INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.951

(03/93)

DIGITAL SUBSCRIBER SIGNALLING SYSTEM No. 1

STAGE 3 DESCRIPTION FOR SUPPLEMENTARY SERVICES USING DSS 1

STAGE 3 DESCRIPTION FOR NUMBER IDENTIFICATION SUPPLEMENTARY SERVICES USING DSS 1

Clause 3 – Calling Line Identification Presentation (CLIP)
Clause 4 – Calling Line Identification Restriction (CLIR)
Clause 5 – Connected Line Identification Presentation (COLP)
Clause 6 – Calling Line Identification Restriction (COLR)

ITU-T Recommendation Q.951

(Previously "CCITT Recommendation")

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FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation Q.951, clauses 3, 4, 5 and 6 was prepared by the ITU-T Study Group XI (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

2 In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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STAGE 3 DESCRIPTION FOR NUMBER IDENTIFICATION SUPPLEMENTARY SERVICES USING DSS 1

(Helsinki, 1993)

3 Calling Line Identification Presentation (CLIP)

3.1 Definition

calling line identification presentation (CLIP) is a supplementary service offered to the called party which provides the calling party's ISDN number, possibly with sub-address information to the called party.

3.2 Description

3.2.1 General description

This supplementary service provides the ability of indicating the ISDN number of the calling line, with possible additional sub-address information (i.e. the Calling party sub-address information element), to the called party.

The information provided to the called user consists of the ISDN number of the calling user in a form sufficient to allow the returning of the call (i.e. a subscriber number, a national number or an international number and optionally a sub-address if provided by the calling user).

3.2.2 Specific terminology

For the purposes of this Recommendation, the following terms apply:

A **served user** is the user of a particular ISDN number who has subscribed to the presentation of the calling line identification information in association with incoming calls. The served user is also known as the called user.

A **calling user** is the user that initiated an incoming call at the served user. The calling user need not have subscribed to the Calling Line Identification Presentation supplementary service.

An **ISDN number** is a number conforming to the numbering plan structure specified in Recommendation E.164.

An **address** is the number of the calling user (normally ISDN number), and a sub-address if provided by that user.

An **international number** is an ISDN number structured as specified in Recommendation E.164.

A **national number; national significant number** is an ISDN number structured as specified in Recommendation E.164.

A **subscriber number** is an ISDN number structured as specified in Recommendation E.164.

A **default number** is an agreed number between the user at the calling side and the network provider.

A **special arrangement** is an arrangement between a customer and a public network operator whereby customer supplied calling numbers are not screened by the public ISDN.

CLIP Calling Line Identification Presentation

CLIR Calling Line Identification Restriction

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3.2.3 Qualification on the applicability to telecommunication services

See Recommendation I.251.3.

3.2.4 State definitions

No specific state definitions are required.

3.3 Operational requirements

3.3.1 Provision/withdrawal

See Recommendation I.251.3.

NOTE – Annex A contains some additional procedures to support the two Calling party number information elements delivery option. This is a network option.

3.3.2 Requirements on the originating network side

All information pertaining to CLIP, shall be inserted in the SETUP message sent as part of the basic call procedures according to 5/Q.931.

In the case where no information is provided by the calling user (as part of the basic call procedures) the network shall provide the default number associated with the user access (in which the call was generated) in the originating local exchange.

When the calling party information is provided by the user, the network can only verify that the number is within the range allocated to that user.

Where a special arrangement exists with the calling user, no screening of the calling number they supplied, shall be performed.

3.3.3 Requirements in the network

This subclause is not applicable to DSS 1.

3.3.4 Requirements on the destination network side

See 3.5.2.3.

3.4 Coding requirements

All information pertaining to CLIP is inserted in the SETUP message. 4.5.10/Q.931 and 4.5.11/Q.931 give the coding for the Calling party number and Calling party sub-address information elements which are required to support this service. The purpose of the Calling party number information element is to identify the origin of a call. The purpose of the Calling party sub-address information element is to identify a sub-address associated with the origin of the call.

3.5 Signalling requirements

3.5.1 Activation/deactivation/registration

Not applicable.

3.5.2 Invocation and operation

3.5.2.1 Actions at the originating local exchange

3.5.2.1.1 Normal operation

3.5.2.1.1.1 Actions at the originating user

These procedures shall be provided as part of the basic service and the calling user need not have subscribed to the CLIP supplementary service.

