

VWorks Protocol Authors

Quick Guide

Workflow overview



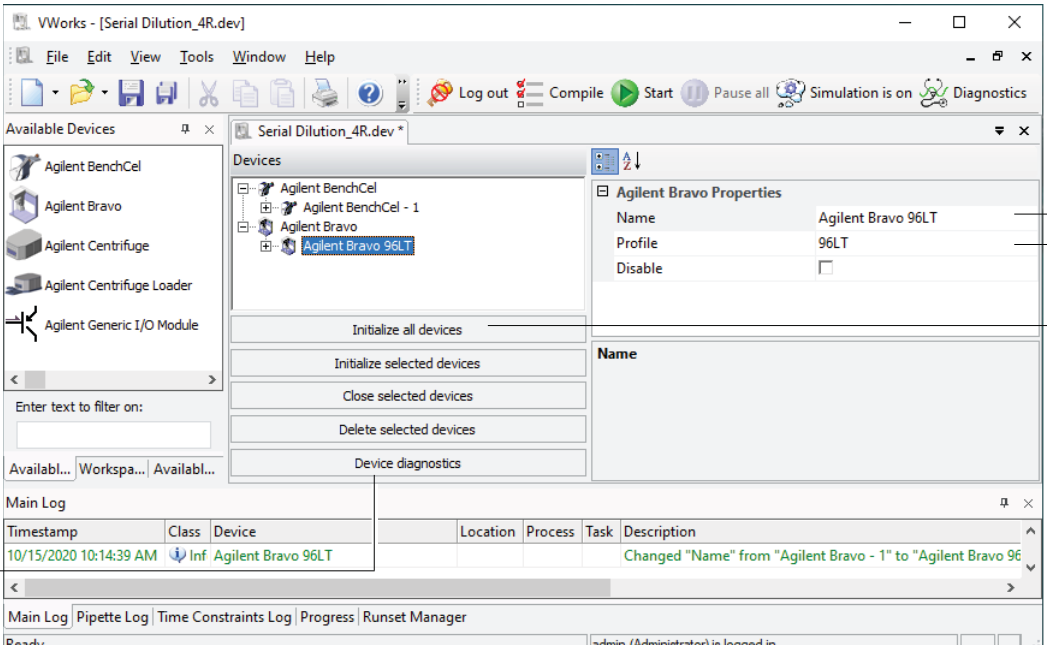
To create protocols in the VWorks software:

Step	For this task...
1	Add devices.
2	Create a protocol.
3	Add tasks.
4	Compile the protocol and simulate the protocol run.
5	Run the protocol.
6	<i>Optional.</i> Create a form for operators to use to run the protocol.

Step 1. Add devices

To add devices:

- 1 In the VWorks window, select **File > New > Device**. A device file tab appears.
- 2 Add a device to the device file tab:
 - a Double-click the device icon in the **Available Devices** area. (If you are in the Workspace tab, click the **Available Devices** tab to display the devices.)
 - b Type a name for the device and set the device properties.



1, 5 — VWorks window title bar and menu bar

2a — Available Devices panel

2b — Agilent Bravo 96LT device icon

3 — Main Log panel

4 — Agilent Bravo Properties panel

6 — Device Name field

Main Log:

Timestamp	Class	Device	Location	Process	Task	Description
10/15/2020 10:14:39 AM	Inf	Agilent Bravo 96LT				Changed "Name" from "Agilent Bravo - 1" to "Agilent Bravo 96LT"

Ready | admin (Administrator) is logged in

Step 2. Create a protocol

- 3 To create a profile for the device, click the device name in the device file tab and then click **Device diagnostics**. When the device diagnostics window opens:
 - a Name the profile, select the connection type (Ethernet or serial), and locate and connect to the device in the Discovered Bionet Devices dialog box (Ethernet connections only).
 - b Set the teachpoints.
For devices such as the BenchCel Microplate Handler, you also need to reference the teachpoint file.
- 4 Select the profile in the device properties area.
- 5 Click **File > Save**, and then repeat steps 1 to 4 to add other devices.
VWorks Plus. If the **Audit Comments** dialog box appears, enter a reason for the change, and then click **OK**.
- 6 In the **Devices** area, click **Initialize all devices**.

