![Akrometrix logo]

Studio Software Update 8.6 – Release Notes

Previous Studio Release: 8.5.x
Supported Equipment PC: Z170, Z370
Recommended PLC Version: 0086
Offline Studio Operating System: Windows 7; extensive testing specifically performed on Win 10 64 bit

Summary:

All included Studio applications have been validated for compatibility with previously created Akrometrix Studio file formats. Files created prior to Studio 8.0 will not be readily usable with the Automated Report Generator feature. Important bug fixes and added features are listed below. This list does not include all resolved bugs and added features. Known issues are presented with workarounds where applicable.

Update Procedure:

PLC Update

Studio 8.6 requires an update to the PLC on any AXP 2.0 systems. Owners of any other Akrometrix models may skip this step. The PLC update includes updates to temperature control and response detailed further in the release note, under Thermal Profiler. Further instructions for downloading PLC code and updating AXP 2.0 systems will be provided separately.

Install Studio 8.6

THIS INSTALLATION HAS EXTRA STEPS TO ENSURE A CLEAN UPDATE. Download and Unzip the Studio 8.6 Installer zip file onto the system PC. Unplug the Studio USB dongle. Manually uninstall all Akrometrix Studio applications via Windows "Add or Remove Programs", then restart the computer. Install all applications for Studio 8.6 by launching the provided file "Akrometrix Studio 8.6 Installer x86[or x64].exe", then plug the Studio USB dongle back in. Take note to only install the x86 version for 32-bit systems and x64 for 64-bit systems. A full system power cycle is recommended after completing both PLC and software updates.

Key Feature Changes or Additions:

Studio 8.6 is releasing without fully updated User Manuals for this version, to be provided at a later date.

Automated Report Generator (ARG) – Room Temperature Data

Functionality has been added to ARG to support large quantities of room temperature data. A room temperature mode option is now available in the groups tab. This disables certain group parameters and changes options in the layout settings tab.

Advanced Processing Mode

New "Advanced" tabs have been added to Surface Measurement recipe editing and Surface Analysis batch processing. Previous functionality remains as the default option, now in the "Simple" tab. In the Advanced tab all data processing functions can be reordered and called multiple times.
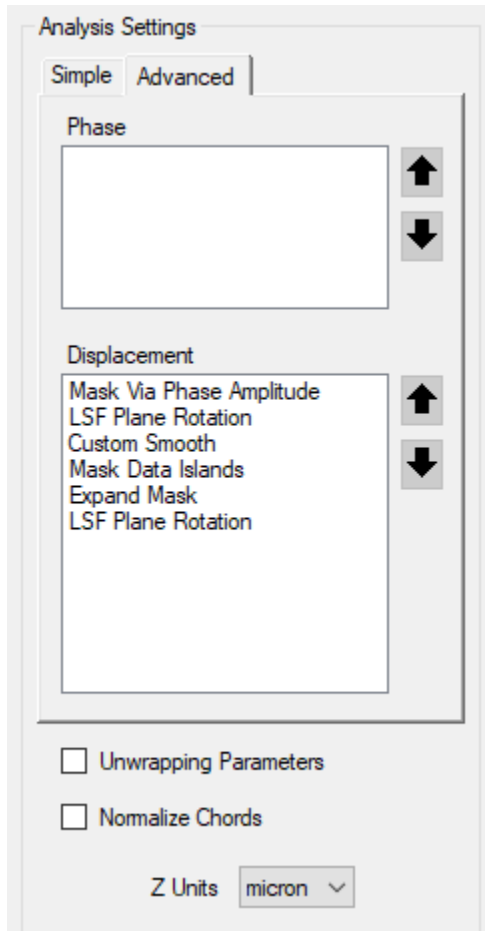
DFP2-LS Product Line

Software changes have been integrated for support of a new product line the DFP2-LS. Further DFP improvements in these release notes would also apply to this new product. See further product release details from Akrometrix on the DFP2-LS product.

