

# CGR 1000系列路由器(Cisco CG-OS)3G模組故障排除指南

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## 簡介

本文檔介紹對帶CG-OS的Cisco Connected Grid Router(CGR)1000系列路由器的3G模組進行故障排除的步驟。本文還探討了存在的問題、原因及解決措施。

排除數據機故障時，第一步是確定CGR是否可以識別模組。本檔案將說明確定此程式所需的步驟以及如何繼續此程式。

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## 必要條件

### 需求

思科建議您瞭解以下主題：

- CLI訪問安裝了3G模組的CGR 1000系列路由器和帶活動資料計畫的SIM卡。
- 路由器物理位置上的3G無線網路覆蓋。

### 採用元件

本文中的資訊係根據以下軟體和硬體版本：

- CGR 1000系列路由器
- Cisco CG-OS軟體

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。



Profile Information  
=====

--- Profile 1 details ---  
Status = Activated  
Default: Yes  
PDP Type: IPv4  
Profile IP: 192.0.2.1  
Profile APN: broadband  
Authentication: None  
Profile UserName:  
Profile Password:

Data Connection Information  
=====

Data Transmitted = 460 bytes  
Data Received = 420 bytes  
Profile 1, Packet Session Status = ACTIVATED  
IP Address = 192.0.2.1

Network Information  
=====

Modem status = Online  
Service status = Normal  
Service type = Combined  
Current Roaming Status = Home  
Country Initials = USA  
Network name = AT&T  
Mobile Country Code (MCC) = 310  
Mobile Network Code (MNC) = 410  
Location Area Code (LAC) = 28986  
Routing Area Code (RAC) = 1  
Cell ID = 50434  
Primary Scrambling Code = 2  
PLMN Selection = Automatic

Radio Information  
=====

Current band = WCDMA\_V\_850  
Radio power mode = On  
Channel number = 4359  
Band selected = Auto  
Current RSSI = -92 dBm

Band Information  
=====

Number of bands: 5  
Band 1: WCDMA: NA  
Band 2: GSM PCS 850  
Band 3: GSM ALL  
Band 4: WCDMA ALL  
Band 5: AUTO BAND

Current LED values  
=====

```
WWAN: green
RSSI: amber
SIM Slot 0: off
SIM Slot 1: green
Service: green
GPS: off
```

### 檢查3G模組是否已識別但沒有連線

## 檢查蜂窩介面

發出**show ip interface brief**命令，並驗證行動介面是否收到IP，狀態是否為UP。如果介面無法獲取IP，請繼續執行trpubleshoot。

```
ast03-cgr1120-cgosB# sh ip int b
IP Interface Status for VRF "default"(1)
Interface          IP Address          Interface Status
Cell3/1            192.0.2.1           protocol-up/link-up/admin-up
```

## 檢查訊號強度

接收訊號強度指示(RSSI)指示3G模組接收的訊號強度。可以使用**show cellular 3/1 radio**命令檢查此問題。

```
ast03-cgr1120-cgosB# sh cellular 3/1 radio

Current band = WCDMA_V_850
Radio power mode = On
Channel number = 4359
Band selected = Auto
Current RSSI = -92 dBm
```

### RSSI值：

1. RSSI至少應大於-90才能獲得可靠的連線。RSSI大於-60表示強大的訊號強度。
2. 如果RSSI小於-100，模組將無法連線到網路。這可能是因為以下原因：
  - 蜂窩介面管理性關閉；no關閉蜂窩介面並檢查RSSI值是否更改。
  - 模組停滯在低功率模式下；shut/no shut the cellular interface and check if the RSSI value changed (關閉/否關閉蜂窩介面並檢查RSSI值是否更改)。等待30秒，然後發出no shut(不關閉)。
  - 天線缺失或未正確連線。
  - 該地區沒有3G服務覆蓋。
3. 如果RSSI大於-60，則需要更多故障排除。啟用調試以進一步診斷問題。

## 檢查IP地址連線

1. 使用**show ip interface brief**和**show cellular 3/1 all**命令驗證模組是否發起出站呼叫並收到IP地址。驗證此情況的調試輸出示例：

```
2009 Feb 5 22:57:51.479132 dialer: Dialer1 is in READY state
```

