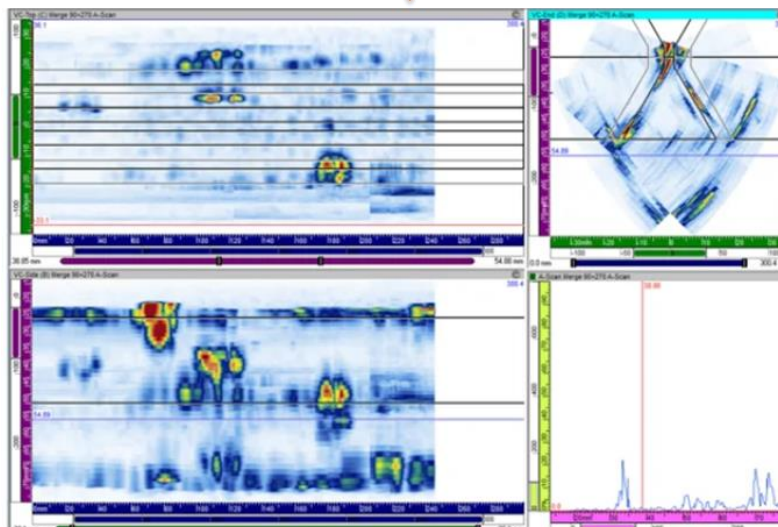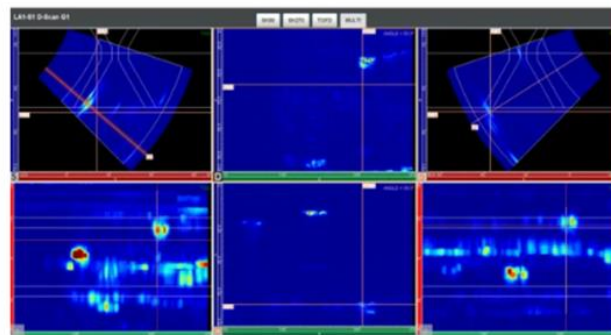UltraVision Classic

How To Guide – Release 3.12R22 & Higher

Compatibility with Capture and Acquire Files

Document Compatibility with Capture and Acquire Files Rev. A

REVISION HISTORY

Revision	Modifications	Date
A	Original	2023.12.15

GENERAL OVERVIEW

Compatibility with Capture and Acquires data files is a new feature which is available in the 3.12R22 version (and higher) of UltraVision Classic® software in the Analysis mode with Basic, Advanced, and 3D license keys. It is also available in UltraVision Analysis interface using its associated license key.

This feature allows the Capture and Acquire users will be able to open and analyze their inspection data files in UltraVision. Using this feature, the forces of Panther, Gekko, and Mantis devices can be combined with powerful analysis tools of UltraVision

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CONTENTS

1   INTRODUCTION

UltraVision® software has stood steadfast in the world of non-destructive testing (NDT) inspection software for over a quarter-century. Since its inception, UltraVision has undergone a remarkable transformation, redefining the very essence of NDT inspections. Its latest update – UltraVision 3.12R22- is no exception. Keep reading for a sneak peek into one 'ultra'-anticipated enhancement - the compatibility of Capture™ and Acquire data files.

This compatibility unleashes the complete potential of UltraVision analysis, providing a valuable resource for Gekko®, Mantis™, and Panther™ users, giving them access to an additional powerful toolset. It enhances interoperability between platforms and also empowers UT analysts with the flexibility to choose the software best suited for their specific tasks. Capture software stands as a robust and intuitive inspection and analysis package, deeply rooted in its capabilities and boasting a wealth of advanced features. However, this update allows Capture users to take advantage of the powerful data analysis and detectability with enhanced data processing found in the UltraVision software. Table 1 shows the versions of Capture and Acquire files that can loaded and analyzed in UltraVision 3.12R22.

*Table 1 Versions of Capture and Acquire files readable in UltraVision 3.12R22*

Acquisition Software	Version	Extension
Capture	Capture 3.0 et +	.capture_acq
Acquire	Acquire1.3 et 2.1	.acquire_data

Using UltraVision as the analysis software provides Capture and Acquire users with projected views with soft gates, volumetric merge of multiple channels, C-Scan processing, and ToFD calibration tools, among others.

