[Samsung PRISM] End Review Report

Critical Device offline Notification for SAMSUNG’s SmartThings Users

Team

1. College Professors:
   Dr. Mallegowda M
   Sara Mohan George
2. Students:
   1. Skanda S Kumar
   2. Shivalingesh J Patil
   3. Sanskar G
   4. Vinayak Vittal Divate
3. Department: Computer Science and Engg

Date: 28 July 2023

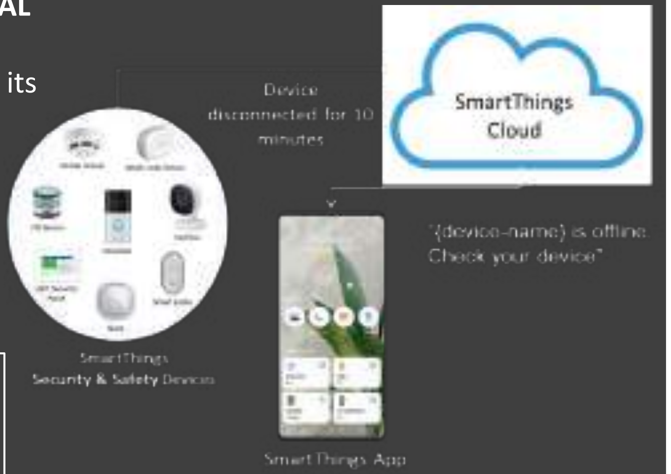
Work-let Area – IoT, Smart Home | Critical Device Offline Notification for SAMSUNG's SmartThings Users

SAMSUNG

Work-let expected duration – 4 months with 3 Students

Problem Statement

- Today SAMSUNG's SmartThings Smart Home Platform is exponentially scaling platform and supports millions of Users across the world. We are expected to have 1 Billion Users by Y2030.
- Millions of devices connected to SmartThings Platform today. 30% of those devices belong to "Safety & Security" and these are categorized as CRITICAL devices.
- Alerting Users when those **CRITICAL** devices goes offline is a **MUST** required IoT Platform feature and its an **MVP** requirement.
- Support both **Push & Voice notifications**.



Device disconnected for 10 minutes
SmartThings Cloud
"{device-name} is offline. Check your device"
SmartThings Security & Safety Devices
SmartThings App

Additional Information

- SmartThings Cloud Platform
  - SmartThings Personas
    - Capability Model
    - Locations
    - Scenes
    - Automations
    - Auth Specification
    - Tokens & Scopes
    - Smart Apps
- Tech Stack
  - Spring, NodeJS
  - MySQL
  - OAuth 2.0
  - Java 11
  - REST Protocol

Hariprasad, Cloud Architect
hariprasad.t@samsung.com
Ph: 9008025124

Helena Rajan, Voice Architect
helena.rajan@samsung.com
Ph: 9845746464

Expectations

- Provide a solution to alert User when critical devices are disconnected from the platform.
- Support a disconnect period of 10 minutes duration and alert the User.
- Deliver a smart application in a language of choice (Spring Boot or NodeJS).

Training/ Pre-requisites

- Good knowledge of SmartThings Automation APIs & Cloud Platform.
- Good hands on in developing Smart Applications & AWS Services.
- Very good knowledge on REST frameworks like NodeJS, Spring Boot, etc.
- Should be proficient in understanding https protocol & ngrok tools for setting up https DNS.

Kick Off <1st Month>

- Understanding Smart Things Cloud Platform Concepts, Capabilities & Personas.
- Getting proficient with Smart Things development frameworks ST SDK, Public APIs, Authentication, Security, Tokens.
- Implement & Demo basic Smart Applications.

Milestone 1 <2nd Month>

- Develop Smart App adhering to SmartThings Standards.
- Support App based push notifications.
- Test and verification.
- Review from Leads.

Milestone 2 <3th Month>

- Enhance Smart App to Support voice notifications.
- Test and verification.
- Improve Quality
- Review from Leads.

Closure <4th Month>

- Quality verification
- Disable all INFO logs
- Enable only DEBUG logs
- Release the code
- Work-let closure

Quick Peek of Last Meeting

- **Device Basics and Types:** Cloud connected devices

Discussed Cloud Connected Devices and how they offer an alternative for gadgets incompatible with SmartThings hubs or requiring cloud connectivity.

- **SmartApp Basics:**

Explored SmartApps, custom applications that extend automation capabilities, and execute on controlled servers or Lambda. Mentioned the importance of understanding hardware requirements and user expectations.

- **SmartApp and Types:** Cloud connected devices with SmartApp connectors

Covered Cloud Connected Devices with SmartApp Connectors, highlighting their benefits like ease of use, flexibility, and security.

Quick Peek of Last Meeting

Device Health:

Device health is essential in SmartThings as it ensures users have visibility into their connected devices' status. This service tracks various aspects of a device's health, including connectivity, signal strength, battery life, and health-related events like tamper or malfunction alerts. The Devices API is used to monitor a device or hub's health status.

- Online: Devices in this state are expected to respond to commands or report events.
- Unhealthy: A device is considered unhealthy if it has been inactive for longer than its designated health check interval. This status suggests that the device might be offline due to factors like network latency, low battery, or tamper events.
- Offline: When a device is marked as offline, it cannot be contacted by the platform, even after an unhealthy status. The specific check interval is defined here.

Implementing device health monitoring:

- Add the axios module to make HTTP requests to the SmartThings API.
- Create a notification function: Define a function that sends notifications to mobile devices when called.
- Implement offline detection logic: In your SmartApp, you can implement logic to detect when a specific device goes offline.
- Add notification logic: In the .updated method, check if the device is offline using the isDeviceOffline function. If it's offline, call the sendNotification() function to notify the mobile app.

This approach ensures users are informed about the health status of their devices, allowing them to take appropriate actions when necessary.

Quick Peek of Last Meeting

- **Choosing a Hosting Solution:**

  Chose Webhook

The best hosting option for Automation depends on objective and subjective factors.

Feature	**Webhook**
Scalability	Not much
Reliability	Less
Programming languages supported	Few
Ease of setup	Simpler
Integration with other applications	Difficult

Aspect	Webhooks	AWS Lambda
Purpose	Real-time event notification	Serverless compute for various tasks
Integration	Easy to set up and integrate	Integrated into AWS ecosystem
Trigger	Typically triggered by external events or actions	Can be triggered by various AWS services or events
Real-time	Suitable for real-time event handling	Can handle events in near real-time
Language Support	Not language-specific, uses HTTP/HTTPS	Supports multiple programming languages (e.g., Node.js, Python, Java, C++, etc.)
Scalability	Limited by external service's capabilities	Can scale automatically based on usage
Flexibility	Good for external service integration	Flexible for various backend tasks
Server Management	No server management required	Fully managed by AWS
Cost	Typically based on usage and events triggered	Pay for compute time and resources used
Ecosystem Integration	Not tied to any specific ecosystem	Integrated with AWS services

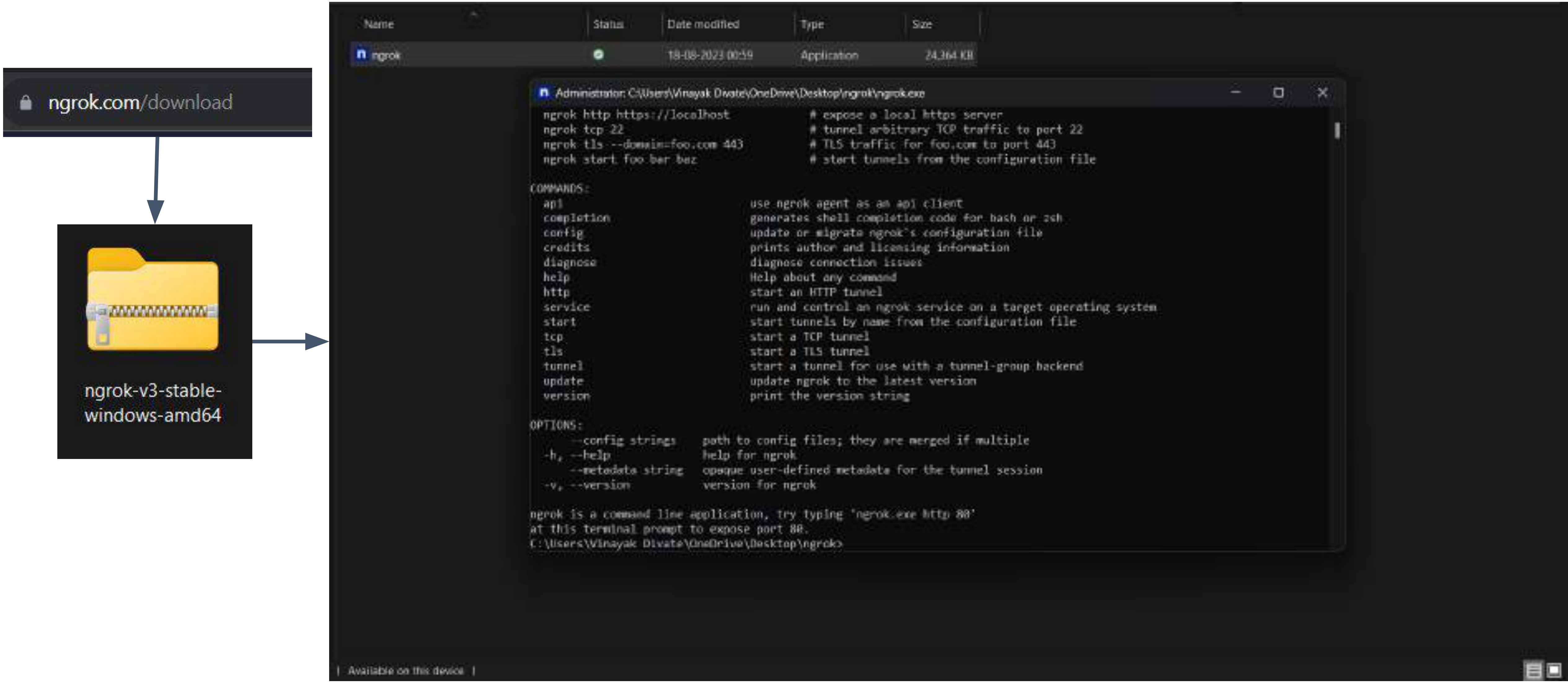
Methodology:

NGROK installation:

- ➢ Ngrok is a tool that provides secure tunnels to localhost or any server behind a NAT or firewall to the public internet over secure tunnels.
- ➢ This is particularly useful for showcasing the functionality of your SmartThings devices and applications to a remote audience or for testing purposes.
- ➢ The benefits:
  - Remote Access
  - Secure tunnel
  - Real-time Demonstration
  - Troubleshooting and Debugging
  - Collaboration

Methodology:

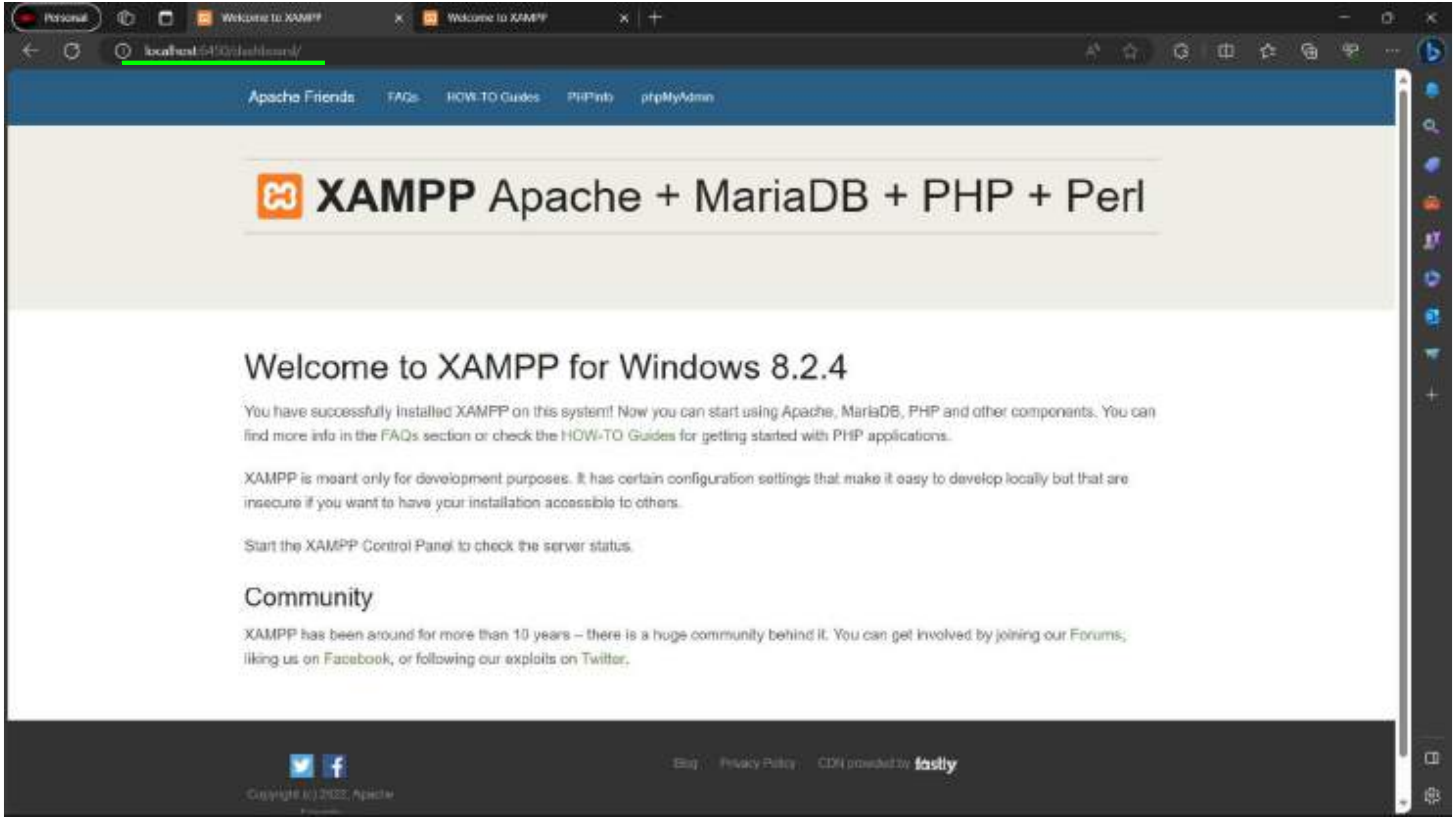
NGROK installation:



```
  ngrok http https://localhost                 # expose a local https server
  ngrok tcp 22                                 # tunnel arbitrary TCP traffic to port 22
  ngrok tls --domain=foo.com 443               # TLS traffic for foo.com to port 443
  ngrok start foo bar baz                      # start tunnels from the configuration file

COMMANDS:
  api                            use ngrok agent as an api client
  completion                     generates shell completion code for bash or zsh
  config                         update or migrate ngrok's configuration file
  credits                        prints author and licensing information
  diagnose                       diagnose connection issues
  help                           Help about any command
  http                           start an HTTP tunnel
  service                        run and control an ngrok service on a target operating system
  start                          start tunnels by name from the configuration file
  tcp                            start a TCP tunnel
  tls                            start a TLS tunnel
  tunnel                         start a tunnel for use with a tunnel-group backend
  update                         update ngrok to the latest version
  version                        print the version string

OPTIONS:
      --config strings    path to config files; they are merged if multiple
  -h, --help              help for ngrok
      --metadata string   opaque user-defined metadata for the tunnel session
  -v, --version           version for ngrok

ngrok is a command line application, try typing 'ngrok.exe http 80'
at this terminal prompt to expose port 80.
C:\Users\Vinayak Divate\OneDrive\Desktop\ngrok>
```

Methodology:

NGROK installation:



XAMPP Apache + MariaDB + PHP + Perl

Welcome to XAMPP for Windows 8.2.4

You have successfully installed XAMPP on this system! Now you can start using Apache, MariaDB, PHP and other components. You can find more info in the FAQs section or check the HOW-TO Guides for getting started with PHP applications.

XAMPP is meant only for development purposes. It has certain configuration settings that make it easy to develop locally but that are insecure if you want to have your installation accessible to others.

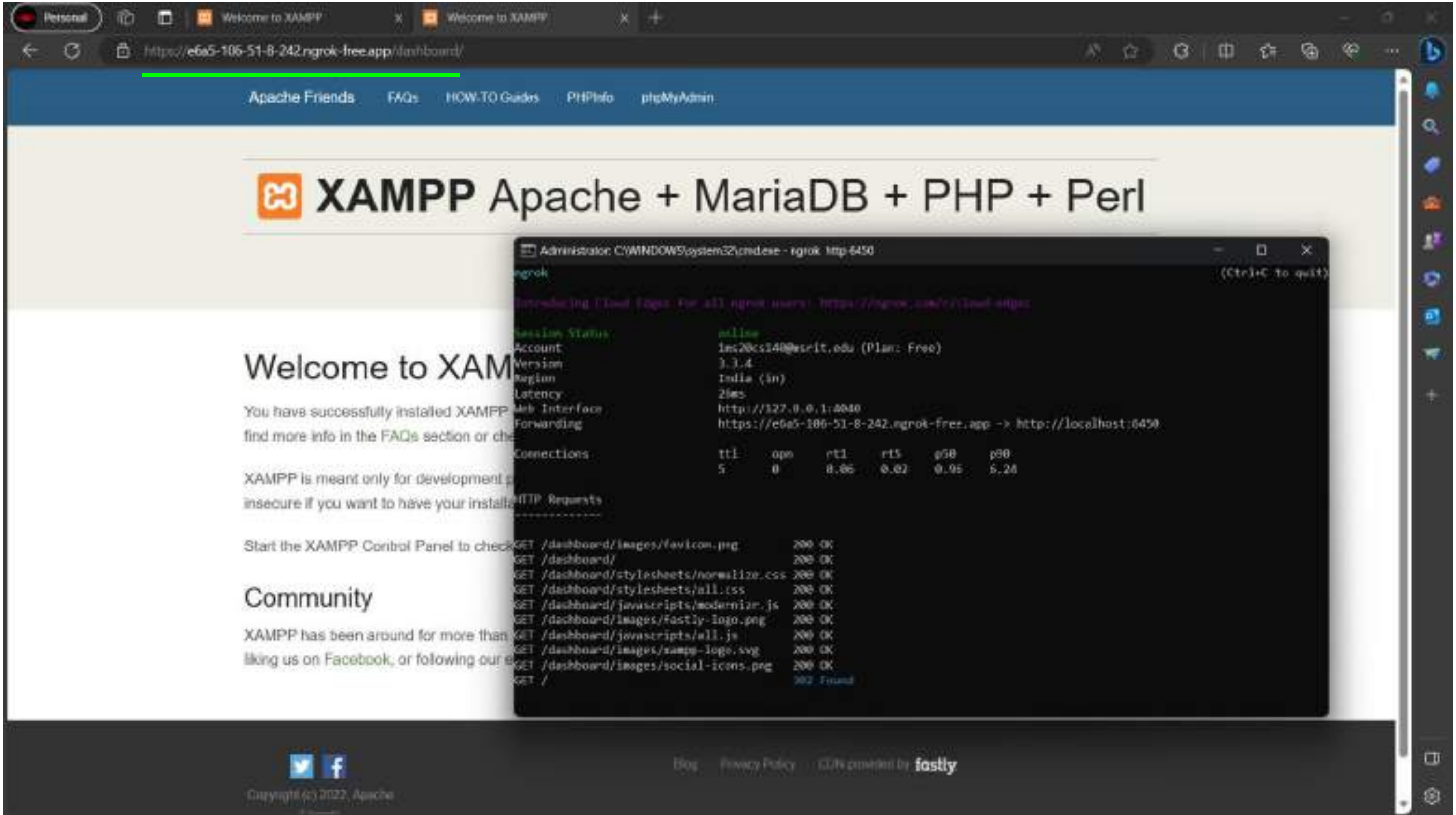
Start the XAMPP Control Panel to check the server status.

