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European Standard (Telecommunications series)

**Intelligent Network (IN);
Intelligent Network Capability Set 4 (CS4);
Intelligent Network Application Protocol (INAP);
Protocol specification;
Part 1: Common aspects**



Reference

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Keywords

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document is part 1 of a multi-part deliverable covering Intelligent Network (IN); Intelligence Network Capability Set 4 (CS4); Intelligent Network Application Protocol (INAP); Protocol specification, as identified below:

Part 1: "Common aspects";

Part 2: "Service Switching Function - Switching Control Function (SSF-SCF) Interface".

The present document describes the enhancement for IN CS-4 common aspects.

The present document and EN 302 039-2 [5] define the Intelligent Network (IN) Application Protocol (INAP) for IN Capability Set-4 based and written as delta documents upon ETSI Core INAP CS-3 (EN 301 931-1 [1] and EN 301 931-2 [2]).

This set of documents define enhancements made on the SSF to SCF interface (part 2) as a subset of the ITU-T IN CS4 Recommendations Q.1248.1 [3], Q.1248.2 [4]. For the other interfaces, the ETSI Core INAP CS3 series of EN 301 931 [1] and [2] apply.

In addition to the features supporting IN CS-1, IN CS-2 and IN CS-3 functionalities, the present document and EN 302 039-2 [5] provide:

- general extensions to the CS-3 INAP in support of IN CS-4 target services;
- protocol support of IP-based addressing schemes;
- protocol support of explicit control of the impact of CPH operations on signalling relationships.

National transposition dates	
Date of adoption of this EN:	15 November 2002
Date of latest announcement of this EN (doa):	28 February 2003
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2003
Date of withdrawal of any conflicting National Standard (dow):	31 August 2003

1 Scope

The present document defines enhancements made to EN 301 931-1 [1] for IN-CS4.

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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] ETSI EN 301 931-1: "Intelligent Network (IN); Intelligent Network Capability Set 3 (CS3); Intelligent Network Application Protocol (INAP); Protocol specification; Part 1: Common aspects".
- [2] ETSI EN 301 931-2: "Intelligent Network (IN); Intelligent Network Capability Set 3 (CS3); Intelligent Network Application Protocol (INAP); Protocol specification; Part 2: SCF-SSF interface".
- [3] ITU-T Recommendation Q.1248.1: "Interface recommendation for Intelligent Network Capability Set 4: Interface Recommendation for Intelligent Network Capability Set 4 - Common aspects".
- [4] ITU-T Recommendation Q.1248.2: "Interface recommendation for Intelligent Network Capability Set 4: SCF-SSF Interface".
- [5] ETSI EN 302 039-2: "Intelligent Network (IN); Intelligent Network Capability Set 4 (CS4); Intelligent Network Application Protocol (INAP); Protocol specification; Part 2: Service Switching Function - Switching Control Function (SSF-SCF) Interface".
- [6] ITU-T Recommendation X.519: "Information technology - Open systems interconnection - The Directory: Protocol specifications".

3 Abbreviations

For the purposes of the present document, the abbreviations given in EN 301 931-1 [1] apply.

