Lawful Intercept Handover Interface Specifications

November 15, 2020
Draft Version 1

Introduction

This document specifies the details and protocols of the three types of Handover Interfaces HI1, HI2, and HI3 which Myanmar Net, operating as an Internet Service Provider (SvP), humbly proposes to use to cooperate with the Law Enforcement Agencies in conducting Lawful Intercept operations. Our proposal follows the applicable requirements defined in the following set of standards as prescribed by the Myanmar Post and Telecom Department.

1) ETSI Standard TS 101 671 V3.15.1
2) ETSI Standard TS 102 232-3 V3.5.1 ; and
3) ETSI Standard TS 102 232-1 V3.21.1

In full cooperation and compliance to the request of Myanmar Post and Telecom Department (PTD), Myanmar Net will furthermore

(a) provide a dedicated line connection to transfer intercept related information and content of communication;
(b) support up to 400 concurrent interception taps with an average of 5Mbps per tap.

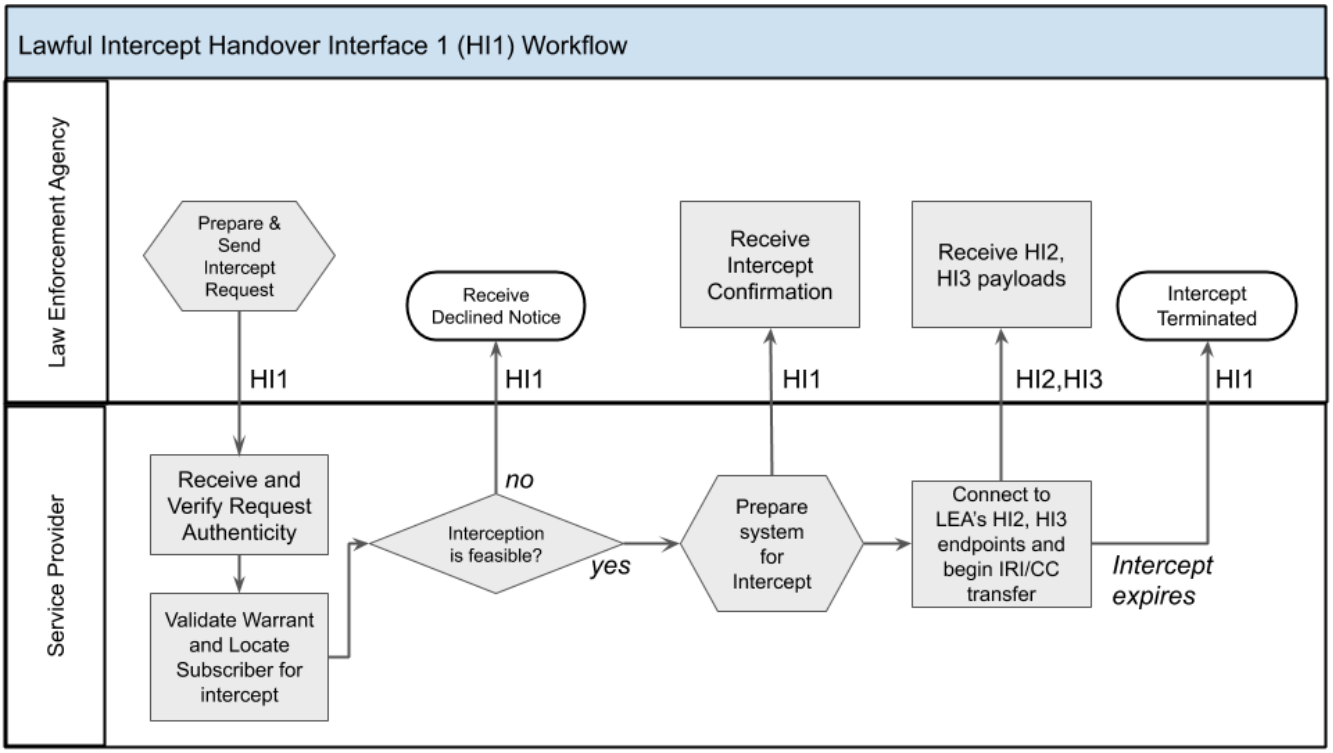
Handover Interface 1 (HI1)

Introduction

The ETSI Handover Interface 1 (HI1) defines the process for the Law Enforcement Agency (LEA) to issue an intercept request to the service provider (SvP). This section specifies the content of the interception request and our proposal on the protocol of delivering and acknowledging the request between the LEA and SvP. We further reference the ETSI specifications to clarify the roles and responsibilities between LEA and SvP.

HI1 Specification Workflow Overview

The diagram below illustrates the workflow of the HI1 administrative function, from interception request initiation to request fulfillment. A brief explanation of each step is provided as follows.



Step 1: The Law Enforcement Agency (LEA) will prepare a formal interception request with all the required information as detailed in the next section, and send the request to the Service Provider (SvP). The LEA may send the request by letter and by email to an address and contact person pre-specified by the SvP.

Step 2: Upon receipt, the SvP shall conduct a verification of the request with the LEA and validate the warrant and the subject of interception (“Subscriber”).

