# User Manual: Utility Hub for Zoë-CM1 and Zoë-CM2

Emulate Utility Hub software is used to update instrument firmware and to download operational log files for performance assessment and troubleshooting issues. This document provides step-by-step directions on how to download, install, and use Utility Hub.

## Table of Contents

## Required Components

| Component | Description |
|---|---|
| PC / Laptop | Utility Hub is compatible with Windows 10 (or higher) only. |
| Utility Hub Software | Software application installed on a PC to update Zoë firmware & download log files |
| Zoë Display Update Cable | Emulate-provided cable to connect a PC to Zoë + Utility Hub for **display** firmware updates (Figure 1) |
| Zoë Core Update Cable | Emulate-provided cable to connect a PC to Zoë + Utility Hub for **core** firmware updates (Figure 2) |
| Utility Door Pry Tool | Emulate-provided tool for accessing the cable connection ports on Zoë (Figure 3) |



**Figure 1 |** Emulate Display Update Cable



**Figure 2 |** Emulate Core Update Cable



**Figure 3 |** Utility Door Pry Tool

***Please Note:*** *If you do not have these tools, or are unsure whether you have the appropriate tools, please contact Emulate support:* [support@emulatebio.com](mailto:support@emulatebio.com)

# How to determine the versions of firmware on your Zoë-CM1 / Zoë-CM2

To determine the **display firmware** version currently installed on your Zoë:

1. If Zoë is ON, power OFF using the power button / rocker switch.

2. Power Zoë ON and pay close attention to the loading screen with the Emulate logo (Figure 4), which briefly appears prior to launching into the Zoë Home view.

3. On this loading screen (Figure 4) the display firmware version can be found at the bottom, see red outline in Figure 4.

4. After completing the firmware update, you are required to power cycle (OFF / ON) Zoë; you can confirm a successful display firmware update during this power cycle if / when you see **UI-1.3.2** on the loading screen. This is the current display firmware version.
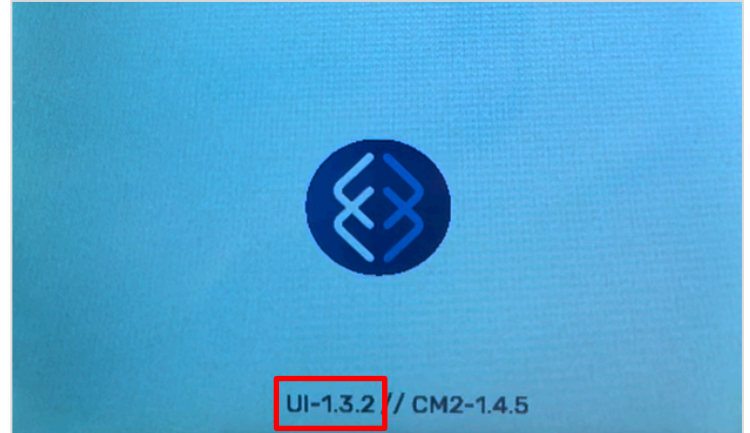


**Figure 4 |** Zoë loading screen showing the Emulate logo, and the version of display firmware (left) and core firmware (right).

To determine the **core firmware** version currently installed on your Zoë:

1. On the Zoë Home view, use the Dial to highlight the System Information icon.

2. Click the System Information icon to display the System information view (Figure 5).

3. The fourth option – called Software Version – will display the version of firmware installed on Zoë. See Figure 5 for reference.
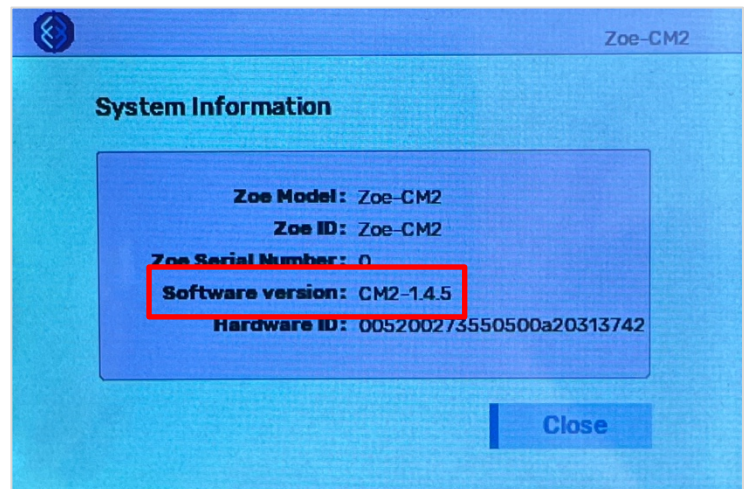


**Figure 5 |** Zoë System Information view, showing the version of firmware currently installed (red outline).

## Download Utility Hub

1. Go to the Utility Hub download webpage: https://emulatebio.com/utility-hub.

2. Select your Zoë instrument – CM1 or CM2 (Figure 6).

   *Please Note: Firmware packages for Zoë-CM1 and Zoë-CM2 are different! Be sure to select the appropriate instrument prior to download.*
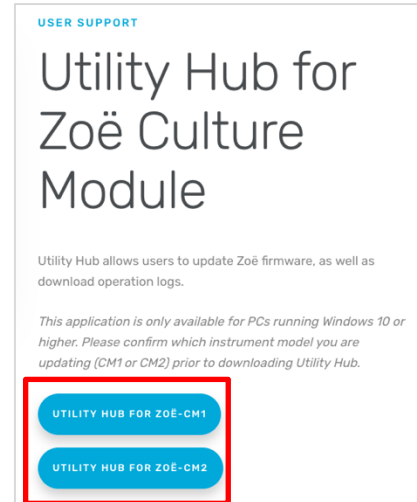


**Figure 6 |** Zoë Instrument Selection

3. Complete the registration form and click **Submit** to initiate the download.

4. The firmware update is packaged in a compressed (zipped) folder (see Figure 7):

   ○ **Emulate-UtilityHub-Zoe-CM1-Firmware_v1-2-5_ChipR1** for **CM1**

   ○ **Emulate-UtilityHub-Zoe-CM2-Firmware_v1-4-5_ChipR1** for **CM2**
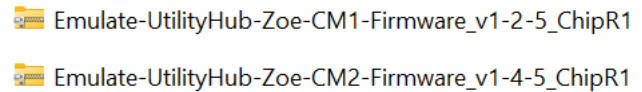


**Figure 7 |** Zoë firmware upgrade folder names after download

5. Once the download is complete, right-click on the compressed (zipped) folder and click **Extract All** (Figure 8).
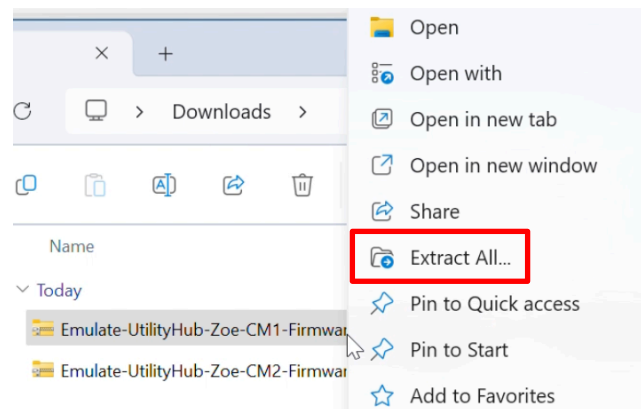


**Figure 8 |** Right-click the zipped folder and extract the contents

## Update Zoë-CM1 / Zoë-CM2 Firmware

***IMPORTANT!*** *It is critical that you connect Zoë to your PC in the* **correct order** *at the* **correct timing** *– only when prompted by this document & the firmware update screens – using Emulate-provided cables only. Following this document and the on-screen instructions in Utility Hub will ensure the highest rate of firmware update success. Failure to follow the firmware update instructions carefully will likely result in a failed firmware update.*

**Time required:** Approximately 20 minutes

1. Ensure Zoë-CM1 / Zoë-CM2 is powered ON and responsive (e.g., responsive to input from the Dial)
2. Open the unzipped folder to view the folder contents.
3. Double-click the file named **UtilityHub.exe** to open Utility Hub.

