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Management of Quality of Experience (QoE) measurement collection Integration Reference Point (IRP); Solution Set (SS) definitions
(3GPP TS 28.309 version 17.0.0 Release 17)

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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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2 presented to TSG for approval;

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In the present document, modal verbs have the following meanings:

shall indicates a mandatory requirement to do something

shall not indicates an interdiction (prohibition) to do something

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should indicates a recommendation to do something

should not indicates a recommendation not to do something

may indicates permission to do something

need not indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

can indicates that something is possible

cannot indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

will indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

will not indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

might indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

might not indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

is (or any other verb in the indicative mood) indicates a statement of fact

is not (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

Introduction

The present document is part of a TS-family covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management, as identified below:

- TS 28.307: Management of Quality of Experience (QoE) measurement collection Integration Reference Point (IRP); Requirements
- TS 28.308: Management of Quality of Experience (QoE) measurement collection Integration Reference Point (IRP); Information Service (IS)
- **TS 28.309: Management of Quality of Experience (QoE) measurement collection Integration Reference Point (IRP); Solution Set (SS) definitions**

The present document is part of a TS-family which describes the information service necessary for the Telecommunication Management (TM) of 3G systems. The TM principles and TM architecture are specified in 3GPP TS 32.101 [2] and 3GPP TS 32.102 [3].

Quality of Experience (QoE) information collection provides detailed information at session level on a number of UEs. The QoE information from a number of UEs is collected by the management system (e.g. an Operations System (OS) in TMN terminology) for analysis and/or KPI calculations.

1 Scope

The present document specifies the Solution Set definitions for the IRP whose semantics are specified in Management of Quality of Experience (QoE) measurement collection Integration Reference Point (IRP): Information Service (3GPP TS 28.308 [19]). The present document is applicable to UMTS networks and EPS networks.

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 32.442: "Telecommunication management; Trace Management Integration Reference Point (IRP): Information Service (IS)".

[6] 3GPP TS 32.311: "Telecommunication management; Generic Integration Reference Point (IRP): Requirements".

[7] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

[8] 3GPP TS 32.306: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Solution Set definitions".

[9] OMG TC Document telecom/98-11-01: "OMG Notification Service". (http://www.omg.org/technology/documents/)

[10] 3GPP TS 32.342: "Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Information Service (IS)".

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

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

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

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

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

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

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

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

[19] 3GPP TS 28.308: "Telecommunication management; Quality of Experience (QoE) measurement collection Integration Reference Point (IRP): Information Service (IS)".

3 Definitions of terms, symbols and abbreviations

3.1 Terms

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

IRP document version number string (or "IRPVersion"): See 3GPP TS 32.311 [6].

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1], in 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].

DN Distinguished Name
SS Solution Set

4 Solution Set definitions

The present document defines the following 3GPP QMC Management 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 (SS)

A.0 Introduction

This annex contains the CORBA Solution Set for the IRP whose semantics is specified in QoE Management IRP: Information Service (3GPP TS 28.308 [19]).

A.1 Architectural features

The overall architectural feature of QMC Management IRP is specified in 3GPP TS 28.308 [19].

A.1.1 Syntax for Distinguished Names (DN)

The format of a Distinguished Name (DN) is defined in 3GPP TS 32.300 [7].

The version of this IRP is represented as a string (see also 3GPP TS 32.311 [6]).

A.1.2 Notification services

Notifications are sent according to the Notification IRP: CORBA SS (see 3GPP TS 32.306 [8]).

The contents of the QMCIRP notifications are defined in the present document.

A.1.3 Push and pull style

OMG Notification Service defines two styles of interaction. One is called push style. In this style, IRPAgent pushes notifications to IRPManager as soon as they are available. The other is called pull style. In this style, IRPAgent keeps the notifications till IRPManager requests for them.

This CORBA SS specifies that support of Push style is Mandatory (M) and that support of Pull style is Optional (O).

A.1.4 Support multiple notifications in one push operation

For efficiency reasons, IRPAgent may send multiple notifications using one single push operation. To pack multiple notifications into one push operation, IRPAgent may wait and not invoke the push operation as soon as notifications are available. To avoid IRPAgent to wait for an extended period of time that is objectionable to IRPManager, IRPAgent shall implement an IRPAgent wide timer configurable by administrator. On expiration of this timer, IRPAgent shall invoke push if there is at least one notification to be conveyed to IRPManager. This timer is re-started after each push invocation.

A.1.5 QoE management notification interface

A.1.5.0 Introduction

OMG CORBA Notification push operation is used to realise the notification of `QMCIRP Notifications`. All the notifications in this interface are implemented using this `push_structured_event` method.

A.1.5.1 Method `push` (M)

module CosNotifyComm {

```
…
Interface SequencePushConsumer : NotifyPublish {
void push_structured_events(
in CosNotification::EventBatch notifications)
        raises( CosEventComm::Disconnected);
…
}; // SequencePushConsumer
…
}; // CosNotifyComm
```

NOTE 1: The push_structured_events method takes an input parameter of type EventBatch as defined in the OMG CosNotification module (OMG Notification Service [9]). This data type is the same as a sequence of Structured Events. Upon invocation, this parameter will contain a sequence of Structured Events being delivered to IRPManager by IRPAgent to which it is connected.

