EL-CELL®
electrochemical test equipment

Installation & Quick Start Guide

Release 1.5

For EL-Software Version 3

© 2026 EL-Cell GmbH

The information in this manual has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies.

EL-Cell GmbH maintains the right to make changes without further notice to products described in this manual to improve reliability, function, or design. EL-Cell GmbH does not assume any liability arising from the use or application of this product.

EL-Cell GmbH

Tempowerkring 8

21079 Hamburg - Germany

phone: +49 40 79012-734

e-mail: info@el-cell.com

web: el-cell.com

Technical support

phone: +49 40 79012-734

e-mail: support@el-cell.com

web: el-cell.com/support/technical-support/

Content

1 Introduction 4

2 Requirements 5

2.1 Hardware Requirements 5

2.2 Software Requirements 6

2.3 Network Requirements 6

3 EL-Software Server (and Client) Installation 7

4 Prepare Network for PAT-Tester Connection 9

4.1 Setting Up a Direct Connection Using the Predefined IP 10

4.2 Setting Up With a Router Using DHCP 11

4.3 Testing the Connection 12

4.4 Troubleshooting 12

5 Connecting the PAT-Tester 13

5.1 Changing the PAT-Tester IP 15

6 Create Your First Experiment 16

7 User Manual 19

1 Introduction

This quick start guide explains how to set up and commission your PAT-Tester. Please read it carefully before you begin.

The main hardware components are a computer (sometimes known as the LAB-PC) and the PAT-Tester, which are connected via an Ethernet network.

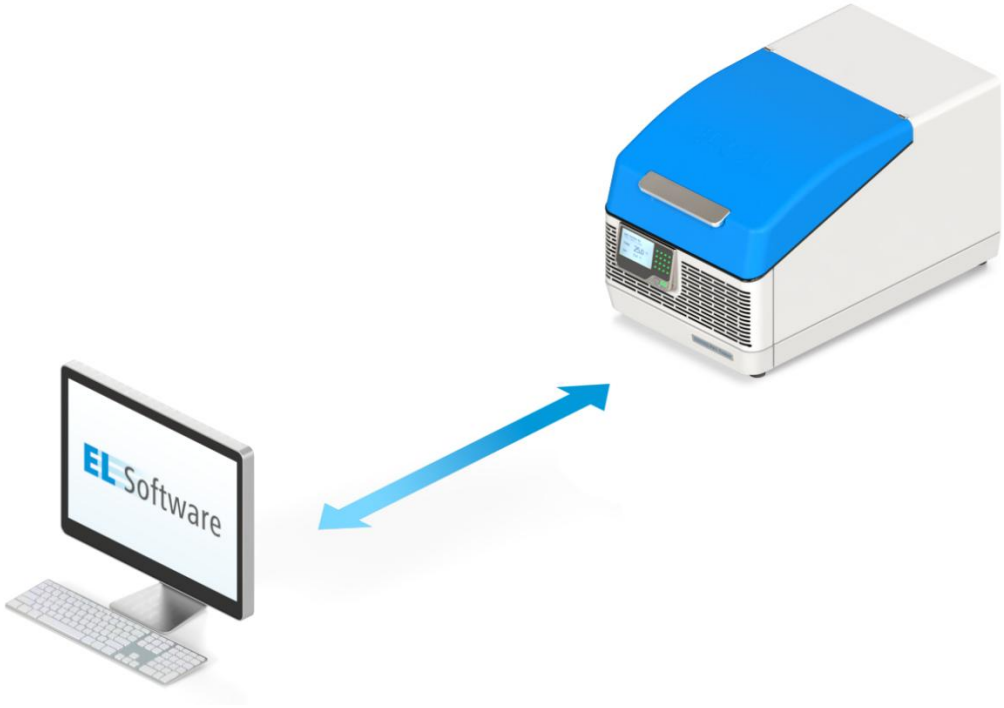

Figure 1: Computer and PAT-Tester Connection

The main software component is the **EL-Software Server** (referred to as the server), which handles the logic and hosts a Web Client (referred to as the client).

The client is a graphical web interface for controlling and working with PAT-Testers. An installation is not necessary since it is hosted by the server. It can be accessed by any computer within the network if configured by the administrator.

The server handles the core operations, stores data in the database, and communicates with the PAT-Testers.

2 Requirements

2.1 Hardware Requirements

These are the minimum requirements for the hardware.

	EL-Software Server	Web Client
CPU	Intel i5-12400 or comparable Intel Xeon or AMD64 processor	Intel i5 or similar performance
GPU		Modern integrated GPU or dedicated GPU
RAM	16 GB	8 GB
Free disk space	1 GB SATA-SSD	500 MB HDD
Network	1 Gbit	1 Gbit
Display Resolution	-	1366 x 768 pixels and higher

PLEASE NOTE
EL-Software is scalable software designed for simultaneous operation with multiple PAT-Testers. The hardware requirements depend on the number of test channels used simultaneously and on the measurement data generated by the measurement protocols, and are thus variable depending on the application**. Therefore, the EL-Software Server's hardware requirements should only be a guideline for operating a system with up to 16 test channels.**

2.2 Software Requirements

	EL-Software Server	Web Client
Operating System	Windows Server 2022 Windows 10 (x64) 22H2 or later Windows 11 Linux Ubuntu 18.04*	Windows 10 (x64) 21H2 or later Windows 11 macOS 26 Linux x64
Other	Microsoft Visual C++ 2015-2022 Redistributable (x64)	Up-to-Date Edge/Firefox/Chrome Browser

*Only PAT-Tester and Appliance

2.3 Network Requirements

This table is for reference when configuring a firewall and other network equipment.
Relevant network ports are:

Device	Port	Protocol	Description
EL-Software Server	4711	HTTP (and WebSockets)	Obsolete and can be blocked.
EL-Software Server	5711	HTTPS (and WebSockets)	Required for accessing the web client.
EL-Software Server	5432		The database port is used locally and can be blocked.
EL-Software Server (on Appliance and PAT-Tester)	445	SMB	Access to script data exports
PAT-Tester	22	SSH	Used for administration only and can be blocked.
PAT-Tester	4712	HTTP (and WebSockets)	Required by the server for the connection
PAT-Tester	5712	HTTPS (and WebSockets)	Required by the server for a secure connection

3 EL-Software Server (and Client) Installation

This section describes how to install the server component on Microsoft Windows Server or Microsoft Windows.

