ETSI TS 132 572 V12.0.0 (2014-10)

Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Home Node B (HNB) and Home eNode B (HeNB) management;
Type 2 interface models and mapping functions
(3GPP TS 32.572 version 12.0.0 Release 12)

Reference
RTS/TSGS-0532572vc00

Keywords
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

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- 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:

32.571 "Telecommunication management; Home Node B (HNB) and Home eNode B (HeNB) management; Type 2 interface concepts and requirements"

32.572: "Telecommunication management; Home Node B (HNB) and Home eNode B (HeNB) management; Type 2 interface models and mapping functions"

1 Scope

The present document describes requirements and concepts including architecture supporting Home NB and Home eNB OAM&P for interface Type 2.

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 32.622: "Generic network resources Integration Reference Point (IRP); Network Resource Model (NRM)".

[5] 3GPP TS 32.583 Procedure flows for Type 1 interface HNB to HMS

[6] 3GPP TS 32.602 Basic CM Integration Reference Point (IRP); Information Service (IS)

[7] 3GPP TS 32.602 Bulk CM Integration Reference Point (IRP); Information Service (IS)

[8] 3GPP TS 32.593 Procedure flows for Type 1 interface HeNB to HeNB Management System

[9] 3GPP TS 32.584 XML definitions for Type 1 interface HNB to HNB Management System

[10] 3GPP TS 32.594 XML definitions for Type 1 interface HeNB to HeNB Management System

[11] 3GPP TS 32.111-2: “Telecommunication management; Fault Management; Part 2: Alarm Integration Reference Point (IRP): Information Service (IS)”

[12] 3GPP TS 32.582: “Telecommunications management; Home Node B (HNB) Operations, Administration, Maintenance and Provisioning (OAM&P); Information model for Type 1 interface HNB to HNB Management System (HMS)".

[13] 3GPP TS 32.342 File Transfer (FT) Integration Reference Point (IRP): Information Service (IS)

[14] 3GPP TS 32.772 Home Node B Subsystem (HNS); Network Resource Model (NRM); Integration Reference Point (IRP); Information Service (IS).

[15] 3GPP TS 32.150 Integration Reference Point(IRP) Concept and definitions

3 Definitions and abbreviations

For the purposes of this document, the terms and definitions given in TS 21.905 [1], TS 32.101 [2] and TS 32.102 [3] and in the following sub-clause 3.1 apply. Same term may be defined in different documents. The precedence rule, applicable to this document, is in the order of: this document, TS 32.101 [2], TS 32.102 [3], TS 21.905 [1].

3.1 Definitions

There is no additional definition defined in this subclause.

3.2 Abbreviations

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

FT	File Transfer
HNB	Home Node B
HeNB	Home eNode B
HMS	HNB Management System
HeMS	HeNB Management System
HNS	Home Node B Subsystem
IOCs	Information Object Classes
IRP	Integration Reference Point
NRM	Network Resource Model

4 Basic Aspects

4.1 General

4.2 System context

The general definition of the System Context for the present IRP is found in 3GPP TS 32.150 [15] subclause 4.7. Only System Context A applies to this document. In addition, the IRP(s) relevant to the present document are shown.

