REFERENCE MANUAL

DASHBOARD SOFTWARE SUITE

&

GAUGE CONTROLLER



including:

Dashboard Professional© v2.4.0.*X*
Dashboard Lite© v2.1.*X*
Dashboard App© v2.*X*
Bluetooth™ Controller v1.2.*X*

Manual Revision 2.4

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1 SOFTWARE OVERVIEW

The ***Dashboard*** suite and ***BT_Con*** software currently includes four different software applications called:

Dashboard Professional©
Dashboard Lite©
Dashboard App©
BT Con©

All four applications were developed for use with the ***G-Con*** communication controller and any derivation of any model of the ***KC3***© family of downhole electronic memory pressure recorders (gauges). The ***KC3***© model range includes the following models, including ***Gen II*** (KC3B & KC3C electronics) versions of:

KC3©
KC375©
KC3Q©
KC3-SPM©
KC3-PP©

All four software applications have been designed to have a similar look and functionality in terms of how they interface with the ***KC3***©. However, each application is used in different ways, and offers a different range of use profiles to suit different circumstances:

Dashboard Professional©	***Full Package***. Offers all the features. Including basic ***KC3***© functions plus a wide range of advanced data editing, database management and survey reporting features.
Dashboard Lite©	***Field Operators Friend***. Full ***KC3***© gauge interface functionality. ***Dashboard Lite***© resides in ***KC3***© memory, requires no installation on a PC and offers the basic functions required by the field operator.
Dashboard App©	***Unbeatable Convenience***. Runs on any Android™ device with Bluetooth© wireless communication. Offers similar basic feature package as ***Dashboard Lite***©. Generally recommended for use with datasets of 20,000 samples or less.
BT Con©	***Handy Tool***. Supports direct communication between ***G-Con*** and any PC or Android™ device with Bluetooth©. ***BT Con*** resides in ***G-Con*** memory and requires no installation.

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The following table illustrates the primary features of the three ***Dashboard*** applications:

	Dashboard Professional©	***Dashboard Lite©***	***Dashboard App©***
Operating System	MS Windows™	MS Windows™	Android™
Software Source	Upload from www.rty.ca	Upload from ***KC3©***	Upload from **Play Store**
Communication with ***KC3©***	USB	USB	Bluetooth Wireless
KC3© Status	✓	✓	✓
Sample Handling Capacity	Unlimited	Unlimited	20,000 max
Battery Capacity Indicator	✓	✓	✓
Memory Capacity Indicator	✓	✓	✓
KC3© Configuration	✓	✓	✓
Data Retrieval	✓	✓	✓
Minimal Plotting Functions	✓	✓	✓
Job File Exporting	✓	✓	✓
Job File Editing	✓		
Basic Plotting Functions	✓		
Advanced Plotting Functions	✓		
Survey Reporting	✓		
Government Format Reports	✓		

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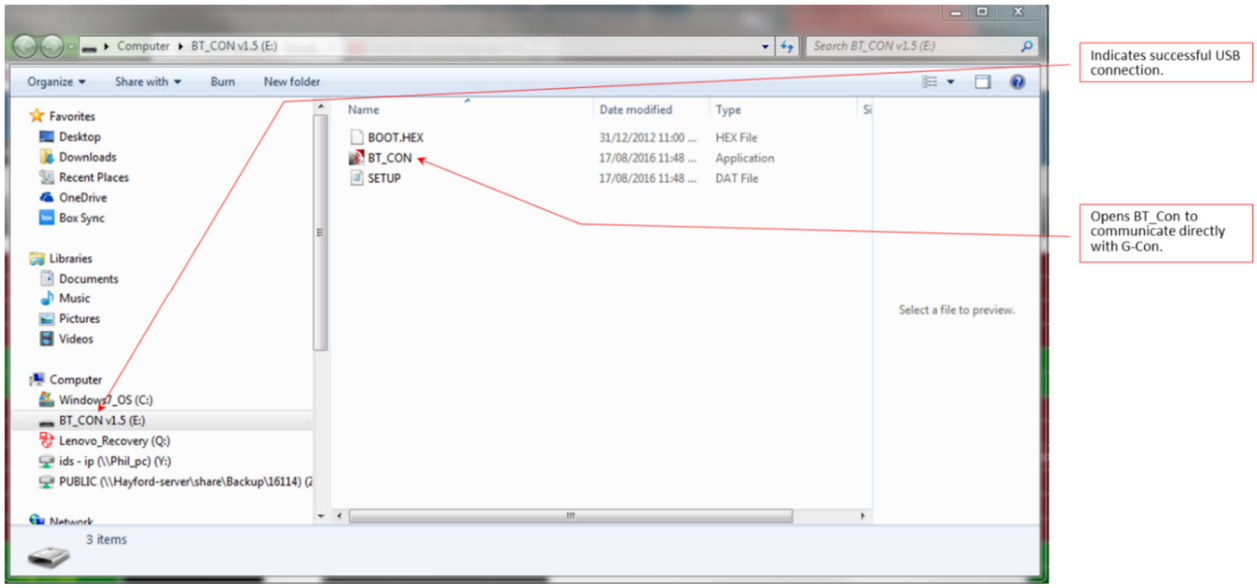
2 *G-Con*

Communication between a ***KC3***© and a PC computer or Android™ device is only possible using the ***G-Con*** Gauge Controller. ***G-Con*** contains microprocessor circuitry powered by a rechargeable battery. A single button is used for all functions. An LED emits different colours to indicate different ***KC3***© and/or ***G-Con*** conditions.

G-Con communicates with a PC using a USB connection. The USB also charges the ***G-Con*** battery.

2.1 *G-Con* Maintenance

The G-con is charged by connecting it to the computer. If you connect it with no gauge attached, a screen will pop up to "Open folder to view files".



Click on this, then open **BT_CON.EXE**. This will show you the G-Con serial number, as well as the battery level (see **G-Con Status** below). If battery level is low, keep it connected to the computer to recharge it. If it gets below 30%, you may need to charge it overnight. Disconnect the cable from the G-Con, then reconnect it to be able to check its status again, or click on **Refresh**. Do this check fairly regularly (every week or so) until you get a feel for how long they will last. Be sure to check it before going out in the field.

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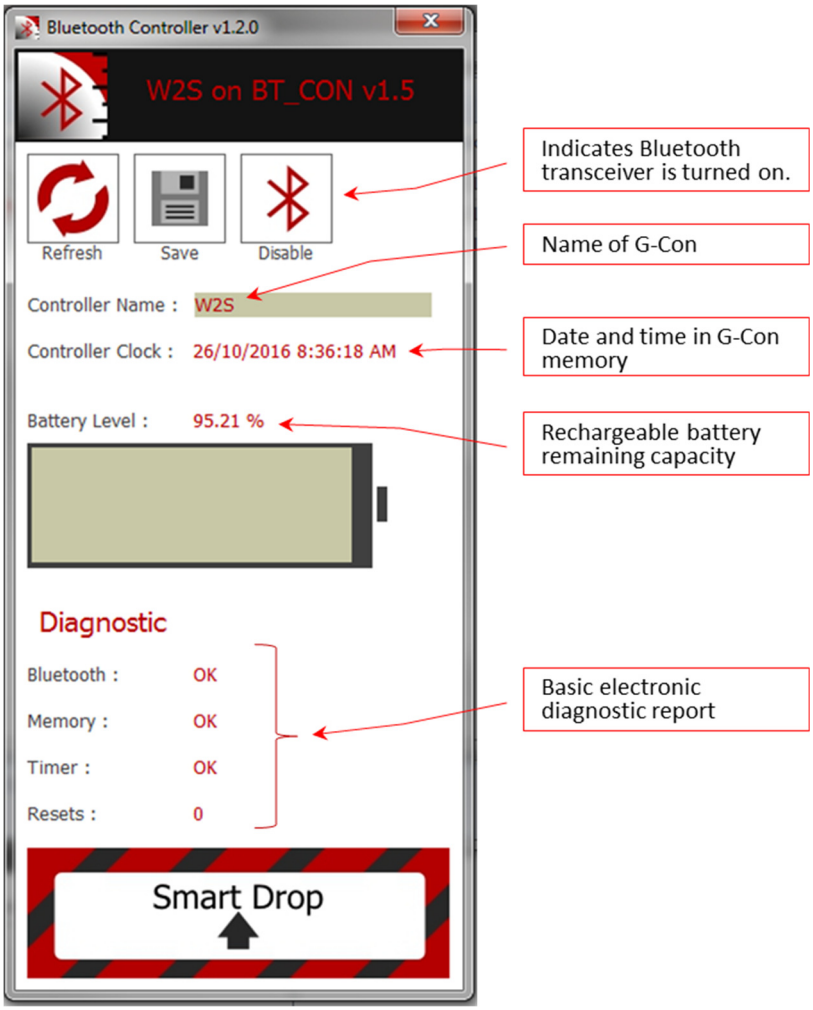

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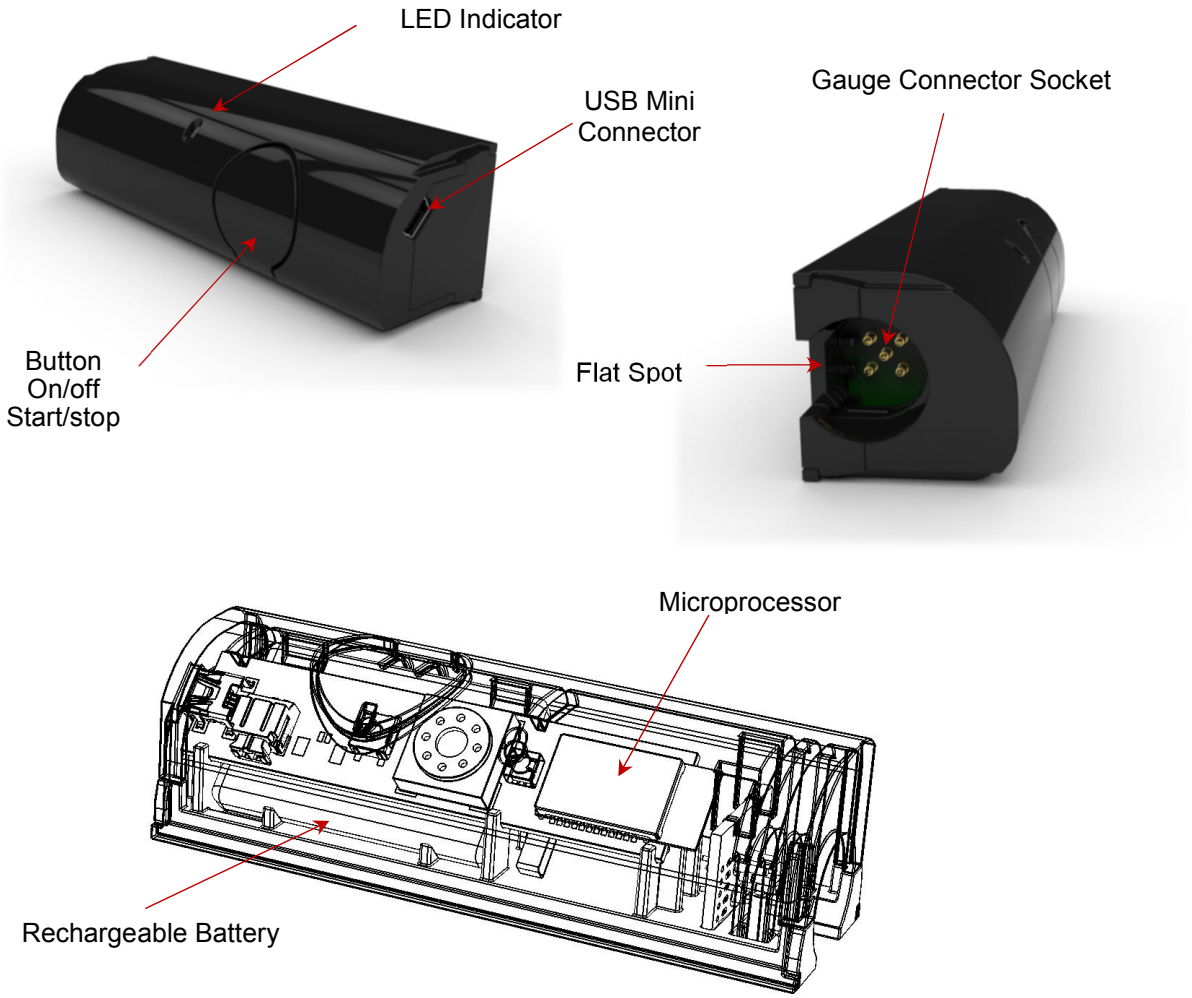
G-Con also communicates with any Android™ device with Bluetooth™ wireless capability. The ***G-Con*** rechargeable battery is **NOT** being charged when the Bluetooth™ connection is in use.



G-Con fits both 1.25" and 0.75" diameter ***KC3***© gauges. The flat outer surfaces of the ***G-Con*** are different distances from the centre line of the connector where the ***KC3***© stabs in. Each flat surface is designed to accommodate a specific ***KC3***© diameter. If the correct surface is used, both diameters of ***KC3***©'s will lay on a flat surface at the same level as the ***G-Con,*** as depicted in the picture on the left below. The flat position on a flat surface helps maintain a good electrical connection between ***G-Con*** and ***KC3***©.

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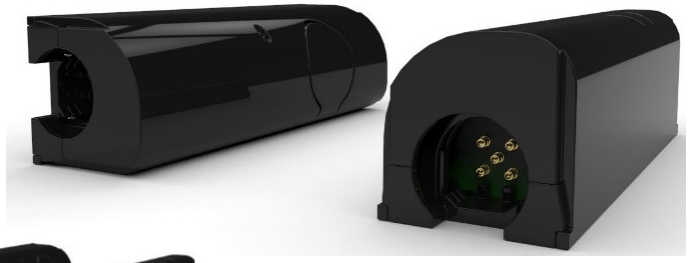
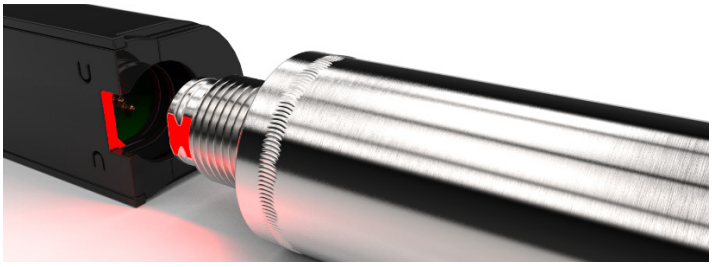


1-1/4” Gauge Orientation



3/4” Gauge Orientation

It is important to connect the KC3© to the G-Con without twisting. To insert ***KC3©*** into the ***G-Con***: Align the flat spot on the end of ***KC3©*** with the flat spot inside the ***G-Con*** connector socket (as highlighted below) and push together firmly.



With the ***KC3©*** connected to the ***G-Con***, and the ***G-Co***n connected to the USB on a PC, communication is enabled between PC and the ***KC3©***. Alternatively, with the ***KC3©*** connected to the ***G-Con***, and the ***G-Co***n paired to an Android™ device through Bluetooth™ wireless, communication is likewise enabled between the ***KC3©*** and the Android™ device.

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2.2 Using *G-Con* Alone

G-Con exists to enable communication between any ***KC3***© and a PC or Android™ device. However, when no ***KC3***© is connected to a ***G-Con***, the ***G-Con*** can communicate with a PC or Android™ all by itself.

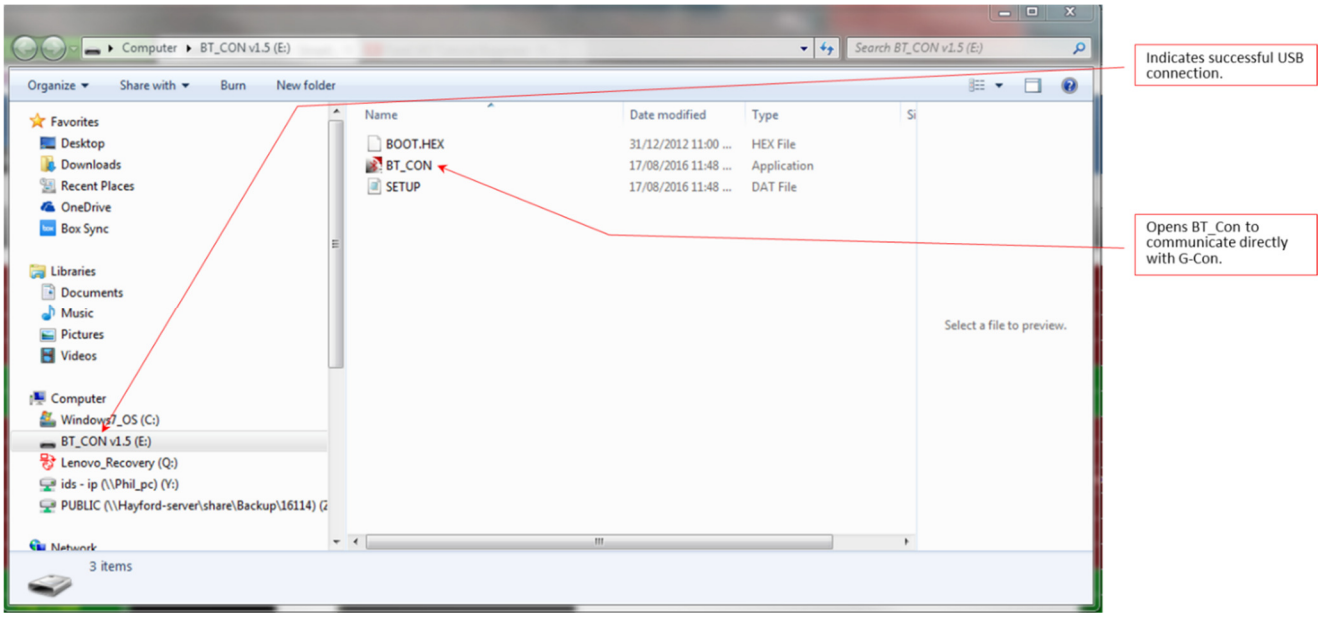
The stand-alone communication feature is designed into ***G-Con*** for general performance monitoring and troubleshooting support. Users should periodically take note of the battery charge level, the time on the G-Con, and monitor the Diagnostic information.

In the unlikely event a user has difficulty communicating with a ***KC3***© using a ***G-Con***, the user can quickly determine if the problem resides in the ***G-Con***, the ***KC3***©, or neither. To make sure the ***G-Con*** is working properly, the user just has to communicate with the ***G-Con*** by itself.

2.2.1 Using *G-Con* alone with USB on PC

The 5 steps below illustrate the use of a ***G-Con*** by itself on a PC:

a) Plug a normal mini-USB cable into the ***G-Con***, and connect the other end of the USB cable into the USB socket on the PC. If the ***G-Con*** was turned off before getting plugged in, the ***G-Con*** LED should glow green as soon as the USB is connected to the PC, and then very quickly the LED should start glowing blue, indicating a successful connection to the PC. If the ***G-Con*** was already turned on with a green LED glowing, the LED should again turn blue when the USB is connected, indicating successful USB communication.



b) ***G-Con*** interacts with MS Windows™ on a PC the same way as any mini portable flash drive (memory stick, jump drive…). After the ***G-Con*** is plugged in, the LED is glowing ***blue***, a pane similar to that pictured above should be displayed.

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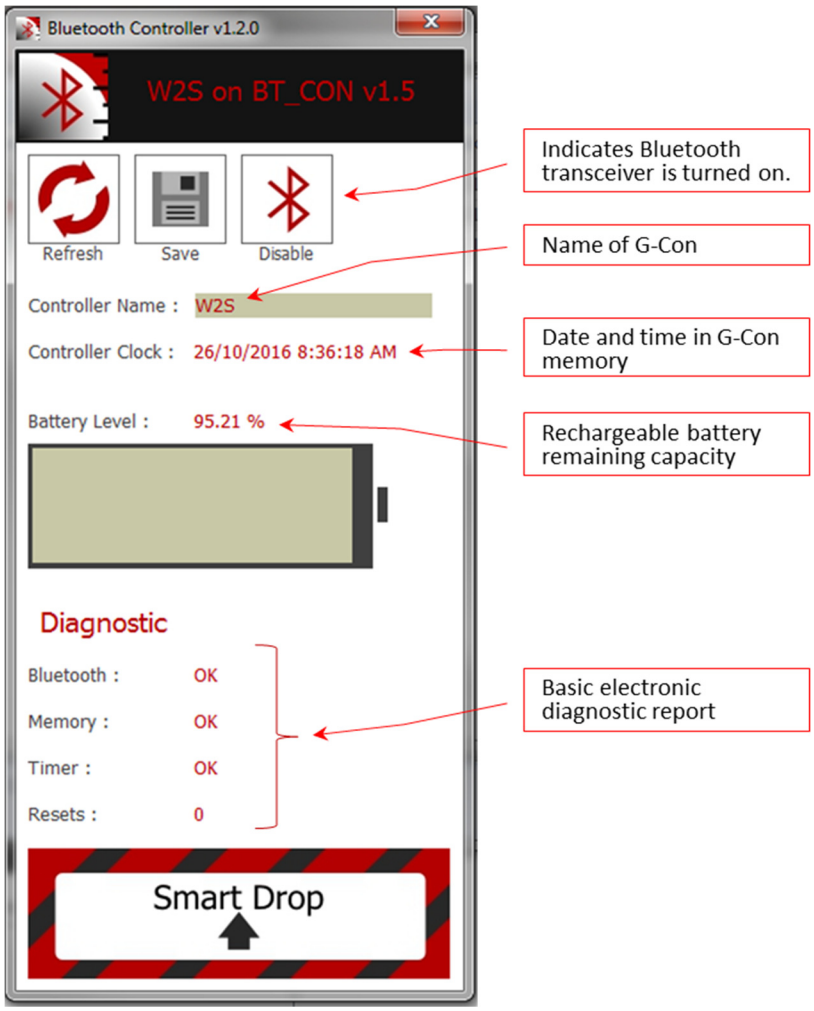
c) *Double-Click* on the ***BT_Con*** application with the ***Dashboard*** icon to activate the application. The pop-up illustrated below will appear.



d) The diagnostic report for the Bluetooth, memory and timer parameters will always return an ***OK*** or ***NA (not acceptable)***. As long as all three parameters return ***OK***, the ***G-Con*** electronics is functioning properly. A Reset value of ***0 (zero)*** is best. However, when Resets returns an ***integer***, a problem is not necessarily indicated. A Reset is caused by an interruption in the power supplied by the on-board rechargeable battery. Such power supply interruptions could be caused by the battery running flat, and getting recharged. Or, perhaps the rechargeable battery was removed and replaced for some reason. Reset values above ***0 (zero)*** are an indication that there could be a problem with the rechargeable battery power supply, and some investigation may be warranted.

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e) The factory default name for all ***G-Con***'s is the same as the ***G-Con*** serial number. If the user would like to change the name of the ***G-Con*** to some other name that's easier to remember, just *scroll* over to the Controller Name field, *type-in* the new name, and *click* on Save.



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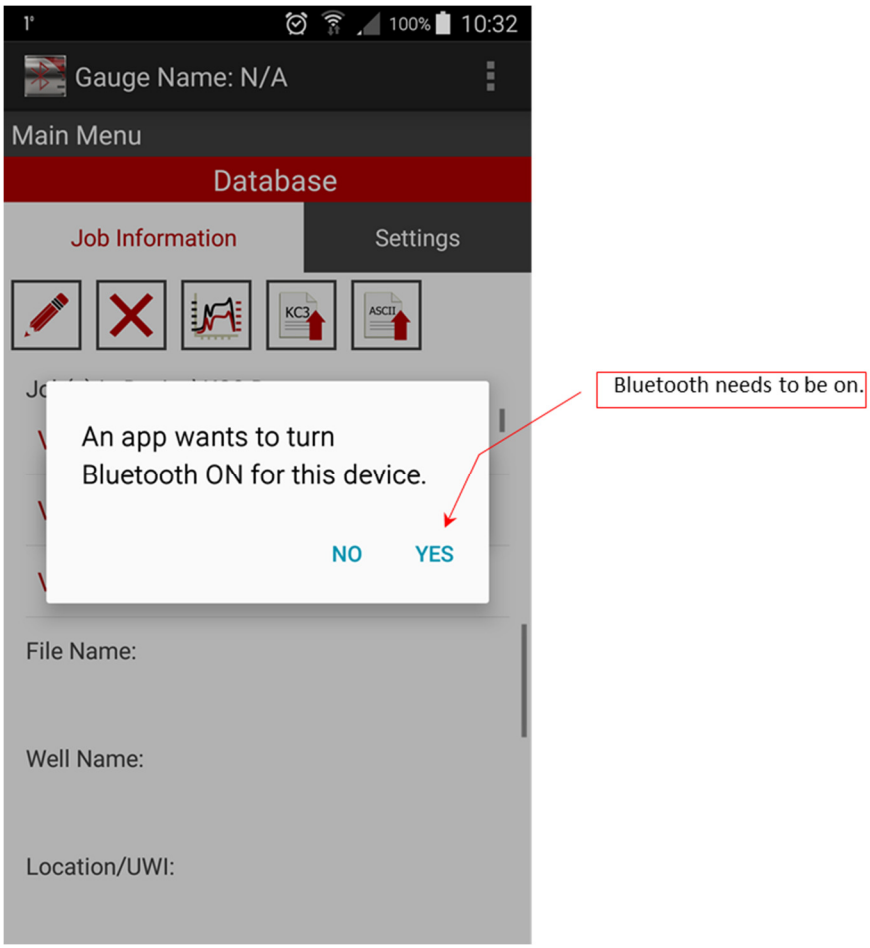
2.2.2 Using *G-Con* alone with Bluetooth™ on Android™

The 11 steps below illustrate how to use a ***G-Con*** by itself on an Android™ device:

a) *Turn on* the ***G-Con*** on by *pressing* the ***G-Con*** Button once. The LED on the ***G-Con*** will glow green to indicate the ***G-Con*** is on.

b) On the Android™ device, open ***Dashboard App***©

c) If the Android™ Bluetooth™ is NOT turned on, the message below will pop-up. If/when this message pops-up, the user needs to *answer* Yes to turn on Bluetooth™ communications.



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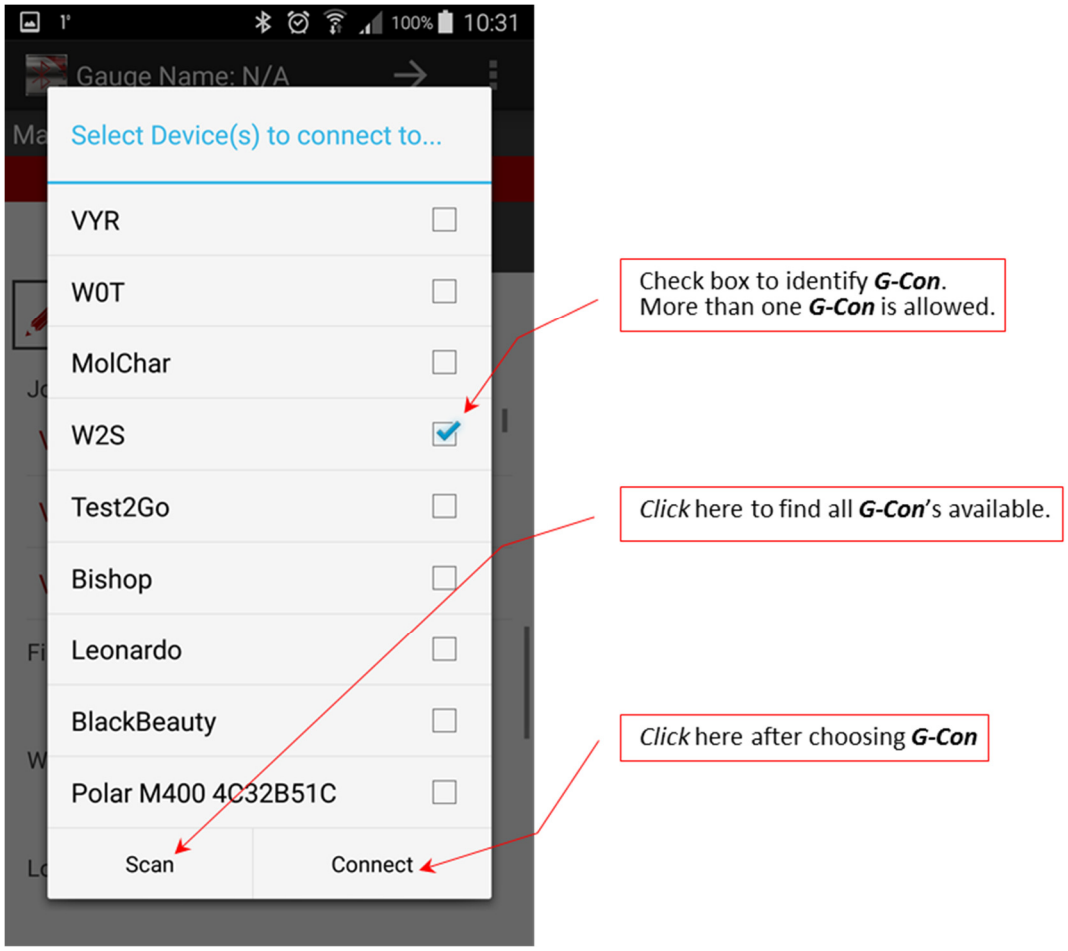
d) As soon as the Bluetooth™ starts working, ***BT_CON*** will display the pane below. The message <below> contains a list of the names of all the ***G-Con***'s the Android™ device has ever communicated with. The user must make sure the correct ***G-Con*** is *selected*, and any unwanted ***G-Con***'s are *unselected*.



e) If the required ***G-Con*** does not show up on the list <above>, the user should *press* Scan at the bottom left. This will find any ***G-Cons*** with Bluetooth™ running that are not on the list.

f) Note; It is possible for ***BT_CON*** to communicate wirelessly with more than one ***G-Con*** at a time. The ***G-Con***'s can even be connected to ***KC3***©'s. If more than one ***G-Con*** is connected, the right pointing arrow at the top of the pane is used to scroll between the different ***G-Con***'s.

g) Once the required ***G-Con(s)*** is/are correctly identified on the list, *press* Connect at the bottom right.

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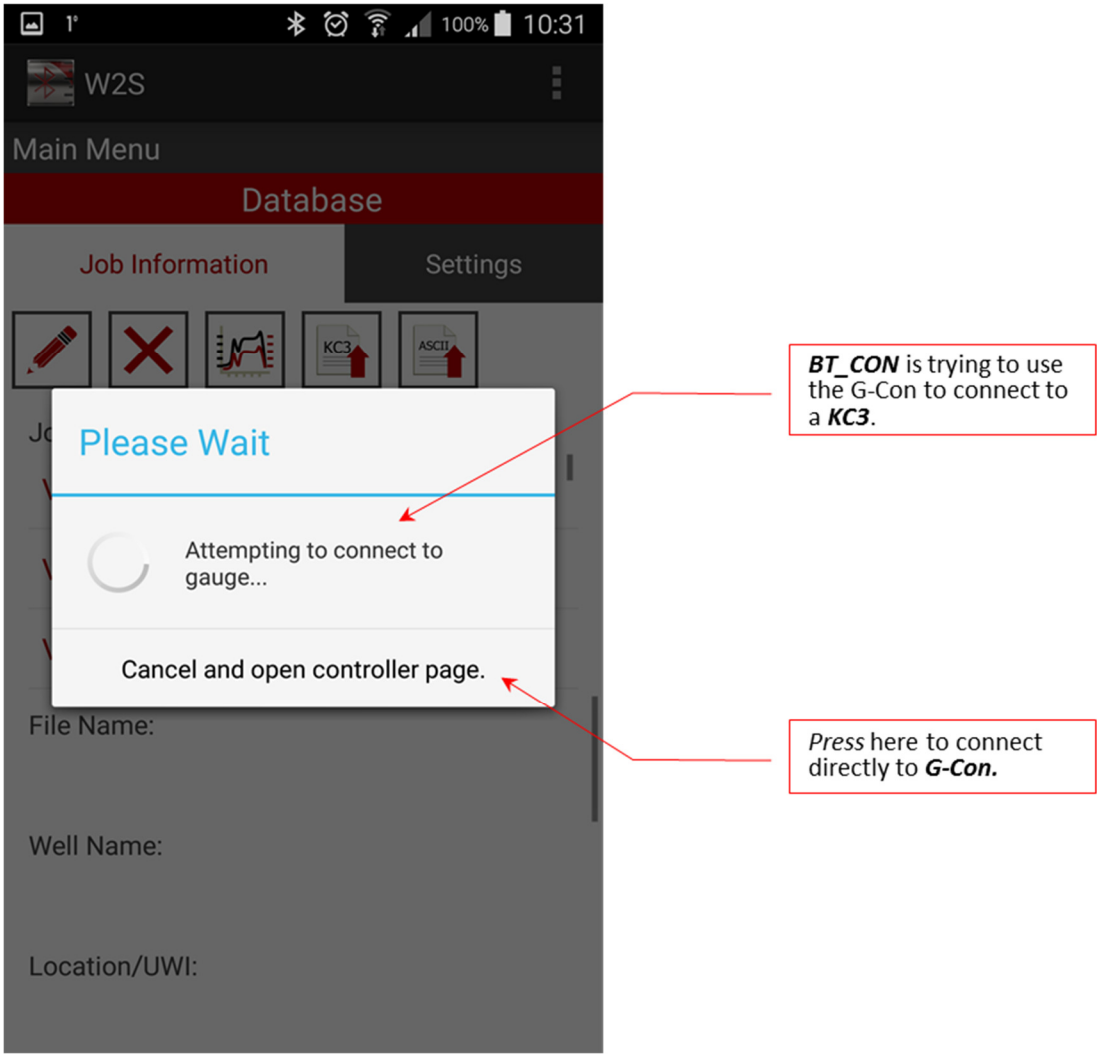
h) After Connect is *pressed*, the dialog presented below will appear:



i) When the pop-up above appears, the user must quickly *press* the Cancel and open controller page. button to open the ***BT_CON*** page.

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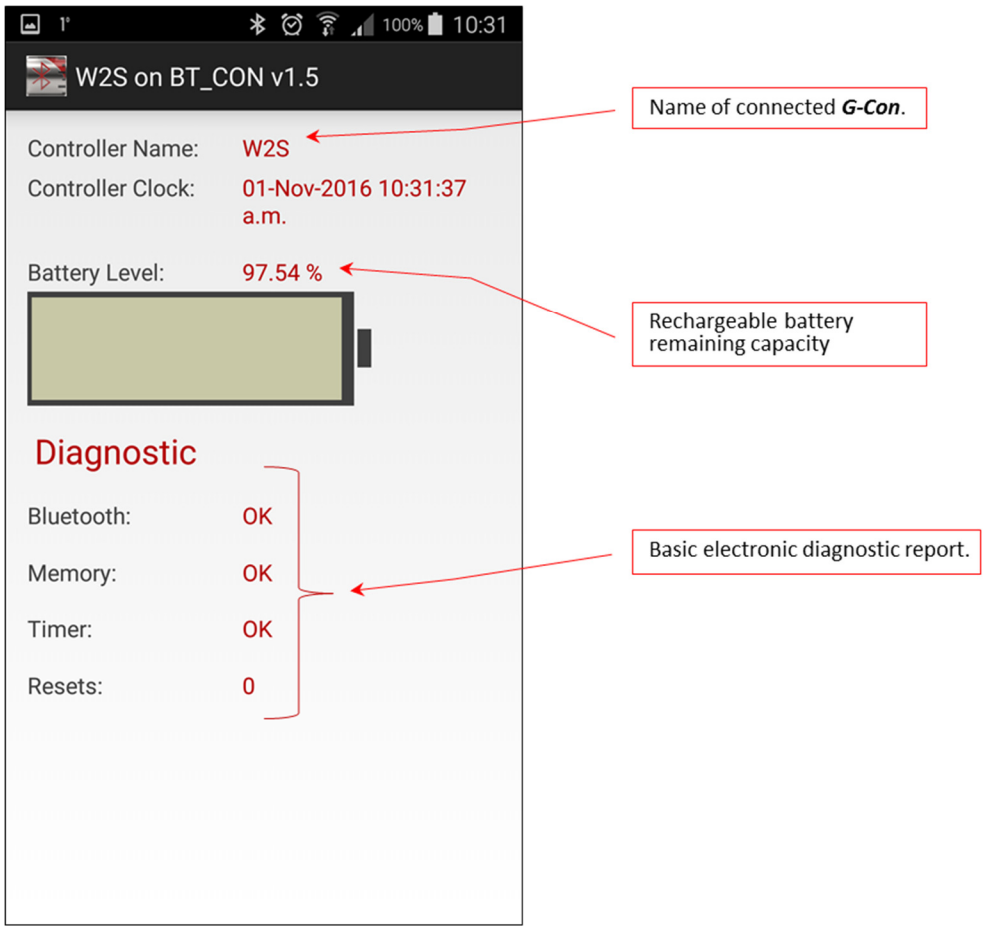
j) The ***BT_CON*** page is presented below.



k) The diagnostic report for the Bluetooth, memory and timer parameters will always return an ***OK*** or ***N/A (not acceptable)***. As long as all three parameters return ***OK***, the ***G-Con*** electronics is functioning properly. A Reset value of ***0 (zero)*** is best. However, when Resets returns an ***integer***, a problem is not necessarily indicated. A Reset is caused by an interruption in the power supplied by the on-board rechargeable battery. Such power supply interruptions could be caused by the battery running flat, and getting recharged. Or, perhaps the rechargeable battery was removed and replaced for some reason. Reset values above ***0 (zero)*** are an indication that there could be a problem with the rechargeable battery power supply, and some investigation may be warranted.

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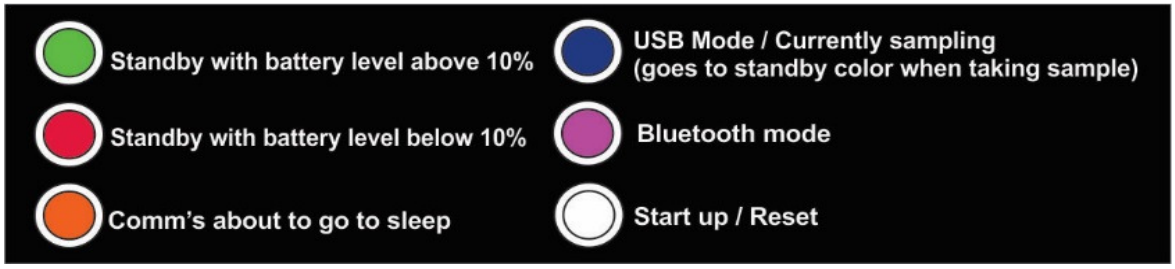
2.3 *G-Con* LED Meanings

The legend below describes the meaning of the different ***G-Con*** LED colours.



2.4 *BT_CON* Firmware Updates

BT_CON is the firmware embedded in the ***G-Con's*** memory that's used to control the ***G-Con***. Like any software, ***BT_CON*** firmware needs to be updated from time to time. The three ***Dashboard*** applications each handle ***BT_CON*** firmware updates in different ways:

When ***Dashboard Professional***© and a ***G-Con*** by itself (not connected to a KC gauge) start communicating on a PC, and if the PC is connected to the internet, ***Dashboard Professional***© automatically checks to see if the version of ***BT_CON*** firmware on the ***G-Con*** is the latest version. If ***BT_CON*** is up to date, nothing further happens. If the ***BT_CON*** on the ***G-Con*** is out of date and needs updating, ***Dashboard Professional***© will pop-up a message to tell the user that ***BT_CON*** needs to be updated, and ask if the user would like ***Dashboard Professional***© to update the ***BT_CON*** firmware. It is recommended the user *choose* Yes, and in about one minute, the ***BT_CON*** firmware will be updated.

When ***Dashboard App***© and a ***G-Con*** start communicating through Bluetooth™ on an Android™ device, and if the Android™ device is connected to the internet, ***Dashboard App***© automatically checks to see if the version of ***BT_CON*** firmware on the ***G-Con*** is the latest version. If ***BT_CON*** is up to date, nothing further happens. If the ***BT_CON*** on the ***G-Con*** is out of date and needs updating, ***Dashboard App***© will pop-up a message to tell the user that ***BT_CON*** needs to be updated. ***Dashboard App***© is unable to update the ***BT_CON*** firmware, and therefore, when this message pops-up, and it's convenient, the user needs to use ***Dashboard Professional***© to update ***BT_CON*** firmware.

Neither ***Dashboard Lite***© or ***BT_CON*** have the ability to check or update ***G-Con*** firmware.

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3 DASHBOARD PROFESSIONAL©

3.1 Overview

Dashboard Professional© is distributed free to ***KC3***© customers. ***Dashboard Professional***© is designed to run on any PC using the MS Windows™ operating system.