2   ANALYZING CAPTURE AND ACQUIRE DATA FILES IN ULTRAVISION

2.1   OPEN DATA FILE

- Run UltraVision 3.12R22 (or higher)
- From the Startup window, select Analyze Data (See Figure 1)
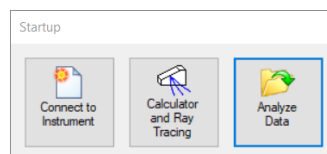
Figure 1 Selecting Analyze Data from Startup window

- Use the Open Data File window to navigate to the directory where the data files are located
- Select the capture_acq or acquire_data file of interest from the list and press the Open button. (see Figure 2)
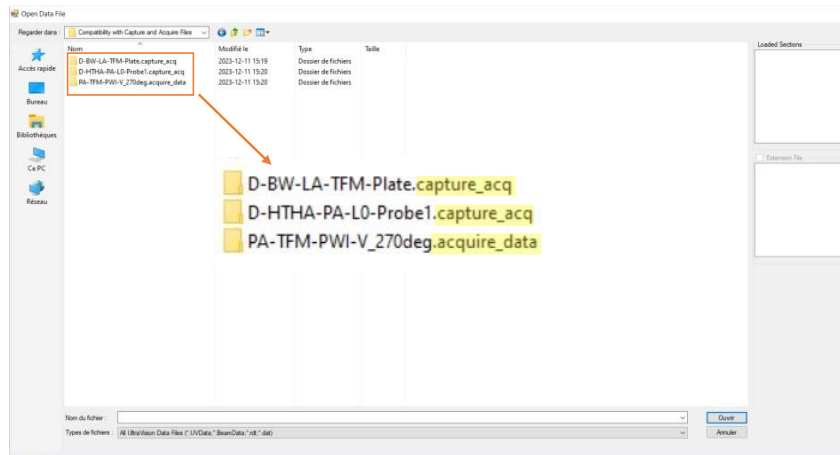
Figure 2 Selecting Capture or Acquire data files to open in UltraVision

- If the user is already in the analysis mode in UltraVision, they can open a Capture/Acquire data file using:
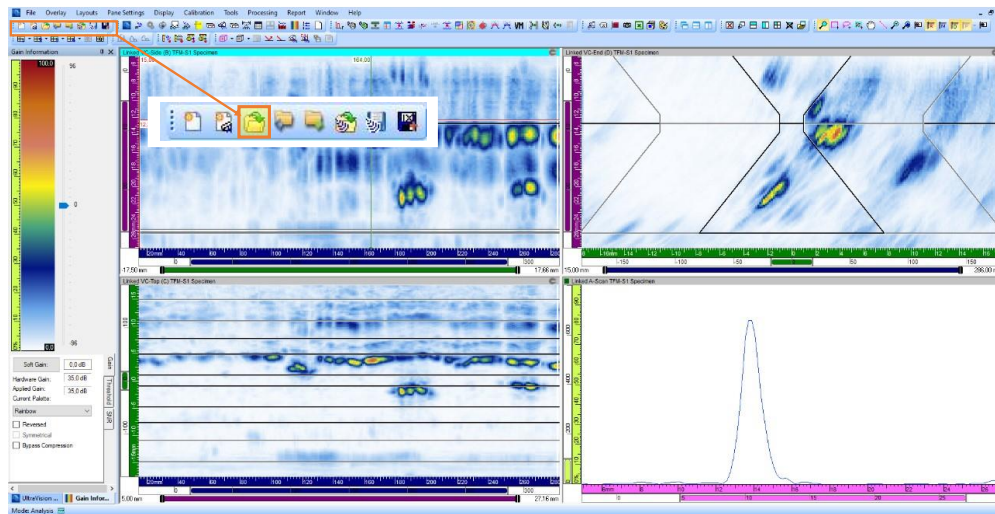 - the Open Data button in the toolbar (Figure 3)

Figure 3 Open Capture/Acquire data file using "Open a data file" button
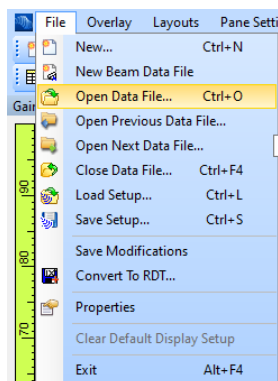
  - Open Data File… in the File menu (Figure 4)

Figure 4 Open Capture/Acquire data file using "Open Data File…" option in the File menu

