

Appliance Manual Release 1.34

PAT-Tester

Management and setup instructions

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1 Appliance Setup Overview:

1.1 Scope of Delivery:



- 1. Router
- 2. Power supply with cable for router
- 3. Server PC
- 4. Power cable Server PC
- 5. PAT tester i-16
- 6. Power cable PAT-Tester
- 7. LAN cable (4 pcs.)



1.2 Explanation of Terms

Hardware components

<u>Client PC</u>: Physical or virtual PC on which the EL-Software Client is executed.

Server PC or EL-Server: Physical PC on which the EL-Software Server is running

<u>EL-Router</u>: Network router that manages the PAT-Tester network and provides the interface to the customer's network (Client Network)

<u>Client Network:</u> The customer's existing network infrastructure

PAT-Tester Network or Tester Network: Network of the appliance setup delivered by EL-Cell. The PAT-Testers are operated in this network.

Software components:

<u>EL-Software Client:</u> Client component of EL-Software that provides the graphical user interface (GUI).

<u>EL-Software Server:</u> server component of EL-Software that manages the PAT-Testers and contains the databases.

<u>EL-Software Controller</u>: Software component of EL-Software, which is installed directly on each PAT-Tester to control it.

Proxmox: Open source virtualization software used on the EL-Server to create and manage virtual PCs (containers).



1.3 Network Structure and Settings

EL-Router (supplied router hardware):

Access: <u>http://elrouter.el.lan</u>

User name: admin Password: changeit

Port settings

Port 1: Client Network (DHCP)

Note: Do not connect a PAT-Tester, Server, or EL-Software Client PC directly to port 1.

Port 2-10: Internal PAT-Tester network.

- *Server*: Connect the EL-Server to Port 2.
- PAT-Tester: Connect all PAT-Testers from port 3 upwards.



• *EL-Software Client*: Connect the PC's running the EL-Software Client from Port 10 downwards.

Note: PCs running the EL-Software Client can access the EL-Server from both the client and the PAT-Tester network.

EL-Server (supplied server hardware):

Access::https://elserver.el.lan:8006

Username: root Password: changeit

SMB share for Microsoft Windows: \\elsoftware.el.lan\experiments

A community edition of Proxmox virtualization software is installed on the server. The server can be reached at <u>https://elserver.el.lan:8006</u> when using the supplied EL-Router.

The EL-Server hosts a virtual Linux Ubuntu 18.04 container (elserver) running the EL-Software Server. As a default, the elserver container has the static IP: 192.168.10.20

2 Setting up the Appliance Hardware

Connecting the router to the server PC

1. Connect the yellow LAN cable to LAN port 2 of the router.



2. Connect the cable to the LAN port of the server PC.





Connecting the router to the PAT-Tester-i-16

3. Schließen sie nun das rote LAN-Kabel an den LAN-Port 3 des Routers an.



4. Entfernen sie die Frontblende des PAT-Tester-i-16, um den LAN-Port freizulegen.





5. Schließen sie dann das LAN-Kabel an den LAN-Port des Gerätes an.

Connecting the router to the Client PC (connected to the tester network)

6. Connect the green LAN cable to the router. Use ports 4 to 10 of the router for this purpose.





7. Connect the cable to the LAN port of the Client PC.

Connecting the router to the Client Network (recommended)

8. Connect the white LAN cable (White) to port 1 of the router. Connect the other end to the Client Network.



Connecting the devices to the mains and commissioning

9. Connect the router to the power supply using the supplied power adapter.



10. The router now starts. It is ready for operation after approx—1 minute. A green LED will light up continuously if connected to the Client Network.



- 11. Connect the server PC to the power supply via the cable.

12. Switch it on. The green power LED now lights up green. The server boots and is ready for operation after approx—1 minute.





13. A green LED will now light up on the router on the port connected to the server PC.

14. Now, connect the PAT-Tester-i-16 to the power supply. Here, too, the front panel must be removed beforehand.



15. A green LED will now light up on the router on the port that is connected to the PAT-Tester-i-16.



16. "booting" is now shown on the display of the PAT-Tester-i-16.



The boot process is completed as soon as the PAT-Tester has received an IP address from the router. This is now shown on the display



Optional: If the Client PC is connected to the tester network

17. Turn on the Client PC. Make sure that it is registered in the network and that the green LED on the router lights up.



2.1 Connecting the EL-Software Server to the PAT-Tester

1. Start the EL-Software Client and select the "Devices" item in the tree structure. Click on "Connect new Device."

verview	S	Devices				
Devices		(F)	16: M	0 0	****	
Experiments		Connect new Device	Open Delete	Reload Transport N	Aode Device IP	
Master Data						
Test Cells		Y Search				
		Nome A State	Channels total	Channels available	Channels testing	Temperature

2. A popup shows the available PAT-Testers, in this example, a PAT-Tester-i-16. Select it and then click on "Create." This will connect the tester to the EL-Software Server.

Connect new Device Available Devices (1) i16-651		
Name e.g.: Tester 01 Connection Settings		
e.g.: tcp://tester01.local.4712 Testertype	Ŷ	
	Create Cancel	

Connect new Device	
Available Devices (1)	
2 i16-651	
Name	
Connection Settings	
tcp://192.168.1.80:4712/	
Testertype	
i-16	*
	Crerte Sancel

3. The PAT-Tester-i-16 appears as an entry in the Devices list. It is now connected to the EL-Software Server and ready for use.

