January 2022

WATS Server 2021.2 Release Note

Major Feature Areas

Rolled Throughput Yield- new modern design and features

In addition to extensive visual changes, the new Rolled throughput yield module also comes with brand new methods to visualize your data.
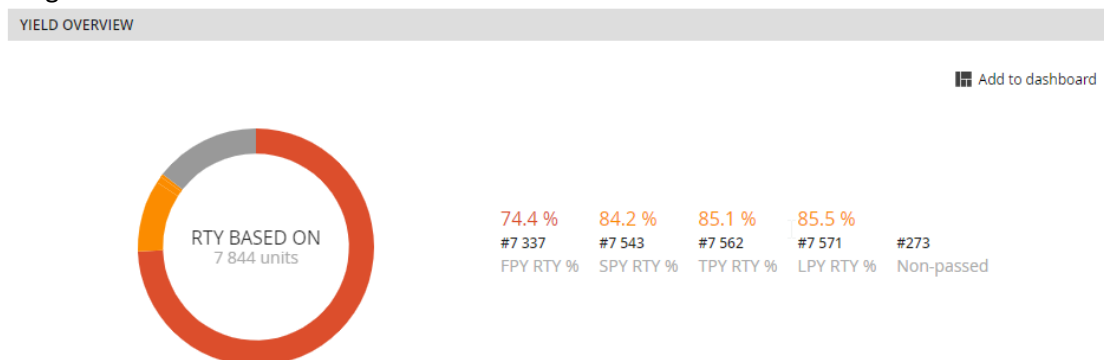
The 'View' and 'Group by' options seen in the old module is removed and replaced with clever hierarchical data visualization in the new one. The new grid will group the data hierarchically with the following levels:

Period -> Test operation -> Part number

Export   Column options   Add to dashboard

|		Period	Test operation	Part numb...	Unit #	FPY ...	FPY RTY	SPY RTY	TPY RTY	
∨	🔍 ≡	2021-Dec			2 897	93.9 %	67.3 %	75.5 %	76.6 %	76.9 %
>	🔍 ≡	2021-Dec	PCBA Test		1 906	93.7 %				
>	🔍 ≡	2021-Dec	Insulation test		406	99.0 %				
∨	🔍 ≡	2021-Dec	Burn-in Test		208	97.6 %				
	🔍 ≡	2021-Dec	Burn-in Test	241123.100	130	97.7 %				
	🔍 ≡	2021-Dec	Burn-in Test	480875	53	98.1 %				
	🔍 ≡	2021-Dec	Burn-in Test	241119.903	25	96.0 %				
>	🔍 ≡	2021-Dec	Pre Burn-in Test		206	91.7 %				
>	🔍 ≡	2021-Dec	Final Function Test		169	81.1 %				
>	🔍 ≡	2021-Dec	SW Debug		2	100 %				
>	🔍 ≡	2022-Jan			19 732	92.9 %	8.6 %	10.1 %	10.3 %	10.4 %

Yield overview

The yield overview pie chart will present the RTY for each yield type to visualize the deviation from 100% RTY. This component will also present both the total unit count and the different yield type count values to indicate the basic yields. It is also possible to add this widget to the dashboard.

YIELD OVERVIEW

Add to dashboard

RTY BASED ON
7 844 units

74.4 %	84.2 %	85.1 %	85.5 %	
#7 337	#7 543	#7 562	#7 571	#273
FPY RTY %	SPY RTY %	TPY RTY %	LPY RTY %	Non-passed

