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Demo Board 1

Front side



Back side



General

On this page you will find the process of the **installation** & the **configuration** of 1 of our **Demo Boards**. I will refer to this board as the **data collection board**.

There are currently 3 **Demo Boards** being tested in our **affiliate** in **Turnhout**.

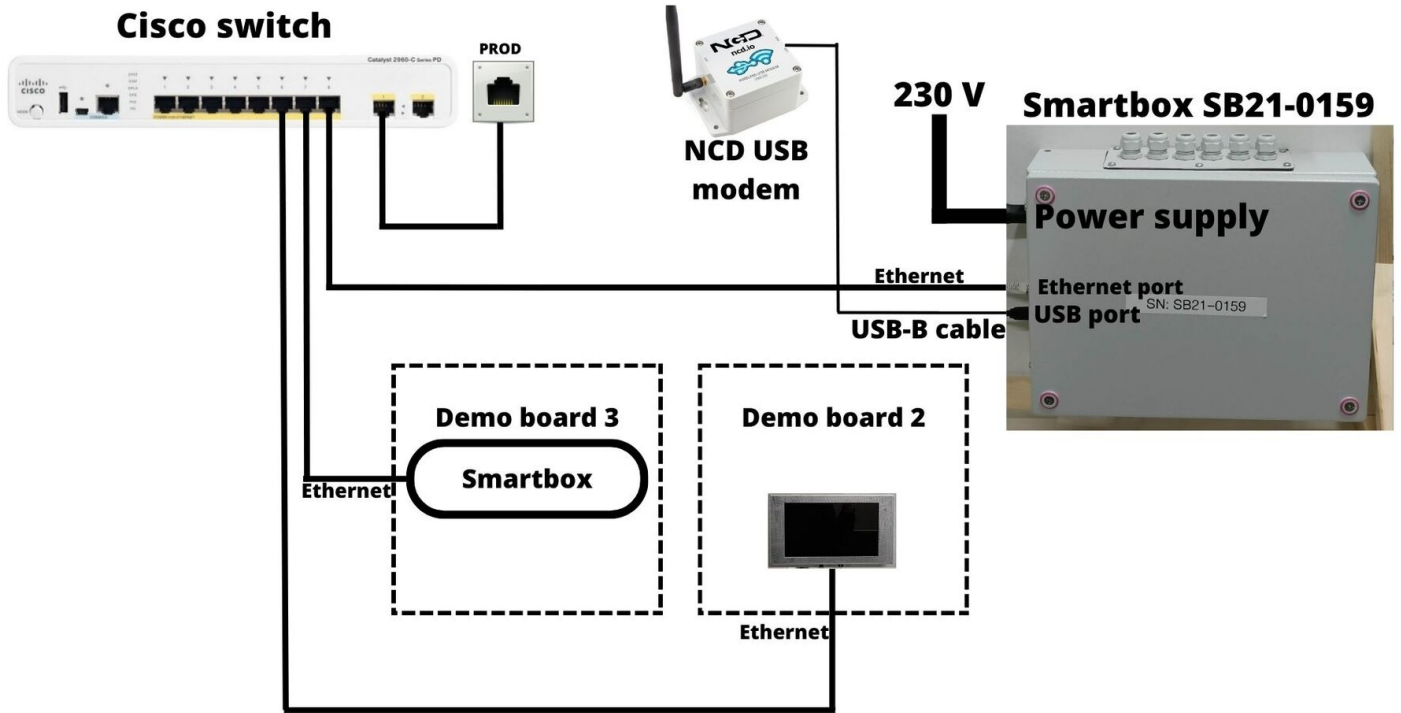
Description

On this board a smartbox is installed. The purpose of this board is to **collect data** from the **other boards**. The switch is connected to our **PRD** network. Demo board 1 acts as a **server** that connects the data that is collected on the **other demo boards to the network**.

