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Technical Specification

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Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Communication Surveillance (CS)
Integration Reference Point (IRP);
Requirements
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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

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The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

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:

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

TS 32.351: "Communication Surveillance (CS) Integration Reference Point (IRP); Requirements";

TS 32.352: "Communication Surveillance (CS) Integration Reference Point (IRP); Information Service (IS)";

TS 32.356: "Communication Surveillance (CS) Integration Reference Point (IRP); Solution Set (SS) defintions".

The present document is part of a set of technical specifications defining the Telecommunication Management (TM) of 3G systems. The TM principles are described in 3GPP TS 32.101 [1]. The TM architecture is described in 3GPP TS 32.102 [2]. The other specifications define the interface (Itf-N) between the managing system (manager), which is in general the Network Manager (NM) and the managed system (agent), which is either an Element Manager (EM) or the managed NE itself. The Itf-N is composed of a number of Integration Reference Points (IRPs) defining the information in the agent that is visible for the manager, the operations that the manager may perform on this information and the notifications that are sent from the agent to the manager.

To ensure the availability and reliability of the management, an automatic surveillance of the communication between NM and the managed system are required. Communication Surveillance IRP (CSIRP) is defined as a capability to achieve this goal.

1 Scope

The present document describes the requirements of the Communication Surveillance IRP (CSIRP).

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] ITU-T Recommendation X.734: "Information technology - Open Systems Interconnection - Systems Management: Event report management function".

[4] 3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

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 the following apply:

Communication Surveillance (CS): capability to monitor the communication between NM and managed system and to discover their breaks as early as possible

Communication Link: facility, which supports the communication between NM and IRPAgent(s) in managed system, including all the resources required for this communication

Notification Distribution Service: in managed system, provides notification controlling and forwarding functions ITU-T Recommendation X.734 [3]

Element Manager (EM): See 3GPP TS 32.101 [1].

IRPAgent: See 3GPP TS 32.102 [2].

IRPManager: See 3GPP TS 32.102 [2].

Network Manager (NM): See 3GPP TS 32.101 [1].

managed system: provides a package of IRPs, these IRPs include Notification IRP (notification distribution service) and other IRPs

3.2 Abbreviations

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

CS	Communication Surveillance
CSIRP	Communication Surveillance Integration Reference Point
EM	Element Manager
IRP	Integration Reference Point
NE	Network Element
NM	Network Manager

4 Communication Surveillance (CS) requirements

4.1 General

The communication between NM and Managed System (NE or EM) shall be monitored, and link breaks between NM and Managed System (NE or EM) shall be discovered by NM as early as possible.

In the CS context, the NM contains one or more IRPManagers.

Figure 1 illustrates the major components in the CS context.

