Eddyfi Technologies

Beyond current

M2M CAPTURE V3.4

NEW FEATURES DESCRIPTION

This document introduces the new features in M2M Capture version 3.4 released on January 2022.

Capture v3.4 is compatible with all Gekko, Mantis or PC under a subscription plan.

Please refer to the release note for more information.

For any question or support, please contact us at support@eddyfi.com

New features list

CAPTURE 3.4

ERGONOMICS & DISPLAY

- Optimized workflow mode
- Live UT Settings in inspection
- Live gate edition in inspection
- Scrolling zoom
- Optimized display (view letter, live scan speed)
- Improved cursor management

APPLICATIVE FEATURES

- Nozzle / node weld overlay
- FFT (frequency) views
- Enhanced probe configuration
  - Up to 8 probes
  - Flexible P/R probe setup
- Offline synchro gate edition

TFM TECHNOLOGY

- TFM compatible on advanced part (nozzle, fillet, CAD import)
- TFM optimizations
  - Max number of pixels increased for all platforms
  - Scan speed increased
  - Data file size reduced

PLATFORM EVOLUTION

- Flexible cloud-based licensing tool
- Compatibility with Acquire™ files for analysis

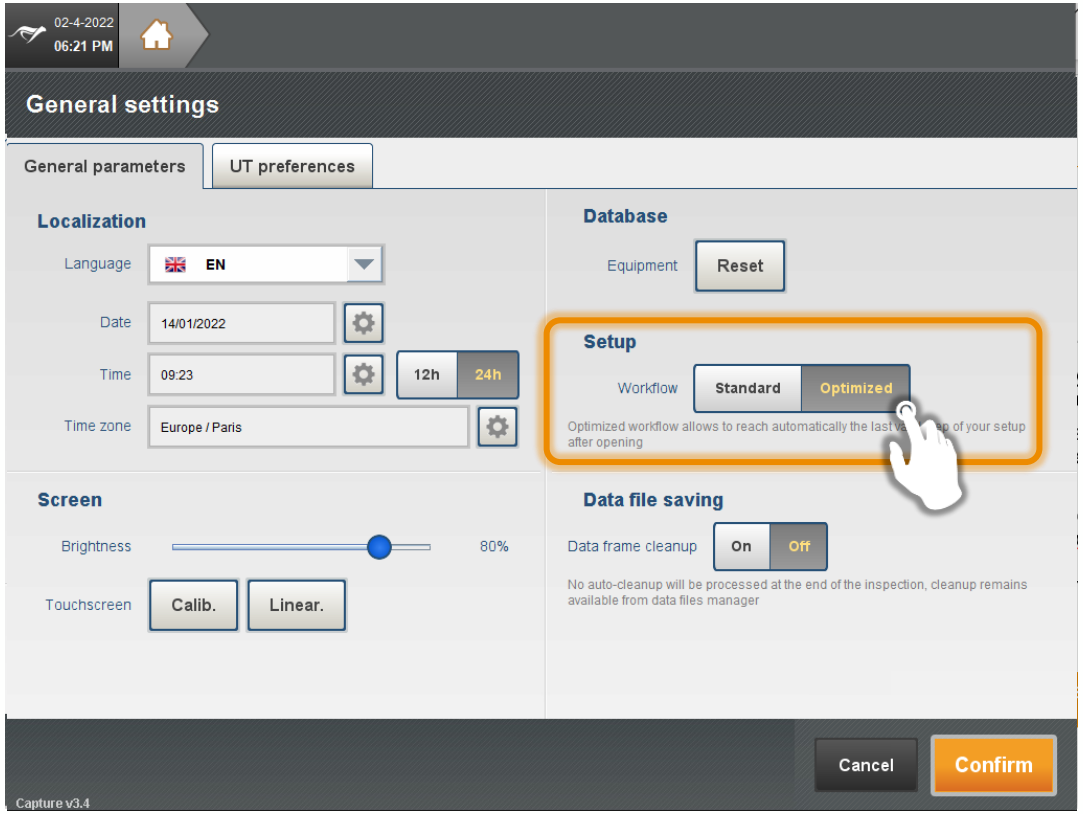
Ergonomics

Capture 3.4 includes various ergonomics and setup flexibility enhancement that improve the workflow and simplify the analysis process.

Ergonomics #1

IMPROVED WORKFLOW MODE

Capture 3.4 offers an optimized workflow that allows to skip all the setup steps of a valid application file and directly go to the inspection panel.



How to enable or disable the feature

- Go to the general settings by pressing the **gear** icon at the top right of the Home panel
- In the General parameters tab, select **Standard** or **Optimized** workflow depending on your preference

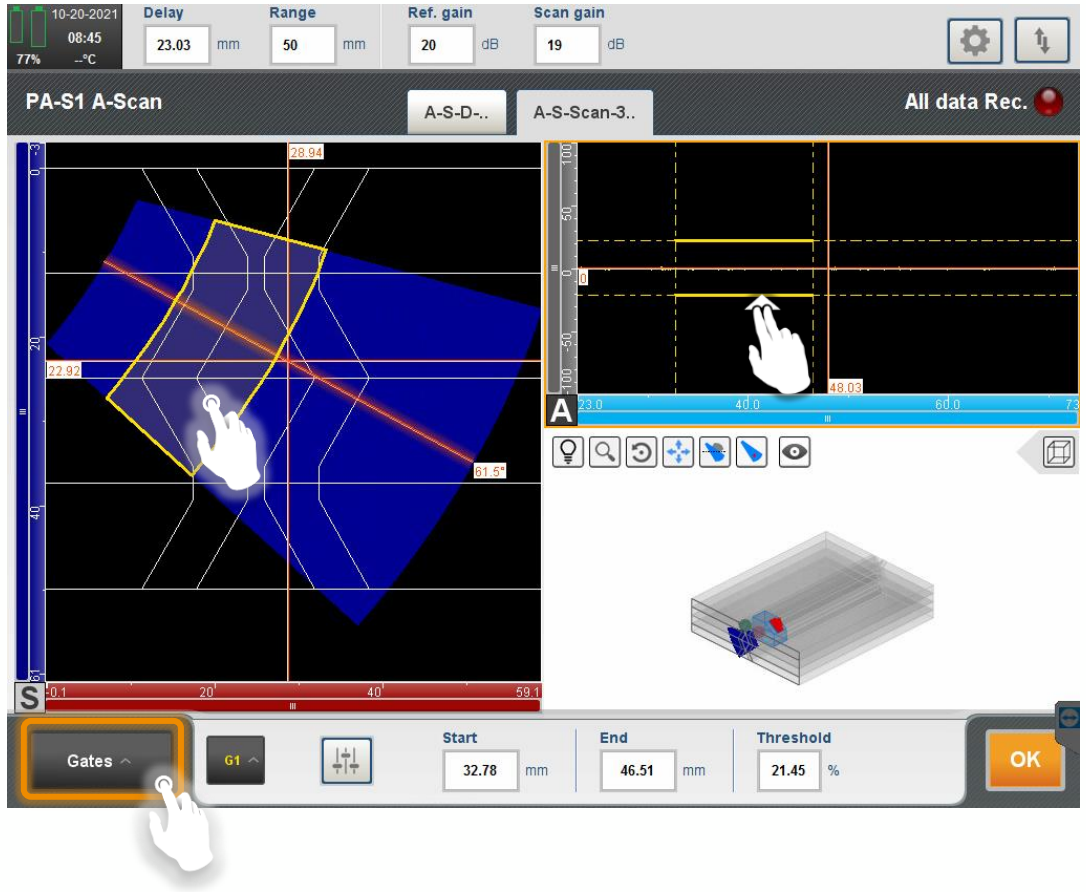
The **Standard** workflow corresponds to the step by step-by-step original Capture behaviour, while the **Optimized** workflow allows to skip all valid steps when loading an existing application file.

The “optimized workflow” mode is enabled by default with Capture 3.4.

Ergonomics #2

LIVE GATE EDITION IN INSPECTION

For conventional UT and PAUT applications, it is now possible to edit and adjust the gates from the inspection panel.



How to adjust the gates in inspection

A new **Gates** mode has been added to the inspection panel. There are 2 ways to access the menu :

- By clicking directly on a gate from any view that has a gate displayed (A-Scan, S-Scan…)
- By clicking on the Mode button (bottom left) and select **Gates**

