ND1111:1999/06

PNO-ISC/INFO/011

Core INAP CS-1 Extensions for UK Use

PNO-ISC INFORMATION DOCUMENT 011

Core INAP CS-1 Extensions for UK Use

0.2   Normative information

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0.3   Contents

0.4   History

Revision	Date of Issue	Editor	Description
Issue 1,	June 1999	J.Welton, C&WComms	First published version

0.5   Issue control

PAGE	ISSUE	DATE
All	Issue 1	June 1999

0.6   References

[1]   ETR 318 (1996): "Intelligent Network (IN); Intelligent Network Capability Set 1 (CS1); Distributed functional plane".

[2]   ETS 300 374-1(1994): "Intelligent Network (IN); Intelligent Network Capability Set 1 (CS1); Core Intelligent Network Application Protocol (INAP); Part 1: Protocol Specification".

[3]   EN 300 356-1 v3.2.2 (1998): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface".

[4]   PNO-ISC/SPEC/007 Issue 2.2: "ISDN User Part (ISUP)"

[5]   ITU-T Recommendation Q.1600 (1997): "Interaction Between ISUP and INAP".

[6]   EN 301 070-1(1998): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN
        User Part (ISUP) version 3 interactions with the Intelligent Network Application Protocol (INAP);
        Part 1: Protocol Specification".

0.7   Glossary of terms

CCF   Call Control Function
CS   Capability Set
DLE   Destination Local Exchange
ETSI   European Telecommunications Standards Institute
IN   Intelligent Network
INAP   Intelligent Network Application Protocol (in this document also specifically ETSI Core INAP CS1)
IP   Intelligent Peripheral
ISDN   Integrated Services Digital Network
ISUP   ISDN User Part
OLE   Originating Local Exchange
SCF   Service Control Function
SCP   Service Control Point
SRF   Specialized Resource Function
SSF   Service Switching Function
SSP   Service Switching Point

0.8   Scope

This document describes the extensions to the ETSI Core INAP CS1 [1,2] (INAP) protocol
recommended by the PNO-ISC for carrying within INAP the UK enhancements to ETSI ISUP v3 [3]
which are defined in UK-ISUP [4], and the mapping of those extensions to and from UK-ISUP. The
description of the extensions includes the formatting and encoding of the relevant extension field
parameters. Interaction between UK-ISUP and INAP is not described, as no specific UK interactions
have been identified.

Mapping between international ISUP and IN CS1 is specified in [5], and between international ISUP and
ETSI Core INAP CS1 [6].

1. INTRODUCTION

This document considers only the case where the SSP is located at a transit level, hence at which both incoming and outgoing call legs exist and are signalled using UK-ISUP, as in Figure 1. However, the mapping from UK-ISUP to INAP should also be valid for calls in which the outgoing leg uses an access signalling system, and the mapping from INAP to UK-ISUP should also be valid for calls in which the incoming leg uses an access signalling system.

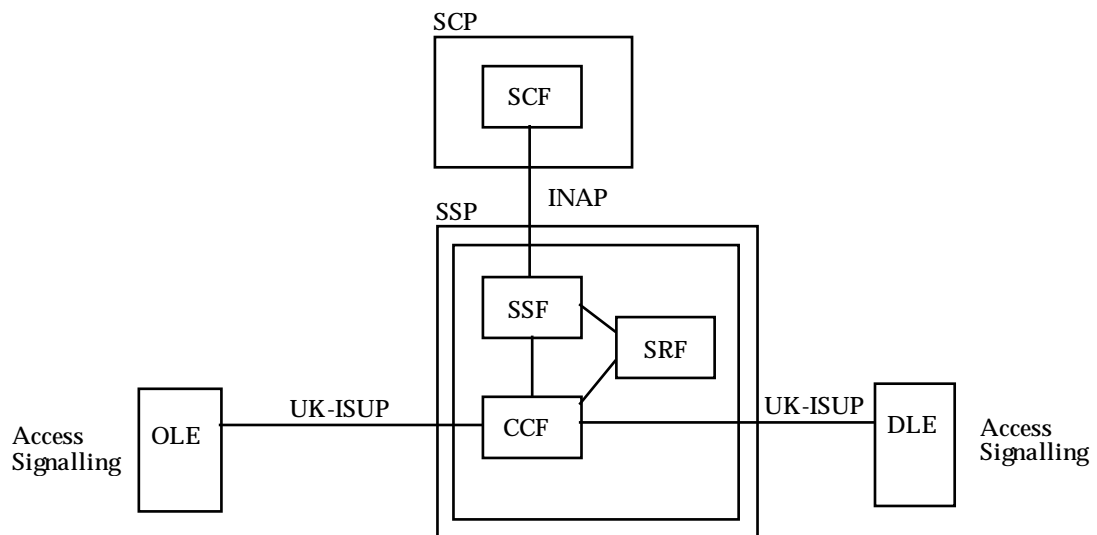**Figure 1: Signalling configuration for an IN call (no external IP)**

