iTE SDK

Wifi Mgr 開發指南

V0.91

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修訂記錄

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目錄

1. 前言

Wifi mgr 提供無線網路 wifi 的 API，可以將環境設定為 AP or client mode，並提供一些 wifi 的 API，software programmer 可使用 Wifi mgr 提供的 API 設定無線網路環境，取得無線網路資訊，並在此環境上開發無線網路應用程式

1.1 編寫目的

介紹 Wifi mgr 之功能，說明 Wifi mgr API 操作及使用，Wifi mgr 所提供的 API 已包裝硬體的控制，software programmer 只需依據接下來的說明使用

1.2 適用範圍

設定無線網路環境，取得無線網路資訊

1.3 適用人員

Software programmer

2. Wifi Mgr介紹

Wifi mgr 提供 API，讓 software programmer 可以設定無線網路環境，目前可使用的功能有(a)設定為 AP mode (b)設定為 Client mode (c)取得本地 wifi mac adress (d)scan ap list (e)client mode 中斷連線 (f) client mode 連線設定

將 sdk\share\Wifi mgr 初始化後，便可建立無線網路環境，使用網路應用程式

2.1 初始化

請參考 audiolink_test_wifi_mgr\main.c ， startProject()

```
// int wifi mode
int wifiMgr_init(WIFIMGR_MODE_E init_mode, int mp_mode,WIFI_MGR_SETTING wifiSetting);
```

(a) 輸入參數

init_mode : WIFIMGR_MODE_SOFTAP ➔ Ap mode

WIFIMGR_MODE_CLIENT ➔ Client mode

mp_mode ：量產模式，Ap mode 進入量產模式 ssid 後面會接著 mac address 已作區別

wifi setting: Client mode 設定要連線的 ap 資訊

(b) AP mode

```
wifiMgr_init(WIFIMGR_MODE_SOFTAP,0,gWifiSetting);
```

(c) Client mode

```
// setting

    snprintf(gWifiSetting.ssid , WIFI_SSID_MAXLEN, "TOTOLINK N500RDG");
    snprintf(gWifiSetting.password, WIFI_PASSWORD_MAXLEN, "123456789");
    snprintf(gWifiSetting.secumode, WIFI_SECUMODE_MAXLEN, "6");
    gWifiSetting.wifiCallback = wifiCallbackFucntion;
    // init client mode
    ret = wifiMgr_init(WIFIMGR_MODE_CLIENT, 0,gWifiSetting);
```

(d) Call back function

Wifi mgr 提供 callback function

可以提供上層 AP 取得資料或是狀態

目前可以取得連線完成，連線失敗，連線暫時中斷，連線暫時中斷超過 30 秒

例子可以參考 audiolink_test_wifi_mgr\main.c，wifiCallbackFucntion ()

```
int wifiCallbackFucntion(int nState)
{
   switch (nState)
   {
      case WIFIMGR_STATE_CALLBACK_CONNECTION_FINISH:
         printf("[Main]WifiCallback connection finish \n");
         gnTest = 0;
      break;

      case WIFIMGR_STATE_CALLBACK_CLIENT_MODE_DISCONNECT_30S:
         printf("[Main]WifiCallback connection disconnect 30s \n");
      break;
```

```
        case WIFIMGR_STATE_CALLBACK_CLIENT_MODE_RECONNECTION:
            printf("[Main]WifiCallback connection reconnection \n");
        break;

        case WIFIMGR_STATE_CALLBACK_CLIENT_MODE_TEMP_DISCONNECT:
            printf("[Main]WifiCallback connection temp disconnect \n");
        break;

        case WIFIMGR_STATE_CALLBACK_CLIENT_MODE_CONNECTING_FAIL:
            printf("[Main]WifiCallback connecting fail, please check ssid,password,secmode \n");
        break;

        default:
            printf("[Main]WifiCallback unknown %d state  \n",nState);
        break;

    }


}
```

2.2 結束

請使用 wifiMgr_terminate

```
// terminate wifi mode
int wifiMgr_terminate(void);
```

2.3 API 使用

Wifi mgr 提供 1.取得本地 wifi mac adress 2.scan ap list 3.client mode 中斷連線 4. client mode 連線設定 5.Ap mode 取得連線裝置數量等 API，請參考下列說明使用

2.3.1 取得本地 wifi mac adress

取得 mac adress 的 API 為

```
// cMac : mac address, 6 bytes
int wifiMgr_get_Mac_address(char cMac[6]);
```

使用方式可參考 project\audiolink_test_wifi_mgr\main.c，KeyProcess ()

```
wifiMgr_get_Mac_address(cMacaddress);
printf("0x%x 0x%x 0x%x 0x%x 0x%x 0x%x
\n",cMacaddress[0],cMacaddress[1],cMacaddress[2],cMacaddress[3],cMacaddress[4],cMacaddress[5]);
```

說明:

2.3.2 scan ap list

取得 AP list 清單 wifiMgr_get_scan_ap_info()
回傳值為掃描的 ap 個數
pList 為儲存 ap list 資訊的結構(WIFI_MGR_SCANAP_LIST)，以 RSSI 排序
WIFI_MGR_SCANAP_LIST 包括
Ssid,ap mac address,channel, RSSI …等資訊

```
typedef struct WIFI_MGR_SCANAP_LIST_TAG
{
```

```
    unsigned char name[16];
    unsigned char apMacAddr[6+2];
    int channelId;
    unsigned char ssidName[32];
    int operationMode;
    int securityOn;
    unsigned char rfQualityQuant; //Percent : 0~100
    signed char  rfQualityRSSI; //RSSI
    unsigned char reserved[2];
    int   bitrate;
    int   securityMode;  /*Sec. Mode*/
} WIFI_MGR_SCANAP_LIST;

// get all of  WIFI_MGR_SCANAP_LIST, return ap list's conut
int  wifiMgr_get_scan_ap_info (WIFI_MGR_SCANAP_LIST* pList);
```
使用方式可參考 project\audiolink_test_wifi_mgr\main.c，KeyProcess ()

```
 nApCount = wifiMgr_get_scan_ap_info(pList);
 for (i = 0; i < nApCount; i++){
    printf("[Main] ssid = %32s, securityOn = %ld, securityMode = %ld, avgQuant = %d, avgRSSI = %d ,
<%02x:%02x:%02x:%02x:%02x:%02x>\r\n",pList[i].ssidName,pList[i].securityOn,pList[i].securityMode,pList[i].
rfQualityQuant,pList[i].rfQualityRSSI,pList[i].apMacAddr[0],pList[i].apMacAddr[1],pList[i].apMacAddr[2],pList[i].
apMacAddr[3], pList[i].apMacAddr[4], pList[i].apMacAddr[5]);
 }
```

2.3.3 client mode 中斷連線

Client mode 連線時，如需要中斷連線，使用

```
int wifiMgr_clientMode_disconnect();
```

2.3.4 client mode 連線設定

Client mode 中斷連線後，要連到其他 AP，使用

```
int wifiMgr_clientMode_connect_ap(char* ssid,char* password,char* secumode);
```

使用方式參考 project\audiolink_test_wifi_mgr\main.c，KeyProcess ()

```
wifiMgr_clientMode_connect_ap("Apple Network","12345678","6");
```

2.3.5 Ap mode 取得連線裝置數量

Ap mode 取得目前連到本機的裝置數量，使用

```
// get number of connecting device to ap
int wifiMgr_get_softap_device_number(void);
```