Agilent

Bravo Metabolomics Workbench

Tip Transfer Utility

User Guide

For Research Use Only. Not for use in diagnostic procedures.

This guide contains the following topics:

About this guide

Overview

This guide describes the Tip Transfer utility for Bravo Metabolomics Sample Prep Platform. For more details on the Bravo Metabolomics Sample Prep Platform, see the *Getting Started Guide* in the Literature Library of the Bravo Metabolomics Workbench.

The procedures in this guide assume that you are trained in the safe operation of the Bravo Platform.

WARNING **Using controls, making adjustments, or performing procedures other than those specified in the user documentation can expose you to moving-parts hazards and hazardous voltage. Before using the Bravo Platform, make sure you are aware of the potential hazards and understand how to avoid being exposed to them.**

Software version

This guide documents the following versions or later:

- Bravo Metabolomics Workbench 1.0
- VWorks Automation Control 13.1.3
- Bravo Diagnostics 19.1

Related guides

Use this guide in conjunction with the following guides:

- *Automation Solutions Products General Safety Guide*. Provides general safety information and describes potential safety hazards that you might encounter when using Agilent Automation Solutions products. A copy of this safety guide is included with your shipment.
- *G5562A, G5563A Bravo Platform Safety and Installation Guide*. Describes potential safety hazards and how to avoid them, how to install the Bravo Platform, and how to install the Light Curtain and shields. A copy of this safety guide is included with your shipment.
- *Bravo Platform User Guide*. Explains how to set up, operate, and maintain the Bravo Platform and how to install accessories.

You can find the workbench user guides in the Literature Library of the Bravo Metabolomics Workbench software.

Contacting Agilent Technologies

Web: https://www.agilent.com

Contact page: https://www.agilent.com/en/contact-us/page

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Utility description

You can use the Tip Transfer utility to prepare the tip boxes for the Bravo Metabolomics Workbench applications. The Tip Transfer v2.0 utility moves 1–12 columns of Agilent 250-µL pipette tips from a source tip box into an empty tip box. This utility is designed to transfer contiguous, full columns of tips, where each column has eight pipette tips.

Before you start

Hardware requirements

The Tip Transfer utility requires the Bravo Metabolomics Sample Prep Platform. For a description of the components, see the *Bravo Metabolomics Sample Prep Platform Getting Started Guide* in the Literature Library of the Bravo Metabolomics Workbench.

Labware requirements

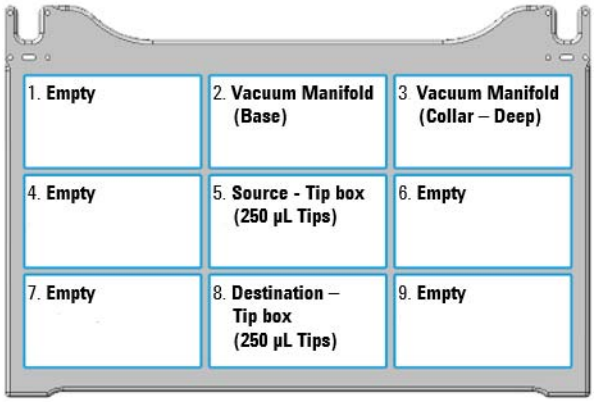
CAUTION **Using a labware type at a deck location other than an approved labware option can cause a collision resulting in equipment damage. Ensure that you use only an approved labware option for each deck location.**

The Tip Transfer utility requires Agilent 96 250-µL pipette tips (part number 19477.002):

- Full tip box at deck location 5
- Empty tip box at deck location 8

The following figure shows the Bravo deck locations for labware.

