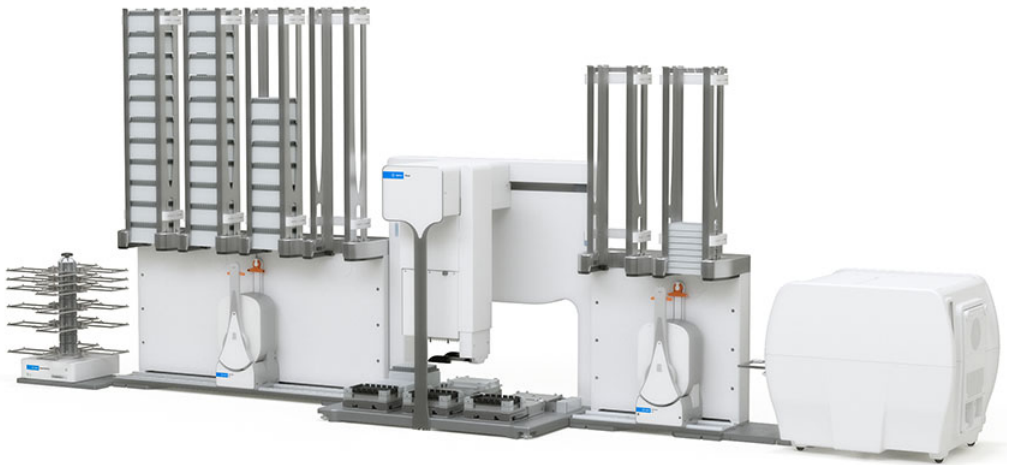
Agilent

Bravo BenchCel DB Workstation

Getting Started Guide

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



This guide contains the following topics:

About this guide

This guide assumes that the G5578GA, G5579GA Bravo BenchCel DB Workstation has been installed properly and that you are trained in its safe operation.

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 workstation, make sure you are aware of the potential hazards and understand how to avoid being exposed to them.**

Refer to the *Automation Solutions Products General Safety Guide* for general safety information and a description of the potential hazards present in the workstation.

Software requirements

The Bravo BenchCel DB Workstation requires the following software:

- Microsoft Windows 10 64-bit operating system
- VWorks Automation Control 13.1.6.1422
- Bravo BenchCel DB Workbench 1.0
- BioTek Gen5 Microplate Reader and Imager 3.10.06

Related guides and where to find them

Use this Getting Started guide in conjunction with the following guides:

- *G5562A, G5563A Bravo Platform Safety and Installation Guide*. Describes how to avoid potential safety hazards and how to install the Bravo Platform.
- *Bravo Platform Quick Guide*. Summarizes topics in the user guide, including how to operate and maintain the Bravo Platform.
- *G5580A BenchCel Microplate Handler Quick Guide*. Summarizes topics in the user guide, including how to operate and maintain the BenchCel Microplate Handler.
- *G5584A Labware MiniHub Quick Guide*. Summarizes topics in the user guide, including how to operate the MiniHub.
- *VWorks Automation Control User Guide*. Explains how to create, run, and monitor protocols.

To access the user guides, do one of the following:

- On the Windows desktop, select **Start** > **Agilent Technologies** > **VWorks Knowledge Base.**
- From within the VWorks software, select **Help** > **Knowledge Base** or press F1.
- Go to the online VWorks Knowledge Base at www.agilent.com/chem/askb.

You can also find PDFs of the user guides installed with the VWorks software at C:\\Program Files (x86)\Agilent Technologies\VWorks\UserGuides

Contacting Agilent Technologies

Web: https://www.agilent.com

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

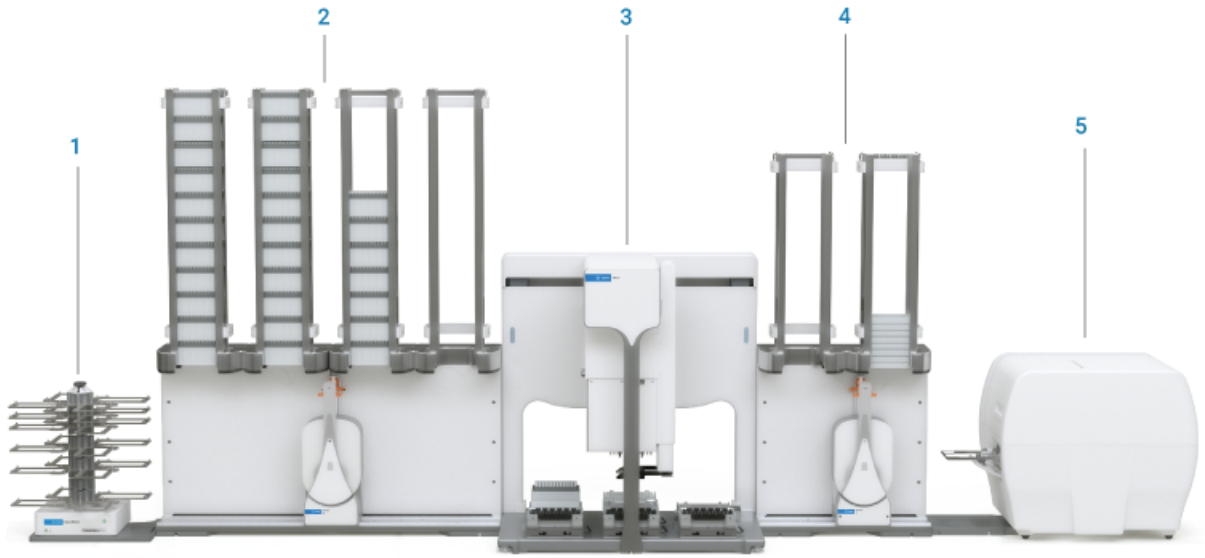
Hardware overview

Workstation components

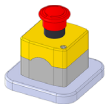
The following figure shows the workstation components. The figure numbers correspond to item numbers in the following table.

To access the referenced user guides, see "Related guides and where to find them" on page 2.

Figure Workstation components (front view)



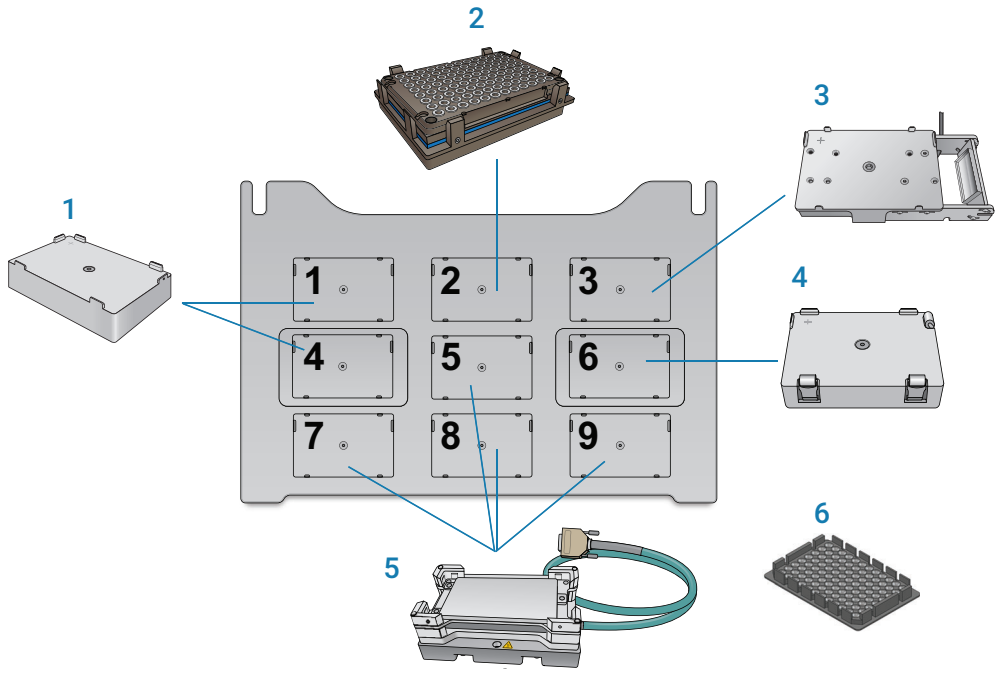
Item	Name	Description
1	Labware MiniHub	The rotating random-access labware storage device that has four cassettes of six shelves and can hold up to 24 pieces of labware. For more MiniHub details, see the *G5584A Labware MiniHub Quick Guide*.
2	BenchCel Microplate Handler, 4R	The device that transfers labware between the MiniHub and the Bravo Platform and stores stacks of labware to be processed during a protocol run. Four 860 mm top-loading labware racks are installed on the four stackers. For more details on the BenchCel, including how to fill and empty the labware racks, see the *G5580A BenchCel Microplate Handler Quick Guide*.

