ATIS-1000641.2014(R2019)

Calling Name Identification Presentation

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ATIS-1000641.2014(R2019), *Calling Name Identification Presentation*

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American National Standard for Telecommunications

Calling Name Identification Presentation

Alliance for Telecommunications Industry Solutions

Approved June 2014

American National Standards Institute, Inc.

Abstract

This standard is one of a series which defines and describes supplementary services. These services 5 be made available for users with non-ISDN interfaces who access SS7 capable networks and also within the context of an Integrated Services Digital Network (ISDN). This standard describes Calling Name Identification Presentation which is a terminating service that provides either the name associated with the calling party number or an indication of privacy or unavailability to the called party.

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At the time of consensus on this document, PTSC, which was responsible for its development, had the following leadership:

M. Dolly, PTSC Chair (AT&T)
V. Shaikh, PTSC Vice-Chair (ACS)
M. Dolly, PTSC SAC Chair (AT&T)

The **SAC** Subcommittee was responsible for the development of this document.

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1 Scope, Purpose, & Application

1.1 Scope & Purpose

This standard is one of a series which defines and describes supplementary services. These services may be made available for users with non-ISDN interfaces who access SS7 capable networks and also within the context of an Integrated Services Digital Network (ISDN). This standard describes Calling Name Identification Presentation which is a terminating service that provides either the name associated with the calling party number or an indication of privacy or unavailability to the called party. The associated switching and signaling specifications are also provided. This service may be made available on demand or in a subscription arrangement. The interaction of this service with other service capabilities defined in American National Standards is also included. The purpose of this standard is to allow maximum compatibility among network and user owned telecommunications equipment in order to increase the attractiveness and usefulness of the additional information transfer capabilities of SS7 and ISDN-based capabilities. When more than one network is involved in the pro- vision of network capabilities or service described in this standard, bilateral agreements among the networks involved may be required. Such agreements are beyond the scope of this standard.

1.2 Application

This standard applies across non-ISDN user-network interfaces, ISDN Basic Rate Interfaces, and Primary Rate Interfaces. The non-ISDN user-network interfaces are the analog or equivalent digital interfaces specified in ANSI/EIA/TIA 464-A and Supplement ANSI/EIA/TIA 464-A-1, ANSI ATIS-1000615, and ATIS-0600401. For ISDN, this standard is intended to supplement the Basic Circuit Mode call procedures described in ATIS-1000607 and ATIS-1000113. It should be used in conjunction with the other ANSI standards for non-ISDN and ISDN supplementary services for a complete understanding of the interactions between this and other services. For ISDN, this supplementary service is applicable to the Speech, Voice-Band Data (3.1 kHz audio), and Data (64 kbit/s unrestricted) Circuit-Mode bearer services identified in ATIS-1000620.

2 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ATIS-1000113.2005(R2010), *Signalling System Number 7 (SS7) – Integrated Services Digital Network (ISDN) User Part*.[1]

[1] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=24941>

ATIS-1000114.2004(R2014), *Signalling System Number 7 (SS7) – Transaction Capabilities Application Part (TCAP).*[2]

ATIS-1000603.1993(R2009), *Integrated Services Digital Network (ISDN) – Minimal Set of Bearer Services for the Primary Rate Interface.*[3]

ATIS-1000604.1990(R2009), *Integrated Services Digital Network (ISDN) – Minimal Set of Bearer Services for the Basic Rate Interface.*[4]

ATIS-1000607.2000(R2009), *Integrated Services Digital Network (ISDN) – Layer 3 Signaling Specification Circuit-Switched Bearer Service for Digital Subscriber Signaling System No. 1 (DSS1).*[5]

ATIS-1000610.1998(R2013), *Generic Procedures for the Control of ISDN Supplementary Services.*[6]

ATIS-1000611.1991(R2013), *Signaling System Number 7 (SS7) – Supplementary Services for Non-ISDN Subscribers.*[7]

ATIS-1000620.1991(R2012), *Integrated Services Digital Network (ISDN) – Circuit- Mode Bearer Service Category Description.*[8]

ATIS-1000639.1995(R2011), *Calling Name Identification Restriction*[9].

3 Definitions & Acronyms

3.1 Definitions

3.1.1 Calling Name: Up to 15 characters of information associated with a specific calling party number. The exact format of the Calling Name to be delivered is a service provider option.

3.1.2 Calling Name Identification Presentation User: This is the party who subscribes to the Calling Name Identification Presentation service and is the called party and has Calling Name Identification Presentation activated.

3.1.3 Name Information: The calling party name, if available, or an indication of privacy or of unavailability. The exact format of the Calling Name to be delivered is a service provider option.

3.1.4 Redirecting Name Information: The redirecting party (for example, forwarding party) name or names (2 maximum) if available, or indications of privacy or unavailability. The exact format of the Redirecting Name to be delivered is a service provider option**.**

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[2] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=24723>

[3] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=24727>

[4] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=24728>

[5] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=24729>

[6] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=27979>

[7] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=27986>

[8] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=26092>

[9] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=25490>

3.1.5 Network: In this description, network refers to all telecommunications equipment that has any part in processing a call or a supplementary service for the referred to user. It may include local exchanges, transit exchanges, and NT2s but does not include the non-ISDN or ISDN-termi- nal, and is not limited to the “Public” network or any other particular set of equipment.

3.1.6 Network stored value: The baseline presentation status of the calling party’s name from which user modifications are made. This value is stored in the network and methods of populating this value include: service orders for individual calling parties; a default value for a given jurisdic- tion. The possible values are “private” – presentation of the calling party’s name is restricted, and “public” – presentation of the calling party’s name is allowed.

3.1.7 Service provider: This is a company, organization, administration, business, etc., that sells, administers, charges for, etc., the service. The service provider may or may not be the provider of the network.

3.1.8 Response timer: This timer controls the amount of time that the network waits for a response to a query for Name Information from a database that is external to the switch.

3.2 Acronyms

ASN.1	abstract syntax notation 1
CLIR	calling line identification restriction
CNIR	calling name identification restriction
CPN	calling party number
CWO	Call Waiting originating
DB	database
DCW	dial Call Waiting
DSS1	digital subscriber signaling system number 1
EIA	Electronics Industries Association
GN	generic name
IA5	international alphabet 5
IAM	initial address message
IRA	International Reference Alphabet
ISDN	integrated services digital network
ISO	International Standards Organization
ITU-T	International Telecommunication Union - Telecommunications
kbit	kilobit
kHz	kilohertz
LE	local exchange
MBG	multilocation business group
MF	multifrequency
NANP	North American Numbering Plan
NT2	network termination type 2
PBX	private branch exchange
SDL	specification and description language

SS7	signaling system number 7
TA	terminal adapter
TC	transaction capability
TCAP	transaction capability application part
TE	terminal equipment
TE1	terminal equipment type 1
TE2	terminal equipment type 2
TIA	Telecommunications Industries Association
TR	transit exchange

4 Description of Calling Name Identification Presentation from the User's Perspective

Calling Name Identification Presentation is a terminating service that provides either the name associated with the calling party number or an indication of privacy or unavailability to the called party. If the call has been forwarded prior to the arrival at an ISDN Calling Name Identification Presentation User, the service can optionally provide the name or names (2 maximum) associated with the original called number or the last redirecting number or indications of privacy or unavailability.

4.1 Description

The Calling Name Identification Presentation service provides Name Information or Redirecting Name Information to the called party.

The storage and delivery of the calling party name are network functions. The calling party takes no actions to activate, initiate, or in any manner provide Calling Name Identification Presentation. The called party, when subscribed to Calling Name Identification Presentation, automatically receives the Name Information. Delivery of a Calling Name may be affected by a subscriber of the Calling Name Identification Restriction service. For example, a subscriber of Calling Name Identification Restriction who forces the Calling Name "private" when initiating a call would cause an indication of "private" to be delivered to a Calling Name Identification Presentation subscriber.

4.2 Procedures

4.2.1 Provision/withdrawal

The Calling Name Identification Presentation service can be provided on a subscription basis, or as a service provider option, can be provided to some or all users without subscription. The Calling Name Identification Presentation service can be withdrawn for administrative reasons or at the request of the subscriber.

As a service provider option, the Calling Name Identification Presentation service can be offered with several subscription options. For analog service, the options are listed in table 1. For ISDN service, subscription options can be specified per ISDN number, per ISDN number and bearer service, or per interface as listed in table 2. It may be possible for the service provider to offer the Calling Name Identification Presentation and Redirecting Name Delivery options combined as a single service or independently. If the Calling Name Identification Presentation service is provided to all users without subscription, the service provider shall assign subscription values.

4.2.2 Normal Procedures

The procedures described below are depicted in Figure 1.

Table 1: Subscription options for the Calling Name Identification Presentation service (for analog lines)

Subscription options	Values
Calling Name Identification Presentation	Yes Yes and able to activate/deactivate No

Table 2: Subscription options for the Calling Name Identification Presentation service (per ISDN number, per ISDN number and bearer service, or per interface)

Subscription options	Values
Calling Name Identification Presentation	Yes Yes and able to activate/deactivate No
Redirecting Name Delivery	Yes Yes and able to activate/deactivate No

4.2.2.1 Activation/deactivation

The activation and deactivation of Calling Name Identification Presentation can be done in two ways based on a subscription option: (a) If the user intends that Name Information be delivered for all calls then the service is always active when provisioned and remains active until the service provider withdraws the service, (b) If the user requires the capability to activate and deactivate Calling Name Identification Presentation, then the service is active when the user indicates activation to the net- work and deactivated when the user indicates deactivation to the network. The service provider may combine the 3.1kHz Audio and Speech bearer capabilities for user activation/deactivation.

The activation and deactivation of Redirecting Name Delivery can be done in two ways based on a subscription option: (a) If the user intends that Redirecting Name Information is to be delivered for all calls when available, then the service is always active when provisioned and remains active until the service provider withdraws the call, (b) If the user requires the capability to activate and deactivate Redirecting Name Delivery, then the service is active when the user indicates activation to the network and deactivated when the user indicates deactivation to the network. The service provider may combine the 3.1kHzAudio and Speech bearer capabilities for user activation/deactivation.

If a user subscribes to “Yes and able to activate/deactivate” for both Calling Name Identification Presentation and Redirecting Name Delivery there may be situations where the end user would want to activate or deactivate both features. It may be possible as a service provider option to activate or deactivate both Calling Name Identification Presentation and Redirecting Name Delivery with a sin- gle operation, for example, with activation codes to activate or deactivate both delivery features. This prevents users from having to dial two access codes to activate or deactivate both Calling Name Identification Presentation and Redirecting Name Delivery. If the service provider supports the option to activate or deactivate both delivery features with a single operation, then the user will not be able to separately activate or deactivate Calling Name Identification Presentation and Redirecting Name Delivery when the user subscribes to “Yes and able to activate/deactivate” for both features.

