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TECHNICAL SPECIFICATION

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Evolved Universal Terrestrial
Radio Access Network (E-UTRAN)
Network Resource Model (NRM)
Integration Reference Point (IRP);
Solution Set (SS) definitions
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Contents

Foreword

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

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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 28.657 Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP); Requirements.

TS 28.658 Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS).

TS 28.659 Evolved Universal Terrestrial Radio Access Network (E-UTRAN) 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 E-UTRAN Network Resource Model (NRM) IRP, through which an `IRPAgent` can communicate configuration management information to one or several `IRPManagers` concerning E-UTRAN resources. The E-UTRAN 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 Solution Sets for the E-UTRAN NRM IRP.

This Solution Set specification is related to 3GPP TS 28.658 V15. 5.X [4].

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 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 32.153: "Telecommunication management; Integration Reference Point (IRP) technology specific templates, rules and guidelines".

[3] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".

[4] 3GPP TS 28.658: "Telecommunications management; Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)".

[5] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

[6] 3GPP TS 32.606: "Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP); Solution Set (SS) definitions".

[7] 3GPP TS 32.616: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP); Solution Set (SS) definitions".

[8] 3GPP TS 28.623: "Generic network resources Integration Reference Point (IRP); Solution Set (SS) definition".

[9] W3C REC-xml11-20060816: "Extensible Markup Language (XML) 1.1 (Second Edition)".

[10] W3C XML Schema Definition Language (XSD) 1.1 Part 1: Structures.

[11] W3C XML Schema Definition Language (XSD) 1.1 Part 2: Datatypes.

[12] W3C REC-xml-names-20060816: "Namespaces in XML 1.1 (Second Edition)".

[13] 3GPP TS 28.541: " Management and orchestration of 5G networks; Network Resource Model (NRM); Stage 2 and stage 3".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1], TS 32.600 [3] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

XML file: See definition of [8].

XML document: See definition of [8].

XML declaration: See definition of [8].

XML element: See definition of [8].

empty XML element: See definition of [8].

XML content (of an XML element): See definition of [8].

XML start-tag: See definition of [8].

XML end-tag: See definition of [8].

XML empty-element tag: See definition of [8].

XML attribute specification: See definition of [8].

DTD: See definition of [8].

XML schema: See definition of [8].

XML namespace: See definition of [8].

XML complex type: See definition of [8].

XML element type: See definition of [8].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1], TS 32.600 [3], and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

CM	Configuration Management
CORBA	Common Object Request Broker Architecture
DN	Distinguished Name
DTD	Document Type Definition
EDGE	Enhanced Data for GSM Evolution
GERAN	GSM/EDGE Radio Access Network
GSM	Global System for Mobile communication
IS	Information Service
IDL	Interface Definition Language (OMG)
IOC	Information Object Class
IRP	Integration Reference Point
IS	Information Service
MO	Managed Object
MOC	Managed Object Class
NRM	Network Resource Model
OMG	Object Management Group
SS	Solution Set
UMTS	Universal Mobile Telecommunications System

UTRAN	Universal Terrestrial Radio Access Network
XML	eXtensible Markup Language
XSD	XML Schema Definition

4 Solution Set Definitions

This specification defines the following 3GPP E-UTRAN NRM IRP Solution Set Definitions:

- 3GPP E-UTRAN NRM IRP CORBA SS (Annex A).
- 3GPP E-UTRAN NRM IRP XML Definitions (Annex B).

Annex A (normative): CORBA Solution Set

A.0 General

This annex contains the CORBA Solution Set for the IRP whose semantics is specified in E-UTRAN NRM IRP: Information Service (TS 28.658 [4]).

A.1 Architectural features

The overall architectural feature of E-UTRAN Network Resources IRP is specified in 3GPP TS 28.658 [4]. This clause specifies features that are specific to the CORBA SS.

A.1.1 Syntax for Distinguished Names

See clause A.1.1 of [8].

A.1.2 Rules for NRM extensions

See clause A.1.2 of [8].

A.1.2.1 Allowed extensions

See clause A.2.1 of [8].

A.1.2.2 Extensions not allowed

See clause A.2.1 of [8].

A.2 Mapping

A.2.1 General mapping

See clause A.2.1 of [8].

