
# Quick configuration guide to set up and configure a Smart Charging Network Locally

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# Introduction

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# INTRODUCTION

This guide will help you getting started in successfully configuring a Smart Charging Network. It will help you to prepare and to make sure you cover all necessary requirements before starting the setup.

This guide does not replace the Implementation Guide Smart Charging Features which you can download from the Alfen website: Download page for manuals

Always keep this official guide at hand, in case you run into unexpected situations while configuring a Smart Charging Network.

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## What is a Smart Charging Network?

The Smart Charging Network (SCN) is a solution where multiple charging stations are connected to each other via LAN, to locally manage the power distribution. For every outlet used, the network decides how fast it can charge, taking the total load into account. To achieve this, all connected charging stations exchange data on the current charging capacity for all users.


When the SCN functionality is properly commissioned, the charging stations recognize each other within the same local network. The total amount of power at the point of interest (which is the point in the installation needed to protect from overload) is divided over the connected sockets based on the configured power settings.

## Which parameters to configure before use?

When setting up the SCN, you will come across several parameters you'll need to configure. Some will require input from your customer while others will be straightforward:

- Maximum current value grid connection
- Maximum current value of the charging station
- Maximum current value per socket (applicable for multi socket charging stations)
- Safe current value
- Alternating period

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## Requirements for setting up a Smart Charging Network locally

To ensure a proper working of the Smart Charging Network, it is advised to meet the following requirements. **Please make sure you go through each of these topics and confirm that the requirement is met, to ensure minimization of errors when installing and configuring.**

- A laptop running on a Windows operating system.
- Use the latest version of the configuration tool ACE Service Installer. You can check this via Latest version of ACE Service Installer.
- A valid account for the ACE Service Installer. If you don't have an account, you can request this via Request an account for ACE Service Installer. Please be aware that it can take up to a couple of business days before you receive your account details via mail. So, make sure you do this in time before the actual installation appointment with your client.
- Disable blocking firewalls on your laptop.
- Open Internet connection; Alfen update server should be accessible to receive updates and feature keys.
- Network adapter laptop set to automatic IP.
- All charging stations are in the same network (subnet, IP range); by default, this is 169.254.x.x. How to check which IP address is assigned to a charging station on the network?
- Use a DHCP server (router); without a DHCP server, the charging stations obtain an IP address via Auto-IP.
- CAT5 or CAT6 UTP/Ethernet cable, cable tracé max. 100m per individual Ethernet cable. The range can be extended with another 100m by using a switch.
- Network with a minimum speed of 10Mbps.
- There should be no power over Ethernet.
- UDP port: 36549, inbound-outbound.

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- All charging stations are fed from the same power supply point; each charging station is fitted with an individual fuse.

- A LAN (preferably DHCP) should be available with at least the number of ports available to connect with all the charging stations in the SCN.

- The SCN name cannot contain special characters. Only use A-Z and 0-9, with a maximum of 7 characters.

- There are a minimum of at least two charging stations in the SCN.

- There is a maximum of 128 sockets in one SCN.

- All the Alfen charging stations that are going to be included in the SCN need to operate on the same firmware version, preferably the latest version. Check if this is the case. You can find information on the latest version by visiting the web page Firmware Updates

- All Alfen charging stations need to have the Smart Charging Network feature unlocked. Check with your client if this is the case. If not, your client can purchase license keys for all charging stations via the Alfen Webshop.
    - How to order license keys via the Alfen webshop?

- To serve electric vehicles which require a minimal charging current of 14A, at least 14A should be available on site. Check with your client if this is the case.

