# LAC-3.5.0

## NEW FEATURES AND IMPROVEMENTS:

**Added support for the following products:**

- VTX B28, VTX B28 SB, VTX B28 GND, VTX B28 VT, VTX A12 BP and the VTX V20 BP

**Improved mechanical calculations for Ground Stacked Arrays:**

- New safety checks have been implemented to check stability for Ground Stack Arrays.
- LAC takes into consideration the number of cabinets, cabinet angles and accessories used to check stability. The application can warn when a stack is potentially unstable or above the mechanical limit of a given configuration.

**Virtual Plane:**

- A new plane type has been added. The new virtual plane is similar to an architectural plane but it does not block predicted coverage.
- Architectural planes are now displayed with a solid line and virtual planes with a doted line.

**Right-click options for the QR code:**

- A right-click menu has been added to allow copying the QR code to the clipboard. An option to save the QR code is also available. File types formats PNG, JPEG, Bitmap and GIF.

**Distance Vs Angle switch:**

- The Distance Vs Angle selection switch has been moved from the Projects Details panel to the venue page. This allows quicker access to this functionality. The Project Details panel can now be accessed from the main hamburger menu.

**Recent Files right-click menu:**

- A right-click menu is now available for items listed in the Recent Files section.
- The new menu includes the following options: Show in Folder / Remove from Recent Files / Remove All from Recent Files.

**Color resolution for SPL Mapping:**

- 3dB and 6dB step options have been added to SPL mapping mode to better help visualize coverage. The new options are available in all modes including Distributed Subwoofer Arrays.

**Application Options improvements:**

- The Application Options panel is now a floating window, not a full-screen panel.
- An “Apply” button has been added to allow applying changes without closing the window. This is especially useful when trying to A/B settings like Air Parameters.
- A option is now available to switch auto calculate ON and OFF.

**Coordinate and SPL information tool tip:**

- All view ports now have a tool top that follows the cursor indicating the x/z coordinates of the cursor.
- In Mapping Mode, a left click brings up the cursor and in SPL mapping mode, the predicted SPL is also indicated.

## BUG FIXES:

- LAC was generating the incorrect QR code for some regions.
- The Print Preview PDF page was not generated correctly on computers with HiDPI displays.
- The angle for the top speaker of a ground stacked A8 or A12 array is now correctly set to 10° not 0°.
- The “Ray Shadowing” check-box option is now saved to the file.
- Fixed a problem where some LAC popup windows could not be moved.

- Changing from A8 to A12 and vice-versa does not reset the array angles.
- The Y axis has been changed to Z axis to better represent height.
- Ground Subwoofer Array has been renamed to Distributed Subwoofer Array
- The venue zoom position is now saved to file.
- Fixed several issues related to HiDPI displays.

# LAC-3.4.0

## NEW FEATURES AND IMPROVEMENTS:

**Compatibility support with ArrayLink Version V1.2 and Performance Manager V2.6.5.**

**Venue Page:**

- A Show/Hide button has been added to each plane to allow hiding or showing each plane. Hidden planes are not included in mapping calculations.
- Added the ability to export and import venue geometry files. This can be used to share venue files or to transfer venue geometry from one instance of LAC to another.

**Ground Stack Subwoofer Mode:**

- A new button has been added to Ground Subwoofer Array mode that allows for making all subwoofer containers the same as container 1.
- A new drop-down menu has been added for selecting between Center-to-Center or Edge-to-Edge subwoofer spacing (this selection used to be in the Application options).
- PDF export is now available for Ground Stacked Subwoofer configuration.

**New “Suspension Mode” option added to the Configuration page:**

- A Suspension Mode drop-down menu has been added to the configuration page allowing for selection between Compression or Tension style rigging for supported systems like V20. Depending on the selection, mechanical options like array frames and accessories are adjusted to only show the appropriate selection for each mode. When set to compression mode, a new Compression Link illustration appears in the array drawing window.

**New “Suspension Point” options added:**

- Dual-Point side-by-side and Quad point options have been added to supported systems.
- Dual-Point side-by-side assumes two suspension points on the horizontal axis and two extension bars are used when needed. The weight and center of gravity of additional extension bars is added to the array.
- Quad-point assumes four corner suspension point and two extension bars are used when needed.
- System selection and the Suspension Mode selection can have an impact on the available options.

