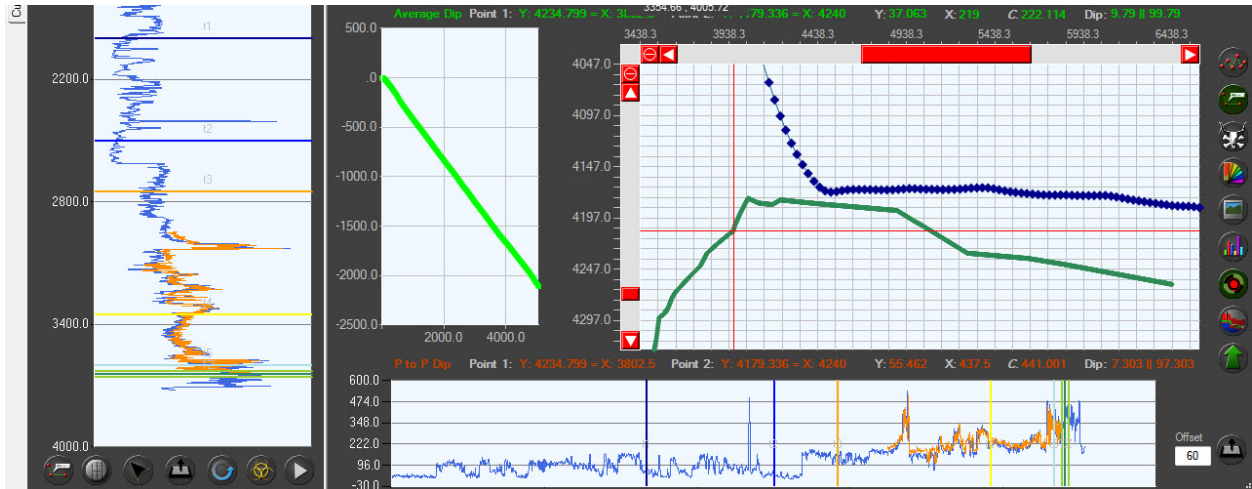


# Retro



# Rig Steer





### Custom Color Schemes

Custom color schemes can be activated by setting all your colors to your preference and then selected 'Windows' > 'Color Options' > 'Color Schemes' > 'Custom1' > 'Write'. This will write your current settings to Custom1.

If you would like to use a custom color scheme select the 'Use' button. The 'Delete' button will turn the custom color scheme back to default.