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# Configure

# 02

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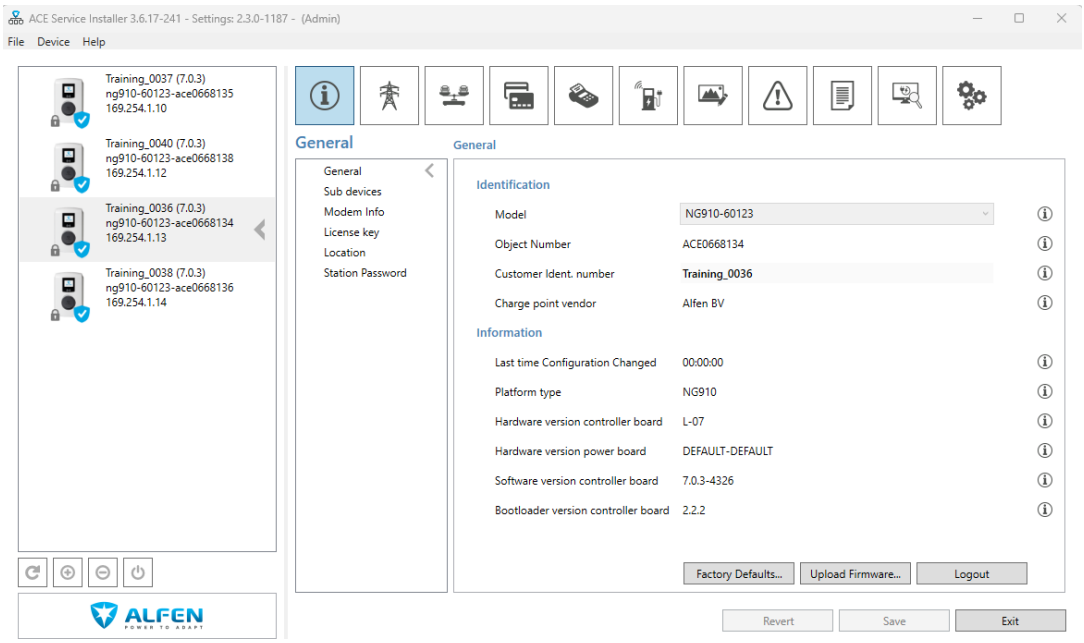
## Connect your laptop to the network of the chargers.

Start the ACE Service Installer and it will automatically look for the connected charging stations.

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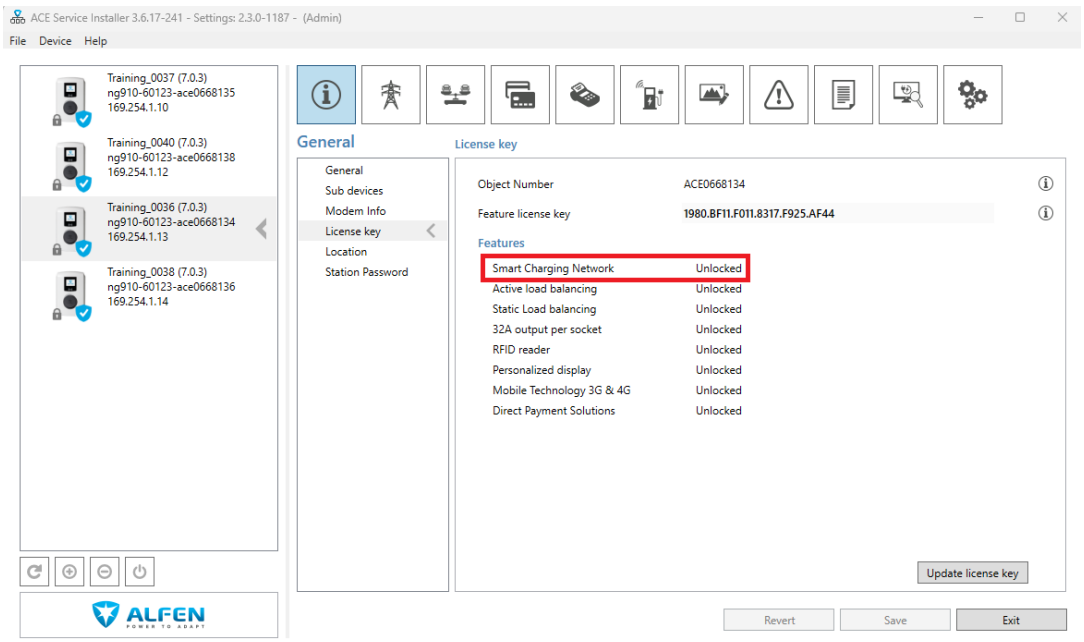
## Check if the Smart Charging Network is unlocked.

Each charging station in the network should have this feature unlocked or they cannot be part of the Smart Charging Network. You can do this in the General tab and then selecting ‘License key’.