NOTE 2: The maximum number of events that will be transmitted within a single invocation of this operation is controlled by IRPAgent wide configuration parameter.

NOTE 3: The amount of time the supplier (IRPAgent) of a sequence of Structured Events will accumulate individual events into the sequence before invoking this operation is controlled by IRPAgent wide configuration parameter as well.

NOTE 4: IRPAgent may push EventBatch with only one Structured Event.

A.2 Mapping

A.2.1 Operation and notification mapping

QMCIRP: IS 3GPP TS 28.309 [19] defines semantics of operation and notification visible across the QMCIRP. Table A.2.1.1 indicates mapping of these operations and notifications to their equivalents defined in this SS.

Table A.2.1.1: Mapping from IS Operations and Notification to SS equivalents

IS Operations/ notification 3GPP TS 28.308 [19]	SS Method	Qualifier
activateAreaQMCJob	activateAreaQMCJob	M
deactivateQMCJob	deactivateQMCJob	M
listQMCJob	listQMCJob	M
listActivatedQMCJobs	listActivatedQMCJobs	M
notifyNetworkRequestSessionFailure	push_structured_events(See subclause A.1.5.1)	O

A.2.2 Operation parameter mapping

The QMCIRP: IS 3GPP TS 28.308 [19] defines semantics of parameters carried in operations across the QMCIRP. The following tables indicate the mapping of these parameters, as per operation, to their equivalents defined in this SS.

Table A.2.2.1: Mapping from IS `activateAreaQMCJob` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
iOCInstance	KernelCmConstDefs::DN moInstance	M
qoEReference	QmcIRPConstDefs::QoeReference qoeReference	M
qMCTarget	QmcIRPConstDefs::QmcTarget qmcTarget	M
qoECollectionEntityAddress	QmcIRPConstDefs::QoeCollectionEntityAddress qoeCollectionEntityAddress	M
serviceType	QmcIRPConstDefs:: ServiceType serviceType	M
areaScope	QmcIRPConstDefs::DNSet	M
pLMNTarget	QmcIRPConstDefs: PLMNTarget pLMNTarget	CM
qMCConfigurationFile	QmcIRPConstDefs: QmcConfigurationFile qmcConfigurationFile	M
unsupportedList	QmcIRPConstDefs: UnsupportedList unsupportedList	M
status	Return value of type QmcIRPConstDefs::Result Exception: ActivateAreaQMCJob NotUniqueQoEReference ManagedGenericIRPSystem::InvalidParameter, ManagedGenericIRPSystem::ValueNotSupported	M

Table A.2.2.2: Mapping from IS `deactivateQMCJob` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
iOCInstance	KernelCmConstDefs::DN moInstance	M
qoEReference	QmcIRPConstDefs::QoeReference qoeReference	M
qMCTarget	QmcIRPConstDefs::QmcTarget qmcTarget	M
status	Return value of type QmcIRPConstDefs::Result Exception: DeactivateQMCJob NotUniqueQoEReference	M
unsupportedList	QmcIRPConstDefs: UnsupportedList unsupportedList	M

Table A.2.2.3: Mapping from IS `listQMCJob` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
iOCInstance	KernelCmConstDefs::DN moInstance	M
status	Return value of type QmcIRPConstDefs::Result Exception: ListQMCJob NotUniqueQoEReference	M
qoEReference	QmcIRPConstDefs::QoeReference qoeReference	M
qMCTarget	QmcIRPConstDefs::QmcTarget qmcTarget	M
qoECollectionEntityAddress	QmcIRPConstDefs::QoeCollectionEntityAddress qoeCollectionEntityAddress	M
serviceType	QmcIRPConstDefs:: ServiceType serviceType	M
areaScope	QmcIRPConstDefs::DNSet	M
pLMNTarget	QmcIRPConstDefs: PLMNTarget pLMNTarget	CM
qMCConfigurationFile	QmcIRPConstDefs: QmcConfigurationFile qmcConfigurationFile	M

Table A.2.2.4: Mapping from IS `listActivatedQMCJobs` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
qoEReferenceList	QmcIRPConstDefs::QoEReferenceList qoeReferenceList	M
status	Return value of type QmcIRPConstDefs::Result	M

A.2.3 Notification parameter mapping

The QMCIRP: IS 3GPP TS 28.309 [19] defines semantics of parameters carried in notifications. The following table indicates the mapping of these parameters to their OMG CORBA Structured Event (defined in OMG Notification Service [9]) equivalents. The composition of OMG Structured Event, as defined in the OMG Notification Service [9], is:

```
Header
      Fixed Header
           domain_name
           type_name
           event_name
      Variable Header
Body
      filterable_body_fields
      remaining_body
```

The following tables list all OMG Structured Event attributes in the second column. The first column identifies the QMCIRP: IS 3GPP TS 28.308 [19] defined notification parameters.

