

Getting Started of XK Gateway

BY XANDAR KARDIAN

• Release notes

Date	Release	Edit	Note	
19-08-08	1.0	Jerry	Created.	

1. Introduction

XK-Gateway is a transceiver between radar sensor and server.

1.1. References

Document	Description
XK_SDK_Manual	Explain XandarKardian's gateway system software.
XKGW_API_Specification	Specification of APIs running inside the SDK.
XK_GUI_manual	Description of the radar configuration program running inside the gateway.
XK_Gateway_Configuration_Manual	How to change Gateway Wi-Fi SSID and configuration.

2. Requirements

2.1. Hardware Requirements

- XandarKardian Gateway.
- Micro SD card: With more than 16 GB free.
- Micro 5 pin power: With more than 2.5 A.
- Laptop PC: With Windows 10 and wifi network.
- Recommended: HDMI Monitor, HDMI Cable, Keyboard, Mouse.

2.2. Software Requirements

- XK-SDK: Latest version 2.0.0 or later
- Win32diskimager: <https://sourceforge.net/projects/win32diskimager/>

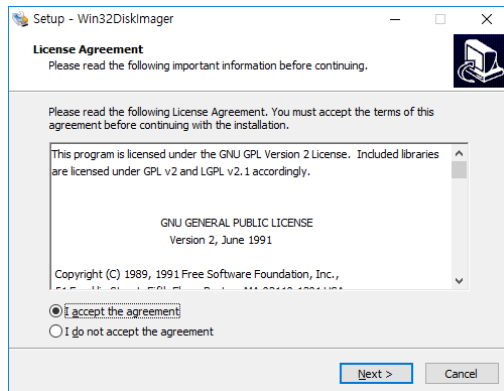
3. Power on the Gateway

3.1. Make booting disk

* Skip if SD card is provided by XandarKardian

3.1.1. Download 'Win32DiskImager' and install on your PC.

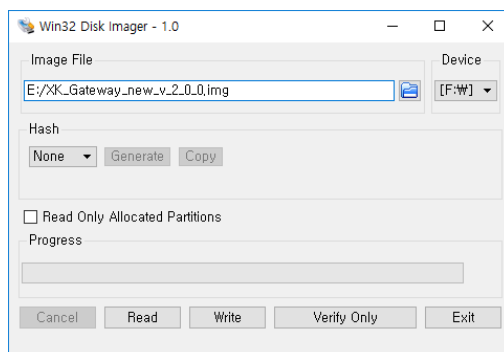
- <https://sourceforge.net/projects/win32diskimager/>



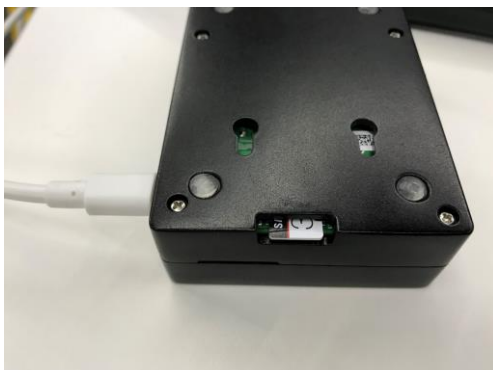
3.1.2. Open 'Win32DiskImager' using Windows Search.

3.1.3. Select **image file** provided by XandarKardian.

3.1.4. Click '**write**'.



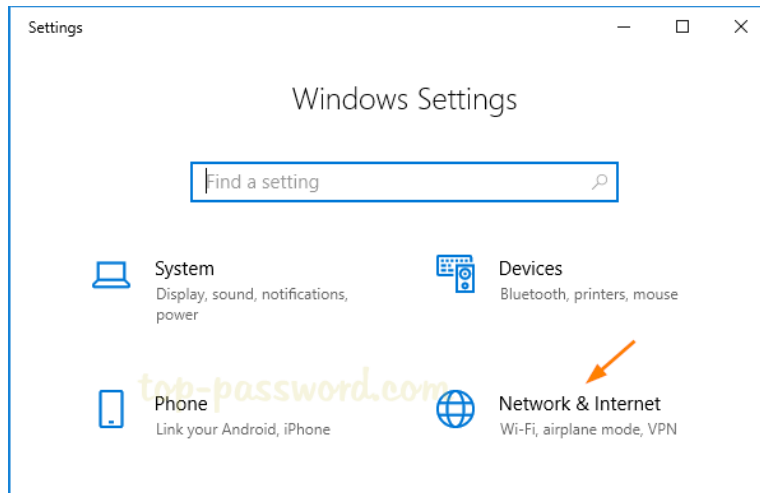
3.1.5. **Insert** micro SD Card to the gateway and **power on**.



