

Troubleshoot VoD Configured with GQI And PowerKEY on cBR-8

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Introduction

This document describes how to configure and troubleshoot Video on Demand (VoD) with Generic QAM Interface (GQI) protocol and PowerKEY encryption on the Cisco CBR-8 device.

Further information on how to configure, verify, and troubleshoot these features can be found in [Cisco cBR Converged Broadband Routers Video Features](#).

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco cBR-8
- Cable Video

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Configure VoD Sessions with GQI And PowerKEY

This is a configuration example on a CBR-8 for 1 line card, with 1 Logical Edge Device (LED), and 1 service group.

```

cable video
[...]
mgmt-intf VirtualPortGroup 0
encryption
  linecard 1/0 ca-system powerkey scrambler des

service-distribution-group SG1 id 1
  rf-port integrated-cable 1/0/0

virtual-carrier-group SG1 id 1
  encrypt
  service-type narrowcast
  rf-channel 32 tsid 10188 output-port-number 1
  rf-channel 33-53 tsid 10189-10209 output-port-number 2-22

bind-vcg
  vcg SG1 sdg SG1

logical-edge-device LED1 id 1
  protocol gqi
  mgmt-ip 10.10.10.10
  mac-address aaaa.bbbb.cccc
  server 10.20.30.40
  keepalive retry 3 interval 10
  reset interval 8
  virtual-edge-input-ip 10.0.0.1 input-port-number 1
  vcg SG1
  active

```

Verify

Once a VoD session is started, its output on the cBR-8 must look like this:

```
cBR-8#show cable video session all
```

LED	Session	Output	Streaming	Sess	Session	Source	UDP	Output	Input	
Output	Input	Output	Encrypt	Encrypt	Low	PMV	Session			
Id	Id	Port	Type	Type	Ucast	Dest	IP (S,G)	Port	Program	State
State	Bitrate	Bitrate	Type	Status		Lat	NUM	Name		
1	1	1	Remap	UDP	10.0.0.1			1000	1	ACTIVE-PSI
ON	14475285	14465257	PowerKey	Encrypted		N -		0x4C83DE87450000035B74		

Troubleshoot: VoD Sessions Do Not Get Initiated Or Get Stuck in PowerKey Pending

If a VoD request is valid, in a correctly working environment, it triggers a session creation on the cBR-8 from a video management system device as the Cisco Videoscape Session Resource Manager (VSRM).

Case 1. VoD Sessions Do Not Get Initiated

If you do not see the VoD session created on the cBR-8 under the command **show cable video**


```
acdc-cbr8-2#show platform software vpm led1-ui rp active dbms data summary
```

```
Database Name: led-default-database      Database Id: 53
```

```
Database Name: Video Config Database     Database Id: 54 <<<<< Database name and ID
```

```
Table: DS Channel Table                 Table Id: 0      Record Count: 4 <<<< Table name, ID, and records number
```

```
-----  
Table Options
```

```
-----  
Snapshot:          DISABLED  
Replication:       DISABLED  
Shadowing:         DISABLED  
Dynamic Mem Allocation: ENABLED
```

```
Key Name          Engine      ID  
-----  
vcfg_dbms_qam_key    AVL          1      <<<<<< key ID
```

```
--More--
```

Once you identify what database and table you want to dump, you can use the command **show platform software vpm led1-ui rp active dbms table dump <database ID> <table ID> <key ID>** to display the content of the records. In this case you want to inspect the database 54 "Video Config Database", table 0 "DS Channel Table" which has only Key ID 1:

```
acdc-cbr8-2#show platform software vpm led1-ui rp active dbms table dump 54 0 1
```

```
Record: Slot: 1, Bay: 0, Port: 0, Channel: 32
```

```
Logical QAM id: 48, Previous LQAM Id: 65535
```

```
QRG Role: none
```

```
SD group id: 1, VC group id: 1
```

```
Admin state: 1, Operational state: 1, Previous Operation State: 0      TSID: 10188
```

```
Override TSID: not configured
```

```
Encryption Support: Powerkey
```

```
Resource Id: 0
```

```
ONID: 100
```

```
PSI Interval: 100
```

```
Output Port number: 1
```

```
Power Adjust: 400 dBmV
```

```
Annex Type: ANNEX A
```

```
Modulation: 256QAM
```

```
Interleaver: QAM_INTERLEAVER_I_12_J_17
```

```
Frequency: 850000000
```

```
Bandwidth: 51253960 bps
```

```
Symbol Rate: 6952
```

```
Low Latency: 0
```

```
Channel Width: 8000000 Hz
```

```
NIT Reference: 0
```

```
--More--
```