Table A.2.3.1: Mapping for `notifyNetworkRequestSessionFailure`

IS Parameters	OMG CORBA Structured Event attribute	Qualifier	Comment
There is no corresponding IS attribute.	domain_name	M	It carries the IRP document version number string. See subclause 3.1. It indicates the syntax and semantics of the Structured Event as defined by the present document.
notificationType	type_name	M	This is constant string "notifyNetworkRequestSessionFailure".
There is no corresponding IS attribute.	event_name	M	It carries no information.
There is no corresponding IS attribute.	Variable Header	M	The Variable Header consists of a single name/value (NV) pair, namely Priority.
objectClass, objectInstance	One NV pair of filterable_body_fields	M	NV stands for name-value pair. Order arrangement of NV pairs is not significant. The name of NV-pair is always encoded in string. Name of this NV pair is the MANAGED_OBJECT_INSTANCE of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is a string. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.306 [8]).
notificationId	One NV pair of remaining_body	O	Name of NV pair is the NOTIFICATION_ID of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is a long. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.306 [8]).
eventTime	One NV pair of filterable_body_fields	M	Name of NV pair is the EVENT_TIME of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is IRPTime. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.306 [8]).
systemDN	One NV pair of filterable_body_fields	M	Name of NV pair is the SYSTEM_DN of interface AttributeNameValue of module NotificationIRPConstDefs. Value of NV pair is a string. See corresponding table in Notification IRP: CORBA SS (3GPP TS 32.306 [8]).
qoEReference	One NV pair of filterable_body_fields	M	Name of NV pair is the QOE_REFERENCE of qmcIRPNotifications::notifyNetworkRequestSessionFailure. Value of NV pair is QoeReference of module QmcIRPConstDefs.
reason	One NV pair of remaining_body	O	Name of NV pair is the REASON of qmcIRPNotifications:: notifyNetworkRequestSessionFailure. Value of NV pair is a string.

A.3 Solution Set (SS) definitions

A.3.1 IDL definition structure

Clause A.3.2 defines the constants and types used by the QMC Management IRP.

Clause A.3.3 defines the operations which are performed by the QMC Management IRP agent.

Clause A.3.4 defines the notifications which are emitted by the QMC Management IRP agent.

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

```
//File: QMCIRPConstDefs.idl
#ifndef _QMC_IRP_CONST_DEFS_IDL_
#define _QMC_IRP_CONST_DEFS_IDL_
#include <KernelCmConstDefs.idl>

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

/* ## Module: QMCIRPConstDefs
This module contains commonly used definitions for QMC IRP
================================================================
*/
module QMCIRPConstDefs
{
enum Result Enum {SUCESS, FAILURE, PARTIAL_SUCCESS};

typedef struct QoeReference
    {
        short mcc;
        short mnc;
        unsigned long qmcId;
    };

typedef sequence<QoEReference> QoEReferenceList;

typedef string QoeCollectionEntityAddress;

enum QmcTarget {AREA_BASED_QMC,INDIVIDUAL_BASED_UE };

enum ServiceType {DASH,MTSI};

typedef string QmcConfigurationFile;

typedef sequence <KernelCmConstDefs::DN> DNSet;

enum UnsupportedItem {MANAGED_ENTITY, QMC_TARGET, AREA_SCOPE, SERVICE_TYPE, PLMN_TARGET};
typedef sequence<UnsupportedItem> UnsupportedList;

/**
* This block identifies attributes which are included as part of the
* notifications defined within QMCIRP. These attribute values should not
* clash with those defined for the attributes of notification
* header (see IDL of Notification IRP).
*/

interface AttributeNameValue
{

   const string QOE_REFERENCE = "QOE_REFERENCE";
   const string QMC_TARGET = "QMC_TARGET";
   const string MO_INSTANCE = "MO_INSTANCE";
   const string REASON = "REASON";
};

};
```