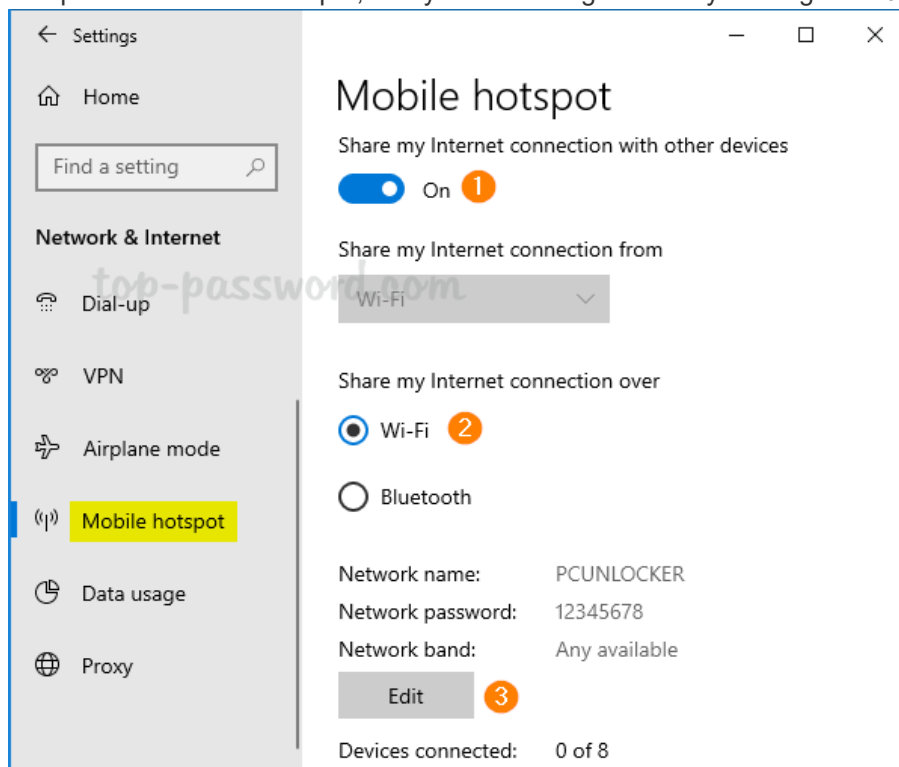
4. Connect Gateway to WiFi network

4.1. Case1: Change gateway's connection with Windows10 PC(hotspot)

4.1.1. [Open the Settings app](#), and then go to **Network & Internet**.

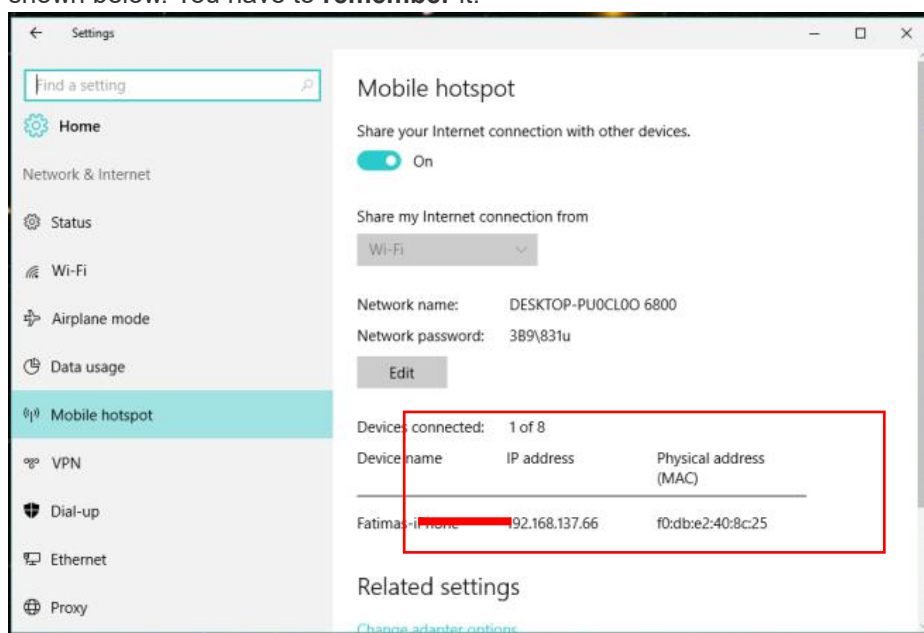


4.1.2. Click **“Mobile hotspot”** in the pane on the left. Toggle on **“Share my Internet connection with other devices”** to enable the mobile hotspot feature. The system will generate a random name and password for this hotspot, and you can change those by clicking the **Edit** button.



