# How to Create an Instrument Method in Empower

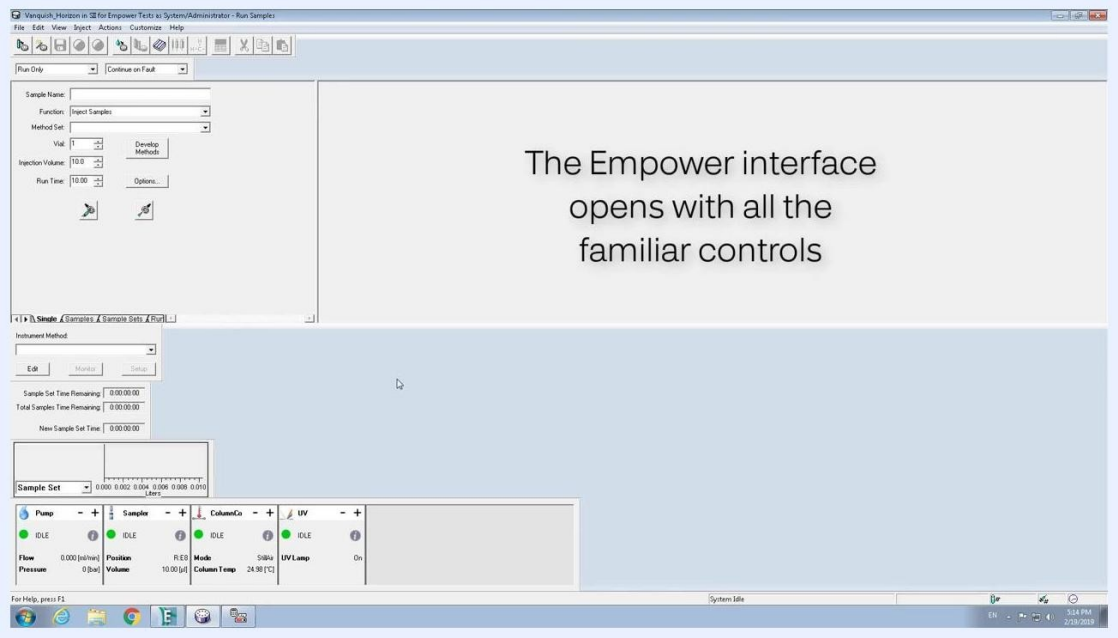
This guide walks you through how to create an instrument method in Empower using the Instrument Method Editor and its built-in wizard. You will learn how to log on, select your project and system, configure the pump gradient, sampler, column compartment, and UV detector settings, and save your finished method for use in sample runs.

## Prerequisites

- Access to the Empower 3 software with a valid user name and password.
- A chromatographic system (for example, a Vanquish Horizon system) configured and available in Empower.
- A project set up in Empower in which to acquire data.

## Step 1: Log on to Empower 3

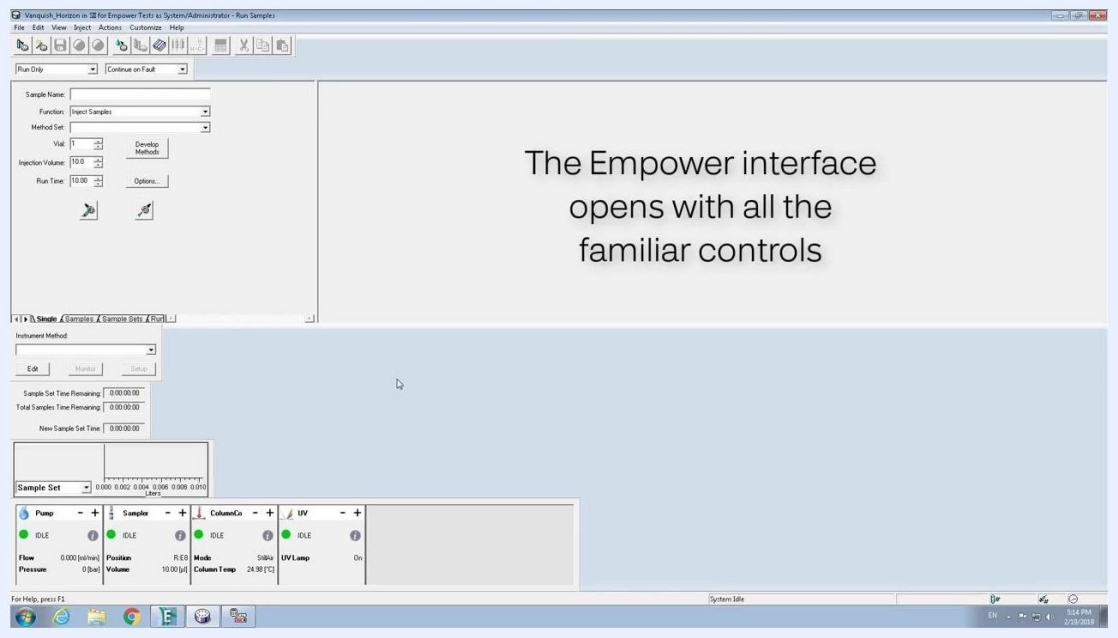
Locate and open the Empower 3 application on the Windows desktop. When the login dialog appears, enter your user name and password in the respective fields, then click **OK**. The login window appears centered on screen, with the instruction "Log on with your user name and password" shown at the bottom.




