Echo Software Applications

DISCOVERY
in motion.

BECKMAN COULTER
Life Sciences

Echo Software Applications

Echo Software Applications enable scientists to easily control standalone Echo Liquid Handlers. The applications are intuitive for user-friendly protocol creation and editing, and can easily generate reports, customize plate layouts, and optimize fluid transfer sequences. The applications support dispensing to standard plate formats ranging from 96 to 1536 destination (assay) plates as well as patterning onto other labware types. The applications can be additionally installed on an offline PC and can provide run simulations. They also provide full-featured operating protocols for scheduling directly using the Access Laboratory Automation Systems running Tempo software.

Echo Plate Reformat

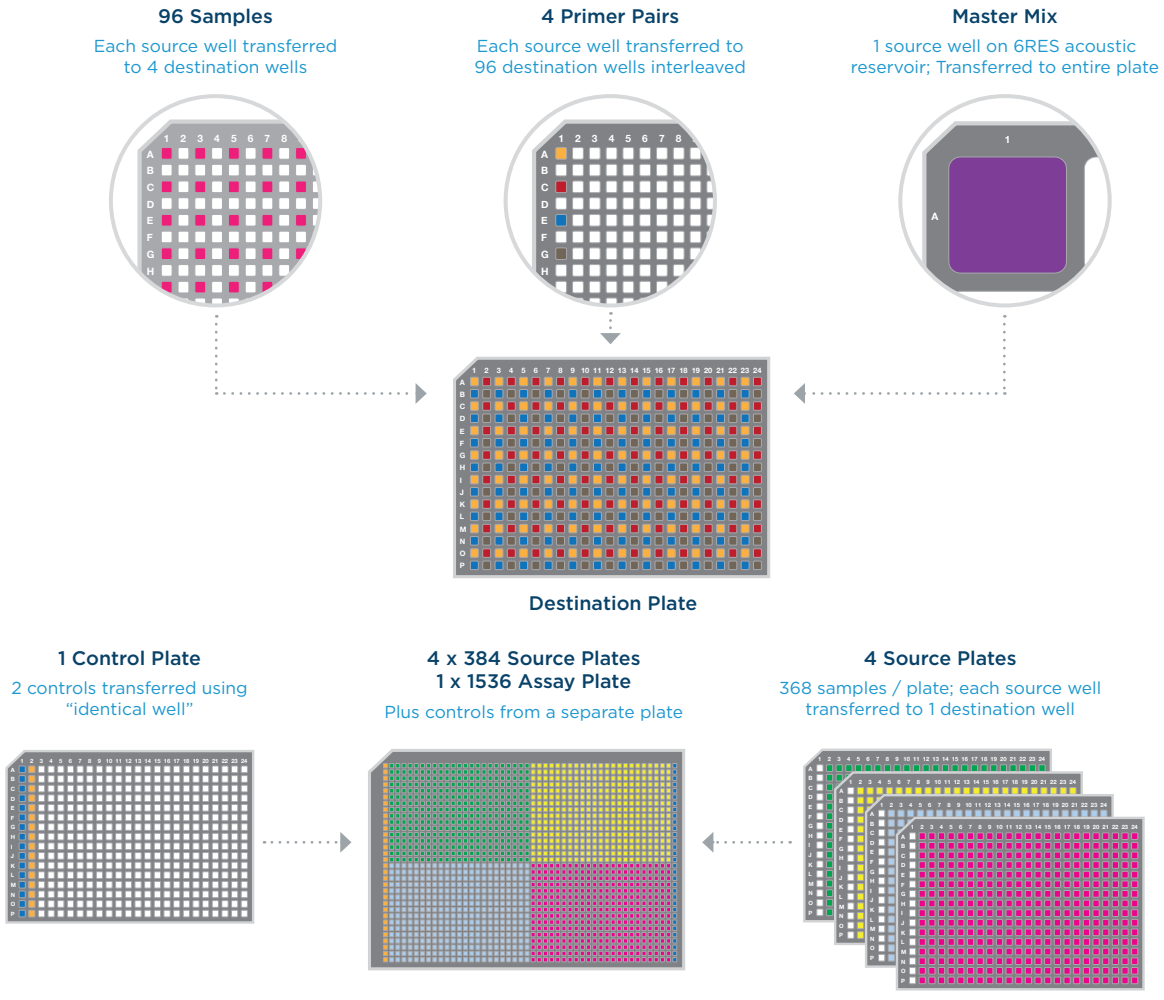
QUICKLY ASSEMBLE OR REFORMAT YOUR ASSAYS