The INAP enhancements considered in this document also include support for an internal or external IP, for example in the configuration shown in Figure 2.
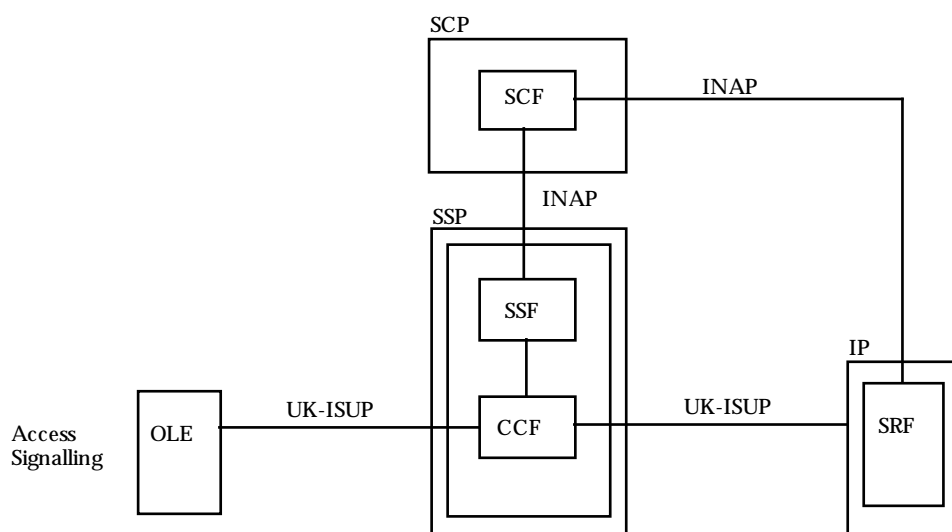
Figure 2: External IP connected via ISUP (Assist Method)

2. ENDORSEMENT NOTICE

The elements of [6] apply with the following modification: Annex ZA has the status of a normative annex.

3. IDENTIFICATION OF REQUIRED ENHANCEMENTS

3.1 Additional Parameters

This section identifies the parameters introduced in UK-ISUP and indicates whether it is appropriate for them to be mapped into INAP.

Additional UK-ISUP Parameters	Mapping to INAP Appropriate
National Forward Call Indicators	Yes
National Forward Call Indicators (Link by Link)	No
Presentation Number	Yes
Last Diverting Line Identity	Yes
Partial Calling Line Identity	Yes
Called Subscriber's Basic Service Marks	Yes (Note 2)
Calling Subscriber's Basic Service Marks	Yes (Note 2)
Calling Subscriber's Originating Facility Marks	Yes (Note 2)
Called Subscriber's Terminating Facility Marks	Yes (Note 2)
National Information Request Indicators Parameter	No (Note 1)
National Information Indicators Parameter	No

Note 1: 'National Information Request Indicators Parameter' could be mapped into the CollectInformation operation as a network option.

Note 2: While use of these parameters has been supported, their use must be carefully controlled in both operations in order to preserve the correct operation of services using these fields, and to observe data protection. Use should be limited to network services which require them, e.g. operator services.

3.2 Additional Parameter Values

This section identifies INAP parameters which map on to ISUP parameters whose range of permissible values has been extended in UK-ISUP. To take full advantage of the functionality provided by UK-ISUP within INAP, the INAP parameters must be similarly extended.

3.2.1 Nature of Address

The Nature of Address field within various UK-ISUP address parameters has been extended to include value 126 with meaning 'UK-Specific'. This value is used in support of number portability, targeted transit and other interconnect services. This change affects INAP address parameters as follows:

    destinationRoutingAddress   in operation Connect;
    eventSpecificInformationBCSM   in operation EventReportBCSM;
    calledPartyNumber   in operation InitialDP;
    destinationRoutingAddress   in operation InitiateCallAttempt.

The following INAP address parameters are not required to support the UK Specific Nature of Address in support of interconnect services, but use of UK Specific Nature of Address is not invalid:

    originalCalledPartyID   in operation Connect;
    ipRoutingAddress   in operation ConnectToResource;
    originalCalledPartyID   in operation InitialDP.

INAP address parameters relating to the calling line are not required to support the UK Specific Nature of Address. Likewise, the INAP extensions providing support for Presentation Number and Last Diverting Line Identity are not required to support the UK Specific Nature of Address.

3.2.2 Calling Party Category

UK-ISUP supports an extended range of Calling Party Categories, which may be mapped on to, and from, the equivalent parameter information in INAP operations. This affects the following INAP parameters:

callingPartysCategory   in operation Connect;
callingPartysCategory   in operation InitialDP.