Community

XAMPP has been around for more than 10 years – there is a huge community behind it. You can get involved by joining our Forums, liking us on Facebook, or following our exploits on Twitter.

Methodology:

NGROK installation:



XAMPP Apache + MariaDB + PHP + Perl

Welcome to XAM

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Start the XAMPP Control Panel to check

Community

XAMPP has been around for more than
liking us on Facebook, or following our e

Administrator: C:\WINDOWS\system32\cmd.exe - ngrok http 6450

```
ngrok                                                                                          (Ctrl+C to quit)

Introducing Cloud Edges for all ngrok users: https://ngrok.com/r/cloud-edges

Session Status                online
Account                       1ms20cs140@msrit.edu (Plan: Free)
Version                       3.3.4
Region                        India (in)
Latency                       26ms
Web Interface                 http://127.0.0.1:4040
Forwarding                    https://e6a5-106-51-8-242.ngrok-free.app -> http://localhost:6450

Connections                   ttl     opn     rt1     rt5     p50     p90
                              5       0       0.06    0.02    0.95    6.24

HTTP Requests
-------------

GET /dashboard/images/favicon.png        200 OK
GET /dashboard/                          200 OK
GET /dashboard/stylesheets/normalize.css 200 OK
GET /dashboard/stylesheets/all.css       200 OK
GET /dashboard/javascripts/modernizr.js  200 OK
GET /dashboard/images/fastly-logo.png    200 OK
GET /dashboard/javascripts/all.js        200 OK
GET /dashboard/images/xampp-logo.svg     200 OK
GET /dashboard/images/social-icons.png   200 OK
GET /                                    302 Found
```

APPROACH

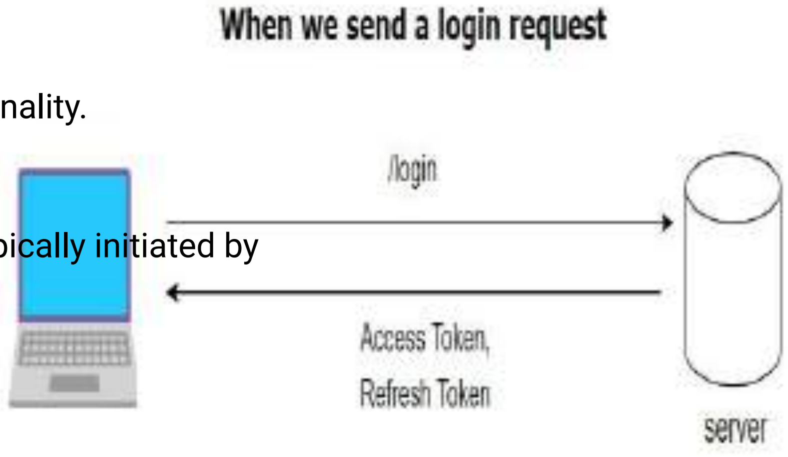
Refresh Request:

- In the context of smart home devices and integration of Samsung SmartThings, "**refresh**" refers to the process of retrieving and updating the current state of a device.

- This is often done to ensure that the integration has the most up-to-date information about the device's attributes and capabilities.

- **Device State**:
  - A smart home device has various attributes and capabilities that describe its state and functionality.

- **Refresh Request:**
  - A refresh request is a command sent to a device to retrieve its current state. This request is typically initiated by the smart home platform

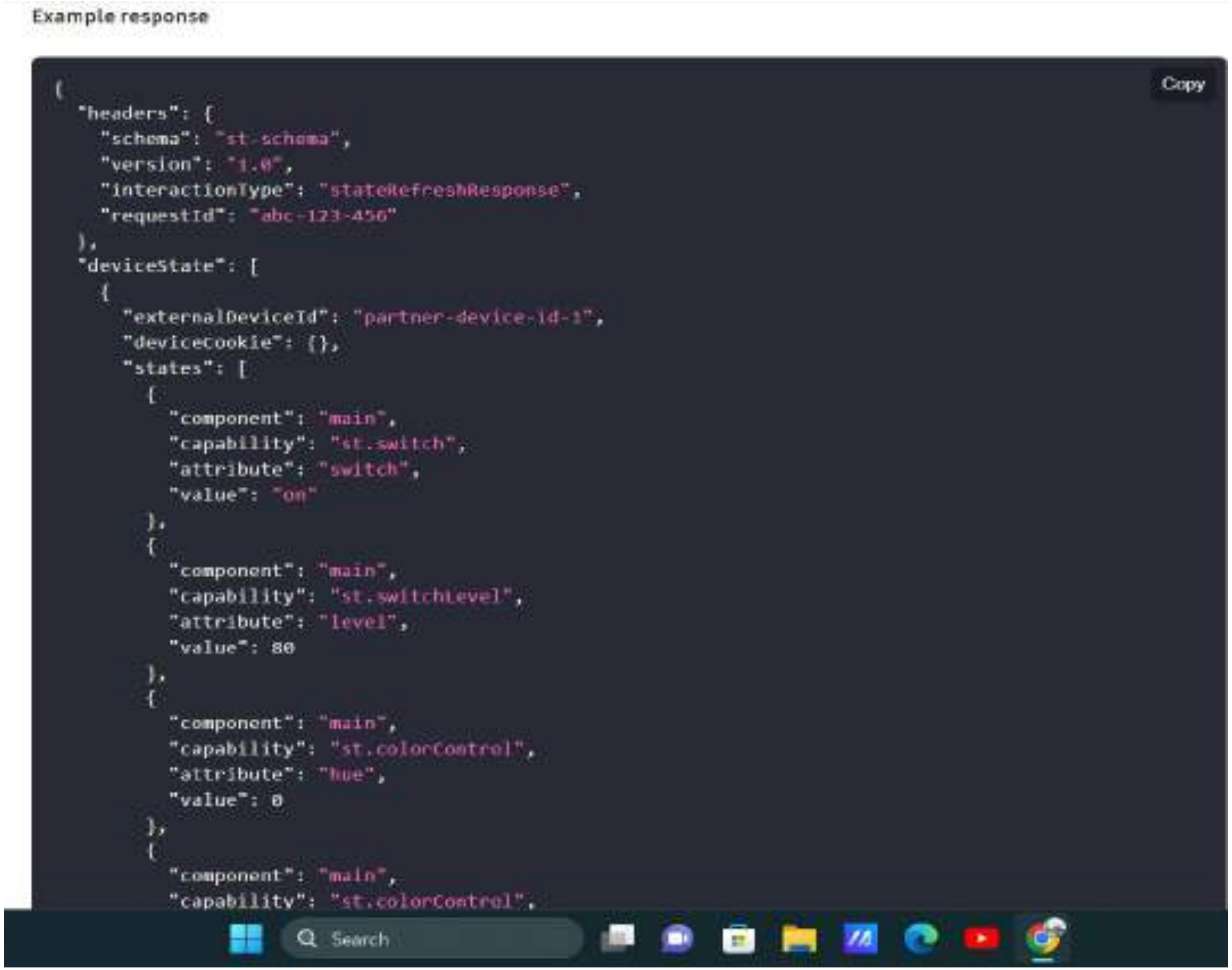


- Use Cases:
  - **Synchronization**: Refreshing device states ensures that your integration's data matches the actual device state. This is crucial for accurate automation, control, and status reporting.
  - **Offline Detection**: Regularly refreshing device states can help detect when a device goes offline or becomes unresponsive. If a device doesn't respond to refresh requests, it may indicate an issue with the device's connectivity.

APPROACH

Refresh Request:Example request

- "**schema**": "st-schema": Specifies the schema used, indicating that this response follows the SmartThings Schema Connector protocol.
- "**interactionType**": "stateRefreshResponse": Indicates that this response is in response to a State Refresh Request.
- "**deviceState**": This is an array that contains information about the refreshed states of the devices.
- The purpose of this JSON response is to provide the refreshed states of devices requested in the State Refresh Request.

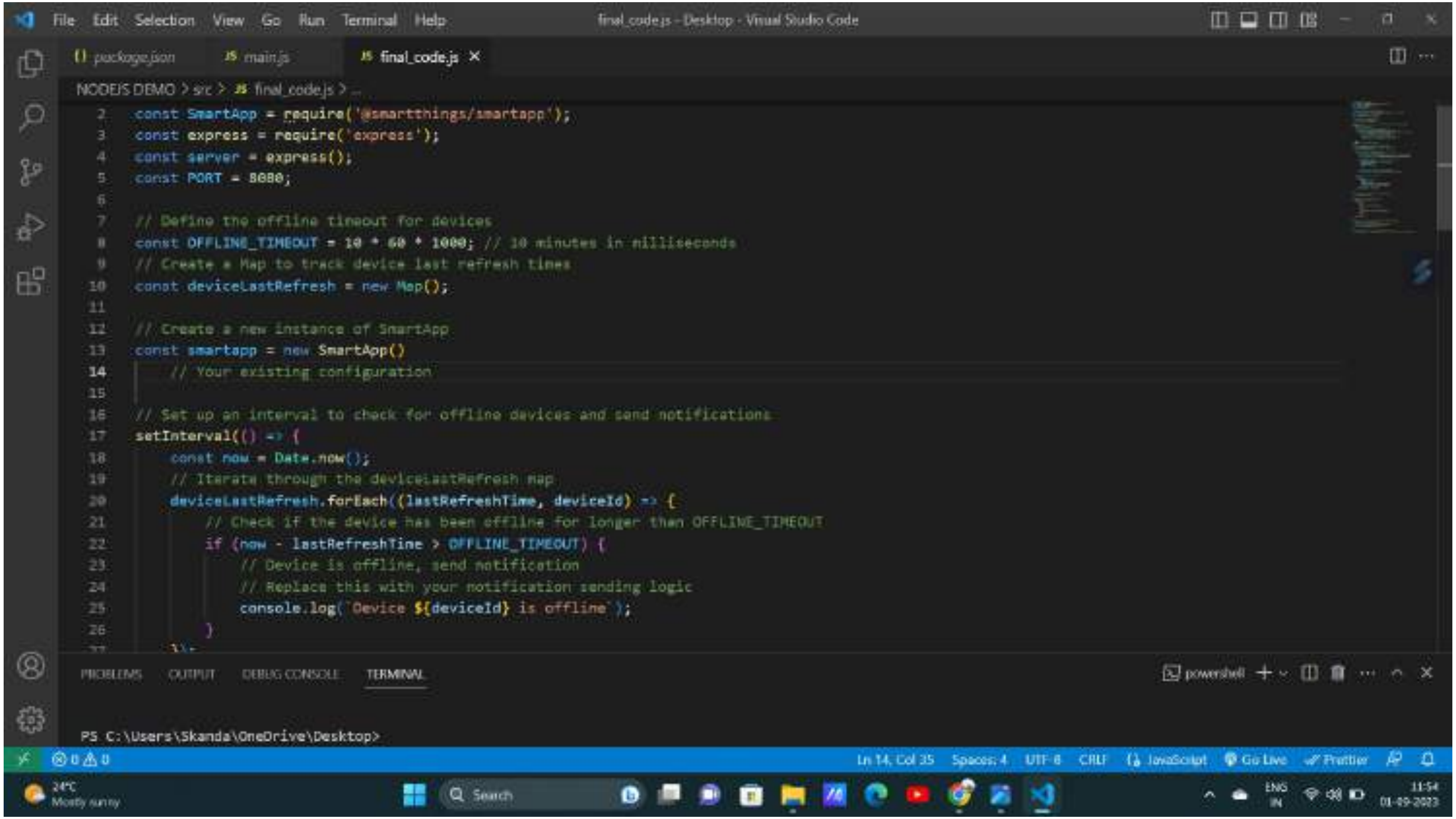


Example response

```
{
  "headers": {
    "schema": "st-schema",
    "version": "1.0",
    "interactionType": "stateRefreshResponse",
    "requestId": "abc-123-456"
  },
  "deviceState": [
    {
      "externalDeviceId": "partner-device-id-1",
      "deviceCookie": {},
      "states": [
        {
          "component": "main",
          "capability": "st.switch",
          "attribute": "switch",
          "value": "on"
        },
        {
          "component": "main",
          "capability": "st.switchLevel",
          "attribute": "level",
          "value": 80
        },
        {
          "component": "main",
          "capability": "st.colorControl",
          "attribute": "hue",
          "value": 0
        },
        {
          "component": "main",
          "capability": "st.colorControl",
```

APPROACH

Refresh Request: Approach to code

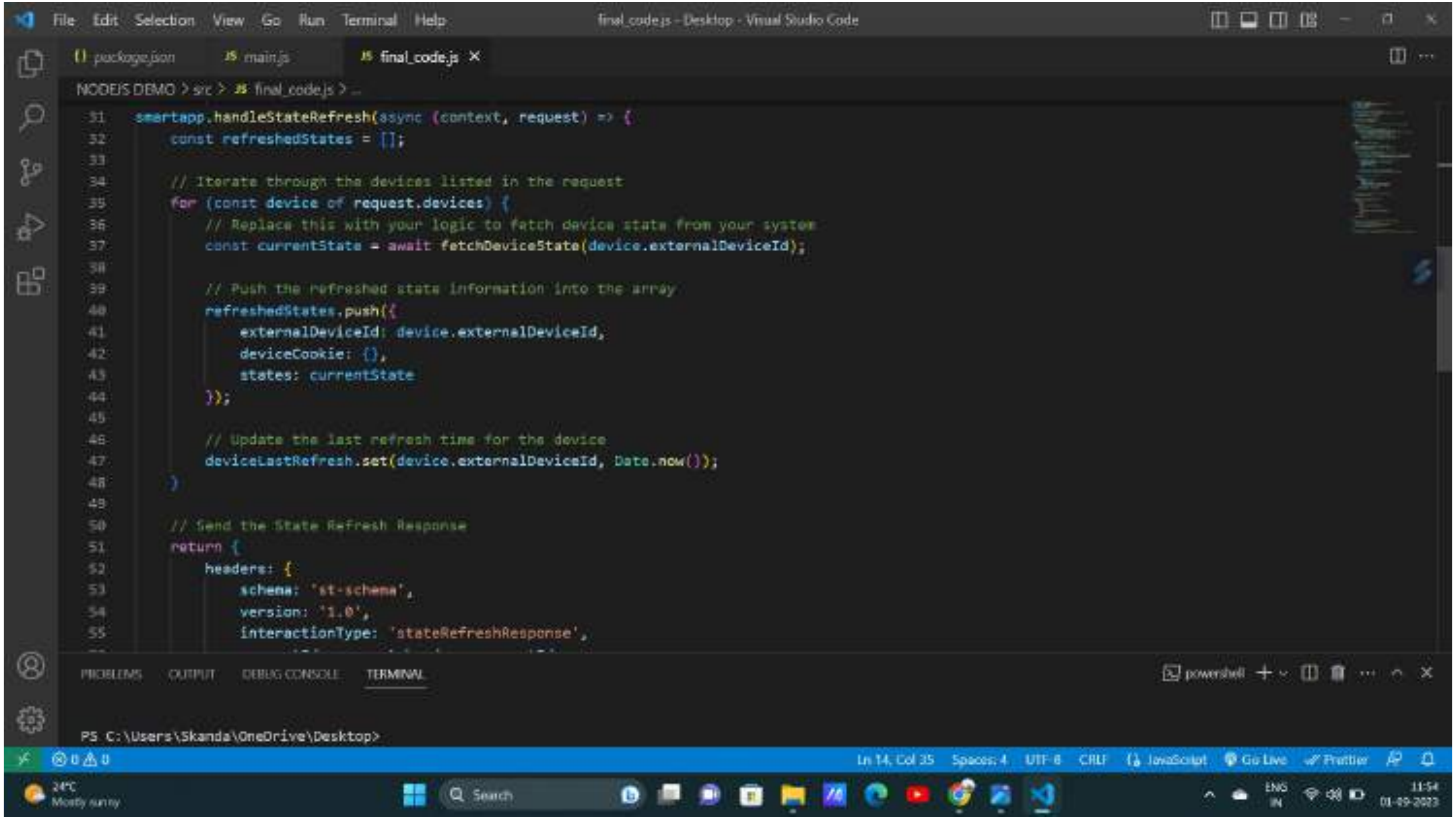

File Edit Selection View Go Run Terminal Help
final_code.js - Desktop - Visual Studio Code
package.json
main.js
final_code.js
NODEJS DEMO > src > final_code.js > ...
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
powershell
Ln 14, Col 35 Spaces: 4 UTF-8 CRLF JavaScript Go Live Prettier
24°C
Mostly sunny
Search
ENG
IN
11:54
01-09-2023

```javascript
const SmartApp = require('@smartthings/smartapp');
const express = require('express');
const server = express();
const PORT = 8080;

// Define the offline timeout for devices
const OFFLINE_TIMEOUT = 10 * 60 * 1000; // 10 minutes in milliseconds
// Create a Map to track device last refresh times
const deviceLastRefresh = new Map();

// Create a new instance of SmartApp
const smartapp = new SmartApp()
    // Your existing configuration

// Set up an interval to check for offline devices and send notifications
setInterval(() => {
    const now = Date.now();
    // Iterate through the deviceLastRefresh map
    deviceLastRefresh.forEach((lastRefreshTime, deviceId) => {
        // Check if the device has been offline for longer than OFFLINE_TIMEOUT
        if (now - lastRefreshTime > OFFLINE_TIMEOUT) {
            // Device is offline, send notification
            // Replace this with your notification sending logic
            console.log(`Device ${deviceId} is offline`);
        }
    });
```

```
PS C:\Users\Skanda\OneDrive\Desktop>
```

APPROACH

Refresh Request: Approach to code

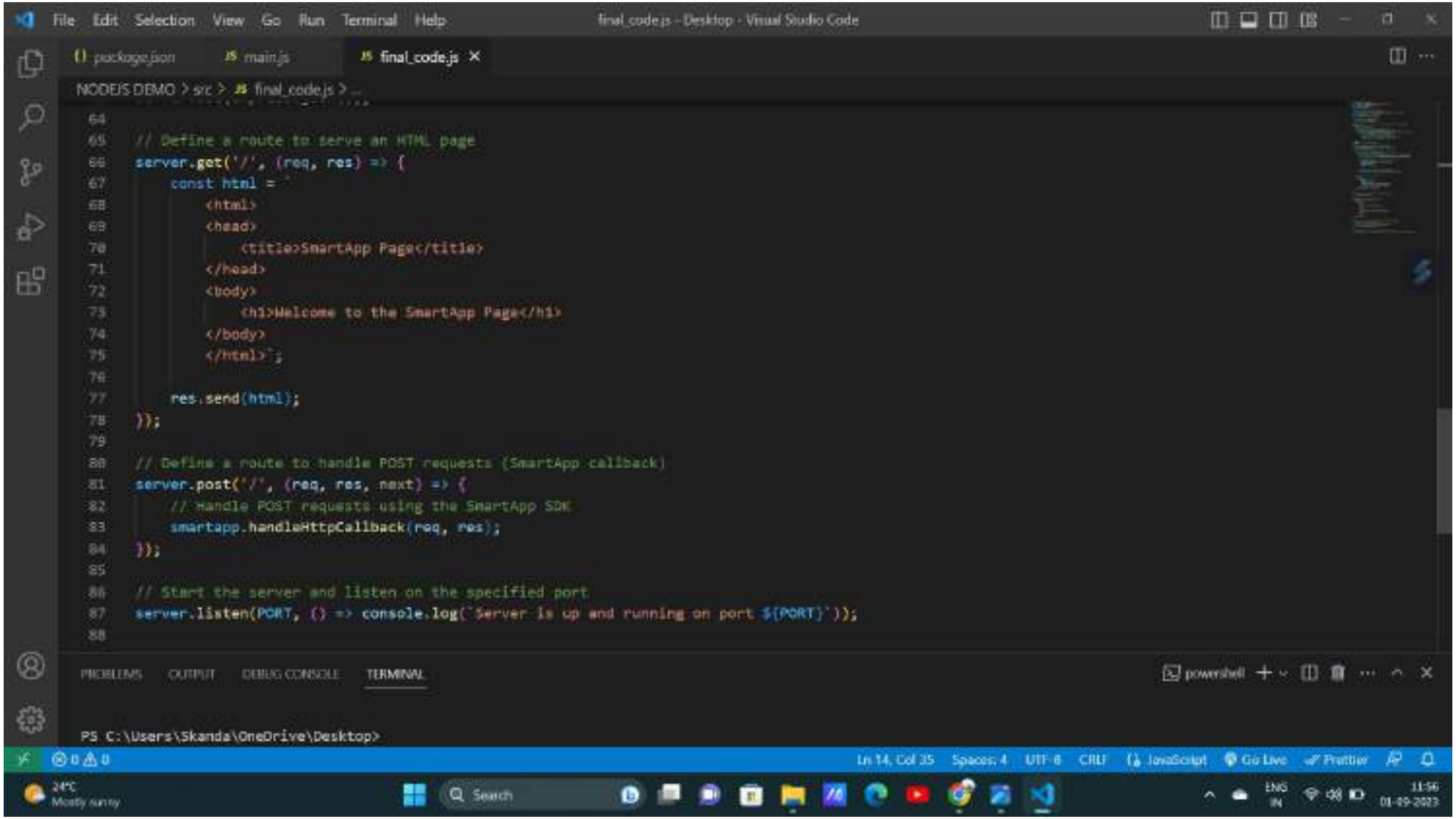


```javascript
smartapp.handleStateRefresh(async (context, request) => {
    const refreshedStates = [];

    // Iterate through the devices listed in the request
    for (const device of request.devices) {
        // Replace this with your logic to fetch device state from your system
        const currentState = await fetchDeviceState(device.externalDeviceId);

        // Push the refreshed state information into the array
        refreshedStates.push({
            externalDeviceId: device.externalDeviceId,
            deviceCookie: {},
            states: currentState
        });

        // Update the last refresh time for the device
        deviceLastRefresh.set(device.externalDeviceId, Date.now());
    }

    // Send the State Refresh Response
    return {
        headers: {
            schema: 'st-schema',
            version: '1.0',
            interactionType: 'stateRefreshResponse',
```

```
PS C:\Users\Skanda\OneDrive\Desktop>
```

APPROACH

Refresh Request: Approach to code



File Edit Selection View Go Run Terminal Help
final_code.js - Desktop - Visual Studio Code
package.json
main.js
final_code.js
NODEJS DEMO > src > final_code.js > ...

