

语音和传真呼叫的Cisco UBR7200 - QoS/MAC Enhancements : DOCSIS 1.0+

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[Introduction](#)

本文解释如何配置和排除在Cisco uBR7200通用宽带路由器的服务质量(QoS)增进故障，支持语音和传真数据流。要实现此功能，您需要Cisco IOS软件版本12.0.7xr2或者一个版本从分组12.1.1T，12.1(1a)T1或者以后。

[Prerequisites](#)

[Requirements](#)

本文档的读者应掌握以下这些主题的相关知识：

- [有线电视数据服务接口规范 \(DOCSIS\)](#)
- Cisco IOS软件
- VoIP

[Components Used](#)

本文档中的信息基于以下软件和硬件版本：

- Cisco IOS Software Release 12.0.7XR2或者一个版本从分组12.1.1T，12.1(1a)T1或者以后。
- Cisco uBR7200

- 符合DOCSIS Integrated电话cable modem (ITCM)

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, make sure that you understand the potential impact of any command.

Conventions

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

理论总结

DOCSIS 1.0+实施是与QoS扩展的DOCSIS 1.0支持的实时语音、传真和视频的在LAN。

DOCSIS 1.0+不是一个新的或半成品规格由电缆实验室。全部的DOCSIS 1.0+体系结构是Cisco提供的上市时间解决方案和某些有线调制解调器供应商，直到DOCSIS 1.1规格和发展广泛可用的。

DOCSIS 1.0+为实时语音、传真和数据包提供另外的QoS功能自ITCMs。这些是专用扩展被添加到在DOCSIS 1.0+的DOCSIS 1.0：

- 两个新的cm初始化的动态MAC消息：动态服务添加(DSA)和动态服务删除(DSD)。这些消息允许动态服务ID (Sids)被创建和被删除在运行时间在每呼叫的基础上。
- 非请求的授权服务(恒定的比特率[CBR]-安排)在上行。此服务为自ITCM的上行CBR语音和传真信息包提供一条优质QoS信道。对于所有特定ITCM，能力提供独立的下行费率根据在信息包的IP优先值。这在分离帮助语音、信令和去速率整形目的同样ITCM的数据流量。

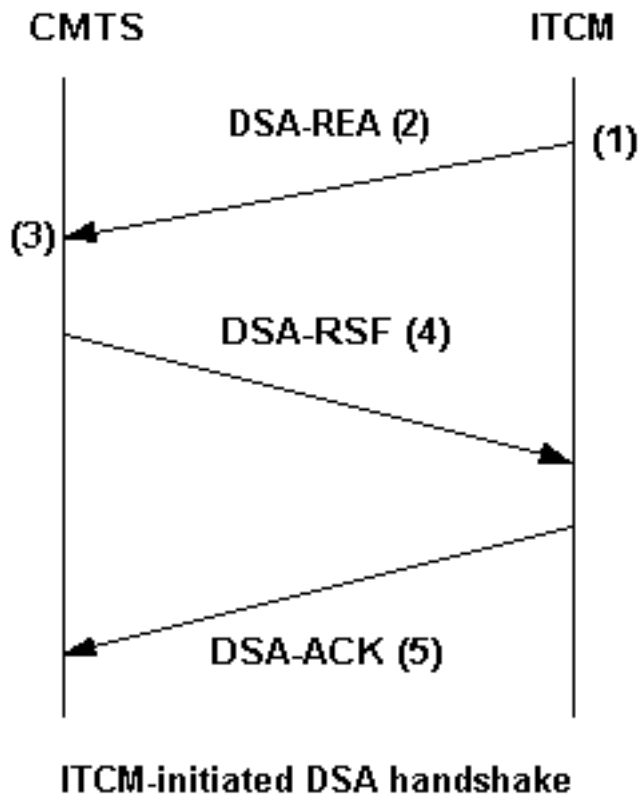
当ITCM向CMTS登记，什么发生？

当有线调制解调器终端系统(CMTS)收到注册请求时，创建ITCM的一个本地数据库条目。静态SID立即分配到ITCM为数据服务。对于电话线路服务，CMTS创建一些被延迟的服务流(随后的激活)在ITCM的数据库条目。Sids没有为电话线路服务分配在注册时。

Note: ITCM的CMTS创建的延迟的流的数量在注册时取决于电话线路为有线调制解调器设置的参数的数量的值。值可以是所有编号从0开始(例如：0，1，2，3，等等)。