Item	Name	Description
3	Bravo Platform	The automated liquid handler with nine deck locations for labware. The Bravo Platform is equipped with: **a** 96LT Head. The disposable pipette tip head that has 96 liquid-handling channels. **b** Gripper assembly. The component that moves the labware from one Bravo deck location to another. **c** Deck accessories. See "Bravo deck accessories" on page 5. **d** Bravo Light Curtain (not shown). The light shield that prevents access to moving-parts hazards at the Bravo front opening. Interrupting the Light Curtain stops the motion of the Bravo and BenchCel devices. For more details on the Bravo, see the *Bravo Platform Quick Guide*.
4	BenchCel Microplate Handler, 2R	The device that transfers labware between the Bravo Platform and the BioTek Cytation5 Reader, and stores used tip boxes and processed labware. Two 660 mm front-loading labware racks are installed on the two stackers.
5	BioTek Cytation 5 Reader	The microplate reader that detects the results of the sample processing. For details on the Cytation 5 Reader, see the BioTek user documentation provided with the instrument.
Components not shown in preceding figure:		
6	Inheco MTC Controller	The controller for the four Heating Shaking Stations installed on the Bravo deck. 
7	Emergency-stop pendants	Pressing the red button on any workstation pendant stops the motion of the Bravo and BenchCel devices. 
8	Robot Disable Hub	The main control for the emergency-stop pendants and the Bravo Light Curtain. 
9	Computer and monitor	The computer that runs the VWorks software and controls the workstation devices.

Bravo deck accessories

The following figure and table describe the accessories that are on the Bravo deck.

Figure Bravo deck (top view) and accessory locations



Item	Accessory	Deck location	Description
1	Standard platepad	1, 4	The platepad is a labware positioner that attaches to the deck surface.
2	Magnetic Bead Accessory	2	This accessory attaches to a standard platepad and provides magnetic bead separation.
3	Mirrored Barcode Reader	3	The barcode reader is oriented for scanning barcodes on the east side of microplates.
4	Alignment Station	6	This accessory is a platepad with spring rollers on two of the sides to enable precision positioning of microplates and tip boxes.
5	Heating Shaking Station	5, 7, 8, 9	This accessory is a temperature controlled shaker. At deck location 7, it operates only as an orbital shaker.
6	96 Greiner U Bottom insert	5, 8, and 9	This thermal plate insert is seated atop the Heating Shaking Stations installed at deck locations 5, 8, and 9 to allow efficient heat transfer from the Heating Shaking Station to the 96-well Greiner 650207 U Bottom plate.

Software overview

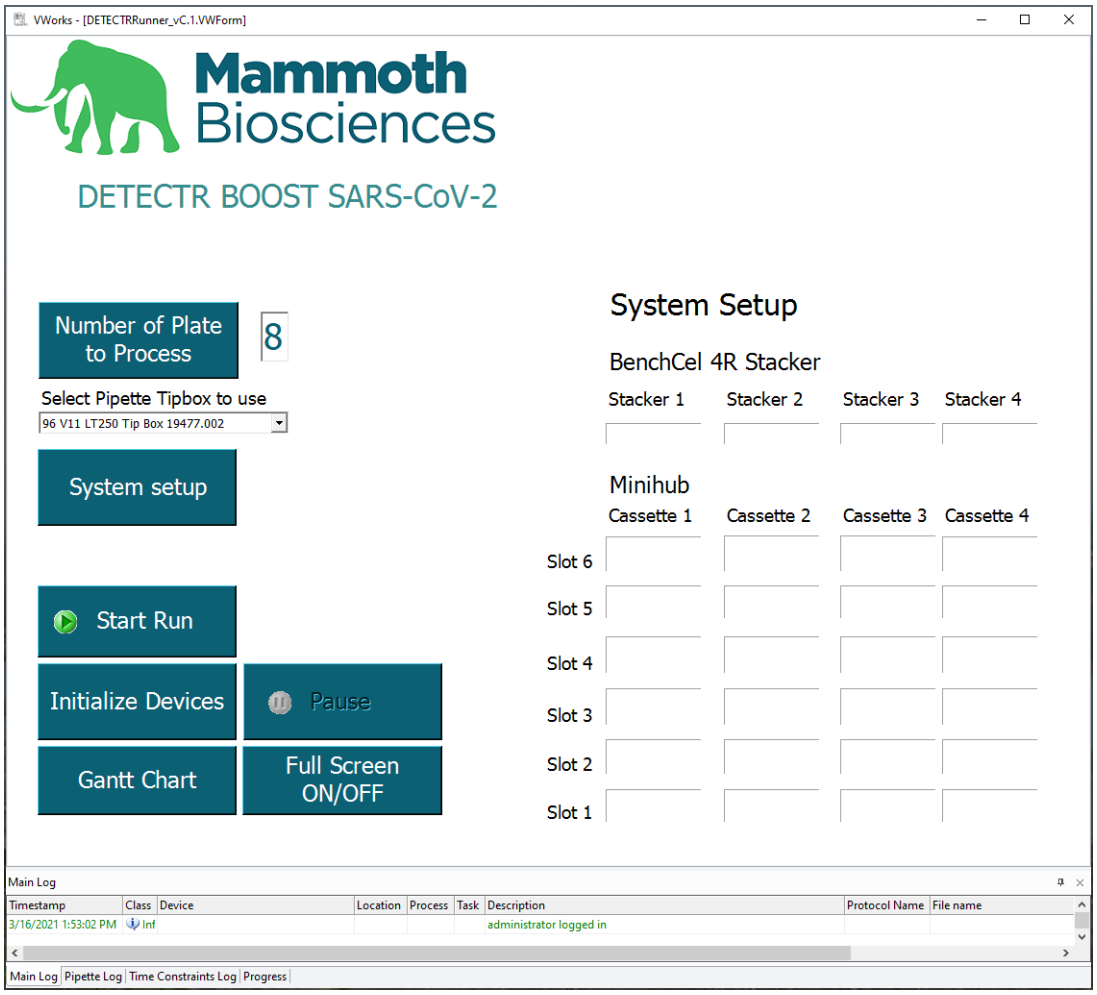
This section provides an overview of the workstation software, which includes:

- Bravo BenchCel DB Workbench
- VWorks Automation Control
- BioTek Gen5 Microplate Reader and Imager

Bravo BenchCel DB Workbench

The Bravo BenchCel DB Workbench is a simplified user interface that you use to run the VWorks software. You use a workbench form to set the run parameters and run the workstation protocol.

Figure Workbench form



The Bravo BenchCel DB Workbench includes all the files that the VWorks software uses to run the workstation protocol. For details, see "About the Workbench files" on page 29.

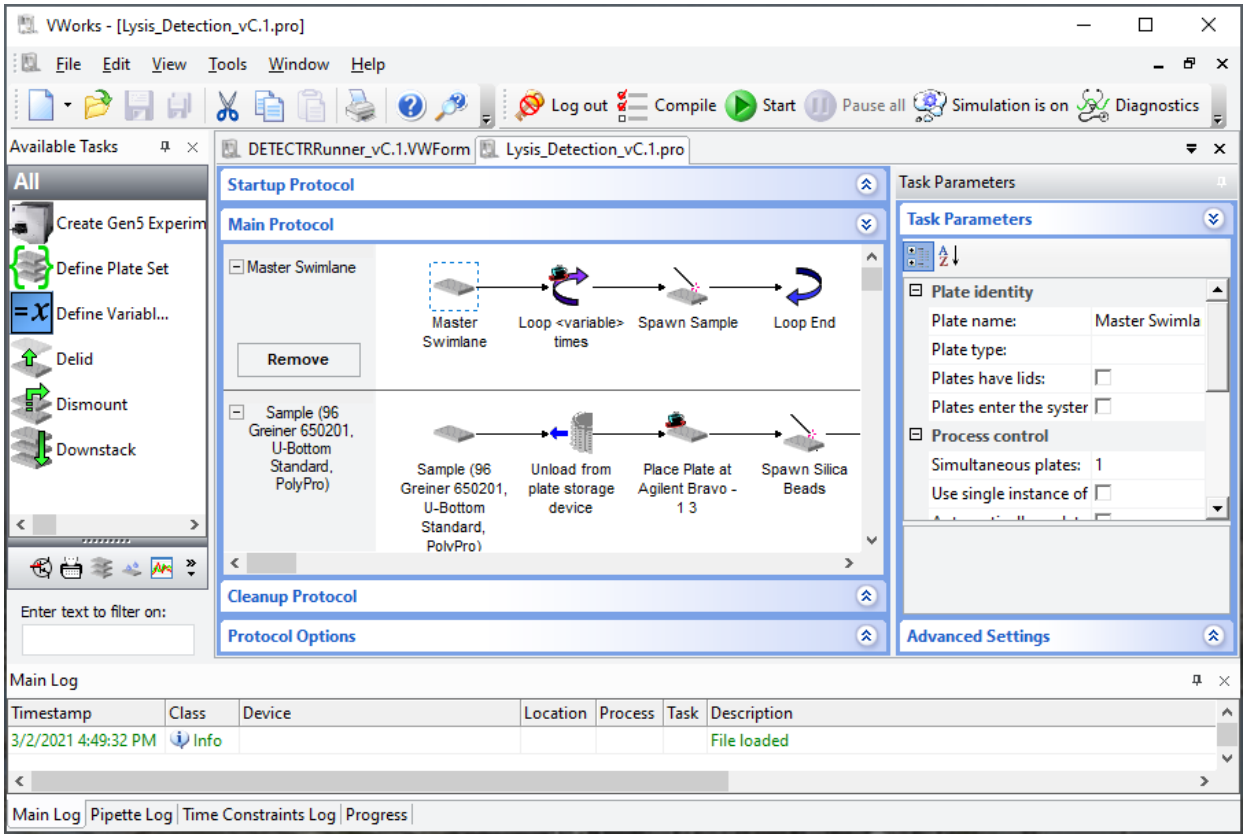
VWorks software

The VWorks software controls the automation of the workstation devices. The VWorks software is used to do the following:

- Manage user accounts.
- Set up the system:
  - Set up and establish communication with the workstation devices.
  - Define the labware that the devices will be handling.
  - Specify pipette speed and accuracy.
- Create protocols.
- Run and monitor protocols.

