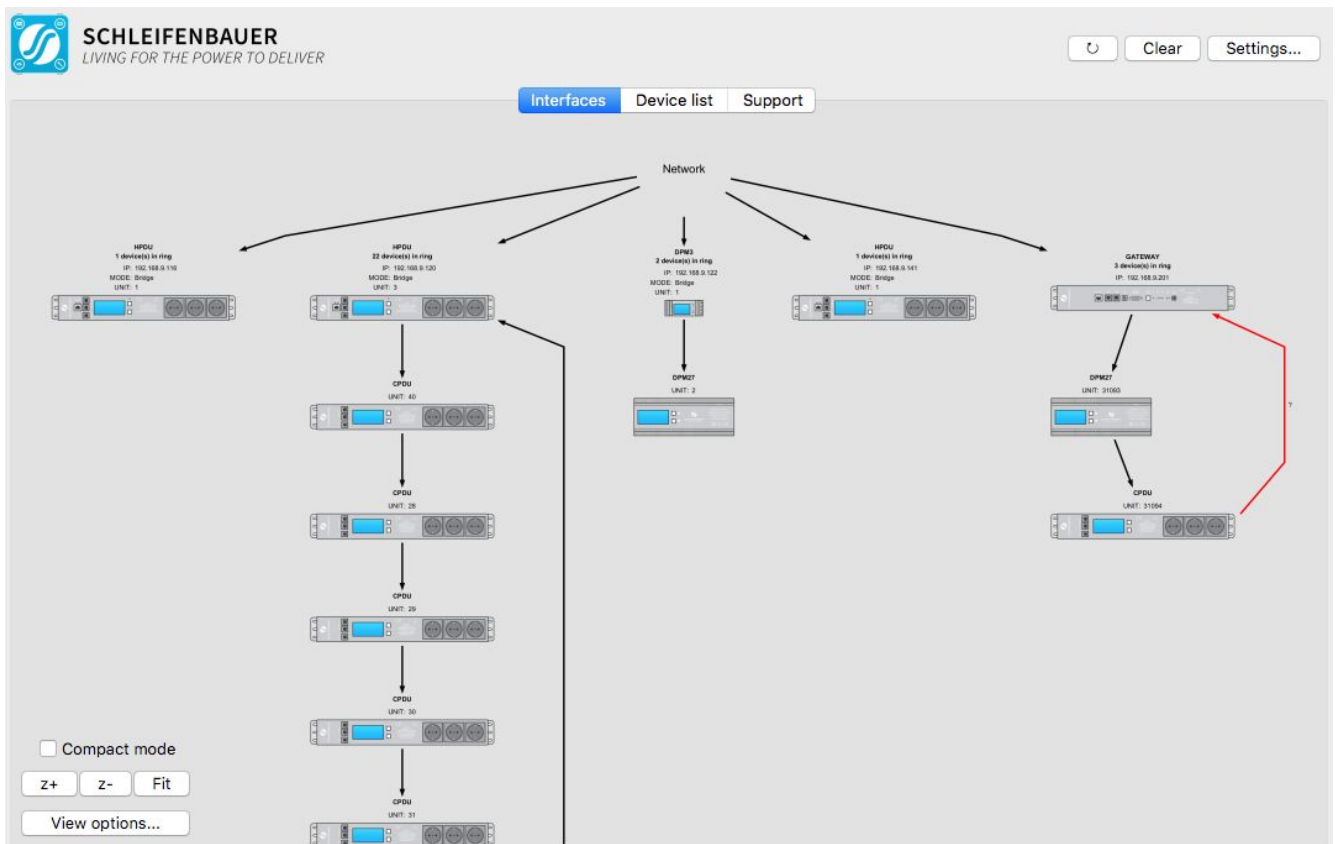




# SCHLEIFENBAUER

LIVING FOR THE POWER TO DELIVER

## V1.1.2 Schleifenbauer SPST User manual



March, 2019

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In several places a pop up might appear with useful information.



On all intelligent Schleifenbauer devices, embedded firmware is running. The most recent firmware is embedded in the SPST.zip file.

Other firmware versions can be found on our website at the download page.

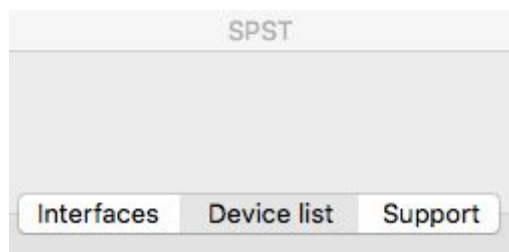


There are several other manuals which can be found on our website. For more PDU or DPM (energy meter) information check their specific manuals.