当您发出语音呼叫时，什么发生？

1. ITCM收到一个新的语音或传真呼叫并且确定该呼叫的QoS参数使用编解码器类型从更高层信令协议或G.729接收的G.711。
2. ITCM发送一DSA request (DSA-REQ)到UBR，请求新的动态SID。
3. CMTS访问ITCM的数据库信息(使用在DSA-REQ消息的MAC地址)和检查发现此ITCM是否有其中任一非激活或不让进入的(被延迟的)服务流。如果ITCM有一个未使用的延迟的流，并且，如果上行(美国)信道(对哪ITCM被连接)有足够的力量按照DSA-REQ的要求承认一个新的定期CBR时隙，然后新的动态SID是由CMTS创建的。
4. CMTS回答与DSA回应(DSA-RSP)的ITCM请求。
5. ITCM承认DSA-RSP。(CMTS期待从ITCM的一DSA确认[DSA-ACK]，在发送一种DSA回应。



)时候

6. 当清除时语音或传真呼叫，ITCM传送DSD-REQ MAC信息到CMTS，指定将被删除的动态SID。
7. CMTS删除动态SID并且发送DSD-RSP到ITCM。关于DOCSIS 1.0+的更多解释，请参见在[DOCSIS 1.0+的常见问题](#)。

配置：跟随的不同的步骤

在本文的示例配置使用此网络建立：



Cisco IOS Software Release 12.1(1a)T1运行在电缆调制解调器和在Cisco UBR7246。

CMTS中的配置文件

QoS配置文件

在CMTS，动态地配置两个特殊(语音和传真相关的) QoS配置文件并且对CMTS QoS代码在指定时候是可用的。这些QoS配置文件(G711和G729)配置有G.711或G.729类型的编码器译码器(编码)特殊安排的参数。CMTS能得到特定参数—例如授予大小和授予间隔—从请求DSA-REQ的消息的内容此特殊调度处理。您必须配置QoS在CMTS的配置文件模板每个独特编码解码器参数组合情况的。

Note: 当您配置在电缆调制解调器，配置文件的电话线路编码的G.711和G.729 QoS配置文件动态地被创建。他们接受默认授予间隔20毫秒和授予大小31.22 Kbps (G.729)和87.2 Kbps (G.711)。

当至少一条电话线路在电缆调制解调器的配置文件时，被配置这是show cable qos profile命令的输出：

```
# show cable qos profile
```

ID	Prio	Max upstream bandwidth	Guar upstream bandwidth	Max downstream bandwidth	Max transmit burst	TOS mask	TOS value	Created by	Privacy B enabled	IP prec. rate enabled
3	7	31200	31200	0	0	0x0	0x0	cmts	yes	no
4	7	87200	87200	0	0	0x0	0x0	cmts	yes	no

如果ITCM供应商使用是与那些不同使用该示例G.711或G.729编码的版本，您必须静态配置QoS在CMTS的配置文件模板每个独特编码解码器参数组合情况的(主动授予大小和授予间隔)。

此表显示您如何计算主动授予大小和授予间隔(编码G.711和G.729)：

QoS为G.711编码描出	
这些是G.711 QoS配置文件的对应数：	
主动授予大小	229个字节
主动授予间隔	20毫秒
后备/高峰速率	87.2 Kbps
QoS为G.729编码描出	
这是您如何计算DOCSIS电缆MAC控制帧的总大小：	
每个间隔输出的G.729编码	20个字节
路由表协议(RTP)报头	12个字节
用户数据报协议(UDP)报头	8个字节
IP头	20个字节
以太网帧报头和循环冗余校验(CRC)	18个字节
DOCSIS电缆MAC报头	11个字节(假设，5个字节保密性延长的报头是强制)
总DOCSIS电缆MAC控制帧大小	89个字节
授予间隔20毫秒从G.729编码的构建帧或分组延迟直接地跟随。上行保留速率通过只考虑每个G.729编码输出以太网级别带宽用量获得。这解决对78字节以太网帧每20毫秒，等于31.2 Kbps。	

在[故障排除与提示](#)部分，提供示例显示您什么在调试输出中发生，如果授予大小或授予间隔没有为使用的编码正确地指定。

使用show cable qos profile x verbose命令，您能检查您的调制配置文件。

调制配置文件

您能更改调制配置文件最大化您能每上行信道获得语音呼叫的数量。这是您能使用的调制配置文件

:

show cable qos profile

ID	Prio	Max upstream bandwidth	Guar upstream bandwidth	Max downstream bandwidth	Max transmit burst	TOS mask	TOS value	Created by	Privacy B enabled	IP rate enabled	prec.
3	7	31200	31200	0	0	0x0	0x0	cmts	yes	no	
4	7	87200	87200	0	0	0x0	0x0	cmts	yes	no	

