

# 「顯示子摘要」計數說明

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## 簡介

本文檔描述了使用「show sub summary」命令報告的訂戶計數中的不一致。通常，「show sub summary」中的所有訂戶型別的計數加到頂部的「Total Subscribers」計數。但是，如果訂戶同時存在專用和預設承載，並且使用某些限定符，則可能導致各種訂戶型別的計數與「Total Subscribers」的預期計數不匹配。

## 透過範例提供說明

### 計算VoLTE使用者的專用和預設承載數

在長期演化語音(VoLTE)的情況下，IP多媒體系統(IMS)應用點名稱(APN)有一個專用和預設承載，對於所有VoLTE呼叫的設定至關重要。對於每個唯一使用者，即使每個使用者有兩個承載，Show sub summ (顯示子總和)欄位的增量也為1。但是，每個使用者都有兩個承載的事實在CLI的子部分中被捕獲。例如，請注意，pgw-gtp-ipv6計數表示IMS APN的專用和預設承載的計數，而Total計數僅捕獲兩個承載都用於同一IMS APN的事實。這一點進一步由實際列出各個承載的pgw-only限定符確認，但是與非pgw-only版本一樣，通過Total欄位每個APN只計算一個訂戶一次。

這些範例取自包括LTE和增強型高速封包資料(eHRPD)通話型別的封包資料網路閘道(PGW)。

請注意，pgw-gtp-ipv6(LTE)+ pgw-pmip-ipv6(eHRPD) — 專用承載總數=總使用者數

```
[local]PGW> show sub summ apn ims  
Sunday August 23 03:58:07 UTC 2015
```

Total Subscribers:	1851827		
Active:	1851827	Dormant:	0
hsgw-ipv4-ipv6:	0	pgw-pmip-ipv6:	285069
pgw-pmip-ipv4:	0	pgw-pmip-ipv4-ipv6:	0
pgw-gtp-ipv6:	1567307	pgw-gtp-ipv4:	0

```
[local]PGW> show sub pgw-only summ apn ims  
Sunday August 23 03:58:08 UTC 2015
```

Total Subscribers	: 1851820	Total Visitors	: 4
Total Home	: 1851816	Total S6b Assume Positive	: 0
Total Roamers	: 0		
Total Bearers	: 1567308		
Total Default Bearers	: 1566761	Total Dedicated Bearers	: 547

```
Total PDNs by RAT-Type
EUTRAN          : 1566761      UTRAN          : 0
GERAN           : 0           WLAN           : 0
OTHER           : 285059
```

```
pmip-pdn-type-ipv4      : 0
pmip-pdn-type-ipv6      : 285059
pmip-pdn-type-ipv4-ipv6 : 0
gtp-pdn-type-ipv4       : 0
gtp-pdn-type-ipv6       : 1567308
```

此主體甚至適用於沒有任何限定符的「show sub」求和。

$$65 + 1567327 + 285074 + 235124 + 1653 = 3430145 - 547 (\text{專用承載}) = 3429598 \approx 3429614$$

```
[local]PGW> show sub summ
Sunday August 23 03:58:07 UTC 2015
```

```
Total Subscribers:      3429614
Active:                  3429614      Dormant:          0
LAPI Devices:           0
pdsn-simple-ipv4:       0           pdsn-simple-ipv6: 0
pdsn-mobile-ip:         0           ha-mobile-ipv6:   0
hsgw-ipv6:              0           hsgw-ipv4:        0
hsgw-ipv4-ipv6:         0           pgw-pmip-ipv6:    285074
pgw-pmip-ipv4:          65           pgw-pmip-ipv4-ipv6: 235124
pgw-gtp-ipv6:           1567327      pgw-gtp-ipv4:     1653
pgw-gtp-ipv4-ipv6:      1340902      sgw-gtp-ipv6:     0
```

