D-BOX

SYSTEM CONFIGURATOR

USER GUIDE

194-914-0010-EN11

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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** and **G3**), Haptic Bridge (**G5**) and associated D-BOX hardware.
- Configure (or modify) a haptic system.
- Change the Main – Secondary ACMs arrangement (**G3 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).

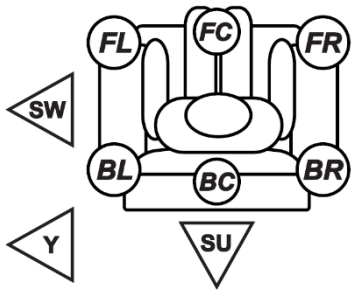
For **G5** haptic systems, firmware + programming is applied to the Haptic Bridge and Haptic Actuators.

Name	ACM-II	ACM-II	ACM-G3 FLEX	G5 Haptic System
Generation	G2	G2	G3	G5
Stroke	1.5 in, 3 in	6 in	1.5 in, 3 in, 6 in	1.5 in
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 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 bit**.

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 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 has 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

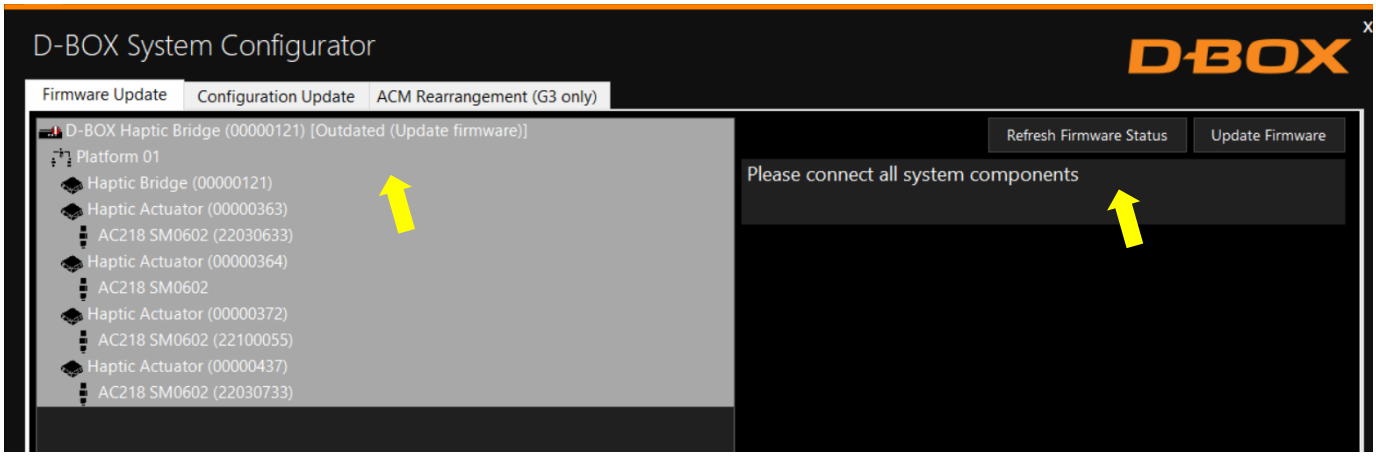
STEP 2: Start the D-BOX System Configurator from the D-BOX folder.

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.

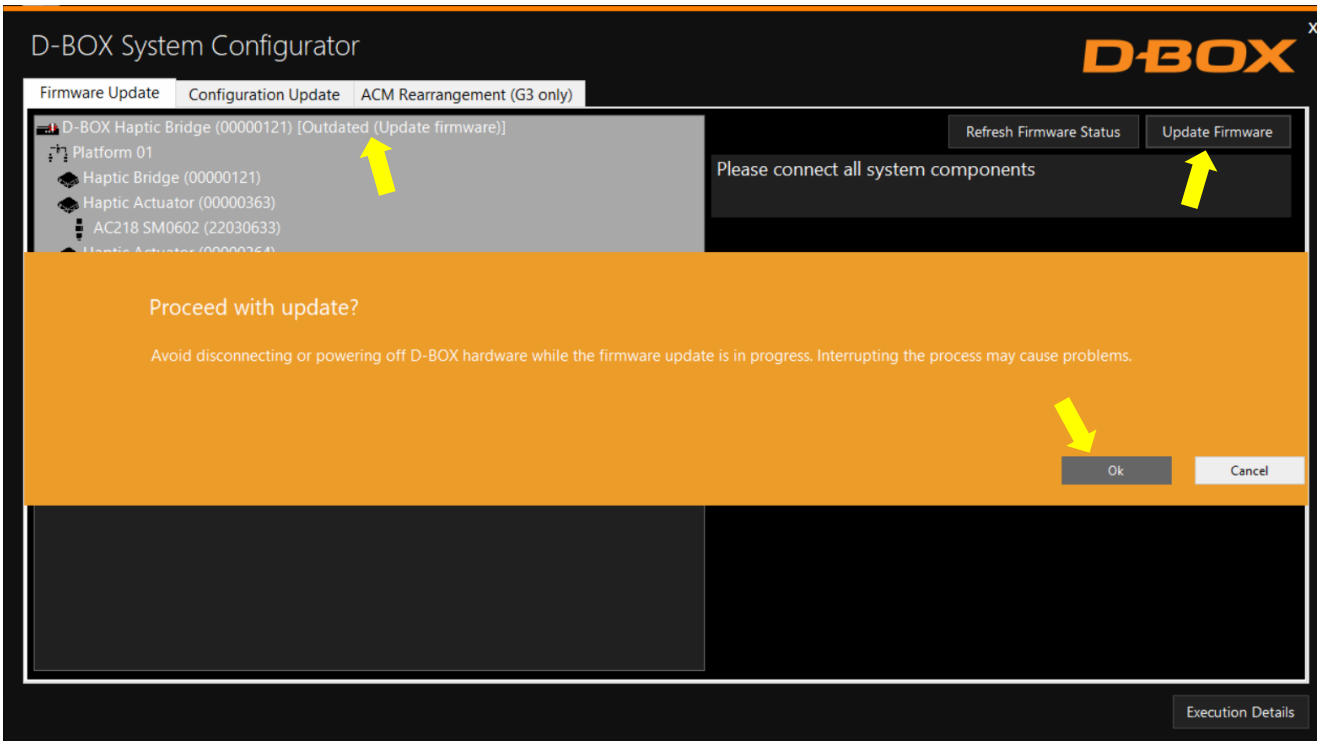
STEP 1: Click the **Refresh Firmware Status** button. This action refreshes the status of the firmware and updates the status to *Outdated* (if a newer firmware version is available) or *Up to date* (if the latest firmware is already in use).



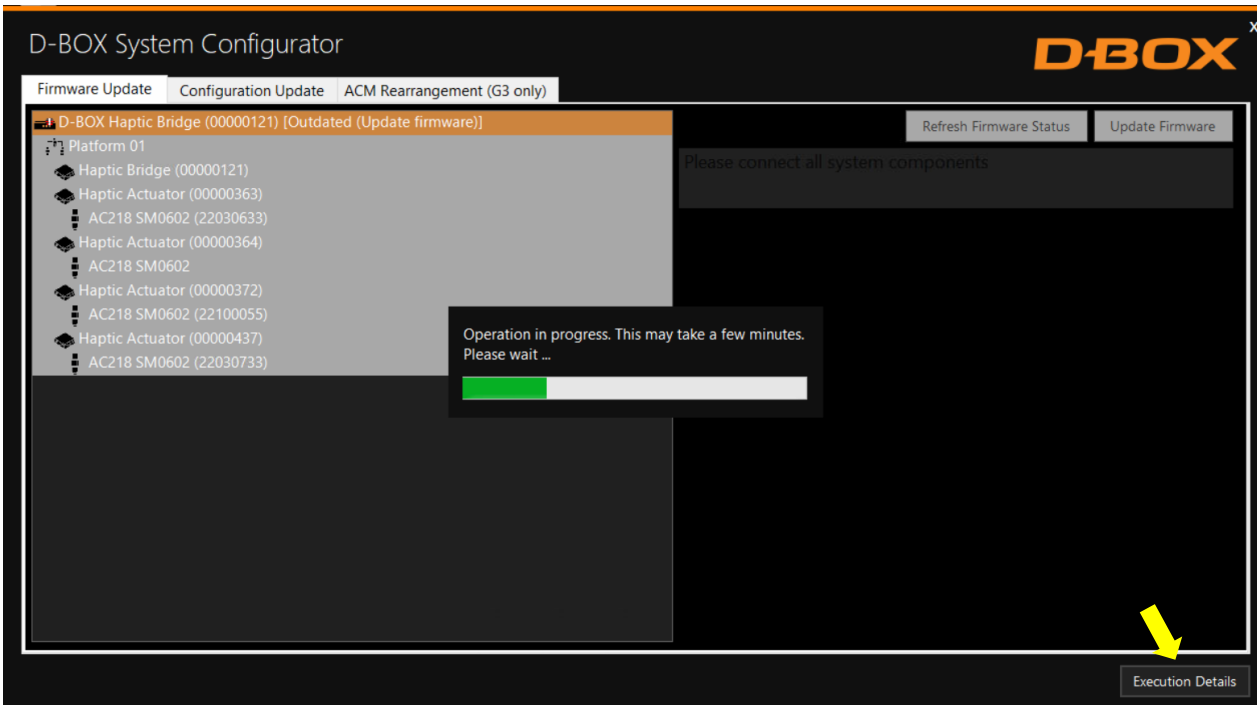
The Device icon displays the firmware's status.

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	Outdated: Firmware should be updated	A newer firmware version is available.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

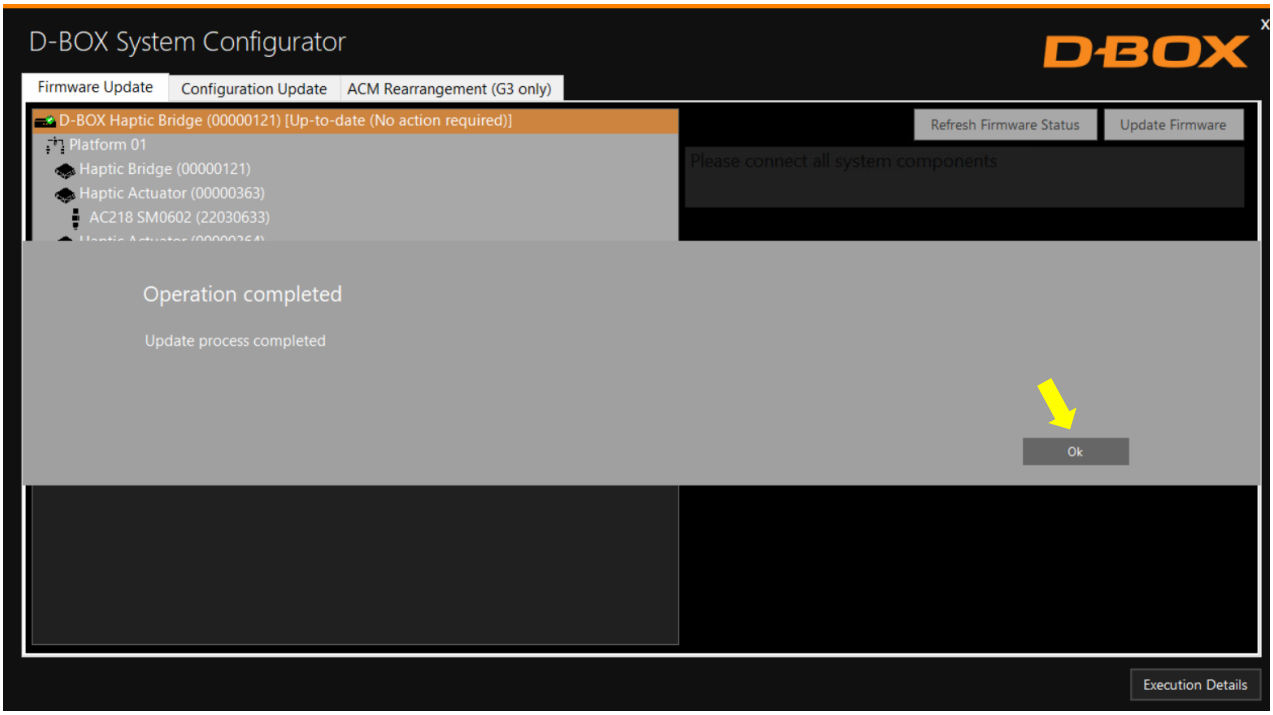
STEP 2: If your components are outdated, select the Haptic Bridge, then press the **Update Firmware** button. A dialog box will appear asking you if you want to proceed with the update. Click **OK**.



NOTE: *The update process may take a few minutes. Click the Execution Details button at any time to see details about the ongoing operation.*



Once the update process is complete, the following window will appear. Click **OK**.



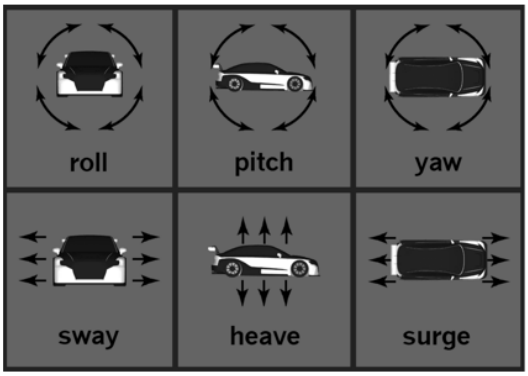
Your firmware is now up to date.

4.3 G5 Configuration Updates

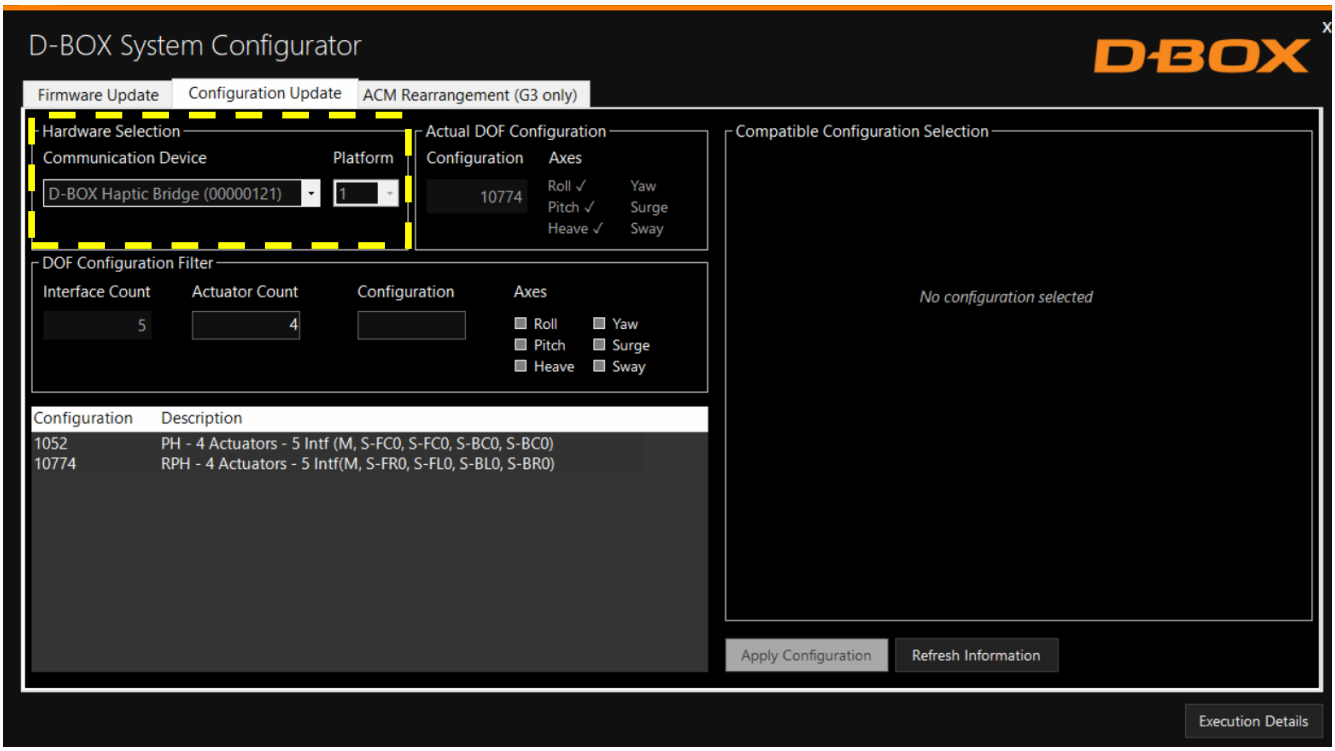
The Configuration Update tab allows you to:

