



Atom Probe Suite 6.3

Release Notes

January 2023

Welcome to Atom Probe Suite 6.3

Atom Probe Suite includes the **ACC** instrument control software application and the **AP Suite** lab management and data analysis and visualization software application, and this release of Atom Probe Suite announces the addition of a third software application to the Suite, the **stand-alone IVAS**. Stand-alone IVAS includes all data analysis and visualization capabilities of the IVAS module of AP Suite, but provides significantly simpler installation of the software to enable new users to get started with their analysis of atom probe experiments faster.

Additional information about key upgrades in ACC, AP Suite, and the new stand-alone IVAS application for the 6.3 release of Atom Probe Suite are summarized below. Detailed information about new features and updates are included in the user documentation that is included with the software applications. To learn more about how these features can be applied in your laboratory or production facility to enhance the atom probe data quality and sample throughput, contact your CAMECA Sales representative.

Stand-Alone IVAS 6

IVAS 6 is an independent software application that includes the functionality for creating and saving Reconstructions and for the visualization and analysis of reconstructed data that is the same functionality included in the IVAS module of the full AP Suite software application.

The primary difference between IVAS 6 and the IVAS module of AP Suite is that IVAS 6 does not require installation and maintenance of a master AP Database, as is the case for the full AP Suite application. As a result, installation and initial configuration of IVAS 6 is significantly simpler than that of AP Suite. For more information see *Chapter 3: Getting Started With AP Suite* in the *AP Suite and IVAS 6 License and Installation Guide*.

AP Suite 6.3

Supported OS Environments

- ❖ AP Suite – Data Analysis and IVAS 6 are supported in Windows 10 and Windows 11. Note that ACC and AP Suite – Acquisition & Analysis are only supported in Windows 10.

AP Suite Admin Tool and AP Database

- ❖ Database migrations are now disabled when the Windows Authentication option is used to login to a database.
- ❖ Admin Tool now supports any characters for database Name and Name length up to 124 characters long.
- ❖ Administrator-level users that run the AP Suite Admin Tool can now reset AP Suite user passwords.
- ❖ Local Config DB now employs SQLite instead of SQL Server, which simplifies the Login dialog configuration, as described below in the “*AP Suite Login*” section of this document.

AP Suite Login

- ❖ An option has been added to make the characters in the password visible.
- ❖ Config DB Folder and Login/Password have been removed from AP Suite Login dialog due to the change from SQL Server to SQLite.

❖ **Bug Fixes:**

- Fixed Auto Login bypass so that Auto-Login bypass persists until the user successfully logs in.

Configuration Window

- ❖ New “Extension Ecosystem” feature has been added for managing the adding, updating, and removing of custom analyses (also called “extensions”) to the IVAS module of AP Suite. The Extension Ecosystem feature is located in the Configuration window of AP Suite; for complete information about this new feature, see Chapter 2 Configuration in the AP Suite User Guide.
- ❖ User Management panel now includes the ability to specify default options to be applied to new users that are added.
- ❖ User Management configuration changes:
 - Users added to the Administrators group now permanently have all permissions (permissions cannot be removed from users added to the Administrators group).
 - All Operators groups will have all Categories and Projects permissions selected/enabled upon new installation of AP Suite; these permissions can be subsequently edited.
- ❖ Updates to User Management list view:
 - Now includes Active and Inactive Users.
 - Remove/Restore buttons added to set Inactive/Active status for Users.
 - Usernames can now include comma, hyphen, underscore, and apostrophe characters.

Asset Manager Module

- ❖ Items that are moved to the “Graveyard” (unknown) location are now automatically changed to Inactive status.
- ❖ Alphabetic characters are now supported for names of Specimen Block positions.

Data Navigator Module

- ❖ Tables in Data Navigator now display the number of currently selected items, and the total number of items, at the bottom left of the table.
- ❖ The name of the Electrode used in an Experiment can now be displayed in the Experiments table in Data Navigator by choosing “Electrode” in the Column Chooser for the table.
- ❖ Ranges can now be exported from the Mass Spectrum preview in the Reconstructions panel of Data Navigator.
- ❖ **Bug Fixes:**
 - Fixed missing data when copying large amounts of information from data tables.
 - Fixed the View Limits toolbar button not working in snapshot mode.

DAVis Module

- ❖ Ability to specify show/hide of chart toolbox that appears in DAVis plots has been added.
- ❖ Show/hide of Laser Indicator added to chart options for Detector Event Histogram and Ion Map.
- ❖ Ranges can now be exported from the Mass Spectrum in DAVis.