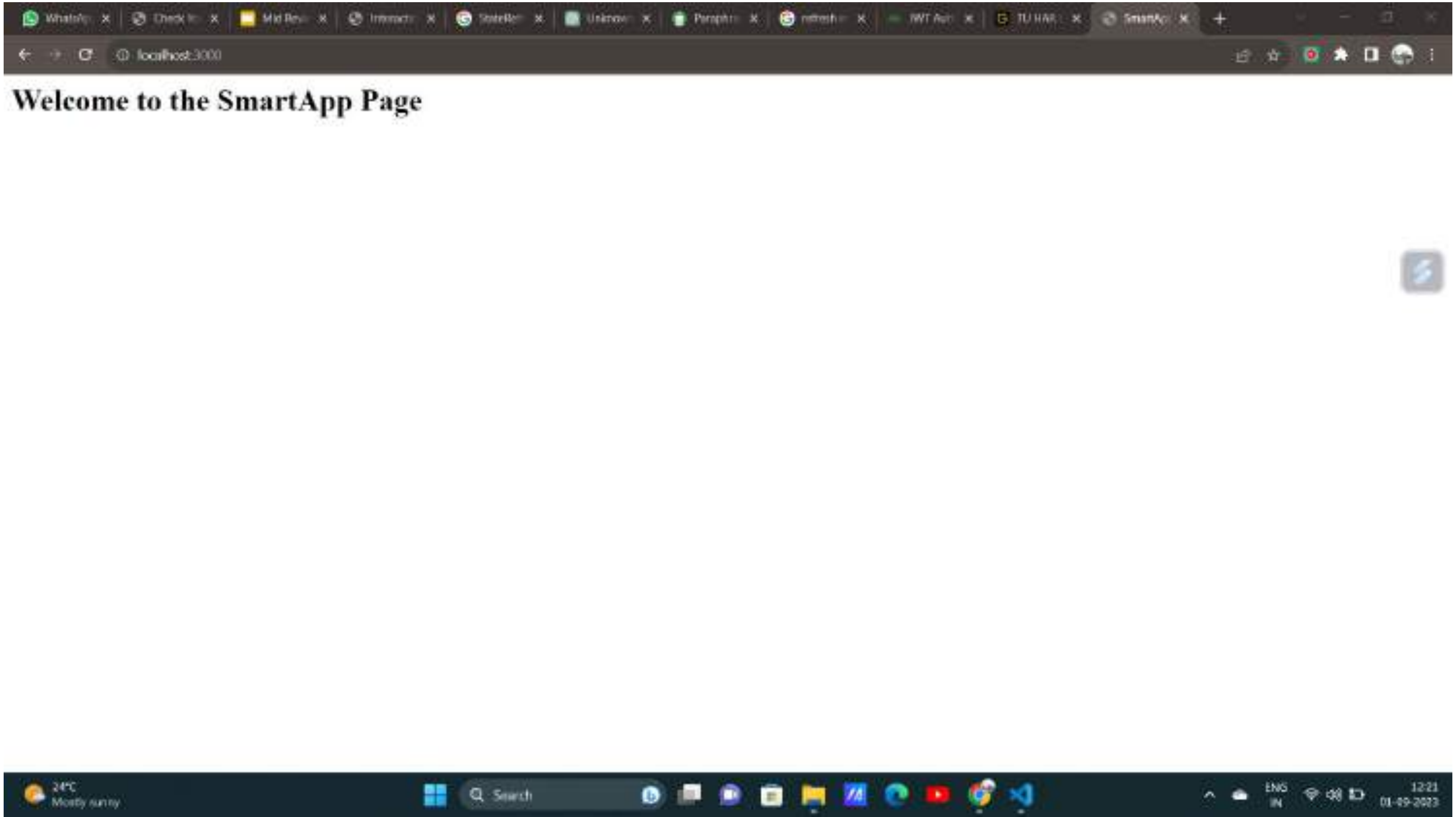
```javascript

// Define a route to serve an HTML page
server.get('/', (req, res) => {
    const html = `
        <html>
        <head>
            <title>SmartApp Page</title>
        </head>
        <body>
            <h1>Welcome to the SmartApp Page</h1>
        </body>
        </html>`;

    res.send(html);
});

// Define a route to handle POST requests (SmartApp callback)
server.post('/', (req, res, next) => {
    // Handle POST requests using the SmartApp SDK
    smartapp.handleHttpCallback(req, res);
});

// Start the server and listen on the specified port
server.listen(PORT, () => console.log(`Server is up and running on port ${PORT}`));

```

```
PS C:\Users\Skanda\OneDrive\Desktop>
```

⊗ 0 ⚠ 0
Ln 14, Col 35 Spaces: 4 UTF-8 CRLF {} JavaScript Go Live Prettier
24°C Mostly sunny
Search
ENG IN
11:56 01-09-2023

APPROACH

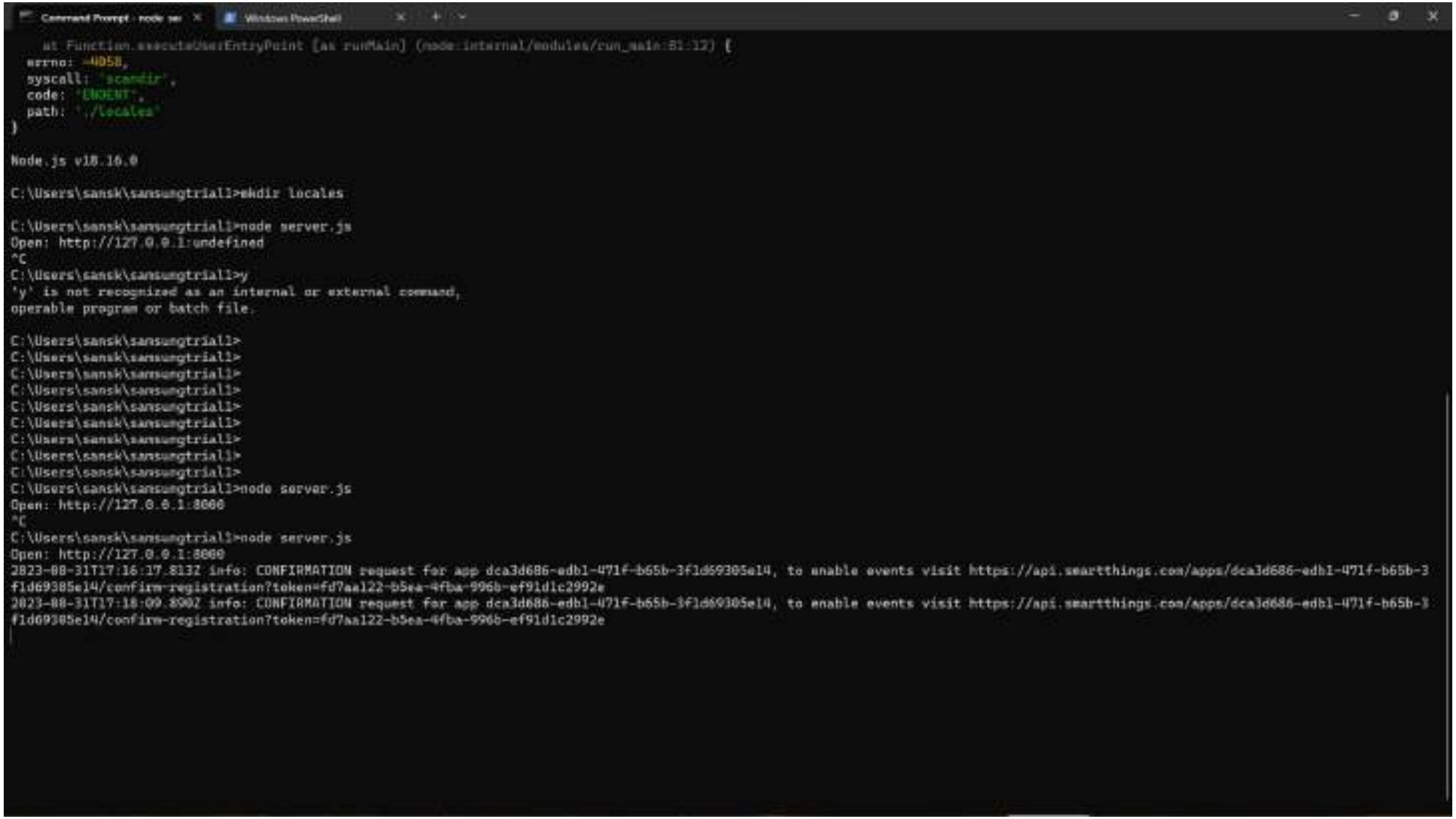
Sample Output On local host server:



Welcome to the SmartApp Page

Methodology

Server.js running on local host using Express():



```
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:81:12) {
  errno: -4058,
  syscall: 'scandir',
  code: 'ENOENT',
  path: './locales'
}

Node.js v18.16.0

C:\Users\sansk\samsungtrial1>mkdir locales

C:\Users\sansk\samsungtrial1>node server.js
Open: http://127.0.0.1:undefined
^C
C:\Users\sansk\samsungtrial1>y
'y' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\sansk\samsungtrial1>
C:\Users\sansk\samsungtrial1>
C:\Users\sansk\samsungtrial1>
C:\Users\sansk\samsungtrial1>
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C:\Users\sansk\samsungtrial1>
C:\Users\sansk\samsungtrial1>node server.js
Open: http://127.0.0.1:8080
^C
C:\Users\sansk\samsungtrial1>node server.js
Open: http://127.0.0.1:8080
2023-08-31T17:16:17.813Z info: CONFIRMATION request for app dca3d686-edb1-471f-b65b-3f1d69305e14, to enable events visit https://api.smartthings.com/apps/dca3d686-edb1-471f-b65b-3
f1d69305e14/confirm-registration?token=fd7aa122-b5ea-4fba-996b-ef91d1c2992e
2023-08-31T17:18:09.890Z info: CONFIRMATION request for app dca3d686-edb1-471f-b65b-3f1d69305e14, to enable events visit https://api.smartthings.com/apps/dca3d686-edb1-471f-b65b-3
f1d69305e14/confirm-registration?token=fd7aa122-b5ea-4fba-996b-ef91d1c2992e
```
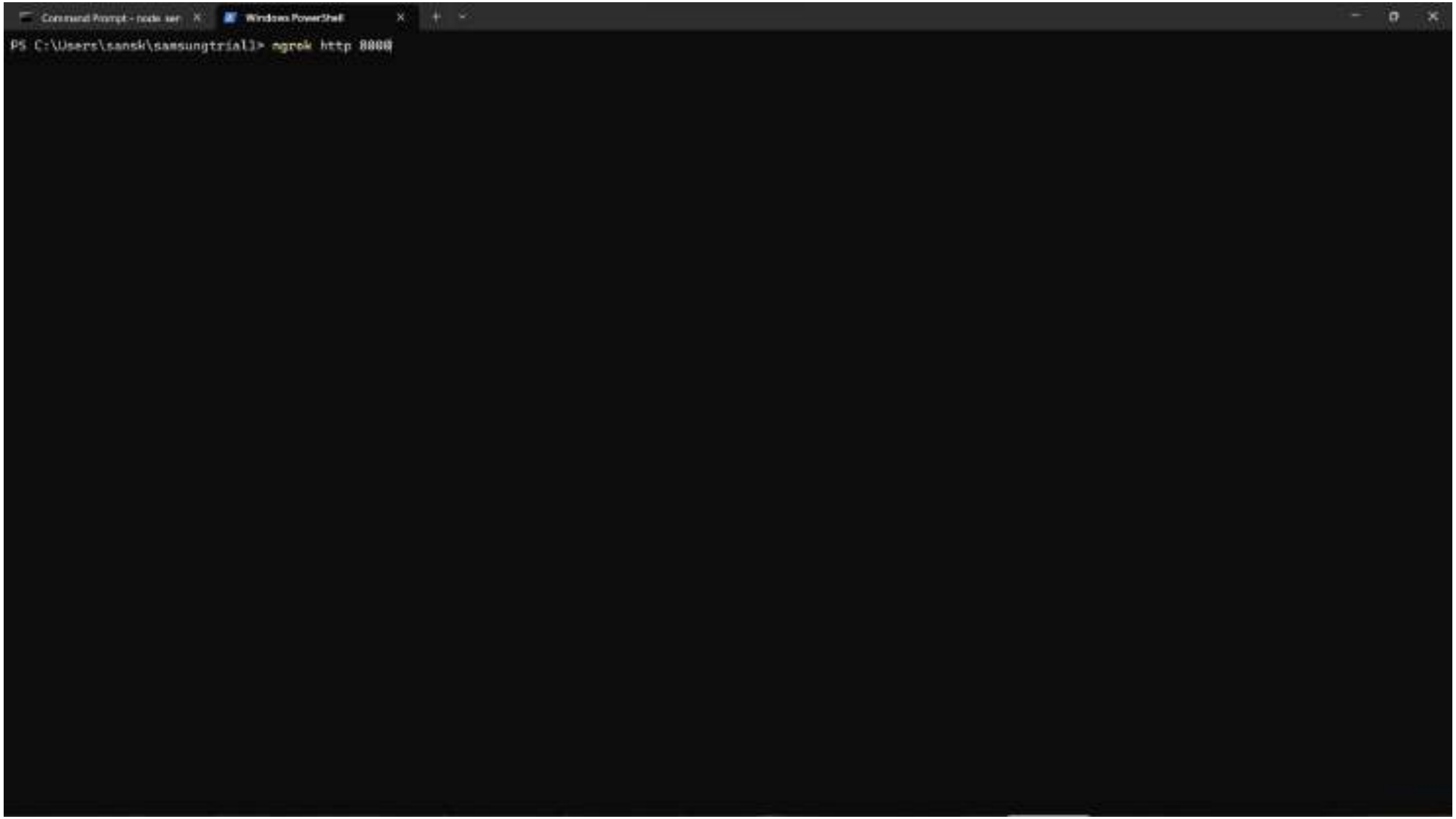

Methodology

NGROK Started using port 8000:

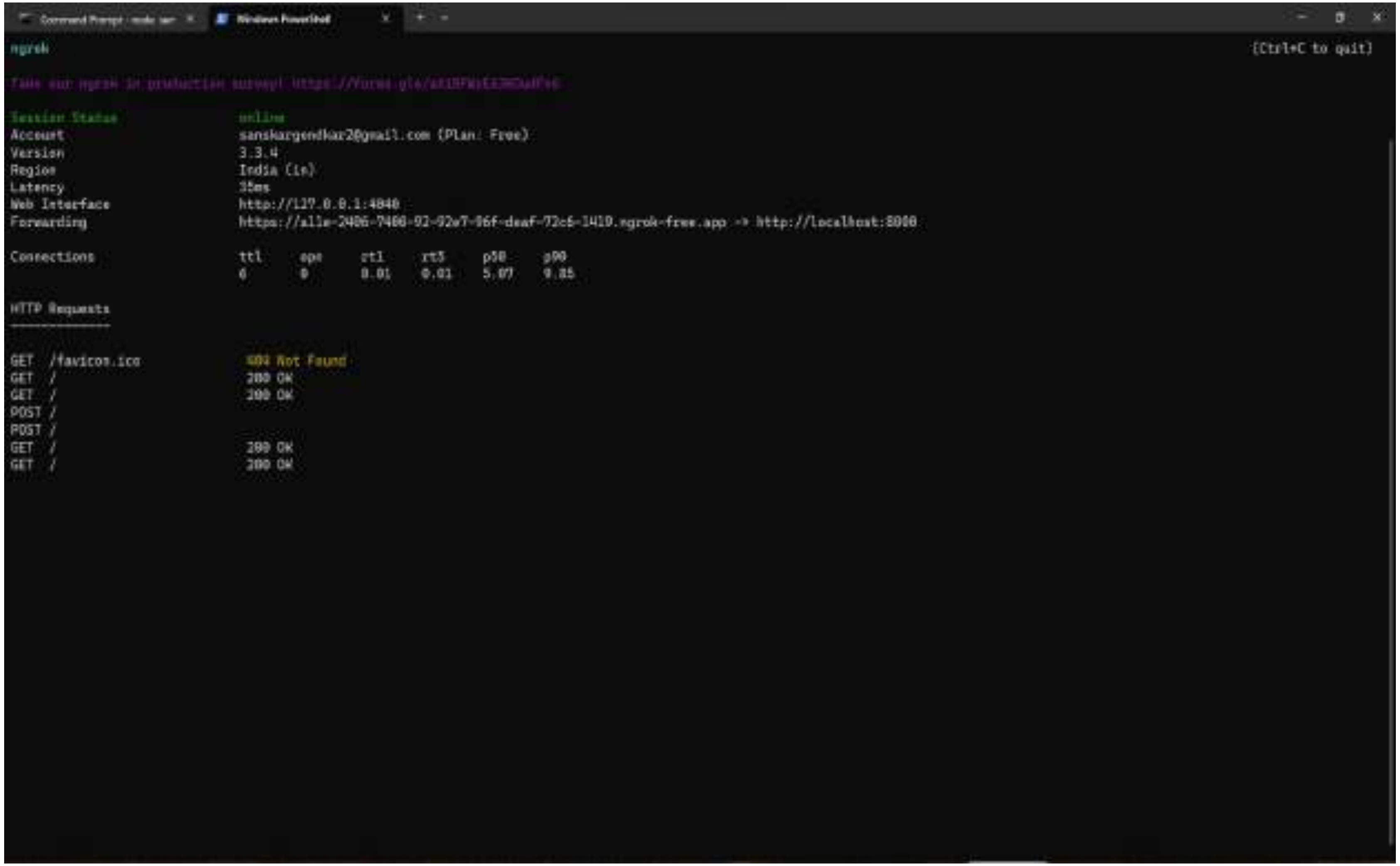


```
PS C:\Users\sansk\samsungtrial1> ngrok http 8000
```