## WHAT IS INCLUDED IN V1.1.2 (CHANGES SINCE V1.1.0) ?

- firmware update connection improvements
- More robust error reporting
- fixed extended register read fails using IPAPI
- streamlined display of XLSX write result
- Global presets
- Double clicking an IP in the device list now opens the web interface of that unit
- Updated SPDM to v252

## PART I: WHAT IS SPST?



SPST stands for "Schleifenbauer Products Service Tool". This is a program which aims to aid customers in analyzing and maintaining their network of Schleifenbauer PDUs and DPM-energy meters. It does so by offering the following features:



You are able to “quick scan” the status of your databusses

=> See part II: [Interfaces](#)



You can upgrade/ downgrade firmware in a very easy and simple way

=> See part III: [Device list](#)



You can remotely mass configure your databus devices

=> See part III: [Device list](#)



You will decrease problem solving lead time

=> See part IV: [Support](#)

## WHAT IS A SCHLEIFENBAUER DATABUS

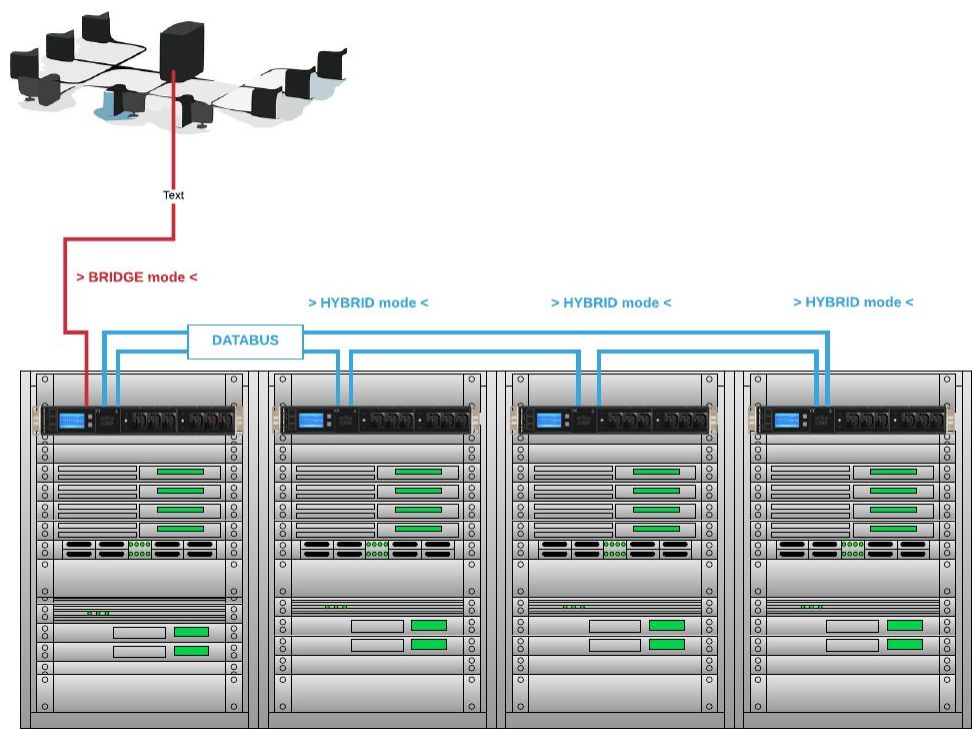
It is possible to daisy chain several Schleifenbauer devices using the databus. One of these devices must be connected to the network and set to "bridge mode". We call this the "master device". This master device is the bridge from the databus to your network.

So using the master device you'll be connected to all other devices. This means that with 1 IP-address you can communicate and manage up to 50 devices. More devices is possible but will significantly slow down

communication over the databus. The data bus makes use of standard CAT5 or 6-cables, so there is no investment needed for special cabling.

In the scheme below you'll see the master device connected to your LAN (red line) while all other devices are daisy chained via the databus (blue line).

We are not talking about power distribution here but only the data traffic over IP and the data bus.



