3GPP TS 32.386 V11.0.0 (2012-09)

Technical Specification

**3rd Generation Partnership Project;
Technical Specification Group Services and System Aspects;
Telecommunication management;
Partial Suspension of Itf-N Integration Reference Point (IRP);
Solution Set (SS) definitions
(Release 11)**

Keywords
Management, CORBA, XML,SOAP

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Contents

Foreword

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Version x.y.z

where:

x   the first digit:

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y   the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

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Introduction

The present document is part of a multi-part TS covering the 3rd Generation Partnership Project: Technical Specification Group Services and System Aspects; Telecommunication Management; Partial Suspension of Itf-N Integration Reference Point (IRP), as identified below:

32.381:   "Partial Suspension of Itf-N Integration Reference Point (IRP); Requirements".

32.382:   "Partial Suspension of Itf-N Integration Reference Point (IRP); Information Service (IS)"..

32.386:   "Partial Suspension of Itf-N Integration Reference Point (IRP); Solution Set (SS) definitions".

The present document describes the requirements and information model necessary for Telecommunication Management (TM). The TM principles and TM architecture are specified in 3GPP TS 32.101 [2] and 3GPP TS 32.102 [3].

Information of an event is carried in notification. An IRPAgent (typically an EM or a NE) emits notifications (see 3GPP TS 32.302 [16]. IRPManager (typically a network management system) receives notifications. In certain scenarios floods of unwanted notifications including alarms will be sent to the IRP manager by network object instances. Thereby the interface and the management systems bear unnecessary load. Even worse: The operator's awareness is drawn away from really urgent events.

1 Scope

The present document specifies the SOAP SS for the IRP whose semantics is specified Partial Suspension of Itf-N IRP IS (3GPP TS 32.382 [5]).

This Solution Set specification is related to 3GPP TS 32.382 V11.0.X.

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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2]   3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".

[3]   3GPP TS 32.102: "Telecommunication management; Architecture".

[4]   3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions".

[5]   3GPP TS 32.382: "Telecommunication management; Partial Suspension of Itf-N Integration Reference Point (IRP); Information Service (IS)".

[6]   3GPP TS 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP); Network Resource Model (NRM)".

[7]   3GPP TS 32.312: "Telecommunication management; Generic Integration Reference Point (IRP) management; Information Service (IS)".

[8]   W3C REC-xml-20001006: "Extensible Markup Language (XML) 1.0 (Second Edition)".

[9]   W3C REC-xmlschema-0-20010502: "XML Schema Part 0: Primer".

[10]   W3C REC-xmlschema-1-20010502: "XML Schema Part 1: Structures".

[11]   W3C REC-xmlschema-2-20010502: "XML Schema Part 2: Datatypes".

[12]   W3C SOAP 1.1 specification (http://www.w3.org/TR/2000/NOTE-SOAP-20000508/)

[13]   W3C XPath 1.0 specification (http://www.w3.org/TR/1999/REC-xpath-19991116)

[14]   W3C WSDL 1.1 specification (http://www.w3.org/TR/2001/NOTE-wsdl-20010315)

[15]   W3C SOAP 1.2 specification (http://www.w3.org/TR/soap12-part1/).

[16]   3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

[17]   3GPP TS 32.306: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Solution Set definitions"

[18]   3GPP TS 32.616: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP): Solution Set definitions ".

[19] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1], 3GPP TS 32.101 [2], 3GPP TS 32.102 [3], 3GPP TS 32.150 [4], 3GPP TS 32.382 [5] apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

IRP: See 3GPP TS 32.101 [2].

IRP Agent: See 3GPP TS 32.102 [3].

IRP Manager: See 3GPP TS 32.102 [3].

Suspended notification: See 3GPP TS 32.382 [5].

Itf-N suspended managed instance: See 3GPP TS 32.382 [5].

Partial suspension of Itf-N: See 3GPP TS 32.382 [5].

XML file: file containing an XML document.

XML document: composed of the succession of an optional XML declaration followed by a root XML element [8].

XML declaration: it specifies the version of XML being used, see [8].

XML element: has a type, is identified by a name, may have a set of XML attribute specifications and is either composed of the succession of an XML start-tag followed by the XML content of the XML element followed by an XML end-tag, or composed simply of an XML empty-element tag; each XML element may contain other XML elements, see [8].

empty XML element: having an empty XML content; an empty XML element still possibly has a set of XML attribute specifications; an empty XML element is either composed of the succession of an XML start-tag directly followed by an XML end-tag, or composed simply of an XML empty-element tag, see [8].

XML content (of an XML element): empty if the XML element is simply composed of an XML empty-element tag; otherwise the part, possibly empty, of the XML element between its XML start-tag and its XML end-tag, see [8].

XML start-tag: the beginning of a non-empty XML element is marked by an XML start-tag containing the name and the set of XML attribute specifications of the XML element, see [8].

XML end-tag: the end of a non-empty XML element is marked by an XML end-tag containing the name of the XML element, see [8].

XML empty-element tag: composed simply of an empty-element tag containing the name and the set of XML attribute specifications of the XML element, see [8].

XML attribute specification: has a name and a value, see [8].

DTD: defines structure and content constraints to be respected by an XML document to be valid with regard to this DTD, see [8].

XML schema: more powerful than a DTD, an XML schema defines structure and content constraints to be respected by an XML document to conform with this XML schema; through the use of XML namespaces several XML schemas can be used together by a single XML document; an XML schema is itself also an XML document that shall conform with the XML schema for XML schemas, see [9], [10] and [11].

XML namespace: enables qualifying element and attribute names used in XML documents by associating them with namespaces identified by different XML schemas, see [9], [10] and [11].

XML complex type: defined in an XML schema; cannot be directly used in an XML document; can be the concrete type or the derivation base type for an XML element type or for another XML complex type; ultimately defines constraints for an XML element on its XML attribute specifications and/or its XML content, see [9], [10] and [11].

