MIST

802.11 b/g/n LGA Wireless Module

MIST LED Demo Application Note

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1 Overview

This Application notes explain how to control LED on iVativ MIST development kit by using Android device with TCP/IP Application.

1.1 AWS LED Control Demo Requirements

1. iVativ WiFi Module Development Kit x 1
2. Android device with TCP/IP App
3. Access Point.
4. iVativ Demo software project (iVativeMCUAgent.zip)

1.2 System Requirements

Before running the application, the user must:

1. Install SW4STM32 Integrated Development Environment (IDE)
2. The ST-LINK/V2 driver is installed automatically. In case of problem, the user can install it manually from the toolchains install directory.
3. The minimum requirements to run and develop any firmware application on the STM32 Discovery board are:

    - Windows® OS (XP, 7, 8) or Linux 64-bit or Mac OS® X
    - USB type A to Mini-B cable, used to power the STM32 Discovery board (through USB connector CN1) from the host PC and connect to the embedded ST-LINK/V2 for debugging and programming.

1.3 Application Scenario

At first, we summarize the usage scenario in this example.

1. DVK and Android device connects to same Wireless Access Point in secure mode.
2. When a user sends ‘1’ from Android device to MIST DVK on TCP connection, then user LED turns ON which is there STM32F411 board.
3. When a user sends ‘0’ from Android device to MIST DVK on TCP connection, then user LED turns OFF which is there STM32F411 board.

Figure 1: Demo Network Setup

2 LED Demo Setup

The user can follow the procedure described below to compile/link and execute an existing SW4STM32 project. The following steps can be applied to an already existing example, demonstration. In this manual the iVativeMCUAgent.zip is used as an example

2.1 Application Building and Configuration

1. Power ON Wi-Fi Access Point
2. Unzip iVativeMCUAgent.zip to c:/user/<username>/ivativledemo
3. Open the AC6 SW4STM32 for Arm microcontrollers. The program launches and prompts for the Workspace location.

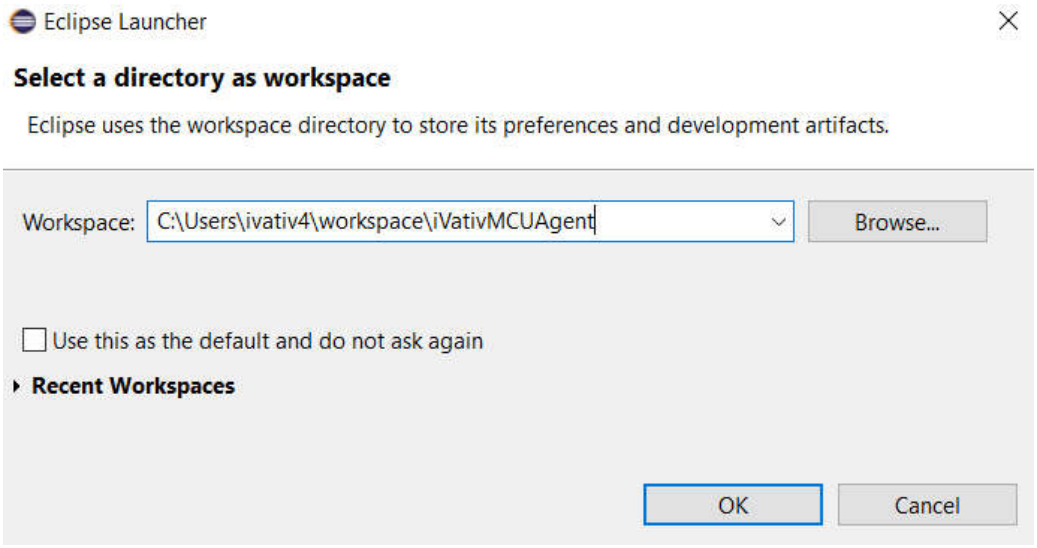

Figure 2: SW4STM32 workspace launcher dialog box

4. Browse to select a SW4STM32 workspace of either an example or demonstration or template workspace file and click **OK** to load it.
5. To load an existing project in the selected workspace, select **Import** from the **File** menu to display the **Import** dialog box.
6. In the **Import** window, open **General**, select **Existing Projects** into Workspace and click **Next**.