Dverview	Devices					
Devices 116-651 Experiments	Connect new Device Open	© Celete Relcad Transport Mode Device № Update				
Master Data	T least		×	Details		
10087 (Disassembled)	Name * State	Channels total Channels available Channels testing Temperature		General		
TD072 (Disasterebled)	i16-651 Processing	16 14 0 -				
				URL	REP//192.106.12056/122	
				1904		
					PAT-Tester i-16	
					4.0 Mail	
				Channels	10-01 Total 15. Available 14. Totage 0	
					the to reason to the start of	
				Utilisation		
				Technical Details		
				Operating System	1.0.0	
				Controller Version	1.1.20.1924	
				Baddeers	10-03	
					 Concernation Control 	
				Log		Distances and
						Log-Messeges: 24 \$ 1/2 \$
				Timestamp 0 9/27/2022 15/21-16 A	Message M Added Channel SecielNumber (20055) Tune ChannelBoard	
				0 9/27/2022 11:21:16 A	M Added Channel, SenalNumber (000031, Typer ChannelBoard M Added Channel, SenalNumber (000631, Typer ChannelBoard	
				0 9/27/2022 11:21:15 A	M Added Channel, SerialNumber: 000651, Type: ChannelBoard	
				0 9/27/2022 11/21/18 A	MAdded Channel, Senarkumber (0005), Type Channelloard MAdded Channel, Senarkumber (00051, Type Channelloard	
				0 9/27/2022 11:21:13 A 0 9/27/2022 11:21:13 A	M Added Channel, SenalNumber (000651, Type: ChannelBoard M Added Channel, SenalNumber: (000651, Type: ChannelBoard	
				0 9/27/2022 11:21:12 A 0 9/27/2022 11:21:12 A	MAdded Channel. SerialNumber: 000651, Type: ChannelBoard MAdded Channel, SerialNumber: 000651, Type: ChannelBoard	
				0 9/27/2022 11:21:12 A	M Added Chennel. SenalNumber: 000651, Type: ChannelBoard	
				0 9/21/2022 13:21:12 A	MAdded Channel, SenalNumber: 000051, Type: ChannelBoard	
				9/27/2022 11:21:12 A	M Added Channel, SenalNumber: 000651, Type: Channellicard M Added Channel, SenalNumber: 000651, Type: MainBoard	
				0 9/27/2022 11/21/12 A	M Added Channel, SenalNumber (000651, Typer ChannelBoard M Added Channel, SenalNumber (00051, Typer ChannelBoard	

3 EL-Software Setup and Management

3.1 Installing the EL-Software Client

3.1.1 Obtaining via the EL-Software Server

The EL-Software Server contains an installation version of the EL-Software Client, which can be used for setup on any number of Client PCs.

Please note: Only the EL-Software Client can be installed via this file. For installing the EL-Software Server, you need the installation package, which can be downloaded from the EL-Cell website.

3.1.1.1 Preparing for installation

If the Client PC is connected directly to the tester network: Open the web browser on the Client PC. Enter the address **192.168.10.20:4711.**

If the Client PC is connected to the Client Network, the IP address must be known, which the EL-Router has received in the customer network. The system administrator can determine this. Open the web browser on the Client PC. Enter the address **XXX.XXX.XX.XX:4711** (replace X with the determined IP address of the EL-Router)

Now click the "Download Client" button to download the .bat file.



3.1.1.2 Performing the Installation

Run the .bat file on the Client PC you downloaded in step 3.1.1. A system window will open. Press any key to run the installation process.

C:\Windows\system32\cmd.exe	-	×
please close all running instances of El-Software before!		^
brocken sie eine beilebige faste		
		~



3.1.2 Obtaining via the EL-Cell website (.msi installation file)

An installation file in .msi format can be downloaded from the EL-CELL website, which can be used to install both the EL-Software Server and the EL-Software Client.

3.1.2.1 Preparing for installation

Download the EL-Software Installer from the EL-Cell website. Extract the zip file and execute the included Windows Installer file "Setup-EL-Software-win10...".

Downloads		
	EL-Software Download	
	Release	1.1.10 Build 7570
er saftware	Туре	msi Installer (zipped)
	Size	295 MB
	Operating System	Windows 10 x64
	Content	Client & Server Installation
Source Dable spackage		
Release	1.1.10.757	
Туре	deb	
Size	143 MB	
Size		



3.1.2.2 Performing the installation

1. Double-click the provided installer file. The installation wizard will open, guiding you through the installation process. Click "Next" to continue.



2. Select the client component. Click "Next" to continue.

IL-Software Setup			_		\times
Custom Setup Please select the components to be installed.					
Client					
	Back	Next		Car	cel

3. If the Client PC is directly connected to the Tester Network: Enter the hostname of the server you want the client to connect to. The default server name is *elsoftware*. Use the Button "Test Connection" to check the connection to the server. Click "Next" to continue.

