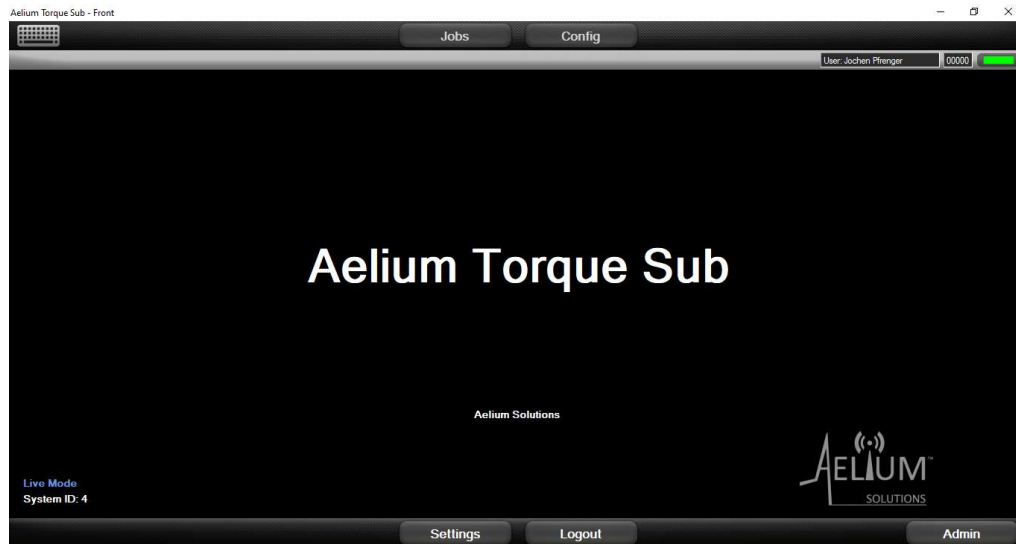


# User Manual

## WITS™ User Interface Software



**User Manual P/N: 700026**  
**Revision: 3**



### **ORIGINAL INSTRUCTIONS**

Keep this document for future reference.

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Aelium Solutions LLC (“Aelium”) has made every effort to ensure that all information in this document is as accurate and current as possible. Some graphic or visual differences from this manual to the actual product are possible.

This document is intended for guidance and informational purposes and must be used in association with adequate training and on-the-job supervision to provide safe and effective equipment use.

The user must comply with the information and instructions included in this document.

It is the responsibility of the user to conform to all regulations and requirements issued by an authority or agency which may affect the operation, safety or equipment integrity, that may overrule the content of this documentation.

The user of this document shall protect, indemnify, and hold harmless Aelium and its directors, officers, employees, and agents from and against all liability for personal injury, death, or property damage resulting directly or indirectly from the use of the information contained in this manual.

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# 1 Introduction, Description, Specifications

## 1.1 Copyright

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## 1.2 Introduction

This document applies to the User Interface (UI) Software for Aelium WITS™ Torque Subs.

Aelium WITS™ Torque Subs measure various drilling and operational parameters while drilling or while stationary and actively deployed.

Aelium Solutions LLC (“Aelium”) has made every effort to ensure that all information in this User Manual is as accurate and as current as possible. Some graphic or visual differences from this manual to the actual product are possible.

The purpose of the User Manual is to provide equipment installation, operation and safety instructions. Aelium does not warrant or guarantee that this information is complete or accurate in every aspect. The user should consult with an Aelium representative for any questions, clarifications and/or updates.

The user of this manual shall protect, indemnify, and hold harmless Aelium and its directors, officers, employees, and agents from and against all liability for personal injury, death, or property damage resulting directly or indirectly from the use of the information contained in this manual.

It is the user’s full responsibility to observe all descriptions, information and instructions contained in this manual. This manual is intended for guidance and informational purposes and must be used in association with adequate training and on-the-job supervision to provide safe and effective equipment use.

It is the responsibility of the user to conform to all regulations and requirements issued by an authority or agency which may affect the operation, safety, or equipment integrity, that may overrule the content of this documentation.

The user will acknowledge and obey any general legal or other mandatory regulation in force relating to accident prevention, safety, statutory compliance, regulatory compliance, and equipment integrity.

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## 1.3 Storage of User Manual

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Keep this User Manual safe in the vicinity of the product. All persons who work on or with the product should be advised on where the manual is located.

An electronic copy of the User Manual is stored on the Aelium provided PC or Tablet. It is the user's responsibility to ensure the most current revision of the manual is used. Please check the Aelium website for the current revision of the User Manual or contact your Aelium sales representative.

Website: [www.aeliumsolutions.com](http://www.aeliumsolutions.com)

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## 1.4 Description of the WITS™ products

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The Wireless Information Technology System (WITS™) is a data acquisition tool for drilling and casing running applications, commonly referred to as a "torque sub". The WITS™ system records various drilling and operational parameters, and may include torque, tension, compression, turns, RPM, pressure and temperature. The WITS™ system tracks, records, stores and transmits data. All data is encrypted using proprietary encryption technology to ensure data safety and data integrity.

The WITS™ systems can be updated remotely with an internet connection. This greatly simplifies adding and improving features and functions as they are developed and become available. When connected to the internet at the end of a job, the job information and updates are synchronized with the Aelium Cloud Server™ where the data can be remotely accessed. Regular synchronizing ensures the jobs are backed up, and that the WITS firmware, User Interface software and the computer itself are updated and ready to go to work.

All WITS™ models are highly configurable. Please contact your Aelium sales representative for specific configurations and/or requests.

### 1.4.1 WITS-1 Models

The WITS-1 models typically cover a load range of up to 500 ton (453.6 metric tons) and a connection size range of up to NC-50, NC-56 and API 6-5/8" REG. Higher load ratings may be possible. Please contact your Aelium sales representative for specific load ratings, connection sizes and configurations.

### 1.4.2 WITS-2 Models

The WITS-2 models typically cover a load range of up to 1,000 ton (907.2 metric tons) and a connection size range of up to NC-70, NC-77, API 7-5/8" REG and API 8-5/8" REG. Higher load ratings may be possible. Please contact your Aelium sales representative for specific load ratings, connection sizes and configurations.

### 1.4.3 WITS User Interface Software

The WITS™ User Interface (UI) Software provides for a user interface to the WITS™ Torque Sub through an Aelium Access Point. Through the UI, the user can view, access, record, and monitor various operational data parameters and status information of the WITS™ system.



### 1.4.4 Access point and tablet options

The WITS™ system must be used with an Aelium Access Point (AP) and WITS™ UI software. The WITS™ Torque Sub, AP, and UI software are configured to optimize communications integrity, reliability and power consumption.

The system can be supplied with different access points and tablets with user interface (UI) software depending on the customer’s preferences and needs.

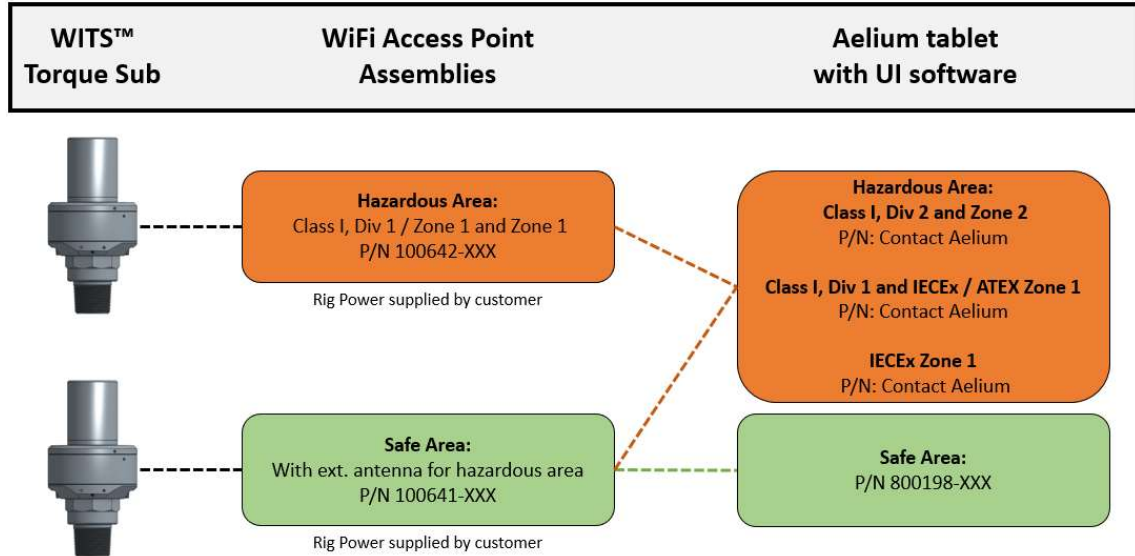


Figure 1: WITS™ wireless communication overview

The hazardous area rated tablet can be used with either access point option.

#### 1.4.4.1 Aelium provided tablet

Aelium typically provides a new tablet with a WITS™ system and full standard warranty.

#### 1.4.4.2 AllTorque provided tablet

If the customer already owns an AllTorque supplied Microsoft Surface Pro tablet (models 5 or higher), the user can install the Aelium User Interface Software on that tablet and use the AllTorque tablet to operate the Aelium WITS™ system.

## 1.5 Reference Documents

Aelium P/N	Description
700020	USER MANUAL, WITS TORQUE SUB
700022	USER MANUAL, ACCESS POINT, SAFE AREA
700026	USER MANUAL, WITS USER INTERFACE SOFTWARE



## 2 Important Safety Information

### 2.1 Identification of warnings



This is a safety alert symbol.

It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

#### **DANGER**

INDICATES A HAZARDOUS SITUATION, THAT, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

#### **WARNING**

INDICATES A HAZARDOUS SITUATION, THAT, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.

#### **CAUTION**

INDICATES A HAZARDOUS SITUATION, THAT, IF NOT AVOIDED, COULD RESULT IN MODERATE OR MINOR INJURY.

#### **NOTICE**

Indicates information considered important, but not related to physical injury.

### 2.2 Power Quality & Grounding

Power quality and availability on a rig site can vary significantly during a job and from job to job.

**Clean and consistent power and grounding is required for safe and reliable operation of the Aelium provided equipment.**

Aelium recommends that the user deploys power conditioning, filtering, and/or isolation measures such as power conditioners, power supplies, inverters or battery backup units. These devices will improve the performance, reliability, and durability of the Aelium provided access point and computer.

#### **WARNING**

**THE AELIUM ACCESS POINT REQUIRES A CONTINUOUS GROUND CONNECTION FOR SAFE AND RELIABLE OPERATION.**

# USER MANUAL

## WITS™ USER INTERFACE SOFTWARE

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If there is a concern about rig power causing issues, unplug the access point and computer from the power source and connect them to a grounded battery power source. If the issue goes away, then you have determined the issue to be caused by the rig power.

## 3 Installation and Setup

### 3.1 General

Following the information and instructions set out in this manual is the full responsibility of the user.

This manual is intended for guidance and informational purposes and must be used in association with adequate training and on-the-job supervision to provide safe and effective equipment use.

It is the responsibility of the user to conform to all regulations and requirements issued by an authority or agency which may affect the operation, safety or equipment integrity, that may overrule the content of this documentation.

The user will acknowledge and obey any general legal or other mandatory regulation in force relating to accident prevention, safety, and equipment integrity.

### 3.2 Hardware requirements

The PC hardware must meet or exceed the specification of a Windows Surface Pro tablet (version 5 or higher).

### 3.3 Operating System (OS) requirements

The PC must operate Windows 10 or higher to be able to operate the Aelium UI software properly.

### 3.4 Installation

**Aelium provided tablets or PCs are pre-configured and ready to use for the user. Please skip to section 4.1 below.**

Computers NOT provided by Aelium require the following steps to be completed PRIOR to use with an Aelium WITS™ System.

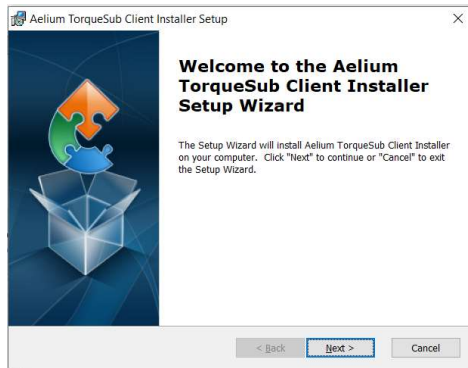
#### 3.4.1 Software download and installation

To download the latest version of the Aelium UI software, go to: [www.aeliumsolutions.com](http://www.aeliumsolutions.com) and look in the menu for “Downloads”. Click on “WITS™ UI Software Download” and follow the installation/on-screen instructions.

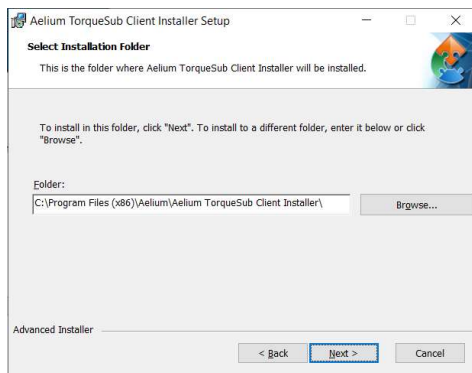
Download the WITS™ UI Software by double clicking the download file. (Depending on the web browser and settings, you can typically find the download file at the bottom of the web browser or in the windows “Downloads” folder on the PC.)

The installation Wizard will open.

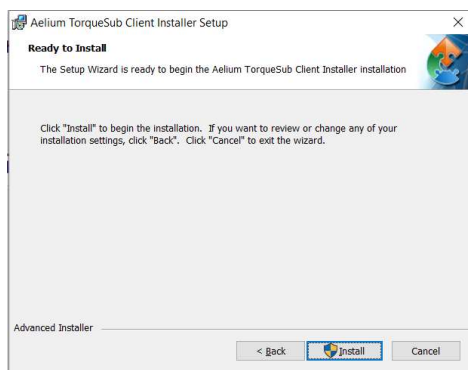
Click “Next”:



Use the default installation folder and click “Next”:



Click “Install”:

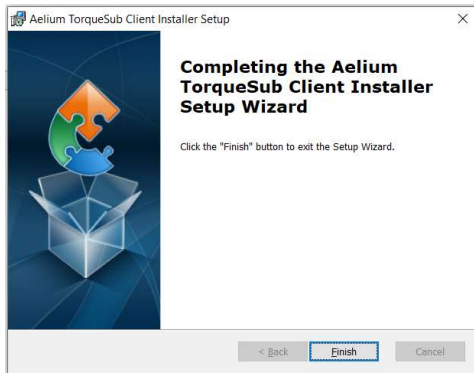


The progress bar will show the installation progress. This may take from a few seconds to several minutes. The program will ask you “Do you want to allow this app to make changes to your device?”