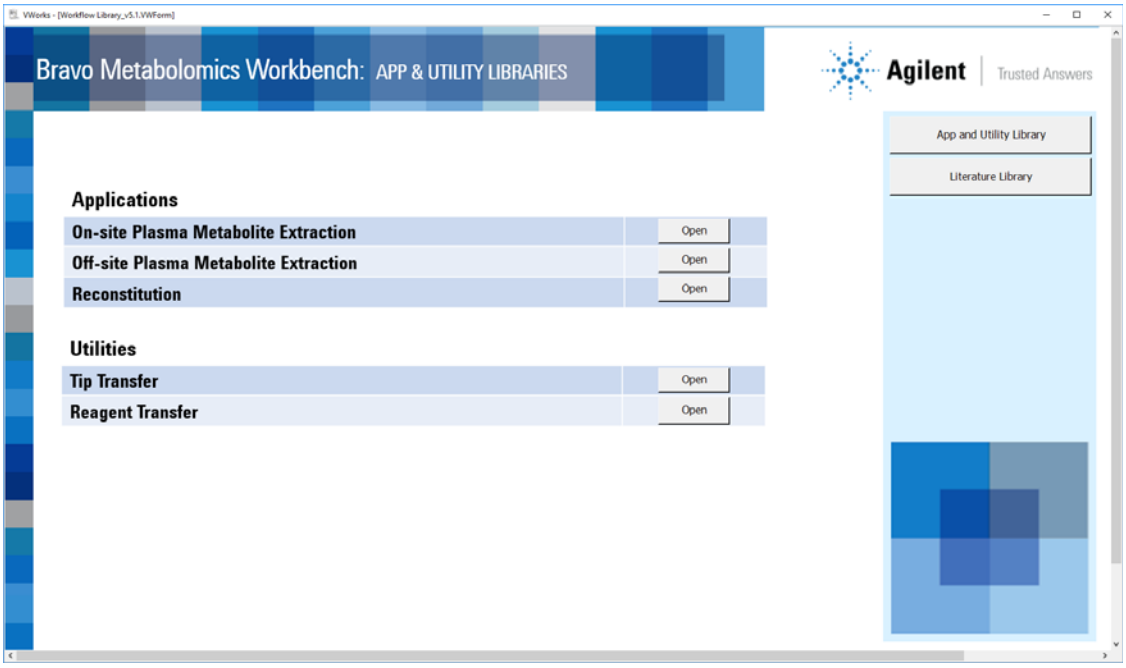
Figure Tip Transfer utility labware locations on the Bravo deck (top view)

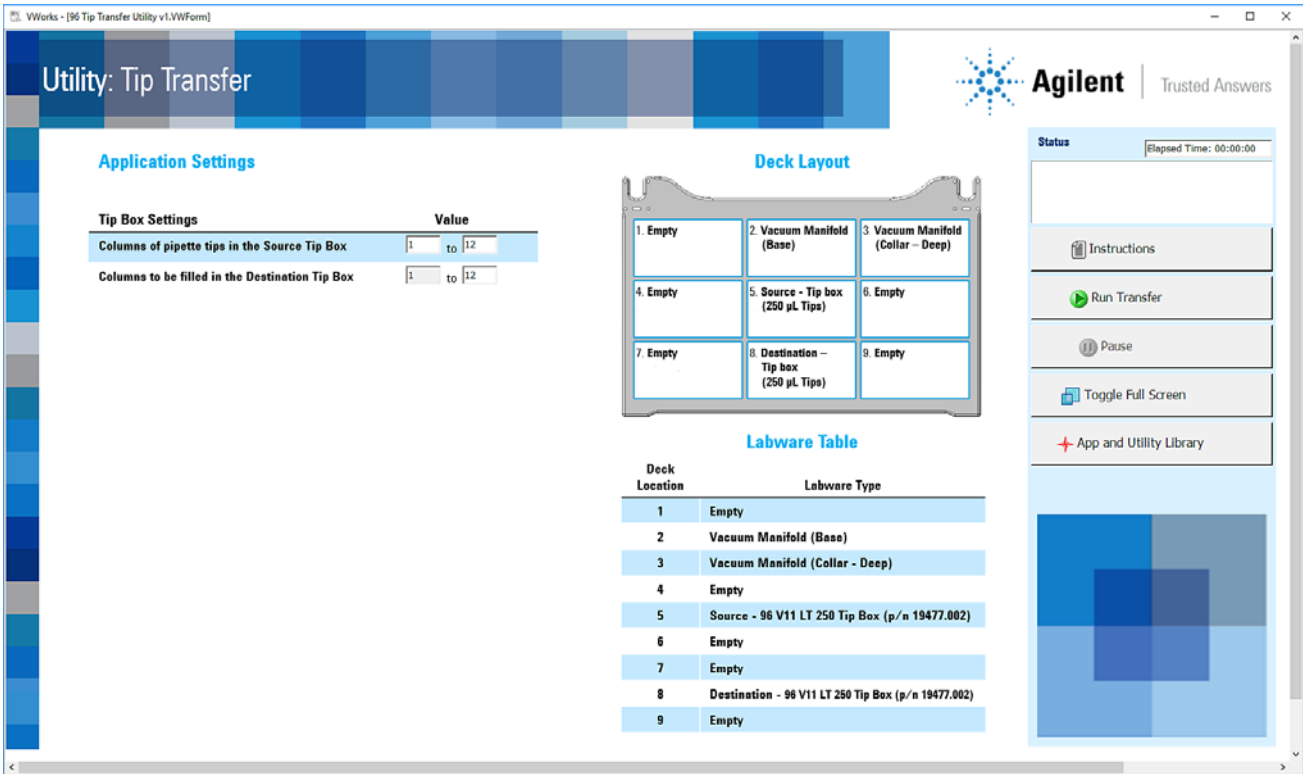


Accessing the utility

To open the utility:

In the **App & Utility Libraries page** of the Bravo Metabolomics Workbench, locate **Tip Transfer**, and then click **Open**. The Tip Transfer form opens.