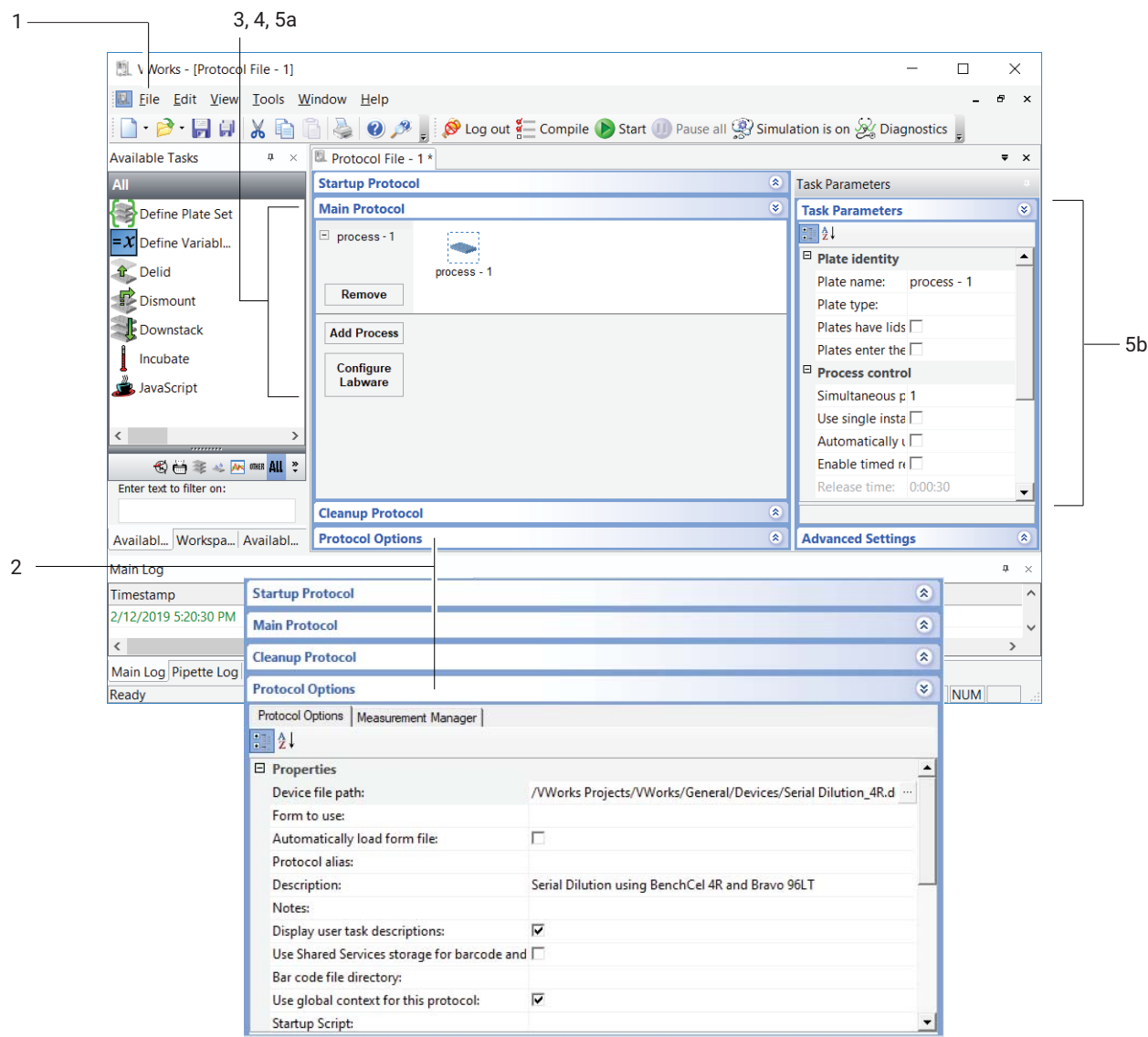
Step 2. Create a protocol

Refer to the following figure for this step.

To create a protocol:

- 1 Select **File > New > Protocol**.
- 2 Click **Protocol Options** in the protocol area to verify the device file location, provide a description of the protocol, add notes about the protocol, and set other options.
If you are using a VWorks form to run the protocol, specify the form to use and whether to automatically load the form file.
- 3 *VWorks 14.0 and later*. If the protocol will use any files created in other software, click **File > Import Misc Files** and import the file into storage for use in the VWorks software.
- 4 Click **Main Protocol**.
- 5 Click **Configure Labware** to set the starting locations of labware in a device.
Note: Configured labware will return to its starting location by the end of the protocol run.
Repeat this step for each device in the system.
- 6 Set up a process.
 - a Click the **process - n** icon.
 - b Set the process plate parameters in the **Task Parameters** area.
Note: A *process* is a sequence of tasks that are performed on a particular labware or a group of labware. The process labware will move into the system to be processed, and move out of the system when processing is finished.
- 7 Repeat step 6 to add additional processes.