Methodology

NGROK forwarding localhost port 8000 to url that’s accessible everywhere:

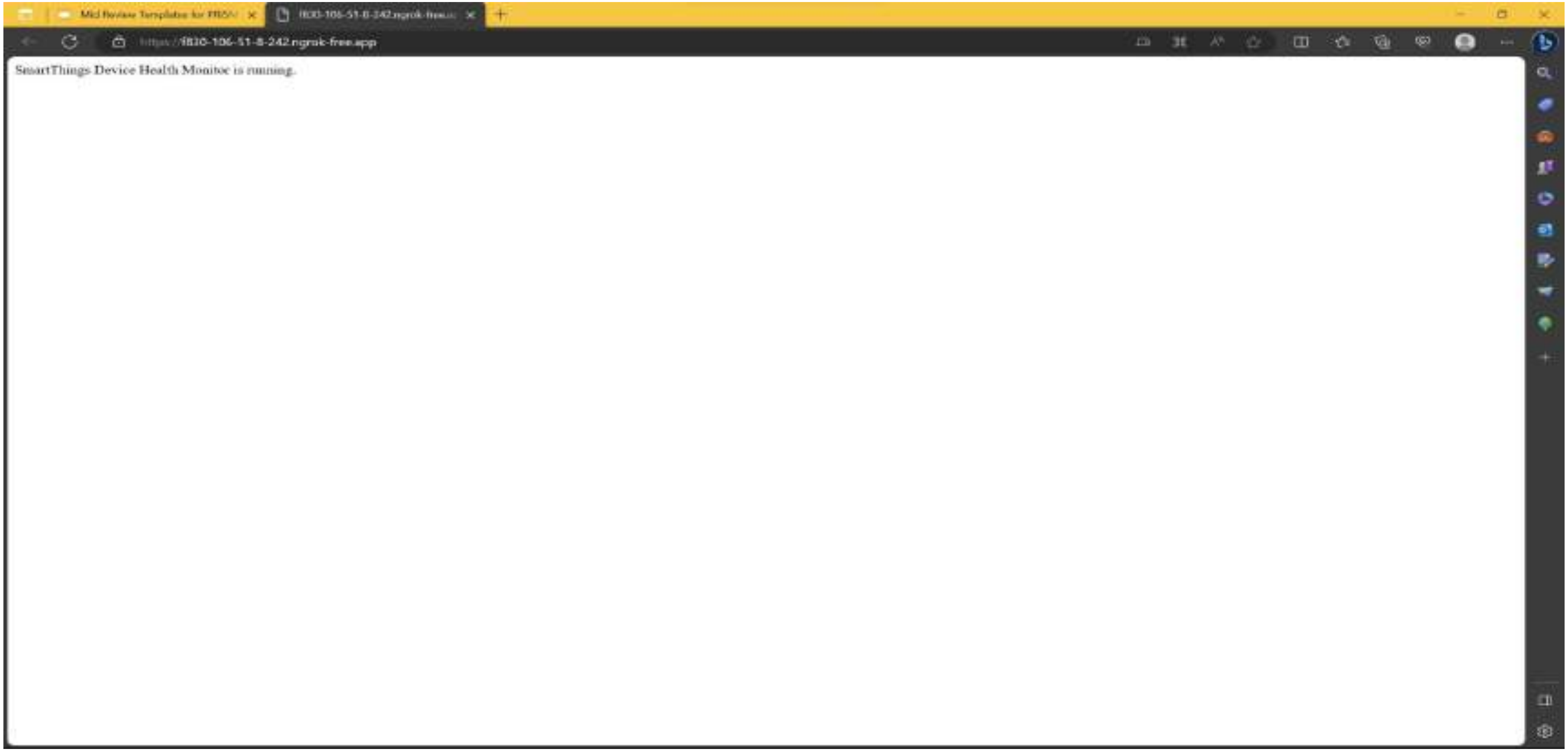
Using the url generated as shown , we can use that in any device



```
ngrok                                                                                      (Ctrl+C to quit)

Take our ngrok in production survey! https://forms.gle/[illegible]

Session Status                online
Account                       sanskargendkar2@gmail.com (Plan: Free)
Version                       3.3.4
Region                        India (in)
Latency                       35ms
Web Interface                 http://127.0.0.1:4040
Forwarding                    https://a11e-2406-7400-92-92e7-86f-deaf-72c6-1419.ngrok-free.app -> http://localhost:8000

Connections                   ttl     opn     rt1     rt5     p50     p90
                              6       0       0.01    0.01    5.07    9.85

HTTP Requests
-------------

GET  /favicon.ico              404 Not Found
GET  /                         200 OK
GET  /                         200 OK
POST /
POST /
GET  /                         200 OK
GET  /                         200 OK
```

Methodology

NGROK URL opened on a different device :

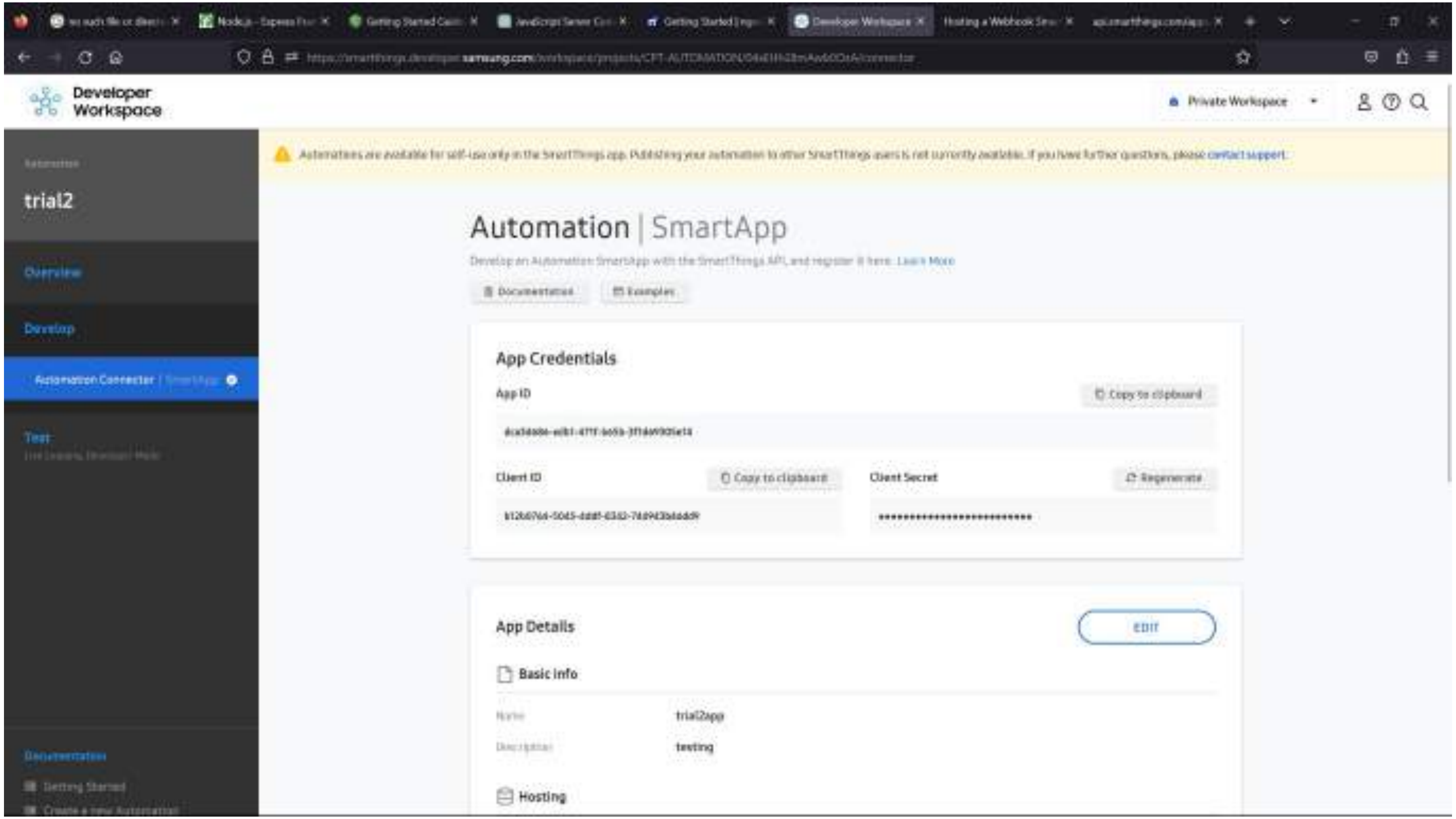


https://f830-106-51-8-242.ngrok-free.app

SmartThings Device Health Monitor is running.

Methodology

Smartapp verified in developer workspace:



Automations are available for self-use only in the SmartThings app. Publishing your automation to other SmartThings users is not currently available. If you have further questions, please contact support.

Automation | SmartApp

Develop an Automation SmartApp with the SmartThings API, and register it here. Learn More

App Credentials

App ID: 4ca5dd8e-e8b1-4f7f-be5b-3f1de9[illegible]e14

Client ID: b12b0764-5045-dd8f-8382-7dd9d3bdadd9

Client Secret: **************************

App Details

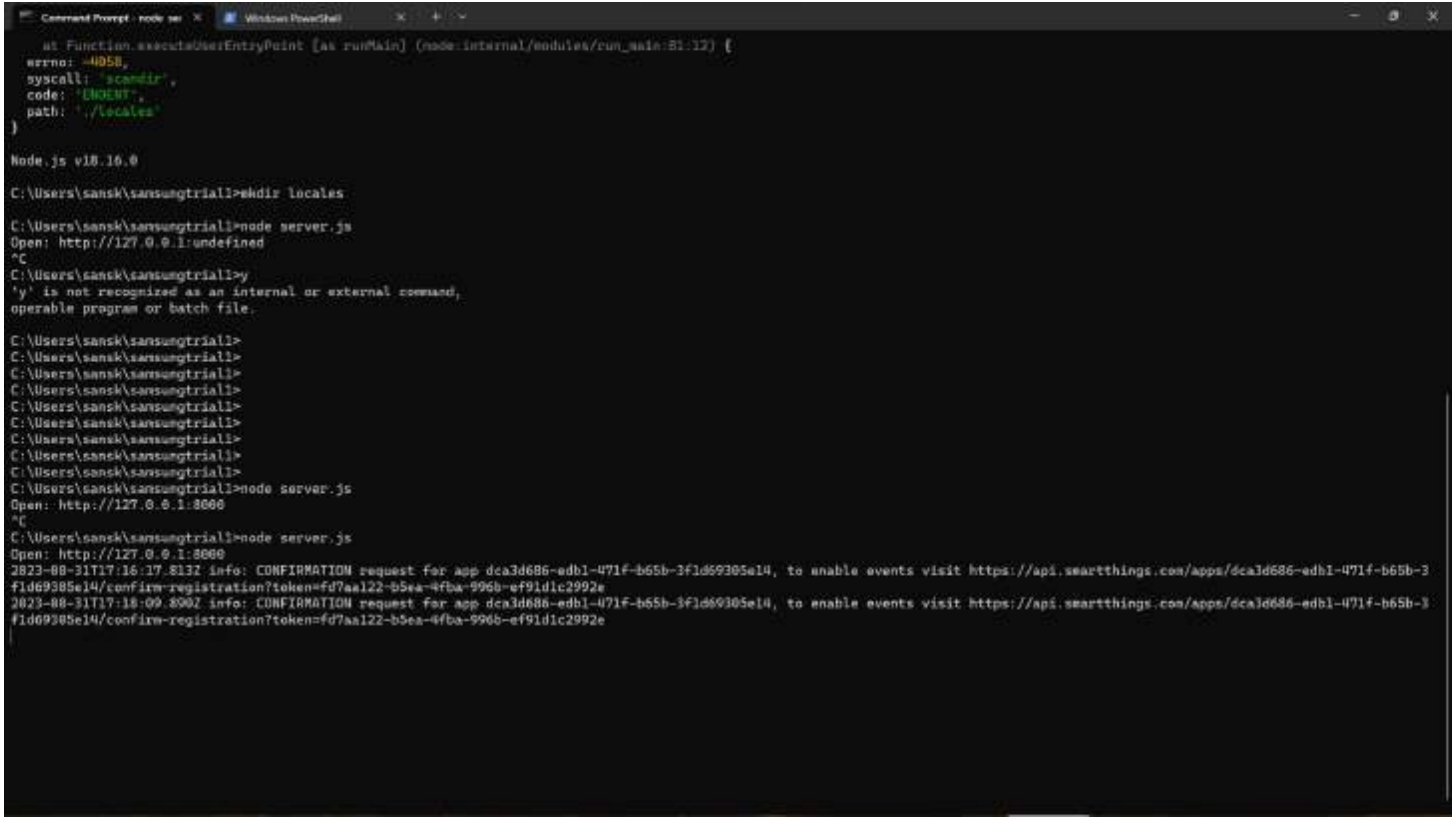
Basic Info

Name	trial2app
Description	testing

Hosting

Methodology

Confirmation request url:



```
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C:\Users\sansk\sansungtrial1>
C:\Users\sansk\sansungtrial1>
C:\Users\sansk\sansungtrial1>
C:\Users\sansk\sansungtrial1>
C:\Users\sansk\sansungtrial1>
C:\Users\sansk\sansungtrial1>node server.js
Open: http://127.0.0.1:8080
^C
C:\Users\sansk\sansungtrial1>node server.js
Open: http://127.0.0.1:8080
2023-08-31T17:16:17.813Z info: CONFIRMATION request for app dca3d686-edb1-471f-b65b-3f1d69305e14, to enable events visit https://api.smartthings.com/apps/dca3d686-edb1-471f-b65b-3
f1d69305e14/confirm-registration?token=fd7aa122-b5ea-4fba-996b-ef91d1c2992e
2023-08-31T17:18:09.890Z info: CONFIRMATION request for app dca3d686-edb1-471f-b65b-3f1d69305e14, to enable events visit https://api.smartthings.com/apps/dca3d686-edb1-471f-b65b-3
f1d69305e14/confirm-registration?token=fd7aa122-b5ea-4fba-996b-ef91d1c2992e
```
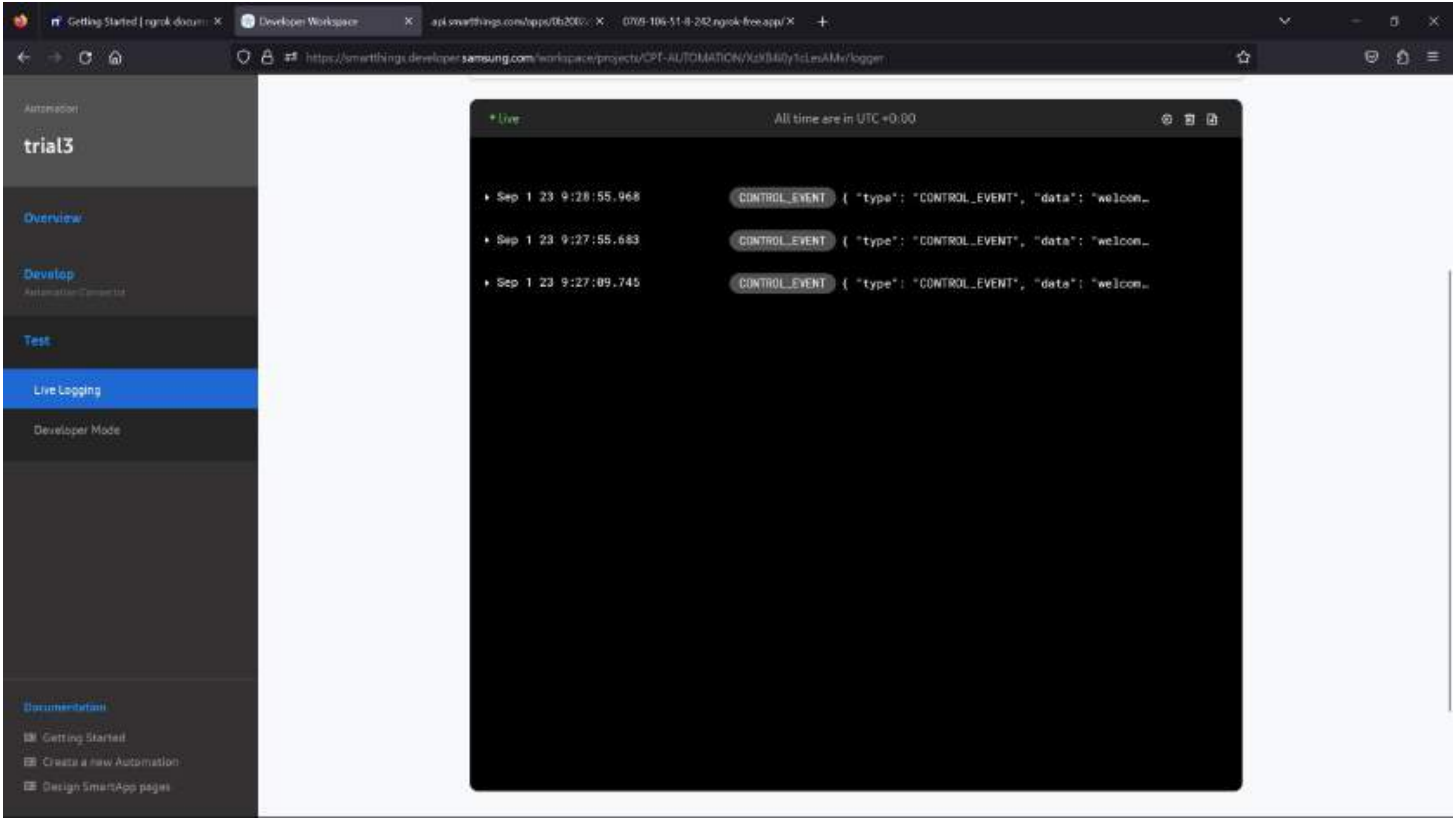
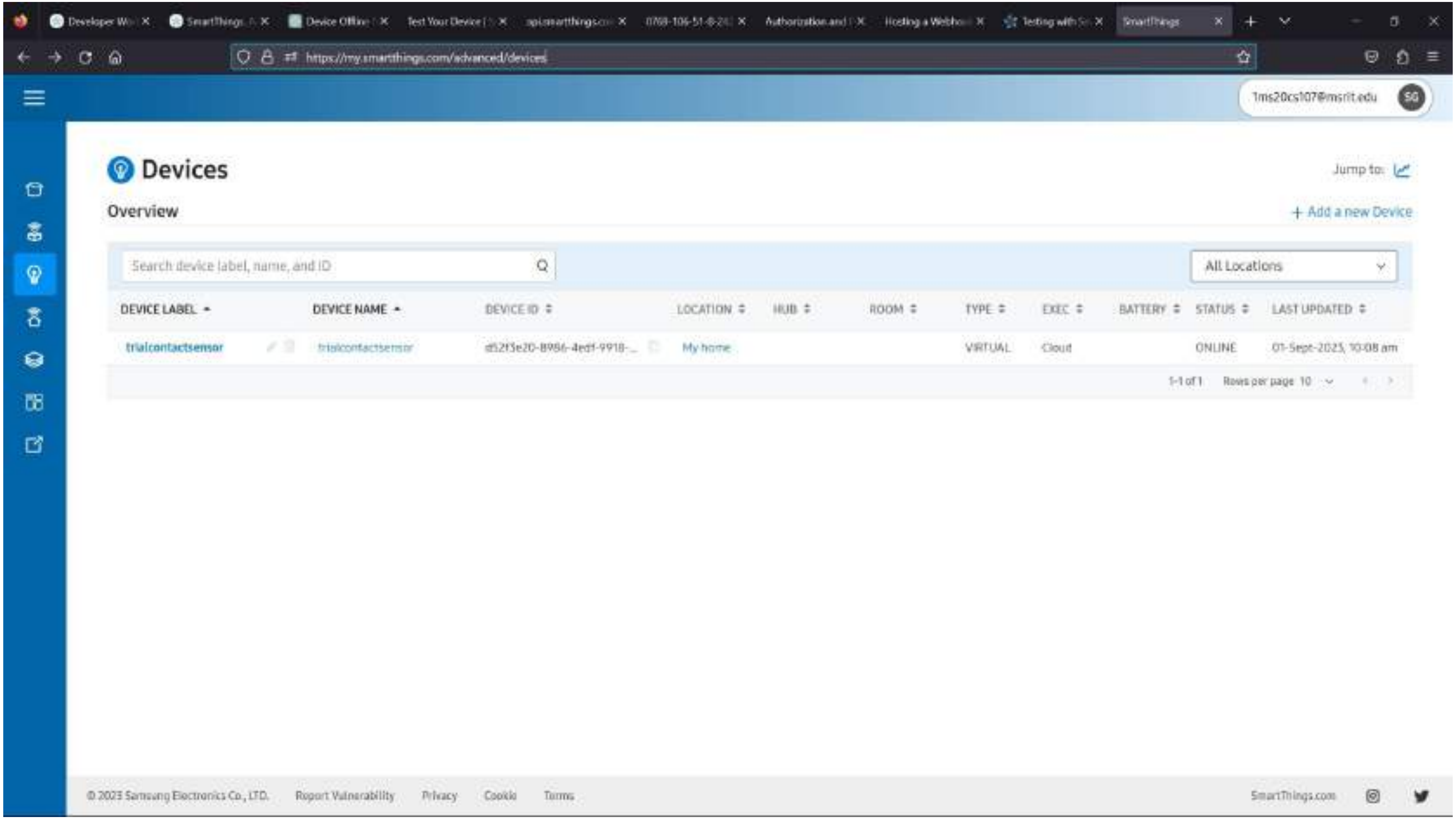