   ***Please Note:*** *If prompted by an anti-malware program, click* **More info** *and then click* **Run anyway** *(Figure 9).*
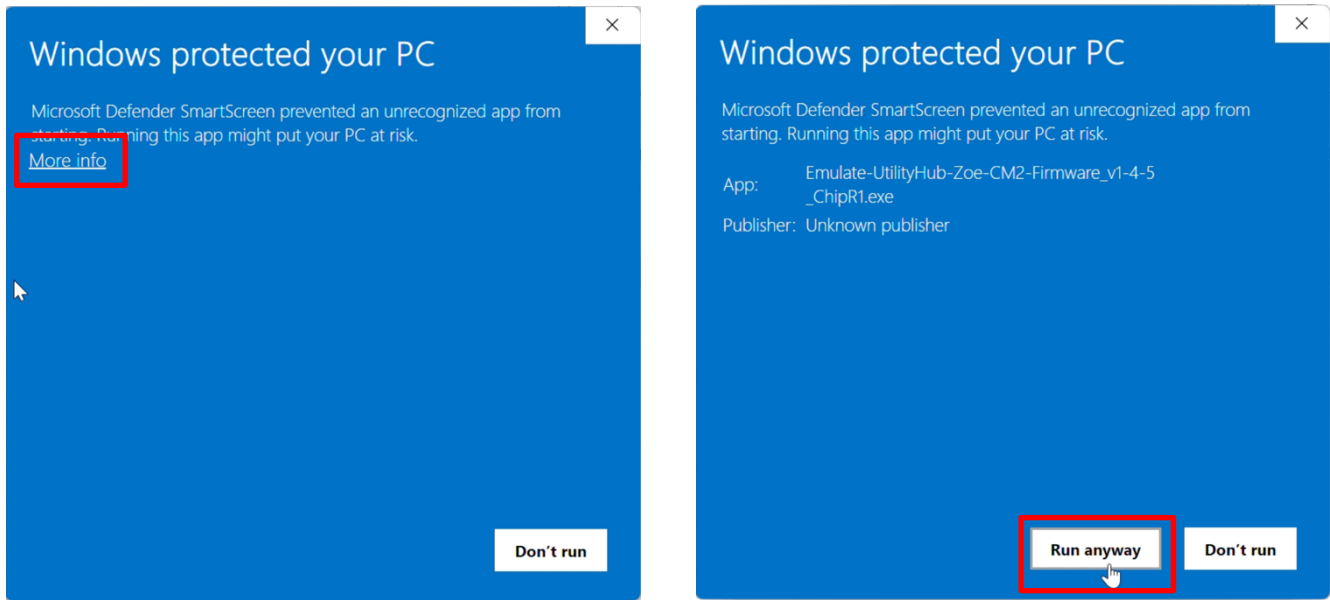


**Figure 9 |** Microsoft Defender preventing Utility Hub from running without additional user confirmation.

4. After clicking **Run anyway**, the Utility Hub home splash screen will appear (Figure 10).

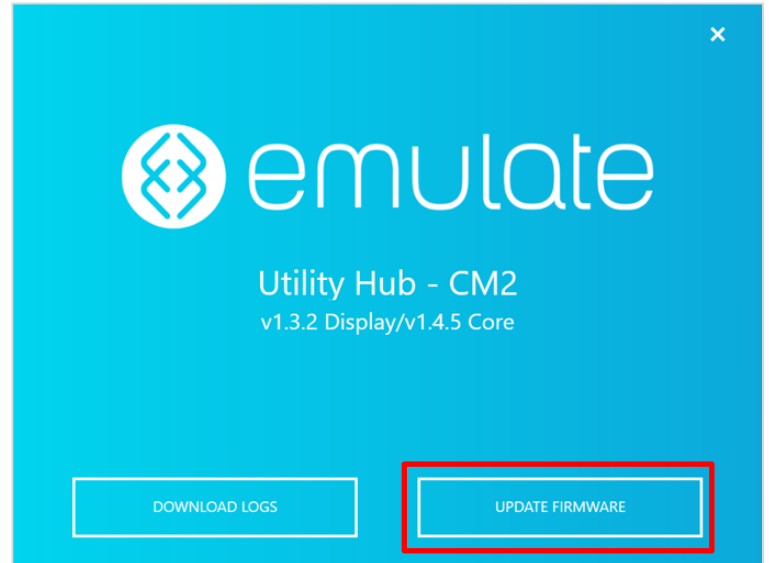5. Click **UPDATE FIRMWARE** (Figure 10).



**Figure 10 |** The Utility Hub home splash screen for Zoë-CM2 showing the option to **Download Logs** and **Update Firmware**. The Utility Hub home splash screen for Zoë-CM1 looks nearly identical, the only difference is the version numbers displayed in the center of the screen.

6. Carefully review the "Welcome" information (Figure 11) and ensure you have all components required to complete the firmware update. This firmware update is composed of two parts, a **display** update and a **core** update.

When ready to begin, click **START**.

*Please Note: Do not perform the firmware upgrade if there is an active experiment running on Zoë-CM1 / Zoë-CM2. The upgrade should only be performed when Zoë-CM1 / Zoë-CM2 is not in use.*
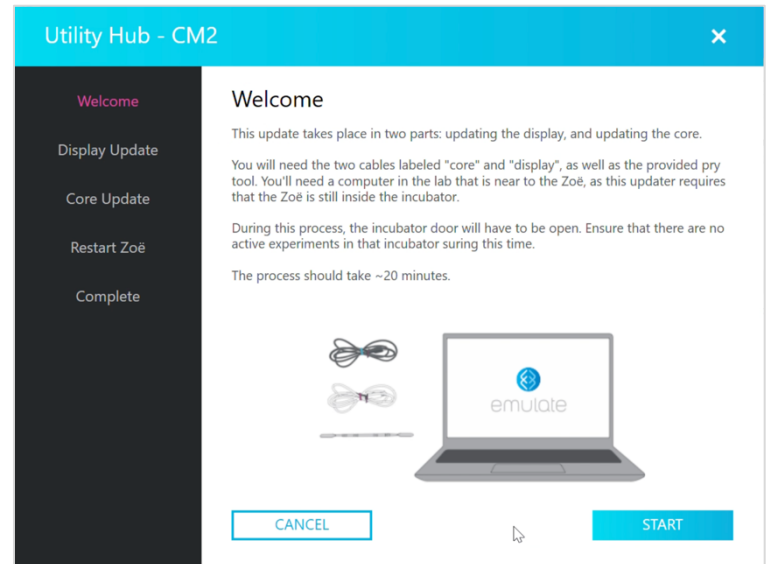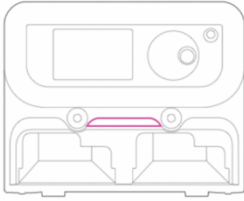


**Figure 11 |** The Utility Hub "welcome" screen that shows the components required to execute the Chip-R1 firmware upgrade.

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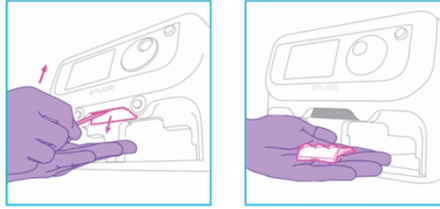7. Follow the Utility Hub instructions to remove the utility port cover (Figure 12).
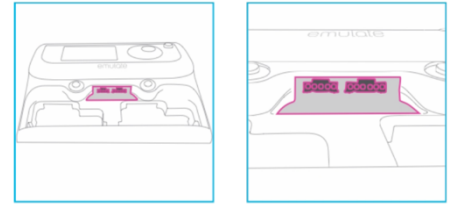


**Figure 12 |** Utility Hub on-screen instructions for removing the Zoë Utility Door to connect the firmware update cables.

8. The first part of this update is for the **display firmware**. Once the utility port cover is removed, connect the **display update cable** to *Zoë only* (Figure 13) and then click **Next**. Do not connect to your PC until prompted!

   ***Please Note:*** *When the display update cable is connected, the Zoë display will go dark, then will show the Emulate logo. Zoë will remain in this state until the firmware update is complete.*
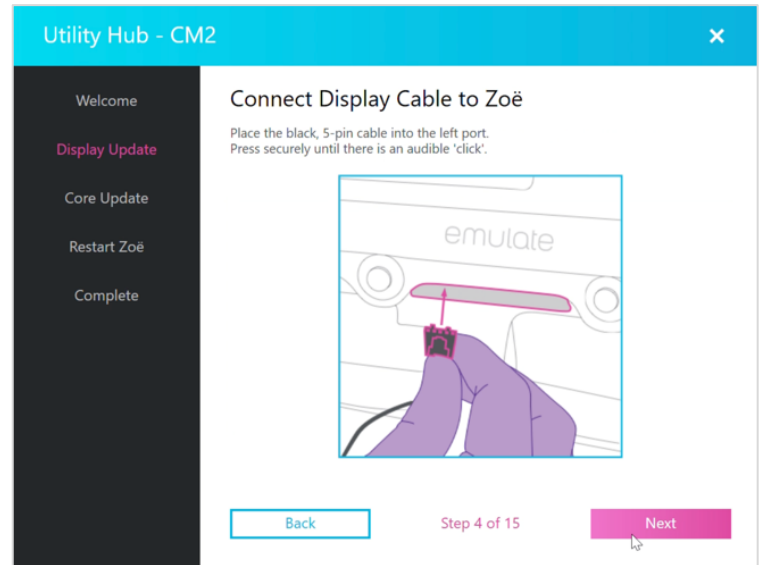


**Figure 13 |** Connect display update cable to Zoë

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9. On the next screen (Figure 14), you will be instructed to plug in the **display update cable** to an available USB port on your PC. Connect the cable to your PC and listen for the audible USB connection sound. **DO NOT CLICK NEXT.**

   Wait ~60 seconds after connecting the **display update cable** to your PC to allow for Windows to detect the serial device (Zoë) and install drivers, especially if this is the first time your PC has connected to Zoë.