X/Y Calibration Routine:

A new calibration approach is now offered for DFP2 and DFP2-LS to calibrate the lateral space of the DFP camera, determining physical size of the camera and factoring for lens distortion. Any pixels removed from the usable field of view in this calibration will be shown in purple around the perimeter of the live camera view. This calibration routine requires a checkerboard target, supplied with DFP2 and DFP2-LS purchases.

TTSM-J Product Line

Support added for E-Stop & Load/Acquire/Unload hardware button.

Interface Analysis (IA) Preview in Surface Analysis

Functionality has been added to display two surfaces utilizing the Interface Analysis software in a 1-off fashion within Surface Analysis. This does not require any added license and represents only a portion of the functionality available within the full Interface Analysis software. The below image will look familiar to Interface Analysis users but was taken from Surface Analysis 8.6.
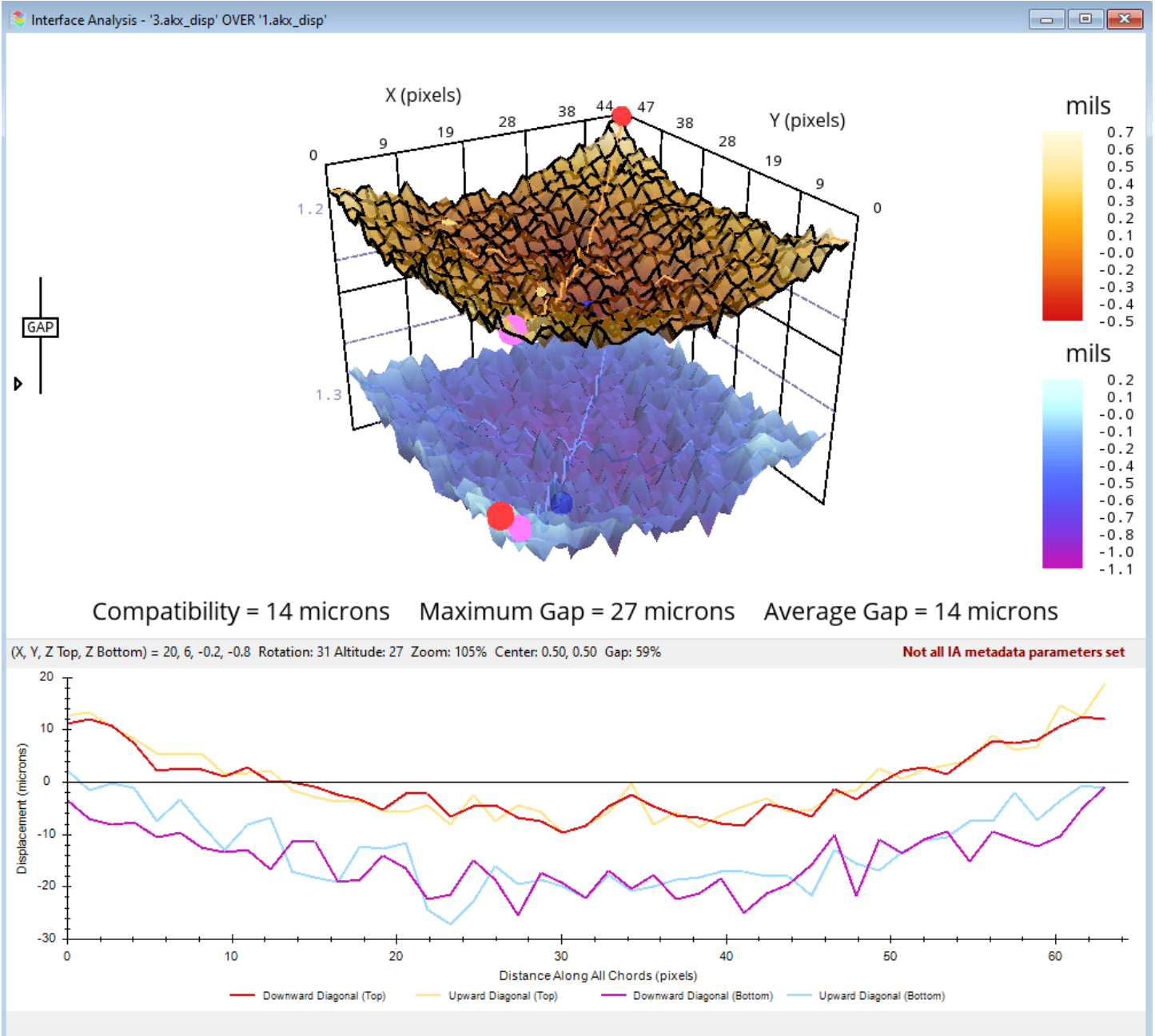
File Finder

