September 2013

WATS Server 4.2 Release Note

Release WATS Server 4.2

This release overview contains information about new features in WATS Server 4.2
For more information about WATS, please visit
www.virinco.com/wats

Major Feature Areas

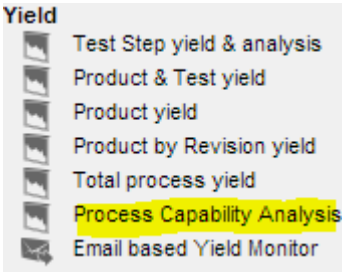
This document describes the following major feature areas of WATS 4.2:

- WATS Reporting
  - Process Capability Analysis (BETA)
  - Connection & Execution Time Report
  - Dashboard release
    - Replacing Captains View
    - New data warehouse
  - NEW Root Cause module (BETA)
- WATS Operator Interface
  - Unit Verification Report
- Miscellaneous

WATS Reporting

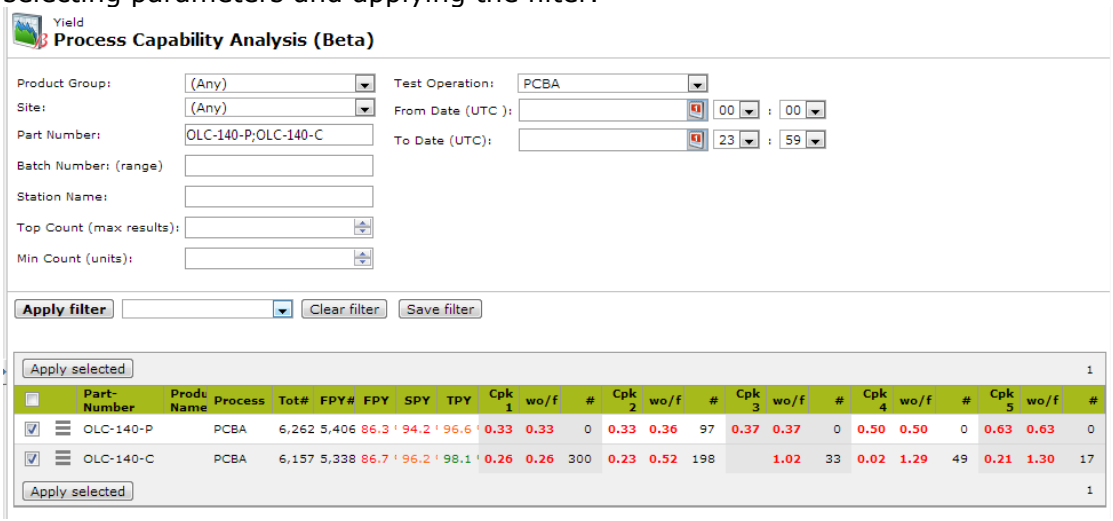
WATS 4.2 Reporting includes the following improvements and new functionality.
TIP: To drill down and jump between reports in WATS, use the menu icon ☰ as shortcut. When using this menu, WATS will use the parameters from the selected record and auto fills the filter options.

Process Capability Analysis (BETA)



The new *Process Capability Analysis* report is designed for high volume (hundreds of thousands of units) and deep SPC analysis. The data warehouse pre-aggregates measurements down to a 1 hour resolution (meaning that if you test 100 UUTs within one hour, all measurements will be aggregated into a few calculated values).

The well-known WATS filter is present and you start the report by selecting parameters and applying the filter.



The first result level is a list of Part Numbers matching your filter options. Each record is matching Part Number and Process. The list display Tot# (Unique UUTs tested), FPY# (number of passed UUTs), FPY (First Pass Yield), SPY (Second Pass Yield), TPY (Third Pass Yield), CPK1 (test step with worst CPK value first), wo/F (CPK with step status = PASSED), # (number of step failures).
TIP: Hold the mouse over a CPK value to see test step name.

YIELD KPI Targets:
Red colour = Alarm
Orange colour = Warning
Green colour = Good
To edit the KPI Targets, browse to *Control Panel>Configure/settings>KPI Targets*

Select one or several records and *Apply Selected*. A list with all test steps will be displayed (only test steps returning a numeric value (NLT, MNLT))

Yield
Process Capability Analysis (Beta)

Apply selected

	Part-Number	Product Name	Process	Tot#	FPY#	FPY	SPY	TPY	Cpk 1	wo/f	#	Cpk 2	wo/f	#	Cpk 3	wo/f	#	Cpk 4	wo/f	#	Cpk 5	wo/f	#
☑	OLC-140-P		PCBA	5,160	4,524	87.7 %	95.0 %	97.2 %	0.33	0.36	72	0.37	0.37	0	0.39	0.39	0	0.63	0.63	0	0.64	0.64	0
☐	OLC-140-C		PCBA	5,155	4,413	85.6 %	95.7 %	97.9 %	0.26	0.26	192	0.26	0.52	132		1.02	33	0.02	1.29	49	0.18	1.35	16

