



Verify cnBNG User Plane Configuration

This section describes the show commands to be executed on the router to verify cloud native BNG user plane configuration.

For details on cnBNG commands, see the *Cloud Native BNG Command Reference for Cisco ASR 9000 Series Routers*.

- [Verify cnBNG NAL Process Information, on page 1](#)
- [Verify Control Plane Connection Status, on page 2](#)
- [Verify Subscriber Information, on page 3](#)
- [Verify cnBNG NAL Counters, on page 12](#)

Verify cnBNG NAL Process Information

You can use the following commands to verify the NAL process information on cnBNG user plane.

- ```
Router#show cnbng-nal process-info location 0/RSP0/CPU0
Mon Aug 3 00:12:42.080 UTC

Location: 0/RSP0/CPU0

HA Pre_Init Role : PRIMARY
HA Role : PRIMARY
Restart-flag : FALSE
card_type : 0
Node-Id : 0
Disc-Hist File-logging : FALSE
Test-server config-enabled: FALSE

Proc-flags : 8000FFBF

OT Connection Status: UP
IM Connection Status: UP
IPv4 RIB Connection Status: UP
IPv6 RIB Connection Status: UP
SUBDB Connection Status: UP
```
- ```
Router#show cnbng-nal process-readiness
Mon Aug  3 00:12:00.778 UTC

Location: 0/RSP1/CPU0
```

```
NAL resync pending flags:
  Service Resync Pending
  Interface Resync Pending
  IPv4 Route Resync Pending
  IPv6 Route Resync Pending
```

```
SIR status: not ready
```

```
Location: 0/RSP0/CPU0
NAL resync pending flags:
  NONE
```

```
SIR status: ready
```

```
Router#show processes cnbng_nal
```

```
Fri Sep 11 09:22:45.139 UTC
      Job Id: 456
      PID: 1543
```

```
Router#show processes memory 1543
```

```
Fri Sep 11 09:24:12.398 UTC
-----
```

JID	Text(KB)	Data(KB)	Stack(KB)	Dynamic(KB)	Process
456	992	1700604	200	19999	cnbng_nal

```
-----
```

Verify Control Plane Connection Status

You can use the following command to verify the connection status of cnBNG control plane.

```
Router#show cnbng-nal cp connection status
```

```
Fri Feb 19 11:27:31.178 UTC
```

```
Location: 0/RSP0/CPU0
```

```
User-Plane configurations:
```

```
-----
IP           : 10.105.227.96
  GTP Port   : 2152
  PFCP Port  : 8805
  VRF        : default
```

```
Control-Plane configurations:
```

```
-----
PRIMARY IP   : 10.84.102.235
  GTP Port   : 2152
  PFCP Port  : 8805
```

```
Association retry count: 10
```

```
Connection Status: Up
```

```
Connection Status time stamp: Thu Feb 11 12:46:19 2021
```

```
Connection Prev Status : Down
```

```
Connection Prev Status time stamp: Thu Feb 11 12:44:55 2021
```

Association status: **Active**
 Association status time stamp: Thu Feb 11 12:46:18 2021

Verify Subscriber Information

You can use the following commands to verify subscriber information on the cnBNG user plane.

```

Router#show cnbng-nal subscriber access-interface bundle-Ether 1.1
Mon Aug 3 00:04:42.558 UTC
=====
Location: 0/RSP0/CPU0
=====

              Type           PPPoE           IPoE
              ====           =====           ====

Session Counts by State:
  initializing           0               0
  connecting             0               0
  connected              0               0
  activated              0              8000
  idle                   0               0
  disconnecting         0               0
  Total:                 0              8000

Session Counts by Address-Family:
  none                   0               0
  ipv4                   0               0
  ipv6                   0              8000
  dual                   0               0
  Total:                 0              8000

=====
Location: 0/RSP1/CPU0
=====

              Type           PPPoE           IPoE
              ====           =====           ====

Session Counts by State:
  initializing           0               0
  connecting             0               0
  connected              0               0
  activated              0              8000
  idle                   0               0
  disconnecting         0               0
  Total:                 0              8000

Session Counts by Address-Family:
  none                   0               0
  ipv4                   0               0
  ipv6                   0              8000
  dual                   0               0
  Total:                 0              8000