4 Common Definitions

4.1 Object identifiers

The following ASN.1 module defines the object identifiers assigned to modules, packages and application contexts for EN 301 931-2 [2].

```

IN-object-identifiers {itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) cs4(40)
modules(1) in3-object-identifiers(0) version1(0)}
DEFINITIONS ::=
BEGIN
-- For Modules from TCAP, ROS,
tc-Messages
  OBJECT IDENTIFIER ::= {itu-t recommendation q 773 modules(2) messages(1) version3(3)}
tc-NotationExtensions
  OBJECT IDENTIFIER ::= {itu-t recommendation q 775 modules(2) notation-extension (4)
version1(1)}
ros-InformationObjects
  OBJECT IDENTIFIER ::= {joint-iso-itu-t remote-operations(4) informationObjects(5) version1(0)}
ros-genericPDUs
  OBJECT IDENTIFIER ::= {joint-iso-itu-t remote-operations(4) generic-ROS-PDUs(6) version1(0)}
ros-UsefulDefinitions
  OBJECT IDENTIFIER ::= {joint-iso-itu-t remote-operations(4) useful-definitions(7) version1(0)}
-- For IN CS3 SCF-SRF related Modules
id-cs3          OBJECT IDENTIFIER ::= { itu-t(0) identified-organization(4) etsi(0) inDomain(1)
in-network(1) cs3(30)}
modules-cs3     OBJECT IDENTIFIER ::= {id-cs3 modules(1)}
id-ac-cs3       OBJECT IDENTIFIER ::= {id-cs3 ac(3)}
id-at-cs3       OBJECT IDENTIFIER ::= {id-cs3 at(4)}
id-as-cs3       OBJECT IDENTIFIER ::= {id-cs3 as(5)}
id-rosObject-cs3 OBJECT IDENTIFIER ::= {id-cs3 rosObject(25)}

id-contract-cs3 OBJECT IDENTIFIER ::= {id-cs3 contract(26)}
id-package-cs3   OBJECT IDENTIFIER ::= {id-cs3 package(27)}
-- For IN CS4 Modules
id              OBJECT IDENTIFIER ::= { itu-t(0) identified-organization(4) etsi(0) inDomain(1)
in-network(1) cs4(40)}
modules        OBJECT IDENTIFIER ::= {id modules(1)}
id-ac          OBJECT IDENTIFIER ::= {id ac(3)}
id-at          OBJECT IDENTIFIER ::= {id at(4)}
id-as          OBJECT IDENTIFIER ::= {id as(5)}
id-rosObject  OBJECT IDENTIFIER ::= {id rosObject(25)}
id-contract   OBJECT IDENTIFIER ::= {id contract(26)}
id-package    OBJECT IDENTIFIER ::= {id package(27)}

object-identifiers OBJECT IDENTIFIER ::= {modules in-object-identifiers(0) version1(0)}
common-datatypes   OBJECT IDENTIFIER ::= {modules in-common-datatypes(1) version1(0)}
errortypes         OBJECT IDENTIFIER ::= {modules in-errortypes(2) version1(0)}
operationcodes     OBJECT IDENTIFIER ::= {modules in-operationcodes (3) version1(0)}
errorcodes         OBJECT IDENTIFIER ::= {modules in-errorcodes(4) version1(0)}
common-classes     OBJECT IDENTIFIER ::= {modules in-common-classes(5) version1(0)}
ssf-scf-datatypes  OBJECT IDENTIFIER ::= {modules in-ssf-scf-datatypes(6) version1(0)}
ssf-scf-classes    OBJECT IDENTIFIER ::= {modules in-ssf-scf-classes(7) version1(0)}
ssf-scf-Operations OBJECT IDENTIFIER ::= {modules in-ssf-scf-ops-args(8) version1(0)}
ssf-scf-Protocol   OBJECT IDENTIFIER ::= {modules in-ssf-scf-pkgs-contracts-ac(9) version1(0)}
scf-srf-datatypes  OBJECT IDENTIFIER ::= {modules-cs3 in-cs3-scf-srf-datatypes(10) version1(0)}
scf-srf-classes    OBJECT IDENTIFIER ::= {modules-cs3 in-cs3-scf-srf-classes(11) version1(0)}
scf-srf-Operations OBJECT IDENTIFIER ::= {modules-cs3 in-cs3-scf-srf-ops-args (12) version1(0)}
scf-srf-Protocol   OBJECT IDENTIFIER ::= {modules-cs3 in-cs3-scf-srf-pkgs-contracts-ac(13)
version1(0)}
-- Application Context
-- SSF/SCF Application Context
id-ac-ssf-scfGenericAC
  OBJECT IDENTIFIER ::= {id-ac ssf-scfGenericAC(4) version1(0)}
id-ac-ssf-scfAssistHandoffAC
  OBJECT IDENTIFIER ::= {id-ac ssf-scfAssistHandoffAC(6) version1(0)}
id-ac-ssf-scfServiceManagementAC
  OBJECT IDENTIFIER ::= {id-ac ssf-scfServiceManagementAC(7) version1(0)}
id-ac-scf-ssfGenericAC
  OBJECT IDENTIFIER ::= {id-ac scf-ssfGenericAC(8) version1(0)}
id-ac-scf-ssfINTRafficManagementAC
  OBJECT IDENTIFIER ::= {id-ac scf-ssfINTRafficManagementAC(10) version1(0)}
id-ac-scf-ssfServiceManagementAC
  OBJECT IDENTIFIER ::= {id-ac scf-ssfServiceManagementAC(11) version1(0)}

