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Presentation of Technical Specification to TSG SA

Presentation to: TSG SA Meeting #28
Document for presentation: TS 32.335 V2.0.0
Notification Log Integration Reference Point: XML Definitions
Presented for: Approval

Abstract of document:

This TS defines the XML Definitions for the Notification Log IRP.

Work done against the WID contained in SP-020754 (Work Item ID: OAM-NIM).

The present document is a member of a TS-family consisting of:

- 32.331: "Notification Log IRP: Requirements"
- 32.332: "Notification Log IRP: Information Service (IS)"
- 32.333: "Notification Log IRP: CORBA Solution Set (SS)"
- 32.334: "Notification Log IRP: CMIP Solution Set (SS)"
- 32.335: "Notification Log IRP: XML Definitions"**

Purpose of These Specifications:

The purpose of this set of specifications is to provide a Notification Log mechanism enabling the network manager to log and retrieve logged notifications in the managed systems for Release 6.

Changes since last presentation to TSG-SA:

Completed

Outstanding Issues:

None

Contentious Issues:

None

3GPP TS 32.335 V2.0.0 (2005-06)

Technical Specification

3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; Notification Log Integration Reference Point (IRP): eXtensible Markup Language (XML) Solution Definitions (Release 6)



The present document has been developed within the 3rd Generation Partnership Project (3GPPTM) and may be further elaborated for the purposes of 3GPP.

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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:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document is part the 32.33x-series covering the 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; as identified below:

| | |
|------------------|---|
| TS 32.331 | "Notification Log Integration Reference Point (IRP): Requirements" |
| TS 32.332 | "Notification Log Integration Reference Point (IRP): Information Service (IS)" |
| TS 32.333 | "Notification Log Integration Reference Point (IRP): Common Object Request Broker Architecture (CORBA) Solution Set (SS)" |
| TS 32.334 | "Notification Log Integration Reference Point (IRP): Common Management Information Protocol (CMIP) Solution Set (SS)" |
| TS 32.335 | "Notification log Integration Reference Point (IRP): eXtensible Markup Language (XML) Solution Definitions" |

The present document is part of a set of Technical Specifications, which describes the requirements and information model necessary for Telecommunications Management (TM). The TM principles and TM architecture are specified in 3GPP TS 32.101 [1] and 3GPP TS 32.102 [2].

A communications system is composed of a multitude of Network Elements (NE) of various types and, typically, different vendors, which inter-operate in a coordinated manner in order to satisfy the network users' communication requirements.

The occurrence of faults in an NE may cause deterioration or loss of this NE's function. Fault Management is the functional area, which allows the operator to detect the occurrence of faults in the network in real-time. Configuration Management and Performance Management are two more functional areas, which require the operator to be alerted to certain conditions in the network.

A standard general-purpose mechanism for the management of logs containing selected notifications from the network is required to provide an ability to perform historical analysis on faults and conditions, which occurred in the network. The documents series 32.33x, constituting the Notification Log IRP, sets forth such a mechanism - and the present document contains the relevant XML definition.

1 Scope

The present document specifies the XML Definitions for the Notification Log Integration Reference Point (NL IRP) as it applies to Itf-N, in accordance with Notification Log IRP requirements and IS definitions [3], [4].

This XML Definitions specification defines the XML syntax of the NL IRP XML Data File.

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 TS 32.101: "Telecommunication management; Principles and high level requirements".
- [2] 3GPP TS 32.102: "Telecommunication management; Architecture".
- [3] 3GPP TS 32.331: "Telecommunication management; Notification Log Integration Reference Point (IRP): Requirements".
- [4] 3GPP TS 32.332: "Telecommunication management; Notification Log Integration Reference Point (IRP): Information Service (IS)".
- [5] 3GPP TS 32.342: "Telecommunication management; File Transfer (FT) Integration Reference Point (IRP); Information Service (IS)".
- [6] 3GPP TS 32.305: "Telecommunication management; Notification Integration Reference Point (IRP): XML Definitions".
- [7] 3GPP TS 32.111-5: "Telecommunication management; Notification Integration Reference Point (IRP): XML Definitions".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], and 3GPP TS 32.331 [3] apply.