Dashboard Professional© is a full featured companion software for the ***KC3***© range of electronic memory pressure recorders, including ***KC3, KC375, KC3Q, KC3-SPM, KC375-PP*** models. ***Dashboard Professional***© operates the same way with all ***KC3***© models.

Using ***Dashboard Professional***© as the primary ***KC3***© configuration and data retrieval software package is the optimum solution to ensuring the embedded software on a ***KC3***© is kept up to date. ***Dashboard Professional***© will also keep the ***Dashboard Lite***© embedded software on the ***KC3***© up to date.

Communication between the PC and the ***KC3***© is provided by way of a ***G-Con*** and a mini-USB cable.



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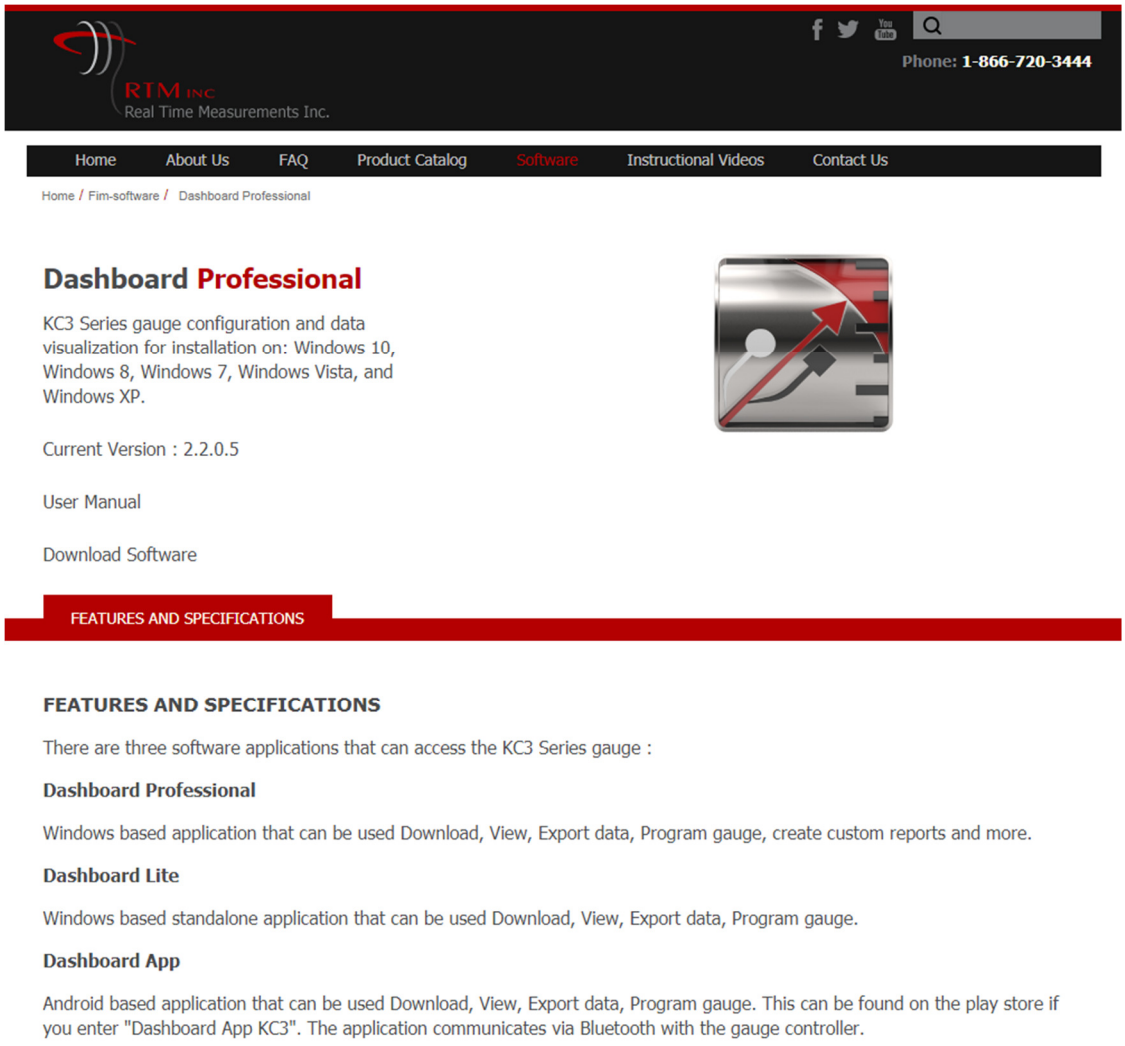
3.2 Installation – First Time

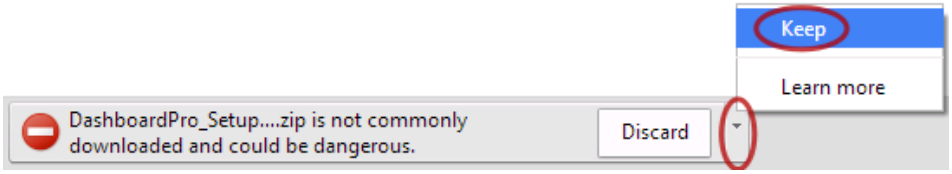
The first step in installing ***Dashboard Professional***© on a PC is to download the installer package from www.rty.ca.

On the webpage *left click* on the Software tab. Next *left click* on Download.



New users should take a few moments to review the various instructional videos and FAQ's presented on the website or at the end of this manual.

After Download Software is activated and the installer is downloaded to the PC, some internet browsers may display the warning ***Dashboard Pro_Setup.zip is not a commonly downloaded software, and could be dangerous.*** The message will be similar to the warning message presented below:



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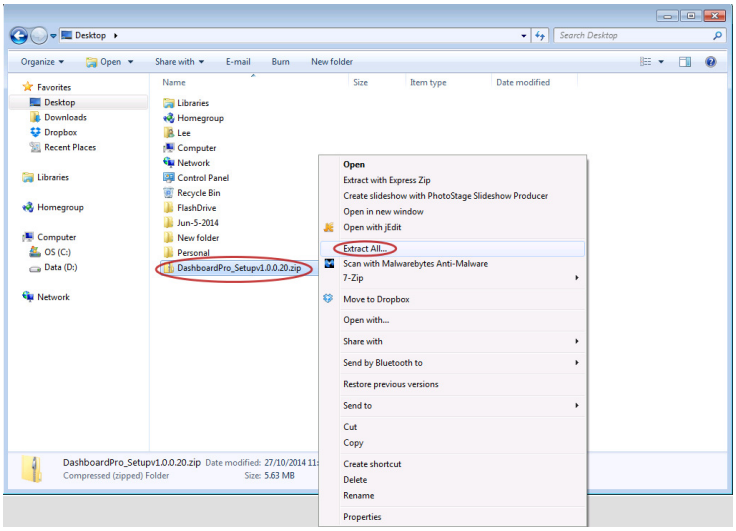
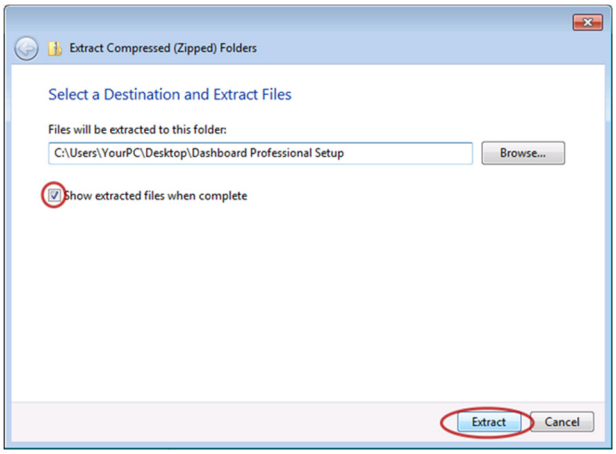
As long as the user got the ***Dashboard Professional***© installer package from www.rty.ca , the software is safe and the warning message can be ignored/bypassed. To proceed and install ***Dashboard Professional***©, choose to keep the file by *right clicking* on the little arrow to the right of the warning message, and select Keep. Details of warning messages may differ from one internet browser to the next.

Using Windows™ Explorer, navigate to the downloads folder, *right click* the link to DashboardPro_Setupv....zip file and *select* Extract All.



In the resulting dialogue box, *check* the Show files after... check box. Then *left click* Extract. Although not necessary, or required, the browse button can now be used to select a different destination for the extracted files.



Windows™ automatically opens the folder containing the extracted files. *Left click* on the application called Setup.exe to initiate installation.

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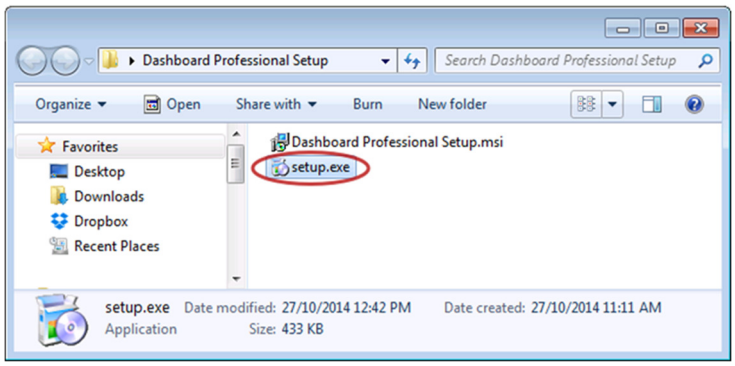
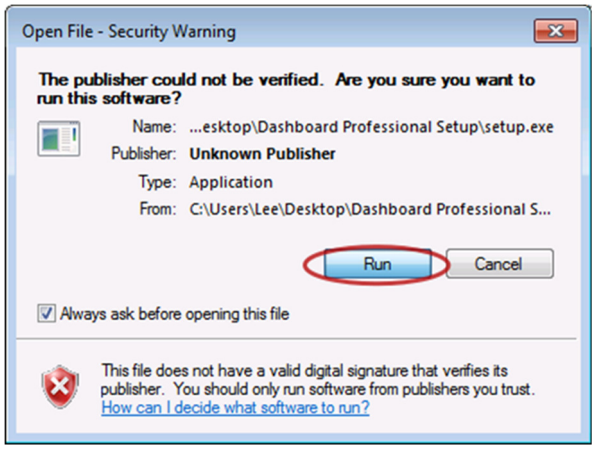


With some versions of Windows™, the security warning illustrated below may appear. *Choose* Run to continue the installation.



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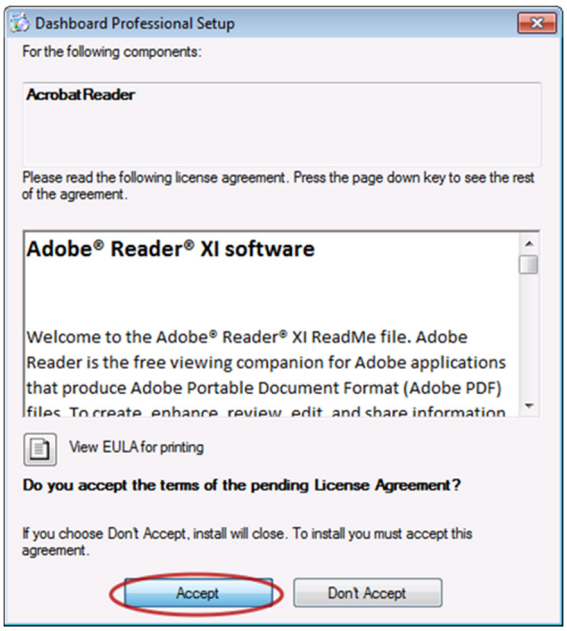
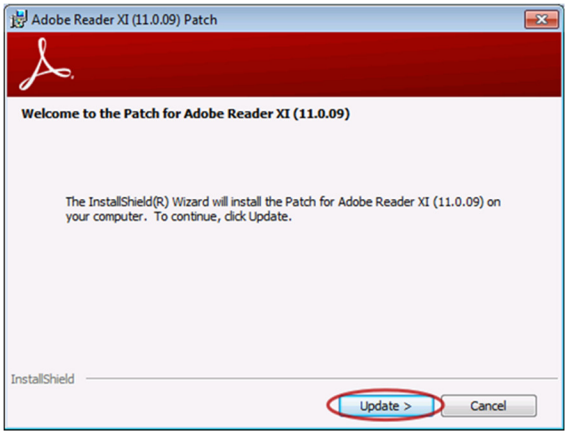
Dashboard Professional© uses Adobe Acrobat Reader to display some of the plot and report previews. Therefore, in order for ***Dashboard Professional***© to run properly, Adobe Acrobat Reader must be installed on the PC.

If Adobe Acrobat Reader is not installed, or if the version is not new enough to support ***Dashboard Professional***© the installer will automatically take care of getting Adobe Acrobat Reader installed.

If the following dialog pops-up, the user should *select* Accept:



Left click Update on the installer dialogue. Adobe Acrobat Reader will install and ***Dashboard Professional***© installation will continue.



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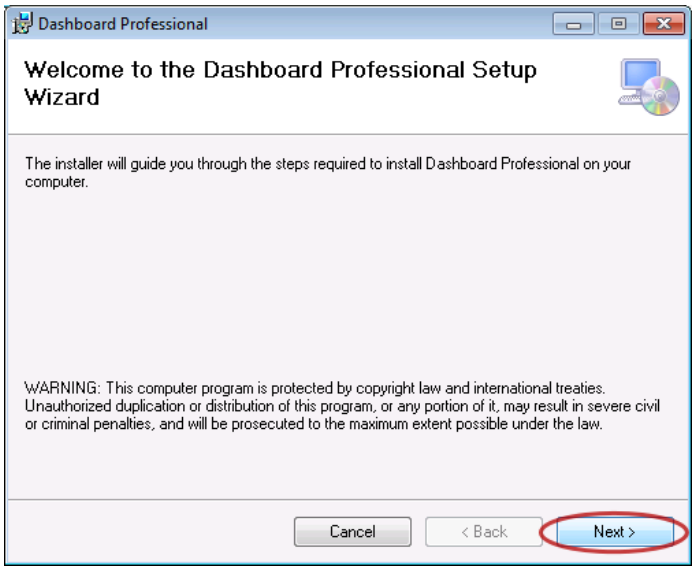
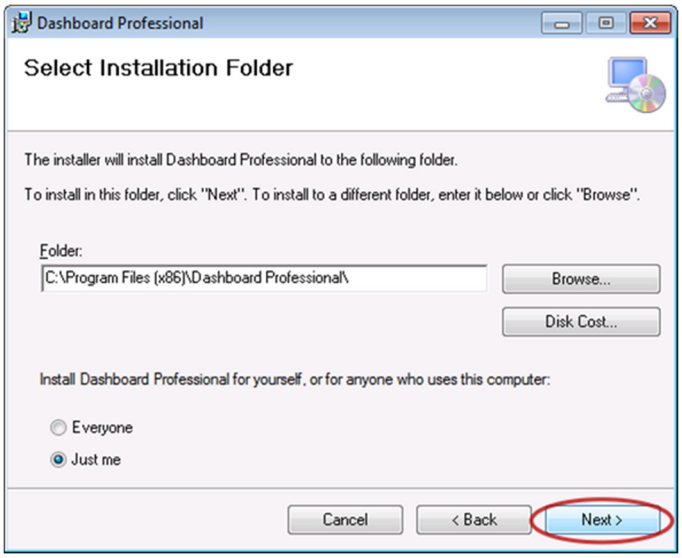
Left click Next when the ***Dashboard Professional***© setup wizard appears.



The next dialogue is about where ***Dashboard Professional***© will be installed. Users should allow the installer to use the pre-programmed default location. This is useful in the event technical support is required.

However, on occasion, a PC might be used by more than person, and each person might have a specific user account. If this is the case; the user needs to be sure to *choose* the button next to Everyone, then *left click* Next to continue installation.



Follow the remaining prompts presented by installation wizard to complete the installation.

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3.3 Software Updating

Each time ***Dashboard Professional***© is opened on a PC connected to the internet, the software automatically checks for pending updates, and will automatically update itself when required.

When ***Dashboard Professional***© and a ***KC3***©, are first connected, ***Dashboard Professional***© automatically interrogates the ***KC3***© to determine if the ***KC3***© firmware, and the on-board ***Dashboard Lite***© software are up-to-date. Upgrades will be checked and updated in the order of i) firmware first, and ii) ***Dashboard Lite***© second.

If an upgrade to the firmware on the ***KC3***© is pending, ***Dashboard Professional***© will pop-up a pane to say ***New firmware available. Would you like to upload to gauge?*** The user is offered a choice between Yes or No.

After the firmware is updated, if an upgrade to ***Dashboard Lite***© is pending, ***Dashboard Professional***© will pop-up a pane to say ***New gauge software (Dashboard Lite vx.x.x) available. Would you like to upload to gauge?*** The user is offered a choice between Yes or No.

Updating the firmware on a KC3© results in all job files in the KC3©'s memory to be erased. If there are job files on the KC3© which have not yet been retrieved; The user ought to choose NO to any updates until all job files on the KC3© have been retrieved.

If the user *selects* No when asked to proceed with the software updates, and then takes steps to ensure all the jobs in memory of the connected ***KC3***© are downloaded and safely saved, the update procedure will need to be restarted. This can be done by using the Check Updates button in About Dashboard Professional described in Section 3.4, or the user can *Unplug* the USB connector, and *plug it back in* to reset the upgrading process in accordance with the on-screen instructions.

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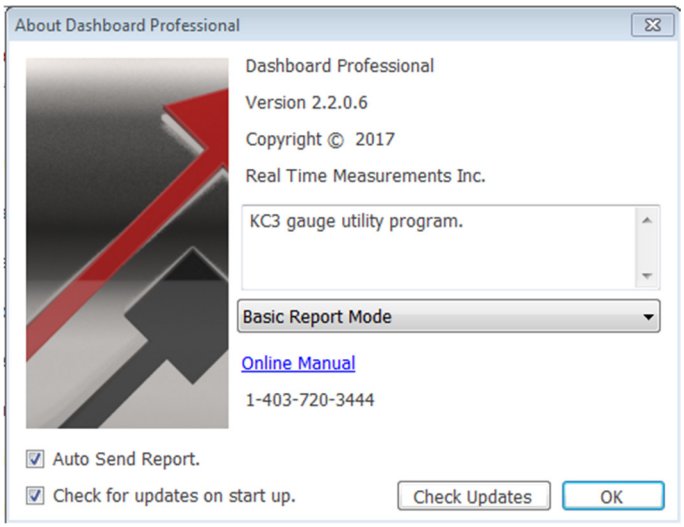
3.4 About Dashboard Professional©

When ***Dashboard Professional***© is open, the ***Dashboard*** icon is displayed in the top left of all pages. If the pointer is moved over this icon, and the user *left clicks* on the icon, About Dashboard Professional as illustrated in the screen shot on the right will pop-up.



About Dashboard Professional is a mixed bag of information and options.

The Version number of the software, the name of the company that wrote and owns the software and a very brief description of the type of software is displayed in the upper half of the dialog box.

There is a drop down menu box that offers the user a choice of the default Basic Report Mode or Advanced Report Mode for more advanced survey reporting. Please refer to Section 3.9 for a full description of Advanced Report mode.

There is a hyperlink called Online Manual that offers the user instant access to this ***Dashboard Professional***© software reference manual.

In the bottom left, there is a check-box that toggles whether or not ***Dashboard Professional***© is permitted to automatically send a status report each time data is extracted from a ***KC3***©.

In the bottom right is a button called Check Updates. If the user *left clicks* on Check Updates, and the PC being used is connected to the internet, ***Dashboard Professional***© will to contact the company's main server and check for software updates. For more on software updates please refer to Section 3.3.

The OK button at the very bottom right is used to confirm and save any changes and close About Dashboard Professional.

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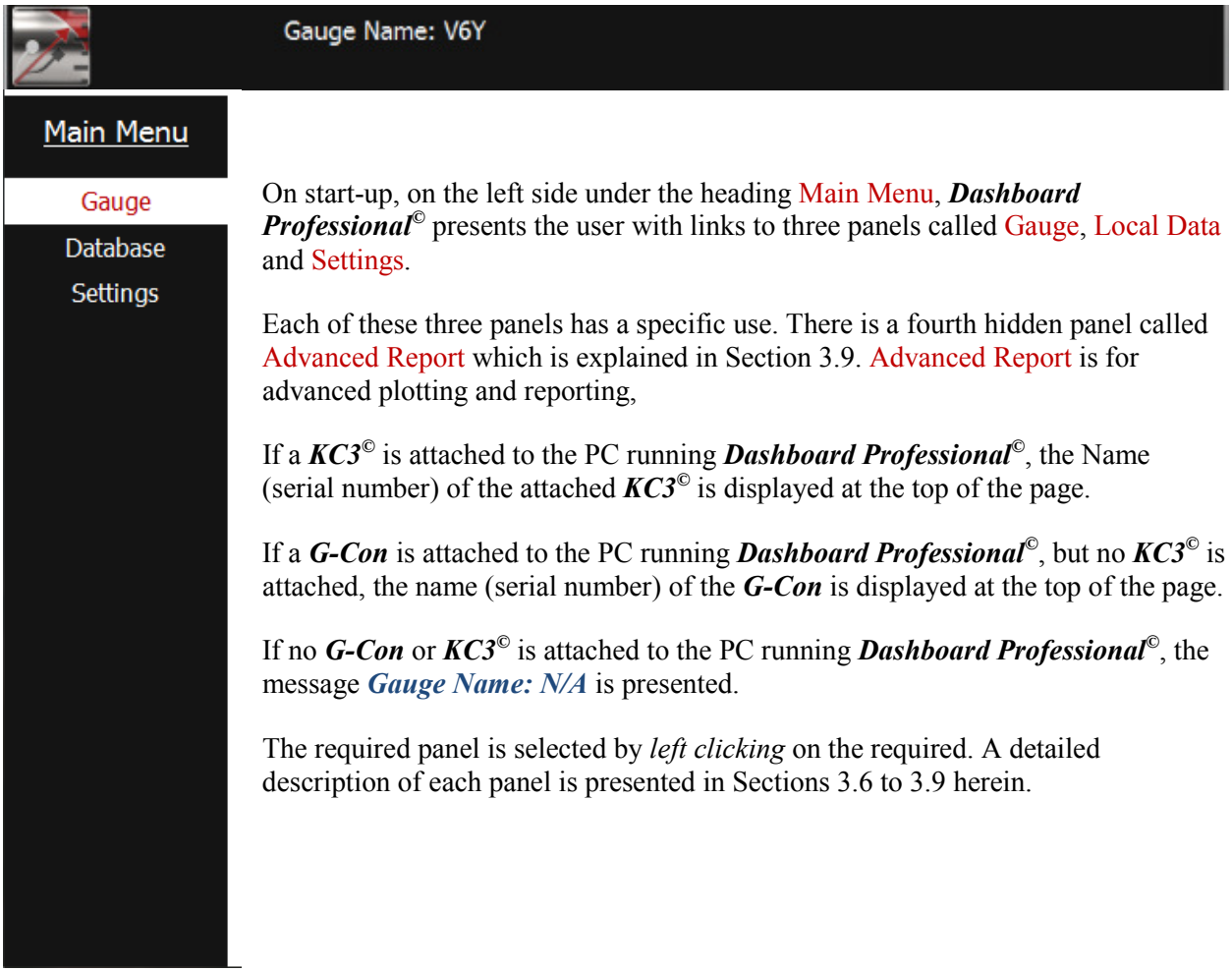
3.5 Main Menu



On start-up, on the left side under the heading Main Menu, ***Dashboard Professional***© presents the user with links to three panels called Gauge, Local Data and Settings.

Each of these three panels has a specific use. There is a fourth hidden panel called Advanced Report which is explained in Section 3.9. Advanced Report is for advanced plotting and reporting,

If a ***KC3***© is attached to the PC running ***Dashboard Professional***©, the Name (serial number) of the attached ***KC3***© is displayed at the top of the page.

If a ***G-Con*** is attached to the PC running ***Dashboard Professional***©, but no ***KC3***© is attached, the name (serial number) of the ***G-Con*** is displayed at the top of the page.

If no ***G-Con*** or ***KC3***© is attached to the PC running ***Dashboard Professional***©, the message ***Gauge Name: N/A*** is presented.

The required panel is selected by *left clicking* on the required. A detailed description of each panel is presented in Sections 3.6 to 3.9 herein.

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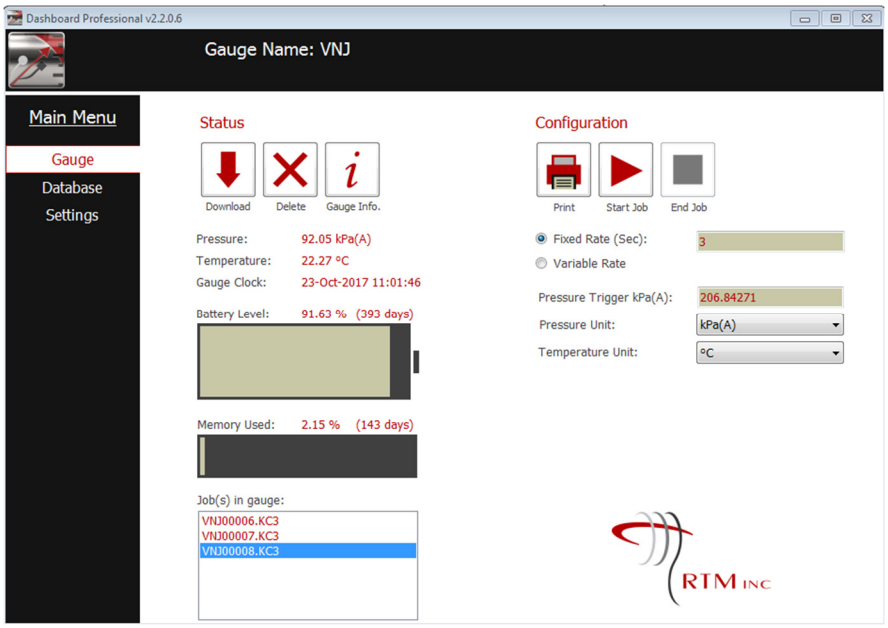
3.6 Gauge

When ***Dashboard Professional***© first starts up, Gauge is the default panel that is first presented.



Gauge is where the ***Dashboard Professional***© functions that involve checking, downloading and programming the ***KC3***© are resident. Gauge is only relevant when a ***KC3***© is connected through a ***G-Con*** to the USB. In the example above, the name (serial number) of the connected ***KC3***© is VNJ, with three job files in memory.

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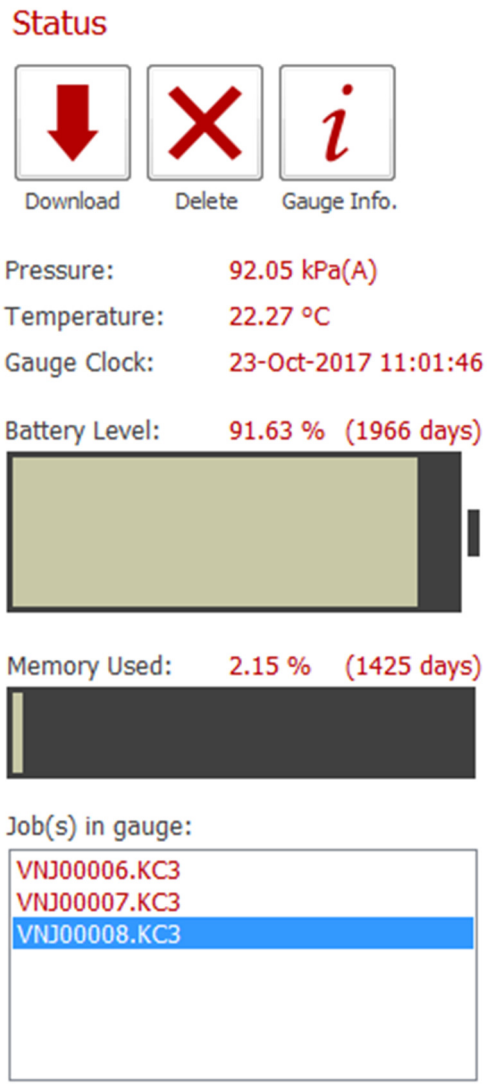
3.6.1 Status

The left half of the Gauge panel is called Status. As presented in the screenshot below, Status offers the user a group of useful functions which all involve communicating with the ***KC3***© that's attached to the PC thought the USB and communicating through a ***G-Con***. The various functions of Status are described on the following pages in this Section 3.5.1.



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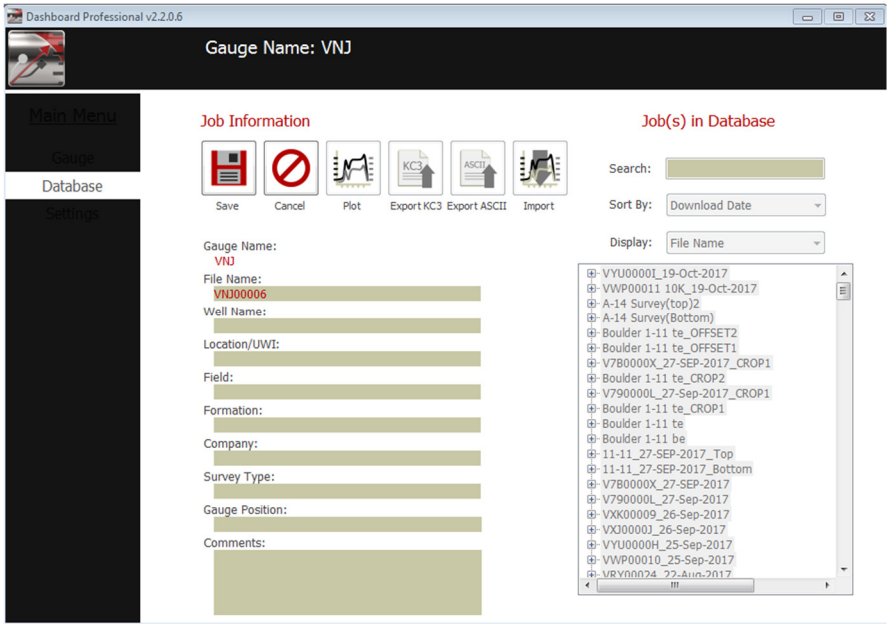
Download



Used to initiate the process of downloading a job from a ***KC3***© to the PC.
With ***Dashboard Professional***© running, the moment a ***KC3***© is connected to the USB through a ***G-Con***, several things will be displayed in Status. At the lower left of the pane, all the jobs in the ***KC3***©'s memory are displayed.
To download a job file, *move* the cursor over the selected job file as is highlighted in blue. *Left click* on Download.

Dashboard Professional© will automatically redirect the user to the Database pane. As illustrated below, the user now has the opportunity to enter information about the job.



When all available job information has been entered, Save is *pressed*, and the job is saved on the PC.

NOTE:; The job data is now on the PC hard drive. If this data is required in the form of an individual ASCII file, the job needs to be Exported by ***Dashboard Professional***©.

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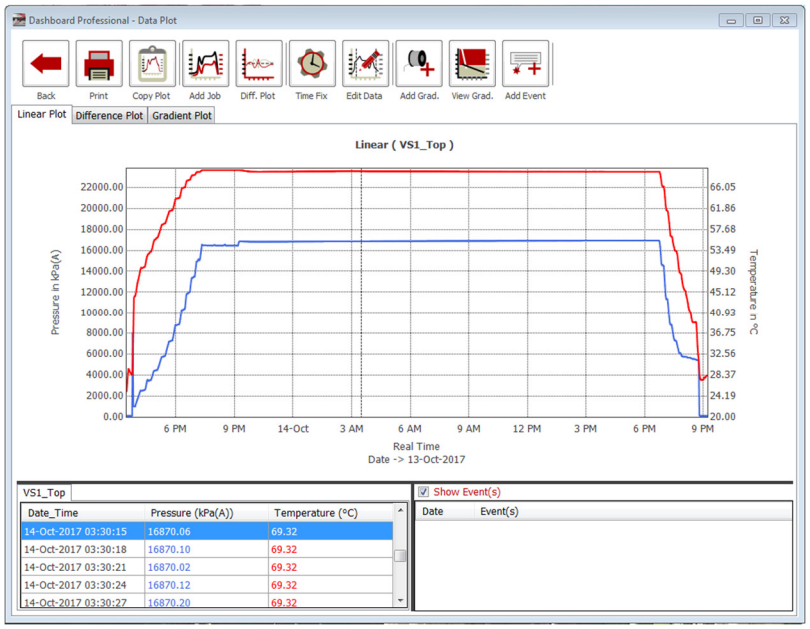
Next, ***Dashboard Professional***© instantly pops-up a new pane displaying a simple time based Linear Plot of the downloaded job data, similar to the example below.



There is a selection of data management, plotting and reporting function buttons at the top of the plot. These features are described in more detail in Section 3.6.3.

The engineering units used in the plot are taken from Settings. If the units are unsuitable, the user should go to Settings and reset the units as required. **NOTE** – The units in Settings will continue to be used by ***Dashboard Lite***© with every data file, unless they are reset by the user.

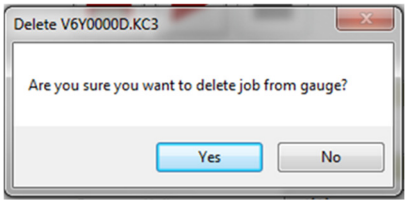
Units chosen in the ***SETTINGS*** pane ***ONLY*** apply to ***Dashboard Professional***©.

Units chosen in the ***GAUGE*** pane ***ONLY*** apply to the connected ***KC3***©.

Delete



Removes jobs from ***KC3***© memory. With ***Dashboard Professional***© open and a ***KC3***© connected; In the Job(s) in gauge: list, the user chooses the job file to be removed from the ***KC3***©'s memory by highlighting the job file in blue. *Press* Delete and ***Dashboard Professional***© will pop-up the message on the right to confirm deletion of the file. *Press* Yes and the file is deleted. *Press* No, and nothing happens.



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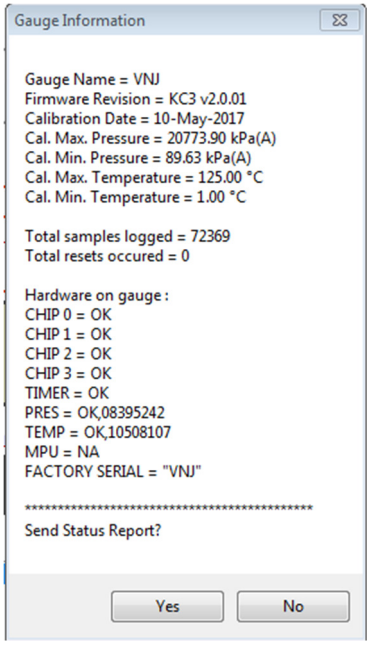
Gauge Info



Diagnostic interrogation of a ***KC3***©.
With ***Dashboard Professional***© open and a ***KC3***© connected; *Press* Gauge Info. And the ***KC3***© is interrogated. A moment later a Gauge Information pop-up like the screen shot on the right will appears.



Most of the information in this Pop-Up should be self-explanatory. However, the user is advised to look at each line and make sure the information presented is consistent with expectations.

One important indicator of the connected ***KC3***©'s health is the number beside Total resets occurred. A Reset value of ***0 (zero)*** is best. However, when Total resets occurred returns an ***integer***, a problem is not necessarily indicated. A reset is almost always caused by an interruption in the power supplied by the on-board battery. ***Total resets occurred values above 0 (zero) are an indication there could be a problem with the KC3©. The user would be well advised to investigate possible causes, or contact the factory, before using the KC3©.***

For the ***CHIPn*** thru ***TIMER*** conditions, an ***OK*** is the only acceptable result, with the notation ***NA*** meaning "Not Acceptable". The ***PRES*** and ***TEMP*** information contains raw transducer counts, plus an ***OK*** if everything is good. The term MPU (Motion Processing Unit) refers to an additional experimental electronic component which is rarely installed on a ***KC3***©. Unless the connected ***KC3***© has the experimental MPU installed, which the user would (should) know, it is normal for the MPU to show the ***NA*** status.

At the bottom of Gauge Information the user is asked ***Send Status Report?***, The user can *choose* Yes or No. If the user *clicks* on Yes, and the PC is connected to the internet, ***Dashboard Professional***© will pop-up the image on the right and send the Gauge Information to the factory database. This information contains NO confidential job information or anything like that, but the ***KC3***© performance data is very useful for helping designers of the ***KC3***© to continuously make improvements. If the user *chooses* No, no information is sent, and nothing happens.



Current *KC3*© Readings

Pressure:	14.72 psi(A)
Temperature:	21.90 °C
Gauge Clock:	07-Nov-2016 06:27:31

The pressure, temperature and real time clock readings from the ***KC3***© when it was connected to the USB. If the user wants to refresh these readings; *Disconnect* the USB cable, and then *reconnect* the USB. The refreshed readings will be displayed.

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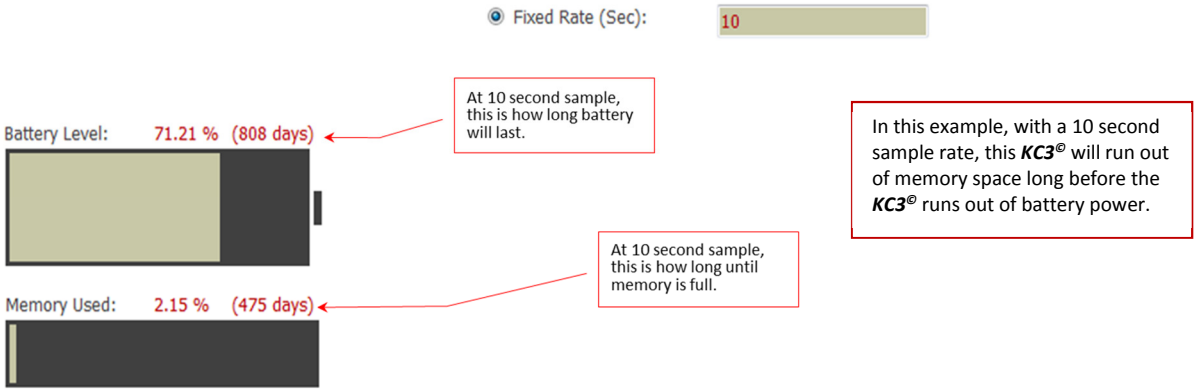
Battery Level

Remaining battery capacity on-board the connected ***KC3***© is displayed graphically, as a % of full and number of days to battery expiration. The calculations are based on historic recorded battery usage, and the fixed or variable sample rate chosen by the user, as displayed under Configuration on the right side of the Gauge panel.

In the example below, the ***KC3***© has ***71.2%*** of its battery power remaining. The user has chosen a fixed sample rate of 10 seconds per sample. This means the battery will power the ***KC3***© for at least 808 days while recording a sample every 10 seconds. Also note that the memory will be filled before the battery dies off. Users need to manage these parameters to optimize usage and performance

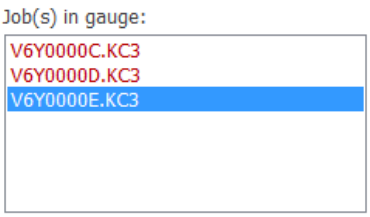


Memory Used

KC3© memory usage is displayed as a % of full and number of days to full. The calculations are based on the connected ***KC3***©'s memory capacity, the number of job files in the ***KC3***©'s memory, and the fixed or variable sample rate chosen by the user, as displayed under Configuration on the right side of the Gauge panel.

In the example above, the ***KC3***© is using ***2.15%*** of its memory to store the job files it has recorded and still has in memory. The user has chosen a fixed sample rate of 10 seconds per sample. This means the connected ***KC3***© has enough memory capacity to store a sample every 10 seconds for the next 475 days. Also note, in the example above, the ***KC3***© memory will be full before the battery dies off. Users need to manage these parameters to optimize usage and performance.

Job(s) in Gauge



A simple menu displaying the *.kc3 files the connected ***KC3***© has in memory. Each time a ***KC3***© starts logging/recording, the ***KC3***© creates a new *.kc3 file with a unique name. The *.kc3 files in the ***KC3***©'s memory are sorted with the oldest file at the top of the list. The *.kc3 file being accessed by ***Dashboard Professional***© is highlighted in blue.

