ETSI TS 132 361 V13.0.0 (2016-02)

TECHNICAL SPECIFICATION

**Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Entry Point (EP) Integration Reference Point (IRP);
Requirements
(3GPP TS 32.361 version 13.0.0 Release 13)**

Reference
RTS/TSGS-0532361vd00

Keywords
GSM,LTE,UMTS

ETSI

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Contents

Foreword

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

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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:

32.361:   **"Entry Point (EP) Integration Reference Point (IRP): Requirements"**

32.362:   "Entry Point (EP) Integration Reference Point (IRP): Information Service (IS)"

32.366:   "Entry Point (EP) Integration Reference Point (IRP); Solution Set (SS) definitions"

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. EPIRP is one of these IRPs with special function.

It is difficult for an NM to discover all IRPs in the environment where there are several managed systems and/or if there are multiple IRPs related to each managed system. This Entry Point is proposed to provide a convenient mechanism for NM to discover the managed systems and their related IRPs.

1 Scope

The present document describes the requirements of the EPIRP.

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 32.111-1: "Telecommunication management; Fault management; Part 1: 3G fault management requirements".

[4]   3GPP TS 32.601: " Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP): Requirements".

[5]   3GPP TS 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

Entry Point (EP): access point between NM and the managed systems and provides the way for NM to discover the References of IRPs in the managed systems

Reference: defines the IRP network management service access point. The IRPManagers connect to this IRP Reference in order to request and obtain the network management services (provided by that IRP). The implementation of IRP Reference is technology dependent. For example, in CMIP, this is the address of the CMIP IRPAgent and application context of the CMIP IRP. In CORBA, this is the IOR of the IRP contained by the IRPAgent.

Version negotiation: when the managed system supports more than one IRP versions, there is a mechanism for NM to select the needed IRP version, and invoke the most appropriate management operations

3.2 Abbreviations

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

CM	Configuration Management
CORBA	Common Object Request Broker Architecture
DN	Distinguished Name
EP	Entry Point
EPIRP	Entry Point IRP
EM	Element Manager
EP	Entry Point
IOC	Information Object Class
IOR	(CORBA) Interoperable Object Reference
IRP	Integration Reference Point
NE	Network Element
NM	Network Manager
NRM	Network Resource Model
PM	Performance Management

4 Entry Point concept and requirements

In the 3GPP Release 5 specifications and earlier Releases, the IRPs (such as the Basic CM IRP Requirements in 3GPP TS 32.601 [4], the fault management requirements in 3GPP TS 32.111-1 [3], etc.) are defined for specific management domains and are all published. 3GPP specifications do not provide standard mechanism for NM to discover the References of the IRPs in the managed systems. The discovery is a vendor-specific matter.

In a large network, multiple IRPs, providing different network management domains services exist. Multiple IRPs providing the same network management services (e.g. fault management) but of different management scope may exist (e.g. one AlarmIRP managing the eastern region while another AlarmIRP manages the western region). It's difficult and fallible for an NM to discover all of them. The matter is further complicated in a multi-vendor environment where each vendor provides different way for NM to discover the References of its IRPAgent and related IRPs.

A management service, allowing the NM to discover the References, in a standard way would eliminate the NM's difficulties mentioned above. The Entry Point is the name of such management service.

Entry Point provides the following:

1. It allows NM to discover outline information of IRPs, including the DN of IRPs and the supported IRPVersions and their scope of management (e.g. the set of network resources that it is responsible for) in the managed systems.

2. It supports NM to obtain the References of the IRPs of specific IRPVersion by means of the IRPManager inputting the DN of the IRP which supports the IRPVersion number it needs. Entry Point allows NM to indicate to the managed system the References it will not use again. Whether the managed system should release them or not is outside the scope of this specification.

A notification shall be supported for keeping IRPManager timely informed about the changes of Entry Point contents, e.g. latest IRPAgent register information or latest IRPAgent deregister information or their scope of management stored in EPIRP at run time.

The EPIRP provides the References of various IRPs to the IRPManager at run time. That interaction, to be standardised by this IRP specification, is shown as the arrow from EPIRP to IRPManager in the Figure 1. Using the provided Reference, say the Reference to PMIRP, the IRPManager invokes operations to access the PM domain specific management services.

The context diagram figure 1 does not show the IRPAgent(s) and their containment relations with IRPs. There can be a single or multiple IRPAgents. Each IRPAgent can contain one or more IRPs.

An EPIRP is contained by an IRPAgent. This containing IRPAgent may or may not contain other instances of other IRPs such as AlarmIRP. This is the choice of the vendor producing such product.

The IRPAgent containment relation, with respect to other IOCs such as SubNetwork, is defined by the Generic NRM IRP in 3GPP TS 32.622 [5]. This containment relation has no relation to the EPIRP knowledge regarding IRP

References. To say it in another way, the EPIRP knowledge about IRP References has no relationship to its Distinguished Name. An EPIRP, named under one IRPAgent instance can have knowledge of IRP References of IRPs named under other IRPAgent instances. An EPIRP, named under one particular SubNetwork instance can have knowledge of IRP References of IRPs under other SubNetwork instances. This is the choice of the vendor producing such product. See annex A for example figures to show EPIRP knowledge.