```

```

id-ac-scf-ssfStatusReportingAC
  OBJECT IDENTIFIER ::= {id-ac scf-ssfStatusReportingAC(12) version1(0)}
id-ac-scf-ssfTriggerManagementAC
  OBJECT IDENTIFIER ::= {id-ac scf-ssfTriggerManagementAC(13) version1(0)}
id-ac-scf-ssfTrafficManagementAC
  OBJECT IDENTIFIER ::= {id-ac scf-ssfTrafficManagementAC(35) version1(0)}
-- SRF/SCF Application Context
id-ac-srf-scfAC OBJECT IDENTIFIER ::= {id-ac-cs3 srf-scfAC(14) version1(0)}
-- Abstract Syntaxes
-- SSF/SCF Abstract Syntaxes
id-as-ssf-scfGenericAS          OBJECT IDENTIFIER ::= {id-as ssf-scfGenericAS(4)}
id-as-assistHandoff-ssf-scfAS   OBJECT IDENTIFIER ::= {id-as assistHandoff-ssf-scfAS(6)}
id-as-scf-ssfGenericAS         OBJECT IDENTIFIER ::= {id-as scf-ssfGenericAS(7)}
id-as-scf-ssfINTrafficManagementAS OBJECT IDENTIFIER ::= {id-as scf-ssfINTrafficManagementAS(9)}
id-as-scf-ssfServiceManagementAS OBJECT IDENTIFIER ::= {id-as scf-ssfServiceManagementAS(10)}
id-as-ssf-scfServiceManagementAS OBJECT IDENTIFIER ::= {id-as ssf-scfServiceManagementAS(11)}
id-as-scf-ssfStatusReportingAS  OBJECT IDENTIFIER ::= {id-as scf-ssfStatusReportingAS(12)}
id-as-scf-ssfTriggerManagementAS OBJECT IDENTIFIER ::= {id-as scf-ssfTriggerManagementAS(13)}
id-as-scf-ssfTrafficManagementAS OBJECT IDENTIFIER ::= {id-as scf-ssfTrafficManagementAS(33)}
-- SRF/SCF Abstract Syntaxes
id-as-basic-srf-scf            OBJECT IDENTIFIER ::= { id-as-cs3 basic-srf-scf(14)}
id-as-basic-scf-srf           OBJECT IDENTIFIER ::= { id-as-cs3 basic-scf-srf(15)}
-- ROS Objects
id-rosObject-scf              OBJECT IDENTIFIER ::= {id-rosObject scf(1)}
id-rosObject-ssf              OBJECT IDENTIFIER ::= {id-rosObject ssf(2)}
id-rosObject-srf              OBJECT IDENTIFIER ::= {id-rosObject-cs3 srf(3)}
-- Contracts
-- SSF/SCF Contracts
id-inSsfToScfGeneric          OBJECT IDENTIFIER ::= {id-contract inSsfToScfGeneric(3)}
id-inAssistHandoffSsfToScf    OBJECT IDENTIFIER ::= {id-contract inAssistHandoffSsfToScf(5)}
id-inScfToSsfGeneric          OBJECT IDENTIFIER ::= {id-contract inScfToSsfGeneric(6)}
id-inScfToSsfINTrafficManagement
  OBJECT IDENTIFIER ::= {id-contract inScfToSsfINTrafficManagement(8)}
id-inScfToSsfServiceManagement
  OBJECT IDENTIFIER ::= {id-contract inScfToSsfServiceManagement(9)}
id-inSsfToScfServiceManagement
  OBJECT IDENTIFIER ::= {id-contract inSsfToScfServiceManagement(10)}
id-inScfToSsfStatusReporting
  OBJECT IDENTIFIER ::= {id-contract inScfToSsfStatusReporting(11)}
id-inScfToSsfTriggerManagement
  OBJECT IDENTIFIER ::= {id-contract inScfToSsfTriggerManagement(12)}
id-inScfToSsfTrafficManagement
  OBJECT IDENTIFIER ::= {id-contract inScfToSsfTrafficManagement(28)}
-- SRF/SCF Contracts
id-contract-srf-scf           OBJECT IDENTIFIER ::= {id-contract-cs3 srf-scf(13)}
-- Operation Packages
id-package-emptyConnection    OBJECT IDENTIFIER ::= { id-package emptyConnection(60)}
-- SSF/SCF Operation Packages
id-package-scfActivation       OBJECT IDENTIFIER ::= {id-package scfActivation(11)}
id-package-srf-scfActivationOfAssist
  OBJECT IDENTIFIER ::= {id-package srf-scfActivationOfAssist(15)}
id-package-assistConnectionEstablishment
  OBJECT IDENTIFIER ::= {id-package assistConnectionEstablishment(16)}
id-package-genericDisconnectResource
  OBJECT IDENTIFIER ::= {id-package genericDisconnectResource(17)}
id-package-nonAssistedConnectionEstablishment
  OBJECT IDENTIFIER ::= {id-package nonAssistedConnectionEstablishment(18)}
id-package-connect            OBJECT IDENTIFIER ::= {id-package connect(19)}
id-package-callHandling       OBJECT IDENTIFIER ::= {id-package callHandling(20)}
id-package-bcsmEventHandling  OBJECT IDENTIFIER ::= {id-package bcsmEventHandling(21)}
id-package-dpSpecificEventHandling
  OBJECT IDENTIFIER ::= {id-package dpSpecificEventHandling(22)}
id-package-chargingEventHandling
  OBJECT IDENTIFIER ::= {id-package chargingEventHandling(23)}
id-package-ssfCallProcessing  OBJECT IDENTIFIER ::= {id-package ssfCallProcessing(24)}
id-package-scfCallInitiation  OBJECT IDENTIFIER ::= {id-package scfCallInitiation(25)}
id-package-timer               OBJECT IDENTIFIER ::= {id-package timer (26)}
id-package-billing             OBJECT IDENTIFIER ::= {id-package billing(27)}
id-package-charging            OBJECT IDENTIFIER ::= {id-package charging(28)}
id-package-inTrafficManagement
  OBJECT IDENTIFIER ::= {id-package inTrafficManagement(29)}
id-package-serviceManagementActivate
  OBJECT IDENTIFIER ::= {id-package serviceManagementActivate(30)}
id-package-serviceManagementResponse
  OBJECT IDENTIFIER ::= {id-package serviceManagementResponse(31)}
id-package-callReport          OBJECT IDENTIFIER ::= {id-package callReport(32)}
id-package-signallingControl   OBJECT IDENTIFIER ::= {id-package signallingControl(33)}
id-package-activityTest        OBJECT IDENTIFIER ::= {id-package activityTest(34)}
id-package-statusReporting     OBJECT IDENTIFIER ::= {id-package statusReporting(35)}
id-package-cancel              OBJECT IDENTIFIER ::= {id-package cancel(36)}
id-package-cphResponse         OBJECT IDENTIFIER ::= {id-package cphResponse(37)}

