

# Performing Plate Replication Procedures with the Thermo Scientific Versette Automated Liquid Handler

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## Goal

This technical note explains how to set up and run plate replication procedures on the Thermo Scientific™ Versette™ automated liquid handling system.

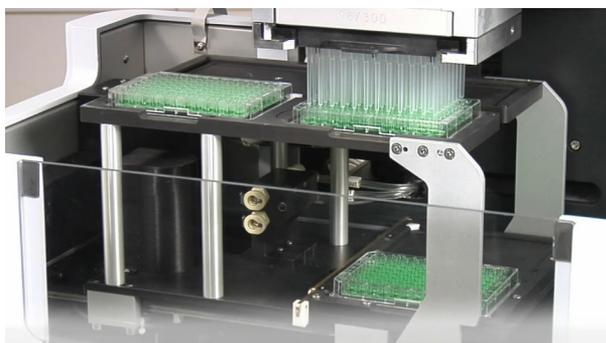
## Introduction

Plate replication is used to rapidly create identical plates for testing a variety of assay conditions. These protocols are easy to program using the dedicated Thermo Scientific™ ControlMate™ software that comes with the Versette instrument. There are many features—including the ability to change the aspiration/dispensing heights, and incorporate an over stroke—that can be modified to optimize the protocol.

## Methods

The compact Versette automated liquid handler is suitable for a wide range of research laboratories performing plate replication, plate reformatting and serial dilutions. The six-position, flexible deck configuration accommodates standard and deep-well microplates in both 96- and 384-well formats, and reagent reservoirs. Custom labware can also be used and entered into the software parameters by the user.

The following example of programming plate replication on the Versette automated liquid handler with the ControlMate Software shows how easy it is to replicate several daughter plates from one mother plate.



## Plate setup

A typical plate replication protocol starts from the deep well plate containing small molecule compounds of interest, and the aim is to distribute the same amount of molecules on several destination plates, e.g., containing cell cultures.

The example plate replication protocol was optimized by dispensing 50  $\mu$ l from the source (mother) plate into five individual 96-well destination (daughter) plates. The Versette 96 x 300  $\mu$ l pipetting head was installed with a full tip magazine using 300  $\mu$ l extended-length Thermo Scientific D.A.R.T.s.

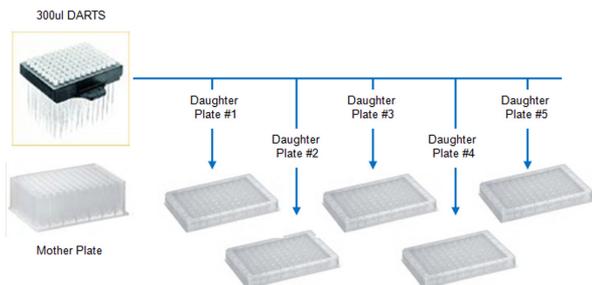


Figure 1 – Plate Replication Flowchart

**Protocol optimization**

The ControlMate software was used to program the plate replication. The protocol tree is shown in figure 2. Several factors should be taken into consideration in determining the optimization of liquid transfer. The following parameters are easy to program in the ControlMate protocol:

- Modifying the initial aspiration volume; smaller volumes reduce waste
- Using over stroke before dispensing into the actual destination plates; this ensures the tip is pre-wetted and the piston motor is primed, which improves volumetric accuracy and consistency
- Using a specific vs. predefined height within the well; this ensures proper aspiration / dispensing of a sample within the tip - this depends on the type of plate being used

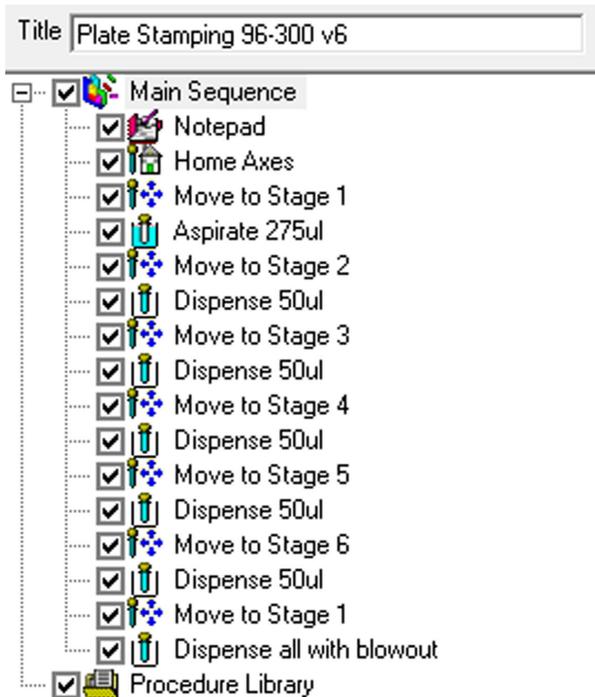


Figure 2 – Plate Stamping Sequence Using ControlMate Software

Further optimization features are available and may be required for certain types of liquid classes and conditions.

**Conclusion**

The Versette Automated Liquid Handler is able to automate plate replication and provide consistent results as well as eliminate ergonomic risk factors related to repetitive use of manual pipettes. The Versette eliminates variability due to the analyst as well as reduces the time required to produce duplicate plates.

[www.thermoscientific.com/versette](http://www.thermoscientific.com/versette)

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