1. Download the EL-Software from the EL-Cell website:
   https://www.el-cell.com/products/el-cell-software/el-software/#downloads

2. Once the download is complete, start the installation.

3. Select *Server Components* and click *Next* (1).

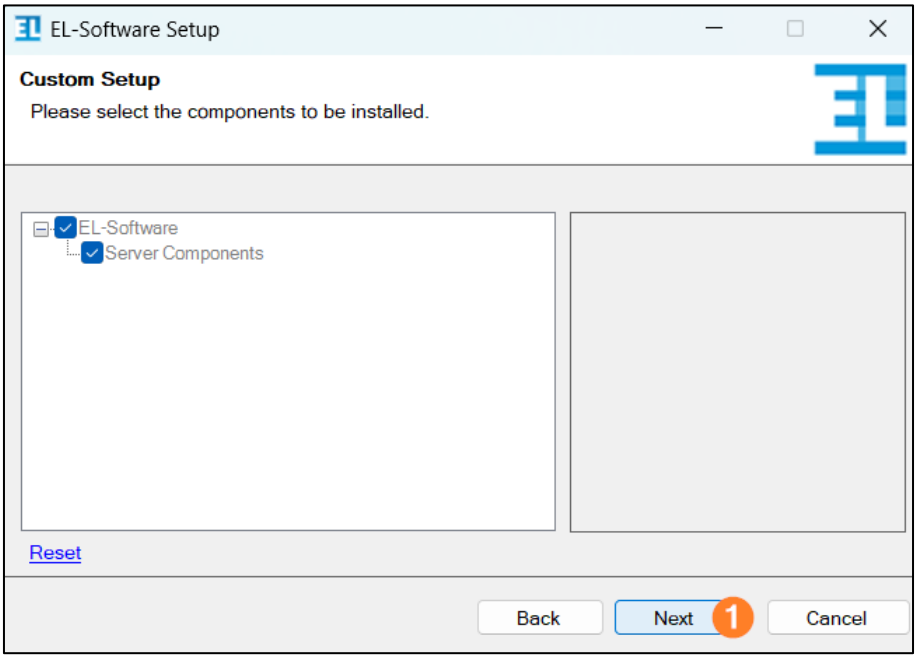

Figure 2: Component Selection on Installation

4. Review the predefined database settings. If a separate SSD is available, use it for the database: scripts can generate large amounts of data that may otherwise fill the system disk.
   Click *Next* (1) to confirm.

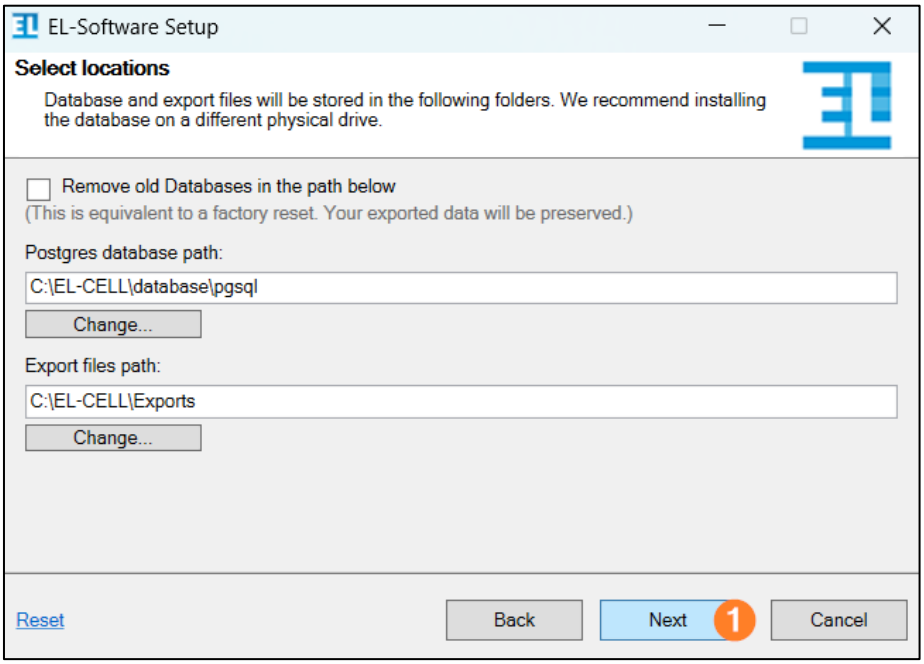

Figure 3: Database Settings on Installation

5. When installation is complete, start the EL-Software Client from the Windows Start menu, or open the local web client at **https://localhost:5711**.

