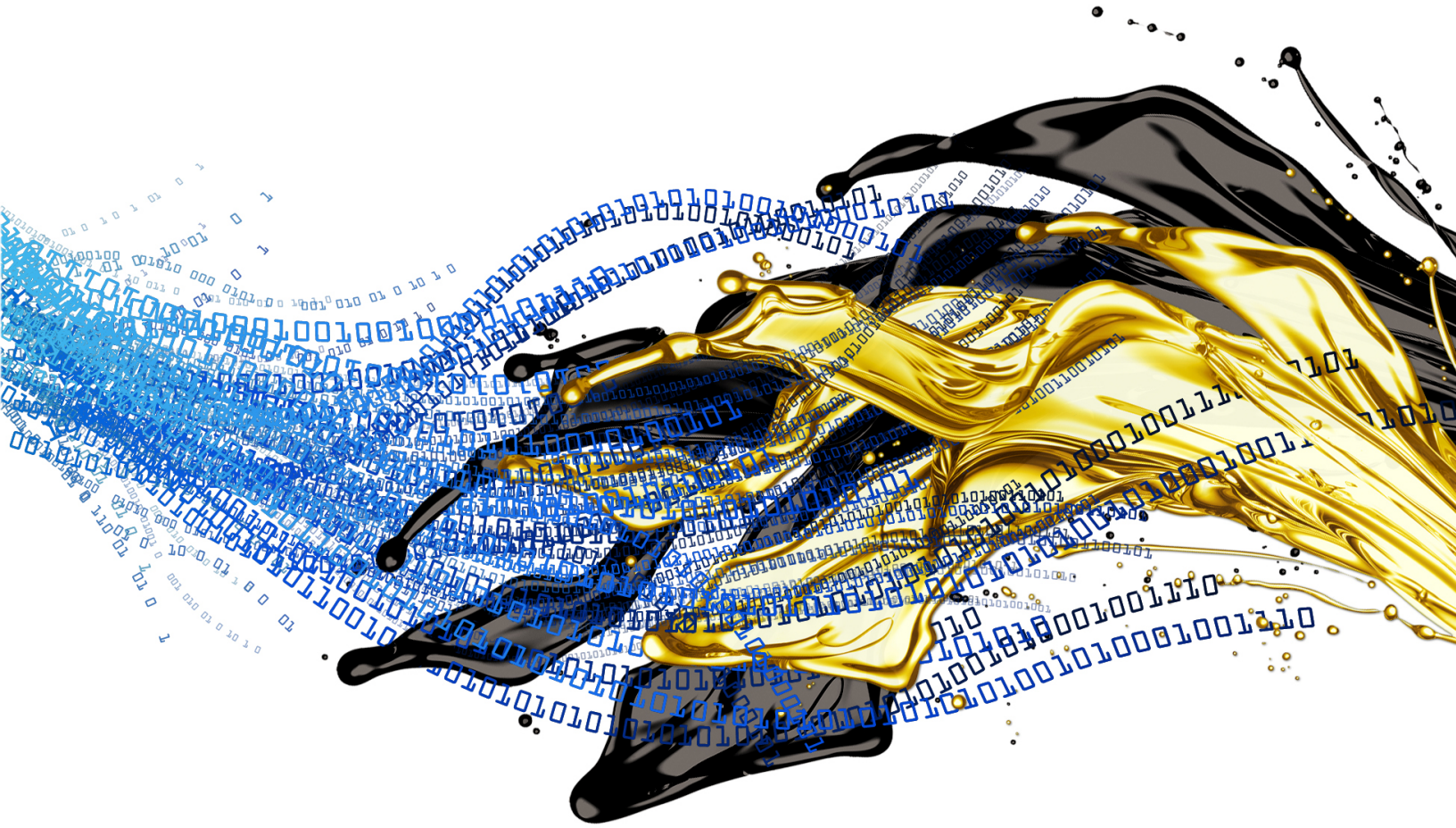
Mezintel Gamma

User Manual

Revision 22.00



Mezintel

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TECH SUPPORT TELEPHONE NUMBERS

The following are contact numbers for getting technical support from Mezintel:

1. Anthony Lukindo

   Contact Anthony for all support issues including renewal of rental days

   a. E-Mail: alukindo@mezintel.com
   b. Cell: (403) 612-1849 (please start with this number)
   c. Office: (403) 239-4359 (use this number if there is no response on the cell phone number, above)

2. Maria Maina

   Contact Maria for rental day renewal and for alternative contact person for technical support issues

   a. E-Mail: info@mezintel.com
   b. Cell : (403) 690-0917 Use this number to re-new rental days for *Mezintel Gamma*

3. Immanuel Nwachukwu

   Contact Immanuel for rental day renewal and for alternative contact person for technical support issues

   a. E-Mail: immanuel@mezintel
   b. Cell: (403) 690 – 3364

1. OVERVIEW

This revised manual is written for shop and field operators of *Mezintel Gamma* Software, which is an application for logging gamma data in measurement while drilling applications. Included in *Mezintel Gamma* is survey logging & TVD calculation, comprehensive edit features for plots, log printing, LAS file export and import, and time-based memory data import (or data correlator) for gamma, vibration, resistivity, etc., for various MWD tool makers.

Within the newest revision of the *Mezintel Gamma* Software manual you will find:

- A New Job Start Screen
- Directions utilizing the new start screen
- Tabs allowing you to interchange units (imperial vs. metric)
- Ability to change MWD and WITS based decoding systems to QTAK decoding system
- Ability to calculate surveys using 1 or 2 decimal places for inclination and azimuth
- Custom report options: only displays selected columns for report printout
- More system file formats are now accommodated for importing and memory tool data

MWD PLATFORM COMPATIBILITY

Mezintel Gamma is field-proven to work with multiple MWD platforms including:

- Black star TM
- GE Tensor qDT
- XXT Positive Mud Pulse
- Navigator Negative Mud Pulse
- Bench Tree
- Piot BSTerm
- Tolteq
- Applied Physics System
- Sharewell
- XPulse

Mezintel Gamma is WITS compliant making it compatible with various depth tracking systems such as Chimo and PASON. Gamma and Survey data can be input into *Mezintel Gamma* via WITS protocol from other MWD platforms affording further compatibility with MWD platforms that are not listed above.

2. SYSTEM SETUP GE – TENSOR MUD PULSE SYSTEM

This section describes the various components of the GE Tensor qMWD system and how to connect cables to work with *Mezintel Gamma* software see **Figure 1.**

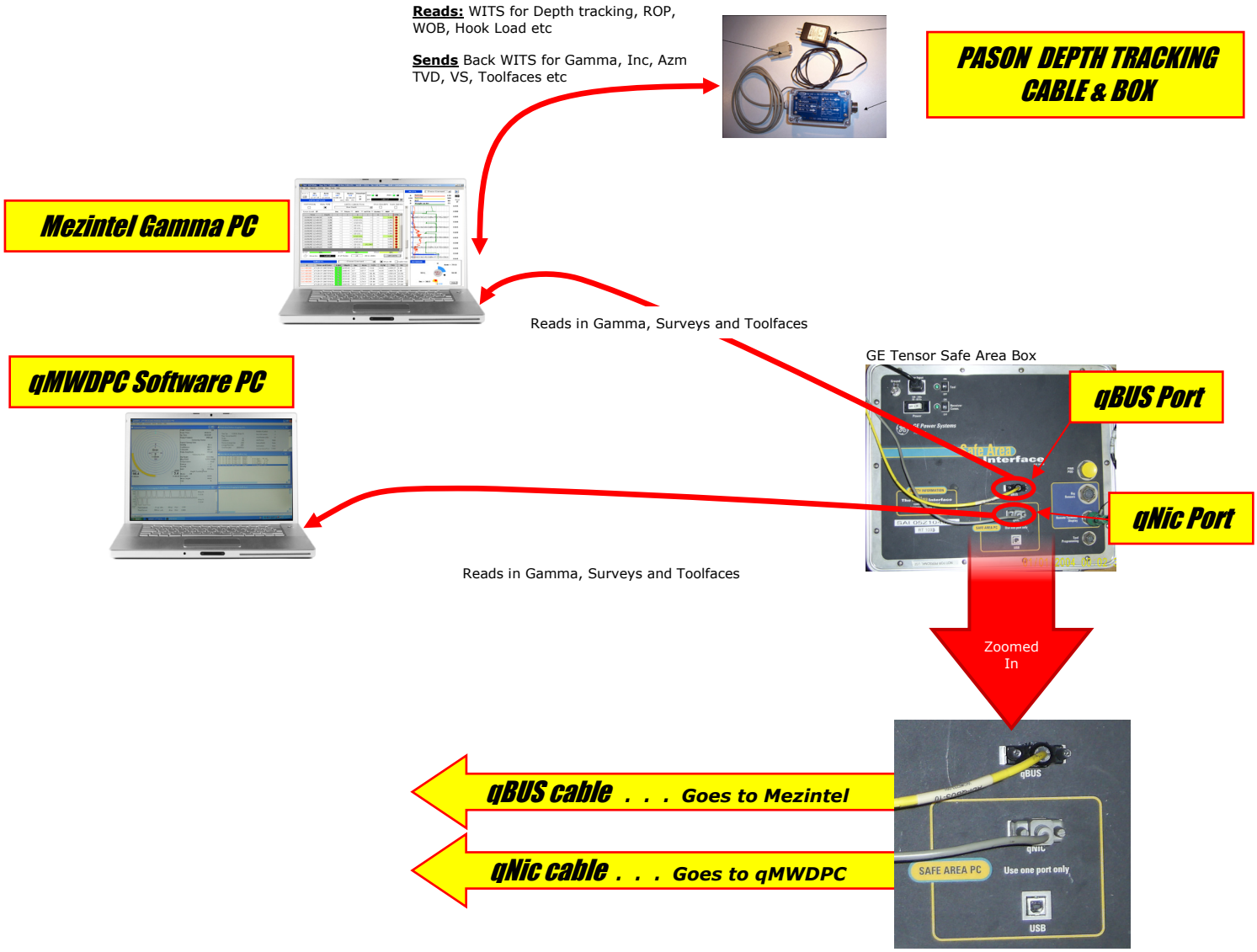


Figure 1. *Shows components for the GE Tensor setup and how to connect cables.*

Important:

. . . . Only Connect qBUS cable to *Mezintel Gamma* after starting *Mezintel Gamma* Software and Continuing to Main Screen in *Mezintel Gamma*

Reason: After the GE Tensor Surface Area box is turned-ON and configured by the qMWD PC to start decoding data, there will be a continuous output of data streaming from the qBUS port and going to the Gamma PC.

If *Mezintel Gamma* is not turned on and in the main screen, the COM PORT will get filled with data and cause a data buffer overflow. This will cause the PC mouse pointer to become erratic or jumpy and may lock-up the qMWD PC data output stream.

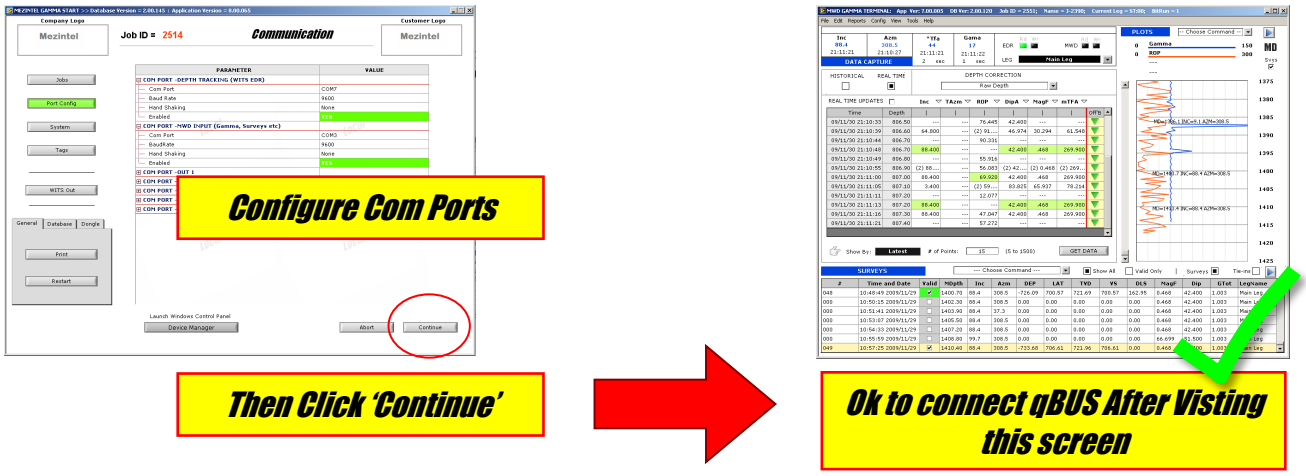


Figure 2. *Shows the screen from which it is safe to connect the GE Tensor cable to the Mezintel Gamma PC. The safe screen is the second screen which is the main screen. Use the first screen to configure the ports while not connected to the GE Tensor box.*

HOOK UP PROCEDURE FOR QMWD SAI BOX, BENCHTREE, TOLTEQ, XXT, SONDEX & GAMMA LAPTOP, ETC.

Why this hook-up procedure MUST be followed

The qBUS port on the Tensor Surface Box continuously streams data to a connected serial port of a PC. If Gamma software is not turned on to read-off and empty this data from the com port, the data will fill-up and overflow the com port and will cause the PC's serial ports and USB ports to behave erratically. A common symptom is that the PC's mouse will jump around on the screen and the mouse will become uncontrollable.

In some instances the qMWD PC connected to the SAI may also lock-up.

Recovery if you forget to follow the Hook-up Procedure Outline Here

To recover from this you will need to disconnect the cable to the SAI and re-boot the PC. Otherwise, if you follow the procedure below the problems described above are unlikely to happen.

CHECKING TO MAKE SURE THAT QBUS PORT DATA IS BEING RECEIVED

Choose the Menu item Tools >> Debug >> as shown in **F*igure 3*.**

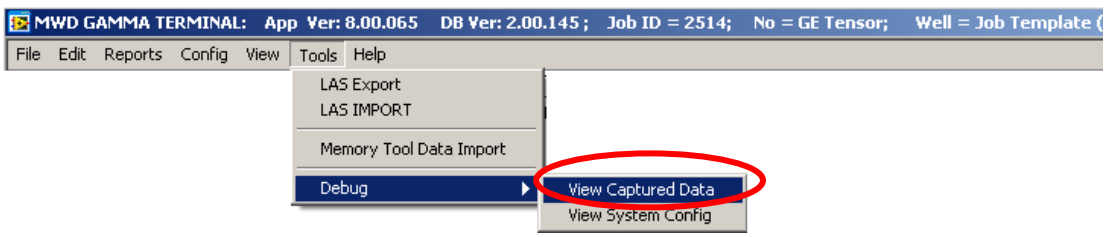


Figure 3. *Menu item for visiting the debug.*

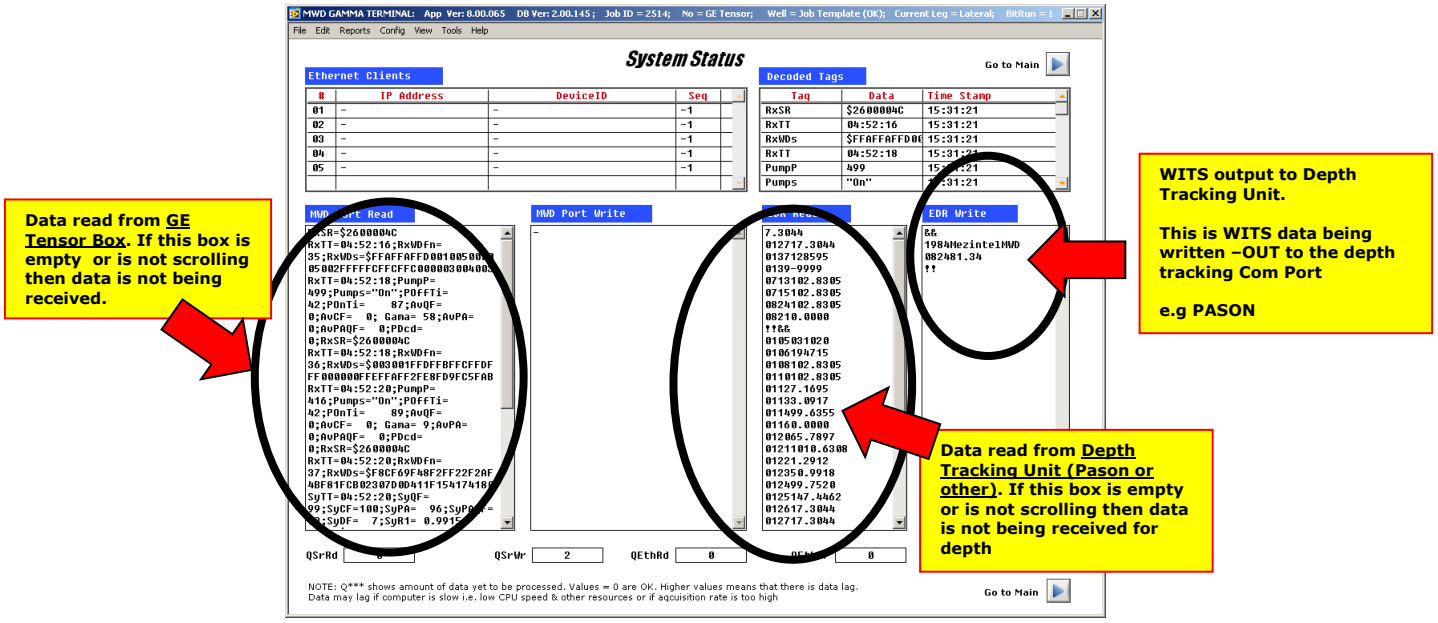


Figure 4. *Screen which shows the data that is being received by Mezintel Gamma. If these boxes are blank or are not scrolling then data is not being received and you will need to check cables and port addresses.*

3. INSTALLING MEZINTEL GAMMA SOFTWARE

Mezintel Gamma software is distributed via a CD for installation on any number of PCs. However, only PCs with an attached dongle will perform data logging and interface with other equipment. Alternatively, *Mezintel Gamma* will continue to import LAS data and print logs without need of a dongle.

INSTALLING UNDER ADMIN RIGHTS

It is very important that you install *Mezintel Gamma* software while logged-on to the PC with ***Admin rights***. If the PC under which *Mezintel Gamma* will run has a number of other MWD applications, it is also recommended - but not absolutely necessary – that a separate Windows login profile be created for *Mezintel Gamma* and other Gamma software. *Mezintel Gamma* software requires and runs alongside the MS SQL Server Express 2005 database engine which should automatically run each time a computer boots up.

SHARING MS SQL SERVER WITH BLACK STAR EM SYSTEM

The Black Star EM system is known to require MS SQL Server 2005\Express and a pre-existing instance of this database will be found in a typical installation of EM System. The *Mezintel Gamma* installation will detect the existence of MS SQL Server Express database and will use the existing instance to install supporting files for *Mezintel Gamma* software. While long term testing is still under validation, it is assumed at this point that *Mezintel Gamma* can co-exist with Black Star EM software on the same PC.

CREATING A SEPARATE PROFILE FOR GAMMA APPLICATIONS (OPTIONAL)

Creating a separate Windows login profile for running Gamma software is recommended because this option can be used to configure PCs to launch only those programs that are applicable under a specific profile. Since many programs get launched in the background, the creation of separate profiles can be used to select which processes should be allowed to run. Examples of profile names can be:

1. Gamma
2. Mud Pulse MWD
3. EM
4. Bench Tree, etc.

These profiles would then be configured to allow running only the programs relevant to the profile thereby preventing un-needed processes from running that may end-up corrupting or overloading the PC with redundant processes.

INSTALLATION STEPS

The installation for *Mezintel Gamma* is performed via the STEPS shown in the installation folder structure. Installation must follow the order of steps shown. You must reboot the computer each time you are instructed to do so by the dialog boxes that will show up during the installation process.

Figure 5. *Directory structure of installation files. Follow the order of steps shown on installation folders.*

STEP 1: Installing Dongle Key Software

Run the setup program inside the dongle folder see **Figure 6**. Accept all defaults during the installation.

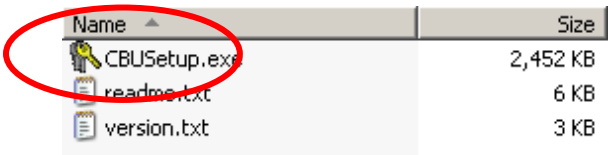


Figure 6. *Dongle Setup Program*

Once the Dongle installation is finished, insert the Dongle Key to a USB port. Check to see that the PC recognizes the dongle CBU as a Crypto box or a Cryptoken. The driver for the dongle key will be installed automatically and the dongle will be ready to use thereafter. Should this install fail please re-boot the PC and re-install the software again.

Figure 7. *Crytobox Dongle Key. After finishing the software install insert this key and be sure that it is detected by the PC.*

STEP 2: Installing *Mezintel Gamma* Software

Important NOTICE: *Mezintel Gamma* uses MS SQL Server Express 2005 Database which is also used by Black Star EM software. Mezintel can use the existing installation of MS SQL Server Express rather than installing a new instance. The installation process includes a check to verify that MS SQL Server is pre-installed.

To run *Mezintel Gamma* software installation, double-click the **Setup.exe** icon inside the folder for **STEP 2**. See **Figure 8**

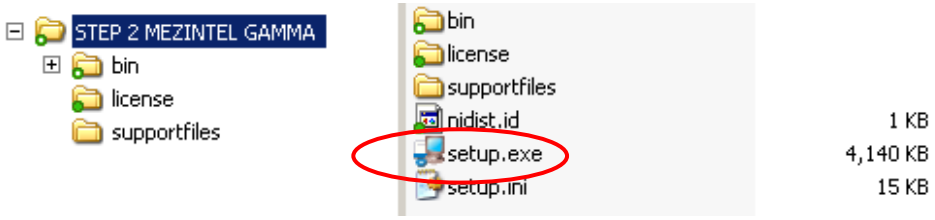


Figure 8. *Installing Mezintel Gamma Software. Accept all defaults during the install process until you see the dialog described below.*

During the installation of *Mezintel Gamma* software, various information boxes will be displayed. These include the license agreement along with default path installation for various components of the software. Accept the default settings for installation path unless your company policy requires that you install the software on a directory path that is different than the program files directory.

The installation process for *Mezintel Gamma* will, at some point, show the dialog box for installing MS SQL Server shown in **Figure 9**. This dialog box marks the beginning step for installing the SQL Server Database. Before proceeding with the install, select ***Review/Edit Advanced Settings*** to see if a pre-existing installation is available. See the area highlighted in red in **Figure 9**.

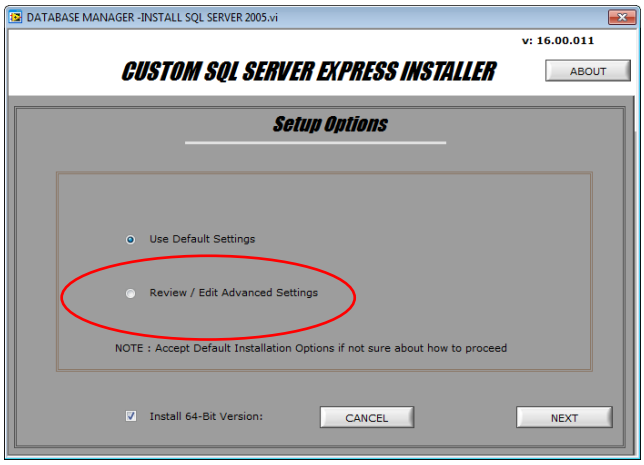


Figure 9. *Installing MS SQL Server Database. Before proceeding with the install click on the Review/Edit advanced settings button to see if a pre-existing installation is available.*

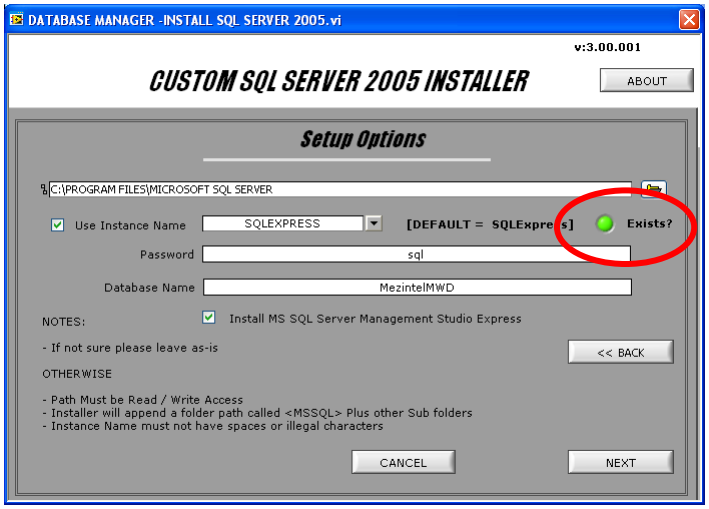


Figure 10. *If the **Exists** indicator is Green, then a previous installation was detected for SQL Server.*

If the default instance of SQL server is installed the indicator will appear Green next to the word Exists. See area circled in **Figure 10**. You can proceed by clicking the next button. In the screen shown in
Figure 11, click the **COPY AND PROCEED** button.

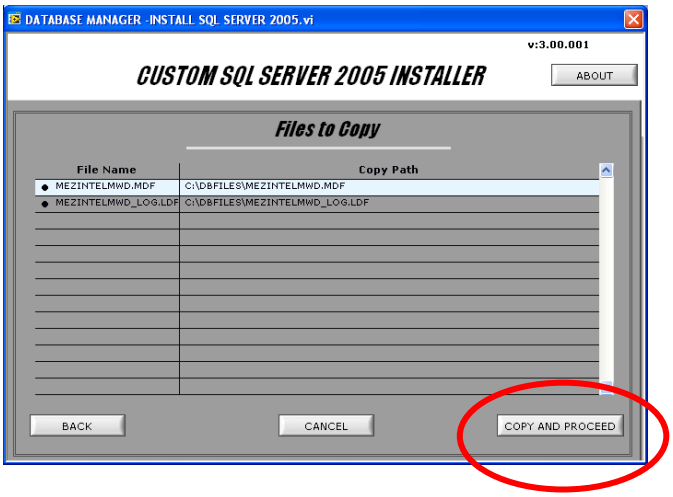


Figure 11. *Proceeding with Copying Database Files for Mezintel Gamma*

After clicking the **COPY AND PROCEED** button as shown in **Figure 11,** the application will install the SQL SERVER database and thereafter will show the dialog in **Figure 12.**

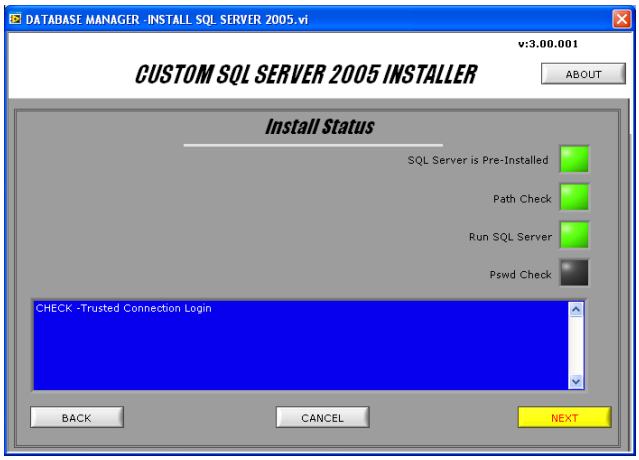


Figure 12. *Dialog after installation of MS SQL Server showing checks on SQL Server database. This Dialog will appear immediately if SQL Server Express was pre-installed.*

If SQL Server was indeed pre-installed the dialog shown below will appear as shown in **Figure 13**.

Figure 13. *This Dialog means that Mezintel Gamma is using the existing install of MS SQL Server for which the login password is unknown. The password will be required in the future to allow remote access to the database. Click OK to finish the install process.*

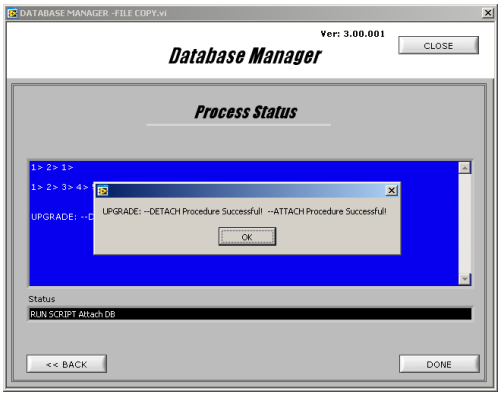


Figure 14. *Installation of Mezintel Gamma is complete once this window shows up with the above message --ATTACH procedure successful.*

The last remaining step in the installation procedure is to run the PDF tools installer. This folder has four install steps and each of these needs to be run in order. Accept all default settings in the installation of the PDF tools. The first dialog that will show up is the one shown in **Figure 15**. Please select the button circled in red. Choose the default settings for the rest of the install process.

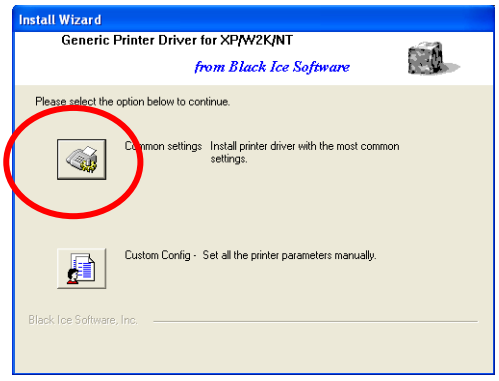


Figure 15. *Installer for PDF Driver. Click in the button highlighted in red. Accept the defaults for the rest of the installation process.*

Creating Desktop Shortcuts

After Installing *Mezintel Gamma* Software two short cuts should be put on the desktop, these shortcuts are:

1. *Mezintel Gamma*.exe
2. Mezintel MWD Import Export.exe

Changing the Application Logo

The logo should be customized to the company that licenses *Mezintel Gamma* software. After starting the software you can visit the Start-up screen, right click the logo and choose the edit menu. A logo selection utility will appear.

Mezintel Gamma only accepts logo files in the *.png format with a size that is approximately 110 x 60 pixels.

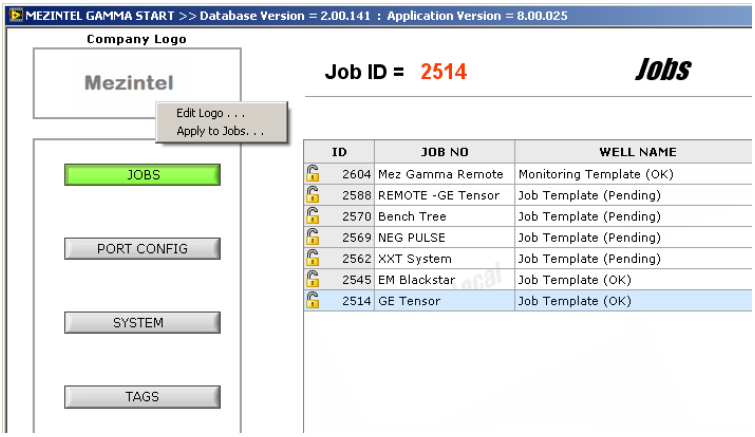


Figure 16. *Changing logo for Mezintel Gamma Software.*

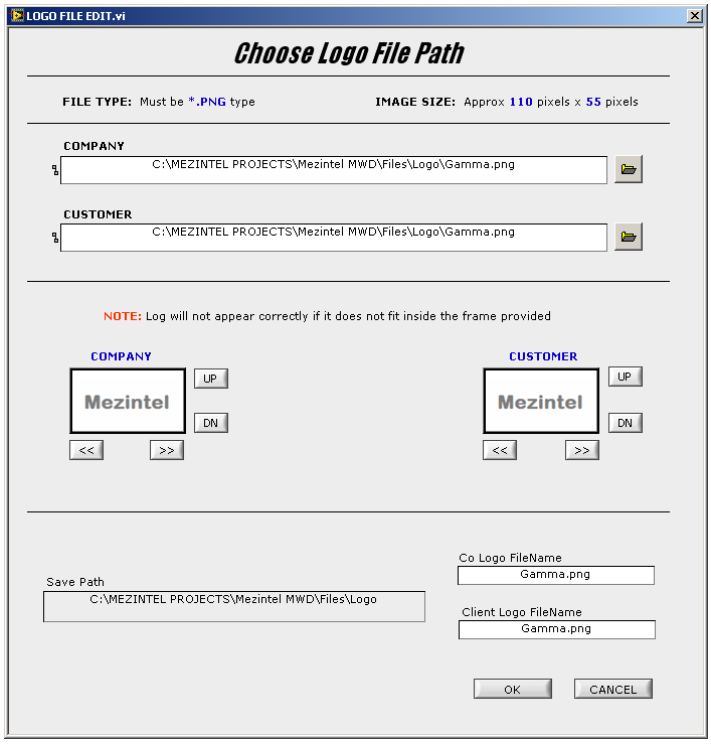


Figure 17. *Utility for Changing Logo*

Error Message When Installing Mezintel Gamma Software Step II

There is a known error message when installing *Mezintel Gamma* software for the 1st time. This message is shown in **Figure 18.**

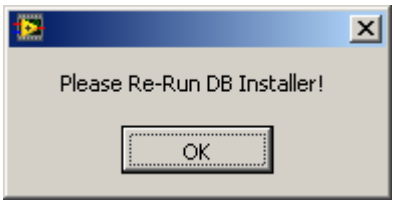


Figure 18. *Message when installing Mezintel Gamma Software.*

To resolve this anomaly you will need to navigate to the following path:

C:\Program Files*Mezintel Gamma*\Database Manager\ **DATABASE MANAGER -INSTALLER.exe**

Then Re-Run the file **DATABASE MANAGER -INSTALLER.exe** as shown in **Figure 19.**

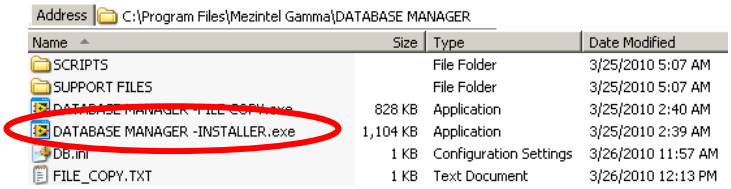
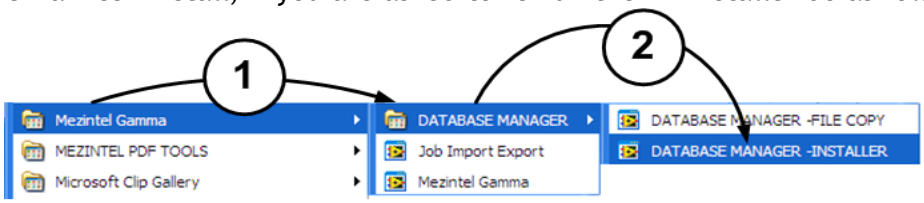


Figure 19 *above shows highlighted file to be re-run to complete installation of Mezintel Gamma if you get the anomaly described in* **Figure 18**

POST-INSTALLING SETTINGS FOR WINDOWS VISTA, 7 & 8

Re-Running the Database Install

*** On a fresh install, if you are asked to re-run the DB installer do as follows:



*****But Do The Step Below First Before Re-Running DB Installer**

Important Post - Installation Settings Vista/Win 7 Only

Vista & Win-7 have a security feature that requires users to set applications to 'Run as Administrator'. So, after installing *Mezintel Gamma*, do this for the following application executables. If this is not done, the applications in question will run into file access errors.

1. C:\Program Files (86)\Mezintel Gamma**Mezintel Gamma.exe**
2. C:\Program Files (86)\Mezintel Gamma**Mezintel MWD Import Export.exe**

3. C:\Program Files (86)\Mezintel Gamma**DATABASE MANAGER\DATABASE MANAGER - FILE COPY.exe**

4. C:\Program Files (86)\Mezintel Gamma**DATABASE MANAGER\DATABASE MANAGER - INSTALLER.exe**

5. C:\Program Files (86)\Mezintel Gamma**DATABASE MANAGER\MEZITEL WATCHDOG.exe**

To set the applications to run as administrator do the following: <Right Click> on the executable file and choose 'Properties', then set choose the 'Compatibility' tab and set the application to always run as administrator. See the screen shot below.

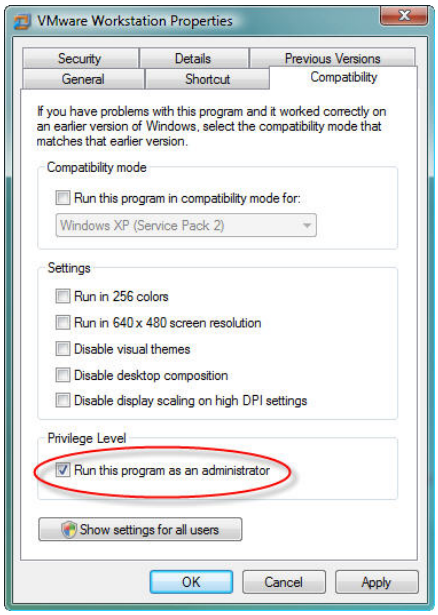


Figure 20: *Ensure box is checked so application always runs as administrator*

4. STARTING MEZINTEL GAMMA SOFTWARE

You can click the desktop Icon: *Mezintel Gamma* (see **Figure 21(a)** or you can start it from the ***START >> ALL PROGRAMS >> MEZINTEL GAMMA*** group and selecting *Mezintel Gamma* (see **Figure 21(b)**.

Figure 21(a)

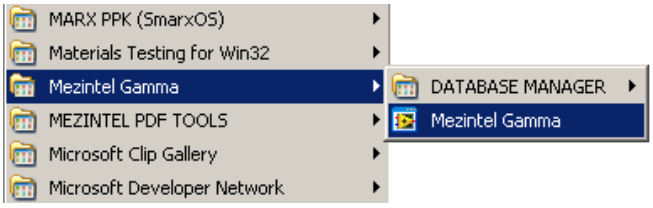


Figure 21(b)

5. STARTUP SCREEN

The opening screen for *Mezintel Gamma* is the ***STARTUP*** screen shown in **Figure 22.** Mezintel uses an MS SQL Server Express back-end database to log and back-up all data. Once *Mezintel Gamma* starts up it should try to connect to this database. The LED: Database Connection OK means that connection to database is successful and that the application is ready to run.

NOTE: If this LED does NOT light up and turn green, the options: Default LOCAL REMOTE will be disabled and grayed-out. See Appendix section on how to resolve this situation.

To continue running *Mezintel Gamma* using the database installed on your PC, click the Default LOCAL button. Otherwise, the REMOTE button will ask you to connect to a database on a separate networked PC. Or to connect to a qMWD remote PC port. Connecting to a remote database is not covered in this user's manual because users have different means of access to remote systems. Contact Mezintel to establish a remote data link to your systems. Mezintel can configure the software for remote viewing using TCPIP network protocol or via an FTP service.

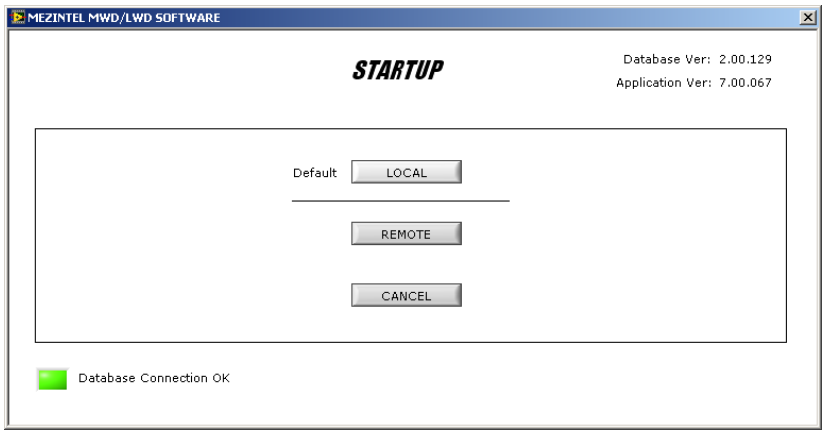


Figure 22. *Startup screen for Mezintel Gamma. To run Mezintel Gamma using the MS SQL server Express database installed on the PC click:* Default LOCAL *The Remote option will ask to connect to a database running on a separate PC on the network.*

6. JOBS SCREEN

Upon leaving the startup screen, the next screen is the ***JOBS*** screen. On the left hand side of this screen are options for configuring com ports, system parameters, and sample tags.

A section of the Job screen is high-lighted in **Figure 22**. Each row shows a job logged on the local PC. The data rows with the icon represents pre-defined job templates for various MWD platforms. These templates have pre-configured job settings that make it fast and trouble-free to start new jobs in the field.

NOTE:

- *Field operators should always start a new job by selecting the appropriate job template based on the MWD platform that will be used for the immediate job at hand.*

- *Doing this will copy the correct startup settings for the job. From this point the operator only needs to configure the Com Ports and Job report information to begin logging data for the new job. Info on how job templates are created and tested in an MWD shop environment is covered under **Section 23**. This info however is not needed by field operators.*

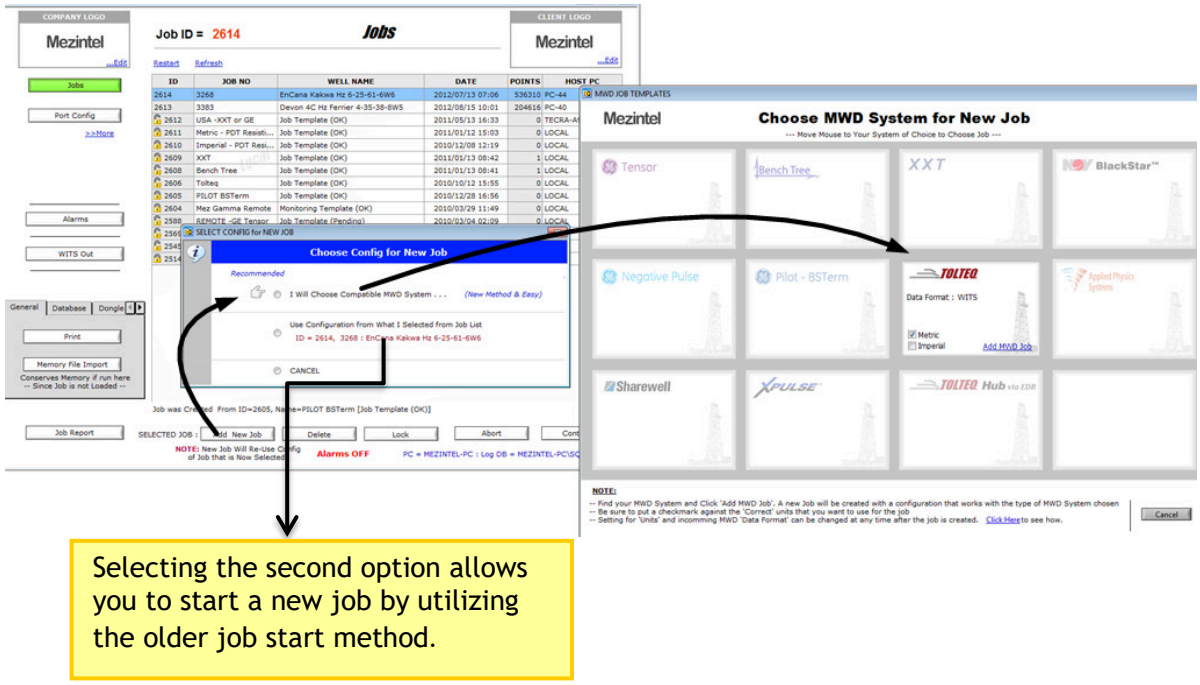
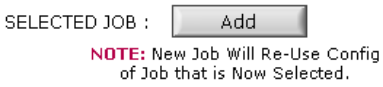


Figure 23 *Illustrates how to start a new job.*

To start a new job that uses a pre-defined template, select the template row and click the "Add" button:



When clicked, the "Add" button will open the template wizard. You will be asked to confirm whether you want the new job to use configuration of the selected job row. You must say YES to this option.

SENDING ALL DATA THROUGH EDR COMPORT

In a typical set up, you will have depth tracking and MWD Data sent to the Gamma system via separate comports.

You can also feed all information as WITS data into one COMport. To do this, use the X Pulse or Tolteq Hub template. Upon choosing the X-Pluse or Tolteq Hub template, the MWD COMport will be automatically disabled and EDR COMport will be the only one available which will accept Gamma surveys and Depth Tracking data via one data feed. See Figure 24:

Figure 24: Template for receiving all data via WITS to one COMport

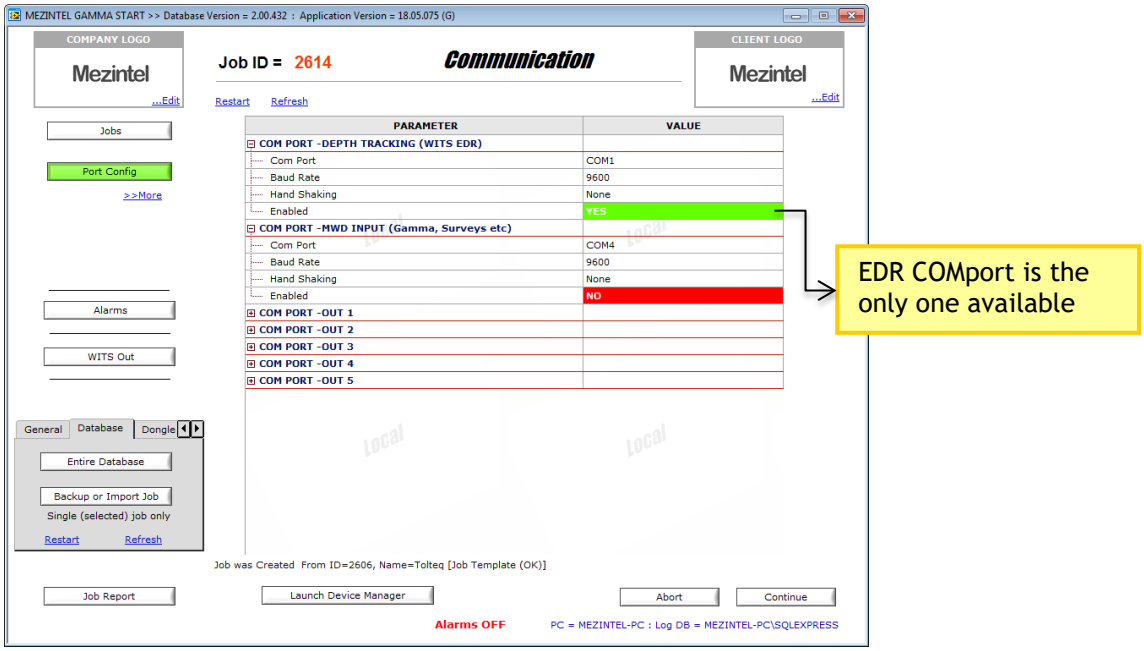


Figure 25: Only One COMport becomes active

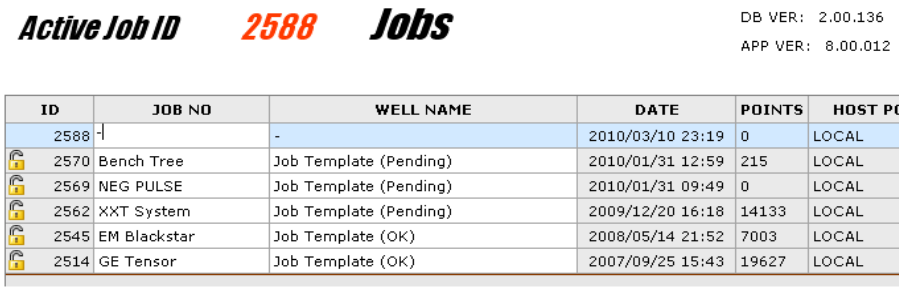
NAMING A NEW JOB THAT HAS JUST BEEN ADDED

The new job will appear at the top of the job list and will be assigned a unique **ID**. You can now edit the empty table cells under the columns: **Job No** and **Well Name** by double clicking the empty cells. A cursor will appear and you can proceed editing as follows (see also **Figure 26**)

- **Job No** also means (**Job #**): This is a job identification number assigned by your MWD company. Type this in and press enter when done. Be sure that you keep your new job selected.

- **Well Name**: Type in the name of the drilling well here. This will help to quickly identify the job. Press enter when done. Again be sure that your new job is highlighted.

The information you enter for Job No and Well Name will appear on the Gamma report. Changes done to the Gamma report screen will be reflected on this screen as well so that everything stays in synch. See Section that follows.