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

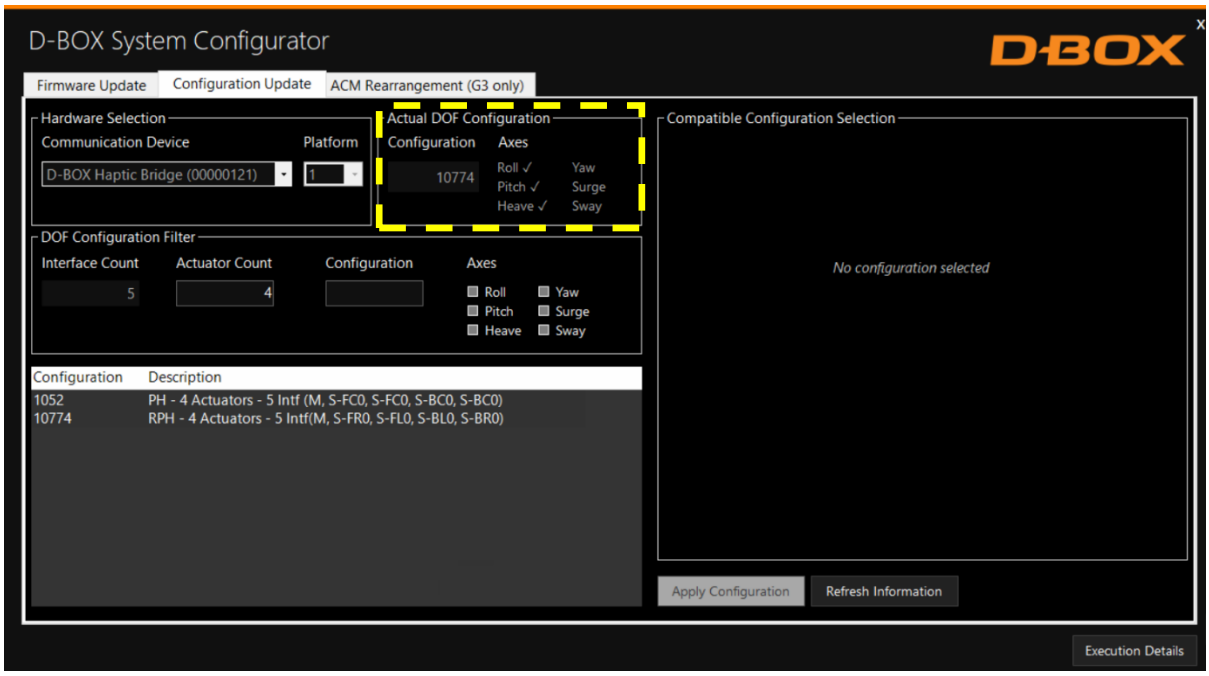
The following are the possible axes (DOF) that can be configured for a D-BOX haptic system.



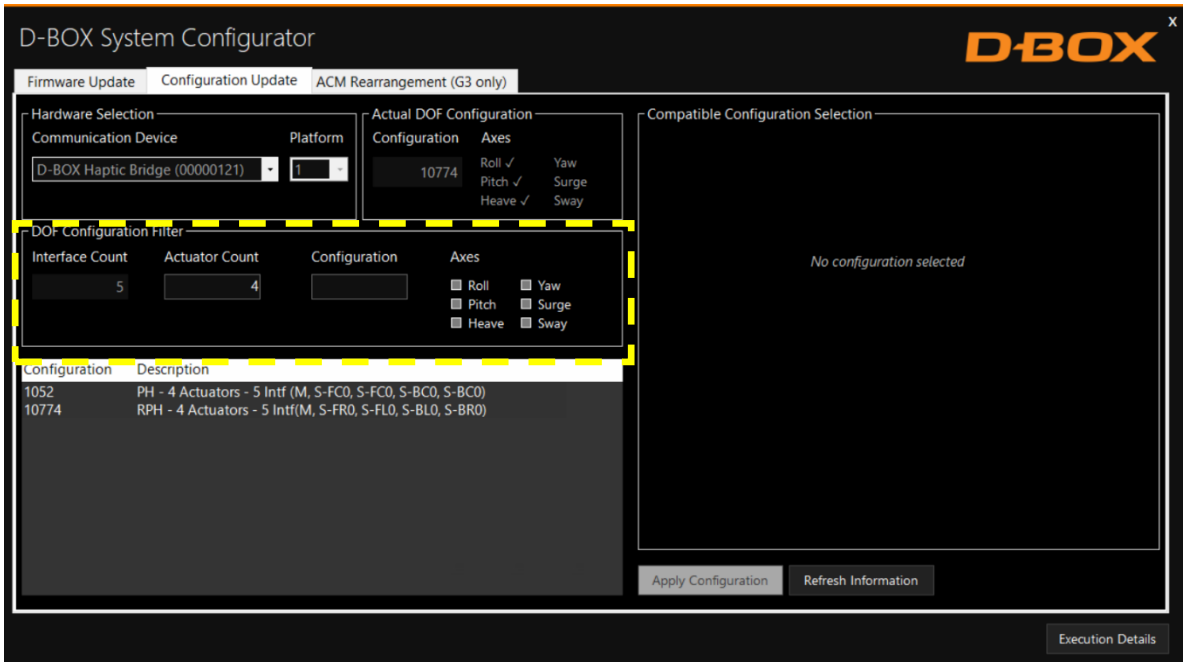
STEP 1: From the Hardware Selection box, select the communication device (D-BOX Haptic Bridge) linked to the haptic system you want to configure, then select the platform number (if multiple haptic systems are connected).



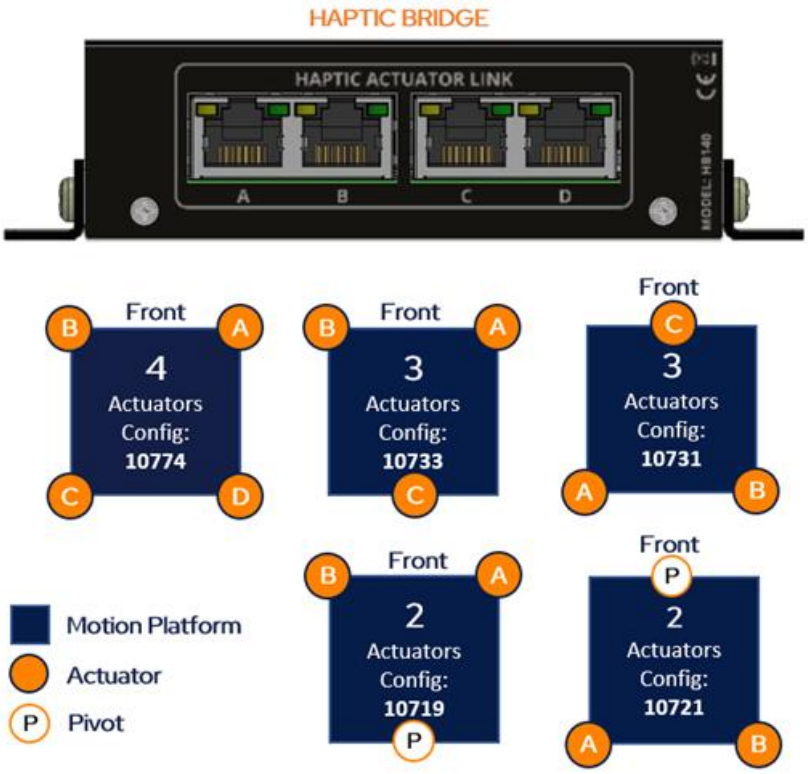
The Actual DOF Configuration box shows the actual configuration (might appear empty for a new system).



STEP 2: The DOF Configuration Filter box helps you find the available configurations for your haptic system.



OPTION A: You can manually enter the configuration number (see below) into the Configuration box (see Appendix A or C for more details).



Make sure to connect each actuator (RJ45) cable to the lettered port of the Haptic Bridge as indicated in the image above.

NOTE: *See G5 Haptic System User Guide for configurations with five to eight actuators using the Haptic Expander.*

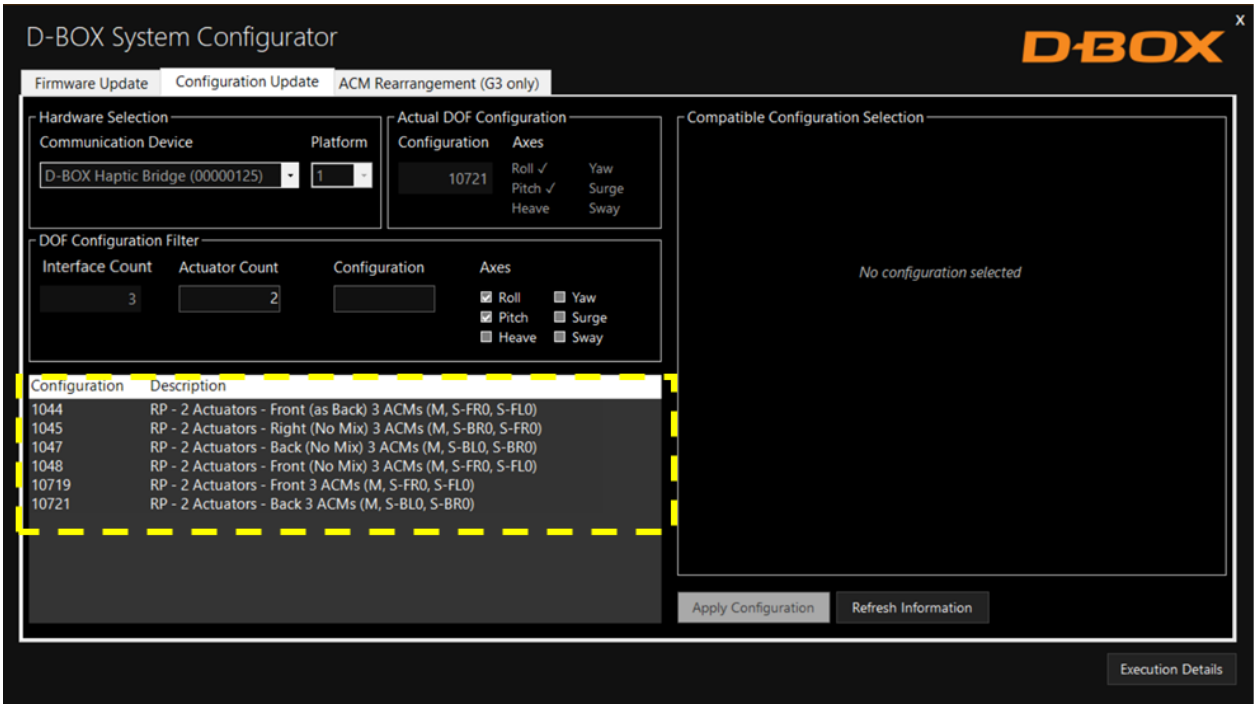
OPTION B: Filter by configuration attributes (see Appendix A or C for common configurations) by:

1. Validating that the number of interfaces (Haptic Bridge + actuators) detected is accurate. If they do not, check the system connections and click the **Refresh Information** button.

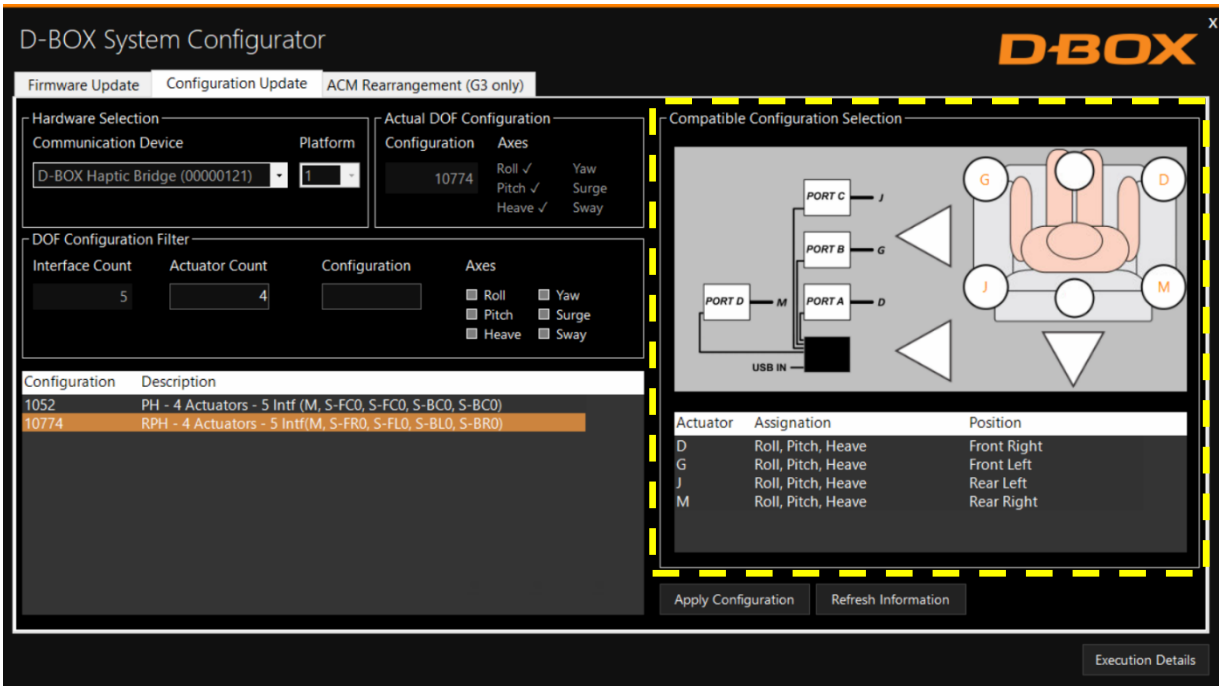
2. Validating that the number of actuators detected match your requested configuration. Otherwise, manually change the value as desired.

3. Optional: Checking the boxes of the desired axes (degrees of freedom) you require.

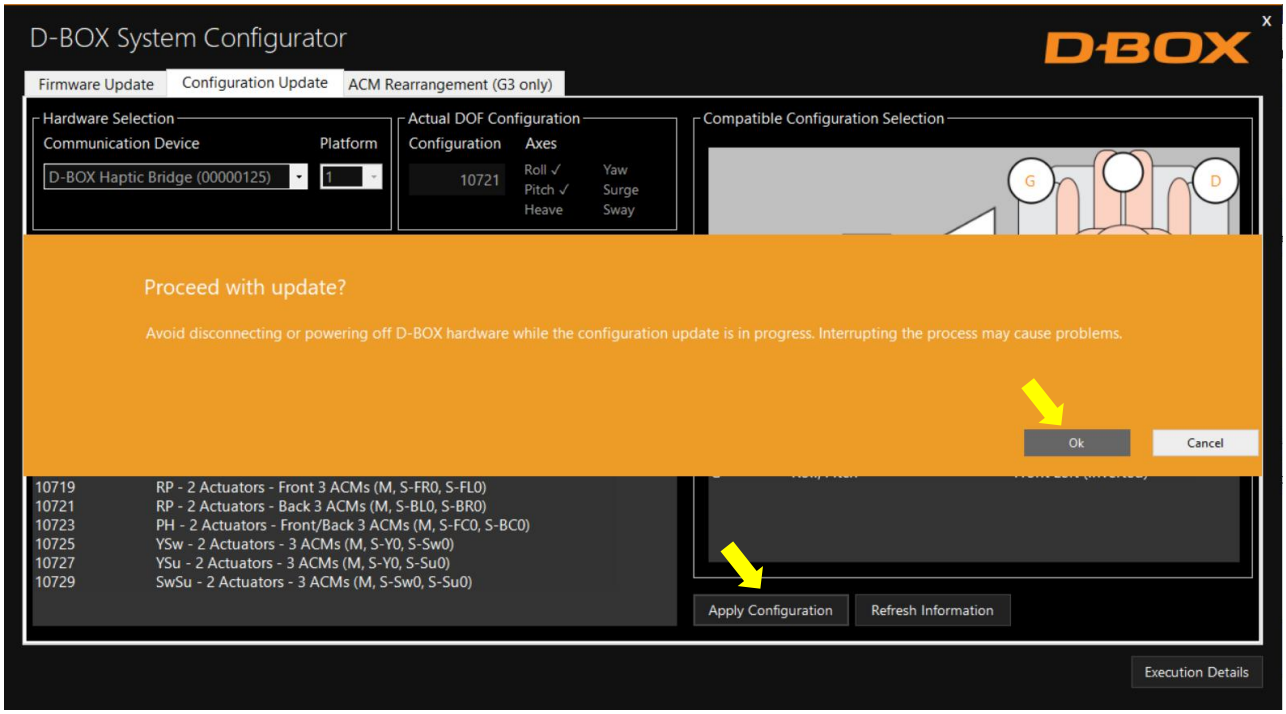
STEP 3: The Configuration and Description box lists all the available configurations using the information you have entered into the DOF Configuration Filter.