**Empower 3 login dialog on the Windows desktop, with the instruction to log on with your user name and password**

## Step 2: Select your project and system

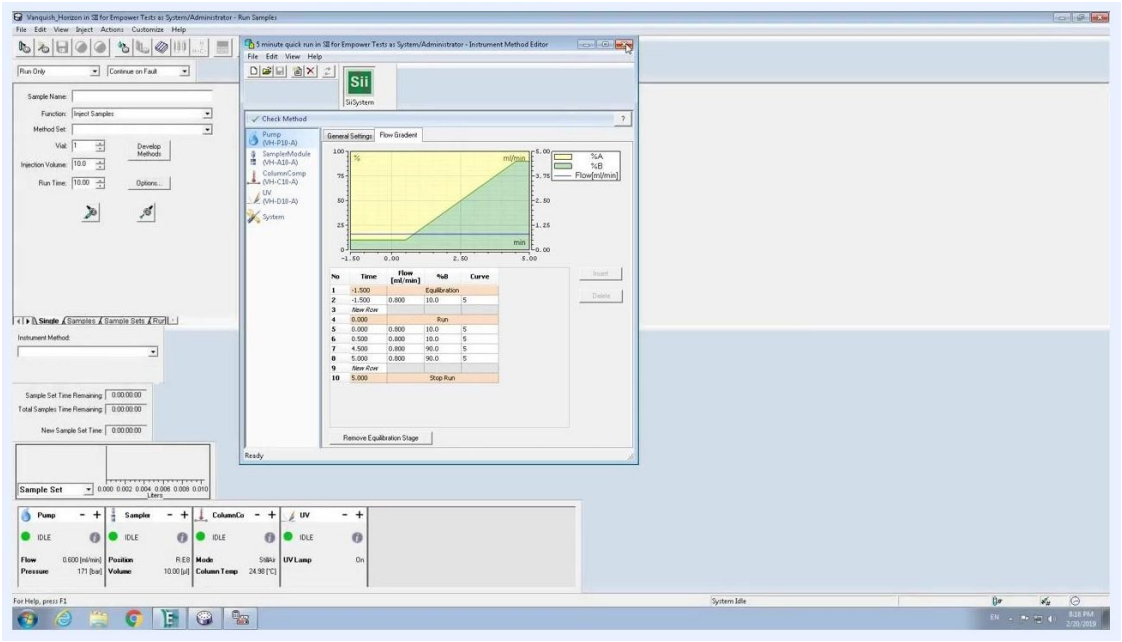
Once you are logged in, the **Run Samples** window opens. In the **Project in which to acquire data** section, select your project from the list (for example, "SII for Empower Test"). In the **Chromatographic Systems** section, select the appropriate system (for example, "Vanquish_Horizon"), then click **OK** to confirm your selections.




**Run Samples window showing project and system selection, with the instruction to select your project and system and click OK**

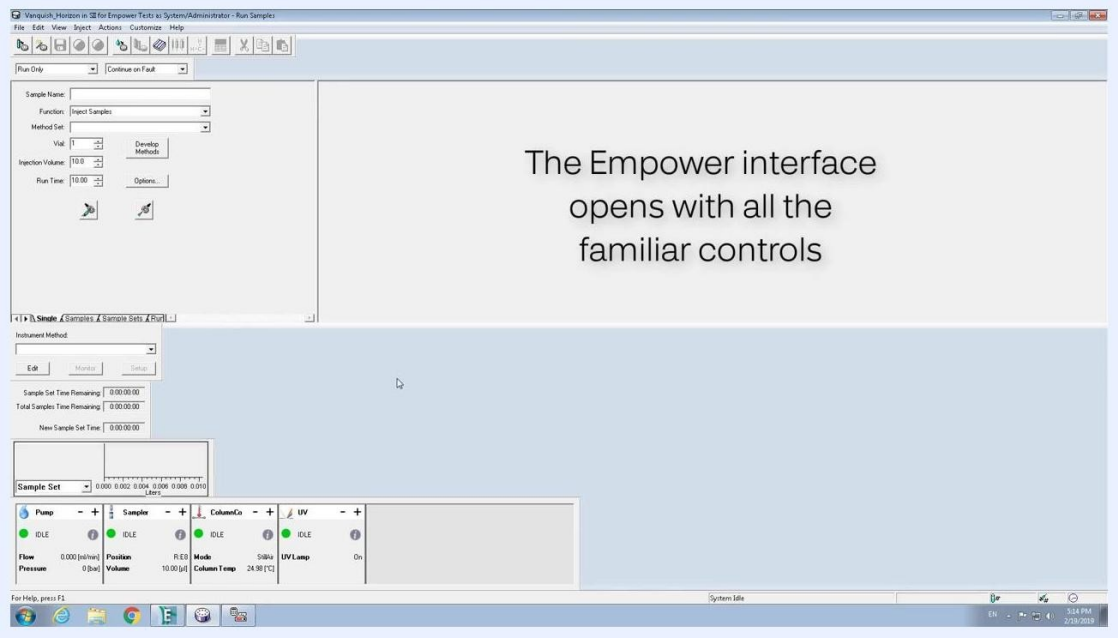
## Step 3: Open the Instrument Method Editor

The Empower interface opens with all familiar controls and panels. The main window shows fields for sample name, function, method set, injection volume, and run time, along with instrument method controls. The lower section lists the status of each system module (Pump, Sampler, Column Compartment, UV, and so on), all showing "IDLE" status.



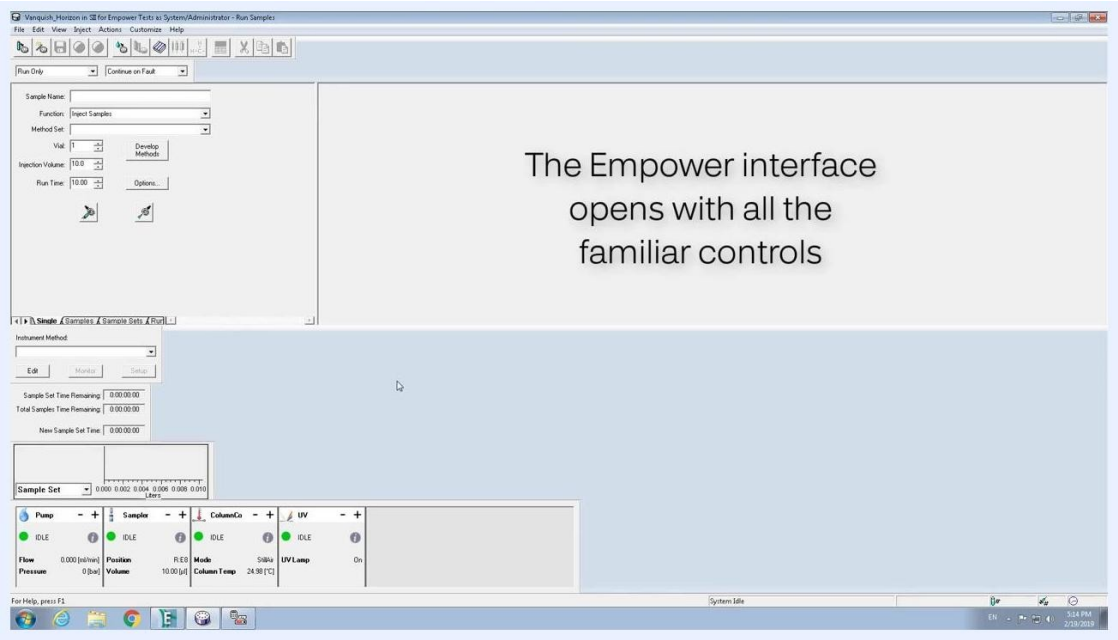
**Instrument Method Editor with module icons highlighted for quick access to each module's settings**