Click “YES”

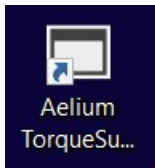
The Setup Wizard will complete the installation.

Click “Finish”:

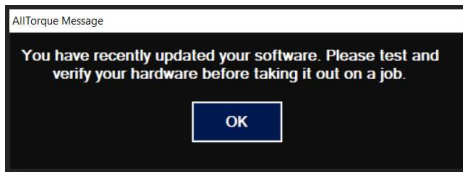


The Wizard will install Icon on desktop.

Startup the UI Software by double clicking on the AeliumTorqueSubClient.exe icon on the desktop:



If you are prompted by the following message, click “OK”:



### 3.4.2 Initial setup

Initial setup for server information is only needed the first time a new Computer is setup.

**NOTE:**

*To use the Aelium UI Software there must be a company account. If you need account setup information, please contact your company manager or whoever is responsible for the Aelium computers. Aelium will be your technical support company, managing the data in the database and AllTorque will provide the information. (Server information will be treated confidentially for security purposes.)*

Click on “Add Account”:

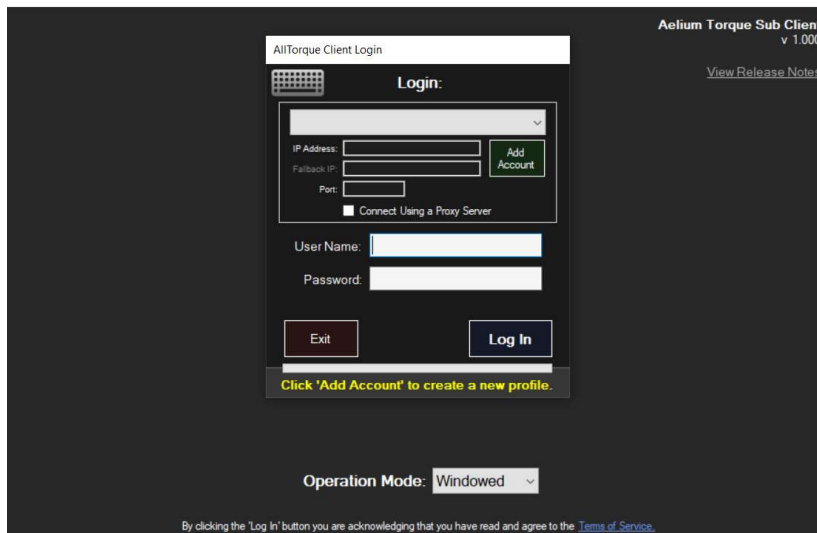


Figure 2: Initial Setup Login Screen

Enter the information supplied from Aelium to your company:

Account Name: \_\_\_\_\_

Primary IP Address: \_\_\_\_\_

Fallback IP Address: \_\_\_\_\_

Port: \_\_\_\_\_

Security Key: \_\_\_\_\_

Then click “Create New”:

Once you can see the server on the list shown in Figure 3, click “Close”:

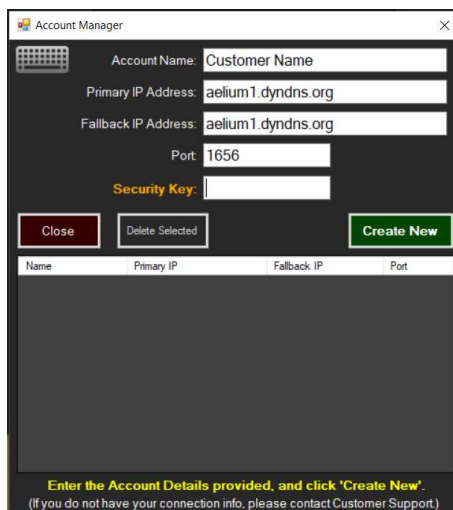


Figure 3: Account Manager screen



## 4 Login, versions and updates

### 4.1 Software Login

**NOTE:**

To use the Aelium UI Software there must be a username and password setup for the company using the Computer. If you need an account login information, please contact your company manager or whoever is responsible for the Aelium computers. (Account login information can only be setup by a company administrator on the account.)

Startup the UI Software by double clicking on the AeliumTorqueSubClient.exe icon on the desktop:

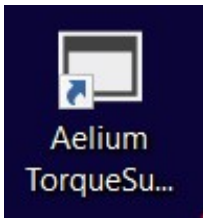


Figure 4: Software icon

Login to the Software with the username and password provided by the account administrator. All users should have their own, separate login information for security purposes.

Click “Log In”:



Figure 5: Login screen

## 4.2 Software versions & updates

### 4.2.1 Software version

To find out what Software version is currently running on the Computer, startup the UI Software by double clicking on the AeliumTorqueSubClient.exe icon on the desktop.

Once the login screen appears you will see the current version of the installed Software in the top right corner of the screen.

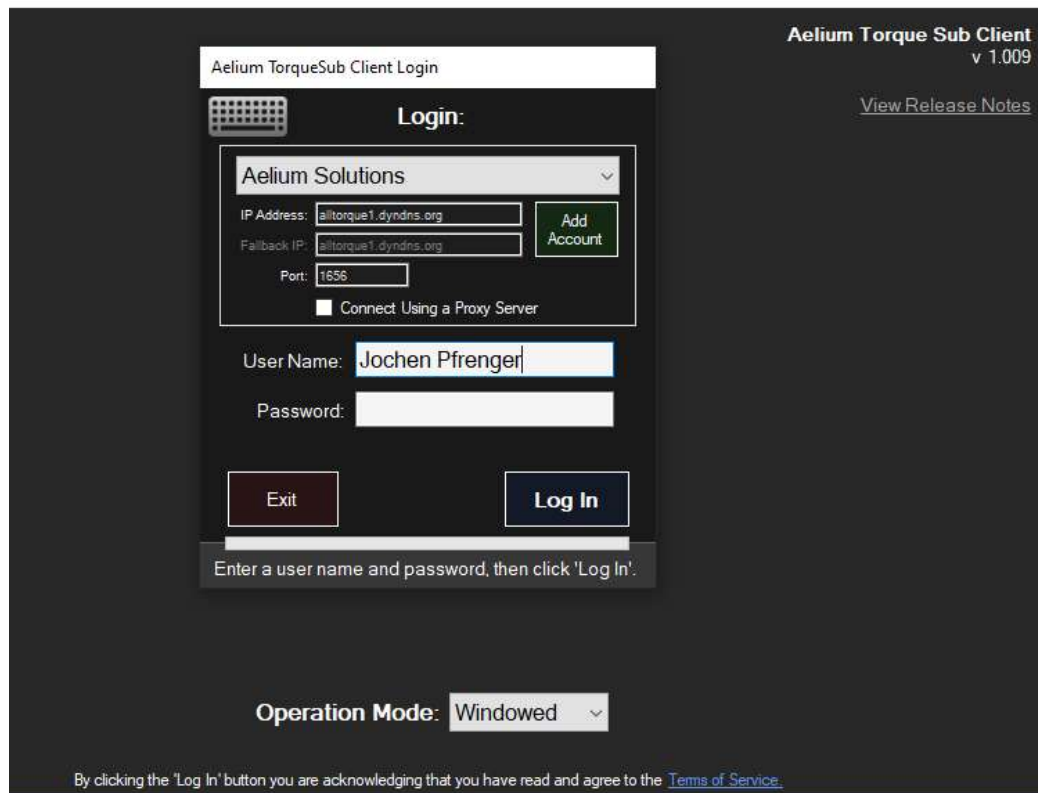


Figure 6: Software version screen (example only)

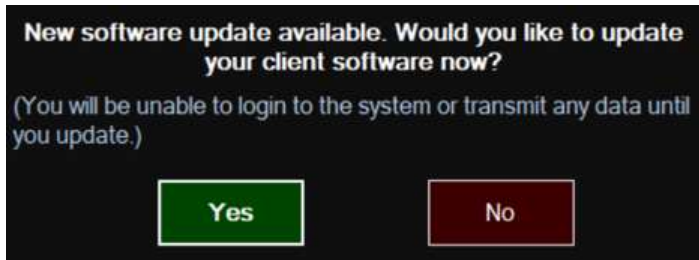
### 4.2.2 Software updates

Ensure the computer you are using on is connected to an internet connection.

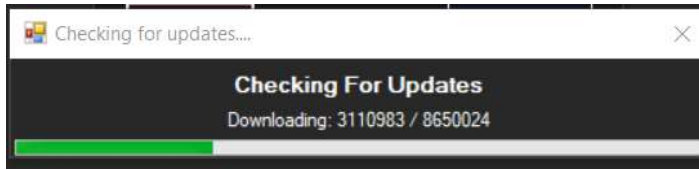
The software automatically checks for available software and firmware updates when connected to the internet.

If a software or firmware update is available, it will automatically download and process the available updates.

When prompted, click “Yes”:



The download progress bar will indicate the status of the download. This may take between a few seconds to a few minutes.

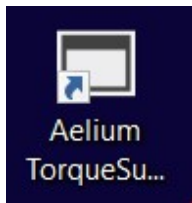


When prompted to install the download, click “OK”:



After the installation is complete, the software will close.

To continue, please startup the UI Software by double clicking on the AeliumTorqueSubClient.exe icon on the desktop:



## 5 Software User Guide

### 5.1 Home screen

After logging into the Aelium UI software, the home screen will appear:

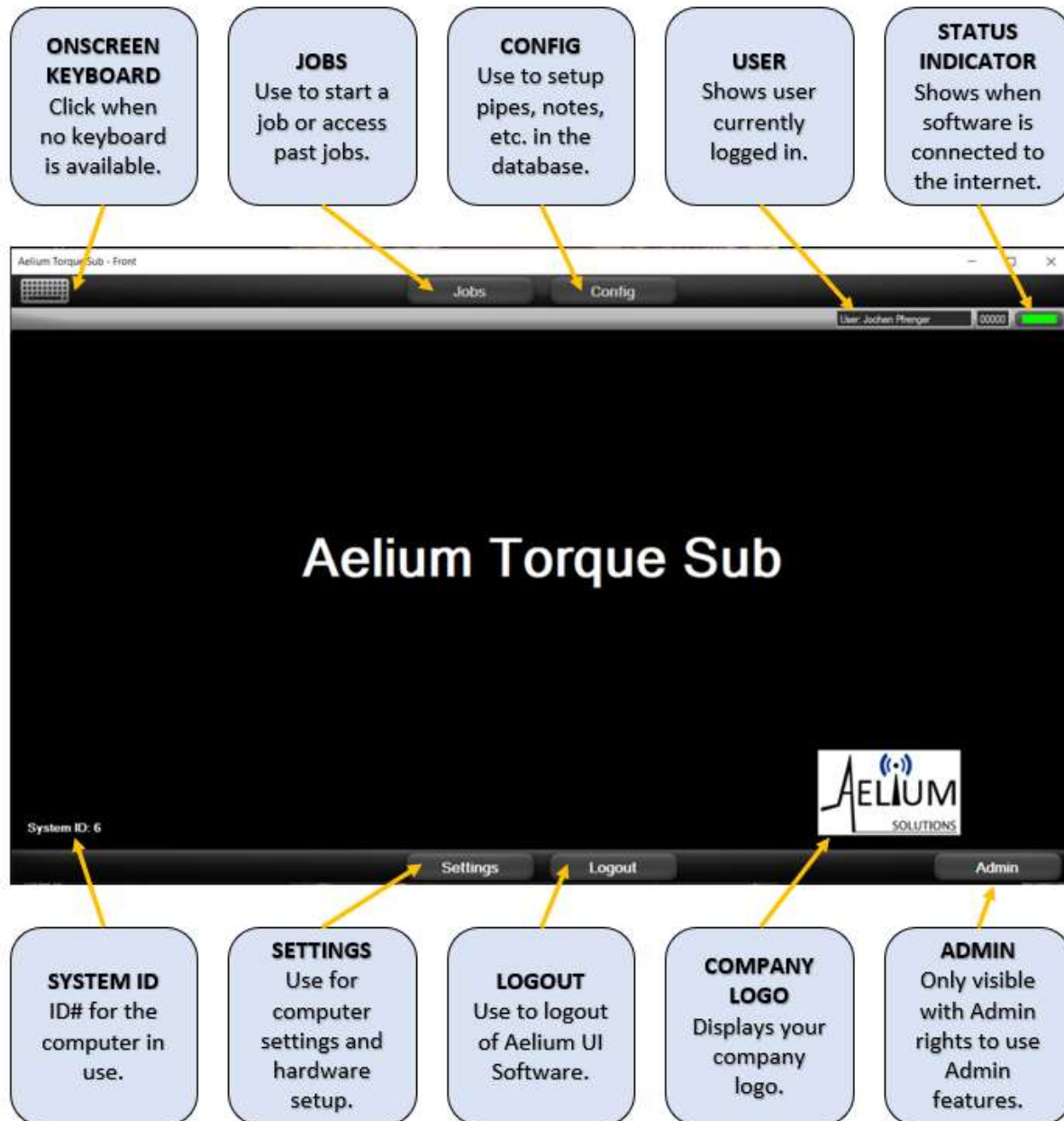


Figure 7: Home screen

## 5.2 Administrator features

The following features and functions shall only be accessed by a user with company administrator rights. This is system level data and affects every PC and user in your company.

The various admin topics can be accessed through the drop-down menu:

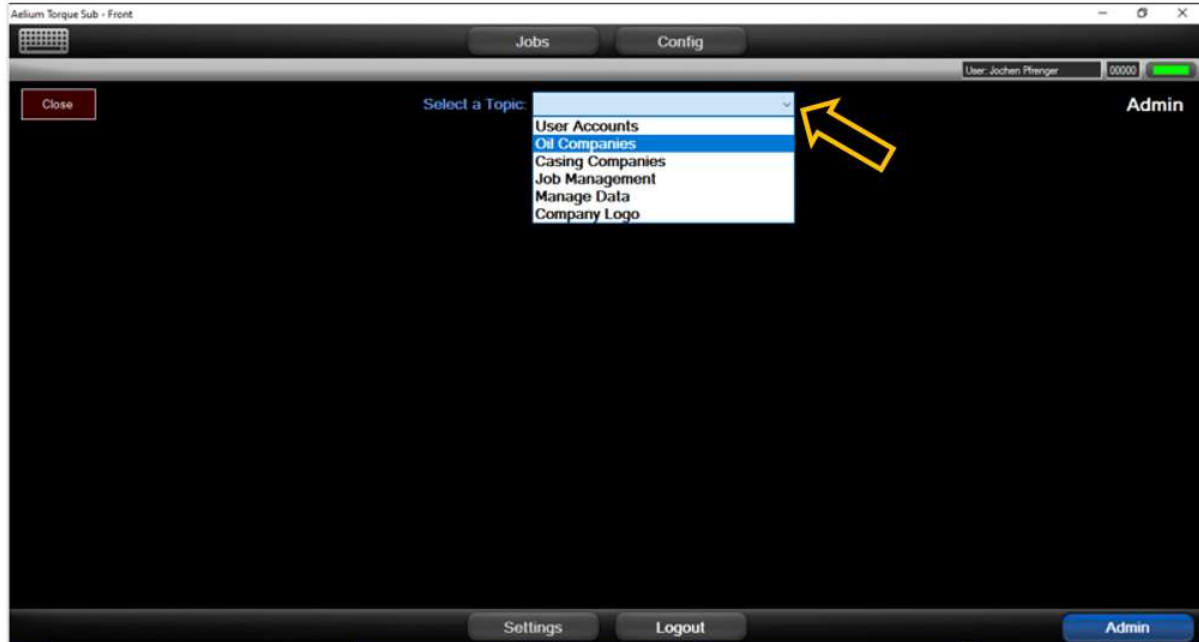


Figure 8: Admin screen

### 5.2.1 User Accounts

In this section, users with administrator rights can:

- add or disable user accounts
- reset passwords
- change the permissions that users have on the account

The Admin user also has the ability to setup 3<sup>rd</sup> party viewer accounts for customer login.