A.3.3 IDL specification (file name “QMCIRPSystem.idl”)

```
//File: QMCIRPSystem.idl
#ifndef _QMC_IRP_SYSTEM_IDL_
#define _QMC_IRP_SYSTEM_IDL_

#include <KernelCmConstDefs.idl>
#include <GenericIRPManagementConstDefs.idl>
#include <GenericIRPManagementSystem.idl>
#include <QMCIRPConstDefs.idl>

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

/* Module: QMCIRPSystem
This module contains the specification of all operations of QMC IRP Agent.
================================================================================
*/
module QMCIRP
{
   exception ActivateAreaQMCJob { string reason; };
   exception NotUniqueQMCReference { string reason; };
   exception DeactivateQMCJob { string reason; };
   exception ListQMCJob { string reason; };
   exception ListActivatedQMCJob { string reason; };

  interface QMCIRP
  {

    /**
    * Request to activate a QMCJob through Itf-N.
    **/

    QMCIRPConstDefs::ResultEnum activateAreaQMCJob (
      in KernelCmConstDefs::DN                          moInstance,
      in QMCIRPConstDefs::QoeReference                  qoeReference,
      in QMCIRPConstDefs::QmcTarget                     qmcTarget,
      in QMCIRPConstDefs::QoeCollectionEntityAddress    qoeCollectionEntityAddress,
      in QMCIRPConstDefs::DNSet                        areaScope,
      in QMCIRPConstDefs::ServiceType                  serviceType,
      in QMCIRPConstDefs::PLMNTarget                   pLMNTarget,
      in QMCIRPConstDefs::QmcConfigurationFile          qmcConfigurationFile,
      out QMCIRPConstDefs:: UnsupportedList            unsupportedList
    )
    raises (ActivateAreaQMCJob,
          NotUniqueQoEReference,
          GenericIRPManagementSystem::InvalidParameter,
          GenericIRPManagementSystem::ValueNotSupported,
          GenericIRPManagementSystem::OperationNotSupported
          );

    /**
    * Request to deactivate a QMCJob through Itf-N.
    **/

    QMCIRPConstDefs::ResultEnum deactivateQMCJob (
      in KernelCmConstDefs::DN                          moInstance,
      in QMCIRPConstDefs::QoeReference                  qoeReference,
      in QMCIRPConstDefs::QmcTarget                     qmcTarget,
      out QMCIRPConstDefs:: UnsupportedList            unsupportedList)
    raises (DeactivateQMCJob,
            NotUniqueQoEReference,
            GenericIRPManagementSystem::InvalidParameter,
            GenericIRPManagementSystem::ValueNotSupported,
            GenericIRPManagementSystem::OperationNotSupported);

    /**
    * Request to list the parameters of a specific QMCJob through Itf-N.
    **/

    QMCIRPConstDefs::ResultEnum listQMCJob (
      in QMCIRPConstDefs::QoeReference                        qoeReference,
      out KernelCmConstDefs::DN                          moInstance,
      out QMCIRPConstDefs::QoeReference                  qoeReference,
      out QMCIRPConstDefs::QmcTarget                     qmcTarget,
      out QMCIRPConstDefs::QoeCollectionEntityAddress    qoeCollectionEntityAddress,
      out QMCIRPConstDefs::ServiceType                   serviceType,
```

```
      out QMCIRPConstDefs::DNSet                          areaScope,
      out QMCIRPConstDefs::PLMNTarget                    pLMNTarget,
      out QMCIRPConstDefs::QmcConfigurationFile          qmcConfigurationFile
)

    raises (ListQMCJob,
            NotUniqueQoEReference,
            GenericIRPManagementSystem::InvalidParameter,
            GenericIRPManagementSystem::ValueNotSupported,
            GenericIRPManagementSystem::OperationNotSupported);

    /**
    * Request to list the activated QMCJobs through Itf-N.
    **/

    QMCIRPConstDefs::ResultEnum listActivatedQMCJob (
      out QMCIRPConstDefs:: QoEReferenceList qoeReferenceList)
    raises (ListActivatedQMCJob,
            GenericIRPManagementSystem::InvalidParameter,
            GenericIRPManagementSystem::ValueNotSupported,
            GenericIRPManagementSystem::OperationNotSupported);
  };

};
#endif // _QMC_IRP_SYSTEM_IDL_
```

A.3.4 IDL specification (file name “QMCIRPNotifications.idl”)

```
//File: QMCIRPNotifications.idl
#ifndef _QMC_IRP_NOTIFICATIONS_IDL_
#define _QMC_IRP_NOTIFICATIONS_IDL_

#include <QMCIRPConstDefs.idl>
#include <NotificationIRPNotifications.idl>

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

/* Module: QMCIRPNotifications
This module contains the specification of all notifications of QMC IRP Agent.
================================================================================
*/
module QMCIRPNotifications
{

  /**
  * Constant definitions for the notifyNetworkRequestSessionFailure notification
  **/

  interface NotifyNetworkRequestSessionFailure: NotificationIRPNotifications::Notify
  {
    const string EVENT_TYPE = "notifyNetworkRequestSessionFailure";

    /**
    * This constant defines the name of the QoeReference property.
    * The data type for the value of this property is
    * QMCIRPConstDefs::QoeReference.
    **/

    const string QOE_REFERENCE = QMCIRPConstDefs::AttributeNameValue::QOE_REFERENCE;


    /**
    * This constant defines the name of the reason property.
    * The data type for the value of this property is string.
    */

    const string REASON = QMCIRPConstDefs::AttributeNameValue::REASON;
   };

};

#endif // _QMC_IRP_NOTIFICATIONS_IDL_
```

Annex B (normative): XML definitions

B.0 Introduction

This annex contains the XML definitions for the QMC Management IRP for the IRP whose semantics is specified in QMC Management IRP: Information Service (3GPP TS 28.308 [19]).

This XML definitions specification defines the XML syntax of the QMC Management IRP XML Data File.

B.1 Architectural Features

The overall architectural feature of QMC Management IRP is specified in 3G TS 28.308 [19]. This clause specifies features that are specific to the XML definitions.

B.1.1 Syntax for Distinguished Names (DN)

The syntax of a Distinguished Name is defined in 3GPP TS 32.300 [7].

B.1.2 Notification services

This annex defines the XML syntax of QMC Management IRP notifications that is to be used for the QMC Management IRP SOAP Solution Set and in conjunction with Notification Log IRP XML definitions for Notification Log IRP XML Data File and the NL IRP XML Notification Format.

B.1.3 IOC definitions

This annex defines the XML syntax for the IOC definitions of the QMC Management IRP IS [19], which are used by the XML definitions for the QMC Management IRP notifications and the QMC Management IRP IS operations.

B.1.4 Supported W3C specification

The Extensible Markup Language (XML) 1.0 (Second Edition) [11], XML Schema Part 0: Primer [12], XML Schema Part 1: Structures[13] and XML Schema Part 2: Datatypes [14] are supported.

B.2 Mapping

Not present in the current version of the present document.

B.3 Solution Set (SS) definitions

B.3.1 XML definition structure

Clause B.3.2 provides XML definitions of QMC Management IRP notifications as defined in [19]. These definitions are to be used for the QMC Management IRP SOAP Solution Set. For QMC IRP XML File Name Conventions the generic file name definitions as specified by the FT IRP apply (see [10]).

