



Cisco IR1800 Industrial Router
+ LTE/5G module

Cellular Connection

#SKT

2024年 2月

Router
Console
SIM

IR 1821 router

OS : IOS-XE

Cellular module

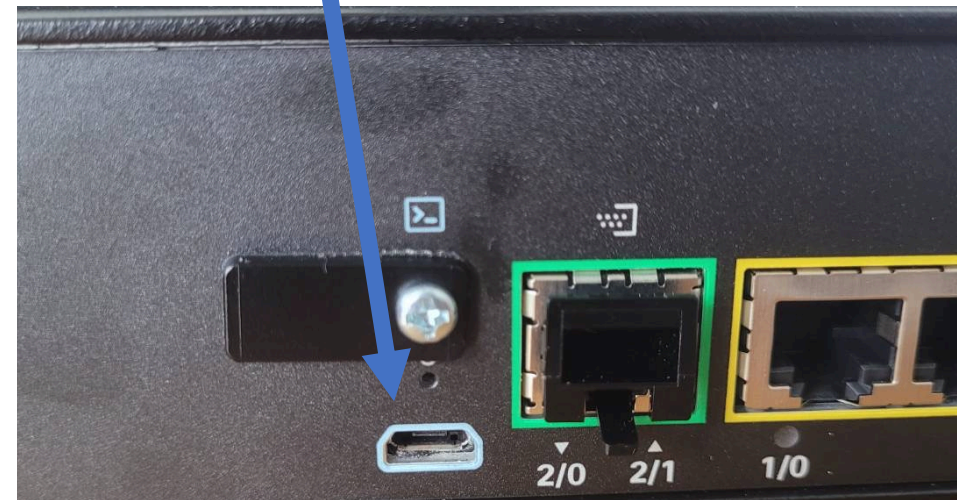
- 5G Cellular PIM (P-5GS6-GL)
- Compatible with Cisco 8200/8300 router (small one) and IR (Industrial router)
- Maybe not how-swap.



IR 1821 router

console

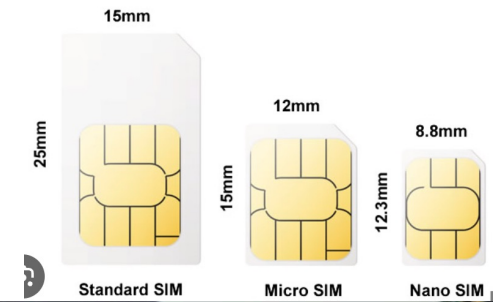
- Console
 - USB type A console (old Android charge cable)
 - Not a cisco console (RJ-45)
- USB driver
 - <https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers?tab=downloads>
 - CP2102N USB
 - MAC, windows, linux



IR 1821 router

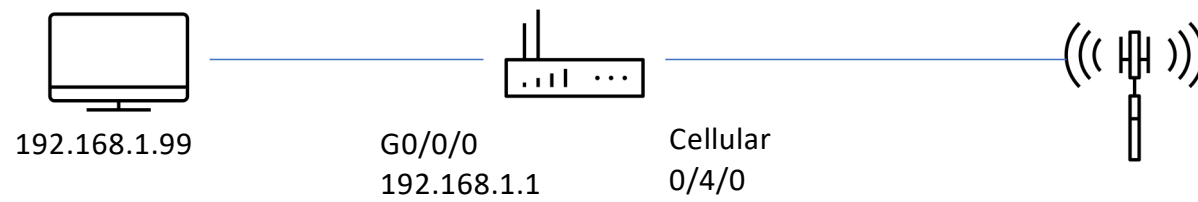
SIM SIZE

- SIM
 - Micro type
 - Latest phone uses <nano SIM>
 - So, you need <micro sim> converter.
- 한국에서는 <다이소>에서 컨버터 천원에 판.



Cellular Configuration

Topology



Configuration

!!! Basic config

```
controller Cellular 0/4/0
!
interface Cellular0/4/0
  ip address negotiated
  ip tcp adjust-mss 1460
  dialer in-band
  dialer-group 1
  pulse-time 1
!
dialer-list 1 protocol ip permit
!
ip route 0.0.0.0 0.0.0.0 Cellular 0/4/0
```

!!! NAT/PAT config

```
interface Cellular0/4/0
  ip nat outside
Interface gigabit 0/0/0
  ip nat inside
  ip address 192.168.1.1 255.255.255.0

access-list 100 permit ip 192.168.1.0 0.0.0.255 any
ip nat inside source list 100 interface Cellular0/4/0 overload
```


Interface Status UP and IP address

an IP address even without any traffic.

```
IR1821_17.13.1a#
*Feb 13 16:11:49.258: %LINK-3-UPDOWN: Interface Cellular0/4/0, changed state to up
*Feb 13 16:11:50.259: %LINEPROTO-5-UPDOWN: Line protocol on Interface Cellular0/4/0, changed state to
uppin
*Feb 13 16:11:50.883: %CELLWAN-2-NC_EVENT2: Cellular0/4/0: Network change event - activated 4G Carrier
Aggregati
IR1821_17.13.1a#
IR1821_17.13.1a#
IR1821_17.13.1a#show ip int br
```