Step 3a: If the Service Provider concludes the request is infeasible to fulfill (e.g., the Subscriber could not be located or could not be uniquely identified in the SvP's system), the SvP will send LEA, by letter and by email, a request declined notice specifying the reason for the decline. The SvP and LEA may attempt to resolve any issues necessary to fix the request and resubmit to the SvP.

Step 3b: If the SvP concludes the request is feasible, the SvP sends a request confirmation notice, by letter and by email, to the LEA, and proceeds to prepare its systems for the target interception.

Step 4: The SvP initiates its system to begin interception of the Subscriber and activates its intermediary systems to begin transfer of interception related information (IRI) and the content of communication (CC) in the format as specified in the ETSI Standard TS 102 232-3 V3.5.1 (2017-03). The transfer will be sent to the Law Enforcement Monitoring Facility (LEMF) system end points specified in the original interception request in Step 1.

Step 5: All interception requests will indicate a specific time to expire the request and terminate the interception. When the intercept expiration has reached, the SvP's system will suspend all interception activity on the Subscriber and send the LEA, by letter and by email, that the interception request has been fulfilled and has been terminated as requested.

HI1 Roles and Responsibilities

This section begins by summarizing the roles and responsibilities (RRs) between LEA and SvP on implementing Lawful Intercept capabilities and executing operations. Later, the section will specify the set of required information expected in the Interception request that make up the HI1 interface.

No.	Roles and Responsibilities (RR)	LEA	SvP
1	Approving and following the proposed HI1, HI2, H3 protocol	**R**	**S**
2	Integration testing and sign off to approve service conformance	**R**	**S**
3	Provide point of contacts for handling requests, responses and escalations for the intercept request		**R**
4	Define guidelines for Service Level Agreement	**R**	
5	Provide a secure method of verifying the authenticity of the request	**R**	
6	Verify the authenticity of the request		**R**
7	Provide all necessary in the interception request, including warrants to authorize the intercept, and detailed identity of the target SvP to *uniquely* locate the target	**R**	

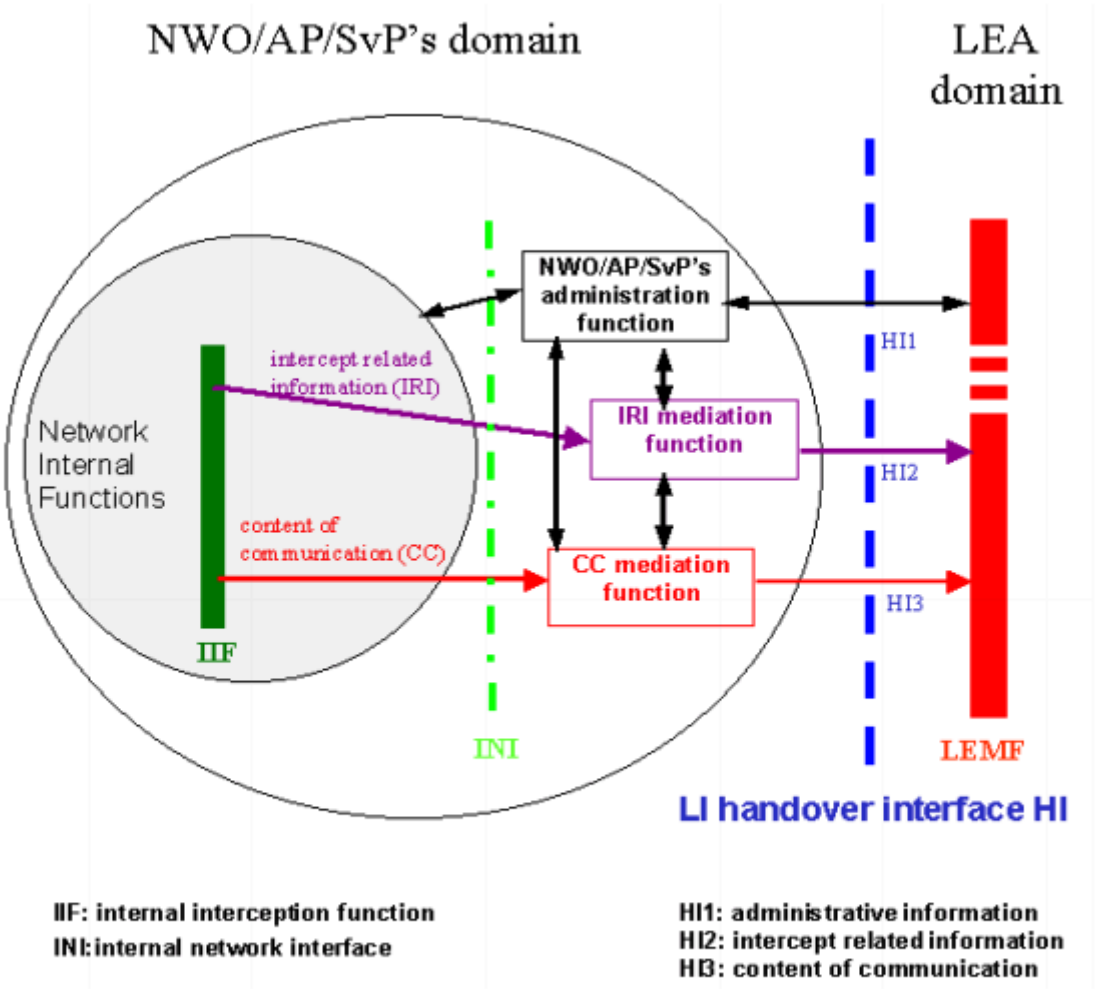
8	Verify if the request is authorized under the law and complies with relevant protocols and regulations		**R**
9	Determine and confirm if the request can be fulfilled		**R**
10	Initiating and stopping the intercept and establishing communication over the HI2 and HI3 interface		**R**
11	Provide policy and procedures for independent arbitration and settling disputes	**R**	**S**
12	Reception and archival/storage of interception related information and content of communication	**R**	

