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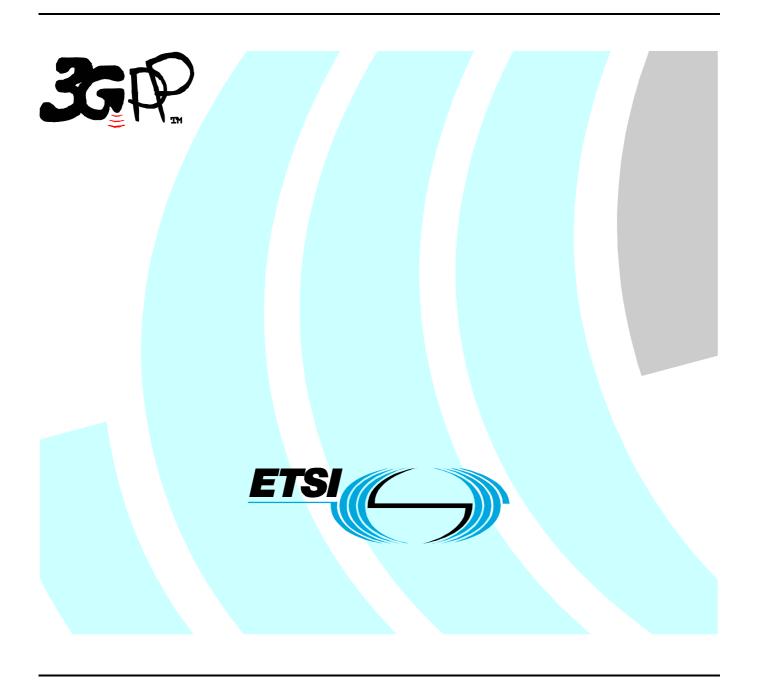*Technical Specification*

**Universal Mobile Telecommunications System (UMTS);
Telecommunication management;
Configuration Management (CM);
UTRAN network resources Integration Reference Point (IRP):
CORBA solution set
(3GPP TS 32.643 version 5.0.0 Release 5)**

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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
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Foreword

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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

Configuration Management (CM), in general, provides the operator with the ability to assure correct and effective operation of the 3G-network as it evolves. CM actions have the objective to control and monitor the actual configuration on the NEs and NRs, and they may be initiated by the operator or functions in the OSs or NEs.

CM actions may be requested as part of an implementation programme (e.g. additions and deletions), as part of an optimisation programme (e.g. modifications), and to maintain the overall Quality of Service (QoS). The CM actions are initiated either as a single action on a Network Element (NE) of the 3G-network or as part of a complex procedure involving actions on many NEs.

The Itf-N interface for Configuration Management is built up by a number of Integration Reference Points (IRPs) and a related Name Convention, which realise the functional capabilities over this interface. The basic structure of the IRPs is defined in 3GPP TS 32.101 [1] and 3GPP TS 32.102 [2].For CM, a number of IRPs (and the Name Convention) are defined herein, used by this as well as other technical specifications for telecom management produced by 3GPP.

1 Scope

The purpose of this UTRAN Network Resources IRP: CORBA Solution Set is to define the mapping of the IRP information model (see 3GPP TS 32.642 [4]) to the protocol specific details necessary for implementation of this IRP in a CORBA/IDL environment.

This Solution Set specification is related to 3GPP TS 32.642 V5.0.X.

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: "3G Telecom Management principles and high level requirements".

[2]   3GPP TS 32.102: "3G Telecom Management architecture".

[3]   3GPP TS 32.600: "Configuration Management (CM); Concept and main requirements".

[4]   3GPP TS 32.642: "Configuration Management (CM); UTRAN network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

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

[6]   OMG Notification Service, Version 1.0.

[7]   OMG CORBA services: Common Object Services Specification, Update: November 22, 1996.

[8]   The Common Object Request Broker: Architecture and Specification (for specification of valid version, see [1]).

[9]   3GPP TS 32.303: "Configuration Management (CM); Notification Integration Reference Point (IRP); CORBA solution set".

[10]   3GPP TS 32.111-3: "Fault Management (FM); Part 2: Alarm Integration Reference Point (IRP); CORBA solution set".

