

Biomek® FX Deck Mapping



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I. Biomek® FX Deck Mapping

The Biomek® FX liquid handling workstation allows users the flexibility to configure the robot's deck according to need. Because of this flexibility, it is likely that the deck used for writing a Biomek® FX method will differ from an end-user's deck. Therefore, it is generally necessary to map an imported method onto your deck configuration. This document outlines the steps necessary to map a method onto an end-user's deck.

II. Evaluation of Differences Between Starting Deck and Mapping Deck

The first step in deck mapping is to determine the differences between the Starting Deck (the deck on which the method was written) and the Mapping Deck (the end-user's Biomek® FX deck configuration). Follow the directions below and refer to the example given in Figure 1 to evaluate and recognize differences between the Starting Deck and Mapping Deck.

1. **Compare Deck Layouts.** Compare the Starting Deck layout (found in the Automated Protocol) with your deck layout (Mapping Deck). Check the number of ALP positions, the ALP position names (e.g., P1, P2, etc.), and the types of active ALP positions (Orbital Shaker, Wash Station, etc.).
2. **Confirm the number/type of ALP position.** Confirm that the Mapping Deck has at least as many open ALP positions and the same types of active ALP positions as the Starting Deck. If the Mapping Deck does not contain at least as many open ALP positions and active ALP positions as the Starting Deck, proceed to Section IV.
3. **Compare the ALP position names** on the Starting Deck to those used on the Mapping Deck. This is important since labware will be placed on the Mapping Deck according to ALP position names. If ALP position names on the Mapping Deck differ from the Starting Deck, proceed to Section III.
4. If the Mapping Deck has the same named open ALP positions and the same active ALP positions as the Starting Deck, or the Mapping Deck is identical to the Starting Deck, proceed to Section V.



Starting Deck: There are 14 passive ALP positions (labeled P0–P13), TipLoader, Trash ALP (TR1), MagBead ALP and Orbital Shaker.



Mapping Deck: There are 15 passive ALP positions (labeled P1–P15), TipLoader, Trash ALP (TR1), MagBead ALP and Orbital Shaker.

Figure 1. Example Comparison of Starting Deck and Mapping Deck. Both decks have identical active ALP positions: TL1, WS1, Magbead, Orbital, and TR1. The decks have a different number of passive ALP positions: the Starting Deck (A) has 14 passive ALP positions and the Mapping Deck (B) has 15 passive ALP positions. Importantly, the Mapping Deck has at least the 14 passive ALP positions that are found on the Starting Deck. However, an ALP on the Starting Deck has an ALP position name (P0) that is not found on the Mapping Deck. Since the Mapping Deck has at least the same number of passive ALP positions as the Starting Deck and both decks have the same active ALP positions, the next step would be to modify an ALP position name (as described in Section III) so that the ALP position names found in the Starting Deck are the same as those on the Mapping Deck.

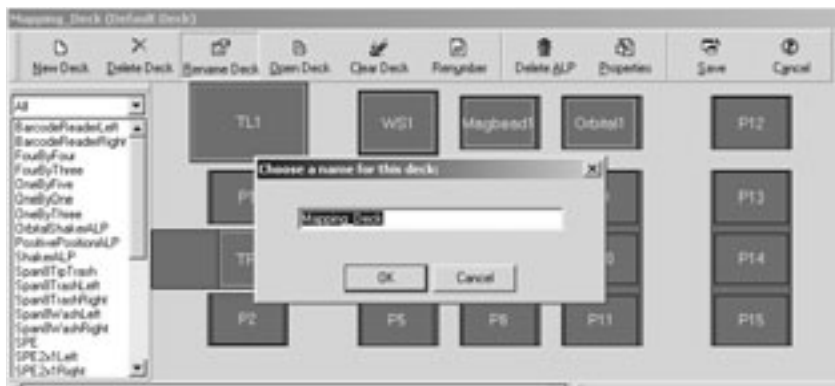
III. Modifying Mapping Deck ALP Names

If the difference between the Starting Deck and the Mapping Deck is only in ALP position names, the Mapping Deck can be modified so that the ALP position names match those of the Starting Deck. If the Mapping Deck does not contain the minimum number of ALP positions required to run the method, nor the same type of active ALP positions, proceed to Section IV. To modify Mapping Deck ALP position names, follow the directions below.

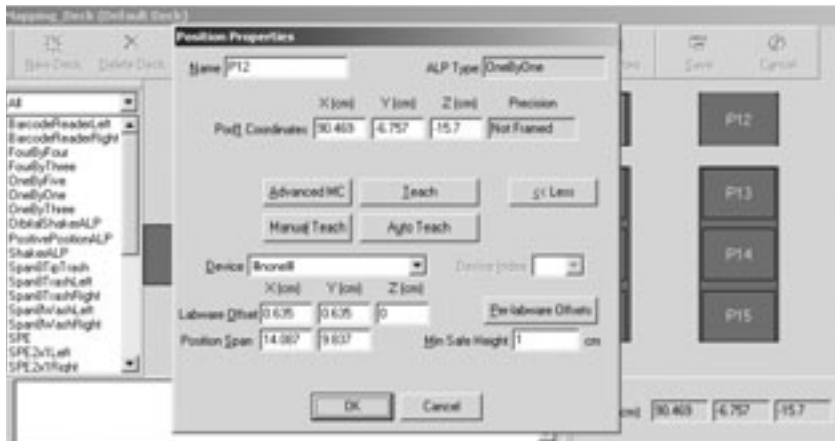
1. **Open the Mapping Deck.** In the Biomek® FX software, select “Deck Editor” from the “Tools” menu. In the Deck Editor window (Figure 2A), confirm that the deck illustration is the Mapping Deck you wish to use. If this is not the deck you want, you will need to open another deck. Click on the “Open Deck” button at the top of the window, select the deck you want to be the Mapping Deck and then Click “OK”.



