



モニターサブスクライバおよびプロトコルサポート

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機能の概要と変更履歴

要約データ

表 1: 要約データ

該当製品または機能エリア	cnSGW-C
該当プラットフォーム	SMI
機能のデフォルト設定	[Enabled] : 無効にするには設定が必要
関連資料	該当なし

マニュアルの変更履歴

表 2: マニュアルの変更履歴

改訂の詳細	リリース
最初の導入。	2021.01.0

機能説明

cnSGW-C サービスは、SGW サービスパラメータのサブスクリバマップとオペレータポリシーの設定をサポートしています。

機能設定

この機能の設定には、次の手順が含まれます。

- 指定したサブスクリバに関連するメッセージをトレースするようにモニターサブスクリバユーティリティを構成します。詳細については、[モニターサブスクリバの設定 \(2 ページ\)](#) を参照してください。
- モニターサブスクリバユーティリティの例。詳細については、[設定例 \(3 ページ\)](#) を参照してください。
- 指定したインターフェイスのパケットをキャプチャするようにモニタープロトコルユーティリティを構成します。詳細については、[モニタープロトコルの設定 \(25 ページ\)](#) を参照してください。
- モニタープロトコルユーティリティの例。詳細については、[設定例 \(26 ページ\)](#) を参照してください。
- トランザクションログの要求応答メッセージを構成します。詳細については、[トランザクションメッセージの設定 \(37 ページ\)](#) を参照してください。
- トランザクションログの例。詳細については、[設定例 \(37 ページ\)](#) を参照してください。
- モニターサブスクリバログとプロトコルログにアクセスします。詳細については、[ログへのアクセス \(42 ページ\)](#) を参照してください。

モニターサブスクリバの設定

この機能を設定するには、次の設定を使用します。

```
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
```



(注) 2021.02 以降のリリースでは、`namespace` キーワードは廃止され、`nf-service` に置き換えられています。

注：

- **capture-duration** `capture_duration` : モニターサブスクリバ機能を有効にする期間を秒単位で指定します。デフォルト値は 300 秒です。
- **supi** `supi_value` : サブスクリバ ID を指定します。例 : `imsi-123456789` および `imsi-123*`
- **imsi** `imsi_value` : IMSI 値を指定します。例 : `123456789` および *
- **imei** `IMEI_value` : IMEI 値を指定します。例 : `123456789012345` および *
- **internal-messages** [Yes | No] : 内部メッセージングを設定します。`yes` に設定すると、内部メッセージングが有効になります。デフォルトでは、この設定は無効になっています。
- **transaction-logs** [Yes | No] : トランザクションログGINGを設定します。デフォルトでは、この設定は無効になっています。



(注) 任意の時点で、内部メッセージまたはトランザクションログが表示されます。

- **nf-service** `nf_service` : NF サービスを指定します。承認されているサービスは `sgw` と `smf` です。デフォルト値は `none` です。
- **gr-instance** `gr_instance` : cnSGW-C がサブスクリバをモニターする GR インスタンスを指定します。

設定例

次に、設定例を示します。

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

出力の例

次に、出力例を示します。

```
monitor subscriber imsi * namespace sgw
supi: imsi-*
captureDuration: 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
LTEMPPI: 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
LTEMPPI: 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
      TEID: 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
      PbBearerCtxt:
        PbBearerCtxt[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
```

モニタープロトコルの設定

この機能を設定するには、次の設定を使用します。

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

注：

- **monitor protocol interface interface** : PCAP がキャプチャされるインターフェイスを指定します。例 : sbi、pfcf、gtpu、gtpc、gtp、radius。
- **capture-duration capture_duration** : PCAP がキャプチャされる期間を秒単位で指定します。デフォルト値は 300 秒です。
- **pcap [Yes | No]** : PCAP ファイルの生成を設定します。デフォルトでは、PCAP 機能は無効になっています。
- **gr-instance gr_instance** : cnSGW-C がサブスクリバをモニターする GR インスタンスを指定します。



(注) GTP エンドポイントの IP が S5e および S11 インターフェイスの IP と同じ場合、プロトコル出力に一貫性がなくなり、メッセージを受信した S5 インターフェイスに S11 が表示されます。以下にエンドポイントの設定例を示します。

```
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
```

設定例

次に、設定例を示します。

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

出力の例

次に、出力例を示します。

```
monitor protocol interface pfcf,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":"pfcf, gtpc","duration":
:100,"action":"start","enable_pcap": true,"grInstance":0}} http://oam-pod:8879/commands
Result start mon_pro, fileName -> logs/monprologs/sessintfname_pfcf,
gtpc_at_2021-06-06T06:15:39.005414271.txt
Starting to tail the monpro messages from file: logs/monprologs/sessintfname_pfcf,
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:

```
00040001000600050569c095908004528002dcc0e4000401
```

```
155510a01029c0a01029b3a9a084b001919634863000d000008d0
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
00014f0049000100055700090086510000970a01029c
```

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
01029a3a98084b0026196f4824001a0000074a00014f0049000100055700090086510000970a01029c

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:
0004000100060050569c095908004528003a9e4740004011830c0a01029c0a01029a3a98084b
0026196f4824001a0000074a00014f0049000100055700090086510000970a01029c

```

```

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
98084b0026196f4824001a0000074a00014f0049000100055700090086510000970a01029c

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
9c0a01029b3a9a084b001919634863000d0000 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:
0004000100060050569c0959080045280029a11540004011804f0a01029c0
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:
0004000100060050569c0959080045280029d5a7400040114bbc0a01029c0a01029b3
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:
0004000100060050569c095908004528002dd679400040114ae60a01029c0a01029b3
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:
0004000100060050569c0959080045280029a1bb400040117fa90a01029c0a01029a3
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:
0004000100060050569c0959080045280029d8cf4000401148940a0102
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
a9a084b0015195f40010009020176000300010000
```

```
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@.E~.....|
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
c0a01029b3a9a084b0015195f40010009020177000300010000

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 00 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:
0004000100060050569c095908004528002de03240004011412d0a01029c0a01029b3a9a
084b001919634863000d000008d0020175004900010005

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

```

トランザクションメッセージの設定

トランザクションログを設定するには、次の設定を使用します。

```

config
  logging transaction message [ disable | enable ]
end

```

注：

- **logging transaction message [disable | enable]**：トランザクションロギングのメッセージを設定します。**enable**に設定すると、トランザクションログと内部ログが結合されます。デフォルトでは、ログは **disable** になっています。

設定例

次に、設定例を示します。

```
logging transaction message enable
```

出力の例

次に、出力例を示します。

```
/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 finished, hence waking up transaction

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

```

ログへのアクセス

モニターサブスクライバログにアクセスするには、`/opt/workspace/logs/monsulogs`の
`oam-pod`に移動します。

サンプルログ

```

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

```

モニタープロトコルログにアクセスするには、`/opt/workspace/logs/monprologs`の
`oam-pod`に移動します。

サンプルログ

```
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
```


翻訳について

このドキュメントは、米国シスコ発行ドキュメントの参考和訳です。リンク情報につきましては、日本語版掲載時点で、英語版にアップデートがあり、リンク先のページが移動/変更されている場合がありますことをご了承ください。あくまでも参考和訳となりますので、正式な内容については米国サイトのドキュメントを参照ください。