3 Definitions and abbreviations

3.1 Definitions

For terms and definitions please refer to 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], 3GPP TS 32.600 [3] and 3GPP TS 32.642 [4].

3.2 Abbreviations

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

CORBA	Common Object Request Broker Architecture
DN	Distinguished Name
IS	Information Service
IDL	Interface Definition Language (OMG)
IOC	Information Object Class
IRP	Integration Reference Point
MO	Managed Object
MOC	Managed Object Class
NRM	Network Resource Model
OMG	Object Management Group
SS	Solution Set

4 Architectural features

The overall architectural feature of UTRAN Network Resources IRP is specified in 3GPP TS 32.642 [4].
This clause specifies features that are specific to the CORBA SS.

4.1 Notifications

Notifications are sent according to the Notification IRP: CORBA SS (see 3GPP TS 32.303 [9]).

5 Mapping

5.1 General mappings

The IS parameter name managedObjectInstance is mapped into DN.

Attributes modelling associations as defined in the NRM (here also called "reference attributes") are in this SS mapped to attributes. The names of the reference attributes in the NRM are mapped to the corresponding attribute names in the MOC. When the cardinality for an association is 0..1 or 1..1 the datatype for the reference attribute is defined as an MOReference. The value of an MO reference contains the distinguished name of the associated MO. When the cardinality for an association allows more than one referred MO, the reference attribute will be of type MOReferenceSet, which contains a sequence of MO references.

If a reference attribute is changed, an AttributeValueChange notification is emitted.

5.2 UTRAN NRM Information Object Class (IOC) mapping

5.2.1 IOC RncFunction

Table 18: Mapping from NRM IOC RncFunction attributes to SS equivalent MOC RncFunction attributes

NRM Attributes of IOC RncFunction in 3GPP TS 32.642 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
rncFunctionId	rncFunctionId	string	M	M	-
userLabel	userLabel	string	M	M	M
mcc	mcc	long	M	M	M
mnc	mnc	long	M	M	M
rncId	rncId	long	M	M	M

5.2.2 IOC UtranCell

Table 19: Mapping from NRM IOC UtranCell attributes and associations to SS equivalent MOC UtranCell attributes

NRM Associations/Attributes of IOC UtranCell in 3GPP TS 32.642 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
utranCellId	utranCellId	string	M	M	_
userLabel	userLabel	string	M	M	M
cId	cId	long	M	M	M
localCellId	localCellId	long	M	M	M
uarfcnUl	uarfcnUl	long	M	M	M
uarfcnDl	uarfcnDl	long	M	M	M
primaryScramblingCode	primaryScramblingCode	long	M	M	M
primaryCpichPower	primaryCpichPower	long	M	M	M
maximumTransmissionPower	maximumTransmissionPower	long	M	M	M
primarySchPower	primarySchPower	long	M	M	M
secondarySchPower	secondarySchPower	long	M	M	M
bchPower	bchPower	long	M	M	M
lac	lac	long	M	M	M
rac	rac	long	M	M	M
sac	sac	long	M	M	M
ura	ura	long	M	M	M
AssociatedWith/ utranCell-IubLink	utranCellIubLink	GenericNRIRPSystem::AttributeTypes:: MOReference	M	M	-

5.2.3 IOC NodeBFunction

Table 20: Mapping from NRM IOC NodeBFunction attributes and associations to SS equivalent MOC NodeBFunction attributes

NRM Attributes of IOC NodeBFunction in 3GPP TS 32.642 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
nodeBFunctionId	nodeBFunctionId	string	M	M	-
userLabel	userLabel	string	M	M	M
ConnectedTo/ nodeBFunction-IubLink	nodeBFunctionIubLink	GenericNRIRPSystem::AttributeTypes::MOReference	M	M	-

5.2.4 IOC IubLink

Table 21: Mapping from NRM IOC IubLink attributes and associations to SS equivalent MOC IubLink attributes