To access the VWorks knowledge base, see "Related guides and where to find them" on page 2.

Figure VWorks main window with protocol displayed



BioTek Gen5 Microplate Reader and Imager software

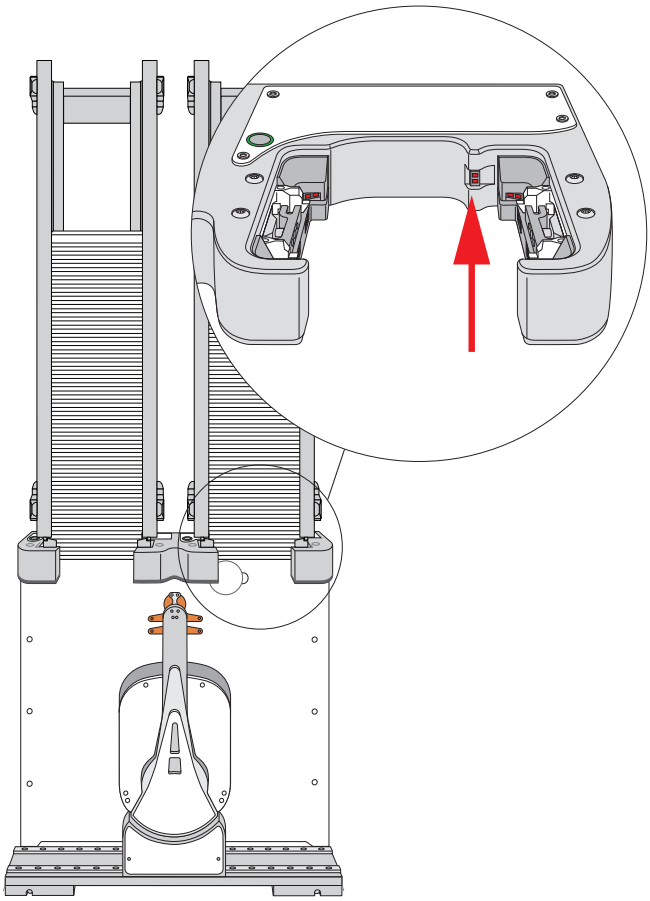
The BioTek software controls the Gen5 Reader to provide data collection and analysis. For details on this software, see the BioTek user documentation.

Labware requirements

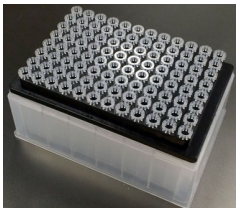
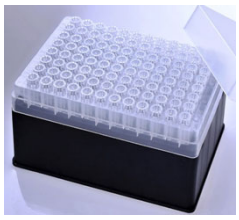
CAUTION **Using a labware type other than an approved labware option can cause a collision resulting in equipment damage. Ensure that you use only the approved labware.**

IMPORTANT The BenchCel plate-presence sensors cannot detect the dark color of the GEB tip box. If you use the GEB tip boxes, ensure that the tip boxes are oriented in the labware rack so that the tip box label faces the plate-presence sensor in the stacker head.

Figure Plate-presence sensor location in BenchCel stacker head



The Bravo BenchCel DB Workbench protocol requires the following labware. You should prepare the reagents and samples in the required labware according to your protocol instructions.

Labware type and quantity	Manufacturer part number	VWorks labware definition	Labware image
Pipette tips, sterile, filtered, 250 µL, 96 per box Quantity of full new tip boxes: • 1x sample plate = 7x tip boxes • 8x sample plates = 56x tip boxes	Agilent 19477-002	96 V11LT250 19477.002	
	– or –	– or –	
	GEB AF250A-9-N	96 GEB 250uL Tips	
Reservoir, 300 mL 9x reservoirs	Agilent 201244-100	96 Agilent Deep Reservoir 201244-100	
Greiner 96 well plate, white Quantity of Greiner plates: • 1x sample plate = 2x plates; (1 sample plate and 1 Master mix plate) • 8x sample plates = 9x plates; (8 sample plates and 1 Master mix plate)	Greiner 650207	96 Greiner 650207, U Bottom, White PolyPro	

Starting up and shutting down

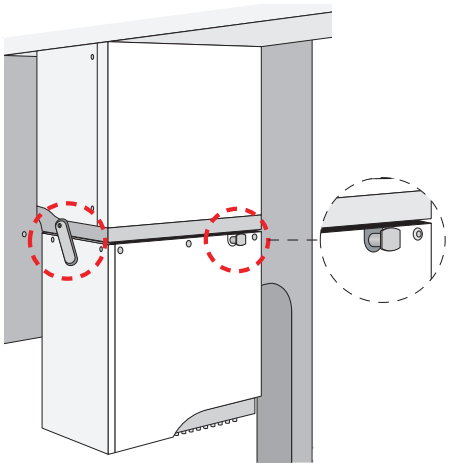
CAUTION **Always turn off the Bravo Platform before installing or uninstalling a liquid-handling head. Failure to do so can damage the head electronics.**

Starting up the Bravo BenchCel DB Workstation

Before you start

Ensure the following:

- The liquid-handling head is securely installed on the Bravo Platform. For instructions, see the *Bravo Platform Quick Guide*.

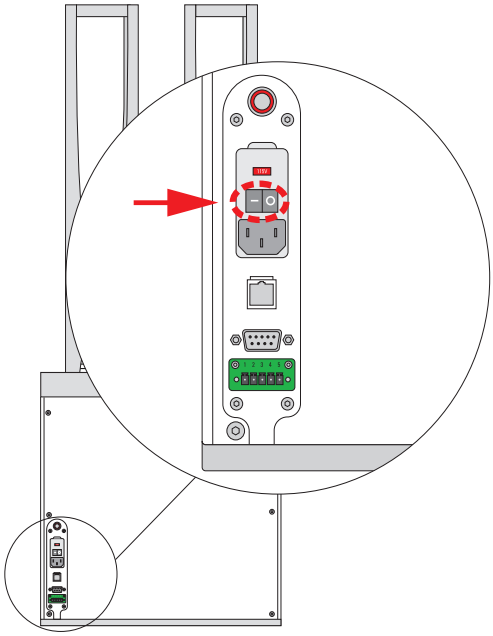


- The power and Ethernet cables are properly connected to the workstation instruments.

To start up the workstation:

1. If you have not done so already, turn on the computer.
2. Perform the following steps to turn on the BenchCel 4R and BenchCel 2R:
   a. Position the BenchCel robot head underneath a stacker, and place the robot gripper arms facing the Bravo Platform.
   b. Turn on the BenchCel air supply.
   c. Press the power switch to the **on** (**I**) position.

Figure Power switch on BenchCel control panel



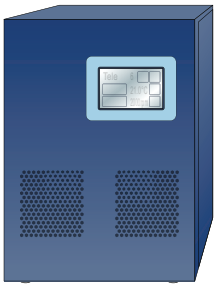
d Wait for the BenchCel head to finish the homing routine.

During homing, the robot moves to the factory-defined home position for each axis of motion.

e If not yet installed, install the labware racks on the BenchCel stackers.

See the *G5580A BenchCel Microplate Handler Quick Guide* for instructions.

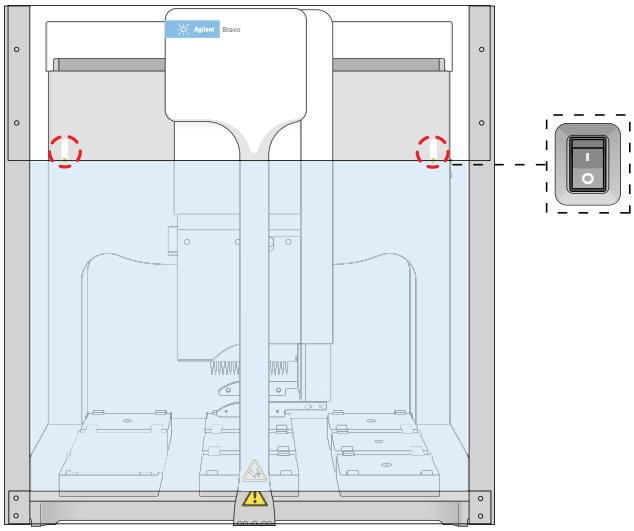
3 Ensure that the power is turned on at the MTC Controller, which is connected to the Heating Shaking Stations on the Bravo Platform.