XML element type: declared by an XML schema; can be directly used in an XML document; as the concrete type of an XML element, directly or indirectly defines constraints on its XML attribute specifications and/or its XML content; can also be the concrete type or the derivation base type for another XML element type, see [9], [10] and [11].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1], in 3GPP TS 32.101 [2], 3GPP TS 32.102 [3], 3GPP TS 32.150 [4], and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

EM	Element Manager
IRP	Integration Reference Point
IS	Information Service
Itf-N	Interface N
NE	Network Element
TS	Technical Specification
XML	eXtensible Mark-up Languag

4 Solution Set definitions

This specification defines the following 3GPP Partial Suspension of Itf-N IRP Solution Set definitions:

Annex A provides the CORBA Solution Set.
Annex B provides the XML Definitions.
Annex C provides the SOAP Solution Set.

Annex A (normative): CORBA Solution Set

This annex contains the CORBA Solution Set for the IRP whose semantics is specified in Partial Suspension of Itf-N IRP: Information Service (3GPP TS 32.382 [5]).

A.1 Architectural features

The overall architectural feature of Partial Suspension of Itf-N IRP is specified in 3GPP TS 32.382 [5].

A.1.1 Syntax for Distinguished Names

The syntax of a Distinguished Name is defined in 3GPP TS 32.300[19]

A.1.2 Notifications

Notifications are sent according to the Notification IRP: CORBA SS (see 3GPP TS 32.306 [17]).

The Partial Suspension of Itf-N IRP notifications defined in 3GPP TS 32.382 [5].

A.2 Mapping

A.2.1 General mapping

Not applicable.

A.2.2 Operation and notification mapping

The Partial Suspension of Itf-N IRP: IS (see 3GPP TS 32.382 [5]) defines semantics of operations visible across the Partial Suspension of Itf-N IRP. Table A.2.2-1 indicates mapping of these operations and notifications to their equivalents defined in this SS.

Table A.2.2-1: Mapping from IS Operation and Notification to SS equivalents

IS Operation / Notification (3GPP TS 32.382 [5])	SS Method	Qualifier
setPartialSuspensionOfItfN	setPartialSuspensionOfItfN	M
removePartialSuspensionOfItfN	removePartialSuspensionOfItfN	M
readActivePartialSuspensionsOfItfN	readActivePartialSuspensionsOfItfN	O
notifyChangeOfPartialSuspensionOfItfN	notifyChangeOfPartialSuspensionOfItfN	M

A.2.3 Operation parameter mapping

The Partial Suspension of Itf-N IRP: IS (see 3GPP TS 32.382 [5]) defines semantics of parameters carried in operations across the Partial Suspension of Itf-N IRP. The following tables indicate the mapping of these parameters, as per operation, to their equivalents defined in this SS.

Table A.2.3-1: Mapping from IS `setPartialSuspensionOfItfN` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
managerReference	PartialSuspensionConstDefs::ManagerReference	M
baseMOInstance	PartialSuspensionConstDefs::DNOpt	O
scope	PartialSuspensionConstDefs::ScopeTypeConditional	CM
partialSuspensionId	PartialSuspensionConstDefs::PartialSuspensionIdConditional	CM
conflictingPartialSuspensionList	PartialSuspensionConstDefs::PartialSuspensionListConditional	CM
activationTime	PartialSuspensionConstDefs::ActivationTimeOpt	O
status	Exceptions: PartialSuspensionConstDefs::SetPartialSuspensionOfItfN PartialSuspensionConstDefs::AtLeastOneInstanceAlreadySuspended GenericIRPManagementSystem::ParameterNotSupported, GenericIRPManagementSystem::InvalidParameter, GenericIRPManagementSystem::ValueNotSupported, GenericIRPManagementSystem::OperationNotSupported	M

Table A.2.3-2: Mapping from IS `removePartialSuspensionOfItfN` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
managerReference	PartialSuspensionConstDefs::ManagerReference	M
partialSuspensionId	PartialSuspensionConstDefs::PartialSuspensionId	M
status	Exceptions: PartialSuspensionConstDefs::RemovePartialSuspensionOfItfN GenericIRPManagementSystem::ParameterNotSupported, GenericIRPManagementSystem::InvalidParameter, GenericIRPManagementSystem::ValueNotSupported, GenericIRPManagementSystem::OperationNotSupported	M

Table A.2.3-3: Mapping from IS `readActivePartialSuspensionsOfItfN` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
activePartialSuspensionList	PartialSuspensionConstDefs::PartialSuspensionListConditional	CM
status	Exceptions: PartialSuspensionConstDefs::ReadActivePartialSuspensionsOfItfN GenericIRPManagementSystem::ParameterNotSupported, GenericIRPManagementSystem::InvalidParameter, GenericIRPManagementSystem::ValueNotSupported, GenericIRPManagementSystem::OperationNotSupported	M

A.2.4 Notification parameter mapping

Table A.2.4-1: Mapping from IS `notifyChangeOfPartialSuspensionOfItfN` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
managerReference	PartialSuspensionConstDefs::ManagerReference	M
typeOfChange	PartialSuspensionConstDefs::TypeOfChange	M
partialSuspensionId	PartialSuspensionConstDefs::PartialSuspensionId	M
baseMOInstance	PartialSuspensionConstDefs::DNOpt	CO
scope	PartialSuspensionConstDefs::ScopeTypeConditional	CM
activationTime	PartialSuspensionConstDefs::ActivationTimeOpt	CO

A.3 Solution Set definitions

A.3.1 IDL definition structure

Clause A.3.2 defines the constants and types used by the Partial Suspension of Itf-N IRP.

Clause A.3.3 defines the operations which are performed by the Partial Suspension of Itf-N IRP agent.