CMTS的配置

```
cable modulation-profile 5 request 0 16 1 8 qpsk
scrambler 152 no-diff 64 fixed uw16
cable modulation-profile 5 initial 5 34 0 48 qpsk
scrambler 152 no-diff 128 fixed uw16
cable modulation-profile 5 station 5 34 0 48 qpsk
scrambler 152 no-diff 128 fixed uw16
cable modulation-profile 5 short 6 75 6 8 16qam
scrambler 152 no-diff 144 fixed uw8
cable modulation-profile 5 long 8 220 0 8 16qam
scrambler 152 no-diff 160 fixed uw8
cable qos profile 5 ip-precedence 5 max-downstream 128
no cable qos permission update
!--- This command was created automatically during CM
registration; !--- no cable qos permission creates 2
phone lines with IP precedence 5 and !--- with 128K for
max downstream, as specified in CM configuration file.

cable qos permission modems
cable time-server
!
interface Ethernet2/0
 ip address 10.200.68.3 255.255.255.0
!
interface Cable3/0
 ip address 10.200.70.17 255.255.255.240
 secondary ip address 10.200.69.1 255.255.255.240
 no keepalive
 cable downstream annex B
 cable downstream modulation 64qam
 cable downstream interleave-depth 32
 cable upstream 0 shutdown
 cable upstream 1 shutdown
 cable upstream 2 shutdown
 cable upstream 3 shutdown
 cable upstream 4 shutdown
 cable upstream 5 frequency 30000000
 cable upstream 5 power-level 0
 cable upstream 5 minislots-size 4
 cable upstream 5 modulation-profile 5
 no cable upstream 5 shutdown
 cable dhcp-giaddr policy
 cable helper-address 10.200.68.11
!
ip classless
```

[在电缆调制解调器的配置文件](#)

[DOCSIS有线调制解调器配置文件](#)

使用DOCSIS客户端前置设备(CPE)配置器，准备配置文件电缆调制解调器。指定的电话线路的数量您想要。对于Cisco uBR924有线调制解调器，此值可以是0，1或者2，其中0表示只有数据的没有语音端口，并且1和2表示电话的地方数量。指定分离语音和发信号使用的IP优先级设置从数据和速率限制。

在本例中，语音传输优先级值(4)设置为128 Kbps一个下行速率限制：

```
cable modulation-profile 5 request 0 16 1 8 qpsk scrambler 152 no-diff 64 fixed uw16
cable modulation-profile 5 initial 5 34 0 48 qpsk scrambler 152 no-diff 128 fixed uw16
cable modulation-profile 5 station 5 34 0 48 qpsk scrambler 152 no-diff 128 fixed uw16
cable modulation-profile 5 short 6 75 6 8 16qam scrambler 152 no-diff 144 fixed uw8
cable modulation-profile 5 long 8 220 0 8 16qam scrambler 152 no-diff 160 fixed uw8
cable qos profile 5 ip-precedence 5 max-downstream 128
no cable qos permission update
!--- This command was created automatically during CM registration; !--- no cable qos permission
creates 2 phone lines with IP precedence 5 and !--- with 128K for max downstream, as specified
in CM configuration file.
```

```
cable qos permission modems
cable time-server
!
interface Ethernet2/0
 ip address 10.200.68.3 255.255.255.0
!
interface Cable3/0
 ip address 10.200.70.17 255.255.255.240
 secondary ip address 10.200.69.1 255.255.255.240
 no keepalive
 cable downstream annex B
 cable downstream modulation 64qam
 cable downstream interleave-depth 32
 cable upstream 0 shutdown
 cable upstream 1 shutdown
 cable upstream 2 shutdown
 cable upstream 3 shutdown
 cable upstream 4 shutdown
 cable upstream 5 frequency 30000000
 cable upstream 5 power-level 0
 cable upstream 5 minislot-size 4
 cable upstream 5 modulation-profile 5
 no cable upstream 5 shutdown
 cable dhcp-giaddr policy
 cable helper-address 10.200.68.11
!
ip classless
```

[配置在有线调制解调器的Dial Peer，如果使用静态配置](#)