**New settings panel in Mapping mode:**

- A new settings panel has been added to mapping mode (under the array parameters panel) that houses options related to each system used. Things like Speaker Presets, Circuit Mode, and Amplification Modes are available.
- When mixed arrays are created (like B18 and A8), two Settings Panels are available to present options related to each system.
- Use the new collapse button to the left of each menu to open and close the panels.

**Automatic Circuit Grouping:**

- Under the new Settings menu, a new Circuit Grouping drop-down menu is available, allowing for automatic grouping of cabinets similar to Performance Manager.
- Circuits are created automatically as the number of cabinets is adjusted.
- The default value is set to the factory recommendation for each system. Circuiting options for 1-Box, 2-Box, 3-Box and Custom groupings allow for arbitrary combinations similar to previous versions of LAC.

**Amplification Mode:**

- A new Amplification Mode drop-down menu has been added under the new settings panel for supported systems.
- The new menu allows for selection between Bi-Amp or Active modes for V20 or Parallel Vs Discrete modes for subwoofers like the

S25 and S28.

**Line Array Control Panel (LACP) Improvements:**

- A new “Master Reset” button has been added to the LACP panel allowing for resetting all LACP filters across all circuit groups.
- A new buttons have been added allowing to switch between circuit groups without having to close and reopen the LACP panel.
- The LACP buttons now turn orange when LACP filters are active

**Ground Stack Array Mode:**

- Ground Stack Accessories and Array Frames are now presented in the cabinets list similar to the VTX A8 BP.

**SPL Mapping:**

- A new “Calculate” button has been added to the mapping page that prevents the acoustical engine from running all the time and in some cases causing unnecessary CPU usage.
- Color and SPL values are not generated until the calculate button is pressed. When a change is detected, the SPL colors are removed and are not regenerated until calculate is pressed again.
- SPL Colors now remain intact when switching from mode to mode unless a change has been made that requires recalculation.

## BUG FIXES:

- User preferences (like Unit selection) are preserved after installing a new version of LAC.
- A12W can now be placed above A12 if needed.
- Circuit grouping colors have been added back to Ground Stack Array mode.
- Addressed several issues related to the QR code export for ArrayLink. Depending on the Windows localization settings, LAC would sometimes send the incorrect information to ArrayLink.
- The VTX V20 DF can now be used as a standalone pull-back frame for V25-II systems.
- Pull-back has been removed for compression style systems (V20 and V25-II-CS) since array geometry is not quarantined when a pull-back is used.
- Updated V20 Bi-Amp directivity and frequency response data.
- The cabinet connected to the array frame or an adapter frame now shows AF (or DF) in the angle box.
- A new drop-down menu is available for the A12 in the configuration page to allow for reversing the Array Frame independent from the extension bar.
- The LAC default (start) configuration has been adjusted to include six cabinets.

# LAC-3.3.1

## BUG FIXES AND IMPROVEMENTS:

- The auto-calculate functionality for ground stack arrays has been improved for venues that have audience areas above the array.
- The angle position of the top enclosure of a ground stack array is now saved correctly to the venue file.
- The exact position of a ground stack array is now correctly saved to the venue file.
- Addressed A12 / A12W stacking logic for ground stacked A12 arrays.
- Addressed a problem where the ground stack array frame was not refreshed correctly after closing and reopening a file.
- The LACP filters for ground stack arrays are now applied in the correct order.
- Addressed an issue related the VTX V20 DF when used as pull-back for V25-II-CS systems.