ID	JOB NO	WELL NAME	DATE	POINTS	HOST PC
2588		-	2010/03/10 23:19	0	LOCAL
2570	Bench Tree	Job Template (Pending)	2010/01/31 12:59	215	LOCAL
2569	NEG PULSE	Job Template (Pending)	2010/01/31 09:49	0	LOCAL
2562	XXT System	Job Template (Pending)	2009/12/20 16:18	14133	LOCAL
2545	EM Blackstar	Job Template (OK)	2008/05/14 21:52	7003	LOCAL
2514	GE Tensor	Job Template (OK)	2007/09/25 15:43	19627	LOCAL

Figure 26.*Double Click the Empty Cell under Job No and the one for Well Name and enter information applicable to the new job. This information will also appear on the Gamma report. Changes from the Gamma Report will be reflected here as well.*

HOW TO START A NEW JOB

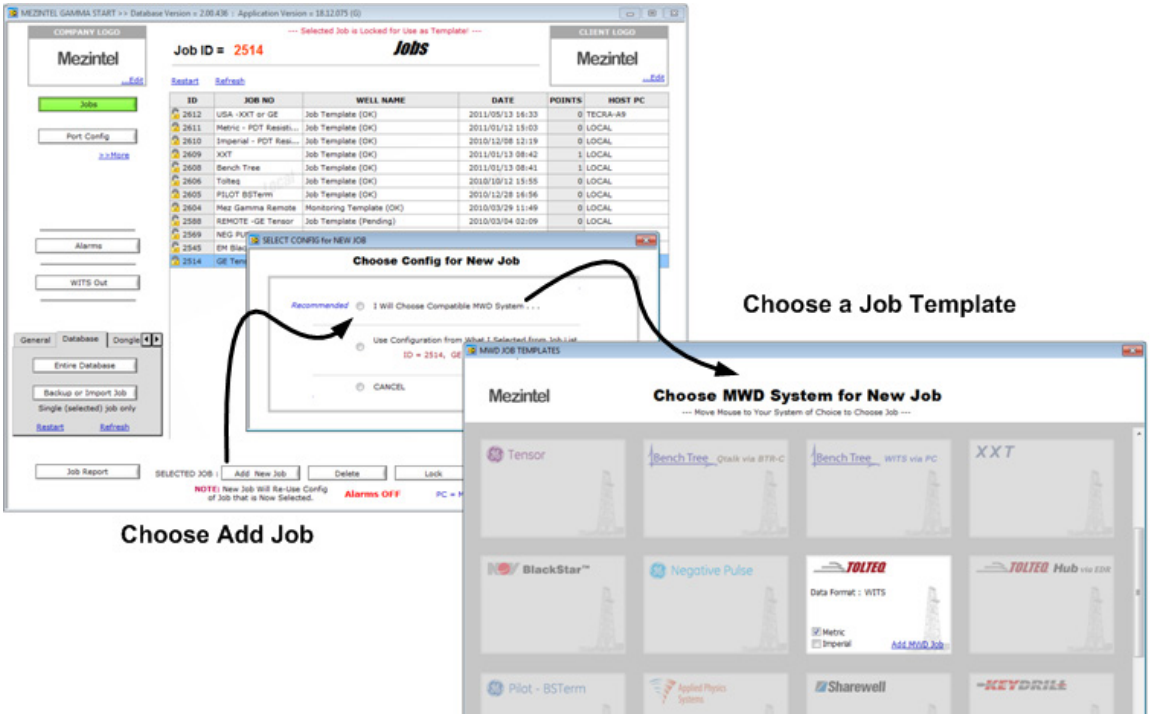


Figure 27: Screen shot illustrates how to start a new job

Remember: you must do a print job of a log for depth range that is greater than 1500m at 1:240 to final confirm a successful installation. It is okay to test print a job with an empty plot (no data).

JOB CONFIGURATION OPTIONS

Once a job row is selected, you can navigate to the other configuration options on the left of the screen. See **Figure 28**. Job configuration options available are: (a) Port Config, (b) System, and (c)

Tags. However, if using a job template the only configuration screen that you will need to visit is the Com Port configuration screen.

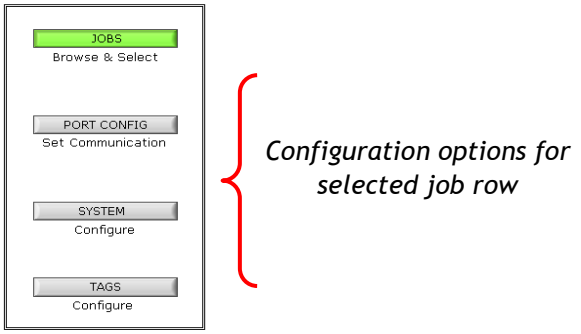


Figure 28. *Configuration options for selected job row.*

PORT CONFIGURATION

To visit **Com Port** configuration, click on the port configuration option: 

The **Com Port** configuration window shown below will appear. (See **Figure 29**.) The Devices with Com Ports that need to be changed are the ones that will appear expanded on the tree-view diagram. In the example shown these COM PORTS are for:

(1) Depth Tracking (WITS EDR), and
(2) MWD INPUT (Gamma, Surveys, etc.)

If created from job template only the COM PORT address needs to be verified. Otherwise all other COM PORT settings will be correct and need not be changed.

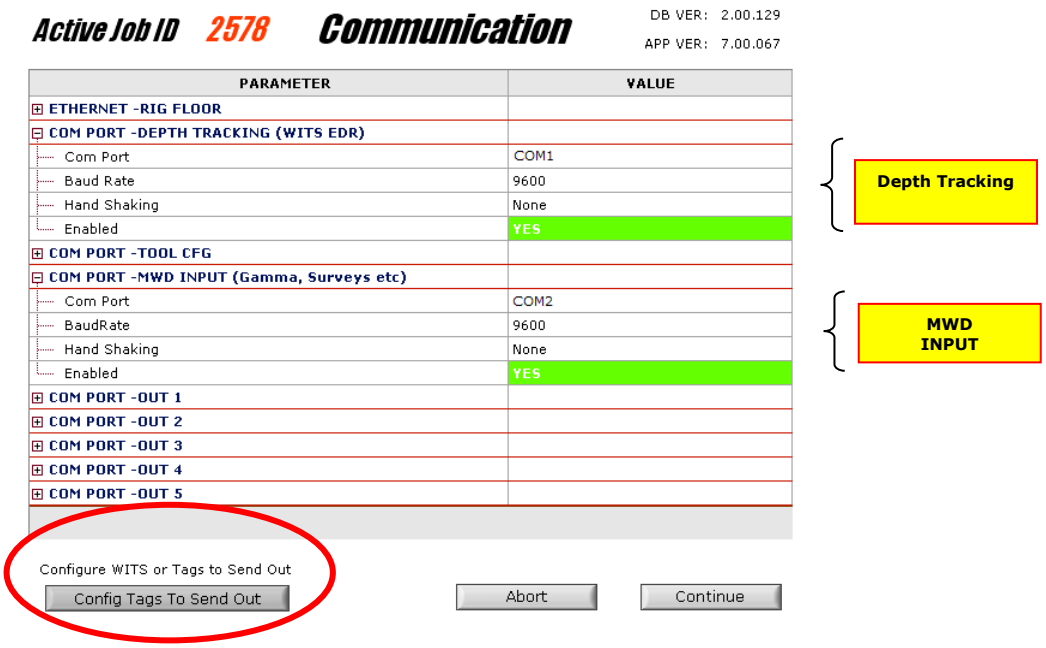


Figure 29. *Port configuration screen. Depth Tracking and MWD input are the only ports that need to be configured. To Configure what to WITS-Out click the circled button. See **Section 8** on how to WITS-Out data to the available Com Ports.*

You must be sure that the COM PORT addresses are the correct ones for the attached EDR depth Tracking and MWD System. Most USB to Serial RS-232 adapters will keep re-mapping COM PORT

addresses or even create new ones each time they are plugged-in. The one exception where COM PORT addresses will have a consistent address is for built-in or hardwired DB-9 serial COM PORTS.

ARE YOUR COM PORTS COMMUNICATING ACCURATELY?

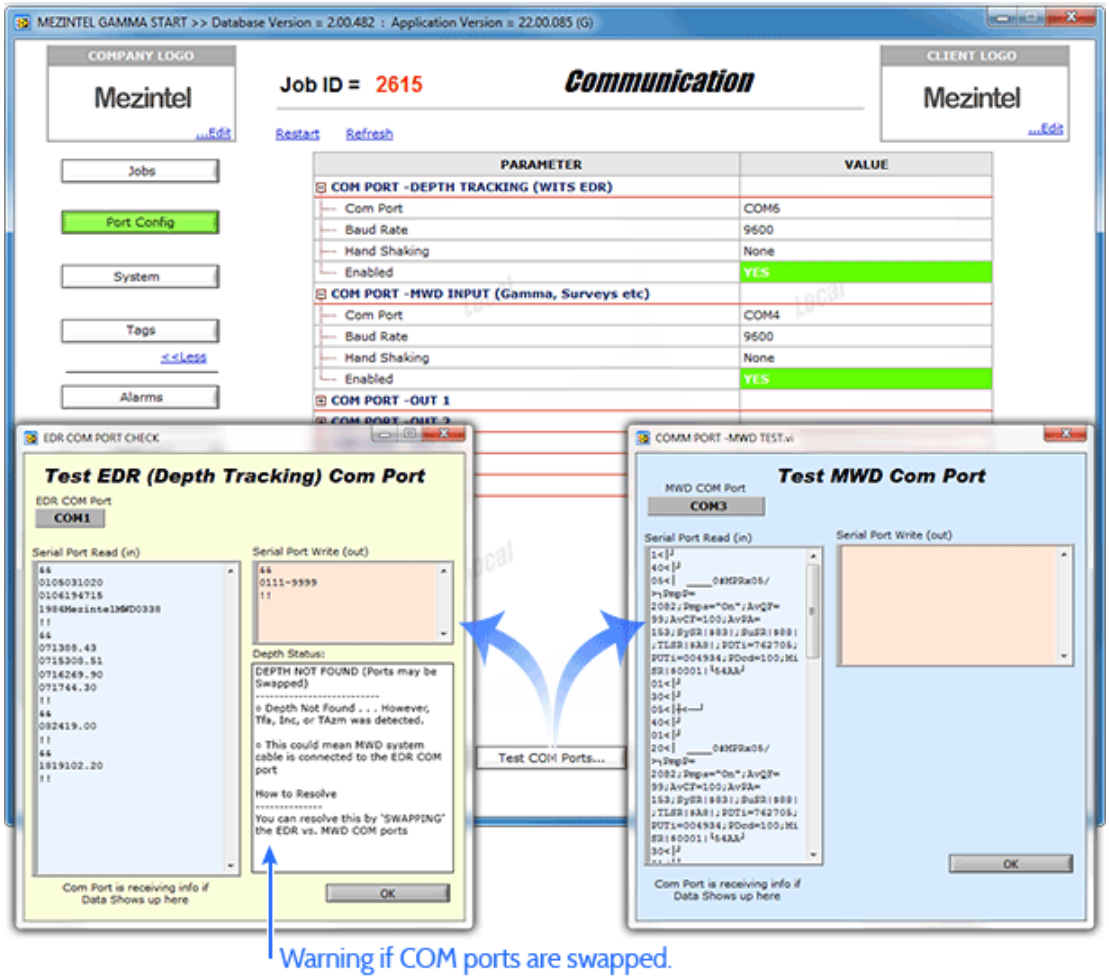
Mezintel Gamma has a debug window which is commonly used for diagnosing serial port communication issues. This allows you to check if your data is transmitting to the ports you intended **before** starting a job, while still being able to use the debug window within a job to check on your com port communication.

Test COM Port Communication Before Loading Your Gamma Job

After you have configured your COM ports on the *Jobs Start* window, and before continuing into your job's *Main* window, you should test your ports to make sure they are communicating properly (that is, EDR and/or MWD data are being transmitted, and are not swapped):

In the **Port Config** section of the *Job Start* window, click **Test COM Ports…**

→ Two windows open — one for EDR and one for MWD — showing data that's transmitting.



This example shows that the EDR read port is swapped with the MWD read port. To fix this, EDR should be set to COM 4 and MWD should be COM 6 instead.

CHANGING A COM PORT ADDRESS

To change COM PORT address, double click the COM PORT cell on the grid. A button will appear which when clicked will show a drop down list of only the COM PORTs that were detected by the PC. If using a USB to RS-232 adapter and you do not find the expected COM PORT address, wait 5 to 10 seconds & click the drop down button again for the software to refresh the COM PORT list. Refer to the FAQ section if you continue experiencing problems with COM PORT addressing. Such problems include a mouse that jumps around on the screen, a frozen COM PORT selection button, or an empty list of COM PORT addresses to choose from.

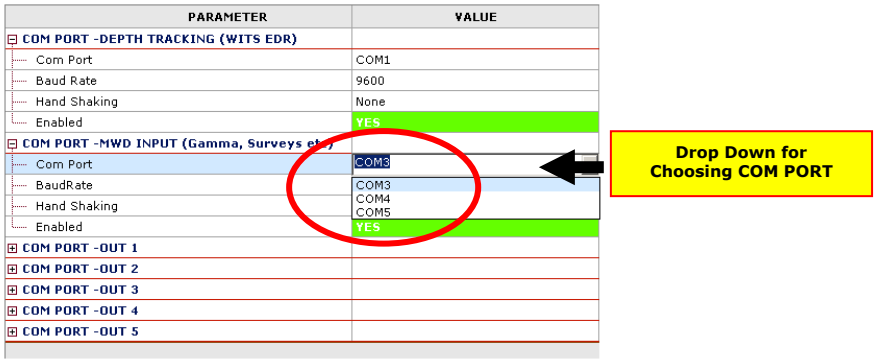


Figure 30. *Com Ports listed are the ones actually found on the system. When using USB to Serial Adapters the Com Ports will refresh to list the ones detected by the PC. Wait 5 to 10 seconds & click the drop down button again for the software to refresh the Com Port list. See FAQ if the drop down is frozen or you do not see the Com Port selection button.*

ADDITIONAL PORTS FOR SENDING OUT WITS DATA STREAM

Mezintel Gamma makes available five additional COM PORT configuration menu items that operators can use to WITS-Out sample data. You must have additional COM PORTs available on your PC to use these ports. A COM PORT Hub may be required to supply addition ports.

Configuring Ports for Sending Out WITS Data

First you must ***Enable*** the COM PORT for which you desire to send out WITS information. Start with the first extra port as shown in **Figure 31** and proceed to enable more COM PORTs as needed. To enable a COM PORT item, change the ***Enable*** setting to ***YES***. Once changed, this setting will be highlighted in green.

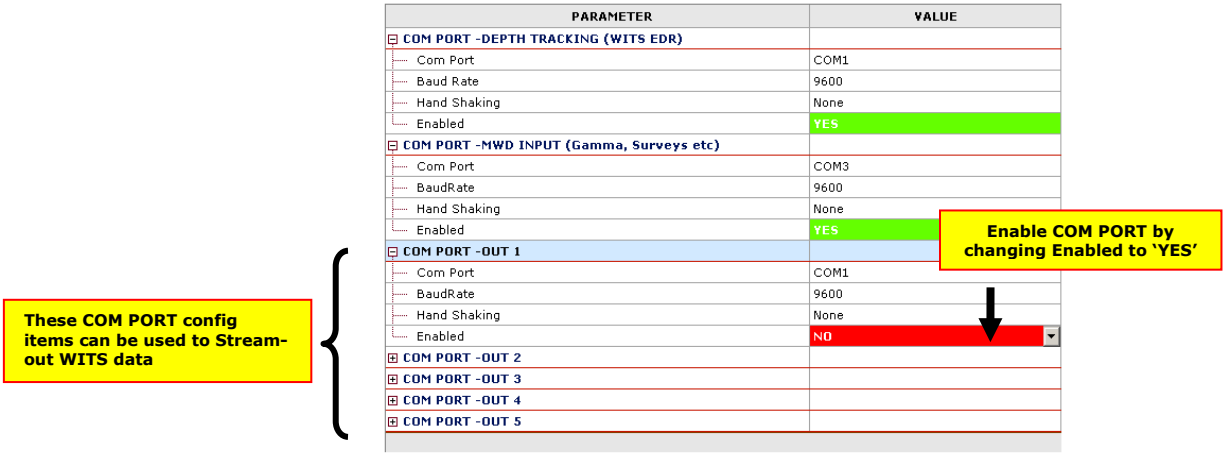
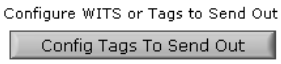


Figure 31. *Shows how to enable the 1st of five Com Ports in preparation for sending out WITS sample data to an external device. The Com Port address and other settings can be edited as needed.*

After configuring the ports you must visit the COM PORT WITs configuration utility to assign which specific WITS tags to stream out and to assign WITS code numbers to the sample tags. This procedure is described in the next section. The MWD and EDR Com Ports can be configured to WITS-Out information from this utility screen.

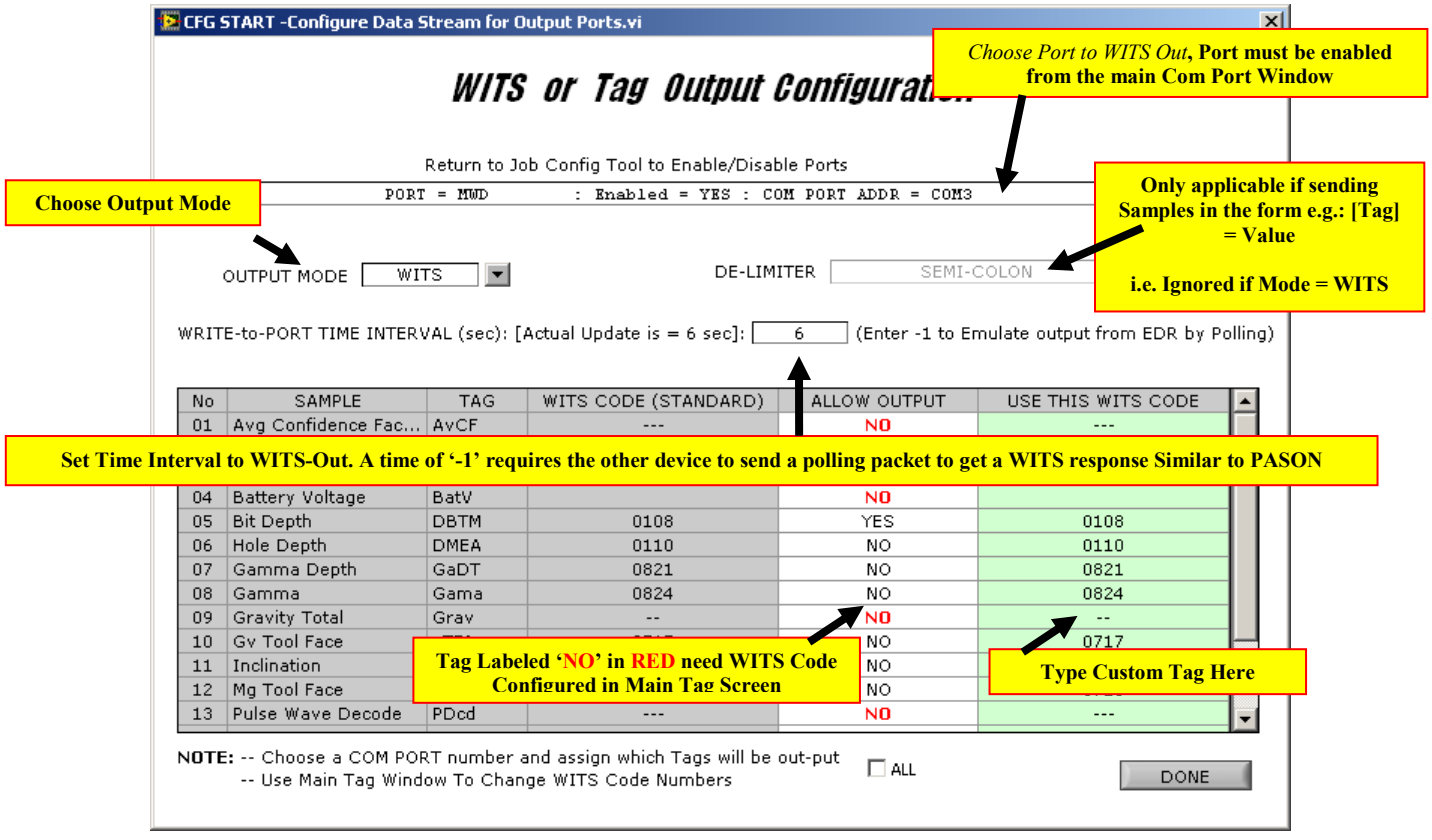
7. CONFIGURING WHAT TO WITS-OUT VIA COM PORTS

You can WITS-Out real time sample data to any of the ports configured. To choose what to WITS out or to Customize the WITS sample with your own Tag name click on the button:



Which is located on the Ports Configuration Window as is circled in **Figure 31**.

The WITS-Out configuration Window will appear as shown in **Figure 32**. Tags that can be WITS-Out are those that are already assigned a WITS code from the main Tag Configuration Window. In the example shown, the column 'ALLOW OUTPUT' has some sample rows labeled '**NO**' in **bold** (**red**). These samples do not have WITS code assigned from the Main Tag screen for the job and thus cannot be configured to be WITS-Out. Tags that have a WITS code assigned can be configured to be WITS out and operators can also choose an alternative WITS code for those samples. To edit the WITS code type it in the appropriate cell on the table column '**USE THIS WITS CODE'.** Remember to assign a suitable WITS-Out frequency time interval based on your MWD platform. For Mud Pulse MWD systems this is 6 seconds. For fast EM systems the time interval should be 2 seconds.



No	SAMPLE	TAG	WITS CODE (STANDARD)	ALLOW OUTPUT	USE THIS WITS CODE
01	Avg Confidence Fac...	AvCF	---	NO	---
04	Battery Voltage	BatV		NO	
05	Bit Depth	DBTM	0108	YES	0108
06	Hole Depth	DMEA	0110	NO	0110
07	Gamma Depth	GaDT	0821	NO	0821
08	Gamma	Gama	0824	NO	0824
09	Gravity Total	Grav	--	NO	--
10	Gv Tool Face			NO	0717
11	Inclination			NO	
12	Mg Tool Face			NO	
13	Pulse Wave Decode	PDcd	---	NO	---

Figure 32. *Window to configure Samples to be sent out as WITS or Tags via the available COM PORTS*

Note: You can WITS data back to MWD System such as Depth, ROP etc. There is also a System setting that will preclude any WITS Out data from being sent back to MWD System. The setting is accessible as follows:

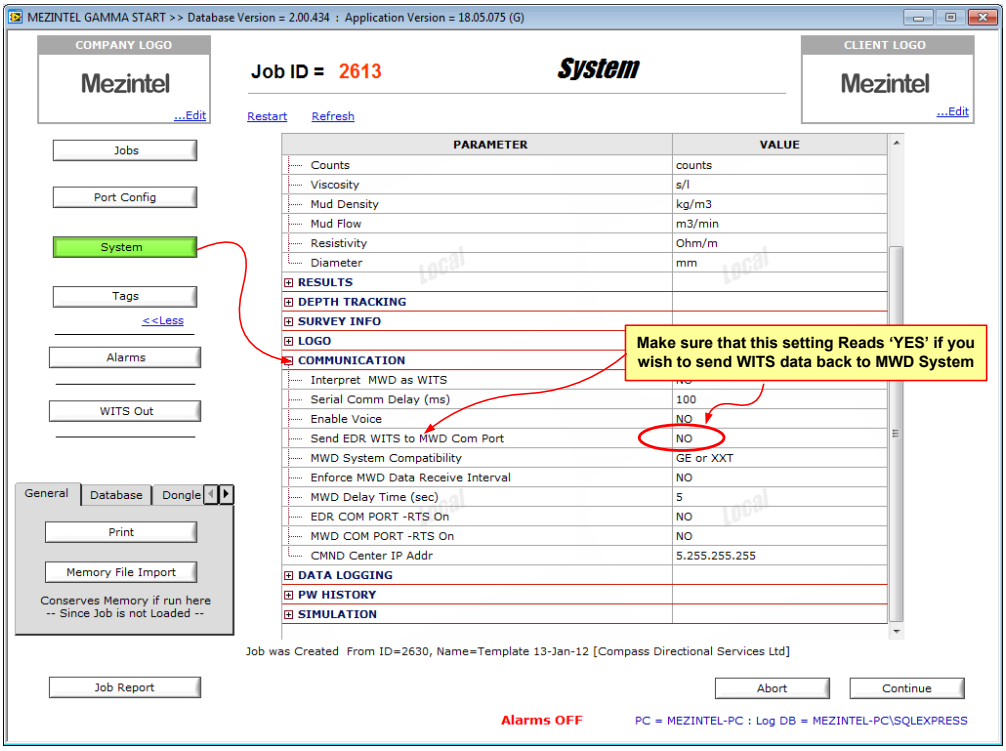


Figure 33. *Setting for sending WITS back to MWD System. You can override sending WITS to MWD system by making this setting = NO, even if the WITS Out tools has some WITS Tags configured for sending out WITS.*

Sending Bit Depth, Hole Depth, & ROP Date to BS Term 5.0 from Mezintel (Requires Latest Version)

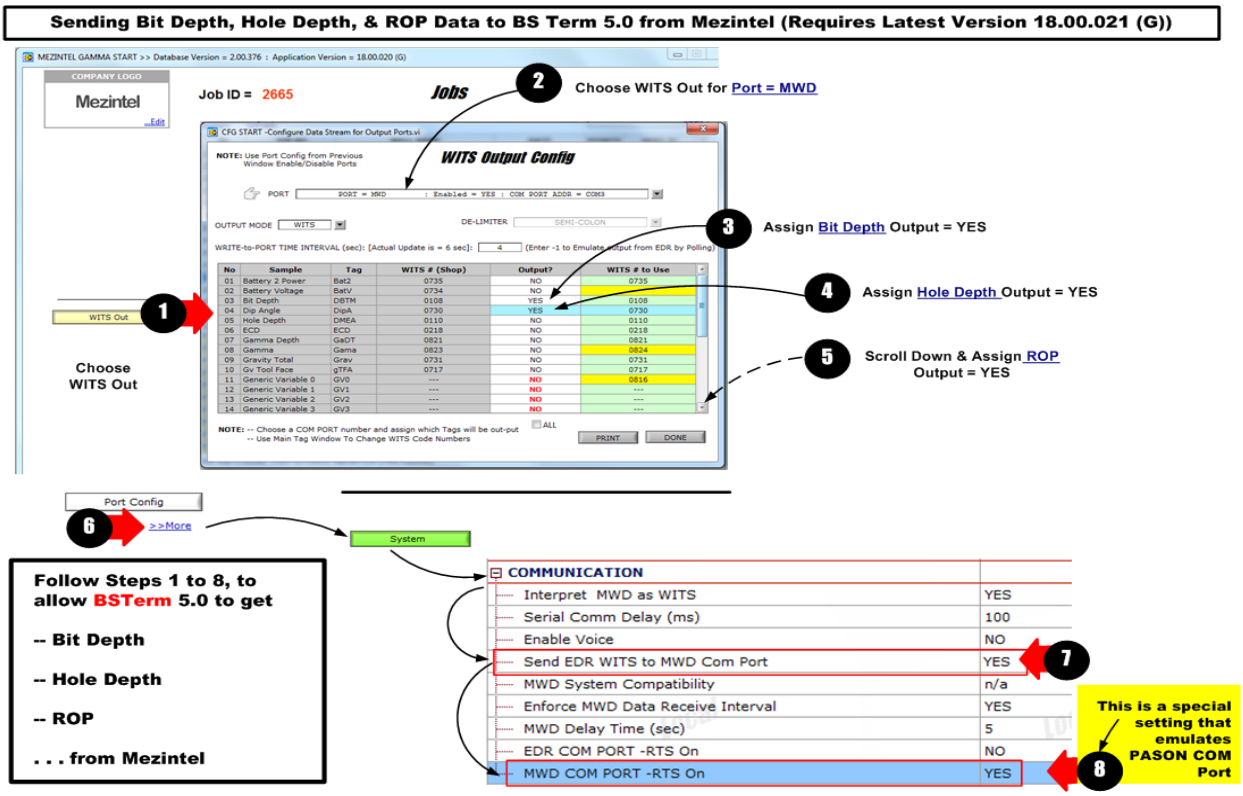


Figure 34: *Example for WITS=OUT configuration from Mezintel Gamma to Pilot BS Term*

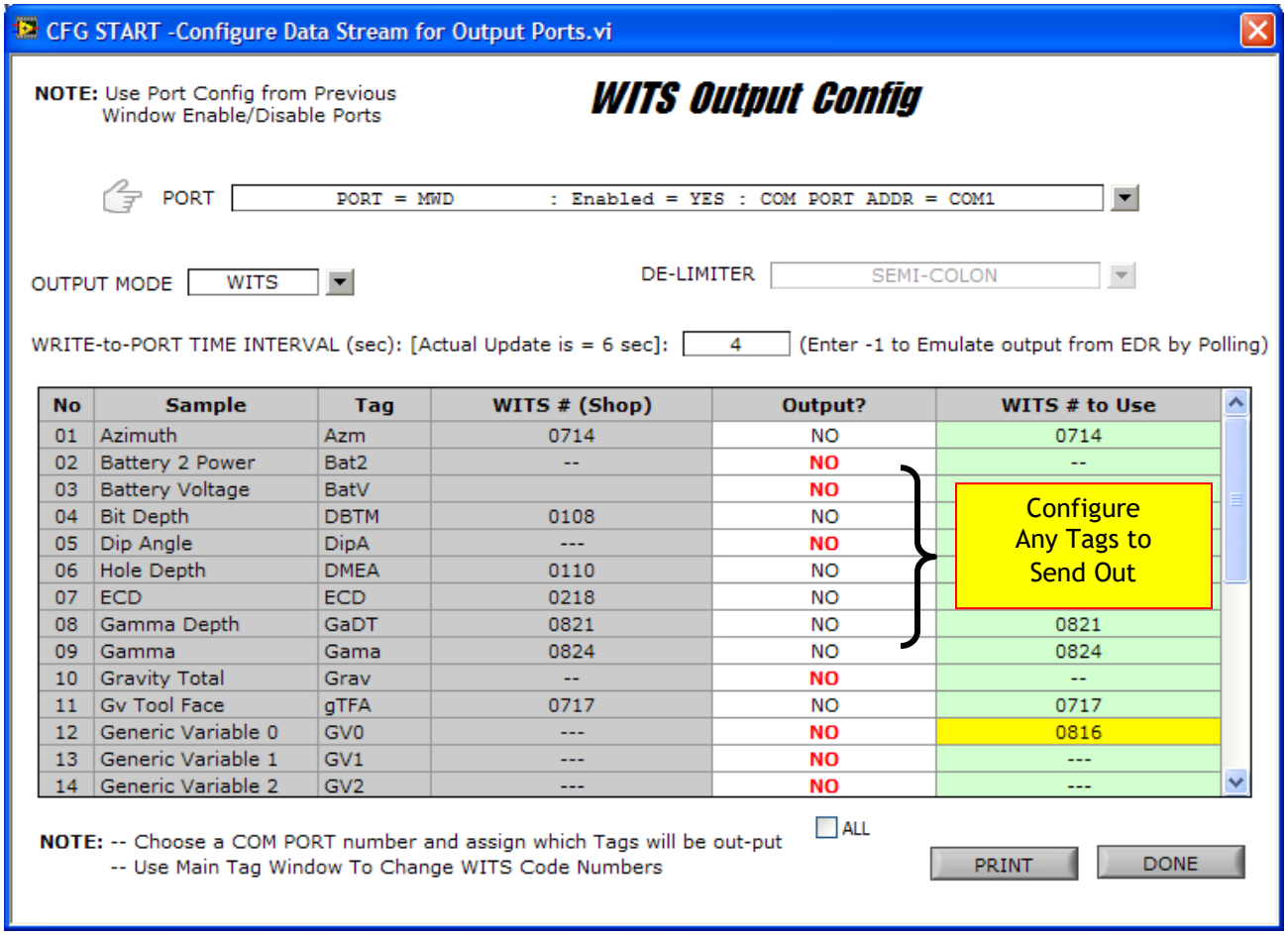
CONFIGURING ADDITIONAL PORTS FOR DATA TO BE WITS OUT

PARAMETER	VALUE
⊟ COM PORT -DEPTH TRACKING (WITS EDR)	
Com Port	COM4
Baud Rate	9600
Hand Shaking	None
Enabled	YES
⊟ COM PORT -MWD INPUT (Gamma, Surveys etc)	
Com Port	COM1
BaudRate	9600
Hand Shaking	None
Enabled	YES
⊞ COM PORT -OUT 1	
⊞ COM PORT -OUT 2	
⊞ COM PORT -OUT 3	
⊞ COM PORT -OUT 4	
⊞ COM PORT -OUT 5	

Extra Ports for Sending WITS data OUT

Figure 35: *Configuring Additional Ports for Date to be WITS out*

CHOOSING TAGS TO BE WITS OUT



No	Sample	Tag	WITS # (Shop)	Output?	WITS # to Use
01	Azimuth	Azm	0714	NO	0714
02	Battery 2 Power	Bat2	--	NO	--
03	Battery Voltage	BatV		NO	
04	Bit Depth	DBTM	0108	NO	
05	Dip Angle	DipA	---	NO	
06	Hole Depth	DMEA	0110	NO	
07	ECD	ECD	0218	NO	
08	Gamma Depth	GaDT	0821	NO	0821
09	Gamma	Gama	0824	NO	0824
10	Gravity Total	Grav	--	NO	--
11	Gv Tool Face	gTFA	0717	NO	0717
12	Generic Variable 0	GV0	---	NO	0816
13	Generic Variable 1	GV1	---	NO	---
14	Generic Variable 2	GV2	---	NO	---

Figure 36: *Choosing Tags to be WITS out*

This is available from Configure WITS OUT button on the START (jobs) Screen

VERIFYING THAT DATA IS BEING WITS OUT

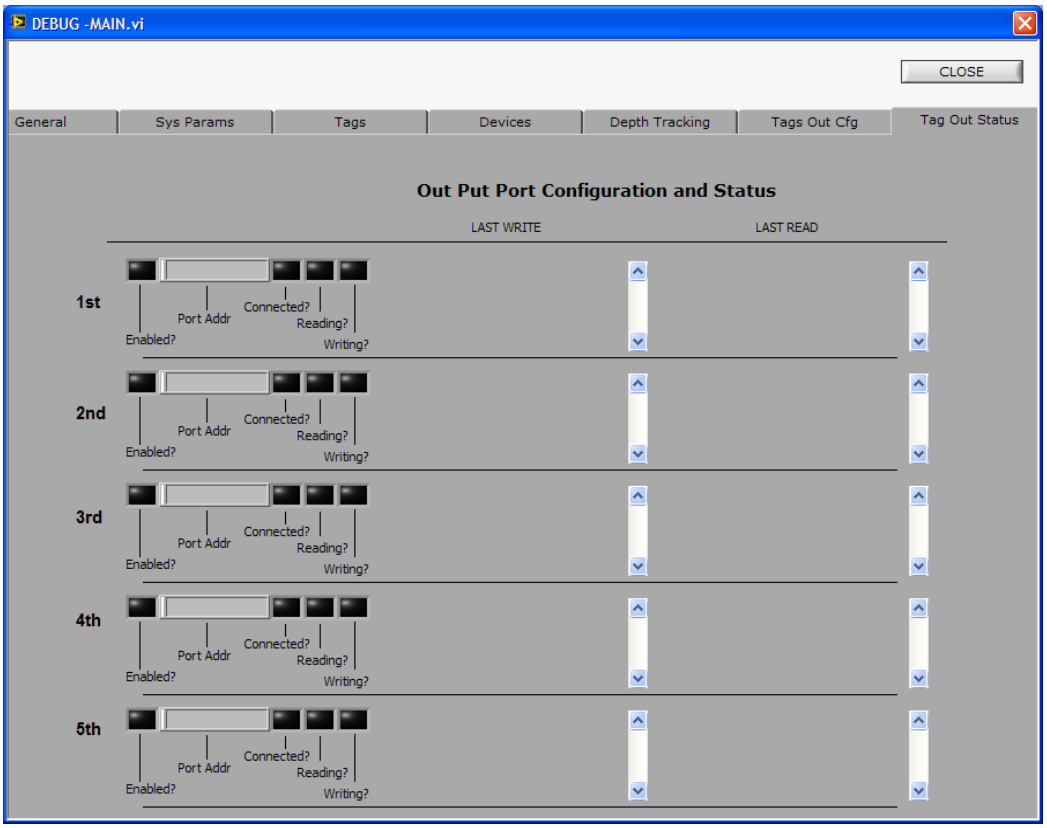


Figure 37: *This utility is under Tools > Debug>View System Config*

View WITS Data being sent out at each COM Port

Example of data being WITS -Out

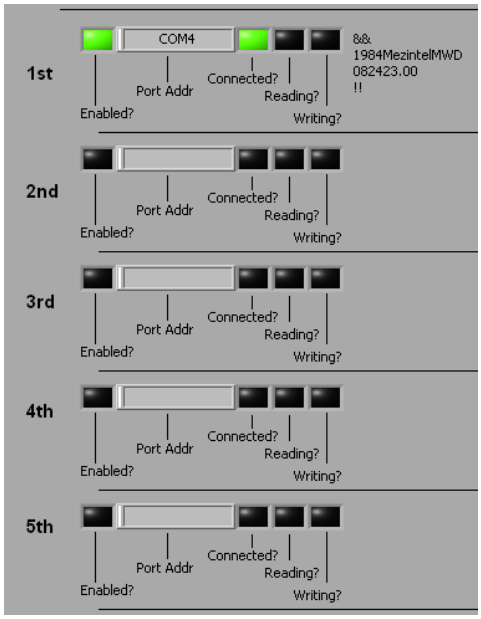


Figure 38: *This utility is under Tools >Debug>View System Config*

CHANGING UNITS AFTER JOB HAS BEEN STARTED

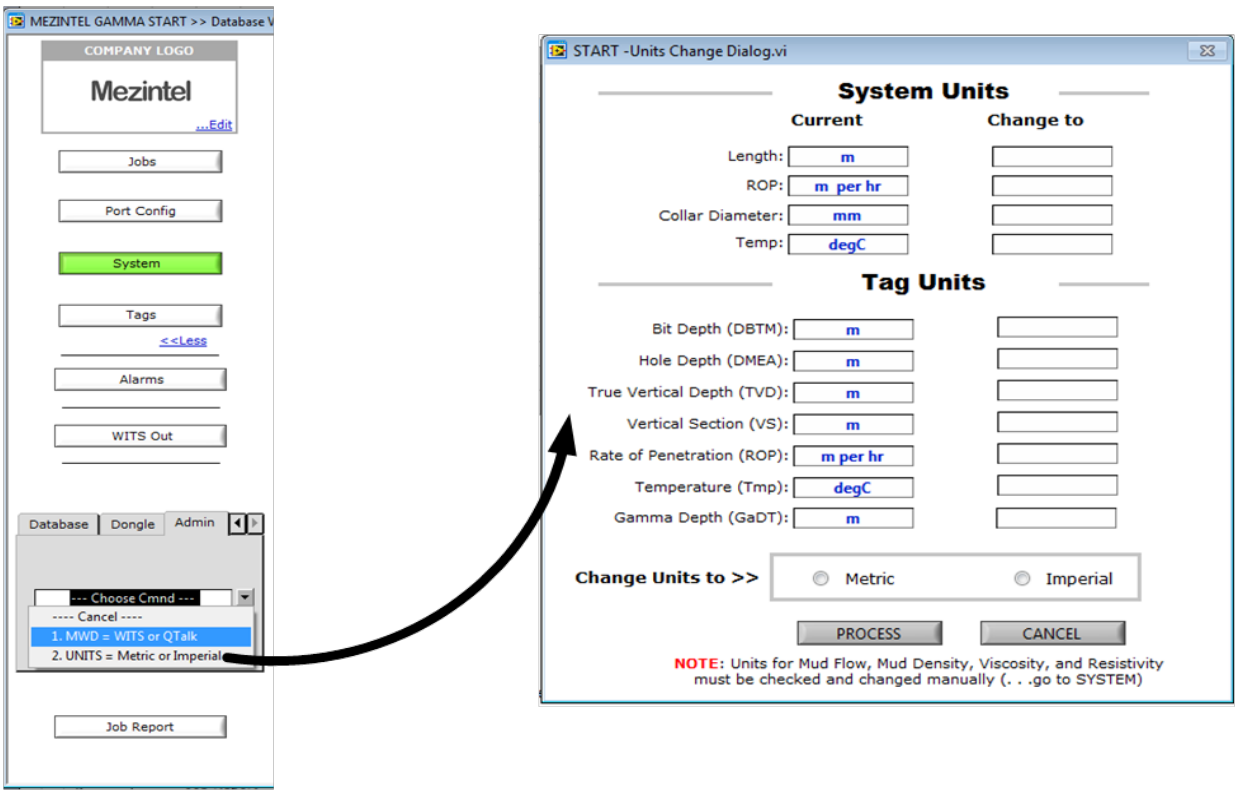


Figure 39: *Changing Units after Job Start*

8. CONFIGURING SAMPLES TO CAPTURE

On the left hand side menu buttons, click on 

the button to choose which sample will be monitored and logged by *Mezintel Gamma* application.

The window shown in **Figure 41** will appear. Samples that show up are the ones configured for the job. You can edit, add, or delete sample settings as needed.

For each sample row in the Tags table the following info is shown. The icons represent the column titles.

- This is just the row number

- This instructs *Mezintel Gamma* to log the sample to database for retrieval. If you do not place a check mark the sample will be shown when captured but will not be remembered for retrieval

- This is the acronym for the Tag to be captured. It is an abbreviation of the sample name. If the sample will be captured from an MWD system, this acronym must match the exact one that will be sent from the MWD System. For example most systems send Inclination using the abbreviated tag name ***INC.***

A list for selecting tags is shown in **Figure 40**. Included are Generic Variable Tags ***GV0*** to ***GV7*** that are used to help monitor data coming from special MWD tools.

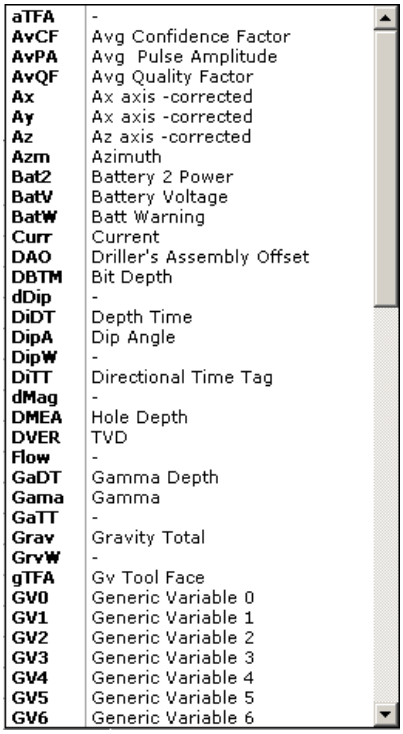


Figure 40. *Tags available for monitoring and logging for Mezintel Gamma application. Note Generic Variable Tags.*

DESCRIPTION - This is the long descriptive name for the sample tag

MODE - Mode determines from which connected device MWD Gamma application will capture the Tag. Choices for Mode setting are shown in **Figure 41**.

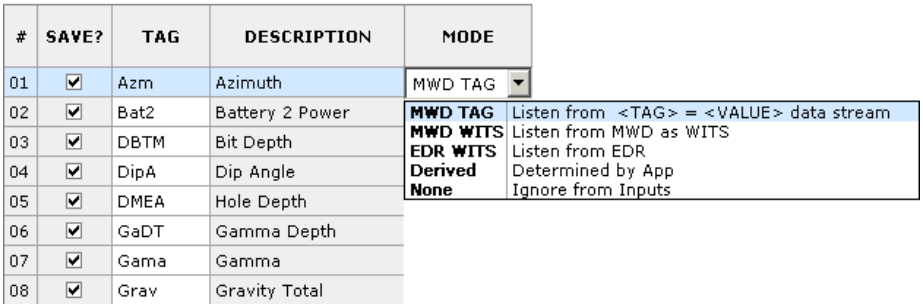


Figure 41. *Choices for Tag MODE.*

The MWD Tag Mode choices are defined as follows:

MWD TAG: This means that *Mezintel Gamma* will capture the sample from the attached MWD System and only if sent in the form ***[TAG] = VALUE***; for example ***INC*** = ***89.2***.

Please Note: This setting is also a selective device filter setting which means that the Tag will not be accepted from any other device including the depth tracking unit even if that other unit will send that same Tag name.

MWD WITS: This means that *Mezintel Gamma* will capture the sample from the attached MWD system and only if sent in the form ***[WITS CODE][VALUE].*** For example the WITS code for inclination is ***0713*** and a value of ***89.2*** will be sent via WITS as ***071389.2*****,** such that the WITSCode and Value are simply joined into one word.

Please Note: This setting is also a selective device filter setting which means that the Tag will not be accepted from any other device including the depth tracking unit even if that other unit will send back the sample by the same WITS code.

EDR WITS: This means that *Mezintel Gamma* will capture the sample from the attached EDR Depth Tracking system and only if sent in the form ***[WITS CODE][VALUE].*** For example the WITS code for inclination is ***0108*** and a value of ***1400.2*** meters will be sent via WITS as ***01081400.2***.

Please Note: This setting is also a selective device filter setting which means that the sample will not be accepted from any other device including the MWD System even if that other system will send back the sample by the same WITS code.

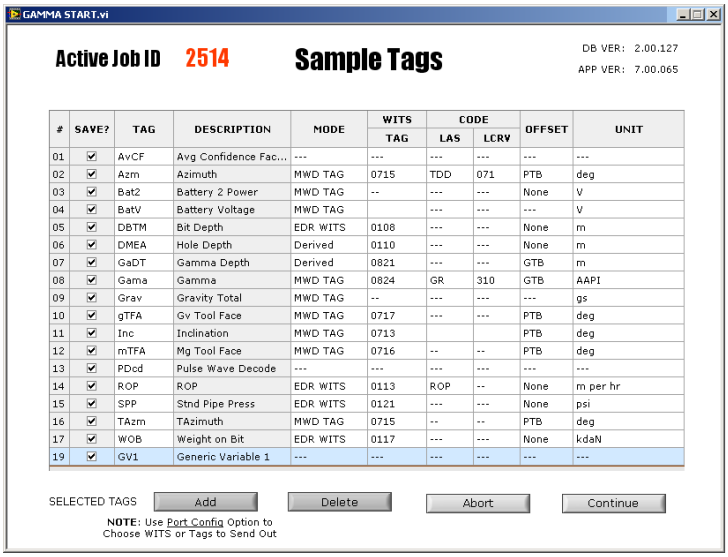
DERIVED: This setting means that *Mezintel Gamma* will derive the sample using data captured from other samples or after doing some calculations on the data. An example of derived tags include:

TVD = ***TRUE VERTICAL DEPTH:*** this is derived from survey calculations
GDT = ***GAMMA DEPTH:*** this is derived from Bit Depth – (Gamma-to-Bit) or PTB Offset
DMEA = ***HOLE DEPTH:*** this is derived from longest depth attained while bit was on-bottom at any given time

WITS TAG - Selects the WITS code for the given sample. A helper list will be given to show the available choices for the WITS Tag. This list is shown in **Figure 42**.

--	None	62
0108	Bit Depth	3
0110	Hole Depth	1
0111	True Vertical Depth	47
0112	Block Height	7
0113	ROP (Rate of Penetration)	5
0115	Hook Load	4
0117	WOB (Weight on Bit)	6
0119	Torque	9
0120	Rotary RPM	8
0120	Revs per min	66
0121	Standpipe Pressure	12
0122	Casing Pressure	36
0123	SPM#1	13
0124	SPM#2	14
0125	SPM#3	15
0128	Mud Out Flow%	24
0137	Pump Stroke Count (cum)	22
0139	Lag Depth	38
0140	Total Gas	37
0140	H2S	51
0142	Pump Displacement (m3 or bbl)	23
0215	Revs per min	67
0709	TVD	80
0713	Inclination	43
0714	Azimuth -UnCorrected	70
0715	Azimuth -Corrected	44
0716	Toolface (MTF)	40
0717	Toolface (GTF)	41
0718	N-S Latitude	74
0719	E-W Longitude	75
0720	Dogleg	76
0722	Raw Signal	77
0722	ToolfaceThreshold (B'twn MTF and GTF)	42
0724	Vertical Section	78
0724	Vertical Section	64

Figure 42. *List of Standard WITS tags for sample monitoring using Mezintel Gamma.*



#	SAVE?	TAG	DESCRIPTION	MODE	WITS TAG	CODE LAS	CODE LCRV	OFFSET	UNIT
01	☑	AvCF	Avg Confidence Fac...	---	---	---	---	---	---
02	☑	Azm	Azimuth	MWD TAG	0715	TDD	071	PTB	deg
03	☑	Bat2	Battery 2 Power	MWD TAG	--	---	---	None	V
04	☑	BatV	Battery Voltage	MWD TAG		---	---	---	V
05	☑	DBTM	Bit Depth	EDR WITS	0108	---	---	None	m
06	☑	DMEA	Hole Depth	Derived	0110	---	---	None	m
07	☑	GaDT	Gamma Depth	Derived	0821	---	---	GTB	m
08	☑	Gama	Gamma	MWD TAG	0824	GR	310	GTB	AAPI
09	☑	Grav	Gravity Total	MWD TAG	--	---	---	---	gs
10	☑	gTFA	Gv Tool Face	MWD TAG	0717	---	---	PTB	deg
11	☑	Inc	Inclination	MWD TAG	0713			PTB	deg
12	☑	mTFA	Mg Tool Face	MWD TAG	0716	--	--	PTB	deg
13	☑	PDcd	Pulse Wave Decode	---	---	---	---	---	---
14	☑	ROP	ROP	EDR WITS	0113	ROP	--	None	m per hr
15	☑	SPP	Stnd Pipe Press	EDR WITS	0121	---	---	None	psi
16	☑	TAzm	TAzimuth	MWD TAG	0715	--	--	PTB	deg
17	☑	WOB	Weight on Bit	EDR WITS	0117	---	---	None	kdaN
19	☑	GV1	Generic Variable 1	---	---	---	---	---	---

Figure 43. *Sample tags configuration. Tags listed here will be available for logging, plotting, and as sample selection items when choosing what to view in the sample monitoring tool.*

9. WITS COMMUNICATIONS TIP

Data is understood as WITS data if it is in the form shown as such:

&&
0108*329.4*
0113*30.3*
…… *(More Data)*
!!

The number in RED is a WITS code while the number in black is the value.