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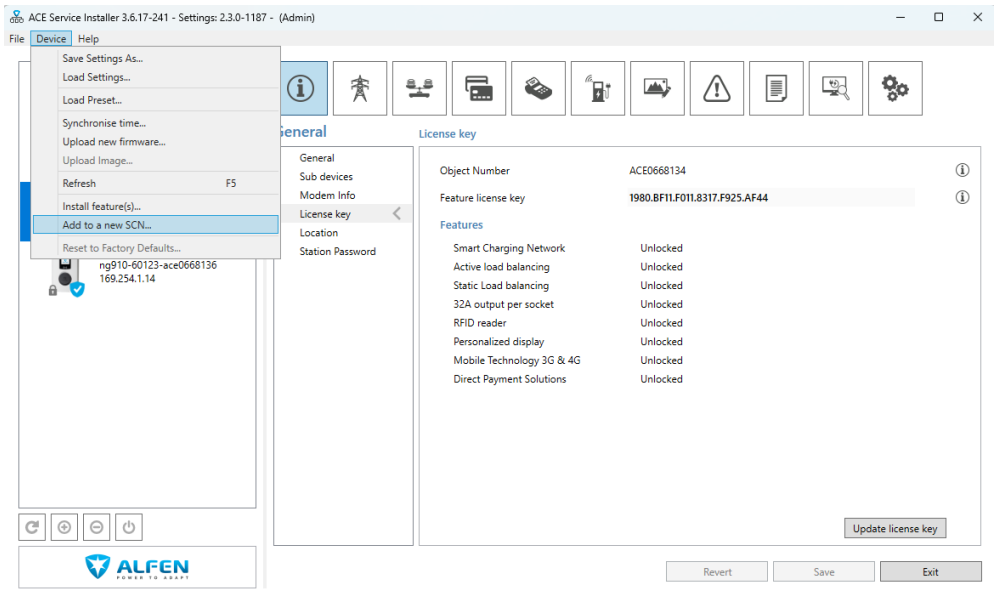
## Start configuring the SCN

Click the device button in the top bar and select “Add to a new SCN” to create a new SCN.

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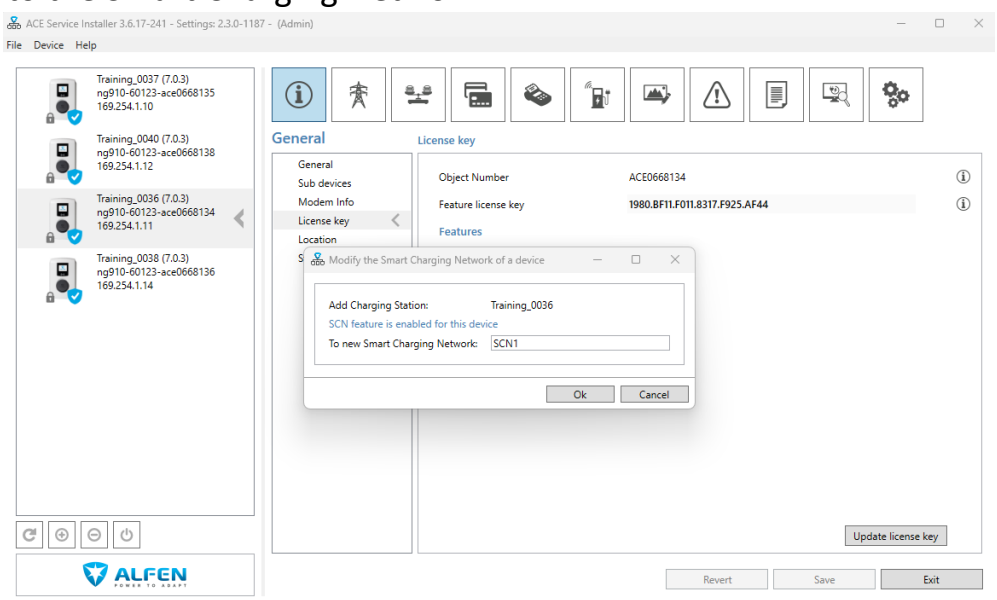
## Name the Smart Charging Network

Give the Smart Charging Network a name (check with your client which name they prefer. The name can have a maximum of 7 characters. Once you’ve done this, the charger will automatically reboot itself and added to the Smart Charging Network