配置Dial Peer并且指定您要使用语音和传真数据流的IP优先级。

有线调制解调器1的配置

```
cable modulation-profile 5 request 0 16 1 8 qpsk
scrambler 152 no-diff 64 fixed uw16
cable modulation-profile 5 initial 5 34 0 48 qpsk
scrambler 152 no-diff 128 fixed uw16
cable modulation-profile 5 station 5 34 0 48 qpsk
scrambler 152 no-diff 128 fixed uw16
cable modulation-profile 5 short 6 75 6 8 16qam
scrambler 152 no-diff 144 fixed uw8
```

```
cable modulation-profile 5 long 8 220 0 8 16qam
scrambler 152 no-diff 160 fixed uw8
cable qos profile 5 ip-precedence 5 max-downstream 128
no cable qos permission update
!--- This command was created automatically during CM
registration; !--- no cable qos permission creates 2
phone lines with IP precedence 5 and !--- with 128K for
max downstream, as specified in CM configuration file.

cable qos permission modems
cable time-server
!
interface Ethernet2/0
 ip address 10.200.68.3 255.255.255.0
!
interface Cable3/0
 ip address 10.200.70.17 255.255.255.240
 secondary ip address 10.200.69.1 255.255.255.240
 no keepalive
 cable downstream annex B
 cable downstream modulation 64qam
 cable downstream interleave-depth 32
 cable upstream 0 shutdown
 cable upstream 1 shutdown
 cable upstream 2 shutdown
 cable upstream 3 shutdown
 cable upstream 4 shutdown
 cable upstream 5 frequency 30000000
 cable upstream 5 power-level 0
 cable upstream 5 minislot-size 4
 cable upstream 5 modulation-profile 5
 no cable upstream 5 shutdown
 cable dhcp-giaddr policy
 cable helper-address 10.200.68.11
!
ip classless
```

有线调制解调器2的配置

```
cable modulation-profile 5 request 0 16 1 8 qpsk
scrambler 152 no-diff 64 fixed uw16
cable modulation-profile 5 initial 5 34 0 48 qpsk
scrambler 152 no-diff 128 fixed uw16
cable modulation-profile 5 station 5 34 0 48 qpsk
scrambler 152 no-diff 128 fixed uw16
cable modulation-profile 5 short 6 75 6 8 16qam
scrambler 152 no-diff 144 fixed uw8
cable modulation-profile 5 long 8 220 0 8 16qam
scrambler 152 no-diff 160 fixed uw8
cable qos profile 5 ip-precedence 5 max-downstream 128
no cable qos permission update
!--- This command was created automatically during CM
registration; !--- no cable qos permission creates 2
phone lines with IP precedence 5 and !--- with 128K for
max downstream, as specified in CM configuration file.

cable qos permission modems
cable time-server
!
interface Ethernet2/0
 ip address 10.200.68.3 255.255.255.0
!
interface Cable3/0
```

```
ip address 10.200.70.17 255.255.255.240
secondary ip address 10.200.69.1 255.255.255.240
no keepalive
cable downstream annex B
cable downstream modulation 64qam
cable downstream interleave-depth 32
cable upstream 0 shutdown
cable upstream 1 shutdown
cable upstream 2 shutdown
cable upstream 3 shutdown
cable upstream 4 shutdown
cable upstream 5 frequency 30000000
cable upstream 5 power-level 0
cable upstream 5 minislot-size 4
cable upstream 5 modulation-profile 5
no cable upstream 5 shutdown
cable dhcp-giaddr policy
cable helper-address 10.200.68.11
!
ip classless
```

故障排除与提示

此部分为排除您的配置故障提供有用的Debug与Show命令。

Note: 在发出 **debug** 命令之前，请参阅[有关 Debug 命令的重要信息](#)。

[命令输出解释程序工具](#) ([仅限注册用户](#)) 支持某些 **show** 命令，使用此工具可以查看对 show 命令输出的分析。

这些是一些有用的调试指令：

- **debug cable dynsrv** —调试(例如DSA-REQ、DSA-RSP、DSA-ACK、DSD-REQ，DSD-RSP)处理在CMTS的所有动态MAC消息。
- **debug cable scheduler unsolicited-grants** —调试平均延迟和最大延迟抖动在接收的主动授予。
- **调试admission-control电缆调度程序**—看到MAC控制调度程序的尝试承认和unadmit CBR时隙。

Note: 新的调试指令可以只是启用的每个接口或每个SID。这使调试更加易管理。请勿忘记对enable (event) **debug cable interface cable x/y**或**debug cable interface cable x/y**与您想要的每调试的SID。