A new window has been added to Surface Analysis to allow the user to search for Akrometrix files on the PC. This functionality uses many of the same functions as the Automated Report Generator tool.
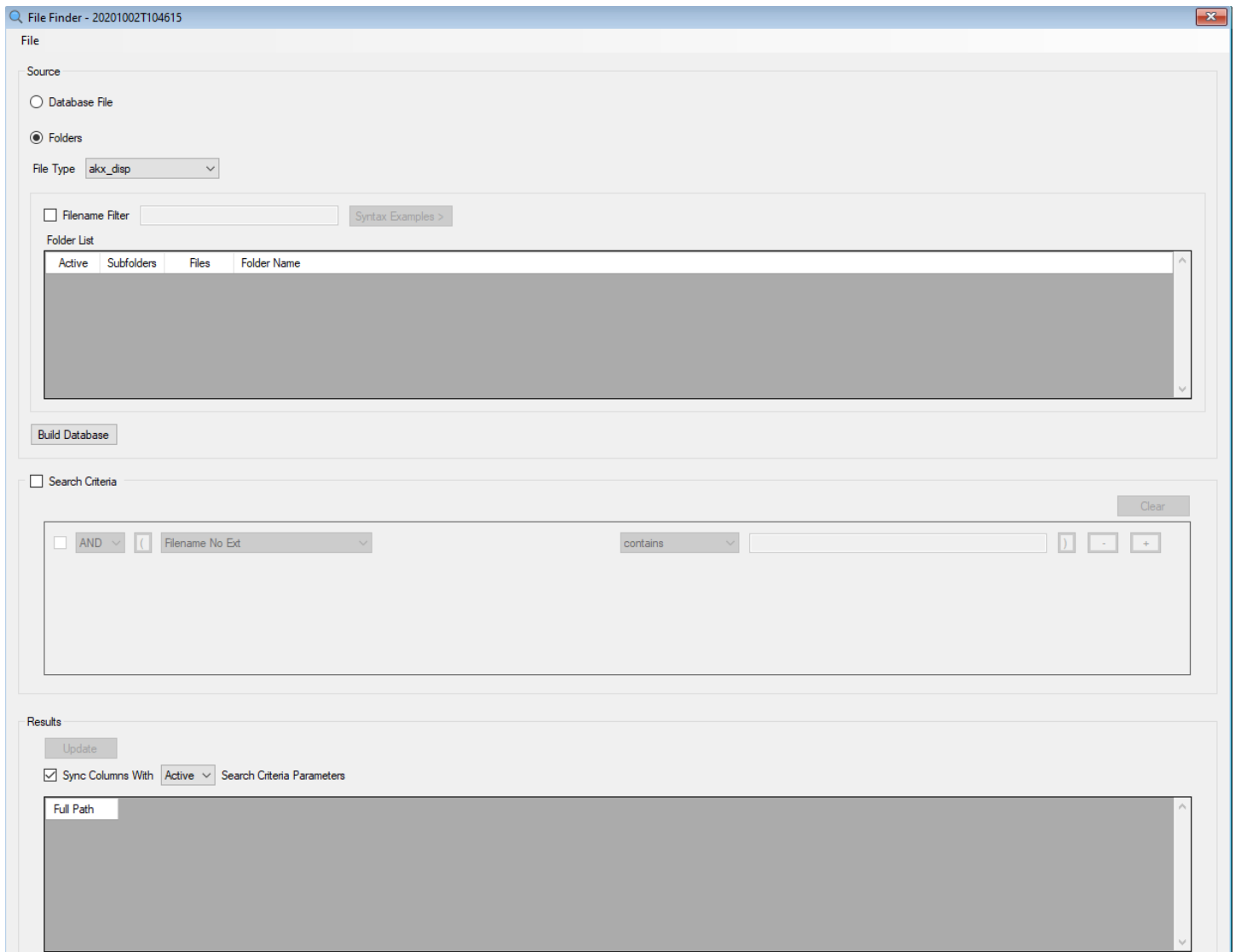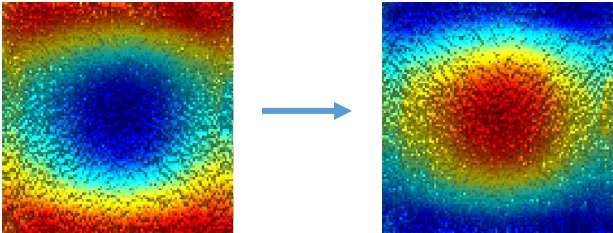
Studio 8.6 Features:

- Decreased rendering time for large 3D plots in Surface Measurement, Thermal Profiler, and Surface Analysis

- User provided images can now be added to Akrometrix output results across the Studio platform. This function can be used to communicate sample setup details or add a company logo. Location and size is user defined. The example below adds the Akrometrix logo in the top left and also highlights a new min/max location gauge (defined later) and Pin1 location.

Coplanarity = 37.2 microns
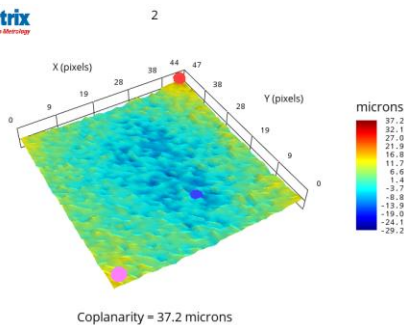
- Regions of Interest, Partitions, and Masks that exist fully inside another region are now given selection priority, so they can be moved in the software interface
- Loading temperature profiles into Profiler Generator or Thermal Profiler with setpoints outside of -75C and 325C is no longer permitted.
- New gauges:
    - *Chord Radius of Curvature* **(ChordROC):** Calculate radius of curvature for any 2D chord line, including custom chords or pre-defined chords, such as diagonals
    - *Percent Valid Points* **(PVP):** Displays a percentage of points in a data set that are not masked. Can be used to confirm data quality when using features such as Phase Amplitude Threshold or Z-Range Mask
    - **Min/MaxLocation**: Provides X/Y coordinates for the highest and lowest Z data point in a surface
- New Metadata:
    - *Total Acquisition Time:* Shows the total time taken to acquire all pictures for a specific measurement
    - *Interface Location:* Can be set to top or bottom for use in upcoming Interface Analysis 2.0 planned for Studio 9.0.
- *Profile Generator:*
    - Restrictions on profile length have been removed, allowing for 24-hour profiles to be saved
- *Surface Measurement:*
    - Error message has been updated to specify when Surface Measurement cannot detect associated camera on startup
    - Exposure % now has an added decimal place allowing for more incremental adjustments at low exposure values
    - Dual Exposure feature has been improved to make better pixel choices with DFP products
    - XY Orientation has been renamed to Orientation
    - Slightly retooled Part Tracking settings to be more clear
    - DFP products will now go into standby mode after 15 minutes, turning the projector off. This can also be done by the user via camera window context menu.
    - A check for correct Pylon drivers is added to Surface Measurement startup, with details provided to the user if driver issues are present
- *Thermal Profiler:*
    - A new PID power mode has been added where inner and outer oven power percentages are scaled instead of capped. The legacy mode is still available where inner and outer heater power percentages act as limits only, as with Studio 8.5.
    - "Loading" is now shown during a profile load, to avoid confusion when loading longer profiles
    - Thermal profiles can now be loaded using drag and drop
- *Surface Analysis*
    - New Invert option can be applied to data sets to invert all out-of-plane data