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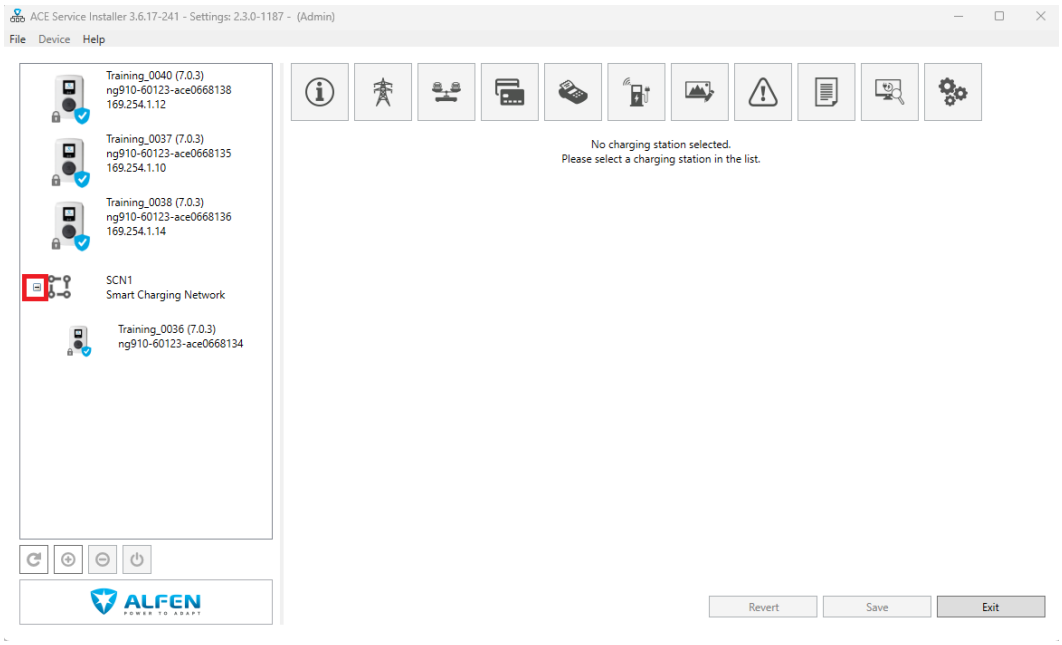
## Check to see if the charging station has been added

After the charging station rebooted itself, it should appear in the group list of the newly created SCN on the top left side of the screen. If necessary, click on the “+” symbol to reveal the added charging station.

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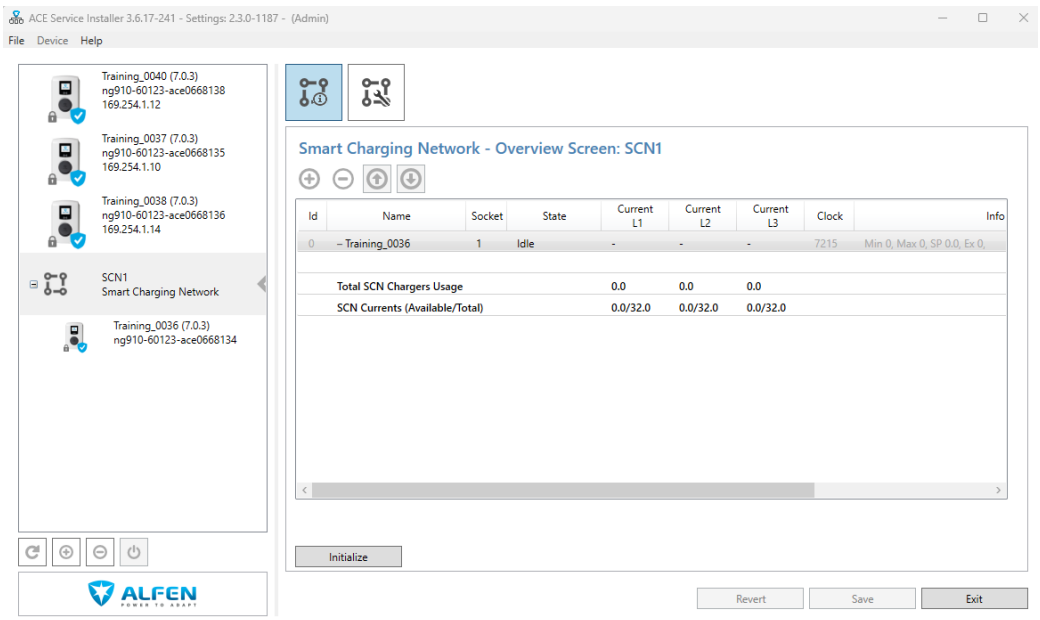
## Next, click on the SCN icon

You will see the following screen. Please note that there is a possibility that you’ll need to add a firewall rule first. If this is the case, a pop up (Add Inbound Rule) will appear. You will need admin rights to perform the “Add Inbound Rule” action.