In the above example:

0108 is a WITS code for Bit Depth whose value is: **329.4**

Also 0113 is a WITS code for ROP whose value is: **30.3**

On the Depth Tracking Port, *Mezintel Gamma* will correctly interpret the data as depth WITS data if the Tag MODE is **'WITS EDR'.**

The most important parameters for depth tracking are:

- Bit Depth whose WITS Tag is 0108
- ROP whose WITS Tag is 0113

TROUBLESHOOTING WITS COMMUNICATIONS

Take an example where WITS data is received as shown below:

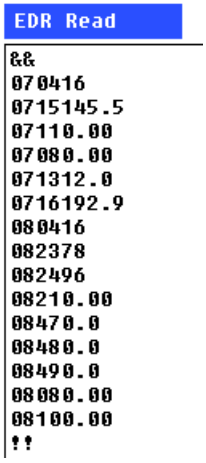


Figure 44: *Example of received WITS data*

Notice that the WITS codes captured do not include the WITS Tags **0108** (Depth) and neither **0113** (ROP)

All the WITS Tags for the above data are for telemetry data only and are typical of data from an MWD System.

To carefully examine the Tags you need to press the Pause Button.

This pause button will temporarily freeze the text allowing you to examine the data more carefully.

A setup that should work with the DigiDrill box for receiving depth would involve the following tips.

COM PORT CONNECTED TO THE WITS PORT

The Depth Tracking (EDR) Com Port is the one that should be connected to the Digi Drill WITS output port (Rig Port)

This port must be the one connected to the WITS Port on the Digidrill System

PARAMETER	
COM PORT -DEPTH TRACKING (WITS EDR)	
Com Port	COM7
Baud Rate	9600
Hand Shaking	None
Enabled	YES
COM PORT -MWD INPUT (Gamma, Surveys etc)	
Com Port	COM3
BaudRate	9600
Hand Shaking	None
Enabled	YES

Figure 45: *Be sure to choose the correct COM port that maps to one connected to Digi Drill Port*

TAGS CONFIGURATION SCREEN

The Tags screen appears as below

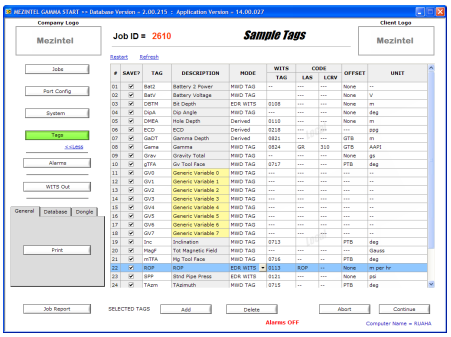


Figure 46: *Tags Configuration Screen*

Figure 47: *Bit Depth must be configured as shown*

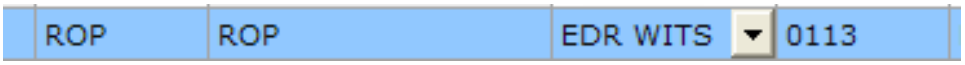


Figure 48: *ROP must be configured as shown*

When WITS data is captured from the EDR Read screen be sure that the above tags are included.

Do this from the main screen by choosing the menu item:

Tools>Debug>View Captured Data Menu

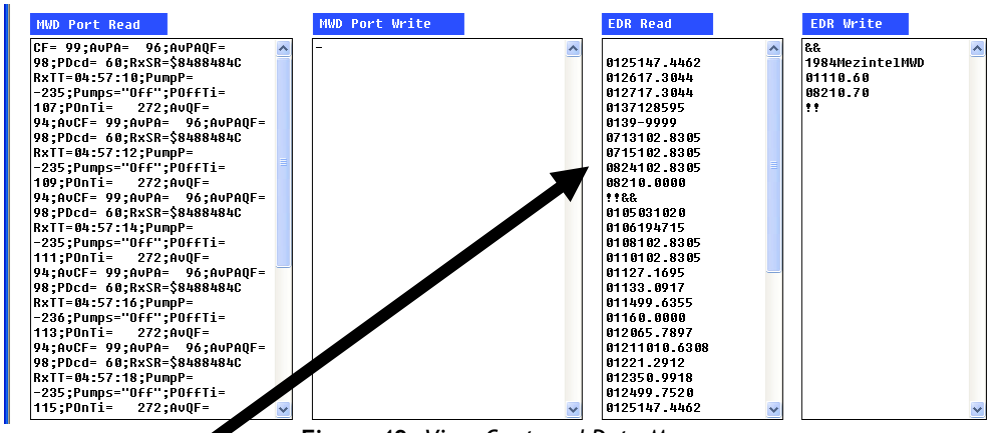


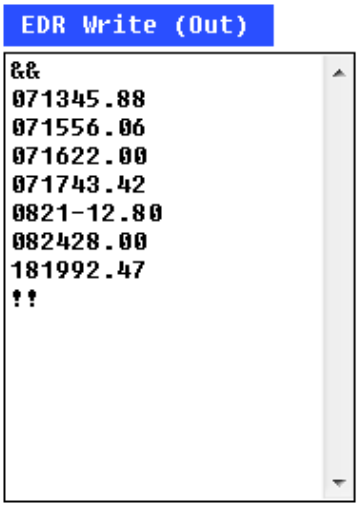
Figure 49: *View Captured Data Menu*

WITS Code 0108 and 0113 should be included in the data in the EDR Read box

ORGANIZING WITS DATA TO SEND TO EDR PROVIDER

Mezintel Gamma continuously sends out data to depth tracking EDR providers such as: Pason and RigSense (NOV).

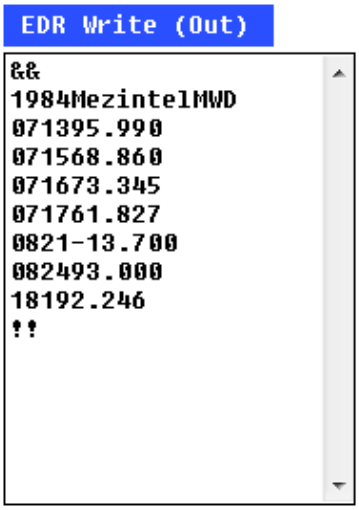
On a regular basis, about every 5 seconds, WITS data packets are sent out as several lines of plain text (ASCII) that are usually comprised of Toolface, Surveys, and Gamma data.



An example of a packet of lines of WITS data.
*Notice that a packet of WITS data **starts** with the symbols* `&&` *and **ends** with the symbol* `!!`

Sending Identifier Tag "1984MezintelMWD"

By default, Mezintel Gamma adds a line that identifies the source that generates the WITS packet. This identifier line is: **`1984MezintelMWD`**



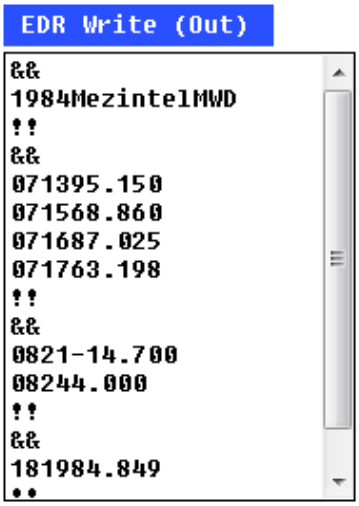
A WITS packet that includes identifier **`1984MezintelMWD`**

Grouping WITS Tags of the Same Kind

The first two digits of the WITS lines represent the kind of data in that line. For example:

If line starts with **07**… this means data is Surveys
If line starts with **08**… this means data is Gamma

Mezintel Gamma has a setting to group Tags of the same kind of data together. When this setting is enabled, WITS is sent as multiple packets.



Notice WITS packets are grouped by first 2 digits.
Survey data (**07**…) and Gamma data (**08**…) are grouped as separate packets.

Choose Settings as Desired

Mezintel Gamma has settings which you can 'check' or 'uncheck' to include the *identifier* tag "1984MezintelMWD" or to *group* the WITS packets as described in sections (2) and (3) above.

These settings can be found on the System Status window as follows:

- From the main menu, click **Tools** > **Debug** > **View Captured Data**

Modifying the settings beside the **EDR Write (OUT)** textbox creates the following results:

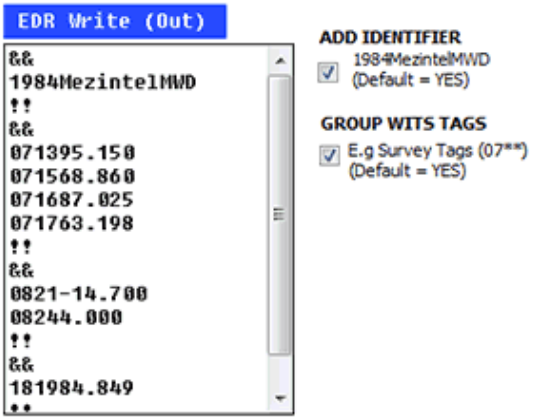


*Fig 4.1 - WITS showing **identifier** 1984MezintelMWD and also **grouped***

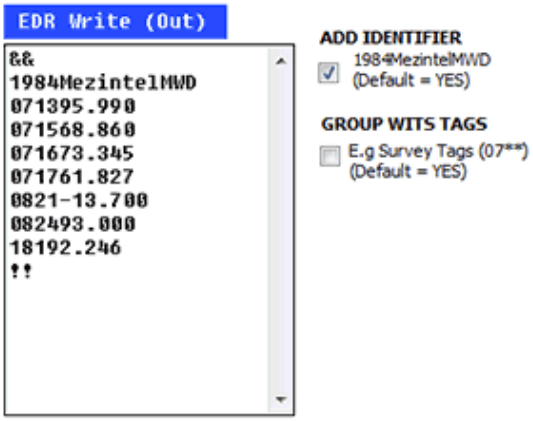


*Fig 4.2 - WITS showing **identifier** 1984MezintelMWD but NOT grouped*

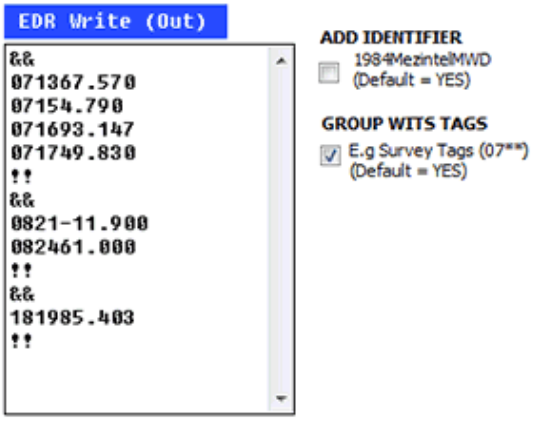


*Fig 4.3 - WITS NOT showing identifier but showing **grouped** packets*

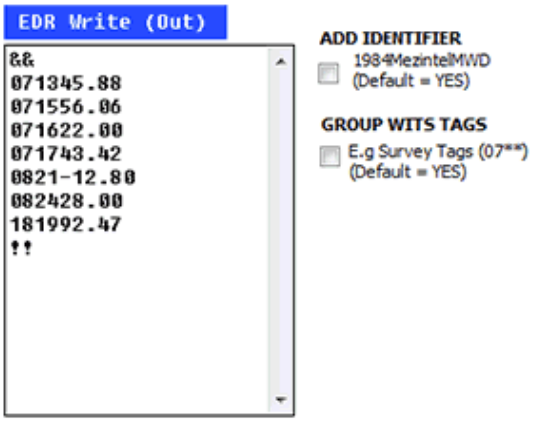


Fig 4.4 - WITS NOT showing identifier and NOT grouped

Fig. 4.1 to **4.4** show different ways to organize WITS data to be sent to the EDR provider. The default is to send data with **Identifier** and also **Grouped** (see Fig 4.1). Otherwise, the settings shown can each be achieved by using the checkboxes next to the **EDR Write (Out)** textbox.

10. MWD TAG COMMUNICATIONS TIP

Data is called **MWD Tag** data if it is in the form shown as such:

Inc =34.7; Azm = 231.4; Gma = 34

The words in RED are the sample's identifying **Tag** while the number in black is the **value**.

MWD Tag data is typically sent by MWD platforms that emulate the GE Tensor box.

An examples of such data is shown below:

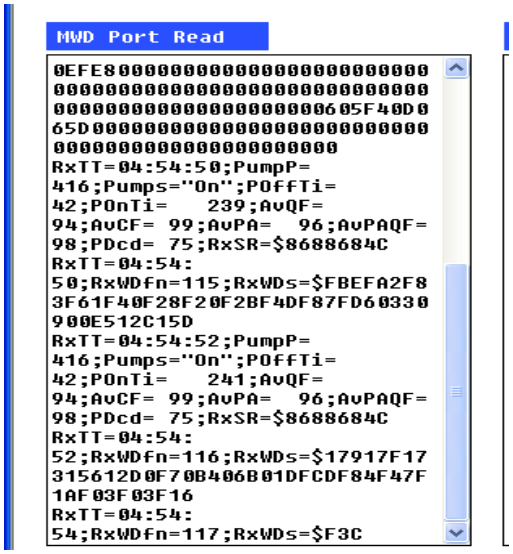


Figure 50: *Example of MWD Tag data sent by MWD platforms that emulate GE Tensor Box*

The most important MWD Tags are Telemetry ones such as **Inc, TAzm, Gama, Grav, DipA, MagF**, etc.

It is important to be able to find these parameters in the MWD Tag data stream.

To carefully examine the Tags you need to press the Pause Button.

***However,** some systems such as the Tolteq MWD Guide System, do send out MWD data using the WITS protocol. In that case the data looks just like the data that was described under the WITS depth communication tips.

For either of these situations i.e. MWD Data that is submitted as MWD Tag data or MWD Data that is submitted as MWD WITS data *Mezintel Gamma* has a way to interpret the data.

SETTING UP MEZINTEL GAMMA TO UNDERSTAND MWD TAG OR MWD WITS DATA

For **MWD Tag** data *Mezintel Gamma* Communications settings under the '**System Option**', must be as follows:

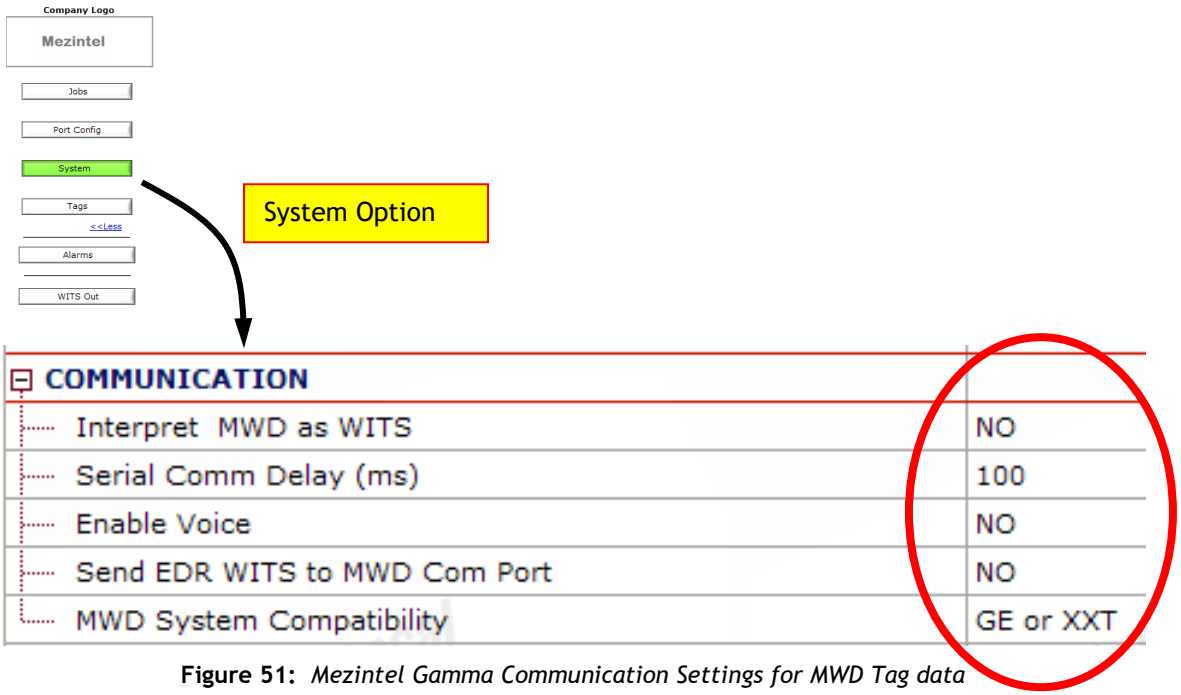


Figure 51: *Mezintel Gamma Communication Settings for MWD Tag data*

Also, all the Tag '**Mode**' settings in the *Mezintel Gamma* Tags screens must use the '**MWD Tag**' Setting.

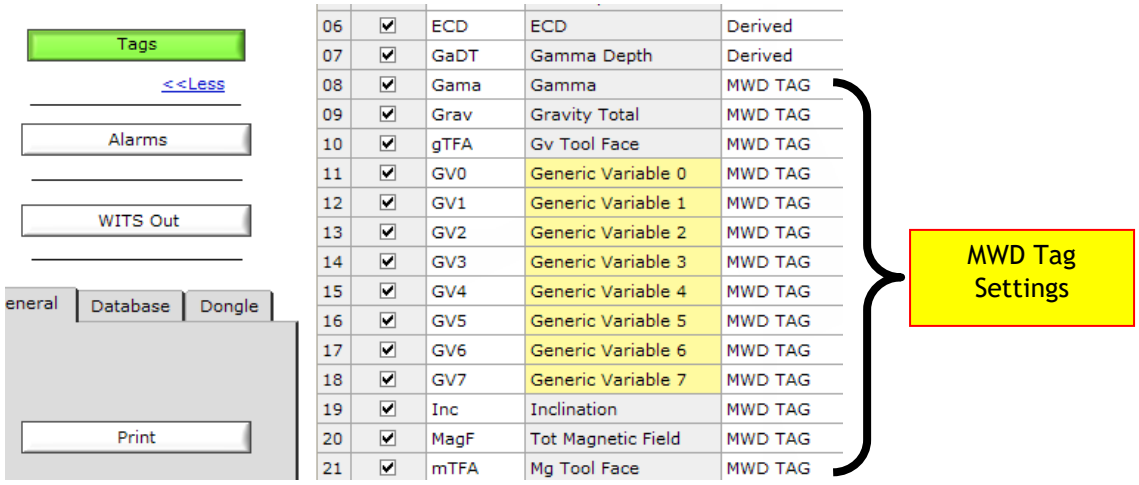
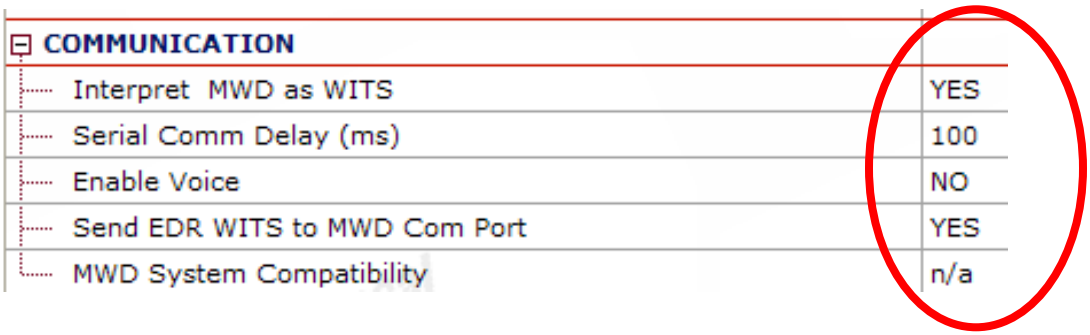
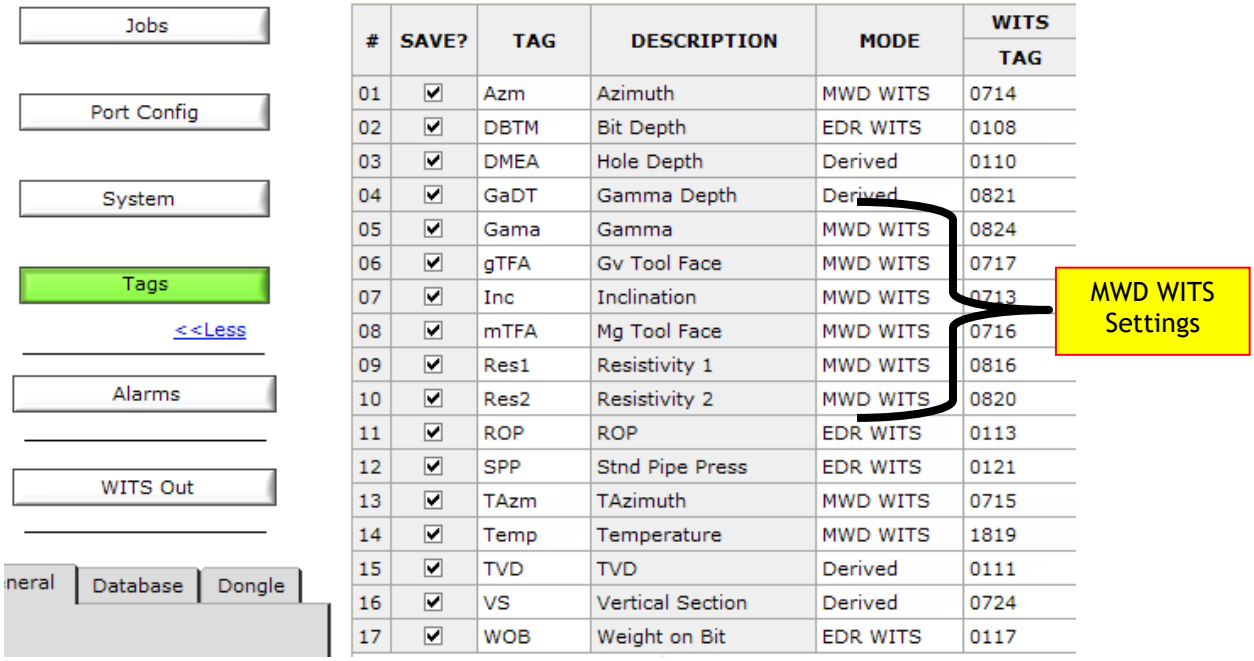


Figure 52: *All Tag 'Mode' settings in the Mezintel Gamma Tags Screen must use the 'MWD Tag' Setting*

But For **MWD WITS** data *Mezintel Gamma* Communications settings under the '**System Option**', must be as follows:



Also, all the Tag '**Mode**' settings in the *Mezintel Gamma* Tags screens must use the '**MWD WITS**' Setting a follows:



#	SAVE?	TAG	DESCRIPTION	MODE	WITS TAG
01	☑	Azm	Azimuth	MWD WITS	0714
02	☑	DBTM	Bit Depth	EDR WITS	0108
03	☑	DMEA	Hole Depth	Derived	0110
04	☑	GaDT	Gamma Depth	Derived	0821
05	☑	Gama	Gamma	MWD WITS	0824
06	☑	gTFA	Gv Tool Face	MWD WITS	0717
07	☑	Inc	Inclination	MWD WITS	0713
08	☑	mTFA	Mg Tool Face	MWD WITS	0716
09	☑	Res1	Resistivity 1	MWD WITS	0816
10	☑	Res2	Resistivity 2	MWD WITS	0820
11	☑	ROP	ROP	EDR WITS	0113
12	☑	SPP	Stnd Pipe Press	EDR WITS	0121
13	☑	TAzm	TAzimuth	MWD WITS	0715
14	☑	Temp	Temperature	MWD WITS	1819
15	☑	TVD	TVD	Derived	0111
16	☑	VS	Vertical Section	Derived	0724
17	☑	WOB	Weight on Bit	EDR WITS	0117

MWD WITS Settings

Figure 53: *All the Tag 'Mode" settings in the Mezintel Gamma Tags screens must use the 'MWD WITS' setting*

COM PORT CONNECTED TO THE MWD SYSTEM

The MWD INPUT (Gamma, Surveys) Com Port is the one that should be connected to MWD output port (Rig Port). Regardless of whether the MWD System will send *MWD Tags* or *MWD WITS* Tags.

PARAMETER	VALUE
⊟ COM PORT -DEPTH TRACKING (WITS EDR)	
Com Port	COM7
Baud Rate	9600
Hand Shaking	None
Enabled	YES
⊟ COM PORT -MWD INPUT (Gamma, Surveys etc)	
Com Port	COM3
BaudRate	9600
Hand Shaking	None
Enabled	YES

Figure 54: *MWD INPUT Com Port should be connected to MWD output port*

This port must be the one connected to the MWD System Output port on the e.g. Bench Tree system

11. MAIN SCREEN

Mezintel Gamma main screen is shown in **Figure 55.** Immediately upon startup the screen area is divided up in to three main sections, which are namely: (a) The Real Time Data Capture Section, (b) The Plot Section, and (c) The Surveys Section.

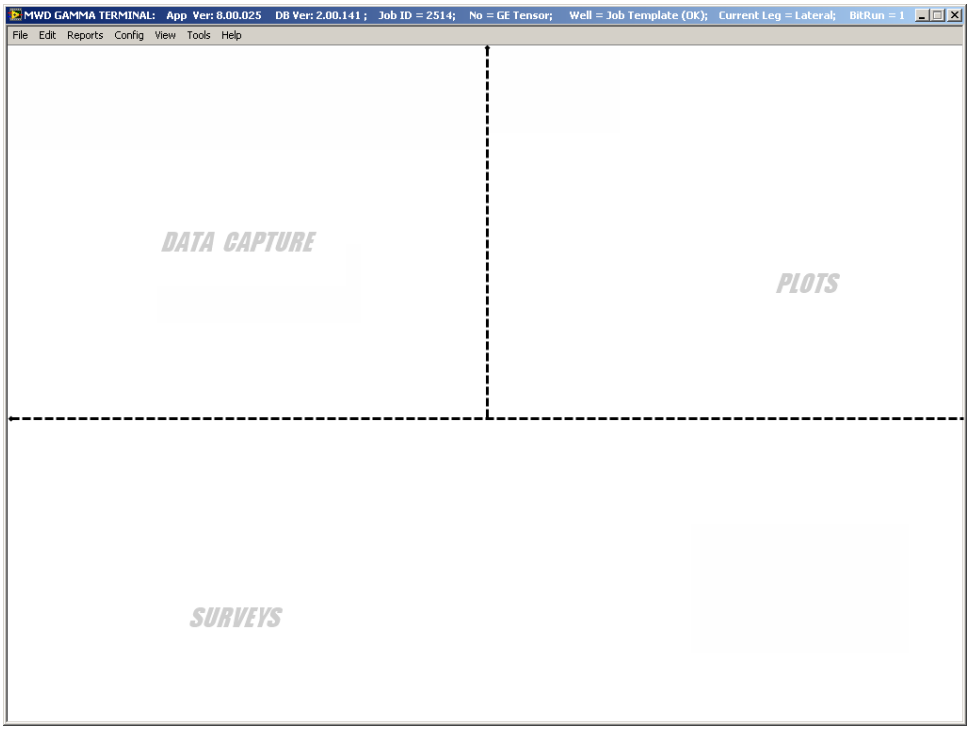


Figure 55. *Mezintel Gamma main screen showing the main panel*

Once the application finishes loading the screen gets filled-in with data to occupy each of the three designated areas on the screen. The loaded screen then appears**.** The functions of each screen section is summarized below.

DATA CAPTURE SECTION

This section has two modes. (1) Real-Time Mode and (2) Historical Mode. The default mode is the Real-Time mode and this shows up each time *Mezintel Gamma* is started. You can flip between these modes by selecting the Historical and Real Time checkboxes

(1) Real-Time Mode: This mode shows data as it gets captured in real-time from the Pason EDR and MWD COM Ports. Up to six samples can be selected for data capture monitoring. The samples available for selection are the ones configured for a specific job template. You can click on the on the sample names to bring up a list of samples to choose from. Each time a sample value is captured, the time stamp and depth at which the data is captured will show up on a row. Some important aspects of the grid are high –lighted on the data capture window of **Figure 56.**

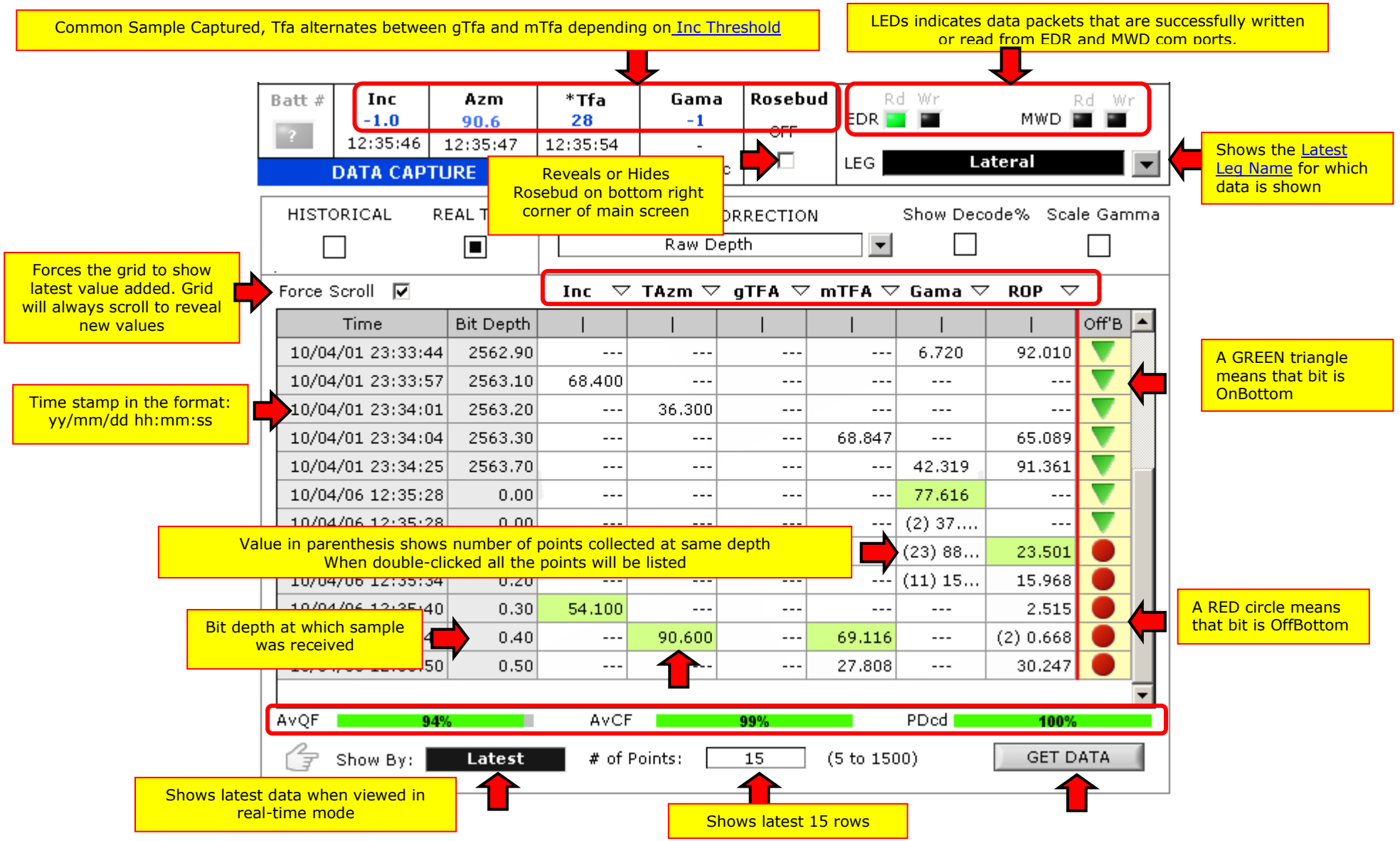


***Figure 56**. Data Capture Window showing samples captured in real time from Com Ports connected to EDR WITS and MWD Systems.*

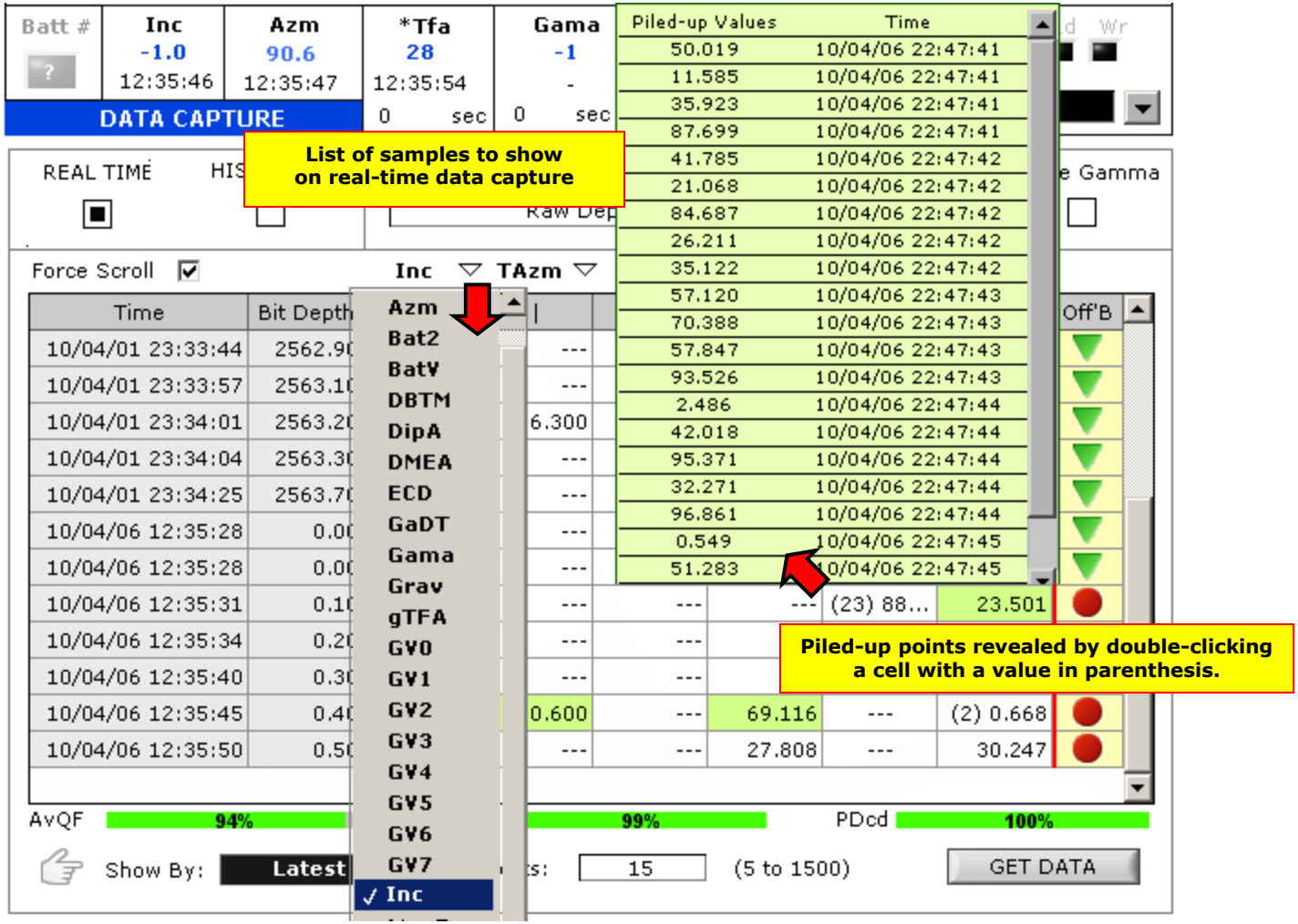


Figure 57. *Shows points piled-up at the same depth revealed by double-clicking a cell that has a value in parenthesis. This example shown has (23) values piled up at a common bit depth.*

PLOTS SECTION

The plots section shown **in Figure 58** is a real time trace of sample data that builds-up as data is collected by the system via the EDR and MWD COM PORTS. The plot can show up to four sample plots. You can change the samples on the plot by clicking on the sample row. A drop down list will appear for choosing a new sample.

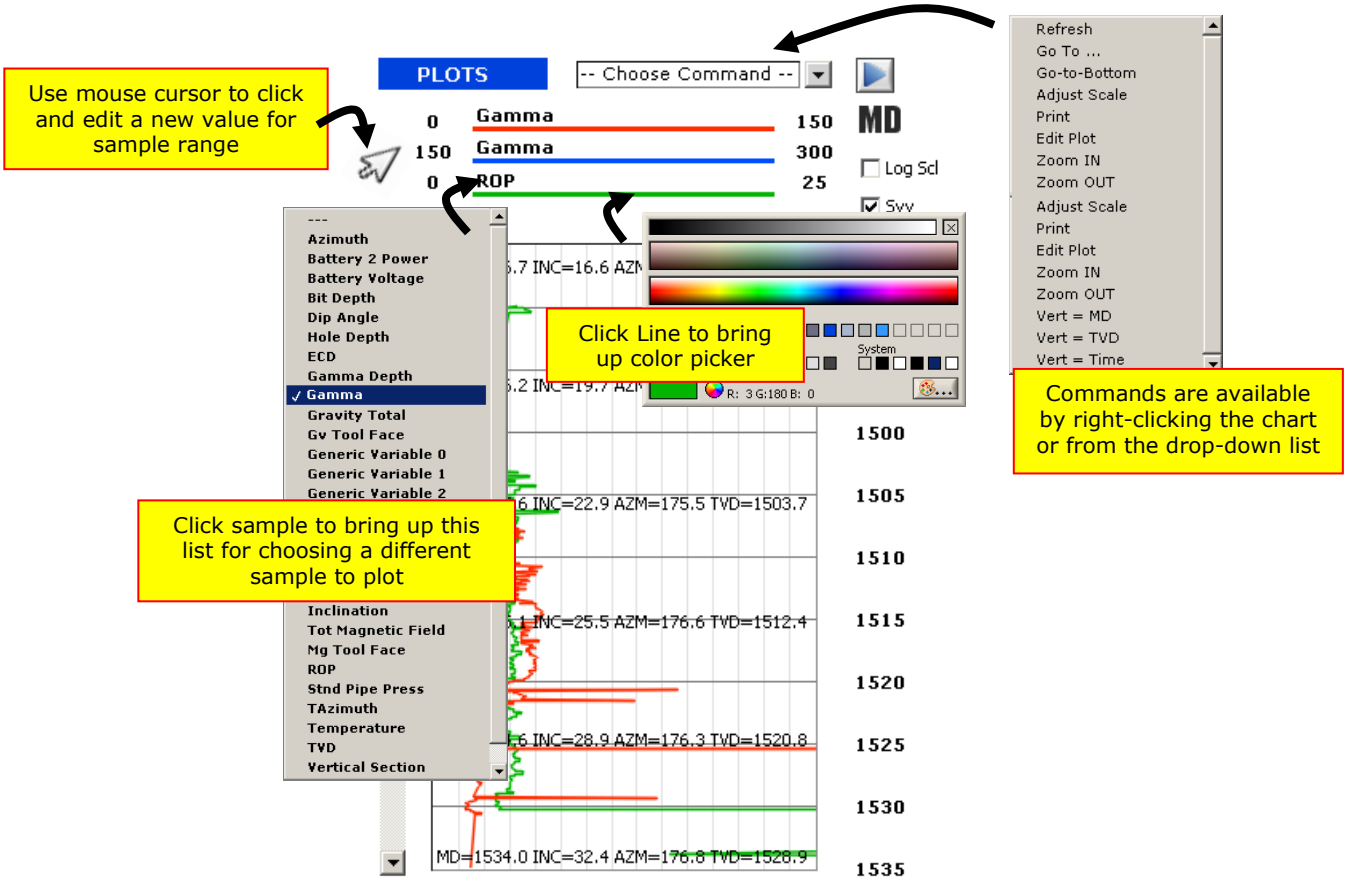


Figure 58. *Plots section can carry up to five tracks. The highlighted notes shows the features available for the plot screen.*

You can bring up a separate window that shows two tracks by clicking on the button shown in **Figure *59*.**

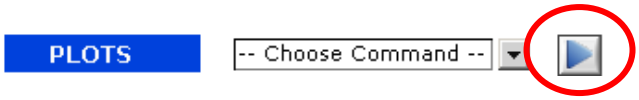


Figure 59. *Button for loading a separate window that will show two tracks.*

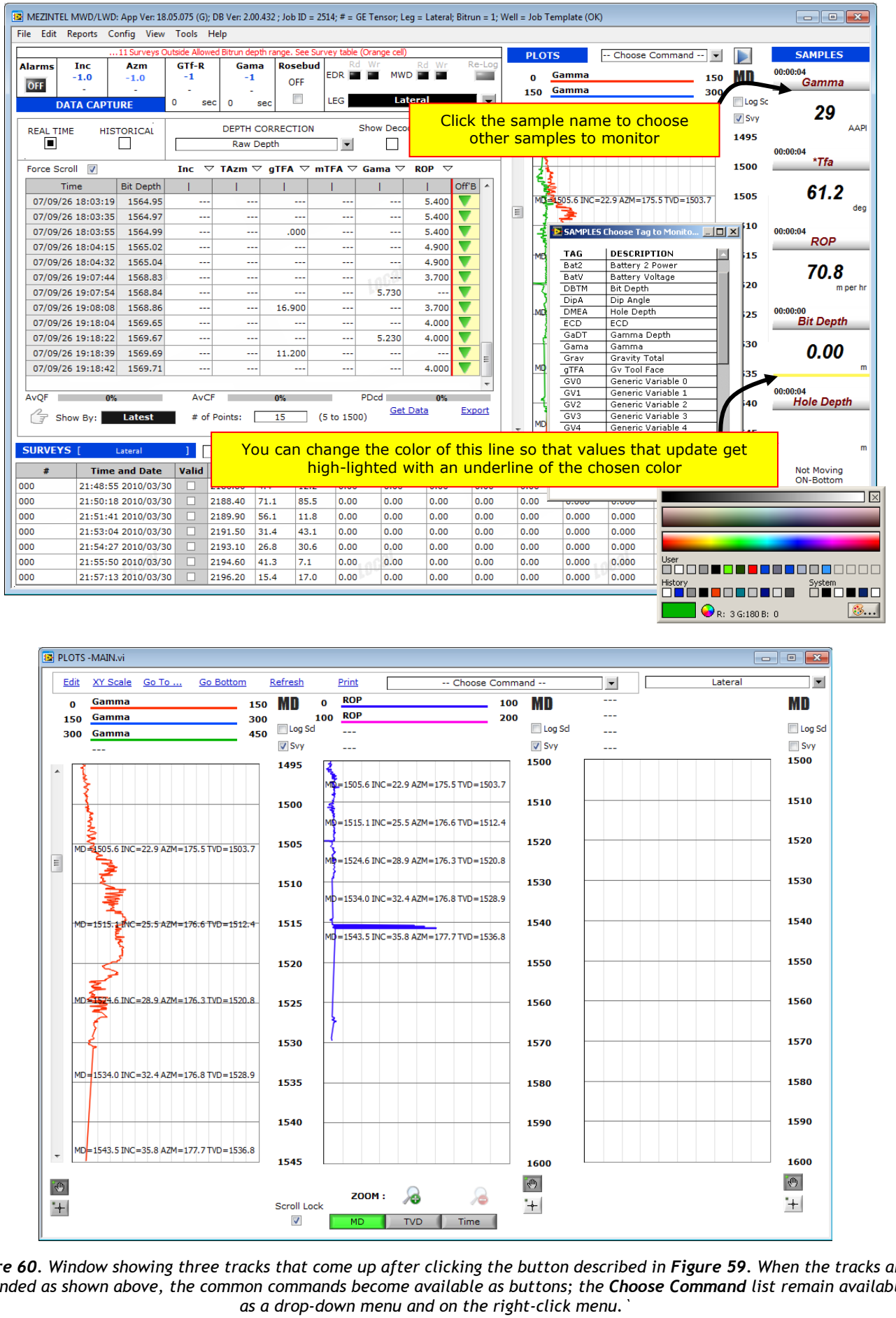


***Figure 60**. Window showing three tracks that come up after clicking the button described in **Figure 59**. When the tracks are expanded as shown above, the common commands become available as buttons; the **Choose Command** list remain available as a drop-down menu and on the right-click menu.`*

SURVEYS SECTION

The survey section appears at the bottom of the Main Screen and is shown in **Figure 62 (a)**. If the Rosebud is enabled using the check box on the data Capture section see (**Figure 56**) then the Survey screen section will give-way to a Rosebud compass chart shown in **Figure 62** ***(b)***. *Other features of the survey section are highlighted in* **Figure 63.**

Automatic Survey Capture

The survey section window will automatically capture surveys as they are transmitted from the MWD system. Surveys will be tagged to Bit Depth with Probe to Sensor Offset (PTB). See the Bit Runs section on how you can change the Probe to Sensor offset. Automatic surveys are listed as disabled. Operators can re-claim the surveys by adding a check mark to the valid column. The Survey depth MDpth may need to be edited to match the pipe-tally depth before the survey is accepted.

Editing Survey Tie-in

To edit the survey tie-in, click the check-box for tie-ins. Once clicked, the screen will give way to the tie-in editor section shown in **Figure 61.** Using the editor, you can change survey tie-in parameters that show up. Once you click re-calculate the starting survey will be the tie-in survey. Any surveys collected before the tie-in measured depth will be hidden from view and left out of the calculation. You can reclaim these surveys by changing the tie-in measured depth to be less than the depth of those earlier surveys. Once edited be sure to re-calculate the surveys by choosing the re-calculate command or by clicking on the calculator icon.

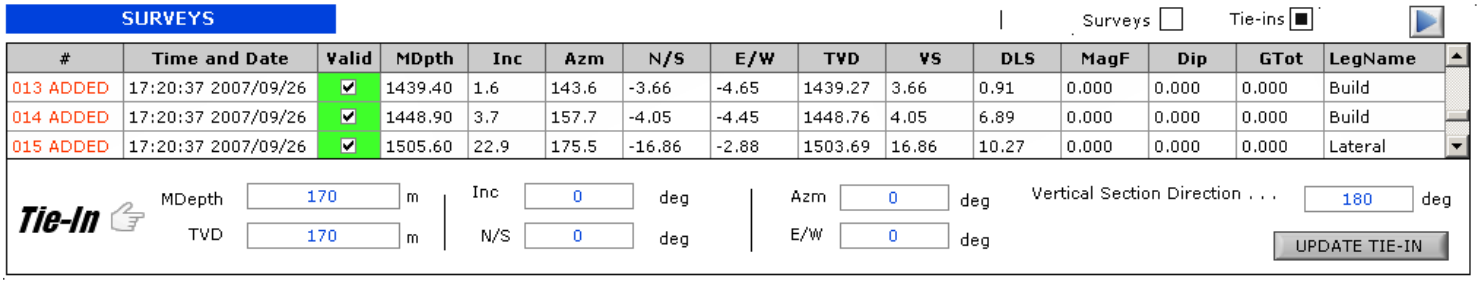
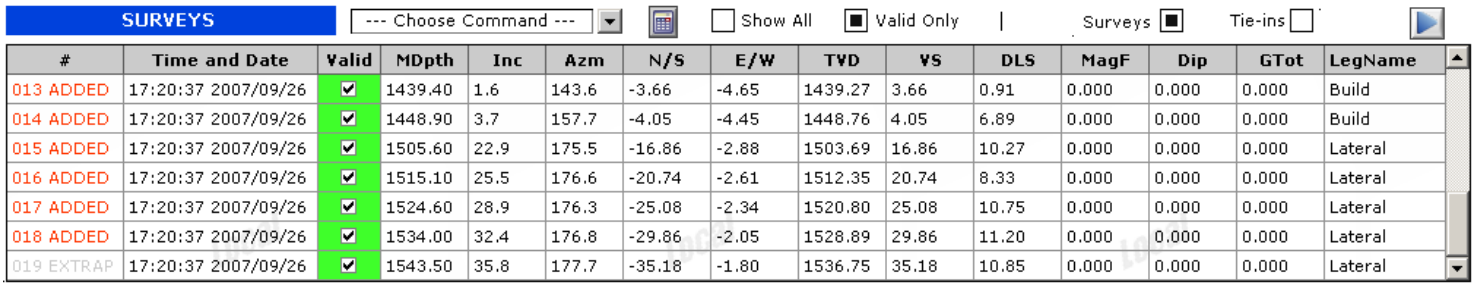
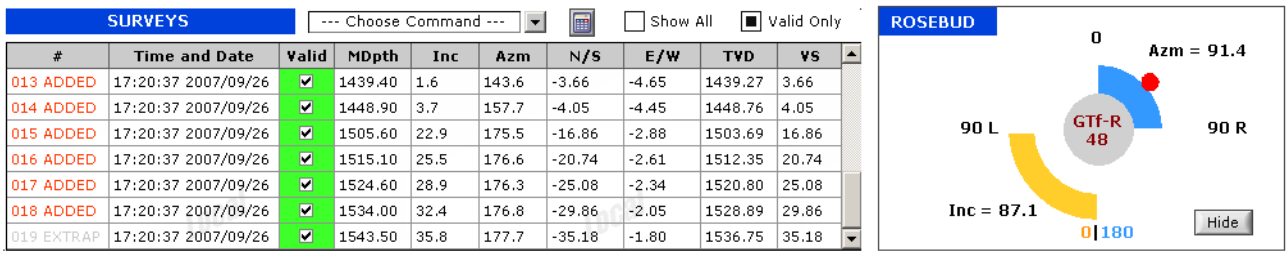


Figure 61*. Survey section tie-in editor*

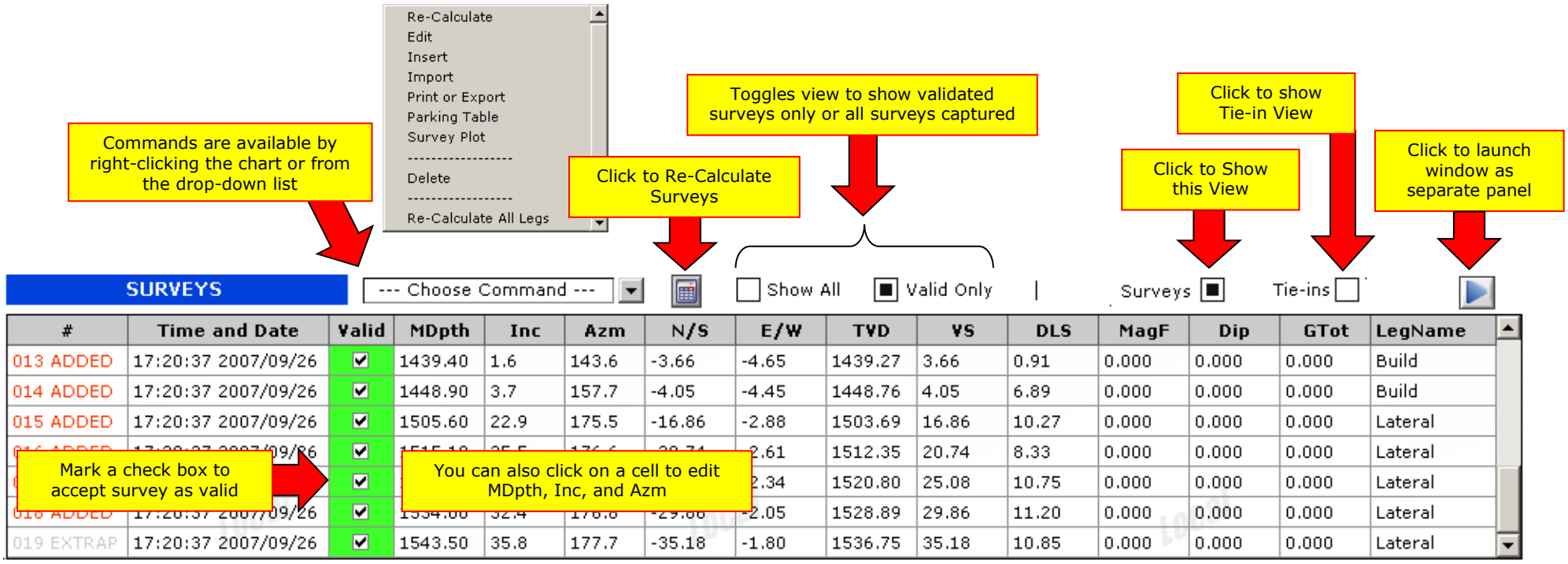


(a) Survey Section showing all survey table columns.