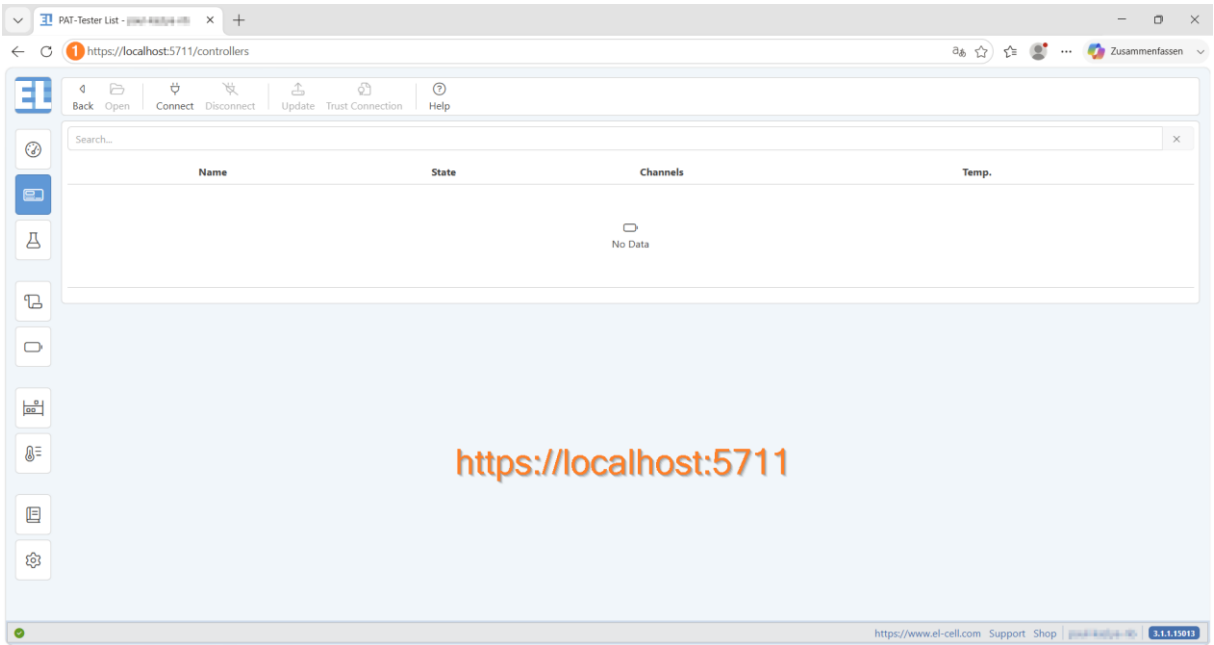

Figure 4: Web Client

4 Prepare Network for PAT-Tester Connection

Configure the network before connecting the PAT-Tester. The PAT-Tester can be connected through a direct LAN connection, a switch, or a router with DHCP enabled. This chapter covers each option.

Understanding IP Configuration

Predefined IP: Starting in 2025, the PAT-Tester has a predefined static IP address set to 192.168.67.67. This is typically used for a single PAT-Tester **directly connected** to a computer. If multiple PAT-Testers are used, or if the PAT-Testers need to be integrated into an existing network, DHCP (as explained in the next section) is already prepared and should be used.

DHCP: Alternatively, the PAT-Tester can receive an IP address automatically from a DHCP server, typically provided by your network **router**. It is preconfigured and recommended for most installations. To find the assigned IP address, check the router's admin page or ask your IT administrator.

PLEASE NOTE
In some cases, the assigned IP address may change. Configuring a static lease on the DHCP server/router can prevent changes to the IP address.

4.1 Setting Up a Direct Connection Using the Predefined IP

For a direct connection, first configure the IP address of the computer running EL-Software. For example, set it to 192.168.67.2 with a subnet mask of 255.255.255.0 (equivalently written as /24 or 24). Make sure this address does not conflict with another device on the network.

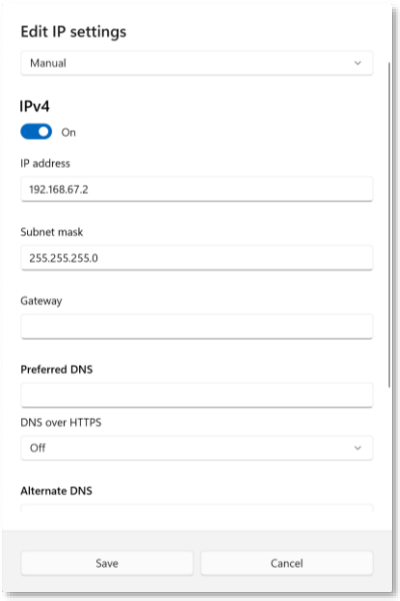

Figure 5: Network Configuration for Direct Connection on Windows 11

Connect the PAT-Tester to the client PC with a standard network cable. No additional network hardware is required.

Alternatively, connect the PAT-Testers through a switch to run several devices on the same network.

4.2 Setting Up With a Router Using DHCP

With DHCP, the server automatically assigns the PAT-Tester's IP address, so no manual IP configuration is needed.

The process for finding the PAT-Tester's assigned IP address varies by model.

- For the **PAT-Tester i16**, the IP address is shown directly on the device screen.
- For the **PAT-Tester x8**, check the connected router's administrative interface to find the device's IP address.

If network discovery is enabled on your computer, you can also browse the network for PAT-Testers and read the assigned IP address from the device's properties.

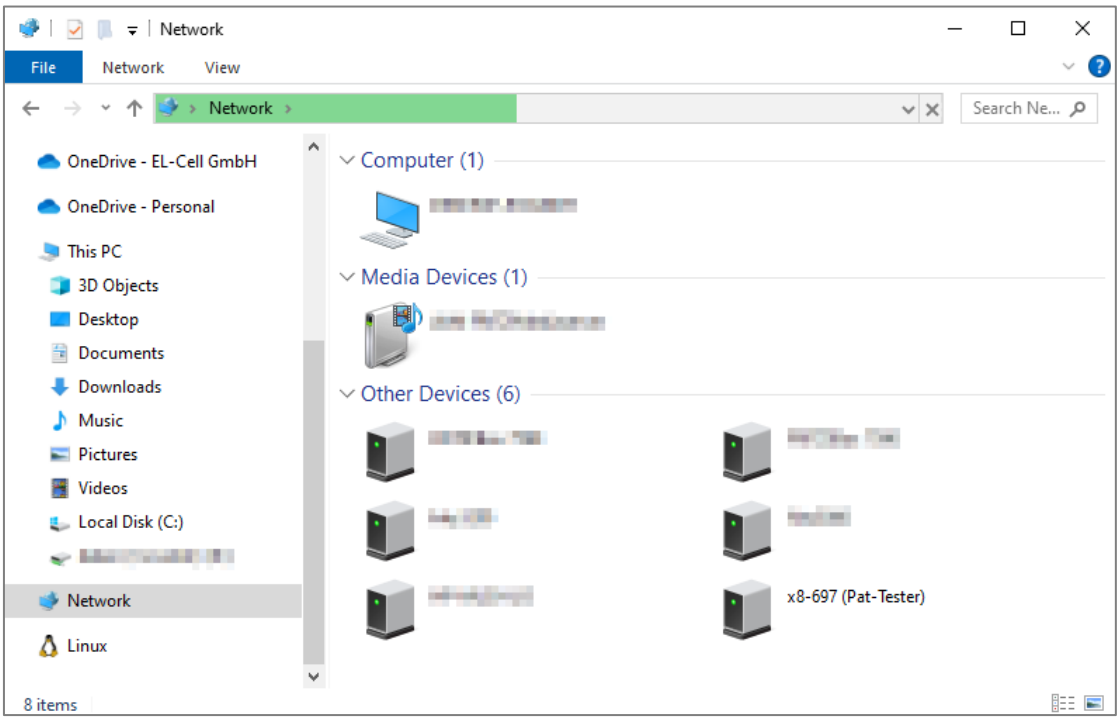

Figure 6: Network Devices discovered by Windows

4.3 Testing the Connection

First, check the LEDs on the network ports in use. Blinking LEDs indicate that a physical connection has been established.

