Echo®

SOFTWARE APPLICATIONS

BROCHURE

Version 2.1 | **MAY 2017**

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Echo® Software Applications

Echo Software Applications use familiar terminology, interactive graphics and wizards to provide a research-friendly environment for protocol creation and editing. This drastically reduces the learning curve and hands-on time. Echo applications offer an array of features to maximize the utility, throughput and precision of Echo liquid handlers. All protocols can be simulated before running live to validate each step.

▶ Echo® Array Maker

Acoustically transfer samples and reagents from any well to anywhere

Echo liquid handlers have the ability to transfer samples and reagents from microplates to custom patterns in various formats. Echo Array Maker software provides an environment to graphically design custom patterns and formats as well as the transfer protocols that utilize them.

Monitor sample integrity

- Create custom destination formats for Protein Crystallography, MALDI, and more

- Save and share patterns across Echo systems

- Transfer samples to multiple arrays, multiple patterns within arrays, and multiple spots within patterns

- Import pick lists to dictate which samples are transferred to which pattern and spot

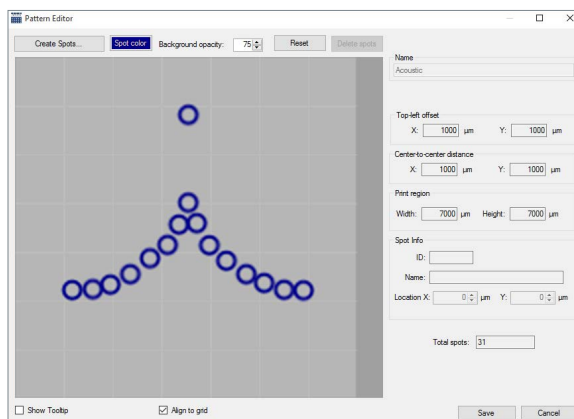- Produce output files in .CSV, .TXT, and .GAL formats

FIGURE 1: Pattern Editor dialog box used to create a pattern to add to the Pattern Library. Patterns are created for specific array types. Pattern dimensions are limited by the array dimensions for which they were created.
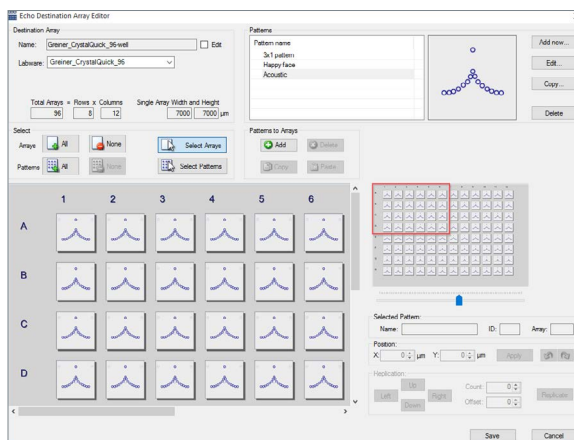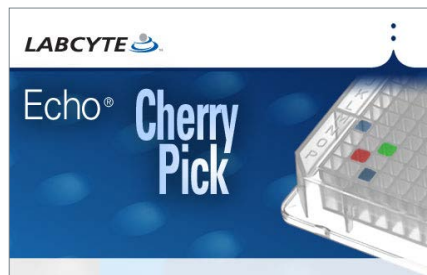

FIGURE 2: Echo Destination Array Editor dialog box allows the user to define the destination arrays and patterns for the selected Labware.

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Transfer Any Volume from Any Source Well to Any Destination Well

▶ **Echo® Cherry Pick**

File-driven transfers from any well to any well

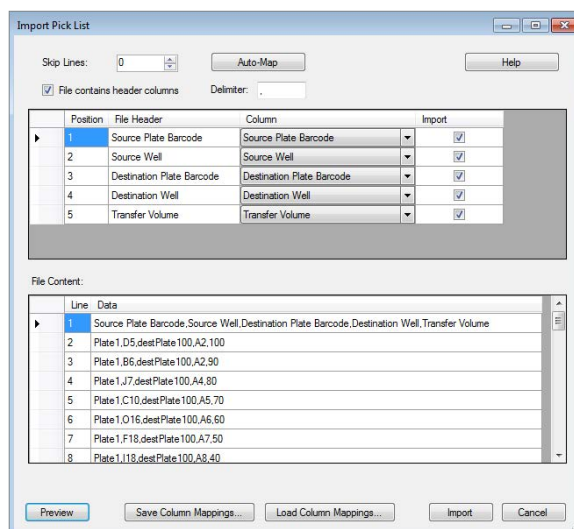Echo Cherry Pick software uses information in pick lists to transfer from any source well to any destination well.

