

# Bluetooth Gateway Smart Starter Kit

Rapid Deployment Guide



## Revision History

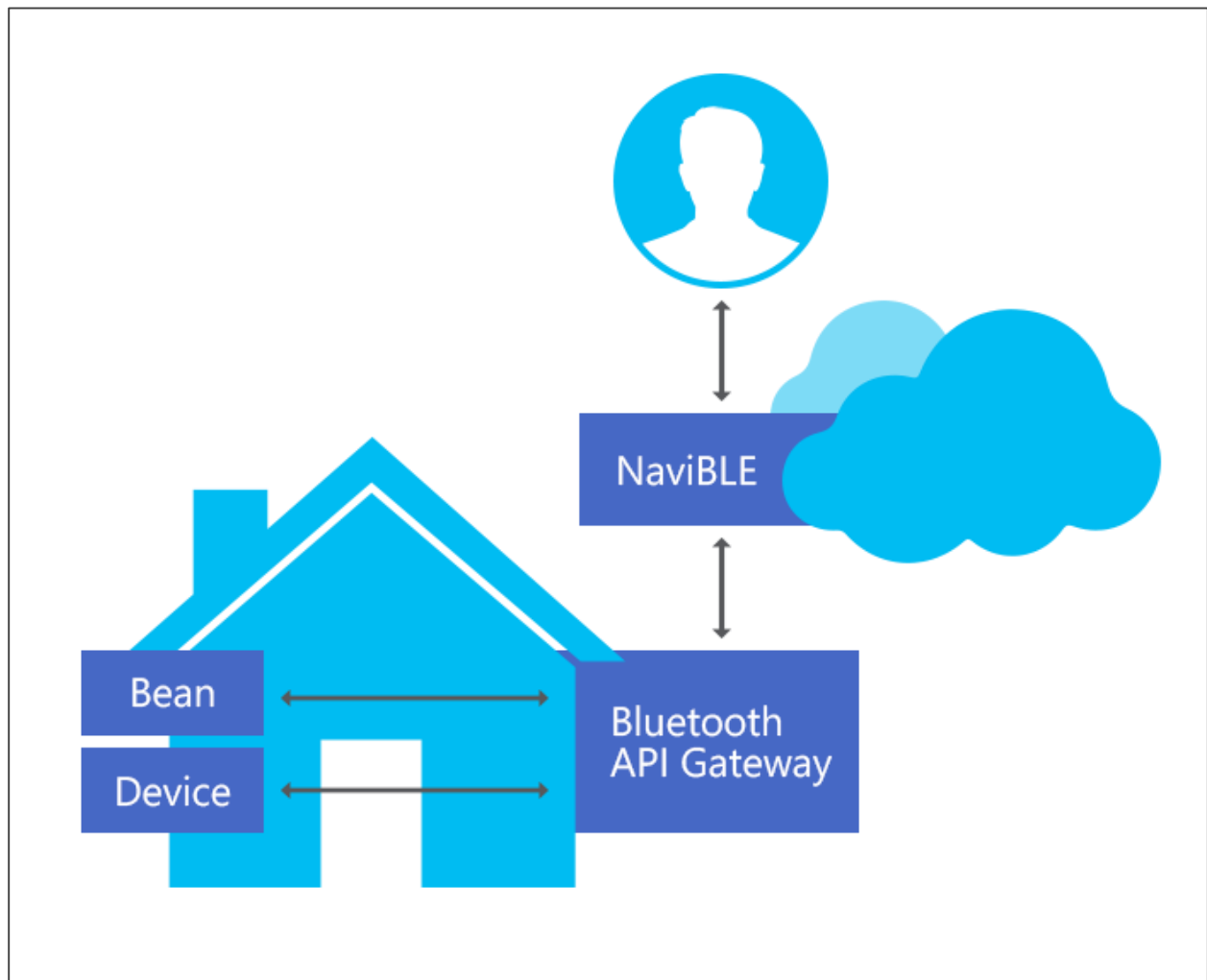
Version	Date	Description	Author
V1.0.0	2016-02-19	First version of the Deployment Guide	VG

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## Overview

This guide describes how to install both the Gateway and NaviBLE.application (the frontend web server)in the Bluetooth Gateway Smart Starter Kit. You can use the NaviBLE website to explore the services and characteristics supported by any Bluetooth devices connected to your Bluetooth Gateway.



The sample code for NaviBLE and the Bluetooth Gateway are built using Node.js running on a **Raspberry Pi 2 model B**.

This lab steps you through the following tasks:

1. Ensure you have all the hardware and software components to run this sample.
2. Installing the gateway server on a Raspberry Pi.
3. Installing the front end web server (NaviBLE) on a Raspberry Pi.
4. Run the sample code and check the result.

