OPERATOR'S MANUAL

TORQUE DATA SYSTEM (TDS)

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Software Compatibility

For use with TDS software Version 2.X.X and works with all versions of NorTronic® Tool software 2.14 onwards.

NOTE: 'X.X' is shown in place of the latest software release version # i.e. 2.0.14.

Introduction

The Torque Data System (TDS) is PC software designed with a user-friendly interface that will enable data archiving from NorTronic® electronic torque wrenches.

TDS uses a bi-directional USB or Wireless interface to download Targets, Tool Setup and Tool Lock to the NorTronic® and retrieve Stored Readings and Tool Setup from the NorTronic®. The wireless interface requires the use of an additional USB wireless adapter plugged into a USB port on your PC.

TDS gives the ability to archive data when Torque Tools are being used in tightening applications (Work). Statistical Process Control (SPC) can also be performed on the archived data as well as the ability to view histograms of the archived data.

Torque, Torque and Angle graphs can be viewed in TDS and printed.

Data can be exported to Microsoft® Excel® and/or any other equivalent packages via the Clipboard.

Part numbers covered by this manual; 37781, Torque Data System (TDS).

Features and Functions

- USB interface to Norbar NorTronic® electronic torque wrenches for fast data transfer.
- Wireless interface to Norbar NorTronic® electronic torque wrenches for fast data transfer with additional Wireless adapter.
- Data Base for archiving of data which has been stored on the NorTronic® or sent to the "Receive Results" window from NorTronic®.
- Statistical Process Control (SPC) on Test Results for Tools.
- Set up individual (or multiple) NorTronic® Tools with Targets and Tool Set Up options via USB or Wireless using the synchronisation options.
- Send up to 15 sequential or non-sequential Targets to a NorTronic® Tool.
- Ability to download a LOCK to the NorTronic® to stop user adjustment.
- Real time data input via the Receive Results window.
- Real time graph creation from a USB connected Tool.
- Export of Real Time Graph Data in CSV format.
- Create a Report from stored results.
- Ability to set and send a Torque + Angle with Final Torque Target.
- Ability to set and send an Audit Target.
- Shortcut icon to TDS operator's manual.
- Show Last time of Tool calibration.
- Compatible with Windows® 7, 8.1 & 10 (32 bit & 64 bit).

Installing TDS

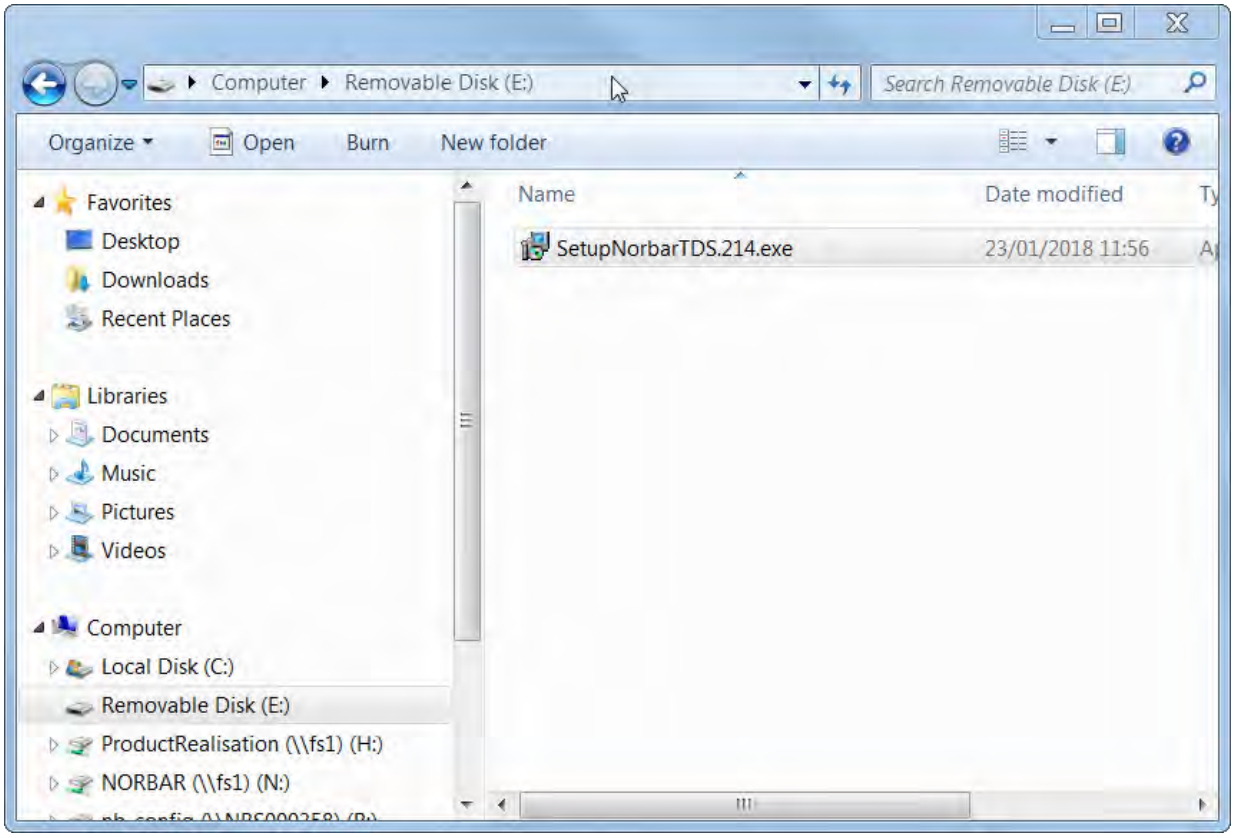
The software is supplied as an installation file on a USB Flash Drive (memory stick). This is included with the NorTronic® Torque Wrench.

WARNING: **Before installing TDS you will need to un-install any previous versions. See page 65 for un-install instructions.**

TIP: **Backup your old database before uninstalling your old version of TDS. Use the restore database option after your new version of TDS has been installed. See page 60.**

Plug the USB Flash Drive into your PC.

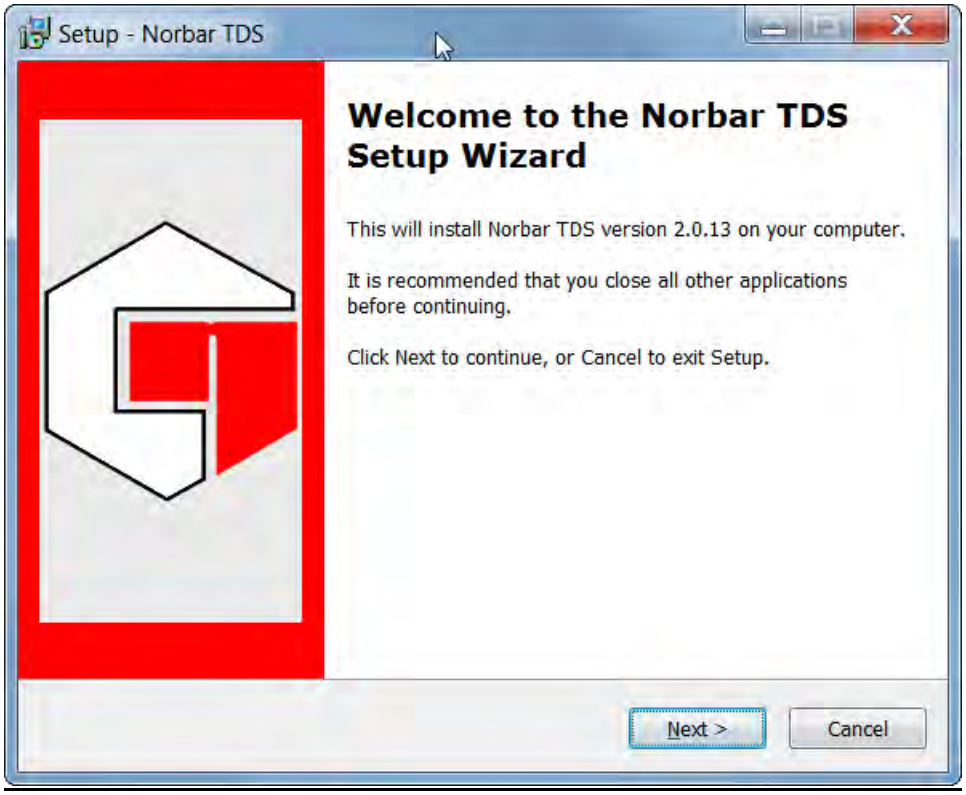
Go to START – MY COMPUTER and double click on ***Removable Disk (?)***.



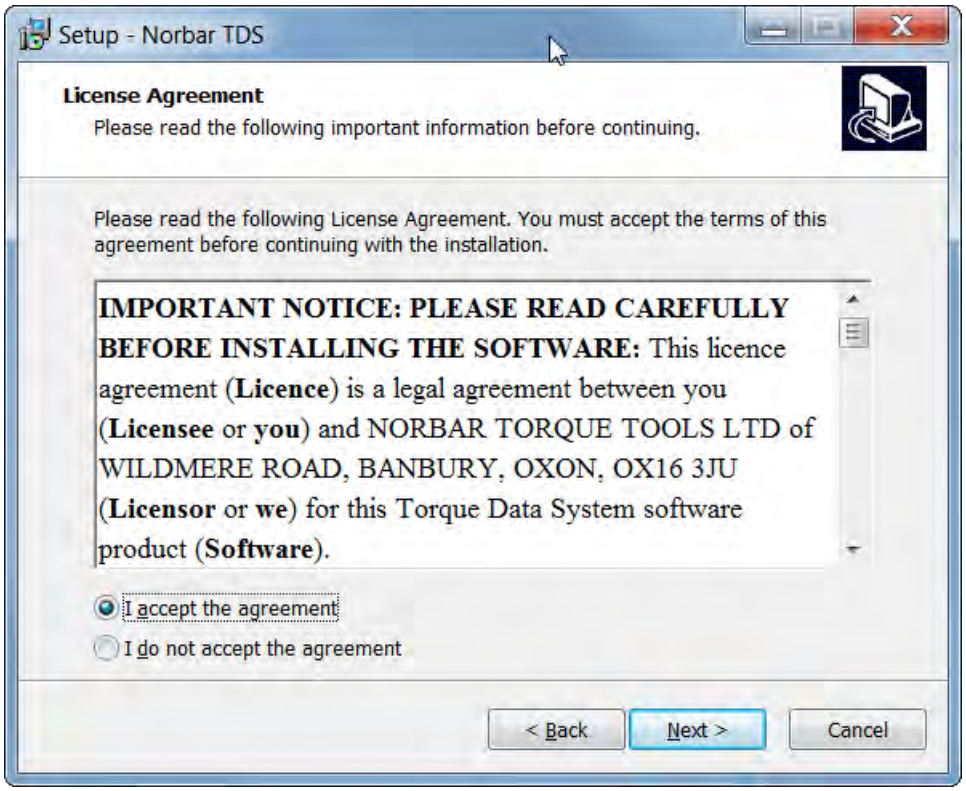
NOTE: **The user may need administrative privileges to be able to install the software.**

Double click on ***SetupTDS2XX*** (where XX represents the latest software revision number) or copy the file to a directory on your computer and double click on it.

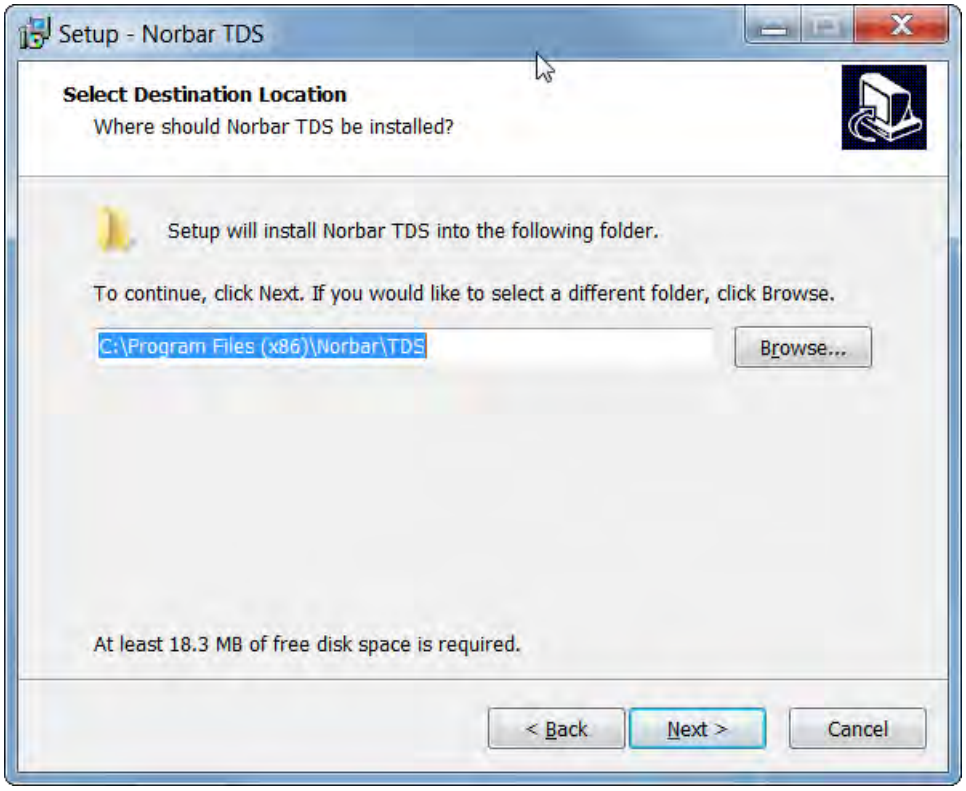
Windows® 7, 8.1 &10



Click on ***Next***.

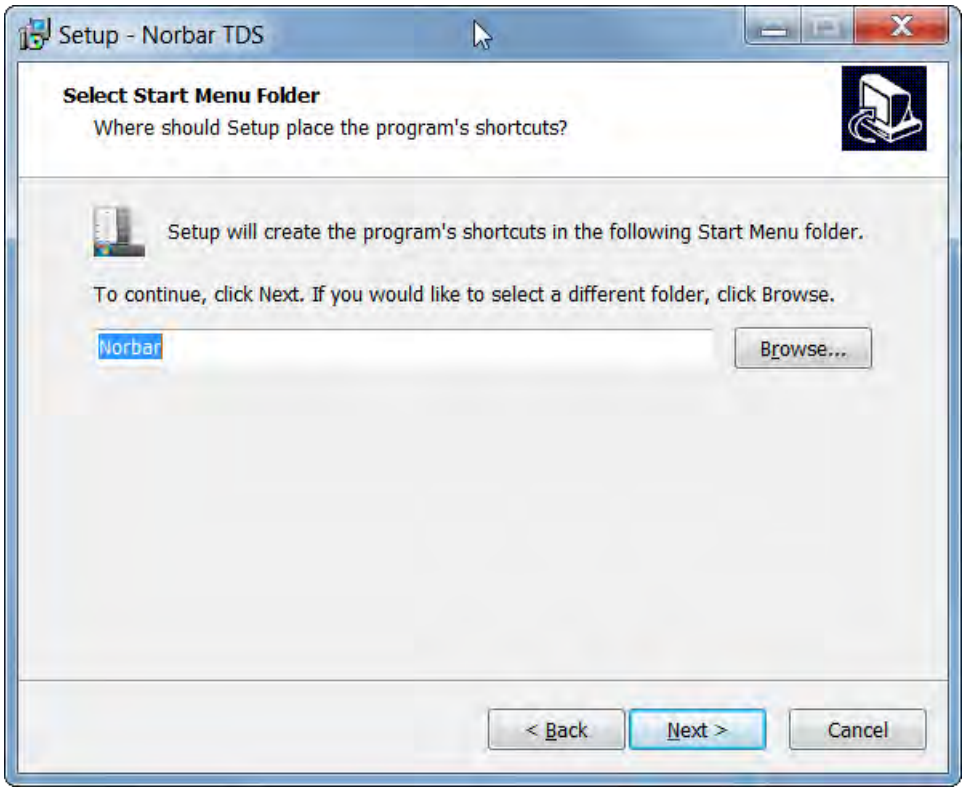


Read the Licence agreement and click on ***I accept the agreement*** if you wish to proceed, then click on ***Next***.

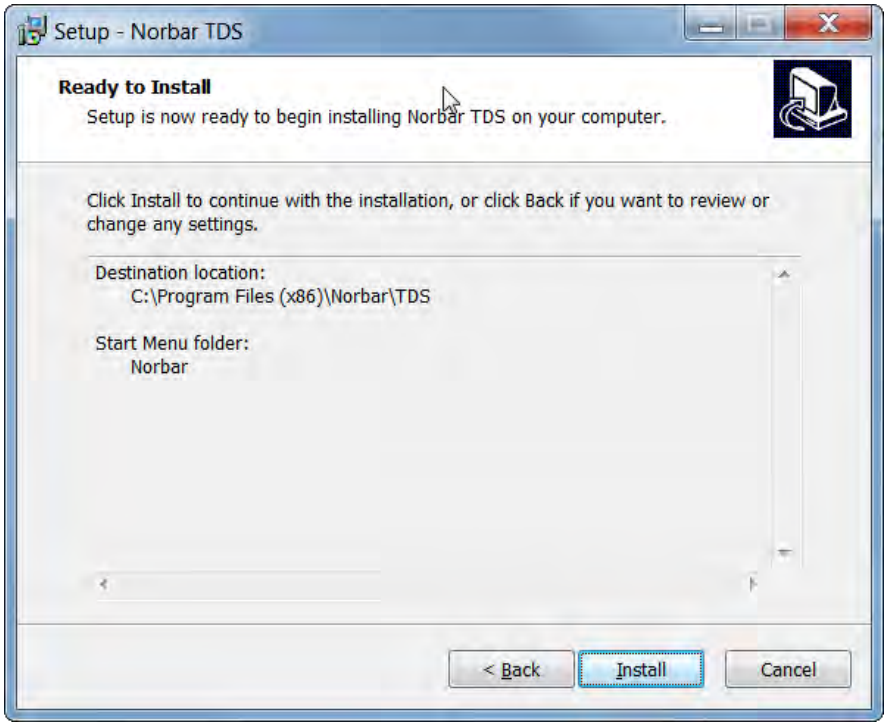


NOTE: For 32 bit versions the destination location will be C:\Program Files\Norbar\TDS.

Change location and / or click on ***Next***.

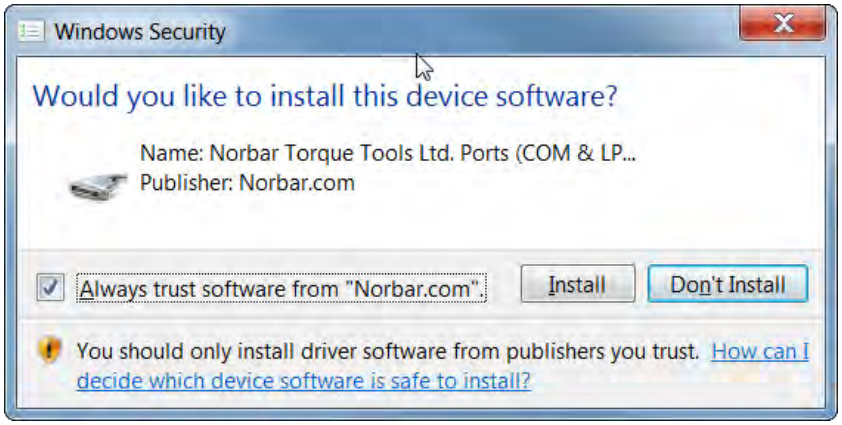


Change the folder name and / or click on ***Next***.

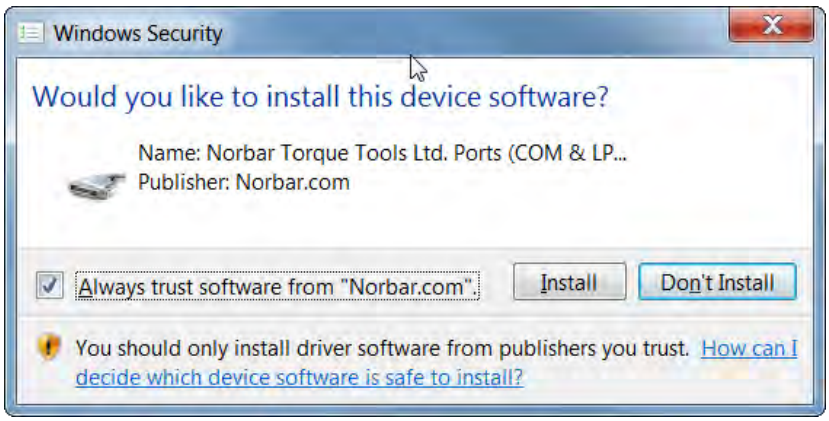


NOTE: For 32 bit versions the destination location will be C:\Program Files\Norbar\TDS.

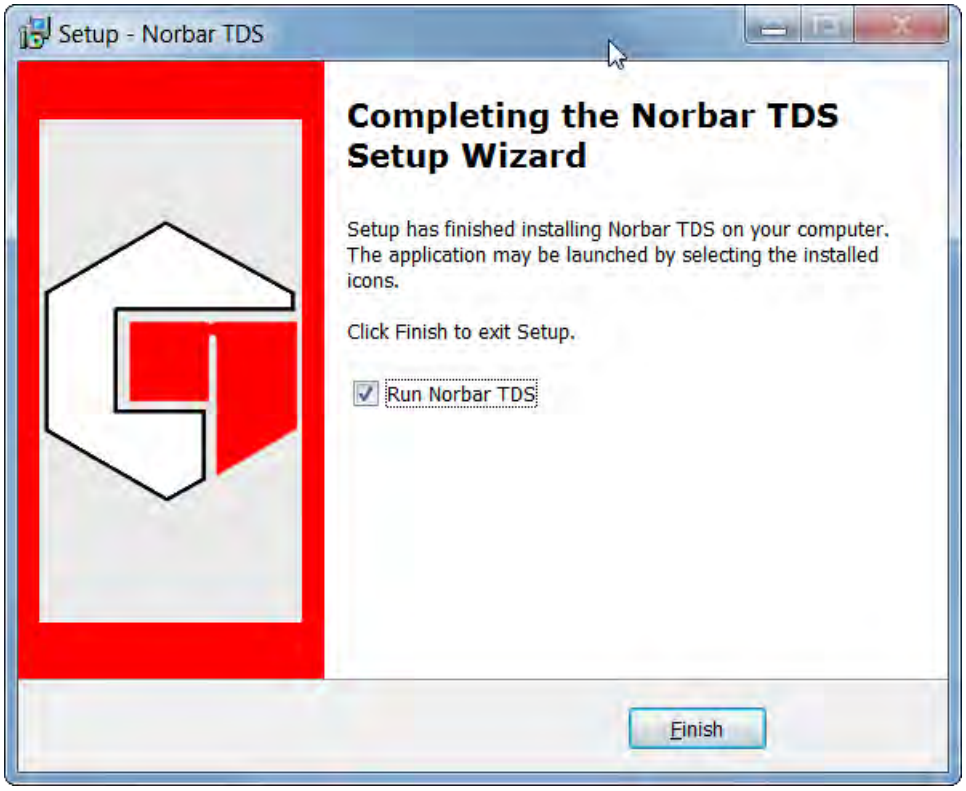
Click on ***Install*** to install TDS onto your computer.



Click on ***Install*** to install USB driver onto your computer.



Click on ***Install*** to install Wireless Adapter driver onto your computer.



Click on ***Finish*** to complete the installation.

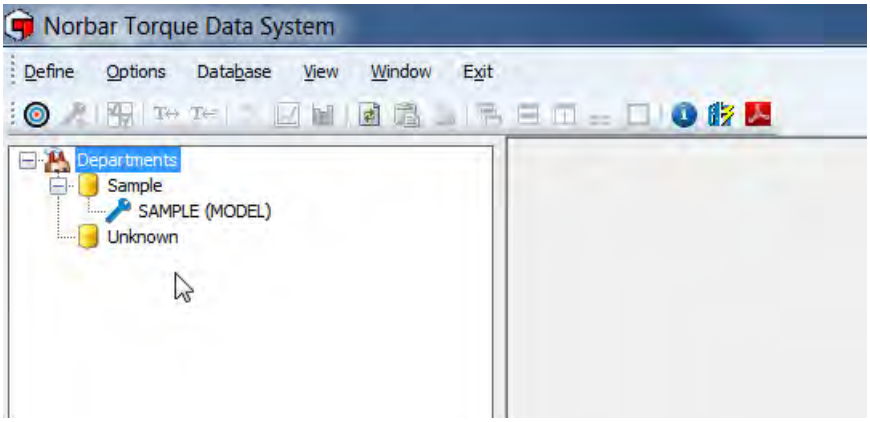
After Installation a TDS icon will be placed on the desktop.

Connecting a NorTronic® Tool to TDS

1) Start TDS by double clicking on the desktop icon.

The Initialising TDS message box will be shown. Wait until initialization has finished.

Screen shown on power up with Sample Department and Tools added. TDS also creates an 'Unknown' department, which is where new Tools will be added (unless specified differently).



NOTE: TDS comes with a Sample Department & Sample Tool already created. These are for information only and should be deleted when not required.

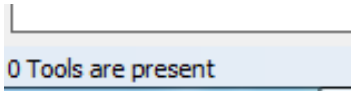
TIP: Delete or rename the Sample department if not required.

2) Plug in the USB cable (part # 39678 supplied with NorTronic®) between the mini USB connector on the side of the NorTronic® and the USB Type A connector on a PC.

NOTE: The user may need to remove the USB cover from the NorTronic® to achieve this. The USB cover must be fitted for IP44 protection.

Alternatively plug in the Wireless adapter (part # 39671 - 868 MHz or part # 39672 - 915 MHz) into a USB port on your PC.

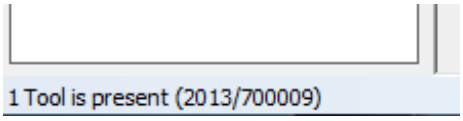
Before NorTronic® is connected, the bottom left of the TDS window will show:



3) Power up the NorTronic® by pressing any button.

