**NT8® Release Notes**
Last Updated: 6 January, 2022

## Version 4.3 Hotfix 1

### 6 January, 2022

**Added:**

- *(V4 Hardware only)* The **Discard** button in the **Manual Control** panel in the **Auto Calibration Settings** wizard to cancel the NT8 Head moving to the X, Y, and Z positions.
- *(RM Integration)* A notification message to tell users to close the NT8 hood. This message appears after the last checklist has been fulfilled in the **Checklist** tab and the NT8 hood is still open.
- *(RM Integration)* `<add key="RockmakerIntegration.LoadBarcode.EnablePreRMI" value="false" />` key in the **RockmagerIntegration.config** file. This will allow users to load three barcodes while the hood is open and remove the need to move the head to a parking location after barcodes are validated.

**Fixed:**

- An issue where NT8 only executed the first column of the plate and ignored the second until the eleventh column while the **Repeat Task List** was selected.
- *(V4 Hardware only)* An error where the user could not exit the NT8 Control Software after the USB Cable was unplugged.

## Version 4.3 (BETA)

### November 19, 2021

# Hardware Improvements

**(NT8 V4 Only) Reference Plate, Protein Block, and LV Tip Caddy Redesigns for a More Accurate Auto-Calibration Result**

In NT8 4.3, several hardware components have been significantly improved to ensure greater accuracy for **Auto-Calibration**. The hardware redesign includes the following:

- **Enhanced Reference Plate with Deeper Grooves for Better Laser Scanning**

  The Reference Plate enhancement includes simplifying the **Auto-Calibration** method. The shallow engraved lines which previously connected the A1, A12, H1, H12 points were replaced with deeper grooves to accommodate laser scanning for precise X, Y, and Z coordinates. This method ensures a more accurate reference point as it eliminates the offset calculation.

- **LV Tip Caddy Station for Better Protein Sample Aspiration**

  Similar to the Reference Plate, the LV Tip Caddy has also been improved to ensure accurate **Auto-Calibration** results. The redesign includes two square grooves in the lower-left corner (marked in red below) that provide direct reference points without having to use an offset calculation, thus ensuring calibration precision.

- **New Protein Block for More Precise Aspirate Experience**

  The Protein Block has also been optimized to provide a more precise aspiration. There is no longer an offset calculation between the wall and target point. The laser scanning process now provides a precise reference point.

# Software Improvements

**New Sleek User Interface for Auto-Calibration**

NT8 4.3 brings a powerful new **Auto-Calibration** wizard to make it even easier to set up your system. The new wizard walks users through hardware setup to help you quickly choose which station needs calibration. We strive to make this process as simple as possible with no need to modify configuration files and type key values. Ensuring a precise aspirate and dispense experience can now be achieved in just a few clicks within this wizard. To access it, click the **Tools** menu, point to **Calibration** and select your desired option.

**Added Protein Block Type Option in ROCK MAKER Integration (RMI)**

Now, you can select the Protein Block type directly from the RMI view upon loading the first experiment barcode. This streamlines the process and helps you save time as you no longer need to switch to the **Task List View** first to do so.

# Other Improvements

NT8 4.3 comes with several other improvements as follows:

- You can now use all tips as the default in **Auto-Calibration** and **Manual Calibration** for more versatility.

- Added a maximum capacity value of the chamber maximum capacity field to optimize the **Calibration** settings. This setting prevents water overflow during calibration.

# Minor Software Changes

**NT8 version 4.3 added several minor changes for better usability. The minor changes include the following:**

- *(NT8 V4 Only)* In NT8 4.3, the **Wash Valve and Pump** functions are integrated into one button in the **Control Switches** panel on the **Script View**. These features work simultaneously, thus using one button to activate them will boost your efficiency with the NT8.

- Improved the display of the Plate Stations while running the task list so that only the selected drops and/or wells show the teal indicator as they are dispensed.

**Improved:**

- The software installation timeout session duration from 20 minutes to 40 minutes via both the local drive and USB drive to minimize slow performance.

**Added:**

- *(V4 Hardware only)* The `<add key="User.Automatic.Humidifier.Control.PercentageErrorFromTarget" value="2.5"/>` key in the **User.config** file to make the humidifier timeout configurable. The default value is 2.5%.

**Changed:**

- Communication session from software to firmware by adding configuration for each sensor (temperature, carboy, humidity, and chamber) to avoid full traffic data communication. The temperature and carboy sensors are set to every five seconds, while humidity and chamber sensors are set to every one second.
- The value in the **Device.FlexibleFinger.AllowedBrokenFF** configuration key from 0 to 2 during fresh installation or upgrade.
- *(RM Integration)* Protein block selection option behavior to appear only when loading a barcode for the first time.
- The behavior of the **Exit** menu in NT8 Control Software so that now it can run the **Move to Park Location 2**.
- The "dispense" word in the **Wash Prime** dialog box to match the current behavior of NT8 where every dispense task always has an Eject LV Tip sequence.

**Fixed:**

- An error where NT8 still ejected the LV tips and picked up new ones before running system priming even after being instructed otherwise.
- An error where NT8 did not update the value of actual water level when draining/filling the chamber, which made it difficult to perform the **Water Level Calibration**.
- NT8 Control Software not updating the actual new value in the water carboy after it had been drained.
- *(V3 Hardware only)* An error where the **Motion Control** pad was disabled during calibration.

- Wrong error message appearing after running an LV Tips Dispense Task. This happened because NT8 couldn't find the plate's surface because of wrong LV Tip Z-offset calibration.
- *(RM Integration)* An issue where a notification message to select protein tray appeared when running LCP Experiment.
- Incomplete message in the **Running Out of Water** and **Aspirate Deep Well** confirmation message dialog boxes.
- *(RM Integration)* An error where the NT8 Control Software could not run the experiment when the user enabled the seeding layer option.
- An issue where expired license notification message appeared upon software startup instead of following the scheduled days.
- An issue where the toolbar buttons were still enabled after the user clicked the **Start System Priming** button.
- Irrelevant warning message that appeared when the HV Tip tried to aspirate from an empty well.
- An issue where no warning message appeared even though the **Carboy Water Level Indicator** in the **Status** bar showed low water level.
- *(RM Integration)* An issue where the screen was listed in **NT8 Control Software** although the **Should Dispense Screen** option in **ROCK MAKER Software** was set to **No**.
- *(RM Integration)* An issue where the Deep Well Station volume in the **Checklist** tab was not updated after multiple experiments were loaded.
- *(RM Integration)* An issue where some of the **Dispense Protocol** features were not executed correctly.
- **Invalid** license type in the **License Status** to inform users that the **NT8 License** cannot be opened.
- *(RM Integration)* Missing checklist after the user clicked **Yes** to switch the Protein Block Type.
- An error where the NT8 Control Software could not connect to the hardware even though it had been set to a real mode. This happened after the user changed the mode from simulation to the real one.
- A software installation issue where a notification message appeared telling the user that it was a wrong selected file even though the user canceled to select **.NET 4.5 Framework** installer file.
- A crash between LCP Syringe and LV Tip Caddy in the V4 Hardware when it was heading to the Waste Station to dispose of the LV Tip because the NT8 Head position was low and the Y movement was slower.