Chart

The new RTY chart, as the old one, is categorized by period, with each test operation represented as a bar within its respective period. With these new updates, the chart now allows the user to specify the values to be visualized in the chart. The selectable options are all the different yields for each period, and the first pass yield for each test operation.
The label indicator displayed for each process shows "Test operation FPY%" indicating which Yield affects the RTY.
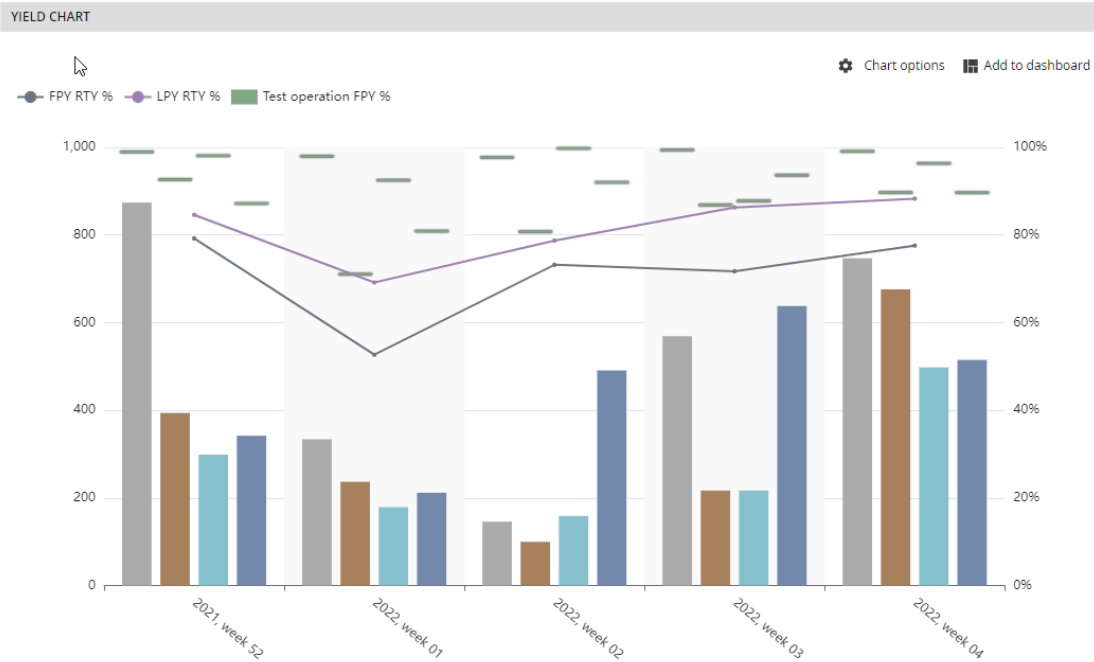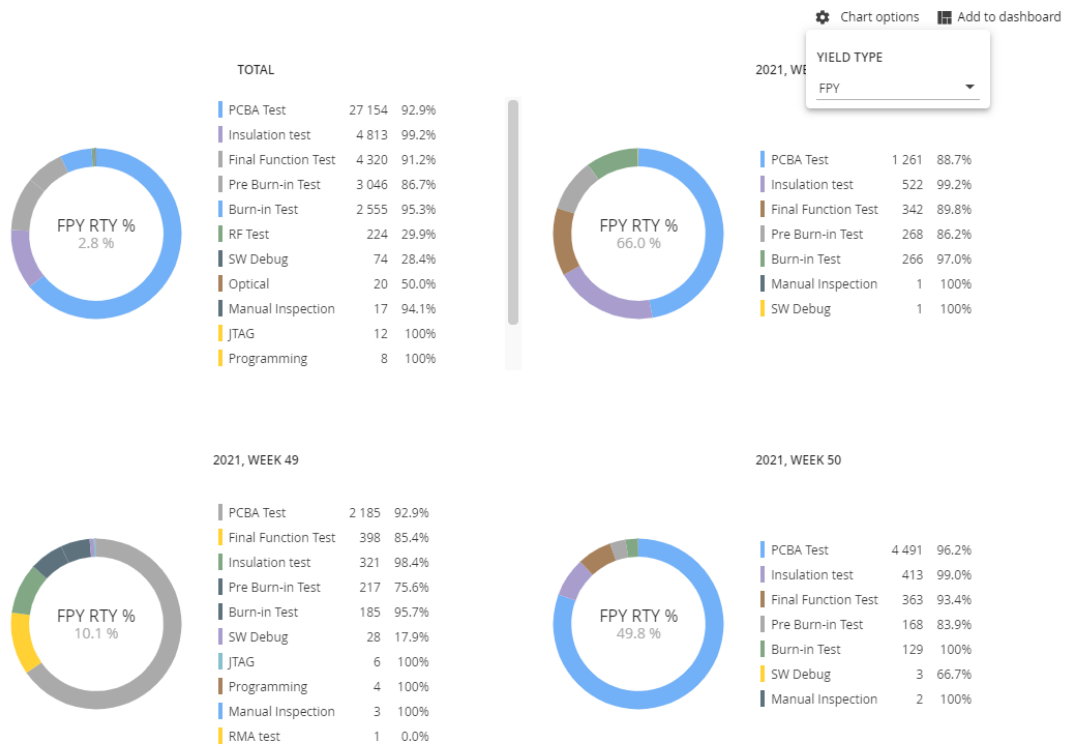

Pie grid

To visualize the rolled throughput yield and its underlying data the pie grid will present you with a pie chart for each period in addition to a pie chart containing values for the total period range. These charts will display the RTY value of each period in the centre of the pie, as well as count and yield values for each of the periods test operations in the chart legend. The user can specify which yield type to be displayed in the chart options menu.
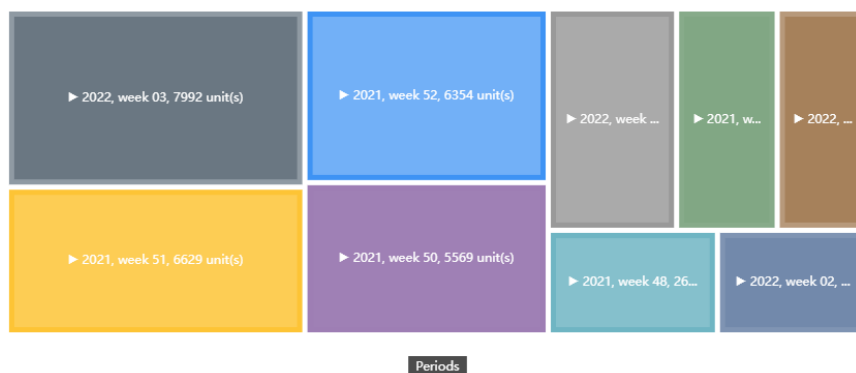
PERIOD PIE CHARTS

⚙ Chart options ▦ Add to dashboard

YIELD TYPE

FPY ▾

TOTAL

PCBA Test	27 154	92.9%
Insulation test	4 813	99.2%
Final Function Test	4 320	91.2%
Pre Burn-in Test	3 046	86.7%
Burn-in Test	2 555	95.3%
RF Test	224	29.9%
SW Debug	74	28.4%
Optical	20	50.0%
Manual Inspection	17	94.1%
JTAG	12	100%
Programming	8	100%

FPY RTY %
2.8 %

2021, WE...