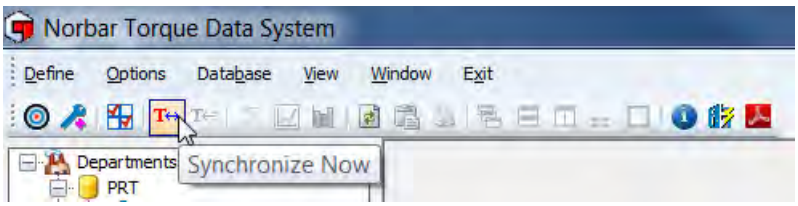
4) Wait for the USB or Wireless icon to appear in green on the NorTronic® display.

When TDS successfully connects to a NorTronic®, the bottom left of the TDS window will show:

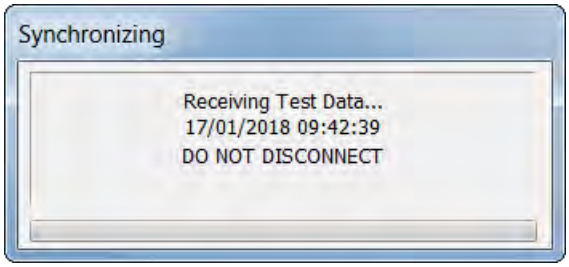


NOTE: The number in the brackets is the serial # of the NorTronic® Tool connected.

5) Click on “Synchronise Now” to transfer data.



The following message will be displayed when connection is established and data is being transferred.



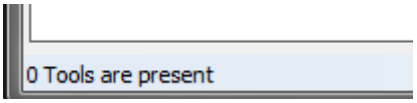
NOTE: No data will be shown if none has been previously saved for the connected NorTronic® Tool.

When you connect and synchronise NorTronic® for the 1st time, TDS creates an ‘unknown’ department. Rename as required.

Disconnecting a NorTronic® Tool from TDS

For some configurations of PC hardware and software it may be necessary to disconnect from USB correctly before removing the lead. Click on ‘Safely Remove Hardware’ in the bottom right hand corner of your desktop if this option is available to you.

Unplug USB lead from either the NorTronic® or PC and TDS will display after a number of seconds:



NOTE: Wait at least 10 seconds before re-inserting the lead if required.

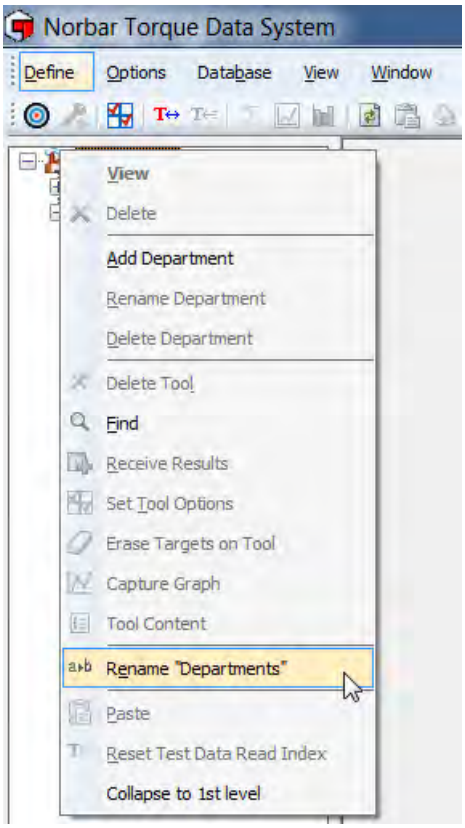
Departments (Customers)

Rename Departments

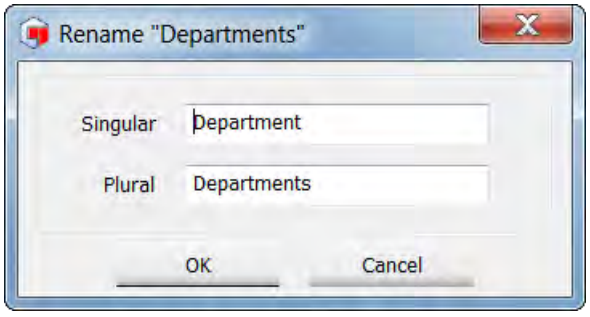
Departments can be renamed to anything you choose, but this has been primarily designed to be customers. Use Departments for a single Factory environment and use Customers for a Calibration lab environment.

1) Right click on the ***Departments*** icon.

2) Click on ***Rename Departments***.



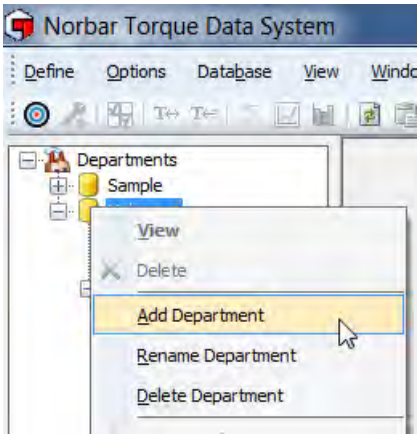
3) Enter required text and click ***OK***.

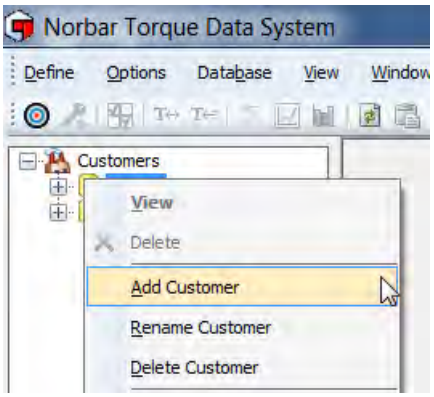


Add Department (Customer)

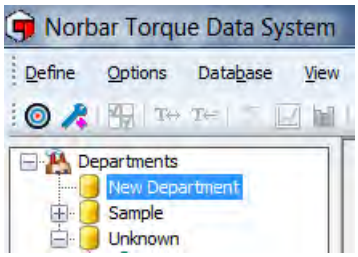
1) Right click on the ***Departments (Customers)*** icon to show the drop down menu.

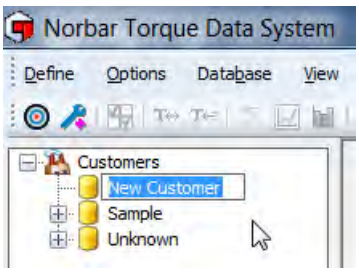
2) Click on ***Add Department (Add Customer)*** from the drop down menu.





3) Type in your required Department (Customer) name or identification and press Return.

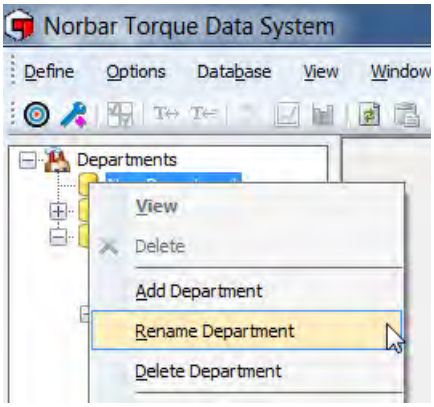


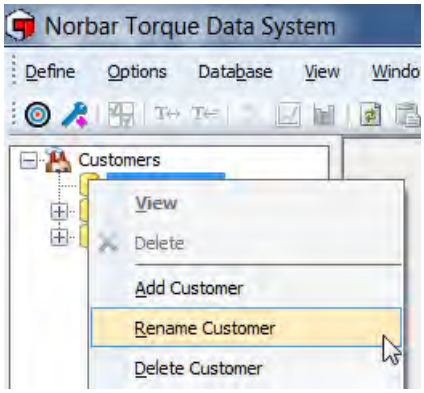


TIP: Departments (Customers) can also be added by right clicking on an existing Department (Customers) icon and selecting *Add Department* (*Add Customer*) from the drop down menu.

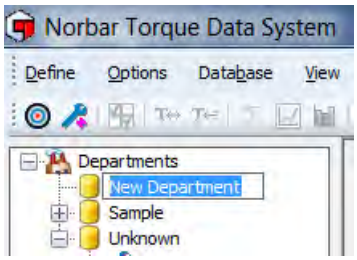
Rename Department (Rename Customer)

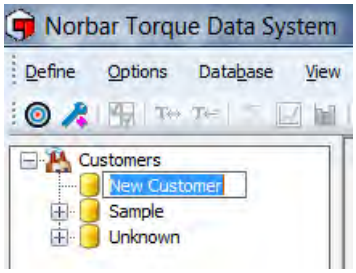
1) Right click on the required Department (Customer) you wish to rename, and then click on ***Rename Department (Rename Customer)*** on the drop down menu.





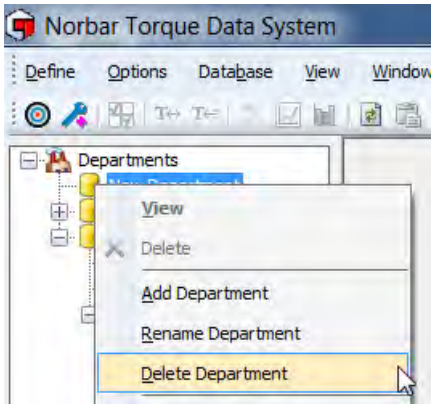
2) Type in the new Department (Customer) name or identification and press return.

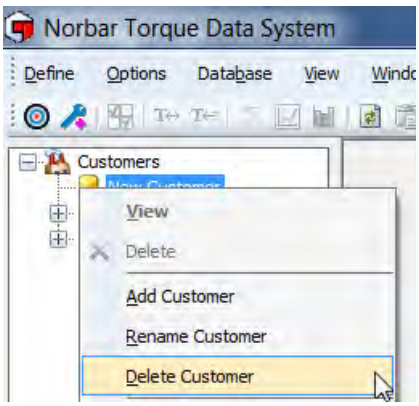




Delete Department (Delete Customer)

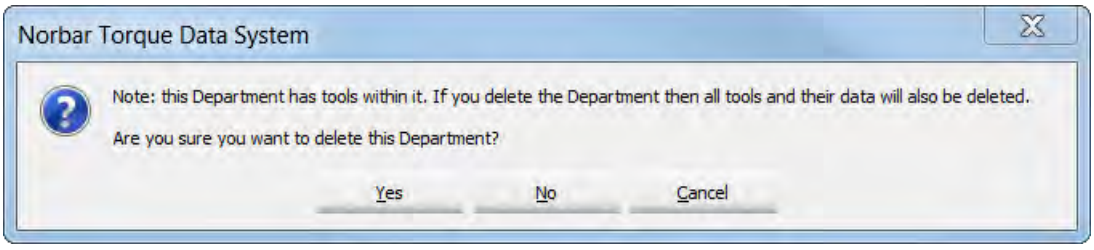
1) Right click on the required Department (Customer) you wish to delete.





2) Click on ***Delete Department (Delete Customer)*** on the drop down menu.

If a Department (Customer) has Tools & data associated with it, you will see the following message.

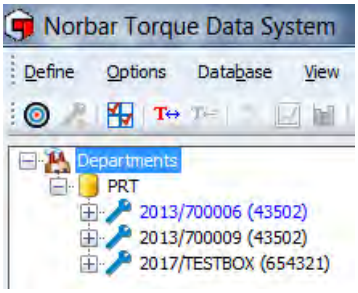


Click on the required option ***Yes***, ***No*** or ***Cancel*** as required.

Tools

Adding a Tool to a Department (Customer)

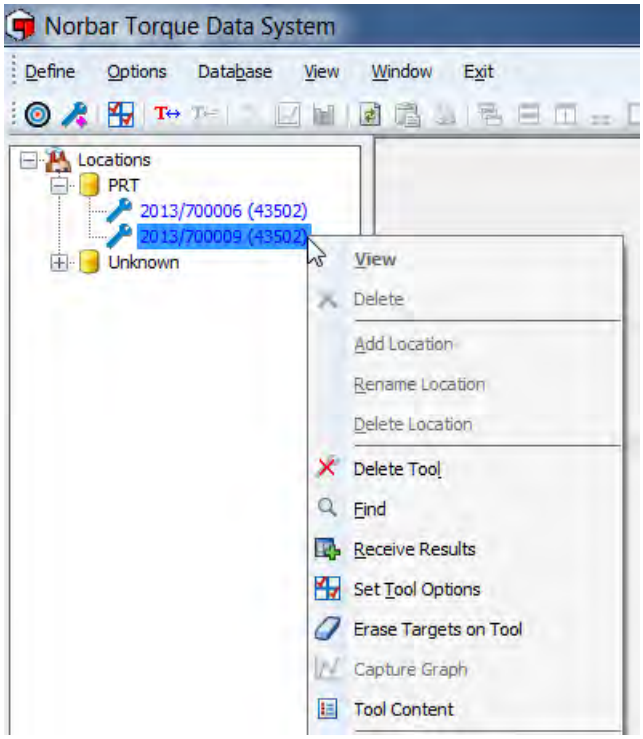
This is done automatically when TDS detects a new Tool via USB or Wireless. Alternatively, click on the short cut icon on the TDS Toolbar to manually ***Add*** a Tool.



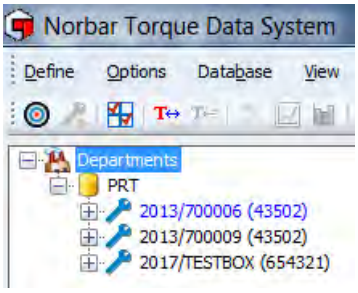
TIP: **Tools and their associated data can be moved between departments (Customers) by clicking on the Tool and holding down the left hand mouse button and dragging from one department (customer) to another, then releasing the left hand mouse button.**

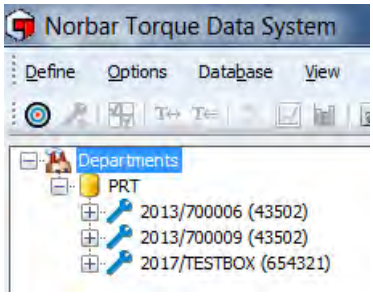
Expand the Departments (Customers) tree and right Click on the required ***Tool*** and select the required option from the drop down menu.

All data for a Tool is stored under the Tool Serial # and then sub divided into Work ID's. Test Results saved on a Tool are transferred to TDS when you synchronize with the Tool. Test Results can be sent to TDS (and saved) in real time using the Receive results option.



TIP: **Only Tools that are connected will show all the options. Connected Tools are shown in blue and Tools that are not, are shown in black in the tree structure.**

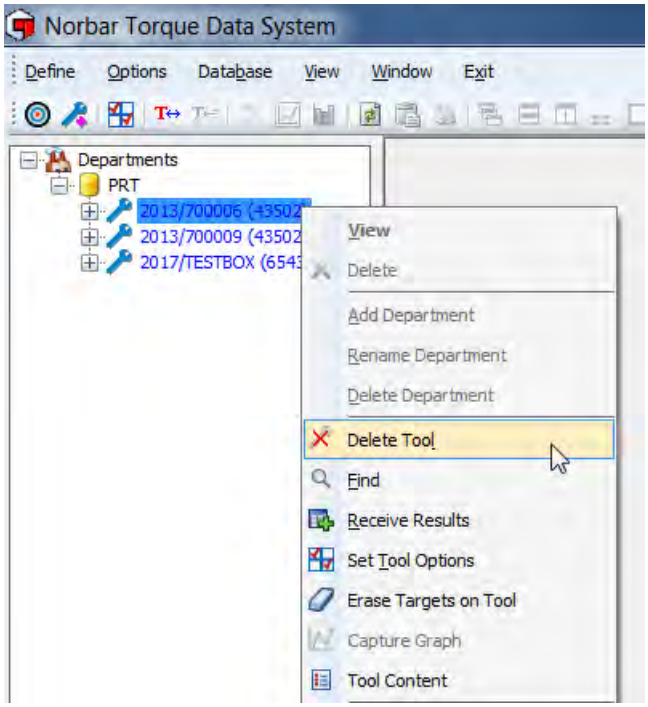




TIP: **Capture Graph is only available for USB connected Tools.**

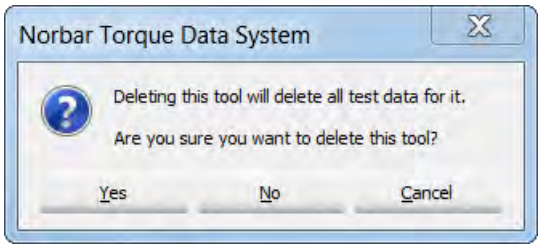
Delete Tool

1) Right click on a ***Tool*** you wish to ***Delete*** to select that Tool.



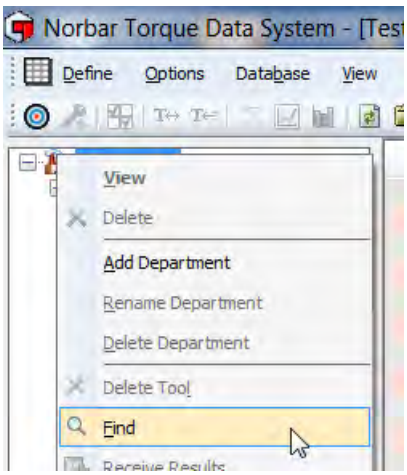
2) Click on ***Delete Tool*** to show the screen below.

3) Click on ***Yes***, ***No*** or ***Cancel*** as required.

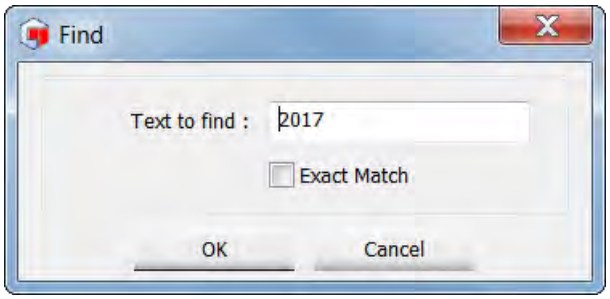


Find

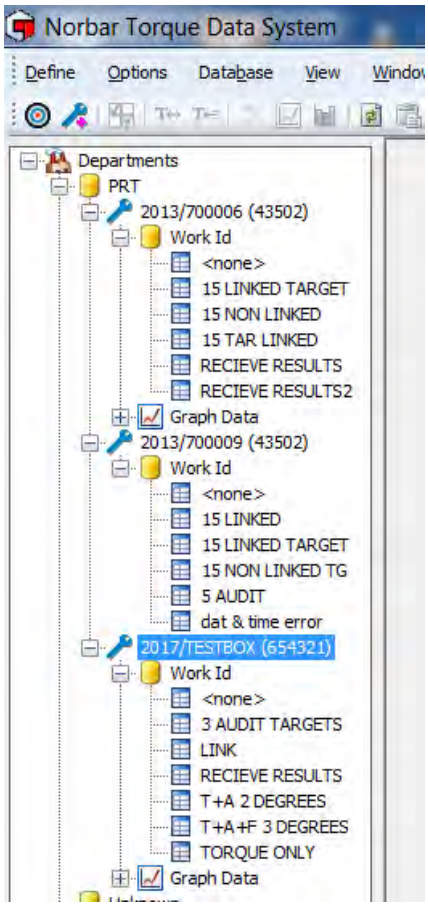
1) Right click on a ***Department*** in the left hand tree structure, and then click on ***Find*** on the drop down.



2) Enter the ***Tool Serial Number*** and click on ***OK***.



3) The required Tool will be highlighted in the left hand tree structure.



Targets

Up to 15 Targets linked (or non-linked) Targets can be sent to any one Tool at any time.

There are 4 Target configurations: -
Torque Target,
Snug Torque followed by Angle Target,
Snug Torque followed by Angle Target + final Torque Target
Audit Torque Target.

Torque, Snug Torque followed by Angle and Snug Torque followed by Angle Target + final Torque Targets all have upper and lower limits. Audit Targets do not have Upper and Lower Limits and use absolute values.

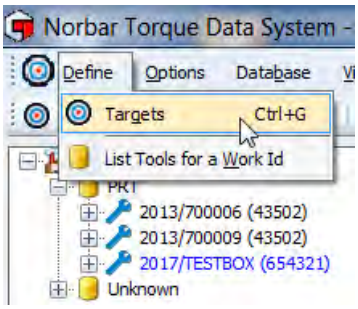
To obtain SPC data on a Work ID, a Target must be in use when the Test Results are being saved on the Tool or sent to TDS via the Receive Results option.

- Linked Targets can only be set up in TDS.

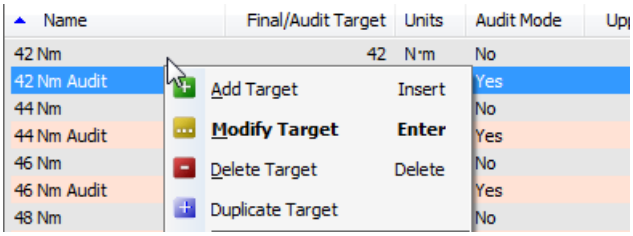
  NOTE: This option allows a tightening sequence to be performed.
- The # of Tests & Next Target can only be specified in the TDS software target.

  NOTE: This option allows a tightening sequence to be performed.
- Linked Targets can be sent via USB or wirelessly to the Tool.
- If the save button has been pressed on NorTronic® (manual or auto reset mode), results will be saved to the Tools internal memory. The results are transferred to TDS when the Tool is synchronized via USB or Wireless.
- If the save button has not been pressed on NorTronic® (manual or auto reset mode), results will be wirelessly transmitted in real time back to the TDS software and shown in the “Receive Results” window.
- If after the final Target has completed (and No further Target has been specified), the last Target remains active.
- To carry on, link the last Target to the first.

1) Click on the **Define** tab on the main title bar and then click on **Targets**. Alternatively click on the short cut icon on the TDS Toolbar.



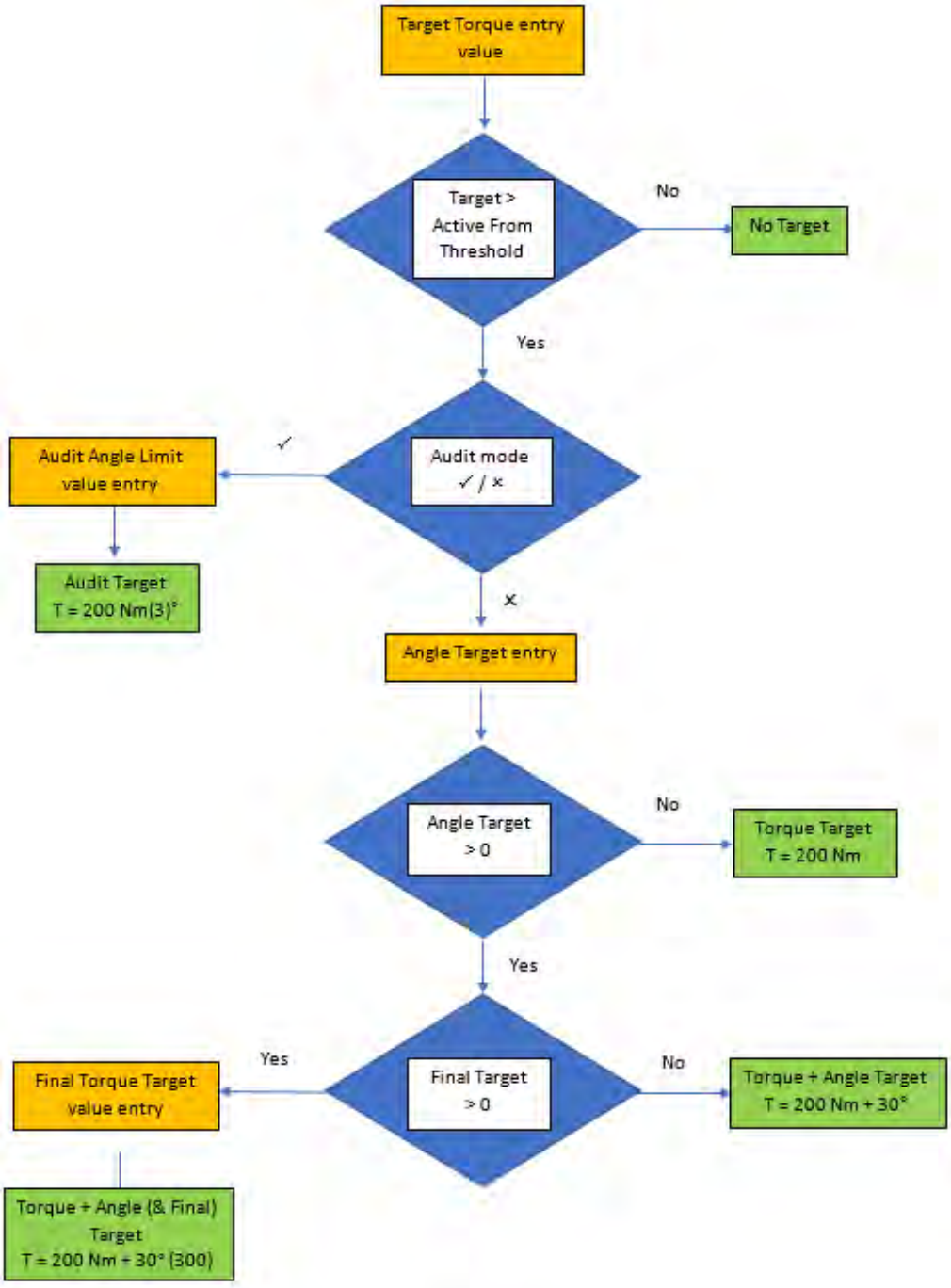
2) Right click on the right-hand pane to show the screen below. Note: to Modify, Delete or Duplicate a Target, you need to right click on the required Target.



3) Click on required options. See relevant section for more detail.

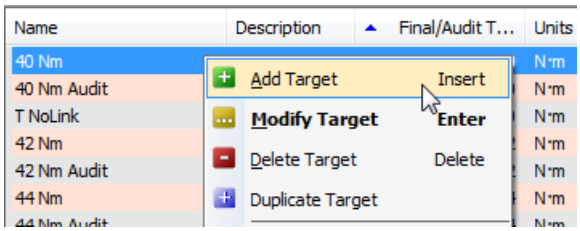
Add Target

Target Set up flow diagram



1) Click on the ***Define*** tab to show the drop down on the main title bar and then click on ***Targets***. Alternatively, click on the short cut icon on the TDS Toolbar.