- ❖ Added “m” parameter to the Advanced Parameters for Live Calibrations where “m” is a multiplier for scaling peak width for a give value of “x” in FWxM.
- ❖ eFIM updates:
 - The state of eFIM parameters is now saved such that the current state of eFIM parameters when the eFIM panel is closed persists and is restored when the panel is opened.
 - Changed the default values for the Gamma, Brightness, and Filter Coefficient parameters.
 - Increased the dynamic range of the Brightness parameter.
 - Added mask support for track bar maximum value of 3 digits.
 - Dynamically set ticks for playback scrubber based on width such that ticks are responsive to resizing; ticks adjust to maximum value assuming minimum value is zero; ticks adjust to multiples of 30 if there is insufficient space to achieve the minimum increment size of 30 seconds.
 - Updated spacing to support wider track bar spin edit mask.
 - Added track bar spin edit spacing for visual clarity.
- ❖ **Bug Fixes:**
 - Fixed bug whereby AP Suite crashed when index was out of range when doing reset of DAVis 2D histograms after taking a snapshot.
 - Restored crosshair for Detector Event Histogram.
 - Live reconstructions now display in the DAVis 3D View pane at an earlier ion count in the acquisition.

IVAS Module

- ❖ In the IVAS module main toolbar, the former [Open APT] has been changed to [Open Reconstruction] to support opening *.pos and *.epos files. Note that when opened, *.pos and *.epos files are immediately converted to *.apt format.
- ❖ In the IVAS module main toolbar, added [Open Experiment File] (*.HITS or *.RHIT format) and optionally a *.root file for the Experiment File. Opening an Experiment File in the IVAS module automatically launches the Reconstruction Wizard for the Experiment.
- ❖ The Workspace panel in the IVAS module has been updated with the following benefits:
 - Supports more than one Workspace being open in the IVAS module at the same time.
 - Includes columns of additional summary information about currently open Workspaces by which the user can filter and search for specific items within the open Workspaces in the IVAS module.
 - Supports additional options for specifying levels of expand/collapse for the display of the contents of open Workspaces, including an “Apply Minimal Tree Style” option that restores the former view of Workspaces in the IVAS module, which did not include the additional columns of summary information.
 - Within the Workspace Grid, Reconstructions can be copied or moved from one Workspace to another open Workspace.
 - For more information on the new Workspace Grid configuration in the IVAS module, see the *Chapter 8: IVAS Module* in the *AP Suite 6.3 and IVAS 6 User Guide*.

- ❖ Updates to Load Ranges dialog:
 - Preview has been added to the Load Ranges dialog such that selecting a range file in the dialog will display a preview of the range file applied to the mass spectrum. In addition, filters and selections made in the Load Ranges dialog when the dialog is closed will persist and be restored upon re-opening the dialog.
 - When applicable, default filtering and selection of the selected source of ranges is applied:
 - If the range data exists in the database (e.g, when loading data for an existing mass spectrum analysis), then the range data that is currently applied to the mass spectrum is selected in the Load Ranges dialog by default.
 - When loading ranges in Step 5: Mass Spectrum in the Reconstruction Wizard, the displayed options in the Load Ranges dialog will filter to the current Experiment by default.
 - When loading ranges in an analysis in the IVAS module, the options displayed in the Load Ranges dialog filter to the current Experiment and Reconstruction by default.
 - Advanced filtering options added: (1) Mass to Charge State values (Da) that must be included in a range found in the ranges source; and (2) Ions that must have a range definition included in source of ranges. These filters are additive and can be applied simultaneously. In addition, for option (1) above, when the “Add from Mass Spectrum” check box is checked in the Advanced Filtering, clicking on a ranged peak in the mass spectrum will add the peak range to the list of ranges by which range sources will be filtered.
- ❖ For all occurrences of [Load Ranges] in AP Suite, added an option for loading ranges from *.root file.
- ❖ Improved the workflow for creating and opening cluster analysis files.
- ❖ Auto-rotate feature added to 3D View.
- ❖ 3D View and 2D View chart toolbox is now resizable to enable simultaneous viewing of all options.
- ❖ For 1D Concentration Profile, Y-axis maximum can now be set in the View Limits dialog to values greater than the maximum data points in the plot.
- ❖ Added dialog for specifying options for exporting 2D Concentration Profile to *.csv file:
 - Coordinate System: Top-Level specifies coordinates in the global coordinate system; ROI option specifies coordinates that are relative to the ROI coordinate space.
 - Count Column: Total Sum option specifies sum of all ion counts selected for the concentrations; Separate Ion Types specifies separate count columns for each selected ion.
 - Default selections of Top Level for Coordinate System and Total Sum for Count Column return the same output as the former *.csv output.
 - Note that the options dialog displays after selecting a file in the Export CSV > Open File dialog.
- ❖ 2D Contour Plot settings are now saved to the Analysis Tree and are restored when a saved Analysis Tree is re-opened. In addition, several new settings have been added to increase the user’s ability to customize the plot display.
- ❖ Color Map for the 2D Concentration Plot option under the 2D Contour Plot analysis is now editable in Configuration > Options > Color Maps > 2D Concentration Plot.
- ❖ Color Map is now editable also for the following displays in AP Suite: Points; Spatial Distribution Map; Detector Event Histogram; Volume Rendering in the applicable Configuration > Options > Color Maps

panel. Several preset Color Maps are available using the [Load] button in the applicable Color Maps panel.