PCBA Test	1 261	88.7%
Insulation test	522	99.2%
Final Function Test	342	89.8%
Pre Burn-in Test	268	86.2%
Burn-in Test	266	97.0%
Manual Inspection	1	100%
SW Debug	1	100%

FPY RTY %
66.0 %

2021, WEEK 49

PCBA Test	2 185	92.9%
Final Function Test	398	85.4%
Insulation test	321	98.4%
Pre Burn-in Test	217	75.6%
Burn-in Test	185	95.7%
SW Debug	28	17.9%
JTAG	6	100%
Programming	4	100%
Manual Inspection	3	100%
RMA test	1	0.0%

FPY RTY %
10.1 %

2021, WEEK 50

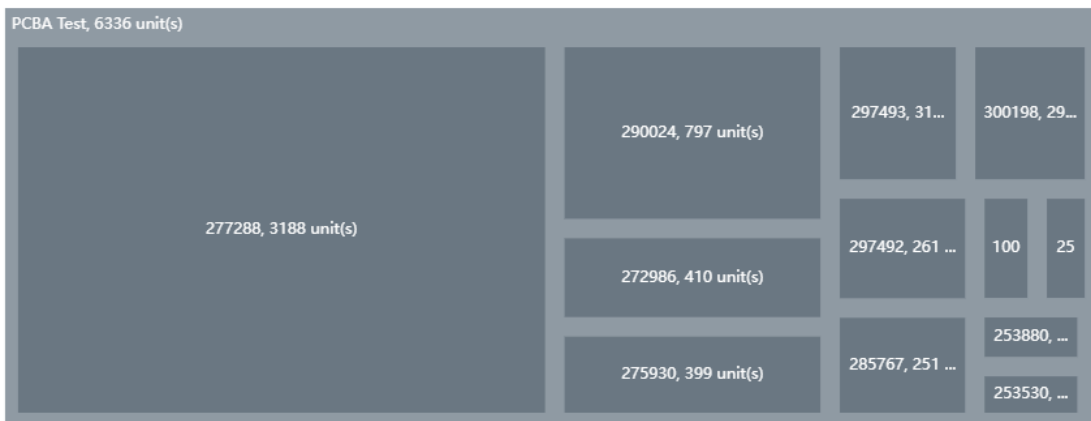|		
PCBA Test	4 491	96.2%
Insulation test	413	99.0%
Final Function Test	363	93.4%
Pre Burn-in Test	168	83.9%
Burn-in Test	129	100%
SW Debug	3	66.7%
Manual Inspection	2	100%

FPY RTY %
49.8 %

Tree map

The tree map is a visualization component that hierarchically presents the data as clickable tiles. The size of each tile is proportional to the unit count of its coherent items fraction of the total unit count for the visible collection. Clicking a tile will present the tiles underlying data, if present, in the tree map.

TREE MAP

▶ 2022, week 03, 7992 unit(s)
▶ 2021, week 52, 6354 unit(s)
▶ 2022, week ...
▶ 2021, w...
▶ 2022, ...
▶ 2021, week 51, 6629 unit(s)
▶ 2021, week 50, 5569 unit(s)
▶ 2021, week 48, 26...
▶ 2022, week 02, ...

Periods

2022, week 03, 7992 unit(s)

▶ PCBA Test, 6336 unit(s)

▶ Final ... ▶ Insul...

▶ Burn-... ▶ Pre B...

Periods ⟩ 2022, week 03

PCBA Test, 6336 unit(s)

277288, 3188 unit(s)

290024, 797 unit(s)

272986, 410 unit(s)

275930, 399 unit(s)

297493, 31...

297492, 261 ...

285767, 251 ...

300198, 29...

100 25

253880, ...

253530, ...

Periods ⟩ 2022, week 03 ⟩ PCBA Test

Periodic yield - new modern design and features

The Periodic yield module has been overhauled with the sleek new WATS design. The latest version of this module provides new dynamic ways both to retrieve and visualize your test data.

API and filter

Periodic yield is now based on the new dynamic yield API, documented in the WATS swagger. This new approach allows you to request specific data on the fly by selecting columns in the grid. With this new feature, the "group by" option that was present in the old Periodic yield filter has been removed.

VISIBLE COLUMNS

- ☑ Product name
- ☐ Revision
- ☐ Test operation
- ☑ FPY pass #

Grid

The grid now has the new WATS design and will retrieve data based on its column-selection. Changing the visibility of the 'Revision' and 'Test operation' columns will automatically make new requests to the API and present you with new calculated row-data in the grid. The new grid will group the data hierarchically with the following levels:

Period -> Misc (if applicable) -> Test operation -> Part number

Results: 5   ▤ Export   ⚙ Column options   ▥ Add to dashboard

		Period ↑¹	Part nu... ↑	Unit # ↓²	FPY pass # ↑	FPY % ↑	FPY PPM ↑	FPY warn... ↑	FPY alarm ↑
>	⊞ ≡	2021, week 52		1 901	1 819	95.7 %	43 135	90.0 %	80.0 %
>	⊞ ≡	2022, week 01		959	832	86.8 %	132 429	90.0 %	80.0 %
>	⊞ ≡	2022, week 02		894	834	93.3 %	67 114	90.0 %	80.0 %
>	⊞ ≡	2022, week 03		1 641	1 546	94.2 %	57 891	90.0 %	80.0 %
>	⊞ ≡	2022, week 04		2 440	2 298	94.2 %	58 196	90.0 %	80.0 %
				7 835	7 329	93.5 %	64 582		

Chart

This update also contains new changes to the Periodic yield charts. Whereas in the old module, the charts would appear and be listed based on your grid expansion state, the new module will present the most expanded grid data dynamically in a chart directly below your grid. This will allow for more efficient transitions between visual components when examining the test data. The new periodic yield chart also allows the user to select visible data in the chart, and now presents yield, count, warning and alarm data for all yield types.

CHART
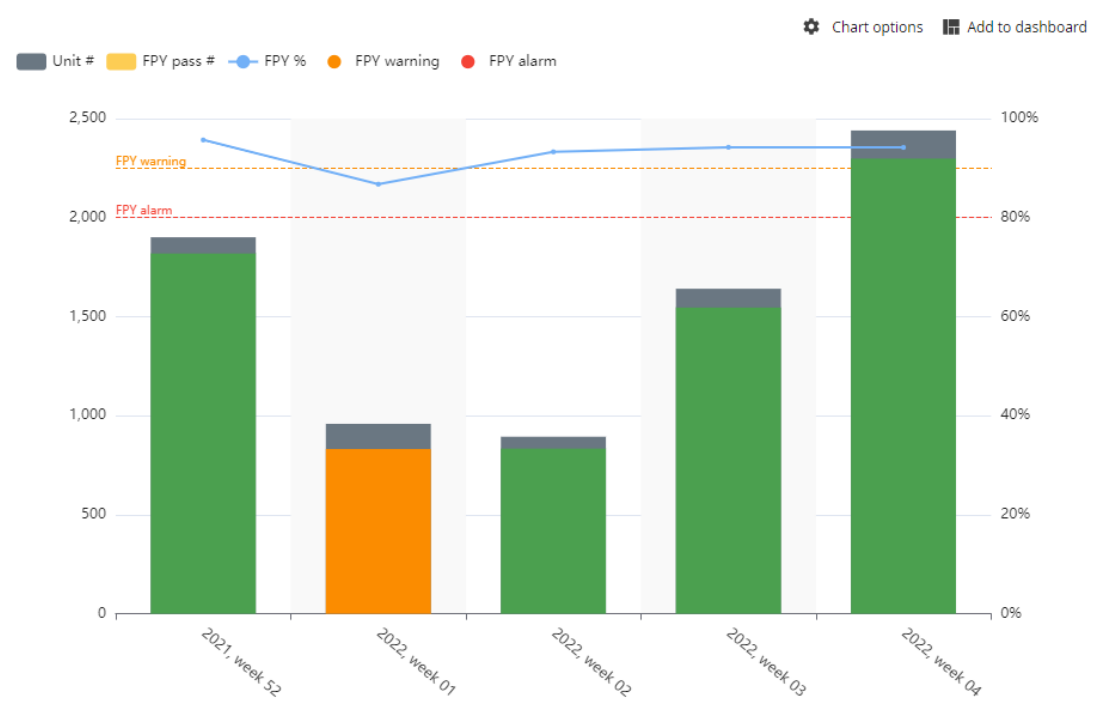
The 'Passed in run' chart is still present in the new Periodic yield module and will present data from a period specified by grid expansion. This chart is now always visible and will notify the user to expand a period row in the grid if no such row is already expanded.
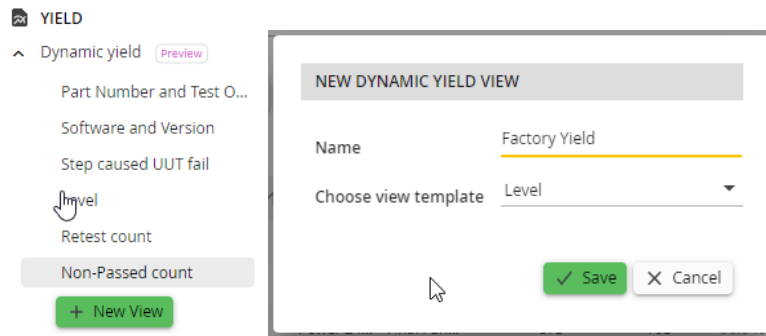
PASSED IN RUN (> 1) (2021-DEC)
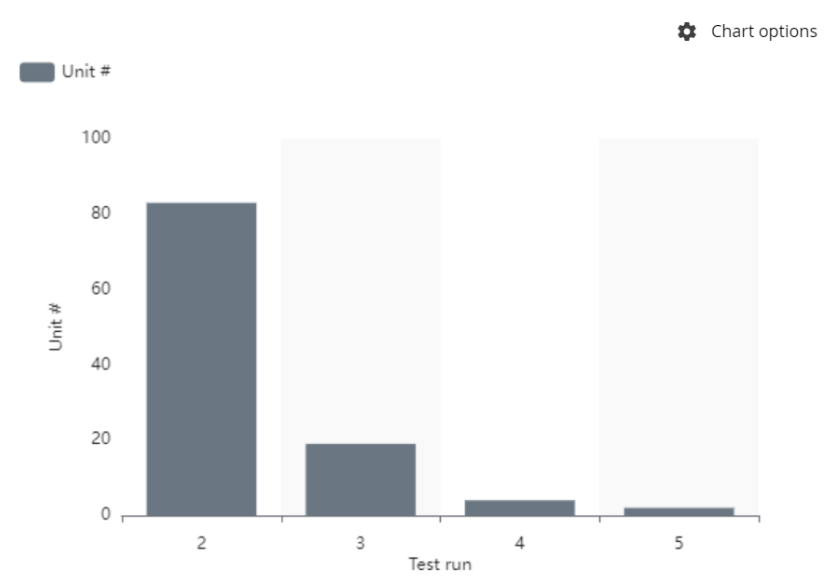
New Dynamic Yield report (preview)