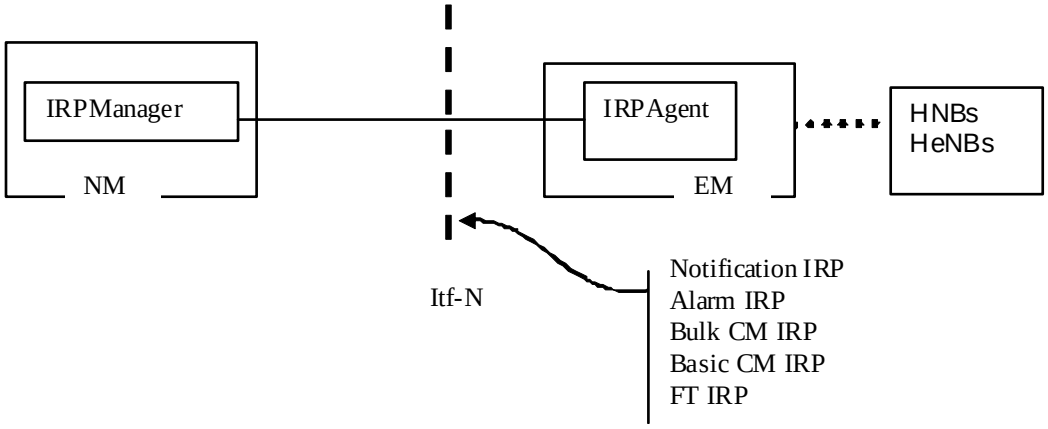


Figure 1: System Context

5 Information Object Classes

This specification does not define its own classes. It uses those defined in Home Node B Subsystem (HNS) [14].

6 Interface Definition

This document does not define its own Interface definition. It re-uses Alarm IRP [11], FT IRP [13], Basic CM IRP [6] and Bulk CM IRP [7].

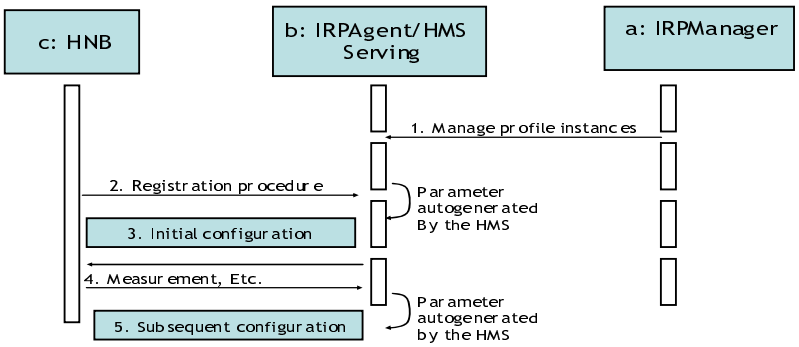
7 Mapping Function

7.1 General

7.2 Configuration management

7.2.1 HNB provisioning support (O)

This subclause applies to HNB case.



IRPManager needs to create an `HNBProfile` instance. Before doing so, IRPManager

a) Creates a dataset holding information that will be referred to by the to-be-created `HNBProfile.configuration`. IRPManager names this dataset using the File Naming Convention of Annex A of [13]. The file name shall contain the specificIRP_extension field which is set to "HNB". The file schema is defined in subclause 4.2.2 of [9].

b) Prepares the value of the attribute `criterion` and attribute `userLabel` of the to-be-created `HNBProfile`.

c) Creates the `HNBProfile` instance using Basic CM IRP IS `createMO` of [6] or using Bulk CM IRP IS `BulkCmCreateMo (Create MO Sub-operation)` of [7]..

In case Basic CM IRP is used for the instance creation, IRPManager reception of:

- A `createMO` positive response or a `notifyObjectCreation` means:
  - The instance has been created successfully;
- A `createMO` negative response means:
  - The instance has not been created and the response can include the failure reason.

In case Bulk CM IRP is used for the instance creation, IRPManager reception of:

- A `notifyObjectCreation` means:
  - The instance has been created successfully;

It is noted that in case Bulk CM IRP is used for the instance creation, the BulkCMIRP can record the outcome of the instance creation attempt in the session log. The IRPManager can obtain the session log (see clause 7.3.6 of [7]) if it wants to determine if the instance is created successfully or not.

The above description is part of interaction 1.

IRPManager should not remove the dataset referred to by `HNBProfile.configuration` as long as the `HNBProfile` instance exists. This is because an IRPAgent may not make a local copy of the dataset during `HNBProfile` instance creation and therefore needs to read the dataset during the HNB registration.