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.

Easily set up designs for your assay plates

- Define transfer regions to create custom layouts
- Offset transfers to any position in a well
- Insert delays between transfers for incubations, settling, etc.
- Use multiple wells as one grouped source for larger volume transfers
- 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



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Echo Cherry Pick

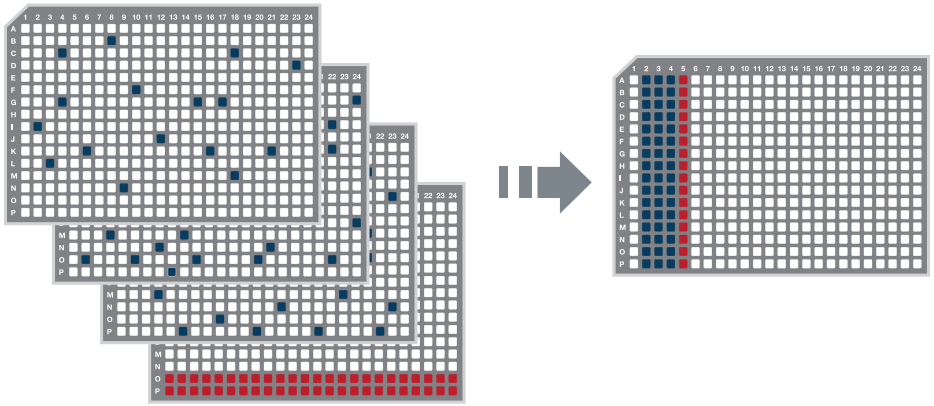
TRANSFER LIQUIDS FROM ANY SOURCE WELL TO ANY DESTINATION WELL

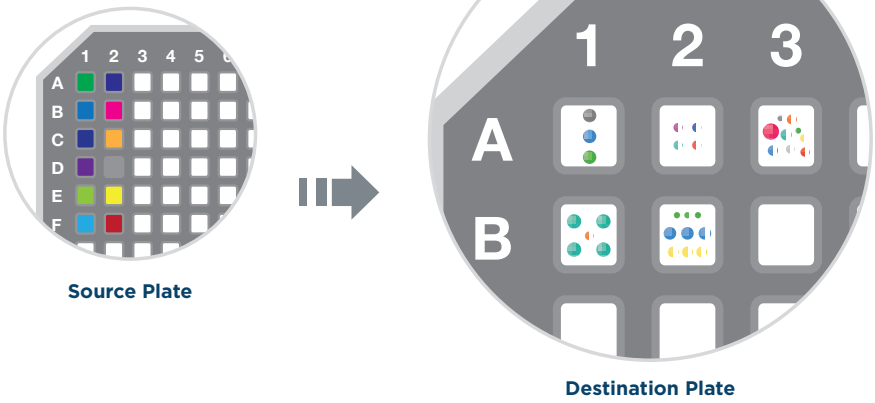
Transfer from any well to any well using pick list files

Echo Cherry Pick software uses information in pick lists to automate from any source well to any destination well. Easily consolidate wells and pool samples from multiple plates into one plate.

