correlated
SOLUTIONS

# Application Note

## Real-Time Analysis in VIC-3D

2023

# Real-Time Analysis in VIC-3D

## Introduction

The VIC-3D Real-Time processing module allows full-field test data to be displayed live while a test is in operation. This module provides users with the information needed to make critical adjustments during a test, which has tremendous cost-saving potential. Data can be displayed at a rate of up to 10 Hz with 10,000 points per time step with an optimal setup.

Utilizing VIC-Snap and VIC-3D simultaneously, the VIC-3D Real-Time module is a great way to view displacements and strains during mechanical testing as it happens. This guide lays out the steps required to setup and run a correlation using the Real-Time server and analysis capabilities.

## Real-Time Analysis

To begin Real-Time mode, first start VIC-Snap and navigate to the “Real-Time” on the file bar, as illustrated in Figure 1. From the Real-Time menu, select “Start Real-Time System”. This will automatically start VIC-3D and initiate the connection between VIC-Snap and VIC-3D.

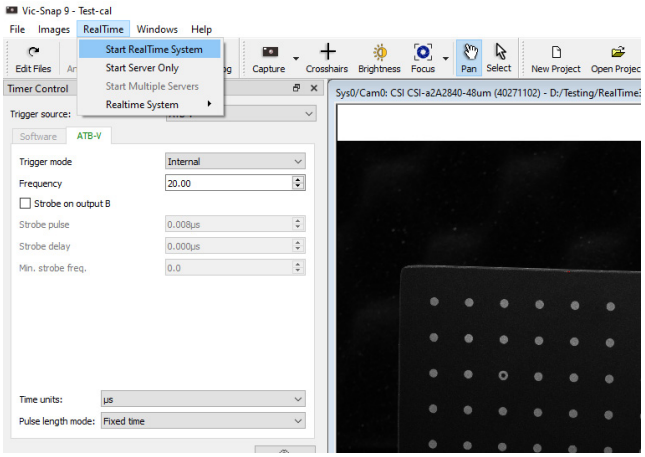


Figure 1: Real-Time drop-down menu

**NOTE:** If you are streaming Real-Time to a remote PC, you will need to use the “Start Server Only” or “Start Multiple Servers” options in the Real-Time drop-down menu. Running the Real-Time 3D Analysis option in VIC-3D will prompt you to select the IP address of the acquisition PC, as illustrated in Figure 2.

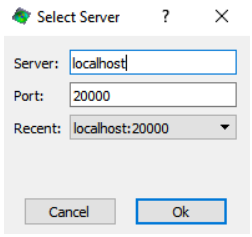


Figure 2: Real-Time server prompt

VIC-3D will attempt to connect to the image server; when the connection is established, a live view will appear in the VIC-3D workspace. The real-time tools will also be displayed, as illustrated in Figure 3.

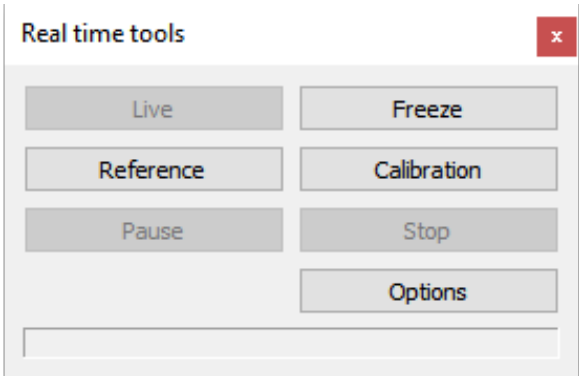


Figure 3: Real-Time analysis tools

## Calibration for Real-Time Analysis

Calibration must be performed outside of Real-Time mode. There are two possible routes:

- Calibrate before starting the Real-Time server in VIC-Snap: If a calibration is present in VIC-Snap when you start real-time mode, it will be transferred to VIC-3D, and will appear in the Calibration tab. Or, click *Calibration* in the tool set to transfer at a later point.
- Calibrate in VIC-3D with a Project File: Before beginning the test, complete a standard calibration in VIC-3D, and save a project file. After entering real-time mode, select *Calibration… Import calibration*, and select the previously saved project.

## Selecting a Reference Image

To select a reference, click *Reference* in the Real-Time tool set. The currently displayed live image will be copied and used as reference. You may draw AOI's on this image exactly as in the standard VIC-3D mode.

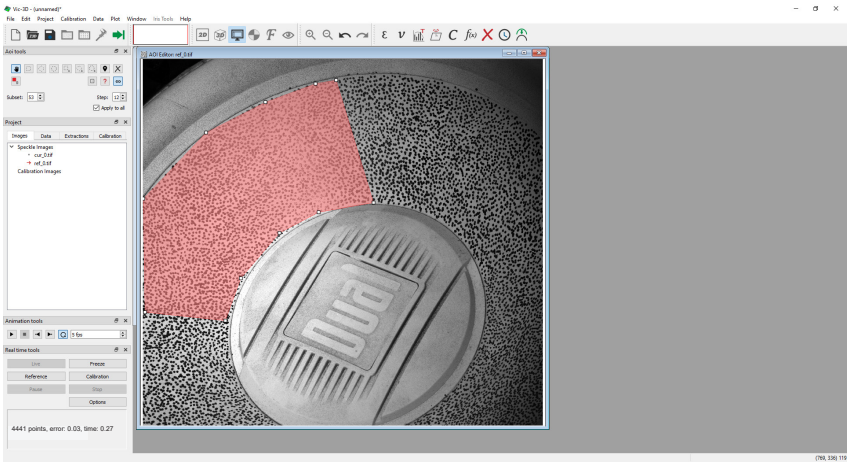

Figure 4: AOI drawn on reference image in Real-Time

## Running the Analysis

To begin the Real-Time analysis, click the green Start Analysis button in the toolbar, or select *Data… Start analysis*. Incoming images will be analyzed and transferred in sequence as fast as the processor and transfer speed allow.