Once connected — whether directly or via DHCP — test the connection to the PAT-Tester. Open a web browser and navigate to https://[PAT-Tester-IP]:5712, replacing [PAT-Tester-IP] with your PAT-Tester's IP address. Note that PAT-Testers with older software installed use http://[PAT-Tester-IP]:4712. This opens the administration page, which is described later.

If the administration page opens, the network is working.

PLEASE NOTE
Starting with Version 2.4, there will be a redirect to **https**://[PAT-Tester-IP]:5712. You may encounter a security warning due to an unknown certificate, but this can be safely confirmed in this case.

4.4 Troubleshooting

IP Conflicts: If you encounter IP conflicts, refer to the later chapter, "Connecting the PAT-Tester," for instructions on changing the PAT-Tester's IP.

If the DHCP Lease expires and the PAT-Tester IP has changed, consider using a static lease or setting up a static IP**,** as detailed in "Connecting the PAT-Tester."

Using Router WAN or ETH1 Port: Use other ports designated for LAN connections.

Check Network: If the PAT-Tester Administration Page does not appear, run a network ping test to verify connectivity.

If the connection still cannot be established, contact EL-Cell technical support.

5 Connecting the PAT-Tester

Launch the client from the Start menu.

Have the PAT-Tester's IP address from the network setup ready.

In the client, click *PAT-Testers* (1) in the left navigation menu, then click *Connect PAT-Tester* in the toolbar. The Connect PAT-Tester wizard opens at the first step. Click *Next* (2) to continue. If the PAT-Tester is not yet reachable over the network, use *Create USB Drive with Network Configuration* (3) to prepare its network settings first (see "Changing the PAT-Tester IP").

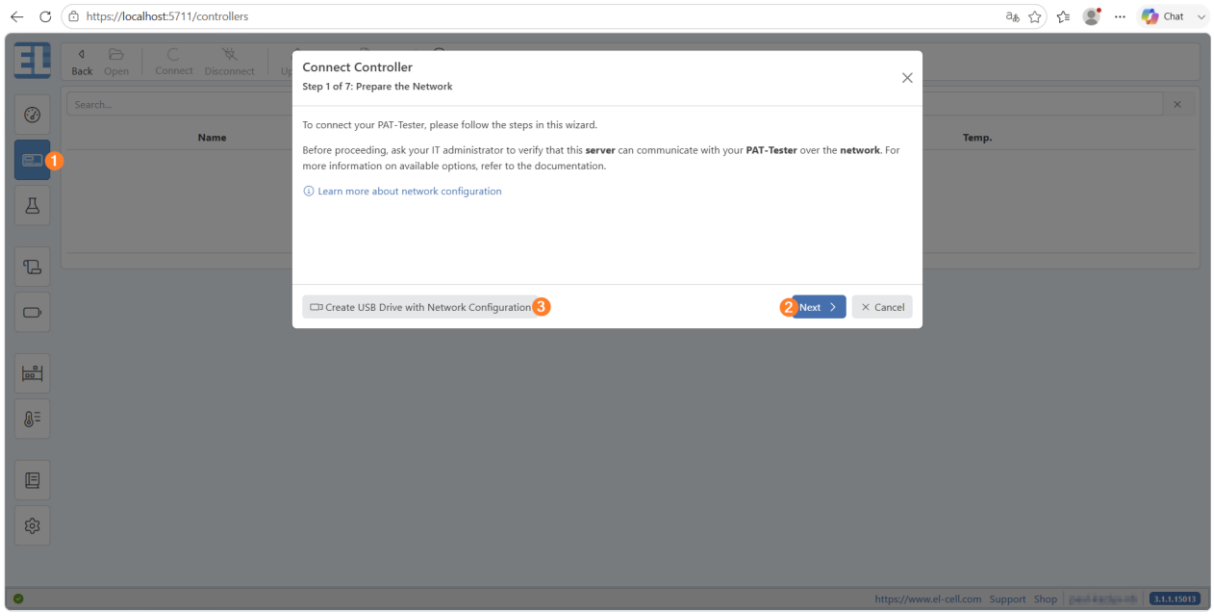

Figure 7: Connect PAT-Tester

In Step 2, click *Start Discovery* (1) to search the network for PAT-Testers, then select your device from the list (2). If discovery returns no results, click *Skip* (3) and enter the name and IP address manually in the next step.