Apply selected

	Step Name / Measure Name	Cpk	Cp	Cp lower	Cp upper	Cpk w/o Failed	Cp w/o Failed	Cp lower w/o Failed	Cp upper w/o Failed	Yield	Total Count	Mean	Stdev.	Low limit	High limit
	Charge rate C31 (220µF)	0.36	0.41	0.36	0.47	1.55	1.97	1.55	2.39	98.8 %	2,192	4.93	0.69	4.2	5.9
	Charge rate C31 (220µF)	0.47	0.51	0.55	0.47	2.25	2.38	2.51	2.25	97.6 %	2,968	5.12	0.56	4.2	5.9
	Charge rate C41 (4700µF)	0.51	0.72	0.51	0.92	1.94	2.78	1.94	3.62	99.5 %	2,192	2.71	0.39	2.1	3.8
	Charge rate C41 (4700µF)	1.18	1.74	1.18	2.30	2.11	3.14	2.11	4.17	99.3 %	2,968	2.68	0.16	2.1	3.8
	Discharge test C31	0.64	85.32	0.64	170.00	0.64	85.32	0.64	170.00	100.0 %	2,192	0.00	0.00	0	0.2
	Discharge test C31	0.63	60.86	0.63	121.09	0.63	60.86	0.63	121.09	100.0 %	2,968	0.00	0.00	0	0.2
	Discharge test C41	0.39	0.92	0.39	1.46	0.39	0.92	0.39	1.46	100.0 %	2,192	0.04	0.04	0	0.2
	Discharge test C41	0.37	0.98	0.37	1.59	0.37	0.98	0.37	1.59	100.0 %	2,968	0.04	0.03	0	0.2
	Measure 1-10V continuity	0.33	0.36	0.40	0.33	0.36	0.39	0.41	0.36	98.3 %	4,290	2.64	2.68	-0.6	5.25
	Measure 1-10V continuity	0.26	0.83	1.40	0.26	23.18	69.77	116.35	23.18	99.8 %	2,859	5.05	0.25	4	5.25

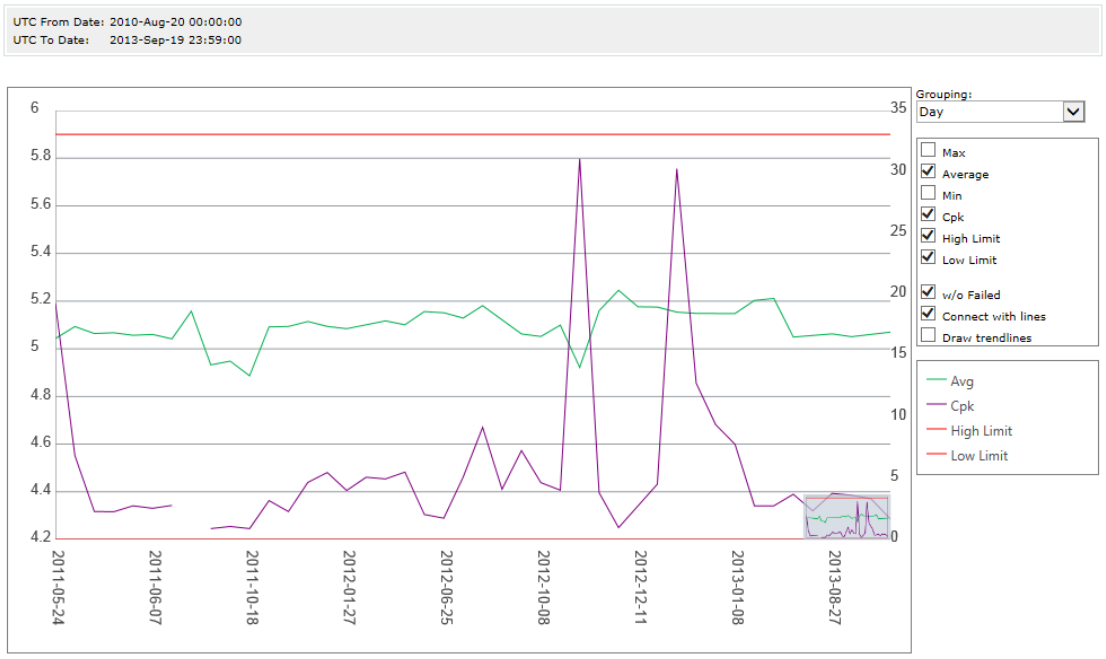
The step list shows CPK calculations with and without failures, step yield, total (test) count, mean value, standard deviation, low limit and high limit.
CPK:
Red colour = CPK below 1.32
Green colour = CPK between 1.33 and 4
Blue colour = CPK above 4

The left margin gives 2 "View Details" option.

1. Unit View. Presents data from the relation database equal to the detail report view in the *Test Step Yield & Analysis* report. Can plot every single measurement and drill down on serial numbers
2. Aggregated View. Presents data from the data warehouse. More usable when large data sets. No serial number details.