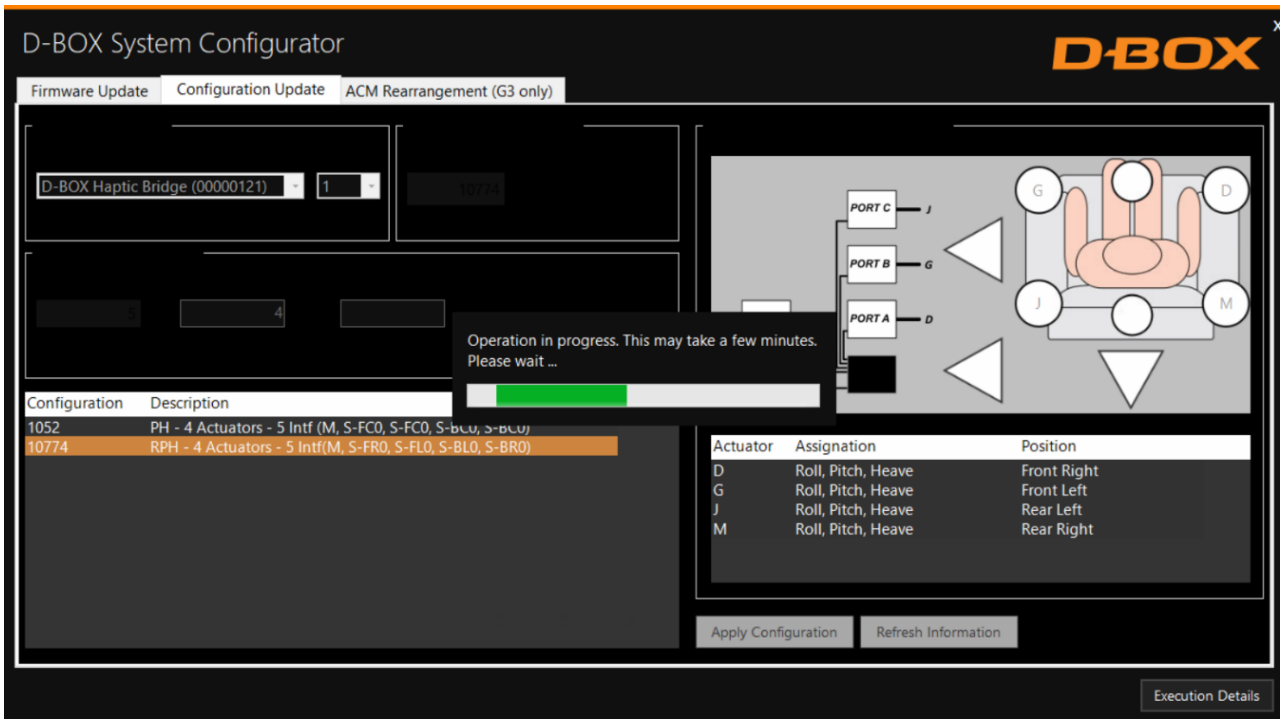


By selecting a configuration, its layout appears in the Compatible Configuration Selection box. The layout displays the positions of the Haptic Actuator(s) on the simulator, chair, or platform, and the associated port on the Haptic Bridge.

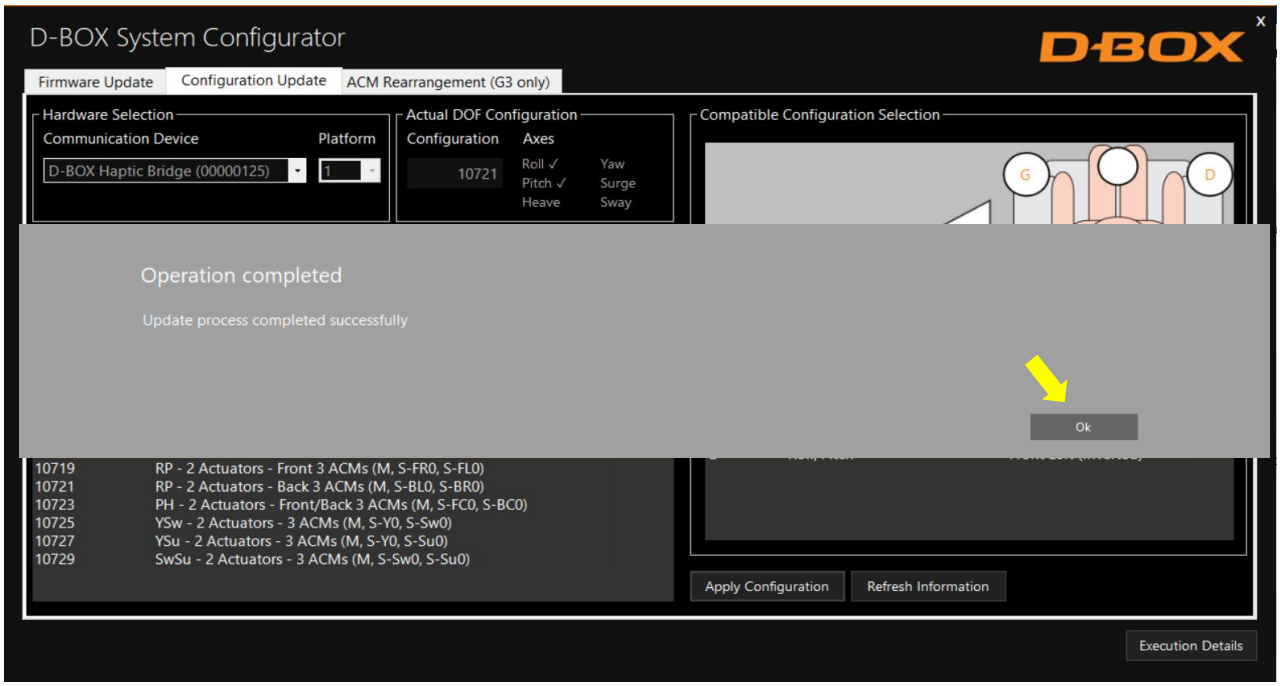


STEP 4: Once the configuration is chosen, click **Apply Configuration** to start the configuration update process, then follow the instructions.





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



5. G2 and 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 has 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 D-BOX folder.

NOTE: *Running the software requires administrative privileges.*

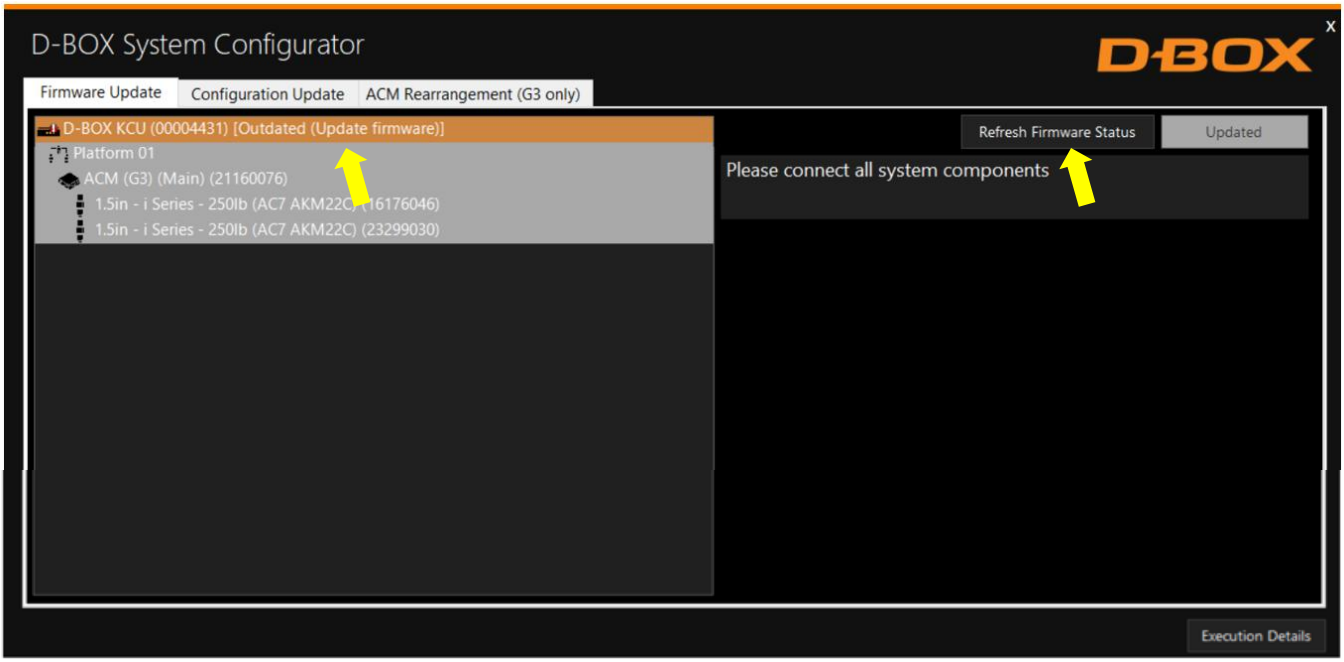
5.2 G2 and G3 Firmware Updates

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, and KCA-T.

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

A firmware update applies to a KCU-1P and all subcomponents (ACM, KCA, KCA-T). If you have multiple KCU-1Ps, **you must update them one at a time**.

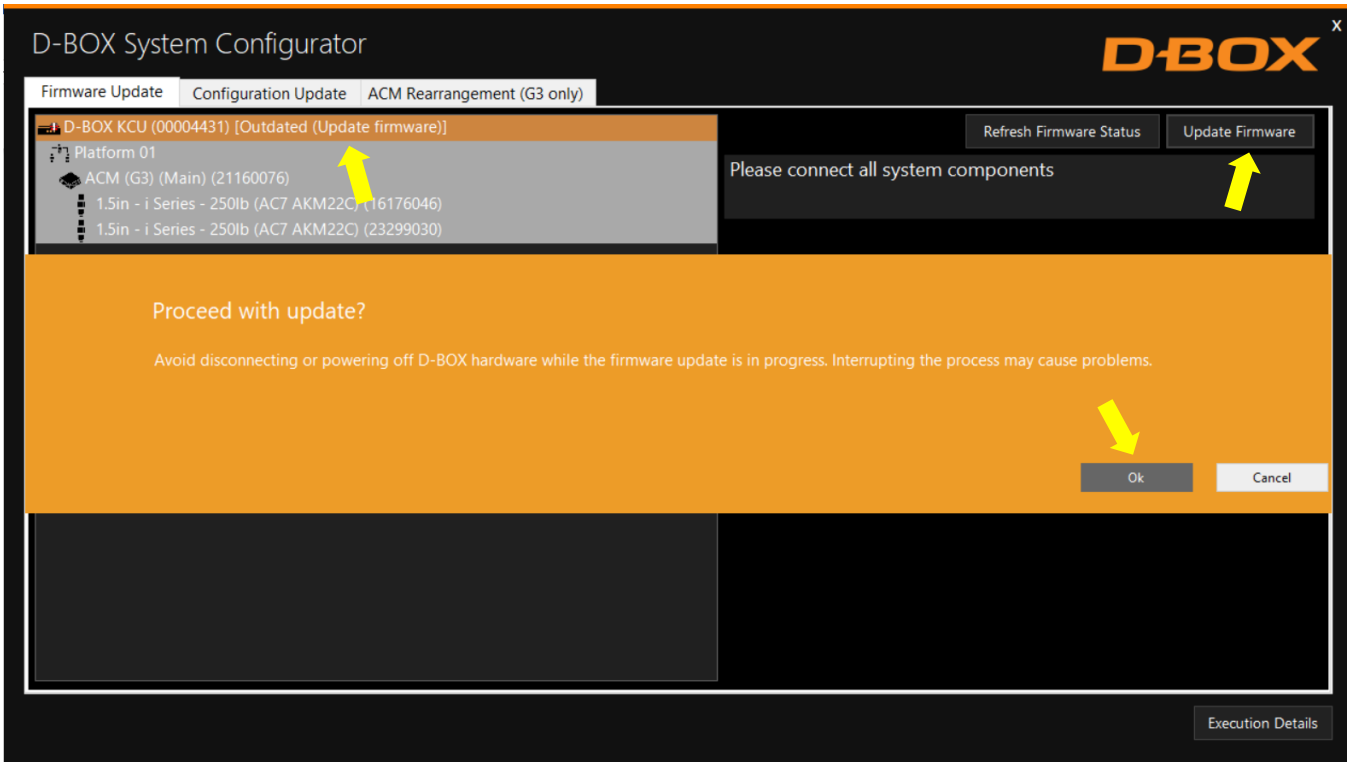
STEP 1: Click **Refresh Firmware Status**. This refreshes the status of the firmware and updates the status to *Outdated* (if a newer firmware version is available) or *Up to date* (if the latest firmware is already in use).



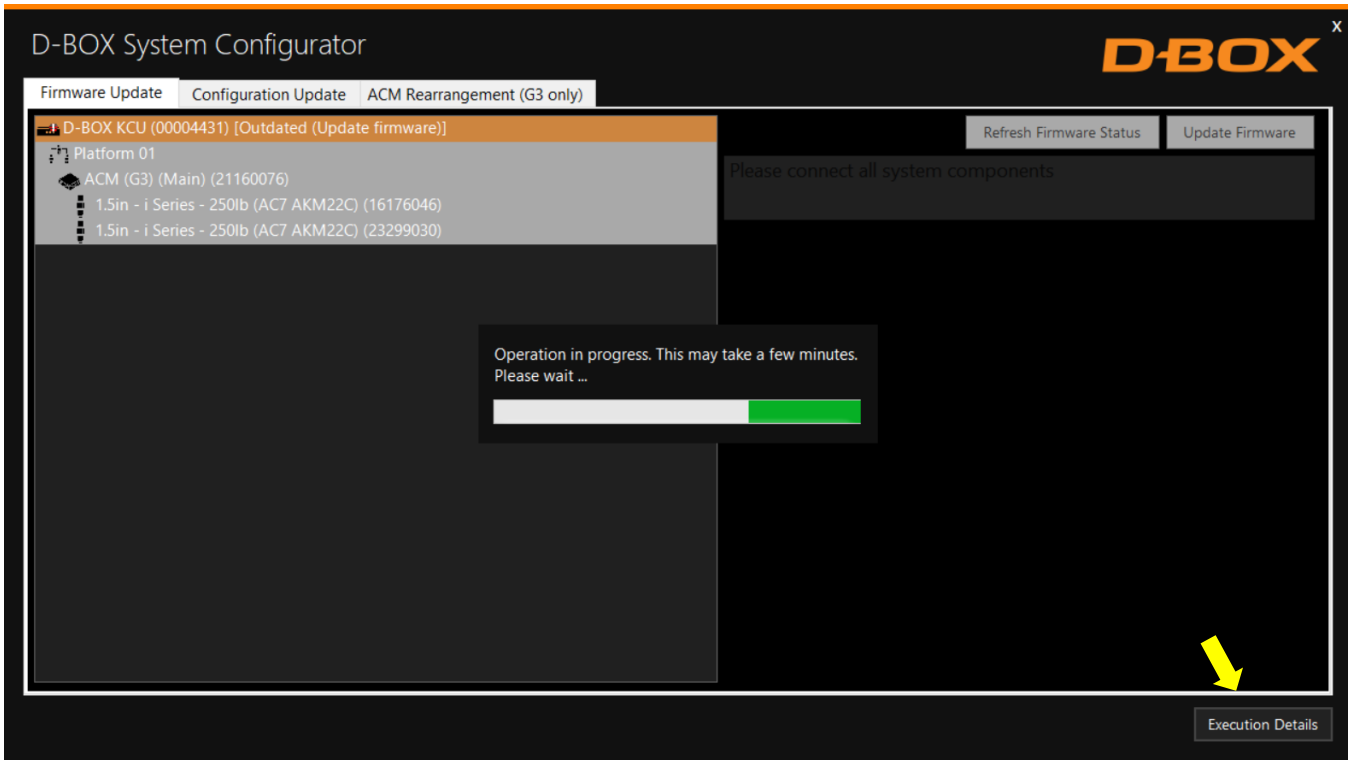
The Device icon displays the firmware's status.

