Monitor Protocol and Subscriber

- Feature Summary and Revision History, on page 1
- Feature Description, on page 1
- Configuring Monitor Subscriber and Protocol, on page 2

Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Product(s) or Functional Area	cnBNG
Applicable Platform(s)	SMI
Feature Default Setting	Disabled - Configuration Required
Related Documentation	*Cloud Native BNG Control Plane Command Reference Guide*

Revision History

Table 2: Revision History

Revision Details	Release
First introduced.	2021.03.0

Feature Description

The Monitor Subscriber and Protocol feature supports the debugging functionality.

Monitor Subscriber

The Monitor Subscriber feature captures all the transactional logs for a given subscriber over a specified period of time across all the Kubernetes pods. It also supports the simultaneous monitoring of multiple subscribers on a given cluster. This information allows to track all the events that had occurred for a given subscriber when the subscriber was coming up or going down.

Monitor Protocol

The Monitor Protocol feature replicates the packets from different protocol endpoints of cnBNG and sends it to the OAM pod. There two levels of packet replication that occur:

- First replication dumps only the basic packet information
- Second replication dumps the full packet with details like headers, keys of subscriber, and so on.

This feature captures all ingress and egress packets on the cnBNG protocol pods.

Configuring Monitor Subscriber and Protocol

This section describes how to configure subscriber and protocol monitoring.

Configuring the Monitor Subscriber and Protocol feature involves the following procedures:

- Configuring Monitor Subscriber
- Configuring Monitor Protocol
- Copying Log Files
- Viewing Log Files

Configuring Monitor Subscriber

Use the following commands to enable the monitoring of a subscriber.

monitor subscriber supi *subcriber_id* **capture-duration** *duration_in_seconds*

NOTES:

- **supi** *subcriber_id* : Enables monitoring of subscribers based on the subscriber identifier (supi). For example: 0000.4096.3e4a.

  The subscriber-id format supported is as follows:

  <mac-adress>@<upf>: This specifies a particular subscriber with the given MAC address from a specific User Plane function (UPF).

  Wildcard subscriber-id is also supported. For example:

  - *@<upf>: This specifies all subscribers from a specific UPF.
  - <mac>@*: This specfies all subscribers having the given MAC and from any UPF.
  - *: This specifies all subscribers from all UPFs.

- **capture-duration** : Specifies the duration in seconds during which the monitor subscriber is enabled. The *duration_in_seconds* can range from 1 to 2147483647 seconds. The default is 300.
- Other sub-options that are present in the CLI command are not supported