这些是一些有用的show命令：

- **show interfaces cable x/y sid**
- **show interfaces cable x/y upstream n**
- **show cable qos profile**
- **show cable qos profile z verbose**

从CM1打一部电话到CM2并且分析发生了什么：

```
big-cmts# debug cable dynsrv
```

```
CMTS dynsrv debugging is on
```

```
big-cmts# debug cable interface cable 3/0
```


!--- Each of these timestamped lines of output appear on one line:

```
*May 5 05:15:36.531: DSA-REQ-RECD: OrgMac->0050.734e.b5b1 OrgId->52
*May 5 05:15:36.531: DSx-STATE-CREATED: OrgMac->0050.734e.b5b1 OrgId->52
*May 5 05:15:36.531: DSA-REQ TLV Information:
*May 5 05:15:36.531: Type Subtype Subtype Length Value
*May 5 05:15:36.531: 24 10
*May 5 05:15:36.531: 19 2 89
*May 5 05:15:36.531: 20 4 20000
*May 5 05:15:36.531: 80 69
*May 5 05:15:36.531: DSA-REQ: Requested QoS Parameter Information:
*May 5 05:15:36.531: Srv Flow Ref: 0 Grant Size: 89 Grant Intvl: 20000
*May 5 05:15:36.531: Requested QoS parameters match QoS Profile:3 (G729)
*May 5 05:15:36.531: DSA-REQ-SID-ASSIGNED: CM 0050.734e.b5b1 SID 11
*May 5 05:15:36.531: DSA-RSP-SEND: OrgMac->0050.734e.b5b1 OrgId->52
*May 5 05:15:36.531: DSA-RSP msg TLVs
*May 5 05:15:36.531: Type:Length:Value
*May 5 05:15:36.531: US QoS Encodings 24:8
*May 5 05:15:36.531: SID 3:2:11
*May 5 05:15:36.531: Service Flow Reference 1:2:0
*May 5 05:15:36.531: DSA-RSP hex dump:
*May 5 05:15:36.531: 0x0000: C2 00 00 26 00 00 00 50 73 4E B5 B1 00 10 0B AF
*May 5 05:15:36.531: 0x0010: BC 54 00 14 00 00 03 01 10 00 00 34 00 18 08 03
*May 5 05:15:36.531: 0x0020: 02 00 0B 01 02 00 00 00
*May 5 05:15:36.535: DSA-RSP-SENT: CM->0050.734e.b5b1 TranscId->52
*May 5 05:15:36.539: DSA-ACK-RECD:
```

```
OrgMac->0050.734e.b5b1 OrgId->52 ConfCode->0
*May 5 05:15:36.539: DYN-SRV-STATE-DESTROYED :
OrgMac->0050.734e.b5b1 OrgId->52
```

```
*May 5 05:15:42.779: DSA-REQ-RECD: OrgMac->0050.7366.1bdb OrgId->51
*May 5 05:15:42.779: DSx-STATE-CREATED: OrgMac->0050.7366.1bdb OrgId->51
*May 5 05:15:42.779: DSA-REQ TLV Information:
*May 5 05:15:42.779: Type Subtype Subtype Length Value
*May 5 05:15:42.779: 24 10
*May 5 05:15:42.779: 19 2 89
*May 5 05:15:42.779: 20 4 20000
*May 5 05:15:42.779: 80 69
*May 5 05:15:42.779: DSA-REQ: Requested QoS Parameter Information:
*May 5 05:15:42.779: Srv Flow Ref: 0 Grant Size: 89 Grant Intvl: 20000
*May 5 05:15:42.779: Requested QoS parameters match QoS Profile:3 (G729)
```

!--- If the configured Unsolicited Grant size or Unsolicited Grant interval !--- are not correct. *May 5 05:15:42.779: DSA-REQ-SID-ASSIGNED: CM 0050.7366.1bdb SID 12 !--- You see "Requested QoS doesn't match any profile" here. *May 5 05:15:42.779: DSA-RSP-SEND: OrgMac->0050.7366.1bdb OrgId->51 !--- **TIP:** check the configured QoS Profile with the !--- **show qos profile x verbose** command.

```
*May 5 05:15:42.779: DSA-RSP MSG TLVs
*May 5 05:15:42.779: Type:Length:Value
```