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

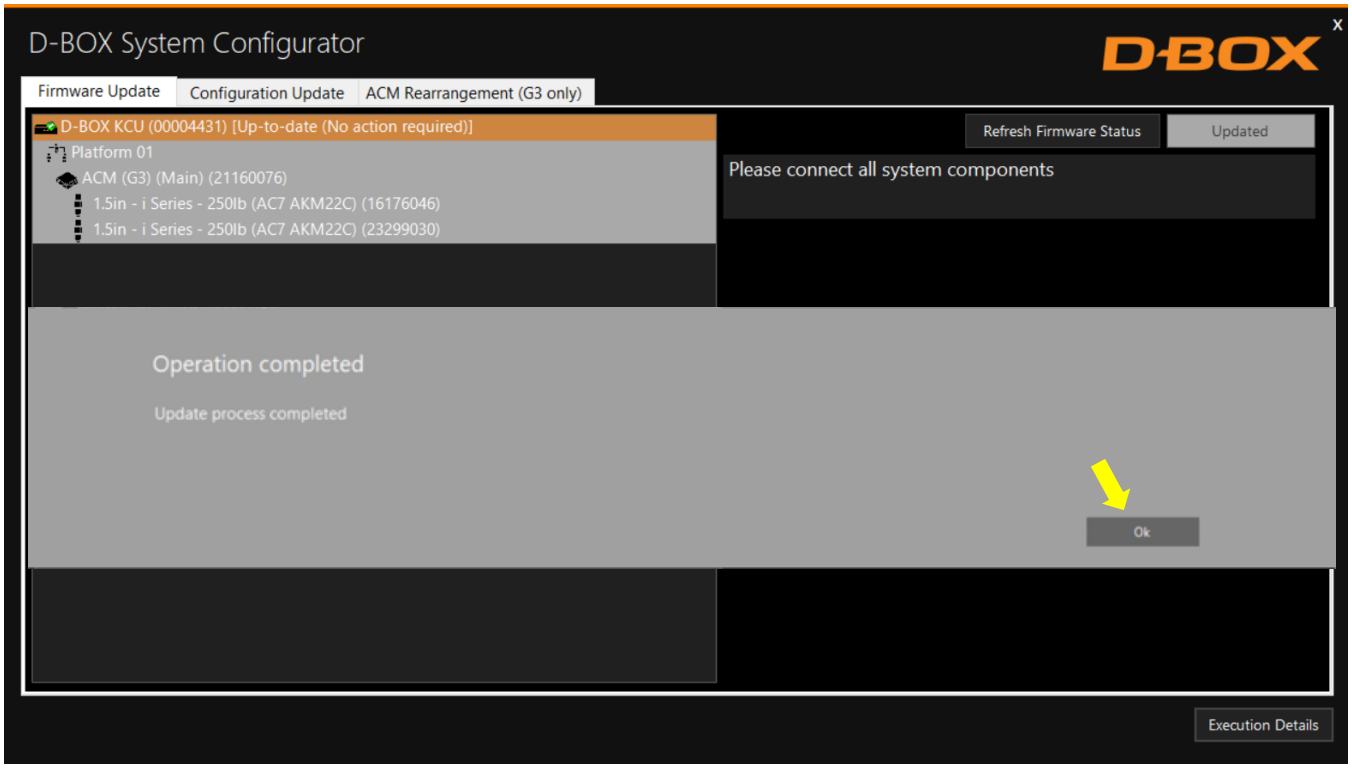
STEP 2: If your components are outdated, select the KCU-1P you need to update, then press **Update Firmware**. A dialog box appears asking if you want to proceed with update. Click **OK**.



NOTE: *The update process may take a few minutes. Click the Execution Details button at any time to see details about the ongoing operation.*

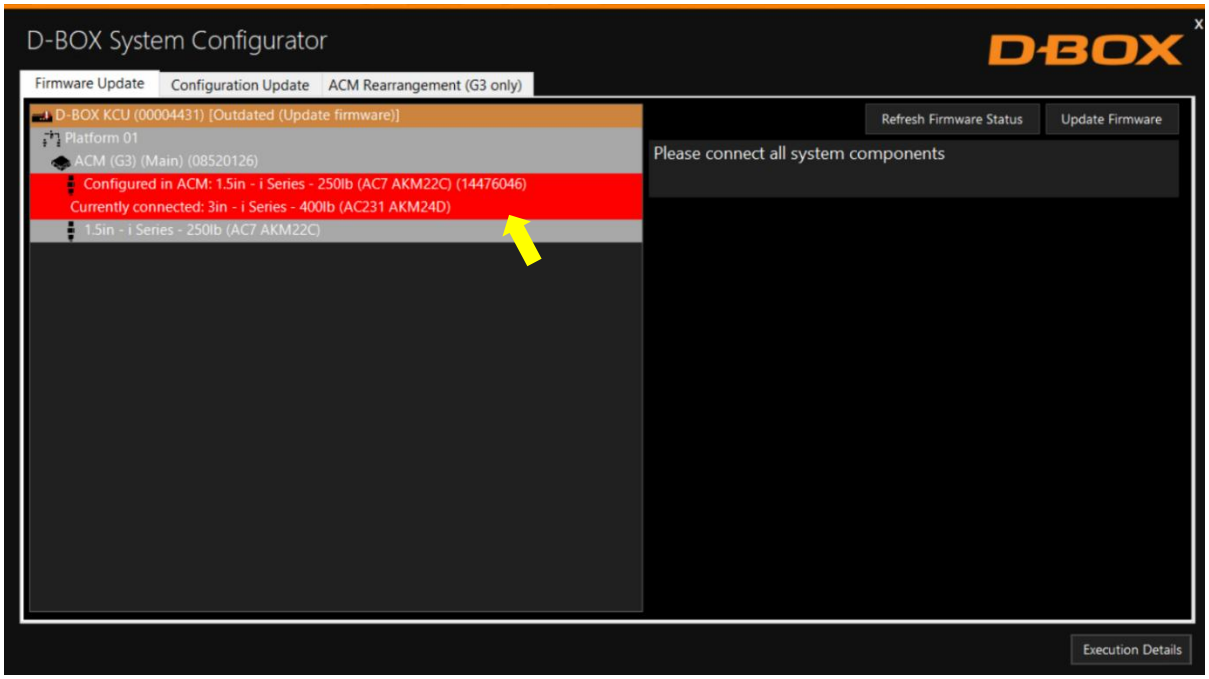


Once the update process is complete, the following window appears. Click **OK**.



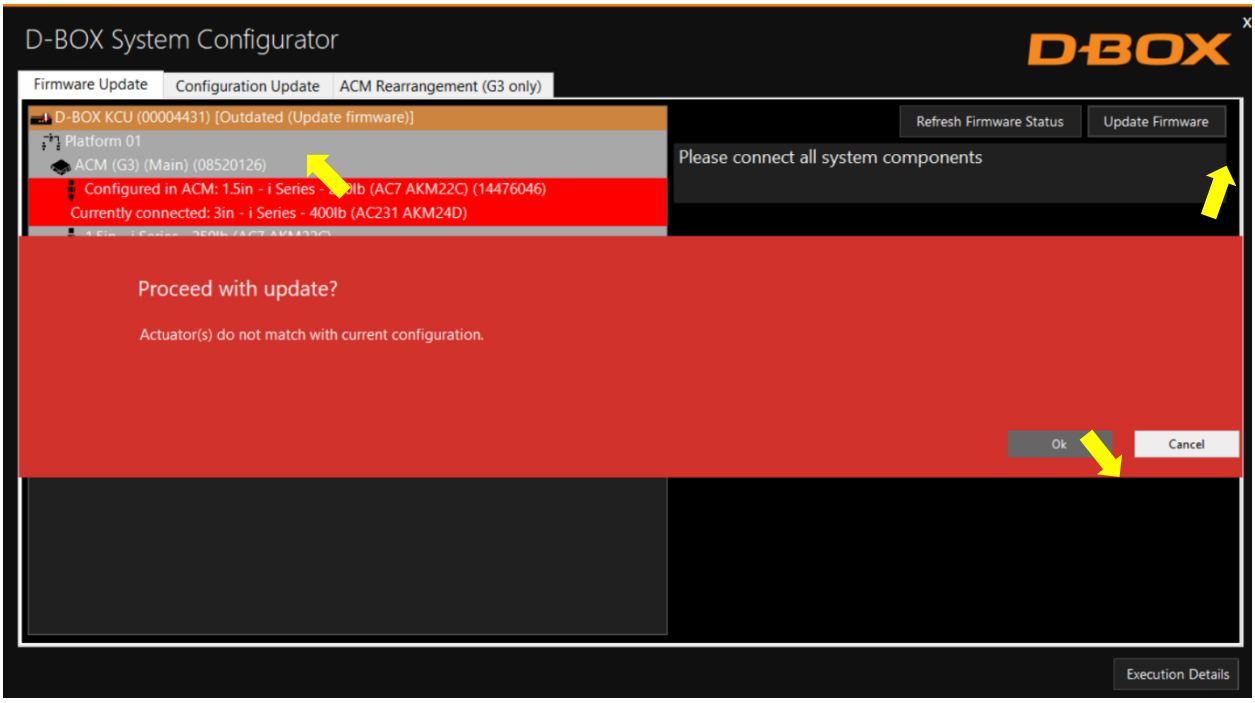
5.3 Changing the Actuator Type (G3 only)

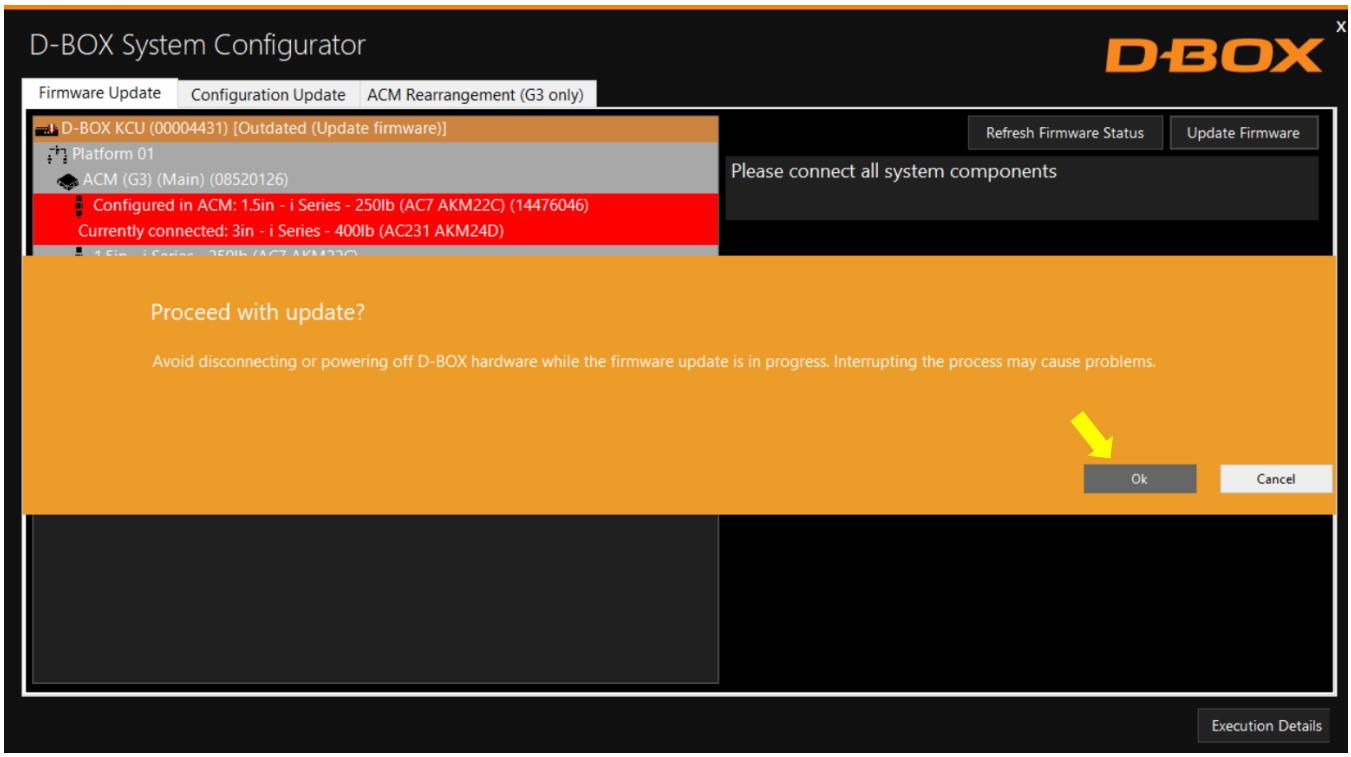
A firmware update must be performed when there is a mismatch between the configured actuator(s) and the connected actuator(s). For example, if you connect 3-inch actuators, instead of 1.5-inch actuators, a red window appears indicating the mismatch, indicating that the configuration is different from when the ACM was initially configured.