4 Turn on the Bravo Platform. The front panel status lights turn blue.

Note: The status lights will turn red if the emergency-stop pendant is activated or absent or if the Light Curtain is interrupted.

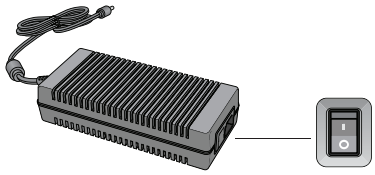
Figure Bravo status lights and power switch



5 On the Labware MiniHub base, ensure that the green power light (⏻) turns on.

Note: The motor status light is red when the MiniHub is on but not yet initialized. This status light will turn green after the device is initialized in a subsequent step.

If the power light (⏻) is not lit, set the power supply switch to the **on (I)** position.



6 Ensure that the Cytation 5 Reader is turned on. For instructions, see the BioTek user documentation.

Logging in and opening the protocol

To log in and open the protocol

1 On the Microsoft Windows desktop, double-click the shortcut 

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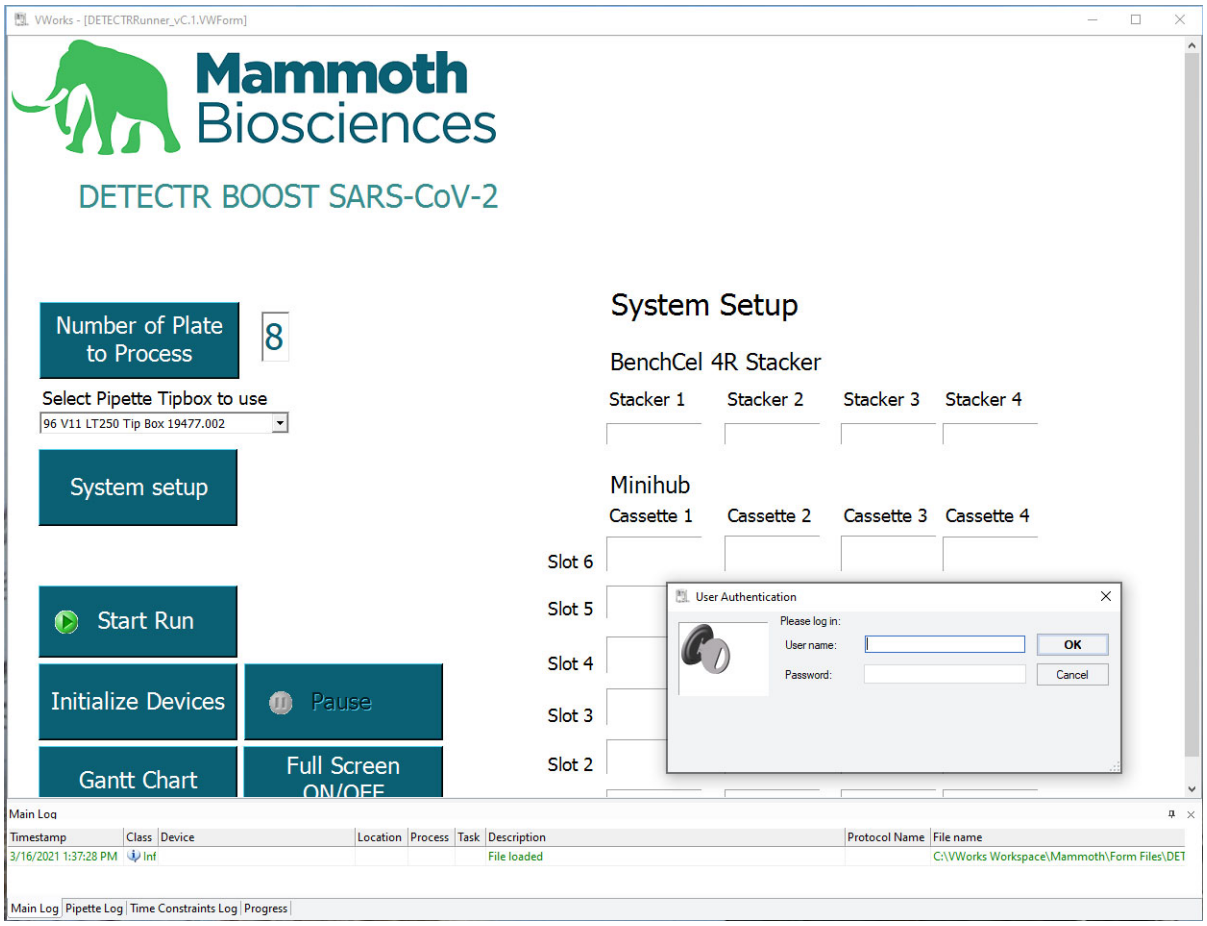
The VWorks software starts, the protocol form opens, and the User Authentication dialog opens.



2 In the **User Authentication** dialog box, type your VWorks user name and password, and then click **OK**.

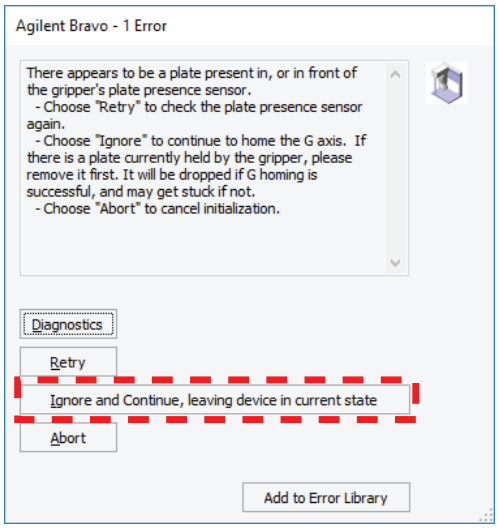
Note: User accounts should be set up in advance by the system administrator. For details, see the *VWorks Automation Control Setup Guide*.

IMPORTANT The workstation devices must be initialized to establish communication between the software and the hardware. You should initialize the devices when you start up to deal with any error messages before running the protocol.

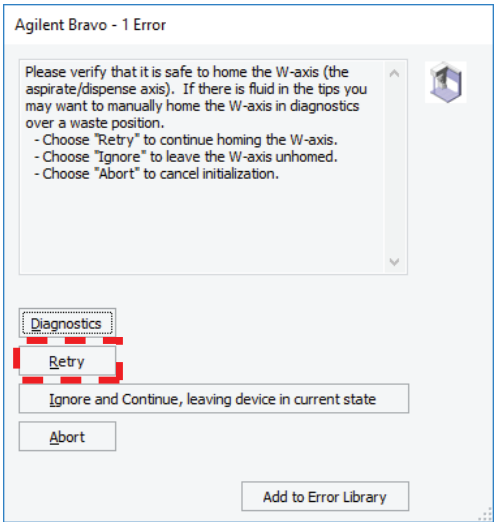
3 In the form, click **Initialize Devices** (

).

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



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 light panel flicker briefly and then begin to flash.
- The MiniHub motor status light turns green.
- An initialization complete message appears in the Main Log area of the workbench form.

Shutting down the Bravo BenchCel DB Workstation

Shut down the workstation devices before you:

- Leave them unused for a long period of time.
- Clean or service any of devices.
- Move a device to another location.
- Change the liquid-handling head.

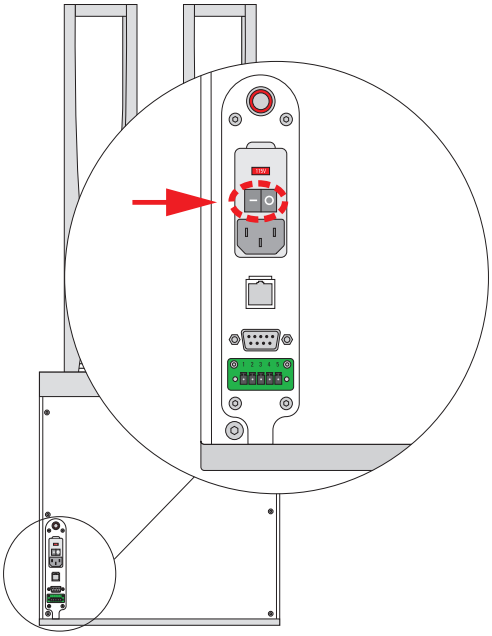
To shut down the Bravo BenchCel DB Workstation:

1 Shut down the BenchCel 4R and BenchCel 2R as follows:

a Turn off the compressed air to the BenchCel 4R and BenchCel 2R.

b Turn off the BenchCel 4R and BenchCel 2R.

