TOUCHONE

touchONE-sensor-app
Setup Guide

version 1.00

Published 30.07.2019

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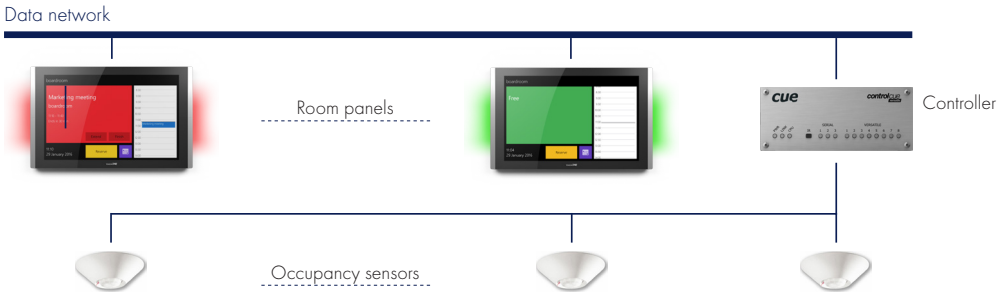
Introduction

Description

The touchONE-sensor-app is a ready made XPL2 application for occupancy sensor integration using controllers controlCUE-versatile (-d) or smartCUEversatile (-d). The application supports any type of occupancy sensors with dry contact output. Sensor output contacts are connected to versatile ports. One controller permits up to 8 sensors to be connected, i.e. it can handle up to 8 rooms.

The application has easy web setup and does not require any XPL2 programming skills.

The following picture describes how the integration of the occupancy sensors with the touchONE reservation system works.



The controller and the reservation system panels are connected to Ethernet, which is used for communication between units.

Sensors

This application is designed to connect any occupancy sensor with dry contact outputs. Usually PIR (Passive Infrared) sensors are used for this purpose. The PIR sensors are commonly called simply "PIR", or sometimes "PID", for "passive infrared detector". The term passive refers to the fact that PIR devices do not radiate energy for detection purposes. They work entirely by detecting the changes of infrared radiation (radiant heat) emitted by or reflected from objects in its field of view. The PIR sensors are commonly used in security alarms and automatic lighting applications to detect general movement. These sensors are usually readily available, inexpensive and come in a variety of design, directional characteristics, etc.

Since detectors differ in sensitivity, viewing angle, distance, location, etc., one universal sensor cannot be designed to cover all types of rooms and installations.

Because conventional cheap sensors mainly detect the movement of people in the room, it limits their ability to detect the mere presence of people in the room. If people sit at tables and act or watch a presentation, it may happen that the detectors do not record any movement after some time and therefore evaluate the room as empty. For these reasons, it is possible to set the time during which the room is marked as busy after motion detection, even if the sensors do not detect any movement. When sensors are used to automatically confirm meetings in a room, mere motion detection is in most cases sufficient because people in the room usually come, leave and move at the beginning of the meeting. However, if the sensors are to be used to detect a room exit during a meeting and to cancel a meeting in the room calendar, we recommend using more sophisticated (and more expensive) sensors that use technologies other than PIR to evaluate the presence of people, such as those based on temperature changes, active IR technology, mircowave radar, evaluation of camera images etc. Such sensors are called "Presence Sensor", "True Presence" etc.

Network infrastructure and other hardware requirements

For the proper functioning of the touchONE-sensor-app it is necessary to ensure the following:

- Free LAN sockets on Ethernet switches for all controllers.
- CAT5 or higher LAN cables leading from an Ethernet switch to the place where you want to install the controllers.
- The controller with the touchONE-sensor-app and the other units of the reservation suite must be on one LAN subnet.
- Power is required for each controller. The use of PoE (Power over Ethernet, standard IEEE 802.3af, Class 0) of the Ethernet switches is recommended as it will simplify the necessary cabling. In case your switches do not support the PoE technology, you can use the 24 V DC stand-alone power supply unit to power the controller.
- It is also necessary to provide power for the sensors. For sensors, use a stand-alone power supply suitable for the type of sensors used.
- A low voltage cable must be routed from the sensors to the controller to connect the dry contacts, or to power the sensors.
- Functional DNS servers.
- An open TCP port 80 (HTTP) and 443 (HTTPS) within the local network for the administration of touchONE units by means of Admin Web.
- An open unicast TCP port 53128, unicast UDP port 53129 and broadcast UDP port 33333 within the local network for communication between touchONE units. Communication between units is encrypted using AES-256.
- NTP (Network Time Protocol) servers access (UDP port 123).
- An open UDP port 53 for communication with DNS server and for conversion of domain names to IP addresses.
- Open UDP ports 67 and 68 for communication with DHCP server and for IP address assignment, if DHCP is used.
- An open UDP port 1900. Opening this port is not mandatory, it is used to make the reservation system units visible in the Windows File Explorer. This port uses UPnP technology (Universal Plug and Play), which makes it possible to make the reservation system units in the file explorer visible as other network devices. This technology must also be enabled on a given computer.
- Access the server my.cuesystem.com over HTTPS (TCP port 443). This access is not mandatory, it is used to update the firmware.
- The network card of the controllers with the touchONE-sensor-app supports speeds up to 100 Mbit/s. If you are using a faster LAN, set up ports intended for touchONE panels on your switch to auto negotiate or to 100 Mbit/s.