# LAC-3.3.0

## NEW FEATURES AND IMPROVEMENTS:

- Added accessory support for:
  - VTX A8 Base Plate and VTX A8 Mini Frame.
  - Added pull-back support for the VTX B18 using the VTX A8 SB suspension bar.
  - Improved VTX V20 DF (Down Fill) support. The V20-DF is now presented in the speaker list.
- Added support for ArrayLink version 1.1.0
- Improvements in Ground Stack Array mode:
  - Ground stack accessories and frames (like the VTX A12 VT GND or VTX A8 BP) are now presented in Mapping mode to allow for more accurate array placement.
  - Speakers in ground stacked mode are now numbered in reverse order (cabinet 1 being at the bottom) and additional cabinets are added to the top without changing the angles of the existing cabinets.
  - Added auto-calculate angles feature for ground stacked arrays.
  - Ground stacked accessories are now presented in the speaker list view.
- New Zoom functionality in Venue and Mapping modes:
  - Control + left-click drag to zoom in any section of the venue or mapping pages.
  - Double left-click anywhere on the venue to zoom back out to 100%.
- Copy/paste venue geometry:
  - The venue geometry (planes) can be copied from one instance of LAC to another. Right-click anywhere in the venue page and select “Copy Venue Geometry”.
- EASE GLL Export functionality:
  - After an array design has been completed, the array data can be exported and used in the VTX EASE GLLs. Array information like number of cabinets, angles, gains and cabinet types are transfered over.
  - To export an EASE GLL configuration file, go to the “Menu” and then select “Export to EASE GLL”. Save the file on your local drive and then open the configuration file in the EASE GLL (File -> Open Configuration).
  - Note that the latest EASE GLL files should be used for all VTX systems. The latest GLLs files can be downloaded from the JBL Pro website.
- PDF Export:
  - The Print and Print Preview functionality has been replaced with a new PDF export. Use Control + P or Menu -> PDF Export to export a configuration to PDF. The PDF file can be saved locally or used for printing.
- SPL Coverage Shadowing:
  - Planes can now visually block SPL to better illustrate coverage shadow zones. Shadowing is available is SPL Mapping and SPL attenuation modes.
  - Coverage Shadowing can be switched ON/OFF from the application settings.
- Venue Page improvements:
  - The Tab key can be used to create new planes. When mouse focus is on the last coordinate of a plane, use the tab key to create a new plane.
  - New planes used the same coordinates as the plane before for the front X/Y position.

## BUG FIXES:

- Improved single, dual-point and pull-pack mechanical calculations for better safety factor calculations.
- Fixed the -1dB Array Size Compensation filter position.
- Circuit grouping improvements. When speakers are grouped, only one speaker selection drop-down is shown.
- Addressed dependencies in speaker and accessory weights (A12, A12W, A12-AF, A8, A8-AF).

## VIDEO TUTORIALS :





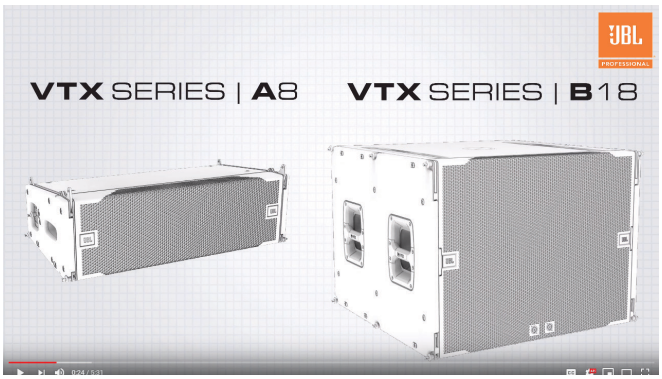










# LAC-3.2.0

## NEW FEATURES:

- Added support for:
  - VTX A8, VTX B18, VTX A8 AF, VTX A8 SB
- Added support for ArrayLink version 1.0.3
- Added System Selection drop-down menu in mapping mode.
  - The new system selection drop-down menu allows for easier system selection
  - The “Speaker Type” drop-down menu shows speaker type options based on the speaker system selection
  - Speaker type selection logic has been updated
- Extended the LAC calculation frequency up to 16kHz
- Added listening height adjustment in the Venue page
  - When planes are set to “Listening Areas” a “Listening Height” parameter is available
  - Listening height can be set to standing or sitting (height adjustable via the settings panel)
  - A doted line is drawn above the planes to represent the listening height

## BUG FIXES/IMPROVEMENTS:

- Rearranged weight gages in Configuration page.
- Several improvements in Ground Stack Array mode.
- Cardioid subwoofers are now displayed with a fill color for differentiation
- Suspension Details drawing auto-scales to best fit the designed array.
- Removed extra Gain and LACP buttons from grouped circuits.
- Several UI performance improvements. Opening files in now much faster.
- Addressed several minor issues related to the VTX A12 Suspension Bar.
- Added the Suspension Bar to the DXF export.

