D-BOX

SYSTEM
CONFIGURATOR

USER GUIDE

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1. INTRODUCTION

The D-BOX System Configurator is a free software tool used to update and configure your **G2**, **G3** or **G5** haptic systems.

Haptic system users can use the D-BOX System Configurator to:

- Update the firmware of a KCU-1P (**G2** & **G3**), Haptic Bridge (**G5**) and associated D-BOX hardware.

- Configure (or modify) a haptic system.

- Change the Main – Secondary ACMs arrangement (**G3 and G3 FLEX Only**).

⚠ **If you require a reconfiguration on your G1 haptic system, please contact our support team.**

D-BOX Technical Support

2172 rue de la Province, Longueuil, Québec, Canada, J4G 1R7

BY EMAIL: support@d-box.com

BY PHONE: 1-888-442-3269 ext. 931 (toll-free CAN/US)
1-450-442-3003 ext. 931 (other regions)

2. BEFORE RUNNING THE SYSTEM CONFIGURATOR

2.1 Haptic System Generations

For **G2** & **G3** haptic systems, each ACM holds a programming specific to its actuator's configuration (firmware + programming).

For **G5** haptic systems, firmware & programming are applied to the Haptic Bridge and Haptic Actuators:

Name	ACM-II	ACM-II	ACM-G3	G5 Haptic System
Generation	G2	G2	G3	G5
Stroke	1.5in, 3in & 6in	6in	1.5in, 3in & 6in	1.5in
Max. Number of Actuators	3	2	2	4 8 with the Haptic Expander *

* see G5 Haptic System User Guide for more details on the Haptic Expander

2.2 Haptic Actuator Positions

The logo used to represent the actuator positions is a man sitting on a sofa (top view). The following figure describes the characters used to define the actuator positions:

LEGEND	POSITION	PICTOGRAM REFERENCE
FL	Front–Left	
FC	Front–Center	
FR	Front–Right	
BL	Back–Left	
BC	Back–Center	
BR	Back–Right	
SU	Surge	
SW	Sway	
Y	Yaw	

3. SOFTWARE INSTALLATION

The D-BOX System Configurator is compatible with **Microsoft Windows 7, 8, 10 & 11 – 64 bits**.

STEP 1: Make sure you have the latest version of D-BOX HaptiSync Center installed on your PC before installing and running the D-BOX System Configurator. D-BOX HaptiSync Center package is available on our [website](#).

STEP 2: Download, extract and install (**Setup.exe**) the D-BOX System Configurator package available on our [website](#).

4. G5 HAPTIC SYSTEM

4.1   Starting the System Configurator

> ⚠️ Do not interrupt the update process while it is running. Interrupting the update process before it is completed may cause improper operation.

STEP 1: Connect the hardware to your computer. See your haptic system user guide if necessary: [D-BOX G5 Installation, User & Troubleshooting Guide](#)
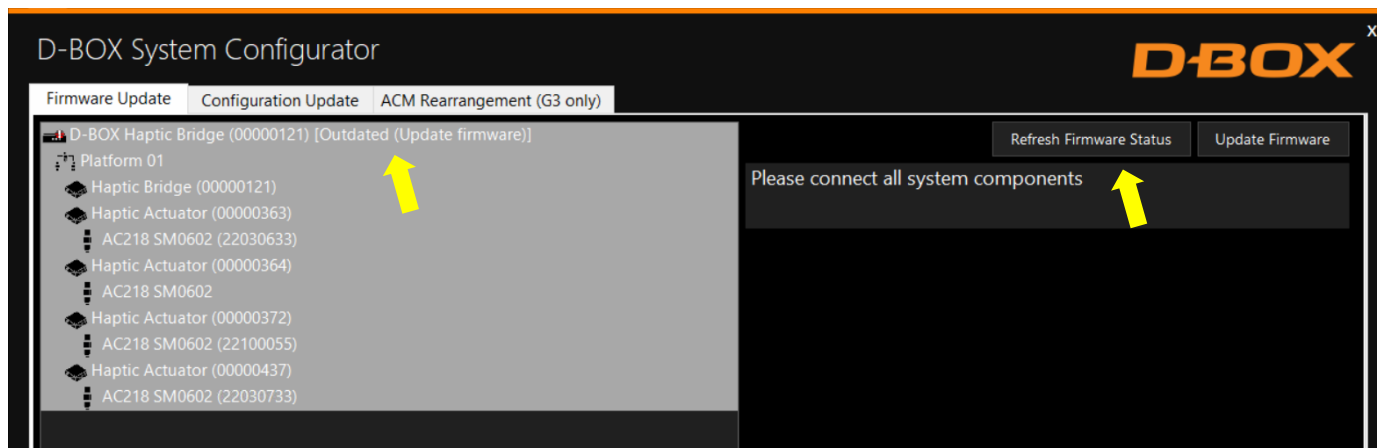
STEP 2: Start the D-BOX System Configurator from the Windows Start menu/D-BOX folder.

NOTE: Running the software requires administrative privileges.

4.2   G5 Firmware Update

The Firmware update tab is the active tab when you start the application. This tab allows you to update the firmware of the Haptic Bridge and Haptic Actuators.

STEP 1: Click the **Refresh Firmware Status** button. This action refreshes the status of the firmware and updates the status to outdated (if a newer firmware is available) or up to date (if the latest firmware is already in use):

The device icon displays its status. The possible values are:

| Device Icon	Status	Action required
	Unknown: Refresh firmware status	Initial status. Refresh the status using the Refresh Firmware Status button.
	Outdated firmware should be updated	A newer firmware is available. Update firmware by using the Update Firmware button.
	Up to date: No action required	The latest firmware is installed. No action required.

STEP 2: If your components are outdated, select the Haptic Bridge then press the **Update Firmware** button. A dialog box will appear asking you if you want to proceed with update. Click **OK**:
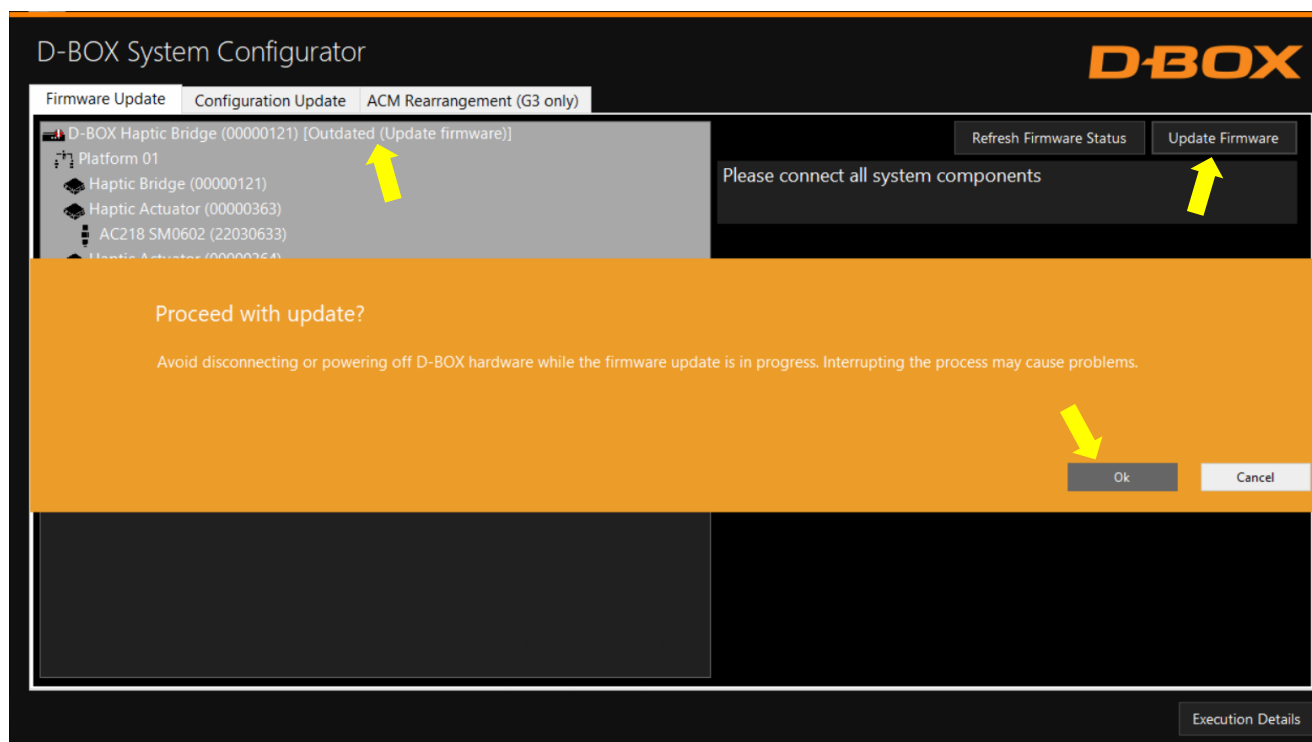
NOTE: The update process may take a few minutes. You can click the **Execution Details** button at any time to read details about the ongoing operation:
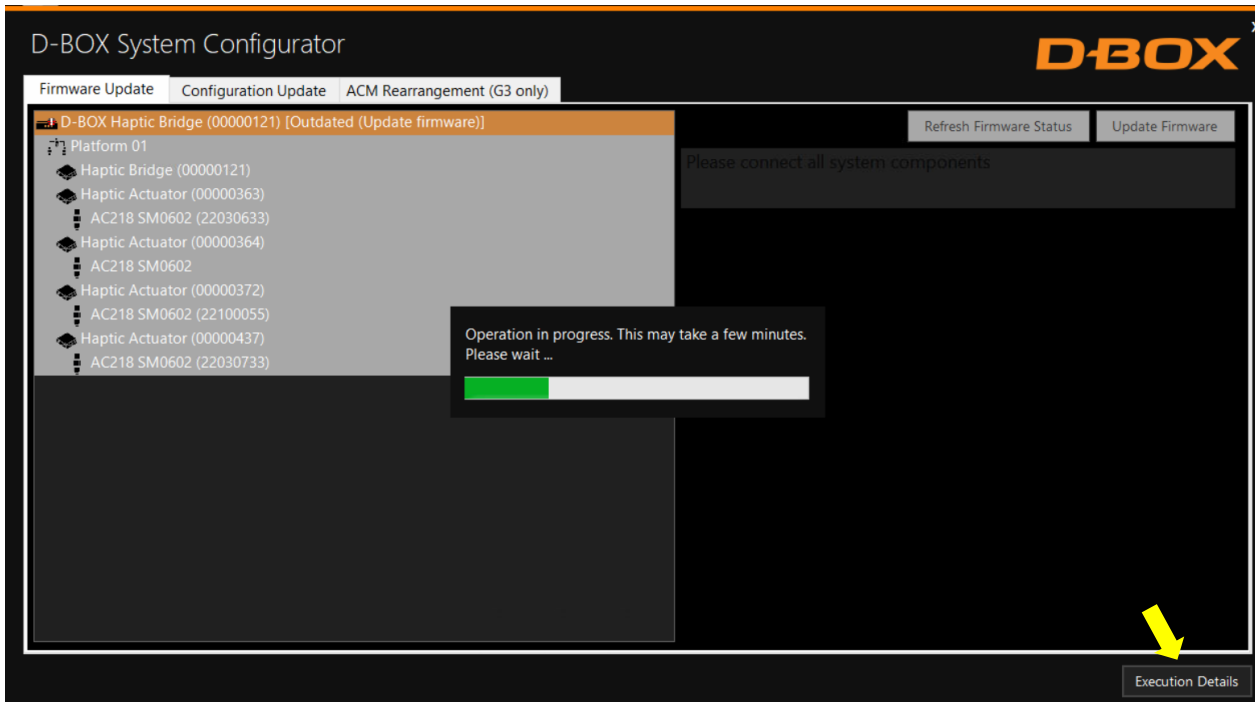
Once the update process is complete, the following window will appear. Click **OK**:
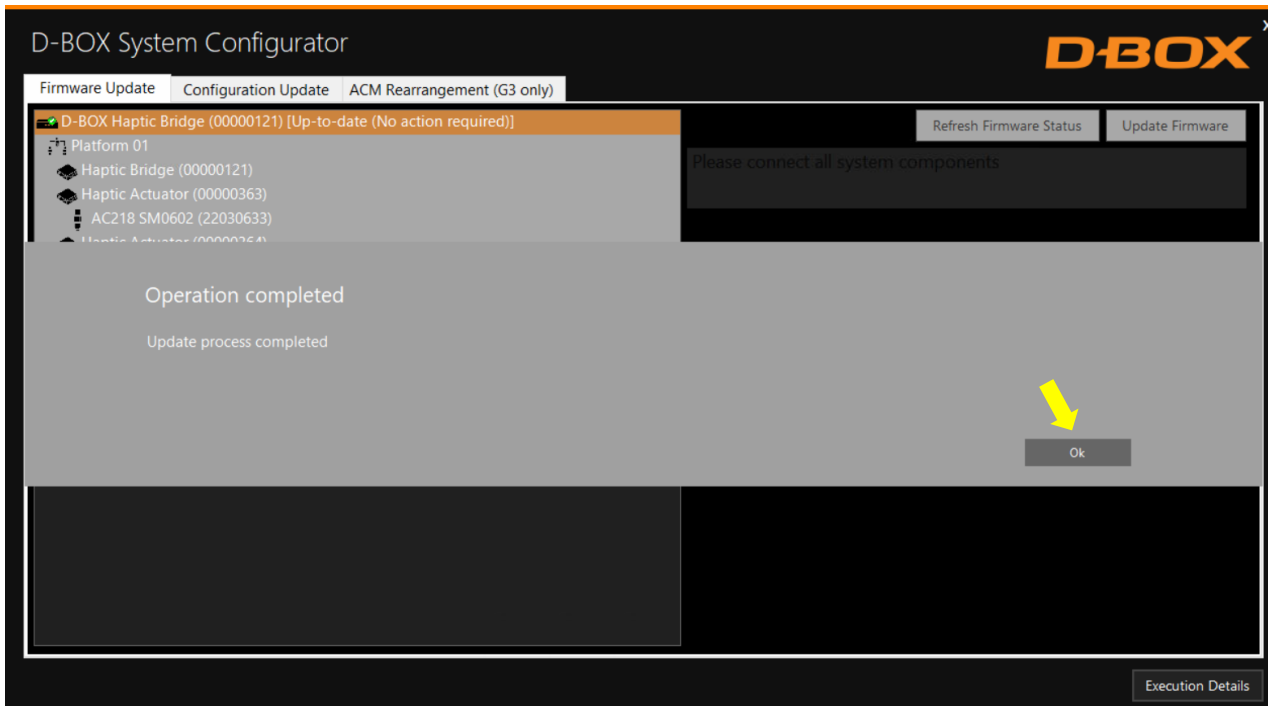
Your firmware is now up to date!