Rapid hit picking, sample pooling and more

- Automatic or explicit determination of which destination plates and wells to use

- Customizable output files can be saved in XML, CSV, or TXT format

- Custom information can be passed from pick lists to output files for LIMS tracking

- Import pick lists without rearranging files

- Use a second pick list to transfer controls to all assay plates

- Visually preview each transfer

- Use one protocol to process any number of pick lists

FIGURE 3: Import Pick List dialog box is used to define pick lists for the protocol.
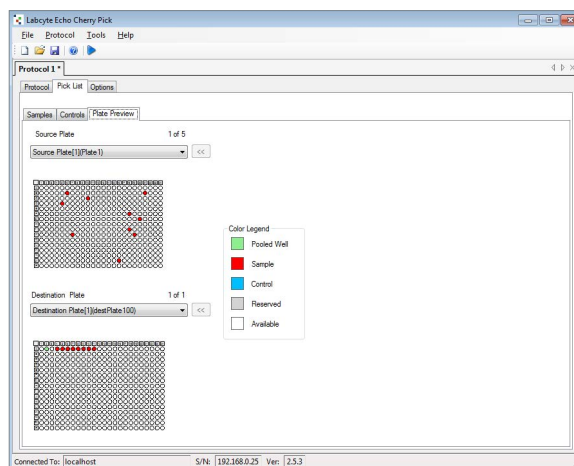

FIGURE 4: Main screen in Echo Cherry Pick application with the Pick List tab selected in the Protocol tab.

Combine Curves of Any Format in 2D and 3D

▶ Echo® Combination Screen

Design complex combination screening layouts

With combination screening the management of pick lists, transfer maps, and plate handling protocols becomes significantly more complex. Echo Combination Screen software provides a graphical interface to visually combine dose-response curves, controls, and single concentration transfers into combination screening protocols for the Echo Liquid Handler.
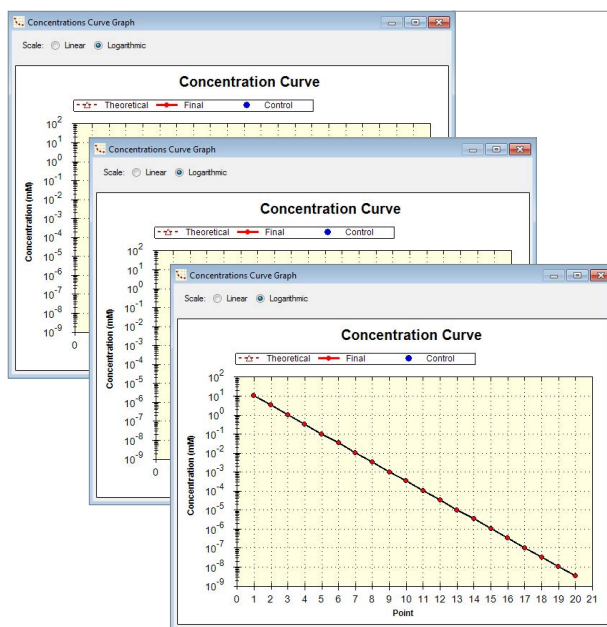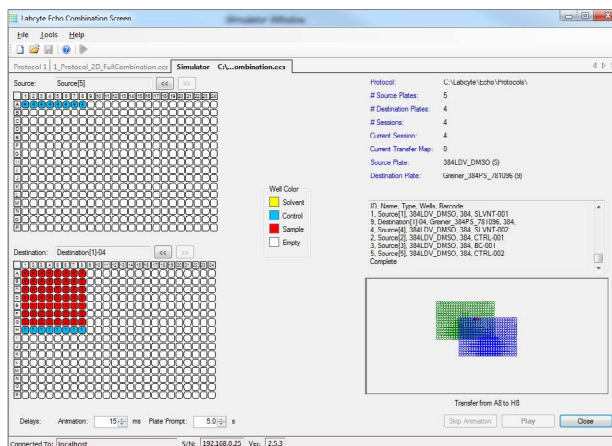

FIGURE 5: Concentration Curve dialog boxes and Simulator window that shows an animation of fluid transfer for the selected protocol.