```

```

id-package-entityReleased      OBJECT IDENTIFIER ::= {id-package entityReleased(38)}
id-package-triggerManagement  OBJECT IDENTIFIER ::= {id-package triggerManagement(39)}
id-package-uSIHandling        OBJECT IDENTIFIER ::= {id-package uSIHandling(40)}
id-package-triggerCallManagement OBJECT IDENTIFIER ::= {id-package triggerCallManagement(63)}
id-package-trafficManagement  OBJECT IDENTIFIER ::= {id-package trafficManagement(78)}
-- SRF/SCF Operation Packages
id-package-specializedResourceControl
    OBJECT IDENTIFIER ::= { id-package-cs3 specializedResourceControl(42)}
id-package-srf-scfCancel      OBJECT IDENTIFIER ::= { id-package-cs3 srf-scfCancel(43)}
id-package-messageControl     OBJECT IDENTIFIER ::= { id-package-cs3 messageControl(44)}
id-package-scriptControl      OBJECT IDENTIFIER ::= { id-package-cs3 scriptControl(45)}
id-package-srfManagement      OBJECT IDENTIFIER ::= { id-package-cs3 srfManagement(66)}

END

```

4.2 Common Data Types

```

IN-common-datatypes { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) cs4(40)
modules(1) in-common-datatypes (1) version1(0)}
DEFINITIONS IMPLICIT TAGS ::=
BEGIN
IMPORTS
    common-classes
FROM IN-object-identifiers { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
cs4(40) modules(1) in-object-identifiers(0) version1(0) }

    EXTENSION,
    COMMON-BOUNDS,
    SupportedExtensions
FROM IN-common-classes common-classes;
CriticalityType ::= ENUMERATED {
    ignore(0),
    abort(1)
}
Extensions {COMMON-BOUNDS : b1} ::= SEQUENCE SIZE (1..b1.&numOfExtensions) OF ExtensionField
ExtensionField ::= SEQUENCE {
    type          EXTENSION.&id ({SupportedExtensions}),
    -- shall identify the value of an EXTENSION type
    criticality   CriticalityType DEFAULT ignore,
    value        [1] EXTENSION.&ExtensionType
                ({SupportedExtensions}@type)
}
--This parameter indicates an extension of an argument data type. Its content is network operator
specific
Integer4 ::= INTEGER(0..2147483647)
InvokeID ::= INTEGER (-128..127)
UnavailableNetworkResource ::= ENUMERATED {
    unavailableResources(0),
    componentFailure(1),
    basicCallProcessingException(2),
    resourceStatusFailure(3),
    endUserFailure(4),
    screening(5)
}
-- Indicates the network resource that failed
-- Note that since IN CS3 the screening value can only be used by the SCF.
END

```


4.3 Operation codes

The following ASN.1 module defines the operation codes which are allocated to each of the operations specified in EN 301 931-2 [2], except those imported from the Directory Abstract Service as defined in ITU-T Recommendation X.519 [6].

```

IN-operationcodes { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) cs4(40)
modules(1) in-operationcodes(3) version1(0)}
DEFINITIONS ::=
BEGIN
IMPORTS
    ros-InformationObjects
FROM IN-object-identifiers { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
cs4(40) modules(1) in-object-identifiers(0) version1(0) }
    Code
FROM Remote-Operations-Information-Objects ros-InformationObjects
;
-- the operations are grouped by the identified operation packages.
-- SCF activation Package
    opcode-initialDP                               Code ::= local : 0
-- SCF/SRF activation of assist Package
    opcode-assistRequestInstructions               Code ::= local : 16
-- Assist connection establishment Package
    opcode-establishTemporaryConnection           Code ::= local : 17
-- Generic disconnect resource Package
    opcode-disconnectForwardConnection           Code ::= local : 18
    opcode-dFCWithArgument                       Code ::= local : 86
-- Non-assisted connection establishment Package
-- establishment ASE;
    opcode-connectToResource                     Code ::= local : 19
-- Connect Package (elementary SSF function)
    opcode-connect                               Code ::= local : 20
-- Call handling Package (elementary SSF function)
    opcode-releaseCall                           Code ::= local : 22
-- BCSM Event handling Package
    opcode-requestReportBCSMEvent                Code ::= local : 23
    opcode-eventReportBCSM                      Code ::= local : 24
-- Charging Event handling Package
    opcode-requestNotificationChargingEvent      Code ::= local : 25
    opcode-eventNotificationCharging            Code ::= local : 26
-- SSF call processing Package
    opcode-collectInformation                    Code ::= local : 27
    opcode-selectFacility                       Code ::= local : 30
    opcode-continue                             Code ::= local : 31
-- SCF call initiation Package
    opcode-initiateCallAttempt                   Code ::= local : 32
-- Timer Package
    opcode-resetTimer                           Code ::= local : 33
-- Billing Package
    opcode-furnishChargingInformation            Code ::= local : 34
-- Charging Package
    opcode-applyCharging                        Code ::= local : 35
    opcode-applyChargingReport                  Code ::= local : 36
-- Status reporting Package
    opcode-requestCurrentStatusReport            Code ::= local : 37
    opcode-requestEveryStatusChangeReport        Code ::= local : 38
    opcode-requestFirstStatusMatchReport         Code ::= local : 39
    opcode-statusReport                         Code ::= local : 40
-- IN Traffic management Package
    opcode-callGap                              Code ::= local : 41
-- Traffic management Package
    opcode-callFiltering                        Code ::= local : 145
-- Service management Package
    opcode-activateServiceFiltering             Code ::= local : 42
    opcode-serviceFilteringResponse             Code ::= local : 43
-- Call report Package
    opcode-callInformationReport                 Code ::= local : 44
    opcode-callInformationRequest                Code ::= local : 45
-- Signalling control Package
    opcode-sendChargingInformation              Code ::= local : 46
-- Specialized resource control Package
    opcode-playAnnouncement                     Code ::= local : 47
    opcode-promptAndCollectUserInformation       Code ::= local : 48
    opcode-specializedResourceReport            Code ::= local : 49
-- Cancel Package
    opcode-cancel                               Code ::= local : 53
    opcode-cancelStatusReportRequest            Code ::= local : 54