On the back of the device, press the power switch to the off (**O**) position.



2 Shut down the Bravo Platform as follows:

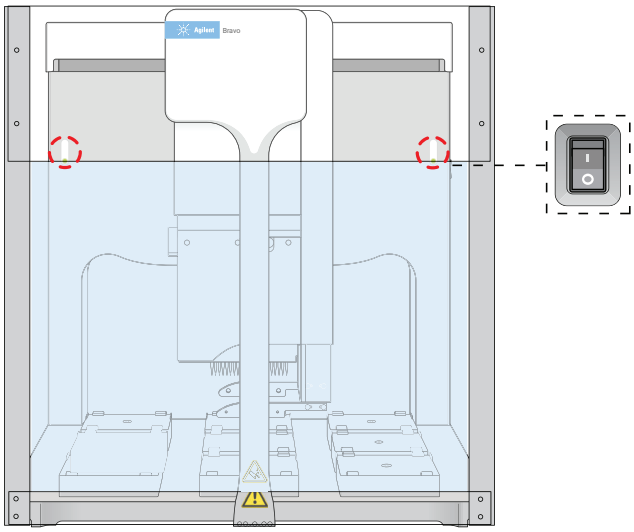
a If you plan to uninstall the liquid-handling head, ensure that no disposable pipette tips remain on the head.

b Optionally, home the liquid-handling head.

c On the side of the Bravo Platform, press the power switch to the **off (o)** position.

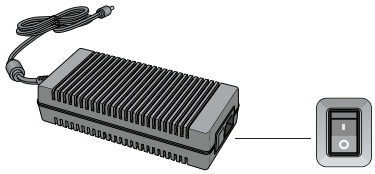
d If applicable, uninstall the liquid-handling head. For instructions, see the *Bravo Platform Quick Guide*.

Figure Bravo status lights and power switch



3 Turn off the MTC Controller, which is connected to the Heating Shaking Stations on the Bravo Platform.

4 Turn off the power switch on the MiniHub power supply.



5 Turn off the power to the Cytation5 Reader.

6 Exit the Bravo BenchCel DB Workbench and VWorks software.

7 Shut down the computer.

Running the protocol

The protocol can process up to eight 96-well sample plates from Lysis to Detection in a single run. For an overview of the protocol stages, see "Automation movements during the protocol" on page 23

The following procedure assumes that you have already prepared the reagents and samples in the required labware. For labware requirements, see "Labware requirements" on page 8.

Before you start

CAUTION **Using different labware or placing labware at unspecified locations can cause a collision resulting in equipment damage. Ensure that the physical labware setup exactly matches the setup specified in the protocol or form.**

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 or shelves.**

Check that the workstation devices are ready for a run:

- Remove any obstacles in the robot pathways.
- Remove any labware from the Bravo platepads and Cytation5 Reader plate stage.
- Ensure that the BenchCel 2R labware racks are empty.

Note: The protocol will store processed sample plates and used tip boxes in the BenchCel 2R labware racks.

- At the Bravo Platform, make sure that the thermal plate inserts are seated in the Heating Shaking Stations at deck locations 5, 8, and 9.

  Figure Bravo deck (top view) with thermal plate inserts at location 5, 8, and 9

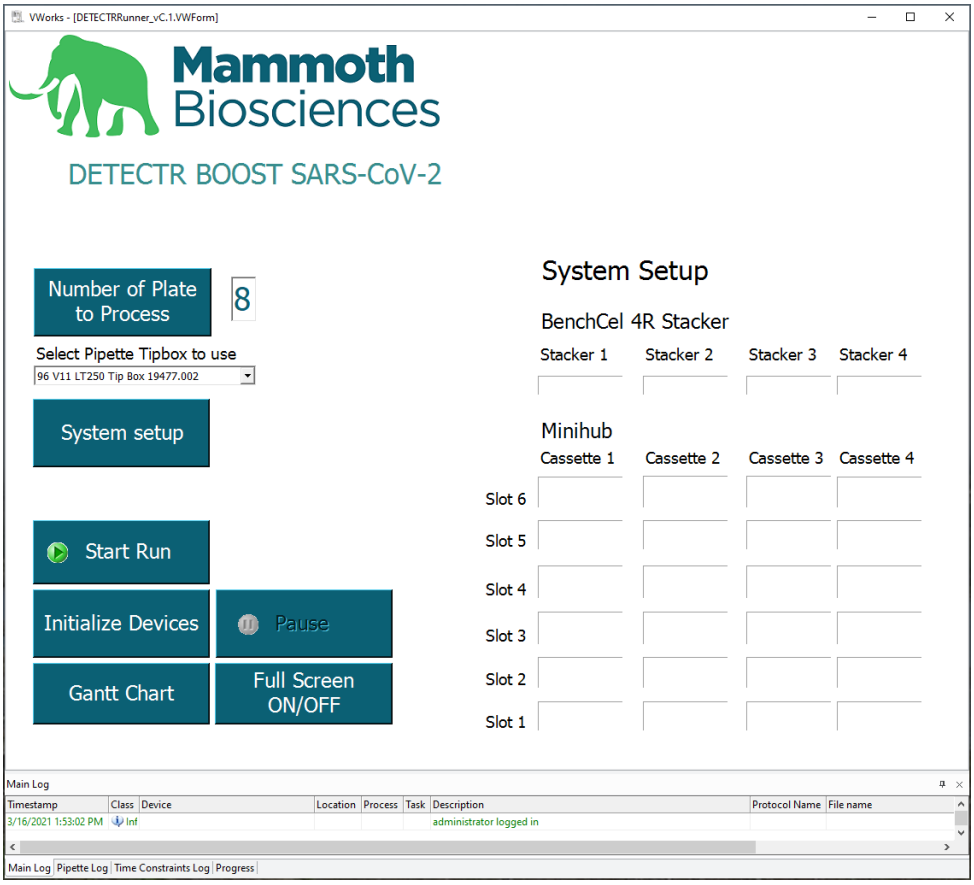
- If you have not already done so, start up the Bravo BenchCel DB Workstation.

Setting up and running the protocol

To set up and run the protocol:

1 Ensure the protocol form is open. If necessary, double-click the shortcut 

on the Windows desktop. The protocol form opens.



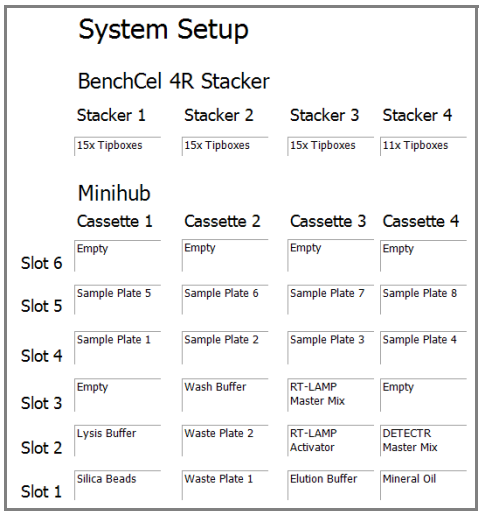
2 In **Number of Plates to Process** box, type a value (1–8).

3 In the **Select Pipette Tipbox to use** list, select the type of tip box you are using:

- 96 V11 LT250 Tip Box 19477.002
- 96 GEB 250uL Tips

4 Click **System setup** (System setup). The software automatically fills in the System Setup area of the form based on the number of sample plates to process.

Figure Example of System Setup for 8 sample plates

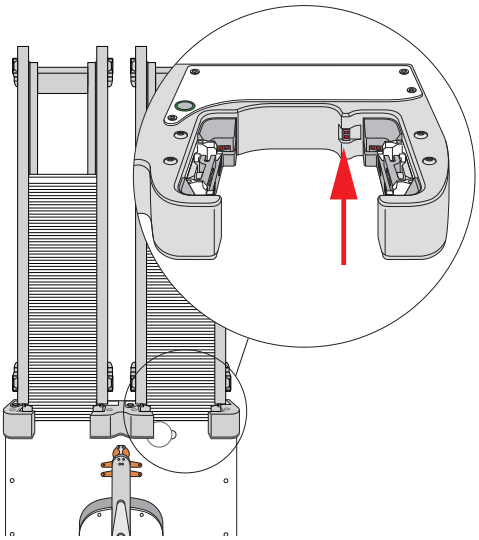


5 At the BenchCel 4R, ensure that the number of tip boxes in Stackers 1–4 exactly match the number specified in the **BenchCel 4R Stacker** area of the form.

For instructions on how to fill or empty the labware racks, see the *G5580A BenchCel Microplate Handler Quick Guide*.