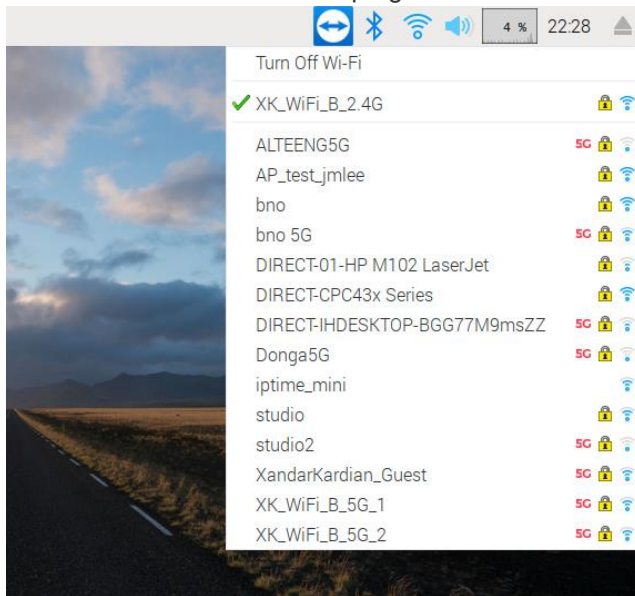
- 4.1.3. Change the network name and password, select either 2.4-GHz or 5-GHz network band and click **OK**.

- 4.1.4. If a gateway device and a PC are connected through a hotspot, the **internal IP** is assigned as shown below. You have to **remember** it.



4.2. Case 2: Change gateway's connection with monitor, keyboard and mouse

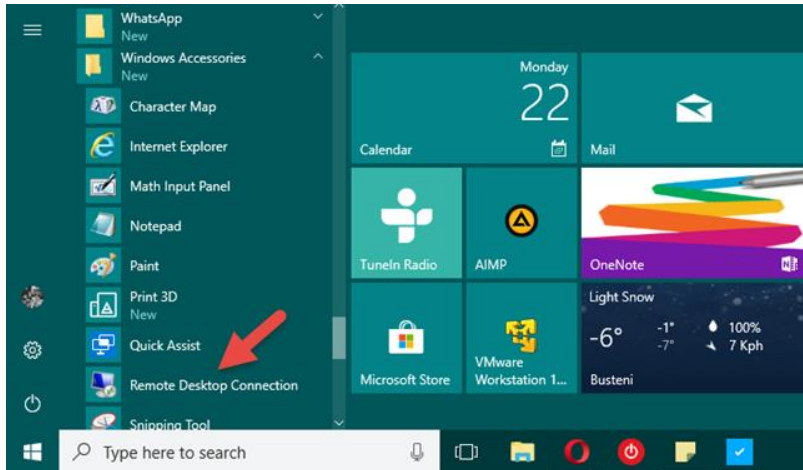
- 4.2.1. [Open the Settings app](#), and then go to **Network & Internet**.
- 4.2.2. **Connect** your monitor using an **HDMI interface**.
- 4.2.3. Connect **keyboard**, **mouse** to USB terminal.
- 4.2.4. And then **power on**.
- 4.2.5. **Click the Wi-Fi icon** in the top right corner and **connect** to the desired AP.