EL-Software Setup				_		×
Select database locat Database files will be installing the databas	tions and stored in ses on diffe	server hostnam the following folde erent physical drive	e rs. We strongly i es.	recommend	1	
Currently Databases a	ases in the ire not con	e paths below npatible when insta	alling a newer ve	rsion)		
Readmodel database p	ath:	N				
Change		-03				
Eventstore database pa	ath:					
Change Specify the hostname o	or IP of the	e server to which th	is client should (connect.		
elsoftware						
Reset	[Test Connection	Back	Next	Ca	ancel

If the Client PC is connected to the Client Network: In this case, the IP address must be entered, which the EL-Router has received in the customer network. The system administrator can determine this. Via the "Test Connection" button, you can check the connection to the server. Then select "Next" to continue.

4. The software components are now installed. When the Microsoft Windows User Account Control (UAC) window appears, press "Yes" to allow the installation.

nstalling EL-Software
Installing EL-Software
Please wait while the Setup Wizard installs EL-Software.
Please wait for UAC prompt to appear. If it appears minimized then activate it from the taskbar.
Back Next Cancel

5. Once the installation is complete, you must restart the computer before you can use EL-Software. The restart is executed only after the wizard is finished.



6. Press "Finish" to exit the wizard.



3.2 Updating the EL-Software Client

Once the EL-Software Server has been updated, the client is automatically updated at the next start. The update is obtained directly from the EL-Software Server.

3.3 Removing the EL-Software Client

The EL-Software Client is uninstalled differently depending on the source it was obtained from (EL-Cell website or EL-Software Server).

3.3.1 If Installation has been performed via the EL-Software Server

If the EL-Software Client was obtained and installed via the EL-Software Server, it has to be removed by deleting the installation folders. To determine the location of these folders, follow these steps. 1:

- 1. 1. Open the Windows Start menu via the taskbar or the Windows key.
- 2. Right-click on the entry of the installed EL-Software Client. 3.

Please note: It is possible to install the EL-Software Client multiple times. Each installation is connected to a different server. The name of the connected server is mentioned in the entry behind "EL-Software."

3. In the context menu, go to "more" and select "Open file location."

				100	
EL-Software	-#	Pin to Start			
		Mehr	>	뀩	Pin to taskbar
	Ŵ	Uninstall		5	Run as administrator
				D	Open file location
					Aus dieser Liste entfernen
				×	Liste löschen

4. A file explorer window opens with the EL-Software Client shortcut. Select it with the right mouse button and click on "Properties" in the context menu.

	Create shortco	t
•	Delete	
•	Rename	
	Properties	

5. Now select "Open file path."



6. A new file explorer window will open. Navigate one level higher by clicking on "Local" in the folder path of the explorer.

AppData	> Local >	ISoftware.Client_srveldeve	elcicd.el-cell.local		
	Name	^	Änderungsdatum	Тур	Größe
	1 ElSof	tware.Client.exe	08.09.2022 01:04	Anwendung	188.69
*	📄 ElSof	tware.Client.pdb	08.09.2022 01:04	PDB-Datei	76

7. Now, delete the whole folder. It has the same name as the entry in the Windows start menu. Now the EL-Software Client is uninstalled.



3.3.2 If the Installation was performed using the .msi Installer

If you have installed the EL-Software Client via the .msi installation file, offered as a download on the EL-Cell website, you have to uninstall it via the system control panel. Follow the steps below. 1:

1. 1. Open the Windows start menu via the taskbar or the Windows key.

2. Right-click on the entry of the installed EL-Software Client.

Please note: It is possible to install the EL-Software Client multiple times. Each installation is connected to a different server. The name of the connected server is shown in the entry behind "EL-Software" (example: "EL-Software example-server").

2. Now select the "Uninstall" option.



3. The Windows system dialog opens with a list of the installed programs on the Client PC. Select the entry of the EL-Software Client and click on Uninstall. This will remove the program from the Client PC.

Uninstall or change a prog	ram	· · · · · ·		
To uninstall a program, select it fro	m the list and then click Uninstall, Change, or R	Repair.		
Organize 🔻 Uninstall				
Name 6 ^	Publisher	Installed On	Size	Version
1 EL-Software	EL-Cell GmbH	9/29/2022	76.0 MB	1.1.16.7785

3.4 Installing the EL-Software Server

3.4.1 Installation on Microsoft Windows

The EL-Software Server installation file can be downloaded from the EL-Cell website.

3.4.1.1 Preparing for Installation

Download the EL-Software installation file from the EL-Cell website. Extract the zip file and execute the included Windows Installer file (.msi) "Setup-EL-Software-win10...".

electrochemical test equipment	Home: PAT Series 🗸 Prod	ucts 🗸 Services 🖌 Se	pport • About us • Contact • FAQ Q,
Downloads			
		EL-Software Download	
	1	Release	1.1.10 Build 7570
er software	1	Туре	msi Installer (zipped)
	1	Size	295 MB
		Operating System	Windows 10 x64
		Content	Client & Server Installation
A soweicop			
Type		1.1.10.7570 deb	
Size		143 MB	
A DOWNLOAD			
	E	L-Software User Manual	

3.4.1.2 Installing the EL-Software Server

1. Double-click the provided installer file. The installation wizard will open and guide you through the installation process. Click "Next" to continue.