NRM Attributes of IOC IubLink in 3GPP TS 32.642 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
iubLinkId	iubLinkId	string	M	M	-
userLabel	userLabel	string	M	M	M
AssociatedWith/ iubLink-UtranCell	iubLinkUtranCell	GenericNRIRPSystem:: AttributeTypes::MOReferenceSet	M	M	M
ConnectedTo/ iubLink-NodeBFunction	iubLinkNodeBFunction	GenericNRIRPSystem:: AttributeTypes::MOReference	M	M	-

5.2.5   IOC UtranRelation

Table 22: Mapping from NRM IOC UtranRelation attributes and associations to SS equivalent MOC UtranRelation attributes

NRM Attributes of IOC UtranRelation in 3GPP TS 32.642 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
utranRelationId	utranRelationId	string	M	M	-
relationType	relationType	string	M	M	M
adjacentCell	adjacentCell	string	M	M	M
uarfcnUl	uarfcnUl	long	O	M	-
uarfcnDl	uarfcnDl	long	O	M	-
primaryScramblingCode	primaryScramblingCode	long	O	M	-
primaryCpichPower	primaryCpichPower	long	O	M	-
lac	lac	long	O	M	-

5.2.6   IOC ExternalUtranCell

Table 23: Mapping from NRM IOC ExternalUtranCell attributes and associations to SS equivalent MOC ExternalUtranCell attributes

NRM Attributes of IOC ExternalUtranCell in 3GPP TS 32.642 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
externalUtranCellId	externalUtranCellId	string	M	M	-
userLabel	userLabel	string	M	M	M
cId	cId	long	M	M	M
mcc	mcc	long	M	M	M
mnc	mnc	long	M	M	M
RncId	rncId	long	M	M	M
UarfcnUl	uarfcnUl	long	M	M	M
UarfcnDl	uarfcnDl	long	M	M	M
primaryScramblingCode	primaryScramblingCode	long	M	M	M
primaryCpichPower	primaryCpichPower	long	M	M	M
Lac	lac	long	M	M	M
Rac	rac	long	M	M	M

6 Rules for management information model extensions

This clause discusses how the models and IDL definitions provided the present document can be extended for a particular implementation and still remain compliant with 3GPP SA5's specifications.

6.1 Allowed extensions

Vendor-specific IOCs may be supported. The vendor-specific IOCs may support new types of attributes. The 3GPP SA5-specified notifications may be issued referring to the vendor-specific IOCs and vendor-specific attributes. New IOCs shall be distinguishable from 3GPP SA5 IOCs by name. 3GPP SA5-specified and vendor-specific attributes may be used in vendor-specific IOCs. Vendor-specific attribute names shall be distinguishable from existing attribute names.

NRM IOCs may be subclassed. Subclassed IOCs shall maintain the specified behaviour of the 3GPP SA5's superior classes. They may add vendor-specific behaviour with vendor-specific attributes. When subclassing, naming attributes cannot be changed. The subclassed IOC shall support all attributes of its superior class. Vendor-specific attributes cannot be added to 3GPP SA5 NRM IOCs without subclassing.

When subclassing, the 3GPP SA5-specified containment rules and their specified cardinality shall still be followed. As an example, `ManagementNode` (or its subclasses) shall be contained under `SubNetwork` (or its subclasses). Also, in Rel-4, there may only be 0 or 1 `ManagementNode` (or its subclasses) contained under `SubNetwork` (or its subclasses).

Managed Object Instances may be instantiated as CORBA objects. This requires that the IOCs be represented in IDL. 3GPP SA5's NRM IOCs are not currently specified in IDL, but may be specified in IDL for instantiation or subclassing purposes. However, management information models should not require that IRPManagers access the instantiated managed objects other than through supported methods in the present document (3GPP TS 32.622-3).

Extension rules related to notifications (Notification categories, Event Types, Extended Event Types etc.) are for further study.

6.2 Extensions not allowed

The IDL specifications in the present document cannot be edited or altered. Any additional IDL specifications shall be specified in separate IDL files.

IDL interfaces (note: not IOCs) specified in the present document may not be subclassed or extended. New interfaces may be defined with vendor-specific methods.