2.2   DISPLAY AND LAYOUTS FOR ANALYSIS

- When Capture/Acquire data files are loaded in UltraVision, display settings, including the views, palettes, axis rotation and direction as well as the views' layout, should be either configured or loaded (.UVDisplay file) by the user.
    - o To configure the layout of views, use the Pane Settings toolbar/menu (Figure 5)
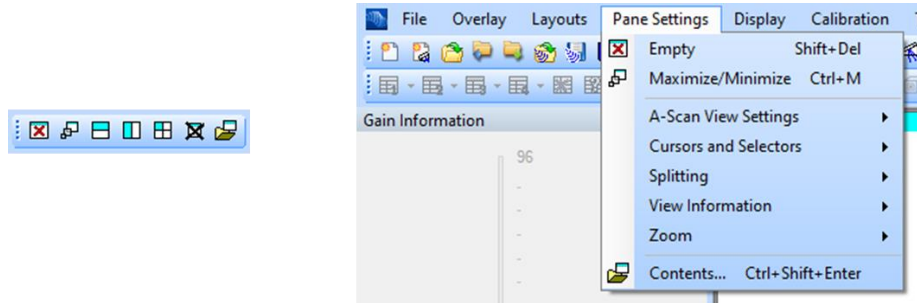

Figure 5 Configuring views and layouts using Pane Settings

- o To load display settings which has already been configured and saved, use the Load Setup option from the File menu or the File toolbar and select the UVDisplay file of interest (see Figure 6).
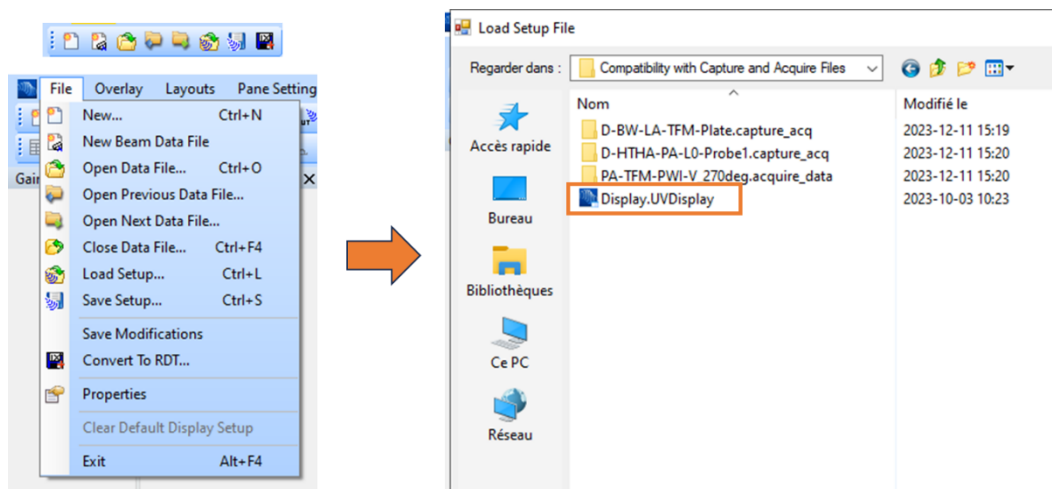

