

**Integrated Services Digital Network (ISDN);
Public Switched Telephone Network (PSTN);
Framework for the provision of
calling party name information**



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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document describes the general requirements for presenting calling name information to users connected to PSTN or ISDN. The ability of the calling party to restrict the presentation of its name is also covered.

1 Scope

The present document gives a set of requirements, observations and areas of further investigations to be used in order to base further actions in ETSI, regarding services that deal with presenting and restricting calling name information to users connected to PSTN or ISDN. The following supplementary services are within the scope of the present document:

- Calling Name Identification Presentation (CNIP) is a supplementary service which is offered to the called user and which provides name information associated with the calling user (calling party name) to the called user;
- Calling Name Identification Restriction (CNIR) is a supplementary service which is offered to the calling user to prevent presentation of the user's name information to the called user.

The identification of requirements is based on analysing existing or emerging European standards and international recommendations on calling name information. Furthermore, due to the obvious clear analogy with CLI services, European standards on CLI management for PSTN and ISDN users have been taken into account.

The CNIP and CNIR services on the PSTN and ISDN are offered in United States of America and Canada, where the market is more developed especially in terms of residential phone services and business applications. These services are considered enhanced CLI services. Within Europe some service providers are performing field trials.

The following aspects are excluded from the scope of the present document:

- a) Interactions with supplementary services;
- b) Quality of service;
- c) Charging aspects.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] ETS 300 659-1: "Public Switched Telephone Network (PSTN); Subscriber line protocol over the local loop for display (and related) services; Part 1: On hook data transmission".

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CLI	Calling Line Identity
CNI	Calling Name Identity
CNIP	Calling Name Identification Presentation
CNIR	Calling Name Identification Restriction
IA5	International Alphabet N°5
IAM	ISDN User Part Initial Address Message
ISDN	Integrated Services Digital Network
PSTN	Public Switched Telephone Network

4 Analysis of requirements

4.1 General issues

CNI is name information associated with a specific calling party number. The length, format and character set of the CNI should be defined in order to meet the different characteristics of European names. A minimum length should be agreed to facilitate interworking between networks. The provision of a new service that transmits names requires the development or updating of terminals to be able to display the received characters set. In PSTN protocol over the local loop (ETS 300 659-1 [1]) a name parameter coded in IA5 is specified.

Observation 1: Further investigation is required into the characteristics of the CNI and the impact on ISDN and PSTN terminals.

Although one can imagine that most of the regulations applicable to a CLI number may be extended to a name service, it is clear that a name service may need some more specific regulation. For example, ex-directory subscribers who do not want the association between their number and their name to be published may request even stronger restrictions concerning the delivery of their names than of their numbers, or they may agree to have their names transmitted but not their numbers.

Observation 2: Different regulations are expected for calling name services (e.g. for ex-directory subscribers).

Depending on national regulations, some networks may define categories of subscriber that have the ability to override the presentation restriction and have the CNI presented (e.g. the police). The ability to have such override category is a national option.

Observation 3: The ability to have categories of user that have the possibility to override the presentation restriction of CNI should be taken into account.

Both CNI and CLI may be delivered if the called user is subscribed to both CNIP and CLIP. Likewise, both CNI and CLI may be treated as "private" or "public" for that particular incoming call taking into account the network stored values associated with CLI and CNI of the calling user, or regardless the network stored values associated.

Observation 4: Allow the capability to provide both CNI and CLI, and if possible invoke restriction or release of one or both with a single command.

Observation 5: Evaluate if the override category for CNIR could be related to the override category of CLIP.

Observation 6: Due to clear analogy with CLI services, the definition of CNIP and CNIR should be tightly linked with the definition of CLIP and CLIR services.

4.2 Description of CNI presentation

As mentioned above, in the present document, the calling name information may apply across analogue interfaces, ISDN basic rate interfaces and primary rate interfaces. In the PSTN, the delivery of the calling name identity to the served user can occur either on-hook:

- a) prior to ringing; or
- b) during the ringing phase (e.g. during the first long silent interval).

or off-hook. Additional information may be provided with the CNI (e.g. date, time, etc.).

Observation 7: In the PSTN, the CNIP supplementary service should allow the capability of providing CNI either in the on-hook or off-hook condition.

In the ISDN, the network should deliver the CNI at call set-up time.

Observation 8: In the ISDN, the CNIP supplementary service should allow the capability to provide CNI at the same time as a call establishment request.

Care must be taken to safeguard users against incompatible presentation of CNI for PSTN and ISDN in order to allow maximum interworking.

Observation 9: Ensure that definitions for CNIP for PSTN and ISDN users are as similar as possible.

Considering that different representations of names may be desired by calling users for different calls, a distinction could be made between various name presentation styles, e.g.:

1. personal (perhaps including informal version of first name);
2. formal (perhaps including titles);
3. business (perhaps including function title).

It is proposed that the calling user should be able to choose the style of presentation of the calling user name.

Observation 10: The calling user could optionally be able to change per call the style of presentation of the calling user's name from the default presentation style to another defined presentation style.

Considering that:

1. for fixed line applications, in general, the actual end user may be any member of a select group of physical end users;
2. different physical end users have unique names.

it is proposed that the following possibilities be supported:

- as a network provider option, the end user is allowed to choose one of the predefined names known to the network, by means of a simple procedure, on a per-call basis;
- as a network provider option, the end user is allowed to provide a user-defined name to be used for presentation to the called party.