Rapid hit picking, sample pooling and more

- Automatic or explicit determination of destination plates and wells
- Customizable output files can be saved in XML, CSV, or TXT format
- Custom information is generated for LIMS tracking
- Import pick lists without re-arranging 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





Source Plate

Destination Plate

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Echo Dose-Response

IMPROVE YOUR DOSE TITRATION RESULTS

Eliminate carryover and improve results with Direct Dilution

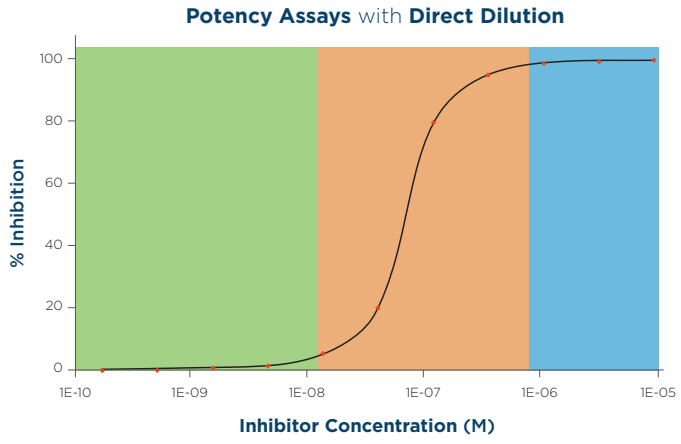
Direct Dilution is a precise method for generating drug concentrations used in dose-response experiments. As opposed to serial dilution, nano- and microliter volumes are transferred in direct proportion to the desired concentration. With tip-based liquid handling, direct dilution is often not practical or possible, and dilution using the serial method can lead to inaccurate results.

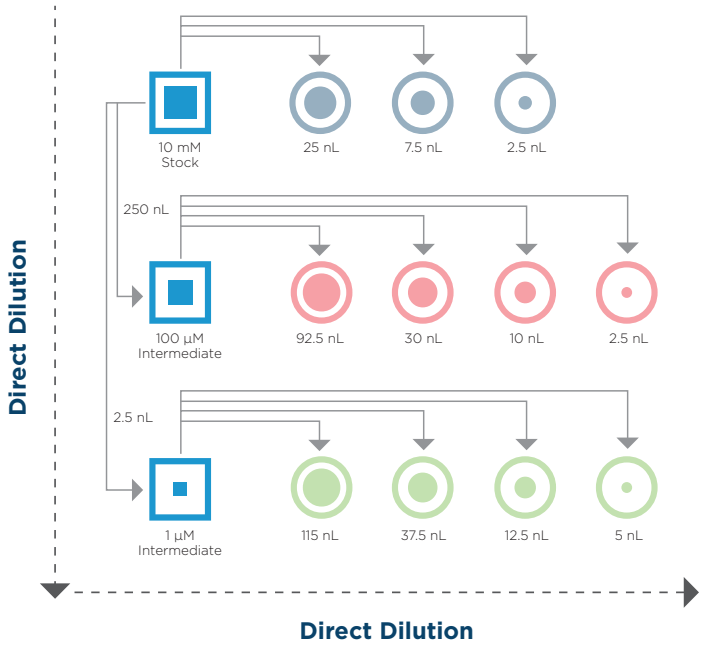
Assemble dose-response curves by directly transferring different sub-microliter volumes from one or more stock concentrations to achieve the desired final concentration at each point

Acoustic, non-contact transfer with Echo Liquid Handlers eliminates tips, carryover, and dilution errors.

