Monitor Subscriber and Protocol Support

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Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Product(s) or Functional Area	cnSGW-C
Applicable Platform(s)	SMI
Feature Default Setting	Enabled – Configuration required to disable
Related Documentation	Not Applicable

Revision History

Table 2: Revision History

Revision Details	Release
First introduced.	2021.01.0

Feature Description

The cnSGW-C service supports the subscriber map and the operator policy configurations for the SGW service parameters.

Feature Configuration

Configuring this feature involves the following steps:

- Configure the monitor subscriber utility to trace messages related to a specified subscriber. For more information, refer to Configuring the Monitor Subscriber, on page 2.
- An example of the monitor subscriber utility. For more informatio, refer to Configuration Example, on page 3.
- Configure the monitor protocol utility to capture packets on a specified interface. For more informatio, refer toConfiguring the Monitor Protocol, on page 25.
- An example of the monitor protocol utility. For more informatio, refer to Configuration Example, on page 26.
- Configure the Request Response messages in the transaction logs. For more information, refer to Configuring the Transaction Messages, on page 37.
- An example of the transaction logs. For more information, refer to Configuration Example, on page 37.
- Access the monitor subscriber and protocol logs. For more information, refer to Accessing the Logs, on page 41

Configuring the Monitor Subscriber

To configure this feature use the following configuration:

```
exec
   monitor subscriber
      capture-duration capture_duration
      dump filename filename_value
      gr-instance gr_instance
      imei imei_value
      imsi imsi_value
      supi supi_value
      list subscriber_list
      internal-messages [ Yes | No ]
      transaction-logs [ Yes | No ]
      nf-service nf_service
      end
```

Note In 2021.02 and later releases, the namespace keyword is deprecated and replaced with nf-service.

NOTES:

- **capture-durationi** *capture_duration*—Specify the duration in seconds during which the monitor subscriber feature is enabled. The default value is 300 seconds.
- **supi** *supi_value*—Specify the subscriber identifier. For example, imsi-123456789 and imsi-123*

- **imsi** *imsi_value*—Specify the IMSI value. For example, 123456789 and *
- **imei** *imei_value*—Specify the IMEI value. For example, 123456789012345 and *
- **internal-messages [Yes | No]**—Configures internal messaging. When set to yes, the internal messaging is enabled. By default, the configuration is disabled.
- **transaction-logs [Yes | No]** —Configures transaction logging. By default, the configuration is disabled.

Note At any point, either the internal messages or the transaction logs are displayed.

- **nf-service** *nf_service*—Specify the NF service. The accepted services are sgw and smf. The default value is none.
- **gr-instance** *gr_instance*—Specify the GR instance that the cnSGW-C monitors the subscriber for.

Configuration Example

The following is an example configuration.

```
monitor subscriber imsi 123456789 capture-duration 100 internal-messages yes
monitor subscriber imsi 123456789 capture-duration 100 transaction-logs yes
```