The setup procedure

In order to set the workplace reservation system, it is necessary to perform the following steps:

1. Install occupancy sensor in the room. Route low-voltage cable from the occupancy sensor to the controller where the touchONE-sensor-app is running.
2. Connect sensor dry contacts to the controller's versatile ports.
3. Connect power supply for the sensors.
4. Connect the controller to the network. If your switches does not support PoE (standard IEEE 802.3af, Class 0), then connect the stand-alone power supply (24 V DC) to the controller or use PoE adapter.
5. Do the basic setup of the controller (IP settings, date and time) using Admin Web pages.
6. Upload touchONE-sensor-app to the controller using Admin Web pages.
7. Set up the sensors (name, timeout, active dry-contact state).
8. Assign sensors to individual rooms. This is done in the reservation system settings and is described in the **touchONE - Essential Setup** or **touchONE-manager - On-premises Administration** setup guides.

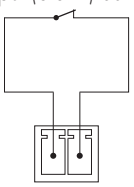
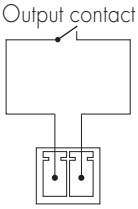
The touchONE-sensor-app is managed using the Admin Web pages. There you can do the following:

- Set up the controller (IP address, date and time, etc.)
- Set up the sensors (name, active dry-contact state, timeout)

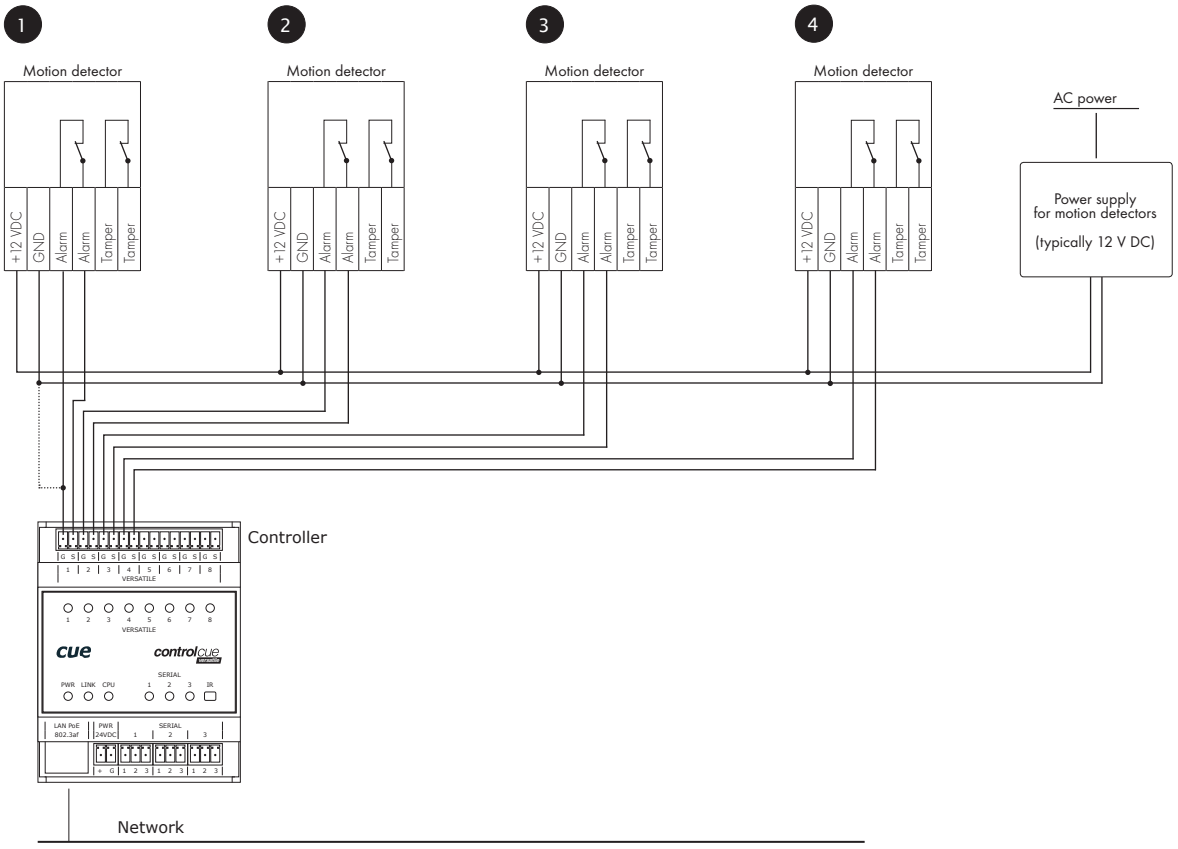
The Admin Web pages are available in the English language only.

Hardware connection

PIR motion detectors with dry contacts are manufactured with two different idle states. Detectors primarily intended for security devices have an idle contact state closed and are opened when motion is detected. Detectors designed primarily for lighting switching have the idle contact state open and they close when motion is detected.

	Normally closed (typical alarm sensor)	Normally open (typical light sensor)
	Output (alarm) contact  Versatile port	Output contact  Versatile port
Idle resistance Detected motion resistance	0 ∞	∞ 0
Active state (web setup)	Open	Closed
Description	The idle state is defined as a loop resistance 0. If this value changes, it is regarded as detector triggering.	The idle state is defined as a open loop (resistance ∞). If this value changes, it is regarded as detector triggering.
Note	Use alarm contact on PIR detector. Do not use tamper contact.	The output contacts and the versatile port must be galvanically isolated from AC power supply 230 V (110 V).