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The numbering plan identification, to be indicated with the Calling party number information element, sent by the calling user, shall be either "ISDN/telephony numbering plan" (see Recommendation E.164) or "unknown".

NOTE – Either coding may be used and the treatment of both by the network is identical.

Where the calling number included by the calling user is complete the type of number to be indicated within the Calling party number information element, sent by the calling user, shall be one of the following:

– "*Subscriber number*" – In the case where the complete subscriber number is sent.

– "*National number*" – In the case where the complete national number is sent.

– "*International number*" – In the case where the complete international number is sent.

Where a partial calling number is included by the calling user (e.g., to indicate digits specific to the Direct-Dialling-In or the Multiple Subscriber Number supplementary services) the user shall set the type of number to be indicated within the Calling party number information element to "unknown".

3.5.2.1.1.2 Actions at the originating local exchange if a special arrangement does not apply

These procedures shall be provided as part of the basic service and the calling user need not have subscribed to the CLIP supplementary service.

When a SETUP message is received from the calling user, the network shall check to see if the Calling party number and Calling party sub-address information elements are included.

If the Calling party number information element is received with a coding of the numbering plan identification field other than "ISDN/telephony numbering plan" (see Recommendation E.164) or "unknown", then the network shall discard the Calling party number information element and process the call as if that information was not received.

The network shall set the value of the screening indicator based on the outcome of the screening of the calling number. The network shall disregard any value of the screening indicator, if received from the calling user.

If the Calling party number information element is included, the network shall perform the screening function.

NOTE 1 – Some networks may accept a full ISDN number in a Calling party number information element with the addition of a prefix or escape digits to the number digits field and the type of number field set to "unknown".

If the calling number received from the calling user is determined to be correct, the network shall set the screening indicator to "user-provided, verified and passed".

If the screening function fails the network shall note that the screening is failed and shall use a default number associated with the calling user. The network shall set the screening indicator to "network provided".

If the SETUP message does not contain the Calling party number information element the network shall use a default number associated with the calling user. The network shall set the screening indicator to "network provided".

In the case where the calling user provides only partial calling number information and the number is a valid digit sequence for the user access arrangement, the network shall complete the number as appropriate. The network shall set the screening indicator to "user-provided, verified and passed".

NOTE 2 – In some cases the network cannot guarantee that the completed number identifies an end user.

The information determined by the procedures above, shall be forwarded to the destination local exchange, in association with the basic call request.

The presentation indicator, as determined by the procedures of the CLIR supplementary service (see clause 4), shall be forwarded to the destination local exchange, in association with the basic call request.

If the Calling party sub-address information element is available, it shall be passed transparently through the network.

The actions at the originating local exchange when special arrangement does not apply are summarized in Table 3-1.

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TABLE 3-1/Q.951

Information provided by the calling user and by the network when special arrangement does not apply

Information provided by the calling user		Information provided by the network to the called user		
Calling number received from the calling user (octet 4)	Type of number (octet 3)	Calling number forwarded (if CLIR is not activated) (octet 4)	Screening indicator forwarded (octet 3a)	Type of number forwarded (octet 3)
No calling party number information element is provided by the calling user		Default number stored at the network side sufficient for returning the call	Network provided	"International number" or "national number" (Notes 1, 7)
Valid part of the number not sufficient for returning the call (Note 2)	"Unknown"	Completion of the number (Note 3)	User-provided verified and passed (Note 4)	"International number" or "national number" (Notes 1, 7)
Correct complete calling party number (Note 5)	"Subscriber number" or "national number" or "international number"	Complete calling party number	User-provided verified and passed	"International number" or "national number" (Notes 1, 7)
Incorrect number (Note 6)	Any type of number	Default number stored at the network side sufficient for returning the call	Network-provided	"International number" or "national number" (Notes 1, 7)

NOTES

1 A national number shall be converted to an international number at some point in the public network path where the destination is in a different country.

2 This assumes that the user's equipment provides that part of the number pertaining to its own (private) domain. This may be multiple subscriber number digits provided by a terminal equipment or an extension line number provided by a private ISDN. The network shall interpret the number digits and check if it is a valid digit sequence according to the agreements existing between the calling user and the network provider.