```

```

Router#show cnbng-nal subscriber all
Fri Sep 11 06:07:52.343 UTC
Codes: CN - Connecting, CD - Connected, AC - Activated,
       ID - Idle, DN - Disconnecting, IN - Initializing

```

CPID(hex) Ifhandle	Interface	State	Mac Address	Subscriber IP Addr / Prefix (Vrf)
1005ca0	BE2.500.ip2149474448	AC	0010.942e.3b00	13.0.92.160 (default) 0x225e60 1:4::5c9f (IANA) 2003:db0:0:5c9e::/64 (IAPD)
10053b2	BE2.500.ip2149466000	AC	0010.942e.3689	13.0.83.175 (default) 0xfdf0 1:4::53b1 (IANA) 2003:db0:0:53b0::/64 (IAPD)
1004c81	BE2.600.ip2149013936	AC	0010.942e.5230	13.0.76.129 (default) 0x4079a0 1:4::4c80 (IANA) 2003:db0:0:4c7f::/64 (IAPD)
1004aaa	BE2.500.ip2149353232	AC	0010.942e.3205	13.0.74.169 (default) 0x5192e0 1:4::4aa9 (IANA) 2003:db0:0:4aa8::/64 (IAPD)
1004927	BE2.600.ip2149518576	AC	0010.942e.50b1	13.0.73.116 (default) 0x219ba0 1:4::4926 (IANA) 2003:db0:0:4925::/64 (IAPD)
10047e4	BE2.800.ip2149422928	AC	0010.9431.a7c7	13.0.71.228 (default) 0x41ff60 1:4::47e4 (IANA) 2003:db0:0:47e2::/64 (IAPD)
1004777	BE2.600.ip2149520224	AC	0010.942e.5021	13.0.71.115 (default) 0x41420 1:4::4776 (IANA) 2003:db0:0:4775::/64 (IAPD)
1003a6d	BE2.800.ip2149369728	AC	0010.9431.a3a1	13.0.58.105 (default) 0x141360 1:4::3a6d (IANA) 2003:db0:0:3a6a::/64 (IAPD)
10038b7	BE2.600.ip2149362240	AC	0010.942e.4bb2	13.0.56.178 (default) 0x259aa0

```

1:4::38b6 (IANA)
2003:db0:0:38b5::/64 (IAPD)
10028ba BE2.500.ip2149210768 AC 0010.942e.2873 13.0.40.185 (default) 0x129620
1:4::28b9 (IANA)
2003:db0:0:28b8::/64 (IAPD)
100247b BE2.600.ip2149396320 AC 0010.942e.46a3 13.0.36.113 (default) 0x4b8e0
1:4::2471 (IANA)
2003:db0:0:2470::/64 (IAPD)
100207a BE2.500.ip2149356496 AC 0010.942e.2663 13.0.32.117 (default) 0x1a9460
1:4::2079 (IANA)
2003:db0:0:2078::/64 (IAPD)
1001d3f BE2.600.ip2149251360 AC 0010.942e.44d4 13.0.29.61 (default) 0xcc760
    
```

• Router#show cnbng-nal subscriber all summary

Sun Aug 2 16:26:44.281 UTC

=====
 Location: 0/RSP0/CPU0
 =====

Type	PPPoE	IPoE
====	=====	====
Session Counts by State:		
initializing	0	0
connecting	0	0
connected	0	0
activated	0	130
idle	0	0
disconnecting	0	0
Total:	0	130
Session Counts by Address-Family:		
none	0	0
ipv4	0	130
ipv6	0	0
dual	0	0
Total:	0	130

=====
 Location: 0/RSP0/CPU0
 =====

Type	PPPoE	IPoE
====	=====	====

Session Counts by State:

initializing	0	0
connecting	0	0
connected	226	0
activated	31774	0
idle	0	0
disconnecting	0	0
Total:	32000	0