Example

```
bng# monitor subscriber supi aabb.0000.0001@automation-userplane
supi: aabb.0000.0001@automation-userplane
captureDuraiton: 300
enableInternalMsg: false
enableTxnLog: false
namespace(deprecated. Use nf-service instead.): none
nf-service: none
gr-instance: 0
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   337  100   119  100   218  10818  19818 --:--:-- --:--:-- --:--:-- 30636
Command: --header Content-type:application/json --request POST --data
{"command":"mon_sub","params":{"supi":"aabb.0000.0001@automation-userplane","duration":300,"enableTxnLog":false,"enableInternalMsg":false,"action":"start","namespace":"none","nf-service":"none","grInstance":0}}
 http://oam-pod:8879/commands
Result start mon_sub, fileName
->logs/monsublogs/none.aabb.0000.0001@automation-userplane_TS_2021-06-09T12:17:33.838574118.txt
Starting to tail the monsub messages from file:
logs/monsublogs/none.aabb.0000.0001@automation-userplane_TS_2021-06-09T12:17:33.838574118.txt
Defaulting container name to oam-pod.
Use 'kubectl describe pod/oam-pod-0 -n bng' to see all of the containers in this pod.
      Subscriber Id: aabb.0000.0001@automation-userplane
      Timestamp: 2021/06/09 12:19:30.194843
      Message: BNGN4UdpProxyMessage
      Description: Received Packet IPOE, IPC Message from udp-proxy
      Source: bng.udp-proxy.DC.Local.0
      Destination: bng.bng-n4-protocol.DC.Local.0
      PAYLOAD:
        BNGN4UdpProxyMessage:
            BNGN4UdpProxyMessage:
                Type: 6
                L2Data:
                    SrcMac: aabb.0000.0001
                    DstMac: ffff.ffff.ffff
                    Outervlan: 100
                    Innervlan: 200
                    OuterCos: 0
                    InnerCos: 0
                IpAddr:
                    AfType: 1
                    SrcIpv4:
                    SrcIpv6:
                    DstIPv4: 8.8.8.8
                    DstIPv6:
                    LinkLocal:
                    Port: 8000
                UpData:
                    AccessInterface: GigabitEthernet0/0/0/1
                    CpSubscriberId: 0
                    UpSubscriberId: 0
                    UPSubInterfaceId: 0
                    RouterName: automation-userplane
                    AccessVrf: access-vrf-1
                    NASID: NAS-ID-1
                NasInfo:
                    Port: 4
```

```
                    Slot: 2
                    Adapter: 5
                    Subslot: 3
                    Chasis: 1
                    InterfaceType: 1
                L2TPData:
                    PuntPoliceRate: 0
                    L2TPTos: 0
                    TunnelID: 0
                Packet:
                    Payload:
                        BaseLayer:
                        Operation: 1
                        HardwareType: 1
                        HardwareLen: 6
                        HardwareOpts: 0
                        Xid: 1
                        Secs: 0
                        Flags: 32768
                        ClientIP: 0.0.0.0
                        YourClientIP: 0.0.0.0
                        NextServerIP: 0.0.0.0
                        RelayAgentIP: 0.0.0.0
                        ClientHWAddr: aa:bb:00:00:00:01
                        ServerName:
                        File:
                        Options: {
  Option(MessageType:Discover)
  Option(ClientID:[1 170 187 0 0 0 1])
}

--------------------------------------------------

      Subscriber Id: aabb.0000.0001@automation-userplane
      Timestamp: 2021/06/09 12:19:30.205174
      Message: RadiusUdpProxyMsg
      Description: Send Auth/Acct Request Message to UDP-Proxy
      Source: bng.radius-ep.DC.Local.0
      Destination: bng.udp-proxy.DC.Local.0
      PAYLOAD:
        RadiusUdpProxyMsg:
            RadiusUdpProxyMsg:
                SrcIp: 10.105.254.113
                SrcPort: 16384
                DestIp: 10.105.254.114
                DestPort: 1812
                Payload:
   Code = AccessRequest
   Id = 2
   Authenticator = [148 88 241 197 50 83 83 156 105 245 107 167 117 131 237 165]
   User-Name = "cnbng"
   User-Password = 0x30b19d11f96401290b6410e8a1b324eb
   NAS-IP-Address = 10.105.254.113
   NAS-Port = 16384
   Service-Type = 5
   Called-Station-Id = "1"
   Calling-Station-Id = "1"
   Nas-Identifier = "bng"
   Acct-Session-Id = "Local_DC_16777218"
   Event-Timestamp = 1623241161
   NAS-Port-Type = 41
   NAS-Port-Id = "124536"
   NAS-IPv6-Address = ::/0
   Cisco-Vsa_cisco-nas-port = "124536"
```

```
   Cisco-Vsa_cisco-dhcp-client-id = 0x01aabb00000001
   Cisco-Vsa_Cisco AVpair = "client-mac-address=aabb.0000.0001"
   Cisco-Vsa_Cisco AVpair = 0x646863702d636c69656e742d69643d01aabb00000001
               PayloadLen: 231
               SubscriberID: aabb.0000.0001@automation-userplane

-------------------------------------------------

      Subscriber Id: aabb.0000.0001@automation-userplane
      Timestamp: 2021/06/09 12:19:30.206778
      Message: RadiusUdpProxyMsg