4.2.2.2 Invocation and Operation

If the called party is subscribed to the Calling Name Identification Presentation service, the called party will receive the Name Information:

- (non-ISDN) during on-hook alerting (or off-hook alerting for non-ISDN Call Waiting);
- (ISDN) within six seconds after the user receives a call establishment request. Therefore, the Name Information may be delivered when the user receives the call establishment request or after the user acknowledges the call, even if the call has reached an active state.

The calling party shall receive no notification that Calling Name Identification Presentation is sub- scribed to by the called party or delivered to the called party.

4.2.3 Exceptional Procedures

The Calling Name Identification Presentation User will be sent an indication that Name Information is unavailable if the network does not have Name Information for a specific caller.

If the network has been unable to determine the appropriate Name Information to deliver to the called party within six seconds of initially informing the called party of the call, then Name Information with an indication of unavailability shall be delivered.

The delivery of the Name Information, if disrupted when being delivered to the Calling Name Identification Presentation User, has no effect on the offering of the call.

The Calling Name Identification Presentation User may be sent Name Information that is unrecognizable since the network does not check the transmitted Name Information.

The Calling Name Identification Presentation User will not be sent any Name Information after call clearing has been initiated.

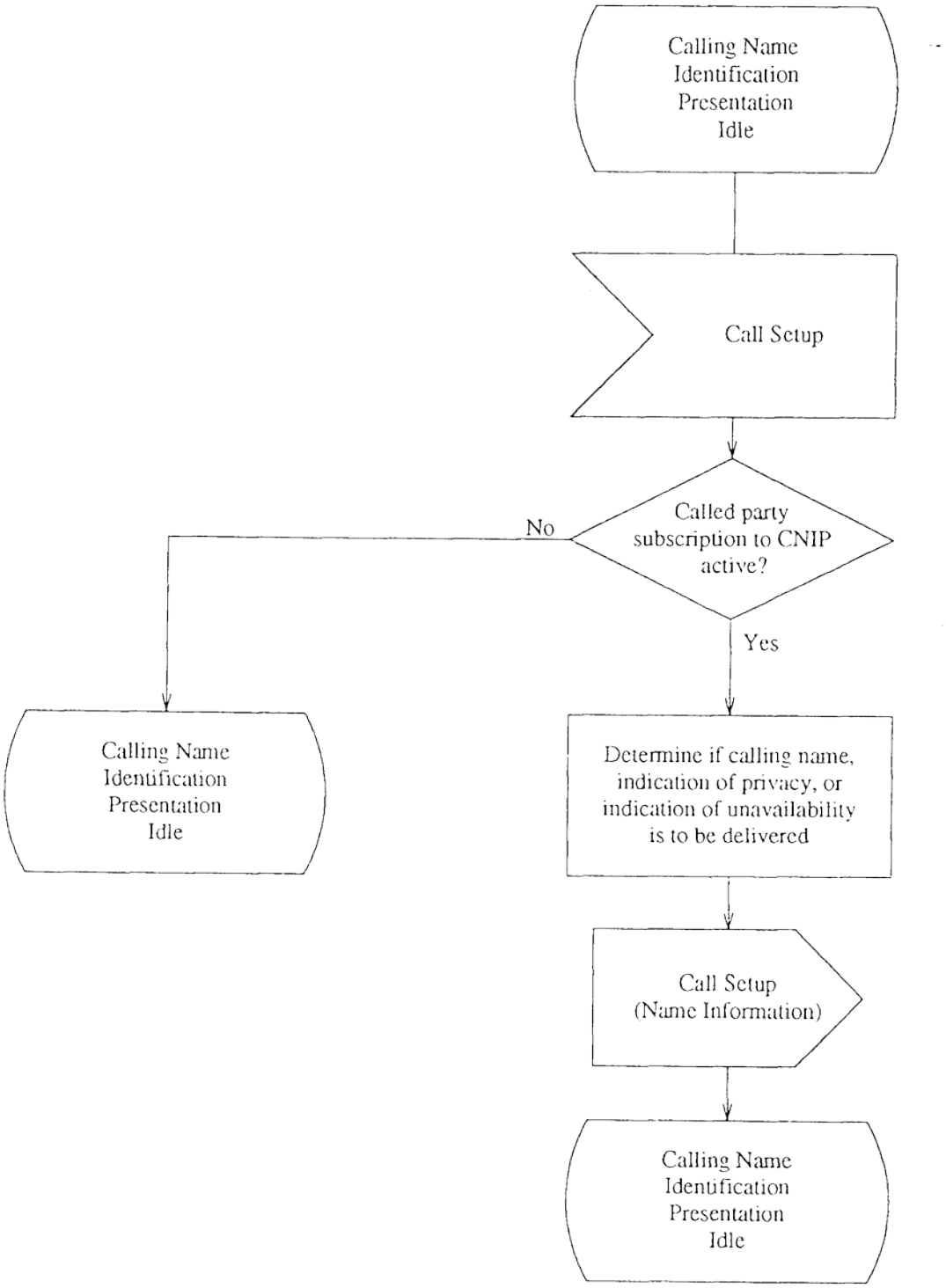


Figure 1: SDL Diagram for Calling Name Identification Presentation (Network Perspective)

4.3 Interworking Considerations

If SS7 connectivity does not exist between the originating exchange and the terminating exchange it shall not be possible to support Calling Name Identification Presentation.

4.4 Capabilities for Charging

It shall be possible for the service provider to charge accurately for this service.

4.5 Interactions with other Supplementary Services

4.5.1 Calling Name Identification Restriction

The name of the calling user shall not be presented if the Calling Name presentation status for this call is private.

4.5.2 ISDN Normal Call Transfer

There are no interactions between the Calling Name Identification Presentation service and ISDN Normal Call Transfer (see ATIS-1000632). Each call in the context of ISDN Normal Call Transfer is treated separately for Calling Name Identification Presentation.

4.5.3 ISDN Call Waiting

A Calling Name Identification Presentation User who has the ISDN Call Waiting (see ATIS-1000613) service activated will receive Name Information when a call is offered.

4.5.4 ISDN Calling Line Identification Presentation (CLIP)

There are no interactions between CLIP (see ATIS-1000625) and Calling Name Identification Presentation. A user may subscribe to both services and receive both CLIP and Name Information.

4.5.5 ISDN Calling Line Identification Restriction (CLIR)

There are no interactions between CLIR (see ATIS-1000625) and Calling Name Identification Presentation.

4.5.6 ISDN Multi-level Precedence & Preemption

There are no interactions between the Calling Name Identification Presentation service and Multi- Level Precedence and Preemption (see ATIS-1000619).

4.5.7 ISDN Call Hold

There are no interactions between ISDN Call Hold (see ATIS-1000616) and Calling Name Identification Presentation.

4.5.8 ISDN Message Waiting Indicator Control & Notification & Non-ISDN Voice Message Waiting Indication Control

There are no interactions between the Calling Name Identification Presentation service and ISDN Message Waiting Indicator Control and Notification and Non-ISDN Voice Message Waiting Indication Control (see ATIS-1000622).

4.5.9 ISDN User-to-User Signaling

There are no interactions between the Calling Name Identification Presentation service and User- to-User Signaling (see ATIS-1000621).

4.5.10 Non-ISDN Call Forwarding

For an analog forwarded to party, there are no interactions between the Calling Name Identification Presentation service and non-ISDN Call Forwarding (see ATIS-1000611).

For an ISDN forwarded to party, when a call has undergone call forwarding, the forwarded-to party may receive the names of the calling party, original called party, and last redirecting party, depending on the availability of each name.

4.5.11 Non-ISDN Multilocation Business Group (MBG)

For a non-ISDN MBG (see ATIS-1000611), Calling Name Identification Presentation may be sub- scribed on a per-MBG basis.

4.5.11.1 Non-ISDN Multilocation Business Group (MBG) Basic Call

Whether or not the Calling Name is presented to an MBG user when terminating a call may be determined by the type of MBG call in addition to the procedures described in this standard. As one example, all intra- MBG calls could have the name presented while calls originating from outside the MBG would not.

4.5.11.2 Non-ISDN Multilocation Business Group (MBG) Three-Way Calling

A three-way call can take place in either of the following ways:

a) A three-way call is set up as follows:
   - Party A has three-way calling feature. Parties B and C subscribe to Name;
   - Party A calls Party B;
   - Party A uses three-way calling to call Party C so that Parties A, B, and C are included in a three-way call.

In this scenario, Party A is the calling party for both Party B and Party C. Therefore, Party A's Name Information should be displayed to Party B when Party B is called and to Party C when Party C is called.

b) A three-way call is set up as follows:
   - Party B has the three-way calling feature. Parties B and C subscribe to Name;
   - Party A calls Party B;
   - Party B uses three-way calling to call Party C so that Parties A, B, and C are included in a three-way call.

In this scenario, Party A is the calling party for Party B, and Party B is the calling party for Party C. Therefore, the Name Information of Party A should be displayed to Party B. The Name Information of Party B should be displayed to Party C.

4.5.11.3 Non-ISDN Multilocation Business Group (MBG) Call Transfer

Each call in the context of Call Transfer is treated separately for Calling Name Identification Presentation. Each called party would receive the calling party's Name Information during the alerting phase of each call.

4.5.11.4 Non-ISDN Multilocation Business Group (MBG) Call Waiting Originating (CWO) & Dial Call Waiting (DCW)

If a non-ISDN end user who subscribes to Calling Name Identification Presentation has CWO or DCW applied to a call in progress, the Name Information may or may not be delivered, depending on the availability of signaling capabilities not described in this standard. Such capabilities may provide for the delivery of Name Information while a call is in progress or may only deliver the information during ring-back after going on-hook.

4.5.11.5 Non-ISDN Multilocation Business Group (MBG) N-way Conferencing

In accordance with the interactions described with three-way calling, the Name Information of the calling party should be transmitted to the associated called parties.

4.5.11.6 Non-ISDN Multilocation Business Group (MBG) Automatic Recall & Automatic Callback

Automatic Recall allows users to return calls to the last person that called them. Automatic Callback allows users to return calls to the last station that they called. If the other party is busy when either service is invoked, the network will monitor both parties until they are free and then offer the call to the served user.

For either AC or AR, Name Information is provided to the called party (if the called party is subscribed to Calling Name Identification Presentation) when the call is setup.

5 Functional Capabilities & Information Flows for the Calling Name-delivery Service

This clause identifies the functionality split among the network elements and user equipments which supports the Calling Name Identification Presentation service. It shows configurations of equipment which are supported by this standard and the allocations of functions to each piece of network equipment. There may be other configurations which could be supported by these standardized procedures. This standard does not preclude other configurations.

5.1 Network & User Equipment

The network and user equipment shown are based on the "functional groupings" defined in ATIS-1000615, Telecommunications – Digital Subscriber Signaling System No.1 (DSS1) – Layer 3 overview. While these functional groupings may correspond to actual physical entities, actual implementations may incorporate more than one of these functional groupings in a single physical entity or may provide a subset of one of these functional groupings.