Clause B.3.3 provides XML definitions of QMC Management IOC as defined in [19].

B.3.2 XML schema "QMCIRPNotif.xsd"

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
  3GPP TS 28.309 QMC Management IRP Notification
  QMC IRP specific data file XML schema
  qMCIRPNotif.xsd
-->
<schema xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:tr="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#qMCIRPNotif"
xmlns:xe="http://www.3gpp.org/ftp/specs/archive/32_series/32.306#notification"
targetNamespace="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#qMCIRPNotif"
elementFormDefault="qualified">
    <import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.306#notification"/>
    <!-- XML types specific for QMC IRP notifications -->
    <complexType name="QoeReference">
        <sequence>
            <element name="MCC" type="short"/>
            <element name="MNC" type="short"/>
            <element name="QMC_ID" type="integer"/>
        </sequence>
    </complexType>
    <complexType name="NotifyNetworkRequestSessionFailure">
        <complexContent>
            <extension base="xe:Notification">
                <sequence>
                    <element name="body">
                        <complexType>
                            <sequence>
                                <element name="QoeReference" type="tr:QoeReference"/>
                                <element name="Reason" type="string" minOccurs="0"/>
                            </sequence>
                        </complexType>
                    </element>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <element name="NotifyNetworkRequestSessionFailure"
type="tr:NotifyNetworkRequestSessionFailure"/>
</schema>
```

B.3.3 XML schema "QMCIRPIOCs.xsd"

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
    3GPP TS 28.309 Trace Management IRP IOC XML Schema
    qMCIRPIOCs.xsd
-->
<schema xmlns:xti="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#tMIRPIOCs"
xmlns:xe="http://www.3gpp.org/ftp/specs/archive/32_series/32.306#notification"
xmlns:xn=http://www.3gpp.org/ftp/specs/archive/32_series/32.626#genericNrm
xmlns="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#tMIRPIOCs" <import
namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.626#genericNrm"/>
elementFormDefault="qualified" attributeFormDefault="unqualified">

    <complexType name="DNSet">
        <sequence>
           <element name="DN" type="xn:DN" minOccurs="0" maxOccurs="unbounded"/>
         </sequence>
    </complexType>

    <simpleType name="QMCTargetType">
        <restriction base="string">
            <enumeration value="AREA_BASED_QMC"/>
            <enumeration value="INDIVIDUAL_BASED_QMC"/>
        </restriction>
    </simpleType>
    <complexType name="QMCTarget">
        <sequence>
            <element name="typeFlag" type="xti: QMCTargetType"/>
            <element name="QMCTargetId" type="string"/>
        </sequence>
    </complexType>
    <simpleType name="UnsupportedItem">
        <restriction base="string">
            <enumeration value="MANAGED_ENTITY"/>
            <enumeration value="QMC_AREA_SCOPE"/>
                <enumeration value="QMC_TARGET"/>
            <enumeration value="PLMN_TARGET"/>
            <enumeration value="QMC_SERVICE_TYPE"/>
        </restriction>
    </simpleType>

    <complexType name="UnsupportedList">
        <sequence>
            <element name="UnsupportedItem" type="xti:UnsupportedItem" minOccurs="0"
maxOccurs="unbounded"/>
        </sequence>
    </complexType>
    <simpleType name="ServiceType">
        <restriction base="string">
            <enumeration value="DASH"/>
            <enumeration value="MTSI"/>
        </restriction>
    </simpleType>
    <element name="serviceType" type="xti:ServiceType"/>
    <element name="qoEReference" type="unsignedLong"/>
    <element name="qmcTarget" type="xti:QMCTarget"/>
    <element name="qoeCollectionEntityAddress" type="string"/>
    <element name="areaScope" type="xti:DNSet"/>
    <element name="qmcConfigurationFile" type="string"/>
</schema>
```

Annex C (normative): SOAP Solution Set

C.0 Introduction

This annex specifies the SOAP Solution Set for the IRP whose semantics are specified in QMC Management IRP: Information Service (3GPP TS 28.308 [19]).

C.1 Architectural features

C.1.0 General

The overall architectural feature of the QMC Management IRP is specified in 3GPP TS 28.308 [19]. This clause specifies features that are specific to the SOAP solution set.

C.1.1 Syntax for Distinguished Names (DN)

The syntax of a Distinguished Name is defined in 3GPP TS 32.300 [7].

C.1.2 Notification services

The Trace Management IRP SOAP SS uses the Notification IRP SOAP SS of 3GPP TS 32.306 [8]. The IRPAgent shall support the push interface model, which means that the IRPAgent sends trace management notifications to the IRPManager as soon as new events occur. The IRPManager does not need to check ("pull") for events.

C.1.3 Supported W3C specifications

The SOAP 1.1 specification [15] and WSDL 1.1 specification [17] are supported.

The SOAP 1.2 specification [18] is supported optionally.

The present document uses "document" style in WSDL file.

The present document uses "literal" encoding style in WSDL file.

The filter language used in the SS is the XPath Language (see W3C XPath 1.0 specification [16]). IRPAgents may throw a FilterComplexityLimit fault when a given filter is too complex.

Relevant definitions are imported from the QMC Management IRP XML definitions of Annex B

C.1.4 Prefixes and namespaces

The present document uses a number of namespace prefixes throughout that are listed in Table C.1.4.1.