Combine curves of any format in 2D and 3D

- Design and save concentration curve layouts for use across protocols and systems

- Curves are automatically generated from common input information: starting concentration, dilution factor, concentration points, number of controls, and DMSO concentration limits

- Apply multiple curves to plate layouts in row-wise or column-wise orientations with wrapping and replicates

- Use pick lists to map samples to curves in the final combination assay layout

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Better Dose Titration Results

▶ Echo® Dose-Response

Reliable IC$_{50}$ determination

- ◉ Visualization of curves layouts, starting concentrations, final concentrations and normalization requirements

- ◉ Produce row-wise and column-wise dilutions

- ◉ Replicate curves in adjacent wells, sequentially or across plates

- ◉ Automated normalization

- ◉ Import a pick list to identify samples for dilution

Eliminate carryover and improve results with Direct Dilution™

With tip-based liquid handling, dose-response curves are assembled using serial dilution which can lead to inaccurate assessments of drug potency as a result of sample carryover. Acoustic, non-contact, transfer with Echo liquid handers eliminates tips, carryover and dilution errors. Echo Dose-Response simplifies protocol creation for direct dilution using the Echo liquid handler with a wizard-based interface.

Assemble dose-response curves by directly transferring different sub-microliter volumes from one or more stock concentrations to achieve the desired final concentration at each point
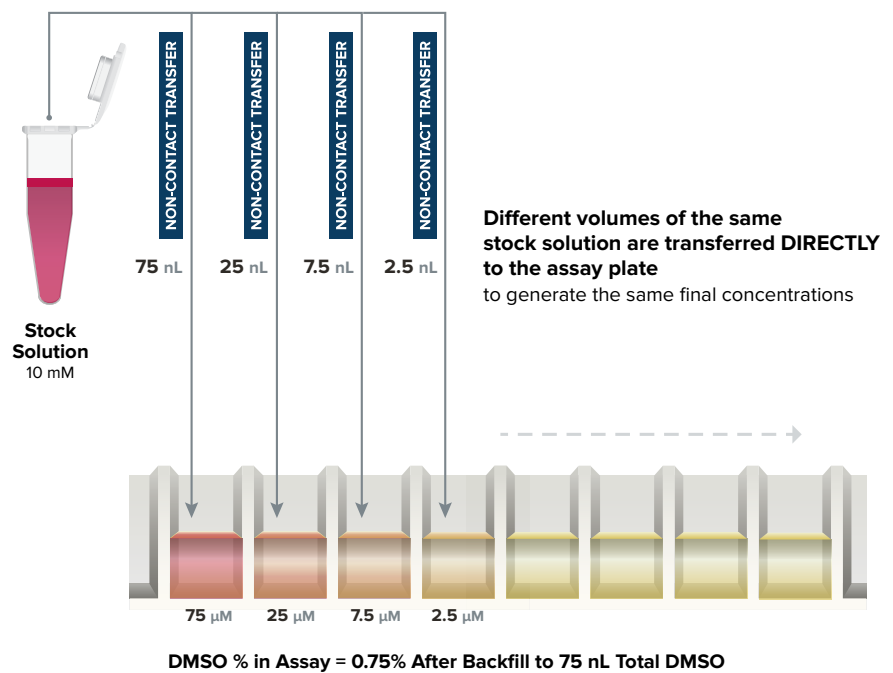

Different volumes of the same stock solution are transferred DIRECTLY to the assay plate to generate the same final concentrations

DMSO % in Assay = 0.75% After Backfill to 75 nL Total DMSO

FIGURE 6: Echo Direct Dilution™ workflow.

Acoustic Validation of Sample Libraries

▶ Echo® Plate Audit

Analyze and monitor sample libraries with acoustic analysis

To deliver superior accuracy and precision, Echo liquid handlers acoustically measure the characteristics of a sample or reagent prior to transfer. Echo Plate Audit uses the same acoustic analysis to visualize, track and compare the characteristics of samples within or across plates in a library over time.

FIGURE 7: Acoustic analysis of sample properties to validate and monitor sample libraries.