In the user manuals of the PDU and DPM-energy meters, you can find several examples of data busses and their advantages. You can find these manuals on our website: [www.schleifenbauer.eu](http://www.schleifenbauer.eu)

All Schleifenbauer Product devices can be daisy chained forming a data bus ring. The devices are:

Gene-ration	Device sort	Bridged to LAN via...	Remark
1	Classic PDU DPM27	Schleifenbauer Gateway	Devices from the first generation have NO ethernet port. They only have two data bus ports.
2	PDU DPM3	1 master device - a PDU or DPM3 - in "BRIDGE" mode others in "hybrid" mode	The second generation devices are equipped with ethernet AND two databus ports
3	PDU g3 DPM27/E	1 master deve - a PDU or DPM27/E - in "BRIDGE" mode, others in " hybrid" mode	The third generation devices have an additional USB-port

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## OVERVIEW OF SCHLEIFENBAUER DEVICES AND THEIR FIRMWARE VERSIONS

	<b>Device sort</b>	<b>Firmware version</b>	<b>Status device and firmware development</b>
Generation 1	Gateway	SPGWupdater_xxx_254	Firmware development has stopped
	Classic PDU	FW1.50	EOL: This device is not for sale anymore Firmware development has stopped
	DPM27	FW1.50	EOL: This device is not for sale anymore Firmware development has stopped

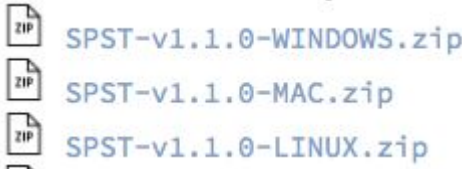
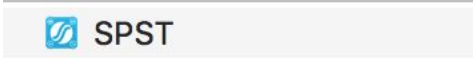

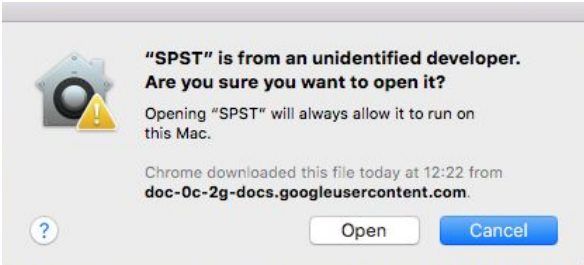
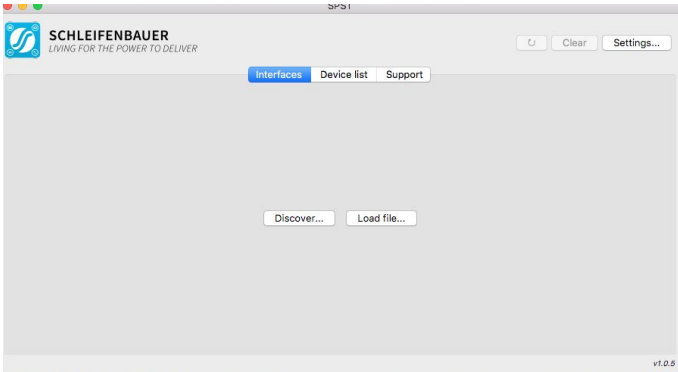

Generation 2	PDU	FW2.xx	This device is replaced by PDU g3 which has an additional USB-port Firmware development is ongoing and based on data model SPDM2xx
	DPM3	FW2.xx	Device is available and firmware development is ongoing and based on data model SPDM2xx

Generation 3	PDU g3	FW2.xx	Device is available and firmware development is ongoing and based on data model SPDM2xx
	DPM27/E	FW2.xx	Device is available and firmware development is ongoing and based on data model SPDM2xx



The latest firmware version(s) are integrated in the SPST zip-file.  
Both firmware and SPST-tool can be found on our website.