4. DESCRIPTION OF ENCODING FOR INAP ENHANCEMENTS

4.1 Encoding Principles

(i)   All INAP parameters introduced in this document for UK use are encoded using extension field parameters.

(ii)   To avoid clashes with existing implementations the ExtensionField type has been selected from an agreed range as in section 0.

(iii)   All ExtensionFields introduced in this document shall have criticality 'ignore'. For coding efficiency it is recommended that the criticality field be left absent to default to 'ignore'.

(iv)   The type of all extensions defined here shall be octet string.

(v)   The encoding of all ExtensionField values introduced in this document is identical to the encoding of the equivalent UK-ISUP parameter [4].

4.2 Encoding of Extensions

Extension Name	Extension Type	Extension Length
National Forward Call Indicators	126	2 octets
Presentation Number	125	2-n octets
Last Diverting Line Identity	124	2-n octets
Partial Calling Line Identity	123	9 octets
Called Subscriber's Basic Service Marks	122	3 octets
Calling Subscriber's Basic Service Marks	121	3 octets
Calling Subscriber's Originating Facility Marks	120	2 octets
Called Subscriber's Terminating Facility Marks	119	2 octets
Reserved for PNO-ISC	118	-
Reserved for PNO-ISC	117	-
Reserved for future allocation by PNO-ISC	96 - 116	-

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4.3 Use of Extensions within Operations

This section describes which INAP operations may contain the defined extension fields. In all cases the presence of the extension is optional.

Extension Name	INAP Operations
National Forward Call Indicators	InitialDP, Connect, InitiateCallAttempt
Presentation Number	InitialDP, Connect, InitiateCallAttempt
Last Diverting Line Identity	InitialDP, Connect, InitiateCallAttempt
Partial Calling Line Identity	InitialDP, Connect, InitiateCallAttempt
Called Subscriber's Basic Service Marks	InitialDP, Connect
Calling Subscriber's Basic Service Marks	InitialDP, Connect, InitiateCallAttempt
Calling Subscriber's Originating Facility Marks	InitialDP, Connect, InitiateCallAttempt
Called Subscriber's Terminating Facility Marks	InitialDP, Connect

Where an extension is included in the Connect or the InitiateCallAttempt operation, its value shall be used on the outgoing call leg, when the corresponding UK-ISUP parameter is required.
Where an extension is not included in the Connect operation, the value of the corresponding parameter in UK-ISUP on the outgoing leg shall be that which would normally have been used had no IN interaction had taken place.

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5. ASN.1 EXTENSIONS FOR INAP ENHANCEMENTS

-- UK extensions to INAP
-- Encoding of all octet strings as in [4].

NationalForwardCallIndicatorsExt ::= EXTENSION
    EXTENSION-SYNTAX   OCTET STRING
    CRITICALITY   ignore

nationalForwardCallIndicatorsExt   NationalForwardCallIndicatorsExt   ::=   126

PresentationNumberExt ::= EXTENSION
    EXTENSION-SYNTAX   OCTET STRING
    CRITICALITY   ignore

presentationNumberExt   PresentationNumberExt   ::=   125

LastDivertingLineIdentityExt ::= EXTENSION
    EXTENSION-SYNTAX   OCTET STRING
    CRITICALITY   ignore

lastDivertingLineIdentityExt   LastDivertingLineIdentityExt   ::=   124

PartialCallingLineIdentityExt ::= EXTENSION
    EXTENSION-SYNTAX   OCTET STRING
    CRITICALITY   ignore

partialCallingLineIdentityExt   PartialCallingLineIdentityExt   ::=   123

CalledSubsBasicServiceMarksExt ::= EXTENSION
    EXTENSION-SYNTAX   OCTET STRING
    CRITICALITY   ignore

calledSubsBasicServiceMarksExt   CalledSubsBasicServiceMarksExt   ::=   122

CallingSubsBasicServiceMarksExt ::= EXTENSION
    EXTENSION-SYNTAX   OCTET STRING
    CRITICALITY   ignore

callingSubsBasicServiceMarksExt   CallingSubsBasicServiceMarksExt   ::=   121

CallingSubsOrigFacilityMarksExt ::= EXTENSION

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    EXTENSION-SYNTAX   OCTET STRING
    CRITICALITY   ignore

callingSubsOrigFacilityMarksExt   CallingSubsOrigFacilityMarksExt   ::=   120

CalledSubsTermFacilityMarksExt   ::=   EXTENSION
    EXTENSION-SYNTAX   OCTET STRING
    CRITICALITY   ignore

calledSubsTermFacilityMarksExt   CalledSubsTermFacilityMarksExt   ::=   119

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