## 1.1 Prerequisite of running this sample.

In order to run this sample application, you will need the following hardware and software packages:

Hardware:

- A **Raspberry Pi 2 model B** development board, with Raspbian Jessie operating system. <https://www.raspberrypi.org/products/raspberry-pi-2-model-b/>
- An internet connection for Raspberry Pi, Wifi adaptor or Ethernet cable.
- Bluetooth USB Adaptor.
- Keyboard/Mouse/Monitor/HDMI Cable

Software:

1. Node.js version 0.12.x .

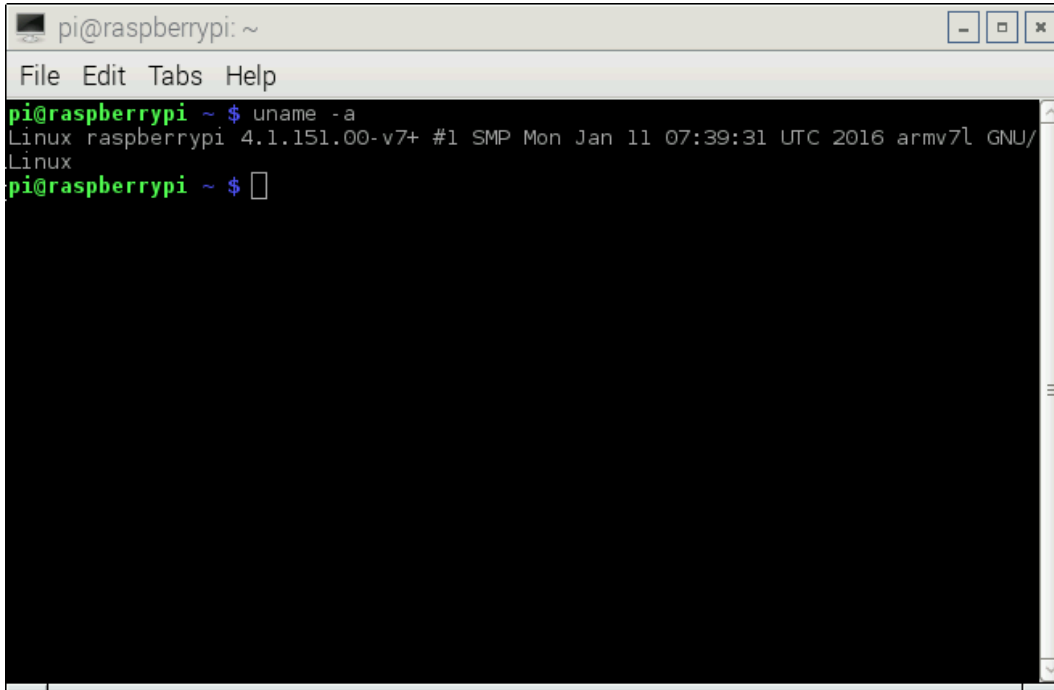
Installation steps:

- `sudo apt-get install curl`
- `curl -sL https://deb.nodesource.com/setup_0.12 | sudo bash -`
- `sudo apt-get install --yes nodejs`

To check your installation, run:

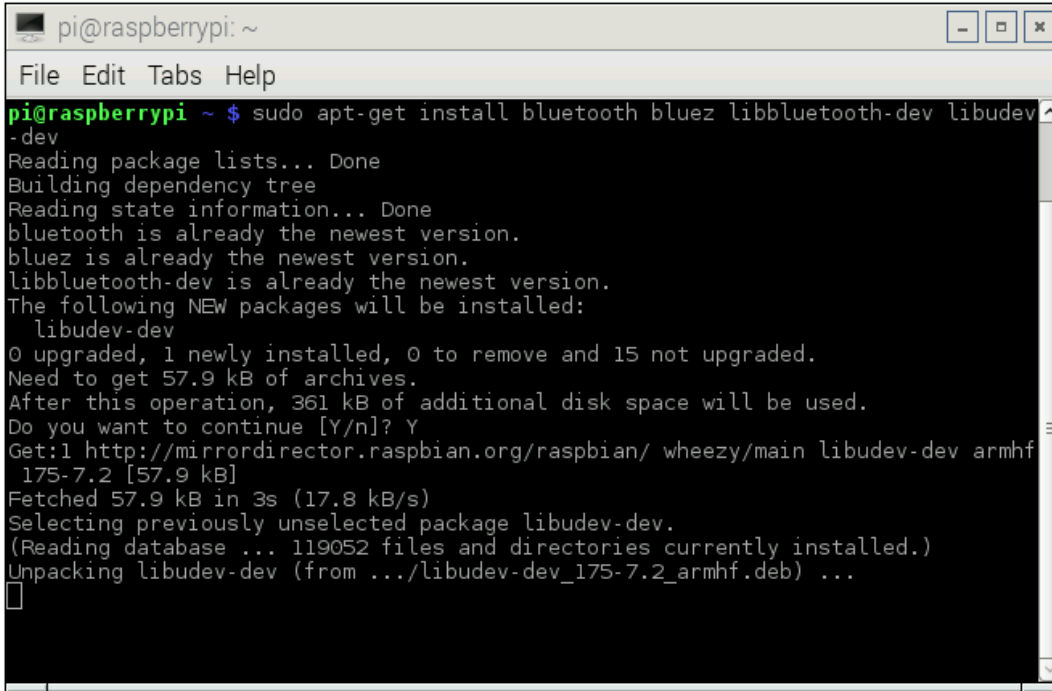
```
node -v
```

2. Make sure kernel version is 3.6 or above.



```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypi ~ $ uname -a  
Linux raspberrypi 4.1.151.00-v7+ #1 SMP Mon Jan 11 07:39:31 UTC 2016 armv7l GNU/Linux  
pi@raspberrypi ~ $
```

3. Install these packages on Raspberry Pi2 model B, "sudo apt-get install bluetooth bluez libbluetooth-dev libudev-dev".



```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypi ~ $ sudo apt-get install bluetooth bluez libbluetooth-dev libudev-dev  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
bluetooth is already the newest version.  
bluez is already the newest version.  
libbluetooth-dev is already the newest version.  
The following NEW packages will be installed:  
  libudev-dev  
0 upgraded, 1 newly installed, 0 to remove and 15 not upgraded.  
Need to get 57.9 kB of archives.  
After this operation, 361 kB of additional disk space will be used.  
Do you want to continue [Y/n]? Y  
Get:1 http://mirrordirector.raspbian.org/raspbian/ wheezy/main libudev-dev armhf  
  175-7.2 [57.9 kB]  
Fetched 57.9 kB in 3s (17.8 kB/s)  
Selecting previously unselected package libudev-dev.  
(Reading database ... 119052 files and directories currently installed.)  
Unpacking libudev-dev (from .../libudev-dev_175-7.2_armhf.deb) ...  
^
```

4. Download Gateway Smart Starter Kit from Bluetooth SIG's website on your Raspberry Pi2 model B, <https://www.bluetooth.com/develop-with-bluetooth/developer-resources-tools>