4.3 G5 Configuration Update

The **Configuration Update** tab allows you to:

- Configure your haptic system (Haptic Actuator positions and axes (Degree of Freedom - DOF))

- Change the position assigned to each actuator.

- Change the number of actuators in the configuration.

NOTE: Here are the possible axes (DOF) that can be configured for a D-BOX haptic system:
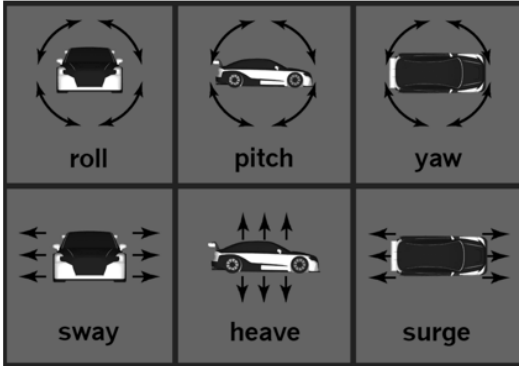
STEP 1: From the **Hardware Selection** box, select the communication device (D-BOX Haptic Bridge) linked to the haptic system you want to configure, then select the platform number:

The **Actual DOF Configuration** box shows the actual configuration (may be empty for a new system). There is no selection to be done in this section:
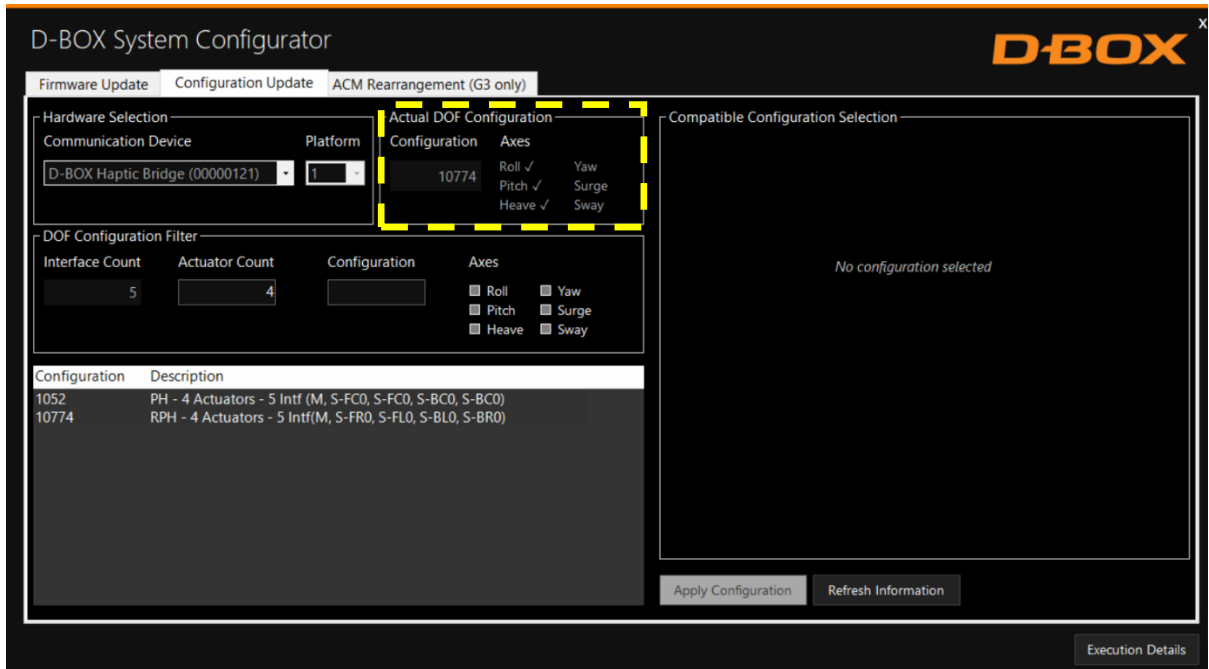
STEP 2: The **DOF Configuration Filter** box helps you to find the available configurations for your haptic system:
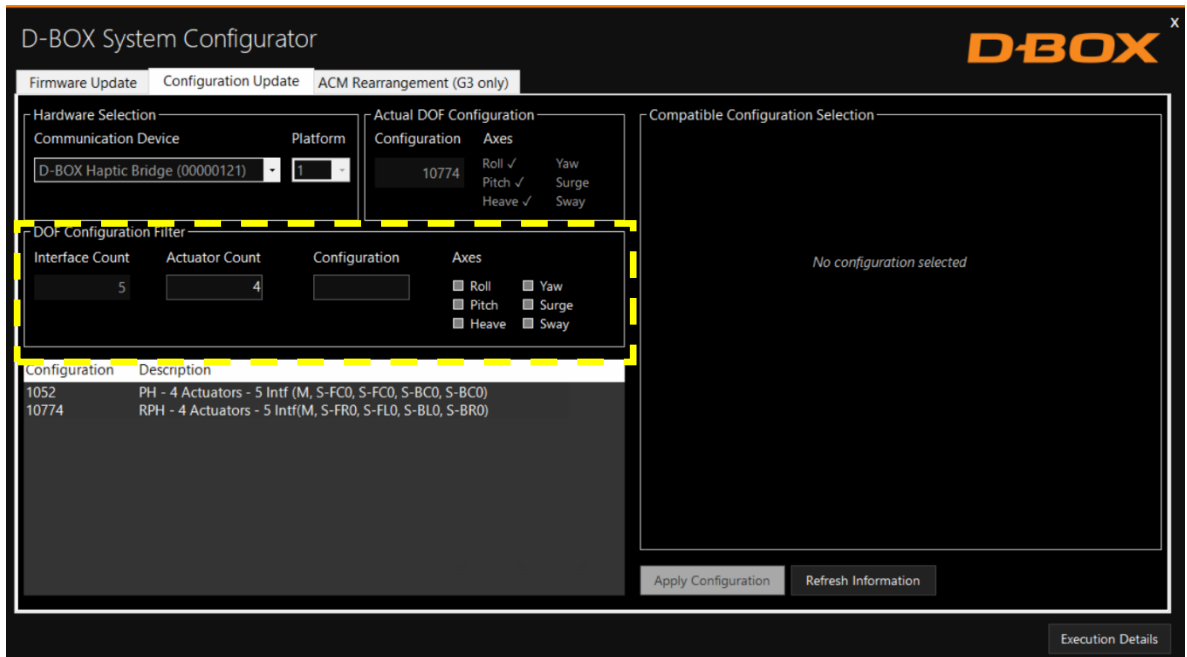
OPTION A: You can manually enter the configuration # (see below) into **the Configuration** box. See Appendix A for more details:
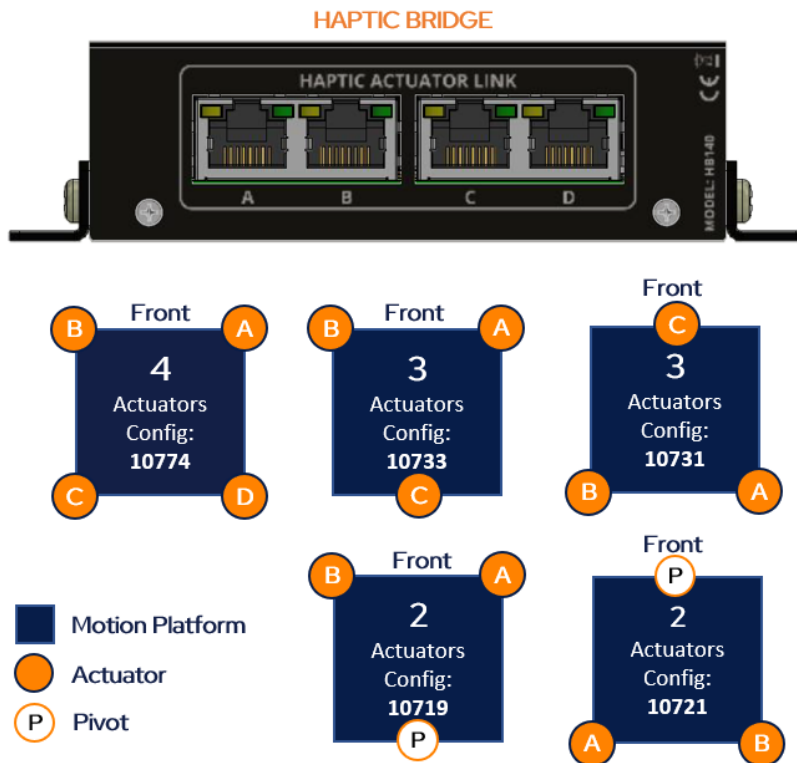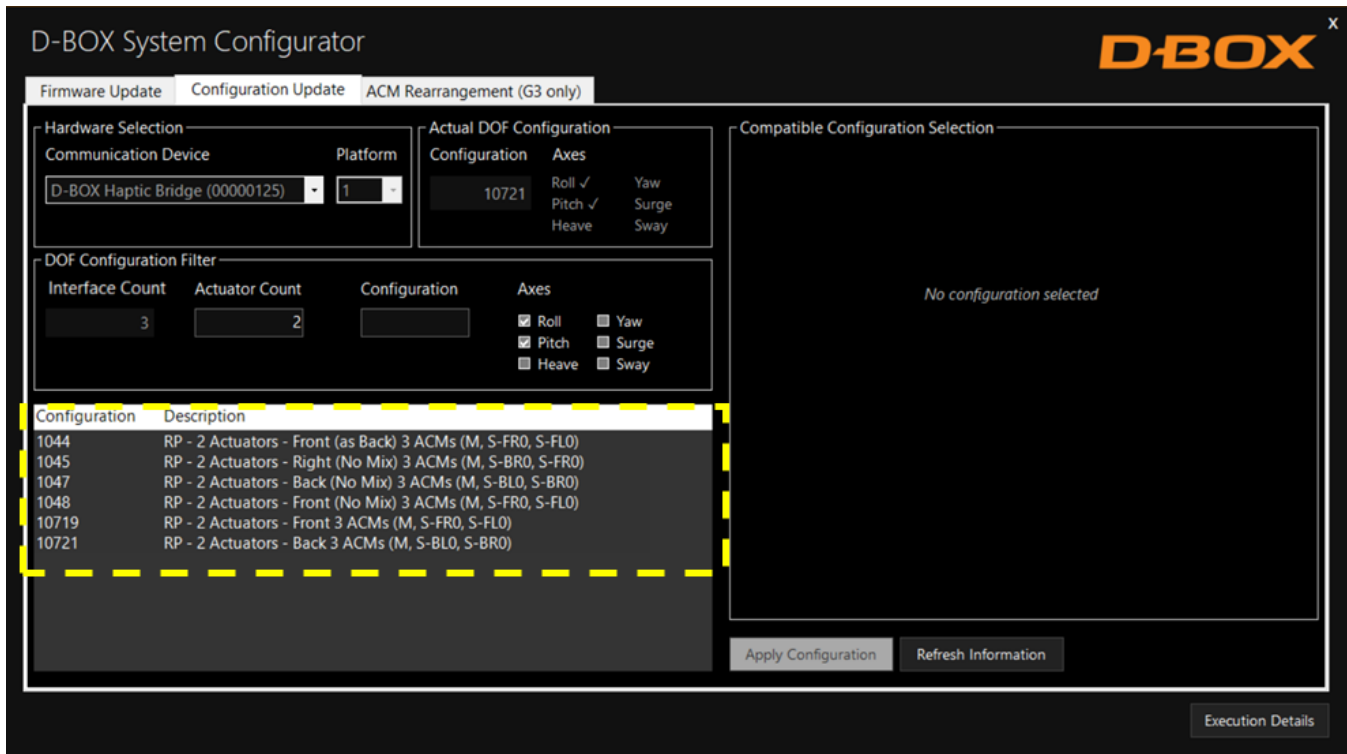
HAPTIC BRIDGE