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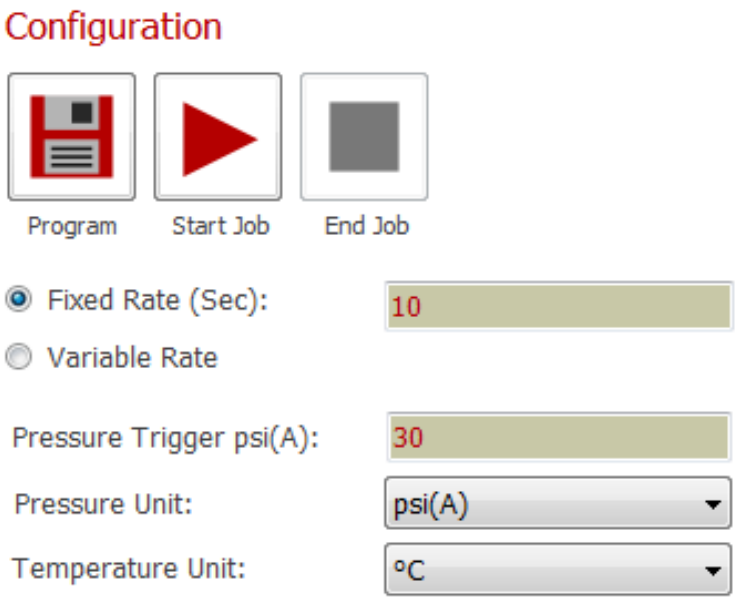
3.6.2 Configuration

The right half of the Gauge panel is called Configuration. All ***Dashboard*** software packages and ***KC3***© gauges use the word Configuration to describe a group of instructions that are written to a ***KC3***©'s memory. The Configuration instructions are used by the ***KC3***© to record data in accordance with the manner required by the user. In the screen-shot below, Configuration can be offering selectable recording parameters such as start/stop, sample rate, start trigger settings, and engineering units. The various elements of Configuration are described in detail in this Section.



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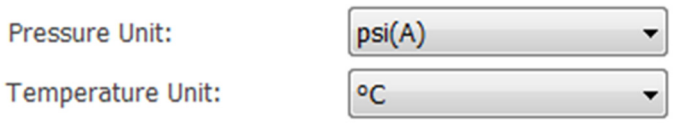
Units



Tells ***KC3***© what pressure and temperature units to use when recording data in the *.kc3 file that will be started when the starts logging/recording. It is important for the user to know these Configuration unit settings only apply to the *.kc3 file that will be created by the attached ***KC3***©. If working with ***Dashboard Professional***© to plot, make reports, export and the like, these units do not apply, instead ***Dashboard Professional***© will work with and output the units specified in the Settings part of ***Dashboard Professional***©.

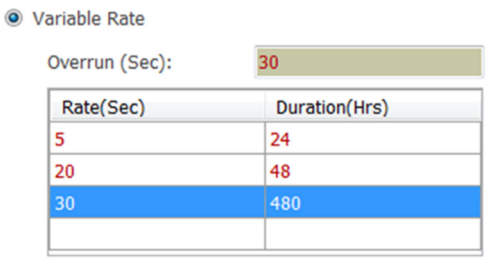
Units chosen in ***GAUGE – CONFIGURATION*** only apply to the connected ***KC3***©.
Units chosen in ***SETTINGS*** (Section 3.7) apply to ***Dashboard*** plots and outputs.

Fixed Rate (Sec)



Tells the connected ***KC3***© to record at a single rate until logging/recording is terminated. The fixed rate option is activated by *left clicking* the round Fixed Rate button, as illustrated above. *Left click* in the text field to the right of the button and enter the desired time between each sample (also called "sample rate" or "sample interval") in seconds. Rate values must be whole numbers, ranging from the fastest rate of one second per sample to the slowest rate of 64,800 seconds (18 hours) per sample. In the example above, the ***KC3***© will be programmed to record one sample every 10 seconds for the complete job.

Variable Rate



Tells the connected ***KC3***© to record at different rates for different intervals until logging/recording is terminated. The variable rate option is selected by *left clicking* the round Variable Rate button, as illustrated on the left. Variable rate values are entered using the table. The table allows for up to 10 rows, with each row describing a rate and corresponding duration. A new blank row automatically pops-up each time a rate and duration is entered. Blank rows are ignored when the configuration is written to the gauge. Each row contains a sample rate in seconds, and a corresponding duration in hours for which the ***KC3***©. Rate and duration values need to be in whole numbers, ranging from one to 64,800.

Left click on a cell in the Rate(Sec) column and enter the required sample rate, in seconds. Then *left click* in the corresponding box in the Duration (Hrs) column and enter a duration value, in hours. Previously entered rates or durations are edited by *left clicking* on the cell and entering a new value.

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Rows are removed or inserted by *right clicking* on the selected row and choosing the appropriate function from the resulting context menu.

When logging/recording is initiated, each row of the variable rate configuration table will be executed by the ***KC3***© in the order specified in the Configuration table. When all the intervals in the table have expired, the ***KC3***© will continue logging/recording until stopped at the rate shown in the Overrun (s) field.

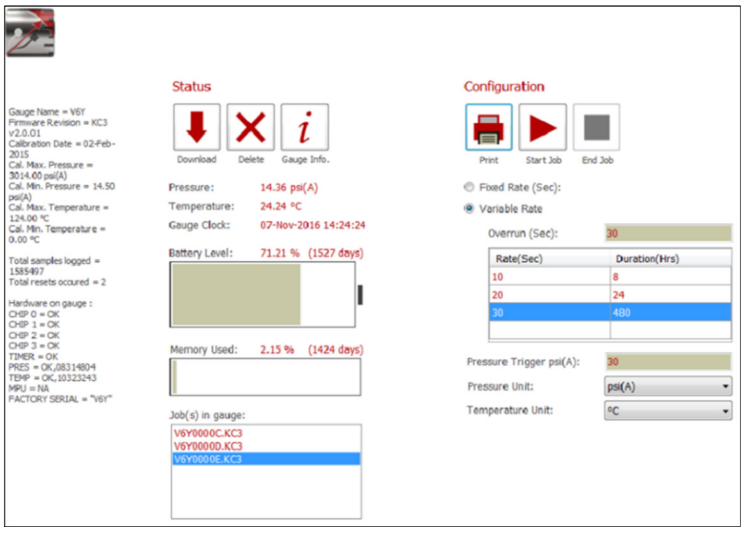
In the example above, the ***KC3***© will begin recording a sample every 5 seconds for the first 24 hours. Then it will start recording at a 20 second sample for the next 48 hours, then it will switch to sampling every 30 seconds for the next 480 hours (20 days). At the end of the 480 hours (20 days) the ***KC3***© will continue recording at the specified Overrun rate of one sample every 30 seconds until logging/recording is terminated.

Whether configured for a fixed rate or a variable rate, when the ***KC3***© starts logging/recording, and a new *.kc3 job file is opened, the ***KC3***© will wait for an even time boundary, and then begin sampling. For example: A ***KC3***© is configured with a rate of one sample every five seconds (or, "programmed for five seconds"). When the ***KC3***© is told to start logging, the ***KC3***© looks at its real time clock, and waits until an even multiple of five seconds occurs, such as 0 seconds, 5 seconds or 10 seconds past the minute. When the even 5 second time is reached, the ***KC3***© records the first sample, and then continues logging in even five second multiples.

Print



Used to print a one-page report detailing the Gauge Info, Status and Configuration settings that correspond to the connected ***KC3***©. An example of the one-page report is presented below. The report can be printed to a file or directly to a printer. This report is generally used to verify the settings on the ***KC3***© are consistent with the requirements of a pending operation.



The Print and Program buttons both occupy the same location in Settings. However only one or the other is displayed at a time. ***Dashboard Professional***© toggles between the Print or Program buttons depending on what the user is doing. The default condition is for Print to be displayed.

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Program



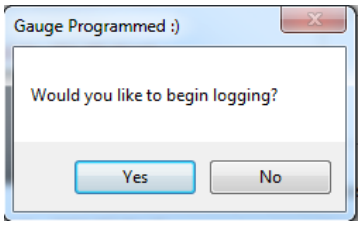
Used to write the displayed Configuration settings to the connected ***KC3***©.

The Program button only appears when i) a ***KC3***© is connected to the PC, ii) the connected ***KC3***© is not logging/recording, and, iii) the configuration settings on the connected ***KC3***© are different to the settings displayed by in Settings.

If the user has made new Configuration settings and wants to use them for the next job, the user just needs to *press* the Program button. ***Dashboard Professional***© will write the new settings to the memory of the connected ***KC3***©. As soon as Program is finished writing the new configuration settings to the connected ***KC3***©, the pop-up illustrated below will appear.

This pop-up serves two important purposes;

i) ***Gauge Programmed:)*** confirms the configuration settings were successfully written to the memory in the connected ***KC3***©, and
ii) Offers the user the opportunity to decide if the ***KC3***© needs to start logging/recording now or later. Selecting Yes tells the ***KC3***© to open a new *.kc3 job file and begin logging/recording data as soon as the ***KC3***© is disconnected from the USB. Selecting No means, the ***KC3***© will not be told to start logging/recording upon USB disconnect.



Start Job



Used to tell the connected ***KC3***© to start logging/recording to a new *.kc3 file as soon as the ***KC3***© is disconnected from the USB. Start Job is only available when the connected ***KC3***© is not already logging/recording to another job. When a ***KC3***© is logging/recording, no changes can be made to the ***KC3***© configuration, and the only command the ***KC3***© will accept is to stop logging/recording.

End Job



Used to tell the connected ***KC3***© to stop logging/recording and terminate the current *.kc3 file.

If a ***KC3***© is connected to the PC, and the ***KC3***© is logging/recording when it was connected to the USB, *left clicking* End Job sends a command to the connected ***KC3***© telling it to stop logging/recording, and terminate the active *.kc3 file. Once a *.kc3 file is terminated, no more data can be written to the file.

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Pressure Trigger



Used to tell the connected ***KC3***© to start logging/recording when the set pressure is exceeded.

When a ***KC3***© is configured/programmed, but not set to logging/recording; Every 10 minutes, the ***KC3***© wakes-up and measures the pressure. If the ***KC3***© reads a pressure higher than the pressure trigger set value two times in a row, the ***KC3***© automatically opens a new *.kc3 file and starts logging/recording data in accordance with the configuration settings in ***KC3***© memory.

Pressure trigger values range from the minimum setting of 30 psi to the maximum rated pressure of the ***KC3***©. When the ***KC3***© starts logging/recording, the first measurement will be taken at the next even 10-minute interval. For example: If a ***KC3***© starts logging/recording due to pressure trigger activation at 12:07:35 the first reading will be recorded at 12:10:00, regardless of the sample rate program. This feature provides for synchronised recording and start times for ***KC3***© multiples.

Smart Drop

In the bottom right corner of the Gauge panel there is a company logo. This logo is actually a file drop off location called Smart Drop. The Smart Drop feature is designed to make it easy for users to *drag and drop* the files specified below into ***Dashboard Professional***©. Once a file has been dropped into Smart Drop, ***Dashboard Professional***© will automatically process the file in accordance with the file type, as follows:

****.kc3*** : A job data file produced by a ***KC3***©. If a *.kc3 file is dragged and dropped into Smart Drop, ***Dashboard Professional***© will automatically add the data contained in the *.kc3 file to ***Dashboard Professional***©'s database. The *.kc3 file is then indexed and displayed in ***Dashboard Professional***©'s Database (ref 3.6). Once a *.kc3 file is in the ***Dashboard Professional***© database, the data in the*.kc3 file can be processed using ***Dashboard Professional***©'s various data processing features.

****.hp-data***: This is the type of file which was produced by a ***KC2***©. The ***KC2***© is the predecessor to the ***KC3***©. Once an *.hp-data it has been dropped in Smart Drop, ***Dashboard Professional***© will handle the ***KC2***© data in the same way it handles the data in a *.kc3 file. Some of the information available in a newer ***KC3***© job file is not available in an older ***KC2***© data file.

****.hex*** : This is a firmware file. The firmware embedded in every ***KC3***© and ***G-Con*** can be manually updated by dropping the most recent *.hex file into Smart Drop. While the recommended method for updating device firmware is to allow ***Dashboard Professional***© to acquire updates automatically using the internet, and install necessary updates automatically, the Smart Drop option provides users with a way to give ***Dashboard Professional***© the updates when an internet connection is not available.

****.dat*** : A special or experimental data file produced by a ***KC3***©. On occasion, and upon special request - a ***KC3***© might be manufactured to record something other than, or in addition to pressure and temperature. *.dat files contain coefficients and other special information that ***Dashboard Professional***© needs to process incoming special request data files. Once

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in Smart Drop, ***Dashboard Professional***© will automatically make correct use of the *.dat files.

****.exe*** : All ***KC3***©'s have the application ***Dashboard Lite***© in memory. Like any software, ***Dashboard Lite***© gets updated periodically. Users are strongly recommended to allow ***Dashboard Professional***© to use the internet to update itself and ***Dashboard Lite***© on any ***KC3***©'s that get connected to the PC. However, if an internet connection is not available, the updates can be forwarded by email or some other means. When they are, the updates can be dropped into Smart Drop. Once in Smart Drop, the new versions will be automatically installed by ***Dashboard Professional***©.

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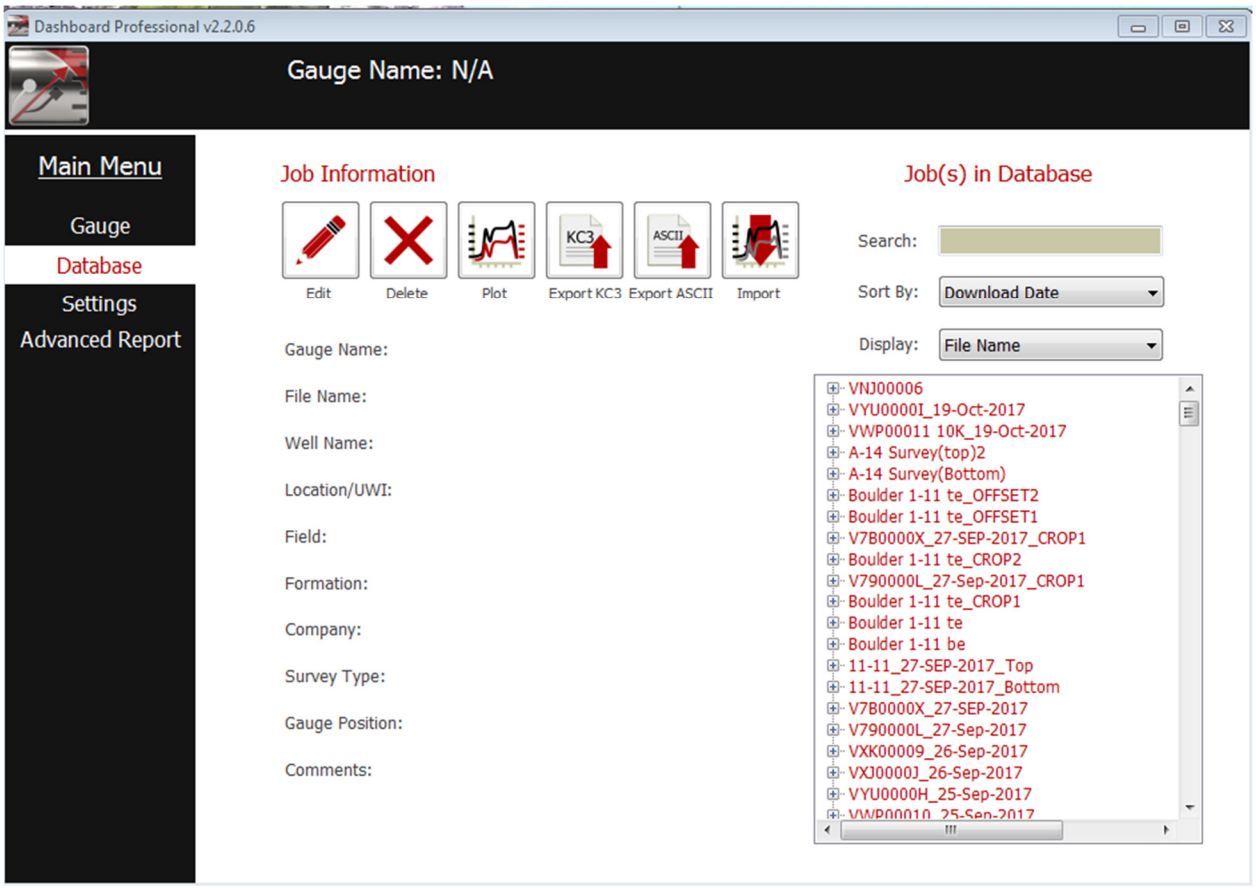
3.7 Database

Database is where users go to work with job files that are in the ***Dashboard Professional***© database.



The start page of Database is broken into two parts:

On the right is Job(s) in Database where there's a list of job files to select from, plus some display and sorting functions. It should be noted that any *.kc3 files in the ***Dashboard Lite***© folder are not included in this Database. With reference to Smart Drop in Section 3.6.2, it is a simple operation to get *.kc3 files from the ***Dashboard Lite***© folder into the ***Dashboard Professional***© Database.

On the left side is Job Information where there is a collection of function buttons to facilitate data presentation and analysis, and some fields that apply to the chosen job file.

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It is in the users' best interest to understand how Database and Advanced Report (Section 3.9) interact in the process of building survey reports in ***Dashboard Professional***©. The following are a few simple guidelines worth understanding before attempting to make or output any reports:

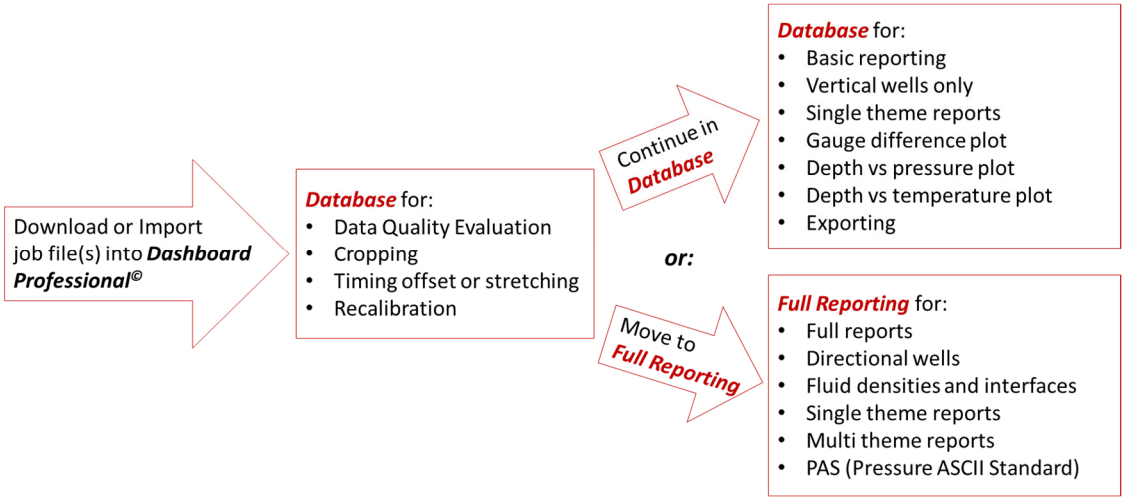
a) Once a job file is downloaded from a ***KC3***©, or Imported; Database is used to check the quality of the incoming data using simple linear and difference plotting functions, time shift/matching, cropping, recalibrating, and other data integrity improvement functions. Once Database has been used to prepare the incoming data, the user has two choices;

   i) Continue working with the data in Database, *or*
   ii) Start working with the data in Advanced Report.

   Using Database to make simple single theme reports for vertical wells is simple, quick and suitable under many circumstances. On the other hand, Advanced Report offers a more extensive range of job file presentation and reporting options.

b) If the user is working with a job file in Database, but intends to use the advanced reporting features of Advanced Report to make a final presentation, once the data is prepared for reporting, there is no need to enter the Job Information metadata in Database. This is because Job Information entered in Database will not be read or used by Advanced Report.

c) The simple diagram below explains the interactions between a job file, Database and Full Reporting functions and survey report outputs.



d) Regardless of the Configuration (Section 3.6.2) of the ***KC3***© that was used to record a job file, when ***Dashboard Professional***© works with the job file, the selected parameters in Settings will prevail in every aspect of the reporting functions.

e) When a job file has been imported and worked on in Dashboard Professional©, if any changes are made to the parameters selected in Settings, the parameters previously used with the job file will be invalidated, and the new selected parameters will prevail.

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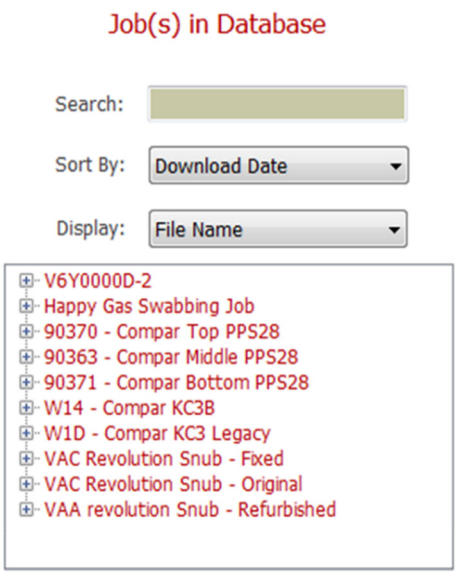
3.7.1 Job(s) in Database

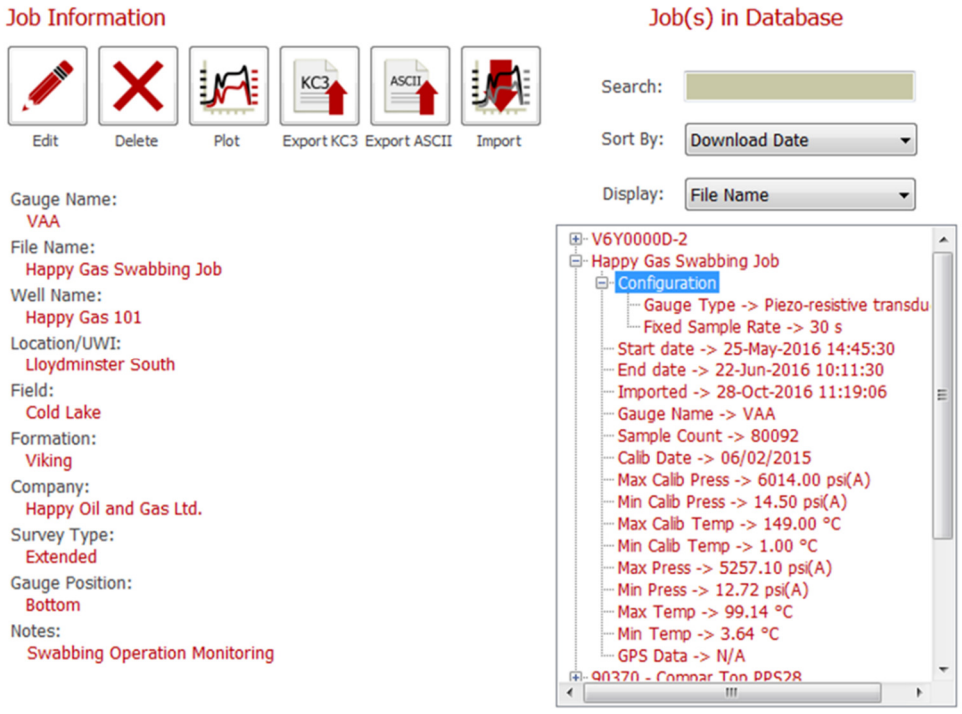


On the right side of Database is Job(s) in Database. This is the area where the user chooses the job file of interest from the ***Dashboard Professional***© Database. As illustrated on the left, job files are listed in a table. If the job file of interest is not easy to find on the list in the table, the user should use the Search or Sort By or Display search enhancement functions.

Once the job of interest is found in the table of job files, *hover* the pointer over the job file of interest to cause the job file name to turn blue and be underlined. *Left click* on the file. As illustrated below on the right, this will cause some information about the job file to be displayed on the left side under Job Information.

Once a job file has been selected, almost all the meta data (information about the job file) is displayed in two places. Data about the specific job pops up in the fields on the left side under Job Information. Information about the ***KC3***© that recorded the data is viewed by *left clicking* on the small ⊞ to open a sub menu, as illustrated below.

A significant difference between the well metadata displayed under Job Information and the ***KC3***© metadata displayed in the job file table is that the job metadata under Job Information can be edited to suit user requirements. The ***KC3***© metadata cannot be changed.



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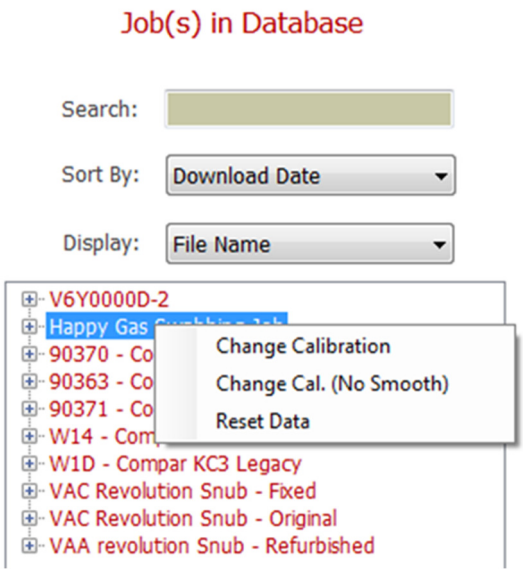
3.7.2 Change Calibration



This is a utility that is used to apply a new calibration, remove filtering, or reset any adjustments made to a job file.

The user goes to the table of jobs in Job(s) in Database, hovers over the job file of interest and *right clicks*. The small pop-up illustrated on the right offers three options:

Reset Data: Used to undo any ***Dashboard Professional***© functions applied to the chosen job file. Such functions include time shifting/stretching and any operation that doesn't result in a new job file being created. *Right clicking* on Reset Data activates the reset, but before proceeding with the reset, ***Dashboard Professional***© will ask for confirmation.

Change Calibration: Used to extract raw uncalibrated measurements from a selected job file, and then apply a different configuration file to produce a new job file. Note that configuration files are text files containing information critical to proper ***KC3***© operation, including calibration information. The new configuration file to be used needs to be dropped into the ***Dashboard Professional***© database using the drop box described in Section 3.6.2.

Change Cal. (No Smooth) Used to extract the raw uncalibrated measurements from a selected job file, apply the same calibration, but not apply the default filtering, and produce a new job file.

Both Change Calibration and Change Cal.(No Smooth) work the same way. *Left clicking* on Change Calibration or Change Cal. (No Smooth) brings up the Change Calibration pane illustrated below.

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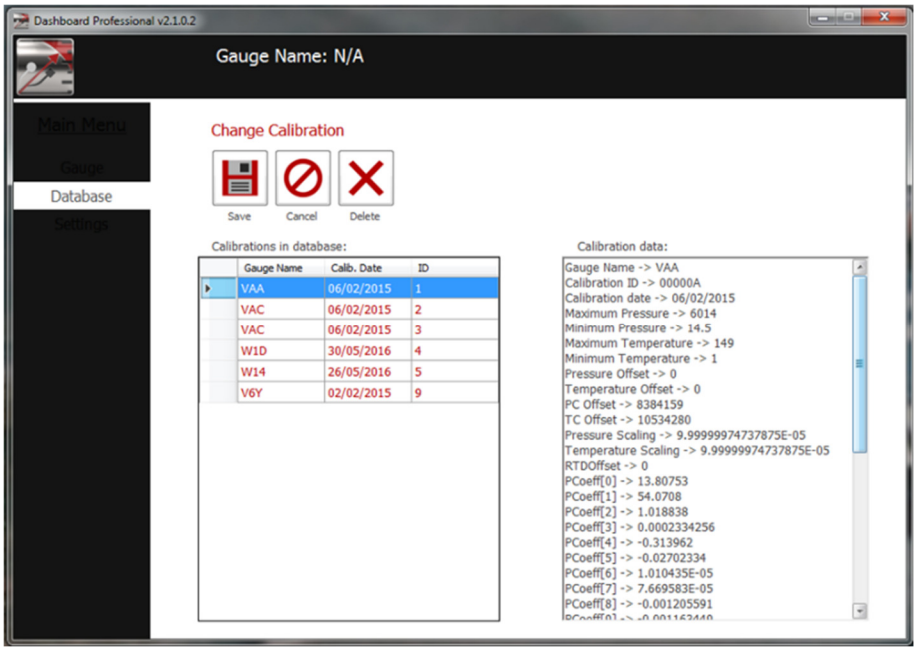

On the right side of Change Calibration, the configuration file being used by the selected job file is displayed. On the left side of Change Calibration, are all the configuration files ***Dashboard Professional***© has in its database.

If the user wants to apply a different configuration file from the one being used, the user selects the new configuration to be applied to the data, and *presses* Save. A pop-up will appear to ask the user for a new name for the new job file that will be created.

If the user wants an unfiltered version of the data, the user just *presses* Save and the pop-up will appear to ask the user for a new name for the new (unfiltered) job file that will be created.

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3.7.3 Job Information



On the left side of Database is Job Information. This is the area where the user can conduct basic functions with job files. Such functions include editing metadata, removing job files from the database, basic plotting, basic reports and data exporting. More than one job file of interest from the ***Dashboard Professional***© Database. can be plotted and used to make reports.

More advanced data manipulation functions are available in Advanced Report, which is described in detail in Section 3.9.

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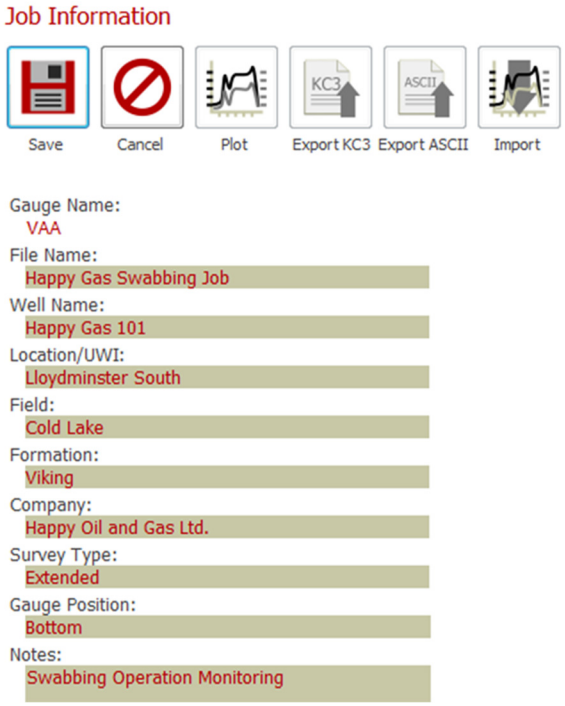
Edit


Edit

Used to change (edit) the metadata in a selected job file. Toggles on when not in Edit.

Once a data file is chosen from the Job(s) in Database list (3.7.1), the user left clicks on Edit, and, as illustrated below, the job description fields get highlighted to indicate that the user can now enter any text information that is meaningful. The information entered in these fields will be presented in any reports that are produced by ***Dashboard Professional***©.

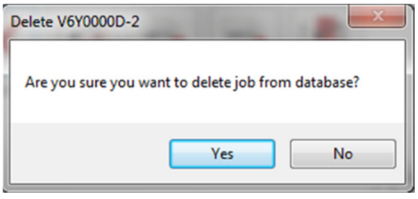


Delete

Used to delete a job file selected from the ***Dashboard Professional***© database.


Delete

The user chooses the unwanted data file from the Job(s) in Database list (3.7.1). Then the user *left clicks* on Delete, and the warning pop-up on the right will appear. If the user is sure the chosen job file is no longer wanted, the user chooses Yes.



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Save



Used to save the job information metadata entered in the Job Information fields. Toggles on only when in Edit.

Once the user is satisfied with the information entered in the Job Information fields, the user *left clicks* Save, and the information becomes part of the job data file's metadata. Users should note that the metadata in the Job Information fields can be changed any time by repeating the process.

Cancel



Used to escape from the Job Information editing process, and record no change(s). Toggles on only when Edit is active.

In the event the user *made edits* to the Job Information, but before *saving* the new metadata, the user decides the original metadata was acceptable, the user *left clicks* Cancel. Now the original metadata is resaved and the editing process is terminated.

Plot



Used to produce a plot of a job data selected from the ***Dashboard Professional***© database.

Once a job file is chosen in the database, and Plot is *pressed*, a new window opens with the job file plotted. Additional data manipulation and presentastion functions are also offered. These functions are too comprehensive to cover in this section. Therefore, details of all Plot functions are described in Data Plot, Section 3.7.4.

Export KC3



Used to export a *.kc3 file from the ***Dashboard Professional***© database.

Once a job file is chosen in the database, and Export KC3 is *pressed*, a window pops-up prompting the user to give the exported file a name and save location. Once the name and location are entered, the user presses Save, and the file is written as instructed. This export process does not remove the data from the ***Dashboard Professional***©database.

Export ASCII



Used to export a job file from the ***Dashboard Professional***© database in ASCII text format.

Once a job file is chosen in the database, and Export ASCII is *pressed*, a window pops-up asking the user for a file name and save location. Once name and location are entered, the user presses Save, and the ASCII file is written as instructed. The exported ASCII file will be formatted in accordance with the parameters chosen in Settings, Sections 3.8.1 and 3.8.6.

When choosing the Date Format in Settings: If the job file might be Exported as an ASCII .CSV file; DO NOT choose a Date Format that contains a Comma. Refer to Sections 3.8.1 and 3.8.6.

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Import



Used to import a file to the ***Dashboard Professional***© database. The types of files that ***Dashboard Professional***© will Import are described in Section 3.6.2, Smart Drop.

Pressing Import prompts the user to browse for the file to be imported. *Double clicking* on the chosen file causes the file to be written in the database. ***Dashboard Professional***© will automatically sort Imported files to the appropriate database location. However, if the file is an ASCII file with the extension *.txt or *.csv containing pressure gauge data, then the the user needs to help ***Dashboard Professional***© understand the data in the file, as prescribed on the following page.

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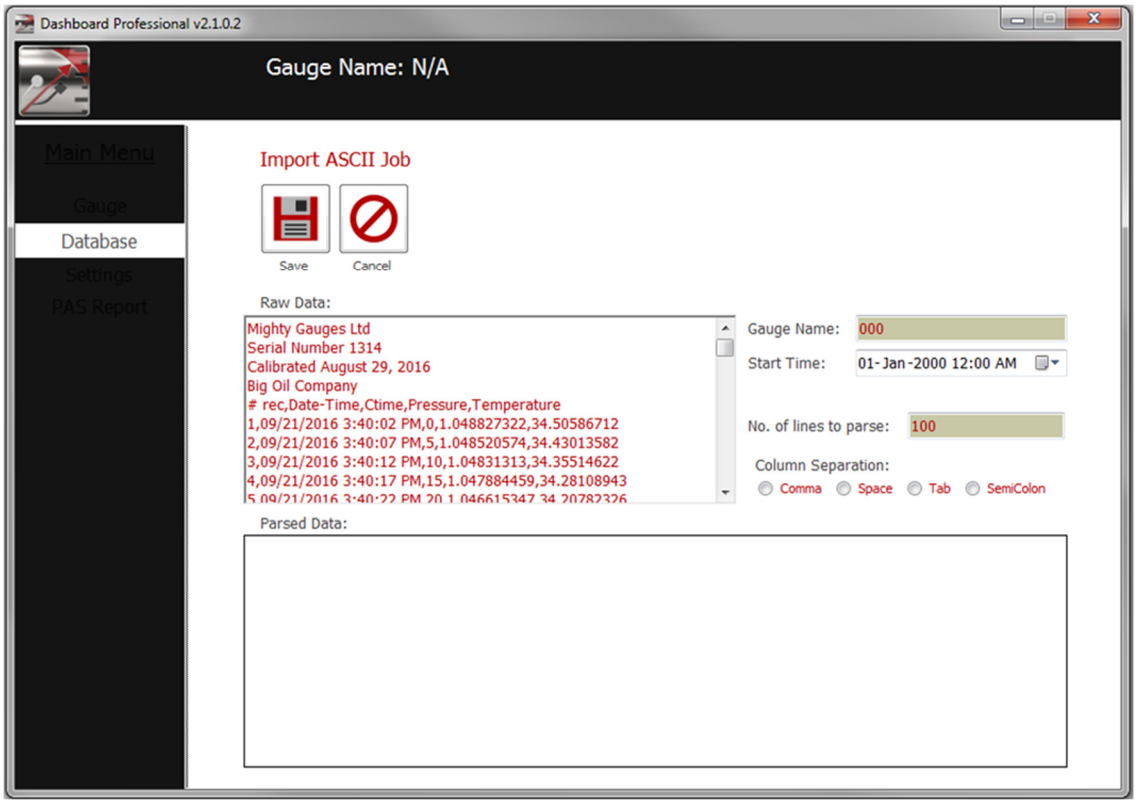
Importing an ASCII *.txt or *.csv file:

The procedure for importing an ASCII *.txt or *,csv file containing data produced by any gauge, starts off the same way as the importing of any other file. Once the file to be imported has been identified in the browser, and *double clicked* on; The Database page illustrated in the screen-shot below will appear. The block of text in Raw Data: is the first few lines of the data in the file to be imported.

When the page in the screen-shot below appears, a Gauge Name should be entered. Any word or name will work. Users are encouraged to use the serial number of the gauge that recorded the data, and/or the position of the gauge in the downhole stack or something appropriately meaningful.

The next thing to consider is No. of lines to parse: This is the number of lines that will be; *i)* displayed in the Raw Data window, and *ii)* the number of lines ***Dashboard Professional***© will sift through to determine where the metadata (text information about the data) ends, and the actual measured data begins. The default setting for the number of lines to be parsed is 100. This is a good setting and it should never need changing. However, in the event there are more than 98 lines of metadata text in the file before the actual columns of measured data begin, then the user will need to increase the No of lines parsed such that the No of lines parsed exceeds the number of lines of metadata by about 20.

In the screen-shot below; There are 5 lines of metadata before the columns of measured data begin.



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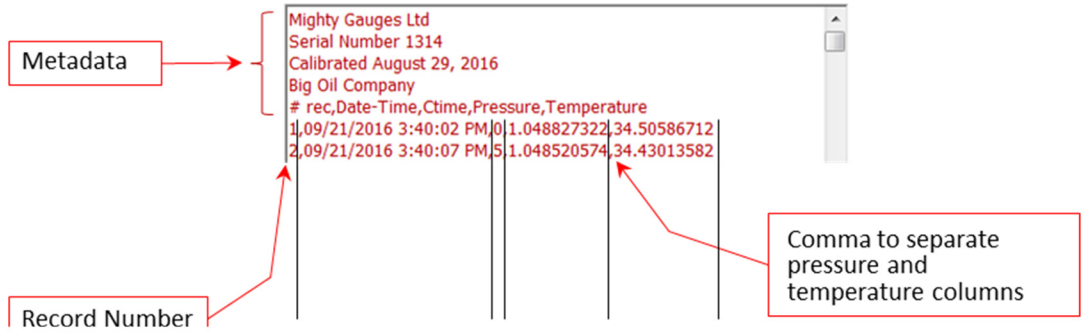
The user now needs to look at the information in the Raw Data window and help ***Dashboard Professional***© to interpret the information to determine how the columns of measured data are separated. The Raw Data: part of Database has been zoomed-up and is illustrated in more detail below.



Parsed Data:

	Column 1	Column 2	Column 3	Column 4	Column 5
	Select DataType	Select DataType	Select DataType	Select DataType	Select DataType
	Select Unit	Select Unit	Select Unit	Select Unit	Select Unit
	# rec	Date-Time	Ctime	Pressure	Temperature
	1	09/21/2016 3:40:02 PM	0	1.048827322	34.50586712
	2	09/21/2016 3:40:07 PM	5	1.048520574	34.43013582
	3	09/21/2016 3:40:12 PM	10	1.04831313	34.35514622
	4	09/21/2016 3:40:17 PM	15	1.047884459	34.28108943
	5	09/21/2016 3:40:22 PM	20	1.046615347	34.20782326

At this stage, the user needs to look closely at the measured data in the Raw Data window to determine which of the four methods (Comma, Space, Tab or SemiColin) is used to separate the columns of measured data. In the example above, commas were used to separate the measured data columns. This is a *.csv file (comma separated variables). Sometimes *.csv files get called Excel files. Once the comma separation determination has been made; Under the heading Column Separation: the user *left clicks* on the button to the left of Comma. Now ***Dashboard Professional***© goes to work and Database will display the Parsed Data window with the metadata removed and the measured data sorted into columns. Note, the data has no units assigned:

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Dashboard Professional© again needs the users help to interpret the data. The data is separated into columns, but ***Dashboard Professional***© doesn't know what i) the data is, or, ii) units the data is expressed in.

When Importing a data file, ***Dashboard Professional***© only wants/needs the three following columns of data:

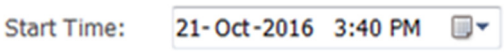
a) Elapsed Time
b) Pressure
c) Temperature

In our example, there are five columns. ***Record #, Date-Time, Elapsed Time*** (in the example this is called ***Ctime***, which means clock-time)***, Pressure, Temperature***. The user knows what's in each column because the titles of the columns were also parsed and placed at the top of each column by ***Dashboard Professional***©. To aid in choosing the correct description for each column, the user might also be able to recognize the data from experience, or have some prior knowledge of how the imported ASCII file was originally formatted.