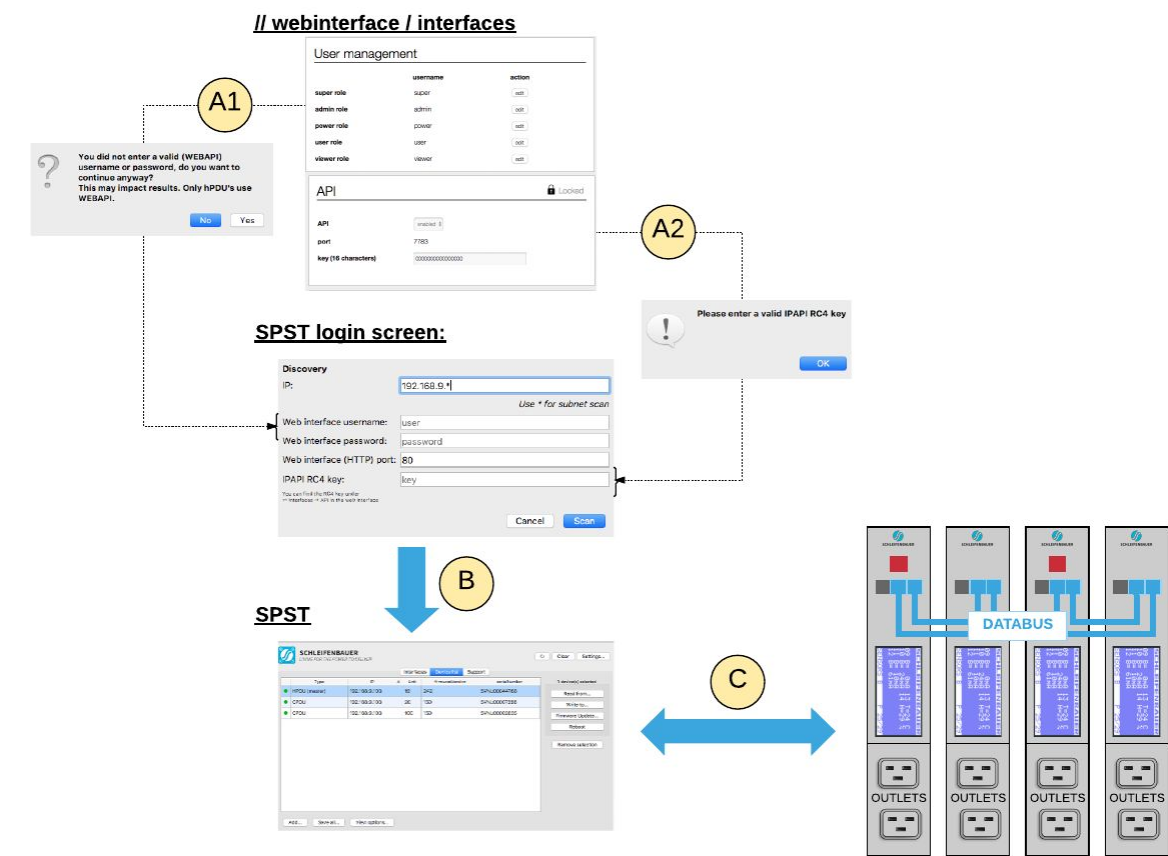
How to install the SPST tool

	<p>&lt; Select&gt; the SPST zip file for your operating system: this can be Mac, Linux or Windows.</p> <p>After downloading, &lt; unzip &gt; the file.</p>
	<p>When unzipped , &lt; right &gt; click on the  SPST application file” and select &lt; open &gt;</p> <p><i>Note: In Windows the file can be unzipped directly!</i></p>
	<p>Select &lt;open&gt;</p>
	<p>If this screen appears, SPST is correctly installed and ready to use.</p> <p> SPST uses the program “ Graphviz” for visualization and therefore must be installed. If an error message occurred, please download and install the program from “ <a href="http://www.graphviz.org">www.graphviz.org</a>” website.</p>

Note: for uninstalling see the “Support” section of this manual

# How to log in

SPST is a databus tool. To enter the databus, you first have to log in on the “bridged” device (PDU, DPM3 or DPM27/E) in order to make the databus accessible.



A1 =	Log in at the bridged device over IP  <i>In the Administrator part of the device manual you can find a description of login profiles, usernames and passwords</i>
A2 =	Log in at the databus using the RC4-key
B =	SPST will open
C =	Read and write to databus is possible

**Warning: default credentials are used, this is a security risk.**

After installation the defaults setting should have been changed by your administrator. The red/orange pop up signals that factory settings are still used: please contact your administrator!