Clause A.3.4 defines the notifications which are emitted by the Partial Suspension of Itf-N IRP agent.

A.3.2 IDL specification (file name "PartialSuspensionConstDefs.idl")

```
// File: PartialSuspensionConstDefs.idl
#ifndef _PARTIAL_SUSPENSION_CONST_DEFS_IDL_
#define _PARTIAL_SUSPENSION_CONST_DEFS_IDL_

#include <TimeBase.idl>


#include <KernelCmConstDefs.idl>
#include <NotificationIRPConstDefs.idl>

// This statement must appear after all include statements
#pragma prefix "3gppsa5.org"


/* ## Module: PartialSuspensionConstDefs */

module PartialSuspensionConstDefs
{

/*******************************************************************/
/* definition of types used in operations for Partial Suspension: */
/*******************************************************************/

/* types used in several operations: */

    typedef string ManagerReference;

    typedef string PartialSuspensionId;

    /*
    PartialSuspensionIdConditional is a type carrying a conditional parameter.
    The boolean shall be TRUE, if the condition described in TS 32.382 is fulfilled.
    In this case the value is present. Otherwise the value is be absent.
    */
    union PartialSuspensionIdConditional switch (boolean)
    {
       case TRUE: PartialSuspensionId value;
    };


    /*
    DNOpt is a type carrying an optional parameter.
    If the boolean is TRUE, then the value is present.
    Otherwise the value is absent.
    */
    union DNOpt switch (boolean)
    {
       case TRUE: KernelCmConstDefs::DN value;
    };


    /*
    ScopeTypeConditional is a type carrying a conditional parameter.
    The boolean shall be TRUE, if the condition described in TS 32.382 is fulfilled.
    In this case the value is present. Otherwise the value is be absent.
    */
    union ScopeTypeConditional switch (boolean)
    {
       case TRUE: KernelCmConstDefs::ScopeType value;
    };


typedef TimeBase::UtcT ActivationTime;

    /*
    ActivationTimeOpt is a type carrying an optional parameter.
    If the boolean is TRUE, then the value is present.
    Otherwise the value is absent.
    */
    union ActivationTimeOpt switch (boolean)
    {
       case TRUE: ActivationTime value;
```

```
    };


    struct PartialSuspensionParameter
        {
        KernelCmConstDefs::DN baseObjectInstance;
        KernelCmConstDefs::ScopeType scope;
        ActivationTimeOpt activationTime;
        };

    typedef sequence<PartialSuspensionParameter> PartialSuspensionParameterList;

    /*
    PartialSuspensionParameterListConditional is a type carrying a conditional parameter.
    The boolean shall be TRUE, if the condition described in TS 32.382 is fulfilled.
    In this case the value is present. Otherwise the value is be absent.
    */
    union PartialSuspensionParameterListConditional switch (boolean)
    {
        case TRUE: PartialSuspensionParameterList value;
    };


    struct PartialSuspension
        {
        PartialSuspensionId partialSuspensionId;
        PartialSuspensionParameterListConditional partialSuspensionParameterList;
        };

    typedef sequence<PartialSuspension> PartialSuspensionList;

    /*
    PartialSuspensionListConditional is a type carrying a conditional parameter.
    The boolean shall be TRUE, if the condition described in TS 32.382 is fulfilled.
    In this case the value is present. Otherwise the value is be absent.
    */
    union PartialSuspensionListConditional switch (boolean)
    {
        case TRUE: PartialSuspensionList value;
    };


    enum Status {SUCCESS, FAILURE};

    enum TypeOfChange { SET_PARTIAL_SUSPENSION, REMOVE_PARTIAL_SUSPENSION };



/* types used in operation setPartialSuspensionOfItfN: */

    /* no typedef specifically for this operation */


/* types used in operation removePartialSuspensionOfItfN: */

    /* no typedef specifically for this operation */


/* types used in operation readActivePartialSuspensionsOfItfN: */

    /* no typedef specifically for this operation */



/******************************************************************/
/* definition of types in nofications for partial suspension ::   */
/******************************************************************/

interface AttributeNameValue
    {
    const string MANAGER_REFERENCE = "MANAGER_REFERENCE";
    const string TYPE_OF_CHANGE = "TYPE_OF_CHANGE";
    const string PARTIAL_SUSPENSION_ID = "PARTIAL_SUSPENSION_ID";
    const string BASE_MO_INSTANCE = "BASE_MO_INSTANCE";
    const string SCOPE = "SCOPE";
    const string ACTIVATION_TIME = "ACTIVATION_TIME";
    };
```

```
/* types used in notification notifyChangeOfPartialSuspensionOfItfN: */

   /* no typedef specifically for this notfication */

};

#endif // _PARTIAL_SUSPENSION_CONST_DEFS_IDL_
```