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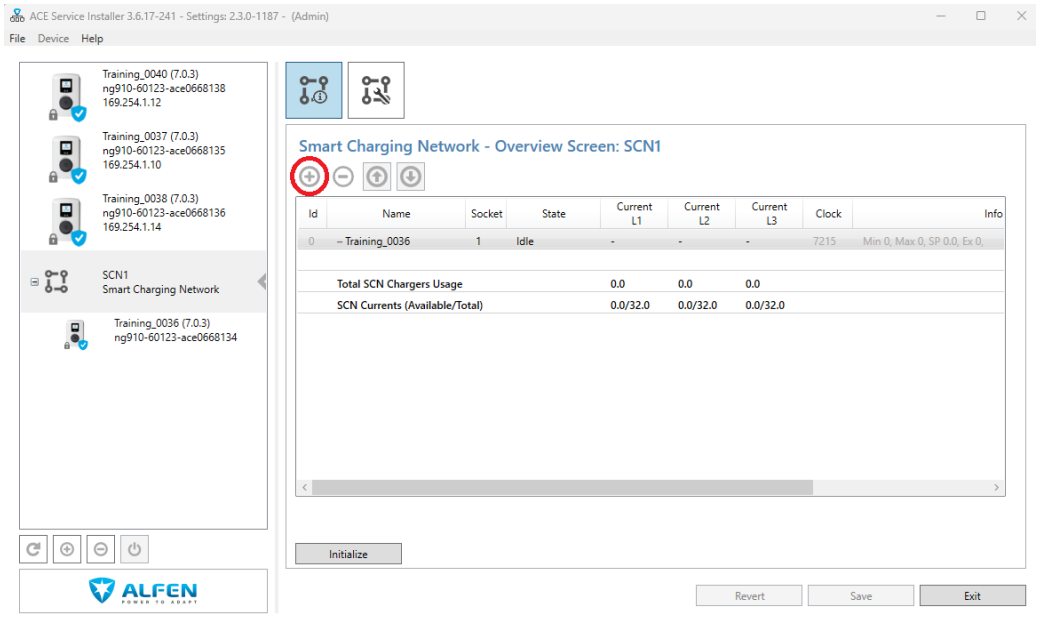
## Add the other chargers to the SCN

You can add the other charging stations to the SCN by clicking the “+” symbol (circled in red in the image below). This will automatically initialise this charger within the SCN.

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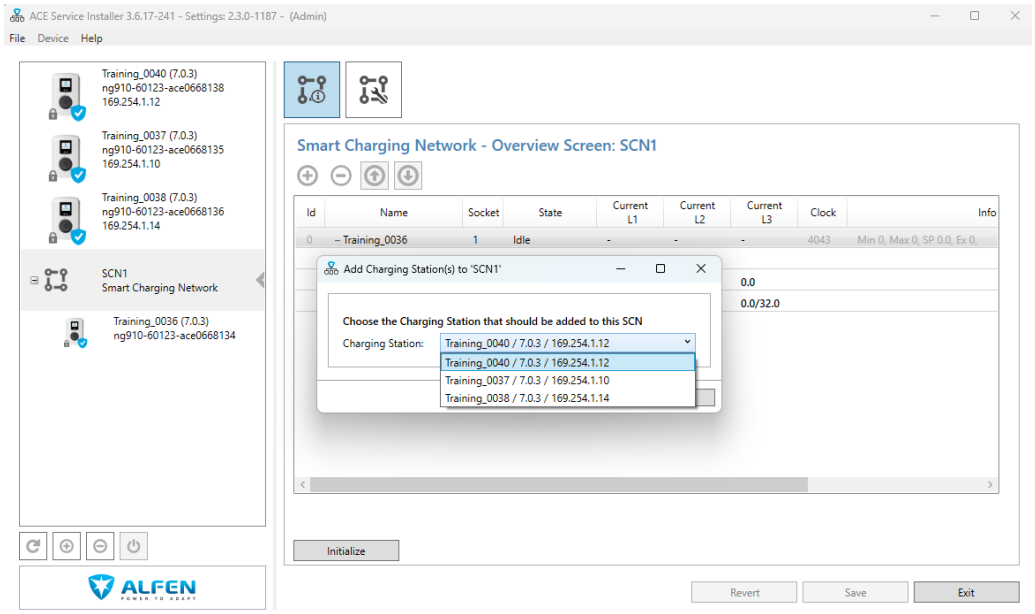
## Select the next charging station