Session Counts by Address-Family:

none	226	0
ipv4	7774	0
ipv6	0	0
dual	24000	0
Total:	32000	0

• Router#**show cnbng-nal subscriber all detail**

Mon Aug 3 00:00:14.624 UTC

Location: 0/2/CPU0

=====

Location: 0/RSP1/CPU0

=====

```
Interface: Bundle-Ether1.1.ip2148413040
UPID: 0x800e2e70
CPID: 0x0100918f
PPPOE Session Id: 0x0000
Type: IPoE
IPv4 Address: 0.0.0.0
IPv4 Framed Route:
  Prefix: 0.0.0.0/0
  Next Hop: 0.0.0.0
  Tag: 0
IPv6 IANA Address: 1:5::345c
IPv6 IAPD Prefix: 2004:cd0:0:188d::/64
CPE link local Address: ::
IPv6 Framed Route:
  Prefix: ::/0
  Next Hop: ::
  Tag: 0
IPv6 State: UP, Sat Jul 25 02:09:55 2020
Mac Address: 5065.aaab.d864
Inner VLAN ID: Not Set
Outer VLAN ID: 100
Outer VLAN Cos: 0
```

```

Outer VLAN DEI:          1
Created:                 Sat Jul 25 02:09:54 2020
State:                   Activated
Ifhandle:                 0x000b75a0
VRF:                     default
Access-interface:        Bundle-Ether1.1
  Attribute List: 0x5556aed3f878
1:  ipv6-enable          len= 4  value= 1(1)
2:  ipv4-unnumbered     len= 9  value= Loopback1
3:  strict-rpf          len= 4  value= 1(1)
4:  ipv6-strict-rpf     len= 4  value= 1(1)
5:  ipv4-icmp-unreachable len= 4  value= 1(1)
6:  ipv6-unreachable    len= 4  value= 1(1)
7:  ipv4-mtu            len= 4  value= 1500(5dc)
8:  ipv6-mtu            len= 4  value= 1500(5dc)
Session Accounting:      enabled
Interim Interval:        1800 secs
Last interim timestamp:  Sun Aug  2 23:39:46 2020
Interim fail count:     None
Last interim failed reason: NA
Last stats:
  BytesIn: 0
  BytesOut: 384570
  BytesInGiga: 0
  BytesOutGiga: 0
Feature IDs activated :
  0x800e2e71
  0x800e2e72

```

```

Router#show cnbng-nal subscriber type ipoe summary

```

```

Mon Aug  3 00:06:15.032 UTC

```

```

=====
Location: 0/RSP0/CPU0
=====

```

Type	PPPoE	IPoE
====	=====	=====
Session Counts by State:		
initializing	0	0
connecting	0	0
connected	0	0
activated	0	8000
idle	0	0
disconnecting	0	0
Total:	0	8000

Session Counts by Address-Family:		
none	0	0
ipv4	0	0
ipv6	0	8000
dual	0	0
Total:	0	8000

```

=====
Location: 0/RSP1/CPU0
=====

```

Type	PPPoE	IPoE
====	=====	=====
Session Counts by State:		

```

initializing      0          0
connecting        0          0
connected         0          0
activated         0          8000
idle              0          0
disconnecting     0          0
Total:            0          8000

```

Session Counts by Address-Family:

```

none             0          0
ipv4             0          0
ipv6             0          8000
dual             0          0
Total:           0          8000

```

Router#

```

•
Router#show cnbng-nal subscriber type pppoe summary

```

Mon Aug 3 00:06:15.032 UTC

Location: 0/RSP0/CPU0

```

=====
Type          PPPoE          IPoE
====          =====          =====

```

Session Counts by State:

```

initializing      0          0
connecting        0          0
connected         0          0
activated         31031       0
idle              0          0
disconnecting     0          0
Total:            31031       0

```

Session Counts by Address-Family:

```

none             0          0
ipv4             31031       0
ipv6             0          0
dual             0          0
Total:           31031       0

```

Router#

```

•
Router#show cnbng-nal subscriber disconnect-history unique

```

Mon Aug 3 00:07:22.716 UTC

Location: 0/RSP1/CPU0

```

| Count|          Last Interface          | Disconnected Reason |          Last Time
|-----|-----|-----|-----|
|-----|-----|-----|-----|
Location: 0/1/CPU0
Location: 0/RSP0/CPU0

```

```

| Count|          Last Interface          | Disconnected Reason |          Last Time
|-----|-----|-----|-----|
35494  Bundle-Ether1.1.ip2148328848  Disconnect by CP     Sat Jul 25
|-----|-----|-----|-----|
02:04:55 2020

14154  Bundle-Ether1.1.ip2148324096  Disconnect by clear CLI  Sat Jul 25
|-----|-----|-----|-----|
02:05:48 2020