In the **Instrument Method** section, click **Edit** to open the Instrument Method Editor. The editor opens on the **General Settings for System** tab. Enter the desired run time in the **Run Time** field (for example, 20.000 min). Under **Diagnostic Channels**, select the channels you want to use (for example, "ICC_Temp," "PCC_Temp," "Pump_Pressure"), using the **Select all channels** or **Deselect all channels** buttons as needed. The Thermo Scientific Program Wizard guides you through the rest of the method setup.




**Empower main window showing sample and instrument controls and system status indicators**

The left panel of the editor displays an icon for each module: Pump (VH-P10-A), SampleModule (CH-1A1-A), ColumnComp (VH-D10-A), UV (VH-D10-A), and System. Click any module icon to access and edit its specific settings. The main panel shows the **Flow Gradient** tab, with a graphical plot and gradient table displaying all programmed steps.




**Instrument Method Editor showing run time and diagnostic channel selection, with guidance on the Thermo Scientific Program Wizard**

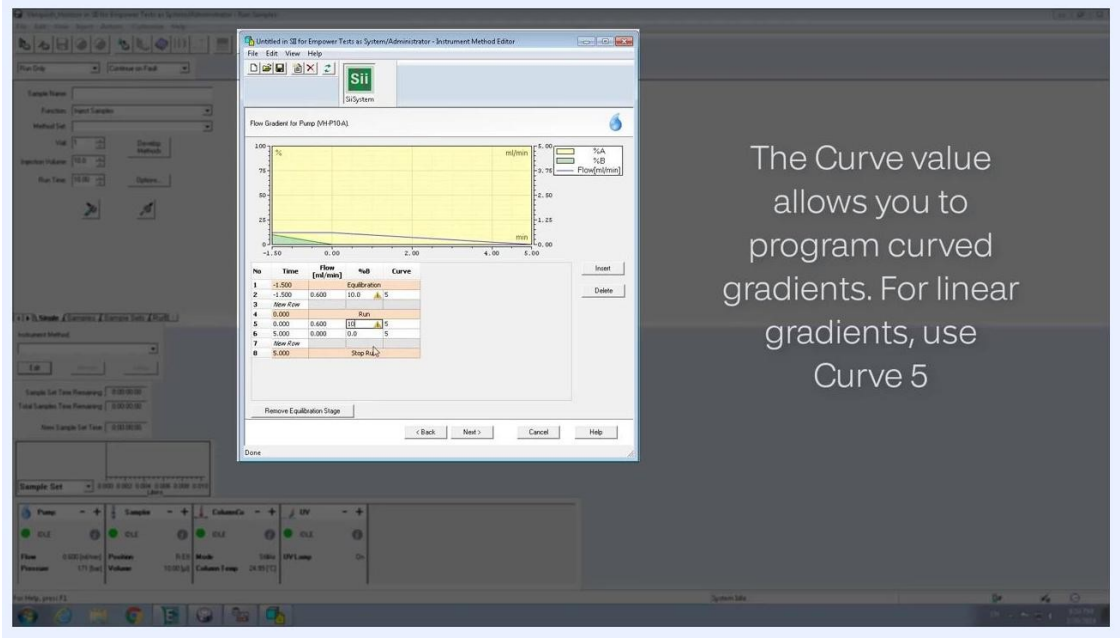
## Step 4: Configure the flow gradient for the pump

The **Curve** value lets you program curved gradients; for a linear gradient, set the **Curve** column to 5 for all steps. The gradient table lists steps for Equilibration, Run, and Stop Run, each with time, flow (mL/min), %B, and curve values. The plot above the table shows the gradient you have programmed.

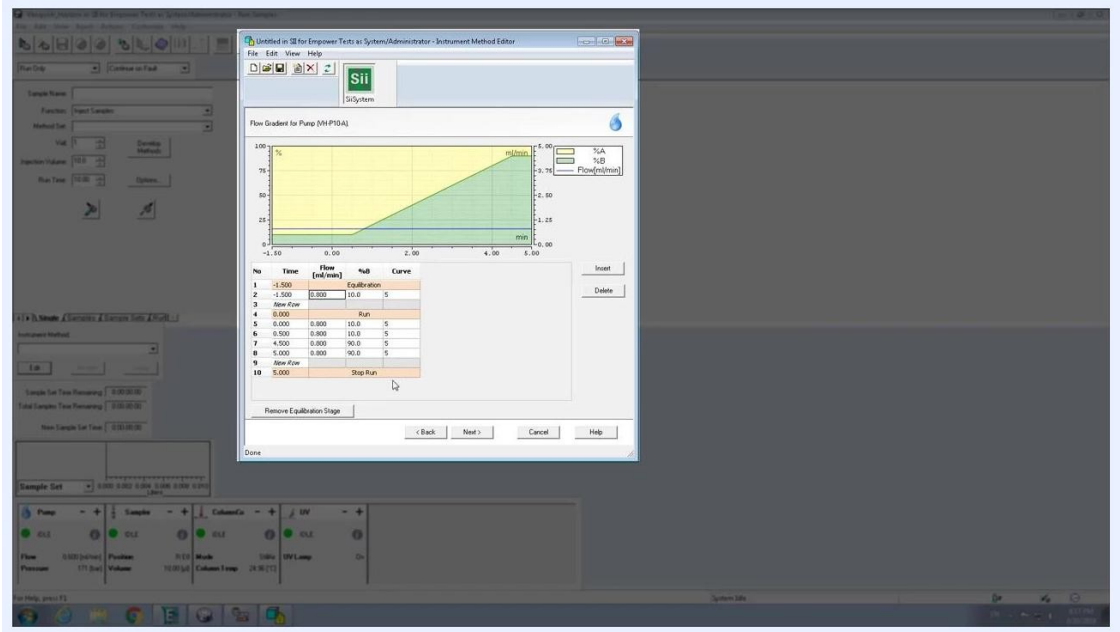
Enter each gradient step to match your method requirements. A finalized table might look like this:

- -1.500 min: Flow = 0.800 mL/min, %B = 10.0, Curve = 5 (Equilibration)
- 0.000 min: Flow = 0.800 mL/min, %B = 10.0, Curve = 5 (Run)
- 0.500 min: Flow = 0.800 mL/min, %B = 10.0, Curve = 5 (Run)
- 1.000 min: Flow = 0.800 mL/min, %B = 90.0, Curve = 5 (Run)

- 5.000 min: Flow = 0.800 mL/min, %B = 90.0, Curve = 5 (Stop Run)



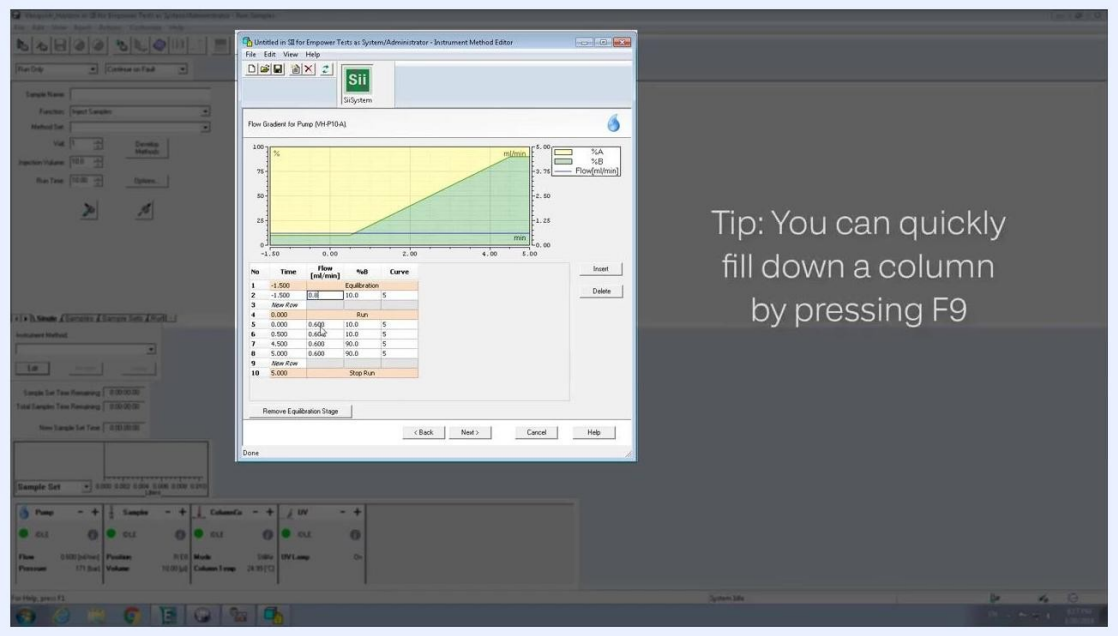

**Instrument Method Editor gradient table with Curve value set to 5 for a linear gradient**



**Instrument Method Editor with a finalized gradient table and corresponding plot**

Click **Next** to continue to the next configuration step.

To speed up data entry, select a cell in the column you want to fill down and press **F9** to copy that value into all rows below it. This shortcut is especially useful when you need the same flow rate or curve value across multiple steps.



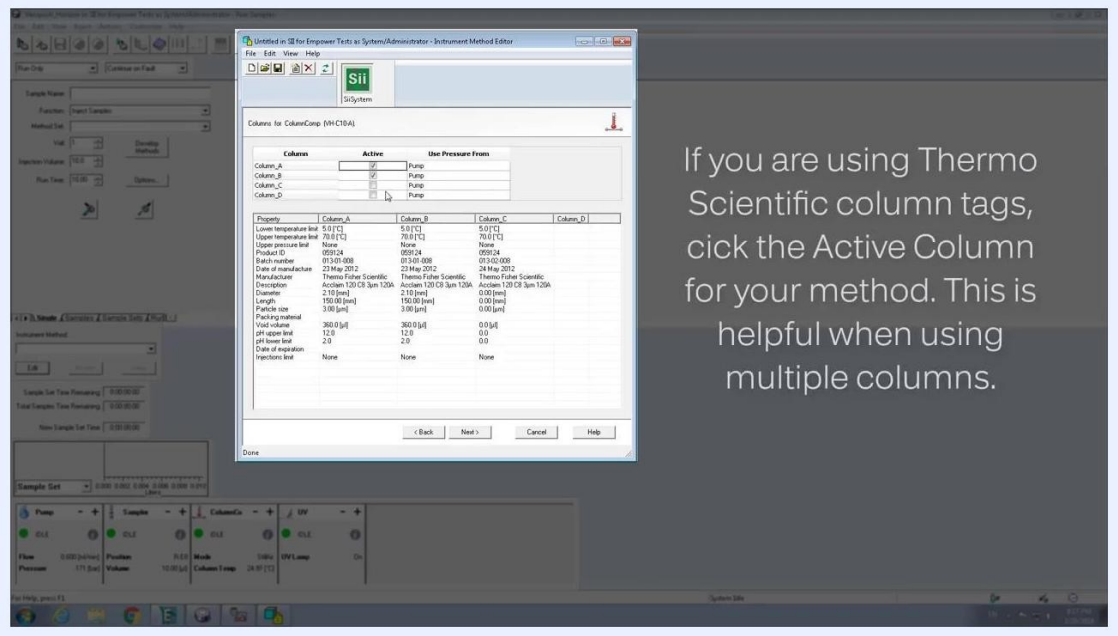

**Instrument Method Editor showing the tip to use F9 to fill down a column**

## Step 5: Configure the sample module

In the **General Settings for SampleModule** window, set the draw and dispense speeds according to your sample viscosity and wash requirements:

- Draw speed: 20 (range 0.050–20.000 µL/s)
- Dispense speed: 5,000 (range 0.050–15,000 µL/s)
- Wash mode: NoWash
- Wash time: 2.0 s (range 0.0–300.0 s)

- Wash speed: 83.3 µL/s (range 10.0–83.3 µL/s)



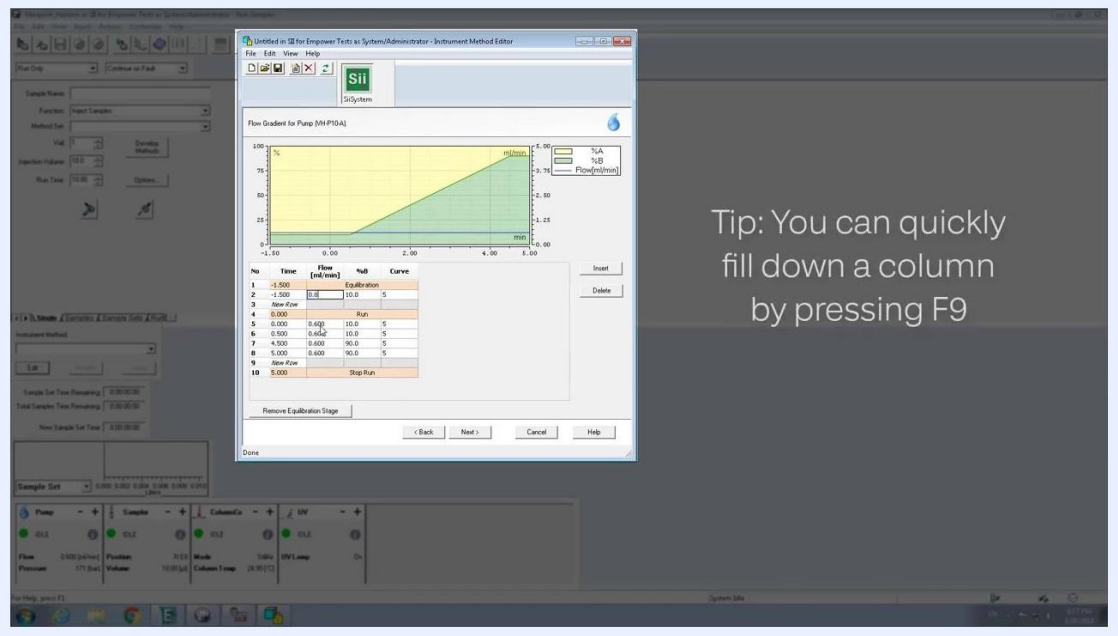

**SampleModule settings window showing the wizard's guidance on valid value ranges**

Also set the connected pump and sample puncture offset if your method requires it.

The wizard always displays the valid range for each parameter, helping you avoid invalid entries. For example:

- Draw speed: 20 (range 0.050–20.000 µL/s)
- Dispense speed: 2 (range 0.050–15.000 µL/s)
- Wash mode: AfterDraw
- Wash time: 2.0 s (range 0.0–300.0 s)
- Wash speed: 83.3 µL/s (range 10.0–83.3 µL/s)
- Flow is delivered from: Pump

- Puncture offset: 0 (range 0.0–3,000 µm)




**SampleModule settings window for adjusting draw and dispense speed**

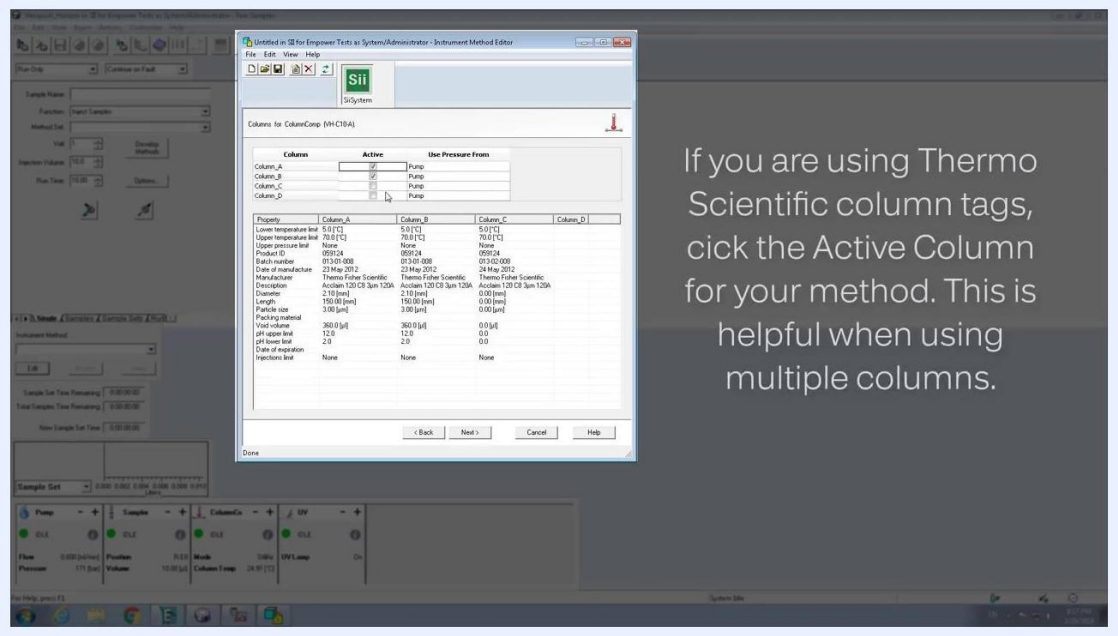
Adjust these values as needed for your method.