The functional groupings used in this standard are:

TE Terminal Equipment – In the configurations, this could be a TE1 (ISDN Terminal) or a TA (Terminal Adapter)/TE2 (non-ISDN Terminal) combination.

NT2 Network Termination 2 – In the configurations, this could be a PBX, multiplexer, key system, etc. LE Local Exchange – in the configurations, this is the switch in the public network to which "users" are connected.

DB Database – In the configurations, the location of the stored Name Information (not defined in ATIS-1000615).

TR Transit Exchange – In the configurations, this is a switch which provides connection between two Local Exchanges.

5.2 Protocols

In this standard, the protocols used between these functional groupings, when the functional groupings are implemented as separate entities, are as follows:

TE to LE:	DSS1, as described in ATIS-1000607 and ATIS-1000610
NT2 to LE:	DSS1, as described in ATIS-1000607 and ATIS-1000610
LE to DB:	SS7 TCAP, as described in ATIS-1000114
LE to TR:	SS7 ISDN-UP, as described in ATIS-1000113
LE to LE:	SS7 ISDN-UP, as described in ATIS-1000113
	SS7 TCAP, as described in ATIS-1000114

For termination to non-ISDN parties, the protocol used for the LE to non-ISDN interface may be any protocol which provides the necessary information transfer.

5.3 Supported Configurations

The equipment configurations explicitly addressed by this standard are depicted in figure 2. Each configuration in figure 2 identifies which network equipment performs the originating and terminating functions of the service. The equipment providing the Calling Name Identification Presentation service, that is, the one where the subscription exists, is highlighted with double lines. Equipment and interfaces not covered by this standard are shown with dashed lines.

In each case in which a TR is shown, additional configurations having no TR or having multiple TRs are also possible.

5.4 Information Flows

Information flows for the configurations identified in 5.3 are given in figures 3 through 6. Each figure shows, in time sequence from top to bottom, the sequence of information exchanges (messages) for one general case (for example, successful Calling Name delivery) for one type of configuration. Each information transfer indicates a generic name for the message (as used in clause 4), a generic identification of contents significant to this service, and the actual name of the message found in clause 7.

Where significant to the understanding of the flow, actions performed within a "functional grouping" such as decision making, checking subscription parameters, or setting timers are included on the information flows.

The user to network interface signaling shown applies to ISDN interfaces. For non-ISDN user to network interfaces, the information flow “Setup Request” would be provided by a protocol not described in this standard, for example, off-hook and dialing from the calling terminal and inband signals between the ringing cycles to the called terminal.

Other information flows not covered by this standard are shown with dashed lines.

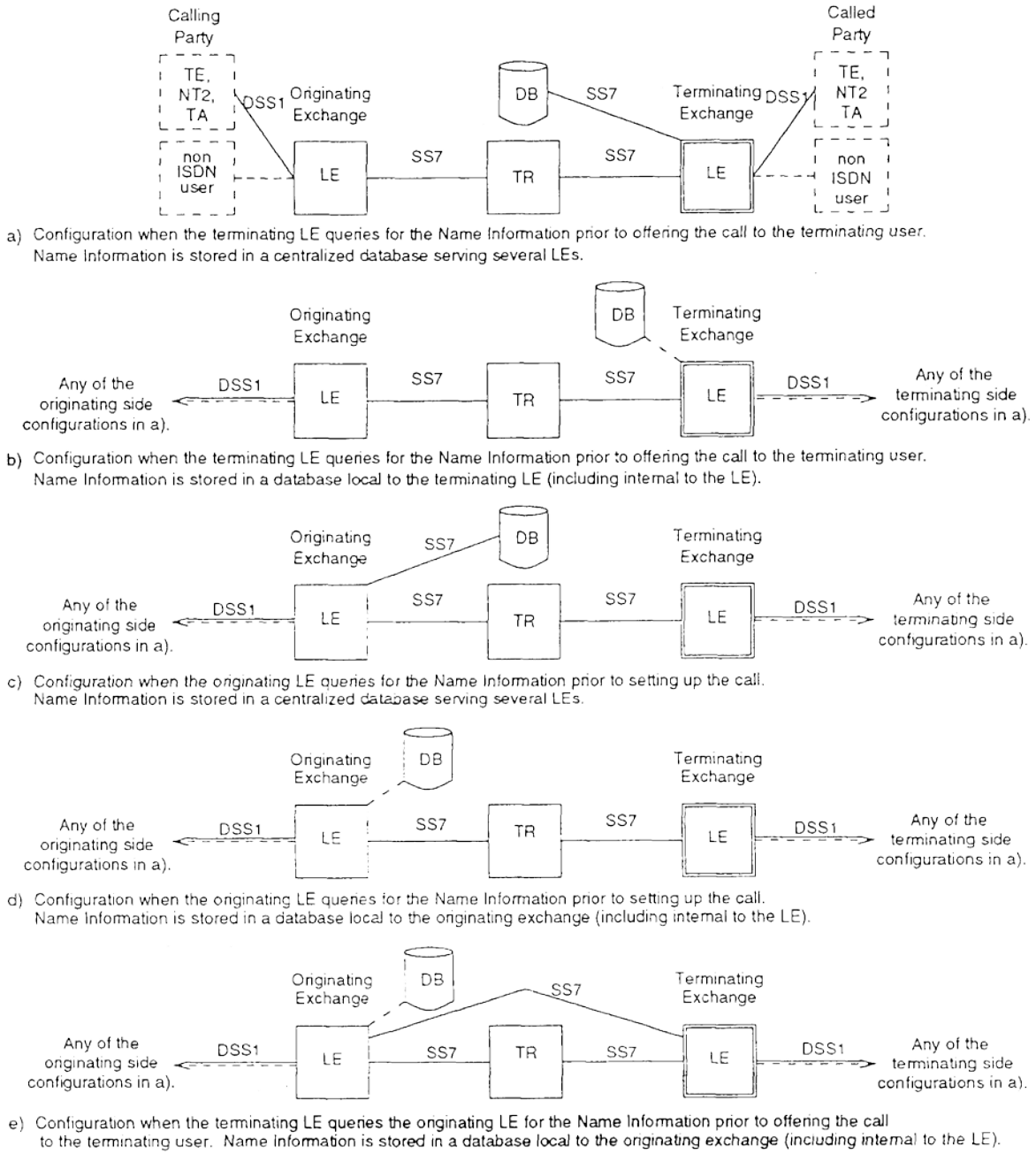
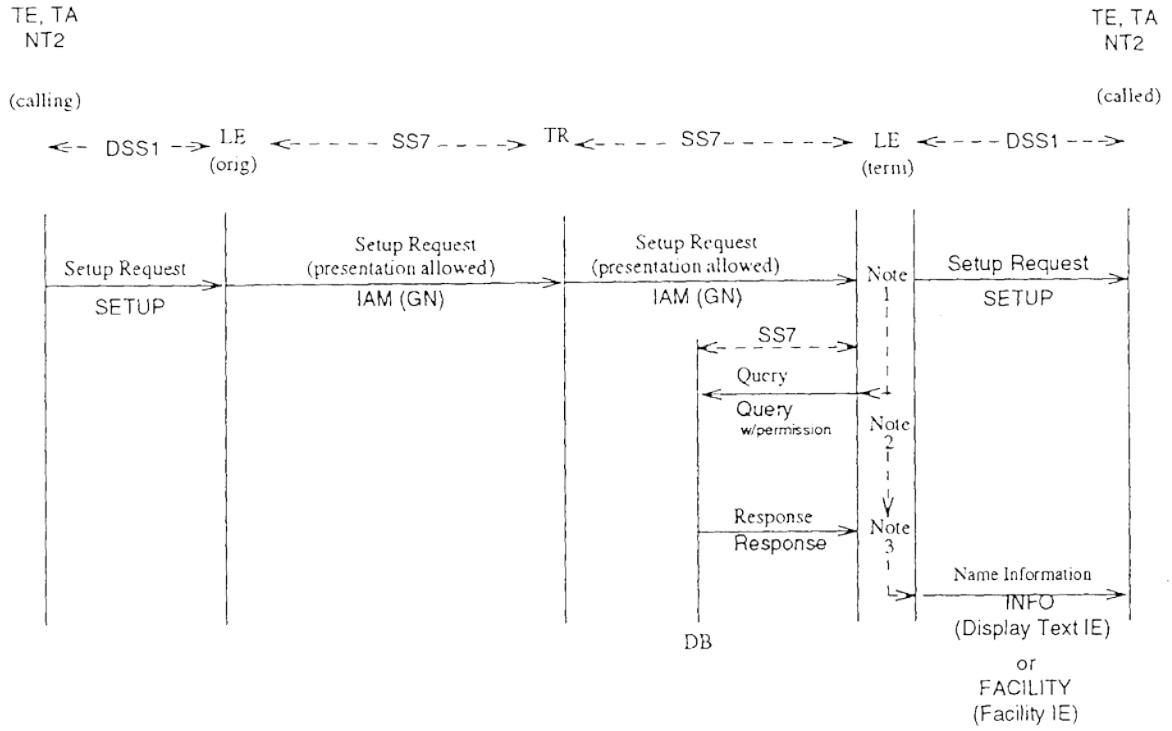


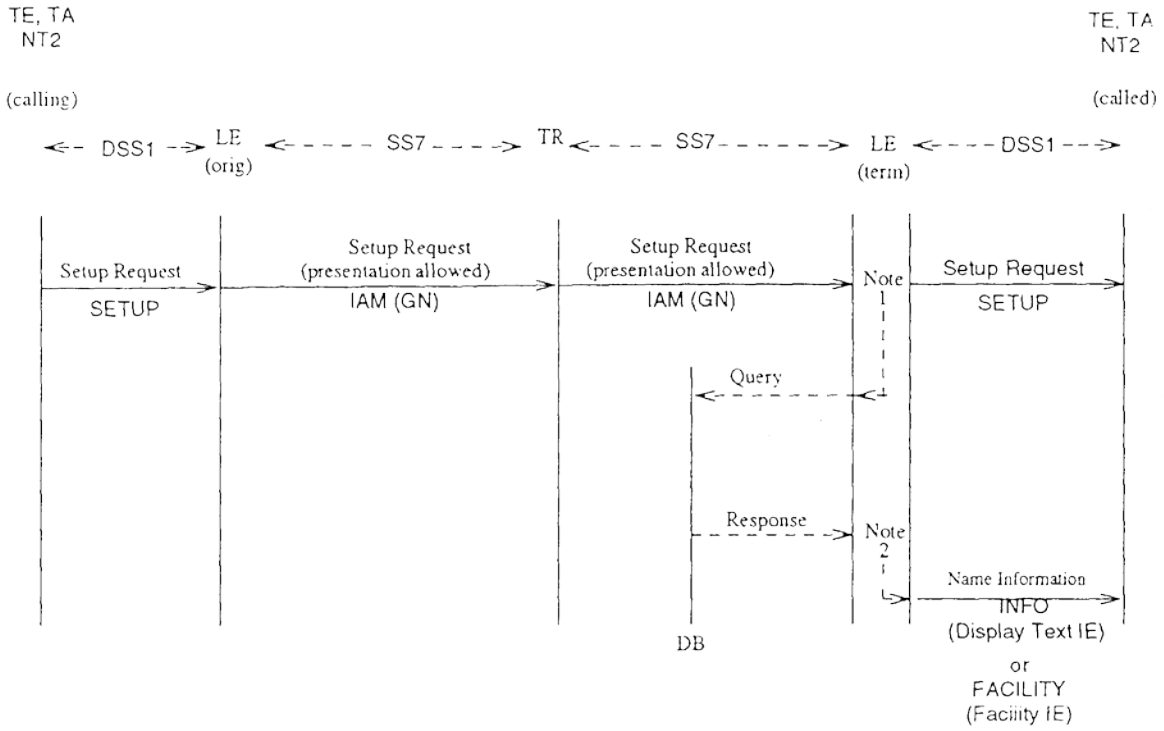
Figure 2: Configurations of equipment for the Calling Name Identification Presentation service



NOTES:

1. Check for subscription of called party to Calling Name Identification Presentation. In some cases, as with intelligent network applications, the SETUP may need to be delayed until a response is received.
2. Start response timer.
3. Decide whether name characters, unavailable, or private is sent to the subscriber.