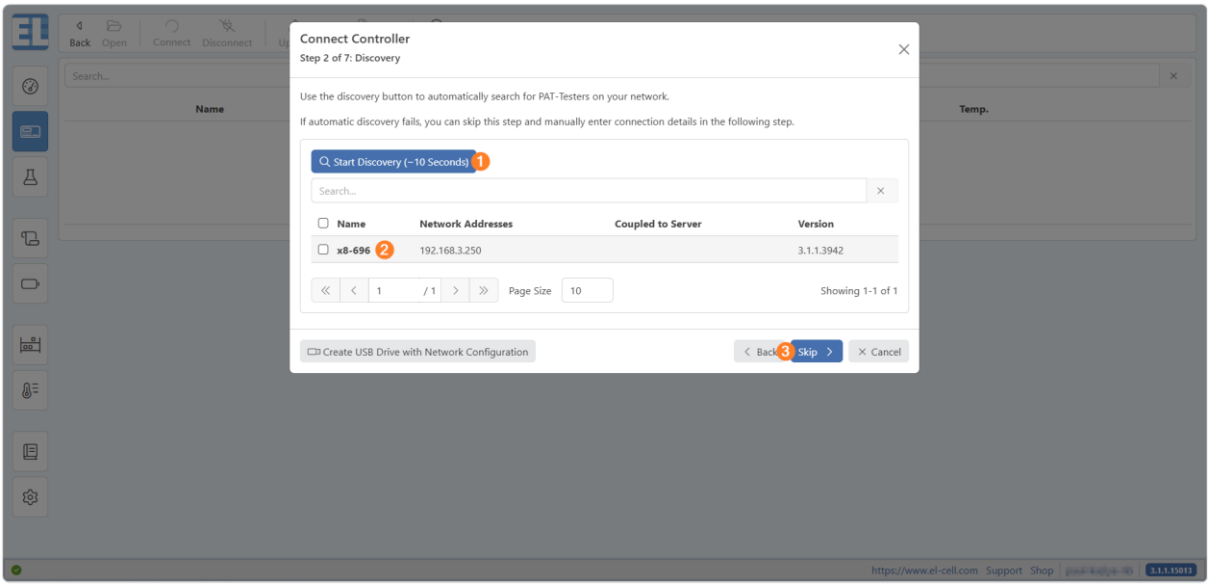

Figure 8: Select PAT-Tester to Connect

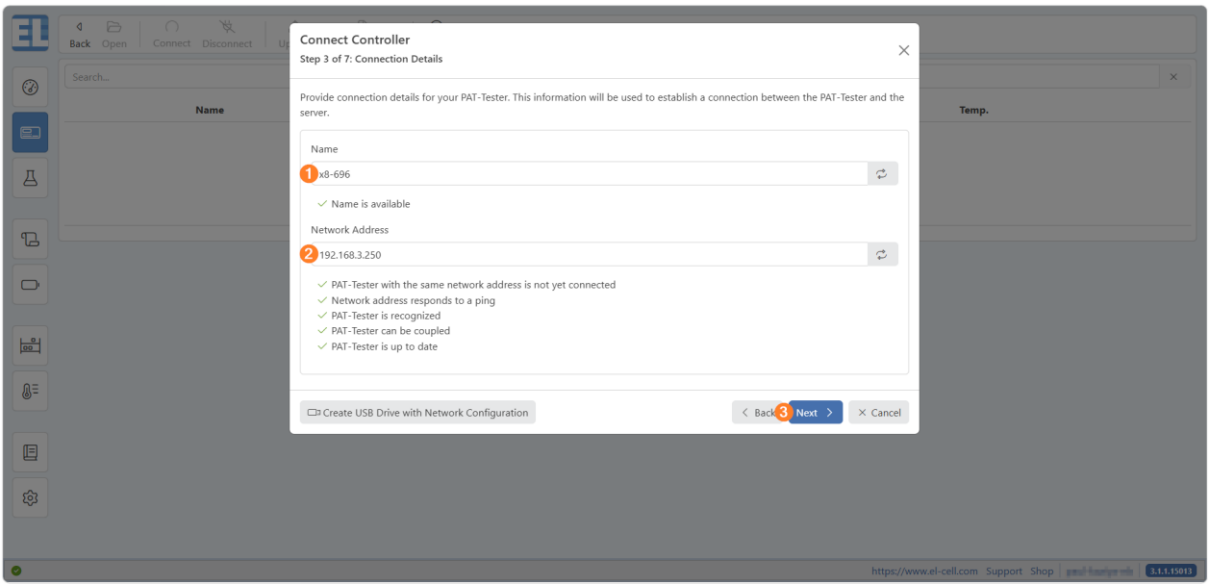

Figure 9: Confirm Connection Details

In Step 3, confirm the connection details. Check the *Name* (1) and *Network Address* (2) of the PAT-Tester. The wizard verifies that the address responds, that the PAT-Tester is recognised, and that it is available for coupling. When all checks pass, click *Next* (3) to establish the connection and complete the remaining steps of the wizard.

5.1 Changing the PAT-Tester IP

If a different network configuration is needed, prepare it as follows:

Go to *PAT-Testers* (1), select the device, and open the "Connect PAT-Tester" dialogue.

Then click *Create USB Drive with Network Configuration* (2).

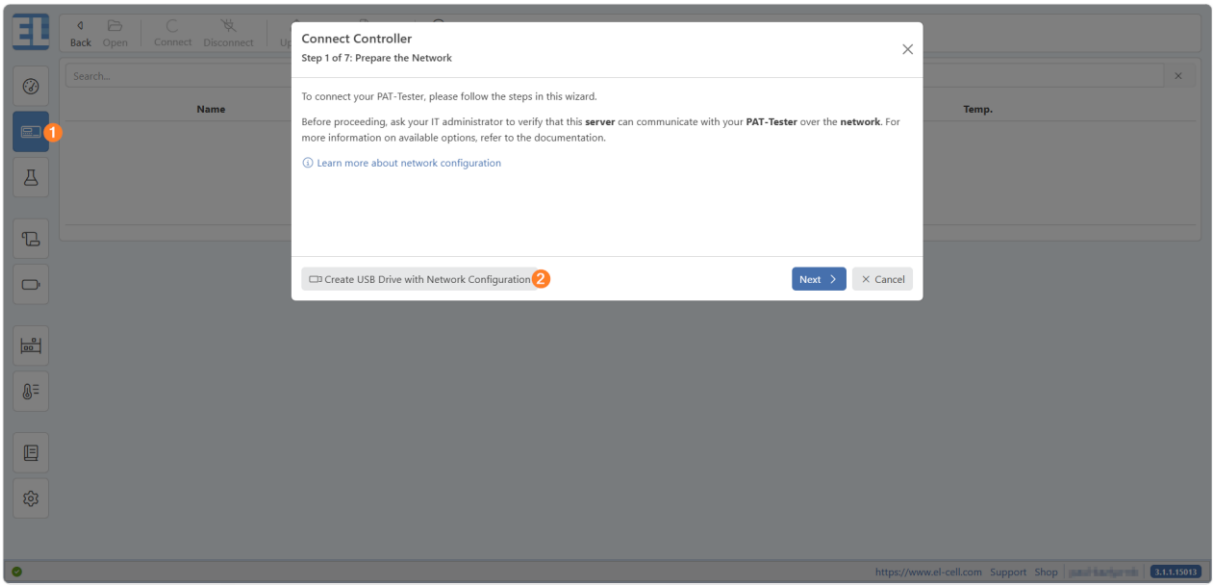

Figure 10: Change PAT-Tester IP

Select *Static IP* (1), then enter the IP address and subnet in CIDR notation (2) — for example, 192.168.67.67 / 24. Note the requirements (3): the USB drive must be formatted as FAT32 or NTFS, and the configuration file must be saved to the root of the drive as 01-netcfg.yaml. Do **not** use the same IP as the server (192.168.67.2). Click *Download Configuration* (4) to generate the file.