```

```

-- Activity Test Package
  opcode-activityTest          Code ::= local : 55
-- CPH Response Package
  opcode-continueWithArgument  Code ::= local : 88
  opcode-createCallSegmentAssociation Code ::= local : 89
  opcode-disconnectLeg         Code ::= local : 90
  opcode-mergeCallSegments     Code ::= local : 91
  opcode-moveCallSegments      Code ::= local : 92
  opcode-moveLeg               Code ::= local : 93
  opcode-reconnect             Code ::= local : 94
  opcode-splitLeg              Code ::= local : 95
-- Exception Inform Package
  opcode-entityReleased        Code ::= local : 96
-- Trigger Management Package
  opcode-manageTriggerData     Code ::= local : 97
  opcode-createOrRemoveTriggerData Code ::= local : 135
-- Trigger Call Management Package
  opcode-setServiceProfile     Code ::= local : 136
-- USI Handling Package
  opcode-requestReportUTSI     Code ::= local : 98
  opcode-sendSTUI              Code ::= local : 100
  opcode-reportUTSI            Code ::= local : 101
-- SRF/SCF interface
  opcode-promptAndReceiveMessage Code ::= local : 107
  opcode-scriptInformation      Code ::= local : 108
  opcode-scriptEvent           Code ::= local : 109
  opcode-scriptRun              Code ::= local : 110
  opcode-scriptClose           Code ::= local : 111
  opcode-srfCallGap            Code ::= local : 139

```

END

4.4 Errors

4.4.1 Error types

The following ASN.1 module defines the error types used by operations specified in EN 301 931-2 [2].

```

IN-erroratypes { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) cs4(40)
modules(1) in-erroratypes(2) version1(0)}
DEFINITIONS IMPLICIT TAGS ::=
BEGIN
IMPORTS
  ros-InformationObjects,
  common-datatypes,
  errorcodes,

  tc-Messages
FROM IN-object-identifiers { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
cs4(40) modules(1) in-object-identifiers(0) version1(0) }
ERROR
FROM Remote-Operations-Information-Objects ros-InformationObjects
  InvokeID,
  UnavailableNetworkResource
FROM IN-common-datatypes common-datatypes
  errcode-canceled,
  errcode-cancelFailed,

  errcode-eTCFailed,

  errcode-improperCallerResponse,
  errcode-missingCustomerRecord,
  errcode-missingParameter,
  errcode-parameterOutOfRange,
  errcode-requestedInfoError,
  errcode-systemFailure,
  errcode-taskRefused,
  errcode-unavailableResource,
  errcode-unexpectedComponentSequence,
  errcode-unexpectedDataValue,
  errcode-unexpectedParameter,
  errcode-unknownLegID,
  errcode-unknownResource,
  errcode-unknownSubscriber
FROM IN-errorcodes errorcodes;