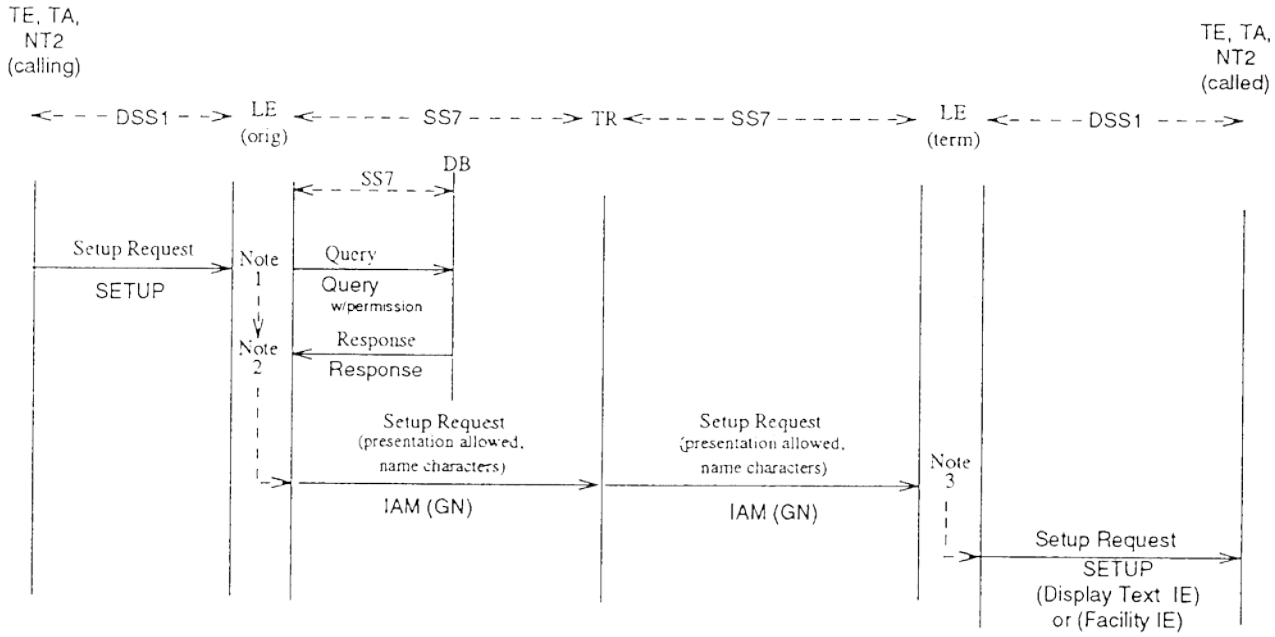
Figure 3: Information flow for successful delivery of Name Information for configuration a)



NOTES:

1. Check for subscription of called party to Calling Name Identification Presentation.
2. Decide whether name characters, unavailable, or private is sent to the subscriber.

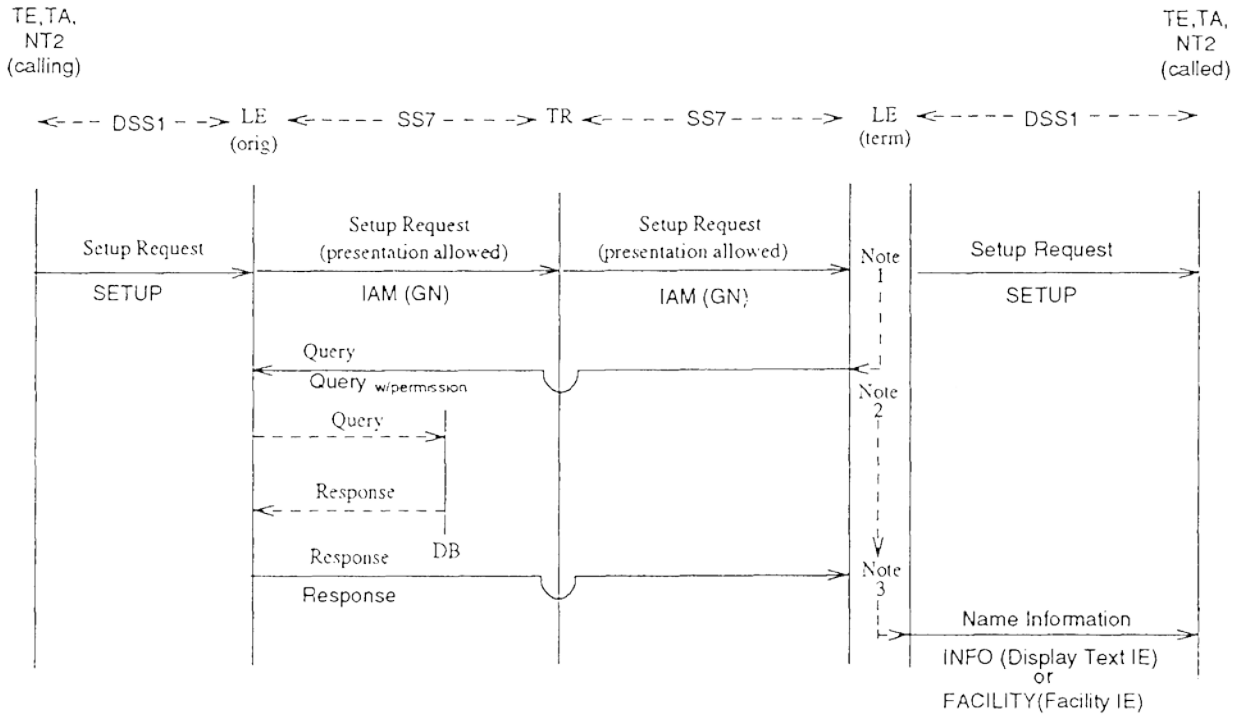
Figure 4: Information flow for successful delivery of Name Information for configuration b)



NOTES:

1. Start response timer.
2. Decide whether availability, status, or characters are to be sent in the Setup Request.
3. Check for subscription of called party to Calling Name Identification Presentation.

Figure 5: Information flow for successful delivery of Name Information for configuration c)



NOTES:

1. Check for subscription of called party to Calling Name Identification Presentation.
2. Start response timer.
3. Decide whether name characters, unavailable, or private is sent to the subscriber.

Figure 6: Information flow for successful delivery of Name Information for configuration e)

6 Switching & Signaling Specifications for Calling Name Identification Presentation Service at the User/Network Interface

6.1 Formats & Codings for Calling Name Identification Presentation

This subclause identifies the D-channel call control messages, information elements, and code- points needed for Calling Name Identification Presentation. A "*" denotes an undefined maximum length which may be network or service dependent.

6.1.1 Messages

A description of the message structure can be found in ATIS-1000607 and ATIS-1000610.

6.1.1.1 DISCONNECT Message

Refer to 3.1.5 of ATIS-1000607 for the coding of the DISCONNECT message. The Feature indication information element is optionally included in this message as specified in ATIS-1000610.

6.1.1.2 FACILITY Message

Refer to 7.1.1 of ATIS-1000610 for the coding of the FACILITY message.

6.1.1.3 INFORMATION Message

Message type: INFORMATION

Significance: Local

Direction: Both

Table 3: INFORMATION message content

Information element	Reference	Direction	Type	Length
Protocol discriminator	4.2/ ATIS-1000607	both	M	1
Call reference	4.3/ ATIS-1000607	both	M	2-*
Message type	4.4/ ATIS-1000607	both	M	1
Cause	4.5/ ATIS-1000607	n->u	O (Note 1)	6
Feature Activation	8.2.5/ATIS-1000610	u->n	O (Note 1)	3-4
Feature Indication	8.2.6/ ATIS-1000610	n->u	O (Note 1)	3-5
Locking shift	4.5.3/ ATIS-1000607	both	O (Note 2)	1
Display text	ATIS-1000610	n->u	O (Note 3)	*
Other information elements as described in subclause 3.1.12 of ATIS-1000607 & clause 5 of ATIS-1000610				

NOTES:

1. The Cause, Feature activation, and Feature indication information elements are used to support the activation/deactivation procedures.
2. The Locking shift information is included when the Display text information element is included.
3. The Display text information element is used to deliver the Name Information.

6.1.1.4 REGISTER Message

Refer to 7.1.5 of ATIS-1000610for the coding of the REGISTER message.

6.1.1.5 RELEASE COMPLETE Message

Message type: RELEASE COMPLETE

Significance: Local

Direction: Both

Table 4: RELEASE COMPLETE message content

Information element	Reference	Direction	Type	Length
Protocol discriminator	4.2/ATIS-1000607	both	M	1
Call reference	4.3/ ATIS-1000607	both	M	2-*
Message type	4.4/ ATIS-1000607	both	M	1
Feature indication	8.2.6/ ATIS-1000610	n->u	O (Note)	3-5
Facility	6.2.3/ATIS-1000610	n->u	O (Note)	*
Other information elements as described in subclause 3.1.12 of ATIS-1000607& clause 5 of ATIS-1000610				
NOTE – The Facility and Feature indication information elements are used to support the activation/deactivation procedures.				