Dynamic yield (formerly known as Yield report (preview)) has received changes. It now operates on so-called "Views" which lets the user create multiple different assortments and viewings of data based on predefined templates.

Grid

Each view can have its own combination of columns and sorting which will dynamically adjust the API calls made to the server based on columns selected, column order and sorting. The Column options list will show all available columns.

Chart

A view has a grid and a chart, and the chart can be turned on/off. This chart is based on data from the grid. From chart options (top-right of the chart) it is possible to adjust the chart type and yield lines displayed in the chart. The chart can either be a column chart or a bar chart. The column chart will have limited label length, the bar chart however will not be restricted in terms of label length.
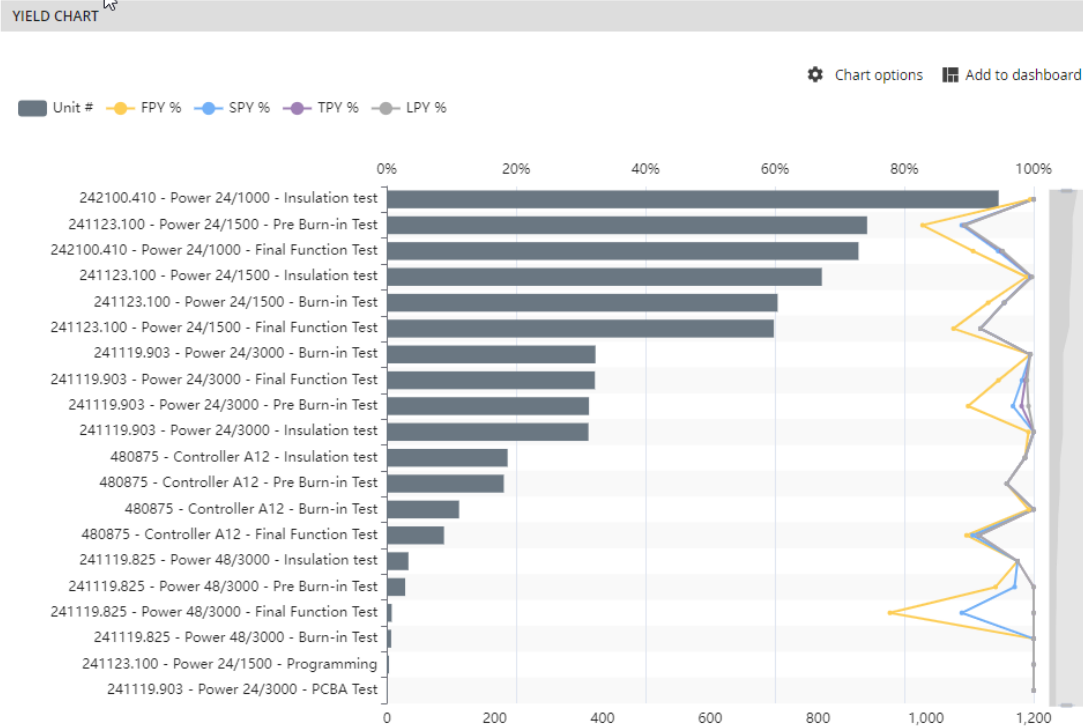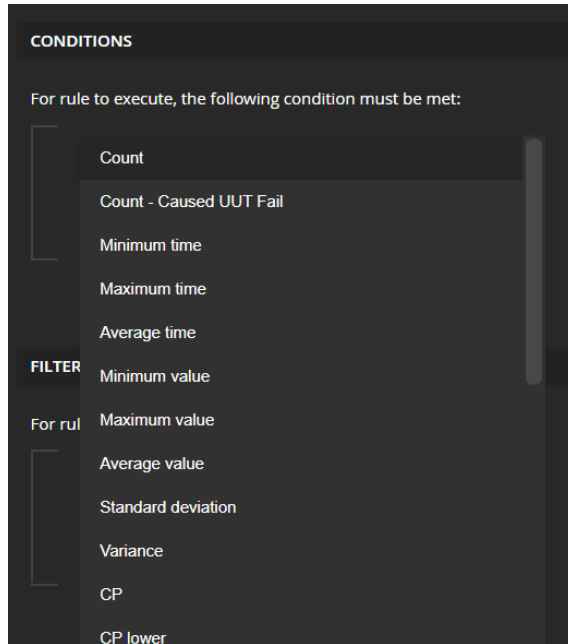