A.3.3   IDL specification (file name "PartialSuspensionSystem.idl")

```
//File: PartialSuspensionSystem.idl
#ifndef _PARTIAL_SUPENSION_IRP_SYSTEM_IDL_
#define _PARTIAL_SUPENSION_IRP_SYSTEM_IDL_

#include <PartialSuspensionConstDefs.idl>
#include <GenericIRPManagementSystem.idl>

// This statement must appear after all include statements
#pragma prefix "3gppsa5.org"

/* ## Module: PartialSuspensionSystem */

module PartialSuspensionSystem
{

    /*
    If the system fails to complete an operation, then it can provide a reason
    to qualify the exception. The semantics carried in this reason are outside
    the scope of the present document.
    */
    exception SetPartialSuspensionOfItfN { string reason; };
    exception RemovePartialSuspensionOfItfN { string reason; };
    exception ReadActivePartialSuspensionsOfItfN { string reason; };


    interface partialSuspension
    {
        /* for the purpose of this operation see 3GPP TS 32.382 */
        PartialSuspensionConstDefs::Status setPartialSuspensionOfItfN
            (
            in PartialSuspensionConstDefs::ManagerReference managerReference,
            in PartialSuspensionConstDefs::DNOpt baseMOInstance,
            in PartialSuspensionConstDefs::ScopeTypeConditional scope,
            out PartialSuspensionConstDefs::PartialSuspensionIdConditional partialSuspensionId,
            out PartialSuspensionConstDefs::PartialSuspensionListConditional
                conflictingPartialSuspensionList,
            out PartialSuspensionConstDefs::ActivationTimeOpt activationTime
            )
        raises
            (
            SetPartialSuspensionOfItfN,
            GenericIRPManagementSystem::ParameterNotSupported,
            GenericIRPManagementSystem::InvalidParameter,
            GenericIRPManagementSystem::ValueNotSupported,
            GenericIRPManagementSystem::OperationNotSupported
            );


        /* for the purpose of this operation see 3GPP TS 32.382 */
        PartialSuspensionConstDefs::Status removePartialSuspensionOfItfN
            (
            in PartialSuspensionConstDefs::ManagerReference managerReference,
            in PartialSuspensionConstDefs::PartialSuspensionId partialSuspensionId
            )
        raises
            (
            RemovePartialSuspensionOfItfN,
            GenericIRPManagementSystem::ParameterNotSupported,
            GenericIRPManagementSystem::InvalidParameter,
            GenericIRPManagementSystem::ValueNotSupported,
            GenericIRPManagementSystem::OperationNotSupported
            );


        /* for the purpose of this operation see 3GPP TS 32.382 */
        PartialSuspensionConstDefs::Status readActivePartialSuspensionsOfItfN
            (
            out PartialSuspensionConstDefs::PartialSuspensionListConditional
                activePartialPuspensionList
            )
        raises
            (
            ReadActivePartialSuspensionsOfItfN,
            GenericIRPManagementSystem::ParameterNotSupported,
```

```
            GenericIRPManagementSystem::InvalidParameter,
            GenericIRPManagementSystem::ValueNotSupported,
            GenericIRPManagementSystem::OperationNotSupported
            );

    };

};
#endif // _PARTIAL_SUPENSION_IRP_SYSTEM_IDL_
```

A.3.4 IDL specification (file name "PartialSuspensionOfItfNNotifications.idl")

```
//File: PartialSuspensionOfItfNNotifications.idl
#ifndef _PARTIAL_SUSPENSION_OF_ITFN_NOTIFICATIONS_IDL_
#define _PARTIAL_SUSPENSION_OF_ITFN_NOTIFICATIONS_IDL_

#include <PartialSuspensionConstDefs.idl>
#include <NotificationIRPNotifications.idl>

// This statement must appear after all include statements
#pragma prefix "3gppsa5.org"

/* ## Module: PartialSuspensionOfItfNNotifications
This contains the specification of notifications of Partial Suspension of Itf-N.
========================================================================
*/
module PartialSuspensionOfItfNNotifications
{

    /* Constant definitions for the notifyChangeOfPartialSuspensionOfItfN notification */

    interface notifyChangeOfPartialSuspensionOfItfN: NotificationIRPNotifications::Notify
    {
        const string EVENT_TYPE = "notifyChangeOfPartialSuspensionOfItfN";

        /**
         * This constant defines the name of the ManagerReference property,
         * which is transported in the filterable_body fields.
         * The data type for the value of this property is
         * PartialSuspensionConstDefs::ManagerReference.
         */
        const string MANAGER_REFERENCE =
            PartialSuspensionConstDefs::AttributeNameValue::MANAGER_REFERENCE;

        /**
         * This constant defines the name of the TypeOfChange property,
         * which is transported in the filterable_body fields.
         * The data type for the value of this property is
         * PartialSuspensionConstDefs::TypeOfChange.
         */
        const string TYPE_OF_CHANGE =
            PartialSuspensionConstDefs::AttributeNameValue::TYPE_OF_CHANGE;

        /**
         * This constant defines the name of the PartialSuspensionId property,
         * which is transported in the filterable_body fields.
         * The data type for the value of this property is
         * PartialSuspensionConstDefs::PartialSuspensionId.
         */
        const string PARTIAL_SUSPENSION_ID =
            PartialSuspensionConstDefs::AttributeNameValue::PARTIAL_SUSPENSION_ID;

        /**
         * This constant defines the name of the BaseMOInstance property,
         * which is transported in the filterable_body fields.
         * The data type for the value of this property is
         * PartialSuspensionConstDefs::DNOpt.
         */
        const string BASE_MO_INSTANCE =
            PartialSuspensionConstDefs::AttributeNameValue::BASE_MO_INSTANCE;

        /**
         * This constant defines the name of the Scope property,
         * which is transported in the filterable_body fields.
         * The data type for the value of this property is
         * PartialSuspensionConstDefs::ScopeTypeConditional.
         */
        const string SCOPE =
            PartialSuspensionConstDefs::AttributeNameValue::SCOPE;
```

```
    /**
    * This constant defines the name of the ActivationTime property,
    * which is transported in the filterable_body fields.
    * The data type for the value of this property is
    * PartialSuspensionConstDefs::ActivationTimeOpt.
    */
    const string ACTIVATION_TIME =
        PartialSuspensionConstDefs::AttributeNameValue::ACTIVATION_TIME;

  };


};

#endif // _PARTIAL_SUSPENSION_OF_ITFN_NOTIFICATIONS_IDL_
```

Annex B (normative):
XML definitions

This annex contains the XML Definitions for the Partial Suspension of Itf-N Integration Reference Point as it applies to Itf-N, in accordance with Partial Suspension of Itf-N IRP IS definitions [5].

Apart from being used for the Notification Log, the XML definitions for Partial Suspension of Itf-N IRP notifications are used by the Partial Suspension of Itf-N IRP SOAP SS.