- ❖ Option to display a bounding box added to 3D View.
- ❖ A transparency parameter has been added for Isosurfaces and ROIs.
- ❖ ROI geometry options for Interfaces have been added when creating an ROI from an Interface (Cylinder, Cube, and Sphere).
- ❖ Export to STL added to Interfaces.
- ❖ Export to *.csv added to Peak Decomposition data grids.
- ❖ New ROI shape options of Shell, Torus, and Trapezoid have been added.
- ❖ Parameters for specifying Keyboard Pan Step and Keyboard Rotation Step for ROI have been added for manipulating view of ROI using the keyboard. For more information see *Section 8.28.5 ROI - Properties* on page 8-128 of the *AP Suite 6.3 and IVAS 6 User Guide*.
- ❖ ROIs, ROI Arrays, Interfaces, and detached Interface nodes can now be renamed.
- ❖ **Bug Fixes:**
 - Updated the logic for the direction of 1D profiles and ROI's when the reconstruction has been created with the negative Z direction (the Reverse Z parameter in the configuration menu is unchecked) so that the 1D profiles go in the analysis direction (top down) rather than the opposite (bottom up).
 - New detached ROIs formerly always used the Top-Level ROI of the grid as the parent ROI; detached ROIs now use as parent ROI the ROI from which the detached ROI was created (which is not always the Top-Level ROI).
 - Background correction enabled state was fixed for Bulk Composition, Proxigram, and 1D Concentration Profile analyses.
 - Fixed initial display of ion count in 3D View of Reconstruction: Formerly, default initial display count of 100,000 ions was not honored.
 - Fixed bug which prevented users from loading ranges when in Offline Mode.
 - Fixed isosurface render update in which updating the ion selection for an existing isosurface did not trigger an update of the volume, only the color selected for the ion.
 - Added support for exporting Cluster Analysis results to *.csv file.

Reconstruction Wizard

- ❖ Added an option in Reconstruction Recipe to override default ion cut for Step 2: Select Ion Sequence Range for specimens for which the ROI is positioned very close to the surface of the specimen and is expected to begin evaporating prior to finishing specimen alignment. Default ion sequence cut is set to the beginning of the largest section of data in which the specimen stage is not moved during the acquisition.
- ❖ For Step 5: Mass Calibration:
 - Peak Color and Assigned Peak Color are now editable in the chart options.
 - For the Peak Identification feature, First Peak Color and Second Peak Color are now editable in Identification Mass Spectrum Options.

- ❖ Added an option for loading ranges from a *.root file in Step 6: Ranged-Ion Assignments of the Reconstruction Wizard.
- ❖ Updated default values for the image compression factor (ICF) and k factor for Invizo 6000 reconstructions. The default ICF is now 1.4 and the default k factor is now 4.
- ❖ New options for saving Reconstructions in the Preview pane of Step 7: Reconstruction of the Reconstruction Wizard have changed to the following:
 - [Save] saves the Reconstruction to the AP Database
 - [Export] saves the Reconstruction and/or ROOT file to a network location other than the AP Database.
 - APT Sections pane in the Preview pane of Step 7: Reconstruction of the Reconstruction Wizard has been updated with more descriptive names for data to export to the *.apt file, and with the addition of buttons for selecting the set of sections exported by default to *.epos format and to *.apt format.
- ❖ Improved layout and scroll behavior of Reconstruction Preview as follows:
 - Scrolling now applied only to the right-hand options column.
 - Chart now resizes automatically when the window is resized.
 - Control buttons located at the top of the preview are locked in place and always visible.

Instrument Control Module

- ❖ Added option to export data that appears in the Weekly QA tab of the Instrument Control module to a *.csv file.
- ❖ Added [Export Source] function to Script Builder tab of Instrument Control module.

ACC Instrument Control Software

For LEAP 6000

- ❖ Added “QA” acquisition mode that runs an acquisition script to perform a Quality Assurance acquisition.
- ❖ Added Run Sweep and Cancel Sweep options to Simultaneous Voltage Pulse advanced acquisition control for Laser mode acquisitions.
- ❖ **Bug Fixes:**
 - Fixed overlay for manual LE Flat Test.

For Invizo 6000

- ❖ Added a “QA” acquisition mode that runs an acquisition script to perform a Quality Assurance acquisition.
- ❖ Added an automatic prompt for performing weekly QA routine.
- ❖ Enhanced automation to significantly simplify specimen alignment for data acquisition. For complete information, see Chapter 10 Specimen Alignment in the *Invizo 6000 User Manual*.