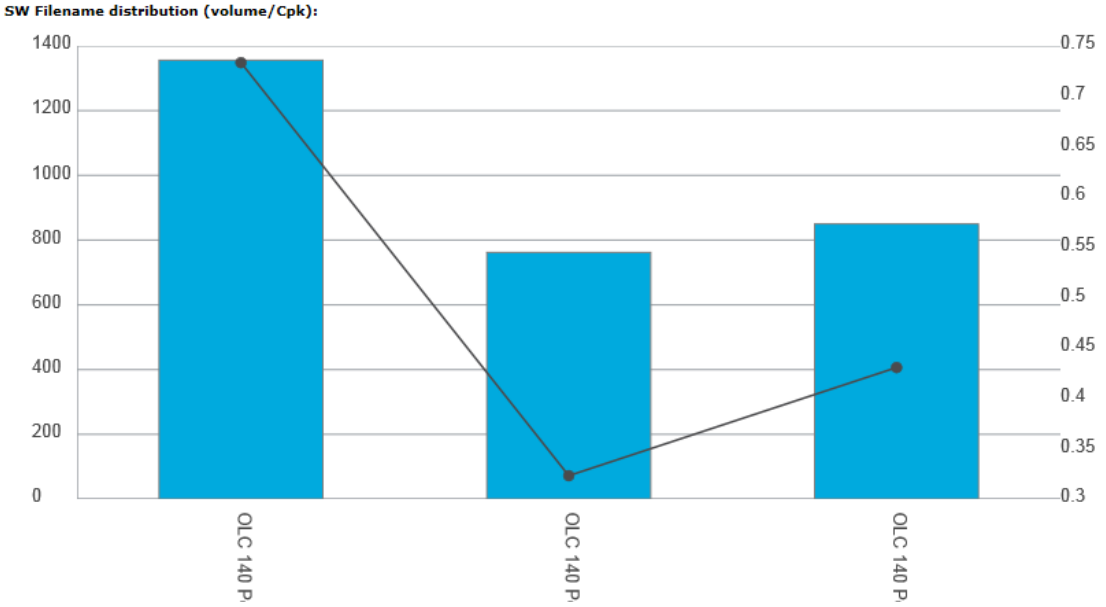
NOTE: You must add steps for monitoring. Click the + icon in the list to add step to the data warehouse load.

The aggregated view shows a zoom able chart where you can select grouping method and different calculation options. It will also list SPC calculations below the chart.

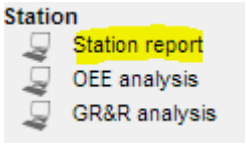


		w/o Failed
Unit Count	2,968	2,896
Max	11.8	5.87
Avg	5.12	5.1
Min	-0.000792	4.32
High limit	5.9	5.9
Low limit	4.2	4.2
Cpk	0.47	2.25
Cp	0.51	2.38
Cp lower	0.55	2.51
Cp upper	0.47	2.25
Stdev	0.558	0.119
Stdevp	0.558	0.119
var	0.312	0.0141
varp	0.311	0.0141
Max step time	6.73	3.23
Avg step time	2.04	2.03
Min step time	2.01	2.01
Comparison	GELE (>= AND <=)	GELE (>= AND <=)

Further, it will list distribution charts for SW filename and version, Revision and Station Name.