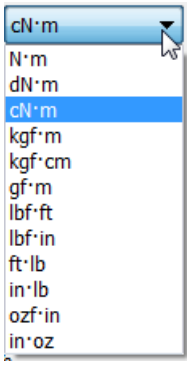
2) Right click in the Targets pane to show the drop-down menu, then click ***Add Target***.

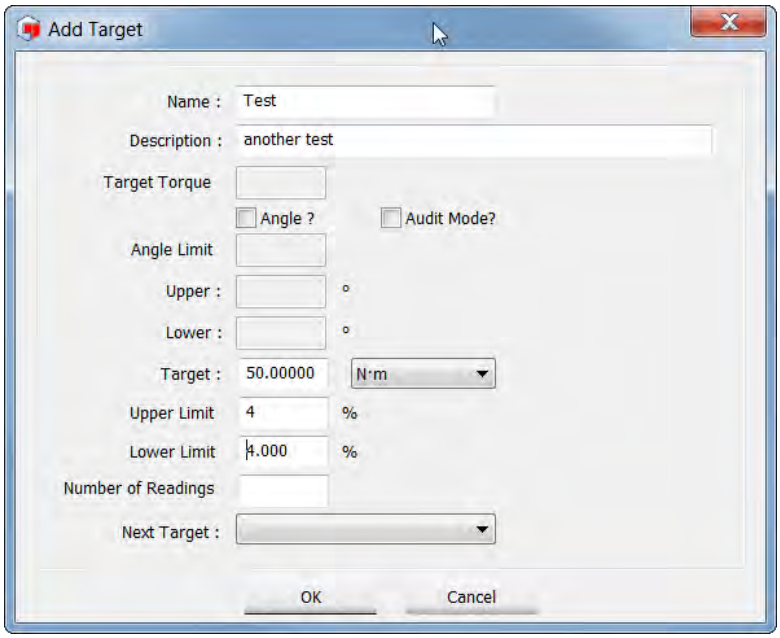


3) Check the cursor is blinking in the ***Name*** entry box and Type required text.

4) Click in the ***Description*** entry box and type the required text.

5) Click on the Torque units drop down and click on the desired units.

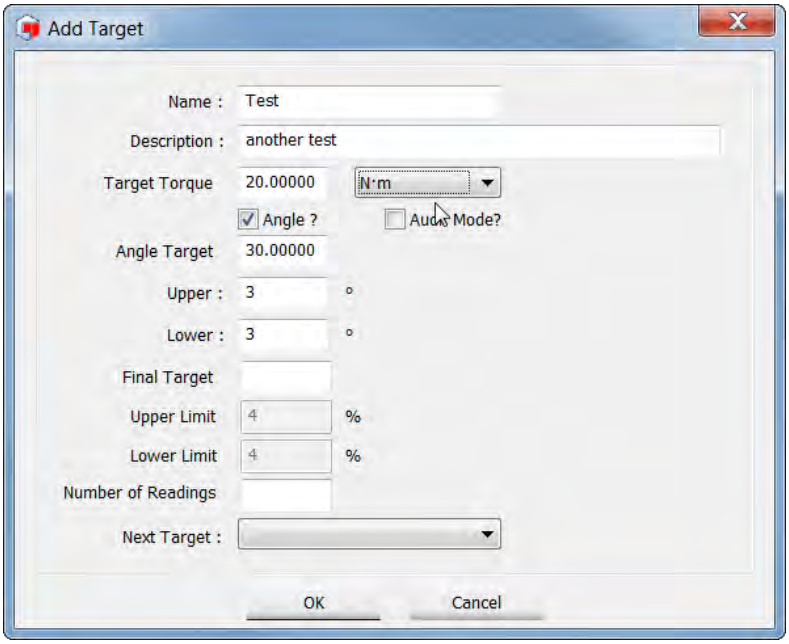




6) Enter values for '***Target, Upper Limit %*** (No decimal places i.e. 4). This is the Torque Upper Limit as a percentage of the Target value.***, lower Limit %*** (No decimal places i.e. 4). This is the Torque Upper Limit as a percentage of the Target value.

7) Click the ***Angle ?*** Tick box if required.

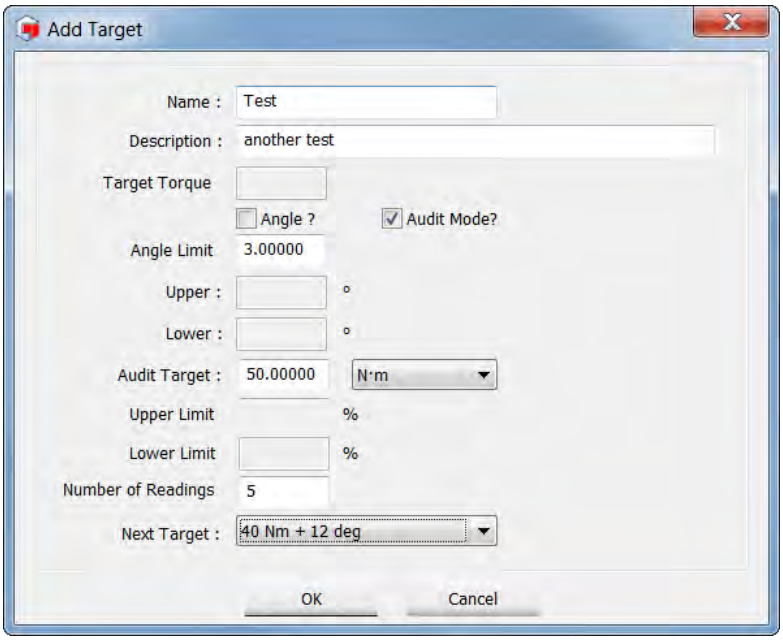
8) Enter values for '***Target Torque, Angle Target, Upper °*** This is the Angle Upper Limit and is in degrees (No decimal places i.e. 3)***, lower °*** This is the Angle Lower Limit and is in degrees (No decimal places i.e. 3) and ***Final Target*** (if required).



9) Click the ***Audit Mode ?*** Tick box if required. Options after this will be greyed out if not ticked. Enter values for '***Audit Target, Angle Limit,***

10) Click in the ***Upper*** entry box and type the required value. This is the Angle Upper Limit and is in degrees (No decimal places i.e. 4).

11) Click in the ***Lower*** entry box and type the required value. This is the Angle Lower Limit and is in degrees (No decimal places i.e. 4).



12) Click in the ***Number of Readings*** entry box and type the value if required. Here is where you can define the number of tests to be taken for the Target value.

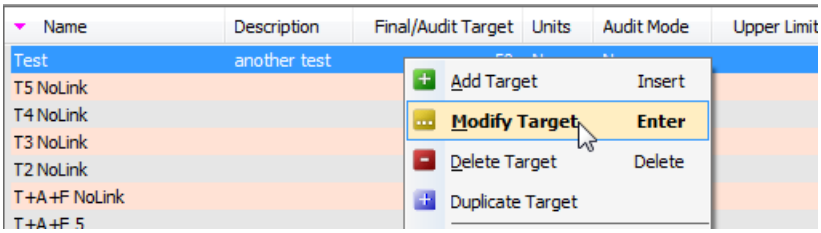
13) Click on the ***Next Target*** drop down and select the required Target from the list.

14) Click ***OK*** to save the Target in TDS.

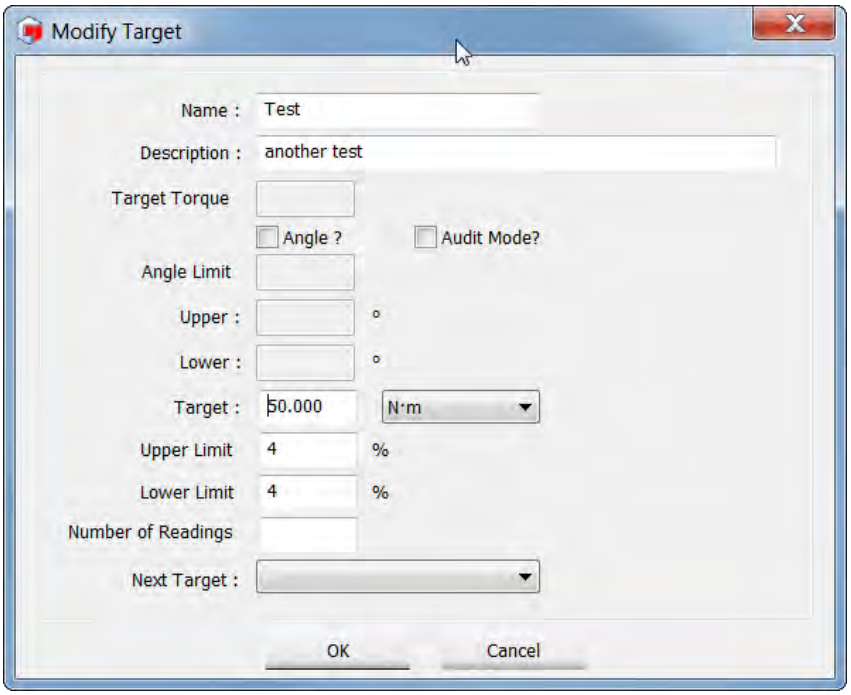
Modify Target

1) Click on the ***Define*** drop down on the main title bar and then click on ***Targets***. Alternatively, click on the short cut icon on the TDS Toolbar.

2) Right click on the ***Target*** you wish to modify in the Target pane and click on Modify



3) Target to show the 'Modify Target' screen.



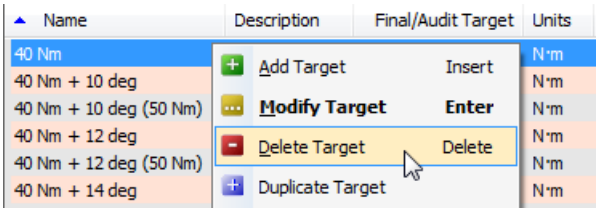
4) See ***Add Target*** on page 19 for more information.

5) Make necessary changes and click OK

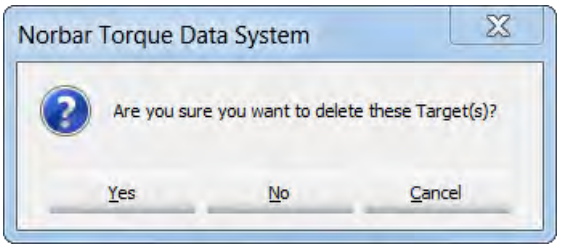
Delete Target

1) Click on the ***Define*** drop down on the main title bar and then click on ***Targets***. Alternatively, click on the short cut icon on the TDS Toolbar.

2) Right click on the ***Target*** you wish to delete in the right hand pane.



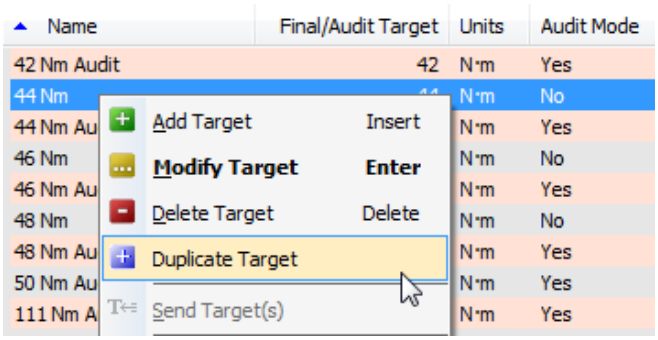
3) The following screen will be shown, click on ***Yes***, ***No*** or ***Cancel*** as required.



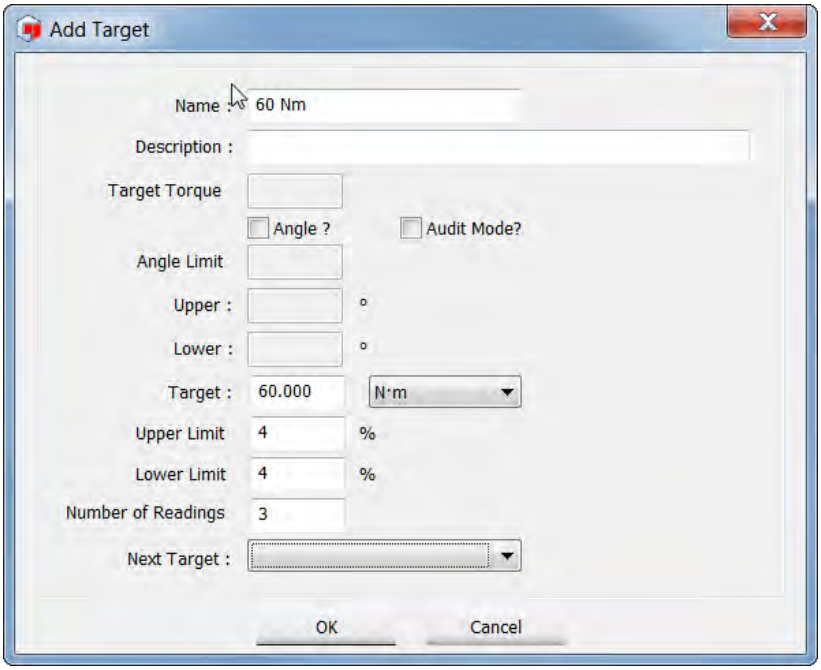
Duplicate Target

1) Click on the ***Define*** drop down on the main title bar and then click on ***Targets***. Alternatively, click on the short cut icon on the TDS Toolbar.

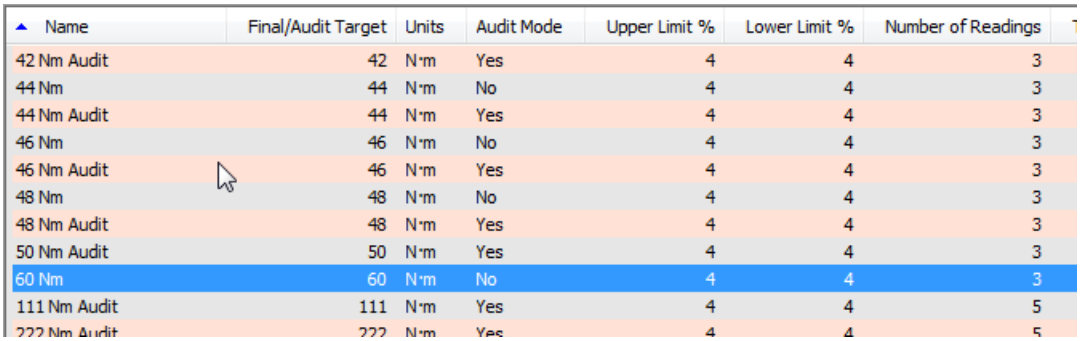
2) Right click on the ***Target*** you wish to Duplicate in the Target pane and click on ***Duplicate Target*** to show the 'Add Target' screen.



3) Change ***Name*** of Target and ***Target*** value, then click ***OK***.



4) The new target will now be shown in the Targets pane.

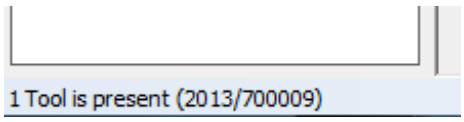


Name	Final/Audit Target	Units	Audit Mode	Upper Limit %	Lower Limit %	Number of Readings
42 Nm Audit	42	N·m	Yes	4	4	3
44 Nm	44	N·m	No	4	4	3
44 Nm Audit	44	N·m	Yes	4	4	3
46 Nm	46	N·m	No	4	4	3
46 Nm Audit	46	N·m	Yes	4	4	3
48 Nm	48	N·m	No	4	4	3
48 Nm Audit	48	N·m	Yes	4	4	3
50 Nm Audit	50	N·m	Yes	4	4	3
60 Nm	60	N·m	No	4	4	3
111 Nm Audit	111	N·m	Yes	4	4	5
222 Nm Audit	222	N·m	Yes	4	4	5

Send Target

Send Target overwrites any Target(s) stored on the NorTronic® with the highlighted Target(s) in TDS.

This option is only active when *'? Tool is present (xxxxxxxx)'* is shown in the bottom left hand corner of TDS after connecting to a NorTronic® tool(s) via USB or Wireless.

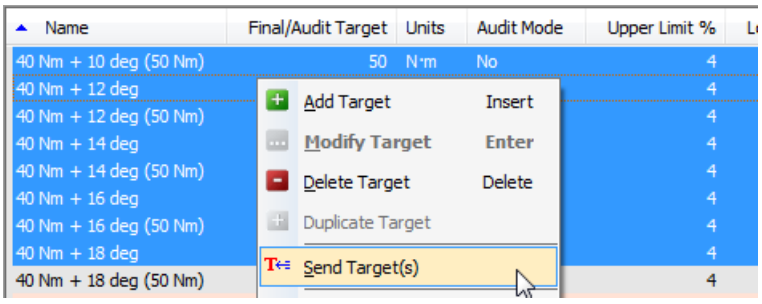


This option can be used to control the Target(s) sent to single or multiple NorTronic® Tools.

1) Click on the ***Define*** drop down on the main title bar and then click on ***Targets***. Alternatively, click on the short cut icon on the TDS Toolbar.

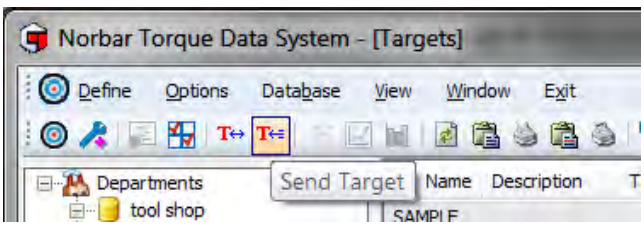
Name	Final/Audit Target	Units	Audit Mode	Upper Limit %	Lower Limit %	Number of Readings	Torque Target	Angle	Angle Target
40 Nm + 10 deg (50 Nm)	50	N·m	No	4	4	3	40	Yes	10
40 Nm + 12 deg		N·m	No	4	4	3	40	Yes	12
40 Nm + 12 deg (50 Nm)	50	N·m	No	4	4	3	40	Yes	12
40 Nm + 14 deg		N·m	No	4	4	3	40	Yes	14
40 Nm + 14 deg (50 Nm)	50	N·m	No	4	4	3	40	Yes	14
40 Nm + 16 deg		N·m	No	4	4	3	40	Yes	16
40 Nm + 16 deg (50 Nm)	50	N·m	No	4	4	3	40	Yes	16
40 Nm + 18 deg		N·m	No	4	4	3	40	Yes	18
40 Nm + 18 deg (50 Nm)	50	N·m	No	4	4	3	40	Yes	18
40 Nm Audit	40	N·m	Yes	4	4	3		No	4
42 Nm	42	N·m	No	4	4	3		No	
42 Nm Audit	42	N·m	Yes	4	4	3		No	4
44 Nm	44	N·m	No	4	4	3		No	
44 Nm Audit	44	N·m	Yes	4	4	3		No	4
46 Nm	46	N·m	No	4	4	3		No	

2) Click on the ***Target or Targets*** you wish to send in the Targets pane to show the drop down. Click on ***Send Target***.

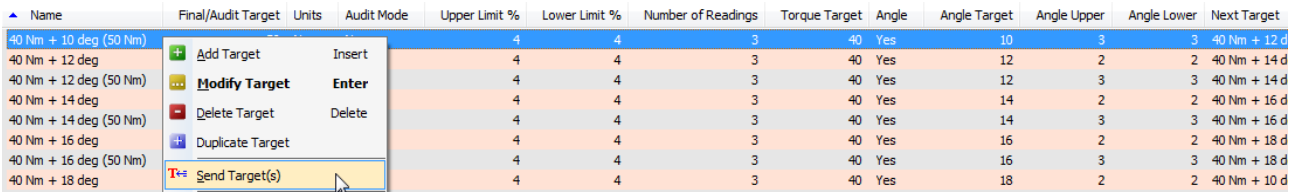


NOTE: If no Tool is connected, Send Target will be greyed out.

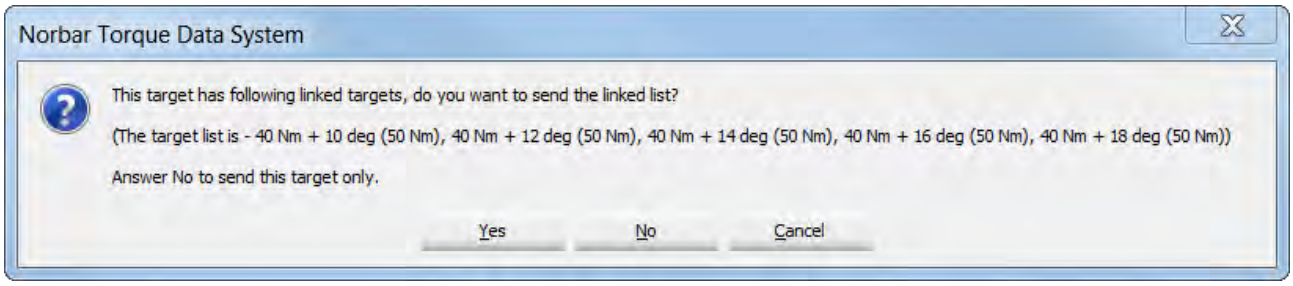
Alternatively, click the Send Targets icon on the TDS Toolbar.



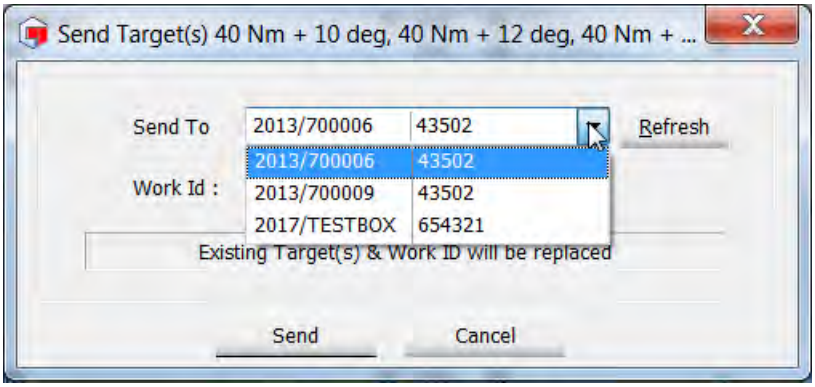
TIP: Selecting Multiple Targets will send these Targets as Non-Linked Targets (even if they are Linked in TDS).



TIP: **To send a Linked sequence of Targets, select the first one in the sequence. TDS will prompt you with what Targets are being sent.**

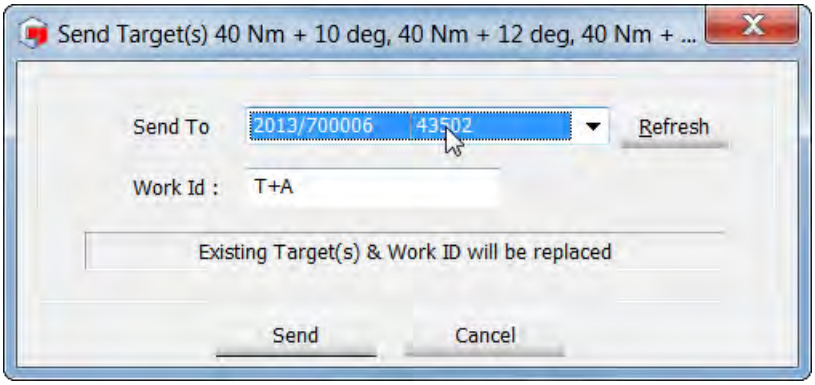


3) Select which Tool you wish to send the Target to. Only one will be shown if there is only one awake and connected.

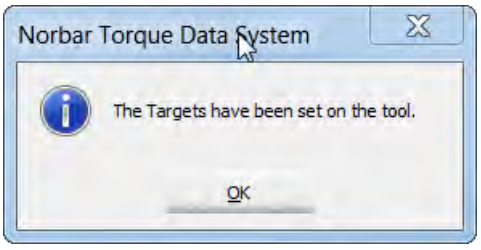


4) Enter a Work ID, if one is required. See page 27 for more information.

NOTE: **When a new Target or Targets are sent to the Tool, any existing Target(s) & Work ID will be replaced with the one's you are sending.**



5) When the Tool has received the Target or Targets, a confirmation pop up screen will be shown. The Target or Targets are now active and the Tool can be used.

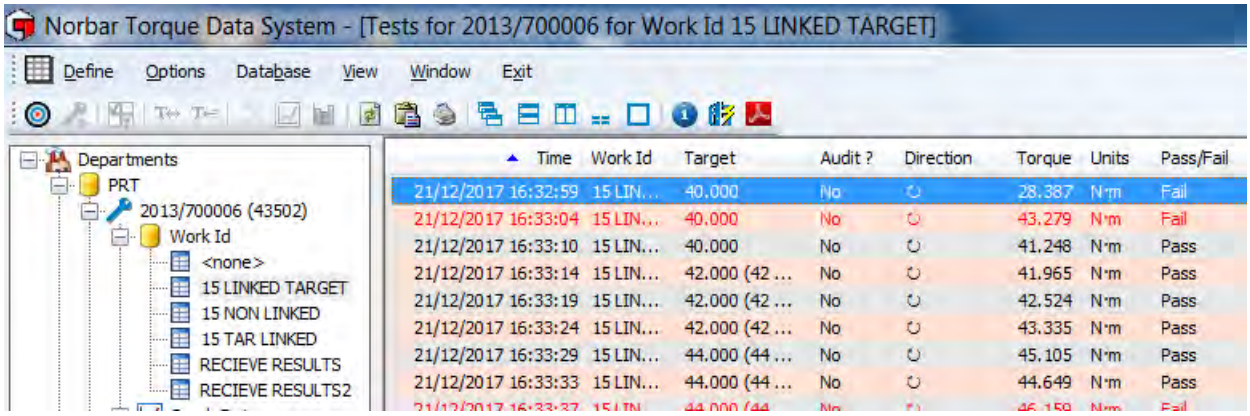


Work ID

- A Work ID is a name of a collection of Test Results done on an application e.g. Axle 1.
- This can be user definable, Alpha / numeric when entered into TDS and downloaded to the Tool.
- Maximum number of Alpha / numeric characters limited to 16.
- The ***Work ID*** is not editable on the Tool (and cannot be seen).
- Data is saved under “Tool Serial #” → “Work ID’s” in TDS.
- Statistical Process Control (SPC) can also be performed on the archived Test Results as well as the ability to view histograms of the archived data.

