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**AlwaysOnWiFiHotspot**

**Service**

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| Project | Android Service – AlwaysOnWiFiHotspot |
| Document | AlwaysOnWiFiHotspot Document |
| Revision | 1.0 |
| Date | 12/22/2016 |

Documentation History

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| --- | --- | --- | --- | --- |
| Revision | Date | Author | Chapter | Changes Made |
| 1.0 | 12/22/2016 | Eemaan Siddiqi | All | Creation |

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Introduction

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* 1. Overview

AlwaysOnWiFiHotspot is an android application that continuously monitors the Wi-Fi Access point state (also known as Wi-Fi AP state) and enables it, if it ever gets disabled. The application does not have any User Interface (UI) and runs in the background.

A counter is incremented every time the Wi-Fi hotspot needs to be enabled. This value is stored in a text file. It allows us, to keep track of the number of times the service enabled the hotspot.

* 1. Problem Definition

OBC5 hotspot can become disabled on rare occasions. Thus, a service is needed that monitors the AP state and re-enables it if it ever becomes disabled.

* 1. Objective and Goals

The main objectives and goals of this application are:

* The application should be able to start the service on Boot up by itself.
* The application should be able to monitor the current Wi-Fi AP state continuously.
* The application should be able to enable the Wi-Fi AP State (Hotspot) every time its disabled.
* The application should ensure that the service stays alive always.

In all the following conditions this application will be able to enable the Wi-Fi Hotspot:

* If the hotspot is disabled on rare occasions.
* If the Wi-Fi Hotspot is toggled off.
* If the airplane mode is turned on and off.

**NOTE:**

This service doesn’t cause any interruption (by re-enabling the Hotspot) when the user wishes to connect to Wireless Lan (Wi-Fi). That is if Wi-Fi is enabled, the service waits (To re-enable the hotspot) until Wi-Fi is disabled.

How it works?

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2.1 Working

Once the application is installed on the device, it needs to be launched for the first time.

On startup, the boot receiver ensures that the service checks if the hotspot is enabled. The other receiver, receives changes to hotspot status and enables the hotspot in case it’s off. The service spawns a runnable that is called every minute and on app start to ensure that Wi-Fi AP is running. If it isn’t, it attempts to enable it.

2.2 Counter

The number of times the service re-enabled the hotspot is tracked and this count stored in a text file. Every time the service enables the hotspot, the count is incremented by 1. This value is then written to a file named “HotspotEnableValue.txt”.

File name: HotspotEnableValue.txt

File path (Location): sdcard/MicronetService/HotspotEnableCount.txt

**Note:**

* The only way to reset the count to 0 is by deleting the counter file mentioned above.
* The count is incremented by 1 when the following states are set to “Wi-Fi AP State-Enabled”:

1. Wi-Fi AP State - Failed
2. Wi-Fi AP State - Disabled

Using the Application

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3.1 Downloading the Application

The application can be downloaded from GitHub.

* Application name: Micronet-AlwaysOnWiFiHotspot-1.4-debug.apk
* Version – Version 1.4
* GitHub Link: <https://github.com/lefdef/AlwaysOnWiFiHotspotService/releases>

3.2 Installing and Launching the Application

The application can be installed and launched using the terminal.

Using the Terminal:

1. Open a Command/Terminal Window

- On Windows, select Start >Run > then type ‘CMD’

- On Mac OSX, open the Applications folder, select Utilities, then Terminal.

- On a Linux, select Applications > Accessories > Terminal.

b. In the Command/Terminal window enter the following command:

- adb install Micronet-AlwaysOnWiFiHotspot-1.4-debug.apk (Installing)

- adb install -r Micronet-AlwaysOnWiFiHotspot-1.3-debug.apk (Re-installing)

c. To launch the application, use the following command:

- adb shell am start -n "com.micronet.alwaysonwifihotspot/.MainActivity

d. To reboot, use the following application

- adb reboot

3.3 Running the service

The first time the application is installed, the user must launch the application at least once, for the service to start.

Potential Issues

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* 1. Wi-Fi enabled

The android AlwaysOnWiFiHotspot service doesn’t cause any interruption if the user wishes to connect to a Wi-Fi (configured Wireless LAN).

Which means if the Wi-Fi is enabled the service will not be able to re-enable the hotspot. The only time the service can resume its task is when the **Wi-Fi is disabled by the user**. Once the user disables the Wi-Fi the service will re-enable the hotspot in 60 seconds.

* 1. Airplane mode turned On

Enabling airplane mode always blocks the Cellular signals.

Thus, every time the airplane mode is turned on, the AlwaysOnWiFiHotspot service will re-enable the Hot Spot but not the cellular network. Which means the Wi-Fi AP state will be active while the cellular data is blocked.

In case the user wishes to use an active internet connection along with the hotspot he cannot succeed.

Test Cases

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The following are the test cases that the application passed:

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| --- | --- |
| Test case | Result |
| Hot Spot |  |
| Toggle the hotspot and turn it off, verify if the Hot Spot turns on automatically. | Passed |
| Disable hotspot in settings, verify Hot Spot becomes re-enabled. | Passed |
| Disable hotspot and remove power, verify hotspot was enabled by service. | Passed |
| Wi-Fi |  |
| Enable Wi-Fi in settings, verify if Wi-Fi is still On.  (The Hotspot service should be disabled if the Wi-Fi is enabled) | Passed |
| Disable Wi-Fi in settings, verify if Hot Spot turns ON. | Passed |
| Airplane mode | Passed |
| Enable Airplane mode in settings, verify Hot Spot becomes re-enabled. | Passed |
| Disable Airplane mode in settings, verify if Hot Spot is enabled. | Passed |
| Power Cycle |  |
| Reboot the device and check if the service enabled the hotspot automatically. | Passed |

Revision History Block

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Revision History Block

The following table describes the release history:

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| --- | --- | --- |
| Version Tag | Release Information | Date |
| Version 1.4 | Reset Count Added - For the counter to be reset, the file must be deleted. | 12/22/2016 |
| Version 1.3 | Changed the Folder name and file name of the file that stores the count (Number of times the hotspot has been enabled by the service).  File name: HotspotEnabledCount.txt  File Path: sdcard/MicronetService/HotspotEnableCount.txt | 12/19/2016 |
| Version 1. 2 | Saving count to a file | 12/16/2016 |
| Version 1.0 | Cleaned up code | 12/14/2016 |