Parsed Data:

	Column 1	Column 2	Column 3	Column 4	Column 5
	Select DataType	Select DataType	Elapsed Time	Pressure	Temperature
▶	Select Unit	Select Unit	Seconds	barA	°C
	# rec	Date-Time	Ctime	Pressure	Temperature
	1	09/21/2016 3:40:00 PM	20	1.087428691	33.71543293
	2	09/21/2016 3:40:02 PM	22	1.087480495	33.69206873
	3	09/21/2016 3:40:04 PM	24	1.087658721	33.66870262
	4	09/21/2016 3:40:06 PM	26	1.087447693	33.64562136
	5	09/21/2016 3:40:08 PM	28	1.087620602	33.62244265

In the example above; The left two columns, which obviously contain record number and the date-time will be ignored because ***Dashboard Professional***© does not need this data. In the example, the user *left clicked* on the drop down menus at the top of Columns 3, 4 and 5 to choose the correct Select Data Type and Select Unit values.



Once the required columns are properly labelled, the Start Time of the measured data needs to be entered in the Start Time field, illustrated in the left. This is the time the first (top of the columns) recording was made. In the example, the time can be read directly from the second column of the first row of measured data. If this is not in the data, the user will need to get this time some other way, perhaps from a field operators field notes.



Once the Start Time is entered, left click Save, and the imported data will be written into the because ***Dashboard Professional***© database. From here on, the file can be treated the same way as any other file in Database.

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3.7.4 Data Plot *(simplified plotting and report making)*

In a separate pop-up window called Data Plot, ***Dashboard Professional***© offers a range of simple tools and functions designed to facilitate basic job file data checking, manipulation, combination, calculations, plotting, reporting and printing functions.

Full featured data output functions that can account for all well conditions, including TVD depth corrections, gradient fluid interface calculations and many more advanced functions is available in Advanced Report, Section 3.9.



The button on the left, which is found under the Job Information heading on the ***Dashboard Professional***© Database page, is used to pop-up the Data Plot window. Data Plot contains numerous tools that are used with a plot of the job file selected from the Jobs in Database menu.

In Database, data presentation functions are initiated by the Plot function button on the left. The user starts by *choosing* the appropriate job file in Job(s) in Database (Ref. Section 3.7.1), and *left clicking* Plot. This pops-up Data Plot. Data can be zoomed in on or axes can be set manually to best display the plot as described below.

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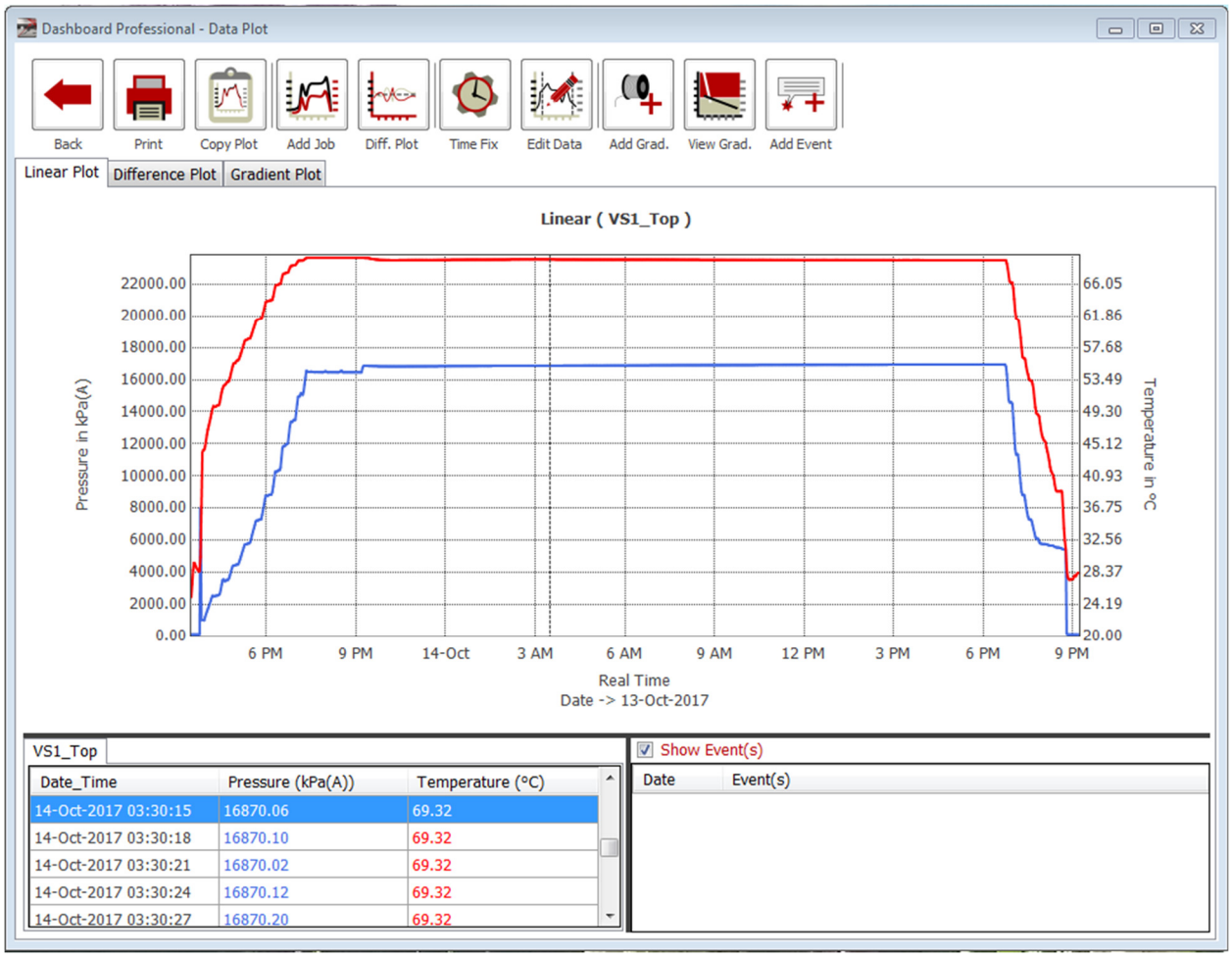
After Plot is *pressed*, and Data Plot first appears, the initial default plot presents both pressure and temperature curves, with the pressure scale on the left Y axis, temperature on the right Y axis, and time on the X axis. Below the plot is a table displaying the plotted job file data in a table. The engineering units used in all Data Plot presentations are the units specified in Settings, as described in Section 3.7. The screen-shot below is an example of a default plot that was presented as soon as the Data Plot window popped-up.



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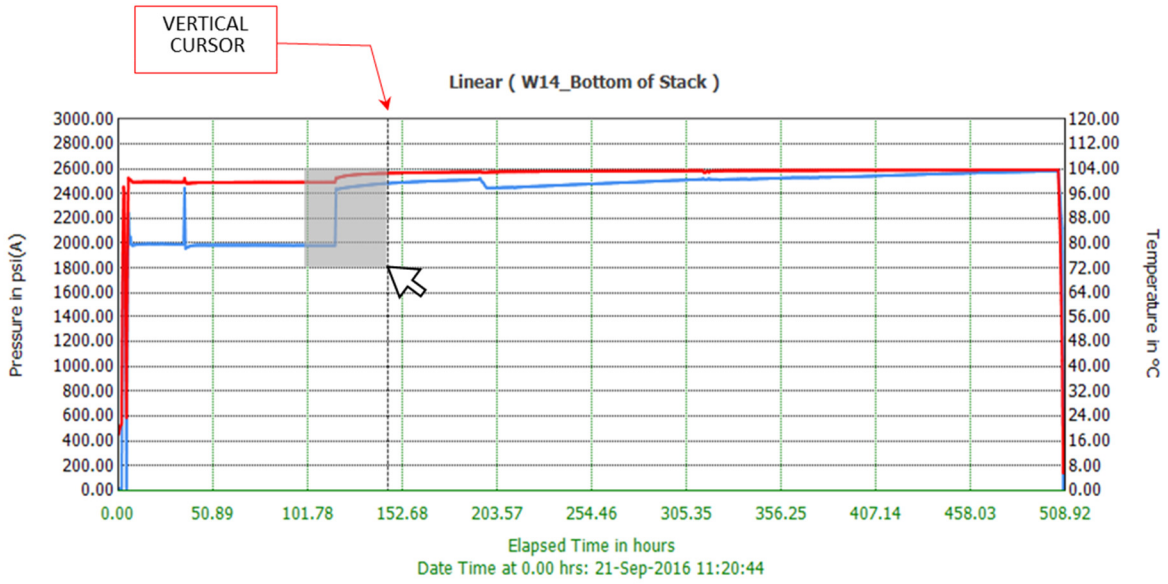
The Data Plot window with the plot, tables and data processing and presentation functions is a separate window from the ***Dashboard Professional***© Main Menu window. The separate window permits users to maximize, minimize, and make use of all the standard MS Window sizing features. The various ***Dashboard Professional***© tools available for working with the different formats of plots, plus descriptions of the use of the nine function buttons at the top of the Data Plot window are explained in the rest of this Section 3.7.4.

Plot Zooming

Used to expand the scale on a section of the plot where the user would like to see the data in more detail. As illustrated below, Zooming is done by *pressing and holding the left* mouse button, and then *dragging* the pointer across the plot to grey highlight a rectangular area of interest. Note the vertical cursor in screen shot below; This cursor defines the right axis time for the zoomed area.



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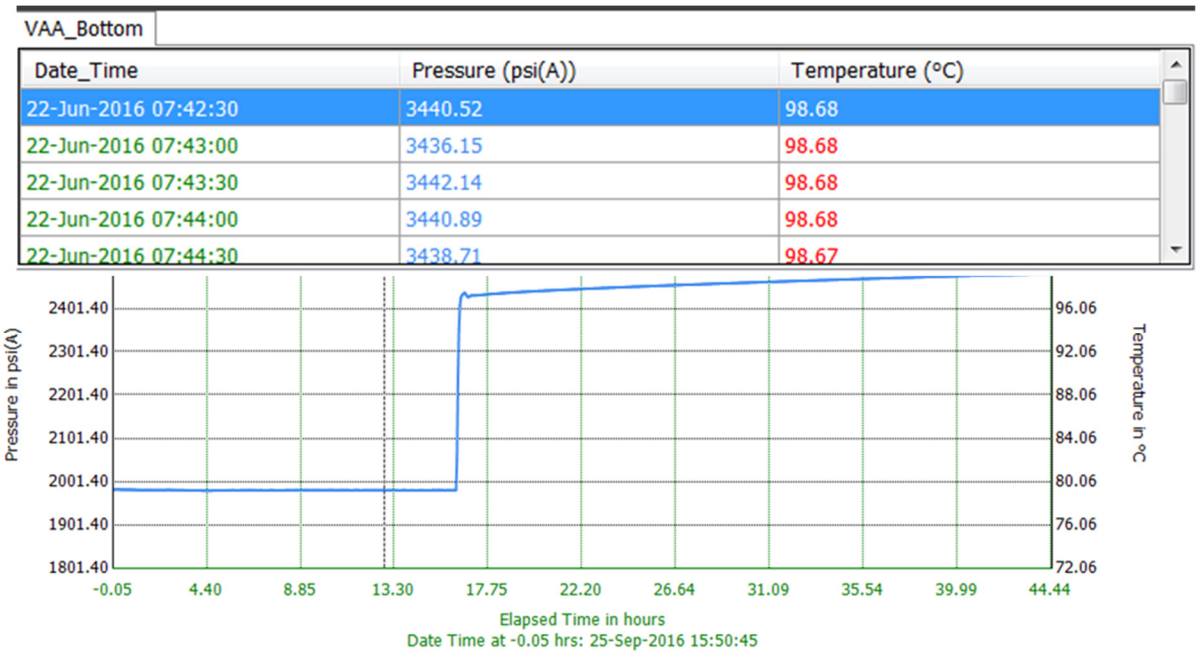
In the example above, the grey rectangle defines the zoom area. When the user *releases* the left mouse button after highlighting the zoom area, the plot above instantly becomes the zoomed-in plot in the screen-shot below. The zooming process can be repeated on the zoomed plot several times.

To un-zoom, the user *right clicks* anywhere on the plot to pop-up a small menu (illustrated on the next page under Plot Formatting, Part A) that lets the user choose between Zoom Out or Zoom Out All. *Left clicking* Zoom Out will undo the last zoom, taking the user to the previous scaled plot. *Left clicking* Zoom Out All undoes all zooms, taking the user to the original starting plot.

Text Table

The table at the bottom-left of Plot Data window, illustrated below, displays the plotted data in text format. The three columns display time, pressure and temperature in the units chosen in Settings, Section 3.8. The colour of the text in each column is the same as the colour of the corresponding curve on the plot. The tab at the top left of the table identifies the job data being viewed in the table. If more than one job file is plotted, there will be a separate tab for each plotted job file.



The blue highlighted line of text corresponds to the data on the plot at the exact time where the vertical cursor is positioned. When a plot first pops -up, the vertical cursor is at the very beginning of the test. The user can place the pointer anywhere on the plot, *right-click*, and the vertical the vertical cursor will jump to the position of the pointer. The blue highlighted text at the top of the rows of data in the table will be the data corresponding to the position of the vertical cursor. Alternatively, the user can use the scroll bar on the right side of the table to scroll through the data table. If the user left clicks on a line of data while scrolling, the vertical cursor on the plot will not follow.

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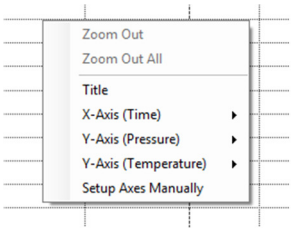
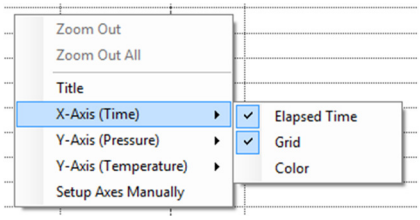
Plot Formatting, ***Part A***



If the user hovers the pointer over the main plot in the plot window (not the tables at the bottom), and *right clicks*, the small dialog box illustrated on the right pops-up. This box enables the following formatting options:

Zoom Out and Zoom Out All functions, which are described on the previous page under Plot Zooming.

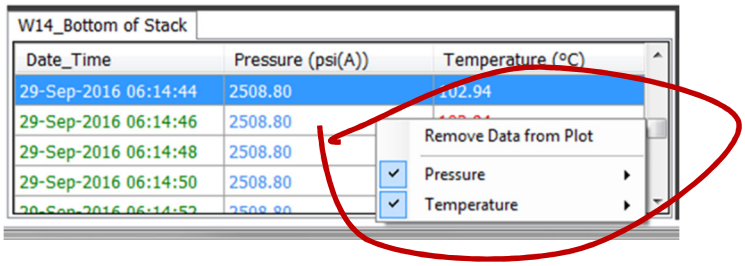
Title allows the user to change the plot title. The default title is a combination of the plot type and the text in Job Information fields Gauge Name and Gauge Position. Users should know the Plot Title entered and used in the output will not be saved with the job data. When the plot is closed and reopened later, the Plot Title will revert to the default title.



X-Axis (Time) is activated by *scrolling over* the words. The sub-menu illustrated on the left pops-up. The Elapsed Time check box toggles the X Axis between elapsed time scale and absolute time scales. The Grid checkbox toggles the Time X-Axis grid lines on and off. Sliding the pointer over Colour gives the user the ability to redefine the colour used in the scale. Y Axis (Pressure) and Y-Axis (Temperature) work exactly the same way. Setup Axes Manually allows the user to set the scales for all axes.

Plot Formatting, ***Part B***

If the user hovers the pointer over the table on the left below the main plot window (not the main plot area), and *right clicks*, the small dialog box illustrated on the right pops-up. This box enables the following formatting options:



Remove Data from Plot is used to remove the job file associated with the displayed tab. In the example above, with the W14_Bottom of Stack tab active in the table, *right clicking* Remove Data from Plot will cause the W14_Bottom of Stack job data set to disappear entirely from Plot Data. The job file is only removed from the Plot Data window, and is NOT removed from the ***Dashboard Professional***© database. This function is generally used when more than one job file is being plotted at a time (see "Add Job", below).

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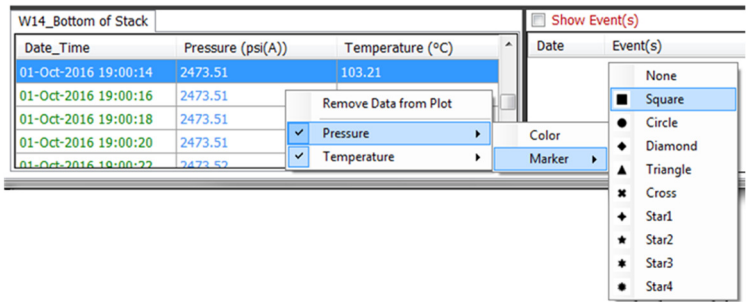
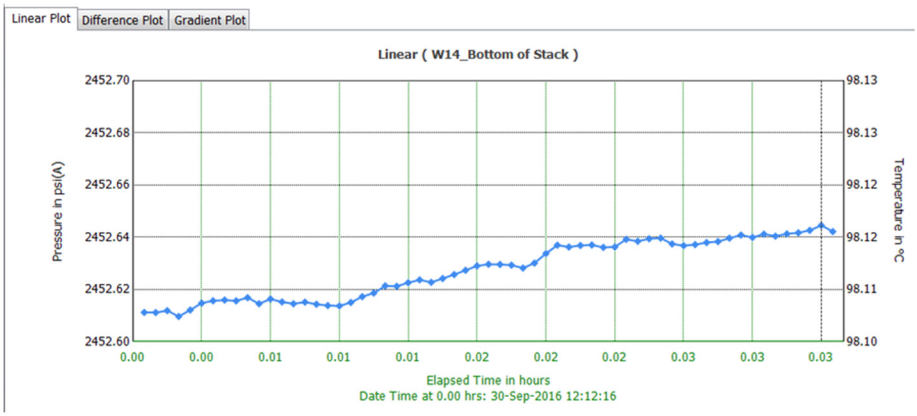


The Pressure or Temperature sub-menus in the small pop-up both work the same way. They are used to define the visual character of the displayed curve. *Hover* the pointer over Pressure or Temperature and the small pop-up illustrated on the left will appear offering the user the opportunity to modify the Colour or Marker used on the selected curve.

Left clicking on Colour will pop-up the Colour selection sub menu. The user *selects* the colour and *left clicks* OK. Users should know the curve Colour selected and used in the output will not be saved with the job data. When the plot is closed and reopened later, the curve Colour will revert to a default colour.

Hovering over Marker will pop-up the Marker selection sub menu where 9 different Marker shapes are offered. The user *hovers over* the selected Marker and *left clicks* on the choice. One marker shape will be superimposed on the plot at each data point. This means the user will need to zoom-in quite a bit on the data to see individual Markers. The illustration below is an example of a zoomed-in plot of the Diamond Marker applied to a pressure curve. The Marker selected is saved with the job data, and when the plot is closed and reopened later, the curve Marker will be retained.



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Data Plot Functions

In the upper left portion of the Data Plot window, there are nine function buttons. Some of these buttons activate very simple mono tasks, whereas other buttons lead to additional layers of sub-functions. The use of the nine buttons is describe below:

Back



Used to close Data Plot window and go back to the ***Dashboard Professional***© Main Menu.

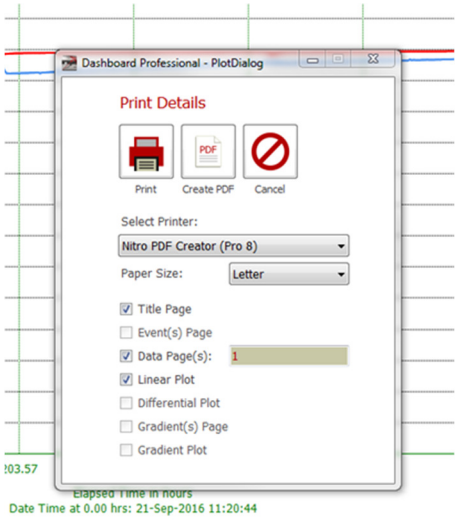
The user *left clicks* on Back to activate the feature. It may be important for users to know that not all the data presentation and/or manipulation changes made to a job file in Data Plot are saved with the job file. A sincere attempt has been made in this manual to point out which data presentation and/or manipulation changes are NOT saved when Back is activated.

Print



Used to produce a formatted report of selected job file data in accordance with user presentation requirements.

When the user *left clicks* on the Print, button in Data Plot, the PlotDialog sub-menu illustrated on the right will pop-up. Using the check-boxes, the user selects the required elements for a report to be printed. The user can mix-and-match report elements to produce a report that ranges from a simple one-page print-out, to a multi-page report with several elements. Following is a brief description of the seven optional check-box elements in PlotDialog:



Title Page: A single page with a title, basic description of the well, survey dates, a logo and some graphics. To change the logo, please refer to Settings, Section 3.8.

Event(s) Page: A single page called **Sequence of Events** that lists the time and description of the Events entered previously in Add Event.

Data Page(s): A list of chronologically sorted ***KC3***© job file measurements in text format. Note; To the right of Data Page(s) there is a field with a number in it. In the example above, the number is ***1***. The number in this field defines the number of pages the data table will be printed over. The more pages chosen, the more data will be printed. ***Dashboard Professional***© automatically applies a print filter to distribute the measurement data evenly across the chosen number of pages. In addition to the ***KC3***© job file measurements, any events will show up in the table at the appropriate times.

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Linear Plot: A single page with an image of the Linear Plot as it appears in the plot area of Plot Data.

Differential Plot: A single page with an image of the Difference Plot as it appears under the Difference Plot tab in Plot Data.

Gradient(s) Page A table displaying the depths, pressures, temperatures and depths used to produce the Gradient Plot displayed in Data Plot. The pressure and temperature value change with respect to depth between measure points is also presented. It is important for users to know the gradients calculated and presented on this page, and the corresponding Gradient Plot, are not necessarily representative of the well fluid or thermal gradients. They are simply inter-point change/depth calculations. Additionally, no fluid interface depths are calculated. For plotting of fluid density lines and calculated fluid interface depths, the user needs to go to PAS Report, Section 3.10.14.

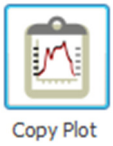
Gradient Plot: A single page with an image of the Gradient Plot as it appears under the Gradient Plot tab in Plot Data.

Once the required report elements have been checked on/off in PlotDialog, the user needs to check and be sure the selections in the Select Printer: and Paper Size: fields are as required.

With everything in order, the user can press Print or Create PDF to produce the report. Print will send the report to the destination selected in Select Printer. The printer can be a file destination, including a *.pdf file, or a physical printer. Create PDF is really just a shortcut giving the user the ability to produce a *.pdf of the report with one less mouse click.

Cancel terminates the report production process and closes PlotDialog. Without affecting any of the job file information. If re-entered right away, PlotDialog will retain the elements it had when it was cancelled.

Copy Plot



Used to copy the plot into another program. Copy Plot places the plot on the clipboard so it can be pasted elsewhere.

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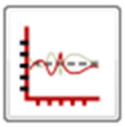
Add Job



Used to add another job file data set to the plot already presented in Data Plot. This is generally done by a user who wants to make use of the Difference Plot feature, or otherwise compare two sets of data from two different gauges that were run at the same time in the same well. This is generally a visual way to verify that when more than one gauge is run together in a well, the data they record basically draws two parallel lines.

To add a job file; *left click* on Add Job**.** ***Dashboard Professional***© will pop-up a PlotDialog pane which looks a lot like a simplified version of Database in the Main Menu. *Select* the job file of interest by *left clicking* on the job file in the list on the right. After reviewing the metadata on the left and making sure the right job file is selected, *left click* the Plot button. This takes the user back to Data Plot where there will be a plot of the data from all the data files chosen. This is often called an **Overlay Plot**, although ***Dashboard Professional***© doesn't use this terminology. Practically speaking, there is no limit to the number of job files that can be overlaid in Data Plot.

Diff. Plot



Used to create a plot of the difference between the pressure and temperature readings of two gauges that were run at the same time under the same conditions, usually in the same well.

To create a Difference Plot, there needs to be at least two job files plotted in Data Plot. Please refer to Add Job above for plotting more than one job file at a time. With at least two job files presented in the Linear Plot tab, *left click* on the left most job file tab at the top of the text data table. This is the reference job file. Then *left click* on Diff. Plot. ***Dashboard Professional***© will pop-up the usual progress bar for a few moments, and then the Difference Plot tab will activate to display the Difference Plot. Note that only data with common times can have a difference calculated. The job file data in the second tab will be subtracted from the reference data associated with the left most tab. A text version of the difference will be displayed at the bottom of Data Plot.

Time Fix



Used to adjust the time base of job files so that job files made by different ***KC3***©'s that were run in the same well at the same time end up with perfectly matched times.

Before doing anything else with a set of job files: The time of each job file should be compared to the reference job file, and any required Time Fix should be applied. Note that Advanced Report offers no Time Fix function. Therefore, using Time Fix and saving the job files with their new time in Database before moving on to Advanced Report is important. This applies whether or not the user intends to use Advanced Report, Section 3.9, to make the final presentation, calculation or report.

Two time fix methods are available. The time of a job file can be shifted, whereby every data point is moved forward or backward in time by the same amount. Alternatively, the job file's time can be stretched or shrunk, wherein a gain is applied to the entire job file time base resulting in no time change at the beginning of the job, with the full change applied at the point where the stretch amount was chosen. Job file data beyond the point of stretch application will be stretch proportionately.

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Time Fix is generally only required when there is more than one job file, and therefore the time on all job files needs to be matched. Before adjusting any times, it is recommended the user choose one job file as being the reference job file. Just out of habit, many users choose the job file from the ***KC3***© that was run at the bottom of a stack as the reference job file. The time base of the other job files are then lined-up to the reference job file. Most of the time, the choice of reference job file is irrelevant. Given the time discrepancy between ***KC3***©'s run at the same well at the same time is generally in the range of a few seconds per month, there's rarely any way to know which ***KC3***© recorded the most correct time. Time Fix is about getting all job files perfectly synchronized in the time domain, rather than making the absolute time perfect.

Starting in Database, *choose* the reference job file and *left click* Plot. In Plot Data, *left click* on Add Job, *choose* the second job file from the list and *left click* Plot. Now there are two job files displayed in Data Plot with the second job file ready to have its time base shifted and/or stretched to match the reference job file. Time Fix only works properly in the Linear Plot presentation. The shifting and stretching functions in ***Dashboard Professional***© both work in a very similar way, as follows:

Shift To:

a) In Data Plot with the Linear Plot tab selected,
b) *Choose* the job file to be shifted by highlighting the appropriate tab on the text table,
c) *Left click* Time Fix,
d) *Zoom-in* on any part of the plot where there is a sudden change in the curves so that any time discrepancy is observable,
e) *Place* the plot crosshairs on a clear reference point on the curve to be shifted and *left click*,
f) *Left click* Select,
g) *Place* the plot crosshairs on the plot where the plot reference point needs to be shifted to,
h) *Left click* Shift To,
i) If results are satisfactory; *Left click* Save. ***Dashboard Professional***© will rewrite and save the job file with the new shifted time base.
j) If results are not satisfactory; *Left click* Cancel. No changes will be applied.

The time base of a file can also be shifted by changing the time the job file starts at. This is done by using zoom to figure out the time shift required, and then adding or subtracting the required time shift to or from the job start time displayed in the field found to the right of the time adjust buttons.

Stretch To:

a) In Data Plot with the Linear Plot tab selected,
b) *Choose* the job file to be shifted by highlighting the appropriate tab on the text table. When stretching, the job file to be stretched cannot be the first job file that was plotted in Data Plot. In other words, the reference job file needs to be the first job file that was plotted.
c) *Left click* Time Fix,
d) *Zoom-in* on a part of the plot where there is a sudden change in the curves so that any time discrepancy is observable. Best results are usually achieved if the adjustment is made to the job file somewhere near the end of the test,

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e) *Place* the plot crosshairs on a clear reference point on the curve to be stretched and *left click*,

f) *Left click* Select,

g) *Place* the plot crosshairs on the plot where the plot reference point needs to be stretched to,

h) *Left click* Stretch To,

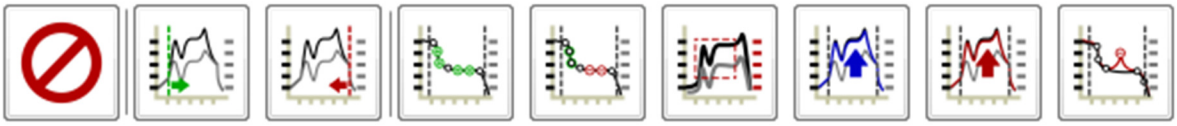
i) If results are satisfactory; *Left click* Save. ***Dashboard Professional***© will rewrite and save the job file with a new stretched time base.

j) If results are not satisfactory; *Left click* Cancel. No changes will be applied.

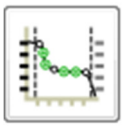
Edit


Edit Data

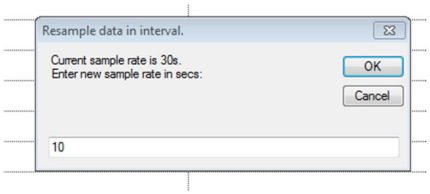
Used to open a menu with several editing options. In this menu, Interval Start (Int. Start) and Interval End (Int. End) can be selected from the plot or the data table before selecting the editing option.



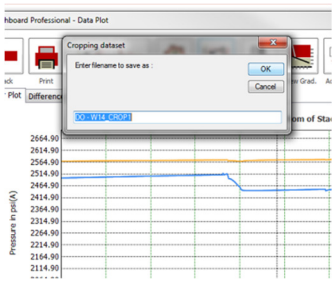
Resample


Resample

Used to change the sample rate for the selected data. If sample rate is less than original sample rate, pressure and temperature readings will be interpolated for the additional points.



The dialog box illustrated on the right will pop-up asking the user for a new job file name. The user enters a new job file name, and *presses* Save. The ***Dashboard Professional***© progress bar will appear for a few seconds, and then confirmation the resampled data is now in the database. The user should be aware that the metadata of the new resampled job file is identical to the metadata of the parent file, except for the file name.



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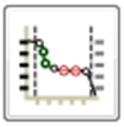
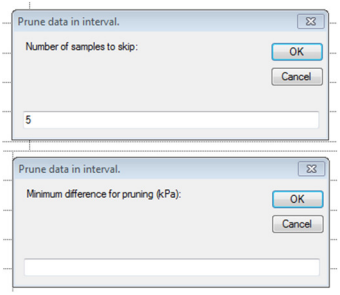
Prune





Used to delete samples in the selected data. *Select* the portion of the plot to be pruned. If necessary, zoom in on the plot to select Int. Start and Int. End. If the user is satisfied with the section of data, *left click* on Prune. The input screen on the right will pop up for the user to enter the number of samples to skip. Enter a value (X). The following screen will pop up asking for the minimum pressure difference. Enter a value (Y). The data will be pruned every "X" samples if the pressure difference is less than the minimum difference "Y" between consecutive samples. A dialog box will pop-up asking the user for a new job file name. The user enters a new job file name, and *presses* Save. The ***Dashboard Professional***© progress bar will appear for a few seconds, and then confirmation the pruned data is now in the database. The user should be aware that the metadata of the new pruned job file is identical to the metadata of the parent file, except for the file name.

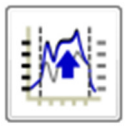
Crop

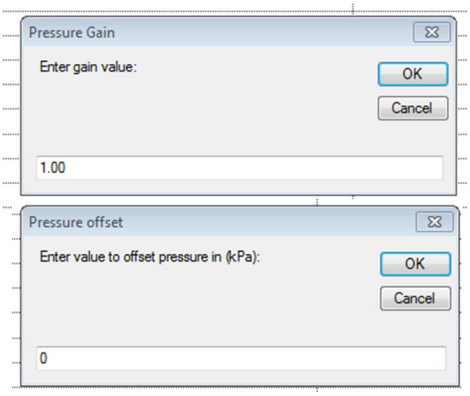


Used to extract a portion of data from a job file, and make a new job file using the extracted data.

Select the portion of the plot to be cropped. If necessary, zoom in on the plot to select Int. Start and Int. End. If the user is satisfied with the cropped section of data, *left click* on Crop. A dialog box will pop-up asking the user for a new job file name. The user enters a new job file name, and *presses* Save. The ***Dashboard Professional***© progress bar will appear for a few seconds, and then confirmation the cropped data is now in the database. The user should be aware that the metadata of the new cropped job file is identical to the metadata of the parent file, except for the file name.

P Scale





Used to adjust the pressure readings in the selected data. Two options will pop up for adjusting the pressure – gain and offset. Only use one of the options. Gain will multiply the values by the entered gain value. Offset will add the offset pressure value to the original values. A dialog box will pop-up asking the user for a new job file name. The user enters a new job file name, and *presses* Save. The ***Dashboard Professional***© progress bar will appear for a few seconds, and then confirmation the pruned data is now in the database. The user should be aware that the metadata of the new job file is identical to the metadata of the parent file, except for the file name.

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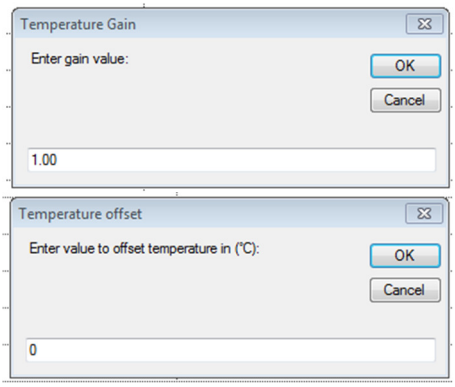
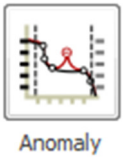
T Scale



Used to adjust the temperature readings in the selected data. Two options will pop up for adjusting the temperature – gain and offset. Only use one of the options. Gain will multiply the values by the entered gain value. Offset will add the offset temperature value to the original values. A dialog box will pop-up asking the user for a new job file name. The user enters a new job file name, and *presses* Save. The ***Dashboard Professional***© progress bar will appear for a few seconds, and then confirmation the pruned data is now in the database. The user should be aware that the metadata of the new job file is identical to the metadata of the parent file, except for the file name.



Anomaly



Used to correct anomalous data in a job file, and make a new job file using the extracted data. *Select* the portion of the plot to be corrected. If necessary, zoom in on the plot to select Int. Start and Int. End. If the user is satisfied with the selected section of data, *left click* on Anomaly. A dialog box will pop-up asking the user for a new job file name. The user enters a new job file name, and *presses* Save. The ***Dashboard Professional***© progress bar will appear for a few seconds, and then confirmation the corrected data is now in the database. The user should be aware that the metadata of the new corrected job file is identical to the metadata of the parent file, except for the file name. Pressure readings between the selected points will be interpolated. Temperature readings will remain the same.

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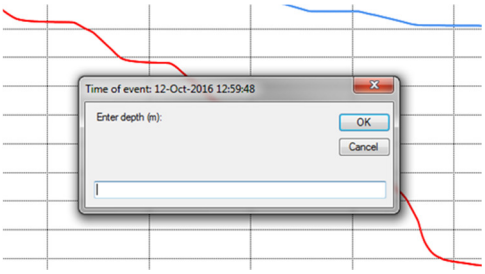
Add Grad. *(add gradient depth)*



Used to attach a well depth value to individual data points in a job file. The depth is the well depth the ***KC3***© was at when the data point was recorded. Such depth information is generally take from wireline field operator notes. This function is required if the user wants to build a pressure or temperature Gradient Plot.



With the job file containing the gradient survey data open in Data Plot, *zoom-in* on the plot so that the gradient survey depths are clearly visible. Using the field operators notes as a guide, *position* the crosshairs over the data point that is believed to best represent the pressure at the selected gradient survey stop depth, and *right click* to position the vertical cursor. *Left click* on Add Grad to pop-up the dialog box illustrated on the right. *Enter* the appropriate depth in the box and *press* OK. ***Dashboard Professional***© will now create an Event that attaches the entered depth to the selected data point, and displays the Event by way of a small text box on the plot, and as a line in the Show Event(s) table at the bottom right of the Data Plot window. In the example in the screen-shot at the top of the next page, the user selected the data point at 12-Oct-2016 to be representative of the pressure at the gradient stop at 4,000 meters. Note the vertical cursor at the point. The small text box on the plot shows the 4,000 meter depth and the Event is described in the table at the lower right with the depth displayed. The small text box on the plot can be made visible by toggling the check-box to the left of Show Event(s).

The discussion above just describes how to enter a gradient survey depth Event. In order to produce an actual useful gradient plot, at least two data points will need a depth associated with them.

Users need to be sure the depth units entered in Add Grad. match the depth units chosen in Settings, Section 3.8.

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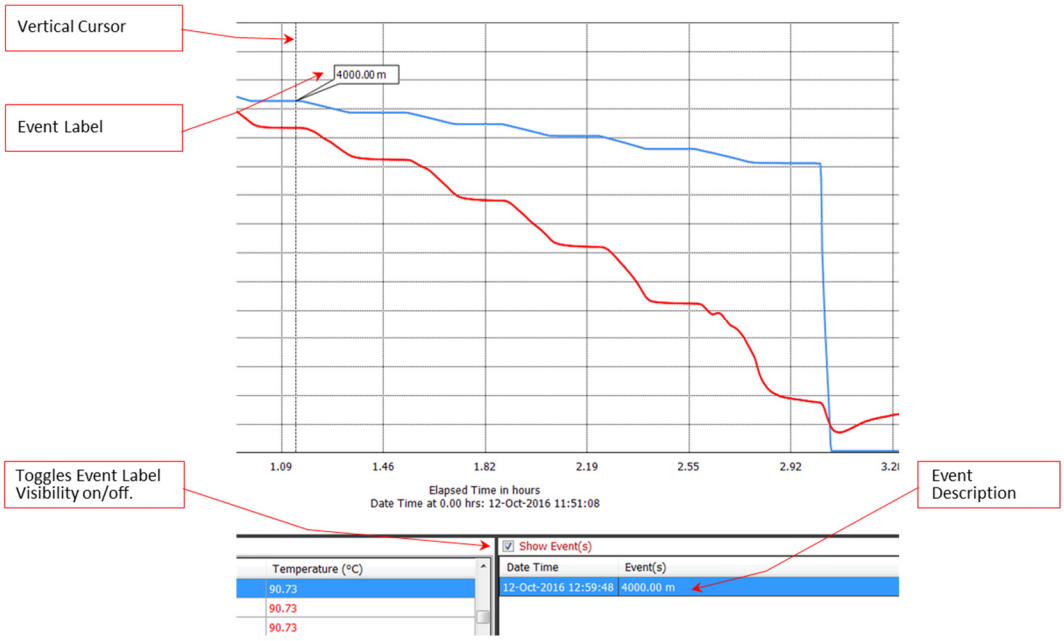
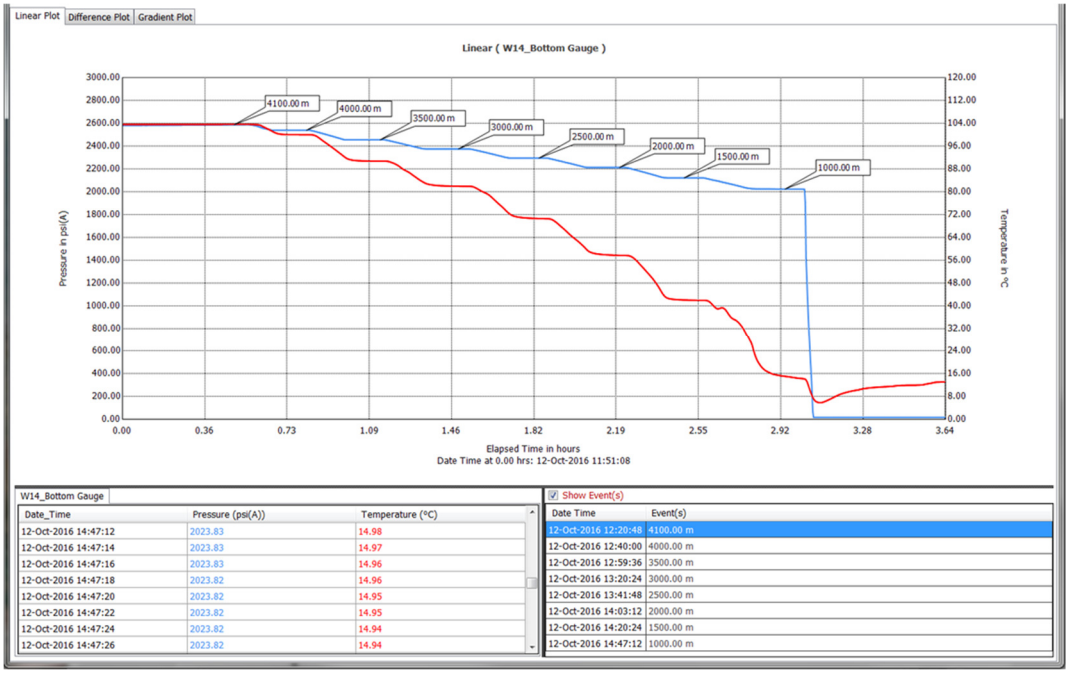


View Grad. *(view gradient plot)*



Used to calculate and produce a simple pressure and temperature inter-point gradient plot using the gradient depth Events that were entered using Add Grad.