Live logging showing accesses :


Getting Started | ngrok docum
Developer Workspace
api.smartthings.com/apps/0b200
0709-106-51-8-242.ngrok-free.app/
https://smartthings.developer.samsung.com/workspace/projects/CPT-AUTOMATION/XzXB4I0y1cLesAMv/logger
Automation
trial3
Overview
Develop
Automation Connector
Test
Live Logging
Developer Mode
Documentation
Getting Started
Create a new Automation
Design SmartApp pages
• Live
All time are in UTC +0:00

```
▸ Sep 1 23 9:28:55.968     CONTROL_EVENT  { "type": "CONTROL_EVENT", "data": "welcom…
▸ Sep 1 23 9:27:55.683     CONTROL_EVENT  { "type": "CONTROL_EVENT", "data": "welcom…
▸ Sep 1 23 9:27:09.745     CONTROL_EVENT  { "type": "CONTROL_EVENT", "data": "welcom…
```

Virtual device creation and modification :



https://my.smartthings.com/advanced/devices

1ms20cs107@msrit.edu

Devices

Overview

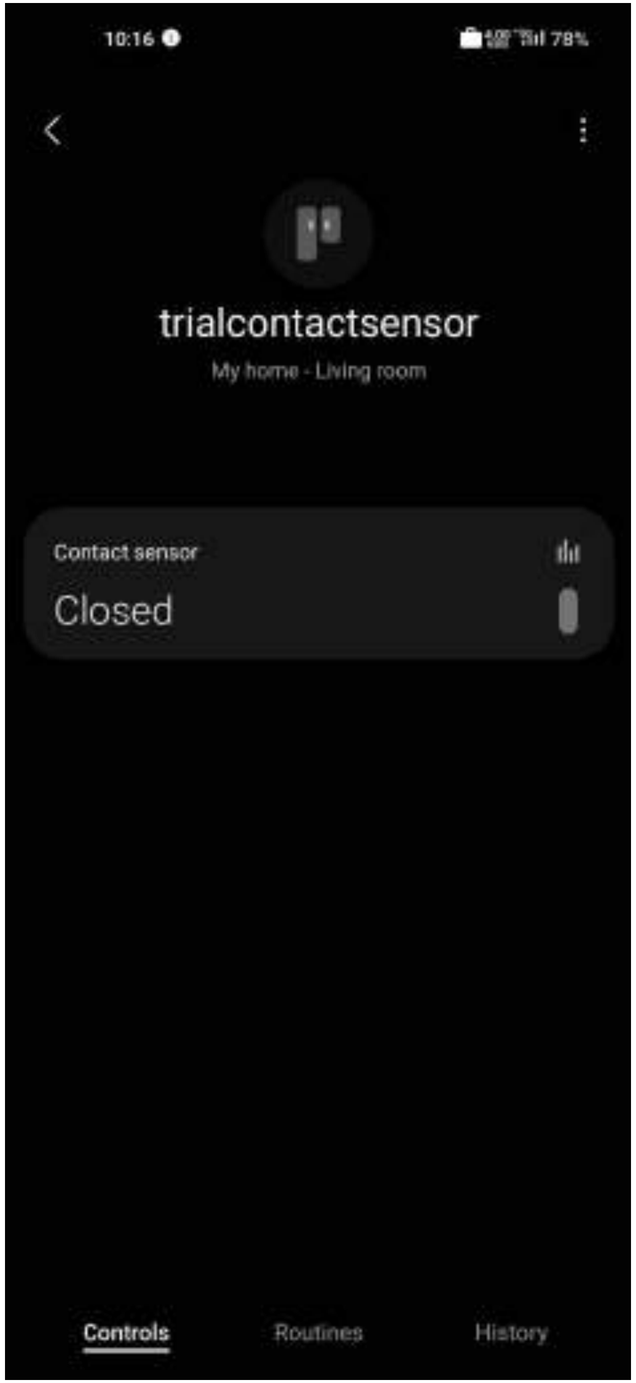
Search device label, name, and ID

All Locations

DEVICE LABEL	DEVICE NAME	DEVICE ID	LOCATION	HUB	ROOM	TYPE	EXEC	BATTERY	STATUS	LAST UPDATED
trialcontactsensor	trialcontactsensor	d52f3e20-8986-4edf-9918-...	My home			VIRTUAL	Cloud		ONLINE	01-Sept-2023, 10:08 am

1-1 of 1 Rows per page 10

Virtual device showing in Smartthings App :



10:16

78%

trialcontactsensor

My home - Living room

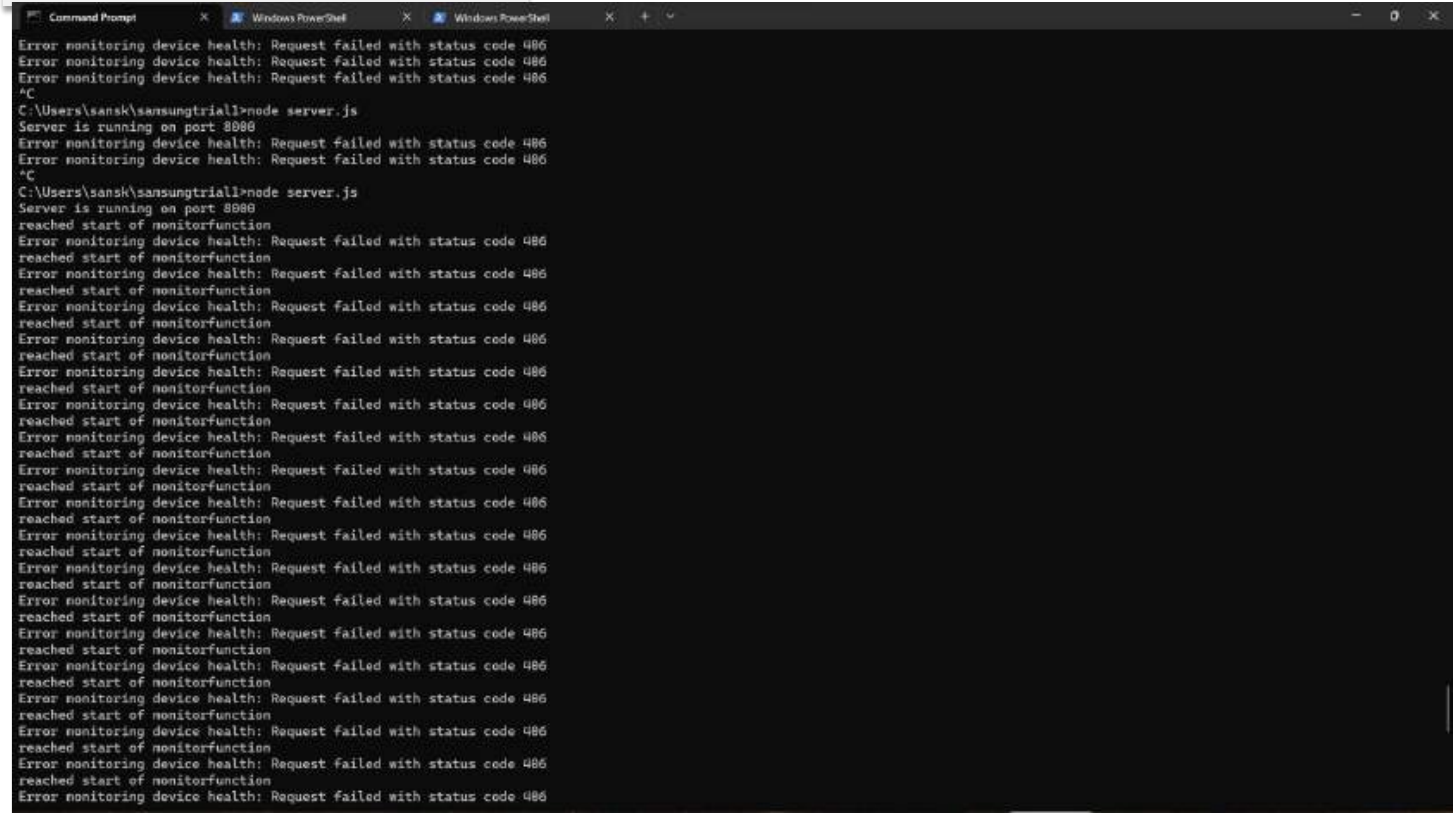
Contact sensor

Closed

Challenges faced:

- Not able to access the device health of a virtual sensor using SmartThings API
- Not able to toggle virtual devices State:
- Current approach to the refresh request , response is not as dezired.
- Not enough materials or information regarding RefreshRequest handler.

Server code not able to access the health of devices registered :



```
Error monitoring device health: Request failed with status code 406
Error monitoring device health: Request failed with status code 406
Error monitoring device health: Request failed with status code 406
^C
C:\Users\sansk\samsungtrial1>node server.js
Server is running on port 8080
Error monitoring device health: Request failed with status code 406
Error monitoring device health: Request failed with status code 406
^C
C:\Users\sansk\samsungtrial1>node server.js
Server is running on port 8080
reached start of monitorfunction
Error monitoring device health: Request failed with status code 406
reached start of monitorfunction
Error monitoring device health: Request failed with status code 406
reached start of monitorfunction
Error monitoring device health: Request failed with status code 406
reached start of monitorfunction
Error monitoring device health: Request failed with status code 406
reached start of monitorfunction
Error monitoring device health: Request failed with status code 406
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Error monitoring device health: Request failed with status code 406
reached start of monitorfunction
Error monitoring device health: Request failed with status code 406
reached start of monitorfunction
Error monitoring device health: Request failed with status code 406
reached start of monitorfunction
Error monitoring device health: Request failed with status code 406
```
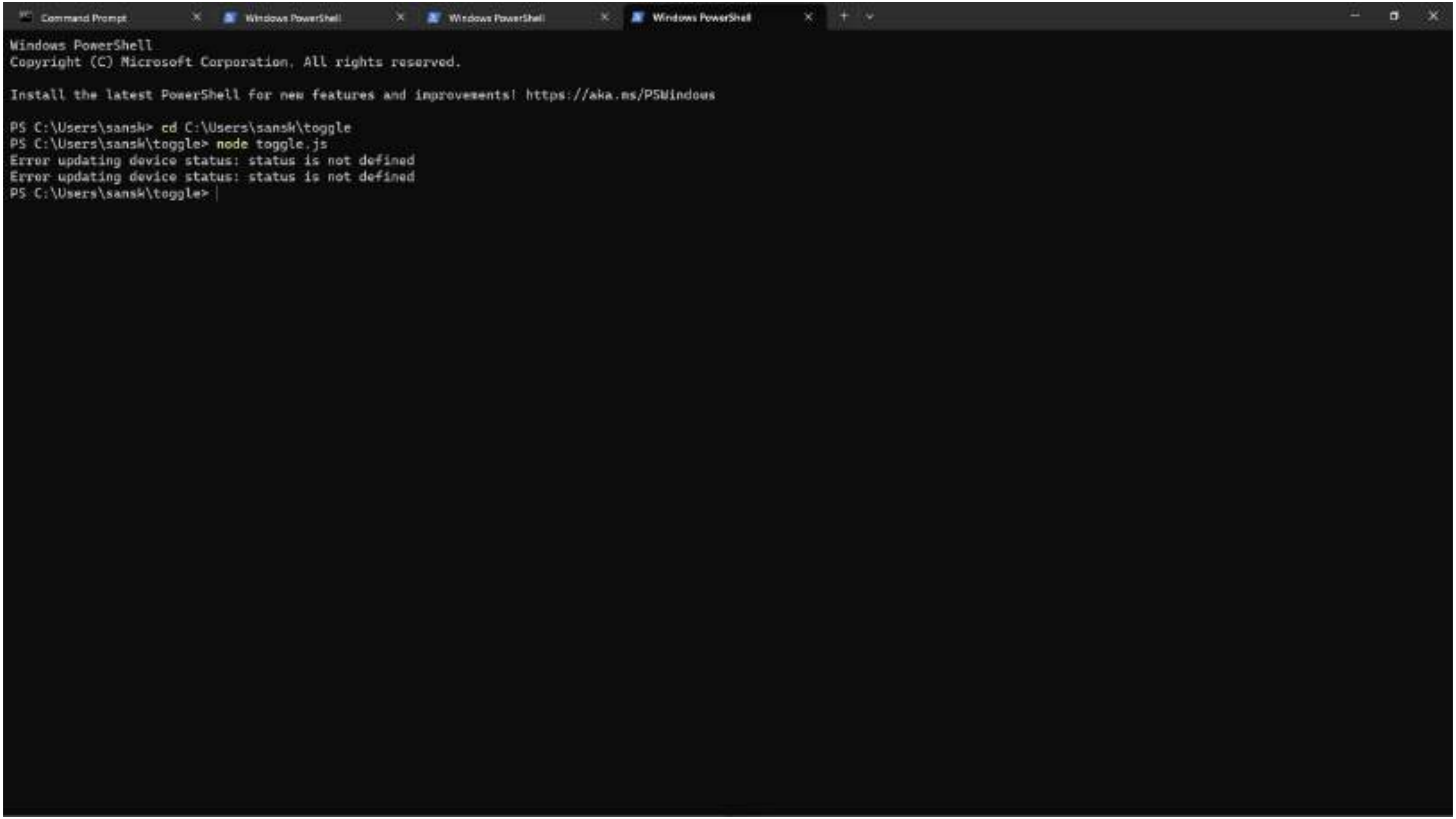

Not able to change state of virtual sensors and devices to test:

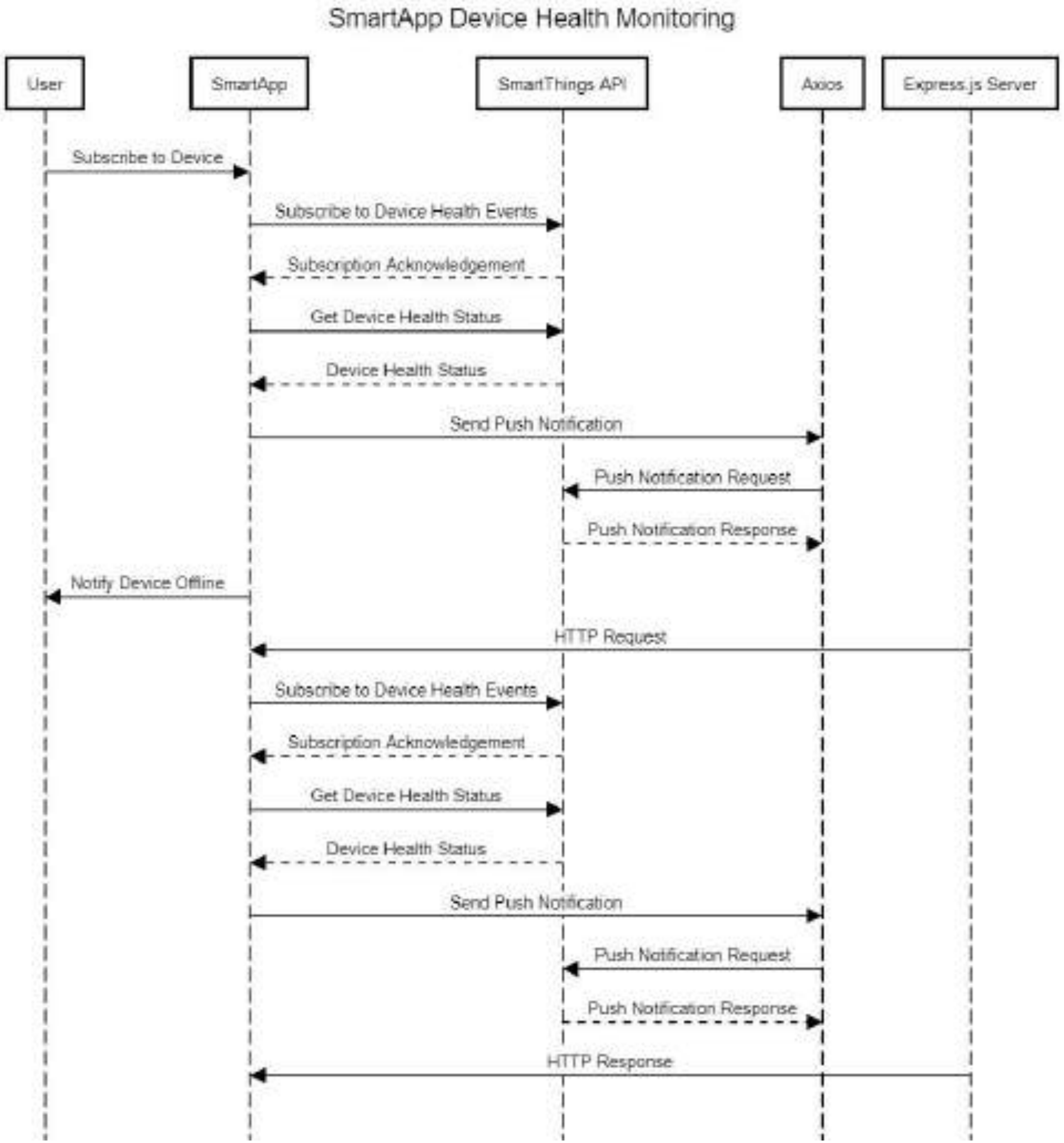


```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\sansk> cd C:\Users\sansk\toggle
PS C:\Users\sansk\toggle> node toggle.js
Error updating device status: status is not defined
Error updating device status: status is not defined
PS C:\Users\sansk\toggle>
```