R: Responsible
S: Support

The details of each RR is specified below:

RR#1. Lawful Intercept is a powerful tool and Myanmar Net is committed to comply with the international standards regulating this mechanism and support the requirements issued by the PTD. Both LEA and SvP need to exercise the highest degree of care and observe extraordinary diligence to ensure controls are in place to curtail abuses and to protect the privacy rights of individual citizens. Any errors or mistakes could result in legal ramifications and liability. Enforcement of the control process will require coordination and cooperation which begins with the requests and confirmations communicated over the HI1 interface. The LEA and SvP (Myanmar Net) shall jointly review, approve, and commit to follow the proposed protocols described in this specification.

RR#2. The LEA and SvP shall jointly develop a system integration and test plans to approve the implementation of the systems and protocols proposed in this documentation. No formal interception request from LEA will be processed by SvP without a fully developed joint system integration and test plans. The Lawful Intercept system which Myanmar Net plans to implement will comply with all logical functions in the following diagram, which is replicated directly from page 23 of the ETSI Standard TS 101 671 V3.15.1:



NOTE 1: Figure 1 shows only a reference configuration, with a logical representation of the entities involved in lawful interception and does not mandate separate physical entities.
NOTE 2: The mediation functions may be transparent.

RR#3. The LEA and SvP shall appoint the persons listed below as their duly authorized representatives who will act as their point of contacts for handling all HI1 correspondence:

	LEA Primary Contact	**Myanmar Net Primary Contact**
Name		[redacted]
Mailing Address		[redacted]
Phone		[redacted]
Email		[redacted]
	LEA Escalation Contact	**Myanmar Net Escalation Contact**
Name		[redacted]
Mailing Address		[redacted]

Phone [redacted]

Email [redacted]

All official requests and responses, whether transmitted by letter or by email, **must be conveyed in writing and signed only by the duly authorized representatives of LEA or SvP.**

RR#4. The LEA and SvP shall make best efforts to maintain the following service level in conducting Lawful Intercept operations

Service Level Description	Service Level Threshold
Response to written Correspondence	72 hours
Maximum concurrent interception requests	400
Average individual interception throughput	5 Mbps
Systems uptime availability	95%
Packet delivery rate of the intercepted content of communication	95%
Maximum Duration of each Interception Request	14 days

RR#5. The LEA must include a method to securely verify the authenticity and integrity of the request with confidence that it has not been tampered with. Typically, this can be accomplished by including a unique reference number and to confirm over the phone with an authorized contact person in charge of the request within the LEA. No formal interception request from LEA will be processed by SvP without complying with this method.

RR#6. The SvP shall be responsible for verifying the authenticity of all the information and relevant facts provided in the interception request of LEA. The SvPshall provide a report to LEA's authorized representative in case of any request that fails such verification process

RR#7. A successful intercept operation requires accurate identity to uniquely locate the target and provisioning for transfers. The LEA shall include all items as specified in the Interception Request from LEA to SvP section below.

RR#8. The SvP shall closely examine whether or not the verification request is authorized and complies with all the relevant laws, rules and regulations. SvP shall reject any interception request from LEA that is not accompanied by the original or certified true copy the warrant and/or associated reference that was issued by a court of competent jurisdiction expressly authorizing such interception to be executed upon the request of LEA.

RR#9. The SvP shall make the best effort of locating and mapping the Target Identity provided in the interception request to the target IP address required to uniquely and correctly filter the content of communication for the intercept. If the SvP cannot locate the target in the SvP's subscriber database nor uniquely map the target to an IP address necessary for the intercept, the SvP shall deem the request infeasible and work with the LEA contact to resolve the issue.

RR#10. The SvP must maintain complete autonomy and control of its operational systems. Page 23 of ETSI TS 101671 v 3.15.1 states:-

> "A complete separation is required between the administrative part (HI1) and the technical part (INI) of the interface. No direct access to the switching function shall be given to the LEMF. Activation, deactivation or modification of an interception in the switching function shall only be possible by the NWO/AP/SvP"

RR#11. This Agreement shall be governed by and construed in accordance with the laws of Myanmar.

Any and all disputes, controversies and conflicts between the Parties arising out of or relating to or in connection with this Agreement and the performance or non-performance of the obligations set forth herein shall, so far as is possible, be settled amicably between the Parties within thirty (30) days after written notice of such dispute, controversy or conflict has been given by one Party to the other Parties.