Sample Output

The following is a sample output.

```
monitor subscriber imsi * namespace sgw
supi: imsi-*
captureDuraiton: 300
enableInternalMsg: false
enableTxnLog: false
namespace(deprecated. Use nf-service instead.): sgw
nf-service: none
gr-instance: 0
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   277  100    89  100   188   5235  11058 --:--:-- --:--:-- --:--:-- 16294
Command: --header Content-type:application/json --request POST --data
{"commandname":"mon_sub","parameters":{"supi":"imsi-*","duration":300,
"enableTxnLog":false,
"enableInternalMsg":false,"action":"start","namespace":"sgw","nf-service":"none",
"grInstance":0}}
http://oam-pod:8879/commands
Result start mon_sub, fileName ->
logs/monsublogs/sgw.imsi-*_TS_2021-08-15T12:36:17.569800845.txt
Starting to tail the monsub messages from file:
logs/monsublogs/sgw.imsi-*_TS_2021-08-15T12:36:17.569800845.txt
Defaulting container name to oam-pod.
Use 'kubectl describe pod/oam-pod-0 -n cn' to see all of the containers in this pod.
      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.288997
      Message: Sx Session Establishment Request
      Description: Sx Session Establishment Request Message from SGWC to SGWU
      Source: 209.165.201.19 (SGW.protocol.DC.Local.1)
      Destination: 209.165.201.20 (SGW.udp-proxy.DC.Local.0)
      PAYLOAD:
        Sx Session Establishment Request:
            Sx Session Establishment Request:
```

```
FSeid:
    Seid: 1297038098512740679
    IPv4Address: 209.165.201.19
CreatePdr:
    CreatePdr[0]:
        PdrId: 1
        Precedence: 0
        Pdi:
            SrcIf: CORE
            UeIp:
                Src: false
                Dst: false
                IPv4Addr: 209.165.201.30
            TEndpointId: 1
            Valid: true
        OuterHdrRem: 0
        FarId:
            FarId[0]: 1
        Qfi: 0
        OuterHdrRemValid: false
    CreatePdr[1]:
        PdrId: 2
        Precedence: 0
        Pdi:
            SrcIf: ACCESS
            UeIp:
                Src: false
                Dst: false
                IPv4Addr: 209.165.201.30
            TEndpointId: 2
            Valid: true
        OuterHdrRem: 0
        FarId:
            FarId[0]: 2
        Qfi: 0
        OuterHdrRemValid: false
CreateFar:
    CreateFar[0]:
        FarId: 1
        ApplyAction:
            Drop: true
            Frwd: false
            Buff: false
            Nocp: false
            Dupl: false
            Valid: true
        FwdParams:
            DestIf: ACCESS
            RedirectInfo:
                AddrType: 0
                Valid: false
            OuterHdr:
                OuterHdrDesc: 0
                Teid: 0
                IPv4Address: 209.165.201.30
                Port: 0
                Valid: false
            TEndptId: 2
            OuterPktTos: 255
            InnerPktTos: 255
            TosOpt:
                CopyInner: false
                CopyOuter: false
            SendTos: 0
```

```
            PfcpSmFlags:
                Drobu: false
                Qaurr: false
                Sndem: false
                Valid: false
            Valid: true
            NextHopId: 0
        DuplParams:
            DestIf: ACCESS
            OuterHdr:
                OuterHdrDesc: 0
                Teid: 0
                IPv4Address: 209.165.201.30
                Port: 0
                Valid: false
            InterceptInfo:
                InterceptId: 0
                ChargingId: 0
                SmfLiNodeId:
                    IpDesc: 0
                    IPv4Address: 209.165.201.30
                    Valid: false
                PduSessionId: 0
                Valid: false
            Valid: false
        BarId: 0
    CreateFar[1]:
        FarId: 2
        ApplyAction:
            Drop: true
            Frwd: false
            Buff: false
            Nocp: false
            Dupl: false
            Valid: true
        FwdParams:
            DestIf: CORE
            RedirectInfo:
                AddrType: 0
                Valid: false
            OuterHdr:
                OuterHdrDesc: 0
                Teid: 0
                IPv4Address: 209.165.201.30
                Port: 0
                Valid: false
            TEndptId: 1
            OuterPktTos: 255
            InnerPktTos: 255
            TosOpt:
                CopyInner: false
                CopyOuter: false
            SendTos: 0
            PfcpSmFlags:
                Drobu: false
                Qaurr: false
                Sndem: false
                Valid: false
            Valid: true
            NextHopId: 0
        DuplParams:
            DestIf: ACCESS
            OuterHdr:
                OuterHdrDesc: 0
```

```
                Teid: 0
                IPv4Address: 209.165.201.30
                Port: 0
                Valid: false
            InterceptInfo:
                InterceptId: 0
                ChargingId: 0
                SmfLiNodeId:
                    IpDesc: 0
                    IPv4Address: 209.165.201.30
                    Valid: false
                PduSessionId: 0
                Valid: false
            Valid: false
        BarId: 0
CreateTEndpt:
    CreateTEndpt[0]:
        EndpointId: 1
        FTeid:
            Teid: 0
            IPv4Address: 209.165.201.30
            ChooseId: 0
        BearerLvlInfo:
            Valid: 1
            Qci: 6
    CreateTEndpt[1]:
        EndpointId: 2
        FTeid:
            Teid: 0
            IPv4Address: 209.165.201.30
            ChooseId: 0
        BearerLvlInfo:
            Valid: 1
            Qci: 6
PdnType: 0
UplaneInacTimer: 0
MetaData: From:209.165.201.19:10665->To:209.165.201.20:8805
Supi:
Seid: 1297038098512740679
Seqno: 4252
Version: 0
MsgPriority: false
MsgPriorityVal: 0
Cmnid: 0
Rseid: 0
IntfType: 0
HdrLen: 0
MsgLen: 0
UserIDInfo:
    Imsi: 123456789012348
    Imei: 123456786666660
    Msisdn: 223310101010101
    Valid: true
XHeaderInfo:
    RatType:
    Valid: false
CfPolicyId:
    PolicyId: 0
    Valid: false
ChargingDisabled:
    Valid: false
    Value: false
ChargingParams:
    Valid: 0
```

```
                    GyOfflineChargingEnabled: 0
                NextHopIPv4: 0

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.371114
      Message: Sx Session Establishment Response
      Description: Sx Session Establishment Response Message from SGWU to SGWC
      Source: 209.165.201.20 (SGW.udp-proxy.DC.Local.0)
      Destination: 209.165.201.19 (SGW.protocol.DC.Local.1)
      PAYLOAD:
        Sx Session Establishment Response:
            Sx Session Establishment Response:
                Cause: 1
                OffendingIe: 0
                FSeid:
                    Seid: 10002
                    IPv4Address: 209.165.201.20
                CreatedTEndpt:
                    CreatedTEndpt[0]:
                        EndpointId: 1
                        FTeid:
                            Teid: 25270
                            IPv4Address: 209.165.201.1
                            ChooseId: 0
                    CreatedTEndpt[1]:
                        EndpointId: 2
                        FTeid:
                            Teid: 25271
                            IPv4Address: 209.165.200.226
                            ChooseId: 0
                MetaData: From:209.165.201.20:8805->To:209.165.201.19:10665
                Supi:
                Seid: 1297038098512740679
                Seqno: 4252
                Version: 0
                MsgPriority: false
                MsgPriorityVal: 0
                Cmnid: 0
                Rseid: 0
                IntfType: 0
                HdrLen: 0
                MsgLen: 0
                LoadControlInfo:
                    SeqNum: 0
                    Metric: 0
                    Valid: false
                OverloadControlInfo:
                    SeqNum: 0
                    Metric: 0
                    Ociflag: 0
                    Valid: false

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.377609
      Message: GtpEpDecodeRPCResponse
      Description:  2071
      Source:
      Destination:
      PAYLOAD:
```

```
-------------------------------------------------

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.379043
      Message: S5 S8 Create Session Request
      Description: S5 S8 Create Session Request Message
      Source: 209.165.201.19
      Destination: 209.165.201.18
      PAYLOAD:
        S5 S8 Create Session Request:
            S5 S8 Create Session Request:
                Version: 2
                Pflag: false
                TEIDflag: true
                MsgPriority: false
                MsgLength: 221
                TIED: 0
                Seq: 66683
                MsgTypeId: 32
                MsgPriorityValue: 0
                Peer_IPv4_Flag: false
                Peer_IPv6_Flag: false
                MetaData: From:209.165.201.19:15001->To:209.165.201.18:2123
                Seid: 0
                Rseid: 0
                Cmnid: 0
                MsgType:
                    Create_Session_Request:
                        IMSI: 123456789012348
                        Recovery:
                            Value: 0
                        APN: intershat
                        AMBR:  UL: 232323 kbps, DL: 232323 kbps
                        MEI: 123456786666660
                        MSISDN: 223310101010101
                        Indication:
                            DAF: false
                            DTF: false
                            HI: false
                            DFI: false
                            OI: false
                            ISRSI: false
                            ISRAI: false
                            SGWCI: false
                            SQCI: false
                            UIMSI: false
                            CFSI: false
                            CRSI: false
                            P: false
                            PT: false
                            SI: false
                            MSV: false
                            RetLoc: false
                            PBIC: false
                            SRNI: false
                            S6AF: false
                            S4AF: false
                            MBMDT: false
                            ISRAU: false
                            CCRSI: false
                            CPRAI: false
                            ARRL: false
                            PPOF: false
                            PPON_PPEI: false
```

```
    PPSI: false
    CSFBI: false
    CLII: false
    CPSR: false
    NSI: false
    UASI: false
    DTCI: false
    BDWI: false
    PSCI: false
    PCRI: false
    AOSI: false
    AOPI: false
    ROAAI: false
    EPCOSI: false
    CPOPCI: false
    PMTSMI: false
    S11TF: false
    PNSI: false
    UNACCSI: false
    WPMSI: false
    5GSIWK: false
    EEVRSI: false
    LTEMUI: false
    LTEMPI: false
    ENBCRSI: false
    TSPCMI: false
    PGBK: false
    PCPSI: false
    PCP: false
    PCPU: false
    N26_5GS: false
    RI_5GCN: false
    RS_5GCN: false
PAA:
    PDN_Type: 1
    IPv4: 209.165.201.30
    IPv6_Prefix: 0
RAT_Type:
    Value: 6
Serving_Network:
    MCC: 123
    MNC: 456
ULI:
    UliTai:  Mcc: 123, Mnc: 456, TAC: 2346
    UliEcgi:
        Mcc: 123
        Mnc: 456
        Eci: 1234567
FQ_TEID:
    SgwCntrl:
        IFace: 6
        TEID: 1375732039
        IPv4: 209.165.201.19
Bearer_Context_List:
    NumBearerCtxt: 1
    PbBearerCxt:
        PbBearerCxt[0]:
            BearerCtxType: 0
            EBI: 5
            Fqteid:
                SgwData:
                    IFace: 0
                    TEID: 25270
                    IPv4: 209.165.201.1
```

```
                                        BearerQos:
                                            PCI: true
                                            PL: 12
                                            PVI: true
                                            QCI: 6
                                            UL_MBR: 0 kbps
                                            DL_MBR: 0 kbps
                                            UL_GBR: 0 kbps
                                            DL_GBR: 0 kbps
                                            Arp: 113
                                            QciType: 0
                                    Charging_Characteristics:
                                        Value:
                                            Value[0]: 210
                                            Value[1]: 4
                                            Value[2]: 0
                                            Value[3]: 0
                                    PDN_Type:
                                        Value: 1
                                    UE_Time_Zone:
                                        Time_Zone: 16
                                        Daylight_Saving_Time: 1
                                    APN_Restriction:
                                        Value: 0
                                    Selection_Mode:
                                        Value: 0
                                    EPCO:
                                        Len: 5
                                        Value:
                                            Value[0]: 128
                                            Value[1]: 0
                                            Value[2]: 26
                                            Value[3]: 1
                                            Value[4]: 5

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/06/08 04:37:51.487884
      Message: GtpEpDecodeRPCResponse
      Description:  2071
      Source:
      Destination:
      PAYLOAD:

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/06/08 04:37:51.487884
      Message: GtpEpDecodeRPCIPCResponse
      Description:  2071
      Source:
      Destination:
      PAYLOAD:

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.475859
      Message: GtpEpDecodeRPCResponse
      Description:  2071
      Source:
      Destination:
      PAYLOAD:
```

```
-------------------------------------------------

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.476252
      Message: S5 S8 Create Session Response
      Description: S5 S8 Create Session Response Message
      Source: 209.165.201.18
      Destination: 209.165.201.19
      PAYLOAD:
        S5 S8 Create Session Response:
            S5 S8 Create Session Response:
                Version: 2
                Pflag: false
                TEIDflag: true
                MsgPriority: false
                MsgLength: 107
                TIED: 1375732039
                Seq: 66683
                MsgTypeId: 33
                MsgPriorityValue: 0
                Peer_IPv4_Flag: false
                Peer_IPv6_Flag: false
                MetaData: From:209.165.201.18:0->To:209.165.201.19:0
                Seid: 0
                Rseid: 0
                Cmnid: 0
                MsgType:
                    Create_Session_Response:
                        Cause:
                            Cause_Value: 16
                            PCE: false
                            BCE: false
                            OrigInd: false
                        Recovery:
                            Value: 100
                        AMBR:  UL: 10 kbps, DL: 20 kbps
                        PAA:
                            PDN_Type: 1
                            IPv4: 209.165.201.26