當您僅通過專用承載使用QCI = 1傳送語音資料的VoLTE使用者進行資格認證時，這一點就更加清楚了。在這種情況下，請注意pgw-gtp-ipv6大約是總使用者數的兩倍，因為它會計算每個VOLTE使用者的專用和預設承載。

```
[local]PGW> show sub summ apn ims qci 1
Sunday August 23 04:34:57 UTC 2015
```

```
Total Subscribers:      302
Active:                  302      Dormant:          0
LAPI Devices:           0
pdsn-simple-ipv4:       0           pdsn-simple-ipv6: 0
pdsn-mobile-ip:         0           ha-mobile-ipv6:   0
hsgw-ipv6:              0           hsgw-ipv4:        0
hsgw-ipv4-ipv6:         0           pgw-pmip-ipv6:    0
pgw-pmip-ipv4:          0           pgw-pmip-ipv4-ipv6: 0
pgw-gtp-ipv6:           605          pgw-gtp-ipv4:     0
```

```
[local]PGW> show sub pgw-only summ apn ims qci 1
Sunday August 23 04:34:58 UTC 2015
```

```
Total Subscribers      : 302
Total Home              : 302      Total Visitors      : 0
Total Roamers           : 0       Total S6b Assume Positive : 0
Total Bearers           : 605
Total Default Bearers   : 302      Total Dedicated Bearers : 303
```

```
Total PDNs by RAT-Type
EUTRAN          : 302      UTRAN          : 0
GERAN           : 0       WLAN           : 0
OTHER           : 0
```

```

pmip-pdn-type-ipv4      : 0
pmip-pdn-type-ipv6      : 0
pmip-pdn-type-ipv4-ipv6 : 0
gtp-pdn-type-ipv4       : 0
gtp-pdn-type-ipv6       : 605

```

## 計算共用相同日曆的專用和預設承載

一個相關的示例是按日曆列出訂閱者。單個小球代表給定APN的所有承載，而共用該小球的所有承載(2)被單獨列出/計數。同時，Total欄位僅增加一次，以便表示APN的所有承載。在本示例中，IMS預設持有人ID = 5,IMS專用持有人ID = 7。

```

[local]PGW> show sub callid 0000d532
Sunday August 23 04:39:54 UTC 2015

```

vvvvvv	CALLID	MSID	USERNAME	IP	TIME-IDLE
-----	-----	-----	-----	-----	-----
YTCNAT	0000d532	320490143033837	0320490143033837@nai.epc.mnc490.mcc320.3gppnetwork.org		
	2600:5555:801a:1bee::d5:3201			00h38m02s	
YTCNAT	0000d532	320490143033837	0320490143033837@nai.epc.mnc490.mcc320.3gppnetwork.org		
	2600:5555:801a:1bee::d5:3201			00h38m02s	

```

[local]PGW> show sub summ callid 0000d532
Sunday August 23 04:39:56 UTC 2015

```

Total Subscribers:	1			
Active:	1	Dormant:		0
LAPI Devices:	0			
pdsn-simple-ipv4:	0	pdsn-simple-ipv6:		0
pdsn-mobile-ip:	0	ha-mobile-ipv6:		0
hsgw-ipv6:	0	hsgw-ipv4:		0
hsgw-ipv4-ipv6:	0	pgw-pmip-ipv6:		0
pgw-pmip-ipv4:	0	pgw-pmip-ipv4-ipv6:		0
pgw-gtp-ipv6:	2	pgw-gtp-ipv4:		0

```

[local]PGW> show sub pgw-only callid 0000d532
Sunday August 23 04:39:57 UTC 2015

```

vvvvvv	CALLID	IMSI/IMEI	v	v IP	APN	TIME-IDLE
-----	-----	-----	-----	-----	-----	-----
YECHDN	0000d532	3204900143033837	005	L 2600:5555:801a:1bee::d5:3201	ims	00h38m05s
YECHEH	0000d532	3204900143033837	007	L 2600:5555:801a:1bee::d5:3201	ims	00h38m05s

```

[local]PGW> show sub pgw-only summ callid 0000d532
Sunday August 23 04:39:59 UTC 2015