To create a new user, click on “Create New User”:

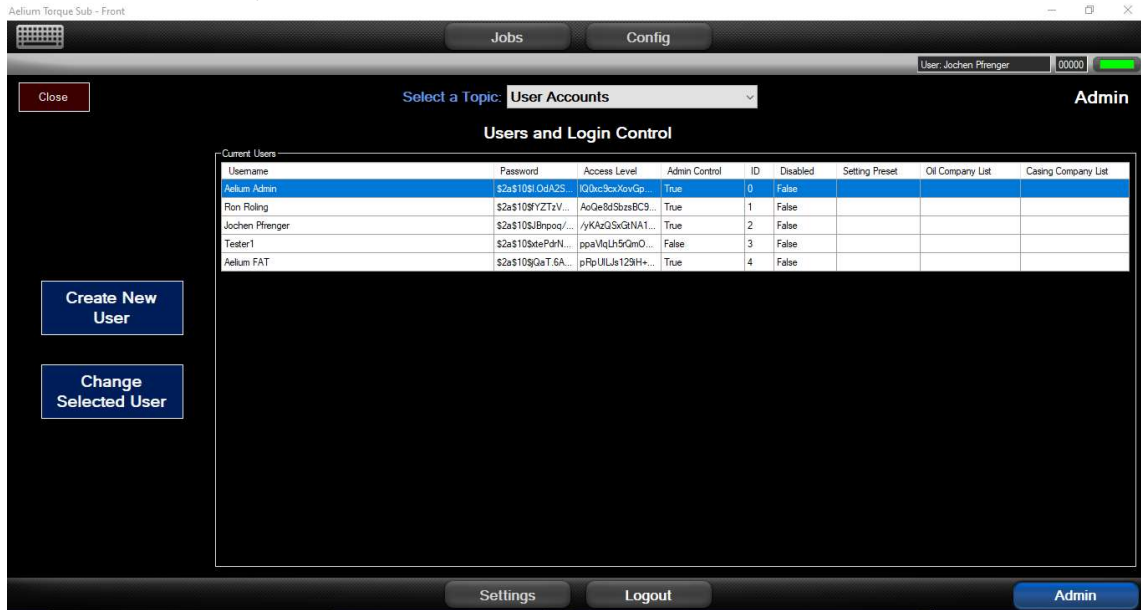
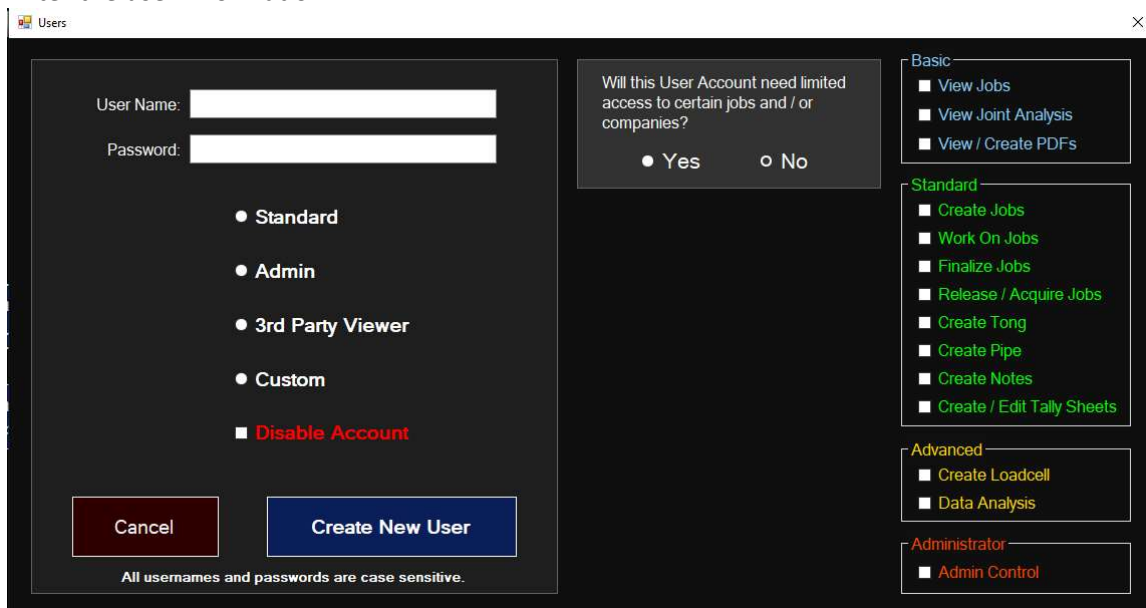
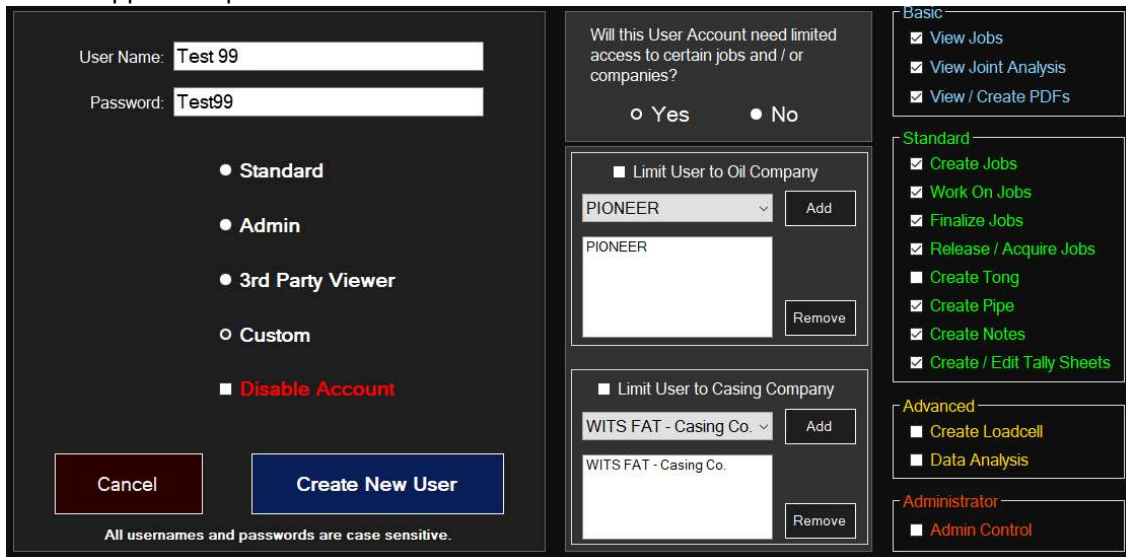


Figure 9: User accounts screen

Enter the user information:



Set the applicable permissions and click on “Create New User”:



If prompted, check all permissions and click “Yes”:

Aelium Torque Sub Message

**This user will have the following access, is this correct?**

Jobs will not be limited by Oil Company

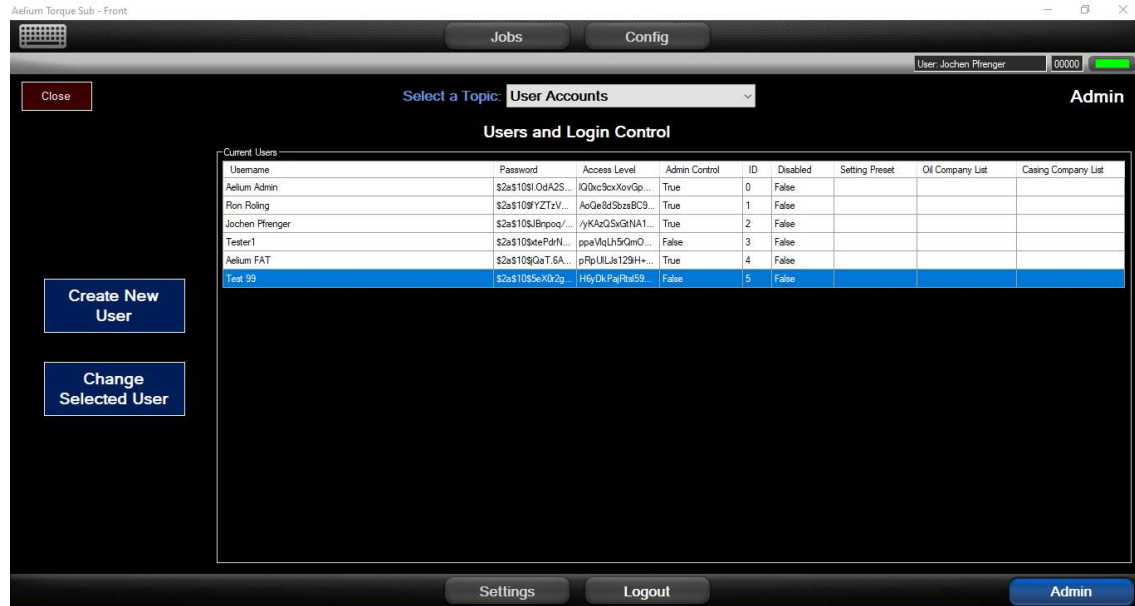
Jobs will not be limited by Casing Company

Click “OK”:

Aelium Torque Sub Message

**The user has been successfully created.**

The new user has been created:



## 5.2.2 Oil & Casing Company Information

**Oil & Casing Companies are controlled lists that must be setup while connected to the internet** to ensure that duplicate company names are avoided and that name spellings are correct. This is critical for use of filtered searches and user access features. (For further detailed support on admin features & functions contact Aelium Support).

You can create new companies or edit existing companies.

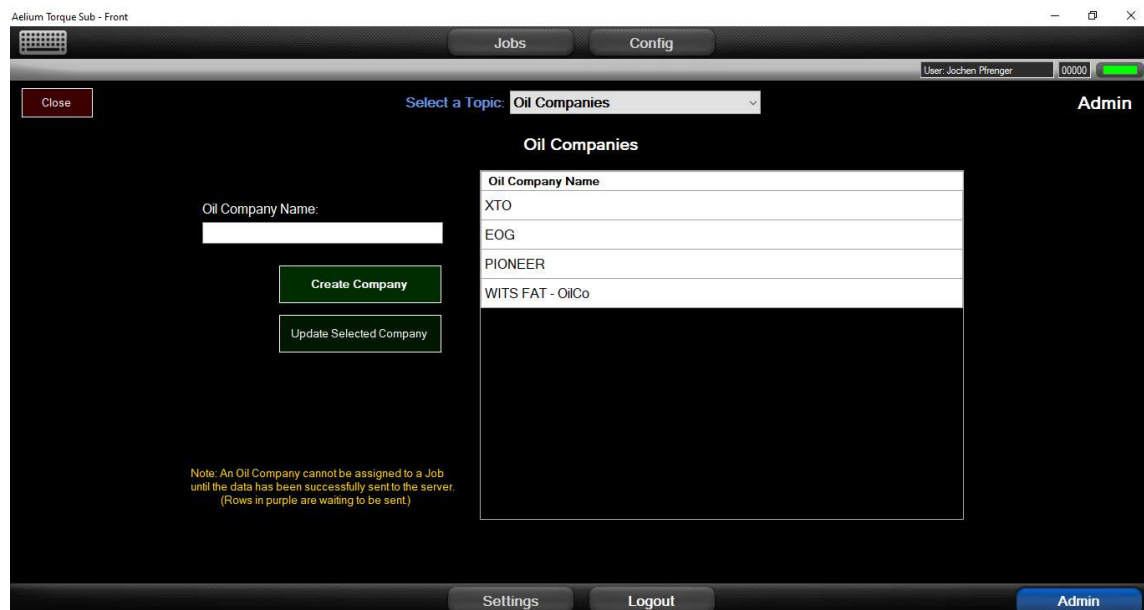


Figure 10: Oil companies screen



### 5.2.3 Job Management

Job Management shows job status and information, such as the parent computer, archived jobs and finished jobs.

Jobs can be released from a parent computer. Admin control can change any of these. This section of the program is setup with warnings and user passwords. (For further detailed support on admin features & functions contact Aelium Support).



Figure 11: Job management screen

### 5.2.4 Manage Data

For use by the fleet administrator only.

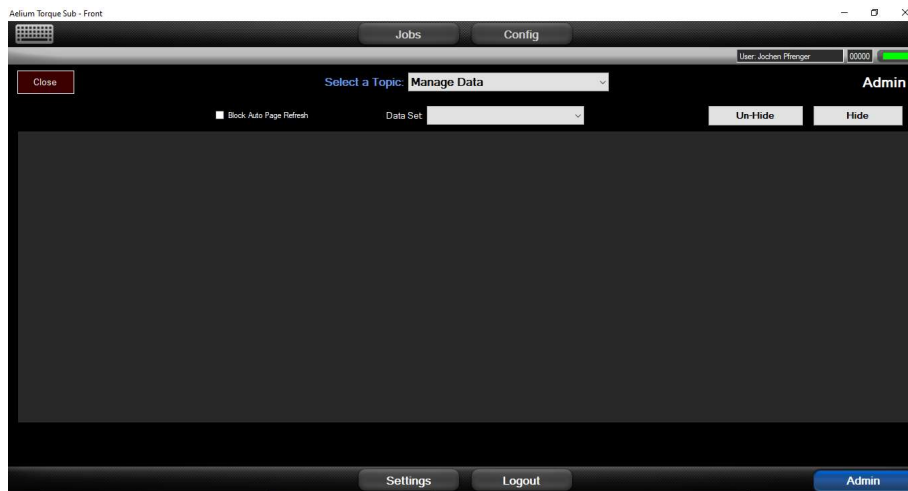


Figure 12: Manage data screen

### 5.2.5 Company logo

Used to setup a company logo which is displayed on the main menu screen of the program and on the title page of the PDF Job Reports.

File types must be JPEG or PNG. Size limit is 250 kB.