View Work ID Test Results

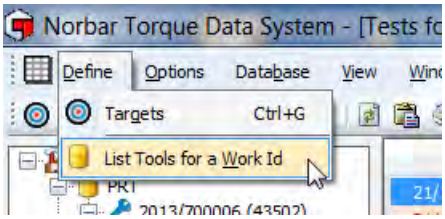
1) Expand the tree structure under a Tool by right clicking the **+** in front of the Tool.
2) Click the **+** in front of Work ID.
3) Right click on the desired Work ID.
4) Click on ***View*** from the drop down menu. The Test Results will be shown in the right-hand pane.



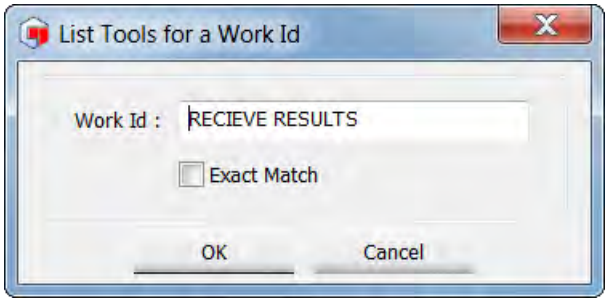
NOTE: Results are shown in Red (Fail) when they are outside of Target Limits.

List Tools for a Work ID

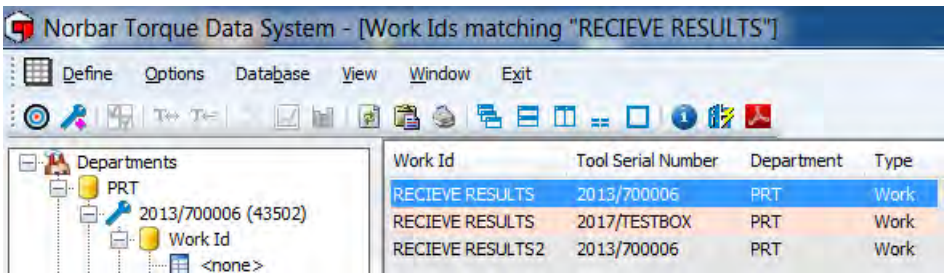
1) Click ***Define*** tab, then click ***List Tools for Work ID***.



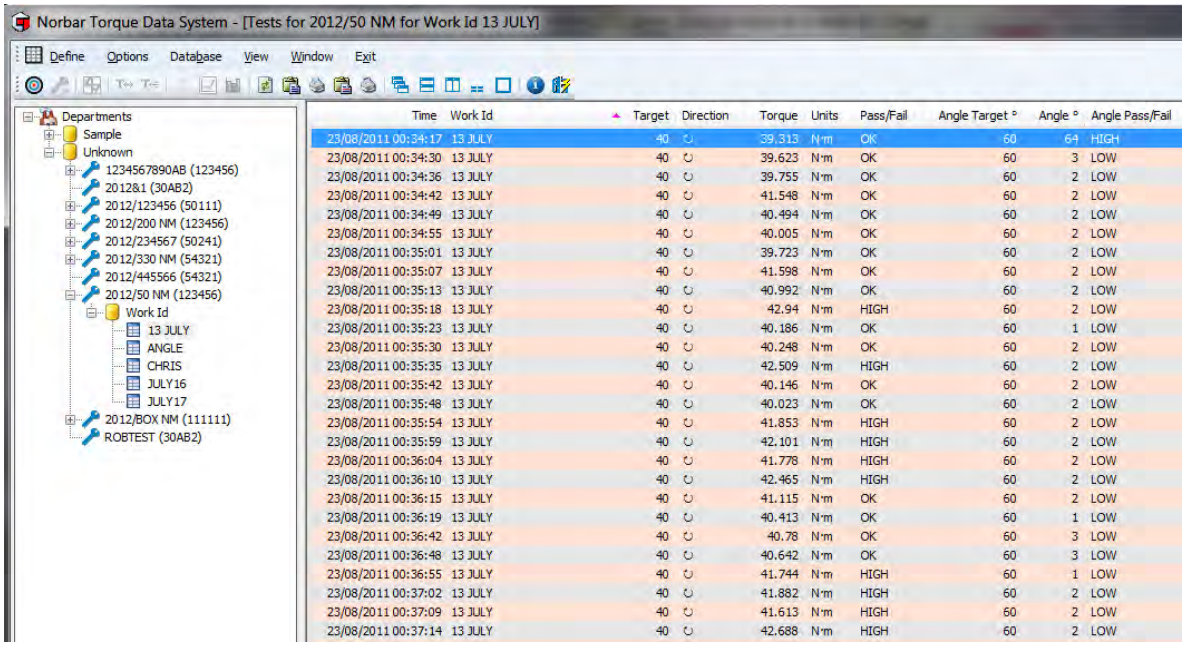
2) Type in the Work ID you are looking for, then click ***OK***.



3) Double click on the ***Work ID*** which will be highlighted in the right hand pane.



4) You can then double click on the Work ID (in the left-hand tree), to view the results in the right-hand pane.



Results

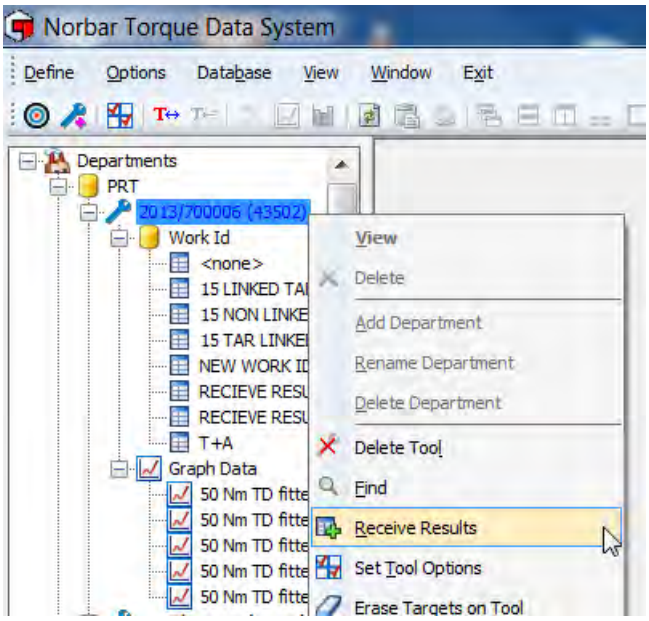
Stored Results on NorTronic® Tools can be sent to TDS by pressing the button on the Toolbar. The Tool must be connected to TDS which is shown in the bottom left hand corner of TDS. See page 59 for Synchronization Options.

Alternatively, send the Results in real time using Receive Results (see below).

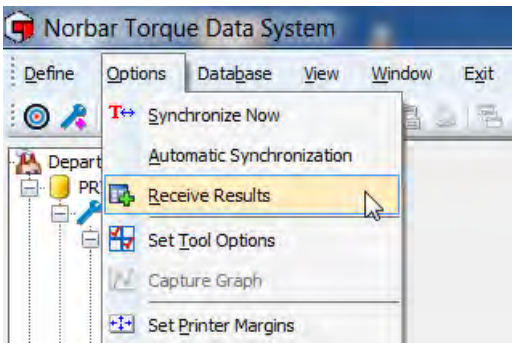
Receive Results

Test Results can be sent from the NorTronic® Tool to TDS (in real time) via the Receive Results option.

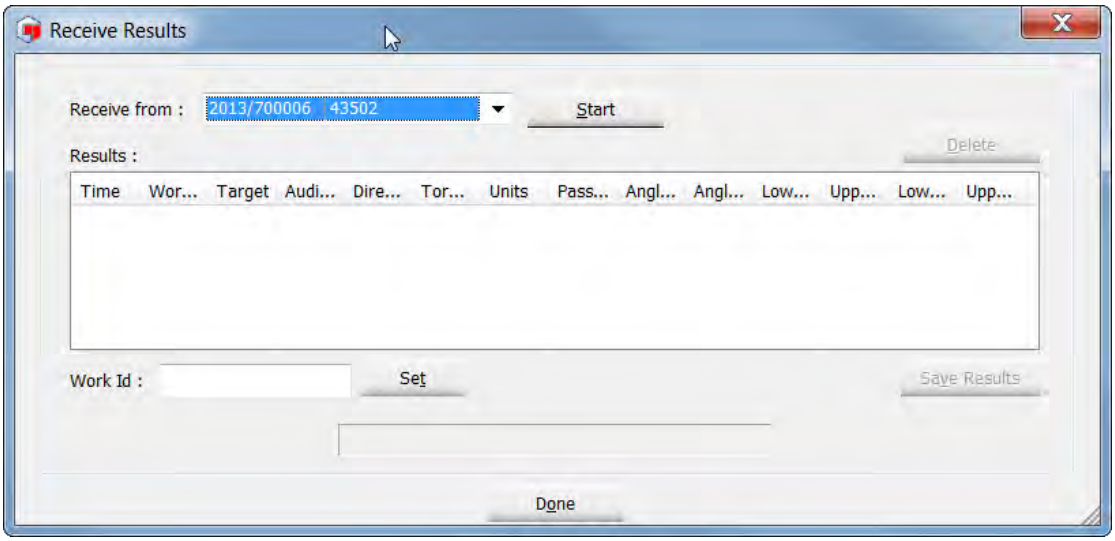
1) Right Click on the connected Tool (shown in blue) to show the drop-down menu. click on ***Receive Results.***



2) Alternatively, Click the ***Options*** tab to show the drop-down and click ***Receive Results***.

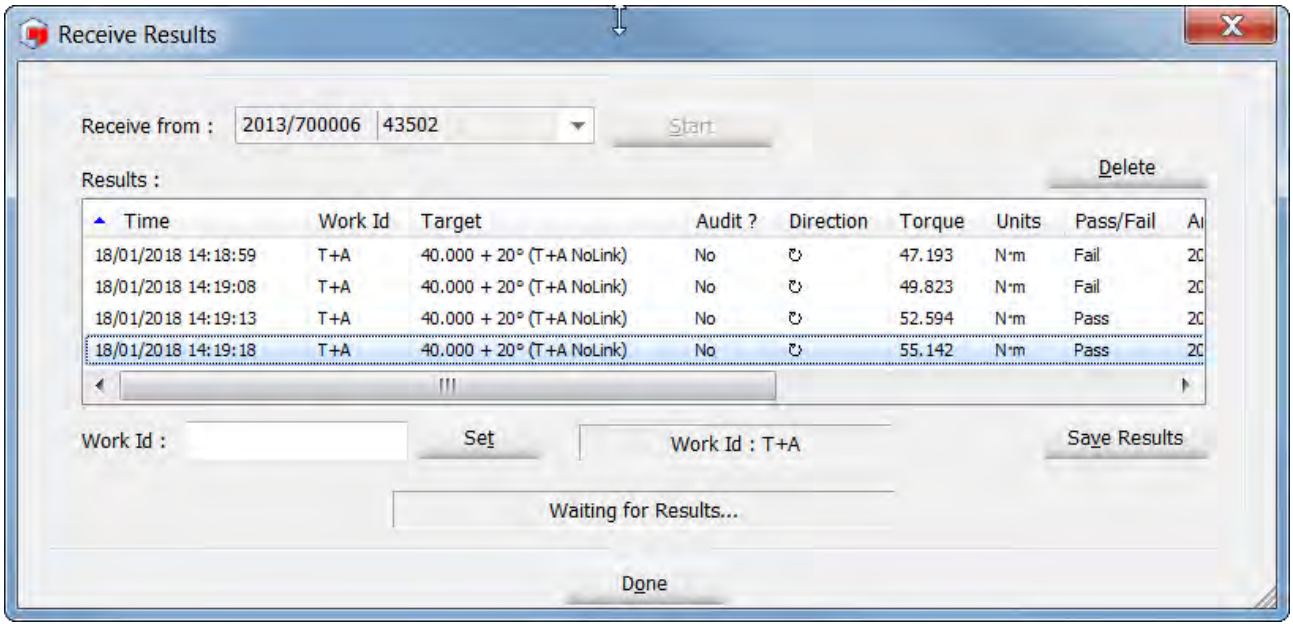


3) Select the Tool you require in the ***Receive from*** drop-down (if multiple Tools are connected), followed by clicking ***Start***.

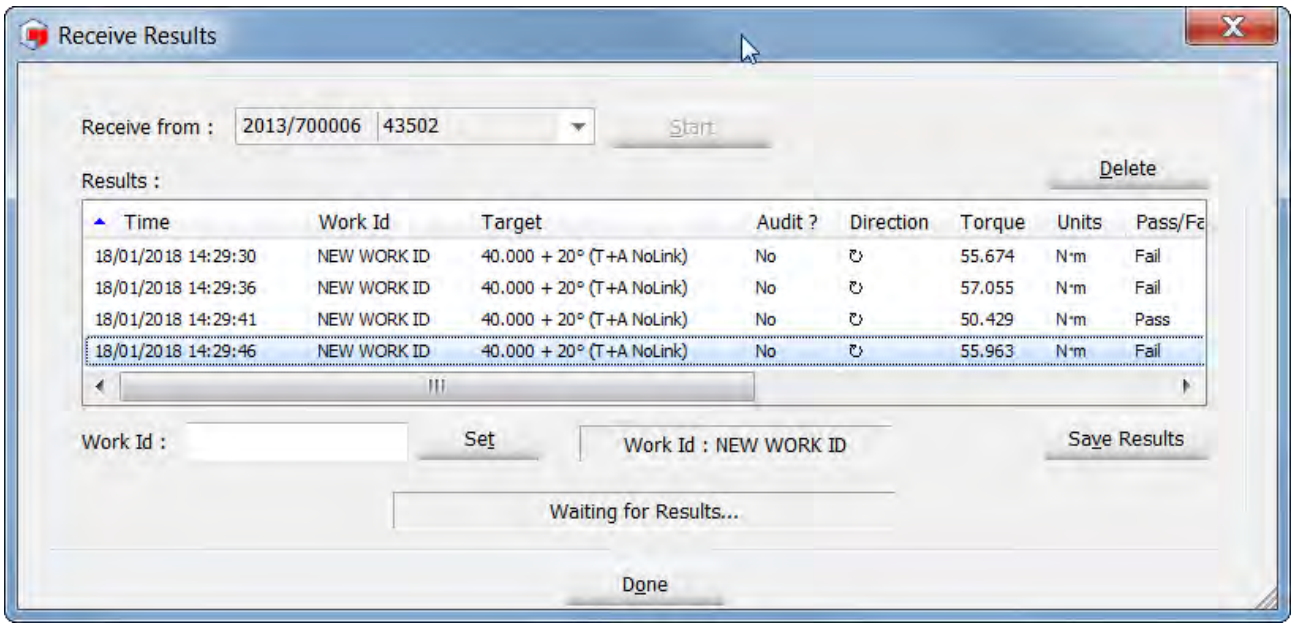


4) The USB or Wireless Icon on the NorTronic® Tool will go orange indicating you are in Receive Results mode.

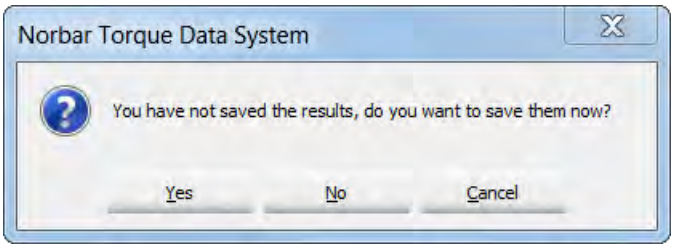
5) Send your Test Results into the Receive Results window. If a ***Work ID*** was sent to the Tool with the Target(s), this is displayed at the bottom.



6) If you wish to set a ***Work ID***, type your text in the Work ID box and click ***Set***.



7) To save the Test Results in TDS, click ***Save Results***. If the user clicks ***Done***, the Test Results are not saved and you will see the following screen.

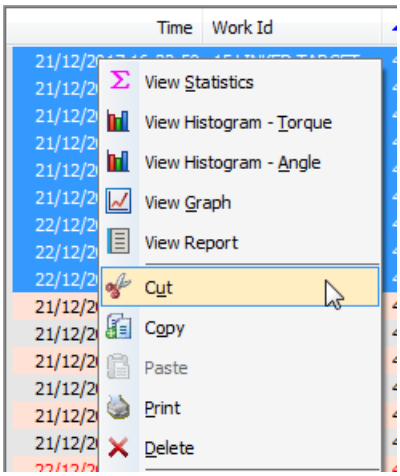


8) Click ***Yes***, ***No*** or ***Cancel*** as required.

Moving Results

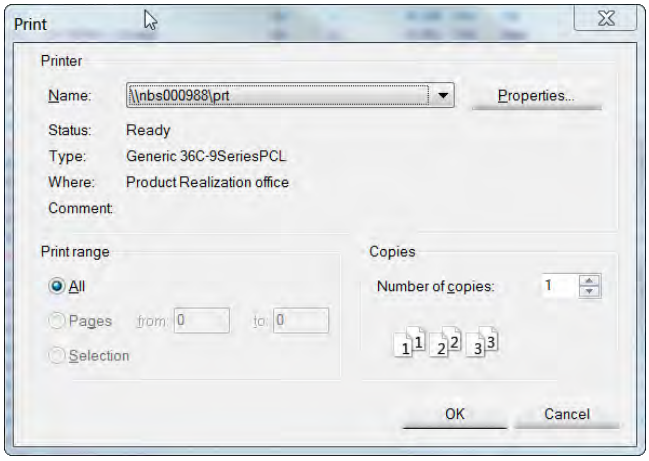
Highlighted Results can be moved from one Work ID to another by Right clicking and using ***Cut & Paste*** from the drop-down.

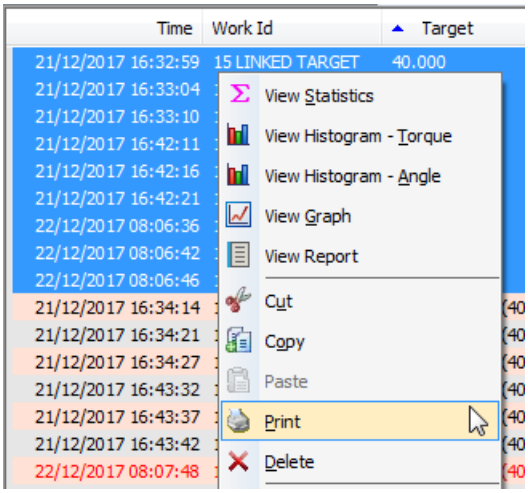
Highlighted Results can also be copied from one Work ID to another by Right clicking and using ***Copy & Paste*** from the drop-down.



Printing Results

Highlighted Results can be sent to a Printer by clicking the ***Print*** option on the drop-down.

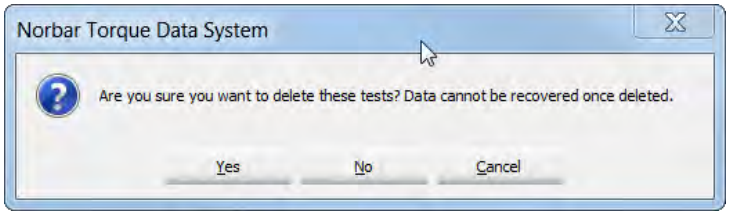




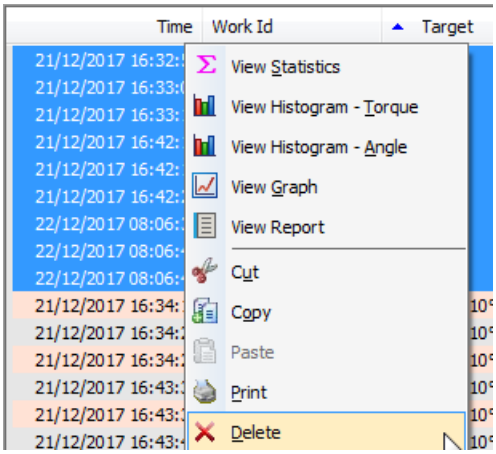
Deleting Results

Highlighted Results can be permanently deleted by clicking the ***Delete*** option on the drop-down.

You will see the following pop up.



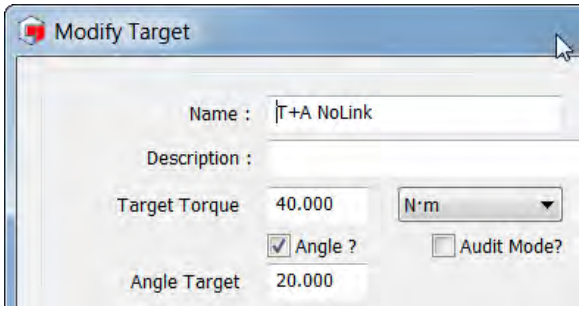
Click ***Yes, No*** or ***Cancel*** as required.



Assign Target Name

The Name of a Target can be added to the Results View and the Report. This is only possible if the Target exists in TDS.

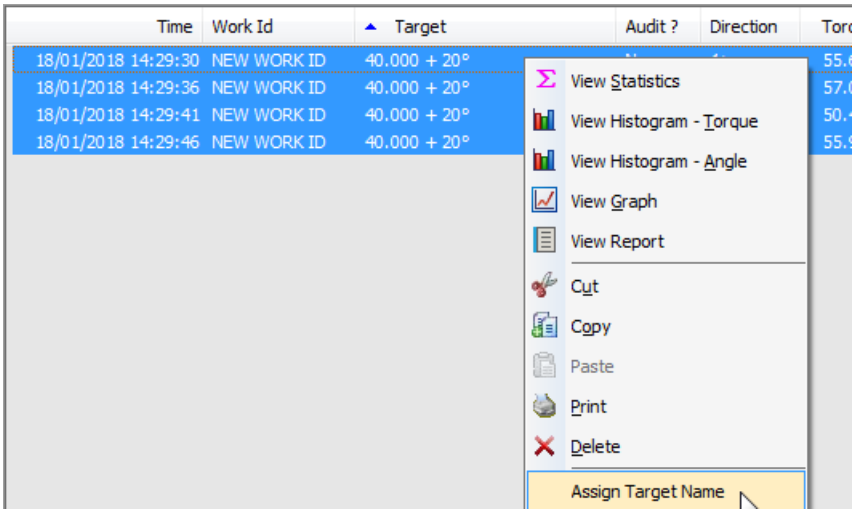
1) Create Target in TDS with a name (in this case, “T+A NoLink”).



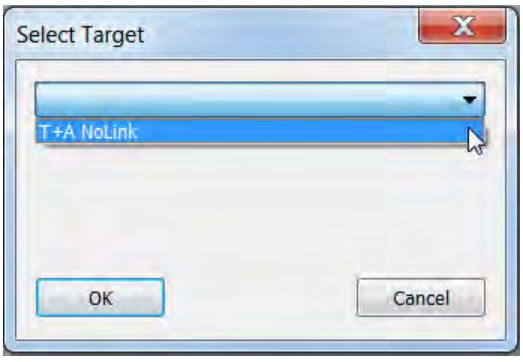
2) Send the Target to the Tool and take some Results with the Target. Transfer the results to TDS and open the Work ID (in this case “NEW WORK ID”).

Time	Work Id	Target	Audit ?	Direction	Torque
18/01/2018 14:29:30	NEW WORK ID	40.000 + 20°	No		55.674
18/01/2018 14:29:36	NEW WORK ID	40.000 + 20°	No		57.055
18/01/2018 14:29:41	NEW WORK ID	40.000 + 20°	No		50.429
18/01/2018 14:29:46	NEW WORK ID	40.000 + 20°	No		55.963

3) Select (highlight) the Results you wish to add the Target name to. Right click on the Results and select ‘Assign Target Name’ on the drop-down menu.



4) Select the required Target from the drop-down and click ‘OK’.



5) The Target Name will now be shown with Target in the Results View.

Time	Work Id	Target	Audit ?	Direction	Torque
18/01/2018 14:29:30	NEW WORK ID	40.000 + 20° (T+A NoLink)	No		55.674
18/01/2018 14:29:36	NEW WORK ID	40.000 + 20° (T+A NoLink)	No		57.055
18/01/2018 14:29:41	NEW WORK ID	40.000 + 20° (T+A NoLink)	No		50.429
18/01/2018 14:29:46	NEW WORK ID	40.000 + 20° (T+A NoLink)	No		55.963

6) The Target name will also be added to the Report (see page 46 for details on how to create a Report).