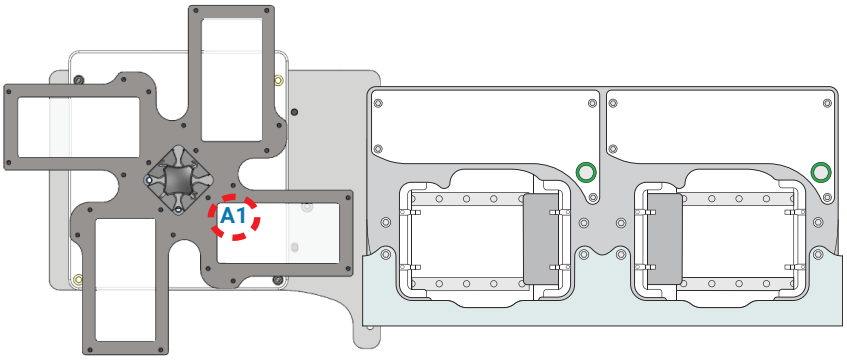
IMPORTANT The BenchCel plate-presence sensors cannot detect the dark color of the GEB tip box. If you use the GEB tip boxes, ensure that the tip boxes are oriented in the labware rack so that the tip box label faces the plate-presence sensor in the stacker head.

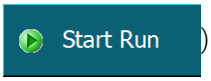
Figure Plate-presence sensor in BenchCel stacker head



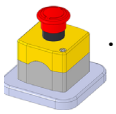
6 At the MiniHub, ensure that the labware on the physical shelves exactly matches the arrangement specified in the **Minihub** area of the form.

Figure Example of labware A1 orientation in MiniHub shelves (top view)

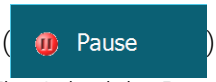


7 When you are ready to run the protocol, click **Start Run** (

).

WARNING **To stop a run in an emergency, use the Emergency Stop pendant**  **.**

For details on how to recover from an emergency stop, see "Emergency stops" on page 27.

To pause the run, click **Pause** (

). The task currently in progress finishes before the protocol pauses. The Scheduler Paused dialog box opens. For details, see "Pausing a run" on page 23.

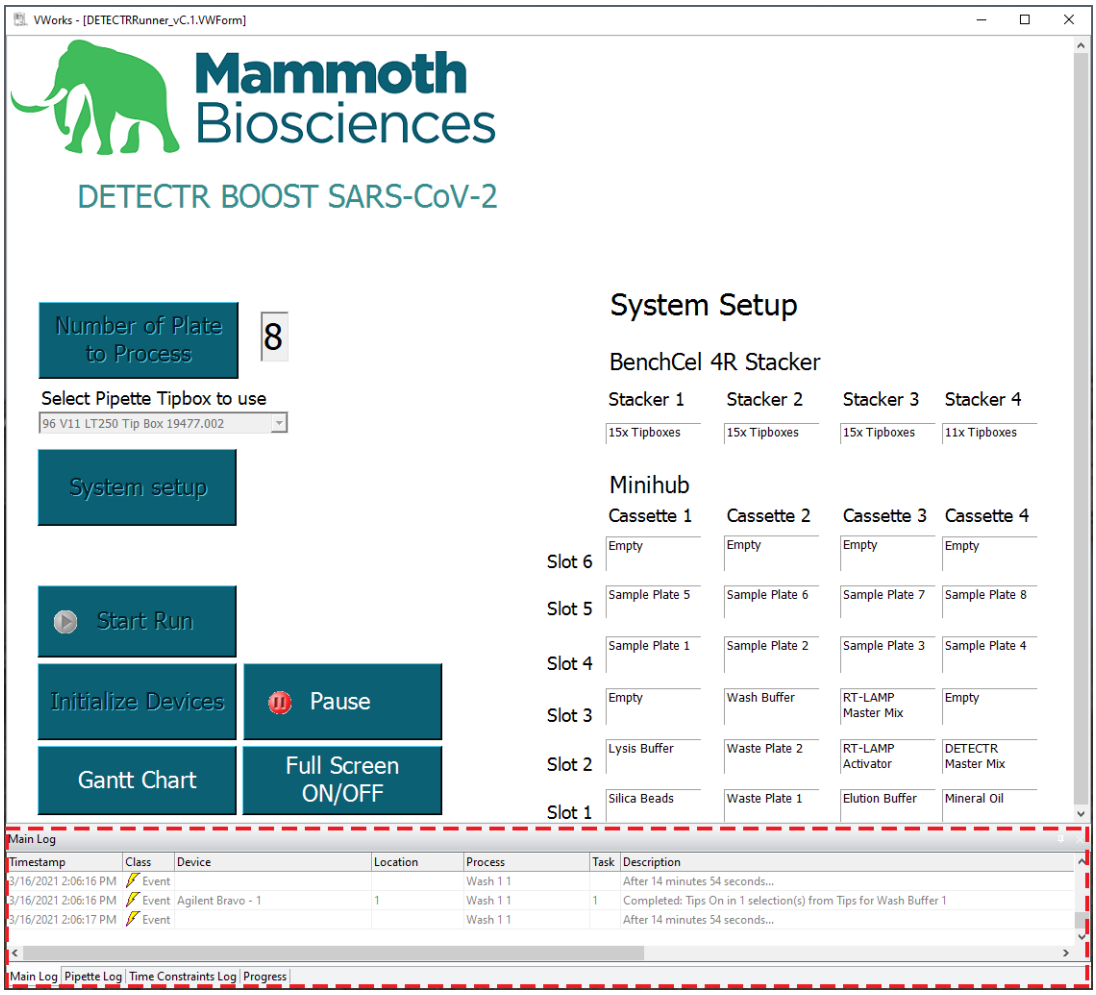
Monitoring the run

After the run starts, you can walk away for the duration of the protocol, which is approximately 5 hours to process 8 sample plates.

The protocol will progress through various stages. For details, see "Automation movements during the protocol" on page 23.

You can monitor various aspects of the run in the four tabs at the bottom of the workstation form.

- **Main Log tab**. Records all available event and error information that occur in the current session of the VWorks software.
- **Pipette Log tab**. Records all pipetting events and error information for the current session.
- **Time Constraints Log tab**. Records information about time-limited tasks.
- **Progress tab**. Displays overall protocol progress and the elapsed time of the run.



Note: When you exit the software, the log display is cleared and log files for the session are saved with the date-time stamp of the VWorks startup time for the given session.

Gantt Chart

You can display a Gantt chart to track the progress of labware instances or devices for the protocol while it is running, or for an open protocol that has been run in the current VWorks session since it was opened.

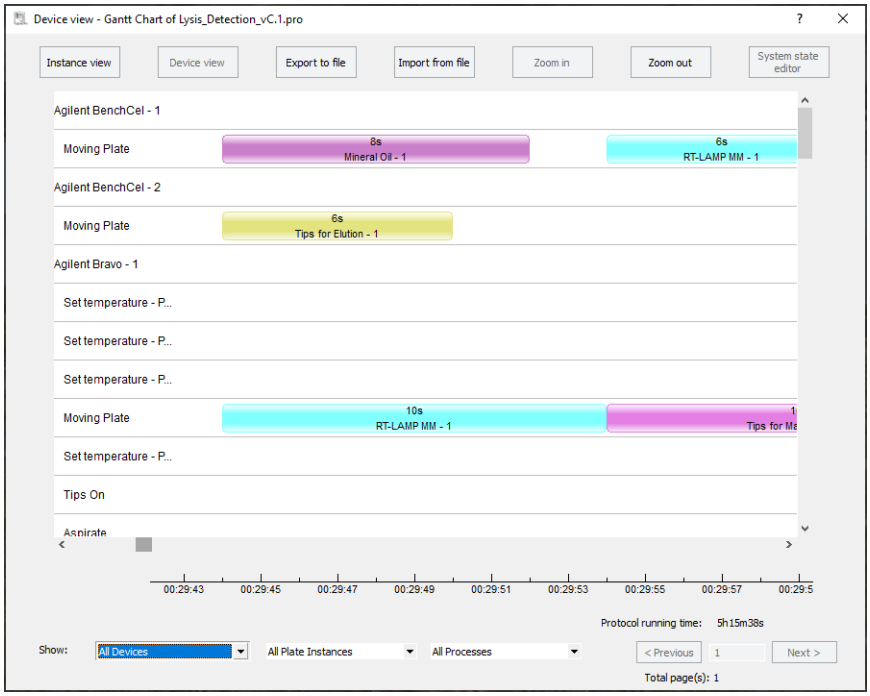
To display a Gantt chart:

1 Click Gantt Chart. The Gantt Chart window opens.

2 In the Gantt Chart window, click a view button to display the corresponding view:

- **Instance view**. Displays a graph of the process plate instances (vertical axis) as a function of time (horizontal axis). Each row represents the timeline of a process plate instance.
- **Device view**. Displays a graph of devices (vertical axis) as a function of time (horizontal axis). A row represents the timeline of a device.

Figure Example of device view in Gantt Chart window



For more details on the Gantt chart feature, see the *VWorks Automation Control User Guide*. To access the VWorks knowledge base, see "Related guides and where to find them" on page 2.

Cleaning up

When the protocol run is finished, make sure you remove all used labware from the workstation devices and safely discard any chemical waste.