Reliable IC_{50} determination starts with liquid transfers with exceptional accuracy

- Visualize curve layouts, starting concentrations, final concentrations and normalization requirements
- Produce row- and column-wise dilutions
- Replicate curves in adjacent wells, sequentially or across plates
- Automate normalization
- Import a pick list to identify samples for dilution
- Errors do not compound as in serial dilutions





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Echo Combination Screen

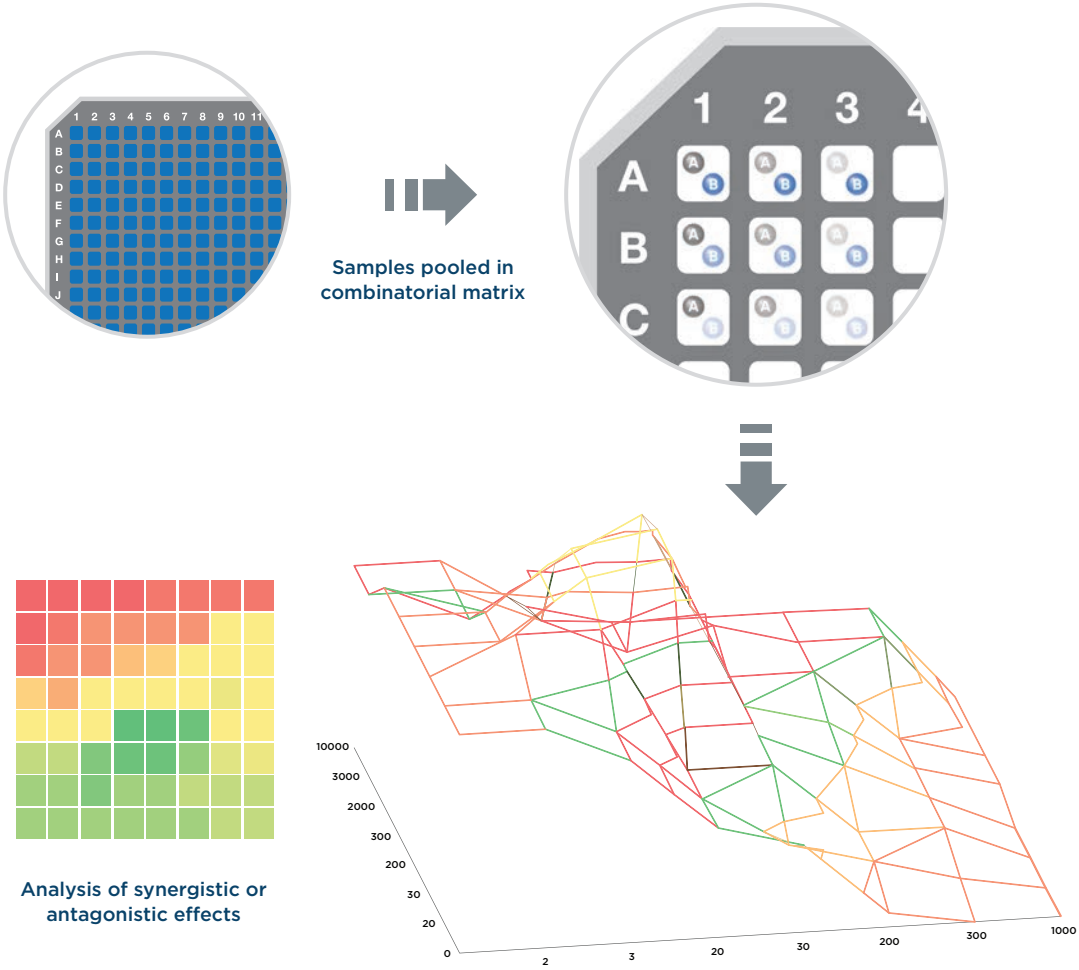
SET UP COMBINATION SCREENS QUICKLY AND EASILY

Design complex combination screening layouts

When performing combination screens, the management of pick lists, transfer maps, and plate handling protocols become complex. Echo Combination Screen software provides a graphical interface to visually combine dose-response curves, controls, and single concentration transfers into combination screening protocols.