    - Further information on size differences is shown when subtracting one surface from another
    - Compensation parameters can now be copied from Surface Analysis SOFC data

- New Min/Max Location gauges can be overlaid as blue and red dots on 3D Surface images to indicate max and min locations visually
- SOFC (Second Order Fit Coefficients) now also show an R^2 value indicating "goodness" of fit
- A "Burn All" option has been added to the annotation mask context menu
- Second Differences Unwrapping can now be set as the default phase image unwrapping approach via Tools->Options
- File and File Location can now be opened through the MetadataUpdater tool, via context menu
- **Batch Processing**
  - Batch masking can now be used to perform a plane rotation only
  - Batch masking now shows %Mask for all file types
  - A Phase Amplitude option has been added to batch masking
  - Source folders can now be added via drag and drop into Files section
- **Automated Report Generator (ARG)**
  - Gauges that weren't selected during Batch Processing can now be added during the reporting process
  - A new group parameter has been added allowing files to be grouped by how they are organized in folders on the PC
  - Edit Metadata table is now organized by TimeStamp, oldest to newest
  - Folders with *.akx_disp files can now be added via drag and drop into Files section
  - Retooled Group by Metadata function to be more user-friendly

Key Bug Fixes:

- Resolved issue in temperature control where thermal response was at times incorrect and undershooting in profiles with soaks
- *Surface Measurement:*
  - Image File Autosave now works as intended with DIC and DFP Surface Measurement
  - Operator ID Metadata now correctly populates into Real Time Analysis reports
  - Calibration modes can no longer be entered with Part Tracking active, avoiding acquisition errors
  - User Defined Gauge Names can now be changed after loading an input thermal profile
  - XY Units in Compensation Parameters are now consistently remembered
  - DFP Surface Measurement can now correctly be run with the user logged in as Operator, and message boxes communicate blocked calibration features
  - Resolved issues with Importing Part Tracking Name Lists
  - Part Tracking Retained Target Images now show correctly without fringe lines in DFP Surface Measurement
- *Thermal Profiler:*
  - Cursor is now correctly inside text box when editing error band during a profile
  - Canceling an input temperature profile replacement now correctly cancels the operation
  - Delete keys now work across all Profile Setup text fields
- *Surface Analysis:*
  - Legacy DFP data can now be opened in Surface Analysis
  - A custom Batch Results Filename Template (found in Batch Processing->Edit) can now be correctly set and no long appears greyed out
  - Partition Name is now focused when opening the Edit Partition window

- o Batch Analyze can no longer overwrite Pin1 and Measured Side metadata
- o Context menu on phase images no longer randomly disappears when navigating context menu options
- o Loading an Image Mask now correctly replaces existing mask annotations
- o Improved sorting of numerical gauges in batch analysis
- o **Automated Report Generator**
    - The context menu option Clear (AllRows) in the Layout Settings tab now consistently works as intended
    - Group naming and tooltips have been updated for clarity

Known Issues

None identified

Versions (listed for reference):

Studio Manager	8.4.16103
SurfaceMeasurement	8.6.16103
SurfaceAnalysis	8.6. 16103
ProfileGenerator	7.8.16103
Report Generator	7.4.8202
FileConverter	7.5.16103
LicenseUtility	7.5.16103
User Manuals Studio	Studio 8.5