If, and to the extent that, any such dispute, controversy or claim has not been settled by amicable settlement, it shall, upon the filing of a Request for Arbitration by either party, be referred to and finally determined by arbitration in accordance with rules of the Singapore International Arbitration Centre ("SIAC") in accordance with the Arbitration Rules of the Singapore International Arbitration Centre ("SIAC Rules") for the time being in force, which rules are deemed to be incorporated by reference in this clause. The seat of the arbitration shall be in Yangon, Myanmar; The Tribunal shall consist of 3 arbitrator(s); and the language of the arbitration shall be English.

RR#12. The LEA shall be solely responsible for securely archiving and storage of all intercept data. The SvP shall not be responsible nor be required to store IRI and CC after transmission to the LEMF.

HI1 Interception Requests From LEA to SvP

All HI1 interception requests MUST contain ALL of the information listed in the following table. All requests must be signed by an authorized person issuing the request.

Item	Description	Example
Lawful Interception ID (LIID)	The LIID format shall consist of alphanumeric characters to uniquely identify the intercept request, to contain a lawful authorization reference number and the date when the lawful authorization was issued. All IRI and CC transfers from SvP to LEA will be marked with the LIID so they may directly correlate with the original request.	**XP45NN710T-20201115**
Target Identity: Name	The interception subject's full name	John Smith
Target Identity: NRC	The interception subject's NRC number	[FRNT]
Target Identity: Address	The interception subject's address information	[FRNT]
Target Identity: Phone Numbers	The interception subject's phone numbers	[FRNT]
Interception time window	Start and end time and date of interception, in YYYY-MM-DD HH:MM format.	Start: 2020-03-01 00:00 End: 2020-03-11 11:59
Requested type of Interception	Interception Related Information Only (IRI Only), Content of Communication Only (CC Only) or Both IRI and CC (IRI+CC)	IRI+CC
HI2 endpoint	HI2 destination IP address and TCP Port number of the LEMF, to which the IRI-Records shall be sent (if applicable).	10.0.0.2:5555
HI3 endpoint	HI3 destination IP address and TCP Port number of the LEMF, to which the Content of Communication (CC) shall be sent (if applicable).	10.0.0.3:5556
Date of Request Issued	Date of Request	2020-03-01
Authorization of the	The original or certified true copy of	[FRNT]

interception request	the warrant and/or the associated reference that was issued by a court of competent jurisdiction authorizing the interception to be executed upon the request of LEA	
Technical Point of Contact	Name, Phone, Email of the technical point of contact for issues relating to set up and execution of the intercept operation	[FRNT]
Identity of the Requestor	Name, Phone, Email, Address, Title, LEA department of the person issuing the request	[FRNT]
Signature	Signature of the authorized person issuing the request	[FRNT]

HI1 Management Notifications from SvP to LEA

The SvP shall notify to the LEMF in the following cases:

1. After the activation of lawful interception
2. After the deactivation of lawful interception
3. After modification of an active lawful interception
4. In case of certain exceptional situations

The notification shall include the following information

Item	Description	Example
Lawful Interception ID (LIID)	The LIID format shall consist of alphanumeric characters to uniquely identify the intercept request, to contain a lawful authorization reference number and the date when the lawful authorization was issued. All IRI and CC transfers from SvP to LEA will be marked with the LIID so they may directly correlate with the original request.	**XP45NN710T-20201115**
Notification Type	One of the following: 1. Interception is activated 2. Interception is deactivated 3. Interception has been modified 4. Exception	**Interception is activated**
Date and Time of Event	Specify the date and time the event (e.g, Interception is activated) has occurred	**2020-03-02 09:00**
Date of Notification	Specify the date the notification is being sent	**2020-03-02**
Supplemental Information	Brief note to include supplemental information relating to the type of notification or a brief explanation of the Exceptional event that occurred	**The LI Request LIID XP45NN710T-20201115 was received and processed by John Smith**
Name, Operator Name, and contact information of issuer	Name and contact information of the person issuing the notification	**John Smith Myanmar Net 33 Pyay Rd. john.smith@frontiir.net**

Handover Interface 2 (HI2)

Introduction

This section specifies the Interception Related Information(IRI) that will be sent over the HI2 interface. The IRI will be transmitted in real time to the LEMF as the events are detected and get generated by the SvP's LI mediation function. Our IRI mediation function complies to ETSI Standard TS 102 232-1 V3.21.1.

Specification Summary

1. Both HI2 and HI3 packets will be via a PS-PDU structure as per ASN.1 syntax, that will be encoded with DER encoding scheme. The LEMF will need to support decoding of this information.
2. Our IRI mediation function will support
    a. 'li-psDomainId', 'LIID', 'authorizationCountryCode', 'communicationIdentifier', 'sequenceNumber', 'microSecondTimeStamp' and 'timeStampQualifier'.
    b. 'IRIPayloadSequence' field
    c. all 'IRIType' Message types within the 'IRIPayloadSequence' .

Specification Detail

HI2 Message: A sample of HI2 message header and payload is provided below. The left side is a sample output of the attribute and values of our system while the right side is the field's definition as appears in the ETSI standard.