(b) Survey Section with Rosebud.

Figure 62. *(a) Survey Section located at bottom of main screen, (b) The survey section and Rosebud chart that shows up when the Rosebud Checkbox is clicked from data capture window.*



#	Time and Date	Valid	MDpth	Inc	Azm	N/S	E/W	TVD	VS	DLS	MagF	Dip	GTot	LegName
013 ADDED	17:20:37 2007/09/26	☑	1439.40	1.6	143.6	-3.66	-4.65	1439.27	3.66	0.91	0.000	0.000	0.000	Build
014 ADDED	17:20:37 2007/09/26	☑	1448.90	3.7	157.7	-4.05	-4.45	1448.76	4.05	6.89	0.000	0.000	0.000	Build
015 ADDED	17:20:37 2007/09/26	☑	1505.60	22.9	175.5	-16.86	-2.88	1503.69	16.86	10.27	0.000	0.000	0.000	Lateral
[illegible]	[illegible]	☑	[illegible]	[illegible]	[illegible]	[illegible]	2.61	1512.35	20.74	8.33	0.000	0.000	0.000	Lateral
[illegible]	[illegible]	☑	[illegible]	[illegible]	[illegible]	[illegible]	2.34	1520.80	25.08	10.75	0.000	0.000	0.000	Lateral
[illegible]	[illegible]	☑	[illegible]	[illegible]	[illegible]	[illegible]	-2.05	1528.89	29.86	11.20	0.000	0.000	0.000	Lateral
019 EXTRAP	17:20:37 2007/09/26	☑	1543.50	35.8	177.7	-35.18	-1.80	1536.75	35.18	10.85	0.000	0.000	0.000	Lateral

Figure 63. *Feature highlights of the survey section table.*

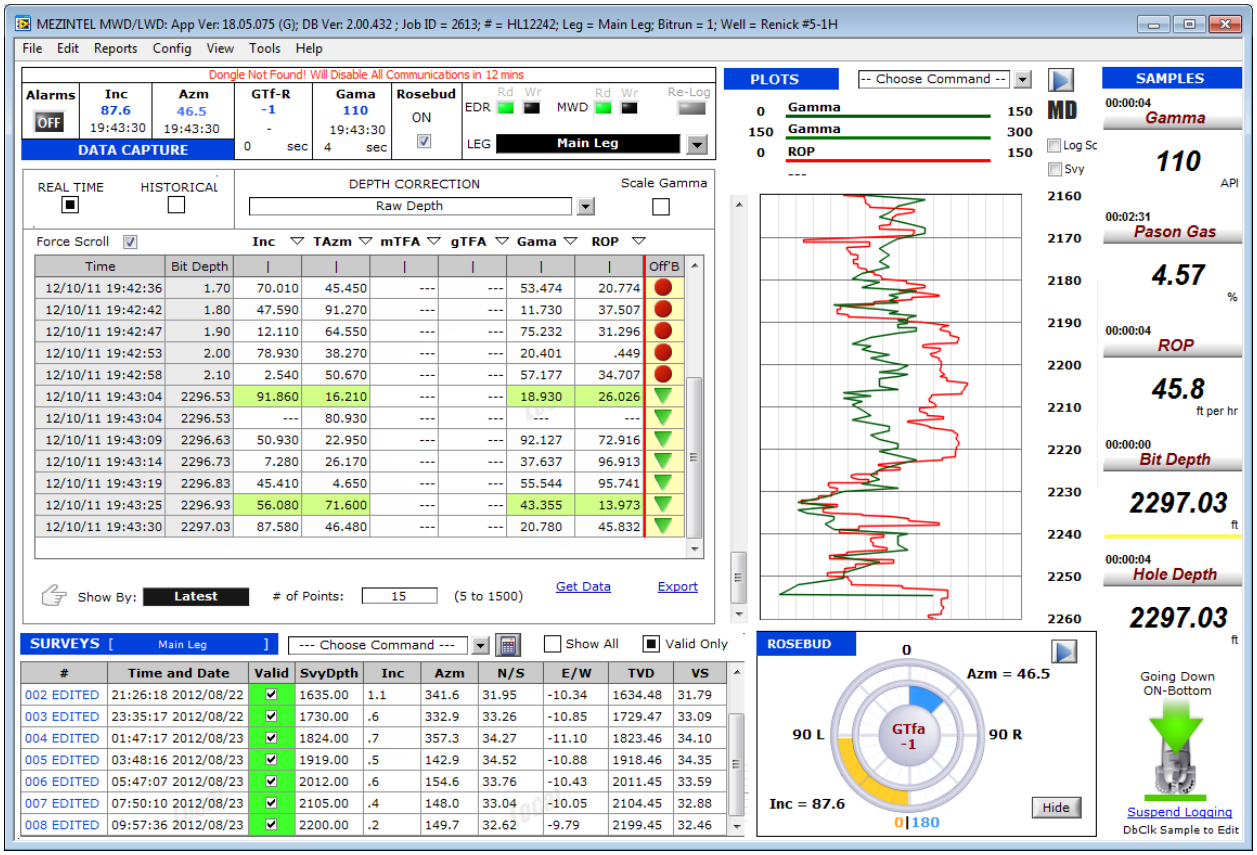


Figure 64. *Main screen fully loaded with data for real-time capture, plots and surveys.*

Printing Surveys

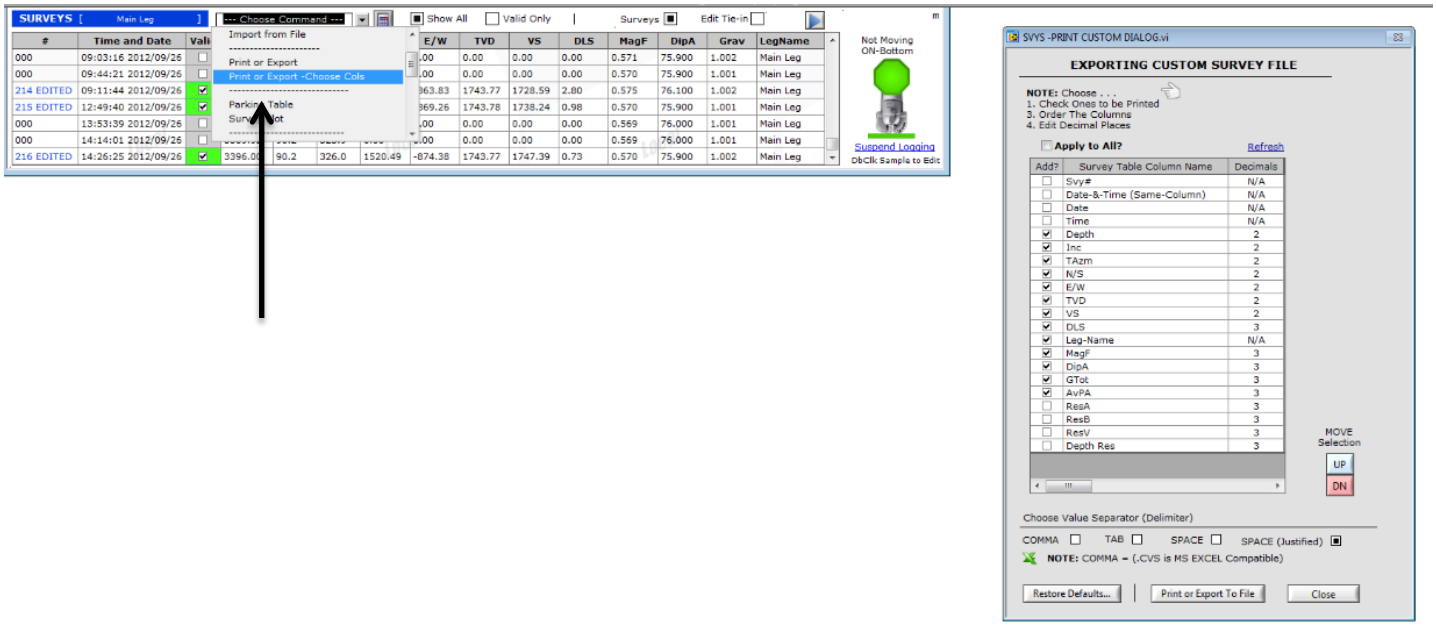


Figure 65. *Shows dialog where you can select your desired surveys parameters to include in Survey report.*

12. JOB REPORT

The main MWD report can be filled-in at any time by visiting the menu item shown in **Figure 66.** A report form shown in **Figure 67** will show up. Use this form to fill in job info. The info filled-in here will also appear on the log headers.

Figure 66. *Menu to bring up the reporting form.*

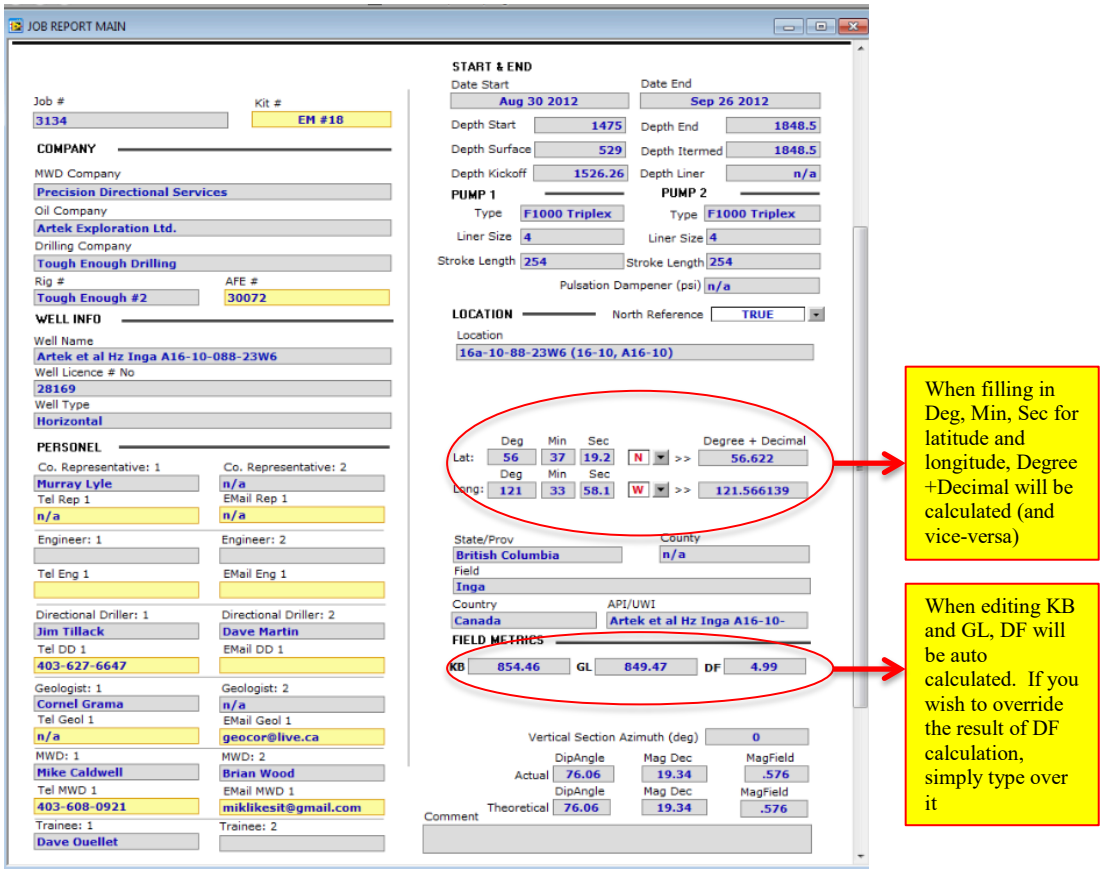


Figure 67. *MWD Main Report Form*

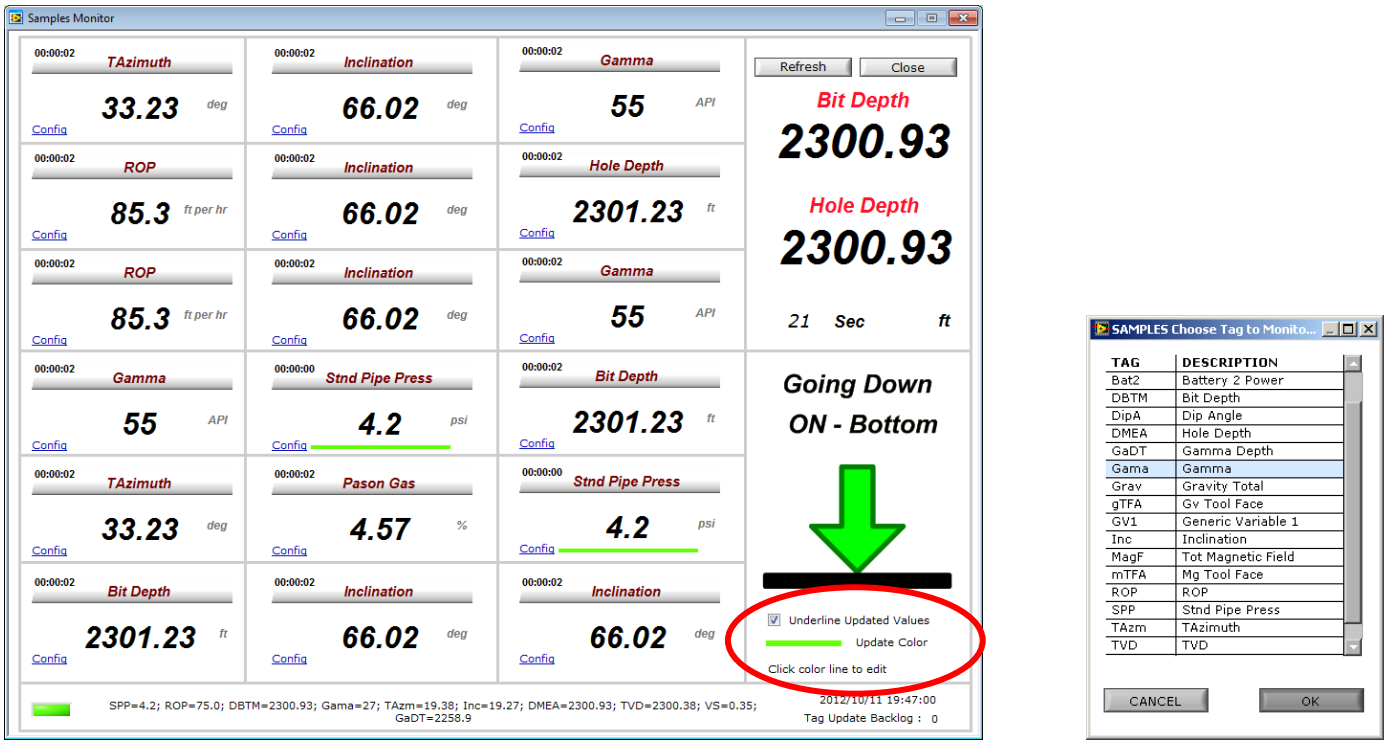
13. REAL TIME SAMPLES MONITORING

Mezintel Gamma contains a real time samples monitoring window that updates sample values captured from the attached MWD system or Depth Tracking Unit. The window shown in **Figure 68** can show up to 18 samples arranged in 6 rows and 3 columns.

To change the sample displayed click on the CFG button.

Samples Freshness

Each sample indicator cell includes time elapsed (in seconds) since the last sample value was received. Elapsed time helps determine freshness of the data. Otherwise, updated values are highlighted with an underline to help locate or to quickly notice the update. You can configure cells to show any of the samples configured for the job. You can also change the color of the highlighting bar or prevent it from showing when updates occur.

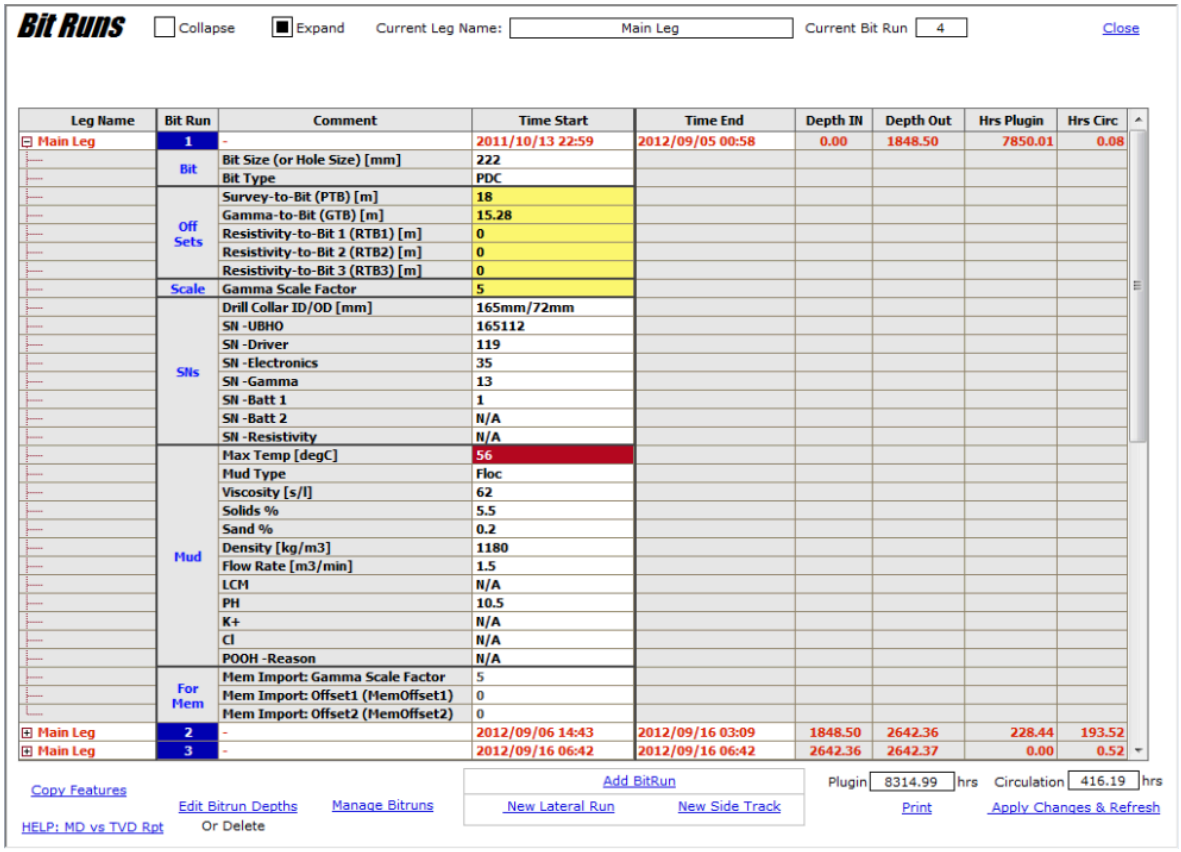


Samples Real Time Update Screen *Menu*

Figure 68. *Samples real time update screen and menu for selecting samples to show in the cells. Updated samples are underlined in green as new values are received. The circled portion shows how to suspend sample updates or change color of highlighter bar.*

14. BIT RUNS SCREEN

In one job *Mezintel Gamma* can manage multiple drilling Legs (also called Wellbores) each with its own set of bit runs. Bit runs can be configured with their various parameters. Data is always saved raw and these parameters are applied only when data is exported to LAS file or shown on a plot. Thus an operator is never late to re-configure a bit run. The main bit run screen is shown in **Figure 69**.



Leg Name	Bit Run	Comment	Time Start	Time End	Depth IN	Depth Out	Hrs Plugin	Hrs Circ
Main Leg	1	-	2011/10/13 22:59	2012/09/05 00:58	0.00	1848.50	7850.01	0.08
	Bit	Bit Size (or Hole Size) [mm]	222					
		Bit Type	PDC					
	Off Sets	Survey-to-Bit (PTB) [m]	18					
		Gamma-to-Bit (GTB) [m]	15.28					
		Resistivity-to-Bit 1 (RTB1) [m]	0					
		Resistivity-to-Bit 2 (RTB2) [m]	0					
		Resistivity-to-Bit 3 (RTB3) [m]	0					
	Scale	Gamma Scale Factor	5					
	SNs	Drill Collar ID/OD [mm]	165mm/72mm					
		SN -UBHO	165112					
		SN -Driver	119					
		SN -Electronics	35					
		SN -Gamma	13					
		SN -Batt 1	1					
		SN -Batt 2	N/A					
		SN -Resistivity	N/A					
	Mud	Max Temp [degC]	56					
		Mud Type	Floc					
		Viscosity [s/l]	62					
		Solids %	5.5					
		Sand %	0.2					
		Density [kg/m3]	1180					
		Flow Rate [m3/min]	1.5					
		LCM	N/A					
		PH	10.5					
		K+	N/A					
		Cl	N/A					
		POOH -Reason	N/A					
	For Mem	Mem Import: Gamma Scale Factor	5					
		Mem Import: Offset1 (MemOffset1)	0					
		Mem Import: Offset2 (MemOffset2)	0					
Main Leg	2	-	2012/09/06 14:43	2012/09/16 03:09	1848.50	2642.36	228.44	193.52
Main Leg	3	-	2012/09/16 06:42	2012/09/16 06:42	2642.36	2642.37	0.00	0.52

Figure 69. *Main bit run screen of Mezintel Gamma application*

Manipulating Traces from Memory Tool data Import

The Bit Run screen allows you to scale and offset imported memory data (see the For Mem rows at the bottom of the table above). E.g.: Imported Gamma memory data can be scaled using the Mem Import Gamma scale. For this to work, Gamma memory data should be imported with the sample name Gama-m. E.g.: Row 32 from the tags screen is configured for Gama-m and this will be scaled by Gamma m factor.

30	☑	WOB	Weight on Bit	EDR WITS	0117	---	---	None	kdaN	kdaN
32	☑	Gama-m	Gamma mem	---	---	---	---	MemOffset1	---	---

Figure 70. *Shows Tag screen where Tag 32 is Gama-m (Gamma Memory). This sample added to Tags and should be used when importing Gamma Data from a memory file. You can then use Mem Import Gamma scale and MemOffset1 to Scale and offset memory Gamma sample trace.*

Bit Run Parameters that Modify Data are:

1. Probe-to-Bit Offset (PTB), Default is PTB = 0, This offset is applied to Bit Depth for Surveys
2. Gamma to Bit Offset (GTB), Default is GTB = 0, This offset is applied to Bit Depth for Gamma
3. Resistivity Sensor to Bit (RTB), Default is RTB = 0, This offset is applied to Bit Depth for Resistivity
4. Gamma Scaling Factor or multiplier, DEFAULT = 1, This parameter multiplies Gamma values

Other Parameters Associated with a Bit Run are:

1. Outside and inside diameter of tool collar
2. Tool serial numbers for gamma probe and directional probe
3. Mud type and flow type used in the bit run
4. Mud flow type that applied to the bit run

Bit Run Off-sets & Scaling Factors are Never too Late to be Entered/Edited

Sample Data Always Saved in Acquired form or Raw: This means that *Mezintel Gamma* saves all depth, time, and sample data in the original raw state. Depth offset is only applied when downloading sample data to show on plots or when exporting to LAS file. For this reason new depth offset or gamma scale factor can be entered or changed at any time for any of the bit runs window. Data on plots will be refreshed to correctly reflect the updated depth offset and gamma scale factor.

15. STARTING A NEW BIT RUN

A new bit run can be started in one of two ways:

(1) Starting a Bit Run that continues from the same Well Bore Leg Name
(2) Starting a Bit Run that begins with a new Well Bore Name or Leg Name

NEW BIT RUN FROM SAME LEG NAME (WELL BORE)

A new bit run can be started if the UBHO is changed out with a new tool serial number that requires new sensor offset, and/or gamma scaling parameters. In this case, operators can continue with a new bit run from the bit run screen by clicking the Add BitRun button.

Operators need to note that this command will add a bit run that continues from the same Leg Name or Well Bore name. This also means that the Leg Name cannot be changed specifically for this new bit run since it is a continuation from the Leg Name from which it was created. See **Figure 73**. The dialog shows how to continue with the next bit run for the same well-bore. The new bit run number will be an increment from the last bit run of the latest Leg Name.

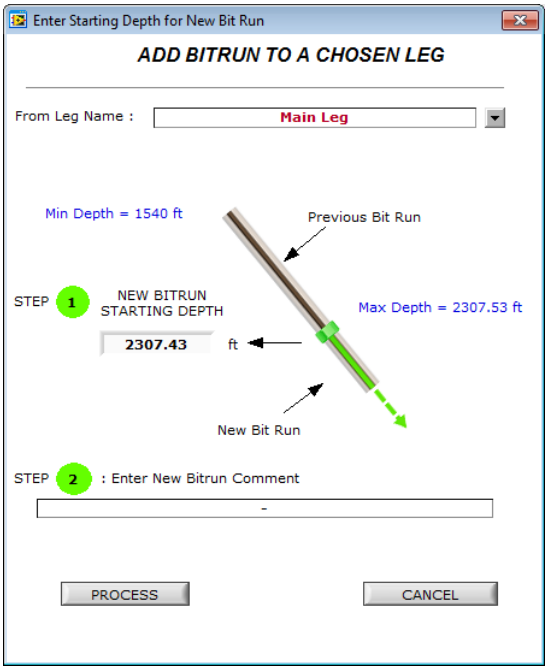
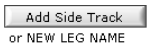


Figure 71. *Starting a bit run that continues from the same leg name or wellbore name.*

Editing a Leg Name

To edit a Leg Name, you can double-click the Leg Name from the bit run grid. Once this is done Leg Names for all sequential bit runs belonging to that same well bore will take-on the new leg name. If you need to start a bit run with a different Leg Name you must start the new bit run as a new Well Bore or as a Side-track. This is described in detail in the section below.

BIT RUN FOR A NEW LEG NAME (WELL BORE)

To start a bit run for a different Leg Name you must use the 

button. This command will add the starting bit run for a new Leg Name or Wellbore.

When adding a bit run for a new Leg Name, the default Leg Name will be ST: 00 which stands for Side-Track 00. However, rather than a side track, this can also, be a HORIZONTAL or LATERAL Well Bore. You can always change the name of the new Leg Name from ST:00 to the desired name. To do this just create the bit run and double click on the cell with the Leg Name ST:00. You can type the new Leg Name in the Cell. All subsequent bit runs can be added using the method of selection and the same Leg Name will be used for subsequent Bit Runs. See illustration in **Figure 73**.

Example

A common example is where the starting Leg Name = ***MAIN LEG*** is renamed to ***BUILD SECTION***. Thereafter all bit runs for this leg name are added using the method explained in ***SECTION 15*****, Figure 71**. Bit runs added in this way will continue to belong to Leg Name = ***BUILD SECTION***.

Later, after hitting the kick-off point, a new Leg Name can be added with Leg Name = ***LATERAL SECTION***. In this case this second Leg Name must be added using the method described in this ***SECTION 15*****,** and illustrated in **Figure 73**. Thereafter additional bit runs for this Leg Name can be added using the method again described in ***SECTION 15*** above and illustrated in **Figure 71**.

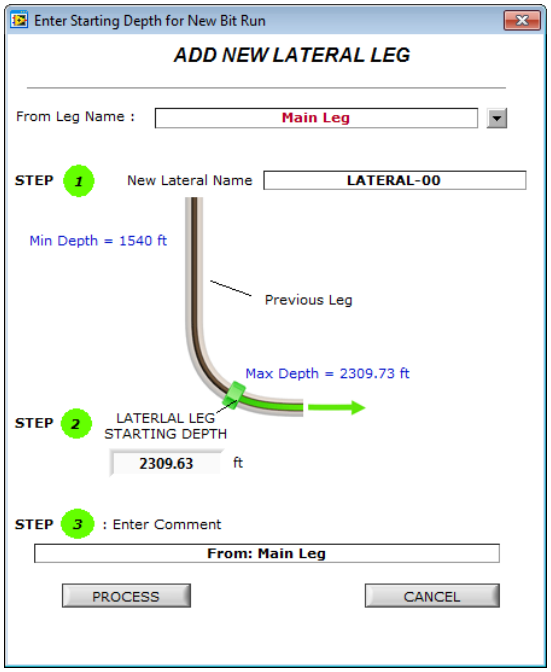


Figure 72: *Starting a Lateral wellbore name. This is one that continues from a build section. A typical job can only have 1 lateral leg. All other legs (with different Well Bore Names) MUST be side tracks*

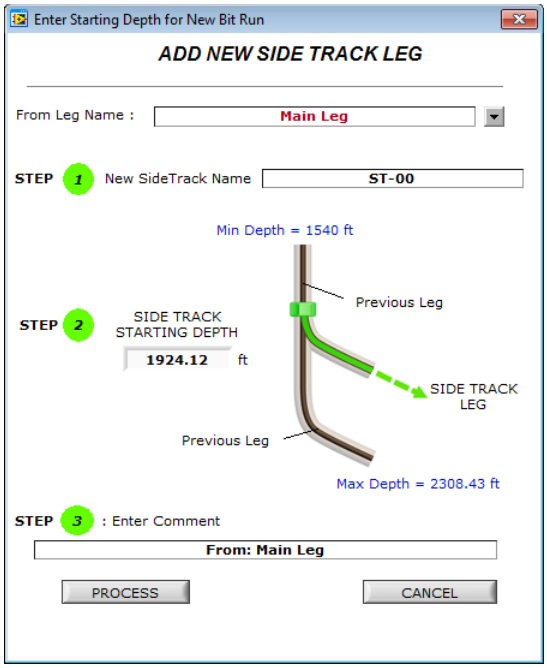


Figure 73. *Bit Run from a New Wellbore Name*

Changing Starting and Ending Depths of BitRuns

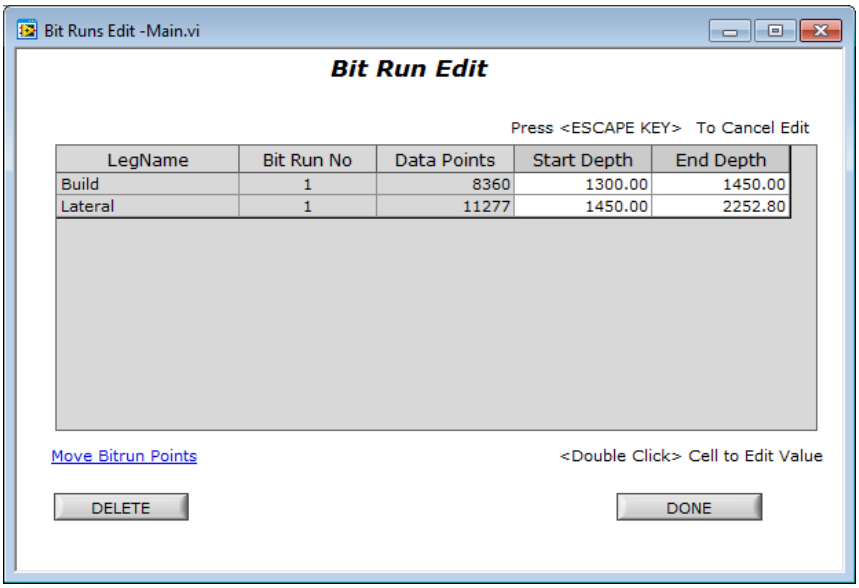


Figure 74: *Dialog for changing starting and ending depths of surveys*

Summary

The purpose of this help section is to explain and provide tips on the following things:

- Info about the ***1st BitRun that is automatically*** Created for each new Job
- How bitrun parameters are ***applied to*** logged ***Depth & Sample*** data
- ***WHEN*** and ***WHY*** should you consider starting a new bitrun during an MWD drilling job
- ***HOW*** to start a new bitrun using Mezinel Gamma in the MWD software
- What to do if you ***FORGET*** to start a BitRun soon enough as recommended here or if for any reason you need to allocate new bitruns with-in the depth range of an existing bitrun.

A STARTING BIT RUN IS AUTOMATICALLY CREATED FOR EACH NEW JOB

When you start a new job in *Mezintel Gamma* software, there is always one starting bitrun that will be automatically created and assigned to that new job. **Figure 75** shows an example of that single starting bitrun. Each one of such bitruns has numerical factors and properties that define the bitrun.

At your earliest opportunity you must assign or fill-in appropriate info for this starting bitrun for your job at hand such. The info to be assigned includes:

(a) Probe-to-Bit Offset (**PTB**) also known as Survey-to-Bit Offset,
(b) Gamma-to-Bit Offset (**GTB**),
(c) Gamma Scale Factor
(d) . . . Other bitrun info such as directional module SN, gamma module SNs, mud properties etc.

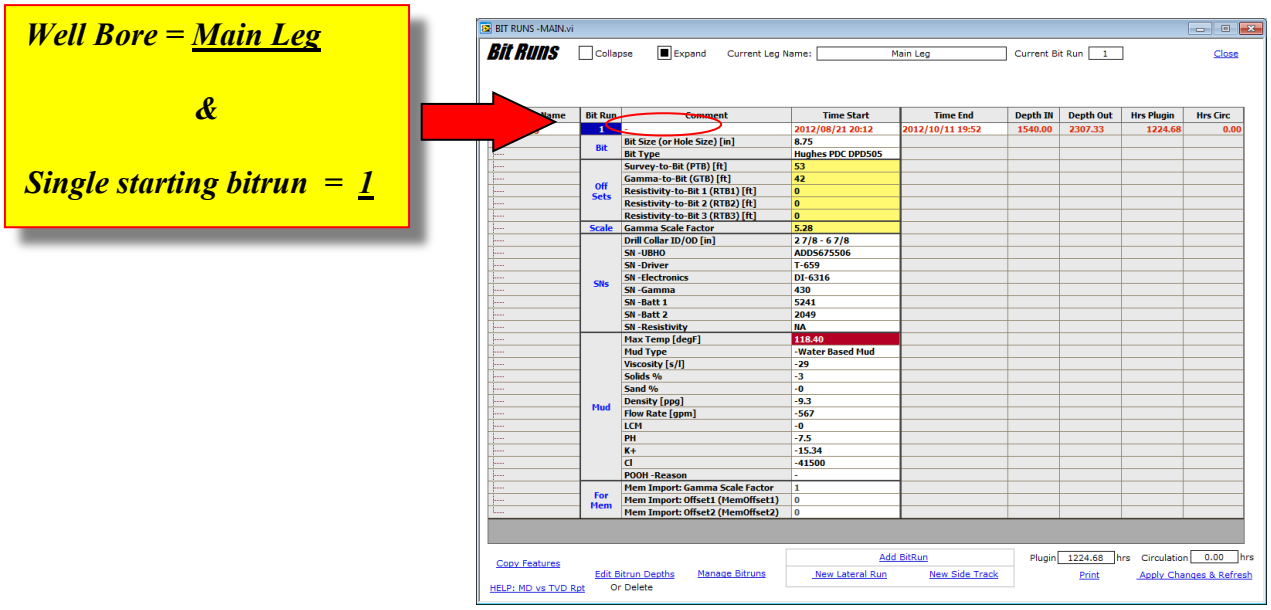


Figure 75. *Shows the single starting bitrun that is automatically created for a new job in Mezintel Gamma software. The bitrun shown above is for Well Bore called Main Leg, The single starting bitrun is bit run # 1. The Bitrun is shown with data filled in for Probe-to-Bit Offset (PTB= 14), Gamma-to-Bit Offset (GTB = 18) and Gamma Scale Factor =1.5 for the job at hand.*

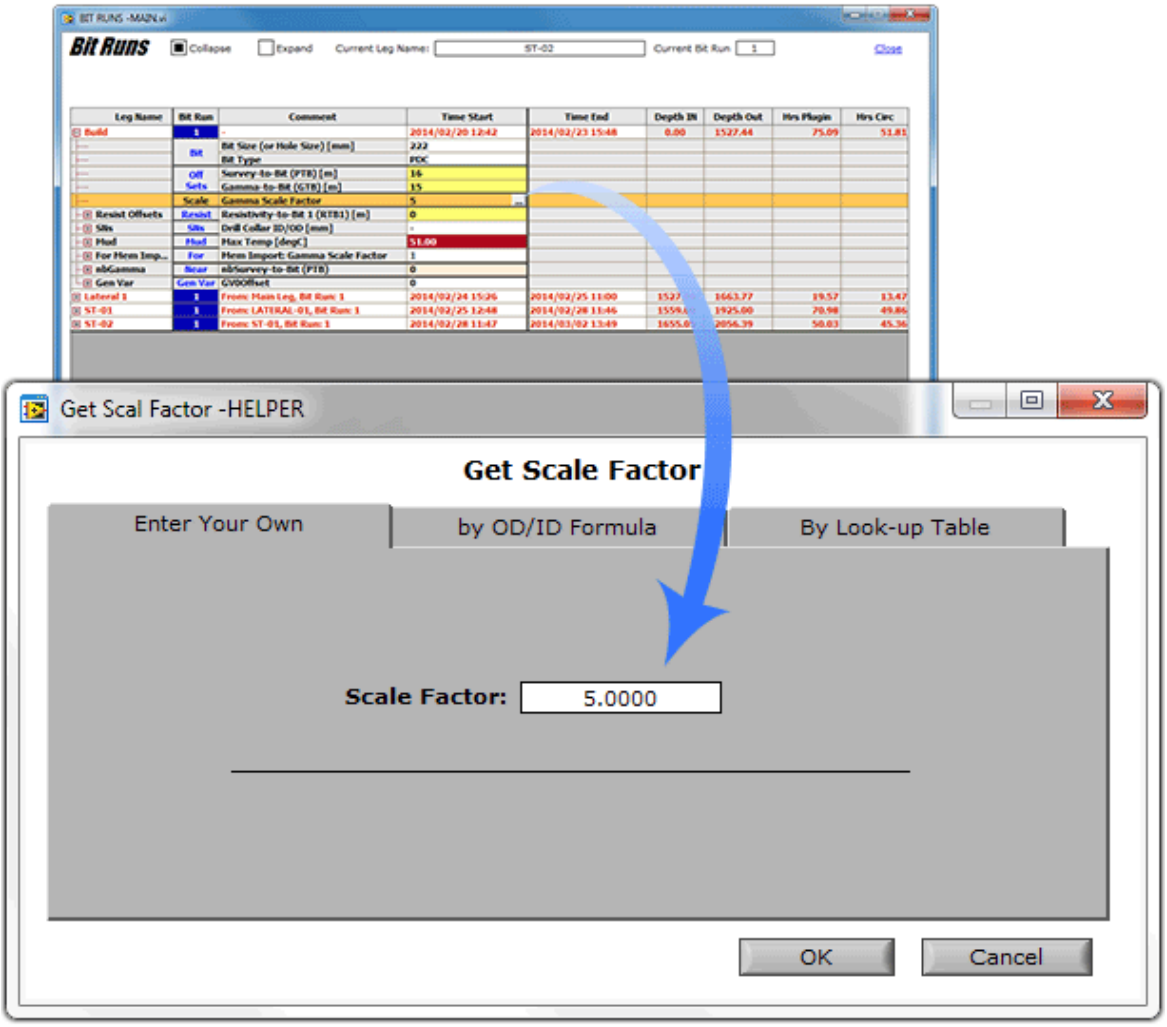
SPECIFYING GAMMA SCALE FACTOR – 3 METHODS

You can specify a gamma scale factor for each bit run in Mezintel Gamma using a new built-in tool that helps you derive scale factors.

You can enter a scaling factor if you know it. Otherwise, if you are unsure, then you can calculate or find it from the *Bit Runs* window:

- In the **Scale** section under the bit run you want, double-click the value box for **Gamma Scale Factor**

  → The *Get Scale Factor* window opens



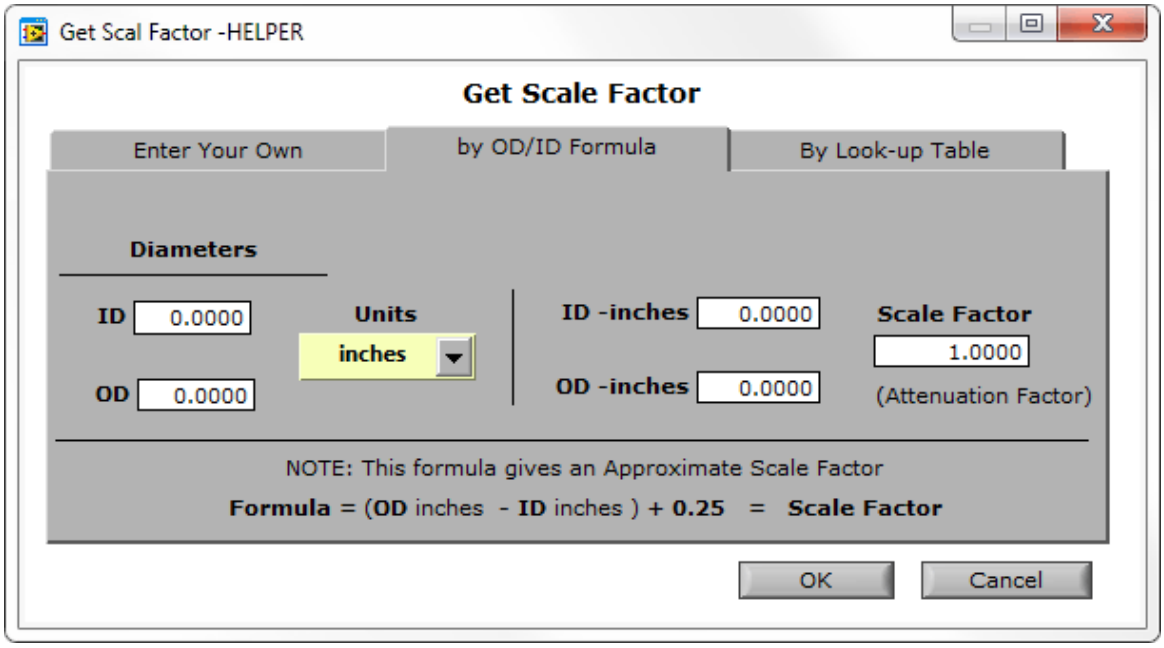
You may also click the … button to open up Get Scale Factor *window.*

Method 1: Enter Known Scale Factor

If you know your scaling factor, under the **Enter Your Own** tab, type in your number and click **OK**.

Method 2: Use OD/ID Formula

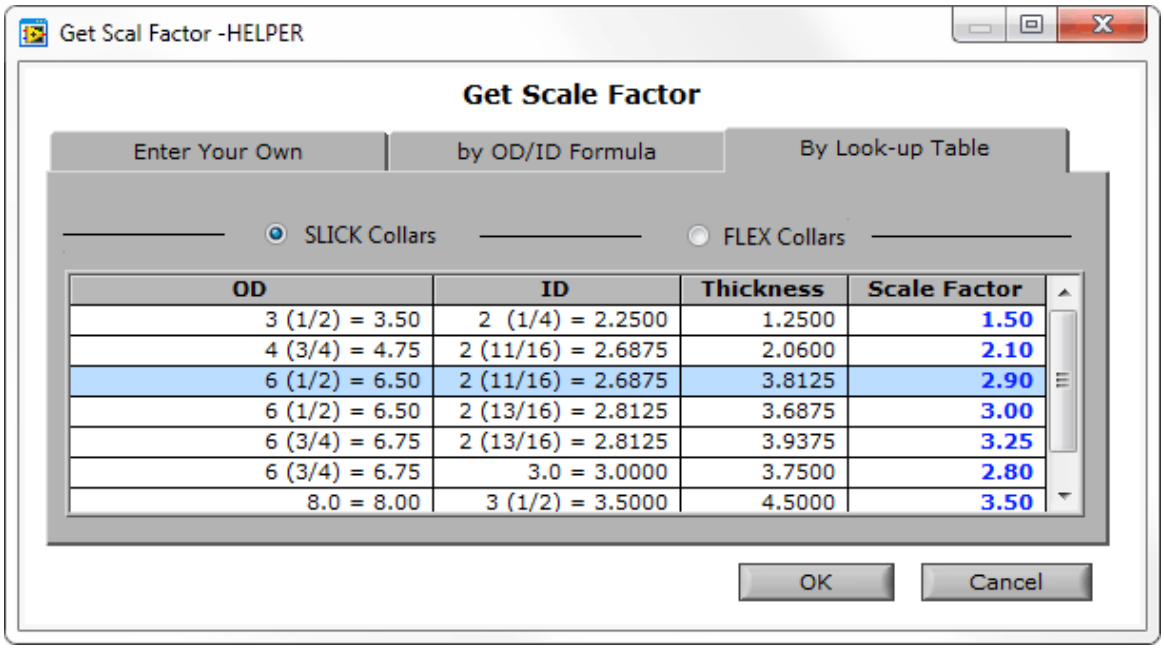
Click **By OD/ID Formula** tab, type in your numbers, and click **OK**.



To calculate attenuation factor using collar OD & collar ID

Method 3: Use a Look-Up Table

Click **By Look-up Table** tab, then click a row, and click **OK**.



To choose a scale factor from a list

How Bitrun Parameters are Applied to Depth & Sample Data

In *Mezintel Gamma* software, all depth and sample data is always saved in the ***raw*** or ***unfactored*** or ***unmodified*** state. This means that the information you enter into the bit run table is ***not applied permanently*** to change data when it is first collected and saved to database.

Instead, when data is downloaded to show on plots, or when exported to LAS file, or when sent as WITS to EDR systems such as PASON, the data is modified only at that time and all the bit run offsets and the gamma scaling factor are all applied to data samples at that time.

This design means that you can change the bit run parameters such as PTB, GTB, and Scale factors at any time and ***you will NOT need to do a reverse correction*** to get the bitrun factors to be applied correctly to the bitrun data that was corrected previously. This design makes it easy and worry free to change bit run parameters on the fly at any time when requested by the e.g. the geologist.

Very Important Precaution

You Must Remember to ADD Your Bit Runs at the Right Time during a Job

If you delay starting a bit run such that you choose a starting depth that is earlier than the ending depth of the last bit run, you will create a splicing condition that will cause some of the data for the previous bitrun not to appear on the plot.

The illustration in **Figure 76** is a scenario where a new bitrun was added at depth that is further back from the last bitrun. In this case bitrun splicing occurred such that sample points in the spliced section belonging to the older bitrun no longer appear on the gamma plot.

To get these points to show up you must relocate them from the old bitrun and into the new bit run. *Mezintel Gamma* has a utility that can relocate sample data between bitruns. This utility is described in detail in the section for on how to add bitruns that were not added in-time during the drilling job.

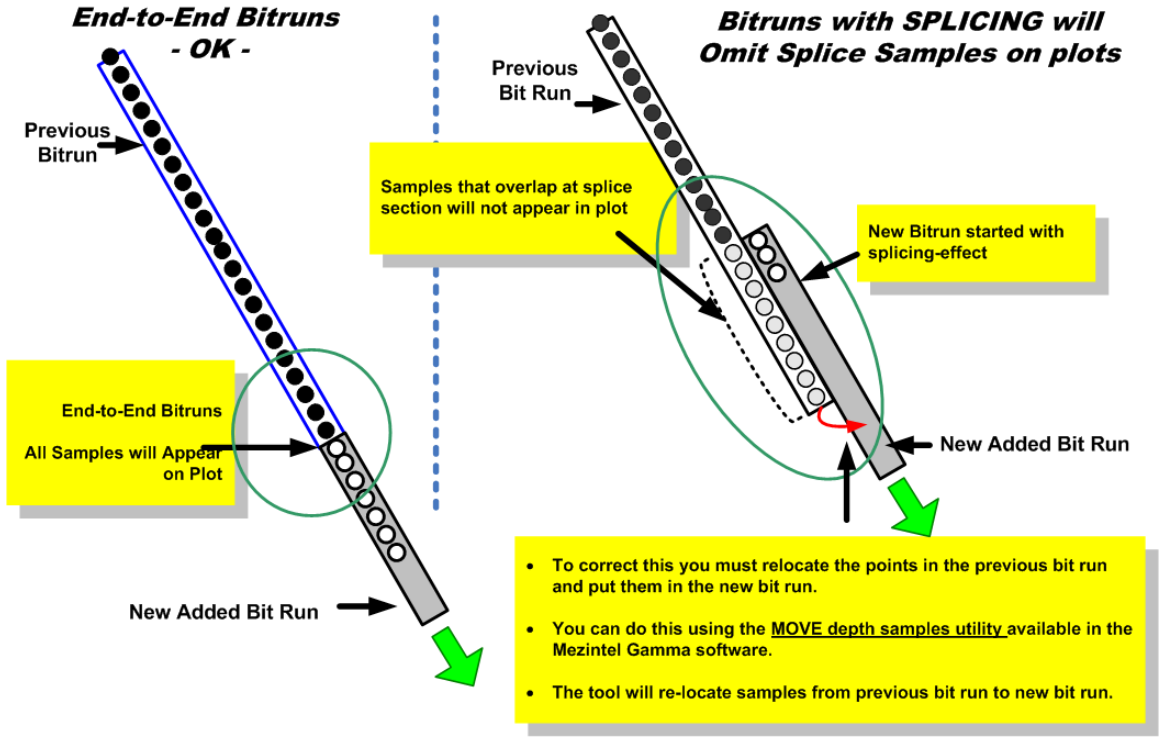


Figure 76. *Splicing condition created by a delay in starting a Bit Run such that the starting depth of the new bit run is earlier then the ending depth of the last bit run*

WHEN YOU SHOULD CONSIDER STARTING A NEW BITRUN

There are several reasons why you should consider starting or adding a new bit. These reasons are if any of the following three conditions apply to your job at hand:

(A) ***Bit or BHA will be changed-out on tripping*** *out of the hole and new BHA has different properties:*

This may happen if you are tripping-out of the hole and the drill string's bit or BHA will be changed out such that one or more of the bit run numerical factors such as ***PTB***, or ***GTB***, and ***Gamma Scale factor*** or ***other bit run properties are changed***.