Table C.1.4.1: Prefixes and Namespaces used in the present document

PREFIX	NAMESPACE
(no prefix)	http://schemas.xmlsoap.org/wsdl/
soap	http://schemas.xmlsoap.org/wsdl/soap/
QMCIRPSystem	http://www.3gpp.org/ftp/specs/archive/28_series/28.309#QMCIRPSystem
QMCIRPData	http://www.3gpp.org/ftp/specs/archive/28_series/28.309#QMCIRPData
xti	http://www.3gpp.org/ftp/specs/archive/28_series/28.309#QMCIRPIOCs
xn	http://www.3gpp.org/ftp/specs/archive/32_series/32.626#genericNrm
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 QMC Management IRP IS (3GPP TS 28.308 [19]) defines semantics of operation and notification visible across the Itf-N. Table C.2.1.1 indicates mapping of these operations and notifications to their equivalents defined in this SS.

Table C.2.1.1: Mapping from IS Operation to SS Equivalents

IS Operations in 3GPP TS 32.442 [5]	SS Operations	SS Port	Qualifier
activateAreaQMCJob	activateAreaQMCJob	QMCIRPManagementPort	M
deactivateQMCJob	deactivateQMCJob	QMCIRPManagementPort	M
listQMCJob	listQMCJob	QMCIRPManagementPort	M
listActivatedQMCJobs	listActivatedQMCJobs	QMCIRPManagementPort	O
notifyNetworkRequestSessionFailure	notify (note 1)	NotificationIRPNtfPort	O
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 [8].			

C.2.2 Operation parameter mapping

The QMC Management IRP IS (3GPP TS 28.308 [19]) 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 `activateAreaQMCJob` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
iOCInstance	iOCInstance	M
qoEReference	qoEReference	M
qMCTarget	qMCTarget	M
qoECollectionEntityAddress	qoECollectionEntityAddress	M
areaScope	areaScope	M
unsupportedList	unsupportedList	M
status	status	M
pLMNTarget	pLMNTarget	CM
qMCConfigurationFile	qMCConfigurationFile	M
serviceType	serviceType	M

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

IS Operation parameter	SS Method parameter	Qualifier
qoEReference	qoEReference	M
qMCTarget	qMCTarget	M
status	status	M
unsupportedList	unsupportedList	M

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

IS Operation parameter	SS Method parameter	Qualifier
iOCInstance	iOCInstance	M
qoEReference	qoEReference	M
qMCTarget	qMCTarget	M
qoECollectionEntityAddress	qoECollectionEntityAddress	M
areaScope	areaScope	M
status	status	M
pLMNTarget	pLMNTarget	CM
qMCConfigurationFile	qMCConfigurationFile	M
serviceType	serviceType	M

Table C.2.2.4: Mapping from IS `listActivatedQMCJobs` parameters to SS equivalents

IS Operation parameter	SS Method parameter	Qualifier
qoEReferenceList	qoEReferenceList	M
status	status	M

C.2.3 Notification parameter mapping

The QMC Management IRP IS (3GPP TS 28.308 [19]) defines semantics of parameters carried in notifications. The following tables indicate the mapping of these parameters to their SS equivalents.

Table C.2.3.1: Mapping for `notifyNetworkRequestSessionFailure`

IS Parameters	<SS> Parameters	Qualifier	Comment
objectClass	objectClass	M	
objectInstance	objectInstance	M	
eventTime	eventTime	M	
notificationType	notificationType	M	
systemDN	systemDN	M	
notificationID	notificationID	O	
qoEReference	qoEReference	M	
reason	reason	O	

C.3 Solution Set (SS) definitions

C.3.1 WSDL definition structure

Clause C.3.2 defines the services which are supported the QMC Management IRP agent.

C.3.2 WSDL specification "QMCIRPSystem.wsdl"

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
    3GPP TS 28.309 QMC Management IRP SOAP Solution Set
-->
<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
xmlns:traceIRPSystem="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#QMCIRPSystem"
xmlns:traceIRPData="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#QMCIRPData"
xmlns:xn="http://www.3gpp.org/ftp/specs/archive/32_series/32.626#genericNrm"
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" targetNamespace="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#QMCIRPSystem">
  <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/32.307/schema/32306#notification/Notifica
tionIRPNtfSystem"/>
  <types>
    <schema targetNamespace="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#QMCIRPData"
xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:xti="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#QMCIRPIOCs">
      <!-- activateAreaQMCJob Request -->
      <element name="activateAreaQMCJobRequest">
        <complexType>
          <sequence>
            <element name="iOCInstance" type="xn:dn"/>
            <element name="qoEReference" type="unsignedLong"/>
            <element name="qmcTarget" type="xti:QMCTarget"/>
            <element name="qoeCollectionEntityAddress" type="string" minOccurs="0"/>
            <element name="serviceType" type="xti:ServiceType"/>
            <element name="areaScope" type="xti:DNSet" minOccurs="0"/>
            <element name="pLMNTarget" type="xti:pLMNTarget" minOccurs="0"/>
            <element name="qmcConfigurationFile" type="string"/>
          </sequence>
        </complexType>
      </element>
      <!-- activateAreaQMCJob Response -->
      <element name="activateAreaQMCJobResponse">
        <complexType>
          <sequence>
            <element name="status">
              <simpleType>
                <restriction base="string">
                  <enumeration value="Success"/>
                  <enumeration value="Failure"/>
                  <enumeration value="PartialSuccess"/>
                </restriction>
              </simpleType>
            </element>
            <element name="unsupportedList" type="xti:UnsupportedList" minOccurs="0"/>
            <element name="failureReason" minOccurs="0">
              <simpleType>
                <restriction base="string">
                  <enumeration value="invalidManagedEntity"/>
                  <enumeration value="invalidQMCTarget"/>
                  <enumeration value="invalidAreaScope"/>
                      <enumeration value="invalidSeviceType"/>
                  <enumeration value="invalidPLMNTarget"/>
                  <enumeration
value="operation_failed_unsupported_input_parameter_qoeCollectionEntityAddress"/>
                  <enumeration value="notuniqueQoEReference"/>
                </restriction>
              </simpleType>
            </element>
          </sequence>
```