      Description: Received Auth/Acct Response Message from UDP-Proxy
      Source: bng.udp-proxy.DC.Local.0
      Destination: bng.radius-ep.DC.Local.0
      PAYLOAD:
        RadiusUdpProxyMsg:
            RadiusUdpProxyMsg:
                SrcIp: 10.105.254.114
                SrcPort: 1812
                DestIp: 10.105.254.113
                DestPort: 16384
                Payload:
   Code = AccessAccept
   Id = 2
   Authenticator = [127 214 195 68 205 142 58 23 126 138 11 70 241 169 153 92]
               PayloadLen: 20

-------------------------------------------------

      Subscriber Id: aabb.0000.0001@automation-userplane
      Timestamp: 2021/06/09 12:19:30.216130
      Message: DHCPPacketTx
      Description: Sending Packet IPOE, IPC Message to udp-proxy
      Source: bng.bng-n4-protocol.DC.Local.0
      Destination: bng.udp-proxy.DC.Local.0
      PAYLOAD:
        DHCPPacketTx:
            DHCPPacketTx:
                Type: 6
                L2Data:
                    DstMac: ff:ff:ff:ff:ff:ff
                    Outervlan: 100
                    Innervlan: 200
                    OuterCos: 0
                    InnerCos: 0
                IpAddr:
                    AfType: 1
                    SrcIpv4: 33.0.0.1
                    SrcIpv6:
                    DstIPv4: 255.255.255.255
                    DstIPv6:
                    LinkLocal:
                    Port: 68
                UpData:
                    AccessInterface: GigabitEthernet0/0/0/1
                    CpSubscriberId: 16777218
                    UpSubscriberId: 0
                    UPSubInterfaceId: 0
                    RouterName: automation-userplane
                    AccessVrf: access-vrf-1
                    NASID: NAS-ID-1
                Packet:
                    Payload:
                        BaseLayer:
```

```
                        Operation: 2
                        HardwareType: 1
                        HardwareLen: 6
                        HardwareOpts: 0
                        Xid: 1
                        Secs: 0
                        Flags: 32768
                        ClientIP: 0.0.0.0
                        YourClientIP: 33.0.0.3
                        NextServerIP: 0.0.0.0
                        RelayAgentIP: 0.0.0.0
                        ClientHWAddr: aa:bb:00:00:00:01
                        ServerName:
                        File:
                        Options: {
  Option(MessageType:Offer)
  Option(ClientID:[1 170 187 0 0 0 1])
  Option(SubnetMask:255.255.224.0)
  Option(LeaseTime:90060)
  Option(Timer1:45030)
  Option(Timer2:78802)
  Option(ServerID:33.0.0.1)
}

-------------------------------------------------

      Subscriber Id: aabb.0000.0001@automation-userplane
      Timestamp: 2021/06/09 12:19:30.293167
      Message: BNGN4UdpProxyMessage
      Description: Received Packet IPOE, IPC Message from udp-proxy
      Source: bng.udp-proxy.DC.Local.0
      Destination: bng.bng-n4-protocol.DC.Local.0
      PAYLOAD:
        BNGN4UdpProxyMessage:
            BNGN4UdpProxyMessage:
                Type: 6
                L2Data:
                    SrcMac: aabb.0000.0001
                    DstMac: ffff.ffff.ffff
                    Outervlan: 100
                    Innervlan: 200
                    OuterCos: 0
                    InnerCos: 0
                IpAddr:
                    AfType: 1
                    SrcIpv4:
                    SrcIpv6:
                    DstIPv4: 8.8.8.8
                    DstIPv6:
                    LinkLocal:
                    Port: 8000
                UpData:
                    AccessInterface: GigabitEthernet0/0/0/1
                    CpSubscriberId: 0
                    UpSubscriberId: 0
                    UPSubInterfaceId: 0
                    RouterName: automation-userplane
                    AccessVrf: access-vrf-1
                    NASID: NAS-ID-1
                NasInfo:
                    Port: 4
                    Slot: 2
                    Adapter: 5
                    Subslot: 3
```

```
                        Chasis: 1
                        InterfaceType: 1
                    L2TPData:
                        PuntPoliceRate: 0
                        L2TPTos: 0
                        TunnelID: 0
                    Packet:
                        Payload:
                            BaseLayer:
                            Operation: 1
                            HardwareType: 1
                            HardwareLen: 6
                            HardwareOpts: 0
                            Xid: 1
                            Secs: 0
                            Flags: 32768
                            ClientIP: 0.0.0.0
                            YourClientIP: 0.0.0.0
                            NextServerIP: 0.0.0.0
                            RelayAgentIP: 0.0.0.0
                            ClientHWAddr: aa:bb:00:00:00:01
                            ServerName:
                            File:
                            Options: {