## Step 6: Set the column compartment temperature

In the **Temperature Settings for ColumnComp** window, configure the column and post-column cooler temperatures:

- Use temperature control for Column Chamber (CC): checked, Temperature 25.00°C (range 5.00–120.00°C), Thermostatting mode StillAir

- Use temperature control for Post Column Cooler (PCC): checked, Temperature 40.00°C (range 40.00–80.00°C)

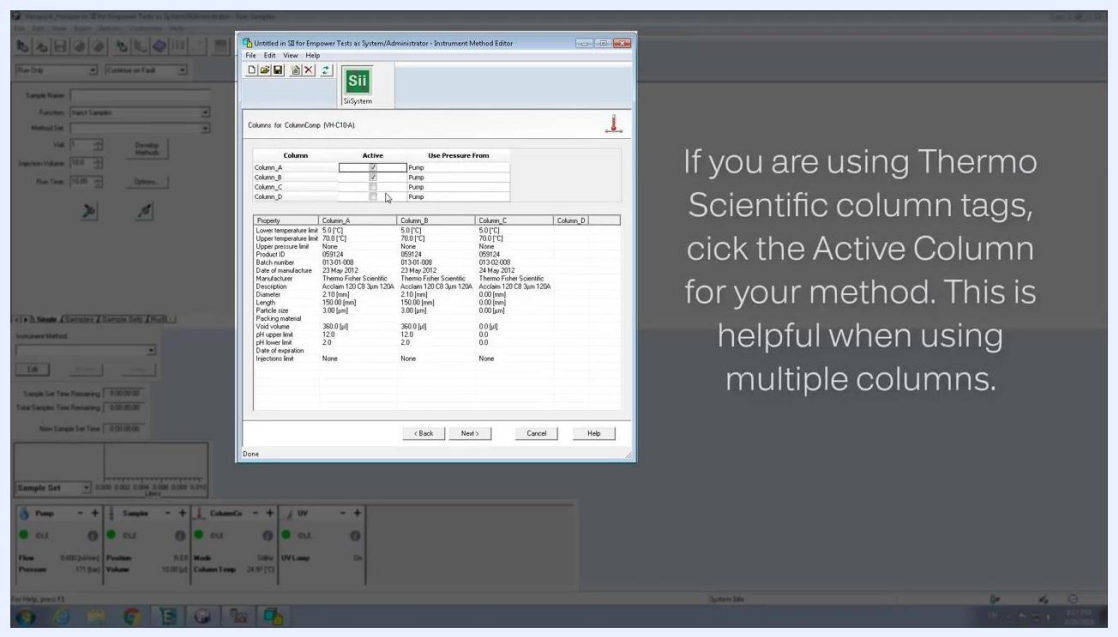



**Temperature settings for the column compartment and post column cooler**

Select **Easy** or **Advanced** mode depending on how much control you need, then click **Next** to continue.

## Step 7: Select the active column

In the **Columns for ColumnComp** window, check the **Active** box for the column(s) you want to use with this method. Each column slot (A, B, C, D) displays its properties, including lower and upper temperature limits, upper pressure limit, product ID, batch number, manufacturer, date of manufacture, dimensions, packing material, void volume, pH limits, date of expiration, and injection limit.




**Column selection screen showing column properties and the active column selection**

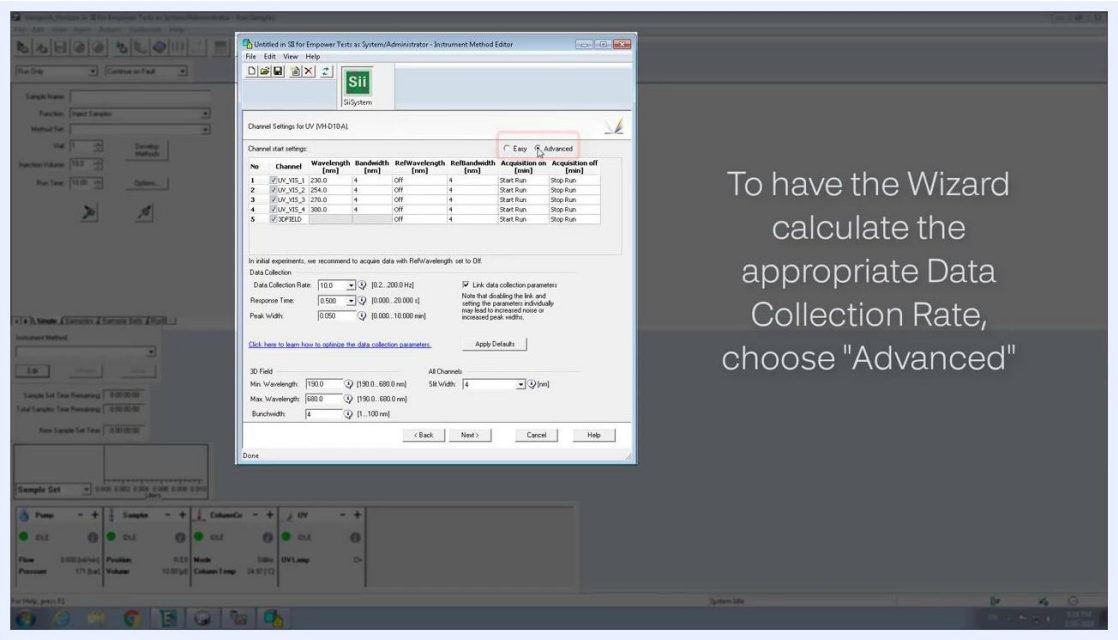
If you use Thermo Scientific column tags, click the active column for your method; this is especially helpful when working with multiple columns. Click **Next** to proceed once the correct column is active.