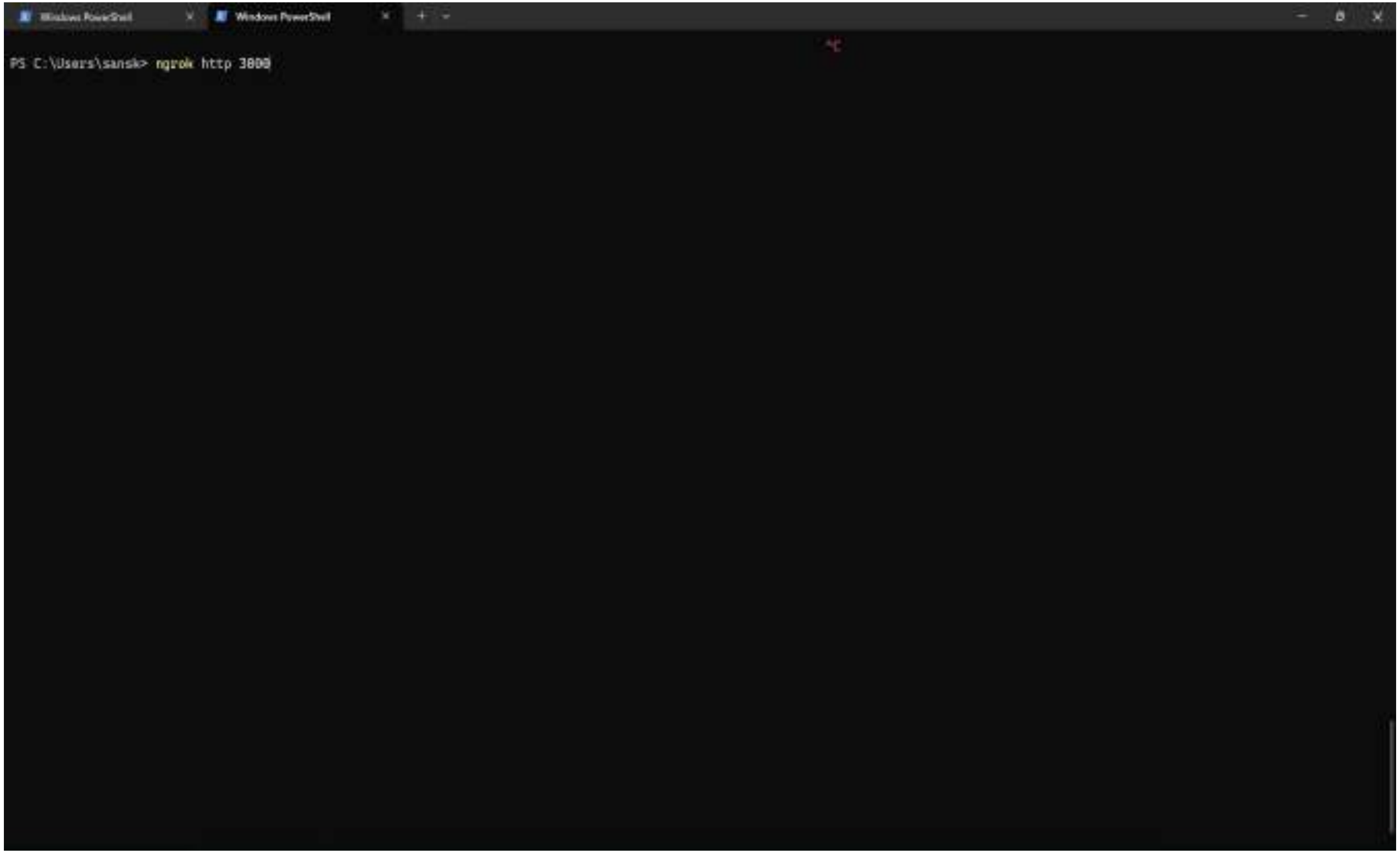
After last meeting

Continuation

Architecture Diagram

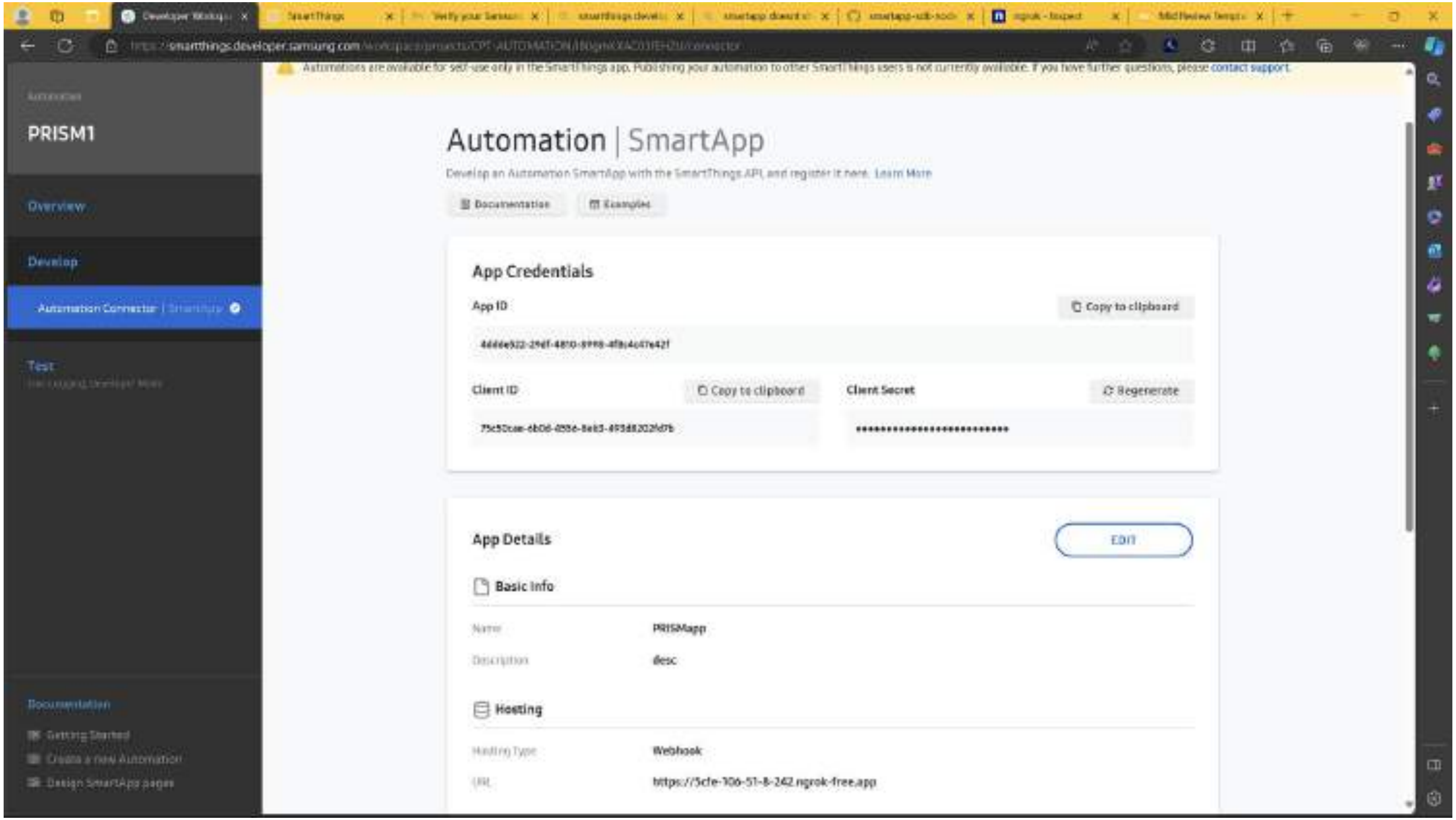

SmartApp Device Health Monitoring
User
SmartApp
SmartThings API
Axios
Express.js Server
Subscribe to Device
Subscribe to Device Health Events
Subscription Acknowledgement
Get Device Health Status
Device Health Status
Send Push Notification
Push Notification Request
Push Notification Response
Notify Device Offline
HTTP Request
Subscribe to Device Health Events
Subscription Acknowledgement
Get Device Health Status
Device Health Status
Send Push Notification
Push Notification Request
Push Notification Response
HTTP Response

NGROK Server



```
^C
PS C:\Users\sansk> ngrok http 3000
```

Smartapp already registered



Automations are available for self-use only in the SmartThings app. Publishing your automation to other SmartThings users is not currently available. If you have further questions, please contact support.

Automation | SmartApp

Develop an Automation SmartApp with the SmartThings API and register it here. Learn More

App Credentials

App ID: 4dd6e922-29ef-4810-8998-4f8c4c47e42f

Client ID: 75c50cae-6b06-4556-8eb3-493d8202fd7b

Client Secret: ••••••••••••••••••••••••••

App Details

Basic Info

Name: PRISMapp

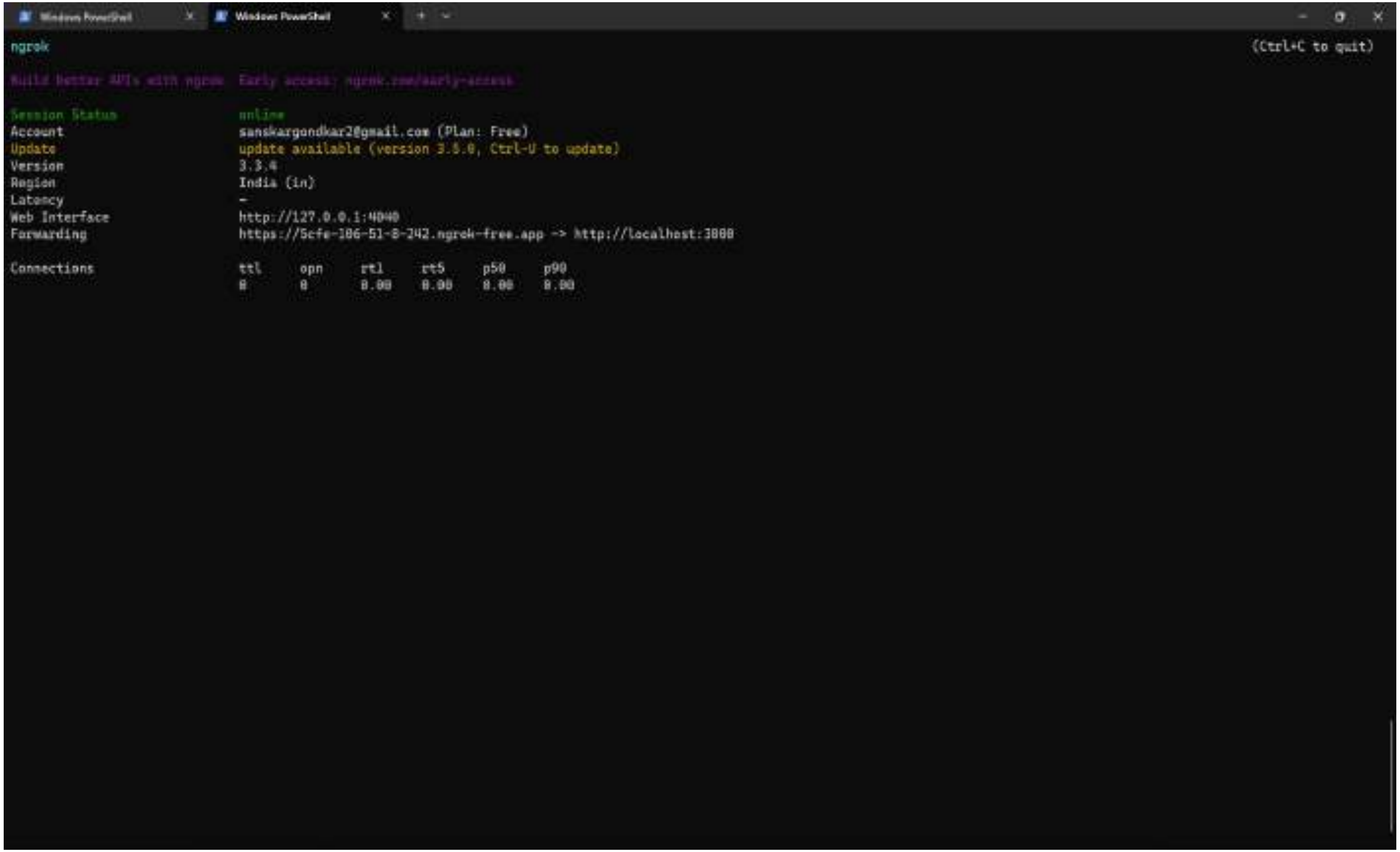
Description: desc

Hosting

Hosting Type: Webhook

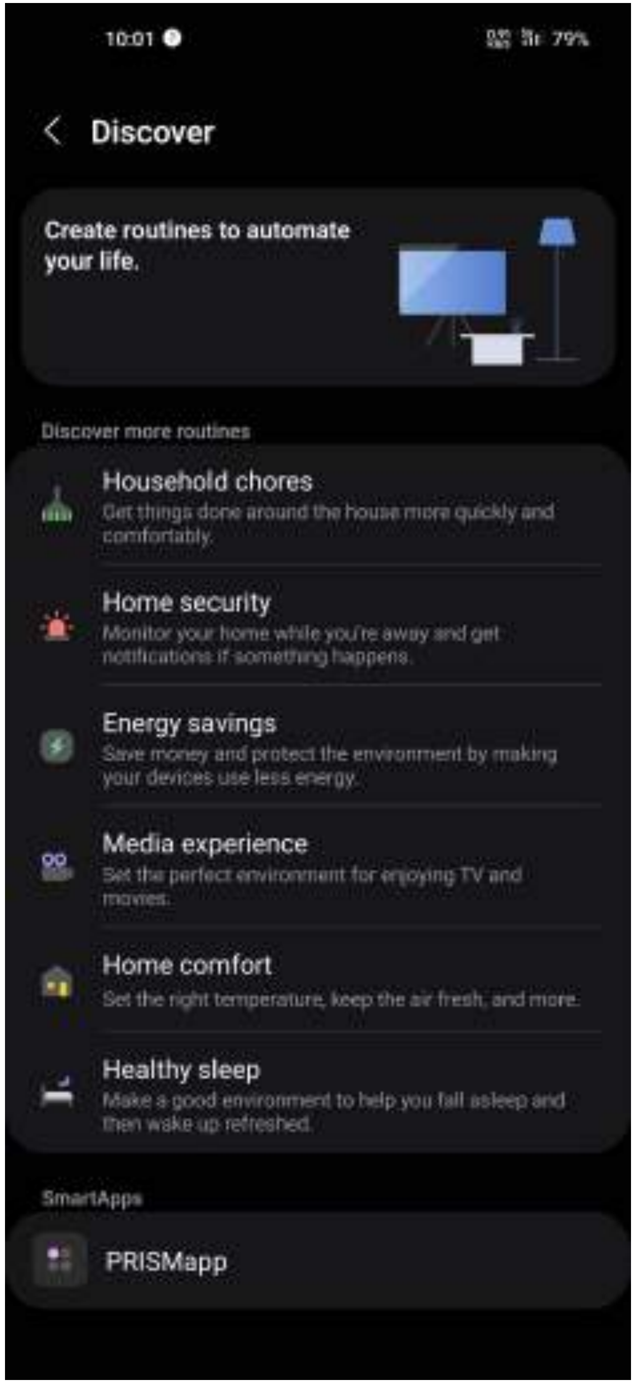
URL: https://5cfe-106-51-8-242.ngrok-free.app

Successful Hosting on Ngrok Server



```
ngrok                                                                                                    (Ctrl+C to quit)

Build better APIs with ngrok. Early access: ngrok.com/early-access

Session Status                online
Account                       sanskargondkar2@gmail.com (Plan: Free)
Update                        update available (version 3.5.0, Ctrl-U to update)
Version                       3.3.4
Region                        India (in)
Latency                       -
Web Interface                 http://127.0.0.1:4040
Forwarding                    https://5cfe-106-51-8-242.ngrok-free.app -> http://localhost:3000

Connections                   ttl     opn     rt1     rt5     p50     p90
                              0       0       0.00    0.00    0.00    0.00
```

Location of custom smartapp, after enabling Developer options



Discover

Create routines to automate your life.

Discover more routines

Household chores
Get things done around the house more quickly and comfortably.

Home security
Monitor your home while you're away and get notifications if something happens.

Energy savings
Save money and protect the environment by making your devices use less energy.

Media experience
Set the perfect environment for enjoying TV and movies.

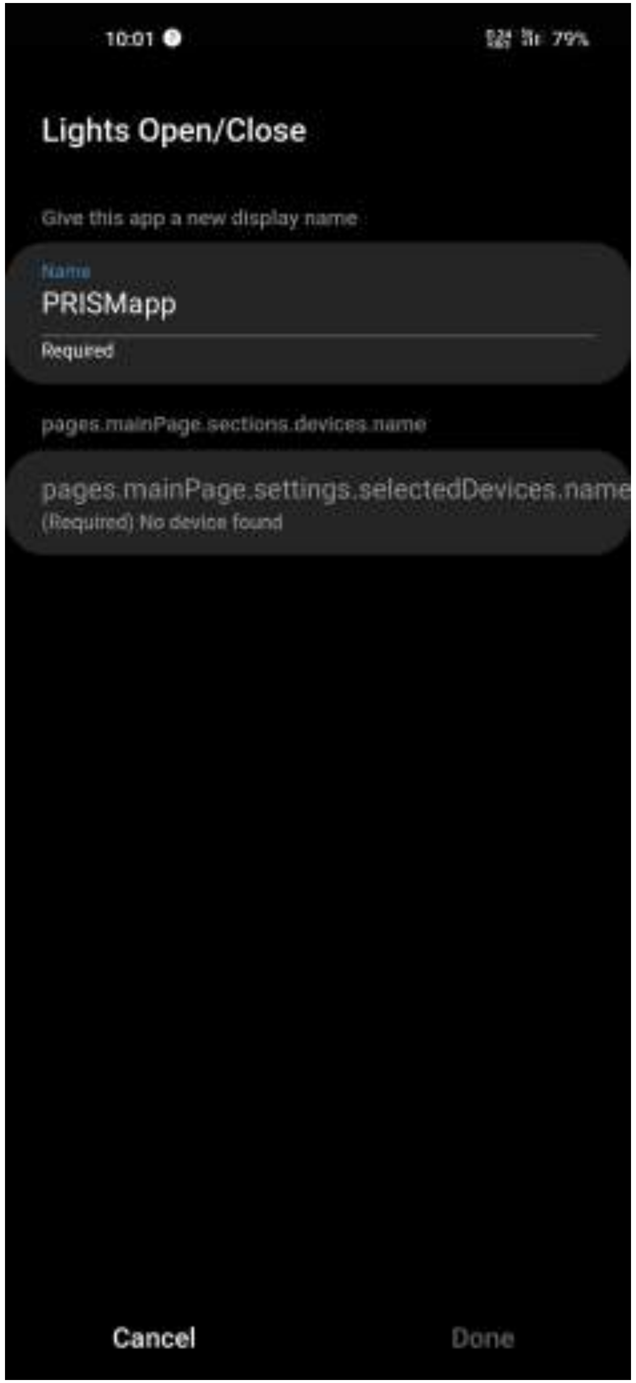
Home comfort
Set the right temperature, keep the air fresh, and more.

Healthy sleep
Make a good environment to help you fall asleep and then wake up refreshed.