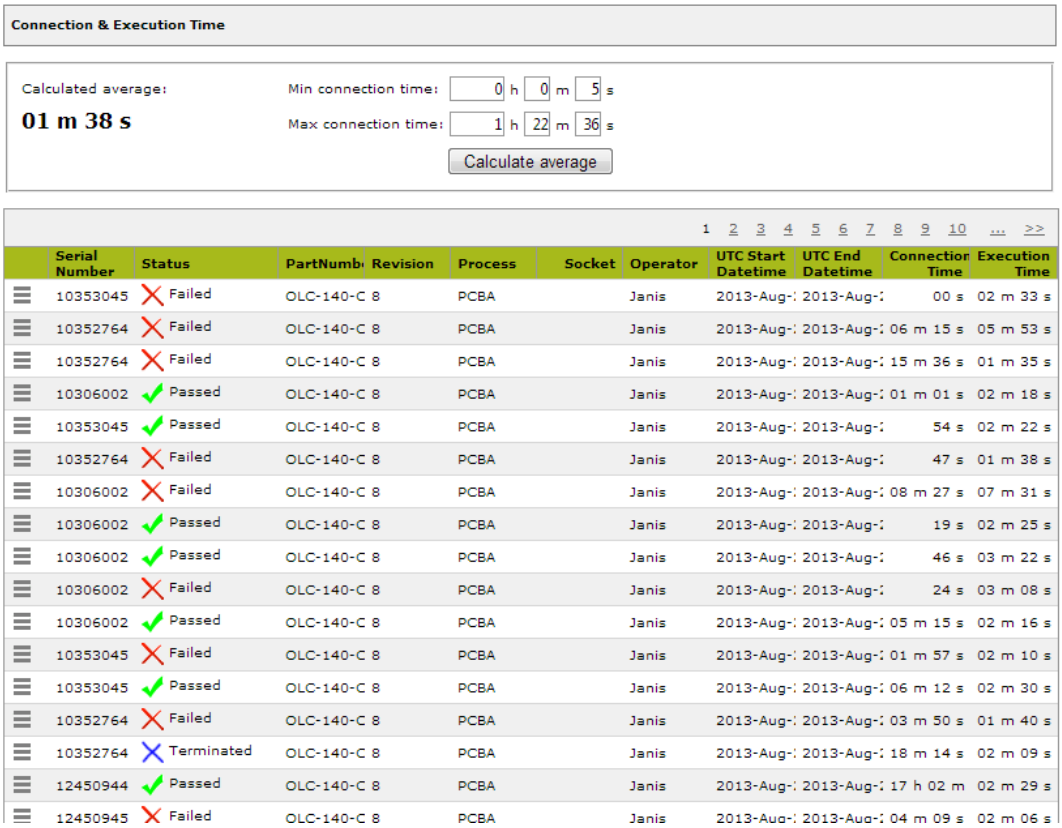


Connection & Execution Time Report



To be able to see handling time between executions (typically time spent replacing the UUT in a fixture), a new Connection & Execution Time Report has been added. Browse to *Survey > Station report* and apply the filter. Select the Station (name) and click the *View report* icon.

Scroll down to the bottom of the "Station Report" popup.