A. Deck Editor Window



B. Assign a New Deck Name



C. Change ALP Position Name

Figure 2. Modifying Mapping Deck ALP names.



If you are considering performing such extensive modification of a method, please contact either Beckman Technical Services (1-800-551-1150) or Promega Technical Services (1-800-356-9526) for guidance.

2. **Assign a new name to the Mapping Deck.** Make a new deck using the deck you want to be the Mapping Deck as a starting point by clicking on the “New Deck” button (Figure 2B). Assign a new deck name and click “OK”.
3. **Change ALP position name.** Double-click on the ALP position name that needs to be changed to match the Starting Deck. This will open a Position Properties window (Figure 2C). Delete the current name and type the new name of the ALP position exactly as it appears on the Starting Deck. Repeat the renaming for each ALP position that needs to be changed to match the Starting Deck.
4. Save the new Mapping Deck by clicking on the “Save” button.
5. The ALP position names on the Mapping Deck should now match those on the Starting Deck. Proceed to Section V.

IV. When the Mapping Deck Contains Fewer Positions and/or Does Not Contain the Same Types of Active ALP Positions as the Starting Deck.

Having largely dissimilar Starting and Mapping Decks frequently requires that the method itself needs to be changed to accommodate the different deck layouts.

1. **Absence of Active ALP Position in Mapping Deck**
Active ALP positions in the method Starting Deck are required for successful performance of the method. If an active ALP position is missing in the Mapping Deck, the method will need be to extensively modified to accommodate the absence of the active ALP position.
2. **Insufficient Number of ALP Positions in Mapping Deck**
When there are an insufficient number of ALP positions on the Mapping Deck, labware and/or reagents will not transfer to the Mapping Deck because of insufficient space. In this case, extensive method modification is also required. It is possible that a method cannot be mapped onto a deck if the deck space is limited. The addition of more ALP positions and the creation of a new deck may be necessary to successfully perform the method.

V. Mapping Method to Mapping Deck

Once the Mapping Deck has been prepared to mirror the position names and active position types of the Starting Deck, you are ready to map the method to the Mapping Deck.

1. Open the Biomek® FX method.
2. Click on the “Instrument Setup” step within the method. If the Mapping Deck has a different name than the Starting Deck, when you click on “Instrument Setup” a warning message opens on the right-hand side of the screen. This message says: “Warning! This step is configured with an undefined deck layout!” Below the warning is a statement “Deck layout not found” indicating the name of the Starting Deck. Below this is a “Map To” button with a drop-down menu beside it. Select the name of the Mapping Deck you have just created from the drop-down menu, and click on the “Map Onto” button.
3. Method labware should map onto the deck at the ALP position of the same name as on the Starting Deck. For example, if a tip box is present on ALP P1 of the Starting Deck it will be present on ALP P1 of the Mapping Deck.

4. Confirm that all method labware is present on the Mapping Deck by comparing the Mapping Deck to the image of the Starting Deck in the Automated Protocol for the method (Automated Protocols are available at: www.promega.com/techserv/apps/automat/).
5. (Optional). It may be necessary to reposition some of the labware on the Mapping Deck once the method has mapped. Repositioning Labware should improve efficiency and minimize “flyover” of reagents over samples, clean tips, or reagents to be used later in the method.
6. Click on the “Finish” line at the bottom of the method to ensure that the method validates correctly. In the event that the method does not validate, the offending line will be highlighted in red with a corresponding indication of the error present. Correcting the error requires making the appropriate change(s) to that line in the method. Should this be necessary, please contact either Beckman Technical Services (1-800-551-1150) or Promega Technical Services (1-800-356-9526) for guidance and considerations.

VI. Troubleshooting

Symptoms	Comments
After mapping, there is a position labeled “unknown” on the deck	Confirm that all labware has been imported to the Biomek® world you are using. Check that there are sufficient passive and/or active ALPs present on the mapping deck. Check that the ALP names are the same on the starting and mapping decks.
After mapping to my deck and validating the method, I get the error message “labware not found”	Confirm that all labware has been imported to the Biomek® world you are using. Check that there are sufficient passive and/or active ALPs present on the mapping deck. Check that the ALP names are the same on the starting and mapping decks.

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Promega Corporation

2800 Woods Hollow Road
 Madison, WI 53711-5399 USA
 Telephone 608-274-4330
 Fax 608-277-2516
 Internet www.promega.com