Observation 11: The calling user could optionally be able to select per call the actual name to be presented from a predefined set of names known to the network.
The calling user could optionally provide per call the name to be used for presentation to the called party.

4.3 Description of CNI restriction

The calling party should have the capability of controlling the release of calling name identification on a per-line basis or a call by call basis.

Observation 12: The capability to restrict the callers CNI information on a per-line basis or a per call basis should be provided in order to protect customers in certain circumstances.

Permanent and temporary restriction of the presentation of the callers CNI must be provided from the service provider to interested parties, however the called party must be informed that presentation has been withheld and thereby have the choice of whether or not to accept the call. A service provider may provide several service options, that apply separately to each analogue line or ISDN number. The following service profile options are possible:

- CNIR mode: permanent (invoked for all calls), or temporary (specified by user per call);
- Default for temporary mode: presentation restricted, or presentation not restricted.

Similarly to the CLIR service, a service definition is required that enables the calling party to prevent presentation of CNI to the called party.

Observation 13: Ensure that the CNIR services for PSTN and ISDN users are as similar as possible.

The set of calling identity items presently consists of CLI and CNI, and this set may be expanded in the future. If both CLI and CNI may be presented to the called party, in order to respect a callers' privacy, three types of restriction for the calling user identification presentation can be envisaged, as follows:

- Type 1: no restriction: name and number are presented, there is no restriction on the calling user identification;
- Type 2: partial restriction: either number or name is presented;
- Type 3: complete restriction: neither number nor name is presented.

It should be evaluated if it is possible to have a single service for blocking both CLI and CNI presentation or two separate but similar services. In the first case, it should be envisaged to harmonize the invocation procedure and, for PSTN service, the invocation code.

Observation 14: Further analysis is required into the interaction between CLIR and CNIR in order to evaluate the possibility of having a single service to restrict CNI and CLI presentation

4.4 Procedures

4.4.1 Provision and withdrawal

CNI services are provided either after prior arrangement with the service provider or are generally available. If the CNIR is provided to all users without subscription, the service provider assigns a default subscription value. Regarding ISDN, the CNI services may apply separately to each ISDN number, per ISDN number and bearer service, or per interface.

Observation 15: CNI services provided by the service provider may be provided by prior arrangement or may be generally available.

The CNI services may be withdrawn at the served user's request or for administrative reasons.

Observation 16: CNI services provided by the service provider to a particular subscriber may be withdrawn by the service provider upon request of that subscriber or for administrative reasons.

4.5 Procedure

4.5.1 Registration and Erasure

Not applicable.

4.5.2 Activation, deactivation and interrogation

The CNI services are activated by the service provider at provision and deactivated by the service provider at withdrawal.

Observation 17: CNI services can be activated by the service provider at provision and deactivated by the service provider at withdrawal.

As an option, the served user could activate and deactivate the CNI presentation service by using an activation or deactivation procedure. The served user should receive a notification.

Observation 18: If the served user can activate/deactivate CNI presentation service, a notification should be provided to the served user to confirm the activation/deactivation.

As a option, in the case where activation/deactivation is provided to the served user, it should possible for the user to interrogate the status (activated or deactivated) of the CNI presentation service. The served user would receive a notification of the status.

Observation 19: If the served user can interrogate the CNI presentation status, a notification should be provided to the served user.

In the associated reference document for CNI restriction service, no user procedures (activation/deactivation/interrogation) are foreseen.

Observation 20: No user procedures are foreseen for CNI restriction service.

4.5.3 Invocation and operation

The network automatically invokes the CNIP supplementary service during call establishment. The network will provide the served user with the CNI of the calling party, or an indication that the CNI is not available due to restriction, or due to insufficient signalling capability.

Observation 21: The network automatically invokes the CNIP supplementary service during call establishment, and the served user does not need to invoke or operate the service.

Observation 22: If CNI is not available the called user should receive a notification indicating the cause (i.e. unavailable or withheld).

The network automatically invokes the CNIR supplementary service for each outgoing call, and delivers the network stored value or the opposite value if the calling user indicated to the network to change it temporary by using a modification procedure. The calling user should receive a notification from the network.

Observation 23: The calling user may decide to change the network stored value of its restriction on per call by using a modification procedure. The calling user should receive a confirmation that the stored value has changed.

4.6 Network scenarios

Analysing existing or emerging standards on CNI delivery shows that two different architectures supporting CNI have been identified, as follows:

- Names are stored in a centralized database. A query is launched from the destination local exchange to retrieve the calling name based on the received CLI if the called user subscribes to CNIP supplementary service and the calling user has not invoked CNIR.
- CNI is sent in the IAM during call establishment. The CNI may be obtained by the originating local exchange for insertion into IAM from either a database local to the switch or from a centralized database.

It may be possible for a private network to supply the CNI in the case where a call originates in a private ISDN.

Observation 24: Further investigation is required on potential network scenarios supporting CNI delivery.

4.7 Interworking considerations

Based on existing and emerging standards, interworking should be allowed between all network types (PSTN, ISDN, mobile and private networks). The presentation restricted/allowed indication should be passed between networks as well as the CNI according to the chosen network scenario.

Observation 25: Interworking should be allowed between all network types (PSTN, ISDN, mobile and private network).

Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

ETS 300 089: "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Service description".

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History

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