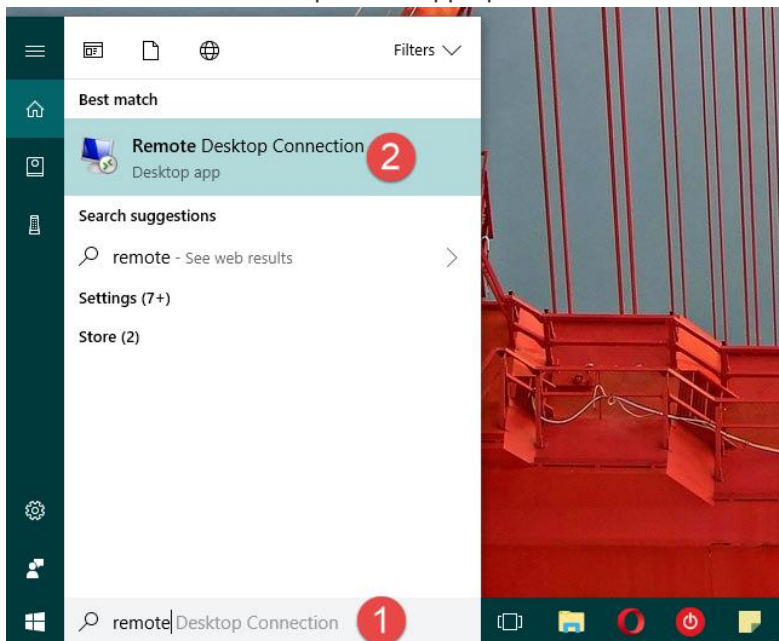
5. Remote Gateway Control on Windows Remote Desktop

5.1. Change Network

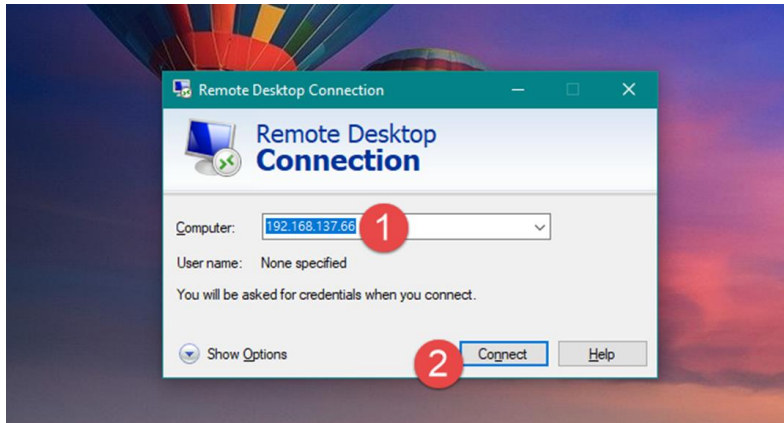
- 5.1.1. If you are using Windows 10, you can launch the **Remote Desktop Connection** client from the Start Menu. Open the Start Menu and scroll through the apps list until you find the folder called **Windows Accessories**. In it, click or tap on the Remote Desktop Connection to **open** it.



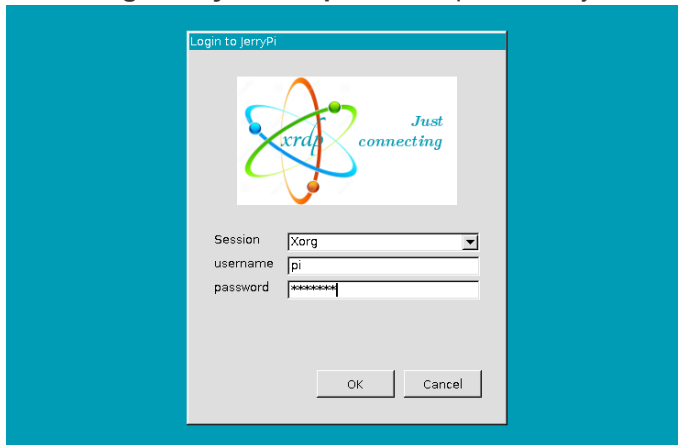
- 5.1.2. You can also use **search box** from the **taskbar**. Type the word "**remote**" or "**mstsc**" in the search field and click or tap on the appropriate result.



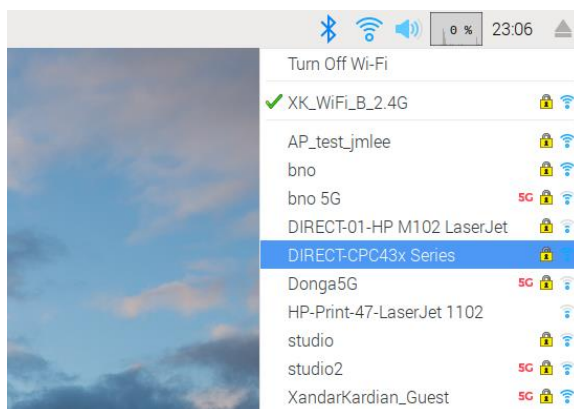
- 5.1.3. Enter the **assigned IP address** that you previously remembered. Click “**Connect**” to connect.