Connection & Execution Time

Calculated average: **01 m 38 s**

Min connection time: 0 h 0 m 5 s

Max connection time: 1 h 22 m 36 s

Calculate average

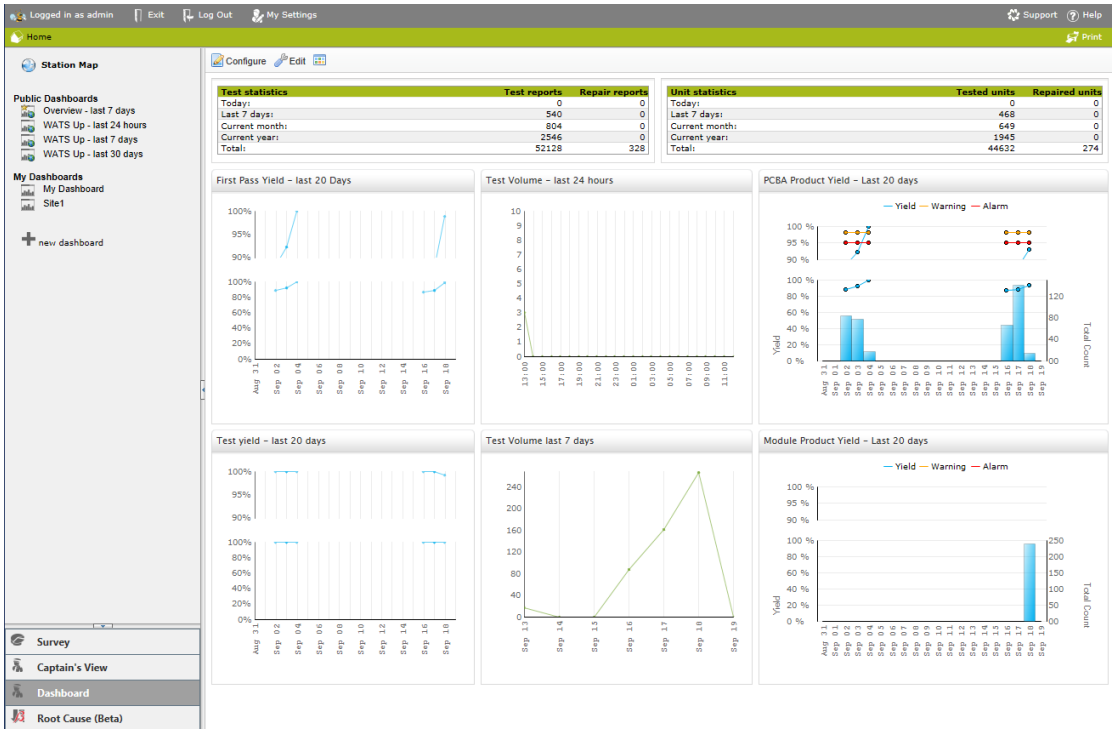
1 2 3 4 5 6 7 8 9 10 ... >>

	Serial Number	Status	PartNumb	Revision	Process	Socket	Operator	UTC Start Datetime	UTC End Datetime	Connection Time	Execution Time
	10353045	Failed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	00 s	02 m 33 s
	10352764	Failed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	06 m 15 s	05 m 53 s
	10352764	Failed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	15 m 36 s	01 m 35 s
	10306002	Passed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	01 m 01 s	02 m 18 s
	10353045	Passed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	54 s	02 m 22 s
	10352764	Failed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	47 s	01 m 38 s
	10306002	Failed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	08 m 27 s	07 m 31 s
	10306002	Passed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	19 s	02 m 25 s
	10306002	Passed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	46 s	03 m 22 s
	10306002	Failed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	24 s	03 m 08 s
	10306002	Passed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	05 m 15 s	02 m 16 s
	10353045	Failed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	01 m 57 s	02 m 10 s
	10353045	Passed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	06 m 12 s	02 m 30 s
	10352764	Failed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	03 m 50 s	01 m 40 s
	10352764	Terminated	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	18 m 14 s	02 m 09 s
	12450944	Passed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	17 h 02 m	02 m 29 s
	12450945	Failed	OLC-140-C	8	PCBA		Janis	2013-Aug-:	2013-Aug-:	04 m 09 s	02 m 06 s

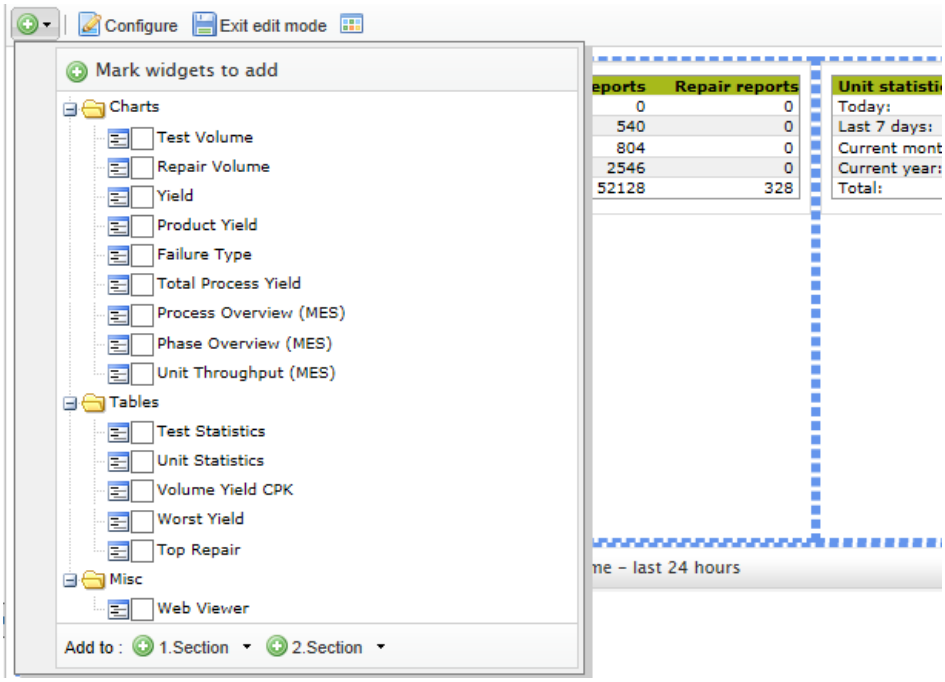
The average Connection Time is calculated in the header of the report. By default, the minimum and maximum connection time available in the table below is use for calculation. You can modify these values and recalculate the average time.

Dashboard

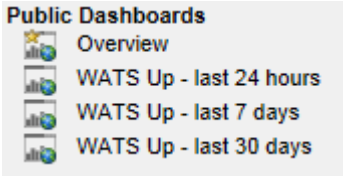
The dashboard module is now released. You can easily create customizable dashboards with refresh capabilities and custom filters. Each user can create their own private dashboards, or a super-user can create and share public dashboards.



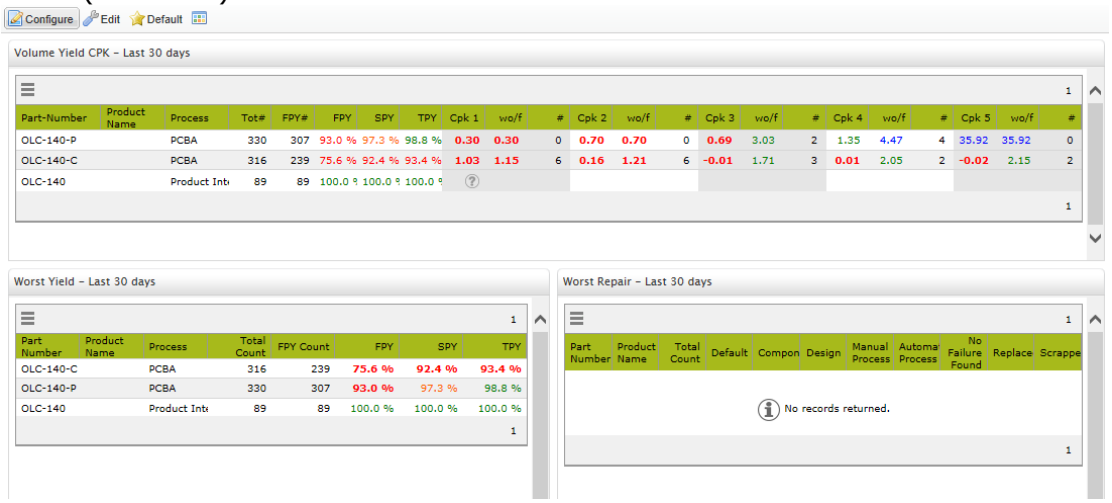
You may select among several different charts/tables and combine them with your own WATS filters. With this flexibility, you can arrange and set up dashboards that suite your needs.