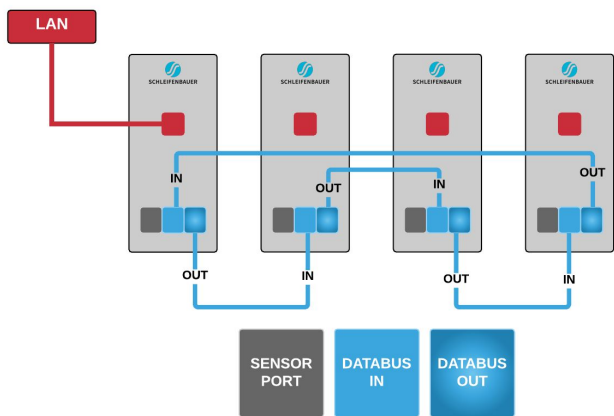
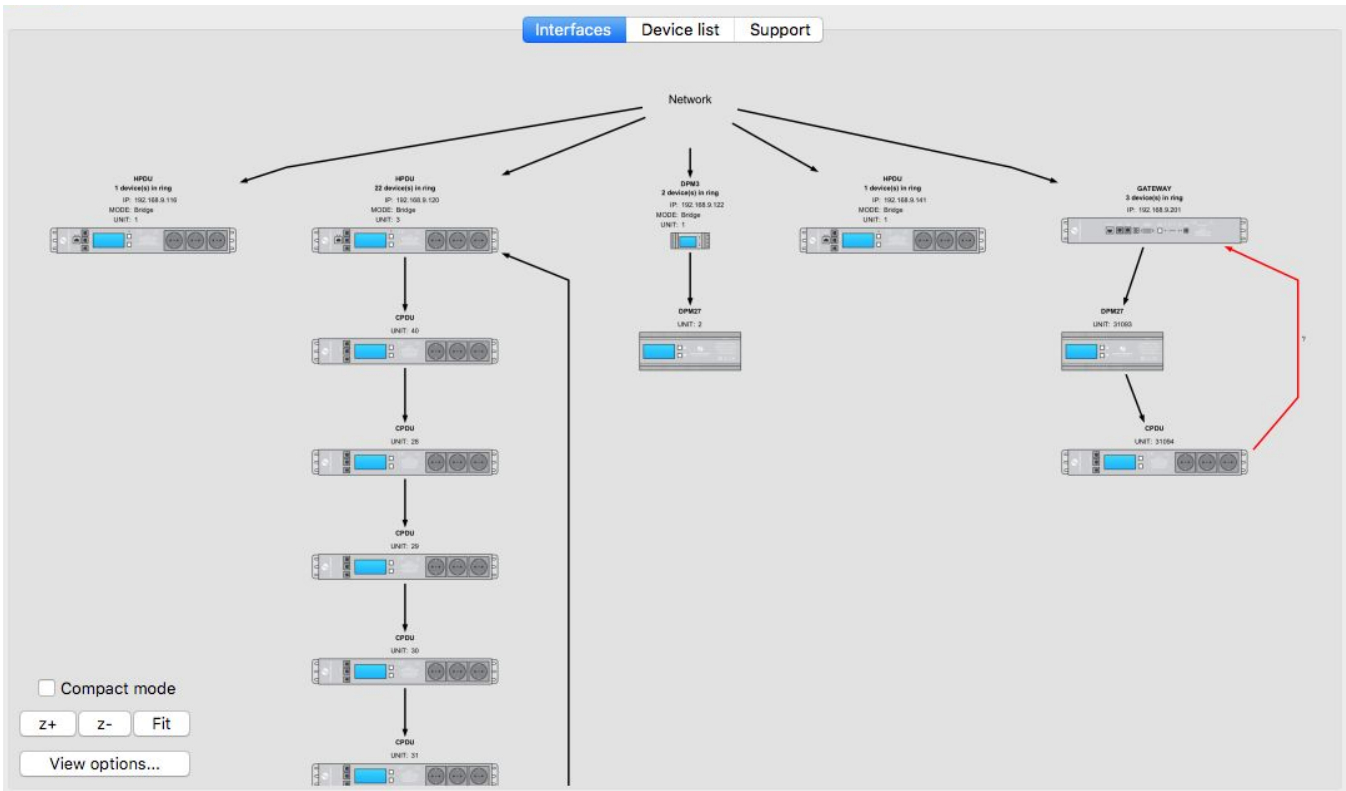
# PART II - INTERFACES