B.1 Architectural Features

The overall architectural feature of Partial Suspension of Itf-N IRP is specified in 3GPP TS 32.382 [5]. This clause specifies features that are specific to the XML definitions.

B.1.1 Syntax for Distinguished Names

The syntax of a Distinguished Name is defined in 3GPP TS 32.300[19]

B.1.2 Notification Services

The present document defines the Partial Suspension of Itf-N-specific XML schema and element types in `partialSuspensionOfItfN.xsd` which shall be used for the `notifyChangeOfPartialSuspensionOfItfN` notification defined in 3GPP TS 32.382 [5].

B.1.3 IOC definitions

This annex defines the XML syntax for the IOC definitions of the Partial Suspension of Itf-N IRP IS [5], which are used by the XML definitions for the Partial Suspension of Itf-N IRP notifications and the Partial Suspension of Itf-N IRP IS operations.

B.2 Mapping

Not present in the current version of this specification.

B.3 Solution Set definitions

B.3.1 XML definition structure

Clause B.3.2 provides a graphical representation of the XML elements.

Clause B.3.3 provides XML definitions of Partial Suspension of Itf-N IRP notifications as defined in [5]. See 3GPP TS 32.616 [18]. The following XML namespaces are potentially used in Partial Suspension of Itf-N XML files:

-Partial Suspension of Itf-N for CM data files are associated with XML schema partialSuspensionOfItfN.xsd

B.3.2 Graphical Representation

B.3.3 XML Schema "partialSuspensionOfItfN.xsd"