3.2 Abbreviations

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

| | |
|-----|-----------------------------|
| IRP | Integration Reference Point |
| IS | Information Service |
| NL | Notification Log |
| UML | Unified Modelling Language |
| IRP | Integration Reference Point |

NRM Network Resource Model
XML eXtensible Markup Language

4 Structure and content of NL IRP XML

The present clause defines the XML exchanged between an IRPManager and an IRPAgent as part of NL IRP IS (see [4]):

- the NL IRP XML Data File,
- NL IRP notifications.

The use of XML schemas ensures NL XML have the proper structure and to some extent the proper content, and in particular to ensure:

- for a given Notification instance, it is properly named/positioned with regard to the global naming tree;
- for a given Notification instance, only attributes of the corresponding Notification are present;
- for a given Notification attribute, its value is of the proper type.

XML definitions for other application specific notifications (e.g. Alarm IRP notifications, Notification IRP Notification Header) are defined within the respective IRP series within specification 32.xy5.

4.1 Global structure

Editors Note: To be added in future version of this specification.

4.2 XML elements fileHeader and fileFooter

Editors Note: To be added in future version of this specification.

4.3 NL IRP XML File Name Conventions

For NL IRP XML File Name Conventions the generic file name definitions as specified by the FT IRP apply (see [5]).

4.4 NL Interface IRP-specific XML schemas

Interface IRP-specific XML schemas with definition of corresponding XML namespace prefixes are listed by the following table:

Table 4.4: Interface IRP-specific XML schemas, corresponding 3GPP TSs and XML namespace prefixes

| IRP | XML schema | 3GPP TS no. | XML namespace prefix |
|----------------------|---------------------|--------------|----------------------|
| Alarm IRP | alarmIRPnotif.xsd | 32.111-5 [7] | xa |
| Notification IRP | notification.xsd | 32.305 [6] | xe |
| Notification Log IRP | notificationLog.xsd | 32.335 | xl |

Each Interface IRP-specific XML schema explicitly declares Interface IRP-specific XML element types for the related Interface IRP.

Additionally, XML schema `notification.xsd` (see [06]) also provides global XML declarations and definitions for the support of:

- Notification header XML element type declaration

4.5 NL IRP XML File Content Definitions

4.5.1 NL IRP XML Data File

The structure of the Notification Log IRP XML Data File is shown in graphical depiction below:

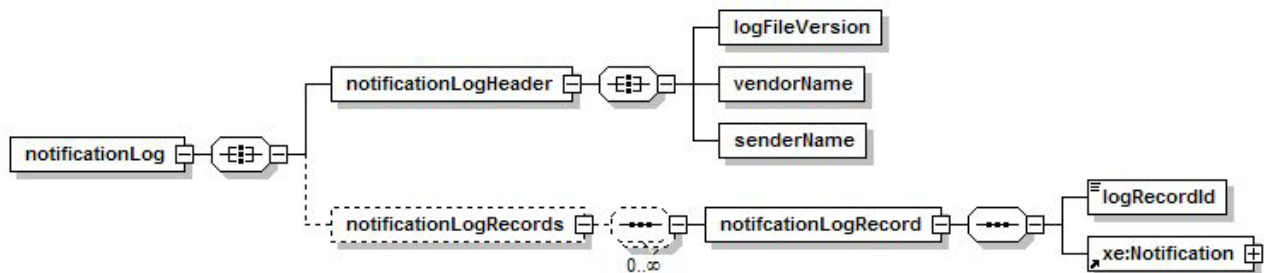


Figure 4.5.1: Structure of the Notification Log IRP XML Data File

The `notificationLogRecords` element holds the instances of the notification records that are imported from the Notification Format XML schema. Note that Notification Header XML definitions are provided in [6].

The Notification Log IRP XML Data File is a simple instance based construct. The XML schema for the Notification Log IRP XML Data File is defined in Annex A.

4.6 NL IRP Notification XML Definitions

This section provides XML definitions of Notification Log IRP notifications as defined in [4].

[Editors Note] To be added at a later stage.

