

**GUIDELINES FOR IMPLEMENTATION**  
**ISUP-SIP INTERWORKING**  
**PROFILE C**

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Abstract  The GFI0301 defines the interworking between IETF SIP-standards and national ISUP standards. The basis of the work has been national ISUP3, but the document is applicable also in case of national ISUP2 and ISUP4 standards.  This version covers only interworking based on the profile C defined in the ITU-T Technical Report TRQ.2815 'Requirements for Interworking BICC/ISUP Network with Originating/Destination Networks based on Session Initiation Protocol and Session Description Protocol'. Interworking specified in this document covers only the case where the O-IWU has the knowledge that in the connection between O-IWU and I-IWU there are no changes in the SIP or ISUP information. Other profiles will be covered in later versions.			
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## FOREWORD

**GFI 0301 Guidelines for implementation, ISUP-SIP Interworking, Profile C** contains clarifications and option selections for ITU-T deliverables covering ISUP-SIP interworking and national additions covering areas of national ISUP interworking not included in ITU-T deliverables. The aim of this document is to ensure the interworking between national ISUP and SIP protocols.

This guideline document has been prepared by the members of the national standardization group for network-to-network signalling. The Steering Group for Telecommunications Standardization has discussed this document and recommends it to be followed when implementing ISUP-SIP interworking.

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## 1 INTRODUCTION

This specification defines the interworking between IETF SIP-standards and national ISUP standards. The basis of the work has been national ISUP3, but the document is applicable also in case of national ISUP2 and ISUP4 standards.

This version covers only interworking based on the profile C defined in the ITU-T Technical Report TRQ.2815 *'Requirements for Interworking BICC/ISUP Network with Originating/Destination Networks based on Session Initiation Protocol and Session Description Protocol'*. Interworking specified in this document covers only the case where the O-IWU has the knowledge that in the connection between O-IWU and I-IWU there are no changes in the SIP or ISUP information. Other profiles will be covered in later versions.

The specification contains some introductory text related to the profile C from the TRQ.2815 and national comments to the ITU-T recommendation Q.1912.5 *'Interworking Between Session Initiation Protocol (SIP) and Bearer Independent Call Control Protocol or ISDN User Part'*. The comments are made because of national requirements or because they are related to other profiles than profile C.

## 2 REFERENCES

ITU-T Series Q Supplement 45, Technical report TRQ.2815

Requirements for Interworking BICC/ISUP Network with  
Originating/Destination Networks based on Session Initiation Protocol  
and Session Description Protocol

ITU-T Recommendation Q.1912.5

Interworking Between Session Initiation Protocol (SIP) and Bearer  
Independent Call Control Protocol or ISDN User Part

SFS5869:en

Signalling in the public switched telephone network (PSTN). ISDN User  
Part ISUP Version 3 of the national Signalling System No. 7. Application  
of ITU-T recommendations Q.730 and Q.761 - Q.766 in Finland.

SFS5779

Signalling in the public switched telephone network (PSTN). ISDN User  
Part ISUP Version 2 of the national Signalling System No. 7. Application  
of ITU-T recommendations Q.730 and Q.761 - Q.766 in Finland.

SFS5901:en

Signalling in the public switched telephone network (PSTN). ISDN User  
Part ISUP Version 4 of the national Signalling System No. 7. Application  
of ITU-T recommendations Q.730 and Q.761 - Q.766 in Finland.

## 3 TRQ.2815

The ITU-T TRQ.2815 is applicable with the following comments:

This GFI covers SIP Profile C for Interworking Between SIP with MIME Encoding of ISUP and ISUP according to the following figure:

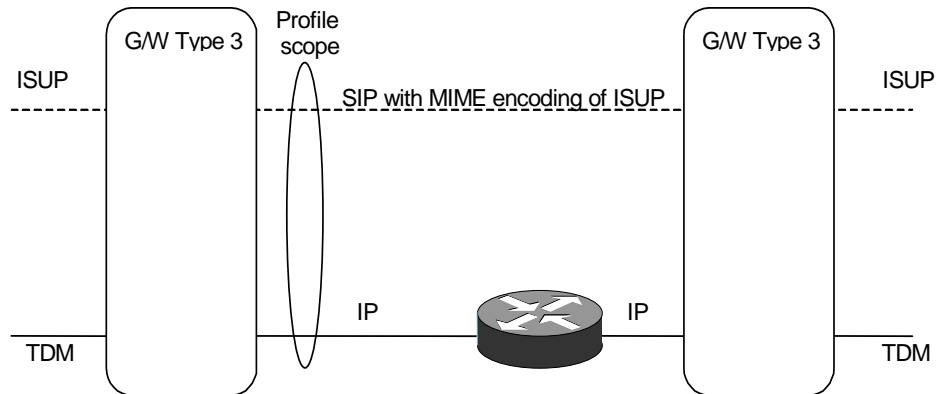


Figure 1 - Profile Scope for SIP with MIME encoding of ISUP Interworking with ISUP with Type 3 Gateways

There should be no misalignment between the MIME'd ISUP and the information in the SIP/SDP headers/fields received at an I-IWF.

The entities in the SIP domain between the O-IWF and the I-IWF do not modify the ISUP or the SIP/SDP headers/fields.

