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TECHNICAL SPECIFICATION

**Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Wireless Local Area Network (WLAN)
Network Resource Model (NRM)
Integration Reference Point (IRP);
Information Service (IS)
(3GPP TS 28.682 version 14.0.0 Release 14)**

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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:

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 28.680: Telecommunication management; Wireless Local Area Network (WLAN) management; Concepts and requirements

TS 28.681: Telecommunication management; Wireless Local Area Network (WLAN) Network Resource Model (NRM) Integration Reference Point (IRP); Requirements

TS 28.682: Telecommunication management; Wireless Local Area Network (WLAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)

TS 28.683: Telecommunication management; Wireless Local Area Network (WLAN) Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions

1 Scope

The present document is part of an Integration Reference Point (IRP) named Wireless Local Area Networks (WLAN) Management Network Resource Model (NRM) IRP, through which an IRPAgent can communicate management information to one or several IRPManagers concerning WLAN management. The WLAN management NRM IRP comprises a set of specifications defining Requirements, a protocol neutral Information Service and one or more Solution Set(s).

The present document specifies the protocol neutral WLAN management NRM IRP: Information Service (IS).

The present document also contains stage 2 descriptions for those functionalities for the WLAN Management.

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 28.622: "Telecommunication management; Generic Network Resource Model (NRMs) Integration Reference Point (IRP): Information Service" (IS)".

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

[4]   IEEE 802.11™-2012: "IEEE Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".

[5]   3GPP TS 28.632: "Telecommunication management; Inventory Management (IM) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[6]   3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".

[7]   3GPP TS 32.102: "Telecommunication management; Architecture".

[8]   3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions".

3 Definitions abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1], 3GPP TS 32.101 [6], 3GPP TS 32.102 [7], and 3GPP TS 32.150 [8] apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

|	
AP	Access Point
IOC	Information Object Class
IRP	Integration Reference Point
NRM	Network Resource Model
PLMN	Public Land Mobile Network
UML	Unified Modelling Language
WLAN	Wireless Local Area Network

4 Model

4.1 Imported information entities and local labels

Label reference	Local label
3GPP TS 28.622 [2], IOC, `ManagedElement`	`ManagedElement`
3GPP TS 28.622 [2], IOC, `ManagedFunction`	`ManagedFunction`

.

4.2 Class diagram

4.2.1 Relationships

This clause depicts the set of classes (e.g. IOCs) that encapsulates the information relevant for this IRP. This clause provides an overview of the relationships between relevant classes in UML. Subsequent clauses provide more detailed specification of various aspects of these classes. Figure 4.2.1-1 shows the containment/naming hierarchy and the associations of the classes defined in the present document.
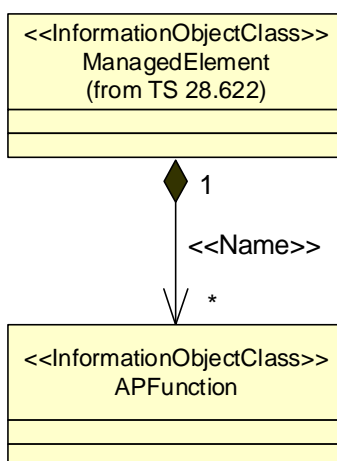
Figure 4.2.1-1 WLAN NRM Containment/Naming

NOTE: WLAN NRM may need to be updated, if the WLAN access point is to be part of PLMN.

4.2.2 Inheritance

This clause depicts the inheritance relationships that exist between information object classes. Figure 4.2.2-1 shows the inheritance diagram of WLAN NRM.
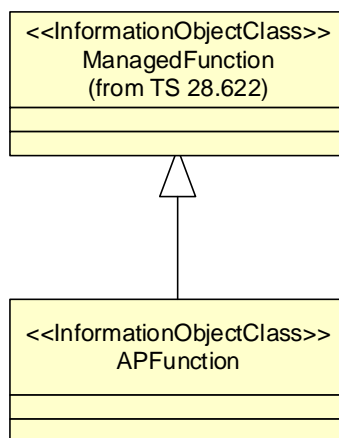

Figure 4.2.2-1 WLAN NRM Inheritance Hierarchy

4.3 Class definitions

4.3.1 `APFunction`

4.3.1.1 Definition

This class represents the functionality of wireless Access Point as defined in IEEE 802.11 [4].

The `APFunction` IOC instance is not visible to Basic CM IRPManager, Bulk CM IRPManager and Kernel CM IRPManager.

The `ManagedElement` IOC instance (TS 28.622 [2]) name-containing the `APFunction` IOC instance is not visible to Basic CM IRPManager, Bulk CM IRPManager and Kernel CM IRPManager in case all the instances directly name-contained by this `ManagedElement` IOC instance (TS 28.622 [2]) are of `APFunction` IOC.

The `InventoryUnit` IOC instance (TS 28.632 [5]), name-contained by the `ManagedElement` IOC instance (TS 28.622 [2]) that name-contains the `APFunction` IOC instance, is not visible to Basic CM IRPManager, Bulk CM IRPManager and Kernel CM IRPManager in case all the instances directly name-contained by this `ManagedElement` IOC instance (TS 28.622 [2]) are of `APFunction` IOC or InventoryUnit IOC.

The following are examples of cases describing the conditions where IOC instance(s) are not visible to Basic CM IRPManager, Bulk CM IRPManager and Kernel CM IRPManager:

Case 1) if `ManagedElement-1` name-contains only two instances: `APFunction-A` and `APFunction-B`, the three instances are not visible.

Case 2) if `ManagedElement-1` name-contains only two instances: `APFunction-A` and `MMEFunction-76`, the `APFunction-A` is not visible.

Case 3) if `ManagedElement-1` name-contains only two instances: `APFunction-A` and `InventoryUnit-7883` (TS 28.632 [5]), the three instances are not visible.

4.3.1.2 Attributes

None

## 4.3.1.3	Notifications

The set of notifications defined in the following table is valid.

Name	Qualifier	Notes
notifyAckStateChanged	See Alarm IRP (3GPP TS 32.111-2 [3])	
notifyChangedAlarm	See Alarm IRP (3GPP TS 32.111-2 [3])	
notifyClearedAlarm	See Alarm IRP (3GPP TS 32.111-2 [3])	
notifyNewAlarm	See Alarm IRP (3GPP TS 32.111-2 [3])	
notifyComments	See Alarm IRP (3GPP TS 32.111-2 [3])	
notifyAlarmListRebuilt	See Alarm IRP (3GPP TS 32.111-2 [3])	
notifyPotentialFaultyAlarmList	See Alarm IRP (3GPP TS 32.111-2 [3])	

Annex A (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
2015-12	SA-70	SP-150687			Presented for approval	1.2.0	2.0.0
					Upgrade to Release 13	2.0.0	13.0.0
2016-03	SA-71	SP-160033	001	1	Clarification for APFunction visibility	13.0.0	13.1.0

Change history							
Date	**Meeting**	**TDoc**	**CR**	**Rev**	**Cat**	**Subject/Comment**	**New version**
2017-03	SA#75					Promotion to Release 14 without technical change	14.0.0

History

Document history		
V14.0.0	April 2017	Publication