Interfaces

Device list

Support

The Interfaces tab is a graphical overview of your data busses

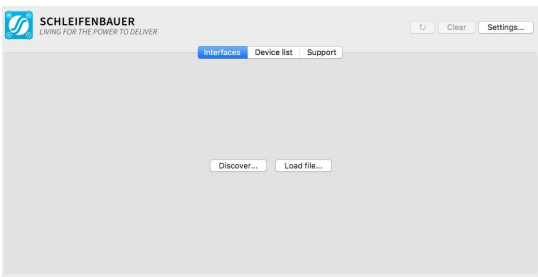
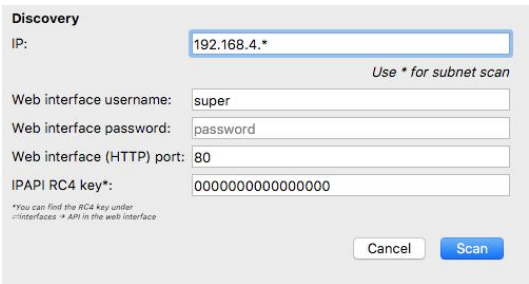

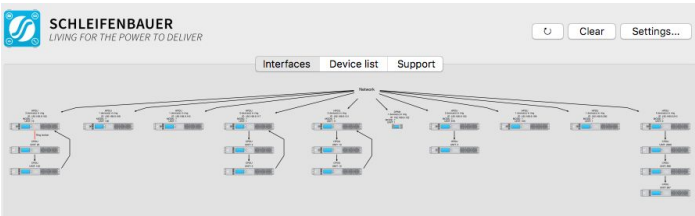


It is best to use the connection diagram as shown left. By doing so, the graph will represent the real life situation of your databus.

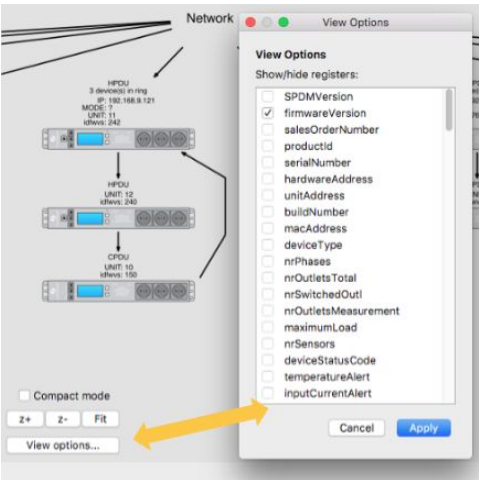

There are three black communication ports. One is marked as sensorport, the other two as databus ports (in and out). The left databus port is the “incoming” databus port. The right databus port is “outgoing”. This is especially important for devices in “bridge” mode; a MUST HAVE for devices in bridge mode and NICE TO HAVE for devices in hybrid mode.



# How to start analyzing your data bus?

	<p>When the SPST is activated, you start by selecting the &lt;Discover&gt; button.</p>
	<p>Log in.</p> <p> See chapter “ How to log in?”</p>
	<p>When all devices are scanned, a visual network overview of the attached databus rings will be shown.</p>

# How to personalize the network overview

	<p>If you want specific information shown in your network overview, please select &lt; view options &gt;. A pop-up will appear in which you select the items you want to be shown. Select &lt;apply&gt; and the network overview will be renewed.</p> <p> The maximum number of selectable options is ten.</p>
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# PART III - DEVICE LIST



In the tab “Device list” you will find the tools to upgrade or mass configure you data busses

## How to update firmware

### ➤ Step 1: use the correct passwords and RC4-key

First things first: SPST communicates with a bridged device and the databus using 2 separate protocols: IPAPI and WEBAPI (see chapter “How to log in”).  
As you already know, your administrator should have changed factory default settings after installation of the devices.  
So if the RC4 key or passwords are unknown, please contact your administrator.

### ➤ Step 2: check the device list

	Select the tab <Device list> and click on < Discover..>
	<p>Log in.</p> <p> See chapter “How to log in?”</p> <p>Click on &lt; Scan&gt;</p>



Interfaces **Device list**

	Type	IP	Unit	firmwareVersion
●	PDU (master)	192.168.9.100	31104	243
●	PDU	192.168.9.100	19	243
●	DPM27	192.168.9.100	31093	150
●	CPDU	192.168.9.100	31094	150
●	PDU	192.168.9.100	31095	242
●	CPDU	192.168.9.100	7	150
●	PDU	192.168.9.100	6	220
●	CPDU	192.168.9.100	31096	150
●	PDU	192.168.9.100	9	242
●	PDU	192.168.9.100	31097	242
●	CPDU	192.168.9.100	31098	150
●	PDU	192.168.9.100	5	220
●	CPDU	192.168.9.100	31099	150

All connected devices are shown in a table. If you have downloaded the latest version of SPST from the Schleifenbauer website, you immediately see whether your devices are running on the latest firmware or not.