File formats with a transparent background look best.

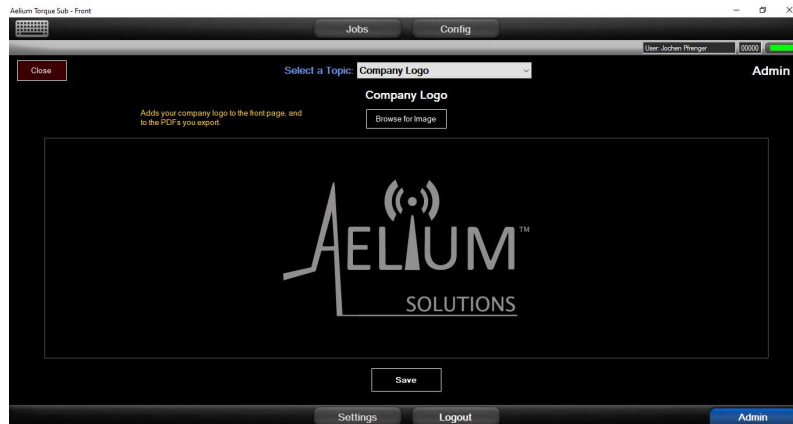


Figure 13: Company logo screen

## 5.3 Settings features

Used to setup parameters that the Computer uses on every job.

**These parameters are local and ONLY apply to the Computer that is being used. These parameters and any local changes DO NOT sync across all Computers in the company fleet.**

If you change something that does not normally need to be changed , it may be necessary to reverse the setting adjustments back to the previous settings.

**NOTE:**

After any changes are made, click on the **SAVE SETTINGS** button to ensure the changes are maintained.

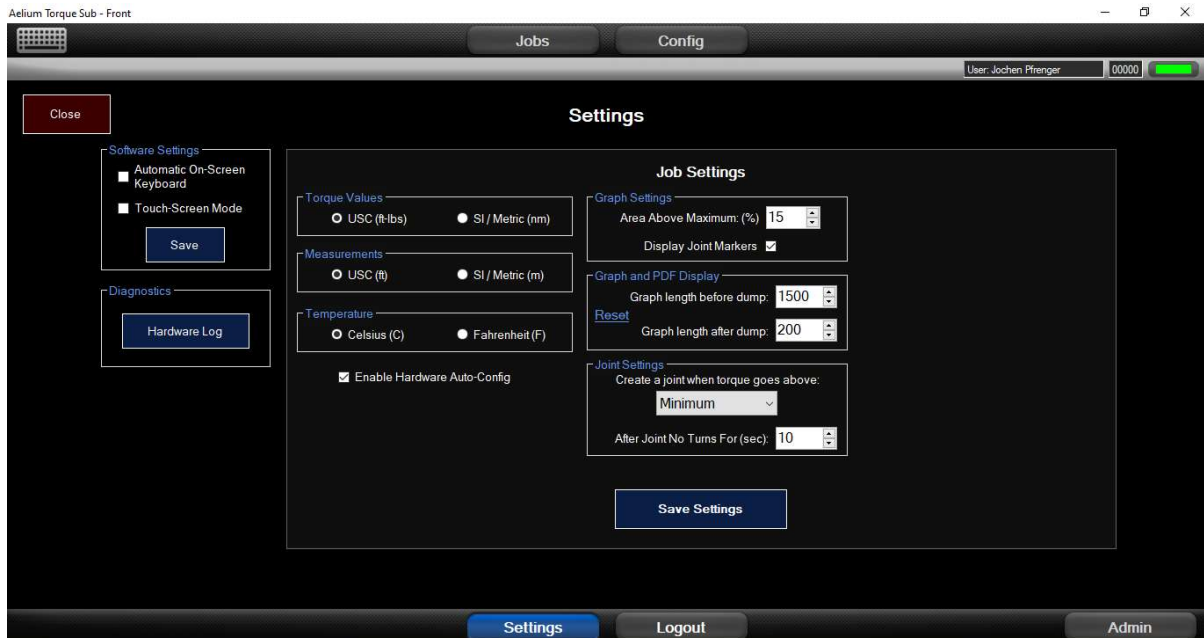


Figure 14: Settings screen

### 5.3.1 Software Settings

Use these settings to ensure a keyboard and mouse are default onscreen tools.

### 5.3.2 Diagnostics

This feature is used for troubleshooting with the Hardware Log.

### 5.3.3 Torque Values

Use this to switch between imperial or metric values.

### 5.3.4 Measurements

Use this to switch between imperial or metric values for lengths.

### 5.3.5 Temperature

Use this to switch between Fahrenheit [°F] or Celsius [°C] values for temperature.

### 5.3.6 Graph Settings

The area above the graph, is used to control how much screen is shown above the maximum Torque Value, normally only a small amount of area is needed to show a joint that might be over-torqued.

Display joint markers is used to turn off the joint markers on the screen. The only reason for this is if the joint marker is covering up some detail that someone wishes to review.

### 5.3.7 Graph & PDF

The Aelium UI Software collects data nonstop. **The PDF graph is only the data that is around the joint make up.** Aelium uses the final torque value as the point to reference from.

#### 5.3.7.1 Graph length before joint marker point

Used to control the amount or length of joint data leading up to the joint marker point.

Joints with slow makeup RPM can collect data over a long period of time. It is not always necessary to show a long graph. Graph length before dump can be used to trim the graph to show the most important information that is close to the joint makeup, or graph length before dump can be increased to show more joint data at the beginning of the joint makeup.

**Be careful not to set this value to high or it will show data from the previous joint.**

#### 5.3.7.2 Graph length after joint marker point

Used to control the amount or length of joint data after the joint marker point.

Use this feature to show data after the joint marker. There is little need to change this from the default. Increase this value if there is missing data after the joint marker point. Keep this value short for a clean looking graph.

#### NOTE:

The PDF settings can be adjusted and tested by creating a PDF job report and viewing the PDF job report. This can be done multiple times until the job report graphs meet the user's preferences. When the PDF job report is correct, save the PDF job report as a PDF file.

These changes only affect the PDF job report formatting of the data that is shown from the job. They do not affect the job data. These settings can be reverted and changed at any time to adjust any formatting issues of the job report PDF.

### **5.3.8 Joint Settings**

This feature is used to control at what point the software will automatically call out a joint.

#### **5.3.8.1 Minimum**

This method follows the technical description of acceptance criteria for a joint.

At Minimum setting, the software creates a joint when the Torque has exceeded the Minimum Torque Value.

This feature is useful in situations where stopping just below Optimum Torque is OK.

#### **5.3.8.2 Optimal**

At Optimal setting, the software creates a joint when the Torque has exceeded the Optimal Torque Value.

This feature is useful when the Torque Value is brought over minimum Torque, then letting off on the Torque, and then going back into the joint until Optimum torque is reached.

## 5.4 Configuration features

In this section, the library is built for fleet-wide use. If a change is made in this area, it will become updated on every computer in the fleet. These lists of equipment, pipe, comments, tools and accessories are available to all computers.

Keep these lists clean and accurate for better report results.

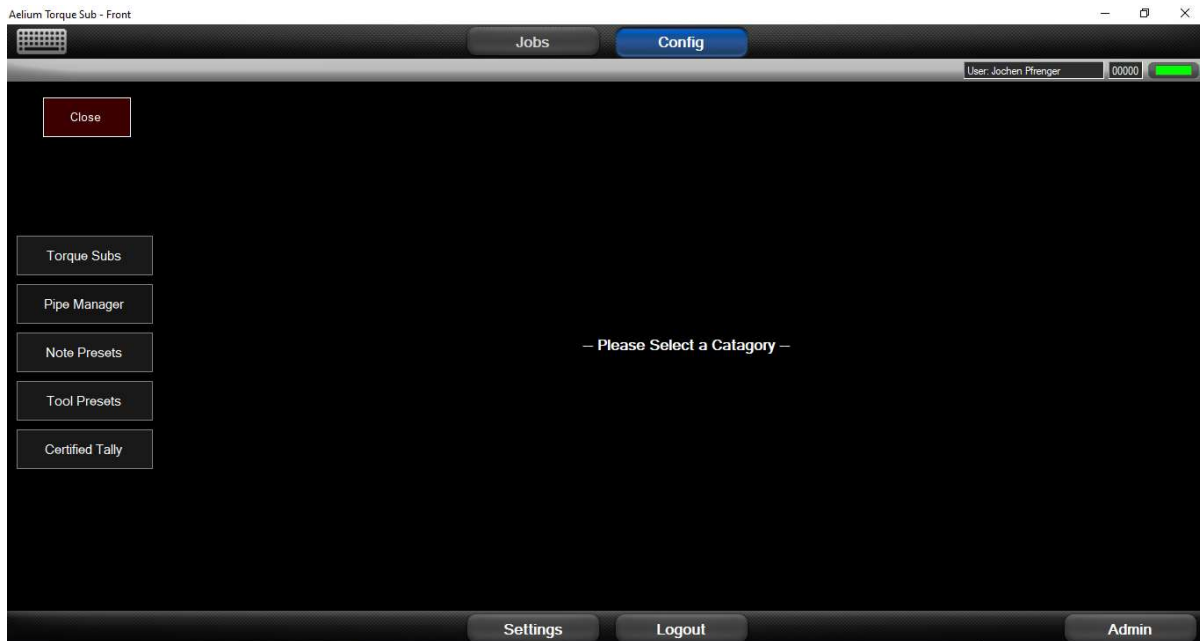
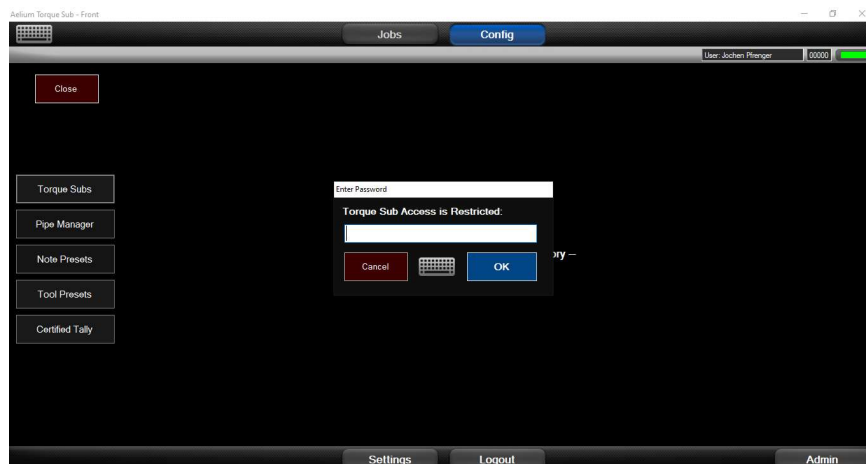


Figure 15: Configuration screen

### 5.4.1 Torque Subs

This menu is locked out and restricted. It is for Aelium calibration administration purposes only.



## 5.4.2 Pipe Manager

### 5.4.2.1 Master List

The menu starts in the “Master List” tab showing the complete library of pipes available.

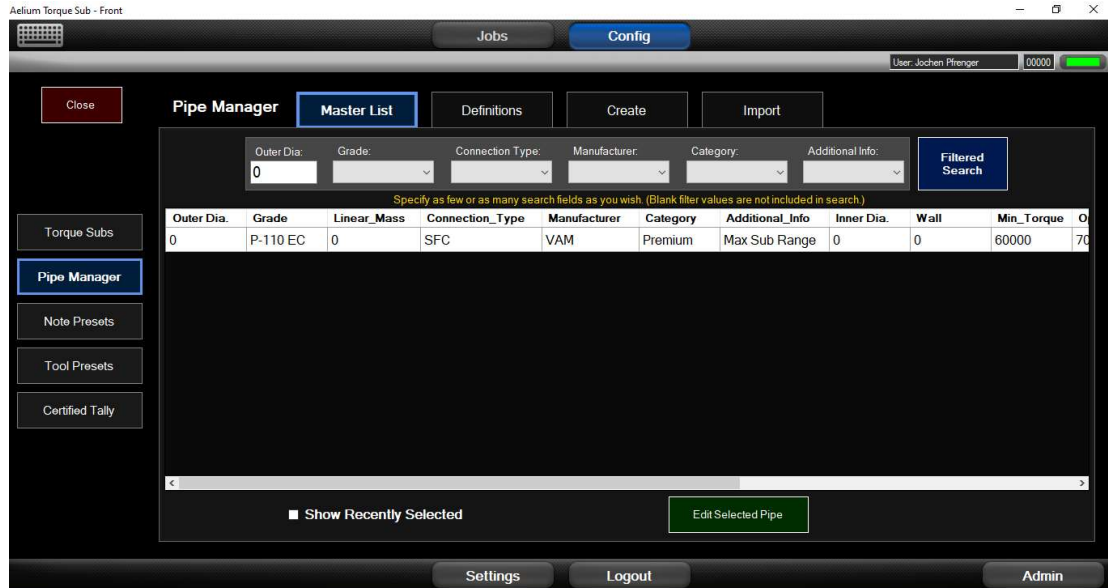


Figure 16: Pipe manager screen – Master List

### 5.4.2.2 Definitions

Go to the “Definitions” tab, enter the categories, manufacturers, grades, connections and additional information that will be used for the library.

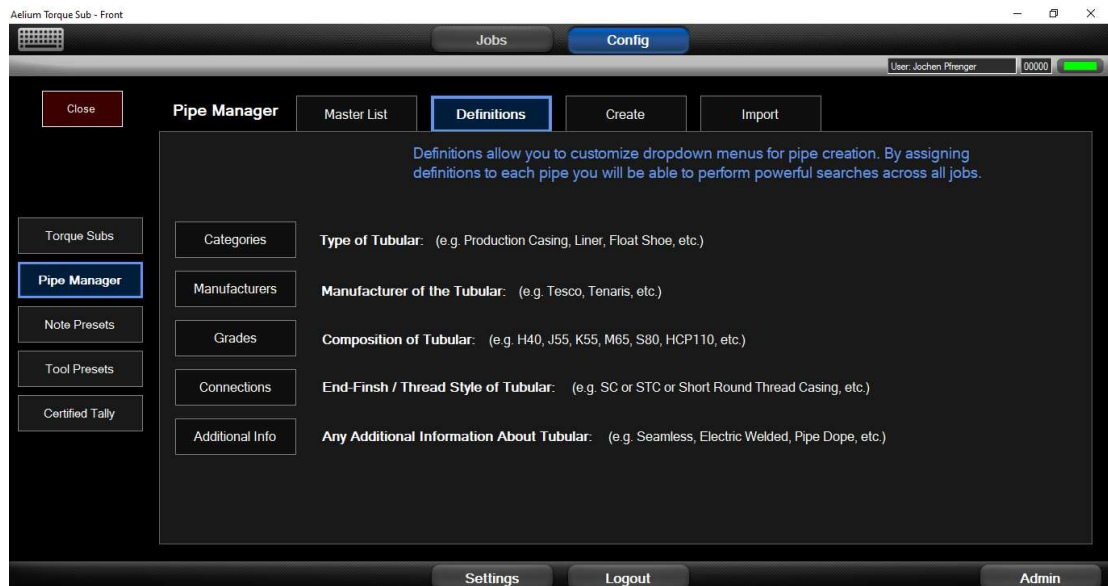


Figure 17: Pipe manager screen – Definitions

Once the categories are setup a new pipe can be created.