The reason why this scenario ***necessitates adding a new bit run*** is so that you can separate and group the new logged points under the new bit run. In this way those new logged points will use the ***new*** PTB, or GTB or Gamma Scale factors ***that are different from those of the 1st bitrun***.

Forgetting or ignoring to start this new bit run will mean that the logged points will continue to use the old Offsets such as PTB, GTB, and Gamma Scale factors applicable to the previous bitrun's BHA.

(B) *You want to* ***Start a Lateral Section After Finishing The Build Section****, and want new well bore to be named* ***Lateral Section****:*

Usually after finishing a build section and getting ready to start a lateral section, the BHA will usually be changed out and therefore you will need to start a new bit run based on the reasons explained in part (A) above.

However, in this case you may also want to rename the well bore so that the new well bore name reads ***Lateral Section*** rather than ***Main Leg*** or ***Build Section***. You can do this in *Mezintel Gamma* by choosing the 'Start Lateral Section' Button. The procedure to start the lateral section bit run is explained further in the sections that follow.

(C) *You want to start a* ***New Side-Track*** *well bore at a point higher than the existing runs:*

The next section explains how to start the new bit run in a timely manner using Mezintel Gamma software.

16. EDITING LOG PLOTS

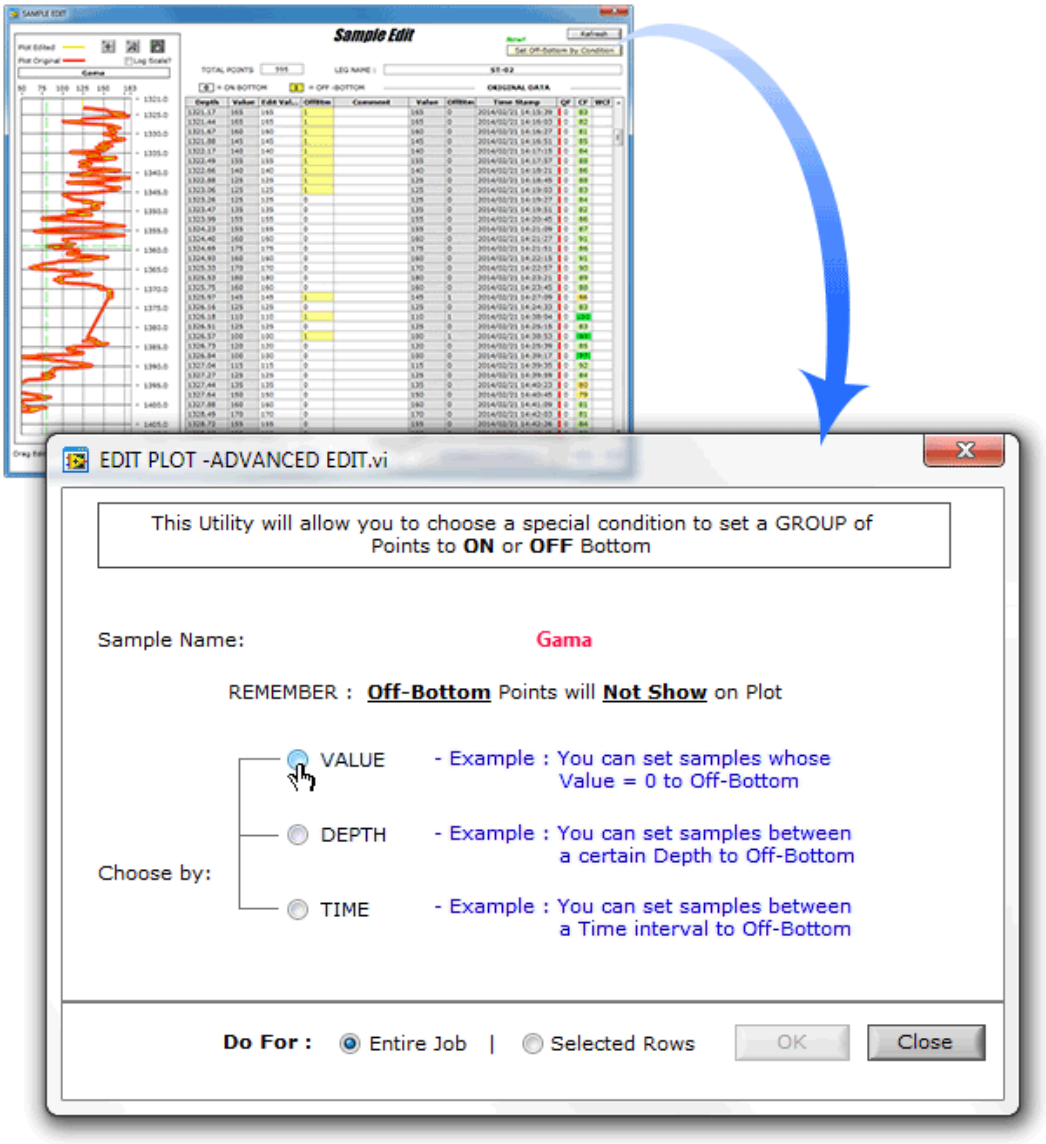
EDITING GAMMA, ROP AND OTHER SAMPLES – 3 METHODS

In Mezintel Gamma, samples points logged when the drill bit is *'off-bottom'* are not shown on the plot. This is useful because it allows you to safely remove points from the plot by manually setting them to be off-bottom. This hides the points rather than delete them. The hidden points can be revealed again by reverting them back to be *'on-bottom'*.

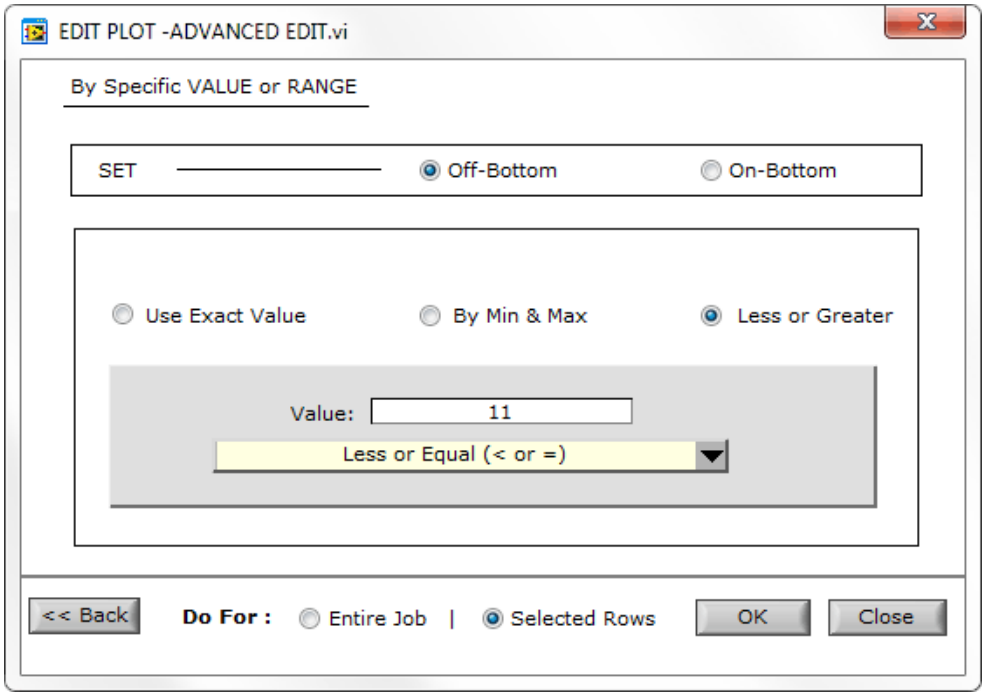
Mezintel Gamma has three ways of editing logged samples: by **Value**, **Depth**, or **Time**. Editing points by batches that match these criteria options allows you to work faster, and with better control.

To use this function, go to the **Sample Edit** screen. Click on the Set Off-Bottom by Criteria button, which will take you to the Edit Plot Screen.

The ability to edit samples based on their **VALUE**, **DEPTH**, or **TIME** allows you to edit multiple points at once.

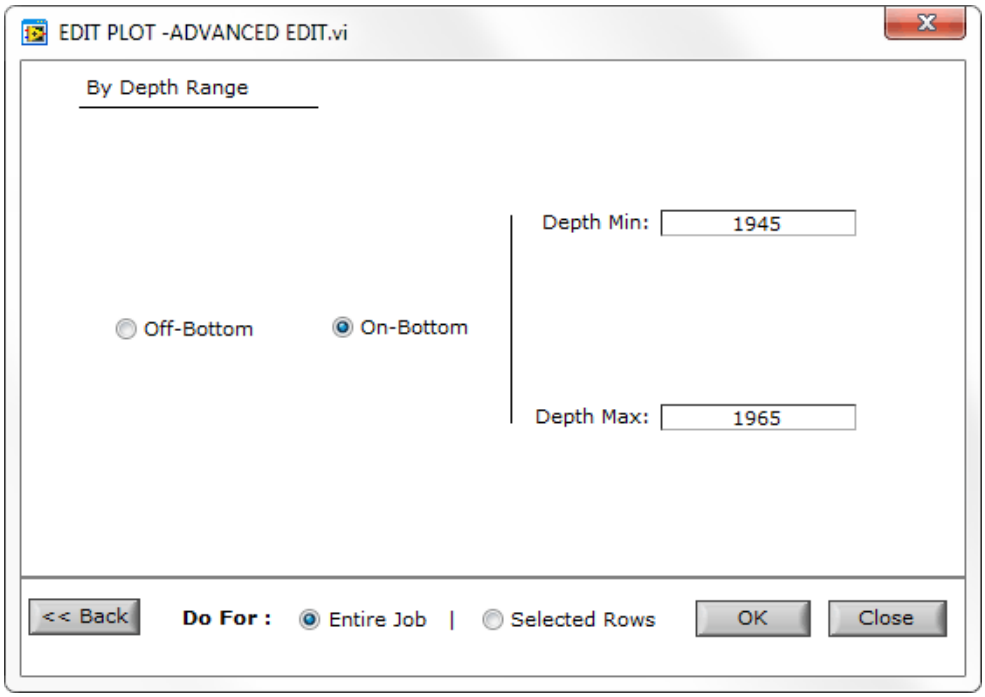


1. *Editing Samples by Value Criteria*:
   This method allows you to specify an exact value or range of values for which the matching sample points can be set to Off-Bottom to be removed from the plot, or set to On-Bottom to reappear on the plot.



*With these settings, points that are within the **Selected Rows** will be set to **Off Bottom** if their value is **Less or Equal to 11**.*

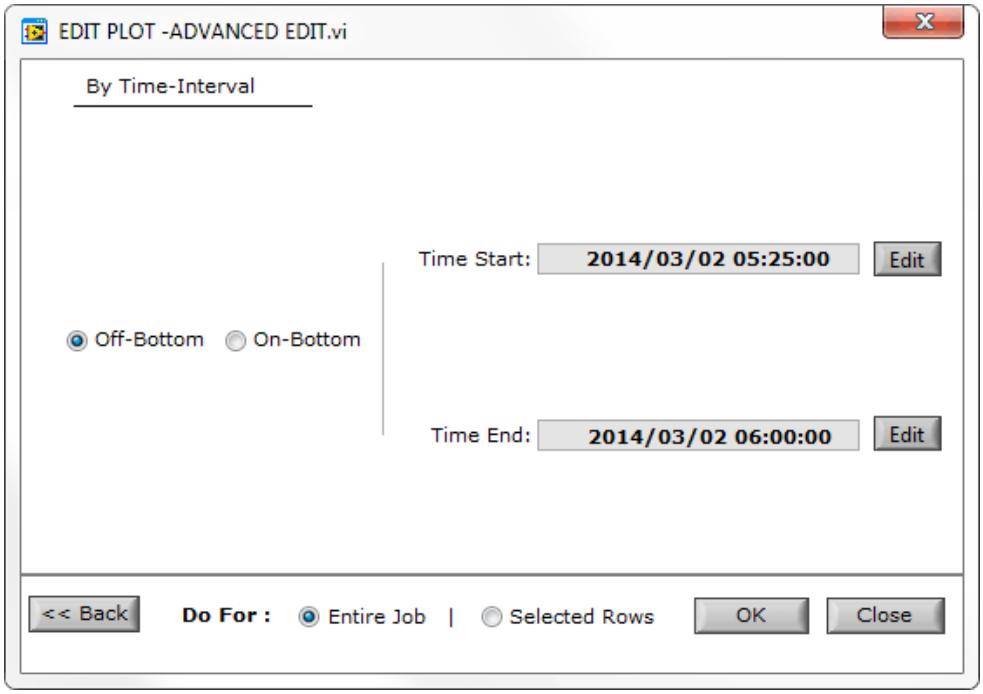
2. *Editing Samples by Depth Criteria*:
   This method allows you to specify range of depth for which the matching sample points can be set to Off-Bottom to be removed from the plot, or set to On-Bottom to reappear on the plot.



*With these settings, for the **Entire Job**, points will be set to **On Bottom** if their depth is between **1945 m and 1965 m**.*

3. *Editing Samples by Time Criteria*:

   This method allows you to specify a time interval for which the matching sample points can be set to Off-Bottom to be removed from the plot, or set to On-Bottom to reappear on the plot.



*With these settings, for the **Entire Job**, points will be set to **Off Bottom** if their time stamp is within.*

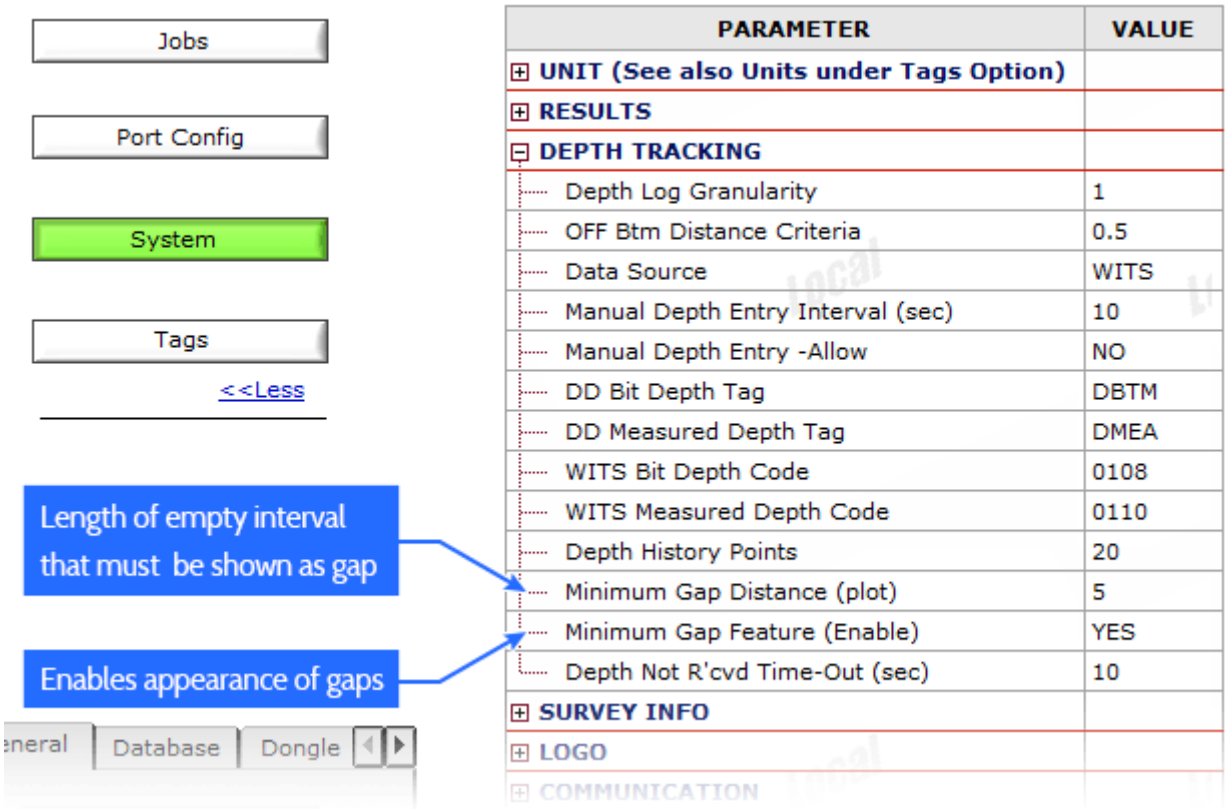
HANDLING DATA GAPS IN YOUR GAMMA LOG PLOTS

Sometimes sample data may go missing for an extended interval of time while drilling continues. In such cases, there is a gap in the sample plot for the depth interval where data went missing.

With Mezintel Gamma there is an option that allows you to control whether, and when, to show such gaps on your plot.

You can configure this option in System Configuration on the *Mezintel Gamma Start* window:

1. Click on **>>More** to see more configuration options.
2. Click **System**.
   → The grid frame shows options for system settings.
3. On the grid, click on the **Depth Tracking** row to expand it.
4. To show gaps on plot:
   1. On the **Minimum Gap Feature** row, double-click the value column and select **YES**.
   2. On the **Minimum Gap Distance** row, double-click the value column to select an activation threshold value between 5m and 10m.
      → Any gaps longer than this value (in meters) will show on the log plot.



Above settings will cause a gap to show up if data goes missing for 5 meters or more (assuming that depth unit is in meters).

To avoid gaps and keep a straight line just set **Minimum Gap Feature (Enable) = NO**

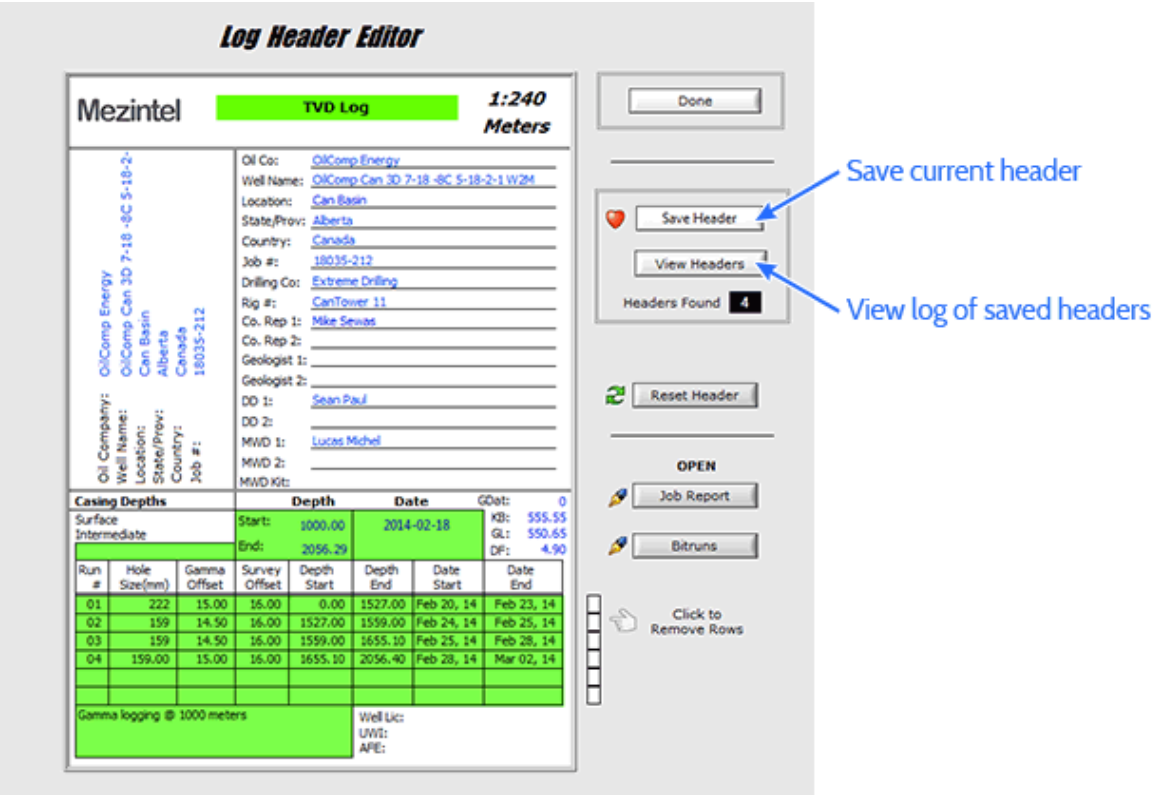
17. EXPORTING LOG PLOTS FOR PRINTING

SAVING MULTIPLE LOG PLOT HEADERS

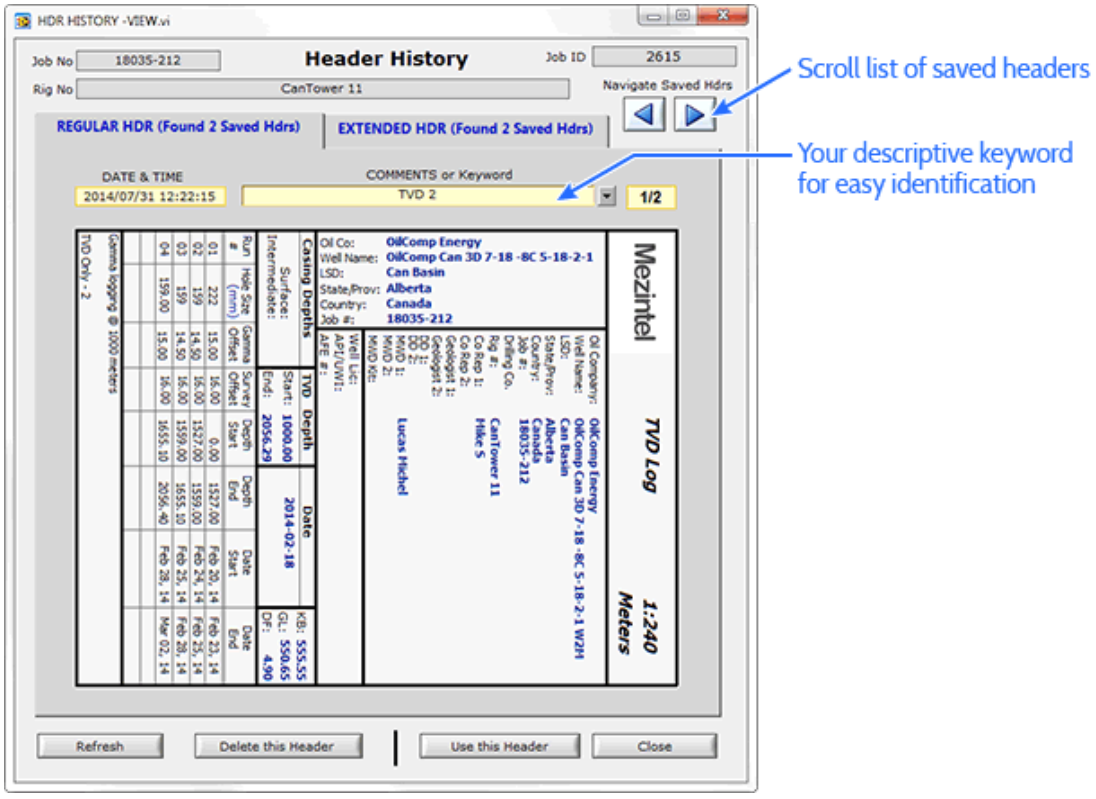
Mezintel Gamma has a Log Head Editor that offers the ability to recall and save multiple plot headers for the same job.

How to Save Plot Headers

- On the log chart print preview window, click **Edit Header** to open the *Log Header Editor* window.
- Click on **View Headers** to see a log of saved headers and highlight those that you want to save.
- Click on **Save Header** to save the current header.
- **Tip**: Giving your headers descriptive keywords makes it easier to find specific ones in the log of saved headers.



You can edit the green highlighted areas and save different versions of the header.



Saving your headers with descriptive keywords makes it easy to identify them in the log of saved headers.

Note:

- When you recall an old plot header, you can edit it further and re-save it.
- All headers are retained when you export/import a job that has saved plot headers.

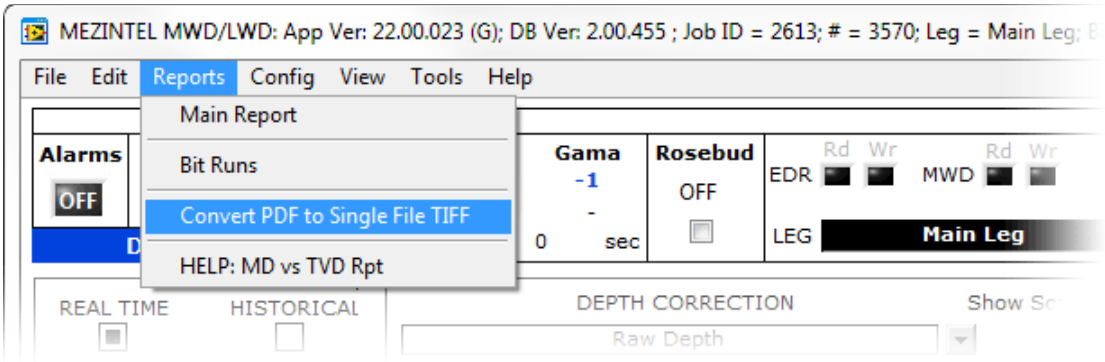
EXPORTING WELL LOGS AS TIFF IMAGES

Some geologists require well logs to be produced as one seamless image file, usually as TIFF. Mezintel Gamma produces the logs in PDF format, but it is possible to convert a multi-page PDF to a single, seamless image TIFF and retain the original PDF file.

Converting PDF to TIFF in Mezintel Gamma.

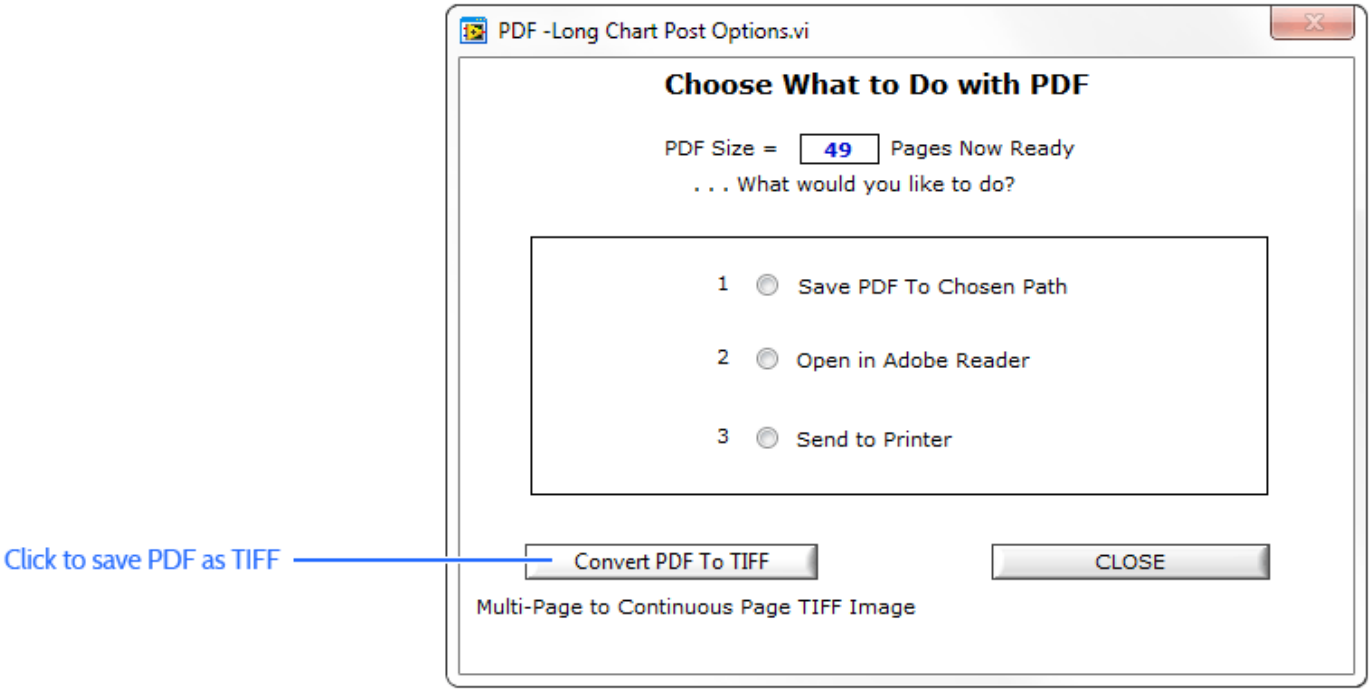
1. **Converting a readily available PDF to TIFF:**

   You can access the function from the Main Menu.
   Click on **Reports** and from the drop-down menu click on **Convert PDF to Single File TIFF**.



2. **Saving a present job's PDF log as TIFF:**

You can also access the function immediately after generating a PDF log by clicking on the Convert PDF to TIFF button.



The conversion process takes a few seconds, after which you can open the TIFF file and save it. Once the conversion process has been completed you will be notified that it was successful.

Notification is shown when the conversion is complete.

18. Ending Well Bores and How They are Plotted

Mezintel Gamma uses the terminology "Ending LegName" to indicate the latest Well Bore of interest. When the operator plots a log, or exports an LAS file, or views Surveys, this information will always be displayed by re-tracing the ending leg name back to the surface.

The illustration below shows how a plot can be retraced from an ending Leg Name back to the surface.

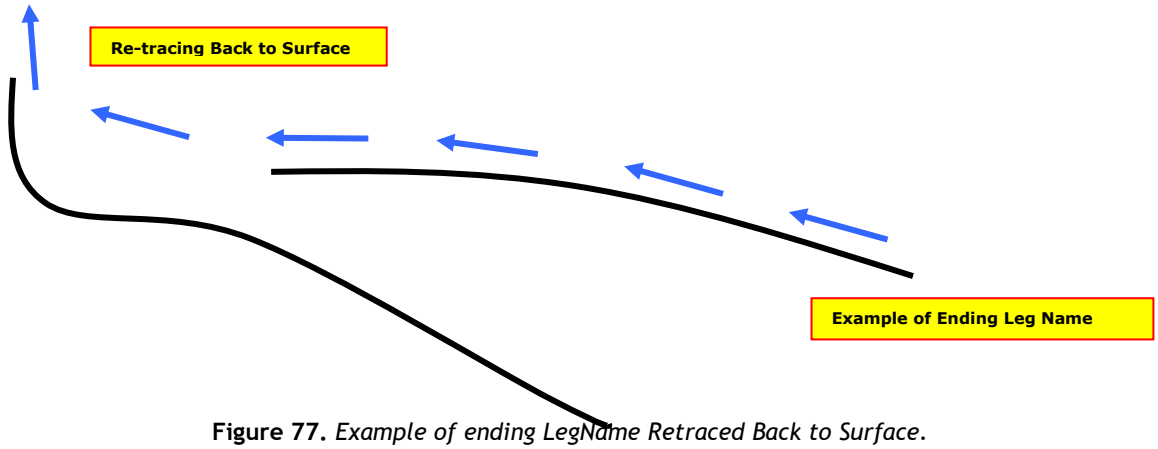


Figure 77. *Example of ending LegName Retraced Back to Surface.*

How to Print TVD Plot so that it Does Not Back Track on Itself

The well bore example shown is one where the horizontal section of the Well-Bore is back-tracking resulting in multiple gamma readings for the same TVD depth.

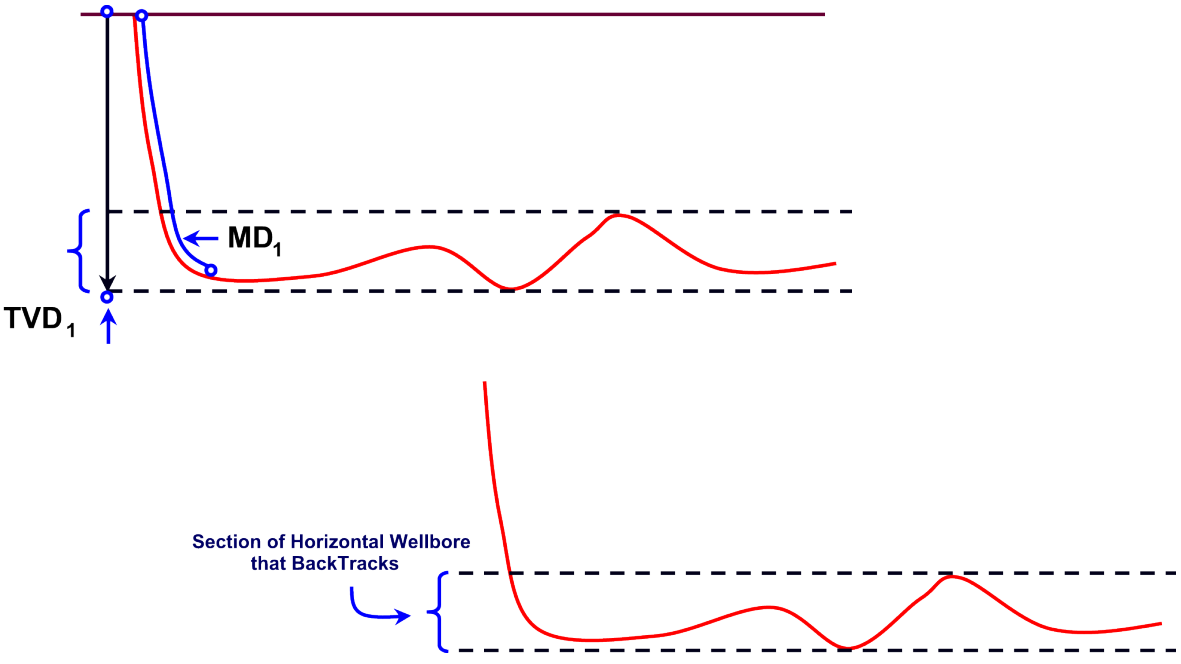


***Figure 78**. Example of a well bore where the horizontal leg was back tracking.*

For example, if you look at a TVD plot for TVD depth up to ***TVD$_1$***, then the TVD plot will show multiple Gamma points starting from ***TVD$_0$*** to ***TVD$_1$***. The reason for this is because multiple gamma values exist for any TVD depth between those two TVD levels. See **Figure 78, Figure 79.**

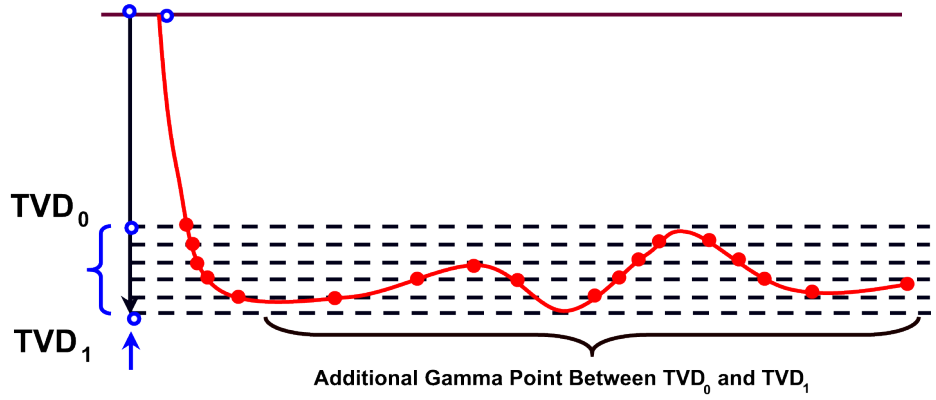


Figure 79. *Shows that between TVD$_o$ and TVD$_1$ the well bore will be backtracking.*

How to Choose MD to see a clean Gamma plot up to TVD$_1$ (i.e. for no Back tracking plot)

If you want to see a clean Gamma plot up to TVD1, you must look at the Survey Table and find the first Measured Depth value whose calculated TVD is the same as TVD1. Then take the Measured Depth for that TVD and enter that Measured Depth as a Measured Depth value for the TVD plot. See the Measured Depth MD1 in
Figure *80*.

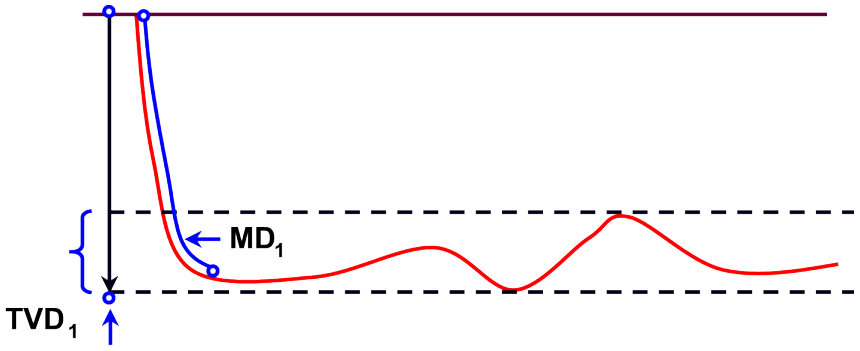


Figure 80. *In the above example, A Measured Depth of MD1 will show the gamma plot as a single plot up to the TVD value TVD1. Where as a Measured Depth Greater than MD1 will show a TVD plot that back tracks.*

A real example of TVD plot that back tracks is shown in **Figure 81.** In this example, it is probable that the TVD range where backtracking started to happen was between 687 m to 689 m.

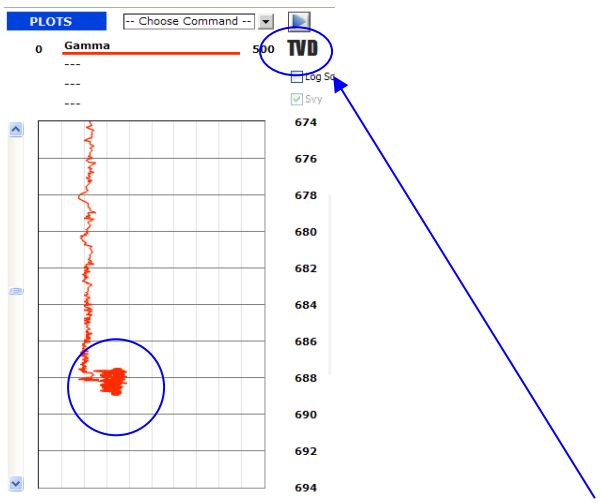


Figure 81**. Example of TVD Plot that back tracks. Be sure that vertical depth is selected as **TVD

Now, if you want a clean Gamma TVD plot, you will need to examine the survey table and get the Measured Depth at which *the first highest value of TVD* was achieved before the TVD started to revert backwards. That is before inclination started to be > 90 deg

The Survey table for this example is shown in **Figure 82**. Notice that the maximum Measured Depth at which the TVD started to revert backwards was ***879.89 m r approx 880 m***. So this is the Measured Depth that must be entered in the print dialog as shown in ***Figure 83***. Once, entered the TVD plot will now appear clean with no back tracking.

The TVD plot with no backtracking is shown in **Figure 84**.

SURVEYS -MAIN.vi

SURVEYS --- Choose Command --- Show All Valid Only Surveys Edit Tie-in

#	Time and Date	Valid	MDpth	Inc	Azm	N/S	E/W	TVD	VS	DLS	MagF	DipA	Grav	LegName
030 EDITED	15:38:29 2010/10/06	☑	632.31	46.9	327.7	79.18	-45.16	606.74	79.18	5.89	0.000	74.800	0.000	BUILD
031 EDITED	16:17:16 2010/10/06	☑	646.14	49.8	328.1	87.94	-50.65	615.93	87.94	6.32	0.000	74.900	0.000	BUILD
032 EDITED	16:55:27 2010/10/06	☑	659.91	52.8	327.5	97.03	-56.38	624.54	97.03	6.62	0.000	75.100	0.000	BUILD
033 EDITED	17:30:45 2010/10/06	☑	673.68	55.7	326.7	106.41	-62.45	632.58	106.41	6.47	0.000	75.000	0.000	BUILD
034 EDITED	18:07:05 2010/10/06	☑	687.53	58.6	328.0	116.21	-68.72	640.09	116.21	6.71	0.000	74.900	0.000	BUILD
035 EDITED	18:35:00 2010/10/06	☑	701.28	60.5	326.8	126.19	-75.11	647.06	126.19	4.72	0.000	0.000	0.000	BUILD
036 EDITED	19:15:27 2010/10/06	☑	715.14	62.2	326.5	136.35	-81.79	653.71	136.35	3.72	0.000	74.800	0.000	BUILD
037 EDITED	19:57:01 2010/10/06	☑	728.91	64.1	325.8	146.55	-88.64	659.93	146.55	4.36	0.000	75.100	0.000	BUILD
038 EDITED	20:38:46 2010/10/06	☑	742.65	67.7	326.9	156.99	-95.58	665.54	156.99	8.16	0.000	75.100	0.000	BUILD
039 EDITED	21:14:40 2010/10/06	☑	756.44	71.0	327.0	167.81	-102.62	670.40	167.81	7.18	0.000	74.900	0.000	BUILD
040 EDITED	21:50:36 2010/10/06	☑	770.28	73.6	326.8	178.85	-109.82	674.61	178.85	5.65	0.000	75.000	0.000	BUILD
041 EDITED	22:23:39 2010/10/06	☑	784.03	76.2	327.3	189.99	-117.04	678.19	189.99	5.77	0.000	74.900	0.000	BUILD
042 EDITED	22:55:01 2010/10/06	☑	797.78	79.0	327.7	201.32	-124.25	681.14	201.32	6.17	0.000	74.900	0.000	BUILD
043 EDITED	23:27:32 2010/10/06	☑	811.62	81.1	327.0	212.79	-131.61	683.53	212.79	4.79	0.000	75.100	0.000	BUILD
044 EDITED	23:59:58 2010/10/06	☑	825.33	83.4	327.5	224.22	-138.96	685.38	224.22	5.15	0.000	0.000	0.000	BUILD
045 EDITED	00:32:54 2010/10/07	☑	839.15	86.7	329.3	235.94	-146.17	686.57	235.94	8.15	0.000	74.900	0.000	BUILD
046 EDITED	01:21:56 2010/10/07	☑	852.98	87.2	329.3	247.82	-153.22	687.31	247.82	1.08	0.000	74.800	0.000	BUILD
047 EDITED	05:18:45 2010/10/08	☑	872.00	87.6	329.3	264.16	-162.92	688.17	264.16	0.63	0.000	0.000	0.000	BUILD
048 EDITED	05:46:33 2010/10/08	☑	879.69	88.9	330.0	270.79	-166.81	688.41	270.79	5.76	0.000	0.000	0.000	BUILD
049 EDITED	06:09:00 2010/10/08	☑	892.32	91.4	329.4	281.69	-173.18	688.37	281.69	6.11	0.000	0.000	0.000	BUILD
050 EDITED	06:38:27 2010/10/08	☑	904.88	91.8	329.9	292.53	-179.52	688.02	292.53	1.53	0.000	0.000	0.000	BUILD
051 EDITED	07:10:49 2010/10/08	☑	917.51	91.3	329.5	303.43	-185.89	687.68	303.43	1.52	0.000	0.000	0.000	BUILD
052 EDITED	07:34:33 2010/10/08	☑	930.14	90.0	329.6	314.31	-192.29	687.54	314.31	3.10	0.000	0.000	0.000	BUILD
053 EDITED	07:57:35 2010/10/08	☑	942.19	89.8	329.5	324.70	-198.40	687.56	324.70	0.56	0.000	0.000	0.000	BUILD

***Figure 82**. The survey table for this example shows that the MD of **879.89 m** gives the first TVD before backtracking started to occur. If This TVD is entered in the Print Dialog, the TVD will appear clean.*

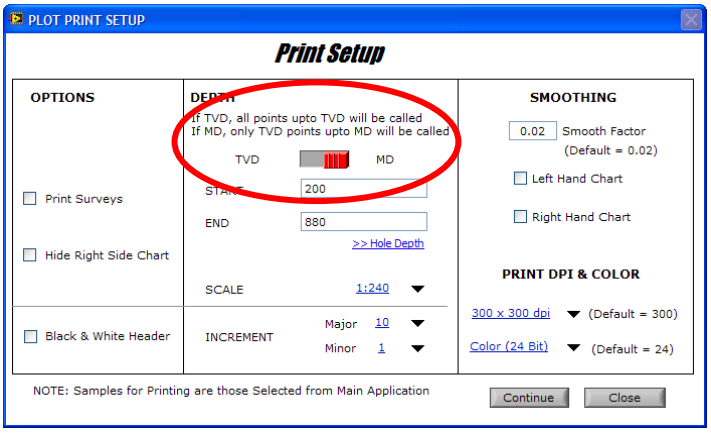


Figure 83. *This dialog shows that you should move the Red Switch to be in MD. Then enter the depth 880 m. In this was the plot generated will be up to a TVD of ~688 m without the backtracking.*

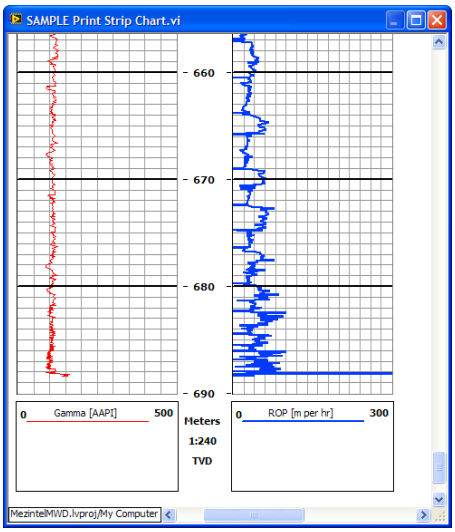


Figure 84. *TVD Plot generated with no back-tracking.*

MANAGING MULTIPLE LEG NAMES OR SIDE TRACKS IN MEZINTEL GAMMA

Summary

In *Mezintel Gamma* you can add, review, and plot multiple leg names, known as side tracks or laterals, while staying under one and the same Job ID. What this means is that you will not need to start a new job if at any time you want to do a ***Side-Track*** run or a Lateral Run that proceeds from the ***Main Leg***.

This section explains how *Mezintel Gamma* organizes bit runs for multiple sidetracks or lateral runs and how you can create and navigate between these runs to review and plot your gamma logs.

Leg Name Selection Box on Main Screen

Notice that there is a Leg Name *drop down* on the main screen.

- **By default:** This selection box always shows the latest active well bore or leg name that is being drilled. This current or active leg name is the one that will be receiving and logging new on-bottom data to the database.

- **<u>The Current or Active Well bore Name:</u>** The active well bore name is also the same one that shows up on the window title bar of the *Mezintel Gamma* software. An example of the window title bar showing a current Leg Name is the one in ***Figure 85.*** The window title bar shows that the current Leg Name is ***LATERAL:01***, and the latest bit run for that leg name is ***Bitrun = 1***. This also means that the Leg Name = ***LATERAL:01***, is the one that is receiving logged data as long as the bit depth is on-bottom inside bitrun = 1.

Figure 85*. Shows the Leg Name Selection box, which by default always shows the active well bore that is being drilled.*

- **Selecting a Different Leg Name Does not Change Active Leg Name:** Even if you select a different Leg Name from the '*LEG*' selection box, <u>you will not be changing the active well bore name that is being actively drilled</u>. This means that *Mezintel Gamma* will continue to monitor and log data to the active Leg name shown on the window title bar.

When Does The Active Leg Name Change?

- The only time that the active leg name changes is when a ***New Side Track*** or ***New Lateral Run*** is added to the bitruns screen. By doing this, the latest added ***Side Track*** or ***Lateral Leg*** will now become the current active well bore.

Log Plots Always Re-Traces Back to Surface

For any given Leg Name selected in the drop down box, the sample plot will show data all the way back to the surface of the hole.

For example:

- If ***Side Track 2*** is selected, the Measured Depth Plot will show logged data that re-traces back as shown by the <u>Red dotted line</u>.
- If ***Side Track 2*** is selected, the Measured Depth Plot will show logged data that re-traces back as shown by the <u>Blue dotted line</u>.
- If ***Main Leg 1*** is selected, Measured Depth Plot will show logged data that re-traces back as shown by the <u>White dotted line</u>.