Make sure to connect each actuator RJ45 cable to the Haptic Bridge lettered port as per the plan above.

NOTE: See G5 Haptic System User Guide for configurations with 5 to 8 actuators using the Haptic Expander.

**OPTION B:** Filter by configuration attributes **(see Appendix A for common configurations):**

1. Validate that the number of Interface (Haptic Bridge + Actuators) detected is accurate. If it is not the case, check the system connections and click on the Refresh Information button.

2. Validate that the number of actuators detected match your requested configuration. Otherwise, you can manually change the value as desired.

3. Optional: Check the boxes of the desired axes (degrees of freedom) you want.

STEP 3: The **Configuration and Description** section shows the list of all the available configurations using the information you entered in the Configuration Filter.


By selecting a configuration, its layout appears in the **Compatible Configuration Selection** box. The layout displays the following elements:

- The Haptic Bridge connected with their arrangement.

- The Haptic Actuator(s) connected, their assigned connection slot (Haptic Bridge).

- The Haptic Actuator(s) physical positions on the simulator, chair, or platform.
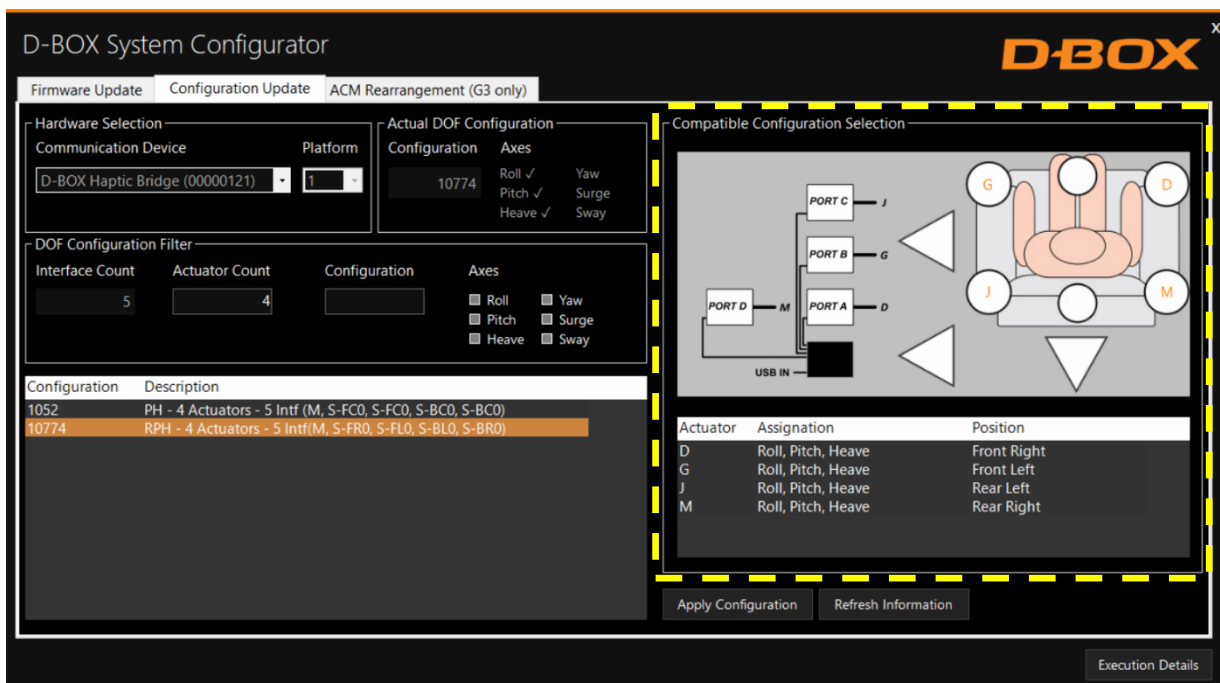
STEP 4 Once the configuration is chosen, click the **Apply Configuration** button to start the configuration update process, then follow the onscreen instructions:
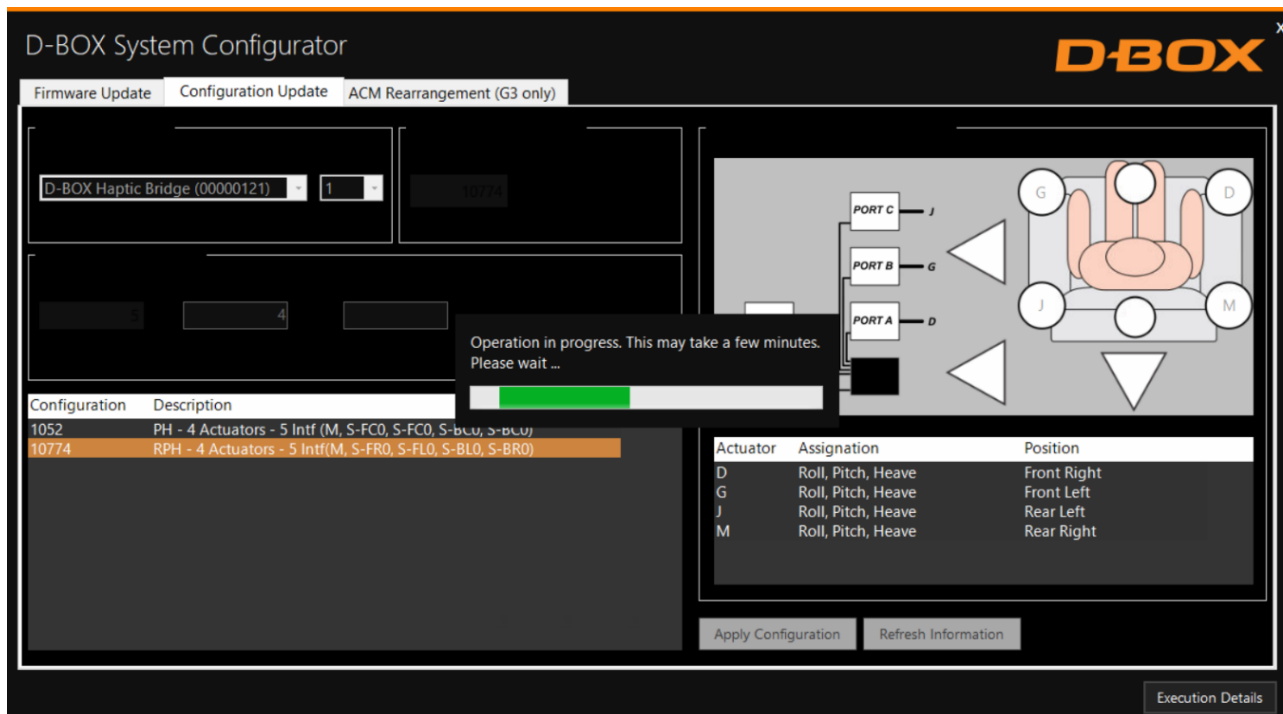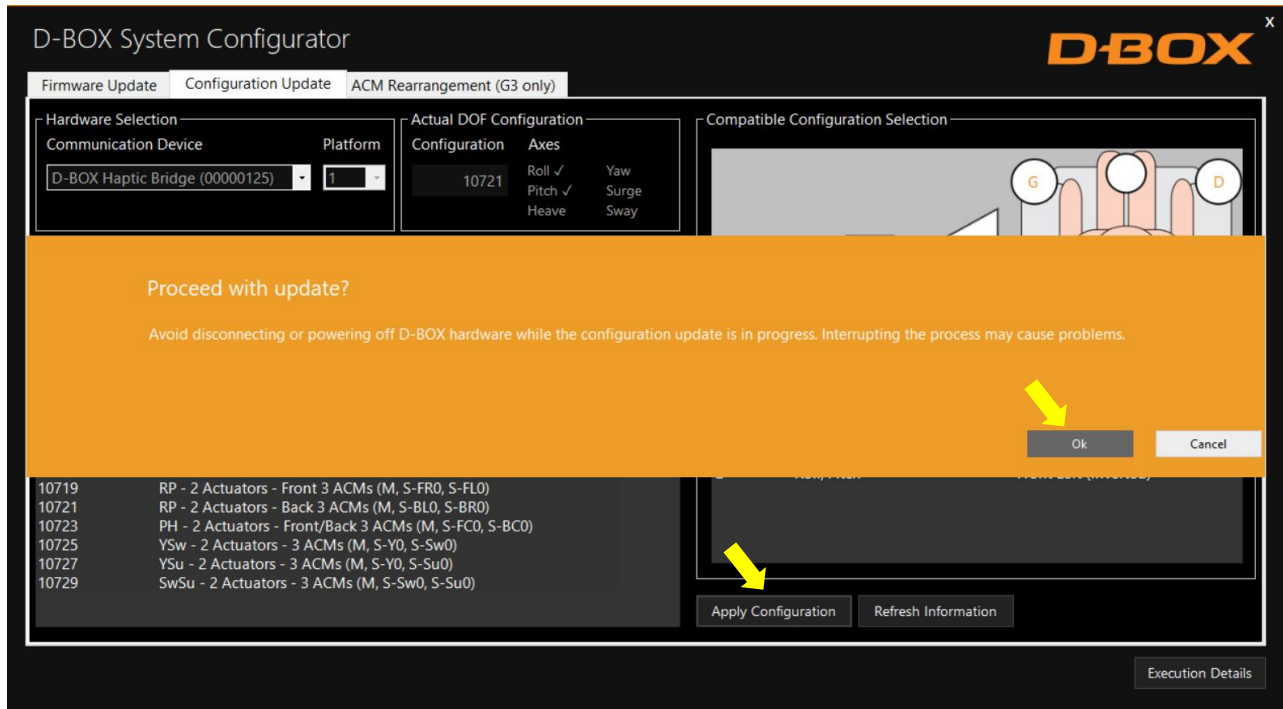
Once the configuration update is complete, the following confirmation window appears. Click **OK**:

5. G2 & G3 HAPTIC SYSTEMS

5.1 Starting the System Configurator

⚠️ Do not interrupt the update process while it is running. Interrupting the update process before it is completed may cause improper operation.