Running the protocol

Before you start

On the Bravo deck, ensure the required labware is fully seated within the platepads on the deck:

- A tip box full of pipette tips is at deck location 5.
- An empty tip box is at deck location 8.
- The tip box lids are removed.
- All other deck locations are empty.

CAUTION **A collision can occur if any pipette tips are present in the destination tip box. Ensure that the destination tip box is empty.**

IMPORTANT The Source Tip Box must contain full, contiguous columns of 8 pipette tips each, within the range of columns specified.

Selecting the settings in the form

To specify the settings and select the labware types:

1 Under **Tip Box Settings**, specify the following values:

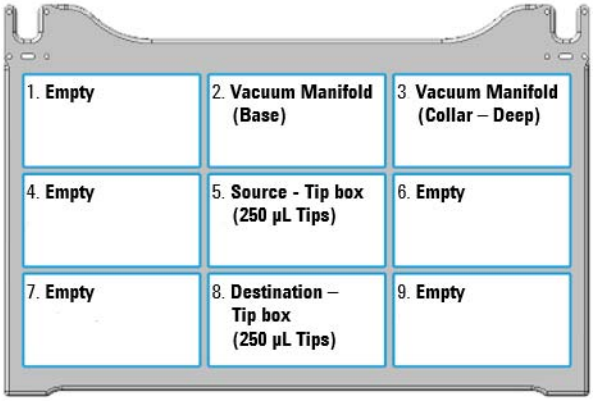
Setting	Description
Columns of pipette tips in the Source Tip Box	Specifies the range of pipette tips initially present in the Source Tip Box before the run starts. • In the left box, type the number of the first column of pipette tips present in the tip box. • In the right box, type the number of the last column of pipette tips present in the tip box.
Columns to be filled in the Destination Tip Box	Sets the range of wells to be filled with pipette tips in the Empty Tip Box. In the right box, type the number of the last column in the tip box that will receive tips during the transfer. *Note:* The first column must start at A1.

CAUTION **If the Source Tip box column selection is greater than the actual number of pipette tips used, the Bravo Platform will apply too much force when mounting the tips. Likewise, if the column selection is less than the actual number of tips used, the Bravo Platform will not apply enough force to seat the tips properly. To prevent potential equipment damage, ensure that the column selection is correct.**

Starting the protocol run

To start the protocol run:

1 Review the selections in the protocol form to confirm they are correct. Verify that the physical layout on the Bravo deck matches the **Deck Layout** image in the form.



2 Make sure the tip boxes are properly seated within the platepads on the Bravo deck

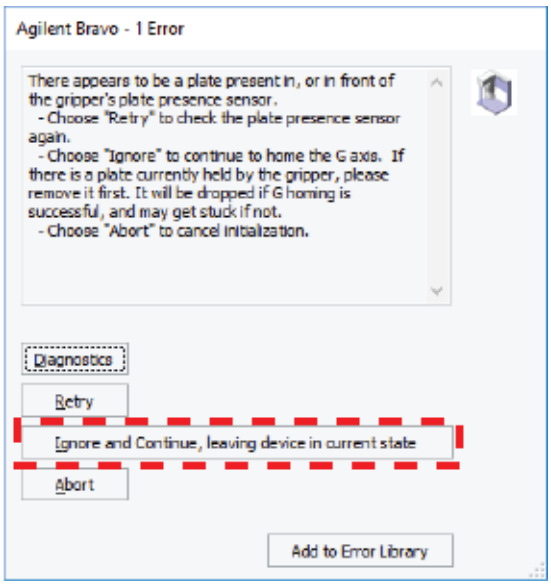
CAUTION **Use only the labware specified, and place them at the Bravo deck locations specified in the instructions. Using different labware or placing labware at unapproved deck locations can cause a collision resulting in equipment damage.**

CAUTION **Improperly seated labware can cause a hardware collision, resulting in equipment damage. Ensure that all labware are properly seated within the alignment features of their respective platepads.**