From the output above, you can see that VCG 1 is correctly mapped to SDG 1, and that the first channel of LED 1 is 1/0/0:32 as per configuration.

Make always sure that the traffic that enters the session contains the expected parameters configured for that video session, like for example the TSID.

If you already know what record you want to access, you can obtain the same output displayed above with the command **show platform software vpm led1-ui rp active dbms record 54 0 1**

1/0/0:32

Case 2. VoD Sessions Get Stuck in PowerKey Pending

A session stuck in PowerKey Pending can look like this on the cBR-8:

```
cBR-8#show cable video session logical-edge-device id 1
```

Session	Output	Frequency	Streaming	Sess	Session	Source	UDP	Output		
Input	Output	Input	Output	Encrypt	Encrypt	Low PMV	Session	Output		
Id	Port	Hz	Type	Type	Ucast	Dest IP/Mcast	IP (S,G)	Port	Program	
State	State	Bitrate	Bitrate	Type	Status	Lat NUM	Name			
1	1	850000000	Remap	UDP	10.0.0.1			1000	1	OFF
PENDING	0	0	PowerKey Pending	N	-	0x4C83DE87450000035B74				

The first parameters that need to be observed are the input and output bitrate.

If the input rate is 0, normally it means that there is really no traffic in input on the cBR-8 for this session, and the cause of the problem must be investigated outside the cBR-8.

Anyway, in order to verify this fact, you can create a packet capture on the incoming links in this way:

Step 1. Create an access list that permits all the input IPs configured under the affected LED, in this case you have only 1 IP address:

```
cBR-8(config)#ip access-list extended TAC_VOD
```

```
cBR-8(config)#permit ip any host 10.0.0.1
```

Step 2. Check on which interfaces of the cBR-8 you expect to receive the VoD traffic, sometimes on all the interfaces of the supervisor in slot 4 and slot 5. In this case you have to configure 2 different captures, as it is not possible to configure 8 interfaces in a single capture:

```
cBR-8#monitor capture TAC_VOD interface range Te4/1/0, Te4/1/1, Te4/1/2, Te4/1/3 both access-list TAC_VOD buffer size 100
```

Step 3. Verify the configuration and start the monitor capture:

```
cBR-8#show monitor capture TAC_VOD
```

```
cBR-8#monitor capture TAC_VOD start
```

Step 4. Request a new VoD session on LED 1 and check if there are packets being captured (you have different options for the level of detail for the packets display):

```
cBR-8#show monitor capture TAC_VOD buff <brief/detail/dump>
```

Step 5. Once done, these commands can be used to save the capture in the harddisk, stop the monitor capture, and remove it from the configuration:

cBR-8#monitor capture TAC_VOD export harddisk:/TAC_VOD.pcap

cBR-8#monitor capture TAC_VOD stop

cBR-8#no monitor capture TAC_VOD

In case the packet capture shows no packets, then perform the steps described in case 1 in order to debug the GQI protocol itself.

Otherwise, use these debugs in order to verify the proper operation of PowerKEY on the cBR-8:

set platform software trace led-01 rp active vsession-mgmt debug

set platform software trace led-01 rp active vsession-msg debug

show platform software trace message led-01 rp active

set platform software trace pk-ecmg 1/0 pk_ecmg-chnl debug

set platform software trace pk-ecmg 1/0 pk_ecmg-ipc debug

set platform software trace pk-ecmg 1/0 pk_ecmg-main debug

set platform software trace pk-ecmg 1/0 pk_ecmg-stream debug

show platform software trace message pk-ecmg 1/0

Note: Do not forget to restore all the platform traces to the notice level once you are done with the troubleshoot.