                            IPv6_Prefix: 0
                        FQ_TEID:
                            PgwCntrl:
                                IFace: 7
                                TEID: 13210
                                IPv4: 209.165.201.18
                        Bearer_Context_List:
                            NumBearerCtxt: 1
                            PbBearerCxt:
                                PbBearerCxt[0]:
                                    BearerCtxType: 0
                                    EBI: 5
                                    Cause:
                                        Cause_Value: 16
                                        PCE: false
                                        BCE: false
                                        OrigInd: false
                                    Fqteid:
                                        PgwData:
                                            IFace: 5
                                            TEID: 13211
                                            IPv4: 209.165.201.18
                                    ChrgId:
                                        Value: 303174163
```

```
                        APN_Restriction:
                            Value: 1

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.483195
      Message: Sx Session Modification Request
      Description: Sx Session Modification Request Message from SGWC to SGWU
      Source: 209.165.201.19 (SGW.protocol.DC.Local.2)
      Destination: 209.165.201.20 (SGW.udp-proxy.DC.Local.0)
      PAYLOAD:
        Sx Session Modification Request:
            Sx Session Modification Request:
                UpdatePdr:
                    UpdatePdr[0]:
                        PdrId: 1
                        OuterHdrRem: 0
                        Precedence: 0
                        Pdi:
                            SrcIf: ACCESS
                            UeIp:
                                Src: false
                                Dst: false
                                IPv4Addr: 209.165.201.30
                            TEndpointId: 0
                            Valid: false
                        Qfi: 0
                UpdateFar:
                    UpdateFar[0]:
                        FarId: 2
                        ApplyAction:
                            Drop: false
                            Frwd: true
                            Buff: false
                            Nocp: false
                            Dupl: false
                            Valid: true
                        UpdateFwdParams:
                            DestIf: ACCESS
                            RedirectInfo:
                                AddrType: 0
                                Valid: false
                            OuterHdr:
                                OuterHdrDesc: 256
                                Teid: 13211
                                IPv4Address: 209.165.201.18
                                Port: 0
                                Valid: true
                            TEndptId: 0
                            OuterPktTos: 0
                            InnerPktTos: 0
                            TosOpt:
                                CopyInner: false
                                CopyOuter: false
                            SendTos: 0
                            PfcpSmFlags:
                                Drobu: false
                                Qaurr: false
                                Sndem: false
                                Valid: false
                            Valid: true
                            NextHopId: 0
                        UpdateDuplParams:
```

```
                                DestIf: ACCESS
                                OuterHdr:
                                    OuterHdrDesc: 0
                                    Teid: 0
                                    IPv4Address: 209.165.201.30
                                    Port: 0
                                    Valid: false
                                InterceptInfo:
                                    InterceptId: 0
                                    ChargingId: 0
                                    SmfLiNodeId:
                                        IpDesc: 0
                                        IPv4Address: 209.165.201.30
                                        Valid: false
                                    PduSessionId: 0
                                    Valid: false
                                Valid: false
                            BarId: 0
                        UplaneInacTimer: 0
                        MetaData: From:209.165.201.19:10002->To:209.165.201.20:8805
                        Supi:
                        Seid: 1297038098512740679
                        Seqno: 4248
                        Version: 0
                        MsgPriority: false
                        MsgPriorityVal: 0
                        Cmnid: 0
                        Rseid: 10002
                        IntfType: 0
                        HdrLen: 0
                        MsgLen: 0
                        PfcpSmFlags:
                            Drobu: false
                            Qaurr: false
                            Sndem: false
                            Valid: false
                        UserIDInfo:
                            Valid: false
                        XHeaderInfo:
                            RatType:
                            Valid: false
                        CfPolicyId:
                            PolicyId: 0
                            Valid: false
                        GyStatus:
                            Valid: false
                            Value: false
                        ChargingDisabled:
                            Valid: false
                            Value: false
                        QueryInterface:
                            Valid: false
                            OfflineUrr: false
                            OnlineUrr: false
                            RadiusUrr: false
                            BearerUrr: false
                            SessUrr: false

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.549171
      Message: Sx Session Modification Response
      Description: Sx Session Modification Response Message from SGWU to SGWC
```

```
        Source: 209.165.201.20 (SGW.udp-proxy.DC.Local.0)
        Destination: 209.165.201.19 (SGW.protocol.DC.Local.2)
        PAYLOAD:
          Sx Session Modification Response:
              Sx Session Modification Response:
                  Cause: 1
                  OffendingIe: 0
                  LoadControlInfo:
                      SeqNum: 0
                      Metric: 0
                      Valid: false
                  OverloadControlInfo:
                      SeqNum: 0
                      Metric: 0
                      Ociflag: 0
                      Valid: false
                  MetaData: From:209.165.201.20:8805->To:209.165.201.19:10002
                  Supi:
                  Seid: 1297038098512740679
                  Seqno: 4248
                  Version: 1
                  MsgPriority: false
                  MsgPriorityVal: 0
                  Cmnid: 0
                  Rseid: 0
                  IntfType: 0
                  HdrLen: 17
                  MsgLen: 0

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

        Subscriber Id: imsi-123456789012348
        Timestamp: 2021/08/15 12:39:25.262224
        Message: S11 Create Session Request
        Description: S11 Create Session Request Message
        Source: 209.165.201.20
        Destination: 209.165.201.19
        PAYLOAD:
          S11 Create Session Request:
              S11 Create Session Request:
                  Version: 2
                  Pflag: false
                  TEIDflag: true
                  MsgPriority: false
                  MsgLength: 223
                  TIED: 0
                  Seq: 5842
                  MsgTypeId: 32
                  MsgPriorityValue: 0
                  Peer_IPv4_Flag: false
                  Peer_IPv6_Flag: false
                  MetaData: From:209.165.201.20:2123->To:209.165.201.19:2123
                  Seid: 0
                  Rseid: 0
                  Cmnid: 0
                  MsgType:
                      Create_Session_Request:
                          IMSI: 123456789012348
                          Recovery:
                              Value: 100
                          APN: intershat
                          AMBR:  UL: 232323 kbps, DL: 232323 kbps
                          MEI: 123456786666660
                          MSISDN: 223310101010101
```

```
Indication:
    DAF: false
    DTF: false
    HI: false
    DFI: false
    OI: false
    ISRSI: false
    ISRAI: false
    SGWCI: false
    SQCI: false
    UIMSI: false
    CFSI: false
    CRSI: false
    P: false
    PT: false
    SI: false
    MSV: false
    RetLoc: false
    PBIC: false
    SRNI: false
    S6AF: false
    S4AF: false
    MBMDT: false
    ISRAU: false
    CCRSI: false
    CPRAI: false
    ARRL: false
    PPOF: false
    PPON_PPEI: false
    PPSI: false
    CSFBI: false
    CLII: false
    CPSR: false
    NSI: false
    UASI: false
    DTCI: false
    BDWI: false
    PSCI: false
    PCRI: false
    AOSI: false
    AOPI: false
    ROAAI: false
    EPCOSI: false
    CPOPCI: false
    PMTSMI: false
    S11TF: false
    PNSI: false
    UNACCSI: false
    WPMSI: false
    5GSIWK: false
    EEVRSI: false
    LTEMUI: false
    LTEMPI: false
    ENBCRSI: false
    TSPCMI: false
    PGBK: false
    PCPSI: false
    PCP: false
    PCPU: false
    N26_5GS: false
    RI_5GCN: false
    RS_5GCN: false
PAA:
    PDN_Type: 1
```

```
    IPv4: 209.165.201.30
    IPv6_Prefix: 0
RAT_Type:
    Value: 6
Serving_Network:
    MCC: 123
    MNC: 456
ULI:
    UliTai:  Mcc: 123, Mnc: 456, TAC: 2346
    UliEcgi:
        Mcc: 123
        Mnc: 456
        Eci: 1234567
FQ_TEID:
    MmeCntrl:
        IFace: 10
        TEID: 25269
        IPv4: 209.165.201.20
    PgwCntrl:
        IFace: 7
        TEID: 0
        IPv4: 209.165.201.18
Bearer_Context_List:
    NumBearerCtxt: 1
    PbBearerCxt:
        PbBearerCxt[0]:
            BearerCtxType: 0
            EBI: 5
            Fqteid:
            BearerQos:
                PCI: true
                PL: 12
                PVI: true
                QCI: 6
                UL_MBR: 0 kbps
                DL_MBR: 0 kbps
                UL_GBR: 0 kbps
                DL_GBR: 0 kbps
                Arp: 113
                QciType: 0
Charging_Characteristics:
    Value:
        Value[0]: 210
        Value[1]: 4
        Value[2]: 0
        Value[3]: 0
PDN_Type:
    Value: 1
UE_Time_Zone:
    Time_Zone: 16
    Daylight_Saving_Time: 1
APN_Restriction:
    Value: 0
Selection_Mode:
    Value: 0
EPCO:
    Len: 5
    Value:
        Value[0]: 128
        Value[1]: 0
        Value[2]: 26
        Value[3]: 1
        Value[4]: 5
```

```
-------------------------------------------------

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.568954
      Message: GtpEpDecodeRPCResponse
      Description:  258
      Source:
      Destination:
      PAYLOAD:

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.569939
      Message: S11 Create Session Response
      Description: S11 Create Session Response Message
      Source: 209.165.201.19
      Destination: 209.165.201.20
      PAYLOAD:
        S11 Create Session Response:
            S11 Create Session Response:
                Version: 2
                Pflag: false
                TEIDflag: true
                MsgPriority: false
                MsgLength: 120
                TIED: 25269
                Seq: 5842
                MsgTypeId: 33
                MsgPriorityValue: 0
                Peer_IPv4_Flag: false
                Peer_IPv6_Flag: false
                MetaData: From:209.165.201.19:2123->To:209.165.201.20:2123
                Seid: 0
                Rseid: 0
                Cmnid: 0
                MsgType:
                    Create_Session_Response:
                        Cause:
                            Cause_Value: 16
                            PCE: false
                            BCE: false
                            OrigInd: false
                        Recovery:
                            Value: 0
                        AMBR:  UL: 10 kbps, DL: 20 kbps
                        PAA:
                            PDN_Type: 1
                            IPv4: 209.165.201.26
                            IPv6_Prefix: 0
                        FQ_TEID:
                            PgwCntrl:
                                IFace: 7
                                TEID: 13210
                                IPv4: 209.165.201.18
                            SgwCntrl:
                                IFace: 11
                                TEID: 301990215
                                IPv4: 209.165.201.19
                        Bearer_Context_List:
                            NumBearerCtxt: 1
                            PbBearerCxt:
                                PbBearerCxt[0]:
                                    BearerCtxType: 0
```

```
                                        EBI: 5
                                        Cause:
                                            Cause_Value: 16
                                            PCE: false
                                            BCE: false
                                            OrigInd: false
                                        Fqteid:
                                            PgwData:
                                                IFace: 5
                                                TEID: 13211
                                                IPv4: 209.165.201.18
                                            SgwData:
                                                IFace: 1
                                                TEID: 25271
                                                IPv4: 209.165.200.226
                                        ChrgId:
                                            Value: 303174163
                                APN_Restriction:
                                    Value: 1

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.570132
      Message: S11 Create Session Response
      Description: S11 Create Session Response Message
      Source: 209.165.201.19
      Destination: 209.165.201.20
      PAYLOAD:
        S11 Create Session Response:
            S11 Create Session Response:
                Version: 2
                Pflag: false
                TEIDflag: true
                MsgPriority: false
                MsgLength: 120
                TIED: 25269
                Seq: 5842
                MsgTypeId: 33
                MsgPriorityValue: 0
                Peer_IPv4_Flag: false
                Peer_IPv6_Flag: false
                MetaData: From:209.165.201.19:2123->To:209.165.201.20:2123
                Seid: 0
                Rseid: 0
                Cmnid: 0
                MsgType:
                    Create_Session_Response:
                        Cause:
                            Cause_Value: 16
                            PCE: false
                            BCE: false
                            OrigInd: false
                        Recovery:
                            Value: 0