3 Completion means that the remaining part of the ISDN number associated with the appropriate access is added to the user provided part of the number.

4 The term "verified" implies matching the user provided number or part of this number with the range(s) of numbers stored at the network side and it implies at least a valid format of user provided number information.

5 The term "correct" implies, from the network point of view, matching the subscriber number provided by the user with one of the numbers in the set of numbers stored at the network side.

6 The number provided by the user is discarded.

7 As a network option the type of number forwarded to the called user may be coded "unknown" when a prefix is added to the number, in which case the number is organized according to the network dialling plan, i.e. prefixes or the absence of a prefix, shall be used to distinguish international numbers and national numbers from each other.

3.5.2.1.1.3 Actions at the originating local exchange if a special arrangement applies

These procedures shall be provided as part of the basic service and the calling user need not have subscribed to the CLIP supplementary service.

When a SETUP message is received from the calling user, the network shall check to see if the Calling party number and Calling party sub-address information elements are included.

If the Calling party number information element is received with a coding of the numbering plan identification field other than "ISDN/telephony numbering plan" (see Recommendation E.164) or "unknown", then the network shall discard the Calling party number information element and process the call as if that information element was not received.

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If the Calling party number information element is received with the coding of the type of number field other than "national number" or "international number", then the network shall discard the Calling party number information element and process the call as if that information element was not received.

The network shall disregard any value of the screening indicator, if received from the calling user.

If the SETUP message does not contain the Calling party number information element the network shall use a default number associated with the calling user. The network shall set the screening indicator to "network provided".

If the Calling party number information element is included the network shall set the screening indicator to "user-provided, not screened".

NOTE – For the above condition, the procedures of basic call will provide for another calling number to be transported through the network. This other calling number will contain the default number, with an associated screening indicator set to "network provided".

The information determined by the procedures above, shall be forwarded to the destination local exchange, in association with the basic call request.

The presentation indicator, as determined by the procedures of the CLIR supplementary service (see clause 4) shall be forwarded to the destination local exchange, in association with the basic call request.

If the Calling party sub-address information element is available, it shall be passed transparently through the network.

The actions at the originating local exchange when special arrangement applies are summarized in Table 3-2.

TABLE 3-2/Q.951

Information provided by the calling user and by the network when special arrangement applies

Information provided by the calling user		Information provided by the network to the called user		
Calling party number received from the calling user (octet 4)	Type of number (octet 3)	Calling party number forwarded (if CLIR is not activated) (octet 4)	Screening indicator forwarded (octet 3a)	Type of number forwarded (octet 3)
No calling party number information element is provided by the calling user		Default number stored at the network side sufficient for returning the call	Network provided	"International number" or "national number" (Notes 1, 2)
Any digit sequence conforming to E.164	"National number" or "international number"	Number provided by the user (Note 1)	User-provided, not screened	"International number" or "national number" (Notes 1, 2)

NOTES

1 A national number shall be converted to an international number at some point in the public network path where the destination is in a different country.

2 As a network option the type of number forwarded to the called user may be coded "unknown" when a prefix is added to the number, in which case the number is organized according to the network dialling plan, i.e. prefixes or the absence of prefixes, shall be used to distinguish international numbers and national numbers from each other.

3.5.2.1.2 Exceptional procedures

Not applicable.

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3.5.2.2 Actions at the transit exchange

This subclause is not applicable to DSS 1.

3.5.2.3 Actions at the destination local exchange

3.5.2.3.1 Normal operation

When the network sends a SETUP message to the called user and if the called user is provided with the CLIP supplementary service, the network shall check to see if the calling number is available.

If the calling number is available and presentation is allowed according to the presentation indicator supplied together with the calling number, the network shall include the Calling party number information element in the SETUP message sent to the called user. If provided, the network shall also include the Calling party sub-address information element in the SETUP message. The presentation and screening indicators associated with the calling number, and the calling sub-address, received at the destination exchange, shall be passed transparently to the called user.

The numbering plan identification field shall be coded either "ISDN/telephony numbering plan" (see Recommendation E.164)" or "unknown".

If presentation is not allowed according to the presentation indicator supplied together with the calling number, the network shall include the Calling party number information element in the SETUP message sent to the called user. The presentation indicator in the Calling party number information element shall indicate "presentation restricted". The network shall encode the screening indicator, numbering plan identification and the type of number according to one of the following options:

i) The screening indicator shall indicate "network provided". The type of number and numbering plan identification shall be set to "unknown".

ii) The screening indicator, numbering plan identification and the type of number shall be as received at the destination network.