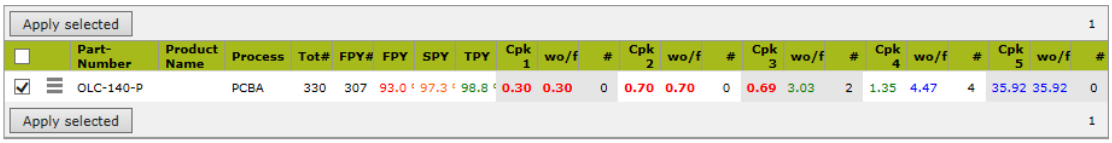
Replacing Captains View

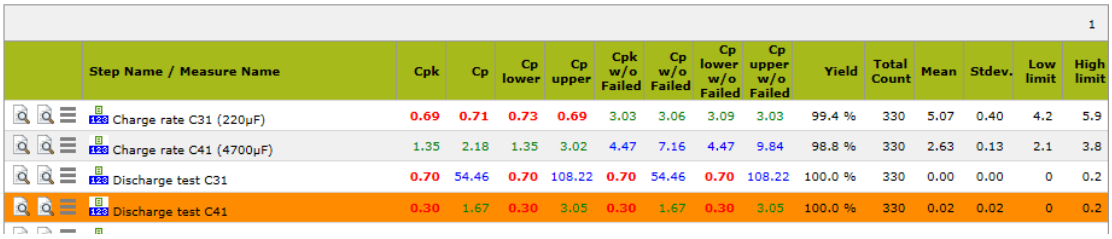


The Dashboard Module will replace the Captains View reporting tool. In the Public Dashboards area, 3 predefined dashboards are listed (WATS UP).



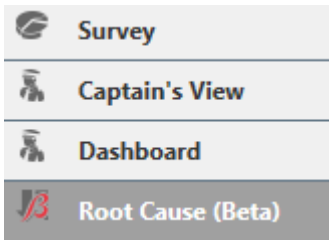
The default view is similar to Captains View. The top report is identical with the *Process Capability Analysis* report. By clicking on one of the CPK values, it will automatically open the *Process Capability Analysis* report and highlight the selected step. You can also click on the menu icon in the top left corner and select "open as report" for full filter options.



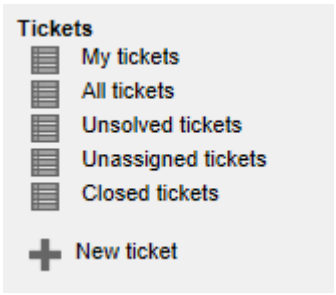


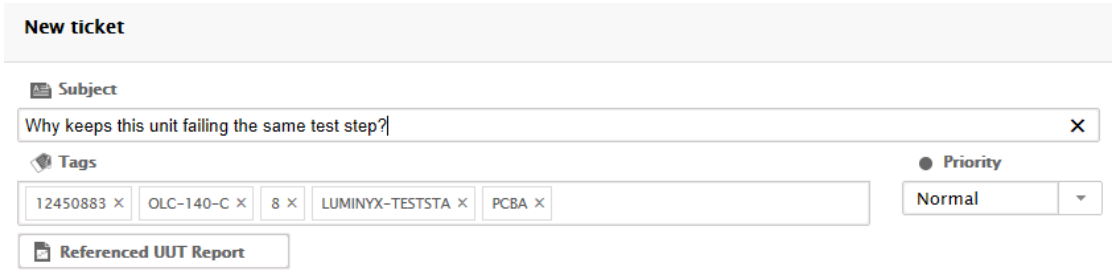
Use the menu icon in the top left corner for the other 2 reports for drill down.

NEW Root Cause module (BETA)