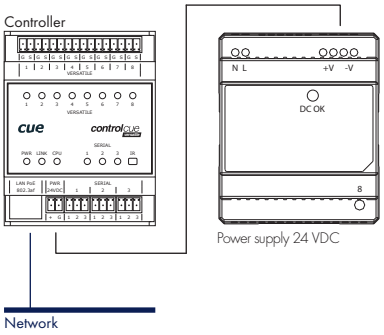
Typical connection of detectors



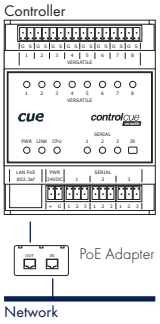
Controller power supply

For connection to a network without PoE infrastructure, the local power supply can be used. There are two possibilities as described in the following pictures. Both methods mean that local power is independent of the central power source. It can increase the reliability of distributed systems, because local functions are independent of the central power supply.

Power supply 24 VDC

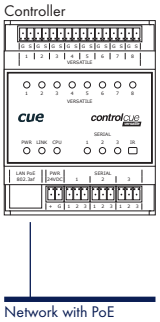


PoE Adapter



PoE infrastructure

The integrated PoE permits easy installation in areas where PoE network infrastructure is installed. It means the controller power supply depends on the central PoE power supply. It can decrease the reliability of the distributed systems because local functions depend on the central power supply.



Admin Web

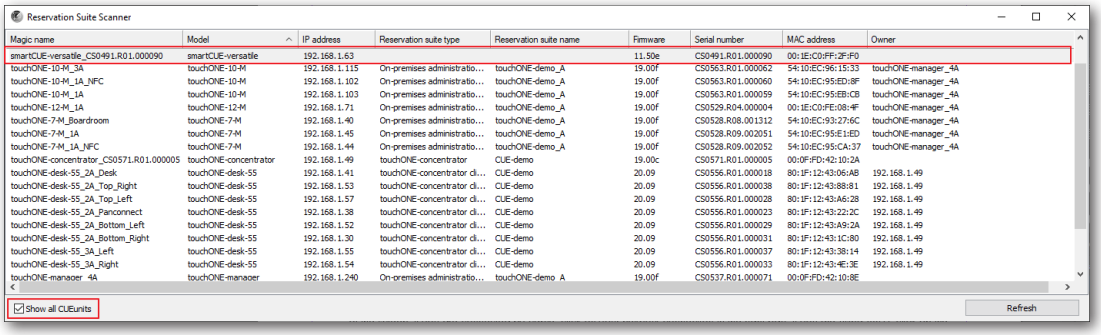
Accessing

In the default setting, the unit is enabled to get the IP address and DNS servers using the DHCP of your network. Check whether the IP address, gateway and DNS servers correspond to your network. In the "DHCP" item you can check whether the IP address has been acquired through DHCP (On) or not (Off). If the setting is not suitable for you, it can be changed later – for description how to do this see the chapter **Configuration**.

To access the Admin Web of touchONE units you need a computer with an internet browser. The computer must be connected to the same LAN network as the touchONE units. The Admin Web pages can be opened in one of the following ways.

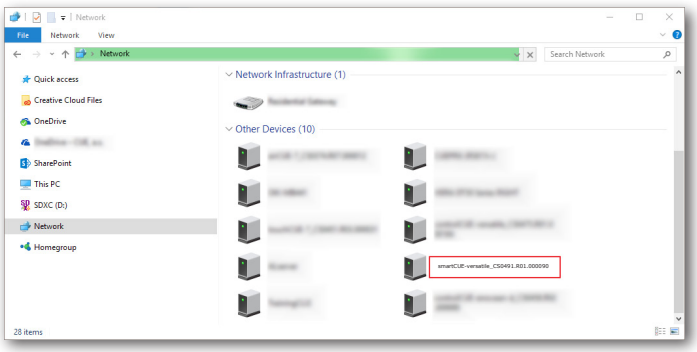
Option 1: Reservation Suite Scanner

On a computer that is in the same LAN as your reservation suite, run Reservation Suite Scanner.exe, which you can download from www.touchone.eu. This application does not require installation. Reservation Suite Scanner searches the network and lists all reservation system units. Tick the option "Show all CUEunits" in the left bottom corner. Double clicking on the selected controller unit will launch the default web browser and open the Admin Web of that unit.



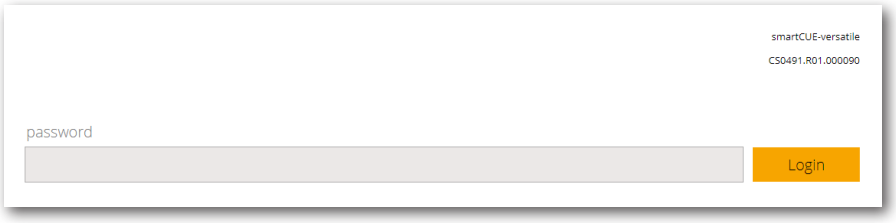
Option 2: File Explorer

Run File Explorer on your computer and select "Network" in the left part of the screen. On the right you will see a list of devices found in your network. The units of the CUE and touchONE systems can be found in the section "Other devices". If you double click on the desired unit, the internet browser will start running, the unit IP address will be entered automatically and the Admin Web of the given panel will open in the browser. To enable your computer to find the CUE and touchONE units, network identification has to be switched on your computer. In Windows 10 this can be done in the following manner: select Start / Settings / Network & Internet. Then select Wi-Fi (if your computer has a wireless connection to the network) or Ethernet (if your computer is connected through a cable) in the left half of the screen. If you are connected by cable, click on your network connection in the right part. If you are using Wi-Fi, click on the item "Advanced options" below the list of available Wi-Fi networks. Then set the item "Make this PC discoverable" to "On").