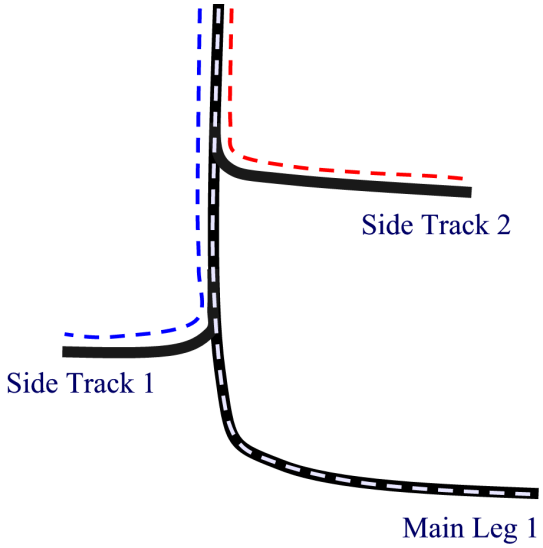


Figure 86. *Above shows examples of measured depth paths re-traced on the plot when either: Side Track 2, Side Track 1, or Main Leg 1 are selected. Notice that the plot re-traces back to the surface, starting from the end of the selected leg name. This why Mezintel uses the term* ***Ending LegName****. Which means the Leg Name from which the Measured Depth is plotted from and Re-Traced Backwards*

TVD Plot & Surveys Only Re-Trace Back to Survey Tie-in Point

The Surface Tie-in point determines two things:

(1) How far back the Surveys are re-traced from last downhole survey; and
(2) How far back the TVD plot is re-traced from the downhole measured depth.

For example: if the range of Measured Depth between the Survey tie-in point to the last Survey is ***1,000 m*** to ***1,238 m,*** and the Tie-in TVD is ***800 m,*** then the TVD plot cannot be plotted below the ***800 m***. The example of ***Figure 88*** shows this situation. Notice that the plot only extends as far back as the beginning Survey Tie-in where ***TVD = 800 m***.

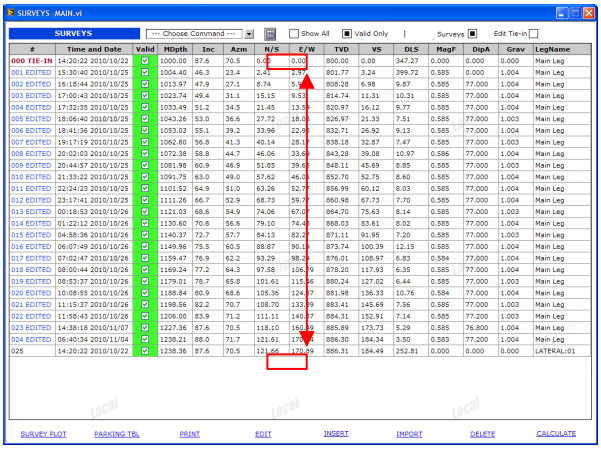


Figure 87. *The TVD range from* ***800 m*** *to ~****886.31m*** *shown in the Survey table is the one that will apply for the TVD plot. The plot cannot cover depths less than* ***800 m****, which is the minimum tie-in for the Surveys. The plot, however, can extend further than the last survey because Mezintel Gamma will estimate TVD from the last known calculated Survey, using geometry formula.*

Mezintel Gamma Plots TVD Beyond the Last Survey Using Geometry

Mezintel Gamma uses geometry formula to estimate TVD beyond the last survey. So in the example of **Figure 87,** even though the Survey ends at ***886.31 m*** the TVD plot can still show samples beyond ***886.31*** **m** via geometry estimation.

This also means that for the Survey table shown in **Figure 87**, *Mezintel Gamma* will plot the TVD log starting from the surface tie-in point of ***800m*** to over ***886.31 m***. The last TVD depth plotted will be the one estimated using the last hole depth attained up until that time.

Figure 88 shows a TVD plot for the Survey data shown.

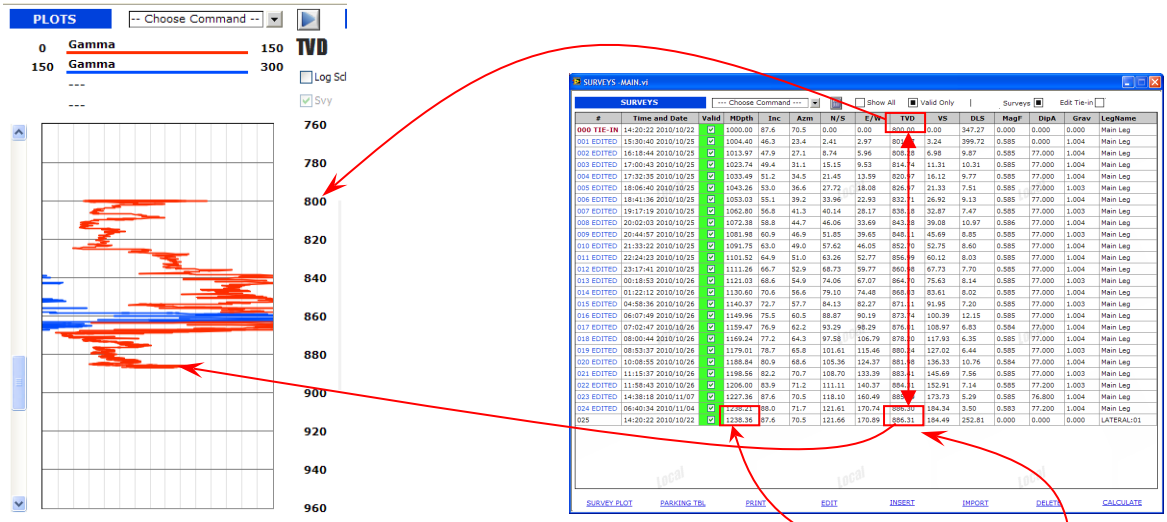


Figure 88. *The TVD plot showing that the starting point begins at the* ***Tie-in TVD of 800m****. The TVD log proceeds to over* ***886.31m.*** *Points appended to the log beyond the Measured depth of* ***1238.36m*** *get TVD estimated using the geometry formula. So while the TVD log may not be less than* ***800m*** *it may still go beyond* ***886.31m***

What Happens if You Change Leg Name Selection Box on Main Screen

Data Logging ***Continues in the Background*** for The Active Leg

It is very important to note that: If you change the leg name selection box to show a leg name which is different from the current active Leg Name, data will continue to be received and logged (saved), in the background, for the active bitrun that shows on the window title bar, and that the data capture table will continue to show that Data.

However, the ***Plots screen,*** and the ***Surveys table*** will **NOT update** to show new data because they will be not be referring to the current active Leg Name. But once you change the Leg name again to be the active leg, both the plot screen and survey screen will again show the data logged up until that point and will continue to show incoming new data.

Starting from ***version 15.00.031*** the Leg Name Selection Box will show a note that the Current Active n Leg Name is different than the one selected. **Figure 89** shows such a message that informs the operator that the leg name selected is not the current well bore being drilled.

Usually you will temporarily change the Leg Name to review or print the log for a previous well bore.

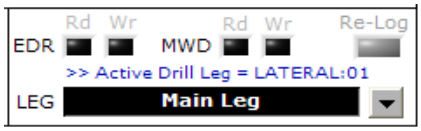


Figure 89. *The note in blue text reminds the user that the well bore selected is not the active one which is collecting new drilling data. You can select a well bore different than the active one to review data or to plot data for that well bore.*

- *Remember that data will continue to be logged in the background to the active wellbore.*

What is a Bitrun?

- A Bitrun is one that continues end-to-end for the Same Well Bore name. See **Figure *90*.**
- A new Bitrun is created or added when the BHA changes to require different Serial numbers for components in the drill string, and if the offset changes for Survey and Gamma probes, or if a different Gamma scaling factor is required to be applied to the raw counts. Other reasons for starting a new Bitrun is to document why tripping occurred.
- In all cases *adding a new Bitrun will NOT Change the leg name*. The Well bore name will continue to be the same but will be divided or segmented in to the bit runs that were added.

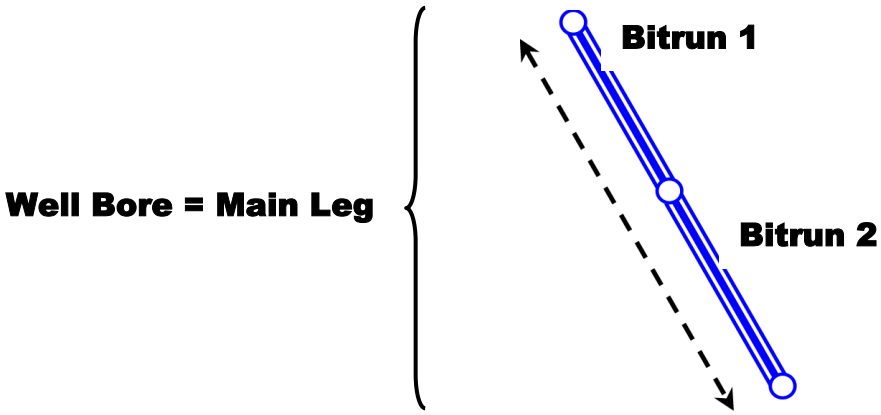


Figure 90. *Bitrun 1 & Bitrun 2 are part of the same Well Bore Name = **Main Leg**. These Bitruns are added when the BHA changes. Each Bitrun can be associated with its own different scaling factors, offsets, or component SNs.*

Bitruns Added to a Well Bore Will Keep the Leg Name the Same

For example, in **Figure 93.**

Changing any of these Leg Names will cause all Bitruns from 1- to-8 to get the same leg name. This is because Bitruns 1-to-8 are all part of the same well bore.

Leg Name	Bit Run	Comment	Time Start	Time End	Depth IN	Depth Out	Hrs Plugin	Hrs Circ
Main Leg	1	-	2010/10/22 14:20	2010/10/23 15:23	0.00	805.87	25.05	17.50
Main Leg	2	-	2010/10/24 08:08	2010/10/24 18:56	805.87	924.73	10.80	7.04
Main Leg	3	-	2010/10/24 20:07	2010/10/25 03:50	924.73	951.61	7.71	3.05
Main Leg	4	-	2010/10/25 05:28	2010/10/26 11:51	951.61	1221.01	30.38	23.60
Main Leg	5	-	2010/10/27 19:03	2010/10/30 11:35	1221.01	1238.36	64.53	43.78
Main Leg	6	-	2010/10/30 13:00	2010/10/30 23:47	1238.36	2025.04	10.78	7.20
Main Leg	7	-	2010/10/31 04:41	2010/11/01 22:48	2025.04	2316.16	27.30	19.21
Main Leg	8	-	2010/11/01 12:41	2010/11/03 12:46	2316.16	2650.02	48.09	30.48

Figure 91. *Bitruns 1 to 8 were added to the same Well Bore, the Well Bore name will stay the same for all of these Bitruns. For example if you change the Wellbore for one of the Bitruns from Main Leg to New LegName ALL Bitruns 1 to 8 will take that new Well Bore Name because they all belong to the same Well Bore.*

What is a Lateral?

- A ***Lateral Well*** bore is one that connects or proceeds ***end-to-end*** from a previous well bore but which can be given a Different Well Bore Name of its own.

- For example: a ***Lateral*** is usually the horizontal well bore that follows a ***Build Section*** and is connected immediately to the end of that ***Build Section*** or ***Main Leg***.

An example of a ***Lateral Well Bore*** is shown in **Figure 92.**

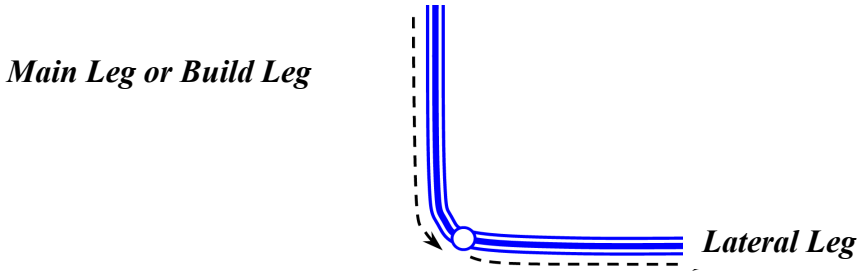


Figure 92. *Example of a Lateral that procceds directly from the end of a Main Leg or a Build Section.*

It is important to note that a Lateral leg should not start from an earlier depth than the end depth of the previous Main leg or Build section (from which it is being created). This is because a splicing effect will occur **Figure 93**. If this is done, the Gamma Samples and Surveys logged in the splicing section will be moved into the new Lateral Leg.And the ending depth of the previous well bore will be adjusted (made shorter) to match the starting depth of the Lateral Well bore

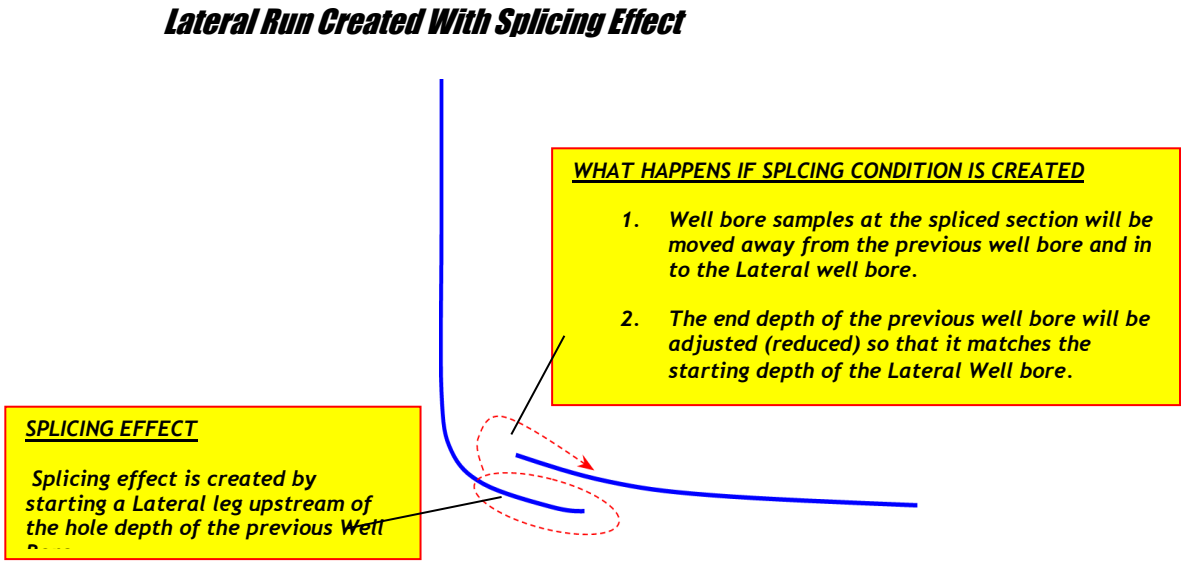


Figure 93. *Lateral leg that has been started earlier than the end depth of the previous well bore. This creates a* ***splicing effect*** *along the depth range where the two well bores overlap. This is not recommended. If this overlap occurs, points and Surveys at the spliced section will be moved from the previous Well Bore to the Lateral Leg. The Previous well bore end depth will also be adjusted (reduced) to match the starting depth of the Lateral Well Bore. In this way the two Well Bores will appear End-to-End.*

What is a Side Track?

A ***Side Track*** is a Well Bore that is started by first pulling the bit out or back from the hole depth (or end depth) of a well bore, an then drilling sideways at an intermediate depth to create the ***Side Track***.

The Default name of a ***Side Track*** will always be ***ST:??*** but you can change this name at any time. **Figure 94** is an example of a side track created from a Main Leg.

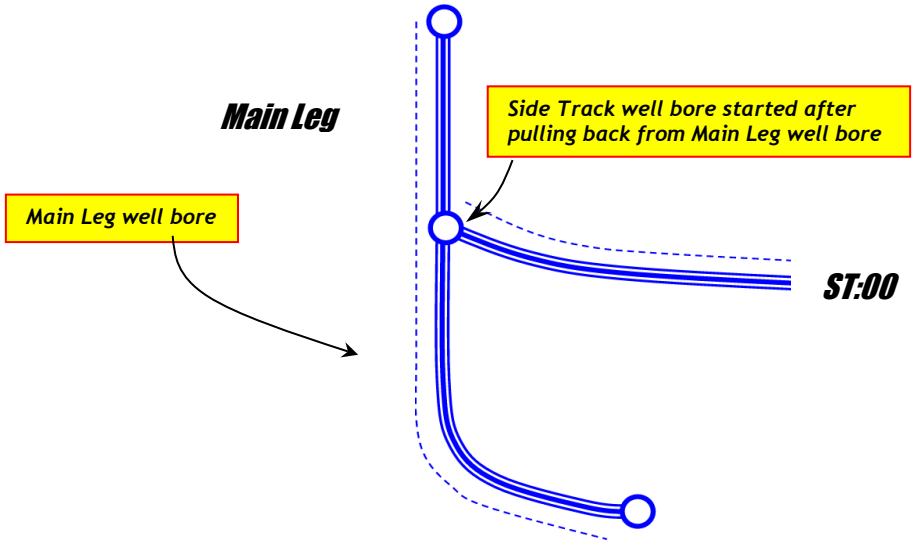


Figure 94. *Example of a Side Track bitrun started after pulling back from the Main Leg.*

Splicing Never Occurs on a Side Track

The splicing condition that was discussed when creating a Lateral run cannot occur when creating a side track. This is because a *Side Track is always allowed to be started at any intermediate* ***depth*** from the previous well bore from which the Side Track branches out. Therefore each time you create a Side Track you do not have to be concerned about a Splicing effect.

Tools for Adding Lateral or Side Track Legs

The Bit Runs screen has menu items that you can use to do one of three things:

Menu Item	*Well Bore*
(a) Add Bit Run	*Keeps Same Well Bore, increments bit run count*
(b) New Lateral Run	*Starts New Well Bore Name, and will re-start bit run count*
(c) New Side Track	*Starts New Well Bore Name, will re-starts bit run count*

The menu items shown in:

Figure 95. *Menu items for adding (a) Bit run (same well bore), (b) Lateral Well Bore, (c) Side Track Well bore*

19. CONFIGURING INCLINATION THRESHOLD

The toolface value ***Tfa*** changes from ***Magnetic Toolface*** (***MTfa)*** to ***Gravity Toolface (GTfa)*** once the angle of Inclination exceeds a given threshold. The default inclination threshold on all templates is currently 5 deg. However, operators can change this value from the job startup screen by visiting the System Configuration table and double-clicking the parameter Inc Threshold for MTfa vs GTfa see **Figure 98.**

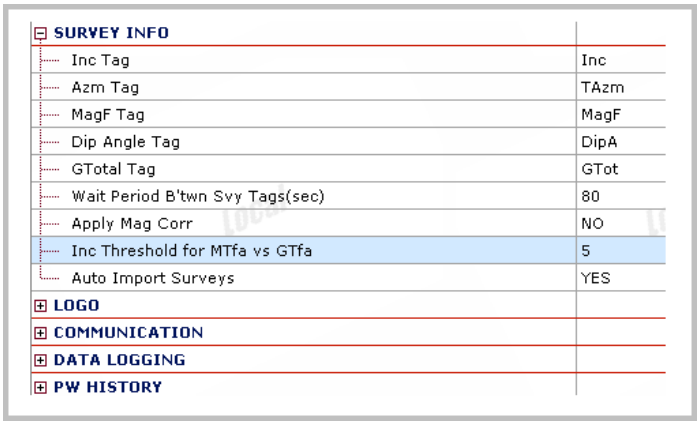


Figure 96. *Parameter for Inclination threshold that determined when GTFA changes to MTfa*

20. MUD CIRCULATION & PLUG-IN HOURS

If your MWD platform is GE Tensor or XXT, *Mezintel Gamma* will track tool plug-in hours and mud circulation hours using the **'Pumps ON'** and **'Pumps Off'** events. The Totals for these hours are summarized at the bottom of the grid. (See **Figure 97**) Mud circulation time can be used as active tool time for use in service logs. Mud Circulation and plug-in hours cannot be tracked for systems that do not specifically broadcast the Tag **Pmps** or **Pumps** to determine the status of pumps.

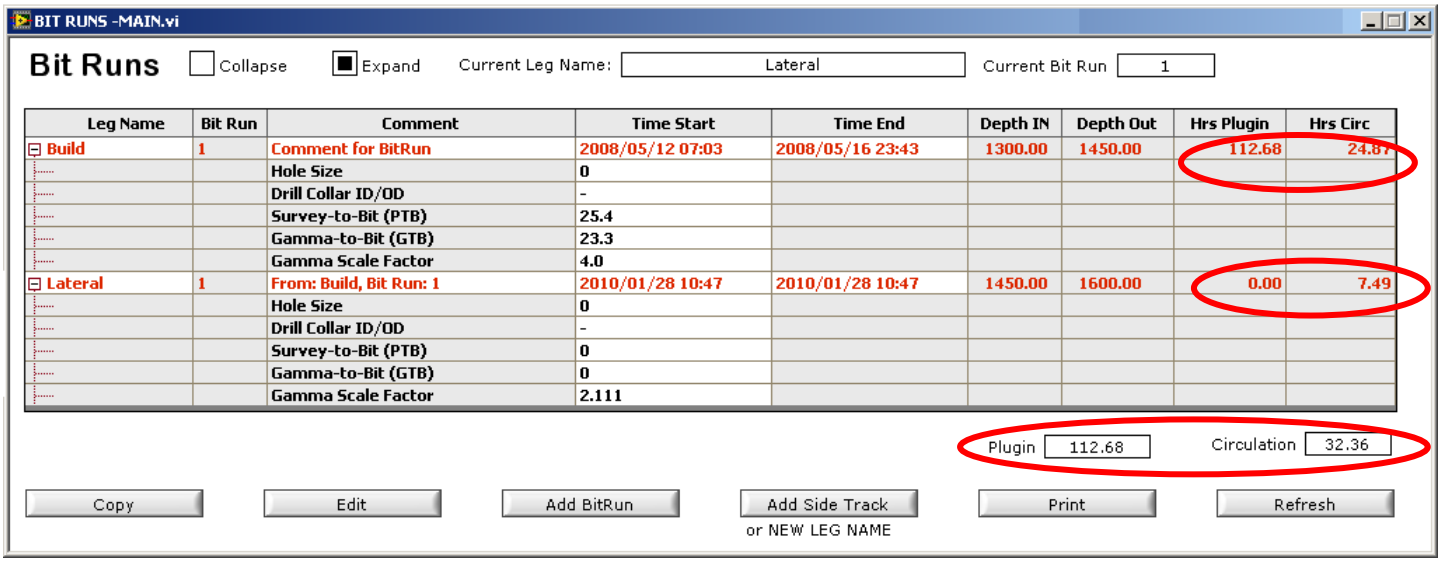


Figure 97. *Section of Bit Run Screen Showing Mud Circulation and Plugin Hrs Along with the Total Hours at the Bottom of the Page.*

21. LAS FILE EXPORT

You can use *Mezintel Gamma* to export sample data in LAS format. You can access the LAS file export utility by selecting the LAS Export menu item shown in **Figure 98.**

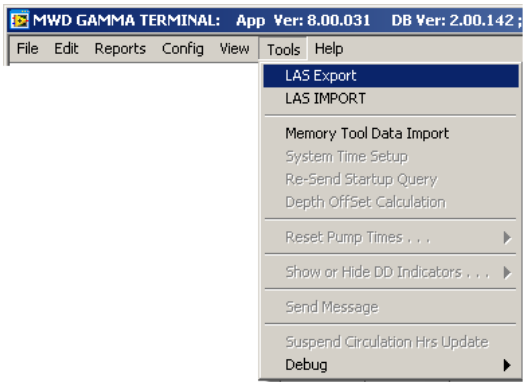


Figure 98. *Menu for launching the LAS data export utility*

Once launched the LAS export utility will appear as shown in Error! Reference source not found., which also illustrates all the configuration settings applicable to setting up LAS data for export.

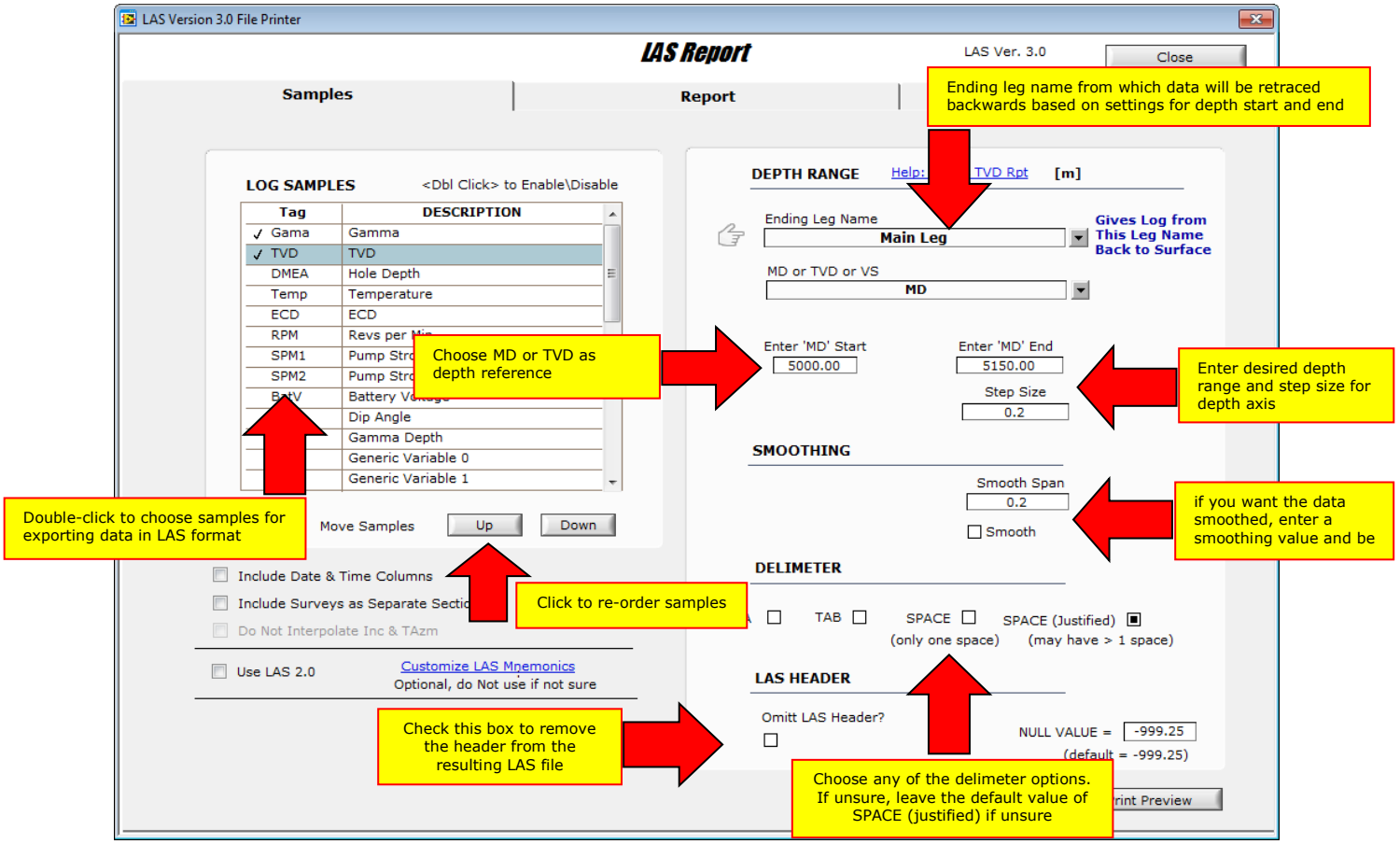


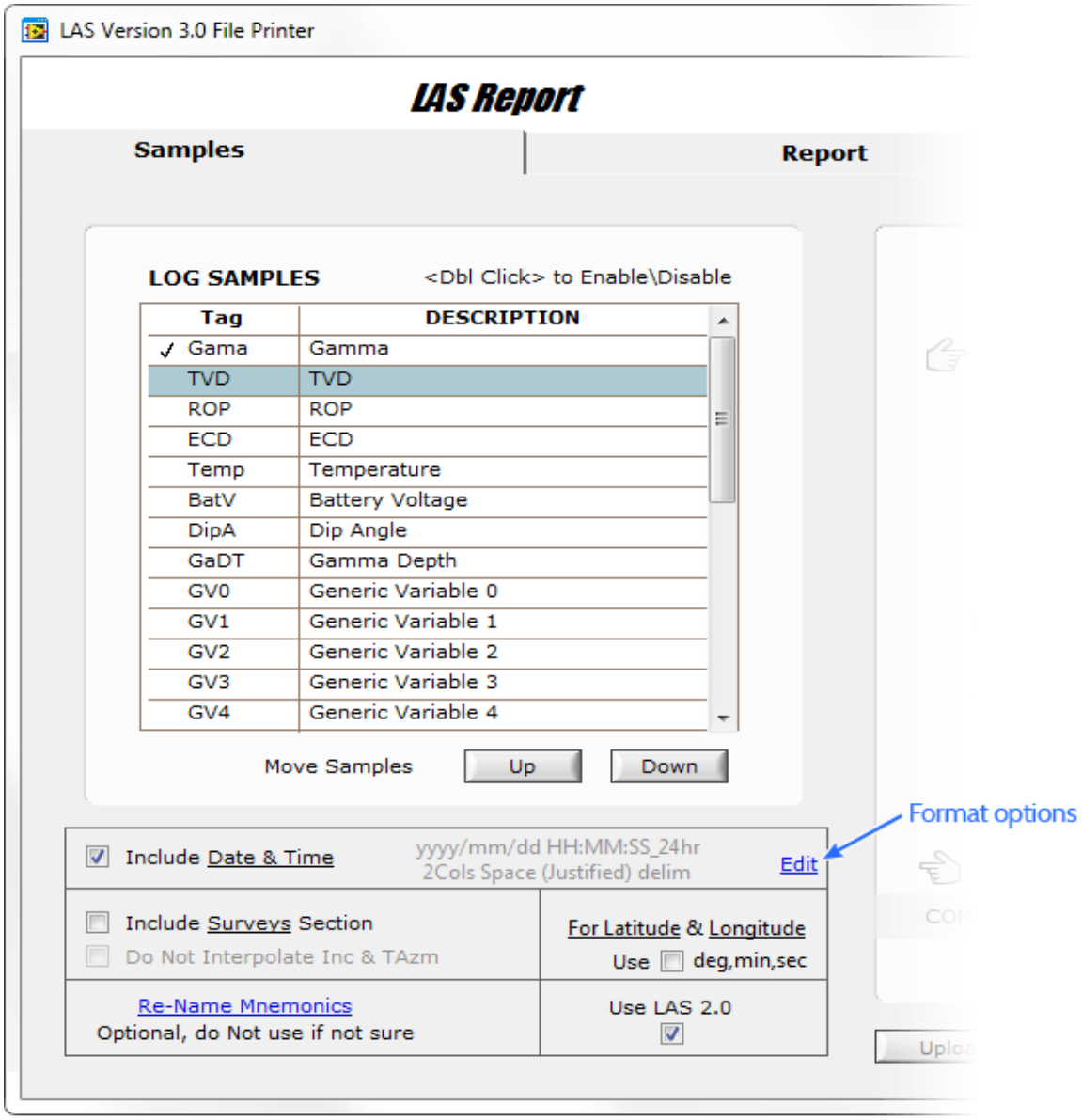
Figure 99. *LAS Export Utility Main Screen*

FORMATTING TIMESTAMPS IN LAS FILES

Mezintel Gamma allows you to customize the timestamp format in your LAS export. You may need to do this in order to meet a requirement for a different software application or the LAS file format preferred by a client.

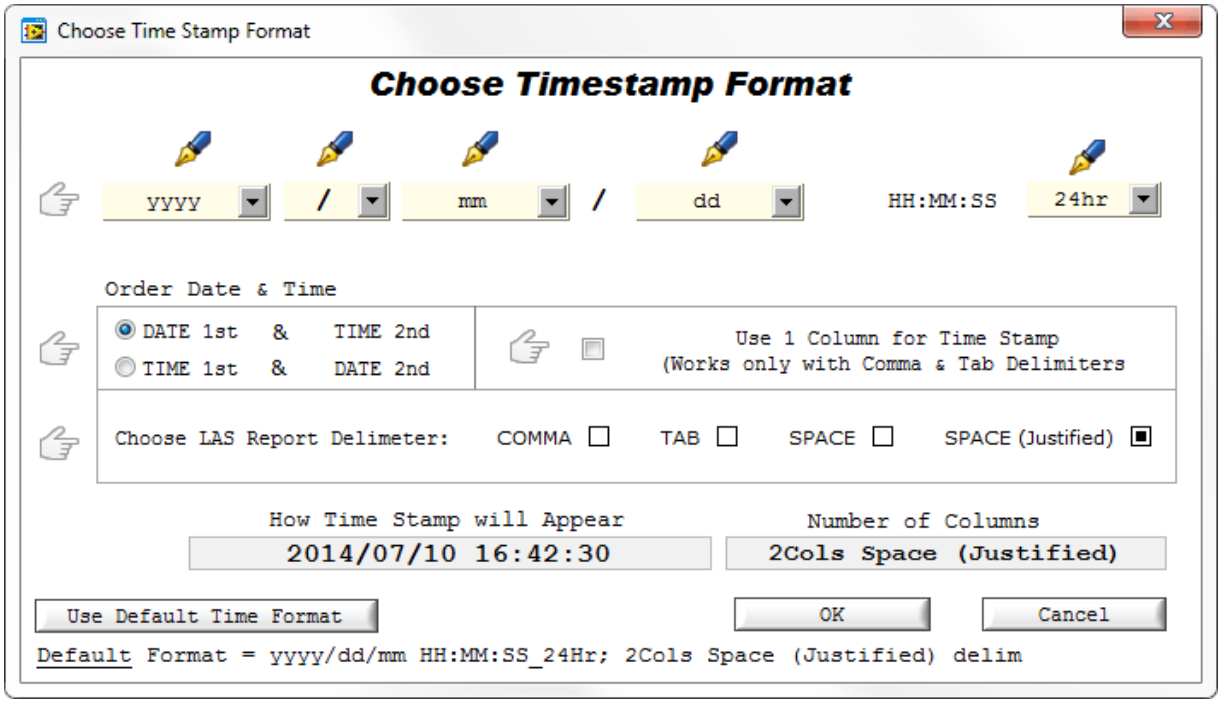
When exporting an LAS file you can choose how date & time is displayed in the LAS by following the steps below.

On the *LAS Export* window:



Setting Date and Time Stamps

1. Click **Include Date & Time** checkbox if it is not checked.
2. Click **Edit**
   → The **Timestamp Format** window pops up
3. Select your options, and click **OK**



Formatting Date and Time Stamps

You can customize the date & time formats, their arrangement order, and whether or not to place them in separate columns, allowing you to further refine the LAS format to streamline your gamma logging and reporting process.

PREVIEWING LAS FILES

Once the LAS file configuration settings have been done, click the print preview button. The LAS file will be processed and a preview screen will come up as shown in **Figure 100.**

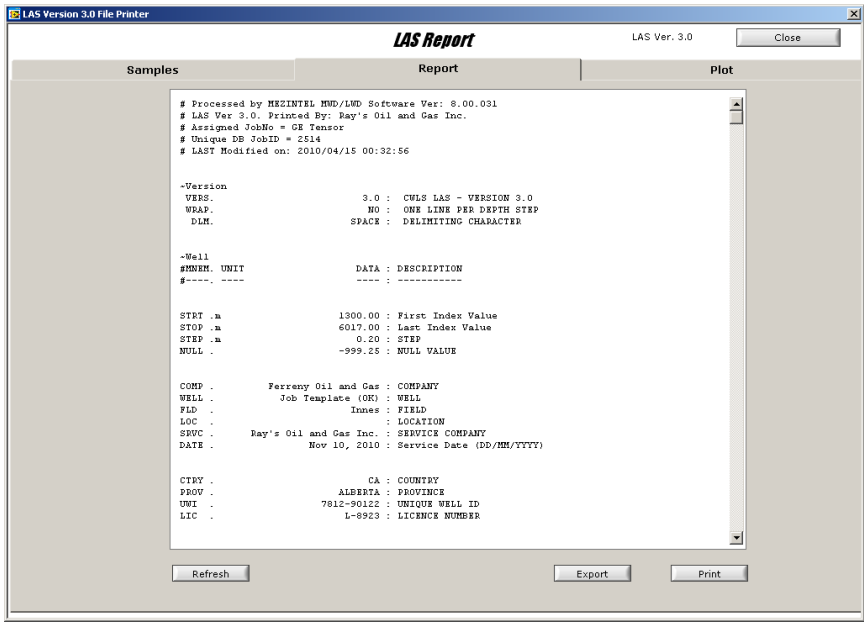


Figure 100. *LAS Preview screen that shows up after clicking the Print Preview button.*

In addition to the LAS print file preview button, you can also preview the data on the graph. The graph data is the same as the data that is contained in the LAS preview screen. The graph is provided as a second check to see how the data should appear when imported using the LAS file that was just processed. An example of LAS plot preview is shown in **Figure 101.** After examining the data you can print the LAS data by clicking on the ***Print*** button. Otherwise you can save to disc or a memory stick by clicking the ***Export*** button.

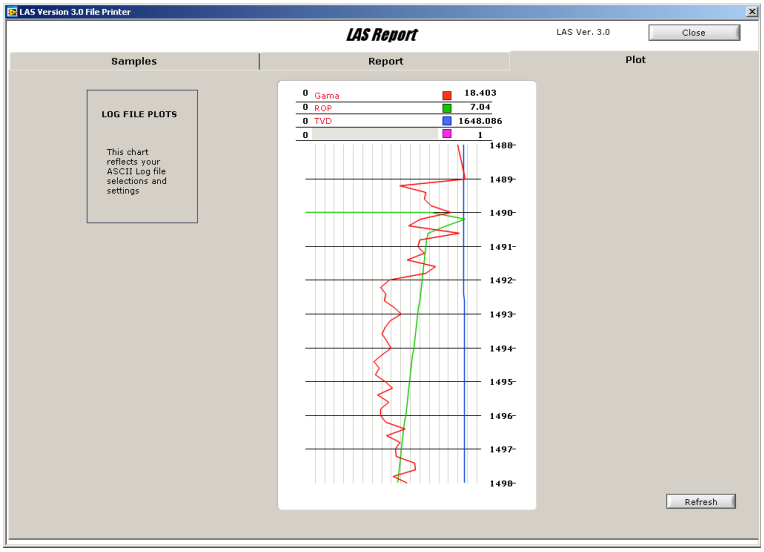


Figure 101. *Example of a plot preview from the LAS utility.*

22. LAS FILE IMPORT

You can import LAS data into *Mezintel Gamma* software and thereafter have the data show up on the sample plots. To bring up the LAS import utility select the LAS import menu shown in **Figure 102.**

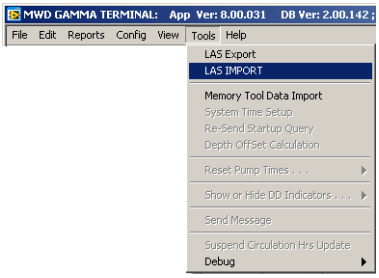


Figure 102. *LAS Import menu accessible from main data logging screen of Mezintel Gamma software.*

Once selected the LAS Import main screen will show up as shown in **Figure 103**. If you are only importing LAS data for review or plotting purposes and will not be logging data any further, you can ignore **Step 2** on this form. Otherwise, you must include the PTB, GTB, and Gamma scaling factors for the current job. You can click the NEXT >> button to proceed with the Import process.

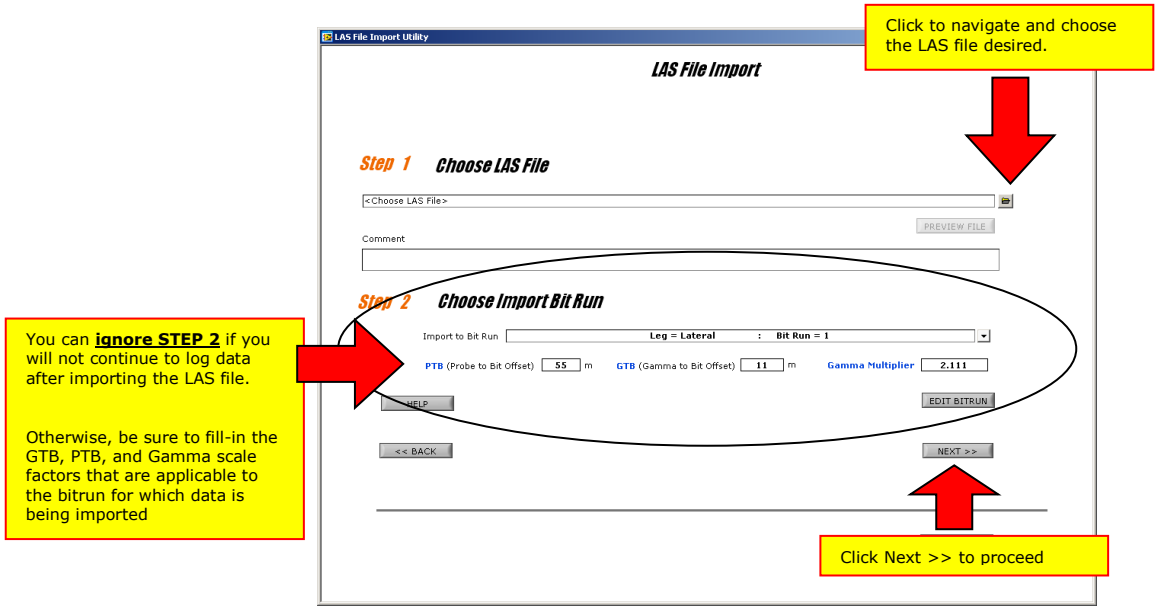


Figure 103. *LAS Import utility main screen.*

The Screen shown in Figure 104 will show up. This screen shows **Step 3,** which requires the user to select each sample name found in the LAS file and assign the desired Tag Name that will be used for each of the samples. In the example shown the Sample name ***GR*** will be assigned to the Tag Name ***Gama***. After assigning Tag Names to all samples you can proceed to the final import screen by clicking the **Next >>** button.

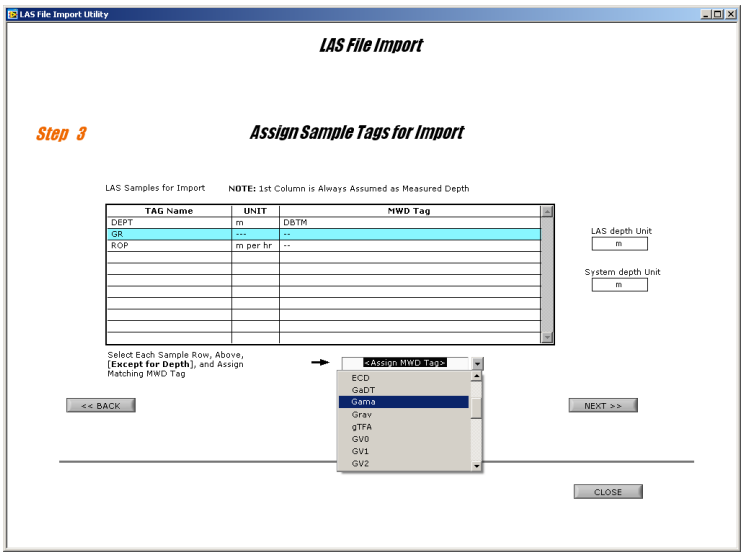
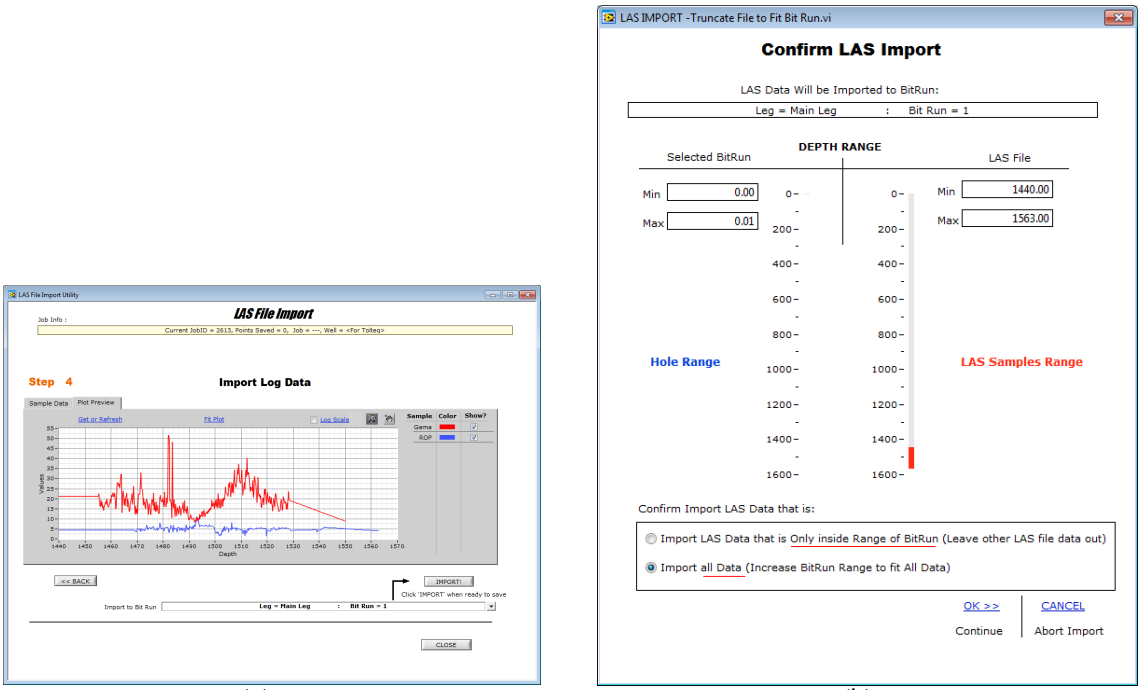


Figure 104. *LAS Import utility showing the Step 3 that requires the user to select the Tag abbreviation for the sample found in the LAS file. This basically is needed to map samples to their correct Tag names.*



(a) (b)

Figure 105. ***(a)*** *LAS Import utility showing Step 4 where you have can preview the LAS data before importing it.*
(b) Also you can determine the depth covered by the imported data to see if there is any overlap with existing data.

Step 4 shown in **Figure 105** is the final LAS import processing step. After inspecting the data you can click on the blinking Import button to save the depth values and sample data to database. Once this process is finished the data will be available on the chart strips and can be printed out. If you need to include Surveys you can import them via the Survey Import tool which also works as a wizard utility similar to the LAS import utility described above.

23. IMPORT TOOL VIA MWD TIME-BASED MEMORY FILES

Mezintel Gamma's memory file import utility, also known by other vendors as a data correlator, can be accessed from the main menu as shown in **Figure 108**. The Memory import utility can handle the files for the systems shown in the same figure.

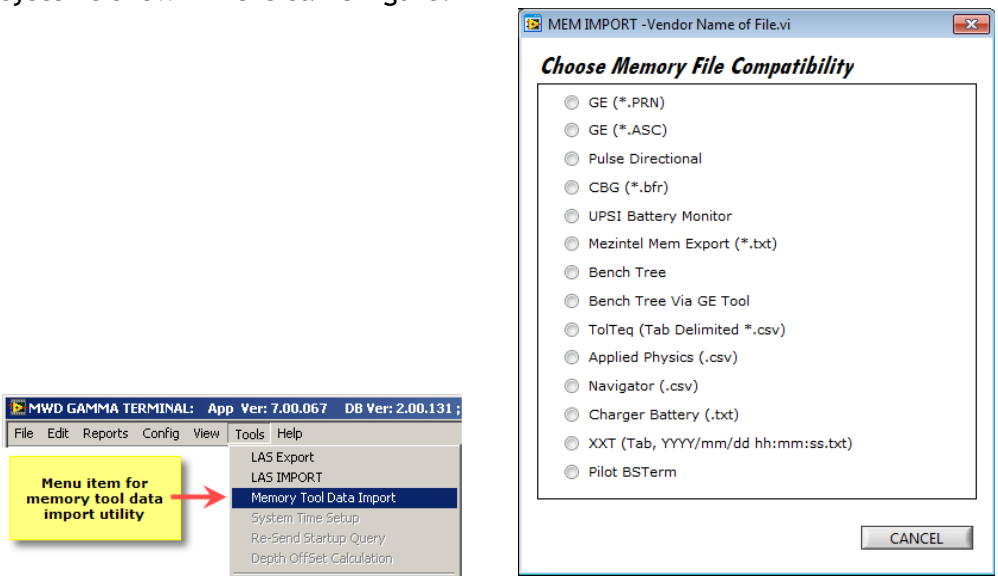


Figure 106. *Opening the memory tool data import utility.*

Once opened the main window of this utility will appear as shown in **Figure** 107.