STEP 1: Connect the hardware to your computer. See your haptic system User Guide if necessary.
> **G2 Motion System Installation Guide**
> **G3 Installation, User & Troubleshooting Guide**

STEP 2: Start the D-BOX System Configurator from the Windows Start menu/D-BOX folder.

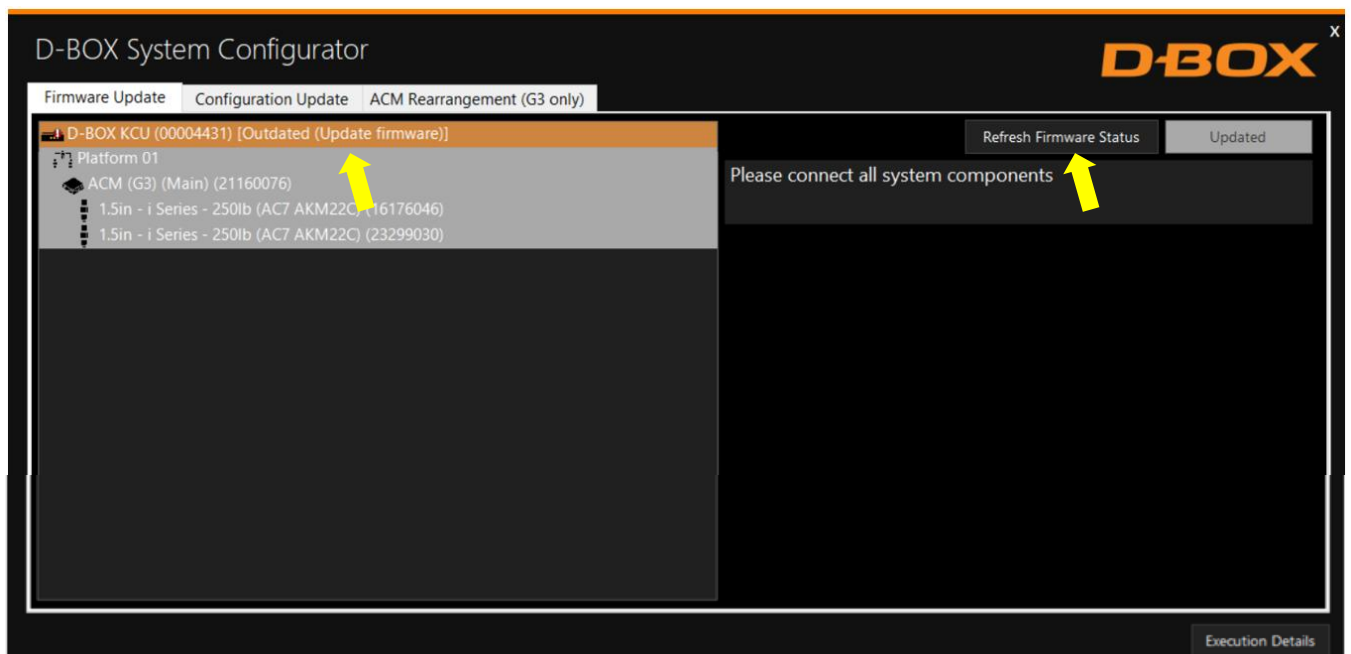**NOTE:** Running the software requires administrative privileges.

5.2 G2 & G3 Firmware Update

The Firmware update tab is the active tab when you start the application. This tab allows you to update the firmware of the **G2**, **G3** and **G3 FLEX** ACM(s), KCU-1P, KCA & KCA-T.

A firmware update can also change the actuator model (**G3 and G3 FLEX only**). For example, if you replace 1.5-inch actuators by 3-inch actuators, you need to update the firmware. **See section 5.3 for more details**.

NOTE: Firmware update applies to a KCU-1P and all subcomponents. If you have multiple KCU-1P, you need to update them one at a time.

STEP 1: Click the **Refresh Firmware Status** button. This action refreshes the status of the firmware and updates the status to outdated (if a newer firmware is available) or up to date (if the latest firmware is already in use):

The device icon displays its status. The possible values are:

| Device Icon	Status	Action required
	Unknown: Refresh firmware status	Initial status. Refresh the status using the Refresh Firmware Status button.
	Outdated firmware should be updated	A newer firmware is available. Update firmware by using the Update Firmware button.
	Up to date: No action required	The latest firmware is installed. No action required.

STEP 2: If your components are outdated, select the KCU-1P you want to update then press the **Update Firmware** button. A dialog box will appear asking you if you want to proceed with update. Click **OK**:
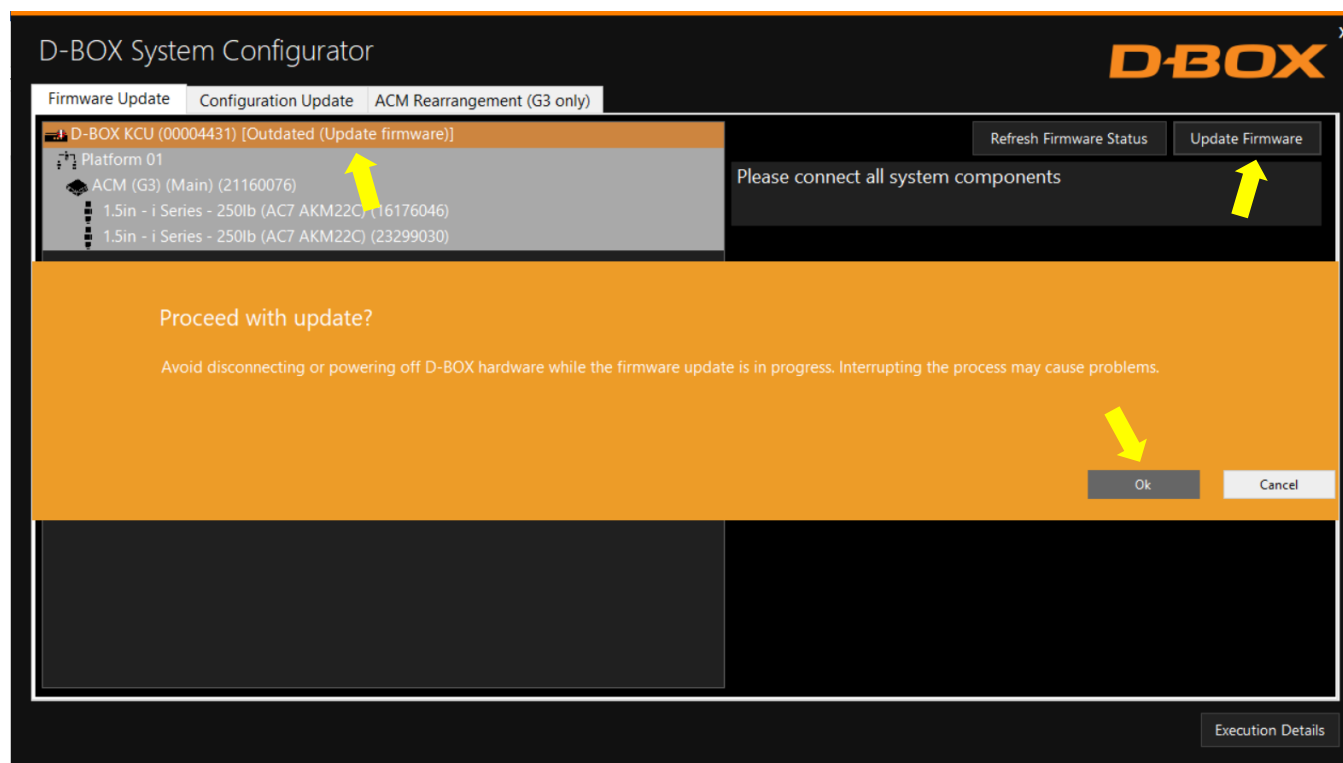
NOTE: The update process may take a few minutes. You can click the **Execution Details** button at any time to read details about the ongoing operation:
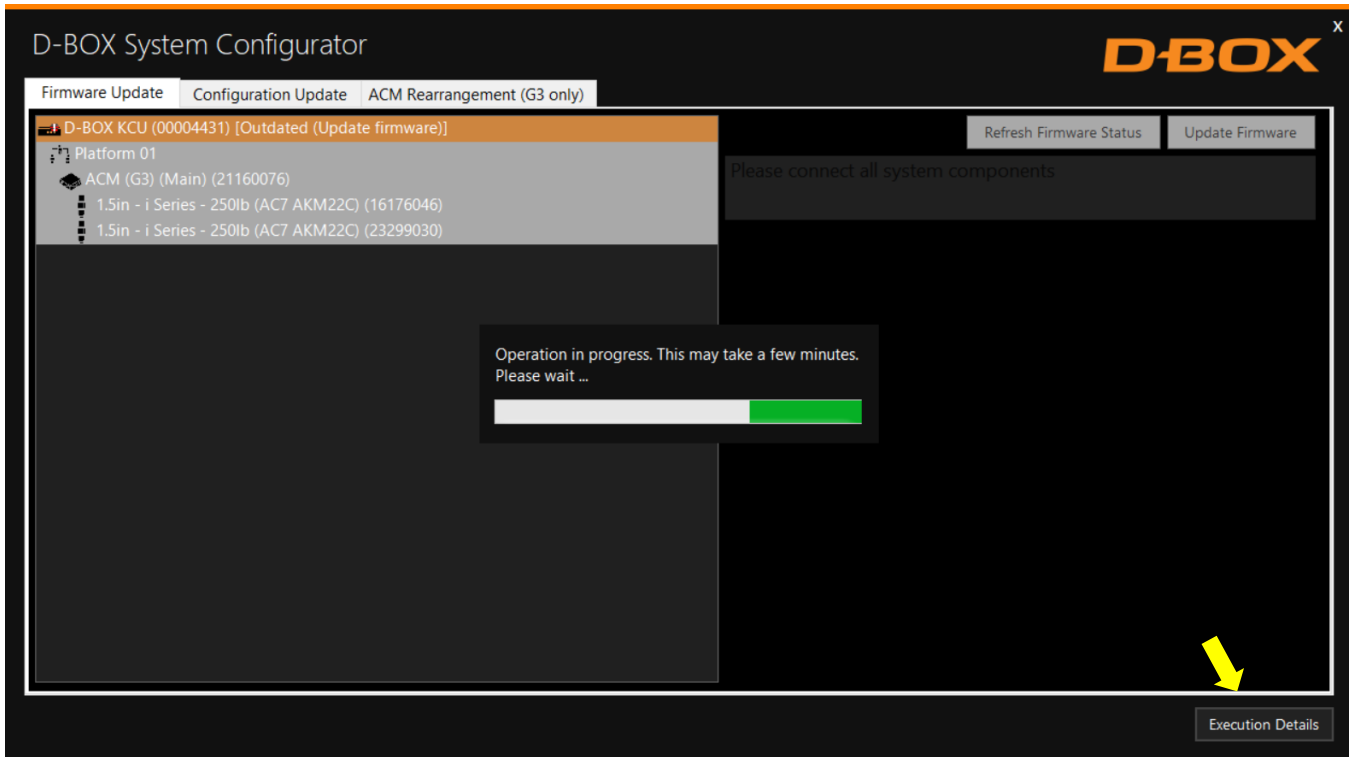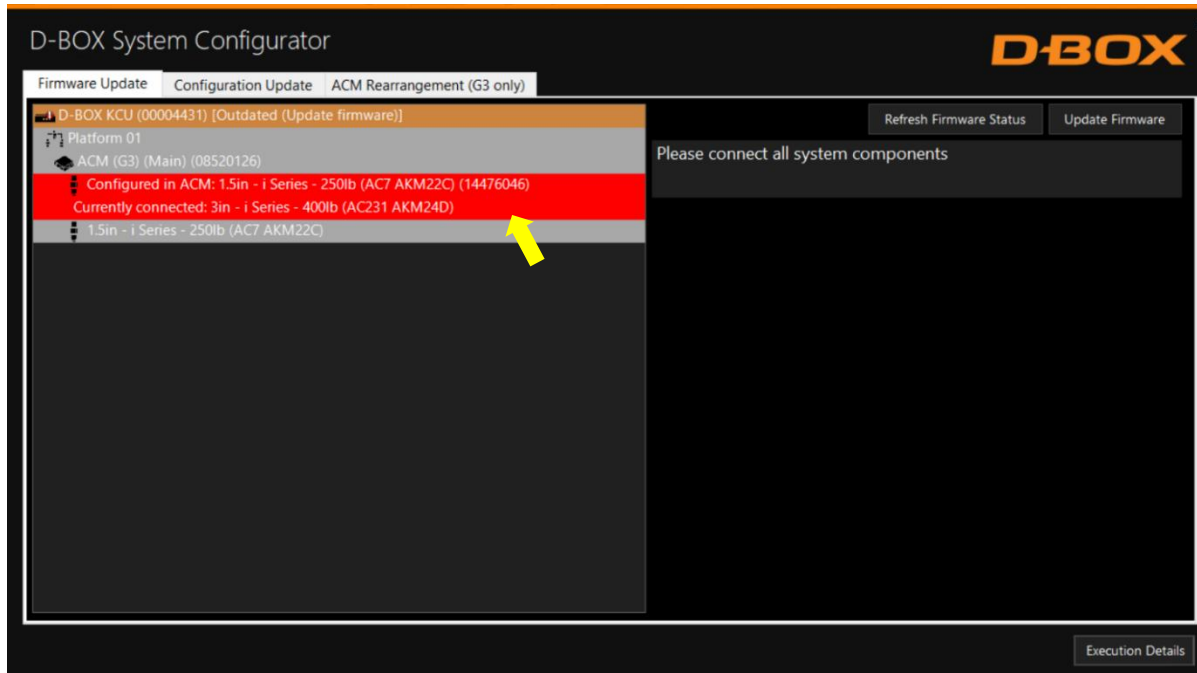