IRPManager should not modify the dataset referred to by `HNBProfile.configuration` as long as the `HNBProfile` instance exists. This is to guarantee an IRPAgent behaviour that is independent of the IRPAgent implemention choices, such as:

1. IRPAgent creates its local copy of the dataset when the `HNBProfile` is in existence and uses the local copy during HNB registration;
2. IRPAgent does not make a local copy of the dataset but reads the dataset during HNB registration.

Interaction 2 is the interactions 5.1, 5.2, 5.3, 5.4, 5.3-bis and 5.4-bis of Clause 5.2.1 of [5].

Via interaction 5.1 (see Clause 5.2.1 of [5]), HNB informs IRPAgent- Serving HMS of the HNB location, the HNB ID, etc, called (in the context of this document) the registration information.

IRPAgent- Serving HMS identifies a stored `HNBProfile.criterion` that corresponds to the registration information. It then identifies the corresponding `HNBProfile.configuration.`

In case IRPAgent- Serving HMS identifies more than one stored `HNBProfile.criterion` that corresponds to the registration information. It then identifies the corresponding `HNBProfile.configuration,` IRPAgent- Serving HMS would decide which `HNBProfile.configuration` would be used.

Via interaction 5.3 or 5.4-bis (see Clause 5.2.1 of [5]), IRPAgent – Serving HMS configures the HNB using the identified `HNBProfile.configuration`.

7.2.2 HeNB provisioning support (O)

This subclause applies to HeNB case.

This subclause is identical to 7.2.1 except:

- 'HNB' is replaced by 'HeNB'
- 'HMS' is replaced by 'HeMS'
- References [5] and [9] are replaced by [8] and [10].

7.3 Fault management

7.3.1 Handling of "Expedited handling" and "Queued handling" alarms

HNB raises alarms of various categories, two of which are called "Expedited handling" and "Queued handling". HNB uses TR-069 RPC Methods to send the "Expedited handling" and "Queue handling" categories of alarms (see Clause 6.2.4 of [12]). HNB does not use TR-069 RPC Methods to send other categories of alarms.

On reception of the HNB alarms sent by TR-069 RPC Methods, the mapping function (F) shall process the alarm and decide if

a) There exists no AlarmInformation [11] in AlarmList [11] corresponding to the newly received alarm or

b) There exists an AlarmInformation in AlarmList corresponding to the newly received alarm. There is a difference in value of perceivedSeverity of the newly received alarm and that of the corresponding AlarmInformation and the former value is not Cleared.

c) There exists an AlarmInformation in AlarmList corresponding to the newly received alarm. There is a difference in value of perceivedSeverity of the newly received alarm and that of the corresponding AlarmInformation and the former value is Cleared.

In case of a), a new AlarmInformation is added in the AlarmList. The IRPManager, who has a subscription with NotificationIRP, is notified via notifyNewAlarm if the added AlarmInformation satisfies the subscription filter constraint.

In case of b), the corresponding AlarmInformation perceivedSeverity is changed. The IRPManager, who has a subscription with NotificationIRP, is notified via notifyChangedAlarm if the subject AlarmInformation satisfies the subscription filter constraint.

In case of c), the corresponding AlarmInformation is removed from the AlarmList if it has been acknowledged; else its perceivedSeverity is changed to Cleared. The IRPManager, who has a subscription with NotificationIRP, is notified via notifyClearedAlarm if the subject AlarmInformation satisfies the subscription filter constraint.

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
2010-03	SA#47	SP-100056	--	--	Presentation to SA for information and approval	--	1.0.0
2010-03	--	--	--	--	Publication of SA approved version	1.0.0	9.0.0
2011-03	-	-	-	-	Update to Rel-10 version (MCC)	9.0.0	10.0.0
2011-06	SP#52	SP-110286	001	--	Modify errors in reference and related paragraphs	10.0.0	11.0.0
2014-10	-	-	-	-	Update to Rel-12 version (MCC)	11.0.0	**12.0.0**

History

Document history		
V12.0.0	October 2014	Publication