```


2777 Bundle-Ether1.1.ip2148194512 Disconnect due to create failure Sat Jul 25
01:38:29 2020

Router#**show cnbng-nal subscriber disconnect-history last location**
Mon Aug 3 00:08:42.655 UTC

Disconnect-reason: Disconnect by clear CLI
Disconnect-timestamp: Sat Jul 25 02:05:48 2020
Message Txn ID: 55663
Session Txn ID: 1
Failed at: Sat Jul 25 01:57:03 2020
Feature Mask: 0x0
SVM State: 0
IPSUB flags: 0x600a200
Pending callback: 0x2
Data:

Interface: Bundle-Ether1.1.ip2148324096
UPID: 0x800cd300
CPID: 0x01007bd8
PPPOE Session Id: 0x0000
Type: IPoE
IPv4 Address: 0.0.0.0
IPv4 Framed Route:
Prefix: 0.0.0.0/0
Next Hop: 0.0.0.0
Tag: 0
IPv6 IANA Address: 1:5::3de5
IPv6 IAPD Prefix: 2004:cd0:0:616::/64
CPE link local Address: ::
IPv6 Framed Route:
Prefix: ::/0
Next Hop: ::
Tag: 0
IPv6 State: UP, Sat Jul 25 01:57:03 2020
Mac Address: 5065.aaab.cfbb
Inner VLAN ID: Not Set
Outer VLAN ID: 100
Outer VLAN Cos: 0
Outer VLAN DEI: 1
Created: Sat Jul 25 02:05:48 2020
State: Init
Ifhandle: 0x000323a0
VRF: default
Access-interface: Bundle-Ether1.1
Attribute List: 0x559125764408
1: ipv6-enable len= 4 value= 1(1)
2: ipv4-unnumbered len= 9 value= Loopback1
3: strict-rpf len= 4 value= 1(1)
4: ipv6-strict-rpf len= 4 value= 1(1)
5: ipv4-icmp-unreachable len= 4 value= 1(1)
6: ipv6-unreachable len= 4 value= 1(1)
7: ipv4-mtu len= 4 value= 1500(5dc)
8: ipv6-mtu len= 4 value= 1500(5dc)
Session Accounting: enabled
Interim Interval: 1800 secs
Last interim timestamp: Sat Jul 25 02:05:47 2020
Interim fail count: None
Last interim failed reason: NA
Last stats:
BytesIn: 0
BytesOut: 540
BytesInGiga: 0

Verify Subscriber Information

```

BytesOutGiga: 0
Feature IDs activated :
  0x800cd301
  0x800cd302

```

```

[Event History]
UPID: 0x800cd300

```

Event Name	Time Stamp	S, M
Create	Jul 25 01:57:02.999679	0, 0
New Session Request	Jul 25 01:57:02.999686	0, 0
Interface create	Jul 25 01:57:02.999823	0, 0
SVM create	Jul 25 01:57:03.018268	0, 0
UP Install(req)	Jul 25 01:57:03.018321	0, 0
UP Install(CB)	Jul 25 01:57:03.019220	0, 0
Last Assoc(req)	Jul 25 01:57:03.019232	0, 0
Last Assoc(CB)	Jul 25 01:57:03.020160	0, 1
Produce done(req)	Jul 25 01:57:03.020233	0, 0
IPv4 Caps Up	Jul 25 01:57:03.188034	0, 0
IPv6 Caps Up	Jul 25 01:57:03.233210	0, 0
Init data req	Jul 25 01:57:03.254482	0, 1
Init data cb	Jul 25 01:57:03.369027	0, 1
Client Session up	Jul 25 01:57:03.379152	0, 0
Produce done	Jul 25 01:57:03.977629	0, 0
IPv6 Up	Jul 25 01:57:03.977643	0, 0
Session up notified	Jul 25 01:57:03.977650	0, 0
Stats start	Jul 25 01:57:03.977841	0, 0
Disconnect notified	Jul 25 02:05:47.548202	0, 0
Disconnect ack	Jul 25 02:05:47.550293	0, 0
IPv4 Caps Down	Jul 25 02:05:47.652232	0, 0
IPv6 Caps Down	Jul 25 02:05:47.652333	0, 0
Final stats	Jul 25 02:05:47.753805	0, 0
SVM delete	Jul 25 02:05:47.780713	0, 0
SVM cleanup	Jul 25 02:05:48.283050	0, 0