Once the update process is complete, the following window will appear. Click **OK**:
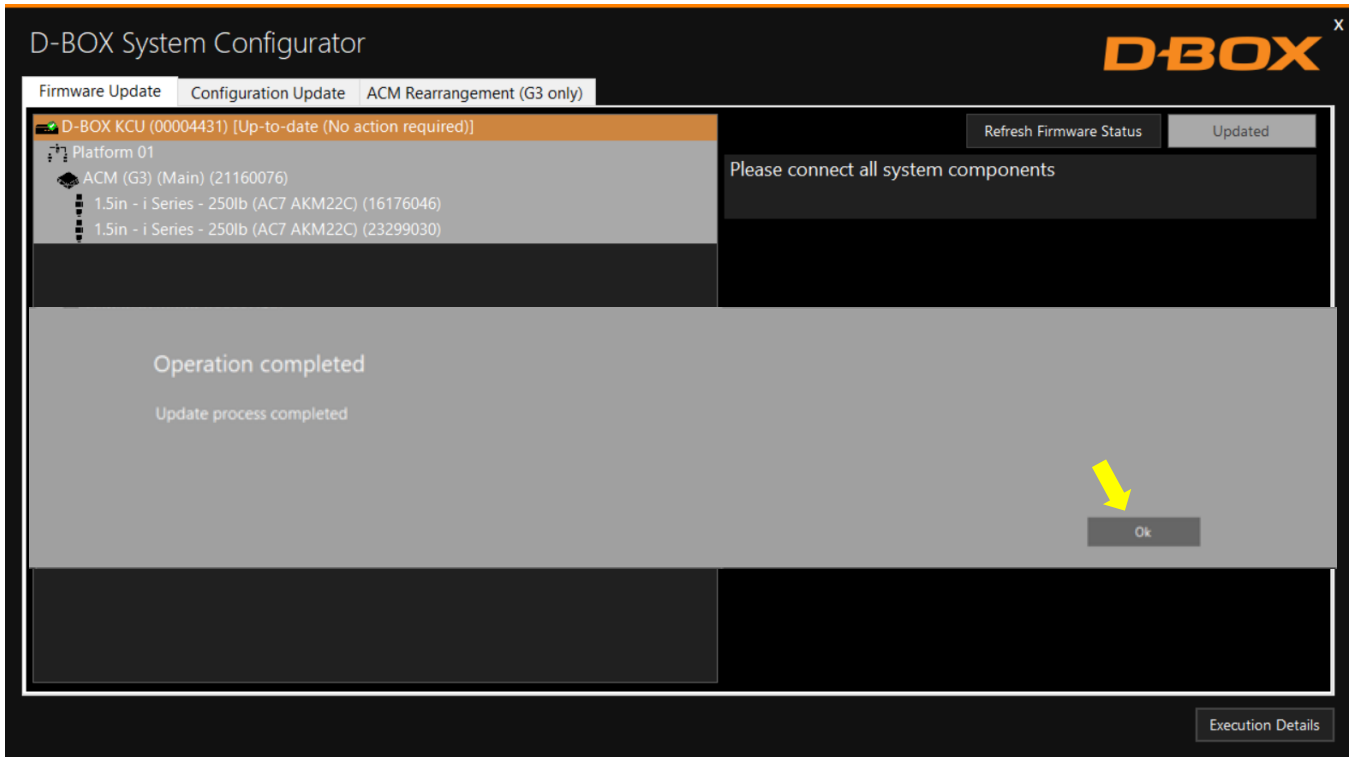
## 5.3 Changing the Haptic Actuator Type (G3 and G3 FLEX Only)

A firmware update must be performed when there is a mismatch between the configured actuator(s) and the connected actuator(s).

As an example, if you connect 3-inch actuators instead of 1.5-inch actuators, a red window appears showing the mismatch. That means the configuration is different from the old configuration for which the ACM was initially configured:
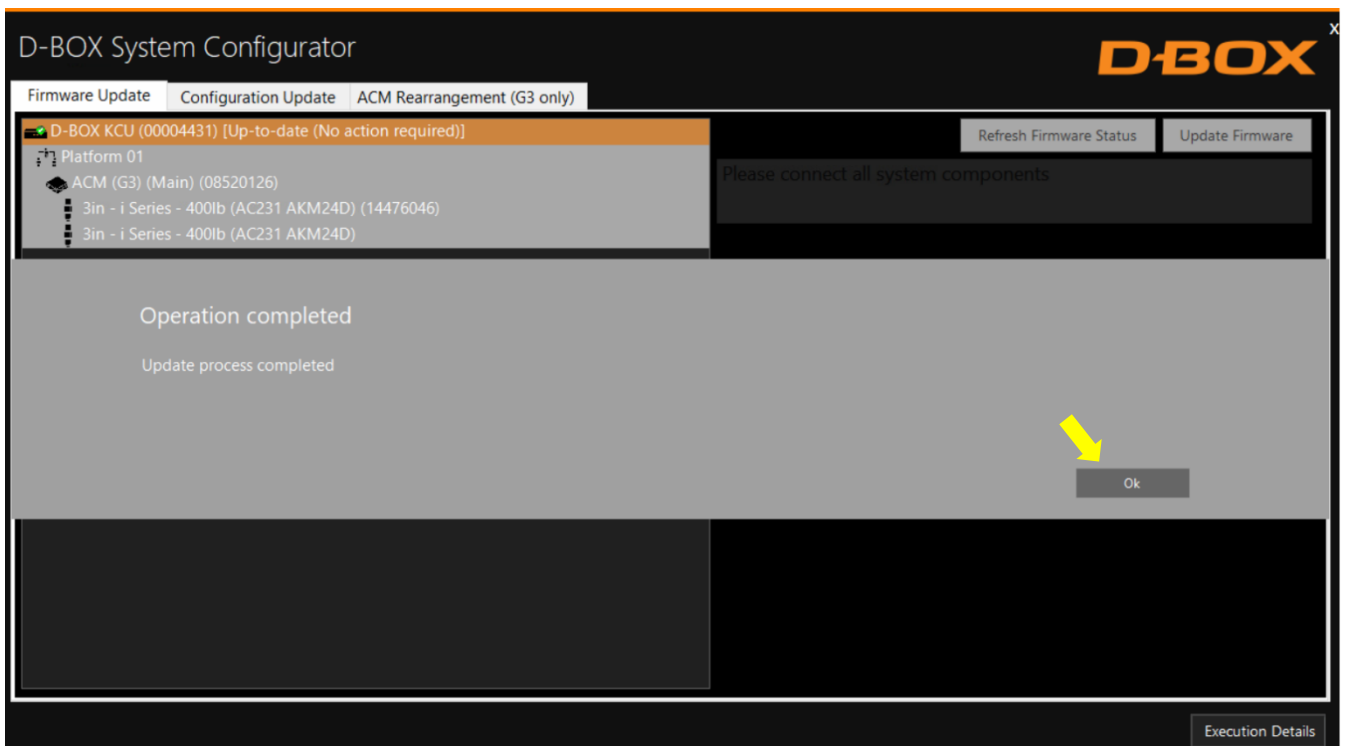

NOTE: If a G2 system is connected, you cannot use this function.