How?

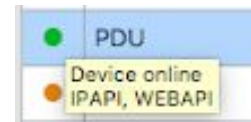
In the most left column you see a green, orange or red bullet which indicate the status of a device:

**GREEN** = device is online

**ORANGE** = firmware update available

**RED** = device is offline

If you hover over the bullets a pop-up will appear:



In the yellow pop-up box you see that SPST is communicating with the PDU using both IPAPI and WEBAPI. This is specifically important when using the mass configuration functionality of SPST.

➔ **Step 3: start updating**



Mainly there are two series of firmware at the moment:

- 1.xx (generation 1) which is used for the Classic PDU which has no ethernet port
- 2.xx (generation 2) which has an ethernet port

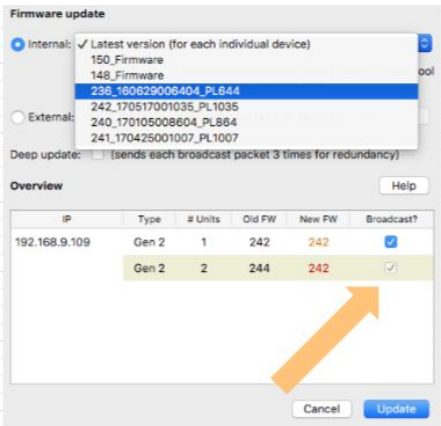
Updating 1.xx and 2.xx in one action is not working . If you have rings with both kind of firmware, you will have to perform the update process twice.



The most recent firmware versions are included in the SPST-tool. So, it is preferable to download the latest SPST-tool from [www.schleifenbauer.eu](http://www.schleifenbauer.eu)



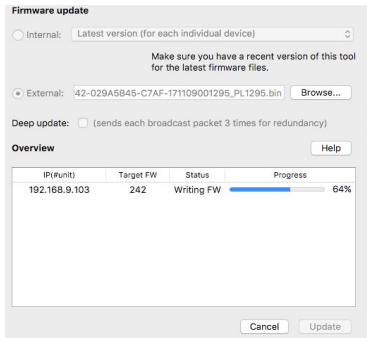
**Firmware updating might take a while. It will NOT interrupt power distribution**



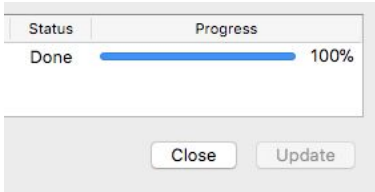
There are two ways to select a firmware-file:

- Internal (use the drop down menu)
- External (select a downloaded file)

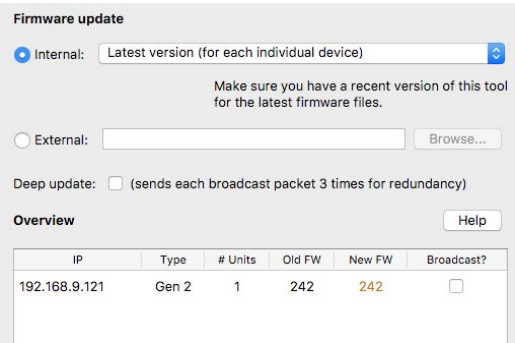
Like the former updater tool, SPST gives you the possibility for a so called “deep update”. Thus, the firmware packages are broadcasted three times over the databus. This is useful if some devices will not update. This is mostly because of big databusses with over 50 devices daisy chained.



In the < Progress bar > you can monitor the process  
When ready, click < close >



Please check if all devices are updated (see step 1) if all bullets are green now.



**Firmware update without broadcast:**

Only the selected device will be updated.

- Only possible with the master device.
- Faster and more reliable method to update a single PDU

**Firmware update**

☒ Internal: Latest version (for each individual device)   
 Make sure you have a recent version of this tool for the latest firmware files.

☐ External:  Browse...

Deep update: ☐ (sends each broadcast packet 3 times for redundancy)

**Overview** Help

IP	Type	# Units	Old FW	New FW	Broadcast?
192.168.9.121	Gen 2	1	242	242	<input checked="" type="checkbox"/>
	Gen 2	1	240	242	<input checked="" type="checkbox"/>

**Broadcast?**

☒

☒

☐

**Firmware update with broadcast:**  
 all same generation devices in the ring will be updated.  
 Please select the <broadcast> tick box  
 Data transfer speed will be slower.