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
    3GPP TS 32.386 Partial Suspension of Itf-N XML Schema
    partialSuspensionOfItfN.xsd
-->
<schema xmlns:xps="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#partialSuspensionOfItfN"
xmlns:xe="http://www.3gpp.org/ftp/specs/archive/32_series/32.306#notification"
xmlns:nk="http://www.3gpp.org/ftp/specs/archive/32_series/32.666#kernelNtf"
xmlns="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#partialSuspensionOfItfN"
elementFormDefault="qualified" attributeFormDefault="unqualified">
    <import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.306#notification"/>
    <import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.666#kernelNtf"/>
    <!-- XML types specific for partial suspension of Itf-N -->
    <simpleType name="TypeOfChange">
        <restriction base="string">
            <enumeration value="OnsetOfPartialSuspension"/>
            <enumeration value="RemovalOfPartialSuspension"/>
        </restriction>
    </simpleType>
    <simpleType name="PartialSuspensionId">
        <restriction base="long"/>
    </simpleType>
    <complexType name="NotifyChangeOfPartialSuspensionOfItfN">
        <complexContent>
            <extension base="xe:Notification">
                <sequence>
                    <element name="body">
                        <complexType>
                            <sequence>
                                <element name="TypeOfChange" type="xps:TypeOfChange"/>
                                <element name="PartialSuspensionId" type="xps:PartialSuspensionId"/>
                                <element name="ManagerReference" type="string"/>
                                <element name="BaseMOInstance" type="string" minOccurs="0"/>
                                <element name="Scope" type="nk:ScopeType" minOccurs="0"/>
                                <element name="ActivationTime" type="dateTime" minOccurs="0"/>
                            </sequence>
                        </complexType>
                    </element>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <element name="NotifyChangeOfPartialSuspensionOfItfN"
type="xps:NotifyChangeOfPartialSuspensionOfItfN"/>
</schema>
```
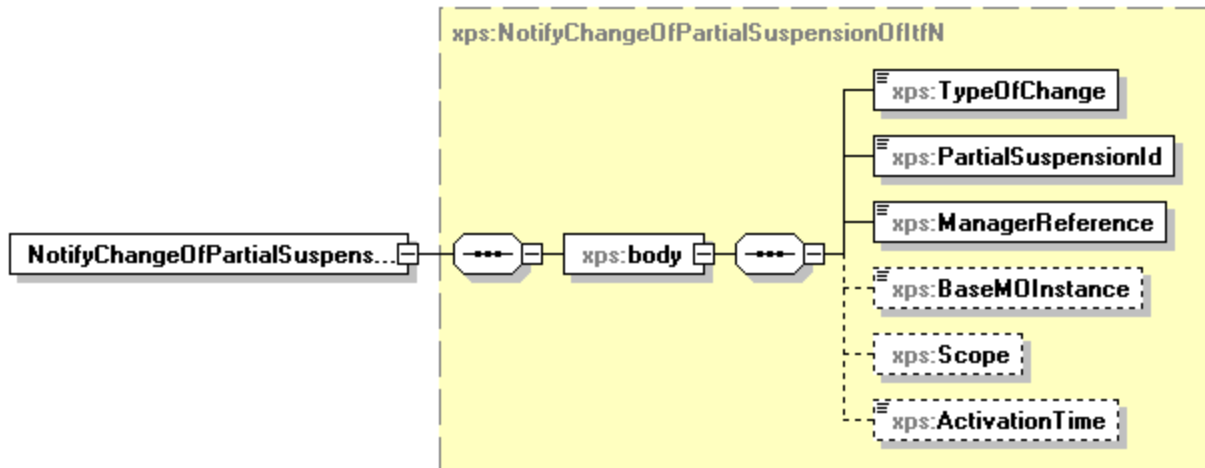
Annex C (normative):
SOAP Solution Set

This annex specifies the SOAP Solution Set for the IRP whose semantics are specified in Partial Suspension of Itf-N IRP: Information Service (3GPP TS 32.382 [5]).

C.1 Architectural features

The overall architectural feature of Partial Suspension of Itf-N IRP is specified in 3GPP TS 32.382 [5]. This clause specifies features that are specific to the SOAP solution set..

C.1.1 Syntax for Distinguished Names

The syntax of a Distinguished Name is defined in 3GPP TS 32.300[19].

C.1.2 Notification Services

Relevant definitions are imported from the Partial Suspension of Itf-N IRP XML definitions in Annex B.

C.1.3 Supported W3C specifications

The SOAP 1.1 specification [12] and WSDL 1.1 specification [14] are supported.

The SOAP 1.2 specification [15] is supported optionally.

This specification uses "document" style in WSDL file.

This specification uses "literal" encoding style in WSDL file.

The filter language used in the SS is the XPath Language (see W3C XPath 1.0 specification [13]). IRPAgents may throw a FilterComplexityLimit fault when a given filter is too complex.

Relevant definitions are imported from the of Partial Suspension of Itf-N IRP XML definitions of Annex B

C.1.4 Prefixes and namespaces

This specification uses a number of namespace prefixes throughout that are listed in Table C.1.4.

Table C.1.4: Prefixes and Namespaces used in this specification

PREFIX	NAMESPACE
(no prefix)	http://schemas.xmlsoap.org/wsdl/
soap	http://schemas.xmlsoap.org/wsdl/soap/
pSINIRPSystem	http://www.3gpp.org/ftp/specs/archive/32_series/32.386#PSINIRPSystem
pSINIRPData	http://www.3gpp.org/ftp/specs/archive/32_series/32.386#PSINIRPData
pSIN	http://www.3gpp.org/ftp/specs/archive/32_series/32.386#partialSuspensionOfItfN
nk	http://www.3gpp.org/ftp/specs/archive/32_series/32.666#kernelNtf
genericIRPSystem	http://www.3gpp.org/ftp/specs/archive/32_series/32.316#GenericIRPSystem
ntfIRPNtfSystem	http://www.3gpp.org/ftp/specs/archive/32_series/32.306#NotificationIRPNtfSystem

C.2 Mapping

C.2.1 Operation and notification mapping

The Partial Suspension of Itf-N Integration Reference Point (IRP) IS (3GPP TS 32.382 [5]) defines semantics of operation and notification visible across the Itf-N. Table C.2.1 indicates mapping of these operations and notifications to their equivalents defined in this SS.

Table C.2.1: Mapping from IS Operation to SS Equivalents

IS Operations in 3GPP TS 32.382 [5]	SS Operations	SS Port	Qualifier
setPartialSuspensionOfItfN	setPartialSuspensionOfItfN	PartialSuspensionPort	M
removePartialSuspensionOfItfN	removePartialSuspensionOfItfN	PartialSuspensionPort	M
readActivePartialSuspensionsOfItfN	readActivePartialSuspensionsOfItfN	PartialSuspensionPort	O
notifyChangeOfPartialSuspensionOfItfN	notify (note 1)	NotificationIRPNtfPort	M
NOTE 1: The IS equivalent maps to an XML definition specified in Annex B, and this being an input parameter to the operation notify under the port type ntfIRPNtfSystem:NotificationIRPNtf and under the binding ntfIRPNtfSystem:NotificationIRPNtf of 3GPP TS 32.306 [17].			

C.2.2 Operation parameter mapping

The Partial Suspension of Itf-N Integration Reference Point (IRP) IS (3GPP TS 32.382 [5]) defines semantics of parameters carried in the operations. The tables below show the mapping of these parameters, as per operation, to their equivalents defined in this SS.

Table C.2.2.1: Mapping from IS `setPartialSuspensionOfItfN` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
managerReference	managerReference	M
baseMOInstance	baseMOInstance	O
scope	scope	CM
partialSuspensionId	partialSuspensionId	CM
conflictingPartialSuspensionList	conflictingPartialSuspensionList	CM
activationTime	activationTime	O
status	status	M

Table C.2.2.2: Mapping from IS `removePartialSuspensionOfItfN` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
managerReference	managerReference	M
partialSuspensionId	partialSuspensionId	M
status	status	M

Table C.2.2.3: Mapping from IS `readActivePartialSuspensionsOfItfN` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
activePartialSuspensionList	activePartialSuspensionList	CM
status	status	M

C.2.3   Notification parameter mapping

Not present in the current version of this specification.

C.3   Solution Set definitions

C.3.1   WSDL definition structure

Clause C.3.2 provides a graphical representation of the Partial Suspension of Itf-N IRP service.

Clause C.3.3 defines the services which are supported the Partial Suspension of Itf-N IRP agent.

C.3.2   Graphical Representation

The WSDL structure is depicted in Figure C.3.2 below, depicting port type, binding and service. The port type contains port type operations, which again contains input, output and fault messages. The binding contains binding operations, which have the same name as the port type operations. The binding connects to a port inside the service.