Monitor sample integrity

- Assess the composition and volume of fluid in every well

- Visually identify the changes in well composition or volume over time

- Use custom rules to declare plates as passing or failing

- Generate pick lists based on analysis results to select wells for transfer or replenishment

- Import passing/failing status into Tempo™ Automation Control Software to automatically qualify plates for runs on the Access™ Laboratory Workstation
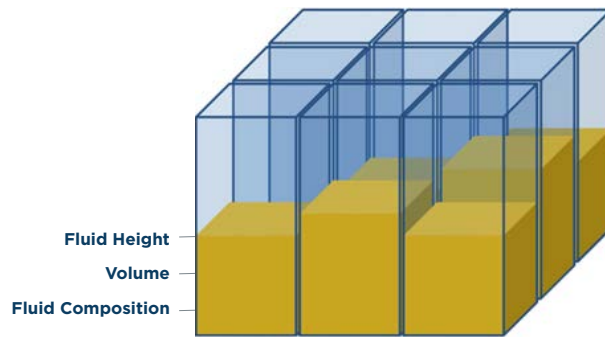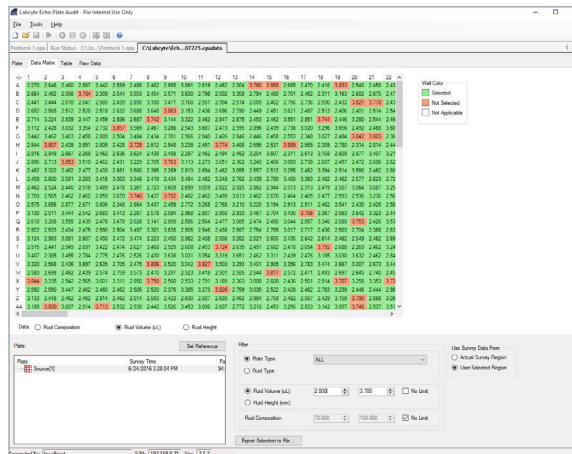
FIGURE 8: Data Matrix tab displays the values for the survey data and allows the user to filter the survey data by plate type, fluid type, fluid volume, fluid height, and fluid composition.

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Graphical Mapping of Samples to Any Assay Plate Layout

▶ Echo® Plate Reformat

Design, develop, and assemble assays

Echo Plate Reformat software offers a variety of transfer functions to design custom layouts. Resulting protocols can be used to assemble assays or reformat and replicate screening libraries.
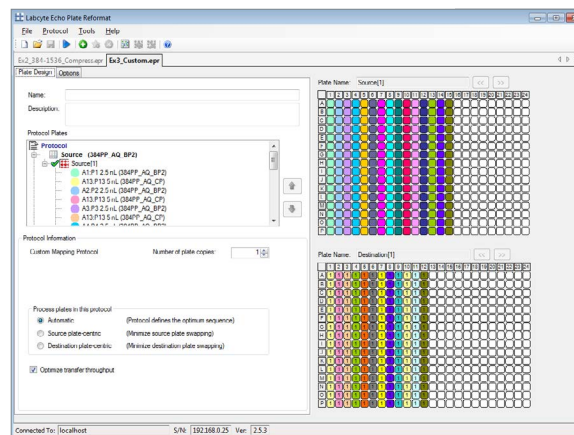
Simple or complex assay design

- Manually define transfer regions to create custom layouts

- Offset transfers to any position in a well

- Insert delays between transfers for incubations, settling, etc.

- Evenly deplete grouped wells to transfer large volumes of bulk reagents

- Replicate or reformat sample libraries in 384 and 1536-well formats to 96, 384, and 1536 well assay plates

- Compress libraries into interleaved patterns or separate quadrants

FIGURE 9: Protocol tab showing a complex assay design protocol.
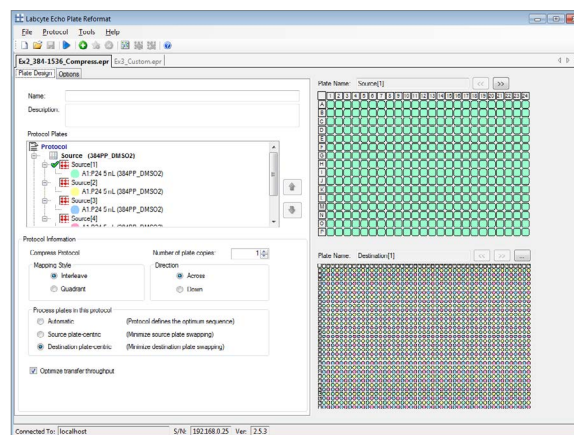
FIGURE 10: Protocol tab showing compressed libraries interleaved into a pattern.

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The Future of Science is Sound

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