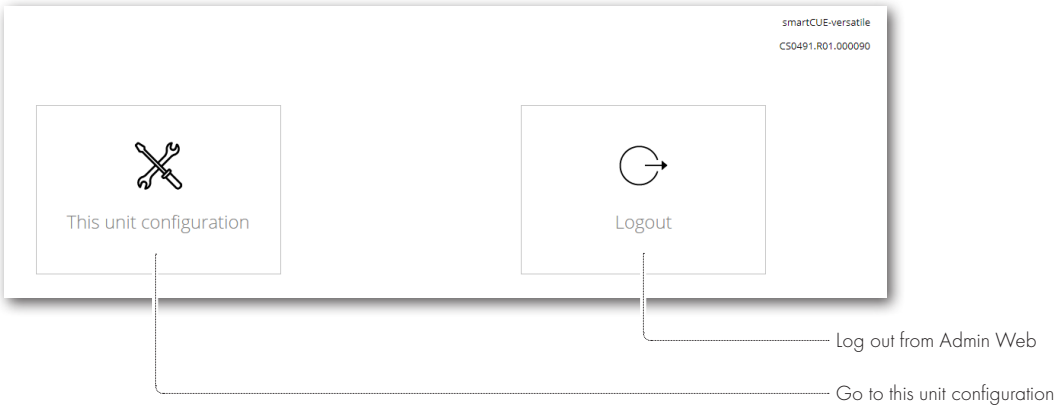
Login

This screen is not displayed if password is empty (factory default status). If password is not empty, you have to log in at first for operating with your CUEunit via these web pages. Enter your password into the Password box and click the "Login" button to enter the CUEunit web pages. Remember that the password is case sensitive. For changing your password use the Configuration/Identification page after you are logged in.



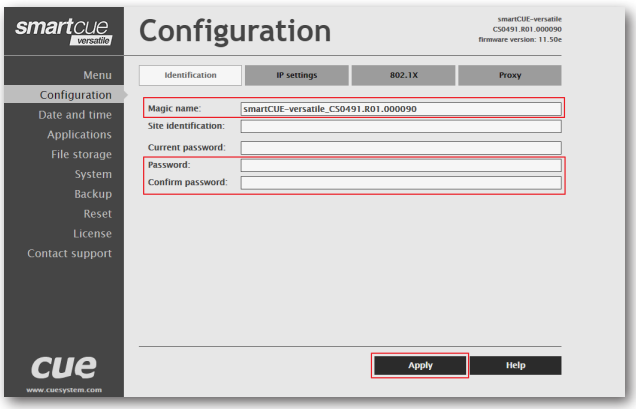
Home page

Use the Home page to select this unit configuration. You can provide logout too.



Configuration

Identification



Every CUEunit can be identified by a unique Magic name. Magic names are most useful in applications requiring more than one CUEunit or when CUEunit obtains IP address from DHCP server. This enables programmers and installers to reference CUEunits with logical, user friendly names, like "boardroom," "lobby," etc.
To set the CUEunit identity, enter the unique name you wish to use in the "Magic name" box.
Be sure to click the "Apply" button for any changes to become effective!
A case sensitive password is necessary to login to the admin web pages. Set a new password via the "Password" box. You must re-enter the password in the "Confirm password" box. An error message will appear if the confirmation does not match, in which case you should re-enter your password again in both boxes. If the password is already set and you need to change it, enter the current password in the appropriate field.
Finally, the new password is implemented by clicking the "Apply" button.

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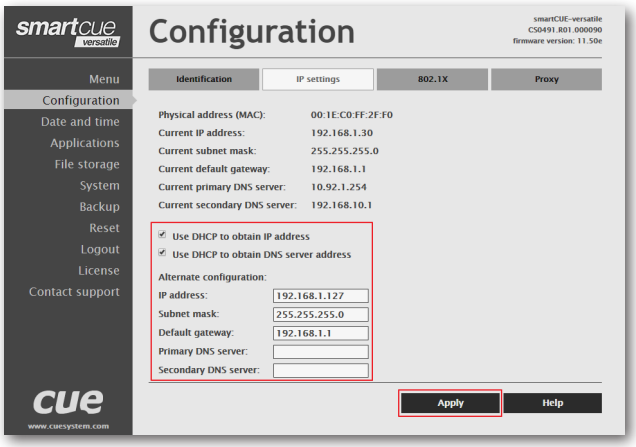
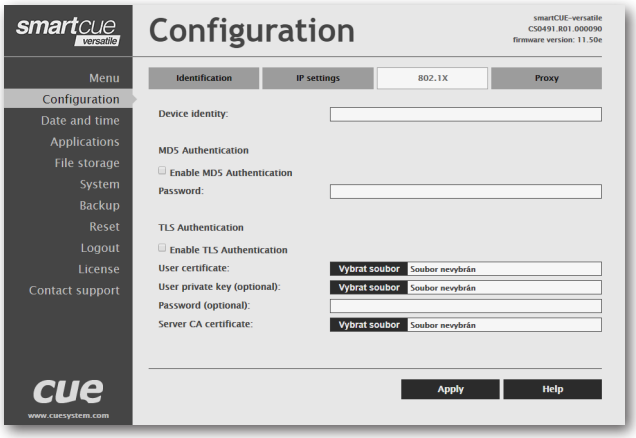
IP settings