Mon Nov 2 21:29:33 2020
Capture: Packet Length: 157/157 Direction Value: -1
ETSILI: pS-PDU:
ETSILI: **PSHeader**:
ETSILI: li-psDomainId: 0.4.0.2.2.5.1.17.0
ETSILI: lawfulInterceptionIdentifier: **XP45NN710T**
ETSILI: authorizationCountryCode: **MM**
ETSILI: communicationIdentifier:
ETSILI: networkIdentifier:
ETSILI: operatorIdentifier: **MyanmarNet**
ETSILI: networkElementIdentifier:
ETSILI: communicationIdentityNumber:
ETSILI: deliveryCountryCode: **MM**
ETSILI: sequenceNumber: 0
ETSILI: interceptionPointID:
ETSILI: microSecondTimeStamp:
ETSILI: seconds: 1604352573
ETSILI: microSeconds: 786535
ETSILI: timeStampQualifier: timeOfInterception
ETSILI: **Payload**:
ETSILI: iRIPayloadSequence:
ETSILI: IRIPayload:
ETSILI: iRIType: **IRI-Begin**
ETSILI: iRIContents:
ETSILI: iPIRI:
ETSILI: iPIRIObjId: **.5.3.10.1**
ETSILI: iPIRIContents:
ETSILI: accessEventType: **startOfInterceptionWithSessionActive**
ETSILI: targetUsername: unknownuser
ETSILI: internetAccessType: LAN
ETSILI: iPVersion: IPv4
ETSILI: targetIPAddress:
ETSILI: iP-type: IPv4
ETSILI: iP-value:
ETSILI: iPBinaryAddress: 10.250.1.250
ETSILI: iP-assignment: Static
ETSILI: iPv4SubnetMask: 255.255.255.255

```
PS-PDU ::= SEQUENCE
{
    pSHeader     [1] PSHeader,
    payload      [2] Payload
}

PSHeader ::= SEQUENCE
{
    li-psDomainId
    lawfulInterceptionIdentifier
        -- As of ASN.1 version 26
    authorizationCountryCode
        -- see clause 5.2.3
    communicationIdentifier
    sequenceNumber
    timeStamp
        -- see clause 5.2.6
    ...,
    interceptionPointID
        -- see clause 5.2.11
    microSecondTimeStamp
    timeStampQualifier
}

IRIPayload ::= SEQUENCE
{
    iRIType
        -- See clause 5.2.10
    timeStamp
        -- For aggregated pay
    iRIContents
    ...,
    microSecondTimeStamp
        -- For aggregated pay
    timeStampQualifier
    sessionDirection
        -- If the sessionDire
        -- the exact meaning
        -- relevant service-s
    payloadDirection
        -- If the payloadDire
        -- the exact meaning
        -- relevant service-s
}
```

The HI2 and HI3 messages are structured according to Abstract Syntax Notation One(ASN.1), an efficient data serialization format.

Table 1: IRI events

IRI Event	Description	IRI Message
accessAttempt	A target requests access to the Internet Access Service (IAS).	REPORT
accessAccept	The AAA server grants access to the target.	BEGIN
accessReject	The AAA server refuses access to the target.	REPORT
accessFailed	The access_Attempt timed-out or failed otherwise.	REPORT

Myanmar Net will support the following IRI event types:

accessAccept
accessReject
accessFailed

IRI Event	Description	IRI Message
accessEnd	A target stops using the IAS, either due to logoff or connection loss.	END
endOfInterceptionWithSessionActive	As sessions can be active over longer periods, it is not unlikely for an intercept to end whilst a user session remains active. Available information about the status of this session is sent to the LEA.	REPORT

startofInterceptionWithSessionActive
interimUpdate
accessEnd
endOfInterceptionWithSessonActive

Handover Interface 3 (HI3)

Introduction

HI3 refers to the interface through which Content of Communication(CC) data will be transferred. Our CC mediation function complies to ETSI Standard TS 102 232-1 V3.21.1.

Specification Summary

Our CC mediation function will support “ccPayloadSequence” structure.
Within the cCContents structure, iPCC choice will be supported.

For additional details of each object structure within ASN.1, please refer to ETSI TS 102 232-1 V3.21.1 document.

Specification Detail

HI3 Message: A sample of HI3 message header and payload is provided below. The left side is a sample output of attribute values of our system while the right side is the field’s definition as appears in the ETSI standard.