In Plot Data, with the Linear Plot tab active, the user *repeats* the Add Grad. process above for all the gradient depth stop Events. The result should look like the Linear Plot screen-shot below.



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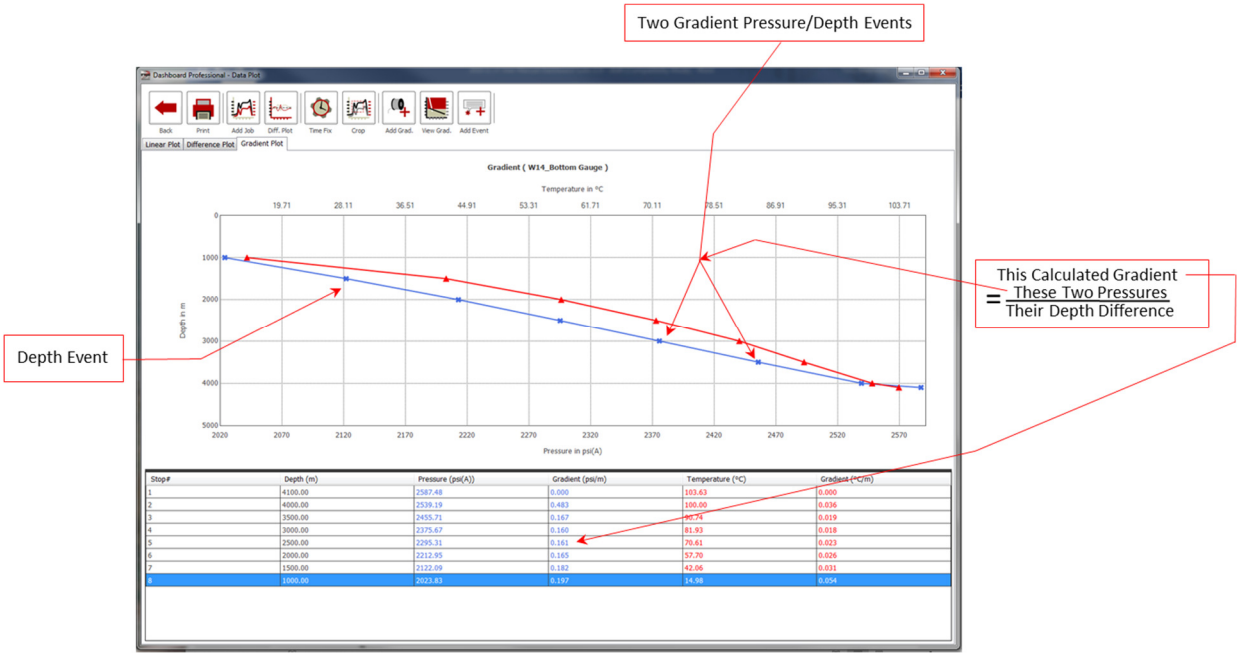
Once all the Gradient Depth Events have been entered using Add Grad., the user *right clicks* on View Grad. A few moments later a Gradient Plot like the example in the screen-shot below will be displayed in the plot area.

When making a NEW gradient plot, or making CHANGES to an existing gradient plot, after the changes inputs/changes are made; The first time the user views the new gradient plot, the user needs to *left click* the View Grad. button, instead of the Gradient Plot tab.



In the example above, the simple point to point gradient plot can be seen in graphical and tabular format. In the example above the calculated Gradient in the table should **NOT** be confused with an estimated well fluid gradient. The Gradients calculated above are just the difference in pressure/temperature value divided by the difference in depth. The purpose of the type of Gradient Plot illustrated above is to verify the gradient survey was conducted properly, with the correct gradient stop depth, and that good data was produced.

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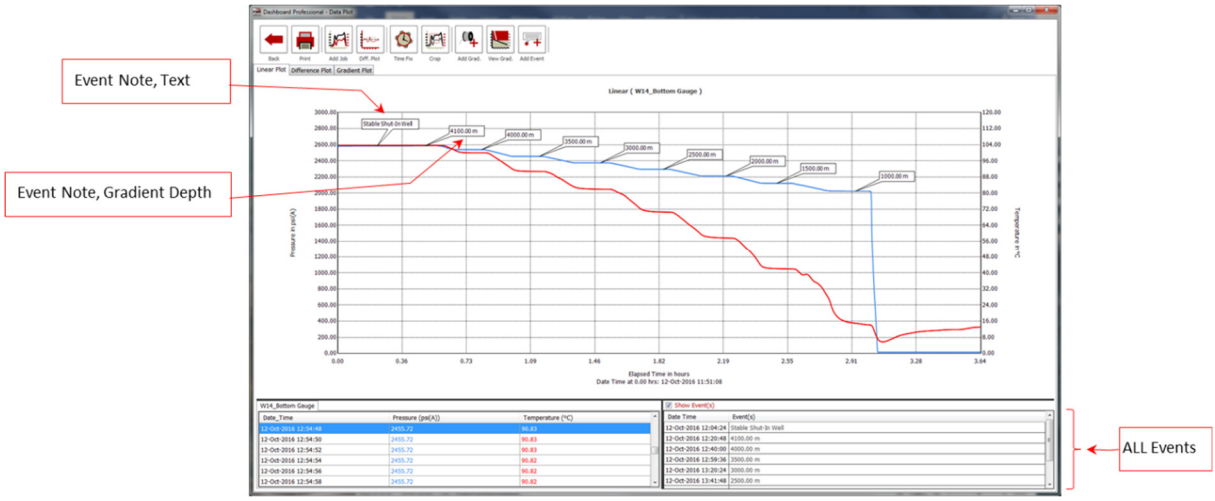

In the example above, there were eight gradient stops. There are seven pressure and temperature gradients calculated. As described below, the 0.161 psi/m pressure gradient on the Stop 5 row in the table is calculated using stops 4 at 3,000m, and stop 5 at 2,500m, where:

The Gradient Value = (pressure 4 – pressure 5) / (depth 4 – depth 5)
= (2375.67psi – 2295.31psi) / (3,000m – 2,500m)

If a fluid gradient plot with fluid densities and estimated fluid interface depths calculated, the user needs to produce the type of Gradient Plot discussed in Advanced Report, Section 3.9.

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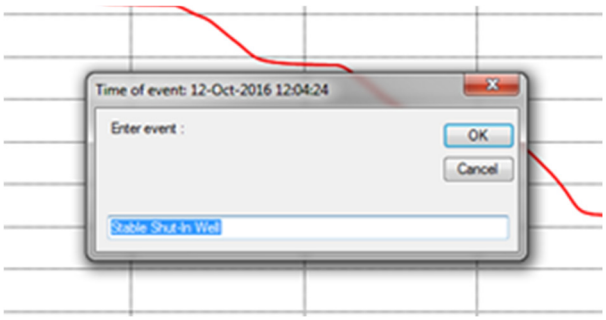
Add Event



Used to insert a small text box message/note in the Linear Plot.

With reference to the screen-shot below, there are two kinds of ***Dashboard Professional***© Events that can be placed on a Linear Plot. One kind of Event is the gradient stop depth Event discussed a few pages back under the heading Add Grad. The other type of Event, discussed herein, is a simple text message the user can attach to a Linear Plot to enhance the readers understanding of the data. These are the type of Events that Add Event is used to make. Once made, as illustrated below, both types of Events are handled and displayed on the plot, as well as and listed in the table at the bottom right of Linear Plot, in exactly the same way. ***Dashboard Professional***© keeps track of which Events are depths for gradient plot/calculations, and which Events are simple text notes. All Events appear on the Linear Plot, and at their appropriate time in the data print-out in any reports.



To add a simple text event, *open* the job file in Linear Plot, *position* the crosshairs over the point on the curve where the text event note is required, *right click*, and the vertical cursor line will pop-up. Next, *press* Add Event, and the dialog box illustrated on the right will pop-up. *Type-in* the text note, and press OK (or Cancel). The note will now appear in a box like the one illustrated in the screen-shot on the next page, with the point aimed at the pressure curve where the cursor was positioned. The user can *left click* on the text box and move it to anywhere on the Linear Plot, but the end of the pointer will always be stuck on the chosen Event time.

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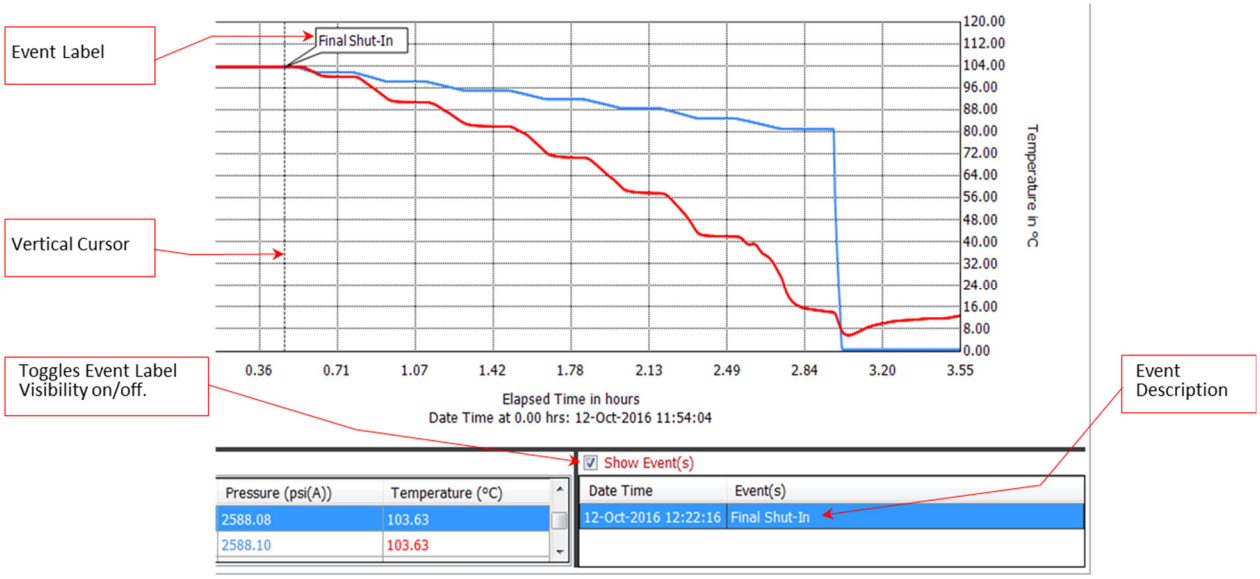
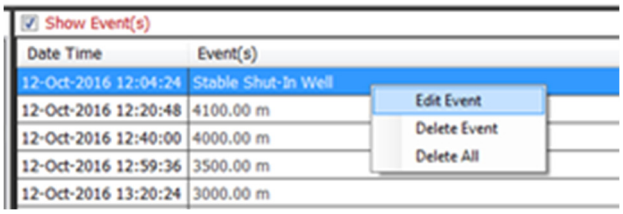


The check-box to the left of the Show Event(s) table title is used to toggle on/off display of the Events on the Linear Plot. ALL Events are either displayed, or none. In other words, the user cannot choose to display some Events, while not displaying other Events on the Linear Plot.

Events can be changed or removed. To change an Event; *Hover* the pointer over the Event row to be changed and *right click* on the Event. The dialog box illustrated on the right will appear offering the user three choices. *Right clicking* on Edit Event pops-up another small dialog box in which the user can type the new note. If the Event is a gradient stop depth, using Event Edit, a new depth can be entered. Note however that an Event that started out as a simple text note cannot be changed into a gradient depth Event, and visa-versa.



Delete Event will remove the highlighted Event only with a right click.

Delete All removes all Events with a right click.

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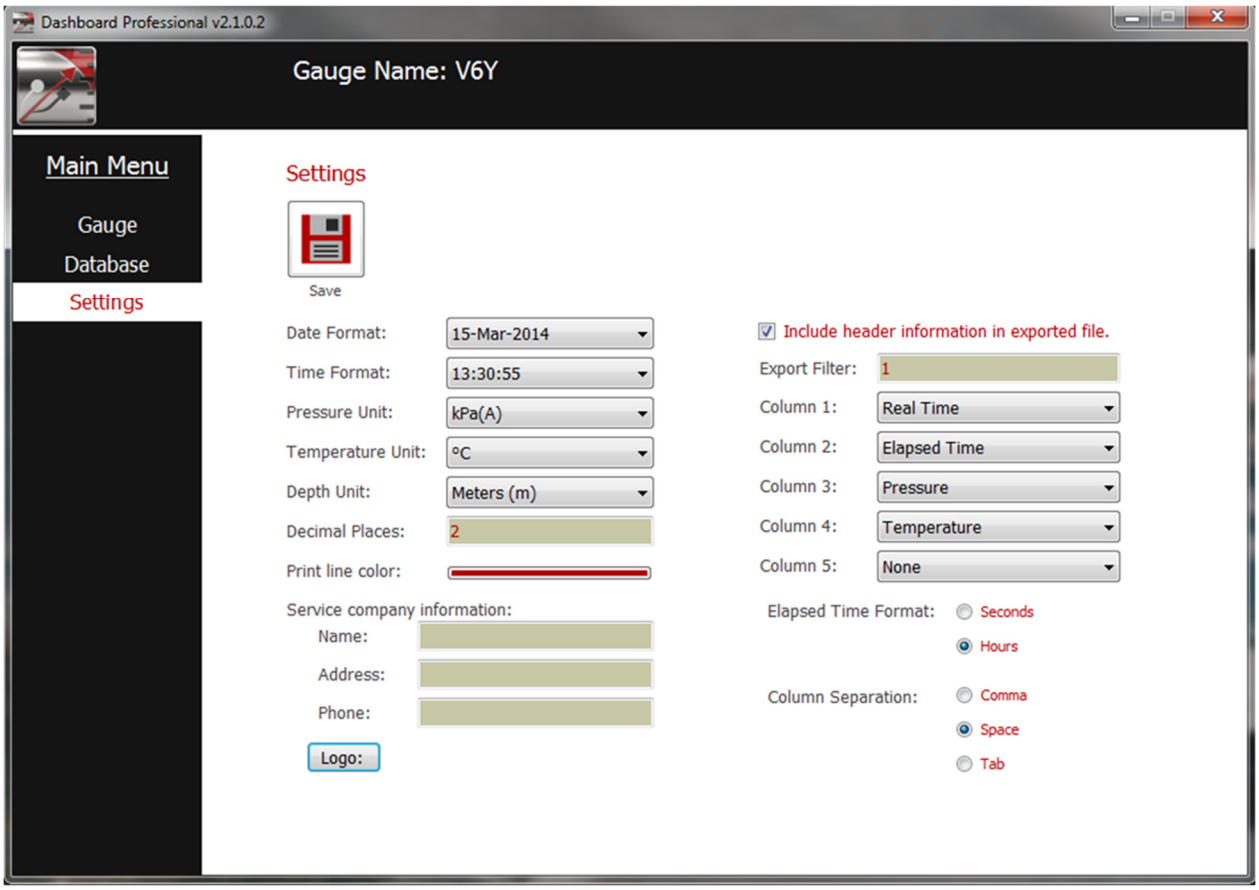
3.8 Settings



The primary use for the Settings panel in ***Dashboard Professional***© is to define the parameters the user wants to work in, have displayed and output in plots and reports. Such parameters include engineering units, file output format, service company information, logo for presentation and report colour.

The following are some important features to be understood about Settings:

a) Selected parameters are saved and used by ***Dashboard Professional***© every time the program is opened, until changed by the user.

b) Regardless of the Configuration (Section 3.5.2) of the ***KC3***© that was used to record the job file, when ***Dashboard Professional***© works with the data, the selected parameters in Settings will prevail in every aspect of the job file.

c) If a job file has been imported and worked on in ***Dashboard Professional***©, if any changes are made to the parameters selected in Settings, the parameters previously used are invalidated, and the new selected parameters will prevail inside ***Dashboard Professional***©.

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3.8.1 Units

The following units/formats can be selected by the user in Settings:

- ✓ Date Format
- ✓ Time Format
- ✓ Pressure Unit
- ✓ Temperature Unit
- ✓ Depth Unit

The choice of a particular unit/format is made using a pull-down menu. Using Pressure as an example;

Place the pointer over the little up-pointing arrow on the right side of the Pressure field. *Left click* on the little arrow. A column of choices will open. *Scroll* the pointer down the list and *left click* on the required Pressure unit. Once all the units have been selected, be sure to *left click* Save to instruct ***Dashboard Professional***© to use the new parameters.

A note of caution is required when choosing a Date Format: If it a job file might be Exported as an ASCII - .CSV file; DO NOT choose a Date Format that contains a Comma.
WHY? If a job file is Exported as a *.CSV file (CSV = Comma Separated Variables); When the Exported *.CSV file is opened in another program, the program will not be able to distinguish between the Comma in the date, and the Commas that separate the variables. For example, if/when an ASCII *.CSV file with a Comma in the date is read by MS Excel, the column headings and the columns of data will get out of synchronization because the Comma in the date will cause MS Excel to split the date into two variables, and make an extra column of data, where none should exist.
There are three Date Formats offered in Settings that contain Commas. For example; March 14, 2014 is one that contains a Comma.

3.8.2 Decimal Places:

Used to select the number of required decimal places in any ***Dashboard Professional***© numerical output. This includes numerical values in any tables such as the tables below plots in Data Plot, the table in any printed reports and the data in exported files.

To change the number of decimal places required; *Left click* in the Decimal Places field and type-in the required value. Be sure to *left click* Save after making any changes.

3.8.3 Print line color:

Used to select the color of the fat line/bar at the top of the title pages in any reports that get printed. Most users would choose a color that is color matched, or at least blends nicely with the Logo (Ref. 3.7.5) printed on the reports.

To change Line color: *Left click* on the colored bar, a color choice pop-up will appear. *Choose* the required color, and press OK (or Cancel). Be sure to *left click* Save after making any changes.

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3.8.4 Service company information:

Used to give ***Dashboard Professional***© a few key bits of information about the service company that ran the ***KC3***©(s) in a well to produce the job file(s) being worked on. Such information includes Name, Address, Phone (number). These are really just suggested text field entries, the user can actually type-in anything here, such as a manager's name, website URL, unit number, or the like. The only practical length limitation is that the string of text cannot exceed one page-wide line. This information will be displayed on the title page of any reports produced by ***Dashboard Professional***©. If the fields are left blank, no text will show up on the title pages.

To enter/change any Service Company Information; *Left click* in the appropriate text field, and type-in whatever suits the requirement. Be sure to *left click* Save after making any changes.

3.8.5 Logo:

Used to give ***Dashboard Professional***© a JPEG logo/image to use on any report title pages. This would generally expected be the logo of the service company that ran the ***KC3***©(s) in a well to produce the job file(s) being worked on. However, any image formatted as a JPEG file can actually be used. The logo/image will appear on the report title page in the same sector as the Service Company information.

To change the Logo; *Left click* on the Logo: button to pop-up a traditional MS Windows file browser. Then *search* for the JPEG file, Once the JPEG is found, *double left click* on it, and the chosen image will be displayed on the Settings page beside Logo. Be sure to *left click* Save after making any changes.

3.8.6 ASCII Exporting Settings

On the right side of the Settings page is a group of nine parameters that pertain to the format of Exported ASCII text job files.

Include header information in exported file: Used to toggle on or off inclusion of the header information (often called metadata) at the top of an Exported ASCII job file.

If there is a check-mark in the little box, the metadata will be included in any Exported ASCII job files. If the metadata is not wanted, left click in the small box to remove the check-mark.

At the top of the following page, there are two screen-shots of the same Dashboard Professional© Exported ASCII job file, opened in MS Notepad. The screen-shot on the left includes the header information (metadata). The screen-shot on the right includes no metadata.

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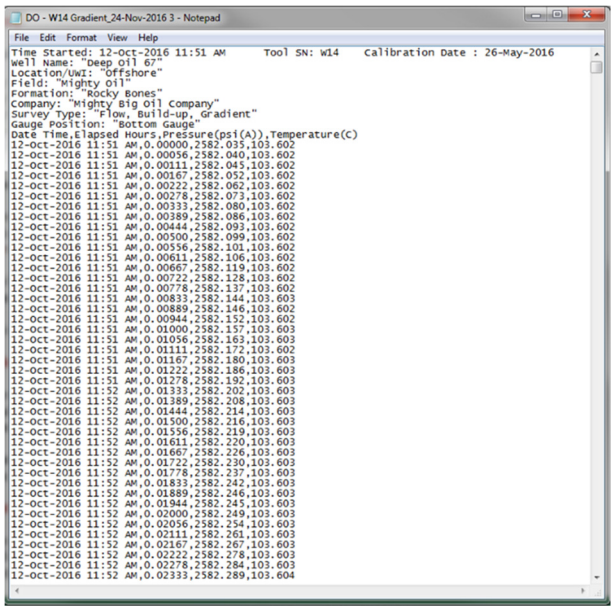
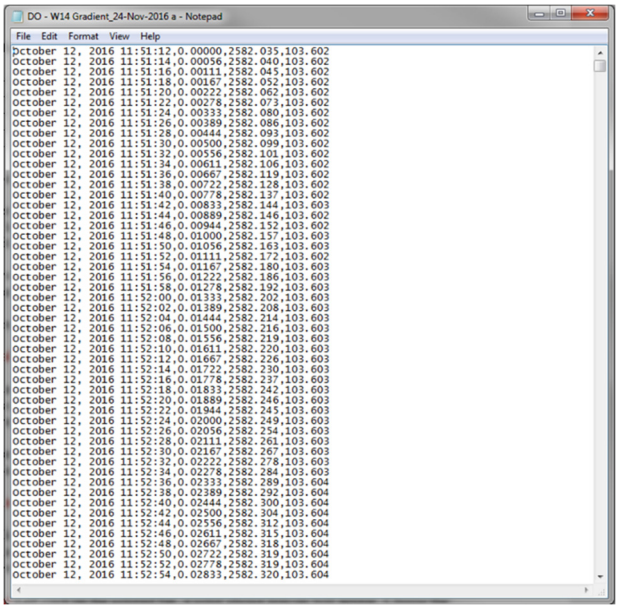
Exported ASCII job file ***WITH*** metadata



Exported ASCII job file with ***NO*** metadata



Export Filter: Used to define the filter rate applied to any Exported ASCII job files.

To change the Export Filter, *hover* the pointer over the field text box with the number in it, and type-in the required filter rate. The Export Filter value needs to be an integer. If, for example, an Export Filter of 4 is selected, when a job file gets Exported in ASCII format, one in every four data records will be included in the Exported ASCII job file. On the other hand, if an Export Filter of 1 is selected, every data record will be included in the Exported ASCII job file.

Columns: Used to define which variables are entered in which column in Exported ASCII job files.

To change the column assignment, *right click* on the tiny arrow at the right side of the box to open the drop-down menu. *Choose* the required parameter from the menu by *left clicking* on the selection.

The most common column configuration is for Column 1 to be real time, Column 2 is elapsed time, Column 3 is pressure, and Column 4 is usually temperature. Column 5 is available in case there is a special or unusual requirement. This common column configuration is used in the examples above. Be sure to *left click* Save after making any changes.

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Elapsed Time Format: Used to define whether the elapsed time in an Exported ASCII job file is written in hours or seconds. The choice is made by choosing by *right clicking* the appropriate round button. Be sure to *left click* Save after making any changes.

Column Separation: Used to define the way the columns of data are separated in Exported ASCII job files. The user can choose between Comma or Space or Tab separation. The most common separation format is Comma. An exported ASCII file with Comma separation will have the file extention.csv. This format is popular because the spreadsheet program MS Excel will readily accept *.csv files. Indeed, when MS Windows detects a *.csv file, MS Windows will almost always classify the file as an MS Excel file. If Comma separation is used, the user should be aware of the highlighted information below. Be sure to *left click* Save after making any changes.

A note of caution is required when choosing a Date Format: If it a job file might be Exported as an ASCII - .CSV file; DO NOT choose a Date Format that contains a Comma.
WHY? If a job file is Exported as a *.csv file (csv = CSV = Comma Separated Variables); When the Exported *.csv file is opened in another program, the program will not be able to distinguish between the Comma in the date, and the Commas that separate the variables. For example, if/when an ASCII *.csv file with a Comma in the date is read by MS Excel, the column headings and the columns of data will get out of synchronization because the Comma in the date will cause MS Excel to split the date into two variables, and make an extra column of data, where none should exist.
There are three Date Formats offered in Settings that contain Commas. For example; March 14, 2014 is one that contains a Comma.

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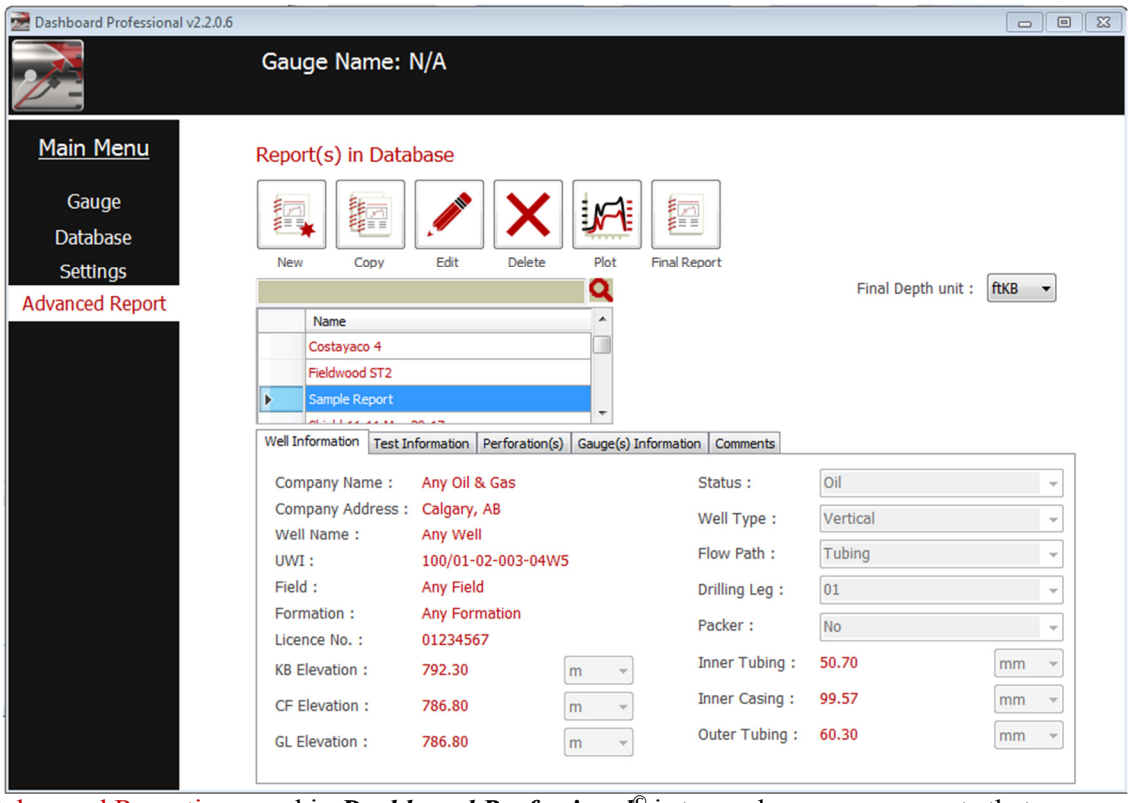
3.9 Advanced Reporting (*full plotting and reporting package*)



The Advanced Reporting panel in ***Dashboard Professional***© is to produce survey reports that are more comprehensive than those produced in Database, as well as some specialty formatted reports.

It is in the users' best interest to understand the how Database (Section 3.7) and Advanced Reporting interact in the process of building survey reports in ***Dashboard Professional***©. The following are a few simple guidelines worth understanding before attempting to make or output any reports:

a) Once a job file is downloaded from a ***KC3***©, or Imported; Database is used to check the quality of the incoming data using simple linear and difference plotting functions, time shift/matching, cropping, recalibrating, and other data integrity improvement functions. Once Database has been used to prepare the incoming data, the user has two choices;

iii) Continue working with the data in Database, *or*
iv) Start working with the data in Advanced Reporting.

Using Database to make simple single theme reports for vertical wells is simple, quick and suitable under many circumstances. On the other hand, Advanced Reporting offers a more extensive range of job file presentation and reporting options.

b) If the user is working with a job file in Database, but intends to use the advanced reporting features of Advanced Reporting to make a final presentation, once the data is prepared for reporting, there is no need to enter the Job Information metadata in Database. This is because Job Information entered in Database will not be read or used by Advanced Reporting.

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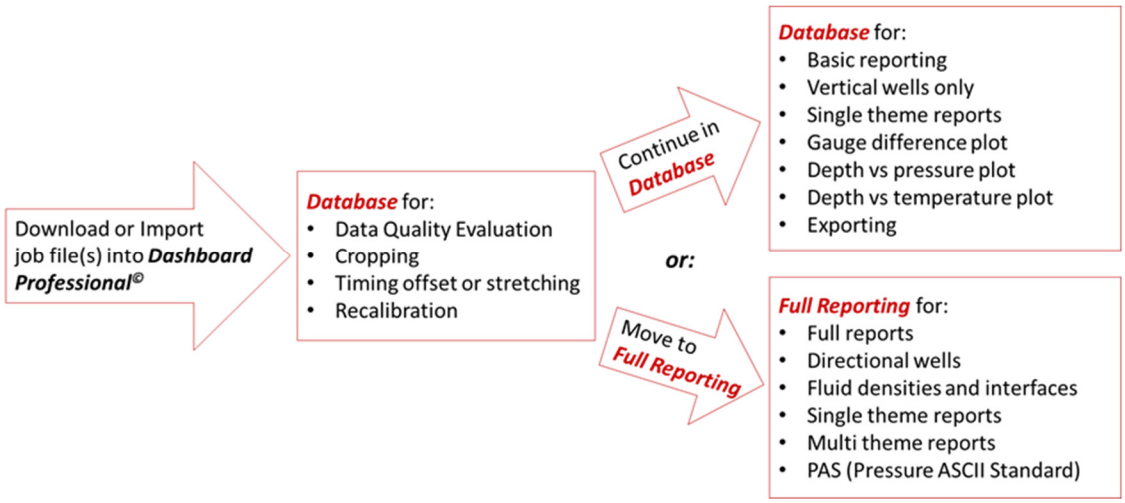
c) The simple diagram below explains the interactions between a job file, Database and Full Reporting functions and survey report outputs.



d) Regardless of the Configuration (Section 3.6.2) of the ***KC3***© that was used to record a job file, when ***Dashboard Professional***© works with the job file, the selected parameters in Settings will prevail in every aspect of the reporting functions.

e) When a job file has been imported and worked on in Dashboard Professional©, if any changes are made to the parameters selected in Settings, the parameters previously used with the job file will be invalidated, and the new selected parameters will prevail.

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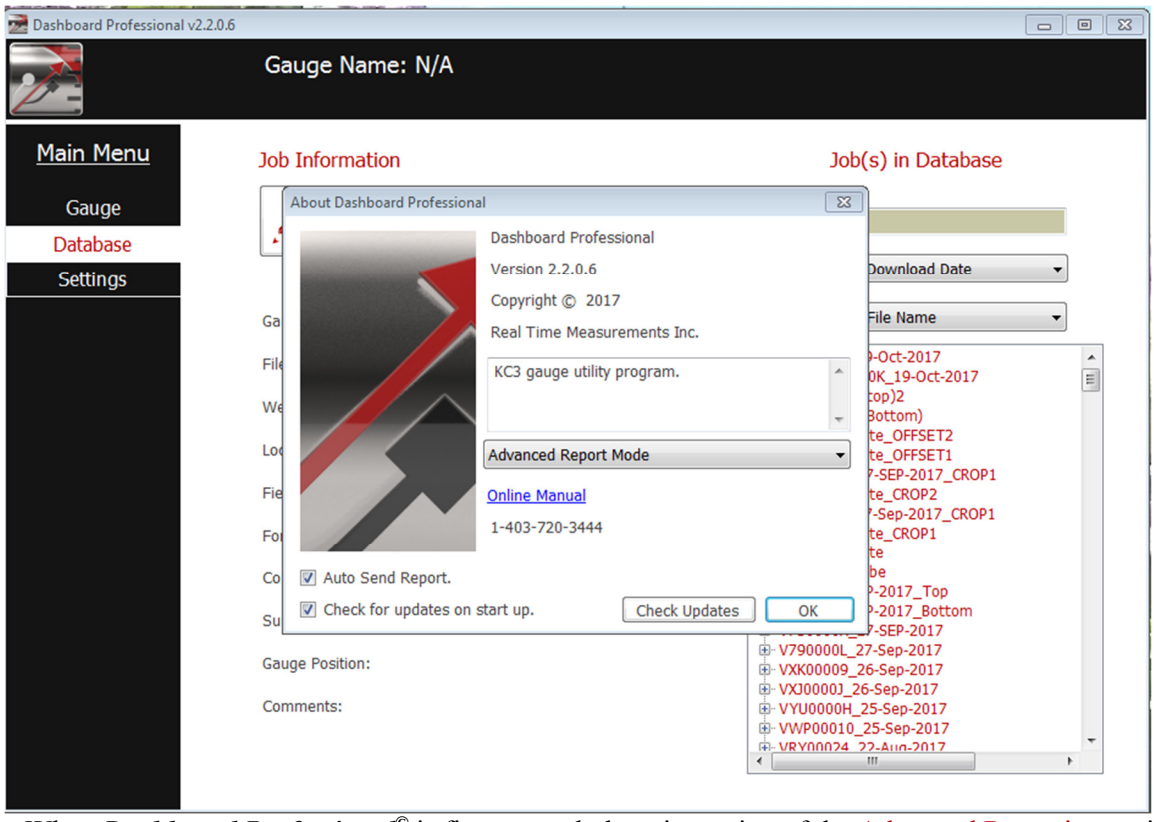
3.9.1 Advanced Reporting Activation



When ***Dashboard Professional***© is first opened, there is no sign of the Advanced Reporting option. To activate Advanced Reporting, *move* the pointer over the ***Dashboard*** icon at the top left of any ***Dashboard Professional***© page, and *left click* on the icon. This brings-up the About Dashboard Professional dialog box in the screen-shot below. About Dashboard Professional is more fully described in Section 3.4.

About Dashboard Professional offers several options, only one of which relates to Advanced Reporting, which is as follows:

In the drop down menu box that says Basic Report Mode; The user *left clicks* on the little black up arrow at the right of the field box to open the menu. In the drop-down menu the following two ***Dashboard Professional***© mode choices are available. There is the default Basic Report Mode and Advanced Report Mode. *Left clicking* on Advanced Report Mode will enable Advanced Report as evidenced by Advanced Report being added to the Main Menu.

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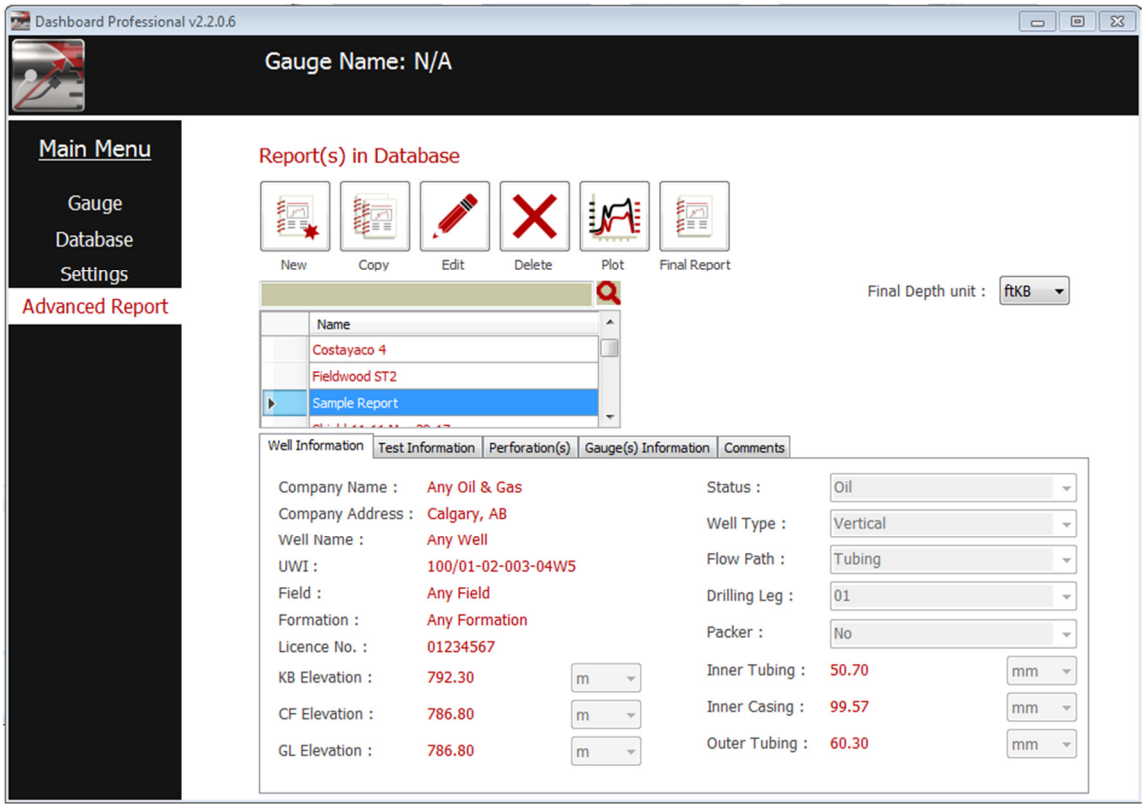
3.9.2 Report(s) in Database

When the Advanced Report option under Main Menu is *left clicked* on, the Advanced Report main page called Report(s) in Database as illustrated in the screen-shot below will appear:



There are four main elements on the Report(s) in Database page:

Final Depth Unit: The depth units used to make any reports, gradients in particular. It is important these Final Depth Units are the same as the depth units in Settings.

Six Buttons: Used to trigger certain report making functions. which variables are entered in which column in Exported ASCII job files.

Report List: Used to scroll through list that lists all the reports stored in the ***Dashboard Professional***© database. Note; Database automatically adds the prefix ***Basic*** to any reports that are made in Database. If the name of a report starts with ***Basic***, then the report is a simple single plot report. It's best to leave these ***Basic*** reports alone and not use them as a starting point for more advanced reports. Not all the information in a ***Basic*** report will transfer properly over to Advanced Reporting.

Information Tabs: Used to enter all manner of well and job information and perform some minor calculations.

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All work done in Advanced Report has to be done to a report. Every report has a name, which will be listed in the Reports List. A report is an automatically formatted file that's output by ***Dashboard Professional***© containing various appropriate combinations of well information, job data and graphical plots in different formats. All reports contain a title page, well/gauge/survey information. Advanced Report is used to make three base types of reports built around three different plotting for:

Linear	Title page and data print-out built around a plot of pressure and/or temperature on the Y axis, and time on the X axis.
Difference	Title page and data print-out built around a plot of the difference between two pressures and/or two temperatures on the Y axis, and time on the X axis.
Gradient	Title page, field operational sequence information, data print-out built around a plot of pressure and/or temperature on the Y axis, and time on the X axis.