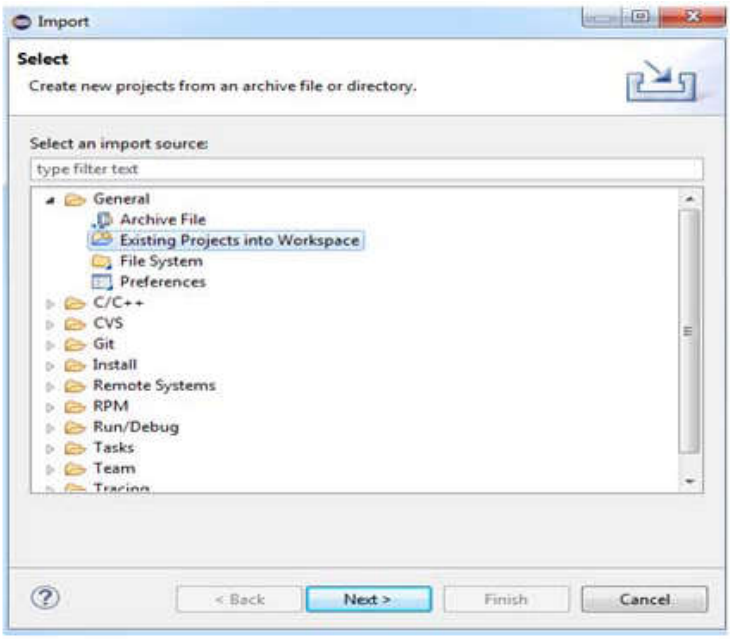

Figure 3: SW4STM32 import source select dialog box

7. Click **Select root directory**, browse to the SW4STM32 workspace folder.

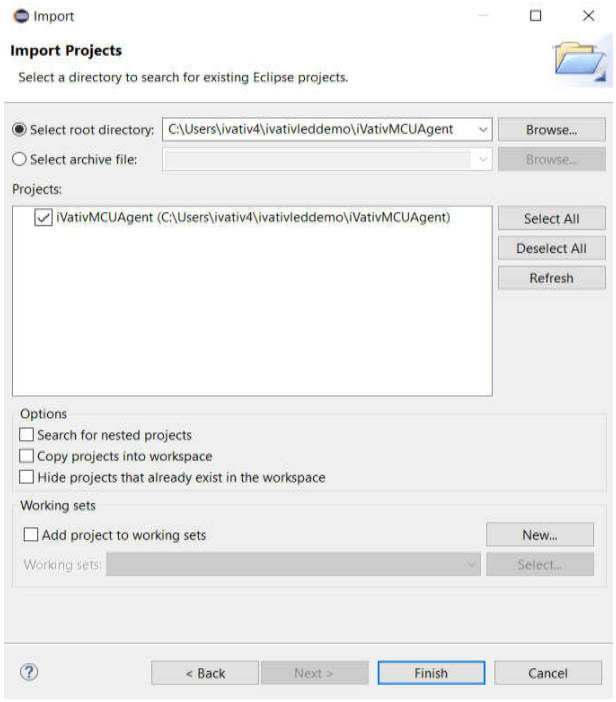

Figure 4: SW4STM32 import projects dialog box

8. Click **Select root directory**, browse to the SW4STM32 workspace folder.
9. In the **Projects** panel, select the project and click **Finish**.
10. In the P**roject Explorer** open "**main.c**" file and change **"ssid"**, **"psk"**, **"security_mode"** and **"cryp_type"**. Then Save the file if any changes to file.
11. In the P**roject Explorer**, select the project, open the **Project** menu, and click **Build Project**.
12. If the project is successfully compiled, the following messages display on the Console window.