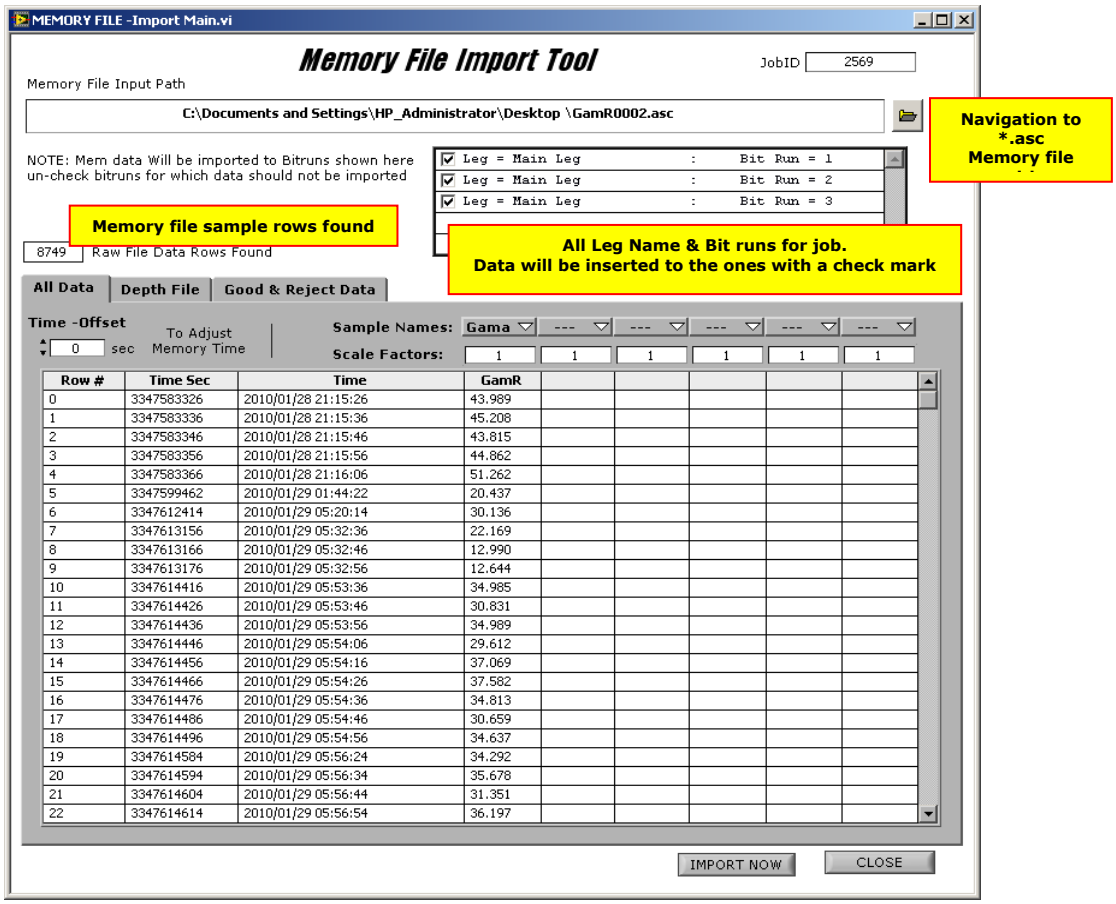


Figure 107. *Main window of memory tool data import utility.*

A description of various items on the main memory file import tool are highlighted in the figure which include:

(1) Legname and bit runs that apply to the active job. This info is automatically downloaded once the tool is opened.
(2) Memory file navigation button Once a memory file is located, the data from that file is immediately read-on to the data table.
(3) Memory file sample rows found are shown in the text box = 8749 Raw File Data Rows Found
(4) Data rows from the file are filled in to the table shown. The time labeled as Time (sec) time is the elapsed time since the time reference of Jan/ 00 hrs:00 min:00 sec/1904. This time is used to interpolate depth values.

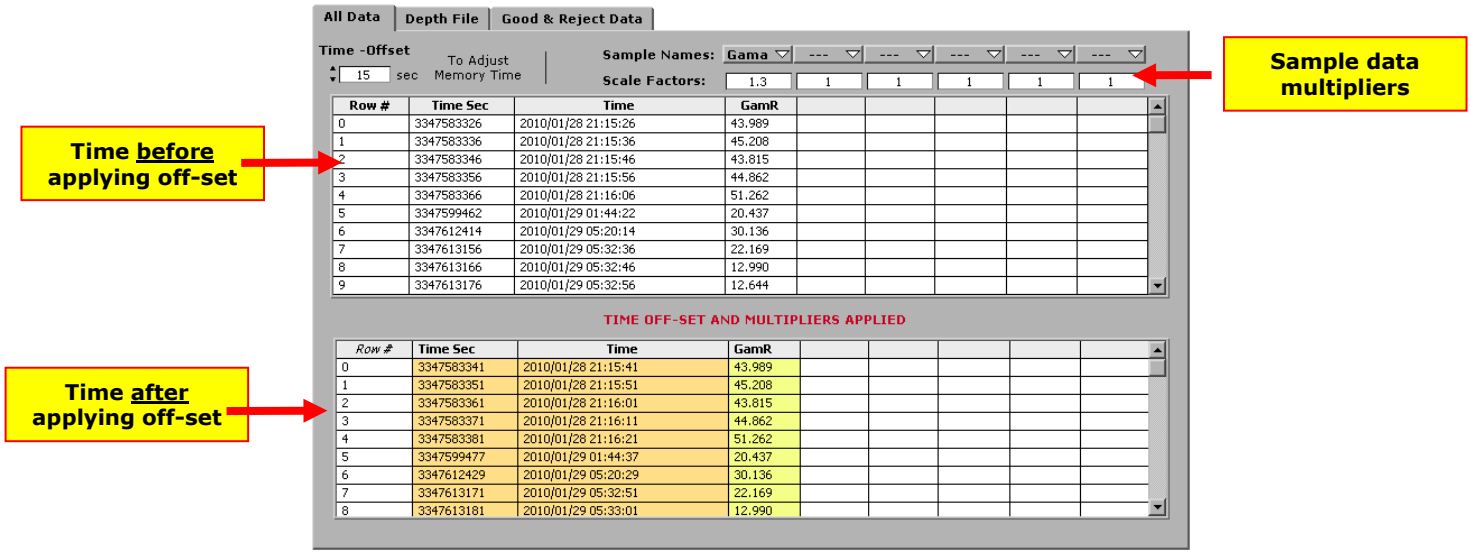
MODIFYING THE DATA FROM MEMORY FILE BEFORE IMPORTING

Off-Setting the Memory Time

You may want to off-set time if you realize that your PC time does not match the memory recorder's time. To do this you can enter the time off-set amount (in seconds) in the time offset input box. To SUBTRACT time enter a negative number and to ADD time enter a positive number. See **Figure 108**.

Figure 108. *Time offset input box. Enter offset time in seconds (+) or (-).*

Once you change the time, the table will give way to another bottom table to show your modified data. Time that is offset by any amount will be highlighted in orange. See **Figure 109**.



Row #	Time Sec	Time	GamR
0	3347583326	2010/01/28 21:15:26	43.989
1	3347583336	2010/01/28 21:15:36	45.208
2	3347583346	2010/01/28 21:15:46	43.815
3	3347583356	2010/01/28 21:15:56	44.862
4	3347583366	2010/01/28 21:16:06	51.262
5	3347599462	2010/01/29 01:44:22	20.437
6	3347612414	2010/01/29 05:20:14	30.136
7	3347613156	2010/01/29 05:32:36	22.169
8	3347613166	2010/01/29 05:32:46	12.990
9	3347613176	2010/01/29 05:32:56	12.644

Row #	Time Sec	Time	GamR
0	3347583341	2010/01/28 21:15:41	43.989
1	3347583351	2010/01/28 21:15:51	45.208
2	3347583361	2010/01/28 21:16:01	43.815
3	3347583371	2010/01/28 21:16:11	44.862
4	3347583381	2010/01/28 21:16:21	51.262
5	3347599477	2010/01/29 01:44:37	20.437
6	3347612429	2010/01/29 05:20:29	30.136
7	3347613171	2010/01/29 05:32:51	22.169
8	3347613181	2010/01/29 05:33:01	12.990

Figure 109. *Table showing original data and modified data. The data highlighted in orange shows time off-set by the amount entered in the time-offset input box. The example shows a time offset of +15 seconds.*

Scaling your Data by a Multiplier

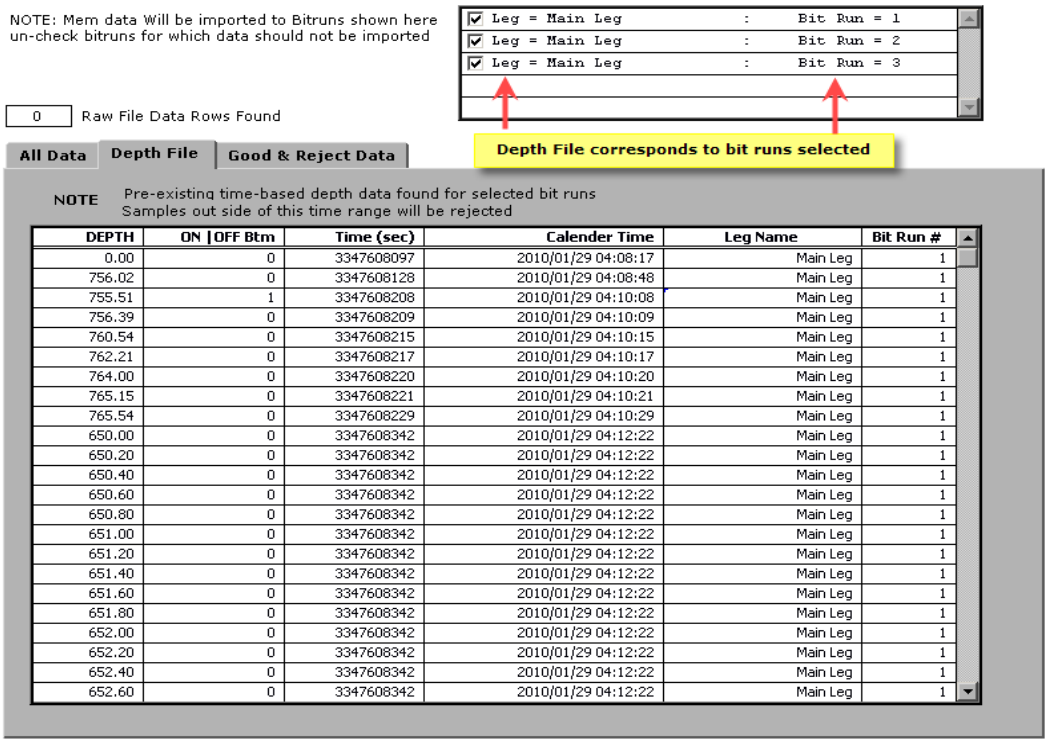
Sometimes the data entered needs to be multiplied by a given factor to make it match with data that is already logged by the application. This may be the case for Gamma data. To scale your data you can enter the multiplier in the input box under the sample name.

Mezintel Gamma will multiply sample data by the scaled amount provided and will high-light (in yellow) the sample column that carries scaled data. **Figure 109** shows input boxes for entering scaled data. Scaled Gamma data is highlighted in yellow. The example uses a multiplier factor of ***1.3***.

DEPTH FILE

Once you open the memory data import utility, a time-based depth file will be downloaded that was recorded from the EDR depth tracking device. This depth file is automatically downloaded for all '***CHECKED***' bit runs and is used to correlate depths with time.

If you edit the bit runs list by un-checking or re-checking bit runs for which data should not be imported, the depth file will be refreshed so that it only includes the checked (accepted) bit runs selected. An example of a downloaded depth file is shown in **Figure 110**.



DEPTH	ON |OFF Btm	Time (sec)	Calender Time	Leg Name	Bit Run #
0.00	0	3347608097	2010/01/29 04:08:17	Main Leg	1
756.02	0	3347608128	2010/01/29 04:08:48	Main Leg	1
755.51	1	3347608208	2010/01/29 04:10:08	Main Leg	1
756.39	0	3347608209	2010/01/29 04:10:09	Main Leg	1
760.54	0	3347608215	2010/01/29 04:10:15	Main Leg	1
762.21	0	3347608217	2010/01/29 04:10:17	Main Leg	1
764.00	0	3347608220	2010/01/29 04:10:20	Main Leg	1
765.15	0	3347608221	2010/01/29 04:10:21	Main Leg	1
765.54	0	3347608229	2010/01/29 04:10:29	Main Leg	1
650.00	0	3347608342	2010/01/29 04:12:22	Main Leg	1
650.20	0	3347608342	2010/01/29 04:12:22	Main Leg	1
650.40	0	3347608342	2010/01/29 04:12:22	Main Leg	1
650.60	0	3347608342	2010/01/29 04:12:22	Main Leg	1
650.80	0	3347608342	2010/01/29 04:12:22	Main Leg	1
651.00	0	3347608342	2010/01/29 04:12:22	Main Leg	1
651.20	0	3347608342	2010/01/29 04:12:22	Main Leg	1
651.40	0	3347608342	2010/01/29 04:12:22	Main Leg	1
651.60	0	3347608342	2010/01/29 04:12:22	Main Leg	1
651.80	0	3347608342	2010/01/29 04:12:22	Main Leg	1
652.00	0	3347608342	2010/01/29 04:12:22	Main Leg	1
652.20	0	3347608342	2010/01/29 04:12:22	Main Leg	1
652.40	0	3347608342	2010/01/29 04:12:22	Main Leg	1
652.60	0	3347608342	2010/01/29 04:12:22	Main Leg	1

Figure 110. *Example of downloaded depth file.*

Sample Accepted and Rejected Based on Time-Stamp

Memory file samples with timestamps that are within the range in the depth file are accepted as ***GOOD*** samples. Otherwise, memory file samples which have time stamps that are not within the range of time stamps in the depth file will be listed as ***REJECTED*** samples.

Click on the Tab: ***GOOD & REJECTED SAMPLES*** to view a list of ***GOOD*** memory file samples and ***REJECTED*** memory file samples. See **Figure 111**. This table only gets filled-in after a memory file is selected.

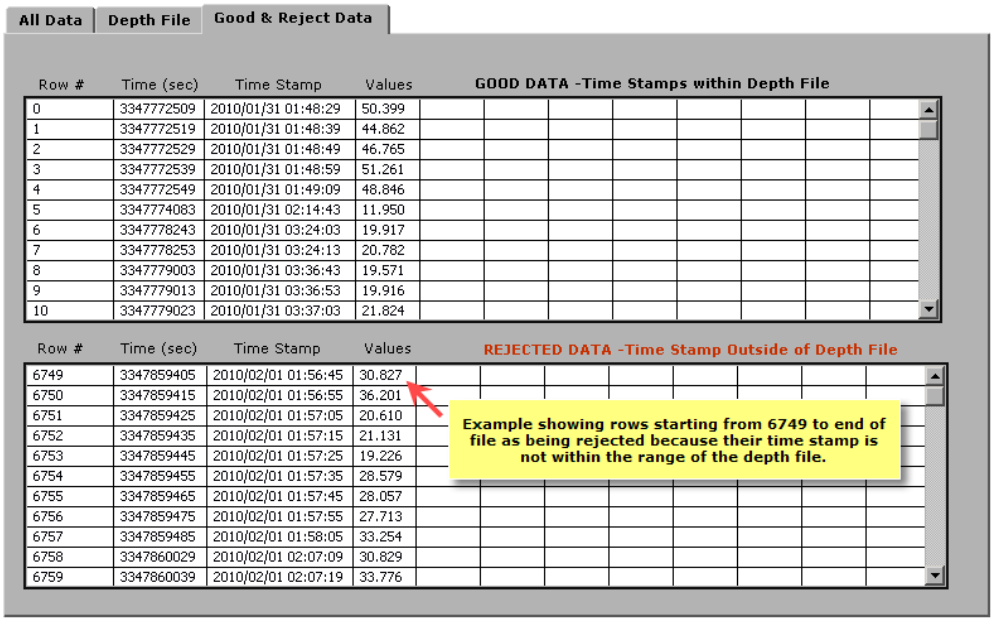


Figure 111. *Window showing table of Good and Rejected memory samples. Rejected memory samples cannot be imported into the job because the sample time stamps do not correlate to any depths found in the database.*

Assigning Sample Names to Raw Data File Variables

You should assign sample names to the channels in your raw data file. E.g.: you can assign a channel as a Gamma channel. Alternatively you can assign samples using the eight generic variables GV0 to GV7. In this way you can compare imported data alongside the previously logged data and be able to compare them side-by-side, see **Figure 112.**

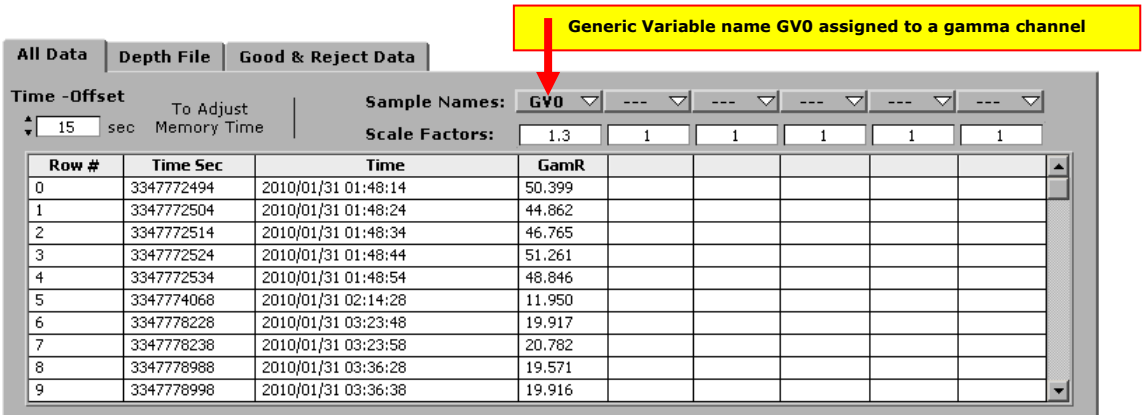


Figure 112. *Shows imported gamma memory file data that was assigned the variable name GV0 (GenericVariable 0).*

PREVIEWING DATA BEFORE SAVING TO DATABASE

Before importing memory data you can preview it from a Time-based or Depth-Based graph. If the range of the time stamp in the memory data file is within the time range for the depth file, then the sample data will immediately appear in the time based graph.

To show the data on the Depth-Based graph click on the <*MAP TIME TO DEPTH*> button. Data will be interpolated to find the corresponding depth for each time stamp. Depth data will be added at a resolution of 1/10 or in increments of 0.1 m or 0. 1 ft. Multiple samples that appear at the same depth level will be averaged. In the example shown below the time-based sample are 19,225 while

those interpolated by depth are 6,242. The reduced number of depth samples is smaller because of the averaging process for samples that fall under the same depth range.

After previewing data you can click on the <***SAVE TO DATABASE***> button to import the sample to database and view them alongside other logged data.

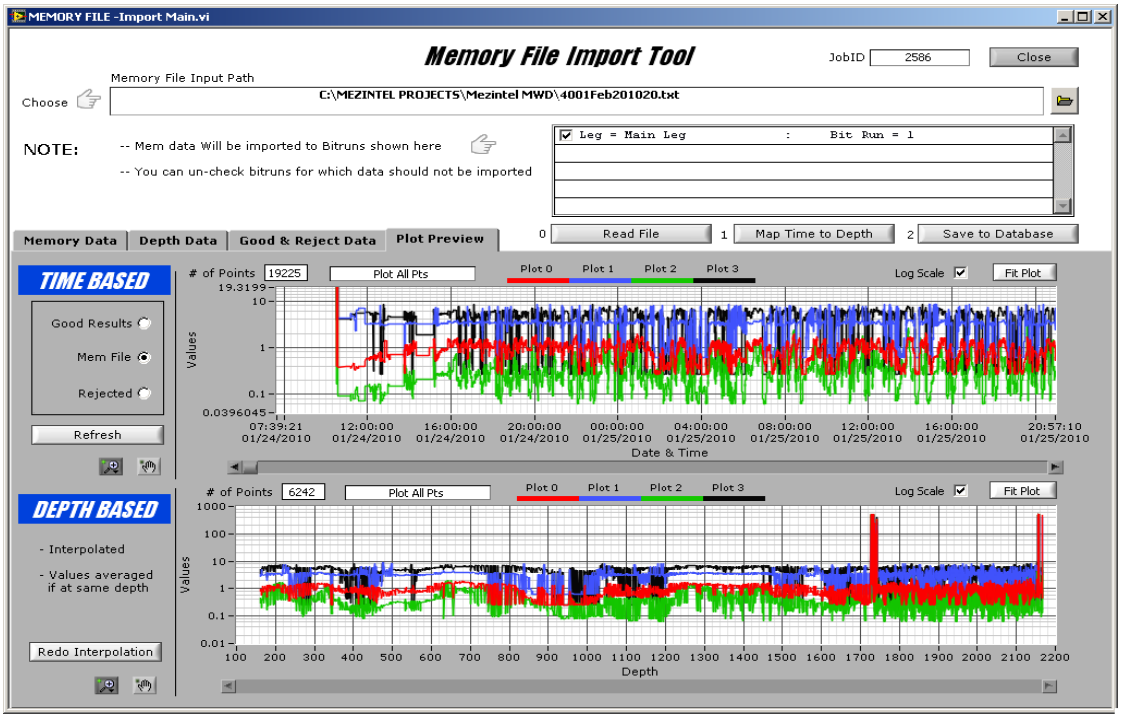


Figure 113: *Preview of memory file data in time-based and depth-based scale*

Importing Memory File Data

After assigning sample variable names and reviewing the raw data file table, depth file table and the good versus rejected data, you can now import the samples. Click the IMPORT NOW button to start the import process. Once the import process is finished, a dialog will come up to confirm that the import process is finished.

You can visit and refresh the plot screen to view the imported data. Remember to select the sample name assigned to the memory file data. In the example in **Figure 114,** the memory sample name is Generic Variable 0.

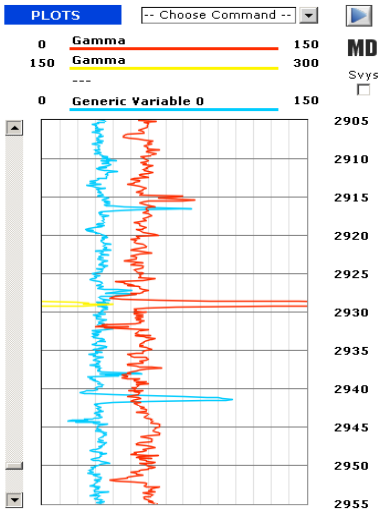


Figure 114: *Imported gamma memory file date plotted as Generic Variable 0. Gamma data actually logged by the system is shown as a red plot. This method allows comparing imported memory data with logged data.*

24. JOB TEMPLATE SETUP

This section details how to create, edit, and lock job templates for use with different MWD platforms as enlisted above. Job templates created and tested in advance in a shop environment make it trouble-free and faster for field operators to start new jobs under busy field conditions. Using MWD job templates each new job starts with the right job settings for a given MWD platform. Only the communication ports and job specific info needs to be setup to proceed with logging.

For example: a Directional MWD company that operates XXT and Black Star EM systems can create templates for each of these systems. A new job started using a pre-defined template will automatically copy the right settings for the job allowing for a trouble-free job configuration and startup.

Pre-Configured 'Factory' Job Templates
Mezintel Gamma comes installed with default templates for common MWD platforms. However, on occasion users may wish to modify the templates to suit specific locality or application.

A common example is where a template created for use with metric units for CANADA MWD jobs needs modification to accommodate imperial units for USA MWD jobs. What-ever the case may be you can start with a predefined template and modify settings to create the new template. Afterwards, you must lock the template to prevent un-authorized editing.

Summary: Note that the *Mezintel Gamma* Template wizard window is customizable such that: **(1)** You can list only templates (rather than all templates) that your company uses; **(2)** You can customize the template icon to one of your own preference; **(3)** You can add custom Tip documents that operators can open and browse just before they start a new job. These customization features are explained below along with how to implement each one of them

1. **List only Templates that Your Company Uses**

   You can choose to show only those Templates which are compatible with MWD systems that are on-hand and are being used by your company. So, for example, if your company only uses XXT or Tolteq Systems, then you can choose to show only XXT and Tolteq Templates. **Figure 115** shows such customization where all the templates have been replaced by only one template system called: **My System.**

2. **Customize the Template Icon**

   You can also choose to replace the back ground template image with one of your own. In this case you will simply prepare an image to be saved as a *.PNG file of size **218 pix x 148 pix** which you will place in a specified directory. **Figure 115** shows customization where the Template icon is a custom one with an image of a triangle.

3. **You Can Add Custom Tip Documents to each Template**

   Adding tip documents means that you can choose to add a document that will appear as tips to help instruct operators about anything related to the MWD System that they select. This could be a tip on how to connect cables between the Gamma PC and the MWD system or any other information that your company deems relevant for proper MWD job operation.

   When the job template is called-up, a Tip 'Hot link' will show which when clicked will bring up a viewer window for browsing tips pages one-after-another.

Figure 115 shows a template with an open tip window with six different pages.

How to Customize Template Window Screen

To customize the template wizard screen you have to save or include files under the path where *Mezintel Gamma* is installed.

This path is:
C:\Program Files\Mezintel Gamma\Files\MWD Templates >>>> *(Put Files here)*
If using Windows 7, replace **Program Files** with **Program Files (x86):**

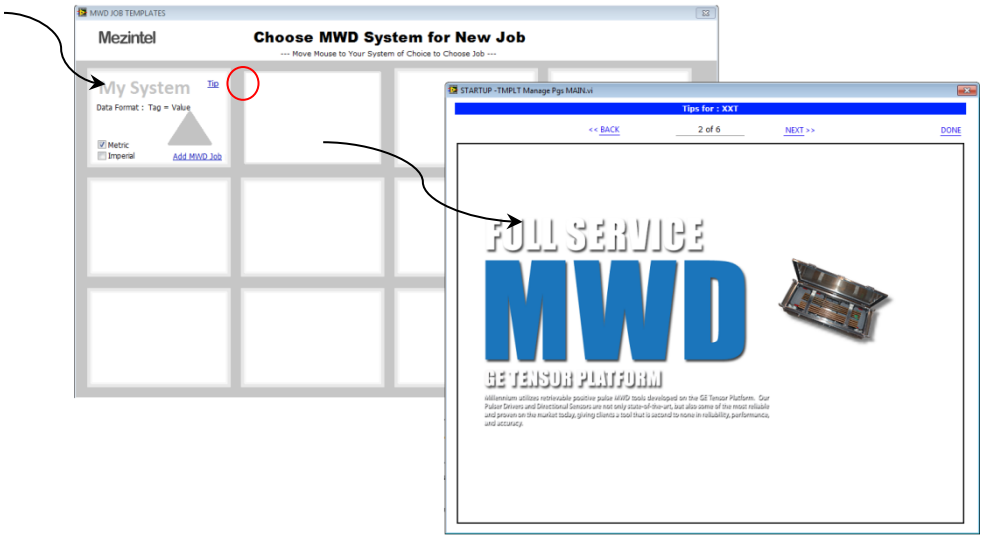


Figure 115: *Shows Template window customized to show only one MWD System Template. The Icon was also changed to be one that shows a triangle. Tips were added and when clicked a tip window opens up. The example shown has six tips. The tip window shows the second page*

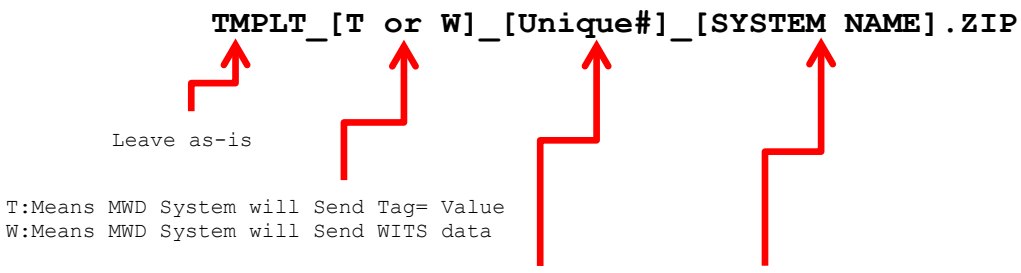
What Custom Files are Needed and How to Put Them There

The files needed to build your own custom templates are as three kinds of files:

1. MWD System Job Template File
2. Icon Image File
3. Tip documents

1. The MWD System Job Template File

(An example of such a file is: **TMPLT_T_2609_XXT.zip**)
To create a job template file just export a job with desired settings as a zip file. Then re-name as shown below, do not include the square brackets when naming the zip file. The prefix **TMPLT** must be capitalized. The file must then be saved under the path specified above which is **C:\Program Files\Mezintel Gamma\MWD Templates**



See Table Below to determine unique number by system

See Table Below for Standard System Names
W>> Means MWD System will send WITSST

NOTE: The number of template files that you put in the MWD Template folder will determine how many templates will show up in the template wizard window. **So in other words** the system will show only those templates that are included in the path. If nothing is found in the folder path, then all default built-in templates will appear.

Table 1. Template File Naming Examples

#	Template File Name	Icon File Name	Tip Document File Name (Page 1)
1	TMPLT_T_2514_GE Tensor.zip	Icon_T_2514_GE Tensor.png	Tip_2514_GE Tensor_1.png
2	TMPLT_T_2608_Bench Tree.zip	Icon _T_2608_Bench Tree.png	Tip_2608_Bench Tree_1.png
3	TMPLT_T_2609_XXT.zip	Icon _T_2609_XXT.png	Tip_2609_XXT_1.png
4	TMPLT_W_2545_BlackStar EM.zip	Icon _W_2545_BlackStar EM.png	Tip_2545_BlackStar EM_1.png
5	TMPLT_W_2569_Neg Pulse.zip	Icon _W_2569_Neg Pulse.png	Tip_2569_Neg Pulse_1.png
6	TMPLT_W_2605_Pilot BSTerm.zip	Icon _W_2605_Pilot BSTerm.png	Tip_2605_Pilot BSTerm_1.png
7	TMPLT_W_2606_Tolteq.zip	Icon _W_2606_Tolteq.png	Tip_2606_Tolteq_1.png
8	TMPLT_W_2614_Applied Physics.zip	Icon _W_2614_Applied Physics.png	Tip_2614_Applied Physics_1.png
9	TMPLT_W_2615_Sharewell EM.zip	Icon _W_2615_Sharewell EM.png	Tip_2615_Sharewell EM_1.png
10	TMPLT_W_2616_Xtreme via EDR.zip	Icon _W_2616_Xtreme via EDR.png	Tip_2616_Xtreme via EDR_1.png
11	TMPLT_W_2601_Tolteq Hub via EDR.zip	Icon _W_2601_Tolteq Hub via EDR.png	Tip_2601_Tolteq Hub via EDR_1.png

2. **Icon Image File**
(An example of such a file is: **Icon_T_2609_XXT.png**)

You can use the same icon images as the ones shown in the templates. These icons can be provided upon request by Mezintel. Just e-mail Mezintel Inc. at: info@mezintel.com. Otherwise, you can create your own images that will appear as a background image on the template window.

Your custom image must meet the following specifications:

1. Size of image must be = 218 pix x 148 pix
2. Image file must be saved as*.PNG file
3. Image file name must be as follows:

Icon_[T or W]_[Unique#]_[SYSTEM NAME].PNG

- See above **Table 1** for examples of Template icon names
- The image name must match the template file system name

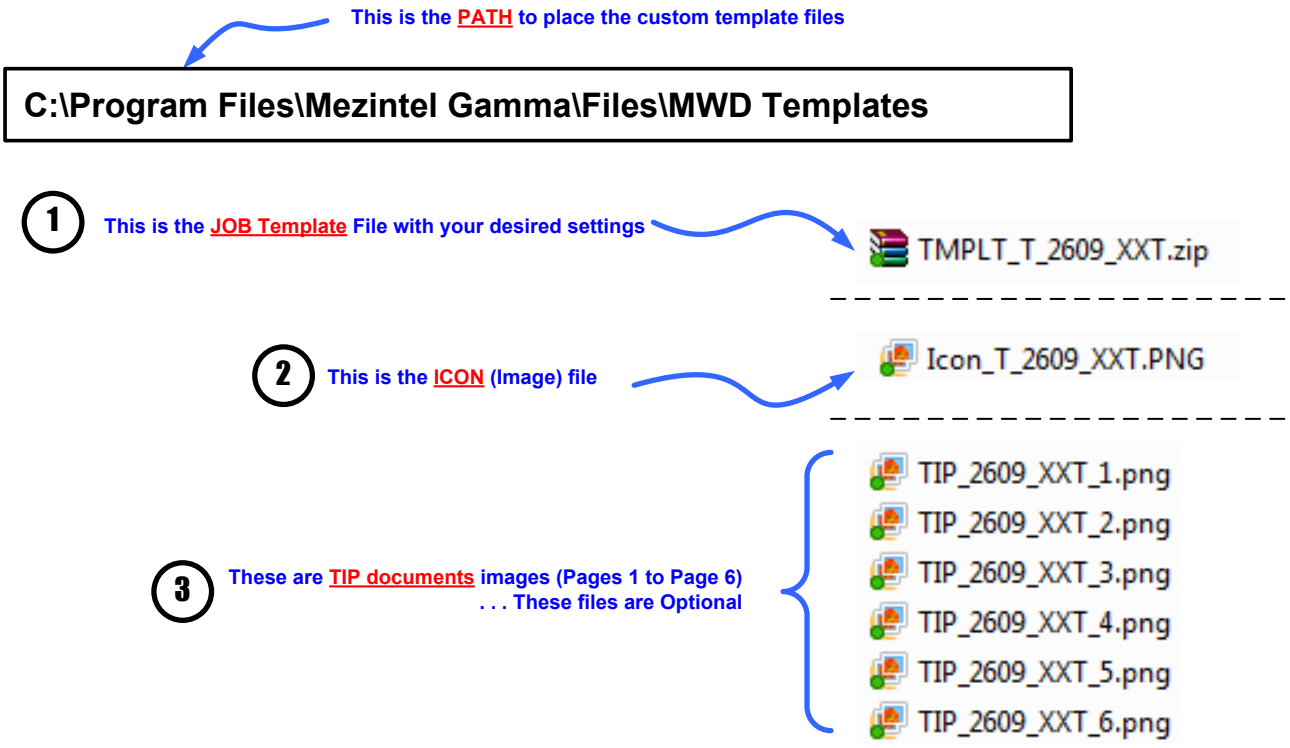
3. **Tip Documents Files**
(An example of such a file is: **Tip_2609_XXT_1.png**)

To create a tip document, create an image document with all the needed artwork, illustrations, and wording and save it as an image file with the .png extension.

The Tip document must meet the following guidelines for naming and file format:
1. Tip document must be saved as a **.PNG** image file

2. Image size must be **800 pix x 600 pix**
3. Image file must be named as follows:

Tip_[Unique#]_[SYSTEM NAME]_[Page#].PNG
See Table 1 for examples on how to name a TIP image file. Note that you can use multiple pages for the tip image file by changing the Page# on the file name.
Examples of Template file names for the XXT System with 6-image files is shown below:



* **Be sure to use the right unique ID when saving the MWD System Templates**

Figure 116: *shows a template with an open tip window with six different pages*

25. RE-LOGGING DATA

Allowed Well-Bore Paths for Re-Logging

Please note that you can only re-log along the path of the ***active well bore name***. The active well bore name is the one that shows up as a Leg Name on the Title bar of the *Mezintel Gamma* main screen window. *See* **Figure 117**

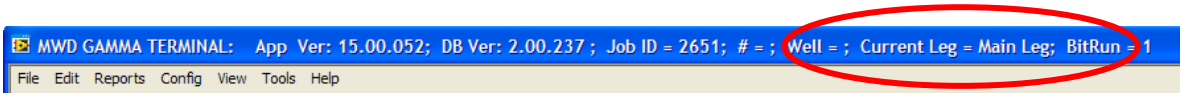


Figure 117. *In the above example of a title bar of Mezintel Gamma software, the active well bore is* ***Main Leg****. This means that* ***Main Leg*** *is the current well bore being drilled and you can only re-log along the* ***Main Leg*** *Wellbore.*

Remember *Mezintel Gamma* can do multiple side tracks, Laterals etc. However, at any given time only one well bore is active. **Figure 118** shows the well bore paths that can be re-logged depending on which Well Bore is the current one. For example:

- If ***Side Track 2*** is the current active well bore, you can only re-log along the wellbore path shown in the Red dotted line.
- If ***Side Track 1*** is the current active well bore, you can only re-log using the well bore path shown by the Blue dotted line.
- If ***Main Leg 1*** is the current active well bore, you can only re-log along the wellbore path shown by the White dotted line.

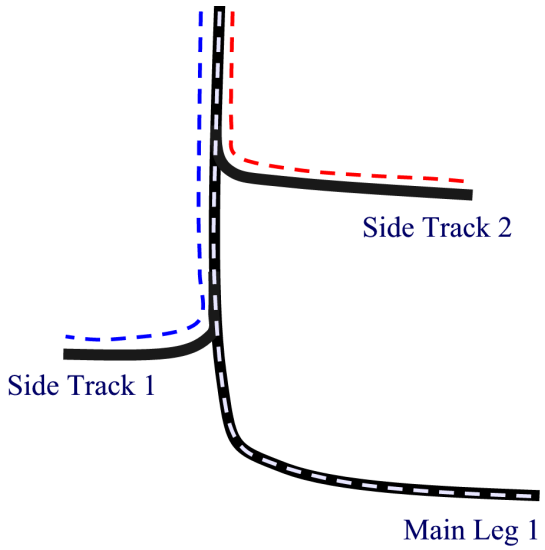


Figure 118. *The above shows paths that you can re-log if* ***Main Leg 1****,* ***Side Track 1,*** *or* ***Side Track 2*** *are the Active Leg names. The Active Leg Name is always the one that shows up on the Title Bar on the Main Screen.*

Remember to Re-Log Before you Leave That Well-Bore

If the ***Main Leg*** is the active wellbore, then it is important to remember to re-log that ***Main Leg*** before you start a new ***Side Track***.

NOTE: *If you start a new well bore e.g* ***Side Track****, and then wish to re-log a previous well bore. E.g:* ***Main Leg****, you will have to start a dummy or fake bit-run from the* ***Main Leg*** *well -bore so that you can force that Main Leg to become the active well bore. That Bit Run will be a dummy or fake bitrun because the only reason it was created was to force a well bore of interest to become the active one*.

How to Re-Log

If you want to re-log **Main Leg** Well bore between Depth **150 m** to **500 m,** then follow the Steps shown below.

STEP 1:

Make sure the Main Leg is your active well bore by checking that it shows up on the *Mezintel Gamma* Software Title bar.

STEP 2:

Write-down the depth range for Re-Logging in this case **150 m** to **500 m.**

STEP 3

Open the Re-Log Configuration Window, by choosing the menu item: ***Config >> Relog*** see **Figure 119**

Figure 119. *Choose Re-Log Menu Item.*

The Re-log Configuration Window will open. As shown in ***Figure 120.*** From that window select the option to ***Edit Re-log Config***.

Figure 120*. Relog Confioguration Window.*

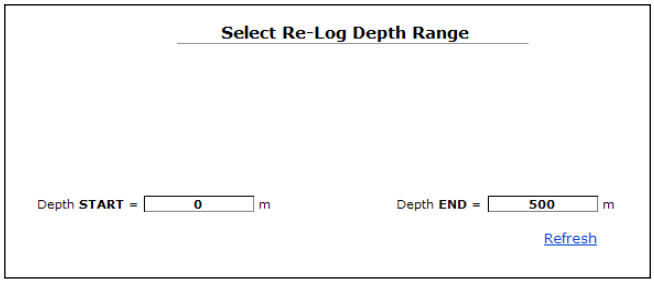


Figure 121*. Advance twice and in the screen that follows enter the depth range to re-log data. In the above example the depth range was **150 m** to **500 m***

STEP 4

Figure 122. *Choose samples that you want to Re-Log. If not sure, just leave all samples checked. However, usually only Gamma is clicked. ROP is meaningless when re-logging. The orange indicator means that Re-Log is now ready to happen (armed). That Indicator will turn Green if the Bit Run is within the depth of the re-logging range.*

Now click <Done> to go to the main screen. The re-log LED (indicator) will be orange and it will turn Green if the bitrun is within the re-log depth range between ***150 m*** and ***500 m*** at which point re-logging will also start to occur.

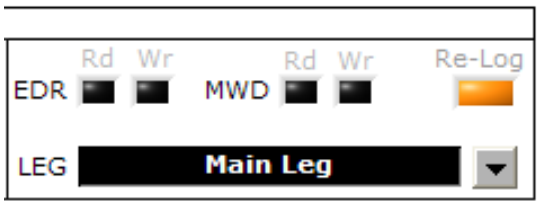


Figure 123. *Re-Log Indicator is Orange meaning that Re-Log is ready to occur but is waiting for the Bitrun to be inside the Range of the Re-logging Depth which in our example is* ***150m to 500m****.*

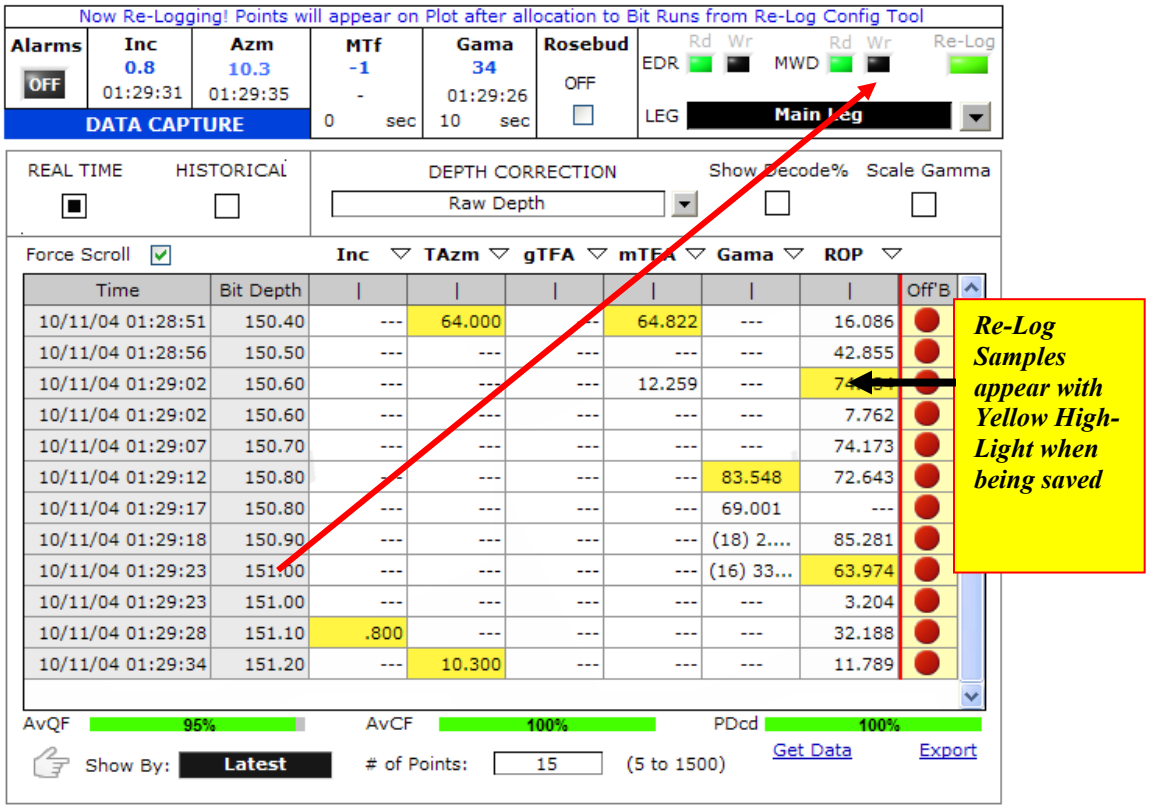


Figure 124. ***In our example, once the bit depth reaches 150 m. The re-logging indicator will turn Green and data will be saved to a re—logging holding table. You can examine the re-logged data by opening the holding table. As explained below.***

Green Indicator Means that Re-Logging is Occurring NOW!

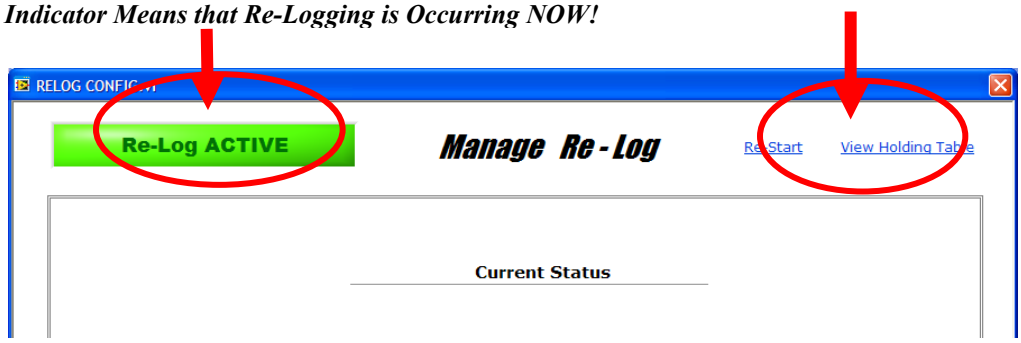


Figure 125. *Go back to the Re-Log Config Window and click on* ***View Holding Table.***

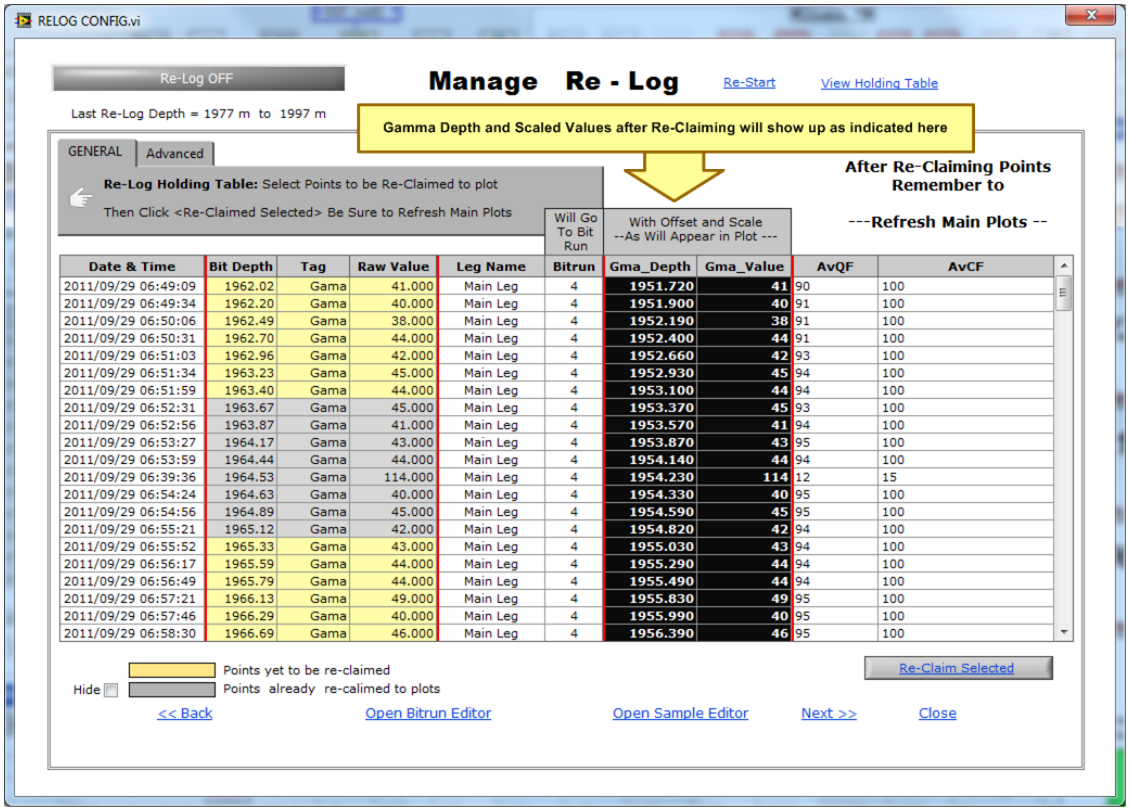


Figure 126: *The Holding Table will show raw data being re-logged*

Compare a Plot of Data in Relog Holding Table with Plot of Existing Data

(You can do this before re-claiming data to the plot)

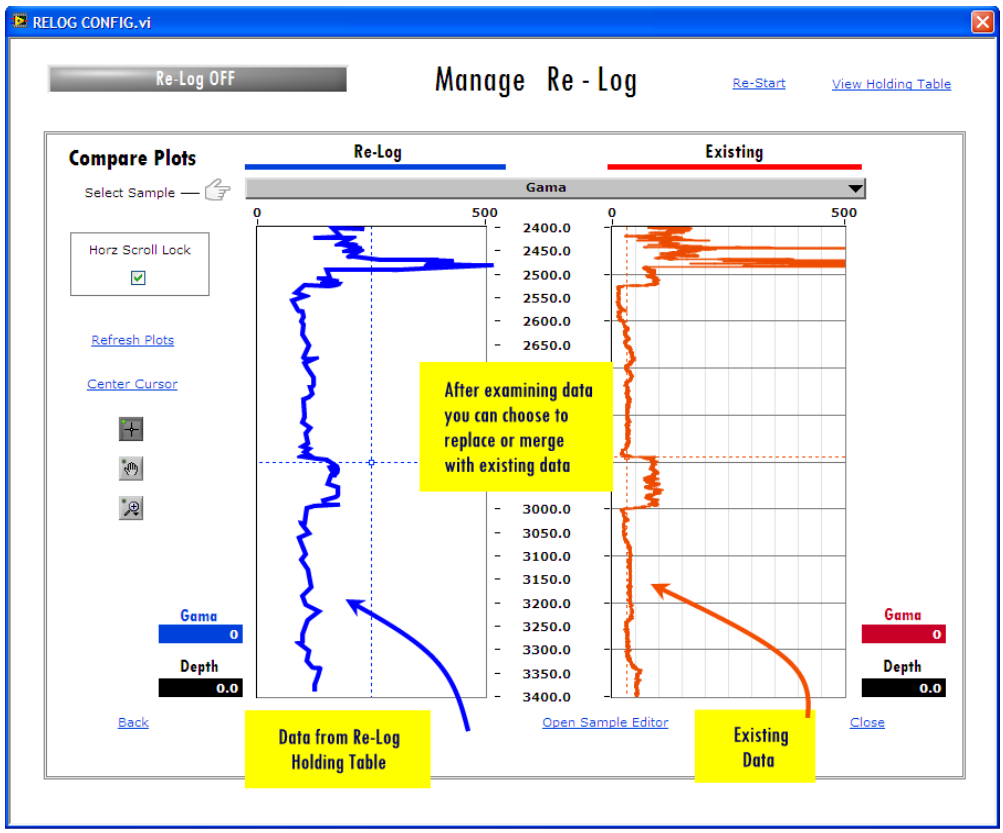


Figure 127: *A plot of re-log data for Gamma is compared to plot data for existing Gamma Data*

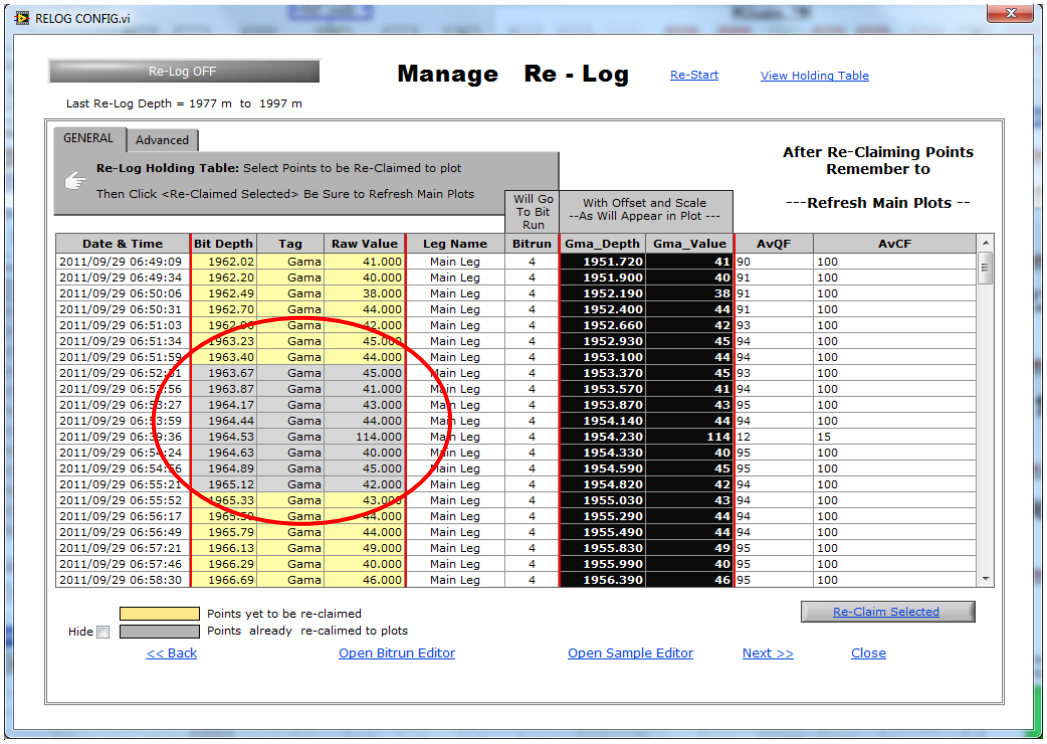


Figure 128. *Re-log Data showing in Holding table. If you like the Re-Logged Data, you can highlight the data rows of interest and re-claim the data to the plot. Once you do this, the plot will draw itself with the re-logged data. Just Select data rows of interest and click* ***Re-Claim Selected.***

In the above example, the Gamma data selected will be moved to the plot after clicking Re-Claim Selected. You can do this any time during the re-logging process. Once claimed, the data rows will be grayed out. Remember to **REFRESH the PLOT**.