```
  </complexType>
</element>
<!-- activateAreaQMCJob Fault -->
<element name="activateAreaQMCJobFault">
  <simpleType>
    <restriction base="string">
      <enumeration value="OperationFailed"/>
    </restriction>
  </simpleType>
</element>
<!-- deactivateQMCJob Request -->
<element name="deactivateQMCJobRequest">
  <complexType>
    <sequence>
      <element name="qoEReference" type="unsignedLong"/>
      <element name="qMCTarget" type="xti:QMCTarget"/>
    </sequence>
  </complexType>
</element>
<!-- deactivateQMCJob Response -->
<element name="deactivateQMCJobResponse">
  <complexType>
    <sequence>
      <element name="status">
        <simpleType>
          <restriction base="string">
            <enumeration value="Success"/>
            <enumeration value="Failure"/>
            <enumeration value="PartialSuccess"/>
          </restriction>
        </simpleType>
      </element>
      <element name="unsupportedList" type="xti:UnsupportedList" minOccurs="0"/>
      <element name="failureReason" minOccurs="0">
        <simpleType>
          <restriction base="string">
            <enumeration value="notuniqueqoeReference"/>
            <enumeration value="invalidManagedEntity"/>
            <enumeration value="invalidQMCTarget"/>
            <enumeration value="operation_failed"/>
            <enumeration value="operation_failed_internal_problem"/>
          </restriction>
        </simpleType>
      </element>
    </sequence>
  </complexType>
</element>
<!-- deactivateQMCJob Fault -->
<element name="deactivateQMCJobFault">
  <simpleType>
    <restriction base="string">
      <enumeration value="OperationFailed"/>
    </restriction>
  </simpleType>
</element>
<!-- listQMCJob Request -->
<element name="listQMCJobRequest">
  <complexType>
    <sequence>
      <element name="qoEReference" type="unsignedLong"/>
    </sequence>
  </complexType>
</element>
<!-- listQMCJob Response -->
<element name="listQMCJobResponse">
  <complexType>
    <sequence>
      <element name="iOCInstance" type="xn:dn"/>
      <element name="status">
        <simpleType>
          <restriction base="string">
            <enumeration value="Success"/>
            <enumeration value="Failure"/>
          </restriction>
        </simpleType>
      </element>
      <element name="qoEReference" type="unsignedLong"/>
      <element name="qmcTarget" type="xti:QMCTarget"/>
```

```
          <element name="qoeCollectionEntityAddress" type="string" minOccurs="0"/>
          <element name="serviceType" type="xti:ServiceType"/>
          <element name="areaScope" type="xti:DNSet" minOccurs="0"/>
          <element name="pLMNTarget" type="xti:pLMNTarget" minOccurs="0"/>
          <element name="qmcConfigurationFile" type="string"/>

          <element name="failureReason" minOccurs="0">
            <simpleType>
              <restriction base="string">
                <enumeration value="notuniqueTraceReference"/>
                <enumeration value="operation_failed"/>
                <enumeration value="operation_failed_internal_problem"/>
              </restriction>
            </simpleType>
          </element>
        </sequence>
      </complexType>
    </element>
    <!-- listQMCJob Fault -->
    <element name="listQMCJobFault">
      <simpleType>
        <restriction base="string">
          <enumeration value="OperationFailed"/>
        </restriction>
      </simpleType>
    </element>
    <!-- listActivatedQMCJobs Request -->
    <element name="listActivatedQMCJobsRequest">
    </element>
    <!-- listActivatedQMCJobs Response -->
    <element name="listActivatedQMCJobsResponse">
      <complexType>
        <sequence>
          <element name="qoEReferenceList">
            <complexType>
              <sequence minOccurs="0" maxOccurs="unbounded">
                <element name="qoEReference" type="unsignedLong"/>
              </sequence>
            </complexType>
          </element>
          <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_internal_problem"/>
              </restriction>
            </simpleType>
          </element>
        </sequence>
      </complexType>
    </element>
    <!-- listActivatedQMCJobs Fault -->
    <element name="listActivatedQMCJobsFault">
      <simpleType>
        <restriction base="string">
          <enumeration value="OperationFailed"/>
        </restriction>
      </simpleType>
    </element>
  </schema>
</types>
<message name="activateQMCJobRequest">
  <part name="parameter" element="qmcIRPData:activateQMCJobRequest"/>
</message>
<message name="activateQMCJobResponse">
  <part name="parameter" element="qmcIRPData:activateQMCJobResponse"/>
</message>
<message name="activateQMCJobFault">
  <part name="parameter" element="qmcIRPData:activateTraceJobFault"/>
</message>
```