Both the chart and the grid can now also be added to the WATS dashboard:
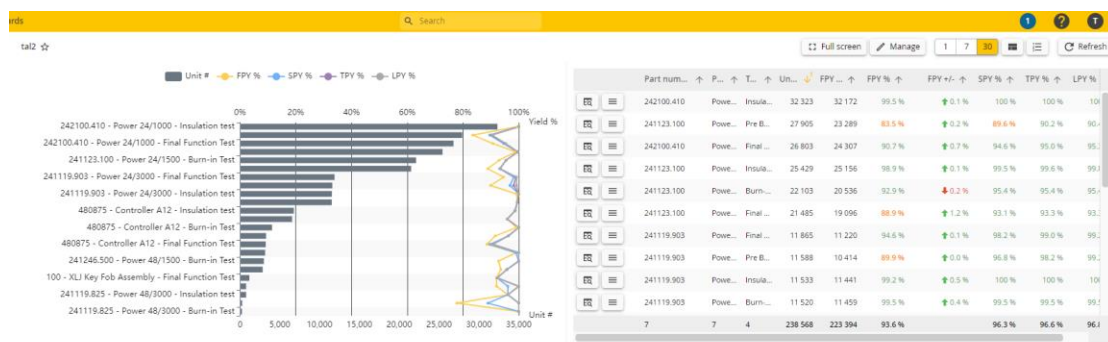
Alarms & Notification on Measurements

In addition to the previous *Yield & volume* and *Reports* types, a new Measurement type has been added to the Alarms and notifications module. This enables users to receive email warnings for a wide range of conditions in regard to a numeric measurements.

Italian and Spanish system language

Italian and Spanish system language has been added. To change system language, go to *My settings* after login (upper right corner menu) – user settings – languages.
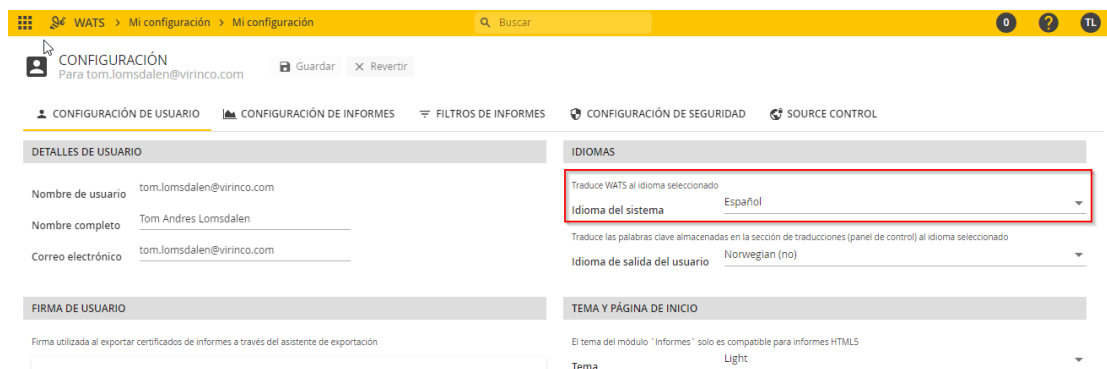
Control panel improvements

Several modules in the Control panel have been rewritten in order to update to newer frameworks. This also includes some new features and changes as described below:

- Processes
    - Ability to copy a process (including repair details)
    - Standard grid toolbar implemented, providing additional export formats and support for grouping.
    - Changes to editing: Previously processes were edited by editing with the grid, while editing repair operations was performed in a popup window. Editing has now been unified into a single popup where all editing of a process is performed. Starting edit of a process can be executed by double-clicking on a grid row or clicking the edit button on the left-hand side of the row.

- Users
    - Multiple users can now be deleted at once.
    - Standard grid toolbar implemented, providing additional export formats and support for grouping.
    - Select fields now have search field for easy filtering of options.

- KPI targets
    - KPI targets can now be assigned to a whole product group.
    - Multiple KPI targets can now be deleted at once.
    - Standard grid toolbar implemented, providing additional export formats and support for grouping.
    - Select fields now have search field for easy filtering of options.

- Unit verification rules
    - Multiple rules can now be deleted at once.
    - Standard grid toolbar implemented, providing additional export formats and support for grouping.
    - Select fields now have search field for easy filtering of options.

- Serial number handler
  - Added support for deleting free Serial numbers / MAC addresses from a range
  - Added support for freeing up previously reserved Serial numbers / MAC addresses (will not affect already taken Serial numbers / MAC addresses).
  - Standard grid toolbar implemented, providing additional export formats and support for grouping.
  - Removed type select. All Serial number types are now shown by default. A new column in the grid indicates its type.

Rest API

- Get Processes (Test/Repair operation type).
- Get top failed steps for a part number in a process.
- Option for how many levels of sub-assets to return, default all.
- Result from POST WSJF and POST WSXF APIs changed, now returns original report ID (named id) and the new actual report ID (named uuid). See 'Improve report reception' for more information.

Backend- Improve report reception

Report reception and post-processing functions has been rewritten to improve performance and reduce locking issues. The new report reception api is now optimized for fast insertion and most report validation has been moved into the processing stage. This may cause more reports to enter the quarantine. A side effect of this change is that the report reception api has a slightly different response. The response now returns a new report-id (guid) in addition to the original id from the request.