!--- Also, if you forgot to specify the number of phone lines you want !--- in CM config file. *May 5 05:15:42.779: US QoS Encodings 24:8 !--- You see "QoS profile matched but DSA-REQ is rejected" here. *May 5 05:15:42.779: SID 3:2:12 *May 5 05:15:42.779: Service Flow Reference 1:2:0 *May 5 05:15:42.779: DSA-RSP hex dump: *May 5 05:15:42.779: 0x0000: C2 00 00 26 00 00 00 50 73 66 1B DB 00 10 0B AF *May 5 05:15:42.779: 0x0010: BC 54 00 14 00 00 03 01 10 00 00 33 00 18 08 03 *May 5 05:15:42.779: 0x0020: 02 00 0C 01 02 00 00 00 *May 5 05:15:42.779: DSA-RSP-SENT: CM->0050.7366.1bdb TranscId->51 *May 5 05:15:42.787: DSA-ACK-RECD: OrgMac->0050.7366.1bdb OrgId->51 ConfCode->0 *May 5 05:15:42.787: DYN-SRV-STATE-DESTROYED : OrgMac->0050.7366.1bdb OrgId->51 cmts# **show interfaces cable 3/0 SID**

SID	Prim SID	Type	Online State	Admin Status	QoS	Create Time	IP Address	MAC Address
1		stat	online	enable	5	04:26:35	10.200.69.3	0050.734e.b5b1
2		stat	online	enable	5	04:26:47	10.200.69.10	0050.7366.1bdb
13	1	dyn		enable	3	05:22:20		
14	2	dyn		enable	3	05:22:20		

两个动态SID为语音呼叫被创建了。他们使用QoS ID 3，是G729配置文件。

```
cmts# show cable qos profile
```

ID	Prio	Max upstream bandwidth	Guar upstream bandwidth	Max downstream bandwidth	Max transmit burst	TOS mask	TOS value	Created by	Privacy B enabled	IP prec. rate enabled
1	0	0	0	0	0	0x0	0x0	cmts(r)	no	no
2	0	64000	0	1000000	0	0x0	0x0	cmts(r)	no	no
3*	7	32000	320000	0	0	0x0	0x0	cmts	yes	no
4**	7	87200	87200	0	0	0x0	0x0	cmts	yes	no
5	1	1000000	0	2000000	1600	0x0	0x0	cm	no	yes

```
!--- * Profile for the G.729 codec. !--- ** Profile for the G.711 codec.
```

对于下行数据流，您仍然使用主要的SID (数据的配置文件)和对应的QoS配置文件。(IP优先级费率限制提供差异化的表在语音和数据之间的。它为下行QoS配置文件第5.)是启用的

在DOCSIS 1.0+内，IP优先级设置使用分离语音和发信号从数据。一旦一个终端是在有线网络外面的呼叫，是“外部”网络的责任保证语音数据包在转发他们前适当地变色到CMTS。一旦两个终端在有线网络的呼叫，是产生数据流的终端(用户)的责任在启动他们前变色语音数据包到网络。

Note: 您能使用ip tos overwrite命令(可用从早期的uBR7200版本)设置在Sids收到的上行信息包的非默认服务类型(ToS)值属于CBR配置文件。那个方式，运算符可以肯定在动态CBR Sids收到的信息包将有正确的模式，在他们转发到广域网链路被uBR7200前(这防止受到执行所有错误的颜色)的ITCM。

请考虑以下示例：

```
cmts(config)# cable qos profile 3 tos-overwrite 0xE0 0xA0
```

```
value : 0xA0
```

```
!--- First 3 bits of ToS field: 101, which is an IP precedence of 5. mask : 0xE0 !--- Remember that IP precedence uses the first 3 bits of the ToS field !--- from the IPv4 header. big-cmts# show interfaces cable 3/0 upstream 5
```

```
Cable3/0: Upstream 5 is up
Received 254 broadcasts, 0 multicasts, 20229 unicasts
0 discards, 66907 errors, 0 unknown protocol
20483 packets input, 1 uncorrectable
101 noise, 0 microreflections
Total Modems On This Upstream Channel : 2 (2 active)
Default MAC scheduler
Queue[Rng Polls] 0/20, fifo queueing, 0 drops
Queue[Cont Mslots] 0/104, FIFO queueing, 1 drop
Queue[CIR Grants] 0/20, fair queueing, 0 drops
Queue[BE Grants] 0/30, fair queueing, 0 drops
Queue[Grant Shpr] 0/30, calendar queueing, 0 drops
Reserved slot table currently has 2 CBR entries
Req IEs 3645087, Req/Data IEs 0
Init Mtn IEs 56729, Stn Mtn IEs 3196
Long Grant IEs 80084, Short Grant IEs 202
Avg upstream channel utilization : 4%
Avg percent contention slots : 92%
Avg percent initial ranging slots : 4%
Avg percent minislots lost on late MAPs : 0%
Total channel bw reserved 64000 bps
CIR admission control not enforced
Current minislot count : 3101850 Flag: 0
```