  Option(MessageType:Request)
  Option(ClientID:[1 170 187 0 0 0 1])
  Option(ServerID:33.0.0.1)
  Option(RequestIP:33.0.0.3)
}

--------------------------------------------------

      Subscriber Id: aabb.0000.0001@automation-userplane
      Timestamp: 2021/06/09 12:19:30.301343
      Message: BNGN4SessionEstablishmentReq
      Description: Sending N4 Session Establishment Request, IPC Message to udp-proxy
      Source: bng.bng-n4-protocol.DC.Local.0
      Destination: bng.udp-proxy.DC.Local.0
      PAYLOAD:
        BNGN4SessionEstablishmentReq:
            BNGN4SessionEstablishmentReq:
                PfcpSessionHeader:
                    Version: 1
                    SeidSet: true
                    MessageType: 50
                    MessageLen: 413
                    SequenceNumber: 5
                    Seid: 0
                    Priority: 1
                NodeID:
                    Valid: true
                    Ip: Afi=v4 Ip=10.105.254.113
                Fseid:
                    Valid: true
                    Seid: 16777218
                    Ipv4: 0.0.0.0
                    Ipv6:
                CreatePdrList:
                    CreatePdrList[0]:
                        Valid: true
                        PdrId:
                            Valid: true
                            RuleId: 1
                        Precedence:
```

```
                Valid: true
                Val: 1
            Pdi:
                Valid: true
                SrcIface:
                    Valid: true
                    Value: 1
                TrafficEndptId:
                    Valid: true
                    Val: 1
            FarId:
                Valid: true
                Val: 1
            OuterHeaderRemoval:
                Valid: false
                Description: 0
            UrrId:
                Valid: true
                Val: 1
        CreatePdrList[1]:
            Valid: true
            PdrId:
                Valid: true
                RuleId: 2
            Precedence:
                Valid: true
                Val: 1
            Pdi:
                Valid: true
                SrcIface:
                    Valid: true
                    Value: 2
                TrafficEndptId:
                    Valid: false
                    Val: 0
            FarId:
                Valid: true
                Val: 2
            OuterHeaderRemoval:
                Valid: false
                Description: 0
            UrrId:
                Valid: false
                Val: 0
    CreateFarList:
        CreateFarList[0]:
            Valid: true
            FarId:
                Valid: true
                Val: 1
            ApplyAction:
                Valid: true
                Drop: false
                Forward: true
                Buffer: false
                NotifyCP: false
                Duplicate: false
            ForwParams:
                Valid: true
                DestIface:
                    Valid: true
                    Value: 2
                OuterHeaderCreation:
                    Valid: true
```

```
                CprNSH: false
                TfEndpt: true
                L2tp: false
                Ppp: false
                TunnelID: 0
                SessionID: 0
        DuplParams:
            Valid: false
            DestIface:
                Valid: false
                Value: 0
            OuterHeaderCreation:
                Valid: false
                Teid: 0
                Ipv4:
                Ipv6:
                PortNum: 0
            IntrInfo:
                Valid: false
                InterceptId:
                    Valid: false
                Dscp:
                    Valid: false
                    Dscp: 0
    CreateFarList[1]:
        Valid: true
        FarId:
            Valid: true
            Val: 2
        ApplyAction:
            Valid: true
            Drop: false
            Forward: true
            Buffer: false
            NotifyCP: false
            Duplicate: false
        ForwParams:
            Valid: true
            DestIface:
                Valid: true
                Value: 1
            OuterHeaderCreation:
                Valid: true
                CprNSH: false
                TfEndpt: true
                L2tp: false
                Ppp: false
                TunnelID: 0
                SessionID: 0
        DuplParams:
            Valid: false
            DestIface:
                Valid: false
                Value: 0
            OuterHeaderCreation:
                Valid: false
                Teid: 0
                Ipv4:
                Ipv6:
                PortNum: 0
            IntrInfo:
                Valid: false
                InterceptId:
                    Valid: false
```

```
                Dscp:
                    Valid: false
                    Dscp: 0
CreateTrafficEndptList:
    CreateTrafficEndptList[0]:
        Valid: true
        Tfid:
            Valid: true
            Val: 1
        AccessPortId:
            Valid: true
            Value: GigabitEthernet0/0/0/1
        UeIPAddr:
            Valid: true
            Flags: 2
            Ipv4Addr: Afi=v4 Ip=33.0.0.3
            Ipv6Addr:
            IPv6PrefixLen: 0
            Ipv6PDAddr:
            Ipv6LLAddr:
        UeMacAddress: aa:bb:00:00:00:01
        PppoeSessId:
            Valid: false
            Value: 0
        AddressFamily:
            Valid: true
            Value: 3
        Cvlan:
            Valid: true
            Pcp: 0
            Dei: 0
            VlanId: 200
        Svaln:
            Valid: true
            Pcp: 0
            Dei: 0
            VlanId: 100
        L2tpTunnel:
            Valid: false
            TunnelEndpoint:
                Valid: false
                Choose: false
                LocalID: 0
                RemoteID: 0
            SessionID:
                Valid: false
                SessionID: 0
                RemoteSessionID: 0
            TunnelFeatures:
                Valid: false
                SetTOS: false
                ReflectTOS: false
                SetDF: false
                ReflectDF: false
                TcpMssAdjust: false
                TunnelStatsEnabled: false
                SessStatsEnabled: false
                TSI: false
                SSI: false
                TosVal: 0
                TcpMssVal: 0
                TunnelStatsInterval: 0
                SessStatsInterval: 0
SubParams:
```

```
        Valid: true
        Stype:
            Valid: true
            Value: 1
        SrgIntfId:
            Valid: false
            Value: 0
        SrgGrpId:
            Valid: false
            Value: 0
        Vrf:
            Valid: true
            Value: automation-vrf
        AccessVrf:
            Valid: false
    CreateURR:
        CreateURR[0]:
            Valid: true
            UrrID:
                Valid: true
                Val: 1
            MeasurementMethod:
                Valid: true
                Event: false
                Volume: true
                Duration: false
            Trigger:
                Valid: true
                PeriodicReporting: true
                VolumeThreshold: false
                TimeThreshold: false
                QuotaHoldingTime: false
                StartOfTraffic: false
                StopOfTraffic: false
                DroppedDlTrafficThreshold: false
                ImmediateReport: false
                VolumeQuota: false
                TimeQuota: false
                LinkedUsageReporting: false
                TerminationReport: true
                MonitoringTime: false
                EnvelopeClosure: false
                MacAddressReporting: false
                EventThreshold: false
                EventQuota: false
                TerminationByUP: false
            MeasurementPeriod:
                Valid: true
                Val: 1940
    Keepalive:
        Valid: false
        Tfid:
            Valid: false
            Val: 0
        Timer:
            Valid: false
            TimeInterval: 0
            RetryCount: 0
        MagicNum:
            Valid: false
            LocalMagicNum: 0
            PeerMagicNum: 0
    CreateQspList:
        CreateQspList[0]:
```

```
                Valid: true
                Service:
                    Valid: true
                    Length: 0
                    Value: automation-feature-template-accounting
                QosIngress:
                    Valid: true
                    Length: 0
                    Name: inpolicy
                    Priority: 0
                QosEgress:
                    Valid: true
                    Length: 0
                    Name: outpolicy
                    Priority: 0
                Stats:
                    Valid: true
                    Value: true
                Spi:
                    Valid: false
                    Value: 0
                PlainQos: false
            CreateACL:
                Valid: false
                Ipv4InACL:
                    Valid: false
                Ipv4OutACL:
                    Valid: false
                Ipv6InACL:
                    Valid: false
                Ipv6OutACL:
                    Valid: false
            CreatePBR:
                Valid: false
                PbrIngress:
                    Valid: false
                    Length: 0
            CreateuRPF:
                Valid: false
                Strictv4: false
                Strictv6: false
                Loosev4: false
                Loosev6: false
            CreateICMP:
                Valid: false
                V4: false
                V6: false
            RemoveICMP:
                Valid: false
                V4: false
                V6: false
            CreateMTU:
                Valid: true
                V4Mtu: 1400
                V6Mtu: 0
                PPPMtu: 0
            TransactionIdentifier:
                Valid: true
                Value: 1
-------------------------------------------------
```

