

Guia de solução de problemas do módulo 3G para o roteador CGR 1000 Series (Cisco CG-OS)

Contents

[Introduction](#)

[Prerequisites](#)

[Requirements](#)

[Componentes Utilizados](#)

[Troubleshoot](#)

[Verifique se o CGR pode reconhecer o módulo 3G](#)

[Verifique se o módulo 3G é reconhecido, mas não há conectividade](#)

[Verificar a conectividade do endereço IP](#)

[Verificar pings](#)

[Informações a serem coletadas ao abrir uma solicitação de serviço do TAC](#)

[Informações Relacionadas](#)

Introduction

Este documento descreve as etapas para solucionar problemas do módulo 3G para o Cisco Connected Grid Router (CGR) 1000 Series Router com CG-OS. O artigo também discute os problemas, a causa e as etapas corretivas para resolvê-los.

Ao solucionar problemas de modem, a primeira etapa é determinar se o CGR pode reconhecer o módulo. Este documento explica as etapas necessárias para determinar isso e como prosseguir com o processo.

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Prerequisites

Requirements

A Cisco recomenda que você tenha conhecimento destes tópicos:

- Acesso CLI ao roteador da série CGR 1000 instalado com módulo 3G e placa SIM com plano de dados ativo.
- Cobertura de rede sem fio 3G no local físico do roteador.

Componentes Utilizados

As informações neste documento são baseadas nestas versões de software e hardware:

Hardware Information
=====

Modem Firmware Version = T1_0_3_2AP R361 CNSZXD00000061 2011/04/15 17:40:48
Modem Firmware Built = 04/15/11
Modem Hardware Version = 1.0
International Mobile Subscriber Identity (IMSI) = 867941410
International Mobile Equipment Identity (IMEI) = 357115040246303
Factory Serial Number (FSN) = CC3159202581007 04/15/11
Modem status = Online
Current Modem Temperature = 35 deg C
Current Temperature State = Normal

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
```

Verifique se o módulo 3G é reconhecido, mas não há conectividade

Verificar interface celular

Emita o comando **show ip interface brief** e verifique se a interface celular recebeu um IP e se o status é UP. Se a interface não conseguiu obter o IP, continue a identificar e solucionar problemas.

```
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
```

Verificar a intensidade do sinal

A indicação de intensidade do sinal recebido (RSSI) indica a intensidade do sinal recebido pelo módulo 3G. Isso pode ser verificado com o comando **show cellular 3/1 radio**.

```
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
```

Valores RSSI:

1. O RSSI deve ser pelo menos maior que -90 para conectividade confiável. RSSI maior que -60 indica forte intensidade do sinal.
2. Se o RSSI for menor que -100, o módulo não poderá se conectar à rede. Isto pode ser devido a estes:
 - A interface celular está administrativamente inativa; no shut a interface do celular e verifique se o valor de RSSI foi alterado.

- O módulo está preso no modo de baixo consumo de energia; desligue/não desligue a interface celular e verifique se o valor RSSI foi alterado. Aguarde 30 segundos antes de **não** emitir **nenhum fechamento**.
- Antena ausente ou conectada incorretamente.
- Sem cobertura de serviço 3G na área.

3. Se o RSSI for maior que -60, será necessária mais solução de problemas. Habilite as depurações para fazer uma triagem adicional do problema.

Verificar a conectividade do endereço IP

1. Verifique se uma chamada de saída é iniciada e se um endereço IP é recebido pelo módulo com o comando **show ip interface brief** e **show cellular 3/1 all**. Exemplo de saídas de depuração para verificar isso:

```
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. Se a chamada de saída for feita mas nenhum endereço IP for recebido, colete os registros para ver o motivo da desconexão com **show log | sem** comando e anexe-o ao caso do TAC.

3. Se não houver solicitação de chamada de saída, execute Initialize Over the Air (IOTA) para verificar se a conexão pode ser feita (somente para o módulo CDMA).

celular3/1 cdma ativando otasp *22899

(i) Se a conexão IOTA for bem-sucedida, verifique se há problemas de hardware ou configuração.

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

(ii) Se a conexão IOTA não for bem-sucedida, verifique os registros da causa e emita este comando:

- **show log | não**

Exemplo de saída de depuração quando uma conexão bem-sucedida é feita:

```
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 interfaceservice 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_OPCODE_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
```

Verificar pings

Se a interface celular recebeu um IP e o status da interface é UP, verifique se os pings para o IP público foram bem-sucedidos. Se os pings não tiverem êxito, verifique se a rota padrão está configurada corretamente.

```
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
```

Informações a serem coletadas ao abrir uma solicitação de serviço do TAC

Se você abrir uma solicitação de serviço TAC, anexe essas informações à sua solicitação para solucionar problemas de modem 3G:

- Detalhes da solução de problemas executada com registros relacionados
- show tech
- show log | não
- debug chat trace
- debug celular trace
- debug dialer trace

Informações Relacionadas

- http://www.cisco.com/c/en/us/td/docs/routers/connectedgrid/modules/3g/Cisco_Connected_Grid_3G_Module_Installation_and_Configuration_Guide.html
- [Suporte Técnico e Documentação - Cisco Systems](#)