Figure Creating a protocol

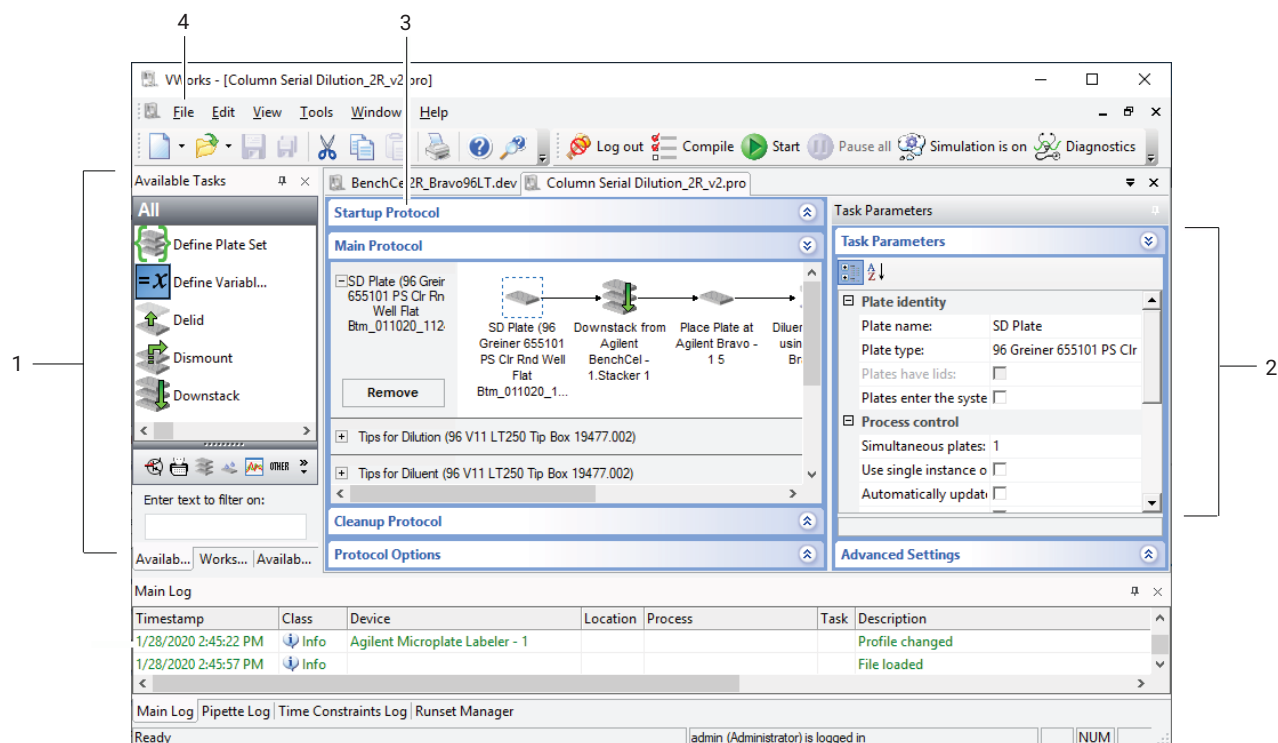


Step 3. Add tasks

Step 3. Add tasks *To add tasks to the protocol:*

- 1 Drag tasks from the **Available Tasks** area to the protocol area.
- 2 Set the parameters in the **Task Parameters** area.
- 3 *Optional.* Click **Startup Protocol** or **Cleanup Protocol** in the protocol area to add processes that start before or finish after the main protocol starts and finishes.
- 4 Select **File > Save**.

VWorks Plus. If the **Audit Comments** dialog box appears, enter a reason for the change, and then click **OK**.



Step 4. Compile the protocol and simulate a run

To compile the protocol and simulate a run:

1 To compile the protocol to check for protocol-writing or logical errors:

- Click **Compile**.
- View and fix the errors and warnings listed in the **Main Log** tab.
- Repeat steps a and b until the protocol compiles error free.
- Save changes made to the protocol.

VWorks Plus. If the **Audit Comments** dialog box appears, enter a reason for the change, and then click **OK**.