6.1.1.6 SETUP Message

Message type: SETUP

Significance: Local

Direction: Both

Table 5: SETUP message content

Information element	Reference	Direction	Type	Length
Protocol discriminator	4.2/ ATIS-1000607	both	M	1
Call reference	4.3/ ATIS-1000607	both	M	2-*
Message type	4.4/ ATIS-1000607	both	M	1
Feature activation	8.2.5/ ATIS-1000610	u->n	O (Note 1)	3-4
Facility	6.2.3/ ATIS-1000610	n->u	O (Note 1, 3)	*
Locking shift	4.5.3/ ATIS-1000607	both	O (Note 2)	1
Display text	ATIS-1000610	n->u	O (Note 3)	*
Other information elements as described in subclause 3.1.12 of ATIS-1000607& clause 5of ATIS-1000610				
NOTES: 1. The Feature activation and Facility (u->n) information elements are used to support the activation/deactivation procedures. 2. The Locking shift information is included when the Display text information element is included. 3. The Facility (n->u) and Display text information elements are used to deliver the Name Information.				

6.1.1.7 SETUP ACKNOWLEDGE Message

Refer to 3.1.12 of ATIS-1000607for the coding of the SETUP ACKNOWLEDGE message.

6.1.2 Information Elements

Coding rules identified in ATIS-1000607and ATIS-1000610 generally apply to the information elements used in messages for Calling Name Identification Presentation. Only those coding rules specific to Calling Name Identification Presentation are included in the following subclauses.

The Display text information element uses codeset 5. All other information elements in this stan- dard use codeset 0.e

6.1.2.1 Cause Information Element

Refer to 4.5.11 in ATIS-1000607for the coding of the Cause information element.

6.1.2.2 Facility Information Element

In addition to ATIS-1000610, see 6.1.4 which is the ASN.1 representation of the operation for the functional protocol for the Calling Name Identification Presentation service. For this service, the protocol profile value of “Reserved for ISO [Networking Extensions – ISO/IEC DIS-11582]” shall be used in the Facility information element.

6.1.2.3 Feature Activation Information Element

Refer to ATIS-1000610 for the definition and coding of the Feature Activation information element.

6.1.2.4 Feature Indication Information Element

Refer to ATIS-1000610 for the definition and coding of the Feature Indication information element.

6.1.2.5 Display Text Information Element

Refer to ATIS-1000610 for the definition and coding of the Display text information element. The actual text to be provided in the Display text information element is specific to the service provider. The display text tag associated with the Name Information shall be coded to “Calling party name” when it indicates calling party name and to “Original called name” when it indicates the first redirecting name.

6.1.3 Codepoints

No additional codepoints are defined for this service.

6.1.4 Definition of Operations and Errors

Not all elements of this ASN.1 Definition will be used in this standard. Those elements that will be used in this standard are referenced in 6.3.

6.1.4.1 ASN.1 Definition for Calling Name Identification Presentation

```
DEFINITIONS :=
BEGIN
IMPORTS     OPERATION, ERROR FROM Remote-Operation-Notation
                {joint-iso-ccitt (2) remote-operations (4) notation (0)}
            Extension FROM manufacturer-specific-service-extension-definition
```

```
                {iso (1)
                standard (0) pss1 generic-procedures (11582) msi-definition (0)}
            PresentedNumberUnscreened FROM Addressing-Data-Elements
                {ccitt (0) recommendation (0) q (17) 932 (932) addressing-data-elements (7)}
            UserNotAssigned FROM General-Error-List
                {ccitt (0) recommendation (0) q (17) 950 (950) general-error-list (1)}

EXPORTS     Name, Nameset
callingName OPERATION
            ARGUMENT CHOICE {
                Name, SEQUENCE {
                    Name, CHOICE {
                        [5] IMPLICIT Extension,
                        [6] IMPLICIT SEQUENCE of Extension}
                            OPTIONAL }
                }
::={ calling-name (0)}

DivertingLegInformation2    OPERATION
    --Sent from Rerouting network to the Diverted-to network
        ARGUMENT SEQUENCE       {
            diversionCounter        INTEGER (1..15),
            diversionReason         DiversionReason,
            originalDiversionReason [0] DiversionReason OPTIONAL,
            divertingNr             [1] PresentedNumberUnscreened OPTIONAL,
            originalCalledNr        [2] PresentedNumberUnscreened OPTIONAL,
            redirectingName         [3] Name OPTIONAL,
            originalCalledName      [4] Name OPTIONAL,
            extension               CHOICE {
                                        [5] IMPLICIT Extension,
                                        [6] IMPLICIT SEQUENCE OF Extension}
                                            OPTIONAL
                                    }
--Some arguments are not used in the U.S. standard.
--Unless indicated as original, the redirecting name
--applies to the latest instance of redirection.

:=21

DiversionReason     ::=ENUMERATED       {
                    unknown (0), cfu (1), cfb (2), cfnr (3),
                    cd(4),              --reserved for further editions of this Standard
                    cdImmediate (5)     --reserved for further editions of this Standard
                                        }
```

```
Name    ::=CHOICE       {
                        NamePresentationAllowed,
                        NamePresentationRestricted,
                        NameNotAvailable
                        }

NamePresentationAllowed         ::=CHOICE       {
                        namePresentationAllowedSimple           [0] IMPLICIT NameData,
                        namePresentationAllowedExtended         [1] IMPLICIT NameSet
                              --iso8859 is implied in namePresentationAllowedSimple

NamePresentationRestricted      ::=CHOICE       {
                        namePresentationRestrictedSimple        [2] IMPLICIT NameData,
                        namePresentationRestrictedExtended      [3] IMPLICIT NameSet
                        namePresentationRestrictedNull          [7] IMPLICIT Null}
                             --iso8859 is implied in namePresentationRestrictedSimple.
                             --name PresentationRestrictedNull shall only be used in the
                             --case of interworking where the other network provides an
                             --indication that the name is restricted without the name itself.

NameNotAvailable    ::=[4] IMPLICIT NULL

NameData        ::=OCTET STRING (SIZE(1..50))
                        --The maximum allowed size of the name field is 50 octets
                        --The minimum required size of the name field is 1 octet

NameSet         ::=SEQUENCE
                        nameData        NameData,
                        characterSet    CharacterSet    OPTIONAL
                        }
                          --If character set is not included, iso8859-1 is implied

CharacterSet    ::=INTEGER {unknown (0), iso8859-1 (1), t-61, (2)}          (0..255)
                        --The character set “iso8859-1” is specified in International Standard ISO 885901.
                        --Standard CCITT T.61.
                        --Other character sets might be added in further editions of this Standard.

informationFollowing    OPERATION
                        --This operation is included in the SETUP message from the
                        --network to user, to indicate that Name Information will
                        --be included in a subsequent FACILITY message.

ARGUMENT    {
                         includesNameInformation (0)}

::={1 2 840 10005 0 4}
```

```
nameDeliveryActivationDeactivation      OPERATION

ARGUMENT    {
            activateDeactivate ENUMERATED {
                  activate (0)
                  deactivate (1)}
            }
RESULT
            --to indicate successful activation/deactivation
ERRORS
            {userNotSubscribed}
      ::={1 2 840 10005 0 5}

redirectingNameDeliveryActivatonDeactivation    OPERATION

ARGUMENT    {
            redirectingActivateDeactivate ENUMERATED {
                        activate (0)
                        deactivate (1) }
            }

RESULT
            --to indicate successful activation/deactivation
ERRORS
            {userNotSubscribed}

       ::={1 2 840 10005 0 6}
END
```

6.2 Support Assumptions

6.2.1 Assumptions on the Terminal Equipment

Terminals used with the Calling Name Identification Presentation supplementary ISDN service must support basic call control procedures as specified in ATIS-1000607 and the invocation proto- col and procedures specified in ATIS-1000610. Terminals on a basic access interface must support display capabilities to display the Name Information.

6.2.2 Assumptions on the Network

The network maintains the subscription parameters for Calling Name Identification Presentation and Redirecting Name Delivery.

6.2.3 Applicable Protocol Classes

Protocol is specified for Calling Name Identification Presentation using the functional and stimulus-protocol class of messages and information elements.

6.2.4 Service States & Timers

No states or timers beyond those defined in ATIS-1000607 are needed for the Calling Name Identification Presentation DSS1 operation.

6.3 Procedures for Calling Name Identification Presentation

This subclause specifies the detailed switching and signaling procedures for the activation and deactivation of Calling Name and the delivery of Name Information.

6.3.1 Activation & Deactivation

The activation and deactivation of Calling Name Identification Presentation can be done by subscription. If the user subscribes to Calling Name Identification Presentation "Yes and able to activate/deactivate," then the service is active when the user indicates activation to the network and inactive when the user indicates deactivation to the network.

The user can activate and deactivate Calling Name Identification Presentation in several different ways:

a) Using dial access codes for activation and deactivation;
b) Using a Feature Activation information element with a Calling Name Identification Presentation deactivation feature identifier to toggle the current activation/deactivation status of Calling Name Identification Presentation;
c) Using a Facility information element to activate and deactivate Calling Name Identification Presentation.

The activation and deactivation of Redirecting Name Delivery can be done by subscription. If the user subscribes to Redirecting Name Delivery "Yes and able to activate/deactivate," then the service is active when the user indicates activation to the network and deactivate when the user indicates deactivation to the network.

The user can activate and deactivate Redirecting Name Delivery in several different ways:

a) Using dial access codes for Redirecting Name Delivery activation and deactivation;
b) Using a Feature Activation information element with a Redirecting Name Delivery deactivation feature identifier to toggle the current activation/deactivation status of Redirecting Name Delivery;
c) Using a Facility information element to activate and deactivate Redirecting Name Delivery. The service provider may provide an option to activate or deactivate both Calling Name Identification Presentation and Redirecting Name Delivery using either of the following:
d) Using dial access codes for Calling Name Identification Presentation and Redirecting Name Delivery activation and deactivation;
e) Using a Feature Activation information element with a Calling Name Identification Presentation and Redirecting Name Delivery deactivation feature identifier to toggle the current activation/deactivation status.

The network shall support activation and deactivation using the procedures in items a) and b), above, for terminals connected via a point-to-multipoint data link and item c) for terminals connected via a point-to-point data link. The network may also support item c) for terminals connected via a point-to-multipoint data link.

Access codes and toggle operation each provide a simple feature control. The generic protocols and procedures for stimulus and functional invocation of supplementary services are defined in ATIS-1000610. Subclause 6.3.1.1 of this standard defines the service-specific aspects of the stimulus

invocations for Calling Name Identification Presentation. The functional invocation operations are defined in 6.3.1.2 and follow ROSE and ASN.1 encoding format and rules.

6.3.1.1 Activation/deactivation Using Feature Key Management Procedures

Stimulus signaling can be used to activate or deactivate Calling Name Identification Presentation and Redirecting Name Delivery. This subclause contains the feature key management procedure for activating and deactivating Calling Name Identification Presentation and Redirecting Name Delivery.

The Calling Name Identification Presentation deactivation feature identifier value also represents the bearer service and the directory number of the Calling Name Identification Presentation User.