## LAC-III UPDATE VIDEO TUTORIAL :

- https://youtu.be/Lbvuomrao8g



# LAC-3.1.4

## BUG FIXES

- Improved acoustic calculations for VTX A12 and VTX A12W.
- Improved mechanical calculations for single-point VTX A12 and VTX A12W arrays.
- Addressed an issue related to the ArrayLink QR code for VTX V20 arrays.
- UI performance improvements.

# LAC-3.1.3

## NEW FEATURES:

- Calculation performance improvements:
  - The LAC-3 calculations engine is now multi-threaded and can take full advantage of multi-core CPUs.
  - Depending on the computer's CPU type, up to a 10x performance improvement can be observed.

## BUG FIXES

- Addressed an issue related to the front/rear weight calculations. In some cases the front and rear weights were reversed.
- Addresses a DXF export issue related to the VTX A12W
- Virtualization improvements - LAC-3 can now run in a virtual machine.
- Addressed an issue related to the VTX V20 angles when used in compression mode.

# LAC-3.1.1 / 3.1.2

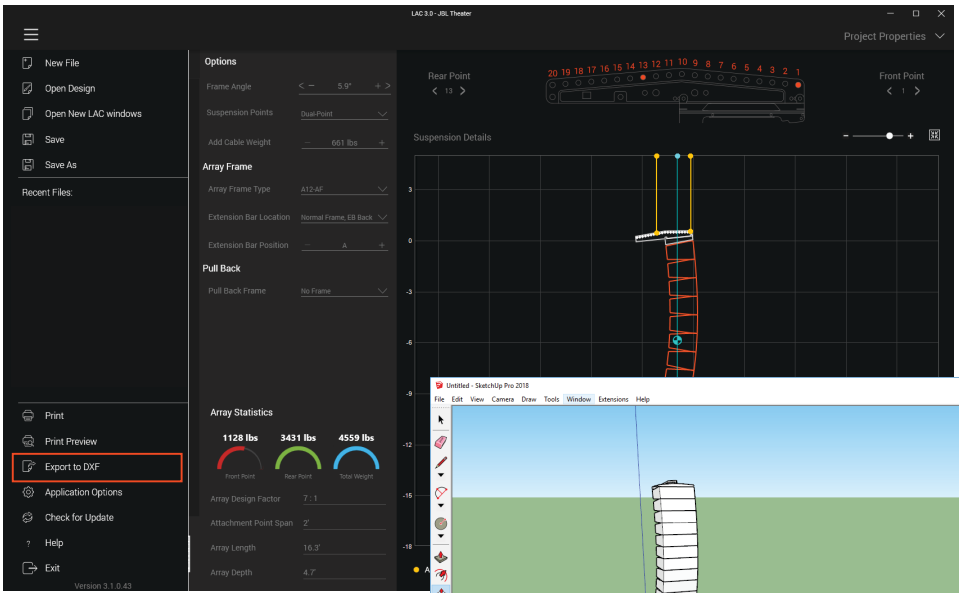
## BUG FIXES

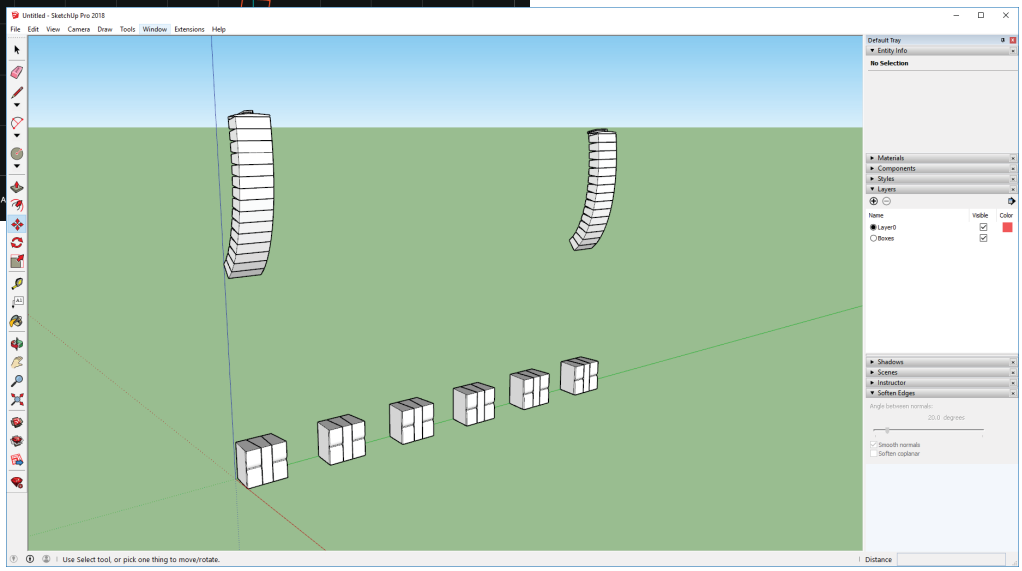
- Addressed an issue related to the front/rear weight calculations. In some cases the front and rear weights were reversed.
- Addressed a formatting issue related to Windows language settings and the DXF export. In some case the DXF file was not formatted correctly.
- Corrected VTX S25 DXF file (the VTX S25 size was incorrect)
- Changed LAC-III to be checking for new updates automatically
- Addressed an issue related to the frequency probes. In some cases the position of the frequency probes could not be changed.
- Addressed an issue where the "Print" command would delete the project name.
- Added a subwoofer spacing selection in the Application Options menu. Subwoofer spacing can be defined as "Center to Cente1r" or "Edge to Edge".