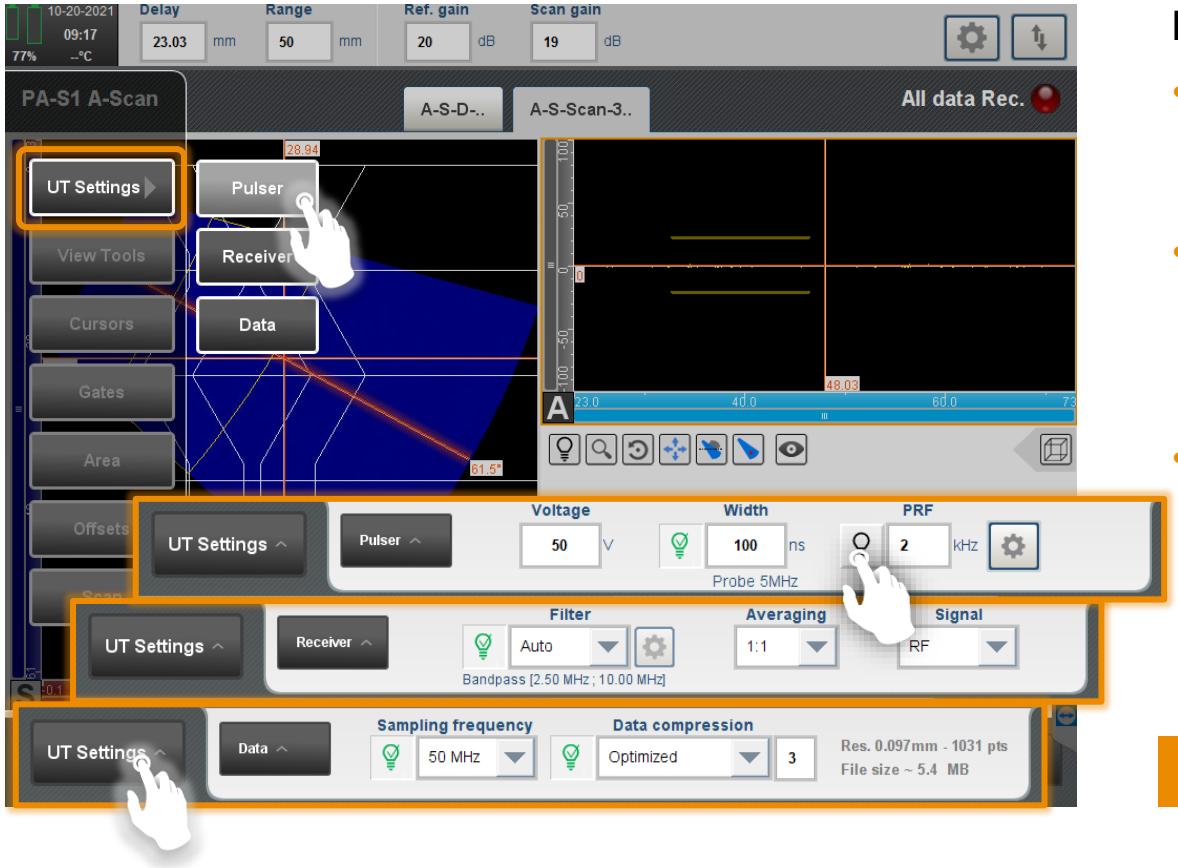
It is then possible to adjust the gate start, end or threshold either manually from the A-Scan view or by inputting the value in the horizontal banner of the Gates menu. To change the gate advanced parameters by clicking in the following icon

When using synchro gates, it is possible to enable or disable the A-Scan synchro live.

Ergonomics #3

LIVE UT SETTINGS IN INSPECTION

For all techniques, the pulser, receiver and data recording parameters are now directly available from the inspection panel. This allows operators to save time and see influence of each modification on a live signal.



How to edit UT parameters in inspection

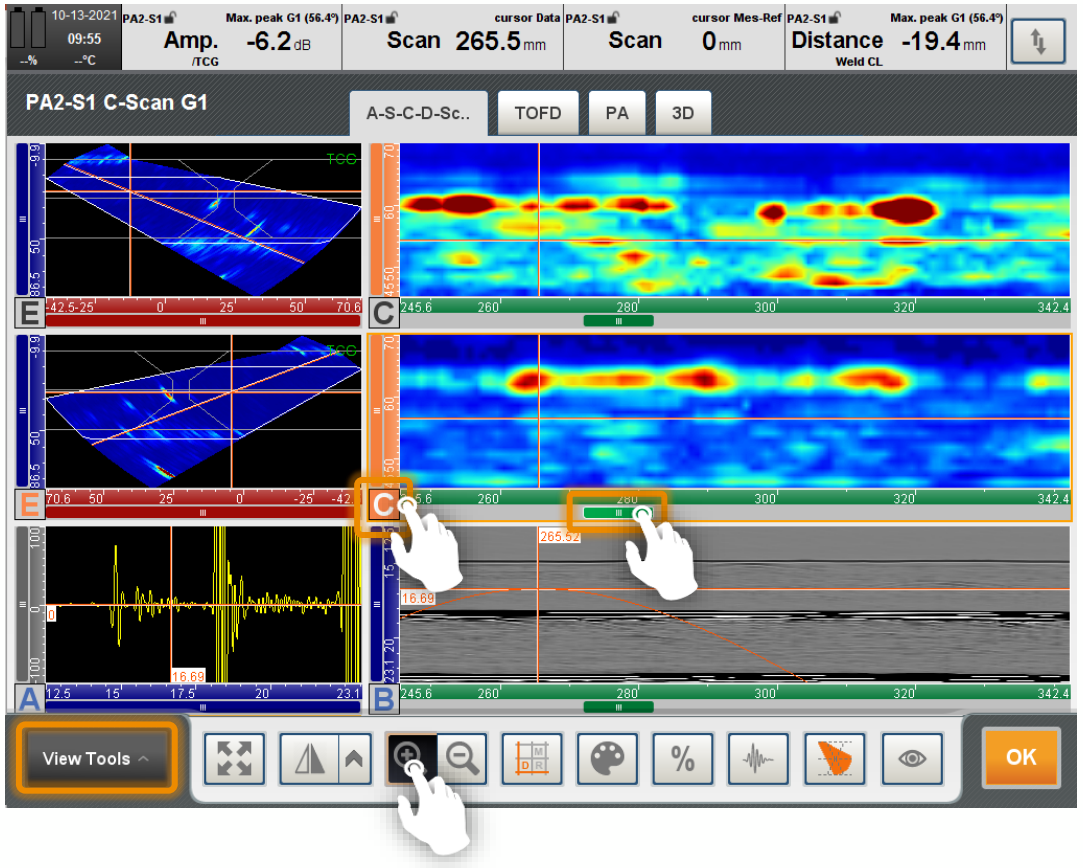
- Go to **UT settings** mode, accessible when clicking on the mode button located bottom left of the screen
- Select **Pulser**, **Receiver** or **Data** to display in the bottom bar the parameters to edit. It is also possible to switch between these 3 modes through the selector of the bottom bar
- A smart button has been added to the PRF to help and automatically optimized the scan speed and to avoid the ghost echoes

Filters are not enabled yet for the TFM technique.

Ergonomics #4

SCROLLING ZOOM 1/3

Zooms along the scan and index axis are now linked between all groups and now follow the scanner position in inspection. In analysis, an optimized slider and cursor management allows to speed up the analysis process.



How to enable the scrolling zoom

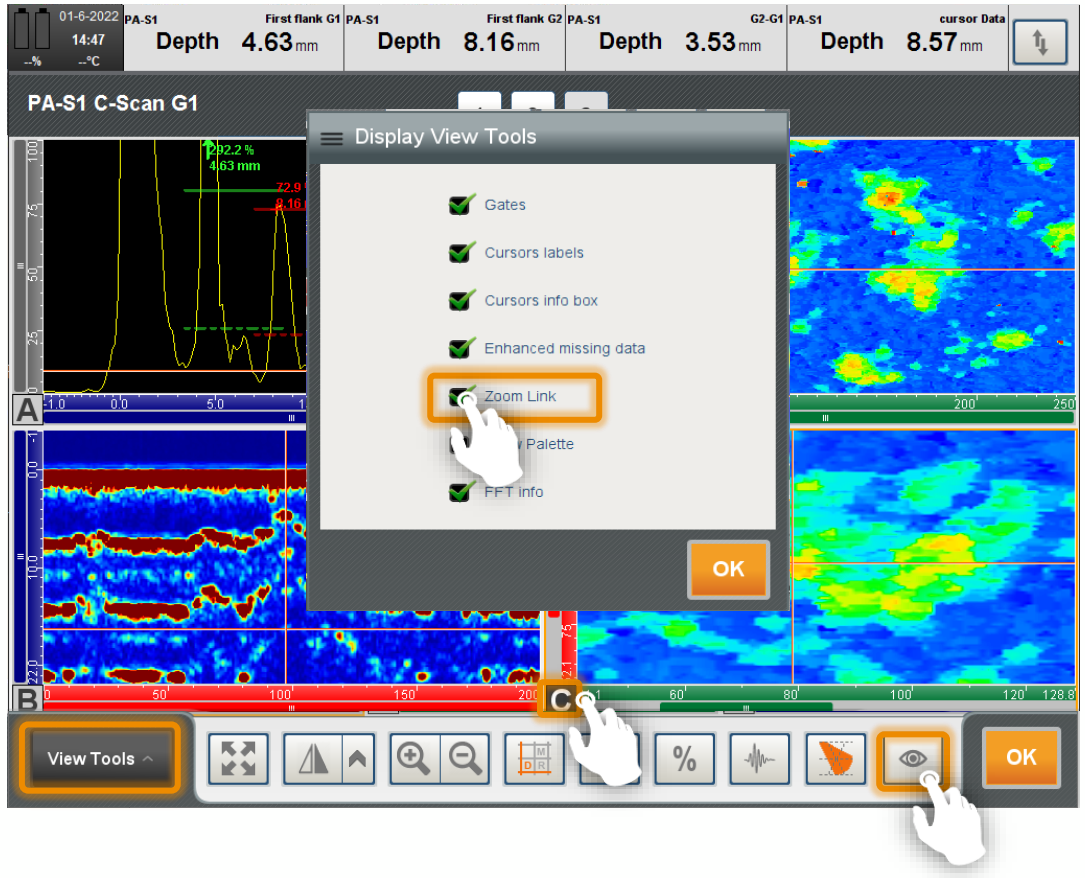
- Go to the **View tools** mode accessible by clicking the letter located at the bottom left of any view
- Zoom in a view using the icon accessible from the View tools menu, then draw a box in a view
- A slider appears along each axis, that can be moved manually or with the mechanical wheel in analysis – it follows the encoder position during acquisition
- Double tap on a slider to zoom out for this axis

PC shortcut : keep CTRL pressed then draw a box in the view to zoom in.