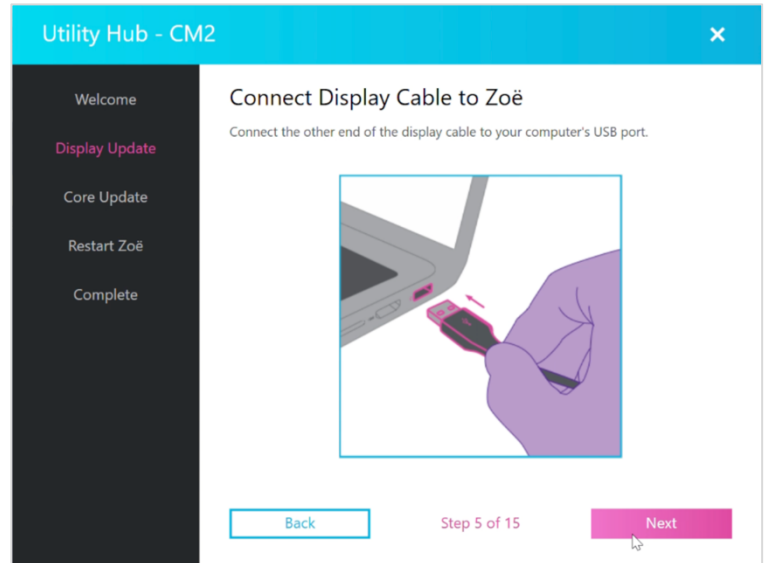   After ~60 seconds, click **Next** and the **display update** will begin automatically.



**Figure 14 |** Connect display update cable to PC

*Please Note: If the **display update cable** was plugged in to the PC before this step, an error will occur in Utility Hub (see troubleshooting section for more information). If this happens, disconnect the display update cable from Zoë and your PC and power cycle your Zoë. Close & reopen Utility Hub and restart the upgrade procedure.*

10. The **display update** progress bar will appear and will indicate installation progress (Figure 15). The **display update** takes approximately 5-10 minutes to complete.

    *Please Note: Disconnecting the display update cable during the update process can cause serious consequences to Zoë operation, potentially rendering the device inoperable.*
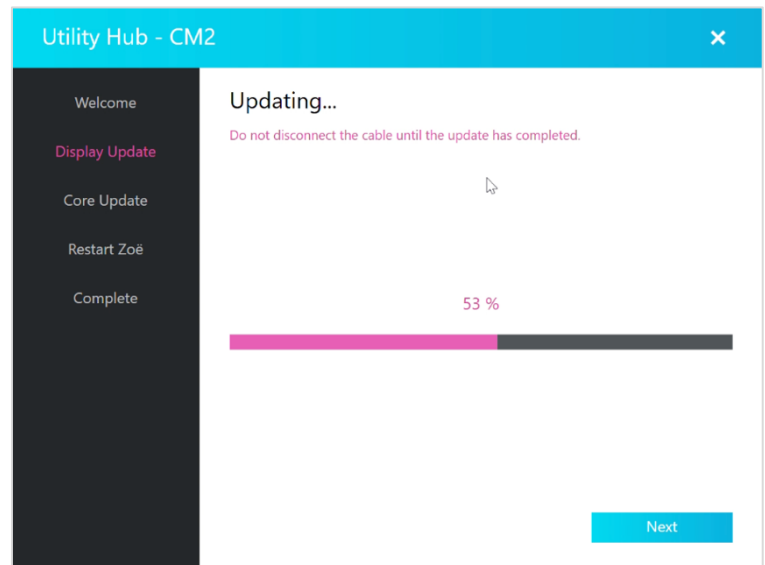


**Figure 15 |** Display update progress bar

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11. Once the display update has completed, you will be prompted to first disconnect the display update cable from Zoë, then disconnect the display update cable from your PC (Figure 16). Store the display update cable in a safe location for future reuse.
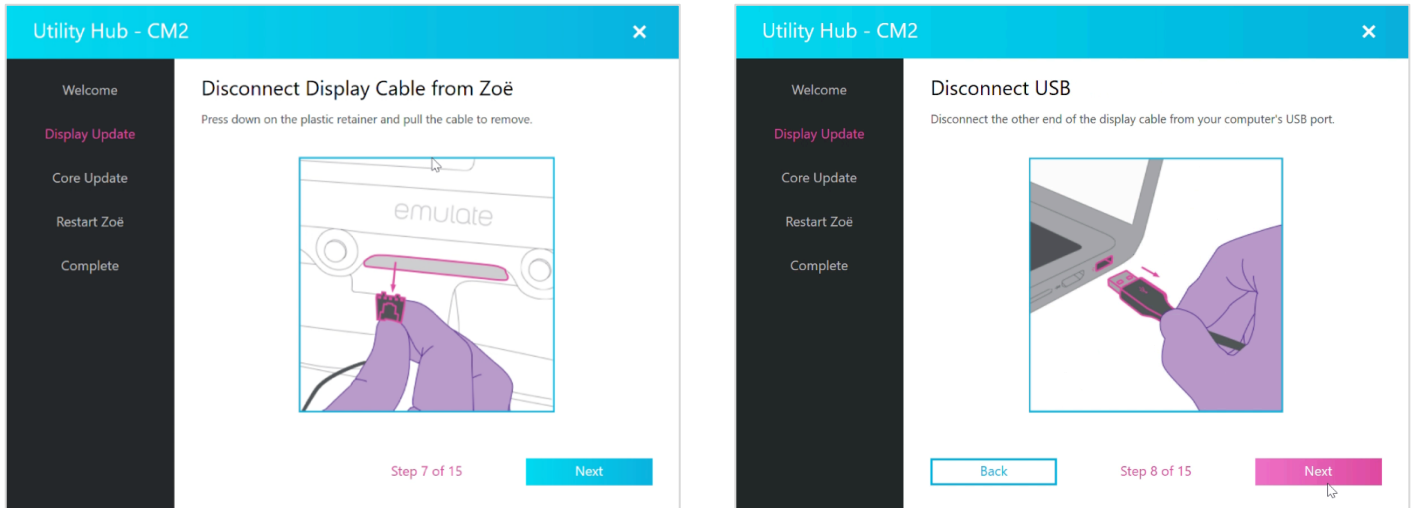


**Figure 16 |** Disconnecting the **display update cable** from Zoë (left) and the PC (right) after completing the display firmware update.

12. Click **Next** (Figure 16 above) to initiate the second part of the update for Zoë **core firmware**. When prompted, connect the **core update cable** to *Zoë only* (Figure 17), then click **Next**. Do not connect to your PC until prompted!
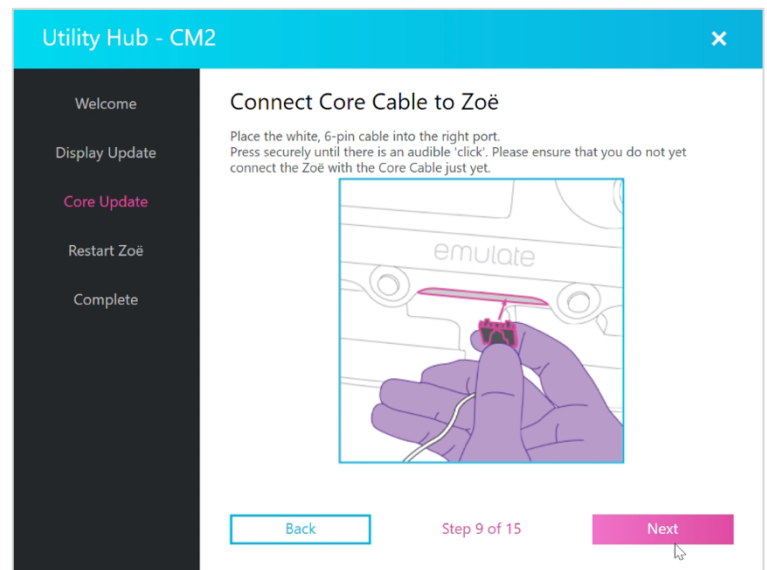


**Figure 17 |** Connect core update cable to Zoë.

13. On the next screen (Figure 18), you will be instructed to plug in the **core update cable** to an available USB port on your PC. Connect the cable to your PC and listen for the audible USB connection sound. **DO <u>NOT</u> CLICK NEXT.**