                        AMBR:  UL: 10 kbps, DL: 20 kbps
                        PAA:
                            PDN_Type: 1
                            IPv4: 209.165.201.26
                            IPv6_Prefix: 0
                        FQ_TEID:
                            PgwCntrl:
                                IFace: 7
                                TEID: 13210
```

```
                                    IPv4: 209.165.201.18
                                SgwCntrl:
                                    IFace: 11
                                    TEID: 301990215
                                    IPv4: 209.165.201.19
                            Bearer_Context_List:
                                NumBearerCtxt: 1
                                PbBearerCxt:
                                    PbBearerCxt[0]:
                                        BearerCtxType: 0
                                        EBI: 5
                                        Cause:
                                            Cause_Value: 16
                                            PCE: false
                                            BCE: false
                                            OrigInd: false
                                        Fqteid:
                                            PgwData:
                                                IFace: 5
                                                TEID: 13211
                                                IPv4: 209.165.201.18
                                            SgwData:
                                                IFace: 1
                                                TEID: 25271
                                                IPv4: 209.165.200.226
                                        ChrgId:
                                            Value: 303174163
                            APN_Restriction:
                                Value: 1

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.652708
      Message: Sx Session Modification Request
      Description: Sx Session Modification Request Message from SGWC to SGWU
      Source: 209.165.201.19 (SGW.protocol.DC.Local.0)
      Destination: 209.165.201.20 (SGW.udp-proxy.DC.Local.0)
      PAYLOAD:
        Sx Session Modification Request:
            Sx Session Modification Request:
                UpdatePdr:
                    UpdatePdr[0]:
                        PdrId: 2
                        OuterHdrRem: 0
                        Precedence: 0
                        Pdi:
                            SrcIf: ACCESS
                            UeIp:
                                Src: false
                                Dst: false
                                IPv4Addr: 209.165.201.30
                            TEndpointId: 0
                            Valid: false
                        Qfi: 0
                UpdateFar:
                    UpdateFar[0]:
                        FarId: 1
                        ApplyAction:
                            Drop: false
                            Frwd: true
                            Buff: false
                            Nocp: false
                            Dupl: false
```

```
                Valid: true
            UpdateFwdParams:
                DestIf: ACCESS
                RedirectInfo:
                    AddrType: 0
                    Valid: false
                OuterHdr:
                    OuterHdrDesc: 256
                    Teid: 25272
                    IPv4Address: 209.165.201.20
                    Port: 0
                    Valid: true
                TEndptId: 0
                OuterPktTos: 0
                InnerPktTos: 0
                TosOpt:
                    CopyInner: false
                    CopyOuter: false
                SendTos: 0
                PfcpSmFlags:
                    Drobu: false
                    Qaurr: false
                    Sndem: false
                    Valid: false
                Valid: true
                NextHopId: 0
            UpdateDuplParams:
                DestIf: ACCESS
                OuterHdr:
                    OuterHdrDesc: 0
                    Teid: 0
                    IPv4Address: 209.165.201.30
                    Port: 0
                    Valid: false
                InterceptInfo:
                    InterceptId: 0
                    ChargingId: 0
                    SmfLiNodeId:
                        IpDesc: 0
                        IPv4Address: 209.165.201.30
                        Valid: false
                    PduSessionId: 0
                    Valid: false
                Valid: false
            BarId: 0
UplaneInacTimer: 0
MetaData: From:209.165.201.19:13486->To:209.165.201.20:8805
Supi:
Seid: 1297038098512740679
Seqno: 4245
Version: 0
MsgPriority: false
MsgPriorityVal: 0
Cmnid: 0
Rseid: 10002
IntfType: 0
HdrLen: 0
MsgLen: 0
PfcpSmFlags:
    Drobu: false
    Qaurr: false
    Sndem: false
    Valid: false
UserIDInfo:
```

```
                    Valid: false
                XHeaderInfo:
                    RatType:
                    Valid: false
                CfPolicyId:
                    PolicyId: 0
                    Valid: false
                GyStatus:
                    Valid: false
                    Value: false
                ChargingDisabled:
                    Valid: false
                    Value: false
                QueryInterface:
                    Valid: false
                    OfflineUrr: false
                    OnlineUrr: false
                    RadiusUrr: false
                    BearerUrr: false
                    SessUrr: false

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.713891
      Message: Sx Session Modification Response
      Description: Sx Session Modification Response Message from SGWU to SGWC
      Source: 209.165.201.20 (SGW.udp-proxy.DC.Local.0)
      Destination: 209.165.201.19 (SGW.protocol.DC.Local.0)
      PAYLOAD:
        Sx Session Modification Response:
            Sx Session Modification Response:
                Cause: 1
                OffendingIe: 0
                LoadControlInfo:
                    SeqNum: 0
                    Metric: 0
                    Valid: false
                OverloadControlInfo:
                    SeqNum: 0
                    Metric: 0
                    Ociflag: 0
                    Valid: false
                MetaData: From:209.165.201.20:8805->To:209.165.201.19:13486
                Supi:
                Seid: 1297038098512740679
                Seqno: 4245
                Version: 1
                MsgPriority: false
                MsgPriorityVal: 0
                Cmnid: 0
                Rseid: 0
                IntfType: 0
                HdrLen: 17
                MsgLen: 0

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.640179
      Message: S11 Modify Bearer Request
      Description: S11 Modify Bearer Request Message
      Source: 209.165.201.20
      Destination: 209.165.201.19
```

```
PAYLOAD:
  S11 Modify Bearer Request:
      S11 Modify Bearer Request:
          Version: 2
          Pflag: false
          TEIDflag: true
          MsgPriority: false
          MsgLength: 58
          TIED: 301990215
          Seq: 5843
          MsgTypeId: 34
          MsgPriorityValue: 0
          Peer_IPv4_Flag: false
          Peer_IPv6_Flag: false
          MetaData: From:209.165.201.20:2123->To:209.165.201.19:2123
          Seid: 0
          Rseid: 0
          Cmnid: 0
          MsgType:
              Modify_Bearer_Request:
                  RAT_Type:
                      Value: 6
                  Indication:
                      DAF: false
                      DTF: false
                      HI: false
                      DFI: false
                      OI: false
                      ISRSI: false
                      ISRAI: false
                      SGWCI: false
                      SQCI: false
                      UIMSI: false
                      CFSI: false
                      CRSI: false
                      P: false
                      PT: false
                      SI: false
                      MSV: false
                      RetLoc: false
                      PBIC: false
                      SRNI: false
                      S6AF: false
                      S4AF: false
                      MBMDT: false
                      ISRAU: false
                      CCRSI: false
                      CPRAI: false
                      ARRL: false
                      PPOF: false
                      PPON_PPEI: false
                      PPSI: false
                      CSFBI: false
                      CLII: false
                      CPSR: false
                      NSI: false
                      UASI: false
                      DTCI: false
                      BDWI: false
                      PSCI: false
                      PCRI: false
                      AOSI: false
                      AOPI: false
                      ROAAI: false
```

```
                                    EPCOSI: false
                                    CPOPCI: false
                                    PMTSMI: false
                                    S11TF: false
                                    PNSI: false
                                    UNACCSI: false
                                    WPMSI: false
                                    5GSIWK: false
                                    EEVRSI: false
                                    LTEMUI: false
                                    LTEMPI: false
                                    ENBCRSI: false
                                    TSPCMI: false
                                    PGBK: false
                                    PCPSI: false
                                    PCP: false
                                    PCPU: false
                                    N26_5GS: false
                                    RI_5GCN: false
                                    RS_5GCN: false
                                FQ_TEID:
                                DelayValue:
                                    Value: 0
                                Recovery:
                                    Value: 100
                                Bearer_Context_List:
                                    NumBearerCtxt: 1
                                    PbBearerCxt:
                                        PbBearerCxt[0]:
                                            BearerCtxType: 0
                                            EBI: 5
                                            Fqteid:
                                                ENbData:
                                                    IFace: 0
                                                    TEID: 25272
                                                    IPv4: 209.165.201.20

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.729811
      Message: S11 Modify Bearer Response
      Description: S11 Modify Bearer Response Message
      Source: 209.165.201.19
      Destination: 209.165.201.20
      PAYLOAD:
        S11 Modify Bearer Response:
            S11 Modify Bearer Response:
                Version: 2
                Pflag: false
                TEIDflag: true
                MsgPriority: false
                MsgLength: 42
                TIED: 25269
                Seq: 5843
                MsgTypeId: 35
                MsgPriorityValue: 0
                Peer_IPv4_Flag: false
                Peer_IPv6_Flag: false
                MetaData: From:209.165.201.19:2123->To:209.165.201.20:2123
                Seid: 0
                Rseid: 0
                Cmnid: 0
                MsgType:
```

```
                        Modify_Bearer_Response:
                            Cause:
                                Cause_Value: 16
                                PCE: false
                                BCE: false
                                OrigInd: false
                            Bearer_Context_List:
                                NumBearerCtxt: 1
                                PbBearerCxt:
                                    PbBearerCxt[0]:
                                        BearerCtxType: 0
                                        EBI: 5
                                        Cause:
                                            Cause_Value: 16
                                            PCE: false
                                            BCE: false
                                            OrigInd: false
                                        Fqteid:
                                            SgwData:
                                                IFace: 1
                                                TEID: 25271
                                                IPv4: 209.165.200.226

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

      Subscriber Id: imsi-123456789012348
      Timestamp: 2021/08/15 12:39:25.730371
      Message: S11 Modify Bearer Response
      Description: S11 Modify Bearer Response Message
      Source: 209.165.201.19
      Destination: 209.165.201.20
      PAYLOAD:
        S11 Modify Bearer Response:
            S11 Modify Bearer Response:
                Version: 2
                Pflag: false
                TEIDflag: true
                MsgPriority: false
                MsgLength: 42
                TIED: 25269
                Seq: 5843
                MsgTypeId: 35
                MsgPriorityValue: 0
                Peer_IPv4_Flag: false
                Peer_IPv6_Flag: false
                MetaData: From:209.165.201.19:2123->To:209.165.201.20:2123
                Seid: 0
                Rseid: 0
                Cmnid: 0
                MsgType:
                    Modify_Bearer_Response:
                        Cause:
                            Cause_Value: 16
                            PCE: false
                            BCE: false
                            OrigInd: false
                        Bearer_Context_List:
                            NumBearerCtxt: 1
                            PbBearerCxt:
                                PbBearerCxt[0]:
                                    BearerCtxType: 0
                                    EBI: 5
                                    Cause:
                                        Cause_Value: 16
```

```
                                        PCE: false
                                        BCE: false
                                        OrigInd: false
                                    Fqteid:
                                        SgwData:
                                            IFace: 1
                                            TEID: 25271
                                            IPv4: 209.165.200.226

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

command terminated with exit code 124
  % Total    % Received % Xferd  Average Speed   Time
Time     Time  Current
                                 Dload  Upload   Total
Spent    Left  Speed
100   222  100    35  100   187   4375  23375
--:--:-- --:--:-- --:--:-- 27750
Stop Response Disabled mon_sub as part of timeout for
Cmd: --header Content-type:application/json --request
POST --data
{"commandname":"mon_sub","parameters":{"supi":"imsi-*","duration":300,
"enableTxnLog":false,"enableInternalMsg":false,"action":"stop","namespace":
"sgw","nf-service":"none","grInstance":0}}
http://oam-pod:8879/commands
```