Ergonomics #4

SCROLLING ZOOM 2/3

It is possible to disable the zoom link between specific views to focus on a specific area of the inspection without losing an overview of the entire data.



How to link or unlink the zoom between the views

- Go to the Viewtools menu accessible by clicking the letter located at the bottom left of any view
- Then click on the eye icon 
- Uncheck or check the Zoom link option

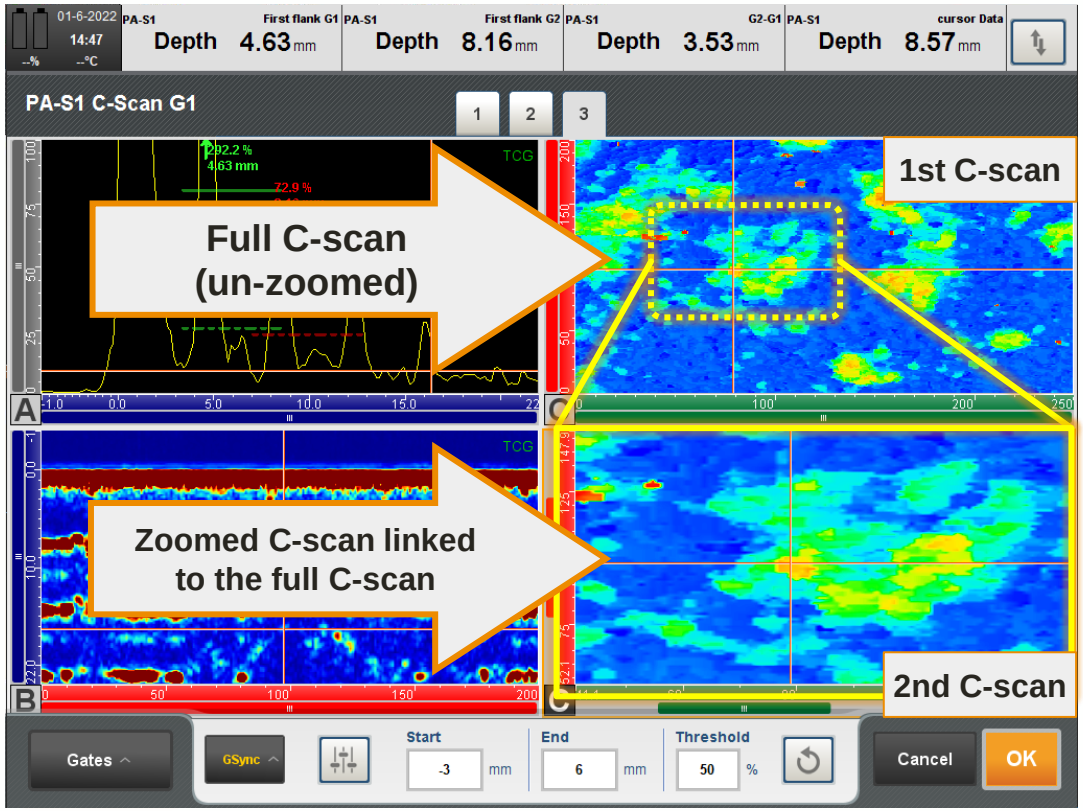
The zoom option will only apply for the current view, and will be reset automatically after changing the view layout.

All “mechanical views for all groups have the “zoom link checked by default.

Ergonomics #4

SCROLLING ZOOM 3/3

When dealing with datasets of several hundred millimeters or more, it is not possible to cramp all information unto a screen, and the optimized zoom management is the appropriate tool to help for inspection and analysis.



Goal of the view link

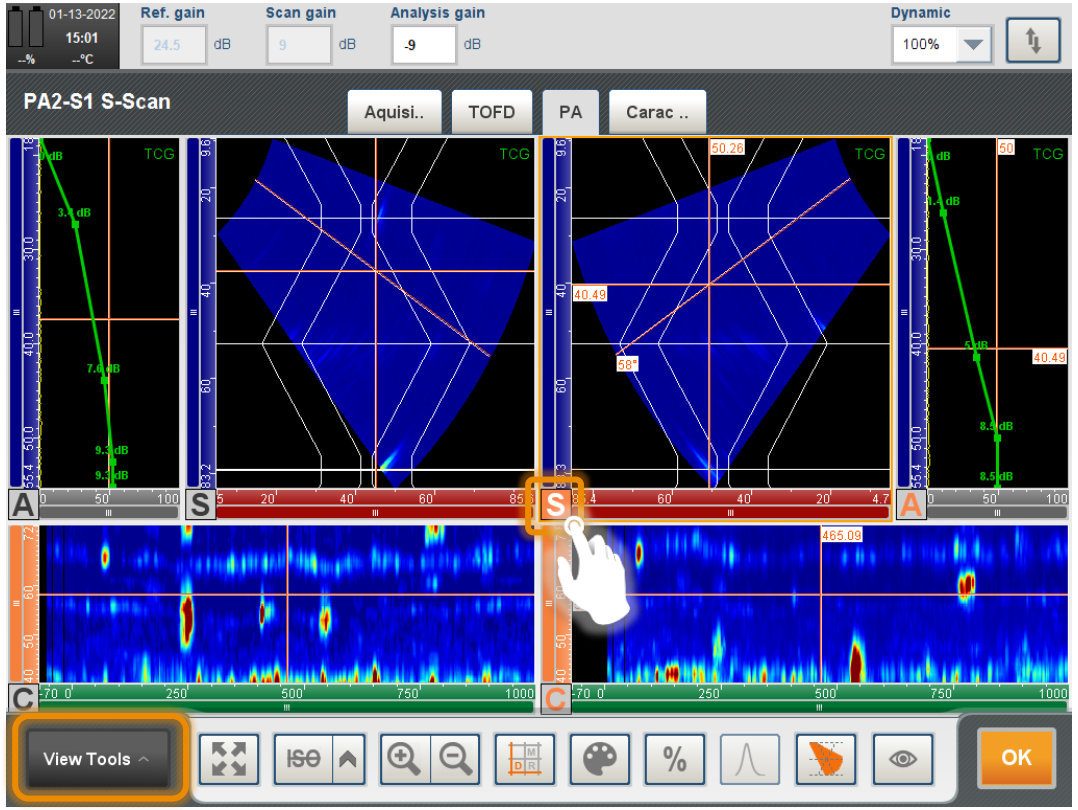
- The scrolling zoom allows operators to have two similar views (C-Scan or D-scan) with one of them being a zoomed area of the first one.
- As cursors moves in the larger view (inspection or analysis), the scrolling zoom follows the cursors to keep a zoomed view of the inspection.
- This prevent operators from zooming in and out on each indication when doing their analysis.

Capture keeps a short memory of the zoom level, one click resets the view at the previous zoom level, a second click zoom out totally.

Ergonomics #5

OPTIMIZED DISPLAY – VIEW LETTER

The icon at the left bottom corner of each view has been modified to quickly identify the view type for all view displayed, the current view and views coming from the same group.



How to interpret the view letters

- Each group has its own bi-color theme.
- The view selected uses the colour theme of the group (inverted) for the view letter icon.
- The Viewtools banner is opened or closed by pressing the letter.

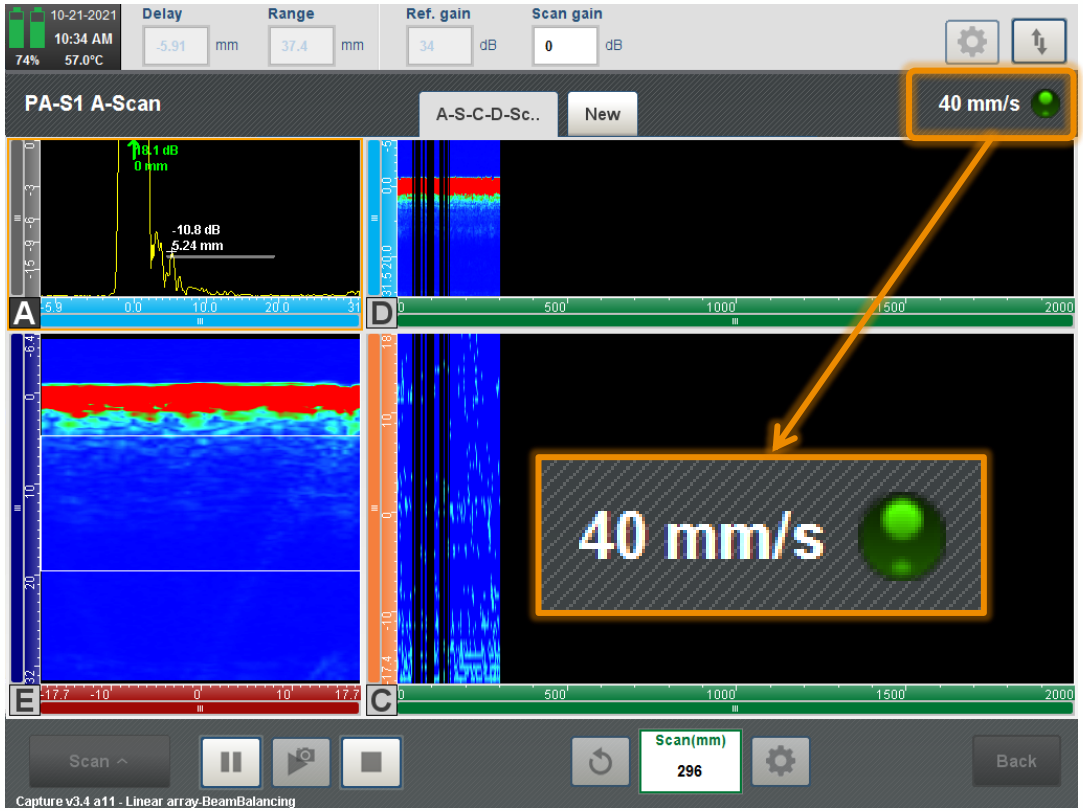
A	A-scan	S	S-scan
B	B-scan	T	T-scan
C	C-scan	Ed	Echodynamic depth
D	D-scan	Ei	Echodynamic index
E	E-scan	Es	Echodynamic scan
F	FFT view		

As side and top views are being improved, they keep the transparent square instead of the view letter.

