

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

## 目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[故障排除](#)

[验证CGR能否识别3G模块](#)

[检查3G模块是否已识别但没有连接](#)

[检查IP地址连接](#)

[检验Ping](#)

[打开TAC服务请求时要收集的信息](#)

[相关信息](#)

## 简介

本文档介绍对带CG-OS的Cisco Connected Grid Router(CGR)1000系列路由器的3G模块进行故障排除的步骤。文章还就解决问题的问题、原因及解决措施进行了论述。

排除调制解调器故障时，第一步是确定CGR是否能识别模块。本文档说明确定此步骤所需的步骤以及如何继续此过程。

作者：Sumedha Phatak和Abhishek Kumar，Cisco TAC工程师。

## 先决条件

### 要求

Cisco 建议您了解以下主题：

- 通过CLI访问安装有3G模块和SIM卡的CGR 1000系列路由器，并提供活动数据计划。
- 3G无线网络覆盖在路由器的物理位置。

### 使用的组件

本文档中的信息基于以下软件和硬件版本：

- CGR 1000系列路由器
- Cisco CG-OS软件

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。



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
```

### 检查3G模块是否已识别但没有连接

### 检查蜂窝网接口

发出**show ip interface brief**命令并验证蜂窝网接口是否收到IP且状态为UP。如果接口无法获取IP，请继续转到publishoot。

```
ast03-cgr1120-cgosB# sh ip int b
IP Interface Status for VRF "default"(1)
Interface          IP Address      Interface Status
Cell13/1           192.0.2.1      protocol-up/link-up/admin-up
```

### 检查信号强度

接收信号强度指示(RSSI)指示3G模块接收的信号强度。这可以使用**show cellular 3/1 radio**命令进行检查。

```
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至少应大于-90，以实现可靠连接。RSSI大于-60表示信号强度高。
2. 如果RSSI小于-100，则模块将无法连接到网络。这可能是由于以下原因：
  - 蜂窝网接口管理性关闭；no关闭蜂窝网接口并检查RSSI值是否更改。
  - 模块卡在低功耗模式；shut/no shut the cellular interface并检查RSSI值是否更改。请等待30秒，然后发出no shut命令。
  - 天线丢失或连接不正确。
  - 该区域没有3G服务覆盖。
3. 如果RSSI大于-60，则需要更多故障排除。启用调试以进一步分类问题。

### 检查IP地址连接

1. 使用**show ip interface brief**和**show cellular 3/1 all all**命令验证模块是否发起出站呼叫并接收IP地址。调试输出示例，用于验证这一点：

```
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.如果发出出站呼叫但未收到IP地址，请收集日志，通过show log查看断开原因 |无命令并将其附加到TAC案例。

3.如果没有出站呼叫请求，请执行空中初始化(IOTA)以验证是否可以建立连接（仅用于CDMA模块）。

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

(i)如果IOTA连接成功，请检查硬件或配置问题。

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

(ii)如果IOTA连接不成功，请验证原因日志并发出以下命令：

- show log |否

成功连接时的调试输出示例：

```

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

```

## 检验Ping

如果蜂窝网接口收到IP，且接口状态为UP，请检验对公有IP的ping是否成功。如果ping不成功，请检查默认路由是否配置正确。

```

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

```

## 打开TAC服务请求时要收集的信息

如果您打开TAC服务请求，请将此信息附加到您的请求中，以排除3G调制解调器问题：

- 对相关日志执行故障排除的详细信息
- show tech
- show log |否
- debug chat trace
- debug cellular trace
- debug dialer trace

## 相关信息

- [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)
- [技术支持和文档 - Cisco Systems](#)