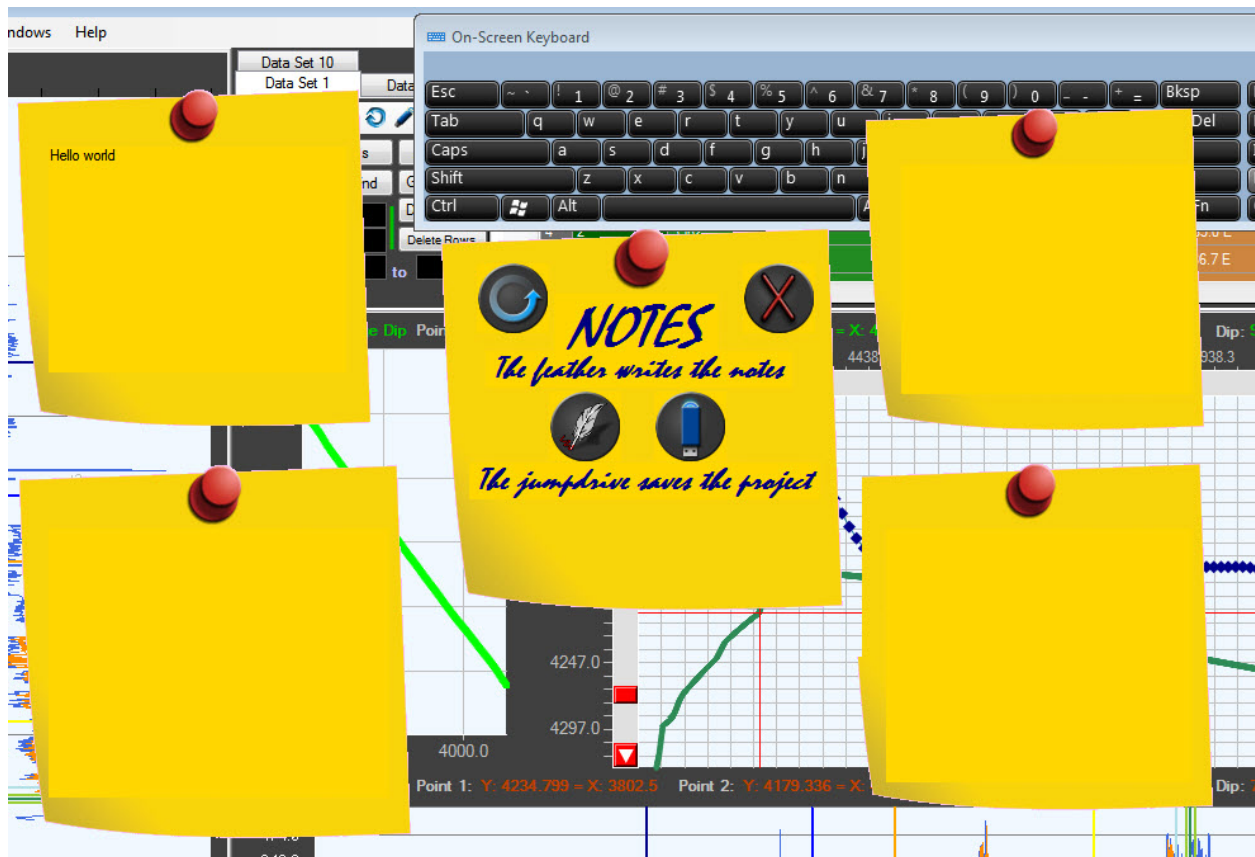
## Notes



### Notes

This will open an additional window allowing the user to write notes for themselves or someone else who will be steering the well.

These notes can be saved on the well file and opened up. These notes are used as reminders and also as notes that can be passed between people that are sharing a well file between shifts.



## Tutorials

When first installing you will be greeted with the tutorial window. If you ever need to revisit this page all you need to do is go to 'Help' > 'Tutorials' and select which tutorial you want to view.

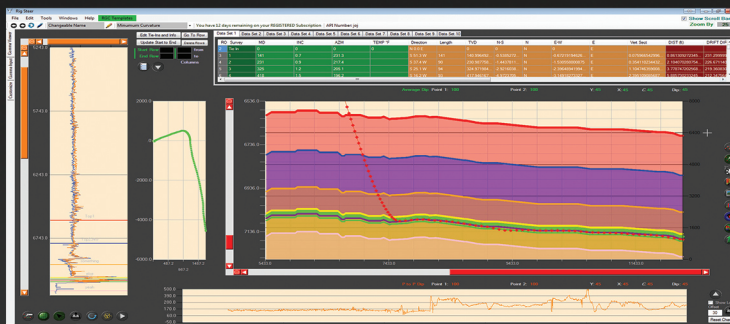
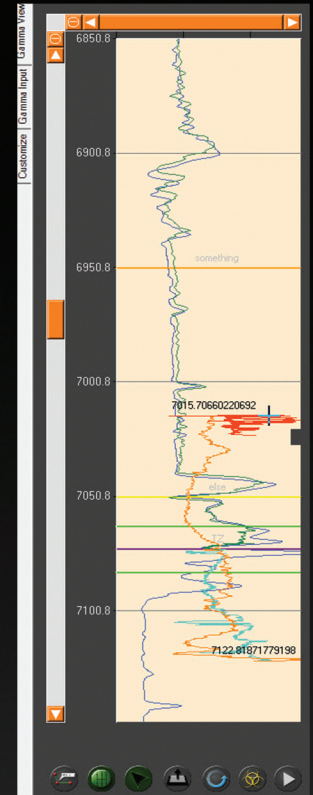
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- Microsoft is either a registered trademark or a trademark of Microsoft Corporation in the United States and/or other countries. Microsoft Word is a product name of Microsoft Corporation.
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Rig Steer is a revolutionary new way of Geo Steering. There were many softwares we tried and they simply did not meet up to all of our standards. While some did most of what we wanted, none of them did everything. It was then that we decided to create our own Geosteering Software.

With a crew of Geologist working together to come up with a wish list of dream features to incorporate, we soon had the makings of a new idea in Geosteering. We wanted to have a Geosteering software that saved money, detoured from the use of 'Blocks', did not require internet access, felt and looked modern, was user friendly and straight forward, and most of all, did not use an Access based database.

Rig Steer is one of the only commercial Geosteering Softwares that utilizes Excel, which runs in the background completely hidden. Because of Excel's advance calculus equations, Rig Steer is able to create and edit gamma without the use of separate blocks. In return, you are left with one fluid graph that has no breaks or gaps between data points. This eliminates the use of 'Blocks' all together. However, if you like the 'Block' feel, you can still steer that way, just without the headache of making ends match up.



Because of its advanced calculating code, Rig Steer does not require internet for any function, even license authentication. In fact, Rig Steer comes equipped with its very own Computer Monitoring System, which will warn the user if the computer is about to crash or if the internet becomes disconnected.

By far, the most requested feature was to reduce the number of multi-handed keyboard functions. By doing this the user is able to keep one hand on the mouse while leaving the other hand on the keyboard at all times. This incorporated layout will allow the user to steer without ever moving their hands from the keyboard to the mouse, and back again, thus decreasing the amount of time require to accurately steer a well file.

Rig Steer, being in Beta, still has a way to go before it is considered a new advancement in Geosteering. However, we have rethought the process from the ground up to make advancements in the Geosteering field, and to make it easier on everyone involved. From the Geologist, to the Company, to the Client.