Combine curves of any format in 2D and 3D

- Design concentration curve layouts for use across protocols and systems
- Automatically generate curves from common input information: starting concentration, dilution factor, concentration points, number of controls, and concentration limits
- Apply multiple curves to plate layouts in row- 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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Echo Array Maker

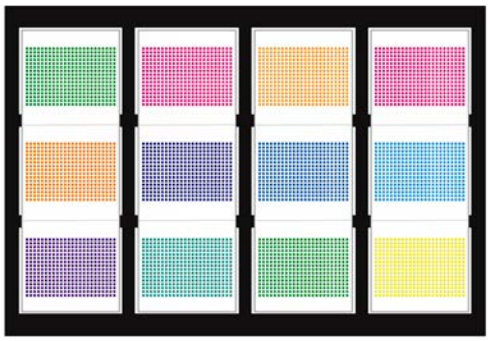
COMPLETE CONTROL OF LIQUID TRANSFERS

Transfer samples and reagents in user-defined formats

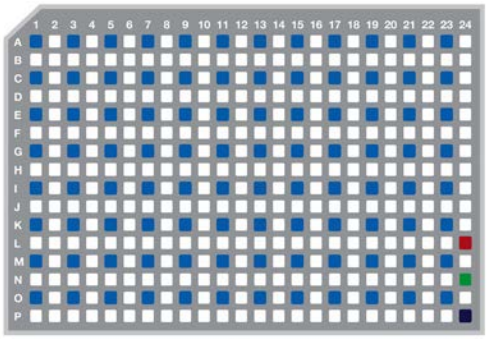
Echo Liquid Handlers have the ability to transfer samples and reagents from microplates to various formats in custom spotting-patterns. Echo Array Maker software enables users to graphically design custom patterns and formats.

Dispense to patterns

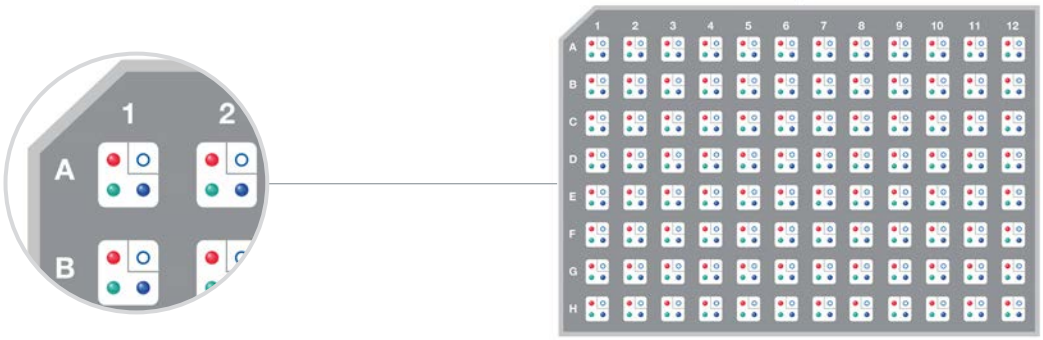
- Create custom destination formats for clonal dilution arrays, protein crystallography, MALDI, and more
- Share patterns across Echo systems
- Transfer to multiple arrays, multiple patterns within arrays, and multiple spots within patterns
- Import pick lists to set which samples are transferred to which pattern and spot



The Echo can dispense liquids into slides and even custom destination formats.



With Echo Array Maker, you can quickly set up high-throughput crystallography screening plates.