### 5.4.2.3 Create New Pipe

Follow the steps outlined in the on-screen menu to create a new pipe. When complete, click “Create New Pipe” to save the parameters and to create a new pipe in the library.

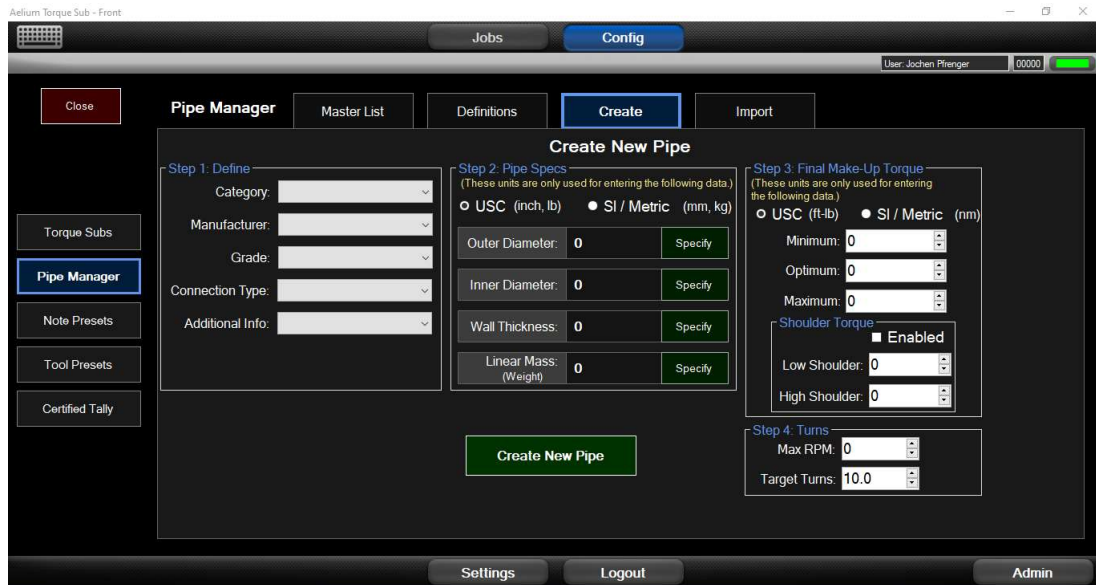


Figure 18: Pipe manager screen – Create

The following data fields must be entered AT A MINIMUM to create a new pipe. All data fields should be entered for best results in searches and reports. Missing data adversely affect the ability to find pipe in the library and creates poor job reports with missing data.



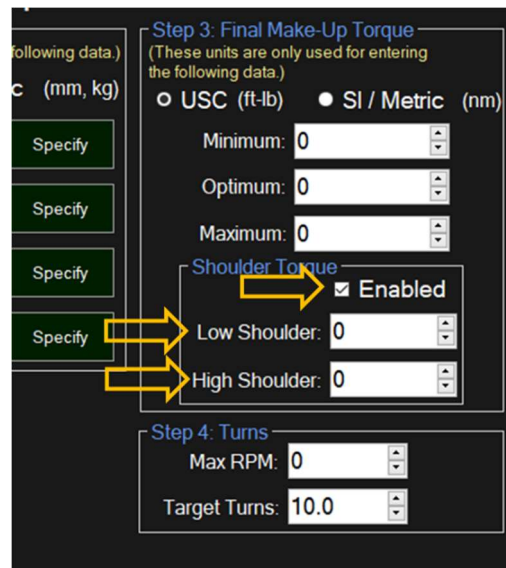
**5.4.2.3.1 Minimum Required Data:**



- Category
- Manufacturer
- Grade
- Connection Type
- Outer Diameter

**5.4.2.3.2 Shoulder Torque**

If “Shoulder Torque” is enabled, these additional data fields must be entered:



- Low Shoulder Minimum Torque
- High Shoulder Maximum Torque

### 5.4.2.3.3 Shoulder Torque

Selecting “Enable” on the Shoulder Torque option will turn it on. It is necessary to enter the Shoulder minimum and the Shoulder maximum if this feature is Enabled. (If you do not do this the software will not allow the pipe creation.)

### 5.4.2.3.4 Target Turns

This setting defines the scale that is used to display the Torque vs. Turns graph. It is recommended to set the value at 1.5x – 2.0x the expected makeup turns for that joint.

If this setting is too low, the live Torque vs. Turns graph will not show the end of the joint makeup. This may be visible when running a double make up where extra turns are needed to complete the joint. This setting can be changed once the job has started.

## 5.4.2.4 Importing Pipe

Pipes can be imported from existing Alltorque or Aelium libraries using a CSV file.

It is critical that ALL CSV columns match in structure and format.

For detailed guidance and instructions, please contact Aelium support.

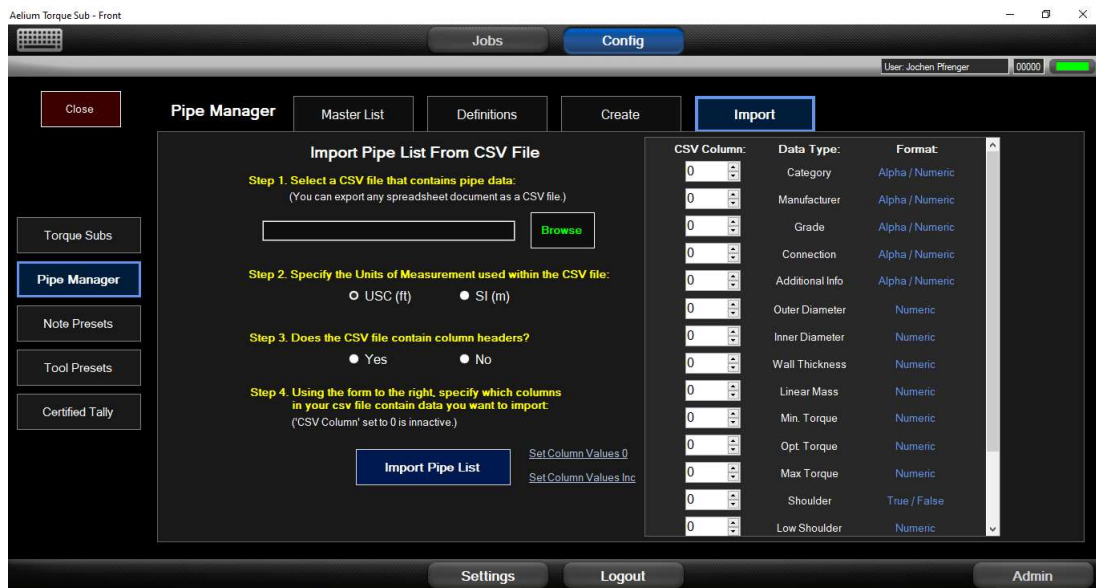
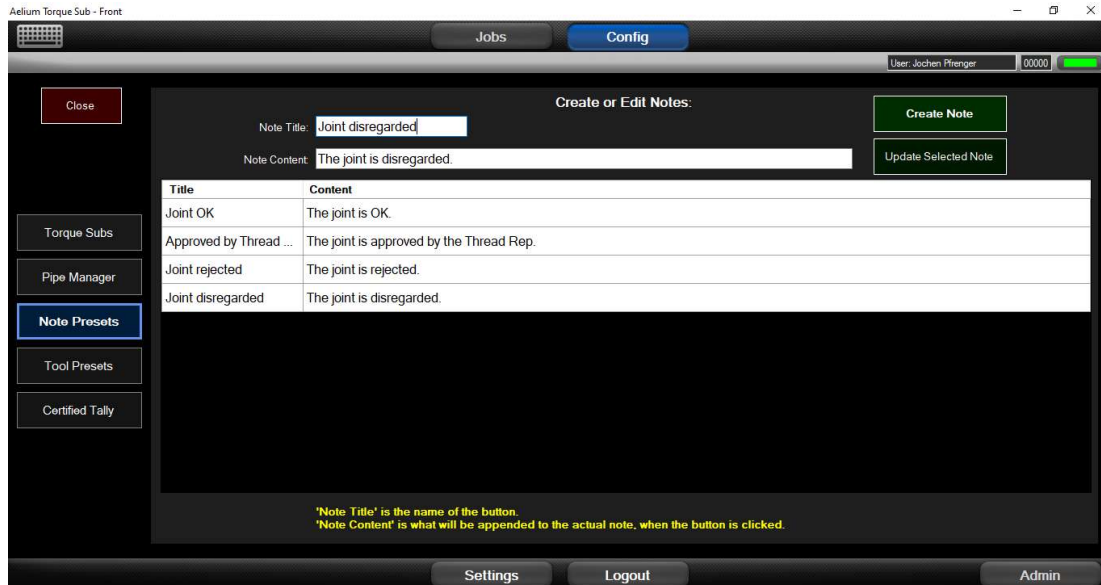


Figure 19: Pipe manager screen – Import

### 5.4.3 Note Presets

Used to create an easily accessible library of notes that may be frequently used. This simplifies and speeds up data entry while being consistent in the commentary.

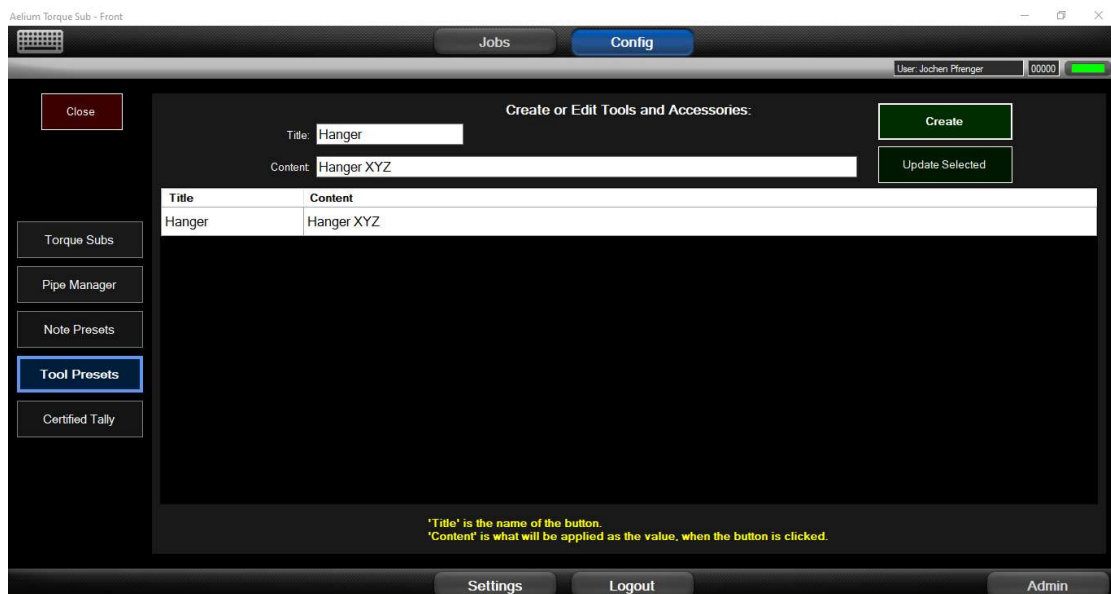
Preset Notes can be created or edited.



### 5.4.4 Tool Presets

Used to create an easily accessible library of tools that may be frequently used. This simplifies and speeds up data entry while being consistent in the commentary.

Preset Tools can be created or edited.



### 5.4.5 Certified Tally

Used to create or import tallies before a job is started.

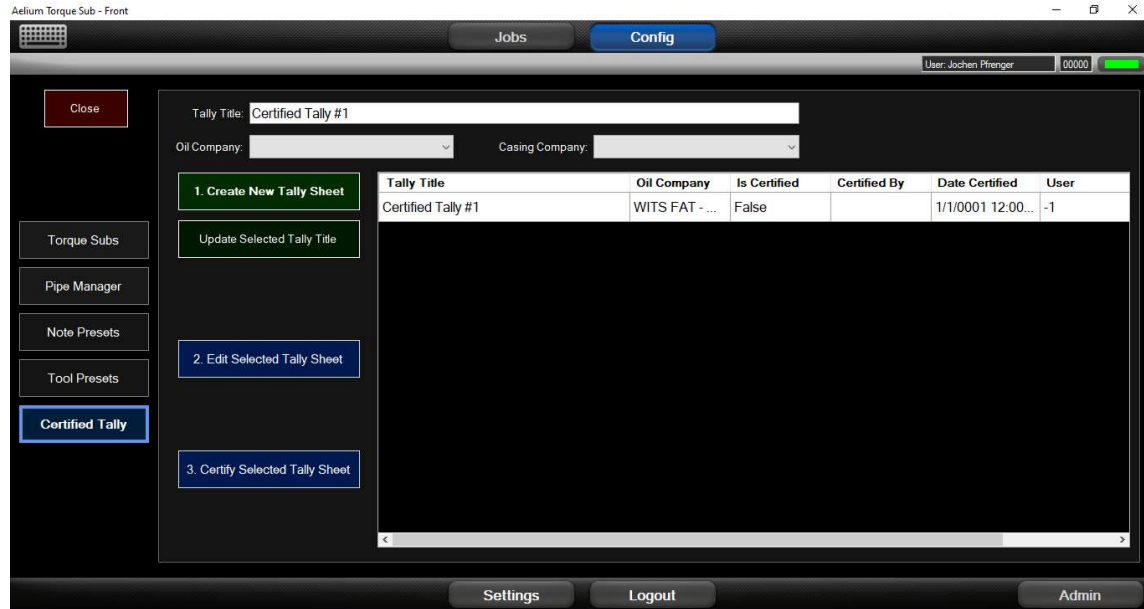
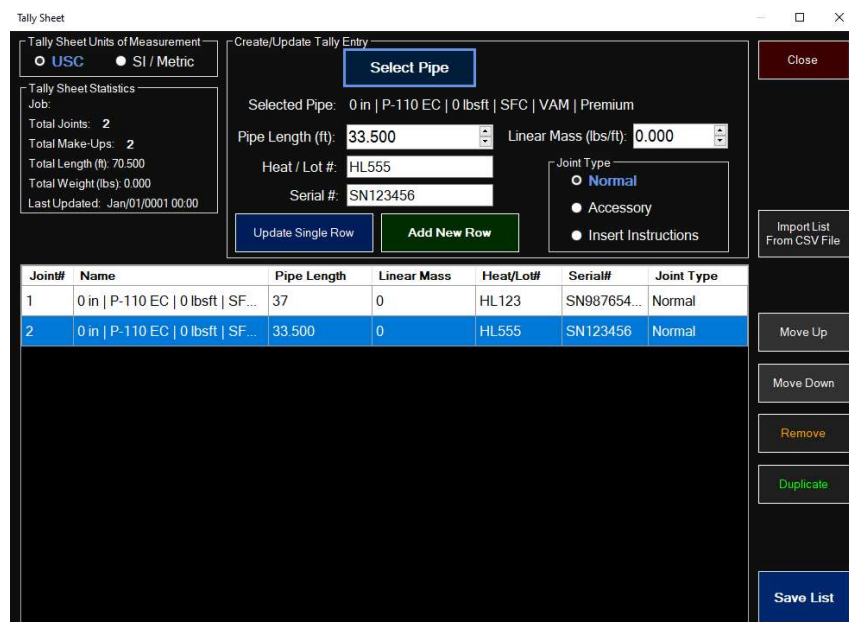