Scheduled minislot count : 3102029 Flag: 0

cmts# **debug cable scheduler**

CMTS scheduler debugging is on

big-cmts# **show debug**

*May 5 05:24:41.991: SID:13 max-jitter:2 msecs, avg-jitter:0 msecs
*May 5 05:24:51.995: SID:14 max-jitter:2 msecs, avg-jitter:1 msecs
*May 5 05:25:02.015: SID:13 max-jitter:2 msecs, avg-jitter:0 msecs
*May 5 05:25:12.035: SID:13 max-jitter:2 msecs, avg-jitter:1 msecs
*May 5 05:25:22.055: SID:13 max-jitter:2 msecs, avg-jitter:0 msecs
*May 5 05:25:32.075: SID:13 max-jitter:2 msecs, avg-jitter:0 msecs
*May 5 05:25:42.091: SID:13 max-jitter:2 msecs, avg-jitter:0 msecs
*May 5 05:25:52.095: SID:13 max-jitter:2 msecs, avg-jitter:0 msecs

cmts# **show cable qos profile 3 verbose**

Profile Index 3
Name G729
Upstream Traffic Priority 7
Upstream Maximum Rate (BPS) 32000
Upstream Guaranteed Rate (BPS) 32000
Unsolicited Grant Size (bytes) 89
Unsolicited Grant Interval (usecs) 20000
Upstream Maximum Transmit Burst (bytes) 0
IP Type of Service Overwrite Mask 0x0
IP Type of Service Overwrite Value 0x0
Downstream Maximum Rate (BPS) 0
Created By cmts
Baseline Privacy Enabled yes

big-cmts# **show cable qos profile 4 verbose**

Profile Index 4
Name G711
Upstream Traffic Priority 7
Upstream Maximum Rate (BPS) 87200
Upstream Guaranteed Rate (BPS) 87200
Unsolicited Grant Size (bytes) 229
Unsolicited Grant Interval (usecs) 20000
Upstream Maximum Transmit Burst (bytes) 0
IP Type of Service Overwrite Mask 0x0
IP Type of Service Overwrite Value 0x0
Downstream Maximum Rate (BPS) 0
Created By cmts
Baseline Privacy Enabled yes

Line is released:

The phone line is released: a user hangs up.

big-cmts# **show debug**

CMTS:

CMTS dynsrv debugging is on

CMTS specific:

Debugging is on for Cable3/0

big-cmts# **show debug**

!--- Each of these timestamped lines of output appear on one line:

```

*May 5 05:29:45.659: DSD-REQ-RECD: I/F Cable3/0/U5: OrgMac->0050.734e.b5b1
*May 5 05:29:45.659: OrgId->54 sfid 13
*May 5 05:29:45.659: DYN-SID-DELETED:
    SID:13 Inpkts:5047 InOctets:393749 Bwreqs:12 Grants:22270
*May 5 05:29:45.659: DSD-RSP Message Hex Dump:
*May 5 05:29:45.659: 0x0000: C2 00 00 20 00 00 00 50 73 4E B5 B1 00 10 0B AF
*May 5 05:29:45.659: 0x0010: BC 54 00 0E 00 00 03 01 16 00 00 36 00 00 00 00
*May 5 05:29:45.659: 0x0020: 00 0D
*May 5 05:29:45.659: DSD-RSP-SENT: To CM->0050.734e.b5b1 TranscId->54
*May 5 05:29:48.023: DSD-REQ-RECD: I/F Cable3/0/U5: OrgMac->0050.7366.1bdb
*May 5 05:29:48.023: OrgId->53 sfid 14
*May 5 05:29:48.023: DYN-SID-DELETED:
    SID:14 Inpkts:6512 InOctets:508085 Bwreqs:2 Grants:22378
!--- The dynamic SIDs are deleted. *May 5 05:29:48.023: DSD-RSP Message Hex Dump: *May 5
05:29:48.023: 0x0000: C2 00 00 20 00 00 00 50 73 66 1B dB 00 10 0B AF *May 5 05:29:48.023:
0x0010: BC 54 00 0E 00 00 03 01 16 00 00 35 00 00 00 00 *May 5 05:29:48.023: 0x0020: 00 0E *May
5 05:29:48.023: DSD-RSP-SENT: To CM->0050.7366.1bdb TranscId->53