All the IRP References provided by one vendor's product should be found in at least in one of the EPIRPs implemented by that vendor, but not necessarily all IRP References in one EPIRP. Each vendor should minimize the number of EPIRPs for the support of all their IRP References.

How EPIRP is made aware of IRP References are outside the scope of standardization.
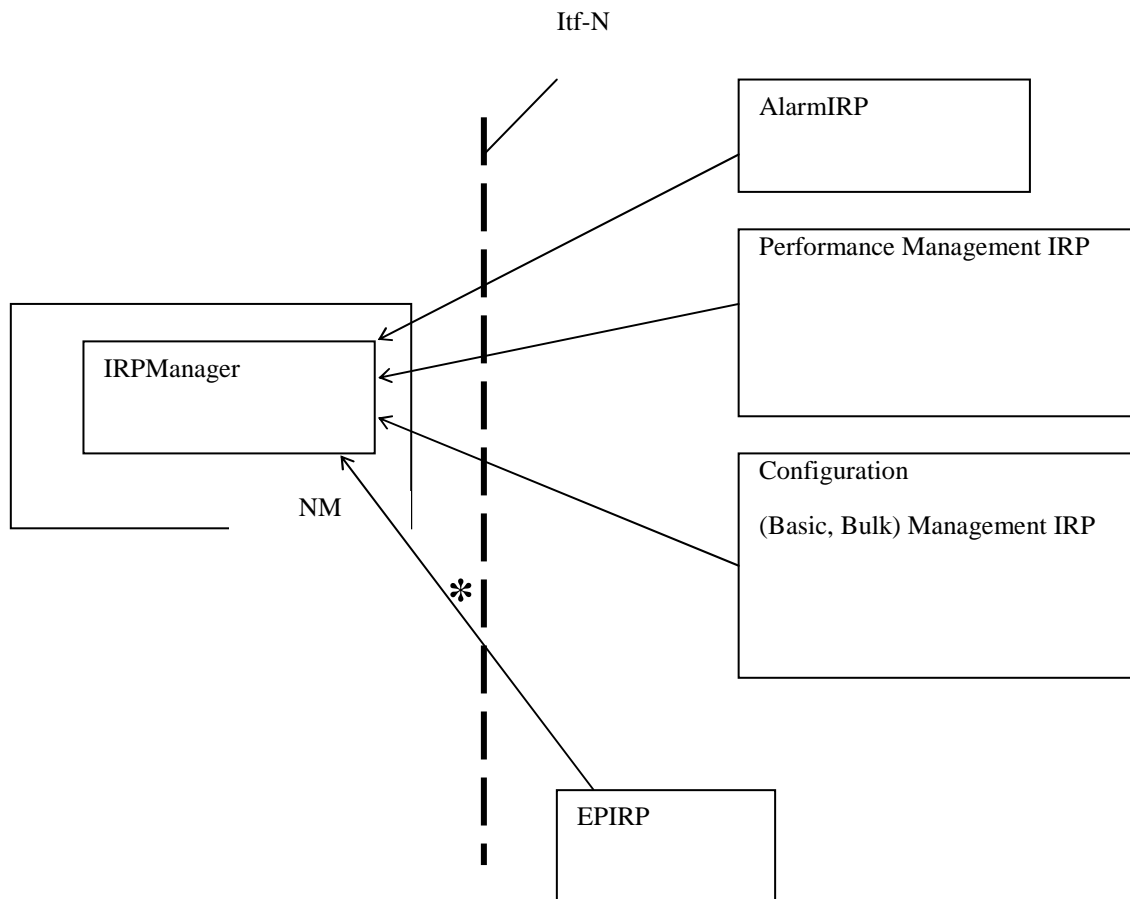
NOTE: The '*' depicts the IRP Reference returned by EPIRP. See Reference definition.

Figure 1: EPIRP context

5 Itf-N interface

5.1 Entry point

5.1.1 Access point

Before IRPManager can interact with an IRP to obtain network management services, say AlarmIRP, it must know the IRP's Reference.

Without the EPIRP, the IRPManager shall get information about these IRP References in a vendor-specific way.

With the EPIRP, the IRPManager can discover these IRP References using the EPIRP defined protocol.

Before the IRPManager can interact with the EPIRP, it must know the EPIRP Reference. How the IRPManager acquire this knowledge is outside the scope of this specification.

5.1.2 Version negotiation

The version of IRPs may be updated for some appropriate reasons. Version negotiation means that when a managed system supports several versions of one IRP, there is a mechanism for NM to select the needed IRP version, and invoke the most appropriate management operations.