```

Total Subscribers	: 1			
Total Home	: 1	Total Visitors	: 0	
Total Roamers	: 0	Total S6b Assume Positive	: 0	
Total Bearers	: 2			
Total Default Bearers	: 1	Total Dedicated Bearers	: 1	
Total PDNs by RAT-Type				
EUTRAN	: 1	UTRAN	: 0	
GERAN	: 0	WLAN	: 0	
OTHER	: 0			
pmip-pdn-type-ipv4	: 0			
pmip-pdn-type-ipv6	: 0			
pmip-pdn-type-ipv4-ipv6	: 0			

```
gtp-pdn-type-ipv4      : 0
gtp-pdn-type-ipv6      : 2
```

## 適用於專用/預設承載的限定詞與所有使用者的混合

最後，可能最令人困惑的例子是，在承載層以及整個使用者上連續使用多個限定符。在此範例中，第三個限定符會新增到已連線時間超過一天(86400秒)的狹窄訂閱者中。由於此示例還使用代表VoLTE使用者的QCI 1，因此可能預期命中清單為空，因為多少人在呼叫中超過24小時？但結果並非預期的真正的AND運算。即，結果不是已連線時間超過一天的IMS VoLTE會話，因為該數量可能為0。相反，結果是所有IMS使用者均具有VoLTE會話，並且預設IMS或專用(VoLTE)IMS會話已開啟時間超過一天(前者並不罕見)。

在此輸出中，connected-time greater-than qualifier確實將輸出限制到在預設IMS承載上已連線超過一天的用戶，而不考慮呼叫連線時間的限定符。

```
[local]PGW> show sub summ apn ims qci 1 connected-time greater-than 86400
Sunday August 23 05:18:23 UTC 2015
```

Total Subscribers:	113		
Active:	113	Dormant:	0
LAPI Devices:	0		
pdsn-simple-ipv4:	0	pdsn-simple-ipv6:	0
pdsn-mobile-ip:	0	ha-mobile-ipv6:	0
hsgw-ipv6:	0	hsgw-ipv4:	0
hsgw-ipv4-ipv6:	0	pgw-pmip-ipv6:	0
pgw-pmip-ipv4:	0	pgw-pmip-ipv4-ipv6:	0
pgw-gtp-ipv6:	226	pgw-gtp-ipv4:	0

```
[local]PGW> show sub summ apn ims qci 1
Sunday August 23 05:18:52 UTC 2015
```

Total Subscribers:	248		
Active:	248	Dormant:	0
LAPI Devices:	0		
pdsn-simple-ipv4:	0	pdsn-simple-ipv6:	0
pdsn-mobile-ip:	0	ha-mobile-ipv6:	0
hsgw-ipv6:	0	hsgw-ipv4:	0
hsgw-ipv4-ipv6:	0	pgw-pmip-ipv6:	0
pgw-pmip-ipv4:	0	pgw-pmip-ipv4-ipv6:	0
pgw-gtp-ipv6:	497	pgw-gtp-ipv4:	0

以下示例顯示滿足連線時間大於一天條件的給定使用者的完整輸出。

**附註：**Internet APN預設的連線時間在您輸入該命令後的幾分鐘內，因此可以確定它是預設IMS承載者，其連線標準大於一天（連線時間為8月7日20:01:23），這將導致報告此訂戶。

```
[local]PGW> show sub apn ims qci 1 connected-time greater-than 86400
Monday August 10 12:04:29 UTC 2015
```

vvvvvv	CALLID	MSID	USERNAME	IP	TIME-
IDLE					

```
-----
YTCNAT 00eff501 320490127668665 0320490127668665@nai.epc.mnc490.mcc320.3gppnetwork.org
2600:5555:8001:9ccb::eff5:101 00h00m00s
```

```
[local]PGW> show sub pgw-only full imsi 320490127668665
Monday August 10 12:06:38 UTC 2015
```

```
Username: 0320490127668665@nai.epc.mnc490.mcc320.3gppnetwork.org
```

Subscriber Type : Home  
Status : Online/Active  
State : Connected  
Connect Time : Fri Aug 7 20:01:23 2015