Wait ~60 seconds after connecting the **core update cable** to your PC to allow for Windows to detect the serial device (Zoë) and install drivers, especially if this is the first time your PC has connected to Zoë.
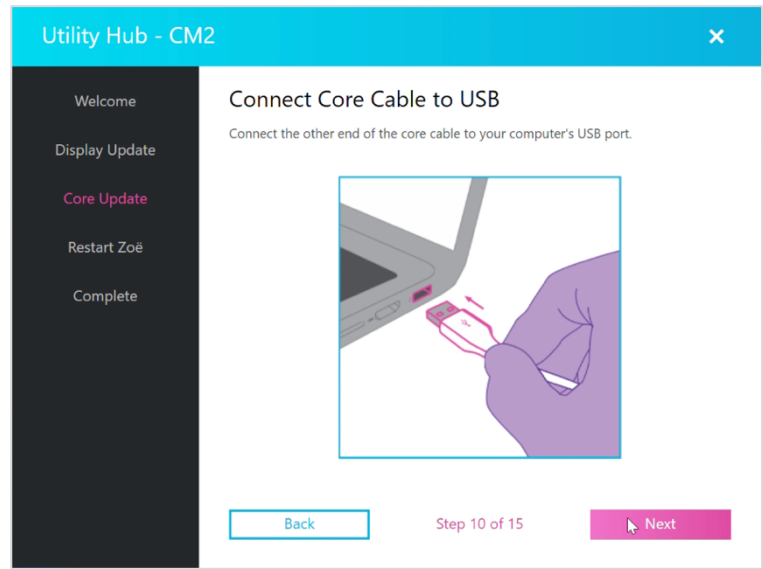
After ~60 seconds, click **Next.**

**Figure 18 |** Connect core update cable to PC.

14. On the next screen you will be asked to run the **core update** (Figure 19), click **Next** when ready.

*Please Note: If the **core update cable** was plugged in to the PC before this step, an error will occur in Utility Hub (see [Troubleshooting](#) for more information). If this happens, disconnect the core update cable from Zoë and your PC and wait ~30 seconds. Reconnect the core update cable first to Zoë, then to your PC, and click **Retry**. If this is not successful, then power cycle your Zoë. Close & reopen Utility Hub and restart the firmware upgrade procedure.*
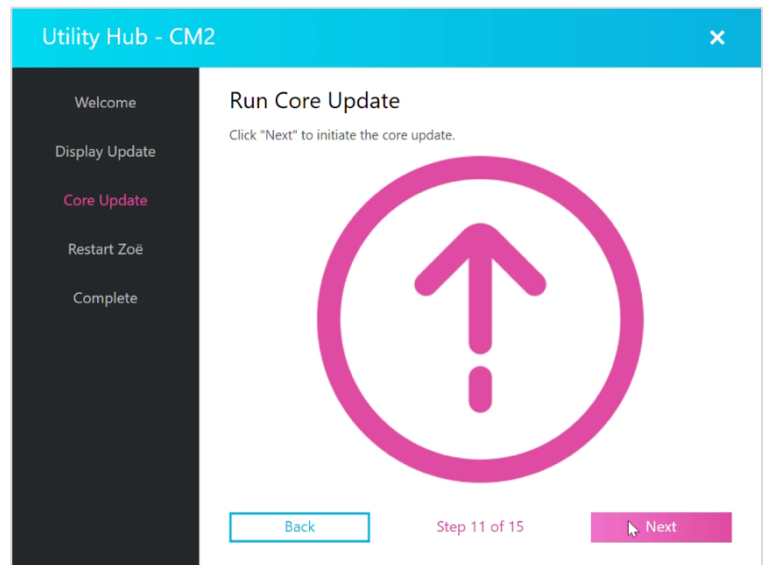
**Figure 19 |** Initiate the core firmware update.

15. The **core update** progress bar will appear to indicate installation progress (Figure 20). The **core update** takes approximately 5 minutes to complete. Once the core update is complete, you will notice the Zoë display loads the Home screen and no longer shows the Emulate logo.

    ***Please Note:*** *Disconnecting the core update cable during the update process can cause serious consequences to Zoë operation, potentially rendering the device inoperable.*



**Figure 20 |** Core update progress bar.
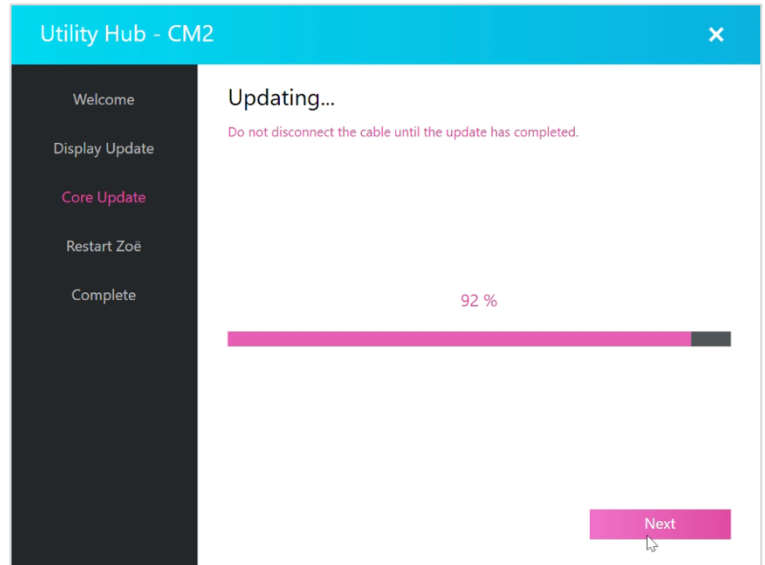
16. Once the core update has completed, you will be prompted to disconnect the core update cable from Zoë, then disconnect the display update cable from your PC (Figure 21). Store the core update cable with the display update cable in a safe location for future reuse.
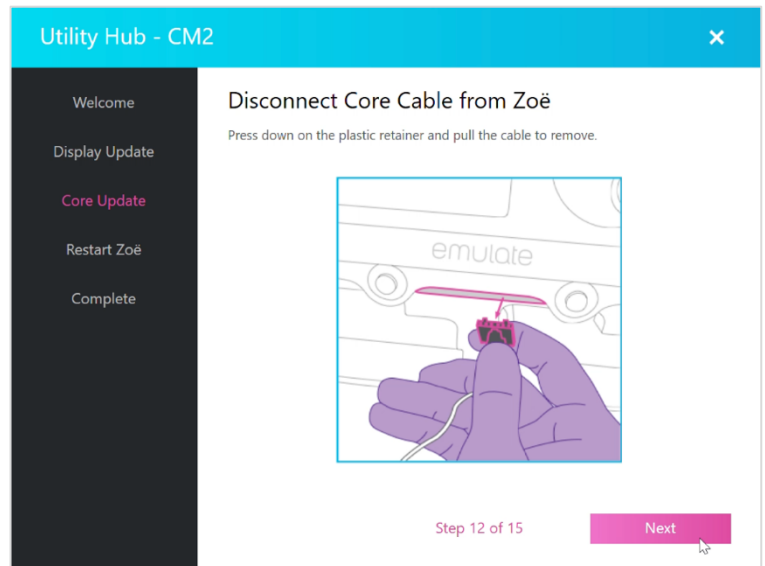
    Click **Next**.



**Figure 21 |** Disconnect core update cables from Zoë and your PC.

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17. Replace the Utility Door on the front of Zoë (Figure 22). Once done, click **Next**.



**Figure 22 |** Replace the Utility Door on Zoë.
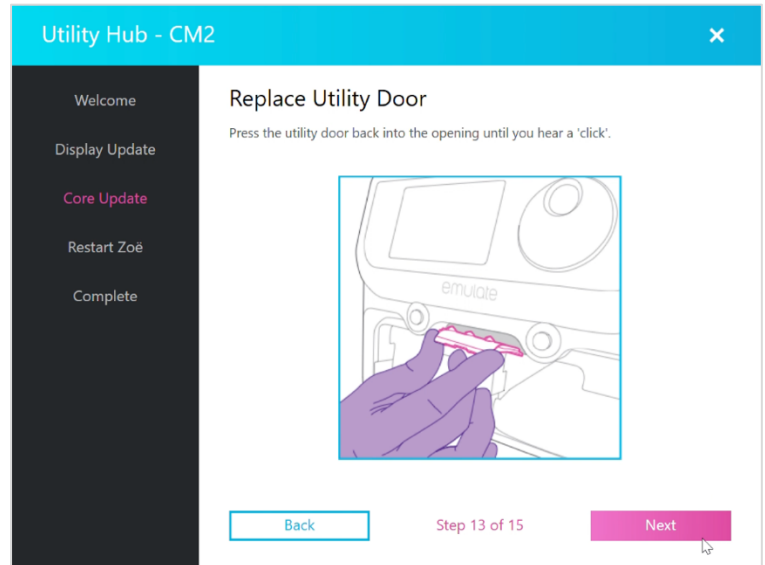
18. It is critical to power cycle (turn OFF / ON) Zoë after the firmware update. Utility Hub will prompt the user to perform this step (Figure 23) during the update process. Simply press the power button / rocker switch to power OFF Zoë, wait 10-20 seconds, then power Zoë ON.
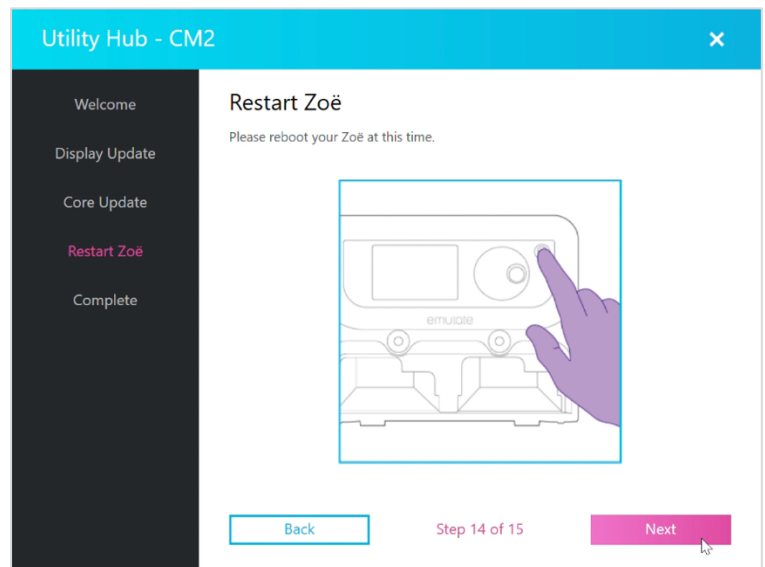