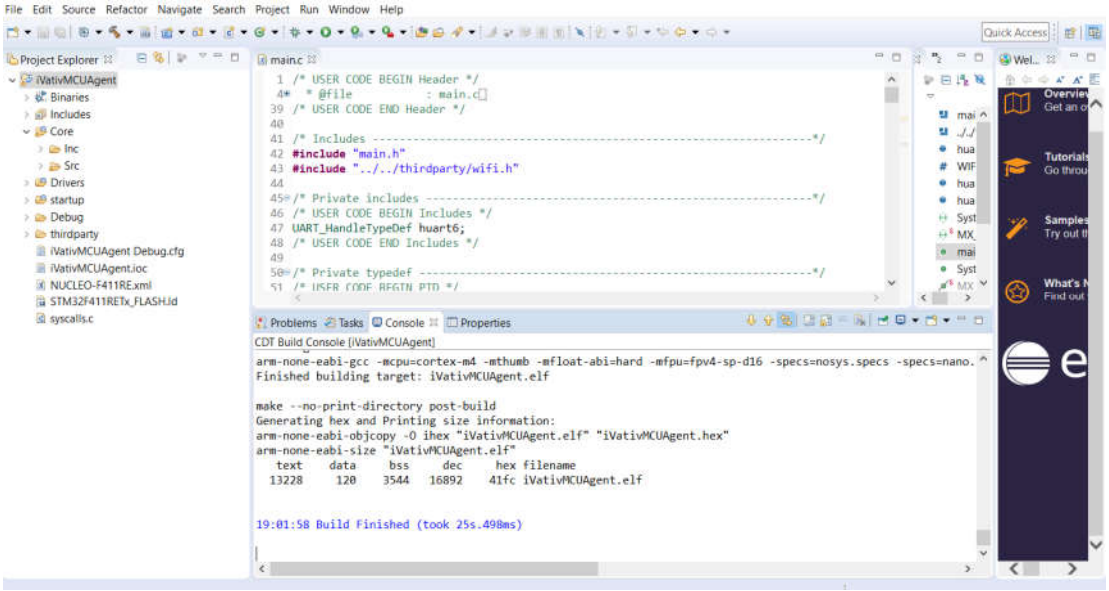

Figure 5: SW4STM32 project successfully compiled

13. To debug and run the application, select the project In the **Project Explorer** and go to "Run" menu then click on Debug.
14. Debug as pop-up opens very first time then select "**Ac6 STM32 C/C++ Application**". It won't pop-up in subsequent debug launches.