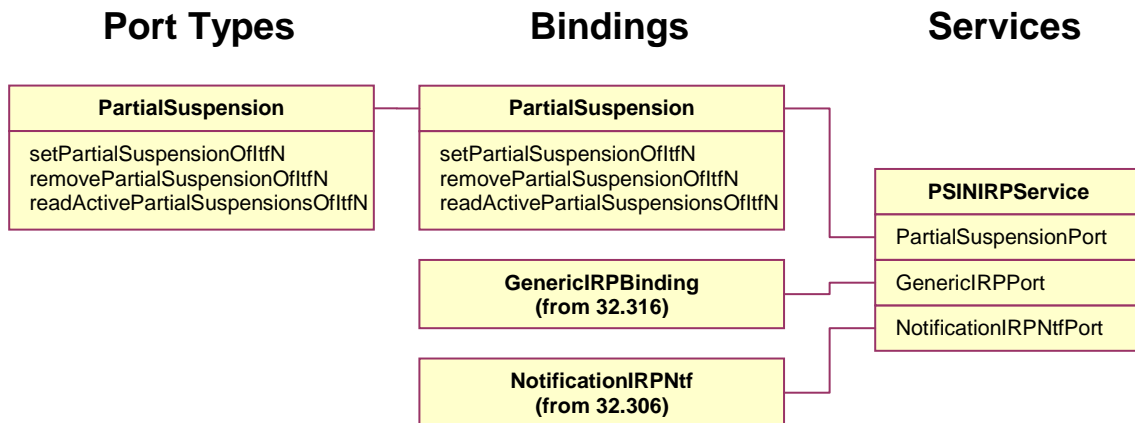

Figure C.3.2: Partial Suspension of Itf-N Integration Reference Point (IRP) SOAP Solution Set WSDL structure

C.3.3 WSDL specification "PSINIRPSystem.wsdl"

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
    3GPP TS 32.386 Partial Suspension of Itf-N IRP SOAP Solution Set
-->
<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:pSINIRPSystem="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#PSINIRPSystem"
xmlns:pSINIRPData="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#PSINIRPData"
xmlns:genericIRPSystem="http://www.3gpp.org/ftp/specs/archive/32_series/32.316#GenericIRPSystem"
xmlns:ntfIRPNtfSystem="http://www.3gpp.org/ftp/specs/archive/32_series/32.306#NotificationIRPNtfSyst
em" xmlns:pSIN="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#partialSuspensionOfItfN"
targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#PSINIRPSystem">
    <import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.316#GenericIRPSystem"/>
    <import
namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.306#NotificationIRPNtfSystem"/>
    <types>
        <schema targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#PSINIRPData"
xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:nk="http://www.3gpp.org/ftp/specs/archive/32_series/32.666#kernelNtf">
            <!-- partialSuspensionList Type -->
            <complexType name="partialSuspensionList">
                <sequence maxOccurs="unbounded">
                    <element name="partialSuspensionId" type="pSIN:PartialSuspensionId"/>
                    <element name="partialSuspensionParameter" minOccurs="0" maxOccurs="unbounded">
                        <complexType>
                            <sequence>
                                <element name="baseObjectInstance" type="string" minOccurs="0"/>
                                <element name="scope" type="nk:ScopeType" minOccurs="0"/>
                                <element name="activationTime" type="dateTime" minOccurs="0"/>
                            </sequence>
                        </complexType>
                    </element>
                </sequence>
            </complexType>
            <!-- setPartialSuspensionOfItfN Request -->
            <element name="setPartialSuspensionOfItfNRequest">
                <complexType>
                    <sequence>
                        <element name="managerReference" type="string"/>
                        <element name="baseMOInstance" type="string" minOccurs="0"/>
                        <element name="scope" type="nk:ScopeType" minOccurs="0"/>
                    </sequence>
                </complexType>
            </element>
            <!-- setPartialSuspensionOfItfN Response -->
            <element name="setPartialSuspensionOfItfNResponse">
                <complexType>
                    <sequence>
                        <element name="partialSuspensionId" type="pSIN:PartialSuspensionId"
minOccurs="0"/>
                        <element name="conflictingPartialSuspensionList"
type="pSINIRPData:partialSuspensionList" minOccurs="0"/>
                        <element name="activationTime" type="dateTime" minOccurs="0"/>
                        <element name="status">
                            <simpleType>
                                <restriction base="string">
                                    <enumeration value="Success"/>
                                    <enumeration value="Failure"/>
                                </restriction>
                            </simpleType>
                        </element>
                        <element name="failureReason" minOccurs="0">
                            <simpleType>
                                <restriction base="string">
                                    <enumeration value="operation_failed"/>
                                    <enumeration value="operation_failed_invalid_input_parameter"/>
                                    <enumeration
value="operation_failed_unsupported_optional_input_parameter_baseMOInstance"/>
                                    <enumeration
value="operation_failed_unsupported_optional_input_parameter_scope"/>
                                    <enumeration value="operation_failed_internal_problem"/>
                                </restriction>
                            </simpleType>
                        </element>
                    </sequence>
```

```
                    </complexType>
                </element>
                <!-- setPartialSuspensionOfItfN Fault -->
                <element name="setPartialSuspensionOfItfNFault">
                    <simpleType>
                        <restriction base="string">
                            <enumeration value="OperationFailed"/>
                        </restriction>
                    </simpleType>
                </element>
                <!-- removePartialSuspensionOfItfN Request -->
                <element name="removePartialSuspensionOfItfNRequest">
                    <complexType>
                        <sequence>
                            <element name="managerReference" type="string"/>
                            <element name="partialSuspensionId" type="pSIN:PartialSuspensionId"/>
                        </sequence>
                    </complexType>
                </element>
                <!-- removePartialSuspensionOfItfN Response -->
                <element name="removePartialSuspensionOfItfNResponse">
                    <complexType>
                        <sequence>
                            <element name="status">
                                <simpleType>
                                    <restriction base="string">
                                        <enumeration value="Success"/>
                                        <enumeration value="Failure"/>
                                    </restriction>
                                </simpleType>
                            </element>
                        </sequence>
                    </complexType>
                </element>
                <!-- removePartialSuspensionOfItfN Fault -->
                <element name="removePartialSuspensionOfItfNFault">
                    <simpleType>
                        <restriction base="string">
                            <enumeration value="OperationFailed"/>
                        </restriction>
                    </simpleType>
                </element>
                <!-- readActivePartialSuspensionsOfItfN Request -->
                <element name="readActivePartialSuspensionsOfItfNRequest">
        </element>
                <!-- readActivePartialSuspensionsOfItfN Response -->
                <element name="readActivePartialSuspensionsOfItfNResponse">
                    <complexType>
                        <sequence>