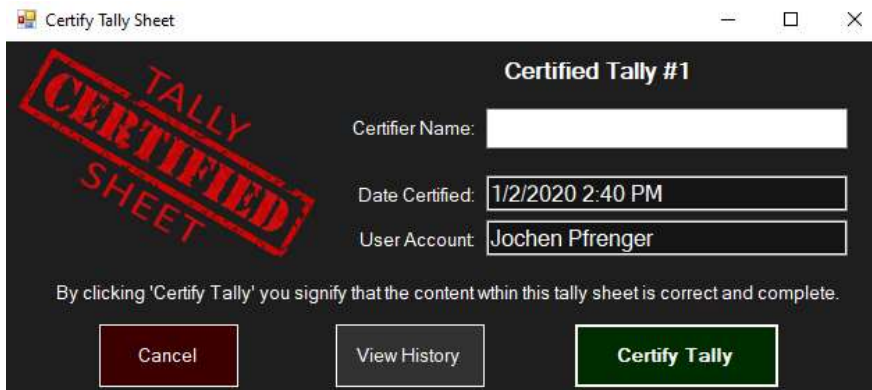
Figure 20: Certified tally screen

Edit a tally sheet by selecting the tally and clicking “2. Edit Selected Sheet”:



Adjust the tally as needed.

To certify a tally, click on “3. Certify Selected Tally Sheet”, update the information and click “Certify Tally”:



When prompted, click “Yes” to certify the tally sheet or “No” to go back.

## 5.5 Jobs

### 5.5.1 Hardware Setup

Install the WITS™ Torque Sub, WITS™ Access Point and computer. Follow the instructions provided by the respective manuals referred to in section 1.5 above.

### 5.5.2 Pre-Job preparation

#### 5.5.2.1 In shop

- In a safe area, plug in the computer power cable and charge the computer to confirm that the batteries are fully charged.
- Check on the tablet that the latest Windows updates are installed.
- Check the Aelium UI Software and install available updates.
- Check all components, connectors, cables and antennas to ensure they are in proper working condition.
- Function test the equipment.

#### 5.5.2.2 On site

- Check all components, connectors, cables and antennas to ensure they are in proper working condition.
- Install the WITS™ Access Point with the internal antenna and external antenna. Follow the instructions provided by the respective manuals referred to in section 1.5 above.
- Power up the computer and start the Aelium UI Software.
- Connect to the WITS™ Access Point and WITS™ Torque Sub.
- Function test the equipment.

## 5.6 Job Setup

The Jobs screen shows a listing of active jobs.

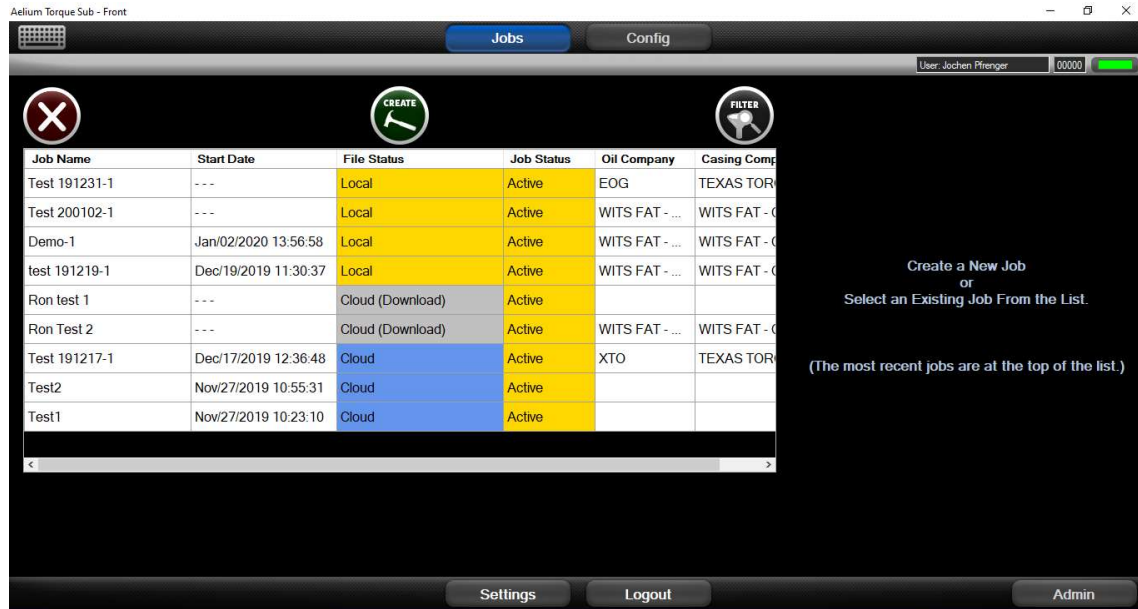


Figure 21: Jobs screen

Select a job.



Depending on the job's file status, you will see different action button options.

### 5.6.1 File Status:

- Local:** The job is local on the computer and can be:
- Started
  - Released
  - Completed
- Cloud (Download):** The job is stored in the cloud server and can be:
- Downloaded
- Cloud:** The job is in the cloud server with a local copy on the computer and can be:
- Acquired (to be started or completed)
  - Viewed

### 5.6.2 Action Buttons

**Exit:** Exit out of the current window:



**Create:** Create a new item:



**Filter:** Activate the filter function and menu:



**Start:** Start a process:



**Release:** Release control of a job so that someone else can acquire the job:





**Complete:** Complete a job. Once complete, the job is saved to the cloud server and cannot be edited without Administrator rights:



**Tools:** Activate the tools menu:



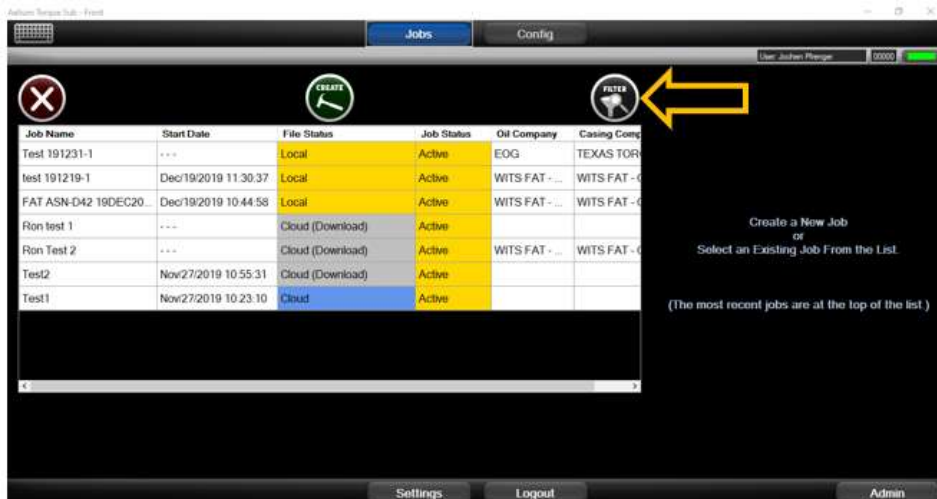
**PDF:** Activate the PDF menu to create a PDF Job Report:



To view or access archived or finished jobs, use the filter function as shown in section 5.6.3 below

### 5.6.3 Filter

Click the “Filter” symbol to open the job filter list.

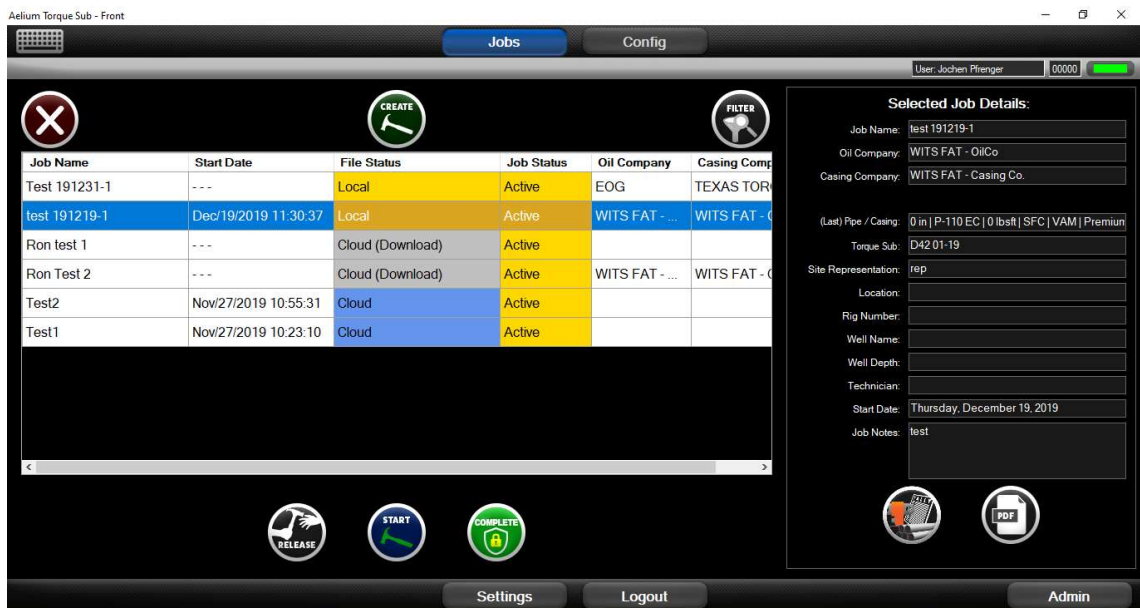




Select the filter(s) you want to apply and click “Close”



Select a job in the list and the job details will appear in the right column.



## 5.7 Starting a new job

Start a new job start by clicking the “Create” button on the jobs screen.



Figure 22: Jobs screen

The “create new jobs” screen will appear. Fields with a star \* next to them are required to be filled in. Other fields are recommended to be completed for accurate record keeping and good reporting. Complete all data and Click “Create New Job”.

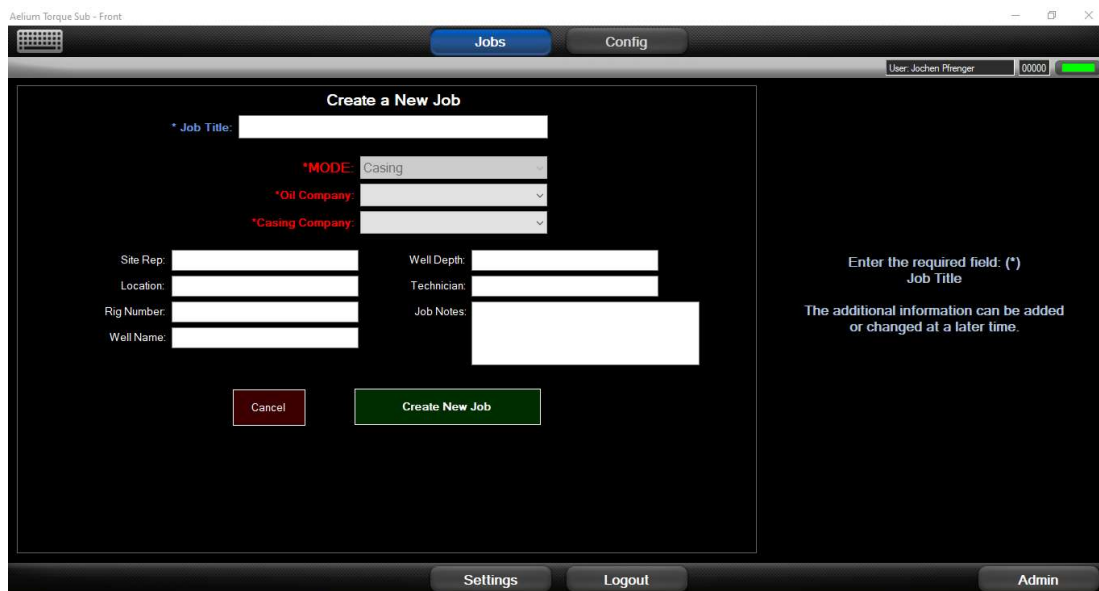


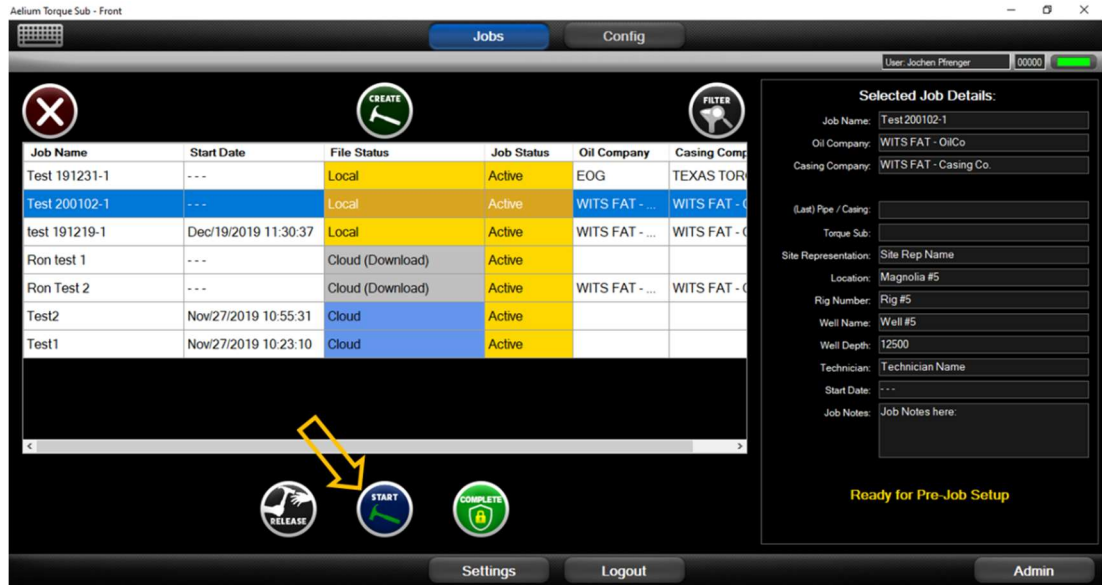
Figure 23: Create new Job screen

**NOTE:**

It is important for computer hands to keep notes on every part of the job they are able to. This helps for accurate reporting.

