# Initiating and Managing a QX ONE™ Droplet Digital™ PCR System Run

Quick Start Guide

Adding a Plate(s) (GCR96 Cartridge) to the QX ONE Droplet Digital (ddPCR™) System
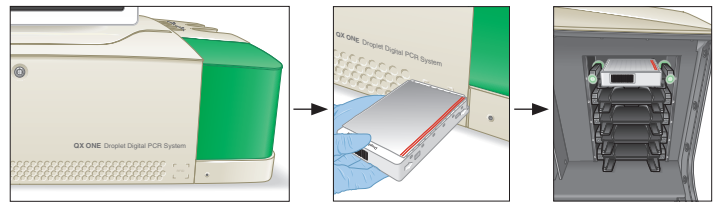
1. Sign into QX ONE Software using the touch screen or keyboard. The software will notify the user when the QX ONE ddPCR System can accept cartridges by changing the system status from Busy to Ready, as shown.

2. In the QX ONE Software window, select **Add Plate**, as shown.
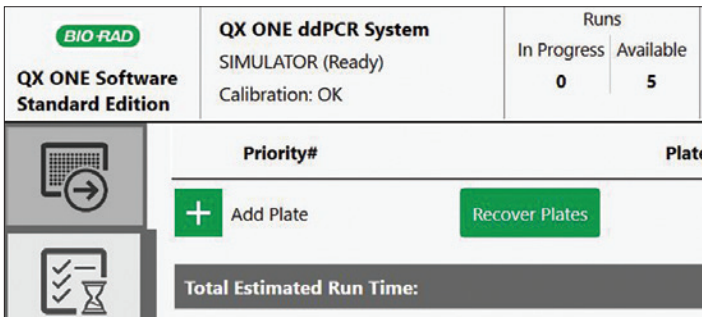
3. Scan the cartridge radio frequency identification (RFID) tag (located on the side of the GCR96 Cartridge with labels A–H) with the RFID scanner (located on the front lower left panel of the QX ONE ddPCR System), as shown.

Note: The RFID tag on each plate allows the instrument to trace each individual plate independently of others, as well as generate protocol-specific data for each unique cartridge. Cartridge barcodes are reserved for barcode scanners that allow users to change the name/identification of the individual cartridge (optional).

4. Scanning the RFID tag will initiate the inbox hotel to open. Alternatively, the user can select **Open Inbox** located in the top banner of the software window. Place the sealed plate into an open slot with the RFID tag facing toward the inside of the hotel (barcode should be facing the operator). Correct installation of the GCR96 Cartridge will induce a color change in the LED lights that border the open slot, from amber to green, as shown. Incorrect installation will induce red lights to alert you to reattempt cartridge installation.


5. After installing the plate, the inbox hotel door will automatically close in approximately 30 seconds. Select **Configure Plate** in the touch-screen window.

Visit **bio-rad.com/QXONE** for more information.

Configuring a Plate Using QX ONE Software
Managing Plate Template File(s)

1 In the QX ONE Software plate configuration window, choose one of three possible options shown:

- Select an existing plate template file (use the dropdown menu to select an existing file)
- Create a new plate template file (select **Create New**)
- Name the plate, select the appropriate Supermix (dropdown menu), and forego selecting/creating a plate template file (template files can be created after running a plate)
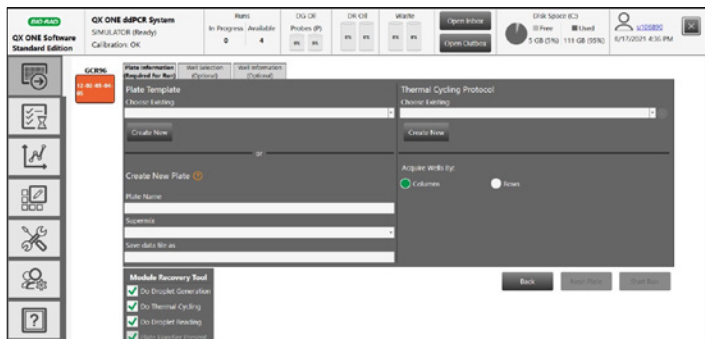

2 When selecting **Create New**, QX ONE Software will automatically navigate the user to the Plate Setup tab. Using the touch screen, select wells to exclude from the current run by selecting **Exclude** and indicating what processes to exclude (Droplet Generation and Droplet Reading or Droplet Reading), as shown. **Bio-Rad™ recommends backfilling any unused wells in a GCR96 Cartridge** with a 1:1 ratio of ddPCR Buffer Control for Probes (Bio-Rad Laboratories, Inc., catalog #1863052) and water. All wells containing either ddPCR reactions or buffer control and water should undergo droplet generation; however, excluding backfilled wells from droplet reading will save time.