Miscellaneous features

- **WATS filter - Date picker**

Minutes removed from the daily (1) "quick date" button and aligned with the quick date button in the Dashboard.

- **Support level restrictions in System Manager**

Restricted users are now able to use the System Manager. Only stations/levels the user has rights to access will be displayed. Please note, you will still need the permission to open the System Manager.

- **Allow Restricted Users to use smart filter (part number / station name search)**

Smart filter support for restricted users. Part numbers and station names the user has rights to access will now show up in the smart filter dropdown.
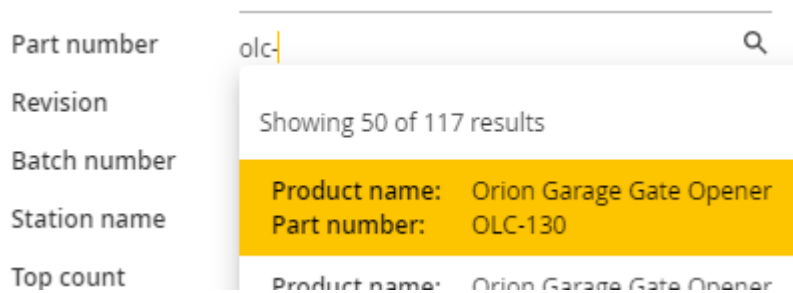
- **Add Passed in Run chart in Test report**

A new chart has been added to the Test reports module, displaying the number of units which did not pass in the first run.
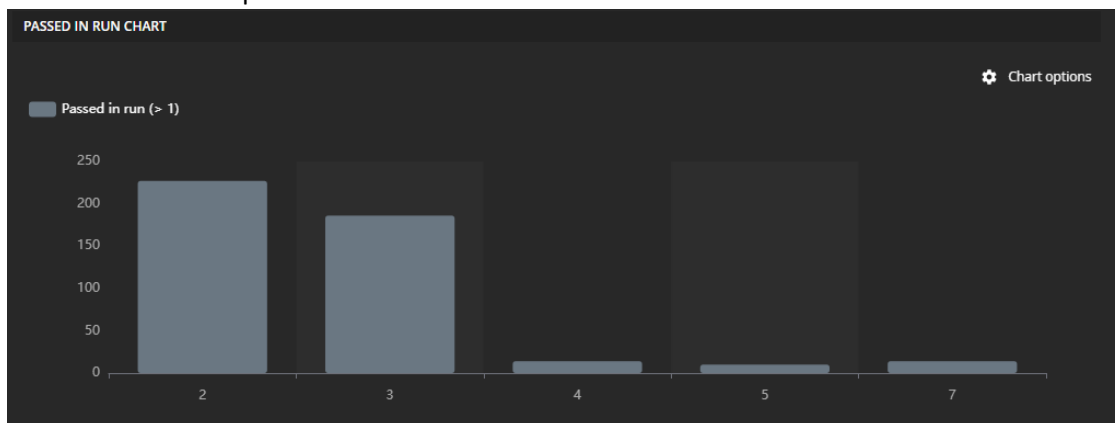
- **Change in-app help to usermanual.wats.com**

The WATS help is no longer included as a part of the WATS installer. Instead, user-

manuals for different versions of WATS can now be accessed as
usermanual.wats.com

- **Update OI Advanced config MES settings**

The Advanced Configuration tab in the Operator Interface configuration view has
undergone some minor adjustments. Disabled modules for debug are now hidden
by default and the set station name option has been replaced by the Name (location
and purpose) field in the Station Configuration tab.

- **Force submit Quarantined reports with receive date**

A lot of reports going into quarantine have had similar issues. One of the main issues
have used to be invalid dates. Therefore, it's a been added a new button called
"*Submit report with current date/time*". If you select a report (or multiple reports)
and click this button, it will change the start date/time of the Quarantined report(s)
to the current date/time (UTC) and try to resubmit it with the updated start
date/time.

- **Searchable lists in Reporting filter**

The levels, product groups and test operations fields in the Reporting filter are now
searchable to easier find a certain level, product group or test operation.
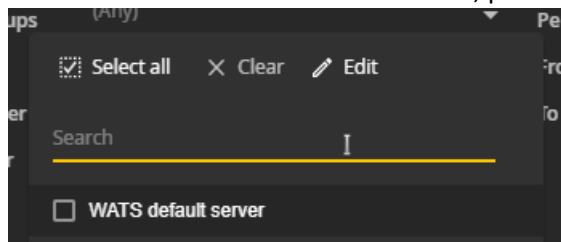
- **Unfavorite from start page**

If is now possible to remove a user favorite from the start page. When hovering over
a favorite link, a star icon will appear. Clicking this star will remove the favorite.