Configuring the Monitor Protocol

To configure this feature, use the following configuration:

```
exec
   monitor protocol interface interface
      capture-duration capture_duration
      pcap [ Yes | No ]
      gr-instance gr_instance
      end
```

NOTES:

- **monitor protocol interface** *interface*—Specify the interface on which PCAP is captured. For example, sbi, pfcp, gtpu, gtpc, gtp, and radius.
- **capture-duration** *capture_duration*—Specify the duration in seconds during which PCAP is captured. The default value is 300 seconds.
- **pcap [Yes | No]** —Configures the PCAP file generation. By default, the pcap feature is disabled.
- **gr-instance** *gr_instance*—Specify the GR instance that the cnSGW-C monitors the subscriber for.

Note If the GTP endpoint IPs are the same on S5e and S11 interfaces, the protocol output is inconsistent and displays S11 for the S5 interface on which the message is received. The following is a sample of an endpoint configuration:

```
instance instance-id 1 endpoint gtp replicas 3 interface s5e vip-ip 209.165.201.22
instance instance-id 1 endpoint gtp replicas 3 interface s11 vip-ip 209.165.201.22
```

Configuration Example

The following is an example configuration.

```
monitor protocol interface pfcp,gtpc capture-duration 100 pcap yes
```

Sample Output

The following is a sample output.

```
monitor protocol interface pcfp,gtpc capture-duration 100 pcap yes
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   231  100   101  100   130   6733   8666 --:--:-- --:--:-- --:--:-- 15400
Command: --header Content-type:application/json --request POST --data
{"commandname":"mon_pro","parameters":{"interface":"pcfp, gtpc","duration"
:100,"action":"start","enable_pcap": true,"grInstance":0}} http://oam-pod:8879/commands
Result start mon_pro, fileName -> logs/monprologs/sessintfname_pcfp,
gtpc_at_2021-06-06T06:15:39.005414271.txt
Starting to tail the monpro messages from file: logs/monprologs/sessintfname_pcfp,
gtpc_at_2021-06-06T06:15:39.005414271.txt
Defaulting container name to oam-pod.
Use 'kubectl describe pod/oam-pod-0 -n cn' to see all of the containers in this pod.
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15002 to 209.165.200.228:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:00.373101 +0000 UTC CaptureLength:59
Length:59 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
000400010006005056c09590800452800 2dcc0e4000401
155510a01029c0a01029b3a9a084b0019196348630000d000008d0
020175004900010005

Packet Dump:
 -- FULL PACKET DATA (59 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 2d cc 0e 40 00 40 11  55 51 0a 01 02 9c 0a 01  |.-..@.@.UQ......|
00000020  02 9b 3a 9a 08 4b 00 19  19 63 48 63 00 0d 00 00  |..:..K...cHc....|
00000030  08 d0 02 01 75 00 49 00  01 00 05                 |....u.I....|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..45..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..25..] Version=4 IHL=5 TOS=40 Length=45
Id=52238 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=21841 SrcIP=209.165.200.229 DstIP=209.165.200.228 Options=[] Padding=[]}
00000000  45 28 00 2d cc 0e 40 00  40 11 55 51 0a 01 02 9c  |E(.-..@.@.UQ....|
00000010  0a 01 02 9b                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..17..] SrcPort=15002 DstPort=2123(gtp-control)
Length=25 Checksum=6499}
00000000  3a 9a 08 4b 00 19 19 63                           |:..K...c|
--- Layer 4 ---
Payload 17 byte(s)
00000000  48 63 00 0d 00 00 08 d0  02 01 75 00 49 00 01 00  |Hc........u.I...|
00000010  05                                                |.|


--------------------------------------------------------------------
```

```
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15000 to 209.165.200.227:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:00.373236 +0000 UTC CaptureLength:72
Length:72 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c095908004528003a9af
c4000401186570a01029c0a01029a3a98084b0026196f 4824001a0000074a
00014f00490001000557000900865100000970a01029c

Packet Dump:
 -- FULL PACKET DATA (72 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 3a 9a fc 40 00 40 11  86 57 0a 01 02 9c 0a 01  |.:..@.@..W......|
00000020  02 9a 3a 98 08 4b 00 26  19 6f 48 24 00 1a 00 00  |..:..K.&.oH$....|
00000030  07 4a 00 01 4f 00 49 00  01 00 05 57 00 09 00 86  |.J..O.I....W....|
00000040  51 00 00 97 0a 01 02 9c                           |Q.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..58..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..38..] Version=4 IHL=5 TOS=40 Length=58
Id=39676 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=34391 SrcIP=209.165.200.229 DstIP=209.165.200.227 Options=[] Padding=[]}
00000000  45 28 00 3a 9a fc 40 00  40 11 86 57 0a 01 02 9c  |E(.:..@.@..W....|
00000010  0a 01 02 9a                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..30..] SrcPort=15000(hydap) DstPort=2123(gtp-control)
Length=38 Checksum=6511}
00000000  3a 98 08 4b 00 26 19 6f                           |:..K.&.o|
--- Layer 4 ---
Payload 30 byte(s)
00000000  48 24 00 1a 00 00 07 4a  00 01 4f 00 49 00 01 00  |H$.....J..O.I...|
00000010  05 57 00 09 00 86 51 00  00 97 0a 01 02 9c        |.W....Q.......|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15000 to 209.165.200.227:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:02.462216 +0000 UTC CaptureLength:72
Length:72 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c095908004528003a9cdc4000401184770a01029c0a
01029a3a98084b0026196f4824001a0000074a00014f00490001000557000900865100000970a01029c

Packet Dump:
 -- FULL PACKET DATA (72 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 3a 9c dc 40 00 40 11  84 77 0a 01 02 9c 0a 01  |.:..@.@..w......|
00000020  02 9a 3a 98 08 4b 00 26  19 6f 48 24 00 1a 00 00  |..:..K.&.oH$....|
00000030  07 4a 00 01 4f 00 49 00  01 00 05 57 00 09 00 86  |.J..O.I....W....|
00000040  51 00 00 97 0a 01 02 9c                           |Q.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..58..] SrcMAC=00:50:56:9c:09:59
```

```
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..38..] Version=4 IHL=5 TOS=40 Length=58
Id=40156 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=33911 SrcIP=209.165.200.229 DstIP=209.165.200.227 Options=[] Padding=[]}
00000000  45 28 00 3a 9c dc 40 00  40 11 84 77 0a 01 02 9c  |E(.:..@.@..w....|
00000010  0a 01 02 9a                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..30..] SrcPort=15000(hydap) DstPort=2123(gtp-control)
Length=38 Checksum=6511}
00000000  3a 98 08 4b 00 26 19 6f                          |:..K.&.o|
--- Layer 4 ---
Payload 30 byte(s)
00000000  48 24 00 1a 00 00 07 4a  00 01 4f 00 49 00 01 00  |H$.....J..O.I...|
00000010  05 57 00 09 00 86 51 00  00 97 0a 01 02 9c        |.W....Q.......|


------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15000 to 209.165.200.227:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:04.563024 +0000 UTC CaptureLength:72
Length:72 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
000400010006005056c09590800452800 3a9e4740004011830c0a01029c0a01029a3a98084b
0026196f4824001a0000074a00014f00490001000557000900865100009 70a01029c

Packet Dump:
 -- FULL PACKET DATA (72 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 3a 9e 47 40 00 40 11  83 0c 0a 01 02 9c 0a 01  |.:.G@.@.........|
00000020  02 9a 3a 98 08 4b 00 26  19 6f 48 24 00 1a 00 00  |..:..K.&.oH$....|
00000030  07 4a 00 01 4f 00 49 00  01 00 05 57 00 09 00 86  |.J..O.I....W....|
00000040  51 00 00 97 0a 01 02 9c                          |Q.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..58..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..38..] Version=4 IHL=5 TOS=40 Length=58
Id=40519 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=33548 SrcIP=209.165.200.229 DstIP=209.165.200.227 Options=[] Padding=[]}
00000000  45 28 00 3a 9e 47 40 00  40 11 83 0c 0a 01 02 9c  |E(.:.G@.@.......|
00000010  0a 01 02 9a                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..30..] SrcPort=15000(hydap)
DstPort=2123(gtp-control) Length=38 Checksum=6511}
00000000  3a 98 08 4b 00 26 19 6f                          |:..K.&.o|
--- Layer 4 ---
Payload 30 byte(s)
00000000  48 24 00 1a 00 00 07 4a  00 01 4f 00 49 00 01 00  |H$.....J..O.I...|
00000010  05 57 00 09 00 86 51 00  00 97 0a 01 02 9c        |.W....Q.......|


------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
```

```
from 209.165.200.229:15000 to 209.165.200.227:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:06.662105 +0000 UTC CaptureLength:72
Length:72 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c095908004528003a9eb440004011829f0a01029c0a01029a3a
98084b0026196f4824001a0000074a00014f00490001000557000900865100000970a01029c

Packet Dump:
 -- FULL PACKET DATA (72 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 3a 9e b4 40 00 40 11  82 9f 0a 01 02 9c 0a 01  |.:..@.@.........|
00000020  02 9a 3a 98 08 4b 00 26  19 6f 48 24 00 1a 00 00  |..:..K.&.oH$....|
00000030  07 4a 00 01 4f 00 49 00  01 00 05 57 00 09 00 86  |.J..O.I....W....|
00000040  51 00 00 97 0a 01 02 9c                          |Q.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..58..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..38..] Version=4 IHL=5 TOS=40 Length=58