A.2.2 Information Object Class (IOC) mapping

A.2.2.1 IOC ENBFunction

Mapping from NRM IOC ENBFunction attributes and associations to SS equivalent MOC ENBFunction attributes

IS Attributes	SS Attributes	SS Type
eNBId	eNBId	unsignedLong
intraANRSwitch	intraANRSwitch	boolean
iRATANRSwitch	iRATANRSwitch	boolean
x2BlackList	x2BlackList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet
x2WhiteList	x2WhiteList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet
x2HOBlackList	x2HOBlackList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet
x2IpAddressList	x2IpAddressList	genericEUTRANNRMAttributeTypes::ipAddressListType
tceIDMappingInfoList	tceIDMappingInfoList	genericEUTRANNRMAttributeTypes::TceIDMappingInfoListType
sharNetTceMappingInfoList	sharNetTceMappingInfoList	genericEUTRANNRMAttributeTypes::SharNetTceMappingInfo
netListeningRSForRIBS	netListeningRSForRIBS	genericEUTRANNRMAttributeTypes::NetListeningRSForRIBS
NOTE: For all conditional qualifiers, see attribute constraints in 28.658 [4]		

A.2.2.2 IOC EUtranGenericCell

Mapping from NRM IOC EUtranGenericCell attributes and associations to SS equivalent MOC EUtranGenericCell attributes

IS Attributes	SS Attributes	SS Type
cellLocalId	cellLocalId	unsignedShort
cellLocalIdList	cellLocalIdList	genericEUTRANNRMAttributeTypes:: cellLocalIdListType
cellSize	cellSize	genericEUTRANNRMAttributeTypes:: cellSizeEnumType
plmnIdList	plmnIdList Note: the first plmnId in the SS attribute plmnIdList is the primary PLMN id	genericEUTRANNRMAttributeTypes:: plmnIdListType
cellAccessInfoList	cellAccessInfoList	genericEUTRANNRMAttributeTypes:: cellAccessInfoListType
tac	tac	long
pci	pci	short
pciList	pciList	genericEUTRANNRMAttributeTypes:: pciListType
maximumTransmissionPower	maximumTransmissionPower	short
referenceSignalPower	referenceSignalPower	short
pb	pb	short
partOfSectorPower	partOfSectorPower	short
relatedTmaList	relatedTmaList	GenericNetworkResourcesIRPSystem:: AttributeTypes::MOReferenceSet
relatedAntennaList	relatedAntennaList	GenericNetworkResourcesIRPSystem:: AttributeTypes::MOReferenceSet
relatedSector	relatedSector	GenericNetworkResourcesIRPSystem:: AttributeTypes::MOReference
operationalState	operationalState	StateManagementIRPOptConstDefs:: OperationalStateTypeOpt
administrativeState	administrativeState	StateManagementIRPOptConstDefs:: AdministrativeStateTypeOpt
availabilityStatus	availabilityStatus	StateManagementIRPOptConstDefs:: AvailabilityStatusTypeOpt
cellResvInfo	cellResvInfo	genericEUTRANNRMAttributeTypes:: cellResvInfoType
nbIoTcellFlag	nbIoTcellFlag	genericEUTRANNRMAttributeTypes:: yesNoType
allowedAccessClasses	allowedAccessClasses	genericEUTRANNRMAttributeTypes:: allowedAccessEnumClassesType
isChangeForEnergySavingAllowed	isChangeForEnergySavingAllowed	GenericNetworkResourcesIRPSystem:: AttributeTypes::yesNoType
Note: For all conditional qualifiers, see attribute constraints in 28.658 [4]		

A.2.2.3 IOC ExternalEUtranGenericCell

Mapping from NRM IOC ExternalEUtranGenericCell attributes and associations to SS equivalent MOC ExternalEUtranGenericCell attributes

IS Attributes	SS Attributes	SS Type
pci	pci	short
plmnIdList	plmnIdList Note: the first plmnId in the SS attribute plmnIdList is the primary PLMN id	genericEUTRANNRMAttributeTypes::plmnIdListType
cellLocalId	cellLocalId	unsignedShort
eNBId	eNBId	unsignedLong

A.2.2.4 IOC EUtranCellFDD

Mapping from NRM IOC EUtranCellFDD attributes and associations to SS equivalent MOC EUtranCellFDD attributes

IS Attributes	SS Attributes	SS Type
earfcnDl	earfcnDl	short
earfcnUl	earfcnUl	short

A.2.2.5 IOC ExternalEUtranCellFDD

Mapping from NRM IOC ExternalEUtranCellFDD attributes and associations to SS equivalent MOC ExternalEUtranCellFDD attributes

IS Attributes	SS Attributes	SS Type
earfcnDl	earfcnDl	short
earfcnUl	earfcnUl	short