**Figure 23 |** Utility Hub prompt to power cycle Zoë after completing the firmware update.

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19. Click **Next** when ready, displaying the final Utility Hub firmware update window (Figure 24), indicating the firmware update process has completed. Click **Finish** to return to the Utility Hub home view.



**Figure 24 |** Update complete prompt in Utility Hub.

20. Refer to the earlier section called ***How to determine the versions of firmware on your Zoë-CM1 / Zoë-CM2*** for step-by-step instructions to confirm the firmware installation was successful.

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# Perform Regulate Cycle for Log File Download

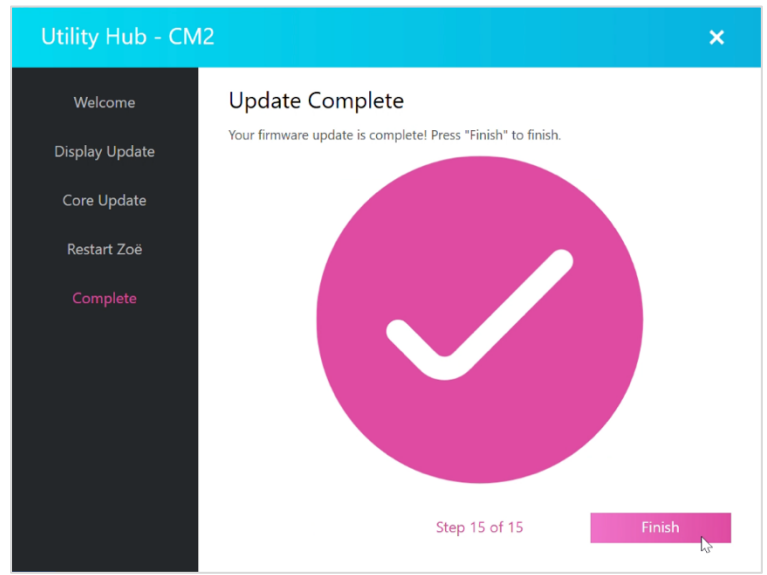**After updating the system's firmware, Emulate strongly recommends running the Regulate Cycle once, which will take approximately 3 hours.** If you do not have time to immediately complete this step, please do so as soon as possible. Once you have run the Regulate Cycle, please download the log file and send to support@emulatebio.com to confirm that your system is running as expected.

**Time required:** Approximately 20 minutes

Complete instructions for performing a Regulate Cycle can be found in the Zoë-CM1 / Zoë-CM2 User Manual. Abbreviated instructions are provided below:

1. Load empty trays (without Pods) into both bays of Zoë-CM1 / Zoë-CM2.

2. Enter the following settings:

| Zoë Setting | Value |
|---|---|
| Chip Type | R1 |
| Top Channel | 80 μL / hr |
| Bottom Channel | 80 μL / hr |
| Stretch | 0 % |
| Frequency | 0 Hz |

   *Please Note: It is critical that the Chip-R1 is the chip type selected for this operation.*

3. Highlight the Regulate Cycle on the Zoë Home view and rotate the dial to toggle **Start**, then press the Dial to initiate the Regulate Cycle.

4. A warning dialog will appear, ensure you see **Chip-R1** in the warning dialog text. If yes, use the Dial to select & click **Start**.

   *Please Note: If you see Chip-S1 in the warning dialog, use the Dial and click **Cancel** to return to the Home view. From the Home view, use the chip selection feature to select **Chip-R1**, then re-initiate the Regulate Cycle.*

5. After clicking **Start** on the warning dialog, the Regulate Cycle will begin. You will see a progress bar on the Zoë Home view indicating the progress of the Regulate Cycle.

   *Please Note: In this situation – a Regulate Cycle for log file purposes – it is possible to run overnight without any risk to damaging Zoë. After completion of a Regulate Cycle, Zoë will revert / resume flow based on whatever settings are currently configured on Zoë. It is strongly encouraged that you always pay close attention to the flow settings on your Zoë, ensuring the reservoirs are never fully depleted of liquid.*

6. After the Regulate Cycle is complete, press the Bay Activation Buttons to raise the manifolds. Proceed to the next section to download log files.

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# Download Zoë Log Files

**Time required:** Approximately 20 minutes

1. Ensure the Zoë-CM1 / Zoë-CM2 is powered ON and responsive (e.g., responsive to input from the Dial)

2. Open Utility Hub.

   *Please Note: If prompted by an anti-malware program, click **More info** and then click **Run anyway** (Figure 25).*
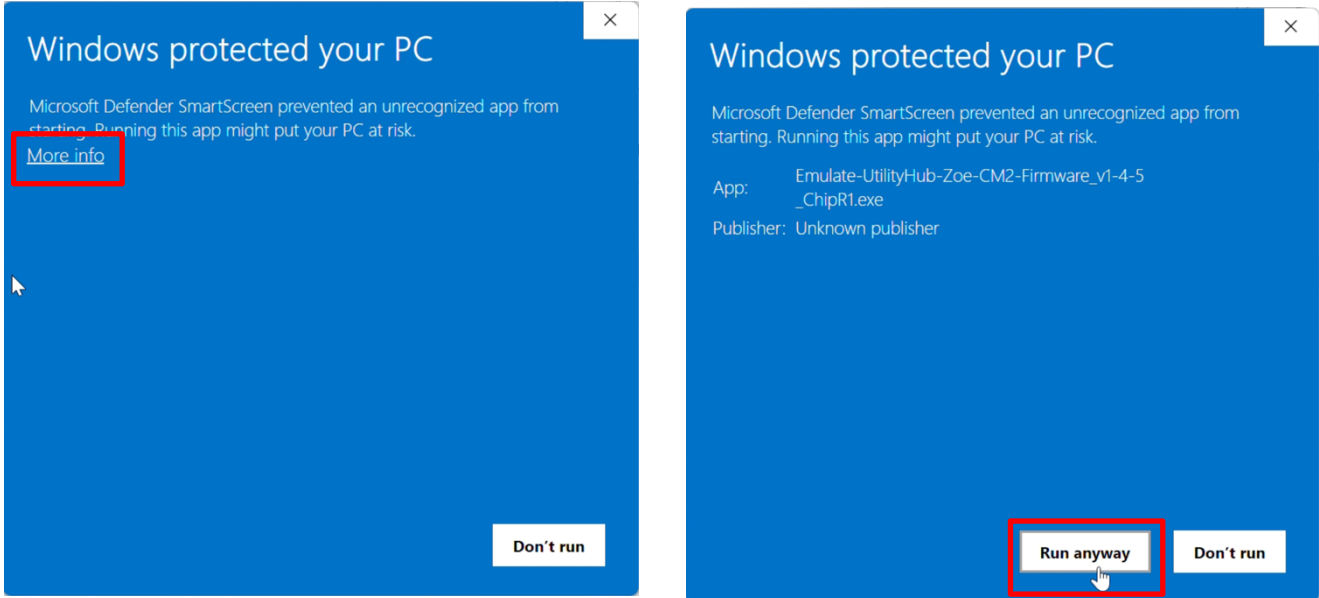


**Figure 25 |** Microsoft Defender preventing Utility Hub from running without additional user confirmation.

3. Click **DOWNLOAD LOGS** from the Home view (Figure 26).



**Figure 26 |** The Utility Hub home splash screen for Zoë-CM2 showing the option to **Download Logs** and **Update Firmware**. The Utility Hub home splash screen for Zoë-CM1 looks nearly identical, the only difference is the version numbers displayed in the center of the screen.