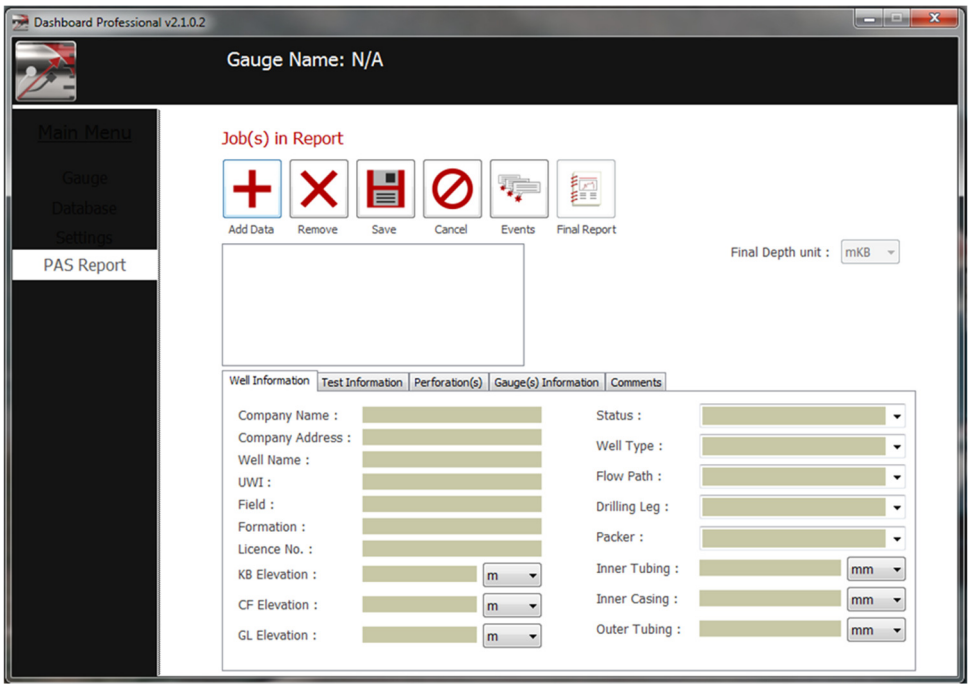
Each of the report types offer options for users to define various format features. Additionally, in Advanced Report, the various types of reports can be configured and mixed and matched to make composite reports to suit specific customer requirements.

New



Used to start a completely new report, or group of reports using a specific combination of job files.

Left clicking on the New button will bring-up the page illustrated below. This page is used to select the job files that will be used in the report, or reports that are to be made.



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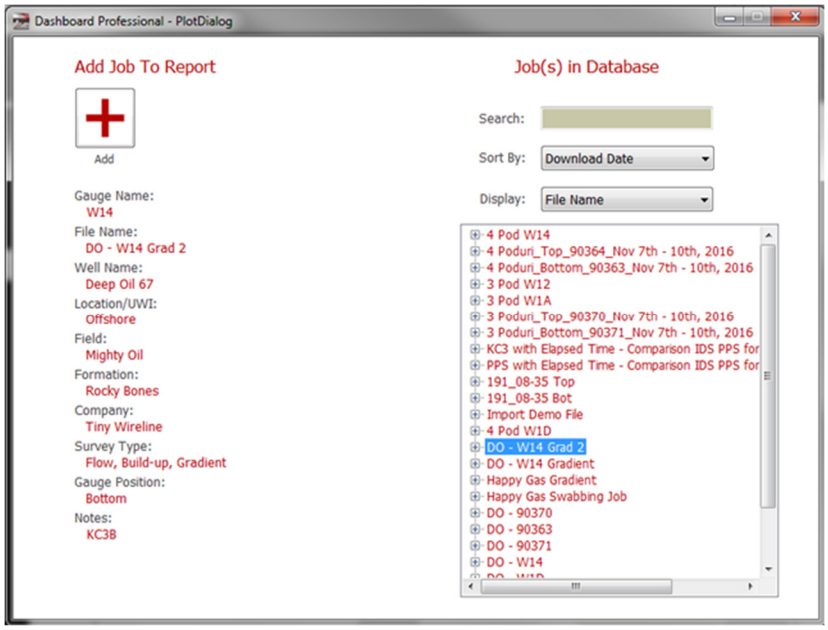
The user *left clicks* on Add Data and the PlotDialog page illustrated below will pop-up:



All the job files in the Database are displayed in the usual manner. *Selecting* the required job file in the menu on the right, and left clicking on the Add button adds the job file to the list of job files to be used in the new report.

Copy



Used to change (edit) the metadata in a selected job file. Toggles on when not in Edit.

Edit



Used to change (edit) the metadata in a selected job file. Toggles on when not in Edit.

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Delete



Used to change (edit) the metadata in a selected job file. Toggles on when not in Edit.

Final Report



Used to change (edit) the metadata in a selected job file. Toggles on when not in Edit.

3.9.3 Plot



Used to display the overlay plot of the selected job files.

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3.10 Creating Reports

3.10.1 Prepare Report Information

- Click on **Advanced Report**;
- Click New;
    - Click Add Data;
        - Select bottom gauge (Gauge 1);
            - Click Add;
    - Click Add Data;
        - Select top gauge (Gauge 2);
            - Click Add

3.10.2 Well Information

- Change Final Depth unit if necessary
- Edit Well Information (any information available);
    - Company name;
    - Company address;
    - Well name;
    - UWI;
    - Field;
    - Formation;
    - License #;
    - KB elevation;
    - CF elevation;
    - GL elevation;
    - Status;
    - Well Type;
    - Flow path;
    - Drilling leg;
    - Packer;
    - Inner tubing;
    - Inner casing;
    - Outer casing

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3.10.3 Test information

- Click on Test Information tab;
    - Edit Test Information (any information available);
        - Test type;
        - Test purpose;
        - H2S;
        - Tubing in well;
        - Tubing depth;
        - Service Company Code;
        - Plug Back Total depth;
        - Initial tubing pressure;
        - Initial casing pressure;
        - Final tubing pressure;
        - Final casing pressure;
        - Surface temperature;

3.10.4 Perforation(s)

- Click on Perforation(s) tab;
    - Click Add;
        - Enter Top Value – measured depth;
            - From deviation survey, enter closest depth above perf top and enter in MD Top;
                - Enter relevant TVD for that measured depth;
            - From deviation survey, enter closest depth below perf top and enter in MD Top;
                - Enter relevant TVD for that measured depth;
                - Click Calculate;
        - Enter Bottom Value – measured depth;
            - From deviation survey, enter closest depth above perf bottom and enter in MD Top;
                - Enter relevant TVD for that measured depth;
            - From deviation survey, enter closest depth below perf bottom and enter in MD Bottom;
                - Enter relevant TVD for that measured depth;
                - Click Calculate;
        - Click Save;
            - Enter formation name;
            - Click OK

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3.10.5 Gauge Information

- Click on Gauge(s) Information tab;
- Defaults to Gauge 1 (typically bottom gauge);
    - Gauge serial number;
    - Gauge position;
    - Gauge type;
        - RTM – Piezo resistive;
        - Gauge manufacturer/Model;
    - Maximum recorder range;
    - Resolution % of full scale;
        - Already entered for RTM gauges;
    - Accuracy % of full scale;
        - Already entered for RTM gauges;
    - Calibration date;
    - Gauge run depth offset
        - 0 for bottom gauge
- Click on Gauge 2 (typically top gauge);
    - Gauge serial number;
    - Gauge position;
    - Gauge type;
        - RTM – Piezo resistive;
        - Gauge manufacturer/Model;
    - Maximum recorder range;
    - Resolution % of full scale;
        - Already entered for RTM gauges;
    - Accuracy % of full scale;
        - Already entered for RTM gauges;
    - Calibration date;
    - Gauge run depth offset
        - -0.3m for top gauge
            - Be sure to enter as negative value

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3.10.6 Comments

- Add Comments if necessary;
    - After gradient calculations have been made, come back and enter comment here prior to publishing;
        - i.e. Fluid level at approximately 1900 metres OR No apparent fluid level
- Add Disclaimer:

All well data supplied by Service Company, City, Phone number. Report prepared for Service Company by Real Time Measurements. Inc.

DISCLAIMER
While every reasonable attempt has been made on our part to ensure correctness of the information presented, all interpretations are based on inferences from electrical and other measurements, and therefore Real Time Measurements Inc., and/or the author of this report, cannot, and do not guarantee the accuracy and correctness of any presentation, interpretation, analysis, opinion, or the like, whether written herein, or verbal, and we shall not, under any circumstances what so ever, be liable for any loss, damages, expenses incurred or sustained by anyone resulting from the use of, or reliance on, any information or interpretation presented by our officers, agents or employees.

3.10.7 Save report

- Save report name so it can be identified;
    - Click OK

3.10.8 Edit Events

- Click on Reports;
- Select saved report;
- Click plot;
- Zoom if required;
- Click on  Add Event;
- Zoom in on plot and select point for event;
- Add one event – i.e. On Bottom;
- Click on Events;
    - Edit;
    - Edit relevant information;
        - i.e. Run Depth;
            - Enter measured depth – make sure correct units are selected;
                - From deviation survey, enter closest depth above run depth and enter in MD Top;
                    - Enter relevant TVD for that measured depth;
                - From deviation survey, enter closest depth below run depth and enter in MD Bottom;
                    - Enter relevant TVD for that measured depth;

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        - Click Calculate;
    - Add check marks to any boxes with information you want shown on annotation;
    - Click Save;
    - Repeat for subsequent events;
        - Don't enter depths unless required for gradient calculations;
        - If event is a gradient stop, select box for Gradient Stop;
    - If desired, just add annotation boxes to all desired events, then click on Events to edit information;
        - Functions
            - **Events in report:** Displays a list of all the events in the report.
            - **On Bottom?:** Allows user to select if the event is an on bottom event. The date for this event is used later in the final report.
            - **Off Bottom?:** Allows user to select if the event is an off bottom event. Also select Gradient Stop if applicable. The date for this event is used later in the final report.
            - **Gradient Stop?:** Allows user to select if the event is gradient. This also tells the software to use this event in the gradient plot.
            - **Well Shut-In?:** Allows user to select if the event is an on bottom event. The date for this event is used later in the final report.
            - **Check boxes other than the ones above:** Allows user to select which data they would like to add to the annotation on the plot for individual events.
            - **Calculate:** Calculates the TVD value based on the MD and values in the TVD Calculator.
            - **Calculate Rate:** Calculates the Build-Up Rate based on the hours entered in Enter Hours.
- Close Event window once complete;
- Click on point on plot, then click on Add Event to add subsequent events;
    - Any gradient stops that have been added in the event table will have to be manually moved on the plot in order for the pressures and temperatures to be saved;
    - Program cannot calculate gradient if pressures and temperatures are not stored;
- Enter all points on plot;
    - Scroll on table to find correct point;
- Move points on plot as required;
- Click on Events and edit each point as required;
- Click Save after each point

3.10.9 Gradient Calculations

- Click on  Grad. Plot;
    - Set minimum value for pressure and temperature that best shows test details

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- Move lines as required for best fit;

- Click on  Print;
  - Click "Yes" when prompted to adjust event box.
    - If there is not enough points from surface to show a gas gradient line, this is where that line can be added (not in gradient plot prior to printing). Move gas line for best fit.
  - Save pdf of gradient data with gradient plot

- Click on  Print;

- Edit Comments;
  - After gradient calculations have been made, go back to Reports page;
    - Click on Edit;
      - Enter comment here prior to publishing;
        - i.e. Fluid level at approximately 1900 metres OR No apparent fluid level

3.10.10 Create Gradient Overlay Plot

- Click on tab for Linear/Overlay Plot;
  - Zoom as necessary to show best detail of gradient
  - Maximize plot
    - Slide bottom of plot down as far as possible on screen
    - Move annotations on plot as necessary;
  - Click  Print;
  - Unselect Title Page and Data Page(s);
  - Click  Create PDF;
  - Save pdf of Gradient plot;
    - This will create a pdf of Gradient overlay plot only

3.10.11 Create Overlay plot

- Click on tab for Linear/Overlay Plot;
  - Zoom as necessary to show best detail
  - Maximize plot
    - Slide bottom of plot down as far as possible on screen
  - Click  Print;
  - Unselect Title Page;
  - Unselect Data;

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- Click  Create PDF;
- Save pdf of Overlay plot;
  - This will create a pdf of overlay plot of whole test

3.10.12 Create Sub-Report

Create PAS files (see section 1.4.3) before creating sub reports so that any errors can be corrected and not have to be re-edited in reports. PAS file doesn't have to be saved, just a good way to check for completeness.

- Click on tab for overlay plot;
  - Click on Diff. Plot;
  - Right click over plot and select **Reset Axes Manually**
    - Set axes as desired for best effect
  - Click  Print;
  - Change name to Pressure Data or Linear Data;
  - Change number of pages of Data as desired;
  - Click  Create PDF;
  - Save pdf of data;
    - This will create a pdf of entire test as well as difference plot of whole test
    - Any annotations added to plot will show before corresponding time in table
  - Click on Linear Plot;
  - Right click over plot and select **Reset Axes Manually**
    - Set axes as desired for best effect
  - Click  Print;
  - Unselect Title Page and Data Page(s);
  - Click  Create PDF;
  - Save pdf of overlay plot;
    - This will create a pdf of the overlay of gauges, showing any annotations that have been selected to show on plot
    - Select "Yes" to question "Would you like to adjust event box(s)?"
    - Move annotations as necessary
  - Click  Print;

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3.10.13 Final Report

- Close plot;
- Click on  Final Report;
    - First three pages will display;
- Click on  Add PDF;
    - Add pdf files of events in order;
        - Pressure data;
        - Gradient data;
        - Overlay plot;
        - Gradient plot;
- Move pages as required;
    - i.e Move Overlay Plot above Difference Plot
        - Click on desired page;
        - Click on  Move Up or  Move Down until in desired order;
    - Save Final Report in preferred folder;
        - This does not save the final report in Dashboard Professional©

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3.10.14 Creating PAS Files (Alberta only)

3.10.14.1 Create SG PAS File

- Make sure all well information, gauge information and test information has been entered;
- Gradient depths must be entered;
    - Make sure data plot is being viewed;
    - Click on Gradient Plot;
        - Click on Gradient Plot;
        - Select PAS-GRD;
        - Default name will be UWI_SG.PAS;
            - Change name if desired

3.10.14.2 Prepare SG PAS File for Validation or Submission

- Create zip file of SG PAS file and gradient plot

3.10.14.3 Create TRG PAS File

- Make sure all well information, gauge information and test information has been entered;
    - Make sure data plot is being viewed;
    - Select PAS-TRG
        - Default name will be UWI_TRG.PAS;
            - Change name if desired

3.10.14.4 Prepare TRG PAS File for Validation

- Create zip file of TRG PAS file and overlay plot

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4 DASHBOARD LITE©

4.1 Overview

Dashboard Lite© software resides in memory on-board every ***KC3***©. To use ***Dashboard Lite***© there is no need to download any files, install anything, find drivers, or any other normal cumbersome installation actions. Although it runs on any PC, ***Dashboard Lite***© is never actually installed on any PC.

Dashboard Lite© is a very unique and convenient way to work with the ***KC3***©. ***Dashboard Lite***© offers the basic ***KC3***© status checking, configuration (programming), data retrieval, plotting and exporting functions, but it is not designed for full pressure survey reporting. ***Dashboard Lite***© operates exactly the same way with all ***KC3***© models.

Communication between a PC and ***KC3***© is provided by way of a ***G-Con*** and a mini-USB cable. In order for a PC to communicate with a ***KC3***, the ***G-Con*** is attached to the connector end of the ***KC3***©, then a USB cable connects the ***G-Con*** to the USB port on the PC.



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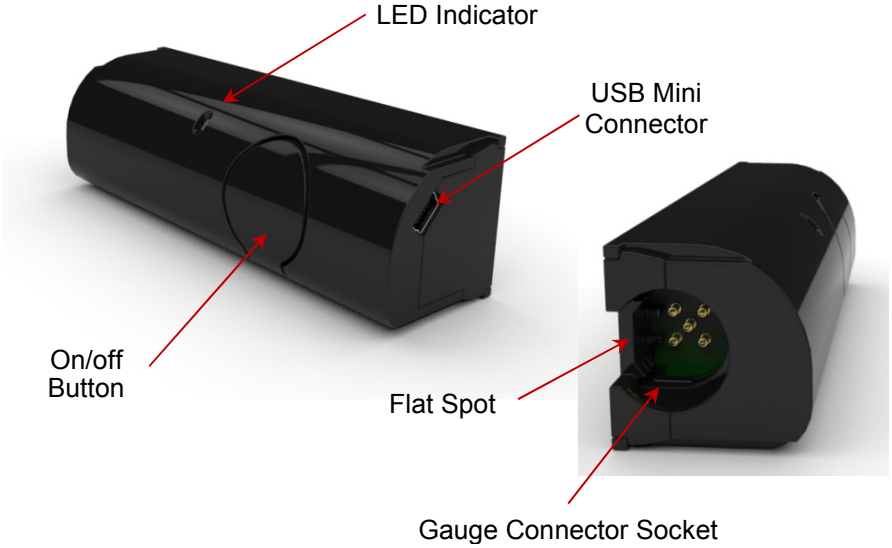
4.2 Program Start-up (Installation)

4.2.1 Equipment Needed

G-CON - USB INTERFACE MODULE

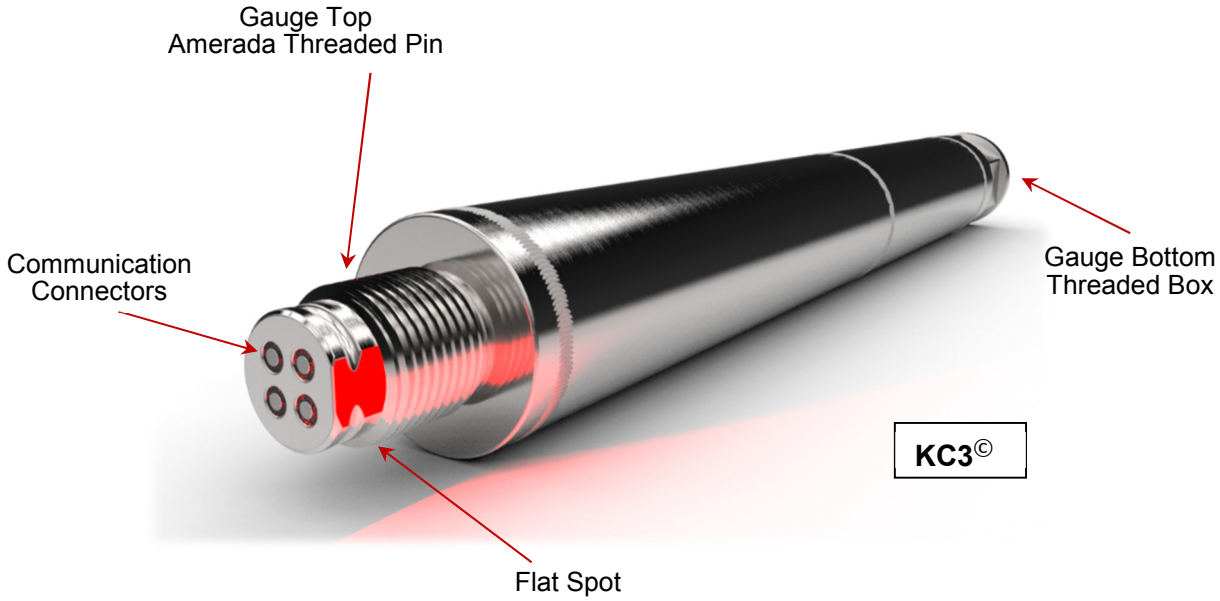


PC WITH MS WINDOWS



MINI USB CABLE





KC3©

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4.2.2 Getting Started

Connect the ***KC3***© to the ***G-Con*** controller. Align the flat spot on the gauge top with the flat spot in the ***G-Con*** connector socket, and *push together firmly*. *Press* the On/Off Button on the ***G-Con***. The LED will glow according to ***KC3***© status (Ref. Section 2.1).

* ***Never twist*** the **KC3** in the G-Con socket – Will ***damage*** G-Con pins. *



Connect the ***G-Con*** to the USB port on the PC, using the USB cable.

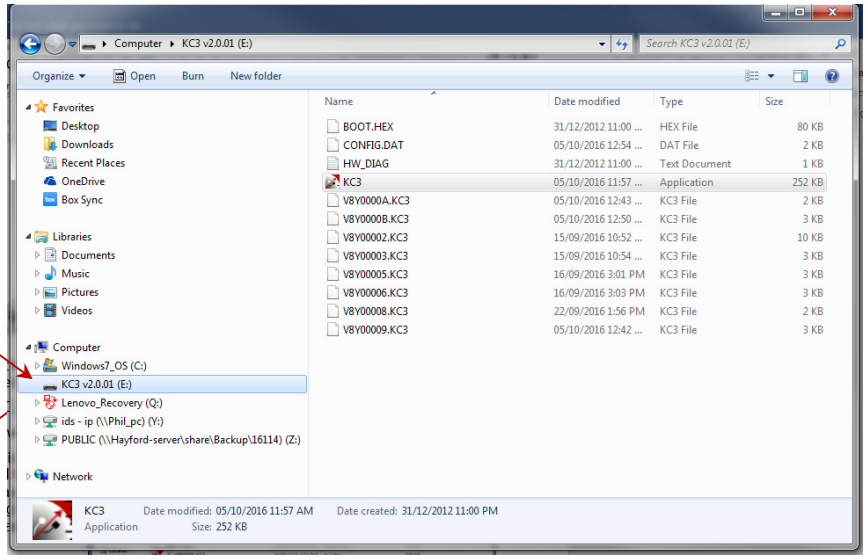
On the PC; Open Windows Explorer.

On the lower left pane in Explorer, scroll to the Computer heading to see KC3…

Double-click on KC3, and Explorer will display something similar to the diagram on the right.

In the right pane in Explorer: Double-click on the KC3 Application (with the Icon).

Dashboard Lite© will pop-up.



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4.3 Software Updates

Dashboard Lite© does not automatically update when connected to a computer that is connected to the internet. Updates are made using ***Dashboard Professional***©.

Each time ***Dashboard Professional***© is opened, the software checks for available updates and automatically, and if required, the updates are installed. During this process, updates for ***KC3***© firmware and ***Dashboard Lite***© are also downloaded. Whenever a ***KC3***© is connected to the PC with ***Dashboard Professional***© running, ***Dashboard Professional***© reads the ***KC3***©'s memory and checks to see if the embedded firmware or ***Dashboard Lite***© software needs to be updated. If updates are required, ***Dashboard Professional***© will notify the user and the user can choose to proceed with the updates, or not.

Updating the firmware on a KC3© results in all Jobs on the KC3© to be erased from KC3© memory. The user must choose "no" to any updates if there are Job files on the KC3© which have not yet been retrieved. Updating Dashboard Lite© on a KC3© will not erase any of the job file data stored in the KC3©'s memory.

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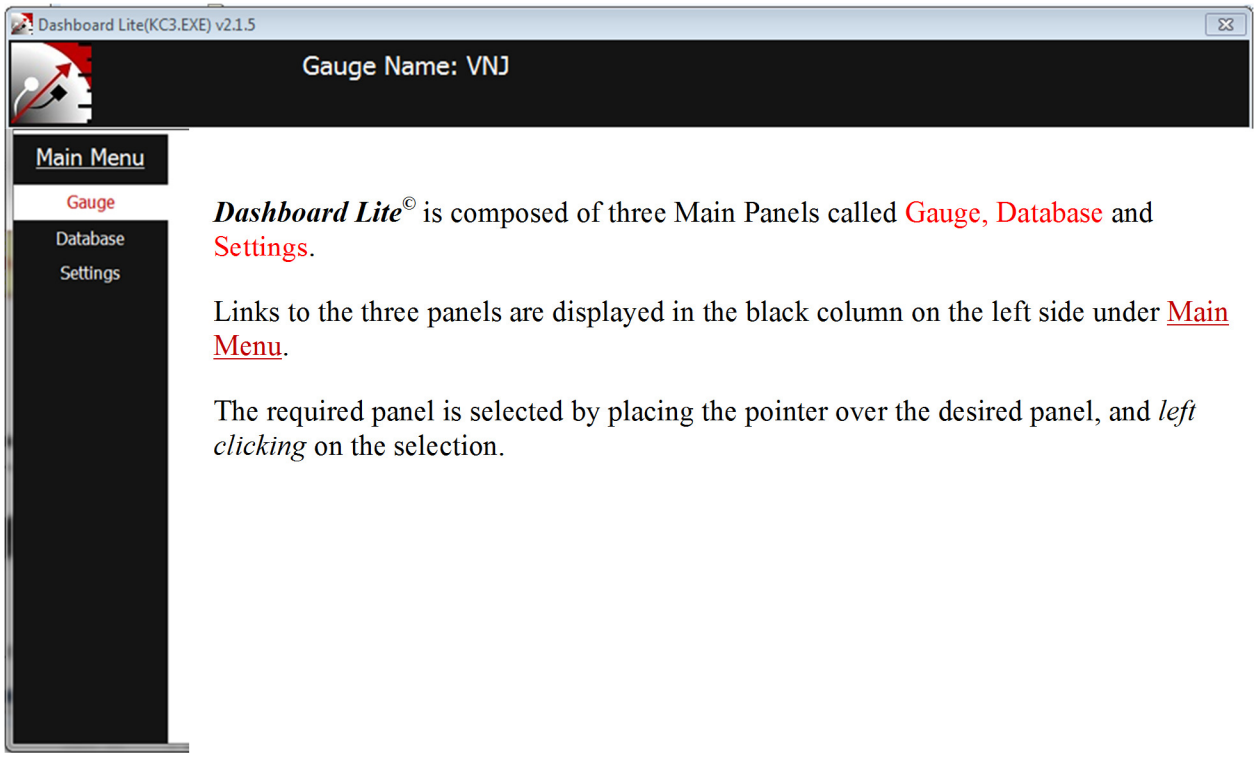
4.4 Main Menu



Dashboard Lite© is composed of three Main Panels called Gauge, Database and Settings.

Links to the three panels are displayed in the black column on the left side under Main Menu.

The required panel is selected by placing the pointer over the desired panel, and *left clicking* on the selection.

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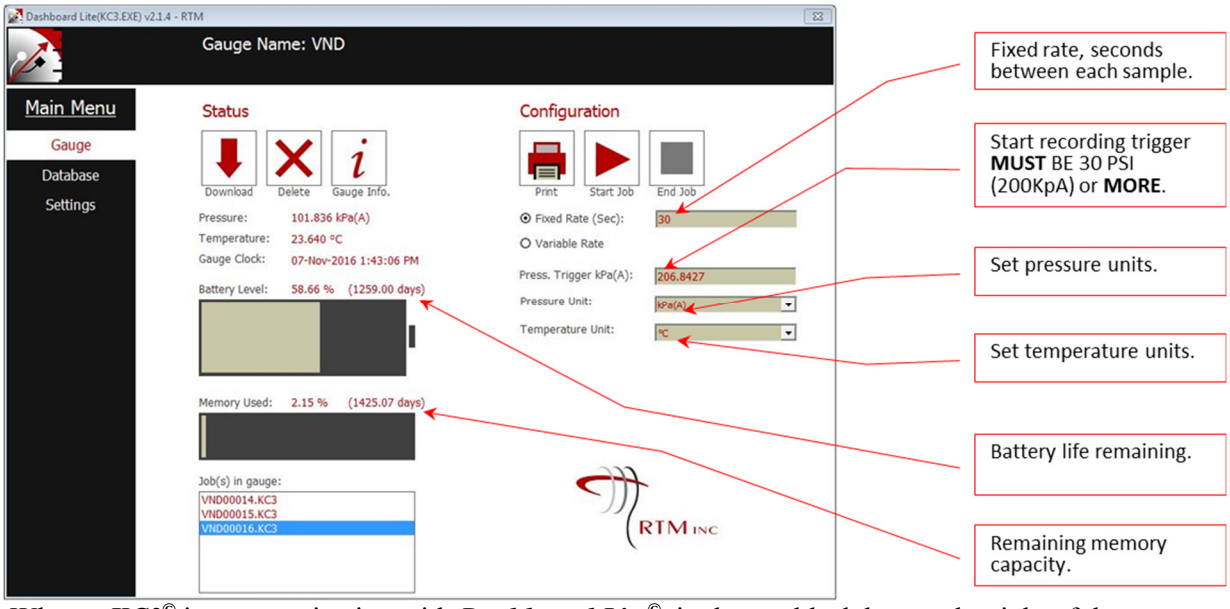
4.5 Gauge

Gauge is where ***Dashboard Lite***© communicates with an attached ***KC3***©, including ***KC3***© status checking, data extraction and ***KC3***© configuration (a.k.a. "programming") functions.

Gauge is presented in the screen shot below, with the primary features described.



When a ***KC3***© is communicating with ***Dashboard Lite***©, in the top black bar, to the right of the ***Dashboard*** logo, the ***KC3***© serial number is displayed. In the example above, the ***KC3***© serial number is VND and the ***Dashboard Lite***© software revision is 2.1.4.

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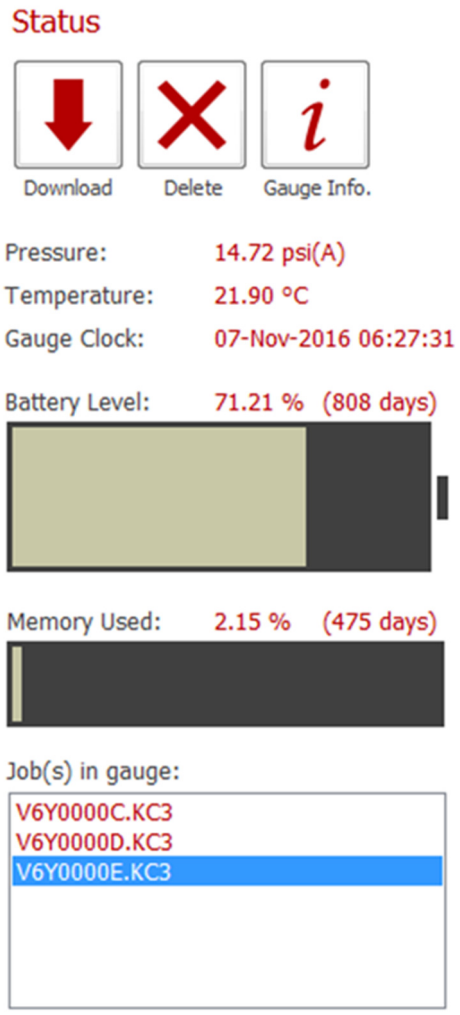
4.5.1 Status

The left half of the Gauge panel is called Status. As presented in the screenshot below, Status offers up a group of useful functions which all involve communicating with a connected ***KC3***©. The various functions of Status are described on the following pages in this Section 4.5.1.



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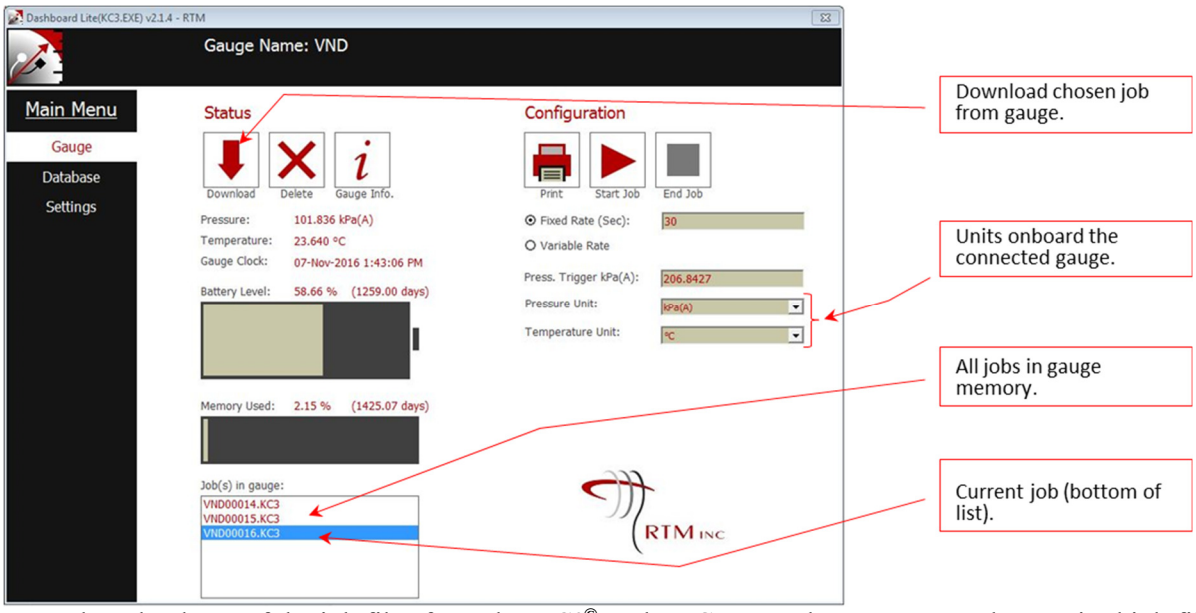
Download



Used to initiate the process of downloading a job from a ***KC3***© to the PC.

With the ***KC3***© connected; In the lower left under Status, there is a table with the name Job(s) in Gauge, all the job files in the ***KC3***©'s memory are displayed.



To download one of the job files from the ***KC3***© to the PC; *move* the cursor over the required job file in the Job(s) in Gauge menu to highlight the job file in ***blue***. *Left click* on Download. ***Dashboard Lite***© will automatically redirect the user to the Database pane, and as illustrated below, the user is invited to enter information about the job.

The user should type-in whatever information is available, and once the information is entered, *press* Save, and the job will be saved on the PC.

NOTE*; The job data is now on the PC hard drive. If this data is required in the form of an individual ASCII file, the job needs to be Exported by* ***Dashboard Lite or Professional***©.

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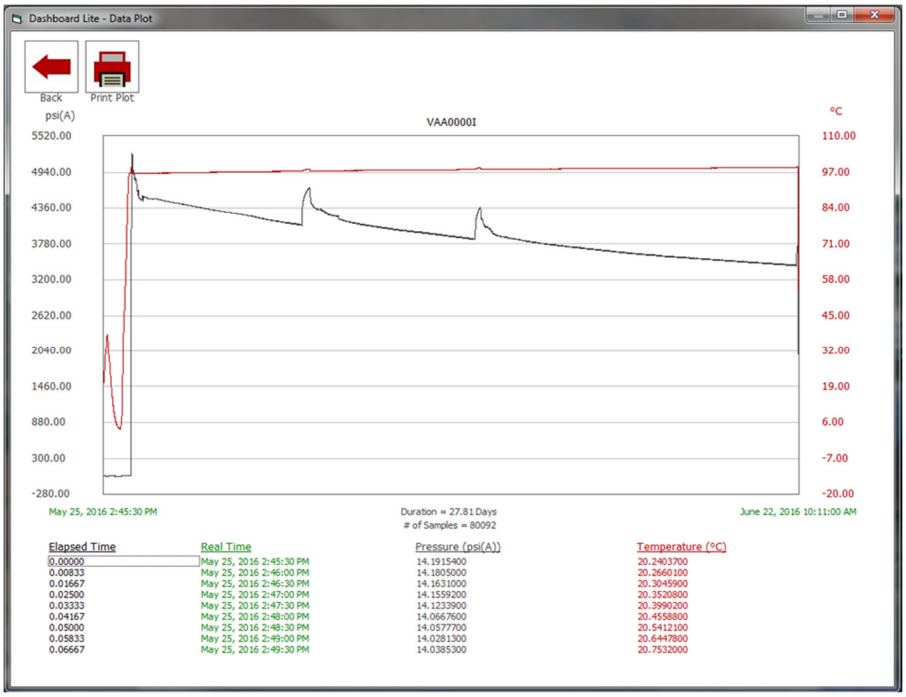
The instant ***Dashboard Lite***© has finished downloading the job file to the PC, a simple time based quick look Linear Plot of the downloaded job data will pop-up, similar to the example below.



The user can now look at the job file data to make sure it looks like it should. *Choose* to print the plot by *left clicking* on the Print Plot button, or *left click* on the Back button to go back to Database.

The engineering units used in the plot are taken from Settings. If the units are unsuitable; The user should go to Settings and reset the units as required. **NOTE** – The units in Settings will continue to be used by ***Dashboard Lite***© with every data file, unless they are reset by the user.

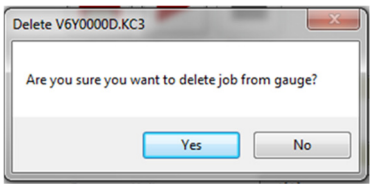
Units chosen in SETTINGS ONLY apply to Dashboard Lite©

Units chosen in GAUGE ONLY apply to data recorded by the connected KC3©

Delete



Removes jobs from ***KC3***© memory. In the Job(s) in gauge: menu, the user chooses the job file to be removed from the ***KC3***©'s memory by choosing the job file as indicated by the blue highlighting. *Press* Delete and ***Dashboard Lite***© will pop-up the message on the right to confirm deletion of the job file. *Press* Yes and the file is deleted. *Press* No, and nothing happens.



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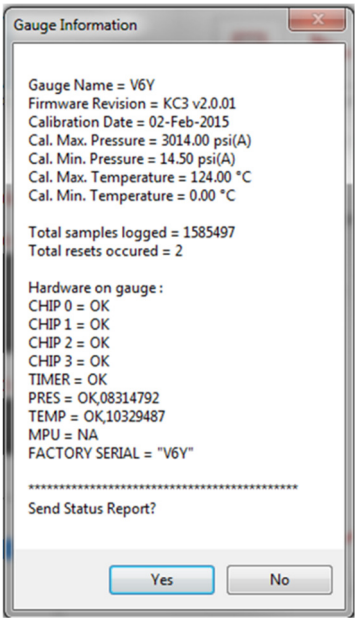
Gauge Info



Diagnostic interrogation of a ***KC3***©.
With ***Dashboard Lite***© open and a ***KC3***© connected; *Press* Gauge Info and the ***KC3***© is interrogated. A moment later a Gauge Information pop-up like the screen shot on the right will appear.



Most of the information in this Pop-Up should be self-explanatory. However, the user is advised to look at each line and make sure the information presented is consistent with expectations.

One important indicator of the connected ***KC3***©'s health is the number beside Total resets occurred. A Reset value of ***0 (zero)*** is best. However, when Total resets occurred returns an ***integer***, a problem is not necessarily indicated. A reset is almost always caused by an interruption in the power supplied by the on-board battery.

A total resets occurred value above 0 (zero) is an indication there could be a problem with the KC3©. While a reset is not necessarily a reason to not use the KC3©; If resets is not 0 (zero), the user is strongly advised to investigate possible causes, and contact the factory, before using the KC3©.

For the ***CHIP*** and ***TIMER*** conditions, an ***OK*** is the only acceptable result, with the notation ***NA*** meaning "Not Acceptable". The ***PRES*** and ***TEMP*** information contains raw transducer counts, plus an ***OK*** if everything is good. The term MPU (Motion Processing Unit) refers to an additional experimental electronic component which is rarely installed on a ***KC3***©. Unless the connected ***KC3***© has the experimental MPU installed, which the user would (should) know, it is normal for the MPU to show the ***NA*** status.

At the bottom of Gauge Information the user is asked ***Send Status Report?***, The user can *choose* Yes or No. If the user *clicks* on Yes, and the PC is connected to the internet, ***Dashboard Lite***© will pop-up the image on the right and send the data displayed in Gauge Information to the factory database. This information contains NO confidential job information or anything like that, but the ***KC3***© performance data is very useful for helping designers of the ***KC3***© to continuously make improvements. If the user *chooses* No, no information is sent, and nothing happens.



Current *KC3*© Readings

Pressure:	14.72 psi(A)
Temperature:	21.90 °C
Gauge Clock:	07-Nov-2016 06:27:31

The pressure, temperature and real time clock readings from the ***KC3***© when it was connected to the USB. If the user wants to refresh these readings; *Disconnect* the USB cable, and then *reconnect* the USB. ***Dashboard Lite***© will restart and the latest readings will be displayed.

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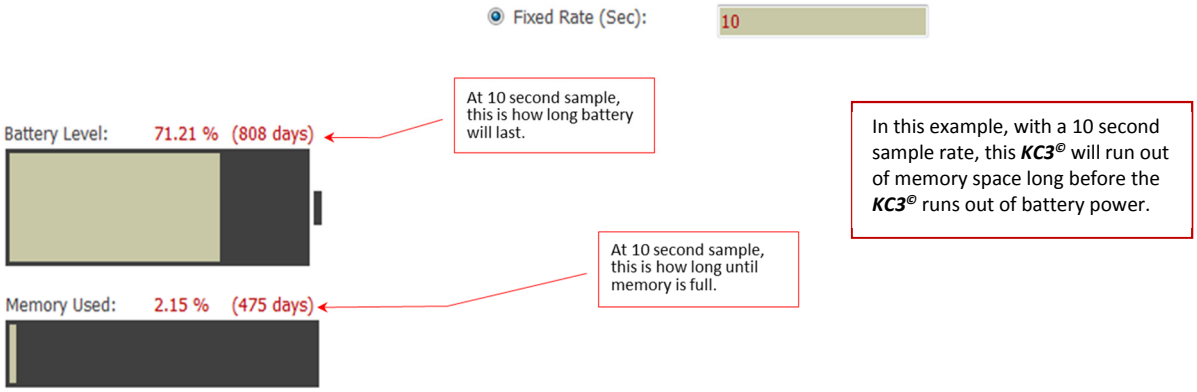
Battery Level

Remaining battery capacity on-board the connected ***KC3***© is displayed graphically, as a % of full and number of days to battery expiration. The calculations are based on recorded battery usage, and the fixed or variable sample rate chosen by the user, as displayed under Configuration on the right side of the Gauge panel.