Help: S - Sticky Event, M - Multiple Occurrence

```

Router#show cnbng-nal subscriber fadb

```

```

Mon Aug 3 00:03:12.858 UTC

```

```

Location: 0/RSP1/CPU0

```

```

=====

```

```

UPID:          0x800ec810
Service-ID: 0x04000003 Service-Name: JHV_VOICE
Feature-ID: 0x800ec812
Attribute List: 0x559cba6d0008
1: feature-acct-bitmask len= 4 value= 805306413(3000002d)
Accounting:          enabled
Interim fail count: None
Last interim failed reason: None
Last stats:
  BytesIn: 0
  BytesOut: 0
  BytesInGiga: 0
  BytesOutGiga: 0

```

```

UPID:          0x800e9470
Service-ID: 0x04000003 Service-Name: JHV_VOICE
Feature-ID: 0x800e9472
Attribute List: 0x559cba6d0008
1: feature-acct-bitmask len= 4 value= 805306413(3000002d)
Accounting:          enabled

```

```
Interim fail count: None
Last interim failed reason: None
Last stats:
  BytesIn: 0
  BytesOut: 0
  BytesInGiga: 0
  BytesOutGiga: 0

UPID:          0x800e7ee0
Service-ID: 0x04000003 Service-Name: JHV_VOICE
Feature-ID: 0x800e7ee2
  Attribute List: 0x559cba6d0008
1: feature-acct-bitmask len= 4 value= 805306413(3000002d)
Accounting:                enabled
Interim fail count: None
Last interim failed reason: None
Last stats:
  BytesIn: 0
  BytesOut: 0
  BytesInGiga: 0
  BytesOutGiga: 0

UPID:          0x800e16e0
Service-ID: 0x04000004 Service-Name: LIVE_TV
Feature-ID: 0x800e16e1
  Attribute List: 0x559cba6d0008
1: feature-acct-bitmask len= 4 value= 0(0)
Accounting:                disabled
Interim fail count: None
Last interim failed reason: None
Last stats:
  BytesIn: 0
  BytesOut: 0
  BytesInGiga: 0
  BytesOutGiga: 0

UPID:          0x800dda90
Service-ID: 0x04000003 Service-Name: JHV_VOICE
Feature-ID: 0x800dda91
  Attribute List: 0x559cba6d0008
1: feature-acct-bitmask len= 4 value= 805306413(3000002d)
Accounting:                enabled
Interim fail count: None
Last interim failed reason: None
Last stats:
  BytesIn: 0
  BytesOut: 0
  BytesInGiga: 0
  BytesOutGiga: 0

UPID:          0x800dd4e0
Service-ID: 0x04000004 Service-Name: LIVE_TV
Feature-ID: 0x800dd4e1
  Attribute List: 0x559cba6d0008
1: feature-acct-bitmask len= 4 value= 0(0)
Accounting:                disabled
Interim fail count: None
Last interim failed reason: None
Last stats:
  BytesIn: 0
  BytesOut: 0
  BytesInGiga: 0
  BytesOutGiga: 0
```

Verify cnBNG NAL Counters

You can use the following commands to verify various NAL counters on the cnBNG user plane:

```

•
Router#show cnbng-nal counters type all
Sun Aug  2 20:42:49.548 UTC

Location: 0/RSP0/CPU0

Subscriber Counters
-----

Counter name                               Value
=====                               =====
INTF Delete                                500
IPv4 caps down                             500
IPv6 caps down                             500
IPv4 Rou del                               500
IPv6 Rou del                               500
Blkdis q empty                             1
DB cache hit                               17113

Error Counters
-----

Counter name                               Value
=====                               =====

Accounting Counters
-----

Counter name                               Value
=====                               =====
Sess Stop req                              500
Feat Stop req                              500
Stop req                                   3000
Stop cb                                    3000
Final cb                                   3000
Feat Final cb                              500
Sess Final cb                              2500

SVM Counters
-----

Counter name                               Value
=====                               =====
Sess deleted                               500
Delete CB                                  500
Feat deleted                               1000
Cleanup                                    500
Sess stats, before svm                    500
Feat stats, before svm                    500

SPA Counters
-----

Counter name                               Value
=====                               =====
SPA Delete Req                             500
SPA Update Req                             500
Sub Delete Res                             500