```

```

-- TYPE DEFINITION FOR ERRORS FOLLOWS
canceled ERROR ::= {
    CODE    errcode-canceled
}
-- The operation has been canceled.
cancelFailed ERROR ::= {
    PARAMETER SEQUENCE {
        problem [0]    ENUMERATED {
            unknownOperation(0),
            tooLate(1),
            operationNotCancellable(2)
        },
        operation [1] InvokeID
    }
    CODE    errcode-cancelFailed
}
-- The operation failed to be canceled.

eTCFailed ERROR ::= {
    CODE    errcode-eTCFailed
}
-- The establish temporary connection failed.
improperCallerResponse ERROR ::= {
    CODE    errcode-improperCallerResponse
}
-- The caller response was not as expected.
missingCustomerRecord ERROR ::= {
    CODE    errcode-missingCustomerRecord
}
-- The Service Logic Program could not be found in the SCF.
missingParameter ERROR ::= {
    CODE    errcode-missingParameter
}
-- An expected optional parameter was not received.
parameterOutOfRange ERROR ::= {
    CODE    errcode-parameterOutOfRange
}
-- The parameter was not as expected (e.g. missing or out of range).
requestedInfoError ERROR ::= {
    PARAMETER    ENUMERATED {
        unknownRequestedInfo(1),
        requestedInfoNotAvailable(2)
        -- other values FFS
    }
    CODE    errcode-requestedInfoError
}
-- The requested information cannot be found.
systemFailure ERROR ::= {
    PARAMETER    UnavailableNetworkResource
    CODE    errcode-systemFailure
}
-- The operation could not be completed due to e.g. a system failure at the serving physical entity,
the
-- unavailability of the required resource or due to screening.
taskRefused ERROR ::= {
    PARAMETER    ENUMERATED {
        generic(0),
        unobtainable (1),
        congestion(2)
        --other values FFS
    }
    CODE    errcode-taskRefused
}
-- An entity normally capable of the task requested cannot or chooses not to perform the task at
this
-- time. This includes error situations like congestion and unobtainable address as used in e.g. the
-- connect operation.
unavailableResource ERROR ::= {
    CODE    errcode-unavailableResource
}
-- A requested resource is not available at the serving entity.
unexpectedComponentSequence ERROR ::= {
    CODE    errcode-unexpectedComponentSequence
}
-- An incorrect sequence of Components was received (e.g."DisconnectForwardConnection"
-- followed by "PlayAnnouncement").
unexpectedDataValue ERROR ::= {

```

```

        CODE    errcode-unexpectedDataValue
    }
-- The data value was not as expected (e.g. routing number expected but billing number received)
unexpectedParameter ERROR ::= {
    CODE    errcode-unexpectedParameter
}
-- A parameter received was not expected.
unknownLegID ERROR ::= {
    CODE    errcode-unknownLegID
}
-- Leg not known to the SSF.
unknownResource ERROR ::= {
    CODE    errcode-unknownResource
}
-- Resource whose status is being requested is not known to the serving entity.
unknownSubscriber ERROR ::= {
    CODE    errcode-unknownSubscriber
}
-- Subscriber whose status is being requested is not known to the serving entity.
END

```

4.4.2 Error codes

The following ASN.1 module defines the error codes which are allocated to each of the errors specified in EN 301 931-2 [2].

```

IN-errorcodes { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) cs4(40)
modules(1) in-errorcodes(4) version1(0)}
DEFINITIONS ::=
BEGIN
IMPORTS
    ros-InformationObjects
FROM IN-object-identifiers { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
cs4(40) modules(1) in-object-identifiers(0) version1(0) }
    Code
FROM Remote-Operations-Information-Objects ros-InformationObjects;
    errcode-canceled                Code ::= local : 0
    errcode-cancelFailed            Code ::= local : 1
    errcode-eTCFailed              Code ::= local : 3
    errcode-improperCallerResponse Code ::= local : 4
    errcode-missingCustomerRecord  Code ::= local : 6
    errcode-missingParameter       Code ::= local : 7
    errcode-parameterOutOfRange    Code ::= local : 8
    errcode-requestedInfoError     Code ::= local : 10
    errcode-systemFailure          Code ::= local : 11
    errcode-taskRefused            Code ::= local : 12
    errcode-unavailableResource    Code ::= local : 13
    errcode-unexpectedComponentSequence Code ::= local : 14
    errcode-unexpectedDataValue    Code ::= local : 15
    errcode-unexpectedParameter    Code ::= local : 16
    errcode-unknownLegID          Code ::= local : 17
    errcode-unknownResource        Code ::= local : 18
    errcode-unknownSubscriber      Code ::= local : 24
END

```

4.5 Common classes

```

IN-common-classes { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1) cs4(40)
modules(1) in-common-classes(5) version1(0)}
DEFINITIONS ::=
BEGIN
IMPORTS
    id-package-emptyConnection,
    id-rosObject-scf,

    id-rosObject-srf,
    id-rosObject-ssf,
    ros-InformationObjects,
    ros-UsefulDefinitions,
    ssf-scf-Protocol,
    scf-srf-Protocol,
    common-datatypes
FROM IN-object-identifiers { itu-t(0) identified-organization(4) etsi(0) inDomain(1) in-network(1)
cs4(40) modules(1) in-object-identifiers (0) version1(0)}