EL -Software Setup	- 🗆 X
are	Welcome to the EL-Software Setup Wizard
Softwa	The Setup Wizard will install EL-Software on your computer. Click Next to continue or Cancel to exit the Setup Wizard.
	Back Next Cancel



2. Select the server components. If you want to use the EL-Software Client on this system at the same time, select it as well.

Click "Next" to continue.

I EL-Software Setup		-		×
Custom Setup				
			-	
Reset				
Back	Next		Can	cel

3. Select the storage locations for the databases. It is recommended to store each database on a separate physical hard drive.

Click "Next" to continue.

I EL-Software Setup	_		×
Select database locations and server hostname			
Database files will be stored in the following folders. We strongly n installing the databases on different physical drives.	ecommend	۰.	
Remove old Databases in the paths below			
(Currently Databases are not compatible when installing a newer ver	rsion)		
Readmodel database path:			
C:\EL-CELL\database			
Change			
Eventstore database path:			
D:\EL-CELL\database			
Change			
Specify the hostname of the server to which this client should conner	ct.		
localhost			
Reset Test Connection Back	Next	C	ancel

4. The software components are now installed. When the Microsoft Windows User Account Control (UAC) window appears, press "Yes" to allow the installation.

Installing EL-Software	
Installing EL-Software	王
Please wait while the Setup Wizard in	nstalls EL-Software.
Please wat for UAC prov. If it appears minimized th	npt to appear. en activate it from the taskbar.
	Back Next Cancel

5. Once the installation is complete, you must restart the computer before you can use EL-Software. The restart is executed only after the wizard is finished.

Installing EL-Software
Installing EL-Software
Please wait while the Setup Wizard installs EL-Software.
EL-Software Setup
Vou must restart your system for the configuration changes made to EL-Software to take effect. Click Yes to restart now or No if you plan to manually restart later.
Ja Nein
Back Next Cancel

6. Press "Finish" to exit the wizard

I EL-Software Setup	– 🗆 🗙
are	Completed the EL-Software Setup Wizard
- Softw	Click the Finish button to exit the Setup Wizard.
<u>View Log</u>	Back Finish Cancel

7. After restarting the computer and before the first use, the server's databases are set up. This process takes a few minutes, after which the software is ready to work.



3.5 Updating the EL-Software Server

3.5.1 Update on Linux

In case the EL-Software Server is installed on a Linux system, please follow these steps:

1. First, all running instances of the EL-Software Client must be closed.

If the Client PC is connected directly to the tester network, open a web browser and call the address <u>https://192.168.10.10:4711</u>.



If the Client PC is connected to the Client Network, the IP address that the EL-Router has received from the customer network must be known. This can be requested from the system administrator.

Open a web browser on the Client PC and go to <u>https://XXX.XXX.XXX.XX.4711</u> (replace X with the IP address of the EL-Router).

2. The browser now displays the currently installed version of the server. Click on "Check for Update."

electrochemical	test equipment
Server version	n: 1.1.19.8223
DOWNLOAD CLIENT	CHECK FOR UPDATE

Two options are offered to start the update of the EL-Software Server, an automatic update and a manual one. The automatic update requires an existing Internet connection.



3.5.1.1 **Performing the automatic update:**

8. Select "Check for new version" on the EL-Software Server webpage to determine the latest version. Check"Factory Reset" and click on "Update" to start the update process.

Please note: All settings will be reset to the factory settings during the update. Exported measurement data are not affected by this.

electrochemical test equipment
Automatic Update Manual Update
Automatic Update Instaled Version Instal
UPDATE
Check for new Version Installed Version
CHECK FOR NEW VERSION

1. The update process is now started. You will be informed about the progress via the status bar.

electrochemical test equipment	
O Automatic update started.	
Server update succeeded. Reloading page	
Automatic Update Manual Update	
Automatic Update Installed Version Installed Version <tr< td=""><td></td></tr<>	
Check for new Version Instaled Version 11,118,6236	
CHECK FOR NEW VERSION	

2. After the successful update, the page is reloaded, and the newly installed version of the EL-Software Server is displayed.

EL-C	EEE ® st equipment	
Automatic Update	Manual Update	
Version 4 Version 197555	CHECK FOR NEW VERSION	

3.5.1.2 Performing the manual update:

It is possible to perform a manual update. This can be useful if there is no direct Internet connection

1. Download the required server Debian package from the EL-Cell website and transfer it to the Client PC.

electrochemical test equipment	Home PAT Series 🗸 Produ	ucts 🗸 Services 🗸	Support • About us • Contact • FAQ Q
	1	EL-Software Download	
	1	Release	1.1.10 Build 7570
er software	1	Туре	msi Installer (zipped)
	5	Size	295 MB
		Operating System	Windows 10 x64
		Content	Client & Server Installation
A DOWNLOAD			
Server Debian package			
Relation		1.1.10.	7570
Type Size		deb 143 MF	3
		2.10.111	а.
	E	L-Software User Manua	at
Uner Vennet Al-fullmere	R	telease	1.05
	Ţ	ype	PDF
	s	ize	2.6 MB
± DOWNLOAD			

2. Click on the tab "Manual update" on the EL-Software Server webpage to change the view.

electrochemical test equipment
Automatic Update Manual Update
Manual Update Installed Version 1.1.19.8022 Server Debian Package Durchsuchen) Keine Datei ausgewählt.
Factory Reset (Required) All data will be deleted from the server. Measurement data stored in the exports folder are not affected.
UPDATE

Select the previously downloaded Debian package in deb file format. Then check the "Factory Reset" box and click on "Update" to start the update process.