```

```

Sub Update Res          500
Blkdic adm more        39
GTPu pkt sent          1000
PFCP pkt sent          1463
GTPu pkt punt          500
PFCP pkt punt          1463
DHCPv4 pkt punt        500
DHCPv6 pkt punt        500
DHCPv6 pkt inj         500
Alloc count            3463
Free count              3463
Mutex lock              6741
Mutex unlock           6741
Timer start             463
Timer expiry            463
Sub Update IPOE OK     500
Sub Delete IPOE OK     500

```

CP Recon Counters

```

Counter name            Value
=====

```

Histogram/API Performance Stats

API name	1ms	10ms	100ms	1s	5s	10s	20s	50s	100s
=====	====	=====	=====	==	==	=====	=====	=====	=====
Per trans	410	90	0	500	0	0	0	0	0
Sub Create	0	0	0	0	0	0	0	0	0
Sub Update	445	55	0	0	0	0	0	0	0
Sub Delete	0	0	0	500	0	0	0	0	0
IPOE Int Crt	0	0	0	0	0	0	0	0	0
IPOE Int Upd	0	0	0	0	0	0	0	0	0
IPOE Int Del	0	0	0	500	0	0	0	0	0
PPPOE Int Crt	0	0	0	0	0	0	0	0	0
PPPOE Int Upd	0	0	0	0	0	0	0	0	0
PPPOE Int Del	0	0	0	0	0	0	0	0	0
Sess Create	0	0	0	0	0	0	0	0	0
Sess Update	0	0	0	0	0	0	0	0	0
Sess Delete	0	0	10	490	0	0	0	0	0
V4 RT Inst	0	0	0	0	0	0	0	0	0
V4 RT Del	0	6	320	174	0	0	0	0	0
V4 FR Inst	0	0	0	0	0	0	0	0	0
V4 FR Del	0	0	0	0	0	0	0	0	0
V6 RT Inst	0	0	0	0	0	0	0	0	0
V6 RT Del	0	6	310	184	0	0	0	0	0
V6 PD RT Inst	0	0	0	0	0	0	0	0	0
V6 PD RT Del	0	0	0	0	0	0	0	0	0
V6 FR Inst	0	0	0	0	0	0	0	0	0
V6 FR Del	0	0	0	0	0	0	0	0	0
CDM Lookup	0	0	0	0	0	0	0	0	0
CDM Insert	0	0	0	0	0	0	0	0	0
CDM Update	1469	31	0	0	0	0	0	0	0
Eval Lookup	0	0	0	0	0	0	0	0	0

```

.
Router#show cnbng-nal counters type all | beg SPA LIB
Sun Aug  2 20:44:07.902 UTC
SPA LIB Counters
-----

```

Counter name	Value
=====	=====
pfcpx_rx_counter	6899
pfcpx_tx_counter	6900
gtpu_tx_counter	9048
gtpu_rx_counter	7510
pfcpx_keepalive_tx_counter	891
pfcpx_keepalive_rx_counter	890

SPA API counters

•
Router#show cnbng-nal counters type spa

Sun Aug 2 20:42:13.703 UTC

Location: 0/RSP0/CPU0

SPA Counters

Counter name	Value
=====	=====
SPA Delete Req	500
SPA Update Req	500
Sub Delete Res	500
Sub Update Res	500
Blkdic adm more	39
GTPu pkt sent	1000
PFCP pkt sent	1461
GTPu pkt punt	500
PFCP pkt punt	1461
DHCPv4 pkt punt	500
DHCPv6 pkt punt	500
DHCPv6 pkt inj	500
Alloc count	3461
Free count	3461
Mutex lock	6727
Mutex unlock	6727
Timer start	461
Timer expiry	461
Sub Update IPOE OK	500
Sub Delete IPOE OK	500