The software defaults back to the “Jobs” screen.

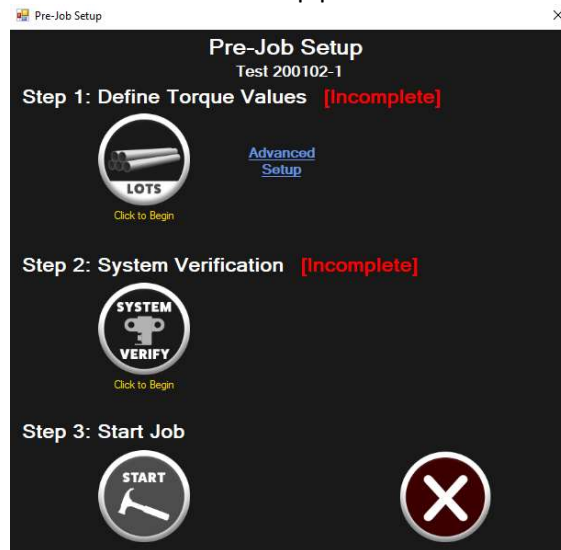
Select the job you created and click “Start”:



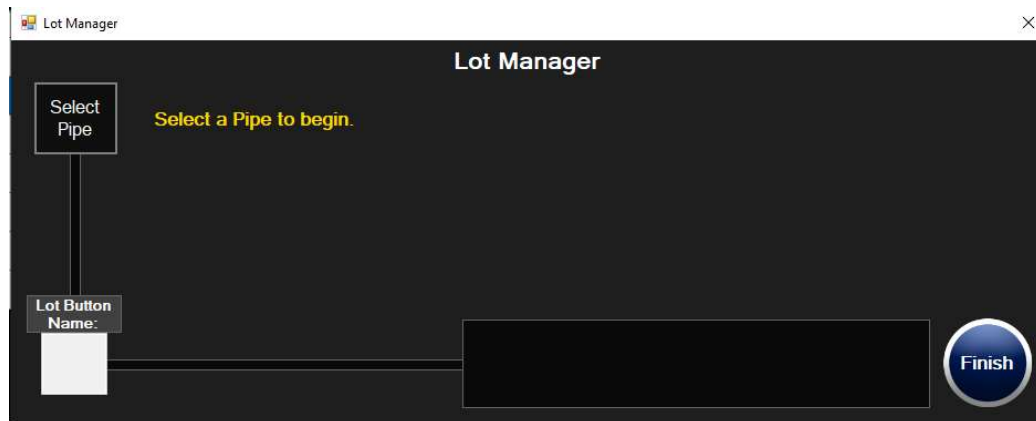
Follow the on-screen guidance to set up the job.

### 5.7.1 Pre-Job Setup

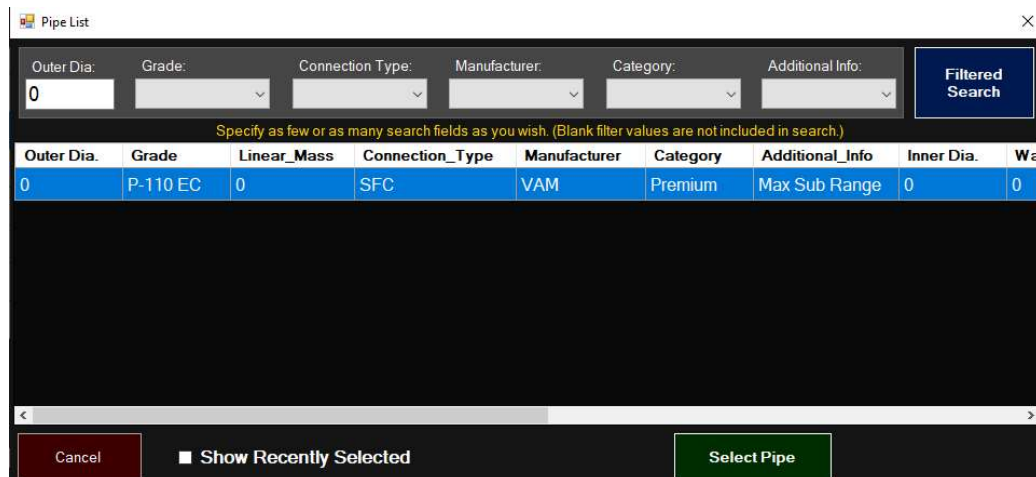
Click on “Lots” to select pipe.



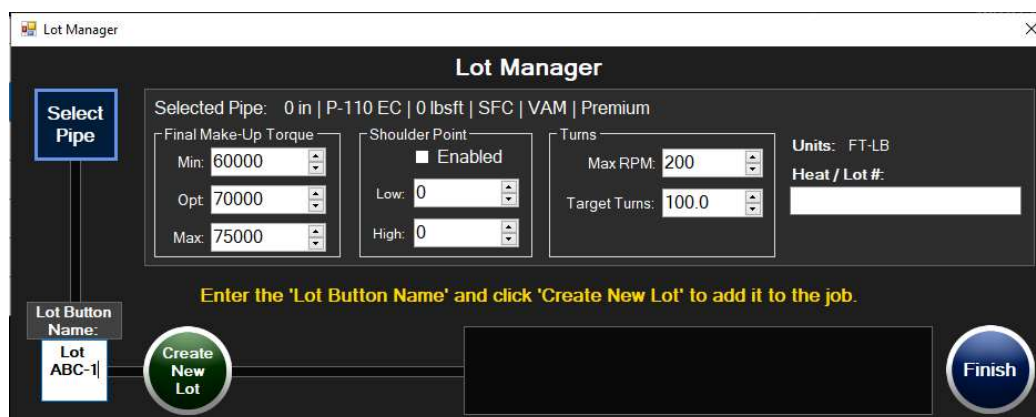
Click on “Select Pipe”:



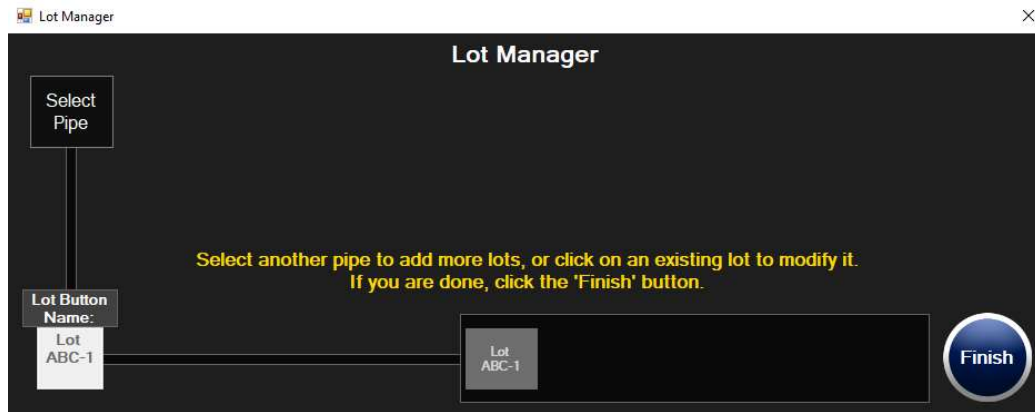
Select a pipe from the list:



Enter the “Lot Button Name” and click “Create New Lot”:



You can add additional pipe lots, or click “Finish” when done:

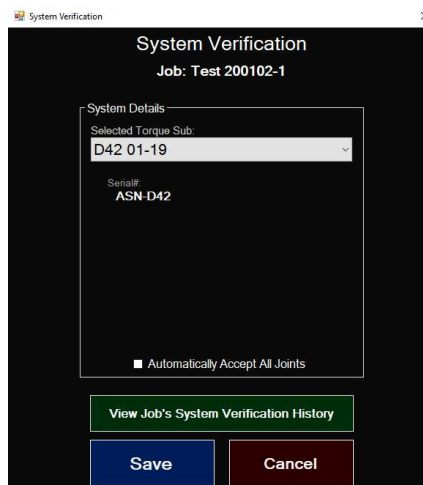


### 5.7.1.1 System Verification

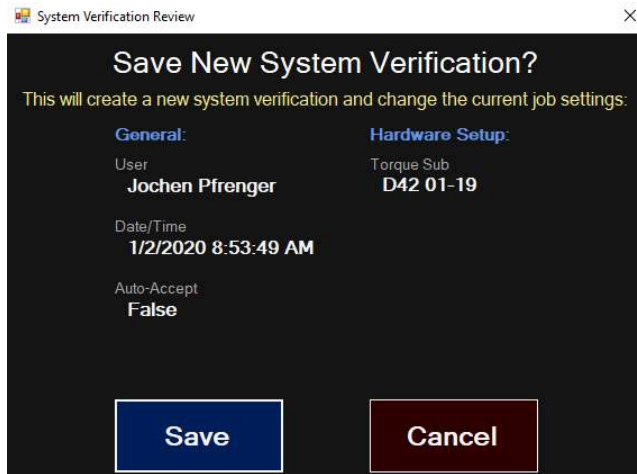
Select “System Verification”:



Select the Torque Sub that will be used for the job from the drop-down list and click “Save”:

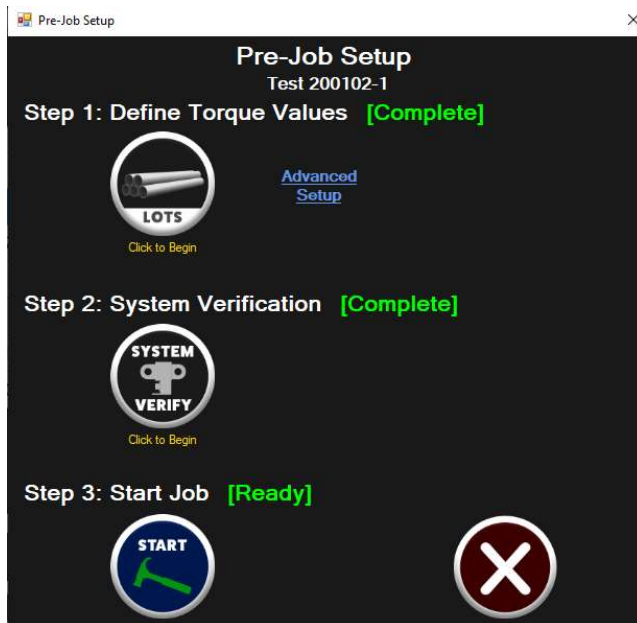


Verify all data and click “Save” to accept or “Cancel” to make changes:



### 5.7.1.2 Start Job

Click “Start Job” to open the “Aelium Torque Sub – Control” screen:





## 5.8 Running a Job

Once a job has been setup, the “Aelium Torque Sub – Control” screen will open. This is the main screen while a job is running. The Aelium software runs a continuous graph while powered on. There is no part of the job without information. Everything is monitored.

The screenshot shows the Aelium Torque Sub – Control interface. At the top left are 'ON' and 'OFF' buttons. To the right is a 'Graph Zoom' dropdown menu. Further right are system status indicators for CPU, memory, and network, along with a 'Local Demo Mode' button. On the far right are 'Lock-1', 'Quick Tally', and 'Add Note To Joint' buttons. The main area contains a large graph and a table of joint data. At the bottom are three gauges: 'Load (lbs)', 'Torque (ft-lbs)', and 'RPM', along with a 'Turn' indicator and a 'Temp (C)' gauge. A 'MANUAL / AUTO SCROLL' toggle is located on the left side.

**ON / EXIT**  
Click ON to connect to sub.

**GRAPH ZOOM**  
Use to zoom in or out of graphs.

**SHORTCUTS & SYSTEM STATUS INDICATORS**  
To On-screen Keyboard, Settings, Tools and Windows.

**JOINT DETAILS**  
Can be hidden to maximize graph area.

Joint#	Count	Joint Value	Name	Length
1	1	70147	0 in   P-110...	0

**MANUAL / AUTO SCROLL**  
Toggle between manual and auto scrolling.

**GAUGES & STATUS INDICATORS**  
Tension/Compression, Torque, Turns, RPM, WiFi, Battery & Temperature. These gauges show live data when connected to a Torque Sub.

Figure 24: Aelium Torque Sub – Control screen – home

## NOTICE

- **BEFORE** turning the software to “On”, ensure that the Aelium Access Point is installed correctly, has line of sight to the WITS™ Torque Sub in all positions and is powered up.
- **Only use a single Aelium Access Point.**
- **The computer will lose any WiFi-based internet connection. Close all programs that require an internet connection other than this software.**

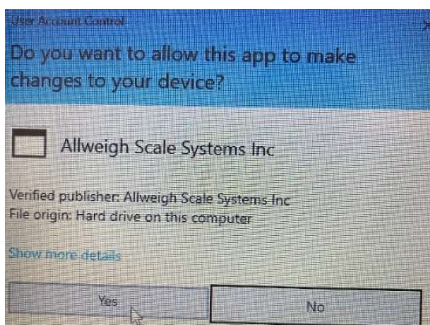
Click “On”:



Figure 25: Aelium Torque Sub – Control screen - toggled

The software will start a sub-program to make changes to the computer’s WiFi settings by configuring the computer’s network adapter to the static IP Address of the Aelium Access Point. This is required to be able to connect to the Aelium Access Point.

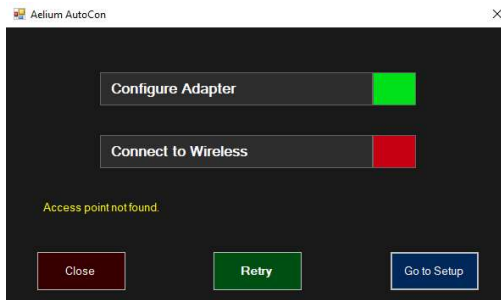
When prompted, click “Yes”:





**NOTE:**

If the software is turned to “On” without a functional Aelium Access Point available to connect to, the software will not connect to the Wireless and the indicator will turn to red and a message “Access point not found.” Will appear. To return and re-connect the computer to the previous WiFi connection, click on “Go to Setup”



Click on “Return Adapter to DHCP” to reset the network adapter.