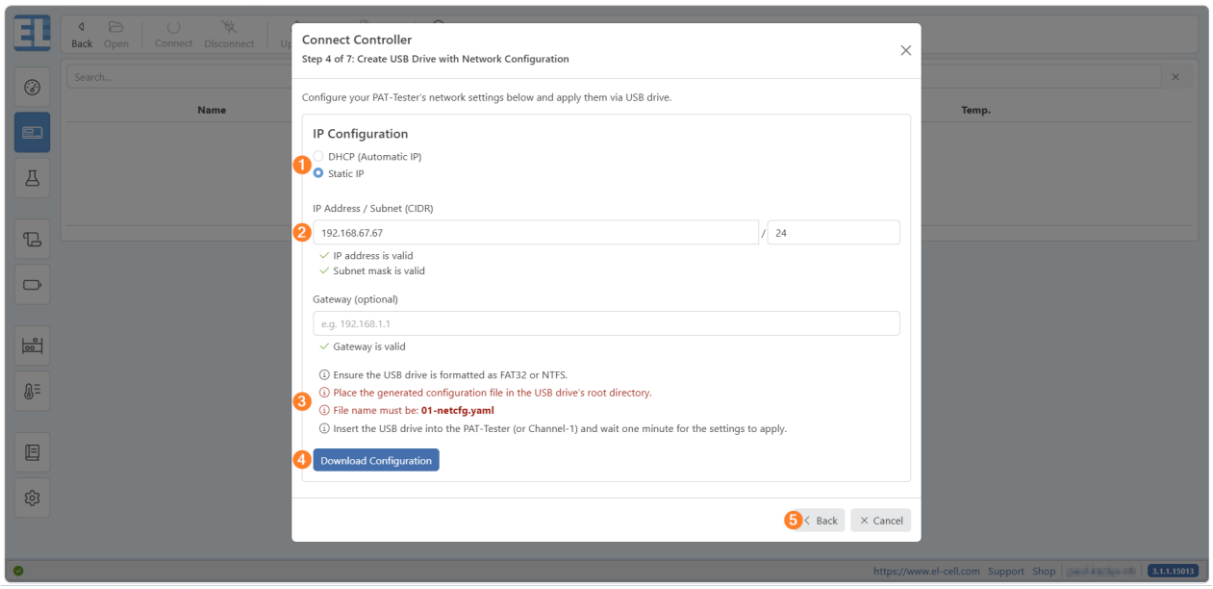

Figure 11: Enter New IP for the PAT-Tester

Insert the prepared USB drive into the PAT-Tester (or into Channel-1) and leave it in place for about one minute until the settings are applied. Then remove the USB drive.

6 Create Your First Experiment

Once the PAT-Tester is connected, you can create an experiment. Click *Experiments* (1) in the left navigation menu, then *New* (2) in the toolbar. In the New Experiment dialogue, enter a *Name* (3) and, optionally, a *Group Name* (4), then click *Create* (5).

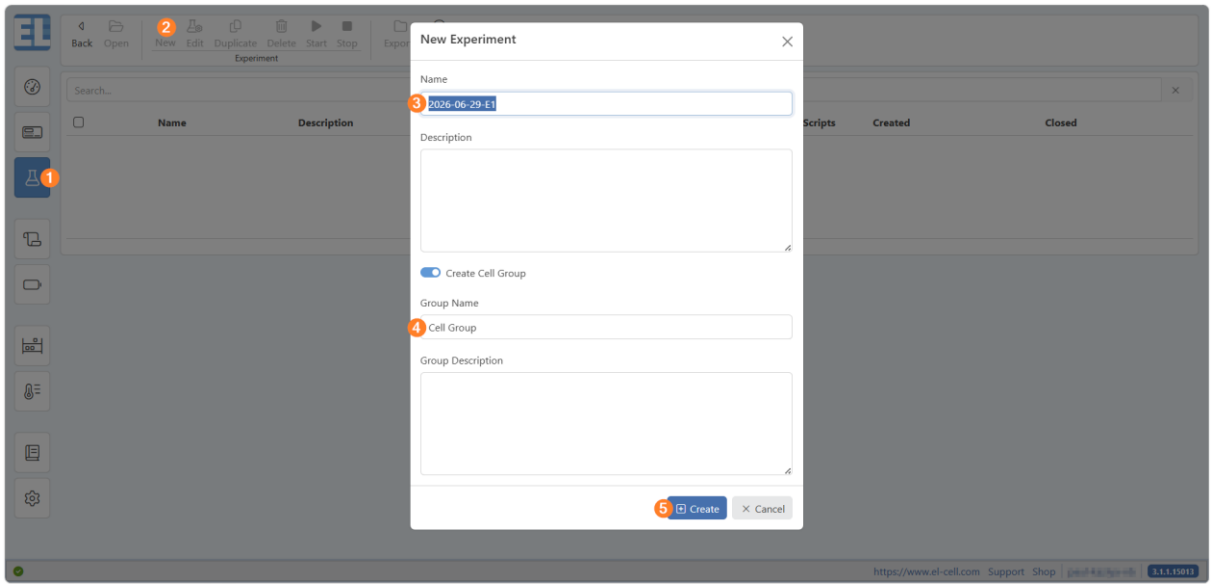

Figure 12: Create an Experiment

Make sure to insert a PAT-Cell in the PAT-Tester first. If the PAT-Cell has no PAT-Button, create a PAT-Cell manually in the client (to do this, click on *Test Cells* in the left menu, then *Create* in the toolbar). In the experiment's Test Cells section, use *Add Test Cell* (1) and select your cell from the list (2).