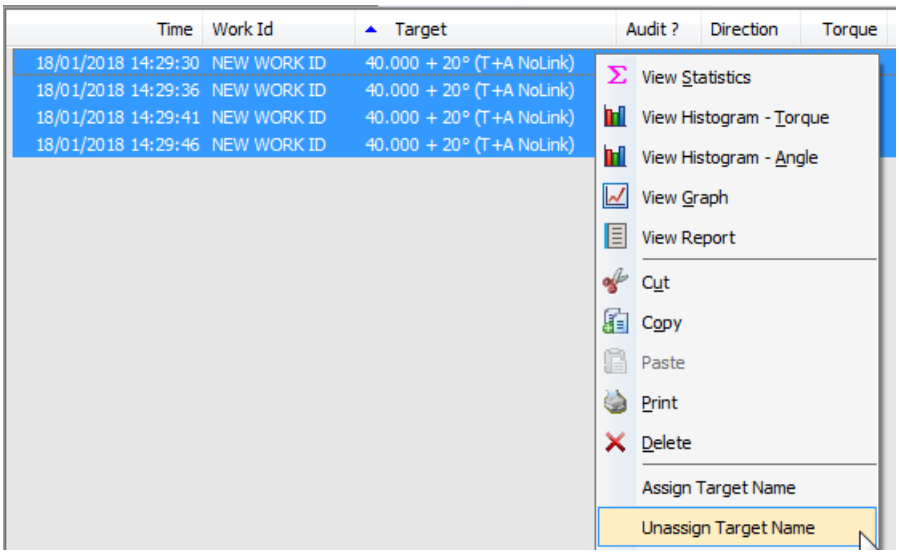
Department : PRT

Work ID : NEW WORK ID

Line #	Date	Audit ?	Target	Direction	Angle	Torque
1	18/01/2018 14:29:30	No	= 40.000 + 20° (T+A NoLink)	CW	4	55.674 N·m
2	18/01/2018 14:29:36	No	= 40.000 + 20° (T+A NoLink)	CW	15	57.055 N·m
3	18/01/2018 14:29:41	No	= 40.000 + 20° (T+A NoLink)	CW	20	50.429 N·m
4	18/01/2018 14:29:46	No	= 40.000 + 20° (T+A NoLink)	CW	26	55.963 N·m

Unassign Target Name

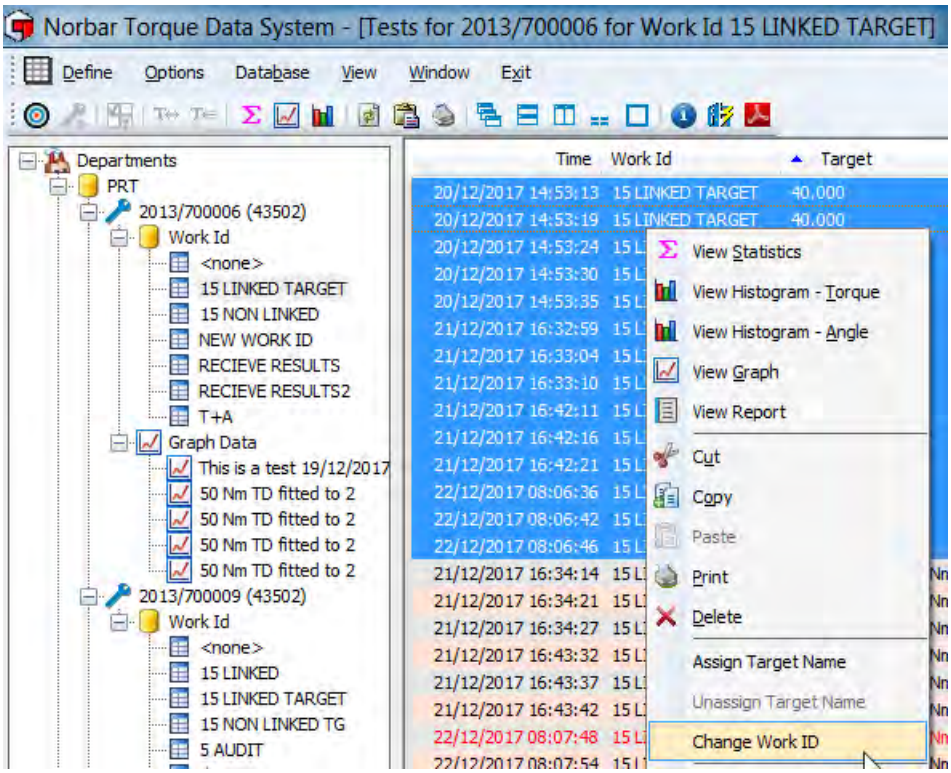
1) Select (highlight) the Results you wish to remove the Target name from. Right click on the Results and select 'Unassign Target Name' on the drop-down menu.



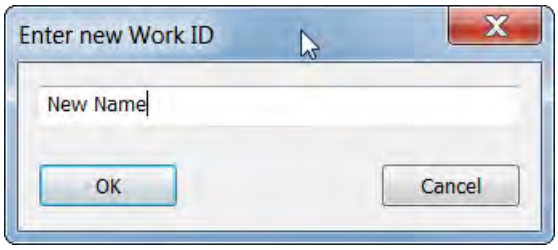
2) Target name has now been removed.

Change Work ID

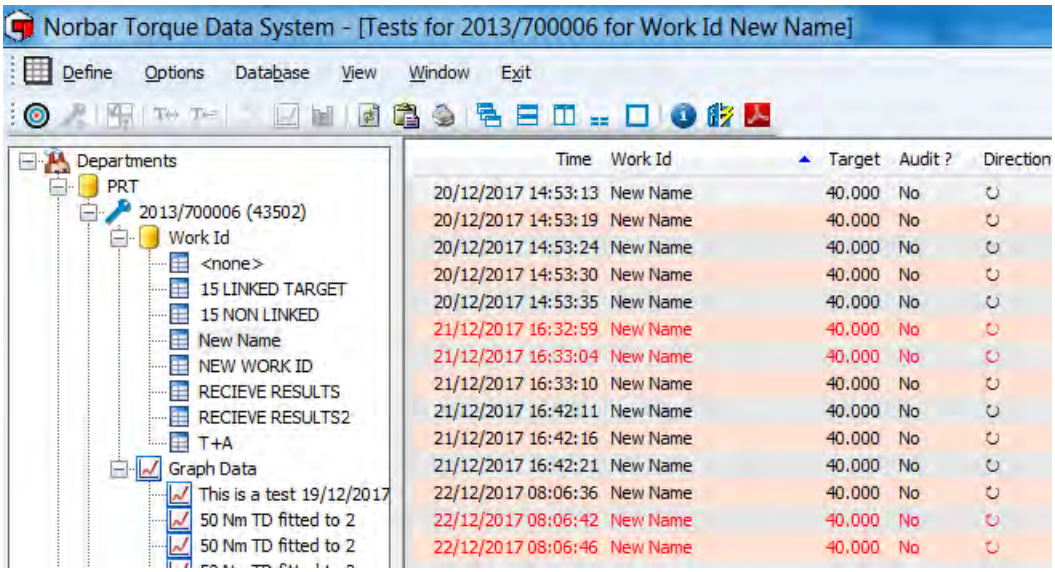
1) Select (highlight) the Results you wish to change the Work ID name. Right click on the Results and select ‘Change Work ID’ on the drop-down menu.



2) Type in the new Work ID and click ‘OK;.

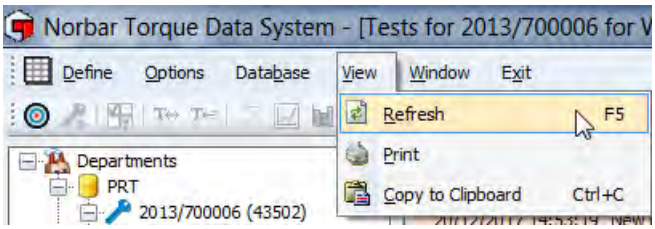


3) A new Work ID (in this case “New Name”), will be created under the same Tool in the tree. Double click on the new Work ID in the tree to view the results.



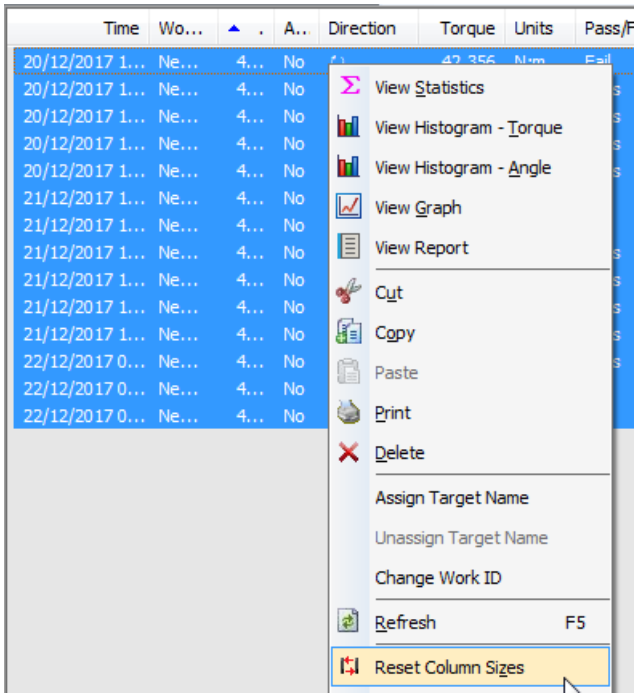
Refresh

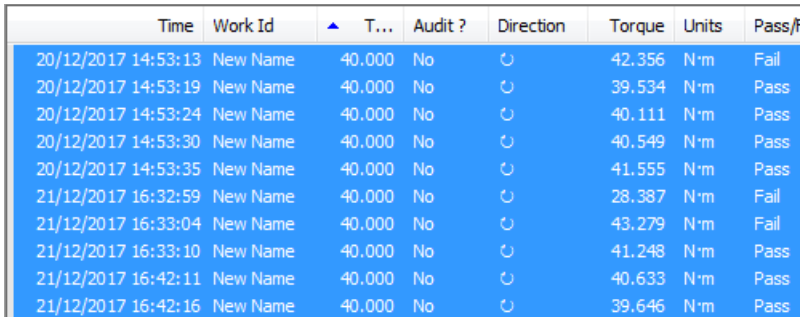
Click the Refresh icon on the Toolbar or select ***Refresh*** from the ***View*** drop-down menu to re-draw the current display.



Reset column sizes

Use this function to re-size all columns to fit the text in the Results view.



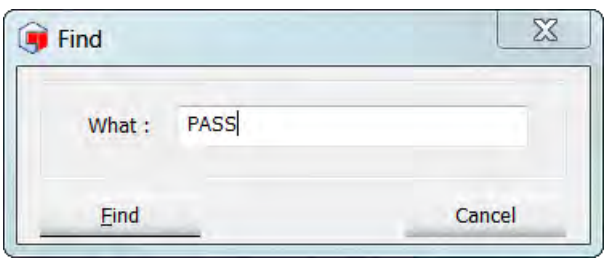


Time	Work Id	T...	Audit ?	Direction	Torque	Units	Pass/F
20/12/2017 14:53:13	New Name	40.000	No		42.356	N·m	Fail
20/12/2017 14:53:19	New Name	40.000	No		39.534	N·m	Pass
20/12/2017 14:53:24	New Name	40.000	No		40.111	N·m	Pass
20/12/2017 14:53:30	New Name	40.000	No		40.549	N·m	Pass
20/12/2017 14:53:35	New Name	40.000	No		41.555	N·m	Pass
21/12/2017 16:32:59	New Name	40.000	No		28.387	N·m	Fail
21/12/2017 16:33:04	New Name	40.000	No		43.279	N·m	Fail
21/12/2017 16:33:10	New Name	40.000	No		41.248	N·m	Pass
21/12/2017 16:42:11	New Name	40.000	No		40.633	N·m	Pass
21/12/2017 16:42:16	New Name	40.000	No		39.646	N·m	Pass

Find

Use this feature the Find text within the Results view

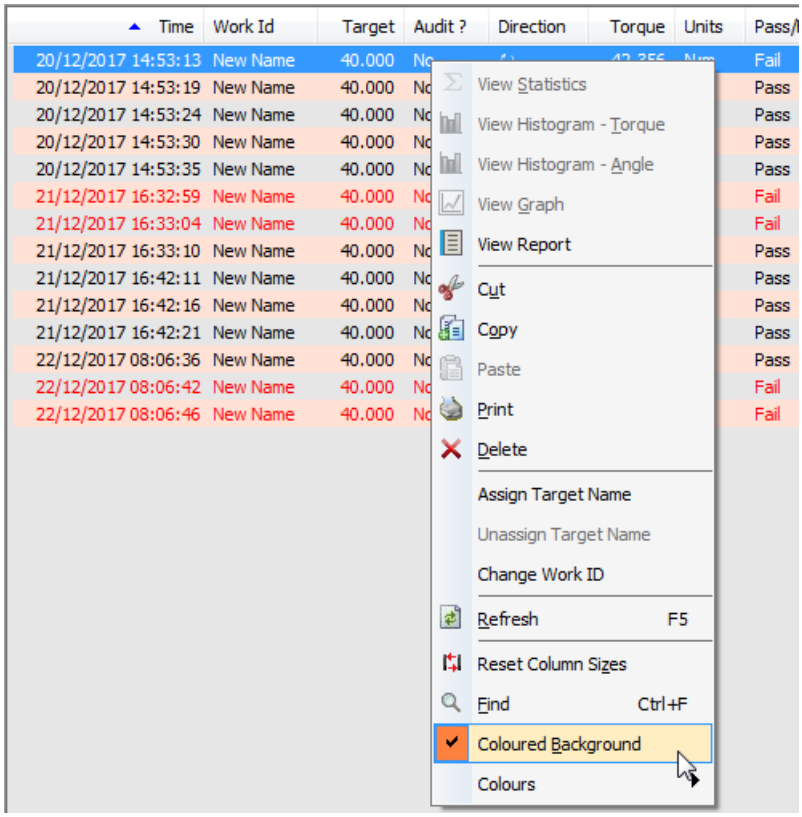
To keep searching for the same entry, press ‘F3’ on your keyboard to ‘Find Next’.



Coloured Background

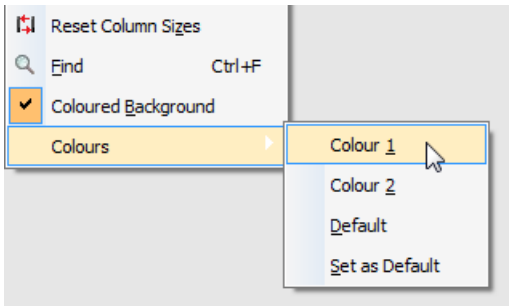
The Results view background can be either white or coloured. This can be changed by Right clicking in the Results view and selecting ***Coloured Background*** form the drop-down.

This is Work ID specific.

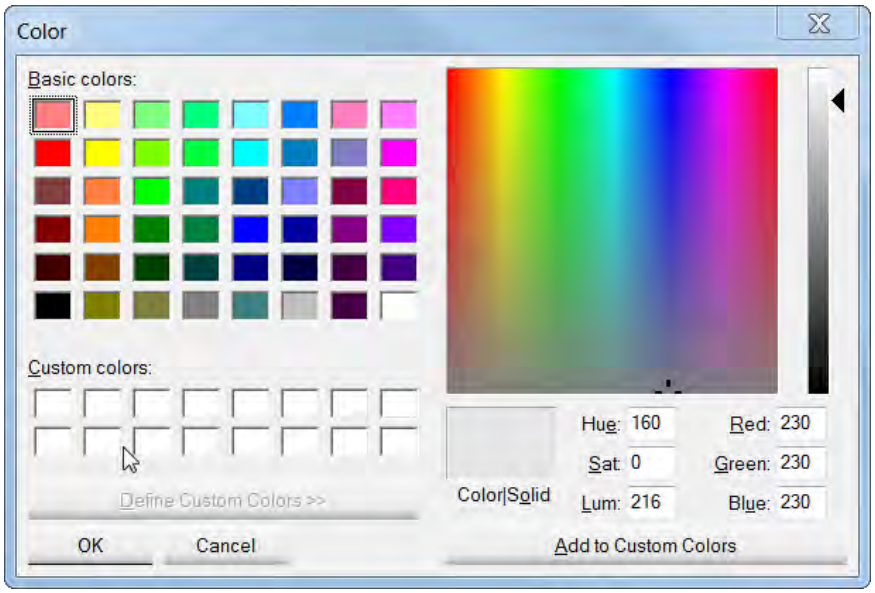


Colours

With ***Coloured Background*** selected (ticked), the user can choose which colours are used by clicking on ***Colour 1*** and ***Colour 2***.



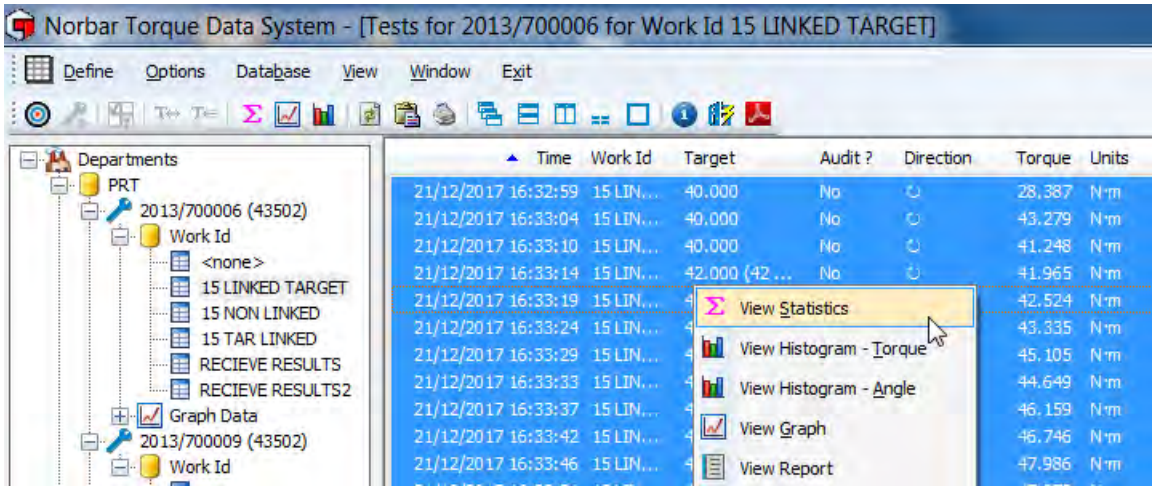
Choose the colours required, then click ‘OK’.



View Statistics

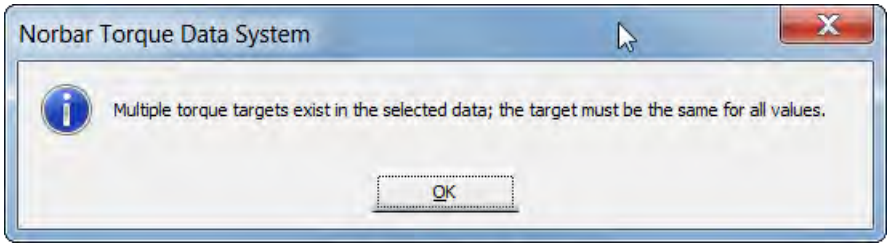
1) Right click on a work ID for a Tool (in the left-hand tree), then click on ***View***.

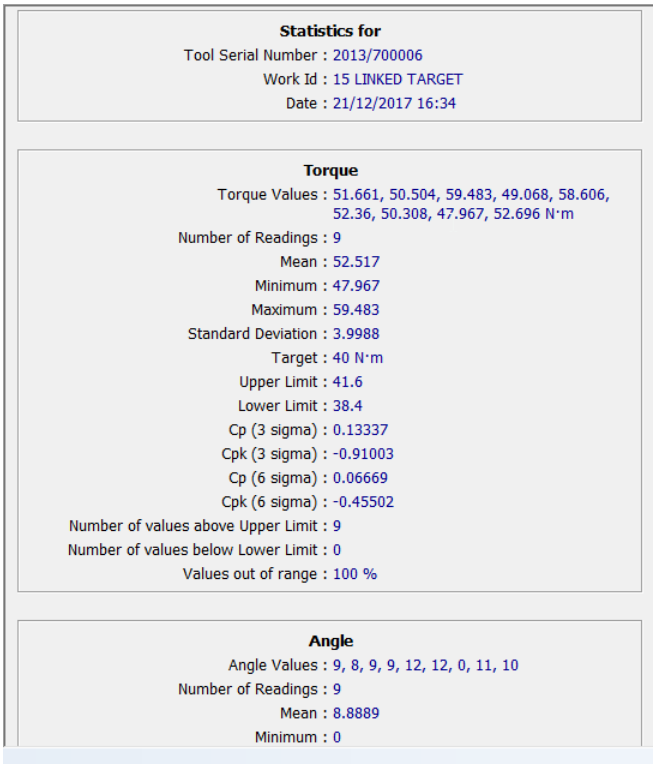
2) Select the Test Results you want to view Statistics for by clicking on the first one then holding down shift and clicking on the last one you wish to analyse. Use CTRL + A to select all results.



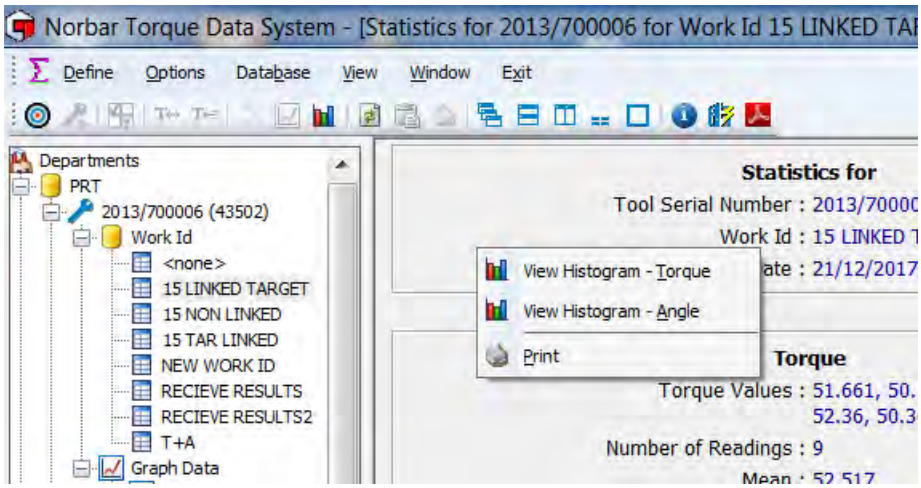
3) Right click on the Test Results window and click on ***View Statistics*** on the drop-down menu. Alternatively click the Σ icon on the TDS Toolbar.

NOTE: **All results must share the same Target, otherwise you will see the following pop up.**





4) Right click on the statistics results and click on either ***View Histogram – Torque, View Histogram – Angle*** or ***Print***.



SPC Calculations

Term	Mathematical equation	Comment
Mean	Sum of results / N	This is the average result.
Maximum		The largest result.
Minimum		The smallest result.
No readings		The number of readings
Sigma	The square root of: Σ(reading-mean)² / (N-1)	Also known as standard deviation, this shows how close together the readings are.
Cp (3 sigma)	(USL – LSL) / 6 sigma	This is the capability index, showing the process capability potential. It takes no account of how centred the process is. A value of 1.33 or more is desirable.
Cpk (3 Sigma)	lesser of: (USL-mean) / 3 sigma or (mean – LSL) / 3 sigma	This indicates whether the process will produce units within tolerance. If the process is centred on the nominal value then Cpk will have a value equal to Cp. A negative value shows mean is outside tolerance. A value of 1.33 or more is desirable.
Cp (6 sigma)	(USL – LSL) / 12 sigma	This is the capability index, showing the process capability potential. It takes no account of how centred the process is.
Cpk (6 Sigma)	lesser of: (USL-mean) / 6 sigma or (mean – LSL) / 6 sigma	This indicates whether the process will produce units within tolerance. If the process is centred on the nominal value then Cpk will have a value equal to Cp. A negative value shows mean is outside tolerance.

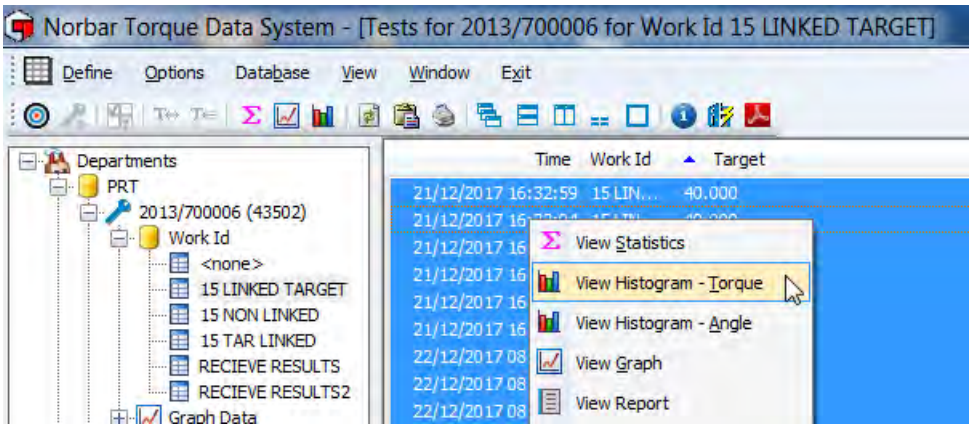
NOTE: USL=Upper set limit
LSL=Lower set limit
N=Number of results

The SPC calculations depend on the number of results selected and if a Target with limits was used.