- **Station Report details view (popup)**

Along with a fresh new look, the Station Report details view is enhanced to visualize
the current condition of the specified station. The top section of the new popup
displays general data and information, including a periodically sorted grid with a
coherent bar chart, where the period grouping can be specified in the grids 'Period'
column header.
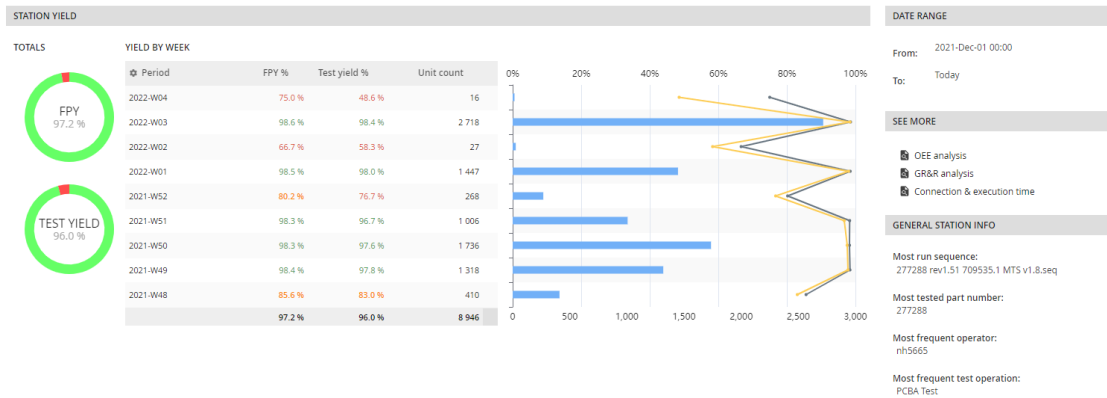
At the bottom of the popup, a new 'Location and purpose' grid has been added to present data for the different location and purpose combinations seen registered under the current station name.

- **Security/Performance enhancements**

Added compression to database indexes to reduce IO and improve query performance.

Fixed relative path CCS include vulnerability.

Moved in-app help with known vulnerabilities out of the WATS portal. The help is now accessible from usermanual.wats.com

Updated third party libraries with known vulnerabilities.

Bug fixes

Bug fixes in this list is a summary of items since the last Server release. Most items have already been deployed to cloud accounts through periodic maintenance.

- Serial number handler: Doesn't list range of serial numbers.
- Fixed an issue with the Mobile Application on legacy accounts.
- Rest API: Document max $top=10000 for QueryHeader.
- Export wizard: Unable to download result, permission denied.
- Repair: 500 error from put report.
- Serial number handler: Range info counts serial numbers from all types that matches range.
- UUT report: Min/max y axis not sufficient to display all data.
- Dashboard: Filter by product groups doesn't work.
- Dashboard: Unit statistics doesn't include part number filter.
- Repair: Unable to resume repair if navigating from UUR report.
- Production Manager: Adding/modifying tags on a package in a Released state changes Released by field.
- Repair: Failures lost when UUR is edited in OI.
- Repair: Cannot submit report when subunits are replaced.
- Reporting: Periodic yield - period filter not included when a period is expanded.
- Dashboard: Fixed an issue with contrast theme.
- Repair: Comp ref validation failed if compref mask in unspecified.
- MI: Copy a MI sequence in Production manager does not copy all settings correct.
- MI: relations does not allow multiple Test operations even though the drop down is multiple select.
- Reporting: Serial number history - Subunits added to wrong parent when loaded on demand.
- Dashboard: Unable to load legacy dashboards.
- Dashboard: Unable to load station map statistics.
- Operator Interface: Issue with reset configuration.
- Operator Interface: Batch number input disabled.
- Production Manager: Value suggestions for StationName tag is not sorted.
- Production Manager: Value suggestions for StationName tag does not have an 'Any' value.
- Operator Interface: Stay on "Select repair operation" page in repair to allow misc data input.
- Export wizard: Unable to export html files.
- Reporting: Missing product name in UUT table view.
- Operator Interface: Exclude revision filter in related repair history.
- Reporting: Case sensitive pie charts in Test reports and Repair reports.
- Alarms and Notifications: Unable to created or edit alarm rules.
- Production manager: Unable to copy if user does not have access to Software.
- Reporting: Overview fails from Test step yield and analysis details.
- Reporting: Repair analysis may run into error when applying filter.

- Dashboard: Station widget's date filtering is not working when widget is created with Add to dashboard.
- System Manager: Unable to change the name on virtual levels that contains special characters.
- Root Cause: Unable to open/edit root cause tickets.
- General: Mobile App permissions missing on Shared Operator (Legacy plan).
- Operator Interface: Delete replaced sub unit fails in repair.
- Operator Interface: Replace sub units does not work in repair.
- Production Manager: CSV file with empty cell(s) is updated with "undefined" value.
- Production Manager: Remove duplicate StationName TAGs.
- Operator Interface: Operators unable to edit station name.
- UUT: Zoom/pan help link is broken.
- Dashboard: Top repair grid is missing Repair operation filter.
- Operator Interface: Attachments button is enabled too early in repair (fail to attach).
- Production Manager: Replace confirmation dialog delete files even if the file upload dialog is canceled.
- Dashboard: Sharing - api call returns forbidden.
- Production Manager: Unable to download files with Firefox.
- Sync: Software sync fails when multiple packages in same batch has same file.
- Export Wizard: Fixed a memory issue in Excel export.
- Export Wizard: Long SN will get truncated in Excel export.
- Control Panel: Link to WATS instance in 'New user email' is always https.
- Production Manager: Missing get-sites and -tags permission.
- Production Manager: Sub menu in tree-view does not appear at hover.