#### 4 Q.1912.5

The ITU-T recommendation Q.1912.5 is applicable with the following general comments:

- all procedures and information elements related to BICC are not applicable
- the GFI covers only profile C, i.e. all procedures and information elements related to profiles A and B are not applicable
- the GFI covers only type 3 gateways, i.e. all procedures and information elements related to type 1, 2 and 4 gateways are not applicable

In addition the following comments related to clauses of Q.1912.5 are applicable:

#### 5.3 General principles

The O-IWU and I-IWU shall act as a Type B exchange.

#### 5.3.3 Interworking of ISUP overlap signalling

The text concerning the recommendation of not using overlap signalling is not applicable i.e. in the national network overlap signalling can be used.

#### 5.4.2.1.1 Alignment of SIP headers and ISUP body content

The ISUP field shall be derived from the encapsulated ISUP mime body.

#### 5.4.3 Exclusions/Special considerations

#### Table 1/Q.1912.5 – ISUP Messages for Special Consideration

Forward Transfer and Continuity Check Request messages are not used in Finland.

Continuity message: The I-IWU can generate COT or it can delay sending the last digit in order to avoid speech clipping. In the interface between operators COT can only be used if it has been agreed by the interconnected operators.

Metering Pulse message: Nationally introduced, transported through the SIP network encapsulated in the INFO message.

Nationally used messages CQM, CQR, OLM, UCICC and SDM are locally terminated.

Nationally used messages INR and INF are encapsulated according to the clause 5.4.3.2.

**6.1.1 INVITE received without an SDP offer**

Not applicable (SDP offer always included).

**6.1.2 INVITE received with an SDP offer or continuation from clause 6.1.1 (1)**

SIP preconditions are in use.

**6.1.3.3 Nature of Connection Indicators (Mandatory)**

The bits AB are coded always 00 (no satellite circuit in the connection) in the national network.

**6.1.3.6 ISUP Calling Line Identification (CLI) parameters**

The Calling Party Number and Generic Number included in encapsulated ISUP message are transferred as such to the ISUP procedures.

**Table 7/Q.1912.5 - Mapping of SIP From/P-Asserted-Identity/Privacy headers to ISUP CLI parameters**

Calling Party Number parameter  
Address signals

A network provided E.164 number is included if no "P-Asserted-Identity" header field containing a URI with an identity in the format "+CC"+"NCD"+"SN" is received.

Calling Party Number parameter  
APRI  
APRI is set to "presentation restricted" in case of a network provided E.164 number.

**6.1.3.9 Hop Counter (Optional)**

In interconnection applications the use of Hop counter and the value of the Max-Forwards Factor is based on bilateral agreement.

**6.11.2 Receipt of REL**

**Table 21/Q.1912.5 - Receipt of the Release message (REL)**

Cause values No. 8 (Preemption) and No. 9 (Preemption-circuit reserved for reuse) are not used.

Cause value 24 and the corresponding SIP status code 503 Service unavailable are added.

Cause values 39, 40 and 46 are not applicable.

**7.1 Sending of the first INVITE**

Only the case B) Sending INVITE with precondition for ISUP IAM/SAM is applicable.

**7.1.1 Coding of SDP Media Description Lines from TMR/USI****Table 26/Q.1912.5 - Coding of SDP Media Description Lines from TMR/USI: ISUP to SIP**

Rows related to G.711  $\mu$ -law are not applicable.

Rows related to 1536 kbit/s unrestricted and N x 64 kbit/s unrestricted, N from 3 to 29 are not applicable.

In the cases related to T.38 (Group 3 fax), T.38 or G.711 can be used in accordance with the agreement by the interconnected operators.

CLEARMODE is applicable.

ISUP TMR value '64 kbit/s preferred' is handled like value '64 kbit/s unrestricted'.

**7.1.3 P-Asserted-Identity, From and Privacy header fields****Table 27/Q.1912.5 - Mapping ISUP CLI Parameters to SIP Header fields**

The encapsulated ISUP message contains all the relevant information related to the Calling Party Number and Generic Number so that there is no need to include any optional INVITE headers related to them.

The case, where a Calling Party Number parameter with complete E.164 number, with Screening Indicator = UPVP or NP, and with APRI = "presentation allowed" or "presentation restricted" has not been received, is applicable only in international calls.

**7.1.4 Hop Counter (Optional)**

In interconnection applications the use of Hop counter and the value of the Max-Forwards Factor is based on bilateral agreement.

**7.1.5.1 Nature of Connection Indicators**

Satellite indicator is not incremented in the O-IWU.

**7.1.5.2 Propagation delay counter**

Propagation delay counter is not required.

#### **7.7.6 Receipt of 4XX, 5XX, 6XX Responses To INVITE**

##### **Table 40/Q.1912.5 - Receipt of 4XX, 5XX or 6XX at O-IWU**

SIP status code 503 Service unavailable is mapped to REL cause value 127 interworking also in case of ACR.

#### **ANNEX-B.1~B.N Interworking for ISDN Supplementary Services**

##### **ANNEX B.17 Interworking of Multi-Level Precedence and Preemption (MLPP) Supplementary service to SIP networks.**

Not applicable.

##### **ANNEX B.18 Interworking of Global Virtual Network Service (GVNS) Supplementary service to SIP networks.**

Not applicable.

##### **ANNEX B.19 Interworking of International telecommunication charge card (ITCC) Supplementary service to SIP networks.**

Not applicable.

##### **ANNEX B.20 Interworking of Reverse charging (REV) Supplementary service to SIP networks.**

Not applicable.

#### **APPENDIX I Interworking scenarios between SIP and BICC**

Not applicable.

#### **APPENDIX II Interworking scenarios between SIP and ISUP**

Not applicable.