The user shall be able to invoke a non-call associated activation or deactivation request for Calling Name Identification Presentation by sending an INFORMATION message containing the null call reference and a Feature activation information element with a Calling Name Identification Presentation deactivation feature identifier.

The user shall be able to activate or deactivate Calling Name Identification Presentation by sending a Feature activation information element with a Calling Name Identification Presentation deactivation feature identifier in a SETUP message or in an INFORMATION message using an established call reference. The network shall reject the request if the Calling Name Identification Presentation deactivation feature identifier value represents a bearer service and directory number that is different from the bearer service and directory number associated with the call.

If the request is accepted, the network shall respond with the Feature indication information element coded with the Calling Name Identification Presentation deactivation feature identifier value and with a status of “active” for a deactivation and a status of “idle” for an activation.

The network shall send an INFORMATION message to all other terminals that have a feature identifier assigned to Calling Name Identification Presentation for the bearer service and the directory number. The INFORMATION message shall contain the null call reference and the Feature indication information element coded with a Calling Name Identification Presentation deactivation feature identifier and a status of “active” for a deactivation, and a status of “idle” for an activation.

The Redirecting Name Delivery deactivation feature identifier value also represents the bearer service and the directory number of the Redirecting Name Delivery User.

The user shall be able to invoke a non-call associated activation or deactivation request for Redirecting Name Delivery by sending an INFORMATION message containing the null call reference and a Feature activation information element with a Redirecting Name Delivery deactivation feature identifier.

The user shall be able to activate or deactivate Redirecting Name Delivery by sending a Feature activation information element with a Redirecting Name Delivery deactivation feature identifier in a SETUP message or in an INFORMATION message using an established call reference. The network shall reject the request if the Redirecting Name Delivery deactivation feature identifier value represents a bearer service and directory number that is different from the bearer service and directory number associated with the call.

If the request is accepted, the network shall respond with the Feature indication information ele- ment coded with the Redirecting Name Delivery deactivation feature identifier value and with a status of “active” for a deactivation and a status of “idle” for an activation.

The network shall send an INFORMATION message to all other terminals that have a feature identifier assigned to Redirecting Name Delivery for the bearer service and the directory number. The INFORMATION message shall contain the null call reference and the Feature indication infor- mation element coded with a Redirecting Name Delivery deactivation feature identifier and a sta- tus of “active” for a deactivation and a status of “idle” for an activation.

If the service provider supports an option to activate or deactivate both Calling Name Identification Presentation and Redirecting Name Delivery with a single operation, then the user shall be able to send a

Feature Activation information element with a Calling Name Identification Presentation and Redirecting Name Delivery deactivation feature identifier value to toggle the current activation/deactivation status of both features. The network shall follow the procedures above with the feature identifier value coded to Calling Name Identification Presentation and Redirecting Name Delivery deactivation.

6.3.1.2 Activation/deactivation Using Functional Procedures

Functional signaling procedures can be used to activate or deactivate Calling Name Identification Presentation or Redirecting Name Delivery for all ISDN numbers subscribed to Calling Name Identification Presentation “Yes and able to activate/deactivate” on the interface.

The user shall be able to activate or deactivate Calling Name Identification Presentation by sending an invoke component with the Class 2 Operation (see clause 3 in ATIS-1000610) nameDeliveryActivationDeactivation in a Facility information element. The Facility information ele- ment shall be sent in a call related message as defined in ATIS-1000610, or in a REGISTER mes- sage for call independent signaling.

The user shall be able to activate or deactivate Redirecting Name Delivery by sending a Facility information element coded with an invoke component with the Class 2 Operation redirectingNameDeliveryActivationDeactivation. The Facility information element shall be sent in a call related message as defined in ATIS-1000610, or in a REGISTER message for call independent signaling.

The network shall acknowledge a successful request to activate or deactivate Calling Name Identification Presentation or Redirecting Name Delivery by returning a return result component within the Facility information element. The network shall code this information in a call related or FACILITY message as defined in ATIS-1000610, or in a FACILITY or RELEASE COMPLETE message for call independent signaling.

If the subscription value of the corresponding delivery feature is not “Yes and able to activate/deactivate” the network shall send a return error component with userNotSubscribed coded as indicated in 6.1.4 within a Facility information element. The network shall code this information in a call related or FACILITY message as defined in ATIS-1000610, or in a FACILITY or RELEASE COMPLETE message for call independent signaling. **(R2019)**

6.3.2 Normal Operation

6.3.2.1 Procedures at Originating Local Exchange

The calling party shall take no action to activate, initiate, or in any manner provide Calling Name Identification Presentation.

6.3.2.2 Procedures at Destination Local Exchange

The network shall invoke Calling Name Identification Presentation procedures as part of the initial call setup procedures for each call that is offered to the subscribed user. If the called user is a Calling Name Identification Presentation User, then the network shall deliver the Name Information. If the called user is not a Calling Name Identification Presentation User, then the net- work shall not deliver the Name Information.

The network determines whether to deliver a calling party name, a private indication, or an unavailable indication, based on the calling party number, the per-call presentation status of the calling party name, and the results of a name query, if it is sent as described in 7.2.2.

The destination network shall continue with normal call processing and deliver Name Information in an appropriate DSS1 message if:

- the Name Information is unavailable (for example, calling number is unavailable);

- the Name Information is forced private;
- the Calling Name is available when the network sends the SETUP message (for example, originating network queries for the Name Information prior to setting up the call).

The network shall deliver Name Information using the stimulus signaling procedures given in 6.3.2.2.1 or the functional signaling procedures given in 6.3.2.2.2. This standard does not define a method for determining whether stimulus or functional signaling procedures are used to deliver Name Information.

The network shall deliver an indication of privacy for the Name Information if any of the following occur:

- the calling user has indicated to the network that the Calling Name presentation status is to be "private" for this one call regardless of the network stored value (note that the network will not launch a name query);
- the calling user did not modify the presentation status of the Calling Name and the results of the name query indicate that the network stored value is "private";
- the calling user has indicated to the network that their Calling Name presentation status for this one call is to be the opposite of the network stored value and the results of the name query indicate that the network stored value is "public."

The network shall deliver the Calling Name if it is available and any of the following occur:

- the calling user did not modify the presentation status of the Calling Name and the results of the name query indicate that the network stored value is "public";
- the calling user has indicated to the network that their Calling Name presentation status for this one call is to be the opposite of the network stored value and the results of the name query indicate that the network stored value is "private";
- the calling user has indicated to the network that the Calling Name presentation status is to be "public" for this one call regardless of the network stored value and the name query is successful.

The network shall deliver an indication of unavailable for the Name Information as indicated above or if any of the following occur:

- the response timer expires before the network receives a response to the name query;
- the calling user did not modify the presentation status of the Calling Name and the results of the name query do not indicate that the network stored value is "private" or "public";
- the calling user has indicated to the network that their Calling Name presentation status for this one call is to be the opposite of the network stored value and the results of the name query do not indicate that the network stored value is "private" or "public";
- the results of the name query indicate that a Calling Name is unavailable.

6.3.2.2.1 Stimulus Signaling Procedures for Calling Name Identification Presentation

Once the network has determined the status of the Name Information, the network shall send the Name Information coded in a Display text information element. The network shall code the Display text information with the characters from the response to the name query if the name is available and public. The network shall be able to deliver a variable length name that is 1 to 15 characters. The network shall code the Display text information with an indication of privacy for the Name Information (for example, Private Name) if the name is private. The network shall code the Display text information with an indication of unavailable for the Name Information (for example, UnavailableName) if the name is not available.

The network shall send the Display text information element in a SETUP message or in a subsequent INFORMATION message that uses the call reference value from the SETUP message. If the Display text information element is sent in an INFORMATION message, then it shall be sent to all terminals that respond to the SETUP message with messages other than call clearing.

The network shall not deliver the Name Information after the call reference has been released or call clearing has been initiated; for example, the called user rejected the call.

6.3.2.2.2 Functional Signaling Procedures for Calling Name Identification Presentation

Once the network has determined the status of the Name Information, the network shall send the Name Information coded in an Invoke component with the Class 5 operation calling Name in a Facility information element. The callingName operation is defined in 6.1.4, Definition of Operations and Errors. The network shall include the NamePresentationAllowed argument with a value of namePresentationAllowedSimple in the Invoke component with the characters from the response to the name query if the name is available and public. The network shall be able to deliver a variable length name that is 1 to 15 characters. The network shall include the NamePresentationRestricted argument, with a value of namePresentationRestrictedNull, in the Invoke component if the name is private and not send any name characters. The network shall include the NameNotAvailable argument in the Invoke component if the name is not available and not send any name characters.

The network shall send Name Information in a SETUP message or in a subsequent FACILITY message that uses the call reference value from the SETUP message. If the Name Information is to be sent in a subsequent FACILITY message, then the network shall include the informationFollowing operation with the nameInformation argument in an Invoke component in the SETUP message sent from the network to the user. The informationFollowing operation is defined in 6.1.4, Definition of Operations and Errors.

The network shall not deliver the Name Information after the call reference has been released or call clearing has been initiated; for example, the called user rejected the call.

6.3.3 Error Handling

The network shall reject a request to activate or deactivate Calling Name Identification Presentation if the user does not subscribe to Calling Name Identification Presentation “Yes and able to activate/deactivate.” The network shall reject a request to activate or deactivate Redirecting Name Delivery if the user does not subscribe to Redirecting Name Delivery “Yes and able to activate/deactivate.” The network shall reject a request to activate or deactivate Calling Name and Redirecting Name Delivery if the user does not subscribe to Calling Name Delivery “Yes and able to activate/deactivate”, Redirecting Name Delivery “Yes and able to activate/deactivate”, or both. When the network rejects the request, it sends cause value #50 “requested facility not subscribed”.

The network shall reject a request to activate or deactivate Calling Name Identification Presentation or Redirecting Name Delivery that uses a Calling Name Identification Presentation deactivation, Redirecting Name Delivery deactivation, or Calling Name Identification Presentation and Redirecting Name Delivery deactivation feature identifier and a non-null call reference if the feature identifier value represents a bearer service and directory number different than the bearer service and directory number associated with the call. In this case, the network sends national- specific cause value #53, “service operation violated; diagnostic – short-term denial”.

6.4 DSS1 Interactions with Supplementary Services

6.4.1 Calling Name Identification Restriction

The DSS1 procedures for Calling Name Identification Presentation interactions with Calling Name Identification Restriction are described in 6.3.2.2.

6.4.2 ISDN Normal Call Transfer

The DSS1 procedures for ISDN Normal Call Transfer have no interaction with the DSS1 proce- dures for Calling Name Identification Presentation.

6.4.3 ISDN Call Waiting

The DSS1 procedures for ISDN Call Waiting have no interaction with the DSS1 procedures for Calling Name Identification Presentation.

6.4.4 ISDN Calling Line Identification Presentation (CLIP)

The DSS1 procedures for ISDN Calling Line Identification Presentation have no interaction with the DSS1 procedures for Calling Name Identification Presentation.