- 5.1.4. Enter the **gateway ID and password** provided by us and login



- 5.1.5. Change the **SSID, Password** you want permanently

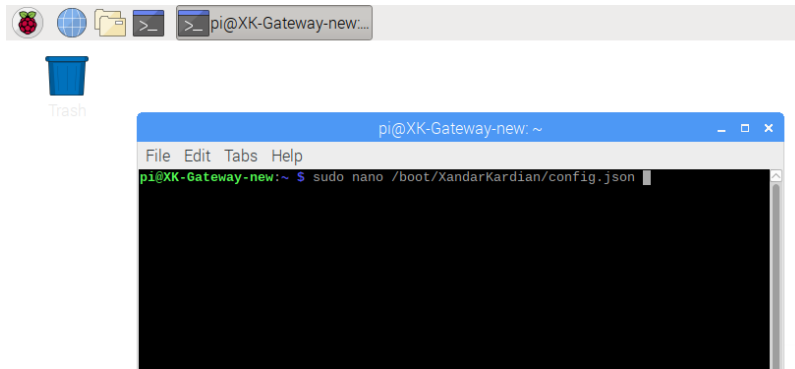


6. Change Endpoint and Set Configuration

6.1. Method 1: Using Windows Remote Desktop

6.1.1. Open 'Windows Remote Desktop'.

6.1.2. Open 'Terminal'



6.1.3. **Enter** command below.

```
$ sudo nano /boot/XandarKardian/config.json
```

6.1.4. **Change** the endpoint or configuration you want to change.

6.1.5. Save 'config.json'

1) [ctrl] + [x]

2) [y]

3) [enter]

6.2. Method 1: Using micro SD card

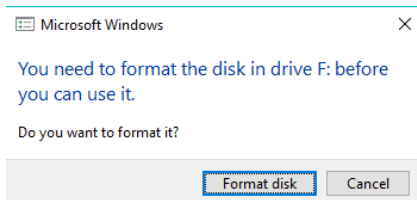
6.2.1. Open 'Windows Remote Desktop'.

6.2.2. Power off

6.2.3. **Remove** micro SD card

6.2.4. **Connect** micro SD card with PC using SD-USB converter

*** Ignore the error message to click 'Cancel'.**



6.2.5. Open **Windows File Explorer**

6.2.6. Enter the **boot drive**



6.2.7. Enter the 'XandarKardian' folder

overlays	18-10-09 오전 1:...	파일 폴더	
XandarKardian	19-08-09 오전 1:...	파일 폴더	
bcm2708-rpi-0-w.dtb	18-09-19 오후 6:...	DTB 파일	23KB
bcm2708-rpi-b.dtb	18-09-19 오후 6:...	DTB 파일	23KB
bcm2708-rpi-b-plus.dtb	18-09-19 오후 6:...	DTB 파일	23KB
bcm2708-rpi-cm.dtb	18-09-19 오후 6:...	DTB 파일	23KB
bcm2709-rpi-2-b.dtb	18-09-19 오후 6:...	DTB 파일	24KB
bcm2710-rpi-3-b.dtb	18-09-19 오후 6:...	DTB 파일	25KB
bcm2710-rpi-3-b-plus.dtb	18-09-19 오후 6:...	DTB 파일	25KB

6.2.8. Open the 'config.json' file using Windows Notepad or editor program

```
{
  "info": {
    "name": "XK-SDK",
    "version": "2.0.1",
    "function": "XK-Radar-Gateway",
    "executable": "sudo xksdk",
    "client": "***** include client name you want ex) XandarKardian *****",
    "api": {
      "name": "XKGW-API",
      "version": "1.1"
    },
    "description": {
      "detail": "XandarKardian SDK and gateway API",
      "author": {
        "company": "XandarKardian",
        "url": "www.xandarkardian.com",
        "name1": "Jerry Lee",
        "e-mail1": "jerry@xandarkardian.com",
        "name2": "Danny",
        "e-mail2": "Danny@xandarkardian.com"
      }
    }
  },
  "config": {
    "authorization": "none",
    "device": "XKRP3BP",
    "mode": "polling",
    "send-period": 2000,
    "system-log": 1,
    "data-log": 1,
    "auto-reboot": 0,
    "rID-type": "r",
    "data-type": "v",
    "endpoint": {
      "host": "pilot.xandarkardian.com",
      "page": "api/v1/poc",
      "port": 80
    },
    "server": {
      "port": 8080
    }
  }
}
```