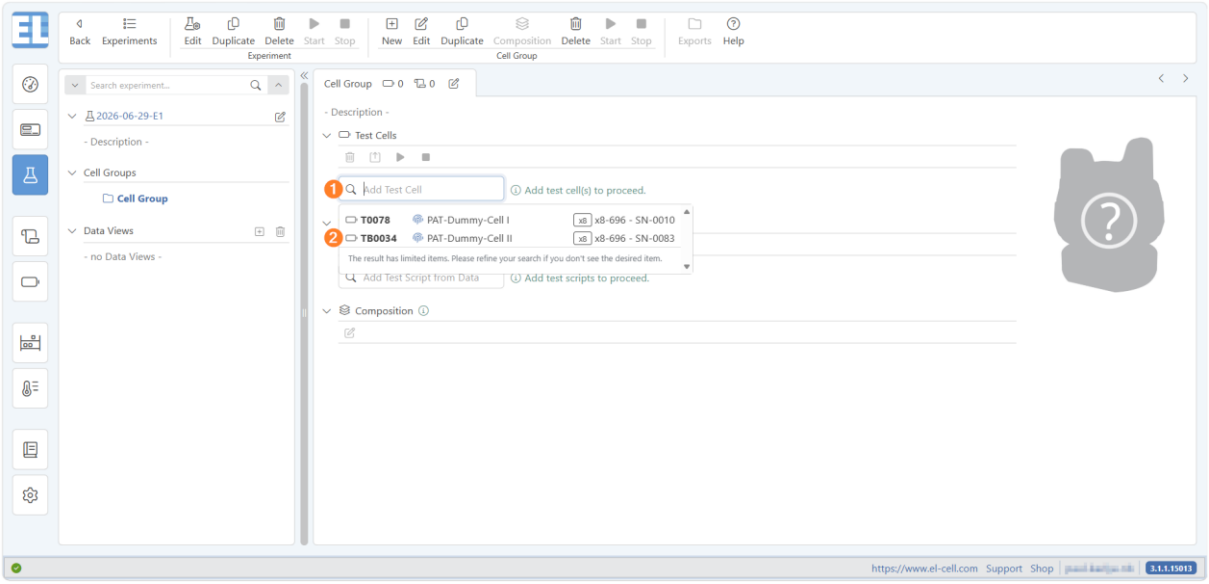

Figure 13: Select a Test Cell

Now add a script to the experiment. In the Scripts section, use *Add Test Script from Database* (1) and select a script from the list (2). The built-in scripts are configured to work with a Dummy Cell-II. To change the current and voltage limits, please click on the script name under *Scripts* to modify the script.

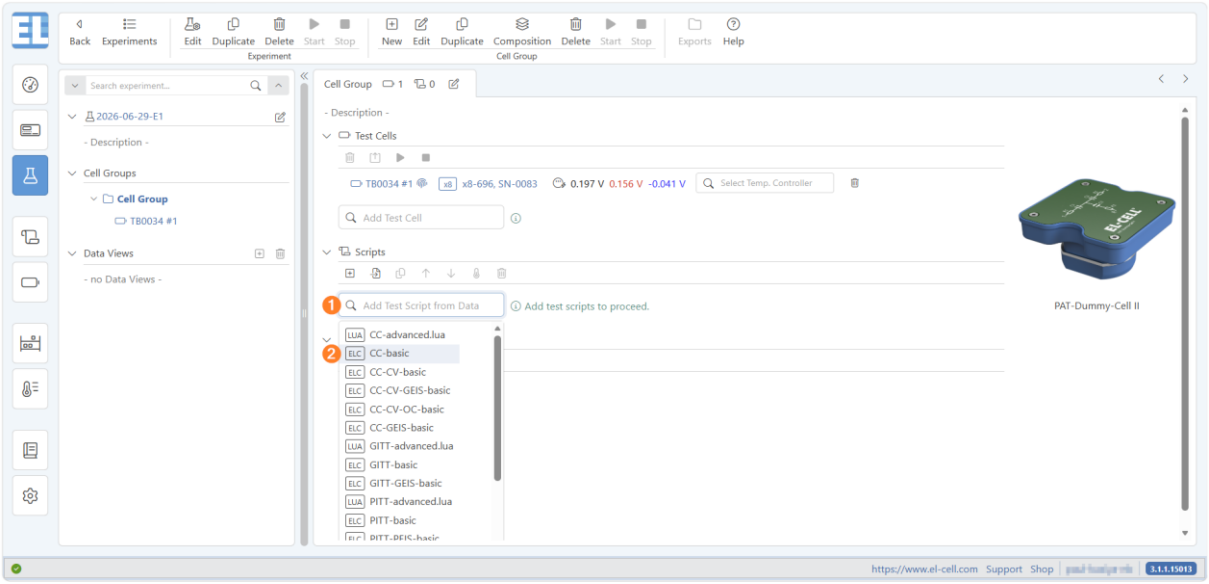

Figure 14: Select a Script

The experiment can now be started. Click Start (1) in the toolbar.