Configuring Monitor Protocol

Use the following commands to enable protocol monitoring for a subscriber.

monitor protocol interface *pcap_interface* **capture-duration** *duration_in_seconds*

NOTES:

- **interface** *pcap_interface* : Specifies the packet capture (PCAP) interface. The valid PCAP interfaces are: Packet Forwarding Control Protocol (PFCP), GPRS Tunnelling Protocol User Plane (GTP-U), and Remote Authentication Dial-In User Service (RADIUS).
- **capture-duration** *duration_in_seconds* : Specifies the duration in seconds during which the monitor protocol is enabled. The *duration_in_seconds* can range from 1 to 2147483647 seconds. The default is 300.
- cnBNG uses a custom GTPU packet format. Therefore, packet decode errors are displayed on the screen because the standard decode plugin does not support the cnBNG format. Capture the packet to PCAP and use the cnBNG specific LUA plugin during Wireshark decode.
- Interface names must be entered manually and must match the name mentioned in the description, else the packet capture may fail.
- Only one physical-interface (NIC) packet capture is supported. For PFCP and GTPU this limitation is not applicable as they always run-on a single interface (VIP). However for RADIUS, certain deployments may use different VIPs for Auth/Acct/COA, leading to different physical NICs. Due to the infrastructure limitation, packet-capture can run on only one of the physical-NICs.

Example

monitor protocol interface pfcp

```
InterfaceName = N4:10.86.73.161:8805 |  InterfaceIP = 10.86.73.161 | Filter = (tcp or udp)
 and (port 8805)
<<<<OUTBOUND
from 10.86.73.161:8805 to 10.86.73.162:8805
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2019-10-22 09:22:34.029363 +0000 UTC CaptureLength:72 Length:72
 InterfaceIndex:2 AncillaryData:[]}

Packet Raw Bytes:

0050569c14610050569c8d5c08004500003a76c5400040111bff0a5649a10a5649a222652265002 6a8262006001a00000004003c0005000a5649a1001300010100600004e159480e

Packet Dump:
 -- FULL PACKET DATA (72 bytes) ------------------------------------
00000000  00 50 56 9c 14 61 00 50  56 9c 8d 5c 08 00 45 00
00000010  00 3a 76 c5 40 00 40 11  1b ff 0a 56 49 a1 0a 56
00000020  49 a2 22 65 22 65 00 26  a8 26 20 06 00 1a 00 00
00000030  00 04 00 3c 00 05 00 0a  56 49 a1 00 13 00 01 01
00000040  00 60 00 04 e1 59 48 0e
--- Layer 1 ---
Ethernet {Contents=[..14..] Payload=[..58..] SrcMAC=00:50:56:9c:8d:5c DstMAC=00:50:56:9c:14:61
 EthernetType=IPv4 Length=0}
00000000  00 50 56 9c 14 61 00 50  56 9c 8d 5c 08 00
--- Layer 2 ---
IPv4 {Contents=[..20..] Payload=[..38..] Version=4 IHL=5 TOS=0 Length=58 Id=30405 Flags=DF
 FragOffset=0 TTL=64 Protocol=UDP Checksum=7167 SrcIP=10.86.73.161 DstIP=10.86.73.162
Options=[] Padding=[]}
00000000  45 00 00 3a 76 c5 40 00  40 11 1b ff 0a 56 49 a1
```

```
00000010  0a 56 49 a2
--- Layer 3 ---
UDP {Contents=[..8..] Payload=[..30..] SrcPort=8805(pfcp) DstPort=8805(pfcp) Length=38
Checksum=43046}
00000000  22 65 22 65 00 26 a8 26                          |"e"e.&.&|
--- Layer 4 ---
Payload 30 byte(s)
00000000  20 06 00 1a 00 00 00 04  00 3c 00 05 00 0a 56 49
00000010  a1 00 13 00 01 01 00 60  00 04 e1 59 48 0e
```

Copying Log Files

Use the following commands to copy the stored log files externally or on the BNG Ops Center.