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Echo Plate Audit

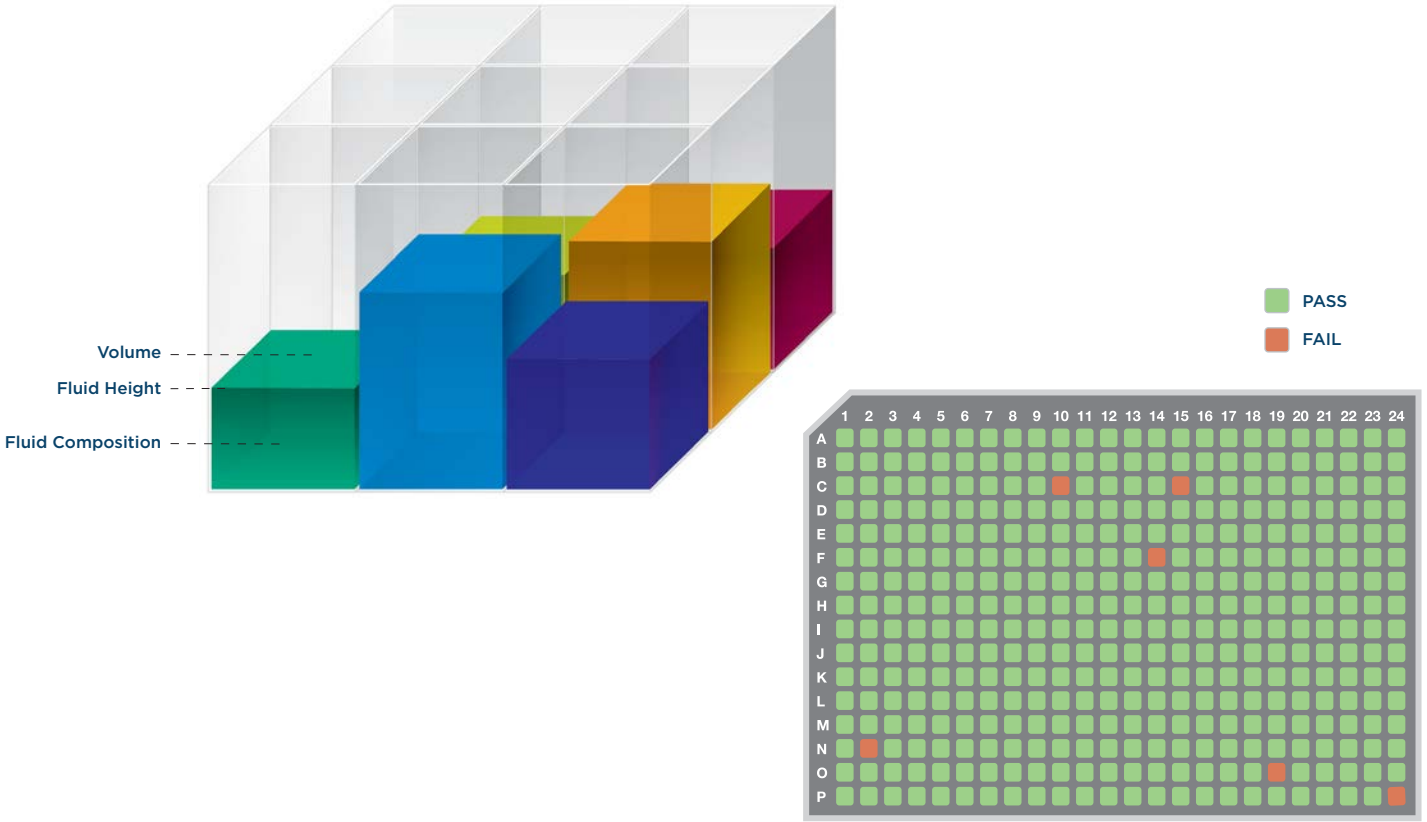
ACOUSTIC VALIDATION OF SAMPLE LIBRARIES

Analyze and monitor samples with acoustic analysis

Echo Liquid Handlers acoustically measure the characteristics of a sample or reagent prior to transfer. The Echo makes adjustments to the acoustic dispenses based upon the liquid characteristics to ensure accuracy and precision. 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.