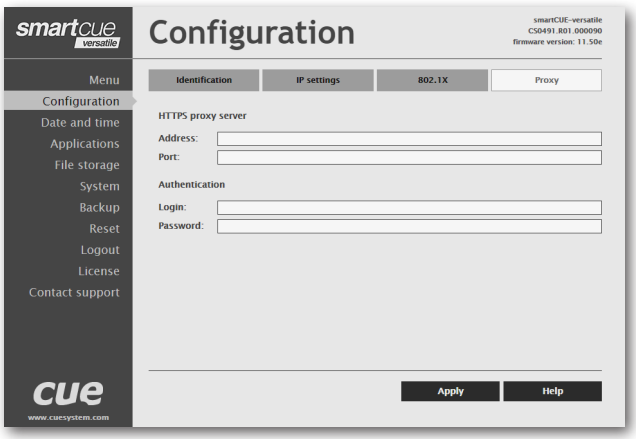
This page is used for establishing the IP communication parameters for your CUEunit.
The CUEunit uses standard internet protocol (IP) communication parameters. Current IP settings are displayed on the top part of the screen.
DHCP (dynamical distribution of IP addresses) can be enabled by checking the "Use DHCP to obtain IP address" box. In case you need the IP address to be assigned by DHCP but the addresses of DNS servers to be set manually, uncheck the "Use DHCP to obtain DNS server address"box and enter the address of the primary and secondary DNS server into the apprropriate fields.
You can enter the IP address, the subnet mast and the default gateway into the appropriate fields. If DHCP is enabled, this setting is considered as an alternate one. This alternate IP address will be used in case of DHCP server failure.
Be sure to click the "Apply" button for any changes to become effective. Then confirm the change with the "Yes" button. The panel will now restart and the new IP settings will be used.

802.1X



If your LAN is secured using 802.1X, select the "802.1X" tab at the top. Supported authentication methods are MD5 and TLS.
Type device identity in the appropriate box.
If you are using MD5 authentication, check the appropriate checkbox and enter the password for MD5 authentication.
If you are using TLS authentication using certificate, check the appropriate checkbox. Then tap the "Choose file" button next to "User certificate", select the user certificate file and upload it. The following certificate types are supported: PKCS #12 and x509 (PEM, DER). You can also upload a private key file if the private key is not part of the user certificate. If the user certificate or private key is encrypted, enter the password to decrypt it in the "Password (optional)" box.
In the CA certificate entry, upload the Radius server CA Certificate. Click "Apply" to save the changes.

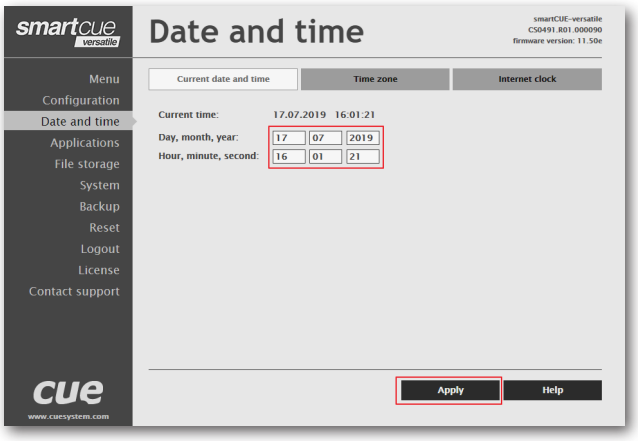
Proxy



If the proxy server is mandatory to access HTTPS servers on your network, select the "Proxy" tab on the top.
Enter the Address and Port of the proxy server. If the proxy server requires authentication, enter the credentials for the proxy server in "Login" and "Password". Click "Apply" to save the changes.

Date and time

Current date and time

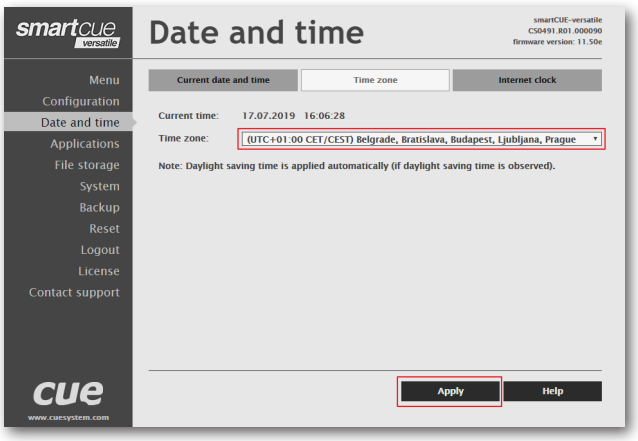


This page is used for setting the time clock on your CUEunit. The current date, time, and time zone are shown on the Current time line. The applicable boxes can be selected to enter changes to the date:

- day/month/year,
- time: hour/minute/second.