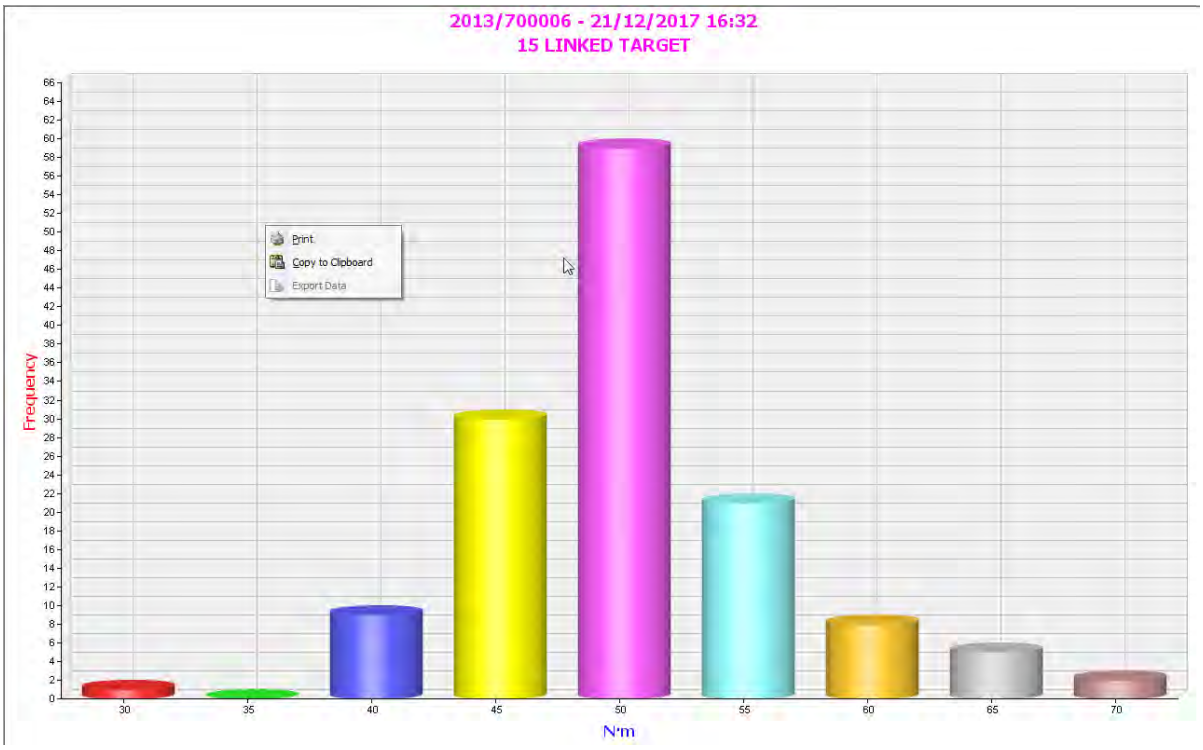
View Histogram(s)

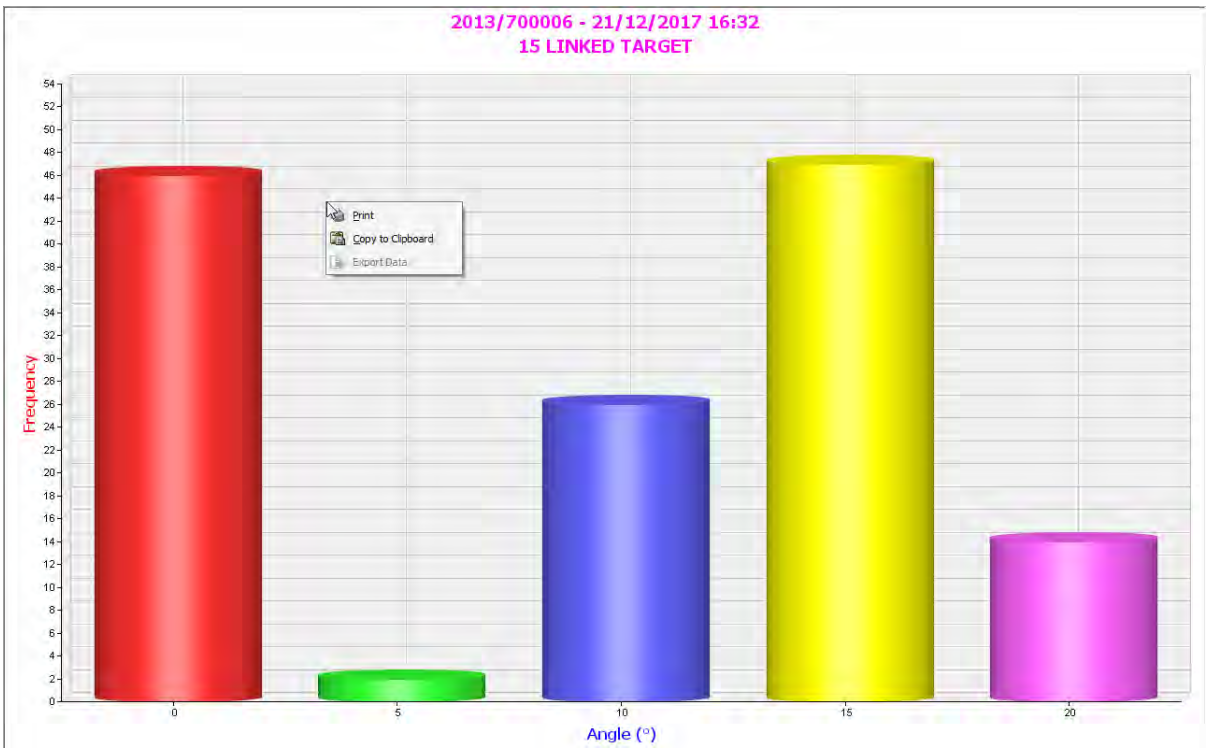
1) Right Click on a ***Work ID*** for a Tool in the left-hand tree, then click on ***View*** from the drop-down menu.

2) Select the Test Results you want to view Histogram for by clicking on the first one then holding down shift and clicking on the last one you wish to analyse. Use CTRL + A to select all.



3) Right click on the Test Results window and click on ***View Histogram – Torque*** or ***View Histogram – Angle*** from the drop-down menu. Alternatively click the icon on the TDS Toolbar to view Torque Histogram only.





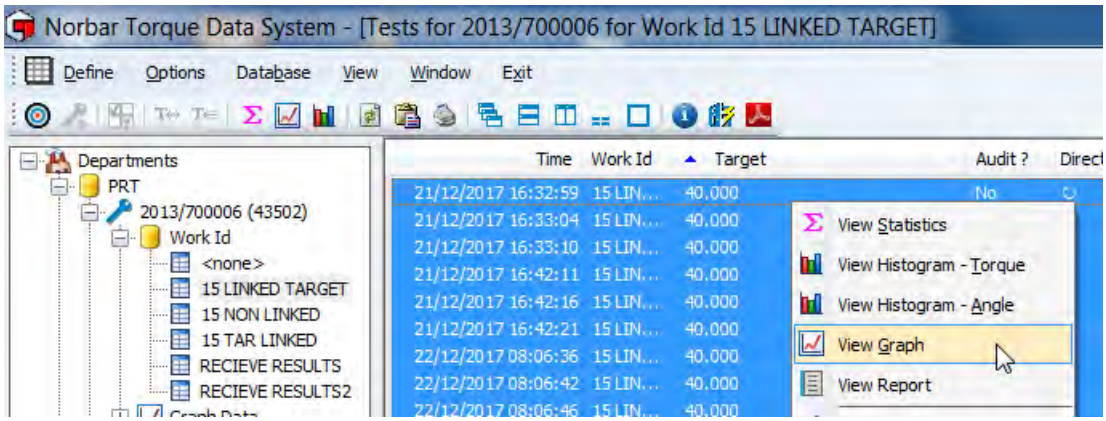
4) Right click on the Histogram to show ***Print*** or ***copy to Clipboard*** and click the required option.

NOTE: ***Export Data*** **is not available for Histograms.**

View Graph

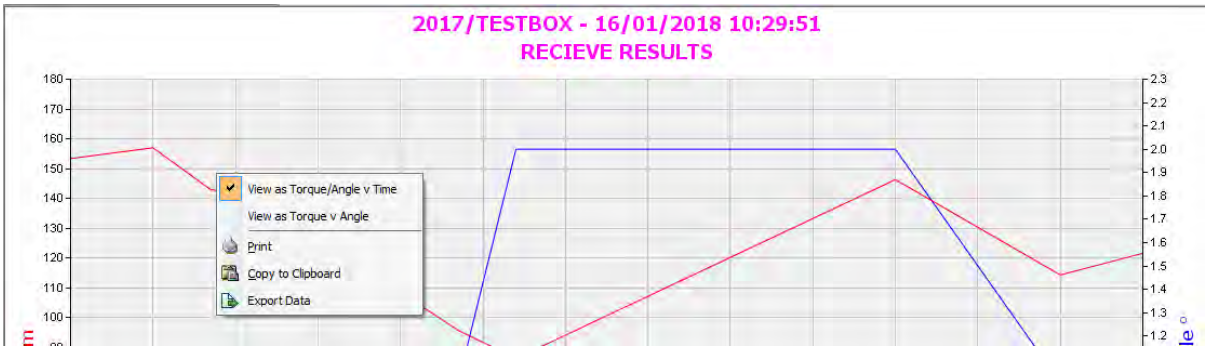
1) Click on a ***Work ID*** for a Tool in the left-hand pane and click on ***View***.

2) Select the Test Results you want to view Graph for by clicking on the first one then holding down shift and clicking on the last one you wish to analyse. Use CTRL + A to select all.



3) Right click on the Test Results window and click on ***View Graph***.

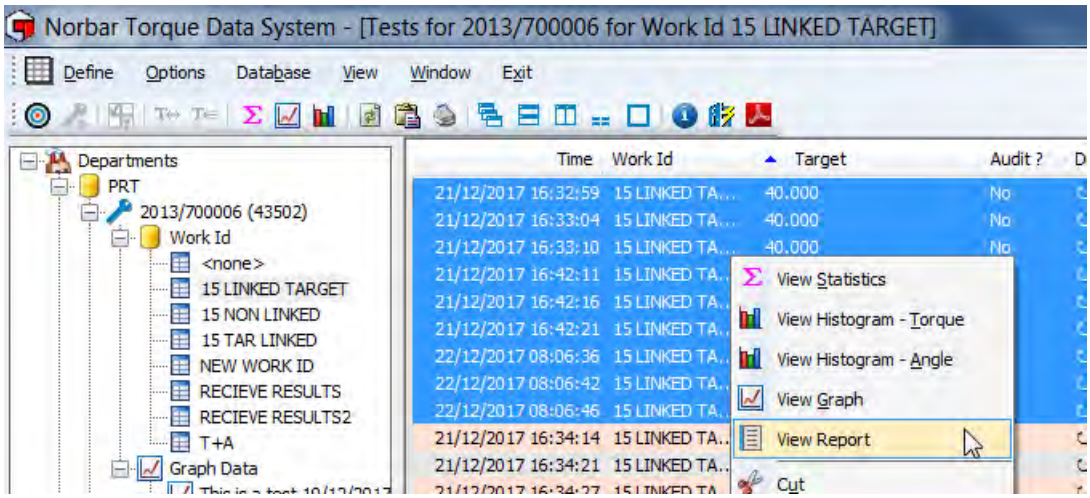
4) Right click on the graph to show a drop down where you can select View as ***Torque v Angle***, ***Print, Copy to Clipboard or Export Data***.



View Report

1) Click on a ***Work ID*** for a Tool in the left-hand pane and click on ***View***.

2) Select the Test Results you want to Create a Report from by clicking on the first one then holding down shift and clicking on the last one you wish to analyse. Use CTRL + A to select all.



3) Right click on the Test Results window and click on ***View Report*****.** Click on the Report to make it larger when this icon is shown. Press 'Ctrl' + click to make it smaller.

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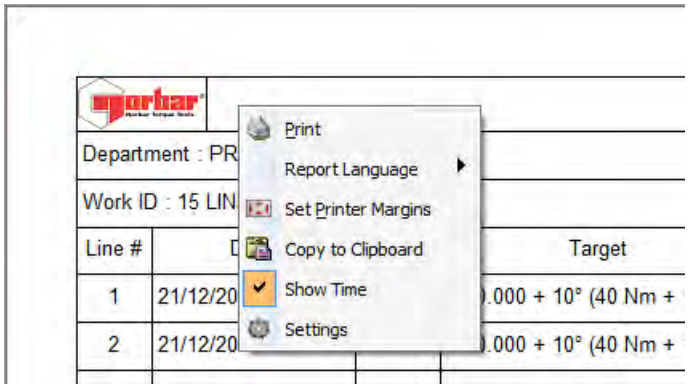
Department : PRT

Work ID : 15 LINKED TARGET

Line #	Date	Audit ?	Target	Direction	Angle	Torque	Pass/Fail	Tool Serial #
1	21/12/2017 16:34:14	No	= 40.000 + 10° (40 Nm + 10 deg)	CW	9	51.661 N·m	Pass	2013/700006
2	21/12/2017 16:34:21	No	= 40.000 + 10° (40 Nm + 10 deg)	CW	8	50.504 N·m	Pass	2013/700006
3	21/12/2017 16:34:27	No	= 40.000 + 10° (40 Nm + 10 deg)	CW	9	59.483 N·m	Pass	2013/700006
4	21/12/2017 16:43:32	No	= 40.000 + 10° (40 Nm + 10 deg)	CW	9	49.068 N·m	Pass	2013/700006
5	21/12/2017 16:43:37	No	= 40.000 + 10° (40 Nm + 10 deg)	CW	12	58.606 N·m	Pass	2013/700006
6	21/12/2017 16:43:42	No	= 40.000 + 10° (40 Nm + 10 deg)	CW	12	52.360 N·m	Pass	2013/700006
7	22/12/2017 08:07:48	No	= 40.000 + 10° (40 Nm + 10 deg)	CW	0	50.308 N·m	Fail	2013/700006
8	22/12/2017 08:07:54	No	= 40.000 + 10° (40 Nm + 10 deg)	CW	11	47.967 N·m	Pass	2013/700006
9	22/12/2017 08:07:59	No	= 40.000 + 10° (40 Nm + 10 deg)	CW	10	52.696 N·m	Pass	2013/700006

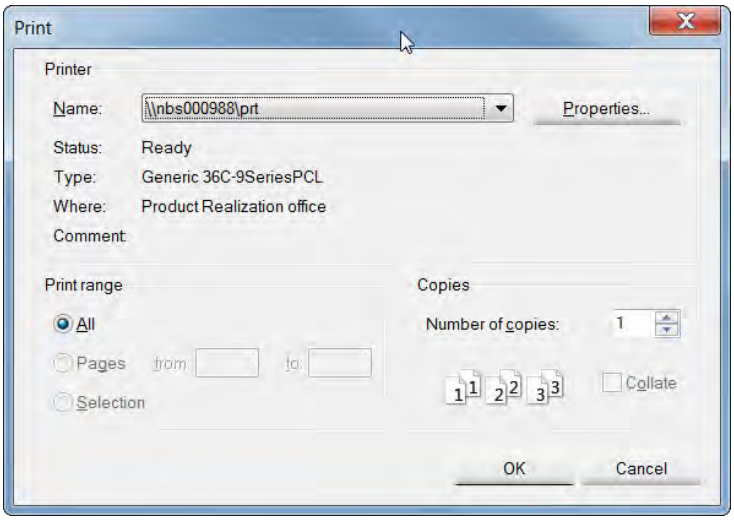
Report Options

Right click on the Report to show a drop-down below.



Print Report

Selecting ***Print*** will send the current Report to the Printer specified.



Select Report Language

Use this to select the ***language*** the Report is to be printed in.

Set Printer Margins

See ***Set Printer Margins*** on Page 60 for more information.

Copy to Clipboard

This function is used to copy and paste Graphs, Histograms and Reports into Microsoft applications like Word®, Excel® etc.

Show Date or Date & Time

When ***Show Time*** is ticked, ***Date & Time*** of Results will be added to the Report (instead of Date only).

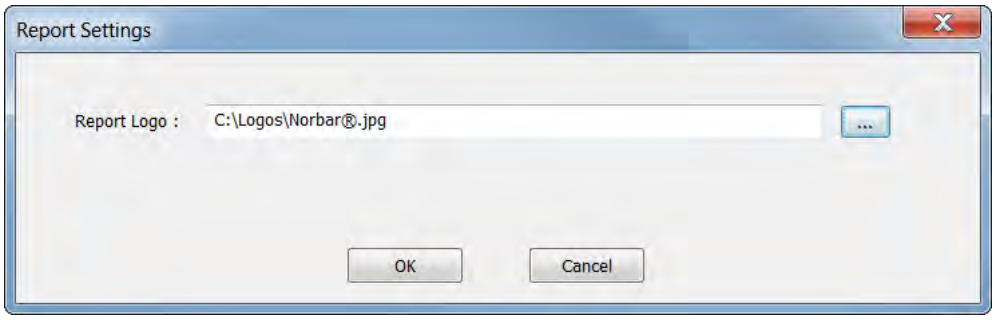
Department : PRT

Work ID : 15 LINKED TARGET

Line #	Date	Audit ?	Target
1	21/12/2017 16:32:59	No	= 40.000
2	21/12/2017 16:33:04	No	= 40.000
3	21/12/2017 16:33:10	No	= 40.000

Change Report Logo

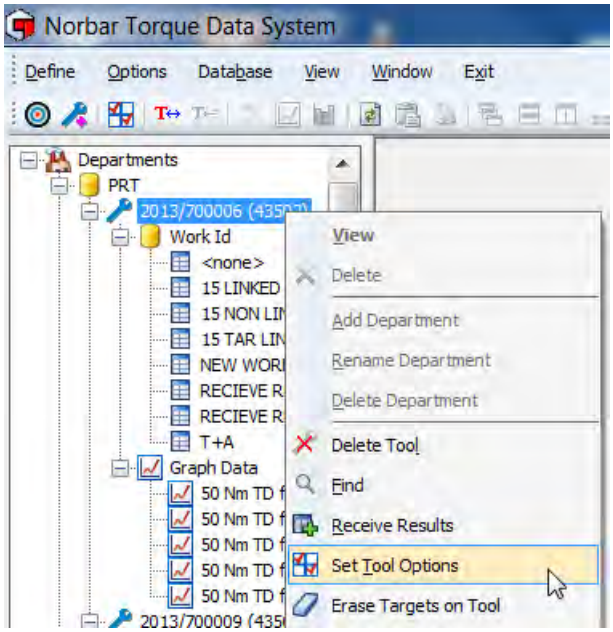
This is used to specify the ***logo*** that is printed on Reports.



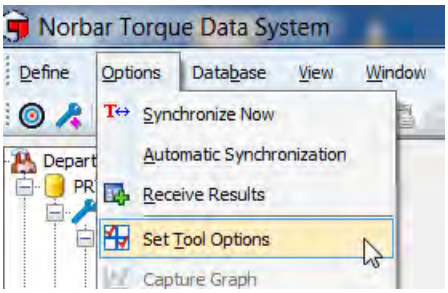
Set Tool Options

All of the user configurable Setup options on the Tool can be configured and downloaded to the Tool from TDS.

1. Right click on the required Tool and then click on ***Set Tool Options*** on the drop-down menu.



2. Alternatively, Click the ***Options*** tab followed by ***Set Tool Options***.



2.1. Select the Tool you wish to change the configuration by selecting in the ***Send To*** window.

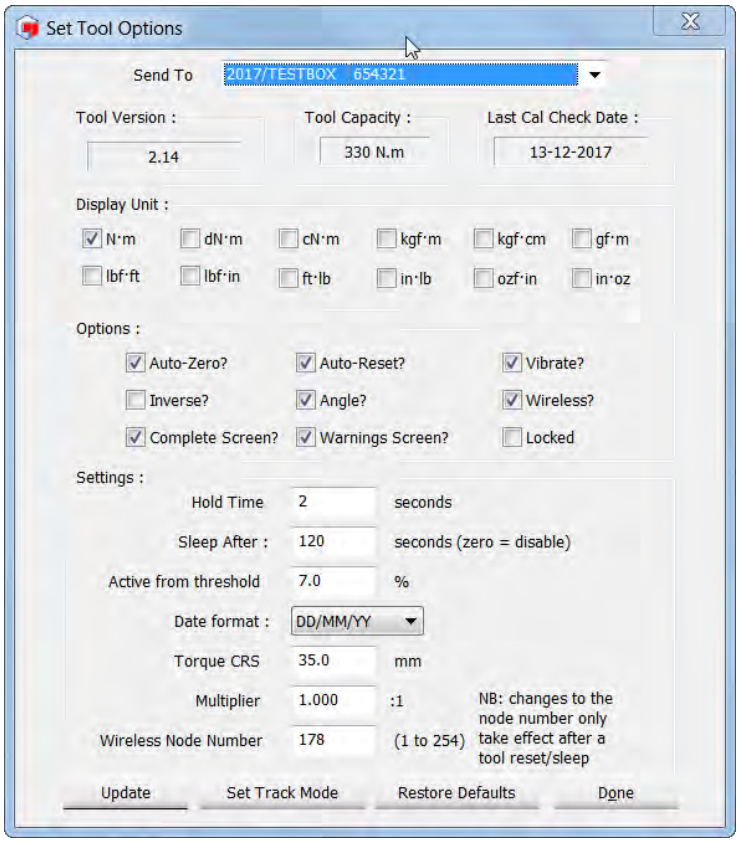
NOTE: Only Tools that are connected will be shown.

2.2. ***Tool Version*** - this is the current software version fitted to the selected Tool.

2.3. ***Tool Capacity*** - this is the current Torque Capacity of the selected Tool.

2.4. ***Last Cal Check Date*** – this is the date the calibration of the selected Tool was last altered.

2.5. Choose the ***Display Unit*** you would like the Tool to work in by clicking in the tick box next to the required Unit. Only one unit is selectable at any one time. i.e. if you only want the Tool to operate in N·m, tick the N·m box.



2.6. Tick ***Auto Zero?*** if you wish the Tool to auto zero when the batteries are changed and every time the Tool resumes from sleep.

2.7. Tick ***Vibrate?*** If you wish the Tool to vibrate when the Target on the Tool has been achieved.

2.8. Tick ***Angle?*** If you wish the Tool to operate in Torque & Angle mode. If this box is not selected the Tool will operate in Torque only mode.

2.9. Tick ***Auto Reset?*** If you wish the Tool to automatically reset after a Peak has been reached and the Torque is released. This operates in conjunction with the ***Hold Time*** setting detailed later.

If this option is left un-ticked the NorTronic® operates in Manual Reset mode i.e. a Peak is held until the button has been pressed on the NorTronic® Tool.

2.10. By ticking ***Inverse?*** the display colours change from white on black to Black on white.

NOTE: This will result in significantly higher battery consumption.

2.11. Tick ***Wireless?*** to enable wireless communication with TDS via the wireless adapter.

2.12. Tick ***Complete Screen?*** To enable the NorTronic® to show the 'Complete Screen' when the 'Number of Readings' specified for a Target is larger than 1 and the results have been completed.

2.13. Tick ***Warnings Screen?*** To enable the NorTronic® to show the 'Warnings Screen' when the '***Torque CRS***' and/or '***Multiplier***' values have been changed from their default values. This screen will be shown on power up or resume from sleep.

2.14. The ***Hold Time*** value is the length of time a peak is held for before resetting to the current torque input. This is greyed out if ***Auto Reset?*** Is left un-ticked.

2.15. The ***Sleep After*** value is the length of time the NorTronic® has been inactive before going into Sleep mode.

2.16. The ***Active from threshold*** is the percentage of the Tool capacity that the Torque value must reach before a peak is held. Below this value the NorTronic® is in Track mode.

2.17. Select the ***Date Format*** required by clicking on the selection box. Available formats are DD/MM/YY, MM/DD/YY or YY/MM/DD.

2.18. The ***Torque CRS*** value only needs to be changed if the end fitting is changed.

NOTE: This value is to compensate for the error induced by fitting a different offset with say a 100 mm Torque Centres (CRS) so that the NorTronic® displays the correct Torque Value.

2.19. The ***Multiplier*** setting ensures the NorTronic® ***displays*** the ***correct output Torque*** *when used in conjunction with a* ***Torque Multiplier***: - i.e. with a 100:1 ***Ratio***.

2.20. The ***Wireless Node Number*** is to enable multiple NorTronic® Tools to be connected to TDS at the same time via the ***Norbar Wireless Adapter***.

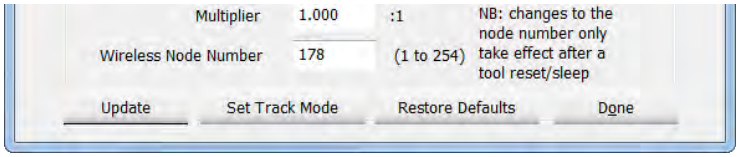
NOTE: This value must be different for all simultaneously connected NorTronic® Tools. As default all Tools shipped from Norbar will have the node number set as "2", so if you have 2 Tools – set one of them to "2" and the other to "3" etc.

Lock NorTronic® Tool

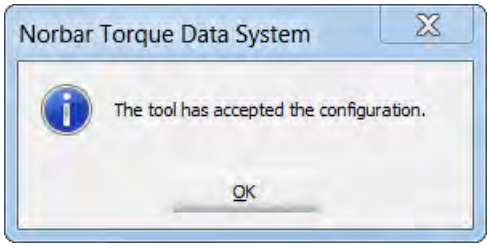
3. When the ***Locked*** option is ticked and downloaded to the NorTronic®, no Setup options or Target adjustments can be made by the user on the NorTronic® Tool. To enable Tool adjustment, un-tick the Locked option and download to the NorTronic® Tool.

Update Settings on NorTronic® Tool

4. Click the ***Update*** button to send the Tool Options to the NorTronic® Tool.



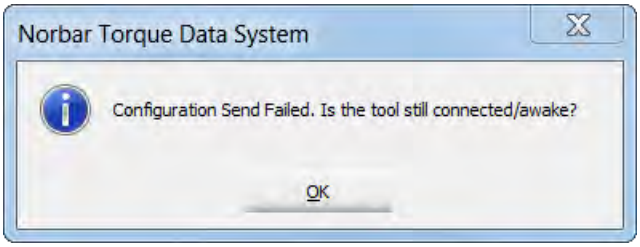
You will see this message if the update has been successful.



5. Click ***Done*** to close Set Tool Options and return to the TDS main screen.

6. If the Tool was not updated you will see this message. This can be caused by the NorTronic® going to sleep.

   Click ***OK***, wake the Tool and click the ***Update*** button again.



Set Track Mode

7. Click on ***Set Track Mode*** to disable peak mode and remain in Track mode up to 120% of the Tools capacity.

   NOTE: This function can be used for 'As Found' Tool calibration.

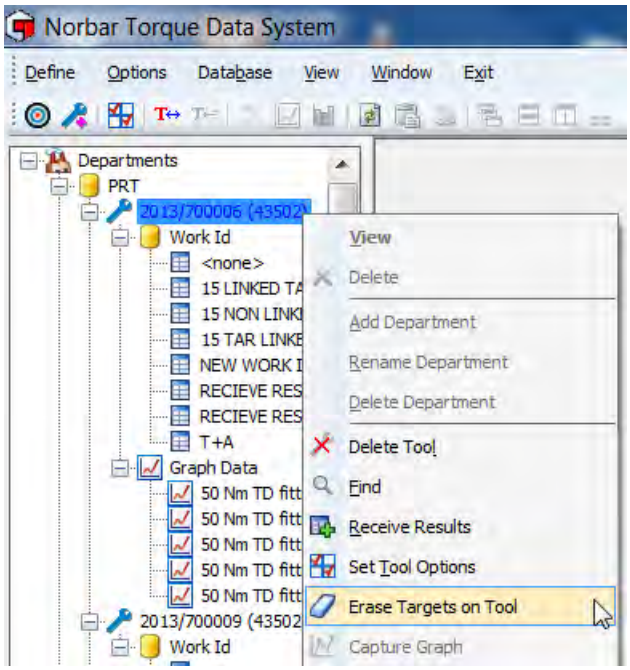
Restore Defaults

8. Click on ***Restore Defaults*** to return the connected NorTronic® Tool to factory settings.

Erase Targets on Tool

Targets can be removed from the NorTronic® Tool to using the ‘Erase Targets on Tool’ option.