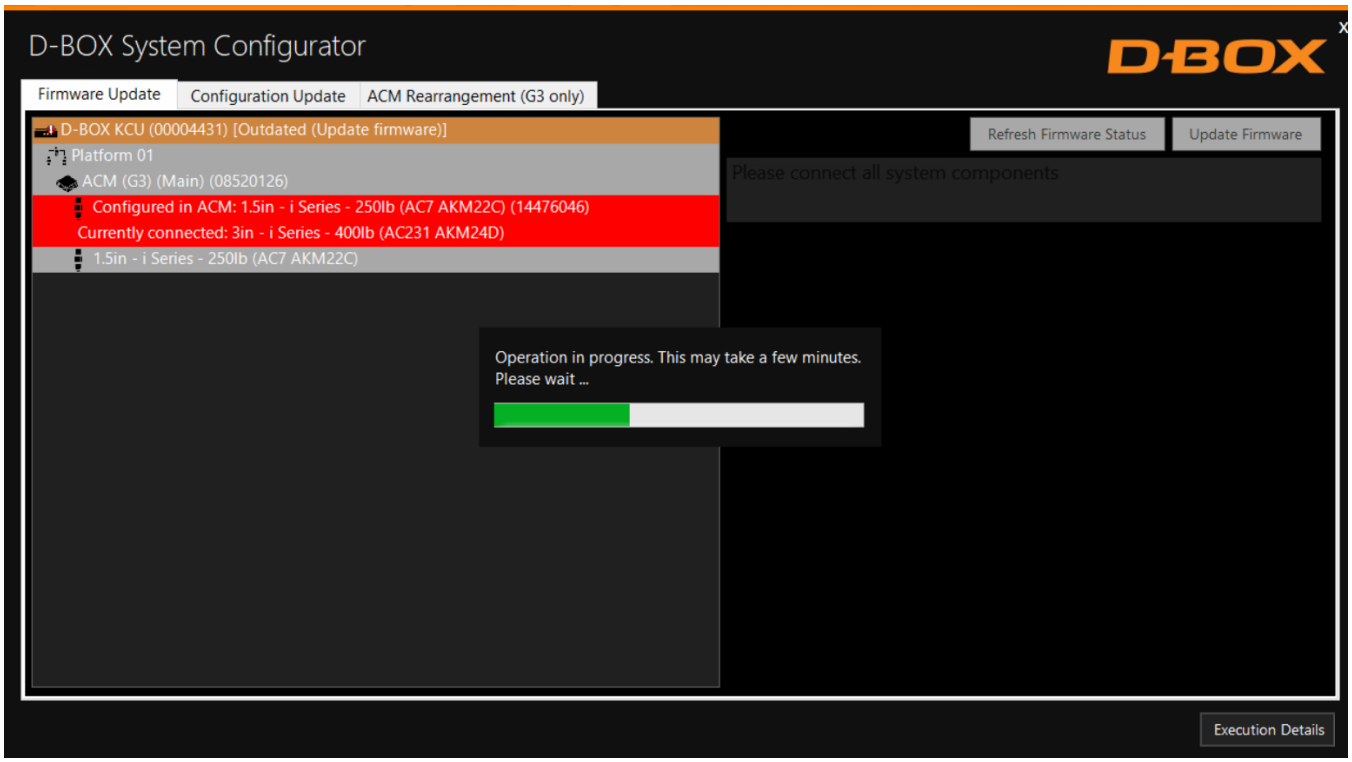


NOTE: *You cannot use this function with a G2 system.*

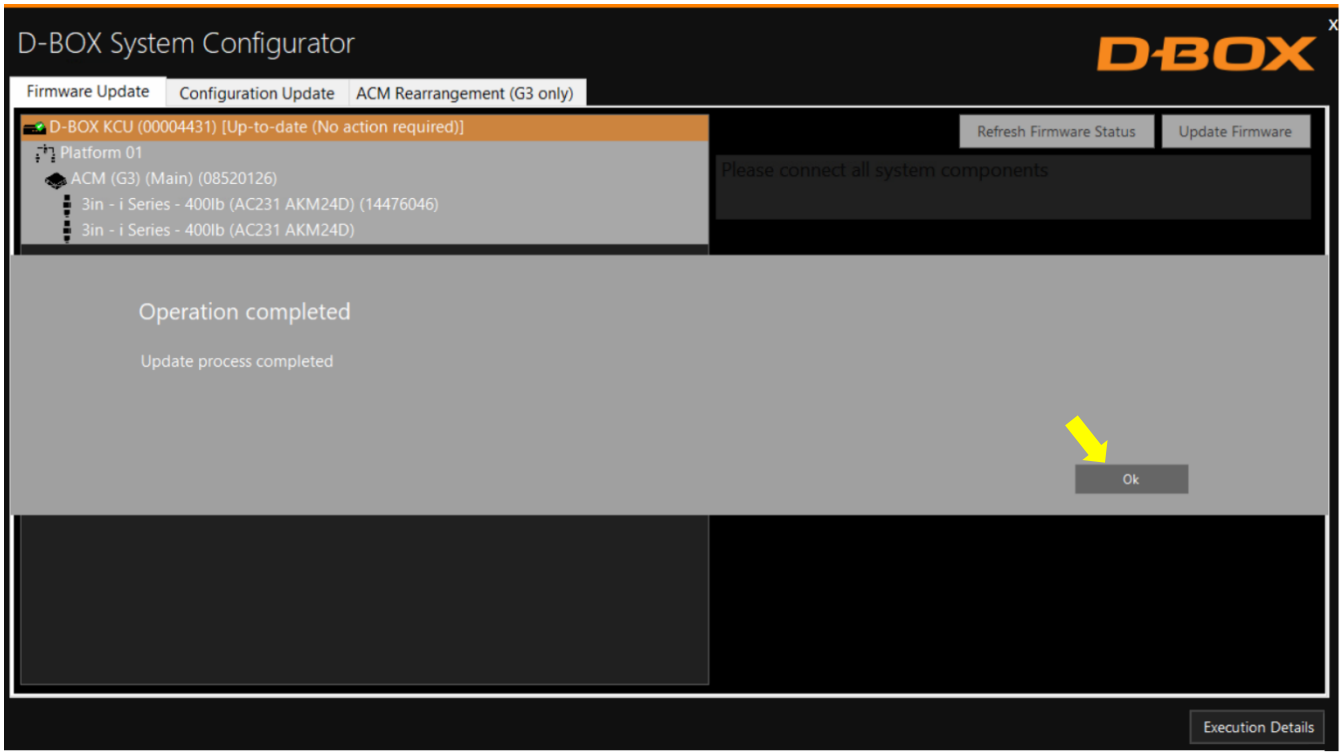
To proceed with the firmware update, select the KCU-1P device then click **Update Firmware**, and then follow the instructions.




D-BOX System Configurator
Firmware Update
Configuration Update
ACM Rearrangement (G3 only)
D-BOX KCU (00004431) [Outdated (Update firmware)]
Platform 01
ACM (G3) (Main) (08520126)
Configured in ACM: 1.5in - i Series - 250lb (AC7 AKM22C) (14476046)
Currently connected: 3in - i Series - 400lb (AC231 AKM24D)
Refresh Firmware Status
Update Firmware
Please connect all system components
Proceed with update?
Avoid disconnecting or powering off D-BOX hardware while the firmware update is in progress. Interrupting the process may cause problems.
Ok
Cancel
Execution Details


D-BOX System Configurator
Firmware Update
Configuration Update
ACM Rearrangement (G3 only)
D-BOX KCU (00004431) [Outdated (Update firmware)]
Platform 01
ACM (G3) (Main) (08520126)
Configured in ACM: 1.5in - i Series - 250lb (AC7 AKM22C) (14476046)
Currently connected: 3in - i Series - 400lb (AC231 AKM24D)
1.5in - i Series - 250lb (AC7 AKM22C)
Refresh Firmware Status
Update Firmware
Please connect all system components
Operation in progress. This may take a few minutes.
Please wait ...
Execution Details

Once the operation is completed, click **OK**. Your haptic system is now up to date.

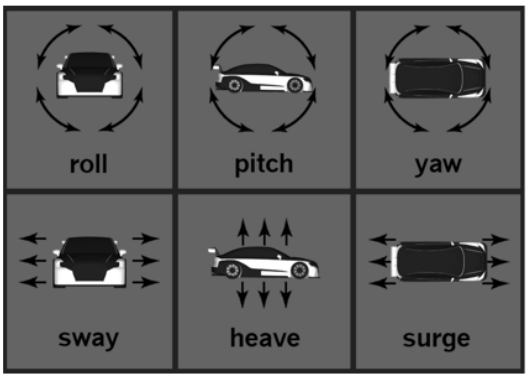


5.4 G2 and G3 Configuration Updates

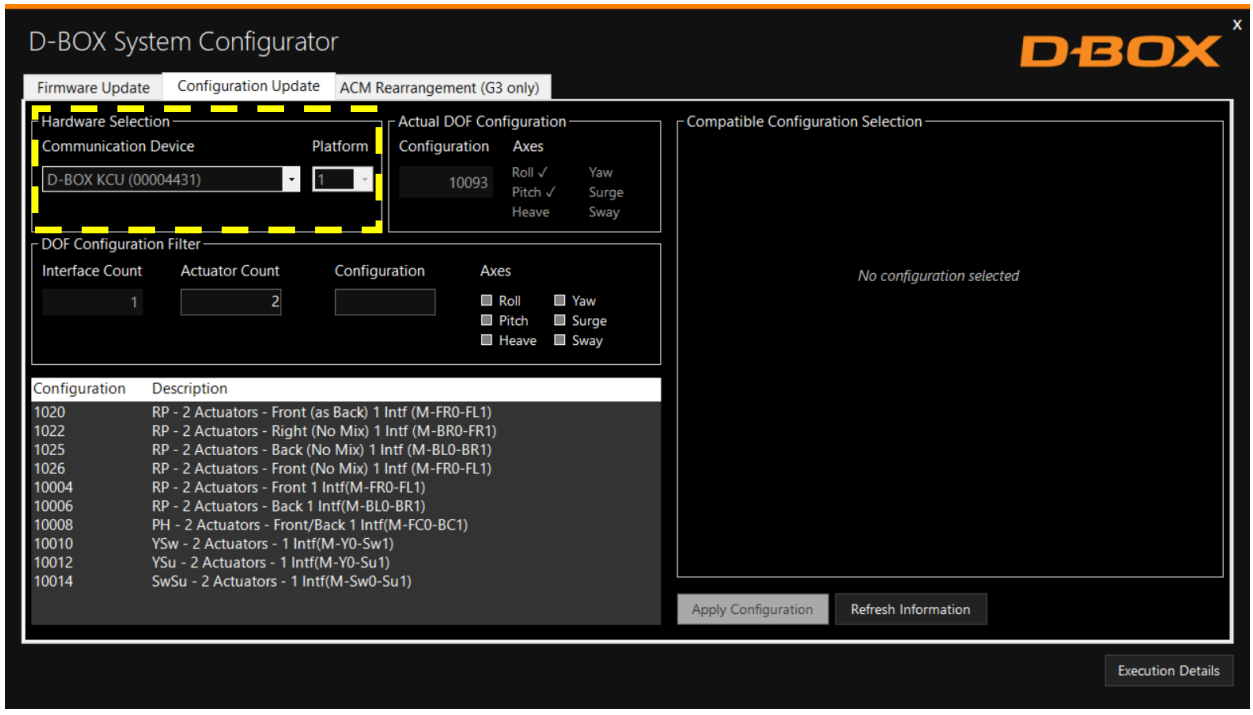
The **Configuration Update** tab allows you to:

- Configure your haptic system (Actuator positions and axes (Degrees of Freedom - DOF)
- Change the position assigned to each actuator.
- Change the number of actuators in the configuration.
- Modify the number of ACMs in the configuration.

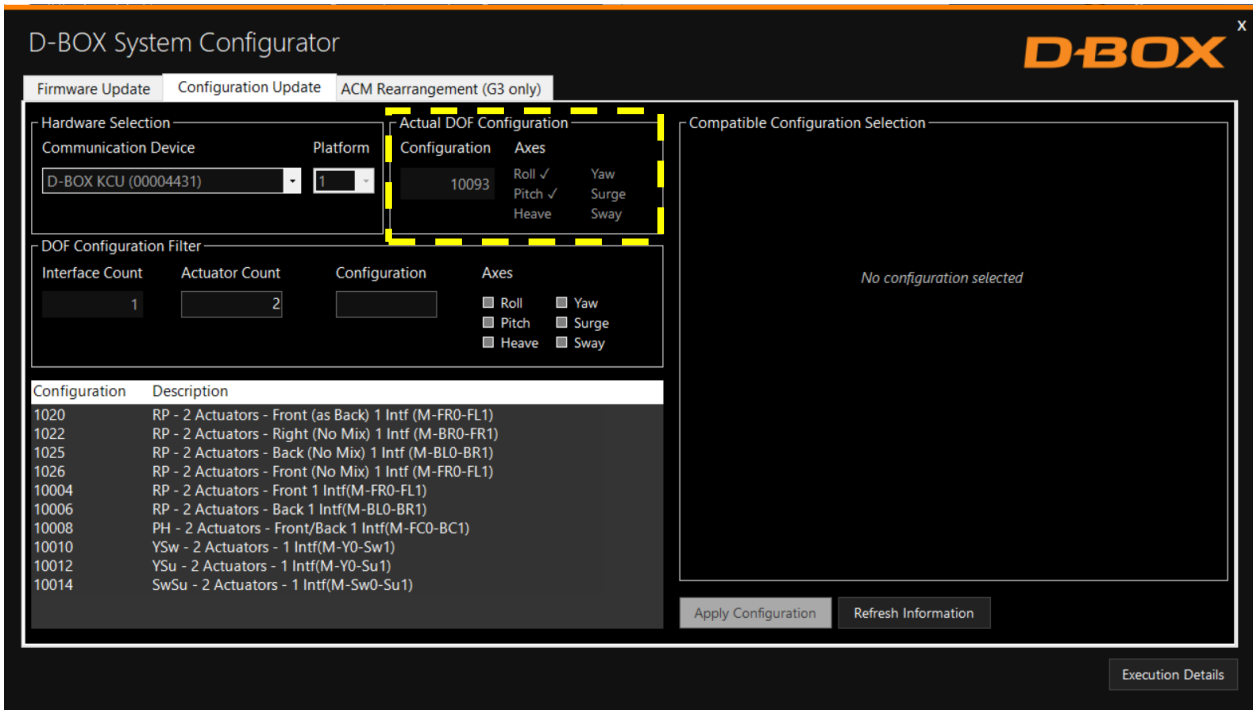
The following are the possible axes (DOF) that can be configured for a D-BOX haptic system.



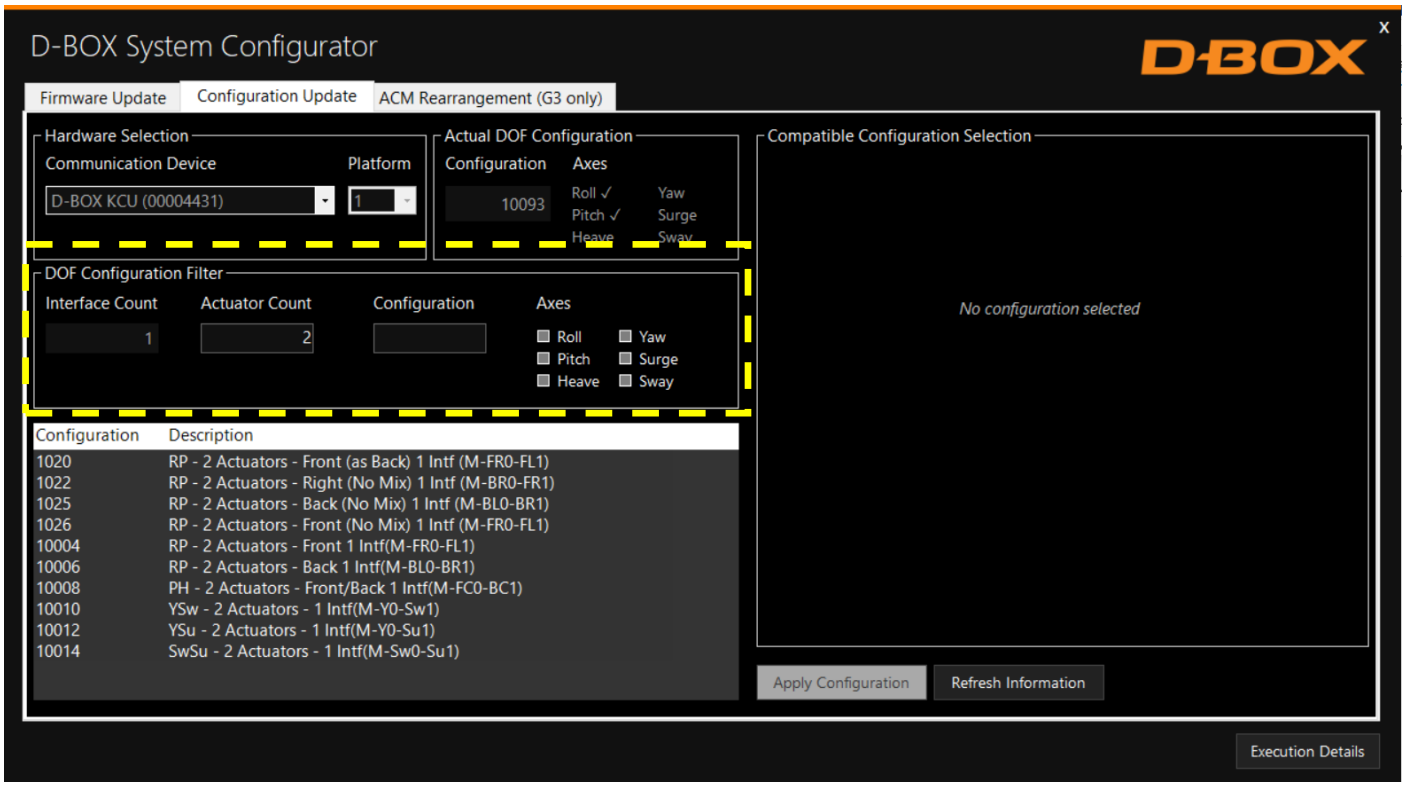
STEP 1: From the Hardware Selection box, select the communication device (KCU-1P) linked to the haptic system(s) you want to configure, then select the platform number (if multiple haptic systems are connected).



The Actual DOF Configuration box shows the actual configuration.



STEP 2: The DOF Configuration Filter box helps you find the available configurations for your haptic system.