*Note: the yellow marked devices are “collateral upgrades”.*

## SPDM: SCHLEIFENBAUER PRODUCTS DATA MODEL

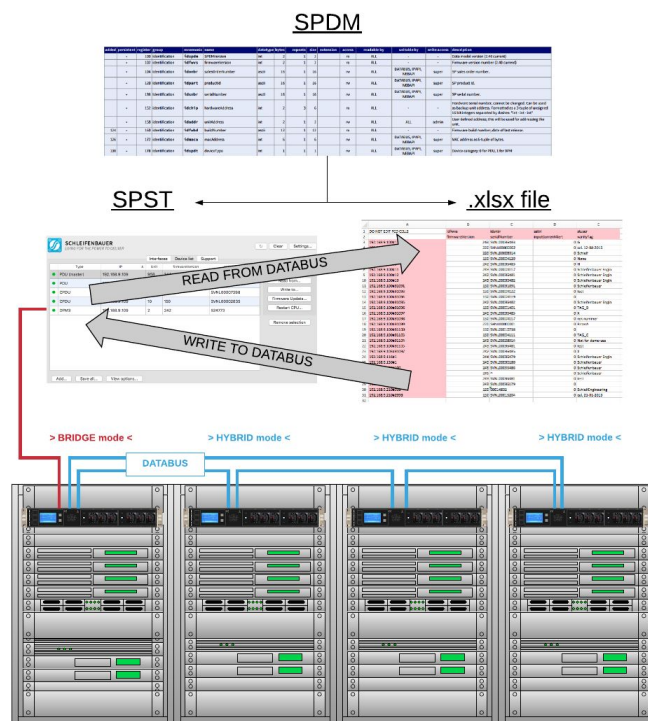
In the data model (SPDM) information of the registers are described. You can read which registers are readable and/or writable, using which interface and which role has write access.

The SPDM information can be downloaded from [www.schleifenbauer.eu](http://www.schleifenbauer.eu)

## THE MASS CONFIGURATION-PROCESS

Mass configuration can be done with the “Read from..” and “Write to..” buttons. SPST will read information from the devices using the databus. This information is downloaded to a .xlsx-file. When changes are made, SPST can be given the command to write the updated .xlsx-file to the devices in the databus. In the image below this process is represented.

Schematic process:



< Select > all the devices on the databus you want to mass configure.

Click on < Read from.. > button.

There are two possibilities now:

1. Select < fields >
2. Select a < preset >

Click < Read > when ready and < save > the xlsx-file.



You can make your own preset by using the < New preset..> button.

Open the xlsx-file and change information. When ready <save >the file.

Select **all the devices** you want to write to. Click on the < Write to..> button, select the xlsx-file using < Browse > and click < Write > In the “Write” screen you can check the pending transactions:

1. to which IP address (databus ring) will be written.
2. which unit addresses.
3. in black which registers will be changed.
4. In red: register which can not be written to but are present in the xlsx file.

If all is according as planned, click on the <write> button to start the data transaction.

# PART IV - SUPPORT



In the tab “Support” you will find the tools for problem solving

## How to generate a support-file

	When you selected a device or several devices, click on the < Generate report > button
	Give the file a name and <save>
	The zip-file will include these files.

Your administrator or the Schleifenbauer-support team can analyse the files in order to analyse a problem and define a solution.

The < Contact Schleifenbauer > button will open an email with which you can attach the zip-file. Thus a “case” will be created in the Schleifenbauer support system (part of the Quality Management System). If the case is made you will receive an email with unique case number. All correspondence will be done using the case number.

## ***How to uninstall SPST?***

### Mac OS

- Delete downloaded SPST.app
- Delete SPST local data: "~/Library/Application Support/SPST"
- Delete Homebrew/Graphviz installation: "~/Library/homebrew-graphviz"

### Windows

- Delete downloaded SPST.exe
- Delete SPST local data: "C:\Users\username\AppData\Local\Schleifenbauer"
- Delete Homebrew/Graphviz installation: "C:\Program Files (x86)\Graphviz2.38"

### Linux

- Delete downloaded SPST folder
- Delete SPST local data: "~/.local/share/SPST"
- Delete Homebrew/Graphviz installation: depending on how Graphviz was installed manually.  
(probably 'apt-get remove graphviz')