WARNING **Make sure you discard the chemical waste and used labware according to your lab's waste disposal procedures and in compliance with all local, state, and federal safety regulations.**

Automation movements during the protocol

Overview

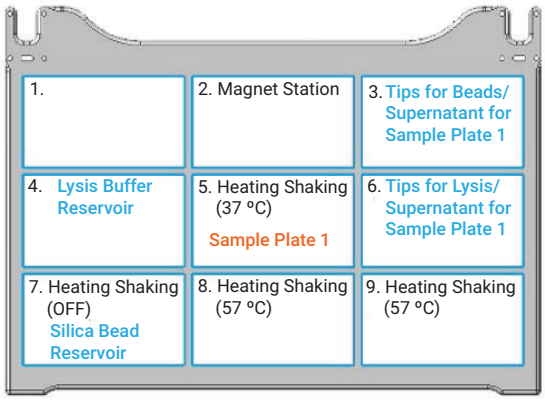
The protocol has the following basic stages:

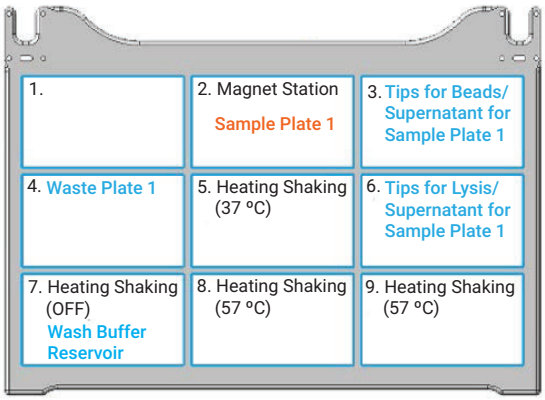
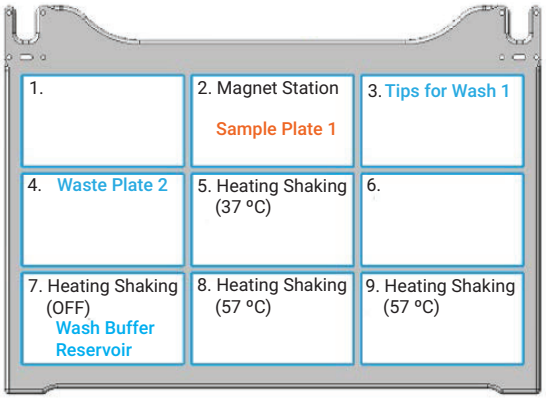
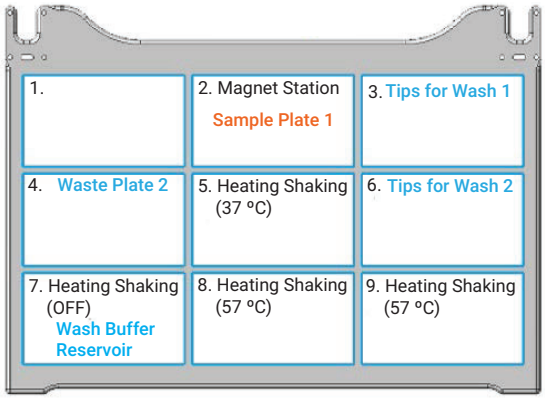
- Inactivation, Lysis, and binding
- Waste removal
- Wash 1 addition and removal
- Wash 2 addition and removal
- Amplification
- CRISPR addition
- Detection

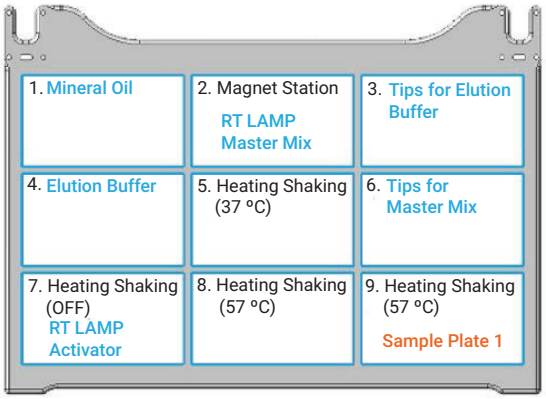
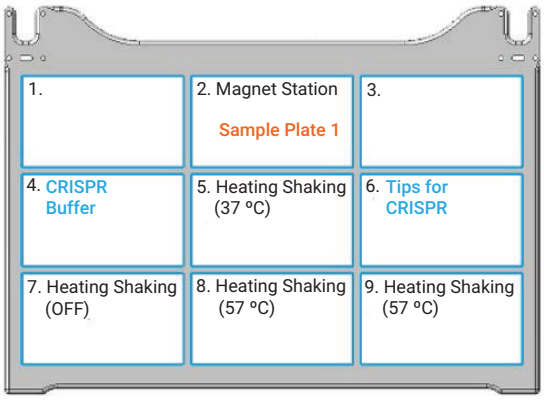
Automation movements

During the protocol:

- BenchCel 4R hands off the following labware for processing to Bravo deck location 1:
  - Sample plates, reservoirs, and waste plates from the MiniHub
  - Tip boxes from the BenchCel 4R stackers
- Bravo moves the labware to their designated deck locations for processing. See the following table for details.
- BenchCel 2R transfers the processed labware from Bravo deck location 3:
  - Uploads used tip boxes to the BenchCel 2R stackers
  - Hands off processed sample plates to the Cytation5 Reader.
- Cytation 5 Reader performs detection on the processed sample plates. For details on how the Cytation 5 Reader performs the detection, see the BioTek user documentation.

Basic stages on Bravo deck	Labware on Bravo deck
Inactivation, Lysis, and Binding Bravo actions: • Shakes the Silica Beads (location 7). • Puts tips on (location 6) and transfers liquid from buffer reservoir (location 4) to Sample Plate. • Puts tips on (location 3) and transfers silica beads from reservoir (location 7) to Sample Plate. • Incubates Sample Plate (location 5).	 Legend: **Black** = accessory, orange = sample plate, blue = other labware

Basic stages on Bravo deck	Labware on Bravo deck
Waste Removal Bravo actions: • Incubates the Sample Plate at location 2. • Puts tips on at location 3 and transfers liquid from location 2 to Waste Plate 1 (location 4). • Puts tips on at location 6, and transfers liquid from location 2 to Waste Plate 1 (location 4).	
Wash 1 Addition and Removal Bravo actions: • Puts tips on and transfers wash buffer (location 7) to Sample Plate (location 2). • Shakes Sample Plate (location 5). • Incubates Sample Plate (location 2).	
Wash 2 Addition and Removal Bravo actions: • Puts tips on and transfers wash buffer (location 7) to Sample Plate (location 2). • Shakes Sample Plate (location 5). • Incubates Sample Plate (location 2) • Puts tips on (location 6) and transfers liquid from Sample Plate (location 2) to Waste Plate 2 (location 4).	

Basic stages on Bravo deck	Labware on Bravo deck
Amplification Bravo actions: • Puts tips on (location 3) and transfers liquid from locations 1 and 4 to Sample Plate (location 9). • Shakes Sample Plate (location 9). • Puts tips on (location 6) and transfers liquid from locations 2 and 7 to Sample Plate (location 9). • Incubates Sample Plate (location 9).	
CRISPR Addition Bravo actions: • Puts tips on (location 6) and transfers CRISPR Buffer (location 4) to Sample Plate (location 2). • Shakes Sample Plate (location 5).	

Pausing a run

You can pause a run to introduce a labware that was forgotten during the setup, add reagents to a labware that is at risk of depleting, and so forth.

IMPORTANT Attempting to pause a running protocol to change a software setting can be detrimental to the protocol.

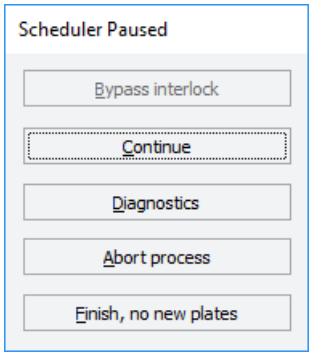
Note: If you interrupt the Light Curtain, see "Emergency stops" on page 27.

Pausing and continuing a run

To pause and then continue a run:

1. In the workbench form, click **Pause** (Pause).

   The task currently in progress finishes before the protocol pauses. The Scheduler Paused dialog box opens.
2. While the workstation is idle, make the necessary changes to your run, for example, adjusting a labware position or volume.
3. To resume the run, click **Continue** in the **Scheduler Paused** dialog box.



Aborting a run

To abort a run:

1. In the workbench form, click **Pause** (Pause).

   The task currently in progress finishes before the protocol pauses. The Scheduler Paused dialog box opens.
2. In the **Scheduler Paused** dialog box, click **Abort process**.

   The labware and devices remain at the paused locations.

   Before starting another run, ensure all labware are in the correct locations.

   When a new protocol starts, the software automatically initializes the associated device file and the devices will be sent to their home positions.