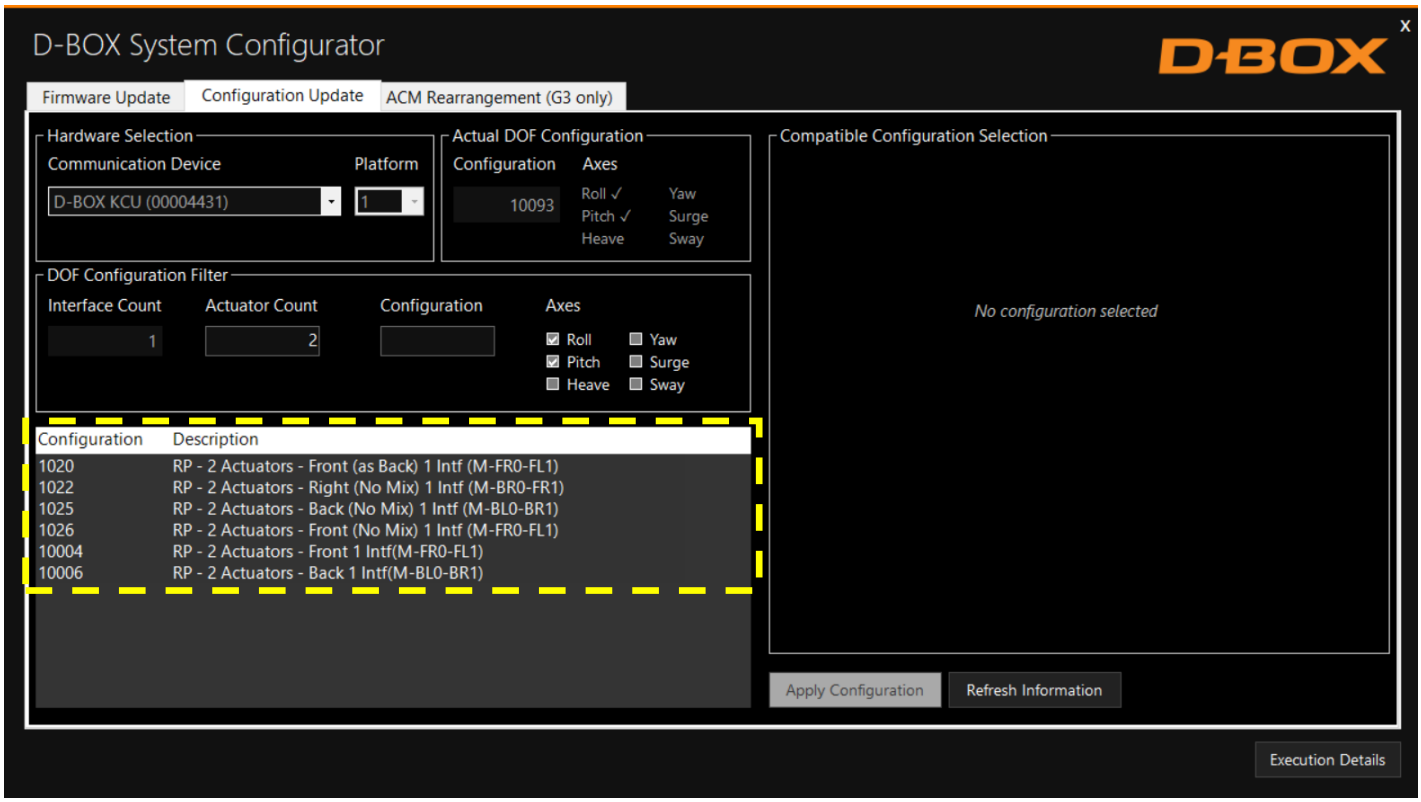


OPTION A: If you know the number of the configuration, you can select it from the list then proceed with the programming (see Appendix B or C for common configurations).

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

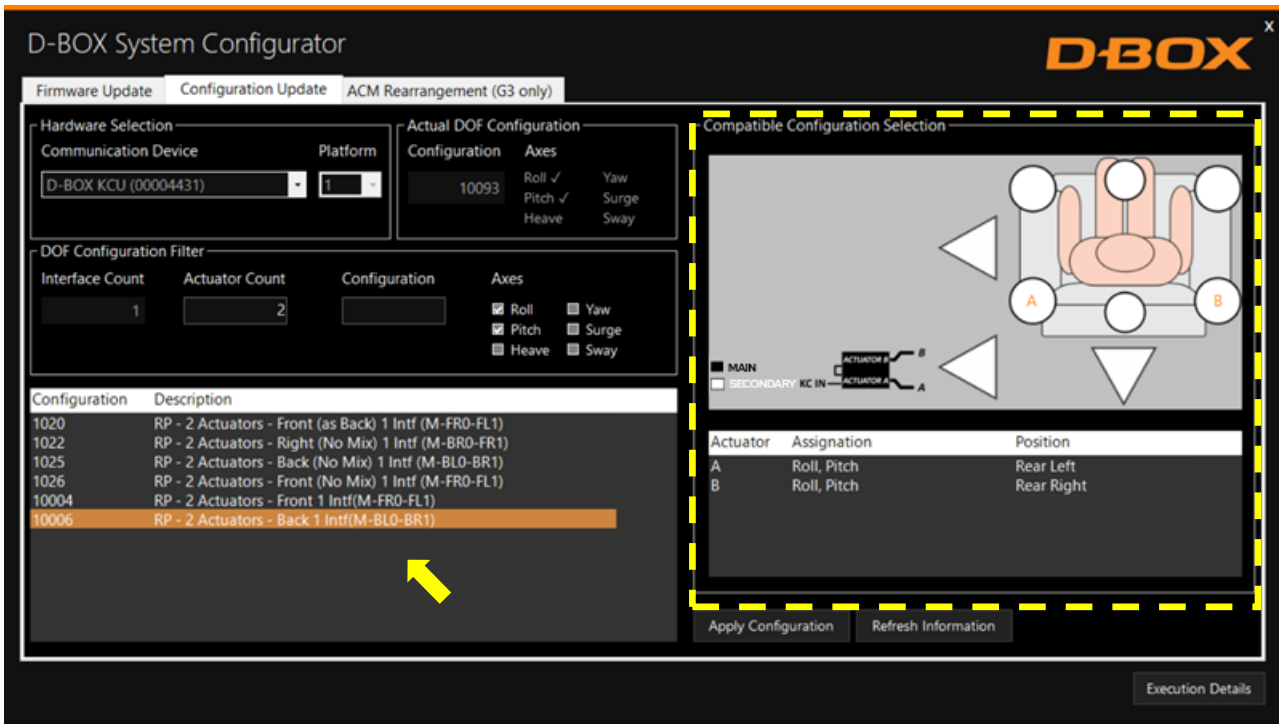
1. Validating that the number of ACMs detected (Interface Count) is accurate. If it is not, check the system connections and click **Refresh Information**.
2. Validating that the number of actuators detected match your requested configuration. Otherwise, manually change the value as desired.
3. Optional: Checking the boxes of the desired axes (degrees of freedom) you require.

STEP 3: The Configuration and Description section lists all the available configurations, using the information you entered into the DOF Configuration Filter.

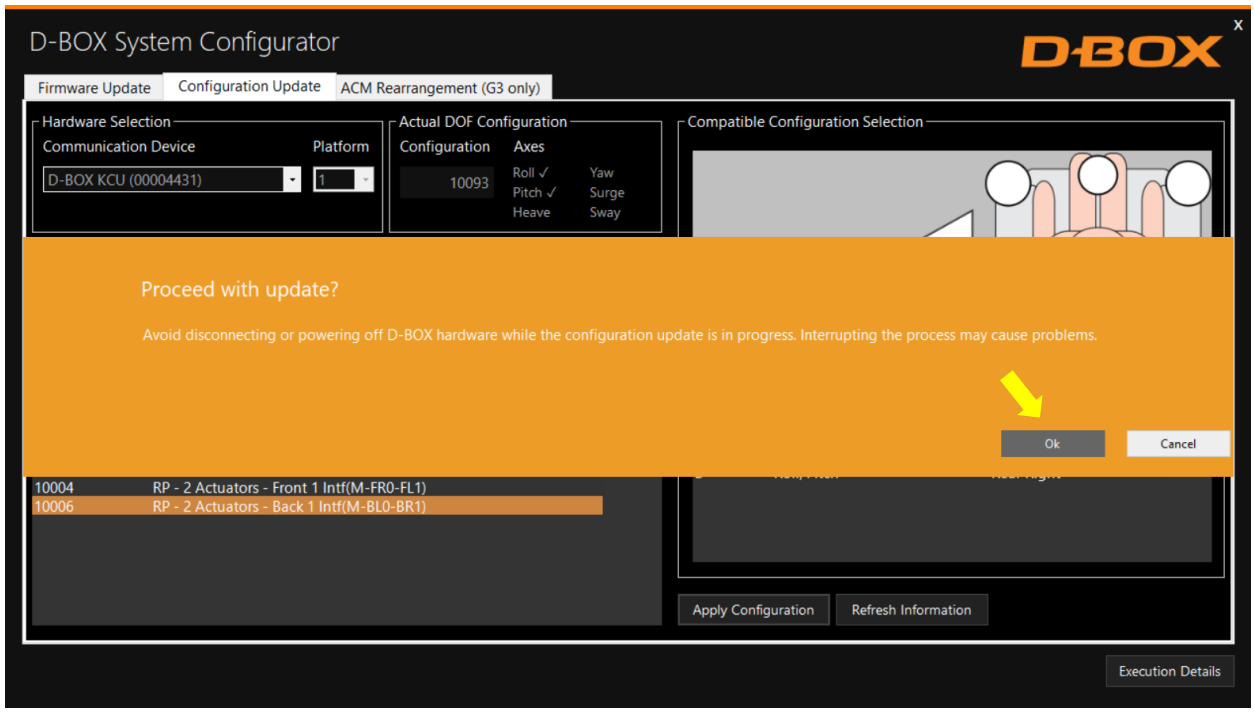


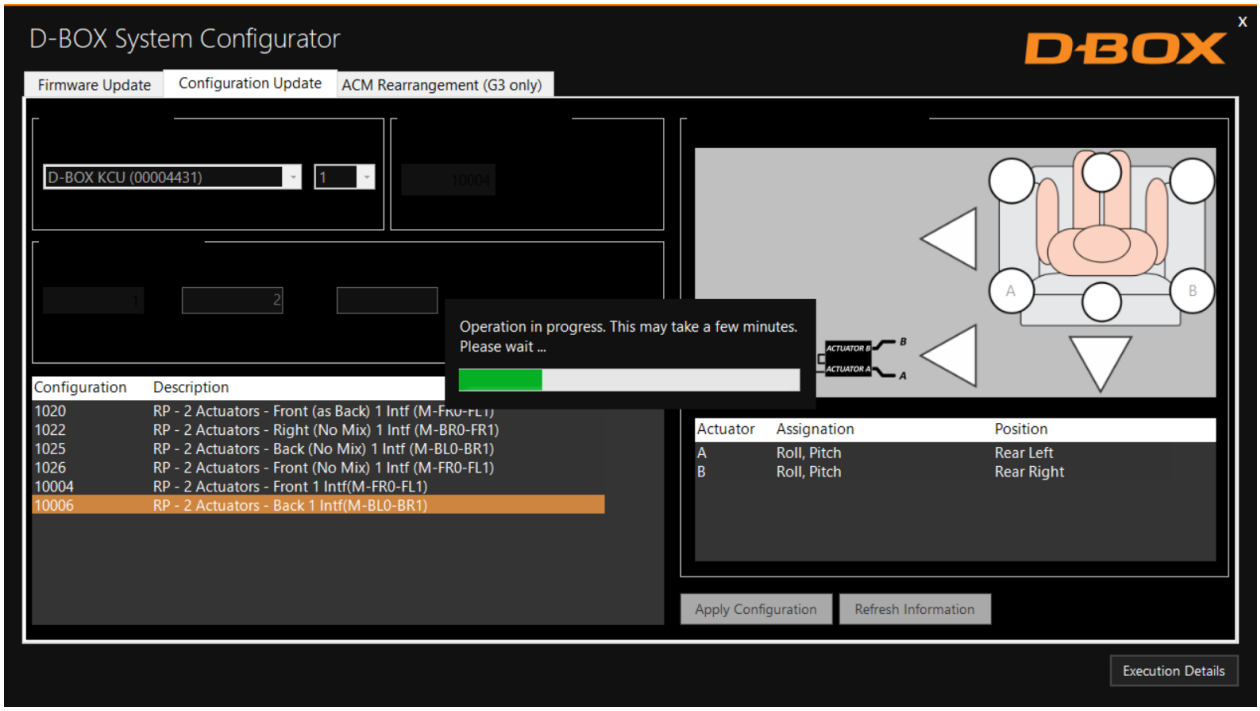
A selected configuration's layout is displayed in the Compatible Configuration Selection box. It shows the following elements:

- The connected ACM(s) with their arrangement - Main and Secondary.
- The connected actuator(s) and their assigned connection ports on the ACM.
- The positions of the actuator(s) on the simulator, chair, or platform.

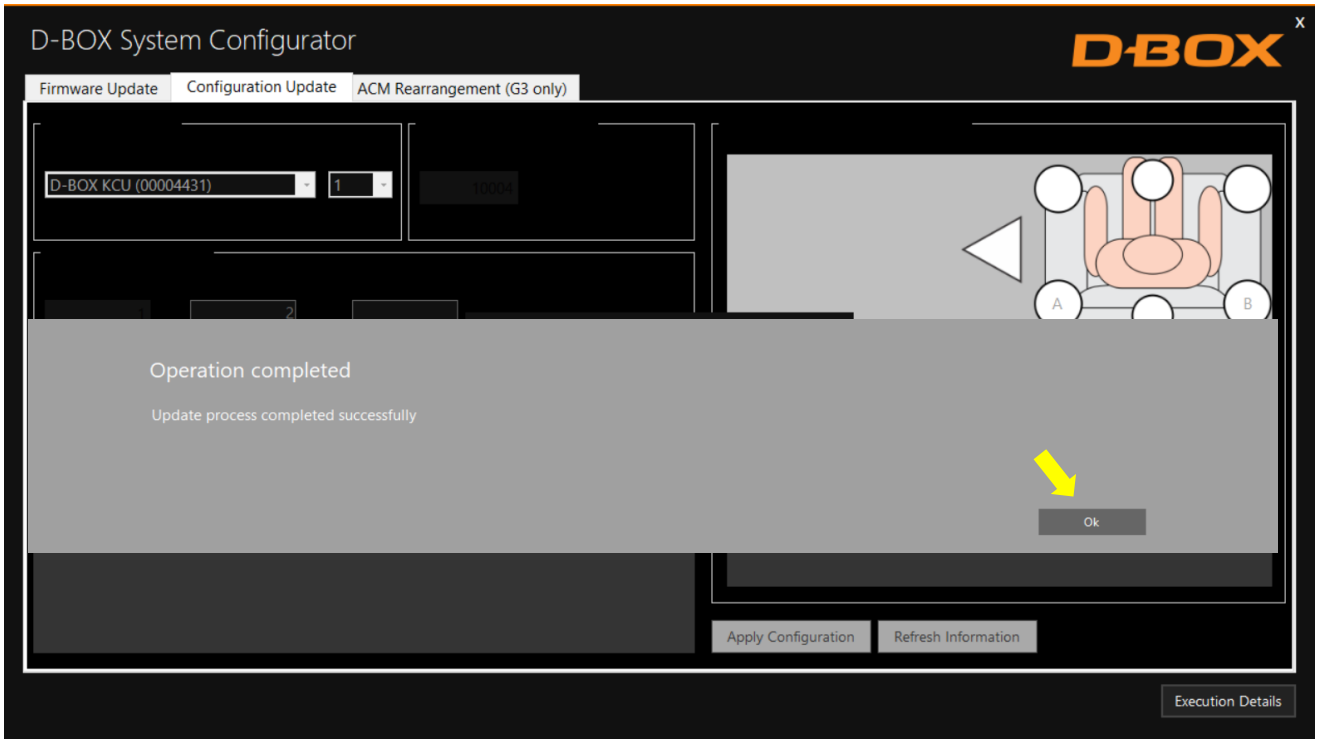


STEP 4 Once the configuration is chosen, click **Apply Configuration** to start the configuration update process, then follow the instructions.