4. Carefully review the "Welcome" information (Figure 27) and ensure you have the components required to download log files.

   When ready to begin, click **START**.

   ***Please Note:*** *Do not attempt to download log files if there is an active experiment running on Zoë-CM1 / Zoë-CM2. Log file download should only be performed when Zoë-CM1 / Zoë-CM2 is not in use.*
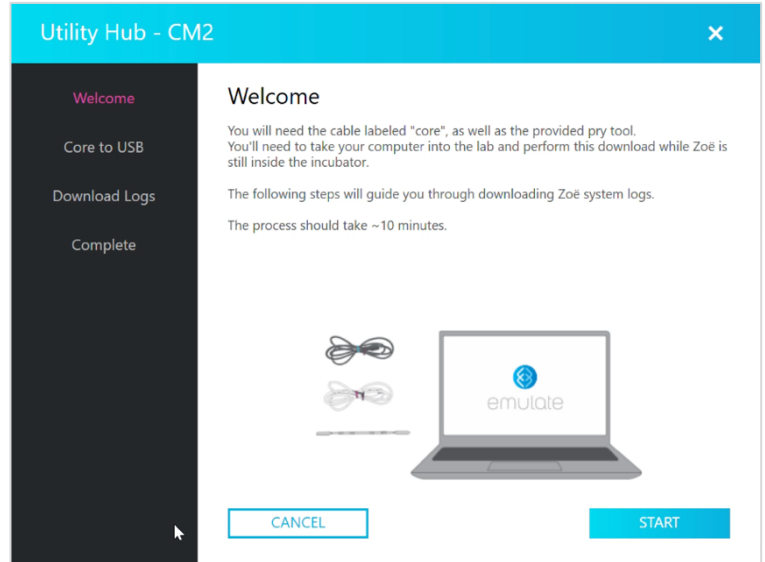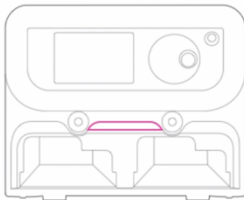


**Figure 27 |** The Utility Hub "welcome" screen that shows the components required to execute log file download.

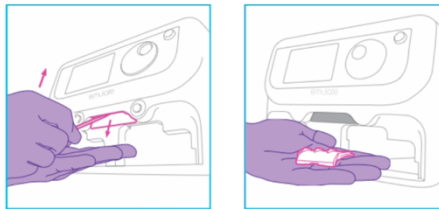5. Follow the Utility Hub instructions to remove the utility port cover (Figure 28).
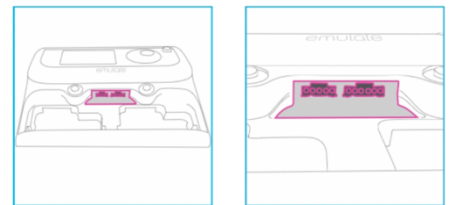


**Figure 28 |** Utility Hub on-screen instructions for removing the Zoë Utility Door to connect the firmware update cables.

6. After removing the utility door from Zoë, connect the **core update cable** to Zoë ***only*** (Figure 29), then click **Next**. Do not connect to your PC until prompted!
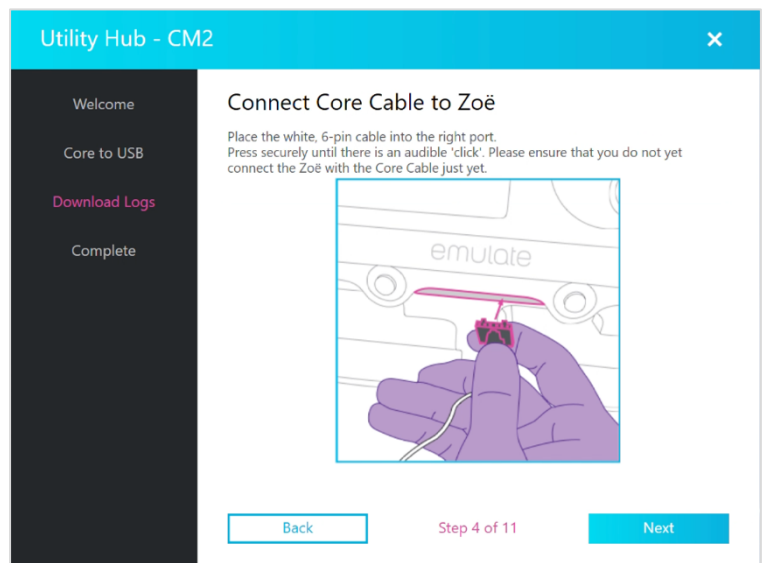


**Figure 29 |** Connect core update cable to Zoë prompt.

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7. When prompted (Figure 30), plug the **core update cable** into an available USB port on your PC. Connect the cable to your PC and listen for the audible USB connection sound. **DO <u>NOT</u> CLICK NEXT.**

Wait ~60 seconds after connecting the **core update cable** to your PC to allow for Windows to detect the serial device (Zoë) and install drivers, especially if this is the first time your PC has connected to Zoë.

*Please Note: If the **core update cable** was plugged in to the PC before this step, an error will occur in Utility Hub (see troubleshooting section for more information). If this happens, disconnect the core update cable from Zoë and your PC and wait ~30 seconds, then reconnect to Zoë and then to your PC and click **Retry**. If this is not successful, then power cycle your Zoë. Close & reopen Utility Hub and restart the log download procedure.*

8. After ~60 seconds, click **Next.**

9. The *Initiate Download* dialog will appear next (Figure 31), click **Next** to select your save location and file name(s).

*Please Note: The **Initiate Download** dialog can take up to ~90 seconds to display, this is normal. In most cases, it should show up almost immediately.*
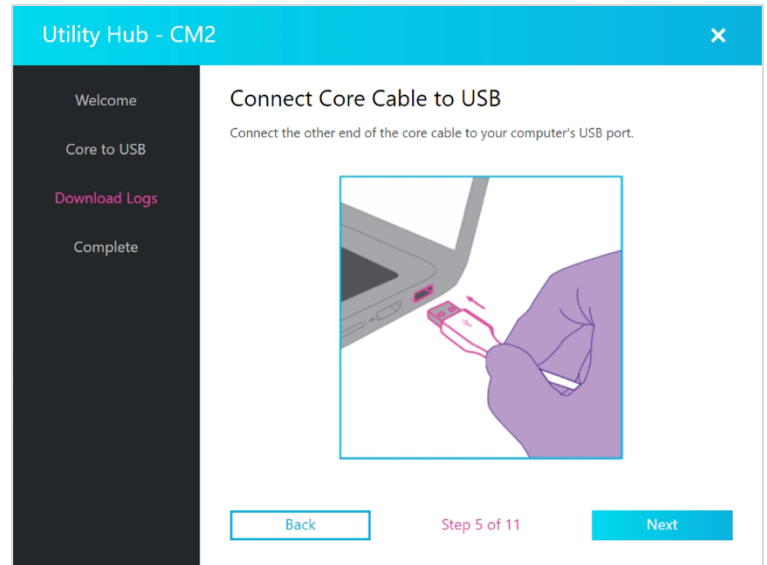
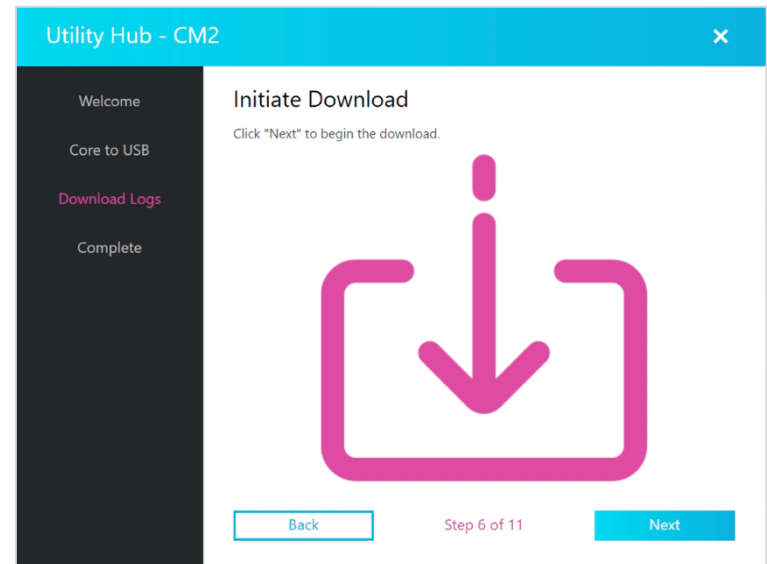**Figure 30 |** Connect core update cable to PC prompt.

**Figure 31 |** Initiate Download dialog in Utility Hub. This may appear instantly or can take up to 90 seconds to appear.