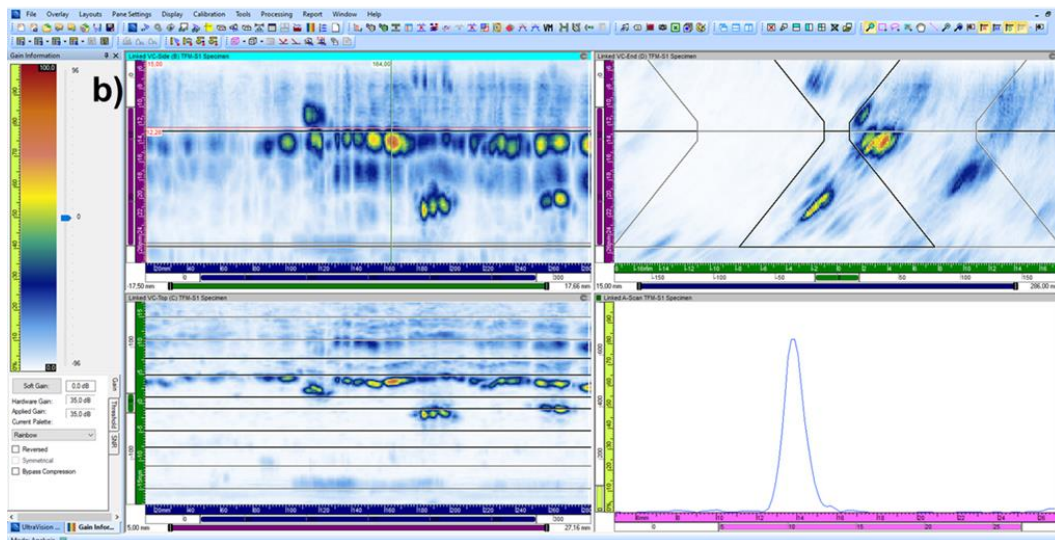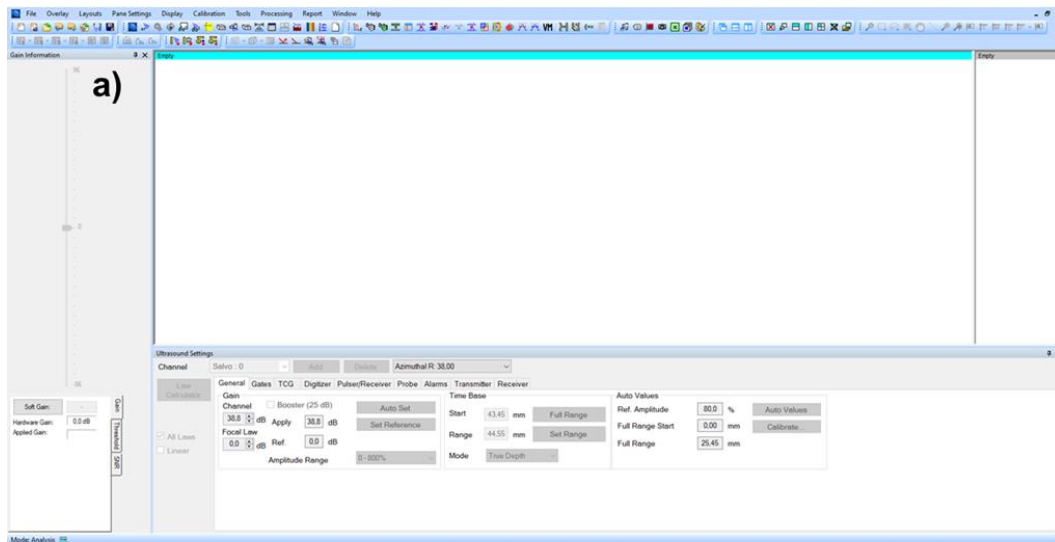Figure 6 Loading views and UVDisplay file

Figure 7 Capture/Acquire file opened in UltraVision: a) as loaded, and b) after loading .UVDisplay

2.3 USING ULTRAVISION'S ANALYSIS TOOLS TO ANALYZE CAPTURE/ACQUIRE FILES

- Once the Capture/Acquire file is loaded in UltraVision and the views and layouts are set, the user can use UltraVision's analysis tools including but not limited to:
  - Projected Views and dynamic soft gates

    In UltraVision you can use 'Projected Views' which, by using dynamic soft gates, enables users to isolate the volume of data in the component in three dimensions, for display in the corresponding views. This is a very powerful tool to isolate indications in the display and quickly identify the extremities for sizing, across all scan, index and ultrasound positions, without the need to assess individual slices.

  - Volumetric Merge (see Figure 8)

In scenarios involving sectorial inspection of a weld from two sides or complex tasks like raster scanning with multiple offsets, it's crucial to comprehensively assess data by cross-referencing indications from multiple channels and views. This is where the Volumetric Merge function proves invaluable, enabling operators to amalgamate multiple UT beams and channels into a single data volume, presented in a new channel for streamlined analysis. This is achieved through the software's meticulous analysis of every point within the inspection volume, along with the evaluation of all interacting channels and beams, resulting in the creation of a new data channel based on the maximum amplitude at each point.