These files ether can be copied outside or dumped on the bng-opscenter using the following CLI command.

monitor subscriber-dump filename <file path got from monitor subscriber-list CLI>

Example:

```
monitor subscriber dump filename
/opt/workspace/logs/monsublogs/none.aabb.0000.0001@automation-userplane_TS_2021-06-09T12:17:33.838574118.txt.sorted
RELEASE_NAMESPACE: 'bng'
Dumping file
'/opt/workspace/logs/monsublogs/none.aabb.0000.0001@automation-userplane_TS_2021-06-09T12:17:33.838574118.txt.sorted'
**** Received 19 messages ******
      Subscriber Id: aabb.0000.0001@automation-userplane
      Timestamp: 2021/06/09 12:19:30.194843
      Message: BNGN4UdpProxyMessage
      Description: Received Packet IPOE, IPC Message from udp-proxy
      Source: bng.udp-proxy.DC.Local.0
      Destination: bng.bng-n4-protocol.DC.Local.0
      PAYLOAD:
        BNGN4UdpProxyMessage:
            BNGN4UdpProxyMessage:
                Type: 6
                L2Data:
                    SrcMac: aabb.0000.0001
                    DstMac: ffff.ffff.ffff
                    Outervlan: 100
                    Innervlan: 200
                    OuterCos: 0
                    InnerCos: 0
                IpAddr:
                    AfType: 1
                    SrcIpv4:
                    SrcIpv6:
                    DstIPv4: 8.8.8.8
                    DstIPv6:
                    LinkLocal:
                    Port: 8000
                UpData:
                    AccessInterface: GigabitEthernet0/0/0/1
                    CpSubscriberId: 0
                    UpSubscriberId: 0
                    UPSubInterfaceId: 0
                    RouterName: automation-userplane
                    AccessVrf: access-vrf-1
                    NASID: NAS-ID-1
                NasInfo:
                    Port: 4
                    Slot: 2
```

```
                    Adapter: 5
                    Subslot: 3
                    Chasis: 1
                    InterfaceType: 1
                L2TPData:
                    PuntPoliceRate: 0
                    L2TPTos: 0
                    TunnelID: 0
                Packet:
                    Payload:
                        BaseLayer:
                        Operation: 1
                        HardwareType: 1
                        HardwareLen: 6
                        HardwareOpts: 0
                        Xid: 1
                        Secs: 0
                        Flags: 32768
                        ClientIP: 0.0.0.0
                        YourClientIP: 0.0.0.0
                        NextServerIP: 0.0.0.0
                        RelayAgentIP: 0.0.0.0
                        ClientHWAddr: aa:bb:00:00:00:01
                        ServerName:
                        File:
                        Options: {
                                Option(MessageType:Discover)
                                Option(ClientID:[1 170 187 0 0 0 1]).

.


------------------------------------------------

      Subscriber Id: aabb.0000.0001@automation-userplane
      Timestamp: 2021/06/09 12:19:30.205174
      Message: RadiusUdpProxyMsg
      Description: Send Auth/Acct Request Message to UDP-Proxy
      Source: bng.radius-ep.DC.Local.0
      Destination: bng.udp-proxy.DC.Local.0
      PAYLOAD:
        RadiusUdpProxyMsg:
            RadiusUdpProxyMsg:
                SrcIp: 10.105.254.113
                SrcPort: 16384
                DestIp: 10.105.254.114
                DestPort: 1812
                Payload:


------------------------------------------------

      Subscriber Id: aa11.0000.0003@asr9k-1
      Timestamp: 2021/06/03 06:26:26.796023
      Message: RadiusUdpProxyMsg