The network shall not include digits field. The network shall not include the Calling party sub-address information element in the SETUP message.

If neither the calling number nor an indication that presentation is restricted is available at the destination local exchange the network shall include the Calling party number information element in the SETUP message sent to the called user. The presentation indicator shall be set to "number not available due to interworking", and the screening indicator shall be set to "network provided", the type of number and the numbering plan identification shall be set to "unknown" and the number digits field shall not be included. The network shall not include the Calling party sub-address information element, if provided, in the SETUP message.

If the called user is not provided with the CLIP supplementary service, then neither the Calling party number nor the Calling party sub-address information elements shall be included in the SETUP message sent to the called user.

If presentation is restricted but as a national network option the called user has the "override" category (e.g., police or emergency service) marked in the destination local exchange, the network shall include the Calling party number information element, and Calling party sub-address information element if the sub-address was supplied by the calling party in the SETUP message. In this case, the presentation and screening indicators shall be passed transparently to the called user.

NOTE – If the presentation indicator in the Calling party number information element received by the user is set to "number not available due to interworking" or "presentation restricted", the remaining information in the Calling party number information element should be ignored by the user.

3.5.2.3.2 Exceptional procedures

Not applicable.

3.6 Interaction with other supplementary services

3.6.1 Call Waiting

No interaction.

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3.6.2 Call Transfer

No interaction.

3.6.3 Connected Line Identification Presentation

No interaction.

3.6.4 Connected Line Identification Restriction

No interaction.

3.6.5 Calling Line Identification Presentation

No interaction.

3.6.6 Calling Line Identification Restriction

The calling line identification will not be presented if the calling user has an arrangement to inhibit the presentation of his number(s) to the called party (calling user subscribes to the supplementary service "Calling Line Identification Restriction"). The only occasion when a user subscribing to CLIP can take precedence over CLIR is when the CLIP served user has an override category. This is a national option.

3.6.7 Closed User Group

No interaction.

3.6.8 Conference Calling

As specified in 1/Q.954.

3.6.9 Direct-Dialling-In

No interaction.

3.6.10 Call diversion (call forwarding) services

3.6.10.1 Call Forwarding Busy

As specified in 2/Q.952.

3.6.10.2 Call Forwarding No Reply

As specified in 3/Q.952.

3.6.10.3 Call Forwarding Unconditional

As specified in 4/Q.952.

3.6.10.4 Call Deflection

As specified in 5/952.

3.6.11 Line Hunting

No interaction.

3.6.12 Three-Party Service

No interaction.

3.6.13 User-to-User Signalling

3.6.13.1 Service 1

No interaction.

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3.6.13.2 Service 2

No interaction.

3.6.13.3 Service 3

No interaction.

3.6.14 Multiple Subscriber Number

Upon call initiation, if the ISDN number indicated by the MSN user terminal is not subscribed to for the interface, or if no numbering information is indicated, a default number or a number unavailable indication is provided to the CLIP user.

3.6.15 Call Hold

No interaction.

3.6.16 Advice of charge

No interaction.

3.6.17 Sub-addressing

No interaction.

3.6.18 Terminal Portability

No interaction.

3.6.19 Completion of Calls to Busy Subscriber

As specified in 3/Q.953.

3.6.20 Malicious Call Identification

As specified in clause 7.

3.6.21 Reverse Charging

No interaction.

3.6.22 Multilevel Precedence and Preemption

No interaction.

3.7 Interaction with other networks

3.7.1 Interaction with non-ISDNs

On calls incoming from some non-ISDNs, the calling number may be delivered to the destination ISDN without an indication of calling line identity restriction. In this case a number of options exist and the selection of the following is according to the network rules and regulations:

- The network shall send the Calling party number information element according to 3.5.2.3.1, sixth paragraph, and shall include no Calling party sub-address information element.
- The network shall send the Calling party number information element according to 3.5.2.3.1, fourth paragraph, and shall include no Calling party sub-address information element.
- The network shall send the Calling party number information element according to 3.5.2.3.1, second paragraph, and shall include the Calling party sub-address information element if the calling sub-address is available.

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