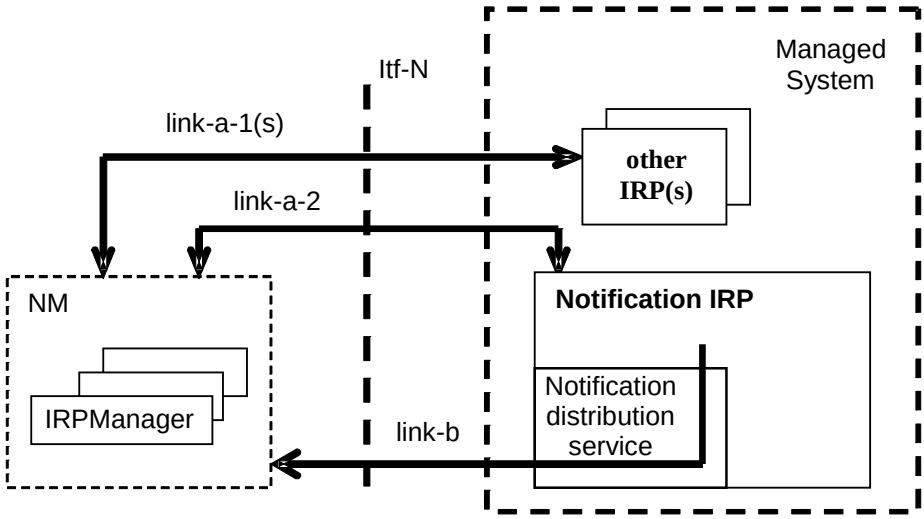

Figure 1: Communication surveillance context

Referring to figure 1, the scope of CS involves the monitoring of the communication between NM entity and EM (or NE) entity at application level. At this application level, there are three parts involved, which are NM, Managed System and the Communication Link(s) between them. From NM side, to monitor the communication, is to know whether the other entity and/or the Communication Link(s) between them are functioning correctly. The behaviour of the IRPManager, after detection of communication failure, is outside the scope of this standardization.

NM can detect whether link-a-1 or link-a-2 is functioning correctly by observing the operation responses. (e.g. invoking `getIRPVersions` operation against one xxxIRP.) The link-a-1 and link-a-2 are links used by the IRPManager and the various xxxIRPs to execute 3GPP Interface IRP defined operations (i.e., operation request and direct response to that request). The receipt of a response corresponding to a manager's operations via link-a-1 or link-a-2 implies that the particular link has correctly conveyed the request and delivered the response at the exact point in time the response was received.

The Managed System shall provide a service allowing NM to detect promptly whether link-b (including Notification Distribution Service) and NotificationIRP defined in 3GPP TS 32.302 [4] are functioning correctly regarding notification sending. The detection of a heartbeat via link-b implies that the notification distribution service is able to send notifications, and that the link-b is able to deliver notifications at exactly that point in time.

For detection of link-a-1 and link-a-2 failure, no solution is required as existing capability are sufficient.

The features to detect the correct functioning of link-b and notification distribution service are described in subclause 4.2.

4.2 CS Management features

The Itf-N between IRPManagers (of the NM) and managed system can include the following CS Management features.

4.2.1 CS features from NM perspective

4.2.1.1 Query CS information

This feature allows the NM to query the CS information from the managed system. NM can query information of CS, including:

- Frequency of emission of CS notifications.

4.2.1.2 Modify CS information

This feature allows the NM to modify the CS information from the managed system, including:

- Frequency of emission of CS notifications.
- Starting and stopping of Communication Surveillance notifications.

4.2.1.3 Emission of CS notifications

This feature allows the managed system to send CS notifications to the NM.

Managed system will emit CS notifications to NM according to the specified frequency.

4.2.1.4 Trigger CS notification

The frequency of emission of CS notifications may not be short for payload consideration. In case NM suspects the link breaks before receiving next CS notifications and needs to make decision at once, this complementary feature allows NM to ask managed system to send CS notifications to the triggering NM immediately.

The triggered CS notification should be emitted only to the triggering NM. In this CS notification, additional description will be given to help NM distinguish it from spontaneous (or scheduled) CS notifications described in subclause 4.2.1.3. This feature has no impact on the spontaneous (or scheduled) CS heartbeat notification feature.

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Dec 2003	S_22	SP-030632	--	--	Submitted to TSG SA#22 for Information	1.0.0	
Mar 2004	S_23	SP-040125	--	--	Submitted to TSG SA#23 for Approval	2.0.0	6.0.0
Jun 2007	SA_36	--	--	--	Automatic upgrade to Rel-7 (no CR) at freeze of Rel-7. Deleted reference to CMIP SS, discontinued from R7 onwards.	6.0.0	7.0.0
Jul 2007					Correction to history table.	7.0.0	7.0.1
Dec 2008	SA_42	--	--	--	Upgrade to Release 8	7.0.1	8.0.0
Dec 2009	-	-	-	-	Update to Rel-9 version (MCC)	8.0.0	9.0.0
Mar 2011	-	-	-	-	Update to Rel-10 version (MCC)	9.0.0	10.0.0

History

Document history		
V10.0.0	April 2011	Publication