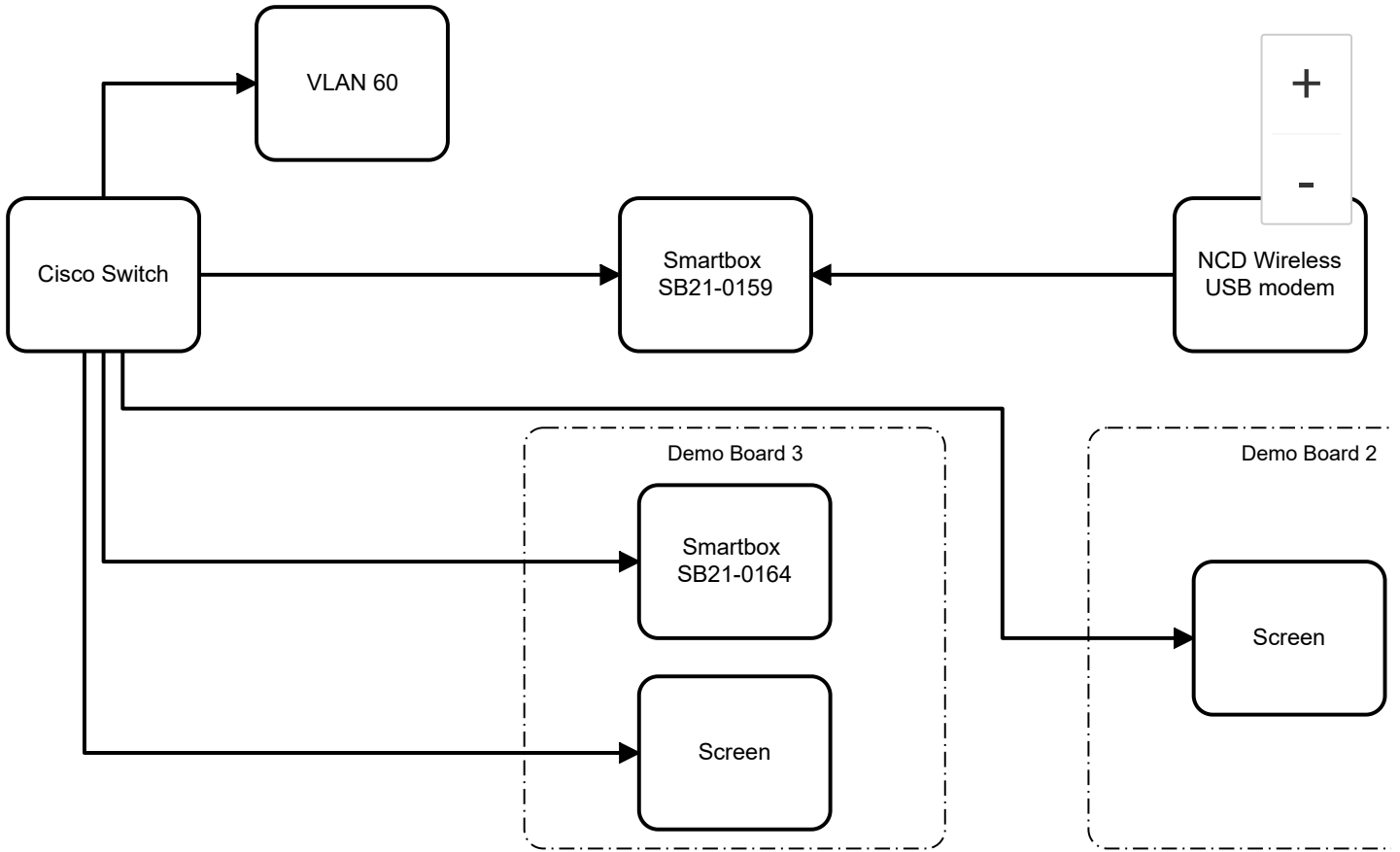
Schematics

Visual schematic

A schematic overview of the installed modules on demo board 1.