Choose the charging station you want to add and press “Ok”. You will notice the charging station restarts and is added to the SCN. Continue this step until you’ve added all charging stations to the SCN. The list only shows charging stations which are not yet in an SCN. An asterisk (*) means that the charger is in a different network, only add chargers to an SCN which are in the same network!



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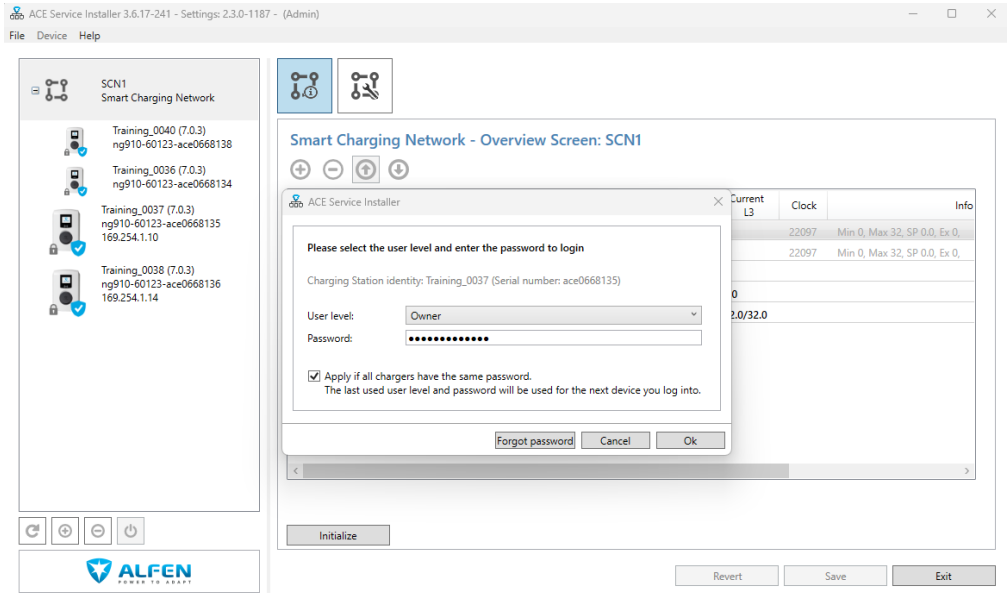
## Fill in the password of the charger

Select the right User Level and fill in the password. Check the checkbox if all chargers have the same password.

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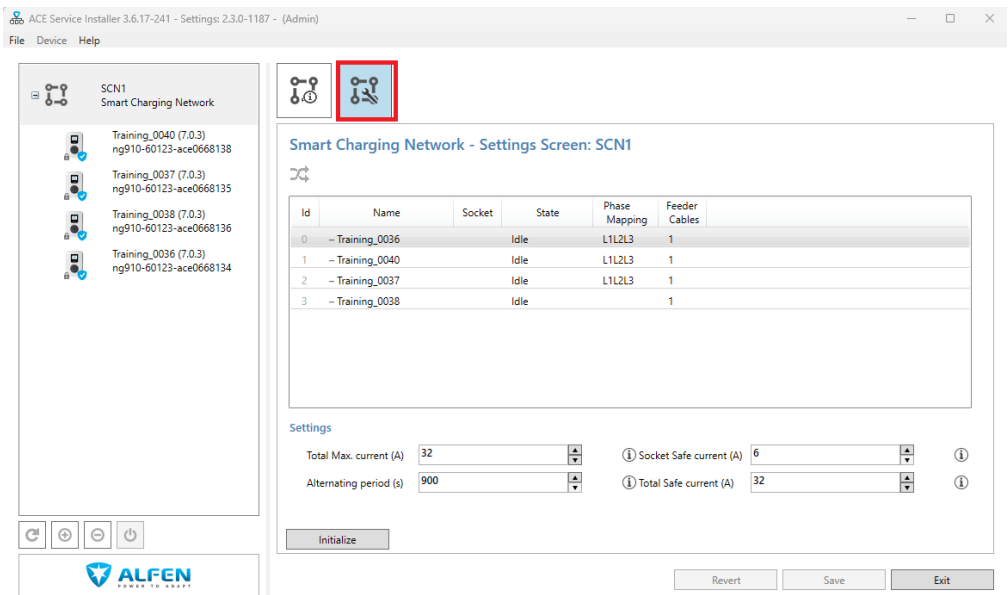
## Set the SCN to the installation values