Ergonomics #6

OPTIMIZED DISPLAY – LIVE SCAN SPEED

In the inspection panel, Capture now displays the current scanning speed in order to help the operator to optimize the data collection during acquisition.



How to use the scan speed information

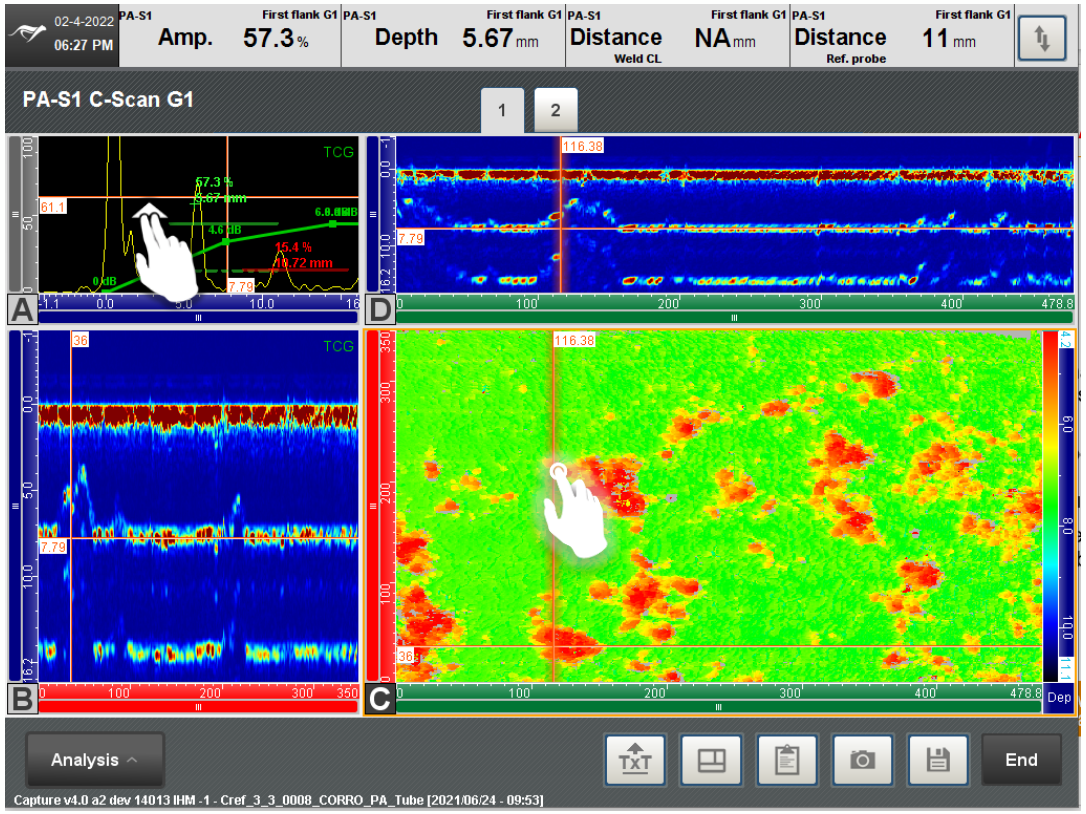
- Before starting the inspection, the indicated value is the max scan speed based on the UT setup.
- During acquisition, the LED color changes to tell operators if the speed is getting too close or over the maximum scanning speed.
  - **Red**: over max scan speed (data are being missed)
  - **Yellow**: between 70% and 100% of the max scan speed
  - **Green**: under 70% of the max scan speed

If no scanner is set, the speed is given in Hz.

Ergonomics #7

OPTIMIZED CURSOR MANAGEMENT

Cursor management has evolved in order to uniformize and simplify the cursor manipulation.



What does it change

- Pressing OR sliding any cursor makes a cursor selected, allowing to adjust its position with the scroll wheel.
- Pressing OR sliding any cursor does not display the cursor mode anymore : use the mode selector (button bottom left) to display the cursor banner.

To display or hide cursors, select a new cursor from the cursor banner or press the cursor button  of the View toolbar.

Default increment step of the scrolling wheel can be changed by pressing the “Step” front panel button.

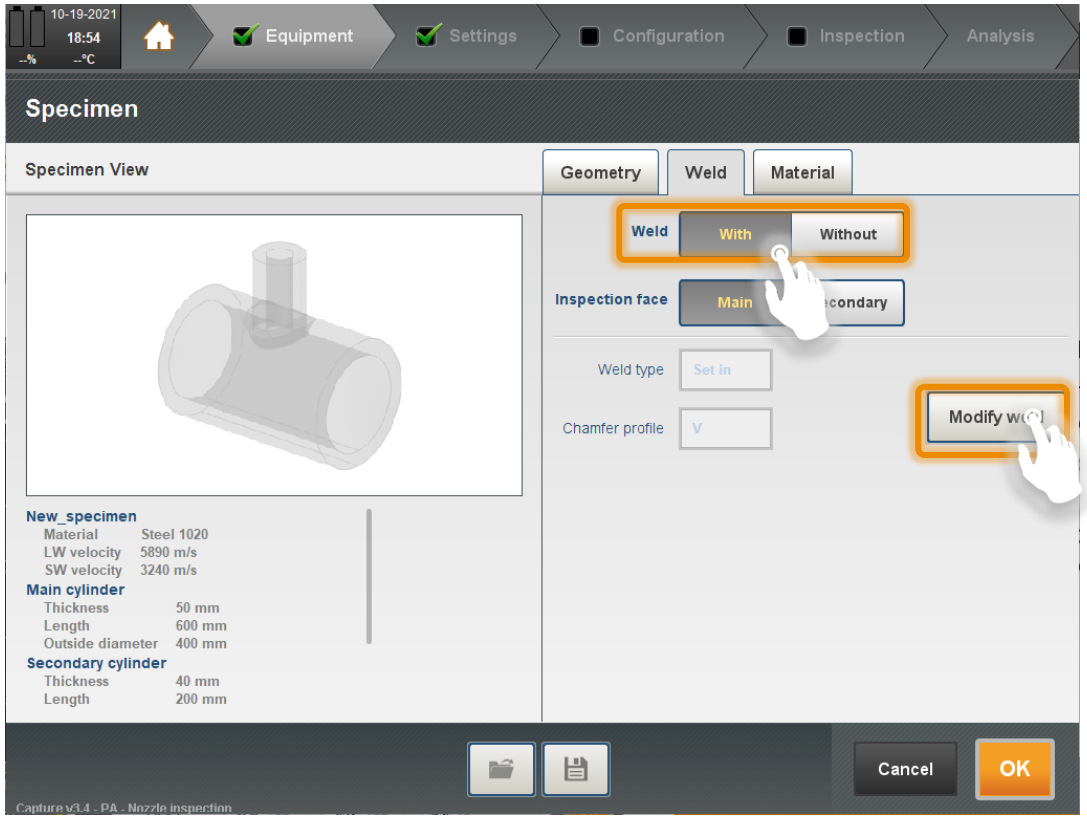
Applicative features

Capture 3.4 offers a unique weld overlay configurator for nozzle & node inspection. It also provides several optimizations to better cover various inspection cases.

Applicative #1

NOZZLE / NODE WELD OVERLAY (1/3)

It is now possible to define V- and K-weld Set-In and V-weld Set-On nozzles for PAUT inspections and newly with Capture 3.4 for TFM as well. Pipe to pipe nozzles and node configurations can be defined.