In order to support version negotiation, the procedure for NM to achieve IRP References can be divided into two steps. First, the managed system provides the outline information of the IRPs it supports, including DNs of the IRPs, versions of IRPs and their scope of management. Second, the NM obtains the Reference of the IRP of specific version by inputting the DN of the IRP which supports the version number it needs.

5.1.3 Changes indication

When the References or their scope of management of IRPs contained in IRPAgent changed (create, delete or modified), the relative information shall be reflected in EPIRP.

In addition, a notification shall be supported for keeping IRPManager timely informed about the changes of Entry Point contents, e.g. latest IRPAgent register information (e.g. IRP Reference) or latest IRPAgent deregister information or their scope of management stored in EPIRP at run time.
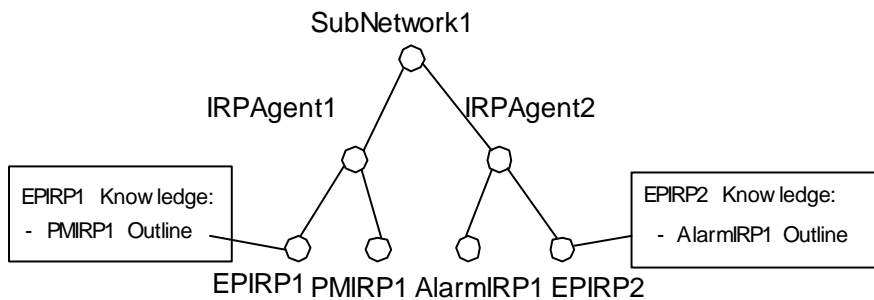
5.1.4 Security

As an access point between NM and managed system, Entry Point needs security guarantee on its access and the EP contents.
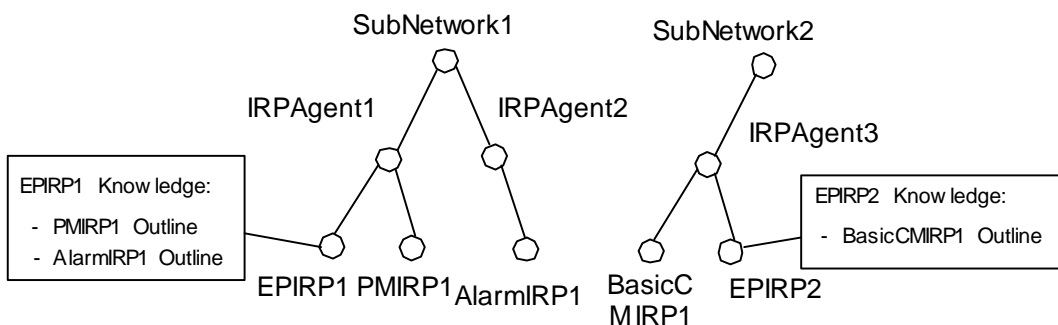
Editor's note: Other requirements to be added (FFS).

Annex A (informative):
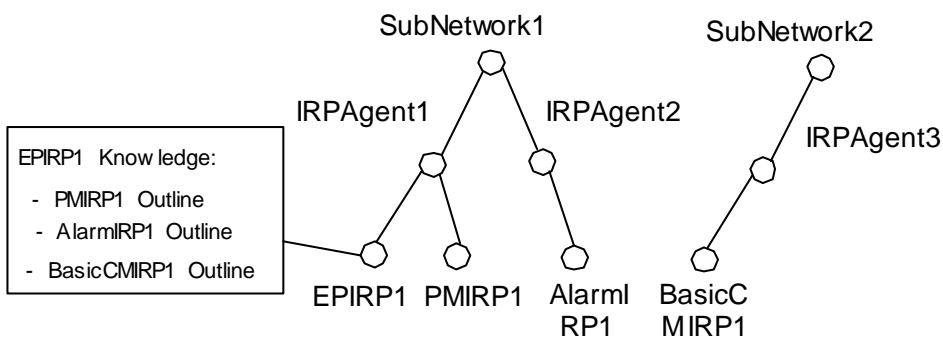# EPIRP knowledge

Figures A.1 to A.3 give the possible solutions to show EPIRP knowledge about all the products of one vendor.

Figure A.1: EPIRP knowledge 1

Figure A.2: EPIRP knowledge 2

Figure A.3: EPIRP knowledge 3

Annex B (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Sep 2003	SA_21	SP-030423	--	--	Submitted to TSG SA#21 for Information	1.0.0	
Dec 2003	SA_22	SP-030634	--	--	Submitted to TSG SA#22 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
Mar 2009	SA_43	SP-090207	001	--	Include reference to SOAP Solution Set specification	7.0.0	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
2012-09	-	-	-	-	Update to Rel-11 version (MCC)	10.0.0	**11.0.0**
2014-10	-	-	-	-	Update to Rel-12 version (MCC)	11.0.0	**12.0.0**
2016-01	-	-	-	-	Update to Rel-13 version (MCC)	12.0.0	**13.0.0**

History

Document history		
V13.0.0	February 2016	Publication