2009 Feb 5 22:57:52 ast03-cgr1120-cgosB %DIALER-5-DIALER\_DIAL\_OUT: Dialer1 dial out cellular3/1 successfully

2009 Feb 5 22:57:52.572770 dialer: Dialer1 dial out cellular3/1 successfully

2009 Feb 5 22:57:55 ast03-cgr1120-cgosB %CELLPM-5-CELLPM\_CON\_EST: Connection Established

2009 Feb 5 22:57:55.317420 cellpm: Get Ip from modem 192.0.2.1

2009 Feb 5 22:57:55.995243 cellpm: interface cellular 3/1 IP address 192.0.2.1

2.如果發出出站呼叫但未收到IP地址，請收集日誌，使用**show log**檢視斷開原因 |無指令並將其附加到TAC案例。

3.如果沒有出站呼叫請求，請執行空中初始化(IOTA)以驗證是否可以建立連線 ( 僅適用於CDMA模組 )。

### cellular3/1 cdma activate otasp \*22899

(i)如果IOTA連線成功，請檢查硬體或配置問題。

- **show interface cellular 3/1**
- **show controllers cellular 3/1**
- **show tech**

(ii)如果IOTA連線失敗，請驗證原因日誌，然後發出以下命令：

- **顯示日誌 |否**

成功連線時的調試輸出示例：

2009 Feb 5 22:57:37 ast03-cgr1120-cgosB %DIALER-5-DIALER\_MODEM\_UP: Modem active

2009 Feb 5 22:57:37.758585 dialer: modem changes from DISABLE to ENABLE

2009 Feb 5 22:57:37.758652 dialer: CHAT SCRIPT CHAT profile 1

2009 Feb 5 22:57:37.758722 dialer: Dialer1 is in READY state

2009 Feb 5 22:57:37.758764 dialer: Dial out interface service is not ready yet

2009 Feb 5 22:57:37.762968 cellpm: Plmn Ready: 0

2009 Feb 5 22:57:37 ast03-cgr1120-cgosB %CELLPM-5-CELLPM\_SIM\_STATUS: SIM Status: SIM Okay

2009 Feb 5 22:57:37.763128 cellpm: SIM Status: SIM Okay

2009 Feb 5 22:57:37.763231 cellpm: Rec'd Modem Radio Power Enable

2009 Feb 5 22:57:37.763520 cellpm: Receive modem enabled notification

2009 Feb 5 22:57:37 ast03-cgr1120-cgosB %CELLPM-5-CELLPM\_MODEM\_UP: Modem enabled

2009 Feb 5 22:57:37.766192 dialer: Modem Enable on interface 29100000

2009 Feb 5 22:57:37.766257 dialer: Rec'd cellular3/1 modem ENABLE notification

2009 Feb 5 22:57:37.766303 dialer: current modem state is ENABLE

2009 Feb 5 22:57:39.485643 cellpm: Network Service Status: Emergency

2009 Feb 5 22:57:39.485697 cellpm: Network Service Type: Invalid Service

2009 Feb 5 22:57:39.485932 cellpm: Send MTS opcode 183321 to sap 776 if\_index 29100000

2009 Feb 5 22:57:39.488392 dialer: Modem service is out for interface 29100000

2009 Feb 5 22:57:39.488686 cellpm: Service Type: 0

2009 Feb 5 22:57:39.488787 cellpm: Registration Indication:

2009 Feb 5 22:57:39 ast03-cgr1120-cgosB %CELLPM-5-CELLPM\_NETWORK\_NAME:

2009 Feb 5 22:57:39.488851 cellpm:

2009 Feb 5 22:57:41.360863 cellpm: Network Service Status: Emergency

2009 Feb 5 22:57:41.360928 cellpm: Network Service Type: Invalid Service

2009 Feb 5 22:57:41.361704 cellpm: Send MTS opcode 183321 to sap 776 if\_index 29100000

2009 Feb 5 22:57:41.364084 cellpm: Service Type: 0

2009 Feb 5 22:57:41.364157 dialer: Modem service is out for interface 29100000  
2009 Feb 5 22:57:41.364938 cellpm: Registration Indication:  
2009 Feb 5 22:57:41.365040 cellpm:  
2009 Feb 5 22:57:41.466717 cellpm: Network Service Status: Emergency  
2009 Feb 5 22:57:41.466770 cellpm: Network Service Type: Invalid Service  
2009 Feb 5 22:57:41.467005 cellpm: Send MTS opcode 183321 to sap 776 if\_index 29100000  
2009 Feb 5 22:57:41.469358 cellpm: Service Type: 0  
2009 Feb 5 22:57:41.469444 dialer: Modem service is out for interface 29100000  
2009 Feb 5 22:57:41.469478 cellpm: Registration Indication:  
2009 Feb 5 22:57:41.469568 cellpm:  
2009 Feb 5 22:57:41.469645 cellpm: Network Service Status: Normal  
2009 Feb 5 22:57:41.469689 cellpm: Network Service Type: Combined  
2009 Feb 5 22:57:41.469733 cellpm: Modem Status Normal notify dialer  
2009 Feb 5 22:57:41.469929 cellpm: Send MTS opcode 183299 to sap 776 if\_index 29100000  
2009 Feb 5 22:57:41.472329 dialer: Modem Enable on interface 29100000  
2009 Feb 5 22:57:41.472382 dialer: Rec'd cellular3/1 modem ENABLE notification  
2009 Feb 5 22:57:41.472427 dialer: current modem state is ENABLE  
2009 Feb 5 22:57:41.477311 cellpm: MTS\_OPC\_CELLPM\_SERVICE\_READY send at port 3  
2009 Feb 5 22:57:41.477369 cellpm: Service Type: 6  
2009 Feb 5 22:57:41.477405 dialer: Modem service is ready for interface 29100000  
2009 Feb 5 22:57:41.477456 dialer: Rec'd cellular3/1 AT port 3  
2009 Feb 5 22:57:41.477466 cellpm: Registration Indication:  
2009 Feb 5 22:57:41.477504 cellpm: Network Name: AT&T  
2009 Feb 5 22:57:41.477512 dialer: timer start #0 if\_index 29100000  
2009 Feb 5 22:57:41 ast03-cgr1120-cgosB last message repeated 2 times  
  