                            <element name="activePartialSuspensionList"
type="pSINIRPData:partialSuspensionList" minOccurs="0"/>
                            <element name="status">
                                <simpleType>
                                    <restriction base="string">
                                        <enumeration value="Success"/>
                                        <enumeration value="Failure"/>
                                    </restriction>
                                </simpleType>
                            </element>
                        </sequence>
                    </complexType>
                </element>
                <!-- readActivePartialSuspensionsOfItfN Fault -->
                <element name="readActivePartialSuspensionsOfItfNFault">
                    <simpleType>
                        <restriction base="string">
                            <enumeration value="OperationFailed"/>
                        </restriction>
                    </simpleType>
                </element>
        </schema>
    </types>
    <message name="setPartialSuspensionOfItfNRequest">
        <part name="parameter" element="pSINIRPData:setPartialSuspensionOfItfNRequest"/>
    </message>
    <message name="setPartialSuspensionOfItfNResponse">
        <part name="parameter" element="pSINIRPData:setPartialSuspensionOfItfNResponse"/>
    </message>
```

```
        <message name="setPartialSuspensionOfItfNFault">
            <part name="parameter" element="pSINIRPData:setPartialSuspensionOfItfNFault"/>
        </message>
        <message name="removePartialSuspensionOfItfNRequest">
            <part name="parameter" element="pSINIRPData:removePartialSuspensionOfItfNRequest"/>
        </message>
        <message name="removePartialSuspensionOfItfNResponse">
            <part name="parameter" element="pSINIRPData:removePartialSuspensionOfItfNResponse"/>
        </message>
        <message name="removePartialSuspensionOfItfNFault">
            <part name="parameter" element="pSINIRPData:removePartialSuspensionOfItfNFault"/>
        </message>
        <message name="readActivePartialSuspensionsOfItfNRequest">
            <part name="parameter" element="pSINIRPData:readActivePartialSuspensionsOfItfNRequest"/>
        </message>
        <message name="readActivePartialSuspensionsOfItfNResponse">
            <part name="parameter" element="pSINIRPData:readActivePartialSuspensionsOfItfNResponse"/>
        </message>
        <message name="readActivePartialSuspensionsOfItfNFault">
            <part name="parameter" element="pSINIRPData:readActivePartialSuspensionsOfItfNFault"/>
        </message>
        <portType name="PartialSuspension">
            <operation name="setPartialSuspensionOfItfN">
                <input message="pSINIRPSystem:setPartialSuspensionOfItfNRequest"/>
                <output message="pSINIRPSystem:setPartialSuspensionOfItfNResponse"/>
                <fault name="setPartialSuspensionOfItfNFault"
message="pSINIRPSystem:setPartialSuspensionOfItfNFault"/>
            </operation>
            <operation name="removePartialSuspensionOfItfN">
                <input message="pSINIRPSystem:removePartialSuspensionOfItfNRequest"/>
                <output message="pSINIRPSystem:removePartialSuspensionOfItfNResponse"/>
                <fault name="removePartialSuspensionOfItfNFault"
message="pSINIRPSystem:removePartialSuspensionOfItfNFault"/>
            </operation>
            <operation name="readActivePartialSuspensionsOfItfN">
                <input message="pSINIRPSystem:readActivePartialSuspensionsOfItfNRequest"/>
                <output message="pSINIRPSystem:readActivePartialSuspensionsOfItfNResponse"/>
                <fault name="readActivePartialSuspensionsOfItfNFault"
message="pSINIRPSystem:readActivePartialSuspensionsOfItfNFault"/>
            </operation>
        </portType>
        <binding name="PartialSuspension" type="pSINIRPSystem:PartialSuspension">
            <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
            <operation name="setPartialSuspensionOfItfN">
                <soap:operation
soapAction="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#setPartialSuspensionOfItfN"
style="document"/>
                <input>
                    <soap:body use="literal"/>
                </input>
                <output>
                    <soap:body use="literal"/>
                </output>
                <fault name="setPartialSuspensionOfItfNFault">
                    <soap:fault name="setPartialSuspensionOfItfNFault" use="literal"/>
                </fault>
            </operation>
            <operation name="removePartialSuspensionOfItfN">
                <soap:operation
soapAction="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#removePartialSuspensionOfItfN"
style="document"/>
                <input>
                    <soap:body use="literal"/>
                </input>
                <output>
                    <soap:body use="literal"/>
                </output>
                <fault name="removePartialSuspensionOfItfNFault">
                    <soap:fault name="removePartialSuspensionOfItfNFault" use="literal"/>
                </fault>
            </operation>
            <operation name="readActivePartialSuspensionsOfItfN">
                <soap:operation
soapAction="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#readActivePartialSuspensionsOfItf
N" style="document"/>
                <input>
                    <soap:body use="literal"/>
                </input>
```

```
                <output>
                    <soap:body use="literal"/>
                </output>
                <fault name="readActivePartialSuspensionsOfItfNFault">
                    <soap:fault name="readActivePartialSuspensionsOfItfNFault" use="literal"/>
                </fault>
            </operation>
    </binding>
    <service name="PSINIRPService">
        <port name="PartialSuspensionPort" binding="pSINIRPSystem:PartialSuspension">
            <soap:address
location="http://www.3gpp.org/ftp/specs/archive/32_series/32.386#PSINIRP"/>
        </port>
        <port name="GenericIRPPort" binding="genericIRPSystem:GenericIRPBinding">
            <soap:address
location="http://www.3gpp.org/ftp/specs/archive/32_series/32.316#GenericIRP"/>
        </port>
        <port name="NotificationIRPNtfPort" binding="ntfIRPNtfSystem:NotificationIRPNtf">
            <soap:address
location="http://www.3gpp.org/ftp/specs/archive/32_series/32.306#NotificationIRPNtf"/>
        </port>
    </service>
</definitions>
```

Annex D (informative):
Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2010-09	SA#49	SP-100506	--	--	Presentation to SA for Information and Approval	---	1.0.0
2010-10	--	--	--	--	Publication	1.0.0	10.0.0
2011-09	SA#53	SP-110539	001	--	Correct syntax errors in XML schema and WSDL specification	10.0.0	10.1.0
2012-09	SA#57	-	-	-	Automatic upgrade from previous Release version 10.1.0	10.1.0	11.0.0