6.4.5 ISDN Calling Line Identification Restriction (CLIR)

The DSS1 procedures for ISDN Calling Line Identification Restriction have no interaction with the DSS1 procedures for Calling Name Identification Presentation.

6.4.6 ISDN Multi-level Precedence & Preemption

The DSS1 procedures for Multi-level Precedence and Preemption have no interaction with the DSS1 procedures for Calling Name Identification Presentation.

6.4.7 ISDN Call Hold

The DSS1 procedures for ISDN Call Hold have no interaction with the DSS1 procedures for Calling Name Identification Presentation.

6.4.8 ISDN Message Waiting Indicator Control and Notification and Non-ISDN Voice Message Waiting Indication Control

The DSS1 procedures for Message Waiting Indicator Control and Notification have no interaction with the DSS1 procedures for Calling Name Identification Presentation.

6.4.9 ISDN User-to-User Signaling

The DSS1 procedures for User-to-User Signaling have no interaction with the DSS1 procedures for Calling Name Identification Presentation.

6.4.10 Non-ISDN Call Forwarding

6.4.10.1 Stimulus Signaling Procedures for Redirecting Name Delivery

When a call has been previously forwarded using non-ISDN Call Forwarding (see ATIS-1000611), if the forwarded to user is a Redirecting Name Delivery user, then the network shall deliver the orig- inal called Name Information. The original called Name Information is associated with the first redirecting number.

Once the network has determined the status of the Name Information, the network shall send the information coded in the Display text information element. If the forwarded to user is also a Calling Name Identification Presentation User, then the Display text information element will include both the Name Information and the Redirecting Name Information. If the Redirecting Name is available and public, the

network shall code the characters from the response to the name query in the Display text information element. If the Redirecting Name is private (that is, the results of the name query indicate that the network stored value is “private”), the network shall code an indication of privacy in the Display text information element. If the call was previously for- warded and the Redirecting Name is unavailable, the network shall code an unavailable indication in the Display text information element.

The network shall send the Display text information element in a SETUP message or in a subsequent INFORMATION message that uses the call reference value from the SETUP message.

The network shall not deliver the Name Information after the call reference has been released or call clearing has been initiated.

6.4.10.2 Functional Signaling Procedures for Redirecting Name Delivery

When a call has been previously forwarded, if the forwarded to user is a Redirecting Name Delivery user, then the network shall deliver the original called Name Information, and last redi- recting Name Information, if the call was sequentially forwarded. The original called Name Information is associated with the first redirecting number, and the last redirecting Name Information is associated with the last redirecting number.

Once the network has determined the status of the Name Information, the network shall send the information coded in an Invoke component with the Class 5 operation DivertingLegInformation2 in a Facility information element. The DivertingLegInformation2 is defined in 6.1.4, Definition of Operations and Errors. The network shall include the originalCalledName argument in the Invoke component with the characters from the response to the name query if the original called name is available and public. The network shall include the redirectingName argument if sequential forward- ing has occurred in the Invoke component with the characters from the response to the name query if the last redirecting name is available and public. The network shall be able to deliver a variable length name that is 1 to 15 characters. The network shall include the NamePresentationRestricted argument, with a value of namePresentationRestrictedNull, in the Invoke component for the original called name, if the original called name is private, and not send any original called name characters. The network shall include the NamePresentationRestricted argument, with a value of namePresentationRestrictedNull, in the Invoke component for the last redirecting name, if the last redirecting name is private and not send any last redirecting name characters. The network shall include the NameNotAvailable argument in the Invoke component for the original called name, if the original called name is not available, and not send any original called name characters. The network shall include the NameNotAvailable argument in the Invoke component for the last redirecting name, if the last redirecting name is not available, and not send any last redirecting name characters.

The network shall include the diversionCounter argument in the DivertingLegInformation2 operation if any redirecting Name Information (original called name or last redirecting name) is to be sent to the called user. The diversionCounter argument shall be coded to correspond with the number of times this call has been redirected.

The network shall include the diversionReason argument in the DivertingLegInformation2 operation if any redirecting information (original called name or last redirecting name) is to be sent to the called user. The diversionReason argument shall be coded to correspond with the reason for the last diversion.

The network shall send the Name Information in a SETUP message or in a subsequent FACILITY message that uses the call reference value from the SETUP message. If the Name Information is to be sent in a subsequent FACILITY message, then the network shall include the informationFollowing operation with the nameInformation argument in an Invoke component in the SETUP message sent from the network to the user. The informationFollowing operation is defined in 6.1.4, Definition of Operations and Errors.

The network shall not deliver the Name Information after the call reference has been released or call clearing has been initiated.

7 Switching & Signaling Specification for Calling Name Identification Presentation at Interexchange Interfaces

7.1 ISDN-UP Protocol & Procedures

7.1.1 Originating Exchange

An originating exchange configured to include name characters supporting the Calling Name Identification Presentation service shall include a Generic Name (GN) parameter in the IAM whenever specific name related information must be transferred to the terminating office. This information shall include indications of name availability and presentation, and may also include the characters of the name based on a network option.[10] The originating exchange may set the name unavailability indicator if it knows that particular lines do not have Name Information stored in a network database (for example, a coin line).

If the originating exchange is configured to include name characters, and Name Information is available for a specific customer, the exchange shall include Name Information in a GN parameter in the IAM. The type of name field shall be coded "Calling Name." The availability field shall be coded "name available." The presentation field shall be coded "presentation allowed" or "presentation restricted" as determined by the Calling Name Identification Restriction (see ATIS-1000639) ISDN-UP Procedure for the Originating Exchange.[11]

When the presentation field is coded "presentation allowed", the characters field shall contain a variable number of characters, up to 15, coded one per octet in T.50 encoding, otherwise no name characters are transmitted.

If the originating exchange is configured to include name characters, and if Name Information is not available for a specific customer, (for example, for a public phone), the GN will be sent in the IAM. The type of name field shall be coded "Calling Name." The availability field shall be coded "name not available." The presentation field shall be coded "no indication." No characters shall be included.

Name characters and network stored values may be fetched from network databases internal or external to the switch. The external query shall be performed using TCAP. See 7.2 for TCAP procedures.

7.1.2 Terminating Exchange

If the called party is subscribed to Calling Name Identification Presentation and a calling party number in the Calling Party Number (CPN) parameter is available in an incoming IAM, the terminating exchange will check for the presence of the GN parameter. If the parameter is not present, the terminating exchange will perform a name query, and use the network stored value from a network database to control the presentation of the name.

If the terminating office receives a GN parameter in the IAM, the type of name field is examined. If type of name is set to "Calling Name," the following procedures are executed. If the type of name is set to "original called name" or "redirecting name," the procedures in 7.3.2 for the interaction with non-ISDN Call Forwarding are executed.

If the availability field is set to "name not available," an indication is sent to the called party of unavailability. If the availability field is set to "name available," the presentation field is examined.

If the presentation field is set to "presentation restricted," an indication is sent to the called party of privacy. If the presentation field is set to "presentation allowed," the characters field is examined. If any

[10] The calling party's name, or an indication of name availability and presentation in the originating network, may be made available to other networks based on business agreements among the individual networks.

[11] It is assumed that if an originating exchange has access to the name characters, it will also have access to the network stored value. The case where name characters are included in the IAM and the presentation value is "no indication" or "blocking toggle" is unexpected.

characters are present, up to 15 characters will be delivered to the called party. If no characters are present, a TCAP query is initiated. If the presentation field is set to “no indication” or “blocking toggle,” the characters field is examined. If any characters are present, this is considered an error condition, and an indication is sent to the called party of unavailability. If no characters are present, a TCAP query is initiated. See the TCAP procedures in 7.2.

As a network option, the terminating office may use the Calling Party Number (CPN) parameter to query a network database. This information may be delivered in lieu of the information in the IAM.

7.1.3 Transit Exchange

If a transit exchange receives a Generic Name (GN) parameter with name characters, the GN parameter shall be passed unchanged. As a network option, if the transit exchange did not receive a GN parameter, the transit exchange may query a database using the Calling Party Number (CPN) to create the GN parameter. As a network option, if a transit exchange receives a GN parameter without name characters, the transit exchange may query a database using the Calling Party Number to add name characters to the GN parameter of the IAM.

7.1.4 Formats & Codings

7.1.4.1 Messages

This service utilizes the Initial Address Message described in ATIS-1000113.

7.1.1.1 Parameters

This service utilizes two parameters:

- Calling Party Number;
- Generic Name.

The format for the CPN parameter is described in chapter 3 of ATIS-1000113. The parameter name code for the Generic Name parameter is 11000111, and the format is given below:

8 7 6	**5**	**4 3**	**2 1**
type of name	availability	spare	presentation
character 1			
character 2			
...			
character n			

The type of name field is coded as follows:

Type of Name	Value
Spare	000
Calling name	001
Original called name	010
Redirecting name	011
Spare	100-111

The availability field is coded as follows:

Availability	Value
Name available/unknown	0
Name not available	1

The presentation field is coded as follows:

Presentation	Value
Presentation Allowed	00
Presentation Restricted	01
Blocking toggle	10
No indication	11

7.2 TCAP Protocol & Procedures

7.2.1 Originating Exchange (Configured to Include Name Characters)

If the originating exchange is configured to perform external name queries, and it determines that a query is necessary, the switch will formulate a TCAP message of package type “Query – With Permission.” This query will be routed to a network database. An Invoke (last) component type containing the Parameter Provide Value operation with an empty TCAP Generic Name parameter and a service key containing the calling number should be included in the query message. The calling number shall be a Network Validated number (user provided, if available; network provided otherwise). The switch should then start a response timer. If a valid calling number is not avail- able the network cannot perform a query. Thus, Name Information is not available.

If no response is received before the response timer expires, or if a Return Error, Reject, or Abort response is received, the Calling Name is unavailable and the switch continues normal call processing.

If no response is received before the response timer expires, the Transaction Capability user should indicate to Transaction Capability that the application process is terminating. Transaction Capability shall terminate the transaction and its associated component.

If a Return Result response is received containing the characters of the name, the switch shall populate the IAM GN parameter, based on whether the calling party invokes a Calling Name Identification Restriction service and also on the calling party's network stored value received in the TCAP GN parameter presentation field.

a) If the calling party makes no CNIR invocation, and the TCAP query response includes "presentation allowed", then the IAM GN parameter presentation field is "presentation allowed";
b) If the calling party makes no CNIR invocation, and the TCAP query response includes "presentation restricted", then the IAM GN parameter presentation field is "presentation restricted";
c) If the calling party forces the Calling Name "private," then the IAM GN parameter presentation field is "presentation restricted" regardless of a TCAP query response;
d) If the calling party forces the Calling Name "public," then the IAM GN parameter presentation field is "presentation allowed" regardless of a TCAP query response;
e) If the calling party invokes the opposite of the network stored value, and the TCAP query response includes "presentation allowed" or "presentation restricted," then the opposite of the TCAP query response presentation field value is used in the IAM GN parameter presentation field;
f) If the calling party invokes the opposite of the network stored value or makes no CNIR invocation and the TCAP query response includes "no indication" or "blocking toggle" (unexpected case) in the presentation field, then "name not available" and "no indication" are used in the IAM GN parameter.