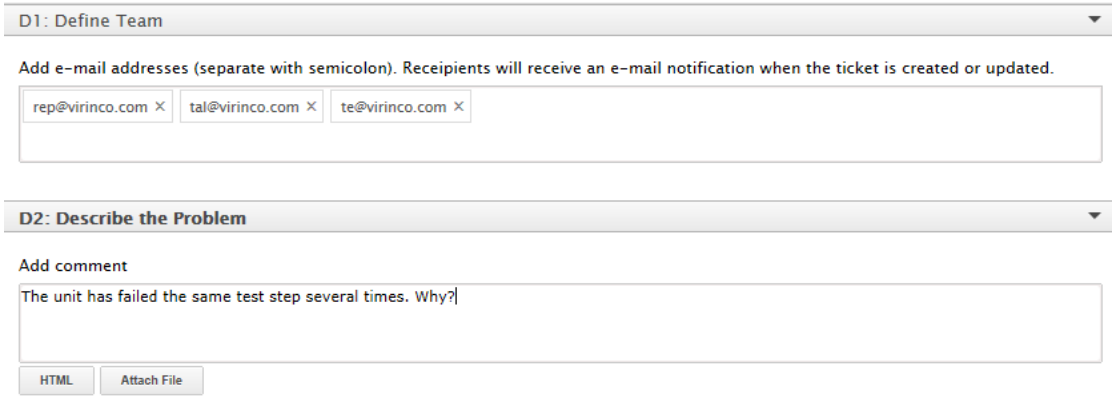


The Root Cause Analysis (RCA) module is integrated into the WATS Reporting tool. It is a general tool following the D8 RCA setup and can be used for any cases, not only WATS related. To create a ticket (a case is called a ticket), either click on the + New ticket icon in the Root Cause main menu, or use the action menu icon from one of the reports (Create RCA ticket). By using the action menu, WATS will use the parameters in the selected record as searchable tags and if created from the UUT or UUR report, add a link to the "Referenced UUT/UUR report".

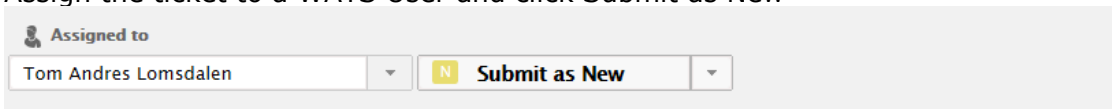




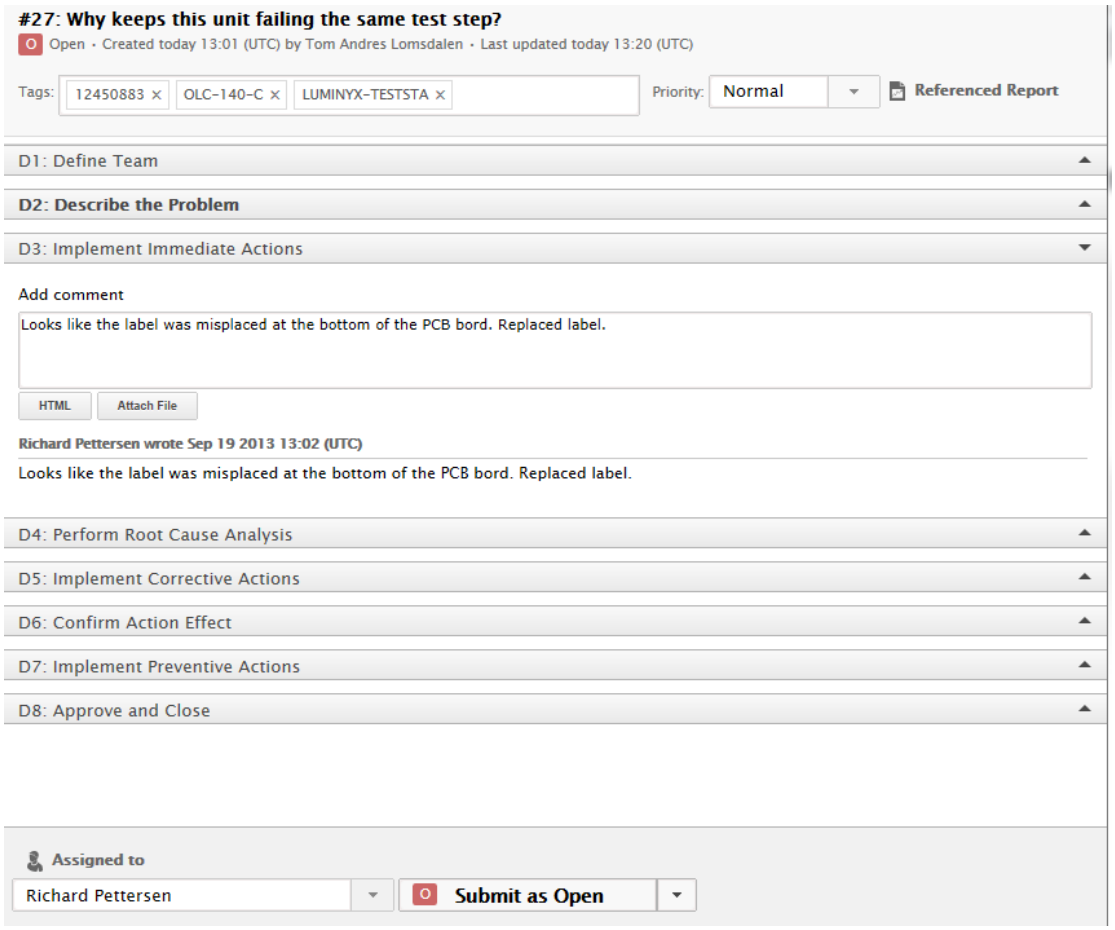
Further start the D8 process with defining a team (D1) - ticket creator and assigned user will be added by default - and describe the problem (D2). Either directly in the text box or by opening the HTML editor with image upload support. Other files can also be uploaded using the "Attach File" option below the text box.