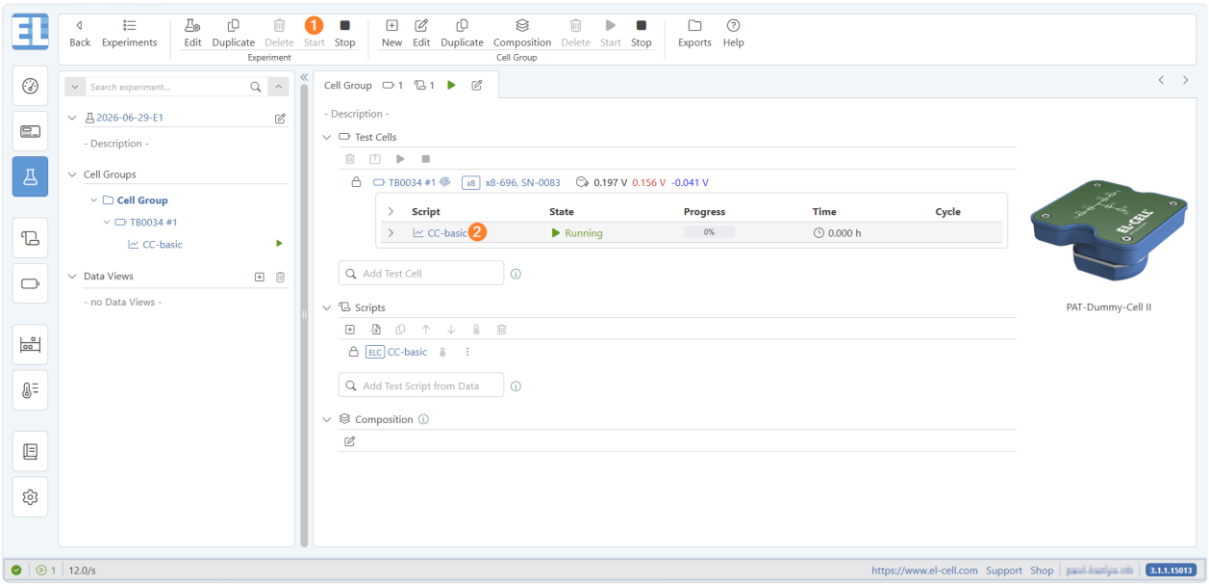

Figure 15: Start the Experiment and open the Data View

Click the running script name (2) in the Test Cells section to open the Data View. The measurement data is shown here. Use *Exports* (1) to download the recorded data.

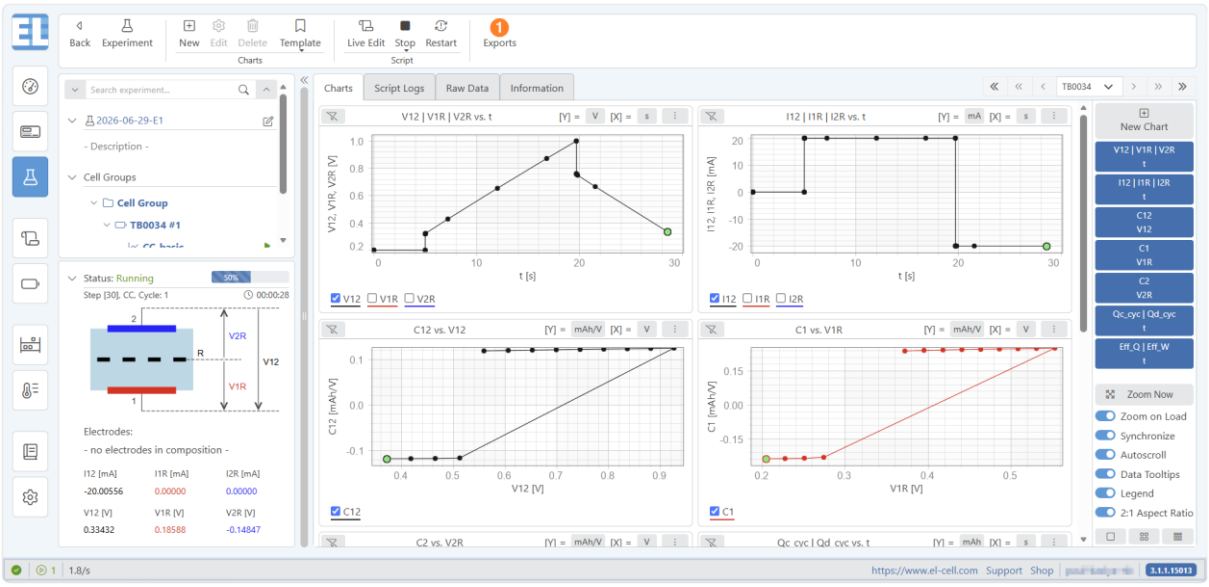

Figure 16: Data View

7 User Manual

For more information, see the built-in user manual (1) and navigate using the table of contents (2).

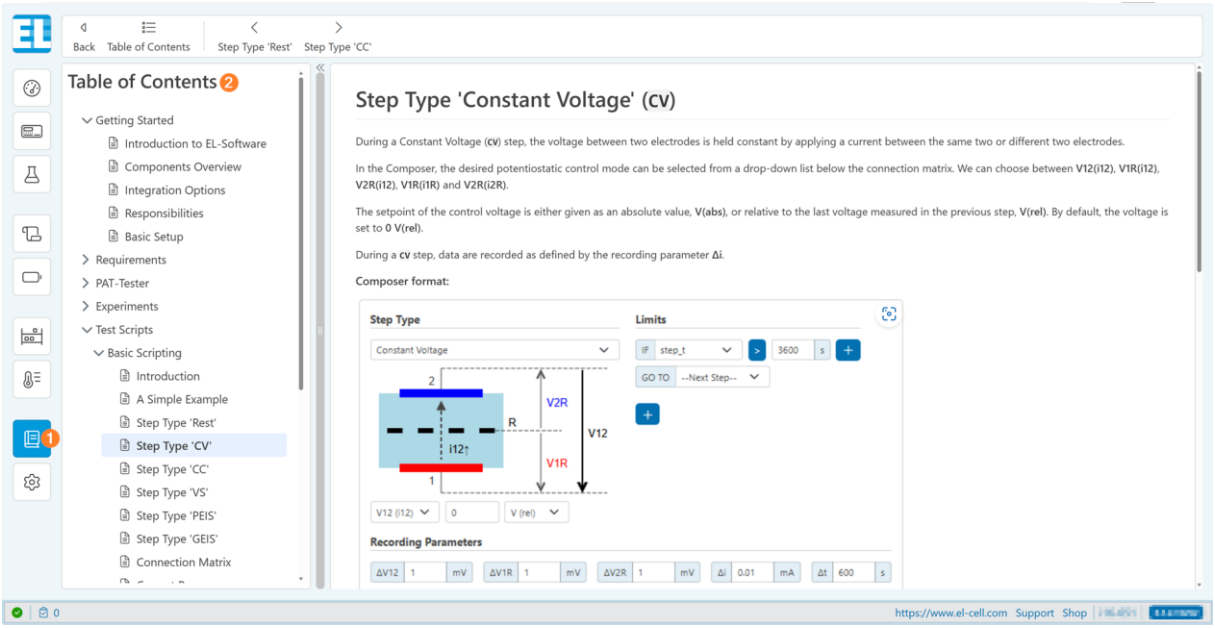

Figure 17: User Manual