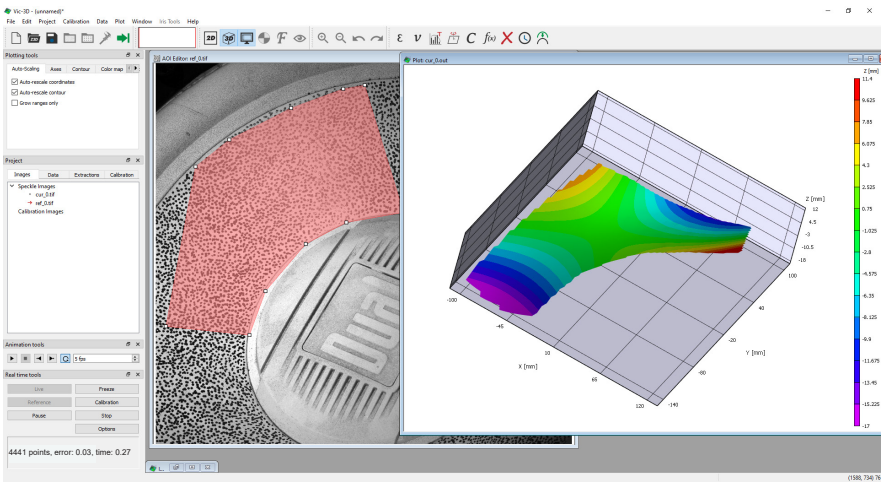

Figure 5: Real-Time running in VIC-3D

## Analysis Options

Correlation options may be adjusted before or during the analysis. If the analysis is already in process, the changes will not take place until you restart the correlation.

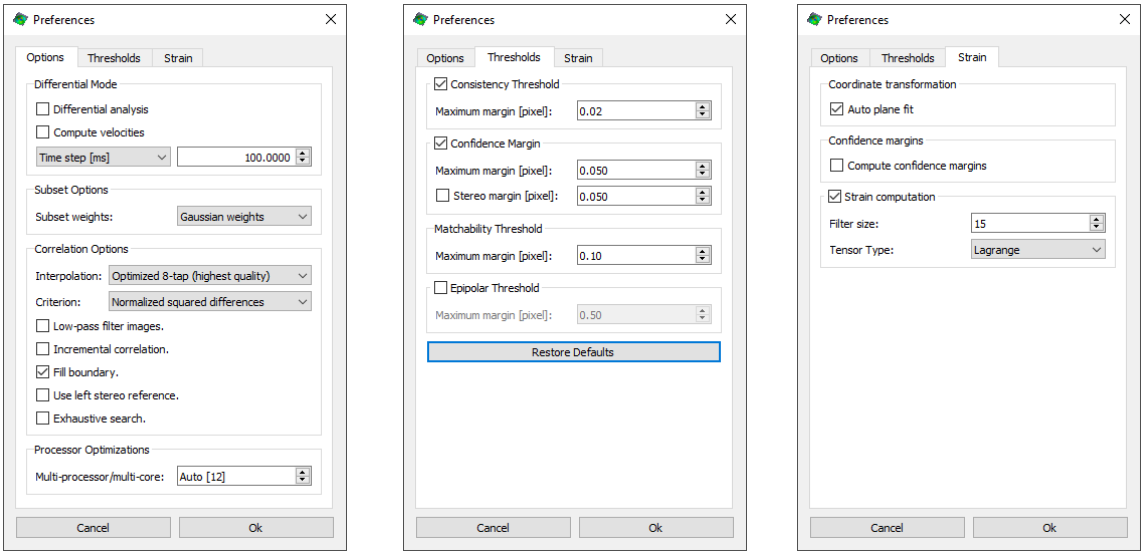


Figure 6: Analysis option windows

## Pausing the Analysis

In order to make changes to coordinates and contour levels, it may be helpful to pause the analysis by clicking *Pause*. The button text will change to *Resume*; click to resume.

## Notes

- The data analyzed in Real-Time mode is displayed but not saved. To allow later processing and storage of data, be sure to store the images in VIC-Snap as usual (timed capture, manual capture, etc.)
- To obtain the best frame rates in Real-Time mode, select a large step size; this will result in fewer points being analyzed and more total updates per second.
- Select a desktop PC with 2, 4, or 8 cores for maximum analysis speeds. With a fast PC and a larger step size, frame rates of 5-10 per second can be realized.
- Real-Time mode is available with an optional module. For more information about how to purchase this module, please contact sales@correlatedsolutions.com.

## Support

If you have any questions about this document or any other questions, comments, or concerns about our software, please contact us at support@correlatedsolutions.com, or visit our website at correlatedsolutions.com/support.