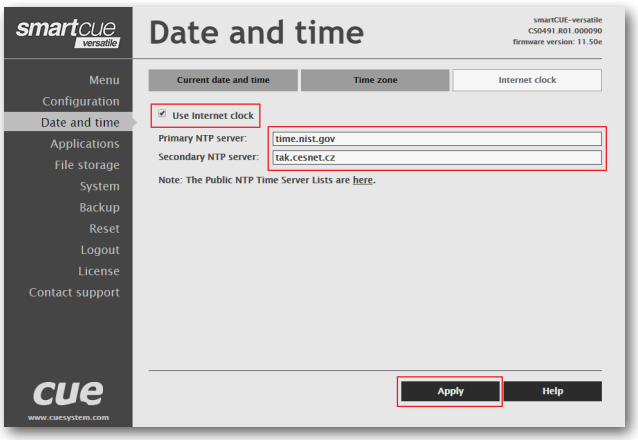
Be sure to click the "Apply" button for any changes to become effective!

Time zone



This page is used for setting the time zone on your CUEunit. The current date, time, and time zone, are shown on the Current time line. The time zone box can be selected to enter changes to the Time zone.
Be sure to click the "Apply" button for any changes to become effective!

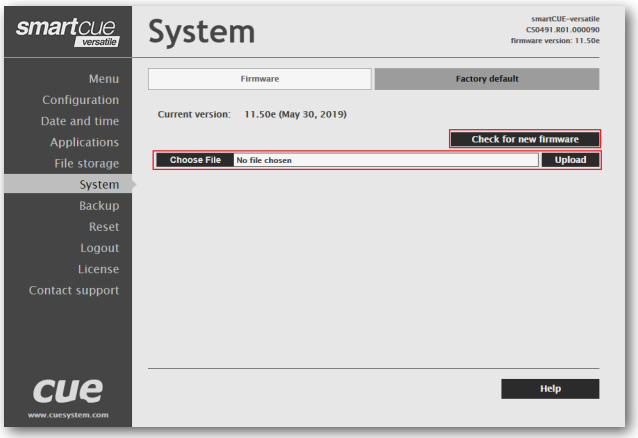
Internet clock



This page is used for the synchronization of the CUEunit's date and time with an internet clock. Begin by selecting the check box for "Use Internet clock". Next, enter the IP addresses (or complete address name) of the primary and secondary NTP servers. Use the "Primary NTP server" and "Secondary NTP server" boxes for this purpose.
Be sure to click the "Apply" button for any changes to the internet clock to become effective!

System

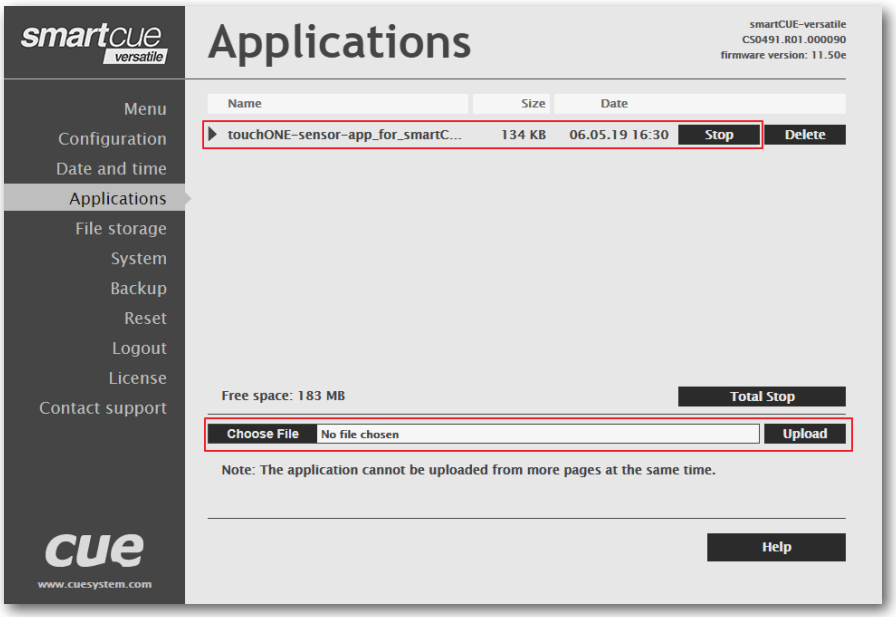
Firmware



This page is used for updating the CUEunit firmware.
The touchONE-sensor-app requires firmware 11.50 or newer.
The Current version of the firmware is shown. If the unit has Internet access, you can upgrade the firmware with the "Check for new firmware" button. Alternatively, you upload new firmware from a file. In this case tap "Choose File", select the desired version, and click the "Upload" button. Finally confirm firmware upgrade using "Update" button. Firmware upgrade takes about 1 minute. Do not disconnect the power during this time. After upgrading, the controller will restart.

Uploading an application

When you make the basic settings of the controller described above, you need to upload the touchONE-sensor-app application
In the admin web, select "Applications" in the left column.