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



5.5 ACM G3 and ACM G3 FLEX Rearrangement

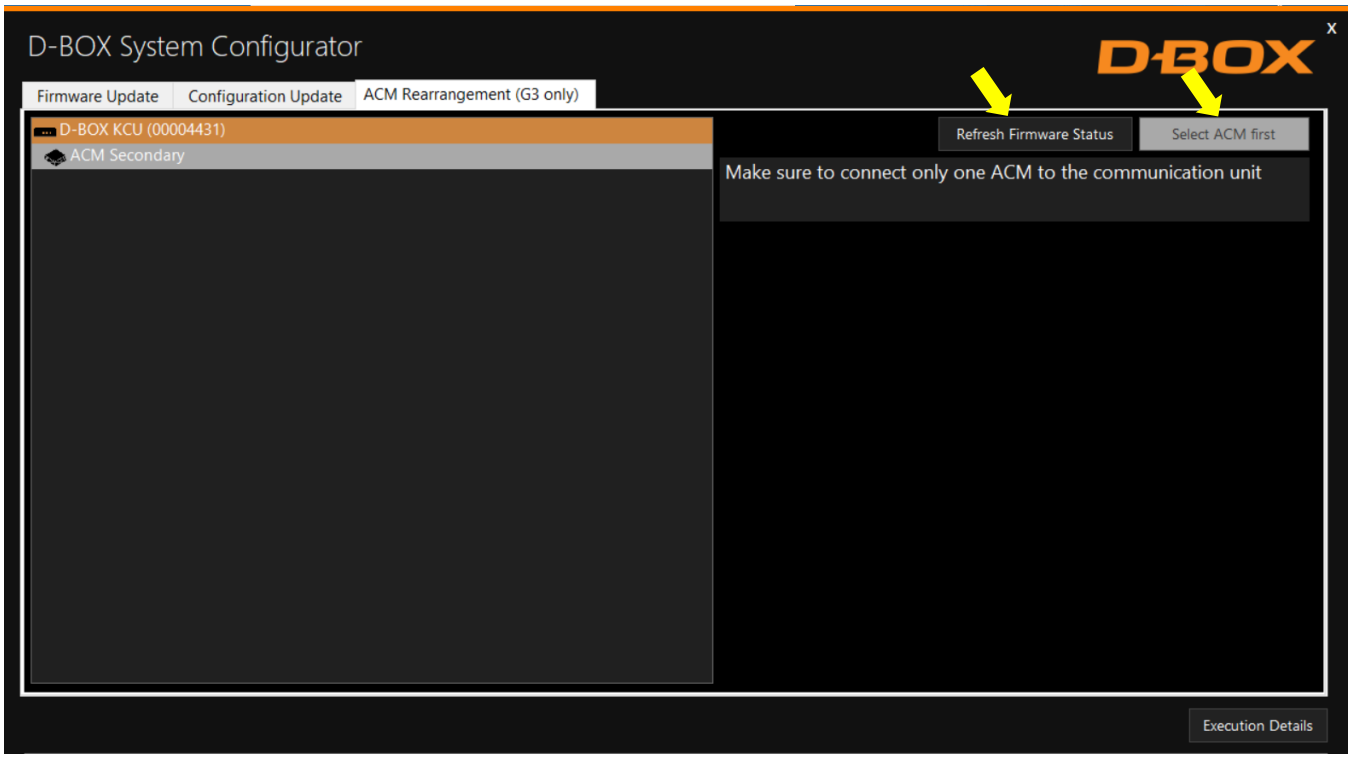
The ACM Rearrangement (G3 only) tab allows you to change the arrangement of an ACM from Main to Secondary, and vice-versa.

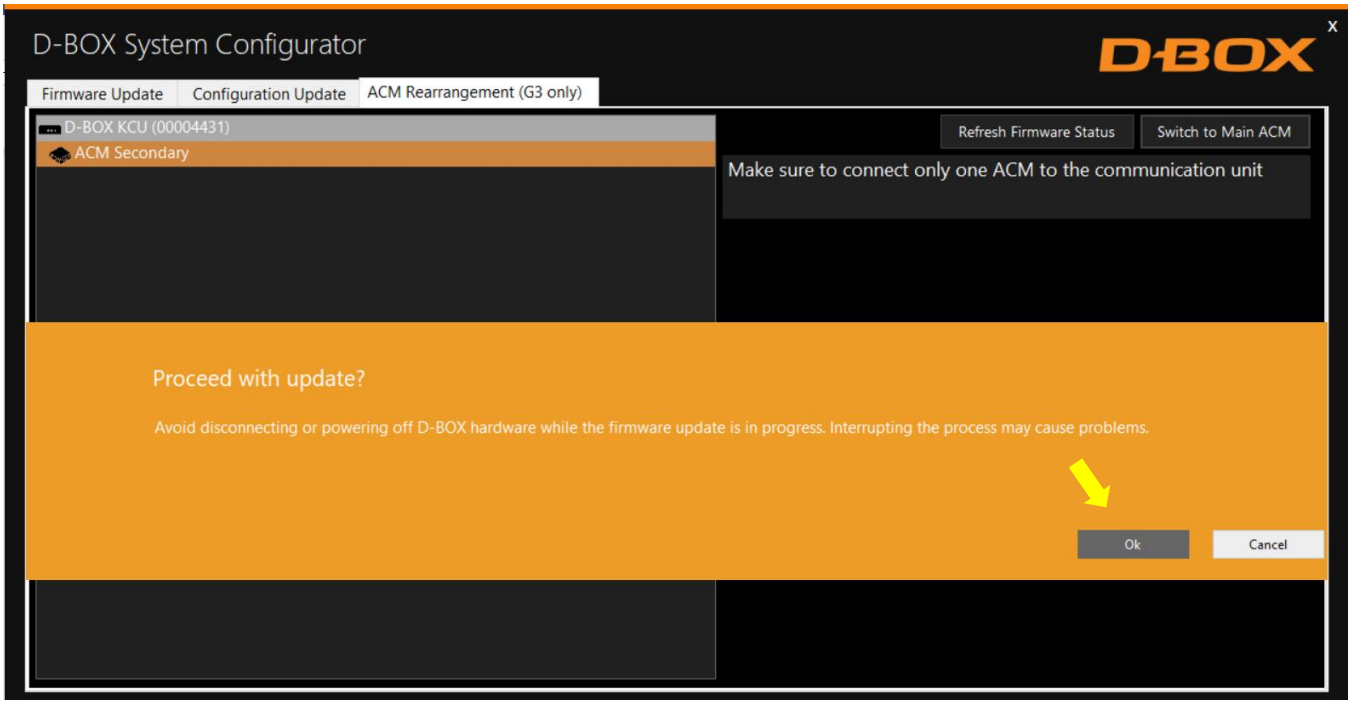
NOTE: *If an ACM Main is connected, only the Switch to Secondary ACM button is available. Conversely, if an ACM Secondary is connected, only the Switch to Main ACM button is available.*

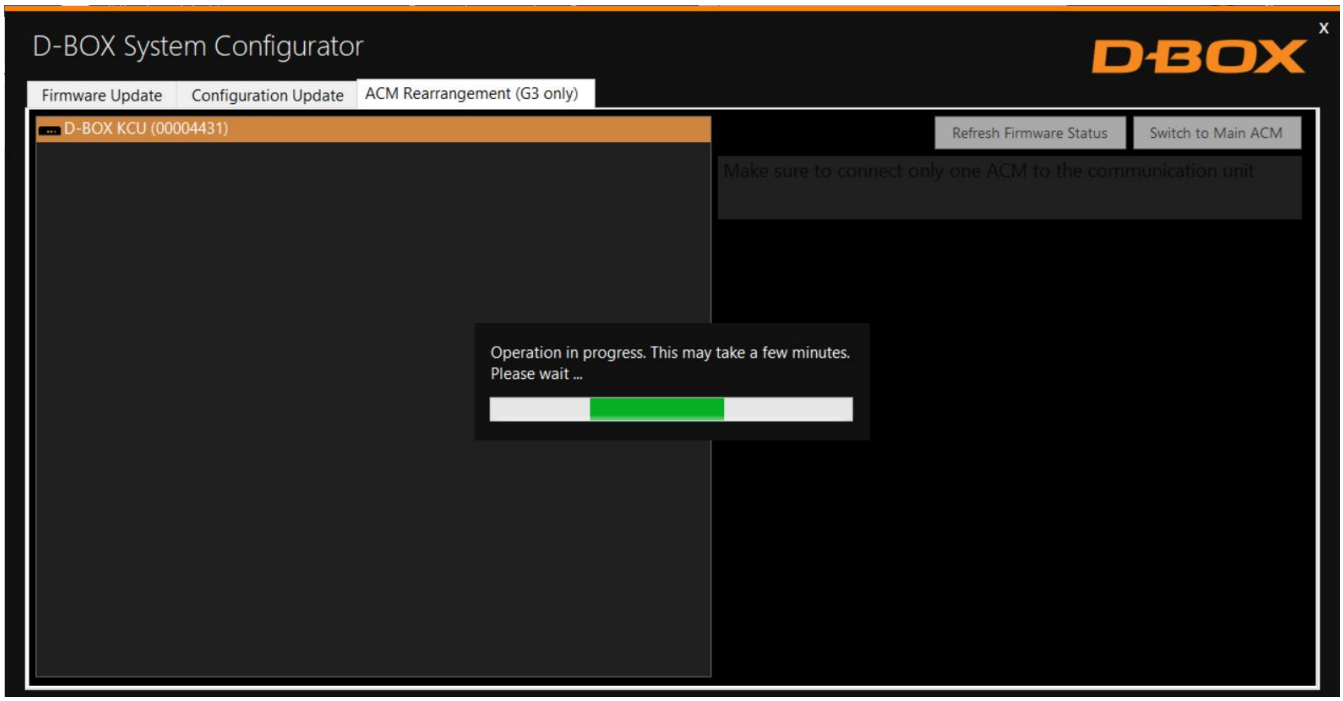
Connect only one (1) ACM to the KCU-1P at a time to perform this operation.

STEP 1: Click the **Refresh Firmware Status** button to view the actual configuration of the ACM.

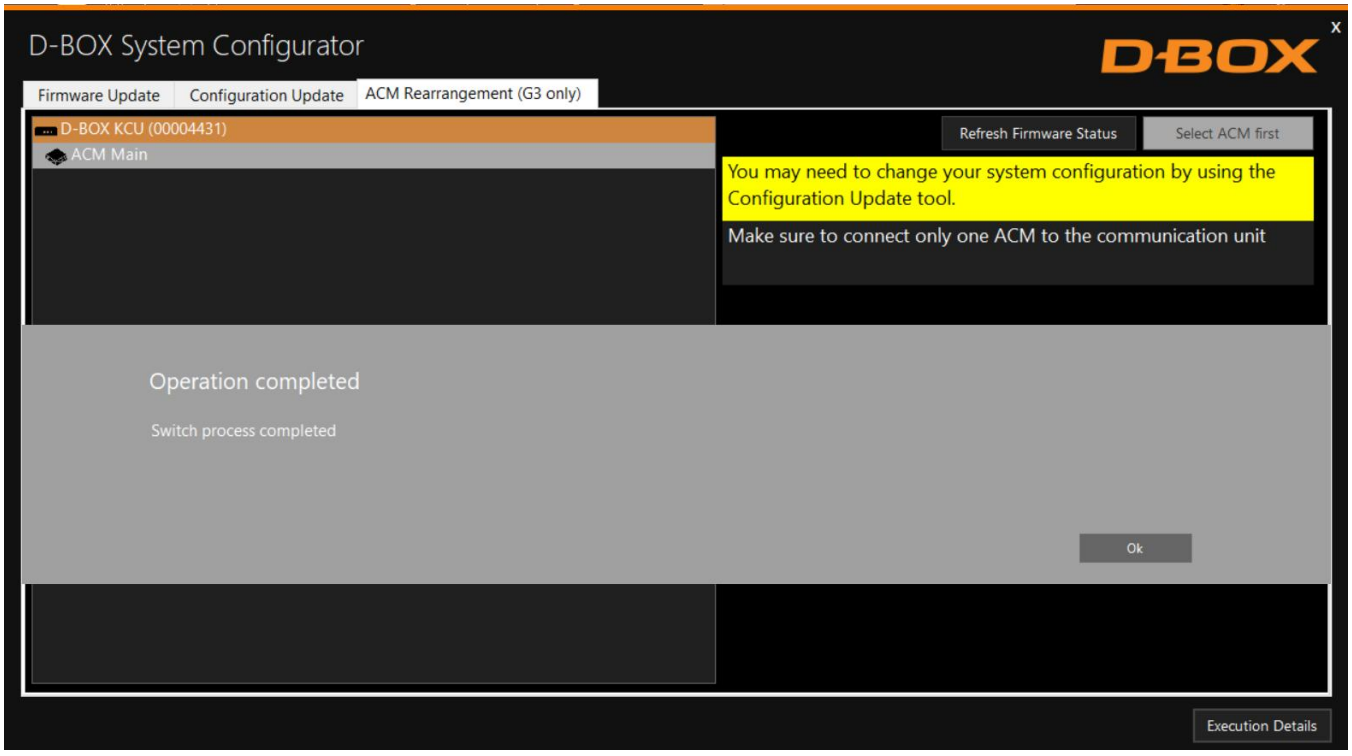
STEP 2: Click the **Switch to Secondary ACM** (or **Switch to Main ACM**) button to switch your ACM from Main to Secondary or vice-versa.







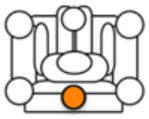
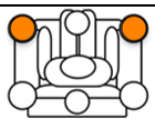
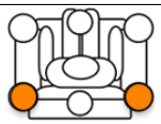
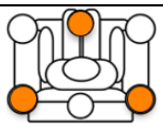
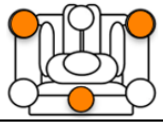
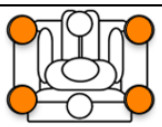
NOTE: *Click the Execution Details button at any time to see details about the ongoing operation.*



Once the ACM is configured:

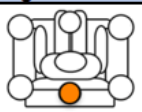
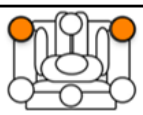
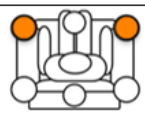
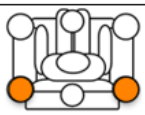
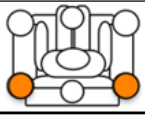
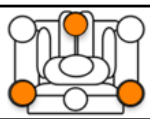
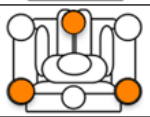
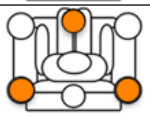
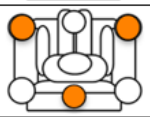
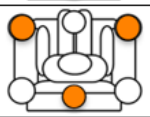
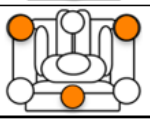
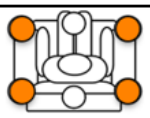
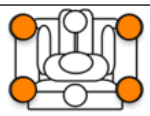
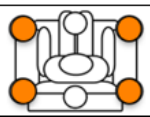
1. Replace the ACM arrangement sticker on top of the ACM.
2. Rearrange the connections between ACMs (see User Guide, if needed).
3. Change your system configuration by using the Configuration Update tab if necessary.
4. Run your application to check if your haptic system is in operational order.

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

APPENDIX C - MIXING G5 AND G3 HAPTIC SYSTEMS (ACM G3 FLEX ONLY)

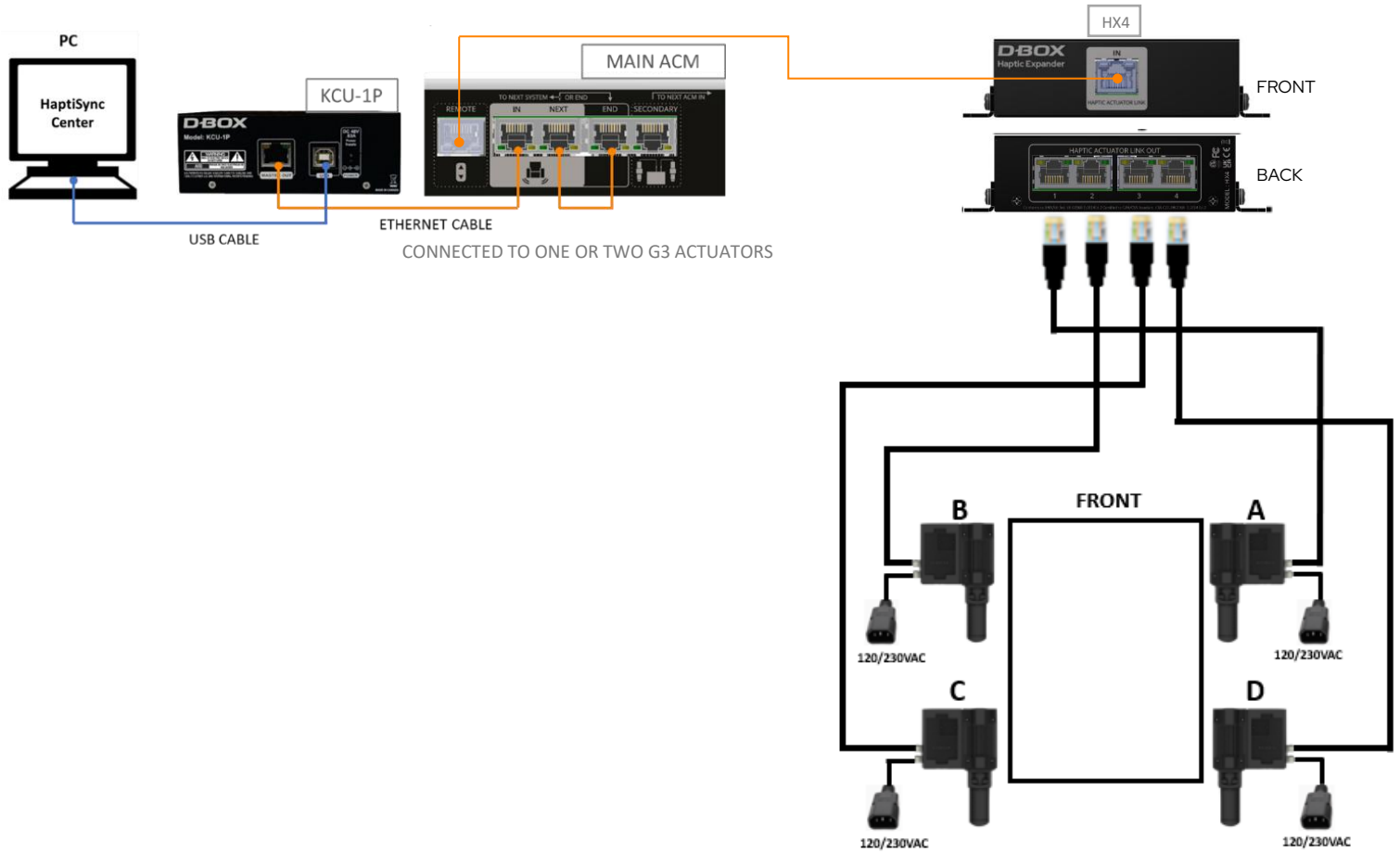
These configurations require connecting your PC to a KCU-1P—the KCU-1P to the main ACM G3 FLEX—main ACM G3 FLEX to a Haptic Expander— Haptic Expander to the G5 actuators.