SmartApps

PRISMapp

Installing Smartapp



Lights Open/Close

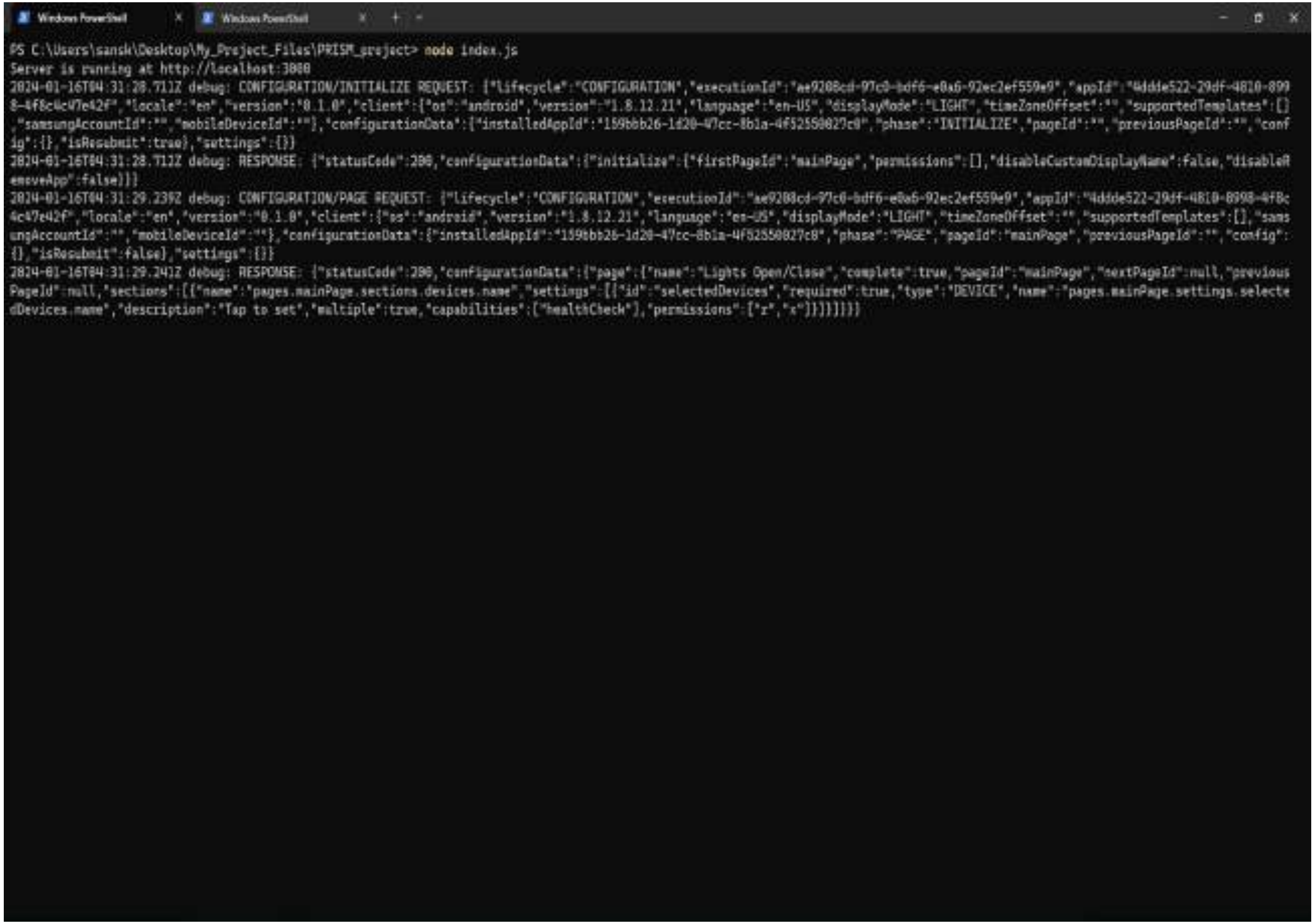
Give this app a new display name

Name
PRISMapp
Required

pages.mainPage.sections.devices.name

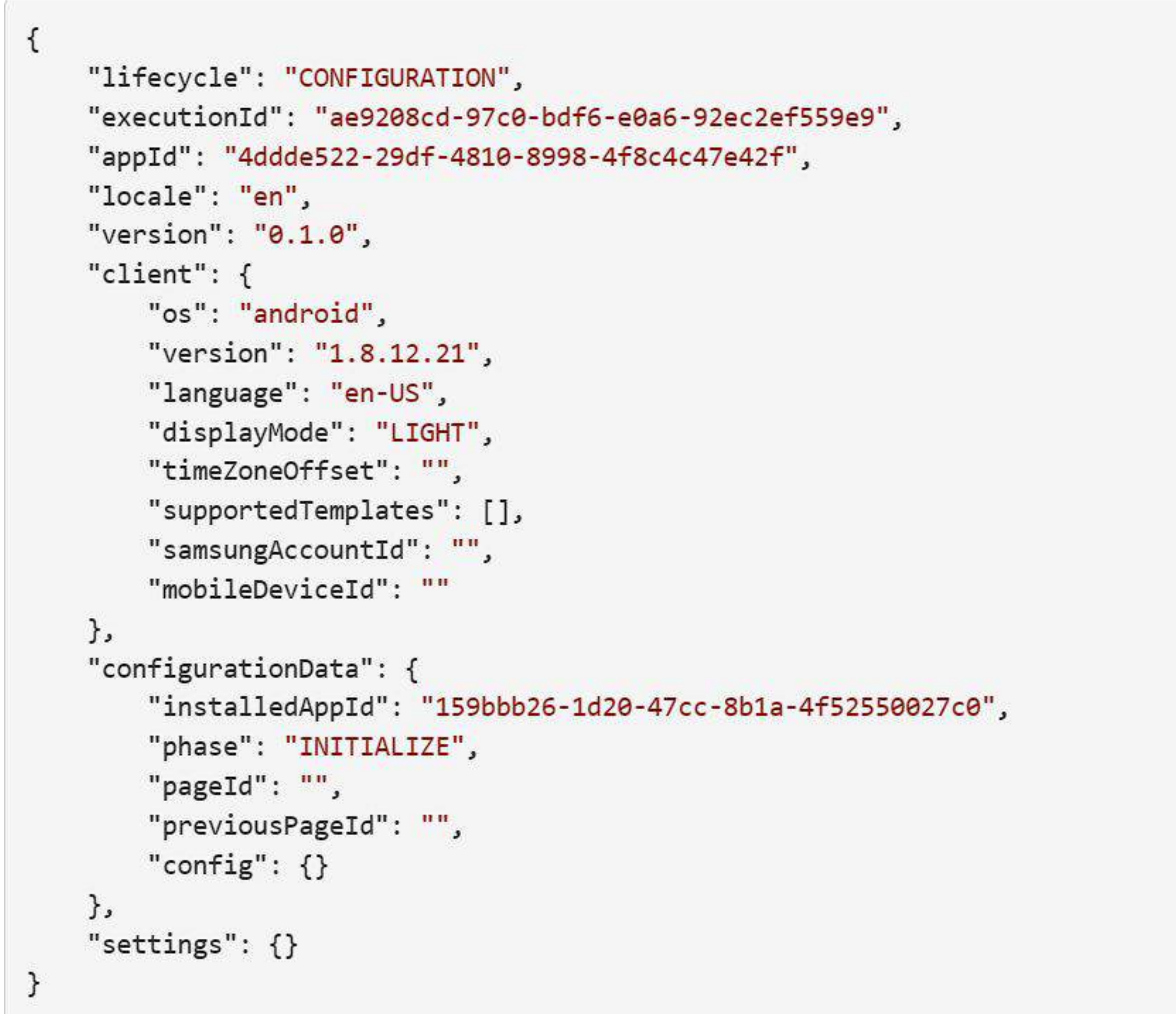
pages.mainPage.settings.selectedDevices.name
(Required) No device found

Successful installation of the app



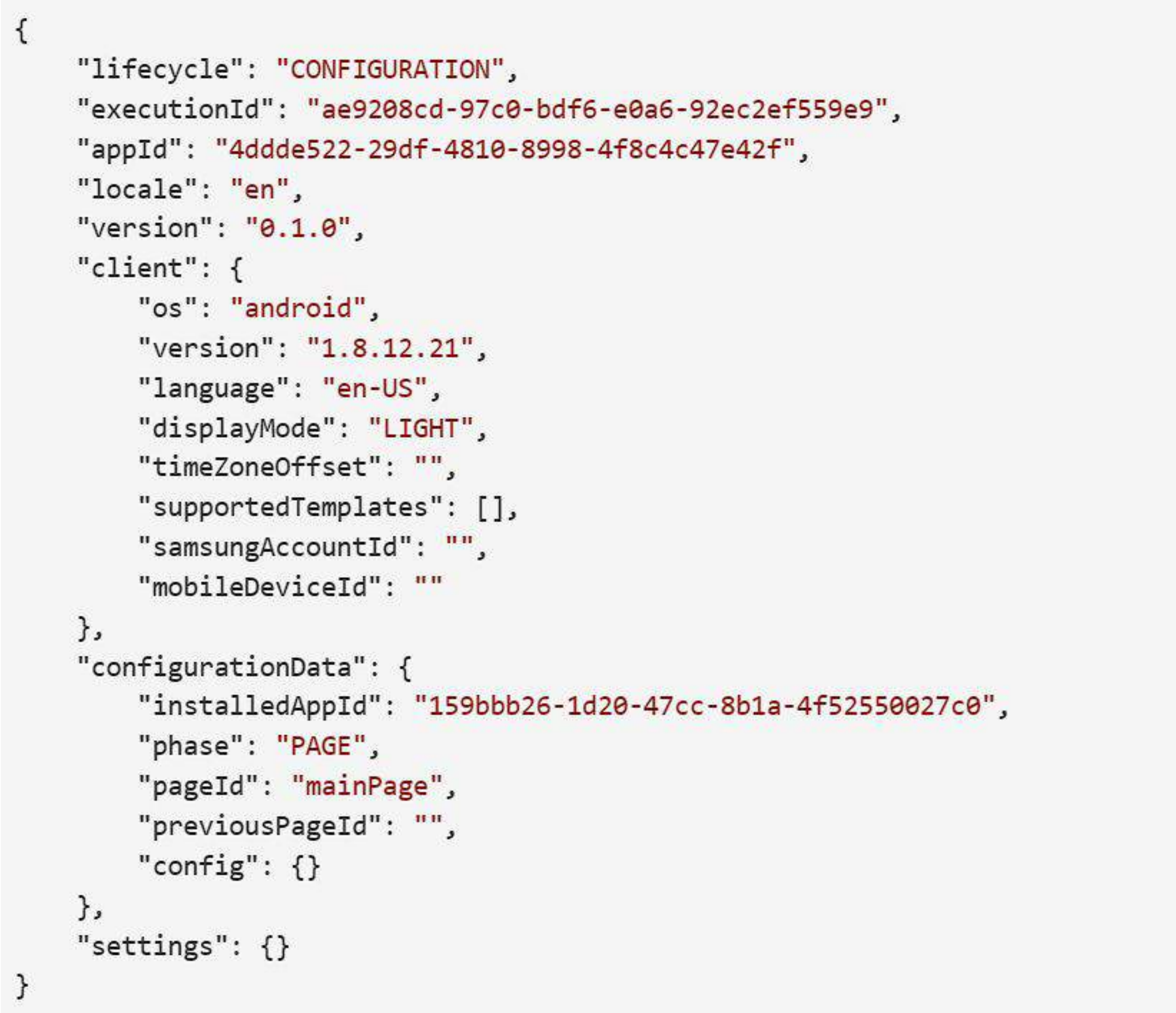
```
PS C:\Users\sansk\Desktop\My_Project_Files\PRISM_project> node index.js
Server is running at http://localhost:3000
2024-01-16T04:31:28.711Z debug: CONFIGURATION/INITIALIZE REQUEST: {"lifecycle":"CONFIGURATION","executionId":"ae9208cd-97c0-bdf6-e0a6-92ec2ef559e9","appId":"4ddde522-29df-4810-899
8-4f8c4c47e42f","locale":"en","version":"0.1.0","client":{"os":"android","version":"1.8.12.21","language":"en-US","displayMode":"LIGHT","timeZoneOffset":"","supportedTemplates":[]
,"samsungAccountId":"","mobileDeviceId":""},"configurationData":{"installedAppId":"159bbb26-1d20-47cc-8b1a-4f52550027c0","phase":"INITIALIZE","pageId":"","previousPageId":"","conf
ig":{},"isResubmit":true},"settings":{}}
2024-01-16T04:31:28.712Z debug: RESPONSE: {"statusCode":200,"configurationData":{"initialize":{"firstPageId":"mainPage","permissions":[],"disableCustomDisplayName":false,"disableR
emoveApp":false}}}
2024-01-16T04:31:29.239Z debug: CONFIGURATION/PAGE REQUEST: {"lifecycle":"CONFIGURATION","executionId":"ae9208cd-97c0-bdf6-e0a6-92ec2ef559e9","appId":"4ddde522-29df-4810-8998-4f8c
4c47e42f","locale":"en","version":"0.1.0","client":{"os":"android","version":"1.8.12.21","language":"en-US","displayMode":"LIGHT","timeZoneOffset":"","supportedTemplates":[],"sams
ungAccountId":"","mobileDeviceId":""},"configurationData":{"installedAppId":"159bbb26-1d20-47cc-8b1a-4f52550027c8","phase":"PAGE","pageId":"mainPage","previousPageId":"","config":
{},"isResubmit":false},"settings":{}}
2024-01-16T04:31:29.241Z debug: RESPONSE: {"statusCode":200,"configurationData":{"page":{"name":"Lights Open/Close","complete":true,"pageId":"mainPage","nextPageId":null,"previous
PageId":null,"sections":[{"name":"pages.mainPage.sections.devices.name","settings":[{"id":"selectedDevices","required":true,"type":"DEVICE","name":"pages.mainPage.settings.selecte
dDevices.name","description":"Tap to set","multiple":true,"capabilities":["healthCheck"],"permissions":["r","x"]}]}]}}}
```

Configuration JSON payload during install



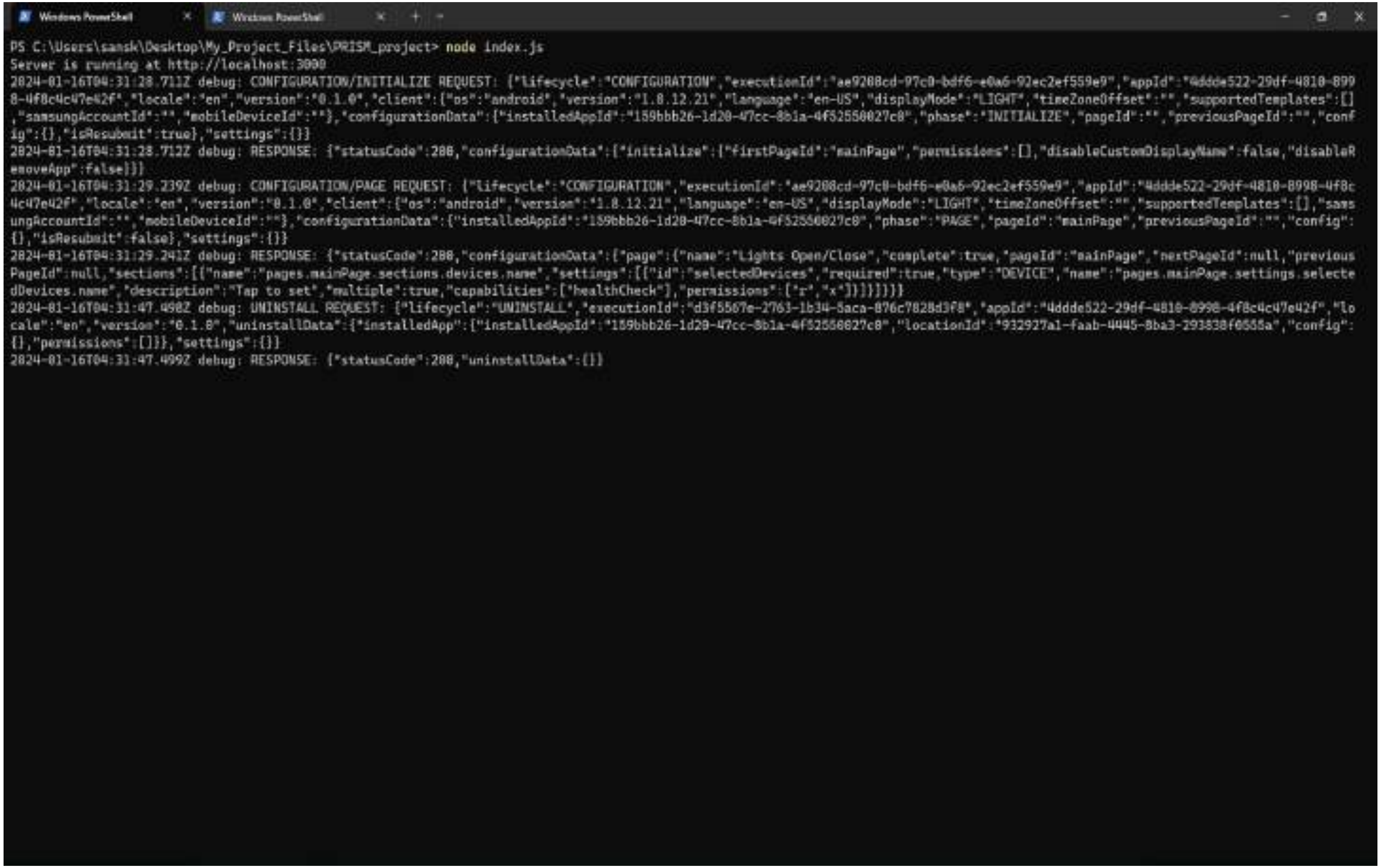
```
{
    "lifecycle": "CONFIGURATION",
    "executionId": "ae9208cd-97c0-bdf6-e0a6-92ec2ef559e9",
    "appId": "4ddde522-29df-4810-8998-4f8c4c47e42f",
    "locale": "en",
    "version": "0.1.0",
    "client": {
        "os": "android",
        "version": "1.8.12.21",
        "language": "en-US",
        "displayMode": "LIGHT",
        "timeZoneOffset": "",
        "supportedTemplates": [],
        "samsungAccountId": "",
        "mobileDeviceId": ""
    },
    "configurationData": {
        "installedAppId": "159bbb26-1d20-47cc-8b1a-4f52550027c0",
        "phase": "INITIALIZE",
        "pageId": "",
        "previousPageId": "",
        "config": {}
    },
    "settings": {}
}
```