Note that the expected case is that the network stored value would be stored either in the originating exchange or a network database, but not both. In the case where both the originating exchange and the database provide absolute indications, the originating exchange value will take precedence. In cases where no indication is provided by either, the default shall be to not deliver the information.

7.2.2 Terminating Exchange

If the terminating exchange is configured to perform external name queries, and it determines that a query is necessary, the switch will formulate a TCAP message of package type "Query – With Permission." This query will be routed either to the originating switch or a network database. An Invoke (last) component type containing the Parameter Provide Value operation with an empty TCAP Generic Name parameter and a service key containing the calling number should be included in the query message. The calling number shall be a Network Validated number (user provided, if available; network provided otherwise). The switch should then start a response timer. If a valid calling number is not available, the network cannot perform a query. Thus, Name Information is not available.

If no response is received before the response timer expires, or if a Return Error, Reject, or Abort response is received, the Calling Name is unavailable and the switch continues normal call processing.

If no response is received before the response timer expires, the Transaction Capability user should indicate to Transaction Capability that the application process is terminating. Transaction Capability shall terminate the transaction and its associated component.

If a Return Result response is received containing the characters of the name, the switch shall determine whether to deliver the name based on any received IAM GN parameter presentation field value and the calling party's network stored value received in the TCAP GN parameter presentation field.

a) If no IAM GN parameter is received, and the TCAP query response includes "presentation allowed" or "presentation restricted," then the TCAP query response presentation field value is used to determine delivery of Name Information to the Calling Name Identification Presentation User;

b) If the IAM GN parameter presentation field value is “presentation allowed,” then presentation of a Calling Name is allowed for the Calling Name Identification Presentation User regardless of a TCAP query response;

c) If the IAM GN parameter presentation field value is “blocking toggle,” and the TCAP query response includes “presentation allowed” or “presentation restricted,” then the opposite of the TCAP query response presentation field value is used to determine delivery of Name Information to the Calling Name Identification Presentation User;

d) If the IAM GN parameter presentation field value is “no indication,” “blocking toggle,” or no IAM GN parameter is received, and the TCAP query response includes “no indication” or “blocking toggle”(unexpected case) in the presentation field, then an indication of unavailability is sent to the Calling Name Identification Presentation User.

7.2.3 Facility Providing the Calling Name

The Facility receiving the TCAP query should perform a search for the name characters and network stored value based on the calling number in the Service Key.

7.2.3.1 Successful Operation

If the name search is successful, the name characters and network stored value should be included in the Return Result component of the response message.

7.2.3.2 Unsuccessful Operation

If the name search is unsuccessful, an error code should be returned in the Return Error component of the response message.

The error code is “Unavailable Resource” if the facility does not have the capability to perform the name search or does not have the Calling Name database.

The error code is “Unexpected Data Value” if the facility has the capability to perform the name search but the calling number specified is not present in the database because it is from outside the served area.

The error code is “Missing Customer Record” if the facility has the capability to perform the name search, the calling number is within the served area, but the calling number specified is not pre- sent in the database.

The error code is “Data Unavailable” if the facility can perform the name search, the calling number is present in the database, but no name is found for the specified calling number.

The error code is “Task Refused” if the facility is temporarily unable to perform the name search. The error code is “Screened Response” if the facility has the capability to perform the name search, but the requester is not authorized to access Name Information.

7.2.4 Formats & Codings

7.2.4.1 Parameter-Provide Value Operation for Initial Query

parameter-ProvideValue OPERATION

--for Initial Query

PARAMETER SET {GenericName,
ServiceKey}

RESULT SET {GenericName}

ERRORS {unavailableResource,
unexpectedDataValue,
dataUnavailable,
missingCustomerRecord,
taskRefused,
screenedResponse}

ServiceKey ::=[10] IMPLICIT SET {callingDN Digits,
BusinessGroup OPTIONAL}

--only included on MBG-related queries.

Digits ::=[4] IMPLICIT OCTET STRING

BusinessGroup ::=[21] IMPLICIT OCTET STRING

GenericName ::=[23] IMPLICIT OCTET STRING

7.2.4.2 Digits Parameter

Two new codings are required in the type of digits field of the Digits parameter. These are:

a) 00001101 – Original Called Number. These digits identify the number of the party who initiated the first redirection of the call.
b) 00001110 – Redirecting Number. These digits identify the number of the party who initiated the last redirection of the call.

The type of digits field is coded as follows:

Type of digits	Value
Calling directory number	00001011
Original called number	00001101
Redirecting number	00001110

7.2.4.3 Generic Name Parameter

The Generic Name Identifier is coded contextual (in the context of the Parameter Set), primitive, with Identifier code 23, that is:

Parameter	H	G	F	E	D	C	B	A
Generic name	1	0	0	1	0	1	1	1

The Generic Name Length is variable. The contents are coded as follows:

H G F	E	D C	B A
type of name	availability	spare	presentation
character 1			
character 2			
..			
character n			

Characters are T.50 encoded and can be up to 15 octets. The type of name field is coded as follows:

Type of name	Value
Spare	000
Calling name	001
Original called name	010
Redirecting name	011
Spare	100-111

The availability field is coded as follows:

Availability	Value
Name available/unknown	0
Name not available	1

The presentation field is coded as follows:

Presentation	Value
Presentation Allowed	00
Presentation Restricted	01
(not used)	10
No indication	11

7.3 Interaction with Other Supplementary Services

7.3.1 Calling Name Identification Restriction

When Calling Name Identification Restriction is used to force Calling Name presentation status for this call to private, a query is not performed to obtain Name Information.

7.3.2 Non-ISDN Multi-location Business Groups

The MBG name, or optionally the name associated with the individual line, shall be provided for calls outside the business group, and the name associated with a particular MBG member shall be provided for calls within the business group.

If the originating switch is configured to include names in the IAM, the appropriate name is populated in the GN parameter for all calls. As a network option, the name may be fetched using an originating TCAP query, and sent to the terminating switch using the GN.

If the switch performs an explicit query to obtain the Calling Name, the contents of the Service Key of the query will be determined by whether the call is within the MBG. If it is within the MBG, the Calling Directory Number and the Business Group parameter will be included in the service key of the query. If it is outside the MBG, only the Calling Directory Number will be included in the service key of the query. The Calling Directory Number contains a number in NANP format in both cases. The Business Group parameter is populated with the information relevant to the calling party.

The facility responding to the query will provide the appropriate name based on whether the Business Group parameter is present in the service key.

The procedures in this paragraph are a service provider option. When an IAM containing a Generic Name parameter and a Business Group parameter is received at the forwarding exchange, and if the call is forwarded to a non-MBG party, the forwarding exchange includes a Generic Name parameter, coded as follows, in the outgoing IAM:

- the “type of number” subfield is coded as in the generic name parameter of the incoming IAM;
- the “availability” subfield is coded “0” indicating “name available/unknown” (regardless of the coding of this subfield in the GN parameter in the incoming IAM);
- the “presentation” subfield is coded as in the GN of the incoming IAM;
- no name characters are included in the GN parameter (regardless of whether name characters were received in the GN parameter of the incoming IAM).

The procedures described in this paragraph are a service provider option. If more than one GN parameter is received in the incoming IAM, the outgoing IAM should contain multiple GN parameters (one for each GN parameter received in the incoming IAM). Each should be coded according to the rules above. This does not limit the number of GN parameters in the outgoing IAM to be equal to the number in the incoming IAM. The number of GN parameters in the outgoing IAM should be greater than, or equal to, the number in the incoming IAM, as the forwarding party’s name (e.g., a company name) could be included in the IAM if the forwarding exchange is configured to send names in the IAM.

7.3.3 Non-ISDN Call Forwarding

For calls that have been forwarded one or more times, the names associated with the original called party and the last redirecting party, as well as the calling party, may be delivered to an ISDN Calling Name Identification Presentation User.

7.3.3.1 Forwarding Exchange

If a forwarding exchange receives a Generic Name parameter in the IAM with the type of name field set to "original called name," the forwarding exchange may optionally pass this parameter in the IAM to the forwarded-to switch. If a forwarding exchange receives a Generic Name parameter in the IAM with the type of name field set to "redirecting name," the forwarding exchange must either update or delete this parameter before sending out the IAM to the forwarded-to switch.

If the forwarding exchange is configured to include Name Information, the name of the forwarding party can be added to the IAM as the call is forwarded. The name is fetched by the forwarding switch from a network database. The type of name field of the Generic Name parameter will be coded to "original called name" (010) for the first forwarding, and to "redirecting name" (011) for the second and any subsequent forwardings.

7.3.3.2 Terminating Exchange

If the terminating exchange receives a GN parameter in the IAM with a type of name field set to "original called name" or "redirecting name," these names shall be delivered to the called party based on their subscription options. As a network option, the terminating exchange may query a network database. The resulting Name Information may be delivered in lieu of the information in the IAM.

If the terminating exchange is configured to perform name queries, a separate query should be launched for each name requested.[12] When the switch formulates the queries, the type of digits field in the Digits parameter in the service key should be coded to "Calling directory number." In addition, as a network option, when the switch formulates the queries, the type of digits field in the Digits parameter in the service key should be coded to indicate which name is being request- ed. For the calling party's name, the type of digits should be equal to "calling directory number;" for the first forwarding party, equal to "original called number;" and for the last forwarding party, equal to "redirecting number." The responses from the database contain the Generic Name parameter with the type of name field coded appropriately for each name.

There is no specific order in which the queries must be sent, and all the queries should be sent without waiting for responses to earlier queries. The terminating exchange should wait until all the information is available, or until the timeout period has elapsed before delivering the available Name Information.

8 Specifications for Protocol Interworking

8.1 SS7/DSS1

8.1.1 Message Mapping

SS7 ISDN-UP	SS7 TCAP	DSS1
IAM		SETUP
	Response	SETUP, INFO, FACILITY

[12] This is necessary because the calling and redirecting parties may be served by different networks.

8.1.2 Parameter/component/information Element Mapping

SS7 (ISDN-UP Parameter)	SS7 (TC Component)	DSS1 (Information Element)
Generic Name		Display Text, Facility
	Return Result	Display Text, Facility

8.2 SS7/MF Signaling

If SS7 connectivity does not exist between the originating exchange and the terminating exchange, it shall not be possible to support Calling Name Identification Presentation.

Annex A: Bibliography (Informative)

At the time of publication, the editions indicated were valid. All standards are subject to revision, and users of this document are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

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[15] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=24739>

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[17] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=24948>

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