How to enable a weld with nozzles

- From the specimen panel, select nozzle configuration
- Click on **With** in the Weld tab to enable the weld overlay
- To visualize or edit the weld parameters, press **Modify weld** – a window pop up will appear (see next slide)

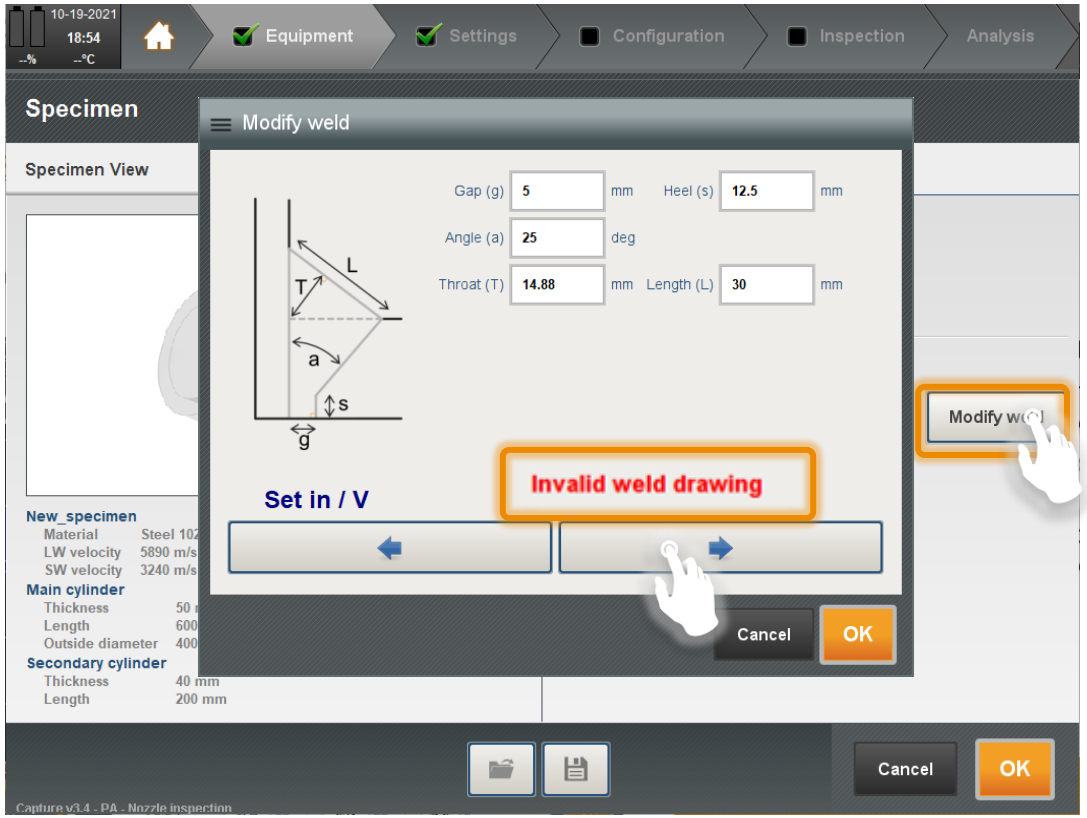
After entering the various parameters of the weld, the 3D view and weld overlay will be updated

Weld overlay is only compatible for straight configurations (90-degree nozzle/node angle)

Applicative #1

NOZZLE / NODE WELD OVERLAY (2/3)

V- and K-weld Set-In and V-weld Set-On nozzles for PAUT inspections and newly with Capture 3.4 for TFM as well. Pipe to pipe nozzles and node configurations can be defined



Available type of nozzle welds

- Set-in – V weld
- Set-in – K weld
- Set-on – V weld

Press the left or right arrow to define another type of weld.

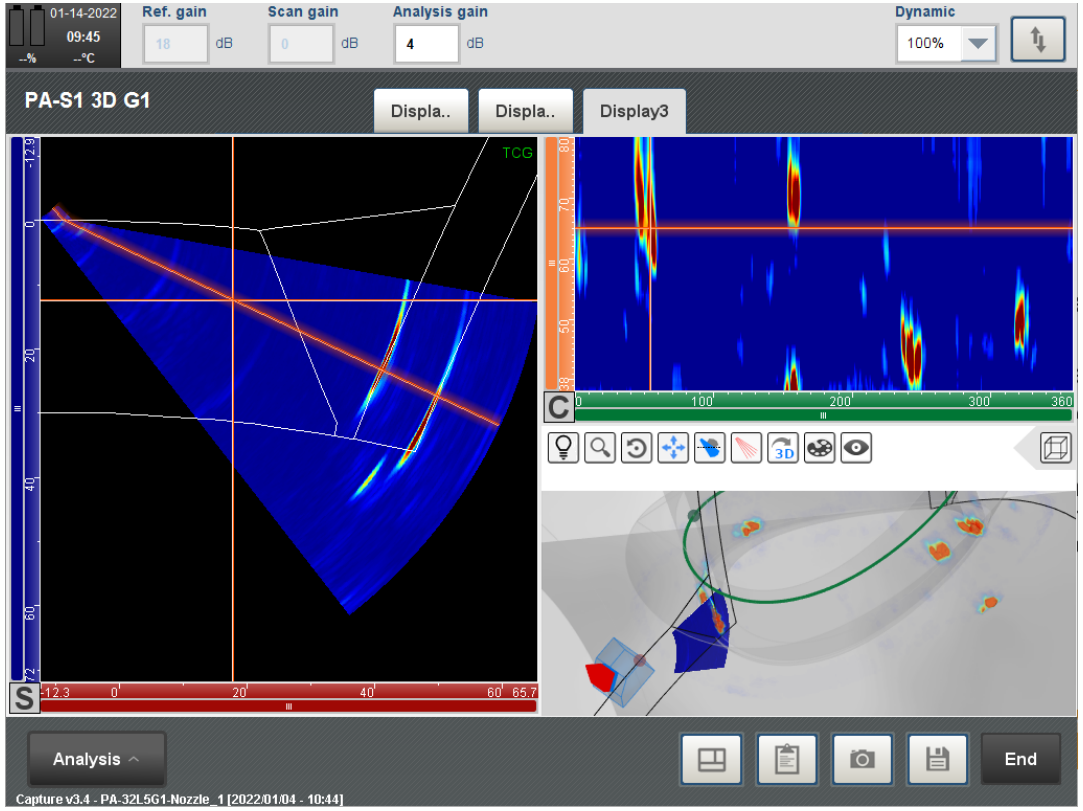
It is possible that some of the weld parameters are not compatible between each other. In this case, an Invalid weld drawing message appears

Most conflicts are between the angle and Length parameters.

Applicative #1

NOZZLE / NODE WELD OVERLAY (3/3)

It is now possible to define V- and K-weld Set-In and V-weld Set-On nozzles for PAUT inspections and newly with Capture 3.4 for TFM as well. Pipe to pipe nozzles and node configurations can be defined.



Acquisition & analysis

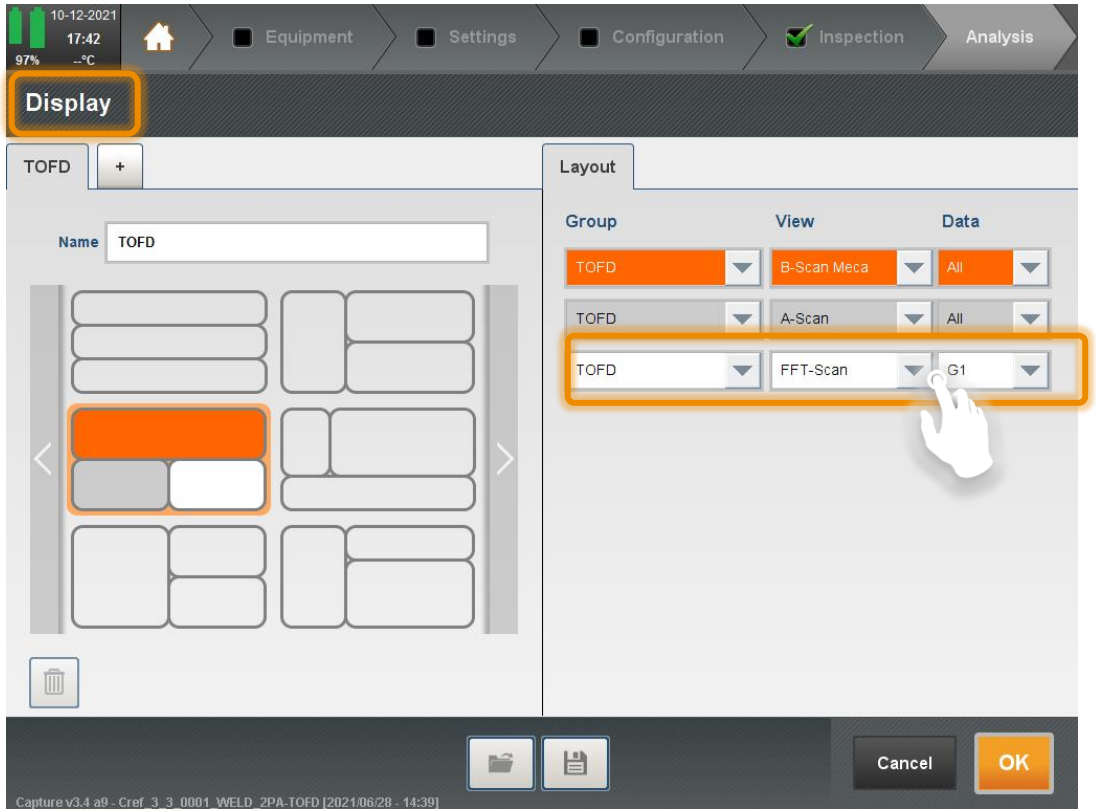
- The weld overlay is calculated and superimposed on the S-Scan and T-Scan views using the information from the three encoders.
- In Capture 3.4, it is now possible to use three axis on the nozzle/node side allowing operators to follow the weld if they have the adequate scanner

With Capture 3.4, it is not yet possible to fold the S-Scan view when inspecting the nozzle from the primary cylinder.

Applicative #2

FFT VIEW (1/2)

It is now possible to calculate the frequency content (FFT) of a A-Scan signal for all techniques except ATFM. This can be useful to select the proper probe for the inspection of attenuative material (HDPE…) or specific inspection types (HTHA, SHM…).



How to access the feature:

FFT view is available for redressed or RF A-Scan signal, the view become “not available” with envelope display.