The screenshot shows the VWorks software interface for a protocol named 'Row Serial Dilution_2R.pro'. The 'Main Log' tab is selected, showing the following log entries:

Timestamp	Class	Device	Location	Process	Task	Description
10/14/2020 4:43:53 PM	Error	Agilent Bravo - 1		Diluent Addition	4	Attempt to over-dispense past 0 µL
10/14/2020 4:43:53 PM	Error	Agilent Bravo - 1		Diluent Addition		An excess of -30 µL is dispensed.
10/14/2020 4:43:53 PM	Info					Compile complete with 3 errors and 1 warning.

Callout 1a points to the 'Compile' button in the top toolbar. Callout 2a points to the 'Simulation is on' button. Callout 1b and 2b point to the error messages in the Main Log.

2 To simulate the protocol run to check for potential deadlocks:

- Click **Simulation is off** to turn on the simulation mode (the button changes to **Simulation is on**), and then click **Start**.
- View and fix any deadlock errors that are listed in the **Main Log** tab.
- Repeat steps a and b until all deadlock errors are fixed.
- Save changes made to the protocol.

VWorks Plus. If the **Audit Comments** dialog box appears, enter a reason for the change, and then click **OK**.

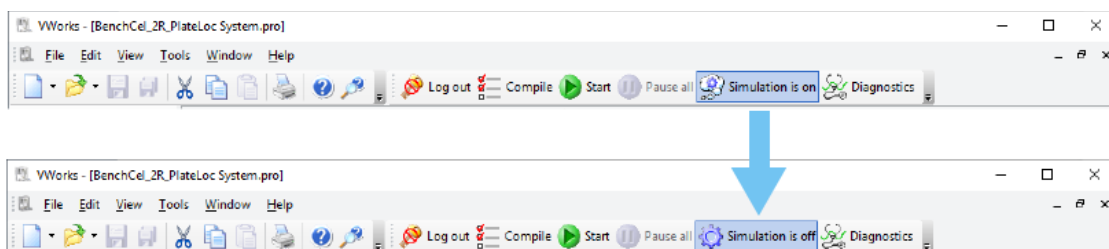
Step 5. Run the protocol

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VWorks Plus. To run a protocol successfully, any dependent records must have a development state equal to or greater than the protocol. For example, if you attempt to run a released protocol with labware entries that are still in validation, an error message appears and you must abort the protocol.


To run a live protocol run:

- 1 Click **Simulation is on** to turn off the simulation mode (the button changes to Simulation is off).



- 2 Click **Start** () on the toolbar. Or, If you have a runset open, view the scheduled start times in the **Runset Manager** tab.

To pause the protocol run:

Click **Pause all** (). In the Scheduler Paused dialog box, you can select the command to resume, finish processing existing labware already in the system, or abort the run. You can also open the device diagnostics to make adjustments before resuming the run.

To stop a run in an emergency:

Use the hardware emergency-stop button.

See the device user guide for more details.

CAUTION

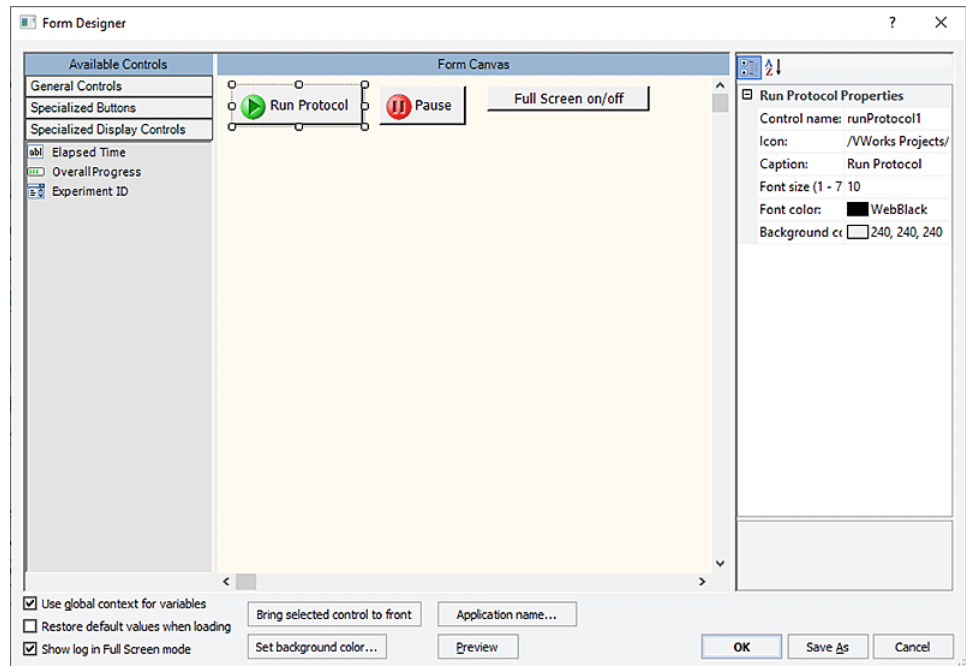
You may not be able to resume a protocol run after you press the hardware emergency stop button. To recover the system after an emergency stop, see the device user guide.