BPMN schematic



Components

- 1x Cisco Switch WS-C2960CPD-8PT-L (https://www.cisco.com/c/en/us/products/collateral/switches/catalyst-2960-c-series-switches/data_sheet_c78-639705.html?dtid=ossdc000283)



- 5x RJ-45 ethernet cables (<https://www.allekabels.be/netwerk-kabel/191/1280381/uutp-netwerkkabel-cat-5e.html?gclid=Cj0KCCQiA0oagBhDHARIsAl-BbgdKmJUOJhh2ir-biRjzN8kCij8OuF9R1m3UTYzydGlpPs>)

YN7m-CBsAnMjEALw_wcB)



- 1x Power adapter (<https://www.allekabels.be/ac-dc-adapter/7207/1307583/ac-dc-adapter.html?gclid=Cj0KCQiA0oagBhDHARIsAI-BbgefVvY5DPQQ5TBDsoLYehr7abK2b5Nmz9vJgTeVBrICXk8PFzKJqB4caAuK3>)

EALw_wcB)



- 1x Power cable (<https://www.onlinekabelshop.nl/stroomkabel-met-c13-plug-zwart-1-meter-46182>)



- 1x NCD Wireless USB Modem (<https://store.ncd.io/product/industrial-wireless-usb-modem/>)



- 1x USB micro cable (<https://www.allekabels.be/usb-micro-kabel/4911/3347008/micro-usb-kabel.html?gclid=Cj0KCQiA0oagBhDHARIsAI-BbgeQocB0V8z5fAg1dQyA6Zw-YzvmB9-JqaCSwGrbBt0ARon3FE8vU7s>)

aAlLnEALw_wcB)



- 1x Preconfigured Smartbox



- 1x Power cable (https://www.thomann.de/be/varytec_power_twist_power_cable_15_m.htm?gclid=Cj0KCQiA0oagBhDHARIsAI-BbgcLUYsHo8Nfs5yV6aG0fDjGNWvb_8UkBuOIAfCKsWR_GLMA4GiKWgga)

ApFHEALw_wcB)



Configuration

Hardware

Our Cisco switch has 8 Fast Ethernet ports and 2 Gigabit ports. 5 of them are hooked up to the other boards so that we can measure their data over ethernet.

This table summarizes the configured connections.

Switch ports	Connection	IP
Port 1 - Port 4	Not connected	/
Port 5	Demo Board 3 -> Screen	10.1.65.212
Port 6	Demo Board 2 -> Screen	10.1.65.115
Port 7	Demo Board 3 -> Smartbox SB21-0164	10.1.60.203
Port 8	Demo Board 1 -> Smartbox SB21-0159	10.1.60.233
Gigabit port 1	VLAN 60	/
Gigabit port 2	Not connected	/

Software

Node-red

Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways.

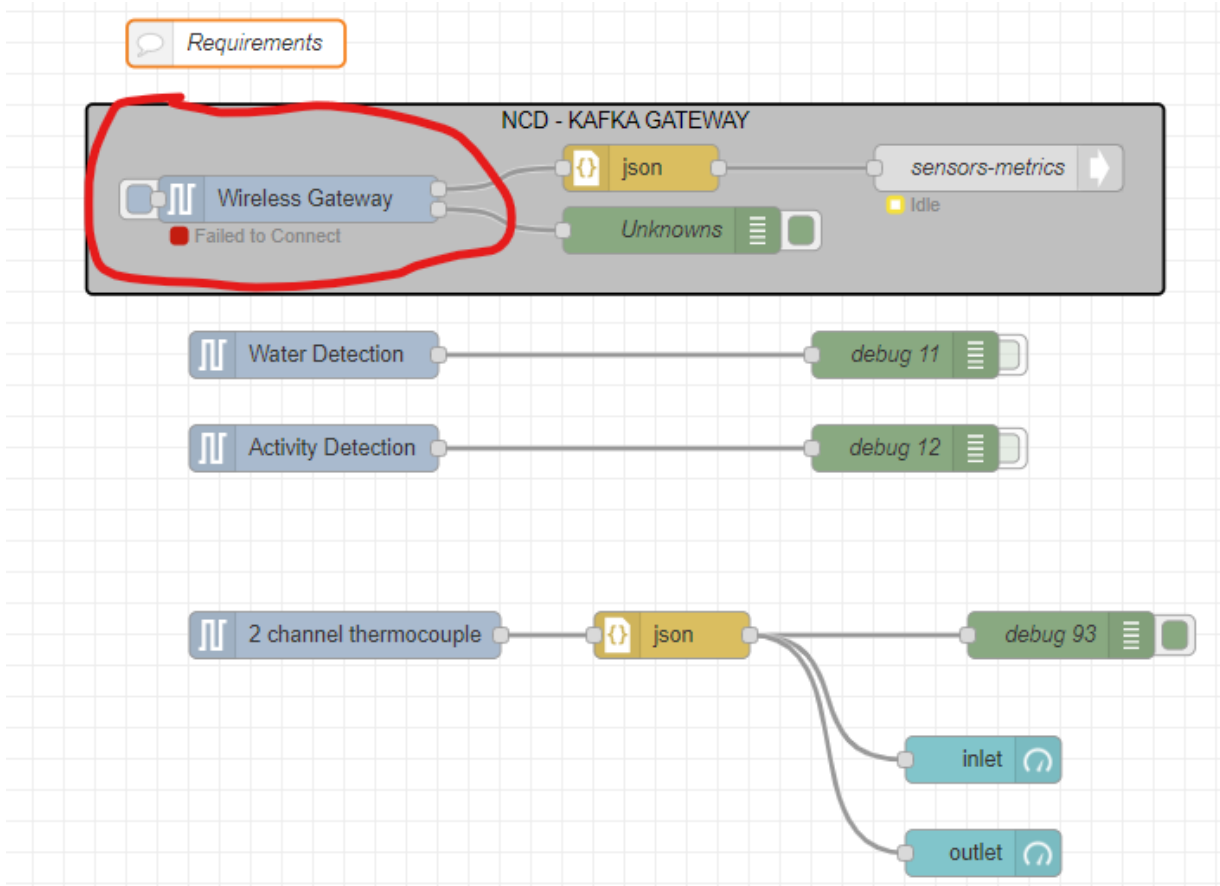
It provides a browser-based editor that makes it easy to wire together flows using the wide range of nodes in the palette that can be deployed to its runtime in a single-click.