To proceed with the firmware update, select the KCU–1P device then click **Update Firmware.** Follow the onscreen instructions**:**
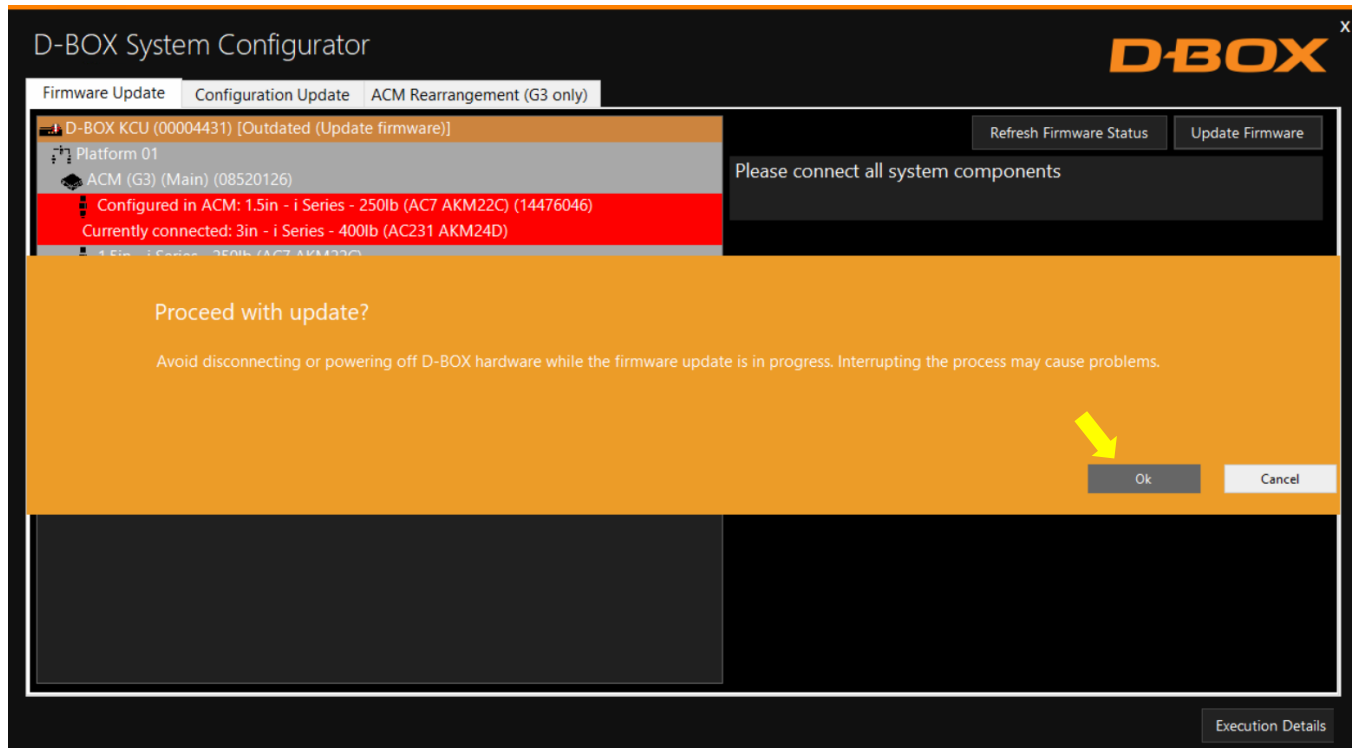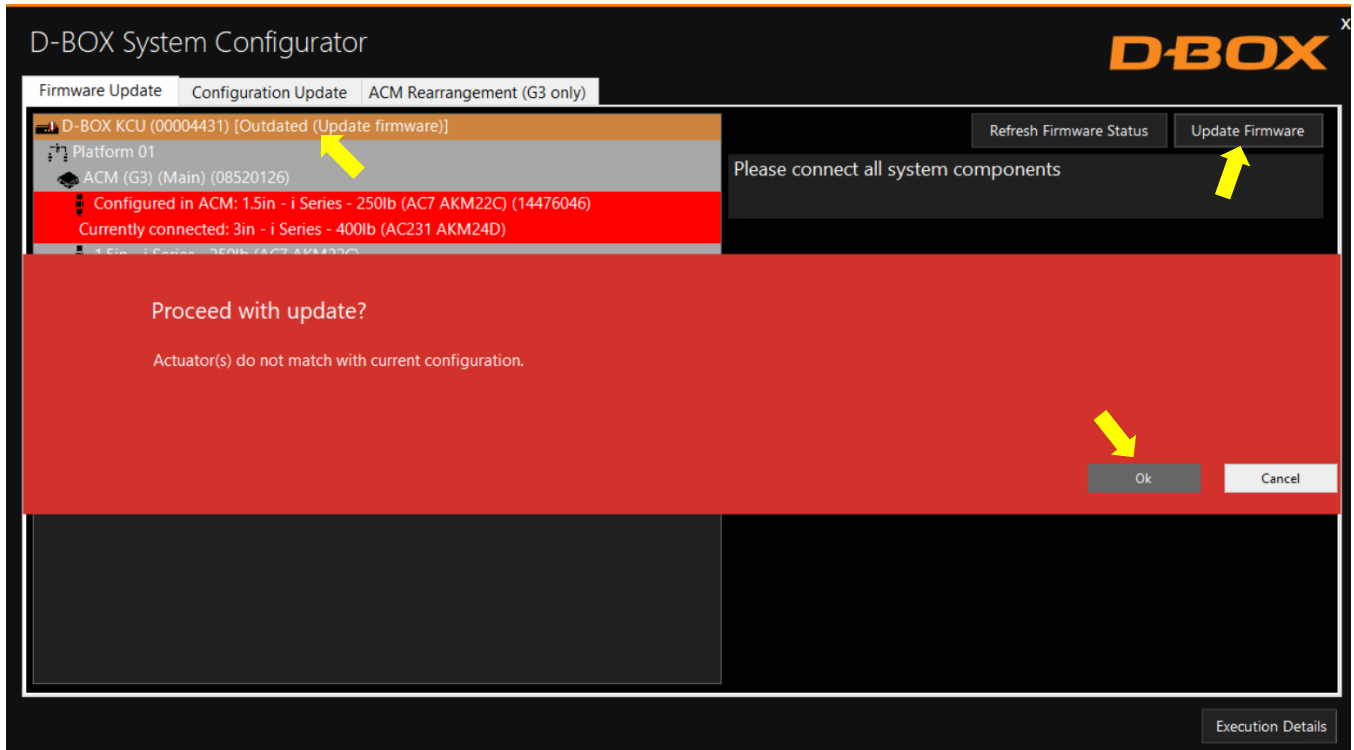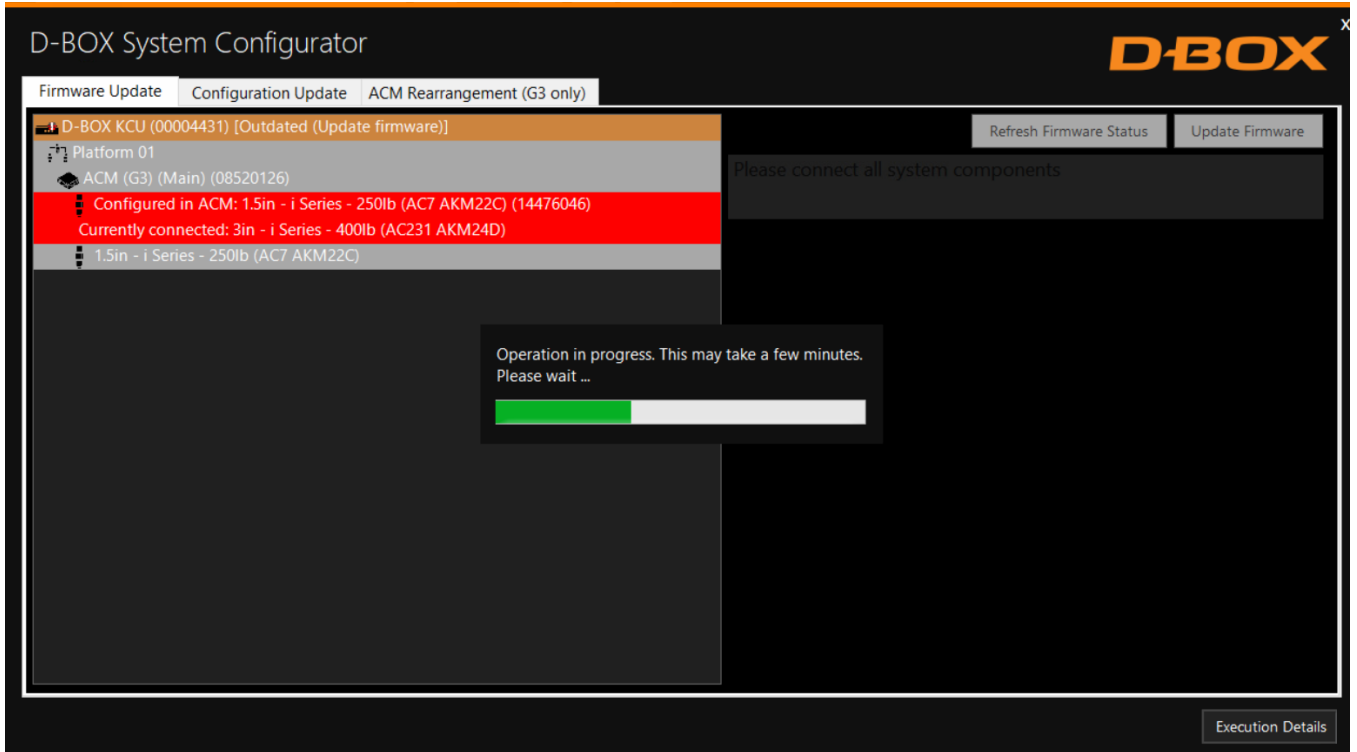
Once the operation is completed, click **OK**. Your haptic system is now up to date:

5.4 G2 & G3 Configuration Update

The **Configuration Update** tab allows you to:

- Configure your haptic system (Haptic Actuator positions and axes (Degree of Freedom - DOF)
- Change the position assigned to each actuator.
- Change the number of Haptic Actuators in the configuration.
- Modify the number of ACM in the configuration.

NOTE: Here are the possible axes (DOF) that can be configured for a D-BOX haptic system:
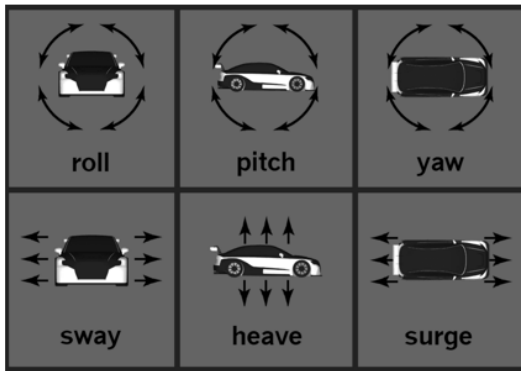
STEP 1: From the **Hardware Selection** box, select the communication device (KCU-1P) linked to the haptic system(s) you want to configure, then select the platform number (if multiple haptic systems are connected):

The **Actual DOF Configuration** box shows the actual configuration. There is no selection to be done in this section:

STEP 2: The **DOF Configuration Filter** box helps you to find the available configurations for your haptic system:
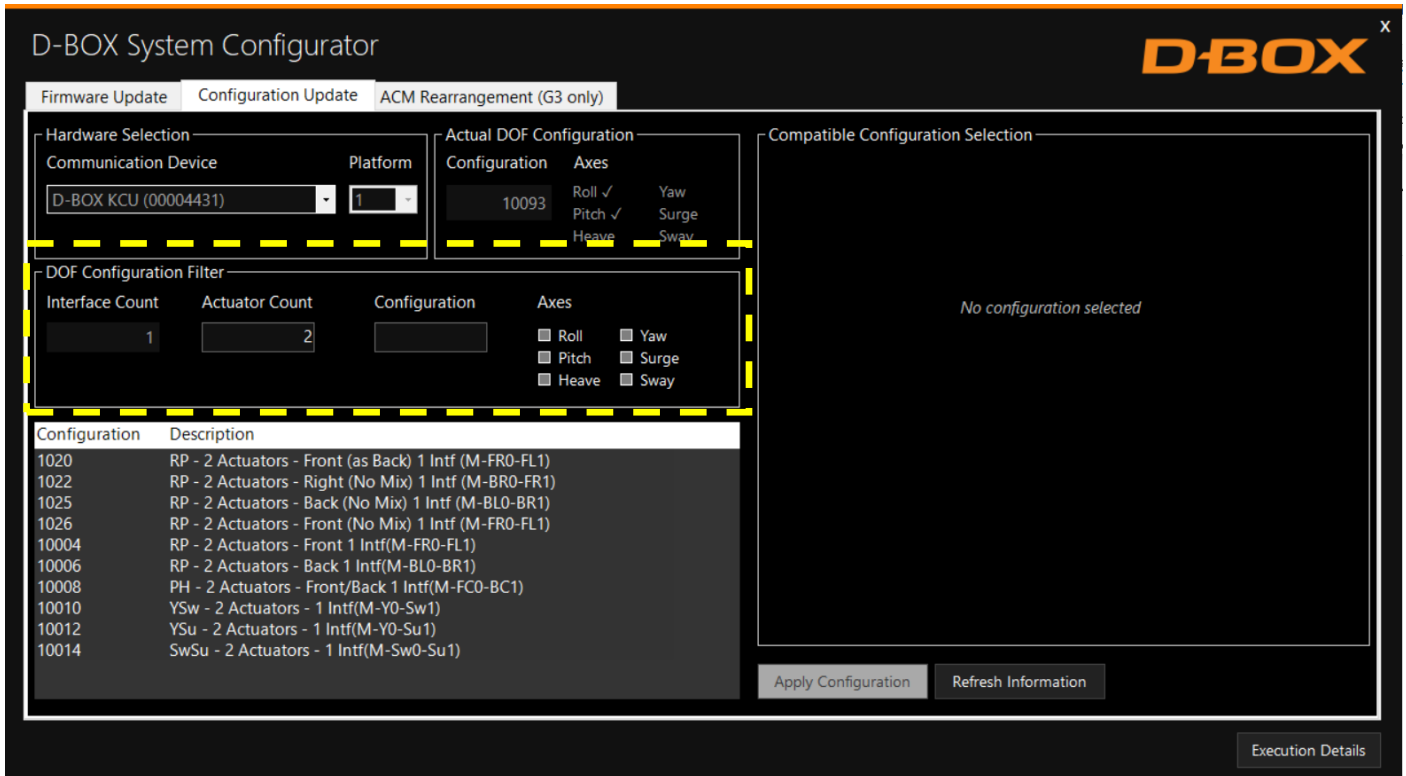
OPTION A: If you know the number of the configuration, you can select it from the list then proceed with the programming **(see Appendix B for common configurations)**