6.2.9. **Change** the endpoint or configuration you want to change

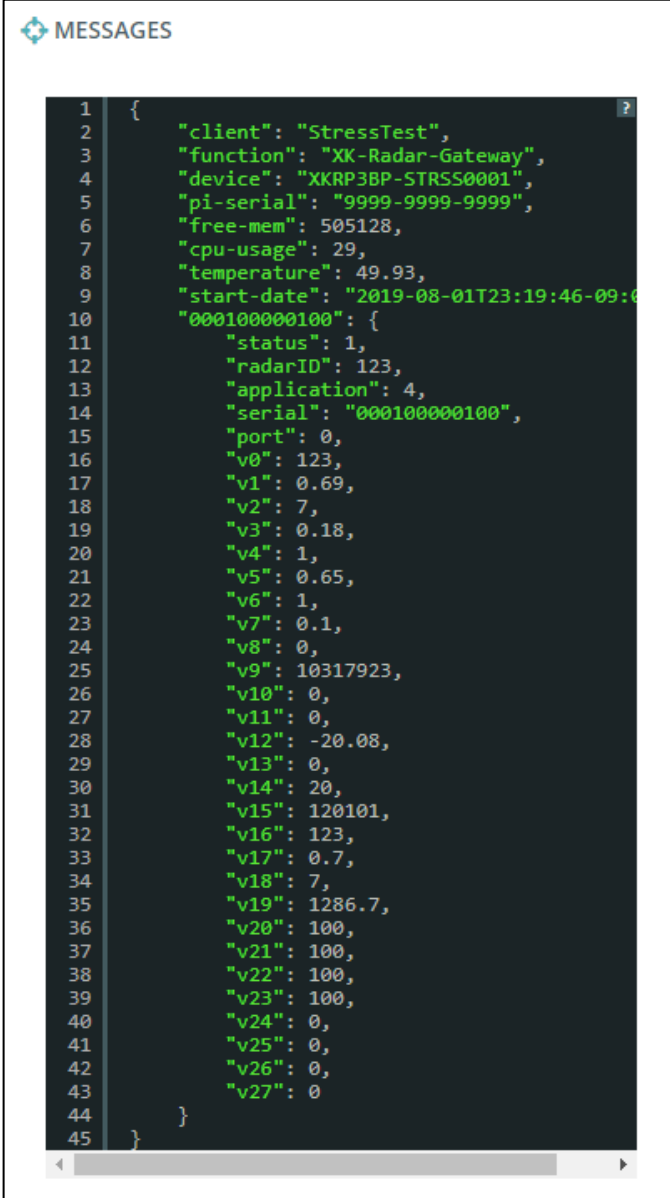
6.2.10. **Save** and **reinsert SD** card and **power up**

7. Receive Data from Gateway

7.1. Receive JSON format data

7.1.1. **Check** the **JSON data** received from the booted gateway.

If you receive **JSON data** of the form(Below is an example):



```

1  {
2    "client": "StressTest",
3    "function": "XK-Radar-Gateway",
4    "device": "XKRP3BP-STRSS0001",
5    "pi-serial": "9999-9999-9999",
6    "free-mem": 505128,
7    "cpu-usage": 29,
8    "temperature": 49.93,
9    "start-date": "2019-08-01T23:19:46-09:00",
10   "000100000100": {
11     "status": 1,
12     "radarID": 123,
13     "application": 4,
14     "serial": "000100000100",
15     "port": 0,
16     "v0": 123,
17     "v1": 0.69,
18     "v2": 7,
19     "v3": 0.18,
20     "v4": 1,
21     "v5": 0.65,
22     "v6": 1,
23     "v7": 0.1,
24     "v8": 0,
25     "v9": 10317923,
26     "v10": 0,
27     "v11": 0,
28     "v12": -20.08,
29     "v13": 0,
30     "v14": 20,
31     "v15": 120101,
32     "v16": 123,
33     "v17": 0.7,
34     "v18": 7,
35     "v19": 1286.7,
36     "v20": 100,
37     "v21": 100,
38     "v22": 100,
39     "v23": 100,
40     "v24": 0,
41     "v25": 0,
42     "v26": 0,
43     "v27": 0
44   }
45 }

```