Please note: All settings will be reset to factory defaults during the update process. Exported measurement data is not affected by this.

6	ELECTELL®
Manual installation of elso Server is disconnected. W	oftware.serverd_1.1.19.8236_amd64.deb started.
	Automatic Update Manual Update
Manua Installed	l Update Version
Server D. Durchs All d the o	bian Package uchen) Keine Datei ausgewählt. ory Reset (Required) ata will be deleted from the server. Measurement data stored in exports folder are not affected.
	UPDATE



3. After a successful update, the page is reloaded, and the installed version indicates the latest version.

electrochemical test equipment
Automatic Update Manual Update
Manuel Update Installed Version Interface erver Debianrackage Durchsuchen, Keine Datei ausgewählt. Factory Reset (Required) All data will be deleted from the server. Measurement data stored in the exports folder are not affected.
UPDATE

3.5.2 Performing the update on Microsoft Windows

Please follow these steps if the EL-Software Server is installed on a Microsoft Windows system. For the update, you need the current installation file of EL-Software, which you can obtain from the EL-CELL website. Follow the standard installation instructions as shown in the corresponding chapter. The existing installation of the EL-Software Server does not have to be uninstalled before the update.

3.5.3 Removing the EL-Software Server from a Microsoft Windows system

To remove EL-Software from your computer, uninstall it from the system control panel.

3.6 Performing the EL-Software Controller update

The EL-Software Controller component of a PAT-Tester can be updated via the EL-Software Client. To do this, the PAT-Tester must be connected to the EL-Software Server (see chapter 2.1). Then follow the steps below.

1. In the EL-Software Client, switch to the Device view and select the PAT-Tester whose controller you want to update.

If you expand the "Technical Details" area on the right, you will see the controller software version. If it appears in red font and is marked with a warning triangle, the software version is outdated and can be updated.

Verview	g	Devices	
Devices i16-651		Connect new Device Open Delete Reload Transport Mode Device IP Update	
Master Data Test Cells		▼ Search X Details	
T0037 (Disassembled) T0072 (Disassembled)		Name ▲ State Channels total Channels available Channels testing ■ General i16-651 Processing 16 14 0	
		URL	tcp://192.168.1.80:4712/
		Туре	
			PAT-Tester i-16
			fl p
		Name	i16-651
		Channels	Total: 16 Available: 14 Testing: 0
		Utilisation	
		Technical Details	
		Operating System	1.0.0
		Controller Version	1.1.19.1903 🔺
		Hostname	i16-651
		IP Address	192.168.1.80
		Log	
			Info,Warning,Err
		Timestamp N	issage
		 9/12/2022 1:25:35 PM Ad 9/12/2022 1:25:33 PM Ad 	led Channel. SerialNumber: 000651, Type: NoHardware led Channel. SerialNumber: 000651, Type: NoHardware

I EL-Software Client 1.1.19.4381 - Build date: 12.09.20		×
Overview 2	Devices	
 Devices i16-651 Experiments 	Connect new Device Open Delete Reload Transport Mode De ce IP Update	÷
Master Data Test Cells	T Search Details	^
T0037 (Disassembled) T0072 (Disassembled)	Name 🔺 State Channels total Channels available Channess testing 🗖 General	
	10-051 Processing 10 14 0 URL tcp://192.168.1.80/4712/	
	Туре	
	PAT-Tester i-16	
	Name (10-65)	
	Channels Iotal: 10 Available: 14 lesting: 0	
	C Utilisation	
	Technical Details	
	Operating System 1.0.0	
	kỳ Controller Version 1.1.19.1903 ▲	
	Hostname i16-651	
	IP Address 192.168.1.80	
	■ Log	
	Info.Warning	Err
	Log-Messages: 24 🗸 1	(1)
	Timestamp Message 1.9/27/02/12/55/51 Middled Channel SerialNumber 00051 Time NoHartware	
	C Statistics of the state of	×
Totals: Q: 0 R CR: 0 R/s SR: 0 R/s Out: 0 B/s In	n: 387 B/s	7

2. Click on "Update" in the main menu bar.

3. A popup appears. If you have changed the default password for the controller software, you must enter it here. Otherwise, the default password will be used automatically.

During the update, all running experiments will be stopped. Check the box to continue. The button "Update" will be unlocked and can be selected to start the update.

I EL-Software Client 1.1.19.4381 - Build date: 12.09.20	022 01:03:10						-				
Overview	Devices										
Devices i16-651 Experiments	E E Connect new Device Open Delete Reload Transport Mode Device IP Update										
Master Data Test Cells	Search			×	X Details						
T0037 (Disassembled)	Name 📤 State	Channels total Channels available Chan			General						
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Totals: Q: 0 R CR: 0 R/s SR: 0 R/s Out: 0 B/s In	n: 387 B/s							~ *			

4. The update will now be performed. The new version of the EL-Software Controller is displayed as soon as it has been completed. You can now close the window via the "Close" button.