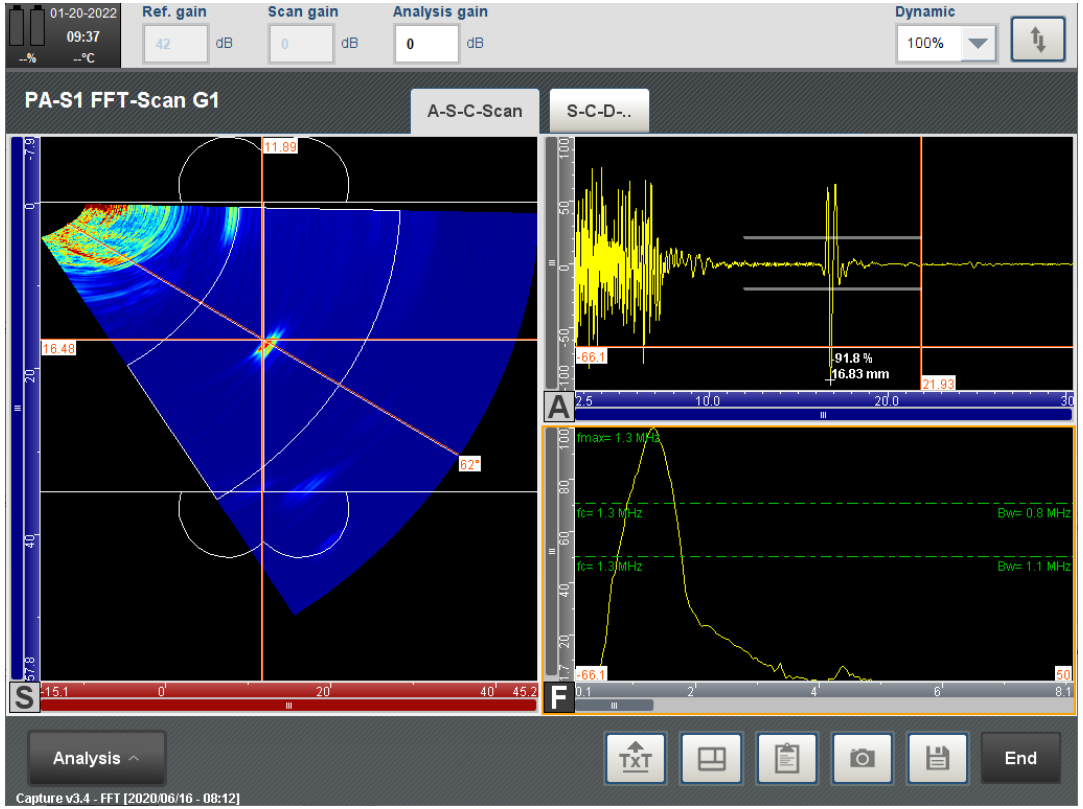
- In the Display menu, select the FFT-Scan view for one of the views of the layout panel.
- Select **All** data to calculate the FFT of the entire A-Scan signal or select a gate to calculate the FFT within the gate.

In TFM, the FFT view is not compatible with indirect modes and only applies on all data (A-Scan column).

Applicative #2

FFT VIEW (2/2)

It is now possible to calculate the frequency content (FFT) of a A-Scan signal for all techniques except ATFM. This can be useful to select the proper probe for the inspection of attenuative material (HDPE…) or specific inspection types (HTHA, SHM…).



FFT view information

The FFT view gives a few interesting information about the signal frequency :

- Central frequency of the signal
- Bandwidth at -3dB, and its corresponding fc
- Bandwidth at -6dB, and its corresponding fc

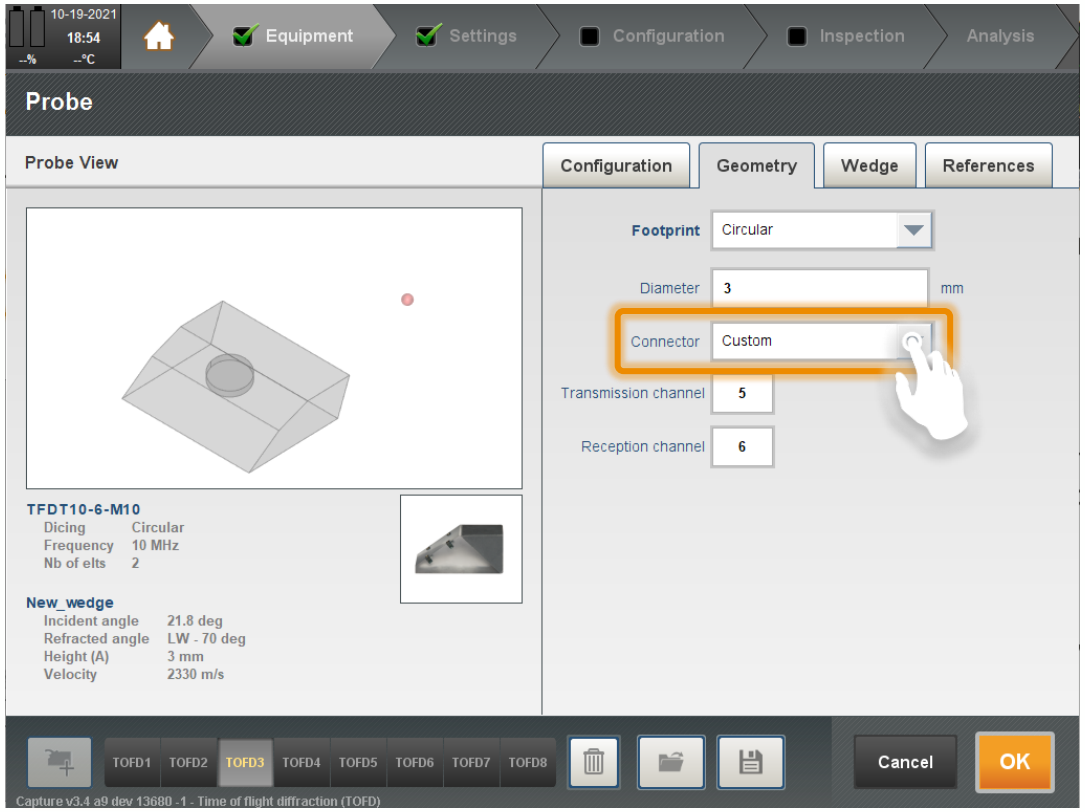
Cursors in the FFT view can help to get the corresponding frequency reading or cursor info box.

The cursor delta box can give the frerquency difference between cursors.

Applicative #3

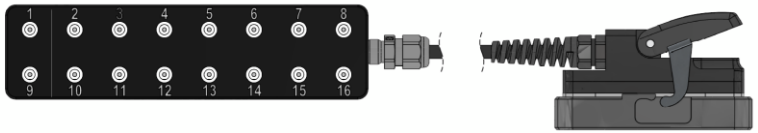
ENHANCED PROBE CONFIGURATION (1/2)

Capture 3.4 allows to set up to 8 probes of any type including the possibility to use more channels for conventional UT (P/E, P/C and TOFD) from PA channels or additional UT LEMO connectors.



How to use PA channels for UT and TOFD

When using a specific splitter as the one illustrated below, it is now possible to use more UT probes.



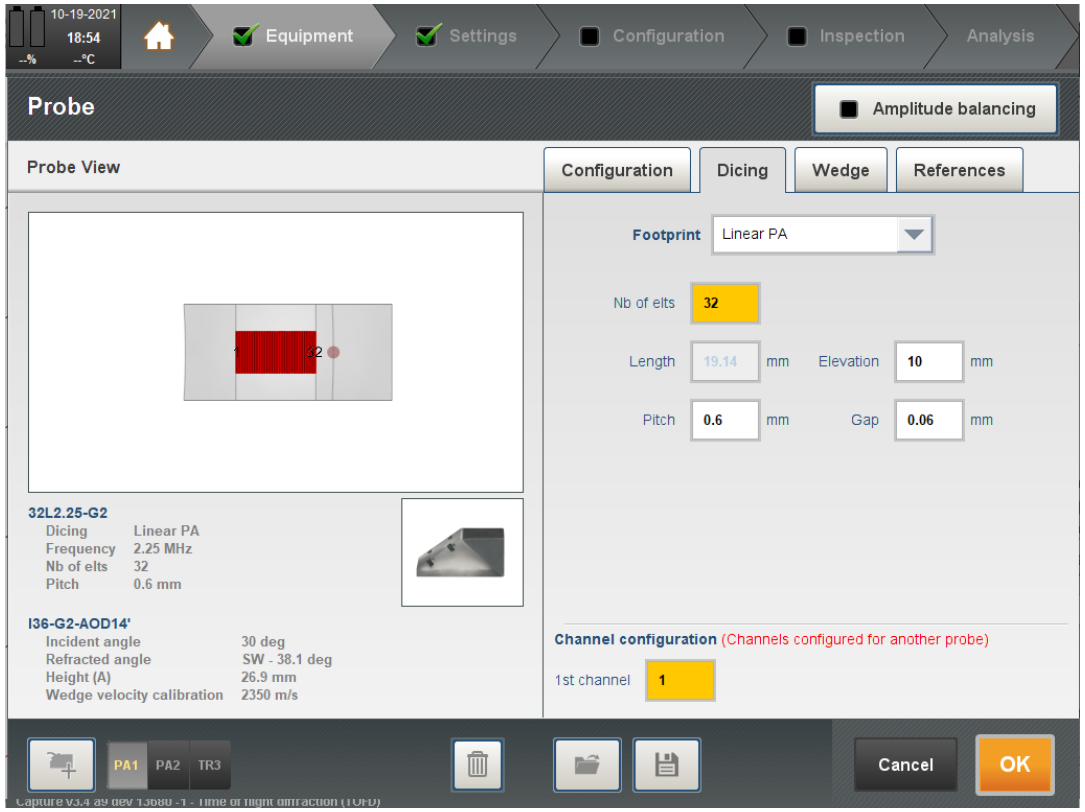
- Select **Geometry** tab of the **Probe** panel and set the connector as **Custom**
- Transmission (and reception) channels can be set among all the PA connector of the instrument, depending on the external splitter used.