Creating a protocol form

A form provides a simplified interface, which can be helpful for users who have limited or infrequent experience with the VWorks software.

To open the Form Designer and create a new form:

- 1 In the VWorks window, click **File > New > Form** to open the Form Designer.
- 2 In the Form Designer, drag the desired controls to the form canvas and set the properties for the form controls.





- 3 *VWorks 14.0 or later.* Click **File > Import Misc Files** to import any image or icon files that you want to use in your form. Such files must be in Shared Services storage to be available for use in a VWorks form.
- 4 Set the form properties, and then click **OK** to save the form.
- 5 *VWorks Plus.* If the **Audit Comments** dialog box appears, enter a reason for the change, and then click **OK**.
- 6 Open the protocol that the form will run, and in the **Protocol Options** area, specify the form to use and other options for the form.
- 7 Save any changes.
VWorks Plus. If the **Audit Comments** dialog box appears, enter a reason for the change, and then click **OK**.

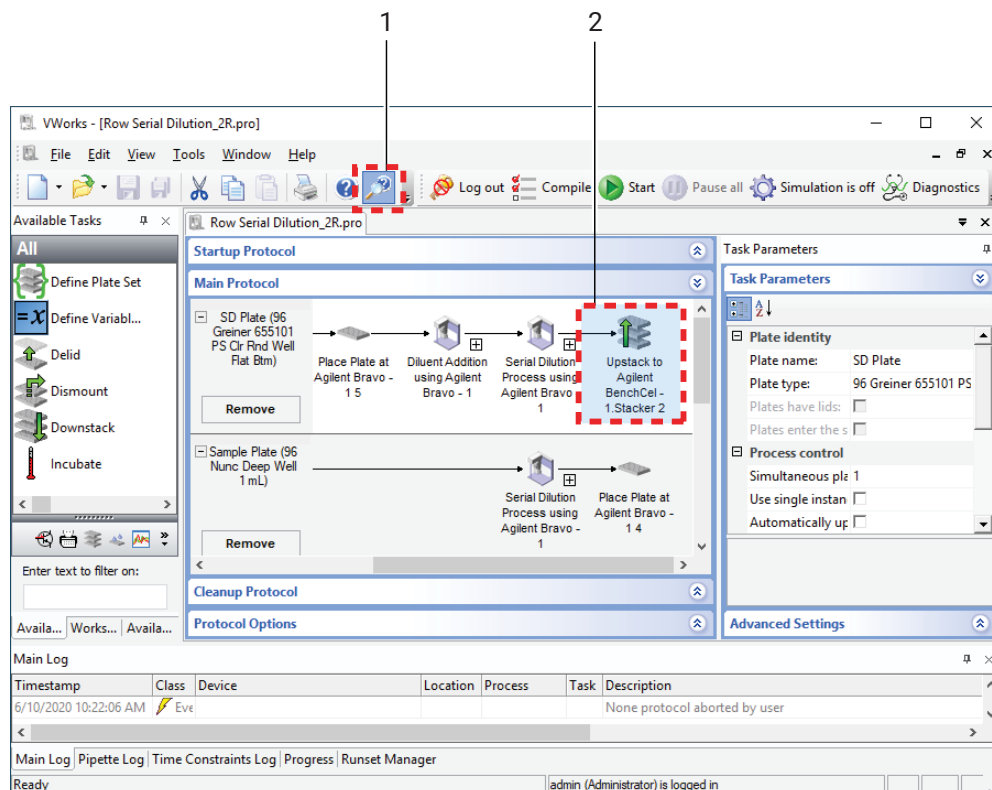
Where to find help

To open the knowledge base:

- From within VWorks software, click **Help > Knowledge Base** or press F1.
- From the Windows desktop, select **Start > All apps > Agilent Technologies > VWorks Knowledge Base**.

To open context-sensitive help in the VWorks window:

- 1 In the VWorks window, click the  button on the toolbar. The pointer changes to .
- 2 Click an icon or area of interest in the VWorks window. The relevant help topic or guide opens.



Contacting Agilent

Web: <https://www.agilent.com>

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

Documentation feedback: documentation.automation@agilent.com