Tap "Choose File". Now choose one of four applications, depending on the type of the controller you are using:

- touchONE-sensor-app_for_smartCUE-versatile_1.00.cvca
- touchONE-sensor-app_for_smartCUE-versatile-d_1.00.cvca
- touchONE-sensor-app_for_controlCUE-versatile_1.00.cvca
- touchONE-sensor-app_for_controlCUE-versatile-d_1.00.cvca

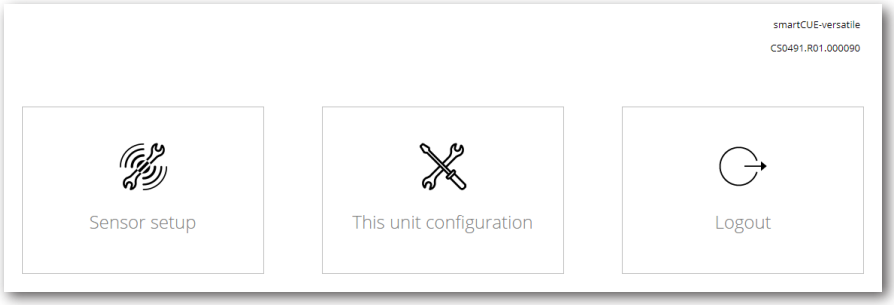
These files are distributed in a ZIP file with this manual.

Once the application has been uploaded, it must be started. If the "Start" button is next to the application, tap it to start the application. If the "Stop" button is displayed to the right of the application, the application is running and you do not have to do anything.

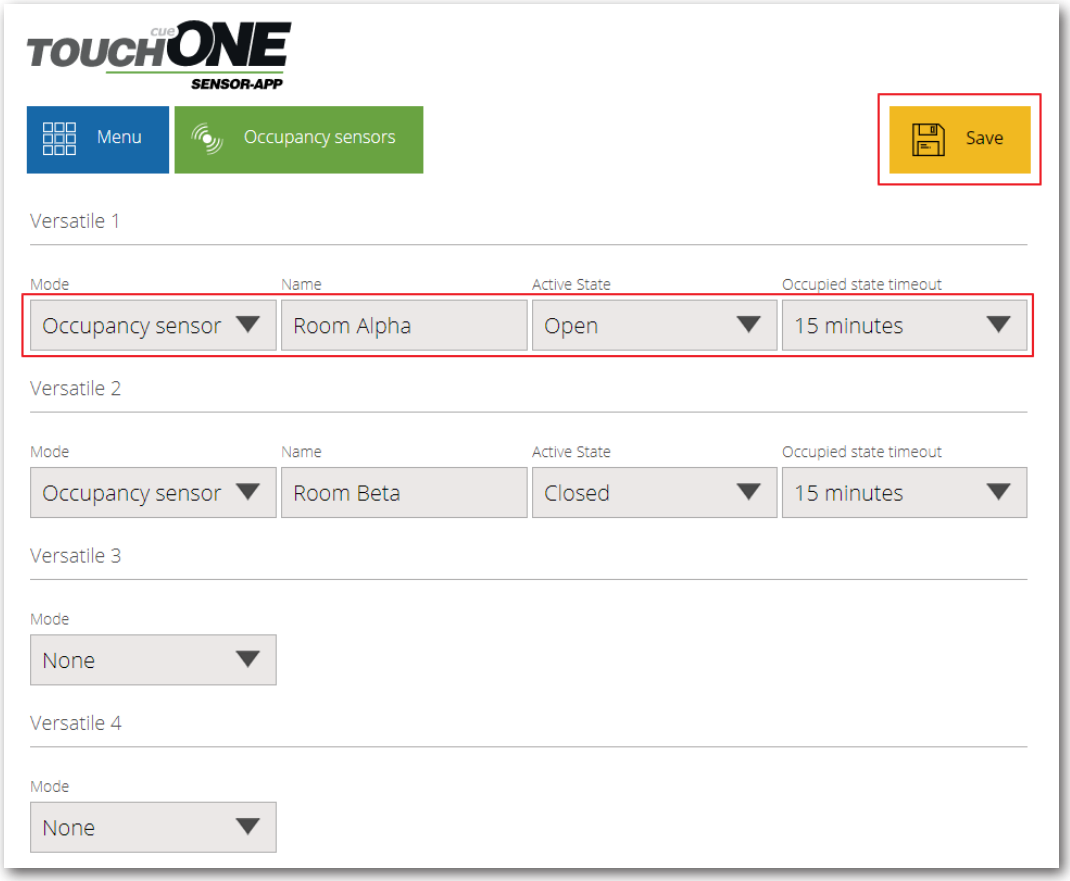
Now that you have the touchONE-sensor-app uploaded and running, you can start configuring the sensors.

Sensor settings

In the left menu, tap "Menu". Home page will be shown.



Now there is new button "Sensor setup". Tap it to enter the page with the sensor setup.



Here you can set sensor parameters connected to the given versatile port.

In the item "Mode", select "Occupancy sensor", if there is a sensor connected to the port, or "None" if this versatile port is not used.

In the item "Name", assign a mnemonic name for the sensor, e.g. name of the room, where sensor is installed. This name must be unique within the controller. This name, together with the Magic name of the controller, will be used later in reservation suite configuration.

In the item "Active State", select the state of sensor relay contacts if the sensor detects presence of people. See the chapter **Hardware connection** for details.