Mon Nov 2 21:22:51 2020
 Capture: Packet Length: 1629/1629 Direction Value: -1
 ETSILI: pS-PDU:
 ETSILI: **PSHeader**:
 ETSILI: li-psDomainId: 0.4.0.2.2.5.1.17.0
 ETSILI: lawfulInterceptionIdentifier: **XP45NN710T**
 ETSILI: authorizationCountryCode: **MM**
 ETSILI: communicationIdentifier:
 ETSILI: networkIdentifier:
 ETSILI: operatorIdentifier: **MyanmarNet**
 ETSILI: networkElementIdentifier:
 ETSILI: communicationIdentityNumber:
 ETSILI: deliveryCountryCode: **MM**
 ETSILI: sequenceNumber: 0
 ETSILI: interceptionPointID:
 ETSILI: microSecondTimeStamp:
 ETSILI: seconds: 1604352171
 ETSILI: microSeconds: 711202
 ETSILI: timeStampQualifier: timeOfInterception
 ETSILI: **Payload**:
 ETSILI: cCPayloadSequence:
 ETSILI: CCPayload:
 ETSILI: payloadDirection: **fromTarget**
 ETSILI: cCContents:
 ETSILI: iPCC:
 ETSILI: iPCCObjId: **.5.3.10.2**
 ETSILI: iPCCContents:
 ETSILI: **iPPackets**: ...

```
Payload ::= CHOICE
{
    iRIPayloadSequence
    cCPayloadSequence
        -- Clause 6.2.3 exp
    tRIPayload
    ...,
    hI1-Operation
    encryptionContainer
    threeGPP-HI1-Operation
        -- This structure m
    iLHIPayload
        -- For typical use
    hI4Payload
}
```

```
CCPayload ::= SEQUENCE
{
    payloadDirection        [0] PayloadDirection OPTIONAL,
    timeStamp               [1] GeneralizedTime OPTIONAL,
        -- For aggregated payloads (see clause 6.2.3)
    cCContents              [2] CCContents,
    ...,
    microSecondTimeStamp    [3] MicroSecondTimeStamp OPTIONAL,
        -- For aggregated payloads (see clause 6.2.3)
    timeStampQualifier      [4] TimeStampQualifier OPTIONAL
}

CCContents ::= CHOICE
    -- Any of these choices may be commented out if they ar
{
    emailCC                 [1] EmailCC,
    iPCC                    [2] IPCC,
    uMTSCC                  [4] OCTET STRING,
    ...,
    l2CC                    [6] L2CC,
    tTRAFFIC-1              [7] TS101909201.TTRAFFIC,
    cTTRAFFIC-1             [8] TS101909201.CTTRAFFIC,
    tTRAFFIC-2              [9] TS101909202.TTRAFFIC,

  IPCC ::= SEQUENCE
  {
      iPCCObjId             [0] RELATIVE-OID,
      iPCCContents          [1] IPCCContents
  }

IPCCContents ::= CHOICE
{
    iPPackets               [0] OCTET STRING,
    ...
}
```