If all chargers are added to the SCN, Click on the icon 

Adjust settings for Total Max. current (A), Alternating period (s), Socket Safe current (A), and Total Safe current (A).



## Explanation of terminology

Before we move on, you should have a clear understanding of the terminology:

### Total Max. current (A)

Here you set the maximum current (in Ampere) that the SCN can consume in total when it is in operation.

### Alternating period (s)

Here you set the time that a charging station is paused (in seconds), if there is not enough power to charge all vehicles at once, until the next charging station is allowed to charge.

### Socket Safe current (A)

Here you set how much current (in Ampere) a charging station is allowed to charge per socket, in case the charging station has lost the connection to the SCN.

### Total Safe current (A)

Here you set the maximum current (in Ampere) that all the charging stations combined can charge, in case there is no connection to the SCN.

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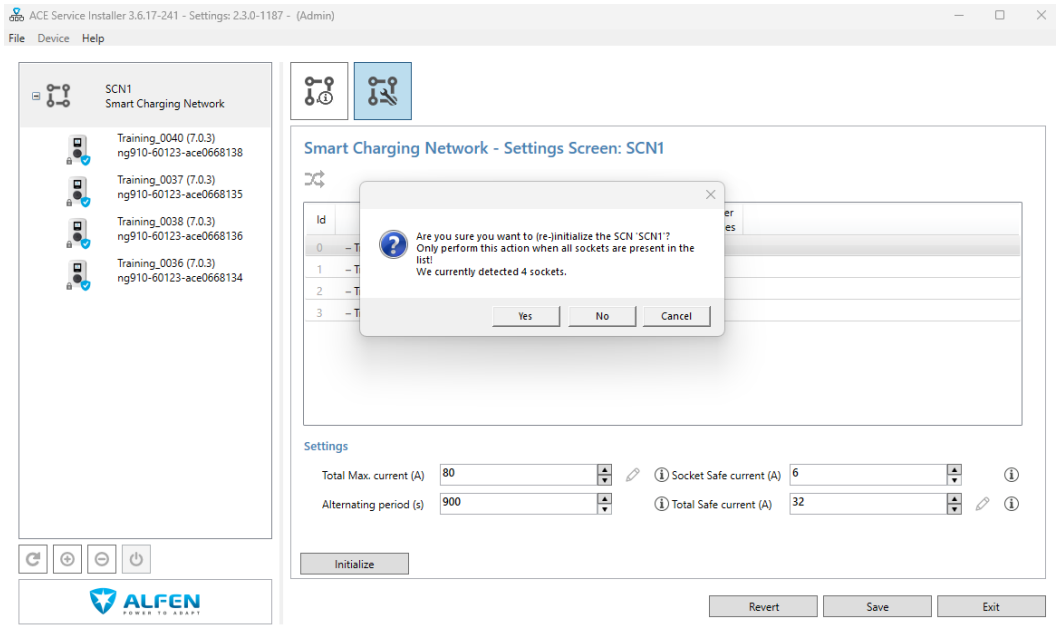
## Save

After you filled in the the correct settings, all there is left to do is to press the “Save” button to make the changes are final. Each time you make a change to these settings, you’ll need to save the settings to make it final.

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## Success!

After you clicked “save”.  The Smart Charging Network has been set up successfully.

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