OPTION B: Filter by configuration attributes **(see Appendix B for common configurations):**

1. Validate that the number of ACMs detected is accurate. If it is not the case, check the system connections and click on the Refresh Information button.

2. Validate that the number of actuators detected match your requested configuration. Otherwise, you can manually change the value as desired.

3. Optional: Check the boxes of the desired axes (degrees of freedom) you want.

STEP 3: The **Configuration and Description** section shows the list of all the available configurations using the information you entered in the Configuration Filter:

By selecting a configuration, its layout appears in the **Compatible Configuration Selection** box. The layout displays the following elements:

- The ACM connected with their arrangement – Main and Secondary.

- The Haptic Actuator(s) connected, their assigned connection slot (ACM).

- The Haptic Actuator(s) physical positions on the simulator, chair, or platform.

STEP 4 Once the configuration is chosen, click the **Apply Configuration** button to start the configuration update process, then follow the onscreen instructions:

D-BOX System Configurator

Firmware Update | Configuration Update | ACM Rearrangement (G3 only)

D-BOX KCU (00004431) | 1 | 10004

2

Operation in progress. This may take a few minutes.
Please wait ...

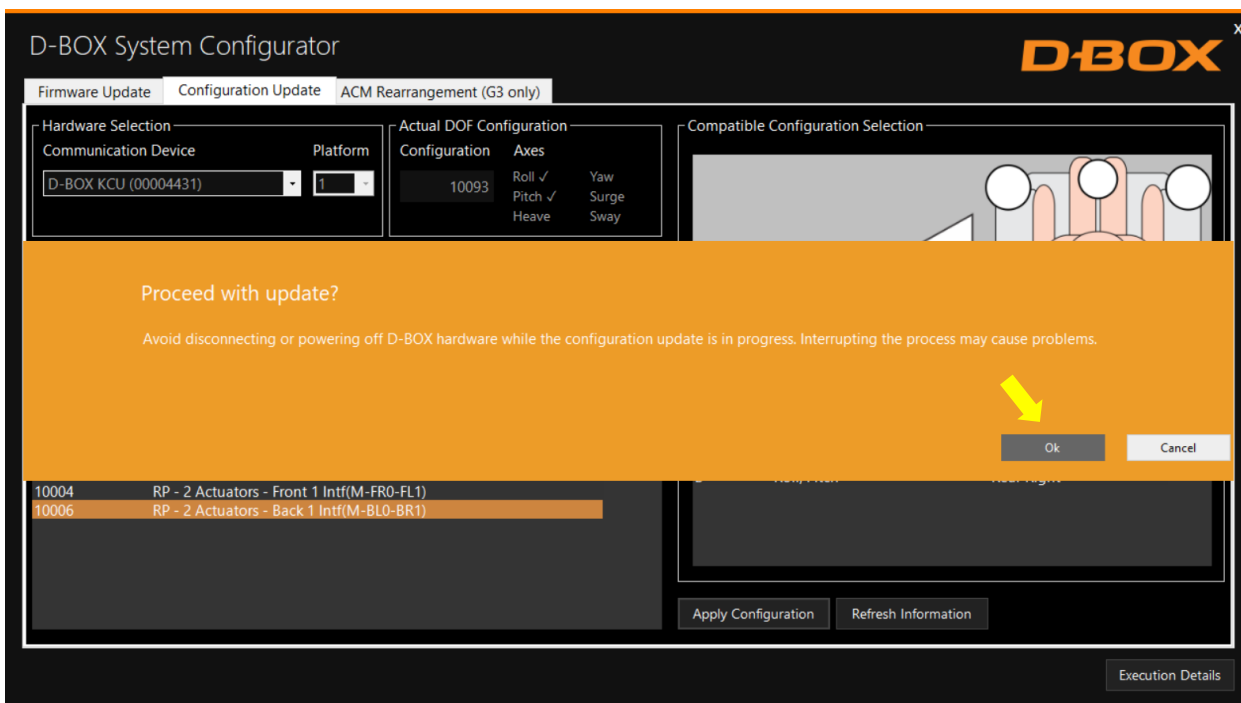| Configuration	Description
1020	RP - 2 Actuators - Front (as Back) 1 Intf (M-FR0-FL1)
1022	RP - 2 Actuators - Right (No Mix) 1 Intf (M-BR0-FR1)
1025	RP - 2 Actuators - Back (No Mix) 1 Intf (M-BL0-BR1)
1026	RP - 2 Actuators - Front (No Mix) 1 Intf (M-FR0-FL1)
10004	RP - 2 Actuators - Front 1 Intf(M-FR0-FL1)
10006	RP - 2 Actuators - Back 1 Intf(M-BL0-BR1)

Actuator	Assignation	Position
A	Roll, Pitch	Rear Left
B	Roll, Pitch	Rear Right

Apply Configuration | Refresh Information

Execution Details

Once the configuration update is complete, the following confirmation window appears. Click **OK**:

D-BOX System Configurator

Firmware Update | Configuration Update | ACM Rearrangement (G3 only)

D-BOX KCU (00004431) | 1 | 10004

Operation completed

Update process completed successfully

Ok

Apply Configuration | Refresh Information

Execution Details

5.5   ACM G3 ACM & G3 FLEX Rearrangement

The **ACM Rearrangement (G3)** tab allows you to change the arrangement of an ACM from Main to Secondary and vice-versa. Please note the following:

- If an ACM Main is connected, only the ''Switch to Secondary ACM'' button is available.