Annex A (normative):

Configuration data file base XML schema (file name "notificationLog.xsd")

```

<?xml version="1.0" encoding="UTF-8"?>
<!--
  3GPP TS 32.335 Notification Log IRP
  The 3GPP Notification Log IRP XML Solution Definition, Schema Definition
  notificationLog.xsd
-->

< schema
targetNamespace="http://www.3gpp.org/ftp/specs/latest/rel-6/32_series/32335#notifLog" elementFormDefault="qualified"
attributeFormDefault="unqualified"
xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:xe="http://www.3gpp.org/ftp/specs/latest/rel-6/32_series/32305#notification"
xmlns:xa="http://www.3gpp.org/ftp/specs/latest/rel-6/32_series/32111-5#alarmIRPNotif"
>

  <import namespace="http://www.3gpp.org/ftp/specs/latest/rel-6/32_series/32305#notification"/>
  <import namespace="http://www.3gpp.org/ftp/specs/latest/rel-6/32_series/32111-5#alarmIRPNotif"/>

  <element name="notificationLog">
    <complexType>
      <all>
        <element name="notificationLogHeader">
          <complexType>
            <all>
              <element name="logFileVersion"/>
              <element name="vendorName"/>
              <element name="senderName"/>
            </all>
          </complexType>
        </element>
        <element name="notificationLogRecords" minOccurs="0">
          <complexType>
            <sequence minOccurs="0" maxOccurs="unbounded">
              <element name="notificationLogRecord">
                <complexType>
                  <sequence>
                    <element name="logRecordId" type="xs:string"/>
                    <element ref="xe:Notification"/>
                  </sequence>
                </complexType>
              </element>
            </sequence>
          </complexType>
        </element>
      </all>
    </complexType>
  </element>
</schema>

```

Annex B (informative): NL IRP XML Example Notification

This annex provides an XML example notification, demonstrating the use of and the embedding into the NL IRP XML Notification Format. This example makes use of the Alarm IRP XML Schema for Notification.

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSPY v2004 rel. 4 U (http://www.xmlspy.com)-->
<notificationLog xmlns="http://www.3gpp.org/ftp/specs/latest/rel-6/32_series/32335-600.zip#notifLog"
xmlns:xa="http://www.3gpp.org/ftp/specs/latest/rel-6/32_series/32111-5-600.zip#alarmIRPNotif"
xmlns:xe="http://www.3gpp.org/ftp/specs/latest/rel-6/32_series/32305-600.zip#notification"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" >
  <notificationLogHeader>
    <logFileVersion>Text</logFileVersion>
    <vendorName>Text</vendorName>
    <senderName>Text</senderName>
  </notificationLogHeader>
  <notificationLogRecords>
    <notificationLogRecord>
      <logRecordId>1001</logRecordId>
      <xa:NotifyNewAlarm>
        <xe:header>
          <xe:objectClass>String</xe:objectClass>
          <xe:objectInstance>String</xe:objectInstance>
          <xe:notificationID>2147483647</xe:notificationID>
          <xe:eventTime>2001-12-17T09:30:47-05:00</xe:eventTime>
          <xe:systemDN>String</xe:systemDN>
          <xe:notificationType>String</xe:notificationType>
        </xe:header>
        <xa:body>
          <xa:probableCause>INDETERMINATE</xa:probableCause>
          <xa:perceivedSeverity>Indeterminate</xa:perceivedSeverity>
          <xa:alarmType>Communications Alarm</xa:alarmType>
          <xa:alarmID>1</xa:alarmID>
        </xa:body>
      </xa:NotifyNewAlarm>
    </notificationLogRecord>
  </notificationLogRecords>
</notificationLog>
```

Annex C (informative): NL IRP XML schema electronic files

The electronic files corresponding to the normative XML schemas defined in the present document are available in native form in the following archive:

http://www.3gpp.org/ftp/specs/archive/32_series/32.335/schema/326335-600-XMLSchema.zip

Annex D (informative): Change history

| Change history | | | | | | | |
|----------------|-------|-----------|----|-----|--|-------|-----|
| Date | TSG # | TSG Doc. | CR | Rev | Subject/Comment | Old | New |
| Sep 2004 | S_25 | SP-040564 | -- | -- | Submitted to TSG SA#25 for Information | 1.0.0 | |
| Jun 2005 | S_28 | SP-050291 | -- | -- | Submitted to TSG SA#28 for Approval | 2.0.0 | |
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