Note: The Plate Setup tab can be directly accessed/selected, independent of initiating a run, to create and save new plate template files for later use. To select the **Plate Setup** tab, click the icon 🗗 (see image).
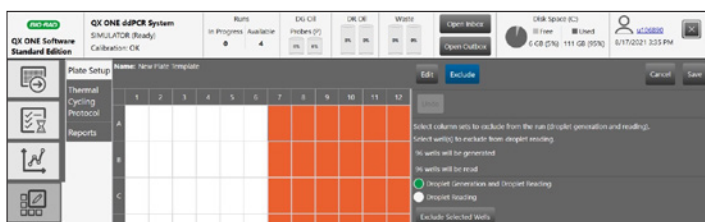
3 Edit the remaining wells by selecting **Edit** and annotating the wells with appropriate Experiment Type, Sample Description(s), Sample Type, Supermix, Assay Type, and Target Info, as shown. Users do not have to annotate all fields available for the wells. Select **Apply** or press **Enter** on the keyboard after making any annotations to save the edits. Save the new plate template file by selecting **Save** and assigning the template a name. Saved files will be accessible in the Choose Existing dropdown menu located in the Plate Template section in the QX ONE Software plate configuration window (see image in Managing Plate Template File(s) step 1).

Note: All template edits introduced prior to the run can be deleted, amended, and/or edited following run completion **except for the supermix**.
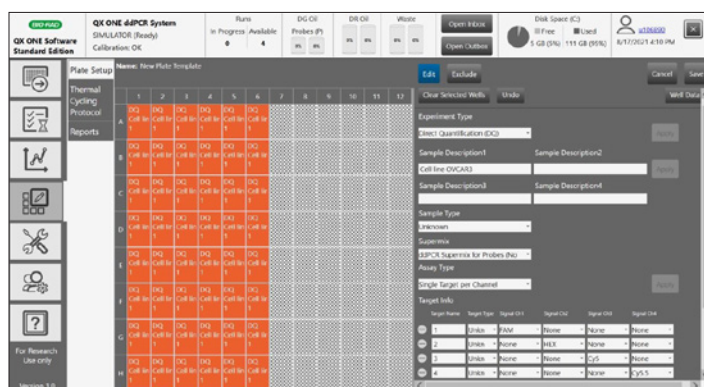
4 After creating and saving a new plate template, the QX ONE Software will automatically navigate the user back to the plate configuration window.
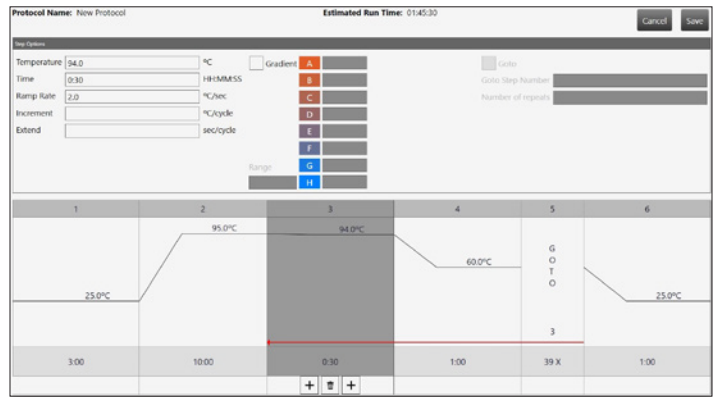
Managing Thermal Cycling Protocol(s)