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0/0	192.168.1.1	YES	manual	up	up
GigabitEthernet0/1/0	unassigned	YES	unset	down	down
GigabitEthernet0/1/1	unassigned	YES	unset	down	down
GigabitEthernet0/1/2	unassigned	YES	unset	down	down
GigabitEthernet0/1/3	unassigned	YES	unset	down	down
Wl0/1/4	unassigned	YES	unset	up	up
Cellular0/4/0	10.44.16.132	YES	IPCP	up	up
Cellular0/4/1	unassigned	YES	NVRAM	administratively down	down
Async0/2/0	unassigned	YES	unset	up	up
Vlan1	unassigned	YES	unset	up	up

```
IR1821_17.13.1a#ping 1.1.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.1.1.1, timeout is 2 seconds:
..
*Feb 13 15:54:07.230: %LINK-3-UPDOWN: Interface Cellular0/4/0, changed state to up
*Feb 13 15:54:08.229: %LINEPROTO-5-UPDOWN: Line protocol on Interface Cellular0/4/0, changed
state to up.
*Feb 13 15:54:09.219: %CELLWAN-2-NC_EVENT2: Cellular0/4/0: Network change event - activated 4G
Carrier Aggregation...
Success rate is 0 percent (0/5)
```

```
IR1821_17.13.1a#show ip int br
```

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0/0	192.168.1.1	YES	manual	up	up
GigabitEthernet0/1/0	unassigned	YES	unset	down	down
GigabitEthernet0/1/1	unassigned	YES	unset	down	down
GigabitEthernet0/1/2	unassigned	YES	unset	down	down
GigabitEthernet0/1/3	unassigned	YES	unset	down	down
Wl0/1/4	unassigned	YES	unset	up	up
Cellular0/4/0	10.44.16.132	YES	IPCP	up	up
Cellular0/4/1	unassigned	YES	NVRAM	administratively down	down
Async0/2/0	unassigned	YES	unset	up	up
Vlan1	unassigned	YES	unset	up	up

show cellular 0/4/0 all when not registered to the provider

```
IR1821_17.13.1a#show cellular 0/4/0 all
Hardware Information
=====
Modem Firmware Version = M0H.020202
Host Firmware Version = A0H.000292
Device Model ID = FN980
International Mobile Subscriber Identity (IMSI) = 450050539623256
International Mobile Equipment Identity (IMEI) = 351533920341133
Integrated Circuit Card ID (ICCID) = 8982051406708124977
Mobile Subscriber Integrated Services
Digital Network-Number (MSISDN) = 01053963210 ----- this is from SIM / not from the provider
Modem Status = Modem Online
Current Modem Temperature = 32 deg C
PRI version = 0811-111, Carrier = SK Telecom
OEM PRI version = 0811-111

Profile Information
=====

Profile 1 = INACTIVE* **
-----
PDP Type = IPv4v6
Access Point Name (APN) =
Authentication = None

Profile 15 = INACTIVE
-----
PDP Type = IPv4
Access Point Name (APN) = lte.sktelecom.com ----- automatically / not from the provider
Authentication = None
```

* * * * *

show cellular 0/4/0 all when registered to the provider

```
IR1821_17.13.1a#show cellular 0/4/0 all
```

```
Hardware Information
```

```
=====
```

```
Modem Firmware Version = M0H.020202
```

```
Host Firmware Version = A0H.000292
```

```
Device Model ID = FN980
```

```
International Mobile Subscriber Identity (IMSI) = 450050539623256
```

```
International Mobile Equipment Identity (IMEI) = 351533920341133
```

```
Integrated Circuit Card ID (ICCID) = 8982051406708124977
```

```
Mobile Subscriber Integrated Services
```

```
Digital Network-Number (MSISDN) = 01053963210
```

```
Modem Status = Modem Online
```

```
Current Modem Temperature = 32 deg C
```

```
PRI version = 0811-111, Carrier = SK Telecom
```

```
OEM PRI version = 0811-111
```

```
Profile Information
```

```
=====
```

```
Profile 1 = ACTIVE* **
```

```
-----
```

```
PDP Type = IPv4v6
```

```
PDP address = 10.44.16.132
```

```
IPv4 PDP Connection is successful
```

```
Access Point Name (APN) =
```

```
Authentication = None
```

```
Primary DNS address = 172.27.16.170
```

```
Secondary DNS address = 223.62.230.7
```

```
Profile 15 = INACTIVE
```

```
-----
```

```
PDP 1 10.44.16.132
```

SKT 사용자 주의 사항

- 기존 전화기 SIM을 꽂을 경우, 꼭 전원을 off 하고 꽂습니다.
- 마찬가지로 라우터 SIM을 전화기로 옮길 경우도 라우터를 꺼서 모듈 전원 off되는 log를 보고, 전원을 내리고 모듈을 뽑니다.