4 For advanced users

The following chapters describe procedures and help for advanced users. They can be applied if problems cannot be solved via standard procedures.

4.1 Performing software updates via Linux (with an existing internet connection)

4.1.1 Updating the EL-Software Server

If the Client PC is connected to the tester network:

First, close all running instances of the EL-Software Client.

Open the web browser on the Client PC and call the address

<u>https://192.168.10.10:8006</u>. This will take you to the user interface of the virtualization manager Proxmox. Login with username: *root* and password: *changeit*.

Continue with step 1.



If the Client PC is connected to the Client Network:

In this case, the IP address the EL-Router has received from the Client Network must be known. This can be requested from the system administrator.

Open the web browser on the Client PC and call up <u>https://XXX.XXX.XXX.XX.8006</u> (replace X with the determined IP address). This will take you to the user interface of the Proxmox virtualization manager. Login with username: <u>root</u> and password: <u>changeit</u>. Continue with step 1.



9. Accept the security risk



10. Choose elserver from the tree structure on the left side

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5. Select the entry "100 (elsoftware)". This is the virtual container on which the EL-Software Server is installed ist.

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6. Click on "Console" in the container menu to open the input window. Login with username: *eladmin* and password: *changeit*

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				Stop as vMs and Containers	OK

7. Now enter the command *sudo apt update* in the input window. This checks all software components for up-to-date and downloads new versions if an Internet connection is available.

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$\leftarrow \rightarrow \mathbf{C}$	O 🗛 http	ps:// 192.168.10.10 :8006/#v1:0:=lxc5	%2F100:4:::::=consolejs:
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Server View	Container 100 (e	elsoftware) on node 'elserver'	how the
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8. Enter the command *sudo apt upgrade*. Confirm the prompt asking if you want to continue. Now the previously downloaded content will be installed.

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9. The database must be reset because the installed updates can potentially contain changes to the structure, which can endanger the stability. To do this, enter the following command in the input window:

sudo /usr/bin/elsoftware.serverd/scripts/reset.sh

10. The database will now be rebuilt; this process can take several minutes.

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Please note: If you start the client software too soon, you will receive a warning or an error message.

Important note: The experiment data in the exports folder will be preserved.



Update of the EL-Software Client after update of the EL-Software Server

Start the EL-Software Client. It will automatically upgrade itself using the installer downloaded with the new EL-Software Server components.

4.1.2 Updating the EL-Software Controller via Linux console in the tester network

Please note: Your PC must be connected to the tester network to access the controller.

1. For this purpose, you need the IP address of the tester; it is shown on the display



Open the command prompt on the Client PC (e.g., by pressing the Windows key, entering cmd, and clicking on the command prompt. Enter the following line there:

ssh controlleradmin@XXX.XXX.XXX (Replace the X with the IP address of the respective PAT-Tester)



EL-CELL°

2. Now enter the command sudo apt update. Password: changeit

The software components of the controller are now checked, and new versions are downloaded.



3. Start the update by entering the command sudo apt upgrade. The controller software will now be updated. The PAT-Tester will reboot and perform functional tests, such as confirming the ventilation flaps.



The process can take several minutes. It is completed as soon as the prompt appears again in the console.



5. Restart the PAT-Tester. To do this, enter the command *sudo reboot*.



6. The controller pc inside the PAT-Tester will restart, update the test channels' firmware and re-establish the connection to the channels.

First, on display, all the LEDs of the channels will change from green to red and then turn off. This indicates that the connection to the PAT-Channelboards has been disconnected.



After that, the individual channels are restarted (red LED) and reconnected (green LED).



This process can take up to 15 min per channel. In the end, all channels should light up green again.



7. After the update has been completed, the PAT-Tester must be reconnected to the EL-Software Server. To do this, start the EL-Software Client on the Client PC. Select the "Devices" item on the left-hand side of the tree structure. Then click on "Connect new Device."

verview	Devices
Devices	
Experiments	Connect new Device Open Delete Reload Transport Mode Device IP
Master Data	\s
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	Name A State Channels total Channels available Channels testing Temperature
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8. A popup shows the available PAT-Testers, in this example, a PAT-Tester-i-16. Select it and then click on "Create." This will connect the tester to the EL-Software Server.

Connect new Device			
Available Devices (1)			
i16-651			
Name			
e.g.: Tester 01			
Connection Settings			
e.g.: tcp://tester01.local:4712			
Testertype			
		Ý	
	Cre	eate Cancel	

Connect new Device	
Available Devices (1)	
2 i16-651	
Name	
Connection Settings	
tcp://192.168.1.80:4712/	
Testertype	
i-16	*
	Crerte Sancel

9. The PAT-Tester-i-16 appears as an entry in the Devices list. It is now connected to the EL-Software Server and ready for use.

Overview	Ø Devices						
Devices 116-051 Experiments	E De D C Over Cyer Defet Retail Tampot Mate Device ₽ Labor						
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		District Metage 0 NF20221 11-11 MAIA Metage					

4.1.3 Viewing the update progress via Linux console on the Client PC

The firmware update process can be monitored on the Client PC. To do this, log in to the controller and then call the log file.

- First enter the following line in the command prompt: ssh controlleradmin@1XXX.XXX.XXX
 (Replace X with the IP address and the address of the respective tester).
- 2. Enter the password: *changeit*
- Enter the line tail -f /var/log/epcd/controller-20220701.log. (Replace 20220701 with today's date in the format YYYYMMDD.)