# LAC-3.1.0

## NEW FEATURES:

- Support for the new VTX A12W:
  - Standalone (A12W) or combination arrays (A12 + A12W) can be created in LAC3.1.0.
  - A12W arrays can be imported into Performance Manager 2.6.
- Added ground stack support for VTX A12 systems using the new VTX A12 VT GND accessory.
- Added VTX V20 BA (Bi-Amp) option in the speaker type drop-down menu:
  - VTX V20 BA arrays created in LAC3.1.0 can be imported into Performance Manager 2.6. Arrays are imported into Performance Manager in Bi-Amp mode and with the correct circuit wiring.
- Compatibility support for Performance Manager Version 2.6 and ArrayLink 1.0.2.
- Added Auto Update function
- Added a new "Export to DXF function:
  - Arrays created in LAC3.1.0 can be exported to a 3D DXF file
  - The DXF files include speakers and array frames
  - The DXF file units are based on the *Default Units* selection in the *Application Options* menu (Metric Vs Imperial)
  - Support for: Suspended Arrays, Suspended Subwoofer Arrays and Ground Subwoofer Arrays
  - DXF Files created in LAC3.1.0, can be imported to any software that supports 3D DXF import like AutoCAD or SketchUp



## BUG FIXES

- Fixed several issues related to Windows localization settings that prevented ArrayLink from reading some arrays
- Addressed an issue causing the software to crash at first start
- Addressed an issue where LACP EQ filters would not show as active when first loading a file

# LAC-3.0.4

## BUG FIXES

- Addressed an issue related to the Windows localization settings causing an error when the software starts
- Addressed an issue related to Air Temperature settings
- Addressed an issue related to the LACP filters not been active when opening a file
- Addressed an issue related to the Isobar line options in the settings panel
- Addressed an issue related to the mapping frequency ON/OFF switches when changing mapping modes

# LAC-3.0.3

## BUG FIXES

- Addressed an issue related to the generation of Array Statistics values
- Addressed an issue related to subwoofer spacing and switching from metric to imperial and back
- Improved color mapping (now in 6dB steps) in Subwoofer Mode for better coverage representation

# LAC-3.0.2

## NEW FEATURES

- Added support for the VTX A12 Suspension Bar to be used as an array frame for VTX A12
- Added support for JBL's ArrayLink mobile application
- Improved integration with Performance Manager Version 2.5

## BUG FIXES

- Several visual UI improvements
- Performance optimizations
- UI scaling issues on HiDPI displays
- Improved subwoofer mode

# LAC-3 BETA 2

## NEW FEATURES

- Added support for the VTX A12 Suspension Bar for pullback applications

## BUG FIXES

- Addressed several UI scaling issues on HiDPI displays
- Addressed several issues related to switching units (Imperial Vs Metric)
- Addressed a subwoofer spacing issue related to ground stack subwoofer arrays
- Added dB and Frequency scales to the measurement graph
- Average trace improvements in measurement graph window
- Addressed “Min Pull Back Load” display issue for compression style system
- The position of the frequency response probes can now be changed
- The main LAC-III windows can be used even when the LACP panel is open
- Compatibility improvements with Performance Manager version 2.4.1
- Several visual UI improvements