Configuration JSON payload during installation



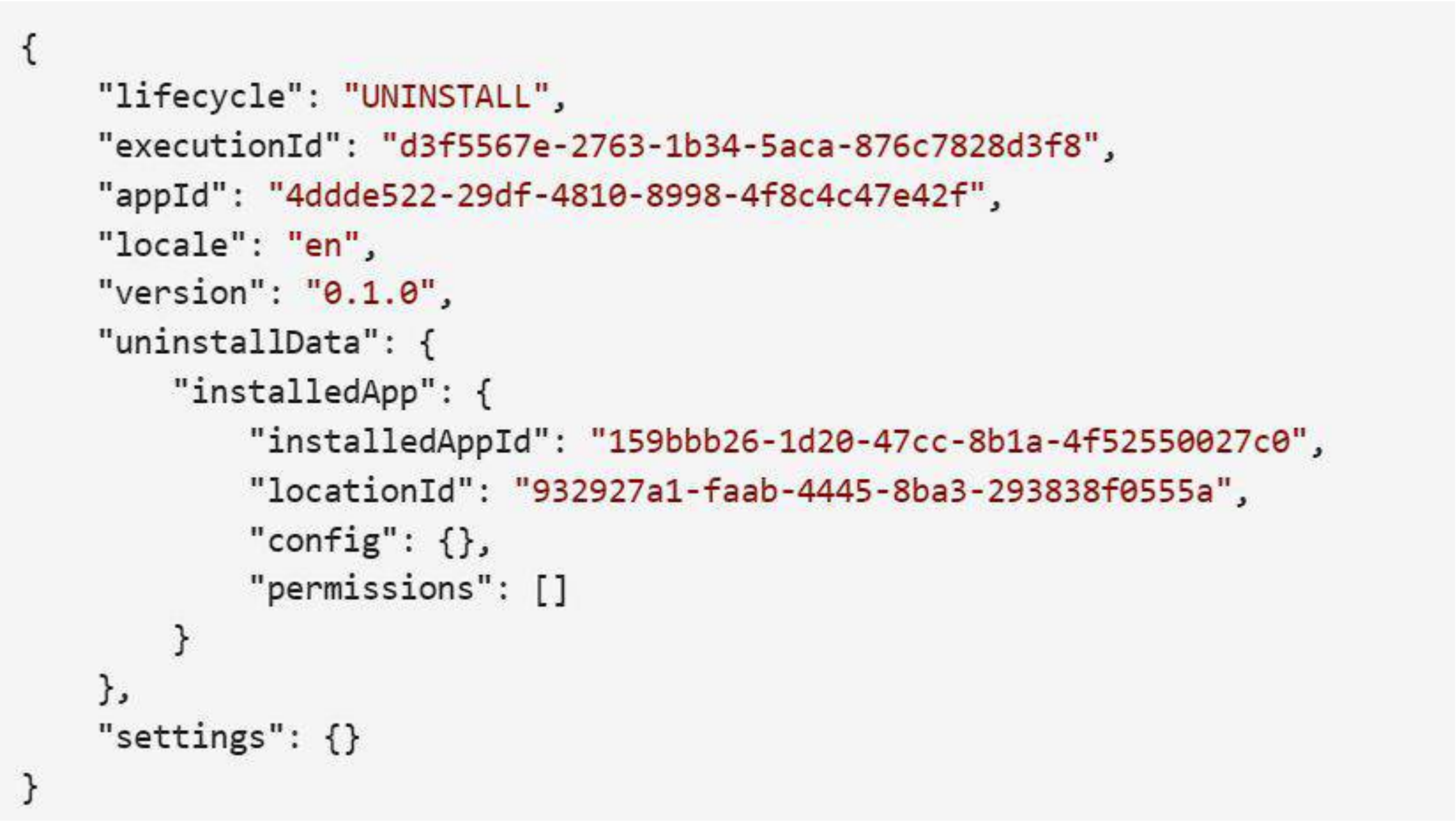
```
{
    "lifecycle": "CONFIGURATION",
    "executionId": "ae9208cd-97c0-bdf6-e0a6-92ec2ef559e9",
    "appId": "4ddde522-29df-4810-8998-4f8c4c47e42f",
    "locale": "en",
    "version": "0.1.0",
    "client": {
        "os": "android",
        "version": "1.8.12.21",
        "language": "en-US",
        "displayMode": "LIGHT",
        "timeZoneOffset": "",
        "supportedTemplates": [],
        "samsungAccountId": "",
        "mobileDeviceId": ""
    },
    "configurationData": {
        "installedAppId": "159bbb26-1d20-47cc-8b1a-4f52550027c0",
        "phase": "PAGE",
        "pageId": "mainPage",
        "previousPageId": "",
        "config": {}
    },
    "settings": {}
}
```

Successful uninstallation of the app



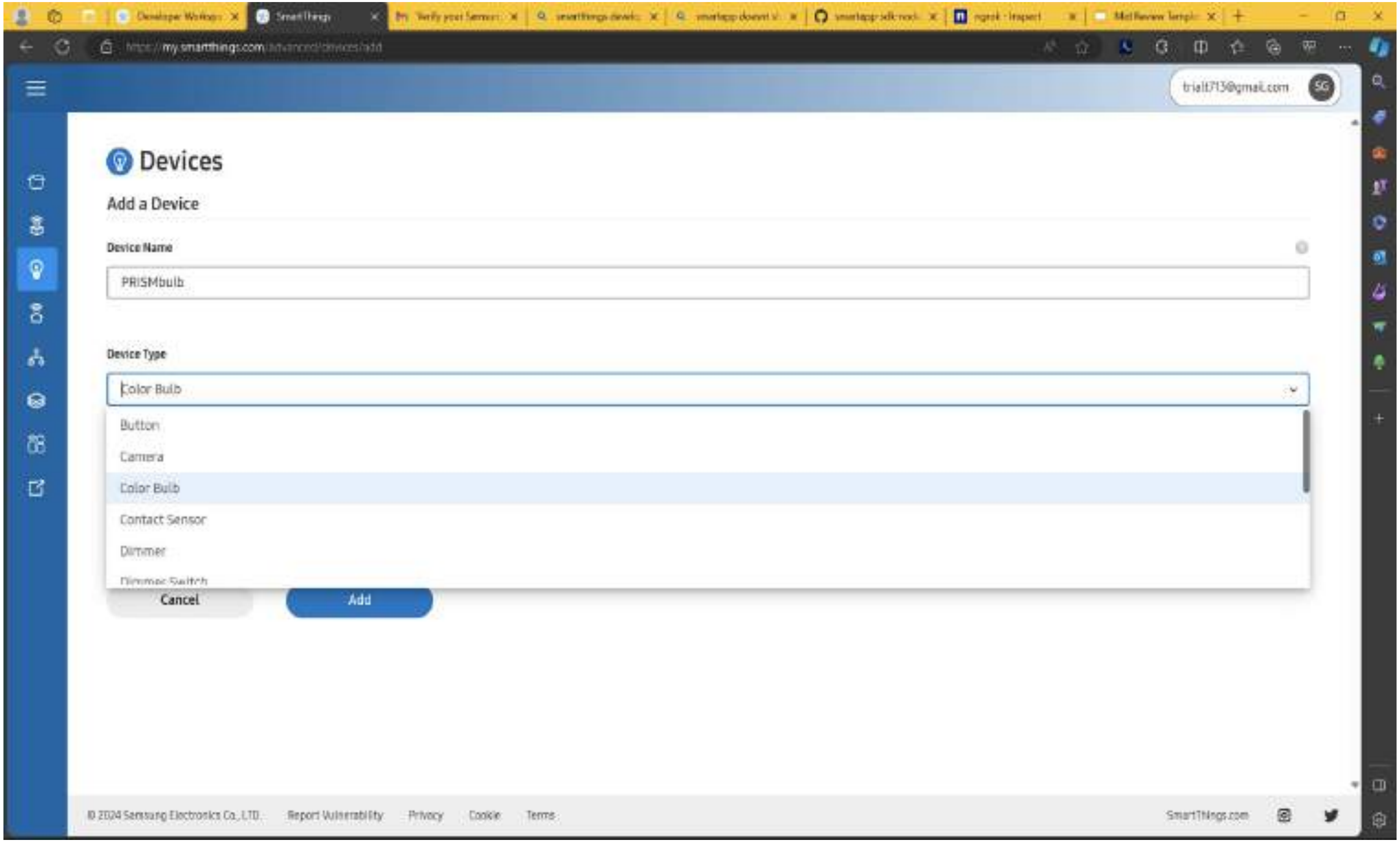
```
PS C:\Users\sansk\Desktop\My_Project_Files\PRISM_project> node index.js
Server is running at http://localhost:3000
2024-01-16T04:31:28.711Z debug: CONFIGURATION/INITIALIZE REQUEST: {"lifecycle":"CONFIGURATION","executionId":"ae9208cd-97c0-bdf6-e0a6-92ec2ef559e9","appId":"4ddde522-29df-4810-899
8-4f8c4c47e42f","locale":"en","version":"0.1.0","client":{"os":"android","version":"1.8.12.21","language":"en-US","displayMode":"LIGHT","timeZoneOffset":"","supportedTemplates":[]
,"samsungAccountId":"","mobileDeviceId":""},"configurationData":{"installedAppId":"159bbb26-1d20-47cc-8b1a-4f52550027c8","phase":"INITIALIZE","pageId":"","previousPageId":"","conf
ig":{},"isResubmit":true},"settings":{}}
2024-01-16T04:31:28.712Z debug: RESPONSE: {"statusCode":200,"configurationData":{"initialize":{"firstPageId":"mainPage","permissions":[],"disableCustomDisplayName":false,"disableR
emoveApp":false}}}
2024-01-16T04:31:29.239Z debug: CONFIGURATION/PAGE REQUEST: {"lifecycle":"CONFIGURATION","executionId":"ae9208cd-97c0-bdf6-e0a6-92ec2ef559e9","appId":"4ddde522-29df-4810-8998-4f8c
4c47e42f","locale":"en","version":"0.1.0","client":{"os":"android","version":"1.8.12.21","language":"en-US","displayMode":"LIGHT","timeZoneOffset":"","supportedTemplates":[],"sams
ungAccountId":"","mobileDeviceId":""},"configurationData":{"installedAppId":"159bbb26-1d20-47cc-8b1a-4f52550027c8","phase":"PAGE","pageId":"mainPage","previousPageId":"","config":
{},"isResubmit":false},"settings":{}}
2024-01-16T04:31:29.241Z debug: RESPONSE: {"statusCode":200,"configurationData":{"page":{"name":"Lights Open/Close","complete":true,"pageId":"mainPage","nextPageId":null,"previous
PageId":null,"sections":[{"name":"pages.mainPage.sections.devices.name","settings":[{"id":"selectedDevices","required":true,"type":"DEVICE","name":"pages.mainPage.settings.selecte
dDevices.name","description":"Tap to set","multiple":true,"capabilities":["healthCheck"],"permissions":["r","x"]}]}]}}}
2024-01-16T04:31:47.498Z debug: UNINSTALL REQUEST: {"lifecycle":"UNINSTALL","executionId":"d3f5567e-2763-1b34-5aca-876c7828d3f8","appId":"4ddde522-29df-4810-8998-4f8c4c47e42f","lo
cale":"en","version":"0.1.0","uninstallData":{"installedApp":{"installedAppId":"159bbb26-1d20-47cc-8b1a-4f52550027c8","locationId":"932927a1-faab-4445-8ba3-293838f0555a","config":
{},"permissions":[]}},"settings":{}}
2024-01-16T04:31:47.499Z debug: RESPONSE: {"statusCode":200,"uninstallData":{}}
```

JSON payload during uninstall:



```
{
    "lifecycle": "UNINSTALL",
    "executionId": "d3f5567e-2763-1b34-5aca-876c7828d3f8",
    "appId": "4ddde522-29df-4810-8998-4f8c4c47e42f",
    "locale": "en",
    "version": "0.1.0",
    "uninstallData": {
        "installedApp": {
            "installedAppId": "159bbb26-1d20-47cc-8b1a-4f52550027c0",
            "locationId": "932927a1-faab-4445-8ba3-293838f0555a",
            "config": {},
            "permissions": []
        }
    },
    "settings": {}
}
```

Adding Virtual Device:



Devices

Add a Device

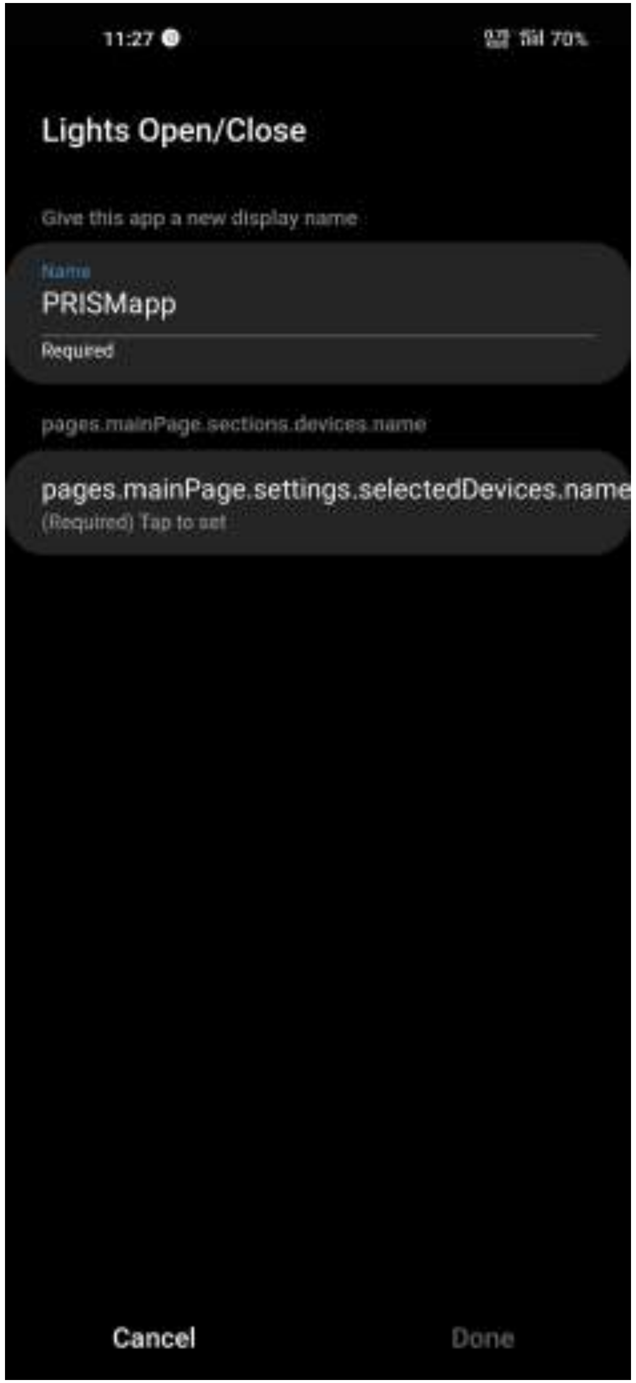
Device Name

PRISMbulb

Device Type

Color Bulb

Adding devices in the smartapp



11:27

Lights Open/Close

Give this app a new display name

Name

PRISMapp

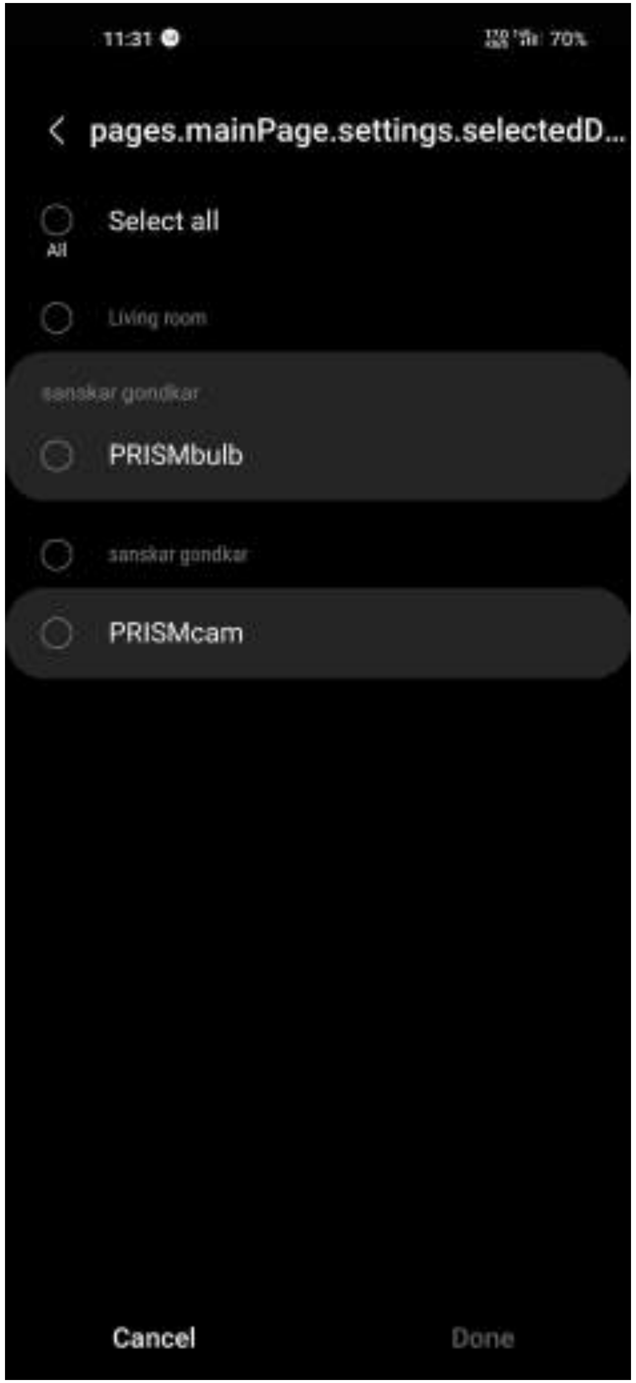
Required

pages.mainPage.sections.devices.name

pages.mainPage.settings.selectedDevices.name

(Required) Tap to set

Selecting devices in the smartapp



11:31 70%

< pages.mainPage.settings.selectedD...

○ Select all
All

○ Living room

sanskar gondkar

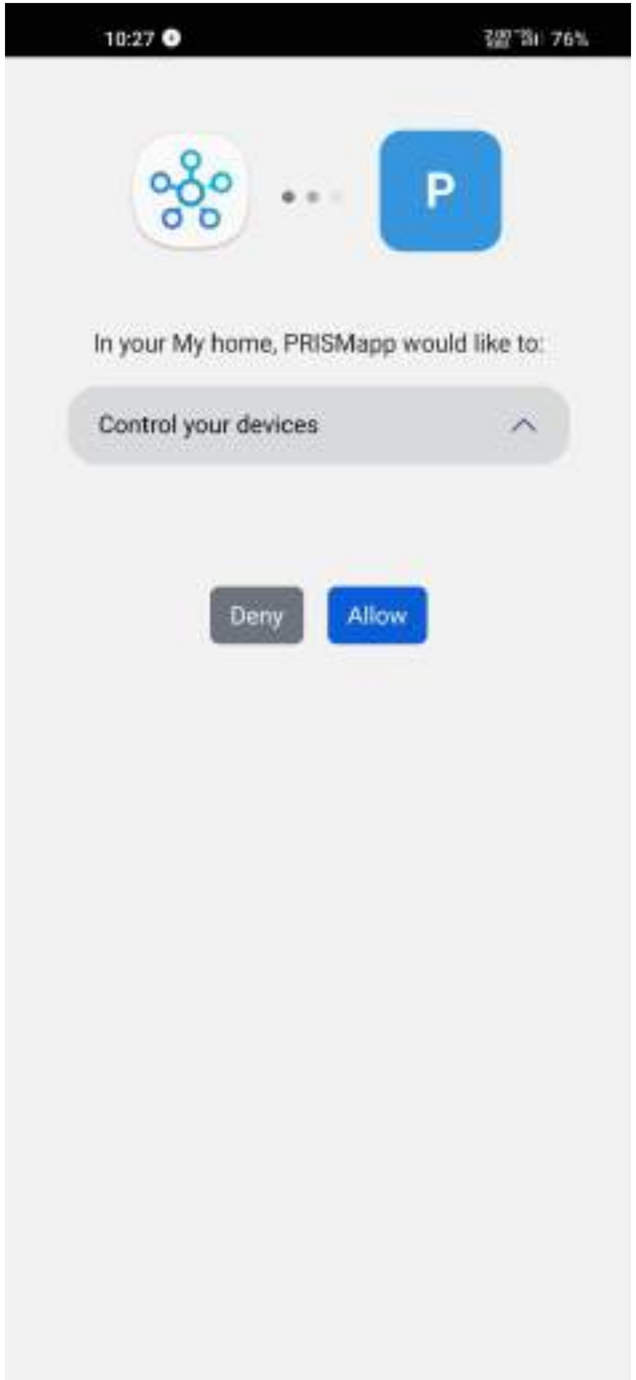
○ PRISMbulb

○ sanskar gondkar

○ PRISMcam

Cancel Done

Setting Control Permissions, if any



In your My home, PRISMapp would like to:

Control your devices

Thank you