Id=40628 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=33439 SrcIP=209.165.200.229 DstIP=209.165.200.227 Options=[] Padding=[]}
00000000  45 28 00 3a 9e b4 40 00  40 11 82 9f 0a 01 02 9c  |E(.:..@.@.......|
00000010  0a 01 02 9a                                      |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..30..] SrcPort=15000(hydap)
DstPort=2123(gtp-control) Length=38 Checksum=6511}
00000000  3a 98 08 4b 00 26 19 6f                          |:..K.&.o|
--- Layer 4 ---
Payload 30 byte(s)
00000000  48 24 00 1a 00 00 07 4a  00 01 4f 00 49 00 01 00  |H$.....J..O.I...|
00000010  05 57 00 09 00 86 51 00  00 97 0a 01 02 9c        |.W....Q.......|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15002 to 209.165.200.228:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:07.385688 +0000 UTC CaptureLength:59
Length:59 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c095908004528002dd2dd400040114e820a0102
9c0a01029b3a9a084b001919634863000d00000 8d0020175004900010005

Packet Dump:
 -- FULL PACKET DATA (59 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 2d d2 dd 40 00 40 11  4e 82 0a 01 02 9c 0a 01  |.-..@.@.N.......|
00000020  02 9b 3a 9a 08 4b 00 19  19 63 48 63 00 0d 00 00  |..:..K...cHc....|
00000030  08 d0 02 01 75 00 49 00  01 00 05                 |....u.I....|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..45..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..25..] Version=4 IHL=5 TOS=40 Length=45
Id=53981 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=20098 SrcIP=209.165.200.229 DstIP=209.165.200.228 Options=[] Padding=[]}
```

```
00000000  45 28 00 2d d2 dd 40 00  40 11 4e 82 0a 01 02 9c  |E(.-..@.@.N.....|
00000010  0a 01 02 9b                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..17..] SrcPort=15002 DstPort=2123(gtp-control)
Length=25 Checksum=6499}
00000000  3a 9a 08 4b 00 19 19 63                          |:..K...c|
--- Layer 4 ---
Payload 17 byte(s)
00000000  48 63 00 0d 00 00 08 d0  02 01 75 00 49 00 01 00  |Hc........u.I...|
00000010  05                                                |.|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15001 to 209.165.200.227:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:13.078691 +0000 UTC CaptureLength:55
Length:55 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c095908004528002 9a11540004011804f0a01029c0
a01029a3a99084b0015195e400100090101ab000300010000

Packet Dump:
 -- FULL PACKET DATA (55 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 29 a1 15 40 00 40 11  80 4f 0a 01 02 9c 0a 01  |.)..@.@..O......|
00000020  02 9a 3a 99 08 4b 00 15  19 5e 40 01 00 09 01 01  |..:..K...^@.....|
00000030  ab 00 03 00 01 00 00                             |.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..41..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..21..] Version=4 IHL=5 TOS=40 Length=41
Id=41237 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=32847 SrcIP=209.165.200.229 DstIP=209.165.200.227 Options=[] Padding=[]}
00000000  45 28 00 29 a1 15 40 00  40 11 80 4f 0a 01 02 9c  |E(.)..@.@..O....|
00000010  0a 01 02 9a                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..13..] SrcPort=15001 DstPort=2123(gtp-control)
Length=21 Checksum=6494}
00000000  3a 99 08 4b 00 15 19 5e                          |:..K...^|
--- Layer 4 ---
Payload 13 byte(s)
00000000  40 01 00 09 01 01 ab 00  03 00 01 00 00           |@............|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15000 to 209.165.200.228:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:13.084971 +0000 UTC CaptureLength:55
Length:55 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c095908004528002 9d5a7400040114bbc0a01029c0a01029b3
a98084b0015195f400100090000df000300010000
```

```
Packet Dump:
 -- FULL PACKET DATA (55 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 29 d5 a7 40 00 40 11  4b bc 0a 01 02 9c 0a 01  |.)..@.@.K.......|
00000020  02 9b 3a 98 08 4b 00 15  19 5f 40 01 00 09 00 00  |..:..K..._@.....|
00000030  df 00 03 00 01 00 00                              |.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..41..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..21..] Version=4 IHL=5 TOS=40 Length=41
Id=54695 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=19388 SrcIP=209.165.200.229 DstIP=209.165.200.228 Options=[] Padding=[]}
00000000  45 28 00 29 d5 a7 40 00  40 11 4b bc 0a 01 02 9c  |E(.)..@.@.K.....|
00000010  0a 01 02 9b                                      |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..13..] SrcPort=15000(hydap) DstPort=2123(gtp-control)
Length=21 Checksum=6495}
00000000  3a 98 08 4b 00 15 19 5f                          |:..K..._|
--- Layer 4 ---
Payload 13 byte(s)
00000000  40 01 00 09 00 00 df 00  03 00 01 00 00           |@............|


---------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15002 to 209.165.200.228:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:14.485021 +0000 UTC CaptureLength:59
Length:59 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
000400010006005056c09590800452800 2dd679400040114ae60a01029c0a01029b3
a9a084b001919634863000d000008d0020175004900010005

Packet Dump:
 -- FULL PACKET DATA (59 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 2d d6 79 40 00 40 11  4a e6 0a 01 02 9c 0a 01  |.-.y@.@.J.......|
00000020  02 9b 3a 9a 08 4b 00 19  19 63 48 63 00 0d 00 00  |..:..K...cHc....|
00000030  08 d0 02 01 75 00 49 00  01 00 05                 |....u.I....|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..45..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..25..] Version=4 IHL=5 TOS=40 Length=45
Id=54905 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=19174 SrcIP=209.165.200.229 DstIP=209.165.200.228 Options=[] Padding=[]}
00000000  45 28 00 2d d6 79 40 00  40 11 4a e6 0a 01 02 9c  |E(.-.y@.@.J.....|
00000010  0a 01 02 9b                                      |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..17..] SrcPort=15002 DstPort=2123(gtp-control)
Length=25 Checksum=6499}
00000000  3a 9a 08 4b 00 19 19 63                          |:..K...c|
--- Layer 4 ---
Payload 17 byte(s)
00000000  48 63 00 0d 00 00 08 d0  02 01 75 00 49 00 01 00  |Hc........u.I...|
00000010  05                                               |.|
```

```
------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15002 to 209.165.200.227:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:18.078521 +0000 UTC CaptureLength:55
Length:55 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c095908004528002 9a1bb400040117fa90a01029c0a01029a3
a9a084b0015195e400100090201c9000300010000

Packet Dump:
 -- FULL PACKET DATA (55 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 29 a1 bb 40 00 40 11  7f a9 0a 01 02 9c 0a 01  |.)..@.@.........|
00000020  02 9a 3a 9a 08 4b 00 15  19 5e 40 01 00 09 02 01  |..:..K...^@.....|
00000030  c9 00 03 00 01 00 00                              |.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..41..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..21..] Version=4 IHL=5 TOS=40 Length=41
Id=41403 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=32681 SrcIP=209.165.200.229 DstIP=209.165.200.227 Options=[] Padding=[]}
00000000  45 28 00 29 a1 bb 40 00  40 11 7f a9 0a 01 02 9c  |E(.)..@.@.......|
00000010  0a 01 02 9a                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..13..] SrcPort=15002 DstPort=2123(gtp-control)
Length=21 Checksum=6494}
00000000  3a 9a 08 4b 00 15 19 5e                           |:..K...^|
--- Layer 4 ---
Payload 13 byte(s)
00000000  40 01 00 09 02 01 c9 00  03 00 01 00 00           |@............|


------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15000 to 209.165.200.228:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:18.089434 +0000 UTC CaptureLength:55
Length:55 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c095908004528002 9d8cf4000401148940a0102
9c0a01029b3a98084b0015195f400100090000e0000300010000

Packet Dump:
 -- FULL PACKET DATA (55 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 29 d8 cf 40 00 40 11  48 94 0a 01 02 9c 0a 01  |.)..@.@.H.......|
00000020  02 9b 3a 98 08 4b 00 15  19 5f 40 01 00 09 00 00  |..:..K..._@.....|
00000030  e0 00 03 00 01 00 00                              |.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..41..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
```

```
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..21..] Version=4 IHL=5 TOS=40 Length=41
Id=55503 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=18580 SrcIP=209.165.200.229 DstIP=209.165.200.228 Options=[] Padding=[]}
00000000  45 28 00 29 d8 cf 40 00  40 11 48 94 0a 01 02 9c  |E(.)..@.@.H.....|
00000010  0a 01 02 9b                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..13..] SrcPort=15000(hydap) DstPort=2123(gtp-control)
Length=21 Checksum=6495}
00000000  3a 98 08 4b 00 15 19 5f                           |:..K..._|
--- Layer 4 ---
Payload 13 byte(s)
00000000  40 01 00 09 00 00 e0 00  03 00 01 00 00           |@............|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15002 to 209.165.200.228:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:21.584999 +0000 UTC CaptureLength:59