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10. The *Save As* Windows dialog will appear (Figure 32), allowing you to choose the location and folder name for your log file download. Suggested file names include:
    • Zoë-CM1-Log-File-YYYY-MM-DD
    • Zoë-CM2-Operational-Log-File-YYY-MM-DD
    • Zoë-CM2-Pressure-Log-File-YYY-MM-DD

    After choosing a save location and file name, click **Save** (repeat twice for Zoë-CM2 users).

    ***Please Note:*** *For Zoë -CM1 users, there is one log file downloaded following this procedure. For Zoë - CM2 users, two log files are downloaded following this procedure (operational logs and pressure logs). Therefore, you will see two Save As prompts for Zoë-CM2.*
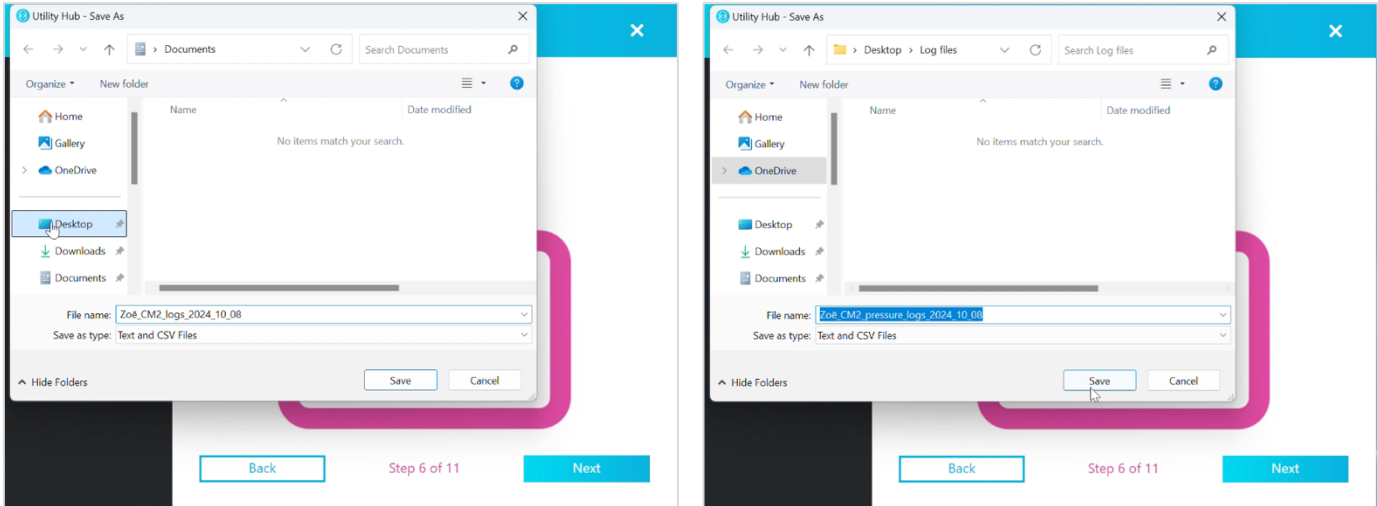


**Figure 32 |** Choose the file name and save location for your Zoë-CM1 or Zoë-CM2 log file(s). There are two **Save As** prompts for the Zoë-CM2 log file download process, operational logs (left) and pressure logs (right). For Zoë-CM1 users, there is only one log file download and accompanying **Save As** prompt.

11. The log file(s) will automatically begin to download. The Utility Hub UI will indicate the log file is being downloaded (Figure 33).

    ***Please Note:*** *Disconnecting the core update cable during the log file download will result in an error message and an incomplete log file download. If this occurs, the log file download process must be restarted.*
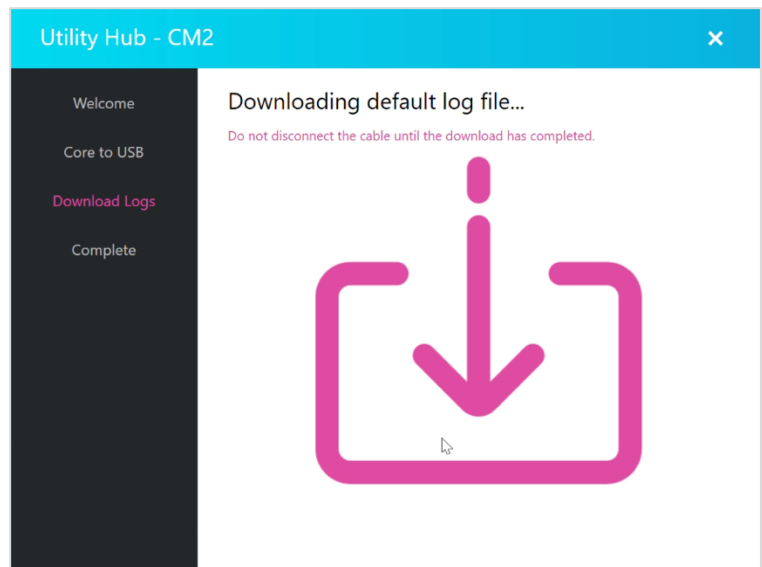


**Figure 33 |** Utility Hub UI when a log file download is in progress.

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12. When the **Next** button appears (Figure 34), this indicates the log file download has completed. It is normal for the log file download process to take less than 20 minutes. In most cases, the log file download should be very quick.
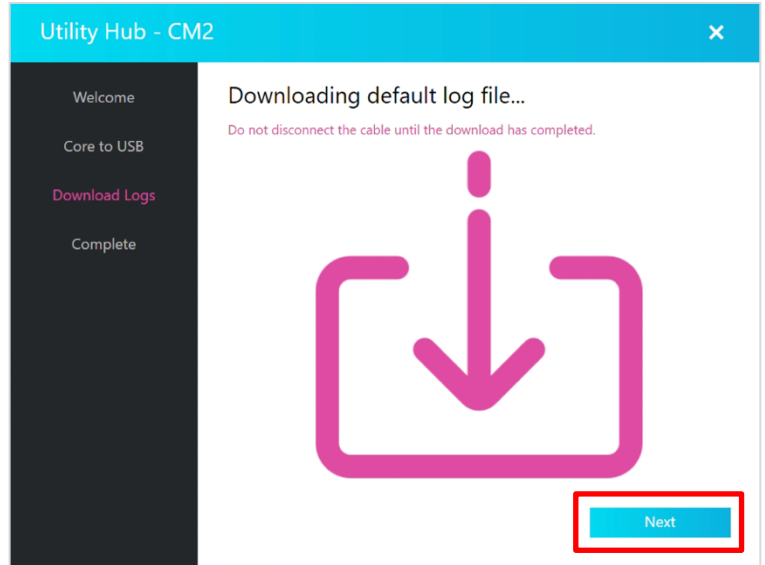
Click **Next**.



**Figure 34 |** Utility Hub UI will show the **Next** button when the log file download has completed.

13. Disconnect the core update cable from Zoë and your PC when prompted (Figure 35), then click **Next**.
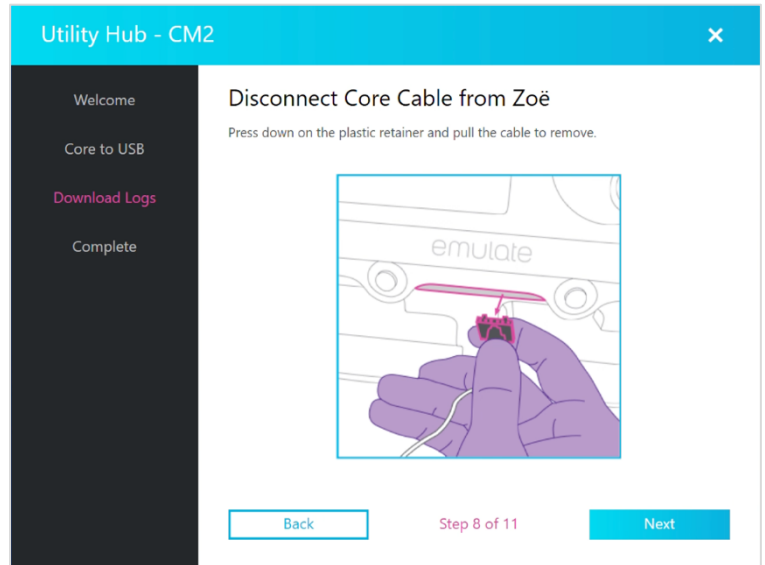