A sample of the HI3 packet trace is given below.

```
IP: Header Len 20 Ver 4 DSCP 00 ECN 0 Total Length 1500
 IP: Id 1 Fragoff 0
 IP: TTL 11 Proto 17 (udp) Checksum 37406
 IP: Source 10.250.1.250 Destination 10.253.0.2
 UDP: Source 5001 Dest 5002 (rfe)
 UDP: Len 1480 Checksum 37994
unknown protocol udp/5001
 Unknown Protocol: 5001
 82 36 28 49 29 65 c8 65 94 43 3b 72 a7 15 c1 59    .6(I)e.e.C;r...Y
  ad 27 76 35 70 f4 98 4a 39 ca 35 04 72 26 c5 a6    .'v5p..J9.5.r&..
  7c c3 e3 38 bd 24 a4 6d fb 5a 55 69 4d 41 7d 44    |..8.$.m.ZUiMA}D
  98 cf b1 4a 2b 99 54 00 f1 55 12 76 7e 58 c0 c9    ...J+.T..U.v~X..
  14 31 82 26 5c 61 03 7a f7 b8 26 e7 4a 7d eb 35    .1.&\a.z..&.J}.5
  cd 3f 58 3f 17 0d 38 b5 1e df 85 01 22 85 42 4c    .?X?..8.....".BL
  a6 53 51 88 cc bc 2a f5 2d 53 fe 7a f7 03 5b 1e    .SQ...*.-S.z..[.
  03 c3 79 61 75 1f 09 da 34 d4 66 8d 4f 3a 32 eb    ..yau...4.f.O:2.
  4c d3 5a 43 a0 ab da 0e 54 fe c7 95 99 90 b5 cd    L.ZC....T.......
  cd 8e f5 08 25 a2 a9 94 91 ae 76 c8 d5 f7 93 5e    ....%.....v....^
  de dd 67 c4 db 89 d1 31 ab 58 22 f6 33 b5 c3 8d    ..g....1.X".3...
  57 b5 f9 c6 b9 36 dc 7b 99 af 56 e7 5b 64 81 a4    W....6.{..V.[d..
  b9 bb 70 ef 10 35 63 a2 12 65 dc 67 3d ec 7a 75    ..p..5c..e.g=.zu
  ee c5 24 29 cc f4 58 e7 90 38 82 af 8b e9 5d 5d    ..$)..X..8....]]
  92 66 d5 77 67 27 bc a4 80 11 2f 72 d2 35 3f d4    .f.wg'..../r.5?.
  24 f9 19 50 7c bf f8 88 8c 70 7b 1a f1 76 b6 46    $..P|....p{..v.F
  98 c7 35 53 bf 2d 6e e0 a4 57 bb ab 46 fc 14 49    ..5S.-n..W..F..I
  88 e4 37 53 cf 47 db 85 cc d0 ad 44 30 ba c7 3f    ..7S.G.....D0..?
  fb b2 92 e9 71 b5 81 23 83 ac 72 fb 00 ea de 5c    ....q..#..r....\
  5d 0e 24 b1 66 ca 72 11 0f dd ab 41 d8 fb 05 ee    ].$.f.r....A....
  93 eb 37 19 6f 68 5f 21 f3 ff 88 af 0b 37 2a 26    ..7.oh_!.....7*&
  be 95 e7 c4 55 e2 24 07 ec 1f c5 6c ea 09 b5 7e    ....U.$....l...~
  65 32 dd 7e 45 dc 94 6f 29 9e 19 c4 52 c2 f6 68    e2.~E..o)...R..h
  56 37 0e f6 c3 f2 e8 d0 1e cf e8 f2 b6 de 89 ee    V7..............
  c7 ad bb 12 b9 a3 32 37 9f 42 15 bc ed ef 1a cd    ......27.B......
  9c a5 02 15 d3 3e ff a5 91 c3 28 77 42 57 7d e7    .....>....(wBW}.
  f7 4f e9 53 54 c1 88 80 c2 cd 45 a1 60 07 f1 88    .O.ST.....E.`...
  81 0d 56 21 78 00 08 eb 3e 25 93 bb da 24 ed a1    ..V!x...>%...$..
  31 ad 13 e5 4f eb ff 0d 11 8f 30 1b 4f 7b 29 2f    1...O.....0.O{)/
  4e a4 37 84 02 a6 0c 36 dd da b5 bf 02 48 41 b7    N.7....6.....HA.
  40 8d a5 67 ab 3d b8 1e 09 8d e9 20 14 84 0d 36    @..g.=..... ...6
  1b 15 77 f0 c1 f5 86 3b 4d 80 59 19 29 1c 43 33    ..w....;M.Y.).C3
  ae 29 30 ec 8e 38 1d b9 55 73 3d c6 b7 d2 7f 54    .)0..8..Us=....T
  e1 08 45 4c 0f 94 e4 e9 fd 5c e3 9d 21 f3 6c c0    ..EL.....\..!.l.
  bf ba 42 01 30 e8 d0 fd b1 84 69 0a 39 f9 00 83    ..B.0.....i.9...
  ef 76 bf 72 e6 78 f3 e1 26 19 82 d3 2a 89 8d be    .v.r.x..&...*...
  da 6c 38 5e 3f a1 96 7b 49 42 ab 79 39 20 be c5    .l8^?..{IB.y9 ..
  33 e2 27 83 2b 14 ff 5e b2 de 49 a2 6d 34 e2 88    3.'.+..^..I.m4..
  a3 4b 1a f2 d0 3e 31 29 cb 7b 91 78 01 ad 02 e4    .K...>1).{.x....
  46 65 30 d7 47 d2 83 c5 d9 d1 53 42 10 f5 31 77    Fe0.G.....SB..1w
  31 4d da 1e 6c 3a 71 a8 6e 46 60 51 74 7d fc c7    1M..l:q.nF`Qt}..
  df 7b 29 ea d6 a3 c8 4c 62 8e 18 09 d4 36 00 07    .{).....Lb....6..
  bb 5b 9f 7e b5 9d ac b6 73 95 9c 72 48 72 5c 39    .[.~....s..rHr\9
  29 72 e8 9a db 80 13 82 9a 06 7f 55 68 f0 42 a5    )r.........Uh.B.
  04 14 43 4e 3b 8a b3 26 62 f0 8e 69 84 6a 2f 31    ..CN;..&b..i.j/1
  29 25 36 77 0d 02 68 c7 b5 5d 09 50 ed f7 31 5d    )%6w..h..].P..1]
  61 a0 ea 00 d3 41 5c 22 d3 1e 88 14 52 47 01 50    a....A\"....RG.P
  28 d0 5d 0d 8d ee 25 b1 90 18 1b e8 7b 6c 0c a4    (.]...%.....{l..
  85 74 e1 34 b4 ca 22 d8 a1 d1 21 26 f2 8f aa 44    .t.4.."...!&...D
```

```
41 54 27 14 02 3b e7 6f a6 a6 9c eb 4d 29 ae 65    AT'..;.o....M).e
bb 01 ad 73 04 22 e1 7f c6 55 4f db 6e c3 f8 44    ...s."...UO.n..D
55 b8 11 ca a4 e6 77 bd 28 03 b4 d4 4c fc 41 28    U.....w.(...L.A(
28 d1 0a 90 72 3b c7 8b 60 10 d6 ea b7 15 6b cc    (...r;..`.....k.
22 7f c3 13 21 86 a2 d6 45 9d 4f d4 d6 8e 39 e3    "...!...E.O...9.
99 3d ee 1a e9 13 09 2d fb 09 79 29 f5 15 1e 39    .=.....-..y)...9
b5 78 7d 86 37 56 42 5e bb 33 eb 50 96 87 ba b8    .x}.7VB^.3.P....
1f 16 bf f3 41 bd 91 83 38 26 ff 98 e9 45 9b d5    ....A...8&...E..
29 ab 22 ee 96 c9 64 d0 39 0d af bc ee b6 f6 c0    ).".d.9.........
20 7f 3c 8d 0b 9c fd 06 90 68 81 da 61 1d 90 54     .<.....h..a..T
3c 64 f4 1a f5 b6 29 33 87 9c 90 0b 87 8b 5e 69    <d....)3.....^i
ba d5 64 99 b5 21 b1 63 41 27 3e b7 72 77 aa a7    ..d..!.cA'>.rw..
da 02 cf b0 26 83 f8 2f 6e 24 d7 1d 2b c5 13 c3    ....&../n$..+...
20 df a9 e9 c2 eb 98 be fb 78 03 ab da 26 cc f8     ........x...&..
24 de 77 d8 0a a2 6b 29 70 d0 47 9f 78 f2 ba 60    $.w...k)p.G.x..`
74 f2 a9 7c 17 af 2c 4c b5 7e bf 84 f4 9f 87 b0    t..|..,L.~......
58 c7 fe 0b 48 37 a2 0d 62 5d 0d 23 2a fd c4 c9    X...H7..b].#*...
82 56 1e ee 76 46 ce 93 cc 0b 89 ff 17 09 8e e1    .V..vF..........
60 de d3 53 29 39 72 68 32 6c 0a ee 5b 9f a4 b9    `..S)9rh2l..[...
d0 6e 91 7a 63 19 be f5 c2 0a 32 78 57 25 e5 c1    .n.zc.....2xW%..
3f 6f 33 07 a9 34 4d 7c f9 55 72 9e e2 a6 42 0d    ?o3..4M|.Ur...B.
d0 4a cf a5 42 19 b6 7d b2 19 f3 a1 46 24 e7 e5    .J..B..}....F$..
e0 07 c1 ac 7a d9 79 18 fb 0a e5 df 35 f9 c2 25    ....z.y.....5..%
a0 b2 10 7c b0 bd 88 da 00 90 c6 54 8b d3 85 bf    ...|.......T....
0c 91 29 e0 c0 51 ae 90 fa 2f d5 ca a3 b9 86 b4    ..)..Q.../......
cd 39 40 62 9c c9 05 bd 17 23 76 10 f9 c3 c5 ff    .9@b.....#v.....
22 cc 91 8b 63 07 e1 b9 55 6a dd 9e a6 10 2d f4    "...c...Uj....-.
8f 4c 09 cb ff d3 40 ef 00 5e c3 50 ec be 5f 2d    .L....@..^.P.._-
d4 de 04 77 90 11 a6 b4 cf 77 b3 9e cb 70 b4 44    ...w.....w...p.D
f5 d0 24 06 02 ac 17 0b d6 08 22 8d 29 d4 1c 99    ..$.......".)...
fd fb 42 00 3d 36 c0 f1 a6 8c 60 cc 91 e6 ff d1    ..B.=6....`.....
80 10 ba 16 f4 20 44 ff fa a3 a6 9c d9 08 bd b7    ..... D.........
32 30 ee 83 09 70 7d af 80 5c 17 c5 d7 6a 98 f3    20...p}..\...j..
c8 1d 89 fa c4 01 af 61 2c a4 b8 c3 15 f6 57 a1    .......a,.....W.
ee a1 10 d7 a4 be db ba 59 e4 27 68 2c a6 1d db    ........Y.'h,...
1c 1f 2d 49 6d 63 33 59 a3 b9 61 0e 4e b0 76 36    ..-Imc3Y..a.N.v6
d4 a5 70 f2 10 99 13 00 af 09 75 1b 28 03 e9 c0    ..p.......u.(...
02 f6 16 b1 3d c2 8a ae 70 b2 e8 1a 7c 47 c0 70    ....=...p...|G.p
d0 bb f6 e0 61 11 c4 95 79 b2 b6 ed 0b b8 9a 6e    ....a...y......n
eb b5 50 38 24 62 2d 73 31 79 8a b0 75 3c a4 12    ..P8$b-s1y..u<..
11 60 ed c1 99 84 60 5e 01 de 03 fe 58 a5 7c ab    .`....`^....X.|.
69 86 7e af f9 a2 ca cb 78 ed c2 f2 a4 7a d5 21    i.~.....x....z.!
6d 1b 09 90 00 1a 2b 64 c0 3f 92 6d 16 19 0a 8a    m.....+d.?.m....
```