4.2 Software updates in the tester network via Linux (without internet connection)

Please note: Your PC must be connected to the tester network to access the controller.

4.2.1 Updating the EL-Software Server

1. Download the server Debian package (.deb file format) from the EL-Cell website. Transfer it to the Client PC.

electrochemical test equipment	Home PAT Series 🗸 Products 🗸	Services • Support • About us • Con	tact → FAQ Q
	EL-Softwar	re Download	
	Release	1.1.10 Build 7570	
ar coftware	Туре	msi Installer (zipped)	
	Size	295 MB	
	Operating 5	System Windows 10 x64	
	Content	Client & Server Installation	n
A DOWNLOAD			
Server Debian package			
Release		1.1.10.7570	
Size		deb 143 MB	
A DOWNLOAD			
	EL-Software	user Manual	
See Manual E. Saltanee	Release	1.05	
	Туре	PDF	

- 2. Open the system command prompt on the Client PC (for example, by pressing the windows key, entering cmd, and clicking on the command prompt).
- 3. First, navigate to the folder with the downloaded file. This must now be transferred to the EL-Software Server. First, enter the following commands to switch to the download folder:

с:		
cd	users	
cd	YOUR_WINDOWS_USER_NAM	Ŧ

cd downloads



4. Enter the following line to transfer the Debian package file:

scp YOUR_DEBIAN_PACKAGE.deb eladmin@192.168.10.20:/home/eladmin

Enter the password: *changeit*

5. Now log in to the EL-Software Server with the following command:

ssh eladmin@192.168.10.20

Enter the password: *changeit*

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$\epsilon \rightarrow c$	OBH	ps://el-cell.com/support/el-cell-software/el-software/		0 \$	⊚ ± ≡
	electoria electoria	Payman 201 P	28.//owy/kidne —		
		Size	2.6 MB		
	A DOWNLOAD				

6. The Debian package can now be installed. Enter the following:

sudo dpkg -i elsoftware.XXXXXX.deb
(Replace X with the filename of the transferred package)

Enter the password: *changeit*



7. After the Debian package installation, a database reset is needed. This is done by entering the following command:

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	Size 2.6 MB	100-01	
P. Zur Surbe 3			

sudo /urs/bin/elsoftware.serverd/scripts/reset.sh

8. The database is reinitialized now; it can take several minutes. If you start the client software too fast, you get a warning or an error message.



4.2.2 Updating the EL-Software Controllers via Linux console

After an update of the EL-Software Server, the software of the EL-Software Controller must also be updated. To do so, you must log in to the controller to access it.

1. Enter the following in the command prompt of the Client PC:

```
ssh controlleradmin@XXX.XXX.XX.XXX
(Replace X with the IP address that appears on the PAT-Tester display).
```

Enter the password: *changeit*



2. Since the controller wants to obtain software updates via the Internet by default, the search paths must be adapted. Use the following commands to do this::

cd /etc/apt

sudo nano sources.list

Enter the password: changeit



3. A list with the search paths appears. All entries not marked blue must be marked inactive by inserting three # signs.

Please note: The list goes beyond the screen display. It must be edited completely.



In the end, all entries must be marked in blue.



4. After editing the list, save it by pressing CTRL+O. Close the list afterward with CTRL+X.

5. Now you have to remove all files in the directory ect/apt that are not named "el-cell.list". To do this, enter *cd sources.list.d/*. Then display a list of the directory with the command *ll*.



6. All files, except the "el-cell.list", must be removed. Enter the following command:

sudo rm XXXXX.list (Replace X with the file name)

7. You have to edit the file "el-cell.list". Open it with the command:

sudo nano el-cell.list



8. Change the entry in the first line as follows:

http://192.168.10.20:4711/repository/controller bionic main

GNU nano 2.9.3	el-cell.list	wolo
<pre>deb http://192.168.10.20:4711/repository/controll. #deb https://repo.el-cell.com/apt/devel bionic mai de#deb https://repo.el-cell.com/apt/devel-tbh bionic en</pre>	er bionic main in c main	

- 9. Afterhed editing the list, save it by pressing *CTRL+O*. Press *CTRL+X* to close the file afterward.
- 10. Now, you can start the update of the controller. To do this, type in:

The control of the second seco	· () O Downloads downloads
Controlleradmin@i16-651: /etc/apt/sources.list.d	
<pre>controlleradmin@if6-651:/etc/apt\$ controlleradmin@if6-651:/etc/apt\$ cd sources.list.c lzugrontrolleradmin@if6-651:/etc/apt/sources.list.d\$ 11 cop insgesamt 16 controlleradmin@if6-651:/etc/apt/sources.list.d\$ 11 controlleradmin@if6-651:/etc/apt% controlleradmin@if6-651:/etc/apt\$ cd sources.list.c controlleradmin@if6-651:/etc/apt% controlleradmin@if6-651:/etc/apt\$ cd sources.list.c controlleradmin@if6-651:/etc/apt% controlleradmin@if6-651:/etc/apt% controlleradmin@if6-651:/etc/apt% controlleradmin@if6-651:/etc/apt% cd sources.list.c controlleradmin@if6-651:/etc/apt% controlleradmin@if6-651:/etc/apt% cd sources.list.c controlleradmin@if6-651:/etc/apt% controlleradmin@if6-651:/etc/apt% cd sources.list.c controlleradmin@if6-651:/etc/apt% controll</pre>	4/
<pre>urwxr-xr-x / root root 4096 Jul 1 14:50/ mem^{-rw}-rr- 1 root root 162 Mai 19 14:03 el-cell.list -rw-rr- 1 root root 428 Mär 8 09:04 EventStore_EventStore-OSS.list - controllearder and a control 428 Mär 8 09:04 EventStore_EventStore-OSS.list</pre>	
<pre>controlleradmin@ilo-b31?/etc/apt/sources.list.d\$ rm EventStore_EventStore-OSS.list rm: Normale Dated (schreibgeschützt) 'EventStore_EventStore-OSS.list' entfernen? ^[[A controlleradmin@il6-651:/etc/apt/sources.list.d\$ sudo rm EventStore_EventStore-OSS.li insgesamt 12</pre>	^C st
<pre>d drwxr-xr-x 2 root root 4096 Jul 1 14:51 ./ drwxr-xr-x 7 root root 4096 Jul 1 14:50/ -rw-rr- 1 root root 162 Mai 19 14:03 el-cell.list controlleradmin@i16-651:/etc/apt/sources.list.d\$ sudo nano el-cell list</pre>	
<pre>controlleradmin@i16-651:/etc/apt/sources.list.d\$ controlleradmin@i16-651:/etc/apt/sour controlleradmin@i16-651:/etc/apt/sources.list.d\$ controlleradmin@i16-651:/etc/apt/sources.list.d\$ controlleradmin@i16-651:/etc/apt/sources.list.d\$</pre>	rces.list.d \$
Holen:1 http://192.168.10.20:4711/repository/controller bionic InRelease [1.954 B] Holen:2 http://192.168.10.20:4711/repository/controller bionic InRelease [1.954 B] A swurden 2.485 B in 0 s geholt (17,0 kB/s).	11 B]
rakerlisten werden gelesen Fertig Abhängigkeitsbauw wird aufgebaut. Statusinformationen werden eingelesen Fertig	
Alle Pakete sind aktuell. N: Das Laden der konfigurierten Datei »main/binary-i386/Packages« wird übersprungen, d. 4711/repository/controller bionic InRelease« die Architektur »i386« nicht unterstützt. controlleradmin@i16-651:/etc/apt/sources.list.d\$ t	a das Depot »http://192.168.10.20:

sudo apt update.

11. Enter the command *sudo* apt upgrade to perform the update.



The controller PC in the PAT-Tester must then be rebooted. To do this, enter the following command: sudo reboot

After the restart, the firmware of the individual test channels is updated, and then the connection to the channels is re-established.

The LEDs of the channels will change from green to red and then turn off. This indicates that the connection to the channel boards has been disconnected.



Afterward, the individual channels are restarted (red LED) and connected (green LED).

Please note: This process can take up to 15 min per channel. In the end, all channels should light up green again.



12. After the update has been completed, the PAT-Tester must be reconnected to the EL-Software Server. Follow the instructions in chapter 2.1

4.3 Determining the IP address of the EL-Router

Once the Client PC is connected to the Client Network, it can only access the tester network via the IP address of the EL router assigned by the Client Network.

There are two ways to determine this address:

- 1. Ask your system administrator.
- 2. It is possible to determine the IP address via a virtualized machine (VM) installed on the EL-Server at delivery.

4.3.1 Determining the IP address via the Maintenance VM

Please note: Your PC must be connected to the tester network.

 Open the web browser on the Client PC. Enter <u>https://192.168.10.10:8006</u>. The Proxmox environment opens. In the tree structure, click on the elserver entry to expand it. There, select 101(Maintenance).

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2. Select the item "Console" in the second navigation column and click on "Start now. "

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3. The operating system of the Maintenance VM is now started. As soon as it is ready, the desktop environment will appear. All settings windows that appear can be closed. The VM is reset to the factory settings after it is closed, so any settings made here are not saved.

Click on the browser icon on the desktop.



4. Call up the target address <u>http://192.168.10.1</u> in the browser. This will take you to the user interface of the EL-Router. Log in with the following user data:

Login:	adm	iin		
Passwo	ord:	ch	ange.	it

terOS router configuration page - Pale Moon			
Edit View History Bookmarks Tools Help			
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Mikro tik			
RouterOS v6.49.2			
You have connected to a router. Administrative access only, if this device is not in your possession, please contact your local network administrator.			
WebFig Login:			
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5. Switch to the "Quick Set" tab in the user interface. Under the item "IP Address," you can now view the IP address the EL-Router received in the customer network. You can now use this address to reach it via the customer network.

📦 ElRouterStaging - Interface List at admin@192.168.10.1 - Webfig v6.49.2 (stable) on RB4011iGS+ (arm) - Pale Moon		_ 🗆 X
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Netmask 255.255.0 (/24)		
Gateway 172.16.42.1		
MAC Address DC:2C:6E:41:AC:ED		
		Local Network

6. You can close the Maintenance VM again via the "Shutdown" button.

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