```

下个输出显示发生了什么，如果这些参数之一(授予大小或授予间隔您要使用)的编码的是不正确的配置的。在本例中，我们更改配置文件的G729授予大小从89到80：

```
cmts(config)# cable qos profile 3 grant-size 80
```

```
cmts# show cable qos profile 3 verbose
```

```

Profile Index 3
Name G729
Upstream Traffic Priority 7
Upstream Maximum Rate (BPS) 31200
Upstream Guaranteed Rate (BPS) 31200
Unsolicited Grant Size (bytes) 80
Unsolicited Grant Interval (usecs) 20000
Upstream Maximum Transmit Burst (bytes) 0
IP Type of Service Overwrite Mask 0x0
IP Type of Service Overwrite Value 0x0
Downstream Maximum Rate (BPS) 0
Created By cmts
Baseline Privacy Enabled yes

```

```
big-cmts# show debug
```

!--- Each of these timestamped lines of output appear on one line:

```

*May 10 04:20:57.885: DSA-REQ-RECD: OrgMac->0050.734e.b5b1 OrgId->59
*May 10 04:20:57.885: DSx-STATE-CREATED: OrgMac->0050.734e.b5b1 OrgId->59
*May 10 04:20:57.885: DSA-REQ TLV Information:
*May 10 04:20:57.885: Type Subtype Subtype Length Value
*May 10 04:20:57.885: 24 10
*May 10 04:20:57.885: 19 2 89
*May 10 04:20:57.885: 20 4 20000
*May 10 04:20:57.885: 80 69
*May 10 04:20:57.885: DSA-REQ: Requested QoS Parameter Information:
*May 10 04:20:57.885: Srv Flow Ref: 0 Grant Size: 89 Grant Intvl: 20000
*May 10 04:20:57.885: DSA-REQ-REJECT OrgMac->0050.734e.b5b1 OrgId->59:
*May 10 04:20:57.885: No CMTS QoS profile matching requested parameters
!--- Request is rejected, because there is no QoS profile. *May 10 04:20:57.885: DSA-RSP-SENT:
CM->0050.734e.b5b1 TranscId->59 *May 10 04:20:57.889: DSA-ACK-RECD: OrgMac->0050.734e.b5b1
OrgId->59 ConfCode->0 *May 10 04:20:57.889: DYN-SRV-STATE-DESTROYED :
OrgMac->0050.734e.b5b1 OrgId->59
!--- The state is destroyed. *May 10 04:20:57.905: DSA-REQ-RECD: OrgMac->0050.7366.1bdb OrgId-
>58 *May 10 04:20:57.905: DSx-STATE-CREATED: OrgMac->0050.7366.1bdb OrgId->58 *May 10
04:20:57.905: DSA-REQ TLV Information: *May 10 04:20:57.905: Type Subtype Subtype Length Value
*May 10 04:20:57.905: 24 10 *May 10 04:20:57.905: 19 2 89 *May 10 04:20:57.905: 20 4 20000 *May
10 04:20:57.905: 80 69 *May 10 04:20:57.905: DSA-REQ: Requested QoS Parameter Information: *May

```

```
10 04:20:57.905: Srv Flow Ref: 0 Grant Size: 89 Grant Intvl: 20000 *May 10 04:20:57.905: DSA-REQ-REJECT OrgMac->0050.7366.1bdb OrgId->58: *May 10 04:20:57.905: No CMTS QoS profile matching requested parameters *May 10 04:20:57.909: DSA-RSP-SENT: CM->0050.7366.1bdb TranscId->58 *May 10 04:20:57.913: DSA-ACK-RECD: OrgMac->0050.7366.1bdb OrgId->58 ConfCode->0 *May 10 04:20:57.913: DYN-SRV-STATE-DESTROYED : OrgMac->0050.7366.1bdb Org big-cmts# show interfaces cable 3/0 upstream 5
```

Cable3/0: Upstream 5 is up

!--- Output suppressed. Reserved slot table currently has 0 CBR entries *!--- Output suppressed.*

[Related Information](#)

- [在DOCSIS 1.0+的常见问题](#)
- [Technical Support - Cisco Systems](#)