2009 Feb 5 22:57:41 ast03-cgr1120-cgosB %CELLPM-5-CELLPM\_NETWORK\_NAME: AT&T  
  
2009 Feb 5 22:57:41.477560 dialer: Create time for msg 0  
2009 Feb 5 22:57:41.477589 cellpm:  
2009 Feb 5 22:57:41.477601 dialer: dialer\_timer\_start start timer  
2009 Feb 5 22:57:48.636548 cellpm: cellpm\_timer\_msg\_handler 0xb610052c Message type is 0  
2009 Feb 5 22:57:48.636609 cellpm: timer expired if\_index 29100000  
2009 Feb 5 22:57:48.637429 cellpm: The onboard temp is 30  
2009 Feb 5 22:57:48.639603 cellpm: temperature timer start if\_index 29100000  
2009 Feb 5 22:57:48.639666 cellpm: Create time for msg 0  
2009 Feb 5 22:57:48.639711 cellpm: cellpm\_timer\_start start timer  
2009 Feb 5 22:57:48.655443 cellpm: Modem Status Online  
2009 Feb 5 22:57:48.655495 cellpm: temp 30 low crit -26 norm -23 admin state 1  
2009 Feb 5 22:57:51.479034 dialer: timer expired if\_index 29100000  
2009 Feb 5 22:57:51.479098 dialer: CHAT SCRIPT CHAT profile 1  
2009 Feb 5 22:57:51.479132 dialer: Dialer1 is in READY state  
2009 Feb 5 22:57:52.572492 dialer: timeout\_val 60 dialer\_retry\_num 1  
2009 Feb 5 22:57:52.572572 dialer: timer start #1 if\_index 29100000  
2009 Feb 5 22:57:52.572627 dialer: Create time for msg 0  
2009 Feb 5 22:57:52.572673 dialer: dialer\_timer\_start start timer  
2009 Feb 5 22:57:52 ast03-cgr1120-cgosB %DIALER-5-DIALER\_DIAL\_OUT: Dialer1 dial out cellular3/1  
successfully  
  
2009 Feb 5 22:57:52.572770 dialer: Dialer1 dial out cellular3/1 successfully  
2009 Feb 5 22:57:52.573620 cellpm: Plmn Ready: 0  
2009 Feb 5 22:57:54.497230 cellpm: Network Service Status: Normal  
2009 Feb 5 22:57:54.497286 cellpm: Network Service Type: Combined  
2009 Feb 5 22:57:54.497329 cellpm: Modem Status Normal notify dialer  
2009 Feb 5 22:57:54.497553 cellpm: Send MTS opcode 183299 to sap 776 if\_index 29100000  
2009 Feb 5 22:57:54.497771 dialer: Modem Enable on interface 29100000  
2009 Feb 5 22:57:54.497831 dialer: Rec'd cellular3/1 modem ENABLE notification  
2009 Feb 5 22:57:54.497880 dialer: current modem state is ENABLE  
2009 Feb 5 22:57:54.508855 dialer: Modem service is ready for interface 29100000  
2009 Feb 5 22:57:54.508924 dialer: Rec'd cellular3/1 AT port 3  
2009 Feb 5 22:57:54.508972 dialer: Dial out timer started already  
2009 Feb 5 22:57:54.509194 cellpm: MTS\_OPC\_CELLPM\_SERVICE\_READY send at port 3  
2009 Feb 5 22:57:54.509259 cellpm: Service Type: 6  
2009 Feb 5 22:57:55 ast03-cgr1120-cgosB %CELLPM-5-CELLPM\_GSM\_SESSION\_ACTIVE: GSM Profile 1 is