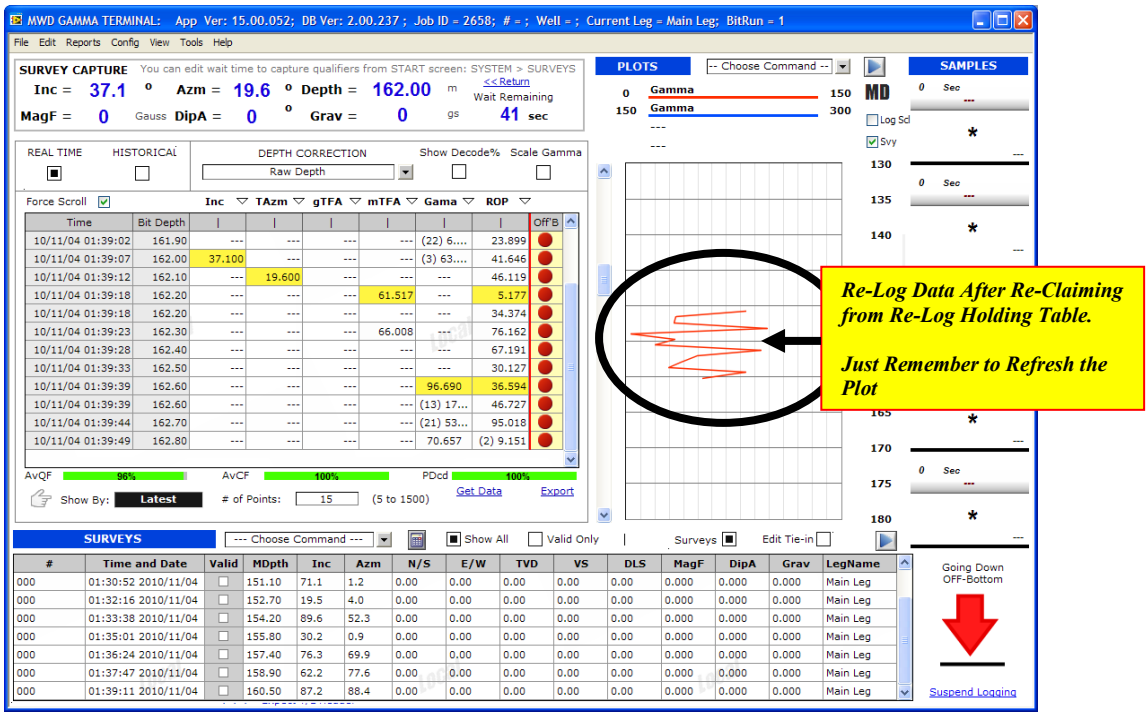


Figure 129. *Re-claimed Gamma Re-log data.* ***Just remember to refresh the plot*** *after re-claming selected rows of relog data.*

26. WATCH DOG

When Mezintel Gamma program is left unattended while running through a long duration of days or weeks, the program may occasionally stop updating and may appear to be in a sleep state. Moving the mouse will immediately wake up the program. This incident does not happen frequently and there are many cases where an entire field job can be completed without such incident happening.

However, to mitigate this scenario Mezintel introduced the Watch Dog feature which will continuously monitor the application and if no logging is detected, Watch Dog will jiggle the mouse and will also move the main program Window to the front.

Be aware that Watch Dog feature always has to be turned-on while running a job in the field.

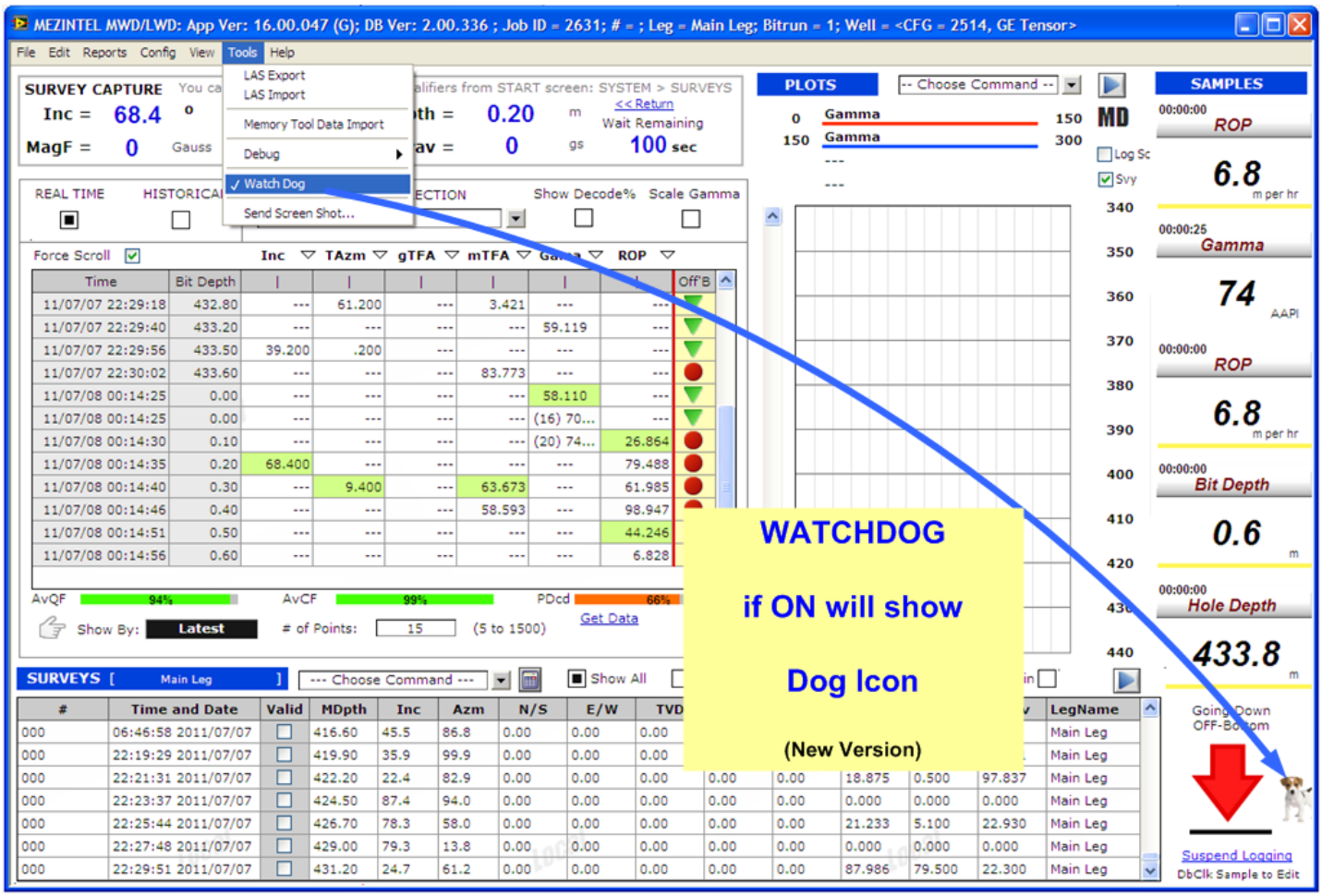


Figure 130: *Mezintel Watchdog feature. This will move the mouse and bring the window to the front if it is detected that the program no longer logs data. This anomaly where application seems to have gone to sleep happens when the PC is left unattended for long periods of time.*

27. HAMACHI: MICROSOFT SQL SERVER CONNECTION

Hamachi can be used as connectivity method to your Microsoft SQL Server. This is useful if you have remote users that use a local application that is database driven in another location. Rather than opening up ports on your network firewall, you can use Hamachi to tunnel directly, and safely, to the database server.

DETAIL

First, the SQL server needs to be told that it has to listen for network TCP connections and on which interfaces to do so.

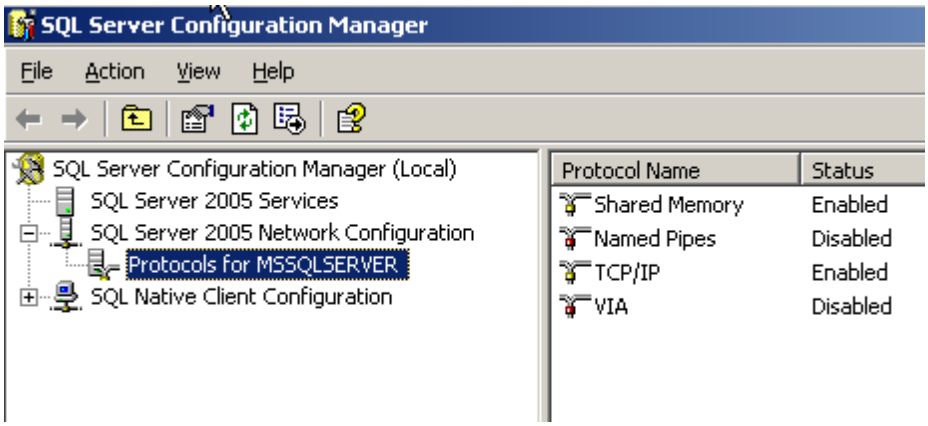


Figure 131: *Launch the SQL Server Configuration Manager and go to Network Connections > Protocols, then double click TCP/IP*

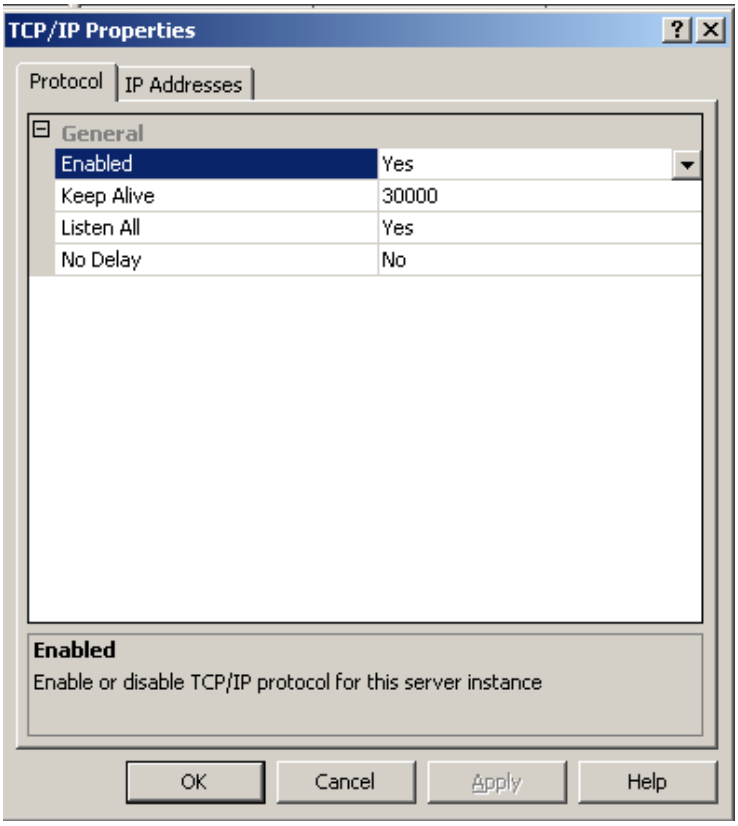


Figure 132: *Enable TCP/IP as a connection method*

Enable the server to listen on the Hamachi IP address.

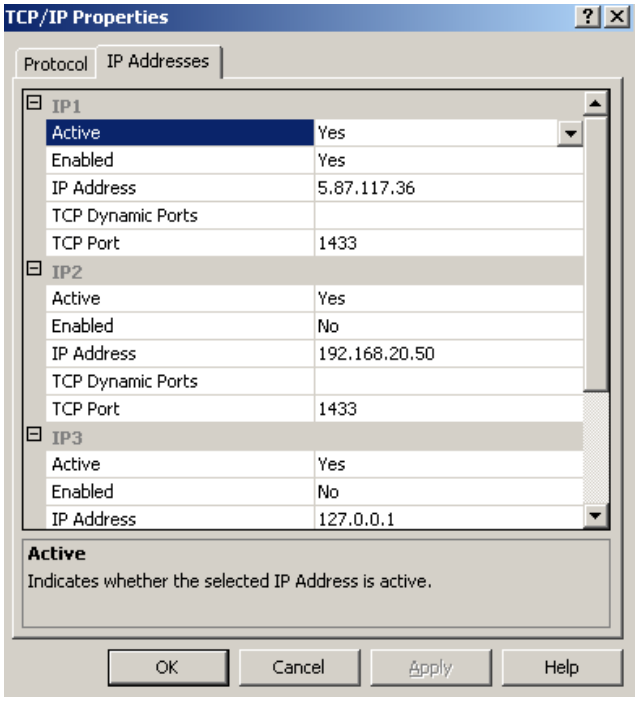


Figure 133: *Enable the server to listen on the Hamachi IP address*

The server can now be connected to via the Hamachi interface. The last step is to ensure the clients can connect. This step is more a verification the client is still in the default Hamachi configuration.

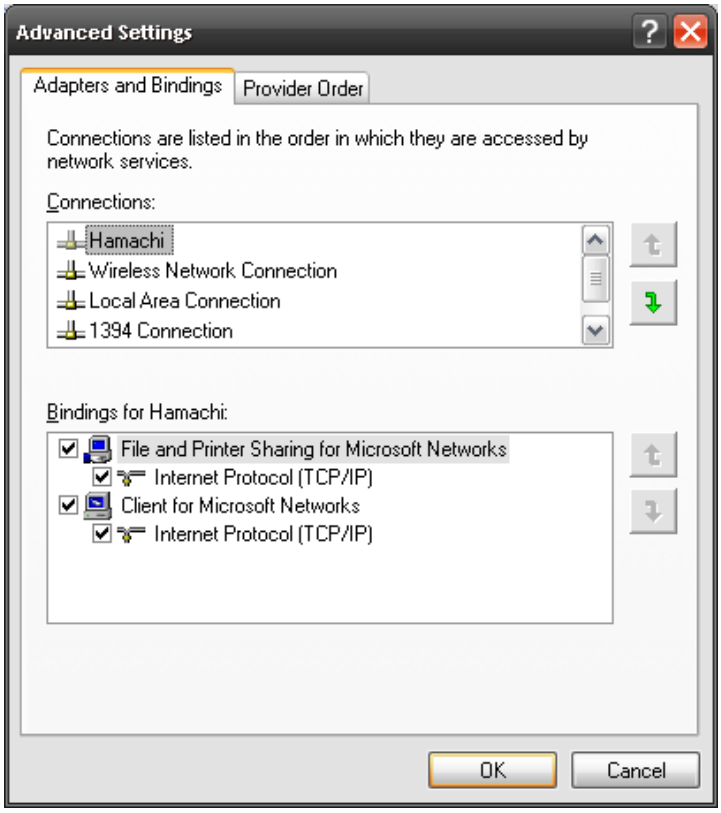


Figure 134: *Go to Network Connections > Advanced > Advanced Settings and ensure Hamachi is the first adapter in the list*

28. ALLOWING REMOTE MS SQL CONNECTIONS

By default the built-in Microsoft (MS) Firewall module is enabled and is active in preventing unsigned or 3rd party applications that is not pre-defined for access to the internet to and from the computer system.

This also actively blocks MS SQL ports that may prevent proper connections from the workstation to the server. Microsoft Firewall unfortunately does not prompt a user when it is blocking port 1433 OR any MS SQL connections.

The result is that the workstation where Maximizer CRM 10 Workstation is installed on is not able to communicate with the server that is running the Maximizer CRM 10 Server and MS SQL Server housing the address book.

RESOLUTION

The current resolution is to manually create exceptions for all of the appropriate SQL Components.

1. Create an exception for the port that is needed for incoming and outgoing connections.
    - If you are using SQL Express, then you will need to determine the dynamic port number. You can do this by going to the SQL Configuration Manager. If you expand the SQL Server 2005 Network Configuration, select the Protocols for MAXIMIZER, right click on TCP/IP and select properties. Select the IP Addresses tab and make a note of the value of the TCP Dynamic Ports field under IPAll. An exception for that port needs to be created for both incoming and outgoing connections.
    - If you are not using SQL Express, an exception for **port 1433** needs to be created for both incoming and outgoing connections.

2. Create an exception for the SQL Server service
    - Create an exception for the following file: **C:\Program Files\Microsoft SQL Server\MSSQL.1\MSSQL\Binn\sqlservr.exe** for both incoming and outgoing connections

3. Create an exception for the SQL Browser service
    - Create an exception for the following file: **C:\Program Files\Microsoft SQL Server\90\Shared\sqlbrowser.exe** for both incoming and outgoing connections

For more information on how to create exceptions in your firewall, please refer to the below two articles:

For Microsoft Windows XP SP2 users please see this Microsoft Knowledge Base Article:
http://support.microsoft.com/kb/842242/en-us

For Microsoft Windows Vista Users please see this Microsoft Knowledge Base Article:
http://support.microsoft.com/kb/937424/en-us

For more information on allowing remote connections, please see the Microsoft KB article: How to configure SQL Server 2005 to allow remote connections http://support.microsoft.com/kb/914277

29. TROUBLE SHOOTING TIPS

IF COMPUTER CANNOT BE PINGED VIA REMOTE LOGMEIN

If windows firewall is turned-on, the field laptop may deny or refuse ping requests from the internet. You should allow ping requests as an exception so that remote computers can determine that the field computer is turned-on. You can allow the ping request as an exception by following the steps below.

NOTE: This is unlikely to compromise the security of the PC because the firewall will remain-ON but will just allow sending back a reply when pinged. If in doubt please feel free to consult your IT service admin person.

The following are instructions to allow an exception for the computer to be pinged while still leaving the firewall turned ON:

Step 1: Open Control Panel and Launch the Windows Firewall Program Icon

The Windows Firewall icon from control panel is shown in **Figure 135.** Once the Firewall window is open click on the Advanced Tab and proceed to Step 2.

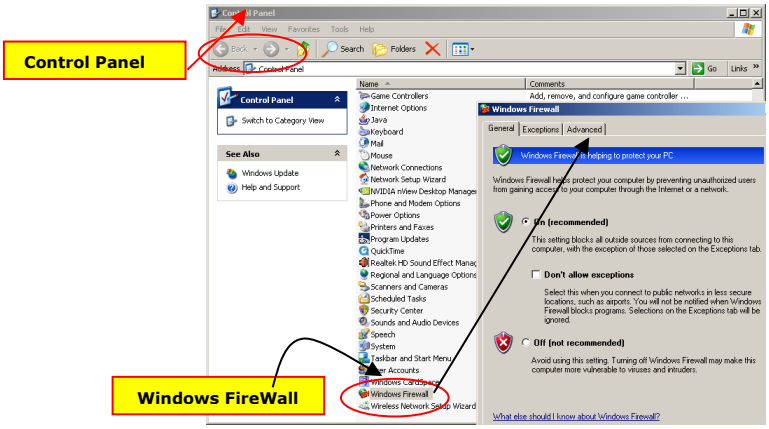


Figure 135. Windows Firewall inside the Control Panel. Click on the Advanced Tab and Go to Step 2

Step 2: Allow the Echo on Request Function to allow the Remote Pinging

After clicking the ***Advanced Tab*** click the Settings button under ICMP. The dialog shown in **Figure 136** will show up. Be sure to put a check mark on the item that says **Echo Request**. By doing this the PC will now return a reply if pinged by a remote computer.

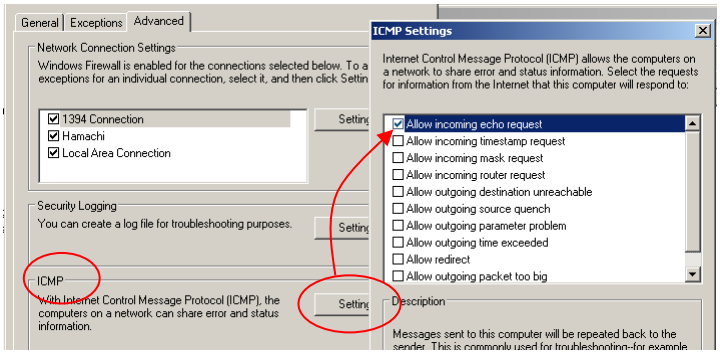


Figure 136. Changing the ICMP setting via the Advanced Tab in Windows Firewall.

DATABASE CONNECTION ERROR

If *Mezintel Gamma* fails to connect to the database such that the DB connection LED is NOT lit on the very first startup screen, the following are the steps to follow to trouble-shoot the database connection anomaly: (**see Figure 137**).

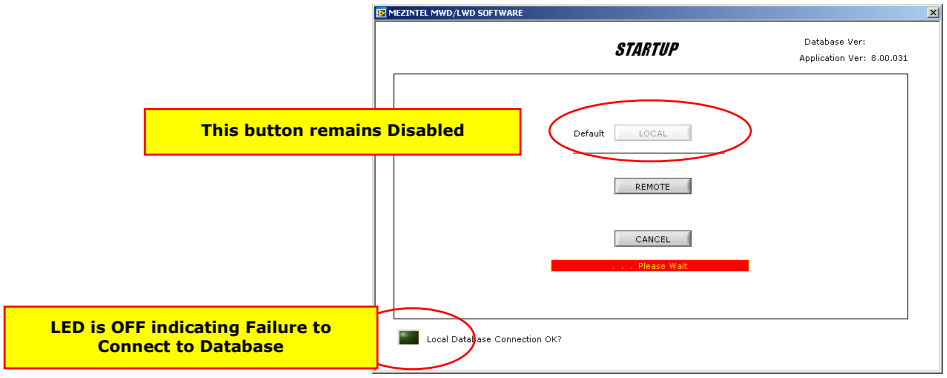


Figure 137. *Shows startup screen if connection to database has failed. Notice that the LED is NOT Lit.*

STEP 1: Open SQL Server Surface Area Configuration

Go to the start button and navigate to open the MS SQL Server 2005 Express configuration manager. The menu is shown in **Figure 138.**

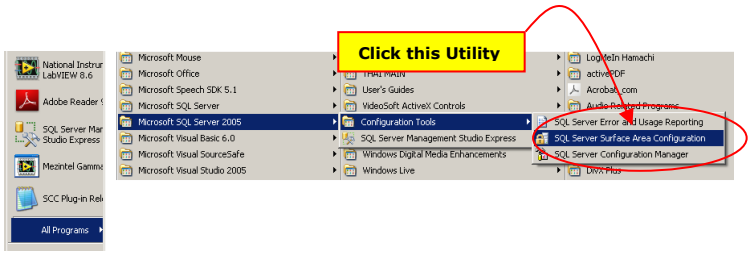


Figure 138. ***Opening*** *SQL Server Surface Area Configuration From the Microsoft SQL Server 2005 Menu.*

STEP 2: Check that **SQL Server EXPRESS** Database Service is Running and is set to Automatic

Once the SQL Server Surface Area Configuration utility is open choose the SQLEXPRESS node from the tree view diagram on the right. Be sure that the Startup type is '**Automatic**' and that the Service Status is '**Running**'.

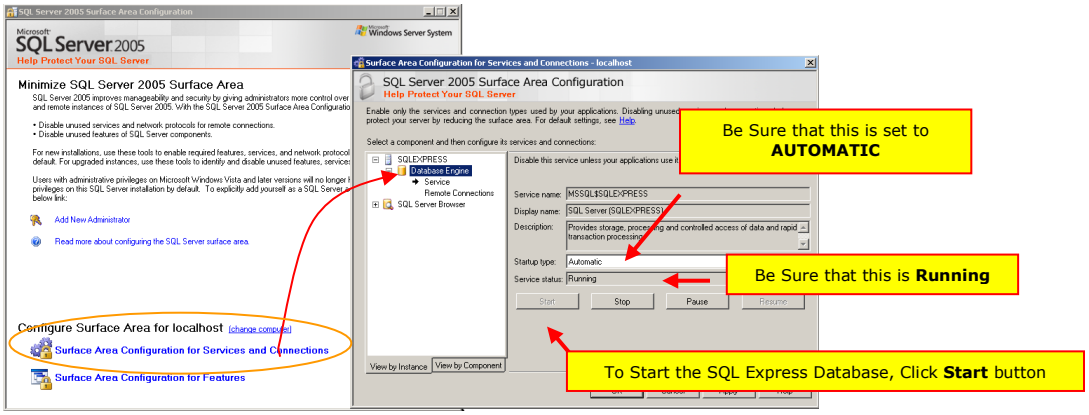


Figure 139. *Checking that SQLEXPRESS Database is running. See above.*

STEP 3: Check that SQL Server **Browser** is Running and is set to Automatic

This procedure is the same as the one above but this time you need to select the SQL Server Browser node from the tree view diagram on the left. Once this is selected be sure that the Startup type is **'Automatic'** and that the Service Status is **'Running',** See **Figure 140.**

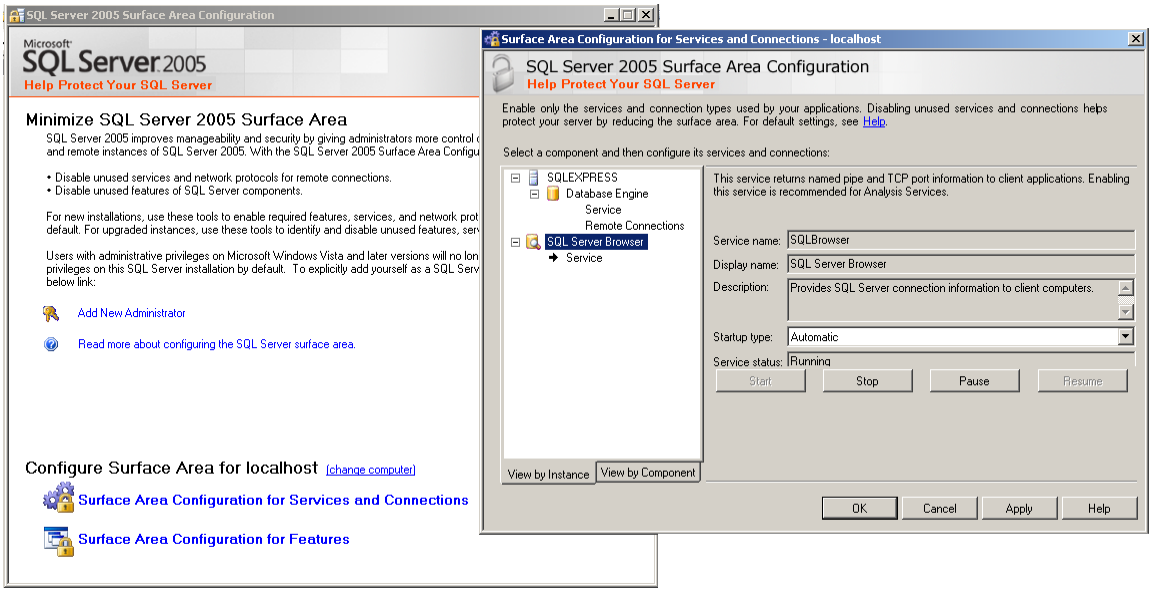


Figure 140. *Viewing the SQL Server Browser Service and making sure that the the Startup type is 'Automatic' and that the Service Status is 'Running'.*

MOUSE POINTER IS UNSTABLE AND IS HARD TO CONTROL

This happens if the PC is connected early-on to the qBUS MWD data streaming port, even before *Mezintel Gamma* software has been turned-on.

The reason why this happens is because the qBus port streams data continuously to the PC and causes the PC's Com Port buffer to overflow. An overflowing com port buffer causes the mouse to malfunction.

Solution: Connnect the qBus cable only when ready to press the ***<Continue>*** button on the ***Job Start*** screen. This will ensure that data that comes to the PC is immediately read and therefore emptied from the qBus Com Port buffer thus preventing the mouse from malfunction.

COM PORT ERROR MESSAGE

A com port error message may flash occasionally on the main screen. This error happens due to signal loss or signal disturbances in the communication lines.

Several things can be done to mitigate this error:

1. Check to see that the cables are securely attached at either end of the PC or Depth tracking device and MWD system. A loose cable should securely re-attached.
2. If using a Pason computer from the shack, re-boot that Pason EDR PC and Restart *Mezintel Gamma*.
3. Swap cables for the line that shows this error.
4. If available, use an optical isolation cable system to avoid floating grounding problems.

30. APPENDIX

RENEWING THE DATABASE TO REGAIN PERFORMANCE

Slow Performance Due to Accumulation of Jobs (more than 5 jobs)

Depending on your computer's specifications, Mezintel Gamma can start to run slow if you have accumulated about 5 or more jobs in addition to the default job templates. Some processes may even fail to complete when you have too many jobs.

For example:

- Adding a new job may fail to complete;
- Saving tie-in for the Survey Table may return an error;
- Adding a new bit run may fail to complete.

How to Resolve Slow Performance Due to Job Accumulation

To resolve slow PC performance due to accumulation of jobs, you will need to renew the database. This procedure will backup your old jobs database to the folder path *C:\Program Files\DB Backup* and will create a new database that only has empty job templates.

Why not simply delete the jobs?

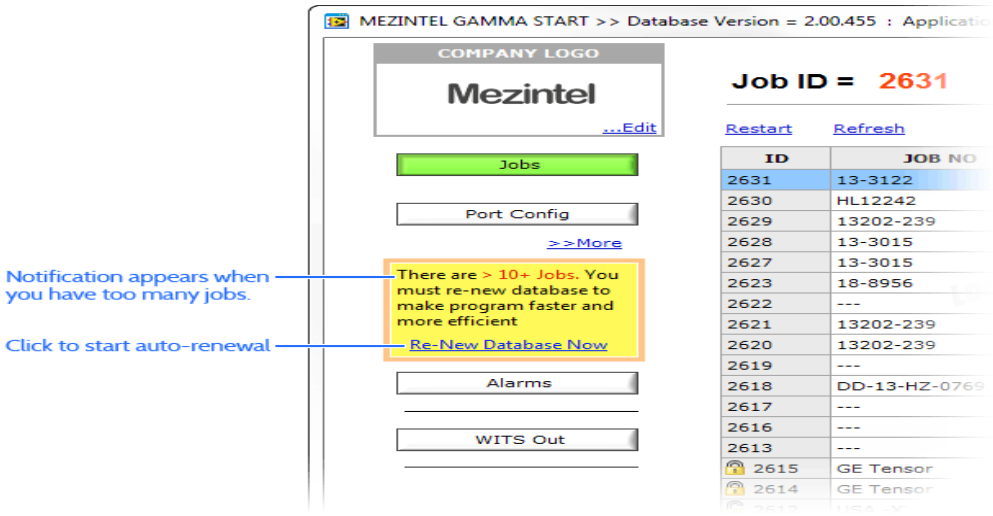
Manually deleting a job takes about 15 minutes depending on its size. So, deleting several jobs one-by-one can take a long time. On the other hand, renewing the database takes about a minute.

How to Renew the Database

A. **Automatic Database Renewal**:

Mezintel Gamma will alert the technician on the Jobs window when there are more than 10 jobs saved in the application.

To renew the database at this point, just click **Renew Database Now** on the alert message (see below).

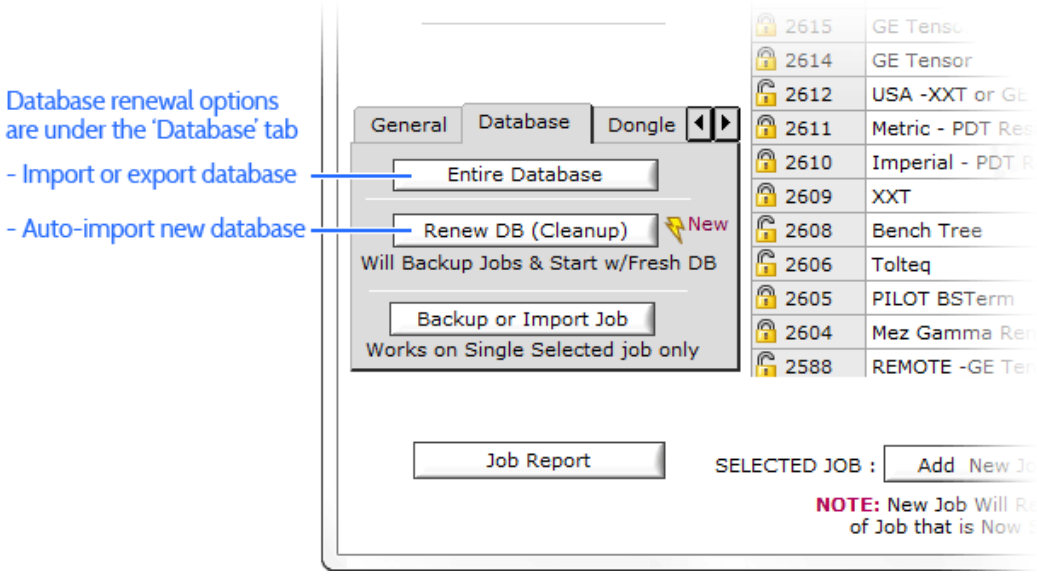


Notification box showing you have 10+ jobs

Otherwise, to renew the database earlier, i.e. before accumulating 10 jobs:

1. Click **Database** tab, then click **Renew DB (Cleanup)**
   → A confirmation dialog pops up

2. Click **OK** to confirm and continue.
   → The Database Manager window pops up, and then a confirmation dialog pops up when update is done.



Database renewal options.

B. **Customized Database Renewal**:

By default, the database renewal puts your old database in *C:\Program Files\DB Backup*, and replaces it with a 'factory' database containing default job templates. However, you can also export and import Mezintel Gamma databases from a location of your choice. For example, you may want to import a fresh database that contains a customized templates list. To do this, click on **Entire Database** in the Database tab.

TIP: Since the database renewal backs up all saved jobs together as one file and removes them from Mezintel Gamma, you cannot access a specific job in the backed up database. Therefore:

1. If you are running a job, then export that job file before continuing with the database renewal, and import it back after the renewal is complete. Otherwise, you should always renew the database before starting a new job.

2. Archive any job files before renewing database. This is advisable because the renewed database will only list templates. As needed, at a later time you can always import back the old database located at *C:\DB Backup*\ by using the 'Entire Database' import process.

UPGRADING MEZINTEL GAMMA

Automatic Update:

Go to main screen of *Mezintel Gamma* Software and Choose the Menu item:

HELP >> Check for Updates

Downloading Files From FTP Server

You will need to download two files using upgrade links:

Here are the upgrade instructions and web links:

You can paste the links on FireFox Browser. Do not use
Internet Explorer as it will NOT work.

If you do not have the Firefox browser, you can download and install a safe
Firefox browser from here: www.mozilla.com

After installing just past the links shown here:

NOTE: The password for the file is: mezupgrade

Link 1: For Non (G) Version , i.e.Your *Mezintel Gamma* version does not end with (G)
---
ftp://upgrades@mezintel.com@ftp.mezintel.com/VER_X/Mezintel%20Gamma.exe

Link 1: For (G) Version **(Your Version DOES End with G)**
---
ftp://upgrades@mezintel.com@ftp.mezintel.com/VER_G/Mezintel%20Gamma.exe

Link 2: For Non (G) Version , i.e.Your *Mezintel Gamma* version does not end with (G)
---
ftp://upgrades@mezintel.com@ftp.mezintel.com/VER_X/Mezintel%20MWD%20Import%20Export.exe

Link 2: For (G) Version **(Your Version DOES End with G)**
---
ftp://upgrades@mezintel.com@ftp.mezintel.com/VER_G/Mezintel%20MWD%20Import%20Export.exe

Again the password is: mezupgrade

IMPORTANT: The *Mezintel Gamma* Software should say: Ver: 15.00.065 or higher

Just copy those two files to the path:

c:\program files\mezintel gamma\

Replace the old ones

Updating PDF Drivers

If the PDF print dialog does not print or if the PDF print dialog appears to be frozen, then you may have a corrupt PDF Driver installation, or PDF drivers were never installed, the repair process depends on the Version of Mezintel Gamma.

What version is your Gamma Software:

IF YOUR VERSION DOES NOT END WITH (G)

E.g. Your Version is: **15.00.065** etc. then use the following procedure:

Uninstall PDF drivers using CONTROL PANEL >>ADD REMOVE PROGRAMS as follows:

1. BlackIce PDF or any PDF Driver
2. Mezintel PDF Drivers (Merge split and/or Events)

Then get the Mezintel Installer CD that was used to install that version and only run the PDF installer Steps. There is a folder just for PDF drivers installation.

IF YOUR VERSION DOES END WITH (G)

Download the following PDF driver installer steps.

STEP 1

ftp://upgrades@mezintel.com@ftp.mezintel.com/PDF%20Drivers/STEP%201%20-PDF%20Writer%20NEW.zip

STEP 2

ftp://upgrades@mezintel.com@ftp.mezintel.com/PDF%20Drivers/STEP%202%20-Events%20and%20Interface%20NEW.zip

STEP 3

ftp://upgrades@mezintel.com@ftp.mezintel.com/PDF%20Drivers/STEP%203%20-PDF%20Chart%20Merge.zip

STEP 4

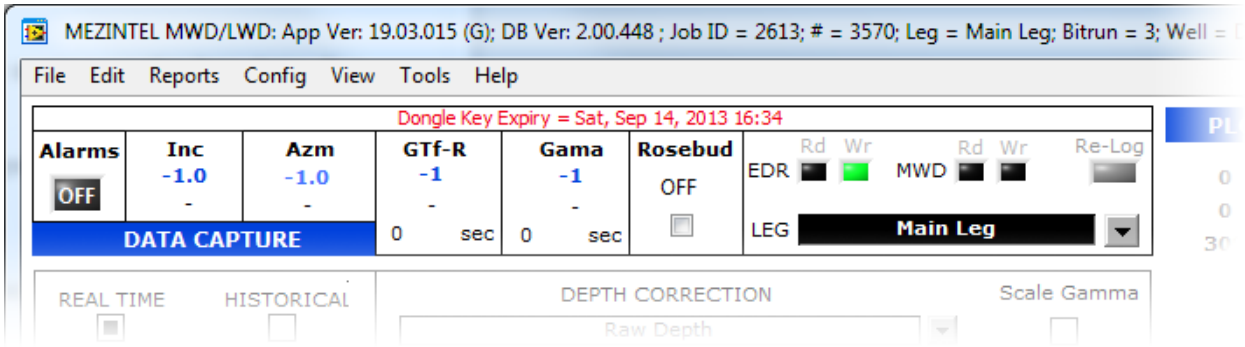
ftp://upgrades@mezintel.com@ftp.mezintel.com/PDF%20Drivers/STEP%204%20-XPDF%20Printer.zip

The PDF Re-install fixes the problem 90% of the time.

RENEWING YOUR MEZINTEL GAMMA LICENCE

A Mezintel dongle key allows your PC to interface with other equipment and continuously log data for however much time is licensed on the key.

If you are running Mezintel Gamma with a dongle, the software will notify you 3 days before your licensed time expires.



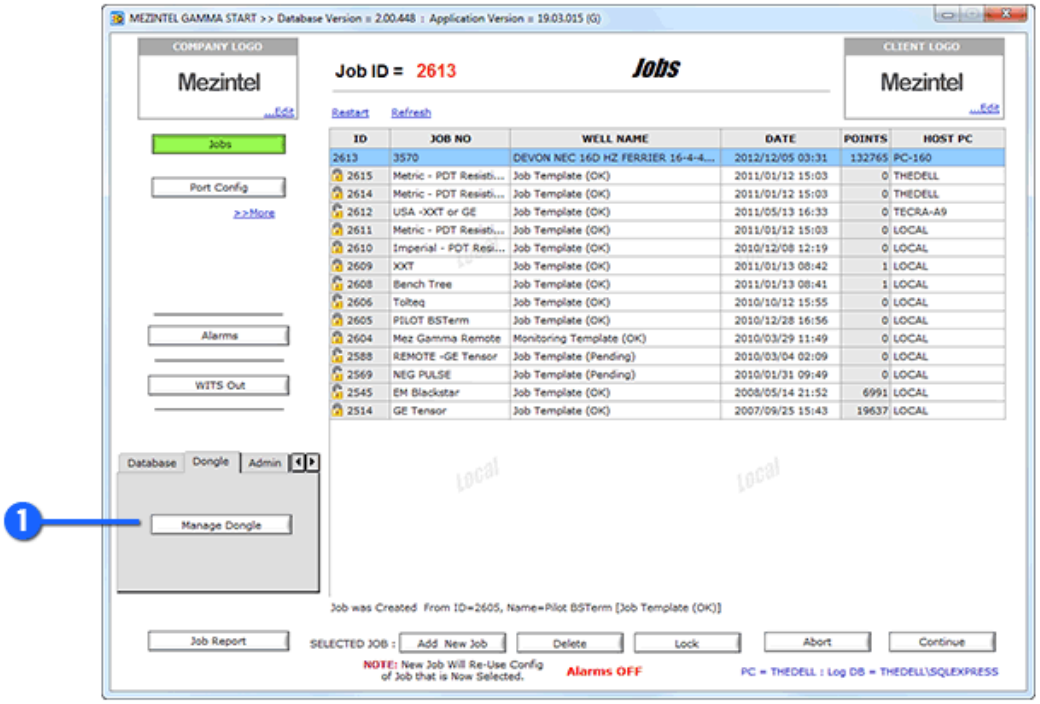
Mezintel Gamma warns you by flashing a notification in the top section of the window in 5 – 10 seconds intervals.

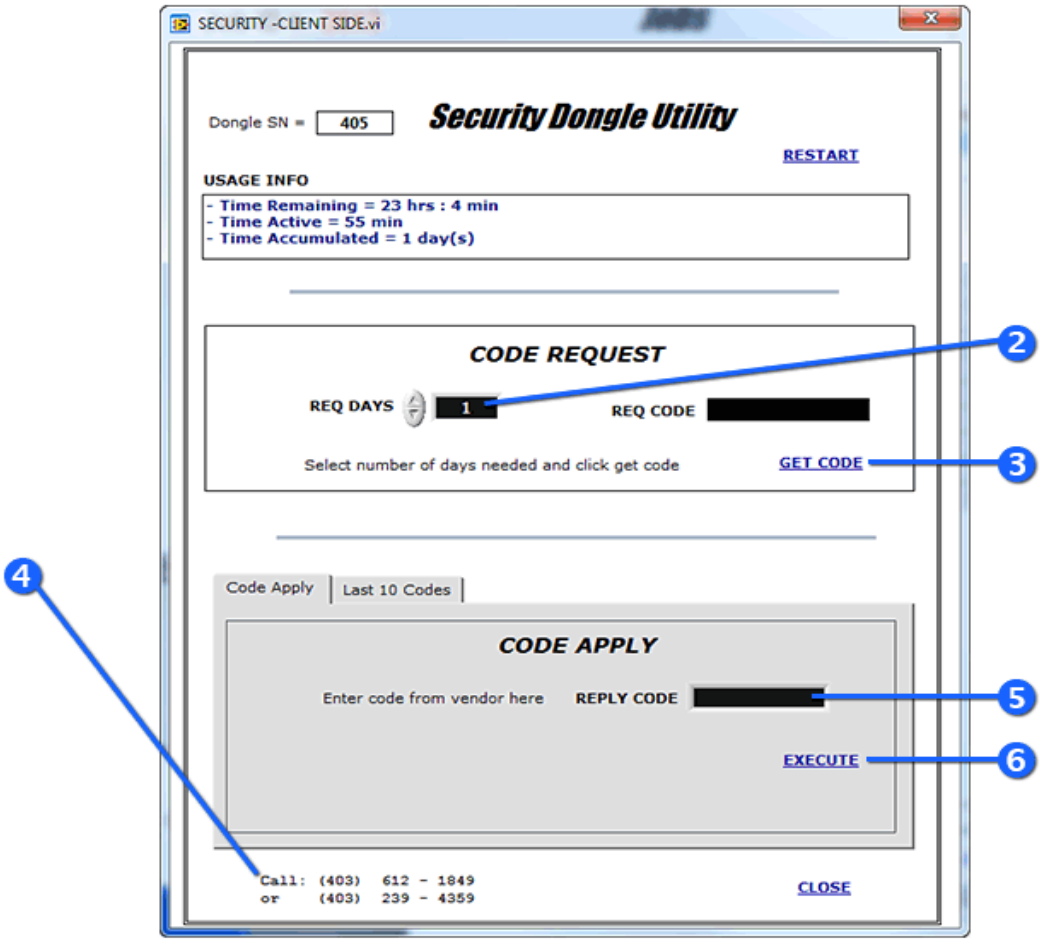
If your dongle key expires, Mezintel Gamma will allow you an extra 15 minutes to renew your licence before it automatically shuts down.

To be safe, it's best to call us for a renewal at least 24 hours before your key expires.

Adding More Time to Dongle Key

To renew your key means to add more licence time on it. You can do it from the *Start window*:





Adding more time to Dongle Key.
Do not close Window until you receive confirmation that renewal was successful.

1. Click **Dongle** tab near the bottom right of the window, then click **Manage Dongle.**
   The Security Dongle Utility *will pop up.*
2. Type how many days you want in the **REQ DAYS** textbox
3. Click **GET CODE**
   *Your request code is generated in the **REQ CODE** box*
4. Call Mezintel using the phone number on the window
5. Type the code provided over the phone into the **REPLY CODE** textbox
6. Click **EXECUTE**

DO NOT CLOSE THE WINDOW until you confirm the renewal was successful!

30-Days Maximum Renewal
Mezintel does not renew rental licences for more than 30 days at a time. However, licence renewal preferences are different for each company so you may need to ask your supervisor how many days you should purchase.

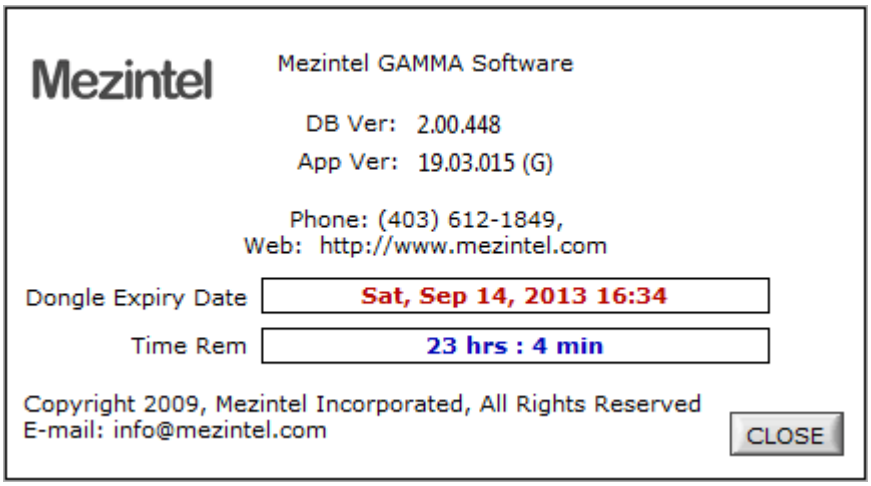
Record of Transaction
Your dongle key keeps a historical record of renewals made on it:
On the *Security Dongle Utility* window, click on **Last 10 Codes** tab.

TIP: this information may suggest how many days you are supposed to purchase at a time.

How To Find Out When Dongle Key Expires

To find out how much time is remaining, with your key plugged into your PC, go to Mezintel Gamma's main window and do this:

1. Click **Help** on the top main menu
2. Click **About**



The About window showing how much time is remaining on a dongle key