## Step 8: Configure UV channel settings

In the **Channel Settings for UV** window, select **Advanced** mode so the wizard can calculate the appropriate data collection rate. Configure each channel's wavelength, bandwidth, reference wavelength, and acquisition timing. For example:

- UV_VIS_1: 230.0 nm, Bandwidth 4 nm, RefWavelength Off, RefBandwidth 4 nm, Acquisition Start/Stop Run
- UV_VIS_2: 254.0 nm, Bandwidth 4 nm, RefWavelength Off, RefBandwidth 4 nm, Acquisition Start/Stop Run

- UV_VIS_3: 270.0 nm, Bandwidth 4 nm, RefWavelength Off, RefBandwidth 4 nm, Acquisition Start/Stop Run
- UV_VIS_4: 300.0 nm, Bandwidth 4 nm, RefWavelength Off, RefBandwidth 4 nm, Acquisition Start/Stop Run
- 3D FIELD: Off




**UV channel settings window with the instruction to choose Advanced mode for data collection rate calculation**

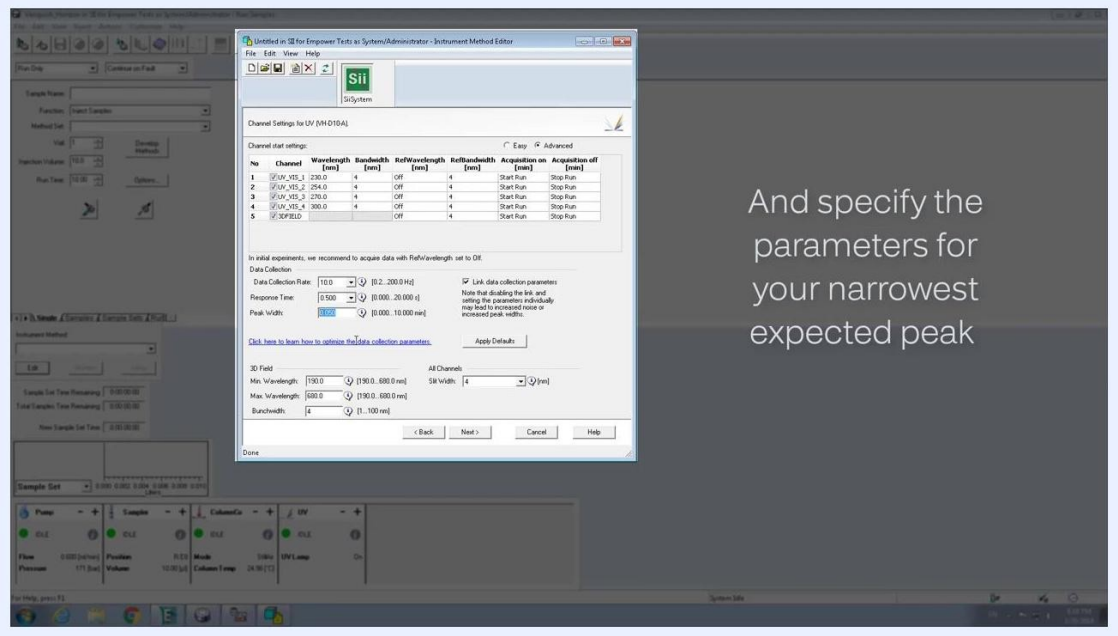
Set the **Data Collection Rate** (for example, 10.0 Hz), **Response Time** (for example, 0.500 s), and **Peak Width** (for example, 0.050 min), and configure the 3D Field and All Channels parameters as needed. Click **Next** to continue.

## Step 9: Specify parameters for your narrowest expected peak

Still in the **Channel Settings for UV** window, set the data collection parameters to match your narrowest expected peak:

- Data Collection Rate: 10.0 Hz (range 0.2–200.0 Hz)
- Response Time: 0.500 s (range 0.020–20.000 s)

- Peak Width: 0.050 min (range 0.010–10.000 min)




**Channel Settings for UV window showing parameters for the narrowest expected peak**

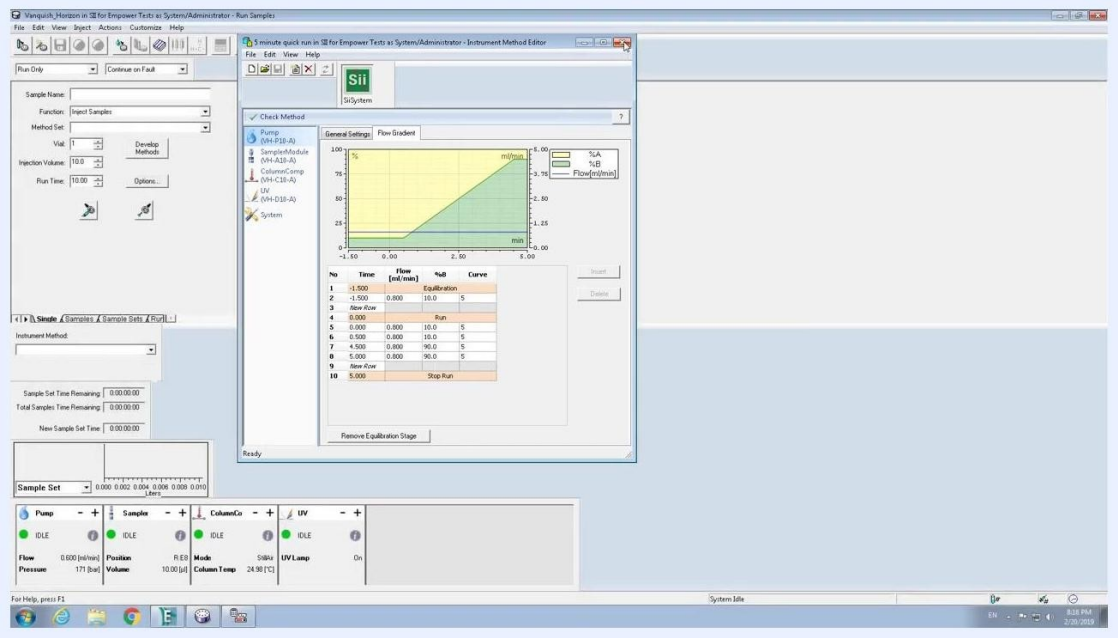
Check **Link data collection parameters** if you want these settings synchronized across all channels. Adjust the 3D Field and All Channels parameters as needed:

- Min. Wavelength: 190.0 nm
- Max. Wavelength: 680.0 nm
- Slit Width: 4 nm
- Bunchwidth: 4 (range 1–100 nm)

Use **Apply Defaults** at any time to revert to recommended settings, and consult the help link for guidance on optimizing data collection parameters.