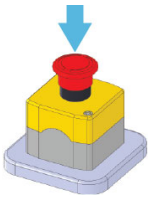
Emergency stops

Pressing the red button on the pendant or interrupting the Light Curtain stops the motion of the Bravo and BenchCel devices.

To stop in an emergency:

Press the red button on the emergency-stop pendant. The Bravo and BenchCel devices stop moving.

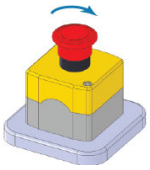
Figure Emergency-stop pendant



An error dialog box opens and displays a **robot disable is active** error message.

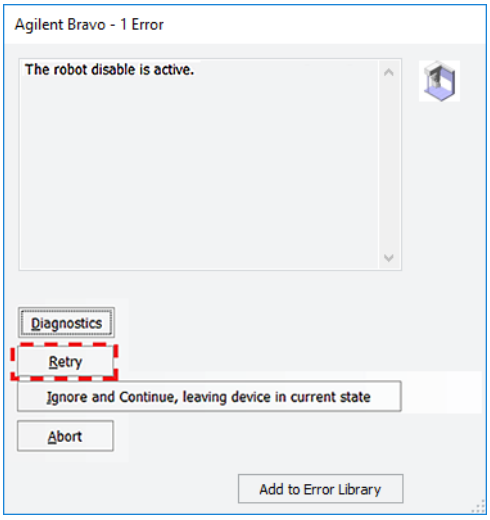
To restore the workstation devices after an emergency stop:

1 At the emergency-stop pendant, turn the red button clockwise. The spring-loaded button pops up.



2 If applicable, remove any object that is interrupting the Bravo Light Curtain.

3 In the error dialog box, click **Retry**. In most cases, the devices will be able to resume the run where it left off.



To abort the run after an emergency stop:

1 In the error dialog box, click **Abort**.

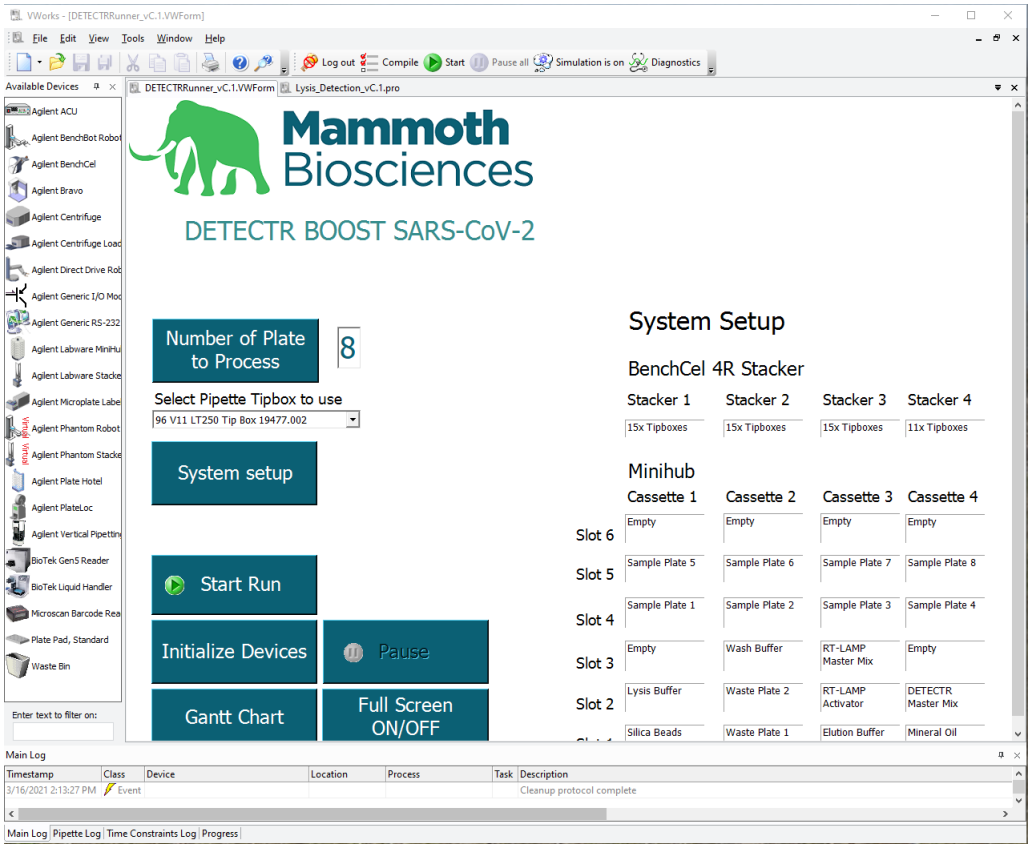
2 See step 2 of "Aborting a run" on page 26.

About full screen off and simulation

Using the full screen off mode

The Full Screen ON/OFF (Full Screen ON/OFF) button toggles the display of the form in the VWorks window. In full screen off mode, you can access all the VWorks menus and toolbars. For example, you would use full screen off mode to run the protocol in simulation mode.

Figure Form displayed with full screen off

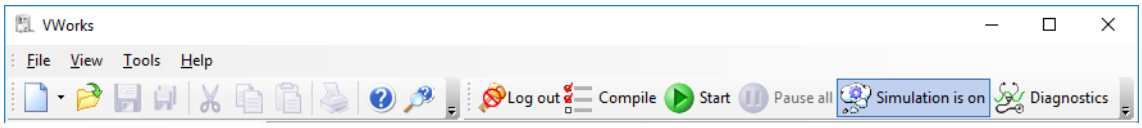


About simulating a protocol run

A protocol simulation is a virtual run where the software performs the tasks without moving robots or labware.

To turn on or off the simulation mode:

1. In the workbench form, click **Full Screen ON/OFF** (Full Screen ON/OFF) to change the display mode so that the VWorks toolbar is visible.
2. In the VWorks window, do one of the following:
   - To turn on simulation, click **Simulation is off**. The button label changes to **Simulation is on**.
   - To turn off simulation, click **Simulation is on**. The button label changes to **Simulation is off**.



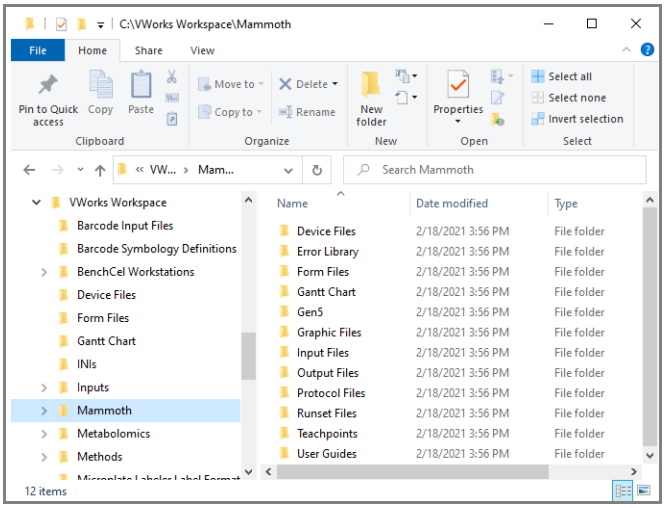
The VWorks software remains in the selected mode until you change it again.

About the Workbench files

CAUTION **The protocol cannot run if the folders and files are renamed or if their relative file paths are changed.**

The software installer for the Bravo BenchCel DB Workbench installs files in the following folder:

C:\VWorks Workspace\Mammoth folder



The Mammoth folder contains all the Bravo BenchCel DB Workbench files that the VWorks software uses to run the protocol. The folders include:

Folder name	Description
Device Files	Contains the VWorks device file that enables communication with the workstation devices.
Error Library	Contains an error library file.
Form Files	Contains the workbench form that you use to set up and run the protocol.
Gantt Chart	Stores any Gantt charts that you save.
Gen5	Contains the BioTek Gen 5 experiment file, protocol file, and other files required to run the application on the BioTek Cytation5 Reader.
Graphic Files	Contains graphics for the form files.
Input Files	Contains the input files for the protocol.
Output Files	Stores the protocol output files.
Protocol Files	Contains the VWorks protocols for the workstation.
Runset Files	Stores any runsets that you create.
Teachpoints	Contains the teachpoint files for the BenchCel devices.
User Guides	Contains the PDF for this Getting Started Guide.

For details on the VWorks file types, see the *VWorks Automation Control User Guide*. See "Related guides and where to find them" on page 2.

For details on the Gen5 files, see the BioTek user documentation.

Reporting problems

If you find a problem with the Bravo BenchCel DB Workstation, contact Agilent Technical Support. See "Contacting Agilent Technologies" on page 2.

To report problems with…	Have the following information ready
Hardware	• Serial number of the problem device from the device serial number label • Short description of the problem
Software	• Serial number of the problem device from the device serial number label • Short description of the problem • Relevant software version number (for example, automation control software, diagnostics software, and firmware) • Error message text (or screen capture of the error message dialog box) • Relevant files, such as log files

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