Node-red is already installed on this smartbox.

Here we configure the NCD Wireless USB modem:

1. Make sure the power is turned **ON**.
2. Open the configuration panel on Node-red -> Configuration:
<http://10.1.60.233:1880/#flow/d775212a0abe76cb>

3. Double-click the **Wireless Gateway** node. This will open the following configuration tab.



4. Serial Device `/dev/ttyUSB0 (115200)` is selected. It is already configured. You can also configure your own

device by pressing the **edit** icon.

The screenshot shows a configuration window titled 'Edit Wireless Gateway node'. At the top, there are 'Delete', 'Cancel', and 'Done' buttons. Below is a 'Properties' section with a gear icon, a document icon, and a refresh icon. The 'Name' field is empty. The 'Serial Device' dropdown menu is set to '/dev/ttyUSB0 (115200)'. A red circle highlights the edit icon (pencil) next to the dropdown. The 'Output data from Unknown Devices' checkbox is checked.

5. Modem properties.

OS

We can access the OS with ssh. Ssh allows you to login to the pi's terminal.

Status

Hostname	RPI Version	Environment	Location	IP	FQDN	Owner
SB21-0159	RPI4	PRD	Imas	10.1.60.233	https://sb21-0159.prd.priv.vangenechten.com/	Demoboar 1

Login

```
ssh pi@10.1.60.233
```

[Copy Code](#)

NOTE: The password can be found in Keepass

```
[11:09:54] swillems → ~ ssh pi@10.1.60.233
pi@10.1.60.233's password:
Linux sb21-0159.prd.priv.vangenechten.com 5.15.61-v8+ #1579 SMP PREEMPT Fri Aug 26 11:16:44 BST 2022 aarch64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Mar  2 08:54:05 2023 from 10.1.248.9

Wi-Fi is currently blocked by rfkill.
Use raspi-config to set the country before use.

pi@sb21-0159:~ $ ls -l
total 24
drwxr-xr-x 2 root root 4096 Sep 21 14:47 buster2bullseye
-rw-r--r-- 1 root root   9 Mar  3  2022 imgMode.txt
drwxr-xr-x 3 pi   pi   4096 Oct  7 12:36 junk
-rwxr-xr-x 1 pi   pi   4118 Oct 10 12:31 sendsms.sh
drwxr-xr-x 4 root root 4096 Sep 23 11:41 sfClient
```

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