Measure and monitor sample characteristics

- View composition and volume of fluid in every well
- Identify changes in well composition or volume over time
- Set custom rules to designate 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



Acoustic analysis of sample properties to validate and monitor sample libraries

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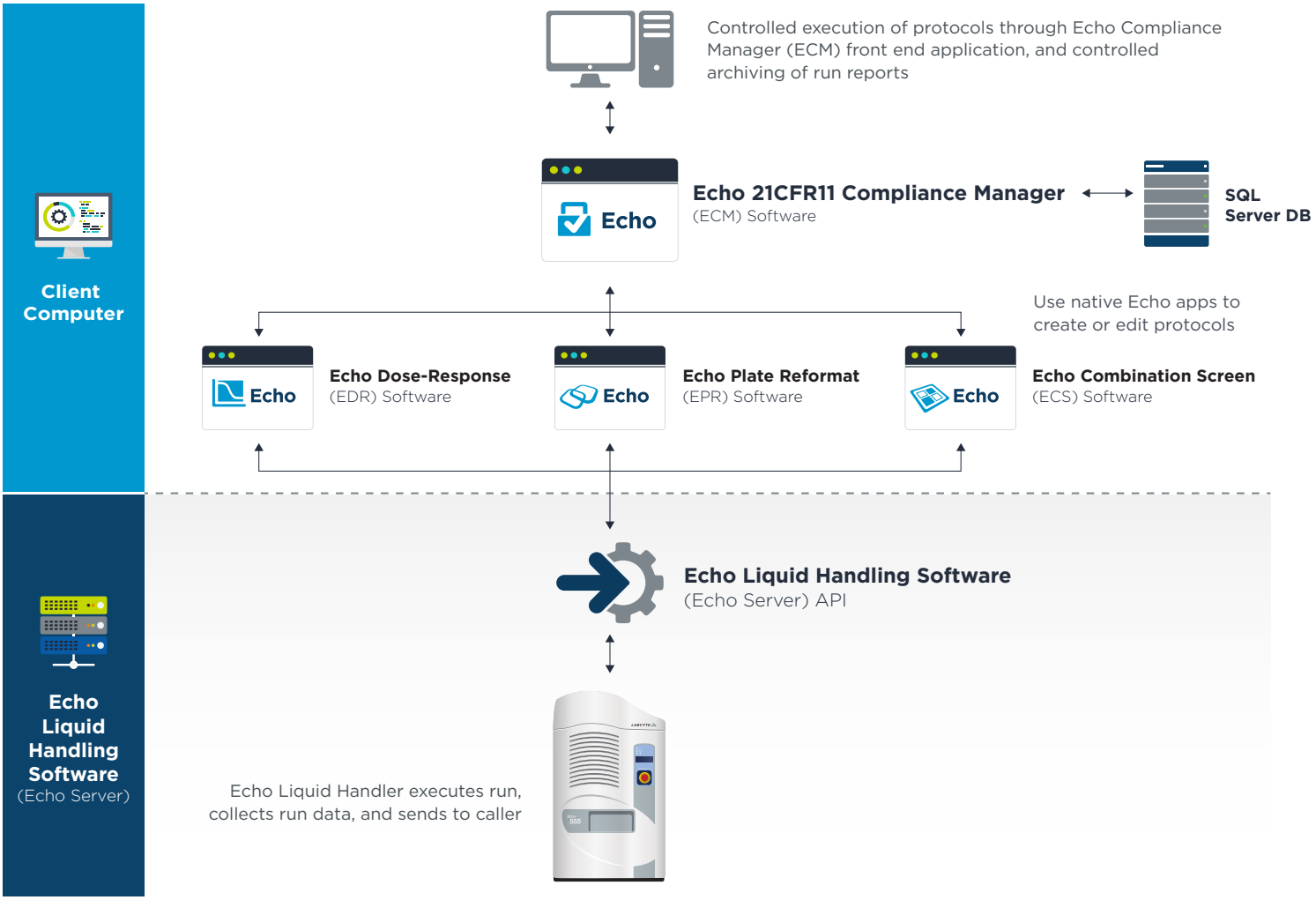
Echo 21CFR11 Compliance Manager

Manage and track users and electronic records associated with your Echo Liquid Handler

- Seamless integration with Echo Application Software
- User permissions management through Microsoft Active Directory
- Enforced data integrity using state-of-the-art checksum verification
- Echo protocol versioning and approval
- Enables compliance with 21 CFR Part 11 regulations