activated

```
2009 Feb 5 22:57:55.295970 cellpm: GSM profile 1 is activated
2009 Feb 5 22:57:55.296018 cellpm: Activation Status: 1
2009 Feb 5 22:57:55.296062 cellpm: Negotiated QoS: 1
2009 Feb 5 22:57:55.296103 cellpm: Negotiated Precedence: 2
2009 Feb 5 22:57:55.296334 cellpm: Send MTS - PKT SESS ACTIVATED to dialer
2009 Feb 5 22:57:55.296695 dialer: Session activated. Dialer1 stop dialing
2009 Feb 5 22:57:55 ast03-cgr1120-cgosB %DIALER-5-DIALER_CON_EST: Connection Established

2009 Feb 5 22:57:55.297250 cellpm: Rec'd session active notification
2009 Feb 5 22:57:55 ast03-cgr1120-cgosB %CELLPM-5-CELLPM_CON_EST: Connection Established

2009 Feb 5 22:57:55.317420 cellpm: Get Ip from modem 192.0.2.1
2009 Feb 5 22:57:55 ast03-cgr1120-cgosB %URIB-4-ZERO_NEXTHOP: urib [3445] (default-base)
Client "static" added 0.0.0.0 next hop and interface Cellular3/1 is not point-to-point

2009 Feb 5 22:57:55 ast03-cgr1120-cgosB %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by
root on vsh.28455

2009 Feb 5 22:57:55.995243 cellpm: interface cellular 3/1 IP address 192.0.2.1
2009 Feb 5 22:57:55.998937 cellpm: Send MTS opcode 229378 to sap 776 if_index 29100000
2009 Feb 5 22:57:56.006669 cellpm: Service Type: 6
2009 Feb 5 22:57:56 ast03-cgr1120-cgosB %CELLPM-5-CELLPM_STATE_CHANGE: Moving to State:
Connected

2009 Feb 5 22:58:03.100719 cellpm: Network Service Status: Normal
2009 Feb 5 22:58:03.100788 cellpm: Network Service Type: Combined
2009 Feb 5 22:58:03.100835 cellpm: Modem Status Normal notify dialer
2009 Feb 5 22:58:03.101097 cellpm: Send MTS opcode 183299 to sap 776 if_index 29100000
2009 Feb 5 22:58:03.103525 cellpm: Service Type: 6
2009 Feb 5 22:58:03.103560 dialer: Modem Enable on interface 29100000
2009 Feb 5 22:58:03.103610 dialer: Rec'd cellular3/1 modem ENABLE notification
2009 Feb 5 22:58:03.103654 dialer: current modem state is ENABLE
2009 Feb 5 22:58:03.732185 cellpm: Service Type: 6
2009 Feb 5 22:58:38.918415 cellpm: Get Ip from modem 192.0.2.1
2009 Feb 5 22:58:38.969173 cellpm: Get Ip from modem 192.0.2.1
```

## 驗證Ping

如果蜂窩介面收到IP且介面狀態為UP，請檢驗對公共IP的ping是否成功。如果ping不成功，請檢查預設路由是否配置正確。

```
ast03-cgr1120-cgosB# conf t
Enter configuration commands, one per line. End with CNTL/Z.
ast03-cgr1120-cgosB(config)#ip route 0.0.0.0 0.0.0.0 Cellular3/1

ast03-cgr1120-cgosB# show ip route
0.0.0.0/0, ubest/mbest: 1/0
    *via Cellular3/1, [1/0], 00:06:05, static

ast03-cgr1120-cgosB# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8): 56 data bytes
64 bytes from 8.8.8.8: icmp_seq=0 ttl=54 time=1786.39 ms
64 bytes from 8.8.8.8: icmp_seq=1 ttl=54 time=89.716 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=54 time=89.699 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=54 time=99.691 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=54 time=119.689 ms

--- 8.8.8.8 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
```

round-trip min/avg/max = 89.699/437.037/1786.39 ms

### 開啟TAC服務請求時要收集的資訊

如果您開啟TAC服務請求，請將此資訊附加到您的要求以疑難排解3G資料機問題：

- 使用相關日誌執行的故障排除的詳細資訊
- show tech
- 顯示日誌 |否
- 調試聊天跟蹤
- debug cellular trace
- debug dialer trace

### 相關資訊

- [http://www.cisco.com/c/en/us/td/docs/routers/connectedgrid/modules/3g/Cisco\\_Connected\\_Grid\\_3G\\_Module\\_Installation\\_and\\_Configuration\\_Guide.html](http://www.cisco.com/c/en/us/td/docs/routers/connectedgrid/modules/3g/Cisco_Connected_Grid_3G_Module_Installation_and_Configuration_Guide.html)
- [技術支援與文件 - Cisco Systems](#)