When using PA probes, the custom connector mode allows to use UT & TOFD techniques.

Applicative #3

ENHANCED PROBE CONFIGURATION (2/2)

Capture 3.4 allows operators to define several probes using the same elements, giving the possibility to use both PA probes for phased array and conventional UT techniques.



How does it work

There is no more limitation that prevent using the same channels with different probes allowing to :

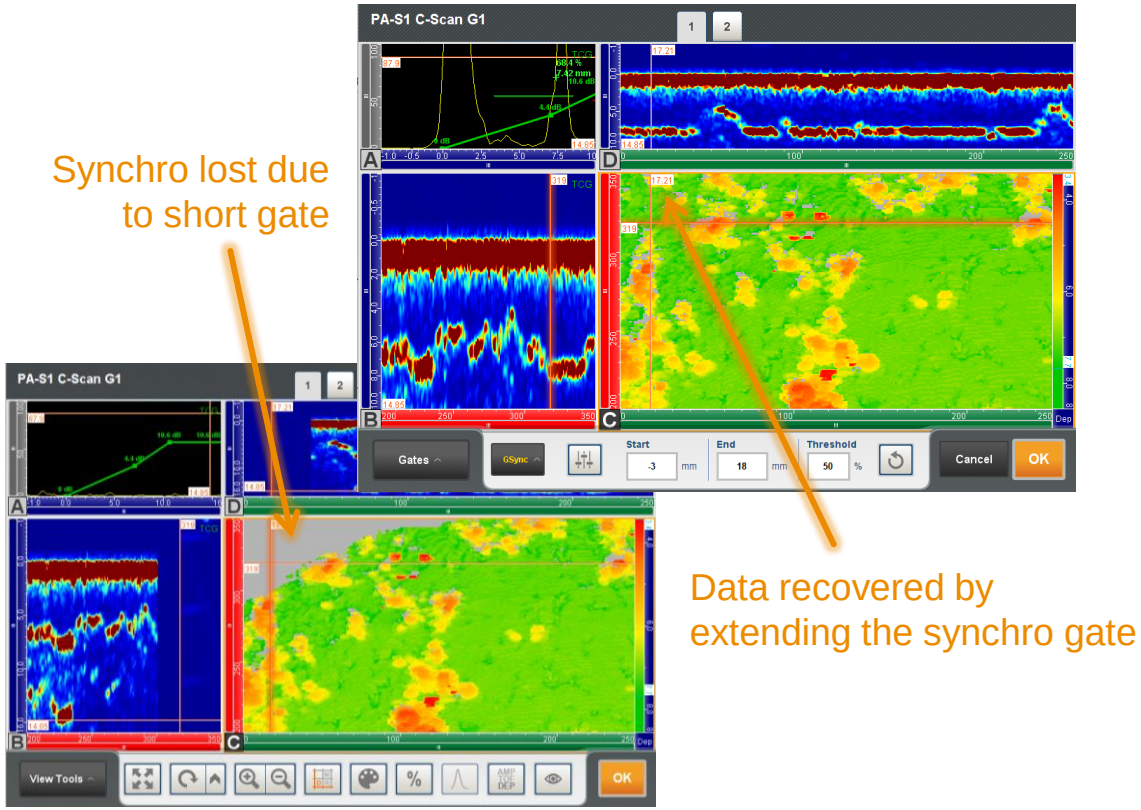
- Use both PA probes to compute P/E and P/C focal laws
- Use conventional UT to do both P/E and TOFD

When using PA probes, the custom connector combines to the flexible P/C allows to combine standard PA and UT techniques.

Applicative #4

OFFLINE SYNCHRO GATE EDITION

When performing corrosion mapping, it is possible that the front surface echo moves outside of the GSync gate or the amplitude goes below the GSync threshold. This feature allows operators to adjust the front surface gate (GSync) in analysis.



How to adjust the synchro gate in analysis

- Go to the Gate menu (see ergonomics #2)
- Select the Gsync gate and adjust its parameters
- Press OK to apply the current gate parameters

The gates synchronized to the GSync gate are all recalculated taking into account the new parameters of the GSync gate.

Both synchronization and synchronized gates can be modified offline to optimized the Cscan display.

Please note that the GSync gate doesn't appear in the A-Scan view if an A-Scan synchro was used.

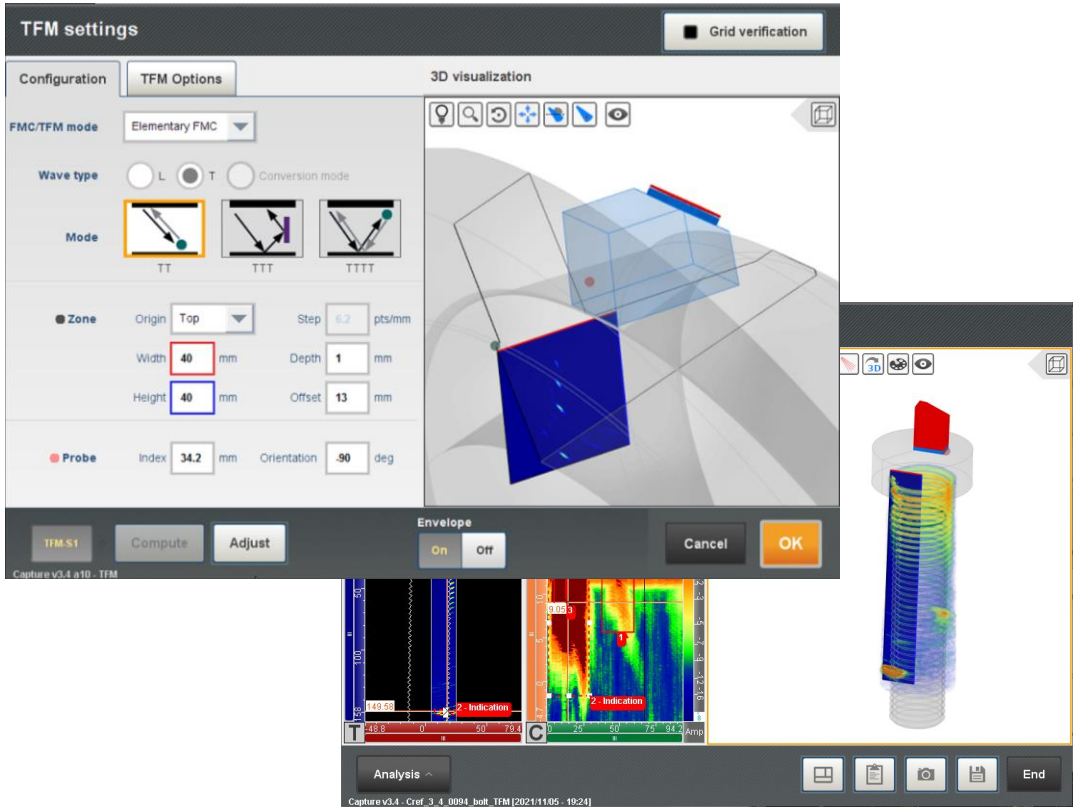
Technology

TFM computation has been optimized to increase the max. number of pixels and scan speed, while reducing the data file size. Moreover, TFM is now compatible with all geometries.

Technology #1

TFM COMPATIBLE ON ADVANCED PART (NOZZLE, FILLET, CAD IMPORT)

TFM is now available for all complex components: fillet weld, nozzle, and the true CAD files introduced in Capture 3.3 for PAUT. The tool provides real-time overlays of the complex components on the T-scans and 3D views



How to access the feature :

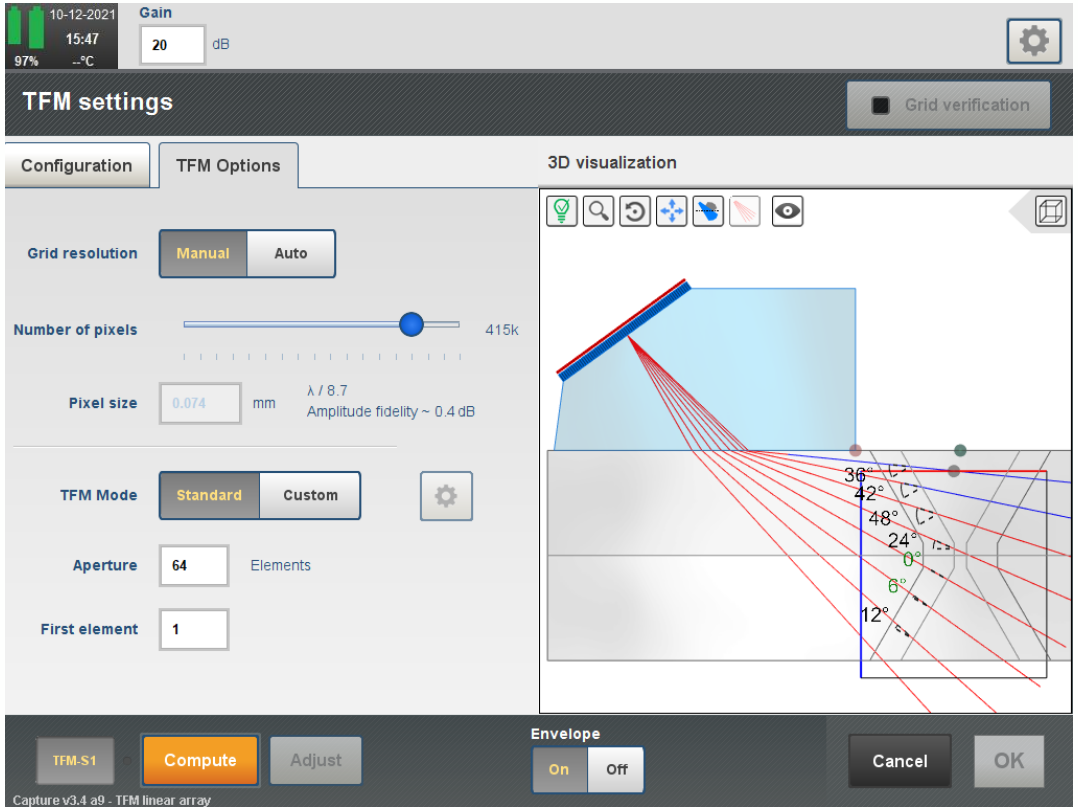
- Start any TFM inspection either from the Wizards or Inspections in the home menu
- In the specimen menu, select any complex components and proceed to the TFM settings like a normal TFM inspection procedure