Assign the ticket to a WATS User and click Submit as New

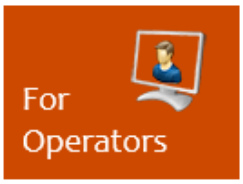


The ticket will now be available in the "My Tickets" list for the creator and the assignee.



The module now allows team members to follow through the complete RCA analysis and Solve/Close tickets.
For details, please visit our Resource Center at
http://support.virinco.com

WATS Operator Interface



Unit Verification Report

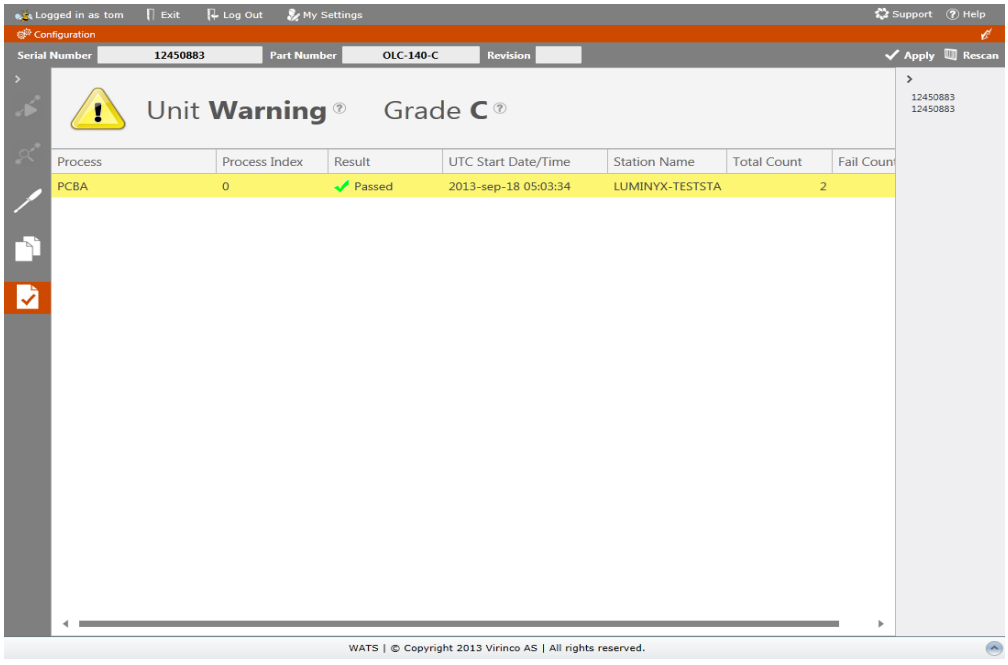
This report verifies whether a unit has been correctly processed or not, based on its current history against a set of rules defined in Product Test Operation (Control Panel), to determine its status and grade.

The status gives a high level indication if the unit has succeeded through its processes or not.

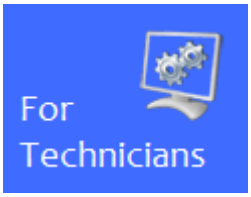
- **OK** - All tests are passed.
- **Warning** - All tests are passed, but not in order of process index (process index is configured in WATS CP).
- **NOT OK** - If one or more of the listed reports are not passed.

The grade gives a more detailed explanation to why the unit has the given status

- **A** - All processes have passed their tests, and they have been executed in correct order.
- **B** - All processes have passed their tests, but they have not been executed in correct order.
- **C** - All processes have passed their last test, one or earlier run failed, but unit has not been repaired. No Failure Found does not count as repaired.
- **D** - All processes have passed their last test, but the unit has been repaired. No Failure Found does not count as repaired.
- **N/A** - Some of the processes have not passed their last test.



WATS Control Panel



Product Test Operation (Last test operation)

Product Test Operation is a rename of "Last Test Operation". The specifications is used for the "Total process yield" and "Unit Verification" reports.
E.g. The "Unit Verification" report will check if a scanned unit has completed and PASSED all Test Operations (Process) specified.
The "Total process yield" will use the Test Operation (Process) with highest Index to calculate Yield.
Product test operation can be specified for a Product Group, Part Number or Part Number and Revision, then select one or several Test Operations applicable for the selection

Miscellaneous

- UUT report. Execution time is now formatted (DD.HH.MM.SS) and presented in addition to seconds.
- Operator Interface. When scanning a Serial Number that matches multiple Part Numbers, a dialog pop up allow the operator to select correct Part Number.
- Software Module.
  - GUI enhancements to the Software Manager
  - Added API functionality
- Miscellaneous query and database enhancements