

Guía de resolución de problemas del módulo 3G para el router de la serie CGR 1000 (Cisco CG-OS)

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Introducción

Este documento describe los pasos para resolver problemas del módulo 3G para Cisco Connected Grid Router (CGR) 1000 Series Router con CG-OS. El artículo también discute los problemas, la causa y las medidas correctivas para resolverlos.

Cuando resuelve problemas de módem, el primer paso es determinar si el CGR puede reconocer el módulo. Este documento explica los pasos necesarios para determinar esto y cómo continuar con el proceso.

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Prerequisites

Requirements

Cisco recomienda que tenga conocimiento sobre estos temas:

- Acceso CLI al router de la serie CGR 1000 instalado con módulo 3G y tarjeta SIM con plan de datos activo.
- Cobertura de red inalámbrica 3G en la ubicación física del router.

Componentes Utilizados

La información que contiene este documento se basa en las siguientes versiones de software y hardware.

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
```

Compruebe si se reconoce el módulo 3G pero no hay conectividad

Comprobación de la interfaz móvil

Ejecute el comando **show ip interface brief** y verifique que la interfaz celular haya recibido una IP y que el estado sea **ACTIVO**. Si la interfaz no pudo obtener IP, continúe con [troublehoot](#).

```
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
```

Comprobar la potencia de la señal

La indicación de potencia de la señal recibida (RSSI) indica la potencia de la señal recibida por el módulo 3G. Esto se puede verificar con el comando **show celular 3/1 radio**.

```
ast03-cgr1120-cgosB# sh celular 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. RSSI debe ser al menos mayor que -90 para una conectividad fiable. RSSI mayor que -60 indica una fuerte potencia de la señal.
2. Si RSSI es menor que -100, el módulo no podrá conectarse a la red. Esto puede deberse a lo siguiente:
 - La interfaz móvil está administrativamente inactiva; no shut la interfaz celular y verifique si el valor RSSI ha cambiado.
 - El módulo está atascado en el modo de baja potencia; shut/no shut la interfaz celular y verifique si el valor RSSI ha cambiado. Espere 30 segundos antes de **no cerrar**.
 - Falta la antena o no está conectada correctamente.

- No hay cobertura de servicio 3G en el área.

3. Si el RSSI es mayor que -60, se necesita más resolución de problemas. Habilite las depuraciones para probar más el problema.

Comprobación de la conectividad de la dirección IP

1. Verifique si se inicia una llamada saliente y el módulo recibe una dirección IP con el comando **show ip interface brief** y **show celular 3/1 all**. Ejemplo de resultados de depuración para verificar esto:

```
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. Si se realiza la llamada saliente pero no se recibe ninguna dirección IP, recopile los registros para ver la razón de desconexión con **show log | no hay** comando y adáptelo al caso del TAC.

3. Si no hay ninguna solicitud de llamada saliente, ejecute Initialize Over the Air (IOTA) para verificar si se puede realizar la conexión (sólo para el módulo CDMA).

cellular3/1 cdma active otasp *22899

(i) Si la conexión IOTA se realiza correctamente, verifique si hay problemas de hardware o configuración.

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

(ii) Si la conexión IOTA no es exitosa, verifique los registros para la causa y ejecute este comando:

- **show log | no**

Ejemplo de resultado de depuración cuando se realiza una conexión exitosa:

```
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_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 ping

Si la interfaz celular recibió una IP y el estado de la interfaz es ACTIVO, verifique que los pings a IP pública sean exitosos. Si los pings no son exitosos, verifique que la ruta predeterminada esté configurada correctamente.

```
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
```

Información que debe recopilar al abrir una solicitud de servicio del TAC

Si abre una solicitud de servicio del TAC, adjunte esta información a su solicitud para resolver problemas de módem 3G:

- Detalles de la resolución de problemas realizada con registros relacionados
- show tech
- show log | no
- debug chat trace
- debug cellular trace
- debug dialer trace

Información Relacionada

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