Only direct modes are available with version 3.4.

Technology #2

TFM OPTIMIZATIONS

Optimizations in the TFM processing allows the size of the images to be doubled in size for both the Gekko and Mantis. Scanning speed is also slightly improved. File size for TFM inspections has been divided by two making files more manageable.



What does the new TFM process bring

	GEKKO	MANTIS
Max number of pixels	1M → 2M (4 x 500k)	360k → 900k (4 x 225k)
Max scan speed for 1 in weld insp	5.5in/s (+10%)	1.5in/s (+10%)
Max scan speed for 90kpi +	+30%	NEW
File size for a comparable set-up	-50%	-50%

The TCG is normally retained but it is advised to recheck it in Capture 3.4.

Platform

A new cloud-based licensing tool allows an increased flexibility for PC fleet management and optimized version updates.

Platform #1

FLEXIBLE CLOUD-BASED LICENSING TOOL

An improved license management simplifies the Capture fleet management. Capture is now activable just by a code that can be easily shared, released and reactivated on another PC.

How to rehost the software key

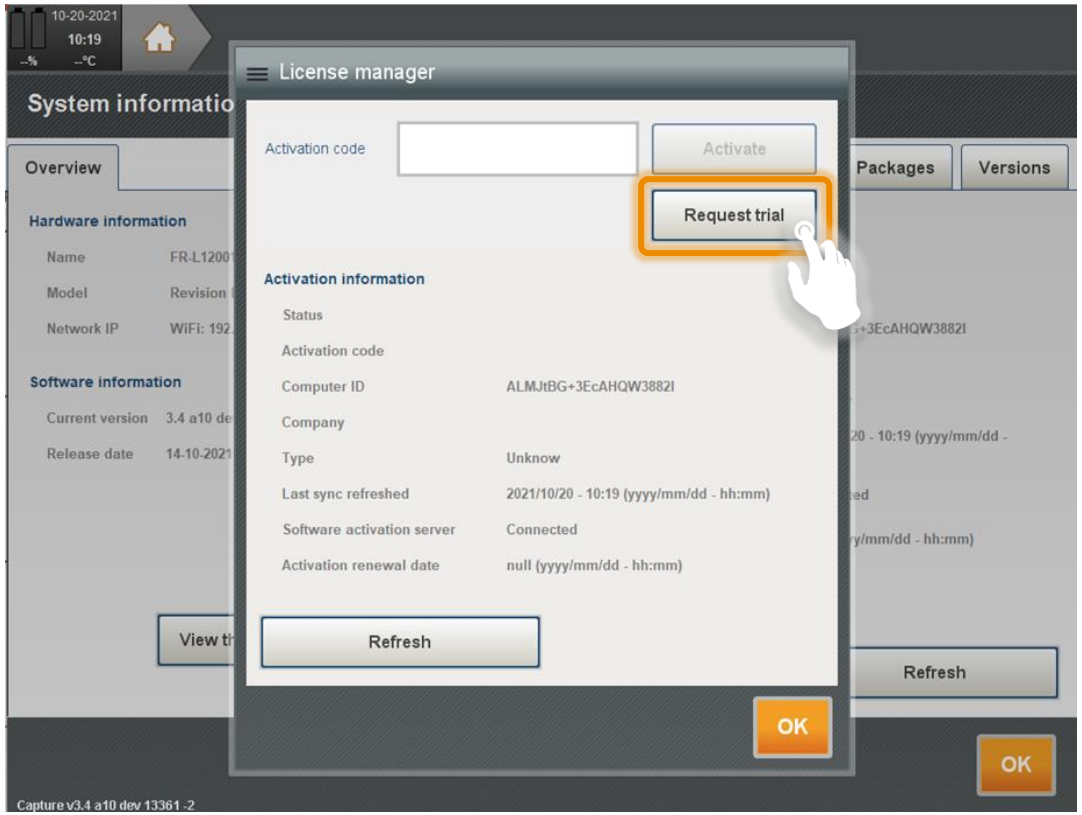
- From the first PC, access to the System information (**owl** button at the top right home panel) at the **Activation** tab. Press **Manage**, then **Release** the software key.
- Send the activation code to the owner of the second PC. Launch Capture, the Account manager popup will open. Paste the activation code and **Activate**.

An internet connection is required to release and activate/rehost a software key.

Platform #1

FLEXIBLE CLOUD-BASED LICENSING TOOL

A trial mode has been added to offer to everyone the possibility to evaluate Capture Pro. The request is automatically accepted for 15 days.



How to request a Trial

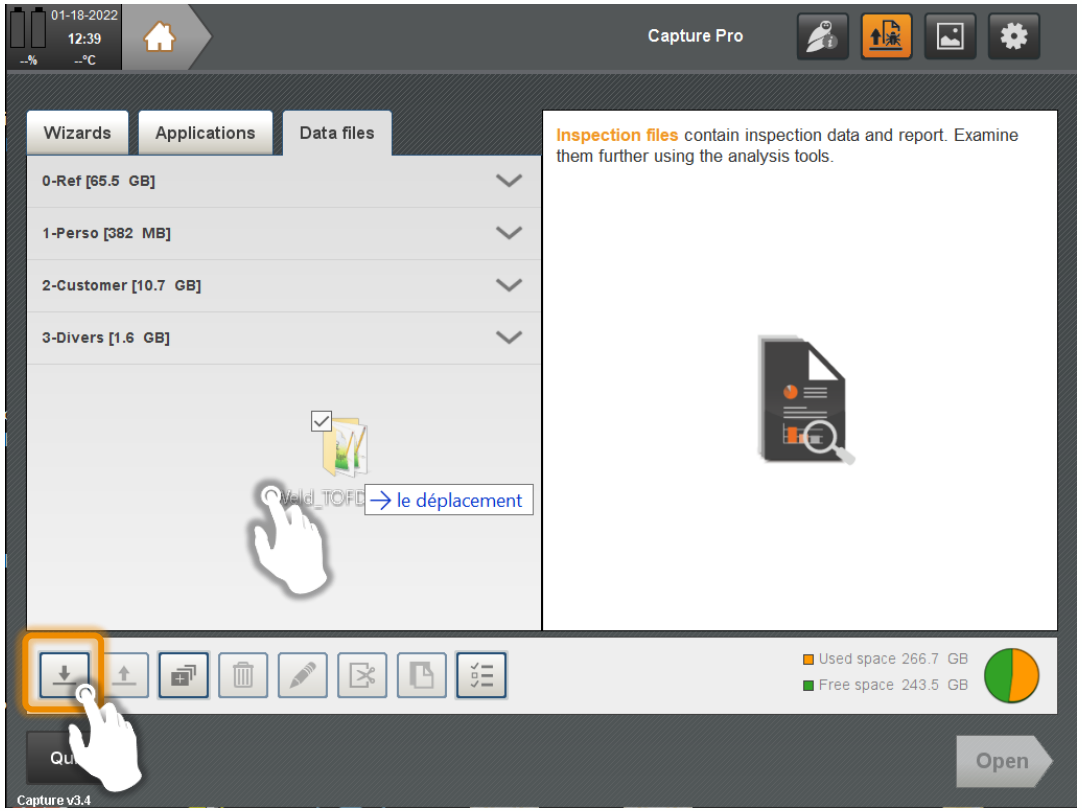
- Download & install Capture 3.4 or higher **here**
- Launch Capture
- A window popup will appear. Press **Request** trial and fill the information.
- The trial will be automatically accepted for 15 days. It offers all the Capture Pro features, from setup to advanced analysis.

Internet connexion is required to activate the trial.
Trial can be requested once by major version.
Please contact **support@eddyfi.com** for any information.

Platform #2

COMPATIBLE WITH ACQUIRE FILES FOR ANALYSIS

Capture is now compatible with most of the files produced with Acquire 1.3, the software that drives the Panther.



How to read Acquire data

- The extension of the inspection files produced with Acquire 1.3 are *.acquire_data*
- Drag&drop the acquire file into the Capture **Data files** tab of the **home panel** or import the file by browsing with the button 
- Open the file to start analysis

Some limitations remain with the more advanced inspections from Acquire.