NOTE:

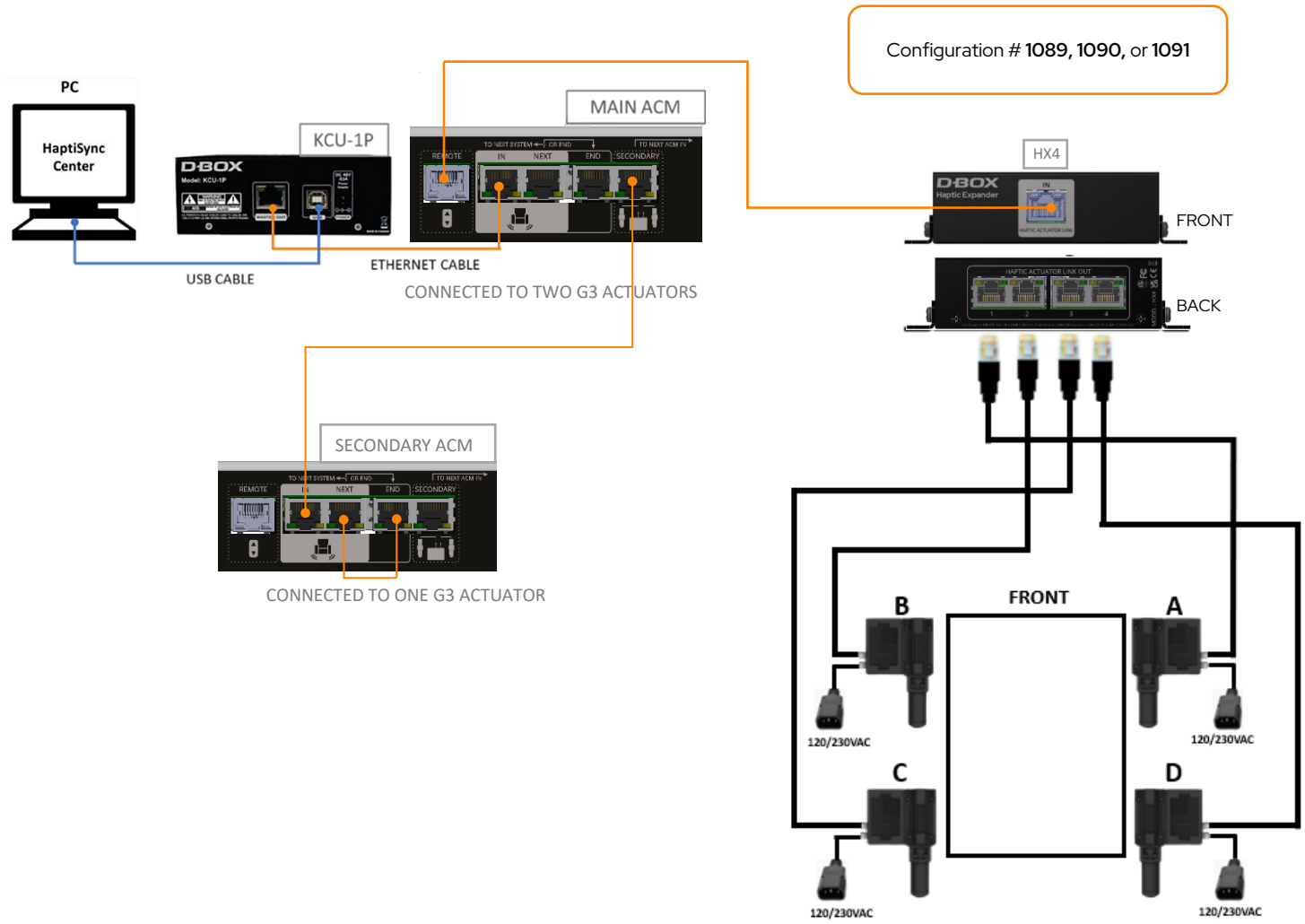
- *Remember to update your firmware whenever making a change to your setup/configuration.*
- *A Haptic Expander (HX4) is required when mixing a G3 haptic system (ACM G3 FLEX only) using one or more actuators (maximum of four) and a G5 haptic system using two or more actuators (connected to the REMOTE port of the Main ACM).*

Option 1 (4 G5s Roll-Pitch-Heave/1 or 2 G3s Yaw, Sway, Surge, Yaw-Sway, Yaw-Surge, or Sway-Surge)

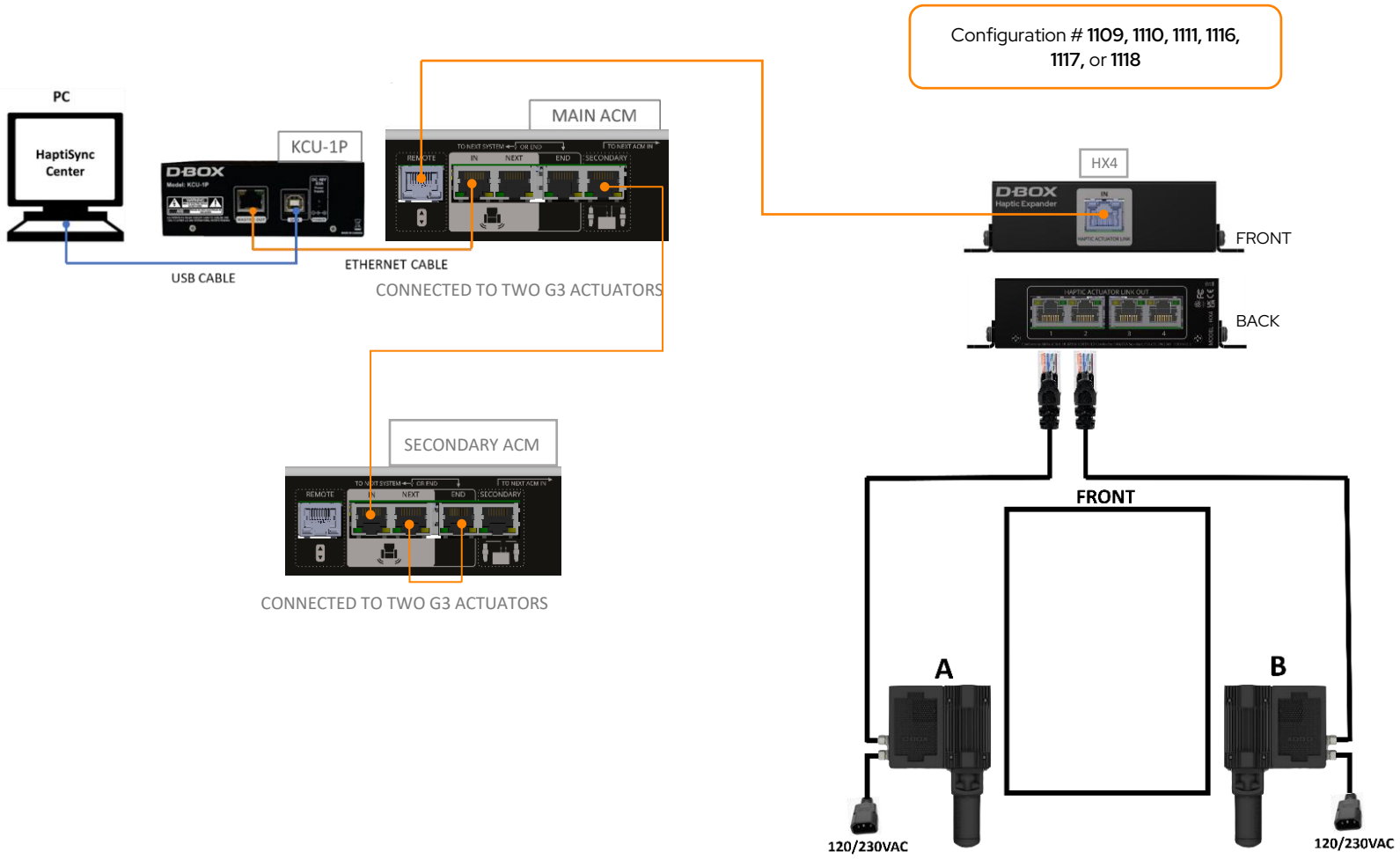
Configuration # **1095**, **1096**, **1097**, **1098**, **1099**, or **1100**



Option 2 (4 G5s Roll-Pitch-Heave /3 G3s Yaw-Sway-Surge)



Option 3 (4 G3s Roll-Pitch-Heave/2 G5s Yaw-Sway, Yaw-Surge, or Sway-Surge)



Common Configurations

NOTE: *The following list does not represent every possible mixed configuration. See the System Configurator for more information.*

Actuators	Number of ACM G3 FLEX	Configuration #	Description
4-G5, 1-G3	1	1098	**G5** Roll-Pitch-Heave / **G3** Yaw (M-Y1, S-FR0, S-FL0, S-BL0, S-BR0)
4-G5, 1-G3	1	1099	**G5** Roll-Pitch-Heave / **G3** Sway (M-Sw1, S-FR0, S-FL0, S-BL0, S-BR0)
4-G5, 1-G3	1	1100	**G5** Roll-Pitch-Heave / **G3** Surge (M-Su1, S-FR0, S-FL0, S-BL0, S-BR0)
4-G5, 2-G3	1	1095	**G5** Roll-Pitch-Heave / **G3** Yaw-Sway (M-Y0-Sw1, S-FR0, S-FL0, S-BL0, S-BR0)
4-G5, 2-G3	1	1096	**G5** Roll-Pitch-Heave / **G3** Yaw-Surge (M-Y0-Su1, S-FR0, S-FL0, S-BL0, S-BR0)
4-G5, 2-G3	1	1097	**G5** Roll-Pitch-Heave / **G3** Sway-Surge (M-Sw0-Su1, S-FR0, S-FL0, S-BL0, S-BR0)
4-G5, 3-G3	2	1089, 1090 or 1091	**G5** Roll-Pitch-Heave / **G3** Yaw-Sway-Surge **1089** (M-Y0-Sw1, S-Su1, S-FR0, S-FL0, S-BL0, S-BR0) **1090** (M-Y0-Su1, S-Sw1, S-FR0, S-FL0, S-BL0, S-BR0) **1091** (M-Y1, S-Sw0-Su1, S-FR0, S-FL0, S-BL0, S-BR0)
3-G5, 4-G3	2	1108	**G3** Roll-Pitch-Heave / **G5** Yaw-Sway-Surge (M-FR0-FL1, S-BL0-BR1, S-Y0, S-Sw0, S-Su0)
3-G5, 4-G3	2	1115	**G3** Roll-Pitch-Heave / **G5** Yaw-Sway-Surge (M-FL0-BL1, S-BR0-FR1, S-Y0, S-Sw0, S-Su0)

Actuators	Number of ACM G3 FLEX	Configuration #	Description
2-G5, 4-G3	2	1109	**G3** Roll-Pitch-Heave / **G5** Yaw-Sway (M-FR0-FL1, S-BL0-BR1, S-Y0, S-Sw0)
2-G5, 4-G3	2	1116	**G3** Roll-Pitch-Heave / **G5** Yaw-Sway (M-FL0-BL1, S-BR0-FR1, S-Y0, S-Sw0)
2-G5, 4-G3	2	1110	**G3** Roll-Pitch-Heave / **G5** Yaw-Surge (M-FR0-FL1, S-BL0-BR1, S-Y0, S-Su0)
2-G5, 4-G3	2	1117	**G3** Roll-Pitch-Heave / **G5** Yaw-Surge (M-FL0-BL1, S-BR0-FR1, S-Y0, S-Su0)
2-G5, 4-G3	2	1111	**G3** Roll-Pitch-Heave / **G5** Sway-Surge (M-FR0-FL1, S-BL0-BR1, S-Sw0, S-Su0)
2-G5, 4-G3	2	1118	**G3** Roll-Pitch-Heave / **G5** Sway-Surge (M-FL0-BL1, S-BR0-FR1, S-Sw0, S-Su0)
1-G5, 4-G3	2	1112	**G3** Roll-Pitch-Heave / **G5** Yaw (M-FR0-FL1, S-BL0-BR1, S-Y0)
1-G5, 4-G3	2	1119	**G3** Roll-Pitch-Heave / **G5** Yaw (M-FL0-BL1, S-BR0-FR1, S-Y0)
1-G5, 4-G3	2	1113	**G3** Roll-Pitch-Heave / **G5** Sway (M-FR0-FL1, S-BL0-BR1, S-Sw0)
1-G5, 4-G3	2	1120	**G3** Roll-Pitch-Heave / **G5** Sway (M-FL0-BL1, S-BR0-FR1, S-Sw0)
1-G5, 4-G3	2	1114	**G3** Roll-Pitch-Heave / **G5** Surge (M-FR0-FL1, S-BL0-BR1, S-Su0)

Actuators	Number of ACM G3 FLEX	Configuration #	Description
1-G5, 4-G3	2	1121	**G3** Roll-Pitch-Heave / **G5** Surge (M-FL0-BL1, S-BR0-FR1, S-Su0)
4-G5, 2-G3	2	1092	**G5** Roll-Pitch-Heave / **G3** Yaw-Sway (M-Y1, S-Sw1, S-FR0, S-FL0, S-BL0, S-BR0)
4-G5, 2-G3	2	1093	**G5** Roll-Pitch-Heave / **G3** Yaw-Surge (M-Y1, S-Su1, S-FR0, S-FL0, S-BL0, S-BR0)
4-G5, 2-G3	2	1094	**G5** Roll-Pitch-Heave / **G3** Sway-Surge (M-Sw1, S-Su1, S-FR0, S-FL0, S-BL0, S-BR0)
4-G5, 3-G3	3	1088	**G5** Roll-Pitch-Heave / **G3** Yaw-Sway-Surge (M-Y1, S-Sw1, S-Su1, S-FR0, S-FL0, S-BL0, S-BR0)
3-G5, 4-G3	4	1101	**G3** Roll-Pitch-Heave / **G5** Yaw-Sway-Surge (M-FR1, S-FL1, S-BL1, S-BR1, S-Y0, S-Sw0, S-Su0)
2-G5, 4-G3	4	1102	**G3** Roll-Pitch-Heave / **G5** Yaw-Sway (M-FR1, S-FL1, S-BL1, S-BR1, S-Y0, S-Sw0)
2-G5, 4-G3	4	1103	**G3** Roll-Pitch-Heave / **G5** Yaw-Surge (M-FR1, S-FL1, S-BL1, S-BR1, S-Y0, S-Su0)
2-G5, 4-G3	4	1104	**G3** Roll-Pitch-Heave / **G5** Sway-Surge (M-FR1, S-FL1, S-BL1, S-BR1, S-Sw0, S-Su0)
1-G5, 4-G3	4	1105*	**G3** Roll-Pitch-Heave / **G5** Yaw (M-FR1, S-FL1, S-BL1, S-BR1, S-Y0)
1-G5, 4-G3	4	1106*	**G3** Roll-Pitch-Heave / **G5** Sway (M-FR1, S-FL1, S-BL1, S-BR1, S-Sw0)

Actuators	Number of ACM G3 FLEX	Configuration #	Description
1-G5, 4-G3	4	1107*	**G3** Roll-Pitch-Heave / **G5** Surge (M-FR1, S-FL1, S-BL1, S-BR1, S-Su0)