Length:59 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c095908004528002ddb124000401146
4d0a01029c0a01029b3a9a084b001919634863000d00 0008d0020175004900010005

Packet Dump:
 -- FULL PACKET DATA (59 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 2d db 12 40 00 40 11  46 4d 0a 01 02 9c 0a 01  |.-..@.@.FM......|
00000020  02 9b 3a 9a 08 4b 00 19  19 63 48 63 00 0d 00 00  |..:..K...cHc....|
00000030  08 d0 02 01 75 00 49 00  01 00 05                 |....u.I....|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..45..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..25..] Version=4 IHL=5 TOS=40 Length=45
Id=56082 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=17997 SrcIP=209.165.200.229 DstIP=209.165.200.228 Options=[] Padding=[]}
00000000  45 28 00 2d db 12 40 00  40 11 46 4d 0a 01 02 9c  |E(.-..@.@.FM....|
00000010  0a 01 02 9b                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..17..] SrcPort=15002 DstPort=2123(gtp-control)
Length=25 Checksum=6499}
00000000  3a 9a 08 4b 00 19 19 63                           |:..K...c|
--- Layer 4 ---
Payload 17 byte(s)
00000000  48 63 00 0d 00 00 08 d0  02 01 75 00 49 00 01 00  |Hc........u.I...|
00000010  05                                                |.|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15001 to 209.165.200.227:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:23.07887 +0000 UTC CaptureLength:55
```

```
Length:55 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c0959080045280029a2c0400040117
ea40a01029c0a01029a3a99084b0015195e400100090101ac000300010000

Packet Dump:
 -- FULL PACKET DATA (55 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 29 a2 c0 40 00 40 11  7e a4 0a 01 02 9c 0a 01  |.)..@.@.~.......|
00000020  02 9a 3a 99 08 4b 00 15  19 5e 40 01 00 09 01 01  |..:..K...^@.....|
00000030  ac 00 03 00 01 00 00                              |.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..41..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..21..] Version=4 IHL=5 TOS=40 Length=41
Id=41664 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=32420 SrcIP=209.165.200.229 DstIP=209.165.200.227 Options=[] Padding=[]}
00000000  45 28 00 29 a2 c0 40 00  40 11 7e a4 0a 01 02 9c  |E(.)..@.@.~.....|
00000010  0a 01 02 9a                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..13..] SrcPort=15001 DstPort=2123(gtp-control)
Length=21 Checksum=6494}
00000000  3a 99 08 4b 00 15 19 5e                          |:..K...^|
--- Layer 4 ---
Payload 13 byte(s)
00000000  40 01 00 09 01 01 ac 00  03 00 01 00 00           |@............|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15002 to 209.165.200.228:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:23.086144 +0000 UTC CaptureLength:55
Length:55 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c0959080045280029dbe740004011457c0a01029c0a01029b3
a9a084b0015195f400100090201760003000100000

Packet Dump:
 -- FULL PACKET DATA (55 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 29 db e7 40 00 40 11  45 7c 0a 01 02 9c 0a 01  |.)..@.@.E|......|
00000020  02 9b 3a 9a 08 4b 00 15  19 5f 40 01 00 09 02 01  |..:..K..._@.....|
00000030  76 00 03 00 01 00 00                              |v......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..41..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..21..] Version=4 IHL=5 TOS=40 Length=41
Id=56295 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=17788 SrcIP=209.165.200.229 DstIP=209.165.200.228 Options=[] Padding=[]}
00000000  45 28 00 29 db e7 40 00  40 11 45 7c 0a 01 02 9c  |E(.)..@.@.E|....|
00000010  0a 01 02 9b                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..13..] SrcPort=15002 DstPort=2123(gtp-control)
Length=21 Checksum=6495}
```

```
00000000  3a 9a 08 4b 00 15 19 5f                           |:..K..._|
--- Layer 4 ---
Payload 13 byte(s)
00000000  40 01 00 09 02 01 76 00  03 00 01 00 00           |@.....v......|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15002 to 209.165.200.227:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:28.079013 +0000 UTC CaptureLength:55
Length:55 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c0959080045280029a336400040117e2e0a01029c0
a01029a3a9a084b0015195e400100090201ca000300010000

Packet Dump:
 -- FULL PACKET DATA (55 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 29 a3 36 40 00 40 11  7e 2e 0a 01 02 9c 0a 01  |.).6@.@.~.......|
00000020  02 9a 3a 9a 08 4b 00 15  19 5e 40 01 00 09 02 01  |..:..K...^@.....|
00000030  ca 00 03 00 01 00 00                              |.......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..41..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..21..] Version=4 IHL=5 TOS=40 Length=41
Id=41782 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=32302 SrcIP=209.165.200.229 DstIP=209.165.200.227 Options=[] Padding=[]}
00000000  45 28 00 29 a3 36 40 00  40 11 7e 2e 0a 01 02 9c  |E(.).6@.@.~.....|
00000010  0a 01 02 9a                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..13..] SrcPort=15002 DstPort=2123(gtp-control)
Length=21 Checksum=6494}
00000000  3a 9a 08 4b 00 15 19 5e                           |:..K...^|
--- Layer 4 ---
Payload 13 byte(s)
00000000  40 01 00 09 02 01 ca 00  03 00 01 00 00           |@............|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15002 to 209.165.200.228:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:28.086562 +0000 UTC CaptureLength:55
Length:55 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
0004000100060050569c0959080045280029dfb14000401141b20a01029
c0a01029b3a9a084b0015195f400100090201770003000100000

Packet Dump:
 -- FULL PACKET DATA (55 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 29 df b1 40 00 40 11  41 b2 0a 01 02 9c 0a 01  |.)..@.@.A.......|
00000020  02 9b 3a 9a 08 4b 00 15  19 5f 40 01 00 09 02 01  |..:..K..._@.....|
```

```
00000030  77 00 03 00 01 00 00                              |w......|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..41..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..21..] Version=4 IHL=5 TOS=40 Length=41
Id=57265 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=16818 SrcIP=209.165.200.229 DstIP=209.165.200.228 Options=[] Padding=[]}
00000000  45 28 00 29 df b1 40 00  40 11 41 b2 0a 01 02 9c  |E(.)..@.@.A.....|
00000010  0a 01 02 9b                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..13..] SrcPort=15002 DstPort=2123(gtp-control)
Length=21 Checksum=6495}
00000000  3a 9a 08 4b 00 15 19 5f                           |:..K..._|
--- Layer 4 ---
Payload 13 byte(s)
00000000  40 01 00 09 02 01 77 00  03 00 01 00 00           |@.....w......|


------------------------------------------------------------------------
InterfaceName = gtpc |  InterfaceIP = 209.165.200.229 | Filter = (tcp or udp or sctp)
and (port 2123 or (host 209.165.200.227 and port 2123)
or (host 209.165.201.11 and port 2123) or (host 209.165.200.228 and port 2123))
<<<<OUTBOUND
from 209.165.200.229:15002 to 209.165.200.228:2123
Protocol: UDP | Sequence Number: 0
Packet Metadata: {Timestamp:2021-06-06 06:16:28.685112 +0000 UTC CaptureLength:59
Length:59 InterfaceIndex:0 AncillaryData:[]}

Packet Raw Bytes:
000400010006050569c095908004528002de03240004011412d0a01029c0a01029b3a9a
084b001919634863000d000008d00201750049000010005

Packet Dump:
 -- FULL PACKET DATA (59 bytes) ------------------------------------
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00 45 28  |.......PV..Y..E(|
00000010  00 2d e0 32 40 00 40 11  41 2d 0a 01 02 9c 0a 01  |.-.2@.@.A-......|
00000020  02 9b 3a 9a 08 4b 00 19  19 63 48 63 00 0d 00 00  |..:..K...cHc....|
00000030  08 d0 02 01 75 00 49 00  01 00 05                 |....u.I....|
--- Layer 1 ---
Ethernet        {Contents=[..14..] Payload=[..45..] SrcMAC=00:50:56:9c:09:59
DstMAC=00:04:00:01:00:06 EthernetType=IPv4 Length=0}
00000000  00 04 00 01 00 06 00 50  56 9c 09 59 08 00        |.......PV..Y..|
--- Layer 2 ---
IPv4    {Contents=[..20..] Payload=[..25..] Version=4 IHL=5 TOS=40 Length=45
Id=57394 Flags=DF FragOffset=0 TTL=64 Protocol=UDP
Checksum=16685 SrcIP=209.165.200.229 DstIP=209.165.200.228 Options=[] Padding=[]}
00000000  45 28 00 2d e0 32 40 00  40 11 41 2d 0a 01 02 9c  |E(.-.2@.@.A-....|
00000010  0a 01 02 9b                                       |....|
--- Layer 3 ---
UDP     {Contents=[..8..] Payload=[..17..] SrcPort=15002 DstPort=2123(gtp-control)
Length=25 Checksum=6499}
00000000  3a 9a 08 4b 00 19 19 63                           |:..K...c|
--- Layer 4 ---
Payload 17 byte(s)
00000000  48 63 00 0d 00 00 08 d0  02 01 75 00 49 00 01 00  |Hc........u.I...|
00000010  05                                                |.|


------------------------------------------------------------------------
command terminated with exit code 124
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
```

```
100   172  100    43  100   129   8600  25800 --:--:-- --:--:-- --:--:-- 34400
Stop Response Already disabled mon_pro as part of timeout for Cmd: --header
Content-type:application/json --request POST --data
{"commandname":"mon_pro","parameters": {"interface":"pcfp,gtpc","duration":100, "action":
"stop","enable_pcap":true,"grInstance":0}} http://oam-pod:8879/commands
```