CC is provided for every intercepted IP datagram. The CC payload contains a stream of octets, containing an exact copy of the intercepted datagram from the IP layer and upwards, i.e. Link layer data is removed from the payload.

```
iPIRIObjId RELATIVE-OID              ::= {li-ps(5) iPAccess(3) version11(11) iRI(1)}
iPCCObjId RELATIVE-OID               ::= {li-ps(5) iPAccess(3) version11(11) cC(2)}
iPIRIOnlyObjId RELATIVE-OID          ::= {li-ps(5) iPAccess(3) version11(11) iRIOnly(3)}
```

```
lawfulInterceptDomainId OBJECT IDENTIFIER ::= {itu-t(0) identified-organization(4) etsi(0)
securityDomain(2) lawfulIntercept(2)}
```

```
li-psDomainId OBJECT IDENTIFIER ::= {lawfulInterceptDomainId li-ps(5) genHeader(1) version30(30)}
```

Additional Information

The following table summarizes the values of various attributes that would be embedded within applicable IRI and CC messages.

Attribute	Sample Value
Lawful Interception Identifier	up to 32 alphanumeric characters given by LEA via HI1 interception request
Country Code	MM
Authorization Country Code	MM
Delivery Country Code (DCC)	MM
Communication Identifier	MyanmarNet
Network Identifier (NID)	MyanmarNet
Operator Identifier	MyanmarNet