Auto Delete : No

Idle time : 00h00m00s  
MS TimeZone : -4:00 Daylight Saving Time: +1 hour

Access Type: gtp-pdn-type-ipv6 Network Type: IPv6  
Access Tech: eUTRAN pgw-service-name: PGW1  
Callid: 00eff501 IMSI: 320490127668665  
MSISDN: 16036860864  
Interface Type: S5S8GTP Low Access Priority: N/A  
Emergency Bearer Type: N/A  
IMS-media Bearer: No  
S6b Auth Status: Enabled  
Access Peer Profile: default  
Acct-session-id (C1): 42AE14C2013B7181  
ThreeGPP2-correlation-id (C2): 01C250B4 / 0t-G0QsS  
Card/Cpu: 1/1 Sessmgr Instance: 4

Bearer Type: Default Bearer-Id: 5  
Bearer State: Active  
IP allocation type: N/A  
IPv6 allocation type: local pool  
IP address: 2600:5555:8001:9ccb::eff5:101

...  
S5/S8/S2b/S2a-APN: ims  
SGi-APN: ims

Bearer QoS:  
QCI: 5

...  
Username: 0320490127668665@nai.epc.mnc490.mcc320.3gppnetwork.org

Subscriber Type : Home  
Status : Online/Active  
State : Connected  
Connect Time : Mon Aug 10 11:52:51 2015

Auto Delete : No

Idle time : 00h00m00s  
MS TimeZone : -4:00 Daylight Saving Time: +1 hour

Access Type: gtp-pdn-type-ipv6 Network Type: IPv6  
Access Tech: eUTRAN pgw-service-name: PGW1  
Callid: 00eff501 IMSI: 320490127668665  
MSISDN: 16036860864  
Interface Type: S5S8GTP Low Access Priority: N/A  
Emergency Bearer Type: N/A  
IMS-media Bearer: Yes  
S6b Auth Status: Enabled  
Access Peer Profile: default  
Acct-session-id (C1): 42AE14C2013E4AF6  
ThreeGPP2-correlation-id (C2): 01C250B4 / 0t-G0QsS  
Card/Cpu: 1/1 Sessmgr Instance: 4

Bearer Type: Dedicated Bearer-Id: 7  
Bearer State: Active  
IP allocation type: N/A  
IPv6 allocation type: local pool

IP address: 2600:5555:8001:9ccb::eff5:101

...

S5/S8/S2b/S2a-APN: ims  
SGi-APN: ims

Bearer QoS:  
QCI: 1

Username: 0320490127668665@nai.epc.mnc490.mcc320.3gppnetwork.org

Subscriber Type : Home  
Status : Online/Active  
State : Connected  
Connect Time : Mon Aug 10 11:51:24 2015

Auto Delete : No

Idle time : 00h15m14s  
MS TimeZone : -4:00 Daylight Saving Time: +1 hour

Access Type: gtp-pdn-type-ipv4-ipv6 Network Type: IPV4+IPV6  
Access Tech: eUTRAN pgw-service-name: PGW1  
Callid: 00f2c514 IMSI: 320490127668665  
MSISDN: 15556860864  
Interface Type: S5S8GTP Low Access Priority: N/A  
Emergency Bearer Type: N/A  
IMS-media Bearer: No  
S6b Auth Status: Enabled  
Access Peer Profile: default  
Acct-session-id (C1): 42AE14C2013E4AC5  
ThreeGPP2-correlation-id (C2): 01C520A2 / 0umaajjh  
Card/Cpu: 1/1 Sessmgr Instance: 4

Bearer Type: Default Bearer-Id: 6  
Bearer State: Active  
IP allocation type: local pool  
IPv6 allocation type: local pool  
IP address: 2600:5555:b027:b408::f2c5:1401, 100.84.110.26

...

S5/S8/S2b/S2a-APN: internet  
SGi-APN: internet

Bearer QoS:  
QCI: 8  
ARP: 0x069

Total subscribers matching specified criteria: 3