      Description: Send Auth/Acct Request Message to UDP-Proxy
      Source: BNG.radius-ep.DC.Local.0
      Destination: BNG.udp-proxy.DC.Local.0
      PAYLOAD:
        RadiusUdpProxyMsg:
            RadiusUdpProxyMsg:
                SrcIp: 10.1.4.150
                SrcPort: 16384
                DestIp: 10.1.4.151
```

```
                DestPort: 1813
                Payload:
                        Code = AccountingRequest
                        Id = 31
                        Authenticator = [88 13 251 114 225 205 9 68 52 194 48 231 234 226
226 184]
                        User-Name = "cnbng"
                        NAS-IP-Address = 10.1.4.150
                        NAS-Port = 16384
                        Service-Type = 5
                        Framed-IP-Address = 1.0.3.13
                        Nas-Identifier = "CISCO-BNG-ACCT"
                        Acct-Status-Type = 1
                        Acct-Delay-Time = 0
                        Acct-Session-Id = "Local_DC_16777230"
                        Event-Timestamp = 1622701602
                        NAS-Port-Type = 41
                        Acct-Interim-Interval = 300
                        NAS-Port-Id = "asr9k-1/2/3/4/100.200"
                        NAS-IPv6-Address = ::/0
                        Cisco-Vsa_cisco-nas-port = "asr9k-1/2/3/4/100.200"
                        Cisco-Vsa_cisco-dhcp-client-id = 0x01aa1100000003
                        Cisco-Vsa_Cisco AVpair = "client-mac-address=aa11.0000.0003"
                        Cisco-Vsa_Cisco AVpair = "dhcp-class=RJIL_DHCPV4_CLASS_2"
                        Cisco-Vsa_Cisco AVpair = "dhcp-class=RJIL_DHCPv6_CLASS_1"
                        Cisco-Vsa_Cisco AVpair = "accounting-list=aaa-prof1"
                        Cisco-Vsa_Cisco AVpair =
0x646863702d636c69656e742d69643d01aa1100000003
                        Cisco-Vsa_Cisco AVpair = "vrf=ISP"
                PayloadLen: 396
                SubscriberID: aa11.0000.0003@asr9k-1

-------------------------------------------------

      Subscriber Id: aa11.0000.0003@asr9k-1
      Timestamp: 2021/06/03 06:26:26.800776
      Message: RadiusUdpProxyMsg
      Description: Received Auth/Acct Response Message from UDP-Proxy
      Source: BNG.udp-proxy.DC.Local.0
      Destination: BNG.radius-ep.DC.Local.0
      PAYLOAD:
        RadiusUdpProxyMsg:
            RadiusUdpProxyMsg:
                SrcIp: 10.1.4.151
                SrcPort: 1813
                DestIp: 10.1.4.150
                DestPort: 16384
                Payload:
                        Code = AccountingResponse
                        Id = 31
                        Authenticator = [168 192 147 70 117 31 151 16 237 80 68 105 42 191
 23 186]
                PayloadLen: 20

-------------------------------------------------
 bng#
```

Note

- While receiving CoA or DM packets, the RADIUS pod does not have the subscriber-information, instead the information is available only with the BNG-SM pod. Therefore, the packet related session programming N4-SESS-UPDATE TX and RX is dumped on the screen first followed by the CoA or DM TX and RX dump.
- Packet dumps are not captured for PFCP session report request and response.

Viewing Log Files

Use the following commands to view the stored log files for a monitor protocol or subscriber.

```
monitor subscriber list
monitor protocol list
```

The following is a sample output for the **monitor subscriber list**.

Example:

```
bng# monitor subscriber list
none.aa11.0000.0004*_TS_2021-06-03T06:28:13.564009704.txt.sorted
none.aa11.0000.0003@asr9k-1_TS_2021-06-03T06:26:20.627655233.txt.sorted
none.*_TS_2021-06-03T06:25:04.176857711.txt.sorted
bng#
```