- o Indication Table: Indications should be created in UltraVision
- o Assisted and Rule-Based Automated Analysis
- o C-Scan processing tools
- o Data Alignment
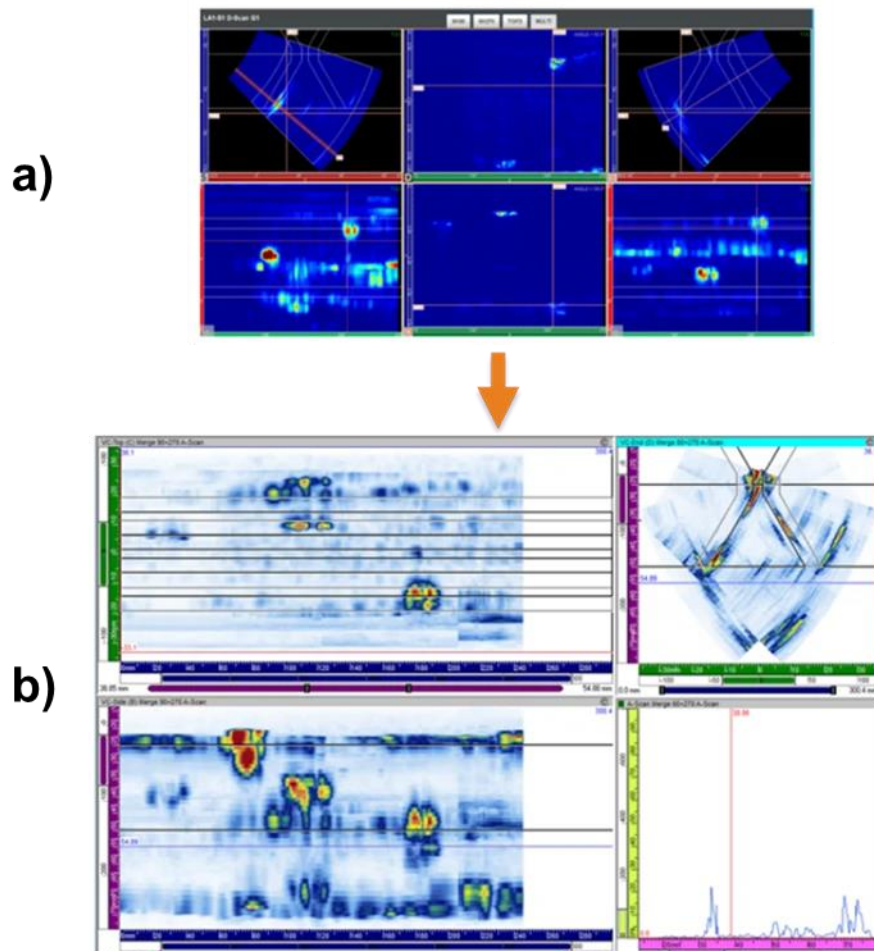- o Frequency Filter Tool
- o Etc.

Figure 8 Capture data file of a weld inspection: (a) opened in Capture, and (b) opened in UltraVision with channels of two sides merged into one channel (Volumetric Merge)

- Once the analysis is complete, any modifications due to analysis processing is stored in a companion file (.UVExtension), leaving the original raw data unaltered. Thus, if deemed necessary, the previous analysis results are immediately available upon reopening the Capture/Acquire data file.

3   LICENSING

Capture and Acquire data files can be opened in:

- UltraVision Classic interface only in the analysis mode with Basic, Advanced, and 3D license keys.
- UltraVision Analysis interface with the UltraVision Analysis licence key.USER TIPS AND RECOMMENDATIONS

4   LIMITATIONS AND REMAINING ANOMALIES

When loading a Capture/Acquire data file in UltraVision:

- The parameters of Advanced Calculator are not imported. Therefore, a user loading a Capture/Acquire data file in UltraVision **should not** use the Advanced Calculator parameters as reference since they remain on the default values. However, the essential parameters required for analysis are available in other menus such as Ultrasound Settings.

- UltraVision does not fully support variable aperture size in a single linear sweep while Capture supports such a configuration. If UltraVision users load Capture files with variable aperture size configurations, applying volumetric merge including all the focal laws of such a channel will lead to erroneous results in terms of indication's position and shape in the direction of the probe axis.

- Nozzle specimens are Imported as close as possible. Filet Weld and CAD specimens are not Imported. Nozzle overlays and DXF overlays are not Imported.

- The location of specimen will switch to the default location specimen in UltraVision for the imported specimen type.

- Inspections which are encoded in 3 axes are not supported.

- For Capture/Acquire data file acquired using a 2-axis mechanical sequence (e.g., Bidirectional), the mechanical index resolution used during the acquisition is replaced by the acquisition index resolution in the Mechanical Settings menu and reports. This does not cause any issue to the data.

- Open Previous/Next File button not supported with Acquire/Capture data files.

- In very specific situations, the USound position of indications may show a difference of a couple of samples between Capture and UltraVision

- It is recommended to display the regular views of the original channels (not the merged channels) so that the indications are displayed identical to the Capture software.

- Importing calibrations from Capture in UltraVision is not supported.

- DGS calibration not imported/converted.

- A-scan linearization of Capture not applied in UltraVision.

- The TCG values are Imported with some limitations.

- The Amplitude Range is automatically set to 0-800%. Therefore, for a Capture file loaded in UltraVision, the maximum value for the recorded amplitude will be 800% (not 100%). The user can either expand the amplitude range of the A-Scan to visualize 0-800% range or decrease the soft gain by 18 dB to see the amplitude values in the range of 0-100%.