```

```

    ROS-OBJECT-CLASS, CONTRACT, OPERATION-PACKAGE, Code, OPERATION,
    CONNECTION-PACKAGE
FROM Remote-Operations-Information-Objects ros-InformationObjects
    emptyBind
FROM Remote-Operations-Useful-Definitions ros-UsefulDefinitions
    inAssistHandoffSsfToScf,
    inScfToSsfGeneric,
    inScfToSsfStatusReporting,
    inScfToSsfServiceManagement,
    inScfToSsfTrafficManagement,
    inScfToSsfTriggerManagement,
    inSsfToScfGeneric,
    inSsfToScfServiceManagement
FROM IN-SSF-SCF-pkgs-contracts-acsc sscf-scf-Protocol
    srf-scf-contract
FROM IN-CS3-SCF-SRF-pkgs-contracts-acsc scf-srf-Protocol
    CriticalityType
FROM IN-common-datatypes common-datatypes
;
ssfc ROS-OBJECT-CLASS ::= {
    INITIATES    {inSsfToScfGeneric|
                  inAssistHandoffSsfToScf|
                  inSsfToScfServiceManagement}
    RESPONDS    {inScfToSsfGeneric|
                 inScfToSsfTrafficManagement|
                 inScfToSsfServiceManagement|
                 inScfToSsfTriggerManagement|
                 inScfToSsfStatusReporting}
    ID          id-rosObject-ssfc}
-- The ssfc class of ROS-object describes the communication capabilities of an SSF
-- This object can act as the initiator of the following contracts
--
-- inSsfToScfGeneric contract expresses the form of the service in which the SSF,
-- a ROS-object of class ssfc, initiates the generic triggering approach contract.
-- This dialogue is initiated by the SSF with the InitialDP Operation.
-- inAssistHandoffSsfToScf contract expresses the form of the service in which the SSF,
-- a ROS-object of class ssfc, initiates the Assist or Hand-off contract.
-- This dialogue is initiated by the SSF with the AssistRequestInstructions Operation.
-- inSsfToScfServiceManagement contract expresses the form of the service in which the SSF,
-- a ROS-object of class ssfc, initiates ServiceManagement related contract for reporting
-- service Management results. This dialogue is initiated/ended by the SSF with
-- the ServicefilteringResponse Operation.
--
-- This object can act as the responder of the following contracts
--
-- inScfToSsfGeneric contract expresses the form of the service in which the SSF,
-- a ROS-object of class ssfc, responds to the generic messaging approach for
-- the SCF Initiate Call Attempt contract. This dialogue is initiated by the SCF with
-- the InitiateCallAttempt or CreateCallSegmentAssociation, Generic case.
-- inScfToSsfTrafficManagement contract expresses the form of service in which the SSF,
-- a ROS object of class ssfc, responds to the Traffic Management related contract.
-- This dialogue is initiated by the SCF with the CallGap Operation
-- inScfToSsfServiceManagement contract expresses the form of service in which the SSF,
-- a ROS object of class ssfc, responds to the Service Management related contract.
-- This dialogue is initiated by the SCF with the ActivateServiceFiltering Operation
-- inScfToSsfTriggerManagement contract expresses the form of service in which the SSF,
-- a ROS object of class ssfc, responds to the Trigger Management related contract.
-- This dialogue is initiated by the SCF with the ManageTriggerData Operation
-- inScfToSsfStatusReporting contract expresses the form of service in which the SSF,
-- a ROS object of class ssfc, responds to the Status Reporting related contract.
-- This dialogue is initiated by the SCF with the StatusReporting Operations.
srfc ROS-OBJECT-CLASS ::= {
    INITIATES    {srf-scf-contract}
    ID          id-rosObject-srfc}
-- The srfc class of ROS-object describes the communication capabilities of an SRF
-- This object can act as the initiator of the following contract
--
-- srf-scf-contract contract expresses the form of service in which the SRF, a ROS-object of class
srfc,
-- initiates the srfc related contract. This dialogue is initiated by the SRF with
-- the AssistRequestInstruction Operation
scfc ROS-OBJECT-CLASS ::= {
    INITIATES    {inScfToSsfGeneric|
                  inScfToSsfTrafficManagement|
                  inScfToSsfServiceManagement|
                  inScfToSsfTriggerManagement|
                  inScfToSsfStatusReporting}