**Figure 35 |** Disconnect core update cable prompt.

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14. Replace the utility door on the front of Zoë when prompted (Figure 36), then click **Next**.
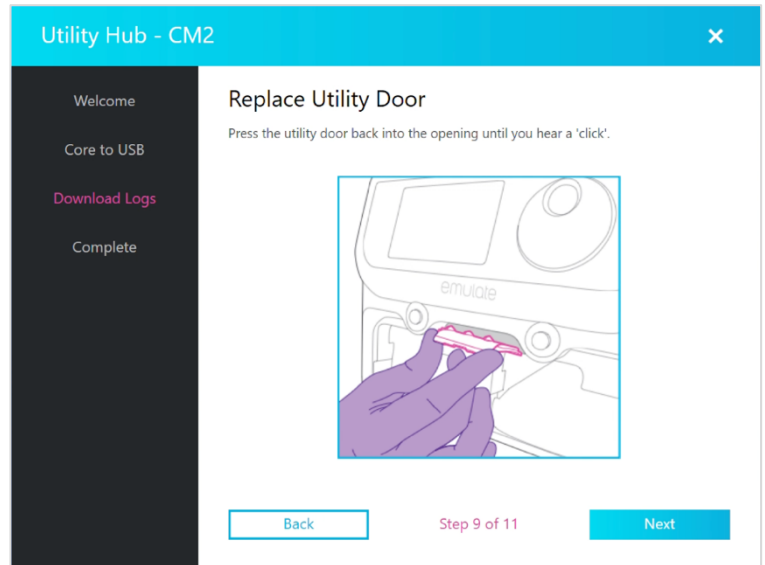


**Figure 36 |** Replace utility door prompt.

15. It is critical to power cycle (turn OFF / ON) Zoë after downloading log files. Utility Hub will prompt the user to perform this step (Figure 37) during the log download process. Simply press the power button / rocker switch to power OFF Zoë, wait 10–20 seconds, then power Zoë ON. It is recommended to perform this power cycle after the final step in this process.

    Click **Next** when ready.



**Figure 37 |** Restart Zoë prompt.

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16. The final Utility Hub log file download dialog will appear (Figure 38), indicating the process is complete. Click **Finish** to return to the Utility Hub home view.



**Figure 38 |** Log file download complete prompt.

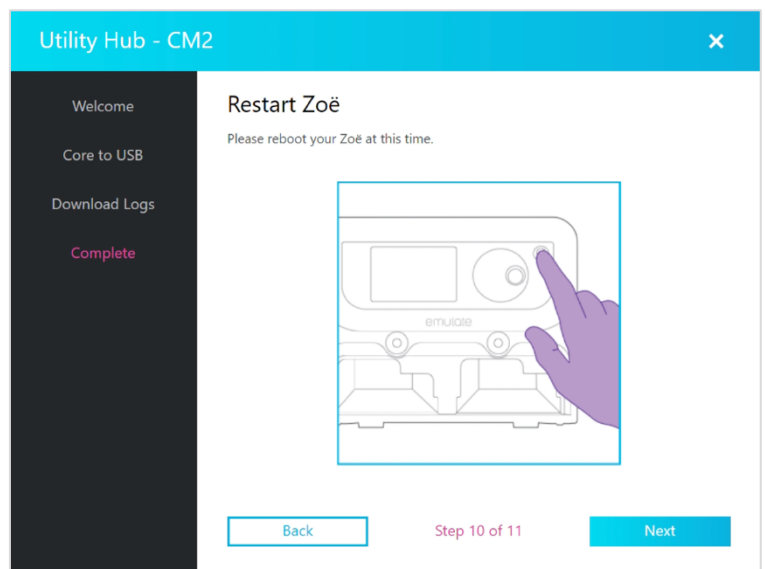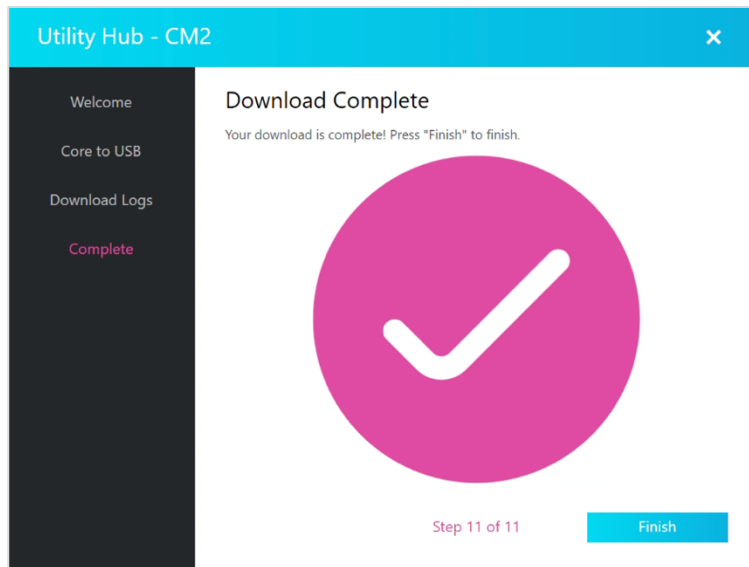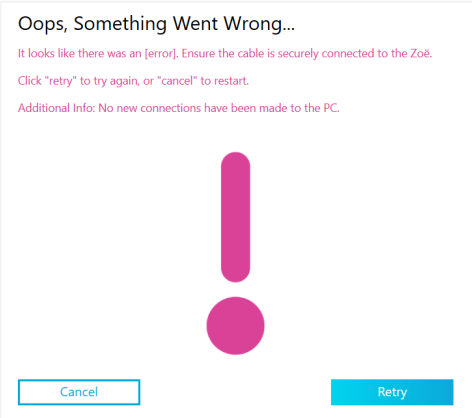17. Send downloaded logs to Emulate Support (support@emulatebio.com) for Zoë-CM1 / Zoë-CM2 instrument performance qualification.

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# Troubleshooting

This section outlines possible problem situations that may arise during a firmware update or log download, and subsequent troubleshooting actions to try resolving the situation. If you are unable to resolve the problem following the content in the troubleshooting section, please contact Emulate Support at support@emulatebio.com

| Issue | Troubleshooting Steps |
|---|---|
| **Utility Hub is displaying an error message to "Retry" the firmware update or log file download.**<br><br>Oops, Something Went Wrong...<br>It looks like there was an [error]. Ensure the cable is securely connected to the Zoë.<br>Click "retry" to try again, or "cancel" to restart.<br>Additional Info: No new connections have been made to the PC.<br><br>!<br><br>Cancel    Retry | 1. Disconnect the display update cable or core update cable from your PC.<br>2. Close Utility Hub.<br>3. Power Zoë OFF and wait ~20 seconds.<br>4. Power Zoë ON and wait until the Home view appears.<br>5. Ensure the UI is responding to Dial input.<br>6. Launch Utility Hub and repeat the firmware update or log file download process.<br>7. If the error continues to persist, try a different USB port on the PC connecting to Zoë. |
| **Zoë-CM1 / Zoë-CM2 display is unresponsive after power cycling with the display update cable or core update cable connected to both Zoë and the PC.** | 1. Disconnect the display update cable or core update cable from your PC.<br>2. Close Utility Hub.<br>3. Power Zoë OFF and wait ~20 seconds.<br>4. Power Zoë ON, wait until the Home view appears.<br>5. Ensure the UI is responding to Dial input.<br>6. Launch Utility Hub and repeat firmware update / log file download process.<br><br>***Please Note:** If the display update cable or core update cable is connected to Zoë and the PC when powering Zoë ON, this problem will continue to reappear. The display update cable and the core update cable can remain plugged into Zoë, but they MUST be unplugged from the PC after use or when retrying a log download / firmware update.* |

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| Issue | Troubleshooting Steps |
|-------|----------------------|
| **Zoë-CM1 / Zoë-CM2 cannot connect / remain connected to my PC.**<br><br>**I am unsure whether Windows / my PC has detected Zoë as a USB serial device.** | 1. Disconnect the display update cable or core update cable from the PC first, then disconnect from Zoë.<br><br>2. Power Zoë OFF and wait ~20 seconds.<br><br>3. Power Zoë ON and wait until the Home view appears.<br><br>4. Ensure the UI is responding to Dial input.<br><br>5. Launch Utility Hub and repeat the firmware update or log file download process.<br><br>6. When prompted, reconnect the display update cable / core update cable to Zoë.<br><br>7. When prompted, reconnect the display update cable / core update cable the PC (*connection order is important*).<br><br>8. Press the **Windows** key ⊞ or press the Windows icon in the lower left corner of the screen on the Task Bar.<br><br>9. Click on the **Settings** icon ⚙ to enter Windows Settings.<br><br>10. Click the search bar with the text "Find a Setting" written in it and type "Device Manager". Select the Device Manager result from the list with an icon of a printer and a camera.<br><br>11. In the Device Manager window, find the expandable listing **Ports (COM & LPT)**.<br><br>12. If **Ports (COM & LPT)** is found, then click on the small arrow icon ">" to expand the listing. Ensure that there is at least one item in the listing that begins with "USB Serial Port". This indicates that the serial port is properly connected.<br><br>13. If **Ports (COM & LPT)** is NOT found, this indicates Windows has not detected the serial device. Try a different USB port on the PC and repeat the above process. |

If your issue is not resolved by this troubleshooting guide, please contact Emulate Support at support@emulatebio.com

## Disclaimer

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