- Conversely, if an ACM Secondary is connected, only the ''Switch to Main ACM'' button is available.
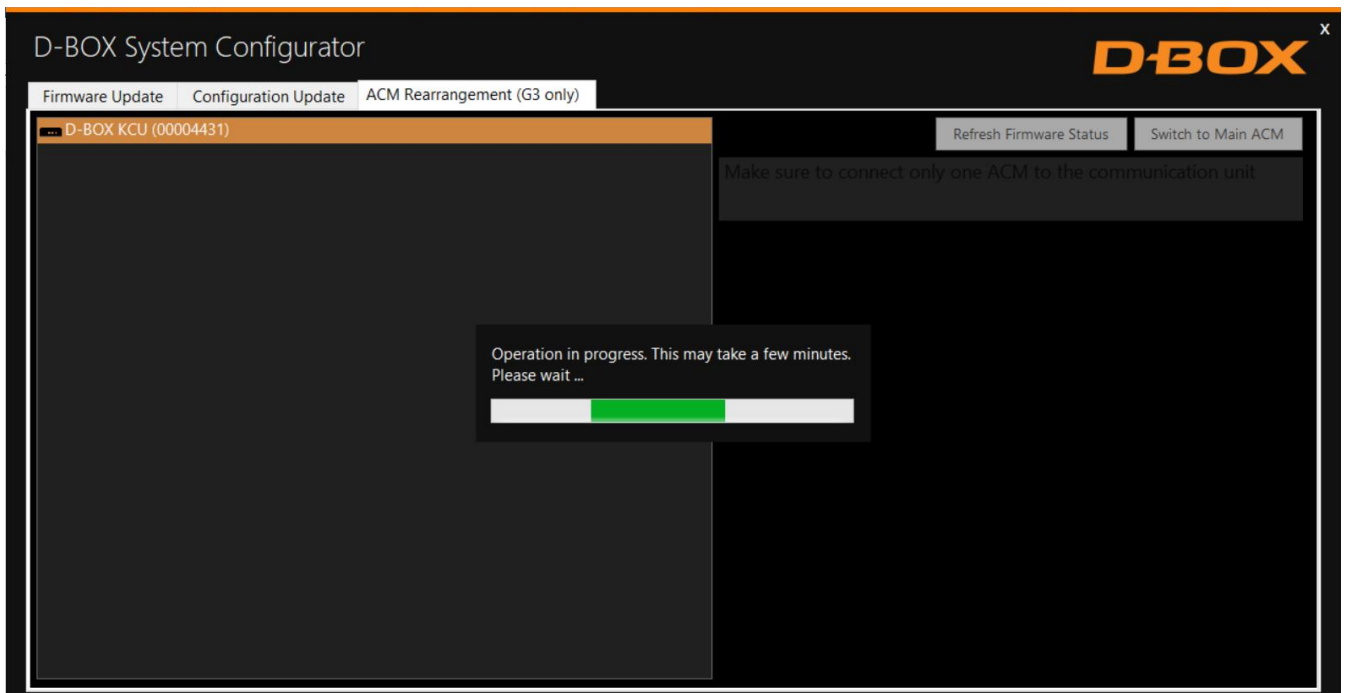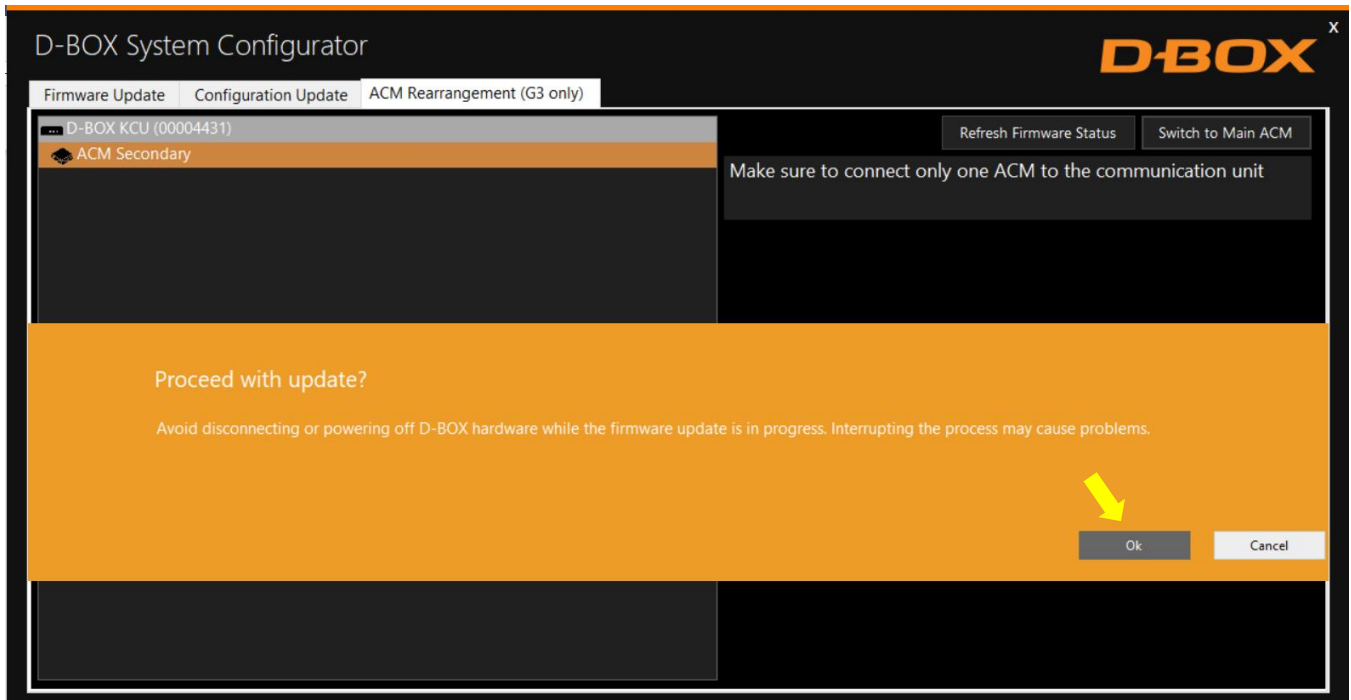
⚠️ Connect only one (1) ACM at a time to the KCU-1P to perform this operation.
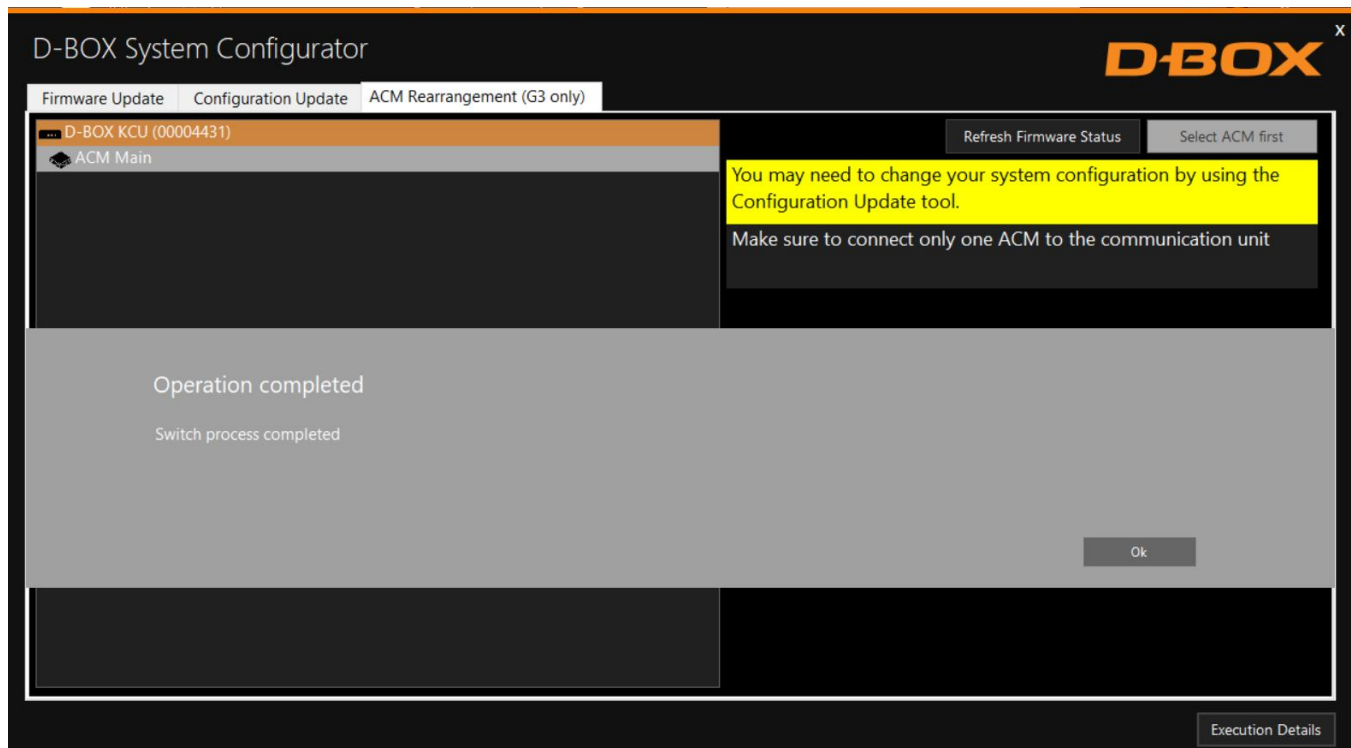
STEP 1: Click on the **Refresh Firmware Status** button to view the actual configuration of the ACM.

STEP 2: Click the Switch to Secondary ACM (or Switch to Main ACM) button if you want to switch your ACM from **Main** to **Secondary** or vice-versa:
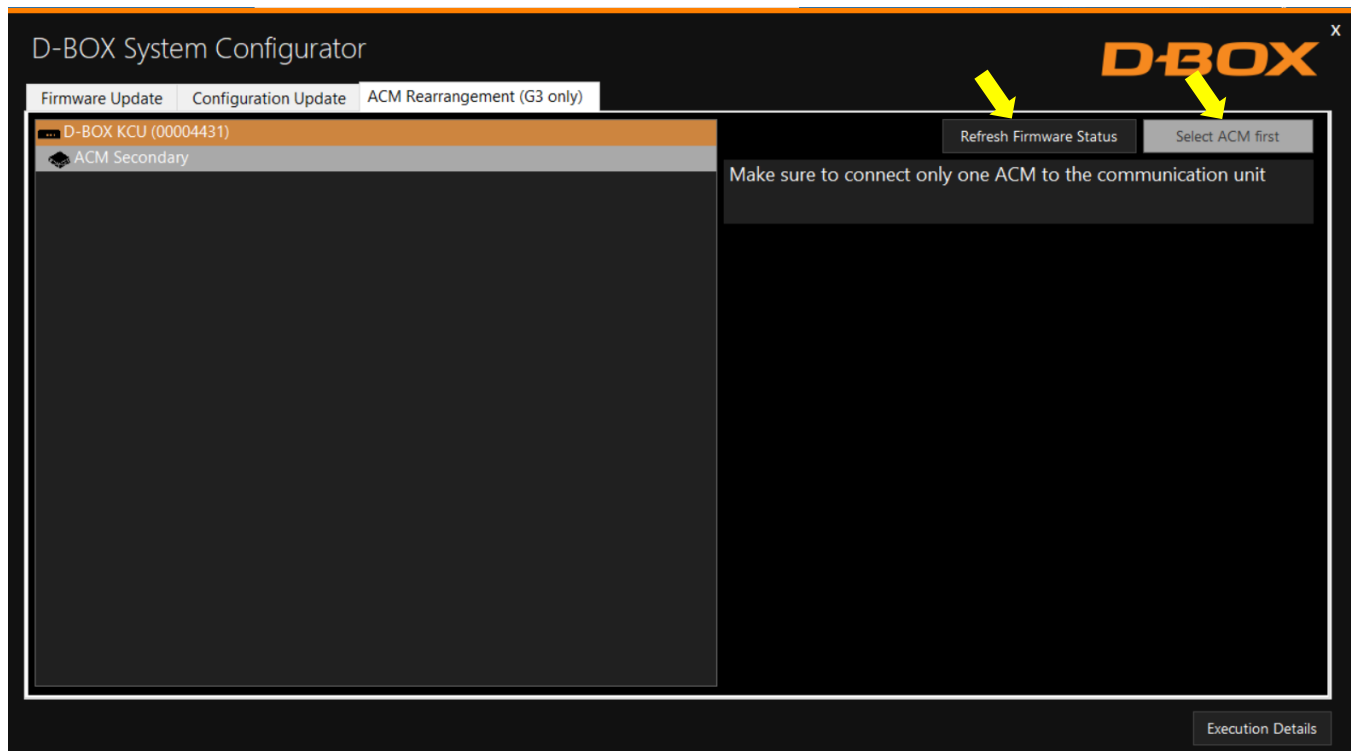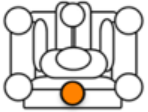
NOTE: You can click the **Execution Details** button at any time to read details about the ongoing operation.

Once the ACM is configured:

1. Replace the ACM arrangement sticker on top of the ACM.
2. Rearrange the connections between ACMs (see User Guide if needed).
3. Change your system configuration by using the **Configuration Update** tab if necessary.
4. Run your application to check if your haptic system is in good operational order.

APPENDIX A: G5 COMMON CONFIGURATIONS (1 – 3 DOF)

NB of Actuators	Actuator Position	Config. #	Config. Description	Pictogram Reference
1	Back Center	1050	P - 1 Actuator - Back 2 ACMs (M, S-BC0)	
2	Front	10719	RP - 2 Actuators - Front 3 ACMs (M, S-FR0, S-FL0)	
2	Back	10721	RP - 2 Actuators - Back 3 ACMs (M, S-BL0, S-BR0)	
3	1 Front / 2 Back	10731	RPH - 3 Actuators - 1Front/2Back 4 ACMs (M, S-BL0, S-BR0, S-FC0)	
3	2 Front / 1 Back	10733	RPH - 3 Actuators - 2Front/1Back 4 ACMs (M, S-FR0, S-FL0, S-BC0)	
4	Front / Rear	10774	RPH - 4 Actuators - 5 ACMs (M, S-FR0, S-FL0, S-BL0, S-BR0)	

R = Roll, **P** = Pitch, **H** = Heave

APPENDIX B: G2/G3 COMMON CONFIGURATIONS (1 – 3 DOF)

NB of Actuators	NB of ACMs	Actuator Position	Config. #	Config. Description	Pictogram Reference
1	1	Back Center	1028	P - 1 Actuator - Back 1 ACM (M-BC1)	
2	1	Front	10004	RP - 2 Actuators - Front 1 ACM (M-FR0-FL1)	
2	2	Front	10005	RP - 2 Actuators - Front 2 ACMs (M-FR1, S-FL1)	
2	1	Back	10006	RP - 2 Actuators - Back 1 ACM (M-BL0-BR1)	
2	2	Back	10007	RP - 2 Actuators - Back 2 ACMs (M-BL1, S-BR1)	
3	1	1 Front / 2 Back	10022	RPH - 3 Actuators - 1Front/2Back 1 ACM (M-BL0-FC1-BR2)	
3	2	1 Front / 2 Back	10023	RPH - 3 Actuators - 1Front/2Back 2 ACMs (M-BL0-BR1, S-FC1)	
3	3	1 Front / 2 Back	10024	RPH - 3 Actuators - 1Front/2Back 3 ACMs (M-BL1, S-BR1, S-FC1)	
3	1	2 Front / 1 Back	10025	RPH - 3 Actuators - 2Front/1Back 1 ACM (M-FR0-BC1-FL2)	
3	2	2 Front / 1 Back	10026	RPH - 3 Actuators - 2Front/1Back 2 ACMs (M-FR0-FL1, S-BC1)	
3	3	2 Front / 1 Rear	10027	RPH - 3 Actuators - 2Front/1Back 3 ACMs (M-FR1, S-FL1, S-BC1)	
4	2	Front / Rear	10093	RPH - 4 Actuators - Front/Back 2 ACMs (M-FR0-FL1, S-BL0-BR1)	
4	2	Left / Right	10233	RPH - 4 Actuators - Left/Right 2 ACMs (M-FL0-BL1, S-BR0-FR1)	
4	4	-	10235	RPH - 4 Actuators - 4 ACMs (M-FR1, S-FL1, S-BL1, S-BR1)	

R = Roll, **P** = Pitch, **H** = Heave