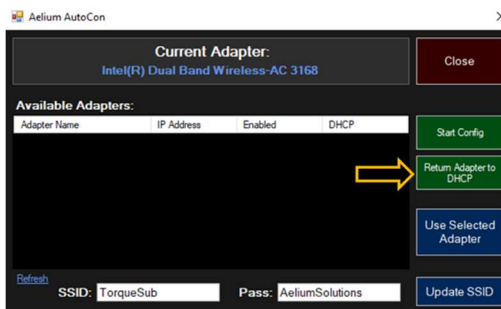
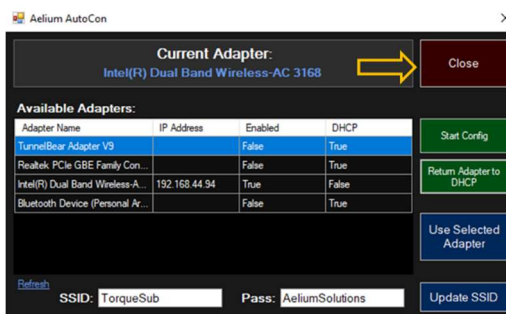


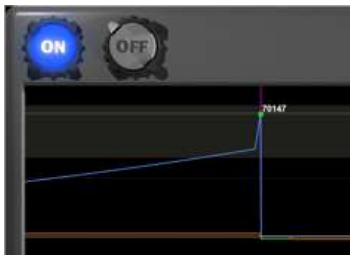
Figure 26: Re-setting the network adapter to DHCP

This action will re-configure the network adapter. The computer should now be able to connect to other WiFi networks and, depending on the computer’s settings, re-connect to the previous Wi-Fi network.

Click “Close”:

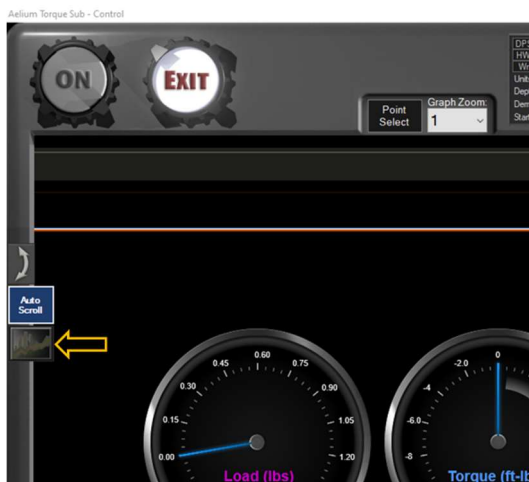


### 5.8.1 Torque vs. Turns Graph

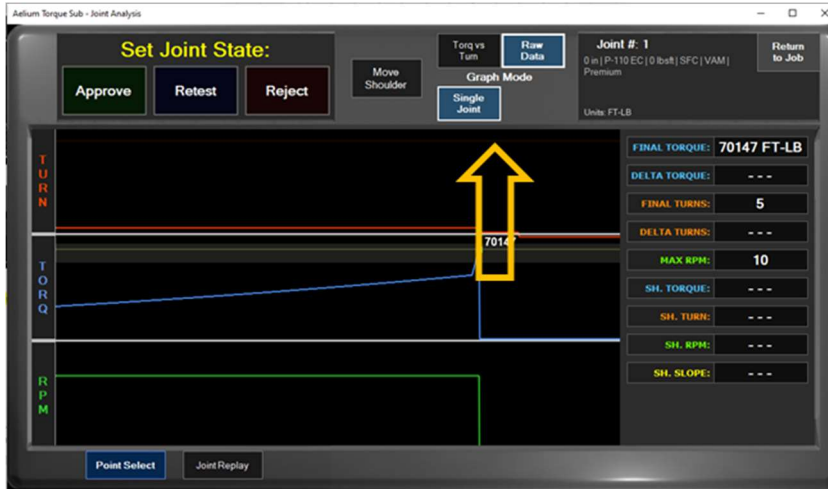


### 5.8.2 Torque vs. Time vs. RPM vs. Turns Graph

To view the raw data, click on the “Raw Data” field:



You can select different graphing options:



### 5.8.3 Joint Analysis

Once a joint is completed the joint review screen will appear. The computer hand will need to adjust the shoulder point on the graph and review the joint. The option for the computer hand to reject or retest a joint is also available

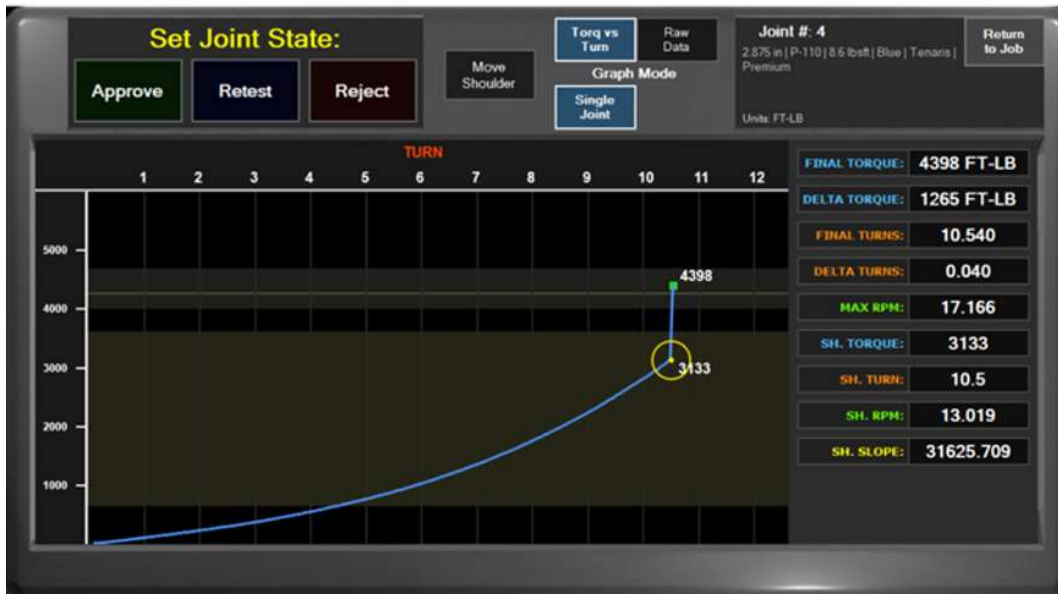


Figure 27: Joint analysis screen

**NOTE:**

If a computer hand does not correctly approve or reject a joint on this screen can be labeled correctly after this step.

To view the details of the graphs at any point in time, simply right click on the graph and the graph details and values are displayed:



## 5.8.4 Tally

Tallies are done differently rig to rig. The data on the graphs cannot be changed, however the way that it is labeled and organized in the Tally can be changed to the match different formats.

### 5.8.4.1 Quick Tally

A small pop up screen that is used for the observing of pipe length and inserting double make up joints and so on.

### 5.8.4.2 Pipe Tally

This is a full list of the Tally and has more features to add, remove and adjust the order of the items throughout the Tally.

This page is accessed while the job is not running, as larger edits should not be performed while running pipe.

## 5.8.5 Exiting A Job

Ensure you always Exit a job PRIOR to powering off the Aelium Access Point to avoid potential Windows issues with the WiFi DHCP configuration.

If you encounter WiFi issues with your PC, right click on the WiFi symbol in the task bar and select "Troubleshoot problems". Then follow the on-screen instructions and let Windows identify and apply the fix to activate DHCP settings for your WiFi.

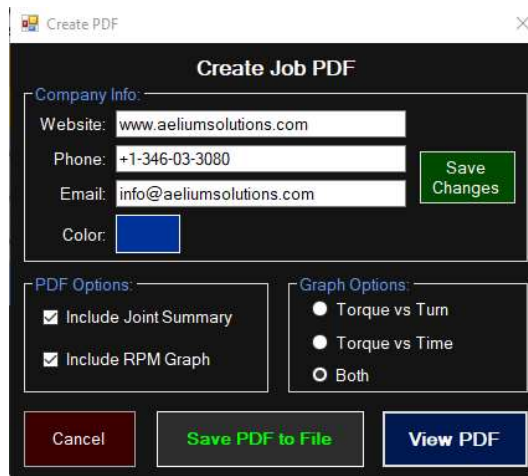
## 5.8.6 Reporting, Completing & Releasing Jobs

### 5.8.6.1 Job PDF Report

Once a job is complete, select the job in the list and click on the PDF button on the right-hand side of the screen:



The “Create Job PDF” window opens. Enter the information and select the desired options for the Job PDF Report. Then click “View PDF” to view the Job PDF Report:

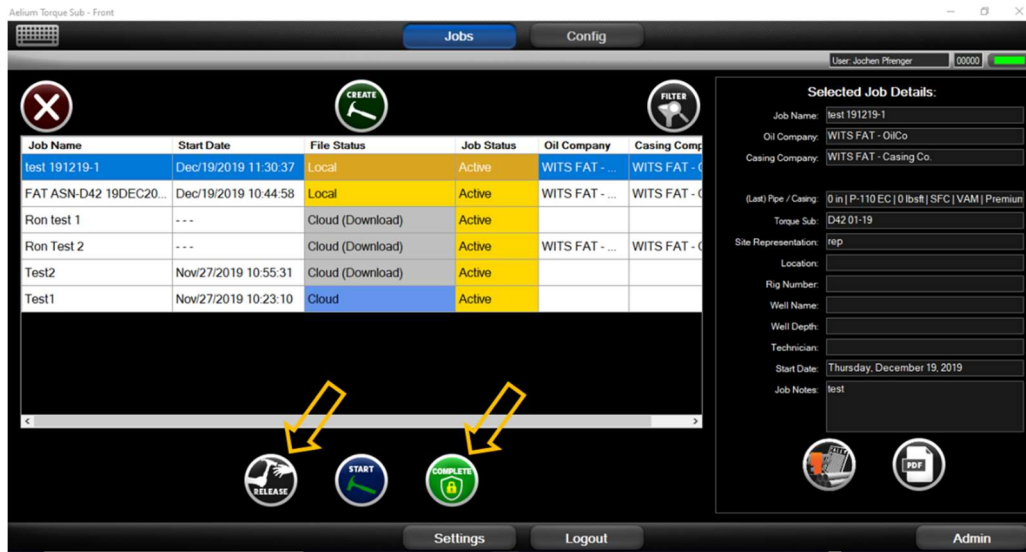


If the layout of the graph is not correct, close the PDF viewing window and start over by selecting the layout needed. PDFs can be created as many times as needed. When the Job PDF Report results are correct, click “Save PDF to File” to save the Job Report as a PDF file on the computer.

### 5.8.6.2 Completing & Releasing Jobs

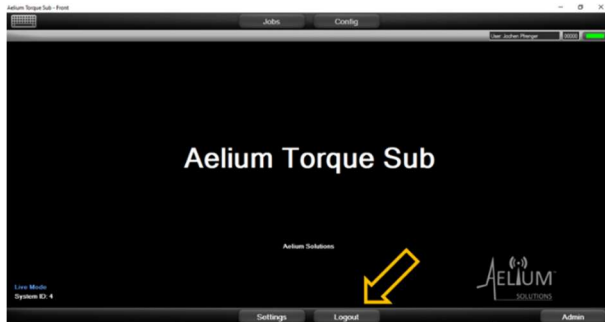
After a job is completed, connect the computer to the internet and login to the software.

The completed job should then be “Released” or “Completed”, depending on your company’s procedures. This ensures that the job will be backed up and management can review or change the job as required.

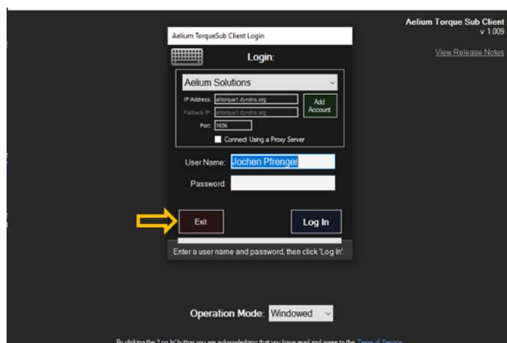


## 5.9 Logout

To exit the program properly, click “Logout” on the main screen:



On the Login screen, click “Exit” to close the program and to return to the desktop:



---

## 5.10 Running on battery power

---

Aelium offers an advanced battery powered portable power supply with smart sensing. Follow these steps when running on battery power:

- Start with a fully charged system
- Run the job on battery power when running pipe
- Use battery power only if needed
- If the job is stopped, on hold to circulate, down for troubleshooting, or any other reason for the job to be at a standstill, connect the portable power supply into rig power to charge the batteries when no joints are being run.
- Turn the computer's screen brightness down when possible. The lower the brightness the less battery life is consumed.

## 6 Trouble Shooting

Problem	Possible Solutions
Cannot login to software	<ol style="list-style-type: none"> <li>1. Ensure the account selected at the top of the login screen is the correct company.</li> <li>2. Ensure the login username and password is using the correct CAPITAL letters, spaces or any other symbols. The username and password are CASE sensitive and punctuation sensitive.</li> </ol>
Computer does not display live WITS™ sub data	<ol style="list-style-type: none"> <li>1. Ensure the connection to the sub is established by selecting the correct sub from the device menu on the tablet.</li> <li>2. Ensure the access point is powered up and communicating with the tablet and the sub.</li> <li>3. Ensure line-of-sight connectivity between the sub and the access point's external antenna.</li> <li>4. Ensure all connections are secure.</li> </ol> <p>Still no data display:</p> <ol style="list-style-type: none"> <li>5. Properly log out of the software.</li> <li>6. Re-boot the tablet.</li> <li>7. Power down the access point and wait 30 seconds.</li> <li>8. Power up the access point.</li> <li>9. Check items 1-4 above.</li> </ol> <p>Still no data display:</p> <ol style="list-style-type: none"> <li>10. Check the access point and WITS™ sub antennas for proper seating and connection. If antennas are not properly seated or damaged, document the findings and contact Aelium for further instructions.</li> <li>11. Check the WITS™ sub battery status.</li> <li>12. If batteries are not functional, replace both battery packs.</li> <li>13. If batteries are functional, check all connections of the module assembly and ensure they are properly terminated (see section "Maintenance" in the WITS user manual P/N 700020).</li> </ol> <p>Still no data display:</p> <ol style="list-style-type: none"> <li>14. Contact Aelium for further instructions.</li> </ol>
Computer does not connect to a WiFi network.	<p>See the NOTE in section 5.8 above.</p> <p>Re-set the network adapter as shown in Figure 26: Re-setting the network adapter to DHCP.</p>



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## 8 Change Summary

Document Revision	Date	Written by	Approved by	Description of change
0	02 Jan 2020	J. Pfrenger	R. Roling	Initial Release
1	15 Jan 2020	J. Pfrenger	R. Roling	DCN 200115-3. Formatting updates throughout manual. Correcting spelling errors. Eliminating redundancies.
2	05 April 2020	J. Pfrenger	R. Roling	Added section 5.8.5.
3	13 July 2021	J. Pfrenger	R. Roling	Updated graphic in 1.4. Updated table in 1.5. Removed “Contacts” section.



## WITS User Interface User Manual

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