Software Architecture



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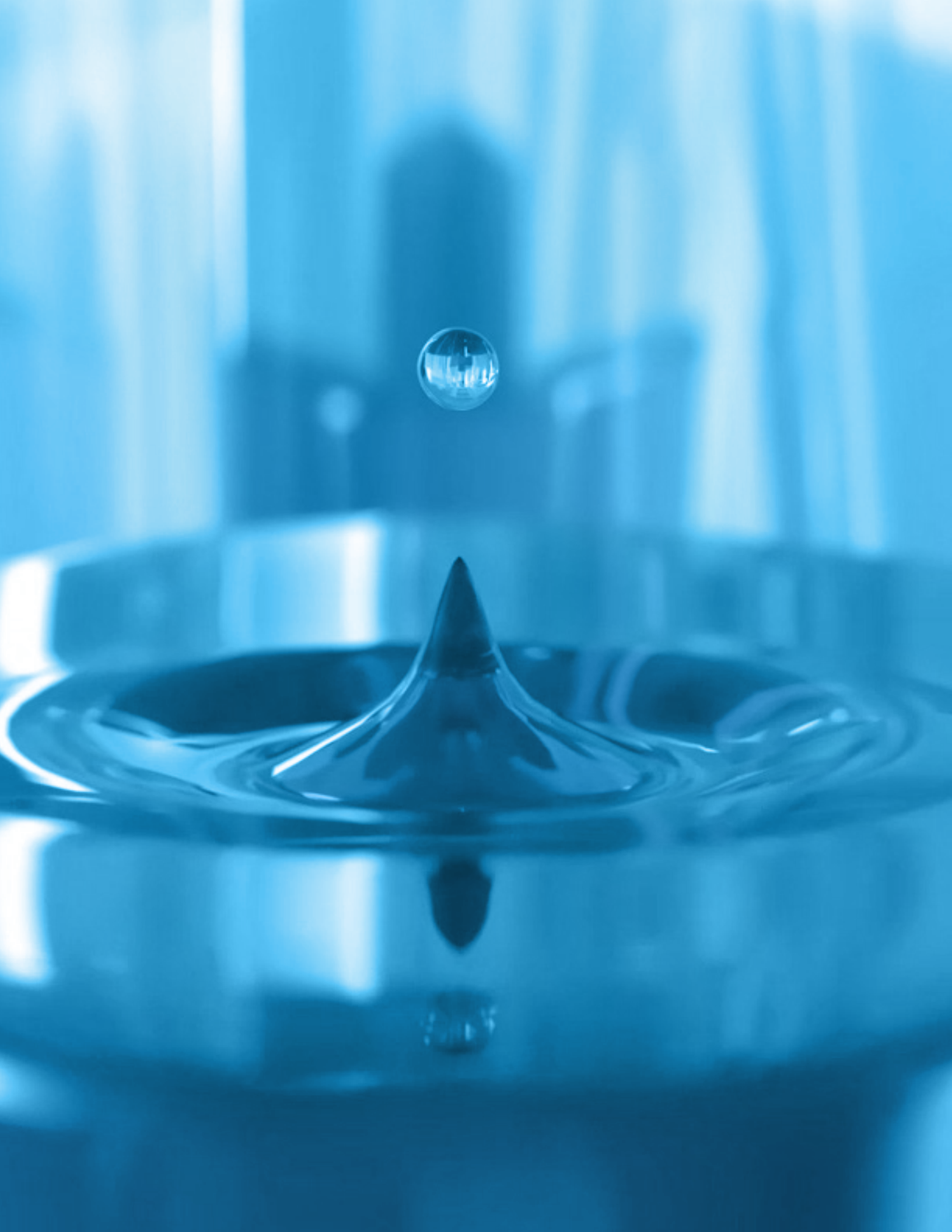

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