Annex A (normative): CORBA IDL, NRM Definitions

```
#ifndef UtranNetworkResourcesNRMDefs_idl
#define UtranNetworkResourcesNRMDefs_idl

#pragma prefix "3gppsa5.org"

/**
 * This module defines constants for each MO class name and
 * the attribute names for each defined MO class.
 */
module UtranNetworkResourcesNRMDefs
{



      /**
       *  Definitions for MO class RncFunction
       */
      interface RncFunction
      {
         const string CLASS = "RncFunction";

         // Attribute Names
         //
         const string rncFunctionId = "rncFunctionId";
         const string userLabel = "userLabel";
         const string mcc= "mcc";
         const string mnc= "mnc";
         const string rncId= "rncId";
      };


      /**
       *  Definitions for MO class UtranCell
       */
      interface UtranCell
      {
         const string CLASS = "UtranCell";

         // Attribute Names
         //
         const string utranCellId = "utranCellId";
         const string userLabel = "userLabel";
         const string utranCellIubLink = "utranCellIubLink";
         const string cId= "cId";
         const string localCellId= "localCellId";
         const string uarfcnUl= "uarfcnUl";
         const string uarfcnDl= "uarfcnDl";
         const string primaryScramblingCode= "primaryScramblingCode";
         const string primaryCpichPower= "primaryCpichPower";
         const string maximumTransmissionPower= "maximumTransmissionPower";
         const string primarySchPower= "primarySchPower";
         const string secondarySchPower= "secondarySchPower";
         const string bchPower= "bchPower";
         const string lac= "lac";
         const string rac= "rac";
         const string sac= "sac";
```

```
        const string ura= "ura";

    };



    /**
     *  Definitions for MO class NodeBFunction
     */
    interface NodeBFunction
    {
        const string CLASS = "NodeBFunction";

        // Attribute Names
        //
        const string nodeBFunctionId = "nodeBFunctionId";
        const string userLabel = "userLabel";
        const string nodeBFunctionIubLink = "nodeBFunctionIubLink";
    };


    /**
     *  Definitions for MO class IubLink
     */
    interface IubLink
    {
        const string CLASS = "IubLink";

        // Attribute Names
        //
        const string iubLinkId = "iubLinkId";
        const string userLabel = "userLabel";
        const string iubLinkNodeBFunction = "iubLinkNodeBFunction";
        const string iubLinkUtranCell = "iubLinkUtranCell";

    };

};


    /**
     *  Definitions for MO class UtranRelation
     */
    interface UtranRelation
    {
        const string CLASS = "UtranRelation";

        // Attribute Names
        //
        const string utranRelationId = "utranRelationId";
        const string relationType = "relationType";
        const string adjacentCell = "adjacentCell";
        const string uarfcnUl= "uarfcnUl";
        const string uarfcnDl= "uarfcnDl";
        const string primaryScramblingCode= "primaryScramblingCode";
        const string primaryCpichPower= "primaryCpichPower";
        const string lac= "lac";
};


/**
     *  Definitions for MO class ExternalUtranCell
     */
```

```
interface ExternalUtranCell
{
    const string CLASS = "ExternalUtranCell";

    // Attribute Names
    //
    const string externalUtranCellId = "externalUtranCellId";
    const string userLabel = "userLabel";
    const string cId= "cId";
    const string mcc= "mcc";
    const string mnc= "mnc";
    const string rncId= "rncId";
    const string uarfcnUl= "uarfcnUl";
    const string uarfcnDl= "uarfcnDl";
    const string primaryScramblingCode= "primaryScramblingCode";
    const string primaryCpichPower= "primaryCpichPower";
    const string lac= "lac";
    const string rac= "rac";

};


#endif
```

Annex B (informative):
Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Jun 2001	S_12	SP-010283	--	--	Approved at TSG SA #12 and placed under Change Control	2.0.0	4.0.0
Dec 2001	S_14	SP-010646	001	--	Change type "integer" to "long" in the UTRAN Network Resources IRP: CORBA SS	4.0.0	4.1.0
Sep 2002	S_17	SP-020493	002	--	Upgrade to Rel-5	4.1.0	5.0.0

History

Document history		
V5.0.0	September 2002	Publication