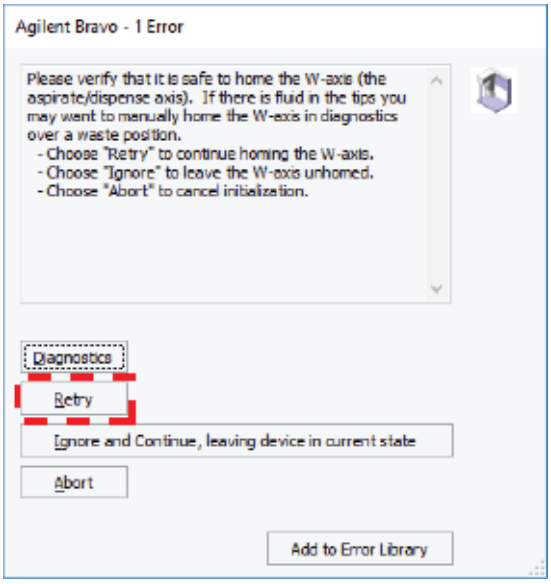
3 Click Run Transfer to start the protocol run.

- If this is the first time the utility has been run after powering up the Bravo Platform, the device initialization process begins. Proceed to step 4.
- If the platform is already initialized, skip to step 6.

4 If the **Bravo Error** message appears stating **There appears to be a plate present**, verify that Bravo gripper is not holding labware, and then click **Ignore and Continue, leaving device in current state** to continue the initialization.



5 If the **Please verify that it is safe to home the W-axis** message appears, click **Retry** to continue homing the pipetting axis (*w*-axis).

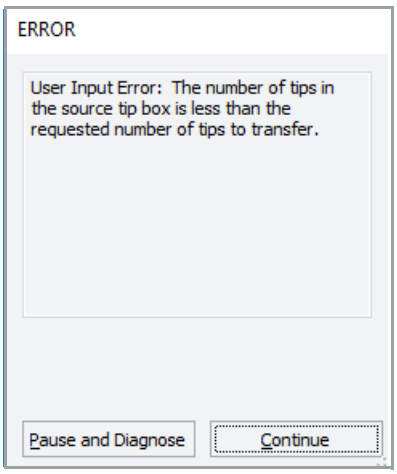


When the initialization process is finished, the orange lights on the Bravo Platform light panel flicker briefly and then begin to flash.

6 If an Error message appears, the software detected a conflict in the protocol setup.

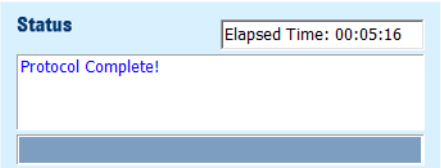
a Follow the on-screen instructions to click **Pause and Diagnose** and then click **Abort process** in the Scheduler Paused dialog box.

b Resolve the conflict described in the error message, for example, insufficient number of source pipette tips for the requested transfer.



c Click Run Transfer to restart the run.

To monitor the progress of the run, check the **Status** area of the form.



About stopping or pausing a run

IMPORTANT

Attempting to pause a running protocol to change a setting can be detrimental to the protocol. If you need to change a setting in a protocol that is actively running, pause the protocol, select Abort process from the Scheduler Paused dialog box, change the setting, and then restart the protocol.

For more detailed instruction, see the *Bravo Metabolomics Sample Prep Platform Getting Started Guide* in the Literature Library of the Bravo Metabolomics Workbench.

Cleaning up

When the protocol run is finished, make sure you remove all labware from the Bravo deck.

Automation movements during the protocol

This section describes the basic automation movements of the Bravo Platform during the Tip Transfer run.

Protocol step	Head moves to deck location...	Action
Pick Up Tips	5	Presses on all the pipette tips in the Source Tip Box. *Note:* The Bravo head is centered over the tip box to press on tips even if the tip box is only partially full.
Eject Tips	8	Ejects the pipette tips into the empty Destination Tip Box at deck location 8. *Note:* The Bravo head is centered over the tip box to eject all the pipette tips.
Remove Excess Tips	8	If applicable, picks up any columns of excess tips from the Destination Tip Box. *Note:* The Bravo head is offset instead of centered above the tip box, when picking up excess columns of pipette tips. The number of excess tips is calculated from the Application Settings. If the number of columns of tips in the Source Tip Box matches the number of columns of tips to be transfered into the Destination Tip Box, this step is skipped.
Return Excess Tips to Source Tip Box	5	If applicable, ejects the excess tips back into the Source Tip Box. Excess tips are always returned to the left side of the Source Tip Box, starting at column 1.

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