In the QX ONE Software plate configuration window (see image shown), select an existing thermal cycling protocol in the Choose Existing dropdown menu or create a new protocol by selecting **Create New**.
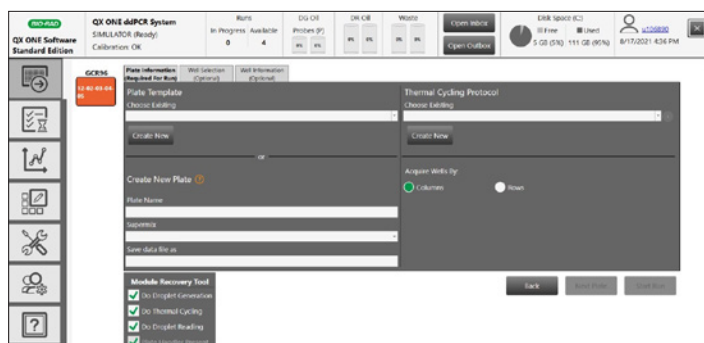
1. Selecting **Create New** will automatically navigate the user to the Plate Setup tab, where a new protocol can be created by selecting the **Thermal Cycling Protocol** tab under Plate Setup (see image shown).

Note: The Thermal Cycling Protocol tab can be directly accessed/selected, independent of initiating a run, to create and save new protocol files for later use. To access the Thermal Cycling Protocol tab directly, click the **Plate Setup** tab icon 🔲 (see image) and then click the **Thermal Cycling Protocol** tab under it. Users can edit existing protocols and/or add new protocols and then save them to access for future runs. Accessing saved thermal cycling protocols can be accomplished as outlined in step 2.

2. Choose/edit the appropriate steps (see Temperature, Time, Ramp Rate, Increment, and Extend fields, as shown) for the desired thermal profile. Always use a Ramp Rate of 2.0°C/sec for all ddPCR applications, as shown. Save the thermal cycling protocol for future use (saved protocols can be accessed in the Choose Existing dropdown menu in the Thermal Cycling Protocol section of the QX ONE Software plate configuration window).

3. Saving the thermal cycling protocol will automatically navigate the user back to the QX ONE Software plate configuration window (see image in Managing Plate Template File(s) step 1). Select **Start Run**.

Note: When programing subsequent thermal cycling protocols (protocols that succeed the initial run), Bio-Rad recommends adding two additional steps to these protocols: add a step preceding the user's protocol at 25°C for 3 min, and an additional step succeeding the user's protocol at 25°C for 1 min.

Recovering Cartridges from the QX ONE ddPCR System

If the run fails during the droplet generation or the droplet reading phase, QX ONE Software moves the run to the lower pane in the Run Status screen and displays a red exclamation point under Run Status.
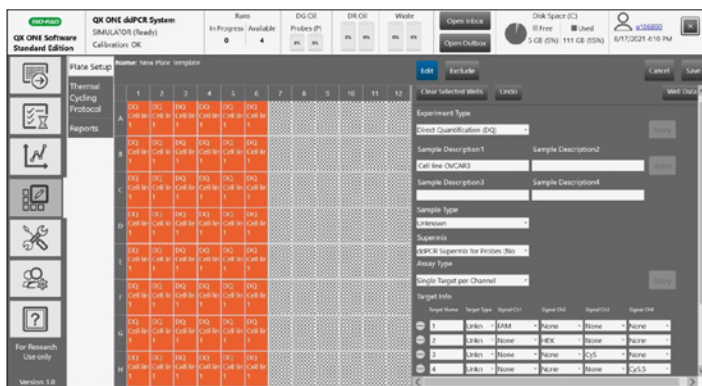
Plate Name	Barcode	Run Status	Run Completed	File Name
Example 1	01-02-12-04-05	ⓘ	10/27/2022 11:40:29 AM	Example 1_20221027_114024_213.ddpcrone

To recover or discard the cartridge in QX ONE Software, try one of the following options that best suits your situation:

- If the error stopped the plate run, select **Open Outbox**, manually remove the plate from the outbox, and then restart the instrument. When the instrument restarts, the Recover Plates screen appears automatically. Select the **Recover** checkbox and then select **OK**. Follow the screen prompts for scanning the recovered plate. QX ONE Software will automatically resume the ddPCR experiment where it was interrupted last

- If the cartridge failed during thermal cycling, Bio-Rad recommends discarding this cartridge and rerunning the experiment as the contents within the wells will likely be unstable/unusable for accurate analysis downstream

Refer to the QX ONE Droplet Digital PCR System and QX ONE Software User Guide (10000116512) for additional details.

Visit **bio-rad.com/QXONE** for more information.

BIO·RAD

**Bio-Rad
Laboratories, Inc.**

*Life Science
Group*