1) Right Click on the connected Tool (shown in blue) to show the drop-down menu. click on *Erase Targets on Tool.*



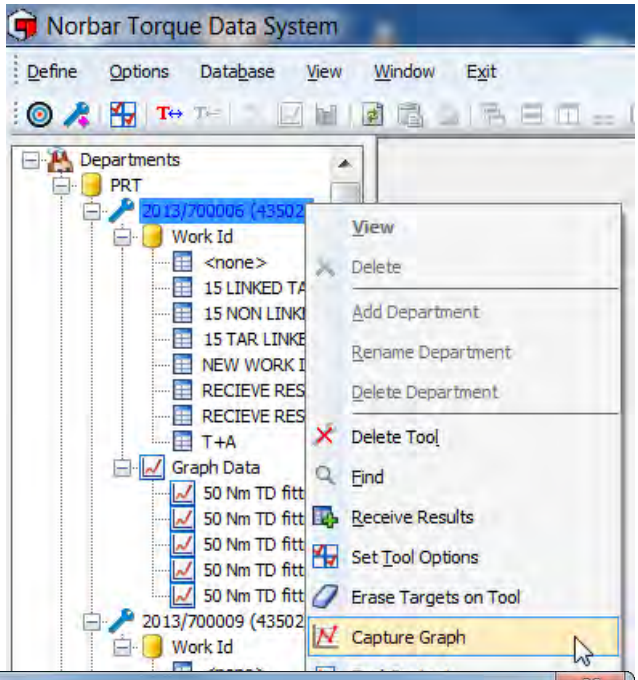
2) You will see the following confirmation.

Capture Graph

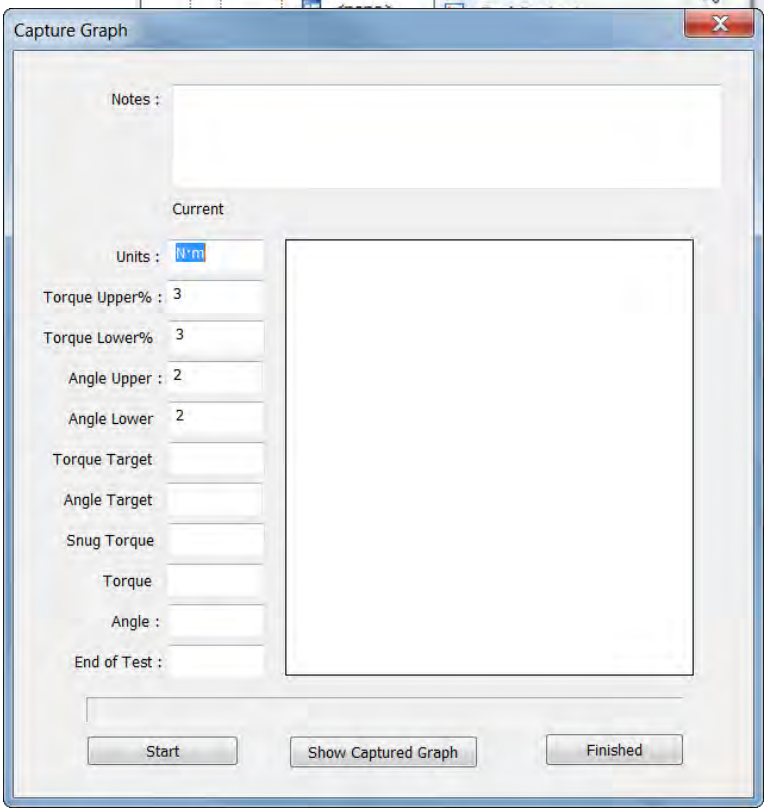
This allows the user to take and save a Torque (or Torque & Angle) graph in real time.

NOTE: This function is only enabled for a USB connected Tool.

1) Right Click on the connected Tool (shown in blue) to show the drop-down menu. click on *Capture Graph.*

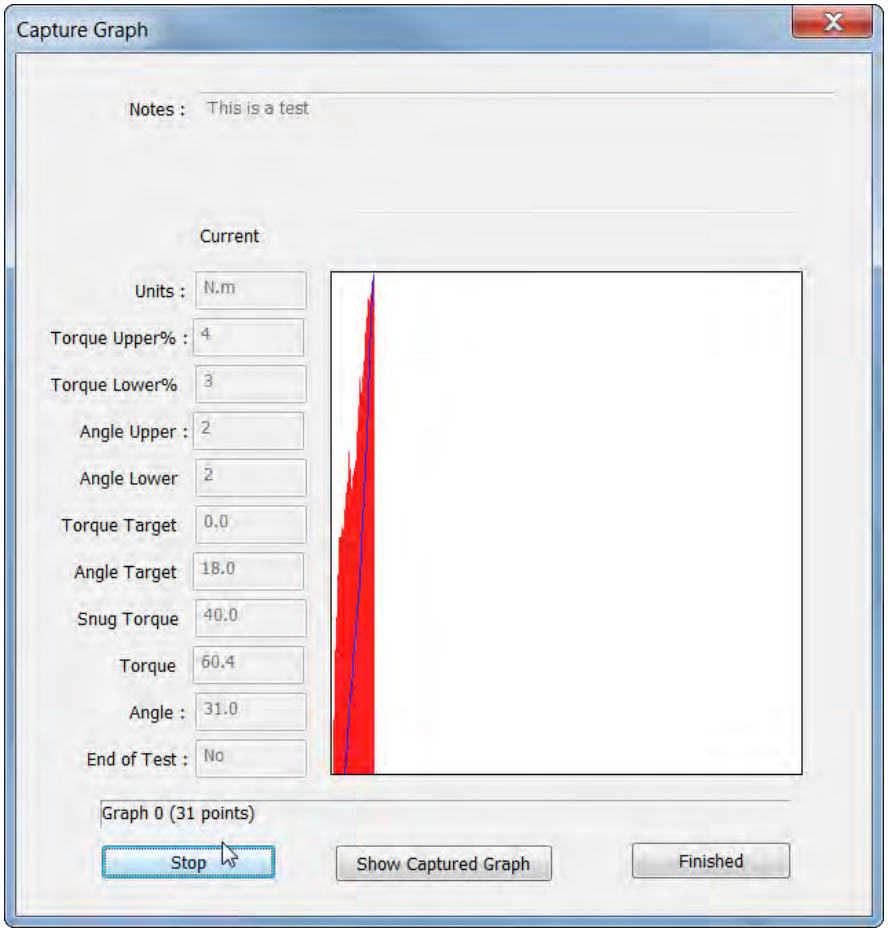


2) Type in required Text into the ***Notes*** entry box and click ***Start***.



3) When you apply Torque above the Active from Threshold, the USB icon on the Tool will go blue .

If there is a Target on the Tool, this will be populated in the Target boxes.

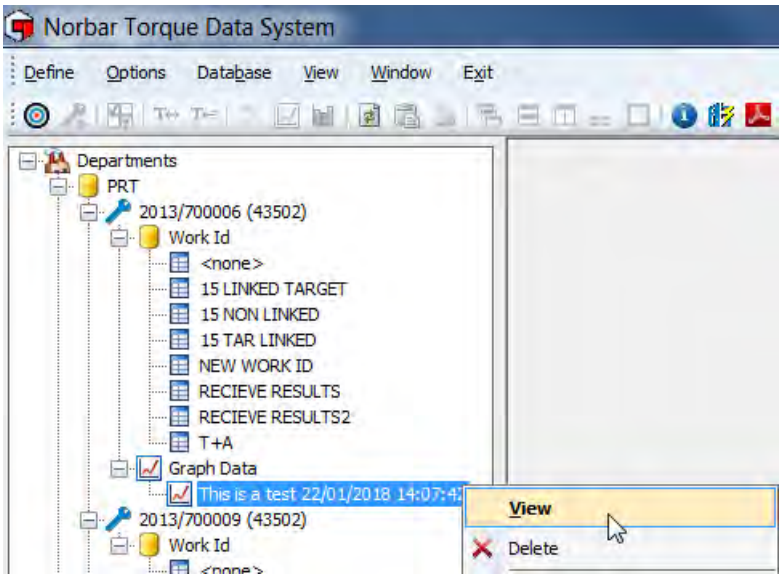


4) Click ***Stop*** when you have finished taking the Graph.

5) Click ***Show Captured Graph*** to view the graph just taken instantly, or alternatively click ***Finished*** to exit Capture Graph mode.

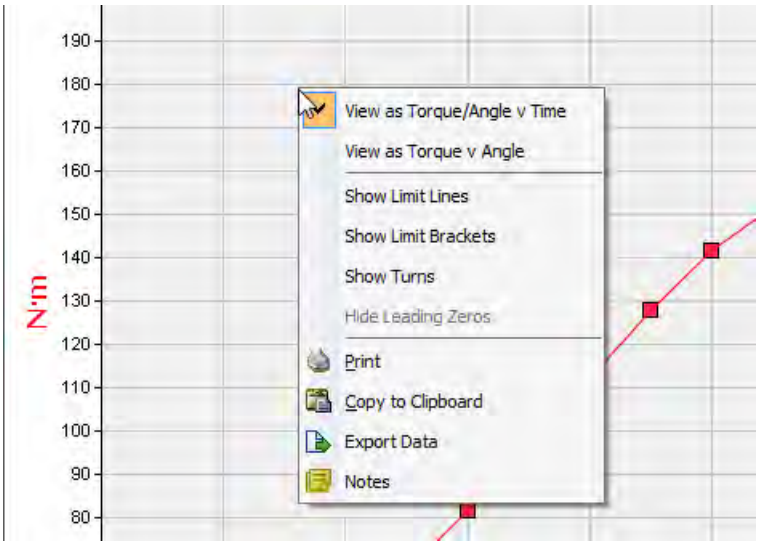
6) Graphs are saved under the Tool serial number in ***Graph Data***. Each graph is identified by the ***Notes*** added before taking the graph and the ***Date – Time*** at which the graph was taken.

7) Right Click on a graph (or double click to select ***View***. Right click to select ***Delete*** Graph.



Graph Options

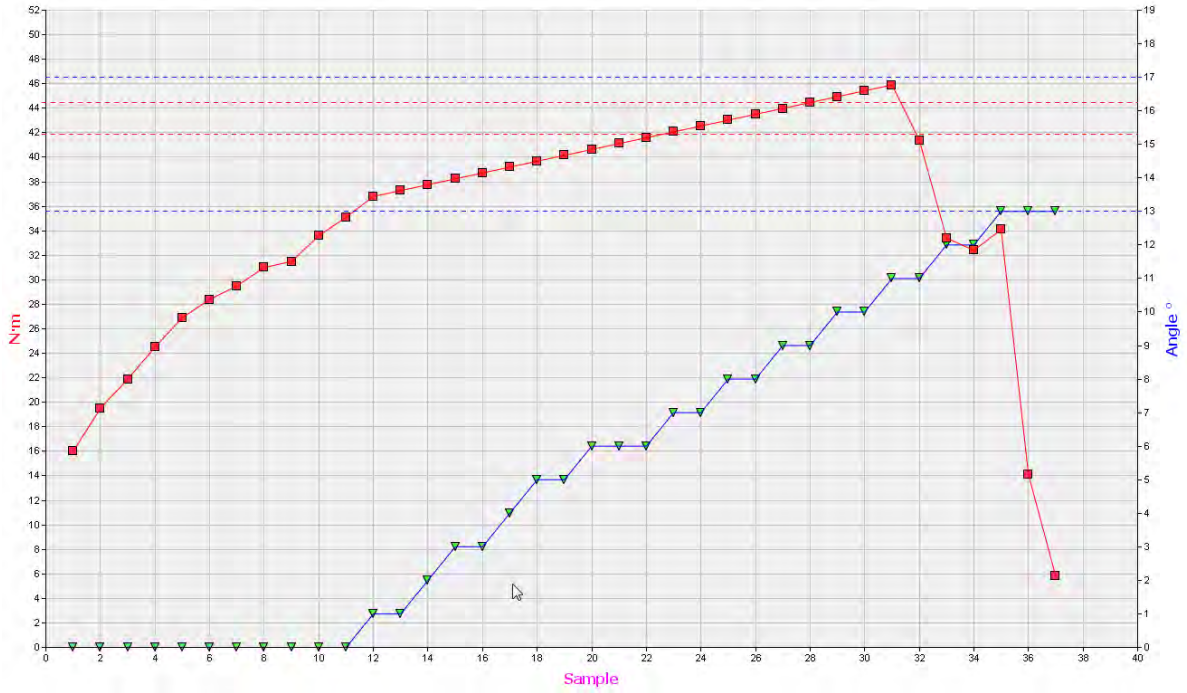
When Viewing a Graph, right click on the Graph to bring up the ***View Graph Options***.



The Graph can be viewed as either ***Torque/Angle v Time*** or ***Torque v Angle***. Tick required option.

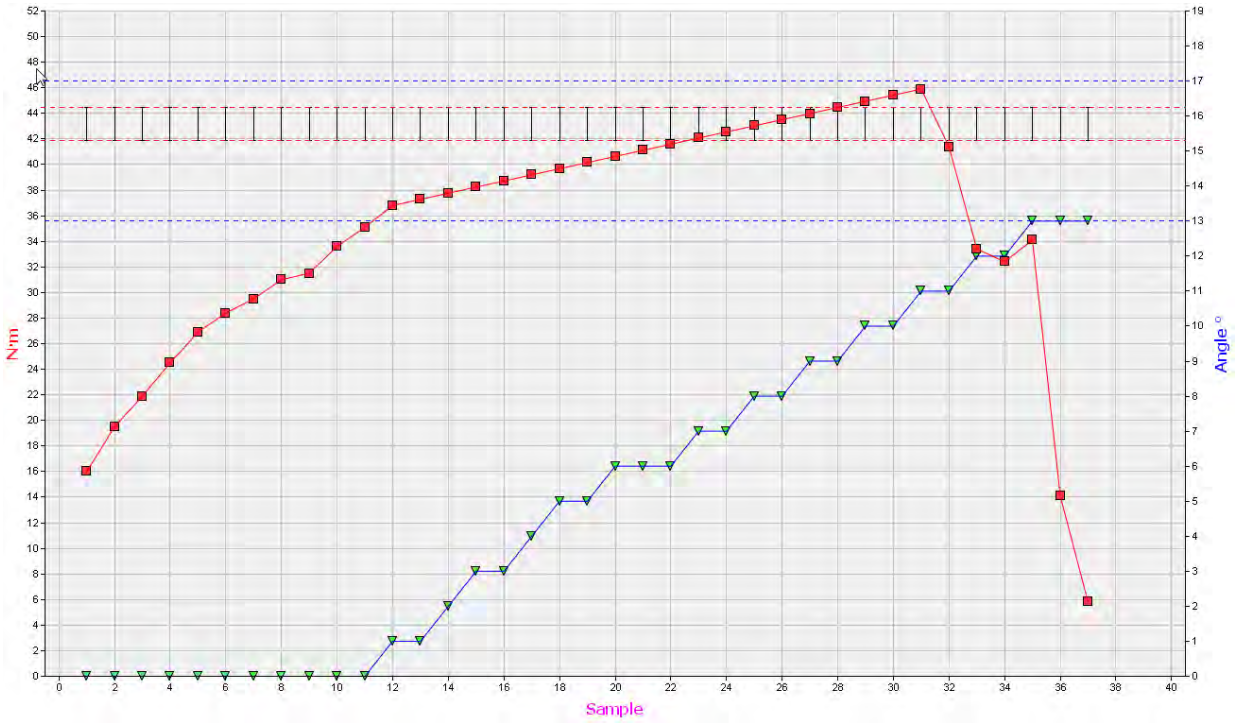
Show Limit Lines

If a Target was used, Click on ***Show Limit Lines*** to view on the graph (Angle in blue and Torque in red). Tick to enable.



Show Limit Brackets

If a Target was used, Click on ***Show Limit Brackets*** to view on the graph. These are shown in black for Torque only. Tick to enable.



Show Turns

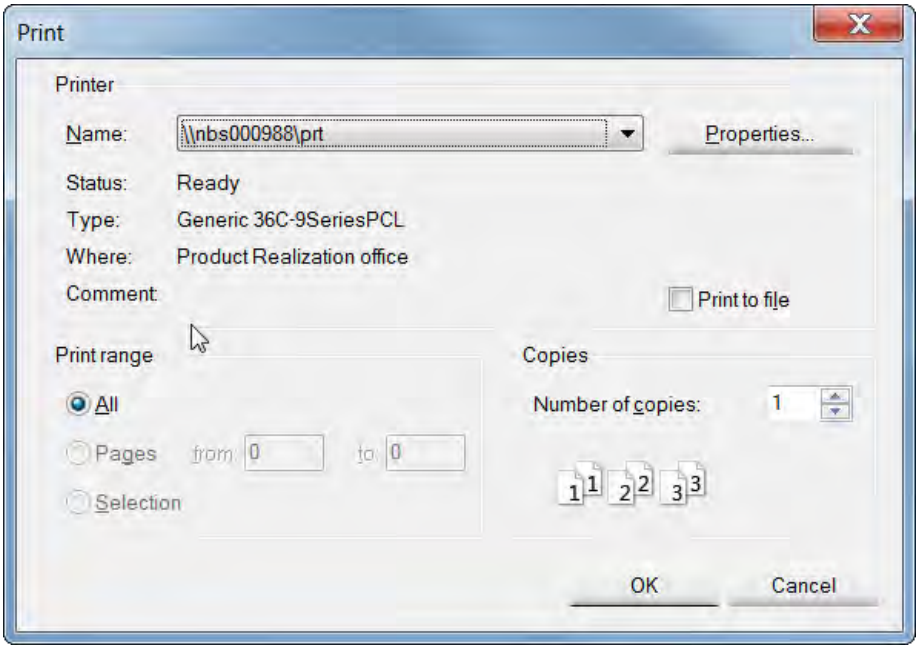
Click on ***Show Turns*** to show a Torque & Angle graph as Torque and Turns.

Hide Leading Zeros

NOTE: Not available for the NorTronic® and will always be greyed out.

Print

Send the currently displayed graph to a printer.

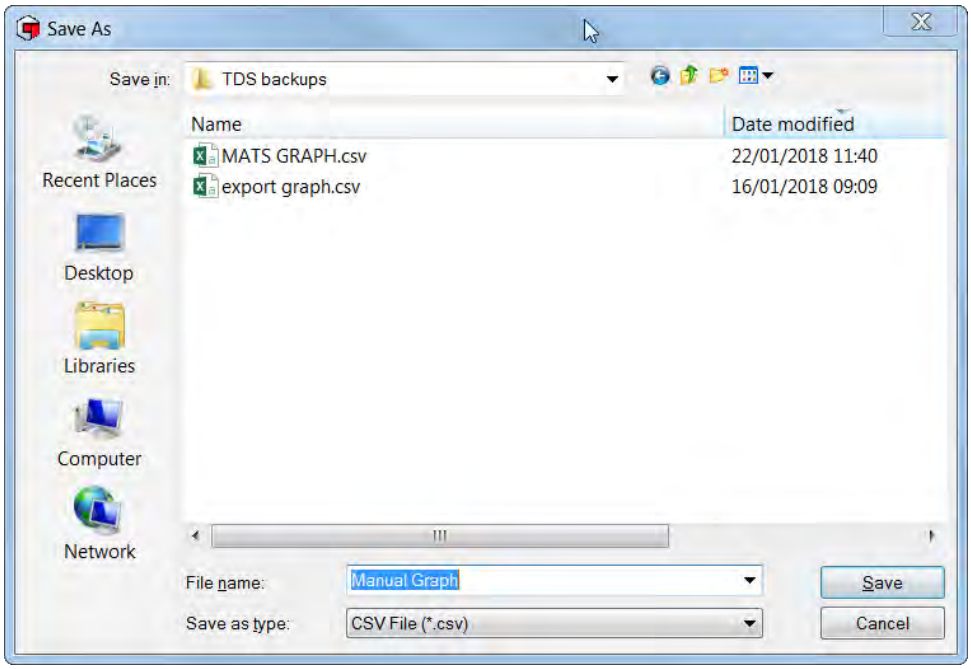


Copy to Clipboard

This function is used to copy and paste Graphs, Histograms and Reports into Microsoft applications like Word®, Excel® etc.

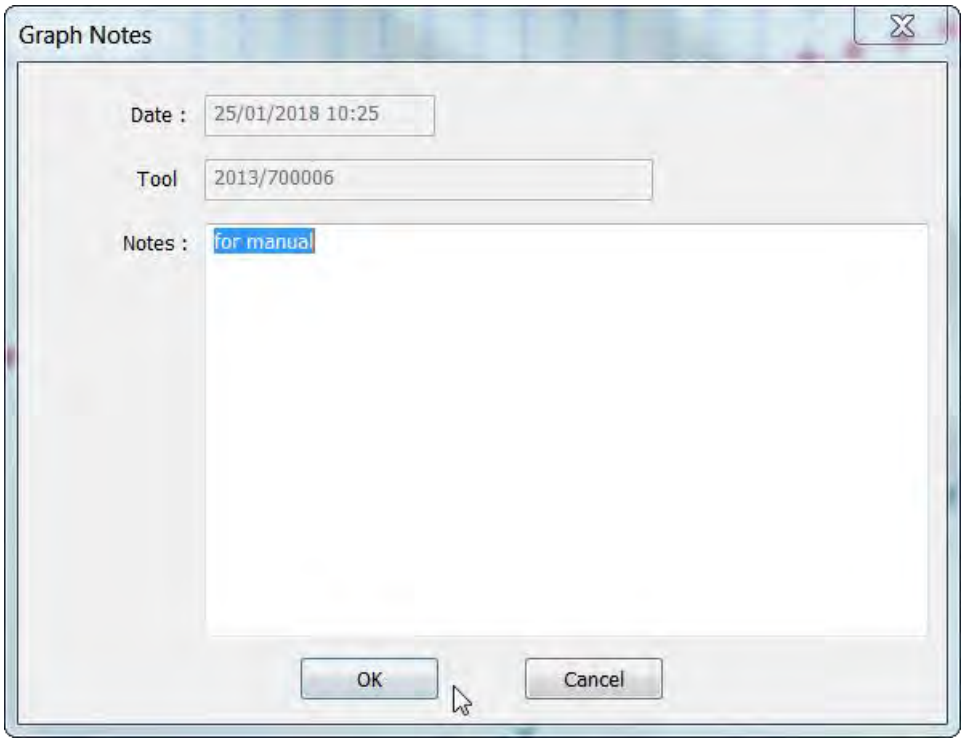
Export Data

This allows the Graph data to be saved as a CSV file.



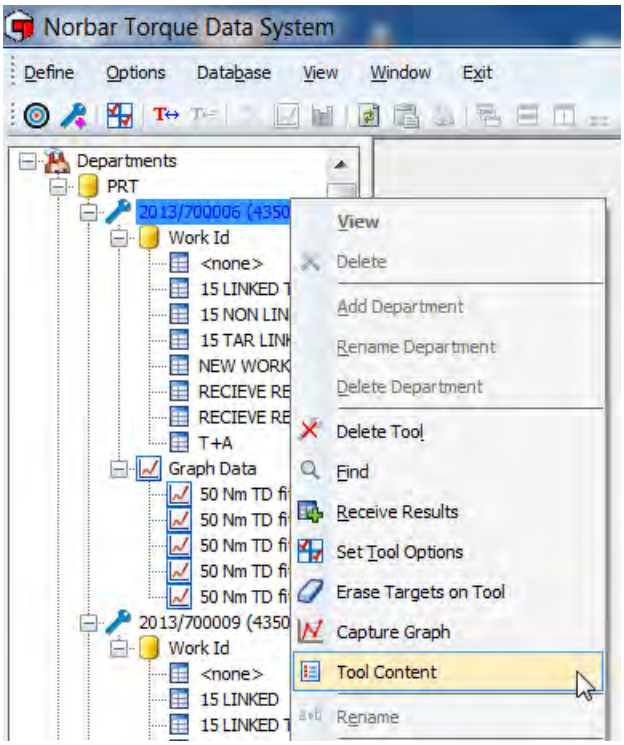
Notes

Here is where you can name the Graph or edit a previously given name.



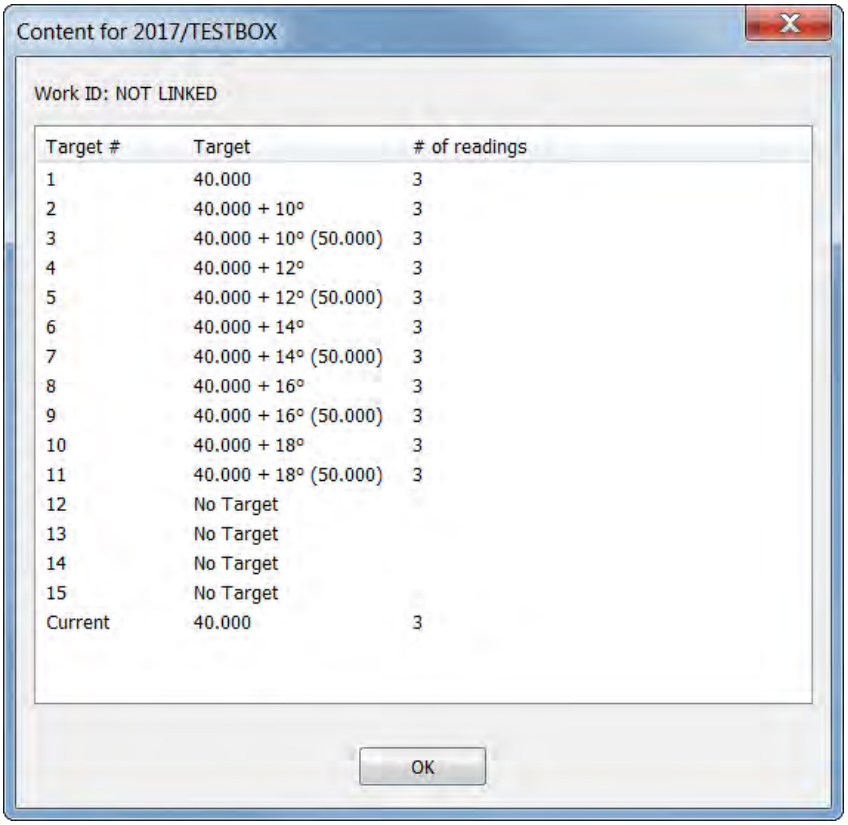
Tool Content

This shows the current Target or Targets on the NorTronic® Tool along with the current Work ID.