Configuring the Transaction Messages

To configure the transaction logs, use the following configuration:

```
config
   logging transaction message [ disable | enable ]
   end
```

NOTES:

- **logging transaction message [disable | enable]**—Configure the messages in transaction logging. When set to enable, the transactional and internal logs are combined. By default, the logs are disabled.

Configuration Example

The following is an example configuration.

```
logging transaction message enable
```

Sample Output

The following is a sample output.

```
/opt/workspace/monsublogs# cat 'sgw.imsi-*_WithTxnLogs_TS_2020-12-22T15:16:58.158964842.txt'

Transaction Log received from Instance: smf.nodemgr.cn.cn.0
************* TRANSACTION: 00088 *************
TRANSACTION SUCCESS:
    Txn Type             : NmgrRersourceMgmtRequest(1025)
    Priority             : 1
    Session Namespace    : sgw(2)
LOG MESSAGES:
    2020/12/22 15:20:07.093 [TRACE] [infra.message_log.core] >>>>>>>>
IPC message
Name: NmgrRersourceMgmtRequest
MessageType: NmgrRersourceMgmtRequest
Key:
--body--
{"supi":"imsi-123456789012348","idReqType":1,"serviceUsertype":2}
    2020/12/22 15:20:07.093 [DEBUG] [nodemgr0.app.Int]
                GetSessionNamespace for txn id: 88, Type: 1025
    2020/12/22 15:20:07.093 [DEBUG] [nodemgr0.app.Int]
                GetSessionNamespace returned namespace : 2
    2020/12/22 15:20:07.093 [INFO] [nodemgr0.app.Int]
                RECEIVED REQUEST <-- NmgrRersourceMgmtRequest
    2020/12/22 15:20:07.093 [TRACE] [infra.message_log.core] <<<<<<<<

*******************************************
Transaction Log received from Instance: smf.protocol.cn.cn.0
************* TRANSACTION: 00050 *************
TRANSACTION SUCCESS:
    Txn Type             : 524(524)
    Priority             : 1
    Session Namespace    : sgw(2)
```

```
INCOMING REQUEST:
      Message: Sx Session Establishment Request
      Description: Sx Session Establishment Request Message from SGWC to SGWU
      Source: 209.165.200.229
      Destination: 209.165.200.228
      PAYLOAD:
        Sx Session Establishment Request:
            Sx Session Establishment Request:
                CreatePdr:
                    CreatePdr[0]:
                        PdrId: 1
                        Precedence: 0
                        Pdi:
                            SrcIf: CORE
                            UeIp:
                                Src: false
                                Dst: false
                                IPv4Addr: 209.165.201.30
                            TEndpointId: 1
                            Valid: true
                        OuterHdrRem: 0
                        FarId:
                            FarId[0]: 1
                        Qfi: 0
                        OuterHdrRemValid: false
                    CreatePdr[1]:
                        PdrId: 2
                        Precedence: 0
                        Pdi:
                            SrcIf: ACCESS
                            UeIp:
                                Src: false
                                Dst: false
                                IPv4Addr: 209.165.201.30
                            TEndpointId: 2
                            Valid: true
                        OuterHdrRem: 0
                        FarId:
                            FarId[0]: 2
                        Qfi: 0
                        OuterHdrRemValid: false
                CreateFar:
                    CreateFar[0]:
                        FarId: 1
                        ApplyAction:
                            Drop: true
                            Frwd: false
                            Buff: false
                            Nocp: false
                            Dupl: false
                            Valid: true
                        FwdParams:
                            DestIf: ACCESS
                            RedirectInfo:
                                AddrType: 0
                                Valid: false
                            OuterHdr:
                                OuterHdrDesc: 0
                                Teid: 0
                                IPv4Address: 209.165.201.30
                                Port: 0
                                Valid: false
                            TEndptId: 2
                            OuterPktTos: 255
```

```
                InnerPktTos: 255
                TosOpt:
                    CopyInner: false
                    CopyOuter: false
                SendTos: 0
                PfcpSmFlags:
                    Drobu: false
                    Qaurr: false
                    Sndem: false
                    Valid: false
                Valid: true
            DuplParams:
                DestIf: ACCESS
                OuterHdr:
                    OuterHdrDesc: 0
                    Teid: 0
                    IPv4Address: 209.165.201.30
                    Port: 0
                    Valid: false
                InterceptInfo:
                    InterceptId: 0
                    ChargingId: 0
                    SmfLiNodeId:
                        IpDesc: 0
                        IPv4Address: 209.165.201.30
                        Valid: false
                    PduSessionId: 0
                    Valid: false
                Valid: false
            BarId: 0
        CreateFar[1]:
            FarId: 2
            ApplyAction:
                Drop: true
                Frwd: false
                Buff: false
                Nocp: false
                Dupl: false
                Valid: true
            FwdParams:
                DestIf: CORE
                RedirectInfo:
                    AddrType: 0
                    Valid: false
                OuterHdr:
                    OuterHdrDesc: 0
                    Teid: 0
                    IPv4Address: 209.165.201.30
                    Port: 0
                    Valid: false
                TEndptId: 1
                OuterPktTos: 255
                InnerPktTos: 255
                TosOpt:
                    CopyInner: false
                    CopyOuter: false
                SendTos: 0
                PfcpSmFlags:
                    Drobu: false
                    Qaurr: false
                    Sndem: false
                    Valid: false
                Valid: true
            DuplParams:
```

```
                                DestIf: ACCESS
                                OuterHdr:
                                    OuterHdrDesc: 0
                                    Teid: 0
                                    IPv4Address: 209.165.201.30
                                    Port: 0
                                    Valid: false
                                InterceptInfo:
                                    InterceptId: 0
                                    ChargingId: 0
                                    SmfLiNodeId:
                                        IpDesc: 0
                                        IPv4Address: 209.165.201.30
                                        Valid: false
                                    PduSessionId: 0
                                    Valid: false
                                Valid: false
                            BarId: 0
                        CreateTEndpt:
                            CreateTEndpt[0]:
                                EndpointId: 1
                                FTeid:
                                    Teid: 0
                                    IPv4Address: 209.165.201.30
                                    ChooseId: 0
                                BearerLvlInfo:
                                    Valid: 1
                                    Qci: 6
                            CreateTEndpt[1]:
                                EndpointId: 2
                                FTeid:
                                    Teid: 0
                                    IPv4Address: 209.165.201.30
                                    ChooseId: 0
                                BearerLvlInfo:
                                    Valid: 1
                                    Qci: 6
                        PdnType: 0
                        UplaneInacTimer: 0
                        MetaData: From:209.165.200.229:11000->To:209.165.200.228:8805 Seqno:37
                                  Supi: Seid:1224979349111832634 Cmnid:0 Rseid:0 IntfType:0
                        UserIDInfo:
                            Valid: false
                        XHeaderInfo:
                            RatType:
                            Valid: false
                        CfPolicyId:
                            PolicyId: 0
                            Valid: false
                        ChargingDisabled:
                            Valid: false
                            Value: false
                        ChargingParams:
                            Valid: 0
                            GyOfflineChargingEnabled: 0

OUTGOING RESPONSE:
      Message: Sx Session Establishment Response
      Description: Sx Session Establishment Response Message from SGWU to SGWC
      Source: 209.165.200.228
      Destination: 209.165.200.229
      PAYLOAD:
        Sx Session Establishment Response:
            Sx Session Establishment Response:
```

```
                    Cause: 1
                    OffendingIe: 0
                    FSeid:
                        Seid: 10002
                        IPv4Address: 209.165.200.228
                    CreatedTEndpt:
                        CreatedTEndpt[0]:
                            EndpointId: 1
                            FTeid:
                                Teid: 2086
                                IPv4Address: 209.165.201.1
                                ChooseId: 0
                        CreatedTEndpt[1]:
                            EndpointId: 2
                            FTeid:
                                Teid: 2087
                                IPv4Address: 209.165.200.226
                                ChooseId: 0
                    MetaData: From:209.165.200.228:8805->To:209.165.200.229:11000 Seqno:37
                                Supi: Seid:1224979349111832634 Cmnid:0 Rseid:0 IntfType:0
                    LoadControlInfo:
                        SeqNum: 0
                        Metric: 0
                        Valid: false
                    OverloadControlInfo:
                        SeqNum: 0
                        Metric: 0
                        Ociflag: 0
                        Valid: false

LOG MESSAGES:
    2020/12/22 15:20:10.934 [TRACE] [infra.message_log.core] >>>>>>>>

    2020/12/22 15:20:10.934 [DEBUG] [proto_ep.app.Int]
                            GetSessionNamespace for txn id: 50, Type: 524
    2020/12/22 15:20:10.934 [DEBUG]
                            [proto_ep.app.Int] GetSessionNamespace returned namespace : 2
    2020/12/22 15:20:10.934 [DEBUG]
                            [infra.ipc_action.core] BG IPC will be executed after process
continue.
    2020/12/22 15:20:10.934 [DEBUG]
                            [infra.ipc_action.core] BG IPC is executing after process
continue.
    2020/12/22 15:20:10.967 [DEBUG]
                            [infra.transaction.core] Response received for corelation ID
app_protocol-0_37
    2020/12/22 15:20:10.967 [DEBUG]
                            [infra.transaction.core]
                           (1) All pending ipc action finshed, hence waking up transaction

    2020/12/22 15:20:10.967 [TRACE]
                            [infra.message_log.core] <<<<<<<<
```

Accessing the Logs

To access the monitor subscriber logs, navigate to the oam-pod at `/opt/workspace/logs/monsublogs`

Sample Logs

```
root@oam-pod-0:/opt/workspace/logs/monsublogs# ls
none.imsi-123456789_TS_2021-06-05T06:19:12.682444275.txt
sgw.imei-352099001761480_TS_2021-06-05T13:07:41.774214146.txt.sorted
```

```
 none.imsi-123456789_TS_2021-06-05T06:20:39.751939118.txt
sgw.imei-352099001761480_TS_2021-06-05T13:48:51.868279985.txt
 none.imsi-123456789_TS_2021-06-06T06:22:16.015635407.txt
sgw.imei-352099001761480_TS_2021-06-05T13:48:51.868279985.txt.sorted
 sgw.imei-352099001761480_TS_2021-06-04T19:09:24.863985017.txt
sgw.imei-352099001761480_TS_2021-06-05T14:50:09.330635953.txt
 sgw.imei-352099001761480_TS_2021-06-04T19:09:24.863985017.txt.sorted
sgw.imei-352099001761480_TS_2021-06-05T14:50:09.330635953.txt.sorted
 sgw.imei-352099001761480_TS_2021-06-05T08:44:25.889632126.txt
sgw.imei-352099001761480_TS_2021-06-05T17:36:17.238331396.txt
 sgw.imei-352099001761480_TS_2021-06-05T08:44:25.889632126.txt.sorted
sgw.imei-352099001761480_TS_2021-06-05T17:36:17.238331396.txt.sorted
 sgw.imei-352099001761480_TS_2021-06-05T10:26:23.529652777.txt
'sgw.imsi-*_TS_2021-06-05T06:23:19.865508390.txt'
 sgw.imei-352099001761480_TS_2021-06-05T10:26:23.529652777.txt.sorted
'sgw.imsi-*_TS_2021-06-05T06:25:18.219875282.txt'
 sgw.imei-352099001761480_TS_2021-06-05T13:07:41.774214146.txt
```

To access the monitor protocol logs, navigate to the oam-pod at `/opt/workspace/logs/monprologs`.

Sample Logs

```
root@oam-pod-0:/opt/workspace/logs/monprologs# ls
sessintfname_gtpc_at_2021-06-05T06:28:18.310397784.pcap
sessintfname_pcfp,gtpc_at_2021-06-06T06:15:39.005414271.pcap
sessintfname_gtpc_at_2021-06-05T06:28:18.310397784.txt
sessintfname_pcfp,gtpc_at_2021-06-06T06:15:39.005414271.txt
```