## Step 10: Save and name your method file

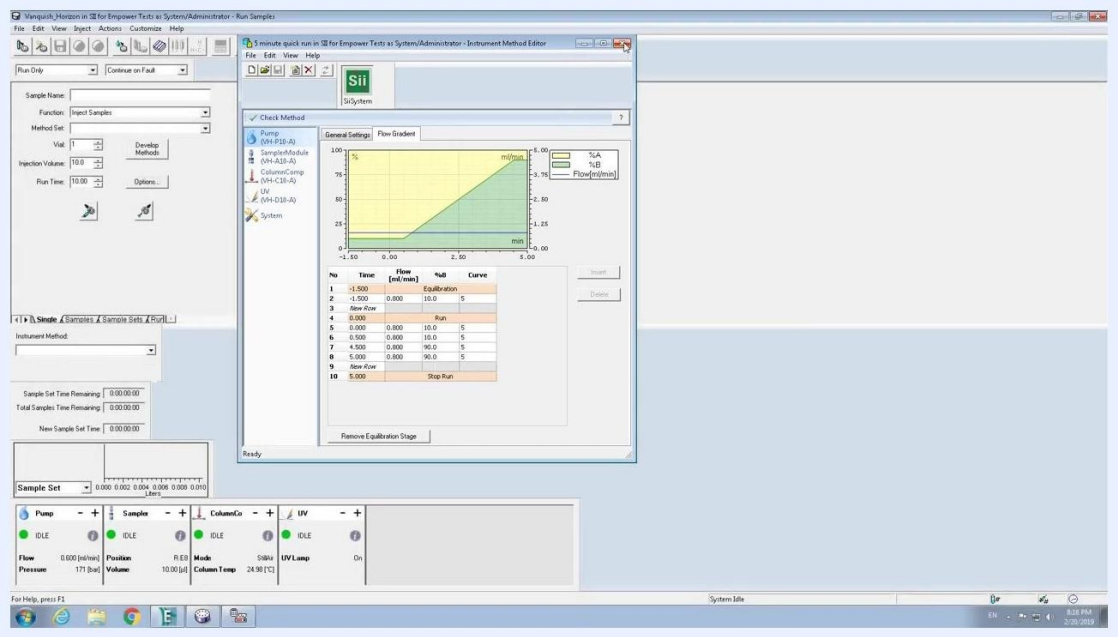
With all settings finalized in the Instrument Method Editor, use the save functionality (typically available from the File menu or the save icon) to store your method under a descriptive name. Confirm that the method now appears in your method list for future selection.



**Instrument Method Editor with the instruction to save and name your method file**

## Step 11: Find and select your new method

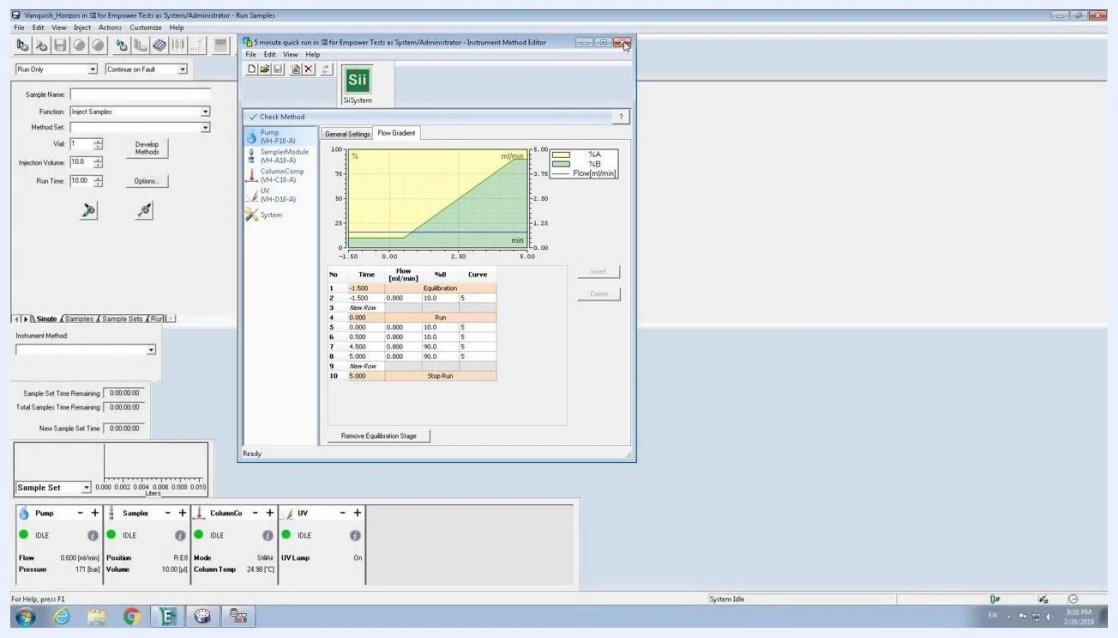
Return to the Empower home page or the main Run Samples screen. Your newly created method is now available there. In the **Instrument Method** dropdown, select your new method (for example, "5 minute quick run").



**Empower home page showing where to find your newly created method**

## Step 12: Set up the system for sample runs

With your method selected, click **Setup** to configure the system for sample analysis. Confirm that all modules (Pump, Sample, ColumnComp, UV) show the "IDLE" state and that the method parameters are correctly loaded and displayed.



**Empower Run Samples screen with the method selected and the Setup button highlighted**

## What's next

Your instrument method is now saved and ready for use. You can select it from the **Instrument Method** dropdown whenever you set up a new sample run, and continue configuring your sample set and acquisition parameters as required for your analysis.