```

```

    }
    RESPONDS {inSsfToScfGeneric|
              inAssistHandoffSsfToScf|
              inSsfToScfServiceManagement|
-- srf to scf contracts
              srf-scf-contract
    }
    ID id-rosObject-scf}
-- The scf class of ROS-object describes the communication capabilities of an SCF
-- This object can act as the initiator of the following contracts
-- only contracts related to SSF-SCF, SCF-SRF are taken into account here
--
-- scf to ssf contracts
-- inScfToSsfGeneric contract expresses the form of the service in which the SCF,
-- a ROS-object of class scf, initiates the generic messaging approach for the SCF
-- Initiate Call Attempt contract. This dialogue is initiated by the SCF with the
InitiateCallAttempt
-- or CreateCallSegmentAssociation, Generic case.
-- inScfToSsfTrafficManagement contract expresses the form of service in which the SCF,
-- a ROS object of class scf, initiates the Traffic Management related contract. This dialogue is
initiated
-- by the SCF with the CallGap Operation
-- inScfToSsfServiceManagement contract expresses the form of service in which the SCF,
-- a ROS object of class scf, initiates the Service Management related contract.
-- This dialogue is initiated by the SCF with the ActivateServiceFiltering Operation
-- inScfToSsfTriggerManagement contract expresses the form of service in which the SCF,
-- a ROS object of class scf, initiates the Trigger Management related contract.
-- This dialogue is initiated by the SCF with the ManageTriggerData Operation
-- inScfToSsfStatusReporting contract expresses the form of service in which the SCF,
-- a ROS object of class scf, initiates the Status Reporting related contract. This dialogue is
initiated
-- by the SCF with the StatusReporting Operations.
--
-- This object can act as the responder of the following contracts
--
-- ssf to scf contracts
-- inSsfToScfGeneric contract expresses the form of the service in which the SCF,
-- a ROS-object of class scf, responds to the generic triggering approach contract.
-- This dialogue is initiated by the SSF with the InitialDP Operation.
-- inAssistHandoffSsfToScf contract expresses the form of the service in which the SCF,
-- a ROS-object of class scf, responds to the Assist or Hand-off contract.
-- This dialogue is initiated by the SSF with the AssistRequestInstructions Operation.
-- inSsfToScfServiceManagement contract expresses the form of the service in which the SCF,
-- a ROS-object of class scf, responds to the ServiceManagement related contract for reporting
-- Service Management results.
-- This dialogue is initiated/ended by the SSF with the ServicefilteringResponse Operation.
--
-- srf to scf contracts
-- srf-scf-contract contract expresses the form of service in which the SCF, a ROS-object of class
scf,
-- responds to the srf related contract. This dialogue is initiated by the SRF with the
AssistRequestInstruction
-- Definition of the extension class
EXTENSION ::= CLASS {
    &ExtensionType,
    &criticality CriticalityType DEFAULT ignore,
    &id Code
}
WITH SYNTAX {
    EXTENSION-SYNTAX &ExtensionType
    CRITICALITY &criticality
    IDENTIFIED BY &id
}
-- Example of addition of an extension named 'Some Network Specific Indicator' of type
-- BOOLEAN, with criticality 'abort' and to be identified as extension number 1
-- Example of definition using the above information object class:
--
-- SomeNetworkSpecificIndicator EXTENSION ::= {
--     EXTENSION-SYNTAX BOOLEAN
--     CRITICALITY abort
--     IDENTIFIED BY local : 1
-- }
-- Example of transfer syntax, using the ExtensionField datatype as specified in clause 4.1.
-- Assuming the value of the extension is set to TRUE, the extensions parameter
-- becomes a Sequence of type INTEGER ::= 1, criticality ENUMERATED ::= 1 and value [1]
-- EXPLICIT BOOLEAN ::= TRUE.
--
-- Use of Q.1400 defined Extension is ffs

```

```

-- In addition the extension mechanism marker is used to identify the future minor additions to
INAP.
firstExtension EXTENSION ::= {
    EXTENSION-SYNTAX    NULL
    CRITICALITY ignore
    IDENTIFIED BY    local:1
}
-- firstExtension is just an example.
SupportedExtensions EXTENSION ::= {firstExtension , ...
-- full set of network operator extensions --}
-- SupportedExtension is the full set of the network operator extensions.
inUnbind OPERATION ::= {
    RETURN RESULT    FALSE
    ALWAYS RESPONDS FALSE }
emptyConnectionPackage CONNECTION-PACKAGE ::= {
    BIND    emptyBind
    UNBIND inUnbind
    RESPONDER UNBIND    TRUE
    ID    id-package-emptyConnection
}
EmptyReturnable OPERATION ::= {...}
COMMON-BOUNDS ::= CLASS
{    &numOfExtensions    INTEGER OPTIONAL}
WITH SYNTAX
{    [NUM-OF-EXTENSIONS &numOfExtensions]}
-- The following instance of the parameter bound is just an example
networkSpecificBoundSet COMMON-BOUNDS ::=
{    NUM-OF-EXTENSIONS    1}
END

```

Annex A (informative): Bibliography

IETF RFC 2543: "SIP: Session Initiation Protocol".

ITU-T Recommendation Q.1238.1: "Interface Recommendation for intelligent network capability set 3: Common aspects".

ITU-T Recommendation Q.1238.2: "Interface Recommendation for intelligent network capability set 3: SCF-SSF interface".

ITU-T Recommendation Q.1238.3: "Interface Recommendation for intelligent network capability set 3: SCF-SRF interface".

ITU-T Recommendation E.410: "International network management - General information".

ITU-T Recommendation H.225.0: "Call signalling protocols and media stream packetization for packet-based multimedia communication systems".

ITU-T Recommendation H.245: "Control protocol for multimedia communication".

ITU-T Recommendation H.323: "Packet-based multimedia communications systems".

ITU-T Recommendation H.450.3: "Call diversion supplementary service for H.323".

IETF RFC 1738: "Uniform Resource Locators (URL)".

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