1) Right click on the required Tool in the tree view, then click on *Tool Content* on the drop-down menu.

2) The pop up will show the current Target(s) & Work ID on the Tool.



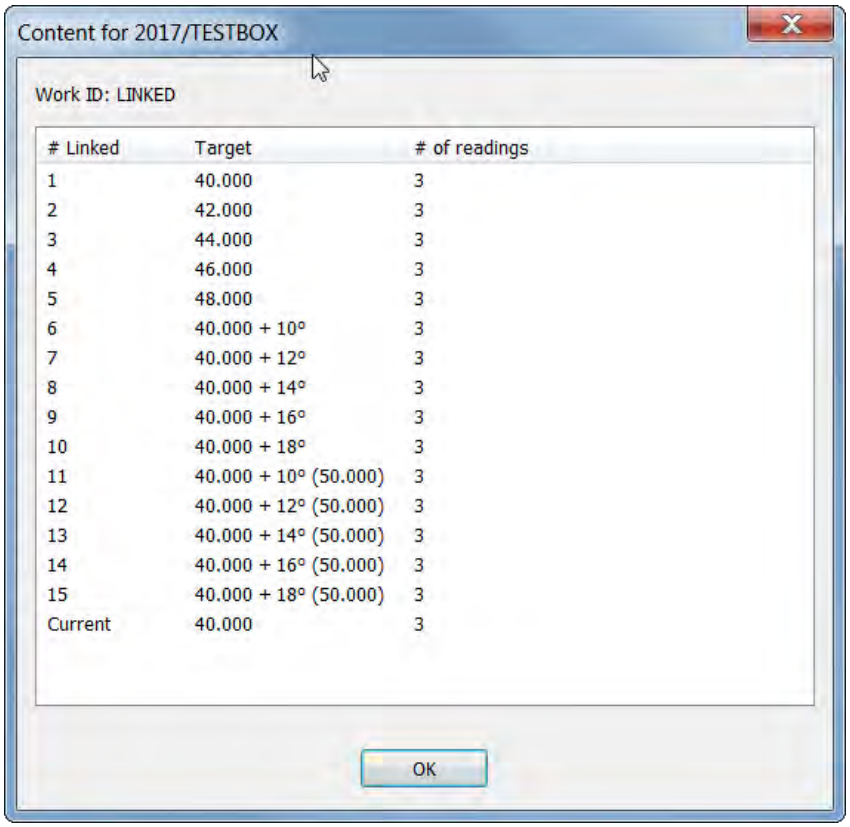
This picture shows 11 standalone (non-linked) Targets with a Work ID “NOT LINKED”. If the first column says “Target #”, the Targets are not linked to each other.

The currently selected Target on the Tool is shown at the bottom.

3) If the Targets are linked, the first Column will say "# Linked".

The Targets are processed in the order they appear in the 'Tool Content' pop up.

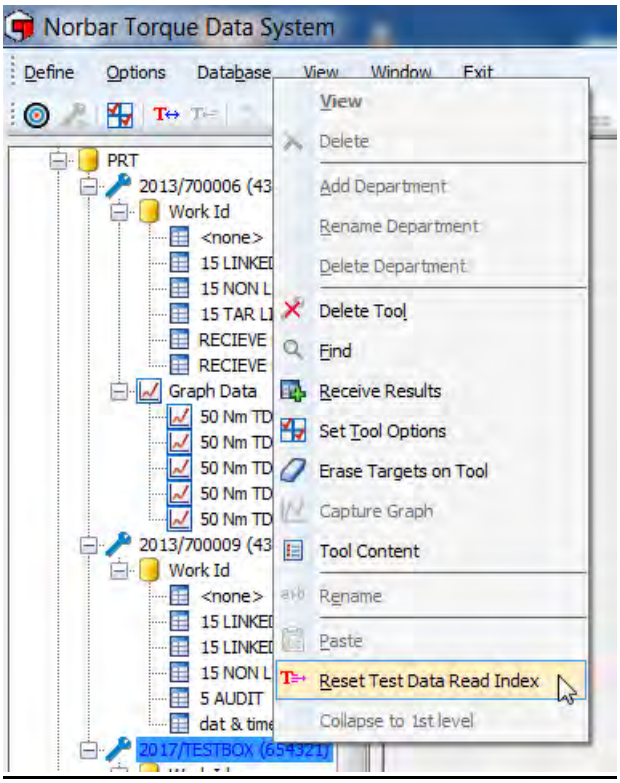
The currently selected Target on the Tool is shown at the bottom.

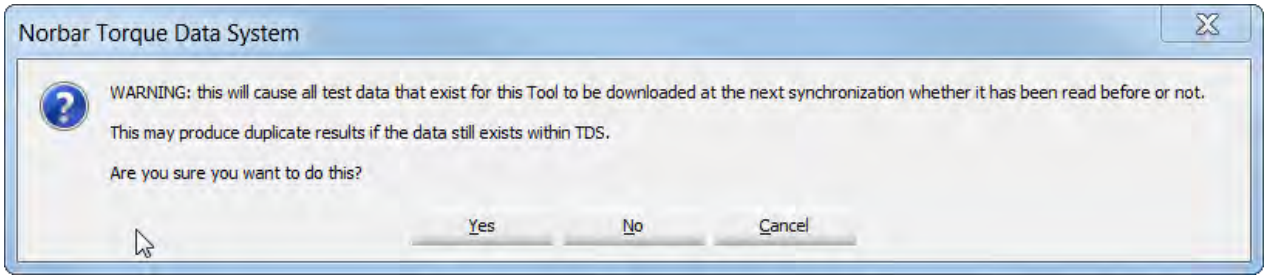


Reset Test Data Read Index

This option is Tool specific

This should only be selected if you are experiencing loss of data transfer between the NorTronic® and TDS using either USB or Wireless synchronization.





Every piece of test data NorTronic® stores has a unique ID in increasing values. So that only the latest data is transferred, TDS only requests test values with an ID greater than the one it last read for that NorTronic® serial number. When you do a 'Reset Test Data Read Index', TDS sets this read ID to zero for that Tool, so all test data is transferred on the next Sync. However, it also stores the test ID and won't duplicate data it already has stored.

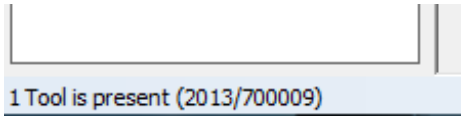
TIP: **If you have already synchronized NorTronic® to TDS and select *Reset Test Data Read Index*, the next time that you synchronize with TDS, some data may be duplicated.**

Options

USB / Wireless Synchronization Options

1) Right click on ***Options*** on the TDS Toolbar

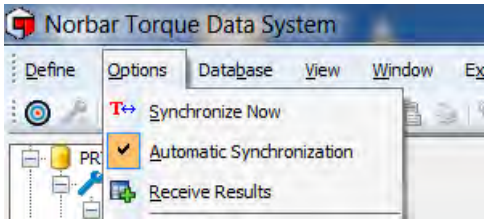
NOTE: A Tool must be connected via USB/Wireless and TDS must be displaying "*X Tool is Present (XXXXXX)*" in the bottom left hand corner).



2) Click ***Automatic Synchronization*** on the drop-down menu to turn on (ticked). Click again to turn it off (un-ticked).

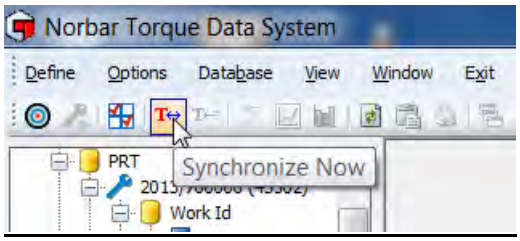
When ***Automatic Synchronization*** is turned ***On***, Test Results are uploaded from NorTronic® to TDS and the current time / date is set on the NorTronic® when the Tool has been detected by TDS.

When ***Automatic Synchronization*** is turned ***Off***, you can use the ***Synchronize Now*** by clicking the T↔ icon on the TDS Toolbar or licking on the option from the drop down menu to control when Test Results are sent to TDS.



Synchronize Now

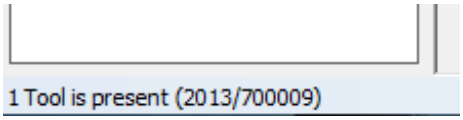
Right click on ***Synchronize Now*** on the TDS Toolbar.



Synchronize Now receives any stored results from any connected NorTronic® Tool (single or multiple) into TDS.

This option is used to control the data sent and received from each NorTronic® (i.e. Tool Setup, Test Results (Work ID). The current time / date on the NorTronic® Tool is also synchronized with the PC.

NOTE: This option is only active when '*X Tool is present (XXXXXX)*' is shown in the bottom left hand corner of TDS after connecting to a NorTronic® Tool(s) via USB or Wireless.

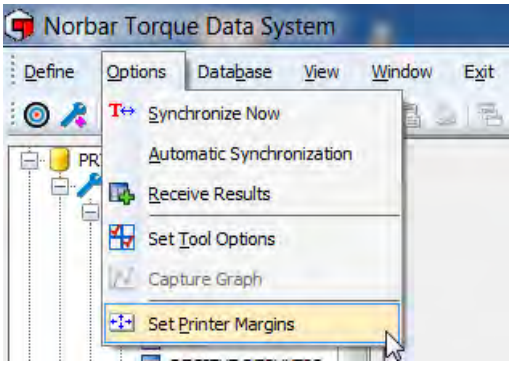


Set Printer Margins

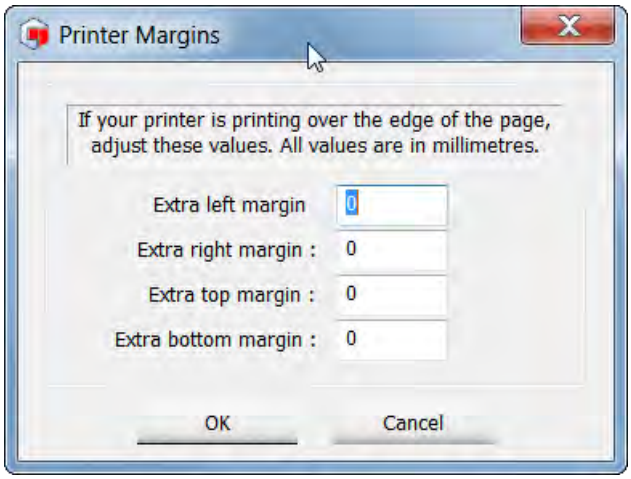
To ensure compatibility with different printers where printouts of reports do not fit on the page:

1) Click the ***Options*** tab.

2) Click ***Set Printer Margins***.



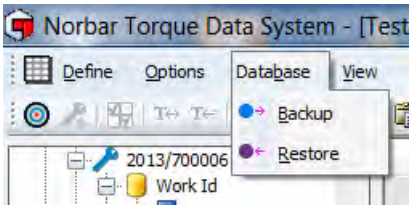
3) Click in each box and type in desired value.



DATABASE

Backup Database

All data can be backed up to a location specified by clicking Database and then clicking ***Backup***. Type in the backup file name and click ***Save***.



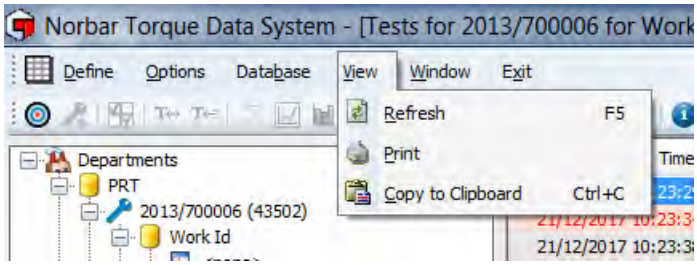
Restore Database

Data can be restored from that location by clicking Database and then clicking ***Restore***, select the backup file and then click ***Open***.

View

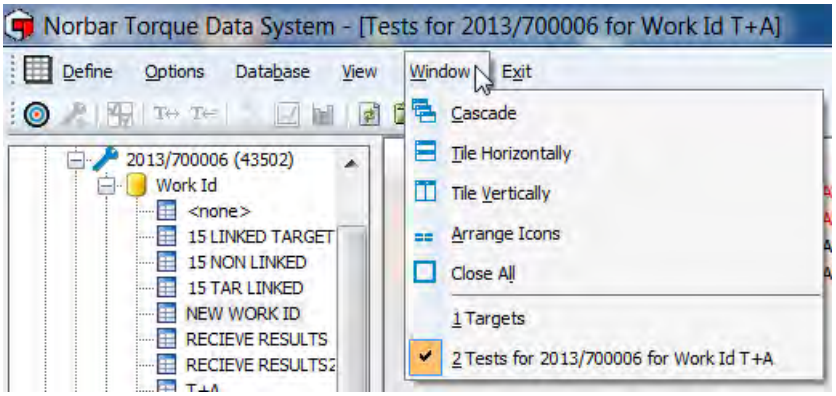
Click ***Refresh*** to redraw the current window.

- The User can print data in the right-hand pane using ***Print*** by highlighting the required data.
- Copy the data in the right-hand pane and paste into another application such as Microsoft® Excel® or Word® etc using ***Copy to Clipboard*** by highlighting the required data.



Window Options

Click the ***Window*** tab on the TDS Toolbar, and then click on the desired window option. These options are intended for use when multiple windows are open so that they can be viewed simultaneously. These options can also be selected directly from the TDS Toolbar.



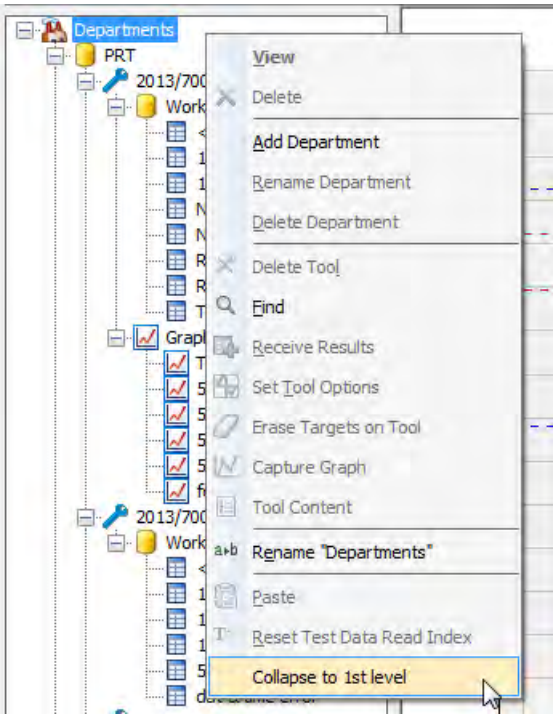
Currently Open Windows

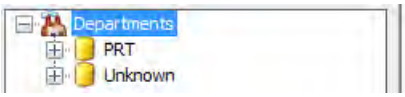
This is shown on the bottom right of TDS.

Click on icon to go to currently open window.

Collapse to 1st level

Right Click on the root of the tree (Departments) to contract the tree view to the 'Department' level (as seen in the second picture below).

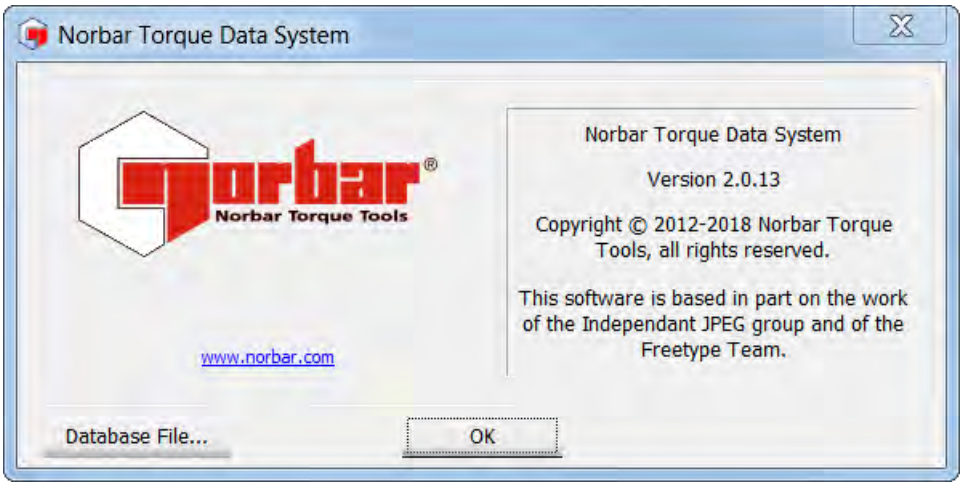




About TDS

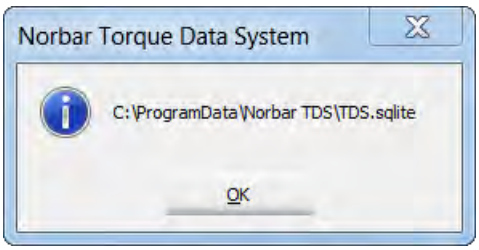
Click on the information icon on the TDS shortcut bar.

This will show the version number of the software.



Click ***OK*** to cancel.

Click ***Database File...*** to show where the TDS database is stored.



Key to Shortcut Icons

These can be used for quick selection from the shortcut bar.

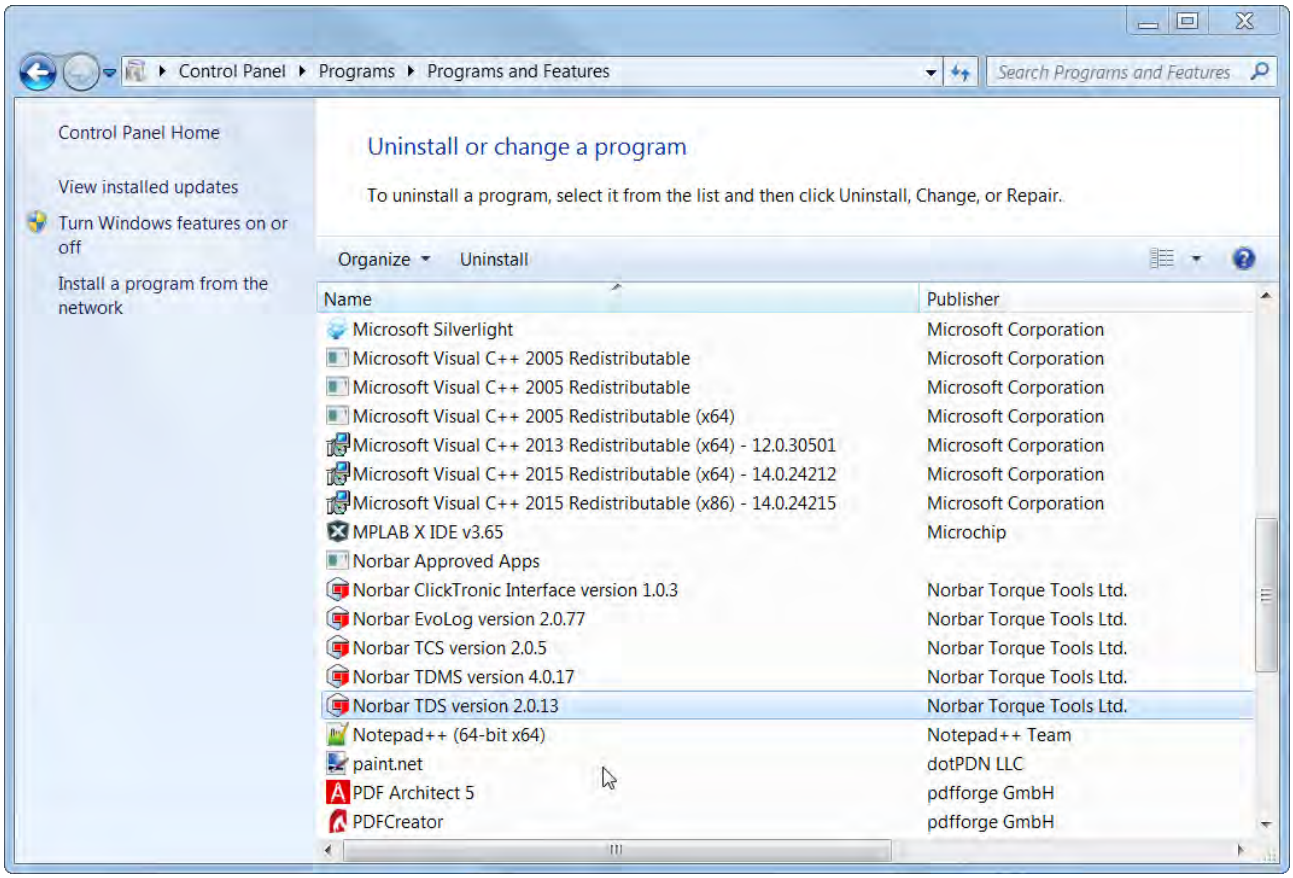
Icon	Shortcut to
	Add Tool
	Delete Tool
	Define Targets (Ctrl+G)
	Add Target
	Modify Target
	Delete Target
	Duplicate Target
	Cut Test Result Data
	Copy Test Result Data
	Paste Test Result Data
	Delete Test Result Data
	Rename
	Reset Column Sizes
	Find
	Synchronise Now
	Send Target
	View Statistics
	View Graph
	View Histogram
	Refresh (F5)
	Copy to Clipboard
	Print
	Export Data
	Notes
	Properties - Settings
	Cascade Windows
	Tile Windows Horizontally
	Tile Windows Vertically
	Arrange Iconized Windows
	Close All Windows
	Set Printer Margins
	About TDS
	Exit TDS
	Operator’s Manual

Trouble Shooting

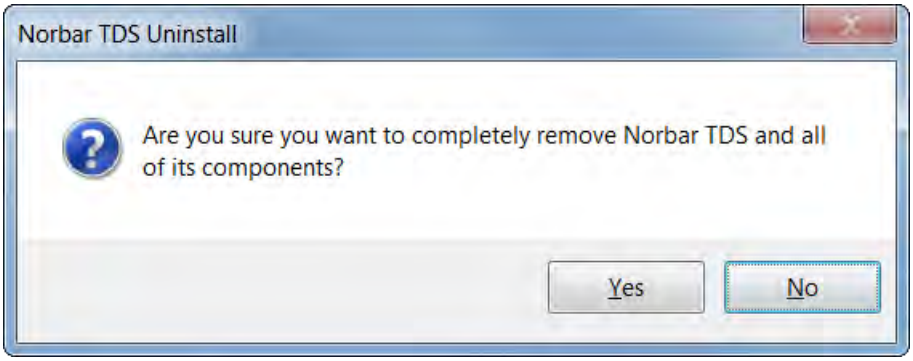
Problem	Likely Solutions
TDS displays **0 Tools are present** and will NOT synchronize with NorTronic®. **USB connection.**	a) Unplug the USB lead, wait at least 10 seconds and re-insert whilst TDS has been launched and NorTronic® is displaying the Measure screen (Hot-Plug). b) Ensure that you disconnect from USB correctly before removing the lead. Click on 'Safely Remove Hardware' in the bottom right hand corner of your desktop if this option is available to you.
TDS displays **0 Tools are present** and will NOT synchronize with NorTronic®. **Wireless connection.**	a) Ensure the correct frequency wireless adapter is plugged in. b) Ensure the NorTronic® Tool has the correct frequency Transceiver fitted. c) Ensure the Wireless interface has been set up correctly. See the Wireless Setup section in NorTronic® Manual part # 34399.
Data does not transfer between NorTronic® and TDS	a) After installing new NorTronic® software and perhaps TDS software, if you restore an earlier backup of TDS and then take some new data on the NorTronic®, the data will NOT get transferred to TDS. You will have to use "**Reset Test Data Read Index**" before synchronizing. b) The user must wait at least 10 seconds after saving the last result to the Tool and synchronizing with TDS.
Searching for the Work ID "none"	When searching for the Work ID "none", you must enter the greater than & less than arrows before and after i.e. <none>
Multiple Tools will not connect	a) Ensure the Tools have individual node numbers. See Wireless Setup in NorTronic® Manual part # 34399. b) Ensure TDS has recognised the 1st Tool before trying to connect the 2nd etc
NorTronic® Target & Setup cannot be accessed and beep when selected.	The Lock option has been downloaded to the Tool from TDS. To allow Target and Setup changes to be made on the Tool, start '*TDS*' and then un-tick the '*Lock*' option on the '*Set Tool Options*' screen and click '*Update*'.

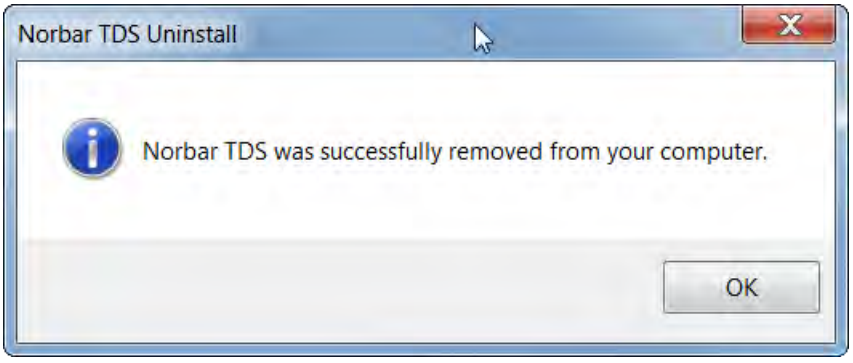
Uninstalling TDS

Windows® 7, 8.1 & 10



Go to Control Panel – Add or Remove Programs – Select Norbar TDS version 2.X.X – Click 'Uninstall' and then click '***Yes***' to confirm you want to un-install TDS.





Click ***OK***.

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