In the example below, the ***KC3***© has ***71.2%*** of its battery power remaining. The user has chosen a fixed sample rate of 10 seconds per sample. This means the battery will power the ***KC3***© for at least 808 days while recording a sample every 10 seconds. Also note that the memory will be filled before the battery dies off. Users need to manage these parameters to optimize usage and performance

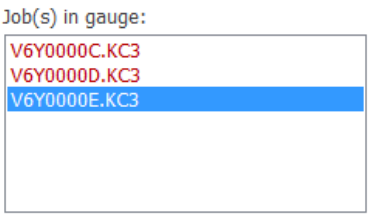


Memory Used

KC3© memory usage is displayed as a % of full and number of days to full. The calculations are based on the connected ***KC3***©'s memory capacity, the number of job files in the ***KC3***©'s memory, and the fixed or variable sample rate chosen by the user, as displayed under Configuration on the right side of the Gauge panel.

In the example above, the ***KC3***© is using ***2.15%*** of its memory to store the job files it has recorded and still has in memory. The user has chosen a fixed sample rate of 10 seconds per sample. This means the connected ***KC3***© has enough memory capacity to store a sample every 10 seconds for the next 475 days. Also note, in the example above, the ***KC3***© memory will be full before the battery dies off. Users need to manage these parameters to optimize usage and performance.

Job(s) in Gauge



A simple menu displaying the *.kc3 files the connected ***KC3***© has in memory. Each time a ***KC3***© starts logging/recording, the ***KC3***© creates a new *.kc3 file with a unique name. The *.kc3 files in the ***KC3***©'s memory are sorted with the oldest file at the top of the list. The *.kc3 file being accessed by ***Dashboard Lite***© is highlighted in blue.

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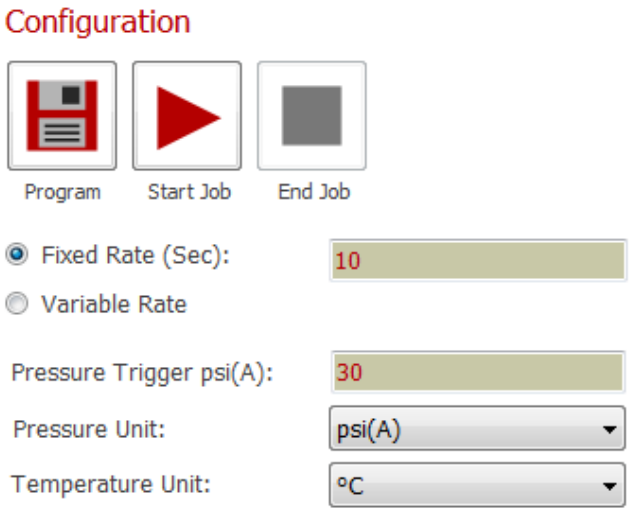
4.5.2 Configuration

The right half of the Gauge panel is called Configuration. All ***Dashboard*** software packages and ***KC3***© gauges use the word Configuration to describe a group of instructions that are written to a ***KC3***©'s memory. The Configuration instructions are used by the ***KC3***© to record data in accordance with the manner required by the user. In the screen-shot below, Configuration can be offering selectable recording parameters such as start/stop, sample rate, start trigger settings, and engineering units. The various elements of Configuration are described in detail in this Section 4.5.2.



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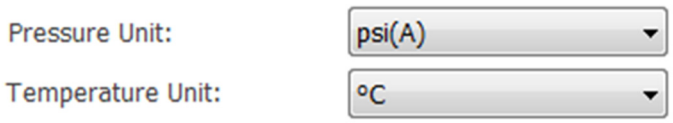
Units



Tells ***KC3***© what pressure and temperature units to use when recording data in the *.kc3 file that will be started when the starts logging/recording. It is important for the user to know these Configuration unit settings only apply to the *.kc3 file that will be created by the attached ***KC3***©. If ***Dashboard Lite***© is used to export any job files or data, these units do not apply, instead the units in Settings (Section 4.7) will apply.

Units chosen in SETTINGS ONLY apply to Dashboard Lite©

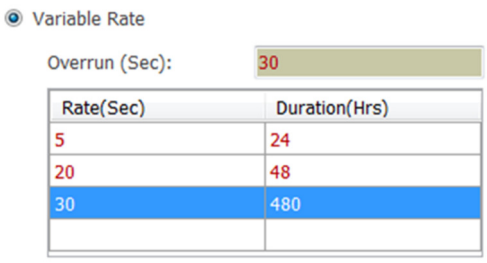
Units chosen in GAUGE ONLY apply to data recorded by the connected KC3©

Fixed Rate (Sec)



Tells the connected ***KC3***© to record at a single rate until logging/recording is terminated. The fixed rate option is activated by *left clicking* the round Fixed Rate button, as illustrated above. *Left click* in the text field to the right of the button and enter the desired time between each sample (also called "sample rate" or "sample interval") in seconds. Rate values must be whole numbers, ranging from the fastest rate of one second per sample to the slowest rate of 64,800 seconds (18 hours) per sample. In the example above, the ***KC3***© will be programmed to record one sample every 10 seconds for the complete job.

Variable Rate



Tells the connected ***KC3***© to record at different rates for different intervals until logging/recording is terminated. The variable rate option is selected by *left clicking* the round Variable Rate button, as illustrated on the left. Variable rate values are entered using the table. The table allows for up to 10 rows, with each row describing a rate and corresponding duration. A new blank row automatically pops-up each time a rate and duration is entered. Blank rows are ignored when the configuration is written to the gauge. Each row contains a sample rate in seconds, and a corresponding duration in hours for which the ***KC3***©. Rate and duration values need to be in whole numbers, ranging from one to 64,800.

Left click on a cell in the Rate(Sec) column and enter the required sample rate, in seconds. Then *left click* in the corresponding box in the Duration (Hrs) column and enter a duration value, in hours. Previously entered rates or durations are edited by *left clicking* on the cell and entering a new value. Rows are removed or inserted by *right clicking* on the selected row and choosing the appropriate function from the resulting context menu.

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When logging/recording is initiated, each row of the variable rate configuration table will be executed by the ***KC3***© in the order specified in the Configuration table. When all the intervals in the table have expired, the ***KC3***© will continue logging/recording until stopped at the rate shown in the Overrun (s) field.

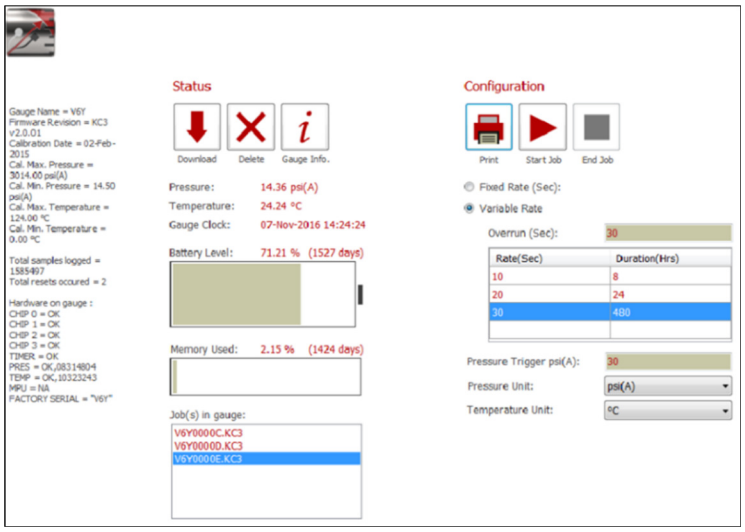
In the example above, the ***KC3***© will begin recording a sample every 5 seconds for the first 24 hours. Then it will start recording at a 20 second sample for the next 48 hours, then it will switch to sampling every 30 seconds for the next 480 hours (20 days). At the endo f the 480 hours (20 days) the ***KC3***© will continue recording at the specified Overrun rate of one sample every 30 seconds until logging/recording is terminated.

*No matter if configured (programmed) with a fixed rate or a variable rate, when the **KC3**© starts logging/recording, and a new *.kc3 job file is opened, the **KC3**© will wait for an even time boundary, and then begin sampling. For example: A **KC3**© is configured with a rate of one sample every five seconds (or, "programmed for five seconds"). When the **KC3**© is told to start logging, the **KC3**© looks at its real time clock, and waits until an even multiple of five seconds occurs, such as 0 seconds, 5 seconds or 10 seconds past the minute. When the even 5 second time is reached, the **KC3**© records the first sample, and then continues logging in even five second multiples.*

Print



Used to print a one-page report detailing the Gauge Info, Status and Configuration settings that correspond to the connected ***KC3***©. An example of the one-page report is presented below. The report can be printed to a file or directly to a printer. This report is generally used to verify the settings on the ***KC3***© are consistent with the requirements of a pending operation.



The Print and Program buttons both occupy the same location in Settings. However only one or the other displayed at a time. ***Dashboard Lite***© toggles between the Print or Program buttons depending on what the user is doing. The default condition is for Print to be displayed.

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Program



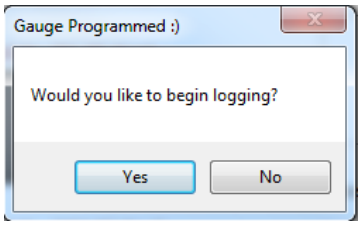
Used to write the displayed Configuration settings to the connected ***KC3***©.

The Program button only appears when i) a ***KC3***© is connected to the PC, ii) the connected ***KC3***© is not logging/recording, and, iii) the configuration settings on the connected ***KC3***© are different to the settings displayed by in Settings.

If the user has made new Configuration settings and wants to use them for the next job, the user just needs to *press* the Program button. ***Dashboard Lite***© will write the new settings to the memory of the connected ***KC3***©. As soon as Program is finished writing the new configuration settings to the connected ***KC3***©, the pop-up illustrated below will appear.

This pop-up serves two important purposes;

v) ***Gauge Programmed:)*** confirms the configuration settings were successfully written to the memory in the connected ***KC3***©, and
vi) Asks the user to decide if the ***KC3***© should start logging/recording now or later. Selecting Yes tells the ***KC3***© to open a new *.kc3 job file and begin logging/recording data as soon as the ***KC3***© is disconnected from the USB. Selecting No means, the ***KC3***© will not be told to start logging/recording upon USB disconnect.



Start Job



Used to tell the connected ***KC3***© to start logging/recording to a new *.kc3 file as soon as the ***KC3***© is disconnected from the USB. Start Job is only available when the connected ***KC3***© is not already logging/recording to another job. When a ***KC3***© is logging/recording, no changes can be made to the ***KC3***© configuration, and the only command the ***KC3***© will accept is to stop logging/recording.

End Job



Used to tell the connected ***KC3***© to stop logging/recording and terminate the current *.kc3 file.

If a ***KC3***© is connected to the PC, and the ***KC3***© is logging/recording when it was connected to the USB, *left clicking* End Job sends a command to the connected ***KC3***© telling it to stop logging/recording, and terminate the active *.kc3 file. Once a *.kc3 file is terminated, no more data can be written to the file.

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Pressure Trigger



Used to tell the connected ***KC3***© to start logging/recording when the set pressure is exceeded.

When a ***KC3***© is configured/programmed, but not set to logging/recording; Every 10 minutes, the ***KC3***© wakes-up and measures the pressure. If the ***KC3***© reads a pressure higher than the pressure trigger set value two times in a row, the ***KC3***© automatically opens a new *.kc3 file and starts logging/recording data in accordance with the configuration settings in ***KC3***© memory.

Pressure trigger values range from the minimum setting of 30 psi to the maximum rated pressure of the ***KC3***©. When the ***KC3***© starts logging/recording, the first measurement will be taken at the next even 10-minute interval. For example: If a ***KC3***© starts logging/recording due to pressure trigger activation at 12:07:35 the first reading will be recorded at 12:10:00, regardless of the sample rate program. This feature provides for synchronised recording and start times for ***KC3***© multiples.

Smart Drop

In the bottom right corner of the Gauge panel there is a company logo. This logo is actually a file drop off location called Smart Drop. The Smart Drop feature is designed to make it easy for users to *drag and drop* the files specified below into ***Dashboard Lite***©. Once a file has been dropped into Smart Drop, ***Dashboard Lite***© will automatically process the file in accordance with the file type, as follows:

****.kc3*** : A job data file produced by a ***KC3***©. If a *.kc3 file is dragged and dropped into Smart Drop, ***Dashboard Lite***© will automatically add the *.kc3 file to ***Dashboard Lite***©'s file directory c:\KC3 Data.

****.hp-data***: This is the type of file which was produced by a ***KC2***©. The ***KC2***© is the predecessor to the ***KC3***©. Once an *.hp-data it has been dropped in Smart Drop, ***Dashboard Lite***© will handle the ***KC2***© data in the same way it handles the data in a *.kc3 file. Some of the information available in a newer ***KC3***© job file is not available in an older ***KC2***© data file.

****.dat*** : A special or experimental data file produced by a ***KC3***©. On occasion, and upon special request - a ***KC3***© might be manufactured to record something other than, or in addition to pressure and temperature. *.dat files contain coefficients and other special information that ***Dashboard Lite***© needs to process incoming special request data files. Once in Smart Drop, ***Dashboard Lite***© will automatically make correct use of the *.dat files.

****.exe*** : If an internet connection is not available, ***Dashboard Lite***© updates can be forwarded by email or some other means. When they are, the updates can be dropped into Smart Drop. Once in Smart Drop, the software will be automatically updated.

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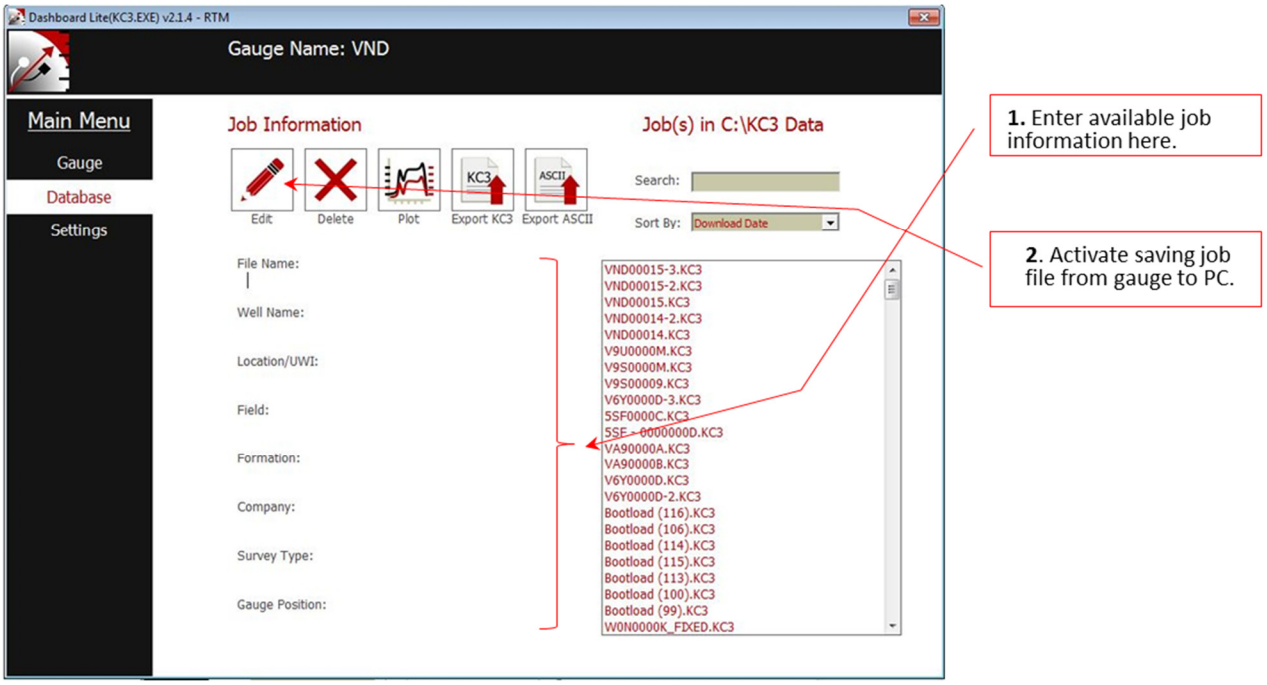
4.6 Database

Database is where users go to access job files that are in the ***Dashboard Lite***© c:/KC3 Data directory. Within the context of ***Dashboard Lite***©, the word "Database" is misleading because ***Dashboard Lite***© does not use an actual database. All the job files accessed directly by ***Dashboard Lite***© are in a normal MS Windows folder (directory) called c:/KC3 Data. The word "Database" is used to create continuity of terminology between all dashboard packages. The job files in c:/KC3 Data are not available to ***Dashboard Lite***©, and vice-versa.

Illustrated below; the start page of Database is broken into two parts:



On the right is Job(s) in C:/KC3 Data where there's a list of job files to select from, plus some display and sorting functions. It should be noted that any *.kc3 files in the ***Dashboard Professional***© Database are not accessible in this table. With reference to Smart Drop in Section 4.5.2, it is a simple operation to get *.kc3 files from the ***Dashboard Lite***© folder into the ***Dashboard Professional***© Database.

On the left side is Job Information where there's a group of function buttons to facilitate data presentation and analysis, and some fields that apply to the chosen job file chosen in the table on the right.

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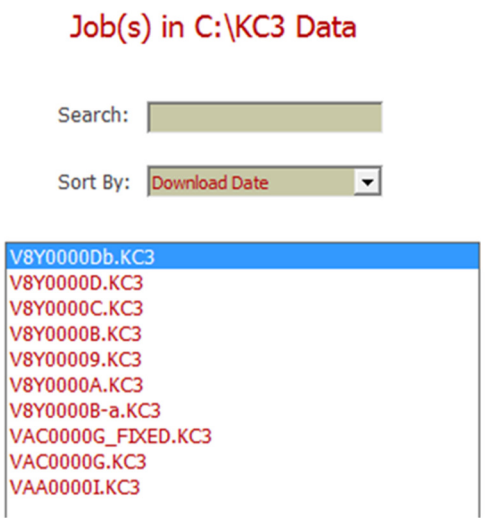
4.6.1 Job(s) in Database



On the right side of Database is Job(s) in C:\KC3 Data. This is the area where the user chooses the job file of interest from the ***Dashboard Lite***© folder. As illustrated on the left, job files are listed in a table. If the job file of interest is not easy to find on the list in the table, the user should use the Search or Sort By or Display search enhancement functions.

Once the job of interest is found in the table of job files, *hover* the pointer over the job file of interest to cause the job file name to turn blue and be underlined. *Left click* on the file. This will cause some information (metadata) about the job file to be displayed on the left side under Job Information.

The metadata displayed under Job Information can be edited to suit user requirements.

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4.6.2 Job Information

On the left side of Database is Job Information. This is the area where the user can conduct basic functions with job files. Such functions include editing metadata, removing job files from the database, very basic simple plotting, and data exporting. Only one job file of interest from the ***Dashboard Lite***© list of files can be plotted at a time.



Gauge Name:
VAA
File Name:
Happy Gas Swabbing Job
Well Name:
Happy Gas 101
Location/UWI:
Lloydminster South
Field:
Cold Lake
Formation:
Viking
Company:
Happy Oil and Gas Ltd.
Survey Type:
Extended
Gauge Position:
Bottom
Notes:
Swabbing Operation Monitoring

More advanced data manipulation functions are available in ***Dashboard Professional***©, which is described in detail in Section 3.

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Edit



Used to change (edit) the metadata in a selected job file. Toggles on when not in Edit.

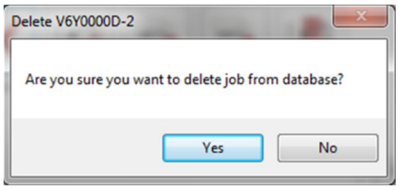
Once a data file is chosen from the C:\KC3 Data list (4.6.1), the user *left clicks* on Edit, and, as illustrated on the right, the job description fields get highlighted to indicate that the user can now enter any text information metadata that is meaningful. The metadata entered in these fields will become part of the job file, and will follow the job file if it is sent somewhere else, such as exported or moved into ***Dashboard Professional***© for report preparation.



Delete



Used to delete a job file selected in the ***Dashboard Lite***© data folder.



The user chooses the unwanted data file from the Job(s) in C:\KC3 Data list (4.6.1). Then the user *left clicks* on Delete, and the warning dialog on the right will appear. If the user is sure the chosen job file is no longer wanted, Yes is selected.

Save



Used to save the job information metadata entered in the Job Information fields. Toggles on only after Edit has been selected.

Once satisfied with the information entered in the Job Information fields, the user *left clicks* Save, and the information becomes part of the job data file's metadata. The metadata in the Job Information fields for any job can be changed any time by repeating the process.

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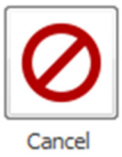
Cancel



Used to escape from the Job Information editing process, and record no change(s). Toggles on only when Edit is active.

In the event the user *made edits* to the Job Information, but before *saving* the new metadata, the user decides the original metadata was acceptable, the user *left clicks* Cancel. Now the original metadata is resaved and the editing process is terminated.

Plot



Used to produce a plot of a job data selected from the Job(s) in C:\KC3 Data list (4.6.1).

A job file is chosen in the Job(s) in C:\KC3 Data list (4.6.1), and Plot is *pressed*, a new window opens with the job file plotted. Very limited functions are offered in the ***Dashboard Lite***© Plot page. This is just a quick look Plot function. Details of Plot functions are described in Data Plot, Section 4.6.3. For extensive data plotting, ***Dashboard Professional***©, Section 3, is used.

Export KC3



Used to export a *.kc3 file.

A job file is chosen in the Job(s) in C:\KC3 Data list (4.6.1), and Export KC3 is *pressed*. A window pops-up prompting the user to give the file to be exported a name and save location. Once the name and location are entered, the user presses Save, and the file is written accordingly. Export KC3 removes no data from the ***Dashboard Lite***© folder.

Export ASCII



Used to convert a job file from the ***Dashboard Lite***© folder into ASCII format, and write the file somewhere.

A job file is chosen in the Job(s) in C:\KC3 Data list (4.6.1), and Export ASCII is *pressed*, a window pops-up asking the user for a file name and save location. Once name and location are entered, the user *presses* Save, and the ASCII file is written as instructed. The exported ASCII file will be formatted in accordance with the parameters chosen in Settings, Sections 4.7.1 and 4.7.2.

When choosing the Date Format in Settings: If the job file might be Exported as an ASCII .CSV file; DO NOT choose a Date Format that contains a Comma. Refer to Sections 4.7.1 and 4.7.2.

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4.6.3 Data Plot

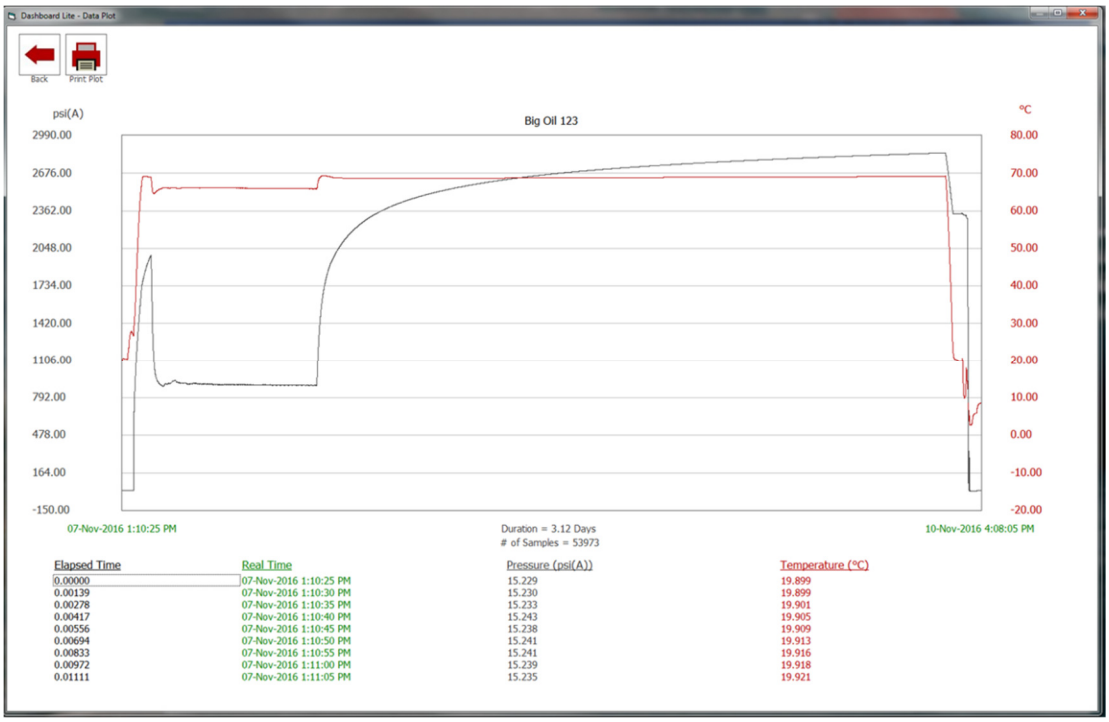
In a separate pop-up window called Data Plot, ***Dashboard Lite***© offers a simple tool to look at a single data file for data checking and printing functions.

Full featured data plotting and reporting features are available in ***Dashboard professional***©, Section 3.



The button on the left, which is found under the Job Information heading on the ***Dashboard Lite***© Database page, is used to pop-up the Data Plot window. Data Plot contains some tools that are used to look at the data from the job file selected from the Job(s) in C:\KC3 Data list (4.6.1).

A job file is chosen in the Job(s) in C:\KC3 Data list (4.6.1), and Plot is *pressed*. Data Plot pops-up presenting both pressure and temperature curves, with the pressure scale on the left Y axis, temperature on the right Y axis, and time on the X axis. Below the plot is a table displaying the plotted job file data. The engineering units used in all Data Plot presentations are the units specified in Settings, as described in Section 4.7. The screen-shot below is an example of a plot that was presented as soon as the Data Plot window popped-up.



The Data Plot window with the plot and tables is a separate window from the ***Dashboard Lite***© Main Menu window. The separate window permits users to maximize, minimize, and make use of all the standard MS Window sizing features. The limited ***Dashboard Lite***© tools available for working with the plot are explained on the following pages in the rest of this Section 4.6.3.

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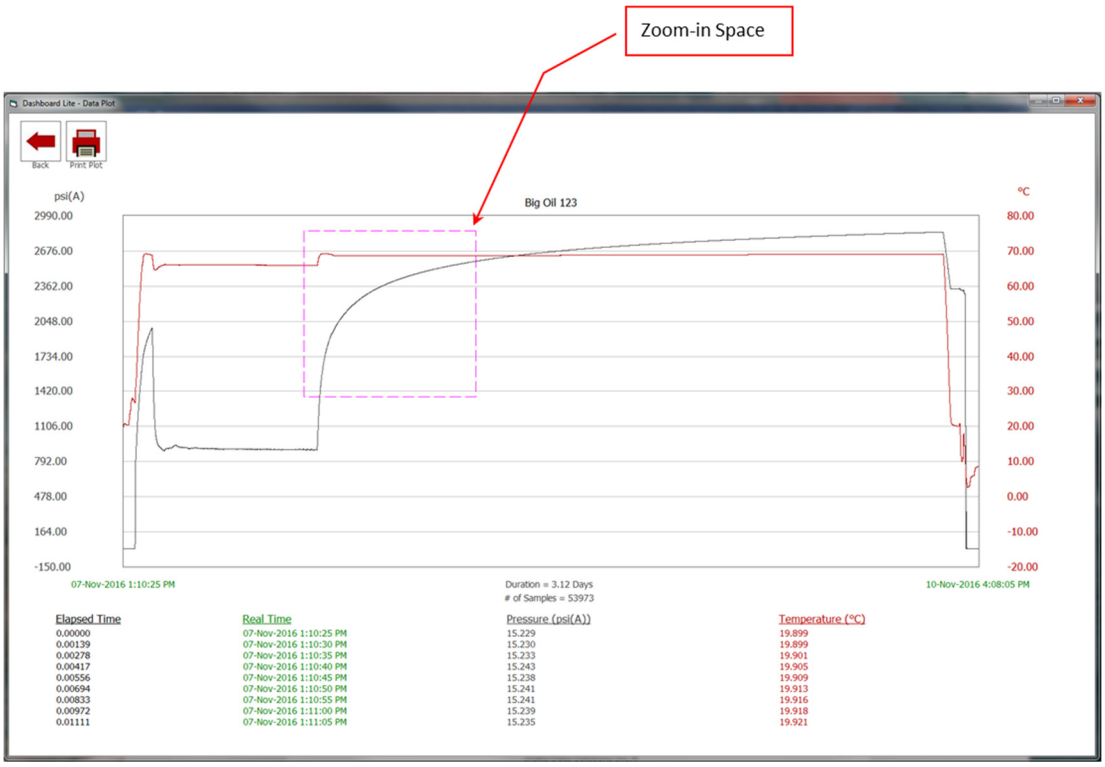
Plot Zooming

Used to expand the scale on a section of the plot where the user would like to see the data in more detail. As illustrated below, Zooming is done by *pressing and holding the left* mouse button, and then *dragging* the pointer across the plot to draw a rectangle around the area of interest.



In the example above, the purple dotted lines define the zoom area. When the user *releases* the right mouse button after highlighting the zoom area, the plot above instantly zooms-in on the rectangle area. The new zoomed plot will automatically scale itself. The zooming process can be repeated on the zoomed plot several times.

To un-zoom, the user *right clicks* anywhere on the plot. Each *right click* will un-zoom one step back. To get all the way back to the original plot, just keep *right clicking* until there is no more un-zooming to do.

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Text Table

The table at the bottom of Plot Data window, illustrated below, displays the plotted data in text format. The four columns display elapsed time, real (local) time, pressure and temperature in the units chosen in Settings, Section 4.7. The colour of the text in each column is the same as the colour of the corresponding curve on the plot.

Elapsed Time	Real Time	Pressure (psi(A))	Temperature (°C)
0.00000	07-Nov-2016 1:10:25 PM	15.229	19.899
0.00139	07-Nov-2016 1:10:30 PM	15.230	19.899
0.00278	07-Nov-2016 1:10:35 PM	15.233	19.901
0.00417	07-Nov-2016 1:10:40 PM	15.243	19.905
0.00556	07-Nov-2016 1:10:45 PM	15.238	19.909
0.00694	07-Nov-2016 1:10:50 PM	15.241	19.913
0.00833	07-Nov-2016 1:10:55 PM	15.241	19.916
0.00972	07-Nov-2016 1:11:00 PM	15.239	19.918
0.01111	07-Nov-2016 1:11:05 PM	15.235	19.921

A *left click* anywhere on the plot will bring up a vertical dotted cursor. The exact position of this cursor will correspond to the blue highlighted row of text data in the table

Back



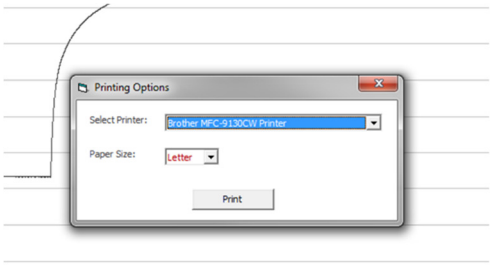
Used to close Data Plot window and go back to ***Dashboard Lite***© Database.

Print



Used to produce a printed form of the plot in Data Plot.

When the user *left clicks* on the Print, button in Data Plot, the PlotDialog dialog illustrated on the right will pop-up. The user makes the appropriate selections and *left clicks* Print.



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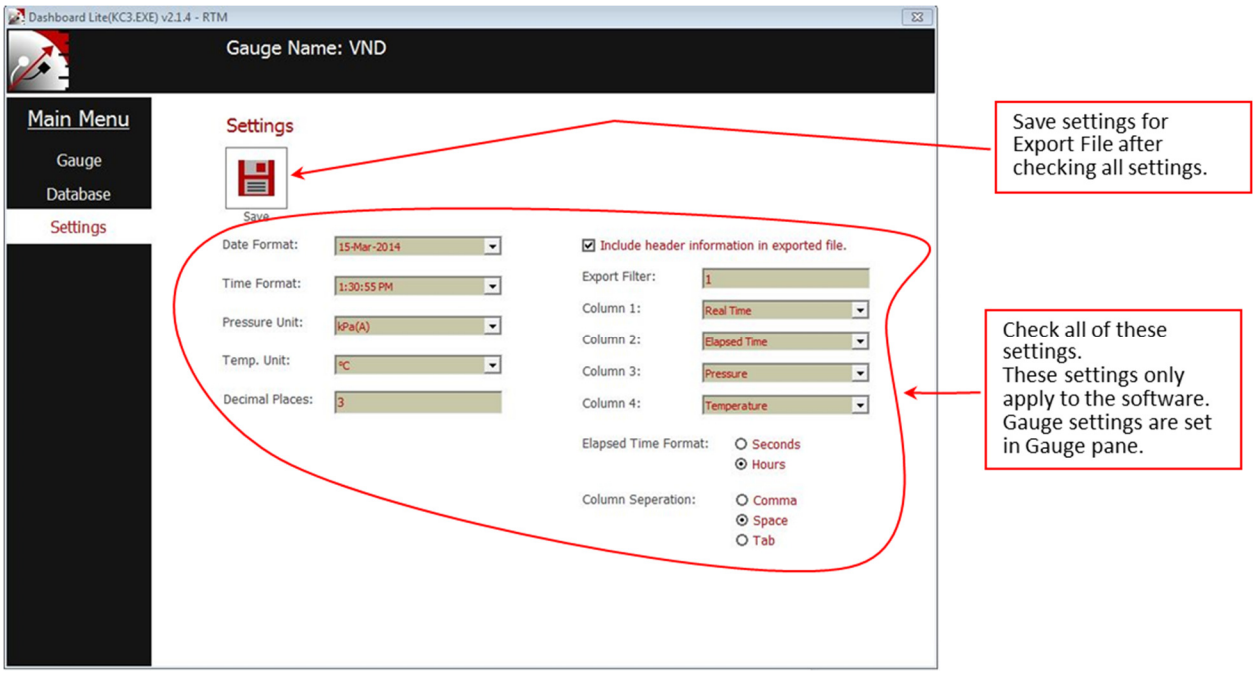
4.7 Settings

The primary use for the Settings panel in ***Dashboard Lite***© is to define the parameters the user wants to work in, have displayed and output in plots. Such parameters include engineering units and file output format.



The following are some important features to be understood about Settings:

a) Selected parameters are saved and used by ***Dashboard Lite***© every time the program is opened, until changed by the user.

b) Regardless of the Configuration (Section 4.5.2) of the ***KC3***© that was used to record the job file, when ***Dashboard Lite***© works with the data, the selected parameters in Settings will prevail in every aspect of the job file.

c) If a job file has been imported and worked on in ***Dashboard Lite***©, if any changes are made to the parameters selected in Settings, the parameters previously used are invalidated, and the new selected parameters will prevail inside ***Dashboard Lite***©.

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4.7.1 Units

The following units/formats can be selected by the user in Settings:

- ✓ Date Format
- ✓ Time Format
- ✓ Pressure Unit
- ✓ Temperature Unit
- ✓ Decimal Places

The choice of a particular unit/format is made using a pull-down menu. Using Pressure as an example;

Place the pointer over the little up-pointing arrow on the right side of the Pressure field. *Left click* on the little arrow. A column of choices will open. *Scroll* the pointer down the list and *left click* on the required Pressure unit.

Once all the units have been selected, be sure to *left click* Save to instruct ***Dashboard Lite***© to use the new parameters.

A note of caution is required when choosing a Date Format: If it a job file might be Exported as an ASCII - .CSV file; DO NOT choose a Date Format that contains a Comma.
*WHY? If a job file is Exported as a *.CSV file (CSV = Comma Separated Variables); When the Exported *.CSV file is opened in another program, the program will not be able to distinguish between the Comma in the date, and the Commas that separate the variables. For example, if/when an ASCII *.CSV file with a Comma in the date is read by MS Excel, the column headings and the columns of data will get out of synchronization because the Comma in the date will cause MS Excel to split the date into two variables, and make an extra column of data, where none should exist.*
There are three Date Formats offered in Settings that contain Commas. For example; March 14, 2014 is one that contains a Comma.

4.7.2 ASCII File Exporting Settings

On the right side of the Settings page is a group of eight parameters that will be applied to any job files that get exported in ASCII text formatted files.

Include header information in exported file: Used to toggle on or off inclusion of the header information (often called metadata) at the top of an Exported ASCII job file.

If there is a check-mark in the little box, the metadata will be included in any Exported ASCII job files. If the metadata is not wanted, *left click* in the small box to remove the check-mark.

At the top of the following page, there are two screen-shots of the same ***Dashboard Lite***© Exported ASCII job file, opened in MS Notepad. The screen-shot on the left includes the header information (metadata). The screen-shot on the right includes no metadata.

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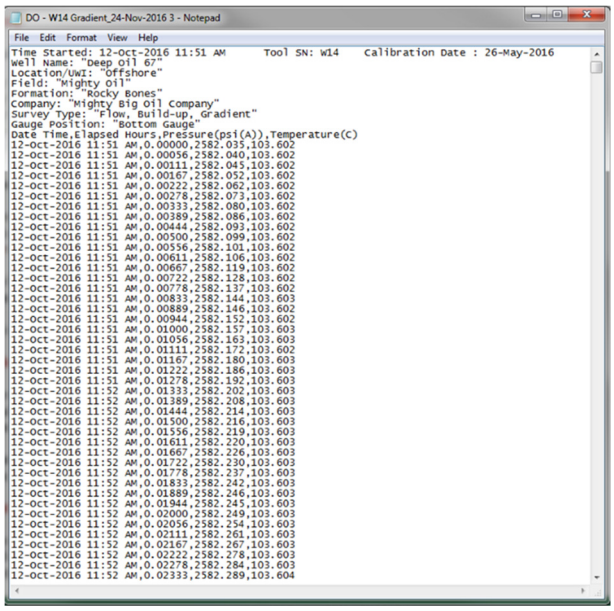
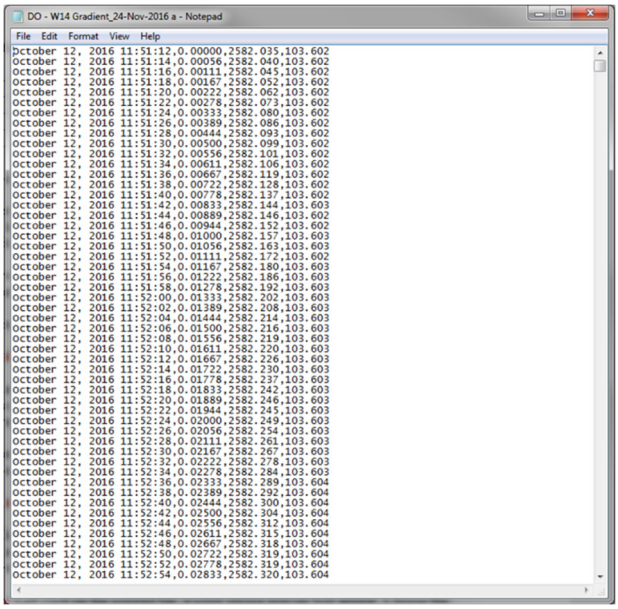
Exported ASCII job file ***WITH*** metadata



Exported ASCII job file with ***NO*** metadata



Export Filter: Used to define the filter rate applied to any job files Exported in ASCII format.

To change the Export Filter, *hover* the pointer over the field text box with the number in it, and type-in the required filter rate. The Export Filter value needs to be an integer. If, for example, an Export Filter of 4 is selected; When a job file gets Exported in ASCII format, one in every four data records will be included in the Exported ASCII job file. On the other hand, if an Export Filter of 1 is selected, every data record will be included in the Exported ASCII job file.

Columns: Used to define which variables are entered in which column in Exported ASCII job files.

To change the column assignment, *right click* on the tiny arrow at the right side of the box to open the drop-down menu. *Choose* the required parameter from the menu by *left clicking* on the selection.

The most common column configuration is for Column 1 to be real time, Column 2 is elapsed time, Column 3 is pressure, and Column 4 is usually temperature. This common column configuration is used in the examples above. Be sure to *left click* Save after making any changes.

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Elapsed Time Format: Used to define whether the elapsed time in an Exported ASCII job file is written in hours or seconds. The choice is made by choosing by *right clicking* the appropriate round button. Be sure to *left click* Save after making any changes.

Column Separation: Used to define the way the columns of data are separated in job files exported in ASCII format. The user can choose between Comma or Space or Tab separation. The most common separation format is Comma. An exported ASCII file with Comma separation will have the file extention.csv. This format is popular because the spreadsheet program MS Excel will readily accept *.csv files. Indeed, when MS Windows detects a *.csv file, MS Windows will almost always classify the file as an MS Excel file. If Comma separation is used, the user should be aware of the highlighted information below. Be sure to *left click* Save after making any changes.