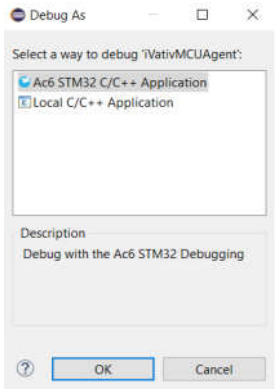

Figure 6: SW4STM32 Debug Selection

15. If confirm “Perspective Switch” window pop-up, then select “OK”

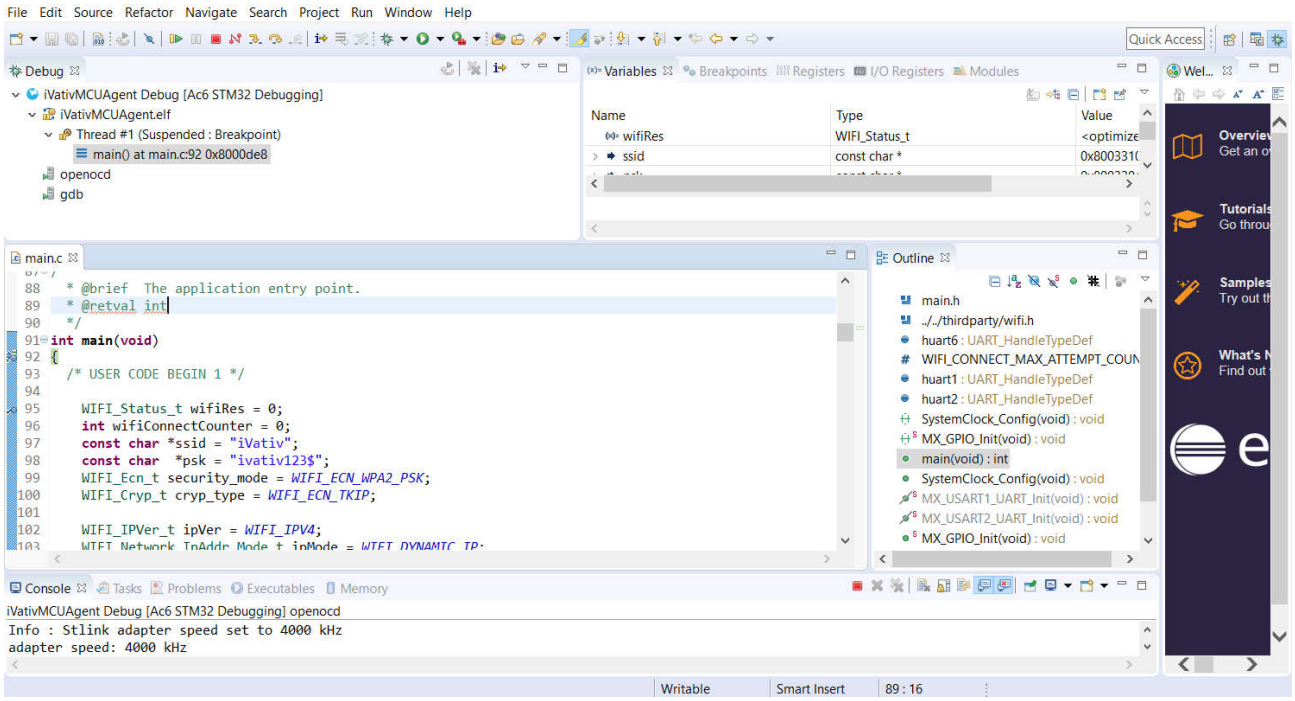

Figure 7: SW4STM32 Debug window

16. The debugger in the AC6 SW4STM32 can be used to debug source code at the C and assembly levels, to set breakpoints, to monitor individual variables and to watch events during the code execution. To run the application, from the **Run** menu, select **Resume**, or alternatively click the **Resume** button in the toolbar.
17. To stop the Debug, go to **Run** menu and click on **Terminate**.
18. Close SW4STM32 IDE.
19. Power OFF STM32F411 board.

3 LED Demo

1. Power ON iVativ MIST EVK.
2. Power ON STM32F411, then Green LED glows on board
3. Click RESET Button on iVativ MIST EVK
4. Wait till Green LED off on board
5. Connect Android device to the Access Point to which DVK was connected.
6. Open TCP/UDP Testing Application

Figure 8: TCP/UDP Testing Application

7. Click on TCP Client button.

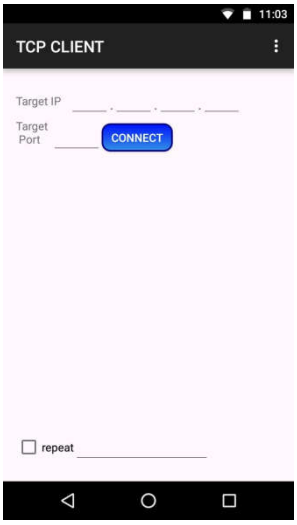

Figure 9: TCP Client Application

8. Enter **Target IP address** and **Target Port Number** (default 3456) of DVK.
9. Note: bind MAC of DVK and IP address in Access Point DHCP server for this demo. So that every time DVK gets same IP address

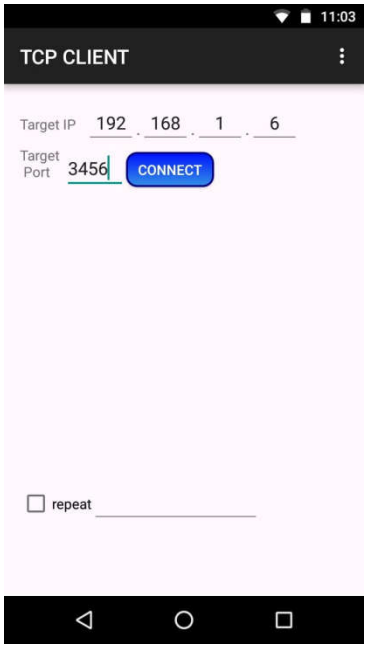

Figure 10: TCP Client Connection Details

10. Click on Connect Button

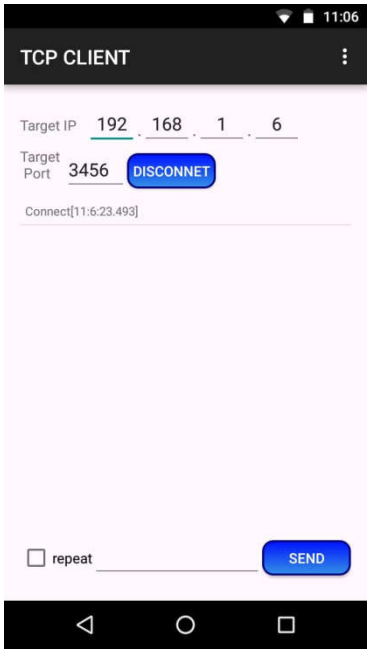

Figure 11: TCP Client Connected

11. Once it displays **Connected** then Enter ‘1’ (one) to turn ON LED and ‘0’ (zero) to turn OFF LED.

Figure 12: LED State Change