## 1.2 Installing the gateway solution and run

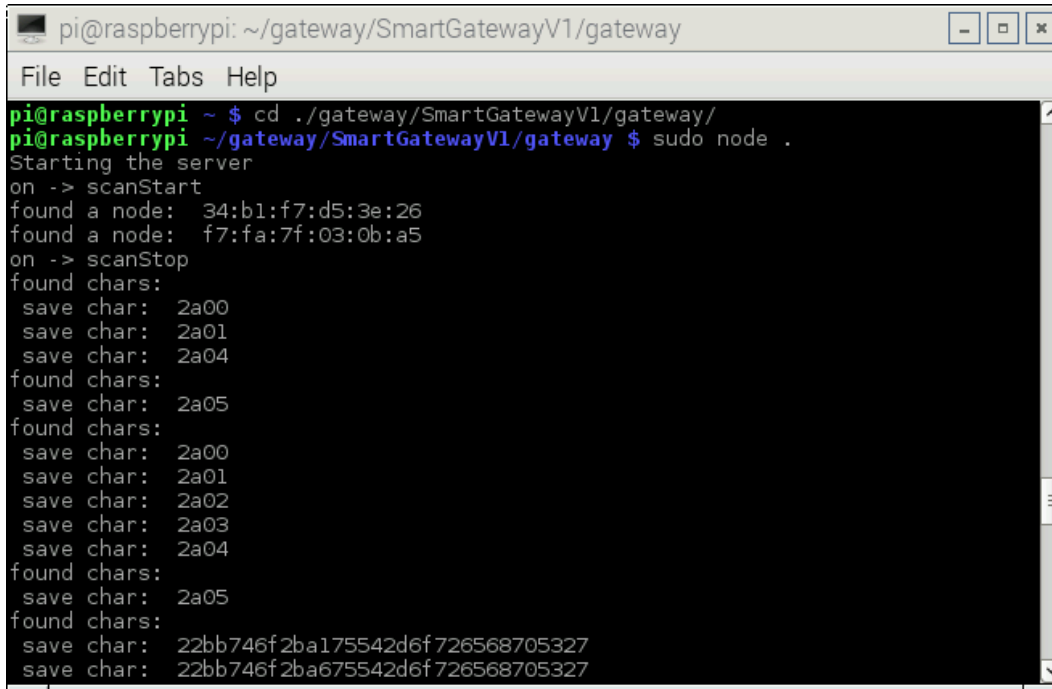
- Create a new folder under any directory on the Pi's file system. Then extract the zip file to the new folder. You should be able to see this:



```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypi ~ $ mkdir gateway  
pi@raspberrypi ~ $ unzip gateway-1.zip -d ./gateway
```

```
pi@raspberrypi: ~  
File Edit Tabs Help  
inflating: ./gateway/SmartGatewayV1/navible/routes/nodes.js  
inflating: ./gateway/SmartGatewayV1/navible/routes/services.js  
creating: ./gateway/SmartGatewayV1/navible/templates/  
inflating: ./gateway/SmartGatewayV1/navible/templates/._characteristics  
inflating: ./gateway/SmartGatewayV1/navible/templates/._layout.html  
inflating: ./gateway/SmartGatewayV1/navible/templates/._nodes  
inflating: ./gateway/SmartGatewayV1/navible/templates/._services  
creating: ./gateway/SmartGatewayV1/navible/templates/characteristics/  
inflating: ./gateway/SmartGatewayV1/navible/templates/characteristics/._show.html  
inflating: ./gateway/SmartGatewayV1/navible/templates/characteristics/show.html  
inflating: ./gateway/SmartGatewayV1/navible/templates/layout.html  
creating: ./gateway/SmartGatewayV1/navible/templates/nodes/  
inflating: ./gateway/SmartGatewayV1/navible/templates/nodes/._index.html  
inflating: ./gateway/SmartGatewayV1/navible/templates/nodes/._show.html  
inflating: ./gateway/SmartGatewayV1/navible/templates/nodes/index.html  
inflating: ./gateway/SmartGatewayV1/navible/templates/nodes/show.html  
creating: ./gateway/SmartGatewayV1/navible/templates/services/  
inflating: ./gateway/SmartGatewayV1/navible/templates/services/._show.html  
inflating: ./gateway/SmartGatewayV1/navible/templates/services/show.html  
inflating: ./gateway/SmartGatewayV1/Smart Starter Kit EULA.pdf  
pi@raspberrypi ~ $  
pi@raspberrypi ~ $
```

- Go to “gateway” folder and type “node .” or “node index.js” in the console, you can see like below. It’s clear that you see the log on the console: gateway start to scan; when scan finished, try to connect with scanned peripherals and discovery their service and characteristics.



```
pi@raspberrypi: ~/gateway/SmartGatewayV1/gateway
File Edit Tabs Help
pi@raspberrypi ~ $ cd ./gateway/SmartGatewayV1/gateway/
pi@raspberrypi ~/gateway/SmartGatewayV1/gateway $ sudo node .
Starting the server
on -> scanStart
found a node: 34:b1:f7:d5:3e:26
found a node: f7:fa:7f:03:0b:a5
on -> scanStop
found chars:
  save char: 2a00
  save char: 2a01
  save char: 2a04
found chars:
  save char: 2a05
found chars:
  save char: 2a00
  save char: 2a01
  save char: 2a02
  save char: 2a03
  save char: 2a04
found chars:
  save char: 2a05
found chars:
  save char: 22bb746f2ba175542d6f726568705327
  save char: 22bb746f2ba675542d6f726568705327
```

### 1.3 Installing the NaviBLE web application and run

Once you have extracted the zip file to your new folder, you will see a sub-folder named “Nabile”. It contains the front end solution for the gateway. You don’t need extra steps to install the Nabile server.

Please go to “navible” folder and type “node .” to start server. The following screenshot shows the result from the terminal window.



```
pi@raspberrypi: ~/gateway/SmartGatewayV1/navible
File Edit Tabs Help
pi@raspberrypi ~ $ cd ./gateway/SmartGatewayV1/navible/
pi@raspberrypi ~/gateway/SmartGatewayV1/navible $ node .
Server running at: http://raspberrypi:8000
█
```

## 1.4 Running the solutions.

You can visit front-end server through browser with Raspberry Pi2 IP address plus port number: 8000 like this: <http://192.168.1.222:8000>. (Your device's ip address may vary). When everything is OK, you can see below webpage and click Bluetooth peripherals' address to start service and characteristic routing.

**Gateway Explorer****Nodes**

All Nodes

Address	RSSI	Manufacturer
• <a href="#">34:b1:f7:d5:3e:26</a>	-58	SensorTag
• <a href="#">f7:fa:7f:03:0b:a5</a>	-54	BB-0BA5