In the Occupied state timeout, set the time during which the room is marked as busy after motion detection, even if the sensors do not detect any movement. See chapter **Introduction / Sensors** for details.

Tap the "Save" button to save the changes. Use tne "Menu" button to go back to Home page.

Assigning sensors to individual rooms

This setting is done in the reservation system settings and is described in the **touchONE - Essential Setup** or **touchONE-manager**

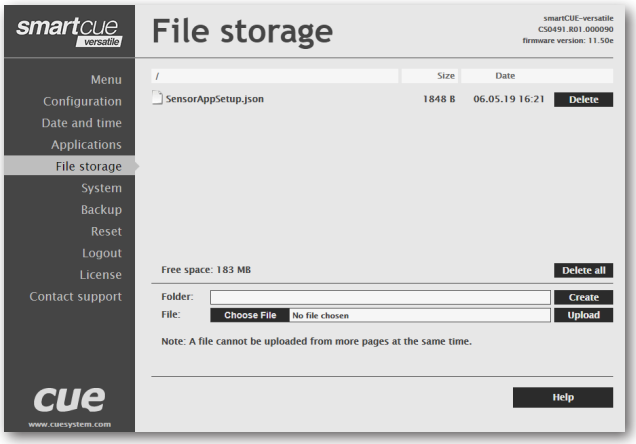
- On-premises Administration setup guides.

Other admin web settings

There are other settings in the admin web of the unit. The settings described below are not critical to the functionality of the application, but may sometimes be useful.

Others, not mentioned here, are not relevant to the application. They are described in the user manual for given unit.

File storage



The CUEunit's generous memory can be used as an auxiliary file storage device. This is helpful for storing presets, in archiving electronic manuals, pdf files, and other support documentation. File storage is managed via the file storage page.

Do not delete or change the SensorAppSetup.json file. The application configuration data is stored in this file and the application will not function properly without it.

Backup

Backup

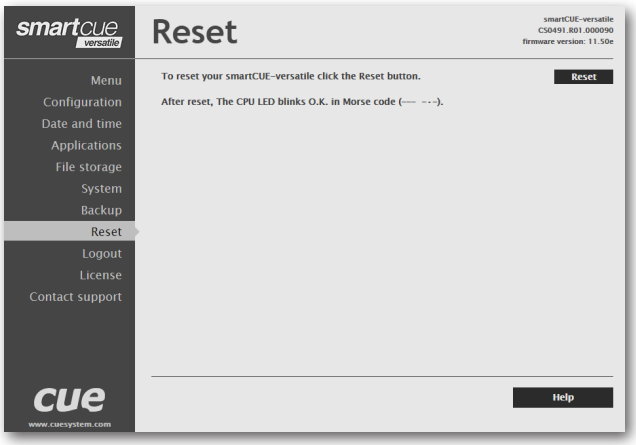
The page is used for the backup applications, files and folders. The Backup copies all Applications, Application data, File storage and Web storage to one archive. This archive is saved to the PC. To start the backup process, click the "Backup" button.

Note: To see the backed-up/restored applications, click the "Applications" menu. To see backed-up/restored files and folders, click the "File Storage" menu. The page is used for the backup of all applications, files and folders.

Restore

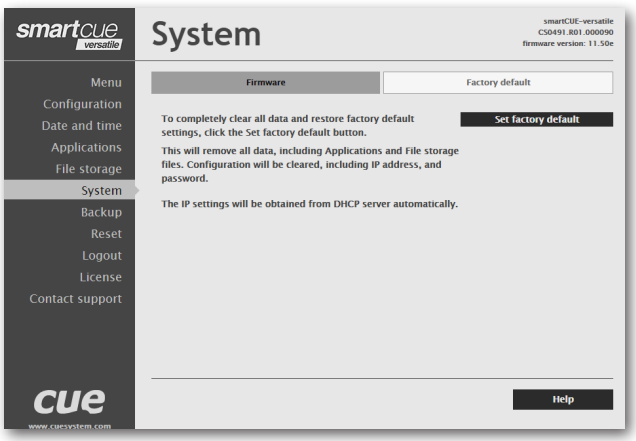
READ ALL IMPORTANT NOTES THAT FOLLOW BEFORE USING THIS OPERATION!
The page is used for the restoring of all applications, files and folders. Restore copies of all applications, files, and folders from a backup archive on the PC to their corresponding locations on the CUEunit. To start the restore process, select the desired backup archive, then click the "Restore" button. The restore process can take up to 10 minutes, depending on the size of the files being restored.
If you want CUEunit's settings to be restored too, check the "Restore configuration" box. The CUEunit's settings are accessible via the Configuration, Date and time and Password menus.
Important notes
Current password and IP settings will be restored too. The restore process takes from 1 to 10 minutes. It depends on the sizes of the restored files.
When restoring files, the running application will be stopped and all applications, files, and folders currently stored in the CUEunit will be deleted! If you want to retain them, use the Backup command before the Restore command.
To see the backed-up/restored applications, click the Applications menu. To see backed-up/restored files and folders, click the File Storage menu.

Reset



To restart your CUEunit, click the "Reset" button.

Factory default



To completely clear all data and restore factory default settings, click the "Set factory default" button.
This will remove all data, including Applications and File storage files. Configuration will be cleared, including the IP address and the password. DHCP will be enabled and the IP address will be obtained from DHCP server.

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