```
  <message name="deactivateQMCJobRequest">
    <part name="parameter" element="qmcIRPData:deactivateQMCJobRequest"/>
  </message>
  <message name="deactivateQMCJobResponse">
    <part name="parameter" element="qmcIRPData:deactivateQMCJobResponse"/>
  </message>
  <message name="deactivateQMCJobFault">
    <part name="parameter" element="qmcIRPData:deactivateQMCJobFault"/>
  </message>
  <message name="listTraceQMCRequest">
    <part name="parameter" element="qmcIRPData:listQMCJobRequest"/>
  </message>
  <message name="listQMCJobResponse">
    <part name="parameter" element="qmcIRPData:listQMCJobResponse"/>
  </message>
  <message name="listQMCJobFault">
    <part name="parameter" element="qmcIRPData:listQMCJobFault"/>
  </message>
  <message name="listActivatedQMCJobsRequest">
    <part name="parameter" element="qmcIRPData:listActivatedQMCJobsRequest"/>
  </message>
  <message name="listActivatedQMCJobsResponse">
    <part name="parameter" element="traceIRPData:listActivatedQMCJobsResponse"/>
  </message>
  <message name="listActivatedQMCJobsFault">
    <part name="parameter" element="traceIRPData:listActivatedQMCJobsFault"/>
  </message>
  <portType name="QMCIRPManagement">
    <operation name="activateQMCJob">
      <input message="qmcIRPSystem:activateQMCJobRequest"/>
      <output message="qmcIRPSystem:activateQMCJobResponse"/>
      <fault name="activateQMCJobFault" message="qmcIRPSystem:activateQMCJobFault"/>
    </operation>
    <operation name="deactivateQMCJob">
      <input message="qmcIRPSystem:deactivateQMCJobRequest"/>
      <output message="qmcIRPSystem:deactivateQMCJobResponse"/>
      <fault name="deactivateQMCJobFault" message="qmcIRPSystem:deactivateQMCJobFault"/>
    </operation>
    <operation name="listQMCJob">
      <input message="qmcIRPSystem:listQMCJobRequest"/>
      <output message="qmcIRPSystem:listQMCJobResponse"/>
      <fault name="listQMCJobFault" message="qmcIRPSystem:listQMCJobFault"/>
    </operation>
    <operation name="listActivatedQMCJobs">
      <input message="qmcIRPSystem:listActivatedQMCJobsRequest"/>
      <output message="qmcIRPSystem:listActivatedQMCJobsResponse"/>
      <fault name="listActivatedQMCJobsFault" message="qmcIRPSystem:listActivatedQMCJobsFault"/>
    </operation>
  </portType>
  <binding name="QMCIRPManagement" type="qmcIRPSystem:QMCIRPManagement">
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
    <operation name="activateQMCJob">
      <soap:operation
soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#activateQMCJob"
style="document"/>
      <input>
        <soap:body use="literal"/>
      </input>
      <output>
        <soap:body use="literal"/>
      </output>
      <fault name="activateQMCJobFault">
        <soap:fault name="activateTraceJobFault" use="literal"/>
      </fault>
    </operation>
    <operation name="deactivateQMCJob">
      <soap:operation
soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#deactivateQMCJob"
style="document"/>
      <input>
        <soap:body use="literal"/>
      </input>
      <output>
        <soap:body use="literal"/>
      </output>
      <fault name="deactivateTraceJobFault">
        <soap:fault name="deactivateTraceJobFault" use="literal"/>
      </fault>
```

```
    </operation>
    <operation name="listQMCJob">
      <soap:operation soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#listQMCJob"
style="document"/>
      <input>
        <soap:body use="literal"/>
      </input>
      <output>
        <soap:body use="literal"/>
      </output>
      <fault name="listQMCJobFault">
        <soap:fault name="listQMCJobFault" use="literal"/>
      </fault>
    </operation>
    <operation name="listActivatedQMCJobs">
      <soap:operation
soapAction="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#listActivatedQMCJobs"
style="document"/>
      <input>
        <soap:body use="literal"/>
      </input>
      <output>
        <soap:body use="literal"/>
      </output>
      <fault name="listActivatedQMCJobsFault">
        <soap:fault name="listActivatedQMCJobsFault" use="literal"/>
      </fault>
    </operation>
  </binding>
  <service name="QMCIRPService">
    <port name="QMCIRPManagementPort" binding="qmcIRPSystem:QMCIRPManagement">
      <soap:address location="http://www.3gpp.org/ftp/specs/archive/28_series/28.309#QMCIRP"/>
    </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	**Meeting**	**Tdoc**	**CR**	**Rev**	**Cat**	**Subject/Comment**	**New version**
2020-08		S5-204317				TS skeleton including the solution set	0.0.0
2020-08		S5-204670				Draft TS 28.309	0.1.0
2020-09	SA#89e	SP-200757				Presented for approval	1.0.0
2020-09	SA#89e					Upgrade to change control version + EditHelp review	16.0.0
2022-03	-	-	-	-	-	Update to Rel-17 version (MCC)	**17.0.0**

History

Document history		
V17.0.0	April 2022	Publication