A note of caution is required when choosing a Date Format: If it a job file might be Exported as an ASCII - .CSV file; DO NOT choose a Date Format that contains a Comma.
*WHY? If a job file is Exported as a *.csv file (csv = CSV = Comma Separated Variables); When the Exported *.csv file is opened in another program, the program will not be able to distinguish between the Comma in the date, and the Commas that separate the variables. For example, if/when an ASCII *.csv file with a Comma in the date is read by MS Excel, the column headings and the columns of data will get out of synchronization because the Comma in the date will cause MS Excel to split the date into two variables, and make an extra column of data, where none should exist.*
There are three Date Formats offered in Settings that contain Commas. For example; March 14, 2014 is one that contains a Comma.

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5 *DASHBOARD APP©*

5.1 Overview

Dashboard App© is designed to be used on an Android™ device.

Dashboard App© is designed to be a very convenient way to work with the ***KC3***© range of gauges. ***Dashboard App***© offers the same basic ***KC3***© status checking, configuration (programming), data retrieval, plotting and exporting functions as do ***Dashboard Professional***© and ***Dashboard Lite***©. ***Dashboard App***© operates in an identical manner with all ***KC3***© models.

Communication between the Android™ device and the ***KC3***© is provided by way of a ***G-Con*** and a wireless Bluetooth™ communication system. In order for ***Dashboard App***© on the Android™ device to communicate with a ***KC3***©, the ***G-Con*** is attached to the top of the ***KC3***©. Then the wireless Bluetooth™ communication link is established by ***Dashboard App***©.

Given that ***Dashboard App***© uses Bluetooth™ wireless communications, the data transfer rate at which data is transferred from the ***KC3***© to the Android™ device is much slower with ***Dashboard App***© as compared to when ***Dashboard Professional***© or ***Dashboard Lite***© are used on a PC. It is therefore recommended that ***Dashboard App***© is only be used when expected job files are no bigger than 20,000 samples.

It is recommended ***Dashboard App***© be used when expected job files are no bigger than 20,000 samples.



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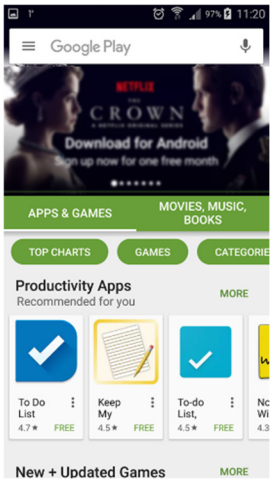
5.2 Installation

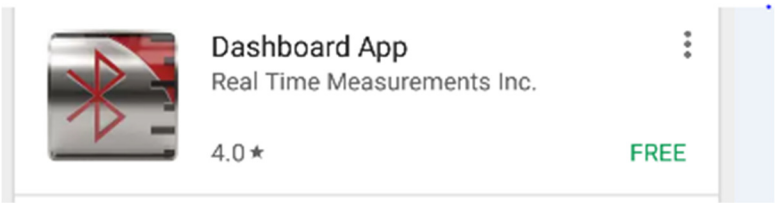
To install ***Dashboard App***© on an Android™ device:



a) Open Play Store by tapping the Icon illustrated on the right.

b) As illustrated on the right, at the top of the page in the Google Play box; *type in* dashboard app real time measurements and *press* Enter or the small magnifying glass icon





c) Scroll down the list to the ***Dashboard App Real Time Measurements INC.*** © button, as illustrated below.

d) *Install* ***Dashboard App***©, using the normal app installation process.

5.3 Automatic Software Updates

Dashboard App© updates automatically whenever an update is available and the Android™ device is connected to the internet.

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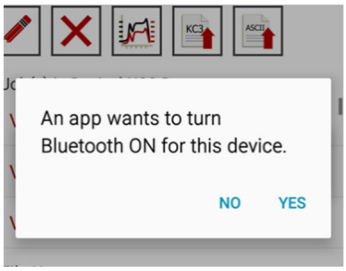
5.4 Starting Dashboard App©

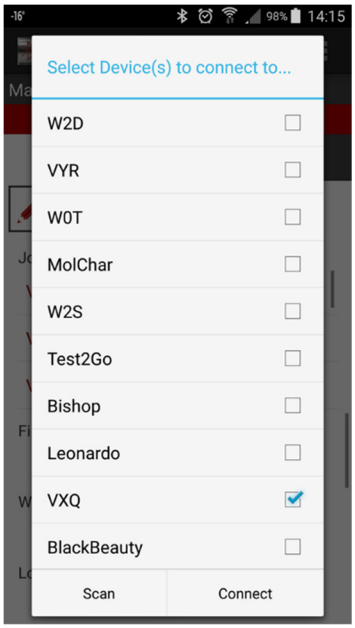


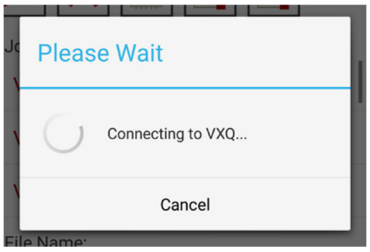
On the Android™ screen where the App Icons are displayed, *tap* the ***Dashboard App***© icon, illustrated on the left, and the following will happen:

a) If the Bluetooth™ on the Android™ device is already turned on, go straight to b) below.
If Bluetooth™ is not turned on, the dialog box illustrated on the right will pop-up.
If the user wants to use to communicate with a ***KC3***©, the Bluetooth™ needs to be turned on, and the user needs to *choose* YES.
If the user has no requirement to communicate with a ***KC3***©, and only wants to access one or more Job Files stored by ***Dashboard App***© in Database (Section 5.7) there is no need for the Bluetooth, and the user should *choose* NO, and proceed to Section 5.7

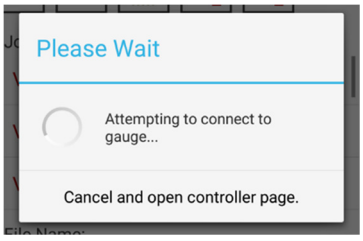


b) Once the Bluetooth™ is on (or, if it was already on), the dialog box on the right will pop-up. This dialog box is used to tell ***Dashboard App***© which ***G-Con*** it should pair with through the Bluetooth™. The appropriate check box on the list is *tapped*. Be sure to un-check any check-boxes for ***G-Con*** units not present, and be sure the ***G-Con*** is turned on (green LED). Then Connect is *tapped* and the dialog box below flash on for a few moments:





In this example, note that ***G-Con*** VXQ was chosen from the devices list (right), and as the dialog box (above) suggests, ***Dashboard App***© is pairing with ***G-Con*** VXQ.



The next dialog box that will appear is illustrated above.

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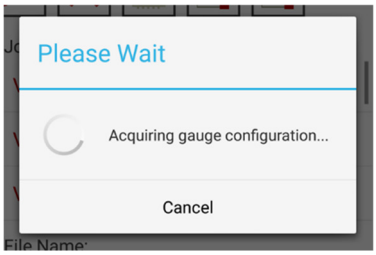
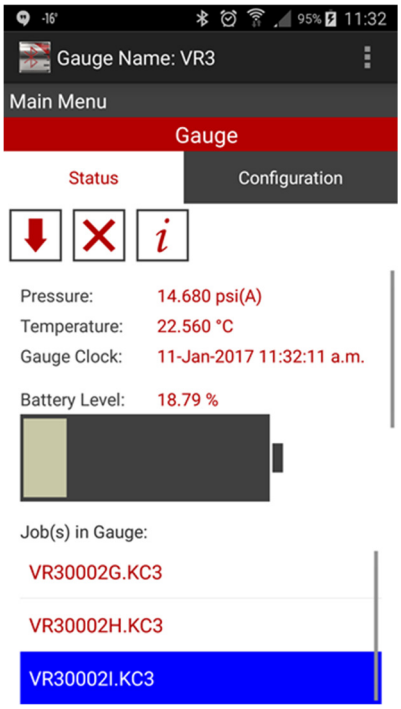
If no ***KC3***© is connected to the ***G-Con***, the user should tap the message "***Cancel and open controller page.***", and then the user should refer to Section 2.1.2 in this manual for information on using the ***G-Con*** alone.

If a ***KC3***© is connected to the ***G-Con***, the dialog box illustrated below will automatically appear:



c) Once ***Dashboard App***© has acquired the configuration of the gauge connected to the ***KC3***© through the ***G-Con***, the dialog box above will disappear, and the Gauge screen illustrated below will be presented. Gauge is described in detail in Section 5.6.



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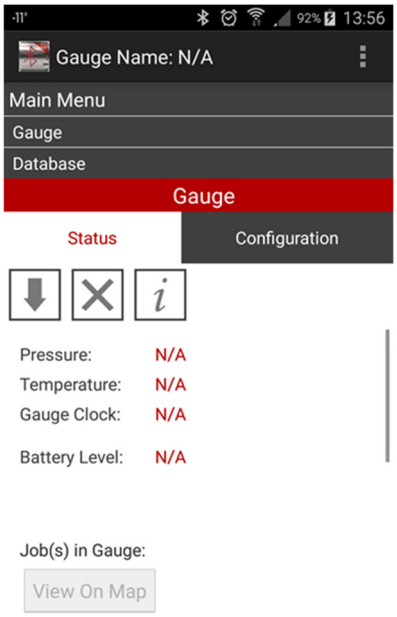
5.5 Main Menu

Dashboard App© is composed of two main panels called **Gauge** and **Database**.

Tapping on on **Main Menu** will cause ***Dashboard App***©to display both the **Gauge** and **Local Data** horizontal bars, as displayed on the right. In the example on the right, the user has tapped on Gauge to open the Gauge panel.



Detailed instructions for use of the Gauge panel are presented in Section 5.6.

Detailed instructions for the use of the Database panel are presented in Section 5.7.

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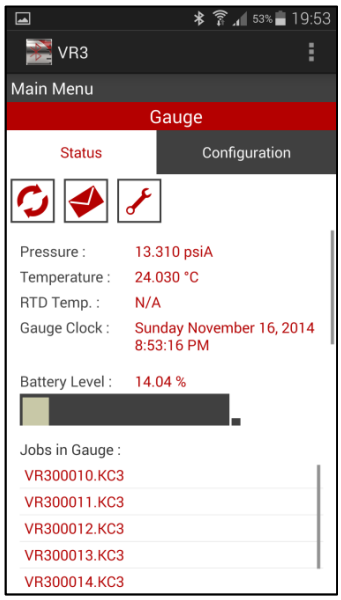
5.6 Gauge



At top of **Gauge** are two sub-panel options:

Status
Configuration

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5.6.1 Status

Refresh



When ***Dashboard App***© opens with a ***KC3***© gauge connected to the G-Con, the most recent pressure, temperature, operational, and diagnostic data recorded in the memory of the ***KC3***© is displayed under the **Status** heading. *Left clicking* on **Refresh** initiates a subsequent reading of the ***KC3***©, and updates the displayed information. **Refresh** is disabled if the connected ***KC3***© is in logging mode.

Send Report



Sends the ***KC3***© configuration, hardware diagnostics and calibration data of the ***KC3***© connected to the USB to RTM's gauge history management database. This function enables factory engineers to better monitor the performance of deployed ***KC3***© gauges. In the event a ***KC3***© is damaged during an operation, this information can help factory support rescue any data the ***KC3***© memory may have retained. The PC connected to the ***KC3***© needs to be connected to the internet for Send Report to work.

Diagnostics



Initiates a live diagnostic inspection of the electronics of the connected ***KC3***©, reads its calibration data, and other important gauge configuration parameters. The results are almost instantly displayed for the user in a pop-up window.

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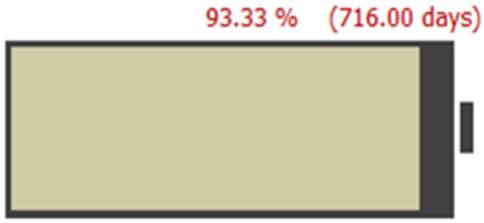
Last Sample Data



The most recent pressure, temperature and real time clock from the connected ***KC3***© are displayed. When **Refresh** is activated, the most recent last pressure, temperature and time readings made by the ***KC3***© will instantly replace the previous numbers.

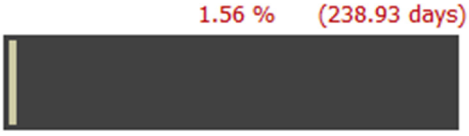
RTD Temp. is an extra that's disabled for KC3, KC375 and KCQ gauge models. This optional external RTD probe is available, however it is an optional extra offered by RTM.

Battery Level



Remaining battery capacity onboard the connected KC gauge is displayed graphically, as a % of full and in terms of the number of days the battery will be able to supply the KC gauge with power. The **days** calculation is based on the sample rate configuration displayed under **Configuration** on the right side of the panel.

Memory Level



Memory used onboard the connected KC gauge is displayed graphically, as a % of full and in terms of days to memory filled. The **days** remaining capacity is based on the sample rate configuration displayed under **Configuration** on the right side of the panel.

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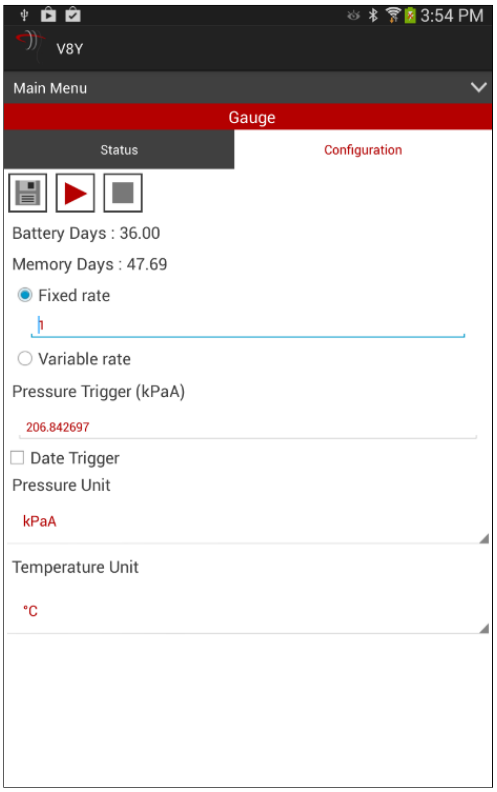
Jobs in Gauge



Each time the gauge starts logging, a file is created, and Dashboard automatically assigns the file a unique name. When a gauge is connected to the Android device, Dashboard reads the gauge's memory and displays the names of the files in the gauge's memory in a box below the memory level indicator. The files are sorted chronologically with the oldest file at the top of the list, and the newest file at the bottom of the list. These files can be uploaded to the hand-held device, or deleted by tapping on the file name and selecting the desired action.

5.6.2 Configuration



Configuration displays the recording instruction settings that are in the ***KC3***© 's memory.

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Program



If the **configuration settings** in the memory of the ***KC3***© are ***not the same*** as the corresponding configuration values displayed by Dashboard App©, the illustrated **"Program"** button will be displayed. Otherwise, this button is inactive.

Clicking "**Program"** writes the sample rate and trigger arming instructions as displayed in **Configuration** into the memory of the gauge.

Clicking "Program" does not cause the KC3© to begin recording/logging.

When **Program** completes writing the configuration to the gauge's memory, a pop-up will appear to confirm the gauge is re-programmed.

Gauge Programmed confirms the configuration settings were successfully written to the memory in the connected ***KC3***©.

Start Job



Start Job is used to program the connected ***KC3***© with the configuration settings as displayed under Configuration, and instruct the ***KC3***© to open a new Job file and start logging data as soon as the ***KC3***© is disconnected from the USB port. **Start Job** is only available when the connected ***KC3***© is in standby mode (not logging). When a ***KC3***© is logging/recording, no changes can be made to the ***KC3***© configuration. If the ***KC3***© is still connected to the ***G-Con***, the ***KC3***© will start logging/recording after 2 minutes. The ***G-Con*** will beep and the light will change from purple to blue whenever a sample is taken, then will switch to green when not sampling. The ***G-Con*** will turn itself off after 1 minute, but the ***KC3*** will continue logging/recording. When the ***G-Con*** is disconnected, the ***KC3***© will continue logging/recording.

End Job



If a ***KC3***© is logging/recording when it is connected to a USB, *clicking* **End Job** switches the KC gauge from logging to stand-by mode, and terminates the active Job file. Once a Job file is terminated, no more data can ever be written to that file. Once the Job has been ended, and the ***KC3***© is in stand-by mode, if required, new configuration settings can be sent to the gauge using **Program** or **Start Job** as described above.

Fixed rate (sec)



If the connected ***KC3***© is to be configured such that it will record at a single rate from start to finish for the next job, then the fixed rate option is selected by clicking the "Fixed Rate" toggle button, as illustrated above. Click in the text field to the right of the toggle button and

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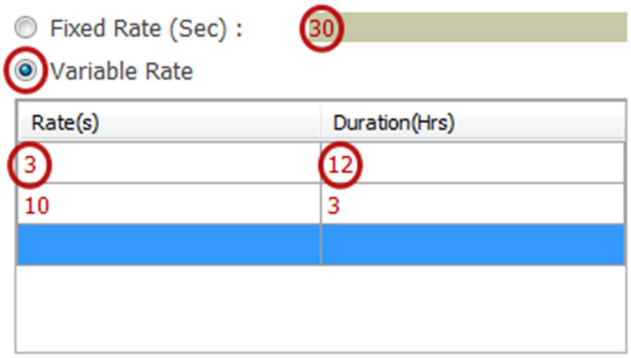
enter the desired time between each sample (also called “sample rate” or “sample interval”). Rate values must be whole numbers, ranging from one second per sample to 65,535 seconds per sample.

Once a new Job File is opened and the ***KC3***© starts logging/recording, before the ***KC3***© writes the first sample to memory, the ***KC3***© waits for an even time multiple of the sample rate to be reached, and then writes the first sample. For example: A ***KC3***© is configured to log at a rate of one sample every five seconds (programmed for five seconds). When the ***KC3***© starts logging/recording, the ***KC3***© looks at its real time clock, and waits until an even multiple of five seconds occurs, such as 0 seconds, 5 seconds or 10 seconds past the minute. When an even 5 second time is reached, the ***KC3***© records the first sample, and continues logging/recording at each subsequent five second multiple.

Variable Rate



If the user wants the ***KC3***© to record at different rates for specified time intervals in one job, then the variable rate option is selected by *left clicking* Variable Rate. Variable Rate configurations are created using the variable rate table. The table offers up to 10 rows, with each row describing a rate and duration. A new blank row is automatically created each time a rate and duration is entered in a row. Blank rows are ignored when the configuration is written to the gauge. Each row contains a sample rate and a corresponding duration for which the gauge will sample at the specified rate. Valid rate and duration values are whole numbers, ranging from one to 65,535.

Click on a cell in the Rate(s) column and enter the required sample rate, in seconds. Then *click* in the corresponding box in the Duration (Hrs) column and *enter* a duration value, in hours. Previously entered rates or durations are edited by clicking on the particular cell and entering a new value. Rows are removed or inserted by *clicking* on the selected row and *choosing* the appropriate function from the resulting context menu.

When logging/recording is initiated, each row of the variable rate configuration table will be executed by the ***KC3***© in the order displayed in the table, starting at the top and working down. Upon completion of all the variable rates, the ***KC3***© will continue logging/recording at the fixed rate shown in the fixed rate text box, until logging/recording is terminated.

Once a new Job File is opened and the ***KC3***© starts logging/recording, before the ***KC3***©***3*** writes the first sample to memory, the ***KC3***© waits for an even time multiple of the sample rate to be reached, and then writes the first sample. For example: A ***KC3***© is configured to log at a rate of one sample every five seconds (programmed for five seconds). When the ***KC3***© starts logging/recording, the ***KC3***© looks at its real time clock, and waits until an even multiple of five seconds occurs, such as 0 seconds, 5 seconds or 10 seconds past the minute. When an even 5 second time is reached, the ***KC3***© records the first sample, and continues logging/recording at each subsequent five second multiple.

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Pressure Trigger

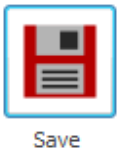


The pressure trigger offers ***KC3***© users the ability to instruct the gauge to go into logging mode when the gauge is exposed to a pressure that is higher than the set pressure trigger value. When a gauge is programmed, but in stand-by mode, every 10 minutes, the gauge wakes-up and takes a pressure reading. If the gauge finds the pressure is higher than the trigger threshold, two times in a row, the gauge automatically switches into logging mode, and records data in accordance with the sample rate configuration. Pressure trigger values range from the minimum setting of 30 psi to the maximum rated pressure of the gauge. When the gauge starts logging, the first measurement will be taken at the next even 10-minute interval. For example: If a gauge starts logging due to pressure trigger activation at 12:07:35 the first reading will be recorded at 12:10:00. Given that gauges are typically run in pairs, this feature was implemented to helps synchronised recording and start times for gauge pairs.

Retrieving Data

When the ***KC3***© is connected through the ***G-Con***, the Jobs in Tool will be displayed under Status. Select the most current job to be downloaded. Enter relevant test information if desired.

Save



Save: Clicking ***Save*** will save the test data to the computer. Upon completion of any edit work, whether any edits were made or not, the ***Save*** button must be tapped to resave the Job dataset and allow work to continue.

Cancel



Cancel: Cancels the edit operation and any changes made since the Edit began.

Delete



Delete: Deletes the selected Job dataset from the database on the PC.

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5.6.3 Plotting Data

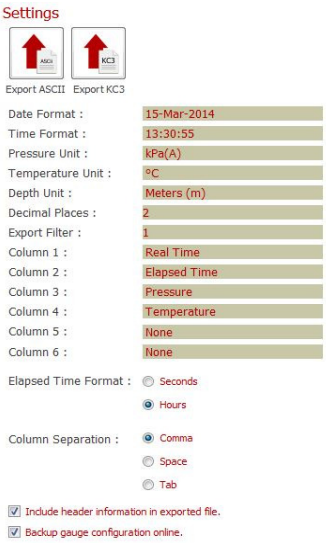


Plot: Tapping this button pops-up a new window. The new window contains an automatically scaled plot with pressure and temperature data on the Y axis, and time on the X axis. Below the plot is a row containing text values of the time/pressure/temperature data for the sample that is selected on the plot.

5.6.4 Exporting Data



Tapping on Export Data (under the Settings tab) brings up a dialog that allows the file to be shared using such applications as e-mail, Google Drive, Text (SMS), or third party sharing apps such as FaceBook or Drop Box. When the user taps on Save, the job file is saved in accordance with the Settings tab of **Local Data**.



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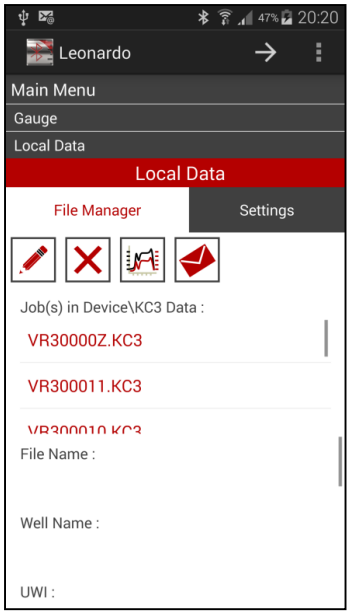
5.7 Database



Database offers two options that provide the user with the ability to manage data stored by ***Dashboard App***© on the Android™ device.

5.7.1 File Manager

Edit


Edit

Edit: Allows the user to change any part of the report information, including the job file that is used in the report or exported file.

Delete


Delete

Delete: Deletes the selected Job dataset from the gauge.

Plot


Plot

Plot: Tapping this button pops-up a new window. The new window contains an automatically scaled plot with pressure and temperature data on the Y axis, and time on the x axis. Below the plot is a row containing text values of the time/pressure/temperature data for the sample that is selected on the plot.

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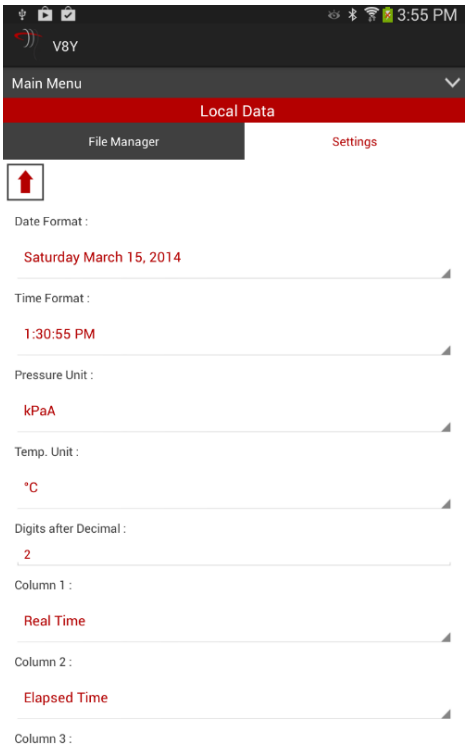
Send Report



Send Report sends the ***KC3***© configuration, hardware diagnostics and calibration data of the KC gauge connected to the G-Con to RTM's gauge history management database. This function enables factory engineers to better monitor the performance of ***KC3***©. In the event a gauge is damaged during an operation, this information can help factory support rescue any data the memory may retain. The device connected to the ***KC3***© needs to be connected to the internet for Send Report to work.

5.7.2 Settings



The settings part of the Local Data Panel is where the user chooses parameters used to format the Job being worked on.

Parameters include Date and time formats, engineering units.

Other parameters are associated with exported data files. Such parameters include data column assignments, column separation type, and which information such as the Well Name, UWI and the like, will be included in any exported files.

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6 FAQ (FREQUENTLY ASKED QUESTIONS)

1. How do I communicate with a ***KC3***©?

   There are several ways to communicate with a ***KC3***©. The four steps presented below are the simplest way to establish communication with a ***KC3***©**.** For this simple procedure, all that's required is the ***KC3***© gauge, ***G-Con***, USB mini cable, and a PC:

   a) ***Plug G-Con on to the connector end of the KC3***©. ***Do Not Twist the KC3*© *into the G-Con. This will damage the G-Con*** Press the button on the ***G-Con*** to turn on the ***G-Con***. A glowing green LED on the ***G-Con*** indicates the ***G-Con*** is turned on.

   b) Use the USB cable to connect the ***G-Con*** to the PC. A blue LED on the ***G-Con*** indicates the ***KC3***© is connected to the PC. The ***KC3***© will now behave on the PC in exactly the same way a USB flash drive (memory stick, jump drive…) would behave.

   c) On the PC, different versions of Windows work different ways, but in any event, follow the procedure normally used to access files on a USB flash drive on the PC. The flash drive will be called **KC3 v2.0.01** (or similar). Once into the main folder on the ***KC3***© flash drive menu, *double click* on **KC3 Application** with the ***Dashboard*** icon. ***Dashboard Lite***© will now open, and communication between the ***KC3***© and PC is established.

   d) ***Dashboard Lite***© is the simplest way to communicate with a ***KC3***. ***Dashboard Lite***© allows the user to view ***KC3***© status, configure/program the ***KC3*** logging/recording settings, initiate logging/recording, extract recorded data, and manage a few other basic ***KC3***© functions.

   More details and other information is available about how to use ***Dashboard Lite***©. Users are encouraged to refer to the ***Quick Start Guide*** for the particular ***KC3***© model being used.

   KC3© users are encouraged to explore the extended ***KC3***© communication and data processing options offered by ***Dashboard Professional***© on a PC. Or for the ultimate in field operations convenience, try using Bluetooth™ wireless communication with ***Dashboard App***© on any Android™ device.

   Comprehensive information is available on all ***Dashboard*** software packages in the latest version of ***User Manual, Dashboard Suite***.

2. How do I get a ***KC3***© to start logging/recording data?

   There are three different ways to get a ***KC3***© to start logging/recording:

   a) ***PC***: Use a ***G-Con*** to connect the ***KC3***© to a PC, and open ***Dashboard Lite***©, or ***Dashboard Professional***©. *Go to* the Gauge pane and look at the Sample Rate, Pressure Trigger, Pressure Unit, Temperature Unit Settings on the right under Configuration. *Decide* if the Settings match the requirements for the pending job.

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i) If the Settings are all correct, *Click on* the red arrow-headed Start Job button near the top right. The message "*Logging will commence upon USB detach*" pops-up. *Press* OK, and the ***KC3***© time will be synchronized to the PC time, and then as soon as the USB is *disconnected*, the ***KC3***© will start logging/recording in accordance with the Settings.

ii) If the settings are not correct, *make the necessary changes* to the Setting(s). Once the Settings are all satisfactory, *Click on* the Program button to the left of the Start Job button and the new Settings will be written to the ***KC3***© onboard memory. Next, the question "*Would you like to begin logging?*" pops-up, and two buttons labeled Yes or No:

If Yes is *pressed*, the ***KC3***© onboard real time will be synchronized to the PC time, and as soon as the USB is *disconnected,* the ***KC3***© will start logging/recording in accordance with the Settings.

If No is *pressed*, the ***KC3***© onboard real time will be synchronized to the PC time, but the ***KC3***© will remain in stand-by mode until it is started sometime in the future.

b) ***G-Con (no PC)***: Plug the ***G-Con*** on to the top threaded end of the ***KC3***©. ***Do Not Twist the KC3© into the G-Con. This will damage the G-Con***. *Press and release* the ***G-Con*** Button on the ***G-Con*** to turn on the ***G-Con***. The green LED indicates the ***G-Con*** is turned on. Now *hold down* the Button on the ***G-Con***, for a count of three, and *release*. The ***KC3***© will begin logging/recording.

c) ***Pressure Trigger***: Expose the ***KC3***© to a pressure above the Pressure Trigger Setting for more than 20 minutes and the Pressure Trigger will start the ***KC3***© automatically. For more information on the pressure trigger please refer to FAQ 12.

d) ***Time Trigger***: This feature has been disabled in ***Dashboard*** v2 and any subsequent versions.

3. How do I create a new job file?

The user is unable to deliberately and directly start a new Job File New Job Files are created automatically by the firmware onboard the ***KC3***© each time the ***KC3***© *starts* logging/recording. New Job Files are also *closed* by the firmware onboard the ***KC3***© each time the ***KC3***© *stops* logging/recording.

Put another way; The only way a user can cause a new Job File to be created is for the user to instruct a ***KC3***© to start logging/recording. Likewise, Job Files are closed only when the ***KC3***© is instructed to *stop* logging/recording.

4. How do I get the ***KC3***© to start logging/recording if I have no PC?

If no PC is available, there are two ways to get a ***KC3***© to start logging/recording:

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a) *Connect* the ***G-Con*** to the ***KC3©.*** Then *press and hold* the ***G-Con*** button for about the count of five. When the LED stops flashing, the ***KC3©*** has begun logging/recording, and the ***G-Con*** button should be *released*. Now, for the next minute, the ***G-Con*** will make a beep and flash its LED each time the ***KC3©*** records a reading. Please refer to FAQ 2, b)

b) *Expose* the ***KC3©*** to a pressure above the Pressure Trigger Setting for more than 20 minutes and the Pressure Trigger will start the ***KC3©*** automatically. For more information on the pressure trigger please refer to FAQ 2, c) and/or FAQ 12.

Once logging/recording starts, the last configuration Settings the ***KC3©*** was programmed with, and the PC synchronized real time (and time zone), will define the logging/recording program.

5. How do I stop the ***KC3©*** logging/recording if I have no PC?

Connect the ***G-Con*** to the ***KC3©3***. *Hold down* the ***G-Con*** Button. The blue LED on the ***G-Con*** will begin *flashing on and off* for about a count of five. Then the LED will *stop flashing* and *stay on continuously* to indicate the ***KC3©*** has stopped logging/recording. Now the ***G-Con*** Button can be *released.* The LED will *turn green* to confirm the ***KC3©*** has stopped logging/recording. The job file is closed (no more samples will be added to the job file).

6. How do I know if the ***KC3©*** is logging/recording?

Connect the ***G-Con*** to the ***KC3©.*** *Press and hold* the ***G-Con*** Button for about a count of five. Release the ***G-Con*** Button when the ***G-Con*** beeps. The LED on the ***G-Con*** will turn either green or blue:

a) If the LED is green, this indicates the ***KC3©*** is in standby mode, and therefore is NOT logging/recording.

b) If the LED is blue, this indicates the ***KC3©*** is logging. For the next three minutes, the gauge will signal each time it takes a sample by blinking the LED and beeping. After three minutes, the gauge will continue logging, but to save power, the blue LED will fade to green.

7. How do I get the ***KC3©*** to start logging/recording if I have no ***G-Con*** or a PC?

Expose the ***KC3©*** to a pressure above the Pressure Trigger Setting for more than 20 minutes and the Pressure Trigger will start the ***KC3©*** automatically. For more information on the pressure trigger please refer to FAQ 2, c) and/or FAQ 12.

8. How do I get recorded data off a ***KC3©***?

There are four different ways to get recorded data off a ***KC3©***:

a) ***Dashboard Lite©***; If the ***KC3©*** data is downloaded to a PC using ***Dashboard Lite©*** software; The Job Data will be the original *.kc3 file(s) from the ***KC3©***. The *.kc3 file(s) are downloaded to, and stored in a folder called ***C:\KC3 Data***. When *.kc3 files

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are written by the ***KC3***©, the name of the *.kc3 file is automatically created by the ***KC3***©.

b) ***Dashboard Professional***©; If the ***KC3***© data is downloaded to a PC using ***Dashboard Professional***©, software; The Job Data will be stored in a database file residing in the ***C:\KC3 Data\DashboardPro*** folder. Once the Job Data has been downloaded by ***Dashboard Professional***©, the Job Data is only accessible through using ***Dashboard Professional***©, unless the Job Data is Exported.

c) ***Dashboard App***©; If the ***KC3***© data is downloaded to an Android™ device using ***Dashboard App***© software; The Job Data data *.kc3 file(s) will be stored in a folder called ***C:\KC3 Data***. When *.kc3 files are written by the ***KC3***©, the name of the *.kc3 file is automatically created by the ***KC3***©.

d) It is highly recommended, and by far the most common way to extract data from a ***KC3***© is to use one of the ***Dashboard*** software packages on a PC or Android™ device. However, because a ***KC3***© connected to a ***G-Con*** uses the same file storage and communication protocol as a flash drive portable USB device, unlike any other BHP gauge ever built, ***KC3***©data extraction can be done by simply copying the *.kc3 file(s) from the ***KC3***©'s memory onto a PC exactly the way any file would be copied from a flash drive memory stick. This means with just a PC, ***G-Con*** and a Mini-USB cable, users can just plug-in the ***KC3***© and copy the *.kc3 file(s). ***Caution: All standard file handling operations are allowed by this method. This means files can be deleted from the gauge memory just as with any other removable storage device.***

9. Where is my ***KC3***© job data stored after I download it?

The answer to this question depends on how the job data (*.kc3 file) was downloaded from the ***KC3***©. There are four different possibilities:

a) ***Dashboard Lite***©; If the ***KC3***© data is downloaded to a PC using ***Dashboard Lite***© software; The downloaded Job Data will be a copy of the original *.kc3 file(s) from the ***KC3***©. The *.kc3 file(s) get downloaded to, and stored in a folder called ***C:\KC3 Data***.

b) ***Dashboard Professional***©***;*** If the ***KC3***© data is downloaded to a PC using ***Dashboard Professional***© software; The Job Data will be converted into a database file that resides in a folder called ***C:\KC3 Data\DashboardPro***. Job Data that has been downloaded using ***Dashboard Professional***© is only accessible through ***Dashboard Professional***©, except if the Job Data is Exported.

c) ***Dashboard App***©; If the ***KC3***© data is downloaded to an Android™ device using ***Dashboard App***© software; The downloaded Job Data will be a copy of the original *.kc3 file(s) from the ***KC3***©. The *.kc3 file(s) get downloaded to, and stored in the Android™ ***Local Storage, Device Storage, KC3 Data*** folder.

d) If the *.kc3 file was downloaded from the ***KC3***© directly, with the use of any of the ***Dashboard*** software packages, then the *.kc3 file will be wherever the user chooses to write it.

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10. Where is my exported ASCII file stored?

The answer to this question depends on which ***Dashboard*** software (***Professional, Lite*** or ***App***) is used to make the exported ASCII file. There are three different possibilities:

a) ***Dashboard Lite***©: If the ASCII file is exported using ***Dashboard Lite***©; when the user *presses* the Export button, a pane will pop up and prompt the user to name the file to be exported. If the user enters no name, the ASCII file will be given the same name as the source file name Once the name is entered (or not), and the user *presses* OK, another pop-up will confirm the file is written, when the user *presses* OK again, the next pane to pop-up is the **C:\KC3 Data** folder, where the user should see the exported file.

b) ***Dashboard Professional***©: If the ASCII file is exported using ***Dashboard Professional***©; when the user *presses* the Export button, a pane will pop-up and prompt the user to define where the file will be written, and the name of the file. If the user makes no changes to the name or location, the exported ASCII file will be written to the **C:\KC3 Data** folder and given the same name as the source file name.

c) ***Dashboard App***©: If the ASCII file was exported using ***Dashboard App***, the ASCII file is stored in the Android™ ***Local Storage, Device Storage, KC3 Data*** folder. If the Column Separation is *set* to *Comma*, the exported file will show up in the KC3 Data folder called EXPORTED_DATA.CSV – Please note; Only the most recently exported data is stored in **KC3 Data**. The previous EXPORTED_DATA.CSV file will be overwritten with the new exported data, but the name will stay the same. The same applies to Space Separated or Tab Separated exported data .TXT files. ***NOTE: When Dashboard App is used to email or otherwise send exported files to another party, the sent exported file will always be called EXPORTED_DATA. It is important a message accompanies the .CSV or .TXT file to identify the source of the data in the exported file.***

11. What does the *.kc3 file name mean?

When a ***KC3***© is instructed to start a new job, the ***KC3***© starts a new *.kc3 file, and automatically names the file. For obvious reasons, there should never be two *.kc3 files with the same name. The file naming scheme is designed to prevent more than one *.kc3 files with the same ever being started. Each *.kc3 file is named using a unique eight digit series of characters. The first three characters are the ***KC3***© serial number. The next five characters are a unique sequence which starts at 00000 when the gauge is first tested in the factory and increments by one digit every time the ***KC3***© starts a new *.kc3 file. The *.kc3 file naming scheme uses a base 36 digit alpha numeric numbering.

Once a *.kc3 file has been extracted from a ***KC3***©, the user can, and is encouraged to rename the *.kc3 file in some meaningful way.

12. How does the ***KC3***© pressure trigger work?

When the ***KC3***© is not logging/recording (in stand-by), it automatically wakes-up every 10 minutes to read the pressure. It then compares the pressure reading to the pressure trigger set

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value. If the ***KC3***© measures a pressure higher than the trigger value in two consecutive readings, the trigger will instruct the ***KC3***© to start logging/recording. This means the ***KC3***© must be exposed to a pressure that's higher than the pressure trigger setting value for at least 20 minutes before the ***KC3***© gets triggered on.

When the trigger activates, the ***KC3***© will open a new job file and start logging/recording according to the configuration settings in ***KC3*** memory. If the pressure drops below the trigger set value, the ***KC3***© will not stop logging/recording.

Every ***KC3***© is supplied with a factory default (recommended) trigger value of 30 psi(a) (213 kPa(A)). However, in any ***Dashboard*** software, the pressure trigger set value can be reset to any value between the 30 psi(a) (213 kPa) default and the calibrated maximum pressure rating of the ***KC3***©.

13. Why can I only save the output files as .csv?

CSV is short for "Comma Separated Variables". The ***Dashboard*** Exporting feature allows text files to be formatted with the variables separated by a space, or comma or tab. The variable separation Setting for an exported text file can be selected in the Settings pane in any ***Dashboard***. ***Do not confuse the Settings in the gauge pane with the Settings in the Setting pane Settings in the gauge pane ONLY apply to the KC3©, not the rest of the data being manipulated by Dashboard.***

14. How is the real time clock set on the ***KC3***©?

Whenever a ***KC3***© is configured (programmed) using ***Dashboard Lite***© or ***Dashboard Professional***© on a PC, the ***KC3*** real time clock is synchronized with the time on the PC.

Whenever a ***KC3***© is configured (programmed) using ***Dashboard App***© on an Android™ device using Bluetooth™ wireless, the ***KC3***© real time clock is synchronized with the clock on the ***G-Con***.

Pay attention to time zones. If the KC3 is programmed in one time zone, and then run in another time zone, the KC3 data be recorded using the time zone where the KC3 was programmed.

15. Why do I get an error when I try to run ***BT_Con*** the first time on a PC?

When this happens, Microsoft Windows™ is implementing some sort of protection function that prevents unwanted software from writing to the PC. To get around this, *right click* on the ***BT_Con*** icon and select *Run as Administrator*. This will create a folder to hold the ***KC3***© data, and the problem won't happen again.

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